

2887

NAD

SERVICE MANUAL

2887

~~4020A=1980/\$218~~
4020B=1985/\$178

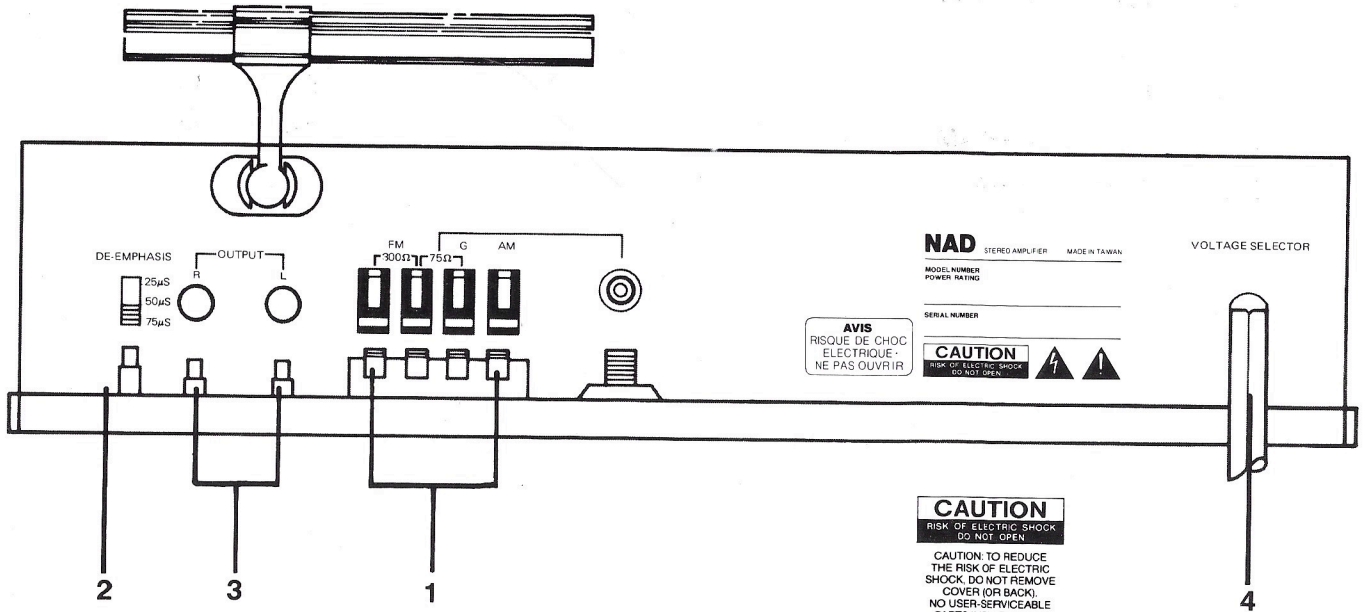
9/16/70/25

4020A
4020B
AM/FM STEREO TUNERS

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1. Antenna Inputs
2. FM De-Emphasis
3. Audio Outputs
4. AC Power Cord



NAD STEREO AMPLIFIER MADE IN TAIWAN

MODEL NUMBER _____
POWER RATING _____

SERIAL NUMBER _____

AVIS
RISQUE DE CHOC
ELECTRIQUE -
NE PAS OUVRIIR

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE
THE RISK OF ELECTRIC
SHOCK, DO NOT REMOVE
COVER (OR BACK).
NO USER-SERVICEABLE
PARTS INSIDE. REFER
SERVICING TO QUALIFIED
SERVICE PERSONNEL

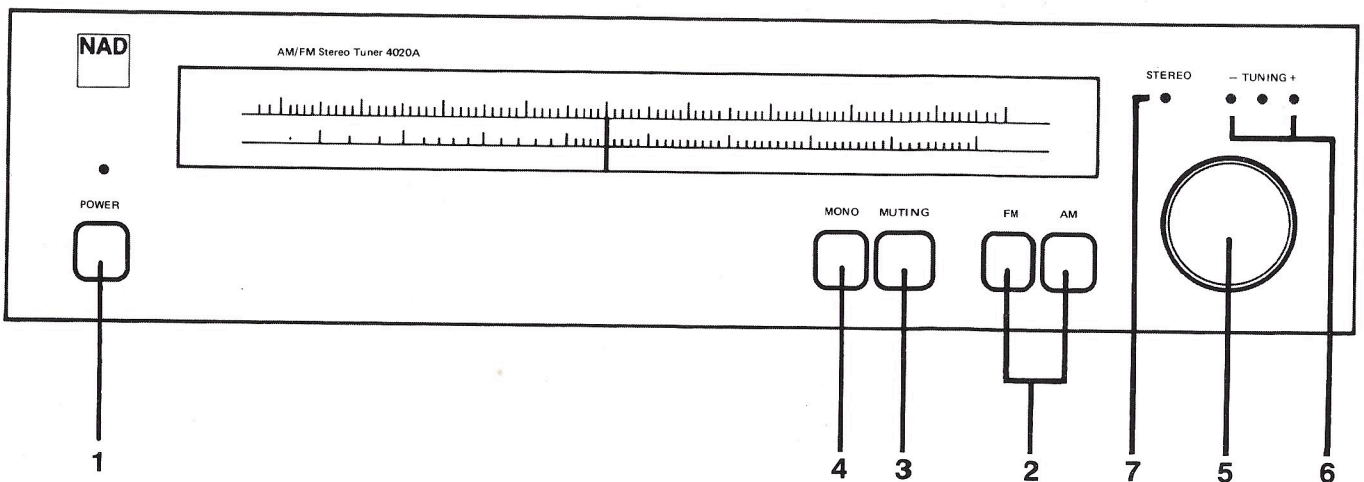
1. Power
2. FM/AM
3. Muting
4. Mono
5. Tuning Knob
6. Tuning Meter
7. FM Stereo



The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user of the presence of uninsulated "dangerous voltage" within the product's enclosure; that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



SPECIFICATIONS

FM SECTION

Input sensitivity, 1HF-30dB THD + Noise	1.9 μ V (10.9 dBf)
50dB S/N Mono	3.5 μ V (16 dBf)
50dB S/N Stereo	40 μ V (37 dBf)
Signal/Noise (A-Weighted) at 65dB	75 dB mono 70 dB stereo
Frequency response, 30-15 KHz	\pm 0.5 dB
Channel separation 1 KHz	42 dB
30-15 KHz	32 dB
Selectivity alternate channel (400 KHz)	65 dB
THD, 100% modulation 1 KHz mono/stereo	0.2%/0.3%
100 Hz mono/stereo	0.2%/0.3%
6 KHz mono/stereo	0.3%/0.4%
AM suppression, 45 and 65 dBf	60 dB
Capture ratio, 45 and 65 dBf	1.5 dB
Image rejection	50 dB
IF rejection	75 dB

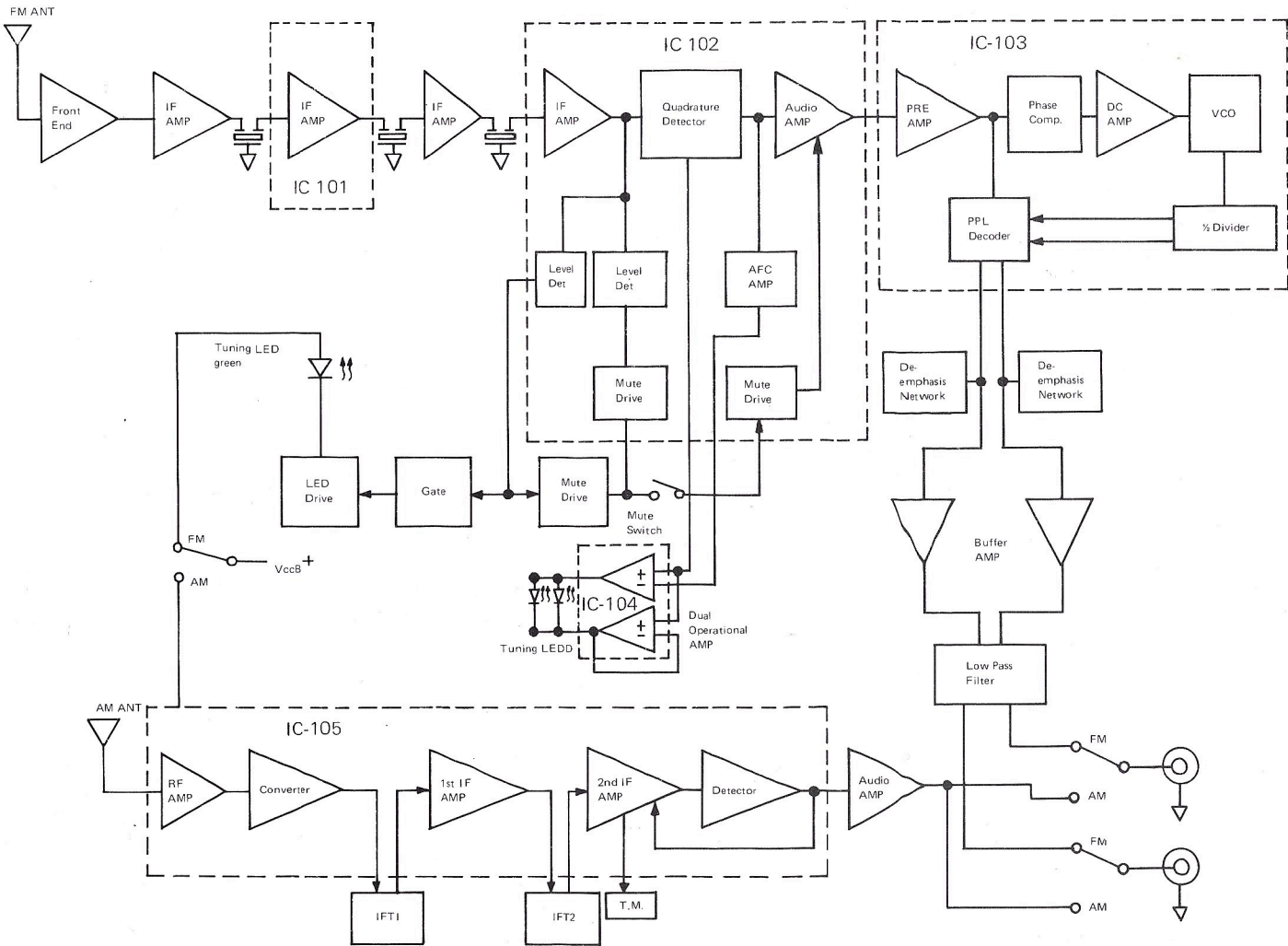
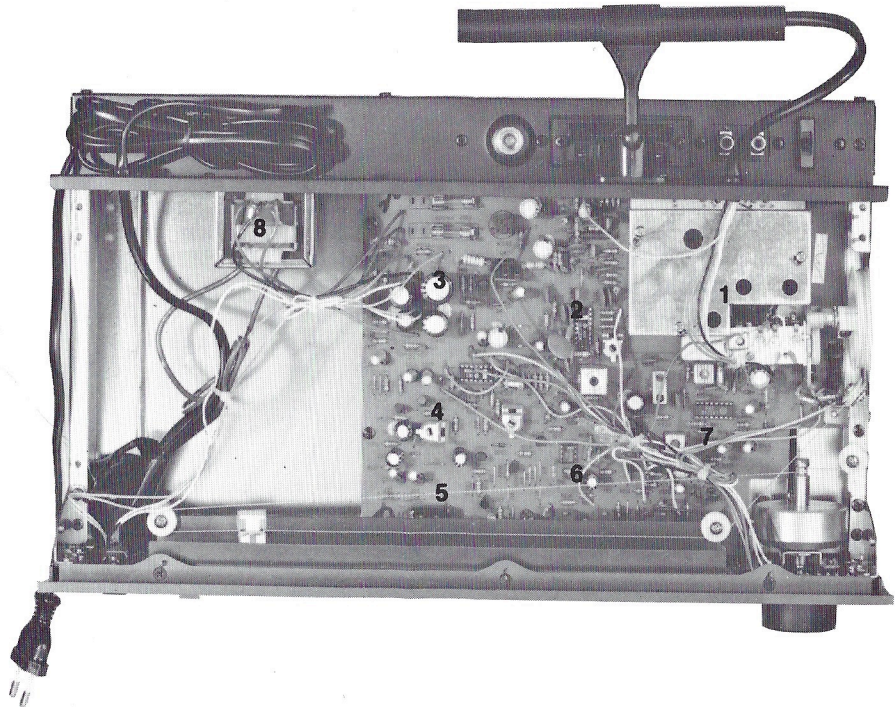
AM SECTION

Usable sensitivity	250 μ V/m
Selectivity	30 dB
Image rejection	50 dB
I.F. rejection	40 dB

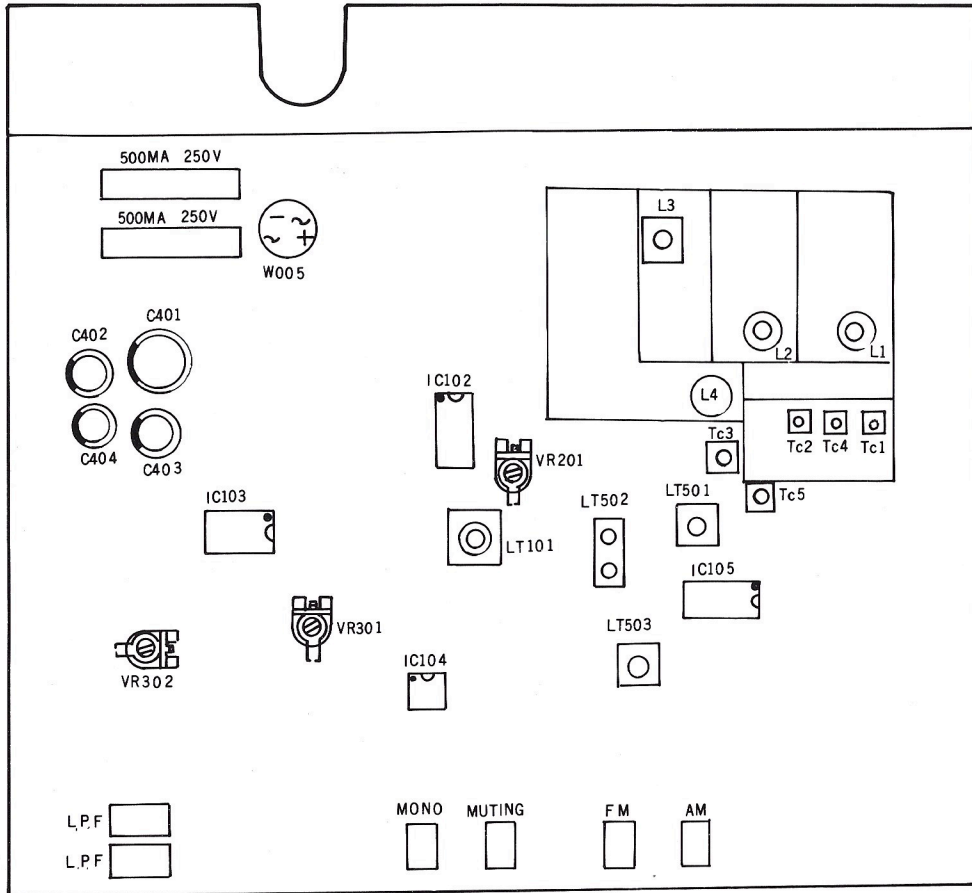
PHYSICAL SPECIFICATIONS

Height	9.6 cm. (3.8 in)
Width	42 cm. (16.5 in)
Depth	24 cm. (9.5 lbs)
Net Weight	4.2 Kg. (9.3 lbs.)
Shipping Weight	5.6 Kg. (12.5 lbs)
Power Consumption	50-60 Hz, 112-120 VAC 50 Hz, 220 VAC 50 Hz, 240 VAC

1. Front-End
2. IF Amp.
3. Regulator
4. MPX & Buffer
5. Low Pass Filter
6. LED Driver
7. AM Section
8. Transformer

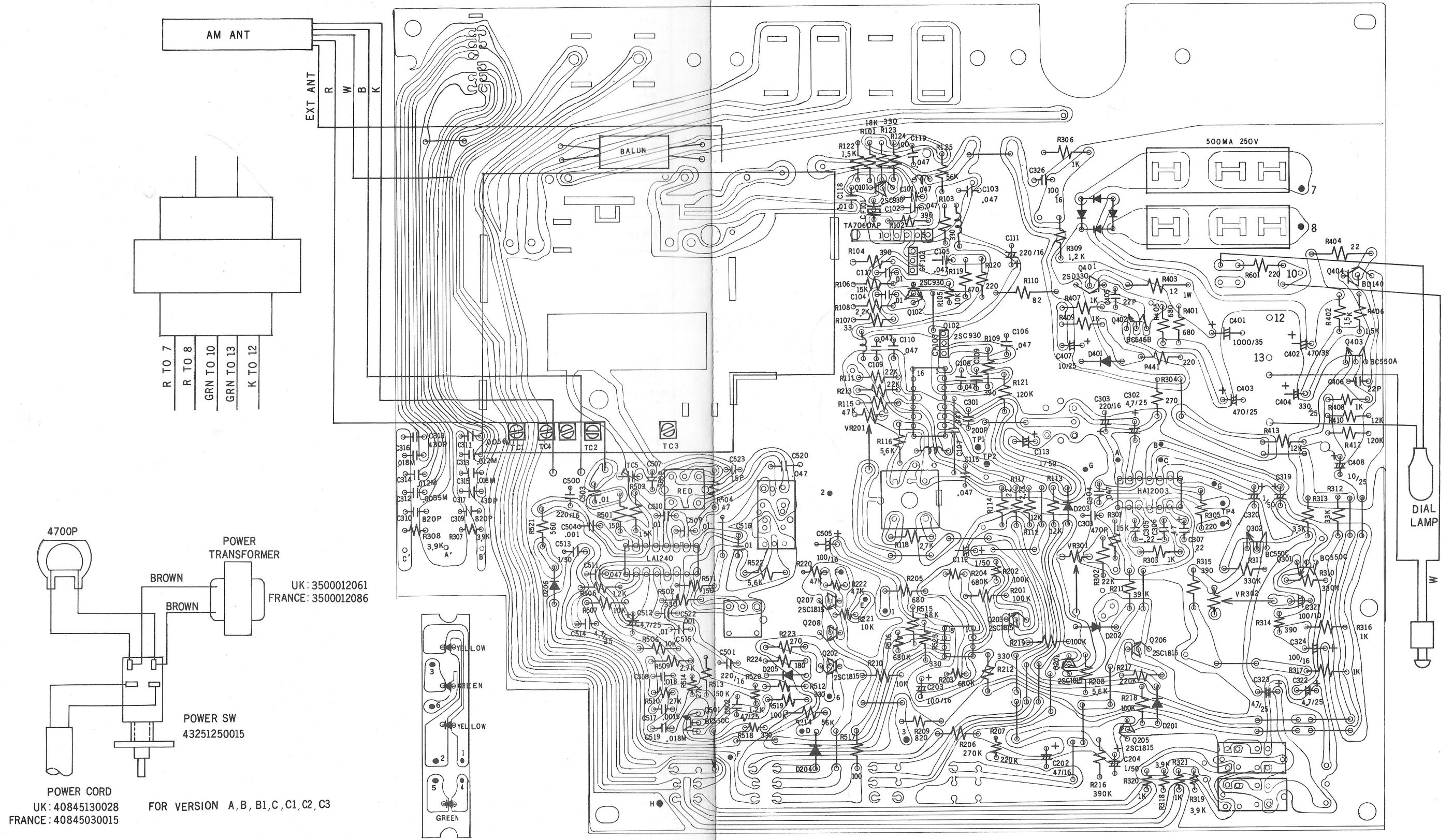


ALIGNMENT

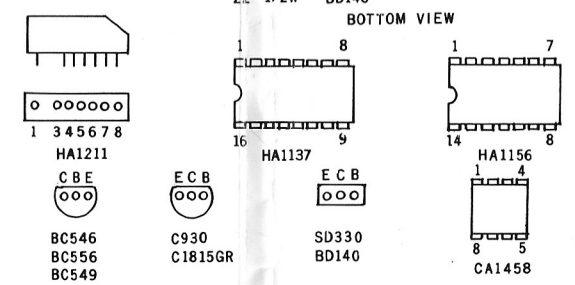
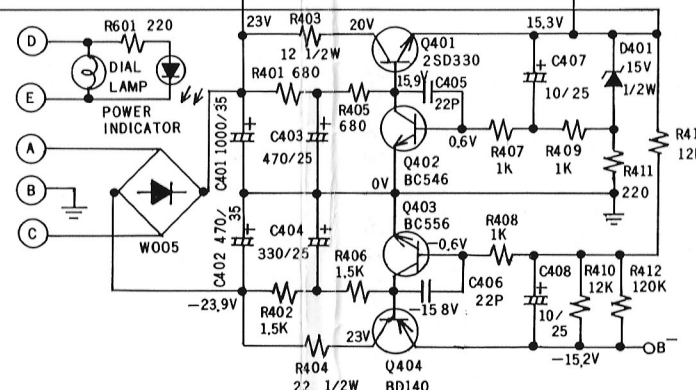
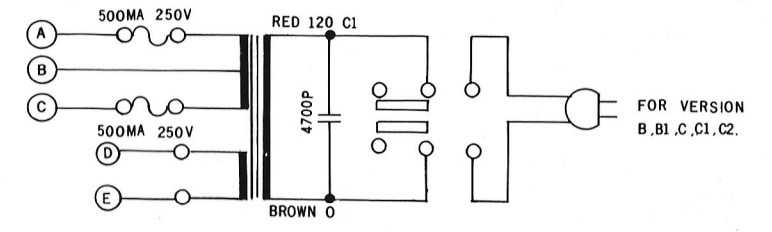
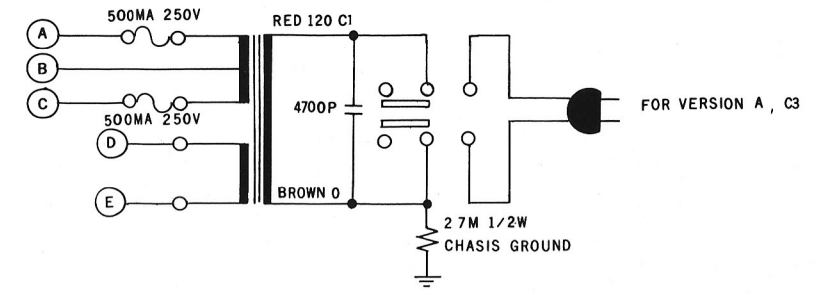
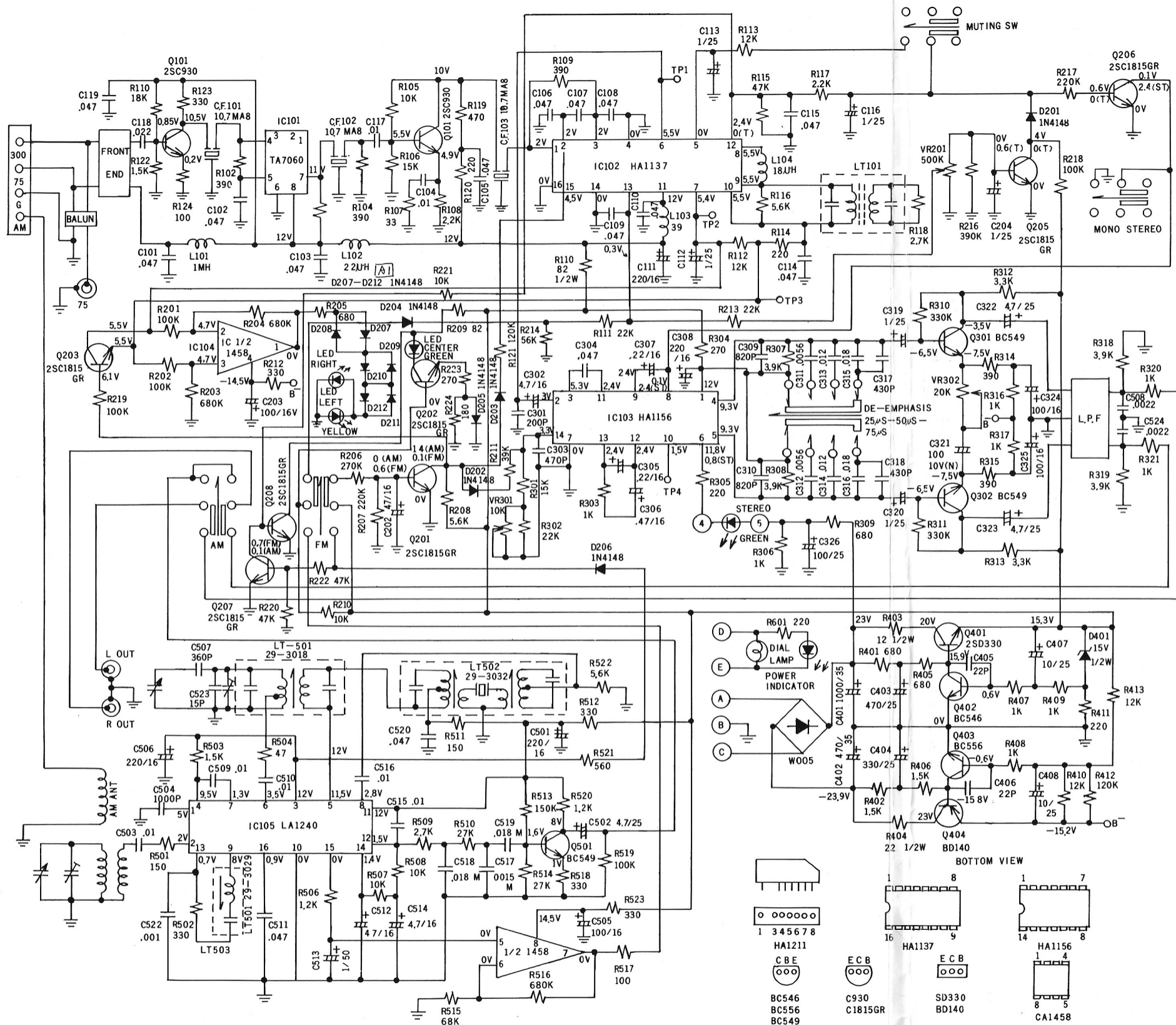


1. AM ALIGNMENT: 1. Selector switch in AM position 2. AC line voltage at rated voltage 3. Monitor output at RECORD OUTPUT								
Section	AM SG			Dial setting	Indicator	Adjustment point	Adjust for	
	Connection	Carrier Freq.	Modulation					
AM IF	Hot side of SG output through 200PF to AM antenna trimmer terminal		455KHz	30% Mod. 400Hz	point of non-interference	V.T.V.M. or Oscilloscope	LT503 LT502	Maximum Output
AM RF	1	Hot side of SG out put through 200PF to EXT AM antenna terminal on rear panel.	600KHZ	300% Mod. 400Hz	600KHz	V.T.V.M. or Oscilloscope	LT501	Maximum Output
	2		1400KHZ	30% Mod. 400Hz	1400KHz		TC2, TC4	
	3		Repeat Step 1 and Step 2					
2. FM ALIGNMENT: 1. Selector switch in FM position 2. AC line voltage at rated voltage 3. Monitor out put at RECORD OUTPUT								
Section	FM SG			Dial setting	Indicator	Adjustment point	Adjust for	
	Connection	Carrier Freq.	Modulation					
FM IF	_____		_____	_____	Point of NON-interference	Tuning LED of set	L1101 Lower side	Center Indication
FM RF	1	Connect to FM 300 ohm through FM dummy antenna	90MHz	100% Mod. 400Hz	90MHz	V.T.V.M. or	LO-1 IFT-1	Maximum Output
	2		106MHz		106MHz		TC1, TC3, TC5	
	3		Repeat Step 1 and Step 2					
FM mono distortion	1		98MHz	100% Mod. 400Hz	98MHz	Distortion Meter	LT101 Upper side	Minimum Distortion
	2	Repeat FM IF and FM Mono Distortion step 1						
FM mute	1	Muting push Switch ON Adjust attenuator of FM SG for antenna input 14dB						_____
	2		98MHz	100% Mod. 400Hz	98MHz	V.T.V.M. or Oscilloscope	VR201	Output just disappear
	3	Increase FM SG out put 4dB more to get full audio output						_____
	4	If full audio output cannot begot, repeat step 1, 2, 3						_____
3. FM MPX ALIGNMENT: 1. Same as FM ALIGNMENT 1, 2, 3 2. FM SG is external modulated by stereo SG and connected to FM 300Ω antenna terminal on the rear panel through FM dummy antenna								
Section	Step	FM SG	Stereo SG	Dial Setting	Indicator	Adjustment	Adjust for	
MPX Pilot	1	_____	_____	Point of no signal received.	Connect frequency connter through 100 Ω to TP4	VR301	19KHz 30Hz	
	2	98MHz	10% 19KHz pilot 90% L+R, L-R	98MHz	_____	VR301	Stereo LED Light	
Separation	1	98MHz	10% 19KHz pilot L only	98MHz	Connect VTVM or Oscilloscope to R REC out	VR302	Minimum Output	
	2		10% 19KHz pilot R only	98MHz	Connect VTVM or Oscilloscope to L REC out	VR302		
	3		Repeat Step 1 and Step 2					
	4		If there is an excessive difference between leak-free effect of both channels, slightly adjust VR302 So that the levels of signal leakage of both channels are equal					

PCB PARTS LOCATION



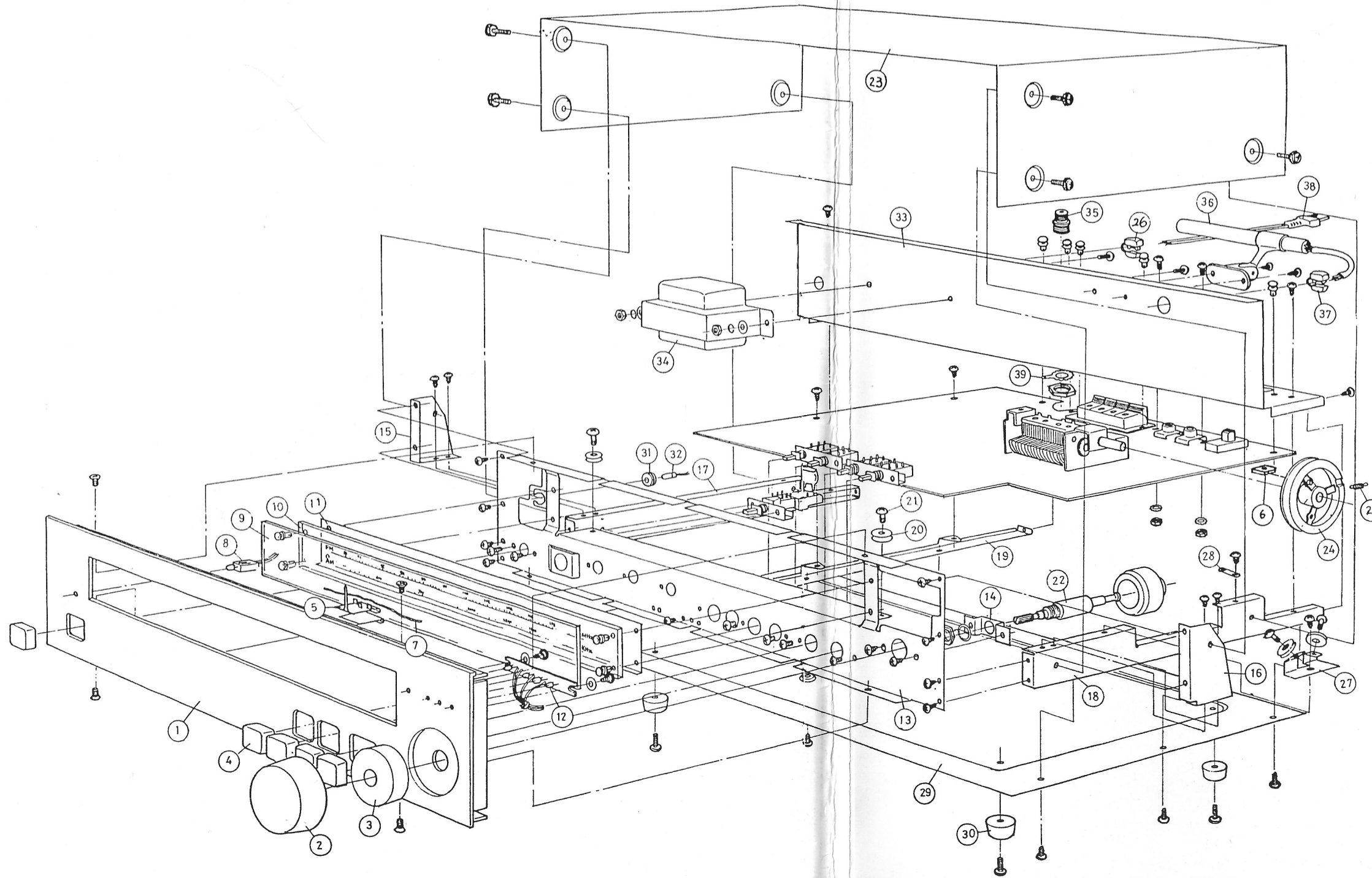
SCHEMATIC DIAGRAM



*T: TUNED
ST: STEREO

DC VOLTAGES ARE MEASURED WITH 10M OHM DVM DURING NO SIGNAL CONDITION
UNIT: VOLT. TOLERANCE: ±5%

EXPLODED VIEW



Item	Parts No.	Name	Q'ty
1	70016691010	Cabi Front	1
2	70449510020	Knob Tuning	1
3	54946110017	Pad Metal	1
4	70449480015	Knob Push	5
5	76846010011	Dial Pointer	1
6	64145460019	Insert Plate Drum	1
7	521040027	Cord Dial	
8	45400240018	Connect (LED)	1
9	78235100014	LENS	1
10	70735570012	Dial Plate	1
11	71735240013	Plate Dial Back	1
12	26301305025	LED GREEN	2
	26301303014	LED ORANGE	2
13	56025602013	Chassis Main	1
14	54445610017	Bracket	2
15	54345370014	Angle Left	1
16	54345360019	Angle Right	1
17	54935152015	Frame Left	1
18	54935161014	Frame Right	1
19	54935180019	Center Chassis	1
20	52245090018	Pulley	4
21	65045061016	Pulley Screw	4
22	53125022024	Tuning Shaft	1
23	71015310013	Cover Top	1
24	53535210017	Dial Drum	1
25	57045066037	Spring Dial	1
26	45500010014	Bushing	2
27	54345391011	Angle Pulley	1
28	685300000000	Lug Washer	1
29	71025701015	Cabi Bottom	1
30	76545230011	Foot Rubber	4
31	76545300011	Lamp Holder	1
32	25300080011	Dial Lamp	1
33	71015320019	Cabi Back	1
34	3500012061	Power Transformer	1
35	53146910018	FM Ant. Terminal	1
36	37000100017	AM Ant. Bar	1
37	45500010014	Bushing	2
38	40845130028	Power Cord	1
39	68545060011	Lug Washer	1

4020B PARTS LIST

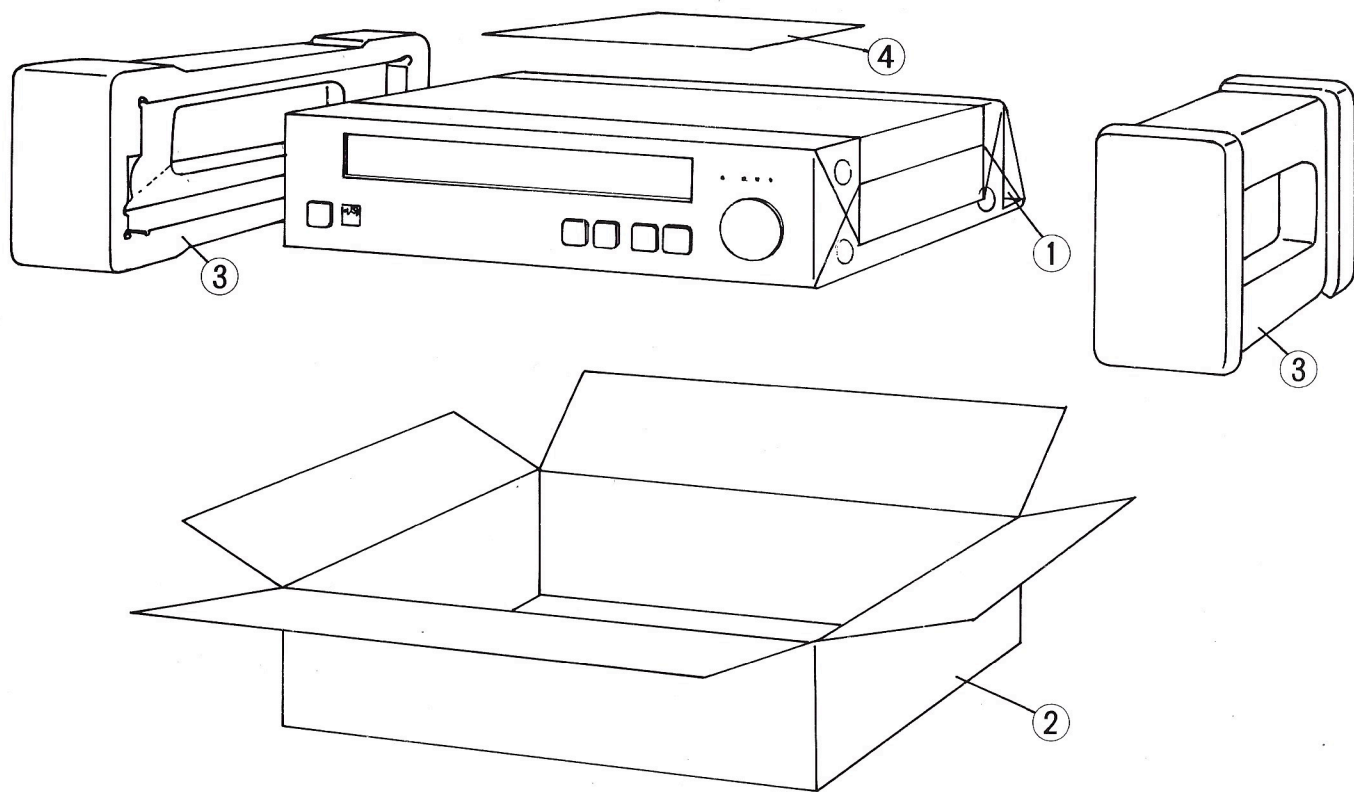
SYMBOL NO.	PART NO.	DESCRIPTION	REF
R101	1001836136	Carbon res 18K ohm	±5% 1/8W
R102	1003916136	Carbon res 390 ohm	±5% 1/8W
R103	1003316134	Carbon res 330 ohm	±5% 1/8W
R104	1003916136	Carbon res 390 ohm	±5% 1/8W
R105	1001036120	Carbon res 10K ohm	±5% 1/8W
R106	1001536135	Carbon res 15K ohm	±5% 1/8W
R107	1003306130	Carbon res 33 ohm	±5% 1/8W
R108	1002226132	Carbon res 2K2 ohm	±5% 1/8W
R109	1003916136	Carbon res 390 ohm	±5% 1/8W
R110	1008206332	Carbon res 82 ohm	±5% 1/8W
R111	1002236136	Carbon res 22K ohm	±5% 1/8W
R112, R113	1001236134	Carbon res 12K ohm	±5% 1/8W
R114	1002216138	Carbon res 220 ohm	±5% 1/8W
R115	1004736131	Carbon res 47K ohm	±5% 1/8W
R116	1005626135	Carbon res 5K6 ohm	±5% 1/8W
R117	1002226132	Carbon res 2K2 ohm	±5% 1/8W
R118	1002726131	Carbon res 2K7 ohm	±5% 1/8W
R119	1004716131	Carbon res 470 ohm	±5% 1/8W
R120	1002216138	Carbon res 220 ohm	±5% 1/8W
R121	1001246139	Carbon res 120K ohm	±5% 1/8W
R122	1001526131	Carbon res 1K5 ohm	±5% 1/8W
R123	1003316134	Carbon res 330 ohm	±5% 1/8W
R124	1001016138	Carbon res 100 ohm	±5% 1/8W
R125	1005606136	Carbon res 56 ohm	±5% 1/8W
R201	1001046131	Carbon res 100K ohm	±5% 1/8W
R202	1001046124	Carbon res 100K ohm	±5% 1/8W
R203, R204	1006846127	Carbon res 680K ohm	±5% 1/8W
R205	1006816131	Carbon res 680 ohm	±5% 1/8W
R206	1002746130	Carbon res 270K ohm	±5% 1/8W
R207	1002246124	Carbon res 220K ohm	±5% 1/8W
R208	1005626135	Carbon res 5K6 ohm	±5% 1/8W
R209	1008216134	Carbon res 820 ohm	±5% 1/8W
R210	1001046131	Carbon res 100K ohm	±5% 1/8W
R211	1003936135	Carbon res 39K ohm	±5% 1/8W
R212	1003316134	Carbon res 330 ohm	±5% 1/8W
R213	1002236136	Carbon res 22K ohm	±5% 1/8W
R214	1005636130	Carbon res 56K ohm	±5% 1/8W
R216	1003946130	Carbon res 390K ohm	±5% 1/8W
R217	1002246131	Carbon res 220K ohm	±5% 1/8W
R218, R219	1001046131	Carbon res 100K ohm	±5% 1/8W
R220	1004736123	Carbon res 47K ohm	±5% 1/8W
R221	1001036120	carbon res 10K ohm	±5% 1/8W
R222	1004736123	Carbon res 47K ohm	±5% 1/8W
R223	1002716136	Carbon res 270 ohm	±5% 1/8W
R224	1001816137	Carbon res 180 ohm	±5% 1/8W
R301	1001536135	Carbon res 15K ohm	±5% 1/8W
R302	1002236137	Carbon res 22K ohm	±5% 1/8W
R303	1001026132	Carbon res 1K ohm	±5% 1/8W
R304	1002716136	Carbon res 270 ohm	±5% 1/8W
R305	1002216138	Carbon res 220 ohm	±5% 1/8W
R306	1001026132	Carbon res 1K ohm	±5% 1/8W
R307, R308	1003926123	Carbon res 3K9 ohm	±5% 1/8W
R309	1001226130	Carbon res 1K2 ohm	±5% 1/8W
R310, R311	1003346138	Carbon res 330K ohm	±5% 1/8W
R312, R313	1003326139	Carbon res 3K3 ohm	±5% 1/8W
R314	1003916129	Carbon res 390 ohm	±5% 1/8W

SYMBOL NO.	PART NO.	DESCRIPTION	REF
R315	1003916136	Carbon res 390 ohm ±5%	1/8W
R316, R317	1001026132	Carbon res 1K ohm ±5%	1/8W
R318, R319	1003926123	Carbon res 3K9 ohm ±5%	1/8W
R320, R321	1001026125	Carbon res 1K ohm ±5%	1/8W
R401	1006816131	Carbon res 680 ohm ±5%	1/8W
R402	1001526131	Carbon res 1K5 ohm ±5%	1/8W
R403	1001206430	Carbon res 12 ohm ±5%	1/8W
R405	1006816131	Carbon res 680 ohm ±5%	1/8W
R406	1001526131	Carbon res 1K5 ohm ±5%	1/8W
R407, R408, R409	1001526132	Carbon res 12K ohm ±5%	1/8W
R410	1001236134	Carbon res 12K ohm ±5%	1/8W
R411	1002216138	Carbon res 220 ohm ±5%	1/8W
R412	1001246139	Carbon res 120K ohm ±5%	1/8W
R413	1001236134	Carbon res 12K ohm ±5%	1/8W
R501	1001516136	Carbon res 150 ohm ±5%	1/8W
R502	1003316134	Carbon res 330 ohm ±5%	1/8W
R503	1001526131	Carbon res 1K5 ohm ±5%	1/8W
R504	1004706137	Carbon res 47 ohm ±5%	1/8W
R506	100126130	Carbon res 1K2 ohm ±5%	1/8W
R507, R508	1001036137	Carbon res 10K ohm ±5%	1/8W
R509	1002726131	Carbon res 2K7 ohm ±5%	1/8W
R510	1002736128	Carbon res 27K ohm ±5%	1/8W
R511	1001516136	Carbon res 150 ohm ±5%	1/8W
R512	1003316134	Carbon res 330 ohm ±5%	1/8W
R513	1001546130	Carbon res 150K ohm ±5%	1/8W
R514	1002736128	Carbon res 27K ohm ±5%	1/8W
R515	1006836130	Carbon res 68K ohm ±5%	1/8W
R516	1006846127	Carbon res 680K ohm ±5%	1/8W
R517	1001016138	Carbon res 100 ohm ±5%	1/8W
R518	1003316127	Carbon res 330 ohm ±5%	1/8W
R519	1001046131	Carbon res 100K ohm ±5%	1/8W
R520	1001226122	Carbon res 1K2 ohm ±5%	1/8W
R521	1005616131	Carbon res 500 ohm ±5%	1/8W
R522	1005626135	Carbon res 5K6 ohm ±5%	1/8W
R523	1003316134	Carbon res 330 ohm ±5%	1/8W
R601	1002216138	Carbon res 220 ohm ±5%	1/8W
C101-C103	167473700024	Ceramic Capa. 0.047μF ±20%	50WV
C104	167103705027	Ceramic Capa. 0.01μF ±20%	50WV
C105-C110	167473700024	Ceramic Capa. 0.047μF ±20%	50WV
C111	160227160003	Elec. Capa. 220μF +50-10%	16V
C112, C113	160105500008	Elec. Capa. 1μF +75-10%	50V
C114, C115	167473700024	Ceramic Capa. 0.047μF ±20%	50WV
C116	160105500008	Elec. Capa. 1μF +75-10%	50WV
C117	167103705027	Ceramic Capa. 0.01μF ±20%	50WV
C118	167103700021	Ceramic Capa. 0.022μF ±20%	50WV
C119	167473700024	Ceramic Capa. 0.047μF ±20%	50WV
C202	160476160002	Elec. Capa. 47μF +50-10%	16V
C203	160107160003	Elec. Capa. 100μF +50-10%	16V
C204	160105500008	Elec. Capa. 1μF +75-10%	50V
C301	166201647023	Ceramic Capa. 200PF ±10%	50WV
C302	160475250007	Elec. Capa. 4.7μF +75-10%	25V
C303	163471521	Polystyrene Capa. 470PF ±5%	50WV
C304	162473529	Mylar Capa. 0.047μF ±5%	50WV
C305	161224160001	Tantalum Capa. 0.22μF ±20%	16V
C306	161474160005	Tantalum Capa. 0.47μF ±20%	16V

SYMBOL NO.	PART NO.	DESCRIPTION	REF
C307	161224160001	Tantalum Capa. 0.22 μ F \pm 20%	16V
C308	160227160003	Elec. Capa. 220 μ F +50-10%	16V
C309, C310	163821620	Polystyrene Capa. 820PF \pm 10%	50WV
C311, C312	162562523	Mylar Capa. 0.0056 μ F \pm 5%	50WV
C313, C314	162123522	Mylar Capa. 0.012 μ F \pm 5%	50WV
C315, C316	162183524	Mylar Capa. 0.018 μ F \pm 5%	50WV
C317, C318	166431547024	Ceramic Capa. 430PF \pm 5%	50WV
C319, C320	160105500008	Elec. Capa. 1 μ F +75-10%	50V
C321	160107100014	Non-polar Capa. 100 μ F +50-10%	10V
C322, C323	160475250007	Elec. Capa. 4.7 μ F +50-10%	25V
C324, C325	16010716003	Elec. Capa. 100 μ F +50-10%	16V
C326	160107250002	Elec. Capa. 100 μ F +50-10%	25V
C401	160108350002	Elec. Capa. 1000 μ F +50-10%	35V
C402	160477350001	Elec. Capa. 470 μ F +50-10%	35V
C403	160477250006	Elec. Capa. 470 μ F +50-10%	25V
C404	160337250009	Elec. Capa. 330 μ F +50-10%	25V
C405, C406	166220747021	Ceramic Capa. 22PF \pm 20%	50WV
C407, C408	160106250008	Elec. Capa. 10 μ F +50-10%	25V
C501	160227160003	Elec. Capa. 250 μ F +50-10%	16V
C502	160475250007	Elec. Capa. 4.7 μ F +50-10%	25V
C503	167103705027	Ceramic Capa. 0.01 μ F \pm 20%	50WV
C504	167102800021	Ceramic Capa. 1000PF \pm 20%	50WV
C505	160107500007	Elec. Capa. 100 μ F +50-10%	50V
C506	160227160003	Elec. Capa. 220 μ F +50-10%	16V
C507	163361525	Polystyrene Capa. 360PF \pm 5%	50WV
C508	162222521	Mylar Capa. 0.0022 μ F \pm 5%	50WV
C509, C510	167103705027	Ceramic Capa. 0.01 μ F \pm 20%	50WV
C511	167473700024	Ceramic Capa. 0.047 μ F \pm 20%	50WV
C512	160475250007	Elec. Capa. 4.7 μ F +50-10%	25V
C513	160105500008	Elec. Capa. 1 μ F +75-10%	50V
C514	160475250007	Elec. Capa. 4.7 μ F +50-10%	25V
C515, C516	167103705027	Ceramic Capa. 0.01 μ F \pm 20%	50WV
C517	162152529	Mylar Capa. 0.0015 μ F \pm 5%	50WV
C518, C519	162183524	Mylar Capa. 0.018 μ F \pm 5%	50WV
C520	167473705021	Ceramic Capa. 0.047 μ F \pm 20%	50WV
C522	167102700026	Ceramic Capa. 0.001 μ F \pm 20%	50WV
C523	166150747020	Ceramic Capa. 15PF \pm 20%	50WV
C524	162222521	Mylar Capa. 0.0022 μ F \pm 5%	50WV
IC101	300000401007	BA401	
	300007060330	or TA7060AP	
IC102	300001137231	HA1137	
	300001230002	or LA1230	
IC103	300001156237	HA1156	
	300012003002	or HA12003	
IC104	300001458471	MC1458Cp	
	300006458320	or LA6458DS	
IC105	300001240009	LA1240	
Q101	260030930031	2SC930C Transistor	
Q102	260030930040	2SC930D Transistor	
Q201-Q208	260031815301	2SC1815GR Transistor	
Q301, Q302	360180549031	BC549C Transistor	
Q401	260040330041	2SD330D Transistor	
	260040330050	or 2SD330E Transistor	
Q402	260180546011	BC546A Transistor.	
Q403	260180556027	BC556B Transistor	

SYMBOL NO.	PART NO.	DESCRIPTION	REF
Q404	260230140001	BD140 Transistor	
Q501	260180549031	BC549C Transistor	
CF101-C103	39000090013	Ceramic Filter SFE 10.7MP	
L101	35100210017	1mH Chock Coil	
L102	35100240013	22 μ F Chock Coil	
L103	35100230018	39 μ H Chock Coil	
L104	35100220012	18 μ H Chock Coil	
LT101	36400050016	FM DET 10.7MHz	
LT501	37300070016	AM Local OSC Coil	
LT501	37300070016	AM Local OSC Coil	
LT502	37400070018	AM IF coil	
LT503	37400060012	AM IF coil	
LT001	35100190016	FM Ant. Balun	
D201-D206	272241480007	Diode 1N4148	
D401	273000150226	Zener Diode 15V	
D402	272240216	Bridge Diode 15V	
Front End	36500020011	FEA321A	
Push SW	43200170014	Push SW 2U2 Key	
Push SW	43200160019	Push SW 2U2 Key	
Slide SW	43100300013	Slide SW	
L.P.F	38600040016	L.P.F 19, 38KHz Filter	
VR201	12700110012	Semifix Res 500K	
VR301	12700110039	Semifix Res 10K	
VR302	12700110021	Semifix Res 20K	

PACKING DIAGRAM



Item	Number	Name	Q'ty
1	83145970014	Bag Poly	1
2	80046340036	Carton Individual	1
3	82525610019	Box Snow	2
4	871004020011	IB	1

DIAL STRING ASSEMBLY DIAGRAM

