

54

AM-FM STEREO RECEIVER

VR-7000

Service Manual

VK-1000



vector research

1 SPECIFICATIONS

AUDIO SECTION

RMS Power, both channels driven, with no more than 0.08% total harmonic distortion
 65 W per channel from 20 Hz to 20,000 Hz (8 ohms)*
 69 W per channel at 1,000 Hz (8 ohms)*
 75 W per channel at 1,000 Hz (4 ohms)*

IM Distortion (at 8 ohms)

(60 Hz:7 kHz = 4:1 SMPTE method) 0.1%

Damping factor

(1,000 Hz, 8 ohms) 50

Phono overload level

200 mV at 1,000 Hz

Frequency response

(at 1 watt) 10 Hz~50,000 Hz +0.5 dB

-1

RIAA curve deviation

S/N (IHF, A weighted, rated power)

Phono 82 dB

Aux 93 dB

Playback 93 dB

Input sensitivity and impedance

Phono 2.5 mV/47 k ohms

Aux 150 mV/47 k ohms

Tape 1, 2 150 mV/47 k ohms

Output voltage and load impedance

Rec out 130 mV/47 k ohms

Tone Controls

Bass 100 Hz ± 10 dB

Mid 1 kHz ± 6 dB

Treble 10 kHz ± 10 dB

Loudness control

(Volume at -40 dB) 50 Hz + 10 dB,

10 kHz + 3 dB

High Filter 10 kHz - 10 dB

FM TUNER SECTION

Tuning range

87.5 MHz~108.5 MHz

Sensitivity (IHF)

10.8 dBf (1.9 μV)

50 dB quieting sensitivity

Mono 19 dBf

Stereo 40 dBf

S/N ratio at 65 dBf

Mono 78 dB

Stereo 71 dB

Frequency response

Mono

30 Hz~15,000 Hz ± 1.5 dB

Stereo

30 Hz~15,000 Hz ± 1.5 dB

Distortion at 65 dBf

Mono 1,000 Hz

0.15%

Stereo 1,000 Hz

0.25%

Capture ratio

1.2 dB

Alternate channel selectivity

55 dB

Spurious rejection

65 dB

Image rejection

50 dB

IF rejection

80 dB

AM Suppression

53 dB

Stereo Separation (1,000 Hz)

40 dB

Carrier Suppression

50 dB

Antenna terminals

300 ohms balanced

75 ohms unbalanced

AM TUNER SECTION

Tuning range

515 kHz~1,650 kHz

Sensitivity

(bar antenna)

300 μV/m

Selectivity

(±10 kHz)

26 dB

Image rejection

40 dB

IF rejection

30 dB

S/N ratio

(5 mV/m Input)

40 dB

GENERAL

Power requirements and consumption

120 V, 60 Hz, 420 W

Dimensions

mm (inch)

440(W) x 376(D) x 142(H)

(17-5/16" x 14-3/4"

x 5-9/16")

Weight

12 kgs (26 lbs)

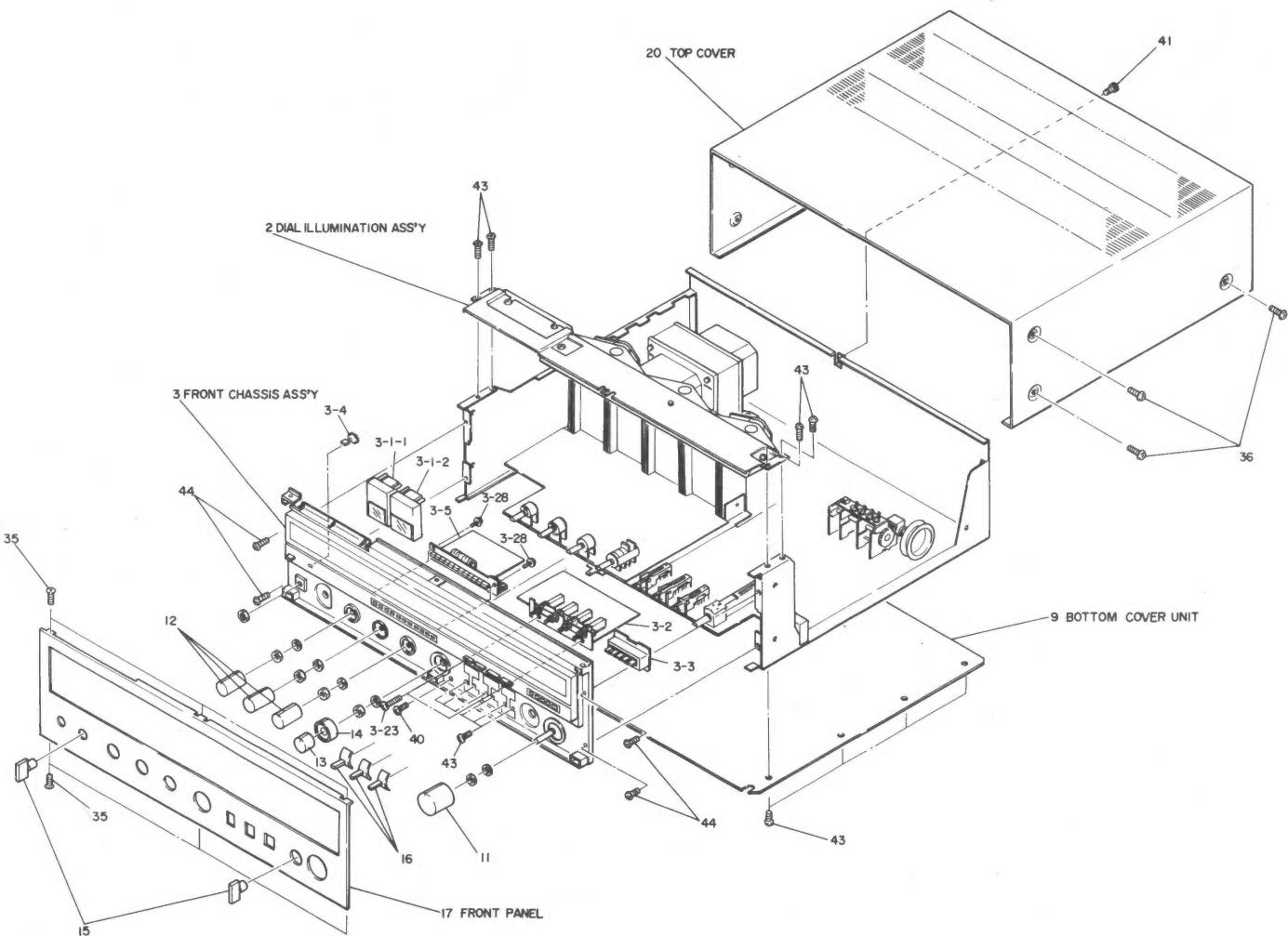
* Power specification measured pursuant to U.S. federal trade commission trade regulation on power output claims for amplifiers.

Features and specifications subject to change without notice.

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1. SPECIFICATIONS	2	8. AM/FM TUNER ADJUSTMENTS	10
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2 EXPLODED VIEW



Ref. No. Description

3 - 1 - 1	Signal Meter
3 - 1 - 2	Tuning Meter
3 - 2	Switch PCB Ass'y (Meter etc.)
3 - 3	LED PCB - 1 Ass'y (Function Indicator)

Ref. No. Description

3 - 4	LED PCB - 2 Ass'y (Protector Indicator)
3 - 5	LED Power Meter Ass'y
11	Tuning Knob
12	Volume Knob (Tone Control)

Ref. No. Description

13	Volume Knob (Volume)
14	Volume Knob (Balance)
15	Selector Knob
16	Lever Knob

3 DISASSEMBLY

3-1 Removal of Top Cover

Undo the 3 screws on both the left and right hand sides, and the single screw in the rear (a total of 7 screws).

(2) Remove the Speaker selector and Function selector knobs.

(3) Undo a total of 6 screws, 3 in the top and 3 in the bottom.

3-2 Removal of Bottom Cover

Undo the 17 screws in the bottom cover.

3-4 Removal of Dial Illumination Ass'y

(1) Remove the top cover (see 3-1 above).

(2) Undo the 2 screws at the left edge and the 2 screws at the right edge (total of 4 screws).

3-3 Removal of Front Panel

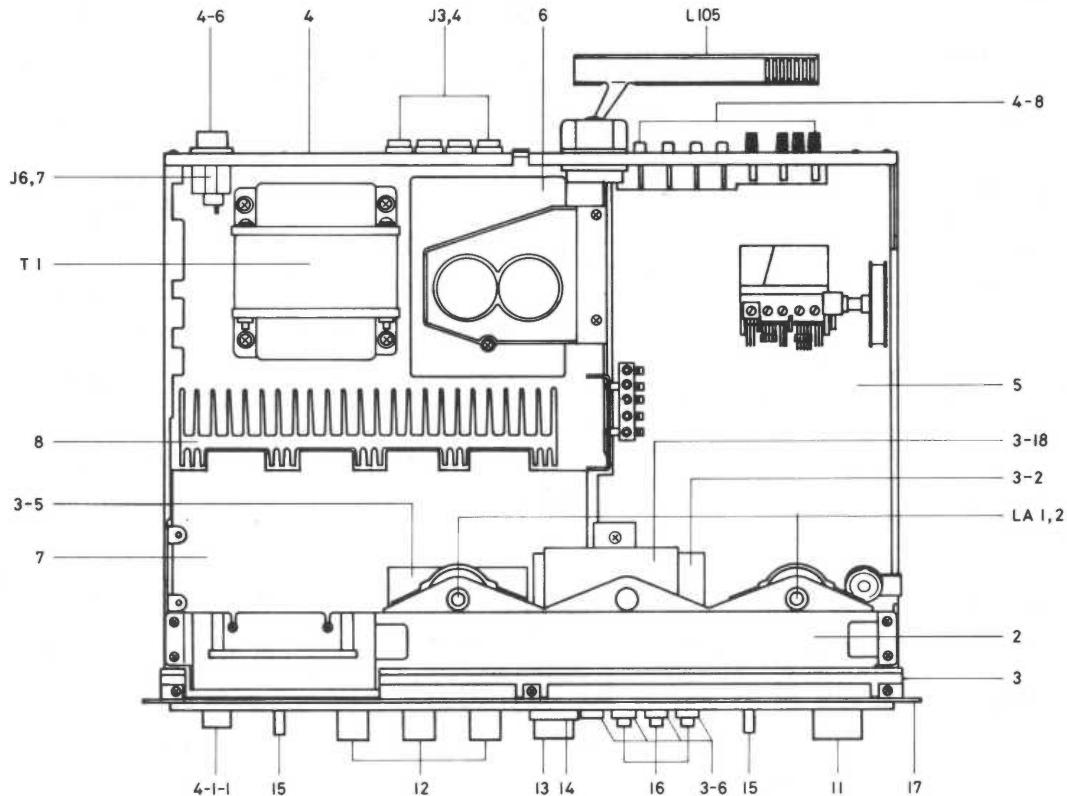
(1) Remove the top cover (see 3-1 above).

3-5 Removal of Front Chassis Ass'y

- (1) Remove the top cover (see 3-1 above).
- (2) Remove the bottom cover (see 3-2 above).
- (3) Remove the front panel (see 3-3 above).
- (4) Remove the dial illumination ass'y (see 3-4 above).
- (5) Remove the Signal and Tuning meters.
- (6) Remove the dial string.
- (7) Remove the LED PCB-1 Ass'y (Function Indicator).
- (8) Undo the single screw and remove the shield Plate-3.
- (9) Undo the 2 screws and remove Switch PCB Ass'y.
- (10) Undo the 2 screws and remove the LED Power Meter Ass'y.

- (11) Remove the LED PCB-2 Ass'y (Protector Indicator).
- (12) Remove the Tuning, Volume control, Balance control, and Tone control knobs.
- (13) Remove the Loudness, Tape Monitor, and Tape Copy levers, and also the 6 screws.
- (14) Remove the nuts securing the Phones jack, Speaker selector, Tone controls, Volume/Balance control, and Function selector.
- (15) Remove the 2 screws at the left edge and the 2 screws at the right edge of the front chassis ass'y, and also the single screw at the bottom (a total of 5 screws).

4 COMPONENT LOCATION



Ref. No.	Description	Ref. No.	Description	Ref. No.	Description
2	Dial Illumination Ass'y	4 - 8	Terminal	15	Selector Knob
3	Front Chassis Ass'y	5	Tuner PCB Ass'y	16	Lever Knob
3 - 2	Switch PCB Ass'y (Meter etc.)	6	Power Supply PCB	17	Front Panel
3 - 5	LED Power Meter Ass'y	7	Amplifier PCB Ass'y	J3, 4	Speaker Terminal
3 - 6	Push Knob - 1	8	Heat Sink Ass'y	J6, 7	AC Socket
3 - 18	Shield Plate - 3	11	Tuning Knob	L105	Bar Antenna
4	Back Panel Ass'y	12	Volume Knob (Tone Control)	LA1, 2	Lamp
4 - 1 - 1	Power Button	13	Volume Knob (Volume)	T1	Power Transformer
4 - 6	Fuse Holder	14	Volume Knob (Balance)		

5 DIAL CORD STRINGING

5-1 Stringing Diagram (Fig. 5-1-1 and 5-1-2)

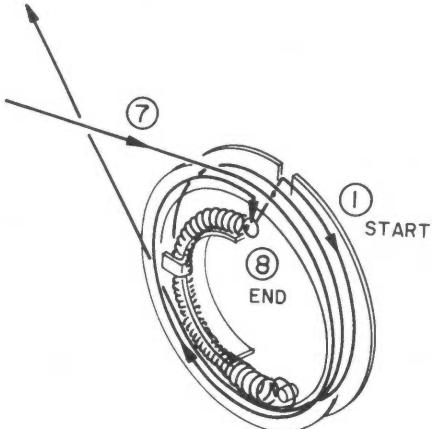


Fig. 5-1-2

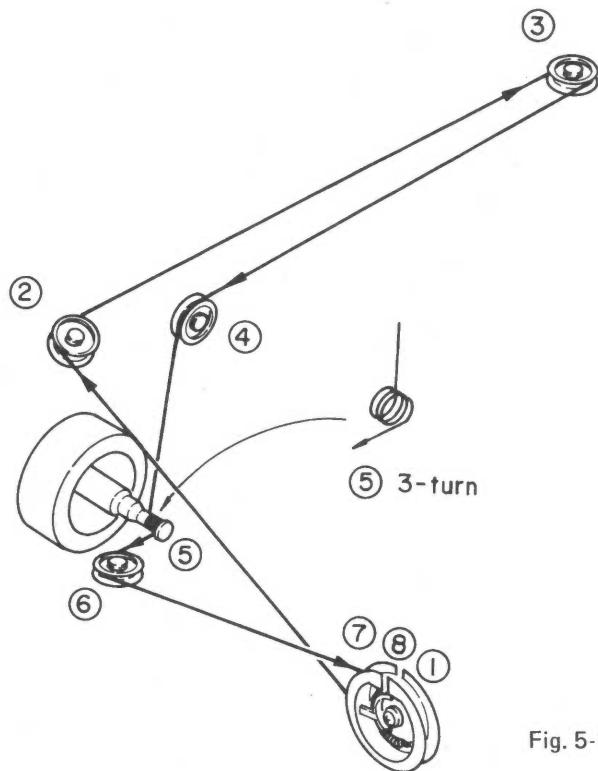


Fig. 5-1-1

5-2 Connecting up the Dial String

(1) Pass the dial string ② through the dial pulley ①. Then place both ends of the dial string together and pass them through the dial spring ③ and eyelet ④. Finally tie the two ends together, noting that the spring should be directed as shown in Fig. 5-2-1.

- (2) When tying both ends of the dial string together, the final length must comply with the dimensions shown in Fig. 5-2-2.
- (3) After securely tying the ends of the string, close the eyelet and seal the end with a sealing adhesive.
- (4) Load the dial spring inside the dial pulley as shown in Fig. 5-2-3.

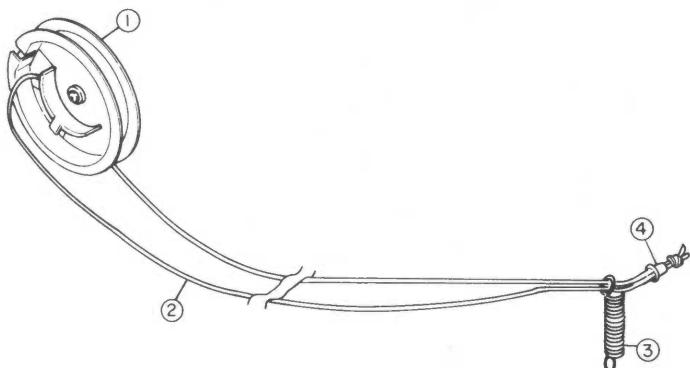


Fig. 5-2-1

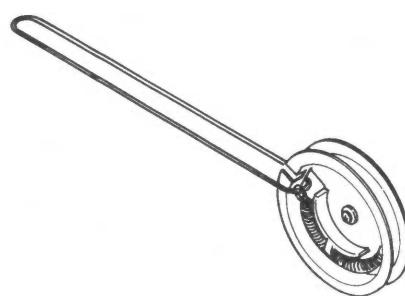


Fig. 5-2-3.

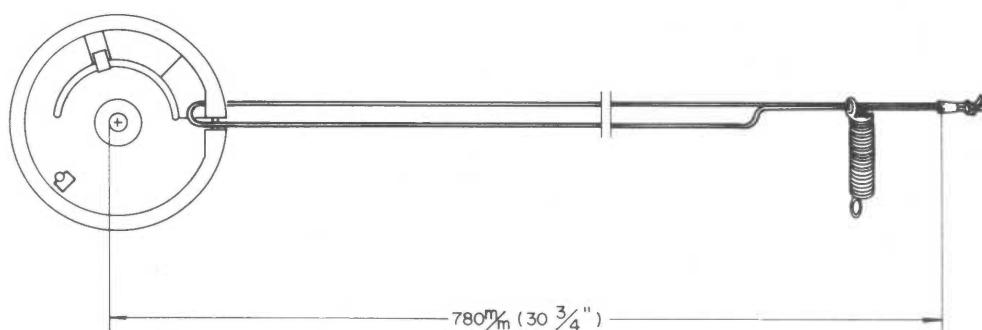
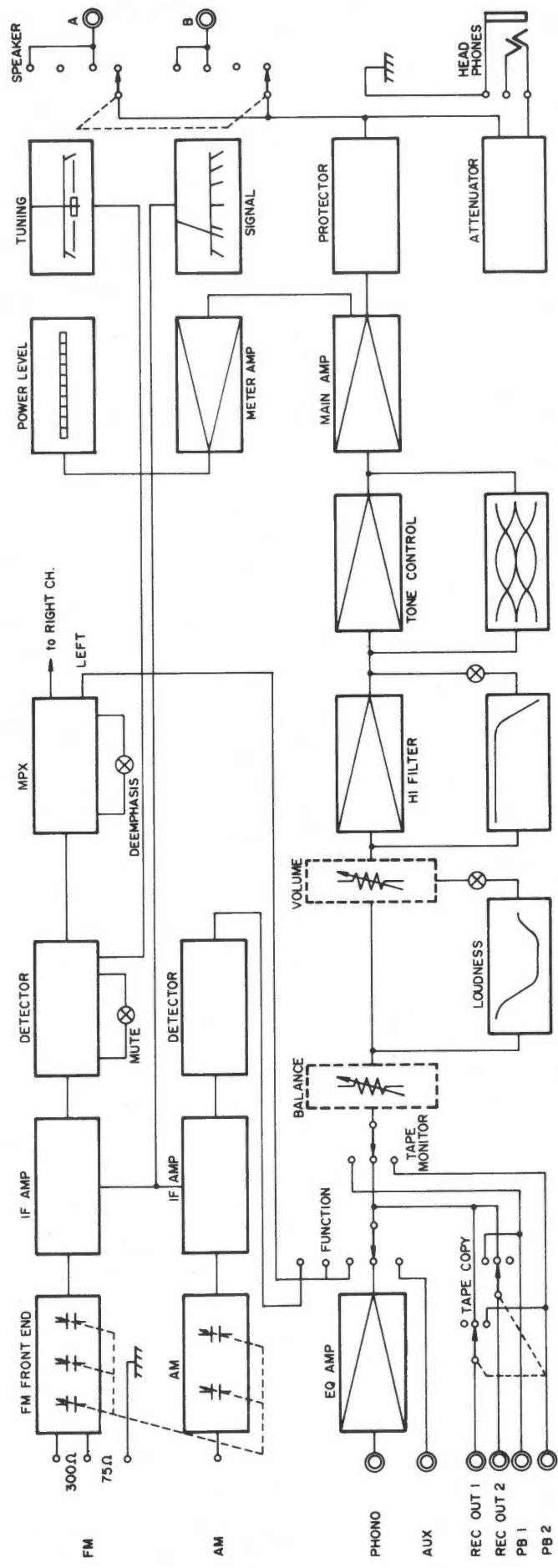


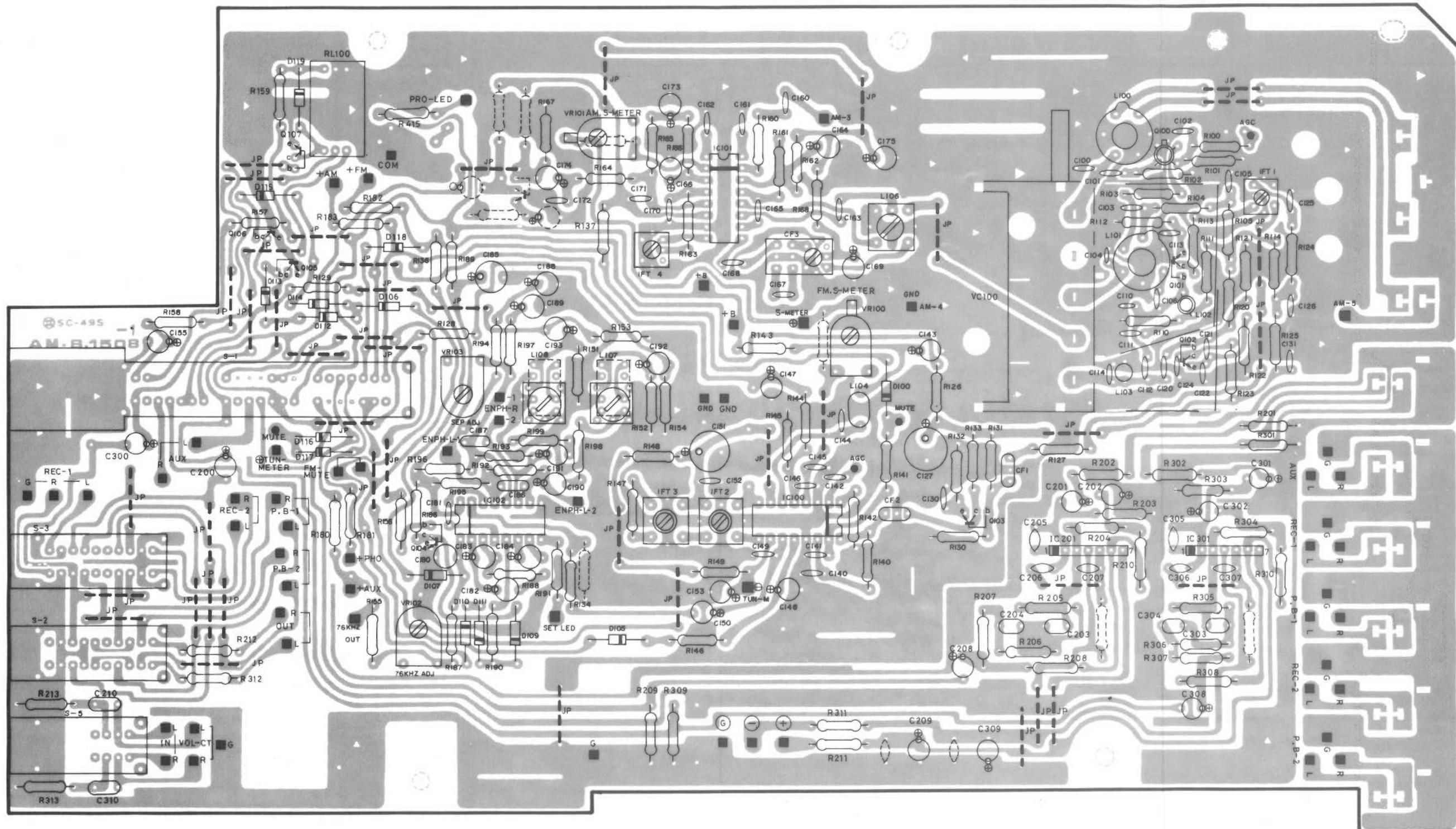
Fig. 5-2-2

6 BLOCK DIAGRAM

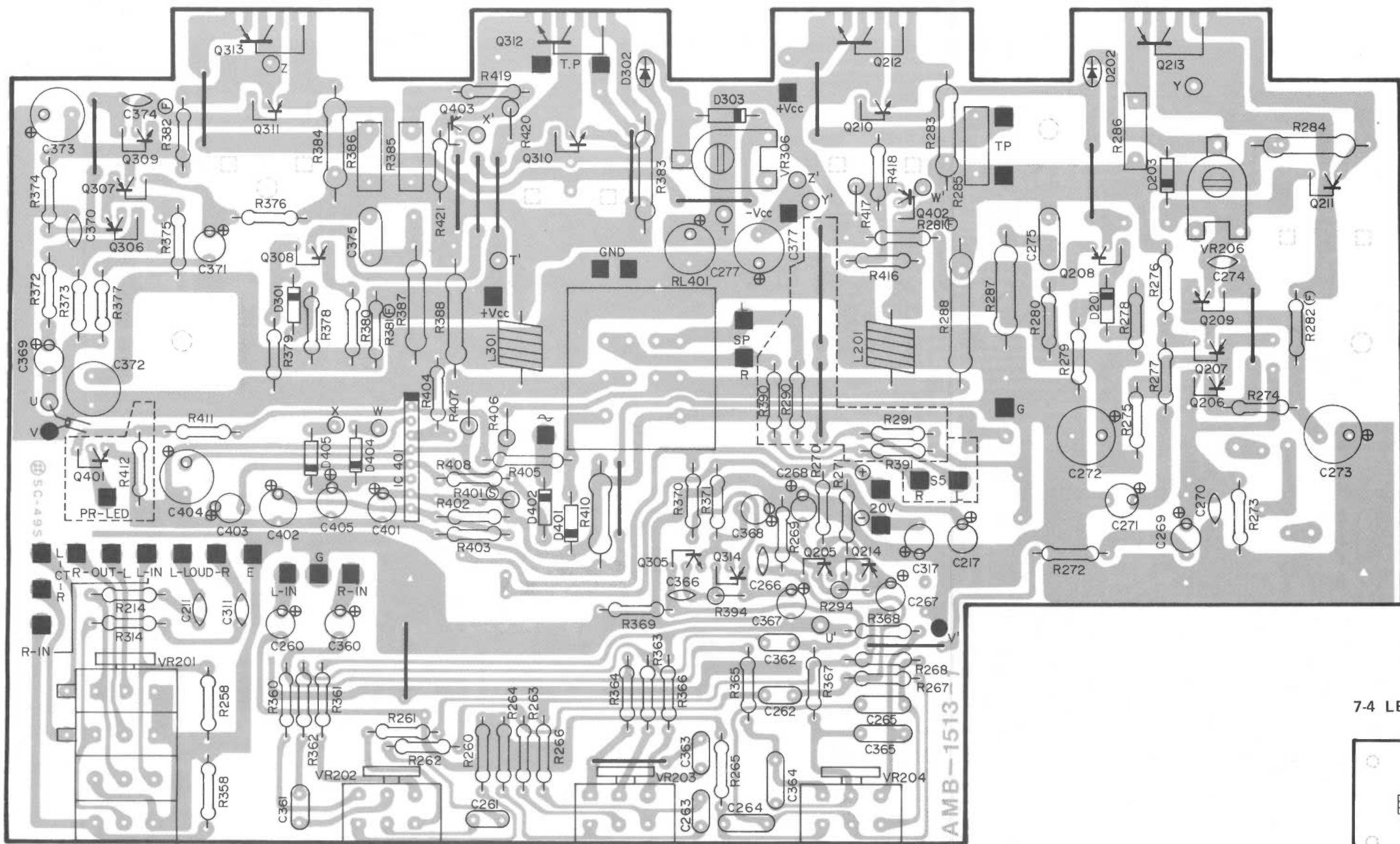


7 PC BOARD VIEWs FROM BOTTOM SIDE

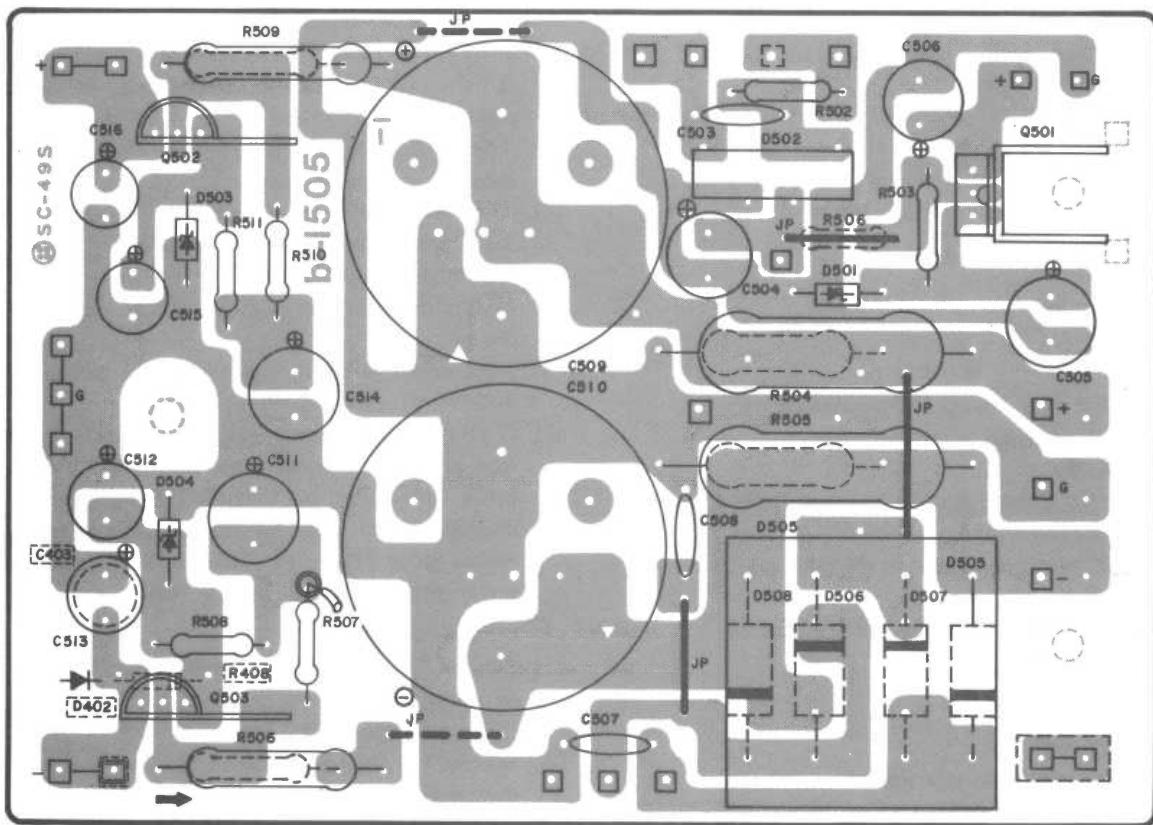
7-1 AM/FM Tuner PC Board



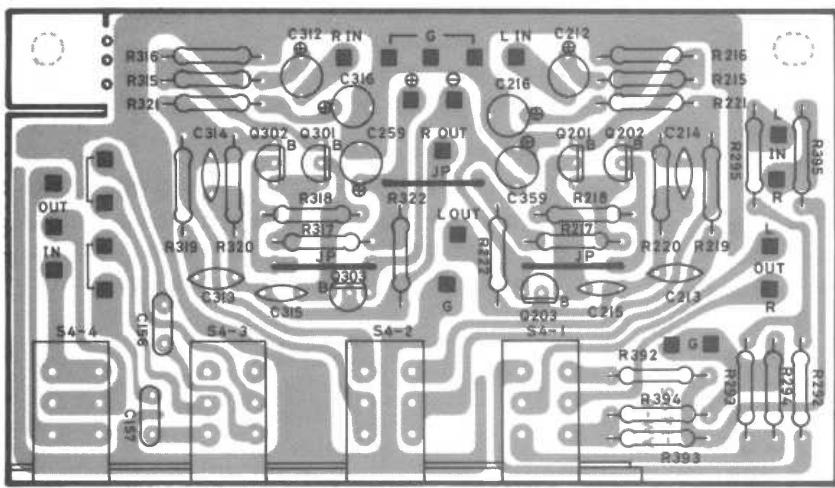
7-2 Amplifier PC Board



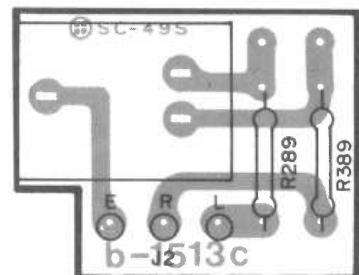
7-5 Power Supply PC Board



7-6 Switch PC Board



7-7 Headphone Jack PC Board



8 AM/FM TUNER ADJUSTMENTS

8-1 Instruments Required

- (1) FM signal generator
- (2) MPX stereo signal generator
- (3) AM signal generator
- (4) AC VTVM
- (5) Distortion meter
- (6) Oscilloscope
- (7) Frequency counter
- (8) AM IF sweepgenerator
- (9) FM dummy antenna
- (10) Loop antenna

NOTE

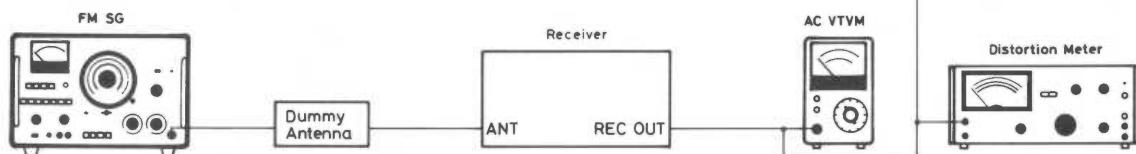
- (1) After the FM and AM signal generators have been warmed up, recalibrate the frequencies at least twice a day.
- (2) Set the FM signal generator to FM modulation 1 kHz, 75 kHz deviation.
- (3) Set the MPX signal generator to 9% pilot signal and 91% main signal.
- (4) Set the AM signal generator to 30% modulation 1 kHz.

8-2 FM Alignment Procedures

Connect the relevant measuring instruments up to the receiver as shown in Fig. 8-2. Refer to Fig. 8-5 for the layout of parts to be adjusted.

8-2-1 FM Frequency Alignment

- (1) When the Tuning meter shows considerable offset when there is no input signal, adjust IFT2 to bring the indicator needle into a central position.
- (2) Set the FM SG output to 1 K μ V and frequency of 87.5 MHz. Turn the Tuning knob of the receiver full around in the counter clockwise direction (where the dial indicator will stop at a position below 88 MHz), and adjust the L103 oscillator coil for reception of 87.5 MHz.
- (3) Then set the FM SG frequency to 108.5 MHz, turn the receiver Tuning knob full around in the clockwise direction (where the dial indicator will stop at a position above 108 MHz), and adjust the oscillator circuit trimmer capacitor (FM OSC TC) for reception of 108.5 MHz.
- (4) Repeat the above adjustment steps (2) and (3) until the minimum and maximum reception frequencies correspond exactly with 87.5 MHz and 108.5 MHz respectively.



8-2-2 FM IF Alignment

- (1) Set the FM SG to 1 K μ V, 98 MHz.
- (2) Set the dial indicator to 99 MHz with no input signal.
- (3) Adjust IFT2 so that the Tuning meter needle moves to center position.
- (4) Then tune the receiver to 98 MHz (where the Tuning meter will give center reading).
- (5) Adjust IFT3 to the position which results in minimum distortion as shown in the distortion meter.
- (6) Next adjust IFT1 to again obtain a minimum distortion meter reading.
- (7) With the Tuning meter indicating center position when there is no input signal, and the receiver then tuned (so that the Tuning meter indicator moves back to the center position), repeat steps (2) to (6) above until a distortion meter reading of less than 0.15% is obtained.

8-2-3 FM Tracking Alignment

- (1) Set the FM SG output so that a small amount of noise can be seen in the output waveform (distortion about 3%).
- (2) Set the FM SG frequency to 90 MHz and tune the receiver to this frequency. Then adjust the antenna coils L100 and L101 to positions of minimum noise (minimum distortion).
- (3) Next set the FM SG frequency to 106 MHz, and again tune the receiver to the new frequency. Adjust the antenna trimmer capacitor (FM ANT TC) and RF trimmer capacitor (FM RF TC) to again obtain minimum noise (minimum distortion).
- (4) Repeat steps (2) and (3) above until noise is reduced to minimums at both frequencies.

8-2-4 FM Signal Meter Alignment

- (1) Set the FM SG to 98 MHz and 10 K μ V output, and then tune the receiver to this frequency.
- (2) Adjust VR100 so that the Signal meter coincides with the maximum scale marking.

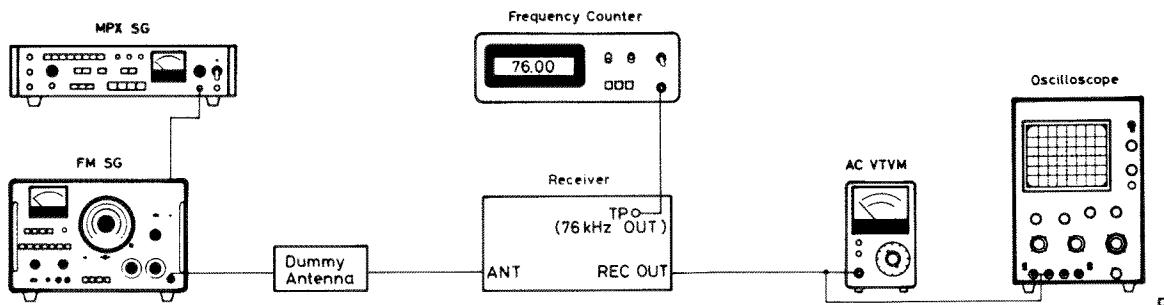


Fig. 8-3

8-3 FM MPX Alignment Procedures

Connect the measuring instruments up to the receiver as shown in Fig. 8-3. Refer to Fig. 8-5 for the layout of the parts to be adjusted.

8-3-1 FM MPX Subcarrier Oscillator Frequency Alignment

- (1) Set the FM SG to 98 MHz and 1 K μ V output.
- (2) Tune the receiver to 98 MHz, and then switch the FM SG modulation off (including 19 kHz pilot).
- (3) Connect the frequency counter to TP (76 kHz OUT), and adjust VR102 until the frequency counter reads 76.00 kHz.

8-3-2 FM MPX Separation Adjustment

- (1) Set the FM SG to 98 MHz and 1 K μ V output. Connect up the MPX SG using an external modulator, and set to 75 kHz deviation for main signal + pilot signal.
- (2) Tune the receiver to 98 MHz.
- (3) Set the MPX SG mode to L ch, and reduce the receiver R ch output level to a minimum by means of VR103.
- (4) Then switch the MPX SG mode to R ch, and check that the receiver L ch output level is much the same as the R ch output level obtained in step (3) above. If there is a considerable difference, adjust VR103 again until the L to R and R to L crosstalk difference is less than 2 to 3 dB.

8-4 AM Alignment Procedures

8-4-1 AM IF Alignment

- (1) Connect the measuring instruments up to the receiver as shown in Fig. 8-4-1. Refer to Fig. 8-5 for the layout of the parts to be adjusted.
- (2) Set the AM SG to 515 kHz with a small amount of noise present in the tuner output waveform.
- (3) Turn the receiver Tuning knob full around counter clockwise (thereby shifting the dial indicator below the 540 kHz position), and adjust the oscillator coil L106 for reception of 515 kHz.
- (4) Set the AM SG to 1,650 kHz, and turn the receiver Tuning knob full around clockwise (until the dial indicator stops at a position above 1,600 kHz). Then adjust the oscillator trimmer capacitor (AM OSC TC) for reception of 1,650 kHz.
- (5) Repeat steps (2) to (4) above.

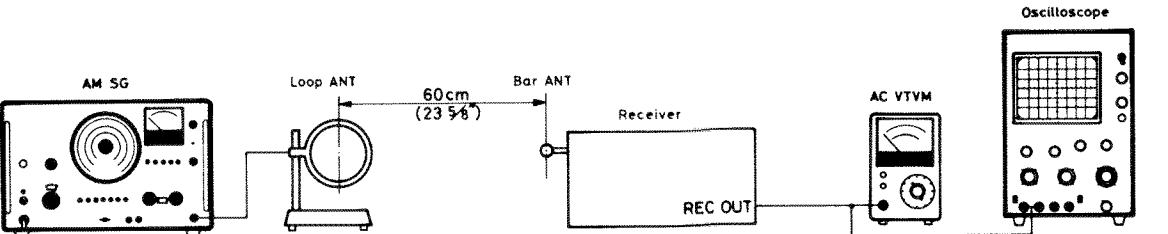


Fig. 8-4-2

8-4-3 AM Tracking Alignment

- (1) Measuring instrument connections to the receiver are the same as for section 8-4-2 above.
- (2) Set the AM SG to 600 kHz and the output to a level which produces a slight amount of noise in the tuner output.
- (3) Tune the receiver to 600 kHz, and rotate the core of the bar antenna coil in order to obtain maximum output level.
- (4) Next set the AM SG to 1,400 kHz, and tune the receiver to this frequency. Rotate the antenna trimmer capacitor (AM ANT TC) until maximum output level is obtained.
- (5) Repeat steps (2) to (4) above.

8-4-4 AM Signal Meter Alignment

- (1) The measuring instruments are again to be connected up to the receiver in the same way as in section 8-4-2.
- (2) Set the AM SG to 1,000 kHz and 120 dB output (or 1 V to generator loop).
- (3) Adjust VR101 so that Signal meter coincides with the maximum scale marking.

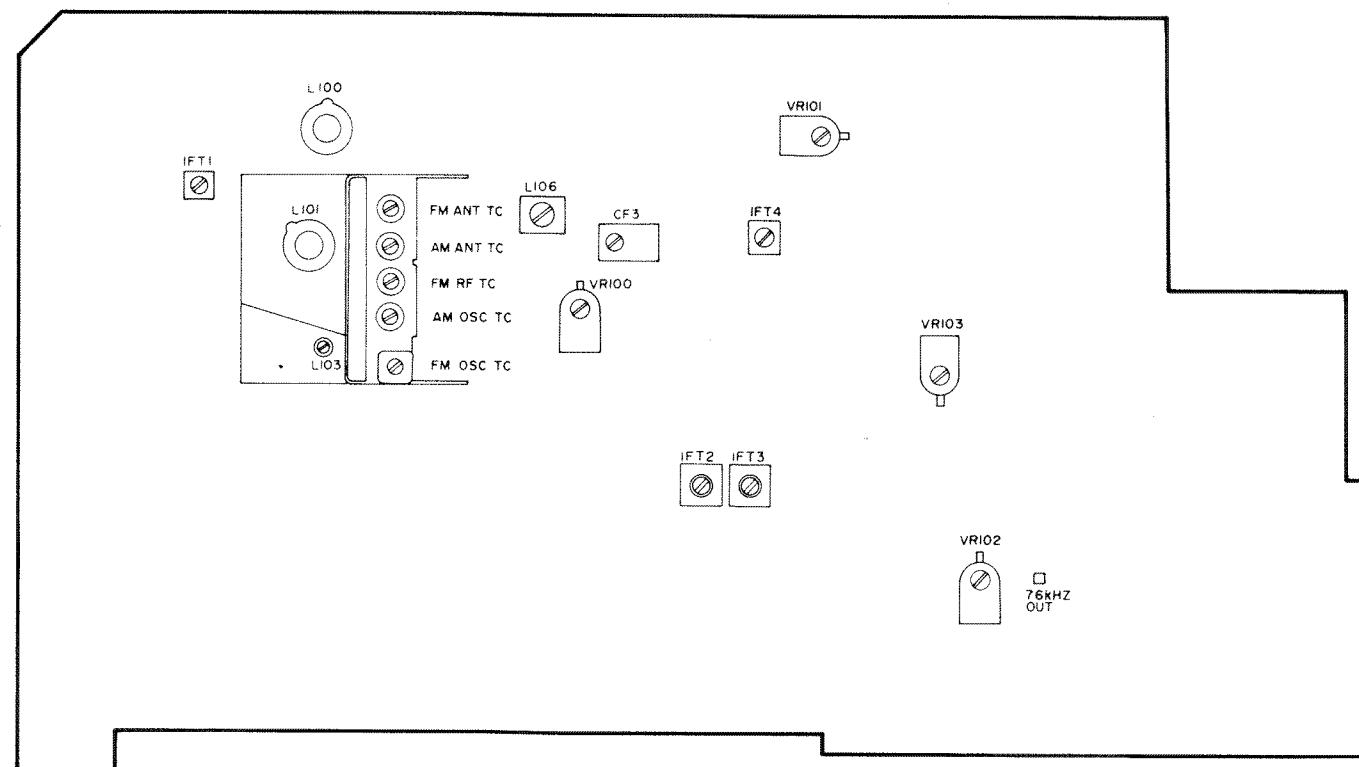


Fig. 8-5

9 AMPLIFIER ADJUSTMENTS

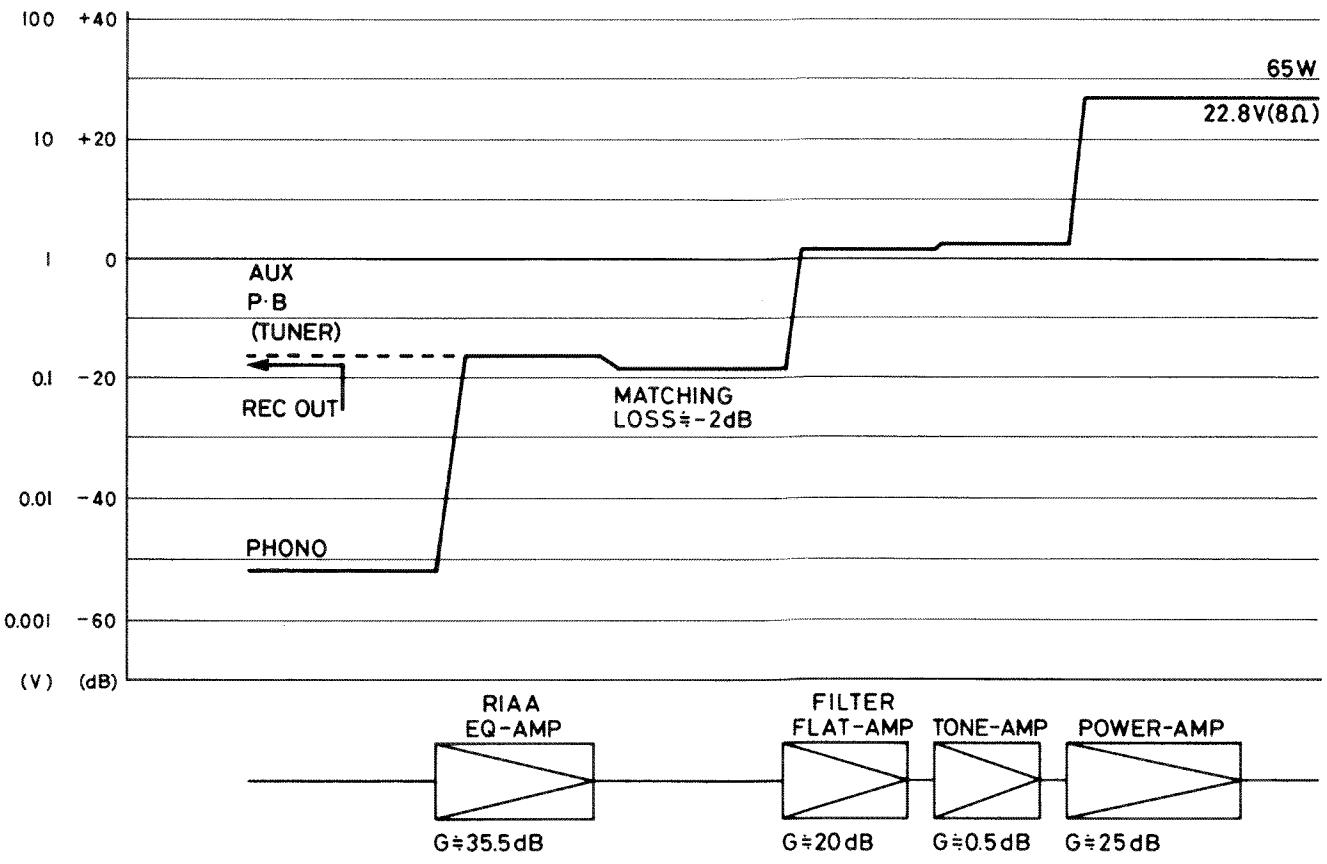
9-1 Instrument Required

DC VTVM

9-2 Idling Current Adjustment

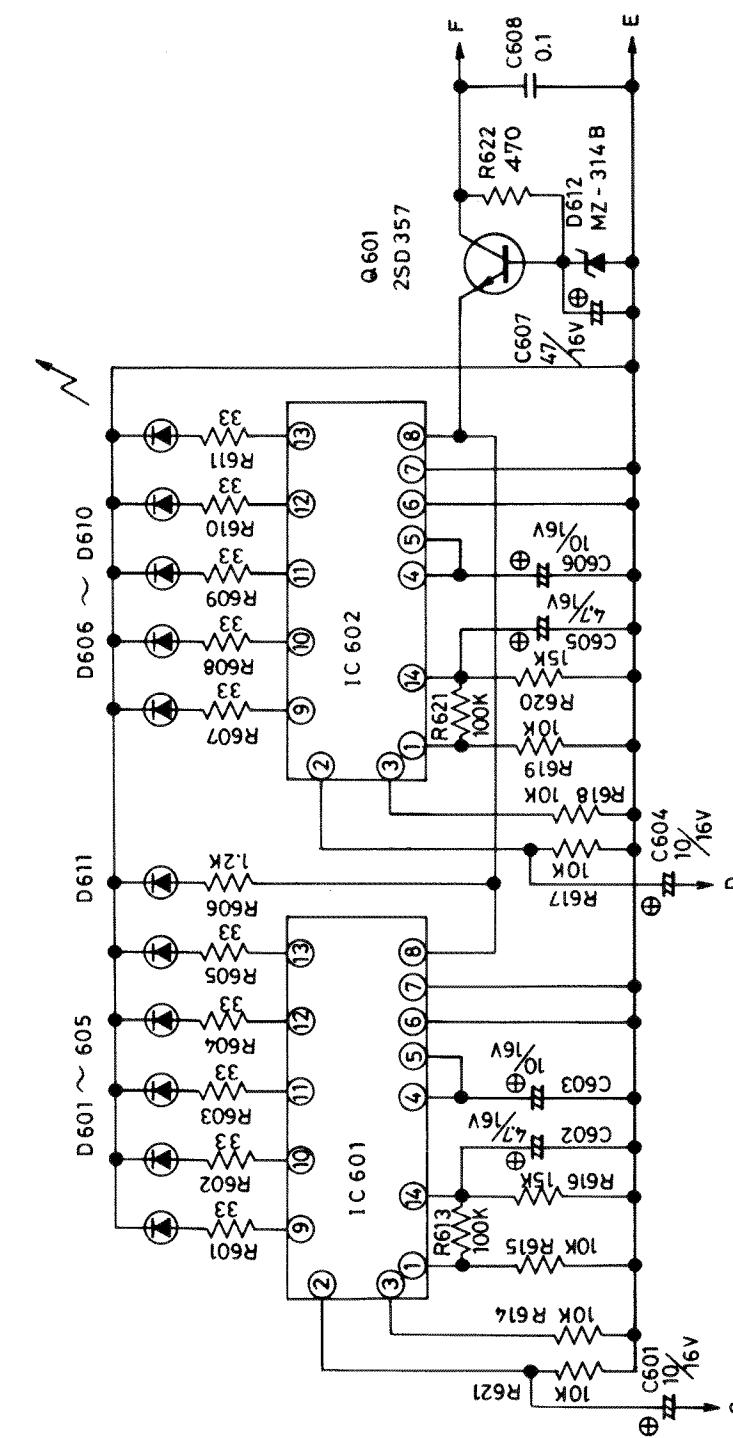
- (1) Adjust idling current at rated voltage (120 V) and load conditions.
- (2) Connect a DC voltmeter between the 2 TPs (test points) on the amplifier PC board (near R285 and Q312).

9-3 Level Diagram



10 SCHEMATIC DIAGRAMS

10-1 LED Power Meter

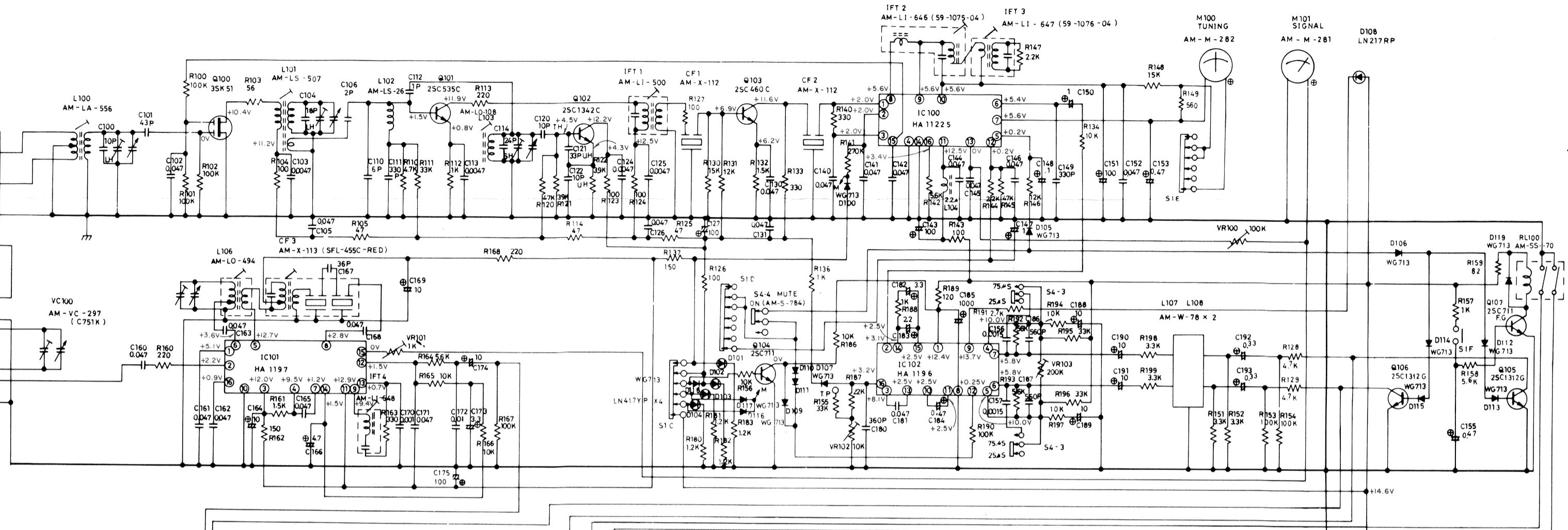


10-2 Main Circuit

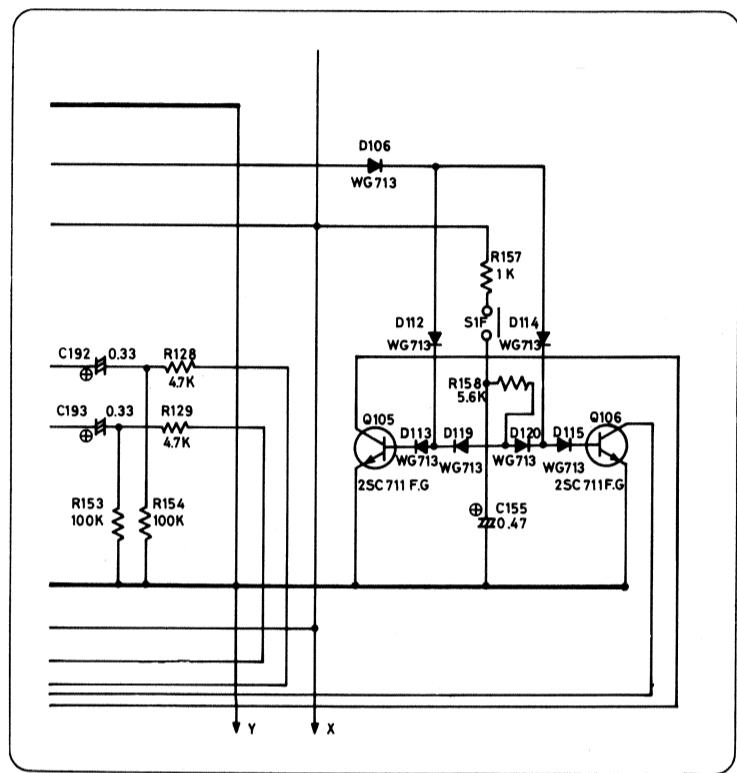
NOTE: 1. In the FM Muting Circuit there are some differences between the units with serial Nos. 7000001-7000890 and the ones which follow. Please refer to the right hand side of schematic.

2. This circuit is subject to change without notice.

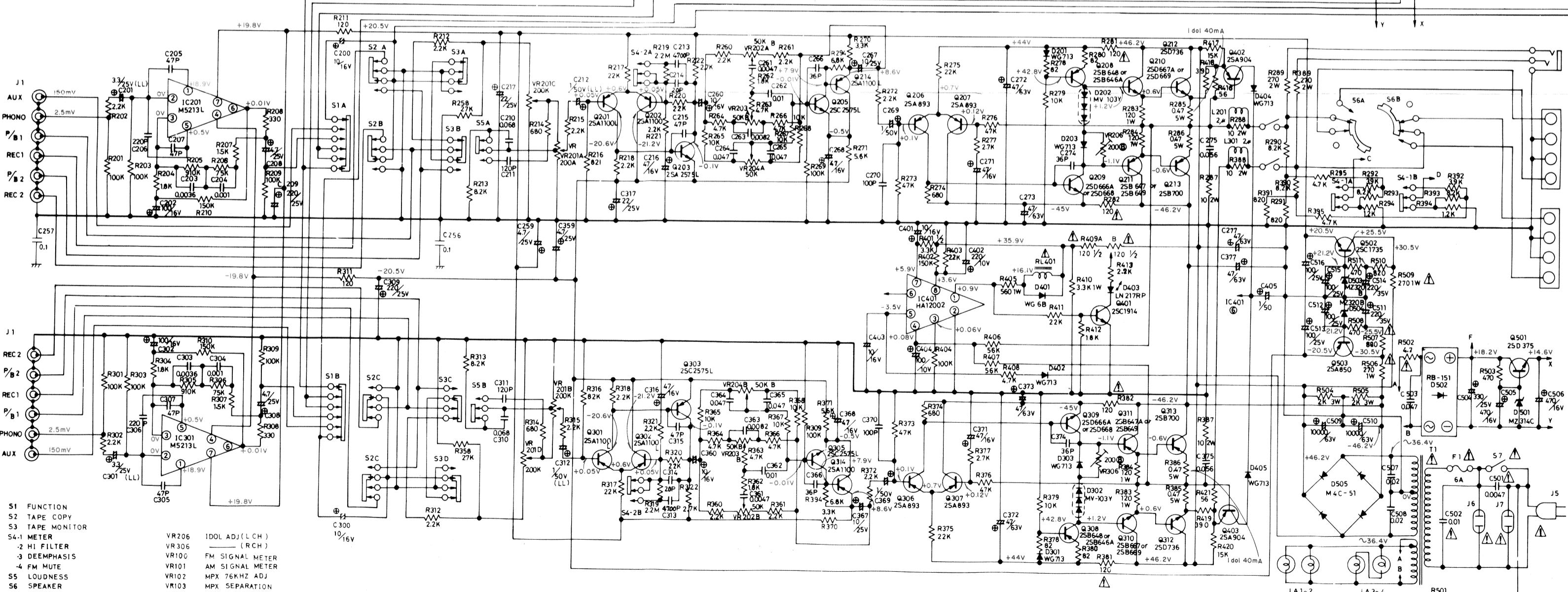
-13-



The FM Muting Circuit for the units with serial Nos. 7000001-7000890.



-14-

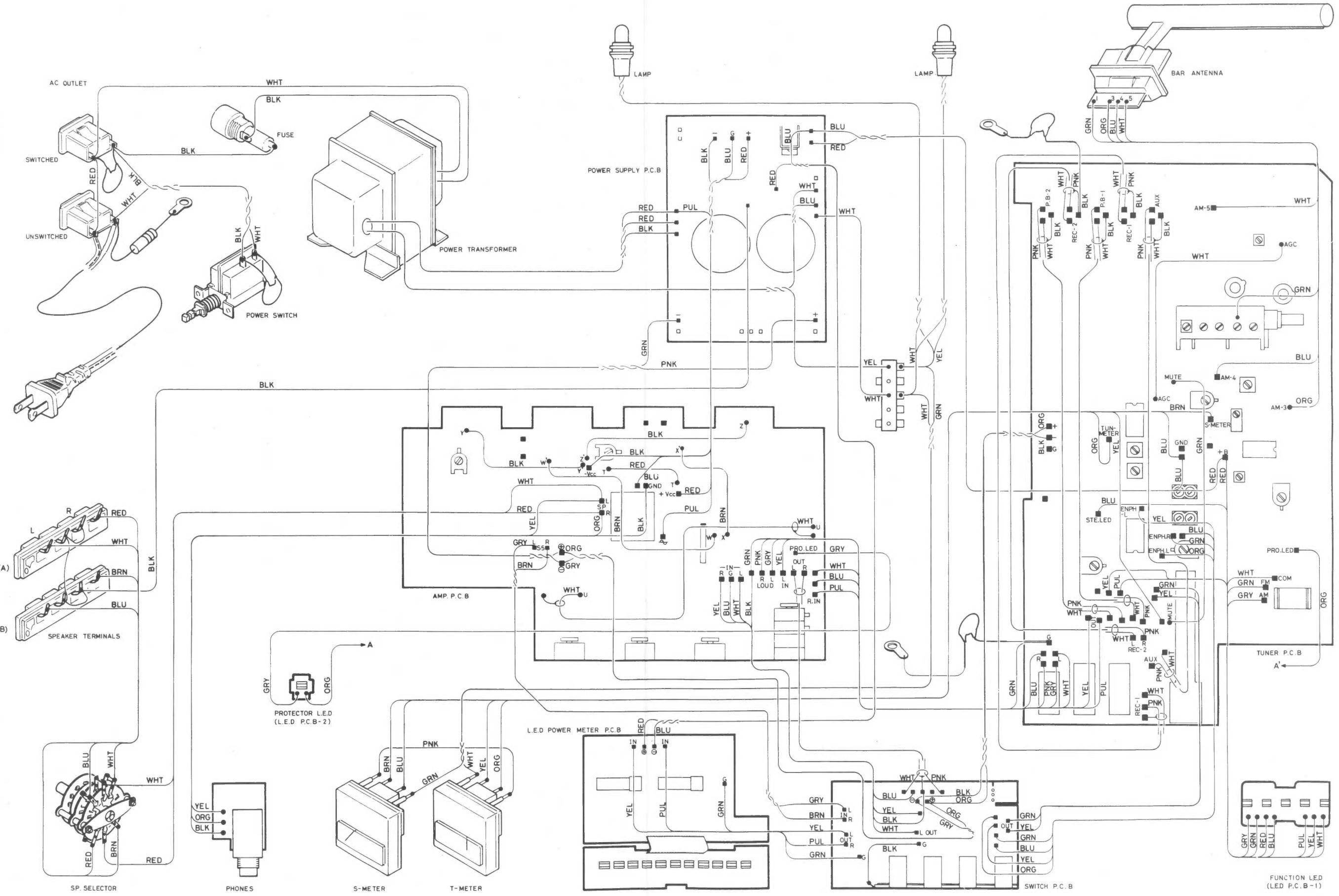


S1 FUNCTION
S2 TAPE COPY
S3 TAPE MONITOR
S4-1 METER
-2 HI FILTER
-3 DEEMPHASIS
-4 FM MUTE
S5 LOUDNESS
S6 SPEAKER

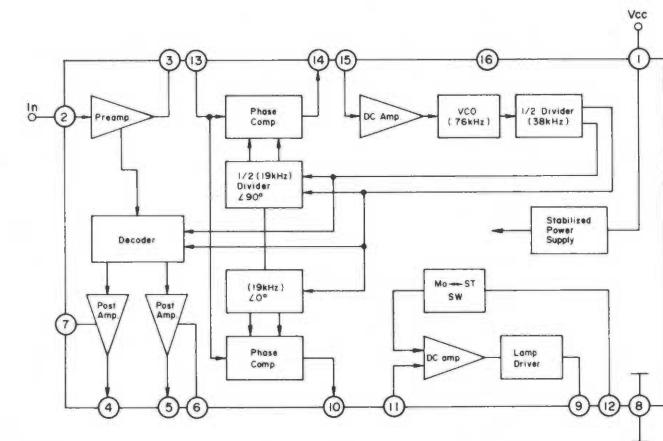
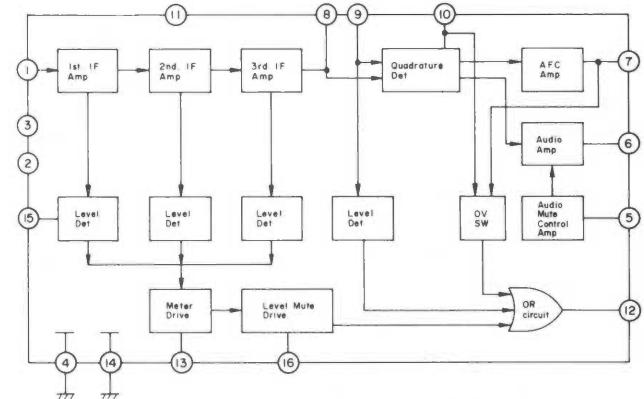
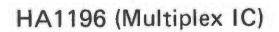
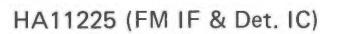
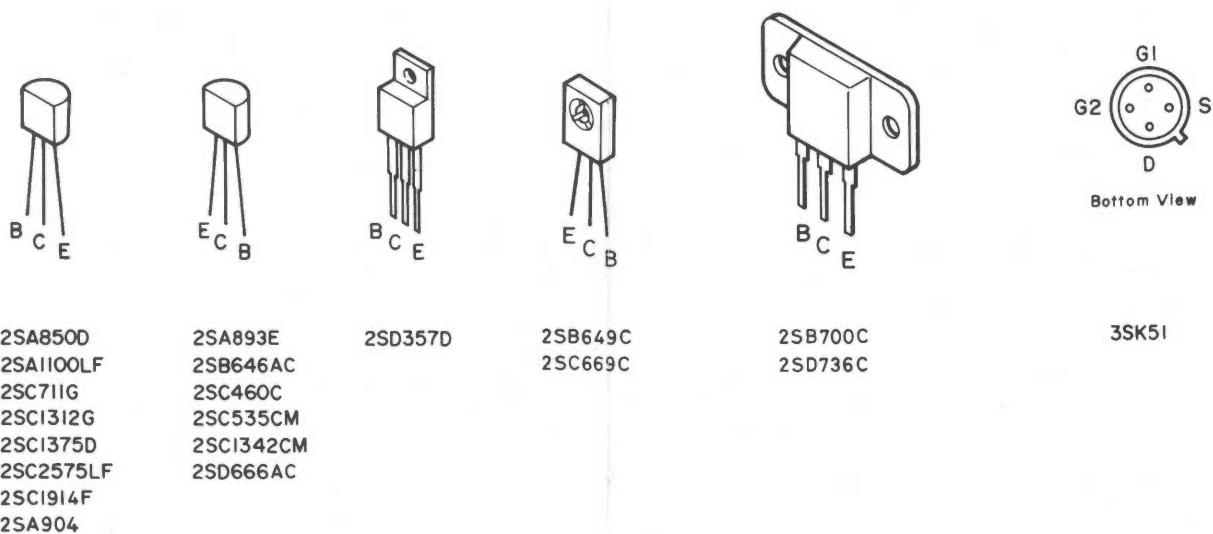
VR201A B VOLUME
CD BALANCE
VR202 TONE TREBLE
VR203 MID
VR204 BASS

VR206 IDOL ADJ (LCH)
VR306 (RCH)
VR100 FM SIGNAL METER
VR101 AM SIGNAL METER
VR102 MPX 76KHz ADJ
VR103 MPX SEPARATION

11 WIRING DIAGRAM



12 TRANSISTORs AND ICs



13 PARTS LIST

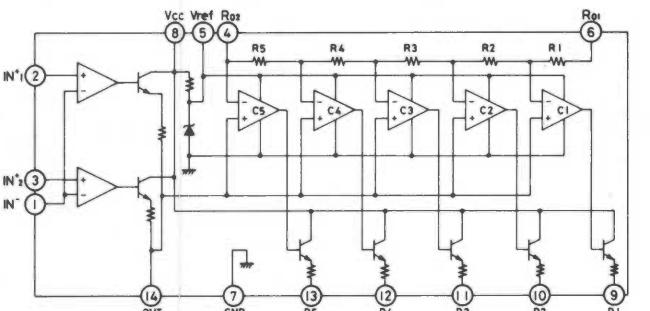
NOTE: Parts with “**” in the stock No.
can not be supplied.

Main Component Parts

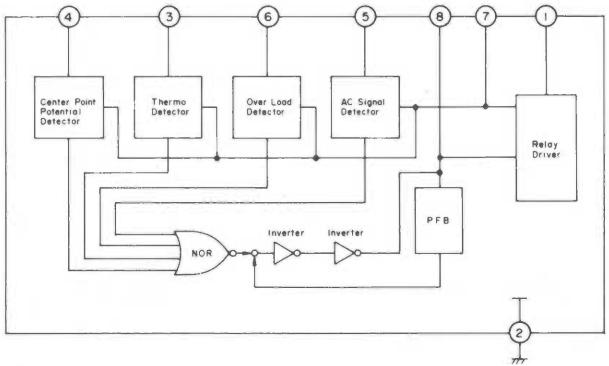
Ref. No.	Stock No.	Description	Q'ty	Remarks
1	*	Dial Pulley Ass'y	1	
2	*	Dial Illumination Ass'y	1	
3	*	Front Chassis Ass'y	1	
4	*	Back Panel Ass'y	1	
5	*	Tuner PCB Ass'y	1	
6	*	Power Supply PCB Ass'y	1	
7	*	Amplifier PCB Ass'y	1	
8	*	Heat Sink Ass'y	1	
9	*	Bottom Cover Unit	1	
10	*	Carton Box Ass'y	1	
11	1215053	Tuning Knob R79017-006 (I)	1	
12	1225140	Volume Knob R79018-014 (I)	3	
13	1225141	Volume Knob R79018-015 (I)	1	
14	1225142	Volume Knob R79018-016	1	
15	1245323	Selector Knob R79018-018 (I)	2	
16	1275027	Lever Knob R79018-006 (I)	3	
17	1325235	Front Panel R79017-002 (I)	1	
18	1445159	Serial Number Plate R79018-050 (I)	1	
19	1475496	Inspection Label R79018-055	1	
20	1715560	Top Cover R79017-037 (A)	1	
21	2125196	Side Chassis - 1 R79018-029	1	
22	2125203	Chassis - 1 R79017-023	1	
23	2125216	Chassis - 2 R79018-028A	1	
24	2125218	Power Transformer Chassis R79017-041	1	
25	2171013	Egg Lug 3 mm 0.35 t	2	
26	2185236	Capacitor Retainer R79018-049	1	
27	2295530	Pulley Retainer - 1 R79017-012	1	
28	2295532	Pulley Retainer - 3 R79017-014	1	
29	2295535	Meter Retainer R79017-018	1	
30	2295540	Metal - 1 R79018-048	1	
31	2345616	Earth Plate R79017-028A	1	
32	2675096	Packing - 1 R79022-062	2	
33	2675100	Packing - 2 R79022-070	2	
34	3111325	Pan Head Screw 3 x 25 S/Z	1	
35	3120004	Flat Countersunk Head Screw 3 x 8 S/BZ	6	
36	3180406	Binding Head Screw 4 x 6 S/BZ	6	
37	3311181	Pan Head Tapping Screw A3 x 8 S/Z	2	

Continued on the following page.

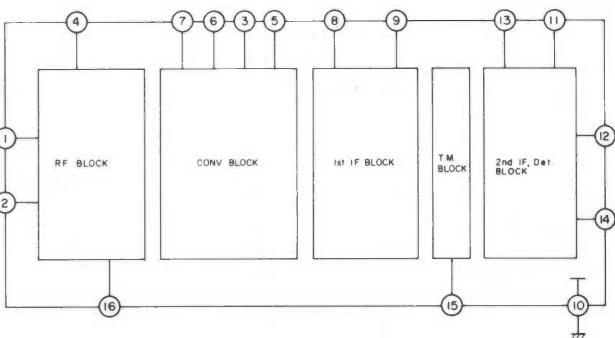
M5213L(Linear IC)



HA12002 (Relay control IC)



HA1197 (AM IC)



Ref. No.	Stock No.	Description	Q'ty	Remarks
38	3510023	Hexagon Nut 3 S/Z	3	
39	3510036	Hexagon Nut 5 S/Z	8	
40	3610038	DT Binding Head Screw 3 x 16 S/Z	1	
41	3610042	DT Binding Head Screw 3 x 6 S/BZ	12	
42	3615066	DT Pan Head Screw 2.6 x 6 S/Z	1	
43	3615068	DT Pan Head Screw 3 x 6 S/Z	59	
44	3615069	DT Pan Head Screw 3 x 8 S/Z	8	
45	3615077	DT Screw 3 x 8 S/Z	1	
46	3615080	DT Pan Head Screw 3 x 6	8	
47	3618047	PW Screw 5 x 10 S/Z	8	
48	3711017	Flat Washer 5 SPC/Z	8	
49	3714024	Toothed Lock Washer 3 S/ZB	1	
50	3750034	Nylon Rivet NRP-335 (B)	2	
51	4213056	Operation Manual H-21A	1	
52	4221151	Warranty Card A-91	1	
53	4230060	Serial Number Label R79017-042A	1	
54	4341004	Free Up Belt C-type	1	
55	4491110	Polyethylene Bag A-10	1	
56	4491205	Polyethylene Bag - B	1	
57	4491503	Polyethylene Bag - E	1	
	7140187	Ceramic Capacitor AM-CS-187	1	
58	7220147	FM Antenna AM-K-147	1	
	7230592	Bar Antenna AM-LA-592	1	L105
	7450114	HV Solid Resistor 4.7MΩ ½W K AM-RS-114	1	R501
	7460831	Rotary Switch AM-S-831	1	S6
	7530807	Power Transformer AM-TS-807	1	T1
59	7710186	Binder AM-Z-186	7	
60	7710287	Short Pin Plug AM-Z-287	2	
61	7710289	Lug AM-Z-289	1	

(1) Dial Pulley Ass'y

Ref. No.	Stock No.	Description	Q'ty	Remarks
1 - 1	2485125	Dial Pulley R79017-003	1	
1 - 2	3790002	Eyelet 2 x 3 B/NI	1	
1 - 3	3825922	Dial Spring R79017-031	1	
1 - 4	5110168	Dial String 0.4 mm x 1600 mm	1	

(2) Dial Illumination Ass'y

Ref. No.	Stock No.	Description	Q'ty	Remarks
2 - 1	1715547	Cover R79017-032	2	
2 - 2	2125217	Chassis - 3 R79017-024A	1	
2 - 3	2315170	Illumination Plate R79017-005 (I)	1	
2 - 4	2455166	Collar - 1 R79017-033	2	
2 - 5	3100253	Washer Faced Head Screw 3 x 8 S/Z	1	
2 - 6	3615083	DT Pan Head Screw 3 x 10 S/Z	2	
	7440365	Lamp EQL-Z-065	2	LA1, 2

(3) Front Chassis Ass'y

Ref. No.	Stock No.	Description	Q'ty	Remarks
3 - 1	*	Meter Ass'y	1	
3 - 2	*	Switch PCB Ass'y	1	(Meter, HI Filter, Deemphasis, FM Mute)
3 - 3	*	LED PCB - 1 Ass'y	1	(Function Indicator)
3 - 4	*	LED PCB - 2 Ass'y	1	(Protector Indicator)
3 - 5	*	LED Power Meter Ass'y	1	
3 - 6	1245324	Push Knob - 1 (I) R79018-004 (I)	4	
3 - 7	1325245	Panel - 2 R79017-011A (I)	1	
3 - 8	1325256	Panel - 1 R79017-010A (I)	1	

Continued on the following page.

Ref. No.	Stock No.	Description	Q'ty	Remarks
3 - 9	1485354	Dial Scale R79017-027 (I)	1	
3 - 10	1715563	Dial Cover R79017-004A (I)	1	
3 - 11	2125201	Front Chassis R79017-001 (I)	1	
3 - 12	2295531	Pulley Retainer - 2 R79017-013	1	
3 - 13	2295533	Supporter - 1 R79017-016	1	
3 - 14	2295534	Supporter - 2 R79017-017	1	
3 - 15	2295536	Knob Retainer R79017-020	1	
3 - 16	2315169	Dial Pointer R79017-009 (I)	1	
3 - 17	2325187	Slide Plate R79017-026A	1	
3 - 18	2335314	Shield Plate - 3 R79017-040B	1	
3 - 19	2415131	Dial Shaft R79017-007	1	
3 - 20	2435059	Shaft Retainer R79017-008	1	
3 - 21	2475052	Flywheel R79017-029	1	
3 - 22	3111306	Pan Head Screw 3 x 6 S/Z	1	
3 - 23	3111325	Pan Head Screw 3 x 25 S/Z	2	
3 - 24	3120006	Flat Countersunk Head Screw 2 x 4 S/BZ	9	
3 - 25	3121103	Flat Countersunk Head Screw 2 x 3 S/Z	4	
3 - 26	3615074	DT Pan Head Screw 3 x 16 S/Z	3	
3 - 27	3615080	DT Pan Head Screw 3 x 6 S/Z	1	
3 - 28	3618003	PW Tapping Screw A3 x 8 S/Z	10	
3 - 29	3630056	PS Washer 6 x 0.5	2	
3 - 30	3721007	E Ring 5 SUS	1	

(3 - 1) Meter Ass'y

Ref. No.	Stock No.	Description	Q'ty	Remarks
3 - 1 - 1	7310281	Signal Meter AM-M-281	1	M101
3 - 1 - 2	7310282	Tuning Meter AM-M-282	1	M100
3 - 1 - 3	7710186	Binder AM-Z-186	1	

(3 - 2) Switch PCB Ass'y (Meter, HI Filter, Deemphasis, FM Mute)

Ref. No.	Stock No.	Description					Q'ty	Remarks
3 - 2 - 1	2171013	Egg Lug 3 mm 0.35 t					1	
3 - 2 - 2	2255092	Switch Retainer R79017-021					1	
3 - 2 - 3	3615068	DT Pan Head Screw 3 x 6 S/Z					2	
3 - 2 - 4	7121495	PCB AM-B-1495					1	
	7460789	Push Switch AM-S-789					1	S4
3 - 2 - 5	7710203	Jumper Wire AM-Z-203					3	
3 - 2 - 6	7740206	Print Tip AM-ZE-206					21	
	8111290	Transistor 2SA1100LF					4	Q201, 202, 301, 302
	8113407	Transistor 2SC2575LF					2	Q203, 303
CAPACITORS								
	5514200	Ceramic 22pF	50V	J	SL		2	C214, 314
	5514470	Ceramic 47pF	50V	J	SL		2	C215, 315
	5713470	Electrolytic 47μF	16V	M			2	C216, 316
	5714479	Electrolytic 4.7μF	25V	M			2	C259, 359
	7140179	Electrolytic 1μF	50V	MSR	AM-CS-179		2	C212, 312
	8873152	Un-inductive Mylar 0.0015μF	50V	J			2	C156, 157
	8874272	Un-inductive Mylar 0.0027μF	50V	J			2	C213, 313
RESISTORS								
	5922122	Carbon 1.2KΩ	1/4W	J	CF		2	R294, 394
	5922222	Carbon 2.2KΩ	1/4W	J	CF		6	R221, 321, 215, 315, 218, 318
	5922223	Carbon 22KΩ	1/4W	J	CF		4	R217, 317, 220, 320
	5922225	Carbon 2.2MΩ	1/4W	J	CF		2	R219, 319
	5922272	Carbon 2.7KΩ	1/4W	J	CF		2	R222, 322
	5922392	Carbon 3.9KΩ	1/4W	J	CF		2	R292, 392
	5922472	Carbon 4.7KΩ	1/4W	J	CF		2	R295, 395
	5922822	Carbon 8.2KΩ	1/4W	J	CF		2	R293, 393
	5922823	Carbon 82KΩ	1/4W	J	CF		2	R216, 316

(3 - 3) LED PCB - 1 Ass'y (Function Indicator)

Ref. No.	Stock No.	Description	Q'ty	Remarks
3 - 3 - 1	2675107	Packing - 1 R79017-035	1	
3 - 3 - 2	7121508	PCB AM-B-1508	1	
	8120261	LED LN217RPC	1	D108
	8120277	LED LN417YP	4	D101, 102, 103, 104
3 - 3 - 3	7710186	Binder AM-Z-186	1	

(3 - 4) LED PCB - 2 Ass'y (Protector Indicator)

Ref. No.	Stock No.	Description	Q'ty	Remarks
3 - 4 - 1	2675105	Packing - 3 R79018-051	1	
3 - 4 - 2	7121513	PCB AM-B-1513	1	
	8120261	LED LN217RPC	1	D403

(3 - 5) LED Power Meter Ass'y

Ref. No.	Stock No.	Description					Q'ty	Remarks
3 - 5 - 1	2275084	PCB Retainer	R79017-015				2	
3 - 5 - 2	2675106	Packing - 2					1	
3 - 5 - 3	3615080	DT Pan Head Screw	3 x 6 S/Z				2	
3 - 5 - 4	7121514	PCB	AM-B-1514				1	
3 - 5 - 5	7710203	Jumper Wire	AM-Z-203				2	
3 - 5 - 6	7710290	Flat Cable	AM-Z-290				1	
3 - 5 - 7	7740206	Print Tip	AM-ZE-206				5	
	8110074	IC	LB1416				2	IC601, 602
	8114083	Transistor	2SD357D				1	Q601
	8120277	LED	LN417YP				11	D601 ~ 611
	8120284	Zener Diode	MZ-314B				1	D612
CAPACITORS								
	5527104	Ceramic	0.1μF	50V	Z	F	1	C608
	5713100	Electrolytic	10μF	16V	M		4	C601, 603, 604, 606
	5713470	Electrolytic	47μF	16V	M		1	C607
	5713479	Electrolytic	4.7μF	16V	M		2	C602, 605
RESISTORS								
	5922103	Carbon	10KΩ	½W	J	CF	6	R612, 614, 615, 617, 618, 619
	5922104	Carbon	100KΩ	½W	J	CF	2	R613, 621
	5922122	Carbon	1.2KΩ	½W	J	CF	1	R606
	5922153	Carbon	15KΩ	½W	J	CF	2	R616, 620
	5922330	Carbon	33Ω	½W	J	CF	10	R601, 602, 603, 604, 605, 607, 608, 609, 610, 611
	5922471	Carbon	470Ω	½W	J	CF	1	R622

(4) Back Panel Ass'y

Ref. No.	Stock No.	Description					Q'ty	Remarks
4 - 1	*	Power Switch Ass'y					1	
4 - 2	2125202	Back Panel	R79017-022				1	
4 - 3	2171013	Egg Lug	3 mm 0.35 t				1	
4 - 4	2665381	Bushing					1	
4 - 5	3385103	Binding Head Tapping Screw	A3 x 8 S/BZ				4	
4 - 6	7150135	Fuse Holder	AM-D-135				1	
	7150141	Fuse	125V 6A AM-D-141				1	F1
	7210138	AC Socket	AM-J-138				2	J6, 7
4 - 7	7660286	Power Cord	AM-YS-286				1	
4 - 8	7710093	Terminal	AM-Z-93				1	
4 - 9	7710186	Binder	AM-Z-186				1	
	7710272	Speaker Terminal	AM-Z-272				2	J3, 4

(4 - 1) Power Switch Ass'y

Ref. No.	Stock No.	Description	Q'ty	Remarks
4 - 1 - 1	1265093	Power Button R79022-010 (I)	1	
4 - 1 - 2	1715543	Power Switch Cover R79018-009 (I)	1	
4 - 1 - 3	2365489	Power Switch Retainer R79018-038	1	
4 - 1 - 4	3615060	DT Pan Head Screw 3 x 5 S/Z	2	
4 - 1 - 5	3615074	DT Pan Head Screw 3 x 16 S/Z	2	
	7140180	Ceramic Capacitor AM-CS-180	1	C501
	7460785	Push Switch AM-S-785	1	S9

(5) Tuner PCB Ass'y

Ref. No.	Stock No.	Description				Q'ty	Remarks
5 - 1	2335289	Shield Plate R79017-030				1	
5 - 2	2335302	Shield Plate - 2 R79017-034				1	
5 - 3	7121508	PCB AM-B-1508				1	
	7230556	Antenna Coil AM-LA-556				1	L100
	7250500	IFT AM-LI-500				1	IFT1
	7250646	IFT AM-LI-646				1	IFT2
	7250647	IFT AM-LI-647				1	IFT3
	7250648	IFT AM-LI-648				1	IFT4
	7270108	OSC Coil AM-LO-108				1	L103
	7270494	OSC Coil AM-LO-494				1	L106
	7290026	Choke Coil AM-LS-26				1	L102
	7290293	Choke Coil AM-LS-293				1	L104
	7290507	Tuning Coil AM-LS-507				1	L101
	7460783	Slide Rotary Switch AM-S-783				1	S1
	7460784	Lever Switch AM-S-784				1	S5 (Loudness)
	7460829	Lever Switch AM-S-829				2	S2, 3 (Tape Mon., Copy)
	7470070	Relay AM-SS-70				1	RL100
	7560297	Variable Capacitor AM-VC-297				1	VC100
	7610078	MPX Filter AM-W-78				2	L107, 108
	7640112	Ceramic Filter AM-X-112				2	CF1, 2
	7640113	Ceramic Filter AM-X-113				1	CF3
5 - 4	7710186	Binder AM-Z-186				1	
5 - 5	7710203	Jumper Wire AM-Z-203				50	
5 - 6	7710271	Jack Plate Unit AM-Z-271				1	J1
	7740206	Print Tip AM-ZE-206				60	
	8110058	FET 3SK51				1	Q100
	8110072	IC M5213L				2	IC201, 301
	8110075	IC HA11225				1	IC100
	8110076	IC HA1197				1	IC101
	8110077	IC HA1196				1	IC102
	8113054	Transistor 2SC460C				1	Q103
	8113067	Transistor 2SC535CM				1	Q101
	8113241	Transistor 2SC1342CM				1	Q102
	8113323	Transistor 2SC1312G				2	Q105, 106
	8113328	Transistor 2SC711G				2	Q104, 107
	8130036	Varistor WG-713				15	D100, 105, 106, 107, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119
	8917102	Semi-fixed Resistor 1KΩ-B				1	VR101
	8917103	Semi-fixed Resistor 10KΩ-B				1	VR102
	8917204	Semi-fixed Resistor 200KΩ-B				1	VR103
	8917303	Semi-fixed Resistor 30KΩ-B				1	VR100
	CAPACITORS						
	5500002	Ceramic 33pF	50V	J		1	C121
	5500003	Ceramic 10pF	50V	J		1	C122
	5511010	Ceramic 1pF	50V	C		1	C112
	5511020	Ceramic 2pF	50V	C		1	C106
	5512060	Ceramic 6pF	50V	D		1	C110
	5514221	Ceramic 220pF	50V	J		2	C206, 306
	5514470	Ceramic 47pF	50V	J		4	C205, 207, 305, 307

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Ref. No.	Stock No.	Description					Q'ty	Remarks
	5515331	Ceramic	330pF	50V	K		2	C111, 149
	5515360	Ceramic	36pF	50V	K		1	C167
	5515430	Ceramic	43pF	50V	K		1	C101
	5527103	Ceramic	0.01μF	50V	Z		1	C172
	5527473	Ceramic	0.047μF	50V	Z		20	C102, 105, 126, 130, 131, 140, 141, 142, 144, 145, 146, 152, 160, 161, 162, 163, 165, 168, 171, 181
	5545102	Ceramic	0.001μF	50V	K		1	C170
	5545472	Ceramic	0.0047μF	50V	K		4	C103, 113, 124, 125
	5572100	Ceramic	10pF	50V	D		1	C100
	5574180	Ceramic	18pF	50V	J		1	C104
	5594100	Ceramic	10pF	50V	J		1	C120
	8793244	Ceramic	24pF	50V	J		1	C114
	8797105	Ceramic	0.1μF	50V	Z		2	C256, 257
	5713010	Electrolytic	1μF	16V	M		2	C147, 150
	5713100	Electrolytic	10μF	16V	M		7	C164, 169, 174, 188, 189, 190, 191
	5713101	Electrolytic	100μF	16V	M		6	C127, 143, 151, 175, 202, 302
	5713108	Electrolytic	0.1μF	16V	M		1	C148
	5713229	Electrolytic	2.2μF	16V	M		1	C183
	5713338	Electrolytic	0.33μF	16V	M		2	C192, 193
	5713339	Electrolytic	3.3μF	16V	M		2	C173, 182
	5713478	Electrolytic	0.47μF	16V	M		3	C153, 155, 184
	5713479	Electrolytic	4.7μF	16V	M		1	C166
	5714479	Electrolytic	4.7μF	25V	M		2	C208, 308
	7140189	Electrolytic	3.3μF	25V	MSR AM-CS-189		2	C201, 301
	8441103	Electrolytic	1000μF	16V	M		1	C185
	8451222	Electrolytic	220μF	25V	M		2	C209, 309
	8663023	Styrol	360pF	50V	J		1	C180
	8663098	Styrol	510pF	25V	J		2	C186, 187
	8873102	Un-inductive Mylar	0.001μF	50V	J		2	C204, 304
	8873362	Un-inductive Mylar	0.0036μF	50V	J		2	C203, 303
	8874683	Un-inductive Mylar	0.068μF	50V	K		2	C210, 310
	RESISTORS							
	5922101	Carbon	100Ω	½W	J CF		6	R104, 123, 124, 126, 127, 143
	5922102	Carbon	1KΩ	½W	J CF		4	R112, 136, 157, 188
	5922103	Carbon	10KΩ	½W	J CF		7	R134, 156, 165, 166, 186, 194, 197
	5922104	Carbon	100KΩ	½W	J CF		13	R100, 101, 102, 153, 154, 167, 190, 201, 203, 209, 301, 303, 309
	5922121	Carbon	120Ω	½W	J CF		3	R189, 211, 311
	5922122	Carbon	1.2KΩ	½W	J CF		4	R180, 181, 182, 183
	5922123	Carbon	12KΩ	½W	J CF		2	R131, 146
	5922151	Carbon	150Ω	½W	J CF		2	R137, 162
	5922152	Carbon	1.5KΩ	½W	J CF		4	R132, 161, 207, 307
	5922153	Carbon	15KΩ	½W	J CF		2	R130, 148
	5922154	Carbon	150KΩ	½W	J CF		2	R210, 310
	5922182	Carbon	1.8KΩ	½W	J CF		2	R204, 304
	5922221	Carbon	220Ω	½W	J CF		3	R113, 160, 168
	5922222	Carbon	2.2KΩ	½W	J CF		7	R144, 147, 202, 302, 212, 312, 413
	5922223	Carbon	22KΩ	½W	J CF		1	R187
	5922272	Carbon	2.7KΩ	½W	J CF		1	R191
	5922274	Carbon	270KΩ	½W	J CF		1	R141
	5922331	Carbon	330Ω	½W	J CF		5	R133, 140, 163, 208, 308
	5922332	Carbon	3.3KΩ	½W	J CF		4	R151, 152, 198, 199
	5922333	Carbon	33KΩ	½W	J CF		4	R111, 155, 195, 196
	5922392	Carbon	3.9KΩ	½W	J CF		1	R122
	5922393	Carbon	39KΩ	½W	J CF		1	R121
	5922470	Carbon	47Ω	½W	J CF		3	R105, 114, 125
	5922472	Carbon	4.7KΩ	½W	J CF		3	R110, 128, 129
	5922473	Carbon	47KΩ	½W	J CF		2	R120, 145

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Ref. No.	Stock No.	Description					Q'ty	Remarks
	5922560	Carbon	56Ω	1/4W	J	CF	1	R103
	5922561	Carbon	560Ω	1/4W	J	CF	1	R149
	5922562	Carbon	5.6KΩ	1/4W	J	CF	3	R142, 158, 164
	5922563	Carbon	56KΩ	1/4W	J	CF	2	R192, 193
	5922753	Carbon	75KΩ	1/4W	J	CF	2	R206, 306
	5922820	Carbon	82Ω	1/4W	J	CF	1	R159
	5922822	Carbon	8.2KΩ	1/4W	J	CF	2	R213, 313
	5922914	Carbon	910KΩ	1/4W	J	CF	2	R205, 305

(6) Power Supply PCB Ass'y

Ref. No.	Stock No.	Description					Q'ty	Remarks
6 - 1	2335290	Heat Sink - 1	R79018-040				1	
6 - 2	3311108	Pan Head Tapping Screw	3 x 6 S/Z-2M				1	
6 - 3	7121505	PCB	AM-B-1505				1	
6 - 4	7710203	Jumper Wire	AM-Z-203				3	
6 - 5	7710205	Jumper Wire	AM-Z-205				1	
6 - 6	7740206	Print Tip	AM-ZE-206				15	
	7910364	Diode	RB-151 CF				1	D502
	8120276	Diode	M4C-51				1	D505
	8120283	Zener Diode	MZ-320B				2	D503, 504
	8120285	Zener Diode	MZ-314C				1	D501
	8111289	Transistor	2SA850D F1				1	Q503
	8113410	Transistor	2SC1735D F1				1	Q502
	8114083	Transistor	2SD357D				1	Q501
	CAPACITORS							
	5527473	Ceramic	0.047μF	50V	Z		1	C503
	7140137	Ceramic	0.02μF		AM-CS-137		2	C507, 508
	5714101	Electrolytic	100μF	25V	M		4	C512, 513, 515, 516
	7140183	Electrolytic	10000μF	63V	AM-CS183		2	C509, 510
	8400228	Electrolytic	220μF	35V	M		2	C511, 514
	8441472	Electrolytic	470μF	16V	M		2	C505, 506
	8451332	Electrolytic	330μF	25V	M		1	C504
	RESISTORS							
	5922471	Carbon	470Ω	1/4W	J	CF	3	R503, 508, 511
	5922821	Carbon	820Ω	1/4W	J	CF	2	R507, 510
	7450131	Fuse	4.7Ω	1/4W	J	SR	1	R502
	7450223	Fuse	270Ω	1W	J	SR	2	R506, 509
	7450195	Metal Film	2KΩ	3W	K	CF	2	R504, 505

(7) Amplifier PCB Ass'y (Including Headphone Jack PCB)

Ref. No.	Stock No.	Description					Q'ty	Remarks
7 - 1	7121513	PCB	AM-B-1513				1	(Headphone Jack PCB: AM-B-1513C)
	7210139	Headphone Jack	AM-J-139				1	J2
	7290535	Choke Coil	2mH AM-LS-535				2	L201, 301
	7470071	Relay	AM-SS-71				1	RL401
	7580919	Volume	AM-VR-919				1	VR201
	7580920	Volume	AM-VR-920				3	VR202, 203, 204
7 - 2	7710203	Jumper Wire	AM-Z-203				14	
7 - 3	7740206	Print Tip	AM-ZE-206				28	
	8110073	IC	HA12002				1	IC401
	8111290	Transistor	2SA1100LF				2	Q214, 314
	8111291	Transistor	2SA893E				4	Q206, 306, 207, 307
	8111292	Transistor	2SA904				2	Q402, 403
	8112233	Transistor	2SB649C				2	Q211, 311
	8112236	Transistor	2SB646AC				2	Q208, 308
	8113407	Transistor	2SC2575LF				2	Q205, 305

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Ref. No.	Stock No.	Description					Q'ty	Remarks
	8113408	Transistor	2SC1914F				1	Q401
	8114089	Transistor	2SD669C				2	Q210, 310
	8114092	Transistor	2SD666AC				2	Q209, 309
	8120067	Diode	W06B				1	D401
	8130036	Varistor	WG-713				7	D203, 303, 201, 301, 402, 404, 405
	8130050	Varistor	MV-103YS				2	D202, 302
	8917201	Semi-fixed Resistor	200Ω-B				2	VR206, 306
	CAPACITORS							
	5514101	Ceramic	100pF	50V	J		2	C270, 370
	5514121	Ceramic	120pF	50V	J		2	C211, 311
	5514360	Ceramic	36pF	50V	J		4	C266, 366, 274, 374
	5712101	Electrolytic	100μF	10V	M		1	C404
	5712221	Electrolytic	220μF	10V	M		1	C402
	5713100	Electrolytic	10μF	16V	M		8	C200, 300, 260, 360, 267, 367, 401, 403
	5713470	Electrolytic	47μF	16V	M		4	C268, 368, 271, 371
	5713479	Electrolytic	4.7μF	16V	M		2	C269, 369
	5714220	Electrolytic	22μF	25V	M		2	C217, 317
	5716010	Electrolytic	1μF	50V	M		1	C405
	8400313	Electrolytic	47μF	63V	M		4	C272, 372, 273, 373
	8400315	Electrolytic	1μF	63V	M		2	C277, 377
	8874103	Un-inductive Mylar	0.01μF	50V	K		2	C262, 362
	8874472	Un-inductive Mylar	0.0047μF	50V	K		2	C261, 361
	8874473	Un-inductive Mylar	0.047μF	50V	K		4	C264, 364, 265, 365
	8874563	Un-inductive Mylar	0.056μF	50V	K		2	C275, 375
	8874822	Un-inductive Mylar	0.0082μF	50V	K		2	C263, 363
	RESISTORS							
	5922103	Carbon	10KΩ	½W	J CF		8	R265, 365, 267, 367, 268, 368, 279, 379
	5922104	Carbon	100KΩ	½W	J CF		3	R269, 369, 404
	5922154	Carbon	150KΩ	½W	J CF		1	R402
	5922182	Carbon	1.8KΩ	½W	J CF		2	R262, 362
	5922222	Carbon	2.2KΩ	½W	J CF		6	R260, 360, 261, 361, 272, 372
	5922223	Carbon	22KΩ	½W	J CF		4	R275, 375, 403, 411
	5922272	Carbon	2.7KΩ	½W	J CF		2	R277, 377
	5922273	Carbon	27KΩ	½W	J CF		2	R258, 358
	5922332	Carbon	3.3KΩ	½W	J CF		2	R270, 370
	5922391	Carbon	390Ω	½W	J CF		2	R418, 419
	5922472	Carbon	4.7KΩ	½W	J CF		7	R263, 363, 264, 364, 266, 366, 408
	5922473	Carbon	47KΩ	½W	J CF		4	R273, 373, 276, 376
	5922560	Carbon	56Ω	½W	J CF		2	R416, 421
	5922562	Carbon	5.6KΩ	½W	J CF		2	R271, 371
	5922681	Carbon	680Ω	½W	J CF		4	R214, 314, 274, 374
	5922820	Carbon	82Ω	½W	J CF		4	R278, 378, 280, 380
	5922821	Carbon	820Ω	½W	J CF		2	R291, 391
	5922822	Carbon	8.2KΩ	½W	J CF		2	R290, 390
	8300126	Carbon	15KΩ	½W	J UR		2	R417, 420
	8300136	Carbon	6.8KΩ	½W	J UR		2	R294, 394
	8300150	Carbon	56KΩ	½W	J UR		2	R406, 407
	7450189	Metal Film	3.3KΩ	1W	K CF	AM-RS-189	1	R410
	7450190	Metal Film	120Ω	1W	K CF	AM-RS-190	4	R283, 383, 284, 384
	7450191	Metal Film	560Ω	1W	K CF	AM-RS-191	1	R405
	7450193	Metal Film	10Ω	2W	K CF	AM-RS-193	4	R287, 387, 288, 388
	7450194	Metal Film	270Ω	2W	K CF	AM-RS-194	2	R289, 389 (Headphone Jack PCB)
	7450196	Cement	0.47Ω	5W	AM-RS-196		4	R285, 385, 286, 386
	7450201	Fuse	120Ω	½W	J SR	AM-RS-201	4	R281, 381, 282, 382
	7450220	Fuse	120Ω	½W	J	AM-RS-220	2	R409A, B
	8233333	Solid	3.3KΩ	½W	J RC		1	R401
	8234183	Solid	1.8KΩ	½W	J RC		1	R412

(8) Heat Sink Ass'y

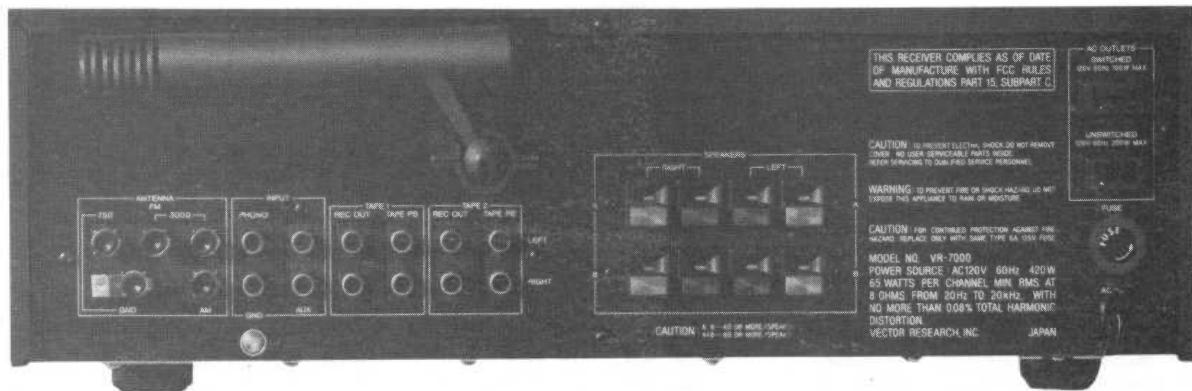
Ref. No.	Stock No.	Description	Q'ty	Remarks
8 - 1	2295529	Heat Sink Retainer R79018-039	2	
8 - 2	2335311	Heat Sink R79017-043	1	
8 - 3	3615068	DT Pan Head Screw 3 x 6 S/Z	2	
8 - 4	3615069	DT Pan Head Screw 3 x 8 S/Z	10	
	8112241	Transistor 2SB700C	2	Q213, 313
	8114099	Transistor 2SD736C	2	Q212, 312

(9) Bottom Cover Unit

Ref. No.	Stock No.	Description	Q'ty	Remarks
9 - 1	1615343	Bottom Cover R79017-03901	1	
9 - 2	1735016	Cabinet Foot S-type	5	
9 - 3	3111410	Pan Head Screw 4 x 10 S/Z	5	
9 - 4	3711017	Flat Washer 5 SPC/Z	5	

(10) Carton Box Ass'y

Ref. No.	Stock No.	Description	Q'ty	Remarks
10 - 1	4416295	Carton Box ZPK-A6295	1	
10 - 2	4426155	Cushion - 1 ZPK-B6155	1	
10 - 3	4426156	Cushion - 2 ZPK-B6156	1	
10 - 4	4426157	Cushion - 3 ZPK-B6157	1	
10 - 5	4446046	Protector Board ZPK-D6046	2	



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Printed in Japan NOV 1979 11A79-027-300A