

# DENON

Hi-Fi AM-FM Stereo Tuner

Hi-Fi Pre-Main Amplifier

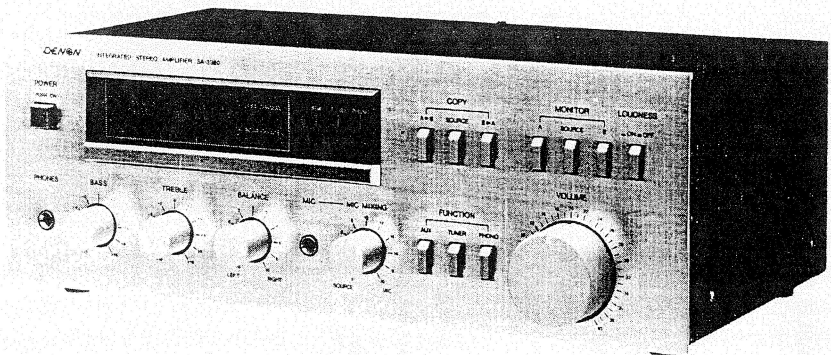
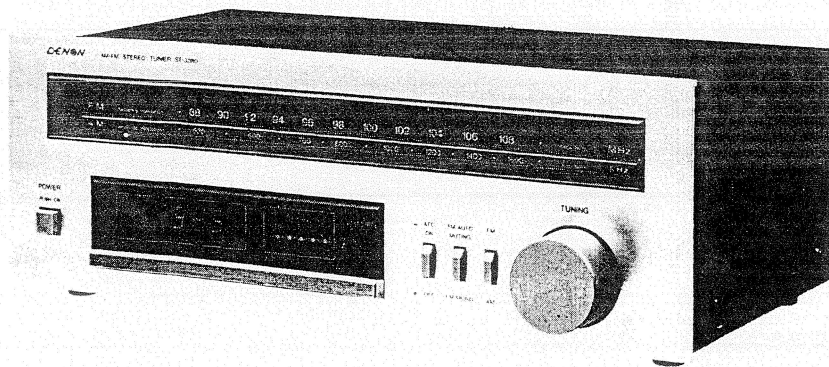
## SERVICE MANUAL

### MODEL ST-3380

### SA-3380

SOLID STATE AM-FM  
STEREO TUNER

SOLID STATE STEREO  
INTEGRATED AMPLIFIER



# NIPPON COLUMBIA CO., LTD.

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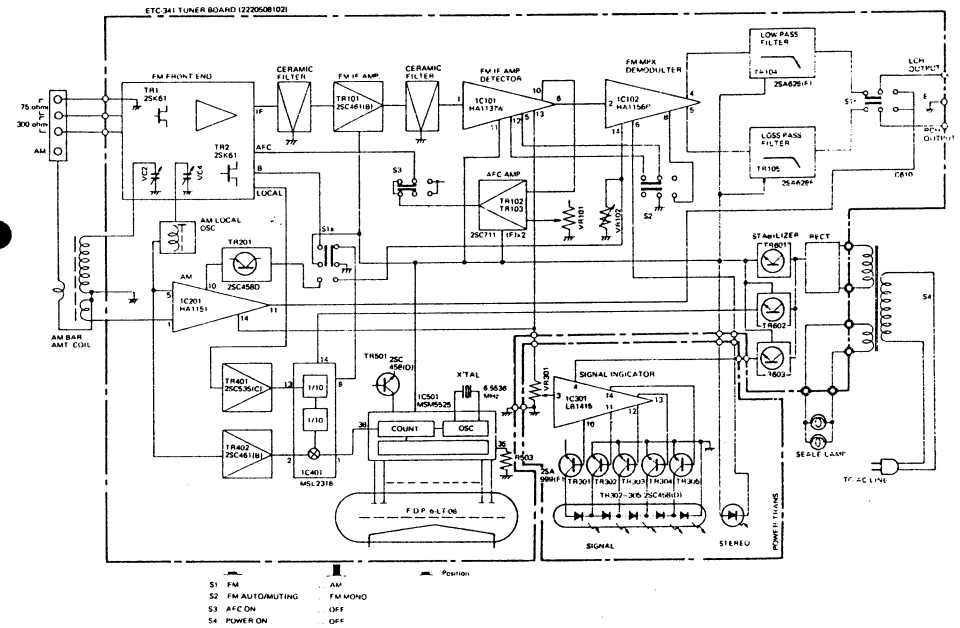
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SPECIFICATIONS

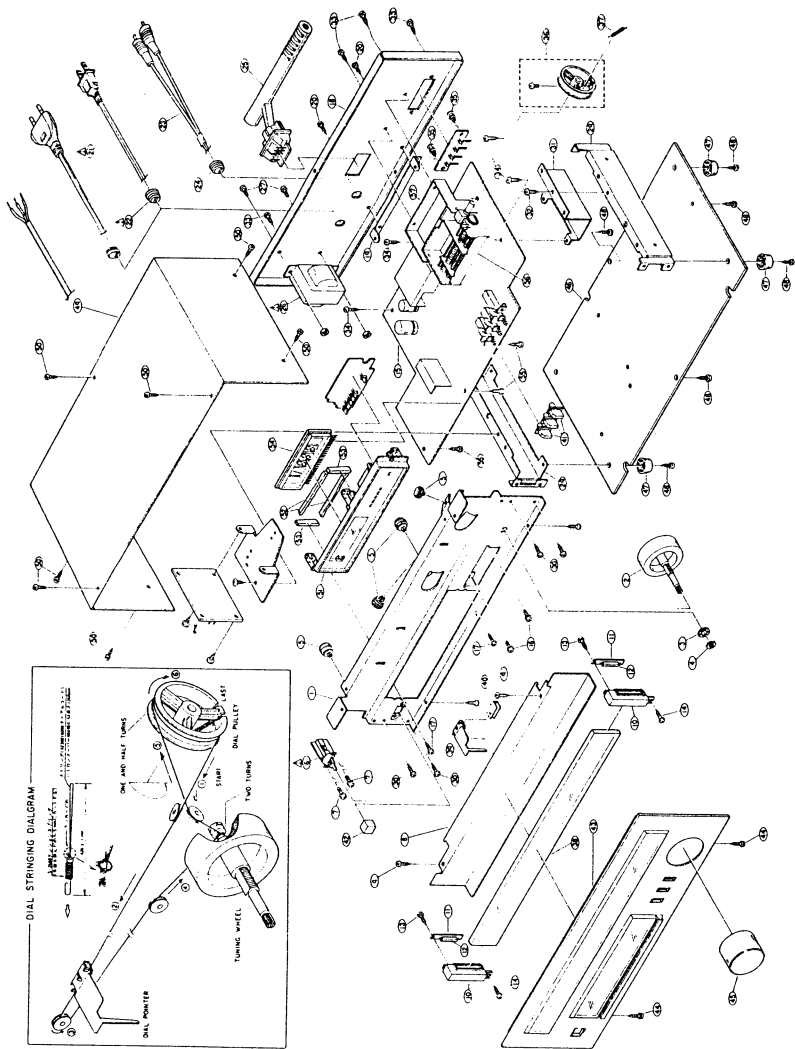
Type:	Solid State AM-FM Stereo Tuner	Stereo Separation:	40 dB (at 1 kHz)
Semiconductors:	7-Integrated Circuits, 2-FET, 17 Transistors and 18-Diodes (add LED 6) F.D.P. 1	Signal to Noise Ratio:	70 dB
		Rated Output Voltage:	170 mV (at 30% mod.)
		AM SECTION (MW or LW)	
FM SECTION		Receiving Range:	525 - 1,605 kHz (MW) 150 - 350 kHz (LW)
Receiving Range:	88 - 108 MHz 87.5 - 108 MHz (Germany only)	I.F.:	452.5 kHz
I.F.:	10.7 MHz	Usable Sensitivity:	300 µV/m
Usable Sensitivity:	1.8µV (IHF), 10.3 dBf (NEW IHF) (MONO)	Signal to Noise Ratio:	55 dB
50 dB Quieting Sensitivity:	3µV (IHF), 14.8 dBf (NEW IHF) (MONO)	Rated Output Voltage:	170 mV (at 30% mod.)
Capture Ratio:	1.2 dB (IHF)	OTHERS	
Tuning Signal Selectivity:	65 dB	Power Requirement:	AC 120 volt, 60 Hz or AC 115/200/230 volt 50/60 Hz or AC 220 volts, 50 Hz or AC 240 volts, 50 Hz
Image Rejection:	55 dB	Power Consumption:	11 Watt
I.F. Rejection:	85 dB	Dimensions:	400 (W) x 143.5 (H) x 261 (D) mm
AM Suppression:	55 dB	Net Weight:	4.3 kg
Frequency Response:	20 Hz - 15 kHz +0.2 dB, -1.5 dB		
Harmonic Distortion:	Stereo 0.3% (at 1 kHz, 100% mod.) Mono 0.15% (at 1 kHz, 100% mod.)		

Design and specifications subject to change without notice.

BLOCK DIAGRAM



EXPLODED VIEW OF CHASSIS AND CABINET



ST-3380 PARTS LIST

NOTE: 2DFL for France; 2DG for Germany; 2DI for Italy; 2DUK for Union King; MDS,H for Singapore & Hong kong

Ref. No.	Part No.	Part Name & Descriptions	Remarks
1	4110202105	FRONT CHASSIS	ST-3380 2DUK ST-3380 MDS, MDH, 2DG, 2DI, 2DFL
2	4210136003	TUNING FLYWHEEL ASS.	
3	4753800003	9 TOOTH WASHER	
4	4756802008	9 NUT	
5	4210164004	GUIDE WHEEL	
6	2124154021	POWER SWITCH	
6	2124154018	POWER SWITCH	
7	4700009006	CROSS PAN SCREW WITH WASHER 3 x 6	
8	4510036007	BACK PLATE	
9	4730354019	TAPPING SCREW (2) 3 x 8	

Ref. No.	Part No.	Part Name & Descriptions	Remarks
10	4530011109	LAMP HOLDER	ST-3380 2DFL
11	2220470007	P.C. BOARD	
12	3930016006	PILOT LAMP	ST-3380 2DUK, 2DI, 2DG
13	4730304014	TAPPING SCREW (1) 3 x 8	
14	4730354019	TAPPING SCREW (2) 3 x 8	ST-3380 MDS, MDH
15	ETC-341B	TUNER & LED UNIT	
15	ETC-341C	TUNER & LED UNIT	ST-3380 2DUK
15	ETC-341D	TUNER & LED UNIT	
16	4700009006	CROSS PAN SCREW WITH S. WASHER 3 x 6	ST-3380 2DI, 2DFL
17	4730305013	TAPPING SCREW (1) 3 x 10	
18	1050264222	BACK PANEL	ST-3380 MDS, MDH
18	1050264235	BACK PANEL	
18	1050264219	BACK PANEL	ST-3380 2DUK
18	1050264248	BACK PANEL	
19	4120548008	BRACKET (B)	ST-3380 2DUK
20	4770064107	FIXING SCREW	
21	2062020000	AC CORD	ST-3380 2DG, 2DI, 2DFL
21	2062002031	AC CORD	
21	2006031026	AC CORD	ST-3380 MDS, MDH
22	4450004102	BUSHING	
22	4450020005	BUSHING	ST-3380 2DG, 2DI, 2DFL
22	MD-3802	BUSHING	
23	2048055023	2P. PIN CORD	ST-3380 MDS, MDH
24	MD-3802	BUSHING	
25	2311050103	BAR ANT COIL ASS.	ST-3380 2DUK, MDS, MDH
25	2311056000	LW BAR ANT COIL	
26	2335193004	POWER TRANS	ST-3380 2DFL
26	2335187007	POWER TRANS	
26	2335201006	POWER TRANS	ST-3380 2DG, 2DI, 2DFL
27	4770064107	FIXING SCREW	
28			ST-3380 2DUK, MDS, MDH
29	4120537006	SIDE CHASSIS	
30	4730354019	TAPPING SCREW (2) 3 x 8	ST-3380 2DFL
31	4120538005	BRACKET (A)	
32	4730354019	TAPPING SCREW (2) 3 x 8	ST-3380 2DUK, 2DG, MDS, MDH, 2DI
33	4770064107	FIXING SCREW	
34	4730354019	TAPPING SCREW (2) 3 x 8	ST-3380 2DFL
35	4770096007	PUSH RIVET	
36	4210159006	DIAL WHEEL	ST-3380 2DG, 2DI, 2DUK, MDS, MDH
37	S-2680	TENSION SPRING	
38	1410169006	DIAL SCALE	ST-3380 2DFL
38	1410168007	DIAL SCALE	
39	4520042010	POINTER	ST-3380 2DUK, 2DG, MDS, MDH, 2DI
40	CF-7594J2	SPACER	
41	1130142109	PUSH KNOB (A)	ST-3380 2DFL
42	1130143108	PUSH KNOB (B)	
43	1440479122	FRONT PANEL ASS.	ST-3380 2DUK
43	1440479119	FRONT PANEL ASS.	
44	4730354019	TAPPING SCREW (2) 3 x 8	ST-3380 2DUK, 2DG, MDS, MDH, 2DI
45	1120239006	TUNING KNOB	
46	1050265014	BOTTOM COVER	ST-3380 2DFL, 2DI, 2DUK, MDS, MDH
46	1050265030	BOTTOM COVER	
47	MD-5268	FOOT	ST-3380 2DG
48	4770052012	FIXING SCREW	
49	1020085017	TOP COVER	ST-3380 2DUK
50	4770064107	FIXING SCREW	
51	4510035011	DISPLAY COVER ASS.	ST-3380 2DUK
52	1290002082	SOFT TAPE	
53	4610094062	RUBBER SHEET	ST-3380 2DUK
54	3934003002	F.D.P. 6-LT-06	
55	4730305013	TAPPING SCREW (1) 3 x 10	ST-3380 MDS, MDH
56	2180026003	FRONT END	
57	4120549007	BRACKET (C)	ST-3380 2DUK
58	ETC-232E01	POWER SOURCE UNIT	
58	ETC-232Z	POWER SOURCE UNIT	ST-3380 2DG, 2DI, 2DFL
58	ETC-232R	POWER SOURCE UNIT	
59	4150153104	INSULATING COVER	ST-3380 MDS, MDH
60	4150153104	WIRE CLAMP BAND	
61	4150135025	INSULATING CASE	ST-3380 2DUK

METHOD OF ADJUSTMENTS Carry out adjustments at room temperature and normal humidity and with the power source operating at the rated voltage.

FM/MPX ALIGNMENT POINTS & CONNECTIONS

STEP	ITEM	INPUT SIDE			OUTPUT SIDE			REMARKS				
		DIAL SETTING	INSTRUMENT	FREQ.	INPUT LEVEL	MODULATION	COUPLING		INSTRUMENT	CONNECTION	ADJUST	ADJUST LIMIT
1	Demodulation balance	-	-	-	No signal	-	-	Tuning meter	Both R115 terminals (L-channel)	T101	Tuning meter to center position	
2	Demodulation linearity	98 MHz	FM S.S.G.	98 MHz	60 dBu	1 kHz 100%	ANT. terminal	Distortion meter	Output terminal (L-channel)	T102	Minimum distortion	
3	Demodulation balance	Detuning	FM S.S.G.	98 MHz	60 dBu	1 kHz 100%	ANT. terminal	Tuning meter	Both R115 terminals (L-channel)	T101	Tuning meter to center position	
4	Demodulation linearity	98 MHz	FM S.S.G.	98 MHz	60 dBu	1 kHz 100%	ANT. terminal	Distortion meter	Output terminal (L-channel)	T102	Minimum distortion	
5	By repeating Steps 3 and 4 adjust it so that the pointer of the tuning meter will come to the center when detuned.											
6	Front end IFT	98 MHz	FM S.S.G.	98 MHz	60 dBu	1 kHz 100%	ANT. terminal	Distortion meter	Output terminal (L-channel)	Front end IFT core	Minimum distortion	
7	If the tuning meter points to the center after detuning, it means that distortion adjustment has been completed. If not, repeat adjustments of Steps 2 through 6.											
8	AFC balance	-	-	-	No signal	-	-	Tuning meter	Both S <sub>1</sub> terminals (right fig.)	VR101	Tuning meter to center position	
9	19 kHz	98 MHz	FM S.S.G.	98 MHz	60 dBu V	No modulation	ANT. terminal	Frequency counter	Through 100 k ohms to T102	VR201	19 kHz ± 50 Hz	
10	Front end IFT	98 MHz	Signal generator	98 MHz	60 dBu V	Main 30% (1 kHz) mod. 10%	ANT. terminal	Distortion meter	Output terminal (L-channel)	Front end IFT core	Minimum distortion	
11	Signal indicator	98 MHz	FM S.S.G.	98 MHz	53 dBu V	-	ANT. terminal	Signal indicator set	Eye observation	VR301	The 5th LED light up	
12	Only after making sure the FM S.S.G. indicates 92 MHz and the set's digital tuning display is 92 MHz, set the dial pointer at the center of the letter 92 MHz.											

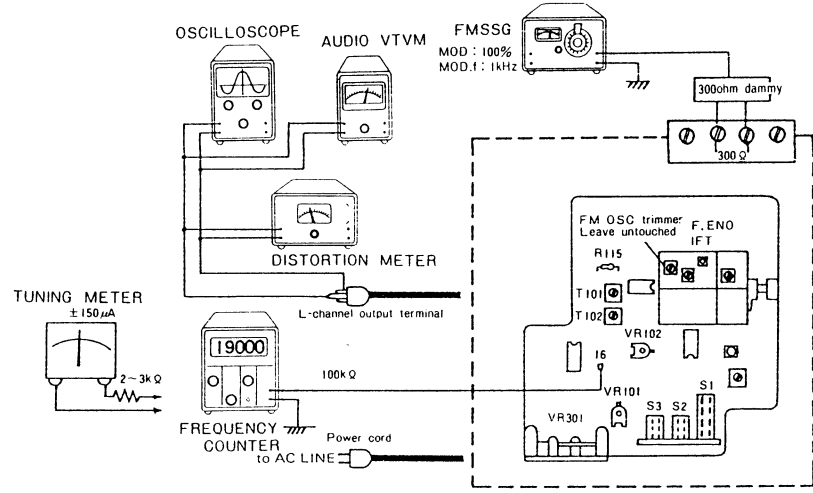
AM ALIGNMENT

STEP	ITEM	FREQ.	INSTRUMENT	INPUT LEVEL	MODULATION	COUPLING	INSTRUMENT	CONNECTION	ADJUST	ADJUST LIMIT	REMARKS	
1	AM IFT	-	AM IF Sweep generator	-	-	-	Bar ANT. coil	Oscilloscope	R209-2.7 k ohm (L-channel)	T202	Maximum heights and best symmetry curve	
2	T201	600 kHz	AM S.S.G.	600 kHz	400 Hz 30%	400 Hz 30%	Bar ANT. coil	VTVM	Output terminal (L-channel)	T201	Maximum audio output	
3	Bar ANT. coil	600 kHz	AM S.S.G.	600 kHz	400 Hz 30%	400 Hz 30%	Bar ANT. coil	VTVM	Output terminal (L-channel)	Bar ANT. coil	Maximum audio output	
4	OSC trimmer	1400 kHz	AM S.S.G.	1400 kHz	400 Hz 30%	400 Hz 30%	Bar ANT. coil	VTVM	Output terminal (L-channel)	OSC trimmer	Maximum audio output	
5	ANT. trimmer	1400 kHz	AM S.S.G.	1600 kHz	400 Hz 30%	400 Hz 30%	Bar ANT. coil	VTVM	Output terminal (L-channel)	ANT. trimmer	Maximum audio output	
6	By repeating Steps 2 through 5, adjust it so that 600 kHz and 1400 kHz signals will be properly received when the set's pointer is set to the receiving positions of 600 kHz and 1400 kHz, respectively.											

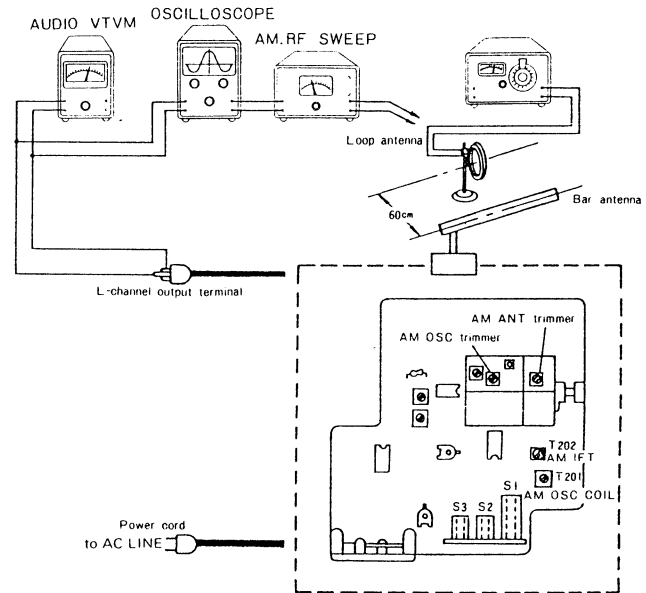
LW ALIGNMENT (For 2DFL)

STEP	ITEM	FREQ.	INSTRUMENT	INPUT LEVEL	MODULATION	COUPLING	INSTRUMENT	CONNECTION	ADJUST	ADJUST LIMIT	REMARKS	
1	AM IFT	-	AM IF Sweep generator	-	-	-	Bar ANT. coil	Oscilloscope	R209-2.7 k ohm (L-channel)	T202	Maximum heights and best symmetry curve	
2	T201	170 kHz	AM S.S.G.	170 kHz	400 Hz 30%	400 Hz 30%	Bar ANT. coil	VTVM	Output terminal (L-channel)	T201	Maximum audio output	
3	Bar ANT. coil	170 kHz	AM S.S.G.	170 kHz	400 Hz 30%	400 Hz 30%	Bar ANT. coil	VTVM	Output terminal (L-channel)	Bar ANT. coil	Maximum audio output	
4	OSC trimmer	300 kHz	AM S.S.G.	300 kHz	400 Hz 30%	400 Hz 30%	Bar ANT. coil	VTVM	Output terminal (L-channel)	OSC trimmer	Maximum audio output	
5	ANT. trimmer	300 kHz	AM S.S.G.	300 kHz	400 Hz 30%	400 Hz 30%	Bar ANT. coil	VTVM	Output terminal (L-channel)	ANT. trimmer	Maximum audio output	
6	By repeating Steps 2 through 5, adjust it so that 170 kHz and 350 kHz signals will be properly received when the set's pointer is set to the receiving positions of 170 kHz and 300 kHz, respectively.											

FM/MPX ALIGNMENT



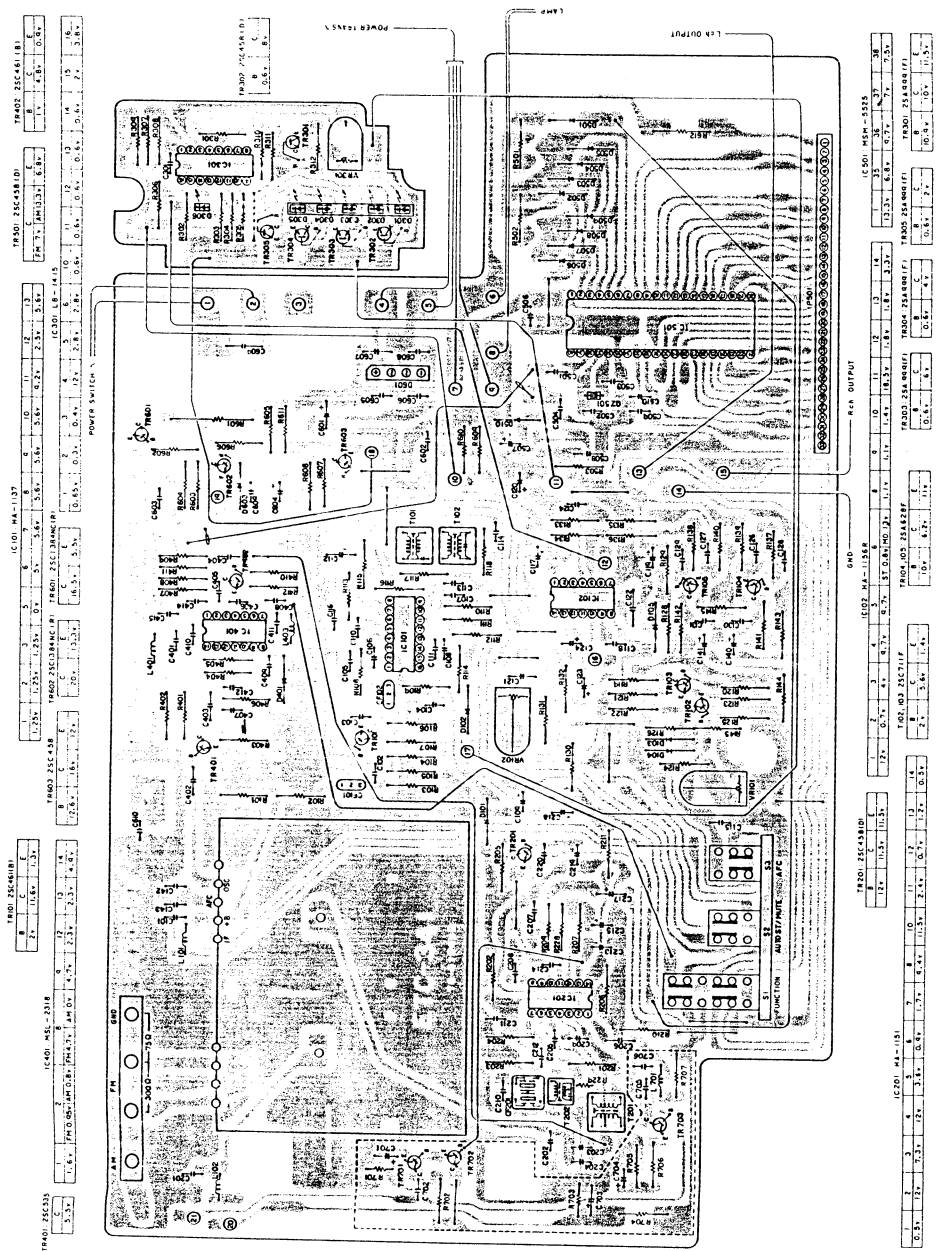
AM ALIGNMENT POINTS & CONNECTIONS





PRINTED CIRCUIT BOARD PATTERNS AND PARTS LIST

TUNER & LED UNIT ETC-341B (2DFL), ETC-341C (2DI, 2DG, 2DUK), ETC-341D (MDS, MDH)



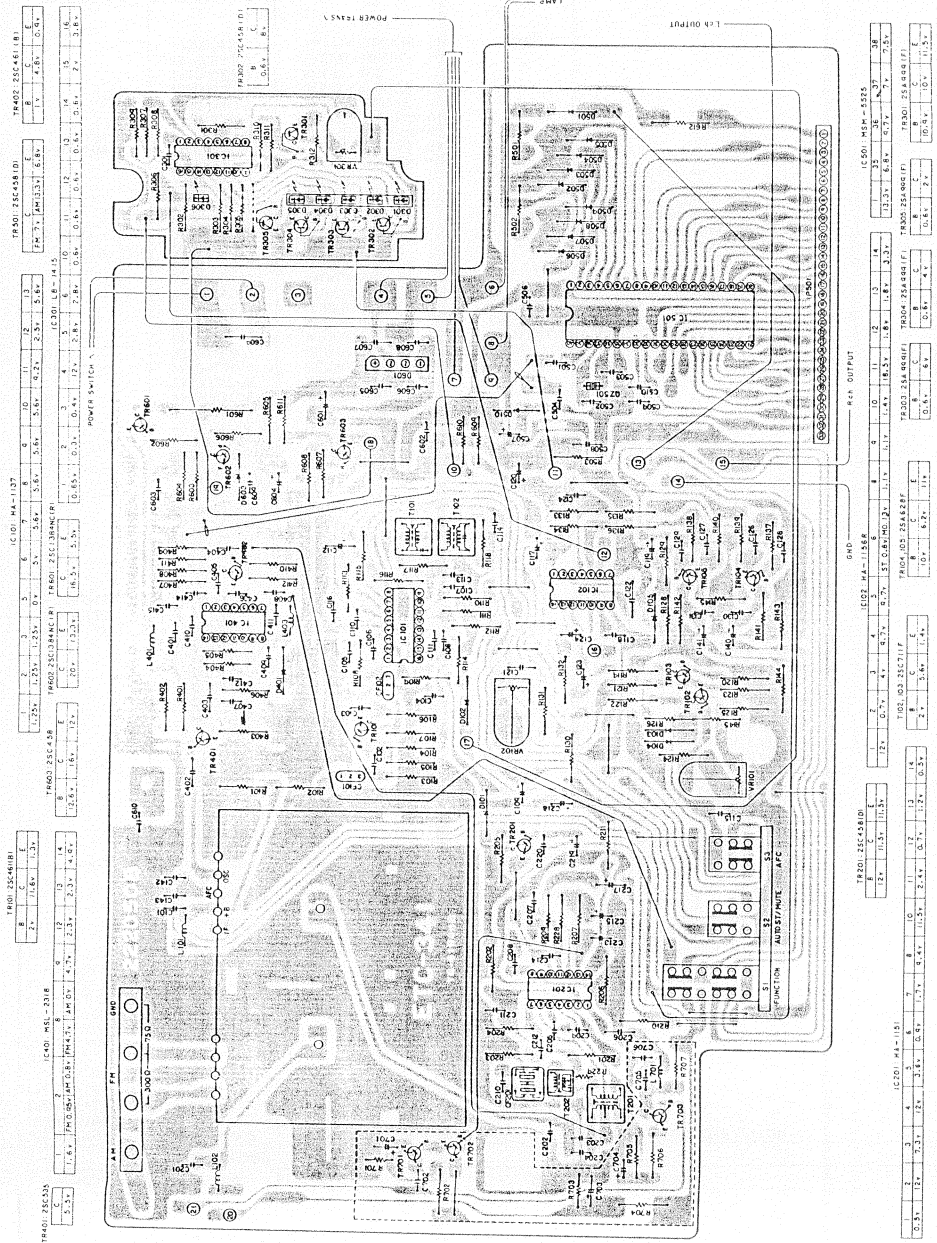
ETC-341 (For 2DG, 2DI, 2DUK) PARTS LIST

\*Mark make a difference by model.

Ref. No.	Part No.	Part Name & Descriptions			
<b>SEMICONDUCTORS</b>					
IC101	2630051003	HA-1137W			INTEGRATED CIRCUIT
IC102	2630043011	HA-1156R			INTEGRATED CIRCUIT
IC201	2630040001	HA-1151			INTEGRATED CIRCUIT
IC301	2630085008	LB1415			INTEGRATED CIRCUIT
IC401	2630086004	MSL-2318			INTEGRATED CIRCUIT
IC501	2620087003	MSM-5525			INTEGRATED CIRCUIT
• TR101,402	2730025010	2SC461(B)			TRANSISTOR
TR401	2730043021	2SC535(C)			TRANSISTOR
• TR201,302,303, 304,305,501, 603	2730021043	2SC458 (D)			TRANSISTOR
TR601,602	2730197003	2SC1384NC-R			TRANSISTOR
TR102,103	2730064055	2SC711 (F)			TRANSISTOR
TR301	2710113007	2SA999 (F)			TRANSISTOR
TR104,105	2710033022	2SA628 (F)			TRANSISTOR
D510	2760177019	MZ306A			DIODE
D603	2760174012	MZ314 (B)			DIODE
D101,103,104, 105,401,501, 503,201,505	2760049008	1S2076			DIODE
D601	2760234004	S1VB20			DIODE
P501	3934003002	FDP 16-LT-06)			
	4730305013	TAPPING SCREW 3 x 10			FOR DISPLAY COVER ASSY FIXED
D301	3939046019	LED			FOR SIGNAL ORANGE 5 GAIN
D106	3939046006	LED			FOR BEACON ORANGE SINGLE
Q2501	3990008009	X-TAL 6.5536 MHz			
<b>RESISTORS</b>					
R413	2410266005	10 ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R609	2410275009	24 ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R312	2410277007	30 ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
• R102,110,202 602,606	2410299000	100 ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R611	2410288009	82 ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R103,107,108	2410302008	330 ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R411,412	2410306004	470 ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R605	2410308002	560 ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R211	2410310003	820 ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R139,140	2410311002	750 ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
• R106,403	241314009	1 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R413	2410298002	220 ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R121,122	2410337002	9.1 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R115,104,146, 135,136,137, 138,205,207, 228,311,404, 307,405,408	2410338001	10 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R113,402	2410340002	12 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R131	2410342000	15 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
• R117	2410343009	16 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R309,410	2410344008	18 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R145	2410348004	27 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
• R501	2410346006	22 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R114	2410347005	24 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R608	2410349003	30 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R101,607,123	2410316007	1.2 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R105,301,503	2410320006	1.8 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
• R118,407,603	2410321005	2 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R112,130,132, 604	2410322004	2.2 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R610	2410309001	620 ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R206,209,133, 134	2410324002	2.7 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R128	2410326000	3.3 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R141,142,306	2410328008	3.9 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R201	2410330009	4.7 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R203	2410332007	5.6 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R129,401	2410336003	8.2 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R127	2410354001	47 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R409	2410353002	43 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R111,406	2410354001	47 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R204	2410358007	68 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R125	2410360008	82 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R120,143,144, 302,303	2410362006	100 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R304,305,308	2410362006	100 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R310	2410356009	56 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R124	2410364004	120 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R119	2410366002	150 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R169,210	2410378003	470 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
• R229	2412022085	47 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R612	2410155006	56 ohm	±5%	1/2W	FIXED CARBON FILM RESISTOR
R601	2440084008	68 ohm	±5%	2W	FIXED METAL OXIDE FILM RESISTOR

PRINTED CIRCUIT BOARD PATTERNS AND PARTS LIST

TUNER & LED UNIT ETC-341B (2DFL). ETC-341C (2DI, 2DG, 2DUK). ETC-341D (MDS, MDH)



ETC-341 (For 2DG, 2DI, 2DUK) PARTS LIST

\*Mark make a difference by model.

Ref. No.	Part No.	Part Name & Descriptions			
<b>SEMICONDUCTORS</b>					
IC101	2630051003	HA-1137W			INTEGRATED CIRCUIT
IC102	2630043011	HA-1156R			INTEGRATED CIRCUIT
IC201	2630040001	HA-1151			INTEGRATED CIRCUIT
IC301	2630085008	LB1415			INTEGRATED CIRCUIT
IC401	2620086004	MSL-2318			INTEGRATED CIRCUIT
IC501	2620087003	MSM-5525			INTEGRATED CIRCUIT
* TR101,402	2730025010	2SC461(B)			TRANSISTOR
TR401	2730043021	2SC535(C)			TRANSISTOR
* TR201,302,303, 304,305,501, 603	2730021043	2SC458 (D)			TRANSISTOR
TR601,602	2730197003	2SC1384NC-R			TRANSISTOR
TR102,103	2730064055	2SC711 (F)			TRANSISTOR
TR301	2710113007	2SA999 (F)			TRANSISTOR
TR104,105	2710033022	2SA628 (F)			TRANSISTOR
D510	2760177019	MZ306A			DIODE
D603	2760174012	MZ314 (B)			DIODE
D101,103,104, 105,401,501, 503,201,505	2760049008	1S2076			DIODE
D601	2760234004	1SVB20			DIODE
P501	3934003002	F.D.P (6-LT-06)			
	4730305013	TAPPING SCREW 3 x 10			FOR DISPLAY COVER ASSY FIXED
D301	3939046019	LED			FOR SIGNAL ORANGE 5 GANG
D106	3939046006	LED			FOR BEACON ORANGE SINGLE
OZ501	3990008009	X-TAL 6.5536 MHz			
<b>RESISTORS</b>					
R413	2410266005	10 ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R609	2410275009	24 ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R312	2410277007	30 ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
* R102,110,202 602,606	2410290000	100 ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R611	2410288009	82 ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R103,107,108	2410302008	330 ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R411,412	2410306004	470 ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R605	2410308002	560 ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R211	2410310003	820 ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R139,140	2410311002	750 ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
* R106,403	2413140009	1 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R413	2410298002	220 ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R121,122	2410337002	9.1 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R115,104,146, 135,136,137, 138,205,207, 228,311,404, 307,405,408	2410338001	10 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R113,402	2410340002	12 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R131	2410342000	15 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
* R117	2410343009	16 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R309,410	2410344008	18 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R145	2410348004	27 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
* R501	2410346006	22 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R114	2410347005	24 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R608	2410349003	30 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R101,607,123	2410316007	1.2 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R105,301,503	2410320006	1.8 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
* R118,407,603	2410321005	2 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R112,130,132, 604	2410322004	2.2 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R610	2410309001	620 ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R206,209,133, 134	2410324002	2.7 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R128	2410326000	3.3 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R141,142,306	2410328008	3.9 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R201	2410330009	4.7 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R203	2410332007	5.6 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R129,401	2410336003	8.2 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R127	2410354001	47 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R409	2410353002	43 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R111,406	2410354001	47 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R304	2410358007	68 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R125	2410360008	82 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R120,143,144, 302,303	2410362006	100 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R304,305,308	2410362006	100 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R310	2410356009	56 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R124	2410364004	120 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R119	2410366002	150 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R169,210	2410378003	470 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
* R229	2412022085	47 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R612	2410155006	56 ohm	±5%	1/2W	FIXED CARBON FILM RESISTOR
R601	2440084008	68 ohm	±5%	2W	FIXED METAL OXIDE FILM RESISTOR

(Con.)

Ref. No.	Part No.	Part Name & Descriptions			
<b>CAPACITORS</b>					
C101,102,103, 104,105,106, 108,111,113, 114,143,144, 162,205,206, 209,211,212, 214,220,401, 403,404,405, 407,408,409, 410,412,510, 501,504,609, 608,506,606	2531024003	0.01μF	+80%, -20%	50V	FIXED CERAMIC CAPACITOR
C107,508	2531025002	0.022μF	+80%, -20%	50V	FIXED CERAMIC CAPACITOR
C128,129	2531001000	330pF	±10%	50V	FIXED CERAMIC CAPACITOR
C207,406	2531004007	0.001μF	±10%	50V	FIXED CERAMIC CAPACITOR
C131,130	2551064001	0.0022μF	±10%	50V	FIXED PLASTIC FILM CAPACITOR
C126,127	2531007004	0.0033μF	±10%	50V	FIXED CERAMIC CAPACITOR
C201	2533696005	3pF	+0.25pF	50V	FIXED CERAMIC CAPACITOR
C202,502,503	2533610004	20pF	±5%	50V	FIXED CERAMIC CAPACITOR
C411	2533619005	47pF	±5%	50V	FIXED CERAMIC CAPACITOR
C301	2533661008	220pF	±10%	50V	FIXED CERAMIC CAPACITOR
C210	2533621006	56pF	±5%	50V	FIXED CERAMIC CAPACITOR
C116,414	2533627000	100pF	±5%	50V	FIXED CERAMIC CAPACITOR
C208	2533631009	150pF	±5%	50V	FIXED CERAMIC CAPACITOR
C507,603	2544010004	100μF	±5%	10V	FIXED ELECTROLYTIC CAPACITOR
C119,213,415	2544015009	10μF		16V	FIXED ELECTROLYTIC CAPACITOR
C219	2544017007	47μF		16V	FIXED ELECTROLYTIC CAPACITOR
C602	2544019005	220μF		16V	FIXED ELECTROLYTIC CAPACITOR
C120	2544021006	470μF		16V	FIXED ELECTROLYTIC CAPACITOR
C117	2544023004	4.7μF		25V	FIXED ELECTROLYTIC CAPACITOR
C118	2544024003	3.3μF		25V	FIXED ELECTROLYTIC CAPACITOR
C604	2544030000	330μF		25V	FIXED ELECTROLYTIC CAPACITOR
C601	2544031009	470μF		25V	FIXED ELECTROLYTIC CAPACITOR
C217	2549014005	4.7μF		50V	FIXED ELECTROLYTIC CAPACITOR
C124,140,141, 112,118,123	2544043000	0.47μF		50V	FIXED ELECTROLYTIC CAPACITOR
C109,115,215 142	2544044009	1μF		50V	FIXED ELECTROLYTIC CAPACITOR
C216	2551121025	0.01μF	±5%	50V	FIXED PLASTIC FILM CAPACITOR
C124,125	2551121054	0.018μF	±5%	50V	FIXED PLASTIC FILM CAPACITOR
C122	2551080001	0.047μF	±10%	50V	FIXED PLASTIC FILM CAPACITOR
C203	2556090009	430pF	±5%	50V	FIXED PLASTIC FILM CAPACITOR
C121	2556091008	470pF	±5%	50V	FIXED PLASTIC FILM CAPACITOR
<b>OTHER PARTS</b>					
T101	2220508102	PC. BOARD			FOR WRAPPING PIN USED 18
T102	EP-5667H3	TERMINAL			
T201	2312024002	IF DET TRANS (A)			
T202	2312025001	IF DET TRANS (B)			
CF101,102	2311051005	MW OSC COIL			
CF201	2310036005	AM IFT			
VR102	2610025004	CERAMIC FILTER (RED) MARK			
VR101	2610019007	CERAMIC FILTER (SFZ452.5A3L)			
VR301	EP-74015	VARIABLE RESISTOR			
	EP-74018	VARIABLE RESISTOR			
	2116000015	VARIABLE RESISTOR			
	2160026003	FRONT END			
	4120549007	BRACKET (C)			
	4770126003	RIVET			
S1a,b,S2,S3	2050060001	4P. TERMINAL			FOR ANT TERMINAL
	2124155004	PUSH SWITCH			FOR FUNCTION, AFC, MUTE-ST.
	2090008120	JUMPER			SHORTLEAD USED 3 P=10mm
	2090008117	JUMPER			SHORTLEAD USED 9 P=12.5mm
	2090008104	JUMPER			SHORTLEAD USED 4 P=15mm
	2090008133	JUMPER			SHORTLEAD USED 1 P=7.5mm
L201	2312021005	INDUCTOR (820μH)			
L401,402,403	TRT-0565H1	INDUCTOR (2.2μH)			
	4140181005	SHIELD COVER (A)			
	4140182004	SHIELD COVER (B)			
	4140184002	SHIELD PLATE			
	4510035011	DISPLAY COVER ASS'Y			
	1290002082	SOFT TAPE			
	4610094062	RUBBER SHEET			
	4730305013	TAPPING SCREW (1) 3 x 10 USED 3			

ETC-341B (For 2DFL)

Remarks: All parts excepts bellow listed are the same as the above.

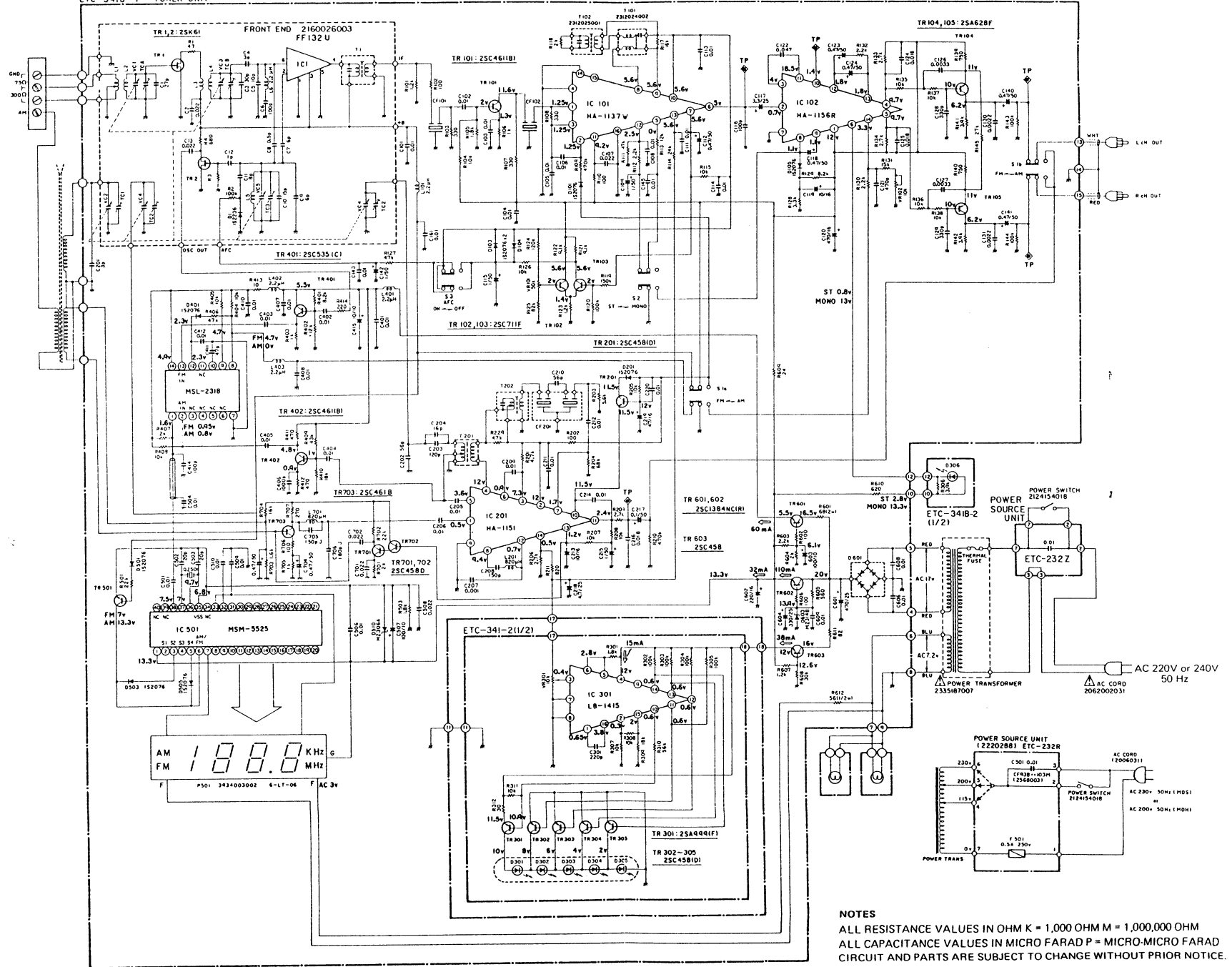
Ref. No.	Part No.	Part Name & Descriptions			
<b>SEMICONDUCTORS</b>					
TR101,402,703	2730025010	2SC461 (B)	TRANSISTOR		
TR201,302,303, 304,305,501, 603,701,702	2730021043	2SC458 (D)	TRANSISTOR		
D401,501,503, 505	2760049008	1S2076	DIODE		
<b>RESISTORS</b>					
R102,110,202, 602,606,706	2410290000	100 ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R106,403,705	2410314009	1 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R117,704	2410343009	16 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R118,407,603, 701	2410321005	2 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R229	2412022085	47 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR (DELETE)
R501,702	2410346006	22 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R707	2410300000	270 ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
R703	2410319004	1.6 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
<b>CAPACITORS</b>					
C101,102,103, 104,105,106, 108,111,113, 206,209,211, 212,214,220, 114,143,144, 205,405,407, 409,410,412, 408,401,403, 404,501,504, 506,510,606, 608,609,162	2531024003	0.01μF	+80%, -20%	50V	FIXED CERAMIC CAPACITOR
C202	2533621006	56pF	±5%	50V	FIXED CERAMIC CAPACITOR
C203	2533312001	120pF	±5%	50V	FIXED CERAMIC CAPACITOR
C204	2533608003	16pF	±5%	50V	FIXED CERAMIC CAPACITOR
C107,508,701, 702	2531025002	0.022μF	+80%, -20%	50V	FIXED CERAMIC CAPACITOR
C201	2533614000	30pF	±5%	50V	FIXED CERAMIC CAPACITOR
C208,705	2533631009	150pF	±5%	50V	FIXED CERAMIC CAPACITOR
C706	2533633007	180pF	±5%	50V	FIXED CERAMIC CAPACITOR
C112,118,123, 124,140,141, 703,704	2544043000	0.47μF		50V	FIXED ELECTROLYTIC CAPACITOR
C502,503	2533610004	20pF	±5%	50V	FIXED CERAMIC CAPACITOR
<b>OTHER PARTS</b>					
T201	2311055001	LW OSC COIL			
L701	TRT0565H18	INDUCTOR			

ETC-341D (For MDS,MDH)

Ref. No.	Part No.	Part Name & Descriptions			
<b>RESISTORS</b>					
R121,122	2410337002	9.1 k ohm	±5%	1/4W	FIXED CARBON FILM RESISTOR
<b>CAPACITORS</b>					
C101,102,103, 104,105,106, 108,111,113, 114,143,206, 209,211,212, 214,220,401, 403,404,405, 407,409,410, 412,501,504, 506,510,606, 608,609,509, 205	2531024003	0.01μF	+80%, -20%	50V	FIXED CERAMIC CAPACITOR
<b>OTHER PARTS</b>					
L401,402	TRT0565H1	INDUCTOR (2.2μH)			

WIRING DIAGRAM

ETC-341B-1 TUNER UNIT

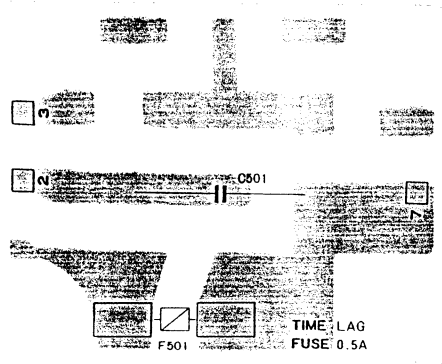


**NOTES**  
 ALL RESISTANCE VALUES IN OHM K = 1,000 OHM M = 1,000,000 OHM  
 ALL CAPACITANCE VALUES IN MICRO FARAD P = MICRO-MICRO FARAD  
 CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

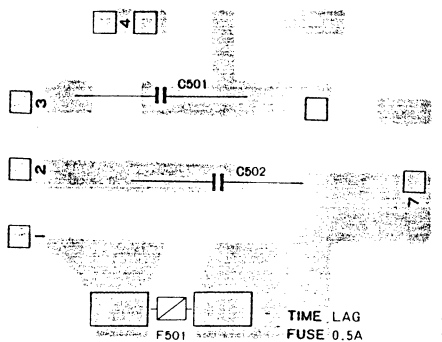
POWER SOURCE UNIT

ETC-232Z (2DG, 2DFL, 2DI), ETC-232E01 (2DUK), ETC-232R (MDS, MDH)

ETC-232Z



ETC-232E01



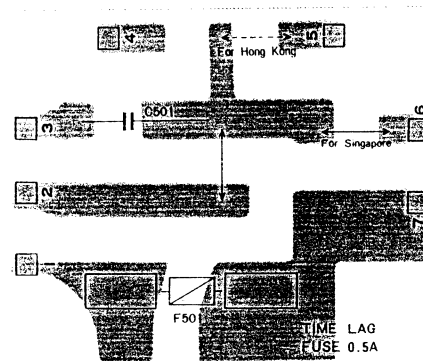
ETC-232Z PARTS LIST

Ref. No.	Part No.	Part Name & Descriptions			
CAPACITORS					
C501	2518001007	0.01μF	±20%	450V	FIXED METALIZED CAPACITOR
OTHER PARTS					
	2220288105 EP-5667H3 4120626001 4730354019	P.C. BOARD TERMINAL FUSE HOLDER FUSE 0.5A 250V JUMPER SHORTLEAD USED 2 P.S. BRACKET TAPPING SCREW 3 x 8			

ETC-232E01

Ref. No.	Part No.	Part Name & Descriptions			
CAPACITORS					
C501,502	2518001007	0.01μF	±20%	450V	FIXED METALIZED CAPACITOR
OTHER PARTS					
F501	2220288105 EP-5667H3 2020014003 2061015003 4120626001 4730354019	P.C. BOARD TERMINAL FUSE CLIP FUSE 0.5A 250V P.S. BRACKET TAPPING SCREW 3 x 8			

ETC-232R



ETC-232R

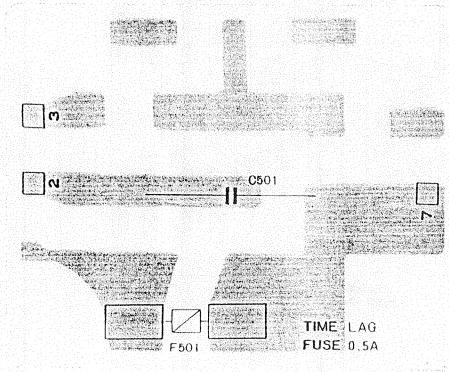
Ref. No.	Part No.	Part Name & Descriptions			
CAPACITORS					
	2568003000	0.01μF	±20%	300V	FIXED METALIZED CAPACITOR
OTHER PARTS					
	2220288105 EP-5667H3 EP-5870 2061014020 2090008117 4120626001 4730354019	P.C. BOARD TERMINAL FUSE HOLDER FUSE 0.5A 250V JUMPER SHORTLEAD USED 2 P.S. BRACKET TAPPING SCREW 3 x 8			



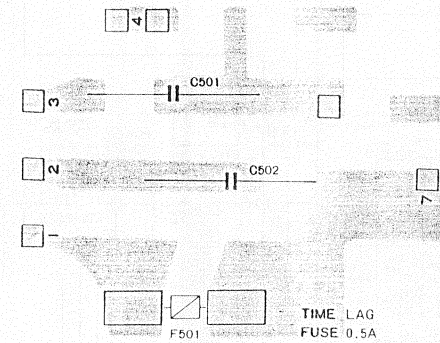
## POWER SOURCE UNIT

ETC-232Z (2DG, 2DFL, 2DI), ETC-232E01 (2DUK), ETC-232R (MDS, MDH)

## ETC-232Z



## ETC-232E01



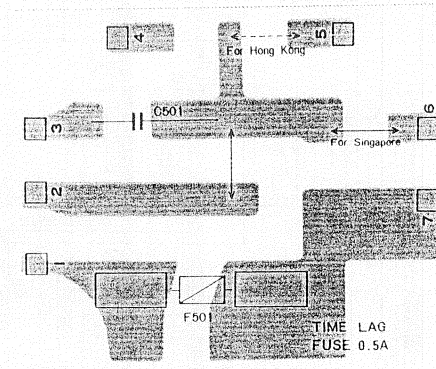
## ETC-232Z PARTS LIST

Ref. No.	Part No.	Part Name & Descriptions			
CAPACITORS					
C501	2518001007	0.01 $\mu$ F	$\pm 20\%$	450V	FIXED METALIZED CAPACITOR
OTHER PARTS					
	2220288105 EP-5667H3 4120626001 4730354019	P.C. BOARD TERMINAL P.S. BRACKET TAPPING SCREW 3 x 8 FOR WRAPPING PIN USED 3			

## ETC-232E01

Ref. No.	Part No.	Part Name & Descriptions			
CAPACITORS					
C501,502	2518001007	0.01 $\mu$ F	$\pm 20\%$	450V	FIXED METALIZED CAPACITOR
OTHER PARTS					
F501	2220288105 EP-5667H3 2020014003 2061015003 4120626001 4730354019	P.C. BOARD TERMINAL FUSE CLIP FUSE 0.5A P.S. BRACKET TAPPING SCREW 3 x 8 FOR WRAPPING PIN USED 7 250V			

## ETC-232R



## ETC-232R

Ref. No.	Part No.	Part Name & Descriptions			
CAPACITORS					
	2568003000	0.01 $\mu$ F	$\pm 20\%$	300V	FIXED METALIZED CAPACITOR
OTHER PARTS					
	2220288105 EP-5667H3 EP-5870 2061014020 2090008117 4120626001 4730354019	P.C. BOARD TERMINAL FUSE HOLDER FUSE 0.5A 250V JUMPER SHORTLEAD USED 2 P.S. BRACKET TAPPING SCREW 3 x 8 FOR WRAPPING PIN USED 7			

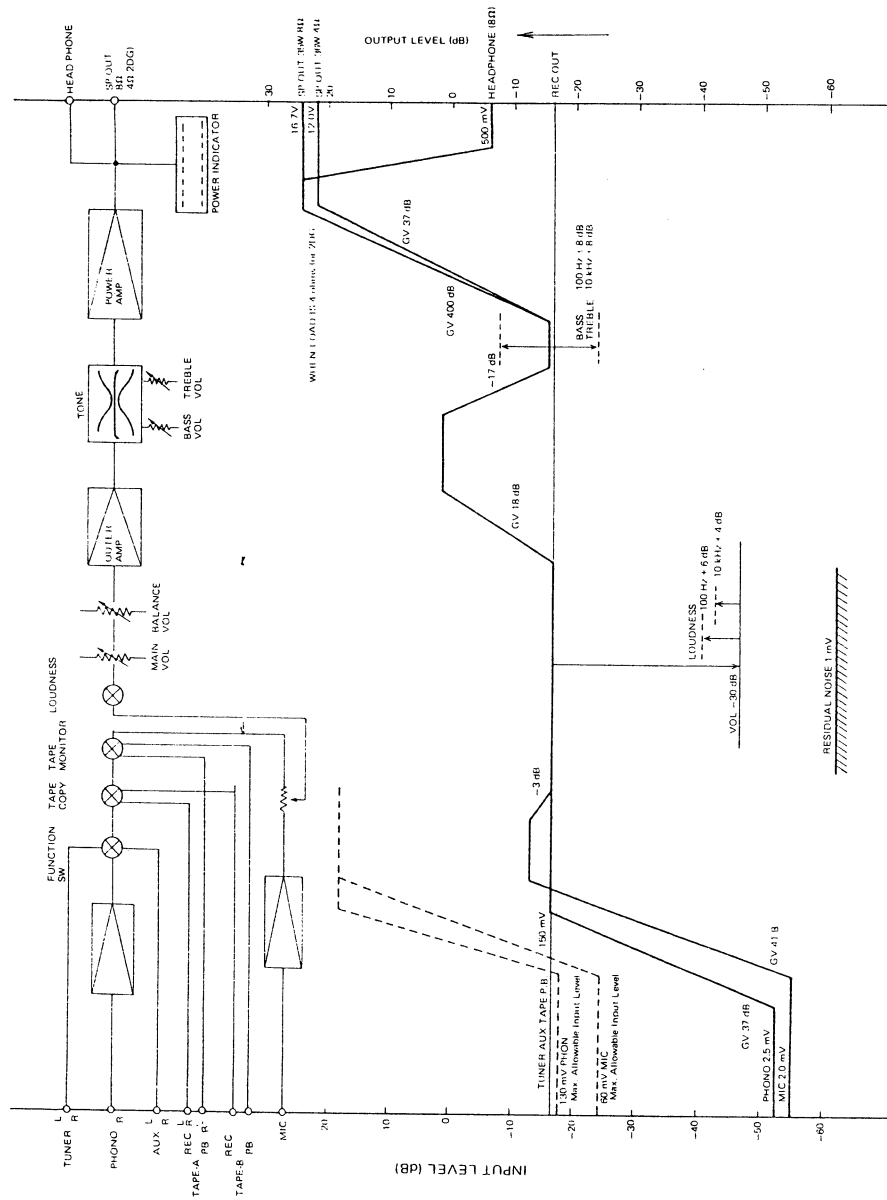


## SPECIFICATIONS

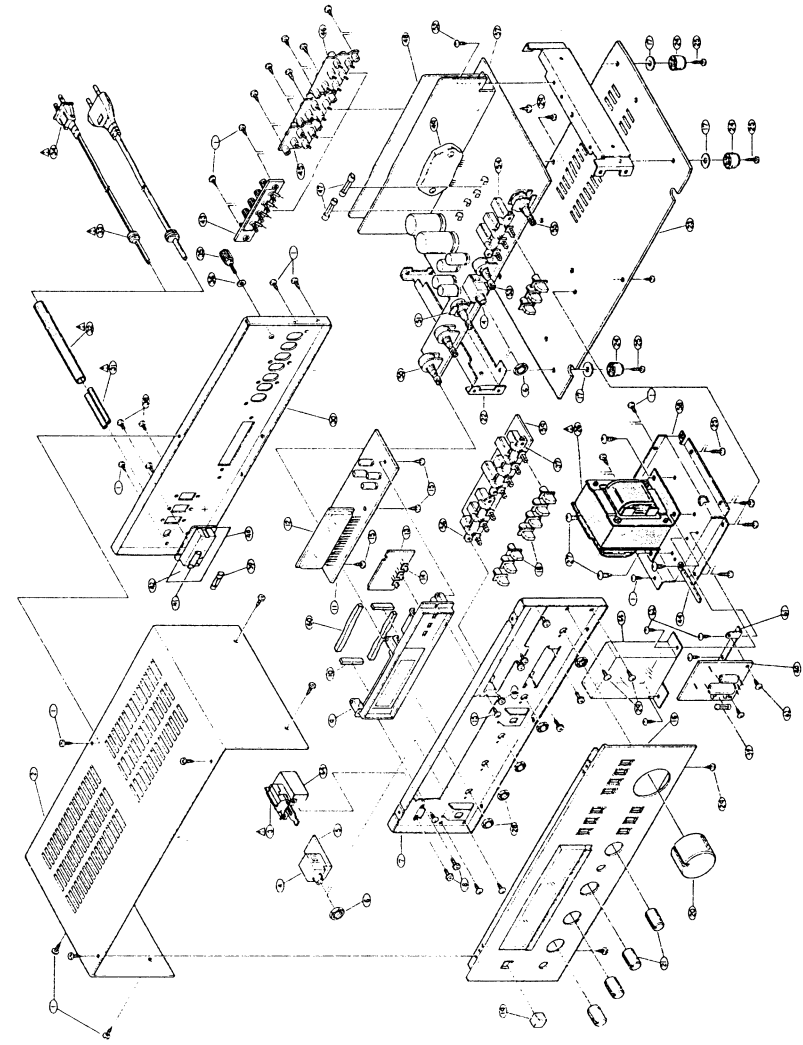
<b>Type:</b>	All silicon transistorized stereo premain amplifier	<b>Sensitivity/Signal to Noise Ratio</b>	
<b>Rated Output Power</b> (Both channel driven):	35 watt + 35 watt into 8 ohm load at 1 kHz 36 watt + 36 watt into 4 ohm load at 1 kHz (2DG) 30 watt + 30 watt at 20 Hz to 20 kHz	<b>PHONO</b>	2.5 mV/70 dB (1 kHz) Maximum Allowable Input Level 130 mV (1 kHz RMS)
<b>Dynamic Power:</b>	55 watt + 55 watt at 8 ohm (IHF) 60 watt + 60 watt at 4 ohm (IHF) (2DG)	<b>TUNER</b>	150 mV/85 dB
<b>Harmonic Distortion:</b>	Lower than 0.05% (-3 dB at rated output) Lower than 0.5% (at rated output)	<b>AUX</b>	150 mV/85 dB
<b>Intermodulation Distortion:</b>	Lower than 0.05% (-3 dB at rated output)	<b>TAPE PB</b>	150 mV/85 dB
<b>Power Bandwidth:</b>	10 Hz - 40 kHz (-3 dB at rated output)	<b>MIC</b>	2 mV/70 dB
<b>Residual Noise:</b>	Lower than 1 mV (0.1 $\mu$ W)	<b>Output Level</b>	
<b>Damping Factor:</b>	More than 50 (2DG more than 35 at 4 ohm)	<b>TAPE REC</b>	150 mV
<b>Frequency Response:</b>		<b>HEADPHONES</b>	500 mV/8 ohm
<b>PHONO RIAA DEVIATION</b>	20 Hz - 20 kHz $\pm$ 1 dB (REC OUT)	<b>Tone Control:</b>	BASS; $\pm$ 8 dB at 100 Hz TREBLE; $\pm$ 8 dB at 10 kHz + 4 dB at 10 kHz
<b>TUNER, AUX</b>	20 Hz - 40 kHz $\pm$ 1 dB (TONE FLAT)	<b>Loudness Control:</b>	+ 8 dB at 100 Hz + 4 dB at 10 kHz
<b>TAPE REC/PB</b>	20 Hz - 40 kHz $\pm$ 1 dB (TONE FLAT)	<b>AC Outlets:</b>	No AC outlets are provided in the equipment shipped to Europe. Switched outlet 100 W max. Unswitched outlet 250 W max.
		<b>Power Requirement:</b>	AC 120 volts 60 Hz or AC 115/200/230 volts, 50/60 Hz or AC 220 volts, 50 Hz or AC 240 volts, 50 Hz
		<b>Power Consumption:</b>	160 watts (210 watts 2DG) at maximum output 60 watts at T.H.D 5% output x 1/10 120 VA at T.H.D 5% output x 1/3
		<b>Dimensions:</b>	400(W) x 143.5(H) x 255(D) mm
		<b>Net Weight:</b>	6.4 kg (2DG 6.6 kg)

Design and specifications subject to change without notice.

BLOCK & LEVEL DIAGRAM



EXPLODED VIEW OF CHASSIS AND CABINET



SA-3380 PARTS LIST

Ref. No.	Part No.	Part Name & Descriptions	Remarks
1	4770064107	FIXING SCREW	
2	1020085004	TOP COVER	
3	2124154021	POWER SWITCH	SA-3380 2DUK
3	2124154018	POWER SWITCH	SA-3380 MDS, MDH, 2DG, 2DF, 2DI
4	2048048006	HEADPHONE JACK	
5	ETC-337B-3	POWER AMP. UNIT	SA-3380 2DF, 2DI, 2DUK
5	ETC-337C-3	POWER AMP. UNIT	SA-3380 2DG
5	ETC-337D-3	POWER AMP. UNIT	SA-3380 MDS, MDH
6	-	SPECIAL NUT 12 mm	
7	4110201009	FRONT CHASSIS	
8	4700009006	CROSS PAN SCREW WITH S. WASHER 3 x 6	

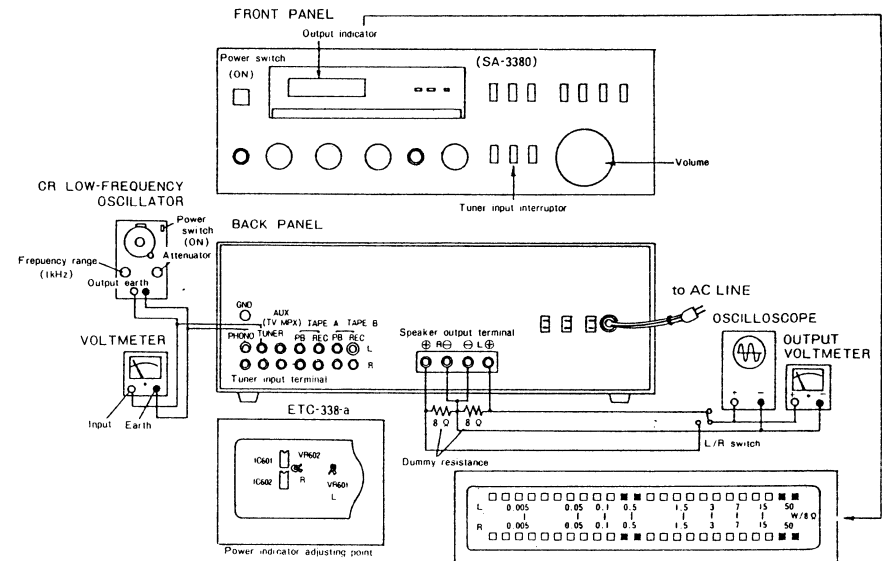
Ref. No.	Part No.	Part Name & Descriptions	Remarks
9	4510035053	DISPLAY COVER ASS.	
9			
9			
10	4610094062	RUBBER SHEET	
11	ETC-338B	POWER INDICATOR UNIT	
12	3934001004	FDP BG-32	
13	ETC-338B	POWER INDICATOR UNIT	
13	ETC-338B	POWER INDICATOR UNIT	
13	ETC-338B	POWER INDICATOR UNIT	
14	3939046006	LED (LIGHT EMITTING DIODE)	
15	47303050133	TAPPING SCREW (1) 3 x 10	
16	1440478110	FRONT PANEL ASS.	
16			
16			
17	4751005004	4 WASHER	
18	1130142109	PUSH KNOB (A)	
19	1130143108	PUSH KNOB (B)	
20	1120237008	KNOB (A)	
21	1120238007	KNOB (B)	
22	4120537006	SIDE CHASSIS	
23	1050265001	BOTTOM COVER	SA-3380 2DUK, 2DF, 2DI, MDS, MDH
23	1050265027	BOTTOM COVER	SA-3380 2DG
24	MD-5268	FOOT	
25	4770052012	FIXING SCREW	
26	2335190007	POWER TRANS	SA-3380 2DUK
26	2335184000	POWER TRANS	SA-3380 2DF, 2DI
26	2335185009	POWER TRANS	SA-3380 2DG
26	2335202005	POWER TRANS	SA-3380 MDS, MDH
27	4734454038	TAPPING SCREW 4 x 8	
28		SPECIAL NUT 7 mm	
29	4730354019	TAPPING SCREW (2) 3 x 8	
30	1050263236	BACK PANEL	SA-3380 2DUK
30	1050263210	BACK PANEL	SA-3380 2DI, 2DF
30	1050263223	BACK PANEL	SA-3380 2DG
30	1050263249	BACK PANEL	SA-3380 MDS, MDH
31	EE-221129	UL TUBE 37 mm $\phi$ 3.26	SA-3380 MDS, MDH
32	EE-221134	UL TUBE 45 mm $\phi$ 7.35	SA-3380 MDS, MDH
33	4450004102	BUSHING	SA-3380 2DUK
33	4450020005	BUSHING	SA-3380 2DI, 2DF, 2DG
33	MD-3802	BUSHING	SA-3380 MDS, MDH
34	2062020000	AC CORD	SA-3380 2DUK
34	2062020031	AC CORD	SA-3380 2DI, 2DG, 2DF
34	2066031026	AC CORD	SA-3380 MDS, MDH
35	2030206005	EARTH WIRE ASS.	SA-3380 MDS, MDH
36	4770018001	WASHER	SA-3380 2DUK
37	2124152104	3P. PUSH SWITCH (FOR TAPE COPY)	
38	4711304033	CROSS PAN SCREW 3 x 8	SA-3380 MDS, MDH
39	2061014004	FUSE 1A	SA-3380 MDS, MDH
40	ETC-232V	POWER SOURCE UNIT	SA-3380 2DG, 2DI, 2DF
40	ETC-232D01	POWER SOURCE UNIT	SA-3380 2DUK
40		POWER SOURCE UNIT	SA-3380 MDS, MDH
41	2568003039	CAPACITOR 0.033 $\mu$ F 300V	SA-3380 MDS, MDH
42	2033904003	AC SOCKET	SA-3380 MDS, MDH
43	2050061107	4P. TERMINAL	
44	EP-4772	CORD HOLDER	
45	2048021007	4P. CONNECTOR BASE	
46	2040061007	6P. CONNECTOR BASE	
47	2061025080	FUSE TIME LAG 3.15A	
48	4170104117	RADIATOR	SA-3380 2DUK, 2DI, 2DF
48	4170104120	RADIATOR	SA-3380 2DG
48	4170104104	RADIATOR	SA-3380 MDS, MDH
49	2650026005	STK-465 I.C.	
50	2110213002	V1620V25KA104-(100 k ohm) TONE VOLUME	
51	2110198004	V16V25KS254T (250 k ohm) BALANCE VOLUME	
52	4730359014	TAPPING SCREW 3 x 16	
53	2110201001	V1620V25KB104B (100 k ohm) MIC VOLUME	
54	2124150009	3P. PUSH SWITCH (INPUT SW)	
55	2110212003	V1620V30K=254- (250 k ohm) MAIN VOLUME	
56	2124151105	4P. PUSH SWITCH (TAPE MONITOR & LOUDNESS)	
57	ETC-337B-1	POWER AMP. UNIT	SA-3380 2DF, 2DI, 2DUK
57	ETC-337C-1	POWER AMP. UNIT	SA-3380 2DG
57	ETC-337D-1	POWER AMP. UNIT	SA-3380 MHS, MDH
58	4120540200	TRANS BRACKET	
59	ETC-337B-2	POWER AMP. UNIT	SA-3380 2DF, 2DI, 2DUK
59	ETC-337C-2	POWER AMP. UNIT	SA-3380 2DG
59	ETC-337D-3	POWER AMP. UNIT	SA-3380 MDS, MDH
60	1290002082	SOFT TAPE	
61	4120622005	P.S. BRACKET	
62	4730354019	TAPPING SCREW 3 x 8	SA-3380 2DUK, 2DG, 2DF, 2DI
63	4450033005	WIRE CLAMP BAND	SA-3380 2DUK, 2DG, 2DF, 2DI
64	4150153104	INSULATING COVER	
64	4150162005	INSULATING CASE	
65	4170116008	POWER RADIATOR	SA-3380 2DUK
			SA-3380 2DG, 2DUK, 2DI, 2DF
			3A-3380 2DG

## METHOD OF ADJUSTMENTS

Carry out adjustments at room temperature and normal humidity and with the power source operating at the rated voltage.

## POWER INDICATOR OUTPUT ADJUSTMENTS (Unit ETC-338-a)

## ● ALIGNMENT POINTS &amp; CONNECTIONS



## ● ALIGNING STEPS

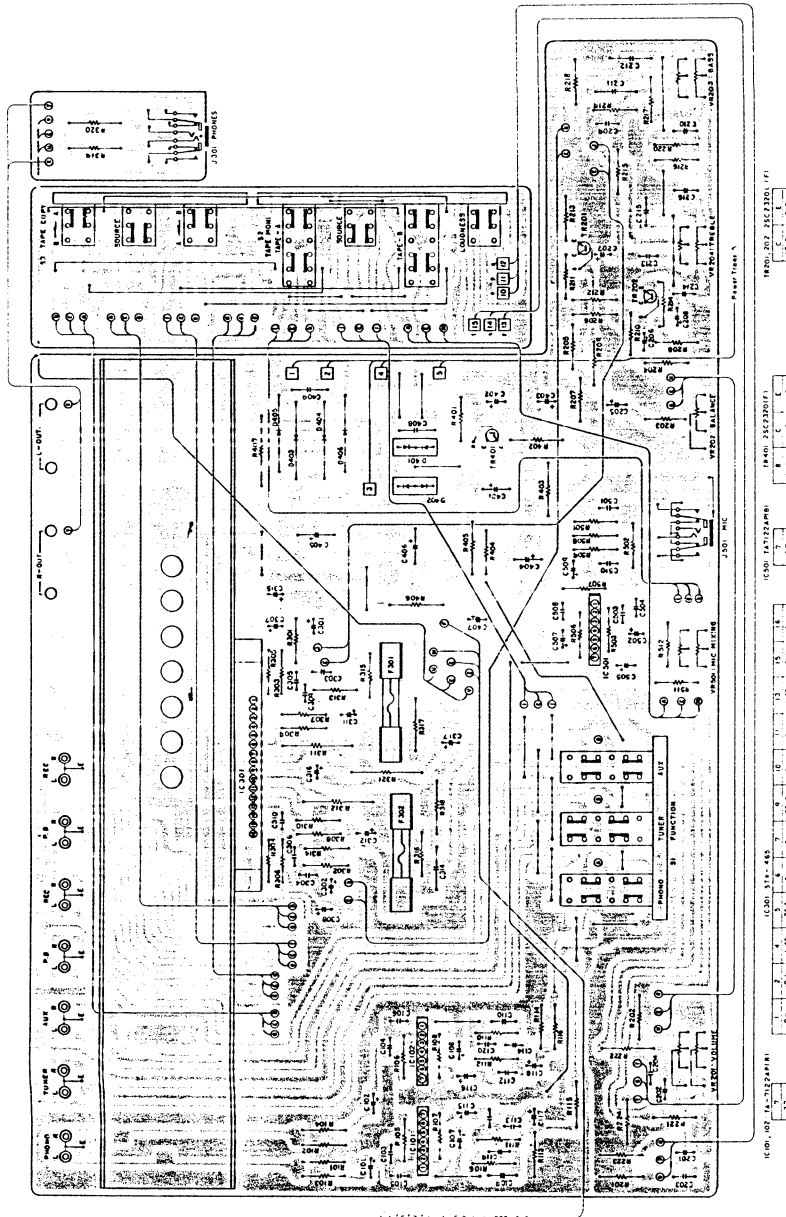
- Adjust the volume knob so that the output voltage display will be about 2V.
- Switch the L/R switch to the lower output-level channel.
- Adjust the attenuator of the low-frequency oscillator to set the output at 1.9V precisely.
- By a "minus" screwdriver, adjust VR601.L (or VR602.R) of "ETC-338-a" in the tuner, so that the front L-channel (or R-channel) 0.5W segment will begin flashing (where it grows dim).
- Set the other channel in a similar way.
- Adjust the volume control in the tuner so that the output voltage display will be about 11V.
- Switch the L/R switch to the lower output-level channel.
- Adjust the attenuator of the CR low-frequency oscillator to set the output level at 10.95V (15W/8 ohms) precisely.
- Make sure the front 15W segment is flashing (both for L and R channels).
- When the front segment is outside the range as illustrated, take the following steps:
  - Repeat the above steps 1 through 3.
 

When the 50W segment flashes at the output voltage of 10.95V (15W/8 ohms), turn VR601 (or VR602) clockwise so that the 15W segment flashes.

When the 15W segment fails to flash at the output voltage of 10.95V (15W/8 ohms), turn VR601 (or VR602) counterclockwise so that the 15W segment flashes.
  - Confirm the above steps 1 through 5.

PRINTED CIRCUIT BOARD PATTERNS AND PARTS LIST

POWER & AMP UNIT ETC-337B (2DUK, 2DF), ETC-337C (2DG), ETC-337D (MDS, MDH)



ETC-337B (For 2DF, 2DI, 2DUK) PARTS LIST

\*Mark make difference by model.

Ref. No.	Part No.	Part Name & Descriptions			
<b>SEMICONDUCTORS</b>					
IC101,102 IC101,102	2630024027 or 2630091018	TA-7122AP-B μPC1023H(R)	INTEGRATED CIRCUIT INTEGRATED CIRCUIT		
IC501 IC501 IC301	2630024027 or 2630091018 2650026005	TA-7122AP-B μDC1023H(R) STK-465	INTEGRATED CIRCUIT INTEGRATED CIRCUIT INTEGRATED CIRCUIT		
TR201,202 TR401	2730206004 2730204019	2SC2320L(F) 2SC2320(F)	TRANSISTOR TRANSISTOR		
D401 D402 D403,404,405, 406	2760242009 2760243008 2760223002	S2VC10 S2VC10R V23C	DIODE DIODE DIODE		
<b>RESISTORS</b>					
R509	2410276008	27 ohm	+5%	1/4W	FIXED CARBON FILM RESISTOR
R115,116	2410282005	47 ohm	+5%	1/4W	FIXED CARBON FILM RESISTOR
R502	2410292008	120 ohm	+5%	1/4W	FIXED CARBON FILM RESISTOR
R305,306	2410302008	330 ohm	+5%	1/4W	FIXED CARBON FILM RESISTOR
R103,104,203 R204	2410306004 2410306004	470 ohm	+5%	1/4W	FIXED CARBON FILM RESISTOR
R213,214 R301,302,309 R310	2410307003 2410314009	510 ohm 1 k ohm	+5% +5%	1/4W 1/4W	FIXED CARBON FILM RESISTOR FIXED CARBON FILM RESISTOR
R307,308 R217,218,221 R222,315,316 R211,212	2410326000 2410330009 2410332007 2410338001	3.3 k ohm 4.7 k ohm 5.6 k ohm 10 k ohm	+5% +5% +5% +5%	1/4W 1/4W 1/4W 1/4W	FIXED CARBON FILM RESISTOR FIXED CARBON FILM RESISTOR FIXED CARBON FILM RESISTOR FIXED CARBON FILM RESISTOR
R111,112 R207,208 R201,202,215 R216,507	2410340002 2410342000 2410348004	12 k ohm 15 k ohm 27 k ohm	+5% +5% +5%	1/4W 1/4W 1/4W	FIXED CARBON FILM RESISTOR FIXED CARBON FILM RESISTOR FIXED CARBON FILM RESISTOR
R303,304,313 R314	2410350005	33 k ohm	+5%	1/4W	FIXED CARBON FILM RESISTOR
R401 R101,102,105 R106,503	2410356009 2410362006	56 k ohm 100 k ohm	+5% +5%	1/4W 1/4W	FIXED CARBON FILM RESISTOR FIXED CARBON FILM RESISTOR
R508 R205,206 R109,110,209 R210	2410364004 2410365003 2410366002	120 k ohm 130 k ohm 150 k ohm	+5% +5% +5%	1/4W 1/4W 1/4W	FIXED CARBON FILM RESISTOR FIXED CARBON FILM RESISTOR FIXED CARBON FILM RESISTOR
R113,114 R107,108,506 R219,220 R317,318 R402	2410370001 2410378003 2440013008 2440025025	220 k ohm 470 k ohm 4.7 ohm 47 ohm	+5% +5% +5% +5%	1W 1W	FIXED METAL OXIDE FILM RESISTOR FIXED METAL OXIDE FILM RESISTOR FIXED METAL OXIDE FILM RESISTOR FORMING TYPE
R403 R406	2440033020 2440021029	220 ohm 22 ohm	+5% +5%	1W 1W	FIXED METAL OXIDE FILM RESISTOR FORMING TYPE FIXED METAL OXIDE FILM RESISTOR FORMING TYPE
R319,320 R405 R311,312	2440034003 2440046004 2440058021	270 ohm 2.7 k ohm 0.47 ohm	+5% +5% +5%	1W 1W 2W	FIXED METAL OXIDE FILM RESISTOR FIXED METAL OXIDE FILM RESISTOR FIXED METAL OXIDE FILM RESISTOR FORMING TYPE
R321 R407	2440086022 2440102003	100 ohm 2.2 k ohm	+5% +5%	2W 2W	FIXED METAL OXIDE FILM RESISTOR FORMING TYPE FIXED METAL OXIDE FILM RESISTOR
<b>CAPACITORS</b>					
C511 C309,310 C105,106	2533607004 2533603008 2533653003	15pF 10pF 47pF	+5% -0.5pF +10%	50V 50V 50V	FIXED CERAMIC CAPACITOR FIXED CERAMIC CAPACITOR FIXED CERAMIC CAPACITOR
C504 C201,202 C103,104	2533654002 2533660009 2533661008	56pF 180pF 220pF	+10% +10% +10%	50V 50V 50V	FIXED CERAMIC CAPACITOR FIXED CERAMIC CAPACITOR FIXED CERAMIC CAPACITOR
C303,304,508 C113,114 C306,306,501	2533663006 2533661002 2533665004	330pF 390pF 470pF	+10% -5% +10%	50V 50V 50V	FIXED CERAMIC CAPACITOR FIXED CERAMIC CAPACITOR FIXED CERAMIC CAPACITOR
C318 C510 C503 C410	2531024003 2531004007 2531008003 25310053003	0.01μF 0.001μF 0.0047μF 0.01μF	+8%, -20% +10% +10% +100, -0%	50V 50V 50V 500V	FIXED CERAMIC CAPACITOR FIXED CERAMIC CAPACITOR FIXED CERAMIC CAPACITOR FIXED CERAMIC CAPACITOR
C408,409 C213,214 C111,112 C209,210 C203,204 C215,216 C109,110 C211,212 C313,314 C117,118,207 208	2551053003 2551066009 2551120097 2551072006 2551074004 2551075003 2551121067 2551082009 2551084007 2549011008	0.01μF 0.0033μF 0.0056μF 0.01μF 0.015μF 0.018μF 0.022μF 0.068μF 0.1μF 1μF	+10% +10% +10% +10% +10% +10% +10% +10% +10% +10%	50V 50V 50V 50V 50V 50V 50V 50V 50V 50V	FIXED CERAMIC CAPACITOR FIXED CERAMIC CAPACITOR FIXED CERAMIC CAPACITOR FIXED CERAMIC CAPACITOR FIXED CERAMIC CAPACITOR FIXED CERAMIC CAPACITOR FIXED CERAMIC CAPACITOR FIXED CERAMIC CAPACITOR FIXED CERAMIC CAPACITOR FIXED CERAMIC CAPACITOR FIXED ELECTROLYTIC CAPACITOR
C205,206 C502	2541035008 2541002002	1μF 6.8μF		35V 63V	FIXED ELECTROLYTIC CAPACITOR FIXED ELECTROLYTIC CAPACITOR

Ref. No.	Part No.	Part Name & Descriptions		
C301,302,315 316	2544044009	1μF	50V	FIXED ELECTROLYTIC CAPACITOR
C509	2544043000	0.47μF	50V	FIXED ELECTROLYTIC CAPACITOR
C507	2544066003	2.2μF	50V	FIXED ELECTROLYTIC CAPACITOR
C115,116	2544034006	4.7μF	35V	FIXED ELECTROLYTIC CAPACITOR
C101,102	2544054002	22μF	16V	FIXED ELECTROLYTIC CAPACITOR
C311,312	2544037003	47μF	35V	FIXED ELECTROLYTIC CAPACITOR
C107,108,307, 308,505	2544003008	100μF	6.3V	FIXED ELECTROLYTIC CAPACITOR
C407	2544049004	47μF	50V	FIXED ELECTROLYTIC CAPACITOR
C317,402,403	2544050006	100μF	50V	FIXED ELECTROLYTIC CAPACITOR
C401,404	2544051005	220μF	50V	FIXED ELECTROLYTIC CAPACITOR
C405,406	2546041013	4700μF	45V	FIXED ELECTROLYTIC CAPACITOR
<b>OTHER PARTS</b>				
F301,302	2220505105	P.C. BOARD		
T301	EP-5667H3	TERMINAL	FOR WRAPPING PIN USED 53	
T201	EP-5870	FUSE HOLDER	FOR WRAPPING PIN USED 4	
T202,203	2061025080	FUSE (3.15A)		
J301,501	2050061107	4P. TERMINAL	FOR SPEAKER TERMINAL	
S1	2040061007	6P. CONNECTOR BASE		
S2	2048021007	4P. CONNECTOR BASE		
S3	2048048006	HEAD PHONE JACK	WITH 12mm NUT	
VR201	2124150009	PUSH SWITCH	FOR FUNCTION SWITCH	
VR202,204	2124151105	PUSH SWITCH	FOR TAPE MONITOR, LOUDNESS SWITCH	
VR202	2124152104	PUSH SWITCH	FOR TAPE COPY SWITCH	
VR501	2110212003	V1620V30K-254-	FOR MAIN VOLUME WITH 7mm NUT	
	2110213002	V1620V25KA104-	FOR BASS, TREBLE WITH 7mm NUT	
	2110198004	V1625KS254T	FOR BALANCE VOLUME WITH 7mm NUT	
	2110201001	V1620V25KB104B	FOR MIC VOLUME WITH 7mm NUT	
	4170104117	RADIATOR	FOR IC301 FIXED	
	4730359014	TAPPING SCREW (2) 3x16	FOR IC301 FIXED	
	4730354019	TAPPING SCREW (2) 3x8	FOR RADIATOR FIXED	
	2090008162	JUMPER	SHORTLEAD USED 2 P=20mm	
	2090008104	JUMPER	SHORTLEAD USED 6 P=15mm	
	2090008117	JUMPER	SHORTLEAD USED 20 P=12.5mm	
	2090008146	JUMPER	SHORTLEAD USED 7 P=5mm	
	2090008159	JUMPER	SHORTLEAD USED 3P=17.5mm	

ETC-337C (For 2DG) PARTS LIST

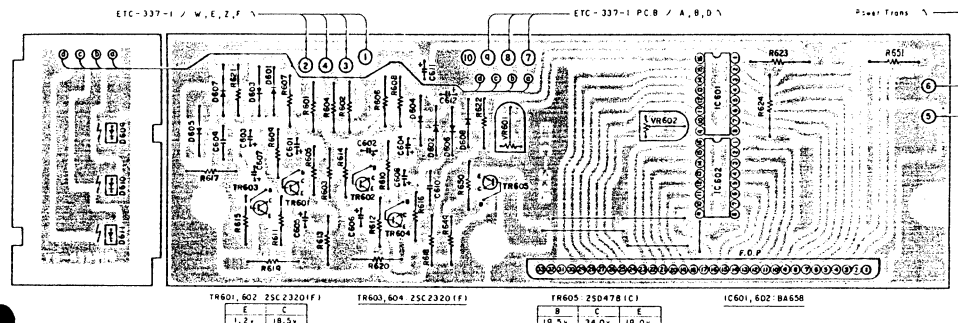
Remarks: All parts except below listed are the same as the above.

Ref. No.	Part No.	Part Name & Descriptions		
<b>RESISTORS</b>				
R305,306	2410305005	430 ohm	±5%	1/4W
R319,320	2440032005	180 ohm	±5%	1W
<b>OTHER PARTS</b>				
	4170104120	RADIATOR		
	4730805021	TAPPING SCREW 3 x 18		
	4170116008	POWER RADIATOR		

ETC-337D (For MDS, MDH) PARTS LIST

Ref. No.	Part No.	Part Name & Descriptions		
<b>OTHER PARTS</b>				
	4170104104	RADIATOR		

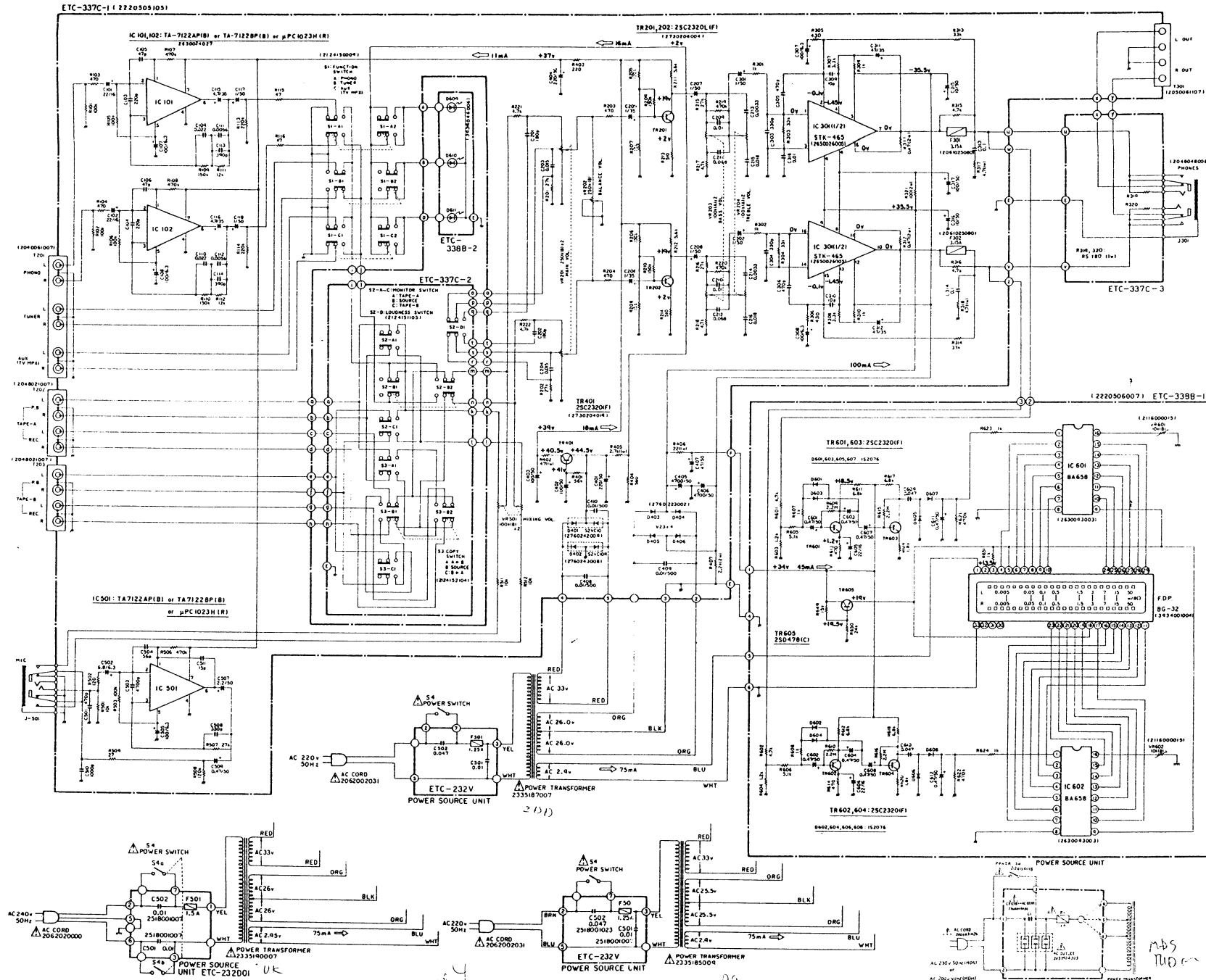
POWER INDICATOR UNIT ETC-338B



ETC-338B PARTS LIST

Ref. No.	Part No.	Part Name & Description		
<b>SEMICONDUCTORS</b>				
IC601,602	2630093003	BA658		INTEGRATED CIRCUIT
TR601,602,603, 604	2730204019	25C2320(F)		TRANSISTOR
TR605	2746044010	2SD478 (C)		TRANSISTOR
D601,602,603, 604,605,606, 607,608	2760049008	1S2076		DIODE
D609,610,611	3939046006	LED		LIGHT EMITTING DIODE ORANGE
	3934001004	F.D.P (BG-32)		
<b>RESISTORS</b>				
R613,614	2410306004	470 ohm	±5%	1/4W
R607,608,651 624,623	2410314009	1 k ohm	±5%	1/4W
R603,604	2410316007	1.2 k ohm	±5%	1/4W
R619,620	2410320006	1.8 k ohm	±5%	1/4W
R601,602	2410330009	4.7 k ohm	±5%	1/4W
R605,606	2410331008	5.1 k ohm	±5%	1/4W
R611,612,617 618	2410334005	6.8 k ohm	±5%	1/4W
R649	2410342000	15 k ohm	±5%	1/4W
R650	2410347005	24 k ohm	±5%	1/4W
R621,622	2410378003	470 k ohm	±5%	1/4W
R609,610,615, 616	2420195001	2.2 M ohm	±10%	1/4W
<b>CAPACITORS</b>				
C609,610	2551080001	0.047μF	±10%	50V
C601,602,603 604,607,608, 611,612	2544043000	0.47μF		50V
C605,606	2544054002	22μF		10V
<b>OTHER PARTS</b>				
VR601,602	2220506007	P.C. BOARD		
	EP-5667H3	TERMINAL	FOR WRAPPING PIN USED 9	
	4510035053	DISPLAY COVER ASS'Y		
	1290002082	SOFT TAPE	USED 2	
	4610094062	RUBBER SHEET	USED 2	
	4730305013	TAPPING SCREW(1) 3x10	FOR DISPLAY COVER ASS'Y FIXED	
	2116000015	V08PB103	VARIABLE RESISTOR	
	2090008104	JUMPER	SHORTLEAD USED 4 P=15mm	
	2090008133	JUMPER	SHORTLEAD USED 1 P=7.5mm	
	2090008159	JUMPER	SHORTLEAD USED 1 P=17.5mm	
	2090008162	JUMPER	SHORTLEAD USED 1 P=20mm	

WIRING DIAGRAM



NOTES  
 ALL RESISTANCE VALUES IN OHM K = 1,000 OHM M = 1,000,000 OHM  
 ALL CAPACITANCE VALUES IN MICRO FARAD P = MICRO-MICRO FARAD

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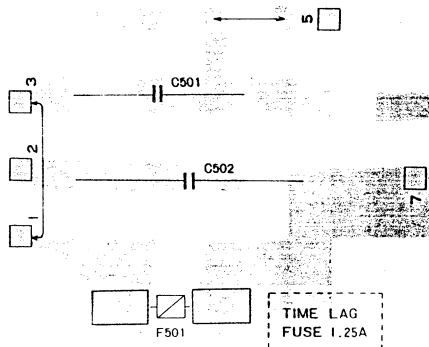
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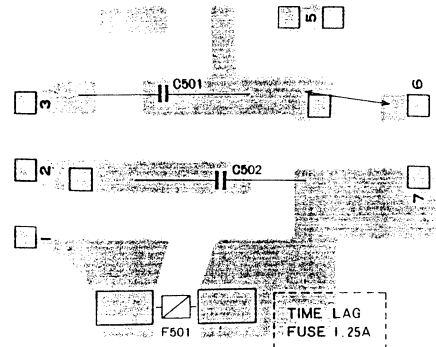


POWER SOURCE UNIT  
ETC-232V (2DG, 2DF, 2D1), ETC-232D01 (2DUK), & POWER SOURCE UNIT (MDS, MDH)

ETC-232V



ETC-232D01



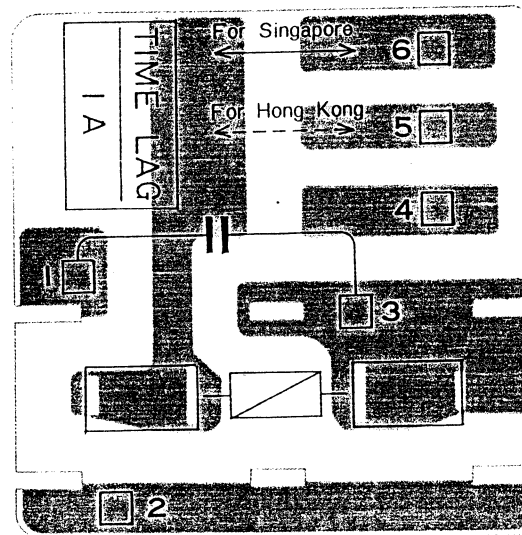
ETC-232V PARTS LIST

Ref. No.	Part No.	Part Name & Descriptions			
CAPACITORS					
C501	2518001007	0.01μF	±20%	450V	FIXED METALIZED CAPACITOR
C502	2518001023	0.047μF	±20%	450V	FIXED METALIZED CAPACITOR
OTHER PARTS					
F501	2220288105 EP-5667H3 2020014003 2061015016 2090008117 5130159156 4120622005 4730354019	P.C. BOARD TERMINAL FUSE CLIP FUSE 1.25A 250V JUMPER SHORTLEAD USED 1 P=12.5 mm FUSE LABEL P.S. BRACKET TAPPING SCREW 3 x 8			

ETC-232D01 PARTS LIST

Ref. No.	Part No.	Part Name & Descriptions			
CAPACITORS					
C501,502	2518001007	0.01μF	±20%	450V	FIXED METALIZED CAPACITOR
OTHER PARTS					
	2220288105 EP-5667H3 2020014003 5130159156 2061015016 2090008104 4120622005 4730354019	P.C. BOARD TERMINAL FUSE CLIP FUSE LABEL FUSE 1.25A 250V JUMPER SHORTLEAD USED 1 P=15mm P.S. BRACKET TAPPING SCREW 3 x 8			

POWER SOURCE UNIT For Hong Kong & Singapore



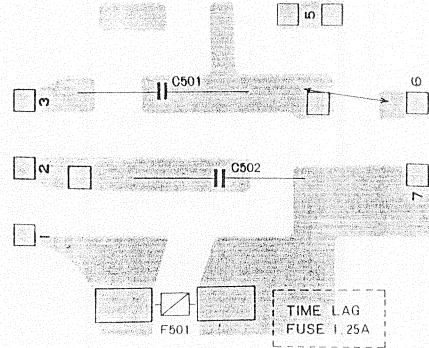
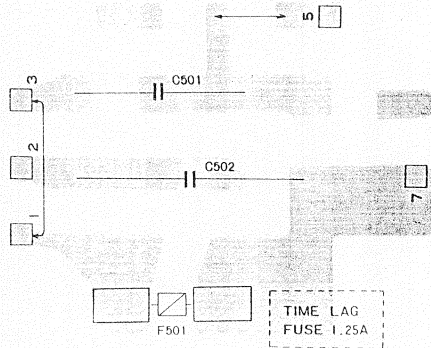
POWER SOURCE UNIT PARTS LIST

Ref. No.	Part No.	Part Name & Descriptions			
CAPACITORS					
C501	2568003039	0.033μF	±20%	300V	FIXED METALIZED CAPACITOR
OTHER PARTS					
	2220476108 EP-5667H1 EP-5870 2061014004 2033904003 5130159101 2090008117	P.C. BOARD TERMINAL FUSE HOLDER FUSE 1A AC OUTLET FUSE LABEL JUMPER FOR WRAPPING PIN USED \$6 SHORTLEAD USED 1 P=12.5mm			

POWER SOURCE UNIT  
ETC-232V (2DG, 2DF, 2DI), ETC-232D01 (2DUK), & POWER SOURCE UNIT (MDS, MDH)

ETC-232V

ETC-232D01



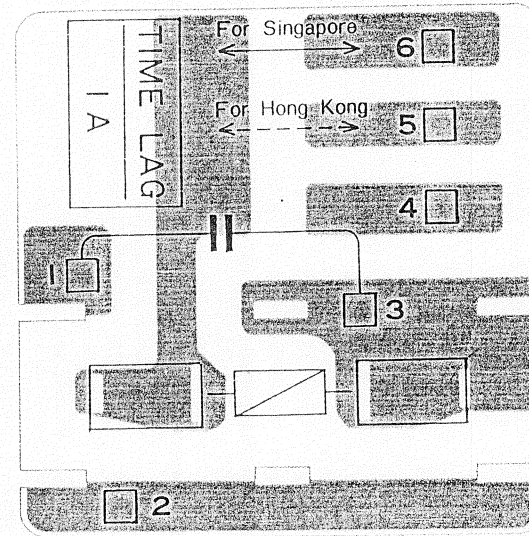
ETC-232V PARTS LIST

Ref. No.	Part No.	Part Name & Descriptions			
CAPACITORS					
C501	2518001007	0.01 $\mu$ F	$\pm$ 20%	450V	FIXED METALIZED CAPACITOR
C502	2518001023	0.047 $\mu$ F	$\pm$ 20%	450V	FIXED METALIZED CAPACITOR
OTHER PARTS					
F501	2220288105 EP-5667H3 2020014003 2061015016 2090008117 5130159156 4120622005 4730354019	P.C. BOARD TERMINAL FUSE CLIP FUSE 1.25A JUMPER FUSE LABEL P.S. BRACKET TAPPING SCREW 3 x 8	FOR WRAPPING PIN USED 5	250V	SHORTLEAD USED 1 P=12.5 mm

ETC-232D01 PARTS LIST

Ref. No.	Part No.	Part Name & Descriptions			
CAPACITORS					
C501,502	2518001007	0.01 $\mu$ F	$\pm$ 20%	450V	FIXED METALIZED CAPACITOR
OTHER PARTS					
	2220288105 EP-5667H3 2020014003 5130159156 2061015016 2090008104 4120622005 4730354019	P.C. BOARD TERMINAL FUSE CLIP FUSE LABEL FUSE 1.25A JUMPER P.S. BRACKET TAPPING SCREW 3 x 8	FOR WRAPPING PIN USED 9	250V	SHORTLEAD USED 1 P=15mm

POWER SOURCE UNIT For Hong Kong & Singapore



POWER SOURCE UNIT PARTS LIST

Ref. No.	Part No.	Part Name & Descriptions			
CAPACITORS					
C501	2568003039	0.033 $\mu$ F	$\pm$ 20%	300V	FIXED METALIZED CAPACITOR
OTHER PARTS					
	2220476108 EP-5667H1 EP-5870 2061014004 2033904003 5130159101 2090008117	P.C. BOARD TERMINAL FUSE HOLDER FUSE 1A AC OUTLET FUSE LABEL JUMPER	FOR WRAPPING PIN USED \$6		SHORTLEAD USED 1 P=12.5mm