

# **Appendix A**

## Fault levels from PSS/E

## Fault Levels with no Distributed Generation

### THREE PHASE FAULT

----- AT BUS -----		/I+/ AMPS	AN(I+)
1 [INF_BUS 132]	AMPS	4380.3	-83.71
2 [BUS_TX 132]	AMPS	2741.1	-52.68
3 [BUS_03 33.0]	AMPS	2854	-79.01
4 [BUS_TX 33.0]	AMPS	2346	-68.85
5 [BUS_05 11.0]	AMPS	4254.5	-72.23
6 [BUSLD_0611.0]	AMPS	3400.1	-60.33
7 [BUSLD_0711.0]	AMPS	2701.9	-52.83
8 [BUSLD_0811.0]	AMPS	2382.8	-49.69
9 [BUSLD_0911.0]	AMPS	2045.1	-46.55
10 [BUSLD_1011.0]	AMPS	1726.5	-43.73

# **Appendix C1**

## **Calculations for Iset**

## Calculations for Iset

These calculations were carried out using hand calculation.

### **Feeder 9**

$$I_s = I / (k * T / t + 1)$$

Now calculate Is.

$$= 2045.1 / ((0.14 * 0.225 / 0.55) + 1)$$
$$= 127.5 \text{ Amps.}$$

$$127.5 / 150 = 0.85$$

### **Feeder 8**

$$I_s = I / (k * T / t + 1)$$

Now calculate Is.

$$= 2382.8 / ((0.14 * 0.325 / 0.85) + 1)$$
$$= 175 \text{ Amps.}$$

$$175 / 200 = 0.87$$

### **Feeder 7**

$$I_s = I / (k * T / t + 1)$$

Now calculate Is.

$$= 2701.9 / ((0.14 * 0.375 / 1.1) + 1)$$
$$= 262.83 \text{ Amps.}$$

$$262.83 / 300 = 0.88$$

## Calculations for Iset

### **Feeder 6**

$$I_s = I / (k * T / t + 1)$$

Now calculate Is.

$$\begin{aligned} &= 3400.1 / ((0.14 * 0.425 / 1.345) + 1) \\ &= 394.9 \text{ Amps.} \end{aligned}$$

$$394.9 / 600 = 0.66$$

### **Feeder 5**

$$I_s = I / (k * T / t + 1)$$

Now calculate Is.

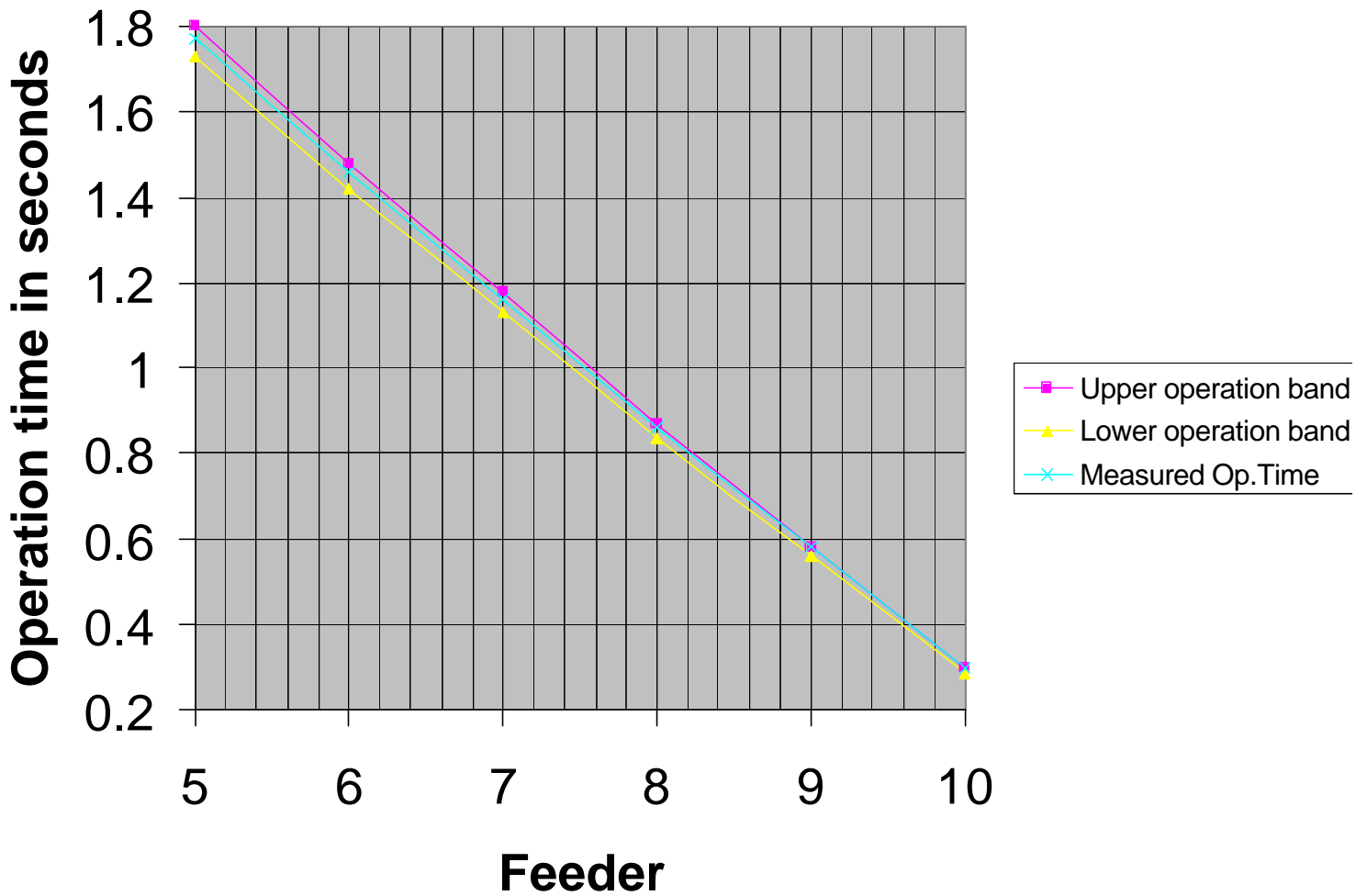
$$\begin{aligned} &= 4254.5 / ((0.14 * 0.55 / 1.51) + 1) \\ &= 371.2 \text{ Amps.} \end{aligned}$$

$$371.2 / 600 = 0.62$$

# **Appendix C2**

Operational error band of Micom Relay

	Calculated Microm time	TripError 2%	add -2%	contact operation	Measured Trip Times	
10	0.284152	0.289835	0.278469	0.296835	0.285469	0.298
9	0.563889	0.575167	0.552611	0.582167	0.559611	0.579
8	0.846744	0.863679	0.82981	0.870679	0.83681	0.859
7	1.146475	1.169405	1.123546	1.176405	1.130546	1.16
6	1.44156	1.470391	1.412729	1.477391	1.419729	1.456
5	1.756438	1.791567	1.721309	1.798567	1.728309	1.772



# Appendix B

## IDMT Settings





### Setup Parameters for relays

Note: These setup parameters are based on a 10 busbar radial network. With main supply from a 132kv generator at the top of the network. The loads are all based at 11kv. The overcurrent relays are placed to protect the main feeders on the radial network not the load feeders attached to busbar 6,7,8,9 and 10. The relays have been graded and setting worked out for the 11kv feeders only, as these are the feeders of interest.

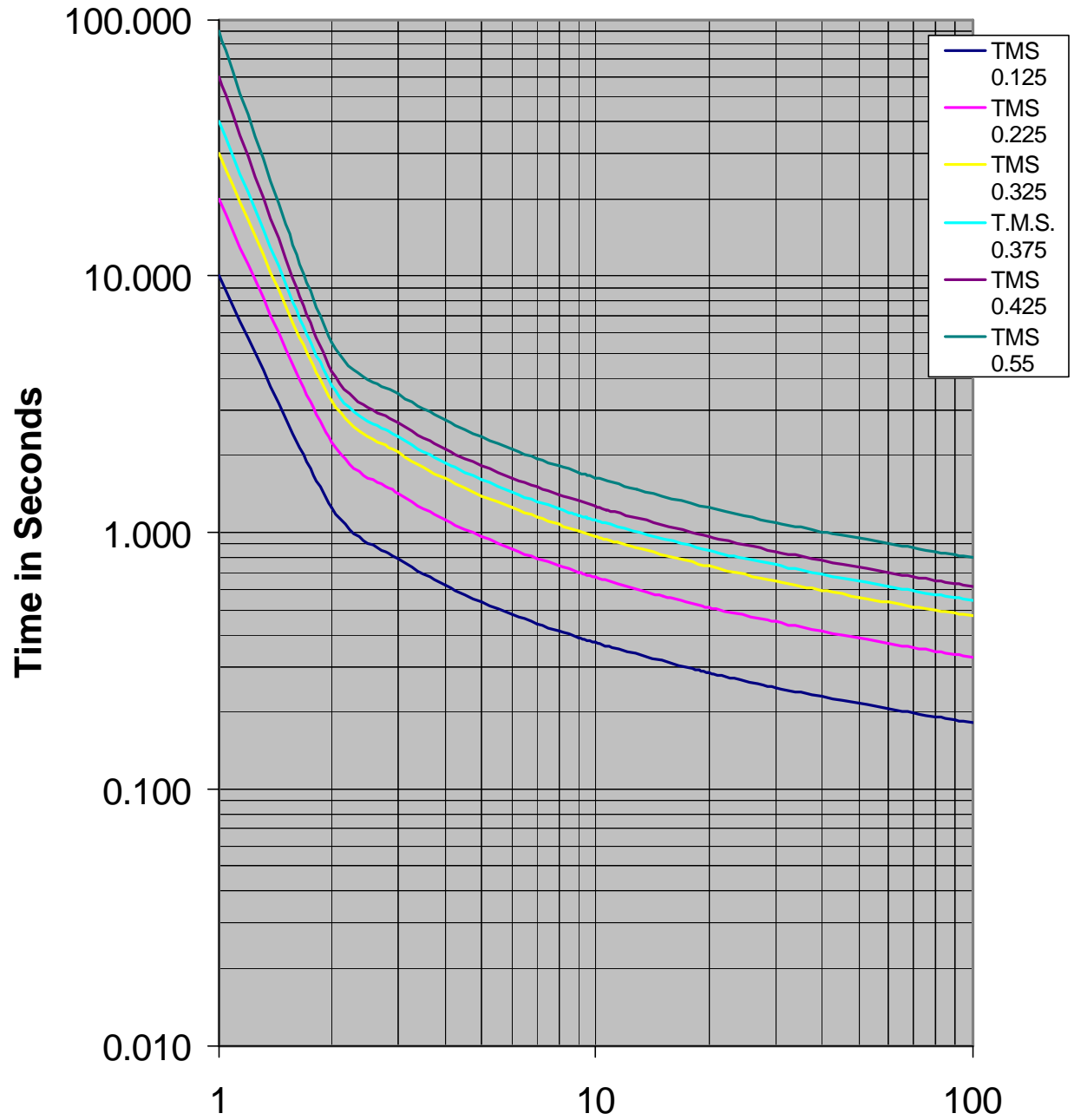
<b>Feeder</b>	10	9	8	7	6	5
load I/ phase	53	99	152	240	560	560
<b>CT size</b>	100/1	150/1	200/1	300/1	600/1	600/1
Fault I/phase	1727	2045.1	2382.8	2701.9	3400	4254.5
p.s	0.86	0.68	0.60	0.45	0.28	0.35
p.s.m	17.3	18.2	13.6	10.6	9.0	9.5
tchar	2.39	2.34	2.61	2.90	3.12	3.05
Treq	0.25	0.55				
t.m.	0.10	0.23				
			t.t. for lfc9	t.t. for lfc8	t.t. for lfc7	t.t. for lfc7
psm			18.18	15.89	12.01	11.33
tchar			2.34	2.46	2.75	2.81
Treq			0.85	1.10	1.34	1.51
t.m.			0.33	0.38	0.43	0.50

t.t. for lfc9 Trip time for a fault occurring at busbar 9

### Relay Settings

<b>In</b>	<b>100</b>	<b>150</b>	<b>200</b>	<b>300</b>	<b>600</b>	<b>600</b>
Iset Calculation	1.058628	1.05972	1.053641	1.04833	1.044939	1.045954
from calculator	19.92	15.2	11.47	9.4	10.64	12.9
<b>Iset (A)</b>	<b>87</b>	<b>135</b>	<b>208</b>	<b>287</b>	<b>320</b>	<b>330</b>
<b>T.M.</b>	<b>0.11</b>	<b>0.22</b>	<b>0.33</b>	<b>0.38</b>	<b>0.43</b>	<b>0.50</b>

Standard Inverse Curve for multiple Is



### GraphParameters

Bus10		Bus9		Bus 8		Bus7	
T.M.S.	<b>0.125</b>	T.M.S	<b>0.225</b>	tms	<b>0.33</b>	tms	<b>0.38</b>
Iset	<b>87</b>	Iset	<b>135</b>	Iset	<b>208</b>	Iset	<b>287</b>
Multiples of Iset	Trip time (s)	Multiples of Iset	Trip time (s)	Multiples of Iset	Trip time (s)	Multiples of Iset	Trip time (s)
Iset	TMS 0.125	Iset	TMS 0.225	Iset	TMS 0.325	Iset	T.M.S. 0.375
1	10.000	1	20.0000	1	30.000	1	40.000
2	1.254	2	2.2565	2	3.259	2	3.761
3	0.788	3	1.4179	3	2.048	3	2.363
4	0.622	4	1.1204	4	1.618	4	1.867
5	0.535	5	0.9629	5	1.391	5	1.605
6	0.480	6	0.8634	6	1.247	6	1.439
7	0.441	7	0.7937	7	1.147	7	1.323
8	0.412	8	0.7418	8	1.071	8	1.236
9	0.390	9	0.7012	9	1.013	9	1.169
10	0.371	10	0.6684	10	0.965	9.41	1.145
Bus 6	0.284	Bus 5	0.5640	11.44667	0.911	10	1.114
tms	<b>0.43</b>	tms	<b>0.55</b>	20	0.737	20	0.850
Iset	<b>320</b>	Iset	<b>330</b>	30	0.646	30	0.746
Multiples	Trip time (s)	Multiples	Trip time (s)	40	0.594	40	0.686
40	0.229	40	0.4114	50	0.559	50	0.645
Iset	0.215	Iset	0.3871	60	0.533	60	0.615
Iset	TMS 0.425	Iset	TMS 0.55	70	0.513	70	0.592
60	0.205	60	0.3691	80	0.497	80	0.573
70	0.197	70	0.3552	90	0.483	90	0.558
80	0.191	80	0.3439	100	0.472	100	0.544
90	0.1878	90	0.3345				
100	0.1816	100	0.3265				
5	1.819	5	2.354				
6	1.631	6	2.110				
7	1.499	7	1.940				
8	1.401	8	1.813				
9	1.324	9	1.714				
10	1.263	10	1.634				
10.66848	1.227	12.93	1.466				
20	0.964	20	1.247				
30	0.845	30	1.094				
40	0.777	40	1.006				
50	0.731	50	0.946				
60	0.697	60	0.902				
70	0.671	70	0.868				
80	0.650	80	0.841				
90	0.632	90	0.818				

# Appendix D

Loadflow with Distributed generation

# Appendix D1

Loadflow for Distributed Generation connected to Busbar 10

## 2 Wind Turbines Connected to Busbar 10 - Loadflow

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E  
RADIAL NETWORK

TUE, JUL 20 2004 11:46

```

<===== BUS DATA =====> <===== LINE DATA =====>
=====
FROM          AREA VOLT          GEN    LOAD    SHUNT    TO
TRANSFORMER   RATING
BUS          NAME    ZONE PU/KV  ANGLE  MW/MVAR  MW/MVAR  MW/MVAR  BUS    NAME    CKT  MW    MVAR  RATIO
ANGLE  AMPS  %I SET A
=====
=====
1 INF_BUS  132  1  1.000  0.0    7.0    0.0    0.0  -----
-----
1 132.0    11.0R   0.0    0.0    2 BUS_TX  132  1    7.0   11.0
57 16  350A
2 BUS_TX  132  1  0.991  0.4    0.0    0.0    0.0  -----
-----
1 130.8    0.0    0.0    0.0    1 INF_BUS  132  1   -6.8  -10.9
57 16  350A
3 BUS_03  33.0  1  0.991  -1.4   0.0    0.0    0.0  -----
-----
1 32.69    0.0    0.0    0.0    2 BUS_TX  132  1   -6.8  -10.2  0.950UN
57 22  60M
216 21  60M
4 BUS_TX  33.0  1  0.969  -0.8   0.0    0.0    0.0  -----
-----
1 31.98    0.0    0.0    0.0    3 BUS_03  33.0  1   -6.6  -10.0
216 25  875A

```

											5 BUS_05	11.0	1	6.6	10.0	0.950LK
216	31	40M														
			5 BUS_05	11.0	1	0.965	-2.2	0.0	0.0	0.0						
					1	10.61		0.0	0.0	0.0	4 BUS_TX	33.0	1	-6.4	-9.3	0.950UN
616	29	40M														
											6 BUSLD_0611.0	11.0	1	6.4	9.3	
616	29	2099A														
			6 BUSLD_0611.0	11.0	1	0.918	-0.3	0.0	5.5	0.0						
					1	10.10		0.0	2.3	0.0	5 BUS_05	11.0	1	-5.8	-9.0	
616	29	2099A														
											7 BUSLD_0711.0	11.0	1	0.3	6.7	
386	18	2099A														
			7 BUSLD_0711.0	11.0	1	0.903	1.6	0.0	1.5	0.0						
					1	9.929		0.0	0.6	0.0	6 BUSLD_0611.0	11.0	1	-0.1	-6.6	
386	18	2099A														
											8 BUSLD_0811.0	11.0	1	-1.4	6.0	
361	17	2099A														
			8 BUSLD_0811.0	11.0	1	0.899	2.9	0.0	0.9	0.0						
					1	9.891		0.0	0.3	0.0	7 BUSLD_0711.0	11.0	1	1.5	-6.0	
361	17	2099A														
											9 BUSLD_0911.0	11.0	1	-2.4	5.7	
361	17	2099A														
			9 BUSLD_0911.0	11.0	1	0.899	4.5	0.0	0.8	0.0						
					1	9.891		0.0	0.2	0.0	8 BUSLD_0811.0	11.0	1	2.6	-5.6	
361	17	2099A														
											10 BUSLD_1011.0	11.0	1	-3.4	5.4	
373	18	2099A														
			10 BUSLD_1011.0	11.0	1	0.905	6.6	0.0	0.9	0.0						
					1	9.951		0.0	0.3	0.0	9 BUSLD_0911.0	11.0	1	3.6	-5.3	
373	18	2099A														
											102 TXBUS	11.0	1	-4.5	5.0	
391	19	2099A														



101 WNDFRM	.690	1	1.000	8.6	4.6	0.0	0.0	-----
-----								
5549 13 50M		1	0.690		-4.8R	0.0	0.0	102 TXBUS 11.0 1 4.6 -4.8 0.889UN
102 TXBUS	11.0	1	0.907	7.1	0.0	0.0	0.0	-----
-----								
391 19 2099A		1	9.976		0.0	0.0	0.0	10 BUSLD_1011.0 1 4.6 -5.0
391 15 50M								101 WNDFRM .690 1 -4.6 5.0 0.889LK

### 3 Wind Turbines Connected to Busbar 10 - Loadflow

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E  
 RADIAL NETWORK

WED, JUL 21 2004 11:58

<===== BUS DATA =====>										<===== LINE DATA =====>				
FROM	AREA	VOLT	GEN	LOAD	SHUNT	TO								
TRANSFORMER	RATING													
BUS	NAME	ZONE	PU/KV	ANGLE	MW/MVAR	MW/MVAR	MW/MVAR	BUS	NAME	CKT	MW	MVAR	RATIO	
ANGLE	AMPS	%I	SET	A										
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	
1	INF_BUS	132	1	1.000	0.0	8.3	0.0	0.0	-----					
-----		1	132.0			14.3R	0.0	0.0	2	BUS_TX	132	1	8.3	14.3
72	21	350A												
2	BUS_TX	132	1	0.989	0.6	0.0	0.0	0.0	-----					
-----		1	130.5			0.0	0.0	0.0	1	INF_BUS	132	1	-8.0	-14.2
72	21	350A												
3	BUS_03	33.0	1	1.009	-1.5	0.0	0.0	0.0	-----					
-----		1	33.28			0.0	0.0	0.0	2	BUS_TX	132	1	-8.0	-13.1
266	25	60M												
4	BUS_TX	33.0	1	0.983	-0.7	0.0	0.0	0.0	-----					
-----		1	32.42			0.0	0.0	0.0	3	BUS_03	33.0	1	-7.6	-12.8
266	30	875A												

											5 BUS_05	11.0	1	7.6	12.8	0.950RG
266	38	40M														
			5 BUS_05	11.0	1	0.965	-2.2	0.0	0.0	0.0						
					1	10.62		0.0	0.0	0.0	4 BUS_TX	33.0	1	-7.4	-11.8	0.950UN
758	36	40M														
											6 BUSLD_0611.0	11.0	1	7.4	11.8	
758	36	2099A														
			6 BUSLD_0611.0	11.0	1	0.909	0.3	0.0	5.5	0.0						
					1	10.00		0.0	2.3	0.0	5 BUS_05	11.0	1	-6.5	-11.4	
758	36	2099A														
											7 BUSLD_0711.0	11.0	1	1.0	9.1	
529	25	2099A														
			7 BUSLD_0711.0	11.0	1	0.886	2.9	0.0	1.5	0.0						
					1	9.746		0.0	0.6	0.0	6 BUSLD_0611.0	11.0	1	-0.6	-8.9	
529	25	2099A														
											8 BUSLD_0811.0	11.0	1	-0.9	8.3	
495	24	2099A														
			8 BUSLD_0811.0	11.0	1	0.878	4.6	0.0	0.9	0.0						
					1	9.662		0.0	0.3	0.0	7 BUSLD_0711.0	11.0	1	1.2	-8.2	
495	24	2099A														
											9 BUSLD_0911.0	11.0	1	-2.1	7.9	
488	23	2099A														
			9 BUSLD_0911.0	11.0	1	0.873	6.9	0.0	0.8	0.0						
					1	9.608		0.0	0.2	0.0	8 BUSLD_0811.0	11.0	1	2.4	-7.8	
488	23	2099A														
											10 BUSLD_1011.0	11.0	1	-3.2	7.6	
493	23	2099A														
			10 BUSLD_1011.0	11.0	1	0.874	9.8	0.0	0.9	0.0						
					1	9.611		0.0	0.3	0.0	9 BUSLD_0911.0	11.0	1	3.6	-7.4	
493	23	2099A														
											102 TXBUS	11.0	1	-4.5	7.1	
503	24	2099A														

101 WNDFRM	.690	1	1.000	12.1	4.6	0.0	0.0	-----
-----								
		1	0.690		-6.7R	0.0	0.0	102 TXBUS 11.0 1 4.6 -6.7 0.850UN
6822 16 50M								
102 TXBUS	11.0	1	0.875	10.4	0.0	0.0	0.0	-----
-----								
		1	9.626		0.0	0.0	0.0	10 BUSLD_1011.0 1 4.5 -7.1
503 24 2099A								
								101 WNDFRM .690 1 -4.5 7.1 0.850LO
503 19 50M								

## 5 Wind Turbines Connected to Busbar 10 - Loadflow

<===== BUS DATA =====>										<===== LINE DATA =====>				
=====														
FROM	AREA	VOLT	GEN	LOAD	SHUNT	TO								
TRANSFORMER		RATING												
BUS	NAME	ZONE	PU/KV	ANGLE	MW/MVAR	MW/MVAR	MW/MVAR	BUS	NAME	CKT	MW	MVAR	RATIO	
ANGLE	AMPS	%I	SET A											
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	
1	INF_BUS	132	1	1.000	0.0	6.5	0.0	0.0	-----					
-----														
104	30	350A	1	132.0		22.8R	0.0	0.0	2	BUS_TX	132	1	6.5	22.8
2	BUS_TX	132	1	0.988	1.0	0.0	0.0	0.0	-----					
-----														
104	30	350A	1	130.4		0.0	0.0	0.0	1	INF_BUS	132	1	-6.0	-22.7
104	40	60M	3	BUS_03	33.0	1	1.008	-0.4	0.0	0.0	0.0	-----		
-----														
370	35	60M	1	33.26		0.0	0.0	0.0	2	BUS_TX	132	1	-6.0	-20.4
370	42	875A	4	BUS_TX	33.0	1	0.978	1.2	0.0	0.0	0.0	-----		
-----														
370	42	875A	1	32.27		0.0	0.0	0.0	3	BUS_03	33.0	1	-5.3	-20.0
370	53	40M	5	BUS_05	11.0	1	0.927	0.8	0.0	0.0	0.0	-----		
-----														
-----														

1053	50	40M	1	10.20		0.0	0.0	0.0	0.0	4 BUS_TX	33.0	1	-4.9	-18.0	0.950UN
										6 BUSLD_0611.0	1	1	4.9	18.0	
1053	50	2099A								-----					
			1	0.870	5.7	0.0	5.5	0.0							
										-----					
			1	9.575		0.0	2.3	0.0		5 BUS_05	11.0	1	-3.1	-17.2	
1053	50	2099A								7 BUSLD_0711.0	1	1	-2.4	14.9	
909	43	2099A								-----					
			1	0.853	11.0	0.0	1.5	0.0							
										-----					
			1	9.387		0.0	0.6	0.0		6 BUSLD_0611.0	1	1	3.7	-14.3	
909	43	2099A								8 BUSLD_0811.0	1	1	-5.2	13.7	
902	43	2099A								-----					
			1	0.852	14.3	0.0	0.9	0.0							
										-----					
			1	9.374		0.0	0.3	0.0		7 BUSLD_0711.0	1	1	6.0	-13.4	
902	43	2099A								9 BUSLD_0911.0	1	1	-6.9	13.1	
910	43	2099A								-----					
			1	0.859	18.7	0.0	0.8	0.0							
										-----					
			1	9.451		0.0	0.2	0.0		8 BUSLD_0811.0	1	1	7.9	-12.6	
910	43	2099A								10 BUSLD_1011.0	1	1	-8.7	12.4	
927	44	2099A								-----					
			1	0.879	24.1	0.0	0.9	0.0							
										-----					
			1	9.674		0.0	0.3	0.0		9 BUSLD_0911.0	1	1	10.1	-11.8	
927	44	2099A								102 TXBUS	11.0	1	-11.0	11.5	
949	45	2099A								-----					
			1	1.000	28.9	11.5	0.0	0.0							
										-----					
			1	0.690		-10.2R	0.0	0.0		102 TXBUS	11.0	1	11.5	-10.2	0.850UN
12866	31	50M													

102	TXBUS	11.0	1	0.885	25.2	0.0	0.0	0.0	-----
-----			1	9.740		0.0	0.0	0.0	10 BUSLD_1011.0 1 11.3 -11.4
949	45	2099A							
949	36	50M							101 WNDFRM .690 1 -11.3 11.4 0.850LO

# **Appendix D2**

Loadflow for Distributed Generation connected to Busbar 9



**LOADFLOW FOR 1 TURBINE CONNECTED TO BUSBAR 9**

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E  
RADIAL NETWORK

THU, AUG 05 2004 12:37

<===== BUS DATA =====>											<===== LINE DATA =====>					
>=====																
FROM	AREA	VOLT	GEN	LOAD	SHUNT	TO										
TRANSFORMER		RATING														
BUS	NAME	ZONE	PU/KV	ANGLE	MW/MVAR	MW/MVAR	MW/MVAR	BUS	NAME	CKT	MW	MVAR	RATIO			
ANGLE	AMPS	%I	SET A													
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	
1	INF_BUS	132	1	1.000	0.0	8.4	0.0	0.0	-----							
-----																
			1	132.0		16.0R	0.0	0.0	2	BUS_TX	132	1	8.4	16.0		
79	23	350A														
			1	0.988	0.7	0.0	0.0	0.0	-----							
-----																
			1	130.4		0.0	0.0	0.0	1	INF_BUS	132	1	-8.2	-15.9		
79	23	350A														
									3	BUS_03	33.0	1	8.2	15.9	0.900RG	
79	30	60M														
			1	1.026	-1.3	0.0	0.0	0.0	-----							
-----																
			1	33.85		0.0	0.0	0.0	2	BUS_TX	132	1	-8.1	-14.5	0.900UN	
284	27	60M														
									4	BUS_TX	33.0	1	8.1	14.5		
284	32	875A														
			1	0.999	-0.5	0.0	0.0	0.0	-----							
-----																
			1	32.95		0.0	0.0	0.0	3	BUS_03	33.0	1	-7.7	-14.3		
284	32	875A														

											5 BUS_05	11.0	1	7.7	14.3	0.950RG
284	41	40M														
			5 BUS_05	11.0	1	0.976	-1.8	0.0	0.0	0.0						
					1	10.74		0.0	0.0	0.0	4 BUS_TX	33.0	1	-7.5	-13.1	0.950UN
810	39	40M														
											6 BUSLD_0611.0	11.0	1	7.5	13.1	
810	39	2099A														
			6 BUSLD_0611.0	11.0	1	0.918	0.9	0.0	5.5	0.0						
					1	10.10		0.0	2.3	0.0	5 BUS_05	11.0	1	-6.4	-12.6	
810	39	2099A														
											7 BUSLD_0711.0	11.0	1	0.9	10.3	
592	28	2099A														
			7 BUSLD_0711.0	11.0	1	0.893	3.9	0.0	1.5	0.0						
					1	9.828		0.0	0.6	0.0	6 BUSLD_0611.0	11.0	1	-0.4	-10.1	
592	28	2099A														
											8 BUSLD_0811.0	11.0	1	-1.1	9.5	
561	27	2099A														
			8 BUSLD_0811.0	11.0	1	0.885	5.8	0.0	0.9	0.0						
					1	9.735		0.0	0.3	0.0	7 BUSLD_0711.0	11.0	1	1.4	-9.3	
561	27	2099A														
											9 BUSLD_0911.0	11.0	1	-2.3	9.0	
554	26	2099A														
			9 BUSLD_0911.0	11.0	1	0.879	8.4	0.0	0.8	0.0						
					1	9.673		0.0	0.2	0.0	8 BUSLD_0811.0	11.0	1	2.7	-8.9	
554	26	2099A														
											10 BUSLD_1011.0	11.0	1	0.9	0.3	
57	3	2099A														
											102 TXBUS	11.0	1	-4.4	8.4	
565	27	2099A														
			10 BUSLD_1011.0	11.0	1	0.874	8.3	0.0	0.9	0.0						
					1	9.616		0.0	0.3	0.0	9 BUSLD_0911.0	11.0	1	-0.9	-0.3	
57	3	2099A														

101 WNDFRM	.690	1	1.000	10.7	2.3	0.0	0.0	-----					
		1	0.690		1.2R	0.0	0.0		102 TXBUS	11.0	1	4.6	-7.9 0.850UN
7656 18 50M													
									M I S M A T C H			-2.3	9.1
								-----					
		1	0.880	9.0	0.0	0.0	0.0						
		1	9.681		0.0	0.0	0.0		9 BUSLD_0911.0	11.0	1	4.5	-8.3
565 27 2099A													
									101 WNDFRM	.690	1	-4.5	8.3 0.850LO
565 22 50M													

**LOADFLOW FOR 2 TURBINES CONNECTED TO BUSBAR 9**

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E  
 RADIAL NETWORK

THU, AUG 05 2004 10:37

<===== BUS DATA =====>										<===== LINE DATA =====>				
=====														
FROM	AREA	VOLT	GEN	LOAD	SHUNT	TO								
TRANSFORMER	RATING													
BUS	NAME	ZONE	PU/KV	ANGLE	MW/MVAR	MW/MVAR	MW/MVAR	BUS	NAME	CKT	MW	MVAR	RATIO	
ANGLE	AMPS	%I	SET A											
=====														
1	INF_BUS	132	1	1.000	0.0	9.5	0.0	0.0	-----					
-----														
			1	132.0		16.1R	0.0	0.0	2	BUS_TX	132	1	9.5	16.1
82	23	350A												
2	BUS_TX	132	1	0.987	0.6	0.0	0.0	0.0	-----					
-----														
			1	130.3		0.0	0.0	0.0	1	INF_BUS	132	1	-9.2	-16.0
82	23	350A												
									3	BUS_03	33.0	1	9.2	16.0
82	31	60M												
	3	BUS_03	33.0	1	1.011	-1.7	0.0	0.0	0.0	-----				
-----														
			1	33.36		0.0	0.0	0.0	2	BUS_TX	132	1	-9.2	-14.6
299	28	60M												
									4	BUS_TX	33.0	1	9.2	14.6
299	34	875A												
	4	BUS_TX	33.0	1	0.982	-0.9	0.0	0.0	0.0	-----				
-----														
			1	32.39		0.0	0.0	0.0	3	BUS_03	33.0	1	-8.7	-14.3
299	34	875A												

											5 BUS_05	11.0	1	8.7	14.3	0.950RG
299	43	40M														
			5 BUS_05	11.0	1	0.956	-2.6	0.0	0.0	0.0						
					1	10.52		0.0	0.0	0.0	4 BUS_TX	33.0	1	-8.5	-13.0	0.950UN
851	41	40M														
											6 BUSLD_06	11.0	1	8.5	13.0	
851	41	2099A	6 BUSLD_06	11.0	1	0.892	0.1	0.0	5.5	0.0						
					1	9.816		0.0	2.3	0.0	5 BUS_05	11.0	1	-7.3	-12.5	
851	41	2099A														
											7 BUSLD_07	11.0	1	1.8	10.2	
608	29	2099A	7 BUSLD_07	11.0	1	0.863	3.2	0.0	1.5	0.0						
					1	9.491		0.0	0.6	0.0	6 BUSLD_06	11.0	1	-1.3	-9.9	
608	29	2099A														
											8 BUSLD_08	11.0	1	-0.2	9.3	
566	27	2099A	8 BUSLD_08	11.0	1	0.852	5.1	0.0	0.9	0.0						
					1	9.367		0.0	0.3	0.0	7 BUSLD_07	11.0	1	0.5	-9.2	
566	27	2099A														
											9 BUSLD_09	11.0	1	-1.4	8.9	
554	26	2099A	9 BUSLD_09	11.0	1	0.842	7.7	0.0	0.8	0.0						
					1	9.266		0.0	0.2	0.0	8 BUSLD_08	11.0	1	1.8	-8.7	
554	26	2099A														
											10 BUSLD_10	11.0	1	0.9	0.3	
59	3	2099A														
											102 TXBUS	11.0	1	-3.5	8.2	
557	27	2099A	10 BUSLD_10	11.0	1	0.837	7.7	0.0	0.9	0.0						
					1	9.207		0.0	0.3	0.0	9 BUSLD_09	11.0	1	-0.9	-0.3	
59	3	2099A														

101 WNDFRM	.690	1	1.000	15.1	4.6	0.0	0.0	-----						
		1	0.690		-7.8R	0.0	0.0		102 TXBUS	11.0	1	4.6	-7.8	0.850UN
7542	18	50M												
102 TXBUS	11.0	1	0.879	13.3	0.0	0.0	0.0	-----						
		1	9.674		0.0	0.0	0.0		9 BUSLD_09	11.0	1	4.5	-8.2	
557	27	2099A												
									101 WNDFRM	.690	1	-4.5	8.2	0.850LO
557	21	50M												

**LOADFLOW FOR 3 TURBINES CONNECTED TO BUSBAR 9**

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E  
 RADIAL NETWORK

THU, AUG 05 2004 11:31

<===== BUS DATA =====>										<===== LINE DATA =====>					
=====															
FROM	AREA	VOLT	GEN	LOAD	SHUNT	TO									
TRANSFORMER		RATING				BUS	NAME	CKT	MW	MVAR	RATIO				
BUS	NAME	ZONE	PU/KV	ANGLE	MW/MVAR	MW/MVAR	MW/MVAR	BUS	NAME	CKT	MW	MVAR	RATIO		
ANGLE	AMPS	%I	SET A												
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====		
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====		
1	INF_BUS	132	1	1.000	0.0	7.3	0.0	0.0	-----						
-----															
88	25	350A							2	BUS_TX	132	1	7.3	18.7	
			1	132.0		18.7R	0.0	0.0							
-----															
88	25	350A							1	INF_BUS	132	1	-7.0	-18.6	
			1	130.5	0.8	0.0	0.0	0.0							
-----															
88	34	60M							3	BUS_03	33.0	1	7.0	18.6	0.890RG
			1	1.027	-0.8	0.0	0.0	0.0							
-----															
313	30	60M							2	BUS_TX	132	1	-7.0	-17.0	0.890UN
			1	33.88		0.0	0.0	0.0							
-----															
313	36	875A							4	BUS_TX	33.0	1	7.0	17.0	
			1	0.999	0.3	0.0	0.0	0.0							
-----															
313	36	875A							3	BUS_03	33.0	1	-6.4	-16.7	
			1	32.96		0.0	0.0	0.0							

											5 BUS_05	11.0	1	6.4	16.7	0.950RG
313	45	40M														
			5 BUS_05	11.0	1	0.966	-0.6	0.0	0.0	0.0						
					1	10.63		0.0	0.0	0.0	4 BUS_TX	33.0	1	-6.1	-15.2	0.950UN
893	43	40M														
											6 BUSLD_0611.0	11.0	1	6.1	15.2	
893	43	2099A														
			6 BUSLD_0611.0	11.0	1	0.910	3.0	0.0	5.5	0.0						
					1	10.01		0.0	2.3	0.0	5 BUS_05	11.0	1	-4.9	-14.7	
893	43	2099A														
											7 BUSLD_0711.0	11.0	1	-0.6	12.4	
715	34	2099A														
			7 BUSLD_0711.0	11.0	1	0.889	6.9	0.0	1.5	0.0						
					1	9.777		0.0	0.6	0.0	6 BUSLD_0611.0	11.0	1	1.4	-12.0	
715	34	2099A														
											8 BUSLD_0811.0	11.0	1	-2.9	11.4	
697	33	2099A														
			8 BUSLD_0811.0	11.0	1	0.883	9.3	0.0	0.9	0.0						
					1	9.717		0.0	0.3	0.0	7 BUSLD_0711.0	11.0	1	3.4	-11.2	
697	33	2099A														
											9 BUSLD_0911.0	11.0	1	-4.3	10.9	
697	33	2099A														
			9 BUSLD_0911.0	11.0	1	0.883	12.6	0.0	0.8	0.0						
					1	9.710		0.0	0.2	0.0	8 BUSLD_0811.0	11.0	1	4.9	-10.7	
697	33	2099A														
											10 BUSLD_1011.0	11.0	1	0.9	0.3	
57	3	2099A														
											102 TXBUS	11.0	1	-6.6	10.2	
720	34	2099A														
			10 BUSLD_1011.0	11.0	1	0.878	12.5	0.0	0.9	0.0						
					1	9.653		0.0	0.3	0.0	9 BUSLD_0911.0	11.0	1	-0.9	-0.3	
57	3	2099A														



101 WNDFRM	.690	1	1.000	15.8	6.9	0.0	0.0	-----
-----		1	0.690		-9.4R	0.0	0.0	
9757 23 50M								102 TXBUS 11.0 1 6.9 -9.4 0.850UN
102 TXBUS	11.0	1	0.885	13.4	0.0	0.0	0.0	-----
-----		1	9.734		0.0	0.0	0.0	
720 34 2099A								9 BUSLD_0911.0 1 6.8 -10.1
720 27 50M								101 WNDFRM .690 1 -6.8 10.1 0.850LO

**LOADFLOW FOR 5 TURBINES CONNECTED TO BUSBAR 9**

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E  
 RADIAL NETWORK

THU, AUG 05 2004 11:28

<===== BUS DATA =====>										<===== LINE DATA =====>				
=====										=====				
FROM	AREA	VOLT	GEN	LOAD	SHUNT	TO								
TRANSFORMER		RATING				BUS	NAME	CKT	MW	MVAR	RATIO			
BUS	NAME	ZONE	PU/KV	ANGLE	MW/MVAR	MW/MVAR	MW/MVAR	BUS	NAME	CKT	MW	MVAR	RATIO	
ANGLE	AMPS	%I	SET A											
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	
1	INF_BUS	132	1	1.000	0.0	5.3	0.0	0.0	-----					
-----			1	132.0		22.9R	0.0	0.0	2	BUS_TX	132	1	5.3 22.9	
103	29	350A												
2	BUS_TX	132	1	0.989	1.1	0.0	0.0	0.0	-----					
-----			1	130.6		0.0	0.0	0.0	1	INF_BUS	132	1	-4.8 -22.8	
103	29	350A												
									3	BUS_03	33.0	1	4.8 22.8 0.890RG	
103	39	60M												
3	BUS_03	33.0	1	1.009	-0.1	0.0	0.0	0.0	-----					
-----			1	33.29		0.0	0.0	0.0	2	BUS_TX	132	1	-4.7 -20.6 0.890UN	
366	35	60M												
									4	BUS_TX	33.0	1	4.7 20.6	
366	42	875A							-----					
4	BUS_TX	33.0	1	0.981	1.6	0.0	0.0	0.0	-----					
-----			1	32.36		0.0	0.0	0.0	3	BUS_03	33.0	1	-4.0 -20.1	
366	42	875A												

											5 BUS_05	11.0	1	4.0	20.1	0.950RG
366	52	40M														
			5 BUS_05	11.0	1	0.931	1.6	0.0	0.0	0.0						
					1	10.24		0.0	0.0	0.0	4 BUS_TX	33.0	1	-3.6	-18.1	0.950UN
1043	50	40M														
											6 BUSLD_0611.0	11.0	1	3.6	18.1	
1043	50	2099A														
			6 BUSLD_0611.0	11.0	1	0.880	6.6	0.0	5.5	0.0						
					1	9.679		0.0	2.3	0.0	5 BUS_05	11.0	1	-1.9	-17.4	
1043	50	2099A														
											7 BUSLD_0711.0	11.0	1	-3.6	15.1	
925	44	2099A														
			7 BUSLD_0711.0	11.0	1	0.869	12.1	0.0	1.5	0.0						
					1	9.554		0.0	0.6	0.0	6 BUSLD_0611.0	11.0	1	4.9	-14.5	
925	44	2099A														
											8 BUSLD_0811.0	11.0	1	-6.4	13.9	
925	44	2099A														
			8 BUSLD_0811.0	11.0	1	0.871	15.4	0.0	0.9	0.0						
					1	9.580		0.0	0.3	0.0	7 BUSLD_0711.0	11.0	1	7.2	-13.5	
925	44	2099A														
											9 BUSLD_0911.0	11.0	1	-8.1	13.2	
936	45	2099A														
			9 BUSLD_0911.0	11.0	1	0.883	19.7	0.0	0.8	0.0						
					1	9.709		0.0	0.2	0.0	8 BUSLD_0811.0	11.0	1	9.2	-12.7	
936	45	2099A														
											10 BUSLD_1011.0	11.0	1	0.9	0.3	
57	3	2099A														
											102 TXBUS	11.0	1	-10.9	12.2	
977	47	2099A														
			10 BUSLD_1011.0	11.0	1	0.878	19.7	0.0	0.9	0.0						
					1	9.653		0.0	0.3	0.0	9 BUSLD_0911.0	11.0	1	-0.9	-0.3	
57	3	2099A														

101	WDFRM	.690	1	1.000	24.6	11.5	0.0	0.0	-----
-----									
			1	0.690		-10.9R	0.0	0.0	102 TXBUS 11.0 1 11.5 -10.9 0.850UN
13233	32	50M							
102	TXBUS	11.0	1	0.888	20.8	0.0	0.0	0.0	-----
-----									
			1	9.771		0.0	0.0	0.0	9 BUSLD_0911.0 1 11.2 -12.1
977	47	2099A							
									101 WDFRM .690 1 -11.2 12.1 0.850LO
977	37	50M							

# Appendix D3

Loadflow for Distributed Generation connected to Busbar 8

# 1 Wind Turbines Connected to Busbar 8 - Loadflow

CASE SAVED IN FILE A:\psse modelling files\mov to 8\radial2genmv8.sav ON THU, AUG 05 2004 10:51

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, AUG 05 2004 10:52  
 RADIAL NETWORK

<===== BUS DATA =====>										<===== LINE DATA =====>					
=====															
FROM	AREA	VOLT	GEN	LOAD	SHUNT	TO									
TRANSFORMER	RATING														
BUS	NAME	ZONE	PU/KV	ANGLE	MW/MVAR	MW/MVAR	MW/MVAR	BUS	NAME	CKT	MW	MVAR	RATIO		
ANGLE	AMPS	%I	SET	A											
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====		
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====		
1	INF_BUS	132	1	1.000	0.0	9.9	0.0	0.0	-----						
-----															
			1	132.0		13.9R	0.0	0.0	2	BUS_TX	132	1	9.9	13.9	
74	21	350A													
			1	0.988	0.5	0.0	0.0	0.0	-----						
-----															
			1	130.4		0.0	0.0	0.0	1	INF_BUS	132	1	-9.6	-13.8	
74	21	350A													
									3	BUS_03	33.0	1	9.6	13.8	0.910RG
74	28	60M													
			1	1.022	-1.9	0.0	0.0	0.0	-----						
-----															
			1	33.72		0.0	0.0	0.0	2	BUS_TX	132	1	-9.6	-12.6	0.910UN
271	26	60M													
									4	BUS_TX	33.0	1	9.6	12.6	
271	31	875A													
			1	0.994	-1.3	0.0	0.0	0.0	-----						
-----															

271	31	875A	1	32.81	0.0	0.0	0.0	3 BUS_03	33.0	1	-9.2	-12.3	
								5 BUS_05	11.0	1	9.2	12.3 0.950RG	
271	39	40M						-----					
	5	BUS_05	11.0	1	0.979	-3.2	0.0	0.0	0.0				
				1	10.77		0.0	0.0	0.0	4 BUS_TX	33.0	1	-9.0 -11.3 0.950UN
772	37	40M								6 BUSLD_06	11.0	1	9.0 11.3
772	37	2099A						-----					
	6	BUSLD_06	11.0	1	0.918	-1.1	0.0	5.5	0.0				
				1	10.10		0.0	2.3	0.0	5 BUS_05	11.0	1	-8.0 -10.8
772	37	2099A								7 BUSLD_07	11.0	1	2.5 8.5
510	24	2099A						-----					
	7	BUSLD_07	11.0	1	0.889	1.1	0.0	1.5	0.0				
				1	9.775		0.0	0.6	0.0	6 BUSLD_06	11.0	1	-2.1 -8.4
510	24	2099A								8 BUSLD_08	11.0	1	0.6 7.8
460	22	2099A						-----					
	8	BUSLD_08	11.0	1	0.877	2.6	0.0	0.9	0.0				
				1	9.647		0.0	0.3	0.0	7 BUSLD_07	11.0	1	-0.4 -7.7
460	22	2099A								9 BUSLD_09	11.0	1	1.7 0.5
107	5	2099A								102 TXBUS	11.0	1	-2.2 6.9
431	21	2099A						-----					
	9	BUSLD_09	11.0	1	0.869	2.5	0.0	0.8	0.0				
				1	9.562		0.0	0.2	0.0	8 BUSLD_08	11.0	1	-1.7 -0.5
107	5	2099A								10 BUSLD_10	11.0	1	0.9 0.3
58	3	2099A						-----					
	10	BUSLD_10	11.0	1	0.864	2.5	0.0	0.9	0.0				

58	3	2099A		1	9.505		0.0	0.3	0.0	9	BUSLD_0911.0	1	-0.9	-0.3	
		101 WNDFRM	.690	1	1.000	4.1	2.3	0.0	0.0	-----					
		-----			1	0.690		-6.6R	0.0	0.0	102	TXBUS	11.0	1	2.3 -6.6 0.850UN
5844	14	50M													
		102 TXBUS	11.0	1	0.876	3.1	0.0	0.0	0.0	-----					
		-----			1	9.638		0.0	0.0	0.0	8	BUSLD_0811.0	1	2.3 -6.8	
431	21	2099A													
											101	WNDFRM	.690	1	-2.3 6.8 0.850LO
431	16	50M													



## 2 Wind Turbines Connected to Busbar 8 - Loadflow

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E  
RADIAL NETWORK

THU, AUG 05 2004 10:57

```

<===== BUS DATA =====> <===== LINE DATA =====>
=====
FROM          AREA  VOLT          GEN    LOAD    SHUNT    TO
TRANSFORMER   RATING
BUS          NAME    ZONE PU/KV  ANGLE  MW/MVAR  MW/MVAR  MW/MVAR  BUS    NAME    CKT  MW   MVAR  RATIO
ANGLE  AMPS  %I SET A
=====
=====

      1 INF_BUS  132   1  1.000   0.0    8.0    0.0    0.0 -----
-----
      1 132.0          15.7R    0.0    0.0    2 BUS_TX  132  1    8.0   15.7
77 22 350A

      2 BUS_TX  132   1  0.989   0.6    0.0    0.0    0.0 -----
-----
      1 130.5          0.0    0.0    0.0    1 INF_BUS  132  1   -7.7  -15.6
77 22 350A

      3 BUS_03  33.0  1  1.015  -1.3    0.0    0.0    0.0 -----
-----
      1 33.48          0.0    0.0    0.0    2 BUS_TX  132  1   -7.7  -14.3  0.910UN
77 29 60M
280 27 60M

      4 BUS_TX  33.0  1  0.988  -0.4    0.0    0.0    0.0 -----
-----
      1 32.60          0.0    0.0    0.0    3 BUS_03  33.0  1   -7.3  -14.1
280 32 875A
280 32 875A

```

											5 BUS_05	11.0	1	7.3	14.1	0.950RG
280	40	40M														
			5 BUS_05	11.0	1	0.966	-1.7	0.0	0.0	0.0						
					1	10.62		0.0	0.0	0.0	4 BUS_TX	33.0	1	-7.1	-12.9	0.950UN
799	38	40M														
											6 BUSLD_0611.0	11.0	1	7.1	12.9	
799	38	2099A														
			6 BUSLD_0611.0	11.0	1	0.909	1.1	0.0	5.5	0.0						
					1	10.00		0.0	2.3	0.0	5 BUS_05	11.0	1	-6.0	-12.5	
799	38	2099A														
											7 BUSLD_0711.0	11.0	1	0.5	10.2	
587	28	2099A														
			7 BUSLD_0711.0	11.0	1	0.887	4.2	0.0	1.5	0.0						
					1	9.752		0.0	0.6	0.0	6 BUSLD_0611.0	11.0	1	0.0	-9.9	
587	28	2099A														
											8 BUSLD_0811.0	11.0	1	-1.5	9.3	
558	27	2099A														
			8 BUSLD_0811.0	11.0	1	0.879	6.1	0.0	0.9	0.0						
					1	9.673		0.0	0.3	0.0	7 BUSLD_0711.0	11.0	1	1.8	-9.2	
558	27	2099A														
											9 BUSLD_0911.0	11.0	1	1.7	0.5	
107	5	2099A														
											102 TXBUS	11.0	1	-4.4	8.4	
565	27	2099A														
			9 BUSLD_0911.0	11.0	1	0.872	6.0	0.0	0.8	0.0						
					1	9.588		0.0	0.2	0.0	8 BUSLD_0811.0	11.0	1	-1.7	-0.5	
107	5	2099A														
											10 BUSLD_1011.0	11.0	1	0.9	0.3	
57	3	2099A														
			10 BUSLD_1011.0	11.0	1	0.866	6.0	0.0	0.9	0.0						
					1	9.531		0.0	0.3	0.0	9 BUSLD_0911.0	11.0	1	-0.9	-0.3	
57	3	2099A														

101 WNDFRM	.690	1	1.000	8.5	4.6	0.0	0.0	-----
-----		1	0.690		-7.9R	0.0	0.0	102 TXBUS
7657 18 50M								11.0 1 4.6 -7.9 0.850UN
102 TXBUS	11.0	1	0.880	6.7	0.0	0.0	0.0	-----
-----		1	9.681		0.0	0.0	0.0	8 BUSLD_0811.0
565 27 2099A								1 4.5 -8.3
565 22 50M								101 WNDFRM .690 1 -4.5 8.3 0.850LO



											5 BUS_05	11.0	1	5.6	15.7	0.950RG
297	43	40M														
			5 BUS_05	11.0	1	0.951	-0.3	0.0	0.0	0.0						
					1	10.47		0.0	0.0	0.0	4 BUS_TX	33.0	1	-5.3	-14.4	0.950UN
848	40	40M														
											6 BUSLD_06	11.0	1	5.3	14.4	
848	40	2099A	6 BUSLD_06	11.0	1	0.900	3.2	0.0	5.5	0.0						
					1	9.897		0.0	2.3	0.0	5 BUS_05	11.0	1	-4.2	-13.9	
848	40	2099A														
											7 BUSLD_07	11.0	1	-1.3	11.6	
683	33	2099A	7 BUSLD_07	11.0	1	0.883	7.1	0.0	1.5	0.0						
					1	9.717		0.0	0.6	0.0	6 BUSLD_06	11.0	1	2.1	-11.3	
683	33	2099A														
											8 BUSLD_08	11.0	1	-3.6	10.7	
670	32	2099A	8 BUSLD_08	11.0	1	0.881	9.4	0.0	0.9	0.0						
					1	9.688		0.0	0.3	0.0	7 BUSLD_07	11.0	1	4.0	-10.5	
670	32	2099A														
											9 BUSLD_09	11.0	1	1.7	0.5	
107	5	2099A														
											102 TXBUS	11.0	1	-6.6	9.7	
700	33	2099A														
			9 BUSLD_09	11.0	1	0.873	9.4	0.0	0.8	0.0						
					1	9.604		0.0	0.2	0.0	8 BUSLD_08	11.0	1	-1.7	-0.5	
107	5	2099A														
											10 BUSLD_10	11.0	1	0.9	0.3	
57	3	2099A	10 BUSLD_10	11.0	1	0.868	9.3	0.0	0.9	0.0						
					1	9.547		0.0	0.3	0.0	9 BUSLD_09	11.0	1	-0.9	-0.3	
57	3	2099A														

101 WNDFRM	.690	1	1.000	12.6	6.9	0.0	0.0	-----
-----								
		1	0.690		-9.0R	0.0	0.0	102 TXBUS 11.0 1 6.9 -9.0 0.850UN
9484 23 50M								
102 TXBUS	11.0	1	0.883	10.2	0.0	0.0	0.0	-----
-----								
		1	9.714		0.0	0.0	0.0	8 BUSLD_0811.0 1 6.8 -9.6
700 33 2099A								
								101 WNDFRM .690 1 -6.8 9.6 0.850LO
700 27 50M								

## 5 Wind Turbines Connected to Busbar 8 - Loadflow

### RADIAL NETWORK

<===== BUS DATA =====>										<===== LINE DATA =====>					
=====										=====					
FROM	AREA	VOLT	GEN	LOAD	SHUNT	TO									
TRANSFORMER	RATING														
BUS	NAME	ZONE	PU/KV	ANGLE	MW/MVAR	MW/MVAR	MW/MVAR	BUS	NAME	CKT	MW	MVAR	RATIO		
ANGLE	AMPS	%I	SET	A											
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====		
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====		
1	INF_BUS	132	1	1.000	0.0	4.3	0.0	0.0	-----						
-----															
			1	132.0		23.1R	0.0	0.0	2	BUS_TX	132	1	4.3	23.1	
103	29	350A													
2	BUS_TX	132	1	0.990	1.1	0.0	0.0	0.0	-----						
-----															
			1	130.7		0.0	0.0	0.0	1	INF_BUS	132	1	-3.8	-22.9	
103	29	350A													
									3	BUS_03	33.0	1	3.8	22.9	0.890RG
103	39	60M													
3	BUS_03	33.0	1	1.009	0.2	0.0	0.0	0.0	-----						
-----															
			1	33.30		0.0	0.0	0.0	2	BUS_TX	132	1	-3.8	-20.7	0.890UN
365	35	60M													
									4	BUS_TX	33.0	1	3.8	20.7	
365	42	875A													
4	BUS_TX	33.0	1	0.982	1.9	0.0	0.0	0.0	-----						
-----															
			1	32.42		0.0	0.0	0.0	3	BUS_03	33.0	1	-3.1	-20.3	
365	42	875A													

											5 BUS_05	11.0	1	3.1	20.3	0.950RG
365	52	40M														
			5 BUS_05	11.0	1	0.933	2.2	0.0	0.0	0.0						
					1	10.27		0.0	0.0	0.0	4 BUS_TX	33.0	1	-2.7	-18.3	0.950UN
1041	50	40M														
											6 BUSLD_0611.0	11.0	1	2.7	18.3	
1041	50	2099A														
			6 BUSLD_0611.0	11.0	1	0.887	7.4	0.0	5.5	0.0						
					1	9.754		0.0	2.3	0.0	5 BUS_05	11.0	1	-1.0	-17.6	
1041	50	2099A														
											7 BUSLD_0711.0	11.0	1	-4.5	15.3	
943	45	2099A														
			7 BUSLD_0711.0	11.0	1	0.880	12.9	0.0	1.5	0.0						
					1	9.681		0.0	0.6	0.0	6 BUSLD_0611.0	11.0	1	6.0	-14.6	
943	45	2099A														
											8 BUSLD_0811.0	11.0	1	-7.5	14.0	
948	45	2099A														
			8 BUSLD_0811.0	11.0	1	0.885	16.3	0.0	0.9	0.0						
					1	9.738		0.0	0.3	0.0	7 BUSLD_0711.0	11.0	1	8.3	-13.7	
948	45	2099A														
											9 BUSLD_0911.0	11.0	1	1.7	0.5	
106	5	2099A														
											102 TXBUS	11.0	1	-10.9	12.9	
1000	48	2099A														
			9 BUSLD_0911.0	11.0	1	0.878	16.2	0.0	0.8	0.0						
					1	9.654		0.0	0.2	0.0	8 BUSLD_0811.0	11.0	1	-1.7	-0.5	
106	5	2099A														
											10 BUSLD_1011.0	11.0	1	0.9	0.3	
57	3	2099A														
			10 BUSLD_1011.0	11.0	1	0.873	16.2	0.0	0.9	0.0						
					1	9.598		0.0	0.3	0.0	9 BUSLD_0911.0	11.0	1	-0.9	-0.3	
57	3	2099A														



101 WNDFRM	.690	1	1.000	21.1	11.5	0.0	0.0	-----
-----								
		1	0.690		-11.4R	0.0	0.0	102 TXBUS 11.0 1 11.5 -11.4 0.850UN
13553 32 50M								
102 TXBUS	11.0	1	0.891	17.4	0.0	0.0	0.0	-----
-----								
		1	9.797		0.0	0.0	0.0	8 BUSLD_0811.0 1 11.2 -12.7
1000 48 2099A								
								101 WNDFRM .690 1 -11.2 12.7 0.850LO
1000 38 50M								

# **Appendix D4**

Loadflow for Distributed Generation connected to Busbar 7

# 1 Wind Turbines Connected to Busbar 7 - Loadflow

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E  
 RADIAL NETWORK

THU, AUG 05 2004 12:43

<===== BUS DATA =====>										<===== LINE DATA =====>				
FROM	AREA	VOLT	GEN	LOAD	SHUNT	TO								
TRANSFORMER	RATING													
BUS	NAME	ZONE	PU/KV	ANGLE	MW/MVAR	MW/MVAR	MW/MVAR	BUS	NAME	CKT	MW	MVAR	RATIO	
ANGLE	AMPS	%I	SET	A										
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	
1	INF_BUS	132	1	1.000	0.0	10.1	0.0	0.0	-----					
-----		1	132.0			15.4R	0.0	0.0	2	BUS_TX	132	1	10.1	15.4
80	23	350A												
2	BUS_TX	132	1	0.987	0.6	0.0	0.0	0.0	-----					
-----		1	130.3			0.0	0.0	0.0	1	INF_BUS	132	1	-9.8	-15.3
80	23	350A												
									3	BUS_03	33.0	1	9.8	15.3
80	31	60M												
3	BUS_03	33.0	1	1.027	-1.8	0.0	0.0	0.0	-----					
-----		1	33.89			0.0	0.0	0.0	2	BUS_TX	132	1	-9.8	-13.9
290	28	60M												
									4	BUS_TX	33.0	1	9.8	13.9
290	33	875A												
4	BUS_TX	33.0	1	0.998	-1.1	0.0	0.0	0.0	-----					
-----		1	32.93			0.0	0.0	0.0	3	BUS_03	33.0	1	-9.3	-13.6
290	33	875A												

										5 BUS_05	11.0	1	9.3	13.6	0.950RG
290	41	40M								-----					
				1	0.977	-3.0	0.0	0.0	0.0						
				1	10.75		0.0	0.0	0.0	4 BUS_TX	33.0	1	-9.1	-12.4	0.950UN
825	39	40M													
										6 BUSLD_06	11.0	1	9.1	12.4	
825	39	2099A								-----					
				1	0.913	-0.6	0.0	5.5	0.0						
				1	10.04		0.0	2.3	0.0	5 BUS_05	11.0	1	-8.0	-11.9	
825	39	2099A													
										7 BUSLD_07	11.0	1	2.5	9.6	
571	27	2099A								-----					
				1	0.882	2.0	0.0	1.5	0.0						
				1	9.701		0.0	0.6	0.0	6 BUSLD_06	11.0	1	-2.0	-9.4	
571	27	2099A													
										8 BUSLD_08	11.0	1	2.6	0.8	
165	8	2099A													
										102 TXBUS	11.0	1	-2.2	8.0	
492	23	2099A								-----					
				1	0.873	2.0	0.0	0.9	0.0						
				1	9.603		0.0	0.3	0.0	7 BUSLD_07	11.0	1	-2.6	-0.8	
165	8	2099A													
										9 BUSLD_09	11.0	1	1.7	0.5	
108	5	2099A								-----					
				1	0.865	1.9	0.0	0.8	0.0						
				1	9.518		0.0	0.2	0.0	8 BUSLD_08	11.0	1	-1.7	-0.5	
108	5	2099A													
										10 BUSLD_10	11.0	1	0.9	0.3	
58	3	2099A								-----					
				1	0.860	1.9	0.0	0.9	0.0						
				1	9.460		0.0	0.3	0.0	9 BUSLD_09	11.0	1	-0.9	-0.3	
58	3	2099A													

101	WDFRM	.690	1	1.000	3.7	2.3	0.0	0.0	-----
-----									
			1	0.690		-7.6R	0.0	0.0	102 TXBUS 11.0 1 2.3 -7.6 0.850UN
6662	16	50M							
102	TXBUS	11.0	1	0.881	2.6	0.0	0.0	0.0	-----
-----									
			1	9.687		0.0	0.0	0.0	7 BUSLD_0711.0 1 2.2 -7.9
492	23	2099A							
									101 WDFRM .690 1 -2.2 7.9 0.850LO
492	19	50M							

## 2 Wind Turbines Connected to Busbar 7 - Loadflow

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E  
RADIAL NETWORK

THU, AUG 05 2004 12:46

```

<===== BUS DATA =====> <===== LINE DATA =====>
=====
FROM          AREA VOLT          GEN    LOAD    SHUNT    TO
TRANSFORMER   RATING
BUS          NAME    ZONE PU/KV  ANGLE  MW/MVAR  MW/MVAR  MW/MVAR  BUS    NAME    CKT  MW    MVAR  RATIO
ANGLE  AMPS  %I SET A
=====
=====

      1 INF_BUS  132  1  1.000    0.0    8.1    0.0    0.0 -----
-----
      1 132.0    17.0R    0.0    0.0    2 BUS_TX  132  1    8.1   17.0
83 24  350A

      2 BUS_TX  132  1  0.988    0.7    0.0    0.0    0.0 -----
-----
      1 130.4    0.0    0.0    0.0    1 INF_BUS  132  1   -7.8  -16.9
83 24  350A

      3 BUS_03  33.0  1  1.021   -1.2    0.0    0.0    0.0 -----
-----
      1 33.68    0.0    0.0    0.0    2 BUS_TX  132  1   -7.8  -15.5  0.900UN
83 31  60M
297 28  60M

      4 BUS_TX  33.0  1  0.993   -0.2    0.0    0.0    0.0 -----
-----
      1 7.8   15.5
297 34  875A
      4 BUS_TX  33.0  1  0.993   -0.2    0.0    0.0 -----
-----

```

297	34	875A	1	32.77		0.0	0.0	0.0	3	BUS_03	33.0	1	-7.3	-15.2	
									5	BUS_05	11.0	1	7.3	15.2 0.950RG	
297	42	40M													
		5 BUS_05	11.0	1	0.966	-1.4	0.0	0.0	0.0						
-----															
					1	10.62		0.0	0.0	0.0	4	BUS_TX	33.0	1	-7.0 -13.9 0.950UN
847	40	40M													
847	40	2099A													
		6 BUSLD_0611.0	1	0.908	1.6	0.0	5.5	0.0							
-----															
					1	9.985		0.0	2.3	0.0	5	BUS_05	11.0	1	-5.9 -13.4
847	40	2099A													
642	31	2099A													
		7 BUSLD_0711.0	1	0.884	5.0	0.0	1.5	0.0							
-----															
					1	9.722		0.0	0.6	0.0	6	BUSLD_0611.0	1	0.2 -10.8	
642	31	2099A													
164	8	2099A													
616	29	2099A													
		8 BUSLD_0811.0	1	0.875	5.0	0.0	0.9	0.0							
-----															
					1	9.624		0.0	0.3	0.0	7	BUSLD_0711.0	1	-2.6 -0.8	
164	8	2099A													
108	5	2099A													
		9 BUSLD_0911.0	1	0.867	4.9	0.0	0.8	0.0							
-----															
					1	9.539		0.0	0.2	0.0	8	BUSLD_0811.0	1	-1.7 -0.5	
108	5	2099A													
58	3	2099A													
		10 BUSLD_1011.0	1	0.862	4.9	0.0	0.9	0.0							
-----															

58	3	2099A		1	9.482		0.0	0.3	0.0	9	BUSLD_0911.0	1	-0.9	-0.3				
		101	WDFRM	.690	1	1.000	7.5	4.6	0.0	0.0	-----							
		8341	20	50M	1	0.690		-8.8R	0.0	0.0	102	TXBUS	11.0	1	4.6	-8.8	0.850UN	
				102	TXBUS	11.0	1	0.884	5.8	0.0	0.0	0.0	-----					
		616	29	2099A	1	9.725		0.0	0.0	0.0	7	BUSLD_0711.0	1	4.5	-9.3			
		616	23	50M								101	WDFRM	.690	1	-4.5	9.3	0.850LO





### 3 Wind Turbines Connected to Busbar 7 - Loadflow

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E  
RADIAL NETWORK

THU, AUG 05 2004 12:51

<===== BUS DATA =====>										<===== LINE DATA =====>				
=====										=====				
FROM	AREA	VOLT	GEN	LOAD	SHUNT	TO								
TRANSFORMER	RATING													
BUS	NAME	ZONE	PU/KV	ANGLE	MW/MVAR	MW/MVAR	MW/MVAR	BUS	NAME	CKT	MW	MVAR	RATIO	
ANGLE	AMPS	%I	SET	A										
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	
1	INF_BUS	132	1	1.000	0.0	6.3	0.0	0.0	-----					
-----														
			1	132.0		18.8R	0.0	0.0	2	BUS_TX	132	1	6.3 18.8	
87	25	350A												
2	BUS_TX	132	1	0.989	0.8	0.0	0.0	0.0	-----					
-----														
			1	130.6		0.0	0.0	0.0	1	INF_BUS	132	1	-6.0 -18.7	
87	25	350A												
									3	BUS_03	33.0	1	6.0 18.7 0.900RG	
87	33	60M												
3	BUS_03	33.0	1	1.014	-0.6	0.0	0.0	0.0	-----					
-----														
			1	33.47		0.0	0.0	0.0	2	BUS_TX	132	1	-6.0 -17.1 0.900UN	
312	30	60M												
									4	BUS_TX	33.0	1	6.0 17.1	
312	36	875A												
4	BUS_TX	33.0	1	0.988	0.6	0.0	0.0	0.0	-----					
-----														

312	36	875A	1	32.59		0.0	0.0	0.0	3	BUS_03	33.0	1	-5.4	-16.7	
									5	BUS_05	11.0	1	5.4	16.7	0.950RG
312	45	40M													
		5 BUS_05	11.0	1	0.954	0.0	0.0	0.0	0.0						
-----															
			1	10.49		0.0	0.0	0.0	4	BUS_TX	33.0	1	-5.2	-15.3	0.950UN
889	42	40M													
									6	BUSLD_06	11.0	1	5.2	15.3	
889	42	2099A													
		6 BUSLD_06	11.0	1	0.902	3.8	0.0	5.5	0.0						
-----															
			1	9.917		0.0	2.3	0.0	5	BUS_05	11.0	1	-3.9	-14.8	
889	42	2099A													
									7	BUSLD_07	11.0	1	-1.6	12.5	
731	35	2099A													
		7 BUSLD_07	11.0	1	0.885	7.9	0.0	1.5	0.0						
-----															
			1	9.734		0.0	0.6	0.0	6	BUSLD_06	11.0	1	2.4	-12.1	
731	35	2099A													
									8	BUSLD_08	11.0	1	2.6	0.8	
164	8	2099A													
									102	TXBUS	11.0	1	-6.6	10.7	
743	35	2099A													
		8 BUSLD_08	11.0	1	0.876	7.8	0.0	0.9	0.0						
-----															
			1	9.637		0.0	0.3	0.0	7	BUSLD_07	11.0	1	-2.6	-0.8	
164	8	2099A													
									9	BUSLD_09	11.0	1	1.7	0.5	
107	5	2099A													
		9 BUSLD_09	11.0	1	0.868	7.8	0.0	0.8	0.0						
-----															
			1	9.552		0.0	0.2	0.0	8	BUSLD_08	11.0	1	-1.7	-0.5	
107	5	2099A													
									10	BUSLD_10	11.0	1	0.9	0.3	
58	3	2099A													
		10 BUSLD_10	11.0	1	0.863	7.7	0.0	0.9	0.0						
-----															

58	3	2099A		1	9.495		0.0	0.3	0.0	9	BUSLD_0911.0	1	-0.9	-0.3			
		101	WDFRM	.690	1	1.000	11.2	6.9	0.0	0.0	-----						
		10074	24	50M	1	0.690		-9.9R	0.0	0.0	102	TXBUS	11.0	1	6.9	-9.9	0.850UN
			102	TXBUS	11.0	1	0.887	8.8	0.0	0.0	0.0	-----					
743	35	2099A		1	9.756		0.0	0.0	0.0	7	BUSLD_0711.0	1	6.8	-10.6			
743	28	50M									101	WDFRM	.690	1	-6.8	10.6	0.850LO

## 5 Wind Turbines Connected to Busbar 7 - Loadflow

CASE SAVED IN FILE A:\psse modelling files\mov to 7\radial2gen5mv7.sav ON THU, AUG 05 2004 12:55

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, AUG 05 2004 12:55  
 RADIAL NETWORK

```

<===== BUS DATA =====> <===== LINE DATA =====>
=====
FROM          AREA VOLT          GEN    LOAD    SHUNT    TO
TRANSFORMER   RATING
BUS          NAME  ZONE PU/KV  ANGLE  MW/MVAR  MW/MVAR  MW/MVAR  BUS  NAME  CKT  MW  MVAR  RATIO
ANGLE  AMPS  %I SET A
=====
=====
      1 INF_BUS  132  1  1.000   0.0    3.6    0.0    0.0 -----
-----
      1  132.0    23.3R   0.0    0.0    2 BUS_TX  132  1    3.6   23.3
103  29  350A
      2 BUS_TX  132  1  0.990   1.1    0.0    0.0    0.0 -----
-----
      1  130.7    0.0    0.0    0.0    1 INF_BUS  132  1   -3.1  -23.1
103  29  350A
      3 BUS_03  33.0  1  1.009   0.4    0.0    0.0    0.0 -----
-----
      1  33.29    0.0    0.0    0.0    2 BUS_TX  132  1   -3.0  -20.9  0.890UN
103  39  60M
      3 BUS_03  33.0  1  1.009   0.4    0.0    0.0    0.0 -----
-----
      1  33.29    0.0    0.0    0.0    2 BUS_TX  132  1   -3.0  -20.9  0.890UN
367  35  60M
      4 BUS_TX  33.0  1    3.0   20.9
367  42  875A
  
```

	4	BUS_TX	33.0	1	0.983	2.2	0.0	0.0	0.0	-----					
				1	32.45		0.0	0.0	0.0		3	BUS_03	33.0	1	-2.3 -20.5
367	42	875A													
											5	BUS_05	11.0	1	2.3 20.5 0.950RG
367	52	40M													
	5	BUS_05	11.0	1	0.934	2.7	0.0	0.0	0.0	-----					
				1	10.27		0.0	0.0	0.0		4	BUS_TX	33.0	1	-1.9 -18.5 0.950UN
1045	50	40M													
	6	BUSLD_06	11.0	1	0.891	8.0	0.0	5.5	0.0	-----					
				1	9.797		0.0	2.3	0.0		5	BUS_05	11.0	1	-0.2 -17.7
1045	50	2099A													
	7	BUSLD_07	11.0	1	0.887	13.6	0.0	1.5	0.0	-----					
				1	9.762		0.0	0.6	0.0		6	BUSLD_06	11.0	1	6.8 -14.8
961	46	2099A													
	8	BUSLD_08	11.0	1											
164	8	2099A													
	102	TXBUS	11.0	1											
1020	49	2099A													
	8	BUSLD_08	11.0	1	0.879	13.6	0.0	0.9	0.0	-----					
				1	9.665		0.0	0.3	0.0		7	BUSLD_07	11.0	1	-2.6 -0.8
164	8	2099A													
	9	BUSLD_09	11.0	1	0.871	13.5	0.0	0.8	0.0	-----					
				1	9.581		0.0	0.2	0.0		8	BUSLD_08	11.0	1	-1.7 -0.5
107	5	2099A													
	10	BUSLD_10	11.0	1											
107	5	2099A													
58	3	2099A													

	10	BUSLD_1011.0	1	0.866	13.5	0.0	0.9	0.0	-----
			1	9.523		0.0	0.3	0.0	9 BUSLD_0911.0 1 -0.9 -0.3
58	3	2099A							
	101	WNDFRM .690	1	1.000	18.6	11.5	0.0	0.0	-----
			1	0.690		-11.9R	0.0	0.0	102 TXBUS 11.0 1 11.5 -11.9 0.850UN
13822	33	50M							
	102	TXBUS 11.0	1	0.893	14.8	0.0	0.0	0.0	-----
			1	9.818		0.0	0.0	0.0	7 BUSLD_0711.0 1 11.2 -13.2
1020	49	2099A							
									101 WNDFRM .690 1 -11.2 13.2 0.850LO
1020	39	50M							

# **Appendix D5**

Loadflow for Distributed Generation connected to Busbar 6



# 1 Wind Turbine Connected to Busbar 6 - Loadflow

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E  
RADIAL NETWORK

THU, AUG 05 2004 15:31

<===== BUS DATA =====>										<===== LINE DATA =====>				
>														
FROM	AREA	VOLT	GEN	LOAD	SHUNT	TO								
TRANSFORMER	RATING													
BUS	NAME	ZONE	PU/KV	ANGLE	MW/MVAR	MW/MVAR	MW/MVAR	BUS	NAME	CKT	MW	MVAR	RATIO	
ANGLE	AMPS	%I	SET A											
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	
=====	=====	=====	=====											
1	INF_BUS	132	1	1.000	0.0	10.4	0.0	0.0	-----					
-----			1	132.0		18.4R	0.0	0.0	2	BUS_TX	132	1	10.4	18.4
92	26	350A												
2	BUS_TX	132	1	0.986	0.7	0.0	0.0	0.0	-----					
-----			1	130.1		0.0	0.0	0.0	1	INF_BUS	132	1	-10.0	-18.2
92	26	350A												
-----									3	BUS_03	33.0	1	10.0	18.2
92	35	60M												
3	BUS_03	33.0	1	1.025	-1.7	0.0	0.0	0.0	-----					
-----			1	33.84		0.0	0.0	0.0	2	BUS_TX	132	1	-9.9	-16.5
328	31	60M												
-----									4	BUS_TX	33.0	1	9.9	16.5
328	38	875A												
4	BUS_TX	33.0	1	0.993	-0.7	0.0	0.0	0.0	-----					
-----			1	32.78		0.0	0.0	0.0	3	BUS_03	33.0	1	-9.4	-16.1
328	38	875A												

328	47	40M								5 BUS_05	11.0	1	9.4	16.1	0.950RG
	5	BUS_05	11.0	1	0.960	-2.5	0.0	0.0	0.0						
				1	10.56		0.0	0.0	0.0	4 BUS_TX	33.0	1	-9.1	-14.5	0.950UN
936	45	40M								6 BUSLD_06	11.0	1	9.1	14.5	
936	45	2099A													
	6	BUSLD_06	11.0	1	0.891	0.6	0.0	5.5	0.0						
				1	9.805		0.0	2.3	0.0	5 BUS_05	11.0	1	-7.7	-13.9	
936	45	2099A													
265	13	2099A								7 BUSLD_07	11.0	1	4.3	1.5	
610	29	2099A													
	7	BUSLD_07	11.0	1	0.867	0.4	0.0	1.5	0.0	102 TXBUS	11.0	1	-2.1	10.2	
				1	9.541		0.0	0.6	0.0	6 BUSLD_06	11.0	1	-4.1	-1.4	
265	13	2099A													
168	8	2099A								8 BUSLD_08	11.0	1	2.6	0.8	
	8	BUSLD_08	11.0	1	0.858	0.4	0.0	0.9	0.0						
				1	9.442		0.0	0.3	0.0	7 BUSLD_07	11.0	1	-2.6	-0.8	
168	8	2099A													
110	5	2099A								9 BUSLD_09	11.0	1	1.7	0.5	
	9	BUSLD_09	11.0	1	0.850	0.3	0.0	0.8	0.0						
				1	9.355		0.0	0.2	0.0	8 BUSLD_08	11.0	1	-1.7	-0.5	
110	5	2099A													
59	3	2099A								10 BUSLD_10	11.0	1	0.9	0.3	
	10	BUSLD_10	11.0	1	0.845	0.3	0.0	0.9	0.0						
				1	9.297		0.0	0.3	0.0	9 BUSLD_09	11.0	1	-0.9	-0.3	
59	3	2099A													

101 WNDFRM	.690	1	1.000	2.4	2.3	0.0	0.0	-----
-----		1	0.690		-9.6R	0.0	0.0	102 TXBUS 11.0 1 2.3 -9.6 0.850UN
8269 20 50M								
102 TXBUS	11.0	1	0.889	1.3	0.0	0.0	0.0	-----
-----		1	9.780		0.0	0.0	0.0	6 BUSLD_0611.0 1 2.2 -10.1
610 29 2099A								
610 23 50M								101 WNDFRM .690 1 -2.2 10.1 0.850LO

## 2 Wind Turbines Connected to Busbar 6 - Loadflow

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E  
RADIAL NETWORK

THU, AUG 05 2004 13:10

```

<===== BUS DATA =====> <===== LINE DATA =====>
=====
FROM          AREA  VOLT          GEN      LOAD      SHUNT      TO
TRANSFORMER   RATING
BUS          NAME    ZONE PU/KV  ANGLE  MW/MVAR  MW/MVAR  MW/MVAR  BUS      NAME    CKT  MW   MVAR  RATIO
ANGLE  AMPS  %I SET A
=====
=====

      1 INF_BUS  132   1  1.000   0.0    8.2    0.0    0.0 -----
-----
                                1  132.0          19.7R    0.0    0.0    2 BUS_TX  132  1    8.2   19.7
93  27  350A

      2 BUS_TX   132   1  0.987   0.8    0.0    0.0    0.0 -----
-----
                                1  130.3          0.0    0.0    0.0    1 INF_BUS  132  1   -7.8  -19.6
93  27  350A

                                3 BUS_03  33.0  1    7.8   19.6  0.890RG
93  36  60M
      3 BUS_03  33.0   1  1.021  -1.0    0.0    0.0    0.0 -----
-----
                                1  33.70          0.0    0.0    0.0    2 BUS_TX  132  1   -7.8  -17.8  0.890UN
332 32  60M

                                4 BUS_TX  33.0  1    7.8   17.8
332 38  875A
      4 BUS_TX  33.0   1  0.991   0.1    0.0    0.0    0.0 -----
-----
                                1  32.71          0.0    0.0    0.0    3 BUS_03  33.0  1   -7.2  -17.4
332 38  875A

```

											5 BUS_05	11.0	1	7.2	17.4	0.950RG
332	47	40M														
			5 BUS_05	11.0	1	0.953	-0.9	0.0	0.0	0.0						
					1	10.49		0.0	0.0	0.0	4 BUS_TX	33.0	1	-6.9	-15.8	0.950UN
946	45	40M														
											6 BUSLD_06	11.0	1	6.9	15.8	
946	45	2099A														
			6 BUSLD_06	11.0	1	0.892	2.8	0.0	5.5	0.0						
					1	9.815		0.0	2.3	0.0	5 BUS_05	11.0	1	-5.5	-15.1	
946	45	2099A														
											7 BUSLD_07	11.0	1	4.3	1.5	
265	13	2099A														
											102 TXBUS	11.0	1	-4.3	11.4	
715	34	2099A														
			7 BUSLD_07	11.0	1	0.868	2.7	0.0	1.5	0.0						
					1	9.552		0.0	0.6	0.0	6 BUSLD_06	11.0	1	-4.1	-1.4	
265	13	2099A														
											8 BUSLD_08	11.0	1	2.6	0.8	
168	8	2099A														
			8 BUSLD_08	11.0	1	0.859	2.6	0.0	0.9	0.0						
					1	9.453		0.0	0.3	0.0	7 BUSLD_07	11.0	1	-2.6	-0.8	
168	8	2099A														
											9 BUSLD_09	11.0	1	1.7	0.5	
110	5	2099A														
			9 BUSLD_09	11.0	1	0.851	2.5	0.0	0.8	0.0						
					1	9.366		0.0	0.2	0.0	8 BUSLD_08	11.0	1	-1.7	-0.5	
110	5	2099A														
											10 BUSLD_10	11.0	1	0.9	0.3	
59	3	2099A														
			10 BUSLD_10	11.0	1	0.846	2.5	0.0	0.9	0.0						
					1	9.308		0.0	0.3	0.0	9 BUSLD_09	11.0	1	-0.9	-0.3	
59	3	2099A														

101 WNDFRM	.690	1	1.000	5.5	4.6	0.0	0.0	-----
								-----
		1	0.690		-10.6R	0.0	0.0	102 TXBUS 11.0 1 4.6 -10.6 0.850UN
9687 23 50M								
102 TXBUS	11.0	1	0.892	3.6	0.0	0.0	0.0	-----
								-----
		1	9.809		0.0	0.0	0.0	6 BUSLD_0611.0 1 4.5 -11.3
715 34 2099A								
								101 WNDFRM .690 1 -4.5 11.3 0.850LO
715 27 50M								

### 3 Wind Turbines Connected to Busbar 6 - Loadflow

CASE SAVED IN FILE A:\psse modelling files\mov to 6\radial2gen3mv6.sav ON THU, AUG 05 2004 13:06

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E THU, AUG 05 2004 13:06  
 RADIAL NETWORK

<===== BUS DATA =====>										<===== LINE DATA =====>					
=====										=====					
FROM	AREA	VOLT	GEN	LOAD	SHUNT	TO									
TRANSFORMER	RATING														
BUS	NAME	ZONE	PU/KV	ANGLE	MW/MVAR	MW/MVAR	MW/MVAR	BUS	NAME	CKT	MW	MVAR	RATIO		
ANGLE	AMPS	%I	SET	A											
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====		
1	INF_BUS	132	1	1.000	0.0	6.2	0.0	0.0	-----						
-----															
			1	132.0		21.1R	0.0	0.0	2	BUS_TX	132	1	6.2	21.1	
96	27	350A													
2	BUS_TX	132	1	0.989	0.9	0.0	0.0	0.0	-----						
-----															
			1	130.5		0.0	0.0	0.0	1	INF_BUS	132	1	-5.8	-20.9	
96	27	350A													
									3	BUS_03	33.0	1	5.8	20.9	0.890RG
96	37	60M													
3	BUS_03	33.0	1	1.017	-0.4	0.0	0.0	0.0	-----						
-----															
			1	33.55		0.0	0.0	0.0	2	BUS_TX	132	1	-5.7	-19.0	0.890UN
342	33	60M													
									4	BUS_TX	33.0	1	5.7	19.0	
342	39	875A													
4	BUS_TX	33.0	1	0.989	1.0	0.0	0.0	0.0	-----						
-----															

342	39	875A	1	32.63		0.0	0.0	0.0	3	BUS_03	33.0	1	-5.1	-18.6		
									5	BUS_05	11.0	1	5.1	18.6	0.950RG	
342	49	40M														
		5 BUS_05	11.0	1	0.946	0.6	0.0	0.0	0.0							
-----																
				1	10.41		0.0	0.0	0.0	4	BUS_TX	33.0	1	-4.8	-16.9	0.950UN
974	46	40M														
		6 BUSLD_06	11.0	1	0.893	5.0	0.0	5.5	0.0							
974	46	2099A														
		7 BUSLD_07	11.0	1	9.820		0.0	2.3	0.0	5	BUS_05	11.0	1	-3.3	-16.3	
974	46	2099A														
		102 TXBUS	11.0	1						7	BUSLD_07	11.0	1	4.3	1.5	
265	13	2099A														
		7 BUSLD_07	11.0	1	0.869	4.9	0.0	1.5	0.0							
828	39	2099A														
		6 BUSLD_06	11.0	1	9.557		0.0	0.6	0.0	6	BUSLD_06	11.0	1	-4.1	-1.4	
265	13	2099A														
		8 BUSLD_08	11.0	1						8	BUSLD_08	11.0	1	2.6	0.8	
167	8	2099A														
		7 BUSLD_07	11.0	1	0.860	4.8	0.0	0.9	0.0							
167	8	2099A														
		9 BUSLD_09	11.0	1	9.458		0.0	0.3	0.0	7	BUSLD_07	11.0	1	-2.6	-0.8	
110	5	2099A														
		9 BUSLD_09	11.0	1	0.852	4.7	0.0	0.8	0.0	9	BUSLD_09	11.0	1	1.7	0.5	
110	5	2099A														
		8 BUSLD_08	11.0	1	9.371		0.0	0.2	0.0	8	BUSLD_08	11.0	1	-1.7	-0.5	
59	3	2099A														
		10 BUSLD_10	11.0	1	0.847	4.7	0.0	0.9	0.0	10	BUSLD_10	11.0	1	0.9	0.3	
-----																



59	3	2099A		1	9.313		0.0	0.3	0.0	9	BUSLD_0911.0	1	-0.9	-0.3			
		101	WDFRM	.690	1	1.000	8.5	6.9	0.0	0.0	-----						
		11213	27	50M	1	0.690		-11.5R	0.0	0.0	102	TXBUS	11.0	1	6.9	-11.5	0.850UN
		102	TXBUS	11.0	1	0.894	6.0	0.0	0.0	0.0	-----						
828	39	2099A		1	9.832		0.0	0.0	0.0	6	BUSLD_0611.0	1	6.7	-12.4			
827	32	50M									101	WDFRM	.690	1	-6.7	12.4	0.850LO

## 5 Wind Turbines Connected to Busbar 6 - Loadflow

<===== BUS DATA =====>										<===== LINE DATA =====>				
=====														
FROM	AREA	VOLT	GEN	LOAD	SHUNT	TO								
TRANSFORMER	NAME	ZONE	RATING	PU/KV	ANGLE	MW/MVAR	MW/MVAR	MW/MVAR	BUS	NAME	CKT	MW	MVAR	RATIO
ANGLE	AMPS	%I	SET	A										
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
1	INF_BUS	132	1	1.000	0.0	2.4	0.0	0.0						
			1	132.0		24.1R	0.0	0.0	2	BUS_TX	132	1	2.4	24.1
106	30	350A												
2	BUS_TX	132	1	0.991	1.2	0.0	0.0	0.0						
			1	130.8		0.0	0.0	0.0	1	INF_BUS	132	1	-1.9	-23.9
106	30	350A												
3	BUS_03	33.0	1	1.006	0.8	0.0	0.0	0.0	3	BUS_03	33.0	1	1.9	23.9 0.890RG
106	40	60M												
3	BUS_03	33.0	1	33.21		0.0	0.0	0.0	2	BUS_TX	132	1	-1.9	-21.6 0.890UN
377	36	60M												
4	BUS_TX	33.0	1	0.982	2.7	0.0	0.0	0.0						
			1	32.40		0.0	0.0	0.0	3	BUS_03	33.0	1	-1.1	-21.1
377	43	875A												
5	BUS_05	11.0	1	0.930	3.6	0.0	0.0	0.0	5	BUS_05	11.0	1	1.1	21.1 0.950RG
377	54	40M												
5	BUS_05	11.0	1	0.930	3.6	0.0	0.0	0.0						

1074	51	40M	1	10.24		0.0	0.0	0.0	4	BUS_TX	33.0	1	-0.7	-19.0	0.950UN
									6	BUSLD_0611.0	11.0	1	0.7	19.0	
1074	51	2099A													
			1	0.892	9.2	0.0	5.5	0.0	-----						
1074	51	2099A	1	9.813		0.0	2.3	0.0	5	BUS_05	11.0	1	1.1	-18.2	
									7	BUSLD_0711.0	11.0	1	4.3	1.5	
265	13	2099A							102	TXBUS	11.0	1	-10.8	14.4	
1063	51	2099A													
			1	0.868	9.1	0.0	1.5	0.0	-----						
			1	9.550		0.0	0.6	0.0	6	BUSLD_0611.0	11.0	1	-4.1	-1.4	
265	13	2099A							8	BUSLD_0811.0	11.0	1	2.6	0.8	
168	8	2099A													
			1	0.859	9.0	0.0	0.9	0.0	-----						
			1	9.450		0.0	0.3	0.0	7	BUSLD_0711.0	11.0	1	-2.6	-0.8	
168	8	2099A							9	BUSLD_0911.0	11.0	1	1.7	0.5	
110	5	2099A													
			1	0.851	9.0	0.0	0.8	0.0	-----						
			1	9.364		0.0	0.2	0.0	8	BUSLD_0811.0	11.0	1	-1.7	-0.5	
110	5	2099A							10	BUSLD_1011.0	11.0	1	0.9	0.3	
59	3	2099A													
			1	0.846	8.9	0.0	0.9	0.0	-----						
			1	9.305		0.0	0.3	0.0	9	BUSLD_0911.0	11.0	1	-0.9	-0.3	
59	3	2099A													
			1	1.000	14.3	11.5	0.0	0.0	-----						

14401	34	50M	1	0.690		-12.8R	0.0	0.0	0.0	102 TXBUS	11.0	1	11.5	-12.8	0.850UN
	102 TXBUS	11.0	1	0.897	10.4	0.0	0.0	0.0	0.0	-----					
			1	9.863		0.0	0.0	0.0	0.0	6 BUSLD_0611.0	11.0	1	11.2	-14.3	
1063	51	2099A													
										101 WNDFRM	.690	1	-11.2	14.3	0.850LO
1063	40	50M													

# **Appendix D6**

Loadflow for Distributed Generation connected to Busbar 5

# 1 Wind Turbines Connected to Busbar 5 - Loadflow

CASE SAVED IN FILE A:\psse modelling files\radial2genmv5b.sav ON TUE, JUL 27 2004 10:20

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E TUE, JUL 27 2004 10:21  
 RADIAL NETWORK

<===== BUS DATA =====>										<===== LINE DATA =====>				
=====										=====				
FROM	AREA	VOLT	GEN	LOAD	SHUNT	TO								
TRANSFORMER		RATING				BUS	NAME	CKT	MW	MVAR	RATIO			
BUS	NAME	ZONE	PU/KV	ANGLE	MW/MVAR	MW/MVAR	MW/MVAR	BUS	NAME	CKT	MW	MVAR	RATIO	
ANGLE	AMPS	%I	SET A											
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	
1	INF_BUS	132	1	1.000	0.0	10.6	0.0	0.0	-----					
-----														
118	34	350A							2	BUS_TX	132	1	10.6	24.7
-----														
	2	BUS_TX	132	1	0.984	1.1	0.0	0.0	0.0	-----				
-----														
118	34	350A							1	INF_BUS	132	1	-10.0	-24.5
-----														
118	45	60M							3	BUS_03	33.0	1	10.0	24.5 0.880RG
-----														
414	39	60M							2	BUS_TX	132	1	-10.0	-21.7 0.880UN
-----														
414	47	875A							4	BUS_TX	33.0	1	10.0	21.7



	10	BUSLD_1011.0	1	0.803	-1.9	0.0	0.9	0.0	-----
			1	8.831		0.0	0.3	0.0	9 BUSLD_0911.0 1 -0.9 -0.3
62	3	2099A							
	101	WDFRM .690	1	1.000	0.9	2.3	0.0	0.0	-----
			1	0.690		-13.5R	0.0	0.0	102 TXBUS 11.0 1 2.3 -13.5 0.850UN
11462	27	50M							
	102	TXBUS 11.0	1	0.906	-0.5	0.0	0.0	0.0	-----
			1	9.963		0.0	0.0	0.0	5 BUS_05 11.0 1 2.1 -14.4
846	40	2099A							
									101 WDFRM .690 1 -2.1 14.4 0.850LO
846	32	50M							



## 2 Wind Turbines Connected to Busbar 5 - Loadflow

<===== BUS DATA =====>										<===== LINE DATA =====>				
=====														
FROM	AREA	VOLT	GEN	LOAD	SHUNT	TO								
TRANSFORMER		RATING												
BUS	NAME	ZONE	PU/KV	ANGLE	MW/MVAR	MW/MVAR	MW/MVAR	BUS	NAME	CKT	MW	MVAR	RATIO	
ANGLE	AMPS	%I	SET A											
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	
1	INF_BUS	132	1	1.000	0.0	8.4	0.0	0.0	-----					
-----														
118	34	350A				25.5R	0.0	0.0	2	BUS_TX	132	1	8.4 25.5	
-----														
2	BUS_TX	132	1	0.986	1.1	0.0	0.0	0.0	-----					
-----														
118	34	350A				0.0	0.0	0.0	1	INF_BUS	132	1	-7.8 -25.3	
-----														
118	45	60M				0.0	0.0	0.0	3	BUS_03	33.0	1	7.8 25.3 0.880RG	
-----														
414	39	60M				0.0	0.0	0.0	2	BUS_TX	132	1	-7.7 -22.5 0.880UN	
-----														
414	47	875A				0.0	0.0	0.0	4	BUS_TX	33.0	1	7.7 22.5	
-----														
414	47	875A				0.0	0.0	0.0	3	BUS_03	33.0	1	-6.8 -22.0	
-----														
414	59	40M				0.0	0.0	0.0	5	BUS_05	11.0	1	6.8 22.0 0.950RG	
-----														
414	59	40M				0.0	0.0	0.0	-----					
-----														

1180	56	40M	1	10.00		0.0	0.0	0.0	0.0	4 BUS_TX	33.0	1	-6.3	-19.4	0.950UN
647	31	2099A								6 BUSLD_0611.0	11.0	1	10.4	4.1	
										102 TXBUS	11.0	1	-4.1	15.4	
918	44	2099A													
			1	0.851	0.0	0.0	5.5	0.0							
647	31	2099A													
			1	9.357		0.0	2.3	0.0		5 BUS_05	11.0	1	-9.8	-3.8	
279	13	2099A													
			1	0.825	-0.1	0.0	1.5	0.0		7 BUSLD_0711.0	11.0	1	4.3	1.5	
279	13	2099A													
			1	9.080		0.0	0.6	0.0		6 BUSLD_0611.0	11.0	1	-4.2	-1.4	
177	8	2099A													
			1	0.816	-0.2	0.0	0.9	0.0		8 BUSLD_0811.0	11.0	1	2.7	0.8	
177	8	2099A													
			1	8.975		0.0	0.3	0.0		7 BUSLD_0711.0	11.0	1	-2.6	-0.8	
116	6	2099A													
			1	0.808	-0.3	0.0	0.8	0.0		9 BUSLD_0911.0	11.0	1	1.7	0.5	
116	6	2099A													
			1	8.884		0.0	0.2	0.0		8 BUSLD_0811.0	11.0	1	-1.7	-0.5	
62	3	2099A													
			1	0.802	-0.3	0.0	0.9	0.0		10 BUSLD_1011.0	11.0	1	0.9	0.3	
62	3	2099A													
			1	8.822		0.0	0.3	0.0		9 BUSLD_0911.0	11.0	1	-0.9	-0.3	
			1	1.000	3.2	4.6	0.0	0.0		101 WNDFRM	.690	1			

12444	30	50M	1	0.690		-14.1R	0.0	0.0	0.0	102 TXBUS	11.0	1	4.6	-14.1	0.850UN
	102 TXBUS	11.0	1	0.907	1.3	0.0	0.0	0.0	-----						
-----															
918	44	2099A	1	9.974		0.0	0.0	0.0	0.0	5 BUS_05	11.0	1	4.4	-15.2	
918	35	50M								101 WNDFRM	.690	1	-4.4	15.2	0.850LO

### 3 Wind Turbines Connected to Busbar 5 - Loadflow

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E  
RADIAL NETWORK

THU, AUG 05 2004 10:09

<===== BUS DATA =====>										<===== LINE DATA =====>				
FROM	AREA	VOLT	GEN	LOAD	SHUNT	TO								
TRANSFORMER	RATING													
BUS	NAME	ZONE	PU/KV	ANGLE	MW/MVAR	MW/MVAR	MW/MVAR	BUS	NAME	CKT	MW	MVAR	RATIO	
ANGLE	AMPS	%I	SET	A										
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	
1	INF_BUS	132	1	1.000	0.0	6.3	0.0	0.0	-----					
-----		1	132.0			26.4R	0.0	0.0	2	BUS_TX	132	1	6.3	26.4
119	34	350A												
2	BUS_TX	132	1	0.987	1.2	0.0	0.0	0.0	-----					
-----		1	130.3			0.0	0.0	0.0	1	INF_BUS	132	1	-5.6	-26.2
119	34	350A												
									3	BUS_03	33.0	1	5.6	26.2 0.880RG
119	45	60M												
3	BUS_03	33.0	1	1.005	-0.1	0.0	0.0	0.0	-----					
-----		1	33.16			0.0	0.0	0.0	2	BUS_TX	132	1	-5.6	-23.4 0.880UN
418	40	60M												
									4	BUS_TX	33.0	1	5.6	23.4
418	48	875A												
4	BUS_TX	33.0	1	0.973	1.8	0.0	0.0	0.0	-----					
-----		1	32.10			0.0	0.0	0.0	3	BUS_03	33.0	1	-4.6	-22.8
418	48	875A												

418	60	40M									5 BUS_05	11.0	1	4.6	22.8	0.950RG
			5 BUS_05	11.0	1	0.908	1.8	0.0	0.0	0.0						
					1	9.989		0.0	0.0	0.0						
1192	57	40M									4 BUS_TX	33.0	1	-4.1	-20.2	0.950UN
648	31	2099A									6 BUSLD_06	11.0	1	10.4	4.1	
											102 TXBUS	11.0	1	-6.3	16.1	
1002	48	2099A														
			6 BUSLD_06	11.0	1	0.849	1.6	0.0	5.5	0.0						
					1	9.344		0.0	2.3	0.0						
648	31	2099A									5 BUS_05	11.0	1	-9.8	-3.8	
											7 BUSLD_07	11.0	1	4.3	1.5	
280	13	2099A														
			7 BUSLD_07	11.0	1	0.824	1.5	0.0	1.5	0.0						
					1	9.067		0.0	0.6	0.0						
280	13	2099A									6 BUSLD_06	11.0	1	-4.2	-1.4	
											8 BUSLD_08	11.0	1	2.7	0.8	
177	8	2099A														
			8 BUSLD_08	11.0	1	0.815	1.4	0.0	0.9	0.0						
					1	8.962		0.0	0.3	0.0						
177	8	2099A									7 BUSLD_07	11.0	1	-2.6	-0.8	
											9 BUSLD_09	11.0	1	1.7	0.5	
116	6	2099A														
			9 BUSLD_09	11.0	1	0.806	1.3	0.0	0.8	0.0						
					1	8.870		0.0	0.2	0.0						
116	6	2099A									8 BUSLD_08	11.0	1	-1.7	-0.5	
											10 BUSLD_10	11.0	1	0.9	0.3	
62	3	2099A														
			10 BUSLD_10	11.0	1	0.801	1.3	0.0	0.9	0.0						
					1	8.808		0.0	0.3	0.0						
62	3	2099A									9 BUSLD_09	11.0	1	-0.9	-0.3	

101 WNDFRM	.690	1	1.000	5.6	6.9	0.0	0.0	-----
-----		1	0.690		-14.7R	0.0	0.0	102 TXBUS 11.0 1 6.9 -14.7 0.850UN
13571 32 50M								
102 TXBUS	11.0	1	0.907	2.9	0.0	0.0	0.0	-----
-----		1	9.982		0.0	0.0	0.0	5 BUS_05 11.0 1 6.6 -16.0
1002 48 2099A								
1002 38 50M								101 WNDFRM .690 1 -6.6 16.0 0.850LO

## 5 Wind Turbines Connected to Busbar 5 - Loadflow

### RADIAL NETWORK

<===== BUS DATA =====>										<===== LINE DATA =====>				
=====										=====				
FROM	AREA	VOLT	GEN	LOAD	SHUNT	TO								
TRANSFORMER	RATING													
BUS	NAME	ZONE	PU/KV	ANGLE	MW/MVAR	MW/MVAR	MW/MVAR	BUS	NAME	CKT	MW	MVAR	RATIO	
ANGLE	AMPS	%I	SET A											
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	
=====	=====	=====	=====											
1	INF_BUS	132	1	1.000	0.0	2.3	0.0	0.0	-----					
-----														
			1	132.0		29.7R	0.0	0.0	2	BUS_TX	132	1	2.3	29.7
130	37	350A												
2	BUS_TX	132	1	0.990	1.4	0.0	0.0	0.0	-----					
-----														
			1	130.7		0.0	0.0	0.0	1	INF_BUS	132	1	-1.6	-29.5
130	37	350A												
									3	BUS_03	33.0	1	1.6	29.5 0.870RG
130	50	60M												
3	BUS_03	33.0	1	1.008	1.2	0.0	0.0	0.0	-----					
-----														
			1	33.27		0.0	0.0	0.0	2	BUS_TX	132	1	-1.5	-26.1 0.870UN
454	43	60M												
									4	BUS_TX	33.0	1	1.5	26.1
454	52	875A												
4	BUS_TX	33.0	1	0.980	3.6	0.0	0.0	0.0	-----					
-----														
			1	32.34		0.0	0.0	0.0	3	BUS_03	33.0	1	-0.4	-25.4
454	52	875A												
									5	BUS_05	11.0	1	0.4	25.4 0.950RG
454	65	40M												

	5	BUS_05	11.0	1	0.908	5.0	0.0	0.0	0.0	-----							
				1	9.991		0.0	0.0	0.0		4	BUS_TX	33.0	1	0.2	-22.4	0.950UN
1294	62	40M									6	BUSLD_0611.0	11.0	1	10.4	4.1	
647	31	2099A									102	TXBUS	11.0	1	-10.6	18.3	
1224	58	2099A															
	6	BUSLD_0611.0		1	0.850	4.8	0.0	5.5	0.0	-----							
				1	9.347		0.0	2.3	0.0		5	BUS_05	11.0	1	-9.8	-3.8	
647	31	2099A									7	BUSLD_0711.0	11.0	1	4.3	1.5	
279	13	2099A															
	7	BUSLD_0711.0		1	0.824	4.7	0.0	1.5	0.0	-----							
				1	9.069		0.0	0.6	0.0		6	BUSLD_0611.0	11.0	1	-4.2	-1.4	
279	13	2099A									8	BUSLD_0811.0	11.0	1	2.7	0.8	
177	8	2099A															
	8	BUSLD_0811.0		1	0.815	4.6	0.0	0.9	0.0	-----							
				1	8.964		0.0	0.3	0.0		7	BUSLD_0711.0	11.0	1	-2.6	-0.8	
177	8	2099A									9	BUSLD_0911.0	11.0	1	1.7	0.5	
116	6	2099A															
	9	BUSLD_0911.0		1	0.807	4.5	0.0	0.8	0.0	-----							
				1	8.873		0.0	0.2	0.0		8	BUSLD_0811.0	11.0	1	-1.7	-0.5	
116	6	2099A									10	BUSLD_1011.0	11.0	1	0.9	0.3	
62	3	2099A															
	10	BUSLD_1011.0		1	0.801	4.5	0.0	0.9	0.0	-----							
				1	8.811		0.0	0.3	0.0		9	BUSLD_0911.0	11.0	1	-0.9	-0.3	
62	3	2099A															



101 WNDFRM	.690	1	1.000	10.3	11.5	0.0	0.0	-----
-----								
		1	0.690		-16.1R	0.0	0.0	102 TXBUS 11.0 1 11.5 -16.1 0.850UN
16584 40 50M								
102 TXBUS	11.0	1	0.911	6.4	0.0	0.0	0.0	-----
-----								
		1	10.02		0.0	0.0	0.0	5 BUS_05 11.0 1 11.1 -18.1
1224 58 2099A								
								101 WNDFRM .690 1 -11.1 18.1 0.850LO
1224 47 50M								

# Appendix E

Fault Levels with Distributed Generation connected to the network

# Appendix E1

Fault levels for at Busbars 5- 10 with Distributed generation connected at Busbar 10

2 Turbines Connected to Busbar 10

ACTIVITY? DIAGONALS = 12 OFF-DIAGONALS = 11 MAX SIZE = 22  
 POS. SEQUENCE: DIAGONALS = 12 OFF-DIAGONALS = 11

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 13:50 . HOME BUS IS: .  
 . RADIAL NETWORK . 10 .  
 . .[BUSLD\_1011.0].  
 . \*\*\* FAULTED BUS IS : 10 [BUSLD\_1011.0] \*\*\* . 0 LEVELS AWAY.

AT BUS 10 [BUSLD\_1011.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.19395 0.46000 2.372

				T H R E E P H A S E F A U L T			
FROM	AREA CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)		APP	X/R
9 [BUSLD_0911.0]	1 1	AMP/OHM	1703.6 -44.12	0.58	23.82		0.441
102 [TXBUS 11.0]	1 1	AMP/OHM	7891.3 -63.98	0.12	23.84		0.442
	TO SHUNT	(AMPS)	0.0 0.00				
TOTAL FAULT CURRENT		(AMPS)	9511.2 -60.49				

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 13:50 . HOME BUS IS: .  
 . RADIAL NETWORK . 10 .  
 . .[BUSLD\_1011.0].  
 . \*\*\* FAULTED BUS IS : 10 [BUSLD\_1011.0] \*\*\* . 1 LEVELS AWAY.

AT BUS 9 [BUSLD\_0911.0] AREA 1 (KV L-G) V+: / 0.980/ -20.30

				T H R E E P H A S E F A U L T			
FROM	AREA CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)		APP	X/R
8 [BUSLD_0811.0]	1 1	AMP/OHM	1711.7 -44.07	1.03	23.80		0.441
10 [BUSLD_1011.0]	1 1	AMP/OHM	1703.6 135.88	0.00	0.00		0.000
	TO SHUNT	(AMPS)	8.3 -34.34				

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 0.908/ -40.13

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
  10 [BUSLD_1011.0]  1 1  AMP/OHM  7891.3  116.02   0.00   0.00   0.000
  101 [WNDFRM .690]  1 1  AMP/OHM  7891.3  -63.98   0.00   0.00   0.000

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  13:50 . HOME BUS IS: .
. RADIAL NETWORK                        .           10           .
.                                       . [BUSLD_1011.0].
.   *** FAULTED BUS IS :      10 [BUSLD_1011.0] *** . 2 LEVELS AWAY.

```

```

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  1.768/ -20.27

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   7 [BUSLD_0711.0]  1 1  AMP/OHM  1728.8  -44.02   1.37   23.76   0.440
   9 [BUSLD_0911.0]  1 1  AMP/OHM  1711.7  135.93   0.57  -156.23   0.440
                TO SHUNT (AMPS)   17.1  -38.70

```

```

AT BUS     101 [WNDFRM .690] AREA  1  (KV L-G) V+: /  0.313/  5.08

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
  102 [TXBUS  11.0]  1 1  AMP/OHM  111886.1  116.02   0.12  -156.16   0.442

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  13:50 . HOME BUS IS: .
. RADIAL NETWORK                        .           10           .
.                                       . [BUSLD_1011.0].
.   *** FAULTED BUS IS :      10 [BUSLD_1011.0] *** . 3 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  2.365/ -20.26

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   6 [BUSLD_0611.0]  1 1  AMP/OHM  1767.5  -43.97   1.91   23.74   0.440
   8 [BUSLD_0811.0]  1 1  AMP/OHM  1728.8  135.98   1.02  -156.25   0.440
                TO SHUNT (AMPS)   38.8  -42.06

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:50 . HOME BUS IS: .
. RADIAL NETWORK                        .          10 .
.                                       .[BUSLD_1011.0].
.      *** FAULTED BUS IS :      10 [BUSLD_1011.0] *** . 4 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  3.382/ -20.23

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E			F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP X/R		
5	[BUS_05 11.0]	1	1	AMP/OHM	1965.3	-43.87	2.30	23.68	0.439
7	[BUSLD_0711.0]	1	1	AMP/OHM	1767.5	136.03	1.34	-156.29	0.439
				TO SHUNT (AMPS)	197.8	-42.92			

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:50 . HOME BUS IS: .
. RADIAL NETWORK                        .          10 .
.                                       .[BUSLD_1011.0].
.      *** FAULTED BUS IS :      10 [BUSLD_1011.0] *** . 5 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05 11.0] AREA  1  (KV L-G) V+: /  4.512/ -20.18

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E			F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP X/R		
4	[BUS_TX 33.0]	1	1	AMP/OHM	1965.3	-43.87	21.91	34.48	0.687
6	[BUSLD_0611.0]	1	1	AMP/OHM	1965.3	136.13	1.72	-156.36	0.438

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:50 . HOME BUS IS: .
. RADIAL NETWORK                        .          10 .
.                                       .[BUSLD_1011.0].
.      *** FAULTED BUS IS :      10 [BUSLD_1011.0] *** . 6 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX 33.0] AREA  1  (KV L-G) V+: / 15.110/  -9.39

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E			F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP X/R		
3	[BUS_03 33.0]	1	1	AMP/OHM	689.6	-43.87	23.99	34.28	0.682
5	[BUS_05 11.0]	1	1	AMP/OHM	689.6	136.13	2.30	-156.32	0.439

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:50 . HOME BUS IS: .
. RADIAL NETWORK                      .          10          .
.                                     .[BUSLD_1011.0].
.      *** FAULTED BUS IS :    10 [BUSLD_1011.0] ***      . 7 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03 33.0] AREA  1  (KV L-G) V+: / 16.546/  -9.58

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   2 [BUS_TX 132]   1 1  AMP/OHM  689.6  -43.87  397.28  43.57   0.951
   4 [BUS_TX 33.0]   1 1  AMP/OHM  689.6  136.13  21.91  -145.52  0.687

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:50 . HOME BUS IS: .
. RADIAL NETWORK                      .          10          .
.                                     .[BUSLD_1011.0].
.      *** FAULTED BUS IS :    10 [BUSLD_1011.0] ***      . 8 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX 132] AREA  1  (KV L-G) V+: / 72.094/  -0.30

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   1 [INF_BUS 132]   1 1  AMP/OHM  181.5  -43.87  411.62  42.63   0.921
   3 [BUS_03 33.0]   1 1  AMP/OHM  181.5  136.13  23.99  -145.72  0.682

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:50 . HOME BUS IS: .
. RADIAL NETWORK                      .          10          .
.                                     .[BUSLD_1011.0].
.      *** FAULTED BUS IS :    10 [BUSLD_1011.0] ***      . 9 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS 132] AREA  1  (KV L-G) V+: / 74.697/  -1.24

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                AMP/      181.5  -43.87
   2 [BUS_TX 132]   1 1  AMP/OHM  181.5  136.13  397.28  -136.43  0.951
DIAGONALS =    12 OFF-DIAGONALS =    11 MAX SIZE =    22
POS. SEQUENCE: DIAGONALS =    12 OFF-DIAGONALS =    11

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:50 . HOME BUS IS: .
. RADIAL NETWORK                      .          9          .
.                                     .[BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 0 LEVELS AWAY.

```

```

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

```

```

THEV. R, X, X/R: POSITIVE  0.46366  0.51718  1.115

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   8 [BUSLD_0811.0]   1 1  AMP/OHM  2022.8  -46.88   0.46   23.84   0.442
  10 [BUSLD_1011.0]   1 1  AMP/OHM  4776.6  -42.20   0.58   23.82   0.441
                TO SHUNT (AMPS)      0.0    0.00
      TOTAL FAULT CURRENT (AMPS)  6794.7  -43.59

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:50 . HOME BUS IS: .
. RADIAL NETWORK                      .          9          .
.                                     .[BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 1 LEVELS AWAY.

```

```

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  0.931/ -23.04

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM  2031.8  -46.85   0.80   23.80   0.441
   9 [BUSLD_0911.0]   1 1  AMP/OHM  2022.8  133.12   0.00   0.00   0.000
                TO SHUNT (AMPS)      9.0   -41.47

```

```

AT BUS     10 [BUSLD_1011.0] AREA  1  (KV L-G) V+: /  2.748/ -18.38

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   9 [BUSLD_0911.0]   1 1  AMP/OHM  4776.6  137.80   0.00   0.00   0.000
 102 [TXBUS  11.0]   1 1  AMP/OHM  4802.9  -42.17   0.69   23.80   0.441
                TO SHUNT (AMPS)      26.3  -36.82

```



```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:50 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] ***   . 2 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  1.632/ -23.05

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)    /Z+/   AN(Z+)  APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM  2058.5  -46.83    1.37    23.79    0.441
   8 [BUSLD_0811.0]   1 1  AMP/OHM  2031.8  133.15    0.46   -156.18    0.441
              TO SHUNT  (AMPS)    26.8   -44.85

```

```

AT BUS     102 [TXBUS  11.0] AREA  1  (KV L-G) V+: /  3.301/ -18.38

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)    /Z+/   AN(Z+)  APP X/R
   10 [BUSLD_1011.0]  1 1  AMP/OHM  4802.9  137.83    0.57   -156.21    0.441
   101 [WINDFRM .690] 1 1  AMP/OHM  4802.9  -42.17    0.01    46.21    1.043

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:50 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] ***   . 3 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  2.817/ -23.04

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)    /Z+/   AN(Z+)  APP X/R
   5 [BUS_05 11.0]   1 1  AMP/OHM  2223.2  -46.75    1.84    23.74    0.440
   7 [BUSLD_0711.0]   1 1  AMP/OHM  2058.5  133.17    0.79   -156.22    0.441
              TO SHUNT  (AMPS)    164.8  -45.73

```

```

AT BUS     101 [WINDFRM .690] AREA  1  (KV L-G) V+: /  0.355/   4.04

```

```

              T H R E E   P H A S E   F A U L T

```

```

----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
MACHINE 1
  102 [TXBUS  11.0]  1 1  AMP/OHM  68097.1  137.83    0.69  -156.20    0.441

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  13:50 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                         .[BUSLD_0911.0].
.      *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 4 LEVELS AWAY.

AT BUS      5 [BUS_05  11.0] AREA  1  (KV L-G) V+: /  4.096/  -23.00

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
  4 [BUS_TX  33.0]  1 1  AMP/OHM  2223.2  -46.75    18.31   36.69    0.745
  6 [BUSLD_0611.0]  1 1  AMP/OHM  2223.2  133.25    1.27  -156.29    0.439

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  13:50 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                         .[BUSLD_0911.0].
.      *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 5 LEVELS AWAY.

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 14.282/  -10.05

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
  3 [BUS_03  33.0]  1 1  AMP/OHM  780.1  -46.75    20.39   36.23    0.733
  5 [BUS_05  11.0]  1 1  AMP/OHM  780.1  133.25    1.84  -156.26    0.440

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  13:50 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                         .[BUSLD_0911.0].
.      *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 6 LEVELS AWAY.

AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 15.903/  -10.51

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
  2 [BUS_TX  132]  1 1  AMP/OHM  780.1  -46.75   347.79   46.58    1.057

```

```

      4 [BUS_TX  33.0]   1 1 AMP/OHM   780.1   133.25   18.31  -143.31   0.745
. PSS/E SHORT CIRCUIT OUTPUT           THU, AUG 05 2004  13:50 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                         .[BUSLD_0911.0].
.      *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 7 LEVELS AWAY.

AT BUS      2 [BUS_TX  132] AREA   1   (KV L-G) V+: / 71.396/   -0.16

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      1 [INF_BUS  132]   1 1 AMP/OHM   205.3   -46.75   361.79   45.40   1.014
      3 [BUS_03  33.0]   1 1 AMP/OHM   205.3   133.25   20.39   -143.77   0.733

. PSS/E SHORT CIRCUIT OUTPUT           THU, AUG 05 2004  13:50 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                         .[BUSLD_0911.0].
.      *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 8 LEVELS AWAY.

AT BUS      1 [INF_BUS  132] AREA   1   (KV L-G) V+: / 74.269/   -1.34

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1
      2 [BUS_TX  132]   1 1 AMP/OHM   205.3   133.25   347.79  -133.42   1.057
DIAGONALS = 12 OFF-DIAGONALS = 11 MAX SIZE = 22
POS. SEQUENCE: DIAGONALS = 12 OFF-DIAGONALS = 11

. PSS/E SHORT CIRCUIT OUTPUT           THU, AUG 05 2004  13:51 . HOME BUS IS: .
. RADIAL NETWORK                        .           8 .
.                                         .[BUSLD_0811.0].
.      *** FAULTED BUS IS :           8 [BUSLD_0811.0] *** . 0 LEVELS AWAY.

AT BUS      8 [BUSLD_0811.0] AREA   1   (KV L-G) V+: / 0.000/   0.00

THEV. R, X, X/R: POSITIVE  0.58732  0.56135   0.956

                T H R E E   P H A S E   F A U L T

```

```

----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
  7 [BUSLD_0711.0]   1 1  AMP/OHM  2362.4   -49.98    0.35    23.78    0.441
  9 [BUSLD_0911.0]   1 1  AMP/OHM  3496.7   -34.68    0.46    23.84    0.442
                    TO SHUNT  (AMPS)    0.0     0.00
TOTAL FAULT CURRENT (AMPS)  5808.8   -40.84

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  13:51 . HOME BUS IS: .
. RADIAL NETWORK                        .           8           .
.                                       .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 1 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  0.815/  -26.20

```

```

                    T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
  6 [BUSLD_0611.0]   1 1  AMP/OHM  2375.7   -49.97    0.92    23.80    0.441
  8 [BUSLD_0811.0]   1 1  AMP/OHM  2362.4   130.02    0.00    0.00    0.000
                    TO SHUNT  (AMPS)    13.4   -48.01

```

```

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  1.610/  -10.83

```

```

                    T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
  8 [BUSLD_0811.0]   1 1  AMP/OHM  3496.7   145.32    0.00    0.00    0.000
 10 [BUSLD_1011.0]   1 1  AMP/OHM  3510.0   -34.64    1.03    23.81    0.441
                    TO SHUNT  (AMPS)    13.6   -24.87

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  13:51 . HOME BUS IS: .
. RADIAL NETWORK                        .           8           .
.                                       .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 2 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  2.182/  -26.17

```

```

                    T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
  5 [BUS_05 11.0]   1 1  AMP/OHM  2503.4   -49.92    1.45    23.77    0.440

```

```

7 [BUSLD_0711.0] 1 1 AMP/OHM 2375.7 130.03 0.34 -156.23 0.440
   TO SHUNT (AMPS) 127.6 -48.87

AT BUS 10 [BUSLD_1011.0] AREA 1 (KV L-G) V+: / 3.629/ -10.83

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  9 [BUSLD_0911.0] 1 1 AMP/OHM 3510.0 145.36 0.46 -156.19 0.441
102 [TXBUS 11.0] 1 1 AMP/OHM 3544.7 -34.59 1.14 23.77 0.440
   TO SHUNT (AMPS) 34.8 -29.26

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 13:51 . HOME BUS IS: .
. RADIAL NETWORK . 8 .
. . [BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 3 LEVELS AWAY.

AT BUS 5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 3.622/ -26.15

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  4 [BUS_TX 33.0] 1 1 AMP/OHM 2503.4 -49.92 15.20 39.43 0.822
  6 [BUSLD_0611.0] 1 1 AMP/OHM 2503.4 130.08 0.87 -156.26 0.440

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 4.037/ -10.82

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
 10 [BUSLD_1011.0] 1 1 AMP/OHM 3544.7 145.41 1.02 -156.24 0.440
101 [WNDFRM .690] 1 1 AMP/OHM 3544.7 -34.59 0.01 39.48 0.824

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 13:51 . HOME BUS IS: .
. RADIAL NETWORK . 8 .
. . [BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 4 LEVELS AWAY.

AT BUS 4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 13.349/ -10.49

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  878.4   -49.92   17.27   38.56   0.797
   5 [BUS_05  11.0]   1 1  AMP/OHM  878.4   130.08    1.45  -156.23  0.440

```

AT BUS 101 [WNDFRM .690] AREA 1 (KV L-G) V+: / 0.369/ 4.90

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
  102 [TXBUS  11.0]   1 1  AMP/OHM  50257.6  145.41    1.14  -156.23  0.440

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:51 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                       . [BUSLD_0811.0].
.   *** FAULTED BUS IS :             8 [BUSLD_0811.0] *** . 5 LEVELS AWAY.

```

AT BUS 3 [BUS\_03 33.0] AREA 1 (KV L-G) V+: / 15.167/ -11.36

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   2 [BUS_TX  132]   1 1  AMP/OHM  878.4   -49.92  305.63   49.97   1.191
   4 [BUS_TX  33.0]   1 1  AMP/OHM  878.4   130.08   15.20  -140.57   0.822

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:51 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                       . [BUSLD_0811.0].
.   *** FAULTED BUS IS :             8 [BUSLD_0811.0] *** . 6 LEVELS AWAY.

```

AT BUS 2 [BUS\_TX 132] AREA 1 (KV L-G) V+: / 70.646/ 0.06

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   1 [INF_BUS 132]   1 1  AMP/OHM  231.2   -49.92  319.19   48.49   1.130
   3 [BUS_03  33.0]   1 1  AMP/OHM  231.2   130.08   17.27  -141.44   0.797

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:51 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     .[BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 7 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS 132] AREA      1      (KV L-G) V+: / 73.781/   -1.43

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
      2 [BUS_TX 132]  1 1  AMP/OHM  231.2  -49.92
DIAGONALS = 12 OFF-DIAGONALS = 11 MAX SIZE = 22
POS. SEQUENCE: DIAGONALS = 12 OFF-DIAGONALS = 11

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:51 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     .[BUSLD_0711.0].
. *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 0 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA      1      (KV L-G) V+: / 0.000/    0.00

```

```

THEV. R, X, X/R: POSITIVE 0.62888 0.59523 0.946

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
  6 [BUSLD_0611.0]  1 1  AMP/OHM  2684.2  -53.10    0.58    23.82    0.441
  8 [BUSLD_0811.0]  1 1  AMP/OHM  2887.5  -31.28    0.35    23.78    0.441
      TO SHUNT (AMPS)      0.0    0.00
TOTAL FAULT CURRENT (AMPS) 5471.1  -41.79

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:51 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     .[BUSLD_0711.0].
. *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 1 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA      1      (KV L-G) V+: / 1.544/  -29.29

```

```

              T H R E E   P H A S E   F A U L T

```

```

----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   5 [BUS_05 11.0]    1 1 AMP/OHM  2774.5  -53.06    1.13    23.80    0.441
   7 [BUSLD_0711.0]  1 1 AMP/OHM  2684.2  126.90    0.00     0.00    0.000
                        TO SHUNT (AMPS)    90.3   -51.98

```

```

AT BUS      8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 0.996/ -7.50

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   7 [BUSLD_0711.0]  1 1 AMP/OHM  2887.5  148.72    0.00     0.00    0.000
   9 [BUSLD_0911.0]  1 1 AMP/OHM  2897.1  -31.26    0.80    23.81    0.441
                        TO SHUNT (AMPS)    9.7   -25.94

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:51 . HOME BUS IS: .
. RADIAL NETWORK                       .           7           .
.                                       . [BUSLD_0711.0].
. *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 2 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 3.141/ -29.27

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   4 [BUS_TX 33.0]   1 1 AMP/OHM  2774.5  -53.06   12.75    42.55    0.918
   6 [BUSLD_0611.0]  1 1 AMP/OHM  2774.5  126.94    0.56   -156.22    0.441

```

```

AT BUS      9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 2.330/ -7.45

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   8 [BUSLD_0811.0]  1 1 AMP/OHM  2897.1  148.74    0.34   -156.24    0.440
  10 [BUSLD_1011.0]  1 1 AMP/OHM  2916.4  -31.20    1.37    23.77    0.440
                        TO SHUNT (AMPS)   19.6   -21.49

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:51 . HOME BUS IS: .
. RADIAL NETWORK                       .           7           .
.                                       . [BUSLD_0711.0].

```



. \*\*\* FAULTED BUS IS : 7 [BUSLD\_0711.0] \*\*\* . 3 LEVELS AWAY.

AT BUS 4 [BUS\_TX 33.0] AREA 1 (KV L-G) V+: / 12.416/ -10.52

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
3 [BUS_03 33.0]	1	1	AMP/OHM	973.5	-53.07	14.81	41.10	0.872	
5 [BUS_05 11.0]	1	1	AMP/OHM	973.5	126.94	1.13	-156.20	0.441	

AT BUS 10 [BUSLD\_1011.0] AREA 1 (KV L-G) V+: / 4.008/ -7.42

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
9 [BUSLD_0911.0]	1	1	AMP/OHM	2916.4	148.80	0.80	-156.26	0.440	
102 [TXBUS 11.0]	1	1	AMP/OHM	2954.7	-31.13	1.47	23.71	0.439	
TO SHUNT (AMPS)				38.4	-25.86				

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 13:51 . HOME BUS IS: .  
. RADIAL NETWORK . 7 .  
. . [BUSLD\_0711.0].  
. \*\*\* FAULTED BUS IS : 7 [BUSLD\_0711.0] \*\*\* . 4 LEVELS AWAY.

AT BUS 3 [BUS\_03 33.0] AREA 1 (KV L-G) V+: / 14.417/ -11.97

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
2 [BUS_TX 132]	1	1	AMP/OHM	973.5	-53.06	272.99	53.41	1.347	
4 [BUS_TX 33.0]	1	1	AMP/OHM	973.5	126.94	12.75	-137.45	0.918	

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 4.348/ -7.41

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
10 [BUSLD_1011.0]	1	1	AMP/OHM	2954.7	148.87	1.36	-156.30	0.439	
101 [WINDFRM .690]	1	1	AMP/OHM	2954.7	-31.13	0.01	36.57	0.742	

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:51 . HOME BUS IS: .
. RADIAL NETWORK                        .           7           .
.                                       .[BUSLD_0711.0].
.   *** FAULTED BUS IS :           7 [BUSLD_0711.0] ***   . 5 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 69.937/ 0.35

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
  1 [INF_BUS 132]   1 1  AMP/OHM  256.2  -53.07  286.07   51.60   1.262
  3 [BUS_03 33.0]   1 1  AMP/OHM  256.2  126.94  14.81  -138.90   0.872

```

```

AT BUS     101 [WNDFRM .690] AREA 1 (KV L-G) V+: / 0.374/ 5.44

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                AMP/   41892.8  -31.13
  102 [TXBUS 11.0]   1 1  AMP/OHM  41892.8  148.87   1.47  -156.29   0.439

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:51 . HOME BUS IS: .
. RADIAL NETWORK                        .           7           .
.                                       .[BUSLD_0711.0].
.   *** FAULTED BUS IS :           7 [BUSLD_0711.0] ***   . 6 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 73.287/ -1.47

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                AMP/   256.2  -53.06
  2 [BUS_TX 132]   1 1  AMP/OHM  256.2  126.94  272.99  -126.59   1.347
DIAGONALS =      12 OFF-DIAGONALS =      11 MAX SIZE =      22
POS. SEQUENCE: DIAGONALS =      12 OFF-DIAGONALS =      11

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:51 . HOME BUS IS: .
. RADIAL NETWORK                        .           6           .
.                                       .[BUSLD_0611.0].
.   *** FAULTED BUS IS :           6 [BUSLD_0611.0] ***   . 0 LEVELS AWAY.

```

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.60612 0.65808 1.086

				T H R E E		P H A S E		F A U L T		
-----	FROM	-----	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
5	[BUS_05	11.0]	1	1	AMP/OHM	3389.9	-60.59	0.58	23.82	0.441
7	[BUSLD_0711.0]		1	1	AMP/OHM	2212.8	-27.72	0.58	23.82	0.441
					TO SHUNT (AMPS)	0.0	0.00			
TOTAL FAULT CURRENT (AMPS)						5384.0	-47.70			

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 13:51 . HOME BUS IS: .  
. RADIAL NETWORK . 6 .  
. . [BUSLD\_0611.0].  
. \*\*\* FAULTED BUS IS : 6 [BUSLD\_0611.0] \*\*\* . 1 LEVELS AWAY.

AT BUS 5 [BUS\_05 11.0] AREA 1 (KV L-G) V+: / 1.950/ -36.78

				T H R E E		P H A S E		F A U L T		
-----	FROM	-----	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
4	[BUS_TX	33.0]	1	1	AMP/OHM	3389.9	-60.59	8.60	52.29	1.293
6	[BUSLD_0611.0]		1	1	AMP/OHM	3389.9	119.41	0.00	0.00	0.000

AT BUS 7 [BUSLD\_0711.0] AREA 1 (KV L-G) V+: / 1.273/ -3.90

				T H R E E		P H A S E		F A U L T		
-----	FROM	-----	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
6	[BUSLD_0611.0]		1	1	AMP/OHM	2212.8	152.28	0.00	0.00	0.000
8	[BUSLD_0811.0]		1	1	AMP/OHM	2233.7	-27.70	0.92	23.79	0.441
					TO SHUNT (AMPS)	20.9	-25.70			

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 13:51 . HOME BUS IS: .  
. RADIAL NETWORK . 6 .  
. . [BUSLD\_0611.0].  
. \*\*\* FAULTED BUS IS : 6 [BUSLD\_0611.0] \*\*\* . 2 LEVELS AWAY.

AT BUS 4 [BUS\_TX 33.0] AREA 1 (KV L-G) V+: / 10.225/ -8.30

FROM	AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
				/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
3 [BUS_03 33.0]	1	1	AMP/OHM	1189.4	-60.59	10.58	48.41	1.127	
5 [BUS_05 11.0]	1	1	AMP/OHM	1189.4	119.41	0.58	-156.18	0.441	

AT BUS 8 [BUSLD\_0811.0] AREA 1 (KV L-G) V+: / 2.044/ -3.91

FROM	AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
				/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
7 [BUSLD_0711.0]	1	1	AMP/OHM	2233.7	152.30	0.57	-156.20	0.441	
9 [BUSLD_0911.0]	1	1	AMP/OHM	2253.4	-27.65	1.37	23.78	0.441	
			TO SHUNT (AMPS)	19.8	-22.34				

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 13:51 . HOME BUS IS: .  
. RADIAL NETWORK . 6 .  
. . [BUSLD\_0611.0].  
. \*\*\* FAULTED BUS IS : 6 [BUSLD\_0611.0] \*\*\* . 3 LEVELS AWAY.

AT BUS 3 [BUS\_TX 33.0] AREA 1 (KV L-G) V+: / 12.583/ -12.18

FROM	AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
				/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
2 [BUS_TX 132]	1	1	AMP/OHM	1189.4	-60.59	218.64	61.90	1.873	
4 [BUS_TX 33.0]	1	1	AMP/OHM	1189.4	119.41	8.60	-127.71	1.293	

AT BUS 9 [BUSLD\_0911.0] AREA 1 (KV L-G) V+: / 3.081/ -3.87

FROM	AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
				/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
8 [BUSLD_0811.0]	1	1	AMP/OHM	2253.4	152.35	0.91	-156.26	0.440	
10 [BUSLD_1011.0]	1	1	AMP/OHM	2279.0	-27.54	1.93	23.71	0.439	
			TO SHUNT (AMPS)	26.0	-17.91				

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 13:51 . HOME BUS IS: .

```

. RADIAL NETWORK .
. . . . . 6 .
. . . . . [BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 4 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 68.436/ 1.31

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  1 [INF_BUS 132] 1 1 AMP/OHM 313.0 -60.59 230.35 59.20 1.677
  3 [BUS_03 33.0] 1 1 AMP/OHM 313.0 119.41 10.58 -131.59 1.127

AT BUS 10 [BUSLD_1011.0] AREA 1 (KV L-G) V+: / 4.393/ -3.83

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  9 [BUSLD_0911.0] 1 1 AMP/OHM 2279.0 152.46 1.35 -156.33 0.438
 102 [TXBUS 11.0] 1 1 AMP/OHM 2320.9 -27.45 2.01 23.63 0.437
      TO SHUNT (AMPS) 42.1 -22.27

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 13:51 . HOME BUS IS: .
. RADIAL NETWORK .
. . . . . 6 .
. . . . . [BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 5 LEVELS AWAY.

AT BUS 1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 72.101/ -1.39

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 313.0 -60.59
  2 [BUS_TX 132] 1 1 AMP/OHM 313.0 119.41 218.64 -118.10 1.873

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 4.660/ -3.82

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
 10 [BUSLD_1011.0] 1 1 AMP/OHM 2320.9 152.55 1.89 -156.38 0.437

```

```

101 [WINDFRM .690] 1 1 AMP/OHM 2320.9 -27.45 0.01 33.55 0.663
. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 13:51 . HOME BUS IS: .
. RADIAL NETWORK . 6 .
. .[BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 6 LEVELS AWAY.

AT BUS 101 [WINDFRM .690] AREA 1 (KV L-G) V+: / 0.380/ 6.10

----- T H R E E P H A S E F A U L T
FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 32907.3 -27.45
102 [TXBUS 11.0] 1 1 AMP/OHM 32907.3 152.55 2.01 -156.37 0.437
DIAGONALS = 12 OFF-DIAGONALS = 11 MAX SIZE = 22
POS. SEQUENCE: DIAGONALS = 12 OFF-DIAGONALS = 11

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 13:51 . HOME BUS IS: .
. RADIAL NETWORK . 5 .
. .[BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 0 LEVELS AWAY.

AT BUS 5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.49186 0.76251 1.550

----- T H R E E P H A S E F A U L T
FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
4 [BUS_TX 33.0] 1 1 AMP/OHM 4243.6 -72.53 5.01 78.69 5.000
6 [BUSLD_0611.0] 1 1 AMP/OHM 1742.9 -25.60 0.58 23.82 0.441
TOTAL FAULT CURRENT (AMPS) 5580.9 -59.34

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 13:51 . HOME BUS IS: .
. RADIAL NETWORK . 5 .
. .[BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 1 LEVELS AWAY.

AT BUS 4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 7.462/ 6.16

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  1489.0  -72.53   6.62   65.49   2.193
   5 [BUS_05  11.0]   1 1  AMP/OHM  1489.0  107.47   0.00    0.00   0.000

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1   (KV L-G) V+: /  1.003/  -1.78

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM  1742.9  154.40   0.00    0.00   0.000
   7 [BUSLD_0711.0]   1 1  AMP/OHM  1801.5  -25.56   1.13   23.80   0.441
      TO SHUNT (AMPS)      58.7  -24.48

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  13:51 . HOME BUS IS: .
. RADIAL NETWORK                        .                    5 .
.                                       . [BUS_05  11.0].
.   *** FAULTED BUS IS :      5 [BUS_05  11.0] *** . 2 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03  33.0] AREA  1   (KV L-G) V+: /  9.859/  -7.04

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   2 [BUS_TX  132]   1 1  AMP/OHM  1489.0  -72.53  170.68   76.02   4.016
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1489.0  107.47   5.01  -101.31  5.000

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1   (KV L-G) V+: /  2.039/  -1.76

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM  1801.5  154.44   0.56  -156.22  0.441
   8 [BUSLD_0811.0]   1 1  AMP/OHM  1834.9  -25.53   1.46   23.77   0.440
      TO SHUNT (AMPS)      33.4  -23.57

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  13:51 . HOME BUS IS: .
. RADIAL NETWORK                        .                    5 .
.                                       . [BUS_05  11.0].

```

. \*\*\* FAULTED BUS IS : 5 [BUS\_05 11.0] \*\*\* . 3 LEVELS AWAY.

AT BUS 2 [BUS\_TX 132] AREA 1 (KV L-G) V+: / 66.880/ 3.48

				T H R E E		P H A S E		F A U L T	
----- FROM	-----	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
1	[INF_BUS	132]	1 1	AMP/OHM	391.8	-72.53	179.63	71.76	3.034
3	[BUS_03	33.0]	1 1	AMP/OHM	391.8	107.47	6.62	-114.51	2.193

AT BUS 8 [BUSLD\_0811.0] AREA 1 (KV L-G) V+: / 2.673/ -1.76

				T H R E E		P H A S E		F A U L T	
----- FROM	-----	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
7	[BUSLD_0711.0]	1 1	AMP/OHM		1834.9	154.47	1.11	-156.24	0.440
9	[BUSLD_0911.0]	1 1	AMP/OHM		1860.7	-25.45	1.90	23.73	0.440
			TO SHUNT	(AMPS)	25.9	-20.19			

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 13:51 . HOME BUS IS: .  
. RADIAL NETWORK . 5 .  
. . [BUS\_05 11.0].  
. \*\*\* FAULTED BUS IS : 5 [BUS\_05 11.0] \*\*\* . 4 LEVELS AWAY.

AT BUS 1 [INF\_BUS 132] AREA 1 (KV L-G) V+: / 70.388/ -0.77

				T H R E E		P H A S E		F A U L T	
----- FROM	-----	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
MACHINE 1				AMP/	391.8	-72.53			
2	[BUS_TX	132]	1 1	AMP/OHM	391.8	107.47	170.68	-103.98	4.016

AT BUS 9 [BUSLD\_0911.0] AREA 1 (KV L-G) V+: / 3.529/ -1.72

				T H R E E		P H A S E		F A U L T	
----- FROM	-----	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
8	[BUSLD_0811.0]	1 1	AMP/OHM		1860.7	154.55	1.44	-156.31	0.439
10	[BUSLD_1011.0]	1 1	AMP/OHM		1890.1	-25.30	2.44	23.63	0.438
			TO SHUNT	(AMPS)	29.7	-15.76			



```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:51 . HOME BUS IS: .
. RADIAL NETWORK                        .           5 .
.                                       .[BUS_05 11.0].
.      *** FAULTED BUS IS :           5 [BUS_05 11.0] *** . 5 LEVELS AWAY.

```

```

AT BUS    10 [BUSLD_1011.0] AREA    1    (KV L-G) V+: / 4.617/ -1.67

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
9	[BUSLD_0911.0]	1	1	AMP/OHM	1890.1	154.70	1.87	-156.42	0.436
102	[TXBUS 11.0]	1	1	AMP/OHM	1934.1	-25.18	2.50	23.53	0.435
				TO SHUNT (AMPS)	44.2	-20.10			

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:51 . HOME BUS IS: .
. RADIAL NETWORK                        .           5 .
.                                       .[BUS_05 11.0].
.      *** FAULTED BUS IS :           5 [BUS_05 11.0] *** . 6 LEVELS AWAY.

```

```

AT BUS    102 [TXBUS 11.0] AREA    1    (KV L-G) V+: / 4.839/ -1.65

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
10	[BUSLD_1011.0]	1	1	AMP/OHM	1934.1	154.82	2.39	-156.49	0.435
101	[WNDFRM .690]	1	1	AMP/OHM	1934.1	-25.18	0.01	31.73	0.618

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:51 . HOME BUS IS: .
. RADIAL NETWORK                        .           5 .
.                                       .[BUS_05 11.0].
.      *** FAULTED BUS IS :           5 [BUS_05 11.0] *** . 7 LEVELS AWAY.

```

```

AT BUS    101 [WNDFRM .690] AREA    1    (KV L-G) V+: / 0.383/ 6.55

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
MACHINE 1				AMP/	27422.8	-25.18			
102	[TXBUS 11.0]	1	1	AMP/OHM	27422.9	154.82	2.50	-156.47	0.435

### 3 Turbines Connected at Busbar 10

AT BUS 10 [BUSLD\_1011.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.18245 0.42843 2.348

FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	F A U L T APP X/R
9 [BUSLD_0911.0]	1	1	AMP/OHM	1753.8 -44.14	0.58 23.82	0.441
102 [TXBUS 11.0]	1	1	AMP/OHM	8148.3 -59.86	0.12 23.84	0.442
			TO SHUNT (AMPS)	0.0 0.00		
TOTAL FAULT CURRENT			(AMPS)	9847.9 -57.10		

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 13:57 . HOME BUS IS: .  
 . RADIAL NETWORK . 10 .  
 . [BUSLD\_1011.0].  
 . \*\*\* FAULTED BUS IS : 10 [BUSLD\_1011.0] \*\*\* . 1 LEVELS AWAY.

AT BUS 9 [BUSLD\_0911.0] AREA 1 (KV L-G) V+: / 1.009/ -20.32

FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	F A U L T APP X/R
8 [BUSLD_0811.0]	1	1	AMP/OHM	1762.7 -44.09	1.03 23.80	0.441
10 [BUSLD_1011.0]	1	1	AMP/OHM	1753.8 135.86	0.00 0.00	0.000
			TO SHUNT (AMPS)	9.0 -34.36		

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 0.938/ -36.02

FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	F A U L T APP X/R
10 [BUSLD_1011.0]	1	1	AMP/OHM	8148.3 120.14	0.00 0.00	0.000
101 [WINDFRM .690]	1	1	AMP/OHM	8148.3 -59.86	0.00 0.00	0.000

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 13:57 . HOME BUS IS: .  
 . RADIAL NETWORK . 10 .

```

.                                     .[BUSLD_1011.0].
.   *** FAULTED BUS IS :      10 [BUSLD_1011.0] ***   . 2 LEVELS AWAY.

AT BUS      8 [BUSLD_0811.0] AREA  1   (KV L-G) V+: /  1.821/ -20.29

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM  1781.1  -44.03    1.37    23.75    0.440
   9 [BUSLD_0911.0]   1 1  AMP/OHM  1762.7  135.91    0.57   -156.23   0.440
                TO SHUNT  (AMPS)    18.5   -38.72

AT BUS     101 [WNDFRM .690] AREA  1   (KV L-G) V+: /  0.313/   8.41

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                AMP/    110415.5  -59.86
  102 [TXBUS  11.0]   1 1  AMP/OHM 110415.5  120.14    0.12   -156.16   0.442

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:57 . HOME BUS IS: .
. RADIAL NETWORK                        .          10      .
.                                     .[BUSLD_1011.0].
.   *** FAULTED BUS IS :      10 [BUSLD_1011.0] ***   . 3 LEVELS AWAY.

AT BUS      7 [BUSLD_0711.0] AREA  1   (KV L-G) V+: /  2.435/ -20.28

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM  1822.5  -43.99    1.91    23.74    0.440
   8 [BUSLD_0811.0]   1 1  AMP/OHM  1781.1  135.97    1.02   -156.26   0.440
                TO SHUNT  (AMPS)    41.4   -42.08

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:57 . HOME BUS IS: .
. RADIAL NETWORK                        .          10      .
.                                     .[BUSLD_1011.0].
.   *** FAULTED BUS IS :      10 [BUSLD_1011.0] ***   . 4 LEVELS AWAY.

AT BUS      6 [BUSLD_0611.0] AREA  1   (KV L-G) V+: /  3.484/ -20.24

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM  2030.1  -43.88    2.29    23.68    0.439
   7 [BUSLD_0711.0]  1 1  AMP/OHM  1822.5  136.01    1.34   -156.29    0.439
          TO SHUNT   (AMPS)   207.7   -42.94

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  13:57 . HOME BUS IS: .
. RADIAL NETWORK                      .           10 .
.                                     . [BUSLD_1011.0].
.   *** FAULTED BUS IS :      10 [BUSLD_1011.0] *** . 5 LEVELS AWAY.

AT BUS      5 [BUS_05  11.0] AREA    1   (KV L-G) V+: /  4.652/  -20.20

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   4 [BUS_TX  33.0]   1 1  AMP/OHM  2030.1  -43.88   21.87    34.50    0.687
   6 [BUSLD_0611.0]  1 1  AMP/OHM  2030.1  136.12    1.72   -156.37    0.438

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  13:57 . HOME BUS IS: .
. RADIAL NETWORK                      .           10 .
.                                     . [BUSLD_1011.0].
.   *** FAULTED BUS IS :      10 [BUSLD_1011.0] *** . 6 LEVELS AWAY.

AT BUS      4 [BUS_TX  33.0] AREA    1   (KV L-G) V+: / 15.581/  -9.38

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  712.3   -43.88   23.96    34.30    0.682
   5 [BUS_05  11.0]   1 1  AMP/OHM  712.3   136.12    2.29   -156.32    0.439

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  13:57 . HOME BUS IS: .
. RADIAL NETWORK                      .           10 .
.                                     . [BUSLD_1011.0].
.   *** FAULTED BUS IS :      10 [BUSLD_1011.0] *** . 7 LEVELS AWAY.

AT BUS      3 [BUS_03  33.0] AREA    1   (KV L-G) V+: / 17.065/  -9.58

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   2 [BUS_TX  132]   1 1  AMP/OHM  712.3  -43.88  372.09  43.59   0.952
   4 [BUS_TX  33.0]   1 1  AMP/OHM  712.3  136.12  21.87  -145.50  0.687

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  13:57 . HOME BUS IS: .
. RADIAL NETWORK                      .           10 .
.                                     .[BUSLD_1011.0].
.   *** FAULTED BUS IS :      10 [BUSLD_1011.0] *** . 8 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX  132] AREA      1  (KV L-G) V+: / 72.024/  -0.29

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   1 [INF_BUS 132]   1 1  AMP/OHM  193.6  -43.88  386.44  42.59   0.919
   3 [BUS_03  33.0]   1 1  AMP/OHM  193.6  136.12  23.96  -145.70  0.682

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  13:57 . HOME BUS IS: .
. RADIAL NETWORK                      .           10 .
.                                     .[BUSLD_1011.0].
.   *** FAULTED BUS IS :      10 [BUSLD_1011.0] *** . 9 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS 132] AREA      1  (KV L-G) V+: / 74.802/  -1.28

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
   2 [BUS_TX  132]   1 1  AMP/OHM  193.6  -43.88  372.09  -136.41  0.952
DIAGONALS =      12 OFF-DIAGONALS =    11 MAX SIZE =    22
POS. SEQUENCE: DIAGONALS =      12 OFF-DIAGONALS =    11

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  13:57 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 0 LEVELS AWAY.

```

```

AT BUS      9 [BUSLD_0911.0] AREA      1  (KV L-G) V+: /  0.000/   0.00

```

THEV. R, X, X/R: POSITIVE 0.45794 0.49378 1.078

FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	F A U L T APP X/R
8 [BUSLD_0811.0]	1	1	AMP/OHM	2082.7 -46.88	0.46 23.84	0.442
10 [BUSLD_1011.0]	1	1	AMP/OHM	4744.5 -37.35	0.58 23.82	0.441
			TO SHUNT (AMPS)	0.0 0.00		
TOTAL FAULT CURRENT			(AMPS)	6807.2 -40.25		

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 13:57 . HOME BUS IS: .  
. RADIAL NETWORK . 9 .  
. . [BUSLD\_0911.0].  
. \*\*\* FAULTED BUS IS : 9 [BUSLD\_0911.0] \*\*\* . 1 LEVELS AWAY.

AT BUS 8 [BUSLD\_0811.0] AREA 1 (KV L-G) V+: / 0.959/ -23.03

FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	F A U L T APP X/R
7 [BUSLD_0711.0]	1	1	AMP/OHM	2092.4 -46.85	0.80 23.80	0.441
9 [BUSLD_0911.0]	1	1	AMP/OHM	2082.7 133.12	0.00 0.00	0.000
			TO SHUNT (AMPS)	9.7 -41.47		

AT BUS 10 [BUSLD\_1011.0] AREA 1 (KV L-G) V+: / 2.730/ -13.53

FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	F A U L T APP X/R
9 [BUSLD_0911.0]	1	1	AMP/OHM	4744.5 142.65	0.00 0.00	0.000
102 [TXBUS 11.0]	1	1	AMP/OHM	4772.5 -37.32	0.69 23.79	0.441
			TO SHUNT (AMPS)	28.0 -31.97		

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 13:57 . HOME BUS IS: .  
. RADIAL NETWORK . 9 .  
. . [BUSLD\_0911.0].  
. \*\*\* FAULTED BUS IS : 9 [BUSLD\_0911.0] \*\*\* . 2 LEVELS AWAY.

AT BUS 7 [BUSLD\_0711.0] AREA 1 (KV L-G) V+: / 1.681/ -23.05

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM  2120.9  -46.82   1.37   23.79   0.441
   8 [BUSLD_0811.0]   1 1  AMP/OHM  2092.4  133.15   0.46  -156.18  0.441
          TO SHUNT  (AMPS)    28.6   -44.85

```

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 3.279/ -13.52

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   10 [BUSLD_1011.0]  1 1  AMP/OHM  4772.5  142.68   0.57  -156.22  0.441
   101 [WINDFRM .690] 1 1  AMP/OHM  4772.5  -37.32   0.01   44.93   0.998

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:57 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .
.                                     . [BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 3 LEVELS AWAY.

```

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 2.901/ -23.03

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   5 [BUS_05 11.0]   1 1  AMP/OHM  2293.9  -46.74   1.84   23.74   0.440
   7 [BUSLD_0711.0]   1 1  AMP/OHM  2120.9  133.18   0.79  -156.23  0.441
          TO SHUNT  (AMPS)    173.0  -45.73

```

AT BUS 101 [WINDFRM .690] AREA 1 (KV L-G) V+: / 0.356/ 7.61

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
  102 [TXBUS 11.0]   1 1  AMP/OHM  64670.2  142.68   0.69  -156.21  0.441

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:57 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .
.                                     . [BUSLD_0911.0].

```

```

.      *** FAULTED BUS IS :      9 [BUSLD_0911.0] ***      . 4 LEVELS AWAY.
AT BUS      5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 4.221/ -23.00

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/      AN(I+)      /Z+/      AN(Z+)      APP X/R
      4 [BUS_TX 33.0] 1 1 AMP/OHM 2293.9 -46.74 18.29 36.70 0.745
      6 [BUSLD_0611.0] 1 1 AMP/OHM 2293.9 133.26 1.26 -156.29 0.439

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004 13:57 . HOME BUS IS: .
. RADIAL NETWORK                      . 9 .
.                                     . [BUSLD_0911.0].
.      *** FAULTED BUS IS :      9 [BUSLD_0911.0] ***      . 5 LEVELS AWAY.
AT BUS      4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 14.721/ -10.04

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/      AN(I+)      /Z+/      AN(Z+)      APP X/R
      3 [BUS_03 33.0] 1 1 AMP/OHM 804.9 -46.74 20.37 36.24 0.733
      5 [BUS_05 11.0] 1 1 AMP/OHM 804.9 133.26 1.84 -156.26 0.440

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004 13:57 . HOME BUS IS: .
. RADIAL NETWORK                      . 9 .
.                                     . [BUSLD_0911.0].
.      *** FAULTED BUS IS :      9 [BUSLD_0911.0] ***      . 6 LEVELS AWAY.
AT BUS      3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 16.394/ -10.50

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/      AN(I+)      /Z+/      AN(Z+)      APP X/R
      2 [BUS_TX 132] 1 1 AMP/OHM 804.9 -46.74 325.94 46.60 1.057
      4 [BUS_TX 33.0] 1 1 AMP/OHM 804.9 133.26 18.29 -143.30 0.745

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004 13:57 . HOME BUS IS: .
. RADIAL NETWORK                      . 9 .
.                                     . [BUSLD_0911.0].
.      *** FAULTED BUS IS :      9 [BUSLD_0911.0] ***      . 7 LEVELS AWAY.

```



```

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 71.288/  -0.14

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      1 [INF_BUS  132]   1 1  AMP/OHM  218.7  -46.74  339.94  45.34   1.012
      3 [BUS_03  33.0]   1 1  AMP/OHM  218.7  133.26  20.37  -143.76  0.733

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  13:57 . HOME BUS IS: .
. RADIAL NETWORK                        .                9 .
.                                        . [BUSLD_0911.0].
.      *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 8 LEVELS AWAY.

AT BUS      1 [INF_BUS  132] AREA  1  (KV L-G) V+: / 74.349/  -1.40

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                                AMP/    218.7  -46.74
      2 [BUS_TX  132]   1 1  AMP/OHM  218.7  133.26  325.94  -133.40  1.057
DIAGONALS =      12 OFF-DIAGONALS =    11 MAX SIZE =    22
POS. SEQUENCE: DIAGONALS =      12 OFF-DIAGONALS =    11

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  13:57 . HOME BUS IS: .
. RADIAL NETWORK                        .                8 .
.                                        . [BUSLD_0811.0].
.      *** FAULTED BUS IS :           8 [BUSLD_0811.0] *** . 0 LEVELS AWAY.

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  0.000/   0.00

THEV. R, X, X/R: POSITIVE  0.58545  0.54357   0.928

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      7 [BUSLD_0711.0]   1 1  AMP/OHM  2432.1  -49.96   0.35   23.78   0.441
      9 [BUSLD_0911.0]   1 1  AMP/OHM  3424.8  -29.99   0.46   23.84   0.442
                TO SHUNT (AMPS)      0.0    0.00
      TOTAL FAULT CURRENT (AMPS)  5770.8  -38.26

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  13:57 . HOME BUS IS: .

```

```

. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***
.
.          8
.          .[BUSLD_0811.0].
.          . 1 LEVELS AWAY.

AT BUS      7 [BUSLD_0711.0] AREA  1   (KV L-G) V+: /  0.839/ -26.18

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  6 [BUSLD_0611.0]  1 1  AMP/OHM  2446.4  -49.95    0.92    23.80    0.441
  8 [BUSLD_0811.0]  1 1  AMP/OHM  2432.1  130.04    0.00    0.00    0.000
          TO SHUNT  (AMPS)      14.3   -47.98

AT BUS      9 [BUSLD_0911.0] AREA  1   (KV L-G) V+: /  1.577/  -6.14

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  8 [BUSLD_0811.0]  1 1  AMP/OHM  3424.8  150.01    0.00    0.00    0.000
 10 [BUSLD_1011.0]  1 1  AMP/OHM  3438.7  -29.95    1.03    23.81    0.441
          TO SHUNT  (AMPS)      14.1   -20.18

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:57 . HOME BUS IS: .
. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***
.
.          8
.          .[BUSLD_0811.0].
.          . 2 LEVELS AWAY.

AT BUS      6 [BUSLD_0611.0] AREA  1   (KV L-G) V+: /  2.247/ -26.15

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  5 [BUS_05 11.0]  1 1  AMP/OHM  2580.3  -49.89    1.45    23.77    0.440
  7 [BUSLD_0711.0]  1 1  AMP/OHM  2446.4  130.05    0.34   -156.23    0.440
          TO SHUNT  (AMPS)      134.0  -48.84

AT BUS     10 [BUSLD_1011.0] AREA  1   (KV L-G) V+: /  3.555/  -6.14

          T H R E E   P H A S E   F A U L T

```

```

----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)    APP X/R
   9 [BUSLD_0911.0]   1 1  AMP/OHM   3438.7   150.05    0.46   -156.20    0.441
  102 [TXBUS   11.0]   1 1  AMP/OHM   3475.1   -29.89    1.14    23.76     0.440
                        TO SHUNT (AMPS)   36.5     -24.57

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:57 . HOME BUS IS: .
. RADIAL NETWORK                        .           8           .
.                                       . [BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 3 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05  11.0] AREA  1  (KV L-G) V+: /  3.731/  -26.12

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)    APP X/R
   4 [BUS_TX  33.0]   1 1  AMP/OHM   2580.3   -49.89    15.19    39.43     0.822
   6 [BUSLD_0611.0]   1 1  AMP/OHM   2580.3   130.11    0.87   -156.26    0.440

```

```

AT BUS     102 [TXBUS   11.0] AREA  1  (KV L-G) V+: /  3.955/  -6.13

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)    APP X/R
  10 [BUSLD_1011.0]   1 1  AMP/OHM   3475.1   150.11    1.02   -156.25    0.440
  101 [WINDFRM .690]   1 1  AMP/OHM   3475.1   -29.89    0.01    38.43     0.793

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:57 . HOME BUS IS: .
. RADIAL NETWORK                        .           8           .
.                                       . [BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 4 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 13.753/  -10.46

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)    APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM   905.4   -49.89    17.26    38.56     0.797
   5 [BUS_05  11.0]   1 1  AMP/OHM   905.4   130.11    1.45   -156.23    0.440

```

```

AT BUS 101 [WNDFRM .690] AREA 1 (KV L-G) V+: / 0.370/ 8.54

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 47089.9 -29.89
  102 [TXBUS 11.0] 1 1 AMP/OHM 47089.9 150.11 1.14 -156.24 0.440

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 13:57 . HOME BUS IS: .
. RADIAL NETWORK . 8 .
. .[BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 5 LEVELS AWAY.

AT BUS 3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 15.627/ -11.33

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  2 [BUS_TX 132] 1 1 AMP/OHM 905.4 -49.89 286.54 49.98 1.191
  4 [BUS_TX 33.0] 1 1 AMP/OHM 905.4 130.11 15.19 -140.57 0.822

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 13:57 . HOME BUS IS: .
. RADIAL NETWORK . 8 .
. .[BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 6 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 70.496/ 0.09

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  1 [INF_BUS 132] 1 1 AMP/OHM 246.0 -49.89 300.11 48.40 1.126
  3 [BUS_03 33.0] 1 1 AMP/OHM 246.0 130.11 17.26 -141.44 0.797

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 13:57 . HOME BUS IS: .
. RADIAL NETWORK . 8 .
. .[BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 7 LEVELS AWAY.

AT BUS 1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 73.834/ -1.49

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                AMP/      246.0  -49.89
  2 [BUS_TX 132]  1 1  AMP/OHM  246.0  130.11  286.54  -130.02  1.191
DIAGONALS = 12 OFF-DIAGONALS = 11 MAX SIZE = 22
POS. SEQUENCE: DIAGONALS = 12 OFF-DIAGONALS = 11

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:57 . HOME BUS IS: .
. RADIAL NETWORK                        .           7           .
.                                       . [BUSLD_0711.0].
.   *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 0 LEVELS AWAY.

```

```

AT BUS 7 [BUSLD_0711.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

```

```

THEV. R, X, X/R: POSITIVE 0.62957 0.58120 0.923

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
  6 [BUSLD_0611.0]  1 1  AMP/OHM  2762.8  -53.05   0.58   23.82   0.441
  8 [BUSLD_0811.0]  1 1  AMP/OHM  2811.0  -26.73   0.35   23.78   0.441
                TO SHUNT (AMPS)    0.0    0.00
TOTAL FAULT CURRENT (AMPS)  5427.4  -39.77

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:57 . HOME BUS IS: .
. RADIAL NETWORK                        .           7           .
.                                       . [BUSLD_0711.0].
.   *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 1 LEVELS AWAY.

```

```

AT BUS 6 [BUSLD_0611.0] AREA 1 (KV L-G) V+: / 1.590/ -29.24

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
  5 [BUS_05 11.0]  1 1  AMP/OHM  2857.6  -53.02   1.13   23.80   0.441
  7 [BUSLD_0711.0]  1 1  AMP/OHM  2762.8  126.95   0.00   0.00   0.000
                TO SHUNT (AMPS)    94.8   -51.93

```

```

AT BUS 8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 0.970/ -2.95

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R
					/I+/ AN(I+)	/Z+/ AN(Z+)			
7	[BUSLD_0711.0]	1	1	AMP/OHM	2811.0	153.27	0.00	0.00	0.000
9	[BUSLD_0911.0]	1	1	AMP/OHM	2820.9	-26.71	0.80	23.81	0.441
				TO SHUNT (AMPS)	9.9	-21.38			

```
. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:57 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     . [BUSLD_0711.0].
. *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 2 LEVELS AWAY.
```

```
AT BUS      5 [BUS_05 11.0] AREA      1      (KV L-G) V+: / 3.234/ -29.22
```

FROM		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R
					/I+/ AN(I+)	/Z+/ AN(Z+)			
4	[BUS_TX 33.0]	1	1	AMP/OHM	2857.6	-53.02	12.75	42.55	0.918
6	[BUSLD_0611.0]	1	1	AMP/OHM	2857.6	126.98	0.56	-156.22	0.441

```
AT BUS      9 [BUSLD_0911.0] AREA      1      (KV L-G) V+: / 2.269/ -2.90
```

FROM		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R
					/I+/ AN(I+)	/Z+/ AN(Z+)			
8	[BUSLD_0811.0]	1	1	AMP/OHM	2820.9	153.29	0.34	-156.24	0.440
10	[BUSLD_1011.0]	1	1	AMP/OHM	2840.8	-26.64	1.37	23.77	0.440
				TO SHUNT (AMPS)	20.3	-16.94			

```
. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:57 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     . [BUSLD_0711.0].
. *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 3 LEVELS AWAY.
```

```
AT BUS      4 [BUS_TX 33.0] AREA      1      (KV L-G) V+: / 12.785/ -10.46
```

FROM		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R
					/I+/ AN(I+)	/Z+/ AN(Z+)			
3	[BUS_03 33.0]	1	1	AMP/OHM	1002.7	-53.02	14.81	41.10	0.872

```

5 [BUS_05 11.0] 1 1 AMP/OHM 1002.7 126.98 1.13 -156.20 0.441

AT BUS 10 [BUSLD_1011.0] AREA 1 (KV L-G) V+: / 3.903/ -2.87

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  9 [BUSLD_0911.0] 1 1 AMP/OHM 2840.8 153.36 0.80 -156.26 0.440
 102 [TXBUS 11.0] 1 1 AMP/OHM 2880.7 -26.56 1.47 23.71 0.439
      TO SHUNT (AMPS) 40.1 -21.30

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 13:57 . HOME BUS IS: .
. RADIAL NETWORK . 7 .
. .[BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 4 LEVELS AWAY.

AT BUS 3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 14.846/ -11.91

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  2 [BUS_TX 132] 1 1 AMP/OHM 1002.7 -53.02 255.99 53.42 1.347
  4 [BUS_TX 33.0] 1 1 AMP/OHM 1002.7 126.98 12.75 -137.45 0.918

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 4.235/ -2.86

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
 10 [BUSLD_1011.0] 1 1 AMP/OHM 2880.7 153.44 1.35 -156.30 0.439
 101 [WNDFRM .690] 1 1 AMP/OHM 2880.7 -26.56 0.01 35.65 0.717

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 13:57 . HOME BUS IS: .
. RADIAL NETWORK . 7 .
. .[BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 5 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 69.747/ 0.40

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   1 [INF_BUS 132]   1 1  AMP/OHM  272.5  -53.02  269.07  51.49   1.257
   3 [BUS_03 33.0]   1 1  AMP/OHM  272.5  126.98  14.81  -138.90  0.872

```

AT BUS 101 [WNDFRM .690] AREA 1 (KV L-G) V+: / 0.375/ 9.09

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
  102 [TXBUS 11.0]   1 1  AMP/OHM  39036.2  153.44  1.47  -156.29  0.439

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:57 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     . [BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 6 LEVELS AWAY.

```

AT BUS 1 [INF\_BUS 132] AREA 1 (KV L-G) V+: / 73.312/ -1.53

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
  2 [BUS_TX 132]   1 1  AMP/OHM  272.5  126.98  255.99  -126.58  1.347
DIAGONALS = 12 OFF-DIAGONALS = 11 MAX SIZE = 22
POS. SEQUENCE: DIAGONALS = 12 OFF-DIAGONALS = 11

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:57 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 0 LEVELS AWAY.

```

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.61069 0.64961 1.064

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R

```



```

5 [BUS_05 11.0] 1 1 AMP/OHM 3486.4 -60.48 0.58 23.82 0.441
7 [BUSLD_0711.0] 1 1 AMP/OHM 2140.8 -23.35 0.58 23.82 0.441
      TO SHUNT (AMPS) 0.0 0.00
TOTAL FAULT CURRENT (AMPS) 5351.6 -46.51

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:57 . HOME BUS IS: .
. RADIAL NETWORK                        .           6           .
.                                       . [BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 1 LEVELS AWAY.

AT BUS 5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 2.006/ -36.67

      T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
4 [BUS_TX 33.0] 1 1 AMP/OHM 3486.4 -60.48 8.60 52.29 1.293
6 [BUSLD_0611.0] 1 1 AMP/OHM 3486.4 119.52 0.00 0.00 0.000

AT BUS 7 [BUSLD_0711.0] AREA 1 (KV L-G) V+: / 1.232/ 0.46

      T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
6 [BUSLD_0611.0] 1 1 AMP/OHM 2140.8 156.65 0.00 0.00 0.000
8 [BUSLD_0811.0] 1 1 AMP/OHM 2161.7 -23.33 0.91 23.79 0.441
      TO SHUNT (AMPS) 20.9 -21.34

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:57 . HOME BUS IS: .
. RADIAL NETWORK                        .           6           .
.                                       . [BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 2 LEVELS AWAY.

AT BUS 4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 10.516/ -8.19

      T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
3 [BUS_03 33.0] 1 1 AMP/OHM 1223.3 -60.48 10.58 48.41 1.127
5 [BUS_05 11.0] 1 1 AMP/OHM 1223.3 119.52 0.58 -156.18 0.441

```

```

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  1.978/    0.46

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM  2161.7  156.67    0.57   -156.20  0.441
   9 [BUSLD_0911.0]   1 1  AMP/OHM  2181.7  -23.28    1.37    23.78   0.441
                                TO SHUNT  (AMPS)   20.1   -17.98

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004  13:57 . HOME BUS IS: .
. RADIAL NETWORK                      .           6 .
.                                     . [BUSLD_0611.0].
.   *** FAULTED BUS IS :           6 [BUSLD_0611.0] *** . 3 LEVELS AWAY.

AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 12.941/  -12.07

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   2 [BUS_TX  132]   1 1  AMP/OHM  1223.3  -60.48   205.05   61.90   1.873
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1223.3  119.52    8.60  -127.71  1.293

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  2.982/    0.49

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   8 [BUSLD_0811.0]   1 1  AMP/OHM  2181.7  156.72    0.91   -156.26  0.440
  10 [BUSLD_1011.0]   1 1  AMP/OHM  2208.0  -23.17    1.93    23.71   0.439
                                TO SHUNT  (AMPS)   26.6   -13.55

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004  13:57 . HOME BUS IS: .
. RADIAL NETWORK                      .           6 .
.                                     . [BUSLD_0611.0].
.   *** FAULTED BUS IS :           6 [BUSLD_0611.0] *** . 4 LEVELS AWAY.

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 68.163/    1.42

                                T H R E E   P H A S E   F A U L T

```

```

----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
  1 [INF_BUS 132]   1 1  AMP/OHM  332.4   -60.48   216.78   59.03   1.666
  3 [BUS_03  33.0]  1 1  AMP/OHM  332.4   119.52   10.58   -131.59  1.127

```

```

AT BUS    10 [BUSLD_1011.0] AREA    1   (KV L-G) V+: /  4.252/    0.54

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   9 [BUSLD_0911.0]  1 1  AMP/OHM  2208.0   156.83    1.35  -156.34   0.438
 102 [TXBUS  11.0]  1 1  AMP/OHM  2251.5   -23.07    2.00   23.62   0.437
                TO SHUNT (AMPS)   43.7   -17.90

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:57 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 5 LEVELS AWAY.

```

```

AT BUS    1 [INF_BUS 132] AREA    1   (KV L-G) V+: / 72.061/   -1.45

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                                AMP/    332.4   -60.48
   2 [BUS_TX  132]  1 1  AMP/OHM  332.4   119.52   205.05  -118.10   1.873

```

```

AT BUS   102 [TXBUS  11.0] AREA    1   (KV L-G) V+: /  4.512/    0.55

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
  10 [BUSLD_1011.0]  1 1  AMP/OHM  2251.5   156.93    1.89  -156.40   0.437
 101 [WNDFRM  .690]  1 1  AMP/OHM  2251.5   -23.07    0.01   32.81   0.645

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:57 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 6 LEVELS AWAY.

```

```

AT BUS 101 [WNDFRM .690] AREA 1 (KV L-G) V+: / 0.380/ 9.74

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
MACHINE 1          AMP/      30509.0  -23.07
  102 [TXBUS 11.0]  1 1  AMP/OHM 30509.0  156.93      2.00 -156.38      0.437
DIAGONALS = 12 OFF-DIAGONALS = 11 MAX SIZE = 22
POS. SEQUENCE: DIAGONALS = 12 OFF-DIAGONALS = 11

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:58 . HOME BUS IS: .
. RADIAL NETWORK                      .          5          .
.                                     . [BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 0 LEVELS AWAY.

AT BUS 5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.50045 0.75910 1.517

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  4 [BUS_TX 33.0]  1 1  AMP/OHM 4358.4  -72.30      5.01  78.69      5.000
  6 [BUSLD_0611.0] 1 1  AMP/OHM 1679.3  -21.37      0.58  23.82      0.441
TOTAL FAULT CURRENT (AMPS) 5571.4  -58.77

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:58 . HOME BUS IS: .
. RADIAL NETWORK                      .          5          .
.                                     . [BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 1 LEVELS AWAY.

AT BUS 4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 7.664/ 6.39

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  3 [BUS_03 33.0]  1 1  AMP/OHM 1529.3  -72.30      6.62  65.49      2.193
  5 [BUS_05 11.0]  1 1  AMP/OHM 1529.3  107.70      0.00   0.00      0.000

AT BUS 6 [BUSLD_0611.0] AREA 1 (KV L-G) V+: / 0.966/ 2.45

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R
					/I+/ AN(I+)	/Z+/ AN(Z+)			
5	[BUS_05 11.0]	1	1	AMP/OHM	1679.3	158.63	0.00	0.00	0.000
7	[BUSLD_0711.0]	1	1	AMP/OHM	1736.8	-21.33	1.13	23.80	0.441
	TO SHUNT			(AMPS)	57.6	-20.25			

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 13:58 . HOME BUS IS: .  
. RADIAL NETWORK . 5 .  
. .[BUS\_05 11.0].  
. \*\*\* FAULTED BUS IS : 5 [BUS\_05 11.0] \*\*\* . 2 LEVELS AWAY.

AT BUS 3 [BUS\_03 33.0] AREA 1 (KV L-G) V+: / 10.126/ -6.81

FROM		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R
					/I+/ AN(I+)	/Z+/ AN(Z+)			
2	[BUS_TX 132]	1	1	AMP/OHM	1529.3	-72.30	160.07	76.02	4.016
4	[BUS_TX 33.0]	1	1	AMP/OHM	1529.3	107.70	5.01	-101.31	5.000

AT BUS 7 [BUSLD\_0711.0] AREA 1 (KV L-G) V+: / 1.965/ 2.46

FROM		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R
					/I+/ AN(I+)	/Z+/ AN(Z+)			
6	[BUSLD_0611.0]	1	1	AMP/OHM	1736.8	158.67	0.56	-156.22	0.441
8	[BUSLD_0811.0]	1	1	AMP/OHM	1770.3	-21.29	1.46	23.76	0.440
	TO SHUNT			(AMPS)	33.4	-19.34			

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 13:58 . HOME BUS IS: .  
. RADIAL NETWORK . 5 .  
. .[BUS\_05 11.0].  
. \*\*\* FAULTED BUS IS : 5 [BUS\_05 11.0] \*\*\* . 3 LEVELS AWAY.

AT BUS 2 [BUS\_TX 132] AREA 1 (KV L-G) V+: / 66.520/ 3.72

FROM		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R
					/I+/ AN(I+)	/Z+/ AN(Z+)			
1	[INF_BUS 132]	1	1	AMP/OHM	415.6	-72.30	169.06	71.49	2.988

```

3 [BUS_03 33.0] 1 1 AMP/OHM 415.6 107.70 6.62 -114.51 2.193

AT BUS 8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 2.576/ 2.47

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
7 [BUSLD_0711.0] 1 1 AMP/OHM 1770.3 158.71 1.11 -156.24 0.440
9 [BUSLD_0911.0] 1 1 AMP/OHM 1796.3 -21.22 1.89 23.72 0.439
          TO SHUNT (AMPS) 26.2 -15.97

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 13:58 . HOME BUS IS: .
. RADIAL NETWORK . 5 .
. .[BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 4 LEVELS AWAY.

AT BUS 1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 70.253/ -0.81

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 415.6 -72.30
2 [BUS_TX 132] 1 1 AMP/OHM 415.6 107.70 160.07 -103.98 4.016

AT BUS 9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 3.403/ 2.51

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
8 [BUSLD_0811.0] 1 1 AMP/OHM 1796.3 158.78 1.43 -156.31 0.439
10 [BUSLD_1011.0] 1 1 AMP/OHM 1826.3 -21.06 2.44 23.62 0.437
          TO SHUNT (AMPS) 30.4 -11.53

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 13:58 . HOME BUS IS: .
. RADIAL NETWORK . 5 .
. .[BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 5 LEVELS AWAY.

AT BUS 10 [BUSLD_1011.0] AREA 1 (KV L-G) V+: / 4.454/ 2.57

```

----- FROM -----		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R
					/I+/ AN(I+)	/Z+/ AN(Z+)			
9	[BUSLD_0911.0]	1	1	AMP/OHM	1826.3	158.94	1.86	-156.44	0.436
102	[TXBUS 11.0]	1	1	AMP/OHM	1871.9	-20.93	2.49	23.51	0.435
	TO SHUNT			(AMPS)	45.7	-15.87			

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:58 . HOME BUS IS: .
. RADIAL NETWORK                      .           5           .
.                                     . [BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 6 LEVELS AWAY.

```

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 4.669/ 2.58

----- FROM -----		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R
					/I+/ AN(I+)	/Z+/ AN(Z+)			
10	[BUSLD_1011.0]	1	1	AMP/OHM	1871.9	159.07	2.38	-156.50	0.435
101	[WNDFRM .690]	1	1	AMP/OHM	1871.9	-20.93	0.02	31.10	0.603

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 13:58 . HOME BUS IS: .
. RADIAL NETWORK                      .           5           .
.                                     . [BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 7 LEVELS AWAY.

```

AT BUS 101 [WNDFRM .690] AREA 1 (KV L-G) V+: / 0.383/ 10.16

----- FROM -----		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R
					/I+/ AN(I+)	/Z+/ AN(Z+)			
MACHINE 1				AMP/	25365.2	-20.93			
102	[TXBUS 11.0]	1	1	AMP/OHM	25365.2	159.07	2.49	-156.49	0.435

### 5 Turbines Connected to Busbar 10

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:09 . HOME BUS IS: .
. RADIAL NETWORK                        .          10 .
.                                       .[BUSLD_1011.0].
.      *** FAULTED BUS IS :    10 [BUSLD_1011.0] *** . 0 LEVELS AWAY.

```

```
AT BUS    10 [BUSLD_1011.0] AREA    1    (KV L-G) V+: /  0.000/    0.00
```

```
THEV. R, X, X/R: POSITIVE  0.18286  0.42828    2.342
```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
9	[BUSLD_0911.0]	1	1	AMP/OHM	1806.6	-44.44	0.58	23.82	0.441
102	[TXBUS 11.0]	1	1	AMP/OHM	8107.0	-42.40	0.12	23.84	0.442
				TO SHUNT (AMPS)	0.0	0.00			
				TOTAL FAULT CURRENT (AMPS)	9912.7	-42.77			

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:09 . HOME BUS IS: .
. RADIAL NETWORK                        .          10 .
.                                       .[BUSLD_1011.0].
.      *** FAULTED BUS IS :    10 [BUSLD_1011.0] *** . 1 LEVELS AWAY.

```

```
AT BUS     9 [BUSLD_0911.0] AREA    1    (KV L-G) V+: /  1.039/  -20.62
```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
8	[BUSLD_0811.0]	1	1	AMP/OHM	1816.1	-44.39	1.03	23.80	0.441
10	[BUSLD_1011.0]	1	1	AMP/OHM	1806.6	135.56	0.00	0.00	0.000
				TO SHUNT (AMPS)	9.6	-34.66			

```
AT BUS    102 [TXBUS 11.0] AREA    1    (KV L-G) V+: /  0.933/  -18.56
```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R



```

10 [BUSLD_1011.0] 1 1 AMP/OHM 8107.0 137.60 0.00 0.00 0.000
101 [WNDFRM .690] 1 1 AMP/OHM 8107.0 -42.40 0.00 0.00 0.000

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:09 . HOME BUS IS: .
. RADIAL NETWORK . 10 .
. .[BUSLD_1011.0].
. *** FAULTED BUS IS : 10 [BUSLD_1011.0] *** . 2 LEVELS AWAY.

AT BUS 8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 1.875/ -20.59

THREE PHASE FAULT
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
7 [BUSLD_0711.0] 1 1 AMP/OHM 1836.2 -44.33 1.37 23.75 0.440
9 [BUSLD_0911.0] 1 1 AMP/OHM 1816.1 135.61 0.57 -156.24 0.440
TO SHUNT (AMPS) 20.2 -39.02

AT BUS 101 [WNDFRM .690] AREA 1 (KV L-G) V+: / 0.311/ 25.87

THREE PHASE FAULT
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 109855.3 -42.40
102 [TXBUS 11.0] 1 1 AMP/OHM 109855.3 137.60 0.12 -156.16 0.442

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:09 . HOME BUS IS: .
. RADIAL NETWORK . 10 .
. .[BUSLD_1011.0].
. *** FAULTED BUS IS : 10 [BUSLD_1011.0] *** . 3 LEVELS AWAY.

AT BUS 7 [BUSLD_0711.0] AREA 1 (KV L-G) V+: / 2.509/ -20.58

THREE PHASE FAULT
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
6 [BUSLD_0611.0] 1 1 AMP/OHM 1882.2 -44.28 1.91 23.74 0.440
8 [BUSLD_0811.0] 1 1 AMP/OHM 1836.2 135.67 1.02 -156.26 0.440
TO SHUNT (AMPS) 46.0 -42.38

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:09 . HOME BUS IS: .

```

```

. RADIAL NETWORK . 10 .
. .[BUSLD_1011.0].
. *** FAULTED BUS IS : 10 [BUSLD_1011.0] *** . 4 LEVELS AWAY.

AT BUS 6 [BUSLD_0611.0] AREA 1 (KV L-G) V+: / 3.592/ -20.54

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  5 [BUS_05 11.0] 1 1 AMP/OHM 2115.7 -44.17 2.27 23.67 0.438
  7 [BUSLD_0711.0] 1 1 AMP/OHM 1882.2 135.72 1.33 -156.30 0.439
          TO SHUNT (AMPS) 233.6 -43.24

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:09 . HOME BUS IS: .
. RADIAL NETWORK . 10 .
. .[BUSLD_1011.0].
. *** FAULTED BUS IS : 10 [BUSLD_1011.0] *** . 5 LEVELS AWAY.

AT BUS 5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 4.809/ -20.50

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  4 [BUS_TX 33.0] 1 1 AMP/OHM 2115.7 -44.17 21.73 34.56 0.689
  6 [BUSLD_0611.0] 1 1 AMP/OHM 2115.7 135.83 1.70 -156.38 0.437

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:09 . HOME BUS IS: .
. RADIAL NETWORK . 10 .
. .[BUSLD_1011.0].
. *** FAULTED BUS IS : 10 [BUSLD_1011.0] *** . 6 LEVELS AWAY.

AT BUS 4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 16.130/ -9.60

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  3 [BUS_03 33.0] 1 1 AMP/OHM 742.4 -44.17 23.81 34.36 0.684
  5 [BUS_05 11.0] 1 1 AMP/OHM 742.4 135.83 2.27 -156.33 0.438

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:09 . HOME BUS IS: .
. RADIAL NETWORK . 10 .

```

```

.                                     .[BUSLD_1011.0].
.   *** FAULTED BUS IS :    10 [BUSLD_1011.0] ***   . 7 LEVELS AWAY.
AT BUS      3 [BUS_03  33.0] AREA  1   (KV L-G) V+: / 17.677/   -9.81

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)    /Z+/   AN(Z+)  APP X/R
      2 [BUS_TX  132]    1 1  AMP/OHM   742.4   -44.17   346.44   43.69   0.955
      4 [BUS_TX  33.0]    1 1  AMP/OHM   742.4   135.83   21.73   -145.44  0.689

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:09 . HOME BUS IS: .
. RADIAL NETWORK                        .                10 .
.                                     .[BUSLD_1011.0].
.   *** FAULTED BUS IS :    10 [BUSLD_1011.0] ***   . 8 LEVELS AWAY.
AT BUS      2 [BUS_TX  132] AREA  1   (KV L-G) V+: / 72.244/   -0.48

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)    /Z+/   AN(Z+)  APP X/R
      1 [INF_BUS 132]    1 1  AMP/OHM   208.5   -44.17   360.78   42.62   0.920
      3 [BUS_03  33.0]    1 1  AMP/OHM   208.5   135.83   23.81   -145.64  0.684

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:09 . HOME BUS IS: .
. RADIAL NETWORK                        .                10 .
.                                     .[BUSLD_1011.0].
.   *** FAULTED BUS IS :    10 [BUSLD_1011.0] ***   . 9 LEVELS AWAY.
AT BUS      1 [INF_BUS 132] AREA  1   (KV L-G) V+: / 75.235/   -1.55

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)    /Z+/   AN(Z+)  APP X/R
MACHINE 1                                AMP/      208.5   -44.17
      2 [BUS_TX  132]    1 1  AMP/OHM   208.5   135.83   346.44  -136.31   0.955
DIAGONALS =      12 OFF-DIAGONALS =    11 MAX SIZE =    22
POS. SEQUENCE: DIAGONALS =      12 OFF-DIAGONALS =    11

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:09 . HOME BUS IS: .
. RADIAL NETWORK                        .                9 .

```



```

.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] ***   . 2 LEVELS AWAY.
AT BUS      7 [BUSLD_0711.0] AREA  1   (KV L-G) V+: /  1.733/ -23.30

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM  2189.6  -47.07    1.37   23.79   0.441
   8 [BUSLD_0811.0]   1 1  AMP/OHM  2157.9  132.90    0.46  -156.18  0.441
                                TO SHUNT  (AMPS)    31.8   -45.10

AT BUS     102 [TXBUS   11.0] AREA  1   (KV L-G) V+: /  3.262/   3.94

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   10 [BUSLD_1011.0]  1 1  AMP/OHM  4748.1  160.15    0.57  -156.22  0.441
   101 [WNDFRM .690]  1 1  AMP/OHM  4748.1  -19.85    0.01   44.93   0.997

. PSS/E SHORT CIRCUIT OUTPUT           THU, AUG 05 2004  14:09 . HOME BUS IS: .
. RADIAL NETWORK                        .                   . 9 .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] ***   . 3 LEVELS AWAY.
AT BUS      6 [BUSLD_0611.0] AREA  1   (KV L-G) V+: /  2.993/ -23.28

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM  2384.2  -46.99    1.83   23.74   0.440
   7 [BUSLD_0711.0]   1 1  AMP/OHM  2189.6  132.93    0.79  -156.23  0.440
                                TO SHUNT  (AMPS)    194.6  -45.98

AT BUS     101 [WNDFRM .690] AREA  1   (KV L-G) V+: /  0.354/  25.07

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                                AMP/   64339.7  -19.85

```

```

102 [TXBUS 11.0] 1 1 AMP/OHM 64339.8 160.15 0.69 -156.21 0.441
. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:09 . HOME BUS IS: .
. RADIAL NETWORK . 9 .
. .[BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 4 LEVELS AWAY.

AT BUS 5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 4.365/ -23.25

T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
4 [BUS_TX 33.0] 1 1 AMP/OHM 2384.2 -46.99 18.22 36.75 0.747
6 [BUSLD_0611.0] 1 1 AMP/OHM 2384.2 133.01 1.26 -156.30 0.439

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:09 . HOME BUS IS: .
. RADIAL NETWORK . 9 .
. .[BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 5 LEVELS AWAY.

AT BUS 4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 15.239/ -10.23

T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
3 [BUS_03 33.0] 1 1 AMP/OHM 836.6 -46.99 20.29 36.29 0.734
5 [BUS_05 11.0] 1 1 AMP/OHM 836.6 133.01 1.83 -156.26 0.440

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:09 . HOME BUS IS: .
. RADIAL NETWORK . 9 .
. .[BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 6 LEVELS AWAY.

AT BUS 3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 16.978/ -10.70

T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
2 [BUS_TX 132] 1 1 AMP/OHM 836.6 -46.99 304.14 46.67 1.060
4 [BUS_TX 33.0] 1 1 AMP/OHM 836.6 133.01 18.22 -143.25 0.747

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:09 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                       .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 7 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 71.469/  -0.32

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   1 [INF_BUS  132]   1 1  AMP/OHM  235.0  -46.99  318.13  45.32   1.011
   3 [BUS_03  33.0]   1 1  AMP/OHM  235.0  133.01  20.29  -143.71  0.734

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:09 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                       .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 8 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS  132] AREA  1  (KV L-G) V+: / 74.758/  -1.66

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                AMP/      235.0  -46.99
   2 [BUS_TX  132]   1 1  AMP/OHM  235.0  133.01  304.14  -133.33  1.060
DIAGONALS =      12 OFF-DIAGONALS =      11 MAX SIZE =      22
POS. SEQUENCE: DIAGONALS =      12 OFF-DIAGONALS =      11

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:09 . HOME BUS IS: .
. RADIAL NETWORK                        .           8 .
.                                       .[BUSLD_0811.0].
.   *** FAULTED BUS IS :           8 [BUSLD_0811.0] *** . 0 LEVELS AWAY.

```

```

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  0.000/   0.00

```

```

THEV. R, X, X/R: POSITIVE  0.58589  0.54115  0.924

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM  2509.8  -50.17   0.35   23.78   0.441

```

```

          9 [BUSLD_0911.0]  1 1 AMP/OHM  3407.3  -12.52    0.46   23.84   0.442
                TO SHUNT (AMPS)      0.0    0.00
          TOTAL FAULT CURRENT (AMPS)  5608.2  -28.39

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:09 . HOME BUS IS: .
. RADIAL NETWORK                        .           8 .
.                                         . [BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 1 LEVELS AWAY.

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  0.866/  -26.39

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
          6 [BUSLD_0611.0]  1 1 AMP/OHM  2525.7  -50.15    0.92   23.80   0.441
          8 [BUSLD_0811.0]  1 1 AMP/OHM  2509.8  129.83    0.00    0.00   0.000
                TO SHUNT (AMPS)      15.9   -48.19

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  1.569/  11.32

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
          8 [BUSLD_0811.0]  1 1 AMP/OHM  3407.3  167.48    0.00    0.00   0.000
         10 [BUSLD_1011.0]  1 1 AMP/OHM  3421.6  -12.48    1.03   23.81   0.441
                TO SHUNT (AMPS)      14.5   -2.72

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:09 . HOME BUS IS: .
. RADIAL NETWORK                        .           8 .
.                                         . [BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 2 LEVELS AWAY.

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  2.319/  -26.36

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
          5 [BUS_05 11.0]   1 1 AMP/OHM  2676.4  -50.09    1.44   23.77   0.440
          7 [BUSLD_0711.0]  1 1 AMP/OHM  2525.7  129.85    0.34  -156.23  0.440
                TO SHUNT (AMPS)      150.8  -49.05

```



```

AT BUS    10 [BUSLD_1011.0] AREA    1    (KV L-G) V+: /  3.537/  11.33

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   9 [BUSLD_0911.0]    1 1  AMP/OHM  3421.6  167.52    0.46  -156.20   0.441
  102 [TXBUS   11.0]    1 1  AMP/OHM  3457.3  -12.43    1.14   23.76   0.440
                                TO SHUNT (AMPS)  35.9   -7.11

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:09 . HOME BUS IS: .
. RADIAL NETWORK                        .                8 .
.                                         . [BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 3 LEVELS AWAY.

AT BUS    5 [BUS_05  11.0] AREA    1    (KV L-G) V+: /  3.859/  -26.32

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   4 [BUS_TX   33.0]    1 1  AMP/OHM  2676.4  -50.09   15.16   39.47   0.823
   6 [BUSLD_0611.0]    1 1  AMP/OHM  2676.4  129.91    0.87  -156.26   0.440

AT BUS   102 [TXBUS   11.0] AREA    1    (KV L-G) V+: /  3.935/  11.34

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
  10 [BUSLD_1011.0]    1 1  AMP/OHM  3457.3  167.57    1.02  -156.25   0.440
  101 [WNDFRM  .690]    1 1  AMP/OHM  3457.3  -12.43    0.01   38.43   0.793

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:09 . HOME BUS IS: .
. RADIAL NETWORK                        .                8 .
.                                         . [BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 4 LEVELS AWAY.

AT BUS    4 [BUS_TX  33.0] AREA    1    (KV L-G) V+: / 14.234/  -10.63

                                T H R E E   P H A S E   F A U L T

```

```

----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM   939.1   -50.09   17.23   38.59   0.798
   5 [BUS_05  11.0]   1 1  AMP/OHM   939.1   129.91   1.44   -156.23  0.440

```

```

AT BUS   101 [WNDFRM .690] AREA   1   (KV L-G) V+: / 0.368/ 26.00

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
MACHINE 1
  102 [TXBUS  11.0]   1 1  AMP/OHM   46848.6  -12.43   1.14   -156.24  0.440

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:09 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     .[BUSLD_0811.0].
.   *** FAULTED BUS IS :             8 [BUSLD_0811.0] *** . 5 LEVELS AWAY.

```

```

AT BUS    3 [BUS_03  33.0] AREA   1   (KV L-G) V+: / 16.178/ -11.50

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   2 [BUS_TX  132]   1 1  AMP/OHM   939.1   -50.09   267.76   50.02   1.193
   4 [BUS_TX  33.0]   1 1  AMP/OHM   939.1   129.91   15.16   -140.53  0.823

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:09 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     .[BUSLD_0811.0].
.   *** FAULTED BUS IS :             8 [BUSLD_0811.0] *** . 6 LEVELS AWAY.

```

```

AT BUS    2 [BUS_TX  132] AREA   1   (KV L-G) V+: / 70.634/ -0.07

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   1 [INF_BUS 132]   1 1  AMP/OHM   263.8   -50.09   281.33   48.34   1.124
   3 [BUS_03  33.0]   1 1  AMP/OHM   263.8   129.91   17.23   -141.41  0.798

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:09 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .

```

```

.
.      *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***      .[BUSLD_0811.0].
.                                          . 7 LEVELS AWAY.

AT BUS      1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 74.214/ -1.76

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
MACHINE 1
          2 [BUS_TX 132] 1 1 AMP/OHM 263.8 -50.09
DIAGONALS = 12 OFF-DIAGONALS = 11 MAX SIZE = 22
POS. SEQUENCE: DIAGONALS = 12 OFF-DIAGONALS = 11

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:09 . HOME BUS IS: .
. RADIAL NETWORK                        . 7 .
.                                          .[BUSLD_0711.0].
.      *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***      . 0 LEVELS AWAY.

AT BUS      7 [BUSLD_0711.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.63010 0.57790 0.917

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
          6 [BUSLD_0611.0] 1 1 AMP/OHM 2853.1 -53.22 0.58 23.82 0.441
          8 [BUSLD_0811.0] 1 1 AMP/OHM 2796.0 -9.27 0.35 23.78 0.441
          TO SHUNT (AMPS) 0.0 0.00
          TOTAL FAULT CURRENT (AMPS) 5238.7 -31.48

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:09 . HOME BUS IS: .
. RADIAL NETWORK                        . 7 .
.                                          .[BUSLD_0711.0].
.      *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***      . 1 LEVELS AWAY.

AT BUS      6 [BUSLD_0611.0] AREA 1 (KV L-G) V+: / 1.642/ -29.41

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
          5 [BUS_05 11.0] 1 1 AMP/OHM 2959.8 -53.18 1.13 23.80 0.441

```

```

7 [BUSLD_0711.0] 1 1 AMP/OHM 2853.1 126.78 0.00 0.00 0.000
      TO SHUNT (AMPS) 106.7 -52.10

AT BUS 8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 0.965/ 14.51

      T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
7 [BUSLD_0711.0] 1 1 AMP/OHM 2796.0 170.73 0.00 0.00 0.000
9 [BUSLD_0911.0] 1 1 AMP/OHM 2806.4 -9.25 0.80 23.81 0.441
      TO SHUNT (AMPS) 10.4 -3.92

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:09 . HOME BUS IS: .
. RADIAL NETWORK . 7 .
. . [BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 2 LEVELS AWAY.

AT BUS 5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 3.344/ -29.39

      T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
4 [BUS_TX 33.0] 1 1 AMP/OHM 2959.8 -53.18 12.74 42.57 0.919
6 [BUSLD_0611.0] 1 1 AMP/OHM 2959.8 126.82 0.55 -156.22 0.441

AT BUS 9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 2.257/ 14.56

      T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
8 [BUSLD_0811.0] 1 1 AMP/OHM 2806.4 170.75 0.34 -156.24 0.440
10 [BUSLD_1011.0] 1 1 AMP/OHM 2827.0 -9.18 1.37 23.77 0.440
      TO SHUNT (AMPS) 20.8 0.52

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:09 . HOME BUS IS: .
. RADIAL NETWORK . 7 .
. . [BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 3 LEVELS AWAY.

```

AT BUS 4 [BUS\_TX 33.0] AREA 1 (KV L-G) V+: / 13.229/ -10.61

FROM	AREA	CKT	I/Z	T H R E E P H A S E			F A U L T	
				/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
3 [BUS_03 33.0]	1	1	AMP/OHM	1038.5	-53.18	14.79	41.12	0.873
5 [BUS_05 11.0]	1	1	AMP/OHM	1038.5	126.82	1.13	-156.20	0.441

AT BUS 10 [BUSLD\_1011.0] AREA 1 (KV L-G) V+: / 3.883/ 14.59

FROM	AREA	CKT	I/Z	T H R E E P H A S E			F A U L T	
				/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
9 [BUSLD_0911.0]	1	1	AMP/OHM	2827.0	170.82	0.80	-156.26	0.440
102 [TXBUS 11.0]	1	1	AMP/OHM	2866.1	-9.10	1.47	23.71	0.439
			TO SHUNT (AMPS)	39.4	-3.84			

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:09 . HOME BUS IS: .  
. RADIAL NETWORK . 7 .  
. . [BUSLD\_0711.0].  
. \*\*\* FAULTED BUS IS : 7 [BUSLD\_0711.0] \*\*\* . 4 LEVELS AWAY.

AT BUS 3 [BUS\_TX 33.0] AREA 1 (KV L-G) V+: / 15.363/ -12.06

FROM	AREA	CKT	I/Z	T H R E E P H A S E			F A U L T	
				/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
2 [BUS_TX 132]	1	1	AMP/OHM	1038.5	-53.18	239.41	53.44	1.348
4 [BUS_TX 33.0]	1	1	AMP/OHM	1038.5	126.82	12.74	-137.43	0.919

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 4.213/ 14.60

FROM	AREA	CKT	I/Z	T H R E E P H A S E			F A U L T	
				/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
10 [BUSLD_1011.0]	1	1	AMP/OHM	2866.1	170.90	1.35	-156.30	0.439
101 [WINDFRM .690]	1	1	AMP/OHM	2866.2	-9.10	0.01	35.65	0.717

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:09 . HOME BUS IS: .  
. RADIAL NETWORK . 7 .

```

.
.      *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***      .[BUSLD_0711.0].
.                                     . 5 LEVELS AWAY.

AT BUS      2 [BUS_TX  132] AREA  1   (KV L-G) V+: / 69.843/   0.26

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   1 [INF_BUS  132]   1 1  AMP/OHM  291.7   -53.18   252.51   51.38   1.252
   3 [BUS_03  33.0]   1 1  AMP/OHM  291.7   126.82   14.79   -138.88  0.873

AT BUS      101 [WNDFRM .690] AREA  1   (KV L-G) V+: /  0.373/   26.55

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
  102 [TXBUS   11.0]   1 1  AMP/OHM 38838.4   -9.10    1.47   -156.29  0.439

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004  14:09 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     .[BUSLD_0711.0].
.      *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***      . 6 LEVELS AWAY.

AT BUS      1 [INF_BUS  132] AREA  1   (KV L-G) V+: / 73.662/   -1.80

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
   2 [BUS_TX  132]   1 1  AMP/OHM  291.7   -53.18   239.41  -126.56   1.348
DIAGONALS =      12 OFF-DIAGONALS =      11 MAX SIZE =      22
POS. SEQUENCE: DIAGONALS =      12 OFF-DIAGONALS =      11

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004  14:09 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     .[BUSLD_0611.0].
.      *** FAULTED BUS IS :      6 [BUSLD_0611.0] ***      . 0 LEVELS AWAY.

AT BUS      6 [BUSLD_0611.0] AREA  1   (KV L-G) V+: /  0.000/   0.00

```

THEV. R, X, X/R: POSITIVE 0.61217 0.64527 1.054

		T H R E E		P H A S E		F A U L T	
FROM	AREA CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
5 [BUS_05 11.0]	1 1	AMP/OHM	3604.1 -60.57	0.58	23.82	0.441	
7 [BUSLD_0711.0]	1 1	AMP/OHM	2127.7 -5.90	0.58	23.82	0.441	
		TO SHUNT (AMPS)	0.0 0.00				
TOTAL FAULT CURRENT (AMPS)			5136.7 -40.82				

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:09 . HOME BUS IS: .  
. RADIAL NETWORK . 6 .  
. . [BUSLD\_0611.0].  
. \*\*\* FAULTED BUS IS : 6 [BUSLD\_0611.0] \*\*\* . 1 LEVELS AWAY.

AT BUS 5 [BUS\_05 11.0] AREA 1 (KV L-G) V+: / 2.074/ -36.75

		T H R E E		P H A S E		F A U L T	
FROM	AREA CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
4 [BUS_TX 33.0]	1 1	AMP/OHM	3604.1 -60.57	8.60	52.29	1.293	
6 [BUSLD_0611.0]	1 1	AMP/OHM	3604.1 119.43	0.00	0.00	0.000	

AT BUS 7 [BUSLD\_0711.0] AREA 1 (KV L-G) V+: / 1.224/ 17.91

		T H R E E		P H A S E		F A U L T	
FROM	AREA CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
6 [BUSLD_0611.0]	1 1	AMP/OHM	2127.7 174.10	0.00	0.00	0.000	
8 [BUSLD_0811.0]	1 1	AMP/OHM	2150.1 -5.88	0.91	23.79	0.441	
		TO SHUNT (AMPS)	22.4 -3.89				

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:09 . HOME BUS IS: .  
. RADIAL NETWORK . 6 .  
. . [BUSLD\_0611.0].  
. \*\*\* FAULTED BUS IS : 6 [BUSLD\_0611.0] \*\*\* . 2 LEVELS AWAY.

AT BUS 4 [BUS\_TX 33.0] AREA 1 (KV L-G) V+: / 10.871/ -8.28

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  1264.6  -60.57   10.58   48.41   1.127
   5 [BUS_05  11.0]   1 1  AMP/OHM  1264.6  119.43    0.58  -156.18  0.441

```

AT BUS 8 [BUSLD\_0811.0] AREA 1 (KV L-G) V+: / 1.966/ 17.91

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM  2150.1  174.12    0.57  -156.21  0.441
   9 [BUSLD_0911.0]   1 1  AMP/OHM  2171.2   -5.83    1.37   23.77   0.440
      TO SHUNT (AMPS)      21.2   -0.53

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:09 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 3 LEVELS AWAY.

```

AT BUS 3 [BUS\_03 33.0] AREA 1 (KV L-G) V+: / 13.378/ -12.16

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   2 [BUS_TX  132]   1 1  AMP/OHM  1264.6  -60.57  191.90   61.90   1.873
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1264.6  119.43    8.60  -127.71  1.293

```

AT BUS 9 [BUSLD\_0911.0] AREA 1 (KV L-G) V+: / 2.966/ 17.94

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   8 [BUSLD_0811.0]   1 1  AMP/OHM  2171.2  174.17    0.91  -156.26  0.440
  10 [BUSLD_1011.0]   1 1  AMP/OHM  2198.2   -5.71    1.92   23.70   0.439
      TO SHUNT (AMPS)      27.4    3.91

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:09 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].

```



. \*\*\* FAULTED BUS IS : 6 [BUSLD\_0611.0] \*\*\* . 4 LEVELS AWAY.

AT BUS 2 [BUS\_TX 132] AREA 1 (KV L-G) V+: / 68.166/ 1.33

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
1 [INF_BUS 132]	1	1	AMP/OHM	355.2	-60.57	203.64	58.84	1.654	
3 [BUS_03 33.0]	1	1	AMP/OHM	355.2	119.43	10.58	-131.59	1.127	

AT BUS 10 [BUSLD\_1011.0] AREA 1 (KV L-G) V+: / 4.230/ 17.99

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
9 [BUSLD_0911.0]	1	1	AMP/OHM	2198.2	174.29	1.35	-156.35	0.438	
102 [TXBUS 11.0]	1	1	AMP/OHM	2240.9	-5.61	2.00	23.61	0.437	
TO SHUNT (AMPS)				42.9	-0.44				

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:09 . HOME BUS IS: .  
. RADIAL NETWORK . 6 .  
. . [BUSLD\_0611.0].  
. \*\*\* FAULTED BUS IS : 6 [BUSLD\_0611.0] \*\*\* . 5 LEVELS AWAY.

AT BUS 1 [INF\_BUS 132] AREA 1 (KV L-G) V+: / 72.337/ -1.73

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
MACHINE 1			AMP/	355.2	-60.57				
2 [BUS_TX 132]	1	1	AMP/OHM	355.2	119.43	191.90	-118.10	1.873	

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 4.488/ 18.01

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
10 [BUSLD_1011.0]	1	1	AMP/OHM	2240.9	174.39	1.89	-156.40	0.437	
101 [WINDFRM .690]	1	1	AMP/OHM	2240.9	-5.61	0.01	32.81	0.645	

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:09 . HOME BUS IS: .
. RADIAL NETWORK                        .           6           .
.                                     .[BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 6 LEVELS AWAY.

```

```

AT BUS 101 [WNDFRM .690] AREA 1 (KV L-G) V+: / 0.378/ 27.20

```

```

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
MACHINE 1          AMP/      30365.9   -5.61
102 [TXBUS 11.0]  1 1 AMP/OHM 30365.9  174.39  2.00 -156.39  0.437
DIAGONALS = 12 OFF-DIAGONALS = 11 MAX SIZE = 22
POS. SEQUENCE: DIAGONALS = 12 OFF-DIAGONALS = 11

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:10 . HOME BUS IS: .
. RADIAL NETWORK                        .           5           .
.                                     .[BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 0 LEVELS AWAY.

```

```

AT BUS 5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

```

```

THEV. R, X, X/R: POSITIVE 0.50650 0.75731 1.495

```

```

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
4 [BUS_TX 33.0]  1 1 AMP/OHM 4498.5  -72.26  5.01  78.69  5.000
6 [BUSLD_0611.0] 1 1 AMP/OHM 1664.2  -3.93  0.58  23.82  0.441
TOTAL FAULT CURRENT (AMPS) 5341.9 -55.43

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:10 . HOME BUS IS: .
. RADIAL NETWORK                        .           5           .
.                                     .[BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 1 LEVELS AWAY.

```

```

AT BUS 4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 7.910/ 6.43

```

```

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R

```

```

3 [BUS_03 33.0] 1 1 AMP/OHM 1578.4 -72.26 6.62 65.49 2.193
5 [BUS_05 11.0] 1 1 AMP/OHM 1578.4 107.74 0.00 0.00 0.000

AT BUS 6 [BUSLD_0611.0] AREA 1 (KV L-G) V+: / 0.957/ 19.88

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
5 [BUS_05 11.0] 1 1 AMP/OHM 1664.2 176.07 0.00 0.00 0.000
7 [BUSLD_0711.0] 1 1 AMP/OHM 1726.4 -3.89 1.13 23.80 0.441
          TO SHUNT (AMPS) 62.3 -2.81

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:10 . HOME BUS IS: .
. RADIAL NETWORK                      . 5 .
.                                       . [BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 2 LEVELS AWAY.

AT BUS 3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 10.452/ -6.77

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
2 [BUS_TX 132] 1 1 AMP/OHM 1578.4 -72.26 149.80 76.02 4.016
4 [BUS_TX 33.0] 1 1 AMP/OHM 1578.4 107.74 5.01 -101.31 5.000

AT BUS 7 [BUSLD_0711.0] AREA 1 (KV L-G) V+: / 1.951/ 19.90

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
6 [BUSLD_0611.0] 1 1 AMP/OHM 1726.4 176.11 0.55 -156.22 0.441
8 [BUSLD_0811.0] 1 1 AMP/OHM 1762.1 -3.85 1.45 23.76 0.440
          TO SHUNT (AMPS) 35.8 -1.90

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:10 . HOME BUS IS: .
. RADIAL NETWORK                      . 5 .
.                                       . [BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 3 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 66.420/   3.76

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  1 [INF_BUS  132]   1 1  AMP/OHM  443.4   -72.26   158.82   71.20   2.938
  3 [BUS_03   33.0]   1 1  AMP/OHM  443.4   107.74    6.62   -114.51  2.193

```

```

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: / 2.559/   19.91

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  7 [BUSLD_0711.0]   1 1  AMP/OHM  1762.1  176.15    1.11   -156.24  0.440
  9 [BUSLD_0911.0]   1 1  AMP/OHM  1789.6   -3.77    1.89    23.72   0.439
          TO SHUNT (AMPS)    27.6    1.47

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:10 . HOME BUS IS: .
. RADIAL NETWORK                      .           5           .
.                                     . [BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 4 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS  132] AREA  1  (KV L-G) V+: / 70.418/  -1.06

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
MACHINE 1          AMP/      443.4   -72.26
  2 [BUS_TX   132]   1 1  AMP/OHM  443.4   107.74   149.80  -103.98  4.016

```

```

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: / 3.383/   19.95

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  8 [BUSLD_0811.0]   1 1  AMP/OHM  1789.6  176.23    1.43   -156.32  0.439
 10 [BUSLD_1011.0]   1 1  AMP/OHM  1820.4   -3.60    2.43    23.62   0.437
          TO SHUNT (AMPS)    31.2    5.91

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:10 . HOME BUS IS: .

```

```

. RADIAL NETWORK . 5 .
. .[BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 5 LEVELS AWAY.

AT BUS 10 [BUSLD_1011.0] AREA 1 (KV L-G) V+: / 4.430/ 20.01

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  9 [BUSLD_0911.0] 1 1 AMP/OHM 1820.4 176.40 1.86 -156.45 0.436
 102 [TXBUS 11.0] 1 1 AMP/OHM 1865.2 -3.48 2.49 23.51 0.435
          TO SHUNT (AMPS) 44.9 1.58

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:10 . HOME BUS IS: .
. RADIAL NETWORK . 5 .
. .[BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 6 LEVELS AWAY.

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 4.645/ 20.03

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
 10 [BUSLD_1011.0] 1 1 AMP/OHM 1865.2 176.52 2.38 -156.51 0.435
 101 [WDFRM .690] 1 1 AMP/OHM 1865.2 -3.48 0.02 31.10 0.603

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:10 . HOME BUS IS: .
. RADIAL NETWORK . 5 .
. .[BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 7 LEVELS AWAY.

AT BUS 101 [WDFRM .690] AREA 1 (KV L-G) V+: / 0.381/ 27.62

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 25274.3 -3.48
 102 [TXBUS 11.0] 1 1 AMP/OHM 25274.3 176.52 2.49 -156.49 0.435

```

# Appendix E2

Fault Levels with Distributed Generation connected to Busbar 9

**1 Turbine connected to Busbar 9**

```
. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:14 . HOME BUS IS: .
. RADIAL NETWORK                        .          10 .
.                                       .[BUSLD_1011.0].
.      *** FAULTED BUS IS :    10 [BUSLD_1011.0] *** . 0 LEVELS AWAY.
```

```
AT BUS    10 [BUSLD_1011.0] AREA    1    (KV L-G) V+: /  0.000/    0.00
```

```
THEV. R, X, X/R: POSITIVE  0.61042  0.60060    0.984
```

		T H R E E P H A S E F A U L T						
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
9 [BUSLD_0911.0]	1	1	AMP/OHM	5419.8	-36.44	0.58	23.82	0.441
			TO SHUNT (AMPS)	0.0	0.00			
TOTAL FAULT			CURRENT (AMPS)	5419.8	-36.44			

```
. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:14 . HOME BUS IS: .
. RADIAL NETWORK                        .          10 .
.                                       .[BUSLD_1011.0].
.      *** FAULTED BUS IS :    10 [BUSLD_1011.0] *** . 1 LEVELS AWAY.
```

```
AT BUS     9 [BUSLD_0911.0] AREA    1    (KV L-G) V+: /  3.118/  -12.62
```

		T H R E E P H A S E F A U L T						
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
8 [BUSLD_0811.0]	1	1	AMP/OHM	1117.8	-40.20	3.25	27.05	0.511
10 [BUSLD_1011.0]	1	1	AMP/OHM	5419.8	143.56	0.00	0.00	0.000
102 [TXBUS 11.0]	1	1	AMP/OHM	4332.3	-35.41	0.83	22.93	0.423
			TO SHUNT (AMPS)	27.5	-26.66			

```
. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:14 . HOME BUS IS: .
. RADIAL NETWORK                        .          10 .
.                                       .[BUSLD_1011.0].
.      *** FAULTED BUS IS :    10 [BUSLD_1011.0] *** . 2 LEVELS AWAY.
```

AT BUS 8 [BUSLD\_0811.0] AREA 1 (KV L-G) V+: / 3.632/ -13.15

----- FROM -----		AREA	CKT	I/Z	T H R E E P H A S E F A U L T				
					/I+/	AN(I+)	/Z+/	AN(Z+)	APP X/R
7	[BUSLD_0711.0]	1	1	AMP/OHM	1153.7	-39.93	3.49	26.48	0.498
9	[BUSLD_0911.0]	1	1	AMP/OHM	1117.8	139.80	2.79	-152.43	0.522
				TO SHUNT (AMPS)	36.4	-31.59			

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 3.617/ -12.48

----- FROM -----		AREA	CKT	I/Z	T H R E E P H A S E F A U L T				
					/I+/	AN(I+)	/Z+/	AN(Z+)	APP X/R
9	[BUSLD_0911.0]	1	1	AMP/OHM	4332.3	144.59	0.72	-157.22	0.420
101	[WNDFRM .690]	1	1	AMP/OHM	4332.3	-35.41	0.01	41.68	0.890

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:14 . HOME BUS IS: .  
. RADIAL NETWORK . 10 .  
. . [BUSLD\_1011.0].  
. \*\*\* FAULTED BUS IS : 10 [BUSLD\_1011.0] \*\*\* . 3 LEVELS AWAY.

AT BUS 7 [BUSLD\_0711.0] AREA 1 (KV L-G) V+: / 4.030/ -13.45

----- FROM -----		AREA	CKT	I/Z	T H R E E P H A S E F A U L T				
					/I+/	AN(I+)	/Z+/	AN(Z+)	APP X/R
6	[BUSLD_0611.0]	1	1	AMP/OHM	1220.9	-39.67	3.88	25.86	0.485
8	[BUSLD_0811.0]	1	1	AMP/OHM	1153.7	140.07	3.15	-153.23	0.505
				TO SHUNT (AMPS)	67.4	-35.25			

AT BUS 101 [WNDFRM .690] AREA 1 (KV L-G) V+: / 0.367/ 6.27

----- FROM -----		AREA	CKT	I/Z	T H R E E P H A S E F A U L T				
					/I+/	AN(I+)	/Z+/	AN(Z+)	APP X/R
MACHINE 1				AMP/	58705.4	-35.41			
102	[TXBUS 11.0]	1	1	AMP/OHM	58705.4	144.59	0.83	-157.07	0.423

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:14 . HOME BUS IS: .



```

. RADIAL NETWORK . 10 .
. .[BUSLD_1011.0].
. *** FAULTED BUS IS : 10 [BUSLD_1011.0] *** . 4 LEVELS AWAY.

AT BUS 6 [BUSLD_0611.0] AREA 1 (KV L-G) V+: / 4.731/ -13.80

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  5 [BUS_05 11.0] 1 1 AMP/OHM 1497.1 -39.08 3.74 25.05 0.467
  7 [BUSLD_0711.0] 1 1 AMP/OHM 1220.9 140.33 3.30 -153.78 0.493
          TO SHUNT (AMPS) 276.5 -36.50

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:14 . HOME BUS IS: .
. RADIAL NETWORK . 10 .
. .[BUSLD_1011.0].
. *** FAULTED BUS IS : 10 [BUSLD_1011.0] *** . 5 LEVELS AWAY.

AT BUS 5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 5.593/ -14.03

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  4 [BUS_TX 33.0] 1 1 AMP/OHM 1497.1 -39.08 33.56 31.96 0.624
  6 [BUSLD_0611.0] 1 1 AMP/OHM 1497.1 140.92 3.16 -154.72 0.472

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:14 . HOME BUS IS: .
. RADIAL NETWORK . 10 .
. .[BUSLD_1011.0].
. *** FAULTED BUS IS : 10 [BUSLD_1011.0] *** . 6 LEVELS AWAY.

AT BUS 4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 17.627/ -7.12

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  3 [BUS_03 33.0] 1 1 AMP/OHM 525.3 -39.08 35.64 31.97 0.624
  5 [BUS_05 11.0] 1 1 AMP/OHM 525.3 140.92 3.74 -154.95 0.467

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:14 . HOME BUS IS: .
. RADIAL NETWORK . 10 .

```

```

.
.      *** FAULTED BUS IS :    10 [BUSLD_1011.0] ***      .[BUSLD_1011.0].
.                                                              . 7 LEVELS AWAY.

AT BUS      3 [BUS_03  33.0] AREA  1   (KV L-G) V+: / 18.723/   -7.11

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      2 [BUS_TX  132]   1 1  AMP/OHM  525.3  -39.08  503.97   38.71   0.801
      4 [BUS_TX  33.0]   1 1  AMP/OHM  525.3  140.92  33.56  -148.04   0.624

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004  14:14 . HOME BUS IS: .
. RADIAL NETWORK                      .          10 .
.
.      *** FAULTED BUS IS :    10 [BUSLD_1011.0] ***      .[BUSLD_1011.0].
.                                                              . 8 LEVELS AWAY.

AT BUS      2 [BUS_TX  132] AREA  1   (KV L-G) V+: / 73.536/   -0.37

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      1 [INF_BUS 132]   1 1  AMP/OHM  145.9  -39.08  518.81   38.10   0.784
      3 [BUS_03  33.0]   1 1  AMP/OHM  145.9  140.92  35.64  -148.03   0.624

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004  14:14 . HOME BUS IS: .
. RADIAL NETWORK                      .          10 .
.
.      *** FAULTED BUS IS :    10 [BUSLD_1011.0] ***      .[BUSLD_1011.0].
.                                                              . 9 LEVELS AWAY.

AT BUS      1 [INF_BUS 132] AREA  1   (KV L-G) V+: / 75.701/   -0.98

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                      AMP/      145.9  -39.08
      2 [BUS_TX  132]   1 1  AMP/OHM  145.9  140.92  503.97  -141.29   0.801
DIAGONALS =    12 OFF-DIAGONALS =    11 MAX SIZE =    22
POS. SEQUENCE: DIAGONALS =    12 OFF-DIAGONALS =    11

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004  14:14 . HOME BUS IS: .
. RADIAL NETWORK                      .          9 .

```



FROM		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R
					/I+/ AN(I+)	/Z+/ AN(Z+)			
9	[BUSLD_0911.0]	1	1	AMP/OHM	8252.5	118.55	0.00	0.00	0.000
101	[WNDFRM .690]	1	1	AMP/OHM	8252.5	-61.45	0.00	0.00	0.000

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:14 . HOME BUS IS: .  
. RADIAL NETWORK . 9 .  
. .[BUSLD\_0911.0].  
. \*\*\* FAULTED BUS IS : 9 [BUSLD\_0911.0] \*\*\* . 2 LEVELS AWAY.

AT BUS 7 [BUSLD\_0711.0] AREA 1 (KV L-G) V+: / 1.717/ -23.05

FROM		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R
					/I+/ AN(I+)	/Z+/ AN(Z+)			
6	[BUSLD_0611.0]	1	1	AMP/OHM	2165.9	-46.83	1.37	23.79	0.441
8	[BUSLD_0811.0]	1	1	AMP/OHM	2137.2	133.14	0.46	-156.18	0.441
				TO SHUNT (AMPS)	28.7	-44.86			

AT BUS 101 [WNDFRM .690] AREA 1 (KV L-G) V+: / 0.317/ 6.82

FROM		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R
					/I+/ AN(I+)	/Z+/ AN(Z+)			
MACHINE 1				AMP/	111826.8	-61.45			
102	[TXBUS 11.0]	1	1	AMP/OHM	111826.8	118.55	0.12	-156.16	0.442

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:14 . HOME BUS IS: .  
. RADIAL NETWORK . 9 .  
. .[BUSLD\_0911.0].  
. \*\*\* FAULTED BUS IS : 9 [BUSLD\_0911.0] \*\*\* . 3 LEVELS AWAY.

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 2.963/ -23.04

FROM		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R
					/I+/ AN(I+)	/Z+/ AN(Z+)			
5	[BUS_05 11.0]	1	1	AMP/OHM	2339.0	-46.75	1.84	23.74	0.440
7	[BUSLD_0711.0]	1	1	AMP/OHM	2165.9	133.17	0.79	-156.23	0.441

```

                TO SHUNT (AMPS)    173.2   -45.73

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004  14:14 . HOME BUS IS: .
. RADIAL NETWORK                    .           9 .
.                                     .[BUSLD_0911.0].
.      *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 4 LEVELS AWAY.

AT BUS      5 [BUS_05  11.0] AREA  1   (KV L-G) V+: /  4.309/ -23.00

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   4 [BUS_TX  33.0]   1 1  AMP/OHM  2339.0  -46.75   18.31   36.69   0.745
   6 [BUSLD_0611.0]  1 1  AMP/OHM  2339.0  133.25   1.27  -156.29  0.439

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004  14:14 . HOME BUS IS: .
. RADIAL NETWORK                    .           9 .
.                                     .[BUSLD_0911.0].
.      *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 5 LEVELS AWAY.

AT BUS      4 [BUS_TX  33.0] AREA  1   (KV L-G) V+: / 15.024/ -10.05

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM   820.7  -46.75   20.39   36.23   0.733
   5 [BUS_05  11.0]   1 1  AMP/OHM   820.7  133.25   1.84  -156.26  0.440

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004  14:14 . HOME BUS IS: .
. RADIAL NETWORK                    .           9 .
.                                     .[BUSLD_0911.0].
.      *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 6 LEVELS AWAY.

AT BUS      3 [BUS_03  33.0] AREA  1   (KV L-G) V+: / 16.731/ -10.51

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   2 [BUS_TX  132]    1 1  AMP/OHM   820.7  -46.75   312.13  46.59   1.057
   4 [BUS_TX  33.0]    1 1  AMP/OHM   820.7  133.25   18.31  -143.31  0.745

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:14 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                       .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 7 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 71.157/  -0.16

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   1 [INF_BUS  132]   1 1  AMP/OHM  228.0  -46.75  326.13  45.27   1.010
   3 [BUS_03  33.0]   1 1  AMP/OHM  228.0  133.25  20.39  -143.77  0.733

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:14 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                       .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 8 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS  132] AREA  1  (KV L-G) V+: / 74.349/  -1.47

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                AMP/      228.0  -46.75
   2 [BUS_TX  132]   1 1  AMP/OHM  228.0  133.25  312.13  -133.41  1.057
DIAGONALS =      12 OFF-DIAGONALS =      11 MAX SIZE =      22
POS. SEQUENCE: DIAGONALS =      12 OFF-DIAGONALS =      11

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:14 . HOME BUS IS: .
. RADIAL NETWORK                        .           8 .
.                                       .[BUSLD_0811.0].
.   *** FAULTED BUS IS :           8 [BUSLD_0811.0] *** . 0 LEVELS AWAY.

```

```

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  0.000/   0.00

```

```

THEV. R, X, X/R: POSITIVE  0.38909  0.46481  1.195

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM  2482.4  -49.96   0.35   23.78   0.441

```

```

          9 [BUSLD_0911.0]  1 1  AMP/OHM  5275.3  -41.83    0.46    23.84    0.442
                    TO SHUNT (AMPS)    0.0    0.00
          TOTAL FAULT CURRENT (AMPS)  7740.7  -44.43

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:14 . HOME BUS IS: .
. RADIAL NETWORK                        .           8           .
.                                         . [BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 1 LEVELS AWAY.

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  0.857/  -26.18

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   6 [BUSLD_0611.0]  1 1  AMP/OHM  2496.7  -49.95    0.92    23.80    0.441
   8 [BUSLD_0811.0]  1 1  AMP/OHM  2482.4  130.04    0.00     0.00    0.000
                    TO SHUNT (AMPS)   14.3   -47.98

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  2.429/  -17.99

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   8 [BUSLD_0811.0]  1 1  AMP/OHM  5275.3  138.17    0.00     0.00    0.000
  10 [BUSLD_1011.0]  1 1  AMP/OHM   24.8   143.55   97.47  -161.57   0.333
 102 [TXBUS  11.0]  1 1  AMP/OHM  5321.1  -41.77    0.57     23.79   0.441
                    TO SHUNT (AMPS)   21.4   -32.02

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:14 . HOME BUS IS: .
. RADIAL NETWORK                        .           8           .
.                                         . [BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 2 LEVELS AWAY.

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  2.293/  -26.15

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   5 [BUS_05  11.0]  1 1  AMP/OHM  2630.7  -49.89    1.45     23.77   0.440
   7 [BUSLD_0711.0]  1 1  AMP/OHM  2496.7  130.05    0.34   -156.23   0.440

```

```

                TO SHUNT (AMPS)      134.0   -48.84

AT BUS      10 [BUSLD_1011.0] AREA  1 (KV L-G) V+: /  2.414/  -18.02

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      9 [BUSLD_0911.0]  1 1  AMP/OHM    24.8   -36.45   98.04   18.47   0.334
                TO SHUNT (AMPS)      24.8   -36.45

AT BUS     102 [TXBUS   11.0] AREA  1 (KV L-G) V+: /  3.041/  -17.97

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      9 [BUSLD_0911.0]  1 1  AMP/OHM   5321.1  138.23    0.46  -156.22  0.441
     101 [WDFR   .690]  1 1  AMP/OHM   5321.1  -41.77    0.00    0.00    0.000

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:14 . HOME BUS IS: .
. RADIAL NETWORK                        .           8           .
.                                         . [BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 3 LEVELS AWAY.

AT BUS      5 [BUS_05  11.0] AREA  1 (KV L-G) V+: /  3.807/  -26.12

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      4 [BUS_TX  33.0]  1 1  AMP/OHM   2630.7  -49.89   15.20   39.43   0.822
      6 [BUSLD_0611.0]  1 1  AMP/OHM   2630.7  130.11    0.87  -156.26  0.440

AT BUS     101 [WDFR   .690] AREA  1 (KV L-G) V+: /  0.355/   5.80

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                                AMP/    72104.1  -41.77
     102 [TXBUS   11.0]  1 1  AMP/OHM    72104.2  138.23    0.57  -156.21  0.441

```



```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:14 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 4 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 14.028/ -10.47

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E F A U L T				
					/I+/ 923.1	AN(I+) -49.89	/Z+/ 17.27	AN(Z+) 38.56	APP X/R 0.797
3	[BUS_03 33.0]	1	1	AMP/OHM	923.1	-49.89	17.27	38.56	0.797
5	[BUS_05 11.0]	1	1	AMP/OHM	923.1	130.11	1.45	-156.23	0.440

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:14 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 5 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 15.939/ -11.34

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E F A U L T				
					/I+/ 923.1	AN(I+) -49.89	/Z+/ 274.30	AN(Z+) 49.97	APP X/R 1.191
2	[BUS_TX 132]	1	1	AMP/OHM	923.1	-49.89	274.30	49.97	1.191
4	[BUS_TX 33.0]	1	1	AMP/OHM	923.1	130.11	15.20	-140.57	0.822

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:14 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 6 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 70.333/  0.08

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E F A U L T				
					/I+/ 256.4	AN(I+) -49.89	/Z+/ 287.88	AN(Z+) 48.33	APP X/R 1.123
1	[INF_BUS 132]	1	1	AMP/OHM	256.4	-49.89	287.88	48.33	1.123
3	[BUS_03 33.0]	1	1	AMP/OHM	256.4	130.11	17.27	-141.44	0.797

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:14 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .

```

```

.
.      *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***      .[BUSLD_0811.0].
.                                          . 7 LEVELS AWAY.

AT BUS      1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 73.813/ -1.56

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
MACHINE 1
          AMP/
          2 [BUS_TX 132] 1 1 AMP/OHM 256.4 130.11 274.30 -130.03 1.191
DIAGONALS = 12 OFF-DIAGONALS = 11 MAX SIZE = 22
POS. SEQUENCE: DIAGONALS = 12 OFF-DIAGONALS = 11

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:14 . HOME BUS IS: .
. RADIAL NETWORK                        . 7 .
.                                          .[BUSLD_0711.0].
.      *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***      . 0 LEVELS AWAY.

AT BUS      7 [BUSLD_0711.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.48555 0.50466 1.039

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
          6 [BUSLD_0611.0] 1 1 AMP/OHM 2817.9 -53.05 0.58 23.82 0.441
          8 [BUSLD_0811.0] 1 1 AMP/OHM 4022.5 -34.78 0.35 23.78 0.441
          TO SHUNT (AMPS) 0.0 0.00
          TOTAL FAULT CURRENT (AMPS) 6756.4 -42.29

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:14 . HOME BUS IS: .
. RADIAL NETWORK                        . 7 .
.                                          .[BUSLD_0711.0].
.      *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***      . 1 LEVELS AWAY.

AT BUS      6 [BUSLD_0611.0] AREA 1 (KV L-G) V+: / 1.621/ -29.23

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
          5 [BUS_05 11.0] 1 1 AMP/OHM 2912.6 -53.01 1.13 23.80 0.441

```

```

7 [BUSLD_0711.0] 1 1 AMP/OHM 2817.9 126.95 0.00 0.00 0.000
      TO SHUNT (AMPS) 94.7 -51.93

AT BUS 8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 1.388/ -11.00

      T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
7 [BUSLD_0711.0] 1 1 AMP/OHM 4022.5 145.22 0.00 0.00 0.000
9 [BUSLD_0911.0] 1 1 AMP/OHM 4036.4 -34.76 0.80 23.81 0.441
      TO SHUNT (AMPS) 13.9 -29.44

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:14 . HOME BUS IS: .
. RADIAL NETWORK . 7 .
. . [BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 2 LEVELS AWAY.

AT BUS 5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 3.297/ -29.21

      T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
4 [BUS_TX 33.0] 1 1 AMP/OHM 2912.6 -53.01 12.75 42.55 0.918
6 [BUSLD_0611.0] 1 1 AMP/OHM 2912.6 126.99 0.56 -156.22 0.441

AT BUS 9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 3.246/ -10.96

      T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
8 [BUSLD_0811.0] 1 1 AMP/OHM 4036.4 145.24 0.34 -156.24 0.440
10 [BUSLD_1011.0] 1 1 AMP/OHM 33.1 150.58 97.47 -161.57 0.333
102 [TXBUS 11.0] 1 1 AMP/OHM 4097.5 -34.65 0.91 23.72 0.439
      TO SHUNT (AMPS) 28.6 -24.99

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:14 . HOME BUS IS: .
. RADIAL NETWORK . 7 .
. . [BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 3 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 13.034/  -10.46

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  1022.0  -53.01   14.81   41.10   0.872
   5 [BUS_05  11.0]   1 1  AMP/OHM  1022.0  126.99   1.13  -156.20   0.441

```

```

AT BUS     10 [BUSLD_1011.0] AREA  1  (KV L-G) V+: /  3.227/  -10.99

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   9 [BUSLD_0911.0]   1 1  AMP/OHM   33.1   -29.42   98.04   18.47   0.334
      TO SHUNT (AMPS)  33.1   -29.42

```

```

AT BUS    102 [TXBUS   11.0] AREA  1  (KV L-G) V+: /  3.718/  -10.94

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   9 [BUSLD_0911.0]   1 1  AMP/OHM  4097.5  145.35   0.79  -156.30   0.439
  101 [WNDFRM  .690]   1 1  AMP/OHM  4097.6  -34.65   0.01   41.14   0.874

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:14 . HOME BUS IS: .
. RADIAL NETWORK                        .                   7 .
.                                         . [BUSLD_0711.0].
.   *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 4 LEVELS AWAY.

```

```

AT BUS      3 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 15.134/  -11.91

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   2 [BUS_TX   132]   1 1  AMP/OHM  1022.0  -53.01  245.01   53.41   1.347
   4 [BUS_TX   33.0]   1 1  AMP/OHM  1022.0  126.99  12.75  -137.45   0.918

```

```

AT BUS    101 [WNDFRM  .690] AREA  1  (KV L-G) V+: /  0.369/   6.49

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
  102 [TXBUS  11.0]  1 1  AMP/OHM  55524.8  -34.65
                                55524.8  145.35    0.91  -156.28   0.439

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:14 . HOME BUS IS: .
. RADIAL NETWORK                        .           7           .
.                                         .[BUSLD_0711.0].
.   *** FAULTED BUS IS :           7 [BUSLD_0711.0] *** . 5 LEVELS AWAY.

AT BUS      2 [BUS_TX  132] AREA  1   (KV L-G) V+: / 69.554/   0.40

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
  1 [INF_BUS 132]  1 1  AMP/OHM  283.9  -53.01  258.11   51.40   1.253
  3 [BUS_03  33.0]  1 1  AMP/OHM  283.9  126.99   14.81  -138.90   0.872

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:14 . HOME BUS IS: .
. RADIAL NETWORK                        .           7           .
.                                         .[BUSLD_0711.0].
.   *** FAULTED BUS IS :           7 [BUSLD_0711.0] *** . 6 LEVELS AWAY.

AT BUS      1 [INF_BUS 132] AREA  1   (KV L-G) V+: / 73.271/  -1.61

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
  2 [BUS_TX  132]  1 1  AMP/OHM  283.9  126.99  245.01  -126.59   1.347
DIAGONALS = 12 OFF-DIAGONALS = 11 MAX SIZE = 22
POS. SEQUENCE: DIAGONALS = 12 OFF-DIAGONALS = 11

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:14 . HOME BUS IS: .
. RADIAL NETWORK                        .           6           .
.                                         .[BUSLD_0611.0].
.   *** FAULTED BUS IS :           6 [BUSLD_0611.0] *** . 0 LEVELS AWAY.

AT BUS      6 [BUSLD_0611.0] AREA  1   (KV L-G) V+: /  0.000/   0.00

```

THEV. R, X, X/R: POSITIVE 0.53728 0.58090 1.081

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
5	[BUS_05 11.0]	1	1	AMP/OHM	3550.7 -60.44	0.58	23.82	0.441
7	[BUSLD_0711.0]	1	1	AMP/OHM	2825.3 -28.52	0.58	23.82	0.441
				TO SHUNT (AMPS)	0.0 0.00			
TOTAL FAULT CURRENT (AMPS)					6133.5 -46.34			

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:14 . HOME BUS IS: .  
. RADIAL NETWORK . 6 .  
. . [BUSLD\_0611.0].  
. \*\*\* FAULTED BUS IS : 6 [BUSLD\_0611.0] \*\*\* . 1 LEVELS AWAY.

AT BUS 5 [BUS\_05 11.0] AREA 1 (KV L-G) V+: / 2.043/ -36.63

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
4	[BUS_TX 33.0]	1	1	AMP/OHM	3550.7 -60.44	8.60	52.29	1.293
6	[BUSLD_0611.0]	1	1	AMP/OHM	3550.7 119.56	0.00	0.00	0.000

AT BUS 7 [BUSLD\_0711.0] AREA 1 (KV L-G) V+: / 1.626/ -4.70

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
6	[BUSLD_0611.0]	1	1	AMP/OHM	2825.3 151.48	0.00	0.00	0.000
8	[BUSLD_0811.0]	1	1	AMP/OHM	2852.5 -28.50	0.91	23.79	0.441
				TO SHUNT (AMPS)	27.2 -26.50			

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:14 . HOME BUS IS: .  
. RADIAL NETWORK . 6 .  
. . [BUSLD\_0611.0].  
. \*\*\* FAULTED BUS IS : 6 [BUSLD\_0611.0] \*\*\* . 2 LEVELS AWAY.

AT BUS 4 [BUS\_TX 33.0] AREA 1 (KV L-G) V+: / 10.710/ -8.15

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  1245.9  -60.44   10.58   48.41   1.127
   5 [BUS_05  11.0]   1 1  AMP/OHM  1245.9  119.56    0.58  -156.18  0.441

```

```

AT BUS      8 [BUSLD_0811.0] AREA  1   (KV L-G) V+: /  2.610/  -4.71

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM  2852.5  151.50    0.57  -156.20  0.441
   9 [BUSLD_0911.0]   1 1  AMP/OHM  2878.5  -28.45    1.37   23.78   0.441
                TO SHUNT (AMPS)    26.1  -23.14

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:14 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 3 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03  33.0] AREA  1   (KV L-G) V+: / 13.180/ -12.03

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   2 [BUS_TX  132]   1 1  AMP/OHM  1245.9  -60.44  196.23   61.90   1.873
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1245.9  119.56    8.60  -127.71  1.293

```

```

AT BUS      9 [BUSLD_0911.0] AREA  1   (KV L-G) V+: /  3.935/  -4.67

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   8 [BUSLD_0811.0]   1 1  AMP/OHM  2878.5  151.55    0.91  -156.26  0.440
  10 [BUSLD_1011.0]   1 1  AMP/OHM    40.1  156.86   97.47  -161.57  0.333
 102 [TXBUS  11.0]   1 1  AMP/OHM  2952.7  -28.26    1.45   23.61   0.437
                TO SHUNT (AMPS)    34.7  -18.71

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:14 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .

```





```

AT BUS 101 [WINDFRM .690] AREA 1 (KV L-G) V+: / 0.380/ 7.46

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1          AMP/      40011.1  -28.26
  102 [TXBUS  11.0]  1 1  AMP/OHM  40011.1  151.74    1.45  -156.39    0.437
DIAGONALS = 12 OFF-DIAGONALS = 11 MAX SIZE = 22
POS. SEQUENCE: DIAGONALS = 12 OFF-DIAGONALS = 11

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:14 . HOME BUS IS: .
. RADIAL NETWORK                      .                    5 .
.                                     . [BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 0 LEVELS AWAY.

```

```

AT BUS 5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

```

```

THEV. R, X, X/R: POSITIVE 0.47749 0.70020 1.466

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
  4 [BUS_TX 33.0]  1 1  AMP/OHM  4434.3  -72.17    5.01   78.69    5.000
  6 [BUSLD_0611.0] 1 1  AMP/OHM  2112.3  -25.26    0.58   23.82    0.441
TOTAL FAULT CURRENT (AMPS) 6076.2 -57.47

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:14 . HOME BUS IS: .
. RADIAL NETWORK                      .                    5 .
.                                     . [BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 1 LEVELS AWAY.

```

```

AT BUS 4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 7.797/ 6.52

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
  3 [BUS_03 33.0]  1 1  AMP/OHM  1555.9  -72.17    6.62   65.49    2.193
  5 [BUS_05 11.0]  1 1  AMP/OHM  1555.9  107.83    0.00    0.00    0.000

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  1.215/   -1.44

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM  2112.3  154.74   0.00   0.00   0.000
   7 [BUSLD_0711.0]   1 1  AMP/OHM  2183.3  -25.22   1.13   23.80   0.441
                TO SHUNT  (AMPS)    71.0   -24.14

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:14 . HOME BUS IS: .
. RADIAL NETWORK                      .                   5 .
.                                     . [BUS_05  11.0].
.   *** FAULTED BUS IS :             5 [BUS_05  11.0] *** . 2 LEVELS AWAY.

AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 10.302/   -6.68

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   2 [BUS_TX  132]   1 1  AMP/OHM  1555.9  -72.17  153.19   76.02   4.016
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1555.9  107.83   5.01  -101.31   5.000

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  2.471/   -1.42

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM  2183.3  154.78   0.56  -156.22   0.441
   8 [BUSLD_0811.0]   1 1  AMP/OHM  2224.6  -25.18   1.46   23.76   0.440
                TO SHUNT  (AMPS)    41.3   -23.23

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:14 . HOME BUS IS: .
. RADIAL NETWORK                      .                   5 .
.                                     . [BUS_05  11.0].
.   *** FAULTED BUS IS :             5 [BUS_05  11.0] *** . 3 LEVELS AWAY.

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 66.207/    3.84

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R

```

```

1 [INF_BUS 132] 1 1 AMP/OHM 432.2 -72.17 162.19 71.30 2.955
3 [BUS_03 33.0] 1 1 AMP/OHM 432.2 107.83 6.62 -114.51 2.193

AT BUS 8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 3.239/ -1.42

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
7 [BUSLD_0711.0] 1 1 AMP/OHM 2224.6 154.82 1.11 -156.24 0.440
9 [BUSLD_0911.0] 1 1 AMP/OHM 2256.8 -25.11 1.90 23.73 0.440
          TO SHUNT (AMPS) 32.4 -19.85

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:14 . HOME BUS IS: .
. RADIAL NETWORK . 5 .
. . [BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 4 LEVELS AWAY.

AT BUS 1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 70.099/ -0.87

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 432.2 -72.17
2 [BUS_TX 132] 1 1 AMP/OHM 432.2 107.83 153.19 -103.98 4.016

AT BUS 9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 4.278/ -1.38

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
8 [BUSLD_0811.0] 1 1 AMP/OHM 2256.8 154.89 1.44 -156.31 0.439
10 [BUSLD_1011.0] 1 1 AMP/OHM 43.6 160.15 97.47 -161.57 0.333
102 [TXBUS 11.0] 1 1 AMP/OHM 2337.5 -24.85 1.95 23.49 0.435
          TO SHUNT (AMPS) 37.7 -15.42

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:14 . HOME BUS IS: .
. RADIAL NETWORK . 5 .
. . [BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 5 LEVELS AWAY.

```

```

AT BUS    10 [BUSLD_1011.0] AREA    1    (KV L-G) V+: /  4.253/   -1.41

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
      9 [BUSLD_0911.0]    1 1  AMP/OHM  43.6   -19.85   98.04   18.47   0.334
                                TO SHUNT  (AMPS)  43.6   -19.85

```

```

AT BUS    102 [TXBUS    11.0] AREA    1    (KV L-G) V+: /  4.547/   -1.36

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
      9 [BUSLD_0911.0]    1 1  AMP/OHM 2337.5  155.15   1.83  -156.53  0.434
     101 [WINDFRM  .690]  1 1  AMP/OHM 2337.5  -24.85   0.01   32.94   0.648

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:14 . HOME BUS IS: .
. RADIAL NETWORK                        .                5 .
.                                         . [BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 6 LEVELS AWAY.

```

```

AT BUS    101 [WINDFRM  .690] AREA    1    (KV L-G) V+: /  0.385/    8.09

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
MACHINE 1                                AMP/    31674.7  -24.85
     102 [TXBUS    11.0]  1 1  AMP/OHM 31674.8  155.15   1.95  -156.51  0.435

```

## 2 Turbines connected to Busbar 9

```
. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:25 . HOME BUS IS: .
. RADIAL NETWORK                      .          10 .
.                                     .[BUSLD_1011.0].
.   *** FAULTED BUS IS :    10 [BUSLD_1011.0] *** . 0 LEVELS AWAY.
```

AT BUS 10 [BUSLD\_1011.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.61042 0.60060 0.984

		T H R E E P H A S E F A U L T						
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
9 [BUSLD_0911.0]	1	1	AMP/OHM	5358.0	-36.20	0.58	23.82 0.441	
			TO SHUNT (AMPS)	0.0	0.00			
			TOTAL FAULT CURRENT (AMPS)	5358.0	-36.20			

```
. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:25 . HOME BUS IS: .
. RADIAL NETWORK                      .          10 .
.                                     .[BUSLD_1011.0].
.   *** FAULTED BUS IS :    10 [BUSLD_1011.0] *** . 1 LEVELS AWAY.
```

AT BUS 9 [BUSLD\_0911.0] AREA 1 (KV L-G) V+: / 3.083/ -12.39

		T H R E E P H A S E F A U L T						
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
8 [BUSLD_0811.0]	1	1	AMP/OHM	1128.1	-40.54	3.19	27.54 0.521	
10 [BUSLD_1011.0]	1	1	AMP/OHM	5358.0	143.80	0.00	0.00 0.000	
102 [TXBUS 11.0]	1	1	AMP/OHM	4260.8	-34.99	0.84	22.77 0.420	
			TO SHUNT (AMPS)	27.2	-26.42			

```
. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:25 . HOME BUS IS: .
. RADIAL NETWORK                      .          10 .
.                                     .[BUSLD_1011.0].
.   *** FAULTED BUS IS :    10 [BUSLD_1011.0] *** . 2 LEVELS AWAY.
```

```

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  3.601/  -13.01

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM  1163.7  -40.26   3.44   26.91   0.507
   9 [BUSLD_0911.0]   1 1  AMP/OHM  1128.1  139.46   2.73  -151.84   0.535
                                TO SHUNT  (AMPS)  36.0   -31.44

```

```

AT BUS     102 [TXBUS   11.0] AREA  1  (KV L-G) V+: /  3.573/  -12.22

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   9 [BUSLD_0911.0]   1 1  AMP/OHM  4260.8  145.01   0.72  -157.40   0.416
 101 [WNDFRM  .690]   1 1  AMP/OHM  4260.8  -34.99   0.01   41.51   0.885

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:25 . HOME BUS IS: .
. RADIAL NETWORK                      .           10 .
.                                     . [BUSLD_1011.0].
. *** FAULTED BUS IS :    10 [BUSLD_1011.0] *** . 3 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  4.002/  -13.36

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM  1230.4  -39.99   3.83   26.21   0.492
   8 [BUSLD_0811.0]   1 1  AMP/OHM  1163.7  139.74   3.09  -152.74   0.515
                                TO SHUNT  (AMPS)  66.9   -35.16

```

```

AT BUS     101 [WNDFRM  .690] AREA  1  (KV L-G) V+: /  0.361/   6.52

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
 102 [TXBUS   11.0]   1 1  AMP/OHM  57737.5  145.01   0.84  -157.23   0.420

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:25 . HOME BUS IS: .
. RADIAL NETWORK                      .          10          .
.                                     .[BUSLD_1011.0].
.   *** FAULTED BUS IS :    10 [BUSLD_1011.0] *** . 4 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1   (KV L-G) V+: /  4.709/  -13.78

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM  1505.2  -39.35   3.70   25.29   0.473
   7 [BUSLD_0711.0]   1 1  AMP/OHM  1230.4  140.01   3.25  -153.37   0.501
              TO SHUNT  (AMPS)   275.2   -36.47

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:25 . HOME BUS IS: .
. RADIAL NETWORK                      .          10          .
.                                     .[BUSLD_1011.0].
.   *** FAULTED BUS IS :    10 [BUSLD_1011.0] *** . 5 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05  11.0] AREA  1   (KV L-G) V+: /  5.575/  -14.05

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1505.2  -39.35  33.31   32.23   0.630
   6 [BUSLD_0611.0]   1 1  AMP/OHM  1505.2  140.65   3.13  -154.44   0.478

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:25 . HOME BUS IS: .
. RADIAL NETWORK                      .          10          .
.                                     .[BUSLD_1011.0].
.   *** FAULTED BUS IS :    10 [BUSLD_1011.0] *** . 6 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX  33.0] AREA  1   (KV L-G) V+: / 17.594/   -7.12

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM   528.1  -39.35  35.40   32.23   0.630
   5 [BUS_05  11.0]   1 1  AMP/OHM   528.1  140.65   3.70  -154.71   0.473

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:25 . HOME BUS IS: .

```

```

. RADIAL NETWORK . 10 .
. .[BUSLD_1011.0].
. *** FAULTED BUS IS : 10 [BUSLD_1011.0] *** . 7 LEVELS AWAY.

AT BUS 3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 18.695/ -7.12

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  2 [BUS_TX 132] 1 1 AMP/OHM 528.1 -39.35 501.08 38.98 0.809
  4 [BUS_TX 33.0] 1 1 AMP/OHM 528.1 140.65 33.31 -147.77 0.630

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:25 . HOME BUS IS: .
. RADIAL NETWORK . 10 .
. .[BUSLD_1011.0].
. *** FAULTED BUS IS : 10 [BUSLD_1011.0] *** . 8 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 73.510/ -0.36

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  1 [INF_BUS 132] 1 1 AMP/OHM 146.7 -39.34 515.89 38.37 0.792
  3 [BUS_03 33.0] 1 1 AMP/OHM 146.7 140.66 35.40 -147.77 0.630

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:25 . HOME BUS IS: .
. RADIAL NETWORK . 10 .
. .[BUSLD_1011.0].
. *** FAULTED BUS IS : 10 [BUSLD_1011.0] *** . 9 LEVELS AWAY.

AT BUS 1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 75.683/ -0.98

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 146.7 -39.34
  2 [BUS_TX 132] 1 1 AMP/OHM 146.7 140.66 501.08 -141.02 0.809
DIAGONALS = 12 OFF-DIAGONALS = 11 MAX SIZE = 22
POS. SEQUENCE: DIAGONALS = 12 OFF-DIAGONALS = 11

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:25 . HOME BUS IS: .

```



```

. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      9 [BUSLD_0911.0] ***
.
.          .          9
.          . [BUSLD_0911.0].
.          . 0 LEVELS AWAY.

```

```

AT BUS      9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

```

```

THEV. R, X, X/R: POSITIVE 0.17950 0.41499 2.312

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
8	[BUSLD_0811.0]	1	1	AMP/OHM	2127.4	-46.88	0.46	23.84	0.442
10	[BUSLD_1011.0]	1	1	AMP/OHM	0.0	0.00	0.00	0.00	0.000
102	[TXBUS 11.0]	1	1	AMP/OHM	8132.6	-61.20	0.12	23.84	0.442
				TO SHUNT (AMPS)	0.0	0.00			
				TOTAL FAULT CURRENT (AMPS)	10207.5	-58.25			

```

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004 14:25 . HOME BUS IS: .
. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      9 [BUSLD_0911.0] ***
.
.          .          9
.          . [BUSLD_0911.0].
.          . 1 LEVELS AWAY.

```

```

AT BUS      8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 0.979/ -23.04

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
7	[BUSLD_0711.0]	1	1	AMP/OHM	2137.2	-46.86	0.80	23.80	0.441
9	[BUSLD_0911.0]	1	1	AMP/OHM	2127.4	133.12	0.00	0.00	0.000
				TO SHUNT (AMPS)	9.8	-41.47			

```

AT BUS     10 [BUSLD_1011.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
9	[BUSLD_0911.0]	1	1	AMP/OHM	0.0	0.00	0.00	0.00	0.000
				TO SHUNT (AMPS)	0.0	0.00			

```

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 0.936/ -37.36

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z   /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
    9 [BUSLD_0911.0] 1 1 AMP/OHM 8132.6 118.80 0.00 0.00 0.000
   101 [WNDFRM .690] 1 1 AMP/OHM 8132.6 -61.20 0.00 0.00 0.000

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:25 . HOME BUS IS: .
. RADIAL NETWORK                      . 9 .
.                                       . [BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 2 LEVELS AWAY.

AT BUS 7 [BUSLD_0711.0] AREA 1 (KV L-G) V+: / 1.717/ -23.05

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z   /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
    6 [BUSLD_0611.0] 1 1 AMP/OHM 2165.9 -46.83 1.37 23.79 0.441
    8 [BUSLD_0811.0] 1 1 AMP/OHM 2137.2 133.14 0.46 -156.18 0.441
          TO SHUNT (AMPS) 28.7 -44.86

AT BUS 101 [WNDFRM .690] AREA 1 (KV L-G) V+: / 0.312/ 7.08

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z   /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1
  102 [TXBUS 11.0] 1 1 AMP/OHM 110203.2 118.80 0.12 -156.16 0.442

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:25 . HOME BUS IS: .
. RADIAL NETWORK                      . 9 .
.                                       . [BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 3 LEVELS AWAY.

AT BUS 6 [BUSLD_0611.0] AREA 1 (KV L-G) V+: / 2.963/ -23.04

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z   /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
    5 [BUS_05 11.0] 1 1 AMP/OHM 2339.0 -46.75 1.84 23.74 0.440

```

```

7 [BUSLD_0711.0] 1 1 AMP/OHM 2165.9 133.17 0.79 -156.23 0.441
      TO SHUNT (AMPS) 173.2 -45.73

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:25 . HOME BUS IS: .
. RADIAL NETWORK . 9 .
. .[BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 4 LEVELS AWAY.

AT BUS 5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 4.309/ -23.00

          T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
4 [BUS_TX 33.0] 1 1 AMP/OHM 2339.0 -46.75 18.31 36.69 0.745
6 [BUSLD_0611.0] 1 1 AMP/OHM 2339.0 133.25 1.27 -156.29 0.439

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:25 . HOME BUS IS: .
. RADIAL NETWORK . 9 .
. .[BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 5 LEVELS AWAY.

AT BUS 4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 15.024/ -10.05

          T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
3 [BUS_03 33.0] 1 1 AMP/OHM 820.7 -46.75 20.39 36.23 0.733
5 [BUS_05 11.0] 1 1 AMP/OHM 820.7 133.25 1.84 -156.26 0.440

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:25 . HOME BUS IS: .
. RADIAL NETWORK . 9 .
. .[BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 6 LEVELS AWAY.

AT BUS 3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 16.731/ -10.51

          T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
2 [BUS_TX 132] 1 1 AMP/OHM 820.7 -46.75 312.13 46.59 1.057
4 [BUS_TX 33.0] 1 1 AMP/OHM 820.7 133.25 18.31 -143.31 0.745

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:25 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                     .[BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 7 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 71.157/  -0.16

```

```

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
      /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
1 [INF_BUS  132]   1 1  AMP/OHM  228.0   -46.75   326.13   45.27   1.010
3 [BUS_03  33.0]   1 1  AMP/OHM  228.0   133.25   20.39   -143.77  0.733

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:25 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                     .[BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 8 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS  132] AREA  1  (KV L-G) V+: / 74.349/  -1.47

```

```

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
      /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
MACHINE 1          AMP/      228.0   -46.75
2 [BUS_TX  132]   1 1  AMP/OHM  228.0   133.25   312.13  -133.41   1.057
DIAGONALS =      12 OFF-DIAGONALS =      11 MAX SIZE =      22
POS. SEQUENCE: DIAGONALS =      12 OFF-DIAGONALS =      11

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:25 . HOME BUS IS: .
. RADIAL NETWORK                      .           8 .
.                                     .[BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 0 LEVELS AWAY.

```

```

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  0.000/   0.00

```

```

THEV. R, X, X/R: POSITIVE  0.38909  0.46481  1.195

```

```

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
      /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R

```

```

7 [BUSLD_0711.0] 1 1 AMP/OHM 2482.4 -49.96 0.35 23.78 0.441
9 [BUSLD_0911.0] 1 1 AMP/OHM 5198.7 -41.58 0.46 23.84 0.442
      TO SHUNT (AMPS) 0.0 0.00
TOTAL FAULT CURRENT (AMPS) 7663.1 -44.29

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:25 . HOME BUS IS: .
. RADIAL NETWORK . 8 .
. .[BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 1 LEVELS AWAY.

AT BUS 7 [BUSLD_0711.0] AREA 1 (KV L-G) V+: / 0.857/ -26.18

      T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
6 [BUSLD_0611.0] 1 1 AMP/OHM 2496.7 -49.95 0.92 23.80 0.441
8 [BUSLD_0811.0] 1 1 AMP/OHM 2482.4 130.04 0.00 0.00 0.000
      TO SHUNT (AMPS) 14.3 -47.98

AT BUS 9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 2.393/ -17.74

      T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
8 [BUSLD_0811.0] 1 1 AMP/OHM 5198.7 138.42 0.00 0.00 0.000
10 [BUSLD_1011.0] 1 1 AMP/OHM 24.4 143.80 97.47 -161.57 0.333
102 [TXBUS 11.0] 1 1 AMP/OHM 5243.8 -41.51 0.57 23.79 0.441
      TO SHUNT (AMPS) 21.1 -31.77

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:25 . HOME BUS IS: .
. RADIAL NETWORK . 8 .
. .[BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 2 LEVELS AWAY.

AT BUS 6 [BUSLD_0611.0] AREA 1 (KV L-G) V+: / 2.293/ -26.15

      T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
5 [BUS_05 11.0] 1 1 AMP/OHM 2630.7 -49.89 1.45 23.77 0.440

```

```

7 [BUSLD_0711.0] 1 1 AMP/OHM 2496.7 130.05 0.34 -156.23 0.440
   TO SHUNT (AMPS) 134.0 -48.84

AT BUS 10 [BUSLD_1011.0] AREA 1 (KV L-G) V+: / 2.379/ -17.77

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
9 [BUSLD_0911.0] 1 1 AMP/OHM 24.4 -36.20 98.04 18.47 0.334
   TO SHUNT (AMPS) 24.4 -36.20

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 2.997/ -17.72

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
9 [BUSLD_0911.0] 1 1 AMP/OHM 5243.8 138.49 0.46 -156.22 0.441
101 [WINDFRM .690] 1 1 AMP/OHM 5243.8 -41.51 0.00 0.00 0.000

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:25 . HOME BUS IS: .
. RADIAL NETWORK . 8 .
. . [BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 3 LEVELS AWAY.

AT BUS 5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 3.807/ -26.12

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
4 [BUS_TX 33.0] 1 1 AMP/OHM 2630.7 -49.89 15.20 39.43 0.822
6 [BUSLD_0611.0] 1 1 AMP/OHM 2630.7 130.11 0.87 -156.26 0.440

AT BUS 101 [WINDFRM .690] AREA 1 (KV L-G) V+: / 0.350/ 6.05

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 71057.3 -41.51
102 [TXBUS 11.0] 1 1 AMP/OHM 71057.3 138.49 0.57 -156.21 0.441

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:25 . HOME BUS IS: .
. RADIAL NETWORK                      .           8 .
.                                     .[BUSLD_0811.0].
.   *** FAULTED BUS IS :             8 [BUSLD_0811.0] *** . 4 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 14.028/ -10.47

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  923.1  -49.89   17.27   38.56   0.797
   5 [BUS_05  11.0]   1 1  AMP/OHM  923.1  130.11   1.45  -156.23  0.440

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:25 . HOME BUS IS: .
. RADIAL NETWORK                      .           8 .
.                                     .[BUSLD_0811.0].
.   *** FAULTED BUS IS :             8 [BUSLD_0811.0] *** . 5 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 15.939/ -11.34

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   2 [BUS_TX  132]   1 1  AMP/OHM  923.1  -49.89  274.30   49.97   1.191
   4 [BUS_TX  33.0]   1 1  AMP/OHM  923.1  130.11   15.20 -140.57  0.822

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:25 . HOME BUS IS: .
. RADIAL NETWORK                      .           8 .
.                                     .[BUSLD_0811.0].
.   *** FAULTED BUS IS :             8 [BUSLD_0811.0] *** . 6 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 70.333/  0.08

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   1 [INF_BUS 132]   1 1  AMP/OHM  256.4  -49.89  287.88   48.33   1.123
   3 [BUS_03  33.0]   1 1  AMP/OHM  256.4  130.11   17.27 -141.44  0.797

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:25 . HOME BUS IS: .

```

```

. RADIAL NETWORK . 8 .
. [BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 7 LEVELS AWAY.

AT BUS 1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 73.813/ -1.56

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1
      2 [BUS_TX 132] 1 1 AMP/OHM 256.4 -49.89 274.30 -130.03 1.191
DIAGONALS = 12 OFF-DIAGONALS = 11 MAX SIZE = 22
POS. SEQUENCE: DIAGONALS = 12 OFF-DIAGONALS = 11

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:26 . HOME BUS IS: .
. RADIAL NETWORK . 7 .
. [BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 0 LEVELS AWAY.

AT BUS 7 [BUSLD_0711.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.48555 0.50466 1.039

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      6 [BUSLD_0611.0] 1 1 AMP/OHM 2817.9 -53.05 0.58 23.82 0.441
      8 [BUSLD_0811.0] 1 1 AMP/OHM 3964.1 -34.53 0.35 23.78 0.441
          TO SHUNT (AMPS) 0.0 0.00
TOTAL FAULT CURRENT (AMPS) 6696.2 -42.21

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:26 . HOME BUS IS: .
. RADIAL NETWORK . 7 .
. [BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 1 LEVELS AWAY.

AT BUS 6 [BUSLD_0611.0] AREA 1 (KV L-G) V+: / 1.621/ -29.23

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R

```



```

5 [BUS_05 11.0] 1 1 AMP/OHM 2912.6 -53.01 1.13 23.80 0.441
7 [BUSLD_0711.0] 1 1 AMP/OHM 2817.9 126.95 0.00 0.00 0.000
      TO SHUNT (AMPS) 94.7 -51.93

AT BUS 8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 1.368/ -10.75

      T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
7 [BUSLD_0711.0] 1 1 AMP/OHM 3964.1 145.47 0.00 0.00 0.000
9 [BUSLD_0911.0] 1 1 AMP/OHM 3977.8 -34.51 0.80 23.81 0.441
      TO SHUNT (AMPS) 13.7 -29.19

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:26 . HOME BUS IS: .
. RADIAL NETWORK . 7 .
. .[BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 2 LEVELS AWAY.

AT BUS 5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 3.297/ -29.21

      T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
4 [BUS_TX 33.0] 1 1 AMP/OHM 2912.6 -53.01 12.75 42.55 0.918
6 [BUSLD_0611.0] 1 1 AMP/OHM 2912.6 126.99 0.56 -156.22 0.441

AT BUS 9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 3.199/ -10.70

      T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
8 [BUSLD_0811.0] 1 1 AMP/OHM 3977.8 145.49 0.34 -156.24 0.440
10 [BUSLD_1011.0] 1 1 AMP/OHM 32.6 150.83 97.47 -161.57 0.333
102 [TXBUS 11.0] 1 1 AMP/OHM 4038.1 -34.40 0.91 23.72 0.439
      TO SHUNT (AMPS) 28.2 -24.74

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:26 . HOME BUS IS: .
. RADIAL NETWORK . 7 .
. .[BUSLD_0711.0].

```

```

.      *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***      . 3 LEVELS AWAY.
AT BUS      4 [BUS_TX  33.0] AREA  1      (KV L-G) V+: / 13.034/ -10.46

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  1022.0  -53.01   14.81   41.10   0.872
   5 [BUS_05  11.0]   1 1  AMP/OHM  1022.0  126.99   1.13  -156.20   0.441

AT BUS     10 [BUSLD_1011.0] AREA  1      (KV L-G) V+: /  3.181/ -10.74

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   9 [BUSLD_0911.0]   1 1  AMP/OHM   32.6   -29.17   98.04   18.47   0.334
      TO SHUNT (AMPS)   32.6   -29.17

AT BUS    102 [TXBUS   11.0] AREA  1      (KV L-G) V+: /  3.664/ -10.69

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   9 [BUSLD_0911.0]   1 1  AMP/OHM  4038.1  145.60   0.79  -156.30   0.439
  101 [WNDFRM  .690]   1 1  AMP/OHM  4038.1  -34.40   0.01   41.14   0.874

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004  14:26 . HOME BUS IS: .
. RADIAL NETWORK                      .           7 .
.                                     . [BUSLD_0711.0].
.      *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***      . 4 LEVELS AWAY.
AT BUS      3 [BUS_03  33.0] AREA  1      (KV L-G) V+: / 15.134/ -11.91

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   2 [BUS_TX   132]   1 1  AMP/OHM  1022.0  -53.01  245.01   53.41   1.347
   4 [BUS_TX   33.0]   1 1  AMP/OHM  1022.0  126.99   12.75  -137.45   0.918

```

```

AT BUS 101 [WNDFRM .690] AREA 1 (KV L-G) V+: / 0.363/ 6.74

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1          AMP/      54718.7  -34.40
  102 [TXBUS 11.0]  1 1  AMP/OHM  54718.7  145.60      0.91  -156.28      0.439

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:26 . HOME BUS IS: .
. RADIAL NETWORK                      .              7              .
.                                       . [BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 5 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 69.554/ 0.40

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
  1 [INF_BUS 132]  1 1  AMP/OHM  283.9  -53.01  258.10  51.40  1.253
  3 [BUS_03 33.0]  1 1  AMP/OHM  283.9  126.99  14.81  -138.90  0.872

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:26 . HOME BUS IS: .
. RADIAL NETWORK                      .              7              .
.                                       . [BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 6 LEVELS AWAY.

AT BUS 1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 73.271/ -1.61

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1          AMP/      283.9  -53.01
  2 [BUS_TX 132]  1 1  AMP/OHM  283.9  126.99  245.01  -126.59  1.347
DIAGONALS = 12 OFF-DIAGONALS = 11 MAX SIZE = 22
POS. SEQUENCE: DIAGONALS = 12 OFF-DIAGONALS = 11

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:26 . HOME BUS IS: .
. RADIAL NETWORK                      .              6              .
.                                       . [BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 0 LEVELS AWAY.

```

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.53728 0.58090 1.081

FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
5 [BUS_05 11.0]	1	1	AMP/OHM	3550.7 -60.44	0.58	23.82	0.441
7 [BUSLD_0711.0]	1	1	AMP/OHM	2784.3 -28.26	0.58	23.82	0.441
TO SHUNT (AMPS)				0.0	0.00		
TOTAL FAULT CURRENT (AMPS)				6090.6	-46.35		

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:26 . HOME BUS IS: .  
. RADIAL NETWORK . 6 .  
. . [BUSLD\_0611.0].  
. \*\*\* FAULTED BUS IS : 6 [BUSLD\_0611.0] \*\*\* . 1 LEVELS AWAY.

AT BUS 5 [BUS\_05 11.0] AREA 1 (KV L-G) V+: / 2.043/ -36.63

FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
4 [BUS_TX 33.0]	1	1	AMP/OHM	3550.7 -60.44	8.60	52.29	1.293
6 [BUSLD_0611.0]	1	1	AMP/OHM	3550.7 119.56	0.00	0.00	0.000

AT BUS 7 [BUSLD\_0711.0] AREA 1 (KV L-G) V+: / 1.602/ -4.45

FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
6 [BUSLD_0611.0]	1	1	AMP/OHM	2784.3 151.74	0.00	0.00	0.000
8 [BUSLD_0811.0]	1	1	AMP/OHM	2811.1 -28.24	0.91	23.79	0.441
TO SHUNT (AMPS)				26.8	-26.25		

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:26 . HOME BUS IS: .  
. RADIAL NETWORK . 6 .  
. . [BUSLD\_0611.0].  
. \*\*\* FAULTED BUS IS : 6 [BUSLD\_0611.0] \*\*\* . 2 LEVELS AWAY.

AT BUS 4 [BUS\_TX 33.0] AREA 1 (KV L-G) V+: / 10.710/ -8.15

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  1245.9  -60.44   10.58   48.41   1.127
   5 [BUS_05  11.0]   1 1  AMP/OHM  1245.9  119.56    0.58  -156.18   0.441

```

AT BUS 8 [BUSLD\_0811.0] AREA 1 (KV L-G) V+: / 2.572/ -4.45

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM  2811.1  151.76    0.57  -156.20   0.441
   9 [BUSLD_0911.0]   1 1  AMP/OHM  2836.7  -28.20    1.37   23.78   0.441
          TO SHUNT (AMPS)    25.7  -22.89

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:26 . HOME BUS IS: .
. RADIAL NETWORK                        .                6 .
.                                        . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 3 LEVELS AWAY.

```

AT BUS 3 [BUS\_03 33.0] AREA 1 (KV L-G) V+: / 13.180/ -12.03

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   2 [BUS_TX  132]   1 1  AMP/OHM  1245.9  -60.44  196.23   61.90   1.873
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1245.9  119.56    8.60  -127.71   1.293

```

AT BUS 9 [BUSLD\_0911.0] AREA 1 (KV L-G) V+: / 3.878/ -4.42

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   8 [BUSLD_0811.0]   1 1  AMP/OHM  2836.7  151.80    0.91  -156.26   0.440
  10 [BUSLD_1011.0]   1 1  AMP/OHM    39.6  157.11   97.47  -161.56   0.333
 102 [TXBUS  11.0]   1 1  AMP/OHM  2909.8  -28.01    1.45   23.61   0.437
          TO SHUNT (AMPS)    34.2  -18.46

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:26 . HOME BUS IS: .

```

```

. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      6 [BUSLD_0611.0] ***
.
.          .          6          .
.          . [BUSLD_0611.0].
.          . 4 LEVELS AWAY.

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 67.911/   1.46

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   1 [INF_BUS  132]   1 1  AMP/OHM  346.1  -60.44  207.97  58.91   1.658
   3 [BUS_03  33.0]   1 1  AMP/OHM  346.1  119.56  10.58  -131.59  1.127

AT BUS     10 [BUSLD_1011.0] AREA  1  (KV L-G) V+: /  3.855/   -4.45

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   9 [BUSLD_0911.0]   1 1  AMP/OHM  39.6   -22.89  98.04   18.47   0.334
      TO SHUNT (AMPS)  39.6   -22.89

AT BUS    102 [TXBUS   11.0] AREA  1  (KV L-G) V+: /  4.213/   -4.40

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   9 [BUSLD_0911.0]   1 1  AMP/OHM 2909.8  151.99   1.33  -156.41  0.437
  101 [WINDFRM  .690]  1 1  AMP/OHM 2909.8  -28.01   0.01   35.72   0.719

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004  14:26 . HOME BUS IS: .
. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      6 [BUSLD_0611.0] ***
.          .          6          .
.          . [BUSLD_0611.0].
.          . 5 LEVELS AWAY.

AT BUS      1 [INF_BUS  132] AREA  1  (KV L-G) V+: / 71.973/   -1.54

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
   2 [BUS_TX  132]   1 1  AMP/OHM  346.1  -60.44  196.23  -118.10  1.873

```

AT BUS 101 [WNDFRM .690] AREA 1 (KV L-G) V+: / 0.374/ 7.71

----- FROM -----		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP X/R	
MACHINE 1				AMP/	39430.2	-28.01		
102 [TXBUS 11.0]	1	1	AMP/OHM	39430.2	151.99	1.45	-156.39	0.437
DIAGONALS =	12	OFF-DIAGONALS =	11	MAX SIZE =	22			
POS. SEQUENCE:	DIAGONALS =	12	OFF-DIAGONALS =	11				

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:26 . HOME BUS IS: .  
. RADIAL NETWORK . 5 .  
. . [BUS\_05 11.0].  
. \*\*\* FAULTED BUS IS : 5 [BUS\_05 11.0] \*\*\* . 0 LEVELS AWAY.

AT BUS 5 [BUS\_05 11.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.47749 0.70020 1.466

----- FROM -----		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP X/R	
4 [BUS_TX 33.0]	1	1	AMP/OHM	4434.3	-72.17	5.01	78.69	5.000
6 [BUSLD_0611.0]	1	1	AMP/OHM	2081.6	-25.01	0.58	23.82	0.441
TOTAL FAULT CURRENT (AMPS)				6045.4	-57.55			

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:26 . HOME BUS IS: .  
. RADIAL NETWORK . 5 .  
. . [BUS\_05 11.0].  
. \*\*\* FAULTED BUS IS : 5 [BUS\_05 11.0] \*\*\* . 1 LEVELS AWAY.

AT BUS 4 [BUS\_TX 33.0] AREA 1 (KV L-G) V+: / 7.797/ 6.52

----- FROM -----		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP X/R	
3 [BUS_03 33.0]	1	1	AMP/OHM	1555.9	-72.17	6.62	65.49	2.193
5 [BUS_05 11.0]	1	1	AMP/OHM	1555.9	107.83	0.00	0.00	0.000

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  1.198/  -1.19

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM  2081.6  154.99   0.00   0.00   0.000
   7 [BUSLD_0711.0]   1 1  AMP/OHM  2151.6  -24.97   1.13   23.80   0.441
                                TO SHUNT (AMPS)  70.0  -23.88

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004  14:26 . HOME BUS IS: .
. RADIAL NETWORK                      .                5 .
.                                     . [BUS_05  11.0].
. *** FAULTED BUS IS :      5 [BUS_05  11.0] *** . 2 LEVELS AWAY.

AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 10.302/  -6.68

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   2 [BUS_TX  132]   1 1  AMP/OHM  1555.9  -72.17  153.19   76.02   4.016
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1555.9  107.83   5.01  -101.31   5.000

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  2.435/  -1.17

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM  2151.6  155.03   0.56  -156.22   0.441
   8 [BUSLD_0811.0]   1 1  AMP/OHM  2192.3  -24.93   1.46   23.76   0.440
                                TO SHUNT (AMPS)  40.7  -22.97

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004  14:26 . HOME BUS IS: .
. RADIAL NETWORK                      .                5 .
.                                     . [BUS_05  11.0].
. *** FAULTED BUS IS :      5 [BUS_05  11.0] *** . 3 LEVELS AWAY.

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 66.207/   3.84

                                T H R E E   P H A S E   F A U L T

```



```

----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
  1 [INF_BUS 132]    1 1  AMP/OHM  432.2   -72.17   162.19   71.30   2.955
  3 [BUS_03  33.0]  1 1  AMP/OHM  432.2   107.83    6.62   -114.51  2.193

```

```

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  3.192/  -1.17

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
  7 [BUSLD_0711.0]  1 1  AMP/OHM  2192.3  155.07    1.11  -156.24  0.440
  9 [BUSLD_0911.0]  1 1  AMP/OHM  2224.1  -24.86    1.90   23.73   0.440
                TO SHUNT (AMPS)    32.0   -19.60

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:26 . HOME BUS IS: .
. RADIAL NETWORK                        .           5           .
.                                         .[BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 4 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS 132] AREA  1  (KV L-G) V+: / 70.099/  -0.87

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
MACHINE 1                                AMP/      432.2   -72.17
  2 [BUS_TX  132]  1 1  AMP/OHM  432.2   107.83   153.19  -103.98  4.016

```

```

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  4.216/  -1.13

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
  8 [BUSLD_0811.0]  1 1  AMP/OHM  2224.1  155.14    1.44  -156.31  0.439
 10 [BUSLD_1011.0]  1 1  AMP/OHM   43.0   160.40   97.47  -161.57  0.333
 102 [TXBUS  11.0]  1 1  AMP/OHM  2303.6  -24.60    1.95   23.49   0.435
                TO SHUNT (AMPS)    37.2   -15.17

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:26 . HOME BUS IS: .
. RADIAL NETWORK                        .           5           .
.                                         .[BUS_05 11.0].

```

. \*\*\* FAULTED BUS IS : 5 [BUS\_05 11.0] \*\*\* . 5 LEVELS AWAY.

AT BUS 10 [BUSLD\_1011.0] AREA 1 (KV L-G) V+: / 4.191/ -1.16

		T H R E E		P H A S E		F A U L T	
----- FROM	-----AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
9 [BUSLD_0911.0]	1 1	AMP/OHM	43.0	-19.60	98.04	18.47	0.334
	TO SHUNT	(AMPS)	43.0	-19.60			

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 4.481/ -1.11

		T H R E E		P H A S E		F A U L T	
----- FROM	-----AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
9 [BUSLD_0911.0]	1 1	AMP/OHM	2303.6	155.40	1.83	-156.53	0.434
101 [WNDFRM .690]	1 1	AMP/OHM	2303.6	-24.60	0.01	32.94	0.648

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:26 . HOME BUS IS: .  
. RADIAL NETWORK . 5 .  
. . [BUS\_05 11.0].  
. \*\*\* FAULTED BUS IS : 5 [BUS\_05 11.0] \*\*\* . 6 LEVELS AWAY.

AT BUS 101 [WNDFRM .690] AREA 1 (KV L-G) V+: / 0.379/ 8.34

		T H R E E		P H A S E		F A U L T	
----- FROM	-----AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
MACHINE 1		AMP/	31214.9	-24.60			
102 [TXBUS 11.0]	1 1	AMP/OHM	31214.9	155.40	1.95	-156.51	0.435

### 3 Turbines connected to Busbar 9

```
. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:29 . HOME BUS IS: .
. RADIAL NETWORK                      .          10          .
.                                     .[BUSLD_1011.0].
.      *** FAULTED BUS IS :    10 [BUSLD_1011.0]  *** . 0 LEVELS AWAY.
```

```
AT BUS    10 [BUSLD_1011.0] AREA    1    (KV L-G) V+: /  0.000/    0.00
```

```
THEV. R, X, X/R: POSITIVE  0.61052  0.60071    0.984
```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
9	[BUSLD_0911.0]	1	1	AMP/OHM	5377.8	-31.99	0.58	23.82	0.441
				TO SHUNT (AMPS)	0.0	0.00			
				TOTAL FAULT CURRENT (AMPS)	5377.8	-31.99			

```
. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:29 . HOME BUS IS: .
. RADIAL NETWORK                      .          10          .
.                                     .[BUSLD_1011.0].
.      *** FAULTED BUS IS :    10 [BUSLD_1011.0]  *** . 1 LEVELS AWAY.
```

```
AT BUS    9 [BUSLD_0911.0] AREA    1    (KV L-G) V+: /  3.094/   -8.17
```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
8	[BUSLD_0811.0]	1	1	AMP/OHM	1135.7	-44.59	3.18	34.61	0.690
10	[BUSLD_1011.0]	1	1	AMP/OHM	5377.8	148.01	0.00	0.00	0.000
102	[TXBUS 11.0]	1	1	AMP/OHM	4303.6	-28.63	0.83	20.92	0.382
				TO SHUNT (AMPS)	27.1	-22.21			

```
. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:29 . HOME BUS IS: .
. RADIAL NETWORK                      .          10          .
.                                     .[BUSLD_1011.0].
.      *** FAULTED BUS IS :    10 [BUSLD_1011.0]  *** . 2 LEVELS AWAY.
```

```
AT BUS    8 [BUSLD_0811.0] AREA    1    (KV L-G) V+: /  3.606/   -9.98
```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
  7 [BUSLD_0711.0]   1 1  AMP/OHM  1170.5  -44.09   3.42   33.08   0.651
  9 [BUSLD_0911.0]   1 1  AMP/OHM  1135.7  135.41   2.72  -143.58  0.738
                    TO SHUNT  (AMPS)   36.2   -28.42

```

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 3.589/ -7.70

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
  9 [BUSLD_0911.0]   1 1  AMP/OHM  4303.6  151.37   0.72  -159.55  0.373
 101 [WNDFRM .690]   1 1  AMP/OHM  4303.6  -28.63   0.01   40.31   0.848

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:29 . HOME BUS IS: .
. RADIAL NETWORK                      .           10 .
.                                       . [BUSLD_1011.0].
. *** FAULTED BUS IS : 10 [BUSLD_1011.0] *** . 3 LEVELS AWAY.

```

AT BUS 7 [BUSLD\_0711.0] AREA 1 (KV L-G) V+: / 4.004/ -11.02

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
  6 [BUSLD_0611.0]   1 1  AMP/OHM  1237.0  -43.48   3.81   31.16   0.605
  8 [BUSLD_0811.0]   1 1  AMP/OHM  1170.5  135.91   3.08  -145.89  0.677
                    TO SHUNT  (AMPS)   67.7   -32.82

```

AT BUS 101 [WNDFRM .690] AREA 1 (KV L-G) V+: / 0.361/ 11.68

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1          AMP/      58316.4  -28.63
 102 [TXBUS 11.0]   1 1  AMP/OHM  58316.4  151.37   0.83  -159.08  0.382

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:29 . HOME BUS IS: .
. RADIAL NETWORK                      .           10 .

```

```

.
.      *** FAULTED BUS IS :      10 [BUSLD_1011.0] ***      .[BUSLD_1011.0].
.                                     . 4 LEVELS AWAY.

AT BUS      6 [BUSLD_0611.0] AREA  1   (KV L-G) V+: /  4.709/ -12.32

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM  1514.7   -41.92     3.68     28.70    0.547
   7 [BUSLD_0711.0]   1 1  AMP/OHM  1237.0   136.52     3.24    -147.54   0.636
                                TO SHUNT (AMPS)  280.2   -35.01

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004  14:29 . HOME BUS IS: .
. RADIAL NETWORK                    .                10 .
.                                     .[BUSLD_1011.0].
.      *** FAULTED BUS IS :      10 [BUSLD_1011.0] ***      . 5 LEVELS AWAY.

AT BUS      5 [BUS_05  11.0] AREA  1   (KV L-G) V+: /  5.577/ -13.22

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1514.7   -41.92    33.35     35.31    0.708
   6 [BUSLD_0611.0]   1 1  AMP/OHM  1514.7   138.08     3.11    -150.40   0.568

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004  14:29 . HOME BUS IS: .
. RADIAL NETWORK                    .                10 .
.                                     .[BUSLD_1011.0].
.      *** FAULTED BUS IS :      10 [BUSLD_1011.0] ***      . 6 LEVELS AWAY.

AT BUS      4 [BUS_TX  33.0] AREA  1   (KV L-G) V+: / 17.724/  -6.61

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  531.5   -41.92    35.43     35.12    0.703
   5 [BUS_05  11.0]   1 1  AMP/OHM  531.5   138.08     3.68    -151.30   0.547

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004  14:29 . HOME BUS IS: .
. RADIAL NETWORK                    .                10 .
.                                     .[BUSLD_1011.0].

```

```

.      *** FAULTED BUS IS :      10 [BUSLD_1011.0] ***      . 7 LEVELS AWAY.
AT BUS      3 [BUS_03  33.0] AREA  1      (KV L-G) V+: / 18.830/   -6.80

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
      2 [BUS_TX  132]    1 1  AMP/OHM    531.5   -41.92   493.02   41.61   0.888
      4 [BUS_TX  33.0]    1 1  AMP/OHM    531.5   138.08   33.35  -144.69   0.708

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004  14:29 . HOME BUS IS: .
. RADIAL NETWORK                      .           10 .
.                                     . [BUSLD_1011.0].
.      *** FAULTED BUS IS :      10 [BUSLD_1011.0] ***      . 8 LEVELS AWAY.
AT BUS      2 [BUS_TX  132] AREA  1      (KV L-G) V+: / 73.602/   -0.32

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
      1 [INF_BUS 132]    1 1  AMP/OHM    149.3   -41.92   507.57   40.90   0.866
      3 [BUS_03  33.0]    1 1  AMP/OHM    149.3   138.08   35.43  -144.88   0.703

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004  14:29 . HOME BUS IS: .
. RADIAL NETWORK                      .           10 .
.                                     . [BUSLD_1011.0].
.      *** FAULTED BUS IS :      10 [BUSLD_1011.0] ***      . 9 LEVELS AWAY.
AT BUS      1 [INF_BUS 132] AREA  1      (KV L-G) V+: / 75.774/   -1.02

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
MACHINE 1                      AMP/      149.3   -41.92
      2 [BUS_TX  132]    1 1  AMP/OHM    149.3   138.08   493.02  -138.39   0.888
DIAGONALS =      12 OFF-DIAGONALS =      11 MAX SIZE =      22
POS. SEQUENCE: DIAGONALS =      12 OFF-DIAGONALS =      11

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004  14:29 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                     . [BUSLD_0911.0].

```

```

.      *** FAULTED BUS IS :      9 [BUSLD_0911.0] ***      . 0 LEVELS AWAY.
AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  0.000/  0.00
THEV. R, X, X/R: POSITIVE  0.17957  0.41505  2.311

```

```

----- FROM -----AREA CKT  I/Z      T H R E E   P H A S E   F A U L T
      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      8 [BUSLD_0811.0]  1 1  AMP/OHM  2150.9  -46.98   0.46   23.84   0.442
      10 [BUSLD_1011.0]  1 1  AMP/OHM   0.0    0.00    0.00    0.00    0.000
      102 [TXBUS  11.0]  1 1  AMP/OHM  8114.3  -55.89   0.12   23.84   0.442
      TO SHUNT (AMPS)      0.0    0.00
      TOTAL FAULT CURRENT (AMPS) 10244.7  -54.03

```

```

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004  14:29 . HOME BUS IS: .
. RADIAL NETWORK                      .          9          .
.                                     . [BUSLD_0911.0].
.      *** FAULTED BUS IS :      9 [BUSLD_0911.0] ***      . 1 LEVELS AWAY.

```

```

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  0.990/ -23.14

```

```

----- FROM -----AREA CKT  I/Z      T H R E E   P H A S E   F A U L T
      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      7 [BUSLD_0711.0]  1 1  AMP/OHM  2160.8  -46.96   0.80   23.80   0.441
      9 [BUSLD_0911.0]  1 1  AMP/OHM  2150.9  133.02   0.00    0.00   0.000
      TO SHUNT (AMPS)      9.9   -41.58

```

```

AT BUS      10 [BUSLD_1011.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

```

```

----- FROM -----AREA CKT  I/Z      T H R E E   P H A S E   F A U L T
      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      9 [BUSLD_0911.0]  1 1  AMP/OHM   0.0    0.00    0.00    0.00   0.000
      TO SHUNT (AMPS)      0.0    0.00

```

```

AT BUS      102 [TXBUS  11.0] AREA  1  (KV L-G) V+: /  0.934/ -32.04

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   9 [BUSLD_0911.0]   1 1  AMP/OHM  8114.3  124.11   0.00   0.00   0.000
  101 [WNDFRM .690]   1 1  AMP/OHM  8114.3  -55.89   0.00   0.00   0.000

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:29 . HOME BUS IS: .
. RADIAL NETWORK                        .             9             .
.                                       . [BUSLD_0911.0].
.   *** FAULTED BUS IS :              9 [BUSLD_0911.0] ***   . 2 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1   (KV L-G) V+: /  1.736/  -23.16

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM  2190.1  -46.93   1.37   23.79   0.441
   8 [BUSLD_0811.0]   1 1  AMP/OHM  2160.8  133.04   0.46  -156.18   0.441
                TO SHUNT (AMPS)   29.3   -44.96

```

```

AT BUS    101 [WNDFRM .690] AREA  1   (KV L-G) V+: /  0.312/  12.39

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
  102 [TXBUS  11.0]   1 1  AMP/OHM  109955.2  124.11   0.12  -156.16   0.442

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:29 . HOME BUS IS: .
. RADIAL NETWORK                        .             9             .
.                                       . [BUSLD_0911.0].
.   *** FAULTED BUS IS :              9 [BUSLD_0911.0] ***   . 3 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1   (KV L-G) V+: /  2.996/  -23.14

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM  2368.3  -46.85   1.84   23.74   0.440
   7 [BUSLD_0711.0]   1 1  AMP/OHM  2190.1  133.07   0.79  -156.23   0.441
                TO SHUNT (AMPS)   178.3  -45.83

```



```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:29 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                       .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 4 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05  11.0] AREA  1  (KV L-G) V+: /  4.359/ -23.11

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E			F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
4	[BUS_TX 33.0]	1	1	AMP/OHM	2368.3	-46.85	18.29	36.70	0.745
6	[BUSLD_0611.0]	1	1	AMP/OHM	2368.3	133.15	1.27	-156.29	0.439

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:29 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                       .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 5 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 15.201/ -10.15

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E			F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
3	[BUS_03 33.0]	1	1	AMP/OHM	831.0	-46.85	20.37	36.24	0.733
5	[BUS_05 11.0]	1	1	AMP/OHM	831.0	133.15	1.84	-156.26	0.440

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:29 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                       .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 6 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 16.928/ -10.61

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E			F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
2	[BUS_TX 132]	1	1	AMP/OHM	831.0	-46.85	305.06	46.60	1.057
4	[BUS_TX 33.0]	1	1	AMP/OHM	831.0	133.15	18.29	-143.30	0.745

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:29 . HOME BUS IS: .

```

```

. RADIAL NETWORK . 9 .
. .[BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 7 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 71.208/ -0.25

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
      /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
1 [INF_BUS 132] 1 1 AMP/OHM 233.4 -46.85 319.06 45.26 1.009
3 [BUS_03 33.0] 1 1 AMP/OHM 233.4 133.15 20.37 -143.76 0.733

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:29 . HOME BUS IS: .
. RADIAL NETWORK . 9 .
. .[BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 8 LEVELS AWAY.

AT BUS 1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 74.477/ -1.59

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
      /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
MACHINE 1 AMP/ 233.4 -46.85
2 [BUS_TX 132] 1 1 AMP/OHM 233.4 133.15 305.06 -133.40 1.057
DIAGONALS = 12 OFF-DIAGONALS = 11 MAX SIZE = 22
POS. SEQUENCE: DIAGONALS = 12 OFF-DIAGONALS = 11

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:29 . HOME BUS IS: .
. RADIAL NETWORK . 8 .
. .[BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 0 LEVELS AWAY.

AT BUS 8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.38928 0.46476 1.194

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
      /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
7 [BUSLD_0711.0] 1 1 AMP/OHM 2509.8 -50.05 0.35 23.78 0.441
9 [BUSLD_0911.0] 1 1 AMP/OHM 5187.2 -36.26 0.46 23.84 0.442

```

```

                TO SHUNT (AMPS)      0.0      0.00
TOTAL FAULT CURRENT (AMPS) 7648.1 -40.75

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:29 . HOME BUS IS: .
. RADIAL NETWORK                        .           8 .
.                                       .[BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 1 LEVELS AWAY.

AT BUS      7 [BUSLD_0711.0] AREA 1 (KV L-G) V+: / 0.866/ -26.27

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      6 [BUSLD_0611.0]  1 1 AMP/OHM  2524.4  -50.04   0.92   23.80   0.441
      8 [BUSLD_0811.0]  1 1 AMP/OHM  2509.8  129.95   0.00   0.00   0.000
                TO SHUNT (AMPS)      14.6   -48.08

AT BUS      9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 2.388/ -12.42

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      8 [BUSLD_0811.0]  1 1 AMP/OHM  5187.2  143.74   0.00   0.00   0.000
     10 [BUSLD_1011.0]  1 1 AMP/OHM   24.2   149.11  98.23 -161.57   0.333
    102 [TXBUS  11.0]  1 1 AMP/OHM  5231.9  -36.20   0.57   23.79   0.441
                TO SHUNT (AMPS)      20.9   -26.46

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:29 . HOME BUS IS: .
. RADIAL NETWORK                        .           8 .
.                                       .[BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 2 LEVELS AWAY.

AT BUS      6 [BUSLD_0611.0] AREA 1 (KV L-G) V+: / 2.319/ -26.24

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      5 [BUS_05  11.0]  1 1 AMP/OHM  2662.4  -49.98   1.45   23.77   0.440
      7 [BUSLD_0711.0]  1 1 AMP/OHM  2524.4  129.96   0.34 -156.23   0.440
                TO SHUNT (AMPS)      138.0  -48.94

```

```

AT BUS    10 [BUSLD_1011.0] AREA    1    (KV L-G) V+: /  2.374/  -12.45

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      9 [BUSLD_0911.0]    1 1  AMP/OHM   24.2   -30.89   98.80   18.47   0.334
                TO SHUNT  (AMPS)   24.2   -30.89

```

```

AT BUS    102 [TXBUS    11.0] AREA    1    (KV L-G) V+: /  2.990/  -12.41

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      9 [BUSLD_0911.0]    1 1  AMP/OHM  5231.9  143.80    0.46  -156.22  0.441
     101 [WNDFRM   .690]    1 1  AMP/OHM  5231.9  -36.20    0.00    0.00    0.000

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:29 . HOME BUS IS: .
. RADIAL NETWORK                        .           8           .
.                                         . [BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 3 LEVELS AWAY.

```

```

AT BUS     5 [BUS_05   11.0] AREA    1    (KV L-G) V+: /  3.850/  -26.21

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      4 [BUS_TX   33.0]    1 1  AMP/OHM  2662.4  -49.98   15.19   39.43   0.822
      6 [BUSLD_0611.0]    1 1  AMP/OHM  2662.4  130.02    0.87  -156.26  0.440

```

```

AT BUS    101 [WNDFRM   .690] AREA    1    (KV L-G) V+: /  0.349/   11.37

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1                                AMP/    70895.4  -36.20
     102 [TXBUS    11.0]    1 1  AMP/OHM  70895.5  143.80    0.57  -156.21  0.441

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:29 . HOME BUS IS: .

```

```

. RADIAL NETWORK . 8 .
. .[BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 4 LEVELS AWAY.

AT BUS 4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 14.191/ -10.55

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  3 [BUS_03 33.0] 1 1 AMP/OHM 934.2 -49.98 17.26 38.56 0.797
  5 [BUS_05 11.0] 1 1 AMP/OHM 934.2 130.02 1.45 -156.23 0.440

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:29 . HOME BUS IS: .
. RADIAL NETWORK . 8 .
. .[BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 5 LEVELS AWAY.

AT BUS 3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 16.125/ -11.42

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  2 [BUS_TX 132] 1 1 AMP/OHM 934.2 -49.98 268.17 49.98 1.191
  4 [BUS_TX 33.0] 1 1 AMP/OHM 934.2 130.02 15.19 -140.57 0.822

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:29 . HOME BUS IS: .
. RADIAL NETWORK . 8 .
. .[BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 6 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 70.368/ 0.00

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  1 [INF_BUS 132] 1 1 AMP/OHM 262.4 -49.98 281.74 48.30 1.122
  3 [BUS_03 33.0] 1 1 AMP/OHM 262.4 130.02 17.26 -141.44 0.797

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:29 . HOME BUS IS: .
. RADIAL NETWORK . 8 .
. .[BUSLD_0811.0].

```

. \*\*\* FAULTED BUS IS : 8 [BUSLD\_0811.0] \*\*\* . 7 LEVELS AWAY.

AT BUS 1 [INF\_BUS 132] AREA 1 (KV L-G) V+: / 73.930/ -1.68

T H R E E P H A S E F A U L T							
----- FROM -----	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
MACHINE 1			AMP/	262.4 -49.98			
2 [BUS_TX 132]	1	1	AMP/OHM	262.4 130.02	268.17 -130.02	1.191	
DIAGONALS =	12	OFF-DIAGONALS =	11	MAX SIZE =	22		
POS. SEQUENCE:	DIAGONALS =	12	OFF-DIAGONALS =	11			

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:29 . HOME BUS IS: .  
. RADIAL NETWORK . 7 .  
. . [BUSLD\_0711.0].  
. \*\*\* FAULTED BUS IS : 7 [BUSLD\_0711.0] \*\*\* . 0 LEVELS AWAY.

AT BUS 7 [BUSLD\_0711.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.48584 0.50448 1.038

T H R E E P H A S E F A U L T							
----- FROM -----	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
6 [BUSLD_0611.0]	1	1	AMP/OHM	2849.0 -53.13	0.58 23.82	0.441	
8 [BUSLD_0811.0]	1	1	AMP/OHM	3955.4 -29.21	0.35 23.78	0.441	
		TO SHUNT	(AMPS)	0.0 0.00			
TOTAL FAULT	CURRENT	(AMPS)	6660.7	-39.20			

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:29 . HOME BUS IS: .  
. RADIAL NETWORK . 7 .  
. . [BUSLD\_0711.0].  
. \*\*\* FAULTED BUS IS : 7 [BUSLD\_0711.0] \*\*\* . 1 LEVELS AWAY.

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 1.639/ -29.31

T H R E E P H A S E F A U L T							
----- FROM -----	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
5 [BUS_05 11.0]	1	1	AMP/OHM	2946.5 -53.09	1.13 23.80	0.441	
7 [BUSLD_0711.0]	1	1	AMP/OHM	2849.0 126.87	0.00 0.00	0.000	

```

                TO SHUNT (AMPS)      97.5   -52.01

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  1.365/   -5.44

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM  3955.4  150.79   0.00   0.00   0.000
   9 [BUSLD_0911.0]   1 1  AMP/OHM  3969.0  -29.20   0.80   23.81   0.441
                TO SHUNT (AMPS)      13.7   -23.87

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:29 . HOME BUS IS: .
. RADIAL NETWORK                        .                7 .
.                                         . [BUSLD_0711.0].
. *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 2 LEVELS AWAY.

AT BUS      5 [BUS_05 11.0] AREA  1  (KV L-G) V+: /  3.334/  -29.30

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   4 [BUS_TX 33.0]   1 1  AMP/OHM  2946.5  -53.09  12.75   42.55   0.918
   6 [BUSLD_0611.0]   1 1  AMP/OHM  2946.5  126.91   0.56  -156.22   0.441

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  3.192/   -5.39

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   8 [BUSLD_0811.0]   1 1  AMP/OHM  3969.0  150.80   0.34  -156.24   0.440
  10 [BUSLD_1011.0]   1 1  AMP/OHM   32.3  156.15  98.23  -161.57   0.333
 102 [TXBUS 11.0]   1 1  AMP/OHM  4028.7  -29.09   0.91   23.72   0.439
                TO SHUNT (AMPS)      27.9   -19.42

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:29 . HOME BUS IS: .
. RADIAL NETWORK                        .                7 .
.                                         . [BUSLD_0711.0].
. *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 3 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 13.183/ -10.54

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)   APP X/R
  3 [BUS_03  33.0]   1 1  AMP/OHM  1033.9   -53.09    14.81    41.10    0.872
  5 [BUS_05  11.0]   1 1  AMP/OHM  1033.9   126.91    1.13   -156.20    0.441

```

```

AT BUS     10 [BUSLD_1011.0] AREA  1  (KV L-G) V+: /  3.174/  -5.42

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)   APP X/R
  9 [BUSLD_0911.0]   1 1  AMP/OHM   32.3    -23.85    98.80    18.47    0.334
      TO SHUNT (AMPS)   32.3    -23.85

```

```

AT BUS    102 [TXBUS   11.0] AREA  1  (KV L-G) V+: /  3.656/  -5.37

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)   APP X/R
  9 [BUSLD_0911.0]   1 1  AMP/OHM  4028.7   150.91    0.79   -156.30    0.439
 101 [WNDFRM  .690]   1 1  AMP/OHM  4028.7   -29.09    0.01    41.14    0.874

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:29 . HOME BUS IS: .
. RADIAL NETWORK                      .                   .
.                                     .                   .
. *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . [BUSLD_0711.0].
.                                     .                   .
.                                     . 4 LEVELS AWAY.

```

```

AT BUS      3 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 15.308/ -11.99

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)   APP X/R
  2 [BUS_TX  132]   1 1  AMP/OHM  1033.9   -53.09   239.57    53.42    1.347
  4 [BUS_TX  33.0]   1 1  AMP/OHM  1033.9   126.91   12.75   -137.45    0.918

```

```

AT BUS    101 [WNDFRM  .690] AREA  1  (KV L-G) V+: /  0.362/  12.05

```



```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
  102 [TXBUS  11.0]  1 1  AMP/OHM  54592.0  -29.09
                                54592.1  150.91      0.91  -156.28   0.439

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:29 . HOME BUS IS: .
. RADIAL NETWORK                        .           7           .
.                                         .[BUSLD_0711.0].
.      *** FAULTED BUS IS :           7 [BUSLD_0711.0] *** . 5 LEVELS AWAY.

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 69.574/  0.32

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
  1 [INF_BUS 132]  1 1  AMP/OHM  290.4  -53.09  252.66   51.36   1.251
  3 [BUS_03  33.0]  1 1  AMP/OHM  290.4  126.91  14.81  -138.90   0.872

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:29 . HOME BUS IS: .
. RADIAL NETWORK                        .           7           .
.                                         .[BUSLD_0711.0].
.      *** FAULTED BUS IS :           7 [BUSLD_0711.0] *** . 6 LEVELS AWAY.

AT BUS      1 [INF_BUS 132] AREA  1  (KV L-G) V+: / 73.377/  -1.73

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
  2 [BUS_TX  132]  1 1  AMP/OHM  290.4  126.91  239.57  -126.58   1.347
DIAGONALS = 12 OFF-DIAGONALS = 11 MAX SIZE = 22
POS. SEQUENCE: DIAGONALS = 12 OFF-DIAGONALS = 11

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:30 . HOME BUS IS: .
. RADIAL NETWORK                        .           6           .
.                                         .[BUSLD_0611.0].
.      *** FAULTED BUS IS :           6 [BUSLD_0611.0] *** . 0 LEVELS AWAY.

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

```

THEV. R, X, X/R: POSITIVE 0.53791 0.58051 1.079

----- FROM -----		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T			
					/I+/	AN(I+)	/Z+/	AN(Z+)	APP X/R	
5	[BUS_05	11.0]	1	1	AMP/OHM	3590.0	-60.50	0.58	23.82	0.441
7	[BUSLD_0711.0]	1	1	1	AMP/OHM	2778.0	-22.95	0.58	23.82	0.441
TO SHUNT (AMPS)					0.0	0.00				
TOTAL FAULT CURRENT (AMPS)					6034.8	-44.21				

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:30 . HOME BUS IS: .  
. RADIAL NETWORK . 6 .  
. . [BUSLD\_0611.0].  
. \*\*\* FAULTED BUS IS : 6 [BUSLD\_0611.0] \*\*\* . 1 LEVELS AWAY.

AT BUS 5 [BUS\_05 11.0] AREA 1 (KV L-G) V+: / 2.065/ -36.68

----- FROM -----		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T			
					/I+/	AN(I+)	/Z+/	AN(Z+)	APP X/R	
4	[BUS_TX	33.0]	1	1	AMP/OHM	3590.0	-60.50	8.60	52.29	1.293
6	[BUSLD_0611.0]	1	1	1	AMP/OHM	3590.0	119.50	0.00	0.00	0.000

AT BUS 7 [BUSLD\_0711.0] AREA 1 (KV L-G) V+: / 1.598/ 0.87

----- FROM -----		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T			
					/I+/	AN(I+)	/Z+/	AN(Z+)	APP X/R	
6	[BUSLD_0611.0]	1	1	1	AMP/OHM	2778.0	157.05	0.00	0.00	0.000
8	[BUSLD_0811.0]	1	1	1	AMP/OHM	2805.0	-22.93	0.91	23.79	0.441
TO SHUNT (AMPS)					27.0	-20.93				

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:30 . HOME BUS IS: .  
. RADIAL NETWORK . 6 .  
. . [BUSLD\_0611.0].  
. \*\*\* FAULTED BUS IS : 6 [BUSLD\_0611.0] \*\*\* . 2 LEVELS AWAY.

AT BUS 4 [BUS\_TX 33.0] AREA 1 (KV L-G) V+: / 10.829/ -8.21

T H R E E P H A S E F A U L T

```

----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  1259.6   -60.50    10.58    48.41    1.127
   5 [BUS_05  11.0]   1 1  AMP/OHM  1259.6   119.50     0.58   -156.18    0.441

```

```

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  2.566/    0.86

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM  2805.0   157.07     0.57   -156.20    0.441
   9 [BUSLD_0911.0]   1 1  AMP/OHM  2830.6   -22.88     1.37    23.78    0.441
                TO SHUNT (AMPS)    25.8   -17.57

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:30 . HOME BUS IS: .
. RADIAL NETWORK                        .           6           .
.                                       .[BUSLD_0611.0].
.   *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 3 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 13.326/   -12.09

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   2 [BUS_TX  132]   1 1  AMP/OHM  1259.6   -60.50   191.90    61.90    1.873
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1259.6   119.50     8.60   -127.71    1.293

```

```

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  3.869/    0.89

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   8 [BUSLD_0811.0]   1 1  AMP/OHM  2830.6   157.12     0.91   -156.26    0.440
  10 [BUSLD_1011.0]   1 1  AMP/OHM    39.2   162.43    98.23   -161.57    0.333
 102 [TXBUS  11.0]   1 1  AMP/OHM  2903.0   -22.70     1.45    23.61    0.437
                TO SHUNT (AMPS)    33.8   -13.14

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:30 . HOME BUS IS: .
. RADIAL NETWORK                        .           6           .
.                                       .[BUSLD_0611.0].

```

```

.      *** FAULTED BUS IS :      6 [BUSLD_0611.0] ***      . 4 LEVELS AWAY.
AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 67.899/   1.40

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   1 [INF_BUS  132]    1 1  AMP/OHM    353.8  -60.50   203.64   58.84   1.654
   3 [BUS_03  33.0]    1 1  AMP/OHM    353.8  119.50   10.58  -131.59   1.127

AT BUS     10 [BUSLD_1011.0] AREA  1  (KV L-G) V+: /  3.847/   0.86

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   9 [BUSLD_0911.0]    1 1  AMP/OHM    39.2   -17.57   98.80   18.47   0.334
      TO SHUNT (AMPS)    39.2   -17.57

AT BUS    102 [TXBUS   11.0] AREA  1  (KV L-G) V+: /  4.204/   0.91

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   9 [BUSLD_0911.0]    1 1  AMP/OHM   2903.0  157.30    1.33  -156.41   0.437
  101 [WDFRM   .690]    1 1  AMP/OHM   2903.0  -22.70    0.01   35.72   0.719

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004  14:30 . HOME BUS IS: .
. RADIAL NETWORK                      .                6 .
.                                     . [BUSLD_0611.0].
.      *** FAULTED BUS IS :      6 [BUSLD_0611.0] ***      . 5 LEVELS AWAY.
AT BUS      1 [INF_BUS  132] AREA  1  (KV L-G) V+: / 72.054/  -1.66

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1                                AMP/    353.8  -60.50
   2 [BUS_TX  132]    1 1  AMP/OHM    353.8  119.50   191.90  -118.10   1.873

```

AT BUS 101 [WNDFRM .690] AREA 1 (KV L-G) V+: / 0.373/ 13.03

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1              AMP/      39337.7  -22.70
  102 [TXBUS  11.0]    1 1  AMP/OHM  39337.7  157.30    1.45  -156.39    0.437
DIAGONALS =      12 OFF-DIAGONALS =    11 MAX SIZE =    22
POS. SEQUENCE: DIAGONALS =    12 OFF-DIAGONALS =    11
```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:30 . HOME BUS IS: .
. RADIAL NETWORK                      .           5           .
.                                     . [BUS_05 11.0].
.   *** FAULTED BUS IS :      5 [BUS_05 11.0] ***           . 0 LEVELS AWAY.
```

AT BUS 5 [BUS\_05 11.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.47924 0.70024 1.461

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
  4 [BUS_TX  33.0]    1 1  AMP/OHM  4480.9  -72.19    5.01   78.69    5.000
  6 [BUSLD_0611.0]  1 1  AMP/OHM  2075.8  -19.69    0.58   23.82    0.441
TOTAL FAULT CURRENT (AMPS)  5976.2  -56.19
```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:30 . HOME BUS IS: .
. RADIAL NETWORK                      .           5           .
.                                     . [BUS_05 11.0].
.   *** FAULTED BUS IS :      5 [BUS_05 11.0] ***           . 1 LEVELS AWAY.
```

AT BUS 4 [BUS\_TX 33.0] AREA 1 (KV L-G) V+: / 7.879/ 6.50

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
  3 [BUS_03  33.0]    1 1  AMP/OHM  1572.3  -72.19    6.62   65.49    2.193
  5 [BUS_05  11.0]    1 1  AMP/OHM  1572.3  107.81    0.00    0.00    0.000
```

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 1.194/ 4.12

FROM		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R
					/I+/ AN(I+)	/Z+/ AN(Z+)			
5	[BUS_05 11.0]	1	1	AMP/OHM	2075.8	160.31	0.00	0.00	0.000
7	[BUSLD_0711.0]	1	1	AMP/OHM	2146.9	-19.66	1.13	23.80	0.441
	TO SHUNT			(AMPS)	71.1	-18.57			

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:30 . HOME BUS IS: .
. RADIAL NETWORK                      .           5           .
.                                     . [BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 2 LEVELS AWAY.

```

```
AT BUS      3 [BUS_03 33.0] AREA      1      (KV L-G) V+: / 10.411/      -6.70
```

FROM		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R
					/I+/ AN(I+)	/Z+/ AN(Z+)			
2	[BUS_TX 132]	1	1	AMP/OHM	1572.3	-72.19	149.80	76.02	4.016
4	[BUS_TX 33.0]	1	1	AMP/OHM	1572.3	107.81	5.01	-101.31	5.000

```
AT BUS      7 [BUSLD_0711.0] AREA      1      (KV L-G) V+: / 2.429/      4.14
```

FROM		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R
					/I+/ AN(I+)	/Z+/ AN(Z+)			
6	[BUSLD_0611.0]	1	1	AMP/OHM	2146.9	160.34	0.56	-156.22	0.441
8	[BUSLD_0811.0]	1	1	AMP/OHM	2187.9	-19.62	1.46	23.76	0.440
	TO SHUNT			(AMPS)	41.1	-17.66			

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:30 . HOME BUS IS: .
. RADIAL NETWORK                      .           5           .
.                                     . [BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 3 LEVELS AWAY.

```

```
AT BUS      2 [BUS_TX 132] AREA      1      (KV L-G) V+: / 66.160/      3.83
```

FROM		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R
					/I+/ AN(I+)	/Z+/ AN(Z+)			
1	[INF_BUS 132]	1	1	AMP/OHM	441.6	-72.19	158.82	71.20	2.938

```

3 [BUS_03 33.0] 1 1 AMP/OHM 441.6 107.81 6.62 -114.51 2.193

AT BUS 8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 3.185/ 4.15

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
7 [BUSLD_0711.0] 1 1 AMP/OHM 2187.9 160.38 1.11 -156.24 0.440
9 [BUSLD_0911.0] 1 1 AMP/OHM 2219.7 -19.54 1.90 23.73 0.440
          TO SHUNT (AMPS) 32.0 -14.29

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:30 . HOME BUS IS: .
. RADIAL NETWORK . 5 .
. . [BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 4 LEVELS AWAY.

AT BUS 1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 70.142/ -0.98

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 441.6 -72.19
2 [BUS_TX 132] 1 1 AMP/OHM 441.6 107.81 149.80 -103.98 4.016

AT BUS 9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 4.206/ 4.18

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
8 [BUSLD_0811.0] 1 1 AMP/OHM 2219.7 160.46 1.43 -156.31 0.439
10 [BUSLD_1011.0] 1 1 AMP/OHM 42.6 165.72 98.23 -161.57 0.333
102 [TXBUS 11.0] 1 1 AMP/OHM 2298.4 -19.29 1.95 23.50 0.435
          TO SHUNT (AMPS) 36.8 -9.85

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:30 . HOME BUS IS: .
. RADIAL NETWORK . 5 .
. . [BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 5 LEVELS AWAY.

```

```

AT BUS    10 [BUSLD_1011.0] AREA    1    (KV L-G) V+: /  4.182/    4.15

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   9 [BUSLD_0911.0]    1 1  AMP/OHM    42.6   -14.28   98.80   18.47   0.334
                TO SHUNT  (AMPS)    42.6   -14.28

```

```

AT BUS    102 [TXBUS    11.0] AREA    1    (KV L-G) V+: /  4.471/    4.20

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   9 [BUSLD_0911.0]    1 1  AMP/OHM    2298.4  160.71   1.83   -156.53  0.434
  101 [WNDFRM   .690]   1 1  AMP/OHM    2298.4  -19.29   0.01    32.94   0.648

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:30 . HOME BUS IS: .
. RADIAL NETWORK                      .                5 .
.                                     .[BUS_05  11.0].
. *** FAULTED BUS IS :      5 [BUS_05  11.0] *** . 6 LEVELS AWAY.

```

```

AT BUS    101 [WNDFRM   .690] AREA    1    (KV L-G) V+: /  0.378/   13.65

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
MACHINE 1                                AMP/      31145.5  -19.29
  102 [TXBUS    11.0]    1 1  AMP/OHM    31145.5  160.71   1.95  -156.50   0.435

```



### 5 Turbines connected to Busbar 9

```
. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:32 . HOME BUS IS: .
. RADIAL NETWORK                        .          10          .
.                                       . [BUSLD_1011.0].
.   *** FAULTED BUS IS :    10 [BUSLD_1011.0] *** . 0 LEVELS AWAY.
```

```
AT BUS    10 [BUSLD_1011.0] AREA    1    (KV L-G) V+: /  0.000/    0.00
```

```
THEV. R, X, X/R: POSITIVE  0.61087  0.60032    0.983
```

FROM		AREA	CKT	I/Z	T H R E E P H A S E			F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)		APP	X/R
9	[BUSLD_0911.0]	1	1	AMP/OHM	5377.7	-24.78	0.58	23.82	0.441
				TO SHUNT (AMPS)	0.0	0.00			
				TOTAL FAULT CURRENT (AMPS)	5377.7	-24.78			

```
. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:32 . HOME BUS IS: .
. RADIAL NETWORK                        .          10          .
.                                       . [BUSLD_1011.0].
.   *** FAULTED BUS IS :    10 [BUSLD_1011.0] *** . 1 LEVELS AWAY.
```

```
AT BUS    9 [BUSLD_0911.0] AREA    1    (KV L-G) V+: /  3.094/   -0.97
```

FROM		AREA	CKT	I/Z	T H R E E P H A S E			F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)		APP	X/R
8	[BUSLD_0811.0]	1	1	AMP/OHM	1135.8	-51.65	3.14	46.89	1.068
10	[BUSLD_1011.0]	1	1	AMP/OHM	5377.7	155.22	0.00	0.00	0.000
102	[TXBUS 11.0]	1	1	AMP/OHM	4421.5	-18.06	0.81	18.04	0.326
				TO SHUNT (AMPS)	27.1	-15.00			

```
. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:32 . HOME BUS IS: .
. RADIAL NETWORK                        .          10          .
.                                       . [BUSLD_1011.0].
.   *** FAULTED BUS IS :    10 [BUSLD_1011.0] *** . 2 LEVELS AWAY.
```

```
AT BUS    8 [BUSLD_0811.0] AREA    1    (KV L-G) V+: /  3.568/   -4.76
```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM  1168.4  -50.79    3.38   43.81    0.959
   9 [BUSLD_0911.0]   1 1  AMP/OHM  1135.8  128.35    2.72  -129.32    1.221
                TO SHUNT  (AMPS)    36.9   -23.20

```

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 3.600/ -0.02

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   9 [BUSLD_0911.0]   1 1  AMP/OHM  4421.5  161.94    0.70  -162.91    0.307
  101 [WNDFRM .690]   1 1  AMP/OHM  4421.5  -18.06    0.01   38.66    0.800

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:32 . HOME BUS IS: .
. RADIAL NETWORK                        .           10 .
.                                         .[BUSLD_1011.0].
. *** FAULTED BUS IS : 10 [BUSLD_1011.0] *** . 3 LEVELS AWAY.

```

AT BUS 7 [BUSLD\_0711.0] AREA 1 (KV L-G) V+: / 3.945/ -6.98

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM  1233.4  -49.57    3.75   39.76    0.832
   8 [BUSLD_0811.0]   1 1  AMP/OHM  1168.4  129.21    3.05  -133.98    1.036
                TO SHUNT  (AMPS)    69.8   -28.78

```

AT BUS 101 [WNDFRM .690] AREA 1 (KV L-G) V+: / 0.360/ 20.60

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1                AMP/      59914.5  -18.06
  102 [TXBUS 11.0]   1 1  AMP/OHM  59914.6  161.94    0.81  -161.96    0.326

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:32 . HOME BUS IS: .
. RADIAL NETWORK                        .           10 .

```

```

.
.      *** FAULTED BUS IS :    10 [BUSLD_1011.0] ***      .[BUSLD_1011.0].
.                                                           . 4 LEVELS AWAY.

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  4.622/  -9.81

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM  1517.1  -46.31   3.61   34.49   0.687
   7 [BUSLD_0711.0]   1 1  AMP/OHM  1233.4  130.43   3.20  -137.41  0.919
                TO SHUNT  (AMPS)  294.1   -32.51

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:32 . HOME BUS IS: .
. RADIAL NETWORK                        .                10 .
.
.      *** FAULTED BUS IS :    10 [BUSLD_1011.0] ***      .[BUSLD_1011.0].
.                                                           . 5 LEVELS AWAY.

AT BUS      5 [BUS_05  11.0] AREA  1  (KV L-G) V+: /  5.477/  -11.82

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1517.1  -46.31  33.10   40.55   0.856
   6 [BUSLD_0611.0]   1 1  AMP/OHM  1517.1  133.69   3.05  -143.50  0.740

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:32 . HOME BUS IS: .
. RADIAL NETWORK                        .                10 .
.
.      *** FAULTED BUS IS :    10 [BUSLD_1011.0] ***      .[BUSLD_1011.0].
.                                                           . 6 LEVELS AWAY.

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 17.620/  -5.76

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  532.3   -46.31  35.17   40.06   0.841
   5 [BUS_05  11.0]   1 1  AMP/OHM  532.3   133.69   3.61  -145.51  0.687

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:32 . HOME BUS IS: .
. RADIAL NETWORK                        .                10 .
.
.                                                           .[BUSLD_1011.0].

```

```

.      *** FAULTED BUS IS :      10 [BUSLD_1011.0] ***      . 7 LEVELS AWAY.
AT BUS      3 [BUS_03  33.0] AREA  1      (KV L-G) V+: / 18.719/  -6.25

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
      2 [BUS_TX  132]    1 1  AMP/OHM    532.3   -46.31   493.88    46.09    1.039
      4 [BUS_TX  33.0]    1 1  AMP/OHM    532.3   133.69    33.10   -139.45    0.856

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004  14:32 . HOME BUS IS: .
. RADIAL NETWORK                      .              10 .
.                                       . [BUSLD_1011.0].
.      *** FAULTED BUS IS :      10 [BUSLD_1011.0] ***      . 8 LEVELS AWAY.
AT BUS      2 [BUS_TX  132] AREA  1      (KV L-G) V+: / 73.847/  -0.22

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
      1 [INF_BUS 132]    1 1  AMP/OHM    149.5   -46.31   507.92    45.26    1.009
      3 [BUS_03  33.0]    1 1  AMP/OHM    149.5   133.69    35.17   -139.94    0.841

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004  14:32 . HOME BUS IS: .
. RADIAL NETWORK                      .              10 .
.                                       . [BUSLD_1011.0].
.      *** FAULTED BUS IS :      10 [BUSLD_1011.0] ***      . 9 LEVELS AWAY.
AT BUS      1 [INF_BUS 132] AREA  1      (KV L-G) V+: / 75.945/  -1.04

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
MACHINE 1                      AMP/      149.5   -46.31
      2 [BUS_TX  132]    1 1  AMP/OHM    149.5   133.69   493.88   -133.91    1.039
DIAGONALS =      12 OFF-DIAGONALS =      11 MAX SIZE =      22
POS. SEQUENCE: DIAGONALS =      12 OFF-DIAGONALS =      11

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004  14:32 . HOME BUS IS: .
. RADIAL NETWORK                      .              9 .
.                                       . [BUSLD_0911.0].

```

```

.      *** FAULTED BUS IS :      9 [BUSLD_0911.0] ***      . 0 LEVELS AWAY.
AT BUS      9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00
THEV. R, X, X/R: POSITIVE 0.17992 0.41466 2.305

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   8 [BUSLD_0811.0]  1 1  AMP/OHM  2150.8  -47.18   0.46   23.84   0.442
  10 [BUSLD_1011.0]  1 1  AMP/OHM    0.0    0.00    0.00    0.00   0.000
 102 [TXBUS  11.0]  1 1  AMP/OHM  8098.3  -46.69   0.12   23.84   0.442
          TO SHUNT (AMPS)    0.0    0.00
      TOTAL FAULT CURRENT (AMPS) 10249.0 -46.80

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:32 . HOME BUS IS: .
. RADIAL NETWORK                      .          9          .
.                                       . [BUSLD_0911.0].
.      *** FAULTED BUS IS :      9 [BUSLD_0911.0] ***      . 1 LEVELS AWAY.

```

```

AT BUS      8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 0.990/ -23.34

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   7 [BUSLD_0711.0]  1 1  AMP/OHM  2161.0  -47.15   0.80   23.80   0.441
   9 [BUSLD_0911.0]  1 1  AMP/OHM  2150.8  132.82   0.00    0.00   0.000
          TO SHUNT (AMPS)    10.2  -41.77

```

```

AT BUS     10 [BUSLD_1011.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   9 [BUSLD_0911.0]  1 1  AMP/OHM    0.0    0.00    0.00    0.00   0.000
          TO SHUNT (AMPS)    0.0    0.00

```

```

AT BUS     102 [TXBUS  11.0] AREA 1 (KV L-G) V+: / 0.932/ -22.85

```



```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:32 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                     .[BUSLD_0911.0].
. *** FAULTED BUS IS :          9 [BUSLD_0911.0] *** . 4 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05  11.0] AREA  1  (KV L-G) V+: /  4.368/ -23.30

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E			F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP X/R		
4	[BUS_TX 33.0]	1	1	AMP/OHM	2382.3	-47.04	18.24	36.74	0.746
6	[BUSLD_0611.0]	1	1	AMP/OHM	2382.3	132.96	1.26	-156.30	0.439

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:32 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                     .[BUSLD_0911.0].
. *** FAULTED BUS IS :          9 [BUSLD_0911.0] *** . 5 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 15.244/ -10.30

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E			F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP X/R		
3	[BUS_03 33.0]	1	1	AMP/OHM	835.9	-47.04	20.32	36.27	0.734
5	[BUS_05 11.0]	1	1	AMP/OHM	835.9	132.96	1.83	-156.26	0.440

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:32 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                     .[BUSLD_0911.0].
. *** FAULTED BUS IS :          9 [BUSLD_0911.0] *** . 6 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 16.982/ -10.76

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E			F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP X/R		
2	[BUS_TX 132]	1	1	AMP/OHM	835.9	-47.04	304.38	46.65	1.059
4	[BUS_TX 33.0]	1	1	AMP/OHM	835.9	132.96	18.24	-143.26	0.746

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:32 . HOME BUS IS: .

```

```

. RADIAL NETWORK . 9 .
. .[BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 7 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 71.471/ -0.39

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  1 [INF_BUS 132] 1 1 AMP/OHM 234.8 -47.04 318.38 45.30 1.011
  3 [BUS_03 33.0] 1 1 AMP/OHM 234.8 132.96 20.32 -143.73 0.734

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:32 . HOME BUS IS: .
. RADIAL NETWORK . 9 .
. .[BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 8 LEVELS AWAY.

AT BUS 1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 74.758/ -1.73

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 234.8 -47.04
  2 [BUS_TX 132] 1 1 AMP/OHM 234.8 132.96 304.38 -133.35 1.059
DIAGONALS = 12 OFF-DIAGONALS = 11 MAX SIZE = 22
POS. SEQUENCE: DIAGONALS = 12 OFF-DIAGONALS = 11

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:33 . HOME BUS IS: .
. RADIAL NETWORK . 8 .
. .[BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 0 LEVELS AWAY.

AT BUS 8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.38936 0.46347 1.190

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  7 [BUSLD_0711.0] 1 1 AMP/OHM 2512.4 -50.22 0.35 23.78 0.441
  9 [BUSLD_0911.0] 1 1 AMP/OHM 5177.0 -27.07 0.46 23.84 0.442

```



```

                TO SHUNT (AMPS)      0.0      0.00
TOTAL FAULT CURRENT (AMPS) 7551.9  -34.59

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:33 . HOME BUS IS: .
. RADIAL NETWORK                        .           8 .
.                                         .[BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 1 LEVELS AWAY.

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  0.867/ -26.45

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      6 [BUSLD_0611.0]  1 1  AMP/OHM  2527.7  -50.21   0.92   23.80   0.441
      8 [BUSLD_0811.0]  1 1  AMP/OHM  2512.4  129.78   0.00   0.00   0.000
                TO SHUNT (AMPS)      15.3   -48.25

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  2.383/ -3.23

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      8 [BUSLD_0811.0]  1 1  AMP/OHM  5177.0  152.93   0.00   0.00   0.000
     10 [BUSLD_1011.0]  1 1  AMP/OHM   24.1   158.31  98.22 -161.56   0.333
    102 [TXBUS  11.0]  1 1  AMP/OHM  5221.5  -27.01   0.57   23.79   0.441
                TO SHUNT (AMPS)      20.8   -17.26

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:33 . HOME BUS IS: .
. RADIAL NETWORK                        .           8 .
.                                         .[BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 2 LEVELS AWAY.

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  2.321/ -26.42

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      5 [BUS_05  11.0]  1 1  AMP/OHM  2675.4  -50.15   1.44   23.77   0.440
      7 [BUSLD_0711.0]  1 1  AMP/OHM  2527.7  129.79   0.34 -156.23   0.440
                TO SHUNT (AMPS)      147.7  -49.11

```

```

AT BUS    10 [BUSLD_1011.0] AREA    1    (KV L-G) V+: /  2.369/   -3.26

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      9 [BUSLD_0911.0]   1 1  AMP/OHM   24.1   -21.69   98.79   18.47   0.334
                TO SHUNT  (AMPS)   24.1   -21.69

AT BUS    102 [TXBUS    11.0] AREA    1    (KV L-G) V+: /  2.984/   -3.21

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      9 [BUSLD_0911.0]   1 1  AMP/OHM   5221.5  152.99    0.46  -156.22  0.441
     101 [WNDFRM   .690]  1 1  AMP/OHM   5221.5  -27.01    0.00    0.00    0.000

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:33 . HOME BUS IS: .
. RADIAL NETWORK                        .                8                .
.                                         . [BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 3 LEVELS AWAY.

AT BUS     5 [BUS_05   11.0] AREA    1    (KV L-G) V+: /  3.861/  -26.38

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      4 [BUS_TX   33.0]   1 1  AMP/OHM   2675.4  -50.15   15.17   39.46   0.823
      6 [BUSLD_0611.0]   1 1  AMP/OHM   2675.4  129.85    0.87  -156.26  0.440

AT BUS    101 [WNDFRM   .690] AREA    1    (KV L-G) V+: /  0.349/   20.56

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1                                AMP/    70755.5  -27.01
     102 [TXBUS    11.0]  1 1  AMP/OHM   70755.5  152.99    0.57  -156.21  0.441

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:33 . HOME BUS IS: .

```

```

. RADIAL NETWORK . 8 .
. .[BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 4 LEVELS AWAY.

AT BUS 4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 14.237/ -10.69

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  3 [BUS_03 33.0] 1 1 AMP/OHM 938.7 -50.15 17.24 38.58 0.798
  5 [BUS_05 11.0] 1 1 AMP/OHM 938.7 129.85 1.44 -156.23 0.440

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:33 . HOME BUS IS: .
. RADIAL NETWORK . 8 .
. .[BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 5 LEVELS AWAY.

AT BUS 3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 16.180/ -11.57

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  2 [BUS_TX 132] 1 1 AMP/OHM 938.7 -50.15 267.87 50.01 1.192
  4 [BUS_TX 33.0] 1 1 AMP/OHM 938.7 129.85 15.17 -140.54 0.823

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:33 . HOME BUS IS: .
. RADIAL NETWORK . 8 .
. .[BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 6 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 70.634/ -0.14

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  1 [INF_BUS 132] 1 1 AMP/OHM 263.7 -50.15 281.44 48.33 1.123
  3 [BUS_03 33.0] 1 1 AMP/OHM 263.7 129.85 17.24 -141.42 0.798

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:33 . HOME BUS IS: .
. RADIAL NETWORK . 8 .
. .[BUSLD_0811.0].

```

. \*\*\* FAULTED BUS IS : 8 [BUSLD\_0811.0] \*\*\* . 7 LEVELS AWAY.

AT BUS 1 [INF\_BUS 132] AREA 1 (KV L-G) V+: / 74.212/ -1.83

T H R E E P H A S E F A U L T							
----- FROM -----	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
MACHINE 1			AMP/	263.7	-50.15		
2 [BUS_TX 132]	1	1	AMP/OHM	263.7	129.85	267.87	-129.99 1.192
DIAGONALS =	12	OFF-DIAGONALS =	11	MAX SIZE =	22		
POS. SEQUENCE:	DIAGONALS =	12	OFF-DIAGONALS =	11			

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:33 . HOME BUS IS: .  
. RADIAL NETWORK . 7 .  
. . [BUSLD\_0711.0].  
. \*\*\* FAULTED BUS IS : 7 [BUSLD\_0711.0] \*\*\* . 0 LEVELS AWAY.

AT BUS 7 [BUSLD\_0711.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.48552 0.50241 1.035

T H R E E P H A S E F A U L T							
----- FROM -----	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
6 [BUSLD_0611.0]	1	1	AMP/OHM	2854.8	-53.29	0.58	23.82 0.441
8 [BUSLD_0811.0]	1	1	AMP/OHM	3947.3	-20.02	0.35	23.78 0.441
		TO SHUNT	(AMPS)	0.0	0.00		
TOTAL FAULT	CURRENT	(AMPS)	6525.0	-33.91			

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:33 . HOME BUS IS: .  
. RADIAL NETWORK . 7 .  
. . [BUSLD\_0711.0].  
. \*\*\* FAULTED BUS IS : 7 [BUSLD\_0711.0] \*\*\* . 1 LEVELS AWAY.

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 1.642/ -29.47

T H R E E P H A S E F A U L T							
----- FROM -----	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
5 [BUS_05 11.0]	1	1	AMP/OHM	2959.3	-53.25	1.13	23.80 0.441
7 [BUSLD_0711.0]	1	1	AMP/OHM	2854.8	126.71	0.00	0.00 0.000

TO SHUNT (AMPS) 104.5 -52.16

AT BUS 8 [BUSLD\_0811.0] AREA 1 (KV L-G) V+: / 1.362/ 3.76

		T H R E E		P H A S E		F A U L T	
FROM	AREA CKT I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
7 [BUSLD_0711.0]	1 1 AMP/OHM	3947.3 159.98	0.00 0.00	0.000			
9 [BUSLD_0911.0]	1 1 AMP/OHM	3961.3 -20.00	0.80 23.81	0.441			
TO SHUNT (AMPS)		14.1	-14.68				

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:33 . HOME BUS IS: .  
. RADIAL NETWORK . 7 .  
. . [BUSLD\_0711.0].  
. \*\*\* FAULTED BUS IS : 7 [BUSLD\_0711.0] \*\*\* . 2 LEVELS AWAY.

AT BUS 5 [BUS\_05 11.0] AREA 1 (KV L-G) V+: / 3.345/ -29.45

		T H R E E		P H A S E		F A U L T	
FROM	AREA CKT I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
4 [BUS_TX 33.0]	1 1 AMP/OHM	2959.3 -53.25	12.74 42.57	0.918			
6 [BUSLD_0611.0]	1 1 AMP/OHM	2959.3 126.75	0.56 -156.22	0.441			

AT BUS 9 [BUSLD\_0911.0] AREA 1 (KV L-G) V+: / 3.186/ 3.80

		T H R E E		P H A S E		F A U L T	
FROM	AREA CKT I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
8 [BUSLD_0811.0]	1 1 AMP/OHM	3961.3 160.00	0.34 -156.24	0.440			
10 [BUSLD_1011.0]	1 1 AMP/OHM	32.2 165.34	98.22 -161.56	0.333			
102 [TXBUS 11.0]	1 1 AMP/OHM	4020.9 -19.89	0.91 23.72	0.439			
TO SHUNT (AMPS)		27.9	-10.23				

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:33 . HOME BUS IS: .  
. RADIAL NETWORK . 7 .  
. . [BUSLD\_0711.0].  
. \*\*\* FAULTED BUS IS : 7 [BUSLD\_0711.0] \*\*\* . 3 LEVELS AWAY.

```

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 13.230/  -10.68

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)   APP X/R
  3 [BUS_03  33.0]   1 1  AMP/OHM  1038.3   -53.25   14.80   41.11   0.873
  5 [BUS_05  11.0]   1 1  AMP/OHM  1038.3   126.75   1.13   -156.20  0.441

```

```

AT BUS     10 [BUSLD_1011.0] AREA  1  (KV L-G) V+: /  3.167/   3.77

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)   APP X/R
  9 [BUSLD_0911.0]   1 1  AMP/OHM   32.2    -14.66   98.79   18.47   0.334
      TO SHUNT (AMPS)   32.2    -14.66

```

```

AT BUS    102 [TXBUS   11.0] AREA  1  (KV L-G) V+: /  3.649/   3.82

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)   APP X/R
  9 [BUSLD_0911.0]   1 1  AMP/OHM  4020.9   160.11   0.79   -156.30  0.439
 101 [WNDFRM  .690]   1 1  AMP/OHM  4020.9   -19.89   0.01   41.14   0.874

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:33 . HOME BUS IS: .
. RADIAL NETWORK                      .                   .
.                                     .                   .
. *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . [BUSLD_0711.0].
.                                     .                   .
.                                     . 4 LEVELS AWAY.

```

```

AT BUS      3 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 15.364/  -12.13

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)   APP X/R
  2 [BUS_TX  132]   1 1  AMP/OHM  1038.3   -53.25   239.45   53.43   1.348
  4 [BUS_TX  33.0]   1 1  AMP/OHM  1038.3   126.75   12.74   -137.43  0.918

```

```

AT BUS    101 [WNDFRM  .690] AREA  1  (KV L-G) V+: /  0.362/   21.24

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
  102 [TXBUS  11.0]  1 1  AMP/OHM  54485.6  -19.89
                               54485.6  160.11    0.91  -156.28   0.439

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:33 . HOME BUS IS: .
. RADIAL NETWORK                        .           7           .
.                                         . [BUSLD_0711.0].
.      *** FAULTED BUS IS :           7 [BUSLD_0711.0] *** . 5 LEVELS AWAY.

AT BUS      2 [BUS_TX  132] AREA  1   (KV L-G) V+: / 69.841/   0.18

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
  1 [INF_BUS  132]  1 1  AMP/OHM  291.7   -53.25   252.55   51.37   1.252
  3 [BUS_03  33.0]  1 1  AMP/OHM  291.7   126.75   14.80  -138.89   0.873

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:33 . HOME BUS IS: .
. RADIAL NETWORK                        .           7           .
.                                         . [BUSLD_0711.0].
.      *** FAULTED BUS IS :           7 [BUSLD_0711.0] *** . 6 LEVELS AWAY.

AT BUS      1 [INF_BUS  132] AREA  1   (KV L-G) V+: / 73.660/  -1.87

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
  2 [BUS_TX  132]  1 1  AMP/OHM  291.7   126.75   239.45  -126.57   1.348
DIAGONALS = 12 OFF-DIAGONALS = 11 MAX SIZE = 22
POS. SEQUENCE: DIAGONALS = 12 OFF-DIAGONALS = 11

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:33 . HOME BUS IS: .
. RADIAL NETWORK                        .           6           .
.                                         . [BUSLD_0611.0].
.      *** FAULTED BUS IS :           6 [BUSLD_0611.0] *** . 0 LEVELS AWAY.

AT BUS      6 [BUSLD_0611.0] AREA  1   (KV L-G) V+: /  0.000/   0.00

```

THEV. R, X, X/R: POSITIVE 0.53691 0.57719 1.075

----- FROM -----		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T			
					/I+/	AN(I+)	/Z+/	AN(Z+)	APP X/R	
5	[BUS_05	11.0]	1	1	AMP/OHM	3604.0	-60.64	0.58	23.82	0.441
7	[BUSLD_0711.0]		1	1	AMP/OHM	2771.2	-13.76	0.58	23.82	0.441
TO SHUNT (AMPS)					0.0	0.00				
TOTAL FAULT CURRENT (AMPS)					5858.5	-40.44				

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:33 . HOME BUS IS: .  
. RADIAL NETWORK . 6 .  
. . [BUSLD\_0611.0].  
. \*\*\* FAULTED BUS IS : 6 [BUSLD\_0611.0] \*\*\* . 1 LEVELS AWAY.

AT BUS 5 [BUS\_05 11.0] AREA 1 (KV L-G) V+: / 2.074/ -36.82

----- FROM -----		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T			
					/I+/	AN(I+)	/Z+/	AN(Z+)	APP X/R	
4	[BUS_TX	33.0]	1	1	AMP/OHM	3604.0	-60.64	8.60	52.29	1.293
6	[BUSLD_0611.0]		1	1	AMP/OHM	3604.0	119.36	0.00	0.00	0.000

AT BUS 7 [BUSLD\_0711.0] AREA 1 (KV L-G) V+: / 1.594/ 10.06

----- FROM -----		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T			
					/I+/	AN(I+)	/Z+/	AN(Z+)	APP X/R	
6	[BUSLD_0611.0]		1	1	AMP/OHM	2771.2	166.24	0.00	0.00	0.000
8	[BUSLD_0811.0]		1	1	AMP/OHM	2799.4	-13.74	0.91	23.79	0.441
TO SHUNT (AMPS)					28.2	-11.75				

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:33 . HOME BUS IS: .  
. RADIAL NETWORK . 6 .  
. . [BUSLD\_0611.0].  
. \*\*\* FAULTED BUS IS : 6 [BUSLD\_0611.0] \*\*\* . 2 LEVELS AWAY.

AT BUS 4 [BUS\_TX 33.0] AREA 1 (KV L-G) V+: / 10.871/ -8.35

T H R E E P H A S E F A U L T



```

----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   3 [BUS_03  33.0]    1 1  AMP/OHM  1264.5   -60.64    10.58    48.41    1.127
   5 [BUS_05  11.0]    1 1  AMP/OHM  1264.5   119.36     0.58   -156.18    0.441

```

```

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  2.560/  10.05

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   7 [BUSLD_0711.0]    1 1  AMP/OHM  2799.4   166.26     0.57   -156.20    0.441
   9 [BUSLD_0911.0]    1 1  AMP/OHM  2825.8   -13.69     1.37    23.77    0.441
                TO SHUNT (AMPS)      26.5    -8.39

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:33 . HOME BUS IS: .
. RADIAL NETWORK                       .           6           .
.                                       . [BUSLD_0611.0].
.   *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 3 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 13.377/  -12.23

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   2 [BUS_TX  132]    1 1  AMP/OHM  1264.5   -60.64   191.90    61.90    1.873
   4 [BUS_TX  33.0]    1 1  AMP/OHM  1264.5   119.36     8.60   -127.71    1.293

```

```

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  3.861/  10.08

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   8 [BUSLD_0811.0]    1 1  AMP/OHM  2825.8   166.31     0.91   -156.26    0.440
  10 [BUSLD_1011.0]    1 1  AMP/OHM    39.1   171.62    98.22   -161.56    0.333
 102 [TXBUS  11.0]    1 1  AMP/OHM  2898.0   -13.51     1.45    23.61    0.437
                TO SHUNT (AMPS)      33.8    -3.95

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:33 . HOME BUS IS: .
. RADIAL NETWORK                       .           6           .
.                                       . [BUSLD_0611.0].

```

```

.      *** FAULTED BUS IS :      6 [BUSLD_0611.0] ***      . 4 LEVELS AWAY.
AT BUS      2 [BUS_TX  132] AREA  1      (KV L-G) V+: / 68.163/      1.26

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   1 [INF_BUS  132]    1 1  AMP/OHM    355.2  -60.64   203.64   58.84    1.654
   3 [BUS_03  33.0]    1 1  AMP/OHM    355.2  119.36   10.58   -131.59   1.127

AT BUS      10 [BUSLD_1011.0] AREA  1      (KV L-G) V+: /  3.839/      10.05

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   9 [BUSLD_0911.0]    1 1  AMP/OHM     39.1   -8.38    98.79    18.47    0.334
      TO SHUNT (AMPS)    39.1   -8.38

AT BUS      102 [TXBUS  11.0] AREA  1      (KV L-G) V+: /  4.195/      10.10

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   9 [BUSLD_0911.0]    1 1  AMP/OHM   2898.0  166.49    1.33   -156.41    0.437
  101 [WDFRM   .690]    1 1  AMP/OHM   2898.0  -13.51    0.01    35.73    0.719

. PSS/E SHORT CIRCUIT OUTPUT      THU, AUG 05 2004  14:33 . HOME BUS IS: .
. RADIAL NETWORK                      .                6 .
.                                     . [BUSLD_0611.0].
.      *** FAULTED BUS IS :      6 [BUSLD_0611.0] ***      . 5 LEVELS AWAY.
AT BUS      1 [INF_BUS  132] AREA  1      (KV L-G) V+: / 72.335/      -1.80

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1                                AMP/     355.2  -60.64
   2 [BUS_TX  132]    1 1  AMP/OHM    355.2  119.36   191.90  -118.10   1.873

```

AT BUS 101 [WNDFRM .690] AREA 1 (KV L-G) V+: / 0.372/ 22.22

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1          AMP/      39269.8  -13.51
  102 [TXBUS  11.0]  1 1  AMP/OHM  39269.9  166.49    1.45  -156.39    0.437
DIAGONALS =      12 OFF-DIAGONALS =    11 MAX SIZE =    22
POS. SEQUENCE: DIAGONALS =    12 OFF-DIAGONALS =    11
```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:33 . HOME BUS IS: .
. RADIAL NETWORK                      .           5           .
.                                     . [BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] ***           . 0 LEVELS AWAY.
```

AT BUS 5 [BUS\_05 11.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.47949 0.69803 1.456

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
  4 [BUS_TX  33.0]  1 1  AMP/OHM  4498.4  -72.33    5.01   78.69    5.000
  6 [BUSLD_0611.0]  1 1  AMP/OHM  2066.7  -10.52    0.58   23.82    0.441
TOTAL FAULT CURRENT (AMPS)  5769.8  -53.92
```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:33 . HOME BUS IS: .
. RADIAL NETWORK                      .           5           .
.                                     . [BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] ***           . 1 LEVELS AWAY.
```

AT BUS 4 [BUS\_TX 33.0] AREA 1 (KV L-G) V+: / 7.910/ 6.36

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
  3 [BUS_03  33.0]  1 1  AMP/OHM  1578.4  -72.33    6.62   65.49    2.193
  5 [BUS_05  11.0]  1 1  AMP/OHM  1578.4  107.67    0.00    0.00    0.000
```

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 1.189/ 13.30

----- FROM -----		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R
					/I+/ AN(I+)	/Z+/ AN(Z+)			
5	[BUS_05 11.0]	1	1	AMP/OHM	2066.7	169.48	0.00	0.00	0.000
7	[BUSLD_0711.0]	1	1	AMP/OHM	2142.4	-10.48	1.13	23.80	0.441
	TO SHUNT			(AMPS)	75.7	-9.40			

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:33 . HOME BUS IS: .
. RADIAL NETWORK                      .           5           .
.                                     . [BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 2 LEVELS AWAY.

```

```
AT BUS      3 [BUS_03 33.0] AREA      1      (KV L-G) V+: / 10.451/      -6.84
```

----- FROM -----		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R
					/I+/ AN(I+)	/Z+/ AN(Z+)			
2	[BUS_TX 132]	1	1	AMP/OHM	1578.4	-72.33	149.80	76.02	4.016
4	[BUS_TX 33.0]	1	1	AMP/OHM	1578.4	107.67	5.01	-101.31	5.000

```
AT BUS      7 [BUSLD_0711.0] AREA      1      (KV L-G) V+: / 2.422/      13.32
```

----- FROM -----		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R
					/I+/ AN(I+)	/Z+/ AN(Z+)			
6	[BUSLD_0611.0]	1	1	AMP/OHM	2142.4	169.52	0.56	-156.22	0.441
8	[BUSLD_0811.0]	1	1	AMP/OHM	2185.2	-10.44	1.45	23.76	0.440
	TO SHUNT			(AMPS)	42.9	-8.48			

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004 14:33 . HOME BUS IS: .
. RADIAL NETWORK                      .           5           .
.                                     . [BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 3 LEVELS AWAY.

```

```
AT BUS      2 [BUS_TX 132] AREA      1      (KV L-G) V+: / 66.417/      3.69
```

----- FROM -----		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R
					/I+/ AN(I+)	/Z+/ AN(Z+)			
1	[INF_BUS 132]	1	1	AMP/OHM	443.4	-72.33	158.82	71.20	2.938

```

3 [BUS_03 33.0] 1 1 AMP/OHM 443.4 107.67 6.62 -114.51 2.193

AT BUS 8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 3.176/ 13.32

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
7 [BUSLD_0711.0] 1 1 AMP/OHM 2185.2 169.56 1.11 -156.24 0.440
9 [BUSLD_0911.0] 1 1 AMP/OHM 2217.9 -10.36 1.89 23.72 0.439
          TO SHUNT (AMPS) 32.8 -5.11

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:33 . HOME BUS IS: .
. RADIAL NETWORK . 5 .
. .[BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 4 LEVELS AWAY.

AT BUS 1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 70.415/ -1.12

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 443.4 -72.33
2 [BUS_TX 132] 1 1 AMP/OHM 443.4 107.67 149.80 -103.98 4.016

AT BUS 9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 4.197/ 13.36

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
8 [BUSLD_0811.0] 1 1 AMP/OHM 2217.9 169.64 1.43 -156.32 0.439
10 [BUSLD_1011.0] 1 1 AMP/OHM 42.5 174.90 98.22 -161.56 0.333
102 [TXBUS 11.0] 1 1 AMP/OHM 2296.4 -10.11 1.94 23.49 0.435
          TO SHUNT (AMPS) 36.7 -0.67

. PSS/E SHORT CIRCUIT OUTPUT THU, AUG 05 2004 14:33 . HOME BUS IS: .
. RADIAL NETWORK . 5 .
. .[BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 5 LEVELS AWAY.

```

```

AT BUS    10 [BUSLD_1011.0] AREA    1    (KV L-G) V+: /  4.172/   13.33

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   9 [BUSLD_0911.0]   1 1  AMP/OHM   42.5   -5.10   98.79   18.47   0.334
                TO SHUNT  (AMPS)   42.5   -5.10

```

```

AT BUS    102 [TXBUS    11.0] AREA    1    (KV L-G) V+: /  4.461/   13.38

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   9 [BUSLD_0911.0]   1 1  AMP/OHM   2296.4  169.89   1.83  -156.53   0.434
  101 [WNDFRM   .690]  1 1  AMP/OHM   2296.4  -10.11   0.01   32.95   0.648

```

```

. PSS/E SHORT CIRCUIT OUTPUT          THU, AUG 05 2004  14:33 . HOME BUS IS: .
. RADIAL NETWORK                      .                   . 5 .
.                                       . [BUS_05  11.0].
. *** FAULTED BUS IS :      5 [BUS_05  11.0] *** . 6 LEVELS AWAY.

```

```

AT BUS    101 [WNDFRM   .690] AREA    1    (KV L-G) V+: /  0.377/   22.84

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
  102 [TXBUS    11.0]  1 1  AMP/OHM   31117.8  -10.11   1.94  -156.51   0.435

```

# Appendix E3

Fault Levels with Distributed Generation connected to Busbar 8

1 Turbine connected to Busbar 8

```
. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:18 . HOME BUS IS: .
. RADIAL NETWORK                        .           8           .
.                                       .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 0 LEVELS AWAY.
```

AT BUS 8 [BUSLD\_0811.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.17394 0.40288 2.316

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
7	[BUSLD_0711.0]	1	1	AMP/OHM	2407.3	-49.92	0.35	23.78	0.441
9	[BUSLD_0911.0]	1	1	AMP/OHM	0.0	0.00	0.00	0.00	0.000
102	[TXBUS 11.0]	1	1	AMP/OHM	8161.7	-67.59	0.12	23.84	0.442
				TO SHUNT (AMPS)	0.0	0.00			
TOTAL FAULT CURRENT (AMPS)					10481.0	-63.59			

```
. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:18 . HOME BUS IS: .
. RADIAL NETWORK                        .           8           .
.                                       .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 1 LEVELS AWAY.
```

AT BUS 7 [BUSLD\_0711.0] AREA 1 (KV L-G) V+: / 0.831/ -26.15

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
6	[BUSLD_0611.0]	1	1	AMP/OHM	2421.4	-49.91	0.92	23.80	0.441
8	[BUSLD_0811.0]	1	1	AMP/OHM	2407.3	130.08	0.00	0.00	0.000
				TO SHUNT (AMPS)	14.2	-47.95			

AT BUS 9 [BUSLD\_0911.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R



```

      8 [BUSLD_0811.0]  1 1 AMP/OHM      0.0    0.00    0.00    0.00    0.000
                    TO SHUNT (AMPS)    0.0    0.00

```

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 0.939/ -43.74

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      8 [BUSLD_0811.0]  1 1 AMP/OHM    8161.7  112.41   0.00   0.00   0.000
     101 [WNDFRM .700]  1 1 AMP/OHM    8161.7  -67.59   0.00   0.00   0.000

```

. PSS/E SHORT CIRCUIT OUTPUT TUE, AUG 10 2004 14:18 . HOME BUS IS: .  
. RADIAL NETWORK . 8 .  
. .[BUSLD\_0811.0].  
. \*\*\* FAULTED BUS IS : 8 [BUSLD\_0811.0] \*\*\* . 2 LEVELS AWAY.

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 2.224/ -26.11

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      5 [BUS_05 11.0]  1 1 AMP/OHM    2554.3  -49.86   1.45   23.77   0.440
      7 [BUSLD_0711.0]  1 1 AMP/OHM    2421.4  130.09   0.34  -156.23   0.440
                    TO SHUNT (AMPS)    132.8  -48.81

```

AT BUS 101 [WNDFRM .700] AREA 1 (KV L-G) V+: / 0.318/ 0.69

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1          AMP/      109016.8  -67.59
  102 [TXBUS 11.0]  1 1 AMP/OHM    109016.9  112.41   0.12  -156.16   0.442

```

. PSS/E SHORT CIRCUIT OUTPUT TUE, AUG 10 2004 14:18 . HOME BUS IS: .  
. RADIAL NETWORK . 8 .  
. .[BUSLD\_0811.0].  
. \*\*\* FAULTED BUS IS : 8 [BUSLD\_0811.0] \*\*\* . 3 LEVELS AWAY.

AT BUS 5 [BUS\_05 11.0] AREA 1 (KV L-G) V+: / 3.694/ -26.08

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   4 [BUS_TX  33.0]   1 1  AMP/OHM  2554.3  -49.86   15.19   39.43   0.822
   6 [BUSLD_0611.0]  1 1  AMP/OHM  2554.3  130.15    0.87  -156.26  0.440

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:18 . HOME BUS IS: .
. RADIAL NETWORK                        .                8                .
.                                       .[BUSLD_0811.0].
.      *** FAULTED BUS IS :           8 [BUSLD_0811.0] ***      . 4 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX  33.0] AREA    1   (KV L-G) V+: / 13.613/  -10.42

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  896.2   -49.86   17.26   38.56   0.797
   5 [BUS_05  11.0]   1 1  AMP/OHM  896.2   130.15    1.45  -156.23  0.440

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:18 . HOME BUS IS: .
. RADIAL NETWORK                        .                8                .
.                                       .[BUSLD_0811.0].
.      *** FAULTED BUS IS :           8 [BUSLD_0811.0] ***      . 5 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03  33.0] AREA    1   (KV L-G) V+: / 15.469/  -11.29

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   2 [BUS_TX  132]    1 1  AMP/OHM  896.2   -49.86  292.79   49.98   1.191
   4 [BUS_TX  33.0]   1 1  AMP/OHM  896.2   130.15   15.19  -140.57  0.822

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:18 . HOME BUS IS: .
. RADIAL NETWORK                        .                8                .
.                                       .[BUSLD_0811.0].
.      *** FAULTED BUS IS :           8 [BUSLD_0811.0] ***      . 6 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX  132] AREA    1   (KV L-G) V+: / 70.541/   0.13

```

```

          T H R E E   P H A S E   F A U L T

```

```

----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
  1 [INF_BUS 132]   1 1  AMP/OHM  240.9  -49.86  306.36   48.44   1.128
  3 [BUS_03 33.0]   1 1  AMP/OHM  240.9  130.15   17.26  -141.44   0.797

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:18 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     . [BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 7 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS 132] AREA      1  (KV L-G) V+: / 73.808/  -1.42

```

```

T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
  2 [BUS_TX 132]   1 1  AMP/OHM  240.9  -49.86  292.79  -130.02   1.191

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:26 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     . [BUSLD_0711.0].
. *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 0 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA      1  (KV L-G) V+: / 0.000/  0.00

```

```

THEV. R, X, X/R: POSITIVE  0.32426  0.43867  1.353

```

```

T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
  6 [BUSLD_0611.0]   1 1  AMP/OHM  2761.9  -53.02   0.58   23.82   0.441
  8 [BUSLD_0811.0]   1 1  AMP/OHM  5778.3  -50.88   0.35   23.78   0.441
      TO SHUNT (AMPS)      0.0   0.00
TOTAL FAULT CURRENT (AMPS) 8538.9  -51.57

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:26 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     . [BUSLD_0711.0].

```

. \*\*\* FAULTED BUS IS : 7 [BUSLD\_0711.0] \*\*\* . 1 LEVELS AWAY.

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 1.589/ -29.20

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
5 [BUS_05 11.0]	1	1	AMP/OHM	2855.9	-52.98	1.13	23.80	0.441	
7 [BUSLD_0711.0]	1	1	AMP/OHM	2761.9	126.98	0.00	0.00	0.000	
TO SHUNT (AMPS)				94.0	-51.89				

AT BUS 8 [BUSLD\_0811.0] AREA 1 (KV L-G) V+: / 1.994/ -27.10

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
7 [BUSLD_0711.0]	1	1	AMP/OHM	5778.3	129.12	0.00	0.00	0.000	
9 [BUSLD_0911.0]	1	1	AMP/OHM	17.7	138.83	112.34	-165.96	0.250	
102 [TXBUS 11.0]	1	1	AMP/OHM	5815.9	-50.83	0.46	23.76	0.440	
TO SHUNT (AMPS)				20.3	-45.53				

. PSS/E SHORT CIRCUIT OUTPUT TUE, AUG 10 2004 14:26 . HOME BUS IS: .  
. RADIAL NETWORK . 7 .  
. . [BUSLD\_0711.0].  
. \*\*\* FAULTED BUS IS : 7 [BUSLD\_0711.0] \*\*\* . 2 LEVELS AWAY.

AT BUS 5 [BUS\_05 11.0] AREA 1 (KV L-G) V+: / 3.232/ -29.18

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
4 [BUS_TX 33.0]	1	1	AMP/OHM	2855.9	-52.98	12.75	42.55	0.918	
6 [BUSLD_0611.0]	1	1	AMP/OHM	2855.9	127.02	0.56	-156.22	0.441	

AT BUS 9 [BUSLD\_0911.0] AREA 1 (KV L-G) V+: / 1.986/ -27.14

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
8 [BUSLD_0811.0]	1	1	AMP/OHM	17.7	-41.17	112.79	14.08	0.251	

TO SHUNT (AMPS) 17.7 -41.17

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 2.664/ -27.07

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
8 [BUSLD_0811.0]	1	1	AMP/OHM	5815.9	129.17	0.34	-156.27	0.440	
101 [WNDFRM .700]	1	1	AMP/OHM	5815.9	-50.83	0.00	0.00	0.000	

. PSS/E SHORT CIRCUIT OUTPUT TUE, AUG 10 2004 14:26 . HOME BUS IS: .  
. RADIAL NETWORK . 7 .  
. . [BUSLD\_0711.0].  
. \*\*\* FAULTED BUS IS : 7 [BUSLD\_0711.0] \*\*\* . 3 LEVELS AWAY.

AT BUS 4 [BUS\_TX 33.0] AREA 1 (KV L-G) V+: / 12.778/ -10.43

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
3 [BUS_03 33.0]	1	1	AMP/OHM	1002.1	-52.98	14.81	41.10	0.872	
5 [BUS_05 11.0]	1	1	AMP/OHM	1002.1	127.02	1.13	-156.20	0.441	

AT BUS 101 [WNDFRM .700] AREA 1 (KV L-G) V+: / 0.349/ 0.00

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
MACHINE 1			AMP/	77684.2	-50.83				
102 [TXBUS 11.0]	1	1	AMP/OHM	77684.2	129.17	0.46	-156.24	0.440	

. PSS/E SHORT CIRCUIT OUTPUT TUE, AUG 10 2004 14:26 . HOME BUS IS: .  
. RADIAL NETWORK . 7 .  
. . [BUSLD\_0711.0].  
. \*\*\* FAULTED BUS IS : 7 [BUSLD\_0711.0] \*\*\* . 4 LEVELS AWAY.

AT BUS 3 [BUS\_03 33.0] AREA 1 (KV L-G) V+: / 14.838/ -11.88

T H R E E P H A S E F A U L T

```

----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   2 [BUS_TX  132]   1 1  AMP/OHM  1002.1  -52.98  256.00   53.41   1.347
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1002.1  127.02   12.75  -137.45   0.918

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:26 . HOME BUS IS: .
. RADIAL NETWORK                        .           7           .
.                                       . [BUSLD_0711.0].
. *** FAULTED BUS IS :          7 [BUSLD_0711.0] *** . 5 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX  132] AREA      1      (KV L-G) V+: / 69.709/      0.44

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   1 [INF_BUS 132]   1 1  AMP/OHM  272.3   -52.98  269.09   51.49   1.256
   3 [BUS_03  33.0]   1 1  AMP/OHM  272.3   127.02   14.81  -138.90   0.872

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:26 . HOME BUS IS: .
. RADIAL NETWORK                        .           7           .
.                                       . [BUSLD_0711.0].
. *** FAULTED BUS IS :          7 [BUSLD_0711.0] *** . 6 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS 132] AREA      1      (KV L-G) V+: / 73.272/     -1.49

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
MACHINE 1
   2 [BUS_TX  132]   1 1  AMP/OHM  272.3   -52.98  256.00  -126.59   1.347
DIAGONALS =      11 OFF-DIAGONALS =      10 MAX SIZE =      20
POS. SEQUENCE: DIAGONALS =      11 OFF-DIAGONALS =      10

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:27 . HOME BUS IS: .
. RADIAL NETWORK                        .           6           .
.                                       . [BUSLD_0611.0].
. *** FAULTED BUS IS :          6 [BUSLD_0611.0] *** . 0 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA      1      (KV L-G) V+: /  0.000/      0.00

```

```

THEV. R, X, X/R: POSITIVE  0.44841  0.51411  1.147

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R
					/I+/ AN(I+)	/Z+/ AN(Z+)			
5	[BUS_05 11.0]	1	1	AMP/OHM	3484.5	-60.45	0.58	23.82	0.441
7	[BUSLD_0711.0]	1	1	AMP/OHM	3662.3	-38.82	0.58	23.82	0.441
				TO SHUNT (AMPS)	0.0	0.00			
TOTAL FAULT CURRENT (AMPS)					7020.0	-49.36			

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:27 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     .[BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 1 LEVELS AWAY.

```

```
AT BUS      5 [BUS_05 11.0] AREA      1      (KV L-G) V+: / 2.005/ -36.63
```

FROM		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R
					/I+/ AN(I+)	/Z+/ AN(Z+)			
4	[BUS_TX 33.0]	1	1	AMP/OHM	3484.5	-60.45	8.60	52.29	1.293
6	[BUSLD_0611.0]	1	1	AMP/OHM	3484.5	119.55	0.00	0.00	0.000

```
AT BUS      7 [BUSLD_0711.0] AREA      1      (KV L-G) V+: / 2.107/ -15.00
```

FROM		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R
					/I+/ AN(I+)	/Z+/ AN(Z+)			
6	[BUSLD_0611.0]	1	1	AMP/OHM	3662.3	141.18	0.00	0.00	0.000
8	[BUSLD_0811.0]	1	1	AMP/OHM	3698.0	-38.80	0.91	23.79	0.441
				TO SHUNT (AMPS)	35.7	-36.81			

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:27 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     .[BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 2 LEVELS AWAY.

```

```
AT BUS      4 [BUS_TX 33.0] AREA      1      (KV L-G) V+: / 10.511/ -8.16
```

FROM		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R
					/I+/ AN(I+)	/Z+/ AN(Z+)			

```

3 [BUS_03 33.0] 1 1 AMP/OHM 1222.6 -60.45 10.58 48.41 1.127
5 [BUS_05 11.0] 1 1 AMP/OHM 1222.6 119.55 0.58 -156.18 0.441

AT BUS 8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 3.383/ -15.01

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
7 [BUSLD_0711.0] 1 1 AMP/OHM 3698.0 141.20 0.57 -156.20 0.441
9 [BUSLD_0911.0] 1 1 AMP/OHM 30.0 150.91 112.34 -165.96 0.250
102 [TXBUS 11.0] 1 1 AMP/OHM 3761.8 -38.67 1.01 23.68 0.439
      TO SHUNT (AMPS) 34.4 -33.45

. PSS/E SHORT CIRCUIT OUTPUT TUE, AUG 10 2004 14:27 . HOME BUS IS: .
. RADIAL NETWORK . 6 .
. .[BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 3 LEVELS AWAY.

AT BUS 3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 12.934/ -12.04

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
2 [BUS_TX 132] 1 1 AMP/OHM 1222.6 -60.45 205.05 61.90 1.873
4 [BUS_TX 33.0] 1 1 AMP/OHM 1222.6 119.55 8.60 -127.71 1.293

AT BUS 9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 3.370/ -15.05

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
8 [BUSLD_0811.0] 1 1 AMP/OHM 30.0 -29.09 112.79 14.08 0.251
      TO SHUNT (AMPS) 30.0 -29.09

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 3.816/ -14.99

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R

```



```

      8 [BUSLD_0811.0]  1 1  AMP/OHM  3761.8  141.33   0.90 -156.34   0.438
     101 [WNDFRM  .700]  1 1  AMP/OHM  3761.8  -38.67   0.01   39.72   0.831

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:27 . HOME BUS IS: .
. RADIAL NETWORK                        .           6 .
.                                         . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 4 LEVELS AWAY.

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 68.126/   1.46

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      1 [INF_BUS  132]  1 1  AMP/OHM  332.2   -60.45  216.78   59.03   1.666
      3 [BUS_03  33.0]  1 1  AMP/OHM  332.2   119.55  10.58  -131.59   1.127

AT BUS    101 [WNDFRM  .700] AREA  1  (KV L-G) V+: /  0.372/   1.05

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1                                AMP/   50246.8  -38.67
      102 [TXBUS  11.0]  1 1  AMP/OHM  50246.8  141.33   1.01  -156.32   0.439

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:27 . HOME BUS IS: .
. RADIAL NETWORK                        .           6 .
.                                         . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 5 LEVELS AWAY.

AT BUS      1 [INF_BUS  132] AREA  1  (KV L-G) V+: / 72.022/  -1.42

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1                                AMP/   332.2   -60.45
      2 [BUS_TX  132]  1 1  AMP/OHM  332.2   119.55  205.05  -118.10   1.873
DIAGONALS =    11 OFF-DIAGONALS =    10 MAX SIZE =    20
POS. SEQUENCE: DIAGONALS =    11 OFF-DIAGONALS =    10

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:27 . HOME BUS IS: .

```

```

. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      5 [BUS_05 11.0] ***
.
AT BUS      5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00
THEV. R, X, X/R: POSITIVE 0.44009 0.63803 1.450

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
4	[BUS_TX 33.0]	1	1	AMP/OHM	4356.0	-72.27	5.01	78.69	5.000
6	[BUSLD_0611.0]	1	1	AMP/OHM	2578.5	-33.50	0.58	23.82	0.441
TOTAL FAULT CURRENT (AMPS)					6568.0	-58.04			

```

. PSS/E SHORT CIRCUIT OUTPUT      TUE, AUG 10 2004 14:27 . HOME BUS IS: .
. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      5 [BUS_05 11.0] ***
.
AT BUS      4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 7.660/ 6.42

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
3	[BUS_03 33.0]	1	1	AMP/OHM	1528.4	-72.27	6.62	65.49	2.193
5	[BUS_05 11.0]	1	1	AMP/OHM	1528.4	107.73	0.00	0.00	0.000

```

AT BUS      6 [BUSLD_0611.0] AREA 1 (KV L-G) V+: / 1.483/ -9.68

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
5	[BUS_05 11.0]	1	1	AMP/OHM	2578.5	146.50	0.00	0.00	0.000
7	[BUSLD_0711.0]	1	1	AMP/OHM	2666.2	-33.46	1.13	23.80	0.441
TO SHUNT (AMPS)					87.8	-32.38			

```

. PSS/E SHORT CIRCUIT OUTPUT      TUE, AUG 10 2004 14:27 . HOME BUS IS: .
. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      5 [BUS_05 11.0] ***
.

```

. \*\*\* FAULTED BUS IS : 5 [BUS\_05 11.0] \*\*\* . 2 LEVELS AWAY.

AT BUS 3 [BUS\_03 33.0] AREA 1 (KV L-G) V+: / 10.121/ -6.78

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
2 [BUS_TX 132]	1 1	AMP/OHM		1528.4 -72.27	160.07 76.02		4.016		
4 [BUS_TX 33.0]	1 1	AMP/OHM		1528.4 107.73	5.01 -101.31		5.000		

AT BUS 7 [BUSLD\_0711.0] AREA 1 (KV L-G) V+: / 3.017/ -9.67

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
6 [BUSLD_0611.0]	1 1	AMP/OHM		2666.2 146.54	0.56 -156.22		0.441		
8 [BUSLD_0811.0]	1 1	AMP/OHM		2717.4 -33.43	1.46 23.76		0.440		
TO SHUNT (AMPS)				51.2	-31.47				

. PSS/E SHORT CIRCUIT OUTPUT TUE, AUG 10 2004 14:27 . HOME BUS IS: .  
. RADIAL NETWORK . 5 .  
. . [BUS\_05 11.0].  
. \*\*\* FAULTED BUS IS : 5 [BUS\_05 11.0] \*\*\* . 3 LEVELS AWAY.

AT BUS 2 [BUS\_TX 132] AREA 1 (KV L-G) V+: / 66.483/ 3.75

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
1 [INF_BUS 132]	1 1	AMP/OHM		415.3 -72.27	169.06 71.49		2.988		
3 [BUS_03 33.0]	1 1	AMP/OHM		415.3 107.73	6.62 -114.51		2.193		

AT BUS 8 [BUSLD\_0811.0] AREA 1 (KV L-G) V+: / 3.955/ -9.66

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
7 [BUSLD_0711.0]	1 1	AMP/OHM		2717.4 146.57	1.11 -156.24		0.440		
9 [BUSLD_0911.0]	1 1	AMP/OHM		35.1 156.26	112.33 -165.96		0.250		
102 [TXBUS 11.0]	1 1	AMP/OHM		2792.0 -33.23	1.53 23.59		0.437		

```

                TO SHUNT (AMPS)      40.2   -28.10

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:27 . HOME BUS IS: .
. RADIAL NETWORK                        .           5 .
.                                         .[BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 4 LEVELS AWAY.

AT BUS      1 [INF_BUS 132] AREA  1   (KV L-G) V+: / 70.214/  -0.77

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z    /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
      2 [BUS_TX 132]  1 1  AMP/OHM  415.3  -72.27   160.07  -103.98   4.016

AT BUS      9 [BUSLD_0911.0] AREA  1   (KV L-G) V+: / 3.939/  -9.70

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z    /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      8 [BUSLD_0811.0]  1 1  AMP/OHM  35.1  -23.74   112.79   14.08   0.251
                TO SHUNT (AMPS)  35.1  -23.74

AT BUS     102 [TXBUS 11.0] AREA  1   (KV L-G) V+: / 4.277/  -9.64

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z    /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      8 [BUSLD_0811.0]  1 1  AMP/OHM  2792.0  146.77    1.42  -156.43   0.436
     101 [WNDFRM .700]  1 1  AMP/OHM  2792.0  -33.23    0.01   35.15   0.704

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:27 . HOME BUS IS: .
. RADIAL NETWORK                        .           5 .
.                                         .[BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 5 LEVELS AWAY.

AT BUS     101 [WNDFRM .700] AREA  1   (KV L-G) V+: / 0.381/   1.92

                T H R E E   P H A S E   F A U L T

```

```

----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
MACHINE 1                AMP/      37292.6  -33.23
  102 [TXBUS  11.0]    1 1  AMP/OHM  37292.6  146.77    1.53  -156.41    0.437
DIAGONALS =    11  OFF-DIAGONALS =    10  MAX SIZE =    20
POS. SEQUENCE: DIAGONALS =    11  OFF-DIAGONALS =    10

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:27 . HOME BUS IS: .
. RADIAL NETWORK                        .                9 .
.                                         .[BUSLD_0911.0].
.      *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 0 LEVELS AWAY.

```

```

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

```

```

THEV. R, X, X/R: POSITIVE  0.51976  0.55256  1.063

```

```

----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
      8 [BUSLD_0811.0]    1 1  AMP/OHM  6053.7  -43.31    0.46   23.84    0.442
      TO SHUNT (AMPS)      0.0    0.00
      TOTAL FAULT CURRENT (AMPS)  6053.7  -43.31

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:27 . HOME BUS IS: .
. RADIAL NETWORK                        .                9 .
.                                         .[BUSLD_0911.0].
.      *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 1 LEVELS AWAY.

```

```

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  2.787/ -19.47

```

```

----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
      7 [BUSLD_0711.0]    1 1  AMP/OHM  1442.3  -39.20    2.28   20.35    0.371
      9 [BUSLD_0911.0]    1 1  AMP/OHM  6053.7  136.69    0.00    0.00    0.000
     102 [TXBUS  11.0]    1 1  AMP/OHM  4644.4  -44.55    0.72   24.89    0.464
      TO SHUNT (AMPS)      28.3   -37.90

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:27 . HOME BUS IS: .
. RADIAL NETWORK                        .                9 .
.                                         .[BUSLD_0911.0].

```

. \*\*\* FAULTED BUS IS : 9 [BUSLD\_0911.0] \*\*\* . 2 LEVELS AWAY.

AT BUS 7 [BUSLD\_0711.0] AREA 1 (KV L-G) V+: / 3.284/ -18.86

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
6 [BUSLD_0611.0]	1 1	AMP/OHM		1498.0	-39.26	2.77	21.11	0.386	
8 [BUSLD_0811.0]	1 1	AMP/OHM		1442.3	140.80	1.93	-160.26	0.359	
		TO SHUNT	(AMPS)	55.7	-40.66				

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 3.321/ -19.67

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
8 [BUSLD_0811.0]	1 1	AMP/OHM		4644.4	135.45	0.60	-154.91	0.468	
101 [WNDFRM .700]	1 1	AMP/OHM		4644.4	-44.55	0.01	45.07	1.003	

. PSS/E SHORT CIRCUIT OUTPUT TUE, AUG 10 2004 14:27 . HOME BUS IS: .  
. RADIAL NETWORK . 9 .  
. . [BUSLD\_0911.0].  
. \*\*\* FAULTED BUS IS : 9 [BUSLD\_0911.0] \*\*\* . 3 LEVELS AWAY.

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 4.144/ -18.15

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
5 [BUS_05 11.0]	1 1	AMP/OHM		1743.2	-39.48	2.95	21.82	0.400	
7 [BUSLD_0711.0]	1 1	AMP/OHM		1498.0	140.74	2.19	-159.60	0.372	
		TO SHUNT	(AMPS)	245.3	-40.84				

AT BUS 101 [WNDFRM .700] AREA 1 (KV L-G) V+: / 0.362/ 0.52

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
MACHINE 1		AMP/		62035.7	-44.55				
102 [TXBUS 11.0]	1 1	AMP/OHM		62035.7	135.45	0.72	-155.11	0.464	

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:27 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 4 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05  11.0] AREA  1   (KV L-G) V+: /  5.146/  -17.66

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E			F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP X/R		
4	[BUS_TX 33.0]	1	1	AMP/OHM	1743.2	-39.48	27.05	30.74	0.595
6	[BUSLD_0611.0]	1	1	AMP/OHM	1743.2	140.52	2.38	-158.67	0.391

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:27 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 5 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX  33.0] AREA  1   (KV L-G) V+: / 16.543/  -8.74

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E			F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP X/R		
3	[BUS_03 33.0]	1	1	AMP/OHM	611.6	-39.48	29.13	30.85	0.597
5	[BUS_05 11.0]	1	1	AMP/OHM	611.6	140.52	2.95	-158.18	0.400

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:27 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 6 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03  33.0] AREA  1   (KV L-G) V+: / 17.818/  -8.63

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E			F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP X/R		
2	[BUS_TX 132]	1	1	AMP/OHM	611.6	-39.48	438.07	39.06	0.811
4	[BUS_TX 33.0]	1	1	AMP/OHM	611.6	140.52	27.05	-149.26	0.595

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:27 . HOME BUS IS: .

```

```

. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      9 [BUSLD_0911.0] ***
.
AT BUS      2 [BUS_TX  132] AREA  1   (KV L-G) V+: / 72.810/   -0.42

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   1 [INF_BUS  132]   1 1  AMP/OHM  166.2  -39.48  452.88   38.35   0.791
   3 [BUS_03  33.0]   1 1  AMP/OHM  166.2  140.52   29.13  -149.15   0.597

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:27 . HOME BUS IS: .
. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      9 [BUSLD_0911.0] ***
.
AT BUS      1 [INF_BUS  132] AREA  1   (KV L-G) V+: / 75.271/   -1.13

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
   2 [BUS_TX  132]   1 1  AMP/OHM  166.2  -39.48  438.07  -140.94   0.811

```



## 2 Turbines Connected to Busbar 8

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E  
 RADIAL NETWORK

WED, AUG 11 2004 12:37  
 SHORT CIRCUIT  
 FAULT CURRENTS

----- AT BUS -----		THREE PHASE FAULT	
		/I+/ AN(I+)	
1	[INF_BUS 132] AMPS	4533.5	-82.85
2	[BUS_TX 132] AMPS	2915.7	-52.61
3	[BUS_03 33.0] AMPS	3425.8	-71.81
4	[BUS_TX 33.0] AMPS	3038.6	-62.22
5	[BUS_05 11.0] AMPS	6476.7	-56.53
6	[BUSLD_0611.0] AMPS	6958.0	-47.09
7	[BUSLD_0711.0] AMPS	8519.2	-48.51
8	[BUSLD_0811.0] AMPS	10529.4	-59.66
9	[BUSLD_0911.0] AMPS	6068.2	-39.80
101	[WINDFRM .700] AMPS	532037.8	-76.72
102	[TXBUS 11.0] AMPS	11312.0	-66.61

DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20  
 POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10

. PSS/E SHORT CIRCUIT OUTPUT WED, AUG 11 2004 12:37 . HOME BUS IS: .  
 . RADIAL NETWORK . 9 .  
 . . [BUSLD\_0911.0].  
 . \*\*\* FAULTED BUS IS : 9 [BUSLD\_0911.0] \*\*\* . 0 LEVELS AWAY.

AT BUS 9 [BUSLD\_0911.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.51985 0.55249 1.063

----- FROM -----		AREA CKT		I/Z		T H R E E P H A S E F A U L T			
				/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
8	[BUSLD_0811.0]	1	1	AMP/OHM	6068.2	-39.80	0.46	23.84	0.442
				TO SHUNT (AMPS)	0.0	0.00			
				TOTAL FAULT CURRENT (AMPS)	6068.2	-39.80			

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 12:37 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                       .[BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 1 LEVELS AWAY.

```

```

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  2.794/ -15.95

```

		T H R E E P H A S E F A U L T						
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
7 [BUSLD_0711.0]	1	1	AMP/OHM	1414.9	-41.80	2.32	0.478	
9 [BUSLD_0911.0]	1	1	AMP/OHM	6068.2	140.20	0.00	0.000	
102 [TXBUS 11.0]	1	1	AMP/OHM	4682.5	-39.16	0.71	0.431	
TO SHUNT			(AMPS)	28.2	-34.39			

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 12:37 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                       .[BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 2 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  3.282/ -16.26

```

		T H R E E P H A S E F A U L T						
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
6 [BUSLD_0611.0]	1	1	AMP/OHM	1470.8	-41.66	2.81	0.468	
8 [BUSLD_0811.0]	1	1	AMP/OHM	1414.9	138.20	1.97	0.484	
TO SHUNT			(AMPS)	55.9	-38.06			

```

AT BUS     102 [TXBUS 11.0] AREA  1  (KV L-G) V+: /  3.333/ -15.85

```

		T H R E E P H A S E F A U L T						
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
8 [BUSLD_0811.0]	1	1	AMP/OHM	4682.5	140.84	0.60	0.429	
101 [WINDFRM .700]	1	1	AMP/OHM	4682.5	-39.16	0.01	0.970	

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 12:37 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                       .[BUSLD_0911.0].

```

. \*\*\* FAULTED BUS IS : 9 [BUSLD\_0911.0] \*\*\* . 3 LEVELS AWAY.

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 4.128/ -16.58

				T H R E E		P H A S E		F A U L T	
----- FROM	-----	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
5	[BUS_05	11.0]	1 1	AMP/OHM	1719.7 -41.31	2.98	24.55	0.457	
7	[BUSLD_0711.0]		1 1	AMP/OHM	1470.8 138.34	2.23	-154.60	0.475	
				TO SHUNT (AMPS)	249.1 -39.28				

AT BUS 101 [WNDFRM .700] AREA 1 (KV L-G) V+: / 0.362/ 4.97

				T H R E E		P H A S E		F A U L T	
----- FROM	-----	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
MACHINE 1				AMP/	62545.2 -39.16				
102	[TXBUS	11.0]	1 1	AMP/OHM	62545.3 140.84	0.71	-156.69	0.431	

. PSS/E SHORT CIRCUIT OUTPUT WED, AUG 11 2004 12:37 . HOME BUS IS: .  
. RADIAL NETWORK . 9 .

. \*\*\* FAULTED BUS IS : 9 [BUSLD\_0911.0] \*\*\* . 4 LEVELS AWAY.

AT BUS 5 [BUS\_05 11.0] AREA 1 (KV L-G) V+: / 5.117/ -16.76

				T H R E E		P H A S E		F A U L T	
----- FROM	-----	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
4	[BUS_TX	33.0]	1 1	AMP/OHM	1719.7 -41.31	27.41	33.07	0.651	
6	[BUSLD_0611.0]		1 1	AMP/OHM	1719.7 138.69	2.40	-155.27	0.461	

. PSS/E SHORT CIRCUIT OUTPUT WED, AUG 11 2004 12:37 . HOME BUS IS: .  
. RADIAL NETWORK . 9 .

. \*\*\* FAULTED BUS IS : 9 [BUSLD\_0911.0] \*\*\* . 5 LEVELS AWAY.

AT BUS 4 [BUS\_TX 33.0] AREA 1 (KV L-G) V+: / 16.537/ -8.24

T H R E E P H A S E F A U L T

```

----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      3 [BUS_03  33.0]   1 1  AMP/OHM  603.4   -41.31   29.49   33.01   0.650
      5 [BUS_05  11.0]   1 1  AMP/OHM  603.4   138.69   2.98   -155.45  0.457

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 12:37 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                         .[BUSLD_0911.0].
. *** FAULTED BUS IS :          9 [BUSLD_0911.0] *** . 6 LEVELS AWAY.

AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 17.795/  -8.30

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      2 [BUS_TX  132]   1 1  AMP/OHM  603.4   -41.31   445.00   40.89   0.866
      4 [BUS_TX  33.0]   1 1  AMP/OHM  603.4   138.69   27.41   -146.93  0.651

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 12:37 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                         .[BUSLD_0911.0].
. *** FAULTED BUS IS :          9 [BUSLD_0911.0] *** . 7 LEVELS AWAY.

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 72.964/  -0.42

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      1 [INF_BUS 132]   1 1  AMP/OHM  164.0   -41.31   459.63   40.14   0.843
      3 [BUS_03  33.0]   1 1  AMP/OHM  164.0   138.69   29.49   -146.99  0.650

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 12:37 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                         .[BUSLD_0911.0].
. *** FAULTED BUS IS :          9 [BUSLD_0911.0] *** . 8 LEVELS AWAY.

AT BUS      1 [INF_BUS 132] AREA  1  (KV L-G) V+: / 75.363/  -1.17

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                                AMP/    164.0   -41.31

```

2 [BUS\_TX 132] 1 1 AMP/OHM 164.0 138.69 445.00 -139.11 0.866  
 DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20  
 POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10

. PSS/E SHORT CIRCUIT OUTPUT WED, AUG 11 2004 12:38 . HOME BUS IS: .  
 . RADIAL NETWORK . 7 .  
 . [BUSLD\_0711.0].  
 . \*\*\* FAULTED BUS IS : 7 [BUSLD\_0711.0] \*\*\* . 0 LEVELS AWAY.

AT BUS 7 [BUSLD\_0711.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.32429 0.43839 1.352

				T H R E E P H A S E F A U L T		
FROM	AREA CKT I/Z	/I+/	AN(I+)	/Z+/	AN(Z+)	APP X/R
6 [BUSLD_0611.0]	1 1 AMP/OHM	2764.9	-53.13	0.58	23.82	0.441
8 [BUSLD_0811.0]	1 1 AMP/OHM	5767.6	-46.29	0.35	23.78	0.441
TO SHUNT (AMPS)		0.0	0.00			
TOTAL FAULT CURRENT (AMPS)		8519.2	-48.51			

. PSS/E SHORT CIRCUIT OUTPUT WED, AUG 11 2004 12:38 . HOME BUS IS: .  
 . RADIAL NETWORK . 7 .  
 . [BUSLD\_0711.0].  
 . \*\*\* FAULTED BUS IS : 7 [BUSLD\_0711.0] \*\*\* . 1 LEVELS AWAY.

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 1.591/ -29.32

				T H R E E P H A S E F A U L T		
FROM	AREA CKT I/Z	/I+/	AN(I+)	/Z+/	AN(Z+)	APP X/R
5 [BUS_05 11.0]	1 1 AMP/OHM	2860.9	-53.10	1.13	23.80	0.441
7 [BUSLD_0711.0]	1 1 AMP/OHM	2764.9	126.87	0.00	0.00	0.000
TO SHUNT (AMPS)		96.0	-52.01			

AT BUS 8 [BUSLD\_0811.0] AREA 1 (KV L-G) V+: / 1.990/ -22.51

				T H R E E P H A S E F A U L T		
FROM	AREA CKT I/Z	/I+/	AN(I+)	/Z+/	AN(Z+)	APP X/R

```

    7 [BUSLD_0711.0]  1 1  AMP/OHM  5767.6  133.71   0.00   0.00   0.000
    9 [BUSLD_0911.0]  1 1  AMP/OHM   17.6   143.41  112.88 -165.96  0.250
 102 [TXBUS  11.0]  1 1  AMP/OHM  5804.9  -46.25   0.46   23.76  0.440
      TO SHUNT  (AMPS)   20.1   -40.95

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  12:38 . HOME BUS IS: .
. RADIAL NETWORK                        .           7           .
.                                         . [BUSLD_0711.0].
. *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 2 LEVELS AWAY.

AT BUS      5 [BUS_05  11.0] AREA  1  (KV L-G) V+: /  3.237/  -29.30

      T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
    4 [BUS_TX  33.0]  1 1  AMP/OHM  2860.9  -53.10   12.75   42.56   0.918
    6 [BUSLD_0611.0]  1 1  AMP/OHM  2860.9  126.90   0.56  -156.22  0.441

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  1.982/  -22.55

      T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
    8 [BUSLD_0811.0]  1 1  AMP/OHM   17.6  -36.59  113.33   14.08   0.251
      TO SHUNT  (AMPS)   17.6  -36.59

AT BUS     102 [TXBUS  11.0] AREA  1  (KV L-G) V+: /  2.659/  -22.49

      T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
    8 [BUSLD_0811.0]  1 1  AMP/OHM  5804.9  133.75   0.34  -156.27  0.440
   101 [WINDFRM  .700]  1 1  AMP/OHM  5804.9  -46.25   0.00   0.00   0.000

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  12:38 . HOME BUS IS: .
. RADIAL NETWORK                        .           7           .
.                                         . [BUSLD_0711.0].
. *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 3 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 12.798/  -10.54

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  3 [BUS_03  33.0]    1 1  AMP/OHM  1003.8   -53.10    14.80    41.10    0.872
  5 [BUS_05  11.0]    1 1  AMP/OHM  1003.8   126.90    1.13   -156.20    0.441

```

```

AT BUS     101 [WDFRM   .700] AREA  1  (KV L-G) V+: /  0.349/    4.58

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
MACHINE 1
  102 [TXBUS  11.0]    1 1  AMP/OHM  77537.1  133.75    0.46   -156.24    0.440

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 12:38 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                       .[BUSLD_0711.0].
.   *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 4 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 14.861/  -11.99

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  2 [BUS_TX  132]    1 1  AMP/OHM  1003.8   -53.10   255.97    53.42    1.347
  4 [BUS_TX  33.0]    1 1  AMP/OHM  1003.8   126.90    12.75   -137.44    0.918

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 12:38 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                       .[BUSLD_0711.0].
.   *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 5 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 69.822/    0.32

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  1 [INF_BUS 132]    1 1  AMP/OHM  272.8   -53.10   269.05    51.49    1.257
  3 [BUS_03  33.0]    1 1  AMP/OHM  272.8   126.90    14.80   -138.90    0.872

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 12:38 . HOME BUS IS: .
. RADIAL NETWORK                        .           7           .
.                                       .[BUSLD_0711.0].
.   *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***   . 6 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS 132] AREA      1      (KV L-G) V+: / 73.391/      -1.61

```

				T H R E E P H A S E F A U L T				
----- FROM	-----AREA	CKT	I/Z	/I+/	AN(I+)	/Z+/	AN(Z+)	APP X/R
MACHINE 1			AMP/	272.8	-53.10			
2 [BUS_TX	132]	1 1	AMP/OHM	272.8	126.90	255.97	-126.58	1.347



### 3 Turbines Connected to Busbar 8

```
. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:31 . HOME BUS IS: .
. RADIAL NETWORK                      .          9          .
.                                     .[BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 0 LEVELS AWAY.
```

AT BUS 9 [BUSLD\_0911.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.51992 0.55262 1.063

T H R E E P H A S E F A U L T								
----- FROM -----	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
8 [BUSLD_0811.0]	1	1	AMP/OHM	6089.8	-36.14	0.46	23.84	0.442
			TO SHUNT (AMPS)	0.0	0.00			
			TOTAL FAULT CURRENT (AMPS)	6089.8	-36.14			

```
. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:31 . HOME BUS IS: .
. RADIAL NETWORK                      .          9          .
.                                     .[BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 1 LEVELS AWAY.
```

AT BUS 8 [BUSLD\_0811.0] AREA 1 (KV L-G) V+: / 2.804/ -12.30

T H R E E P H A S E F A U L T								
----- FROM -----	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
7 [BUSLD_0711.0]	1	1	AMP/OHM	1419.5	-44.72	2.32	31.14	0.604
9 [BUSLD_0911.0]	1	1	AMP/OHM	6089.8	143.86	0.00	0.00	0.000
102 [TXBUS 11.0]	1	1	AMP/OHM	4719.1	-33.54	0.71	21.66	0.397
			TO SHUNT (AMPS)	28.1	-30.73			

```
. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:31 . HOME BUS IS: .
. RADIAL NETWORK                      .          9          .
.                                     .[BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 2 LEVELS AWAY.
```

AT BUS 7 [BUSLD\_0711.0] AREA 1 (KV L-G) V+: / 3.289/ -13.58

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM  1474.9  -44.36   2.80   29.36   0.562
   8 [BUSLD_0811.0]   1 1  AMP/OHM  1419.5  135.28   1.98  -147.58   0.635
          TO SHUNT   (AMPS)    56.1   -35.38

```

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 3.346/ -11.87

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   8 [BUSLD_0811.0]   1 1  AMP/OHM  4719.1  146.46   0.59  -158.76   0.389
  101 [WNDFRM .700]   1 1  AMP/OHM  4719.1  -33.54   0.01   43.11   0.936

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:31 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .
.                                     .[BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 3 LEVELS AWAY.

```

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 4.132/ -15.01

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   5 [BUS_05 11.0]   1 1  AMP/OHM  1725.9  -43.39   2.97   27.50   0.521
   7 [BUSLD_0711.0]   1 1  AMP/OHM  1474.9  135.64   2.23  -149.22   0.596
          TO SHUNT   (AMPS)    252.5  -37.70

```

AT BUS 101 [WNDFRM .700] AREA 1 (KV L-G) V+: / 0.361/ 9.58

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1                AMP/      63033.8  -33.54
  102 [TXBUS 11.0]   1 1  AMP/OHM  63033.8  146.46   0.71  -158.34   0.397

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:31 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .

```

```

.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] ***   . 4 LEVELS AWAY.
AT BUS      5 [BUS_05  11.0] AREA  1   (KV L-G) V+: /  5.123/ -15.89

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1725.9  -43.39   27.53   35.65   0.717
   6 [BUSLD_0611.0]   1 1  AMP/OHM  1725.9  136.61    2.39  -151.62  0.540

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:31 . HOME BUS IS: .
. RADIAL NETWORK                      .                   9 .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] ***   . 5 LEVELS AWAY.
AT BUS      4 [BUS_TX  33.0] AREA  1   (KV L-G) V+: / 16.670/  -7.74

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM   605.6  -43.39   29.61   35.41   0.711
   5 [BUS_05  11.0]   1 1  AMP/OHM   605.6  136.61    2.97  -152.50  0.521

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:31 . HOME BUS IS: .
. RADIAL NETWORK                      .                   9 .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] ***   . 6 LEVELS AWAY.
AT BUS      3 [BUS_03  33.0] AREA  1   (KV L-G) V+: / 17.931/  -7.98

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   2 [BUS_TX  132]    1 1  AMP/OHM   605.6  -43.39  439.13   43.00   0.932
   4 [BUS_TX  33.0]   1 1  AMP/OHM   605.6  136.61   27.53  -144.35  0.717

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:31 . HOME BUS IS: .
. RADIAL NETWORK                      .                   9 .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] ***   . 7 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 73.058/  -0.39

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   1 [INF_BUS  132]   1 1  AMP/OHM  166.4  -43.39  453.53  42.17   0.906
   3 [BUS_03  33.0]   1 1  AMP/OHM  166.4  136.61  29.61  -144.59  0.711

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:31 . HOME BUS IS: .
. RADIAL NETWORK                        .                   9 .
.                                         . [BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 8 LEVELS AWAY.

AT BUS      1 [INF_BUS  132] AREA  1  (KV L-G) V+: / 75.455/  -1.22

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                                AMP/   166.4  -43.39
   2 [BUS_TX  132]   1 1  AMP/OHM  166.4  136.61  439.13  -137.00  0.932
DIAGONALS =      11 OFF-DIAGONALS =    10 MAX SIZE =    20
POS. SEQUENCE: DIAGONALS =    11 OFF-DIAGONALS =    10

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:31 . HOME BUS IS: .
. RADIAL NETWORK                        .                   9 .
.                                         . [BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 0 LEVELS AWAY.

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  0.000/   0.00

THEV. R, X, X/R: POSITIVE  0.51992  0.55262  1.063

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   8 [BUSLD_0811.0]   1 1  AMP/OHM  6089.8  -36.14   0.46   23.84   0.442
                                TO SHUNT (AMPS)   0.0   0.00
TOTAL FAULT CURRENT (AMPS)  6089.8  -36.14

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:31 . HOME BUS IS: .

```

```

. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      9 [BUSLD_0911.0] ***
.
.          .          9
.          . [BUSLD_0911.0].
.          . 1 LEVELS AWAY.

AT BUS      8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 2.804/ -12.30

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   7 [BUSLD_0711.0]  1 1  AMP/OHM  1419.5  -44.72   2.32   31.14   0.604
   9 [BUSLD_0911.0]  1 1  AMP/OHM  6089.8  143.86   0.00   0.00   0.000
  102 [TXBUS  11.0]  1 1  AMP/OHM  4719.1  -33.54   0.71   21.66   0.397
          TO SHUNT (AMPS)      28.1  -30.73

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:31 . HOME BUS IS: .
. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      9 [BUSLD_0911.0] ***
.
.          .          9
.          . [BUSLD_0911.0].
.          . 2 LEVELS AWAY.

AT BUS      7 [BUSLD_0711.0] AREA 1 (KV L-G) V+: / 3.289/ -13.58

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   6 [BUSLD_0611.0]  1 1  AMP/OHM  1474.9  -44.36   2.80   29.36   0.562
   8 [BUSLD_0811.0]  1 1  AMP/OHM  1419.5  135.28   1.98  -147.58  0.635
          TO SHUNT (AMPS)      56.1  -35.38

AT BUS  102 [TXBUS  11.0] AREA 1 (KV L-G) V+: / 3.346/ -11.87

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   8 [BUSLD_0811.0]  1 1  AMP/OHM  4719.1  146.46   0.59  -158.76  0.389
  101 [WINDFRM .700]  1 1  AMP/OHM  4719.1  -33.54   0.01   43.11   0.936

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:31 . HOME BUS IS: .
. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      9 [BUSLD_0911.0] ***
.
.          .          9
.          . [BUSLD_0911.0].
.          . 3 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  4.132/  -15.01

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM  1725.9  -43.39   2.97   27.50   0.521
   7 [BUSLD_0711.0]   1 1  AMP/OHM  1474.9  135.64   2.23  -149.22  0.596
                                TO SHUNT (AMPS) 252.5  -37.70

```

```

AT BUS     101 [WNDFRM  .700] AREA  1  (KV L-G) V+: /  0.361/   9.58

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
  102 [TXBUS  11.0]   1 1  AMP/OHM  63033.8  146.46   0.71  -158.34  0.397

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:31 . HOME BUS IS: .
. RADIAL NETWORK                        .                   9 .
.                                         . [BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 4 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05  11.0] AREA  1  (KV L-G) V+: /  5.123/  -15.89

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1725.9  -43.39  27.53   35.65   0.717
   6 [BUSLD_0611.0]   1 1  AMP/OHM  1725.9  136.61   2.39  -151.62  0.540

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:31 . HOME BUS IS: .
. RADIAL NETWORK                        .                   9 .
.                                         . [BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 5 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 16.670/  -7.74

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R

```

```

      3 [BUS_03 33.0] 1 1 AMP/OHM 605.6 -43.39 29.61 35.41 0.711
      5 [BUS_05 11.0] 1 1 AMP/OHM 605.6 136.61 2.97 -152.50 0.521

. PSS/E SHORT CIRCUIT OUTPUT TUE, AUG 10 2004 14:31 . HOME BUS IS: .
. RADIAL NETWORK . 9 .
. .[BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 6 LEVELS AWAY.

AT BUS 3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 17.931/ -7.98

          T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
      2 [BUS_TX 132] 1 1 AMP/OHM 605.6 -43.39 439.13 43.00 0.932
      4 [BUS_TX 33.0] 1 1 AMP/OHM 605.6 136.61 27.53 -144.35 0.717

. PSS/E SHORT CIRCUIT OUTPUT TUE, AUG 10 2004 14:31 . HOME BUS IS: .
. RADIAL NETWORK . 9 .
. .[BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 7 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 73.058/ -0.39

          T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
      1 [INF_BUS 132] 1 1 AMP/OHM 166.4 -43.39 453.53 42.17 0.906
      3 [BUS_03 33.0] 1 1 AMP/OHM 166.4 136.61 29.61 -144.59 0.711

. PSS/E SHORT CIRCUIT OUTPUT TUE, AUG 10 2004 14:31 . HOME BUS IS: .
. RADIAL NETWORK . 9 .
. .[BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 8 LEVELS AWAY.

AT BUS 1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 75.455/ -1.22

          T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 166.4 -43.39
      2 [BUS_TX 132] 1 1 AMP/OHM 166.4 136.61 439.13 -137.00 0.932

```

DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20  
 POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10

. PSS/E SHORT CIRCUIT OUTPUT TUE, AUG 10 2004 14:31 . HOME BUS IS: .  
 . RADIAL NETWORK . 8 .  
 . [BUSLD\_0811.0].  
 . \*\*\* FAULTED BUS IS : 8 [BUSLD\_0811.0] \*\*\* . 0 LEVELS AWAY.

AT BUS 8 [BUSLD\_0811.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.17403 0.40311 2.316

		T H R E E P H A S E F A U L T		
FROM	AREA CKT I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP X/R
7 [BUSLD_0711.0]	1 1 AMP/OHM	2460.4 -50.14	0.35 23.78	0.441
9 [BUSLD_0911.0]	1 1 AMP/OHM	0.0 0.00	0.00 0.00	0.000
102 [TXBUS 11.0]	1 1 AMP/OHM	8122.2 -57.78	0.12 23.84	0.442
TO SHUNT (AMPS)		0.0 0.00		
TOTAL FAULT CURRENT (AMPS)		10565.8 -56.00		

. PSS/E SHORT CIRCUIT OUTPUT TUE, AUG 10 2004 14:31 . HOME BUS IS: .  
 . RADIAL NETWORK . 8 .  
 . [BUSLD\_0811.0].  
 . \*\*\* FAULTED BUS IS : 8 [BUSLD\_0811.0] \*\*\* . 1 LEVELS AWAY.

AT BUS 7 [BUSLD\_0711.0] AREA 1 (KV L-G) V+: / 0.849/ -26.36

		T H R E E P H A S E F A U L T		
FROM	AREA CKT I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP X/R
6 [BUSLD_0611.0]	1 1 AMP/OHM	2474.9 -50.13	0.92 23.80	0.441
8 [BUSLD_0811.0]	1 1 AMP/OHM	2460.4 129.86	0.00 0.00	0.000
TO SHUNT (AMPS)		14.5 -48.16		

AT BUS 9 [BUSLD\_0911.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

		T H R E E P H A S E F A U L T		
FROM	AREA CKT I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP X/R



```

      8 [BUSLD_0811.0]  1 1 AMP/OHM      0.0   0.00   0.00   0.00   0.000
                    TO SHUNT (AMPS)  0.0   0.00

```

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 0.935/ -33.93

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
      8 [BUSLD_0811.0]  1 1 AMP/OHM  8122.2  122.22   0.00   0.00   0.000
     101 [WNDFRM .700]  1 1 AMP/OHM  8122.2  -57.78   0.00   0.00   0.000

```

. PSS/E SHORT CIRCUIT OUTPUT TUE, AUG 10 2004 14:31 . HOME BUS IS: .  
. RADIAL NETWORK . 8 .  
. .[BUSLD\_0811.0].  
. \*\*\* FAULTED BUS IS : 8 [BUSLD\_0811.0] \*\*\* . 2 LEVELS AWAY.

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 2.273/ -26.33

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
      5 [BUS_05 11.0]  1 1 AMP/OHM  2613.7  -50.07   1.44   23.77   0.440
      7 [BUSLD_0711.0]  1 1 AMP/OHM  2474.9  129.87   0.34  -156.23   0.440
                    TO SHUNT (AMPS)  138.9  -49.03

```

AT BUS 101 [WNDFRM .700] AREA 1 (KV L-G) V+: / 0.317/ 10.50

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
MACHINE 1          AMP/      108489.1  -57.78
  102 [TXBUS 11.0]  1 1 AMP/OHM  108489.1  122.22   0.12  -156.16   0.442

```

. PSS/E SHORT CIRCUIT OUTPUT TUE, AUG 10 2004 14:31 . HOME BUS IS: .  
. RADIAL NETWORK . 8 .  
. .[BUSLD\_0811.0].  
. \*\*\* FAULTED BUS IS : 8 [BUSLD\_0811.0] \*\*\* . 3 LEVELS AWAY.

AT BUS 5 [BUS\_05 11.0] AREA 1 (KV L-G) V+: / 3.777/ -26.30

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   4 [BUS_TX  33.0]   1 1  AMP/OHM  2613.7  -50.07   15.18   39.44   0.823
   6 [BUSLD_0611.0]  1 1  AMP/OHM  2613.7  129.93    0.87  -156.26  0.440

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:31 . HOME BUS IS: .
. RADIAL NETWORK                        .                8                .
.                                        . [BUSLD_0811.0].
.      *** FAULTED BUS IS :           8 [BUSLD_0811.0] ***      . 4 LEVELS AWAY.

AT BUS      4 [BUS_TX  33.0] AREA      1      (KV L-G) V+: / 13.923/  -10.63

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  917.1   -50.07   17.25   38.57   0.797
   5 [BUS_05  11.0]   1 1  AMP/OHM  917.1   129.93    1.44  -156.23  0.440

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:31 . HOME BUS IS: .
. RADIAL NETWORK                        .                8                .
.                                        . [BUSLD_0811.0].
.      *** FAULTED BUS IS :           8 [BUSLD_0811.0] ***      . 5 LEVELS AWAY.

AT BUS      3 [BUS_03  33.0] AREA      1      (KV L-G) V+: / 15.821/  -11.50

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   2 [BUS_TX  132]    1 1  AMP/OHM  917.1   -50.07  280.23   49.99   1.191
   4 [BUS_TX  33.0]   1 1  AMP/OHM  917.1   129.93   15.18  -140.56  0.823

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:31 . HOME BUS IS: .
. RADIAL NETWORK                        .                8                .
.                                        . [BUSLD_0811.0].
.      *** FAULTED BUS IS :           8 [BUSLD_0811.0] ***      . 6 LEVELS AWAY.

AT BUS      2 [BUS_TX  132] AREA      1      (KV L-G) V+: / 70.605/  -0.08

          T H R E E   P H A S E   F A U L T

```

```

----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   1 [INF_BUS 132]   1 1  AMP/OHM  252.0  -50.07  293.80   48.38   1.126
   3 [BUS_03 33.0]   1 1  AMP/OHM  252.0  129.93   17.25  -141.43   0.797

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:31 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     . [BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 7 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS 132] AREA      1      (KV L-G) V+: / 74.024/   -1.69

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                AMP/      252.0  -50.07
   2 [BUS_TX 132]   1 1  AMP/OHM  252.0  129.93  280.23  -130.01   1.191
DIAGONALS =      11 OFF-DIAGONALS =      10 MAX SIZE =      20
POS. SEQUENCE: DIAGONALS =      11 OFF-DIAGONALS =      10

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:31 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     . [BUSLD_0711.0].
. *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 0 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA      1      (KV L-G) V+: / 0.000/   0.00

```

```

THEV. R, X, X/R: POSITIVE 0.32447 0.43846 1.351

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM  2795.1  -53.23   0.58   23.82   0.441
   8 [BUSLD_0811.0]   1 1  AMP/OHM  5755.0  -41.54   0.35   23.78   0.441
                TO SHUNT (AMPS)      0.0   0.00
TOTAL FAULT CURRENT (AMPS) 8511.1  -45.35

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:31 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     . [BUSLD_0711.0].
. *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 1 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  1.608/  -29.41

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM  2893.4  -53.19   1.13   23.80   0.441
   7 [BUSLD_0711.0]  1 1  AMP/OHM  2795.1  126.77   0.00   0.00   0.000
                TO SHUNT  (AMPS)   98.3   -52.10

```

```

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  1.986/  -17.76

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   7 [BUSLD_0711.0]  1 1  AMP/OHM  5755.0  138.46   0.00   0.00   0.000
   9 [BUSLD_0911.0]  1 1  AMP/OHM   17.4   148.16  113.73 -165.96  0.250
  102 [TXBUS  11.0]  1 1  AMP/OHM  5792.0  -41.49   0.46   23.76   0.440
                TO SHUNT  (AMPS)   19.9   -36.20

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:31 . HOME BUS IS: .
. RADIAL NETWORK                       .           7           .
.                                       . [BUSLD_0711.0].
. *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 2 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05  11.0] AREA  1  (KV L-G) V+: /  3.273/  -29.39

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   4 [BUS_TX  33.0]   1 1  AMP/OHM  2893.4  -53.19  12.75   42.56   0.918
   6 [BUSLD_0611.0]  1 1  AMP/OHM  2893.4  126.81   0.56  -156.22  0.441

```

```

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  1.978/  -17.80

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   8 [BUSLD_0811.0]  1 1  AMP/OHM   17.4  -31.84  114.18   14.08   0.251
                TO SHUNT  (AMPS)   17.4  -31.84

```

```

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 2.653/ -17.73

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      8 [BUSLD_0811.0] 1 1 AMP/OHM 5792.0 138.51 0.34 -156.27 0.440
     101 [WNDFRM .700] 1 1 AMP/OHM 5792.0 -41.49 0.00 0.00 0.000

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:31 . HOME BUS IS: .
. RADIAL NETWORK                      . 7 .
.                                       . [BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 3 LEVELS AWAY.

AT BUS 4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 12.941/ -10.63

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      3 [BUS_03 33.0] 1 1 AMP/OHM 1015.2 -53.19 14.80 41.11 0.873
      5 [BUS_05 11.0] 1 1 AMP/OHM 1015.2 126.81 1.13 -156.20 0.441

AT BUS 101 [WNDFRM .700] AREA 1 (KV L-G) V+: / 0.348/ 9.33

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1
      102 [TXBUS 11.0] 1 1 AMP/OHM 77364.5 138.51 0.46 -156.24 0.440

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:31 . HOME BUS IS: .
. RADIAL NETWORK                      . 7 .
.                                       . [BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 4 LEVELS AWAY.

AT BUS 3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 15.028/ -12.08

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R

```

```

      2 [BUS_TX  132]  1 1 AMP/OHM  1015.2  -53.19  250.41   53.42   1.348
      4 [BUS_TX  33.0]  1 1 AMP/OHM  1015.2  126.81   12.75  -137.44   0.918

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:31 . HOME BUS IS: .
. RADIAL NETWORK                        .           7 .
.                                       .[BUSLD_0711.0].
.      *** FAULTED BUS IS :           7 [BUSLD_0711.0] *** . 5 LEVELS AWAY.

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 69.841/   0.23

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      1 [INF_BUS 132]  1 1 AMP/OHM  278.9   -53.19  263.50   51.45   1.255
      3 [BUS_03  33.0]  1 1 AMP/OHM  278.9   126.81   14.80  -138.89   0.873

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:31 . HOME BUS IS: .
. RADIAL NETWORK                        .           7 .
.                                       .[BUSLD_0711.0].
.      *** FAULTED BUS IS :           7 [BUSLD_0711.0] *** . 6 LEVELS AWAY.

AT BUS      1 [INF_BUS 132] AREA  1  (KV L-G) V+: / 73.491/  -1.74

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
      2 [BUS_TX  132]  1 1 AMP/OHM  278.9   -53.19  250.41  -126.58   1.348
DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20
POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:32 . HOME BUS IS: .
. RADIAL NETWORK                        .           6 .
.                                       .[BUSLD_0611.0].
.      *** FAULTED BUS IS :           6 [BUSLD_0611.0] *** . 0 LEVELS AWAY.

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  0.000/   0.00

THEV. R, X, X/R: POSITIVE  0.44873  0.51340   1.144

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM  3528.0  -60.63   0.58   23.82   0.441
   7 [BUSLD_0711.0]  1 1  AMP/OHM  3647.5  -29.48   0.58   23.82   0.441
                TO SHUNT (AMPS)      0.0    0.00
TOTAL FAULT CURRENT (AMPS)  6912.1  -44.79

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:32 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 1 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05  11.0] AREA  1  (KV L-G) V+: /  2.030/  -36.81

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   4 [BUS_TX  33.0]   1 1  AMP/OHM  3528.0  -60.63   8.60   52.29   1.293
   6 [BUSLD_0611.0]  1 1  AMP/OHM  3528.0  119.37   0.00   0.00   0.000

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  2.099/  -5.67

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   6 [BUSLD_0611.0]  1 1  AMP/OHM  3647.5  150.52   0.00   0.00   0.000
   8 [BUSLD_0811.0]  1 1  AMP/OHM  3683.2  -29.46   0.91   23.79   0.441
                TO SHUNT (AMPS)      35.8   -27.47

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:32 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 2 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 10.642/  -8.34

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  1237.9  -60.63  10.58   48.41   1.127

```

```

5 [BUS_05 11.0] 1 1 AMP/OHM 1237.9 119.37 0.58 -156.18 0.441

AT BUS 8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 3.370/ -5.67

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
7 [BUSLD_0711.0] 1 1 AMP/OHM 3683.2 150.54 0.57 -156.20 0.441
9 [BUSLD_0911.0] 1 1 AMP/OHM 29.5 160.25 113.73 -165.96 0.250
102 [TXBUS 11.0] 1 1 AMP/OHM 3746.0 -29.34 1.01 23.69 0.439
          TO SHUNT (AMPS) 33.8 -24.11

. PSS/E SHORT CIRCUIT OUTPUT TUE, AUG 10 2004 14:32 . HOME BUS IS: .
. RADIAL NETWORK . 6 .
. . [BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 3 LEVELS AWAY.

AT BUS 3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 13.095/ -12.22

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
2 [BUS_TX 132] 1 1 AMP/OHM 1237.9 -60.63 200.62 61.90 1.873
4 [BUS_TX 33.0] 1 1 AMP/OHM 1237.9 119.37 8.60 -127.71 1.293

AT BUS 9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 3.356/ -5.71

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
8 [BUSLD_0811.0] 1 1 AMP/OHM 29.5 -19.75 114.18 14.08 0.251
          TO SHUNT (AMPS) 29.5 -19.75

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 3.801/ -5.65

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
8 [BUSLD_0811.0] 1 1 AMP/OHM 3746.0 150.66 0.90 -156.33 0.438

```



```

101 [WINDFRM .700] 1 1 AMP/OHM 3746.0 -29.34 0.01 39.72 0.831
. PSS/E SHORT CIRCUIT OUTPUT TUE, AUG 10 2004 14:32 . HOME BUS IS: .
. RADIAL NETWORK . 6 .
. .[BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 4 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 68.226/ 1.27

T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
1 [INF_BUS 132] 1 1 AMP/OHM 340.1 -60.63 212.35 58.97 1.662
3 [BUS_03 33.0] 1 1 AMP/OHM 340.1 119.37 10.58 -131.59 1.127

AT BUS 101 [WINDFRM .700] AREA 1 (KV L-G) V+: / 0.371/ 10.38

T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 50036.1 -29.34
102 [TXBUS 11.0] 1 1 AMP/OHM 50036.1 150.66 1.01 -156.31 0.439

. PSS/E SHORT CIRCUIT OUTPUT TUE, AUG 10 2004 14:32 . HOME BUS IS: .
. RADIAL NETWORK . 6 .
. .[BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 5 LEVELS AWAY.

AT BUS 1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 72.215/ -1.66

T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 340.1 -60.63
2 [BUS_TX 132] 1 1 AMP/OHM 340.1 119.37 200.62 -118.10 1.873
DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20
POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10

. PSS/E SHORT CIRCUIT OUTPUT TUE, AUG 10 2004 14:32 . HOME BUS IS: .
. RADIAL NETWORK . 5 .

```

```

.                                     .[BUS_05 11.0].
.   *** FAULTED BUS IS :      5 [BUS_05 11.0] ***   . 0 LEVELS AWAY.
AT BUS      5 [BUS_05 11.0] AREA  1   (KV L-G) V+: /  0.000/   0.00
THEV. R, X, X/R: POSITIVE  0.44153  0.63779   1.444

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   4 [BUS_TX 33.0]   1 1  AMP/OHM  4408.1  -72.41   5.01   78.69   5.000
   6 [BUSLD_0611.0] 1 1  AMP/OHM  2566.0  -24.17   0.58   23.82   0.441
   TOTAL FAULT CURRENT (AMPS)  6409.6  -55.03

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:32 . HOME BUS IS: .
. RADIAL NETWORK                        .              5 .
.                                     .[BUS_05 11.0].
.   *** FAULTED BUS IS :      5 [BUS_05 11.0] ***   . 1 LEVELS AWAY.
AT BUS      4 [BUS_TX 33.0] AREA  1   (KV L-G) V+: /  7.751/   6.28

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   3 [BUS_03 33.0]   1 1  AMP/OHM  1546.7  -72.41   6.62   65.49   2.193
   5 [BUS_05 11.0]   1 1  AMP/OHM  1546.7  107.59   0.00   0.00   0.000

AT BUS      6 [BUSLD_0611.0] AREA  1   (KV L-G) V+: /  1.476/  -0.35

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   5 [BUS_05 11.0]   1 1  AMP/OHM  2566.0  155.83   0.00   0.00   0.000
   7 [BUSLD_0711.0] 1 1  AMP/OHM  2656.2  -24.13   1.13   23.80   0.441
   TO SHUNT (AMPS)      90.2  -23.05

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:32 . HOME BUS IS: .
. RADIAL NETWORK                        .              5 .
.                                     .[BUS_05 11.0].
.   *** FAULTED BUS IS :      5 [BUS_05 11.0] ***   . 2 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 10.242/ -6.92

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  2 [BUS_TX 132] 1 1 AMP/OHM 1546.7 -72.41 156.61 76.02 4.016
  4 [BUS_TX 33.0] 1 1 AMP/OHM 1546.7 107.59 5.01 -101.31 5.000

```

```

AT BUS      7 [BUSLD_0711.0] AREA 1 (KV L-G) V+: / 3.005/ -0.33

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  6 [BUSLD_0611.0] 1 1 AMP/OHM 2656.2 155.87 0.56 -156.22 0.441
  8 [BUSLD_0811.0] 1 1 AMP/OHM 2707.4 -24.09 1.45 23.76 0.440
      TO SHUNT (AMPS) 51.3 -22.13

```

```

. PSS/E SHORT CIRCUIT OUTPUT      TUE, AUG 10 2004 14:32 . HOME BUS IS: .
. RADIAL NETWORK                      .           5           .
.                                     . [BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 3 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 66.547/ 3.61

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  1 [INF_BUS 132] 1 1 AMP/OHM 424.9 -72.41 165.61 71.40 2.971
  3 [BUS_03 33.0] 1 1 AMP/OHM 424.9 107.59 6.62 -114.51 2.193

```

```

AT BUS      8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 3.939/ -0.33

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  7 [BUSLD_0711.0] 1 1 AMP/OHM 2707.4 155.91 1.11 -156.24 0.440
  9 [BUSLD_0911.0] 1 1 AMP/OHM 34.5 165.60 113.73 -165.96 0.250
 102 [TXBUS 11.0] 1 1 AMP/OHM 2780.8 -23.90 1.53 23.59 0.437
      TO SHUNT (AMPS) 39.5 -18.76

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:32 . HOME BUS IS: .
. RADIAL NETWORK                      .           5 .
.                                     . [BUS_05  11.0].
. *** FAULTED BUS IS :      5 [BUS_05  11.0] *** . 4 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS  132] AREA  1  (KV L-G) V+: / 70.369/  -1.01

```

```

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
/I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
MACHINE 1
      2 [BUS_TX   132]   1 1  AMP/OHM  424.9   -72.41
                                     424.9   107.59   156.61  -103.98   4.016

```

```

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  3.923/  -0.37

```

```

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
/I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
      8 [BUSLD_0811.0]   1 1  AMP/OHM  34.5    -14.40
                                     34.5    -14.40
      TO SHUNT (AMPS)

```

```

AT BUS     102 [TXBUS   11.0] AREA  1  (KV L-G) V+: /  4.259/  -0.31

```

```

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
/I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
      8 [BUSLD_0811.0]   1 1  AMP/OHM  2780.8  156.10
      101 [WINDFRM  .700] 1 1  AMP/OHM  2780.8  -23.90
                                     0.01    35.15   0.704

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:32 . HOME BUS IS: .
. RADIAL NETWORK                      .           5 .
.                                     . [BUS_05  11.0].
. *** FAULTED BUS IS :      5 [BUS_05  11.0] *** . 5 LEVELS AWAY.

```

```

AT BUS     101 [WINDFRM  .700] AREA  1  (KV L-G) V+: /  0.380/  11.26

```

```

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
/I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R

```

MACHINE 1			AMP/	37143.9	-23.90			
102 [TXBUS	11.0]	1 1	AMP/OHM	37143.9	156.10	1.53	-156.41	0.437

### 5 Turbines Connected to Busbar 8

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:35 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 0 LEVELS AWAY.

```

```

AT BUS      9 [BUSLD_0911.0] AREA  1   (KV L-G) V+: /  0.000/   0.00

```

```

THEV. R, X, X/R: POSITIVE  0.52010  0.55281   1.063

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      8 [BUSLD_0811.0]   1 1  AMP/OHM  6116.1  -29.42   0.46   23.84   0.442
              TO SHUNT (AMPS)      0.0    0.00
      TOTAL FAULT CURRENT (AMPS)  6116.1  -29.42

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:35 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 1 LEVELS AWAY.

```

```

AT BUS      8 [BUSLD_0811.0] AREA  1   (KV L-G) V+: /  2.816/   -5.58

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      7 [BUSLD_0711.0]   1 1  AMP/OHM  1456.4  -50.09   2.26   41.41   0.882
      9 [BUSLD_0911.0]   1 1  AMP/OHM  6116.1  150.58   0.00   0.00   0.000
     102 [TXBUS  11.0]   1 1  AMP/OHM  4809.1  -23.26   0.70   18.69   0.338
              TO SHUNT (AMPS)      28.0   -24.01

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:35 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 2 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1   (KV L-G) V+: /  3.291/   -8.68

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM  1509.9  -49.37   2.74   37.19   0.759
   8 [BUSLD_0811.0]   1 1  AMP/OHM  1456.4  129.91   1.93  -135.49  0.983
                TO SHUNT  (AMPS)   56.7   -30.48

```

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 3.366/ -4.57

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   8 [BUSLD_0811.0]   1 1  AMP/OHM  4809.1  156.74   0.59  -162.32  0.319
  101 [WNDFRM .700]   1 1  AMP/OHM  4809.1  -23.26   0.01   41.39   0.881

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:35 . HOME BUS IS: .
. RADIAL NETWORK                      .                9                .
.                                     .[BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 3 LEVELS AWAY.

```

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 4.130/ -12.18

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   5 [BUS_05 11.0]   1 1  AMP/OHM  1762.9  -47.25   2.91   32.86   0.646
   7 [BUSLD_0711.0]   1 1  AMP/OHM  1509.9  130.63   2.18  -139.31  0.860
                TO SHUNT  (AMPS)   260.1  -34.87

```

AT BUS 101 [WNDFRM .700] AREA 1 (KV L-G) V+: / 0.360/ 18.13

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1                AMP/      64236.4  -23.26
  102 [TXBUS 11.0]   1 1  AMP/OHM  64236.4  156.74   0.70  -161.31  0.338

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:35 . HOME BUS IS: .
. RADIAL NETWORK                      .                9                .

```

```

.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] ***   . 4 LEVELS AWAY.
AT BUS      5 [BUS_05  11.0] AREA  1   (KV L-G) V+: /  5.128/  -14.39

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)    /Z+/   AN(Z+)  APP X/R
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1762.9  -47.25   27.36   40.41   0.851
   6 [BUSLD_0611.0]  1 1  AMP/OHM  1762.9  132.75    2.34  -144.93  0.702

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:35 . HOME BUS IS: .
. RADIAL NETWORK                      .                   9 .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] ***   . 5 LEVELS AWAY.
AT BUS      4 [BUS_TX  33.0] AREA  1   (KV L-G) V+: / 16.922/  -6.84

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)    /Z+/   AN(Z+)  APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM   618.6  -47.25   29.42   39.83   0.834
   5 [BUS_05  11.0]   1 1  AMP/OHM   618.6  132.75    2.91  -147.14  0.646

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:35 . HOME BUS IS: .
. RADIAL NETWORK                      .                   9 .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] ***   . 6 LEVELS AWAY.
AT BUS      3 [BUS_03  33.0] AREA  1   (KV L-G) V+: / 18.199/  -7.42

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)    /Z+/   AN(Z+)  APP X/R
   2 [BUS_TX  132]    1 1  AMP/OHM   618.6  -47.25  421.37   46.93   1.070
   4 [BUS_TX  33.0]   1 1  AMP/OHM   618.6  132.75   27.36  -139.59  0.851

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:35 . HOME BUS IS: .
. RADIAL NETWORK                      .                   9 .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] ***   . 7 LEVELS AWAY.

```



```

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 73.216/  -0.32

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   1 [INF_BUS  132]   1 1  AMP/OHM  173.8  -47.25  435.30  45.94   1.033
   3 [BUS_03  33.0]   1 1  AMP/OHM  173.8  132.75  29.42  -140.17  0.834

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:35 . HOME BUS IS: .
. RADIAL NETWORK                        .                   9 .
.                                         . [BUSLD_0911.0].
.   *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 8 LEVELS AWAY.

AT BUS      1 [INF_BUS  132] AREA  1  (KV L-G) V+: / 75.637/  -1.31

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                                AMP/    173.8  -47.25
   2 [BUS_TX  132]   1 1  AMP/OHM  173.8  132.75  421.37  -133.07  1.070
DIAGONALS =      11 OFF-DIAGONALS =    10 MAX SIZE =    20
POS. SEQUENCE: DIAGONALS =      11 OFF-DIAGONALS =    10

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:36 . HOME BUS IS: .
. RADIAL NETWORK                        .                   8 .
.                                         . [BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 0 LEVELS AWAY.

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  0.000/   0.00

THEV. R, X, X/R: POSITIVE  0.17419  0.40325   2.315

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM  2515.4  -50.31   0.35   23.78   0.441
   9 [BUSLD_0911.0]   1 1  AMP/OHM   0.0    0.00   0.00   0.00   0.000
  102 [TXBUS   11.0]   1 1  AMP/OHM  8095.0  -48.95   0.12   23.84   0.442
                                TO SHUNT (AMPS)  0.0    0.00
TOTAL FAULT CURRENT (AMPS)  10609.8  -49.27

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:36 . HOME BUS IS: .
. RADIAL NETWORK                        .           8           .
.                                       .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 1 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  0.868/ -26.53

```

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
6	[BUSLD_0611.0]	1	1	AMP/OHM	2530.3	-50.30	0.92	23.80	0.441	
8	[BUSLD_0811.0]	1	1	AMP/OHM	2515.4	129.69	0.00	0.00	0.000	
				TO SHUNT (AMPS)	14.9	-48.33				

```

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

```

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
8	[BUSLD_0811.0]	1	1	AMP/OHM	0.0	0.00	0.00	0.00	0.000	
				TO SHUNT (AMPS)	0.0	0.00				

```

AT BUS     102 [TXBUS  11.0] AREA  1  (KV L-G) V+: /  0.932/ -25.11

```

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
8	[BUSLD_0811.0]	1	1	AMP/OHM	8095.0	131.05	0.00	0.00	0.000	
101	[WNDFRM .700]	1	1	AMP/OHM	8095.0	-48.95	0.00	0.00	0.000	

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:36 . HOME BUS IS: .
. RADIAL NETWORK                        .           8           .
.                                       .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 2 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  2.324/ -26.50

```

T H R E E P H A S E F A U L T

```

----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   5 [BUS_05 11.0]   1 1  AMP/OHM  2676.7  -50.24    1.44    23.77    0.440
   7 [BUSLD_0711.0] 1 1  AMP/OHM  2530.3  129.70    0.34   -156.23    0.440
                        TO SHUNT (AMPS)  146.4   -49.19

```

```

AT BUS 101 [WNDFRM .700] AREA 1 (KV L-G) V+: / 0.316/ 19.32

```

```

----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
MACHINE 1
  102 [TXBUS 11.0] 1 1  AMP/OHM 108126.4  131.05    0.12   -156.16    0.442

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:36 . HOME BUS IS: .
. RADIAL NETWORK                      .                8 .
.                                       . [BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 3 LEVELS AWAY.

```

```

AT BUS 5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 3.864/ -26.47

```

```

----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   4 [BUS_TX 33.0] 1 1  AMP/OHM  2676.7  -50.24   15.17    39.45    0.823
   6 [BUSLD_0611.0] 1 1  AMP/OHM  2676.7  129.76    0.87   -156.26    0.440

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:36 . HOME BUS IS: .
. RADIAL NETWORK                      .                8 .
.                                       . [BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 4 LEVELS AWAY.

```

```

AT BUS 4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 14.247/ -10.78

```

```

----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   3 [BUS_03 33.0] 1 1  AMP/OHM  939.2   -50.24   17.24    38.58    0.798
   5 [BUS_05 11.0] 1 1  AMP/OHM  939.2   129.76    1.44   -156.23    0.440

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:36 . HOME BUS IS: .

```

```

. RADIAL NETWORK . 8 .
. .[BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 5 LEVELS AWAY.

AT BUS 3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 16.192/ -11.66

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  2 [BUS_TX 132] 1 1 AMP/OHM 939.2 -50.24 267.92 50.01 1.192
  4 [BUS_TX 33.0] 1 1 AMP/OHM 939.2 129.76 15.17 -140.55 0.823

. PSS/E SHORT CIRCUIT OUTPUT TUE, AUG 10 2004 14:36 . HOME BUS IS: .
. RADIAL NETWORK . 8 .
. .[BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 6 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 70.680/ -0.23

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  1 [INF_BUS 132] 1 1 AMP/OHM 263.8 -50.24 281.49 48.32 1.123
  3 [BUS_03 33.0] 1 1 AMP/OHM 263.8 129.76 17.24 -141.42 0.798

. PSS/E SHORT CIRCUIT OUTPUT TUE, AUG 10 2004 14:36 . HOME BUS IS: .
. RADIAL NETWORK . 8 .
. .[BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 7 LEVELS AWAY.

AT BUS 1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 74.260/ -1.92

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 263.8 -50.24
  2 [BUS_TX 132] 1 1 AMP/OHM 263.8 129.76 267.92 -129.99 1.192
DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20
POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10

. PSS/E SHORT CIRCUIT OUTPUT TUE, AUG 10 2004 14:36 . HOME BUS IS: .

```

```

. RADIAL NETWORK
.
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] ***
. [BUSLD_0711.0].
. 0 LEVELS AWAY.

```

```

AT BUS 7 [BUSLD_0711.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

```

```

THEV. R, X, X/R: POSITIVE 0.32487 0.43848 1.350

```

```

----- FROM -----AREA CKT I/Z      T H R E E P H A S E F A U L T
      /I+/      AN(I+)      /Z+/      AN(Z+)      APP X/R
6 [BUSLD_0611.0] 1 1 AMP/OHM 2857.4 -53.37 0.58 23.82 0.441
8 [BUSLD_0811.0] 1 1 AMP/OHM 5736.0 -32.72 0.35 23.78 0.441
      TO SHUNT (AMPS) 0.0 0.00
TOTAL FAULT CURRENT (AMPS) 8469.9 -39.55

```

```

. PSS/E SHORT CIRCUIT OUTPUT TUE, AUG 10 2004 14:36 . HOME BUS IS: .
. RADIAL NETWORK
.
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] ***
. [BUSLD_0711.0].
. 1 LEVELS AWAY.

```

```

AT BUS 6 [BUSLD_0611.0] AREA 1 (KV L-G) V+: / 1.644/ -29.56

```

```

----- FROM -----AREA CKT I/Z      T H R E E P H A S E F A U L T
      /I+/      AN(I+)      /Z+/      AN(Z+)      APP X/R
5 [BUS_05 11.0] 1 1 AMP/OHM 2961.0 -53.33 1.13 23.80 0.441
7 [BUSLD_0711.0] 1 1 AMP/OHM 2857.4 126.63 0.00 0.00 0.000
      TO SHUNT (AMPS) 103.6 -52.25

```

```

AT BUS 8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 1.980/ -8.94

```

```

----- FROM -----AREA CKT I/Z      T H R E E P H A S E F A U L T
      /I+/      AN(I+)      /Z+/      AN(Z+)      APP X/R
7 [BUSLD_0711.0] 1 1 AMP/OHM 5736.0 147.28 0.00 0.00 0.000
9 [BUSLD_0911.0] 1 1 AMP/OHM 17.2 156.99 114.78 -165.96 0.250
102 [TXBUS 11.0] 1 1 AMP/OHM 5772.5 -32.67 0.46 23.76 0.440
      TO SHUNT (AMPS) 19.7 -27.37

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:36 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     .[BUSLD_0711.0].
.   *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 2 LEVELS AWAY.

```

```
AT BUS      5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 3.348/ -29.54
```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
4	[BUS_TX 33.0]	1	1	AMP/OHM	2961.0 -53.33	12.74 42.56	0.918	
6	[BUSLD_0611.0]	1	1	AMP/OHM	2961.0 126.67	0.56 -156.22	0.441	

```
AT BUS      9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 1.972/ -8.98
```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
8	[BUSLD_0811.0]	1	1	AMP/OHM	17.2 -23.01	115.24 14.08	0.251	
	TO SHUNT			(AMPS)	17.2 -23.01			

```
AT BUS     102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 2.644/ -8.91
```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
8	[BUSLD_0811.0]	1	1	AMP/OHM	5772.5 147.33	0.34 -156.27	0.440	
101	[WINDFRM .700]	1	1	AMP/OHM	5772.5 -32.67	0.00 0.00	0.000	

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:36 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     .[BUSLD_0711.0].
.   *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 3 LEVELS AWAY.

```

```
AT BUS      4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 13.239/ -10.77
```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
3	[BUS_03 33.0]	1	1	AMP/OHM	1038.9 -53.33	14.80 41.11	0.873	

```

5 [BUS_05 11.0] 1 1 AMP/OHM 1038.9 126.67 1.13 -156.20 0.441

AT BUS 101 [WNDFRM .700] AREA 1 (KV L-G) V+: / 0.347/ 18.15

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
MACHINE 1
  102 [TXBUS 11.0] 1 1 AMP/OHM 77104.3 -32.67
          77104.4 147.33 0.46 -156.24 0.440

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:36 . HOME BUS IS: .
. RADIAL NETWORK                      . 7 .
.                                     . [BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 4 LEVELS AWAY.

AT BUS 3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 15.374/ -12.22

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
  2 [BUS_TX 132] 1 1 AMP/OHM 1038.9 -53.33 239.47 53.43 1.348
  4 [BUS_TX 33.0] 1 1 AMP/OHM 1038.9 126.67 12.74 -137.44 0.918

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:36 . HOME BUS IS: .
. RADIAL NETWORK                      . 7 .
.                                     . [BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 5 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 69.886/ 0.09

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
  1 [INF_BUS 132] 1 1 AMP/OHM 291.8 -53.33 252.56 51.37 1.251
  3 [BUS_03 33.0] 1 1 AMP/OHM 291.8 126.67 14.80 -138.89 0.873

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:36 . HOME BUS IS: .
. RADIAL NETWORK                      . 7 .
.                                     . [BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 6 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS 132] AREA  1  (KV L-G) V+: / 73.707/  -1.96

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
          2 [BUS_TX 132]  1 1  AMP/OHM  291.8  -53.33
DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20
POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:36 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
.   *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 0 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: / 0.000/  0.00

THEV. R, X, X/R: POSITIVE 0.44972 0.51307 1.141

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
          5 [BUS_05 11.0]  1 1  AMP/OHM  3606.2 -60.73  0.58  23.82  0.441
          7 [BUSLD_0711.0]  1 1  AMP/OHM  3635.3 -20.66  0.58  23.82  0.441
          TO SHUNT (AMPS)  0.0  0.00
          TOTAL FAULT CURRENT (AMPS) 6803.3 -40.61

```

```

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004 14:36 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
.   *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 1 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05 11.0] AREA  1  (KV L-G) V+: / 2.075/  -36.91

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
          4 [BUS_TX 33.0]  1 1  AMP/OHM  3606.2 -60.73  8.60  52.29  1.293
          6 [BUSLD_0611.0]  1 1  AMP/OHM  3606.2 119.27  0.00  0.00  0.000

```



```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  2.092/    3.16

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM  3635.3  159.34    0.00    0.00    0.000
   8 [BUSLD_0811.0]   1 1  AMP/OHM  3671.3  -20.64    0.91    23.79    0.441
                                TO SHUNT (AMPS)  36.0  -18.65

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:36 . HOME BUS IS: .
. RADIAL NETWORK                      .                6 .
.                                     . [BUSLD_0611.0].
.   *** FAULTED BUS IS :             6 [BUSLD_0611.0] *** . 2 LEVELS AWAY.

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 10.878/   -8.44

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  1265.3  -60.73   10.58    48.41    1.127
   5 [BUS_05  11.0]   1 1  AMP/OHM  1265.3  119.27    0.58  -156.18    0.441

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  3.359/    3.15

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM  3671.3  159.36    0.57  -156.20    0.441
   9 [BUSLD_0911.0]   1 1  AMP/OHM   29.1   169.07  114.79  -165.96    0.250
  102 [TXBUS  11.0]   1 1  AMP/OHM  3733.3  -20.52    1.01    23.69    0.439
                                TO SHUNT (AMPS)  33.4  -15.29

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:36 . HOME BUS IS: .
. RADIAL NETWORK                      .                6 .
.                                     . [BUSLD_0611.0].
.   *** FAULTED BUS IS :             6 [BUSLD_0611.0] *** . 3 LEVELS AWAY.

AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 13.386/  -12.32

```

----- FROM -----		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
2	[BUS_TX 132]	1	1	AMP/OHM	1265.3	-60.73	191.90	1.873
4	[BUS_TX 33.0]	1	1	AMP/OHM	1265.3	119.27	8.60	1.293

AT BUS 9 [BUSLD\_0911.0] AREA 1 (KV L-G) V+: / 3.345/ 3.11

----- FROM -----		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
8	[BUSLD_0811.0]	1	1	AMP/OHM	29.1	-10.93	115.24	0.251
	TO SHUNT			(AMPS)	29.1	-10.93		

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 3.788/ 3.17

----- FROM -----		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
8	[BUSLD_0811.0]	1	1	AMP/OHM	3733.3	159.48	0.90	0.438
101	[WNDFRM .700]	1	1	AMP/OHM	3733.3	-20.52	0.01	0.831

. PSS/E SHORT CIRCUIT OUTPUT TUE, AUG 10 2004 14:36 . HOME BUS IS: .  
 . RADIAL NETWORK . 6 .  
 . . [BUSLD\_0611.0].  
 . \*\*\* FAULTED BUS IS : 6 [BUSLD\_0611.0] \*\*\* . 4 LEVELS AWAY.

AT BUS 2 [BUS\_TX 132] AREA 1 (KV L-G) V+: / 68.206/ 1.17

----- FROM -----		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
1	[INF_BUS 132]	1	1	AMP/OHM	355.4	-60.73	203.64	1.654
3	[BUS_03 33.0]	1	1	AMP/OHM	355.4	119.27	10.58	1.127

AT BUS 101 [WNDFRM .700] AREA 1 (KV L-G) V+: / 0.369/ 19.21

----- FROM -----		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R

```

MACHINE 1          AMP/      49865.6  -20.52
 102 [TXBUS  11.0]  1 1 AMP/OHM  49865.6  159.48      1.01  -156.31   0.439

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:36 . HOME BUS IS: .
. RADIAL NETWORK                        .           6 .
.                                         .[BUSLD_0611.0].
.      *** FAULTED BUS IS :           6 [BUSLD_0611.0] *** . 5 LEVELS AWAY.

AT BUS      1 [INF_BUS 132] AREA  1  (KV L-G) V+: / 72.380/  -1.89

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1          AMP/      355.4   -60.73
  2 [BUS_TX  132]  1 1 AMP/OHM  355.4   119.27  191.90  -118.10   1.873
DIAGONALS =      11 OFF-DIAGONALS =    10 MAX SIZE =    20
POS. SEQUENCE: DIAGONALS =    11 OFF-DIAGONALS =    10

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:36 . HOME BUS IS: .
. RADIAL NETWORK                        .           5 .
.                                         .[BUS_05 11.0].
.      *** FAULTED BUS IS :           5 [BUS_05 11.0] *** . 0 LEVELS AWAY.

AT BUS      5 [BUS_05 11.0] AREA  1  (KV L-G) V+: /  0.000/   0.00

THEV. R, X, X/R: POSITIVE  0.44445  0.63805   1.436

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
  4 [BUS_TX  33.0]  1 1 AMP/OHM  4501.2  -72.42   5.01   78.69   5.000
  6 [BUSLD_0611.0]  1 1 AMP/OHM  2555.5  -15.35   0.58   23.82   0.441
TOTAL FAULT CURRENT (AMPS)  6268.8  -52.41

. PSS/E SHORT CIRCUIT OUTPUT          TUE, AUG 10 2004  14:36 . HOME BUS IS: .
. RADIAL NETWORK                        .           5 .
.                                         .[BUS_05 11.0].
.      *** FAULTED BUS IS :           5 [BUS_05 11.0] *** . 1 LEVELS AWAY.

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: /  7.915/   6.27

```

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
3	[BUS_03 33.0]	1	1	AMP/OHM	1579.4	-72.42	6.62	65.49	2.193	
5	[BUS_05 11.0]	1	1	AMP/OHM	1579.4	107.58	0.00	0.00	0.000	

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 1.470/ 8.47

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
5	[BUS_05 11.0]	1	1	AMP/OHM	2555.5	164.65	0.00	0.00	0.000	
7	[BUSLD_0711.0]	1	1	AMP/OHM	2648.1	-15.31	1.13	23.80	0.441	
				TO SHUNT (AMPS)	92.6	-14.23				

. PSS/E SHORT CIRCUIT OUTPUT TUE, AUG 10 2004 14:36 . HOME BUS IS: .  
. RADIAL NETWORK . 5 .  
. . [BUS\_05 11.0].  
. \*\*\* FAULTED BUS IS : 5 [BUS\_05 11.0] \*\*\* . 2 LEVELS AWAY.

AT BUS 3 [BUS\_03 33.0] AREA 1 (KV L-G) V+: / 10.458/ -6.93

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
2	[BUS_TX 132]	1	1	AMP/OHM	1579.4	-72.42	149.80	76.02	4.016	
4	[BUS_TX 33.0]	1	1	AMP/OHM	1579.4	107.58	5.01	-101.31	5.000	

AT BUS 7 [BUSLD\_0711.0] AREA 1 (KV L-G) V+: / 2.994/ 8.49

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
6	[BUSLD_0611.0]	1	1	AMP/OHM	2648.1	164.69	0.56	-156.22	0.441	
8	[BUSLD_0811.0]	1	1	AMP/OHM	2699.6	-15.27	1.45	23.76	0.440	
				TO SHUNT (AMPS)	51.5	-13.31				

. PSS/E SHORT CIRCUIT OUTPUT TUE, AUG 10 2004 14:36 . HOME BUS IS: .  
. RADIAL NETWORK . 5 .



TO SHUNT (AMPS) 34.1 -5.58

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 4.244/ 8.51

		T H R E E P H A S E F A U L T						
----- FROM -----	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
8 [BUSLD_0811.0]	1	1	AMP/OHM	2772.0	164.92	1.42	-156.43 0.436	
101 [WNDFRM .700]	1	1	AMP/OHM	2772.0	-15.08	0.01	35.16 0.704	

. PSS/E SHORT CIRCUIT OUTPUT TUE, AUG 10 2004 14:36 . HOME BUS IS: .  
. RADIAL NETWORK . 5 .  
. . [BUS\_05 11.0].  
. \*\*\* FAULTED BUS IS : 5 [BUS\_05 11.0] \*\*\* . 5 LEVELS AWAY.

AT BUS 101 [WNDFRM .700] AREA 1 (KV L-G) V+: / 0.378/ 20.08

		T H R E E P H A S E F A U L T						
----- FROM -----	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
MACHINE 1			AMP/	37026.4	-15.08			
102 [TXBUS 11.0]	1	1	AMP/OHM	37026.4	164.92	1.53	-156.41 0.437	

# Appendix E4

Fault levels for at Busbars 5- 10 with Distributed generation connected at Busbar 7

**1 Turbine Connected to Busbar 7**

```
. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:33 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 0 LEVELS AWAY.
```

AT BUS 9 [BUSLD\_0911.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.77017 0.64830 0.842

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
8	[BUSLD_0811.0]	1	1	AMP/OHM	4530.0	-38.13	0.46	23.84	0.442
				TO SHUNT (AMPS)	0.0	0.00			
TOTAL FAULT CURRENT (AMPS)					4530.0	-38.13			

```
. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:33 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 1 LEVELS AWAY.
```

AT BUS 8 [BUSLD\_0811.0] AREA 1 (KV L-G) V+: / 2.085/ -14.28

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
7	[BUSLD_0711.0]	1	1	AMP/OHM	4551.4	-38.10	0.80	23.80	0.441
9	[BUSLD_0911.0]	1	1	AMP/OHM	4530.0	141.87	0.00	0.00	0.000
				TO SHUNT (AMPS)	21.5	-32.72			

```
. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:33 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 2 LEVELS AWAY.
```

AT BUS 7 [BUSLD\_0711.0] AREA 1 (KV L-G) V+: / 3.656/ -14.30



		T H R E E P H A S E F A U L T						
FROM	AREA CKT I/Z	/I+/	AN(I+)	/Z+/	AN(Z+)	APP	X/R	
6 [BUSLD_0611.0]	1 1 AMP/OHM	1278.8	-40.46	3.43	25.77	0.483		
8 [BUSLD_0811.0]	1 1 AMP/OHM	4551.4	141.90	0.46	-156.18	0.441		
102 [TXBUS 11.0]	1 1 AMP/OHM	3337.3	-37.16	1.21	22.95	0.424		
	TO SHUNT (AMPS)	63.3	-36.10					

. PSS/E SHORT CIRCUIT OUTPUT WED, AUG 11 2004 11:33 . HOME BUS IS: .  
. RADIAL NETWORK . 9 .  
. . [BUSLD\_0911.0].  
. \*\*\* FAULTED BUS IS : 9 [BUSLD\_0911.0] \*\*\* . 3 LEVELS AWAY.

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 4.391/ -14.69

		T H R E E P H A S E F A U L T						
FROM	AREA CKT I/Z	/I+/	AN(I+)	/Z+/	AN(Z+)	APP	X/R	
5 [BUS_05 11.0]	1 1 AMP/OHM	1544.4	-39.93	3.42	25.00	0.466		
7 [BUSLD_0711.0]	1 1 AMP/OHM	1278.8	139.54	2.86	-153.84	0.491		
	TO SHUNT (AMPS)	265.9	-37.39					

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 4.040/ -14.21

		T H R E E P H A S E F A U L T						
FROM	AREA CKT I/Z	/I+/	AN(I+)	/Z+/	AN(Z+)	APP	X/R	
7 [BUSLD_0711.0]	1 1 AMP/OHM	3337.3	142.84	1.10	-157.14	0.422		
101 [WNDBUS .690]	1 1 AMP/OHM	3337.3	-37.16	0.01	37.10	0.756		

. PSS/E SHORT CIRCUIT OUTPUT WED, AUG 11 2004 11:33 . HOME BUS IS: .  
. RADIAL NETWORK . 9 .  
. . [BUSLD\_0911.0].  
. \*\*\* FAULTED BUS IS : 9 [BUSLD\_0911.0] \*\*\* . 4 LEVELS AWAY.

AT BUS 5 [BUS\_05 11.0] AREA 1 (KV L-G) V+: / 5.280/ -14.93

		T H R E E P H A S E F A U L T						
FROM	AREA CKT I/Z	/I+/	AN(I+)	/Z+/	AN(Z+)	APP	X/R	
4 [BUS_TX 33.0]	1 1 AMP/OHM	1544.4	-39.93	31.00	32.48	0.637		

```

6 [BUSLD_0611.0] 1 1 AMP/OHM 1544.4 140.07 2.84 -154.76 0.471

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.371/ -0.06

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
MACHINE 1
  102 [TXBUS 11.0] 1 1 AMP/OHM 45223.2 142.84 1.21 -157.05 0.424

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:33 . HOME BUS IS: .
. RADIAL NETWORK                      . 9 .
.                                     . [BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 5 LEVELS AWAY.

AT BUS 4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 16.798/ -7.45

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
  3 [BUS_03 33.0] 1 1 AMP/OHM 541.9 -39.93 33.08 32.47 0.636
  5 [BUS_05 11.0] 1 1 AMP/OHM 541.9 140.07 3.42 -155.00 0.466

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:33 . HOME BUS IS: .
. RADIAL NETWORK                      . 9 .
.                                     . [BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 6 LEVELS AWAY.

AT BUS 3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 17.928/ -7.46

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
  2 [BUS_TX 132] 1 1 AMP/OHM 541.9 -39.93 503.48 39.63 0.828
  4 [BUS_TX 33.0] 1 1 AMP/OHM 541.9 140.07 31.00 -147.52 0.637

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:33 . HOME BUS IS: .
. RADIAL NETWORK                      . 9 .
.                                     . [BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 7 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 73.342/  -0.30

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   1 [INF_BUS  132]   1 1  AMP/OHM  145.7  -39.93  518.23  38.99   0.810
   3 [BUS_03  33.0]   1 1  AMP/OHM  145.7  140.07  33.08  -147.53  0.636

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:33 . HOME BUS IS: .
. RADIAL NETWORK                        .                9 .
.                                         .[BUSLD_0911.0].
.      *** FAULTED BUS IS :           9 [BUSLD_0911.0] ***      . 8 LEVELS AWAY.

AT BUS      1 [INF_BUS  132] AREA  1  (KV L-G) V+: / 75.490/  -0.93

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                                AMP/   145.7  -39.93
   2 [BUS_TX  132]   1 1  AMP/OHM  145.7  140.07  503.48  -140.37  0.828
DIAGONALS =      11 OFF-DIAGONALS =    10 MAX SIZE =    20
POS. SEQUENCE: DIAGONALS =      11 OFF-DIAGONALS =    10

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:35 . HOME BUS IS: .
. RADIAL NETWORK                        .                8 .
.                                         .[BUSLD_0811.0].
.      *** FAULTED BUS IS :           8 [BUSLD_0811.0] ***      . 0 LEVELS AWAY.

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  0.000/   0.00

THEV. R, X, X/R: POSITIVE  0.42626  0.50004  1.173

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM  6968.9  -47.55   0.35   23.78   0.441
   9 [BUSLD_0911.0]   1 1  AMP/OHM   0.0    0.00   0.00   0.00   0.000
                                TO SHUNT (AMPS)   0.0    0.00
TOTAL FAULT CURRENT (AMPS)  6968.9  -47.55

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:35 . HOME BUS IS: .
. RADIAL NETWORK                        .           8           .
.                                     .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 1 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  2.405/  -23.77

```

		T H R E E P H A S E F A U L T						
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
6 [BUSLD_0611.0]	1	1	AMP/OHM	1832.8	-42.29	1.89	20.13	0.367
8 [BUSLD_0811.0]	1	1	AMP/OHM	6968.9	132.45	0.00	0.00	0.000
102 [TXBUS 11.0]	1	1	AMP/OHM	5188.2	-49.39	0.58	25.27	0.472
			TO SHUNT (AMPS)	41.6	-45.57			

```

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

```

		T H R E E P H A S E F A U L T						
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
8 [BUSLD_0811.0]	1	1	AMP/OHM	0.0	0.00	0.00	0.00	0.000
			TO SHUNT (AMPS)	0.0	0.00			

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:35 . HOME BUS IS: .
. RADIAL NETWORK                        .           8           .
.                                     .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 2 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  3.456/  -22.16

```

		T H R E E P H A S E F A U L T						
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
5 [BUS_05 11.0]	1	1	AMP/OHM	2041.8	-42.55	2.27	21.26	0.389
7 [BUSLD_0711.0]	1	1	AMP/OHM	1832.8	137.71	1.31	-161.48	0.335
			TO SHUNT (AMPS)	209.3	-44.85			

```

AT BUS     102 [TXBUS 11.0] AREA  1  (KV L-G) V+: /  3.002/  -24.12

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   7 [BUSLD_0711.0]  1 1  AMP/OHM  5188.2  130.61   0.46  -154.38   0.480
  101 [WNDBUS .690]  1 1  AMP/OHM  5188.2  -49.39   0.00   0.00    0.000

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:35 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     . [BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 3 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05  11.0] AREA  1  (KV L-G) V+: /  4.630/  -21.29

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   4 [BUS_TX  33.0]  1 1  AMP/OHM  2041.8  -42.55  21.53   32.57   0.639
   6 [BUSLD_0611.0]  1 1  AMP/OHM  2041.8  137.45   1.69  -159.61   0.372

```

```

AT BUS     101 [WNDBUS .690] AREA  1  (KV L-G) V+: /  0.351/  -1.15

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
  102 [TXBUS  11.0]  1 1  AMP/OHM  70303.4  130.61   0.58  -154.73   0.472

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:35 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     . [BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 4 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 15.427/  -9.98

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   3 [BUS_03  33.0]  1 1  AMP/OHM  716.4  -42.55  23.62   32.54   0.638
   5 [BUS_05  11.0]  1 1  AMP/OHM  716.4  137.45   2.27  -158.74   0.389

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:35 . HOME BUS IS: .

```

```

. RADIAL NETWORK
.
.      *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***
.                                     . 8
.                                     . [BUSLD_0811.0].
.                                     . 5 LEVELS AWAY.

AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 16.920/ -10.01

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      2 [BUS_TX  132]   1 1  AMP/OHM  716.4  -42.55  373.92   42.19   0.907
      4 [BUS_TX  33.0]   1 1  AMP/OHM  716.4  137.45   21.53  -147.43   0.639

. PSS/E SHORT CIRCUIT OUTPUT      WED, AUG 11 2004  11:35 . HOME BUS IS: .
. RADIAL NETWORK
.
.      *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***
.                                     . 8
.                                     . [BUSLD_0811.0].
.                                     . 6 LEVELS AWAY.

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 72.014/  -0.36

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      1 [INF_BUS 132]   1 1  AMP/OHM  192.6  -42.55  388.42   41.25   0.877
      3 [BUS_03  33.0]   1 1  AMP/OHM  192.6  137.45   23.62  -147.46   0.638

. PSS/E SHORT CIRCUIT OUTPUT      WED, AUG 11 2004  11:35 . HOME BUS IS: .
. RADIAL NETWORK
.
.      *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***
.                                     . 8
.                                     . [BUSLD_0811.0].
.                                     . 7 LEVELS AWAY.

AT BUS      1 [INF_BUS 132] AREA  1  (KV L-G) V+: / 74.807/  -1.30

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1          AMP/      192.6  -42.55
      2 [BUS_TX  132]   1 1  AMP/OHM  192.6  137.45  373.92  -137.81   0.907
DIAGONALS =      11 OFF-DIAGONALS =      10 MAX SIZE =      20
POS. SEQUENCE: DIAGONALS =      11 OFF-DIAGONALS =      10

. PSS/E SHORT CIRCUIT OUTPUT      WED, AUG 11 2004  11:35 . HOME BUS IS: .

```

```

. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***
.
.          . 7 .
.          . [BUSLD_0711.0].
.          . 0 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00
THEV. R, X, X/R: POSITIVE 0.16842 0.39141 2.324

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
6	[BUSLD_0611.0]	1	1	AMP/OHM	2735.6	-53.03	0.58	23.82	0.441
8	[BUSLD_0811.0]	1	1	AMP/OHM	0.0	0.00	0.00	0.00	0.000
102	[TXBUS 11.0]	1	1	AMP/OHM	8156.4	-68.54	0.12	23.84	0.442
				TO SHUNT (AMPS)	0.0	0.00			
TOTAL FAULT CURRENT (AMPS)					10817.2	-64.67			

```

. PSS/E SHORT CIRCUIT OUTPUT WED, AUG 11 2004 11:35 . HOME BUS IS: .
. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***
.
.          . 7 .
.          . [BUSLD_0711.0].
.          . 1 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA 1 (KV L-G) V+: / 1.574/ -29.22

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
5	[BUS_05 11.0]	1	1	AMP/OHM	2830.9	-53.00	1.13	23.80	0.441
7	[BUSLD_0711.0]	1	1	AMP/OHM	2735.6	126.97	0.00	0.00	0.000
				TO SHUNT (AMPS)	95.3	-51.91			

```

AT BUS      8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
7	[BUSLD_0711.0]	1	1	AMP/OHM	0.0	0.00	0.00	0.00	0.000
9	[BUSLD_0911.0]	1	1	AMP/OHM	0.0	0.00	0.00	0.00	0.000
				TO SHUNT (AMPS)	0.0	0.00			

```

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 0.939/ -44.70

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
    7 [BUSLD_0711.0]  1 1  AMP/OHM  8156.4  111.46   0.00   0.00   0.000
   101 [WNDBUS .690]  1 1  AMP/OHM  8156.4  -68.54   0.00   0.00   0.000

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:35 . HOME BUS IS: .
. RADIAL NETWORK                          .              7              .
.                                          .[BUSLD_0711.0].
.      *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***      . 2 LEVELS AWAY.

AT BUS 5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 3.203/ -29.20

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
    4 [BUS_TX 33.0]  1 1  AMP/OHM  2830.9  -53.00  12.75  42.56   0.918
    6 [BUSLD_0611.0]  1 1  AMP/OHM  2830.9  127.00   0.56 -156.22  0.441

AT BUS 9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
    8 [BUSLD_0811.0]  1 1  AMP/OHM   0.0    0.00   0.00   0.00   0.000
      TO SHUNT (AMPS)   0.0    0.00

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.313/ -0.27

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1              AMP/   110525.3  -68.54
   102 [TXBUS 11.0]  1 1  AMP/OHM 110525.3  111.46   0.12 -156.16   0.442

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:35 . HOME BUS IS: .
. RADIAL NETWORK                          .              7              .

```



```

.                                     .[BUSLD_0711.0].
.   *** FAULTED BUS IS :           7 [BUSLD_0711.0] ***   . 3 LEVELS AWAY.
AT BUS      4 [BUS_TX  33.0] AREA  1   (KV L-G) V+: / 12.663/ -10.44

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)    /Z+/   AN(Z+)  APP X/R
      3 [BUS_03  33.0]   1 1  AMP/OHM  993.3   -53.00   14.80   41.10   0.873
      5 [BUS_05  11.0]   1 1  AMP/OHM  993.3   127.00    1.13  -156.20  0.441

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:35 . HOME BUS IS: .
. RADIAL NETWORK                      .                   7 .
.                                     .[BUSLD_0711.0].
.   *** FAULTED BUS IS :           7 [BUSLD_0711.0] ***   . 4 LEVELS AWAY.
AT BUS      3 [BUS_03  33.0] AREA  1   (KV L-G) V+: / 14.705/ -11.89

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)    /Z+/   AN(Z+)  APP X/R
      2 [BUS_TX  132]   1 1  AMP/OHM  993.3   -53.00  261.56   53.42   1.347
      4 [BUS_TX  33.0]   1 1  AMP/OHM  993.3   127.00   12.75  -137.44  0.918

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:35 . HOME BUS IS: .
. RADIAL NETWORK                      .                   7 .
.                                     .[BUSLD_0711.0].
.   *** FAULTED BUS IS :           7 [BUSLD_0711.0] ***   . 5 LEVELS AWAY.
AT BUS      2 [BUS_TX  132] AREA  1   (KV L-G) V+: / 69.840/   0.42

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)    /Z+/   AN(Z+)  APP X/R
      1 [INF_BUS 132]   1 1  AMP/OHM  267.0   -53.00  274.64   51.53   1.258
      3 [BUS_03  33.0]   1 1  AMP/OHM  267.0   127.00   14.80  -138.90  0.873

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:35 . HOME BUS IS: .
. RADIAL NETWORK                      .                   7 .
.                                     .[BUSLD_0711.0].
.   *** FAULTED BUS IS :           7 [BUSLD_0711.0] ***   . 6 LEVELS AWAY.

```

AT BUS 1 [INF\_BUS 132] AREA 1 (KV L-G) V+: / 73.333/ -1.47

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                AMP/      267.0  -53.00
      2 [BUS_TX 132]    1 1  AMP/OHM  267.0  127.00  261.56 -126.58  1.347
DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20
POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10
```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:36 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 0 LEVELS AWAY.
```

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.36080 0.45963 1.274

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      5 [BUS_05 11.0]  1 1  AMP/OHM  3455.1 -60.48   0.58   23.82   0.441
      7 [BUSLD_0711.0] 1 1  AMP/OHM  4709.3 -46.25   0.58   23.82   0.441
          TO SHUNT (AMPS)      0.0   0.00
TOTAL FAULT CURRENT (AMPS) 8103.0 -52.27
```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:36 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 1 LEVELS AWAY.
```

AT BUS 5 [BUS\_05 11.0] AREA 1 (KV L-G) V+: / 1.988/ -36.66

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      4 [BUS_TX 33.0]  1 1  AMP/OHM  3455.1 -60.48   8.60   52.29   1.293
      6 [BUSLD_0611.0] 1 1  AMP/OHM  3455.1 119.52   0.00   0.00   0.000
```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  2.709/  -22.43

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM  4709.3  133.75    0.00    0.00    0.000
   8 [BUSLD_0811.0]   1 1  AMP/OHM   51.9   141.11   51.87  -163.60   0.294
  102 [TXBUS  11.0]   1 1  AMP/OHM  4807.7  -46.15    0.68    23.74   0.440
                                TO SHUNT  (AMPS)  46.9   -44.24

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:36 . HOME BUS IS: .
. RADIAL NETWORK                        .                6 .
.                                         . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 2 LEVELS AWAY.

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 10.422/  -8.19

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  1212.3  -60.48   10.58   48.41   1.127
   5 [BUS_05  11.0]   1 1  AMP/OHM  1212.3  119.52    0.58  -156.18   0.441

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  2.692/  -22.48

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM   51.9   -38.89   52.22   16.45   0.295
   9 [BUSLD_0911.0]   1 1  AMP/OHM   24.2   143.44  110.77 -165.96   0.250
                                TO SHUNT  (AMPS)  27.7   -40.92

AT BUS     102 [TXBUS  11.0] AREA  1  (KV L-G) V+: /  3.263/  -22.41

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM  4807.7  133.85    0.56  -156.28   0.439
  101 [WNDBUS  .690]   1 1  AMP/OHM  4807.7  -46.15    0.01   45.07   1.002

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:36 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 3 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 12.825/ -12.07

```

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
2	[BUS_TX 132]	1	1	AMP/OHM	1212.3	-60.48	209.53	61.90	1.873	
4	[BUS_TX 33.0]	1	1	AMP/OHM	1212.3	119.52	8.60	-127.71	1.293	

```

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: / 2.681/ -22.52

```

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
8	[BUSLD_0811.0]	1	1	AMP/OHM	24.2	-36.56	111.22	14.08	0.251	
				TO SHUNT (AMPS)	24.2	-36.56				

```

AT BUS     101 [WNDBUS  .690] AREA  1  (KV L-G) V+: / 0.356/ -1.08

```

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
MACHINE 1				AMP/	65147.4	-46.15				
102	[TXBUS 11.0]	1	1	AMP/OHM	65147.4	133.85	0.68	-156.26	0.440	

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:36 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 4 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 68.285/  1.42

```

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R

```

1 [INF_BUS 132] 1 1 AMP/OHM 325.9 -60.48 221.25 59.09 1.670
3 [BUS_03 33.0] 1 1 AMP/OHM 325.9 119.52 10.58 -131.59 1.127

. PSS/E SHORT CIRCUIT OUTPUT WED, AUG 11 2004 11:36 . HOME BUS IS: .
. RADIAL NETWORK . 6 .
. .[BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 5 LEVELS AWAY.

AT BUS 1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 72.104/ -1.39

T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 325.9 -60.48
2 [BUS_TX 132] 1 1 AMP/OHM 325.9 119.52 209.53 -118.10 1.873
DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20
POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10

. PSS/E SHORT CIRCUIT OUTPUT WED, AUG 11 2004 11:36 . HOME BUS IS: .
. RADIAL NETWORK . 5 .
. .[BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 0 LEVELS AWAY.

AT BUS 5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.40178 0.58352 1.452

T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
4 [BUS_TX 33.0] 1 1 AMP/OHM 4321.3 -72.34 5.01 78.69 5.000
6 [BUSLD_0611.0] 1 1 AMP/OHM 3105.6 -37.97 0.58 23.82 0.441
TOTAL FAULT CURRENT (AMPS) 7104.4 -58.05

. PSS/E SHORT CIRCUIT OUTPUT WED, AUG 11 2004 11:36 . HOME BUS IS: .
. RADIAL NETWORK . 5 .
. .[BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 1 LEVELS AWAY.

AT BUS 4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 7.599/ 6.35

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  1516.2  -72.34    6.62   65.49    2.193
   5 [BUS_05  11.0]   1 1  AMP/OHM  1516.2  107.66    0.00    0.00    0.000

```

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 1.787/ -14.15

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM  3105.6  142.03    0.00    0.00    0.000
   7 [BUSLD_0711.0]   1 1  AMP/OHM  3213.7  -37.93    1.13   23.80    0.441
          TO SHUNT  (AMPS)   108.2  -36.85

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:36 . HOME BUS IS: .
. RADIAL NETWORK                      .                    5 .
.                                       . [BUS_05  11.0].
. *** FAULTED BUS IS :      5 [BUS_05  11.0] *** . 2 LEVELS AWAY.

```

AT BUS 3 [BUS\_03 33.0] AREA 1 (KV L-G) V+: / 10.040/ -6.85

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   2 [BUS_TX  132]   1 1  AMP/OHM  1516.2  -72.34   163.57   76.02    4.016
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1516.2  107.66    5.01  -101.31   5.000

```

AT BUS 7 [BUSLD\_0711.0] AREA 1 (KV L-G) V+: / 3.636/ -14.14

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM  3213.7  142.07    0.56  -156.22   0.441
   8 [BUSLD_0811.0]   1 1  AMP/OHM    69.6  149.41   51.87  -163.60   0.294
  102 [TXBUS  11.0]   1 1  AMP/OHM  3345.7  -37.74    1.20   23.63   0.438
          TO SHUNT  (AMPS)    62.9  -35.94

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:36 . HOME BUS IS: .

```

```

. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      5 [BUS_05 11.0] ***
.
.          5
.          .[BUS_05 11.0].
.          . 3 LEVELS AWAY.

AT BUS      2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 66.670/ 3.68

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  1 [INF_BUS 132] 1 1 AMP/OHM 407.6 -72.34 172.54 71.59 3.004
  3 [BUS_03 33.0] 1 1 AMP/OHM 407.6 107.66 6.62 -114.51 2.193

AT BUS      8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 3.612/ -14.18

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  7 [BUSLD_0711.0] 1 1 AMP/OHM 69.6 -30.59 52.22 16.45 0.295
  9 [BUSLD_0911.0] 1 1 AMP/OHM 32.5 151.74 110.77 -165.96 0.250
          TO SHUNT (AMPS) 37.2 -32.62

AT BUS     102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 4.021/ -14.11

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  7 [BUSLD_0711.0] 1 1 AMP/OHM 3345.7 142.26 1.09 -156.39 0.437
 101 [WNDBUS .690] 1 1 AMP/OHM 3345.7 -37.74 0.01 37.71 0.773

. PSS/E SHORT CIRCUIT OUTPUT WED, AUG 11 2004 11:36 . HOME BUS IS: .
. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      5 [BUS_05 11.0] ***
.          5
.          .[BUS_05 11.0].
.          . 4 LEVELS AWAY.

AT BUS      1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 70.327/ -0.75

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 407.6 -72.34

```

```

2 [BUS_TX 132] 1 1 AMP/OHM 407.6 107.66 163.57 -103.98 4.016

AT BUS 9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 3.597/ -14.22

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
      8 [BUSLD_0811.0] 1 1 AMP/OHM 32.5 -28.26 111.23 14.08 0.251
          TO SHUNT (AMPS) 32.5 -28.26

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.371/ -0.03

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
MACHINE 1 AMP/ 45336.6 -37.74
  102 [TXBUS 11.0] 1 1 AMP/OHM 45336.6 142.26 1.20 -156.37 0.438

```



## 2 Turbines Connected to Busbar 7

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:40 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                     .[BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 0 LEVELS AWAY.

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

THEV. R, X, X/R: POSITIVE  0.77026  0.64861  0.842

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      8 [BUSLD_0811.0]   1 1  AMP/OHM  4550.8  -34.71   0.46   23.84   0.442
                TO SHUNT  (AMPS)    0.0    0.00
      TOTAL FAULT CURRENT (AMPS)  4550.8  -34.71

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:40 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                     .[BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 1 LEVELS AWAY.

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  2.095/ -10.86

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      7 [BUSLD_0711.0]   1 1  AMP/OHM  4572.1  -34.68   0.80   23.80   0.441
      9 [BUSLD_0911.0]   1 1  AMP/OHM  4550.8  145.29   0.00   0.00   0.000
                TO SHUNT  (AMPS)    21.4  -29.30

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:40 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                     .[BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 2 LEVELS AWAY.

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  3.673/ -10.88

```

		T H R E E P H A S E F A U L T						
FROM	AREA CKT I/Z	/I+/	AN(I+)	/Z+/	AN(Z+)	APP	X/R	
6	[BUSLD_0611.0] 1 1 AMP/OHM	1272.6	-44.73	3.45	32.19	0.629		
8	[BUSLD_0811.0] 1 1 AMP/OHM	4572.1	145.32	0.46	-156.18	0.441		
102	[TXBUS 11.0] 1 1 AMP/OHM	3389.3	-30.89	1.20	20.38	0.371		
	TO SHUNT (AMPS)	63.0	-32.68					

. PSS/E SHORT CIRCUIT OUTPUT WED, AUG 11 2004 11:40 . HOME BUS IS: .  
. RADIAL NETWORK . 9 .  
. .[BUSLD\_0911.0].  
. \*\*\* FAULTED BUS IS : 9 [BUSLD\_0911.0] \*\*\* . 3 LEVELS AWAY.

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 4.396/ -12.54

		T H R E E P H A S E F A U L T						
FROM	AREA CKT I/Z	/I+/	AN(I+)	/Z+/	AN(Z+)	APP	X/R	
5	[BUS_05 11.0] 1 1 AMP/OHM	1536.9	-43.09	3.43	29.42	0.564		
7	[BUSLD_0711.0] 1 1 AMP/OHM	1272.6	135.27	2.89	-146.15	0.671		
	TO SHUNT (AMPS)	267.2	-35.24					

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 4.062/ -10.51

		T H R E E P H A S E F A U L T						
FROM	AREA CKT I/Z	/I+/	AN(I+)	/Z+/	AN(Z+)	APP	X/R	
7	[BUSLD_0711.0] 1 1 AMP/OHM	3389.3	149.11	1.08	-159.99	0.364		
101	[WNDBUS .690] 1 1 AMP/OHM	3389.3	-30.89	0.01	35.20	0.706		

. PSS/E SHORT CIRCUIT OUTPUT WED, AUG 11 2004 11:40 . HOME BUS IS: .  
. RADIAL NETWORK . 9 .  
. .[BUSLD\_0911.0].  
. \*\*\* FAULTED BUS IS : 9 [BUSLD\_0911.0] \*\*\* . 4 LEVELS AWAY.

AT BUS 5 [BUS\_05 11.0] AREA 1 (KV L-G) V+: / 5.275/ -13.67

		T H R E E P H A S E F A U L T						
FROM	AREA CKT I/Z	/I+/	AN(I+)	/Z+/	AN(Z+)	APP	X/R	
4	[BUS_TX 33.0] 1 1 AMP/OHM	1536.9	-43.09	31.38	36.37	0.736		

```

        6 [BUSLD_0611.0]  1 1  AMP/OHM  1536.9  136.91  2.86  -149.46  0.590

AT BUS  101 [WNDBUS .690] AREA  1  (KV L-G) V+: / 0.371/  4.32

                T H R E E  P H A S E  F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
  102 [TXBUS  11.0]  1 1  AMP/OHM  45928.0  149.11  1.20  -159.63  0.371

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:40 . HOME BUS IS: .
. RADIAL NETWORK                      .                9 .
.                                       . [BUSLD_0911.0].
.   *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 5 LEVELS AWAY.

AT BUS  4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 16.921/  -6.72

                T H R E E  P H A S E  F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
  3 [BUS_03  33.0]  1 1  AMP/OHM  539.2  -43.09  33.46  36.11  0.729
  5 [BUS_05  11.0]  1 1  AMP/OHM  539.2  136.91  3.43  -150.58  0.564

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:40 . HOME BUS IS: .
. RADIAL NETWORK                      .                9 .
.                                       . [BUSLD_0911.0].
.   *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 6 LEVELS AWAY.

AT BUS  3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 18.043/  -6.98

                T H R E E  P H A S E  F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
  2 [BUS_TX  132]  1 1  AMP/OHM  539.2  -43.09  501.21  42.84  0.927
  4 [BUS_TX  33.0]  1 1  AMP/OHM  539.2  136.91  31.38  -143.63  0.736

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:40 . HOME BUS IS: .
. RADIAL NETWORK                      .                9 .
.                                       . [BUSLD_0911.0].
.   *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 7 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 73.444/  -0.25

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   1 [INF_BUS  132]   1 1  AMP/OHM  146.5  -43.09  515.63  42.11   0.904
   3 [BUS_03  33.0]   1 1  AMP/OHM  146.5  136.91  33.46  -143.89  0.729

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:40 . HOME BUS IS: .
. RADIAL NETWORK                        .                   9 .
.                                         . [BUSLD_0911.0].
.   *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 8 LEVELS AWAY.

AT BUS      1 [INF_BUS  132] AREA  1  (KV L-G) V+: / 75.557/  -0.98

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                                AMP/   146.5  -43.09
   2 [BUS_TX  132]   1 1  AMP/OHM  146.5  136.91  501.21  -137.16  0.927
DIAGONALS =      11 OFF-DIAGONALS =    10 MAX SIZE =    20
POS. SEQUENCE: DIAGONALS =      11 OFF-DIAGONALS =    10

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:40 . HOME BUS IS: .
. RADIAL NETWORK                        .                   8 .
.                                         . [BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 0 LEVELS AWAY.

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  0.000/   0.00

THEV. R, X, X/R: POSITIVE  0.42630  0.50030   1.174

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM  7000.1  -44.13   0.35   23.78   0.441
   9 [BUSLD_0911.0]   1 1  AMP/OHM   0.0    0.00   0.00   0.00   0.000
                                TO SHUNT (AMPS)   0.0    0.00
TOTAL FAULT CURRENT (AMPS)  7000.1  -44.13

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:40 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 1 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  2.416/ -20.36

```

		T H R E E P H A S E F A U L T						
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
6 [BUSLD_0611.0]	1	1	AMP/OHM	1830.4	-44.22	1.90	23.85	0.442
8 [BUSLD_0811.0]	1	1	AMP/OHM	7000.1	135.87	0.00	0.00	0.000
102 [TXBUS 11.0]	1	1	AMP/OHM	5211.1	-44.09	0.58	23.75	0.440
			TO SHUNT (AMPS)	41.4	-42.16			

```

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

```

		T H R E E P H A S E F A U L T						
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
8 [BUSLD_0811.0]	1	1	AMP/OHM	0.0	0.00	0.00	0.00	0.000
			TO SHUNT (AMPS)	0.0	0.00			

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:40 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 2 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  3.469/ -20.37

```

		T H R E E P H A S E F A U L T						
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
5 [BUS_05 11.0]	1	1	AMP/OHM	2041.2	-44.10	2.27	23.75	0.440
7 [BUSLD_0711.0]	1	1	AMP/OHM	1830.4	135.78	1.32	-156.13	0.442
			TO SHUNT (AMPS)	210.9	-43.07			

```

AT BUS     102 [TXBUS 11.0] AREA  1  (KV L-G) V+: /  3.016/ -20.33

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM  5211.1  135.91    0.46  -156.27   0.440
  101 [WNDBUS  .690]   1 1  AMP/OHM  5211.1  -44.09    0.00   0.00    0.000

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:40 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     . [BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 3 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05  11.0] AREA  1  (KV L-G) V+: /  4.643/  -20.35

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   4 [BUS_TX  33.0]   1 1  AMP/OHM  2041.2  -44.10   21.75   34.63   0.691
   6 [BUSLD_0611.0]   1 1  AMP/OHM  2041.2  135.90    1.70  -156.27   0.440

```

```

AT BUS     101 [WNDBUS  .690] AREA  1  (KV L-G) V+: /  0.350/    3.28

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
MACHINE 1
  102 [TXBUS  11.0]   1 1  AMP/OHM  70614.6  135.91    0.58  -156.25   0.440

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:40 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     . [BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 4 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 15.575/   -9.48

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  716.2   -44.10   23.83   34.41   0.685
   5 [BUS_05  11.0]   1 1  AMP/OHM  716.2   135.90    2.27  -156.25   0.440

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:40 . HOME BUS IS: .

```

```

. RADIAL NETWORK . 8 .
. [BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 5 LEVELS AWAY.

AT BUS 3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 17.067/ -9.69

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  2 [BUS_TX 132] 1 1 AMP/OHM 716.2 -44.10 370.48 43.73 0.957
  4 [BUS_TX 33.0] 1 1 AMP/OHM 716.2 135.90 21.75 -145.37 0.691

. PSS/E SHORT CIRCUIT OUTPUT WED, AUG 11 2004 11:40 . HOME BUS IS: .
. RADIAL NETWORK . 8 .
. [BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 6 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 72.105/ -0.37

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  1 [INF_BUS 132] 1 1 AMP/OHM 194.6 -44.10 384.82 42.73 0.924
  3 [BUS_03 33.0] 1 1 AMP/OHM 194.6 135.90 23.83 -145.59 0.685

. PSS/E SHORT CIRCUIT OUTPUT WED, AUG 11 2004 11:40 . HOME BUS IS: .
. RADIAL NETWORK . 8 .
. [BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 7 LEVELS AWAY.

AT BUS 1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 74.895/ -1.38

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 194.6 -44.10
  2 [BUS_TX 132] 1 1 AMP/OHM 194.6 135.90 370.48 -136.27 0.957
DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20
POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10

. PSS/E SHORT CIRCUIT OUTPUT WED, AUG 11 2004 11:40 . HOME BUS IS: .

```

```

. RADIAL NETWORK
.
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] ***
. [BUSLD_0711.0].
. 0 LEVELS AWAY.

```

```

AT BUS 7 [BUSLD_0711.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

```

```

THEV. R, X, X/R: POSITIVE 0.16843 0.39161 2.325

```

```

----- FROM -----AREA CKT I/Z          T H R E E P H A S E F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)      APP X/R
  6 [BUSLD_0611.0]  1 1  AMP/OHM  2765.4   -53.15     0.58     23.82     0.441
  8 [BUSLD_0811.0]  1 1  AMP/OHM    0.0     0.00     0.00     0.00     0.000
 102 [TXBUS 11.0]  1 1  AMP/OHM  8135.3   -63.99     0.12     23.84     0.442
          TO SHUNT (AMPS)      0.0     0.00
          TOTAL FAULT CURRENT (AMPS) 10863.7  -61.25

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:40 . HOME BUS IS: .
. RADIAL NETWORK
.
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] ***
. [BUSLD_0711.0].
. 1 LEVELS AWAY.

```

```

AT BUS 6 [BUSLD_0611.0] AREA 1 (KV L-G) V+: / 1.591/ -29.33

```

```

----- FROM -----AREA CKT I/Z          T H R E E P H A S E F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)      APP X/R
  5 [BUS_05 11.0]  1 1  AMP/OHM  2862.1   -53.11     1.13     23.80     0.441
  7 [BUSLD_0711.0]  1 1  AMP/OHM  2765.4   126.85     0.00     0.00     0.000
          TO SHUNT (AMPS)      96.7    -52.03

```

```

AT BUS 8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

```

```

----- FROM -----AREA CKT I/Z          T H R E E P H A S E F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)      APP X/R
  7 [BUSLD_0711.0]  1 1  AMP/OHM    0.0     0.00     0.00     0.00     0.000
  9 [BUSLD_0911.0]  1 1  AMP/OHM    0.0     0.00     0.00     0.00     0.000
          TO SHUNT (AMPS)      0.0     0.00

```



```

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 0.936/ -40.15

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
    7 [BUSLD_0711.0]  1 1  AMP/OHM  8135.3  116.01   0.00   0.00   0.000
   101 [WNDBUS .690]  1 1  AMP/OHM  8135.3  -63.99   0.00   0.00   0.000

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:40 . HOME BUS IS: .
. RADIAL NETWORK                          .              7              .
.                                          .[BUSLD_0711.0].
.      *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***      . 2 LEVELS AWAY.

AT BUS 5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 3.238/ -29.31

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
    4 [BUS_TX 33.0]  1 1  AMP/OHM  2862.1  -53.11  12.75  42.56  0.918
    6 [BUSLD_0611.0]  1 1  AMP/OHM  2862.1  126.89   0.56 -156.22  0.441

AT BUS 9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
    8 [BUSLD_0811.0]  1 1  AMP/OHM  0.0    0.00   0.00   0.00   0.000
          TO SHUNT (AMPS)  0.0    0.00

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.313/ 4.28

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1          AMP/  110238.6  -63.99
   102 [TXBUS 11.0]  1 1  AMP/OHM  110238.7  116.01   0.12 -156.16  0.442

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:40 . HOME BUS IS: .
. RADIAL NETWORK                          .              7              .

```

```

.                                     .[BUSLD_0711.0].
.   *** FAULTED BUS IS :           7 [BUSLD_0711.0] ***   . 3 LEVELS AWAY.
AT BUS      4 [BUS_TX  33.0] AREA  1   (KV L-G) V+: / 12.802/ -10.55

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)    /Z+/   AN(Z+)  APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  1004.2  -53.11   14.80   41.11   0.873
   5 [BUS_05  11.0]   1 1  AMP/OHM  1004.2  126.89   1.13  -156.20  0.441

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:40 . HOME BUS IS: .
. RADIAL NETWORK                        .                   7 .
.                                     .[BUSLD_0711.0].
.   *** FAULTED BUS IS :           7 [BUSLD_0711.0] ***   . 4 LEVELS AWAY.
AT BUS      3 [BUS_03  33.0] AREA  1   (KV L-G) V+: / 14.866/ -12.00

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)    /Z+/   AN(Z+)  APP X/R
   2 [BUS_TX  132]   1 1  AMP/OHM  1004.2  -53.11  255.95   53.42   1.348
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1004.2  126.89   12.75  -137.44  0.918

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:40 . HOME BUS IS: .
. RADIAL NETWORK                        .                   7 .
.                                     .[BUSLD_0711.0].
.   *** FAULTED BUS IS :           7 [BUSLD_0711.0] ***   . 5 LEVELS AWAY.
AT BUS      2 [BUS_TX  132] AREA  1   (KV L-G) V+: / 69.847/   0.31

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)    /Z+/   AN(Z+)  APP X/R
   1 [INF_BUS 132]   1 1  AMP/OHM   272.9  -53.11  269.04   51.49   1.257
   3 [BUS_03  33.0]   1 1  AMP/OHM   272.9  126.89   14.80  -138.89  0.873

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:40 . HOME BUS IS: .
. RADIAL NETWORK                        .                   7 .
.                                     .[BUSLD_0711.0].
.   *** FAULTED BUS IS :           7 [BUSLD_0711.0] ***   . 6 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS 132] AREA  1  (KV L-G) V+: / 73.418/  -1.62

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                AMP/      272.9  -53.11
      2 [BUS_TX 132]    1 1  AMP/OHM  272.9  126.89  255.95 -126.58  1.348
DIAGONALS =    11 OFF-DIAGONALS =    10 MAX SIZE =    20
POS. SEQUENCE: DIAGONALS =    11 OFF-DIAGONALS =    10

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:40 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
.   *** FAULTED BUS IS :      6 [BUSLD_0611.0] ***           . 0 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  0.000/   0.00

THEV. R, X, X/R: POSITIVE  0.36116  0.45986  1.273

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      5 [BUS_05 11.0]    1 1  AMP/OHM  3491.5 -60.57   0.58   23.82   0.441
      7 [BUSLD_0711.0]  1 1  AMP/OHM  4697.6 -41.70   0.58   23.82   0.441
                TO SHUNT (AMPS)      0.0    0.00
TOTAL FAULT CURRENT (AMPS)  8080.6  -49.73

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:40 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
.   *** FAULTED BUS IS :      6 [BUSLD_0611.0] ***           . 1 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05 11.0] AREA  1  (KV L-G) V+: /  2.009/  -36.76

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      4 [BUS_TX 33.0]    1 1  AMP/OHM  3491.5 -60.57   8.60   52.29   1.293
      6 [BUSLD_0611.0]  1 1  AMP/OHM  3491.5 119.43   0.00   0.00   0.000

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  2.703/  -17.88

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM  4697.6  138.30    0.00    0.00    0.000
   8 [BUSLD_0811.0]   1 1  AMP/OHM    51.3   145.67   52.38  -163.60    0.294
  102 [TXBUS   11.0]   1 1  AMP/OHM  4794.8  -41.60    0.68    23.74    0.440
                TO SHUNT  (AMPS)   46.3   -39.68

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:40 . HOME BUS IS: .
. RADIAL NETWORK                        .                6 .
.                                         . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] ***          . 2 LEVELS AWAY.

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 10.532/  -8.28

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  1225.1  -60.57   10.58   48.41    1.127
   5 [BUS_05  11.0]   1 1  AMP/OHM  1225.1  119.43    0.58  -156.18    0.441

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  2.685/  -17.93

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM    51.3   -34.33   52.72   16.45    0.295
   9 [BUSLD_0911.0]   1 1  AMP/OHM    23.9   148.00  111.85 -165.96    0.250
                TO SHUNT  (AMPS)   27.4   -36.36

AT BUS     102 [TXBUS   11.0] AREA  1  (KV L-G) V+: /  3.255/  -17.86

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM  4794.8  138.40    0.56  -156.28    0.439
  101 [WNDBUS  .690]   1 1  AMP/OHM  4794.8  -41.60    0.01   45.06    1.002

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:40 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     .[BUSLD_0611.0].
.   *** FAULTED BUS IS :      6 [BUSLD_0611.0] ***   . 3 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 12.960/ -12.16

```

```

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)   APP X/R
  2 [BUS_TX  132]    1 1  AMP/OHM  1225.1   -60.57   205.05   61.90   1.873
  4 [BUS_TX  33.0]    1 1  AMP/OHM  1225.1   119.43    8.60   -127.71  1.293

```

```

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: / 2.674/ -17.97

```

```

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)   APP X/R
  8 [BUSLD_0811.0]    1 1  AMP/OHM   23.9    -32.00   112.31   14.08   0.251
          TO SHUNT (AMPS)   23.9    -32.00

```

```

AT BUS     101 [WNDBUS  .690] AREA  1  (KV L-G) V+: / 0.355/ 3.47

```

```

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)   APP X/R
MACHINE 1
  102 [TXBUS  11.0]    1 1  AMP/OHM  64972.5  138.40    0.68   -156.26  0.440

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:40 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     .[BUSLD_0611.0].
.   *** FAULTED BUS IS :      6 [BUSLD_0611.0] ***   . 4 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 68.262/ 1.33

```

```

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)   APP X/R

```

```

1 [INF_BUS 132] 1 1 AMP/OHM 332.9 -60.57 216.78 59.03 1.666
3 [BUS_03 33.0] 1 1 AMP/OHM 332.9 119.43 10.58 -131.59 1.127

. PSS/E SHORT CIRCUIT OUTPUT WED, AUG 11 2004 11:40 . HOME BUS IS: .
. RADIAL NETWORK . 6 .
. .[BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 5 LEVELS AWAY.

AT BUS 1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 72.166/ -1.54

----- FROM -----AREA CKT I/Z TH R E E P H A S E F A U L T
/I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 332.9 -60.57
2 [BUS_TX 132] 1 1 AMP/OHM 332.9 119.43 205.05 -118.10 1.873
DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20
POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10

. PSS/E SHORT CIRCUIT OUTPUT WED, AUG 11 2004 11:40 . HOME BUS IS: .
. RADIAL NETWORK . 5 .
. .[BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 0 LEVELS AWAY.

AT BUS 5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.40286 0.58384 1.449

----- FROM -----AREA CKT I/Z TH R E E P H A S E F A U L T
/I+/ AN(I+) /Z+/ AN(Z+) APP X/R
4 [BUS_TX 33.0] 1 1 AMP/OHM 4364.7 -72.39 5.01 78.69 5.000
6 [BUSLD_0611.0] 1 1 AMP/OHM 3097.6 -33.41 0.58 23.82 0.441
TOTAL FAULT CURRENT (AMPS) 7047.5 -56.34

. PSS/E SHORT CIRCUIT OUTPUT WED, AUG 11 2004 11:40 . HOME BUS IS: .
. RADIAL NETWORK . 5 .
. .[BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 1 LEVELS AWAY.

AT BUS 4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 7.675/ 6.30

```

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
3	[BUS_03 33.0]	1	1	AMP/OHM	1531.5	-72.39	6.62	65.49	2.193	
5	[BUS_05 11.0]	1	1	AMP/OHM	1531.5	107.61	0.00	0.00	0.000	

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 1.782/ -9.60

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
5	[BUS_05 11.0]	1	1	AMP/OHM	3097.6	146.59	0.00	0.00	0.000	
7	[BUSLD_0711.0]	1	1	AMP/OHM	3205.9	-33.38	1.13	23.80	0.441	
				TO SHUNT (AMPS)	108.3	-32.29				

. PSS/E SHORT CIRCUIT OUTPUT WED, AUG 11 2004 11:40 . HOME BUS IS: .  
 . RADIAL NETWORK . 5 .  
 . . [BUS\_05 11.0].  
 . \*\*\* FAULTED BUS IS : 5 [BUS\_05 11.0] \*\*\* . 2 LEVELS AWAY.

AT BUS 3 [BUS\_03 33.0] AREA 1 (KV L-G) V+: / 10.141/ -6.90

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
2	[BUS_TX 132]	1	1	AMP/OHM	1531.5	-72.39	160.07	76.02	4.016	
4	[BUS_TX 33.0]	1	1	AMP/OHM	1531.5	107.61	5.01	-101.31	5.000	

AT BUS 7 [BUSLD\_0711.0] AREA 1 (KV L-G) V+: / 3.627/ -9.58

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
6	[BUSLD_0611.0]	1	1	AMP/OHM	3205.9	146.62	0.56	-156.22	0.441	
8	[BUSLD_0811.0]	1	1	AMP/OHM	68.8	153.97	52.38	-163.60	0.294	
102	[TXBUS 11.0]	1	1	AMP/OHM	3336.3	-33.19	1.20	23.63	0.438	
				TO SHUNT (AMPS)	62.2	-31.38				

. PSS/E SHORT CIRCUIT OUTPUT WED, AUG 11 2004 11:40 . HOME BUS IS: .

```

. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      5 [BUS_05 11.0] ***
.
.          5
.          .[BUS_05 11.0].
.          . 3 LEVELS AWAY.

AT BUS      2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 66.616/ 3.63

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  1 [INF_BUS 132] 1 1 AMP/OHM 416.2 -72.39 169.06 71.49 2.988
  3 [BUS_03 33.0] 1 1 AMP/OHM 416.2 107.61 6.62 -114.51 2.193

AT BUS      8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 3.603/ -9.63

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  7 [BUSLD_0711.0] 1 1 AMP/OHM 68.8 -26.03 52.72 16.45 0.295
  9 [BUSLD_0911.0] 1 1 AMP/OHM 32.1 156.30 111.85 -165.96 0.250
    TO SHUNT (AMPS) 36.8 -28.06

AT BUS     102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 4.011/ -9.56

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  7 [BUSLD_0711.0] 1 1 AMP/OHM 3336.3 146.81 1.09 -156.39 0.437
 101 [WNDBUS .690] 1 1 AMP/OHM 3336.3 -33.19 0.01 37.71 0.773

. PSS/E SHORT CIRCUIT OUTPUT WED, AUG 11 2004 11:40 . HOME BUS IS: .
. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      5 [BUS_05 11.0] ***
.          5
.          .[BUS_05 11.0].
.          . 4 LEVELS AWAY.

AT BUS      1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 70.355/ -0.90

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 416.2 -72.39

```



```

2 [BUS_TX 132] 1 1 AMP/OHM 416.2 107.61 160.07 -103.98 4.016

AT BUS 9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 3.589/ -9.67

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
8 [BUSLD_0811.0] 1 1 AMP/OHM 32.1 -23.70 112.31 14.08 0.251
          TO SHUNT (AMPS) 32.1 -23.70

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.370/ 4.52

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
MACHINE 1
102 [TXBUS 11.0] 1 1 AMP/OHM 45209.7 -33.19
          AMP/ 45209.8 146.81 1.20 -156.37 0.438

```

### 3 Turbines Connected to Busbar 7

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:44 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                     .[BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 0 LEVELS AWAY.

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

THEV. R, X, X/R: POSITIVE  0.77035  0.64888  0.842

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
8	[BUSLD_0811.0]	1	1	AMP/OHM	4567.2	-31.50	0.46	23.84	0.442
				TO SHUNT (AMPS)	0.0	0.00			
TOTAL FAULT CURRENT (AMPS)					4567.2	-31.50			

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:44 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                     .[BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 1 LEVELS AWAY.

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  2.103/  -7.66

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
7	[BUSLD_0711.0]	1	1	AMP/OHM	4588.4	-31.48	0.80	23.80	0.441
9	[BUSLD_0911.0]	1	1	AMP/OHM	4567.2	148.50	0.00	0.00	0.000
				TO SHUNT (AMPS)	21.3	-26.09			

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:44 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                     .[BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 2 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  3.686/  -7.68

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   6 [BUSLD_0611.0]  1 1  AMP/OHM  1281.7  -48.84   3.43   38.30   0.790
   8 [BUSLD_0811.0]  1 1  AMP/OHM  4588.4  148.52   0.46  -156.18  0.441
  102 [TXBUS  11.0]  1 1  AMP/OHM  3449.4  -25.07   1.18   18.02   0.325
                TO SHUNT  (AMPS)   62.7  -29.48

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:44 . HOME BUS IS: .
. RADIAL NETWORK                        .                9 .
.                                         . [BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 3 LEVELS AWAY.

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  4.395/  -10.54

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   5 [BUS_05  11.0]  1 1  AMP/OHM  1542.3  -46.16   3.42   33.64   0.665
   7 [BUSLD_0711.0]  1 1  AMP/OHM  1281.7  131.16   2.88  -138.83  0.874
                TO SHUNT  (AMPS)   268.8  -33.24

AT BUS     102 [TXBUS  11.0] AREA  1  (KV L-G) V+: /  4.081/  -7.05

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   7 [BUSLD_0711.0]  1 1  AMP/OHM  3449.4  154.93   1.07  -162.60  0.313
  101 [WNDBUS  .690]  1 1  AMP/OHM  3449.4  -25.07   0.01   33.52   0.662

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:44 . HOME BUS IS: .
. RADIAL NETWORK                        .                9 .
.                                         . [BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 4 LEVELS AWAY.

AT BUS      5 [BUS_05  11.0] AREA  1  (KV L-G) V+: /  5.267/  -12.52

                T H R E E   P H A S E   F A U L T

```

```

----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
  4 [BUS_TX  33.0]   1 1  AMP/OHM  1542.3   -46.16   31.48    40.11    0.842
  6 [BUSLD_0611.0]  1 1  AMP/OHM  1542.3   133.84    2.85   -144.39    0.716

```

```

AT BUS   101 [WNDBUS .690] AREA   1   (KV L-G) V+: / 0.370/      8.45

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
MACHINE 1
  102 [TXBUS  11.0]  1 1  AMP/OHM  46741.4  -25.07   1.18   -161.98    0.325

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:44 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .
.                                       . [BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] ***   . 5 LEVELS AWAY.

```

```

AT BUS    4 [BUS_TX  33.0] AREA   1   (KV L-G) V+: / 17.036/     -6.05

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
  3 [BUS_03  33.0]   1 1  AMP/OHM  541.2    -46.16   33.55    39.62    0.828
  5 [BUS_05  11.0]   1 1  AMP/OHM  541.2    133.84    3.42   -146.36    0.665

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:44 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .
.                                       . [BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] ***   . 6 LEVELS AWAY.

```

```

AT BUS    3 [BUS_03  33.0] AREA   1   (KV L-G) V+: / 18.154/     -6.54

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
  2 [BUS_TX  132]   1 1  AMP/OHM  541.2    -46.16  494.62    45.96    1.034
  4 [BUS_TX  33.0]   1 1  AMP/OHM  541.2    133.84   31.48   -139.89    0.842

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:44 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .

```

```

.
.      *** FAULTED BUS IS :      9 [BUSLD_0911.0] ***      .[BUSLD_0911.0].
.                                     . 7 LEVELS AWAY.
AT BUS      2 [BUS_TX  132] AREA  1      (KV L-G) V+: / 73.535/  -0.19

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   1 [INF_BUS  132]   1 1  AMP/OHM  148.7  -46.16  508.67   45.14   1.005
   3 [BUS_03  33.0]   1 1  AMP/OHM  148.7  133.84   33.55  -140.38   0.828

. PSS/E SHORT CIRCUIT OUTPUT      WED, AUG 11 2004  11:44 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .
.                                     .[BUSLD_0911.0].
.      *** FAULTED BUS IS :      9 [BUSLD_0911.0] ***      . 8 LEVELS AWAY.
AT BUS      1 [INF_BUS  132] AREA  1      (KV L-G) V+: / 75.624/  -1.02

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                      AMP/      148.7  -46.16
   2 [BUS_TX  132]   1 1  AMP/OHM  148.7  133.84  494.62  -134.04   1.034
DIAGONALS =      11 OFF-DIAGONALS =      10 MAX SIZE =      20
POS. SEQUENCE: DIAGONALS =      11 OFF-DIAGONALS =      10

. PSS/E SHORT CIRCUIT OUTPUT      WED, AUG 11 2004  11:44 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     .[BUSLD_0811.0].
.      *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***      . 0 LEVELS AWAY.
AT BUS      8 [BUSLD_0811.0] AREA  1      (KV L-G) V+: /  0.000/   0.00

THEV. R, X, X/R: POSITIVE  0.42636  0.50053   1.174

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM  7024.5  -40.93   0.35   23.78   0.441
   9 [BUSLD_0911.0]   1 1  AMP/OHM   0.0    0.00   0.00   0.00   0.000
                TO SHUNT (AMPS)   0.0    0.00

```

```

TOTAL FAULT CURRENT (AMPS) 7024.5 -40.93

. PSS/E SHORT CIRCUIT OUTPUT WED, AUG 11 2004 11:44 . HOME BUS IS: .
. RADIAL NETWORK . 8 .
. .[BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 1 LEVELS AWAY.

AT BUS 7 [BUSLD_0711.0] AREA 1 (KV L-G) V+: / 2.424/ -17.15

THREE PHASE FAULT
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
6 [BUSLD_0611.0] 1 1 AMP/OHM 1836.0 -46.11 1.89 27.40 0.518
8 [BUSLD_0811.0] 1 1 AMP/OHM 7024.5 139.07 0.00 0.00 0.000
102 [TXBUS 11.0] 1 1 AMP/OHM 5239.9 -39.10 0.58 22.33 0.411
TO SHUNT (AMPS) 41.3 -38.95

AT BUS 9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THREE PHASE FAULT
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
8 [BUSLD_0811.0] 1 1 AMP/OHM 0.0 0.00 0.00 0.00 0.000
TO SHUNT (AMPS) 0.0 0.00

. PSS/E SHORT CIRCUIT OUTPUT WED, AUG 11 2004 11:44 . HOME BUS IS: .
. RADIAL NETWORK . 8 .
. .[BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 2 LEVELS AWAY.

AT BUS 6 [BUSLD_0611.0] AREA 1 (KV L-G) V+: / 3.478/ -18.71

THREE PHASE FAULT
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
5 [BUS_05 11.0] 1 1 AMP/OHM 2048.1 -45.62 2.27 26.13 0.491
7 [BUSLD_0711.0] 1 1 AMP/OHM 1836.0 133.89 1.32 -151.04 0.553
TO SHUNT (AMPS) 212.7 -41.40

```

```

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 3.027/ -16.77

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)   APP X/R
  7 [BUSLD_0711.0]  1 1  AMP/OHM  5239.9  140.90    0.46  -158.05    0.403
 101 [WNDBUS .690]  1 1  AMP/OHM  5239.9  -39.10    0.00    0.00    0.000

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:44 . HOME BUS IS: .
. RADIAL NETWORK                      .                   8 .
.                                     . [BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 3 LEVELS AWAY.

AT BUS 5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 4.655/ -19.49

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)   APP X/R
  4 [BUS_TX 33.0]  1 1  AMP/OHM  2048.1  -45.62   21.87   36.61    0.743
  6 [BUSLD_0611.0]  1 1  AMP/OHM  2048.1  134.38    1.70  -153.09    0.508

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.350/ 7.46

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)   APP X/R
MACHINE 1          AMP/      71004.1  -39.10
 102 [TXBUS 11.0]  1 1  AMP/OHM  71004.2  140.90    0.58  -157.67    0.411

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:44 . HOME BUS IS: .
. RADIAL NETWORK                      .                   8 .
.                                     . [BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 4 LEVELS AWAY.

AT BUS 4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 15.717/ -9.01

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)   APP X/R
  3 [BUS_03 33.0]  1 1  AMP/OHM  718.6  -45.62   23.95   36.23    0.733
  5 [BUS_05 11.0]  1 1  AMP/OHM  718.6  134.38    2.27  -153.87    0.491

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:44 . HOME BUS IS: .
. RADIAL NETWORK                        .           8 .
.                                       .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 5 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 17.211/  -9.40

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   2 [BUS_TX  132]   1 1  AMP/OHM  718.6  -45.62  365.66  45.25   1.009
   4 [BUS_TX  33.0]   1 1  AMP/OHM  718.6  134.38  21.87  -143.39  0.743

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:44 . HOME BUS IS: .
. RADIAL NETWORK                        .           8 .
.                                       .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 6 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 72.190/  -0.37

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   1 [INF_BUS 132]   1 1  AMP/OHM  197.4  -45.62  379.81  44.17   0.972
   3 [BUS_03  33.0]   1 1  AMP/OHM  197.4  134.38  23.95  -143.77  0.733

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:44 . HOME BUS IS: .
. RADIAL NETWORK                        .           8 .
.                                       .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 7 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS 132] AREA  1  (KV L-G) V+: / 74.984/  -1.45

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                AMP/          197.4  -45.62
   2 [BUS_TX  132]   1 1  AMP/OHM  197.4  134.38  365.66  -134.75  1.009
DIAGONALS =      11 OFF-DIAGONALS =    10 MAX SIZE =    20
POS. SEQUENCE: DIAGONALS =      11 OFF-DIAGONALS =    10

```



```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:45 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     .[BUSLD_0711.0].
. *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 0 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

```

```

THEV. R, X, X/R: POSITIVE  0.16847  0.39180  2.326

```

FROM			AREA CKT			I/Z			T H R E E P H A S E			F A U L T	
			/I+/ /Z+/ AN(I+)	AN(I+)	AN(Z+)	APP	X/R						
6	[BUSLD_0611.0]	1 1	AMP/OHM	2795.8	-53.25	0.58	23.82	0.441					
8	[BUSLD_0811.0]	1 1	AMP/OHM	0.0	0.00	0.00	0.00	0.000					
102	[TXBUS 11.0]	1 1	AMP/OHM	8117.2	-59.69	0.12	23.84	0.442					
TO SHUNT (AMPS)				0.0	0.00								
TOTAL FAULT CURRENT (AMPS)				10899.9	-58.04								

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:45 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     .[BUSLD_0711.0].
. *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 1 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  1.609/ -29.43

```

FROM			AREA CKT			I/Z			T H R E E P H A S E			F A U L T	
			/I+/ /Z+/ AN(I+)	AN(I+)	AN(Z+)	APP	X/R						
5	[BUS_05 11.0]	1 1	AMP/OHM	2894.2	-53.21	1.13	23.80	0.441					
7	[BUSLD_0711.0]	1 1	AMP/OHM	2795.8	126.75	0.00	0.00	0.000					
TO SHUNT (AMPS)				98.4	-52.13								

```

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

```

FROM			AREA CKT			I/Z			T H R E E P H A S E			F A U L T	
			/I+/ /Z+/ AN(I+)	AN(I+)	AN(Z+)	APP	X/R						
7	[BUSLD_0711.0]	1 1	AMP/OHM	0.0	0.00	0.00	0.00	0.000					
9	[BUSLD_0911.0]	1 1	AMP/OHM	0.0	0.00	0.00	0.00	0.000					

```

                TO SHUNT (AMPS)      0.0      0.00

AT BUS  102 [TXBUS  11.0] AREA  1  (KV L-G) V+: /  0.934/  -35.84

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      7 [BUSLD_0711.0]  1 1  AMP/OHM  8117.2  120.31   0.00   0.00   0.000
     101 [WNDBUS  .690]  1 1  AMP/OHM  8117.2  -59.69   0.00   0.00   0.000

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:45 . HOME BUS IS: .
. RADIAL NETWORK                        .                7                .
.                                         . [BUSLD_0711.0].
. *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***          . 2 LEVELS AWAY.

AT BUS  5 [BUS_05  11.0] AREA  1  (KV L-G) V+: /  3.274/  -29.41

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      4 [BUS_TX  33.0]  1 1  AMP/OHM  2894.2  -53.21  12.75  42.56  0.918
      6 [BUSLD_0611.0]  1 1  AMP/OHM  2894.2  126.79   0.56 -156.22  0.441

AT BUS  9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  0.000/   0.00

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      8 [BUSLD_0811.0]  1 1  AMP/OHM    0.0    0.00    0.00   0.00   0.000
                TO SHUNT (AMPS)    0.0    0.00

AT BUS  101 [WNDBUS  .690] AREA  1  (KV L-G) V+: /  0.312/   8.59

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
      102 [TXBUS  11.0]  1 1  AMP/OHM 109994.2  120.31   0.12 -156.16  0.442

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:45 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     .[BUSLD_0711.0].
.   *** FAULTED BUS IS :             7 [BUSLD_0711.0] *** . 3 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 12.944/ -10.65

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  1015.5  -53.21   14.80   41.11   0.873
   5 [BUS_05  11.0]   1 1  AMP/OHM  1015.5  126.79    1.13  -156.20  0.441

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:45 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     .[BUSLD_0711.0].
.   *** FAULTED BUS IS :             7 [BUSLD_0711.0] *** . 4 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 15.032/ -12.10

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   2 [BUS_TX  132]   1 1  AMP/OHM  1015.5  -53.21  250.41   53.42   1.348
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1015.5  126.79   12.75  -137.44  0.918

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:45 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     .[BUSLD_0711.0].
.   *** FAULTED BUS IS :             7 [BUSLD_0711.0] *** . 5 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 69.859/   0.21

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   1 [INF_BUS 132]   1 1  AMP/OHM  279.0   -53.21  263.50   51.45   1.255
   3 [BUS_03  33.0]   1 1  AMP/OHM  279.0   126.79   14.80  -138.89  0.873

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:45 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .

```

```

.
.      *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***      .[BUSLD_0711.0].
.                                          . 6 LEVELS AWAY.

AT BUS      1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 73.510/ -1.76

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1
          2 [BUS_TX 132] 1 1 AMP/OHM 279.0 126.79 250.41 -126.58 1.348
No selections made!
DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20
POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:45 . HOME BUS IS: .
. RADIAL NETWORK                        . 6 .
.                                          .[BUSLD_0611.0].
.      *** FAULTED BUS IS :      6 [BUSLD_0611.0] ***      . 0 LEVELS AWAY.

AT BUS      6 [BUSLD_0611.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.36154 0.46003 1.272

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
          5 [BUS_05 11.0] 1 1 AMP/OHM 3528.9 -60.65 0.58 23.82 0.441
          7 [BUSLD_0711.0] 1 1 AMP/OHM 4687.5 -37.39 0.58 23.82 0.441
                TO SHUNT (AMPS) 0.0 0.00
          TOTAL FAULT CURRENT (AMPS) 8051.1 -47.36

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:45 . HOME BUS IS: .
. RADIAL NETWORK                        . 6 .
.                                          .[BUSLD_0611.0].
.      *** FAULTED BUS IS :      6 [BUSLD_0611.0] ***      . 1 LEVELS AWAY.

AT BUS      5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 2.030/ -36.84

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R

```

```

4 [BUS_TX 33.0] 1 1 AMP/OHM 3528.9 -60.65 8.60 52.29 1.293
6 [BUSLD_0611.0] 1 1 AMP/OHM 3528.9 119.35 0.00 0.00 0.000

AT BUS 7 [BUSLD_0711.0] AREA 1 (KV L-G) V+: / 2.697/ -13.57

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
6 [BUSLD_0611.0] 1 1 AMP/OHM 4687.5 142.61 0.00 0.00 0.000
8 [BUSLD_0811.0] 1 1 AMP/OHM 50.8 149.98 52.78 -163.60 0.294
102 [TXBUS 11.0] 1 1 AMP/OHM 4783.8 -37.29 0.68 23.74 0.440
      TO SHUNT (AMPS) 45.9 -35.37

. PSS/E SHORT CIRCUIT OUTPUT WED, AUG 11 2004 11:45 . HOME BUS IS: .
. RADIAL NETWORK . . . 6 .
. . . [BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 2 LEVELS AWAY.

AT BUS 4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 10.644/ -8.36

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
3 [BUS_03 33.0] 1 1 AMP/OHM 1238.2 -60.65 10.58 48.41 1.127
5 [BUS_05 11.0] 1 1 AMP/OHM 1238.2 119.35 0.58 -156.18 0.441

AT BUS 8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 2.680/ -13.62

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
7 [BUSLD_0711.0] 1 1 AMP/OHM 50.8 -30.02 53.12 16.45 0.295
9 [BUSLD_0911.0] 1 1 AMP/OHM 23.7 152.31 112.72 -165.96 0.250
      TO SHUNT (AMPS) 27.1 -32.05

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 3.248/ -13.55

          T H R E E   P H A S E   F A U L T

```

```

----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM  4783.8  142.71    0.56  -156.28   0.439
  101 [WNDBUS .690]   1 1  AMP/OHM  4783.8  -37.29    0.01   45.06    1.002

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:45 . HOME BUS IS: .
. RADIAL NETWORK                        .           6           .
.                                         . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 3 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 13.099/ -12.24

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   2 [BUS_TX  132]   1 1  AMP/OHM  1238.2  -60.65   200.62   61.90   1.873
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1238.2  119.35    8.60  -127.71   1.293

```

```

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: / 2.669/ -13.66

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   8 [BUSLD_0811.0]   1 1  AMP/OHM   23.7   -27.69  113.17   14.08   0.251
                TO SHUNT (AMPS)  23.7   -27.69

```

```

AT BUS     101 [WNDBUS .690] AREA  1  (KV L-G) V+: / 0.354/ 7.77

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
MACHINE 1                AMP/   64823.7  -37.29
  102 [TXBUS  11.0]   1 1  AMP/OHM  64823.7  142.71    0.68  -156.26   0.440

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:45 . HOME BUS IS: .
. RADIAL NETWORK                        .           6           .
.                                         . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 4 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 68.243/ 1.25

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   1 [INF_BUS 132]   1 1  AMP/OHM  340.2  -60.65  212.35  58.97   1.662
   3 [BUS_03 33.0]   1 1  AMP/OHM  340.2  119.35  10.58  -131.59  1.127

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:45 . HOME BUS IS: .
. RADIAL NETWORK                      .                6                .
.                                     . [BUSLD_0611.0].
.   *** FAULTED BUS IS :             6 [BUSLD_0611.0] *** . 5 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS 132] AREA      1   (KV L-G) V+: / 72.234/   -1.68

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
   2 [BUS_TX 132]   1 1  AMP/OHM  340.2  -60.65  200.62 -118.10  1.873
DIAGONALS =      11 OFF-DIAGONALS =     10 MAX SIZE =     20
POS. SEQUENCE: DIAGONALS =      11 OFF-DIAGONALS =     10

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:45 . HOME BUS IS: .
. RADIAL NETWORK                      .                5                .
.                                     . [BUS_05 11.0].
.   *** FAULTED BUS IS :             5 [BUS_05 11.0] *** . 0 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05 11.0] AREA      1   (KV L-G) V+: / 0.000/    0.00

```

```

THEV. R, X, X/R: POSITIVE  0.40400  0.58414   1.446

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   4 [BUS_TX 33.0]   1 1  AMP/OHM  4409.3  -72.43   5.01   78.69   5.000
   6 [BUSLD_0611.0]  1 1  AMP/OHM  3090.6  -29.11   0.58   23.82   0.441
TOTAL FAULT CURRENT (AMPS)  6987.2  -54.76

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:45 . HOME BUS IS: .
. RADIAL NETWORK                      .                5                .
.                                     . [BUS_05 11.0].

```

. \*\*\* FAULTED BUS IS : 5 [BUS\_05 11.0] \*\*\* . 1 LEVELS AWAY.

AT BUS 4 [BUS\_TX 33.0] AREA 1 (KV L-G) V+: / 7.753/ 6.26

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
3 [BUS_03 33.0]	1 1	AMP/OHM		1547.1 -72.43	6.62 65.49	2.193			
5 [BUS_05 11.0]	1 1	AMP/OHM		1547.1 107.57	0.00 0.00	0.000			

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 1.778/ -5.29

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
5 [BUS_05 11.0]	1 1	AMP/OHM		3090.6 150.89	0.00 0.00	0.000			
7 [BUSLD_0711.0]	1 1	AMP/OHM		3199.3 -29.07	1.13 23.80	0.441			
TO SHUNT (AMPS)				108.8	-27.98				

. PSS/E SHORT CIRCUIT OUTPUT WED, AUG 11 2004 11:45 . HOME BUS IS: .  
. RADIAL NETWORK . 5 .  
. . [BUS\_05 11.0].  
. \*\*\* FAULTED BUS IS : 5 [BUS\_05 11.0] \*\*\* . 2 LEVELS AWAY.

AT BUS 3 [BUS\_03 33.0] AREA 1 (KV L-G) V+: / 10.244/ -6.94

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
2 [BUS_TX 132]	1 1	AMP/OHM		1547.1 -72.43	156.61 76.02	4.016			
4 [BUS_TX 33.0]	1 1	AMP/OHM		1547.1 107.57	5.01 -101.31	5.000			

AT BUS 7 [BUSLD\_0711.0] AREA 1 (KV L-G) V+: / 3.619/ -5.27

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
6 [BUSLD_0611.0]	1 1	AMP/OHM		3199.3 150.93	0.56 -156.22	0.441			
8 [BUSLD_0811.0]	1 1	AMP/OHM		68.1 158.28	52.78 -163.60	0.294			
102 [TXBUS 11.0]	1 1	AMP/OHM		3328.5 -28.88	1.20 23.63	0.438			



```

                TO SHUNT (AMPS)      61.6   -27.07

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:45 . HOME BUS IS: .
. RADIAL NETWORK                        .           5 .
.                                     . [BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 3 LEVELS AWAY.

AT BUS      2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 66.565/ 3.59

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z   /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
  1 [INF_BUS 132] 1 1 AMP/OHM 425.0 -72.43 165.61 71.40 2.971
  3 [BUS_03 33.0] 1 1 AMP/OHM 425.0 107.57 6.62 -114.51 2.193

AT BUS      8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 3.596/ -5.32

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z   /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
  7 [BUSLD_0711.0] 1 1 AMP/OHM 68.1 -21.72 53.12 16.45 0.295
  9 [BUSLD_0911.0] 1 1 AMP/OHM 31.8 160.61 112.72 -165.96 0.250
                TO SHUNT (AMPS)      36.4   -23.75

AT BUS     102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 4.002/ -5.25

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z   /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
  7 [BUSLD_0711.0] 1 1 AMP/OHM 3328.5 151.12 1.09 -156.39 0.437
 101 [WNDBUS .690] 1 1 AMP/OHM 3328.5 -28.88 0.01 37.71 0.773

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:45 . HOME BUS IS: .
. RADIAL NETWORK                        .           5 .
.                                     . [BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 4 LEVELS AWAY.

AT BUS      1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 70.387/ -1.03

```



**5 Turbines connected to busbar 7**

```
. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:50 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                         .[BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 0 LEVELS AWAY.
```

```
AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  0.000/  0.00
```

```
THEV. R, X, X/R: POSITIVE  0.77054  0.64930  0.843
```

FROM		AREA	CKT	I/Z	T H R E E P H A S E			F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)		APP	X/R
8	[BUSLD_0811.0]	1	1	AMP/OHM	4588.9	-25.57	0.46	23.84	0.442
				TO SHUNT (AMPS)	0.0	0.00			
				TOTAL FAULT CURRENT (AMPS)	4588.9	-25.57			

```
. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:50 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                         .[BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 1 LEVELS AWAY.
```

```
AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  2.113/  -1.73
```

FROM		AREA	CKT	I/Z	T H R E E P H A S E			F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)		APP	X/R
7	[BUSLD_0711.0]	1	1	AMP/OHM	4610.0	-25.55	0.80	23.80	0.441
9	[BUSLD_0911.0]	1	1	AMP/OHM	4588.9	154.43	0.00	0.00	0.000
				TO SHUNT (AMPS)	21.2	-20.17			

```
. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:50 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                         .[BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 2 LEVELS AWAY.
```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  3.704/  -1.75

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   6 [BUSLD_0611.0]  1 1  AMP/OHM  1337.6  -56.22   3.28   49.34   1.164
   8 [BUSLD_0811.0]  1 1  AMP/OHM  4610.0  154.45   0.46  -156.18  0.441
  102 [TXBUS  11.0]  1 1  AMP/OHM  3587.9  -14.55   1.15   13.90   0.248
                TO SHUNT (AMPS)   62.4  -23.55

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:50 . HOME BUS IS: .
. RADIAL NETWORK                        .                9 .
.                                         . [BUSLD_0911.0].
. *** FAULTED BUS IS :          9 [BUSLD_0911.0] *** . 3 LEVELS AWAY.

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  4.383/  -6.89

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   5 [BUS_05  11.0]  1 1  AMP/OHM  1586.0  -51.80   3.31   41.33   0.879
   7 [BUSLD_0711.0]  1 1  AMP/OHM  1337.6  123.78   2.77  -125.52  1.401
                TO SHUNT (AMPS)   272.7  -29.58

AT BUS     102 [TXBUS  11.0] AREA  1  (KV L-G) V+: /  4.110/  -0.65

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   7 [BUSLD_0711.0]  1 1  AMP/OHM  3587.9  165.45   1.03  -167.20  0.227
  101 [WNDBUS  .690]  1 1  AMP/OHM  3587.9  -14.55   0.01   30.71   0.594

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:50 . HOME BUS IS: .
. RADIAL NETWORK                        .                9 .
.                                         . [BUSLD_0911.0].
. *** FAULTED BUS IS :          9 [BUSLD_0911.0] *** . 4 LEVELS AWAY.

AT BUS      5 [BUS_05  11.0] AREA  1  (KV L-G) V+: /  5.245/  -10.48

                T H R E E   P H A S E   F A U L T

```

```

----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1586.0   -51.80   30.99    46.96    1.071
   6 [BUSLD_0611.0]  1 1  AMP/OHM  1586.0   128.20    2.76   -135.08    0.997

```

```

AT BUS   101 [WNDBUS .690] AREA   1   (KV L-G) V+: / 0.369/ 16.16

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
MACHINE 1
  102 [TXBUS  11.0]   1 1  AMP/OHM  48618.1  -14.55    1.15   -166.10    0.248

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:50 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                       .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 5 LEVELS AWAY.

```

```

AT BUS    4 [BUS_TX  33.0] AREA   1   (KV L-G) V+: / 17.247/ -4.84

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  556.5   -51.80   33.01    46.04    1.037
   5 [BUS_05  11.0]   1 1  AMP/OHM  556.5   128.20    3.31   -138.67    0.879

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:50 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                       .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 6 LEVELS AWAY.

```

```

AT BUS    3 [BUS_03  33.0] AREA   1   (KV L-G) V+: / 18.372/ -5.77

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   2 [BUS_TX  132]   1 1  AMP/OHM  556.5   -51.80  471.36    51.75    1.268
   4 [BUS_TX  33.0]   1 1  AMP/OHM  556.5   128.20   30.99   -133.04    1.071

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:50 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .

```

```

.
.      *** FAULTED BUS IS :      9 [BUSLD_0911.0] ***      .[BUSLD_0911.0].
.                                          . 7 LEVELS AWAY.
AT BUS      2 [BUS_TX  132] AREA  1      (KV L-G) V+: / 73.683/  -0.05

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   1 [INF_BUS  132]   1 1  AMP/OHM  156.3  -51.80  484.63   50.72   1.223
   3 [BUS_03  33.0]   1 1  AMP/OHM  156.3  128.20   33.01  -133.96   1.037

. PSS/E SHORT CIRCUIT OUTPUT      WED, AUG 11 2004  11:50 . HOME BUS IS: .
. RADIAL NETWORK                      .          9          .
.                                          .[BUSLD_0911.0].
.      *** FAULTED BUS IS :      9 [BUSLD_0911.0] ***      . 8 LEVELS AWAY.
AT BUS      1 [INF_BUS  132] AREA  1      (KV L-G) V+: / 75.757/  -1.08

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                      AMP/      156.3  -51.80
   2 [BUS_TX  132]   1 1  AMP/OHM  156.3  128.20  471.36  -128.25   1.268
DIAGONALS =      11 OFF-DIAGONALS =      10 MAX SIZE =      20
POS. SEQUENCE: DIAGONALS =      11 OFF-DIAGONALS =      10

. PSS/E SHORT CIRCUIT OUTPUT      WED, AUG 11 2004  11:50 . HOME BUS IS: .
. RADIAL NETWORK                      .          8          .
.                                          .[BUSLD_0811.0].
.      *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***      . 0 LEVELS AWAY.
AT BUS      8 [BUSLD_0811.0] AREA  1      (KV L-G) V+: /  0.000/   0.00

THEV. R, X, X/R: POSITIVE  0.42651  0.50090   1.174

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM  7056.5  -35.00   0.35   23.78   0.441
   9 [BUSLD_0911.0]   1 1  AMP/OHM   0.0    0.00   0.00   0.00   0.000
                TO SHUNT (AMPS)   0.0    0.00

```

```

TOTAL FAULT CURRENT (AMPS) 7056.5 -35.00

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:50 . HOME BUS IS: .
. RADIAL NETWORK                        .           8           .
.                                       .[BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 1 LEVELS AWAY.

AT BUS      7 [BUSLD_0711.0] AREA 1 (KV L-G) V+: / 2.435/ -11.22

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      6 [BUSLD_0611.0]  1 1 AMP/OHM  1868.0  -49.66   1.87   33.98   0.674
      8 [BUSLD_0811.0]  1 1 AMP/OHM  7056.5  145.00   0.00   0.00   0.000
    102 [TXBUS  11.0]  1 1 AMP/OHM  5311.6  -29.88   0.57   19.70   0.358
                TO SHUNT (AMPS)    41.0   -33.02

AT BUS      9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      8 [BUSLD_0811.0]  1 1 AMP/OHM   0.0    0.00   0.00   0.00   0.000
                TO SHUNT (AMPS)    0.0    0.00

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:50 . HOME BUS IS: .
. RADIAL NETWORK                        .           8           .
.                                       .[BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 2 LEVELS AWAY.

AT BUS      6 [BUSLD_0611.0] AREA 1 (KV L-G) V+: / 3.486/ -15.69

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      5 [BUS_05  11.0]  1 1 AMP/OHM  2081.1  -48.49   2.25   30.51   0.589
      7 [BUSLD_0711.0]  1 1 AMP/OHM  1868.0  130.34   1.30  -141.56   0.794
                TO SHUNT (AMPS)    216.9  -38.38

```

```

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 3.045/ -10.18

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)   APP X/R
  7 [BUSLD_0711.0]  1 1  AMP/OHM  5311.6   150.12    0.46   -161.34   0.338
 101 [WNDBUS .690]  1 1  AMP/OHM  5311.6   -29.88    0.00    0.00    0.000

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:50 . HOME BUS IS: .
. RADIAL NETWORK                      .                   8 .
.                                     . [BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 3 LEVELS AWAY.

AT BUS 5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 4.672/ -17.98

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)   APP X/R
  4 [BUS_TX 33.0]  1 1  AMP/OHM  2081.1   -48.49   21.90    40.33   0.849
  6 [BUSLD_0611.0]  1 1  AMP/OHM  2081.1   131.51    1.67   -147.19   0.645

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.349/ 15.27

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)   APP X/R
MACHINE 1
 102 [TXBUS 11.0]  1 1  AMP/OHM  71975.5  -29.88    0.57   -160.30   0.358

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:50 . HOME BUS IS: .
. RADIAL NETWORK                      .                   8 .
.                                     . [BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 4 LEVELS AWAY.

AT BUS 4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 15.990/ -8.16

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)   APP X/R
  3 [BUS_03 33.0]  1 1  AMP/OHM  730.2   -48.49   23.96    39.63   0.828
  5 [BUS_05 11.0]  1 1  AMP/OHM  730.2   131.51    2.25   -149.49   0.589

```



```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:50 . HOME BUS IS: .
. RADIAL NETWORK                      .           8 .
.                                     . [BUSLD_0811.0].
.   *** FAULTED BUS IS :             8 [BUSLD_0811.0] *** . 5 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 17.498/ -8.87

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z   /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
   2 [BUS_TX 132]   1 1 AMP/OHM  730.2  -48.49  352.67   48.15   1.116
   4 [BUS_TX 33.0]   1 1 AMP/OHM  730.2  131.51  21.90  -139.67   0.849

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:50 . HOME BUS IS: .
. RADIAL NETWORK                      .           8 .
.                                     . [BUSLD_0811.0].
.   *** FAULTED BUS IS :             8 [BUSLD_0811.0] *** . 6 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 72.338/ -0.35

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z   /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
   1 [INF_BUS 132]   1 1 AMP/OHM  205.1  -48.49  366.46   46.92   1.070
   3 [BUS_03 33.0]   1 1 AMP/OHM  205.1  131.51  23.96  -140.37   0.828

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:50 . HOME BUS IS: .
. RADIAL NETWORK                      .           8 .
.                                     . [BUSLD_0811.0].
.   *** FAULTED BUS IS :             8 [BUSLD_0811.0] *** . 7 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 75.167/ -1.57

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z   /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
MACHINE 1                AMP/      205.1  -48.49
   2 [BUS_TX 132]   1 1 AMP/OHM  205.1  131.51  352.67  -131.85   1.116
DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20
POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:50 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     . [BUSLD_0711.0].
. *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 0 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

```

```

THEV. R, X, X/R: POSITIVE  0.16858  0.39211  2.326

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
6	[BUSLD_0611.0]	1	1	AMP/OHM	2858.6	-53.42	0.58	23.82	0.441
8	[BUSLD_0811.0]	1	1	AMP/OHM	0.0	0.00	0.00	0.00	0.000
102	[TXBUS 11.0]	1	1	AMP/OHM	8089.0	-51.64	0.12	23.84	0.442
				TO SHUNT (AMPS)	0.0	0.00			
				TOTAL FAULT CURRENT (AMPS)	10946.6	-52.10			

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:50 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     . [BUSLD_0711.0].
. *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 1 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  1.645/ -29.60

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
5	[BUS_05 11.0]	1	1	AMP/OHM	2960.9	-53.38	1.13	23.80	0.441
7	[BUSLD_0711.0]	1	1	AMP/OHM	2858.6	126.58	0.00	0.00	0.000
				TO SHUNT (AMPS)	102.3	-52.30			

```

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
7	[BUSLD_0711.0]	1	1	AMP/OHM	0.0	0.00	0.00	0.00	0.000
9	[BUSLD_0911.0]	1	1	AMP/OHM	0.0	0.00	0.00	0.00	0.000

```

                TO SHUNT (AMPS)      0.0      0.00

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 0.931/ -27.80

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      7 [BUSLD_0711.0] 1 1 AMP/OHM 8089.0 128.36 0.00 0.00 0.000
     101 [WNDBUS .690] 1 1 AMP/OHM 8089.0 -51.64 0.00 0.00 0.000

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:50 . HOME BUS IS: .
. RADIAL NETWORK                          . 7 .
.                                          . [BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 2 LEVELS AWAY.

AT BUS 5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 3.348/ -29.58

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      4 [BUS_TX 33.0] 1 1 AMP/OHM 2960.9 -53.38 12.74 42.56 0.918
      6 [BUSLD_0611.0] 1 1 AMP/OHM 2960.9 126.62 0.56 -156.22 0.441

AT BUS 9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      8 [BUSLD_0811.0] 1 1 AMP/OHM 0.0 0.00 0.00 0.00 0.000
                TO SHUNT (AMPS) 0.0 0.00

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.311/ 16.64

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1 AMP/ 109611.9 -51.64
     102 [TXBUS 11.0] 1 1 AMP/OHM 109611.9 128.36 0.12 -156.16 0.442

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:50 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     .[BUSLD_0711.0].
.   *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 3 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 13.241/ -10.82

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  1038.9  -53.38   14.80   41.11   0.873
   5 [BUS_05  11.0]   1 1  AMP/OHM  1038.9  126.62    1.13  -156.20  0.441

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:50 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     .[BUSLD_0711.0].
.   *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 4 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 15.376/ -12.27

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   2 [BUS_TX  132]   1 1  AMP/OHM  1038.9  -53.38  239.49   53.43   1.348
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1038.9  126.62   12.74  -137.44  0.918

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:50 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     .[BUSLD_0711.0].
.   *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 5 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 69.892/   0.05

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   1 [INF_BUS 132]   1 1  AMP/OHM   291.8   -53.38  252.59   51.37   1.251
   3 [BUS_03  33.0]   1 1  AMP/OHM   291.8   126.62   14.80  -138.89  0.873

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:50 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .

```



```

        6 [BUSLD_0611.0]  1 1  AMP/OHM  3606.5  119.22   0.00   0.00   0.000

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  2.688/  -5.52

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   6 [BUSLD_0611.0]  1 1  AMP/OHM  4671.8  150.66   0.00   0.00   0.000
   8 [BUSLD_0811.0]  1 1  AMP/OHM   50.1  158.03  53.32 -163.60  0.294
  102 [TXBUS  11.0]  1 1  AMP/OHM  4766.7  -29.24   0.68   23.74  0.440
                TO SHUNT (AMPS)  45.3  -27.32

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:50 . HOME BUS IS: .
. RADIAL NETWORK                        .                6 .
.                                         . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 2 LEVELS AWAY.

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 10.879/  -8.48

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   3 [BUS_03  33.0]  1 1  AMP/OHM  1265.4  -60.78  10.58  48.41  1.127
   5 [BUS_05  11.0]  1 1  AMP/OHM  1265.4  119.22   0.58 -156.18  0.441

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  2.671/  -5.57

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   7 [BUSLD_0711.0]  1 1  AMP/OHM   50.1  -21.97  53.66  16.45  0.295
   9 [BUSLD_0911.0]  1 1  AMP/OHM   23.4  160.36 113.88 -165.96  0.250
                TO SHUNT (AMPS)  26.8  -24.00

AT BUS    102 [TXBUS  11.0] AREA  1  (KV L-G) V+: /  3.236/  -5.50

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R

```

```

    7 [BUSLD_0711.0]  1 1  AMP/OHM  4766.7  150.76   0.56  -156.28   0.439
  101 [WNDBUS  .690]  1 1  AMP/OHM  4766.7  -29.24   0.01   45.06   1.002

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:50 . HOME BUS IS: .
. RADIAL NETWORK                        .           6           .
.                                         . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 3 LEVELS AWAY.

AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 13.387/ -12.37

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
    2 [BUS_TX  132]  1 1  AMP/OHM  1265.4  -60.78   191.90   61.90   1.873
    4 [BUS_TX  33.0]  1 1  AMP/OHM  1265.4  119.22    8.60  -127.71  1.293

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: / 2.660/ -5.61

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
    8 [BUSLD_0811.0]  1 1  AMP/OHM  23.4   -19.64   114.34   14.08   0.251
      TO SHUNT (AMPS)  23.4   -19.64

AT BUS     101 [WNDBUS  .690] AREA  1  (KV L-G) V+: / 0.353/ 15.82

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
  102 [TXBUS  11.0]  1 1  AMP/OHM  64592.2  150.76   0.68  -156.26   0.440

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:50 . HOME BUS IS: .
. RADIAL NETWORK                        .           6           .
.                                         . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 4 LEVELS AWAY.

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 68.211/ 1.13

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   1 [INF_BUS 132]   1 1  AMP/OHM  355.5  -60.78  203.64  58.84   1.654
   3 [BUS_03 33.0]   1 1  AMP/OHM  355.5  119.22  10.58  -131.59  1.127

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:50 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 5 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS 132] AREA      1      (KV L-G) V+: / 72.386/   -1.93

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                AMP/      355.5  -60.78
   2 [BUS_TX 132]   1 1  AMP/OHM  355.5  119.22  191.90  -118.10  1.873
DIAGONALS =      11 OFF-DIAGONALS =      10 MAX SIZE =      20
POS. SEQUENCE: DIAGONALS =      11 OFF-DIAGONALS =      10

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:50 . HOME BUS IS: .
. RADIAL NETWORK                      .           5           .
.                                     . [BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 0 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05 11.0] AREA      1      (KV L-G) V+: / 0.000/    0.00

```

```

THEV. R, X, X/R: POSITIVE  0.40640  0.58468  1.439

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   4 [BUS_TX 33.0]   1 1  AMP/OHM  4501.6  -72.46   5.01   78.69   5.000
   6 [BUSLD_0611.0]  1 1  AMP/OHM  3079.1  -21.06   0.58   23.82   0.441
TOTAL FAULT CURRENT (AMPS)  6858.3  -51.92

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:50 . HOME BUS IS: .
. RADIAL NETWORK                      .           5           .
.                                     . [BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 1 LEVELS AWAY.

```



```

AT BUS      4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 7.916/ 6.23

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   3 [BUS_03 33.0]  1 1  AMP/OHM  1579.5  -72.46   6.62   65.49   2.193
   5 [BUS_05 11.0]  1 1  AMP/OHM  1579.5  107.54   0.00   0.00   0.000

```

```

AT BUS      6 [BUSLD_0611.0] AREA 1 (KV L-G) V+: / 1.772/ 2.76

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   5 [BUS_05 11.0]  1 1  AMP/OHM  3079.1  158.94   0.00   0.00   0.000
   7 [BUSLD_0711.0] 1 1  AMP/OHM  3189.3  -21.02   1.13   23.80   0.441
                TO SHUNT (AMPS)  110.2  -19.93

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004 11:50 . HOME BUS IS: .
. RADIAL NETWORK                      .           5           .
.                                     . [BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 2 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 10.459/ -6.97

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   2 [BUS_TX 132]  1 1  AMP/OHM  1579.5  -72.46  149.80   76.02   4.016
   4 [BUS_TX 33.0]  1 1  AMP/OHM  1579.5  107.54   5.01  -101.31   5.000

```

```

AT BUS      7 [BUSLD_0711.0] AREA 1 (KV L-G) V+: / 3.606/ 2.78

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   6 [BUSLD_0611.0] 1 1  AMP/OHM  3189.3  158.98   0.56  -156.22   0.441
   8 [BUSLD_0811.0] 1 1  AMP/OHM   67.2  166.33  53.32  -163.60   0.294
  102 [TXBUS 11.0]  1 1  AMP/OHM  3316.7  -20.83   1.20   23.63   0.438
                TO SHUNT (AMPS)  60.8  -19.02

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:50 . HOME BUS IS: .
. RADIAL NETWORK                        .           5 .
.                                       .[BUS_05 11.0].
.   *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 3 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 66.464/ 3.56

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z   /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
  1 [INF_BUS 132]   1 1  AMP/OHM  443.7  -72.46  158.82  71.20   2.938
  3 [BUS_03 33.0]   1 1  AMP/OHM  443.7  107.54   6.62  -114.51  2.193

```

```

AT BUS      8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 3.583/ 2.73

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z   /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
  7 [BUSLD_0711.0]   1 1  AMP/OHM   67.2  -13.67   53.66  16.45   0.295
  9 [BUSLD_0911.0]   1 1  AMP/OHM   31.3  168.66  113.88 -165.96  0.250
          TO SHUNT (AMPS)  35.9  -15.70

```

```

AT BUS     102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 3.988/ 2.80

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z   /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
  7 [BUSLD_0711.0]   1 1  AMP/OHM  3316.7  159.17   1.09 -156.39  0.437
 101 [WNDBUS .690]   1 1  AMP/OHM  3316.7  -20.83   0.01  37.71   0.773

```

```

. PSS/E SHORT CIRCUIT OUTPUT          WED, AUG 11 2004  11:50 . HOME BUS IS: .
. RADIAL NETWORK                        .           5 .
.                                       .[BUS_05 11.0].
.   *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 4 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 70.465/ -1.26

```

```

          T H R E E   P H A S E   F A U L T

```

```

----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                AMP/      443.7   -72.46
    2 [BUS_TX   132]    1 1  AMP/OHM  443.7   107.54   149.80  -103.98   4.016

```

```

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  3.569/   2.69

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
    8 [BUSLD_0811.0]    1 1  AMP/OHM  31.3   -11.34   114.34   14.08   0.251
                TO SHUNT (AMPS)  31.3   -11.34

```

```

AT BUS    101 [WNDBUS .690] AREA  1  (KV L-G) V+: /  0.368/   16.87

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                AMP/      44943.1  -20.83
    102 [TXBUS   11.0]    1 1  AMP/OHM  44943.1  159.17   1.20   -156.37   0.438

```

# Appendix E5

Fault levels for at Busbars 5- 10 with Distributed generation connected at Busbar 6

**1 Turbine connected to Busbar 6**

```
. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:31 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                     .[BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 0 LEVELS AWAY.
```

AT BUS 9 [BUSLD\_0911.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 1.16725 0.79428 0.680

T H R E E P H A S E F A U L T							
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
8 [BUSLD_0811.0]	1	1	AMP/OHM	3190.1 -33.81	0.46 23.84	0.442	
			TO SHUNT (AMPS)	0.0 0.00			
			TOTAL FAULT CURRENT (AMPS)	3190.1 -33.81			

```
. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:31 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                     .[BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 1 LEVELS AWAY.
```

AT BUS 8 [BUSLD\_0811.0] AREA 1 (KV L-G) V+: / 1.469/ -9.97

T H R E E P H A S E F A U L T							
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
7 [BUSLD_0711.0]	1	1	AMP/OHM	3205.5 -33.79	0.80 23.80	0.441	
9 [BUSLD_0911.0]	1	1	AMP/OHM	3190.1 146.19	0.00 0.00	0.000	
			TO SHUNT (AMPS)	15.5 -28.41			

```
. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:31 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                     .[BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 2 LEVELS AWAY.
```

AT BUS 7 [BUSLD\_0711.0] AREA 1 (KV L-G) V+: / 2.575/ -9.99

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM  3251.2  -33.76   1.37   23.79   0.441
   8 [BUSLD_0811.0]   1 1  AMP/OHM  3205.5  146.21   0.46  -156.18  0.441
          TO SHUNT  (AMPS)    45.7   -31.79

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:31 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] ***   . 3 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  4.445/  -9.97

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM  1474.7  -45.60   3.58   33.74   0.668
   7 [BUSLD_0711.0]   1 1  AMP/OHM  3251.2  146.24   0.79  -156.23  0.440
  102 [TXWND  11.0]   1 1  AMP/OHM  2109.3  -25.37   2.22   15.83   0.284
          TO SHUNT  (AMPS)    278.9  -32.66

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:31 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] ***   . 4 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05  11.0] AREA  1  (KV L-G) V+: /  5.279/  -11.85

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1474.7  -45.60   32.81   39.94   0.837
   6 [BUSLD_0611.0]   1 1  AMP/OHM  1474.7  134.40   3.01  -144.37  0.717

```

```

AT BUS  102 [TXWND  11.0] AREA  1  (KV L-G) V+: /  4.686/  -9.53

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM  2109.3  154.63   2.11  -164.60  0.275

```

```

101 [WNDBUS .690] 1 1 AMP/OHM 2109.3 -25.37 0.01 25.12 0.469
. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:31 . HOME BUS IS: .
. RADIAL NETWORK . 9 .
. .[BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 5 LEVELS AWAY.

AT BUS 4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 16.979/ -5.66

T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
3 [BUS_03 33.0] 1 1 AMP/OHM 517.4 -45.60 34.88 39.48 0.824
5 [BUS_05 11.0] 1 1 AMP/OHM 517.4 134.40 3.58 -146.26 0.668

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.382/ -0.24

T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 28582.9 -25.37
102 [TXWND 11.0] 1 1 AMP/OHM 28582.9 154.63 2.22 -164.17 0.284

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:31 . HOME BUS IS: .
. RADIAL NETWORK . 9 .
. .[BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 6 LEVELS AWAY.

AT BUS 3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 18.048/ -6.12

T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
2 [BUS_TX 132] 1 1 AMP/OHM 517.4 -45.60 523.38 45.62 1.022
4 [BUS_TX 33.0] 1 1 AMP/OHM 517.4 134.40 32.81 -140.06 0.837

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:31 . HOME BUS IS: .
. RADIAL NETWORK . 9 .
. .[BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 7 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 73.591/    0.02

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
      1 [INF_BUS  132]   1 1  AMP/OHM  140.6   -45.60   537.47   44.85   0.995
      3 [BUS_03  33.0]   1 1  AMP/OHM  140.6   134.40   34.88   -140.52  0.824

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:31 . HOME BUS IS: .
. RADIAL NETWORK                        .                9 .
.                                         .[BUSLD_0911.0].
.      *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 8 LEVELS AWAY.

AT BUS      1 [INF_BUS  132] AREA  1  (KV L-G) V+: / 75.573/   -0.75

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
MACHINE 1                                AMP/      140.6   -45.60
      2 [BUS_TX  132]   1 1  AMP/OHM  140.6   134.40   523.38  -134.38   1.022
DIAGONALS =      11 OFF-DIAGONALS =    10 MAX SIZE =    20
POS. SEQUENCE: DIAGONALS =      11 OFF-DIAGONALS =    10

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:31 . HOME BUS IS: .
. RADIAL NETWORK                        .                8 .
.                                         .[BUSLD_0811.0].
.      *** FAULTED BUS IS :           8 [BUSLD_0811.0] *** . 0 LEVELS AWAY.

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  0.000/    0.00

THEV. R, X, X/R: POSITIVE  0.82657  0.64797   0.784

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
      7 [BUSLD_0711.0]   1 1  AMP/OHM  4306.4  -37.63    0.35    23.78   0.441
      9 [BUSLD_0911.0]   1 1  AMP/OHM    0.0     0.00    0.00    0.00   0.000
                                TO SHUNT (AMPS)    0.0     0.00
TOTAL FAULT CURRENT (AMPS)  4306.4  -37.63

```



```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:31 . HOME BUS IS: .
. RADIAL NETWORK                        .           8           .
.                                       .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 1 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  1.486/ -13.85

```

		T H R E E P H A S E F A U L T						
FROM	AREA CKT I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R			
6 [BUSLD_0611.0]	1 1 AMP/OHM	4332.7 -37.62	0.92 23.80	0.441				
8 [BUSLD_0811.0]	1 1 AMP/OHM	4306.4 142.37	0.00 0.00	0.000				
	TO SHUNT (AMPS)	26.4 -35.66						

```

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  0.000/ 0.00

```

		T H R E E P H A S E F A U L T						
FROM	AREA CKT I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R			
8 [BUSLD_0811.0]	1 1 AMP/OHM	0.0 0.00	0.00 0.00	0.000				
	TO SHUNT (AMPS)	0.0 0.00						

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:31 . HOME BUS IS: .
. RADIAL NETWORK                        .           8           .
.                                       .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 2 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  3.979/ -13.82

```

		T H R E E P H A S E F A U L T						
FROM	AREA CKT I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R			
5 [BUS_05 11.0]	1 1 AMP/OHM	1731.9 -44.99	2.87 29.69	0.570				
7 [BUSLD_0711.0]	1 1 AMP/OHM	4332.7 142.38	0.34 -156.23	0.440				
102 [TXWND 11.0]	1 1 AMP/OHM	2873.7 -33.09	1.50 19.62	0.356				
	TO SHUNT (AMPS)	249.7 -36.52						

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:31 . HOME BUS IS: .
. RADIAL NETWORK                        .           8           .
.                                       .[BUSLD_0811.0].

```

```

.      *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***      . 3 LEVELS AWAY.
AT BUS      5 [BUS_05  11.0] AREA  1      (KV L-G) V+: /  4.969/  -15.29

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1731.9  -44.99   26.86   37.79   0.775
   6 [BUSLD_0611.0]  1 1  AMP/OHM  1731.9  135.01   2.30  -148.84   0.605

AT BUS     102 [TXWND   11.0] AREA  1      (KV L-G) V+: /  4.309/  -13.47

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   6 [BUSLD_0611.0]  1 1  AMP/OHM  2873.7  146.91   1.38  -160.73   0.350
 101 [WNDBUS   .690]  1 1  AMP/OHM  2873.7  -33.09   0.01   32.09   0.627

. PSS/E SHORT CIRCUIT OUTPUT      FRI, AUG 13 2004  13:31 . HOME BUS IS: .
. RADIAL NETWORK                      .      8      .
.                                       .[BUSLD_0811.0].
.      *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***      . 4 LEVELS AWAY.
AT BUS      4 [BUS_TX  33.0] AREA  1      (KV L-G) V+: / 16.322/  -7.20

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  607.7  -44.99   28.93   37.39   0.764
   5 [BUS_05  11.0]   1 1  AMP/OHM  607.7  135.01   2.87  -150.31   0.570

AT BUS     101 [WNDBUS   .690] AREA  1      (KV L-G) V+: /  0.375/  -1.00

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                                AMP/   38940.3  -33.09
 102 [TXWND   11.0]  1 1  AMP/OHM  38940.3  146.91   1.50  -160.38   0.356

. PSS/E SHORT CIRCUIT OUTPUT      FRI, AUG 13 2004  13:31 . HOME BUS IS: .

```

```

. RADIAL NETWORK
.
.      *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***
.
AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 17.583/  -7.60

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      2 [BUS_TX  132]   1 1  AMP/OHM  607.7  -44.99  441.57   44.89   0.996
      4 [BUS_TX  33.0]   1 1  AMP/OHM  607.7  135.01  26.86  -142.21   0.775

. PSS/E SHORT CIRCUIT OUTPUT      FRI, AUG 13 2004  13:31 . HOME BUS IS: .
. RADIAL NETWORK
.
.      *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***
.
AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 72.918/  -0.09

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      1 [INF_BUS 132]   1 1  AMP/OHM  165.1  -44.99  455.76   44.01   0.966
      3 [BUS_03  33.0]   1 1  AMP/OHM  165.1  135.01  28.93  -142.61   0.764

. PSS/E SHORT CIRCUIT OUTPUT      FRI, AUG 13 2004  13:31 . HOME BUS IS: .
. RADIAL NETWORK
.
.      *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***
.
AT BUS      1 [INF_BUS 132] AREA  1  (KV L-G) V+: / 75.261/  -0.98

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1              AMP/      165.1  -44.99
      2 [BUS_TX  132]   1 1  AMP/OHM  165.1  135.01  441.57  -135.11   0.996
DIAGONALS =      11 OFF-DIAGONALS =      10 MAX SIZE =      20
POS. SEQUENCE: DIAGONALS =      11 OFF-DIAGONALS =      10

. PSS/E SHORT CIRCUIT OUTPUT      FRI, AUG 13 2004  13:31 . HOME BUS IS: .

```

```

. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***
.
.          .[BUSLD_0711.0].
.          . 0 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

```

```

THEV. R, X, X/R: POSITIVE  0.57398  0.54221  0.945

```

```

----- FROM -----AREA CKT  I/Z      T H R E E   P H A S E   F A U L T
      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
  6 [BUSLD_0611.0]  1 1  AMP/OHM  5766.9  -42.86   0.58   23.82   0.441
  8 [BUSLD_0811.0]  1 1  AMP/OHM   0.0    0.00   0.00   0.00   0.000
      TO SHUNT (AMPS)   0.0    0.00
TOTAL FAULT CURRENT (AMPS)  5766.9  -42.86

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:31 . HOME BUS IS: .
. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***
.
.          .[BUSLD_0711.0].
.          . 1 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  3.318/ -19.04

```

```

----- FROM -----AREA CKT  I/Z      T H R E E   P H A S E   F A U L T
      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
  5 [BUS_05 11.0]  1 1  AMP/OHM  2079.9  -45.93   2.17   26.07   0.489
  7 [BUSLD_0711.0]  1 1  AMP/OHM  5766.9  137.14   0.00   0.00   0.000
 102 [TXWND 11.0]  1 1  AMP/OHM  3899.8  -41.16   0.97   22.33   0.411
      TO SHUNT (AMPS)   208.2  -41.74

```

```

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

```

```

----- FROM -----AREA CKT  I/Z      T H R E E   P H A S E   F A U L T
      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
  7 [BUSLD_0711.0]  1 1  AMP/OHM   0.0    0.00   0.00   0.00   0.000
  9 [BUSLD_0911.0]  1 1  AMP/OHM   0.0    0.00   0.00   0.00   0.000
      TO SHUNT (AMPS)   0.0    0.00

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:31 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     .[BUSLD_0711.0].
.   *** FAULTED BUS IS :           7 [BUSLD_0711.0] ***   . 2 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 4.513/ -19.86

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
4	[BUS_TX 33.0]	1	1	AMP/OHM	2079.9 -45.93	21.05 36.98	0.753	
6	[BUSLD_0611.0]	1	1	AMP/OHM	2079.9 134.07	1.60 -153.12	0.507	

```

AT BUS      9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
8	[BUSLD_0811.0]	1	1	AMP/OHM	0.0 0.00	0.00 0.00	0.000	
				TO SHUNT (AMPS)	0.0 0.00			

```

AT BUS     102 [TXWND 11.0] AREA 1 (KV L-G) V+: / 3.767/ -18.84

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
6	[BUSLD_0611.0]	1	1	AMP/OHM	3899.8 138.84	0.85 -157.88	0.406	
101	[WNDBUS .690]	1	1	AMP/OHM	3899.8 -41.16	0.01 39.34	0.820	

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:31 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     .[BUSLD_0711.0].
.   *** FAULTED BUS IS :           7 [BUSLD_0711.0] ***   . 3 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 15.361/ -8.95

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
3	[BUS_03 33.0]	1	1	AMP/OHM	729.8 -45.93	23.13 36.55	0.741	

```

5 [BUS_05 11.0] 1 1 AMP/OHM 729.8 134.07 2.17 -153.93 0.489

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.365/ -1.82

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
MACHINE 1          AMP/      52845.3  -41.16
  102 [TXWND 11.0] 1 1 AMP/OHM 52845.4 138.84 0.97 -157.67 0.411

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:31 . HOME BUS IS: .
. RADIAL NETWORK                      .              7 .
.                                       .[BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 4 LEVELS AWAY.

AT BUS 3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 16.877/ -9.38

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
  2 [BUS_TX 132] 1 1 AMP/OHM 729.8 -45.93 363.00 45.80 1.028
  4 [BUS_TX 33.0] 1 1 AMP/OHM 729.8 134.07 21.05 -143.02 0.753

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:31 . HOME BUS IS: .
. RADIAL NETWORK                      .              7 .
.                                       .[BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 5 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 71.988/ -0.13

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
  1 [INF_BUS 132] 1 1 AMP/OHM 198.3 -45.93 377.09 44.69 0.989
  3 [BUS_03 33.0] 1 1 AMP/OHM 198.3 134.07 23.13 -143.45 0.741

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:31 . HOME BUS IS: .
. RADIAL NETWORK                      .              7 .
.                                       .[BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 6 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS 132] AREA  1  (KV L-G) V+: / 74.782/  -1.23

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1              AMP/      198.3  -45.93
      2 [BUS_TX 132]    1 1  AMP/OHM  198.3  134.07  363.00 -134.20  1.028
DIAGONALS =    11 OFF-DIAGONALS =    10 MAX SIZE =    20
POS. SEQUENCE: DIAGONALS =    11 OFF-DIAGONALS =    10

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:31 . HOME BUS IS: .
. RADIAL NETWORK                        .             6             .
.                                         . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] ***          . 0 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: / 0.000/  0.00

```

```

THEV. R, X, X/R: POSITIVE  0.15284  0.37089  2.427

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      5 [BUS_05 11.0]  1 1  AMP/OHM  3492.0  -60.46   0.58   23.82   0.441
      7 [BUSLD_0711.0] 1 1  AMP/OHM   0.0    0.00    0.00    0.00   0.000
     102 [TXWND 11.0]  1 1  AMP/OHM  8134.3  -69.79   0.12   23.84   0.442
              TO SHUNT (AMPS)      0.0    0.00
      TOTAL FAULT CURRENT (AMPS) 11594.0  -66.99

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:31 . HOME BUS IS: .
. RADIAL NETWORK                        .             6             .
.                                         . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] ***          . 1 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05 11.0] AREA  1  (KV L-G) V+: / 2.009/  -36.65

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      4 [BUS_TX 33.0]  1 1  AMP/OHM  3492.0  -60.46   8.60   52.29   1.293
      6 [BUSLD_0611.0] 1 1  AMP/OHM  3492.0  119.54   0.00    0.00   0.000

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   6 [BUSLD_0611.0]  1 1  AMP/OHM      0.0    0.00    0.00    0.00    0.000
   8 [BUSLD_0811.0]  1 1  AMP/OHM      0.0    0.00    0.00    0.00    0.000
                TO SHUNT  (AMPS)      0.0    0.00

```

```

AT BUS     102 [TXWND  11.0] AREA  1  (KV L-G) V+: /  0.936/ -45.95

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   6 [BUSLD_0611.0]  1 1  AMP/OHM     8134.3  110.21    0.00    0.00    0.000
  101 [WNDBUS  .690]  1 1  AMP/OHM     8134.3  -69.79    0.00    0.00    0.000

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:31 . HOME BUS IS: .
. RADIAL NETWORK                        .           6           .
.                                         . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 2 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 10.533/ -8.17

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   3 [BUS_03  33.0]  1 1  AMP/OHM     1225.3  -60.46   10.58   48.41   1.127
   5 [BUS_05  11.0]  1 1  AMP/OHM     1225.3  119.54    0.58  -156.18  0.441

```

```

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   7 [BUSLD_0711.0]  1 1  AMP/OHM      0.0    0.00    0.00    0.00    0.000
   9 [BUSLD_0911.0]  1 1  AMP/OHM      0.0    0.00    0.00    0.00    0.000
                TO SHUNT  (AMPS)      0.0    0.00

```



```

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.313/ -1.51

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1          AMP/      110225.8  -69.79
  102 [TXWND  11.0]  1 1  AMP/OHM 110225.8  110.21    0.12  -156.16    0.442

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:31 . HOME BUS IS: .
. RADIAL NETWORK                          .           6           .
.                                          .[BUSLD_0611.0].
.      *** FAULTED BUS IS :      6 [BUSLD_0611.0] ***          . 3 LEVELS AWAY.

AT BUS 3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 12.962/ -12.05

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
  2 [BUS_TX  132]  1 1  AMP/OHM  1225.3  -60.46   205.05   61.90    1.873
  4 [BUS_TX  33.0]  1 1  AMP/OHM  1225.3  119.54    8.60  -127.71    1.293

AT BUS 9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
  8 [BUSLD_0811.0]  1 1  AMP/OHM    0.0    0.00    0.00    0.00    0.000
                    TO SHUNT (AMPS)    0.0    0.00

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:31 . HOME BUS IS: .
. RADIAL NETWORK                          .           6           .
.                                          .[BUSLD_0611.0].
.      *** FAULTED BUS IS :      6 [BUSLD_0611.0] ***          . 4 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 68.273/ 1.44

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R

```

```

1 [INF_BUS 132] 1 1 AMP/OHM 333.0 -60.46 216.78 59.03 1.666
3 [BUS_03 33.0] 1 1 AMP/OHM 333.0 119.54 10.58 -131.59 1.127

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:31 . HOME BUS IS: .
. RADIAL NETWORK                        .           6           .
.                                         . [BUSLD_0611.0].
. *** FAULTED BUS IS :          6 [BUSLD_0611.0] *** . 5 LEVELS AWAY.

AT BUS      1 [INF_BUS 132] AREA      1      (KV L-G) V+: / 72.177/      -1.44

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
      2 [BUS_TX 132] 1 1 AMP/OHM 333.0 119.54 205.05 -118.10 1.873
DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20
POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:32 . HOME BUS IS: .
. RADIAL NETWORK                        .           5           .
.                                         . [BUS_05 11.0].
. *** FAULTED BUS IS :          5 [BUS_05 11.0] *** . 0 LEVELS AWAY.

AT BUS      5 [BUS_05 11.0] AREA      1      (KV L-G) V+: / 0.000/      0.00

THEV. R, X, X/R: POSITIVE 0.30357 0.47824 1.575

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      4 [BUS_TX 33.0] 1 1 AMP/OHM 4365.4 -72.28 5.01 78.69 5.000
      6 [BUSLD_0611.0] 1 1 AMP/OHM 4608.1 -47.96 0.58 23.82 0.441
TOTAL FAULT CURRENT (AMPS) 8772.2 -59.79

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:32 . HOME BUS IS: .
. RADIAL NETWORK                        .           5           .
.                                         . [BUS_05 11.0].
. *** FAULTED BUS IS :          5 [BUS_05 11.0] *** . 1 LEVELS AWAY.

AT BUS      4 [BUS_TX 33.0] AREA      1      (KV L-G) V+: / 7.676/      6.41

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+ /   AN(I+)   /Z+ /   AN(Z+)   APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  1531.7  -72.28    6.62   65.49    2.193
   5 [BUS_05  11.0]   1 1  AMP/OHM  1531.7  107.72    0.00    0.00    0.000

```

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 2.651/ -24.14

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+ /   AN(I+)   /Z+ /   AN(Z+)   APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM  4608.1  132.04    0.00    0.00    0.000
   7 [BUSLD_0711.0]   1 1  AMP/OHM    96.9   136.76   26.79  -161.01   0.344
  102 [TXWND   11.0]   1 1  AMP/OHM  4870.9  -47.83    0.66   23.71   0.439
      TO SHUNT (AMPS)   166.4  -46.84

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:32 . HOME BUS IS: .
. RADIAL NETWORK                      .                   5 .
.                                     . [BUS_05  11.0].
. *** FAULTED BUS IS :      5 [BUS_05  11.0] *** . 2 LEVELS AWAY.

```

AT BUS 3 [BUS\_03 33.0] AREA 1 (KV L-G) V+: / 10.142/ -6.79

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+ /   AN(I+)   /Z+ /   AN(Z+)   APP X/R
   2 [BUS_TX  132]   1 1  AMP/OHM  1531.7  -72.28   160.07   76.02   4.016
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1531.7  107.72    5.01  -101.31   5.000

```

AT BUS 7 [BUSLD\_0711.0] AREA 1 (KV L-G) V+: / 2.596/ -24.25

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+ /   AN(I+)   /Z+ /   AN(Z+)   APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM    96.9   -43.24   27.36   19.09   0.346
   8 [BUSLD_0811.0]   1 1  AMP/OHM    50.9   139.30   50.61  -163.60   0.294
      TO SHUNT (AMPS)   46.0   -46.05

```

```

AT BUS 102 [TXWND 11.0] AREA 1 (KV L-G) V+: / 3.212/ -24.12

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
      /I+/      AN(I+)      /Z+/      AN(Z+)   APP X/R
  6 [BUSLD_0611.0]  1 1  AMP/OHM  4870.9  132.17   0.54  -156.32   0.439
 101 [WNDBUS .690]  1 1  AMP/OHM  4870.9  -47.83   0.01   45.46   1.016

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:32 . HOME BUS IS: .
. RADIAL NETWORK                        .                    5 .
.                                         . [BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 3 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 66.627/ 3.74

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
      /I+/      AN(I+)      /Z+/      AN(Z+)   APP X/R
  1 [INF_BUS 132]  1 1  AMP/OHM  416.2  -72.28  169.06   71.49   2.988
  3 [BUS_03 33.0]  1 1  AMP/OHM  416.2  107.72   6.62  -114.51   2.193

AT BUS 8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 2.578/ -24.29

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
      /I+/      AN(I+)      /Z+/      AN(Z+)   APP X/R
  7 [BUSLD_0711.0]  1 1  AMP/OHM  50.9  -40.70   50.95   16.45   0.295
  9 [BUSLD_0911.0]  1 1  AMP/OHM  23.8  141.63  108.05  -165.96   0.250
      TO SHUNT (AMPS)  27.2  -42.73

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.354/ -2.37

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
      /I+/      AN(I+)      /Z+/      AN(Z+)   APP X/R
MACHINE 1          AMP/      66004.9  -47.83
 102 [TXWND 11.0]  1 1  AMP/OHM  66004.9  132.17   0.66  -156.29   0.439

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:32 . HOME BUS IS: .
. RADIAL NETWORK                        .                    5 .

```

```

.
.      *** FAULTED BUS IS :      5 [BUS_05 11.0] ***      .[BUS_05 11.0].
.                                     . 4 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 70.365/ -0.79

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
MACHINE 1
          2 [BUS_TX 132] 1 1 AMP/OHM 416.2 -72.28
          416.2 107.72 160.07 -103.98 4.016

```

```

AT BUS      9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 2.567/ -24.34

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
          8 [BUSLD_0811.0] 1 1 AMP/OHM 23.8 -38.37
          TO SHUNT (AMPS) 23.8 -38.37 108.50 14.08 0.251

```

## 2 Turbines connected to Busbar 6

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:36 . HOME BUS IS: .
. RADIAL NETWORK                      .          9          .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :      9 [BUSLD_0911.0] ***   . 0 LEVELS AWAY.

AT BUS      9 [BUSLD_0911.0] AREA  1   (KV L-G) V+: /  0.000/   0.00

THEV. R, X, X/R: POSITIVE  1.16753  0.79494   0.681

```

T H R E E P H A S E F A U L T							
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
8 [BUSLD_0811.0]	1	1	AMP/OHM	3202.7	-31.25	0.46	23.84
			TO SHUNT (AMPS)	0.0	0.00		
TOTAL FAULT			CURRENT (AMPS)	3202.7	-31.25		

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:36 . HOME BUS IS: .
. RADIAL NETWORK                      .          9          .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :      9 [BUSLD_0911.0] ***   . 1 LEVELS AWAY.

AT BUS      8 [BUSLD_0811.0] AREA  1   (KV L-G) V+: /  1.474/   -7.41

```

T H R E E P H A S E F A U L T							
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
7 [BUSLD_0711.0]	1	1	AMP/OHM	3218.1	-31.23	0.80	23.80
9 [BUSLD_0911.0]	1	1	AMP/OHM	3202.7	148.75	0.00	0.00
			TO SHUNT (AMPS)	15.4	-25.84		

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:36 . HOME BUS IS: .
. RADIAL NETWORK                      .          9          .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :      9 [BUSLD_0911.0] ***   . 2 LEVELS AWAY.

AT BUS      7 [BUSLD_0711.0] AREA  1   (KV L-G) V+: /  2.585/   -7.43

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM  3263.5  -31.20   1.37   23.79   0.441
   8 [BUSLD_0811.0]   1 1  AMP/OHM  3218.1  148.77   0.46  -156.18  0.441
          TO SHUNT   (AMPS)    45.5   -29.23

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:36 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] ***   . 3 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1   (KV L-G) V+: /  4.463/  -7.41

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM  1470.6  -49.53   3.59   39.24   0.817
   7 [BUSLD_0711.0]   1 1  AMP/OHM  3263.5  148.80   0.79  -156.23  0.440
  102 [TXWND  11.0]   1 1  AMP/OHM  2195.7  -18.90   2.15   12.15   0.215
          TO SHUNT   (AMPS)    277.7  -30.10

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:36 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] ***   . 4 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05  11.0] AREA  1   (KV L-G) V+: /  5.273/  -10.30

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1470.6  -49.53   33.15   44.75   0.991
   6 [BUSLD_0611.0]   1 1  AMP/OHM  1470.6  130.47   3.03  -137.88  0.904

```

```

AT BUS     102 [TXWND  11.0] AREA  1   (KV L-G) V+: /  4.710/  -6.75

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R

```

```

        6 [BUSLD_0611.0]  1 1  AMP/OHM  2195.7  161.10    2.03  -168.51   0.203
    101 [WNDBUS  .690]  1 1  AMP/OHM  2195.7  -18.90    0.01   22.13   0.407

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:36 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                         .[BUSLD_0911.0].
.     *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 5 LEVELS AWAY.

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 17.103/  -4.78

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
    3 [BUS_03  33.0]  1 1  AMP/OHM  516.0  -49.53   35.18   44.01   0.966
    5 [BUS_05  11.0]  1 1  AMP/OHM  516.0  130.47   3.59  -140.76   0.817

AT BUS    101 [WNDBUS  .690] AREA  1  (KV L-G) V+: / 0.382/  3.24

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                        AMP/   29753.1  -18.90
    102 [TXWND  11.0]  1 1  AMP/OHM  29753.1  161.10    2.15  -167.86   0.215

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:36 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                         .[BUSLD_0911.0].
.     *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 6 LEVELS AWAY.

AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 18.154/  -5.52

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
    2 [BUS_TX  132]  1 1  AMP/OHM  516.0  -49.53   519.82   49.63   1.176
    4 [BUS_TX  33.0]  1 1  AMP/OHM  516.0  130.47   33.15  -135.25   0.991

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:36 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                         .[BUSLD_0911.0].

```



. \*\*\* FAULTED BUS IS : 9 [BUSLD\_0911.0] \*\*\* . 7 LEVELS AWAY.

AT BUS 2 [BUS\_TX 132] AREA 1 (KV L-G) V+: / 73.688/ 0.10

		T H R E E P H A S E F A U L T		
FROM	AREA CKT I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP X/R
1 [INF_BUS 132]	1 1 AMP/OHM	141.8 -49.53	533.38 48.75	1.140
3 [BUS_03 33.0]	1 1 AMP/OHM	141.8 130.47	35.18 -135.99	0.966

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:36 . HOME BUS IS: .  
. RADIAL NETWORK . 9 .

. \*\*\* FAULTED BUS IS : 9 [BUSLD\_0911.0] \*\*\* . 8 LEVELS AWAY.

AT BUS 1 [INF\_BUS 132] AREA 1 (KV L-G) V+: / 75.611/ -0.78

		T H R E E P H A S E F A U L T		
FROM	AREA CKT I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP X/R
MACHINE 1	AMP/	141.8 -49.53		
2 [BUS_TX 132]	1 1 AMP/OHM	141.8 130.47	519.82 -130.37	1.176
DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20				
POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10				

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:36 . HOME BUS IS: .  
. RADIAL NETWORK . 8 .

. \*\*\* FAULTED BUS IS : 8 [BUSLD\_0811.0] \*\*\* . 0 LEVELS AWAY.

AT BUS 8 [BUSLD\_0811.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.82678 0.64857 0.784

		T H R E E P H A S E F A U L T		
FROM	AREA CKT I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP X/R
7 [BUSLD_0711.0]	1 1 AMP/OHM	4322.9 -35.07	0.35 23.78	0.441
9 [BUSLD_0911.0]	1 1 AMP/OHM	0.0 0.00	0.00 0.00	0.000
TO SHUNT (AMPS)		0.0 0.00		
TOTAL FAULT CURRENT (AMPS)		4322.9 -35.07		

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:36 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     . [BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 1 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  1.492/ -11.30

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
6	[BUSLD_0611.0]	1	1	AMP/OHM	4349.1	-35.06	0.92	23.80	0.441
8	[BUSLD_0811.0]	1	1	AMP/OHM	4322.9	144.93	0.00	0.00	0.000
				TO SHUNT (AMPS)	26.2	-33.10			

```

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
8	[BUSLD_0811.0]	1	1	AMP/OHM	0.0	0.00	0.00	0.00	0.000
				TO SHUNT (AMPS)	0.0	0.00			

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:36 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     . [BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 2 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  3.994/ -11.26

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
5	[BUS_05 11.0]	1	1	AMP/OHM	1725.1	-47.95	2.88	34.13	0.678
7	[BUSLD_0711.0]	1	1	AMP/OHM	4349.1	144.94	0.34	-156.23	0.440
102	[TXWND 11.0]	1	1	AMP/OHM	2941.9	-27.45	1.47	16.79	0.302
				TO SHUNT (AMPS)	248.6	-33.96			

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:36 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .

```



```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:36 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 5 LEVELS AWAY.

AT BUS      3 [BUS_03 33.0] AREA  1   (KV L-G) V+: / 17.701/   -7.05

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   2 [BUS_TX 132]   1 1  AMP/OHM  605.3  -47.95  439.06  47.91   1.107
   4 [BUS_TX 33.0]   1 1  AMP/OHM  605.3  132.05  27.18  -138.43  0.887

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:36 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 6 LEVELS AWAY.

AT BUS      2 [BUS_TX 132] AREA  1   (KV L-G) V+: / 73.013/   -0.04

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   1 [INF_BUS 132]   1 1  AMP/OHM  166.3  -47.95  452.87  46.93   1.070
   3 [BUS_03 33.0]   1 1  AMP/OHM  166.3  132.05  29.24  -139.10  0.866

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:36 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 7 LEVELS AWAY.

AT BUS      1 [INF_BUS 132] AREA  1   (KV L-G) V+: / 75.309/   -1.02

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                      AMP/    166.3  -47.95
   2 [BUS_TX 132]   1 1  AMP/OHM  166.3  132.05  439.06  -132.09  1.107
DIAGONALS =      11 OFF-DIAGONALS =    10 MAX SIZE =    20
POS. SEQUENCE: DIAGONALS =      11 OFF-DIAGONALS =    10

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:36 . HOME BUS IS: .
. RADIAL NETWORK                        .           7           .
.                                       .[BUSLD_0711.0].
.   *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***   . 0 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

```

```

THEV. R, X, X/R: POSITIVE  0.57412  0.54274  0.945

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM  5788.2  -40.30   0.58   23.82   0.441
   8 [BUSLD_0811.0]   1 1  AMP/OHM   0.0    0.00   0.00   0.00   0.000
                TO SHUNT (AMPS)   0.0    0.00
        TOTAL FAULT CURRENT (AMPS) 5788.2  -40.30

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:36 . HOME BUS IS: .
. RADIAL NETWORK                        .           7           .
.                                       .[BUSLD_0711.0].
.   *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***   . 1 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  3.330/ -16.49

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM  2075.1  -47.96   2.18   29.45   0.565
   7 [BUSLD_0711.0]   1 1  AMP/OHM  5788.2  139.70   0.00   0.00   0.000
  102 [TXWND  11.0]   1 1  AMP/OHM  3948.8  -36.23   0.96   20.23   0.369
                TO SHUNT (AMPS)  207.3  -39.18

```

```

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM   0.0    0.00   0.00   0.00   0.000
   9 [BUSLD_0911.0]   1 1  AMP/OHM   0.0    0.00   0.00   0.00   0.000
                TO SHUNT (AMPS)   0.0    0.00

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:36 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     .[BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 2 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 4.516/ -18.51

```

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
4 [BUS_TX 33.0]	1	1	AMP/OHM	2075.1	-47.96	21.29	39.72	0.831	
6 [BUSLD_0611.0]	1	1	AMP/OHM	2075.1	132.04	1.60	-148.53	0.612	

```

AT BUS      9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

```

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
8 [BUSLD_0811.0]	1	1	AMP/OHM	0.0	0.00	0.00	0.00	0.000	
TO SHUNT (AMPS)				0.0	0.00				

```

AT BUS     102 [TXWND 11.0] AREA 1 (KV L-G) V+: / 3.784/ -15.99

```

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		
6 [BUSLD_0611.0]	1	1	AMP/OHM	3948.8	143.77	0.84	-160.26	0.359	
101 [WNDBUS .690]	1	1	AMP/OHM	3948.8	-36.23	0.01	37.92	0.779	

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:36 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     .[BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 3 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 15.502/ -8.24

```

				T H R E E		P H A S E		F A U L T	
FROM	AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R		

```

3 [BUS_03 33.0] 1 1 AMP/OHM 728.1 -47.96 23.36 39.05 0.811
5 [BUS_05 11.0] 1 1 AMP/OHM 728.1 132.04 2.18 -150.55 0.565

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.364/ 1.69

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
MACHINE 1
  102 [TXWND 11.0] 1 1 AMP/OHM 53509.6 -36.23
      53509.5 143.77 0.96 -159.77 0.369

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:36 . HOME BUS IS: .
. RADIAL NETWORK                      . 7 .
.                                     . [BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 4 LEVELS AWAY.

AT BUS 3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 17.008/ -8.91

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
  2 [BUS_TX 132] 1 1 AMP/OHM 728.1 -47.96 360.32 47.85 1.105
  4 [BUS_TX 33.0] 1 1 AMP/OHM 728.1 132.04 21.29 -140.28 0.831

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:36 . HOME BUS IS: .
. RADIAL NETWORK                      . 7 .
.                                     . [BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 5 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 72.074/ -0.11

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
  1 [INF_BUS 132] 1 1 AMP/OHM 200.0 -47.96 374.15 46.66 1.060
  3 [BUS_03 33.0] 1 1 AMP/OHM 200.0 132.04 23.36 -140.95 0.811

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:36 . HOME BUS IS: .
. RADIAL NETWORK                      . 7 .
.                                     . [BUSLD_0711.0].

```





```

        6 [BUSLD_0611.0]  1 1  AMP/OHM  3528.2  119.43   0.00   0.00   0.000

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  0.000/   0.00

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
        6 [BUSLD_0611.0]  1 1  AMP/OHM   0.0    0.00    0.00    0.00    0.000
        8 [BUSLD_0811.0]  1 1  AMP/OHM   0.0    0.00    0.00    0.00    0.000
                TO SHUNT (AMPS)  0.0    0.00

AT BUS    102 [TXWND  11.0] AREA  1  (KV L-G) V+: /  0.934/  -42.27

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
        6 [BUSLD_0611.0]  1 1  AMP/OHM  8114.8  113.89   0.00    0.00    0.000
       101 [WNDBUS  .690]  1 1  AMP/OHM  8114.8  -66.11   0.00    0.00    0.000

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:36 . HOME BUS IS: .
. RADIAL NETWORK                        .                6                .
.                                        . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 2 LEVELS AWAY.

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 10.642/  -8.28

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
        3 [BUS_03  33.0]  1 1  AMP/OHM  1238.0  -60.57  10.58   48.41   1.127
        5 [BUS_05  11.0]  1 1  AMP/OHM  1237.9  119.43   0.58  -156.18  0.441

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  0.000/   0.00

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
        7 [BUSLD_0711.0]  1 1  AMP/OHM   0.0    0.00    0.00    0.00    0.000
        9 [BUSLD_0911.0]  1 1  AMP/OHM   0.0    0.00    0.00    0.00    0.000

```

```

                TO SHUNT (AMPS)      0.0      0.00

AT BUS  101 [WNDBUS .690] AREA  1  (KV L-G) V+: / 0.312/ 2.17

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
  102 [TXWND  11.0]  1 1  AMP/OHM 109961.1  -66.11
                                0.12 -156.16  0.442

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:36 . HOME BUS IS: .
. RADIAL NETWORK                        .                6 .
.                                         . [BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 3 LEVELS AWAY.

AT BUS  3 [BUS_03 33.0] AREA  1  (KV L-G) V+: / 13.096/ -12.16

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
  2 [BUS_TX  132]  1 1  AMP/OHM 1237.9  -60.57  200.62  61.90  1.873
  4 [BUS_TX  33.0]  1 1  AMP/OHM 1238.0  119.43   8.60  -127.71  1.293

AT BUS  9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: / 0.000/ 0.00

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
  8 [BUSLD_0811.0]  1 1  AMP/OHM  0.0    0.00    0.00    0.00    0.000
                TO SHUNT (AMPS)  0.0    0.00

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:36 . HOME BUS IS: .
. RADIAL NETWORK                        .                6 .
.                                         . [BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 4 LEVELS AWAY.

AT BUS  2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 68.229/ 1.34

                T H R E E   P H A S E   F A U L T

```

```

----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   1 [INF_BUS 132]   1 1  AMP/OHM  340.1  -60.57  212.35  58.97   1.662
   3 [BUS_03 33.0]   1 1  AMP/OHM  340.1  119.43  10.58  -131.59  1.127

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:36 . HOME BUS IS: .
. RADIAL NETWORK                        .           6           .
.                                       . [BUSLD_0611.0].
.   *** FAULTED BUS IS :           6 [BUSLD_0611.0] *** . 5 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS 132] AREA      1      (KV L-G) V+: / 72.219/  -1.60

```

```

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                        AMP/      340.1  -60.57
   2 [BUS_TX 132]   1 1  AMP/OHM  340.1  119.43  200.62  -118.10  1.873
DIAGONALS =      11 OFF-DIAGONALS =      10 MAX SIZE =      20
POS. SEQUENCE: DIAGONALS =      11 OFF-DIAGONALS =      10

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:37 . HOME BUS IS: .
. RADIAL NETWORK                        .           5           .
.                                       . [BUS_05 11.0].
.   *** FAULTED BUS IS :           5 [BUS_05 11.0] *** . 0 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05 11.0] AREA      1      (KV L-G) V+: / 0.000/  0.00

```

```

THEV. R, X, X/R: POSITIVE 0.30419 0.47861 1.573

```

```

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   4 [BUS_TX 33.0]   1 1  AMP/OHM  4408.3  -72.34   5.01   78.69   5.000
   6 [BUSLD_0611.0]  1 1  AMP/OHM  4598.1  -44.28   0.58   23.82   0.441
TOTAL FAULT CURRENT (AMPS)  8737.8  -58.01

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:37 . HOME BUS IS: .
. RADIAL NETWORK                        .           5           .
.                                       . [BUS_05 11.0].
.   *** FAULTED BUS IS :           5 [BUS_05 11.0] *** . 1 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: /  7.752/  6.35

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  3 [BUS_03  33.0]   1 1  AMP/OHM  1546.8   -72.34    6.62    65.49    2.193
  5 [BUS_05  11.0]   1 1  AMP/OHM  1546.8   107.66    0.00     0.00     0.000

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  2.645/ -20.46

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  5 [BUS_05  11.0]   1 1  AMP/OHM  4598.1   135.72    0.00     0.00     0.000
  7 [BUSLD_0711.0]   1 1  AMP/OHM    95.9    140.45    27.02   -161.01    0.344
102 [TXWND   11.0]   1 1  AMP/OHM  4858.3   -44.14    0.66     23.71    0.439
      TO SHUNT (AMPS)  164.6   -43.15

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:37 . HOME BUS IS: .
. RADIAL NETWORK                      .           5           .
.                                     . [BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 2 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 10.242/ -6.85

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  2 [BUS_TX   132]   1 1  AMP/OHM  1546.8   -72.34   156.61    76.02    4.016
  4 [BUS_TX   33.0]   1 1  AMP/OHM  1546.8   107.66    5.01   -101.31    5.000

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  2.591/ -20.56

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  6 [BUSLD_0611.0]   1 1  AMP/OHM    95.9   -39.55    27.60    19.09    0.346
  8 [BUSLD_0811.0]   1 1  AMP/OHM    50.4   142.99    51.05   -163.60    0.294
      TO SHUNT (AMPS)  45.6   -42.36

```

```

AT BUS 102 [TXWND 11.0] AREA 1 (KV L-G) V+: / 3.205/ -20.43

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   6 [BUSLD_0611.0]  1 1  AMP/OHM  4858.3  135.86   0.54  -156.32   0.439
  101 [WNDBUS .690]  1 1  AMP/OHM  4858.3  -44.14   0.01   45.45   1.016

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:37 . HOME BUS IS: .
. RADIAL NETWORK                        .                    5 .
.                                         . [BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 3 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 66.551/ 3.67

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   1 [INF_BUS 132]  1 1  AMP/OHM  424.9  -72.34  165.61   71.40   2.971
   3 [BUS_03 33.0]  1 1  AMP/OHM  424.9  107.66   6.62  -114.51   2.193

AT BUS 8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 2.573/ -20.61

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   7 [BUSLD_0711.0]  1 1  AMP/OHM  50.4  -37.01  51.39   16.45   0.295
   9 [BUSLD_0911.0]  1 1  AMP/OHM  23.5  145.31  109.00  -165.96   0.250
          TO SHUNT (AMPS)  26.9  -39.04

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.353/ 1.31

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1                AMP/  65833.1  -44.14
  102 [TXWND 11.0]  1 1  AMP/OHM  65833.1  135.86   0.66  -156.29   0.439

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:37 . HOME BUS IS: .

```

```

. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      5 [BUS_05  11.0] ***
.
.          .          5          .
.          .[BUS_05  11.0].
.          . 4 LEVELS AWAY.

AT BUS      1 [INF_BUS  132] AREA  1  (KV L-G) V+: / 70.373/  -0.94

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
          2 [BUS_TX   132]   1 1  AMP/OHM  424.9  -72.34
          424.9  107.66  156.61 -103.98  4.016

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  2.563/  -20.65

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
          8 [BUSLD_0811.0]   1 1  AMP/OHM  23.5  -34.69  109.46  14.08  0.251
          TO SHUNT (AMPS)  23.5  -34.69

```

### 3 Turbines Connected to Busbar 6

```
. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:40 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                         .[BUSLD_0911.0].
.   *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 0 LEVELS AWAY.
```

```
AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  0.000/  0.00
```

```
THEV. R, X, X/R: POSITIVE  1.16778  0.79553  0.681
```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      8 [BUSLD_0811.0]   1 1  AMP/OHM  3213.2  -28.82   0.46   23.84   0.442
              TO SHUNT  (AMPS)      0.0    0.00
      TOTAL FAULT CURRENT (AMPS)  3213.2  -28.82
```

```
. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:40 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                         .[BUSLD_0911.0].
.   *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 1 LEVELS AWAY.
```

```
AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  1.479/  -4.97
```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      7 [BUSLD_0711.0]   1 1  AMP/OHM  3228.5  -28.79   0.80   23.80   0.441
      9 [BUSLD_0911.0]   1 1  AMP/OHM  3213.2  151.18   0.00   0.00   0.000
              TO SHUNT  (AMPS)      15.4   -23.41
```

```
. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:40 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                         .[BUSLD_0911.0].
.   *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 2 LEVELS AWAY.
```

```
AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  2.593/  -4.99
```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM  3273.8  -28.76   1.37   23.79   0.441
   8 [BUSLD_0811.0]   1 1  AMP/OHM  3228.5  151.21   0.46  -156.18  0.441
          TO SHUNT  (AMPS)    45.3   -26.79

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:40 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] ***   . 3 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  4.477/  -4.97

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM  1481.1  -53.35   3.55   44.52   0.983
   7 [BUSLD_0711.0]   1 1  AMP/OHM  3273.8  151.24   0.79  -156.23  0.440
  102 [TXWND  11.0]   1 1  AMP/OHM  2289.6  -13.01   2.07    8.91   0.157
          TO SHUNT  (AMPS)    276.7  -27.67

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:40 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] ***   . 4 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05  11.0] AREA  1  (KV L-G) V+: /  5.264/  -8.83

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1481.1  -53.35  33.13   49.39   1.166
   6 [BUSLD_0611.0]   1 1  AMP/OHM  1481.1  126.65   3.02  -131.62  1.125

```

```

AT BUS  102 [TXWND  11.0] AREA  1  (KV L-G) V+: /  4.731/  -4.10

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM  2289.6  166.99   1.96  -171.96  0.141

```



```

101 [WNDBUS .690] 1 1 AMP/OHM 2289.6 -13.01 0.01 19.58 0.356
. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:40 . HOME BUS IS: .
. RADIAL NETWORK . 9 .
. .[BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 5 LEVELS AWAY.

AT BUS 4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 17.219/ -3.96

T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
3 [BUS_03 33.0] 1 1 AMP/OHM 519.7 -53.35 35.13 48.39 1.126
5 [BUS_05 11.0] 1 1 AMP/OHM 519.7 126.65 3.55 -135.48 0.983

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.382/ 6.57

T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 31025.8 -13.01
102 [TXWND 11.0] 1 1 AMP/OHM 31025.8 166.99 2.07 -171.09 0.157

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:40 . HOME BUS IS: .
. RADIAL NETWORK . 9 .
. .[BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 6 LEVELS AWAY.

AT BUS 3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 18.257/ -4.96

T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
2 [BUS_TX 132] 1 1 AMP/OHM 519.7 -53.35 511.06 53.53 1.353
4 [BUS_TX 33.0] 1 1 AMP/OHM 519.7 126.65 33.13 -130.61 1.166

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:40 . HOME BUS IS: .
. RADIAL NETWORK . 9 .
. .[BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 7 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 73.774/    0.18

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
      1 [INF_BUS  132]    1 1  AMP/OHM  144.4   -53.35   524.05   52.53   1.305
      3 [BUS_03  33.0]    1 1  AMP/OHM  144.4   126.65   35.13   -131.61  1.126

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:40 . HOME BUS IS: .
. RADIAL NETWORK                        .                9 .
.                                         . [BUSLD_0911.0].
.      *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 8 LEVELS AWAY.

AT BUS      1 [INF_BUS  132] AREA  1  (KV L-G) V+: / 75.649/   -0.81

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
MACHINE 1                                AMP/      144.4   -53.35
      2 [BUS_TX  132]    1 1  AMP/OHM  144.4   126.65   511.06   -126.47  1.353
DIAGONALS =      11 OFF-DIAGONALS =    10 MAX SIZE =    20
POS. SEQUENCE: DIAGONALS =      11 OFF-DIAGONALS =    10

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:41 . HOME BUS IS: .
. RADIAL NETWORK                        .                8 .
.                                         . [BUSLD_0811.0].
.      *** FAULTED BUS IS :           8 [BUSLD_0811.0] *** . 0 LEVELS AWAY.

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  0.000/    0.00

THEV. R, X, X/R: POSITIVE  0.82698  0.64911   0.785

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
      7 [BUSLD_0711.0]    1 1  AMP/OHM  4336.6   -32.64    0.35    23.78   0.441
      9 [BUSLD_0911.0]    1 1  AMP/OHM    0.0     0.00     0.00     0.00   0.000
                                TO SHUNT (AMPS)    0.0     0.00
TOTAL FAULT CURRENT (AMPS)  4336.6   -32.64

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:41 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 1 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  1.497/  -8.86

```

				T H R E E P H A S E F A U L T		
FROM	AREA CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP X/R	
6 [BUSLD_0611.0]	1 1	AMP/OHM	4362.7 -32.63	0.92 23.80	0.441	
8 [BUSLD_0811.0]	1 1	AMP/OHM	4336.6 147.36	0.00 0.00	0.000	
		TO SHUNT (AMPS)	26.1 -30.66			

```

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

```

				T H R E E P H A S E F A U L T		
FROM	AREA CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP X/R	
8 [BUSLD_0811.0]	1 1	AMP/OHM	0.0 0.00	0.00 0.00	0.000	
		TO SHUNT (AMPS)	0.0 0.00			

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:41 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 2 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  4.007/  -8.83

```

				T H R E E P H A S E F A U L T		
FROM	AREA CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP X/R	
5 [BUS_05 11.0]	1 1	AMP/OHM	1730.2 -50.86	2.87 38.43	0.793	
7 [BUSLD_0711.0]	1 1	AMP/OHM	4362.7 147.37	0.34 -156.23	0.440	
102 [TXWND 11.0]	1 1	AMP/OHM	3016.8 -22.20	1.44 14.20	0.253	
		TO SHUNT (AMPS)	247.6 -31.52			

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:41 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     .[BUSLD_0811.0].

```

```

.      *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***      . 3 LEVELS AWAY.
AT BUS      5 [BUS_05  11.0] AREA  1      (KV L-G) V+: /  4.962/  -12.43

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1730.2  -50.86   27.31   45.24   1.008
   6 [BUSLD_0611.0]  1 1  AMP/OHM  1730.2  129.14   2.32  -137.97   0.901

AT BUS     102 [TXWND   11.0] AREA  1      (KV L-G) V+: /  4.349/  -8.00

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   6 [BUSLD_0611.0]  1 1  AMP/OHM  3016.8  157.80   1.33  -166.63   0.238
  101 [WNDBUS   .690]  1 1  AMP/OHM  3016.8  -22.20   0.01   28.04   0.533

. PSS/E SHORT CIRCUIT OUTPUT      FRI, AUG 13 2004  13:41 . HOME BUS IS: .
. RADIAL NETWORK                      .      8      .
.                                       .[BUSLD_0811.0].
.      *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***      . 4 LEVELS AWAY.
AT BUS      4 [BUS_TX  33.0] AREA  1      (KV L-G) V+: / 16.580/  -5.62

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  607.1  -50.86   29.35   44.32   0.977
   5 [BUS_05  11.0]   1 1  AMP/OHM  607.1  129.14   2.87  -141.57   0.793

AT BUS     101 [WNDBUS   .690] AREA  1      (KV L-G) V+: /  0.375/   5.84

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1                      AMP/   40879.5  -22.20
  102 [TXWND   11.0]   1 1  AMP/OHM  40879.5  157.80   1.44  -165.80   0.253

. PSS/E SHORT CIRCUIT OUTPUT      FRI, AUG 13 2004  13:41 . HOME BUS IS: .

```

```

. RADIAL NETWORK . 8 .
. .[BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 5 LEVELS AWAY.

AT BUS 3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 17.815/ -6.53

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  2 [BUS_TX 132] 1 1 AMP/OHM 607.1 -50.86 433.48 50.88 1.230
  4 [BUS_TX 33.0] 1 1 AMP/OHM 607.1 129.14 27.31 -134.76 1.008

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:41 . HOME BUS IS: .
. RADIAL NETWORK . 8 .
. .[BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 6 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 73.099/ 0.02

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  1 [INF_BUS 132] 1 1 AMP/OHM 168.6 -50.86 446.88 49.79 1.183
  3 [BUS_03 33.0] 1 1 AMP/OHM 168.6 129.14 29.35 -135.68 0.977

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:41 . HOME BUS IS: .
. RADIAL NETWORK . 8 .
. .[BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 7 LEVELS AWAY.

AT BUS 1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 75.358/ -1.06

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 168.6 -50.86
  2 [BUS_TX 132] 1 1 AMP/OHM 168.6 129.14 433.48 -129.12 1.230
DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20
POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:41 . HOME BUS IS: .

```

```

. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***
.
.          . 7 .
.          . [BUSLD_0711.0].
.          . 0 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

```

```

THEV. R, X, X/R: POSITIVE 0.57427 0.54322 0.946

```

```

----- FROM -----AREA CKT I/Z      T H R E E P H A S E F A U L T
      /I+/      AN(I+)      /Z+/      AN(Z+)      APP X/R
  6 [BUSLD_0611.0]  1 1 AMP/OHM  5805.8  -37.87    0.58    23.82    0.441
  8 [BUSLD_0811.0]  1 1 AMP/OHM    0.0    0.00    0.00    0.00    0.000
      TO SHUNT (AMPS)      0.0    0.00
  TOTAL FAULT CURRENT (AMPS)  5805.8  -37.87

```

```

. PSS/E SHORT CIRCUIT OUTPUT      FRI, AUG 13 2004 13:41 . HOME BUS IS: .
. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***
.
.          . 7 .
.          . [BUSLD_0711.0].
.          . 1 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA 1 (KV L-G) V+: / 3.340/ -14.06

```

```

----- FROM -----AREA CKT I/Z      T H R E E P H A S E F A U L T
      /I+/      AN(I+)      /Z+/      AN(Z+)      APP X/R
  5 [BUS_05 11.0]  1 1 AMP/OHM  2079.2  -49.97    2.17    32.73    0.643
  7 [BUSLD_0711.0]  1 1 AMP/OHM  5805.8  142.13    0.00    0.00    0.000
 102 [TXWND 11.0]  1 1 AMP/OHM  4003.4  -31.57    0.95    18.28    0.330
      TO SHUNT (AMPS)      206.5  -36.75

```

```

AT BUS      8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

```

```

----- FROM -----AREA CKT I/Z      T H R E E P H A S E F A U L T
      /I+/      AN(I+)      /Z+/      AN(Z+)      APP X/R
  7 [BUSLD_0711.0]  1 1 AMP/OHM    0.0    0.00    0.00    0.00    0.000
  9 [BUSLD_0911.0]  1 1 AMP/OHM    0.0    0.00    0.00    0.00    0.000
      TO SHUNT (AMPS)      0.0    0.00

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:41 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     .[BUSLD_0711.0].
.   *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***   . 2 LEVELS AWAY.

```

```
AT BUS      5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 4.517/ -17.24
```

				T H R E E		P H A S E		F A U L T	
----- FROM -----		AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
4	[BUS_TX 33.0]	1	1	AMP/OHM	2079.2	-49.97	21.43	42.41	0.913
6	[BUSLD_0611.0]	1	1	AMP/OHM	2079.2	130.03	1.61	-144.09	0.724

```
AT BUS      9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00
```

				T H R E E		P H A S E		F A U L T	
----- FROM -----		AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
8	[BUSLD_0811.0]	1	1	AMP/OHM	0.0	0.00	0.00	0.00	0.000
		TO SHUNT		(AMPS)	0.0	0.00			

```
AT BUS     102 [TXWND 11.0] AREA 1 (KV L-G) V+: / 3.799/ -13.29
```

				T H R E E		P H A S E		F A U L T	
----- FROM -----		AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
6	[BUSLD_0611.0]	1	1	AMP/OHM	4003.4	148.43	0.83	-162.49	0.315
101	[WNDBUS .690]	1	1	AMP/OHM	4003.4	-31.57	0.01	36.62	0.743

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:41 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     .[BUSLD_0711.0].
.   *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***   . 3 LEVELS AWAY.

```

```
AT BUS      4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 15.637/ -7.56
```

				T H R E E		P H A S E		F A U L T	
----- FROM -----		AREA	CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
3	[BUS_03 33.0]	1	1	AMP/OHM	729.5	-49.97	23.49	41.50	0.885

```

5 [BUS_05 11.0] 1 1 AMP/OHM 729.5 130.03 2.17 -147.27 0.643

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.364/ 5.06

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
MACHINE 1
  102 [TXWND 11.0] 1 1 AMP/OHM 54249.1 -31.57
          54249.1 148.43 0.95 -161.72 0.330

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:41 . HOME BUS IS: .
. RADIAL NETWORK                      . 7 .
.                                     . [BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 4 LEVELS AWAY.

AT BUS 3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 17.136/ -8.46

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
  2 [BUS_TX 132] 1 1 AMP/OHM 729.5 -49.97 356.04 49.89 1.187
  4 [BUS_TX 33.0] 1 1 AMP/OHM 729.5 130.03 21.43 -137.59 0.913

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:41 . HOME BUS IS: .
. RADIAL NETWORK                      . 7 .
.                                     . [BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 5 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 72.153/ -0.08

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
  1 [INF_BUS 132] 1 1 AMP/OHM 202.7 -49.97 369.60 48.61 1.135
  3 [BUS_03 33.0] 1 1 AMP/OHM 202.7 130.03 23.49 -138.50 0.885

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:41 . HOME BUS IS: .
. RADIAL NETWORK                      . 7 .
.                                     . [BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 6 LEVELS AWAY.

```



AT BUS 1 [INF\_BUS 132] AREA 1 (KV L-G) V+: / 74.900/ -1.36

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                AMP/      202.7  -49.97
      2 [BUS_TX 132]    1 1  AMP/OHM  202.7  130.03  356.04 -130.11  1.187
DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20
POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10
```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:41 . HOME BUS IS: .
. RADIAL NETWORK                      .             6             .
.                                     . [BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 0 LEVELS AWAY.
```

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.15292 0.37161 2.430

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      5 [BUS_05 11.0]  1 1  AMP/OHM  3565.3 -60.66   0.58   23.82   0.441
      7 [BUSLD_0711.0] 1 1  AMP/OHM   0.0    0.00   0.00   0.00   0.000
    102 [TXWND 11.0]  1 1  AMP/OHM  8097.6 -62.58   0.12   23.84   0.442
          TO SHUNT (AMPS)  0.0    0.00
    TOTAL FAULT CURRENT (AMPS) 11661.5 -62.00
```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:41 . HOME BUS IS: .
. RADIAL NETWORK                      .             6             .
.                                     . [BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 1 LEVELS AWAY.
```

AT BUS 5 [BUS\_05 11.0] AREA 1 (KV L-G) V+: / 2.051/ -36.84

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      4 [BUS_TX 33.0]  1 1  AMP/OHM  3565.3 -60.66   8.60   52.29   1.293
      6 [BUSLD_0611.0] 1 1  AMP/OHM  3565.3 119.34   0.00   0.00   0.000
```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   6 [BUSLD_0611.0]  1 1  AMP/OHM      0.0    0.00    0.00    0.00    0.000
   8 [BUSLD_0811.0]  1 1  AMP/OHM      0.0    0.00    0.00    0.00    0.000
                TO SHUNT (AMPS)      0.0    0.00

```

```

AT BUS     102 [TXWND  11.0] AREA  1  (KV L-G) V+: /  0.932/ -38.74

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   6 [BUSLD_0611.0]  1 1  AMP/OHM     8097.6  117.42    0.00    0.00    0.000
  101 [WNCBUS  .690]  1 1  AMP/OHM     8097.5  -62.58    0.00    0.00    0.000

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:41 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                       . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 2 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 10.754/ -8.37

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   3 [BUS_03  33.0]  1 1  AMP/OHM     1251.0  -60.66   10.58   48.41   1.127
   5 [BUS_05  11.0]  1 1  AMP/OHM     1251.0  119.34    0.58  -156.18  0.441

```

```

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   7 [BUSLD_0711.0]  1 1  AMP/OHM      0.0    0.00    0.00    0.00    0.000
   9 [BUSLD_0911.0]  1 1  AMP/OHM      0.0    0.00    0.00    0.00    0.000
                TO SHUNT (AMPS)      0.0    0.00

```

```

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.311/ 5.69

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1          AMP/      109727.6  -62.58
  102 [TXWND 11.0]  1 1 AMP/OHM 109727.7  117.42    0.12  -156.16    0.442

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:41 . HOME BUS IS: .
. RADIAL NETWORK                      .                6 .
.                                     . [BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 3 LEVELS AWAY.

AT BUS 3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 13.234/ -12.25

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
  2 [BUS_TX 132]  1 1 AMP/OHM 1251.0  -60.66   196.23   61.90    1.873
  4 [BUS_TX 33.0]  1 1 AMP/OHM 1251.0  119.34    8.60  -127.71    1.293

AT BUS 9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
  8 [BUSLD_0811.0]  1 1 AMP/OHM 0.0    0.00    0.00    0.00    0.000
          TO SHUNT (AMPS) 0.0    0.00

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:41 . HOME BUS IS: .
. RADIAL NETWORK                      .                6 .
.                                     . [BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 4 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 68.190/ 1.24

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R

```

```

1 [INF_BUS 132] 1 1 AMP/OHM 347.5 -60.66 207.97 58.91 1.658
3 [BUS_03 33.0] 1 1 AMP/OHM 347.5 119.34 10.58 -131.59 1.127

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:41 . HOME BUS IS: .
. RADIAL NETWORK                        .           6           .
.                                         .[BUSLD_0611.0].
. *** FAULTED BUS IS :          6 [BUSLD_0611.0] *** . 5 LEVELS AWAY.

AT BUS      1 [INF_BUS 132] AREA      1      (KV L-G) V+: / 72.269/      -1.75

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
      2 [BUS_TX 132] 1 1 AMP/OHM 347.5 119.34 196.23 -118.10 1.873
DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20
POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:41 . HOME BUS IS: .
. RADIAL NETWORK                        .           5           .
.                                         .[BUS_05 11.0].
. *** FAULTED BUS IS :          5 [BUS_05 11.0] *** . 0 LEVELS AWAY.

AT BUS      5 [BUS_05 11.0] AREA      1      (KV L-G) V+: / 0.000/      0.00

THEV. R, X, X/R: POSITIVE 0.30485 0.47897 1.571

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      4 [BUS_TX 33.0] 1 1 AMP/OHM 4452.5 -72.39 5.01 78.69 5.000
      6 [BUSLD_0611.0] 1 1 AMP/OHM 4589.3 -40.74 0.58 23.82 0.441
TOTAL FAULT CURRENT (AMPS) 8699.2 -56.32

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:41 . HOME BUS IS: .
. RADIAL NETWORK                        .           5           .
.                                         .[BUS_05 11.0].
. *** FAULTED BUS IS :          5 [BUS_05 11.0] *** . 1 LEVELS AWAY.

AT BUS      4 [BUS_TX 33.0] AREA      1      (KV L-G) V+: / 7.829/      6.30

```

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
3	[BUS_03 33.0]	1	1	AMP/OHM	1562.3	-72.39	6.62	65.49	2.193	
5	[BUS_05 11.0]	1	1	AMP/OHM	1562.3	107.61	0.00	0.00	0.000	

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 2.640/ -16.93

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
5	[BUS_05 11.0]	1	1	AMP/OHM	4589.3	139.26	0.00	0.00	0.000	
7	[BUSLD_0711.0]	1	1	AMP/OHM	95.0	143.98	27.22	-161.01	0.344	
102	[TXWND 11.0]	1	1	AMP/OHM	4847.1	-40.61	0.66	23.71	0.439	
				TO SHUNT (AMPS)	163.2	-39.62				

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:41 . HOME BUS IS: .  
. RADIAL NETWORK . 5 .  
. . [BUS\_05 11.0].  
. \*\*\* FAULTED BUS IS : 5 [BUS\_05 11.0] \*\*\* . 2 LEVELS AWAY.

AT BUS 3 [BUS\_03 33.0] AREA 1 (KV L-G) V+: / 10.345/ -6.90

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
2	[BUS_TX 132]	1	1	AMP/OHM	1562.3	-72.39	153.19	76.02	4.016	
4	[BUS_TX 33.0]	1	1	AMP/OHM	1562.3	107.61	5.01	-101.31	5.000	

AT BUS 7 [BUSLD\_0711.0] AREA 1 (KV L-G) V+: / 2.586/ -17.03

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
6	[BUSLD_0611.0]	1	1	AMP/OHM	95.0	-36.02	27.79	19.09	0.346	
8	[BUSLD_0811.0]	1	1	AMP/OHM	50.0	146.52	51.42	-163.60	0.294	
				TO SHUNT (AMPS)	45.2	-38.83				

```

AT BUS 102 [TXWND 11.0] AREA 1 (KV L-G) V+: / 3.198/ -16.90

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
   6 [BUSLD_0611.0] 1 1 AMP/OHM 4847.1 139.39 0.54 -156.31 0.439
  101 [WNDBUS .690] 1 1 AMP/OHM 4847.1 -40.61 0.01 45.45 1.016

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:41 . HOME BUS IS: .
. RADIAL NETWORK . 5 .
. . [BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 3 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 66.479/ 3.63

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
   1 [INF_BUS 132] 1 1 AMP/OHM 434.0 -72.39 162.19 71.30 2.955
   3 [BUS_03 33.0] 1 1 AMP/OHM 434.0 107.61 6.62 -114.51 2.193

AT BUS 8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 2.569/ -17.08

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
   7 [BUSLD_0711.0] 1 1 AMP/OHM 50.0 -33.48 51.76 16.45 0.295
   9 [BUSLD_0911.0] 1 1 AMP/OHM 23.3 148.85 109.80 -165.96 0.250
      TO SHUNT (AMPS) 26.7 -35.51

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.353/ 4.84

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 65682.2 -40.61
  102 [TXWND 11.0] 1 1 AMP/OHM 65682.3 139.39 0.66 -156.29 0.439

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:41 . HOME BUS IS: .
. RADIAL NETWORK . 5 .

```

```

.
.      *** FAULTED BUS IS :      5 [BUS_05 11.0] ***      .[BUS_05 11.0].
.                                     . 4 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 70.387/ -1.09

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
MACHINE 1
          2 [BUS_TX 132] 1 1 AMP/OHM 434.0 -72.39 153.19 -103.98 4.016

```

```

AT BUS      9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 2.558/ -17.12

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
          8 [BUSLD_0811.0] 1 1 AMP/OHM 23.3 -31.15 110.25 14.08 0.251
          TO SHUNT (AMPS) 23.3 -31.15

```

## 5 Turbines connected to Busbar 6

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:45 . HOME BUS IS: .
. RADIAL NETWORK                        .          9 .
.                                       .[BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 0 LEVELS AWAY.

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  0.000/    0.00

```

```

THEV. R, X, X/R: POSITIVE  1.16798  0.79598    0.682

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      8 [BUSLD_0811.0]  1 1  AMP/OHM  3219.4  -24.40   0.46   23.84   0.442
              TO SHUNT  (AMPS)      0.0    0.00
      TOTAL FAULT CURRENT (AMPS)  3219.4  -24.40

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:45 . HOME BUS IS: .
. RADIAL NETWORK                        .          9 .
.                                       .[BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 1 LEVELS AWAY.

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  1.482/   -0.56

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      7 [BUSLD_0711.0]  1 1  AMP/OHM  3234.7  -24.37   0.80   23.80   0.441
      9 [BUSLD_0911.0]  1 1  AMP/OHM  3219.4  155.60   0.00   0.00   0.000
              TO SHUNT  (AMPS)      15.3  -18.99

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:45 . HOME BUS IS: .
. RADIAL NETWORK                        .          9 .
.                                       .[BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 2 LEVELS AWAY.

```



```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  2.598/  -0.57

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM  3279.8  -24.35   1.37   23.79   0.441
   8 [BUSLD_0811.0]   1 1  AMP/OHM  3234.7  155.63   0.46  -156.18  0.441
                TO SHUNT  (AMPS)   45.2   -22.38

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:45 . HOME BUS IS: .
. RADIAL NETWORK                        .                9 .
.                                         .[BUSLD_0911.0].
.   *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 3 LEVELS AWAY.

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  4.485/  -0.56

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM  1505.7  -60.14   3.46   54.01   1.377
   7 [BUSLD_0711.0]   1 1  AMP/OHM  3279.8  155.65   0.79  -156.23  0.440
  102 [TXWND  11.0]   1 1  AMP/OHM  2497.0   -3.57   1.90    4.24   0.074
                TO SHUNT  (AMPS)   276.1  -23.25

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:45 . HOME BUS IS: .
. RADIAL NETWORK                        .                9 .
.                                         .[BUSLD_0911.0].
.   *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 4 LEVELS AWAY.

AT BUS      5 [BUS_05  11.0] AREA  1  (KV L-G) V+: /  5.213/  -6.13

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1505.7  -60.14  32.74   57.67   1.580
   6 [BUSLD_0611.0]   1 1  AMP/OHM  1505.7  119.86   2.98  -120.41  1.703

AT BUS     102 [TXWND  11.0] AREA  1  (KV L-G) V+: /  4.755/   0.68

                T H R E E   P H A S E   F A U L T

```

```

----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   6 [BUSLD_0611.0]  1 1  AMP/OHM  2497.0  176.43    1.80  -176.99   0.053
  101 [WNDBUS .690]  1 1  AMP/OHM  2497.0   -3.57    0.01   16.22   0.291

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:45 . HOME BUS IS: .
. RADIAL NETWORK                        .           9           .
.                                         . [BUSLD_0911.0].
. *** FAULTED BUS IS :          9 [BUSLD_0911.0] *** . 5 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 17.298/ -2.47

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   3 [BUS_03 33.0]  1 1  AMP/OHM  528.3  -60.14   34.63   56.19   1.493
   5 [BUS_05 11.0]  1 1  AMP/OHM  528.3  119.86    3.46  -125.99   1.377

```

```

AT BUS  101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.381/ 12.66

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
MACHINE 1
  102 [TXWND 11.0]  1 1  AMP/OHM  33835.8  -3.57   1.90  -175.76   0.074

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:45 . HOME BUS IS: .
. RADIAL NETWORK                        .           9           .
.                                         . [BUSLD_0911.0].
. *** FAULTED BUS IS :          9 [BUSLD_0911.0] *** . 6 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 18.299/ -3.95

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   2 [BUS_TX 132]  1 1  AMP/OHM  528.3  -60.14  498.45   60.48   1.766
   4 [BUS_TX 33.0]  1 1  AMP/OHM  528.3  119.86   32.74  -122.33   1.580

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:45 . HOME BUS IS: .
. RADIAL NETWORK                        .           9           .

```

```

.
.      *** FAULTED BUS IS :      9 [BUSLD_0911.0] ***      .[BUSLD_0911.0].
.                                     . 7 LEVELS AWAY.
AT BUS      2 [BUS_TX  132] AREA  1   (KV L-G) V+: / 73.974/   0.34

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)    /Z+/   AN(Z+)  APP X/R
      1 [INF_BUS  132]    1 1  AMP/OHM   148.4   -60.14   510.28   59.29   1.683
      3 [BUS_03  33.0]    1 1  AMP/OHM   148.4   119.86   34.63   -123.81  1.493

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:45 . HOME BUS IS: .
. RADIAL NETWORK                        .                9 .
.                                     .[BUSLD_0911.0].
.      *** FAULTED BUS IS :      9 [BUSLD_0911.0] ***      . 8 LEVELS AWAY.
AT BUS      1 [INF_BUS  132] AREA  1   (KV L-G) V+: / 75.730/   -0.85

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)    /Z+/   AN(Z+)  APP X/R
MACHINE 1                                AMP/    148.4   -60.14
      2 [BUS_TX  132]    1 1  AMP/OHM   148.4   119.86   498.45  -119.52   1.766
DIAGONALS =      11 OFF-DIAGONALS =    10 MAX SIZE =    20
POS. SEQUENCE: DIAGONALS =      11 OFF-DIAGONALS =    10

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:45 . HOME BUS IS: .
. RADIAL NETWORK                        .                8 .
.                                     .[BUSLD_0811.0].
.      *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***      . 0 LEVELS AWAY.
AT BUS      8 [BUSLD_0811.0] AREA  1   (KV L-G) V+: /  0.000/   0.00

THEV. R, X, X/R: POSITIVE  0.82714  0.64953   0.785

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)    /Z+/   AN(Z+)  APP X/R
      7 [BUSLD_0711.0]    1 1  AMP/OHM  4344.5   -28.23    0.35    23.78   0.441
      9 [BUSLD_0911.0]    1 1  AMP/OHM    0.0     0.00     0.00     0.00   0.000
                TO SHUNT (AMPS)    0.0     0.00

```

```

TOTAL FAULT CURRENT (AMPS) 4344.5 -28.23

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:45 . HOME BUS IS: .
. RADIAL NETWORK                        .           8           .
.                                       .[BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 1 LEVELS AWAY.

AT BUS      7 [BUSLD_0711.0] AREA 1 (KV L-G) V+: / 1.499/ -4.45

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  6 [BUSLD_0611.0] 1 1 AMP/OHM 4370.6 -28.21 0.92 23.80 0.441
  8 [BUSLD_0811.0] 1 1 AMP/OHM 4344.5 151.77 0.00 0.00 0.000
                TO SHUNT (AMPS) 26.1 -26.25

AT BUS      9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  8 [BUSLD_0811.0] 1 1 AMP/OHM 0.0 0.00 0.00 0.00 0.000
                TO SHUNT (AMPS) 0.0 0.00

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:45 . HOME BUS IS: .
. RADIAL NETWORK                        .           8           .
.                                       .[BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 2 LEVELS AWAY.

AT BUS      6 [BUSLD_0611.0] AREA 1 (KV L-G) V+: / 4.014/ -4.42

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  5 [BUS_05 11.0] 1 1 AMP/OHM 1738.0 -56.12 2.83 46.25 1.045
  7 [BUSLD_0711.0] 1 1 AMP/OHM 4370.6 151.79 0.34 -156.23 0.440
 102 [TXWND 11.0] 1 1 AMP/OHM 3188.4 -13.35 1.37 10.17 0.179
                TO SHUNT (AMPS) 247.1 -27.11

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:45 . HOME BUS IS: .

```

```

. RADIAL NETWORK . 8 .
. .[BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 3 LEVELS AWAY.

AT BUS 5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 4.920/ -9.87

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  4 [BUS_TX 33.0] 1 1 AMP/OHM 1738.0 -56.12 27.35 51.89 1.275
  6 [BUSLD_0611.0] 1 1 AMP/OHM 1738.0 123.88 2.31 -128.30 1.266

AT BUS 102 [TXWND 11.0] AREA 1 (KV L-G) V+: / 4.370/ -3.18

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  6 [BUSLD_0611.0] 1 1 AMP/OHM 3188.4 166.65 1.26 -171.07 0.157
 101 [WNDBUS .690] 1 1 AMP/OHM 3188.4 -13.35 0.01 25.30 0.473

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:45 . HOME BUS IS: .
. RADIAL NETWORK . 8 .
. .[BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 4 LEVELS AWAY.

AT BUS 4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 16.682/ -4.23

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  3 [BUS_03 33.0] 1 1 AMP/OHM 609.8 -56.12 29.33 50.52 1.214
  5 [BUS_05 11.0] 1 1 AMP/OHM 609.8 123.88 2.83 -133.75 1.045

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.374/ 11.96

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 43205.3 -13.35
 102 [TXWND 11.0] 1 1 AMP/OHM 43205.3 166.65 1.37 -169.83 0.179

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:45 . HOME BUS IS: .
. RADIAL NETWORK                        .           8 .
.                                       . [BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 5 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 17.884/ -5.60

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z   /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
  2 [BUS_TX 132]   1 1 AMP/OHM  609.8  -56.12  427.95  56.26  1.497
  4 [BUS_TX 33.0]   1 1 AMP/OHM  609.8  123.88  27.35  -128.11 1.275

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:45 . HOME BUS IS: .
. RADIAL NETWORK                        .           8 .
.                                       . [BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 6 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 73.309/ 0.14

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z   /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
  1 [INF_BUS 132]   1 1 AMP/OHM  171.3  -56.12  440.53  55.00  1.428
  3 [BUS_03 33.0]   1 1 AMP/OHM  171.3  123.88  29.33  -129.49 1.214

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:45 . HOME BUS IS: .
. RADIAL NETWORK                        .           8 .
.                                       . [BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 7 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 75.463/ -1.12

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z   /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
MACHINE 1                AMP/      171.3  -56.12
  2 [BUS_TX 132]   1 1 AMP/OHM  171.3  123.88  427.95  -123.74 1.497
DIAGONALS =      11 OFF-DIAGONALS =      10 MAX SIZE =      20
POS. SEQUENCE: DIAGONALS =      11 OFF-DIAGONALS =      10

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:45 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     . [BUSLD_0711.0].
. *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 0 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

```

```

THEV. R, X, X/R: POSITIVE  0.57439  0.54361  0.946

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z   /I+ /  AN(I+)  /Z+ /  AN(Z+)  APP X/R
   6 [BUSLD_0611.0]  1 1  AMP/OHM  5815.8  -33.46  0.58  23.82  0.441
   8 [BUSLD_0811.0]  1 1  AMP/OHM   0.0   0.00  0.00  0.00  0.000
          TO SHUNT (AMPS)   0.0   0.00
          TOTAL FAULT CURRENT (AMPS) 5815.8  -33.46

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:45 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     . [BUSLD_0711.0].
. *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 1 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  3.346/  -9.64

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z   /I+ /  AN(I+)  /Z+ /  AN(Z+)  APP X/R
   5 [BUS_05 11.0]  1 1  AMP/OHM  2078.2  -53.62  2.16  38.71  0.801
   7 [BUSLD_0711.0]  1 1  AMP/OHM  5815.8  146.54  0.00  0.00  0.000
  102 [TXWND 11.0]  1 1  AMP/OHM  4134.1  -23.42  0.92  15.03  0.268
          TO SHUNT (AMPS)  206.0  -32.34

```

```

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z   /I+ /  AN(I+)  /Z+ /  AN(Z+)  APP X/R
   7 [BUSLD_0711.0]  1 1  AMP/OHM   0.0   0.00  0.00  0.00  0.000
   9 [BUSLD_0911.0]  1 1  AMP/OHM   0.0   0.00  0.00  0.00  0.000

```

```

                TO SHUNT (AMPS)      0.0      0.00

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:45 . HOME BUS IS: .
. RADIAL NETWORK                        .           7           .
.                                       .[BUSLD_0711.0].
. *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 2 LEVELS AWAY.

AT BUS      5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 4.487/ -14.91

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
  4 [BUS_TX 33.0] 1 1 AMP/OHM 2078.2 -53.62 21.62 47.27 1.083
  6 [BUSLD_0611.0] 1 1 AMP/OHM 2078.2 126.38 1.61 -136.02 0.965

AT BUS      9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
  8 [BUSLD_0811.0] 1 1 AMP/OHM 0.0 0.00 0.00 0.00 0.000
                TO SHUNT (AMPS)      0.0      0.00

AT BUS     102 [TXWND 11.0] AREA 1 (KV L-G) V+: / 3.815/ -8.39

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
  6 [BUSLD_0611.0] 1 1 AMP/OHM 4134.1 156.58 0.81 -166.22 0.245
 101 [WNDBUS .690] 1 1 AMP/OHM 4134.1 -23.42 0.01 34.65 0.691

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:45 . HOME BUS IS: .
. RADIAL NETWORK                        .           7           .
.                                       .[BUSLD_0711.0].
. *** FAULTED BUS IS :      7 [BUSLD_0711.0] *** . 3 LEVELS AWAY.

AT BUS      4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 15.765/ -6.35

                T H R E E   P H A S E   F A U L T

```



```

----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM   729.2  -53.62   23.64   45.96   1.034
   5 [BUS_05  11.0]   1 1  AMP/OHM   729.2  126.38   2.16  -141.29   0.801

```

```

AT BUS   101 [WNDBUS .690] AREA   1   (KV L-G) V+: / 0.363/  11.22

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
  102 [TXWND  11.0]   1 1  AMP/OHM   56020.6  156.58   0.92  -164.97   0.268

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:45 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     .[BUSLD_0711.0].
.   *** FAULTED BUS IS :             7 [BUSLD_0711.0] *** . 4 LEVELS AWAY.

```

```

AT BUS    3 [BUS_03  33.0] AREA   1   (KV L-G) V+: / 17.237/  -7.66

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   2 [BUS_TX  132]   1 1  AMP/OHM   729.2  -53.62   353.30   53.60   1.356
   4 [BUS_TX  33.0]   1 1  AMP/OHM   729.2  126.38   21.62  -132.73   1.083

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:45 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .
.                                     .[BUSLD_0711.0].
.   *** FAULTED BUS IS :             7 [BUSLD_0711.0] *** . 5 LEVELS AWAY.

```

```

AT BUS    2 [BUS_TX  132] AREA   1   (KV L-G) V+: / 72.365/  -0.02

```

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   1 [INF_BUS 132]   1 1  AMP/OHM   204.8  -53.62   366.31   52.18   1.288
   3 [BUS_03  33.0]   1 1  AMP/OHM   204.8  126.38   23.64  -134.04   1.034

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:45 . HOME BUS IS: .
. RADIAL NETWORK                      .           7           .

```

```

.
.      *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***      .[BUSLD_0711.0].
.                                          . 6 LEVELS AWAY.

AT BUS      1 [INF_BUS 132] AREA  1   (KV L-G) V+: / 75.031/   -1.45

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)    /Z+/   AN(Z+)  APP X/R
MACHINE 1
          2 [BUS_TX 132]  1 1  AMP/OHM  204.8  -53.62
DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20
POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:46 . HOME BUS IS: .
. RADIAL NETWORK                        . 6 .
.                                          .[BUSLD_0611.0].
.      *** FAULTED BUS IS :      6 [BUSLD_0611.0] ***      . 0 LEVELS AWAY.

AT BUS      6 [BUSLD_0611.0] AREA  1   (KV L-G) V+: / 0.000/    0.00

THEV. R, X, X/R: POSITIVE  0.15299  0.37192   2.431

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)    /Z+/   AN(Z+)  APP X/R
          5 [BUS_05 11.0]  1 1  AMP/OHM  3608.4 -60.85   0.58   23.82   0.441
          7 [BUSLD_0711.0]  1 1  AMP/OHM   0.0    0.00   0.00   0.00   0.000
          102 [TXWND 11.0]  1 1  AMP/OHM  8076.7 -56.12   0.12   23.84   0.442
                TO SHUNT (AMPS)  0.0    0.00
          TOTAL FAULT CURRENT (AMPS) 11676.5 -57.58

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:46 . HOME BUS IS: .
. RADIAL NETWORK                        . 6 .
.                                          .[BUSLD_0611.0].
.      *** FAULTED BUS IS :      6 [BUSLD_0611.0] ***      . 1 LEVELS AWAY.

AT BUS      5 [BUS_05 11.0] AREA  1   (KV L-G) V+: / 2.076/   -37.04

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)    /Z+/   AN(Z+)  APP X/R

```

```

4 [BUS_TX 33.0] 1 1 AMP/OHM 3608.4 -60.85 8.60 52.29 1.293
6 [BUSLD_0611.0] 1 1 AMP/OHM 3608.4 119.15 0.00 0.00 0.000

AT BUS 7 [BUSLD_0711.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
6 [BUSLD_0611.0] 1 1 AMP/OHM 0.0 0.00 0.00 0.00 0.000
8 [BUSLD_0811.0] 1 1 AMP/OHM 0.0 0.00 0.00 0.00 0.000
          TO SHUNT (AMPS) 0.0 0.00

AT BUS 102 [TXWND 11.0] AREA 1 (KV L-G) V+: / 0.930/ -32.27

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
6 [BUSLD_0611.0] 1 1 AMP/OHM 8076.7 123.88 0.00 0.00 0.000
101 [WNDBUS .690] 1 1 AMP/OHM 8076.7 -56.12 0.00 0.00 0.000

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:46 . HOME BUS IS: .
. RADIAL NETWORK . . 6 .
. . [BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 2 LEVELS AWAY.

AT BUS 4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 10.884/ -8.56

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
3 [BUS_03 33.0] 1 1 AMP/OHM 1266.1 -60.85 10.58 48.41 1.127
5 [BUS_05 11.0] 1 1 AMP/OHM 1266.1 119.15 0.58 -156.18 0.441

AT BUS 8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
7 [BUSLD_0711.0] 1 1 AMP/OHM 0.0 0.00 0.00 0.00 0.000

```

```

          9 [BUSLD_0911.0]  1 1 AMP/OHM      0.0    0.00    0.00    0.00    0.000
                    TO SHUNT (AMPS)      0.0    0.00

```

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.310/ 12.16

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
  102 [TXWND  11.0]  1 1 AMP/OHM 109445.1  -56.12   0.12  -156.16   0.442

```

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:46 . HOME BUS IS: .  
. RADIAL NETWORK . 6 .  
. .[BUSLD\_0611.0].  
. \*\*\* FAULTED BUS IS : 6 [BUSLD\_0611.0] \*\*\* . 3 LEVELS AWAY.

AT BUS 3 [BUS\_03 33.0] AREA 1 (KV L-G) V+: / 13.394/ -12.44

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
  2 [BUS_TX  132]  1 1 AMP/OHM 1266.1  -60.85  191.90   61.90   1.873
  4 [BUS_TX  33.0]  1 1 AMP/OHM 1266.1  119.15   8.60  -127.71   1.293

```

AT BUS 9 [BUSLD\_0911.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

```

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
  8 [BUSLD_0811.0]  1 1 AMP/OHM  0.0    0.00    0.00    0.00    0.000
                    TO SHUNT (AMPS)      0.0    0.00

```

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:46 . HOME BUS IS: .  
. RADIAL NETWORK . 6 .  
. .[BUSLD\_0611.0].  
. \*\*\* FAULTED BUS IS : 6 [BUSLD\_0611.0] \*\*\* . 4 LEVELS AWAY.

AT BUS 2 [BUS\_TX 132] AREA 1 (KV L-G) V+: / 68.247/ 1.05

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   1 [INF_BUS 132]   1 1  AMP/OHM  355.6  -60.85  203.64  58.84   1.654
   3 [BUS_03 33.0]   1 1  AMP/OHM  355.6  119.15  10.58  -131.59 1.127

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:46 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 5 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS 132] AREA      1      (KV L-G) V+: / 72.423/  -2.01

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                AMP/      355.6  -60.85
   2 [BUS_TX 132]   1 1  AMP/OHM  355.6  119.15  191.90  -118.10  1.873
DIAGONALS =      11 OFF-DIAGONALS =      10 MAX SIZE =      20
POS. SEQUENCE: DIAGONALS =      11 OFF-DIAGONALS =      10

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:46 . HOME BUS IS: .
. RADIAL NETWORK                      .           5           .
.                                     . [BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 0 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05 11.0] AREA      1      (KV L-G) V+: / 0.000/  0.00

```

```

THEV. R, X, X/R: POSITIVE 0.30555 0.47932 1.569

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   4 [BUS_TX 33.0]   1 1  AMP/OHM  4503.9  -72.54   5.01   78.69   5.000
   6 [BUSLD_0611.0]  1 1  AMP/OHM  4578.0  -34.27   0.58   23.82   0.441
TOTAL FAULT CURRENT (AMPS)  8580.2  -53.24

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:46 . HOME BUS IS: .
. RADIAL NETWORK                      .           5           .
.                                     . [BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 1 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 7.920/ 6.15

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   3 [BUS_03 33.0]  1 1  AMP/OHM  1580.3  -72.54   6.62   65.49   2.193
   5 [BUS_05 11.0]  1 1  AMP/OHM  1580.3  107.46   0.00   0.00   0.000

```

```

AT BUS      6 [BUSLD_0611.0] AREA 1 (KV L-G) V+: / 2.634/ -10.46

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   5 [BUS_05 11.0]  1 1  AMP/OHM  4578.0  145.73   0.00   0.00   0.000
   7 [BUSLD_0711.0] 1 1  AMP/OHM   94.4   150.45  27.34 -161.01  0.344
  102 [TXWND 11.0]  1 1  AMP/OHM  4834.2  -34.14   0.66   23.71  0.439
      TO SHUNT (AMPS)  162.1  -33.15

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:46 . HOME BUS IS: .
. RADIAL NETWORK                        .           5           .
.                                         . [BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 2 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 10.464/ -7.05

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   2 [BUS_TX 132]  1 1  AMP/OHM  1580.3  -72.54  149.80  76.02  4.016
   4 [BUS_TX 33.0]  1 1  AMP/OHM  1580.3  107.46   5.01 -101.31  5.000

```

```

AT BUS      7 [BUSLD_0711.0] AREA 1 (KV L-G) V+: / 2.580/ -10.56

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   6 [BUSLD_0611.0] 1 1  AMP/OHM   94.4  -29.55  27.91  19.09  0.346
   8 [BUSLD_0811.0] 1 1  AMP/OHM   49.6  152.99  51.65 -163.60  0.294
      TO SHUNT (AMPS)  44.9  -32.36

```

```

AT BUS 102 [TXWND 11.0] AREA 1 (KV L-G) V+: / 3.190/ -10.43

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
   6 [BUSLD_0611.0] 1 1 AMP/OHM 4834.2 145.86 0.54 -156.31 0.439
  101 [WNDBUS .690] 1 1 AMP/OHM 4834.2 -34.14 0.01 45.45 1.016

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:46 . HOME BUS IS: .
. RADIAL NETWORK . 5 .
. . [BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 3 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 66.499/ 3.48

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
   1 [INF_BUS 132] 1 1 AMP/OHM 443.9 -72.54 158.82 71.20 2.938
   3 [BUS_03 33.0] 1 1 AMP/OHM 443.9 107.46 6.62 -114.51 2.193

AT BUS 8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 2.563/ -10.60

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
   7 [BUSLD_0711.0] 1 1 AMP/OHM 49.6 -27.01 51.99 16.45 0.295
   9 [BUSLD_0911.0] 1 1 AMP/OHM 23.1 155.32 110.29 -165.96 0.250
      TO SHUNT (AMPS) 26.5 -29.04

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.352/ 11.30

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 65506.6 -34.14
  102 [TXWND 11.0] 1 1 AMP/OHM 65506.6 145.86 0.66 -156.29 0.439

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:46 . HOME BUS IS: .
. RADIAL NETWORK                      .           5           .
.                                     .[BUS_05 11.0].
.   *** FAULTED BUS IS :      5 [BUS_05 11.0] ***   . 4 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 70.501/ -1.34

```

----- FROM -----		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R	
/I+/ MACHINE 1	AN(I+)	/Z+/ 2 [BUS_TX	132]	1 1	AMP/OHM	443.9	107.46	149.80	-103.98	4.016
						443.9	-72.54			

```

AT BUS      9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 2.552/ -10.64

```

----- FROM -----		AREA	CKT	I/Z	T H R E E P H A S E F A U L T			APP	X/R
/I+/ 8 [BUSLD_0811.0]	AN(I+)	/Z+/ 11 [BUSLD_0811.0]	1 1	AMP/OHM	23.1	-24.68	110.74	14.08	0.251
					23.1	-24.68			
				TO SHUNT (AMPS)	23.1	-24.68			



# Appendix E6

Fault levels for at Busbars 5- 10 with Distributed generation connected at Busbar 5

**1 Turbine connected to Busbar 5**

```
. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:59 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                         .[BUSLD_0911.0].
.   *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 0 LEVELS AWAY.
```

```
AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  0.000/  0.00
```

```
THEV. R, X, X/R: POSITIVE  1.51517  0.90905  0.600
```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      8 [BUSLD_0811.0]   1 1  AMP/OHM  2475.4  -31.86   0.46   23.84   0.442
              TO SHUNT (AMPS)      0.0    0.00
      TOTAL FAULT CURRENT (AMPS)  2475.4  -31.86
```

```
. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:59 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                         .[BUSLD_0911.0].
.   *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 1 LEVELS AWAY.
```

```
AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  1.140/  -8.02
```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      7 [BUSLD_0711.0]   1 1  AMP/OHM  2488.0  -31.83   0.80   23.80   0.441
      9 [BUSLD_0911.0]   1 1  AMP/OHM  2475.4  148.14   0.00   0.00   0.000
              TO SHUNT (AMPS)      12.8  -26.45
```

```
. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:59 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                         .[BUSLD_0911.0].
.   *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 2 LEVELS AWAY.
```

```
AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  1.998/  -8.03
```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM  2525.6  -31.80   1.37   23.79   0.441
   8 [BUSLD_0811.0]   1 1  AMP/OHM  2488.0  148.17   0.46  -156.18  0.441
          TO SHUNT  (AMPS)    37.5   -29.83

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:59 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 3 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  3.451/  -8.01

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM  2754.3  -31.71   1.83   23.74   0.440
   7 [BUSLD_0711.0]   1 1  AMP/OHM  2525.6  148.20   0.79  -156.23  0.440
          TO SHUNT  (AMPS)    228.8  -30.71

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:59 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 4 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05  11.0] AREA  1  (KV L-G) V+: /  5.036/  -7.98

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1711.9  -57.67  27.98   54.61   1.407
   6 [BUSLD_0611.0]   1 1  AMP/OHM  2754.3  148.29   1.25  -156.30  0.439
  102 [TXBUS  11.0]   1 1  AMP/OHM  1427.6   -0.05   3.63   -6.97   0.122

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:59 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 5 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 16.928/  -3.07

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E F A U L T				
					/I+/	AN(I+)	/Z+/	AN(Z+)	APP X/R
3	[BUS_03 33.0]	1	1	AMP/OHM	604.9	-57.67	29.92	53.08	1.331
5	[BUS_05 11.0]	1	1	AMP/OHM	604.9	122.33	2.94	-130.30	1.179

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 5.176/ -7.02

FROM		AREA	CKT	I/Z	T H R E E P H A S E F A U L T				
					/I+/	AN(I+)	/Z+/	AN(Z+)	APP X/R
5	[BUS_05 11.0]	1	1	AMP/OHM	1427.6	179.95	3.53	172.07	0.139
101	[WNDBUS .690]	1	1	AMP/OHM	1427.6	-0.05	0.02	-0.05	0.001

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:59 . HOME BUS IS: .  
 . RADIAL NETWORK . 9 .  
 . .[BUSLD\_0911.0].  
 . \*\*\* FAULTED BUS IS : 9 [BUSLD\_0911.0] \*\*\* . 6 LEVELS AWAY.

AT BUS 3 [BUS\_03 33.0] AREA 1 (KV L-G) V+: / 18.101/ -4.59

FROM		AREA	CKT	I/Z	T H R E E P H A S E F A U L T				
					/I+/	AN(I+)	/Z+/	AN(Z+)	APP X/R
2	[BUS_TX 132]	1	1	AMP/OHM	604.9	-57.67	427.32	58.38	1.624
4	[BUS_TX 33.0]	1	1	AMP/OHM	604.9	122.33	27.98	-125.39	1.407

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.388/ -0.09

FROM		AREA	CKT	I/Z	T H R E E P H A S E F A U L T				
					/I+/	AN(I+)	/Z+/	AN(Z+)	APP X/R
MACHINE 1				AMP/	19345.7	-0.05			
102	[TXBUS 11.0]	1	1	AMP/OHM	19345.7	179.95	3.63	173.03	0.122

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:59 . HOME BUS IS: .  
 . RADIAL NETWORK . 9 .  
 . .[BUSLD\_0911.0].  
 . \*\*\* FAULTED BUS IS : 9 [BUSLD\_0911.0] \*\*\* . 7 LEVELS AWAY.

```

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 73.437/    0.71

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   1 [INF_BUS  132]   1 1  AMP/OHM  171.9   -57.67   439.54   57.06   1.543
   3 [BUS_03  33.0]   1 1  AMP/OHM  171.9   122.33   29.92   -126.92  1.331

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:59 . HOME BUS IS: .
. RADIAL NETWORK                        .                9 .
.                                         .[BUSLD_0911.0].
.   *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 8 LEVELS AWAY.

AT BUS      1 [INF_BUS  132] AREA  1  (KV L-G) V+: / 75.536/   -0.61

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
MACHINE 1                                AMP/      171.9   -57.67
   2 [BUS_TX  132]   1 1  AMP/OHM  171.9   122.33   427.32  -121.62   1.624
DIAGONALS =      11 OFF-DIAGONALS =    10 MAX SIZE =    20
POS. SEQUENCE: DIAGONALS =      11 OFF-DIAGONALS =    10

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:59 . HOME BUS IS: .
. RADIAL NETWORK                        .                8 .
.                                         .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 0 LEVELS AWAY.

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  0.000/    0.00

THEV. R, X, X/R: POSITIVE  1.17785  0.76475   0.649

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM  3128.4  -33.85    0.35    23.78   0.441
   9 [BUSLD_0911.0]   1 1  AMP/OHM    0.0     0.00    0.00    0.00   0.000
                                TO SHUNT (AMPS)    0.0     0.00
TOTAL FAULT CURRENT (AMPS)  3128.4  -33.85

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:59 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 1 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  1.080/ -10.07

```

				T H R E E P H A S E F A U L T		
FROM	AREA CKT I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
6 [BUSLD_0611.0]	1 1 AMP/OHM	3148.6 -33.83	0.92 23.80	0.441		
8 [BUSLD_0811.0]	1 1 AMP/OHM	3128.4 146.15	0.00 0.00	0.000		
	TO SHUNT (AMPS)	20.3 -31.87				

```

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

```

		T H R E E P H A S E F A U L T		
FROM	AREA CKT I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP X/R
8 [BUSLD_0811.0]	1 1 AMP/OHM	0.0 0.00	0.00 0.00	0.000
	TO SHUNT (AMPS)	0.0 0.00		

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:59 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 2 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  2.891/ -10.04

```

		T H R E E P H A S E F A U L T		
FROM	AREA CKT I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP X/R
5 [BUS_05 11.0]	1 1 AMP/OHM	3340.2 -33.77	1.44 23.77	0.440
7 [BUSLD_0711.0]	1 1 AMP/OHM	3148.6 146.17	0.34 -156.23	0.440
	TO SHUNT (AMPS)	191.6 -32.73		

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:59 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 3 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 4.813/ -10.00

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   4 [BUS_TX 33.0]  1 1  AMP/OHM  1870.9  -56.43   24.92   52.50   1.303
   6 [BUSLD_0611.0] 1 1  AMP/OHM  3340.2  146.23   0.87  -156.27  0.440
  102 [TXBUS 11.0]  1 1  AMP/OHM  1767.5   -9.70    2.83    0.65   0.011

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:59 . HOME BUS IS: .
. RADIAL NETWORK                      .           8 .
.                                       . [BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 4 LEVELS AWAY.

AT BUS      4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 16.475/ -3.93

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   3 [BUS_03 33.0]  1 1  AMP/OHM   661.1  -56.43   26.89   50.96   1.233
   5 [BUS_05 11.0]  1 1  AMP/OHM   661.1  123.57   2.57  -133.57  1.051

AT BUS     102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 4.999/ -9.05

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   5 [BUS_05 11.0]  1 1  AMP/OHM  1767.5  170.30   2.72  179.70   0.005
  101 [WNDBUS .690]  1 1  AMP/OHM  1767.5   -9.70    0.02    9.14   0.161

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:59 . HOME BUS IS: .
. RADIAL NETWORK                      .           8 .
.                                       . [BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 5 LEVELS AWAY.

AT BUS      3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 17.774/ -5.47

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R

```

```

2 [BUS_TX 132] 1 1 AMP/OHM 661.1 -56.43 388.61 57.08 1.545
4 [BUS_TX 33.0] 1 1 AMP/OHM 661.1 123.57 24.92 -127.50 1.303

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.385/ -0.56

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
MACHINE 1
102 [TXBUS 11.0] 1 1 AMP/OHM 23950.4 -9.70
23950.4 170.30 2.83 -179.35 0.011

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:59 . HOME BUS IS: .
. RADIAL NETWORK . 8 .
. .[BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 6 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 72.983/ 0.65

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
1 [INF_BUS 132] 1 1 AMP/OHM 187.8 -56.43 401.05 55.67 1.464
3 [BUS_03 33.0] 1 1 AMP/OHM 187.8 123.57 26.89 -129.04 1.233

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:59 . HOME BUS IS: .
. RADIAL NETWORK . 8 .
. .[BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 7 LEVELS AWAY.

AT BUS 1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 75.321/ -0.76

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
MACHINE 1
2 [BUS_TX 132] 1 1 AMP/OHM 187.8 -56.43
187.8 123.57 388.61 -122.92 1.545
DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20
POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:59 . HOME BUS IS: .

```



```

. RADIAL NETWORK
.
.      *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***
.
AT BUS      7 [BUSLD_0711.0] AREA  1   (KV L-G) V+: /  0.000/  0.00

THEV. R, X, X/R: POSITIVE  0.93060  0.66189  0.711

```

```

----- FROM -----AREA CKT  I/Z      T H R E E   P H A S E   F A U L T
      /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  6 [BUSLD_0611.0]  1 1  AMP/OHM  3874.7  -36.22   0.58    23.82   0.441
  8 [BUSLD_0811.0]  1 1  AMP/OHM   0.0    0.00   0.00    0.00   0.000
      TO SHUNT (AMPS)   0.0    0.00
TOTAL FAULT CURRENT (AMPS)  3874.7  -36.22

```

```

. PSS/E SHORT CIRCUIT OUTPUT      FRI, AUG 13 2004  13:59 . HOME BUS IS: .
. RADIAL NETWORK
.
.      *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***
.
AT BUS      6 [BUSLD_0611.0] AREA  1   (KV L-G) V+: /  2.229/ -12.41

```

```

----- FROM -----AREA CKT  I/Z      T H R E E   P H A S E   F A U L T
      /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  5 [BUS_05 11.0]  1 1  AMP/OHM  4022.4  -36.18   1.13    23.80   0.441
  7 [BUSLD_0711.0]  1 1  AMP/OHM  3874.7  143.78   0.00    0.00   0.000
      TO SHUNT (AMPS)  147.8  -35.10

```

```

AT BUS      8 [BUSLD_0811.0] AREA  1   (KV L-G) V+: /  0.000/  0.00

```

```

----- FROM -----AREA CKT  I/Z      T H R E E   P H A S E   F A U L T
      /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  7 [BUSLD_0711.0]  1 1  AMP/OHM   0.0    0.00   0.00    0.00   0.000
  9 [BUSLD_0911.0]  1 1  AMP/OHM   0.0    0.00   0.00    0.00   0.000
      TO SHUNT (AMPS)   0.0    0.00

```

```

. PSS/E SHORT CIRCUIT OUTPUT      FRI, AUG 13 2004  13:59 . HOME BUS IS: .

```

```

. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***
.
.          . 7 .
.          . [BUSLD_0711.0].
.          . 2 LEVELS AWAY.

AT BUS      5 [BUS_05  11.0] AREA  1  (KV L-G) V+: /  4.543/ -12.39

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  4 [BUS_TX  33.0]   1 1  AMP/OHM  2060.8   -55.63   21.87   50.77   1.225
  6 [BUSLD_0611.0]  1 1  AMP/OHM  4022.4   143.82    0.55  -156.23  0.441
 102 [TXBUS   11.0]  1 1  AMP/OHM  2189.4   -17.92    2.18    6.48   0.114

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  8 [BUSLD_0811.0]  1 1  AMP/OHM    0.0     0.00    0.00    0.00   0.000
          TO SHUNT (AMPS)    0.0     0.00

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:59 . HOME BUS IS: .
. RADIAL NETWORK
.
.          . 7 .
.          . [BUSLD_0711.0].
.          . 3 LEVELS AWAY.

.          *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 15.927/  -4.86

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  3 [BUS_03  33.0]   1 1  AMP/OHM   728.2   -55.63   23.86   49.18   1.158
  5 [BUS_05  11.0]   1 1  AMP/OHM   728.2   124.37    2.20  -136.76  0.941

AT BUS     102 [TXBUS   11.0] AREA  1  (KV L-G) V+: /  4.783/ -11.44

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  5 [BUS_05  11.0]   1 1  AMP/OHM  2189.4   162.08    2.08  -174.47  0.097

```

```

101 [WNDBUS .690] 1 1 AMP/OHM 2189.4 -17.92 0.01 16.84 0.303
. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:59 . HOME BUS IS: .
. RADIAL NETWORK . 7 .
. .[BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 4 LEVELS AWAY.

AT BUS 3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 17.373/ -6.45

T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
2 [BUS_TX 132] 1 1 AMP/OHM 728.2 -55.63 350.19 56.24 1.496
4 [BUS_TX 33.0] 1 1 AMP/OHM 728.2 124.37 21.87 -129.23 1.225

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.381/ -1.07

T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 29668.5 -17.92
102 [TXBUS 11.0] 1 1 AMP/OHM 29668.5 162.08 2.18 -173.52 0.114

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:59 . HOME BUS IS: .
. RADIAL NETWORK . 7 .
. .[BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 5 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 72.446/ 0.61

T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
1 [INF_BUS 132] 1 1 AMP/OHM 206.9 -55.63 362.79 54.71 1.413
3 [BUS_03 33.0] 1 1 AMP/OHM 206.9 124.37 23.86 -130.82 1.158

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:59 . HOME BUS IS: .
. RADIAL NETWORK . 7 .
. .[BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 6 LEVELS AWAY.

```

AT BUS 1 [INF\_BUS 132] AREA 1 (KV L-G) V+: / 75.053/ -0.92

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                AMP/      206.9  -55.63
      2 [BUS_TX 132]    1 1  AMP/OHM  206.9  124.37  350.19 -123.76  1.496
DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20
POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10
```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:59 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 0 LEVELS AWAY.
```

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.52619 0.49869 0.948

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      5 [BUS_05 11.0]  1 1  AMP/OHM  6241.9 -44.16   0.58   23.82   0.441
      7 [BUSLD_0711.0] 1 1  AMP/OHM   0.0    0.00   0.00   0.00   0.000
          TO SHUNT (AMPS)  0.0    0.00
TOTAL FAULT CURRENT (AMPS) 6241.9 -44.16
```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:59 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 1 LEVELS AWAY.
```

AT BUS 5 [BUS\_05 11.0] AREA 1 (KV L-G) V+: / 3.591/ -20.34

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      4 [BUS_TX 33.0]  1 1  AMP/OHM  2698.9 -56.20  14.67   49.10   1.154
      6 [BUSLD_0611.0] 1 1  AMP/OHM  6241.9 135.84   0.00   0.00   0.000
     102 [TXBUS 11.0]  1 1  AMP/OHM  3646.1 -35.27   1.10   15.86   0.284
```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  0.000/    0.00

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM      0.0     0.00     0.00     0.00     0.000
   8 [BUSLD_0811.0]   1 1  AMP/OHM      0.0     0.00     0.00     0.00     0.000
                TO SHUNT  (AMPS)      0.0     0.00

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  13:59 . HOME BUS IS: .
. RADIAL NETWORK                        .                6 .
.                                         . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] ***          . 2 LEVELS AWAY.

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 13.991/   -7.10

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM     953.7   -56.20    16.68    47.02    1.073
   5 [BUS_05  11.0]   1 1  AMP/OHM     953.7   123.80     1.33   -144.14    0.723

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  0.000/    0.00

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM      0.0     0.00     0.00     0.00     0.000
   9 [BUSLD_0911.0]   1 1  AMP/OHM      0.0     0.00     0.00     0.00     0.000
                TO SHUNT  (AMPS)      0.0     0.00

AT BUS     102 [TXBUS   11.0] AREA  1  (KV L-G) V+: /  4.006/   -19.41

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM    3646.1   144.73     0.98   -165.07    0.267
  101 [WNDBUS  .690]   1 1  AMP/OHM    3646.1   -35.27     0.01    32.80    0.644

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:59 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     .[BUSLD_0611.0].
.   *** FAULTED BUS IS :           6 [BUSLD_0611.0] ***   . 3 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 15.904/ -9.19

```

```

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  2 [BUS_TX 132] 1 1 AMP/OHM 953.7 -56.20 260.81 56.95 1.537
  4 [BUS_TX 33.0] 1 1 AMP/OHM 953.7 123.80 14.67 -130.90 1.154

```

```

AT BUS      9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

```

```

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  8 [BUSLD_0811.0] 1 1 AMP/OHM 0.0 0.00 0.00 0.00 0.000
      TO SHUNT (AMPS) 0.0 0.00

```

```

AT BUS     101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.366/ -2.47

```

```

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
MACHINE 1
  102 [TXBUS 11.0] 1 1 AMP/OHM 49407.3 144.73 1.10 -164.14 0.284

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:59 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     .[BUSLD_0611.0].
.   *** FAULTED BUS IS :           6 [BUSLD_0611.0] ***   . 4 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 70.662/ 0.75

```

```

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R

```

```

1 [INF_BUS 132] 1 1 AMP/OHM 270.9 -56.20 273.33 54.89 1.422
3 [BUS_03 33.0] 1 1 AMP/OHM 270.9 123.80 16.68 -132.99 1.073

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:59 . HOME BUS IS: .
. RADIAL NETWORK . 6 .
. .[BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 5 LEVELS AWAY.

AT BUS 1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 74.056/ -1.31

----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 270.9 -56.20
2 [BUS_TX 132] 1 1 AMP/OHM 270.9 123.80 260.81 -123.05 1.537
DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20
POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:59 . HOME BUS IS: .
. RADIAL NETWORK . 5 .
. .[BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 0 LEVELS AWAY.

AT BUS 5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.12809 0.35882 2.801

----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
4 [BUS_TX 33.0] 1 1 AMP/OHM 4537.9 -72.00 4.94 78.69 5.000
6 [BUSLD_0611.0] 1 1 AMP/OHM 0.0 0.00 0.00 0.00 0.000
102 [TXBUS 11.0] 1 1 AMP/OHM 8056.5 -70.29 0.12 23.84 0.442
TOTAL FAULT CURRENT (AMPS) 12593.2 -70.91

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 13:59 . HOME BUS IS: .
. RADIAL NETWORK . 5 .
. .[BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 1 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: /  7.923/    6.69

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  3 [BUS_03  33.0]   1 1  AMP/OHM  1603.5  -72.00    6.55    65.35    2.179
  5 [BUS_05  11.0]   1 1  AMP/OHM  1603.5  108.00    0.00    0.00    0.000

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  0.000/    0.00

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  5 [BUS_05  11.0]   1 1  AMP/OHM    0.0    0.00    0.00    0.00    0.000
  7 [BUSLD_0711.0]   1 1  AMP/OHM    0.0    0.00    0.00    0.00    0.000
      TO SHUNT (AMPS)    0.0    0.00

```

```

AT BUS     102 [TXBUS   11.0] AREA  1  (KV L-G) V+: /  0.927/   -46.45

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  5 [BUS_05  11.0]   1 1  AMP/OHM  8056.5  109.71    0.00    0.00    0.000
 101 [WNDBUS  .690]   1 1  AMP/OHM  8056.5  -70.29    0.00    0.00    0.000

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:59 . HOME BUS IS: .
. RADIAL NETWORK                      .           5           .
.                                     . [BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] ***          . 2 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 10.508/   -6.65

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  2 [BUS_TX   132]   1 1  AMP/OHM  1603.5  -72.00   145.59    76.00    4.011
  4 [BUS_TX   33.0]   1 1  AMP/OHM  1603.5  108.00    4.94  -101.31    5.000

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  0.000/    0.00

```



```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM    0.0    0.00    0.00    0.00    0.000
   8 [BUSLD_0811.0]   1 1  AMP/OHM    0.0    0.00    0.00    0.00    0.000
          TO SHUNT  (AMPS)    0.0    0.00

```

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.310/ -2.02

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1
  102 [TXBUS 11.0]   1 1  AMP/OHM 109171.8 109.71    0.12 -156.16    0.442

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:59 . HOME BUS IS: .
. RADIAL NETWORK                      .                5 .
.                                       . [BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 3 LEVELS AWAY.

```

AT BUS 2 [BUS\_TX 132] AREA 1 (KV L-G) V+: / 66.321/ 4.00

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   1 [INF_BUS 132]   1 1  AMP/OHM 455.5  -72.00  154.62   71.06   2.913
   3 [BUS_03 33.0]   1 1  AMP/OHM 455.5  108.00   6.55  -114.65   2.179

```

AT BUS 8 [BUSLD\_0811.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM    0.0    0.00    0.00    0.00    0.000
   9 [BUSLD_0911.0]   1 1  AMP/OHM    0.0    0.00    0.00    0.00    0.000
          TO SHUNT  (AMPS)    0.0    0.00

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 13:59 . HOME BUS IS: .
. RADIAL NETWORK                      .                5 .

```

```

.
.      *** FAULTED BUS IS :      5 [BUS_05 11.0] ***      .[BUS_05 11.0].
.                                     . 4 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 70.437/ -0.94

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
MACHINE 1
          2 [BUS_TX 132] 1 1 AMP/OHM 455.5 -72.00 145.59 -104.00 4.011

```

```

AT BUS      9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
          8 [BUSLD_0811.0] 1 1 AMP/OHM 0.0 0.00 0.00 0.00 0.000
          TO SHUNT (AMPS) 0.0 0.00

```

## 2 Turbines connected to Busbar 5

```

PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:08 . HOME BUS IS: .
. RADIAL NETWORK                      .          9 .
.                                     .[BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 0 LEVELS AWAY.

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

THEV. R, X, X/R: POSITIVE  1.51499  0.90882  0.600

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      8 [BUSLD_0811.0]   1 1  AMP/OHM  2472.9  -30.27   0.46   23.84   0.442
                TO SHUNT (AMPS)      0.0    0.00
      TOTAL FAULT CURRENT (AMPS)  2472.9  -30.27

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:08 . HOME BUS IS: .
. RADIAL NETWORK                      .          9 .
.                                     .[BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 1 LEVELS AWAY.

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  1.138/  -6.43

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      7 [BUSLD_0711.0]   1 1  AMP/OHM  2485.6  -30.24   0.80   23.80   0.441
      9 [BUSLD_0911.0]   1 1  AMP/OHM  2472.9  149.73   0.00   0.00   0.000
                TO SHUNT (AMPS)      12.8  -24.86

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:08 . HOME BUS IS: .
. RADIAL NETWORK                      .          9 .
.                                     .[BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 2 LEVELS AWAY.

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  1.996/  -6.44

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   6 [BUSLD_0611.0]  1 1  AMP/OHM  2523.2  -30.21    1.37    23.79    0.441
   8 [BUSLD_0811.0]  1 1  AMP/OHM  2485.6  149.76    0.46   -156.18    0.441
                TO SHUNT  (AMPS)    37.6    -28.25

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:08 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .
.                                     .[BUSLD_0911.0].
. *** FAULTED BUS IS :          9 [BUSLD_0911.0] *** . 3 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  3.448/  -6.43

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   5 [BUS_05  11.0]  1 1  AMP/OHM  2752.2  -30.12    1.83    23.74    0.440
   7 [BUSLD_0711.0]  1 1  AMP/OHM  2523.2  149.79    0.79   -156.23    0.440
                TO SHUNT  (AMPS)    229.0   -29.12

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:08 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .
.                                     .[BUSLD_0911.0].
. *** FAULTED BUS IS :          9 [BUSLD_0911.0] *** . 4 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05  11.0] AREA  1  (KV L-G) V+: /  5.031/  -6.39

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   4 [BUS_TX  33.0]  1 1  AMP/OHM  1686.7  -60.60   28.46    58.34    1.622
   6 [BUSLD_0611.0]  1 1  AMP/OHM  2752.2  149.88    1.25   -156.30    0.439
  102 [TXBUS  11.0]  1 1  AMP/OHM  1555.1    3.25    3.33    -8.55    0.150

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:08 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .
.                                     .[BUSLD_0911.0].
. *** FAULTED BUS IS :          9 [BUSLD_0911.0] *** . 5 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 16.963/  -2.26

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  596.0   -60.60   30.35   56.60   1.517
   5 [BUS_05  11.0]   1 1  AMP/OHM  596.0   119.40   2.98   -125.79  1.387

```

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 5.182/ -5.30

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM 1555.1  -176.75   3.24   170.36   0.170
 101 [WNDBUS  .690]   1 1  AMP/OHM 1555.1    3.25    0.02    -0.99    0.017

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:08 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                         . [BUSLD_0911.0].
. *** FAULTED BUS IS :          9 [BUSLD_0911.0] *** . 6 LEVELS AWAY.

```

AT BUS 3 [BUS\_03 33.0] AREA 1 (KV L-G) V+: / 18.087/ -4.00

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   2 [BUS_TX  132]   1 1  AMP/OHM  596.0   -60.60  434.58   61.36   1.831
   4 [BUS_TX  33.0]   1 1  AMP/OHM  596.0   119.40   28.46  -121.66   1.622

```

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.388/ 2.27

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1                AMP/      21072.3    3.25
 102 [TXBUS  11.0]   1 1  AMP/OHM 21072.4  -176.75    3.33   171.45    0.150

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:08 . HOME BUS IS: .
. RADIAL NETWORK                        .           9 .
.                                         . [BUSLD_0911.0].
. *** FAULTED BUS IS :          9 [BUSLD_0911.0] *** . 7 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 73.581/    0.75

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      1 [INF_BUS  132]   1 1  AMP/OHM  169.3  -60.60  446.26  59.98   1.730
      3 [BUS_03  33.0]   1 1  AMP/OHM  169.3  119.40  30.35  -123.40  1.517

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:08 . HOME BUS IS: .
. RADIAL NETWORK                        .                   9 .
.                                         . [BUSLD_0911.0].
. *** FAULTED BUS IS :      9 [BUSLD_0911.0] *** . 8 LEVELS AWAY.

AT BUS      1 [INF_BUS  132] AREA  1  (KV L-G) V+: / 75.560/   -0.63

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                                AMP/    169.3  -60.60
      2 [BUS_TX  132]   1 1  AMP/OHM  169.3  119.40  434.58  -118.64  1.831
DIAGONALS =      11 OFF-DIAGONALS =    10 MAX SIZE =    20
POS. SEQUENCE: DIAGONALS =      11 OFF-DIAGONALS =    10

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:08 . HOME BUS IS: .
. RADIAL NETWORK                        .                   8 .
.                                         . [BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 0 LEVELS AWAY.

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  0.000/    0.00

THEV. R, X, X/R: POSITIVE  1.17770  0.76454   0.649

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      7 [BUSLD_0711.0]   1 1  AMP/OHM  3125.3  -32.26   0.35   23.78   0.441
      9 [BUSLD_0911.0]   1 1  AMP/OHM   0.0    0.00    0.00    0.00   0.000
                TO SHUNT (AMPS)   0.0    0.00
TOTAL FAULT CURRENT (AMPS)  3125.3  -32.26

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:08 . HOME BUS IS: .
. RADIAL NETWORK                        .           8           .
.                                     .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 1 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  1.079/  -8.48

```

				T H R E E P H A S E F A U L T		
FROM	AREA CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
6 [BUSLD_0611.0]	1 1	AMP/OHM	3145.6 -32.25	0.92	23.80	0.441
8 [BUSLD_0811.0]	1 1	AMP/OHM	3125.3 147.74	0.00	0.00	0.000
TO SHUNT (AMPS)			20.3 -30.28			

```

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

```

				T H R E E P H A S E F A U L T		
FROM	AREA CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
8 [BUSLD_0811.0]	1 1	AMP/OHM	0.0 0.00	0.00	0.00	0.000
TO SHUNT (AMPS)			0.0 0.00			

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:08 . HOME BUS IS: .
. RADIAL NETWORK                        .           8           .
.                                     .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 2 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  2.888/  -8.45

```

				T H R E E P H A S E F A U L T		
FROM	AREA CKT	I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R
5 [BUS_05 11.0]	1 1	AMP/OHM	3337.5 -32.18	1.44	23.77	0.440
7 [BUSLD_0711.0]	1 1	AMP/OHM	3145.6 147.75	0.34	-156.23	0.440
TO SHUNT (AMPS)			191.9 -31.14			

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:08 . HOME BUS IS: .
. RADIAL NETWORK                        .           8           .
.                                     .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 3 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 4.809/ -8.42

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   4 [BUS_TX 33.0]  1 1  AMP/OHM  1842.1  -58.96  25.37  55.82  1.472
   6 [BUSLD_0611.0] 1 1  AMP/OHM  3337.5  147.82  0.87  -156.27 0.440
  102 [TXBUS 11.0]  1 1  AMP/OHM  1885.4   -6.07  2.65  -1.25  0.022

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:08 . HOME BUS IS: .
. RADIAL NETWORK                        .                8 .
.                                        . [BUSLD_0811.0].
.    *** FAULTED BUS IS :              8 [BUSLD_0811.0] *** . 4 LEVELS AWAY.

AT BUS      4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 16.514/ -3.15

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   3 [BUS_03 33.0]  1 1  AMP/OHM  650.9  -58.96  27.29  54.06  1.379
   5 [BUS_05 11.0]  1 1  AMP/OHM  650.9  121.04  2.61  -129.46 1.215

AT BUS     102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 5.004/ -7.32

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   5 [BUS_05 11.0]  1 1  AMP/OHM  1885.4  173.93  2.55  177.65  0.041
  101 [WNDBUS .690]  1 1  AMP/OHM  1885.4   -6.07  0.02   7.88  0.138

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:08 . HOME BUS IS: .
. RADIAL NETWORK                        .                8 .
.                                        . [BUSLD_0811.0].
.    *** FAULTED BUS IS :              8 [BUSLD_0811.0] *** . 5 LEVELS AWAY.

AT BUS      3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 17.766/ -4.90

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R

```



```

2 [BUS_TX 132] 1 1 AMP/OHM 650.9 -58.96 395.47 59.65 1.708
4 [BUS_TX 33.0] 1 1 AMP/OHM 650.9 121.04 25.37 -124.18 1.472

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.385/ 1.81

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
MACHINE 1
102 [TXBUS 11.0] 1 1 AMP/OHM 25548.7 -6.07
          25548.7 173.93 2.65 178.75 0.022

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:08 . HOME BUS IS: .
. RADIAL NETWORK                      . 8 .
.                                     . [BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 6 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 73.130/ 0.69

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
1 [INF_BUS 132] 1 1 AMP/OHM 184.9 -58.96 407.48 58.18 1.612
3 [BUS_03 33.0] 1 1 AMP/OHM 184.9 121.04 27.29 -125.94 1.379

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:08 . HOME BUS IS: .
. RADIAL NETWORK                      . 8 .
.                                     . [BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 7 LEVELS AWAY.

AT BUS 1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 75.350/ -0.78

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
MACHINE 1
2 [BUS_TX 132] 1 1 AMP/OHM 184.9 -58.96
          184.9 121.04 395.47 -120.35 1.708
DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20
POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:08 . HOME BUS IS: .

```

```

. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***
.
.          .[BUSLD_0711.0].
.          . 0 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

```

```

THEV. R, X, X/R: POSITIVE 0.93048 0.66170 0.711

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
6	[BUSLD_0611.0]	1	1	AMP/OHM	3871.0	-34.63	0.58	23.82	0.441
8	[BUSLD_0811.0]	1	1	AMP/OHM	0.0	0.00	0.00	0.00	0.000
				TO SHUNT (AMPS)	0.0	0.00			
TOTAL FAULT CURRENT (AMPS)					3871.0	-34.63			

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:08 . HOME BUS IS: .
. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***
.
.          .[BUSLD_0711.0].
.          . 1 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA 1 (KV L-G) V+: / 2.227/ -10.82

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
5	[BUS_05 11.0]	1	1	AMP/OHM	4018.9	-34.59	1.13	23.80	0.441
7	[BUSLD_0711.0]	1	1	AMP/OHM	3871.0	145.37	0.00	0.00	0.000
				TO SHUNT (AMPS)	147.9	-33.51			

```

AT BUS      8 [BUSLD_0811.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
7	[BUSLD_0711.0]	1	1	AMP/OHM	0.0	0.00	0.00	0.00	0.000
9	[BUSLD_0911.0]	1	1	AMP/OHM	0.0	0.00	0.00	0.00	0.000
				TO SHUNT (AMPS)	0.0	0.00			

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:08 . HOME BUS IS: .

```

```

. RADIAL NETWORK . 7 .
. [BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 2 LEVELS AWAY.

AT BUS 5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 4.539/ -10.80

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  4 [BUS_TX 33.0] 1 1 AMP/OHM 2029.6 -57.76 22.27 53.67 1.360
  6 [BUSLD_0611.0] 1 1 AMP/OHM 4018.9 145.41 0.55 -156.23 0.441
 102 [TXBUS 11.0] 1 1 AMP/OHM 2296.4 -14.24 2.08 4.55 0.080

AT BUS 9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  8 [BUSLD_0811.0] 1 1 AMP/OHM 0.0 0.00 0.00 0.00 0.000
      TO SHUNT (AMPS) 0.0 0.00

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 14:08 . HOME BUS IS: .
. RADIAL NETWORK . 7 .
. [BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 3 LEVELS AWAY.

AT BUS 4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 15.970/ -4.10

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  3 [BUS_03 33.0] 1 1 AMP/OHM 717.2 -57.76 24.22 51.86 1.274
  5 [BUS_05 11.0] 1 1 AMP/OHM 717.2 122.24 2.24 -133.03 1.071

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 4.788/ -9.70

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  5 [BUS_05 11.0] 1 1 AMP/OHM 2296.4 165.76 1.98 -176.55 0.060

```

```

101 [WNDBUS .690] 1 1 AMP/OHM 2296.4 -14.24 0.01 15.54 0.278
. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:08 . HOME BUS IS: .
. RADIAL NETWORK                        .           7           .
.                                         .[BUSLD_0711.0].
.     *** FAULTED BUS IS :           7 [BUSLD_0711.0] *** . 4 LEVELS AWAY.

AT BUS      3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 17.370/ -5.90

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
  2 [BUS_TX 132] 1 1 AMP/OHM 717.2 -57.76 356.32 58.40 1.626
  4 [BUS_TX 33.0] 1 1 AMP/OHM 717.2 122.24 22.27 -126.33 1.360

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.381/ 1.30

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
MACHINE 1                AMP/ 31118.4 -14.24
 102 [TXBUS 11.0] 1 1 AMP/OHM 31118.4 165.76 2.08 -175.45 0.080

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:08 . HOME BUS IS: .
. RADIAL NETWORK                        .           7           .
.                                         .[BUSLD_0711.0].
.     *** FAULTED BUS IS :           7 [BUSLD_0711.0] *** . 5 LEVELS AWAY.

AT BUS      2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 72.595/ 0.64

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
  1 [INF_BUS 132] 1 1 AMP/OHM 203.7 -57.76 368.55 56.83 1.530
  3 [BUS_03 33.0] 1 1 AMP/OHM 203.7 122.24 24.22 -128.14 1.274

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:08 . HOME BUS IS: .
. RADIAL NETWORK                        .           7           .
.                                         .[BUSLD_0711.0].
.     *** FAULTED BUS IS :           7 [BUSLD_0711.0] *** . 6 LEVELS AWAY.

```

AT BUS 1 [INF\_BUS 132] AREA 1 (KV L-G) V+: / 75.088/ -0.94

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1                AMP/      203.7  -57.76
      2 [BUS_TX 132]    1 1 AMP/OHM  203.7  122.24  356.32 -121.60  1.626
DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20
POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10
```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:08 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 0 LEVELS AWAY.
```

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.52613 0.49856 0.948

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      5 [BUS_05 11.0]  1 1 AMP/OHM  6236.3 -42.57   0.58   23.82   0.441
      7 [BUSLD_0711.0] 1 1 AMP/OHM   0.0    0.00   0.00   0.00   0.000
          TO SHUNT (AMPS)  0.0    0.00
TOTAL FAULT CURRENT (AMPS) 6236.3 -42.57
```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:08 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 1 LEVELS AWAY.
```

AT BUS 5 [BUS\_05 11.0] AREA 1 (KV L-G) V+: / 3.588/ -18.75

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
      4 [BUS_TX 33.0]  1 1 AMP/OHM  2667.4 -57.45  14.90   51.00   1.235
      6 [BUSLD_0611.0] 1 1 AMP/OHM  6236.3 137.43  0.00   0.00   0.000
     102 [TXBUS 11.0]  1 1 AMP/OHM  3722.1 -31.96   1.08   14.34   0.256
```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  0.000/    0.00

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)    APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM      0.0    0.00    0.00    0.00    0.000
   8 [BUSLD_0811.0]   1 1  AMP/OHM      0.0    0.00    0.00    0.00    0.000
                TO SHUNT  (AMPS)      0.0    0.00

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:08 . HOME BUS IS: .
. RADIAL NETWORK                        .                6 .
.                                         . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 2 LEVELS AWAY.

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 14.045/   -6.45

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)    APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM     942.5  -57.45   16.89   48.72   1.139
   5 [BUS_05  11.0]   1 1  AMP/OHM     942.5  122.55    1.35  -141.30  0.801

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  0.000/    0.00

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)    APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM      0.0    0.00    0.00    0.00    0.000
   9 [BUSLD_0911.0]   1 1  AMP/OHM      0.0    0.00    0.00    0.00    0.000
                TO SHUNT  (AMPS)      0.0    0.00

AT BUS     102 [TXBUS   11.0] AREA  1  (KV L-G) V+: /  4.010/  -17.62

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)    APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM    3722.1  148.04    0.96  -166.79  0.235
  101 [WNDBUS  .690]   1 1  AMP/OHM    3722.1  -31.96    0.01   31.89   0.622

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:08 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 3 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 15.918/ -8.73

```

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
2	[BUS_TX 132]	1	1	AMP/OHM	942.5	-57.45	264.45	58.19	1.612	
4	[BUS_TX 33.0]	1	1	AMP/OHM	942.5	122.55	14.90	-129.00	1.235	

```

AT BUS      9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

```

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
8	[BUSLD_0811.0]	1	1	AMP/OHM	0.0	0.00	0.00	0.00	0.000	
	TO SHUNT			(AMPS)	0.0	0.00				

```

AT BUS     101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.366/ -0.07

```

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
MACHINE 1				AMP/	50436.8	-31.96				
102	[TXBUS 11.0]	1	1	AMP/OHM	50436.8	148.04	1.08	-165.66	0.256	

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:08 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 4 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 70.809/ 0.74

```

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R

```

1 [INF_BUS 132] 1 1 AMP/OHM 267.8 -57.45 276.76 56.10 1.488
3 [BUS_03 33.0] 1 1 AMP/OHM 267.8 122.55 16.89 -131.28 1.139

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:08 . HOME BUS IS: .
. RADIAL NETWORK                        .           6           .
.                                       .[BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 5 LEVELS AWAY.

AT BUS      1 [INF_BUS 132] AREA      1      (KV L-G) V+: / 74.107/      -1.36

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
/I+/      AN(I+)      /Z+/      AN(Z+)      APP X/R
MACHINE 1          AMP/      267.8   -57.45
2 [BUS_TX 132] 1 1 AMP/OHM 267.8 122.55 264.45 -121.81 1.612
DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20
POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:08 . HOME BUS IS: .
. RADIAL NETWORK                        .           5           .
.                                       .[BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 0 LEVELS AWAY.

AT BUS      5 [BUS_05 11.0] AREA      1      (KV L-G) V+: / 0.000/      0.00

THEV. R, X, X/R: POSITIVE 0.12811 0.35879 2.801

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
/I+/      AN(I+)      /Z+/      AN(Z+)      APP X/R
4 [BUS_TX 33.0] 1 1 AMP/OHM 4540.6 -72.13 4.94 78.69 5.000
6 [BUSLD_0611.0] 1 1 AMP/OHM 0.0 0.00 0.00 0.00 0.000
102 [TXBUS 11.0] 1 1 AMP/OHM 8049.9 -67.74 0.12 23.84 0.442
TOTAL FAULT CURRENT (AMPS) 12582.0 -69.32

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:08 . HOME BUS IS: .
. RADIAL NETWORK                        .           5           .
.                                       .[BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 1 LEVELS AWAY.

```



```

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: /  7.928/    6.56

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  3 [BUS_03  33.0]   1 1  AMP/OHM  1604.5   -72.13    6.55    65.35    2.179
  5 [BUS_05  11.0]   1 1  AMP/OHM  1604.5   107.87    0.00    0.00    0.000

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  0.000/    0.00

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  5 [BUS_05  11.0]   1 1  AMP/OHM    0.0     0.00    0.00    0.00    0.000
  7 [BUSLD_0711.0]   1 1  AMP/OHM    0.0     0.00    0.00    0.00    0.000
      TO SHUNT (AMPS)    0.0     0.00

```

```

AT BUS     102 [TXBUS   11.0] AREA  1  (KV L-G) V+: /  0.926/   -43.89

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  5 [BUS_05  11.0]   1 1  AMP/OHM  8049.9   112.26    0.00    0.00    0.000
 101 [WNDBUS  .690]   1 1  AMP/OHM  8049.9   -67.74    0.00    0.00    0.000

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:08 . HOME BUS IS: .
. RADIAL NETWORK                      .           5           .
.                                     . [BUS_05  11.0].
. *** FAULTED BUS IS :      5 [BUS_05  11.0] ***          . 2 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 10.515/   -6.78

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  2 [BUS_TX   132]   1 1  AMP/OHM  1604.5   -72.13   145.59    76.00    4.011
  4 [BUS_TX   33.0]   1 1  AMP/OHM  1604.5   107.87    4.94   -101.31    5.000

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  0.000/    0.00

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM    0.0    0.00    0.00    0.00    0.000
   8 [BUSLD_0811.0]   1 1  AMP/OHM    0.0    0.00    0.00    0.00    0.000
                        TO SHUNT (AMPS)  0.0    0.00

```

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.309/ 0.54

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1
  102 [TXBUS 11.0]   1 1  AMP/OHM 109081.4 112.26    0.12 -156.16    0.442

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:08 . HOME BUS IS: .
. RADIAL NETWORK                      .                5                .
.                                     .[BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 3 LEVELS AWAY.

```

AT BUS 2 [BUS\_TX 132] AREA 1 (KV L-G) V+: / 66.361/ 3.88

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   1 [INF_BUS 132]   1 1  AMP/OHM  455.8  -72.13  154.62   71.06   2.913
   3 [BUS_03 33.0]   1 1  AMP/OHM  455.8  107.87   6.55  -114.65   2.179

```

AT BUS 8 [BUSLD\_0811.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM    0.0    0.00    0.00    0.00    0.000
   9 [BUSLD_0911.0]   1 1  AMP/OHM    0.0    0.00    0.00    0.00    0.000
                        TO SHUNT (AMPS)  0.0    0.00

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:08 . HOME BUS IS: .
. RADIAL NETWORK                      .                5                .

```

```

.
.      *** FAULTED BUS IS :      5 [BUS_05  11.0] ***      .[BUS_05  11.0].
.                                     . 4 LEVELS AWAY.

AT BUS      1 [INF_BUS  132] AREA  1  (KV L-G) V+: / 70.480/  -1.07

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
      2 [BUS_TX   132]   1 1  AMP/OHM  455.8   -72.13
                                455.8   107.87   145.59  -104.00   4.011

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  0.000/   0.00

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      8 [BUSLD_0811.0]   1 1  AMP/OHM   0.0    0.00    0.00    0.00    0.000
                                TO SHUNT (AMPS)  0.0    0.00

```



```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM  2519.8  -28.65   1.37   23.79   0.441
   8 [BUSLD_0811.0]   1 1  AMP/OHM  2482.2  151.32   0.46  -156.18  0.441
          TO SHUNT  (AMPS)    37.7   -26.68

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:12 . HOME BUS IS: .
. RADIAL NETWORK                        .           9           .
.                                       . [BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 3 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  3.443/  -4.86

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM  2749.2  -28.55   1.83   23.73   0.440
   7 [BUSLD_0711.0]   1 1  AMP/OHM  2519.8  151.35   0.79  -156.23  0.440
          TO SHUNT  (AMPS)    229.4  -27.55

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:12 . HOME BUS IS: .
. RADIAL NETWORK                        .           9           .
.                                       . [BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 4 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05  11.0] AREA  1  (KV L-G) V+: /  5.025/  -4.82

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1669.8  -63.60  28.80   62.13   1.891
   6 [BUSLD_0611.0]   1 1  AMP/OHM  2749.2  151.45   1.25  -156.30  0.439
  102 [TXBUS  11.0]   1 1  AMP/OHM  1682.2   6.19   3.08   -9.79   0.173

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:12 . HOME BUS IS: .
. RADIAL NETWORK                        .           9           .
.                                       . [BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 5 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 16.991/  -1.47

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM  590.0  -63.60   30.62   60.18   1.745
   5 [BUS_05  11.0]   1 1  AMP/OHM  590.0  116.40   3.01  -121.22  1.650

```

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 5.185/ -3.60

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM 1682.2 -173.81   2.99   168.99   0.195
  101 [WNDBUS  .690]   1 1  AMP/OHM 1682.2   6.19   0.02   -1.60   0.028

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:12 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .
.                                       . [BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 6 LEVELS AWAY.

```

AT BUS 3 [BUS\_03 33.0] AREA 1 (KV L-G) V+: / 18.067/ -3.42

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   2 [BUS_TX  132]   1 1  AMP/OHM  590.0  -63.60  439.81   64.41   2.088
   4 [BUS_TX  33.0]   1 1  AMP/OHM  590.0  116.40  28.80  -117.87   1.891

```

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.388/ 4.60

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1                AMP/      22795.3   6.19
  102 [TXBUS  11.0]   1 1  AMP/OHM 22795.3 -173.81   3.08   170.21   0.173

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:12 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .
.                                       . [BUSLD_0911.0].
. *** FAULTED BUS IS : 9 [BUSLD_0911.0] *** . 7 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 73.721/   0.80

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      1 [INF_BUS  132]   1 1  AMP/OHM  167.6  -63.60  450.93   62.96   1.959
      3 [BUS_03  33.0]   1 1  AMP/OHM  167.6  116.40   30.62  -119.82   1.745

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:12 . HOME BUS IS: .
. RADIAL NETWORK                        .                9 .
.                                         .[BUSLD_0911.0].
.      *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 8 LEVELS AWAY.

AT BUS      1 [INF_BUS  132] AREA  1  (KV L-G) V+: / 75.584/  -0.64

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                                AMP/      167.6  -63.60
      2 [BUS_TX  132]   1 1  AMP/OHM  167.6  116.40   439.81  -115.59   2.088
DIAGONALS =      11 OFF-DIAGONALS =    10 MAX SIZE =    20
POS. SEQUENCE: DIAGONALS =      11 OFF-DIAGONALS =    10

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:12 . HOME BUS IS: .
. RADIAL NETWORK                        .                8 .
.                                         .[BUSLD_0811.0].
.      *** FAULTED BUS IS :           8 [BUSLD_0811.0] *** . 0 LEVELS AWAY.

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  0.000/   0.00

THEV. R, X, X/R: POSITIVE  1.17748  0.76424   0.649

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      7 [BUSLD_0711.0]   1 1  AMP/OHM  3121.2  -30.69   0.35   23.78   0.441
      9 [BUSLD_0911.0]   1 1  AMP/OHM   0.0    0.00   0.00   0.00   0.000
                                TO SHUNT (AMPS)   0.0    0.00
TOTAL FAULT CURRENT (AMPS)  3121.2  -30.69

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:12 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 1 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  1.077/  -6.91

```

				T H R E E P H A S E F A U L T		
FROM	AREA CKT I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
6 [BUSLD_0611.0]	1 1 AMP/OHM	3141.5 -30.68	0.92 23.80	0.441		
8 [BUSLD_0811.0]	1 1 AMP/OHM	3121.2 149.31	0.00 0.00	0.000		
	TO SHUNT (AMPS)	20.3 -28.71				

```

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  0.000/  0.00

```

		T H R E E P H A S E F A U L T		
FROM	AREA CKT I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP X/R
8 [BUSLD_0811.0]	1 1 AMP/OHM	0.0 0.00	0.00 0.00	0.000
	TO SHUNT (AMPS)	0.0 0.00		

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:12 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 2 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  2.885/  -6.88

```

		T H R E E P H A S E F A U L T		
FROM	AREA CKT I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP X/R
5 [BUS_05 11.0]	1 1 AMP/OHM	3333.7 -30.61	1.44 23.77	0.440
7 [BUSLD_0711.0]	1 1 AMP/OHM	3141.5 149.32	0.34 -156.23	0.440
	TO SHUNT (AMPS)	192.2 -29.57		

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:12 . HOME BUS IS: .
. RADIAL NETWORK                      .           8           .
.                                     .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 3 LEVELS AWAY.

```



```

AT BUS      5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 4.803/ -6.85

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   4 [BUS_TX 33.0]  1 1  AMP/OHM  1820.7  -61.56   25.72   59.19   1.677
   6 [BUSLD_0611.0] 1 1  AMP/OHM  3333.7  149.39   0.87  -156.27  0.440
  102 [TXBUS 11.0]  1 1  AMP/OHM  2004.3   -2.77   2.50   -2.85   0.050

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:12 . HOME BUS IS: .
. RADIAL NETWORK                        .                8 .
.                                         . [BUSLD_0811.0].
.      *** FAULTED BUS IS :           8 [BUSLD_0811.0] *** . 4 LEVELS AWAY.

AT BUS      4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 16.546/ -2.37

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   3 [BUS_03 33.0]  1 1  AMP/OHM  643.3   -61.56   27.59   57.22   1.553
   5 [BUS_05 11.0]  1 1  AMP/OHM  643.3  118.44   2.64  -125.29  1.413

AT BUS     102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 5.008/ -5.61

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   5 [BUS_05 11.0]  1 1  AMP/OHM  2004.3  177.23   2.40  175.92   0.071
  101 [WNDBUS .690]  1 1  AMP/OHM  2004.3   -2.77   0.01   6.91   0.121

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:12 . HOME BUS IS: .
. RADIAL NETWORK                        .                8 .
.                                         . [BUSLD_0811.0].
.      *** FAULTED BUS IS :           8 [BUSLD_0811.0] *** . 5 LEVELS AWAY.

AT BUS      3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 17.752/ -4.34

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R

```

```

2 [BUS_TX 132] 1 1 AMP/OHM 643.3 -61.56 400.91 62.29 1.904
4 [BUS_TX 33.0] 1 1 AMP/OHM 643.3 118.44 25.72 -120.81 1.677

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.385/ 4.14

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
MACHINE 1
102 [TXBUS 11.0] 1 1 AMP/OHM 27159.3 -2.77
          27159.3 177.23 2.50 177.15 0.050

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:12 . HOME BUS IS: .
. RADIAL NETWORK                      . 8 .
.                                       . [BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 6 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 73.274/ 0.73

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
1 [INF_BUS 132] 1 1 AMP/OHM 182.8 -61.56 412.44 60.77 1.787
3 [BUS_03 33.0] 1 1 AMP/OHM 182.8 118.44 27.59 -122.78 1.553

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:12 . HOME BUS IS: .
. RADIAL NETWORK                      . 8 .
.                                       . [BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 7 LEVELS AWAY.

AT BUS 1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 75.380/ -0.79

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
MACHINE 1
2 [BUS_TX 132] 1 1 AMP/OHM 182.8 -61.56
          182.8 118.44 400.91 -117.71 1.904
DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20
POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:12 . HOME BUS IS: .

```

```

. RADIAL NETWORK
.
.      *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***
.
AT BUS      7 [BUSLD_0711.0] AREA  1   (KV L-G) V+: /  0.000/   0.00
THEV. R, X, X/R: POSITIVE  0.93031  0.66144   0.711

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
6	[BUSLD_0611.0]	1	1	AMP/OHM	3866.0	-33.07	0.58	23.82	0.441
8	[BUSLD_0811.0]	1	1	AMP/OHM	0.0	0.00	0.00	0.00	0.000
				TO SHUNT (AMPS)	0.0	0.00			
TOTAL FAULT CURRENT (AMPS)					3866.0	-33.07			

```

. PSS/E SHORT CIRCUIT OUTPUT      FRI, AUG 13 2004  14:12 . HOME BUS IS: .
. RADIAL NETWORK
.
.      *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***
.
AT BUS      6 [BUSLD_0611.0] AREA  1   (KV L-G) V+: /  2.224/  -9.25

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
5	[BUS_05 11.0]	1	1	AMP/OHM	4014.2	-33.02	1.13	23.80	0.441
7	[BUSLD_0711.0]	1	1	AMP/OHM	3866.0	146.94	0.00	0.00	0.000
				TO SHUNT (AMPS)	148.2	-31.94			

```

AT BUS      8 [BUSLD_0811.0] AREA  1   (KV L-G) V+: /  0.000/   0.00

```

FROM		AREA	CKT	I/Z	T H R E E P H A S E		F A U L T		
					/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R	
7	[BUSLD_0711.0]	1	1	AMP/OHM	0.0	0.00	0.00	0.00	0.000
9	[BUSLD_0911.0]	1	1	AMP/OHM	0.0	0.00	0.00	0.00	0.000
				TO SHUNT (AMPS)	0.0	0.00			

```

. PSS/E SHORT CIRCUIT OUTPUT      FRI, AUG 13 2004  14:12 . HOME BUS IS: .

```

```

. RADIAL NETWORK . 7 .
. [BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 2 LEVELS AWAY.

AT BUS 5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 4.534/ -9.23

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  4 [BUS_TX 33.0] 1 1 AMP/OHM 2004.6 -59.97 22.60 56.62 1.518
  6 [BUSLD_0611.0] 1 1 AMP/OHM 4014.2 146.98 0.55 -156.23 0.441
 102 [TXBUS 11.0] 1 1 AMP/OHM 2405.2 -10.84 1.99 2.86 0.050

AT BUS 9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  8 [BUSLD_0811.0] 1 1 AMP/OHM 0.0 0.00 0.00 0.00 0.000
      TO SHUNT (AMPS) 0.0 0.00

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 14:12 . HOME BUS IS: .
. RADIAL NETWORK . 7 .
. [BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 3 LEVELS AWAY.

AT BUS 4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 16.007/ -3.35

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  3 [BUS_03 33.0] 1 1 AMP/OHM 708.3 -59.97 24.51 54.61 1.407
  5 [BUS_05 11.0] 1 1 AMP/OHM 708.3 120.03 2.26 -129.26 1.223

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 4.791/ -7.98

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
  5 [BUS_05 11.0] 1 1 AMP/OHM 2405.2 169.16 1.88 -178.39 0.028

```

```

101 [WNDBUS .690] 1 1 AMP/OHM 2405.2 -10.84 0.01 14.48 0.258
. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:12 . HOME BUS IS: .
. RADIAL NETWORK                        .           7           .
.                                         .[BUSLD_0711.0].
.     *** FAULTED BUS IS :           7 [BUSLD_0711.0] *** . 4 LEVELS AWAY.

AT BUS      3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 17.362/ -5.36

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z   /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
  2 [BUS_TX 132] 1 1 AMP/OHM 708.3 -59.97 361.47 60.64 1.777
  4 [BUS_TX 33.0] 1 1 AMP/OHM 708.3 120.03 22.60 -123.38 1.518

AT BUS      101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.381/ 3.65

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z   /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1                AMP/ 32592.1 -10.84
  102 [TXBUS 11.0] 1 1 AMP/OHM 32592.1 169.16 1.99 -177.14 0.050

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:12 . HOME BUS IS: .
. RADIAL NETWORK                        .           7           .
.                                         .[BUSLD_0711.0].
.     *** FAULTED BUS IS :           7 [BUSLD_0711.0] *** . 5 LEVELS AWAY.

AT BUS      2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 72.741/ 0.67

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z   /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
  1 [INF_BUS 132] 1 1 AMP/OHM 201.2 -59.97 373.32 59.01 1.665
  3 [BUS_03 33.0] 1 1 AMP/OHM 201.2 120.03 24.51 -125.40 1.407

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:12 . HOME BUS IS: .
. RADIAL NETWORK                        .           7           .
.                                         .[BUSLD_0711.0].
.     *** FAULTED BUS IS :           7 [BUSLD_0711.0] *** . 6 LEVELS AWAY.

```

AT BUS 1 [INF\_BUS 132] AREA 1 (KV L-G) V+: / 75.124/ -0.96

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1                AMP/      201.2  -59.97
      2 [BUS_TX 132]    1 1  AMP/OHM  201.2  120.03  361.47 -119.36  1.777
DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20
POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10
```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:13 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
.   *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 0 LEVELS AWAY.
```

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.52604 0.49838 0.947

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      5 [BUS_05 11.0]  1 1  AMP/OHM  6228.6 -41.00   0.58   23.82   0.441
      7 [BUSLD_0711.0]  1 1  AMP/OHM   0.0   0.00   0.00   0.00   0.000
          TO SHUNT (AMPS)  0.0   0.00
TOTAL FAULT CURRENT (AMPS) 6228.6 -41.00
```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:13 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
.   *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 1 LEVELS AWAY.
```

AT BUS 5 [BUS\_05 11.0] AREA 1 (KV L-G) V+: / 3.584/ -17.18

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      4 [BUS_TX 33.0]  1 1  AMP/OHM  2639.8 -58.74  15.11   52.95   1.324
      6 [BUSLD_0611.0]  1 1  AMP/OHM  6228.6 139.00   0.00   0.00   0.000
     102 [TXBUS 11.0]  1 1  AMP/OHM  3800.5 -28.78   1.06   12.92   0.229
```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  0.000/    0.00

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   6 [BUSLD_0611.0]  1 1  AMP/OHM      0.0    0.00    0.00    0.00    0.000
   8 [BUSLD_0811.0]  1 1  AMP/OHM      0.0    0.00    0.00    0.00    0.000
                TO SHUNT  (AMPS)      0.0    0.00

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:13 . HOME BUS IS: .
. RADIAL NETWORK                        .                6 .
.                                         . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 2 LEVELS AWAY.

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 14.094/   -5.80

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   3 [BUS_03  33.0]  1 1  AMP/OHM     932.8   -58.74   17.07   50.47   1.212
   5 [BUS_05  11.0]  1 1  AMP/OHM     932.8   121.26    1.36  -138.44  0.887

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  0.000/    0.00

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   7 [BUSLD_0711.0]  1 1  AMP/OHM      0.0    0.00    0.00    0.00    0.000
   9 [BUSLD_0911.0]  1 1  AMP/OHM      0.0    0.00    0.00    0.00    0.000
                TO SHUNT  (AMPS)      0.0    0.00

AT BUS     102 [TXBUS   11.0] AREA  1  (KV L-G) V+: /  4.012/  -15.86

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   5 [BUS_05  11.0]  1 1  AMP/OHM    3800.5  151.22    0.94  -168.41  0.205
  101 [WNDBUS  .690]  1 1  AMP/OHM    3800.5  -28.78    0.01   31.09   0.603

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:13 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     .[BUSLD_0611.0].
.   *** FAULTED BUS IS :      6 [BUSLD_0611.0] ***   . 3 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 15.927/ -8.28

```

```

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
      /I+/      AN(I+)   /Z+/      AN(Z+)   APP X/R
  2 [BUS_TX 132] 1 1 AMP/OHM 932.8 -58.74 267.75 59.47 1.696
  4 [BUS_TX 33.0] 1 1 AMP/OHM 932.8 121.26 15.11 -127.05 1.324

```

```

AT BUS      9 [BUSLD_0911.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

```

```

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
      /I+/      AN(I+)   /Z+/      AN(Z+)   APP X/R
  8 [BUSLD_0811.0] 1 1 AMP/OHM 0.0 0.00 0.00 0.00 0.000
      TO SHUNT (AMPS) 0.0 0.00

```

```

AT BUS     101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.366/ 2.31

```

```

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
      /I+/      AN(I+)   /Z+/      AN(Z+)   APP X/R
MACHINE 1
  102 [TXBUS 11.0] 1 1 AMP/OHM 51500.1 151.22 1.06 -167.08 0.229

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:13 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     .[BUSLD_0611.0].
.   *** FAULTED BUS IS :      6 [BUSLD_0611.0] ***   . 4 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 70.955/ 0.73

```

```

----- FROM -----AREA CKT I/Z          T H R E E   P H A S E   F A U L T
      /I+/      AN(I+)   /Z+/      AN(Z+)   APP X/R

```



```

1 [INF_BUS 132] 1 1 AMP/OHM 265.0 -58.74 279.85 57.35 1.560
3 [BUS_03 33.0] 1 1 AMP/OHM 265.0 121.26 17.07 -129.53 1.212

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:13 . HOME BUS IS: .
. RADIAL NETWORK                        .           6           .
.                                         .[BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 5 LEVELS AWAY.

AT BUS      1 [INF_BUS 132] AREA      1      (KV L-G) V+: / 74.160/      -1.40

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
      2 [BUS_TX 132] 1 1 AMP/OHM 265.0 121.26 267.75 -120.53 1.696
DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20
POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:13 . HOME BUS IS: .
. RADIAL NETWORK                        .           5           .
.                                         .[BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 0 LEVELS AWAY.

AT BUS      5 [BUS_05 11.0] AREA      1      (KV L-G) V+: / 0.000/      0.00

THEV. R, X, X/R: POSITIVE 0.12814 0.35875 2.800

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      4 [BUS_TX 33.0] 1 1 AMP/OHM 4543.8 -72.25 4.94 78.69 5.000
      6 [BUSLD_0611.0] 1 1 AMP/OHM 0.0 0.00 0.00 0.00 0.000
     102 [TXBUS 11.0] 1 1 AMP/OHM 8044.7 -65.21 0.12 23.84 0.442
      TOTAL FAULT CURRENT (AMPS) 12566.5 -67.75

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:13 . HOME BUS IS: .
. RADIAL NETWORK                        .           5           .
.                                         .[BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 1 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: /  7.934/    6.44

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  3 [BUS_03  33.0]    1 1  AMP/OHM  1605.6   -72.25    6.55    65.35    2.179
  5 [BUS_05  11.0]    1 1  AMP/OHM  1605.6   107.75    0.00    0.00    0.000

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  0.000/    0.00

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  5 [BUS_05  11.0]    1 1  AMP/OHM    0.0     0.00    0.00    0.00    0.000
  7 [BUSLD_0711.0]    1 1  AMP/OHM    0.0     0.00    0.00    0.00    0.000
      TO SHUNT (AMPS)    0.0     0.00

AT BUS     102 [TXBUS   11.0] AREA  1  (KV L-G) V+: /  0.926/   -41.37

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  5 [BUS_05  11.0]    1 1  AMP/OHM  8044.7   114.79    0.00    0.00    0.000
101 [WNDBUS  .690]    1 1  AMP/OHM  8044.7   -65.21    0.00    0.00    0.000

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:13 . HOME BUS IS: .
. RADIAL NETWORK                      .                5                .
.                                     . [BUS_05  11.0].
. *** FAULTED BUS IS :      5 [BUS_05  11.0] ***          . 2 LEVELS AWAY.

AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 10.522/   -6.90

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  2 [BUS_TX  132]    1 1  AMP/OHM  1605.6   -72.25   145.59    76.00    4.011
  4 [BUS_TX  33.0]    1 1  AMP/OHM  1605.6   107.75    4.94   -101.31    5.000

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  0.000/    0.00

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM    0.0    0.00    0.00    0.00    0.000
   8 [BUSLD_0811.0]   1 1  AMP/OHM    0.0    0.00    0.00    0.00    0.000
          TO SHUNT   (AMPS)    0.0    0.00

```

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.309/ 3.07

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1
  102 [TXBUS 11.0]   1 1  AMP/OHM 109010.9 114.79    0.12 -156.16    0.442

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:13 . HOME BUS IS: .
. RADIAL NETWORK                      .                5 .
.                                       . [BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 3 LEVELS AWAY.

```

AT BUS 2 [BUS\_TX 132] AREA 1 (KV L-G) V+: / 66.407/ 3.75

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   1 [INF_BUS 132]   1 1  AMP/OHM 456.1  -72.25  154.62   71.06   2.913
   3 [BUS_03 33.0]   1 1  AMP/OHM 456.1  107.75   6.55  -114.65   2.179

```

AT BUS 8 [BUSLD\_0811.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM    0.0    0.00    0.00    0.00    0.000
   9 [BUSLD_0911.0]   1 1  AMP/OHM    0.0    0.00    0.00    0.00    0.000
          TO SHUNT   (AMPS)    0.0    0.00

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:13 . HOME BUS IS: .
. RADIAL NETWORK                      .                5 .

```

```

.
.      *** FAULTED BUS IS :      5 [BUS_05  11.0] ***      .[BUS_05  11.0].
.                                     . 4 LEVELS AWAY.

```

```

AT BUS      1 [INF_BUS  132] AREA      1      (KV L-G) V+: / 70.529/      -1.20

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
MACHINE 1
          2 [BUS_TX   132]   1 1  AMP/OHM  456.1   -72.25
                                     456.1   107.75   145.59  -104.00   4.011

```

```

AT BUS      9 [BUSLD_0911.0] AREA      1      (KV L-G) V+: /  0.000/      0.00

```

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
          8 [BUSLD_0811.0]   1 1  AMP/OHM  0.0     0.00     0.00     0.00     0.000
              TO SHUNT (AMPS)  0.0     0.00

```

**5 Turbines connected to Busbar 5**

```
. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:16 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 0 LEVELS AWAY.
```

```
AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  0.000/  0.00
```

```
THEV. R, X, X/R: POSITIVE  1.51495  0.90873  0.600
```

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
8	[BUSLD_0811.0]	1	1	AMP/OHM	2469.0	-25.52	0.46	23.84	0.442	
				TO SHUNT (AMPS)	0.0	0.00				
				TOTAL FAULT CURRENT (AMPS)	2469.0	-25.52				

```
. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:16 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 1 LEVELS AWAY.
```

```
AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  1.137/  -1.68
```

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
7	[BUSLD_0711.0]	1	1	AMP/OHM	2481.7	-25.50	0.80	23.80	0.441	
9	[BUSLD_0911.0]	1	1	AMP/OHM	2469.0	154.48	0.00	0.00	0.000	
				TO SHUNT (AMPS)	12.8	-20.12				

```
. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:16 . HOME BUS IS: .
. RADIAL NETWORK                      .           9 .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 2 LEVELS AWAY.
```

```
AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  1.993/  -1.70
```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM  2519.4  -25.47   1.37   23.79   0.441
   8 [BUSLD_0811.0]   1 1  AMP/OHM  2481.7  154.50   0.46  -156.18  0.441
          TO SHUNT  (AMPS)    37.6   -23.50

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:16 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 3 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  3.443/  -1.68

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM  2748.7  -25.38   1.83   23.73   0.440
   7 [BUSLD_0711.0]   1 1  AMP/OHM  2519.4  154.53   0.79  -156.23  0.440
          TO SHUNT  (AMPS)    229.4  -24.37

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:16 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 4 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05  11.0] AREA  1  (KV L-G) V+: /  5.024/  -1.64

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   4 [BUS_TX  33.0]   1 1  AMP/OHM  1702.9  -69.78  28.50   69.96   2.742
   6 [BUSLD_0611.0]   1 1  AMP/OHM  2748.7  154.62   1.25  -156.30  0.439
  102 [TXBUS  11.0]   1 1  AMP/OHM  1941.0   12.50   2.68  -12.62   0.224

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:16 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .
.                                     .[BUSLD_0911.0].
.   *** FAULTED BUS IS :           9 [BUSLD_0911.0] *** . 5 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 17.150/   0.18

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM   601.7  -69.78   30.18   67.54   2.419
   5 [BUS_05  11.0]   1 1  AMP/OHM   601.7  110.22   2.95  -111.86   2.493

```

AT BUS 102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 5.202/ -0.13

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM  1941.0 -167.50   2.59   165.86   0.252
  101 [WNDBUS  .690]   1 1  AMP/OHM  1941.0  12.50    0.01   -3.15    0.055

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:16 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .
.                                     . [BUSLD_0911.0].
. *** FAULTED BUS IS :          9 [BUSLD_0911.0] *** . 6 LEVELS AWAY.

```

AT BUS 3 [BUS\_03 33.0] AREA 1 (KV L-G) V+: / 18.158/ -2.25

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   2 [BUS_TX  132]   1 1  AMP/OHM   601.7  -69.78  427.56   70.75   2.864
   4 [BUS_TX  33.0]   1 1  AMP/OHM   601.7  110.22   28.50 -110.04   2.742

```

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.388/ 9.35

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1                AMP/      26302.4  12.50
  102 [TXBUS  11.0]   1 1  AMP/OHM  26302.4 -167.50   2.68   167.38   0.224

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:16 . HOME BUS IS: .
. RADIAL NETWORK                      .           9           .
.                                     . [BUSLD_0911.0].
. *** FAULTED BUS IS :          9 [BUSLD_0911.0] *** . 7 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 73.929/    0.97

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   1 [INF_BUS  132]    1 1  AMP/OHM  172.9   -69.78   437.38   69.11   2.621
   3 [BUS_03  33.0]    1 1  AMP/OHM  172.9   110.22   30.18   -112.46  2.419

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:16 . HOME BUS IS: .
. RADIAL NETWORK                        .                9 .
.                                         .[BUSLD_0911.0].
.      *** FAULTED BUS IS :           9 [BUSLD_0911.0] ***      . 8 LEVELS AWAY.

AT BUS      1 [INF_BUS  132] AREA  1  (KV L-G) V+: / 75.628/   -0.67

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
MACHINE 1                                AMP/      172.9   -69.78
   2 [BUS_TX  132]    1 1  AMP/OHM  172.9   110.22   427.56  -109.25   2.864
DIAGONALS =      11 OFF-DIAGONALS =    10 MAX SIZE =    20
POS. SEQUENCE: DIAGONALS =      11 OFF-DIAGONALS =    10

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:16 . HOME BUS IS: .
. RADIAL NETWORK                        .                8 .
.                                         .[BUSLD_0811.0].
.      *** FAULTED BUS IS :           8 [BUSLD_0811.0] ***      . 0 LEVELS AWAY.

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  0.000/    0.00

THEV. R, X, X/R: POSITIVE  1.17769  0.76448   0.649

                                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   7 [BUSLD_0711.0]    1 1  AMP/OHM  3120.4  -27.51    0.35    23.78    0.441
   9 [BUSLD_0911.0]    1 1  AMP/OHM    0.0     0.00    0.00    0.00    0.000
                                TO SHUNT (AMPS)    0.0     0.00
TOTAL FAULT CURRENT (AMPS)  3120.4  -27.51

```



```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:16 . HOME BUS IS: .
. RADIAL NETWORK                        .           8           .
.                                       .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 1 LEVELS AWAY.

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1   (KV L-G) V+: /  1.077/  -3.73

```

		T H R E E P H A S E F A U L T						
FROM	AREA CKT I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R			
6 [BUSLD_0611.0]	1 1 AMP/OHM	3140.8 -27.50	0.92 23.80	0.441				
8 [BUSLD_0811.0]	1 1 AMP/OHM	3120.4 152.49	0.00 0.00	0.000				
	TO SHUNT (AMPS)	20.3 -25.54						

```

AT BUS      9 [BUSLD_0911.0] AREA  1   (KV L-G) V+: /  0.000/  0.00

```

		T H R E E P H A S E F A U L T						
FROM	AREA CKT I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R			
8 [BUSLD_0811.0]	1 1 AMP/OHM	0.0 0.00	0.00 0.00	0.000				
	TO SHUNT (AMPS)	0.0 0.00						

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:16 . HOME BUS IS: .
. RADIAL NETWORK                        .           8           .
.                                       .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 2 LEVELS AWAY.

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1   (KV L-G) V+: /  2.884/  -3.70

```

		T H R E E P H A S E F A U L T						
FROM	AREA CKT I/Z	/I+/ AN(I+)	/Z+/ AN(Z+)	APP	X/R			
5 [BUS_05 11.0]	1 1 AMP/OHM	3332.9 -27.44	1.44 23.77	0.440				
7 [BUSLD_0711.0]	1 1 AMP/OHM	3140.8 152.50	0.34 -156.23	0.440				
	TO SHUNT (AMPS)	192.1 -26.40						

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:16 . HOME BUS IS: .
. RADIAL NETWORK                        .           8           .
.                                       .[BUSLD_0811.0].
.   *** FAULTED BUS IS :      8 [BUSLD_0811.0] ***   . 3 LEVELS AWAY.

```

```

AT BUS      5 [BUS_05 11.0] AREA 1 (KV L-G) V+: / 4.801/ -3.67

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   4 [BUS_TX 33.0]  1 1  AMP/OHM  1841.7  -67.04   25.68   66.28   2.276
   6 [BUSLD_0611.0] 1 1  AMP/OHM  3332.9  152.56   0.87  -156.27  0.440
  102 [TXBUS 11.0]  1 1  AMP/OHM  2245.3   4.09    2.24   -6.22   0.109

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:16 . HOME BUS IS: .
. RADIAL NETWORK                        .                8 .
.                                         . [BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 4 LEVELS AWAY.

AT BUS      4 [BUS_TX 33.0] AREA 1 (KV L-G) V+: / 16.711/ -0.76

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   3 [BUS_03 33.0]  1 1  AMP/OHM   650.8  -67.04   27.43   63.84   2.036
   5 [BUS_05 11.0]  1 1  AMP/OHM   650.8  112.96   2.61  -116.63  1.994

AT BUS     102 [TXBUS 11.0] AREA 1 (KV L-G) V+: / 5.023/ -2.13

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   5 [BUS_05 11.0]  1 1  AMP/OHM  2245.3  -175.91  2.14   172.24   0.136
  101 [WNDBUS .690] 1 1  AMP/OHM  2245.3   4.09    0.01    4.82   0.084

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:16 . HOME BUS IS: .
. RADIAL NETWORK                        .                8 .
.                                         . [BUSLD_0811.0].
. *** FAULTED BUS IS :      8 [BUSLD_0811.0] *** . 5 LEVELS AWAY.

AT BUS      3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 17.851/ -3.20

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R

```

```

2 [BUS_TX 132] 1 1 AMP/OHM 650.8 -67.04 392.95 67.91 2.464
4 [BUS_TX 33.0] 1 1 AMP/OHM 650.8 112.96 25.68 -113.72 2.276

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.384/ 8.91

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
MACHINE 1
102 [TXBUS 11.0] 1 1 AMP/OHM 30425.3 -175.91 2.24 173.78 0.109

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:16 . HOME BUS IS: .
. RADIAL NETWORK                        . 8 .
.                                         . [BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 6 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 73.484/ 0.87

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
1 [INF_BUS 132] 1 1 AMP/OHM 187.0 -67.04 403.38 66.21 2.268
3 [BUS_03 33.0] 1 1 AMP/OHM 187.0 112.96 27.43 -116.16 2.036

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:16 . HOME BUS IS: .
. RADIAL NETWORK                        . 8 .
.                                         . [BUSLD_0811.0].
. *** FAULTED BUS IS : 8 [BUSLD_0811.0] *** . 7 LEVELS AWAY.

AT BUS 1 [INF_BUS 132] AREA 1 (KV L-G) V+: / 75.434/ -0.83

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+) APP X/R
MACHINE 1
2 [BUS_TX 132] 1 1 AMP/OHM 187.0 112.96 392.95 -112.09 2.464
DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20
POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:16 . HOME BUS IS: .

```

```

. RADIAL NETWORK
.
.      *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***
.
AT BUS      7 [BUSLD_0711.0] AREA  1   (KV L-G) V+: /  0.000/   0.00

THEV. R, X, X/R: POSITIVE  0.93052  0.66168   0.711

```

```

----- FROM -----AREA CKT  I/Z      T H R E E   P H A S E   F A U L T
      /I+/      AN(I+)      /Z+/      AN(Z+)      APP X/R
  6 [BUSLD_0611.0]   1 1  AMP/OHM  3864.9  -29.89   0.58   23.82   0.441
  8 [BUSLD_0811.0]   1 1  AMP/OHM   0.0    0.00   0.00   0.00   0.000
      TO SHUNT (AMPS)   0.0    0.00
TOTAL FAULT CURRENT (AMPS)  3864.9  -29.89

```

```

. PSS/E SHORT CIRCUIT OUTPUT      FRI, AUG 13 2004  14:16 . HOME BUS IS: .
. RADIAL NETWORK
.
.      *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***
.
AT BUS      6 [BUSLD_0611.0] AREA  1   (KV L-G) V+: /  2.224/   -6.07

```

```

----- FROM -----AREA CKT  I/Z      T H R E E   P H A S E   F A U L T
      /I+/      AN(I+)      /Z+/      AN(Z+)      APP X/R
  5 [BUS_05 11.0]   1 1  AMP/OHM  4013.0  -29.85   1.13   23.80   0.441
  7 [BUSLD_0711.0]   1 1  AMP/OHM  3864.9  150.11   0.00   0.00   0.000
      TO SHUNT (AMPS)  148.2  -28.76

```

```

AT BUS      8 [BUSLD_0811.0] AREA  1   (KV L-G) V+: /  0.000/   0.00

```

```

----- FROM -----AREA CKT  I/Z      T H R E E   P H A S E   F A U L T
      /I+/      AN(I+)      /Z+/      AN(Z+)      APP X/R
  7 [BUSLD_0711.0]   1 1  AMP/OHM   0.0    0.00   0.00   0.00   0.000
  9 [BUSLD_0911.0]   1 1  AMP/OHM   0.0    0.00   0.00   0.00   0.000
      TO SHUNT (AMPS)   0.0    0.00

```

```

. PSS/E SHORT CIRCUIT OUTPUT      FRI, AUG 13 2004  14:16 . HOME BUS IS: .

```

```

. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***
.
.          7
.          .[BUSLD_0711.0].
.          2 LEVELS AWAY.

AT BUS      5 [BUS_05  11.0] AREA  1  (KV L-G) V+: /  4.532/  -6.05

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   4 [BUS_TX  33.0]   1 1  AMP/OHM  2015.5  -64.69   22.72   62.92   1.956
   6 [BUSLD_0611.0]  1 1  AMP/OHM  4013.0  150.15    0.55  -156.23  0.441
  102 [TXBUS   11.0]  1 1  AMP/OHM  2625.0   -3.82    1.83   -0.64   0.011

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: /  0.000/   0.00

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   8 [BUSLD_0811.0]  1 1  AMP/OHM    0.0    0.00    0.00    0.00   0.000
      TO SHUNT (AMPS)    0.0    0.00

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:16 . HOME BUS IS: .
. RADIAL NETWORK
.
.          *** FAULTED BUS IS :      7 [BUSLD_0711.0] ***
.
.          7
.          .[BUSLD_0711.0].
.          3 LEVELS AWAY.

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 16.178/  -1.77

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM   712.2  -64.69   24.53   60.43   1.762
   5 [BUS_05  11.0]   1 1  AMP/OHM   712.2  115.31    2.25  -121.36  1.641

AT BUS     102 [TXBUS   11.0] AREA  1  (KV L-G) V+: /  4.806/  -4.47

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM  2625.0  176.18    1.73  177.77   0.039

```

```

101 [WNDBUS .690] 1 1 AMP/OHM 2625.0 -3.82 0.01 12.25 0.217
. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 14:16 . HOME BUS IS: .
. RADIAL NETWORK . 7 .
. .[BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 4 LEVELS AWAY.

AT BUS 3 [BUS_03 33.0] AREA 1 (KV L-G) V+: / 17.471/ -4.26

T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
2 [BUS_TX 132] 1 1 AMP/OHM 712.2 -64.69 356.46 65.48 2.192
4 [BUS_TX 33.0] 1 1 AMP/OHM 712.2 115.31 22.72 -117.08 1.956

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.380/ 8.43

T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
MACHINE 1 AMP/ 35570.0 -3.82
102 [TXBUS 11.0] 1 1 AMP/OHM 35570.0 176.18 1.83 179.36 0.011

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 14:16 . HOME BUS IS: .
. RADIAL NETWORK . 7 .
. .[BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 5 LEVELS AWAY.

AT BUS 2 [BUS_TX 132] AREA 1 (KV L-G) V+: / 72.952/ 0.79

T H R E E P H A S E F A U L T
----- FROM -----AREA CKT I/Z /I+/ AN(I+) /Z+/ AN(Z+) APP X/R
1 [INF_BUS 132] 1 1 AMP/OHM 204.7 -64.69 367.40 63.68 2.021
3 [BUS_03 33.0] 1 1 AMP/OHM 204.7 115.31 24.53 -119.57 1.762

. PSS/E SHORT CIRCUIT OUTPUT FRI, AUG 13 2004 14:16 . HOME BUS IS: .
. RADIAL NETWORK . 7 .
. .[BUSLD_0711.0].
. *** FAULTED BUS IS : 7 [BUSLD_0711.0] *** . 6 LEVELS AWAY.

```

AT BUS 1 [INF\_BUS 132] AREA 1 (KV L-G) V+: / 75.189/ -1.01

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1                AMP/      204.7  -64.69
  2 [BUS_TX 132] 1 1 AMP/OHM 204.7 115.31 356.46 -114.52 2.192
DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20
POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10
```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:16 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 0 LEVELS AWAY.
```

AT BUS 6 [BUSLD\_0611.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.52627 0.49863 0.947

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
  5 [BUS_05 11.0] 1 1 AMP/OHM 6225.6 -37.82 0.58 23.82 0.441
  7 [BUSLD_0711.0] 1 1 AMP/OHM 0.0 0.00 0.00 0.00 0.000
              TO SHUNT (AMPS) 0.0 0.00
TOTAL FAULT CURRENT (AMPS) 6225.6 -37.82
```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:16 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
. *** FAULTED BUS IS : 6 [BUSLD_0611.0] *** . 1 LEVELS AWAY.
```

AT BUS 5 [BUS\_05 11.0] AREA 1 (KV L-G) V+: / 3.582/ -14.00

```

              T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
  4 [BUS_TX 33.0] 1 1 AMP/OHM 2638.0 -61.58 15.32 57.17 1.550
  6 [BUSLD_0611.0] 1 1 AMP/OHM 6225.6 142.18 0.00 0.00 0.000
 102 [TXBUS 11.0] 1 1 AMP/OHM 3956.7 -22.23 1.02 9.98 0.176
```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  0.000/    0.00

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM      0.0     0.00     0.00     0.00     0.000
   8 [BUSLD_0811.0]   1 1  AMP/OHM      0.0     0.00     0.00     0.00     0.000
                TO SHUNT  (AMPS)      0.0     0.00

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:16 . HOME BUS IS: .
. RADIAL NETWORK                        .                6                .
.                                          . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] ***      . 2 LEVELS AWAY.

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: / 14.280/   -4.41

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   3 [BUS_03  33.0]   1 1  AMP/OHM     932.2   -61.58    17.23    54.24    1.389
   5 [BUS_05  11.0]   1 1  AMP/OHM     932.2   118.42     1.36   -132.42    1.094

AT BUS      8 [BUSLD_0811.0] AREA  1  (KV L-G) V+: /  0.000/    0.00

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM      0.0     0.00     0.00     0.00     0.000
   9 [BUSLD_0911.0]   1 1  AMP/OHM      0.0     0.00     0.00     0.00     0.000
                TO SHUNT  (AMPS)      0.0     0.00

AT BUS     102 [TXBUS   11.0] AREA  1  (KV L-G) V+: /  4.022/   -12.26

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/    AN(I+)    /Z+/    AN(Z+)  APP X/R
   5 [BUS_05  11.0]   1 1  AMP/OHM    3956.7   157.77     0.91   -171.77    0.145
  101 [WNDBUS  .690]   1 1  AMP/OHM    3956.7   -22.23     0.01    29.39    0.563

```



```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:16 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 3 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 16.063/  -7.34

```

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
2	[BUS_TX 132]	1	1	AMP/OHM	932.2	-61.58	265.62	62.35	1.909	
4	[BUS_TX 33.0]	1	1	AMP/OHM	932.2	118.42	15.32	-122.83	1.550	

```

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: / 0.000/  0.00

```

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
8	[BUSLD_0811.0]	1	1	AMP/OHM	0.0	0.00	0.00	0.00	0.000	
	TO SHUNT			(AMPS)	0.0	0.00				

```

AT BUS     101 [WNDBUS  .690] AREA  1  (KV L-G) V+: / 0.365/  7.16

```

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R
MACHINE 1				AMP/	53616.6	-22.23				
102	[TXBUS 11.0]	1	1	AMP/OHM	53616.6	157.77	1.02	-170.02	0.176	

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:16 . HOME BUS IS: .
. RADIAL NETWORK                      .           6           .
.                                     . [BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 4 LEVELS AWAY.

```

```

AT BUS      2 [BUS_TX  132] AREA  1  (KV L-G) V+: / 71.149/  0.77

```

FROM		AREA	CKT	I/Z	T H R E E		P H A S E		F A U L T	
					/I+/ AN(I+)	/Z+/ AN(Z+)			APP	X/R

```

1 [INF_BUS 132] 1 1 AMP/OHM 267.9 -61.58 277.20 60.09 1.738
3 [BUS_03 33.0] 1 1 AMP/OHM 267.9 118.42 17.23 -125.76 1.389

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:16 . HOME BUS IS: .
. RADIAL NETWORK                        .           6           .
.                                         .[BUSLD_0611.0].
. *** FAULTED BUS IS :      6 [BUSLD_0611.0] *** . 5 LEVELS AWAY.

AT BUS      1 [INF_BUS 132] AREA      1      (KV L-G) V+: / 74.252/ -1.50

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
      2 [BUS_TX 132] 1 1 AMP/OHM 267.9 118.42 265.62 -117.65 1.909
DIAGONALS = 11 OFF-DIAGONALS = 10 MAX SIZE = 20
POS. SEQUENCE: DIAGONALS = 11 OFF-DIAGONALS = 10

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:17 . HOME BUS IS: .
. RADIAL NETWORK                        .           5           .
.                                         .[BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 0 LEVELS AWAY.

AT BUS      5 [BUS_05 11.0] AREA      1      (KV L-G) V+: / 0.000/ 0.00

THEV. R, X, X/R: POSITIVE 0.12839 0.35903 2.797

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      4 [BUS_TX 33.0] 1 1 AMP/OHM 4593.1 -72.41 4.94 78.69 5.000
      6 [BUSLD_0611.0] 1 1 AMP/OHM 0.0 0.00 0.00 0.00 0.000
     102 [TXBUS 11.0] 1 1 AMP/OHM 8029.4 -60.06 0.12 23.84 0.442
      TOTAL FAULT CURRENT (AMPS) 12554.6 -64.55

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:17 . HOME BUS IS: .
. RADIAL NETWORK                        .           5           .
.                                         .[BUS_05 11.0].
. *** FAULTED BUS IS :      5 [BUS_05 11.0] *** . 1 LEVELS AWAY.

```

```

AT BUS      4 [BUS_TX  33.0] AREA  1  (KV L-G) V+: /  8.020/    6.28

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  3 [BUS_03  33.0]    1 1  AMP/OHM  1623.0   -72.41    6.55    65.35    2.179
  5 [BUS_05  11.0]    1 1  AMP/OHM  1623.0   107.59    0.00    0.00    0.000

```

```

AT BUS      6 [BUSLD_0611.0] AREA  1  (KV L-G) V+: /  0.000/    0.00

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  5 [BUS_05  11.0]    1 1  AMP/OHM    0.0     0.00    0.00    0.00    0.000
  7 [BUSLD_0711.0]    1 1  AMP/OHM    0.0     0.00    0.00    0.00    0.000
          TO SHUNT (AMPS)    0.0     0.00

```

```

AT BUS     102 [TXBUS   11.0] AREA  1  (KV L-G) V+: /  0.924/   -36.21

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  5 [BUS_05  11.0]    1 1  AMP/OHM  8029.4   119.94    0.00    0.00    0.000
 101 [WNDBUS  .690]    1 1  AMP/OHM  8029.4   -60.06    0.00    0.00    0.000

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004  14:17 . HOME BUS IS: .
. RADIAL NETWORK                      .           5           .
.                                     . [BUS_05  11.0].
. *** FAULTED BUS IS :      5 [BUS_05  11.0] ***          . 2 LEVELS AWAY.

```

```

AT BUS      3 [BUS_03  33.0] AREA  1  (KV L-G) V+: / 10.636/   -7.07

----- FROM -----AREA CKT  I/Z          T H R E E   P H A S E   F A U L T
          /I+/      AN(I+)      /Z+/      AN(Z+)  APP X/R
  2 [BUS_TX   132]    1 1  AMP/OHM  1623.0   -72.41   142.30    76.00    4.011
  4 [BUS_TX   33.0]    1 1  AMP/OHM  1623.0   107.59    4.94   -101.31    5.000

```

```

AT BUS      7 [BUSLD_0711.0] AREA  1  (KV L-G) V+: /  0.000/    0.00

```

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   6 [BUSLD_0611.0]   1 1  AMP/OHM    0.0    0.00    0.00    0.00    0.000
   8 [BUSLD_0811.0]   1 1  AMP/OHM    0.0    0.00    0.00    0.00    0.000
                        TO SHUNT  (AMPS)  0.0    0.00

```

AT BUS 101 [WNDBUS .690] AREA 1 (KV L-G) V+: / 0.308/ 8.22

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
MACHINE 1
  102 [TXBUS 11.0]   1 1  AMP/OHM 108803.9 119.94    0.12 -156.16    0.442

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:17 . HOME BUS IS: .
. RADIAL NETWORK                      .                5 .
.                                     .[BUS_05 11.0].
. *** FAULTED BUS IS : 5 [BUS_05 11.0] *** . 3 LEVELS AWAY.

```

AT BUS 2 [BUS\_TX 132] AREA 1 (KV L-G) V+: / 66.365/ 3.59

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   1 [INF_BUS 132]   1 1  AMP/OHM  466.4  -72.41  151.35   70.95   2.896
   3 [BUS_03 33.0]   1 1  AMP/OHM  466.4  107.59   6.55  -114.65   2.179

```

AT BUS 8 [BUSLD\_0811.0] AREA 1 (KV L-G) V+: / 0.000/ 0.00

```

          T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)   APP X/R
   7 [BUSLD_0711.0]   1 1  AMP/OHM    0.0    0.00    0.00    0.00    0.000
   9 [BUSLD_0911.0]   1 1  AMP/OHM    0.0    0.00    0.00    0.00    0.000
                        TO SHUNT  (AMPS)  0.0    0.00

```

```

. PSS/E SHORT CIRCUIT OUTPUT          FRI, AUG 13 2004 14:17 . HOME BUS IS: .
. RADIAL NETWORK                      .                5 .

```

```

.
.      *** FAULTED BUS IS :      5 [BUS_05 11.0] ***      .[BUS_05 11.0].
.                                     . 4 LEVELS AWAY.

AT BUS      1 [INF_BUS 132] AREA  1  (KV L-G) V+: / 70.585/  -1.47

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
MACHINE 1
      2 [BUS_TX 132]  1 1  AMP/OHM  466.4  -72.41
                                466.4  107.59  142.30  -104.00  4.011

AT BUS      9 [BUSLD_0911.0] AREA  1  (KV L-G) V+: / 0.000/  0.00

                T H R E E   P H A S E   F A U L T
----- FROM -----AREA CKT  I/Z      /I+/   AN(I+)   /Z+/   AN(Z+)  APP X/R
      8 [BUSLD_0811.0] 1 1  AMP/OHM  0.0    0.00    0.00    0.00    0.000
                TO SHUNT (AMPS)  0.0    0.00

```