

ABNORMAL TEST RESULT  
OF MODEL TUNS300F/TUNS500F

1. Did Cheese Cloth or Paper Glow?

No.

2. Did Ground Fuse Open?

No.

3. Dielectric breakdown?

No.

4. Other Results?

See the following pages .

( FMEA : 2/44 ~ 42/44)  
( Abnormal Test Result: 43/44 ~ 44/44)

There was no emission of flame, molten metal, ignition of cheesecloth, dielectric breakdown, opening of the ground fuse, other indication of a shock or fire hazard.

## F M E A

Component	Mode	Comment	Output Voltage (V)
C11	Open	Normal operation.	
	Short	External Fuse opened, No hazard.	AVR1:0
C12	Open	Normal operation.	
	Short	External Fuse opened, No hazard.	AVR1:0
C13	Open	Normal operation.	
	Short	External Fuse opened, No hazard.	AVR1:0
C14	Open	Normal operation.	
	Short	External Fuse opened, No hazard.	AVR1:0
C21	Open	Normal operation.	
	Short	External Fuse opened, No hazard.	AVR1:0
C22	Open	Normal operation.	
	Short	External Fuse opened, No hazard.	AVR1:0
C23	Open	Normal operation.	
	Short	External Fuse opened, No hazard.	AVR1:0
C31	Open	Normal operation.	
	Short	External Fuse opened, No hazard.	AVR1:0
C32	Open	Normal operation.	
	Short	External Fuse opened, No hazard.	AVR1:0
C33	Open	Normal operation.	
	Short	External Fuse opened, No hazard.	AVR1:0
C51	Open	Normal operation.	
	Short	Normal operation.	
C52	Open	Normal operation.	
	Short	Normal operation.	

## F M E A

Component	Mode		Comment	Output Voltage (V)
C53	Open	only 28	Normal operation.	
	Short	only 28	Normal operation.	
C54	Open	only 28	Normal operation.	
	Short	only 28	Normal operation.	
C61	Open		Normal operation.	
	Short		Normal operation.	
C62	Open		Normal operation.	
	Short		Normal operation.	
C63	Open	only 28	Normal operation.	
	Short	only 28	Normal operation.	
C64	Open	only 28	Normal operation.	
	Short	only 28	Normal operation.	
C81	Open		Normal operation.	
	Short		Output voltage decreased. No hazard.	AVR1:0
C82	Open		Normal operation.	
	Short		Output voltage decreased. No hazard.	AVR1:0
C83	Open		Normal operation.	
	Short		Output voltage decreased. No hazard.	AVR1:0
C84	Open		Normal operation.	
	Short		Output voltage decreased. No hazard.	AVR1:0
C85	Open		Normal operation.	
	Short		Output voltage decreased. No hazard.	AVR1:0
C86	Open		Normal operation.	
	Short		Output voltage decreased. No hazard.	AVR1:0

## F M E A

Component	Mode	Comment	Output Voltage (V)
C87	Open	Normal operation.	
	Short	Output voltage decreased. No hazard.	AVR1:0
C88	Open	Normal operation.	
	Short	Output voltage decreased. No hazard.	AVR1:0
C89	Open	Normal operation.	
	Short	Output voltage decreased. No hazard.	AVR1:0
C90	Open	Normal operation.	
	Short	Output voltage decreased. No hazard.	AVR1:0
C91	Open	Normal operation.	
	Short	Output voltage decreased. No hazard.	AVR1:0
C92	Open	Normal operation.	
	Short	Output voltage decreased. No hazard.	AVR1:0
C101	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C102	Open	No Hazard.	AVR1:0
	Short	No Hazard.	AVR1:0
C103	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C104	Open	No Hazard.	AVR1:0
	Short	No Hazard.	AVR1:0
C106	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C107	Open	External Fuse opened, No hazard.	AVR1:0
	Short	No Hazard.	AVR1:0

## F M E A

Component	Mode	Comment	Output Voltage (V)
C121	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C122	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C131	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C132	Open	Normal operation.	
	Short	Normal operation.	
C133	Open	Normal operation.	
	Short	Normal operation.	
C141	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C151	Open	Normal operation.	
	Short	External Fuse opened, No hazard.	AVR1:0
C152	Open	Normal operation.	
	Short	External Fuse opened, No hazard.	AVR1:0
C153	Open	Normal operation.	
	Short	External Fuse opened, No hazard.	AVR1:0
C154	Open	External Fuse opened, No hazard.	AVR1:0
	Short	External Fuse opened, No hazard.	AVR1:0
C155	Open	Normal operation.	
	Short	External Fuse opened, No hazard.	AVR1:0
C161	Open	Normal operation.	
	Short	Normal operation.	

F M E A

Component	Mode	Comment	Output Voltage (V)
C162	Open	Normal operation.	
	Short	Normal operation.	
C163	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C171	Open	Normal operation.	
	Short	Output voltage decreased. No hazard.	AVR1:decreased
C172	Open	Normal operation.	
	Short	Output voltage decreased. No hazard.	AVR1:decreased
C201	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C202	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C203	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C204	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C211	Open	Normal operation.	
	Short	See 43 Page.	
C212	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C213	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C214	Open	Normal operation.	
	Short	No Hazard.	AVR1:0

F M E A

Component	Mode	Comment	Output Voltage (V)
C215	Open	No Hazard.	AVR1:0
	Short	No Hazard.	AVR1:0
C241	Open	No Hazard.	AVR1:0
	Short	No Hazard.	AVR1:0
C242	Open	No Hazard.	AVR1:0
	Short	No Hazard.	AVR1:0
C244	Open	No Hazard.	AVR1:0
	Short	No Hazard.	AVR1:0
C245	Open	No Hazard.	AVR1:0
	Short	No Hazard.	AVR1:0
C246	Open	Normal operation.	
	Short	Normal operation.	
C247	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C248	Open	Normal operation.	
	Short	Normal operation.	
C249	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C301	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C302	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C303	Open	Normal operation.	
	Short	No Hazard.	AVR1:0

## F M E A

Component	Mode	Comment	Output Voltage (V)
C311	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C312	Open	Normal operation.	
	Short	Output voltage decreased. No hazard.	AVR1:decreased
C321	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C331	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C341	Open	Output voltage decreased. No hazard.	AVR1:decreased
	Short	No Hazard.	AVR1:0
C343	Open	Output voltage decreased. No hazard.	AVR1:decreased
	Short	No Hazard.	AVR1:0
C344	Open	Normal operation.	
	Short	Output voltage decreased. No hazard.	AVR1:decreased
C345	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C346	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C347	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C348	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C351	Open	Normal operation.	
	Short	No Hazard.	AVR1:0



F M E A

Component	Mode	Comment	Output Voltage (V)
C352	Open	External Fuse opened, No hazard.	AVR1:0
	Short	External Fuse opened, No hazard.	AVR1:0
C353	Open	External Fuse opened, No hazard.	AVR1:0
	Short	External Fuse opened, No hazard.	AVR1:0
C354	Open	No Hazard.	AVR1:0
	Short	Normal operation.	
C361	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C381	Open	Normal operation.	
	Short	Normal operation.	
C382	Open	Normal operation.	
	Short	Normal operation.	
C386	Open	Output voltage decreased. No hazard.	AVR1:decreased
	Short	Normal operation.	
C387	Open	Output voltage decreased. No hazard.	AVR1:decreased
	Short	Normal operation.	
C388	Open	Normal operation.	
	Short	Output voltage decreased. No hazard.	AVR1:decreased
C389	Open	Normal operation.	
	Short	Normal operation.	
C390	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C392	Open	Normal operation.	
	Short	Normal operation.	

F M E A

Component	Mode	Comment	Output Voltage (V)
C393	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C394	Open	Normal operation.	
	Short	Normal operation.	
C501	Open	Output voltage decreased. No hazard.	AVR1:decreased
	Short	Output voltage decreased. No hazard.	AVR1:decreased
C502	Open	Normal operation.	
	Short	Output voltage decreased. No hazard.	AVR1:decreased
C503	Open	Output voltage decreased. No hazard.	AVR1:decreased
	Short	Output voltage decreased. No hazard.	AVR1:decreased
C504	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C505	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C506	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C521	Open	Output voltage decreased. No hazard.	AVR1:decreased
	Short	No Hazard.	AVR1:0
C522	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
C531	Open	Normal operation.	
	Short	Normal operation.	
C532	Open	Normal operation.	
	Short	Normal operation.	

## F M E A

Component	Mode		Comment	Output Voltage (V)
C533	Open		Normal operation.	
	Short		Normal operation.	
C534	Open		Normal operation.	
	Short		Normal operation.	
C541	Open		Normal operation.	
	Short		Output voltage increased. No hazard.	AVR1:increased
C601	Open		Normal operation.	
	Short		Normal operation.	
C602	Open	only 28	Normal operation.	
	Short	only 28	Normal operation.	
C603	Open		Normal operation.	
	Short		Normal operation.	
C604	Open		Normal operation.	
	Short		Normal operation.	
C701	Open		Normal operation.	
	Short		Normal operation.	
D11	Open		External Fuse opened, No hazard.	AVR1:0
	Short		External Fuse opened, No hazard.	AVR1:0
D12	Open		Normal operation.	
	Short		External Fuse opened, No hazard.	AVR1:0
D13	Open		Normal operation.	
	Short		Normal operation.	
D14	Open		Normal operation.	
	Short		Normal operation.	

F M E A

Component	Mode		Comment	Output Voltage (V)
D51	Open	only 48	No Hazard.	AVR1:0
	Short	only 48	No Hazard.	AVR1:0
D61	Open	only 48	No Hazard.	AVR1:0
	Short	only 48	No Hazard.	AVR1:0
D101	Open		Normal operation.	
	Short		Normal operation.	
D102	Open		Normal operation.	
	Short		Normal operation.	
D151	Open		External Fuse opened, No hazard.	AVR1:0
	Short		Normal operation.	
D152	Open		External Fuse opened, No hazard.	AVR1:0
	Short		External Fuse opened, No hazard.	AVR1:0
D153	Open		External Fuse opened, No hazard.	AVR1:0
	Short		External Fuse opened, No hazard.	AVR1:0
D191	Open		Normal operation.	
	Short		Normal operation.	
D192	Open		Normal operation.	
	Short		Normal operation.	
D211	Open		No Hazard.	AVR1:0
	Short		No Hazard.	AVR1:0
D241	Open		No Hazard.	AVR1:0
	Short		Normal operation.	
D271	Open		No Hazard.	AVR1:0
	Short		Normal operation.	

F M E A

Component	Mode	Comment	Output Voltage (V)
D343	Open	Normal operation.	
	Short	No Hazard.	AVR1:0
D344	Open	No Hazard.	AVR1:0
	Short	Normal operation.	
D345	Open	No Hazard.	AVR1:0
	Short	Normal operation.	
D346	Open	Normal operation.	
	Short	Normal operation.	
D371	Open	No Hazard.	AVR1:0
	Short	Normal operation.	
D386	Open	Normal operation.	
	Short	Normal operation.	
D387	Open	Normal operation.	
	Short	Normal operation.	
D388	Open	Normal operation.	
	Short	Normal operation.	
D389	Open	Normal operation.	
	Short	Normal operation.	
D501	Open	Normal operation.	
	Short	Normal operation.	
D502	Open	Normal operation.	
	Short	Normal operation.	
D503	Open	Normal operation.	
	Short	No Hazard.	AVR1:0

F M E A

Component	Mode		Comment	Output Voltage (V)
D601	Open		Normal operation.	
	Short		Normal operation.	
IC101	Open	1	External Fuse opened, No hazard.	AVR1:0
		2	Normal operation.	
		3	Normal operation.	
		4	No Hazard.	AVR1:0
		5	No Hazard.	AVR1:0
		6	No Hazard.	AVR1:0
		7	No Hazard.	AVR1:0
		8	Normal operation.	
		9	Normal operation.	
		10	Normal operation.	
		11	No Hazard.	AVR1:0
		12	No Hazard.	AVR1:0
		13	Normal operation.	
		14	No Hazard.	AVR1:0
		15	No Hazard.	AVR1:0
		16	No Hazard.	AVR1:0
	Short	1-2	Output voltage decreased. No hazard.	AVR1:decreased
		2-3	Output voltage decreased. No hazard.	AVR1:decreased
		3-4	Output voltage decreased. No hazard.	AVR1:decreased
		4-5	No Hazard.	AVR1:0
		5-6	No Hazard.	AVR1:0
		6-7	No Hazard.	AVR1:0

## F M E A

Component	Mode		Comment	Output Voltage (V)
IC101	Short	7-8	No Hazard.	AVR1:0
		9-10	Normal operation.	
		10-11	Normal operation.	
		11-12	No Hazard.	AVR1:0
		12-13	No Hazard.	AVR1:0
		13-14	No Hazard.	AVR1:0
		14-15	No Hazard.	AVR1:0
		15-16	External Fuse opened, No hazard.	AVR1:0
IC201	Open	3	No Hazard.	AVR1:0
		4	No Hazard.	AVR1:0
		5	No Hazard.	AVR1:0
	Short	4-5	No Hazard.	AVR1:0
IC301	Open	1	No Hazard.	AVR1:0
		2	Normal operation.	
		3	Normal operation.	
		4	Normal operation.	
		5	Normal operation.	
		6	No Hazard.	AVR1:0
		7	Normal operation.	
		8	Normal operation.	
		9	Normal operation.	
		10	Normal operation.	
		11	No Hazard.	AVR1:0
		12	No Hazard.	AVR1:0

F M E A

Component	Mode		Comment	Output Voltage (V)
IC301	Open	13	Normal operation.	
		14	Normal operation.	
		15	No Hazard.	AVR1:0
		16	Output voltage decreased. No hazard.	AVR1:decreased
		17	No Hazard.	AVR1:0
		18	Normal operation.	
		19	No Hazard.	AVR1:0
		20	No Hazard.	AVR1:0
		21	No Hazard.	AVR1:0
		22	No Hazard.	AVR1:0
		23	External Fuse opened, No hazard.	AVR1:0
		24	No Hazard.	AVR1:0
		25	Normal operation.	
		26	No Hazard.	AVR1:0
		27	No Hazard.	AVR1:0
		28	Normal operation.	
		29	No Hazard.	AVR1:0
		30	Normal operation.	
	Short	1-2	Normal operation.	
		2-3	Normal operation.	
		3-4	No Hazard.	AVR1:0
		4-5	Normal operation.	
		5-6	Normal operation.	
		6-7	No Hazard.	AVR1:0



## F M E A

Component	Mode		Comment	Output Voltage (V)
IC301	Short	7-8	Normal operation.	
		8-9	Normal operation.	
		9-10	No Hazard.	AVR1:0
		10-11	No Hazard.	AVR1:0
		11-12	No Hazard.	AVR1:0
		12-13	Normal operation.	
		13-14	Normal operation.	
		14-15	Normal operation.	
		16-17	No Hazard.	AVR1:0
		17-18	No Hazard.	AVR1:0
		18-19	See 43 Page.	
		19-20	No Hazard.	AVR1:0
		20-21	No Hazard.	AVR1:0
		21-22	No Hazard.	AVR1:0
		22-23	Output voltage decreased. No hazard.	AVR1:decreased
		23-24	No Hazard.	AVR1:0
		24-25	No Hazard.	AVR1:0
		25-26	No Hazard.	AVR1:0
		26-27	Normal operation.	
		27-28	No Hazard.	AVR1:0
		28-29	No Hazard.	AVR1:0
		29-30	Normal operation.	
IC341	Open	1	No Hazard.	AVR1:0
		2	No Hazard.	AVR1:0

## F M E A

Component	Mode		Comment	Output Voltage (V)
IC341	Open	3	No Hazard.	AVR1:0
		4	No Hazard.	AVR1:0
		5	No Hazard.	AVR1:0
	Short	1-2	No Hazard.	AVR1:0
		2-3	No Hazard.	AVR1:0
		4-5	No Hazard.	AVR1:0
IC342	Open	1	Output voltage increased. No hazard..	AVR1:Increased (120%)
		2	No Hazard.	AVR1:0
		3	Normal operation.	
		4	No Hazard.	AVR1:0
		5	External Fuse opened, No hazard.	AVR1:0
	Short	1-2	External Fuse opened, No hazard.	AVR1:0
		2-3	No Hazard.	AVR1:0
		4-5	No Hazard.	AVR1:0
IC343	Open	1	Output voltage increased. No hazard..	AVR1:Increased (120%)
		2	No Hazard.	AVR1:0
		3	Normal operation.	
		4	No Hazard.	AVR1:0
		5	External Fuse opened, No hazard.	AVR1:0
	Short	1-2	External Fuse opened, No hazard.	AVR1:0
		2-3	No Hazard.	AVR1:0
		4-5	No Hazard.	AVR1:0
IC344	Open	1	No Hazard.	AVR1:0
		2	No Hazard.	AVR1:0

F M E A

Component	Mode		Comment	Output Voltage (V)
IC344	Open	3	Normal operation.	
		4	No Hazard.	AVR1:0
		5	External Fuse opened, No hazard.	AVR1:0
	Short	1-2	No Hazard.	AVR1:0
		2-3	No Hazard.	AVR1:0
		4-5	No Hazard.	AVR1:0
IC345	Open	1	No Hazard.	AVR1:0
		2	No Hazard.	AVR1:0
		3	Normal operation.	
		4	No Hazard.	AVR1:0
		5	External Fuse opened, No hazard.	AVR1:0
	Short	1-2	No Hazard.	AVR1:0
		2-3	No Hazard.	AVR1:0
		4-5	Normal operation.	
IC346	Open	1	No Hazard.	AVR1:0
		2	No Hazard.	AVR1:0
		3	Normal operation.	
		4	No Hazard.	AVR1:0
		5	External Fuse opened, No hazard.	AVR1:0
	Short	1-2	Output voltage decreased. No hazard.	AVR1:decreased
		2-3	No Hazard.	AVR1:0
		4-5	No Hazard.	AVR1:0
IC347	Open	2	No Hazard.	AVR1:0
		3	Normal operation.	

## F M E A

Component	Mode		Comment	Output Voltage (V)
IC347	Open	4	No Hazard.	AVR1:0
		5	No Hazard.	AVR1:0
	Short	2-3	No Hazard.	AVR1:0
		4-5	Normal operation.	
IC501	Open	A	No Hazard.	AVR1:0
		K	No Hazard.	AVR1:0
		R	No Hazard.	AVR1:0
	Short	A-K	No Hazard.	AVR1:0
		A-R	No Hazard.	AVR1:0
		K-R	No Hazard.	AVR1:0
IC701	Open	3	Normal operation.	
		4	Normal operation.	
		5	Normal operation.	
	Short	4-5	Normal operation.	
L11	Open		No Hazard.	AVR1:0
	Short		No Hazard.	AVR1:0
L51	Open		No Hazard.	AVR1:0
	Short		Output voltage decreased. No hazard.	AVR1:decreased
L191	Open		External Fuse opened, No hazard.	AVR1:0
	Short		Normal operation.	
L192	Open		External Fuse opened, No hazard.	AVR1:0
	Short		Normal operation.	
PC151	Open	A, K	External Fuse opened, No hazard.	AVR1:0
		C, E	External Fuse opened, No hazard.	AVR1:0

## F M E A

Component	Mode		Comment	Output Voltage (V)
PC151	Short	A-K	External Fuse opened, No hazard.	AVR1:0
		C-E	Normal operation.	
PC341	Open	A, K	No Hazard.	AVR1:0
		C, E	No Hazard.	AVR1:0
	Short	A-K	No Hazard.	AVR1:0
		C-E	No Hazard.	AVR1:0
PC381	Open	A, K	Normal operation.	
		C, E	Normal operation.	
	Short	A-K	Normal operation.	
		C-E	No Hazard.	AVR1:0
SCR11	Open	A	External Fuse opened, No hazard.	AVR1:0
		K	External Fuse opened, No hazard.	AVR1:0
		G	External Fuse opened, No hazard.	AVR1:0
	Short	A-K	Normal operation.	
		A-G	Normal operation.	
		K-G	External Fuse opened, No hazard.	AVR1:0
SS11	Open		No Hazard.	AVR1:0
	Short		External Fuse opened, No hazard.	AVR1:0
SS12	Open		No Hazard.	AVR1:0
	Short		External Fuse opened, No hazard.	AVR1:0
SS51	Open	except 48	No Hazard.	AVR1:0
	Short	except 48	No Hazard.	AVR1:0
SS61	Open	except 48	No Hazard.	AVR1:0
	Short	except 48	No Hazard.	AVR1:0

## F M E A

Component	Mode		Comment	Output Voltage (V)
T11	Open	1	No Hazard.	AVR1:0
		2	No Hazard.	AVR1:0
		3	No Hazard.	AVR1:0
		4	No Hazard.	AVR1:0
		5	No Hazard.	AVR1:0
	Short	1-2	See 43 Page.	
		3-4	See 43 Page.	
		4-5	See 43 Page.	
T12	Open	1	Normal operation.	
		3	Normal operation.	
		7	No Hazard.	AVR1:0
		8	No Hazard.	AVR1:0
	Short	1-3	Normal operation.	
		7-8	Normal operation.	
T201	Open	1	No Hazard.	AVR1:0
		4	No Hazard.	AVR1:0
		7	No Hazard.	AVR1:0
		8	No Hazard.	AVR1:0
	Short	1-4	No Hazard.	AVR1:0
		7-8	No Hazard.	AVR1:0
T301	Open	1	No Hazard.	AVR1:0
		2	No Hazard.	AVR1:0
		4	No Hazard.	AVR1:0
		5	No Hazard.	AVR1:0

F M E A

Component	Mode		Comment	Output Voltage (V)
T301	Open	9	No Hazard.	AVR1:0
		10	No Hazard.	AVR1:0
	Short	1-2	No Hazard.	AVR1:0
		4-5	No Hazard.	AVR1:0
		9-10	No Hazard.	AVR1:0
TH11	Open		Normal operation.	
	Short		No Hazard.	AVR1:0
TR11	Open	D	See 43 Page.	
		S	See 43 Page.	
		G	See 43 Page.	
	Short	D-S	See 43 Page.	
		S-G	See 43 Page.	
		G-D	See 43 Page.	
TR12	Open	D	See 43 Page.	
		S	See 43 Page.	
		G	See 43 Page.	
	Short	D-S	See 43 Page.	
		S-G	See 43 Page.	
		G-D	See 43 Page.	
TR21	Open	D	See 43 Page.	
		S	See 43 Page.	
		G	See 43 Page.	
	Short	D-S	See 43 Page.	
		S-G	See 43 Page.	

F M E A

Component	Mode		Comment	Output Voltage (V)
TR21	Short	G-D	See 43 Page.	
TR31	Open	D	See 43 Page.	
		S	See 44 Page.	
		G	See 44 Page.	
	Short	D-S	See 44 Page.	
		S-G	See 44 Page.	
		G-D	See 44 Page.	
TR101-1	Open	D (6)	Normal operation.	
		S (1)	Normal operation.	
		G (2)	Normal operation.	
	Short	D (6) -S (1)	Normal operation.	
		S (1) -G (2)	External Fuse opened, No hazard.	AVR1:0
		G (2) -D (6)	Normal operation.	
TR101-2	Open	D (3)	External Fuse opened, No hazard.	AVR1:0
		S (4)	External Fuse opened, No hazard.	AVR1:0
		G (5)	Normal operation.	
	Short	D (3) -S (4)	Normal operation.	
		S (4) -G (5)	External Fuse opened, No hazard.	AVR1:0
		G (5) -D (3)	Normal operation.	
TR121	Open	C	Normal operation.	
		E	Normal operation.	
		B	Normal operation.	
	Short	C-E	No Hazard.	AVR1:0
		E-B	Normal operation.	



## F M E A

Component	Mode		Comment	Output Voltage (V)
TR121	Short	B-C	No Hazard.	AVR1:0
TR122	Open	C	Output voltage decreased. No hazard.	AVR1:decreased
		E	No Hazard.	AVR1:0
		B	No Hazard.	AVR1:0
	Short	C-E	Normal operation.	
		E-B	No Hazard.	AVR1:0
		B-C	Normal operation.	
TR141	Open	D	Normal operation.	
		S	Normal operation.	
		G	No Hazard.	AVR1:0
	Short	D-S	No Hazard.	AVR1:0
		S-G	Normal operation.	
		G-D	No Hazard.	AVR1:0
TR142	Open	D	Output voltage decreased. No hazard.	AVR1:decreased
		S	Output voltage decreased. No hazard.	AVR1:decreased
		G	Normal operation.	
	Short	D-S	Normal operation.	
		S-G	Normal operation.	
		G-D	Normal operation.	
TR151	Open	D	External Fuse opened, No hazard.	AVR1:0
		S	External Fuse opened, No hazard.	AVR1:0
		G	External Fuse opened, No hazard.	AVR1:0
	Short	D-S	Normal operation.	
		S-G	External Fuse opened, No hazard.	AVR1:0

F M E A

Component	Mode		Comment	Output Voltage (V)
TR151	Short	G-D	Normal operation.	
TR152	Open	C	External Fuse opened, No hazard.	AVR1:0
		E	External Fuse opened, No hazard.	AVR1:0
		B	External Fuse opened, No hazard.	AVR1:0
	Short	C-E	Normal operation.	
		E-B	External Fuse opened, No hazard.	AVR1:0
		B-C	Normal operation.	
TR201	Open	D	Normal operation.	
		S	Normal operation.	
		G	No Hazard.	AVR1:0
	Short	D-S	No Hazard.	AVR1:0
		S-G	Normal operation.	
		G-D	No Hazard.	AVR1:0
TR202	Open	C	No Hazard.	AVR1:0
		E	No Hazard.	AVR1:0
		B	No Hazard.	AVR1:0
	Short	C-E	No Hazard.	AVR1:0
		E-B	No Hazard.	AVR1:0
		B-C	No Hazard.	AVR1:0
TR211	Open	D	No Hazard.	AVR1:0
		S	No Hazard.	AVR1:0
		G	No Hazard.	AVR1:0
	Short	D-S	No Hazard.	AVR1:0
		S-G	No Hazard.	AVR1:0

## F M E A

Component	Mode		Comment	Output Voltage (V)
TR211	Short	G-D	No Hazard.	AVR1:0
TR212-1	Open	D (6)	No Hazard.	AVR1:0
		S (1)	No Hazard.	AVR1:0
		G (2)	No Hazard.	AVR1:0
	Short	D (6) -S (1)	No Hazard.	AVR1:0
		S (1) -G (2)	No Hazard.	AVR1:0
		G (2) -D (6)	No Hazard.	AVR1:0
TR212-2	Open	D (3)	No Hazard.	AVR1:0
		S (4)	No Hazard.	AVR1:0
		G (5)	No Hazard.	AVR1:0
	Short	D (3) -S (4)	No Hazard.	AVR1:0
		S (4) -G (5)	No Hazard.	AVR1:0
		G (5) -D (3)	No Hazard.	AVR1:0
TR241	Open	C	No Hazard.	AVR1:0
		E	No Hazard.	AVR1:0
		B	No Hazard.	AVR1:0
	Short	C-E	No Hazard.	AVR1:0
		E-B	No Hazard.	AVR1:0
		B-C	No Hazard.	AVR1:0
TR242	Open	D	No Hazard.	AVR1:0
		S	No Hazard.	AVR1:0
		G	No Hazard.	AVR1:0
	Short	D-S	No Hazard.	AVR1:0
		S-G	No Hazard.	AVR1:0

F M E A

Component	Mode		Comment	Output Voltage (V)
TR242	Short	G-D	No Hazard.	AVR1:0
TR243	Open	C	Normal operation.	
		E	Normal operation.	
		B	Normal operation.	
	Short	C-E	No Hazard.	AVR1:0
		E-B	Normal operation.	
		B-C	No Hazard.	AVR1:0
TR271	Open	D	External Fuse opened, No hazard.	AVR1:0
		S	External Fuse opened, No hazard.	AVR1:0
		G	No Hazard.	AVR1:0
	Short	D-S	No Hazard.	AVR1:0
		S-G	Normal operation.	
		G-D	No Hazard.	AVR1:0
TR341	Open	C	Normal operation.	
		E	Normal operation.	
		B	Normal operation.	
	Short	C-E	No Hazard.	AVR1:0
		E-B	Normal operation.	
		B-C	No Hazard.	AVR1:0
TR342	Open	D	Normal operation.	
		S	Normal operation.	
		G	Normal operation.	
	Short	D-S	Normal operation.	
		S-G	No Hazard.	AVR1:0

## F M E A

Component	Mode		Comment	Output Voltage (V)
TR342	Short	G-D	Output voltage decreased. No hazard.	AVR1:decreased
TR351-1	Open	D (6)	External Fuse opened, No hazard.	AVR1:0
		S (1)	External Fuse opened, No hazard.	AVR1:0
		G (2)	External Fuse opened, No hazard.	AVR1:0
	Short	D (6) -S (1)	External Fuse opened, No hazard.	AVR1:0
		S (1) -G (2)	External Fuse opened, No hazard.	AVR1:0
		G (2) -D (6)	External Fuse opened, No hazard.	AVR1:0
TR351-2	Open	D (3)	External Fuse opened, No hazard.	AVR1:0
		S (4)	External Fuse opened, No hazard.	AVR1:0
		G (5)	External Fuse opened, No hazard.	AVR1:0
	Short	D (3) -S (4)	External Fuse opened, No hazard.	AVR1:0
		S (4) -G (5)	External Fuse opened, No hazard.	AVR1:0
		G (5) -D (3)	External Fuse opened, No hazard.	AVR1:0
TR352-1	Open	D (6)	External Fuse opened, No hazard.	AVR1:0
		S (1)	External Fuse opened, No hazard.	AVR1:0
		G (2)	External Fuse opened, No hazard.	AVR1:0
	Short	D (6) -S (1)	External Fuse opened, No hazard.	AVR1:0
		S (1) -G (2)	External Fuse opened, No hazard.	AVR1:0
		G (2) -D (6)	External Fuse opened, No hazard.	AVR1:0
TR352-2	Open	D (3)	External Fuse opened, No hazard.	AVR1:0
		S (4)	External Fuse opened, No hazard.	AVR1:0
		G (5)	External Fuse opened, No hazard.	AVR1:0
	Short	D (3) -S (4)	External Fuse opened, No hazard.	AVR1:0
		S (4) -G (5)	External Fuse opened, No hazard.	AVR1:0

F M E A

Component	Mode		Comment	Output Voltage (V)
TR352-2	Short	G (5) -D (3)	External Fuse opened, No hazard.	AVR1:0
TR371	Open	D	External Fuse opened, No hazard.	AVR1:0
		S	External Fuse opened, No hazard.	AVR1:0
		G	No Hazard.	AVR1:0
	Short	D-S	No Hazard.	AVR1:0
		S-G	Normal operation.	
		G-D	No Hazard.	AVR1:0
TR381	Open	D	Normal operation.	
		S	Normal operation.	
		G	Output voltage decreased. No hazard.	AVR1:decreased
	Short	D-S	Output voltage decreased. No hazard.	AVR1:decreased
		S-G	Normal operation.	
		G-D	Output voltage decreased. No hazard.	AVR1:decreased
TR386	Open	C	Output voltage decreased. No hazard.	AVR1:decreased
		E	Output voltage decreased. No hazard.	AVR1:decreased
		B	Output voltage decreased. No hazard.	AVR1:decreased
	Short	C-E	Normal operation.	
		E-B	Normal operation.	
		B-C	Output voltage decreased. No hazard.	AVR1:decreased
TR387	Open	C	Normal operation.	
		E	Normal operation.	
		B	Normal operation.	
	Short	C-E	No Hazard.	AVR1:0
		E-B	Normal operation.	

## F M E A

Component	Mode		Comment	Output Voltage (V)
TR387	Short	B-C	No Hazard.	
TR388	Open	C	Normal operation.	
		E	Normal operation.	
		B	Normal operation.	
	Short	C-E	No Hazard.	
		E-B	Normal operation.	
		B-C	No Hazard.	AVR1:0
TR390	Open	D	Normal operation.	
		S	Normal operation.	
		G	Normal operation.	
	Short	D-S	Normal operation.	
		S-G	No Hazard.	AVR1:0
		G-D	No Hazard.	AVR1:0
TR391	Open	D	Normal operation.	
		S	Normal operation.	
		G	Normal operation.	
	Short	D-S	Normal operation.	
		S-G	No Hazard.	AVR1:0
		G-D	No Hazard.	AVR1:0
TR521	Open	C	No Hazard.	AVR1:0
		E	No Hazard.	AVR1:0
		B	No Hazard.	AVR1:0
	Short	C-E	Output voltage decreased. No hazard.	AVR1:decreased
		E-B	No Hazard.	AVR1:0

## F M E A

Component	Mode		Comment	Output Voltage (V)
TR521	Short	B-C	Output voltage decreased. No hazard.	AVR1:decreased
TR601	Open	C	Normal operation.	
		E	Normal operation.	
		B	Normal operation.	
	Short	C-E	Normal operation.	
		E-B	Normal operation.	
		B-C	Normal operation.	
TR701	Open	C	Normal operation.	
		E	Normal operation.	
		B	Normal operation.	
	Short	C-E	No Hazard.	AVR1:0
		E-B	Normal operation.	
		B-C	No Hazard.	AVR1:0
ZD101	Open		Normal operation.	
	Short		External Fuse opened, No hazard.	AVR1:0
ZD151	Open		Normal operation.	
	Short		External Fuse opened, No hazard.	AVR1:0
ZD201	Open		External Fuse opened, No hazard.	AVR1:0
	Short		Normal operation.	
ZD211	Open		Normal operation.	
	Short		No Hazard.	AVR1:0
ZD241	Open		Normal operation.	
	Short		No Hazard.	AVR1:0
ZD351	Open		Normal operation.	



F M E A

Component	Mode		Comment	Output Voltage (V)
ZD351	Short		No Hazard.	AVR1:0
ZD352	Open		Normal operation.	
	Short		No Hazard.	AVR1:0
ZD521	Open	except 12	No Hazard.	AVR1:0
	Short	except 12	See 44 Page.	
ZD522	Open	only 48	No Hazard.	AVR1:0
	Short	only 48	See 44 Page.	
ZD524	Open		Output voltage decreased. No hazard.	
	Short		No Hazard.	AVR1:0
ZD541	Open		Normal operation.	
	Short		Output voltage increased. No hazard.	AVR1:increased
R11	Open		Output voltage decreased. No hazard.	AVR1:decreased
R12	Open		Output voltage decreased. No hazard.	AVR1:decreased
R51	Open		Normal operation.	
R52	Open		Normal operation.	
R53	Open	except 48	Normal operation.	
R54	Open	except 48	Normal operation.	
R55	Open	except 48	Normal operation.	
R56	Open	except 48	Normal operation.	
R57	Open	except 48	Normal operation.	
R58	Open	except 48	Normal operation.	
R61	Open		Normal operation.	
R62	Open		Normal operation.	
R63	Open	except 48	Normal operation.	

F M E A

Component	Mode		Comment	Output Voltage (V)
R64	Open	except 48	Normal operation.	
R65	Open	except 48	Normal operation.	
R66	Open	except 48	Normal operation.	
R67	Open	except 48	Normal operation.	
R68	Open	except 48	Normal operation.	
R81	Open		Normal operation.	
R82	Open		Normal operation.	
R83	Open		Normal operation.	
R84	Open		Normal operation.	
R85	Open		Normal operation.	
R86	Open		Normal operation.	
R87	Open		Normal operation.	
R88	Open		Normal operation.	
R89	Open		Normal operation.	
R90	Open		Normal operation.	
R101	Open		No Hazard.	AVR1:0
R102	Open		No Hazard.	AVR1:0
R103	Open		No Hazard.	AVR1:0
R104	Open		Normal operation.	
R105	Open		External Fuse opened, No hazard.	AVR1:0
R106	Open		Normal operation.	
R107	Open		Normal operation.	
R108	Open		Normal operation.	
R109	Open		Normal operation.	

# F M E A

Component	Mode	Comment	Output Voltage (V)
R121	Open	No Hazard.	AVR1:0
R122	Open	No Hazard.	AVR1:0
R123	Open	No Hazard.	AVR1:0
R124	Open	No Hazard.	AVR1:0
R125	Open	No Hazard.	AVR1:0
R126	Open	No Hazard.	AVR1:0
R131	Open	No Hazard.	AVR1:0
R132	Open	No Hazard.	AVR1:0
R133	Open	No Hazard.	AVR1:0
R134	Open	No Hazard.	AVR1:0
R135	Open	No Hazard.	AVR1:0
R136	Open	No Hazard.	AVR1:0
R137	Open	No Hazard.	AVR1:0
R138	Open	Normal operation.	
R139	Open	Normal operation.	
R141	Open	No Hazard.	AVR1:0
R142	Open	No Hazard.	AVR1:0
R143	Open	No Hazard.	AVR1:0
R144	Open	No Hazard.	AVR1:0
R145	Open	No Hazard.	AVR1:0
R146	Open	Normal operation.	
R147	Open	Output voltage decreased. No hazard.	AVR1:decreased
R151	Open	External Fuse opened, No hazard.	AVR1:0
R152	Open	Normal operation.	

F M E A

Component	Mode	Comment	Output Voltage (V)
R153	Open	Normal operation.	
R154	Open	Normal operation.	
R155	Open	External Fuse opened, No hazard.	AVR1:0
R156	Open	External Fuse opened, No hazard.	AVR1:0
R157	Open	External Fuse opened, No hazard.	AVR1:0
R158	Open	External Fuse opened, No hazard.	AVR1:0
R159	Open	Normal operation.	
R161	Open	No Hazard.	AVR1:0
R162	Open	No Hazard.	AVR1:0
R163	Open	Normal operation.	
R164	Open	Normal operation.	
R165	Open	Normal operation.	
R166	Open	Normal operation.	
R171	Open	Normal operation.	
R172	Open	Output voltage decreased. No hazard.	AVR1:decreased
R173	Open	Output voltage decreased. No hazard.	AVR1:decreased
R181	Open	No Hazard.	AVR1:0
R182	Open	No Hazard.	AVR1:0
R183	Open	No Hazard.	AVR1:0
R191	Open	External Fuse opened, No hazard.	AVR1:0
R192	Open	See 44 Page.	
R193	Open	Normal operation.	
R194	Open	External Fuse opened, No hazard.	AVR1:0
R195	Open	See 44 Page.	

## F M E A

Component	Mode	Comment	Output Voltage (V)
R196	Open	Normal operation.	
R201	Open	Normal operation.	
R202	Open	Normal operation.	
R203	Open	Normal operation.	
R204	Open	Normal operation.	
R205	Open	Normal operation.	
R206	Open	No Hazard.	AVR1:0
R207	Open	Normal operation.	
R208	Open	No Hazard.	AVR1:0
R209	Open	No Hazard.	AVR1:0
R210	Open	Normal operation.	
R211	Open	No Hazard.	AVR1:0
R212	Open	No Hazard.	AVR1:0
R213	Open	Normal operation.	
R214	Open	Normal operation.	
R215	Open	No Hazard.	AVR1:0
R216	Open	No Hazard.	AVR1:0
R217	Open	Normal operation.	
R241	Open	No Hazard.	AVR1:0
R242	Open	No Hazard.	AVR1:0
R243	Open	No Hazard.	AVR1:0
R244	Open	No Hazard.	AVR1:0
R245	Open	No Hazard.	AVR1:0
R246	Open	No Hazard.	AVR1:0

# F M E A

Component	Mode	Comment	Output Voltage (V)
R247	Open	No Hazard.	AVR1:0
R248	Open	No Hazard.	AVR1:0
R249	Open	No Hazard.	AVR1:0
R250	Open	Normal operation.	
R251	Open	No Hazard.	AVR1:0
R252	Open	No Hazard.	AVR1:0
R253	Open	Normal operation.	
R254	Open	Normal operation.	
R255	Open	Normal operation.	
R256	Open	No Hazard.	AVR1:0
R261	Open	Normal operation.	
R262	Open	Normal operation.	
R263	Open	Normal operation.	
R264	Open	Normal operation.	
R265	Open	Normal operation.	
R271	Open	No Hazard.	AVR1:0
R272	Open	External Fuse opened, No hazard.	AVR1:0
R273	Open	Normal operation.	
R301	Open	No Hazard.	AVR1:0
R311	Open	No Hazard.	AVR1:0
R312	Open	Output voltage decreased. No hazard.	AVR1:decreased
R321	Open	No Hazard.	AVR1:0
R322	Open	Normal operation.	
R331	Open	No Hazard.	AVR1:0

## F M E A

Component	Mode	Comment	Output Voltage (V)
R332	Open	No Hazard.	AVR1:0
R333	Open	No Hazard.	AVR1:0
R334	Open	No Hazard.	AVR1:0
R335	Open	No Hazard.	AVR1:0
R341	Open	No Hazard.	AVR1:0
R342	Open	Normal operation.	
R345	Open	No Hazard.	AVR1:0
R346	Open	Output voltage decreased. No hazard.	AVR1:decreased
R347	Open	No Hazard.	AVR1:0
R348	Open	Normal operation.	
R351	Open	No Hazard.	AVR1:0
R352	Open	Normal operation.	
R353	Open	Normal operation.	
R354	Open	Normal operation.	
R355	Open	Normal operation.	
R361	Open	No Hazard.	AVR1:0
R362	Open	No Hazard.	AVR1:0
R363	Open	No Hazard.	AVR1:0
R364	Open	No Hazard.	AVR1:0
R365	Open	No Hazard.	AVR1:0
R366	Open	No Hazard.	AVR1:0
R371	Open	No Hazard.	AVR1:0
R372	Open	External Fuse opened, No hazard.	AVR1:0
R373	Open	Normal operation.	

# F M E A

Component	Mode		Comment	Output Voltage (V)
R381	Open		Normal operation.	
R382	Open		Normal operation.	
R385	Open		Normal operation.	
R386	Open		Output voltage decreased. No hazard.	AVR1:decreased
R387	Open		Normal operation.	
R388	Open		Normal operation.	
R389	Open		Normal operation.	
R390	Open		Normal operation.	
R391	Open		Normal operation.	
R392	Open		Output voltage decreased. No hazard.	AVR1:decreased
R394	Open		Normal operation.	
R395	Open		Normal operation.	
R396	Open		Normal operation.	
R397	Open		Normal operation.	
R398	Open		Normal operation.	
R399	Open		Normal operation.	
R501	Open		See 44 Page.	
R502	Open	only 48	See 44 Page.	
R503	Open		See 44 Page.	
R504	Open		See 44 Page.	
R505	Open		Output voltage decreased. No hazard.	AVR1:decreased
R506	Open		Output voltage decreased. No hazard.	AVR1:decreased
R507	Open		Normal operation.	
R508	Open		Normal operation.	



F M E A

Component	Mode		Comment	Output Voltage (V)
R509	Open		No Hazard.	AVR1:0
R510	Open		Output voltage decreased. No hazard.	AVR1:decreased
R511	Open		No Hazard.	AVR1:0
R512	Open		Normal operation.	
R521	Open	only 12	No Hazard.	AVR1:0
R522	Open	except 48	No Hazard.	AVR1:0
R523	Open		No Hazard.	AVR1:0
R524	Open		No Hazard.	AVR1:0
R525	Open		No Hazard.	AVR1:0
R526	Open		Normal operation.	
R527	Open		Normal operation.	
R531	Open		No Hazard.	AVR1:0
R532	Open		No Hazard.	AVR1:0
R533	Open		Normal operation.	
R534	Open		Normal operation.	
R541	Open		Normal operation.	
R542	Open		Normal operation.	
R601	Open		Normal operation.	
R602	Open		Normal operation.	
R603	Open		Normal operation.	
R604	Open		Normal operation.	
R605	Open		Normal operation.	
R701	Open		Normal operation.	
R702	Open		Normal operation.	

F M E A

Component	Mode		Comment	Output Voltage (V)
R703	Open		Normal operation.	
R704	Open		No Hazard.	AVR1:0
R705	Open		Normal operation.	
R706	Open		Normal operation.	
R707	Open		Normal operation.	
R708	Open		Normal operation.	
R709	Open	except 12	Normal operation.	
¥012	Open		No Hazard.	AVR1:0
¥013	Open		No Hazard.	AVR1:0

# ABNORMAL TEST RESULT

Component	Mode		Comment	Output Voltage (V)
C211	Short		No Hazard.	AVR1:0
IC301	Short	18-19	No Hazard.	AVR1:0
T11	Short	1-2	No Hazard.	AVR1:decreased
		3-4	No Hazard.	AVR1:decreased
		4-5	Normal operation.	
TR11	Open	D	No Hazard.	AVR1:0
		S	No Hazard.	AVR1:0
		G	No Hazard.	AVR1:0
	Short	D-S	No Hazard.	AVR1:0
		S-G	No Hazard.	AVR1:0
		G-D	No Hazard.	AVR1:0
TR12	Open	D	No Hazard.	AVR1:0
		S	No Hazard.	AVR1:0
		G	No Hazard.	AVR1:0
	Short	D-S	No Hazard.	AVR1:0
		S-G	No Hazard.	AVR1:0
		G-D	No Hazard.	AVR1:0
TR21	Open	D	No Hazard.	AVR1:0
		S	No Hazard.	AVR1:0
		G	No Hazard.	AVR1:0
	Short	D-S	No Hazard.	AVR1:0
		S-G	No Hazard.	AVR1:0
		G-D	No Hazard.	AVR1:0
TR31	Open	D	No Hazard.	AVR1:0

# ABNORMAL TEST RESULT

Component	Mode		Comment	Output Voltage (V)
TR31	Open	S	No Hazard.	AVR1:0
		G	No Hazard.	AVR1:0
	Short	D-S	No Hazard.	AVR1:0
		S-G	No Hazard.	AVR1:0
		G-D	No Hazard.	AVR1:0
ZD521	Short	except 12	Normal operation.	
ZD522	Short	only 48	Normal operation.	
R192	Open		Normal operation.	
R195	Open		Normal operation.	
R501	Open		No Hazard.	AVR1:0
R502	Open	only 48	No Hazard.	AVR1:0
R503	Open		No Hazard.	AVR1:0
R504	Open		No Hazard.	AVR1:0