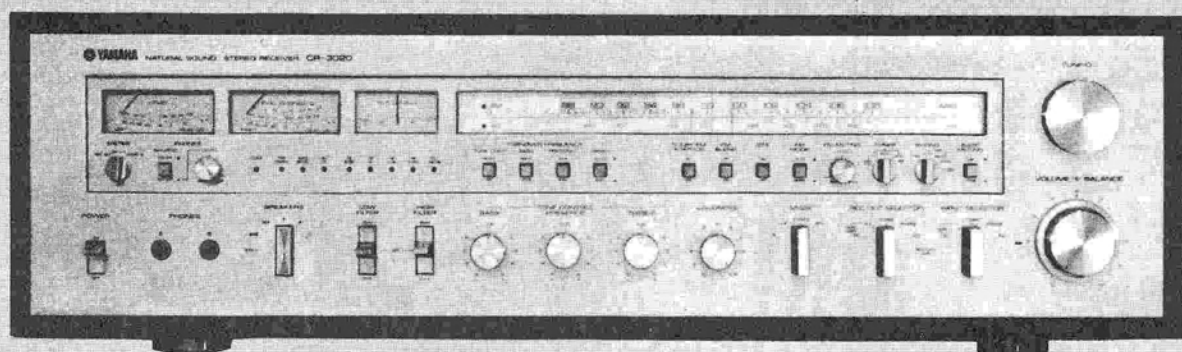


SERVICE MANUAL

CR-3020

FM/AM STEREO RECEIVER



SINCE 1887



YAMAHA

NIPPON GAKKI CO., LTD. HAMAMATSU, JAPAN

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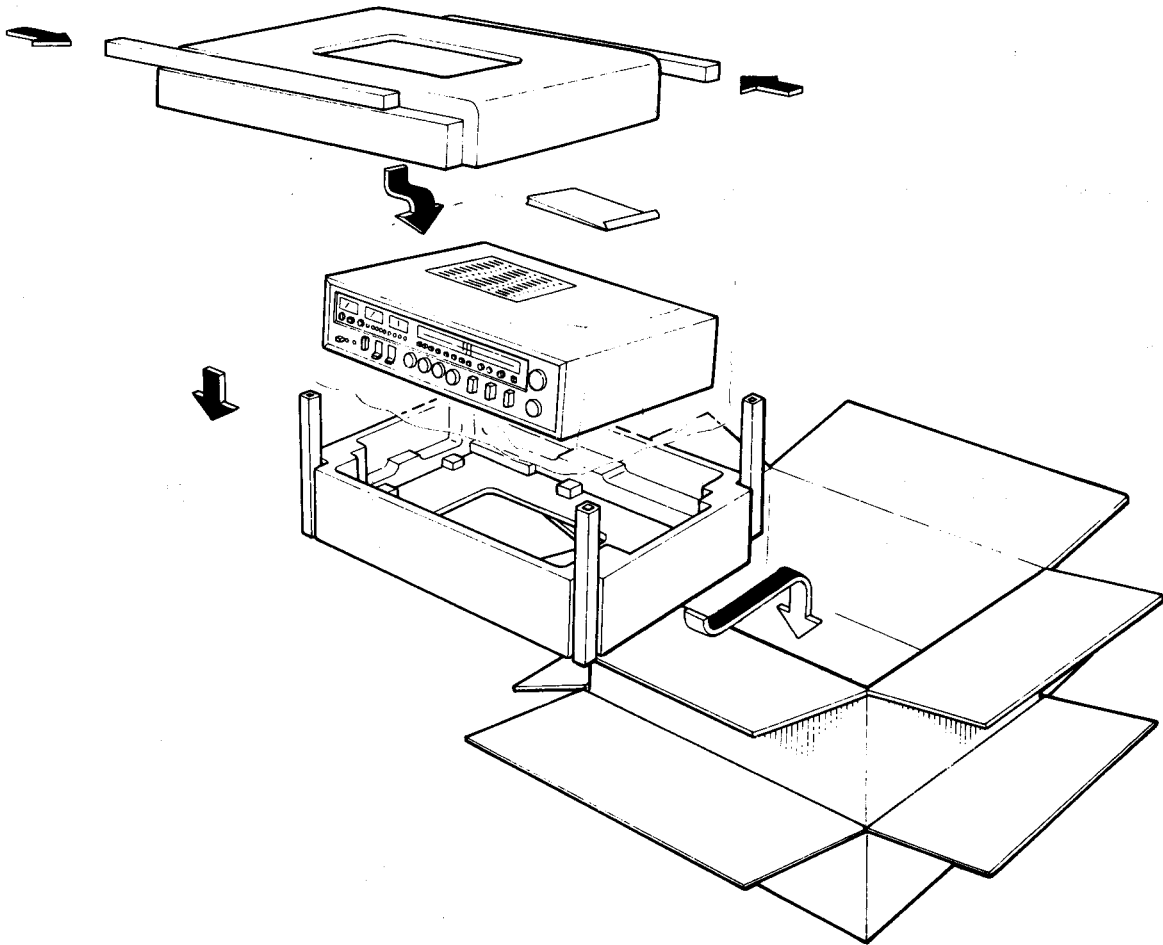
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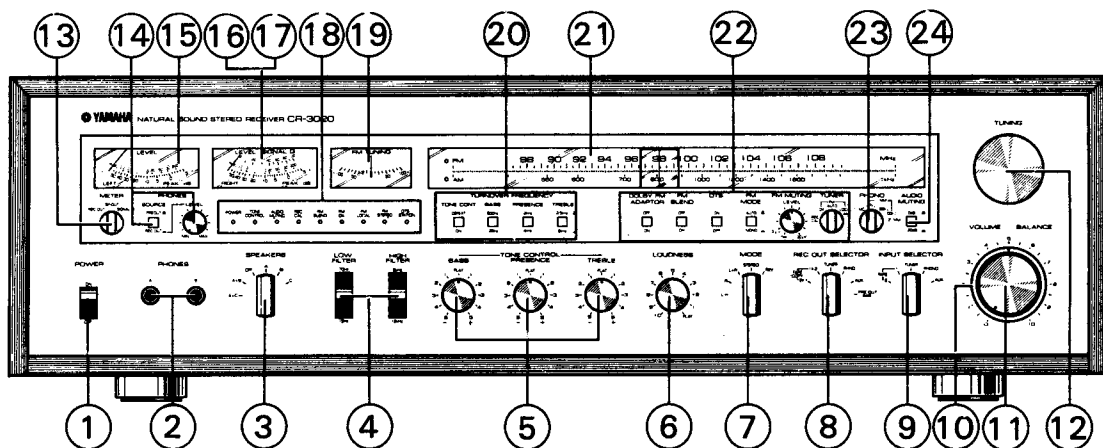
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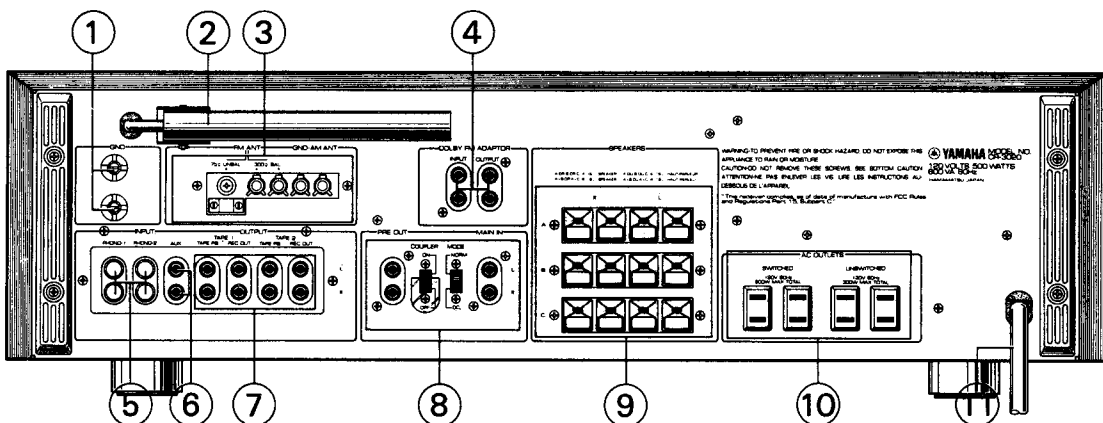


CR-3020

PANEL OPERATION**FRONT PANEL**

- ① POWER ON/OFF Switch
- ② PHONES Jacks
- ③ SPEAKERS Selector
- ④ LOW and HIGH FILTER Switches
- ⑤ TONE CONTROL
- ⑥ LOUDNESS Control
- ⑦ MODE Switch
- ⑧ REC OUT SELECTOR
- ⑨ INPUT SELECTOR
- ⑩ BALANCE Control
- ⑪ VOLUME Control
- ⑫ TUNING Knob

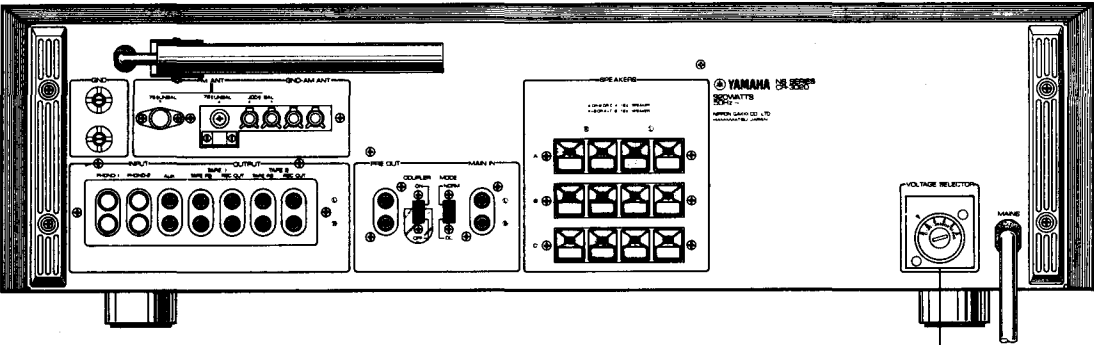
- ⑬ METER Selector Switch
- ⑭ PHONES Control
- ⑮ SP OUT Level Meters
- ⑯ and ⑰ SP OUT/SIGNAL Q Meter
- ⑱ LED Indicators
- ⑲ FM TUNING Meter
- ⑳ TURNOVER FREQUENCY Switches
- ㉑ FM/AM Tuning Scale
- ㉒ FM Tuner Section Controls
- ㉓ PHONO Selector Switch
- ㉔ AUDIO MUTING Switch (0/-20 dB)

REAR PANEL**UL/CANADIAN MODEL**

- ① Ground Terminal (GND)
- ② Ber Antenna for AM Reception
- ③ ANTENNA Connections
- ④ DOLBY FM ADAPTOR Terminals
- ⑤ PHONO INPUT Terminals
- ⑥ AUX Terminals

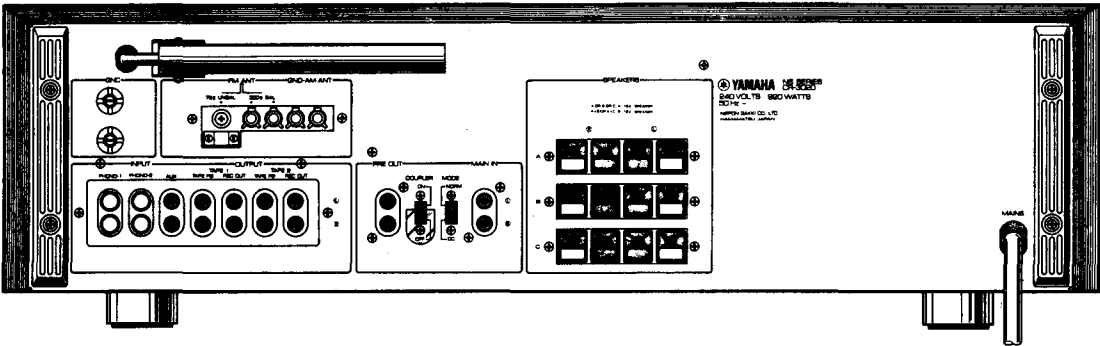
- ⑦ TAPE PB and REC OUT Terminals
- ⑧ PRE OUT and MAIN IN Terminals
- ⑨ SPEAKERS Terminals
- ⑩ AC OUTLETS
- ⑪ AC Power Line

REAR PANEL
EUROPEAN MODEL

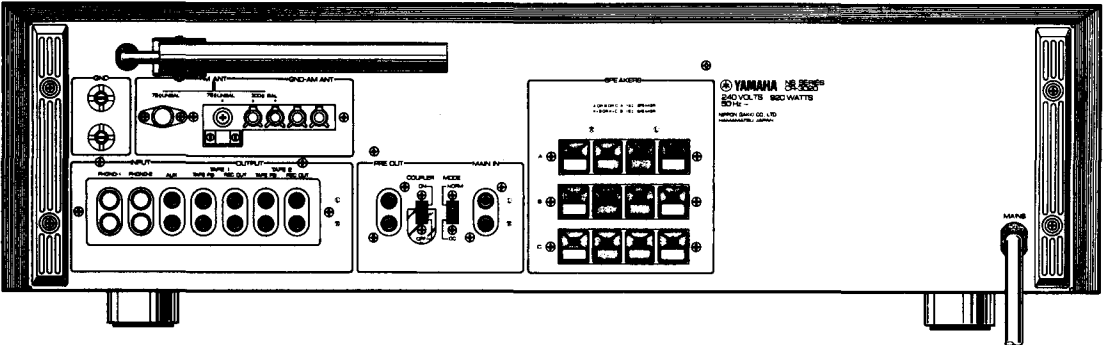


VOLTAGE SELECTOR

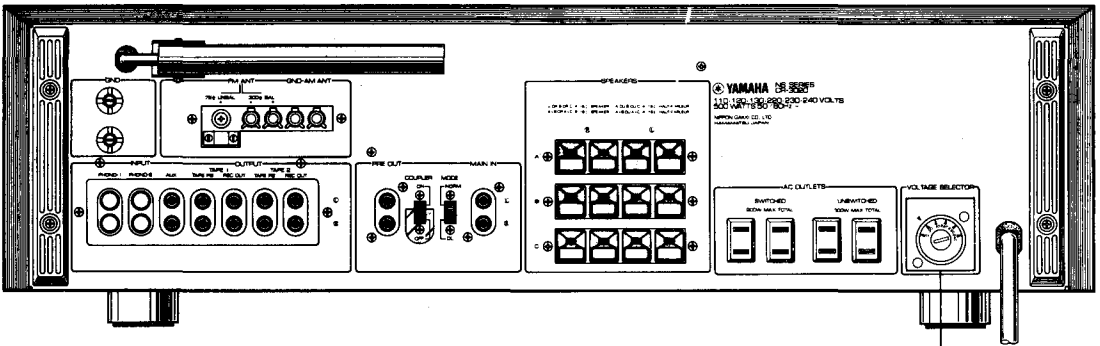
AUSTRALIAN MODEL



BS MODEL



GENERAL MODEL



VOLTAGE SELECTOR

SPECIFICATION

AMPLIFIER SECTION

Input Sensitivity/Impedance

Phono 1 MM	: 2mV—1kHz/47k, 68k, 100k Ω , max. 310mV
Phono 1 MC	: 50 μ V—1kHz/10 Ω , max. 5mV
Phono 2 MM	: 2mV—1kHz/47k Ω , max. 310mV
AUX, Tape 1,2	: 120mV/50k Ω
Main in	: 1V/50k Ω

Output Level/Impedance

REC OUT 1,2	: 120mV/600 Ω (Phono) 4.7k Ω (Tuner), max. 18.6V (Phono, 1kHz)
PRE OUT	: 1V (0 to 1.5k Ω) max. 13V/1kHz

Frequency Response

Phono 1 (MM, MC), Phono 2 (MM)	: 30 to 15kHz 0 $\pm$ 0.2dB (RIAA Deviation)
--------------------------------	--

AUX, Tape 1,2 to SP. out	: 5 to 100kHz —3 $\pm$ 2dB
--------------------------	----------------------------

Main in to SP. out	: 5 to 100kHz —3 $\pm$ 2dB
--------------------	----------------------------

Tone Control Characteristics

BASS	: Turnover 125Hz Variable Range 20Hz $\pm$ 13dB Turnover 500Hz Variable Range 50Hz $\pm$ 15dB
TREBLE	: Turnover 8kHz Variable Range 20kHz $\pm$ 8dB Turnover 2.5kHz Variable Range 20kHz $\pm$ 12dB
PRESENCE	: Center 2kHz Variable Range 2kHz $\pm$ 6dB Center 4kHz Variable Range 4kHz $\pm$ 6dB

Filter Characteristics

Low Filter	: fc=15Hz, 70Hz 12dB/oct
High Filter	: fc=8kHz, 12kHz 12dB/oct

Loudness Characteristics

According to the Fletcher and Munson curve

Signal-to-Noise Ratio and Noise Level

Phono 1 (MM), 2	: 96dB (IHF A Network, Input Short Circuited)
Phono 1 (MC)	: 85dB (IHF A Network, 50 Ω Short Circuited)
AUX, Tape 1,2	: 100dB (IHF A Network, Input Short Circuited)
Main	: 118dB (— do. —)
Residual Noise	: 50 μ V (IHF A Network, Vol. min)

Total Harmonics Distortion

Phono 1, 2 (MM)	: 0.003% (20 to 20kHz) REC OUT 5V
Phono 1 (MC)	: 0.003% (— do. —) REC OUT 3V

AUX, Tape 1, 2	: 0.005% (— do. —) PRE OUT 3V SP. OUT 80W/8 Ω 0.02% (— do. —) SP. OUT 80W/8 Ω
Main in	: 0.01% (— do. —) SP. OUT 80W/8 Ω

IM Distortion AUX

	: 0.02% SP. OUT 80W/8 Ω 0.03% SP. OUT 0.25 to 160W/8 Ω
--	---

Rating Output and etc.

8 Ω Both ch. driven	: 160W + 160W (20 to 20kHz) 0.03% T.H.D 170W + 170W (1kHz) 0.03% T.H.D
4 Ω Both ch. driven (U,C,R,A)	: 200W + 200W (20 to 20kHz) 0.05% T.H.D
(E,BS)	: 160W + 160W (— do. —) 0.05% T.H.D

NDCR	: 0.1W to 160W/8 Ω 0.1% (Phono 1,2 MM to SP. OUT Vol. —20dB)
------	---

Power Band Width

	: 10 to 50kHz 0.03% 8 Ω
--	--------------------------------

Dumping Factor

	: 70 or more, 1kHz/8 Ω
--	-------------------------------

Head Phone Amplifier

Output Level/Impedance	: 7mW/8 Ω , 100mW/8 Ω max 10mW/150 Ω , 240mW/150 Ω max
------------------------	---

Total Harmonics Distortion

	: 0.1%
--	--------

Output Impedance

	: 47 Ω
--	---------------

Frequency Response

	: 20Hz —2dB $\pm$ 1.0dB (8 Ω) 1kHz 0dB (8 Ω) 20kHz —0.5 $\pm$ 1.0dB (8 Ω)
--	---

Residual Noise

	: 25 μ V (8 Ω HP Vol. min)
--	---------------------------------------

TUNER SECTION-FM

Tuning Range	: 87.6 to 108MHz
Usable Sensitivity	: 98MHz
IHF mono	: DX 2.0 μ V (300) 11.2dBf LOCAL 2.0 μ V (300) 11.2dBf
	: DX 1.0 μ V (75) 11.2dBf LOCAL 1.0 μ V (75) 11.2dBf
DIN mono	: DX 1.5 μ V (Dev: 40kHz, S/N: 26dB) LOCAL 1.5 μ V (— do. —)
stereo	: DX 40 μ V (Dev: 40kHz, S/N: 46dB) LOCAL 40 μ V (— do. —)

50—dB Quieting Sensitivity

mono	: DX/LOCAL 3.2 μ V 15.3dBf
stereo	: DX/LOCAL 40 μ V 37.2dBf

Signal-to-Noise Ratio

mono	: DX/LOCAL 80dB, DIN (Dev: 40kHz) 74dB
stereo	: DX/LOCAL 75dB, DIN (Dev: 40kHz) 69dB

Image Interference Ratio (98MHz)

	: 110dB
--	---------

IF Interference Ratio (98MHz)

	: 120dB
--	---------

Spurious Interference Ratio (98MHz)

	: 110dB
--	---------

Amplitude Suppression Ratio IHF

	: 60dB
--	--------

Capture Ratio

	: DX 1.5dB LOCAL 1.0dB
--	---------------------------

Alternate-Channel Selectivity

	: DX 85dB, DIN (Dev: 300kHz, 40kHz): 65dB LOCAL 60dB, DIN (Dev: 300kHz, 40kHz): 35dB
--	---

Total Harmonics Distortion

mono	: 100Hz, 0.1% (DX) 0.07% (LOCAL) 1kHz, 0.2% (DX) 0.07% (LOCAL) 6kHz, 0.5% (DX) 0.2% (LOCAL)
stereo	: 100Hz, 0.6% (DX) 0.09% (LOCAL) 1kHz, 0.6% (DX) 0.07% (LOCAL) 6kHz, 0.6% (DX) 0.2% (LOCAL)

Cross Modulation Distortion

IHF mono	: 0.3% (DX) 0.05% (LOCAL)
stereo	: 0.6% (DX) 0.1% (LOCAL)

Stereo Separation

50Hz	: 30dB (DX) 45dB (LOCAL)
1kHz	: 30dB (DX) 52dB (LOCAL)
10kHz	: 30dB (DX) 45dB (LOCAL)

Frequency Response

50Hz to 10kHz	: $\pm$ 0.3dB
30Hz to 15kHz	: $\pm$ 0.5dB
10Hz to 18kHz	: +0.5dB —3.0dB

Sub Carrier Suppression

	: 70dB
--	--------

Muting Signal Level (Dev: $\pm$ 22.5kHz)

	: 3 μ V (14.8dBf) to 30 μ V (34.8dBf) DX 5 μ V (19.2dBf) to 30 μ V (34.8dBf) LOCAL
--	---

TUNER SECTION-AM

Tuning Range

: 525kHz to 1,605kHz

Usable Sensitivity (Used Bar antenna)

: 300 μ V/m (49dB/m)

Selectivity

: 1,000kHz : 45dB ($\pm$ 10kHz)

: 35dB ($\pm$ 9kHz)

Signal-to-Noise Ratio

: 80dB/m : 50dB

Image Interference Ratio

: 1,000kHz : 75dB

IF Interference

: 1,000kHz : 75dB

Spurious Interference Ratio

: 1,000kHz : 75dB

Total Harmonics Distortion

: 80dB/m : 0.4%

: 120dB/m : 0.4%

Output Level/Impedance

: FM (Mod. 100%) : 450mV/4.7k Ω (REC OUT)

: AM (Mod. 30%) : 120mV/4.7k Ω (REC OUT)

: Rec Cal. (333Hz) : 225mV/4.7k Ω (REC OUT)

GENERAL

Used Semi Components

178 Transistors	14 Zener Diodes
9 ICs	11 LEDs
14 FETs	5 CFs
64 Diodes	

Rated Voltage

120V/60Hz (US. and CANADA)
240V/50Hz (AUSTRALIA and BRITISH)
110, 120, 130, 220, 230, 240/50, 60Hz
(General export models)
110, 120, 130, 220, 230, 240/50Hz (EUROPE)

Rated Power Consumption

500W 600VA (US., and General export model)
700W 880VA (CANADA)
920W 1.1kVA (BRITISH, EUROPE and AUSTRALIA)

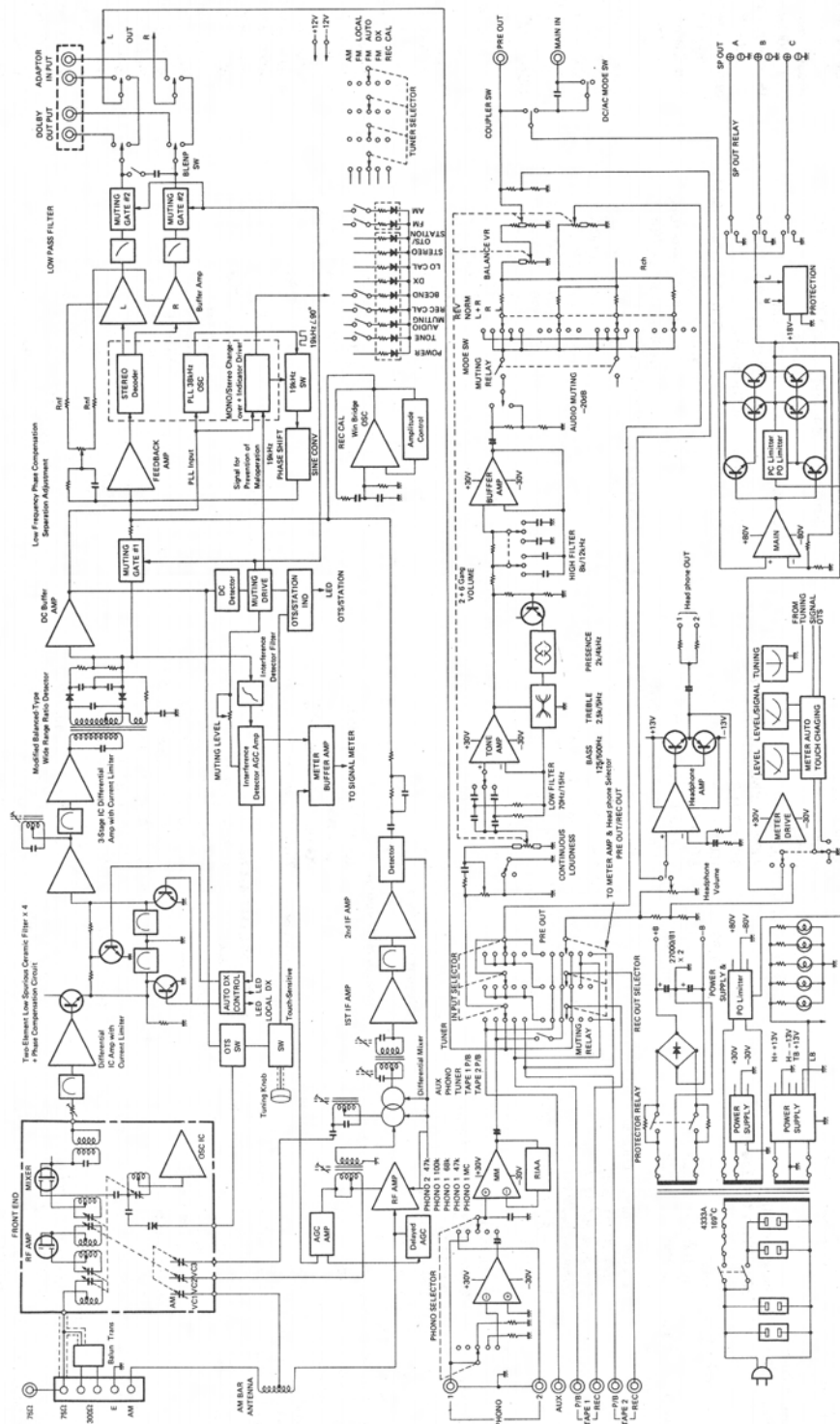
Dimensions

632(W) x 191(H) x 498(D) mm
24-7/8 x 7-1/2 x 19-1/2 in. (All model)

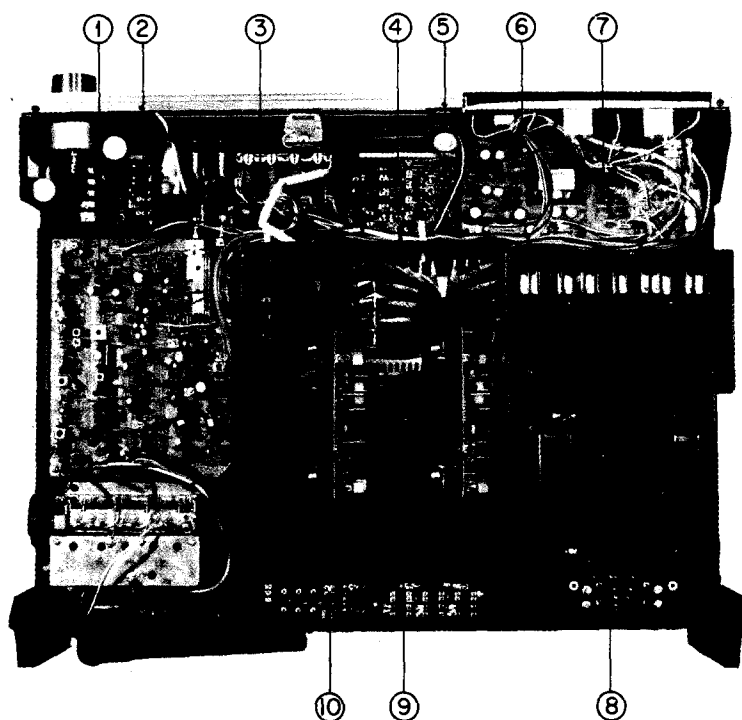
Weight

35kg 77lbs (US., CANADA, BRITISH and AUSTRALIA)
37kg 81.4lbs (General export model and EUROPE)
AC Outlet (US., CANADA and General export model)
Switched x 2 (200W Total max.)
Unswitched x 2 (300W Total max.)

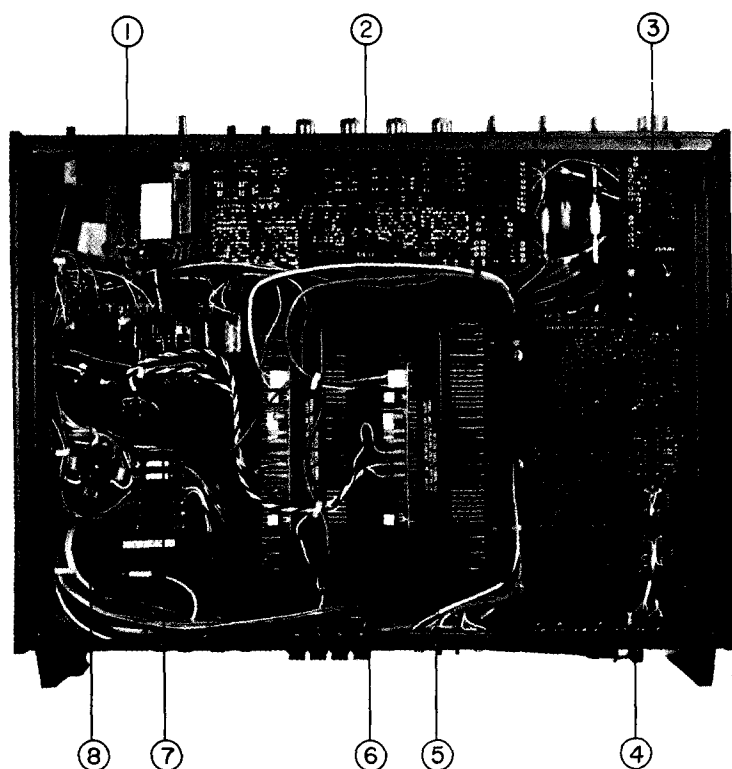
BLOCK DIAGRAM/LEVEL DIAGRAM



UL/CANADIAN MODEL

EXTERNAL VIEW**TOP VIEW**

- ① TUNER C.BOARD 1
NA07027 (UL.CSA)
- ② PRE C.BOARD 3 NA07024
- ③ TUNER C.BOARD 2
NA07027 (UL.CSA)
- ④ PRE C.BOARD 4 NA07024
- ⑤ PRE C.BOARD 5 NA07024
- ⑥ LED C.BOARD NA07035
- ⑦ HEADPHONE & METER
C.BOARD 1 NA07029 (UL)
- ⑧ PROTECTOR C.BOARD
NA07037
- ⑨ MAIN C.BOARD NA07031 (UL)
- ⑩ RELAY C.BOARD NA07034

BOTTOM VIEW

- ① HEADPHONE & METER
C.BOARD 2 NA07029 (UL)
- ② PRE C.BOARD 1 NA07024
- ③ PRE C.BOARD 2 NA07024
- ④ FUNCTION C.BOARD
NA07023
- ⑤ COUPLER C.BOARD
NA06842
- ⑥ DOLBY C.BOARD NA07033
(UL Only)
- ⑦ ELECTROLYTIC CAPACITOR
C.BOARD NA07036
- ⑧ POWER SUPPLY C.BOARD
NA07025

■ DISASSEMBLY PROCEDURES

1. CABINET REMOVAL

After removing screws (1) ~ (4) provided 2 each on the left and right sides, lift up the cabinet. (Photo 1)

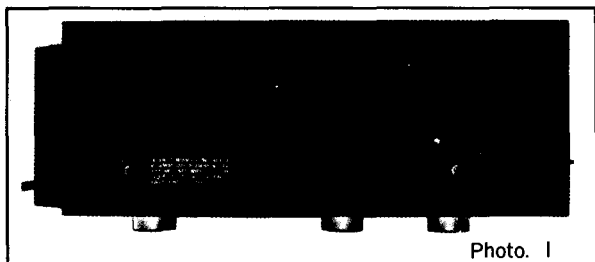


Photo. 1

2. REAR PLATE REMOVAL

With the body made to lie on its side, unscrew the 12 screws (1) ~ (12). (Photo 2)

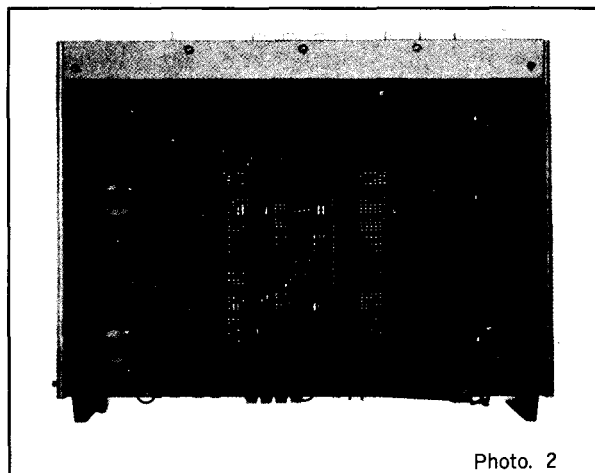


Photo. 2

3. SHIELD CASE (a & b) REMOVAL

- a) After removing the 5 screws (1) ~ (5), slide shield case toward front panel side. (Photo 3)
- b) After removing the 4 screws (6) ~ (9), slide shield case toward front panel side. (Photo 3)

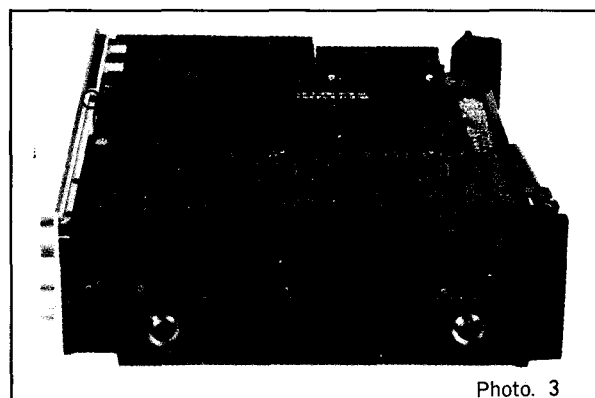


Photo. 3

4. FM FRONT END (PACK) REMOVAL

- a) Take off cabinet. (Refer to Step 1.)
- b) Remove shield case (b). (Refer to Step 3.)
- c) After disconnecting each lead wire and dial string, loosen the 5 screws (1) ~ (5). (Photo 4)

5. TUNER CIRCUIT BOARD (1) REMOVAL

- a) Take off cabinet. (Refer to Step 1.)
- b) Take off shield cases (a) and (b). (Refer to Step 3.)
- c) Slide joints (6) & (7) shown in Photo 4 in the direction of the arrow and unscrew the 5 screws (8) ~ (12).

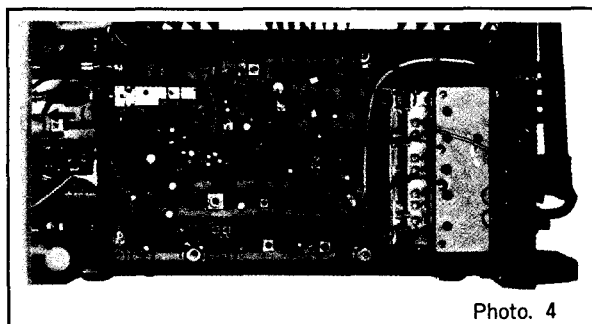


Photo. 4

6. HEAT SINK & MAIN CIRCUIT BOARD REMOVAL

- a) Remove cabinet. (Refer to Step 1.)
- b) Remove rear plate. (Refer to Step 2.)
- c) Remove the 4 screws (1) ~ (4), located 2 each on both sides, as well as the respective lead wires, and remove the heat sink & main circuit board by pulling it upward. (Photo 5)
- d) The heat sink and main circuit board will come off when the 8 screws (1) ~ (8) of the power transistors are removed and the transistors are pulled out. (Photo 6)

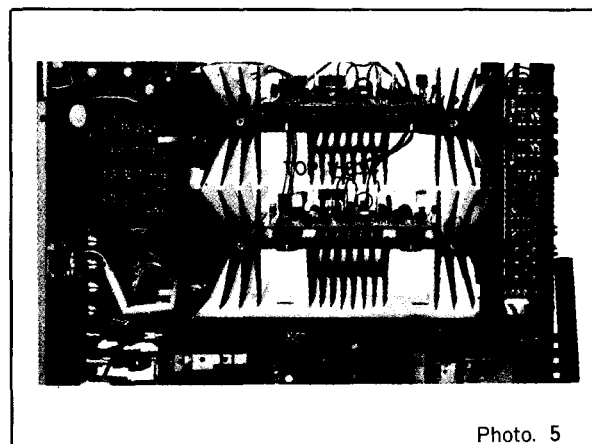


Photo. 5

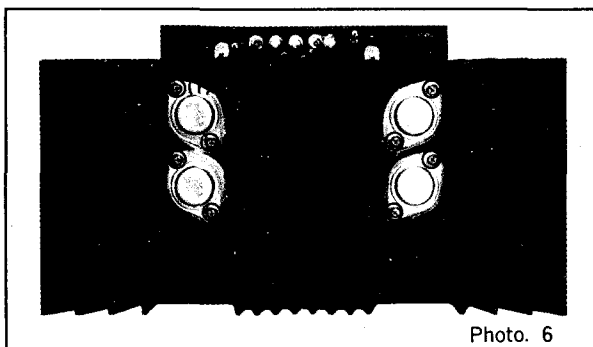


Photo. 6

7. POWER TRANSFORMER REMOVAL

- Take off cabinet. (Refer to Step 1.)
- After disconnecting the wiring, remove it by unscrewing screws (1)~(4). (Photo 7)

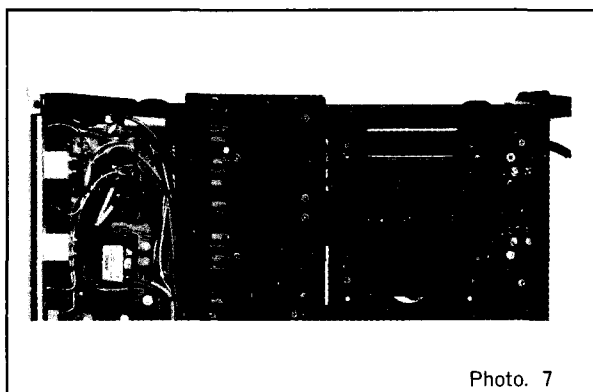


Photo. 7

8. FRONT PANEL REMOVAL

- Take off cabinet.
- Remove rear plate.

Step 1

- Unscrew the 3 screws (1) ~ (3) and remove the 10 knobs by pulling them out toward yourself. (Photo 8)

Step 2

- After removing the 4 screws (1) ~ (4), pull out the remaining knobs using a hexagonal wrench. (Photo 9)
- Pull the front panel toward your way and detach the 3 plastic rivets on the LED circuit board.

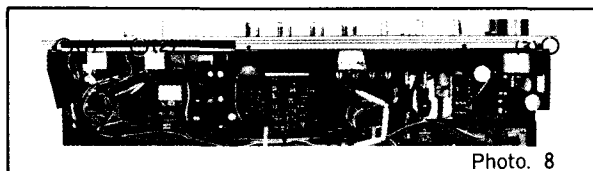


Photo. 8

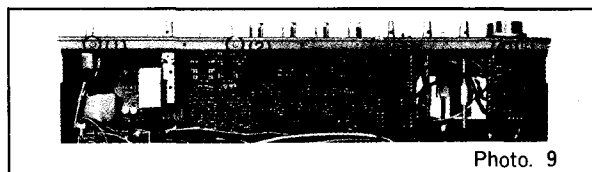


Photo. 9

9. PRE CIRCUIT BOARD (2) REMOVAL

- Take off the cabinet. (Refer to Step 1.)
- Remove the rear plate. (Refer to Step 2.)
- Remove the front panel. (Refer to Step 8.)
- Remove pre circuit board by taking off the nuts on the 8-throw control. (Photo 10)

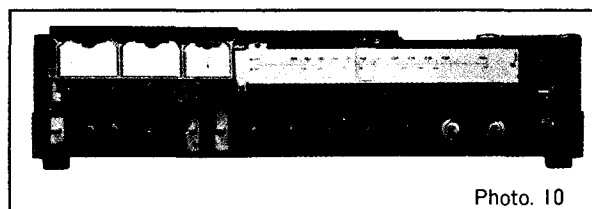


Photo. 10

10. PRE CIRCUIT BOARD (3) REMOVAL

- Take off cabinet. (Refer to Step 1.)
- Remove the rear plate. (Refer to Step 2.)
- Remove the front panel. (Refer to Step 8.)
- Unscrew the screw (1) and remove pre circuit board. (Photo 11)

11. TUNER CIRCUIT BOARD (2) REMOVAL

- Take off cabinet. (Refer to Step 1.)
- Take off rear plate. (Refer to Step 2.)
- Remove front panel. (Refer to Step 8.)
- After disconnecting the respective connectors, loosen the 2 screws (2) & (3) to remove tuner circuit board (2). (Photo 11)

12. PRE CIRCUIT BOARD (4) REMOVAL

- Take off cabinet. (Refer to Step 1.)
- Remove front panel. (Refer to Step 8.)
- Pre circuit board (4) can be removed by loosening the screws (4) & (5). (Photo 11)

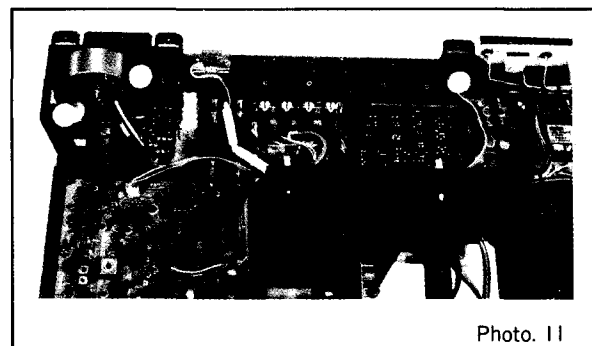


Photo. 11

13. HEADPHONE & METER CIRCUIT BOARD (1) REMOVAL

- Take off cabinet. (Refer to Step 1.)
- Take off front panel. (Refer to Step 8.)
- After disconnecting the respective connectors, the headphone and meter circuit board (1) can be dismantled by loosening the 6 screws (1) ~ (6). (Photo 12)

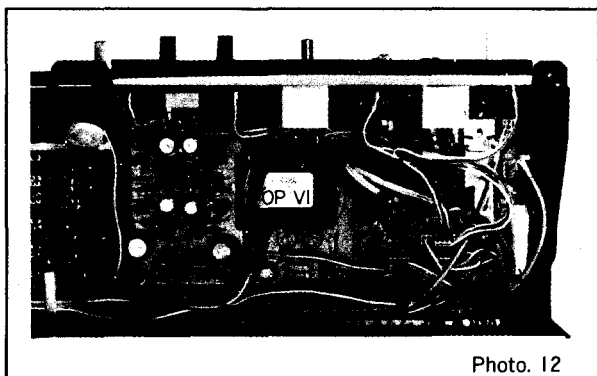


Photo. 12

14. PRE CIRCUIT BOARD (1) REMOVAL

- Remove rear plate. (Refer to Step 2.)
- Remove front panel. (Refer to Step 8.)
- This circuit board may be taken off by removing the 4 filter-switch fixing screws (1) ~ (4), 4 tone-control fixing nuts and the mode-switch fixing nut. (Photo 13)

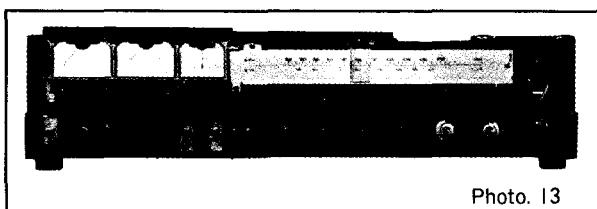


Photo. 13

15. HEADPHONE & METER CIRCUIT BOARD (2) REMOVAL

- Take off rear plate. (Refer to Step 2.)
- Remove front panel. (Refer to Step 8.)
- This circuit board may be removed by taking off the SP changeover switch fixing nut and the 2 fixing nuts for the headphone jack. (Photo 14)

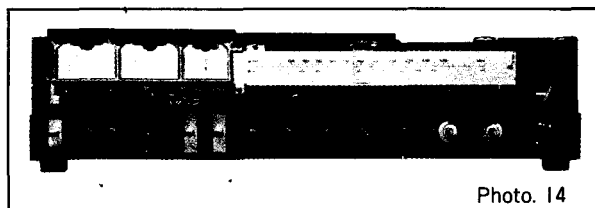


Photo. 14

16. POWER SUPPLY CIRCUIT BOARD REMOVAL

- Disjoin rear plate. (Refer to Step 2.)
- This circuit board may be removed by removing the two plastic rivets and pull wiring out. Pull out wiring from wire holder. (Photo 15)

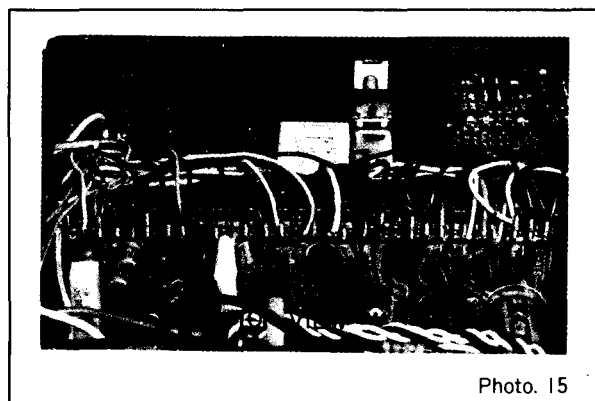


Photo. 15

17. FUNCTION CIRCUIT BOARD REMOVAL

- Remove rear plate. (Refer to Step 2.)
- Disconnect the 2 joints shown in Photo 16 by sliding them in the arrow direction. Unscrew the 6 screws (1) ~ (6).
- This circuit board may be removed by unscrewing the 4 screws (1) ~ (4) located on the rear panel side. (Photo 17)

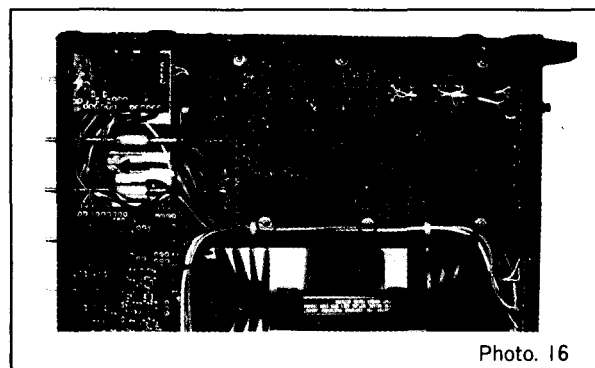


Photo. 16

18. ELECTROLYTIC CAPACITOR CIRCUIT BOARD REMOVAL

- a) Take off cabinet. (Refer to Step 1.)
- b) Remove rear plate. (Refer to Step 2.)
- c) After removing the 4 screws (5)~(8) shown in Photo 7, disconnect wiring and pull it out toward upper side.

19. REAR PANEL REMOVAL

- a) Take off cabinet. (Refer to Step 1.)
- b) Remove rear plate. (Refer to Step 2.)
- c) Take off rear panel by unscrewing the 18 screws (5) ~ (22) shown in Photo 17.

20. DOLBY CIRCUIT BOARD REMOVAL

- a) Take off rear plate. (Refer to Step 2.)
- b) Loosen the 2 screws (23) & (24) shown in Photo 17 and detach dolby circuit board.

21. COUPLER CIRCUIT BOARD REMOVAL

- a) Take off rear plate. (Refer to Step 2.)
- b) Loosen the 8 screws (25) ~ (32) shown in Photo 17 and take off the coupler circuit board.

22. RELAY CIRCUIT BOARD REMOVAL

- a) Take off cabinet. (Refer to Step 1.)
- b) Remove rear plate. (Refer to Step 2.)
- c) Loosen the 2 screws (33) & (34) shown in Photo 17, remove the 3 plastic rivet shown in Photo 5, detach wiring from wire holder.

23. PROTECTOR CIRCUIT BOARD REMOVAL

- a) Take off cabinet. (Refer to Step 1.)
- b) Take off rear plate. (Refer to Step 2.)
- c) Take off the 2 plastic rivets shown in Photo 7, disconnect wiring from wire holder.

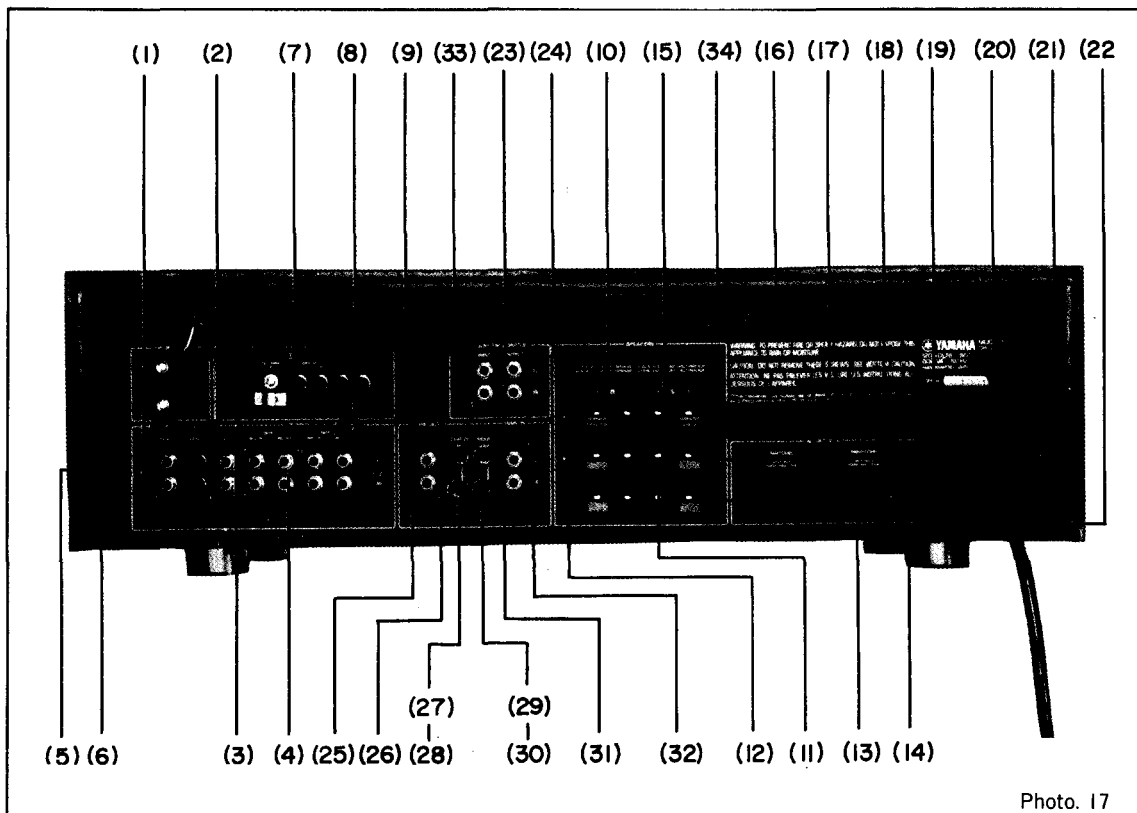
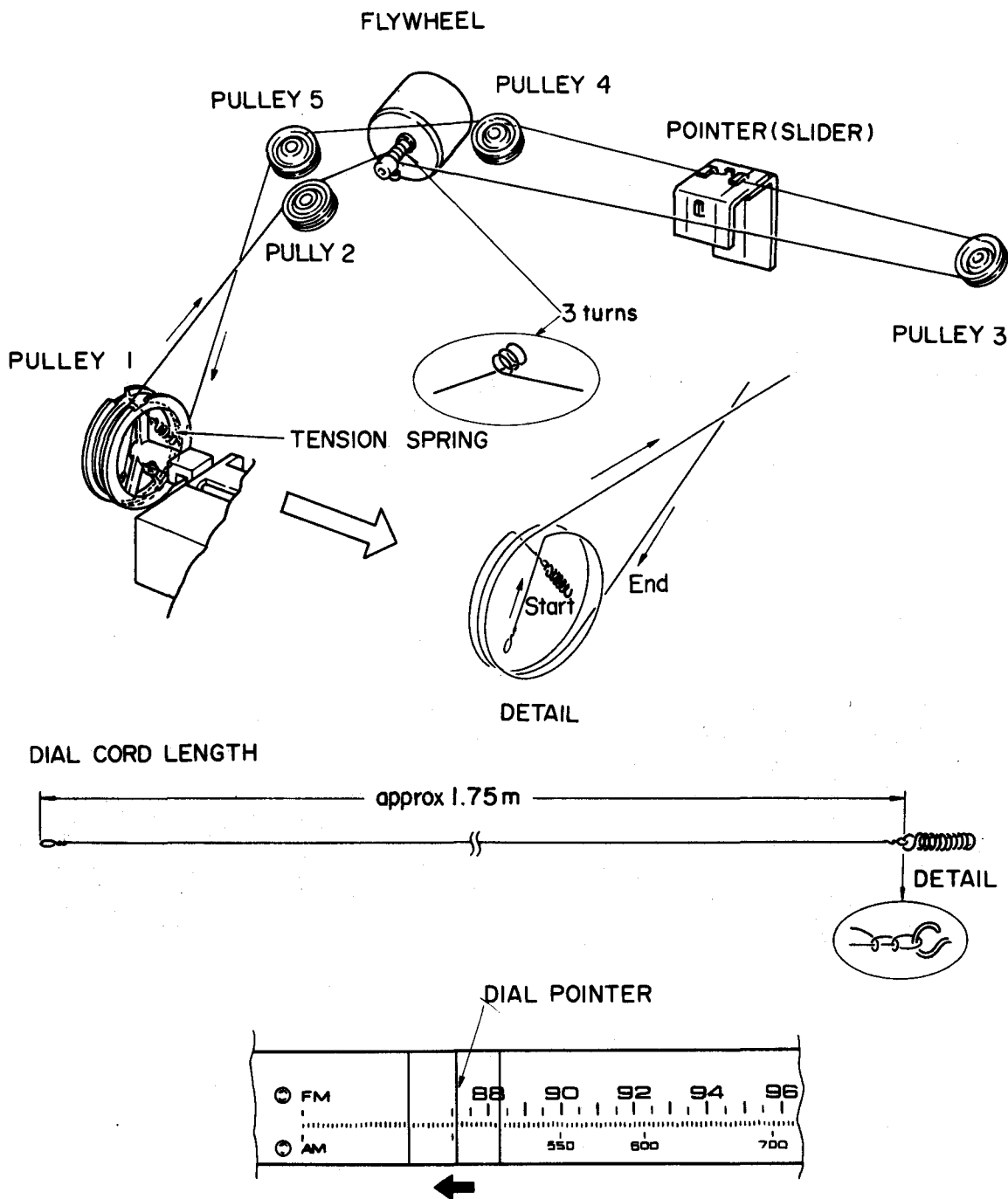


Photo. 17

DIAL CORD STRINGING

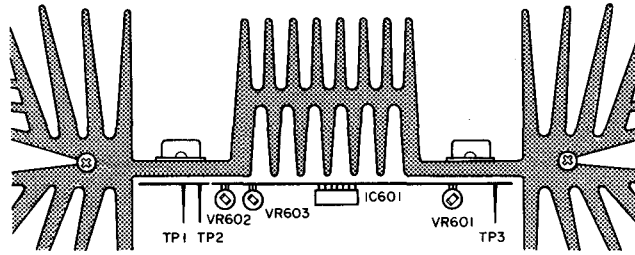
CR-3020 December '77 #1501~



After stringing the dial cord, turn the the tuning knob fully counterclockwise and set the pointer to lower end indication of the scale as illustrated above. Then hook the string to the pointer assembly and lock by painting.

■ ADJUSTMENT

ADJUSTMENT OF MAIN C.BOARD ADJUSTING POINTS

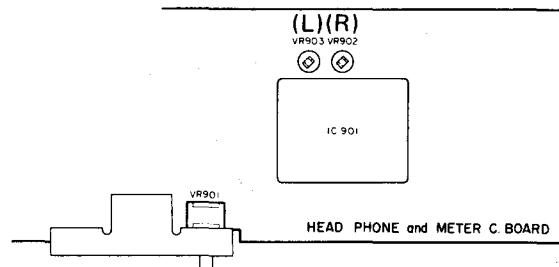


ADJUSTMENT

- After switching on power switch, wait for more than a minute and carry out the following adjustments.

Step	ITEMS	ADJUST- ING POINTS	SETTING		RATED VALUE	METHOD (REMARKS)
			EQUIPMENT	CONNEC- TION POINTS		
1	IDLING CURRENT	VR602	DIGITAL VOLTMETER	TP ₁ (L ch) TP ₂ (R ch)	20mV ±3mV	Turn VR602 and adjust so as to bring voltage to rated value.
2	MID POINT POTENTIAL	VR601	DIGITAL VOLTMETER	TP ₁ (L ch) TP ₃ (R ch)	0mV ±20mV	Turn VR601 and adjust so as to bring voltage to rated voltage.
3	OUTPUT LIMITER (Adjustment for each channel)	VR603	OSCILLATOR LEVEL METER DISTORTION METER OSCILLOSCOPE	SP OUT (L) (R) MAIN IN (L) (R)	Distor- tion ratio 0.8~1% (Clip point)	After connecting a 4-ohm load to the output of either channel, feed in a 1kHz signal to produce the rated power (+1.2dB). Adjust VR603 so that the distortion ratio will be 0.8~1%. See that the power supply voltage is retain the rated value.
4	DISTORTION RATIO CONFIRMATION		—do.—	—do.—	Less than 0.05%	Check and confirm that the output distortion of both channels is within the range of the rated value. The power supply voltage should also be within rated value range.

ADJUSTMENT OF LEVEL METER ADJUSTING POINTS

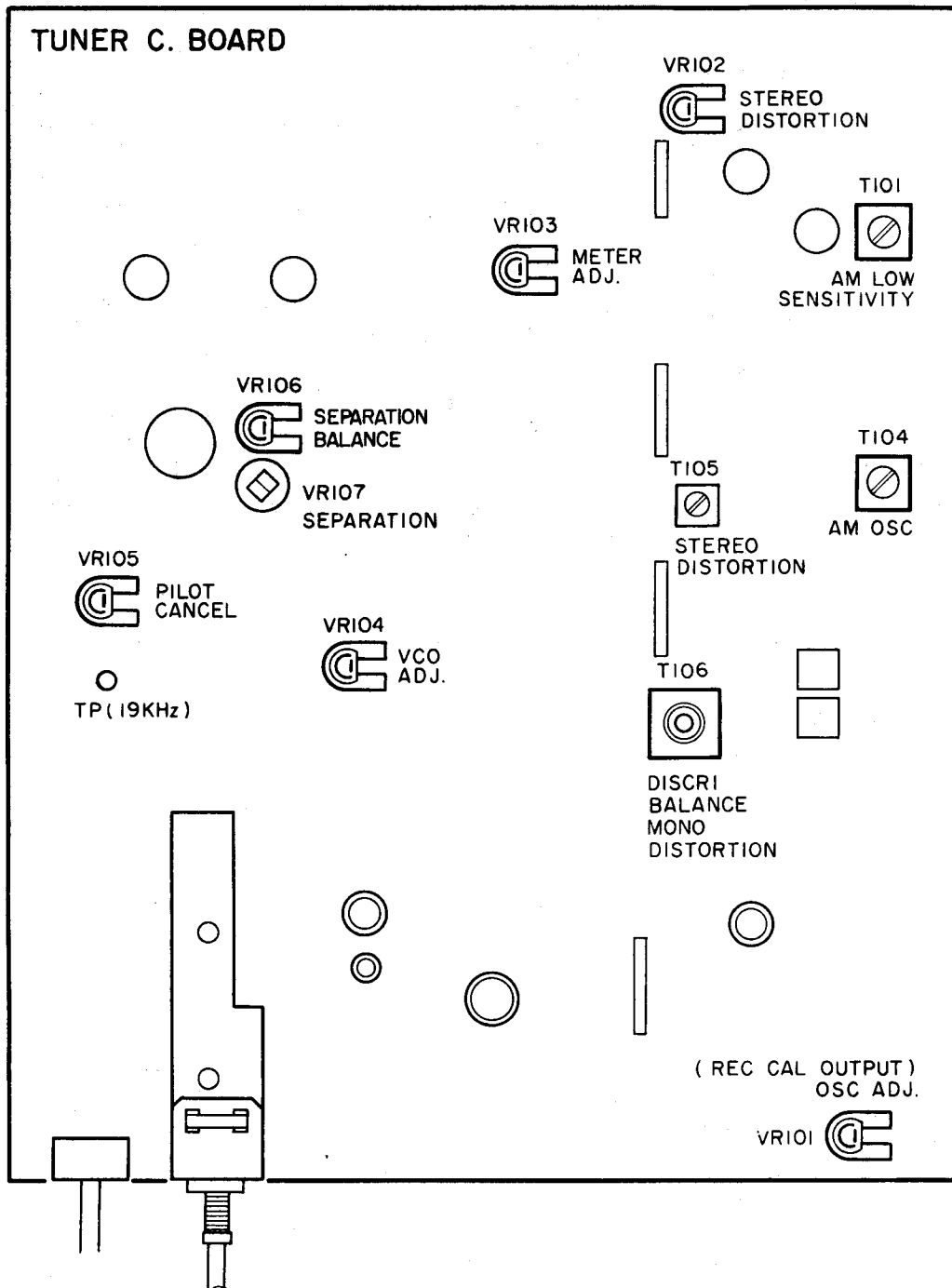
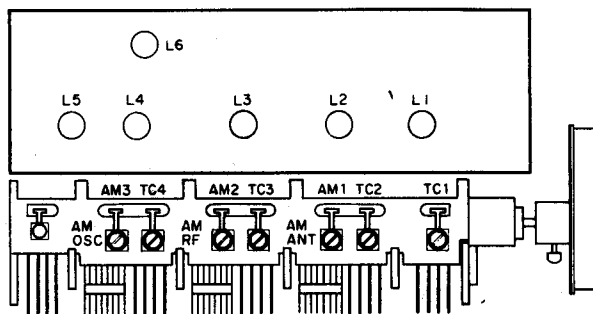


ADJUSTMENT

- Set meter changing switch to "SP OUT."

Step	ITEMS	ADJUST- ING POINTS	SETTING		RATED VALUE	METHOD (REMARKS)
			EQUIPMENT	CONNEC- TION POINTS		
1	METER	VR901 VR902(R) VR903(L)	OSCILLATOR (1kHz) LEVEL METER OSCILLOSCOPE	MAIN IN SP OUT	0±0.3dB	Adjust VR901 and VR902 so as to make SP OUT indication 0dB at 100W output with an 8-ohm load.

ADJUSTMENT OF TUNER C.B.OARD ADJUSTING POINTS



ADJUSTMENT OF TUNER C.B.OARD**OVERALL ADJUSTMENT OF FM TUNER SECTION**

- After completing adjustments of the units on the circuit board, carry out following adjustments.
- Set FM muting control to "MIN-OFF" and function switch to "FM LOCAL."
- Except for Step 6, adjustments and measurements are to be conducted by way of a lowpass filter.

Step	ITEMS	ADJUST- ING POINTS	SETTING		RATED VALUE	METHOD (REMARKS)
			EQUIPMENT	TUNER POINTS		
1	DISCRI. BALANCE	T106 (Upper side of second- ary side core)	Connect a 300 ohm balanced antenna to FM ANT terminal.	Detuning point close to 98MHz		Adjust so as to make the deflec- tion of the tuning meter caused by noise zero. To achieve this, manipulate the tuning knob. Further, confirm that the meter indicates a mechanical zero when power switch is turned off.
2	TUNING POINT SETTING	TUNING KNOB	FM SG: 98MHz 60dB μ Connect FM SG to FM ANT ter- minal.	98MHz		Set tuning meter so that its will point to the center.
3	MONO. DISTORTION	T106 (Lower side of primary side core)	FM SG: —do.— mono 1kHz 100% MOD DISTORTION METER (DM) VTVM OSCILLOSCOPE (OSC)	98MHz REC OUT L. ch only	Less than —63dB	Tune core and adjust it so that distortion will be minimum. Connect distortion meter, oscil- loscope and VTVM to REC OUTPUT of L. ch.
4	V.C.O. ADJ. (V.C.O. FREE RUN FREQUEN- CY)	VR104	FM SG: —do.— mono 0% MOD FREQUENCY COUNTER	98MHz 19kHz TP	19kHz $\pm$ 20Hz	After connecting a frequency counter to the test point on the c. board, turn VR104 and adjust it so as to make frequency 19 kHz.
5	STEREO DISTORTION	VR102 T105 (FM FRONT END PACK)	FM SG: —do.— stereo 1kHz 100% MOD DM, VTVM, OSC	—do.— REC OUT L. ch only	Less than —62dB	With the DM, VTVM, OSC con- nected to the REC OUTPUT of the L. ch., turn VR102 and T105 alternately and adjust them so as to make distortion minimum.
6	PILOT CANCELLING ADJUSTMENT CARRIER LEAK	VR105	FM SG: —30.— stereo 1kHz 100% MOD PILOT 9% MOD OSC, VTVM	—do.— REC OUT L. ch R. ch	Carrier leak: More than 65dB for both L & R.	Connect oscilloscope and VTVM to REC OUT of L and R chan- nels, turn VR105 and adjust so as to make level minimum.
7	SEPARATION	VR106 VR107	FM SG: 98MHz stereo L or R 1kHz 100% MOD VTVM, OSC	98MHz REC OUT L. ch R. ch	50dB	Connect VTVM to REC OUT. After balancing the VR106 of the L and R channels, adjust VR107 so as to make the L and R outputs maximum.

Step	ITEMS	ADJUST- ING POINTS	SETTING		RATED VALUE	METHOD (REMARKS)
			EQUIPMENT	TUNER POINTS		
8	SIGNAL METER FULL SCALE ADJUST	VR103	FM SG: 98MHz 0% MOD 80dBμ	98MHz REC OUT L. ch only	(90dBμ)	Turn VR103 and adjust it so that the signal meter deflection will be 90dBμ.
9	DIAL POINTER CLARIFICATION	POINT- ER	FM SG: 98MHz 60dBμ	98MHz	±1mm	With the FM SG connected to the FM antenna terminal, tune the knob to a point where the tuning meter pointer deflects to maximum. At this point, set the point to 98 on the dial scale.
10	HIGH END TRACKING CONFIRMATION	TUNING KNOB	FM SG: 108MHz 60dBμ	103MHz	±2mm	With the FM SG connected to the FM antenna terminal, turn the knob and tune it to a point where the tuning meter will indicate maximum. At this point, read the deviation between the pointer and scale.
11	TRACKING ERROR TRIMMING I (Only when proper confirmation cannot be made by Step 10 proceed to Step 11)	POINT- ER	FM SG: 98MHz to 108MHz	98MHz to 108MHz	±2mm	Reset the pointer so as to bring the error over the whole scale within the allowable range.
12	TRACKING ERROR TRIMMING II (Only when proper confirmation cannot be made by Step 11 proceed to Step 12)	POINT- ER	FM SG: 98MHz to 108MHz FM FRONT END PACK	98MHz to 108MHz	±2mm	Deviation is corrected chiefly by using the puff for the low frequency range and the pointer for the high frequency range.

ADJUSTMENT OF REC. CAL ADJUSTMENT

○ Set function switch to "REC CAL."

Step	ITEMS	ADJUST- ING POINTS	SETTING		RATED VALUE	METHOD (REMARKS)
			EQUIPMENT	TUNER POINTS		
1	REC CAL OUTPUT OUTPUT ADJUSTMENT	VR101	OSC, VTVM	OUTPUT L or R	225mV	Adjust VR101 so as to make output equivalent to one half of FM MONO 100% MOD.

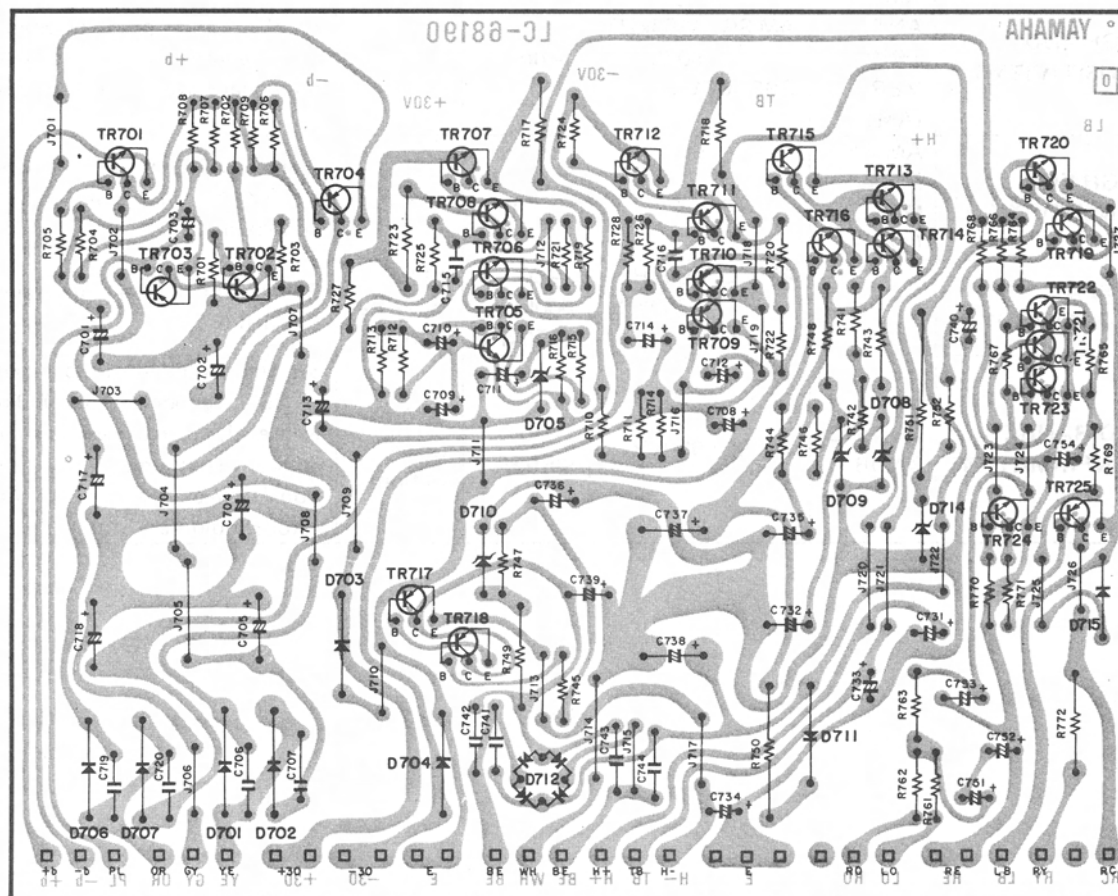
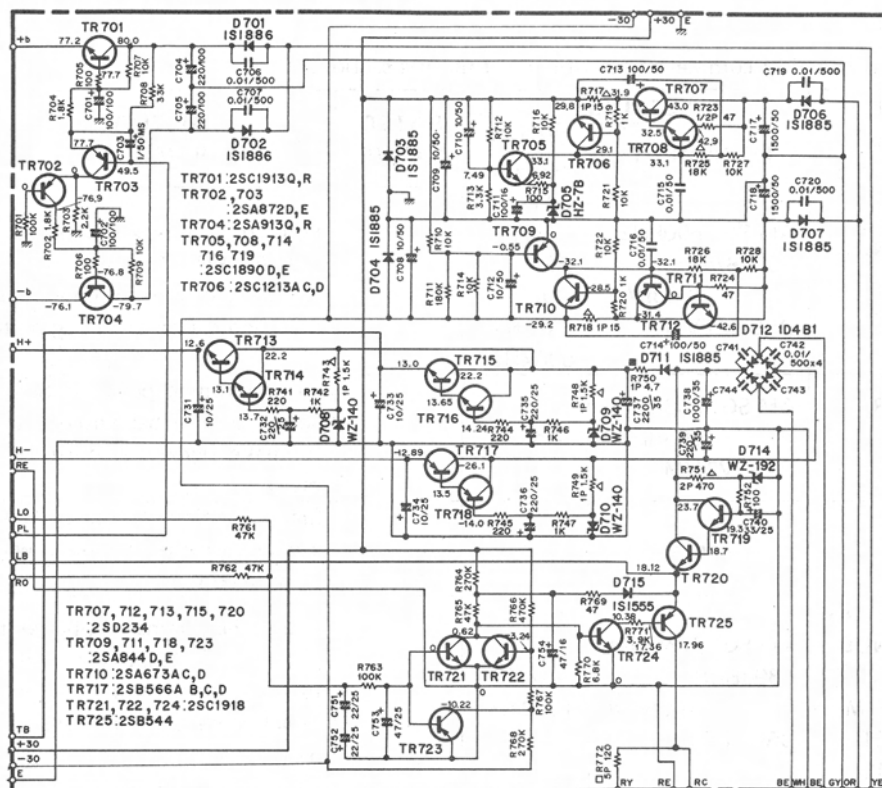
ADJUSTMENT OF TRACKING ERROR OF AM SECTION**ADJUSTMENT**

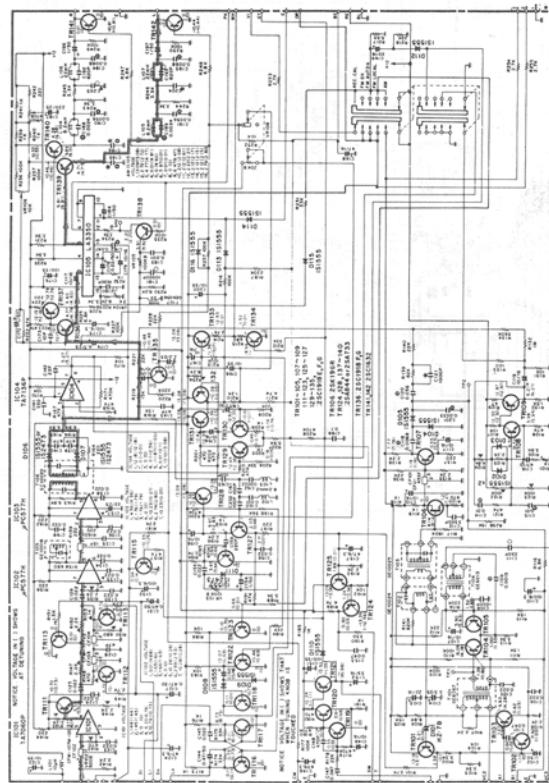
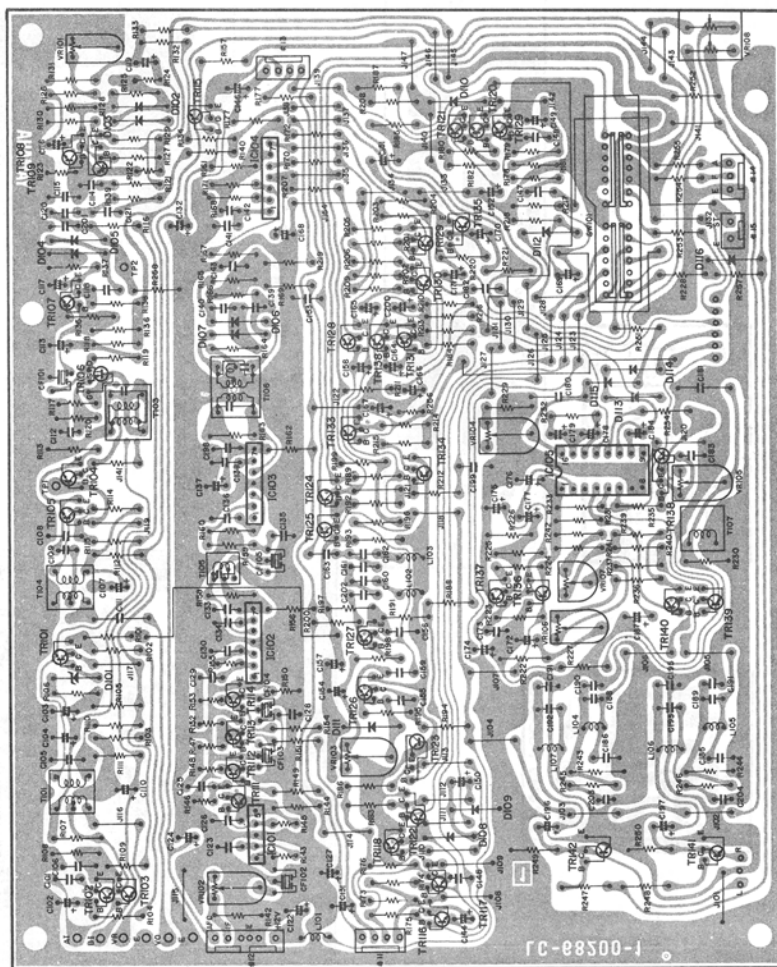
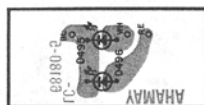
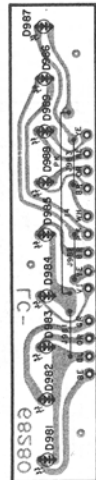
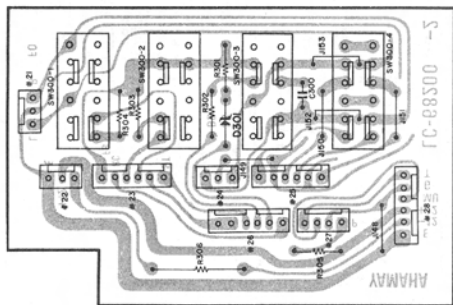
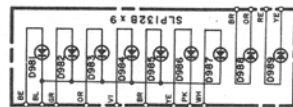
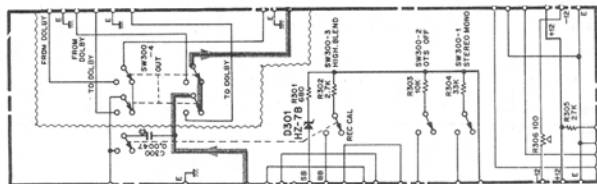
- Set function switch to "AM."
- This adjustment is to be carried out after completing adjustment of the FM section.

Step	ITEMS	ADJUST- ING POINTS	SETTING		RATED VALUE	METHOD (REMARKS)
			EQUIPMENT	TUNER POINTS		
1	OSC COIL	TUNING KNOB T104	AM SG: 600kHz 80dB/μ ~ 100dB/μ OSC, VTVM	BAR ANT. REC OUT L or R 600kHz		Using the tuning knob, set pointer to 600kHz. Turn core of T104 and tune it so as to obtain maximum indication of tuning meter.
2	LOW END SENSITIVITY I	BAR ANT. CORE	AM SG: 600kHz 60dBμ OSC, VTVM	—do.—		At the tuning point of Step 1, adjust core of bar antenna so as to make signal waveform maximum.
3	LOW END SENSITIVITY II	T101	—do.—	—do.—		Similar to Step 2, adjust T101 in a way to make the signal waveform maximum.
4	OSC TRIMMER	TUNING KNOB AM OSC TRIM- MER (AM3)	AM SG: 1350kHz 80dB/μ ~ 100dB/μ OSC, VTVM	—do.— 1350kHz		Using the tuning knob, set the pointer to 1,350kHz and by turning trimmer, tune so that the signal meter will indicate maximum.
5	HIGH END SENSITIVITY I	AM ANT. TRIM- MER (AM1)	AM SG: 1350kHz 60dB/μ OSC, VTVM	—do.—		At the tuning point of Step 3, adjust trimmer in a way to make the signal waveform maximum.
6	HIGH END SENSITIVITY II	AM RF TRIM- MER (AM2)	—do.—	—do.—		Similar to Step 5, adjust trimmer so that the signal waveform will be maximum.
7	REPEAT ADJUSTMENT		AM SG: 600kHz 1350kHz OSC, VTVM	—do.— 600kHz 1350kHz	±1.5mm (scale de- viation)	Repeat adjustments of Steps 1 through 6.
8	MID RANGE CONFIRMATION	TUNING KNOB	AM SG: 950kHz	—do.— 950kHz	±2.0mm (scale de- viation)	Set the tuning knob to a point in the neighborhood of 950kHz where the signal waveform becomes maximum. Here, deviation between the scale and indicator should be ±2mm.

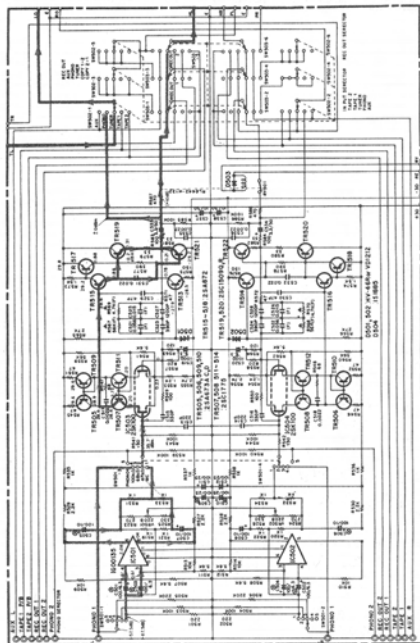
CIRCUIT BOARDS

POWER C.B.OARD

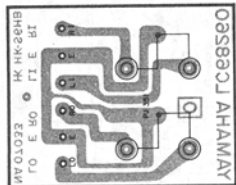




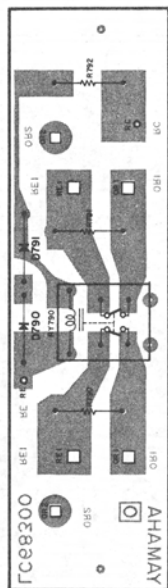
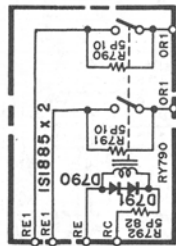
FUNCTION C.B.O.A.R.D



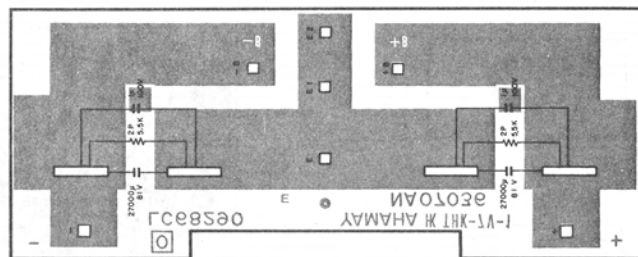
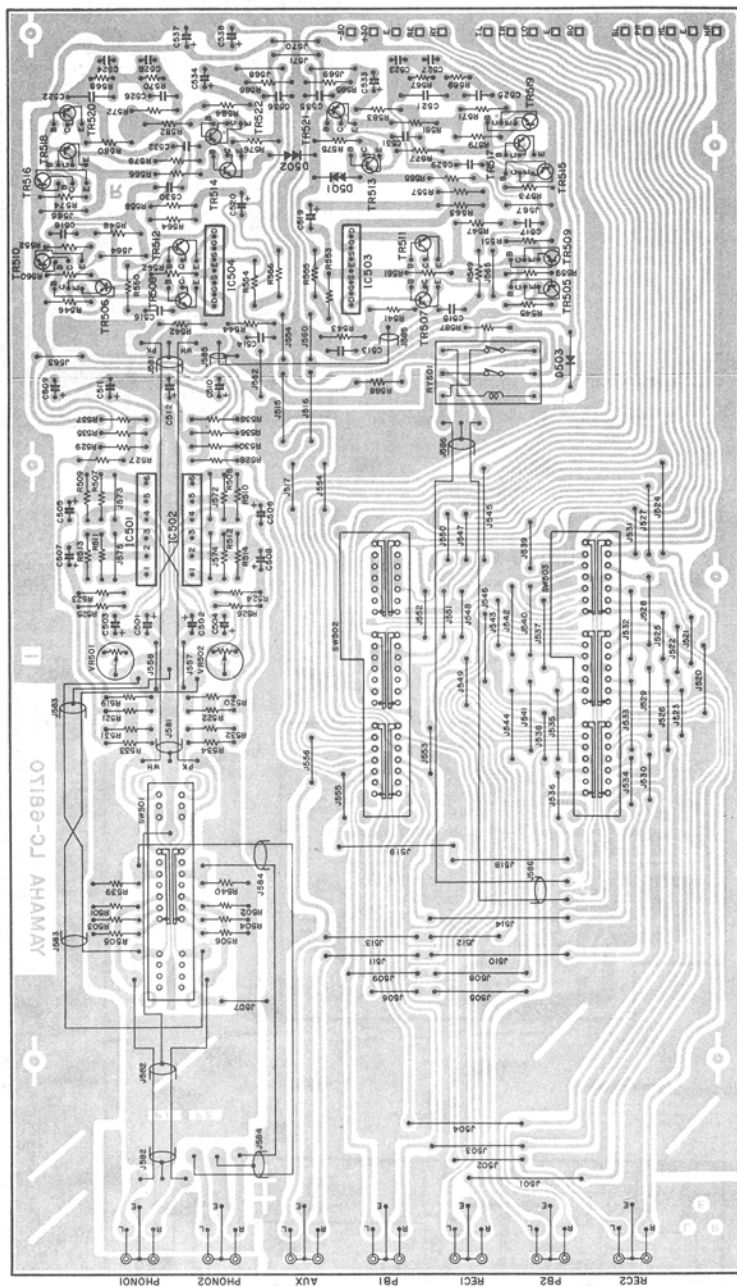
DOLBY C.B.O.A.R.D



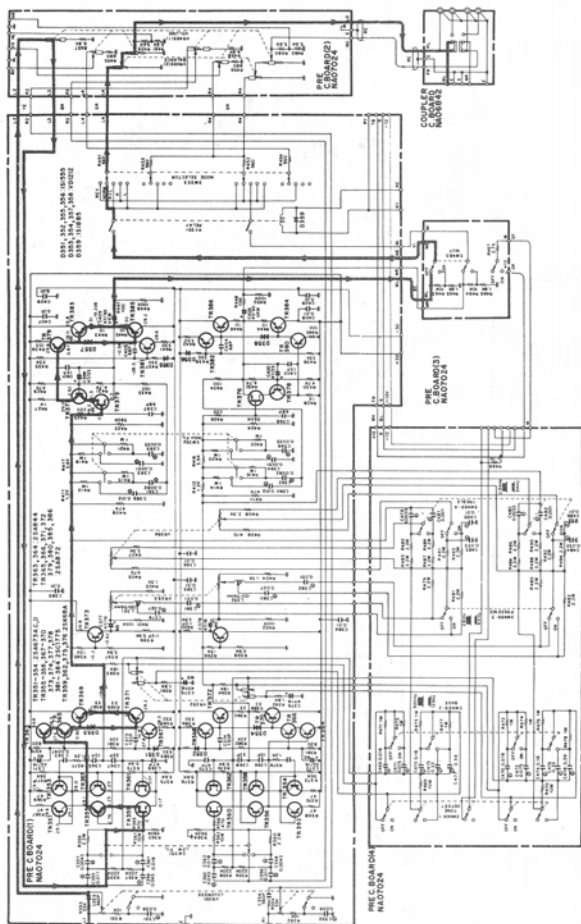
PROTECTOR C-BOARD



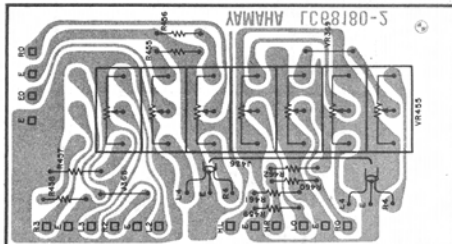
ELECTROLYTIC CAPACITOR C.B.O.ARD



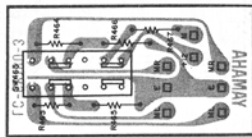
PRE C. BOARD 1



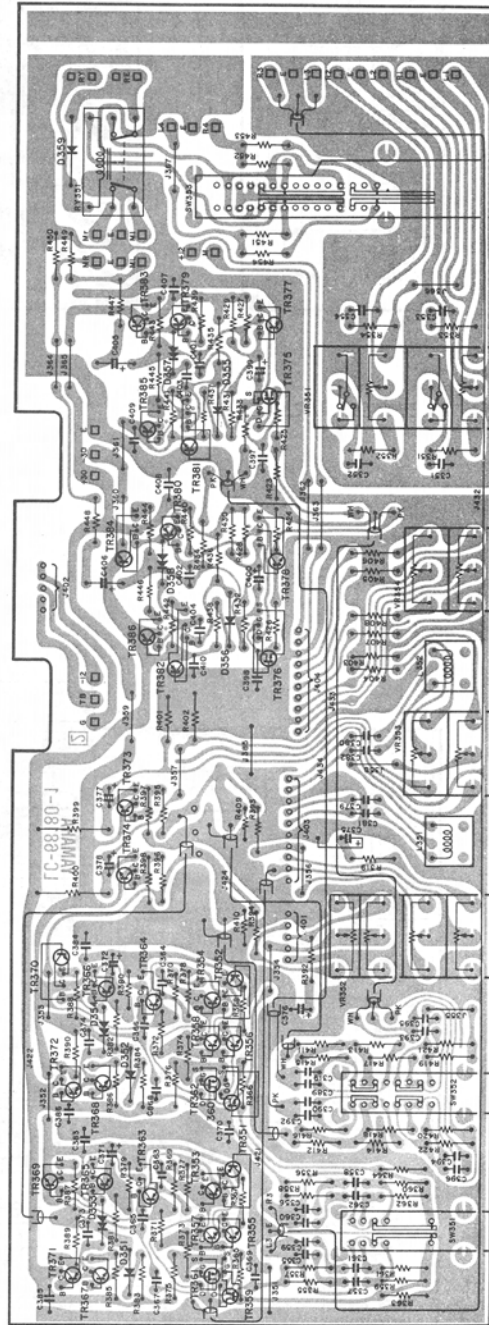
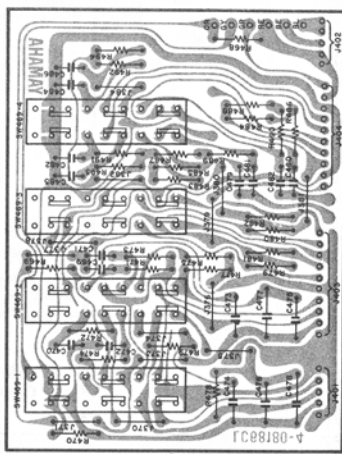
PRE C. BOARD 2



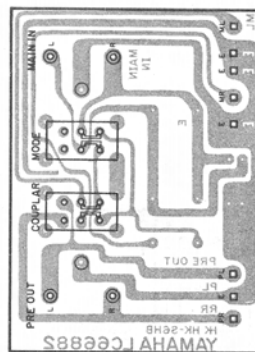
PRE C. BOARD 3



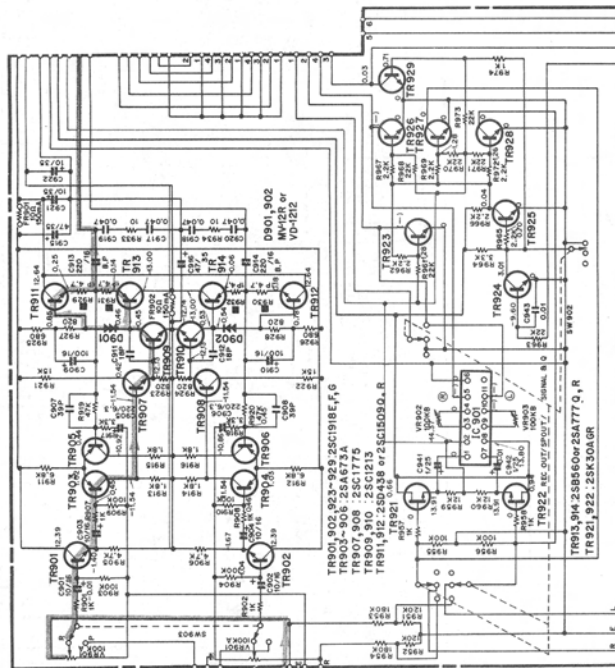
PRE C. BOARD 4



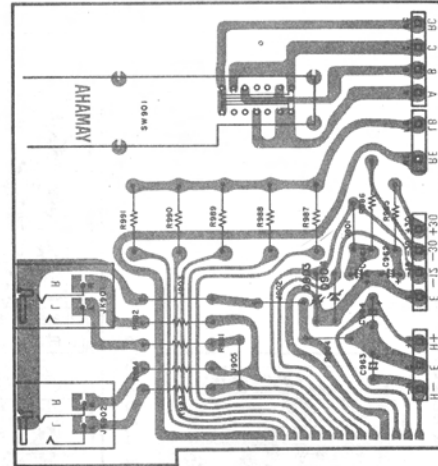
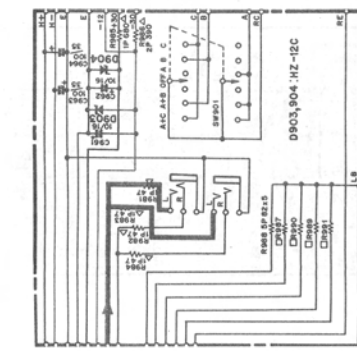
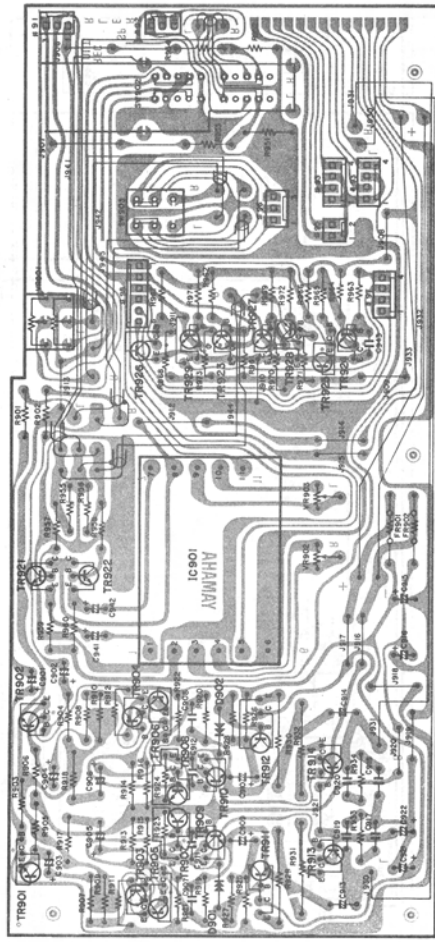
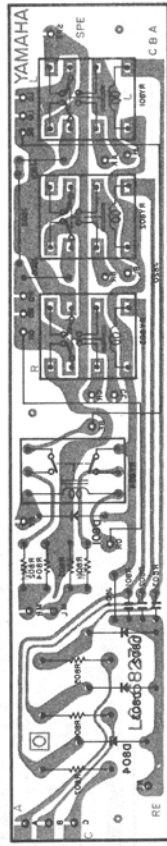
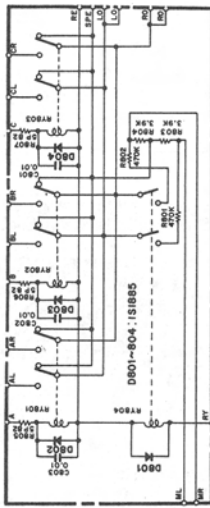
COUPLER C. BOARD



HEADPHONE & METER C.B.O.A.R.D 1,2

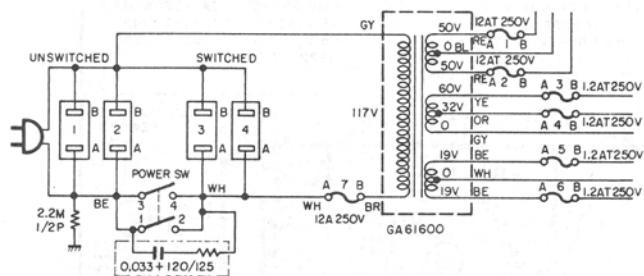


RELAY C.B.O.A.R.D

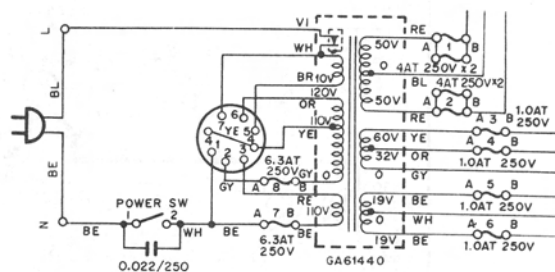


SCHEMATIC DIAGRAM BY EXPORT ZONE

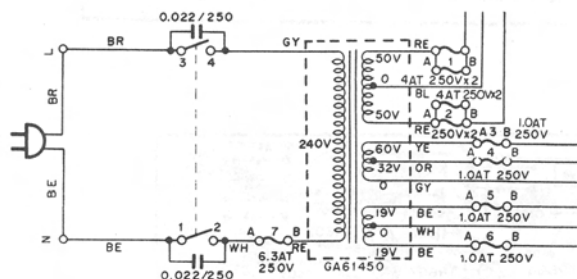
CANADIAN model



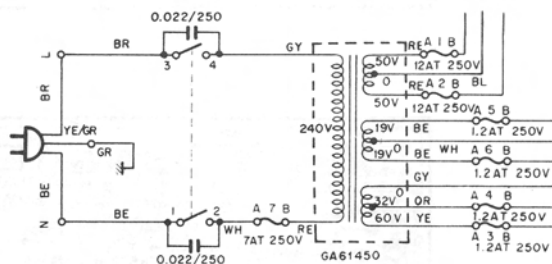
EUROPEAN model



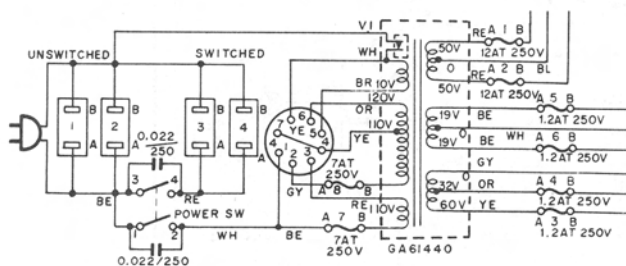
BS model



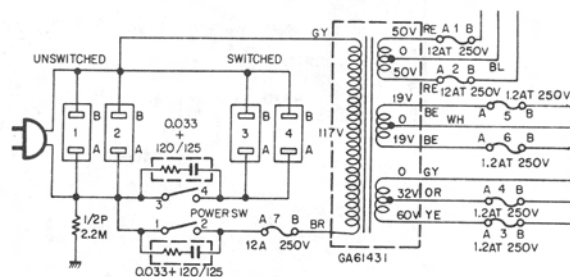
AUSTRALIAN model



GENERAL EXPORT model



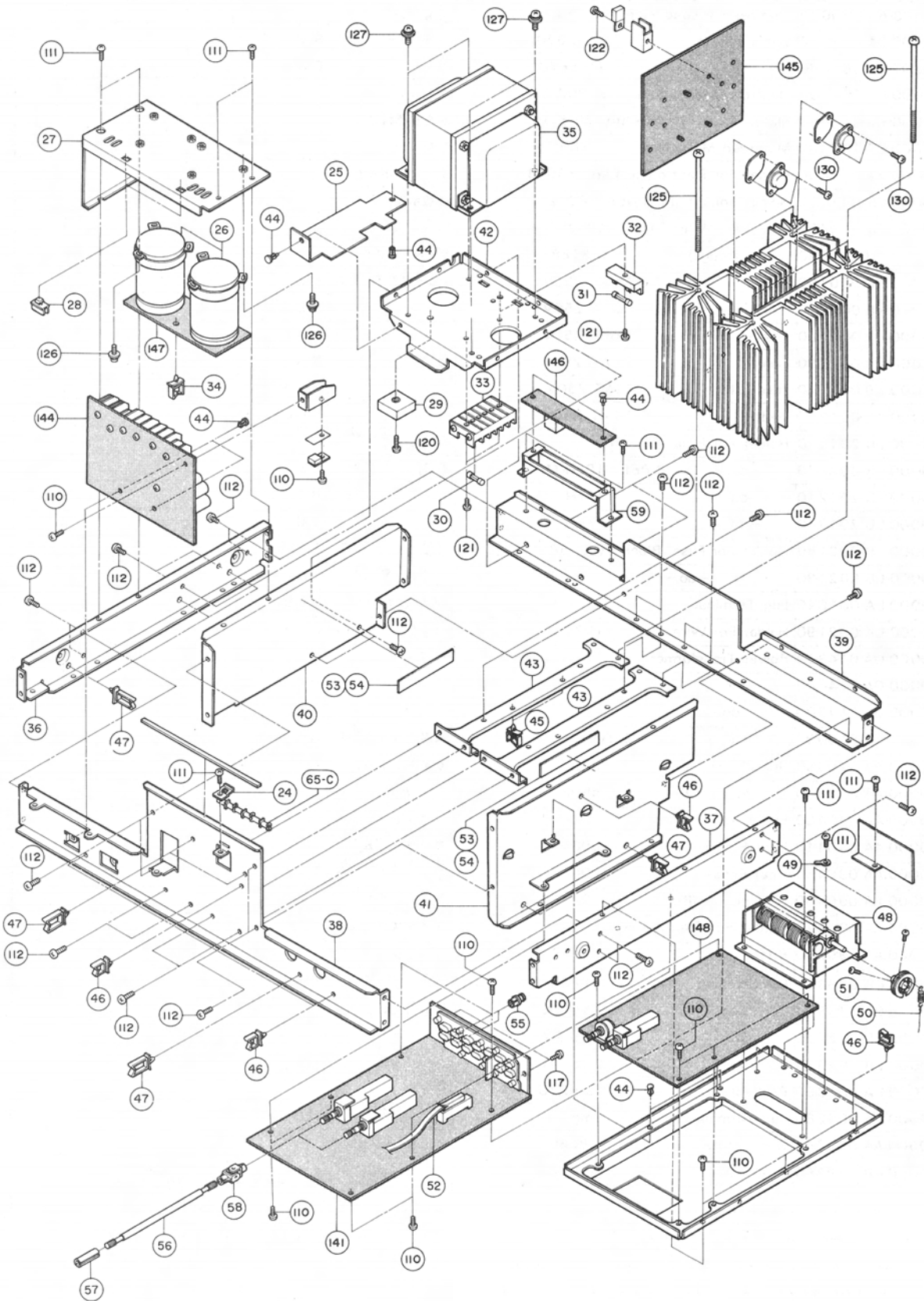
U.S.A model



■ PARTS LIST

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EXPLODED VIEW



■ PARTS LIST

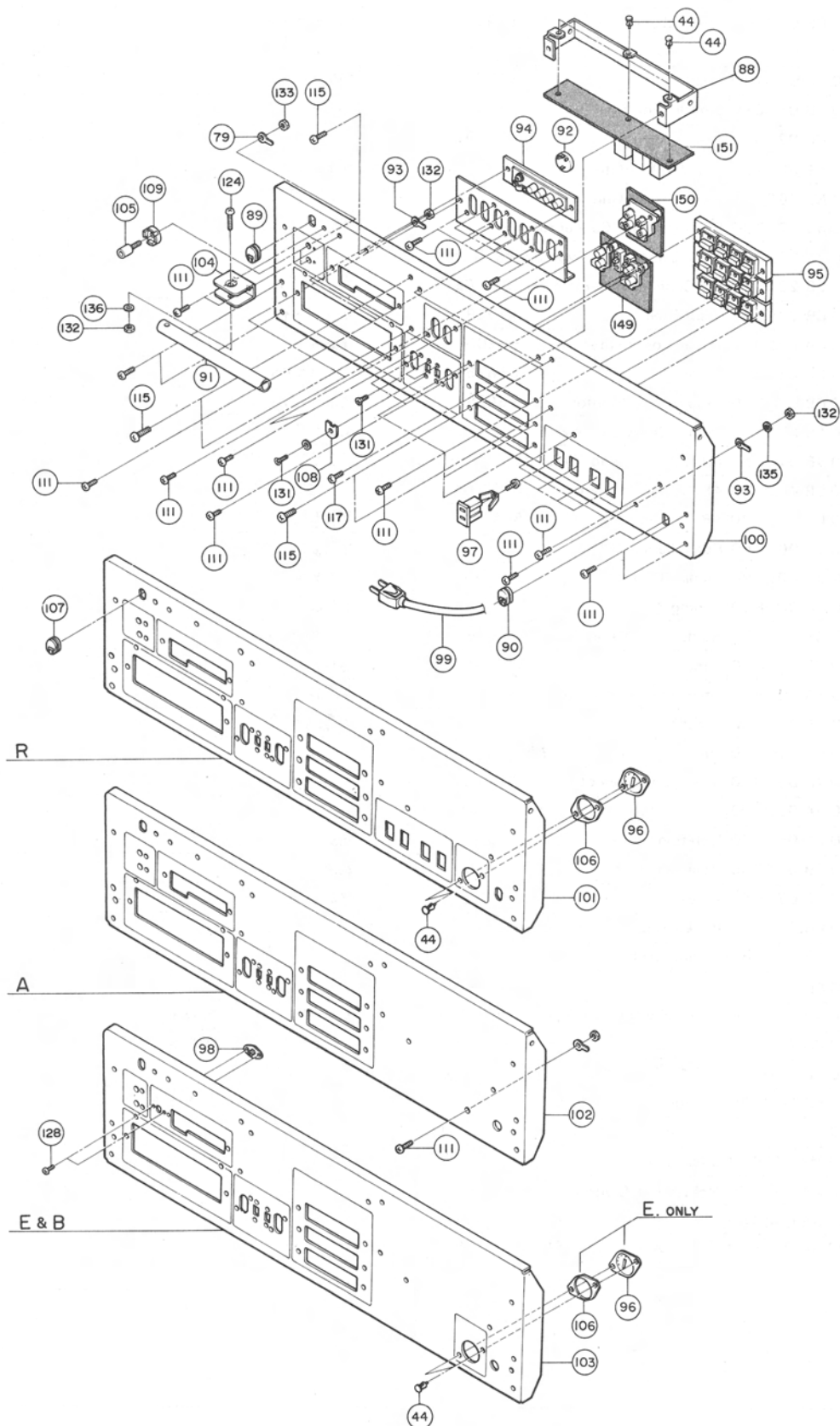
Ref. No.	Part No.	Description	部 品 名	Remarks	Common Models	卸値	小売価
24	320000 AA 090670	Cumpler For Lead Pipe #9067	リードパイプ クランパー				
25	420000 CA 067020	Sticker Plate (U) #6702	ステッカープレート	R, U, A, C			
	420000 CA 067080	-do- (E) #6708	"	E, B			
26	420000 FZ 001190	Electrolytic Capacitor 27000/81	ケミコン				
A	420000 HL 326560	Metal Oxide Film Resistor 2P 5.6K	酸化皮膜抵抗				
B	420000 FC 106100	Metalized Myler Cap. 1/100	MMコン				
27	420000 AA 090480	Holder For Electrolytic Cap. #9048	ケミコンホルダー				
28	320000 CB 083720	Holder For Circuit Board #8372	基板ホルダー				
A	420000 FZ 000680	Metalized Myler Cap. 0.1/250	メタライズド マイラーコン				
29	420000 i H 000680	Diode (Bridge) S-5188	ダイオードブリッジ				
30	420000 KB 000730	Fuse Ⓔ 1.0AT 250V	ヒューズタイムラグ	E, B			
	420000 KB 000770	-do- 6.3AT 250V	"	E, B			
	420000 KB 000790	-do- 4.0AT 250V	"	E, B			
	420000 KB 001300	Fuse 7.0AT 250V	ヒューズ タイラッシュ	R, A			
31	420000 KB 001540	Fuse, UL 12AT 250V	"	R,A,U,C			
	420000 KB 001550	-do- 1.2AT 250V	"	R,A,U,C			
32	420000 LB 201210	Holder For Fuse 1PFH	ヒューズホルダー フェノール	A			
	420000 LB 200940	-do- FR-PET 1PFH-M	ヒューズホルダー 1PH-M	E,B			
	420000 LB 201210	-do- 1PFH	ヒューズホルダー フェノール	R			
	420000 LB 201340	-do- 1PFH	"	U,C			
33	420000 LB 602180	Holder For Fuse, Block Type 6P	ブロック型ヒューズ ホルダー6P	R,U,A,C			
	420000 LB 602190	-do- 8P	ブロック型ヒューズ ホルダー8P	E,B			
	420000 LA 001040	Lug Terminal 3P	3P中継端子台	A,E,B			
34	420000 LA 002190	Holder For Wire 1599-1	ワイヤーホルダー	A,E,B			
35	420000 GA 614310	Power Transformer	電源トランス	U			
	420000 GA 614400	-do-	"	R,E			
	420000 GA 614500	-do-	"	A,B			
	420000 GA 616000	-do- B Type	電源トランスB種	C			
36	420000 AA 090380	Side Frame, (L) #9038	サイドフレーム(L)				
37	420000 AA 090390	-do- (R) #9039	" (R)				
38	420000 AA 090400	Front Frame #9040	フロントフレーム				
39	420000 AA 090410	Rear Frame #9041	リヤフレーム				
40	420000 AA 090450	Heat Fence (L) #9045	ヒートフェンス (L)				
41	420000 AA 090460	-do- (R) #9046	ヒートフェンス (R)				
42	420000 AA 090470	Holder For Transformer #9047	トランスホルダー				
43	420000 AA 090590	Bridge #9059	ブリッジ				
44	420000 CB 068880	Plastic Rivet #6888	プラスチック リベット	RE			
45	420000 CB 076550	Wire Saddle LWS-1N	ワイキング ワイヤーサドル		C-2		
46	420000 CB 072720	-do- LWS-2N	"		B-1		
47	420000 CB 084370	-do- LWS-3N	"				
48	420000 PA 000350	RF Pack FS-522U	RFバック				
49	420000 LA 000280	Lug Terminal 3mm	アースラグ (外径2m)				
50	320000 AA 089860	Dial Spring #8986	ダイヤルスプリング				
51	320000 CB 079260	V. C Pulley #7926	バリコンプーリー		CR-2020		

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■ PARTS LIST

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EXPLODED VIEW



■ PARTS LIST

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Ref. No.	Part No.	Description	部 品 名	Remarks	Common Models		
142	32:00:00 NA 07:0240	Pre C.Board	ブリシート				
	32:00:00 MZ 07:1750	Pre Connector Ass'y	ブリコネクター Ass'y				
	42:00:00 FG 21:1100	Ceramic Capacitor 50VSL(K) 10PF	セラコン				
	42:00:00 FG 21:1150	-do.- 15PF	"				
	42:00:00 FG 21:1220	-do.- 22PF	"				
	42:00:00 FG 51:1470	-do.- 47PF	"				
	42:00:00 FG 21:1680	-do.- 68PF	"				
	42:00:00 FG 21:2150	-do.- 150PF	"				
	42:00:00 FG 11:2560	-do.- YB(K) 560PF	"				
	42:00:00 FG 11:3470	-do.- 0.0047 μ F	"				
	42:00:00 FG 14:4100	-do.- 0.01 μ F	"				
	42:00:00 FJ 14:7470	Electrolytic Capacitor Vert. 47 μ F 25V	ケミコンタテ				
	42:00:00 FZ 00:0860	-do.- MS 22 μ F 16V	"				
	42:00:00 FZ 00:0870	-do.- MS 47 μ F 16V	"				
	42:00:00 FZ 00:1230	-do.- UKM 47 μ F 50V	"				
	42:00:00 GE 90:0290	Coil 120/56mH	コイル				
	42:00:00 Hi 20:9990	Solid Resistor 10M Ω	ソリッド抵抗				
	42:00:00 HS 32:0430	Variable Resistor	可変抵抗器 2軸8通				
	42:00:00 HS 32:0440	-do.- 100KB+Switch	可変抵抗器 1軸2通				
	42:00:00 HS 32:0450	-do.- Center Open	"				
	42:00:00 HS 32:0460	-do.- -do.-	"				
	42:00:00 HS 32:0470	-do.- MN	可変抵抗器 1軸4通				
	42:00:00 i A 06:7310	Transistor 2SA673A C,D	トランジスター	TR351~354			
	42:00:00 i A 08:4400	-do.- 2SA844	"	TR363,364			
	42:00:00 i A 08:7200	-do.- 2SA872	"	TR365,366,371,372 379,380,385,386			
	42:00:00 i C 17:7500	-do.- 2SC1775	"	TR355~358,367~370 373,374,377,378,381~384			
	42:00:00 i E 10:0550	FET 2SK68A L1,M1,M2,N1	FET	TR359~362, 375,376			
	42:00:00 i F 00:0040	Diode 1S1555	ダイオード	D351~352, 355~356			
	42:00:00 i F 00:0790	Varistor MV12R	バリスタ	D353,354,357,358			
	42:00:00 i F 00:0770	-do.- VD1212	"	"			
	42:00:00 i F 00:0680	LED SLP132B	LED	D495,496			
	42:00:00 i H 00:0240	Diode 1S1885	ダイオード	D359			
	42:00:00 KA 20:0770	Lever Switch Shorting Type	レバーSWショーティン グ2回路3接点				
	42:00:00 KA 20:0760	-do.- Non Shorting Type	レバーSWノンショーティン グ4回路3接点				
	42:00:00 KA 50:1170	Rotary Switch SRZ V045S	ロータリーSW 丸軸				
	42:00:00 KA 80:0600	Push Switch	プッシュSW 4回路半通				
	42:00:00 KA 80:0550	-do.-	プッシュSW 6回路4通				
	42:00:00 KC 00:0300	Lead Relay RL6442 H132	リードリレー				
	42:00:00 Mi 06:6390	Lead Wire 5P	スミフラット				
	42:00:00 Mi 06:6380	-do.- 10P	"				
	32:00:00 CB 07:9300	Spacer For LED #7930	LEDスペーサー		CR-2020		
	42:00:00 LA 00:2110	Lapping Pin i Type 2P	ラッピング端子板				
	42:00:00 LA 00:2120	-do.- 3P	"				
	42:00:00 LA 00:2130	-do.- 6P	"				
	42:00:00 LA 00:2440	Lapping Pin U Type 3P	ラッピング端子板 U型				
	42:00:00 LA 00:2450	-do.- 4P	ラッピング端子板				
	42:00:00 CB 07:2170	Shield Cap 333325	シールドキャップ				

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Models		
143	320000:NA 070290	Head Phone & Meter C.Board	ヘッドホン & メーターシート	U			
	420000:FG 211390	Ceramic Capacitor 50V SL(K) 39PF	セラコン				
	420000:FG 211180	-do.- 18PF	"				
	420000:FG 144470	-do.- YM(Z) 0.047	"				
	420000:FG 144100	-do.- YZ(Z) 0.01	"				
	420000:FJ 118220	Electrolytic Capacitor Vert. 220 μ F 6.3V	ケミコンタテ型				
	420000:FJ 137100	-do.- 10 μ F 16V	"				
	420000:FJ 138100	-do.- 100 μ F 16V	"				
	420000:FJ 157100	-do.- 10 μ F 35V	"				
	420000:FJ 157470	-do.- 47 μ F 35V	"				
	420000:FJ 158100	-do.- 100 μ F 35V	"				
	420000:FJ 146100	-do.- 1 μ F 25V	"				
	420000:FM 098220	Non-Polar Electrolytic Cap Vert. 220 μ F 16V	バイポーラ ケミコンタテ型				
	420000:HL 425390	Metal Oxide Film Resistor 390 Ω 2P	酸化抵抗				
	420000:HL 415680	-do.- 680 Ω 1P	"				
	420000:HL 414470	-do.- 47 Ω 1P	"				
	420000:HM 054820	Cement Molded Resistor 82 Ω 5P	セメント抵抗				
	420000:HW 194100	Fuse Resistor 10 Ω 150mA	ヒューズ抵抗	R, C, A, E, B			
	420000:HW 294100	-do.- 10 Ω 150mA	"	U			
	420000:HZ 000710	Fire Proof Resistor 1P 4.7 Ω	不燃性抵抗				
	420000:HT 410090	Variable Resistor ϕ 10 100K Ω (B)	ソリッドVRヨコ型				
	420000:HS 310220	-do.- 100K Ω (A)	可変抵抗器				
	420000:i A 067310	Transistor 2SA673A C~D	トランジスター	TR903~906			
	420000:i A 077730	-do.- 2SA777 Q, R	"	TR913, 914			
	420000:i B 056000	-do.- 2SB560	"	-do.-			
	420000:i C 121330	-do.- 2SC1213 C~D	"	TR909, 910			
	420000:i C 177500	-do.- 2SC1775	"	TR907, 908			
	420000:i C 191800	-do.- 2SC1918 E, F, G	"	TR901, 902, 923~929			
	420000:i C 150930	-do.- 2SC1509	"	TR911, 912			
	420000:i D 043800	-do.- 2SD438	"	"			
	420000:i E 000020	FET 2SK30A GR	FET	TR921, 922			
	420000:i F 000770	Varistor Diode VD-1212	バリスタ	D901, 902			
	420000:i F 000790	-do.- HV-12R	"	"			
	420000:i F 000550	Zener Diode HZ-12C	ツェナーダイオード	D903, 904			
	420000:i G 025800	IC 0258	IC	IC901			
	420000:KA 800560	Push Switch	プッシュスイッチ				
	420000:KA 501110	Rotary Switch SRZ-V046N	ロータリースイッチ 4回路6接点				
	420000:KA 501120	-do.- SRZ-V043N	ロータリースイッチ 4回路3接点				
	420000:LA 002030	Wire Lapping Pin I Type 4P 5mm	ワイヤーラッピング 用ピン				
	420000:LA 002120	-do.- 3P 5mm	"				
	420000:LA 002000	-do.- 2P 7.5mm	"				
	420000:LB 300700	Jack HLJ0190-01-120	ジャック				
	420000:LB 201320	Connector Wafer 2P	ミニチュアコネク トコンウェハー				
	420000:LB 300320	-do.- 3P	"				
	420000:LB 400440	-do.- 4P	"				
	420000:LB 602130	-do.- 6P	"				
	420000:Mi 066400	-do.- 100mm 14P	スミフラット				

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Models			
144	320000:NA 070250	Power Supply C. Board	電源シート					
	420000:FG 144100	Ceramic Capacitor 50V YZ(Z) 0.00 μ F	セラコン					
	420000:FH 234100	-do.- 500V YZ(P) 0.01 μ F	"					
	420000:FJ 147100	Electrolytic Capacitor Vert. 10 μ F 25V	ケミコンタテ型					
	420000:FJ 147220	-do.- 22 μ F 25V	"					
	420000:FJ 247470	-do.- 47 μ F 25V	"					
	420000:FJ 248220	-do.- 220 μ F 25V	"					
	420000:FJ 147330	-do.- 33 μ F 25V	"					
	420000:FJ 258220	-do.- 220 μ F 35V	"					
	420000:FJ 238100	-do.- 100 μ F 16V	"					
	420000:FJ 259220	-do.- 2200 μ F 35V	"					
	420000:FJ 167100	-do.- 10 μ F 50V	"					
	420000:FJ 368100	-do.- 100 μ F 50V	"					
	420000:FJ 169150	-do.- 1500 μ F 50V	"					
	420000:FJ 298100	-do.- 100 μ F 100V	"					
	420000:FJ 298220	-do.- 220 μ F 10V	"					
	420000:FJ 259100	-do.- 1000 μ F 35V	"					
	420000:FM 397470	-do.- Z Type 47 μ F 16V	ケミコンタテZ型					
	420000:FZ 000570	-do.- MS Type 1 μ F 50V	MS コンデンサー					
	420000:HL 414150	Metal Oxide Film Resistor 15 Ω 1P	酸化抵抗					
	420000:HL 416150	-do.- 1.5K Ω 1P	"					
	420000:HL 825470	-do.- 470 Ω 2P	"					
	420000:HL 304470	-do.- 47 Ω 1/2P	"					
	420000:HM 055120	Cement Moled Resistor MO-4P 120 Ω 5P	セメント抵抗					
	420000:HZ 000710	Fire Proof Resistor 4.7 Ω 1P	不燃性抵抗					
	420000:i A 067310	Transistor 2SA673A C or D	トランジスター	TR710				
	420000:i A 084410	-do.- 2SA844 D, E	"	TR709, 711, 718, 723				
	420000:i A 087210	-do.- 2SA872 D, E	"	TR702, 703				
	420000:i A 091320	-do.- 2SA913 Q	"	TR704				
	420000:i A 091330	-do.- -do.- R	"	-do.-				
	420000:i B 054400	-do.- 2SB544	"	TR725				
	420000:i C 121310	-do.- 2SC1213A C or D	"	TR706				
	420000:i C 189000	-do.- 2SC1890 D or E	"	TR705, 708, 714, 716, 719				
	420000:i C 191320	-do.- 2SC1913 Q	"	TR701				
	420000:i C 191330	-do.- -do.- R	"	-do.-				
	420000:i C 191840	-do.- 2SC1918 F, G	"	TR721, 722, 724				
	420000:i D 023400	-do.- 2SD234	"	TR707, 712, 713, 715, 720				
	420000:i B 056600	-do.- 2SB566 B, C, D	"	TR717				
	420000:i F 000040	Diode 1S1555	ダイオード	D715				
	420000:i H 000240	-do.- 1S1885	"	D711, 703, 704, 706, 707				
	420000:i H 000470	-do.- 1D4B-1	"	D712				
	420000:i H 000250	-do.- 1S1886	"	D701, 702				
	420000:i F 000640	Zener Diode HZ-7B	ツェナーダイオード	D705				
	420000:i F 001020	-do.- WZ-140	"	D708~710				
	420000:i F 000400	-do.- WZ-192	"	D714				
	420000:LA 002620	Lapping Pin L Type 3P	ランピング端子					
	320000:BA 072540	Heat Sink (A) #7254	放熱板					
	320000:BA 072550	-do.- (B) #7255	"					

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Models		
145	320000:NA 070310	Main C. Board	メインシート	U			
	320000:NA 070320	-do.-	"	R, A, C			
	320000:NA 070470	-do.-	"	E, B			
	420000:FG 212100	Ceramic Capacitor 50V SL(K) 100PF	セラコン				
	420000:FG 212150	-do.- -do.- 150PF	"				
	420000:FG 144100	-do.- YZ(Z) 0.01 μ F	"				
	420000:FG 245100	-do.- YM(Z) 0.1 μ F	"				
	420000:FH 611680	-do.- 500V CH Type 58PF	"				
	420000:FH 611560	-do.- -do.- 56PF	"				
	420000:FH 212150	-do.- YW(K) 150PF	"				
	420000:FH 611100	-do.- CH 10PF	"				
	420000:FJ 166100	Electrolytic Capacitor Vert. 1 μ F 50V	ケミコンタテ型				
	420000:FJ 186100	-do.- 1 μ F 80V	"				
	420000:FJ 196100	-do.- 1 μ F 100V	"				
	420000:FZ 000680	Metarized Mylar Capacitor 250V 0.1 μ F	メタライズドマイラー				
	420000:GD 900210	Coil 2.2 μ H	コイル				
	420000:HL 414470	Metal Oxide Film Resistor 1P 47 Ω	酸金抵抗				
	420000:HL 414820	-do.- 1P 82 Ω	"				
	420000:HL 415390	-do.- 1P 390 Ω	"				
	420000:HL 417100	-do.- 1P 10K Ω	"				
	420000:HL 417120	-do.- 1P 12K Ω	"				
	420000:HM 052470	Cement Molded Resistor 5P 0.47 Ω	セメント抵抗				
	420000:HM 054100	-do.- 5P 10 Ω	"				
	420000:HU 075300	Metal Film Resistor 30 Ω	金属被膜抵抗				
	420000:HW 193470	Fuse Resistor 230mA 4.7 Ω	ヒューズ抵抗	R, C, A, E, B			
	420000:HW 293470	-do.-	"	U			
	420000:HW 194470	-do.- 70mA 47 Ω	"	R, C, A, E, B			
	420000:HW 294470	-do.-	"	U			
	420000:HW 195100	-do.- 50mA 100 Ω	"	R, C, A, E, B			
	420000:HW 295100	-do.-	"	U			
	420000:HW 195390	-do.- 25mA 390 Ω	"	R, C, A, E, B			
	420000:HW 295390	-do.-	"	U			
	420000:HW 104680	-do.- 85mA 68 Ω	"	R, C, A, E, B			
	420000:HW 204680	-do.-	"	U			
	420000:HY 000380	-do.- CR29R (B) 2.2K Ω	メタルグレースVR				
	420000:HY 000360	-do.- (B) 10K Ω	"				
	420000:HZ 000710	Fire Proof Resistor 1P 4.7 Ω	不燃性抵抗				
	420000:i A 067310	Transistor 2SA673A C,D	トランジスター	TR601,602,606~608,612,613,615			
	420000:i B 062850	-do.- 2SB628A	"	TR609, 617			
	420000:i A 091350	-do.- 2SA913A Q,R	"	-do.-			
	420000:i A 074760	-do.- 2SA747B O,Y	"	TR619, 621			
	420000:i B 055530	-do.- 2SB555 O,R	"	-do.-			
	420000:i C 121330	-do.- 2SC1213A C,D	"	TR605, 614			
	420000:i C 147300	-do.- 2SC1473 Q,R	"	TR622			
	420000:i C 177500	-do.- 2SC1775	"	TR603,604,611			
	420000:i D 060850	-do.- 2SD608A	"	TR610, 616			
	420000:i C 191350	-do.- 2SC1913A R,Q	"	-do.-			
	420000:i C 111680	-do.- 2SC1116B O,Y	"	TR618, 620			
	420000:i D 042530	-do.- 2SD425 O,R	"	-do.-			

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Models		
	320000: E 100770	FET 2SK99A	FET	IC601			
	420000: F 000000	Diode 1S1555	ダイオード	D605,606,609,~612			
	420000: F 000005	Zener Diode HZ6C	ツェナーダイオード	D601~604			
	420000: F 000007	Diode 1S2462	ダイオード	D607,608,614			
	420000: H 000002	-do.- 1S1885	"	D613			
	420000: HZ 000008	Thermistor ERT D2 PHK 802S	サーミスタ	Th601			
	420000: KB 000015	Temperature Fuse 119°C 250V 10A MT4244A	温度ヒューズ				
	320000: BA 070724	Heat Sink #7248	放熱板				
	320000: BA 060691	-do.- #6914	"				
	320000: BB 060630	TR	TRプッシャー				
	420000: L 000002	Insulator AC201	ベース				
	420000: LB 101001	Connector Pin	ダイヤモンドコネクタピン				
	420000: LB 101002	Fasten Tub L Type	ファストンタブ L型				
	420000: LB 303002	TR Socket	TRソケット				
	420000: LB 808021	Connector Wafer 5045-06A	コネクタウエハー				
146	320000: NA 070770	Protector C. Board	プロテクターシート				
	420000: HM 757500	Cement Molded Resistor 10Ω 5P	セメント抵抗				
	420000: HM 050500	-do.- -do.-	"	上記併用可			
	420000: HM 050520	-do.- 82Ω 5P	"				
	420000: H 000040	Diode 1S1885	ダイオード	D790,791			
	420000: KC 000010	Relay AP5421 HL2-P-DC12V	リレー				
	420000: CB 060680	Plastic Rivet #6888	プラスチックリベット				
147	320000: NA 070760	Electrolytic C. Board	ケミコンシート				
	420000: CB 070720	Wire Saddle LWS-2N	ロックングワイヤーサドル		B-1		
148	320000: NA 070760	Tuner C. Board	チューナーシート	R			
	320000: NA 070770	-do.-	"	U, C			
	320000: NA 070780	-do.-	"	A, E, B			
	320000: MZ 070790	Tuner Connector Ass'y	チューナーコネクタ Ass'y				
	420000: LB 303030	Connector Female 3P 5051-03	コネクタコンパウジソング				
	420000: LB 808020	-do.- 6P 5051-06	"				
	420000: FE 111100	Polystyrene Capacitor Tubl 50V(K) 10000PF	スチコンヨコ型				
	420000: FE 151530	-do.- (T) 330PF	"				
	420000: FE 151560	-do.- (T) 1600PF	"				
	420000: FD 151520	-do.- Vert (T) 820PF	スチコンタテ型				
	420000: FG 141400	Ceramic Capacitor 50V YZ(Z) 0.1μF	セラコン				
	420000: FG 141470	-do.- 0.047μF	"				
	420000: FG 141420	-do.- 0.022μF	"				
	420000: FG 212100	-do.- SL(K) 10PF	"				
	420000: FG 212150	-do.- 15PF	"				
	420000: FG 212120	-do.- 22PF	"				
	420000: FG 515170	-do.- 47PF	"				
	420000: FG 212100	-do.- 100PF	"				
	420000: FG 212120	-do.- 220PF	"				
	420000: FG 212130	-do.- 330PF	"				

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Models		
	420000FG 112680	Ceramic Capacitor YB(K) 680PF	セラコン				
	420000FG 113100	-do.- 0.001 μ F	"				
	420000FG 113220	-do.- 0.0022 μ F	"				
	420000FG 113330	-do.- 0.0033 μ F	"				
	420000FG 212470	-do.- SL(K) 470PF	"				
	420000FJ 217470	Electrolytic Capacitor Vert. 47 μ F 6.3V	ケミコンタテ型				
	420000FJ 118100	-do.- 100 μ F 6.3V	"				
	420000FJ 127470	-do.- 47 μ F 10V	"				
	420000FJ 137100	-do.- 10 μ F 16V	"				
	420000FJ 137220	-do.- 22 μ F 16V	"				
	420000FJ 137330	-do.- 33 μ F 16V	"				
	420000FJ 137470	-do.- 47 μ F 16V	"				
	420000FJ 146220	-do.- 2.2 μ F 25V	"				
	420000FJ 146330	-do.- 3.3 μ F 25V	"				
	420000FJ 146470	-do.- 4.7 μ F 25V	"				
	420000FJ 147220	-do.- 22 μ F 25V	"				
	420000FJ 157100	-do.- 10 μ F 35V	"				
	420000FJ 158100	-do.- 100 μ F 35V	"				
	420000FJ 148220	-do.- 220 μ F 35V	"				
	420000FJ 465220	-do.- 0.22 μ F 50V	"				
	420000FJ 165470	-do.- 0.47 μ F 50V	"				
	420000FJ 166100	-do.- 1 μ F 50V	"				
	420000HL 415100	Metal Oxide Film Resistor 1P 100 Ω	酸化抵抗				
	420000HU 076680	Metal Film Resistor RE35 6.8K Ω	金属被膜抵抗				
	420000HU 078100	-do.- 100K Ω	"				
	420000HU 076100	-do.- 1K Ω	"				
	420000HU 076220	-do.- 2.2K Ω	"				
	420000HU 075470	-do.- 470 Ω	"				
	420000HU 075680	-do.- 680 Ω	"				
	420000HU 076820	-do.- 8.2K Ω	"				
	420000HT 370010	Variable Resistor V8K4-1 B 1K Ω	半固定 VR				
	420000HT 370020	-do.- B 10K Ω	"				
	420000HT 370030	-do.- B 100K Ω	"				
	420000HT 370040	-do.- B 500 Ω	"				
	420000HT 370070	-do.- B 3K Ω	"				
	420000HY 000140	-do.- CR19R B 470 Ω	メタルグレースVR				
	420000HS 310230	Variable Resistor Switch ϕ 16 B 20K Ω	可変抵抗一軸一連スイッチ付				
	420000GE 100150	OSC Coil AM GE 6013	OSCコイル				
	420000GE 100200	FM Discriminator Coil GE 10020	FM ディスクリコイル				
	420000GE 100180	FM IFT GE 10018	FM IFT				
	420000GE 200070	MPX Coil GE 6056	MPX コイル				
	420000GE 200170	-do.- 22mH	MPX 固定コイル				
	420000GE 900010	AM RF Coil GE 6067	AM RFコイル				
	420000GE 100240	-do.- 455 IFT	"				
	420000GE 100250	-do.- 455 IFT	"				
	420000GE 300130	RF Inductor Coil 10 μ H	RFインダクター				
	420000GE 300150	-do.- 8.2mH	"				
	420000GG 000330	Ceramic Filter CFU-455F	セラミックフィルタ				
	420000GG 000360	-do.- CFM-107	"				

Ref. No.	Part No.	Description	部 品 名	Remarks	Common Models		
	4200:00 i A 07:3300	Transistor 2SA733	トランジスター	TR109,121,124,128,131,132,133,137~140			
	4200:00 i A 08:4400	-do.- 2SA844	"				
	4200:00 i C 19:1800	-do.- 2SC1918 E~F~G	"	TR101~105,107,108,111~120,122,123,125~127,129,130,134~135			
	4200:00 i C 16:3600	-do.- 2SC1636 1 or 2	"	TR141,142			
	4200:00 i C 19:1840	-do.- 2SC1918 F~G	"	TR136			
	4200:00 i E 00:0090	FET 2SK19 GR	FET	TR106			
	4200:00 i F 00:0040	Diode 1S1555	ダイオード	D116,102~105			
	4200:00 i F 00:0640	Zener Diode HZ-7B	ツェナーダイオード	D101,301			
	4200:00 i G 00:0390	I C UPC 577H	I C	IC102,103			
	4200:00 i G 00:1220	-do.- TA 7136P	"	IC104			
	4200:00 i G 00:1230	-do.- LA 3350	"	IC105			
	4200:00 i G 00:0400	-do.- TA 7060P	"	IC101			
	4200:00 KA 80:0530	Push Switch	プッシュSW 4通4回路5接点	U, C			
	4200:00 KA 80:0540	-do.-	プッシュSW 3通4回路5接点	R, A, E, B			
	4200:00 KA 50:1130	Rotary Switch SRZ-V043S	ロータリーSWショーテ ィング4回路5接点				
	4200:00 LB 30:0320	Connector Wafer 3P	ミニチュアコネク トコンテナー				
	4200:00 LB 10:0110	Diamond Connector Pin RTO-7-1.3A	ダイヤモンド コネクタピン				
	4200:00 LA 00:0370	Pipe Lug 2φ×6	パイプラグ				
	4200:00 BB 06:6290	Earth Washer #6629	アース ワッシャー				
149	3200:00 NA 06:8420	Coupler C.Board.	カブラーシート				
150	3200:00 NA 07:0330	Dolby C.Board	ドルビーシート	U, C			
	3200:00 MZ 07:1820	Dolby Connector Ass'y	ドルビーコネクタ ー Ass'y				
	4200:00 LB 40:0400	Pin Jack PC4PL	ストレート基板式ピン ジャックPC4PL型改良		CA-2010		
	4200:00 LA 00:0370	Pipe Lug 2φ×6	パイプラグ				
151	3200:00 NA 07:0340	Relay C.Board	リレーシート	R, U, A, C			
	3200:00 NA 07:0870	-do.-	"	E, B			
	4200:00 FG 14:4100	Ceramic Capacitor 50V YZ(Z) 0.01μF	セラコン				
	4200:00 HM 05:4820	Cement Molded Resistor MD-4P 82Ω 5P	セメント抵抗				
	4200:00 i H 00:0240	Diode 1S1885	ダイオード	D801~804			
	4200:00 KC 00:0300	Lead Relay RL-6642-H132	リードリレー				
	4200:00 KC 00:0530	Relay AP39315 DC12V HC2a-P	リレー				
	4200:00 CB 06:8880	Plastic Rivet #6888 φ3.5	プラスチック リベット				