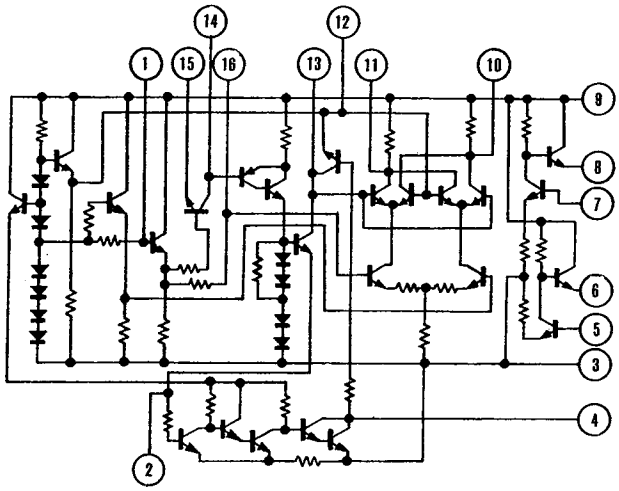
SERVICE MANUAL

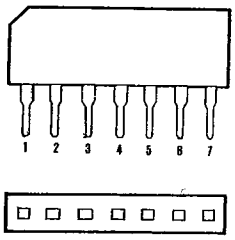
CR-600

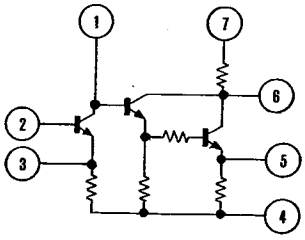
CONTENTS



c. Name: TA-7122P
Function: EQ amp.

ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)	Vcc	Icc	Tstg	Topr
	42V	8mA	−30~ +75°C	−55~ +125°C





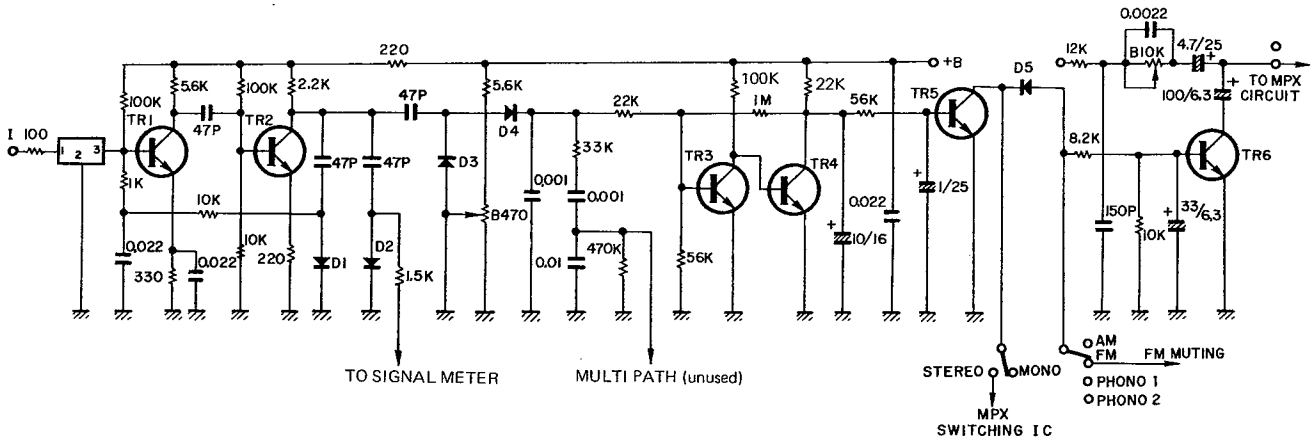
Tstg : Upper and lower limit values of the ambient temperature which must not be surpassed when the transistor out of operation is kept in starage.
Topr : Limit value of the ambient temperature at which operation is possible under the prescribed heat radiation conditions.
Vcc : Maximum collector voltage.
Icc : Maximum collector current.
IL : Current to drive the Lamp.

Note:

1. Do not wet ICs with water or other conductive liquies.
2. Do not leave ICs in heat or oxidizing atmosferes for long periods.
3. Avoid using testers to check ICs for serviceability.
4. When soldering an IC with A regular soldering iron, work as first as possible, try to finish within at most four seconds.
   For best safety, use a special IC soldering iron.

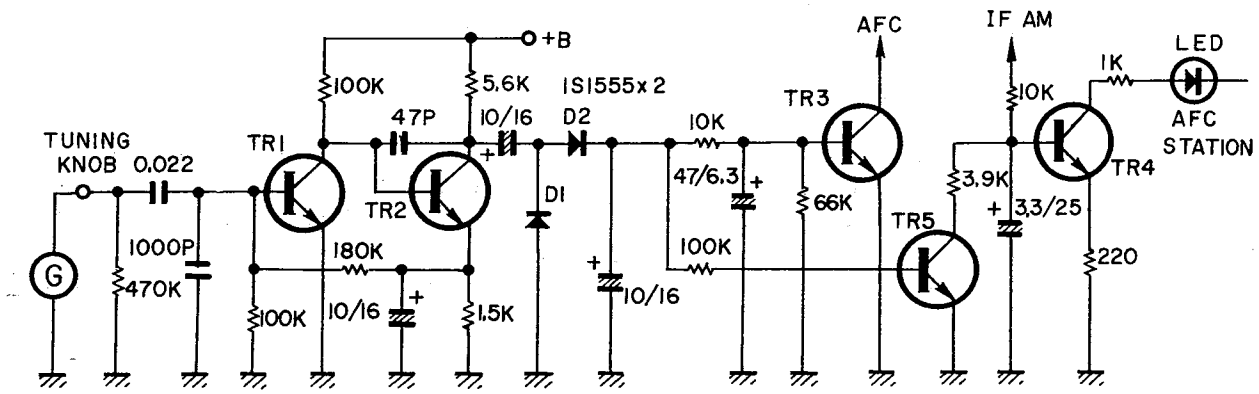
CIRCUIT DESCRIPTION

MUTING CIRCUIT



1. When no signal is received during FM mode (or if the received signal is very weak), Tr3 is OFF, Tr4 is ON and Tr5 is OFF due to a lack of signal received at the I terminal. +B electric potential is fed to the Tr6 base, so that Tr6 goes ON. The FM signal is shorted to the ground, and there is output power at O terminal, and no noise between broadcasting stations.
2. When signals are received during FM mode they enter through the terminals and are amplified by Tr1 and Tr2, rectified by D3 and D4, and then fed to the base of Tr3. This switches Tr3 ON and Tr4 OFF. Because of this, +B potential is fed to the base of Tr5, switching Tr5 ON. The same +B potential fed to the base of Tr6 shorts it and switches it OFF, so that output power appears at the O terminal.

AUTO TOUCH AFC OFF



1. Touch the Tuning knob.
2. The body's electric potential is amplified by Tr1 and TR2.
3. D1 and D2 rectify the Tr2 output voltage to get DC voltage.
4. This DC voltage is fed to Tr3, which switches it ON, then the AFC signal is shorted.
5. At the same time, this DC voltage rapidly lowers the Tr5 impedance, thus reducing the Tr4 base potential. It also lowers the LED brightness.

SPECIFICATIONS

■ AUDIO SECTION

POWER OUTPUT
Dynamic Power
(IHF) 130 watts (4Ω)
90 watts (8Ω)
Continuous RMS Power (each channel driven)
45/45 watts (4Ω) at 1,000Hz
35/35 watts (8Ω) at 1,000Hz
Continuous RMS Power (both channels driven)
40 + 40 watts (4Ω) at 1,000Hz
32 + 32 watts (8Ω) at 1,000Hz
Continuous RMS Power (both channels driven)
35 + 35 watts (4Ω) at 20 to 20,000Hz
30 + 30 watts (8Ω) at 20 to 20,000Hz

TOTAL HARMONIC DISTORTION
Power Amplifier Only
less than 0.1% at rated power
less than 0.04% at 1 watt
Preamplifier Only (PHONO to PRE OUT)
less than 0.1% at rated power
(AUX to PRE OUT)
less than 0.02% at rated power
Overall (AUX to Power Output)
less than 0.1% at rated power

INTERMODULATION DISTORTION
(70Hz : 7,000Hz = 4:1 SMPTE method)
Power Amplifier Only
less than 0.1% (8Ω) at rated power
less than 0.05% (8Ω) at 1 watt
Overall (AUX to Power Output)
less than 0.1% (8Ω) at rated output

POWER BANDWIDTH (IHF, distortion 0.5% const.)
5 to 70,000Hz

FREQUENCY RESPONSE (at 1 watt)
Overall (AUX, TAPE PB to Power Output)
10 to 50,000Hz + 0.5dB, −1dB
Overall (MIC to Power Output)
100 to 10,000Hz +0.5dB, −6dB
Power Amplifier Only
10 to 100,000Hz +0dB, −1dB
RIAA Deviation (30 to 15,000Hz)
+0.5dB, −0.5dB

LOAD IMPEDANCE
4 to 16Ω

DAMPING FACTOR
(8Ω) 70 at 1,000Hz

CHANNEL SEPARATION (at rated power, 1,000Hz)
Power Amplifier Only
60dB
Overall from PHONO 1, 2
50dB
Overall from AUX, TAPE PB
50 dB
Overall from MIC 50 dB

HUM AND NOISE (IHF, Closed Circuit A Network)
Overall from PHONO 1, 2
better than 75dB
Overall from MIC better than 70dB
Overall from AUX, TAPE PB
better than 90dB
Power Amplifier Only
better than 100dB
Volume at Minimum
better than 90dB

INPUT SENSITIVITY AND IMPEDANCE
(at rated power, 1,000Hz)
PHONO 1 3mV (50kΩ)
PHONO 2 3mV (50kΩ)
PHONO 1, 2 Max. Input Capability
135mV (T.H.D. 0.1%)
MIC 3mV (50kΩ)
MIC Max. Input Capability
450mV (T.H.D. 0.3%)
AUX 150mV (45kΩ)
TAPE PB A, B 150mV (45kΩ)
Power Amplifier Input
775mV (45kΩ)

OUTPUT LEVEL AND IMPEDANCE
(at rated power, 1,000Hz)
TAPE REC OUT A, B
150mV (2kΩ)
PRE OUT 775mV (2kΩ)
3,000mV (Max. Output T.H.D. 0.1%)

TONE CONTROLS
BASS +10dB, −10dB at 50Hz
TREBLE +10dB, −10dB at 10,000Hz

FILTERS
LOW −3dB at 50Hz (12dB/oct.)
HIFH −3dB at 8,000Hz (6dB/oct.)

LOUDNESS CONTROL
(Continuous Loudness Volume at Minimum)
+10dB at 100Hz, +5dB at 10,000Hz

■TUNER SECTION

FM:

Tuning Range	88 to 108MHz
Usable Sensitivity (IHF)	2.0μV
Quieting Slope	55dB at 5μV
	60dB at 10μV
Image Frequency Rejection	90dB
IF Rejection	95dB
Spurious Response Rejection	95dB
AM Rejection	55dB
Capture Ratio	1.5dB
Alternate Channel Selectivity (IHF)	75dB
Signal-to-Noise Ratio	70dB
Total Harmonic Distortion	
MONO	0.3% at 400Hz
STEREO	0.5% at 400Hz
Stereo Separation	40dB at 400Hz
	28dB at 50 to 10,000Hz
Frequency Response	+1.0dB, −1.0dB at 50 to 10,000Hz
	+1.5dB, −3.0dB at 20 to 15,000Hz
Sub-Carrier Suppression	40dB
Muting Override Signal Level	10μV
Antenna Impedance	300Ω balanced
	75Ω unbalanced
IF Out Level and Impedance	400mV/1kΩ

AM:

Tuning Range	525 to 1,605kHz
Usable Sensitivity (IHF)	52dB/m
Signal-to-Noise Ratio	45dB at 80dB/m
Image Frequency Rejection	80dB at 1,000kHz
Selectivity	30dB at 1,000kHz
IF Rejection	60dB at 1,000kHz
Spurious Response Rejection	70dB at 1,000kHz
Total Harmonic Distortion	0.8% at 80dB/m

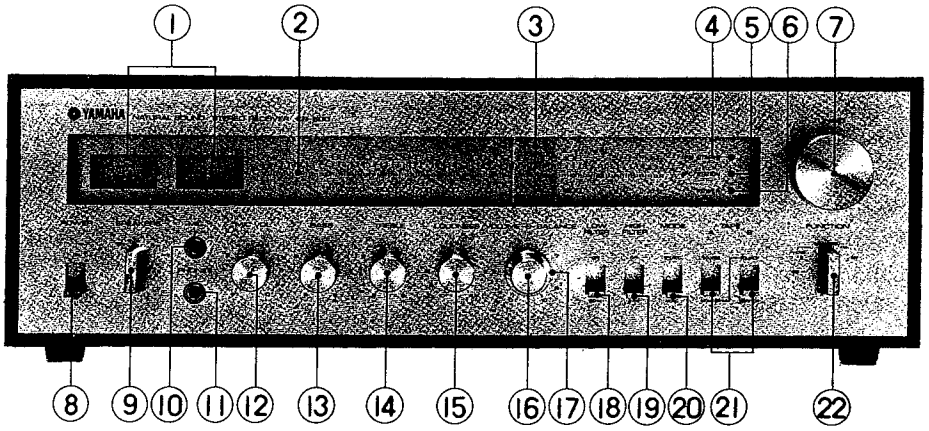
■GENERAL

Semiconductors	41ICs; 2 MOS FETs; 59 Transistors; 3 LEDs; 33 Diodes; 3 Zener Diodes
Power Source	AC 110, 117, 130, 220 240V, 50/60Hz
POWER CONSUMPTION	
Max.	200 watts
Rated	120 watts
AC OUTLETS	
Switched	2 (total 200 watts)
Unswitched	2 (total 200 watts)
DIMENSIONS	474mm (18¾") W x 158mm (6¼")-H x 300mm (11¾") D
WEIGHT	13 kg (28.7 lbs.)

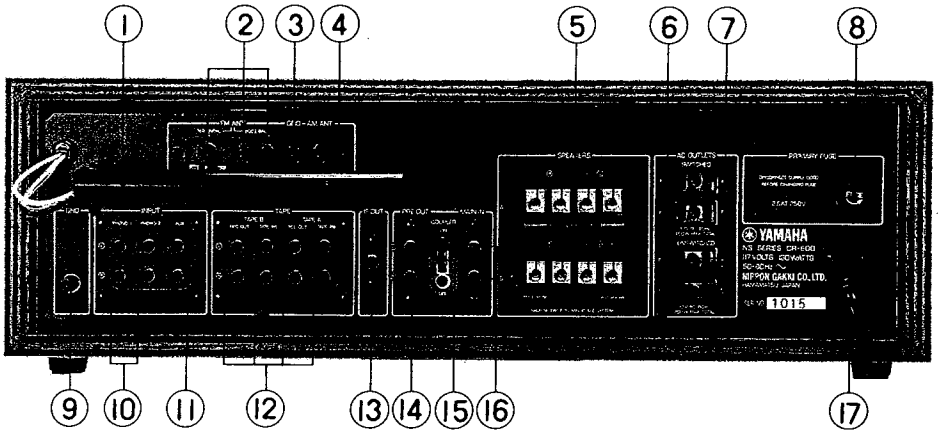
Design and specifications subject to change without notice for improvements.

EXTERNAL VIEW

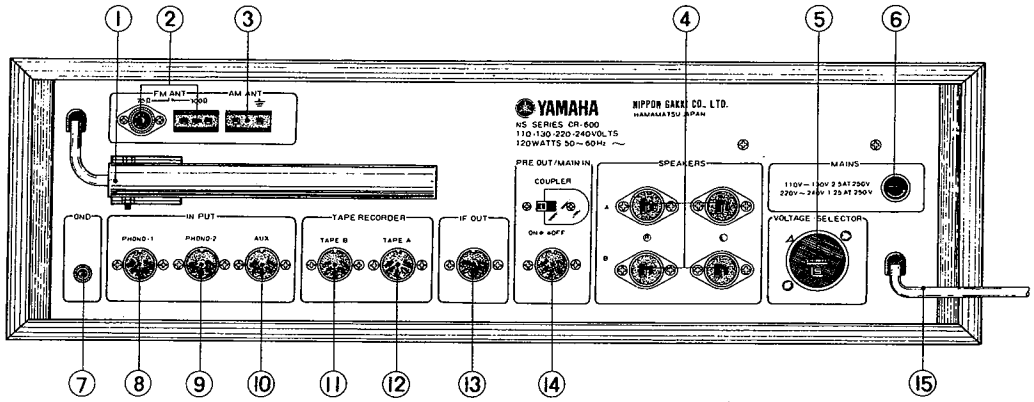
FRONT PANEL



REAR PANEL (GENERAL MODEL)



REAR PANEL (EUROPEAN MODEL)



FRONT PANEL

1. SIGNAL & TUNING METERS
2. DIAL
3. DIAL POINTER
4. FM STEREO INDICATOR
5. AFC/STATION INDICATOR
6. POWER INDICATOR
7. TUNING KNOB
8. POWER SWITCH
9. SPEAKER SELECTOR SWITCH
10. MIC JACK
11. HEADPHONE JACK
12. MIC VOLUME CONTROL
13. BASS CONTROL
14. TREBLE CONTROL
15. LOUDNESS CONTROL
16. VOLUME CONTROL
17. BALANCE CONTROL
18. LOW FILTER SWITCH
19. HIGH FILTER SWITCH
20. MODE SWITCH
21. TAPE SWITCH
22. FUNCTION SWITCH

REAR PANEL (GENERAL MODELS)

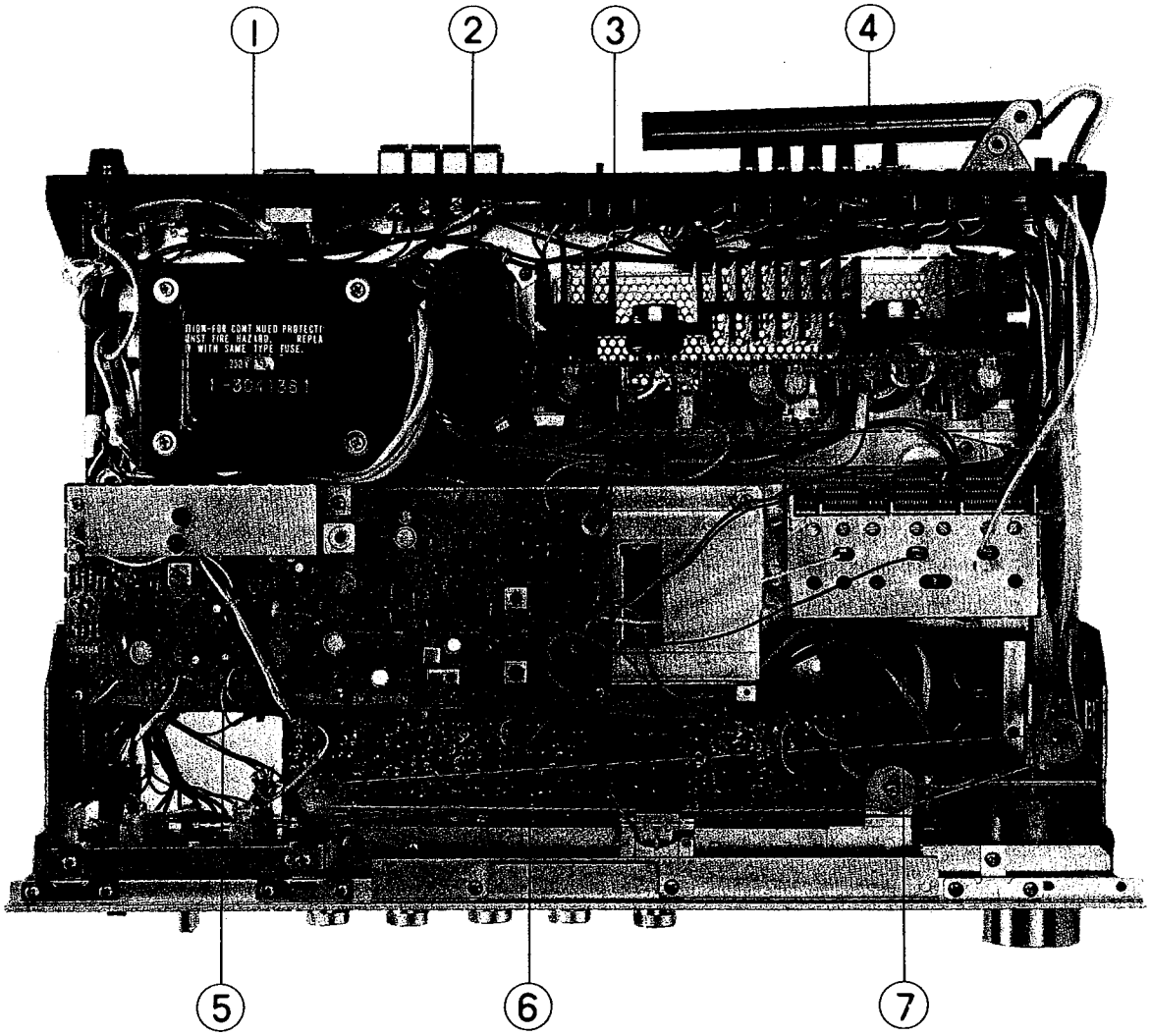
1. AM FERRITE BAR ANTENNA
2. FM ANTENNA TERMINAL
3. GROUND TERMINAL
4. AM ANTENNA TERMINAL
5. SPEAKER TERMINALS
6. AC OUTLET (SWITCHED)
7. AC OUTLET (UNSWITCHED)
8. PRIMARY FUSE
9. GROUND TERMINAL
10. PHONO 1, 2 JACKS
11. AUX INPUT JACKS
12. TAPE 1, 2 REC OUT/PB JACKS
13. IF OUT JACK
14. PRE OUT JACKS
15. COUPLER SWITCH
16. MAIN IN JACKS
17. AC CORD

REAR PANEL (EUROPEAN MODEL)

1. AM FERRITE BAR ANTENNA
2. FM ANTENNA CONNECTOR
3. AM ANTENNA CONNECTOR
4. SPEAKER CONNECTORS
5. VOLTAGE SELECTOR
6. PRIMARY FUSE
7. GROUND TERMINAL
8. PHONO 1 CONNECTOR
9. PHONO 2 CONNECTOR
10. AUX CONNECTOR
11. TAPE B REC OUT/PB CONNECTOR
12. TAPE A REC OUT/PB CONNECTOR
13. IF OUT CONNECTOR
14. PRE OUT, MAIN IN CONNECTOR
15. AC CORD

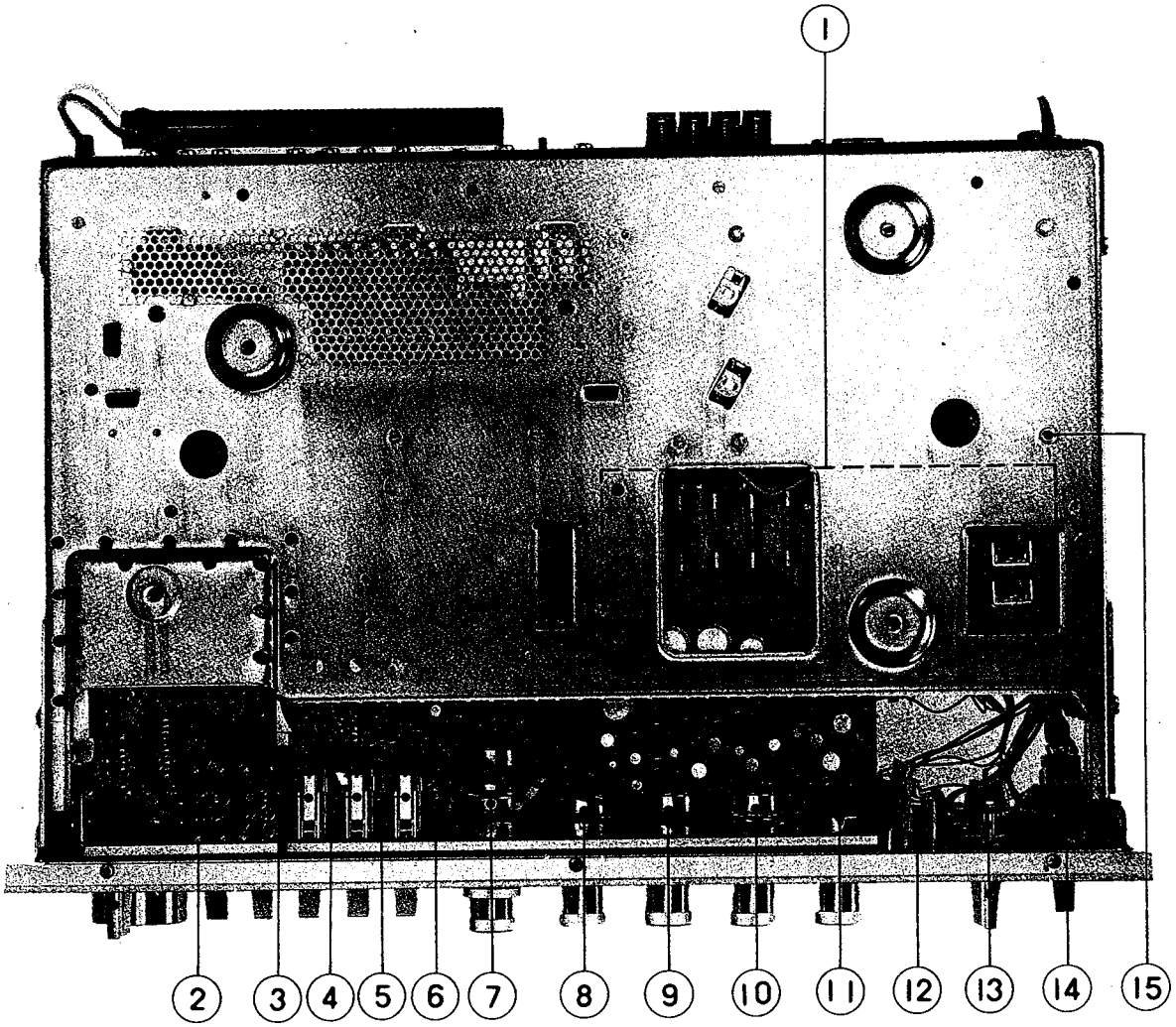
INTERNAL VIEW

TOP VIEW



1. POWER TRANSFORMER (GA60563)
2. ELECTROLYTIC CAPACITOR (4,700μF)
3. MAIN AMP CIRCUIT BOARD (NA06427)
4. AM FERRITE BAR ANTENNA
5. TUNER CIRCUIT BOARD (NA06430)
6. PRE AMP CIRCUIT BOARD (NA06434)
7. FRONT END PACK

BOTTOM VIEW

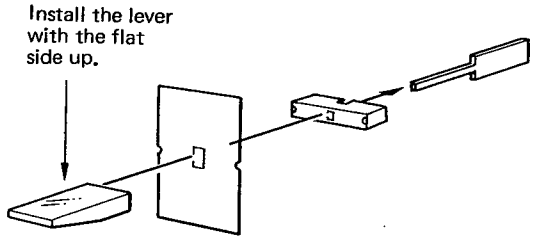


1. POWER CIRCUIT BOARD (NA06428)
2. FUNCTION CIRCUIT BOARD (NA06435)
3. MODE SWITCH
4. HIGH FILTER SWITCH
5. LOW FILTER SWITCH
6. PRE AMP CIRCUIT BOARD
7. VARIABLE RESISTOR (VOLUME & BALANCE CONTROLS)
8. VARIABLE RESISTOR (LOUDNESS CONTROL)
9. VARIABLE RESISTOR (TREBLE CONTROL)
10. VARIABLE RESISTOR (BASS CONTROL)
11. VARIABLE RESISTOR (MIC CONTROL)
12. HEADPHONE JACK
13. SPEAKER SELECTOR SWITCH
14. POWER SWITCH
15. CHASSIS

PARTIAL DISASSEMBLY

BEFORE DISASSEMBLY

- The screwdriver for each screw should match the screw size. If you use a smaller or larger size it will damage the groove.
- If you use excessive force on the printed circuit board it will crack or cut the print wiring, so be careful.
- When using a soldering iron finish all work as quickly as possible.
- When installing switches and knobs be careful not to install them in the wrong place or upside-down. See Fig. 1.



Lever switch installation

Fig. 1

CABINET REMOVAL

a. Stand the main body up and remove screws (1), (2), (3) and (4) (small pan-head screws 5x25) as shown in Photo 1.

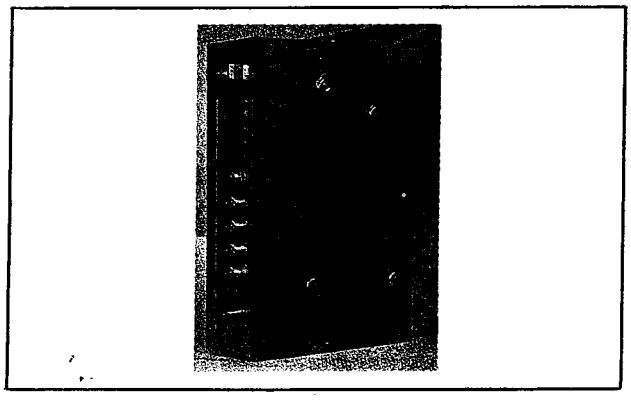


Photo 1

b. Set the unit back up and remove the cabinet as shown in Photo 2.

Photo 2

FRONT PANEL REMOVAL

a. Remove the Function, Speakers and Tuning knobs using the hexagonal wrench provided (see Fig. 1).

b. Pull off the Mic. Vol., Bass, Treble, Loudness and Volume/Balance knobs.

c. Remove (1), (2) and (3) screws (bind tapping screws 3x6s) from the top of the front panel as shown in Photo 3, and screws (1), (2) and (3) (small bind screws 3x6s) from the bottom as shown in Photo 4, then remove the front panel by pulling it forward.

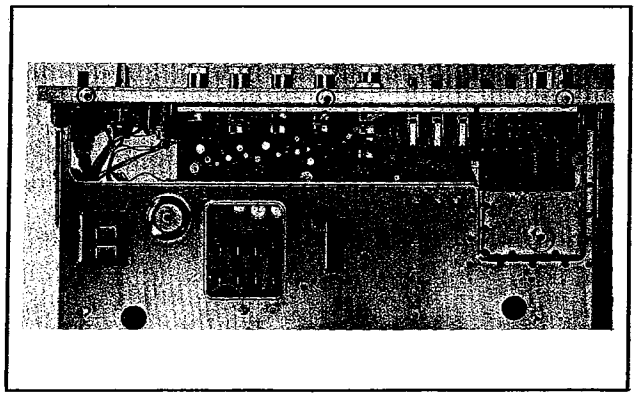


Photo 3

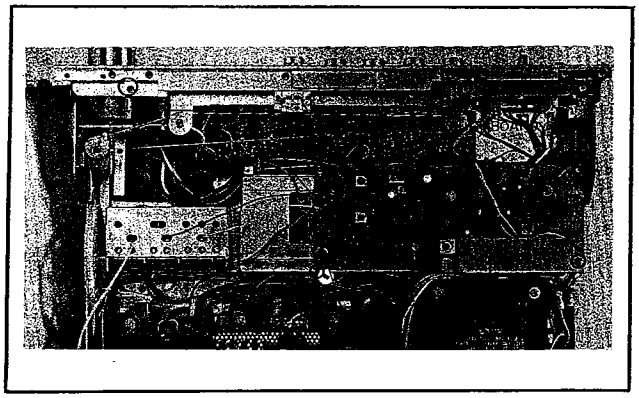


Photo 4

DROPPING THE REAR PANEL CIRCUIT BOARD

a. Pull out the connector as shown in Photo 5.

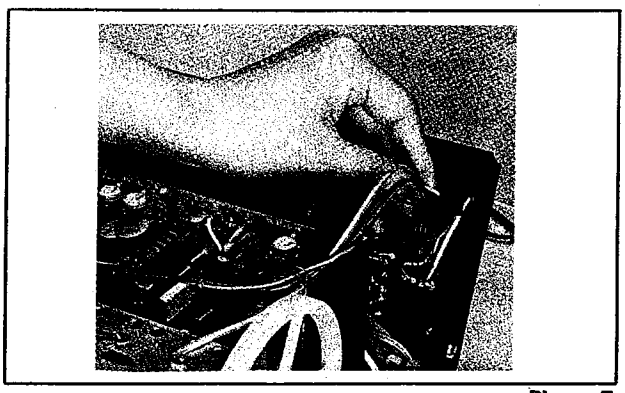


Photo 5

b. Remove the screw in Photo 6 and screws (1) and (2) in Photo 7.

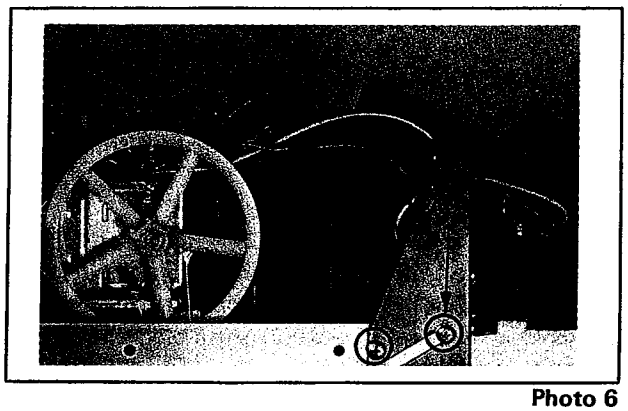


Photo 6

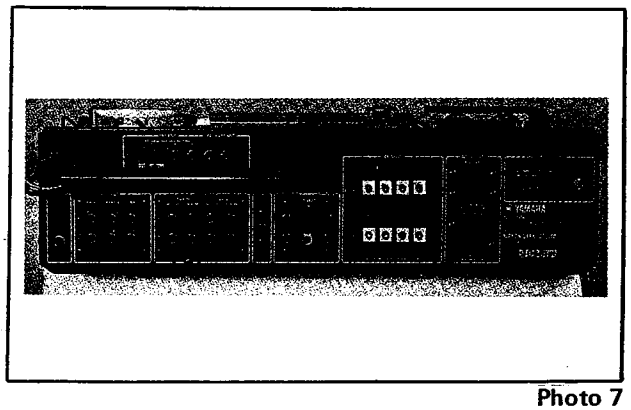


Photo 7

c. Loosen the red-heades screw (1) (plate-head screws 4x8s) shown in Photo 6.

d. Bring the rear panel down as shown in Photo 8.

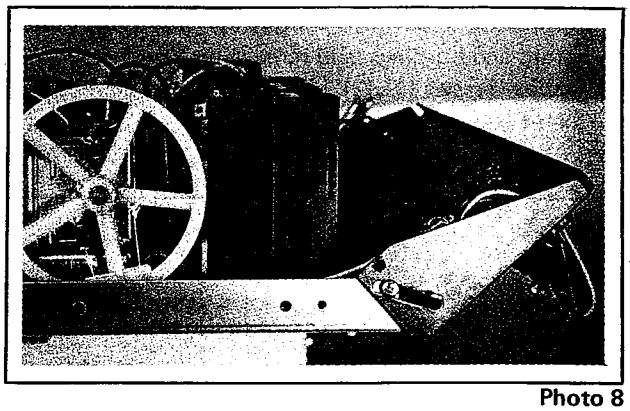


Photo 8

DROPPING THE SUB CHASSIS UNIT

a. Pull out the rear panel connector (refer to procedure 3).

b. Remove red-headed screws (1) and (2) and loosen screw (3) (bind tapping screws 4x8s) shown in Photo 9.

c. Pull the sub chassis unit forward and drop it as shown in Photo 10.

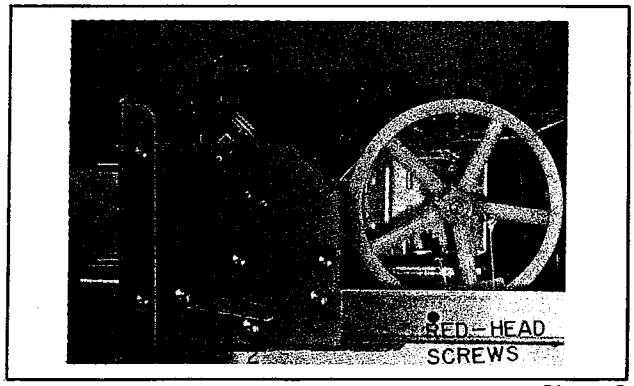


Photo 9

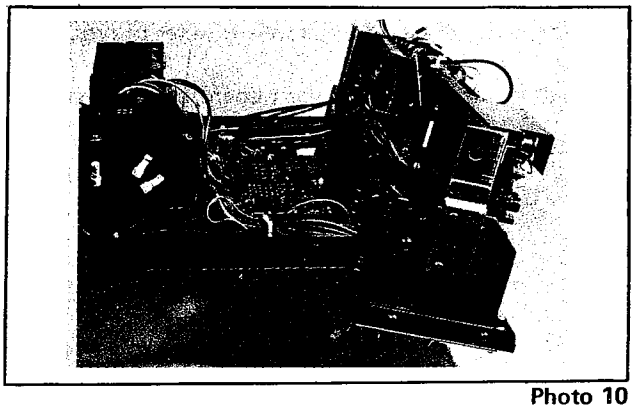


Photo 10

PRE AMP CIRCUIT BOARD REMOVAL

a. Remove the front panel unit (refer to procedure 2).
b. Pull off the Low Filter, High Filter and Mode switch aprons and bushings, and remove the switches.
c. Remove screws (1),(2), (3) and (4) (small bind screws 3x4s) shown in Photo 11.

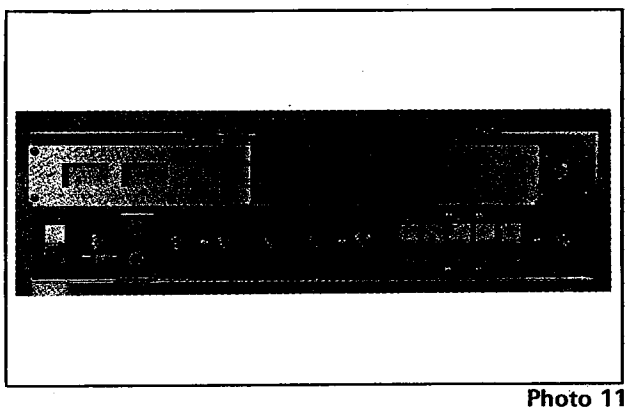


Photo 11

d. Remove the lead cord connected to the Mic jack with a soldering iron as shown in Photo 12.

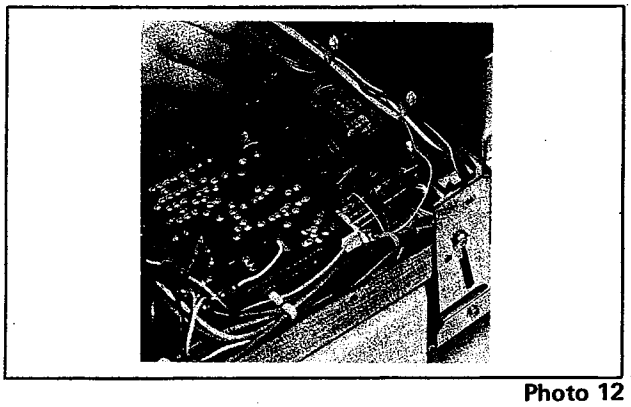


Photo 12

e. Tilt the sub chassis down forward (refer to procedure 3).
f. Remove the pre amp circuit board by pulling it up.

FUNCTION CIRCUIT BOARD REMOVAL

a. Remove the front panel unit (refer to procedure 2).
b. Pull off the Tape A and B switches, switch aprons and bushings.
c. Remove screws (1), (2) and (3) shown in Photo 13.

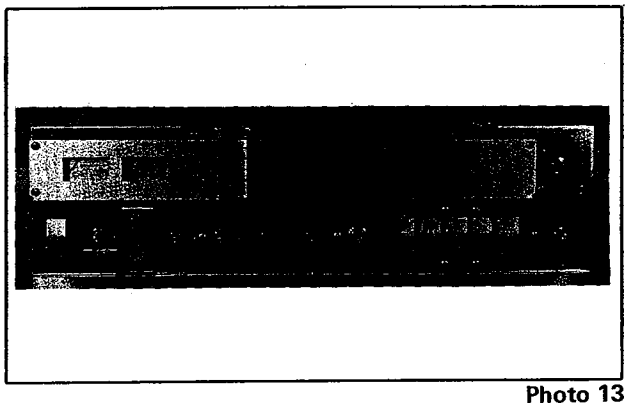


Photo 13

d. Tilt the sub chassis down forward (refer to procedure 3).
e. Remove the function circuit board by lifting it up.

POWER SWITCH REMOVAL

a. Remove the front panel unit (refer to procedure 2).
b. Pull off the power switch, apron and bushing.
c. Remove screws (1) and (2) (small bind screws 3x4s) shown in Photo 14.

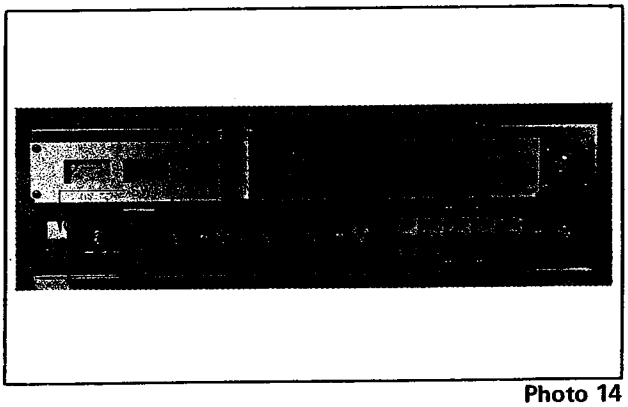


Photo 14

TUNING AND SIGNAL METER REMOVAL

a. Tilt the sub chassis unit down forward (refer to procedure 3).
b. Pull off the three lead-type lamps with their shade bushings.
c. Remove the meter holder spring in Photo 15, as shown in Photo 16, then remove the meter.

Photo 15

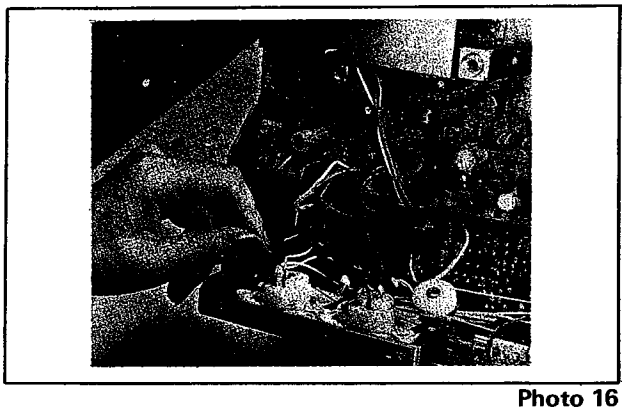


Photo 16

POWER SUPPLY CIRCUIT BOARD REMOVAL

a. Bring the sub chassis unit down forward (refer to procedure 3).
b. Hold the three sheet holders shown in Photo 17 with a long-nosed pliers as shown in Photo 18. Pull the power circuit board up and pull it out from the short holder.
   Note: If you pull only on the short holder, this will apply excessive force to the board/chassis joint (see Fig. 2). This will probably crack the board.
   Be careful to hold the board and pull off the short holder little by little.

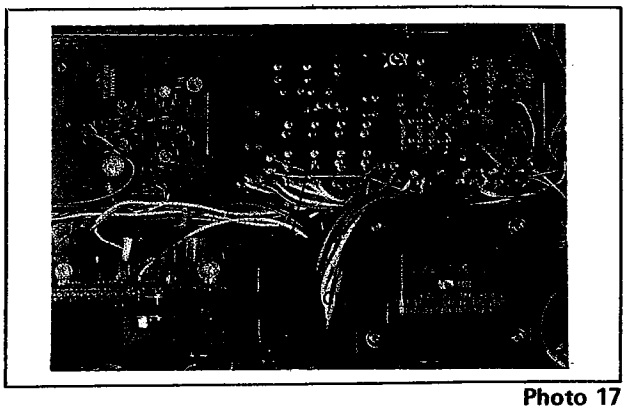


Photo 17

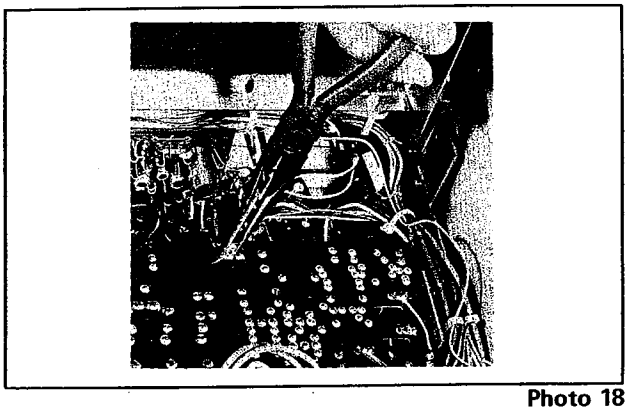


Photo 18

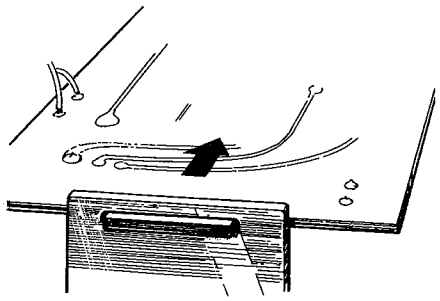


Fig. 2

c. Slide the circuit board in the direction of the arrow to remove it.

EQ CIRCUIT BOARD REMOVAL

a. Tilt the sub chassis unit down forward (refer to procedure 3).
b. Hold the two short holders shown in Photo 19 with long-nosed pliers and pull the EQ circuit board up to remove it from the short holder (refer to the Note to the left).

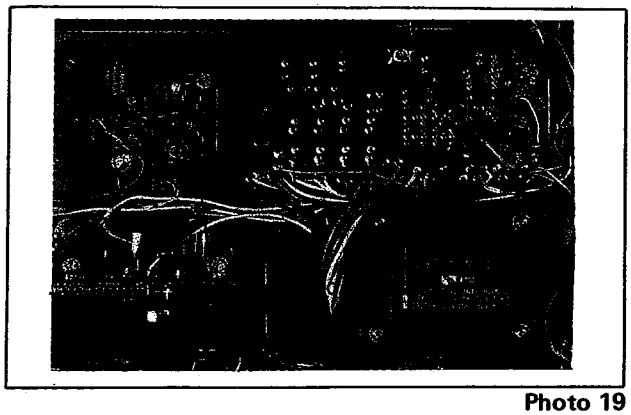


Photo 19

c. Slide the EQ circuit board in the direction of the arrow to remove it.

MAIN AMP. UNIT REMOVAL

a. Remove screws (1) and (2) shown in Photo 20.

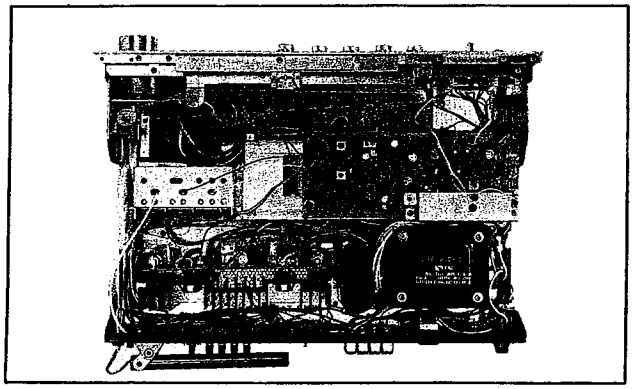


Photo 20

b. Remove the main amp. circuit board by pulling up.
c. Bring the rear panel down for power transistor change and adjustment (refer to P13).

TUNER CIRCUIT BOARD REMOVAL

a. Remove screws (1) and (2) (bind tapping screws 3x6s) shown in Photo 21, and remove the FM shield cover.
b. Pull out the pin jack shown in Photo 21.
c. Remove screws (1), (2), (3) and (4) (bind tapping screws 3x6s) shown in Photo 21.

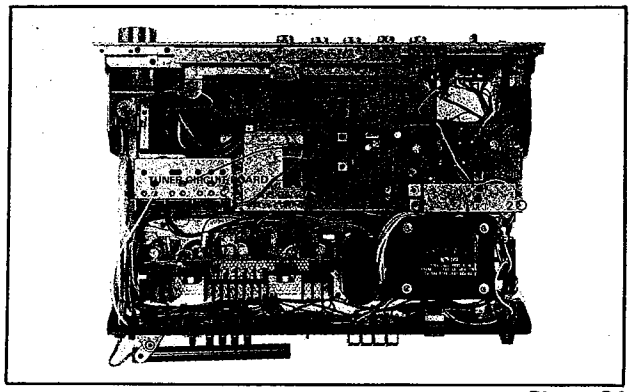


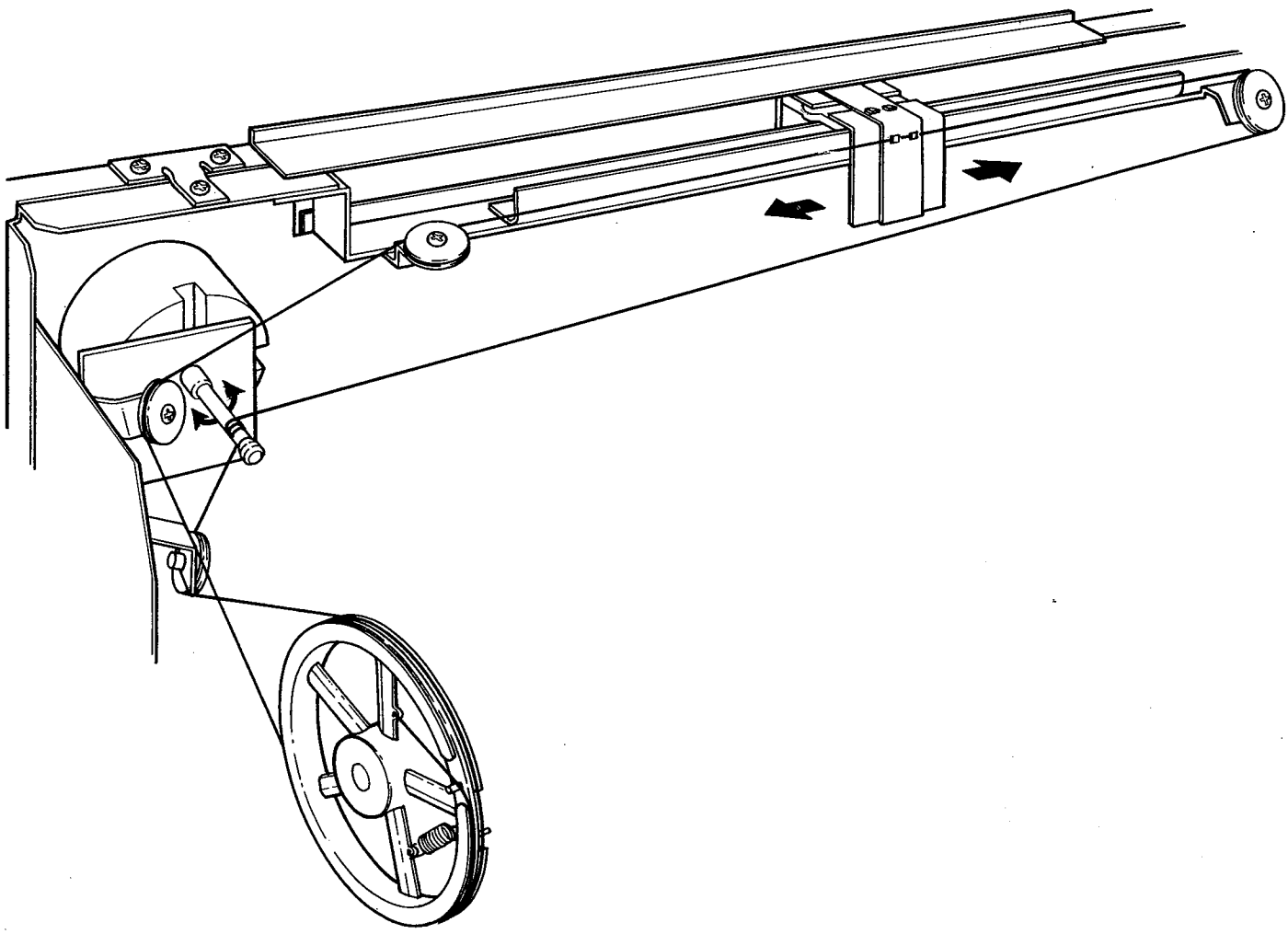
Photo 21

d. Pull up the tuner circuit board to remove it.

SCREWS

NAME	STYLE	DIMENSION (mm)	
Small Bind Screw		3×4S	Pre-Amp, Function, Front Panel
		3×4S	Power Switch
Small Pan-Head Screw		5×105S	Main Amp
		5×25	Cabinet
Bind Tapping Screw		3×6S	Rear Panel, Front Panel, FM Shield
		4×8S	Sub-Chassis
Plate-Head Tapping Screw		4×8S	Sub-Chassis

DIAL MECHANISM



MEASUREMENT AND ADJUSTMENT

TUNER CIRCUIT BOARD

FM IF ADJUSTMENT

STEP	ALIGNMENT ITEM	TERMINALS TO BE CONNECTED	INSTRUMENT REQUIRED	ADJUST	HOW TO ADJUST	RATING OR STANDARD	REMARKS
1	S-Curve	Input power connector IO-E terminal	Sweep Generator Output power: 40dB Impedance: 400±100Ω Oscilloscope Refer to Fig.1.	T101 discrim coil (top and bottom) core, primary and secondary side	Adjust for symmetrical S curve with the secondary-side (upper) core. Adjust for max. height with the primary-side (lower) core. Refer to Figs. 2, 3.	Output voltage: More than 400mVp-p Intermediate frequency: within 10.7Hz ±200MHz Bandwidth: More than 300kHz	When T101 is GE6019 When it is GE6019

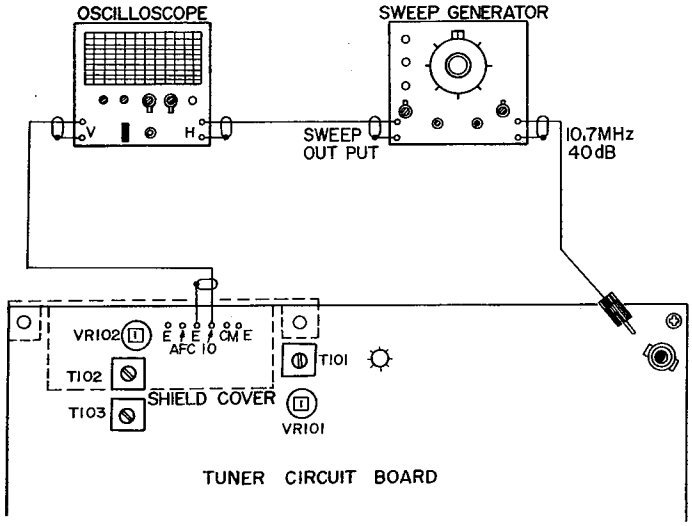


Fig.1

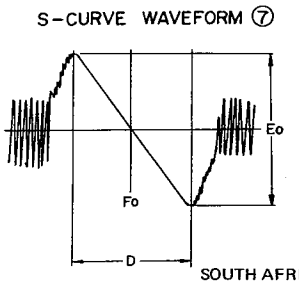
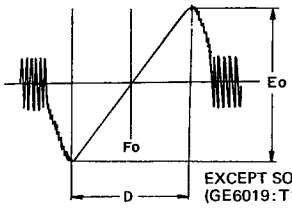


Fig.2

SOUTH AFRICAN MODEL ONLY (GE6025:T101)



EXCEPT SOUTH AFRICAN MODEL (GE6019:T101)

Eo	OUTPUT VOLTAGE	more than 400mVp-p
fo	INTERMEDIATE FREQUENCY	10.7MHz ± 200kHz
D	BAND-WIDTH	more than 300kHz

Fig.3

AM IF ADJUSTMENT

STEP	ALIGNMENT ITEM	TERMINALS TO BE CONNECTED	INSTRUMENT REQUIRED	ADJUST	HOW TO ADJUST	RATING OR STANDARD	REMARKS
1	V- Curve	TP2-E terminal TP3-E terminal SM-E terminal	Seeep generator Oscilloscope	CF105 T106	Adjust for a curve like that in Fig.5.	Output voltage: More than 500mV Intermediate frequency: Within 455kHz ± 10kHz Bandwidth: More than 5kHz Note: Intermediate frequency in South Africa is 470± 10kHz)	

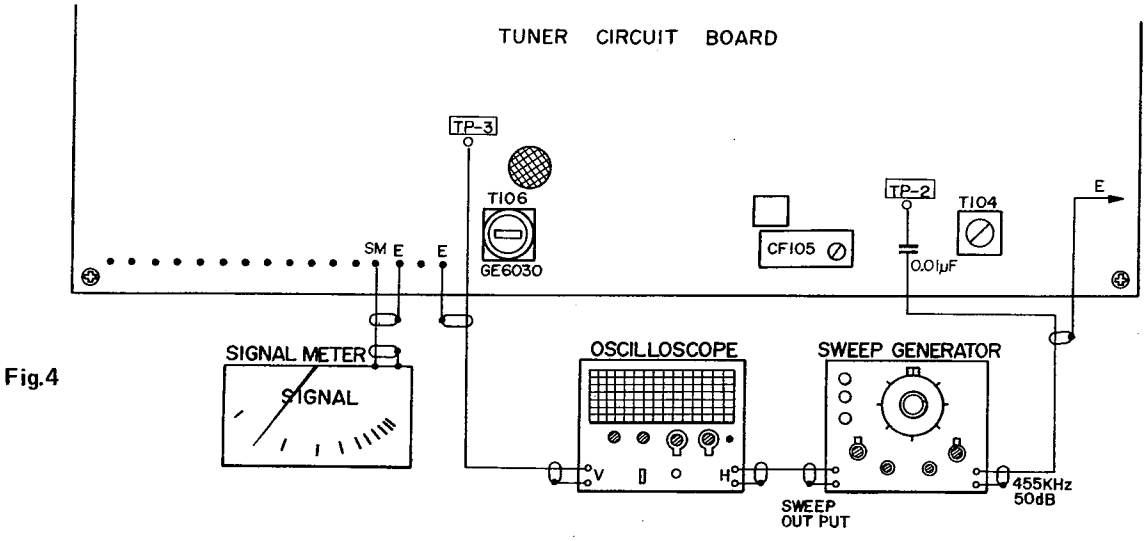


Fig.4

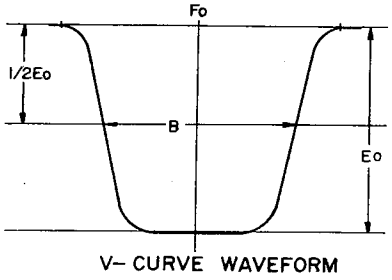


Fig.5

Eo	OUTPUT VOLTAGE	more than 500mV
fo	INTERMEDIATE FREQUENCY	455kHz ± 10kHz NOTE: Intermediate Frequency in SOUTH AFRICA is 470kHz±10kHz
B	BANDWIDTH	more than 5kHz

FM-MPX ADJUSTMENT

STEP	ALIGNMENT ITEM	TERMINALS TO BE CONNECTED	INSTRUMENT REQUIRED	ADJUST	HOW TO ADJUST	RATING OR STANDARD	REMARKS
1	Pilot signal	FM antenna terminal 300Ω. Oscilloscope connection to TP1 (LA3311 No. 14 pin) Refer to Fig.7.	Same as 2. Antenna input 60dBμ Stereo 100% separation.	T102 (GE 6056) Refer to Fig.6.	Set for minimum variation at maximum output output power.	Should be approx. 2Vp-p by LA3311 No. 14 pin.	Tuning point of 2

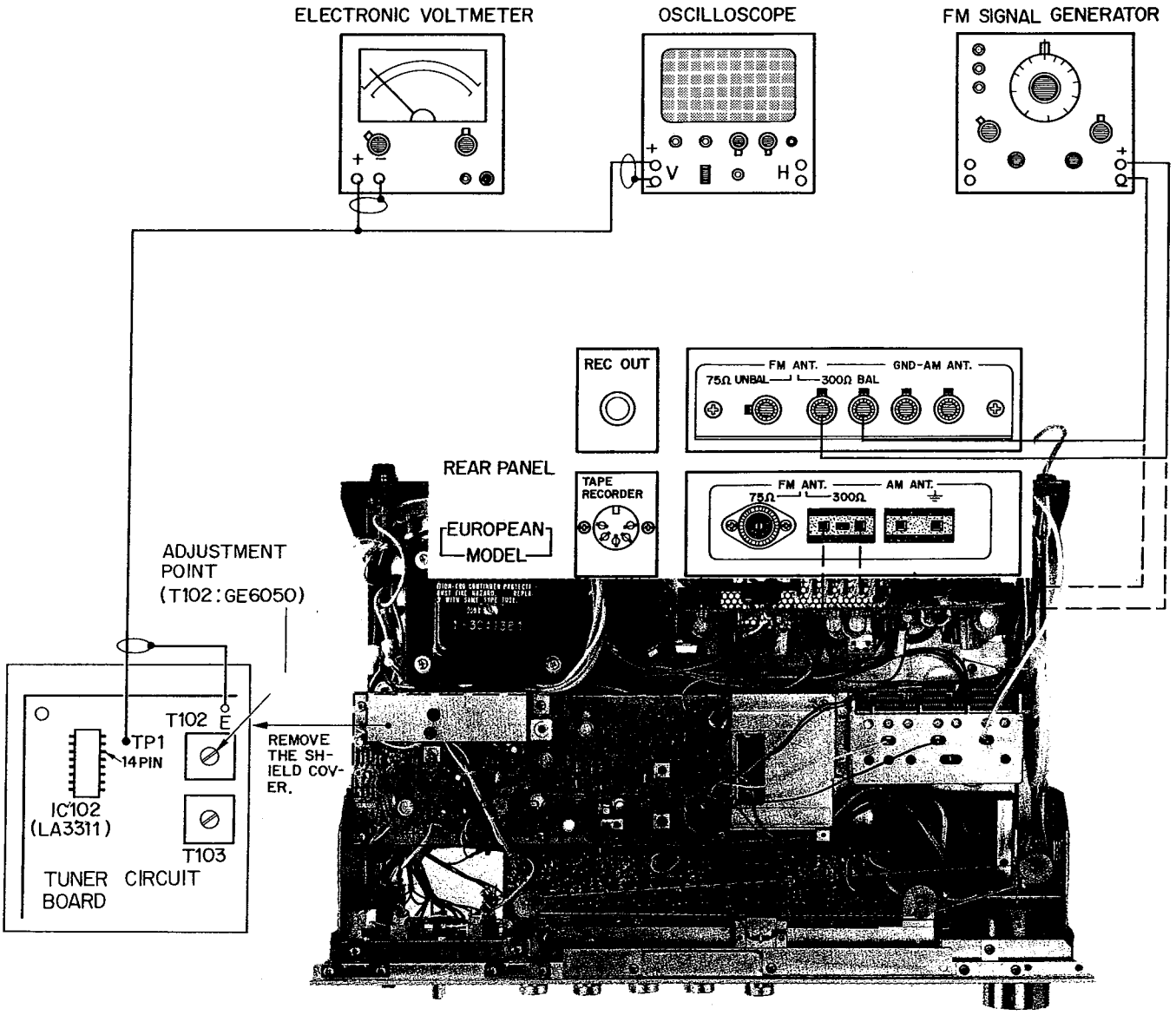
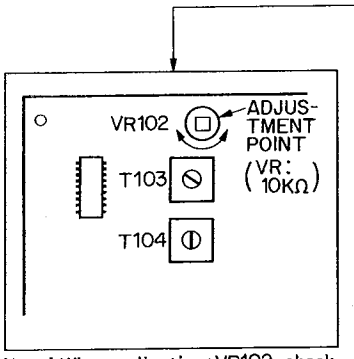


Fig.6

Fig.7

STEP	ALIGNMENT ITEM	TERMINALS TO BE CONNECTED	INSTRUMENT REQUIRED	ADJUST	HOW TO ADJUST	RATING OR STANDARD	REMARKS
2	Separation adjustment	FM antenna terminal	Same as 5.	VR102 (10kΩB)	Adjust VR102 for best L-R separation. Refer to Fig.8.	Variation for both channels at the same time should be more than 26dB, one channel should be 30dB. The difference between L and R should be within 3dB.	Tuning point of 2

- Measuring device connection is the same as shown in Fig. 9.



Note: When adjusting VR102 check the indication ratio of measuring device and turn gently.

Fig.8

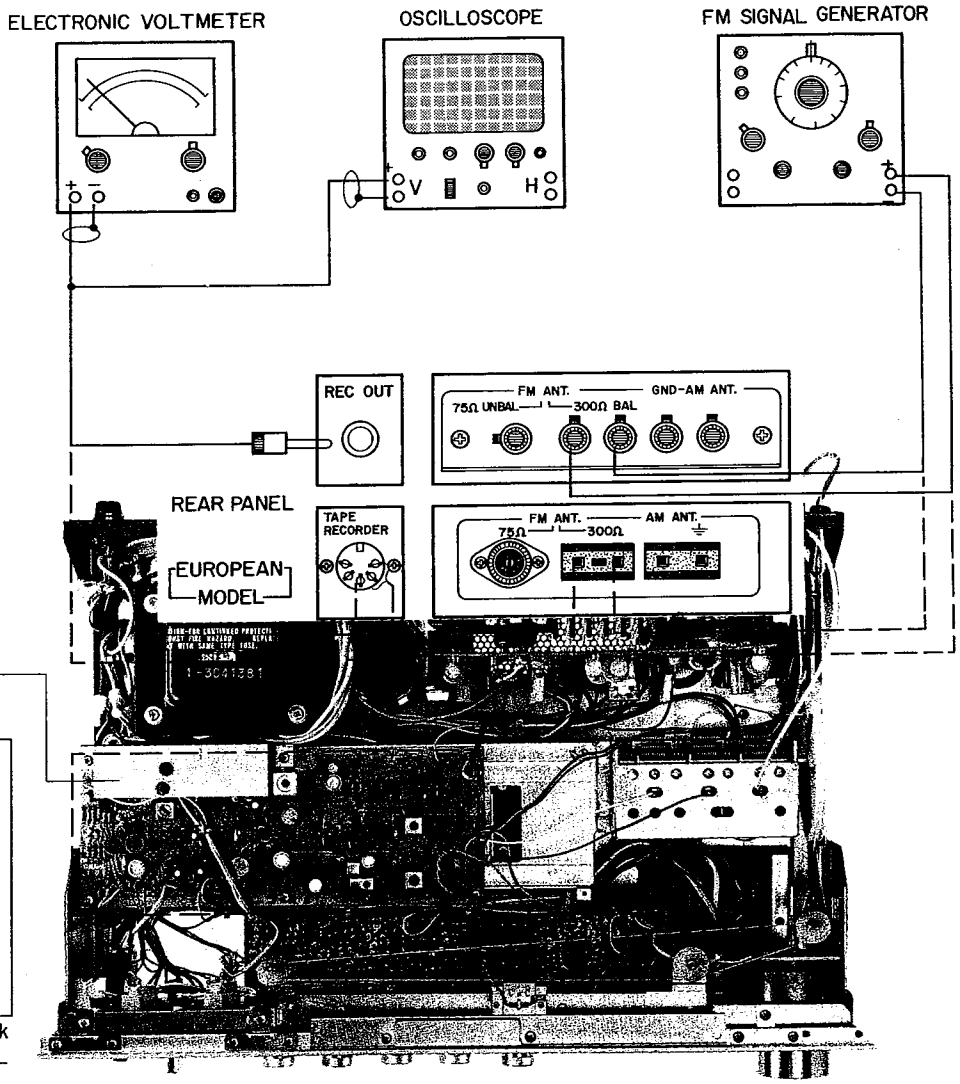


Fig.9

FM TUNER ADJUSTMENT

STEP	ALIGNMENT ITEM	TERMINALS TO BE CONNECTED	INSTRUMENT REQUIRED	ADJUST	HOW TO ADJUST	RATING OR STANDARD	REMARKS
1	Discrim balance			T101 discrim coil secondary side (top) See Fig.10.	Adjust for tuning meter position at 0 with Out of Tune noise. Refer to Fig.11.		Do not connect anything to the FM antenna terminal.

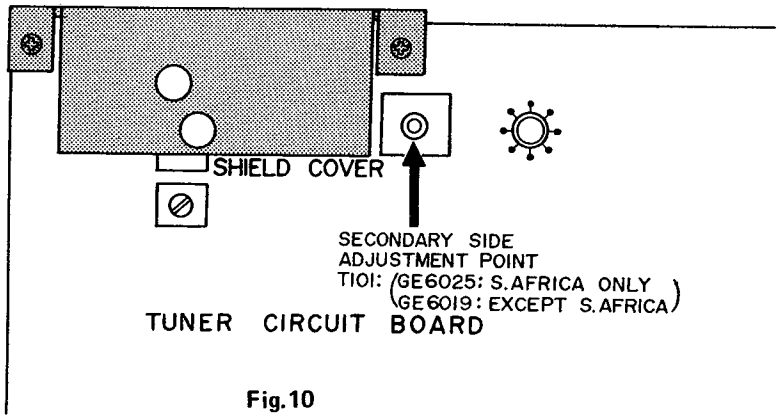


Fig.10

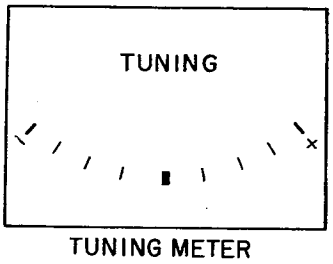


Fig.11

STEP	ALIGNMENT ITEM	TERMINALS TO BE CONNECTED	INSTRUMENT REQUIRED	ADJUST	HOW TO ADJUST	RATING OR STANDARD	REMARKS
2	Tuning point set	FM antenna terminal	FMSG 98MHz 60dBμ Mono 400Hz 100% Refer to Fig.12.	Tuning knob	Center the tuning meter at 0 by tuning in the same. Refer to Fig.13.		AFC OFF
3	Front-end IF tuning	FMSG 98MHz 30dBμ Mono 400Hz 100% Refer to Fig.12.	FMSG 98MHz Mono 400Hz 100% Refer to Fig.12.	Front-end IF core primary and secondary side.	Set for maximum signal meter deflection. Refer to Fig.14.		Should be set at tuning point 2.

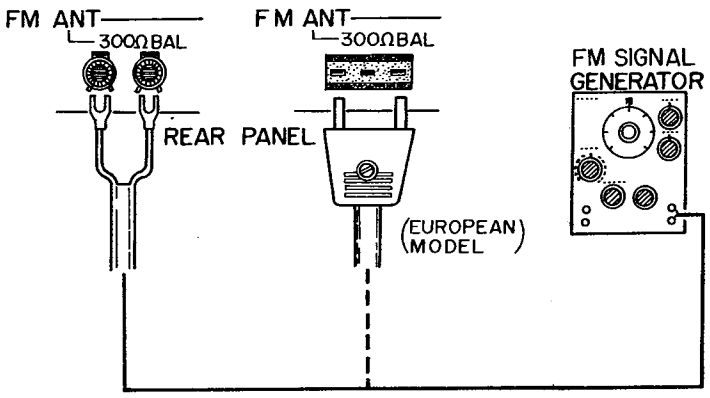


Fig.12

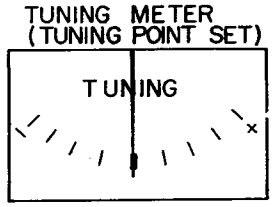


Fig.13

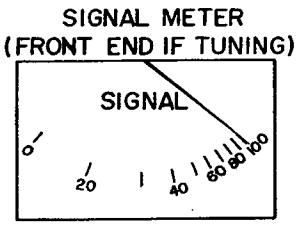


Fig.14

STEP	ALIGNMENT ITEM	TERMINALS TO BE CONNECTED	INSTRUMENT REQUIRED	ADJUST	HOW TO ADJUST	RATING OR STANDARD	REMARKS
4	Distortion adjustment (mono)	FM antenna terminal 300Ω Rec Out terminal	Same as 2 (antenna input: 60dBμ) Oscilloscope level gauge, distortion ratio meter: refer to Fig.15.	T101 discrim coil primary side (bottom) core. Refer to Fig.16.	Adjust right and left little by little until achieving lowest distortion. Less than —50dB	Less than —50dB	Tuning point of 2.

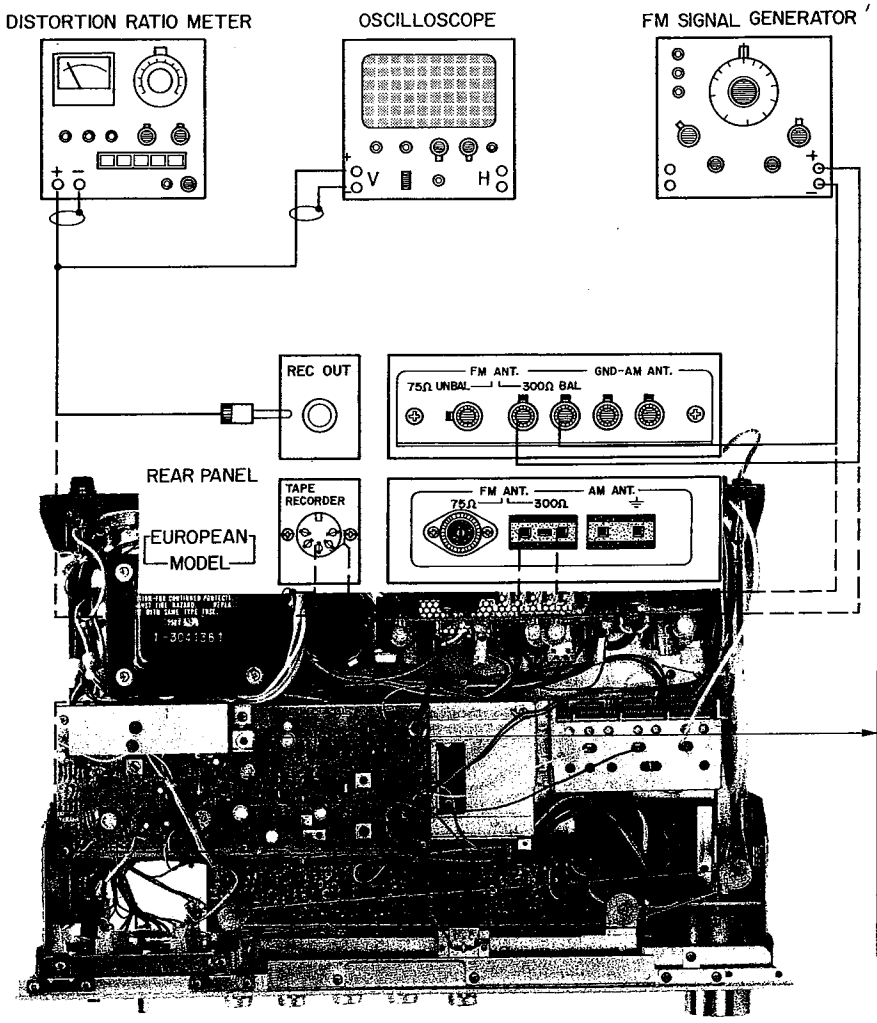


Fig.15

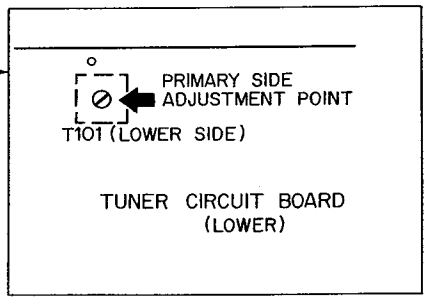


Fig.16

STEP	ALIGNMENT ITEM	TERMINALS TO BE CONNECTED	INSTRUMENT REQUIRED	ADJUST	HOW TO ADJUST	RATING OR STANDARD	REMARKS
5	Distortion ratio adjustment (stereo)	FM antenna terminal Rec Out terminal	Same as 2. Antenna input 60dBμ. Stereo 100%. Refer to Fig.18.	T103 (GE 6069) front end IF (top and bottom) core. Refer to Fig.17.	Adjust T103 for minimum distortion at maximum L-R signal. Adjust front end IF (top and bottom) core via L or R for minimum distortion. Refer to Fig.17.	Less than −38dB	Tuning point of 2

Fig.17

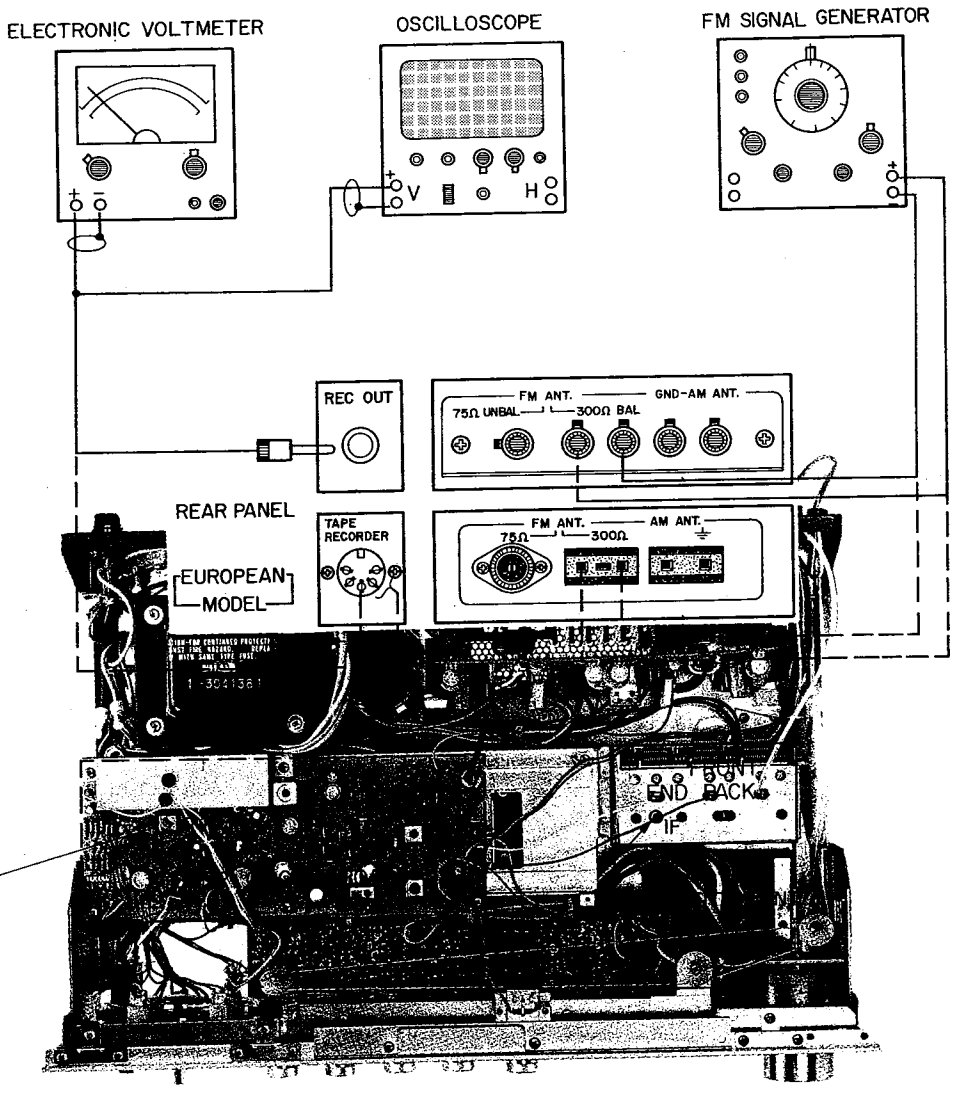


Fig.18

STEP	ALIGNMENT ITEM	TERMINALS TO BE CONNECTED	INSTRUMENT REQUIRED	ADJUST	HOW TO ADJUST	RATING OR STANDARD	REMARKS
6	Muting level adjustment	FM antenna terminal	Set VR101 all the way to the left. Refer to Fig.19.	VR101 (470B) Refer to Fig.20.	Turn to the right little by little until output power appears.	Level where output appears	Tuning point of 2

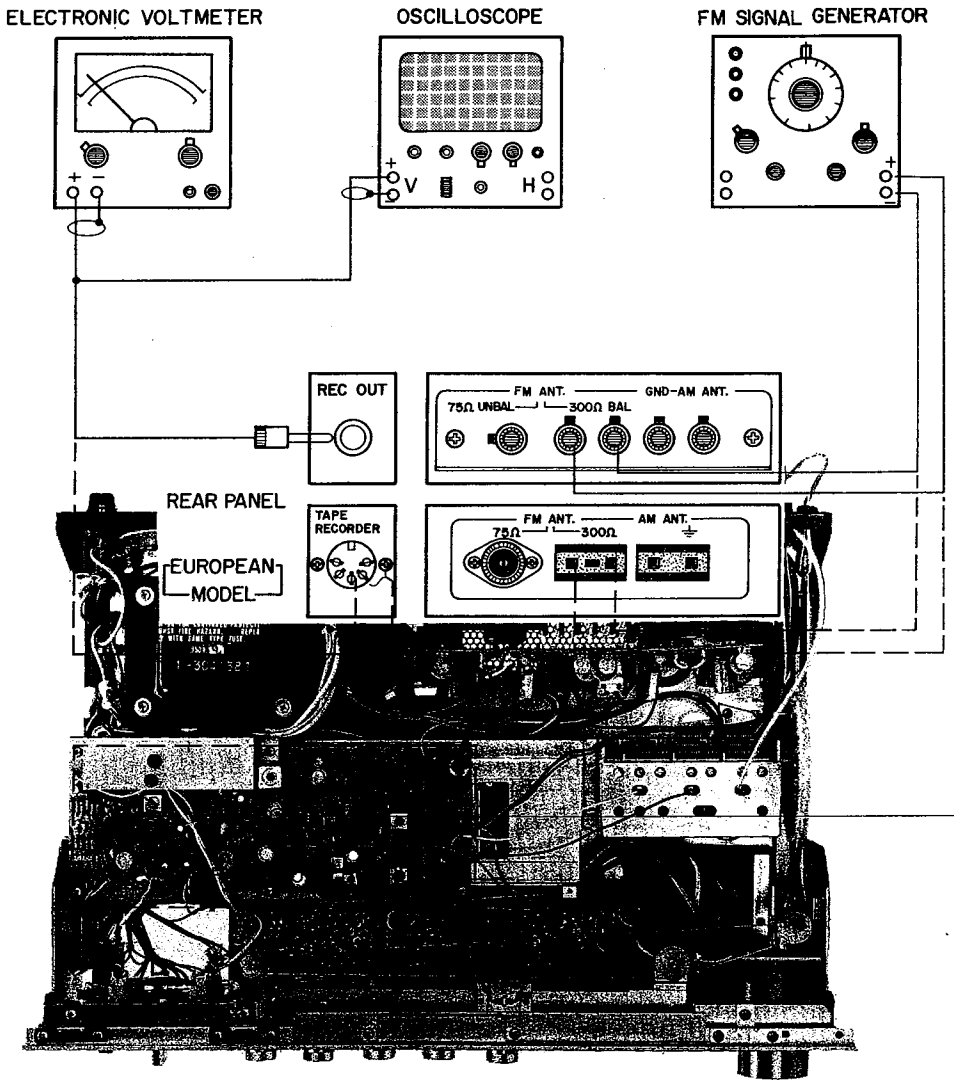
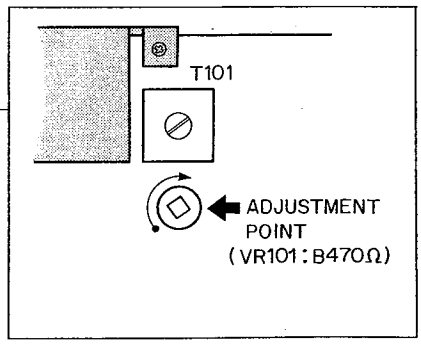


Fig.19



Note : When adjusting VR101 check the indication ratio of measuring device and turn gently.

Fig.20

FM TRACKING ADJUSTMENT

STEP	ALIGNMENT ITEM	TERMINALS TO BE CONNECTED	INSTRUMENT REQUIRED	ADJUST	HOW TO ADJUST	RATING OR STANDARD	REMARKS
1	Indicator adjustment I Indicator adjustment II	FM antenna terminal	Antenna input 60dBμ	Tuning knob Indicator	Turn the knob and set the tuning point at 3-2. Set to the middle of the "98" on the gauge board.		AFC-OFF
2	Bass tracking conformation	FM antenna terminal	FMSG 90MHz Antenna input 60dBμ	Tuning knob	Turn the knob and set the tuning point at 1.	Within ±1.5-mm from the middle of the	AFC-OFF Either 2 or 2' will be out of the standard slide
2'	Treble tracking conformation	FM antenna terminal AFC muting sheet CM-E	FMSG 106MHz Antenna input 60dBμ	Indicator	Check the displacement from the middle of the gauge board letter.	letter.	indicator. Set to standard frequency using the one out of standard.
3	Tracking adjustment I	FM antenna terminal	FMSG 90, 98, 106MHz Antenna input 60dBμ	Tuning knob Indicator	Reset the indicator so that the greatest deviation is within the standard range.		When both 2 and 2' are out of the standard range.
4	Tracking adjustment II	FM antenna terminal	FMSG 90, 98, 106MHz. Antenna input power 60dBμ 30dBμ 106MHz antenna input 60dBμ 30dBμ	Tuning knob Front end LOSC core Front end RF core antenna core Front end LOSC trimmer RF trimmer Antenna trimmer	Set the indicator at the letter Set the tuning point at 1 Set for maximum meter deflection Set the tuning point at 1 Set for maximum meter deflection		Even when adjusted by methods 2, 2' and 3, results are still not within the standard range.

AM TRACKING ADJUSTMENT

- Be sure to carry out this adjustment after FM adjustment

STEP	ALIGNMENT ITEM	TERMINALS TO BE CONNECTED	INSTRUMENT REQUIRED	ADJUST	HOW TO ADJUST	RATING OR STANDARD	REMARKS
1	OSC coil	Bar antenna Rec Out terminal	AMSG (600kHz) Oscilloscope Electronic voltmeter	Tuning knob AM tuner sheet I105 coil Refer to Fig.21.	Set indicator at 600kHz. Set it to tune at 600kHz.		
2	Bass sensitivity adjustment	Bar antenna Rec Out temrinal	AMSG (600kHz) Oscilloscope Electronic voltmeter	Bar antenna core and T104 coil Refer to Fig.21.	Set for maximum sensitivity (according to the meter) at a tunning point of 600kHz.		
3	OSC trimmer adjustment	Bar antenna Rec Out terminal	AMSG (1350-kHz) Oscilloscope Electronic voltmeter	Tuning knob Variable capacitor VC3 trimmer condenser Refer to Fig.22.	Set the indicator 1350kHz. Adjust at 1350kHz to tune.		Liner gauge
4	Treble sensitivity adjustment	Bar antenna Rec Out terminal	AMSG (1350-kHz) Oscilloscope Electronic voltmeter	Variable capacitor VC1, VC2 Refer to Fig.22.	Set for maximum sensitivity (by the meter) at 1350kHz tuning point.		
5	Sensitivity variation adjustment	Bar antenna Rec Out terminal	AMSG (600-kHz ~ 1350kHz) Oscilloscope Electronic voltmeter	Repeat steps 1-4.	Set to both 600kHz and 1350kHz.		
6	Mid-range conformation	Bar antenna Rec Out terminal	AMSG (90kHz) Oscilloscope Electronic voltmeter	Tuning knob	Tune at maximum sensitivity (on the meter)	Within 1.5mm deviation from the 950kHz letter	Equation gauge 5.51

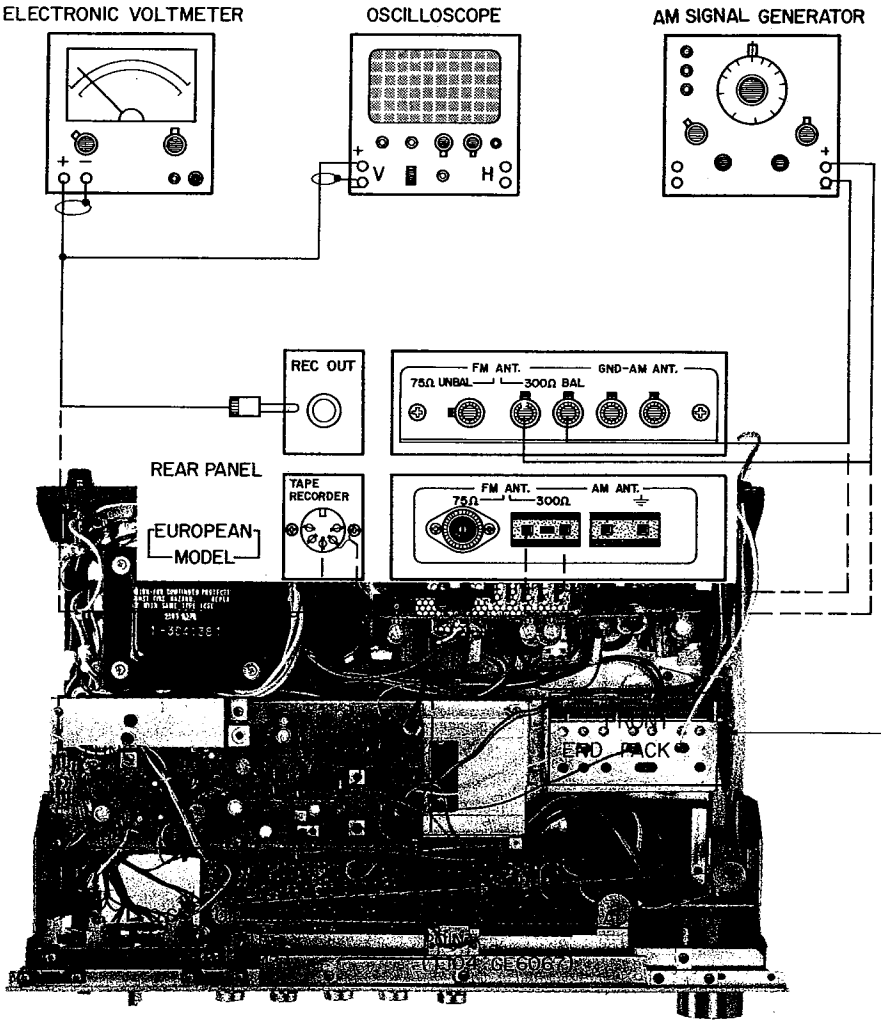


Fig.21

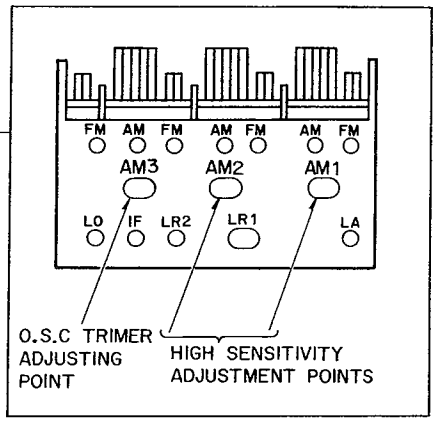


Fig.22

MAIN AMP CIRCUIT

STEP	ALIGNMENT ITEM	TERMINALS TO BE CONNECTED	INSTRUMENT REQUIRED	ADJUST	HOW TO ADJUST	RATING OR STANDARD	REMARKS
1	Mid-point Voltage	TP3–TP5 TP4–TP6	Electronic Voltmeter	VR701 VR702	Set at standard ratio	0 ± 0.01V	Refer to Fig.24.
2	Idling current	TP1–TP3 TP2–TP4	Electronic Voltmeter	VR703 VR704	Set at standard ratio	0.023±0.005V	Refer to Fig.24.
3	Make sure by repeating steps 1 and 2 several times.						

Note: TP5 and TP6 ground terminals can be grounded to the main sheet input ground terminal during midpoint voltage adjustment.

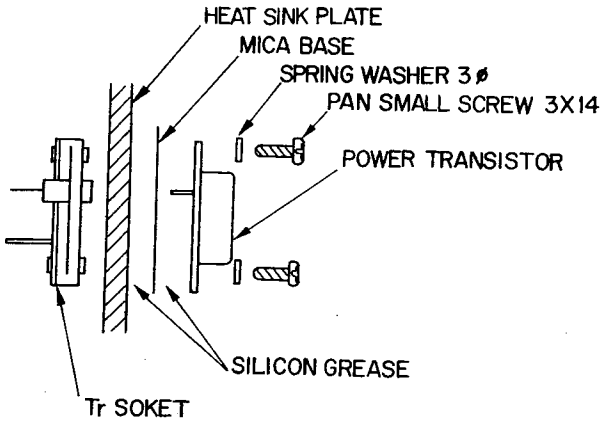


Fig.23

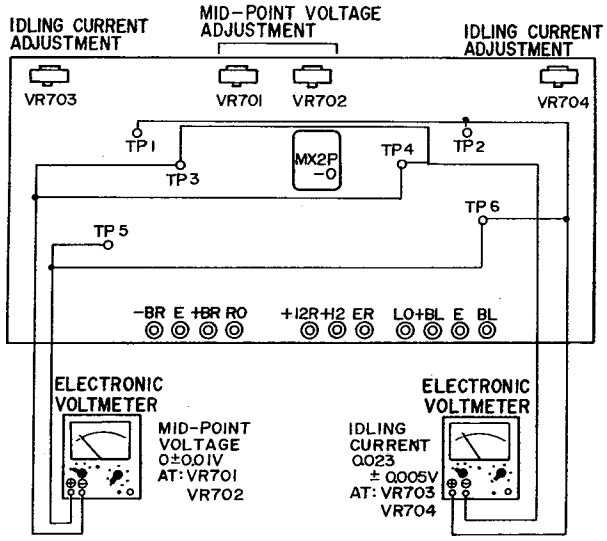


Fig.24

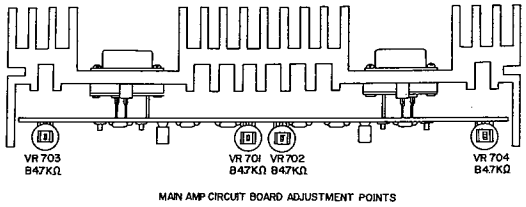
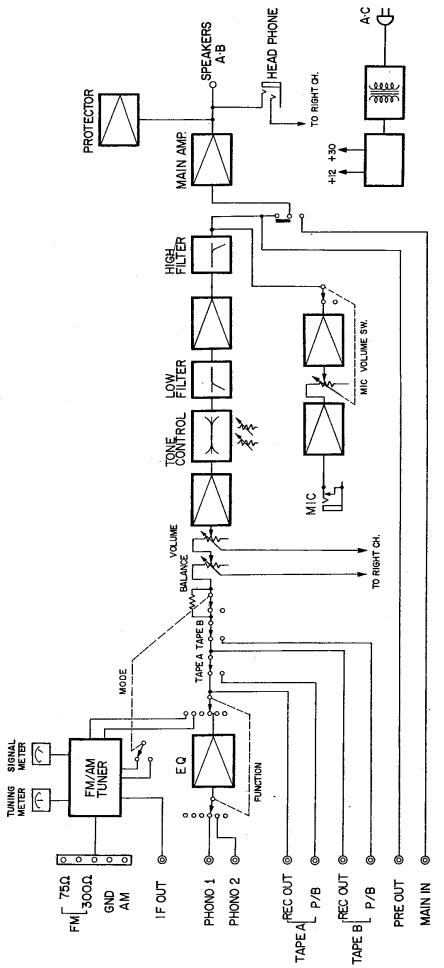


Fig.25

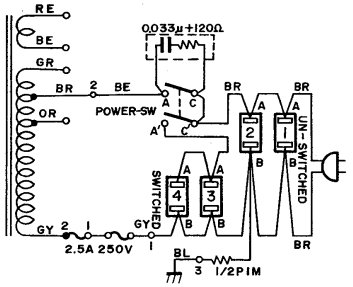
BLOCK DIAGRAM



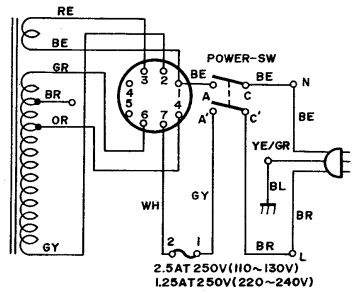
PARTIAL CHANGES MADE ACCORDING TO DESTINATION

POWER CIRCUIT : PRIMARY SIDE

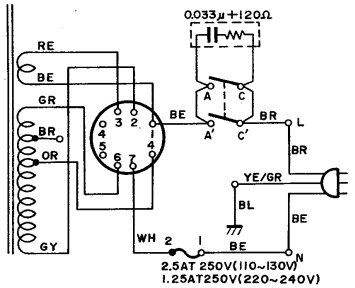
▼U.S. & CANADIAN MODELS



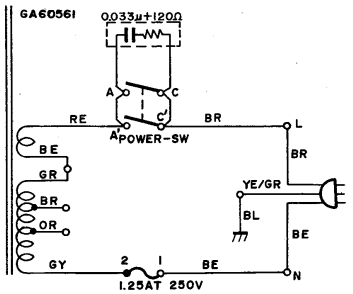
▼EUROPEAN MODEL



▼SOUTH AFRICAN MODEL



▼AUSTRALIAN MODEL



DE-EMPHASIS TIME CONSTANT (C, R) VALUE

DESTINATION	T101	C151	C152
S. AFRICA	GE 6025	0.0075μF	0.0075μF
U.S. CANADA	GE 6019	0.011 μF	0.011 μF
GENERAL EUROPE AUSTRALIA	GE 6019	0.0075 μF	0.0075 μF

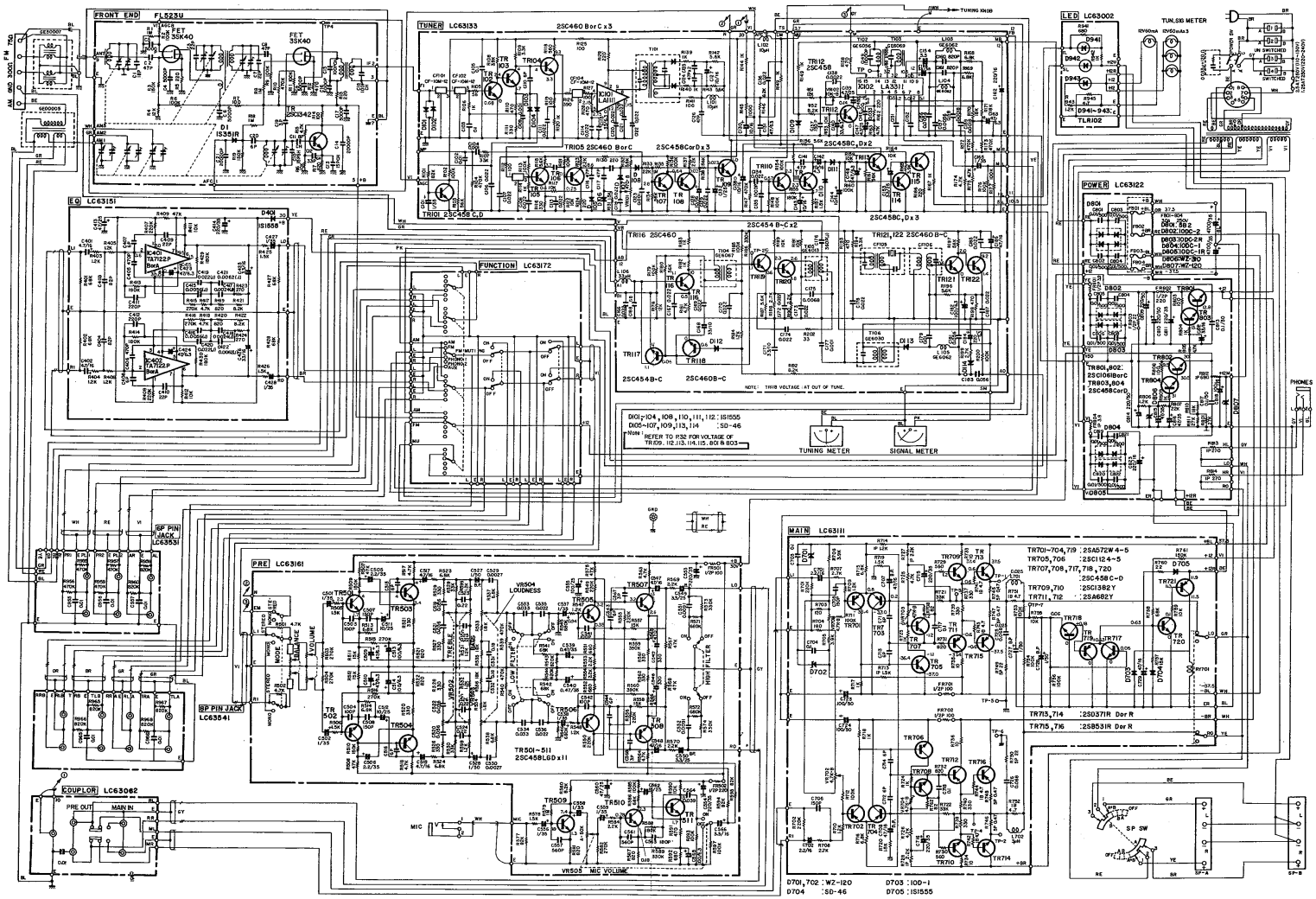
VOLTAGE TABLE of Tr109,112,113,114,115,801,803.

	E	B	C	
TR109	0	0.02	3.7	AT FM MUTING
TR112	0	0.65	0	AT FM MUTING

	AUX	FM	AM	
TR801	44	27	41	COLLECTOR VOLT.
TR803	44	27	41	COLLECTOR VOLT.

TR113			TR114			TR115			
E	B	C	E	B	C	E	B	C	
0	0	0.54	0	0	0.024	0	0.024	10.5	When tuning knob is retached.
0	0.65	0	0	0.58	0.006	0	0.01	10.5	When tuning knob is touched.

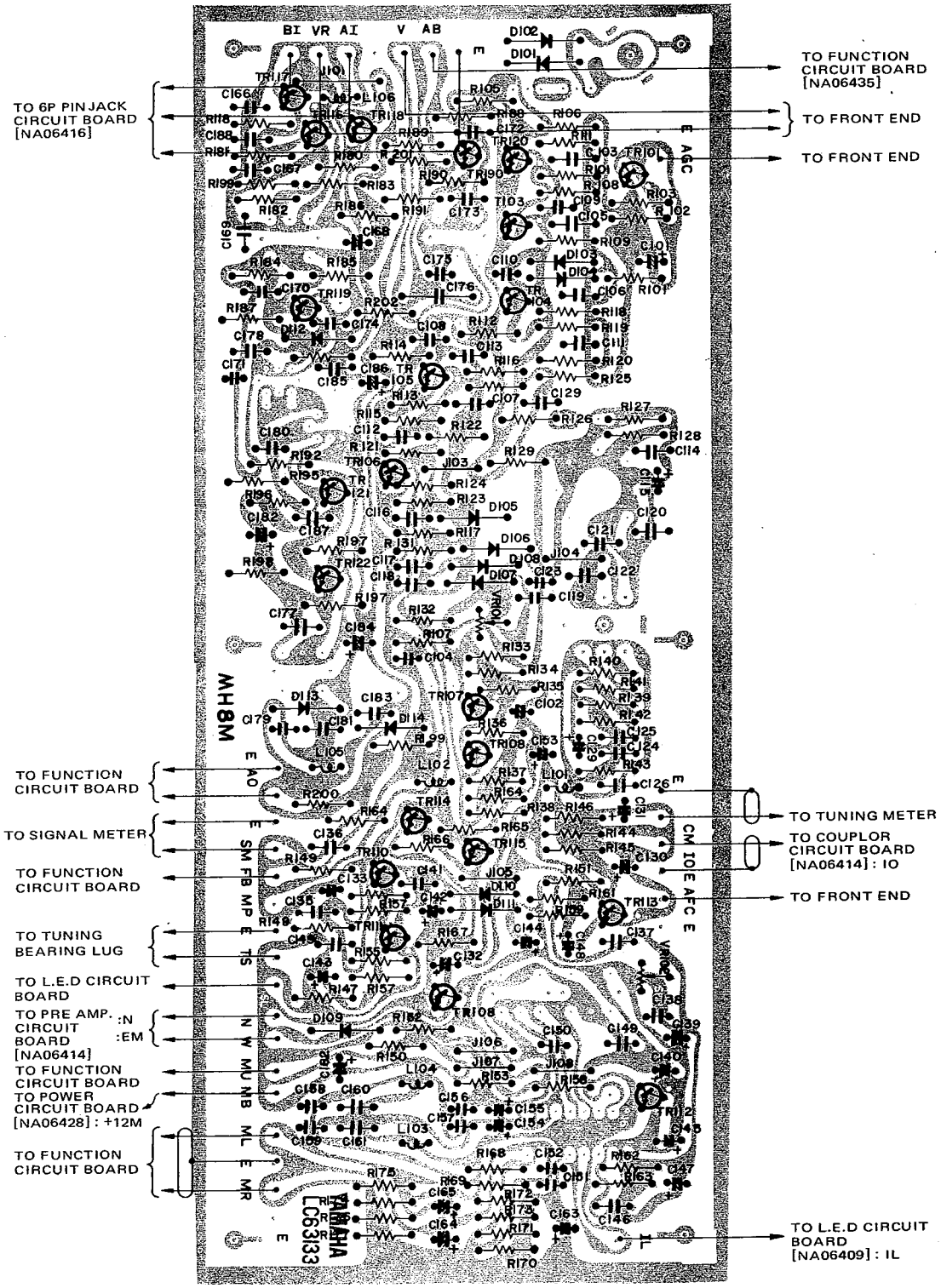
OVERALL SCHEMATIC DIAGRAM

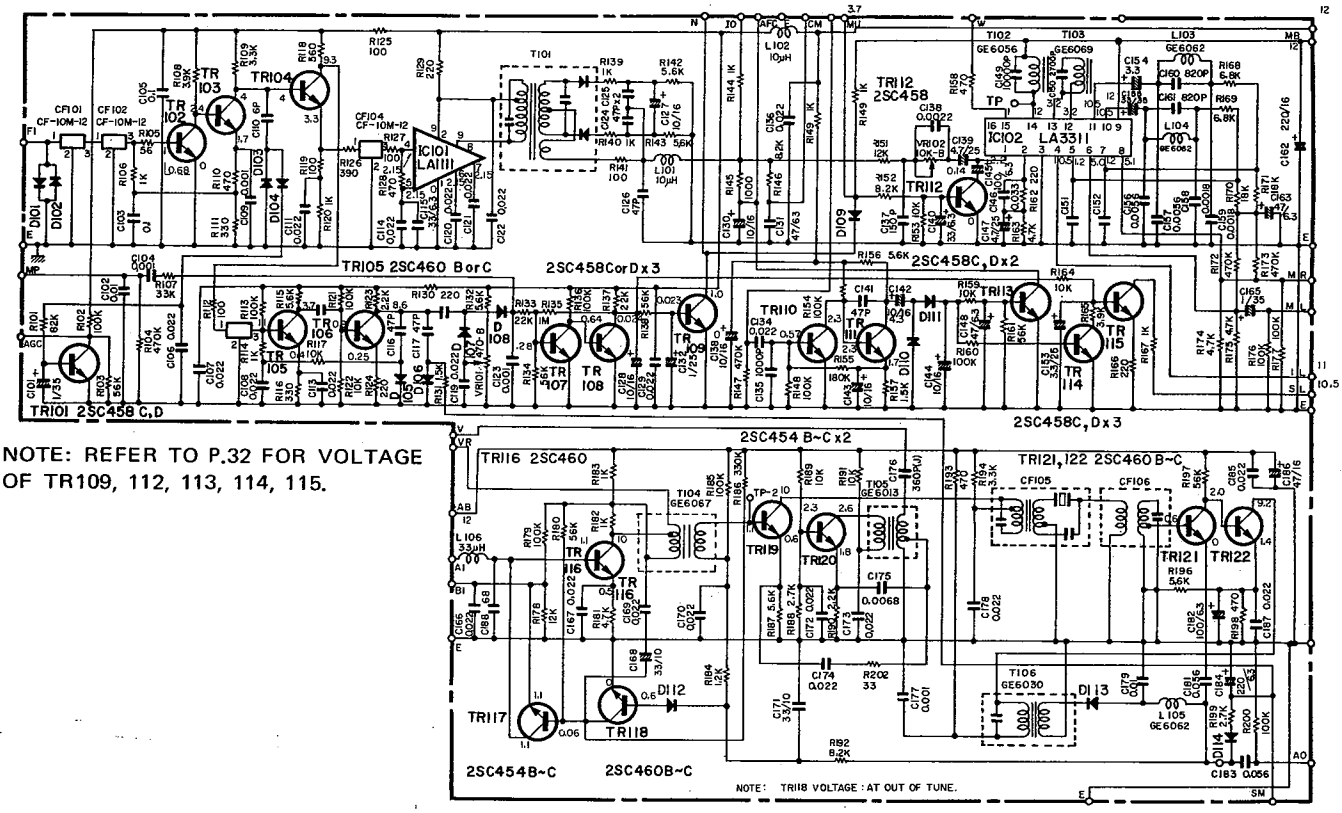


PRINTED CIRCUIT BOARD & SPECIAL REPLACEMENT PARTS LISTS

TUNER CIRCUIT BOARD

NA06431	U.S., Canadian Models
NA06432	General, Australian, European Models
NA06438	South African Model



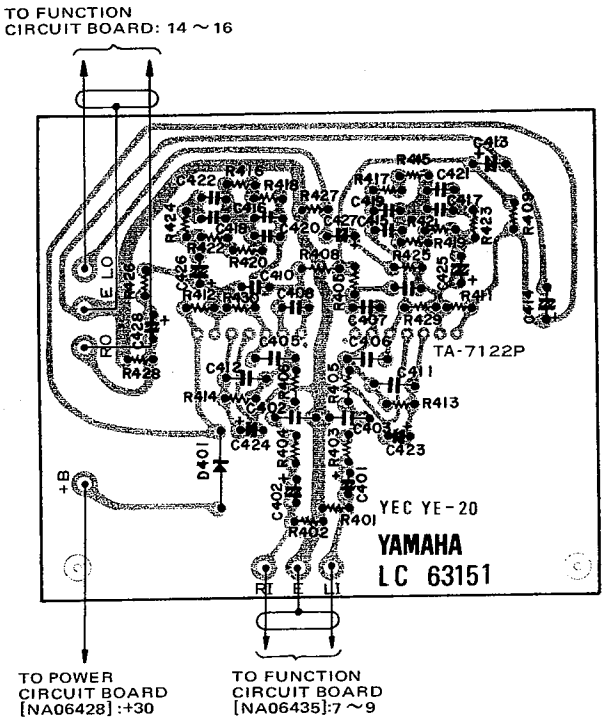


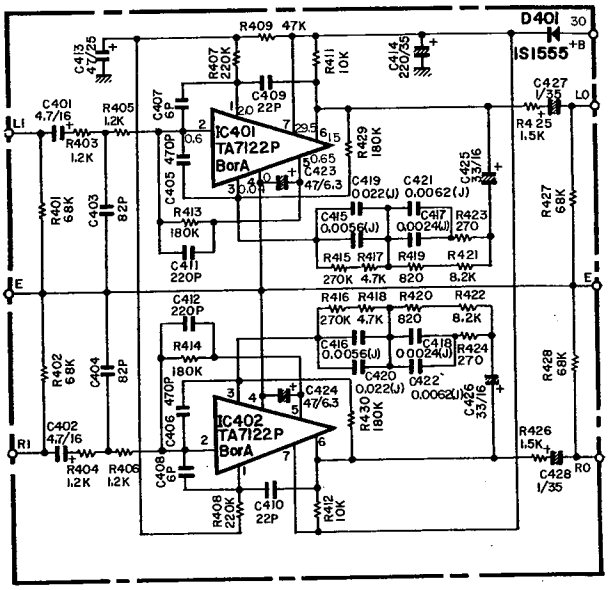
NOTE: REFER TO P.32 FOR VOLTAGE OF TR109, 112, 113, 114, 115.

Ref. No.	Description		
C 101	Solid Tantalum Capacitor	1μF	35WV
C 149	Poly-Styrene Capacitor	10000pF	
C 150	Poly-Styrene Capacitor	2700pF	
C 154	Solid Tantalum Capacitor	3.3μF	35WV
C 155	Solid Tantalum Capacitor	3.3μF	35WV
C 164	Solid Tantalum Capacitor	1μF	35WV
C 165	Solid Tantalum Capacitor	1μF	35WV
C 168	Solid Tantalum Capacitor	33μF	10WV
C 171	Solid Tantalum Capacitor	33μF	10WV
C 176	Poly-Styrene Capacitor	360pF	
TR101	Transistor	2SC458	C or D
TR102	Transistor	2SC460	B or C
TR103	Transistor	2SC460	B or C
TR104	Transistor	2SC460	B or C
TR105	Transistor	2SC460	B or C
TR106	Transistor	2SC460	B or C
TR107	Transistor	2SC458	C or D
TR108	Transistor	2SC458	C or D
TR109	Transistor	2SC458	C or D
TR110	Transistor	2SC458	C or D
TR111	Transistor	2SC458	C or D
TR112	Transistor	2SC458	C or D
TR113	Transistor	2SC458	C or D
TR114	Transistor	2SC458	C or D
TR115	Transistor	2SC458	C or D
TR116	Transistor	2SC460	B or C
TR117	Transistor	2SC454	B or C
TR118	Transistor	2SC460	B or C
TR119	Transistor	2SC454	B or C
TR120	Transistor	2SC454	B or C
TR121	Transistor	2SC460	B or C
TR122	Transistor	2SC460	B or C
D 101	Diode	1S1555	
D 102	Diode	1S1555	
D 103	Diode	1S1555	
D 104	Diode	1S1555	
D 105	Diode	SD-46	
D 106	Diode	SD-46	
D 107	Diode	SD-46	

Ref. No.	Description	
D 108	Diode	1S1555
D 109	Diode	SD-46
D 110	Diode	1S1555
D 111	Diode	1S1555
D 112	Diode	1S1555
D 113	Diode	SD-46
D 114	Djode	SD-46
IC101	Integrated Circuit	LA-1111
IC102	Integrated Circuit	LA-3311
VR101	Solid Variable Resistor	B 470Ω
VR102	Solid Variable Resistor	B 10kΩ
T 101	FM IFT	GE 6025
		South African Model only
T 101	FM IFT	GE 6019
		except South African Model
T 102	MPX Coil	GE 6056
T 103	MPX Coil	GE 6069
T 104	AM RF Coil	GE 6067
T 105	AM OSC Coil	GE 6013
T 106	AM IFT	GE 6030
L 101	RF Inductor	10μH
L 102	RF Inductor	10μH
L 103	MPX Coil	GE 6062 47mH
L 104	MPX Coil	GE 6062 47mH
L 105	MPX Coil	GE 6062 47mH
L 106	RF Inductor	33μH
CF101	Ceramic Filter Set	CF-10
CF102	Ceramic Filter Set	CF-10
CF103	Ceramic Filter Set	CF-10
CF104	Ceramic Filter Set	CF-10
CF105	AM Ceramic Filter	FSN-1038
		except South African Model
CF105	AM Ceramic Filter	FSN-1047
		South African Model only
CF106	AM Filter Coil	FSN-1036
		except South African Model
CF106	AM Filter Coil	FSN-1048
		South African Model only

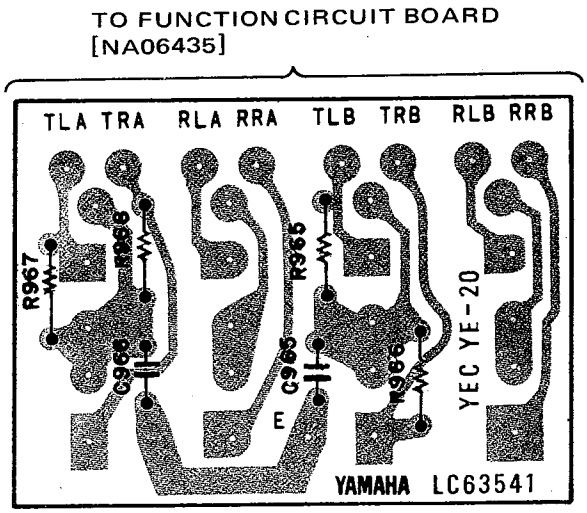
EQ AMP CIRCUIT BOARD NA06433

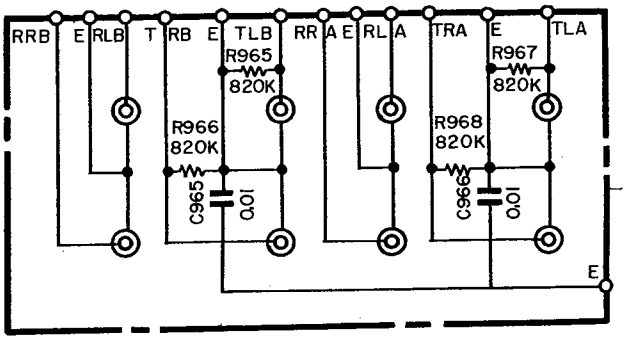




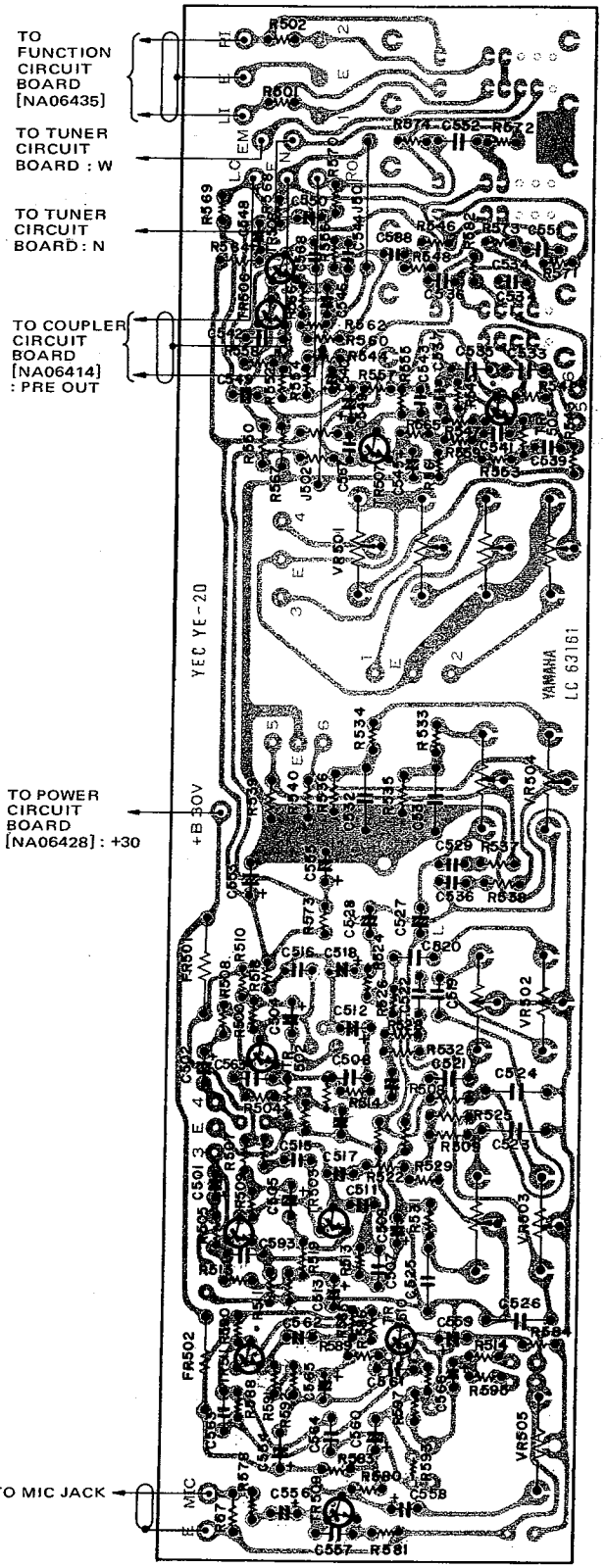
Ref. No.	Description		
C 401	Solid Tantalum Capacitor	4.7μF	16WV
C 402	Solid Tantalum Capacitor	4.7μF	16WV
C 427	Solid Tantalum Capacitor	1μF	35WV
C 428	Solid Tantalum Capacitor	1μF	35WV
D 401	Diode	1S1555	
IC401	Integrated Circuit	TA-7122P	B or C
IC402	Integrated Circuit	TA-7122P	B or C

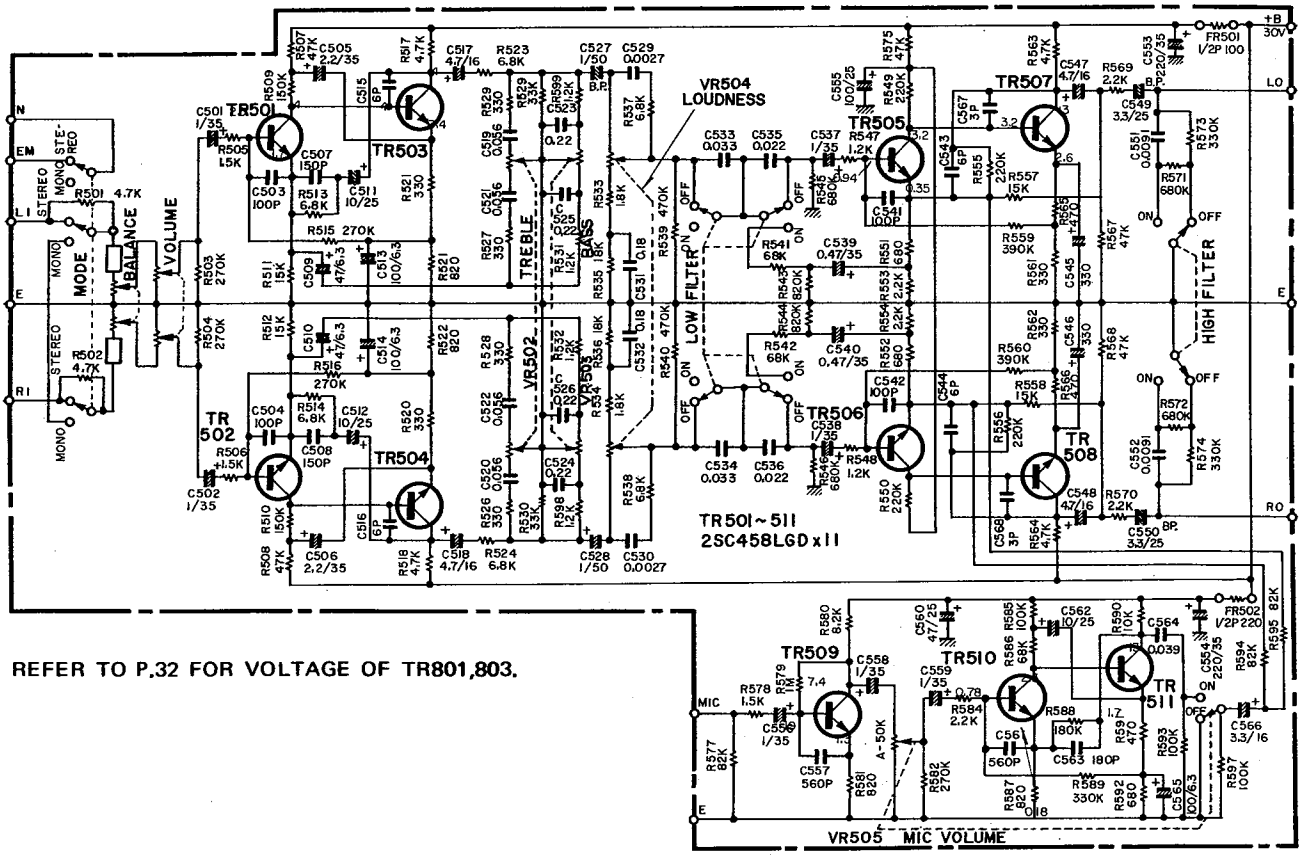
8P PIN JACK CIRCUIT BOARD NA06417





PRE AMP CIRCUIT BOARD NA06434



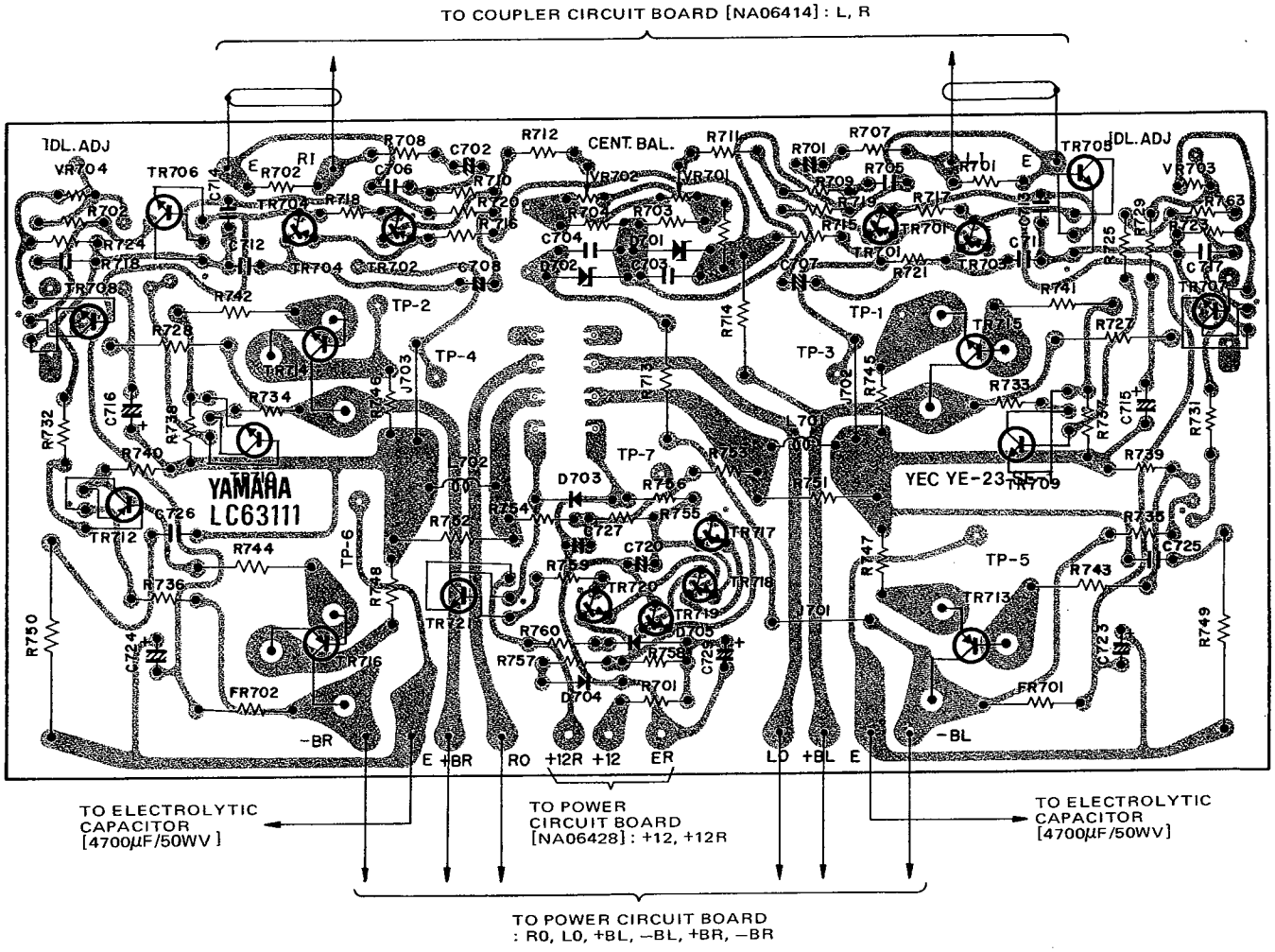


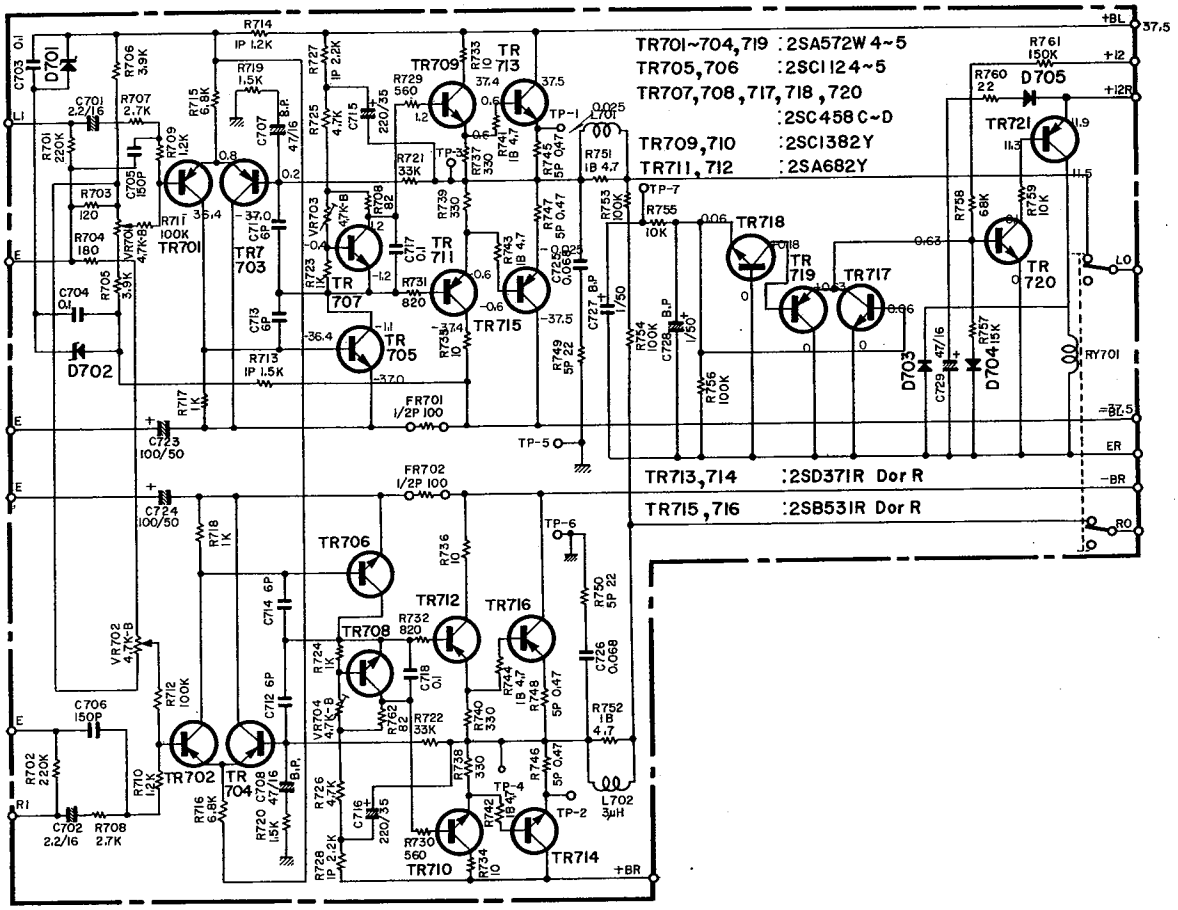
REFER TO P.32 FOR VOLTAGE OF TR801,803.

Ref. No.	Description		
FR501	Fuse Resistor	100Ω	1/2W
FR502	Fuse Resistor	220Ω	1/2W
C 501	Solid Tantalum Capacitor	1μF	35WV
C 502	Solid Tantalum Capacitor	1μF	35WV
C 505	Solid Tantalum Capacitor	2.2μF	35WV
C 506	Solid Tantalum Capacitor	2.2μF	35WV
C 517	Solid Tantalum Capacitor	4.7μF	16WV
C 518	Solid Tantalum Capacitor	4.7μF	16WV
C 527	Bi-Polar Electrolytic Capacitor	1μF	50WV
C 528	Bi-Polar Electrolytic Capacitor	1μF	50WV
C 537	Solid Tantalum Capacitor	1μF	35WV
C 538	Solid Tantalum Capacitor	1μF	35WV
C 539	Solid Tantalum Capacitor	0.47μF	35WV
C 540	Solid Tantalum Capacitor	0.47μF	35WV
C 547	Solid Tantalum Capacitor	4.7μF	16WV
C 548	Solid Tantalum Capacitor	4.7μF	16WV
C 549	Bi-Polar Electrolytic Capacitor	3.3μF	25WV
C 550	Bi-Polar Electrolytic Capacitor	3.3μF	25WV
C 556	Solid Tantalum Capacitor	1μF	35WV

Ref. No.	Description		
C 558	Solid Tantalum Capacitor	1μF	35WV
C 559	Solid Tantalum Capacitor	1μF	35WV
C 566	Solid Tantalum Capacitor	3.3μF	16WV
TR501	Transistor	2SC458	LGD or LGC
TR502	Transistor	2SC458	LGD or LGC
TR503	Transistor	2SC458	LGD or LGC
TR504	Transistor	2SC458	LGD or LGC
TR505	Transistor	2SC458	LGD or LGC
TR506	Transistor	2SC458	LGD or LGC
TR507	Transistor	2SC458	LGD or LGC
TR508	Transistor	2SC458	LGD or LGC
TR509	Transistor	2SC458	LGD or LGC
TR510	Transistor	2SC458	LGD or LGC
TR511	Transistor	2SC458	LGD or LGC
VR501	Variable Resistor	HB-250kΩ A-100kΩ	
VR502	Variable Resistor	XZ-10kΩ x 2	
VR503	Variable Resistor	XZ-25kΩ x 2	
VR504	Variable Resistor	B-20kΩ x 2	with Click
VR505	Variable Resistor	A-50kΩ	with Switch

MAIN AMP CIRCUIT BOARD NA06427



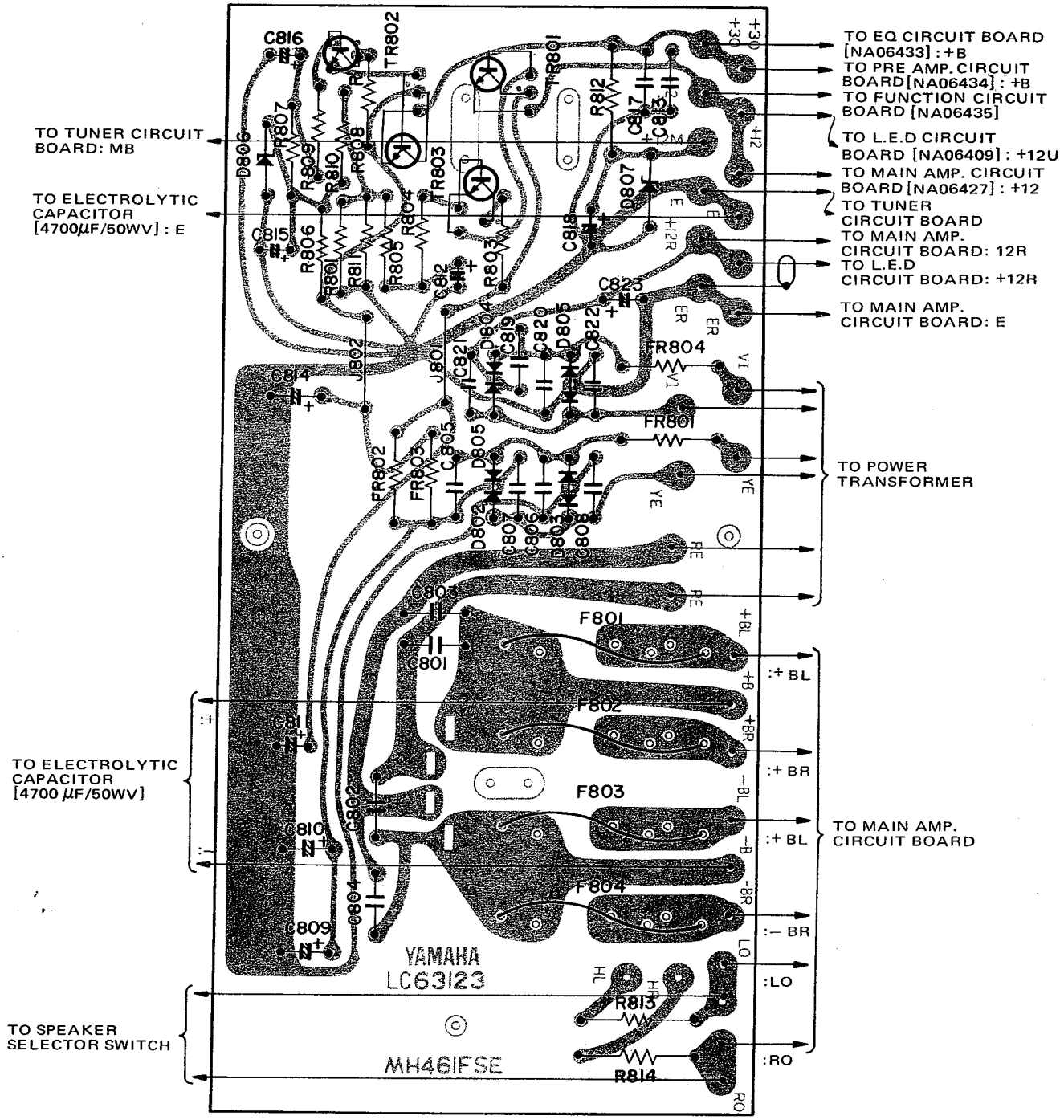


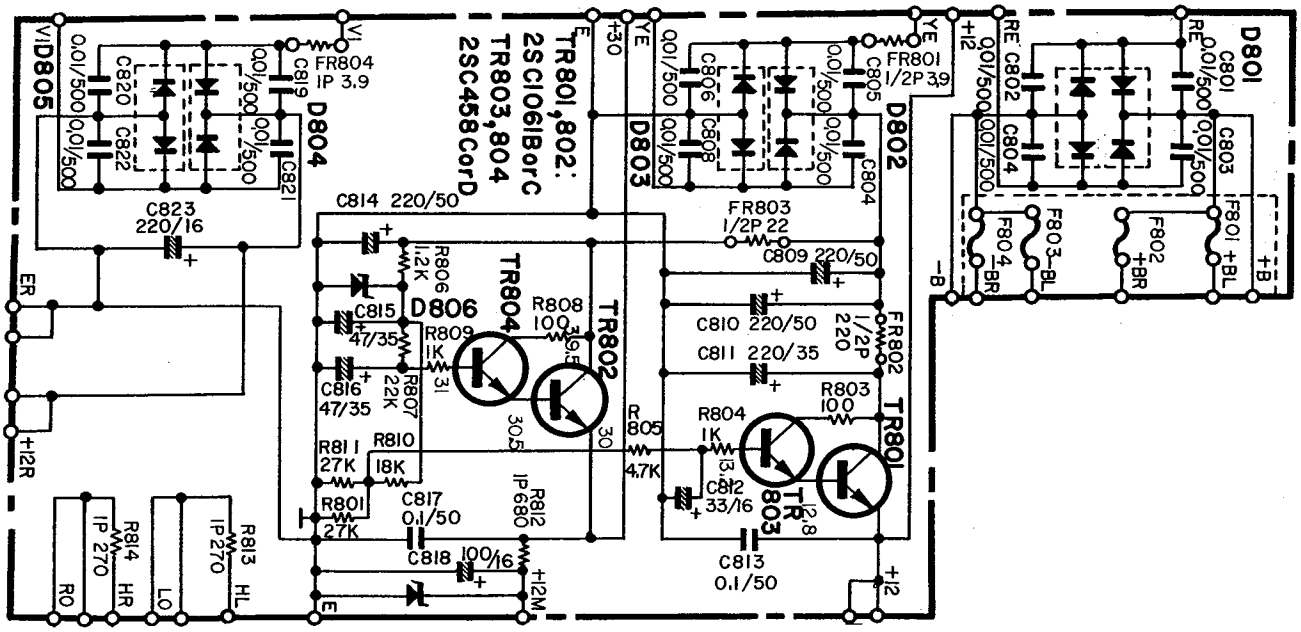
Ref. No.	Description		
R 713	Metal-Oxide Film Resistor	1.5kΩ	1W
R 714	Metal-Oxide Film Resistor	1.2kΩ	1W
R 727	Metal-Oxide Film Resistor	2.2kΩ	1W
R 728	Metal-Oxide Film Resistor	2.2kΩ	1W
R 741	Incombustible Resistor	4.7Ω	1W
R 742	Incombustible Resistor	4.7Ω	1W
R 743	Incombustible Resistor	4.7Ω	1W
R 744	Incombustible Resistor	4.7Ω	1W
R 745	Metal Plate Resistoe	0.47Ω	5W
R 746	Metal Plate Resistor	0.47Ω	5W
R 747	Metal Plate Resistor	0.47Ω	5W
R 748	Metal Plate Resistor	0.47Ω	5W
R 749	Cement Resistor	22Ω	5W
R 750	Cement Resistor	22Ω	5W
R 751	Incombustible Resistor	4.7Ω	1W
R 752	Incombustible Resistor	4.7Ω	1W
FR701	Fuse Resistor	100Ω	1/2W
FR702	Fuse Resistor	100Ω	1/2W
C 701	Bi-Polar Electrolytic Capacitor	2.2μF	16WV
C 702	Bi-Polar Electrolytic Capacitor	2.2μF	16WV
C 707	Bi-Polar Electrolytic Capacitor	47μF	16WV
C 708	Bi-Polar Electrolytic Capacitor	47μF	16WV
C 727	Bi-Polar Electrolytic Capacitor	1μF	50WV
C 728	Bi-Polar Electrolytic Capacitor	100μF	6.3WV
TR701	Transistor	2SA572	W4~5
TR702	Transistor	2SA572	W4~5
TR703	Transistor	2SA572	W4~5
TR704	Transistor	2SA572	W4~5
TR705	Transistor	2SC1124	2

Ref. No.	Description		
TR706	Transistor	2SC1124	2
TR707	Transistor	2SC458	C~D
TR708	Transistor	2SC458	C~D
TR709	Transistor	2SC1382	Y~O
TR710	Transistor	2SC1382	Y~O
TR711	Transistor	2SA682	O~Y
TR712	Transistor	2SA682	O~Y
TR713	Transistor	2SD371	O~R
TR714	Transistor	2SD371	O~R
TR715	Transistor	2SB531	O~R
TR716	Transistor	2SB531	O~R
TR717	Transistor	2SC458	C~D
TR718	Transistor	2SC458	C~D
TR719	Transistor	2SA572	W4~5
TR720	Transistor	2SC458	C~D
TR721	Transistor	2SA682	O~Y
D 701	Zener Diode	WZ-120	
D 702	Zener Diode	WZ-120	
D 703	Diode	10D-1	
D 704	Diode	SD-46	
D 705	Diode	1S1555	
VR701	Solid Variable Resistor	B 4.7kΩ	SR-29R
VR702	Solid Variable Resistor	B 4.7kΩ	SR-29R
VR703	Solid Variable Resistor	B 4.7kΩ	SR-29R
VR704	Solid Variable Resistor	B 4.7kΩ	SR-29R
L 701	Coil	3.0μH	
L 702	Coil	3.0μH	
RY701	Relay	MX2P-O	12V

POWER CIRCUIT BOARD

NA06428 General, U.S., Canadian, South African, Australian Models
NA06429 European Model

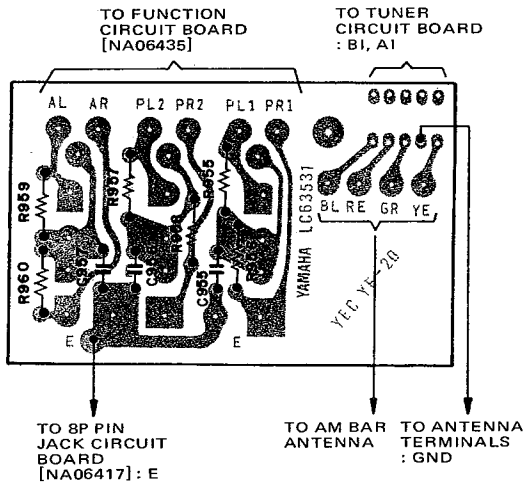


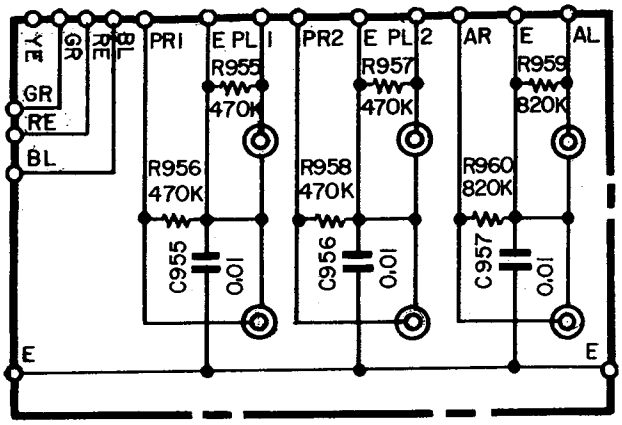


Ref. No.	Description		
R 812	Metal-Oxide Film Resistor	680Ω	1W
R 813	Metal-Oxide Film Resistor	270Ω	1W
R 814	Metal-Oxide Film Resistor	270Ω	1W
FR801	Fuse Resistor	3.9Ω	1/2W
FR802	Fuse Resistor	220Ω	1/2W
FR803	Fuse Resistor	22Ω	1/2W
FR804	Fuse Resistor	3.9Ω	1W
TR801	Transistor	2SC1061	B or C
TR802	Transistor	2SC1061	B or C
TR803	Transistor	2SC458	C or D
TR804	Transistor	2SC458	C or D
D 801	Diode	5B-2	
D 802	Diode	10DC-2	
D 803	Diode	10DC-2R	
D 804	Diode	10DC-1	
D 805	Diode	10DC-1R	
D 806	Zener Diode	WZ-310	

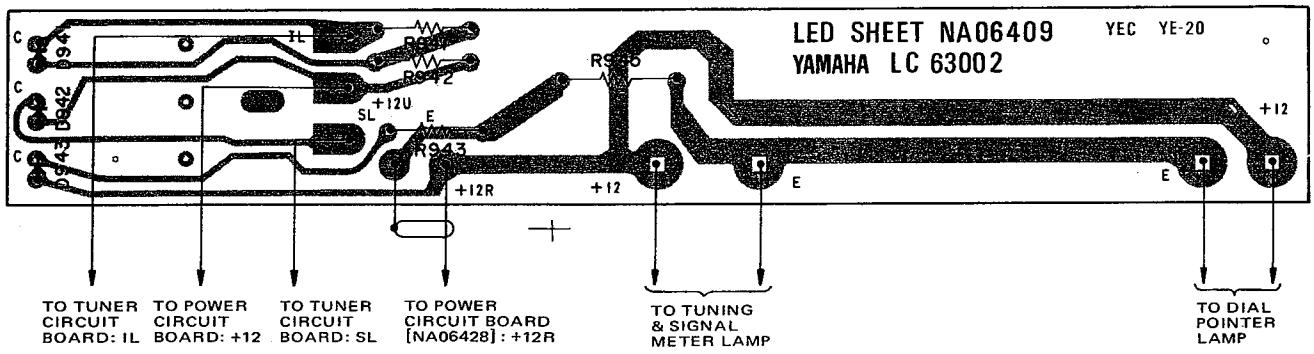
Ref. No.	Description		
D 807	Zener Diode	WZ-120	
F 801	UL Fuse	SS-2	3.0A 250V
		except European Model	
F 802	UL Fuse	SS-2	3.0A 250V
		except European Model	
F 803	UL Fuse	SS-2	3.0A 250V
		except European Model	
F 804	UL Fuse	SS-2	3.0A 250V
		except European Model	
F 801	S Fuse		3.15A 250V
		European Model only	
F 802	S Fuse		3.15A 250V
		European Model only	
F 803	S Fuse		3.15A 250V
		European Model only	
F 804	S Fuse		3.15A 250V
		European Model only	

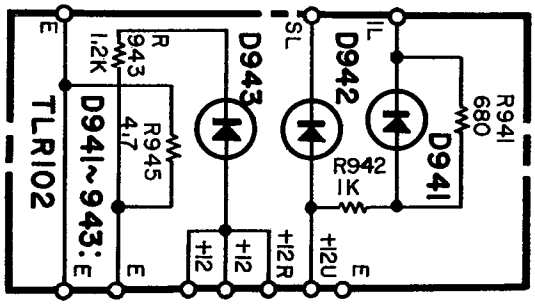
6P PIN JACK CIRCUIT BOARD NA06416





LIGHT EMITTING DIODE CIRCUIT BOARD NA06409

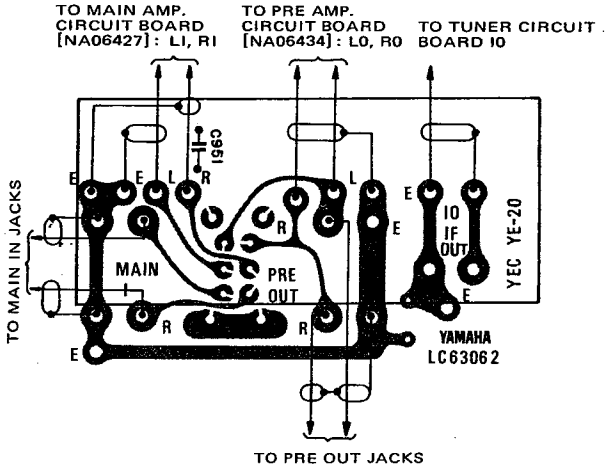


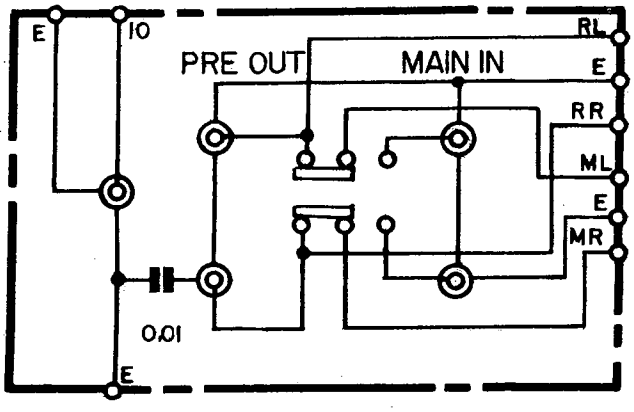


Ref. No.	Description		
R 945	Incombustible Resistor	4.7Ω	1W
D 941	Light Emitting Diode	TLR102	
D 942	Light Emitting Diode	TLR102	
D 943	Light Emitting Diode	TLR102	

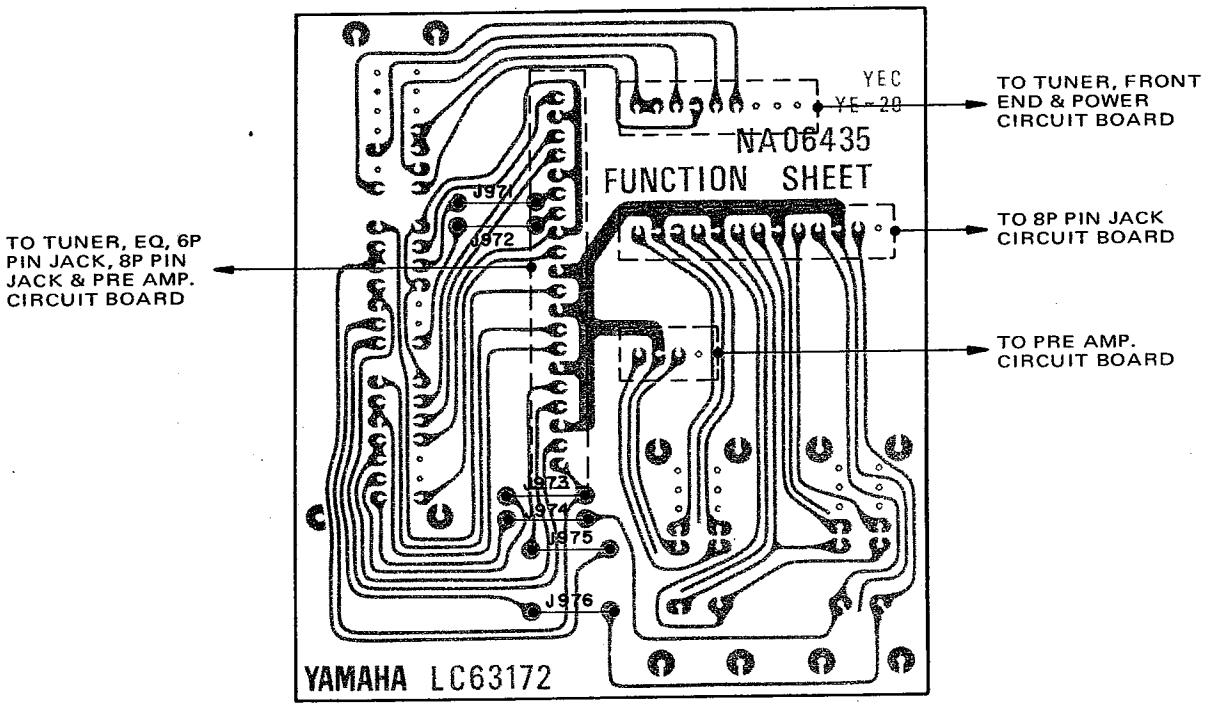
COUPLER CIRCUIT BOARD NA06414

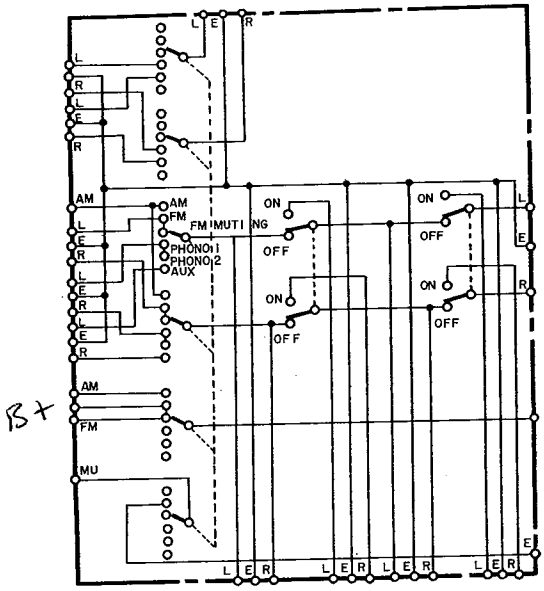
General, U.S., Canadian,
South African, Australian Models





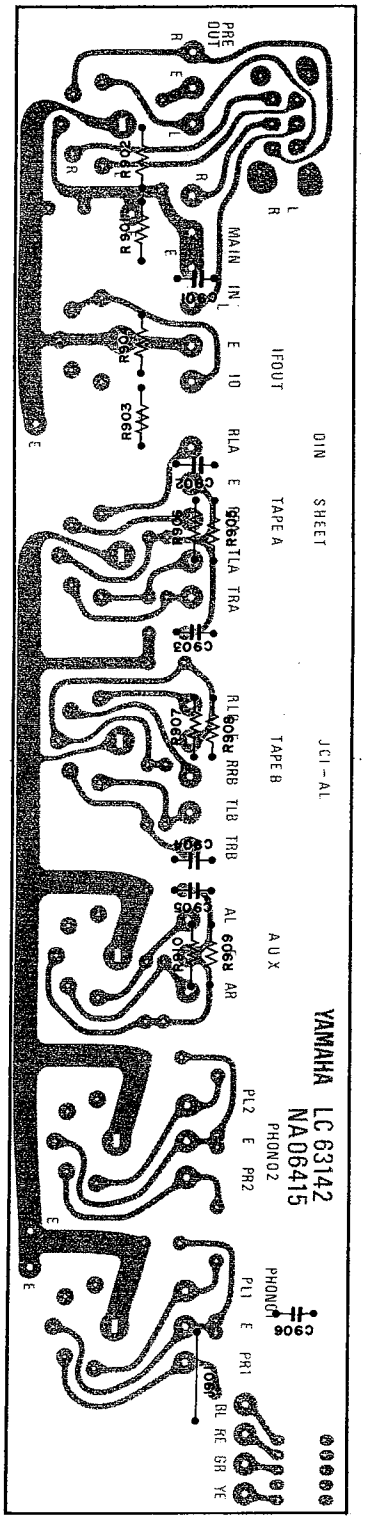
FUNCTION CIRCUIT BOARD NA06435

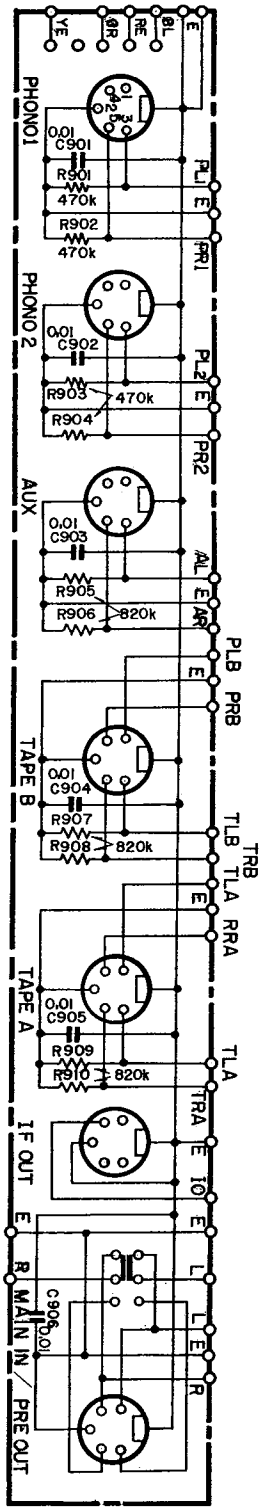




DIN CONNECTOR CIRCUIT BOARD (EUROPEAN MODEL ONLY)

NA06415
European Model

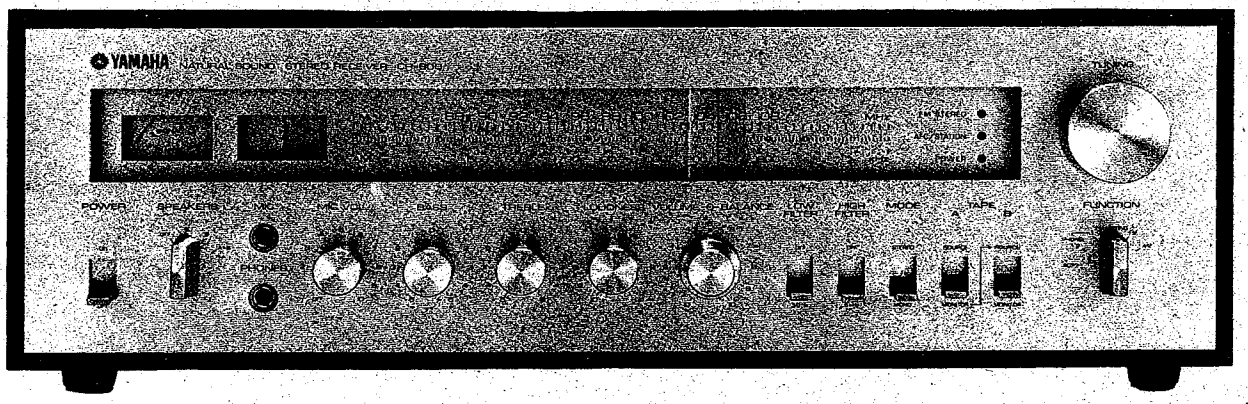




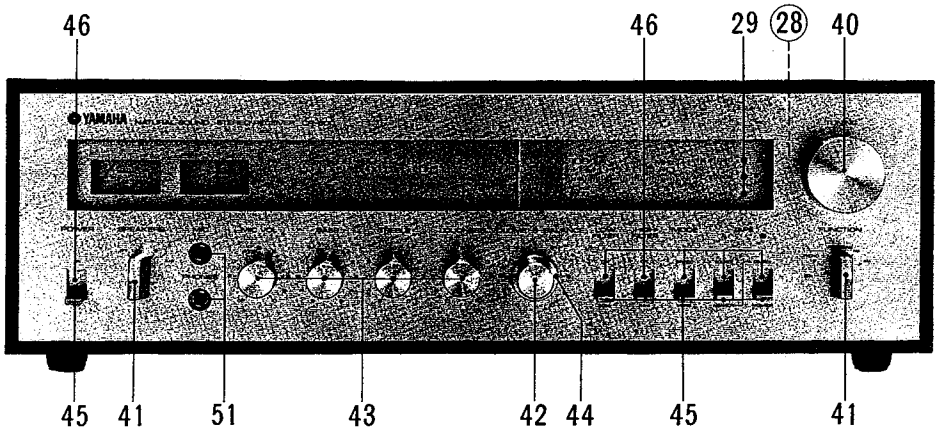
YAMAHA HI-FI STEREO RECEIVER

CR-600

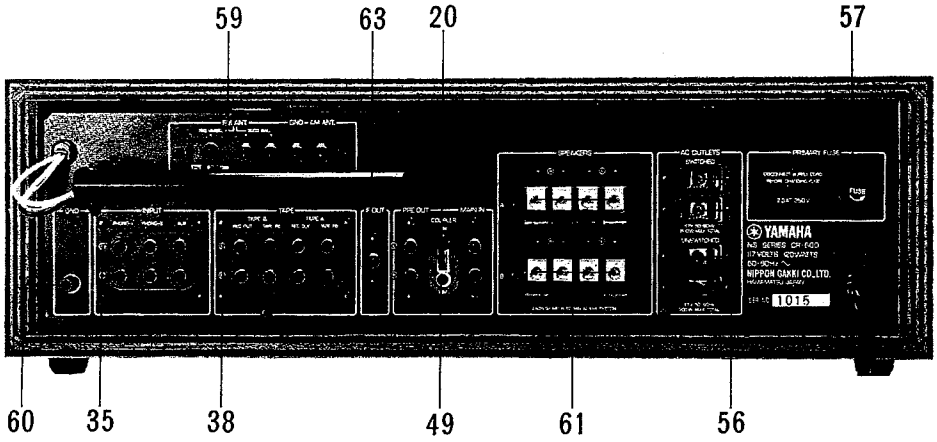
PARTS CATALOG



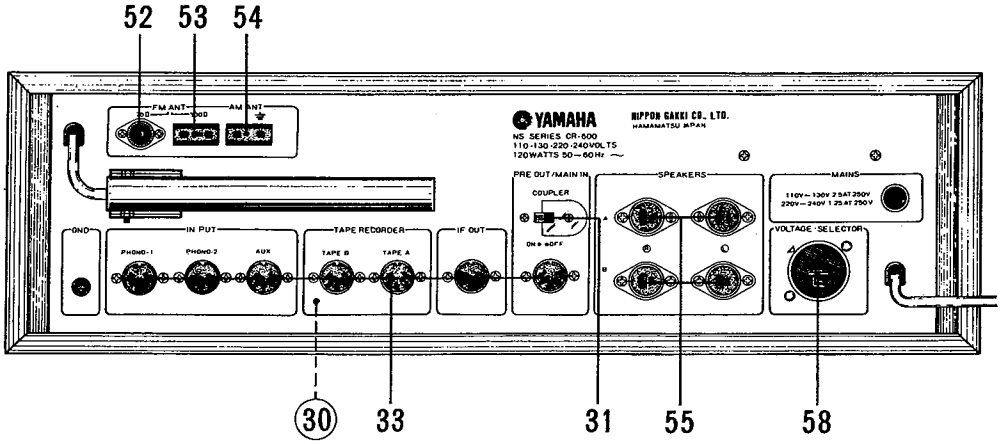
FRONT PANEL

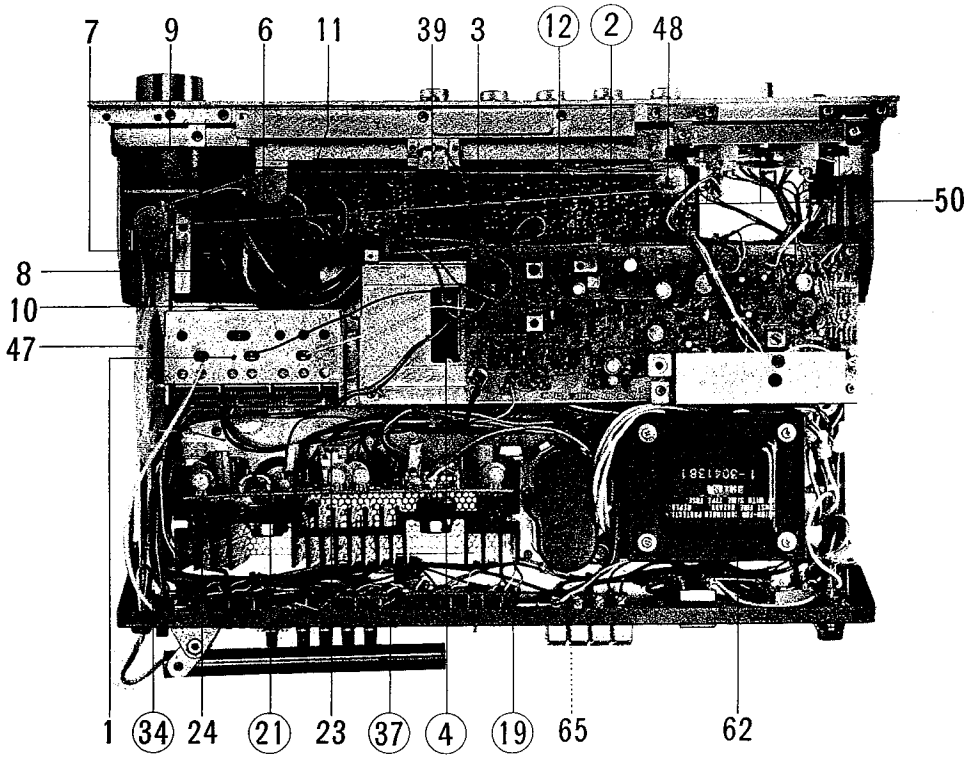


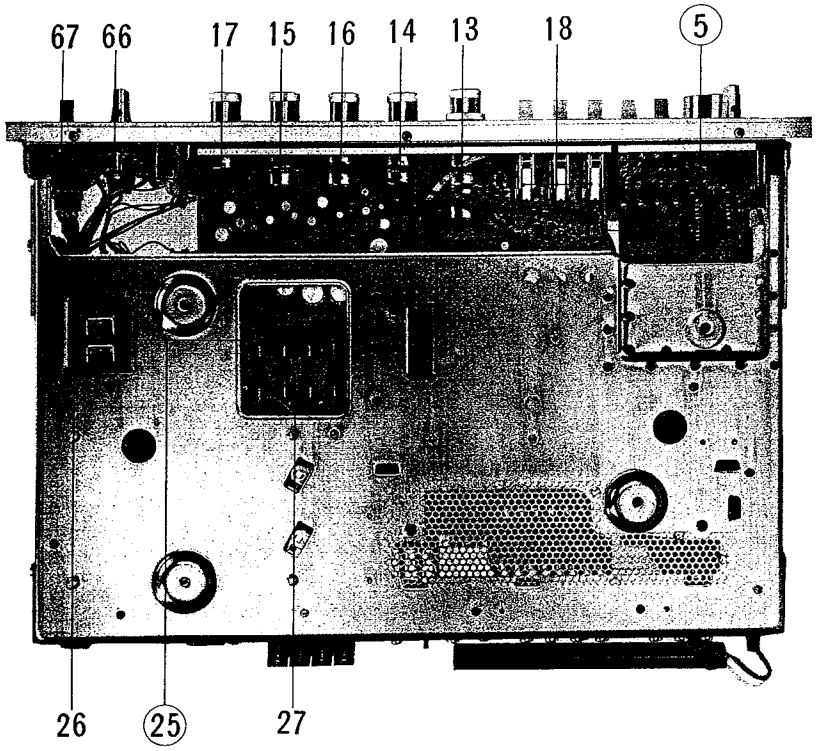
REAR PANEL (GENERAL MODEL)



REAR PANEL (EUROPEAN MODEL)







Ref. No.	Part No.	Description			Remarks	Common Models	
1	PA00023	RF Pack	FL523U	R F パ ッ ク	except South African Model		
〃	PA00024	RF Pack	FL523S	〃	South African Model		
②	NA06431	Tuner Circuit board	# 63130	チューナーシート	U.S. & Canadian Models		
〃	NA06432	— do. —		〃	General, Australian & European Models		
〃	NA06438	— do. —		〃	South African Model		
		Carbon resistor	33 Ω ¼ W	カ ー ボ ン 抵 抗			
		— do. —	56 Ω 〃	〃			
		— do. —	100 Ω 〃	〃			
		— do. —	220 Ω 〃	〃			
		— do. —	270 Ω 〃	〃			
		— do. —	330 Ω 〃	〃			
		— do. —	390 Ω 〃	〃			
		— do. —	470 Ω 〃	〃			
		— do. —	560 Ω 〃	〃			
		— do. —	1 K Ω 〃	〃			
		— do. —	1.2 K Ω 〃	〃			
		— do. —	1.5 K Ω 〃	〃			
		— do. —	2.2 K Ω 〃	〃			
		— do. —	2.7 K Ω 〃	〃			
		— do. —	3.3 K Ω 〃	〃			
		— do. —	3.9 K Ω 〃	〃			
		— do. —	4.7 KΩ 〃	〃			
		— do. —	5.6 K Ω 〃	〃			
		— do. —	6.8 K Ω 〃	〃			
		— do. —	8.2 K Ω 〃	〃			
		— do. —	10 K Ω 〃	〃			
		— do. —	12 K Ω 〃	〃			
		— do. —	18 K Ω 〃	〃			
		— do. —	22 K Ω 〃	〃			
		— do. —	33 K Ω 〃	〃			
		— do. —	56 K Ω 〃	〃			
		— do. —	82 K Ω 〃	〃			
		— do. —	100 KΩ 〃	〃			

Ref. No.	Part No.	Description		Remarks	Common Models	
		Carbon resistor 180 KΩ ¼ W	カーボン抵抗			
		— do. — 330 KΩ	〃			
		— do. — 470 KΩ 〃	〃			
		— do. — 1 MΩ 〃	〃			
		Mylar capacitor 0.001 μF	マイラーコンデンサ			
		— do. — 0.0018 μF	〃			
		— do. — 0.0022 μF	〃			
		— do. — 0.0056 μF	〃			
		— do. — 0.0068 μF	〃			
		— do. — 0.0082 μF	〃			
		— do. — 0.01 μF	〃			
		— do. — 0.012 μF	〃			
		— do. — 0.033 μF	〃			
		— do. — 0.056 μF	〃			
		— do. — 0.1 μF	〃			
		Ceramic capacitor 6 PF	セラミックコンデンサ			
		— do. — 47 PF	〃			
		— do. — 68 PF	〃			
		— do. — 150 PF	〃			
		— do. — 820 PF	〃			
		— do. — 0.001 μF	〃			
		— do. — 0.022 μF	〃			
		Electrolytic capacitor (Vert. type) 33 μF 6.3 WV	電解コンデンサ			
		— do. — (〃) 47 μF 〃	〃			
		— do. — (〃) 100 μF 〃	〃			
		— do. — (〃) 220 μF 〃	〃			
		— do. — (〃) 10 μF 16 WV	〃			
		— do. — (〃) 220 μF 〃	〃			
		— do. — (〃) 1 μF 25 WV	〃			
		— do. — (〃) 3.3 μF 〃	〃			
		— do. — (〃) 4.7 μF 〃	〃			
		Polystyren capacitor 360 PF	スチロールコンデンサ			

Ref. No.	Part No.	Description			Remarks	Common Models	
		Polystyren capacitor	2700 PF	スチロールコンデンサー			
		— do. —	10000 PF	〃			
		Tantalum capacitor	33 μF 10 WV	タンタルコンデンサ			
		— do. —	1 μF 35 WV	〃			
		— do. —	3.3 μF 〃	〃			
	GE10005	FM IFT	GE6019	FMIFT	except South African Model		
	GE10006	— do. —	GE6025	〃	South African Model		
	GE20007	MPX Coil	GE6056	MPXコイル			
	GE20013	— do. — 47 MH		〃			
	GE20012	— do. —	GE6069	〃			
	GE90001	AM-RE Coil	GE6067	AM—RFコイル			
	GE10015	AM-OSC Coil	GE6013	AMOSCコイル			
	GE10010	AM IFT	GE6030	AMIFT			
	GE30001	RF Inductor	10 μH	RFインダクター			
	GE30011	RF Inductor	33 μH	RFインダクター			
	GE90013	AM Filter coil		AMフィルター コイル	except South African Model		
	GE90014	— do. —		〃	South African Model		
	GG00004	Ceramic Filter set	CF-10	セラミックフィルター セット			
	GG00009	AM Ceramic Filter	FSN-1038	AMセラミックフィルター	except South African Model		
	GG00010	— do. —	FSN-1047	〃	South African Model		
		Integrated circuit	LA1111	IC			
		— do. —	LA3311	〃			
		Diode	IS1555	ダイオード			
		— do. —	SD-46	〃			
	HT41012	Variable resistor	B 470 Ω	ソリッドVR			
	HT41007	— do. —	B 10 K Ω	〃			
		Transistor	2SC454 (B or C)	トランジスタ			
		— do. —	2SC458 (C or D)	〃			
		— do. —	2SC460 (B or C)	〃			

Ref. No.	Part No.	Description		Remarks	Common Models	
3	LB10020	1 P Pin jack SQ-3056	基板型ピンジャック			
④	NA06433	Equalizer Circuit board #63151	イコライザーシート			
		Carbon resistor 270 Ω ¼ W	カーボン抵抗			
		— do. — 820 Ω 〃	〃			
		— do. — 1.2 KΩ 〃	〃			
		— do. — 1.5 KΩ 〃	〃			
		— do. — 4.7 KΩ 〃	〃			
		— do. — 8.2 KΩ 〃	〃			
		— do. — 10 KΩ 〃	〃			
		— do. — 47 KΩ 〃	〃			
		— do. — 68 KΩ 〃	〃			
		— do. — 180 KΩ 〃	〃			
		— do. — 220 KΩ 〃	〃			
		— do. — 270 KΩ 〃	〃			
		Mylar capacitor 0.0039 μF	マイラーコンデンサ			
		— do. — 0.0047 μF	〃			
		— do. — 0.0056 μF	〃			
		— do. — 0.022 μF	〃			
		Ceramic capacitor 6 PF	セラミックコンデンサ			
		— do. — 22 PF	〃			
		— do. — 82 PF	〃			
		— do. — 220 PF	〃			
		— do. — 470 PF	〃			
		Electrolytic capacitor (Vert. type) 47μF 6.3 WV	電解コンデンサ			
		— do. — (〃) 33μF 16 WV	〃			
		— do. — (〃) 47μF 25 WV	〃			
		— do. — (〃) 220μF 35 WV	〃			
		Tantalum capacitor 4.7μF 16 WV	タンタル固体コンデンサ			
		— do. — 1μF 35 WV	〃			

Ref. No.	Part No.	Description			Remarks	Common Models	
		Integrated circuit	TA-7122P (B or A)	I C			
		Diode	IS1555	ダイオード			
⑤	NA06435	Function Circuit board	# 63172	ファンクションシート			
6	KA20017	Lever switch	SLA-34251	レバースイッチ			
7	KA50035	Rotary switch	SRZ-066	ロータリースイッチ			
8	LB60035	CIS Connector socket	20 P	CISソケット			
9	LB60030	— do. —	13 P	〃			
10	LB60025	— do. —	9 P	〃			
11	LB40008	— do. —	4 P	〃			
	LB10006	CIS Keying pin		CISキーイングピン			
⑫	NA06434	Pre-amp Circuit board	# 63161	プリシート			
		Carbon resistor	330 Ω ¼ W	カーボン抵抗			
		— do. —	470 Ω 〃	〃			
		— do. —	680 Ω 〃	〃			
		— do. —	820 Ω 〃	〃			
		— do. —	1.2 K Ω 〃	〃			
		— do. —	1.5 K Ω 〃	〃			
		— do. —	1.8 K Ω 〃	〃			
		— do. —	2.2 K Ω 〃	〃			
		— do. —	4.7 K Ω 〃	〃			
		— do. —	6.8 K Ω 〃	〃			
		— do. —	8.2 K Ω 〃	〃			
		— do. —	10 K Ω 〃	〃			
		— do. —	15 K Ω 〃	〃			
		— do. —	18 K Ω 〃	〃			
		— do. —	33 K Ω 〃	〃			
		— do. —	47 K Ω 〃	〃			
		— do. —	68 K Ω 〃	〃			

Ref. No.	Part No.	Description		Remarks	Common Models	
		Carbon resistor 82 KΩ ¼ W	カーボン抵抗			
		— do. — 100 KΩ 〃	〃			
		— do. — 150 KΩ 〃	〃			
		— do. — 180 KΩ 〃	〃			
		— do. — 220 KΩ 〃	〃			
		— do. — 270 KΩ 〃	〃			
		— do. — 330 KΩ 〃	〃			
		— do. — 390 KΩ 〃	〃			
		— do. — 470 KΩ 〃	〃			
		— do. — 680 KΩ 〃	〃			
		— do. — 820 KΩ 〃	〃			
		— do. — 1 MΩ 〃	〃			
		Fuse resistor 100 Ω ½W	ヒューズ抵抗			
		— do. — 220 Ω 〃	〃			
		Mylar capacitor 0.0027 μF	マイラーコンデンサ			
		— do. — 0.01 μF	〃			
		— do. — 0.022 μF	〃			
		— do. — 0.033 μF	〃			
		— do. — 0.039 μF	〃			
		— do. — 0.056 μF	〃			
		— do. — 0.18 μF	〃			
		— do. — 0.22 μF	〃			
		Ceramic capacitor 3 PF	セラミックコンデンサ			
		— do. — 5 PF	〃			
		— do. — 6 PF	〃			
		— do. — 100 PF	〃			
		— do. — 150 PF	〃			
		— do. — 180 PF	〃			
		— do. — 560 PF	〃			
		Electrolytic capacitor (V. type) 47 μF 6.3 WV	電解コンデンサ			
		— do. — (〃) 100 μF 〃	〃			
		— do. — (〃) 10 μF 16 WV	〃			

Ref. No.	Part No.	Description		Remarks	Common Models	
		Electrolytic capacitor (V. type) 10μF 25 WV	電解コンデンサ			
		– do. – (〃) 47μF 〃	〃			
		– do. – (〃) 100μF 〃	〃			
		– do. – (〃) 220μF 35 WV	〃			
		BP capacitor (V. type) 3.3μF 25 WV	バイポーラケミコン			
		– do. – (〃) 1μF 50 WV	〃			
		Tantalum capacitor 3.3μF 16 WV	タンタル固体コンデンサ			
		– do. – 4.7μF 〃	〃			
		– do. – 0.47μF 35 WV	〃			
		– do. – 1μF 〃	〃			
		– do. – 2.2μF 〃	〃			
		Transistor 2SC458LG (D or C)	トランジスタ			
13	HS12031	Variable resistor HB 250KΩ, A 100KΩ	可変抵抗器	LEVEL	CA-1000	
14	HS12034	– do. – (with click) B20KΩx 2	〃	LOUDNESS	〃	
15	HS12035	– do. – XZ25KΩx 2	〃	BASS	CA-800	
16	HS12036	– do. – XZ10KΩx 2	〃	TREBLE	〃	
17	HS12037	– do. – (with SW.) A 50KΩ	〃	MIC	CR-800	
18	KA20012	Lever switch SLA34202	レバースイッチ		CA-1000	
⑲	NA06414	Coupler Circuit board ＃63032	カプラーシート	except European Model		
		Ceramic capacitor 0.01μF	セラミックコンデンサ			
	LB20066	2 P Pin jack (PC)	2 Pピンジャック			
	LB10008	1 P 〃 (〃)	1 Pピンジャック			
20	KA40021	Slide switch SL222B4	スライドスイッチ			
㉑	NA06427	Main-amp Circuit board ＃63111	メインシート			

Ref. No.	Part No.	Description		Remarks	Common Models	
		Carbon resistor	10 Ω ¼ W カーボン抵抗			
		– do. –	22 Ω 〃 〃			
		– do. –	120 Ω 〃 〃			
		– do. –	180 Ω 〃 〃			
		– do. –	330 Ω 〃 〃			
		– do. –	560 Ω 〃 〃			
		– do. –	820 Ω 〃 〃			
		– do. –	1 KΩ 〃 〃			
		– do. –	1.2 KΩ 〃 〃			
		– do. –	2.7 KΩ 〃 〃			
		– do. –	3.9 KΩ 〃 〃			
		– do. –	4.7 KΩ 〃 〃			
		– do. –	6.8 KΩ 〃 〃			
		– do. –	10 KΩ 〃 〃			
		– do. –	15 KΩ 〃 〃			
		– do. –	33 KΩ 〃 〃			
		– do. –	68 KΩ 〃 〃			
		– do. –	100 KΩ 〃 〃			
		– do. –	150 KΩ 〃 〃			
		– do. –	220 KΩ 〃 〃			
		Metalised Oxidation resistor	1.2 KΩ 1 W 酸化金属抵抗			
		– do. –	1.5 KΩ 〃 〃			
		– do. –	2.2 KΩ 〃 〃			
		Metalised board resistor	0.47Ω 5 W 金属板抵抗			
		Cement resistor	22 Ω 5 W セメント抵抗			
		Fire proofing resistor	4.7 Ω 1 B 不燃性抵抗			
		Fuse resistor	100 Ω ½W ヒューズ抵抗			
		Mylar capacitor	0.068 μF マイラーコンデンサ			
		Ceramic capacitor	6 PF セラミックコンデンサ			

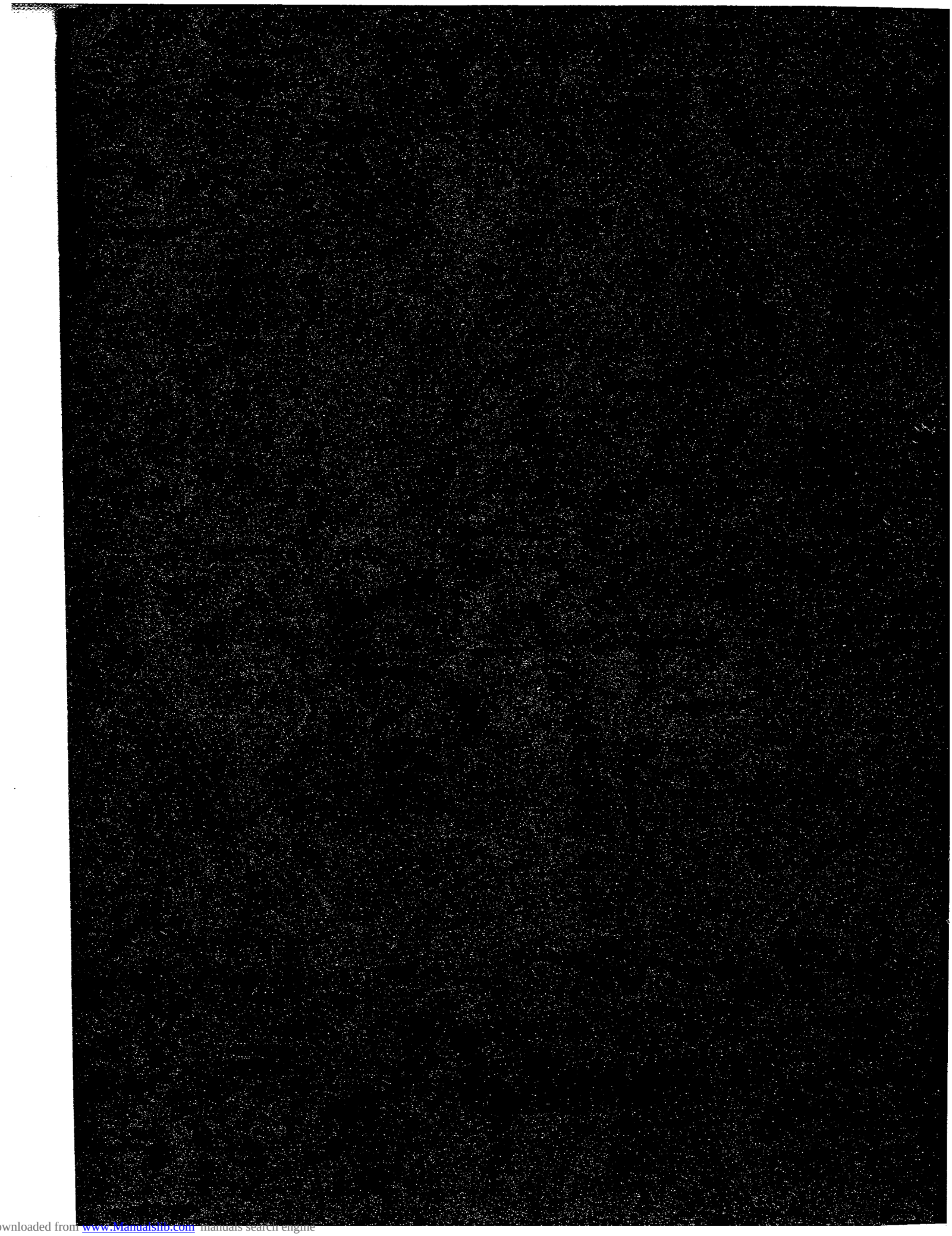
Ref. No.	Part No.	Description		Remarks	Common Models	
		Ceramic capacitor	150 PF	セラミックコンデンサ		
		— do. —	0.1 μF	〃		
		Electrolytic capacitor (KU type)	47 μF 16 WV	電解コンデンサ		
		— do. — (V. type)	220 μF 35 WV	〃		
		— do. — (〃)	100 μF 50 WV	〃		
		Bi polar capacitor (Vert. type)	100 μF 6.3 WV	バイポーラケミコン		
		— do. — (〃)	2.2 μF 16 WV	〃		
		— do. — (〃)	47 μF 〃	〃		
		— do. — (〃)	1 μF 50 WV	〃		
	HT41004	Variable resistor (SV10KR)	B 4.7K Ω	ソリッドVR		
22	GD90005	Air-core coil	3 μH	空芯コイル		
		Diode	SD-46	ダイオード		
		— do. —	10D-1	〃		
		— do. —	IS1555	〃		
		Zenner Diode	WZ-120	ツェナーダイオード		
		Transistor	2SA572 (W-4.5)	トランジスタ		
		— do. —	2SA682 (O or Y)	〃		
		— do. —	2SB531 (O or R)	〃		
		— do. —	2SC458 (C or D)	〃		
		— do. —	2SC1124 (—2)	〃		
		— do. —	2SC1382 (Y or O)	〃		
		— do. —	2SD371 (O or R)	〃		
23	KC00009	Rellay	MX-2PO	リレー		
	BB06308	Transistor pusher		トランジスタ押え		
	LB30011	Transistor socket	S2-110B-00	トランジスタソケット		
24	BA06480	Heat sink		放熱板		

Ref. No.	Part No.	Description		Remarks	Common Models	
㉕	NA06428	Power supply Circuit board ＃63122	電源シート	except European Model		
	NA06429	— do. —	〃	European Model		
		Carbon resistor 100Ω ¼W	カーボン抵抗			
		— do. — 1KΩ 〃	〃			
		— do. — 1.2KΩ 〃	〃			
		— do. — 4.7KΩ 〃	〃			
		— do. — 18KΩ 〃	〃			
		— do. — 22KΩ 〃	〃			
		— do. — 27KΩ 〃	〃			
		Metalized oxidation resistor 270Ω 1W	酸化金属抵抗			
		— do. — 680Ω 〃	〃			
	HZ00030	Fuse resistor 3.9Ω 1W	ヒューズ抵抗			
	HZ00016	— do. — 3.9Ω (300 mA) ½W	〃			
	HZ00014	— do. — 220Ω ½W	〃			
	HZ00029	— do. — 22Ω 〃	〃			
		Ceramic capacitor 0.01μF 50 WV	セラミックコンデンサ			
		— do. — 0.1μF 500 WV	〃			
		Electrolytic capacitor (Vert. type) 33μF 16 WV	電解コンデンサ			
		— do. — (〃) 220μF 〃	〃			
		— do. — (〃) 47μF 35 WV	〃			
		— do. — (〃) 220μF 〃	〃			
		— do. — (〃) 220μF 50 WV	〃			
		Diode 10DC-1	ダイオード			
		— do. — 10DC-1R	〃			
		— do. — 10DC-2	〃			
		— do. — 10DC-2R	〃			
		— do. — 5B-2	〃			
		Zenner diode WZ-120	ツェナーダイオード			
		— do. — WZ-310	〃			

Ref. No.	Part No.	Description			Remarks	Common Models	
		Transistor	2SC458 (C or D)	トランジスタ			
		— do. —	2SC1061 (B or C)	〃			
26	BA06276	Heat sink		放熱板		CR-700	
	LB20057	Fuse holder pin	SN-5053	ヒューズホルダーピン			
27	KB00104	Fuse (UL listed)	3.0A 250V	ヒューズ(UL規格)	except European Model		
	KB00057	Miniature fuse	3.15A 250V	ミニチュアヒューズ	European Model		
㉘	NA06409	L.E.D. Circuit board	#63002	LEDシート			
		Carbon resistor	680Ω ¼W	カーボン抵抗			
		— do. —	1KΩ 〃	〃			
		— do. —	1.2KΩ 〃	〃			
		Fire proofing resistor	4.7Ω 1W	不燃性抵抗			
29	IF00029	Light emitting diode	TLR-102	発光ダイオード			
	CB06864	Indicator holder		インジケーターホルダ			
	CB06888	Plastic revet		プラスチックリベット			
㉚	NA06415	DIN Circuit board	#63142	DINシート	European Model		
		Carbon resistor	470KΩ ¼W	カーボン抵抗			
		— do. —	820KΩ 〃	〃			
		Ceramic capacitor	0.01μF	セラミックコンデンサ			
31	KA40021	Slide switch	SL222B4	スライドスイッチ			
32	LB50005	CIS socket	5P	CIS5Pソケット			
	LB10016	CIS Keyins pin		CISキーイングピン			
33	LB50009	DIN Connector	5P	DIN5Pコネクターキバン型			

Ref. No.	Part No.	Description		Remarks	Common Models	
㉞	NA06416	6 P pin jack Circuit board #63531	6 Pピンジャックシート			
		Carbon resistor 470 KΩ	カーボン抵抗			
		— do. — 820 KΩ	〃			
		Ceramic capacitor 0.01 μF	セラミックコンデンサ			
35	LB60038	6 P pin jack	6 Pピンジャック			
36	LB50005	CIS socket 5 P	CIS5Pソケット			
	LB10016	CIS Keying pin	CISキーイングピン			
㊲	NA06417	8 P pin jack Circuit board #63541	8 Pピンジャックシート			
		Carbon resistor 820 KΩ ¼ W	カーボン抵抗			
		Ceramic capacitor 0.01 μF	セラミックコンデンサ			
38	LB60039	8 P pin jack	8 Pジンジャック			
	NB06784	Panel unit	パネルユニット			
	NB06786	Dial scale panel unit	目盛板ユニット			
39	NB06849	Dial pointer unit	ダイヤル指針ユニット			
	NB06776	Meter unit	メーターユニット		CR-1000	
	AA06490	Dial spring	ダイヤルスプリング		SS-40	
40	BA06438	Knob (tuning)	チューニングツマミ		CR-400	
41	BA06441	Knob (switch)	スイッチツマミ		〃	
42	BA06444	Double knob	ダブルツマミ	LEVEL	CA-1000	
43	BA06445	Knob	ツマミ		CR-400	
44	BA06447	Double knob	ダブルツマミ	BALANCE	CA-1000	
45	CB06857	Knob (Lever switch)	レバースイッチ用ツマミ		〃	
46	CB06872	Switch apron 15 X 29	スイッチエプロン		〃	
47	CB06054	Pully for variable capacitor	バリコンプーリー		S-3	

Ref. No.	Part No.	Description		Remarks	Common Models	
	CB06863	Cord stopper (small)	コードストッパー	General, U.S. & Canadian Models		
	CB00441	〃 (large)	〃	South African, Australian & European Models		
48	CB06599	Pully	プーリー		CR-400	
49	CB06868	Coupler stopper	カプラーストッパー		CA-1000	
	CG06027	Dial panel (3t Glass)	ダイアルパネル			
	JB00002	Lead type pilot lamp 12V 60mA	リード式パイロットランプ			
50	JB00023	— do. — 〃	〃			
51	LB30007	Phone jack JH5020K	ホーンジャック			
52	LB20015	75 ohm coreaxial cable connector socket	75Ω同軸コネクターソケット	European Model		
53	LB20007	DIN FM Antenna socket	DIN FMアンテナソケット	〃		
54	LB20009	DIN AM 〃	DIN AMアンテナソケット	〃		
55	LB20005	DIN 2P socket	DIN 2Pソケット	〃		
56	LB20030	AC socket	ACソケット	General, U.S. & Canadian Models		
57	LB20044	Fuse holder	ヒューズホルダー	General, South African & Australian Models		
〃	LB20059	— do. —	〃	Europian Model		
58	LB20025	Voltage selector	電圧切換器	General, South African & Europian Models		
59	LA00109	Antenna terminal 5P	アンテナ端子	except European Model		
60	LA00107	Ground terminal	アース端子			
61	LA00111	4PD type Push terminal	4PD型プッシュターミナル			
62	GA60561	Power trunsformer	電源トランス			
63	GE00005	AM Bar antenna	AMバーアンテナ			
64	GE30007	Balloon transtormer	バルーントランス			
65	FL26947	Electrolytic capacitor 4700μF 50WV	電解コンデンサ			
	FZ00009	Complex parts EXA G47/G03	複合部品	U.S. & Canadian Models		
66	KA50031	Rotary switch	ロータリースイッチ		CA-800	
67	KA20010	Lever switch JL-04 TV-3	レバースイッチ	except European Model	CA-1000	
68	KA20011	— do. — JL-04	〃	European Model	〃	



YAMAHA Hi-Fi STEREO

SERVICE MANUAL

MODEL **CR-600**

YAMAHA

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NEW PARTS

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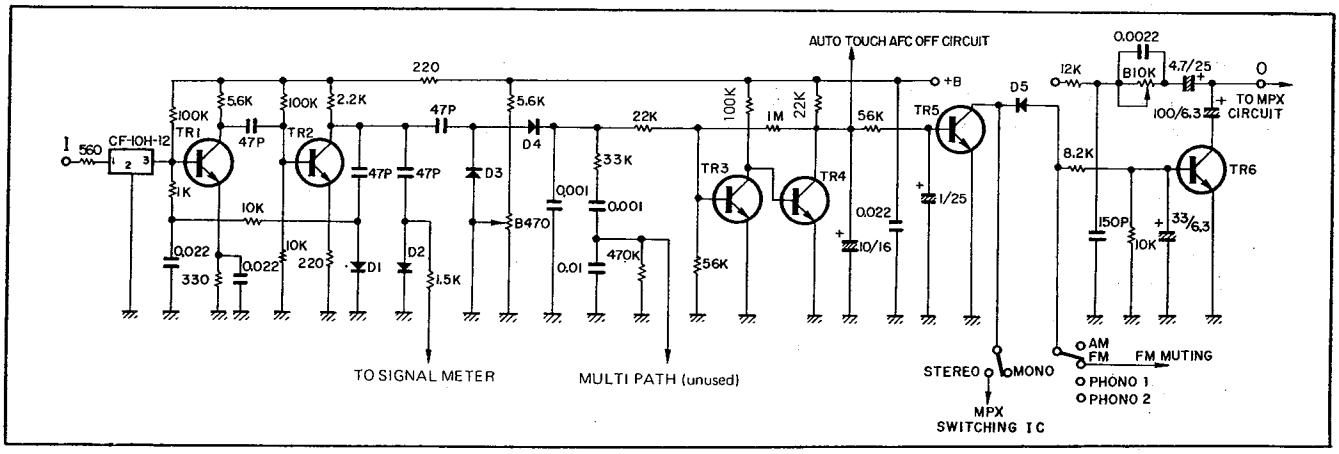
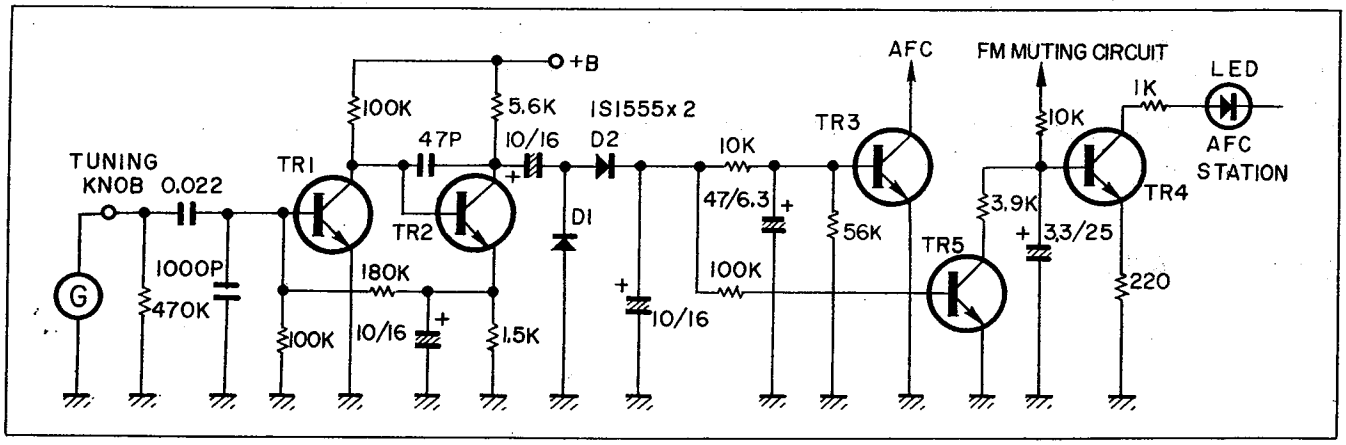
CIRCUIT DESCRIPTION

MUTING CIRCUIT



1. When no signal is received during FM mode (or if the received signal is very weak), Tr3 is OFF, Tr4 is ON and Tr5 is OFF due to a lack of signal received at the I terminal. +B electric potential is fed to the Tr6 base, so that Tr6 goes ON. The FM signal is shorted to the ground, and there is output power at O terminal, and no noise between broadcasting stations.
2. When signals are received during FM mode they enter through the terminals and are amplified by Tr1 and Tr2, rectified by D3 and D4, and then fed to the base of Tr3. This switches Tr3 ON and Tr4 OFF. Because of this, +B potential is fed to the base of Tr5, switching Tr5 ON. The same +B potential fed to the base of Tr6 shorts it and switches it OFF, so that output power appears at the O terminal.

AUTO TOUCH AFC OFF



1. Touch the Tuning knob.
2. The body's electric potential is amplified by Tr1 and Tr2.
3. D1 and D2 rectify the Tr2 output voltage to get DC voltage.
4. This DC voltage is fed to Tr3, which switches it ON, then the AFC signal is shorted.
5. At the same time, this DC voltage rapidly lowers the Tr5 impedance, thus reducing the Tr4 base potential. It also lowers the LED brightness.

SPECIFICATIONS

■ AUDIO SECTION

POWER OUTPUT
- Dynamic Power (IHF) 140 watts (4Ω)
  100 watts (8Ω)
- Continuous RMS Power (each channel driven)
  50/50 watts (4Ω) at 1,000Hz
  40/40 watts (8Ω) at 1,000Hz
- Continuous RMS Power (both channels driven)
  45 + 45 watts (4Ω) at 1,000Hz
  35 + 35 watts (8Ω) at 1,000Hz
- Continuous RMS Power (both channels driven)
  35 + 35 watts (4Ω) at 20 to 20,000Hz
  30 + 30 watts (8Ω) at 20 to 20,000Hz

TOTAL HARMONIC DISTORTION
- Power Amplifier Only less than 0.1% at rated power
  less than 0.04% at 1 watt
- Preamplifier Only (PHONO to PRE OUT)
  less than 0.1% at rated power
  (AUX to PRE OUT)
  less than 0.02% at rated power
- Overall (AUX to Power Output)
  less than 0.1% at rated power

INTERMODULATION DISTORTION
(70Hz:7,000Hz=4:1 SMPTE method)
- Power Amplifier Only less than 0.1% (8Ω) at rated power
  less than 0.05% (8Ω) at 1 watt
- Overall (AUX to Power Output)
  less than 0.1% (8Ω) at rated output

POWER BANDWIDTH (IHF, distortion 0.5% const.)
5 to 70,000Hz

FREQUENCY RESPONSE (at 1 watt)
- Overall (AUX, TAPE PB to Power Output)
  10 to 50,000Hz + 0.5dB, −1dB
- Overall (MIC to Power Output)
  100 to 10,000Hz + 0.5dB, −6dB
- Power Amplifier Only
  10 to 100,000Hz +0dB, −1dB
- RIAA Deviation (30 to 15,000Hz)
  +0.5dB, −0.5dB

LOAD IMPEDANCE 4 to 16Ω

DAMPING FACTOR (8Ω) 70 at 1,000Hz

CHANNEL SEPARATION (at rated power, 1,000Hz)
- Power Amplifier Only 60dB
- Overall from PHONO 1, 2
  50dB
- Overall from AUX, TAPE PB
  50dB
- Overall from MIC 50dB

HUM AND NOISE (IHF, Closed Circuit A Network)
- Overall from PHONO 1, 2
  better than 75dB
- Overall from MIC better than 70dB
- Overall from AUX, TAPE PB
  better than 90dB
- Power Amplifier Only better than 100dB
- Volume at Minimum better than 90dB

INPUT SENSITIVITY AND IMPEDANCE
(at rated power, 1,000Hz)
- PHONO 1 3mV (50kΩ)
- PHONO 2 3mV (50kΩ)
- PHONO 1, 2 Max. Input Capability
  135mV (T.H.D. 0.1%)
- MIC 3mV (50kΩ)
- MIC Max. Input Capability
  450mV (T.H.D. 0.3%)
- AUX 150mV (45kΩ)
- TAPE PB A, B 150mV (45kΩ)
- MAIN IN 775mV (45kΩ)

OUTPUT LEVEL AND IMPEDANCE
(at rated power, 1,000Hz)
- TAPE REC OUT A, B
  150mV (2kΩ)
- PRE OUT 775mV (2kΩ)
  3,000mV (Max. Output T.H.D. 0.1%)

TONE CONTROLS
- BASS +10dB, −10dB at 50Hz
- TREBLE +10dB, −10dB at 10,000Hz

FILTERS
- LOW −3dB at 50Hz (12dB/oct.)
- HIGH −3dB at 8,000Hz (6dB/oct.)

LOUDNESS CONTROL
(Continuous Loudness Volume at Minimum)
+10dB at 100Hz, +5dB at 10,000Hz

■ TUNER SECTION

FM:
- Tuning Range 88 to 108MHz
- Usable Sensitivity (IHF)
  2.0μV
- Quieting Slope 55dB at 5μV
  60dB at 10μV
- Image Frequency Rejection
  90dB
- IF Rejection 95dB
- Spurious Response Rejection
  95dB
- AM Rejection 55dB
- Capture Ratio 1.5dB
- Alternate Channel Selectivity (IHF)
  75dB
- Signal-Noise Ratio 70dB
- Total Harmonic Distortion
  - MONO 0.3% at 400Hz
  - STEREO 0.5% at 400Hz
- Stereo Separation 40dB at 400Hz
  28dB at 50 to 10,000Hz
- Frequency Response +1.0dB, −1.0dB at 50 to 10,000Hz
  +1.5dB, −3.0dB at 20 to 15,000Hz
- Sub-Carrier Suppression
  40dB
- Muting Override Signal Level
  10μV
- Antenna Impedance 300Ω balanced
  75Ω unbalanced
- IF Out Level and Impedance
  400mV/1kΩ

AM:
- Tuning Range 525 to 1,605kHz
- Usable Sensitivity (IHF)
  52dB/m
- Signal-to-Noise Ratio 45dB at 80dB/m
- Image Frequency Rejection
  70dB at 1,000kHz
- Selectivity 30dB at 1,000kHz
- IF Rejection 60dB at 1,000kHz
- Spurious Response Rejection
  70dB at 1,000kHz
- Total Harmonic Distortion
  0.8% at 80dB/m

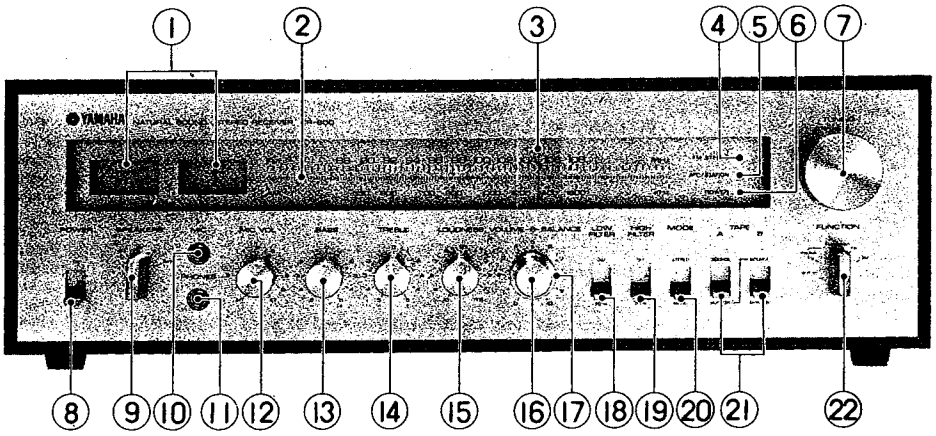
■ GENERAL

- Semiconductors 41ICs; 2 MOS FETs; 59 Transistors; 3 LEDs; 33 Diodes; 3 Zener Diodes
- Power Source AC 110, 117, 130, 220, 240V, 50/60Hz
- POWER CONSUMPTION
  - Rated
    - U.S. MODEL 160 watts
    - CANADIAN MODEL 160 watts
    - EXCEPT U.S. & CANADIAN MODEL 120 watts
  - Max. 200 watts
- AC OUTLETS
  - Switched 2 (total 200 watts)
  - Unswitched 2 (total 200 watts)
- DIMENSIONS 474mm (18¾") W x 158mm (6¼") H x 300mm (11¾") D
- WEIGHT 13kg (28.7 lbs.)

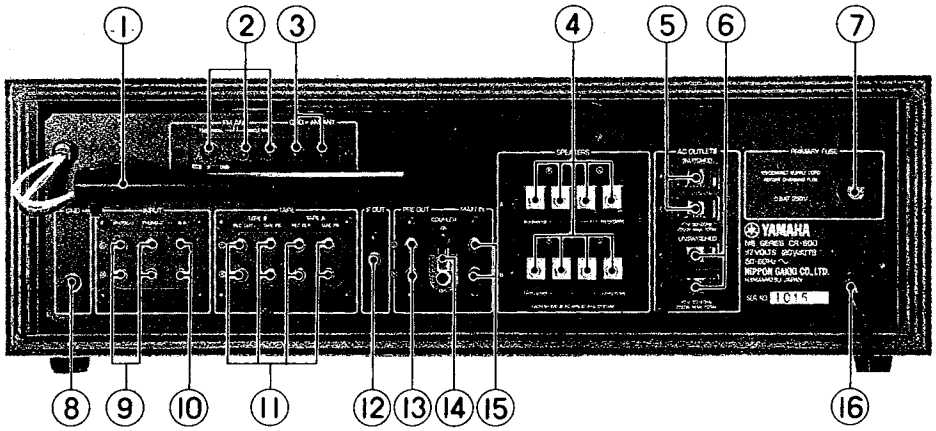
Specifications subject to change without notice.

EXTERNAL VIEW

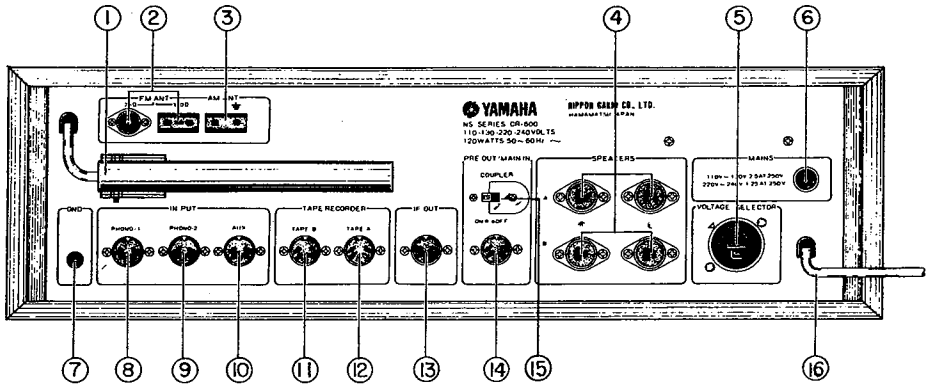
FRONT PANEL



REAR PANEL (U.S.& CANADIAN MODELS)



REAR PANEL (EUROPEAN MODEL)



FRONT PANEL

1. SIGNAL & TUNING METERS
2. DIAL SCALE
3. DIAL POINTER
4. FM STEREO INDICATOR
5. AFC/STATION INDICATOR
6. POWER LAMP
7. TUNING KNOB
8. POWER SWITCH
9. SPEAKER SELECTOR SWITCH
10. MIC JACK
11. HEADPHONE JACK
12. MIC VOLUME CONTROL
13. BASS CONTROL
14. TREBLE CONTROL
15. LOUDNESS CONTROL
16. VOLUME CONTROL
17. BALANCE CONTROL
18. LOW FILTER SWITCH
19. HIGH FILTER SWITCH
20. MODE SWITCH
21. TAPE SWITCH
22. FUNCTION SWITCH

REAR PANEL (U.S.& CANADIAN MODELS)

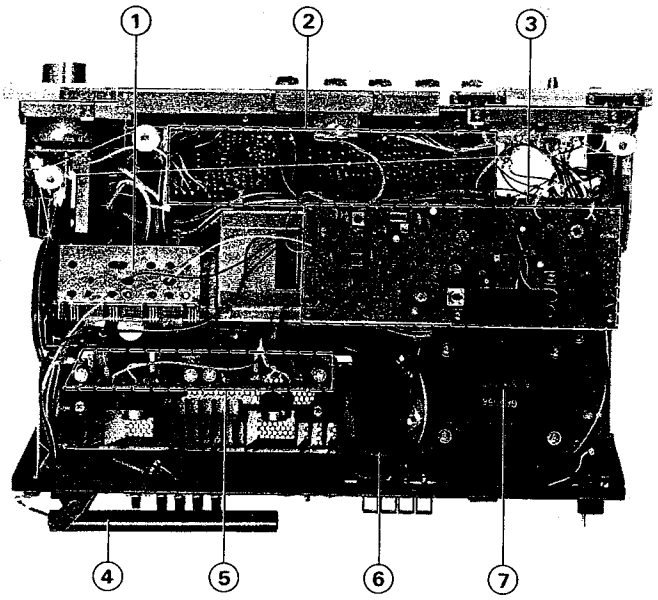
1. AM FERRITE BAR ANTENNA
2. FM ANTENNA TERMINAL
3. AM ANTENNA TERMINAL
4. SPEAKER TERMINALS
5. AC OUTLET (SWITCHED)
6. AC OUTLET (UNSWITCHED)
7. PRIMARY FUSE
8. GROUND TERMINAL
9. PHONO 1, 2 INPUT JACKS
10. AUX INPUT JACKS
11. TAPE 1, 2 REC OUT/PB JACKS
12. IF OUT JACK
13. PRE OUT JACKS
14. COUPLER SWITCH
15. MAIN IN JACKS
16. AC CORD

REAR PANEL (EUROPEAN MODEL)

1. AM FERRITE BAR ANTENNA
2. FM ANTENNA CONNECTOR
3. AM ANTENNA CONNECTOR
4. SPEAKER CONNECTOR
5. VOLTAGE SELECTOR
6. PRIMARY FUSE
7. GROUND TERMINAL
8. PHONO 1 INPUT CONNECTOR
9. PHONO, 2 INPUT CONNECTOR
10. AUX CONNECTOR
11. TAPE B CONNECTOR
12. TAPE A CONNECTOR
13. IF OUT CONNECTOR
14. PRE OUT/MAIN IN CONNECTOR
15. COUPLER SWITCH
16. AC CORD

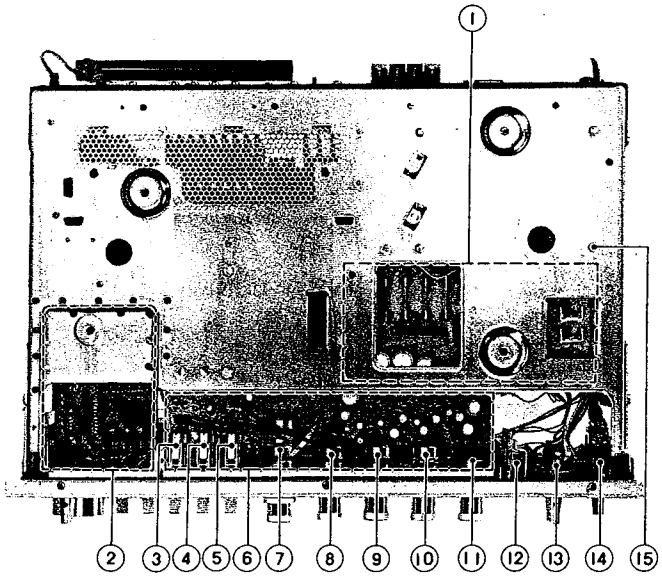
INTERNAL VIEW

TOP VIEW



1. POWER TRANSFORMER (GA60564)
2. ELECTROLYTIC CAPACITOR (4,700μF/50WV)
3. MAIN AMP CIRCUIT BOARD (NA06427)
4. AM FERRITE BAR ANTENNA
5. TUNER CIRCUIT BOARD
   (NA06431)
   U.S. & CANADIAN MODELS)
   (NA06432)
   GENERAL, AUSTRALIAN & EUROPEAN MODELS
   (NA06438)
   SOUTH AFRICAN MODEL
6. PRE AMP CIRCUIT BOARD (NA06434)
7. FRONT END PACK
   FL532U : EXCEPT SOUTH AFRICAN MODEL
   FL523S : SOUTH AFRICAN MODEL

BOTTOM VIEW



1. POWER CIRCUIT BOARD
   (NA06428)
   EXCEPT EUROPEAN MODEL
   (NA06429)
   EUROPEAN MODEL
2. FUNCTION CIRCUIT BOARD (NA06435)
3. MODE SWITCH
4. HIGH FILTER SWITCH
5. LOW FILTER SWITCH
6. PRE AMP CIRCUIT BOARD
7. VARIABLE RESISTOR (VOLUME & BALANCE CONTROL : HB250kΩ x 2, A100kΩ x 2)
8. VARIABLE RESISTOR (LOUDNESS CONTROL : B20kΩ x 2)
9. VARIABLE RESISTOR (TREBLE CONTROL : XZ10kΩ x 2)
10. VARIABLE RESISTOR (BASS CONTROL : XZ25kΩ x 2)
11. VARIABLE RESISTOR (MIC CONTROL : A50kΩ with switch)
12. HEADPHONE JACK
13. SPEAKER SELECTOR SWITCH
14. POWER SWITCH
15. CHASSIS

PARTIAL DISASSEMBLY

BEFORE DISASSEMBLY

- The screwdriver for each screw should match the screw size. If you use a smaller or larger size it will damage the groove.
- If you use excessive force on the printed circuit board it will crack or cut the print wiring, so be careful.
- When using a soldering iron finish all work as quickly as possible.
- When installing switches and knobs be careful not to install them in the wrong place or upside-down. See Fig. 1.

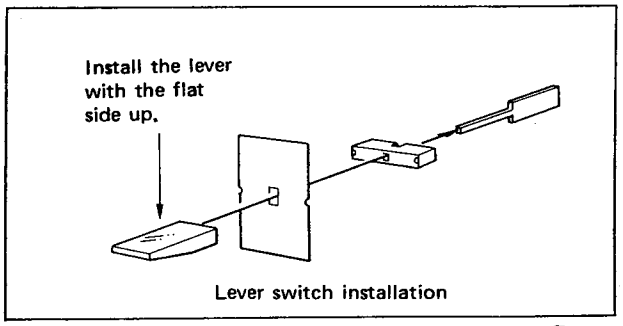


Fig. 1

CABINET REMOVAL

a. Remove screws 1~4 as shown in Photo 1.
b. Remove the cabinet as shown in Photo 2.

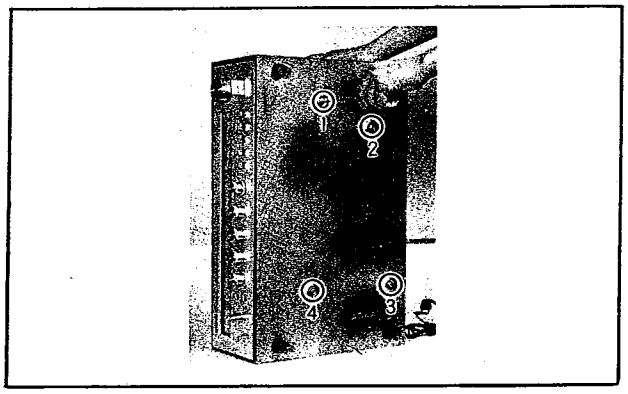


Photo 1

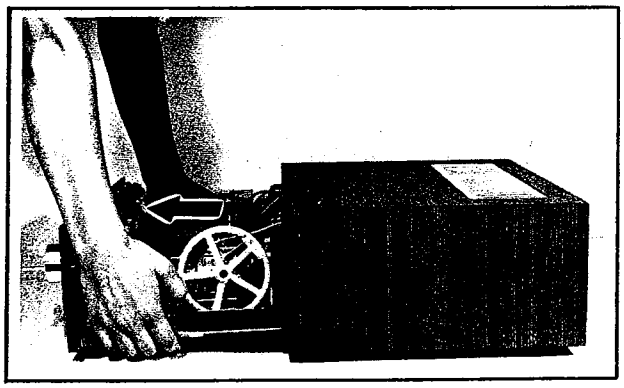


Photo 2

FRONT PANEL REMOVAL

a. Remove the Function, Speaker and Tuning knobs using the hexagonal wrench provided.
b. Pull off the Mic. Vol., Bass Treble, Loudness and Volume/Balance knobs.
c. Remove screws 1~6 as shown in Photo 3, then remove the front panel by pulling it forward.

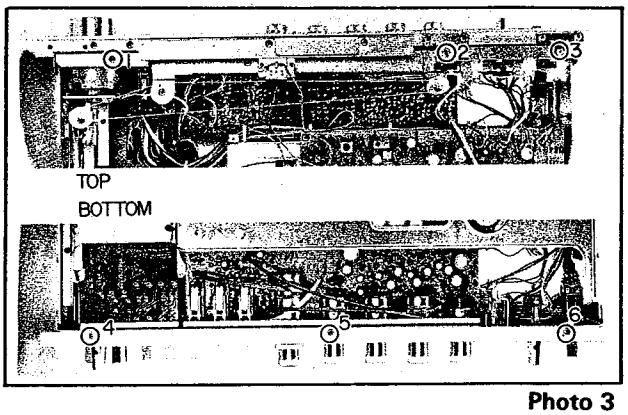


Photo 3

DROPPING THE SUB CHASSIS UNIT

a. Pull out the rear panel connector as shown in Photo 4.

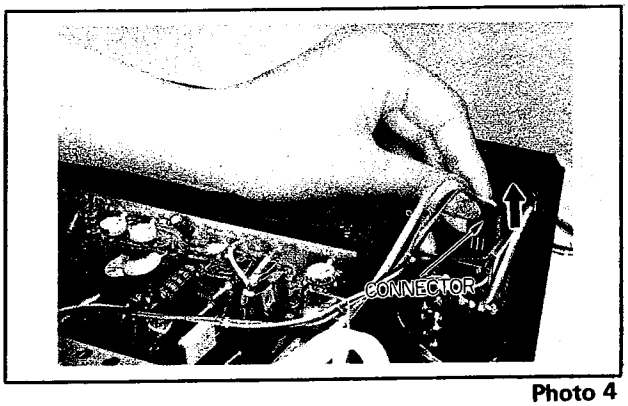


Photo 4

b. Remove red-headed screws 1, 2 and loosen screws 3 as shown in Photo 5.

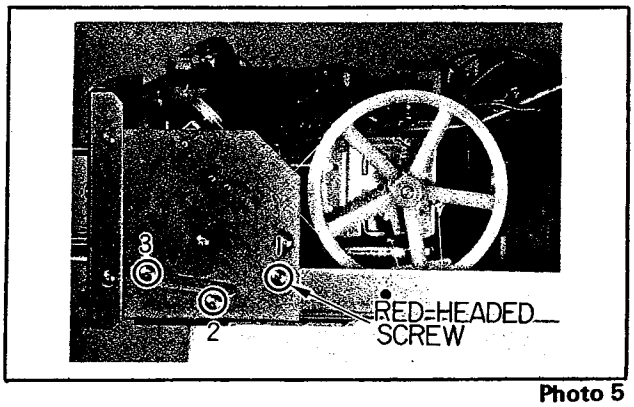


Photo 5

c. Pull the sub chassis unit forward and drop it as shown in Photo 6.

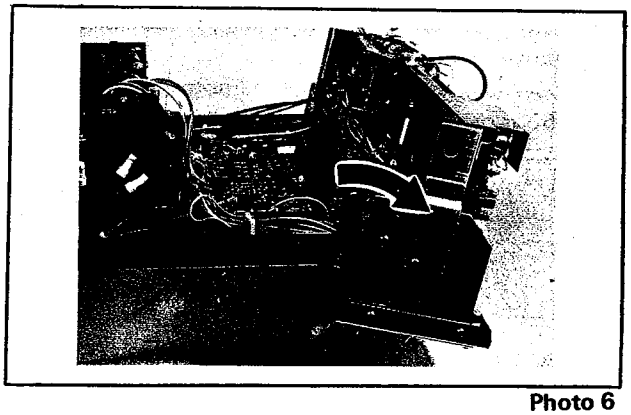


Photo 6

DROPPING THE REAR PANEL

a. Pull out the connector (refer to Photo 4).
b. Remove screws 1, 2 as shown in Photo 7.

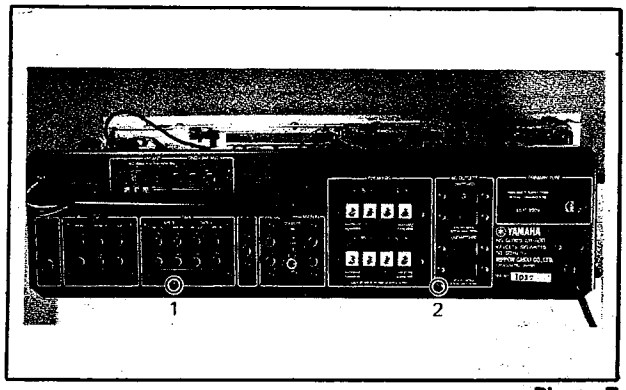


Photo 7

c. Remove screw 1 and loosen screws (red-headed screw) as shown in Photo 8, then bring the rear panel down as shown in Photo 9.

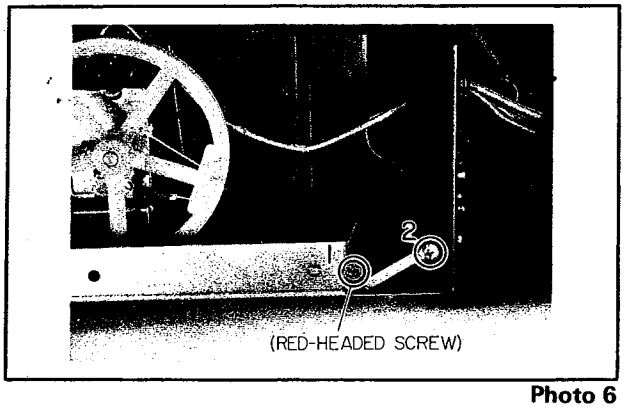


Photo 6

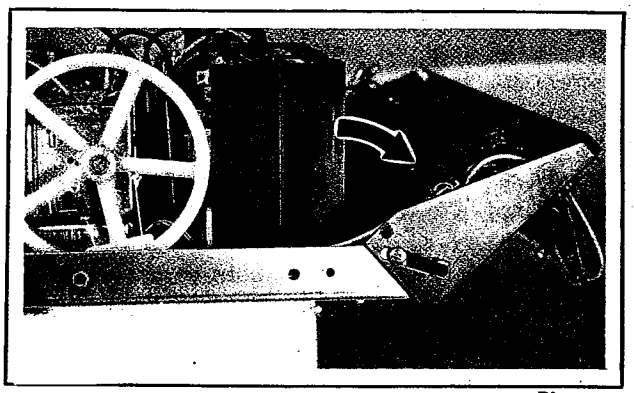


Photo 9

PRE AMP CIRCUIT BOARD REMOVAL

a. Remove the front panel (refer to Photo 3).
b. Pull off the switch knobs, switch aprons and bushings (LOW FILTER, HIGH FILTER & MODE).
c. Remove screws 1~4 as shown in Photo 10.

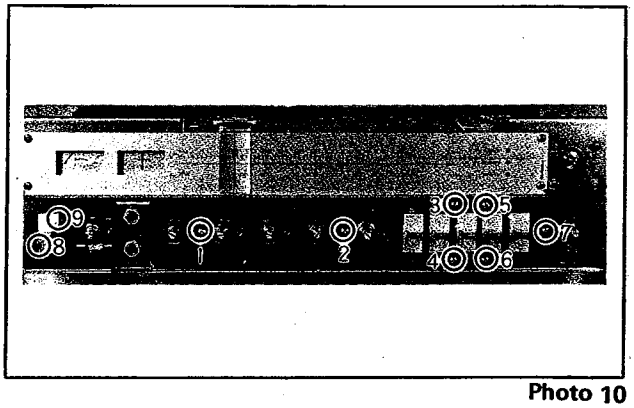


Photo 10

d. Remove the lead cord connected to the Mic jack with a soldering iron as shown in Photo 11.
e. Tilt the sub chassis down forward (refer to Photo 6).
f. Remove the pre amp circuit board by pulling it up.

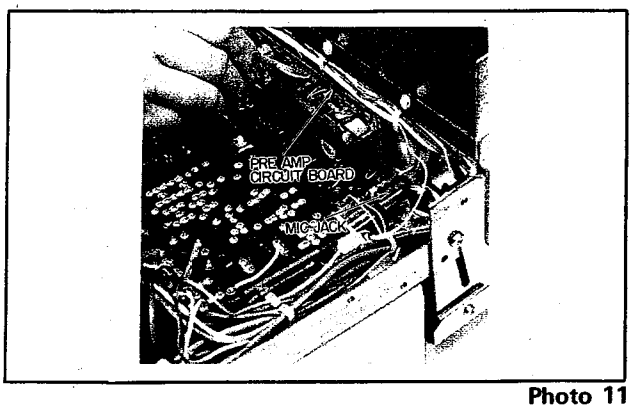


Photo 11

FUNCTION CIRCUIT BOARD REMOVAL

a. Remove the front panel (refer to Photo 3).
b. Pull off the switch knobs, switch aprons and bushings (TAPE A & TAPE B).
c. Remove screws 5~7 as shown in Photo 10.
d. Tilt the sub chassis down forward (refer to Photo 6).
e. Remove the function circuit board by lifting it up.

TUNING AND SIGNAL METER REMOVAL

a. Tilt the sub chassis unit down forward (refer to Photo 6).
b. Pull off the three lead-type lamps with their shade bushings.
c. Remove the meter holder spring in Photo 12 as shown in Photo 13, then remove the meter.

POWER SWITCH REMOVAL

a. Remove the front panel (refer to Photo 3).
b. Pull off the switch knobs, switch aprons and bushings (POWER).
c. Remove screws 8, 9 as shown in Photo 10.

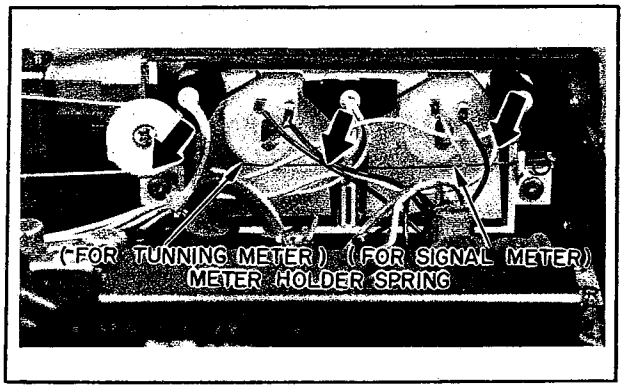


Photo 12

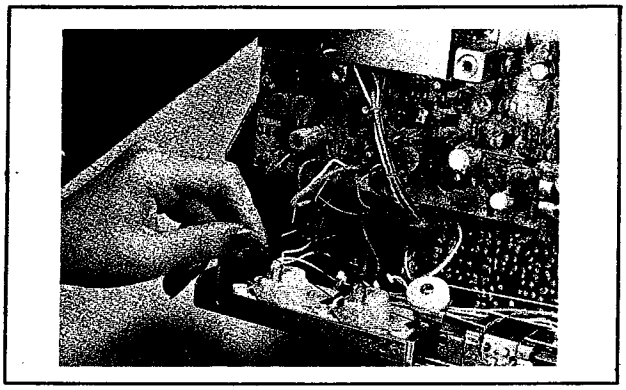


Photo 13

POWER CIRCUIT BOARD REMOVAL

a. Tilt the sub chassis down forward (refer to Photo 6).
b. Hold the three circuit board holders shown in Photo 14 with a long-nosed pliers as shown on Photo 15. Pull the power circuit board up and pull it out from the sheet holder.

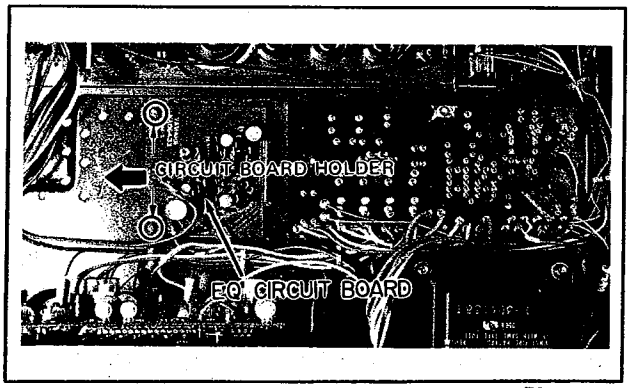


Photo 14

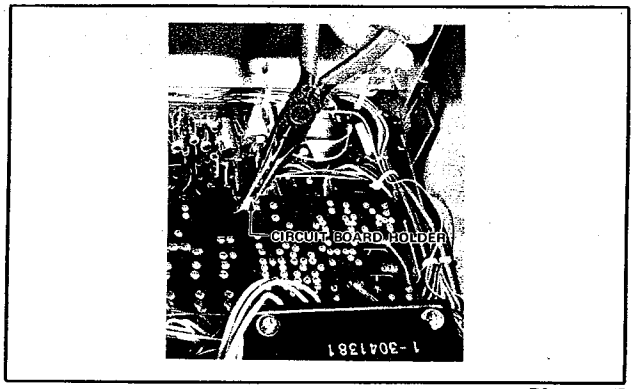


Photo 15

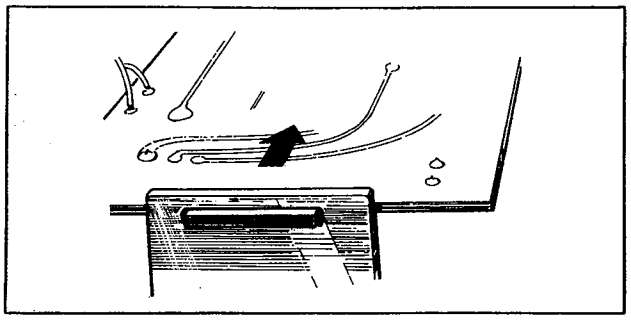


Fig.2

Note: If you pull only the one sheet holder, this will apply excessive force to the board/chassis joint (see Fig. 2). This will probably crack the board. Be careful to hold the board and pull off the circuit board holder little by little.

c. Slide the circuit board in the direction of the arrow to remove it.

EQ CIRCUIT BOARD REMOVAL

a. Tilt the sub chassis down forward (refer to Photo 6).
b. Hold the two sheet holders shown in Photo 16 with long-nosed pliers and pull the EQ circuit board up to remove it from the circuit board holder (refer to the Note to the right).
c. Slide the EQ circuit board in the direction of the arrow to remove it.

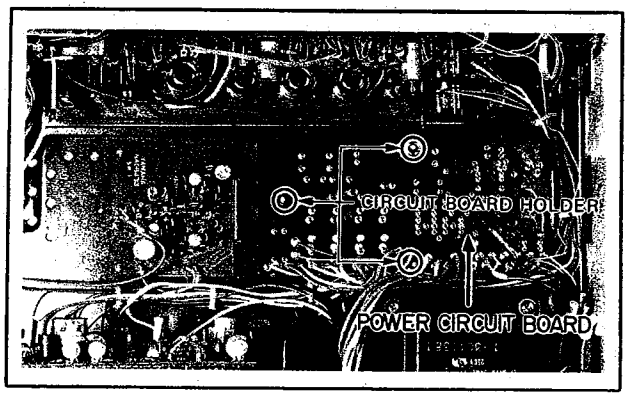


Photo 16

MAIN AMP CIRCUIT BOARD REMOVAL

a. Remove screws 1, 2 as shown in Photo 17.
b. Remove the main amp circuit board by pulling up.
c. Bring the rear panel down for power transistor change or adjustment (refer to Photo 9).

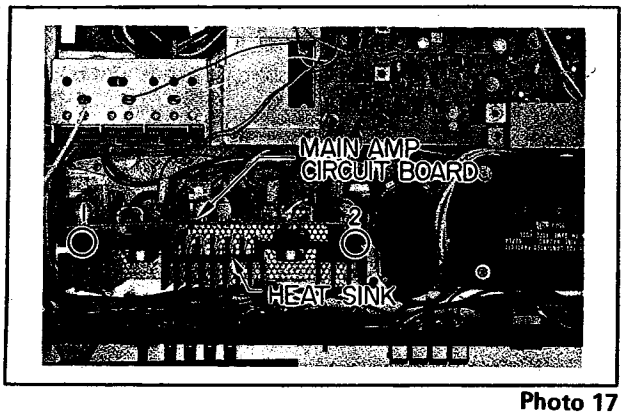


Photo 17

TUNER CIRCUIT BOARD REMOVAL

a. Remove screws 1, 2 shown in Photo 18, and remove the FM shield cover.
b. Pull out the pin jack shown in Photo 18.
c. Remove screws 1~4 shown in Photo 18.
d. Pull up the tuner circuit board to remove it.

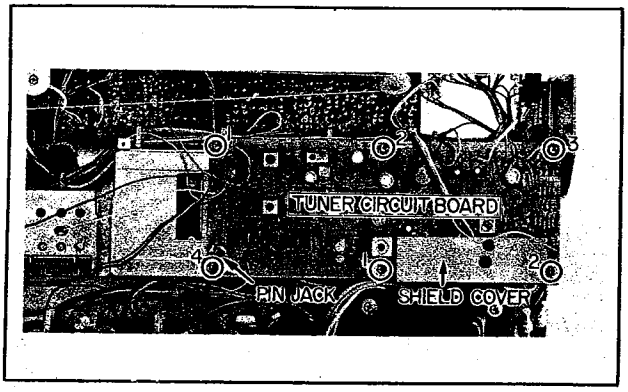
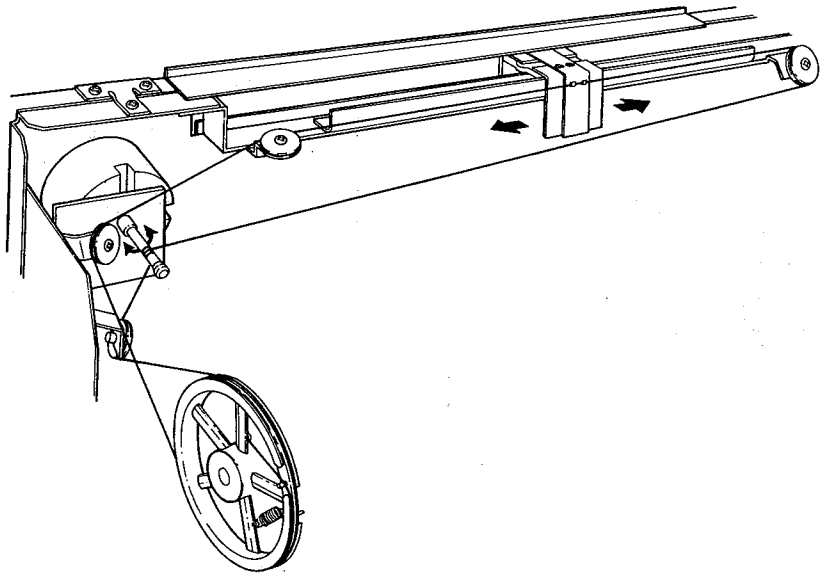


Photo 18

DIAL MECHANISM

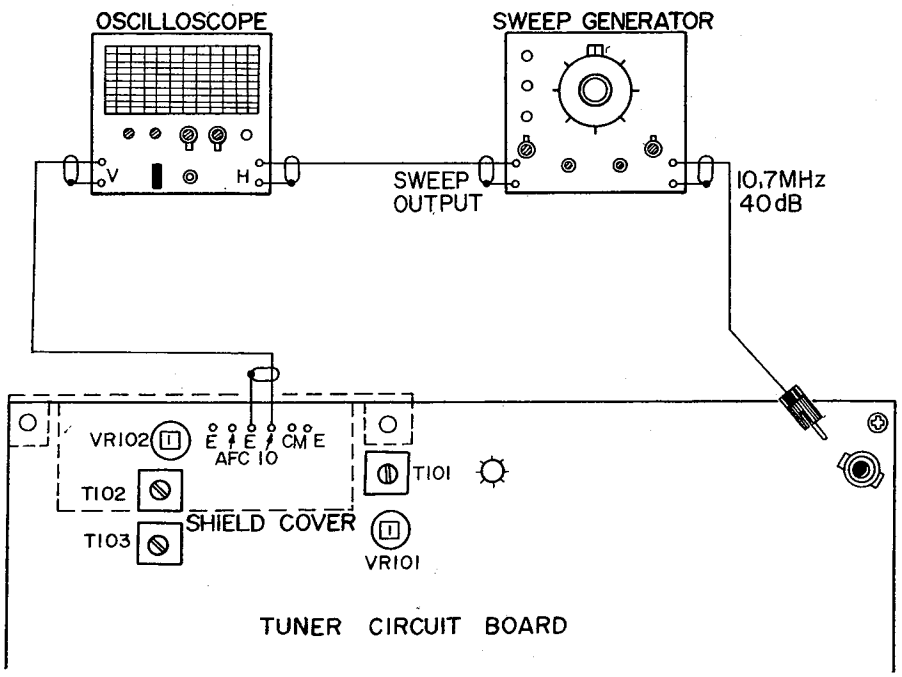


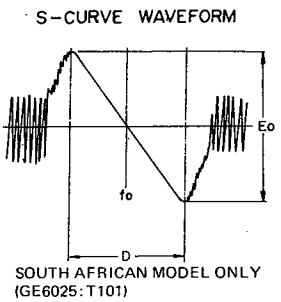
MEASUREMENT AND ADJUSTMENT

TUNER CIRCUIT BOARD

FM IF ADJUSTMENT

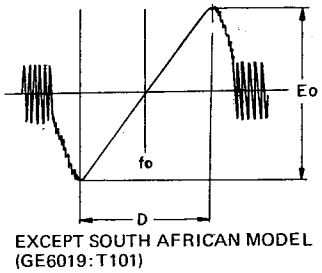
STEP	ALIGNMENT ITEM	TERMINALS TO BE CONNECTED	INSTRUMENT REQUIRED	ADJUST	HOW TO ADJUST	RATING OR STANDARD	REMARKS
1	S-Curve	Input connector IO-E terminal Refer to Fig. 1	Sweep Generator OUTPUT 40dB/400±100Ω Oscilloscope Refer to Fig. 1.	T101 discrim coil (top and bottom) core, primary and secondary side	Adjust for symmetrical S curve with the secondary-side (upper) core. Adjust for max. height with the primary-side (lower) core. Refer to Figs 2,3.	Output voltage: More than 400mVp-p Intermediate frequency: within10.7MHz ±200kHz Bandwidth: More than 300kHz	





SOUTH AFRICAN MODEL ONLY
(GE6025:T101)

Fig. 2



EXCEPT SOUTH AFRICAN MODEL
(GE6019:T101)

Fig. 3

Eo	OUTPUT VOLTAGE	more than 400mVp-p
fo	INTERMEDIATE FREQUENCY	10.7MHz ± 200kHz
D	BAND-WIDTH	more than 300kHz

FM MPX ADJUSTMENT

STEP	ALIGNMENT ITEM	TERMINALS TO BE CONNECTED	INSTRUMENT REQUIRED	ADJUST	HOW TO ADJUST	RATING OR STANDARD	REMARKS
1	Pilot signal	FM ANT terminal (300Ω) TP1 (LA3311 NO. 14 pin)	FM Signal Generator 98MHz/60dBμ Modulation :400Hz/100%stereo Oscilloscope Electronic Voltmeter	T102 (GE 6056) Refer to Fig. 4.	Set for minimum variation at maximum output power.	Should be approx. 2Vp-p by LA3311 No. 14 pin.	Should be set at tuning point of TUNER COMPLETE ADJUSTMENT -"2".
2	Separation adjustment	FM antenna terminal REC OUT jack	FM Signal Generator 98MHz/60dBμ Modulation :400Hz 100% stereo Oscilloscope Electronic Voltmeter	VR102 (10kΩB)	Adjust VR102 for best L-R separation. Refer to Fig. 4. Note: When adjusting VR102 check the indication ratio of measuring device and turn gently.	Variation for both channels at the same time should be more than 26dB, one channel should be 30dB. The difference between L and R should be within 3dB.	Should be set at tuning point of TUNER COMPLETE ADJUSTMENT-"2".

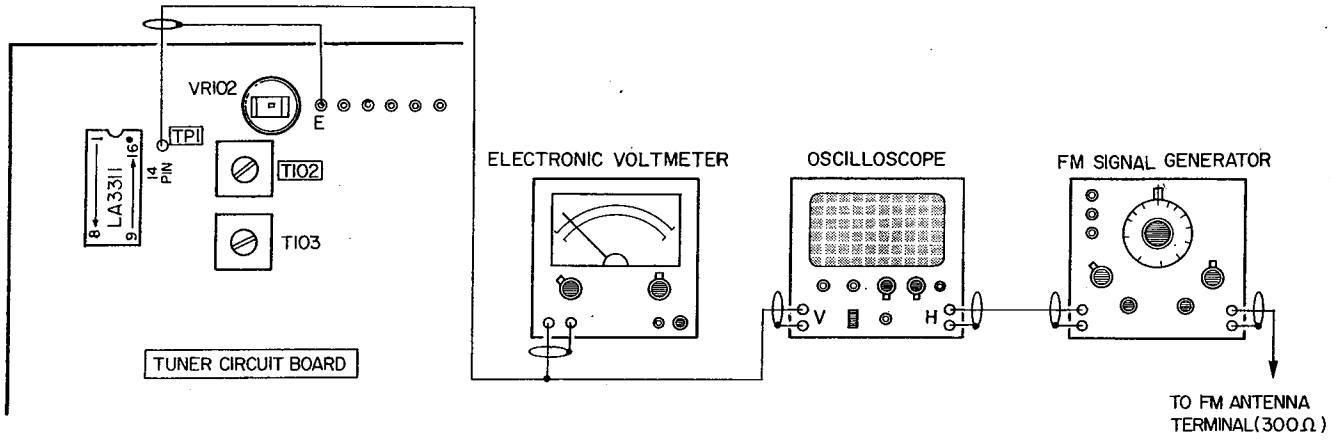


Fig. 4

FM TUNER COMPLETE ADJUSTMENT

STEP	ALIGNMENT ITEM	TERMINALS TO BE CONNECTED	INSTRUMENT REQUIRED	ADJUST	HOW TO ADJUST	RATING OR STANDARD	REMARKS
1	Discrim balance			T101 discrim coil secondary side (top)	Adjust for tuning meter position at 0 with Out of Tune noise.		Do not connect anything to the FM antenna terminal.
2	Tuning point set	FM ANT terminal	FM Signal Generator 98MHz/60dBμ Modulation :400Hz/100% mono	Tuning knob	Center the tuning meter by tuning		AFC OFF Ground the AFC terminal of the tuner circuit board Refer to Fig. 5.
3	Front-end IF tuning	FM ANT terminal (300Ω)	FM Signal Generator 98MHz/60dBμ Modulation :400Hz/100% mono	Front-end IF core primary and secondary side.	Set for maximum signal meter deflection.		Should be set at tuning point 2.
4	Distortion adjustment (mono)	FM ANT terminal (300Ω) REC OUT jack	FM Signal Generator 98MHz/60dBμ Modulation :400Hz/100% mono Oscilloscope Distortion ratio meter Electronic Voltmeter	T101 discrim coil primary side (lower) core	Adjust right and left little by little until achieving lowest distortion. Less than −50dB	Less than −50dB	Tuning point of 2.
5	Distortion ratio adjustment (stereo)	FM ANT terminal REC OUT jack	FM Signal Generator 98MHz/60dBμ Modulation :400Hz/100% stereo [L, R : L-R] Oscilloscope Distortion ratio meter Electronic Voltmeter	Refer to Fig. 6 T103 (GE 6069) front end IF (Upper and lower) core. Refer to Fig. 6.	Adjust T103 for minimum distortion at maxmum L-R signal. Adjust front end IF (Upper and lower) core. via L or R for minimum distor- Refer to Fig. 6.	Less than −38dB	Tuning point of 2.
6	Muting level adjustment	FM ANT terminal (300Ω) REC OUT jack	FM Signal Generator 98MHz/20dBμ Modulation :400Hz/All the way to the left. Oscilloscope Electronic Voltmeter	VR101 (470B) Refer to Fig. 7.	Turn to the right little by little until output power appears.	Level where Output appears	Tuning point of 2.

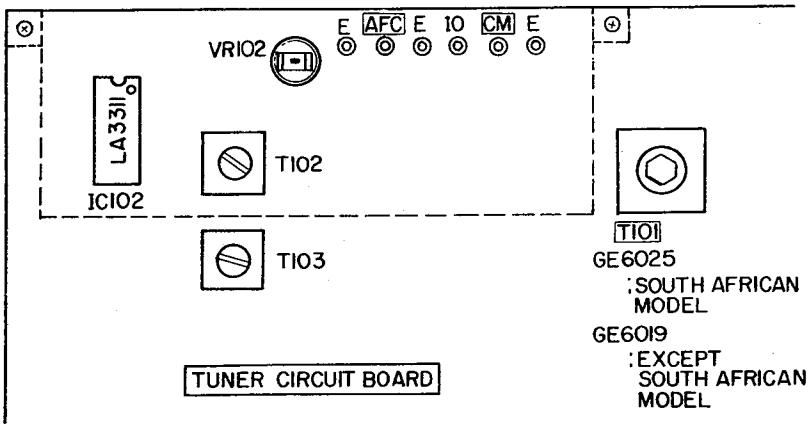


Fig. 5

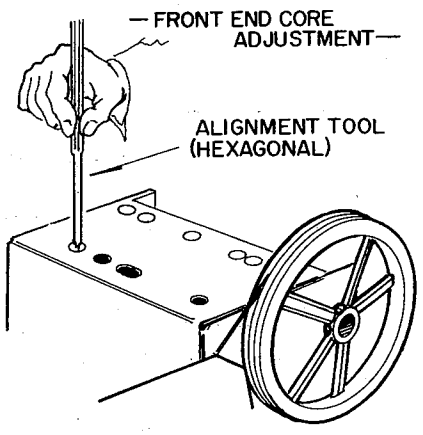
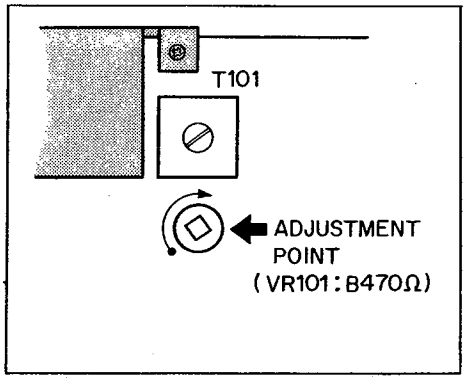


Fig. 6

FM TRACKING ADJUSTMENT

STEP	ALIGNMENT ITEM	TERMINALS TO BE CONNECTED	INSTRUMENT REQUIRED	ADJUST	HOW TO ADJUST	RATING OR STANDARD	REMARKS
1	Dial Pointer adjustment I Dial Pointer adjustment II	FM ANT terminal (300Ω	FM signal Generator 98MHz/60dBμ	Tuning knob Dial Pointer	Turn the knob and set the tuning point at 3-2. Set to the middle of the "98" on the gauge board.		AFC-OFF Ground the AFC terminal of the tuner circuit board. Refer to Fig. 5.
2	LOW-RANGE tracking conformation	FM ANT terminal (300Ω)	FM Signal Generator 90MHz/60dBμ	Tuning knob	Turn the knob and set the tuning point at 1.	Within ±1.5-mm from the middle of the letter.	AFC-OFF Either 2 or 2' will be out of the standard slide indicator. Set to standard frequency using the one out of standard.
2'	HIGH-RANGE ing conformation	FM ANT terminal (300Ω) AFC muting sheet CM-E	FM Signal Generator 106MHz/60dBμ	Dial Pointer	Check the displacement from the middle of the gauge board letter.		
3	Tracking adjustment I	FM ANT terminal (300Ω)	FM Signal Generator 90, 98, 106MHz/60dBμ	Tuning knob Dial Pointer	Reset the dial pointer so that the greatest deviation is within the standard range.		When both 2 and 2' are out of the standard range.
4	Tracking adjustment II	FM ANT terminal (300Ω)	FM Signal Generator 90, 98, 106MHz 90MHz/60dBμ 30dBμ 106MHz/60dBμ 30dBμ	Tuning knob Front End LOSC (LO) RF (LR1, LR2), ANT (LA) Core Front End LOSC (TCO) RF (TCR1, TCR2) ANT (TCA) Trimmer.	Set the Dial pointer at the leter. Set the tuning point at 1. Set for maximum signal meter deflection. Set the tuning point at 1. Set for maximum signal meter deflection.		Even when adjusted by methods 2, 2' and 3, results are still not within the standard range.



Note : When adjusting VR101 check the indication ratio of measuring device and turn gently.

Fig. 7

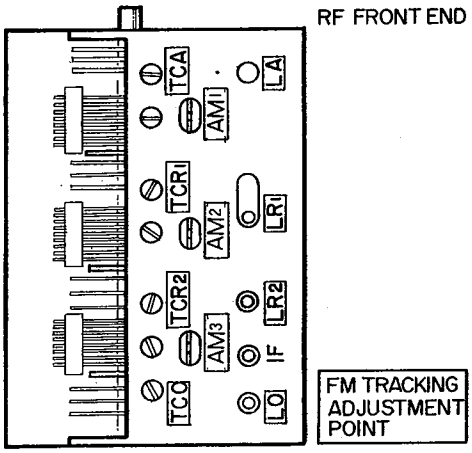


Fig. 8

AM IF ADJUSTMENT

STEP	ALIGNMENT ITEM	TERMINALS TO BE CONNECTED	INSTRUMENT REQUIRED	ADJUST	HOW TO ADJUST	RATING OR STANDARD	REMARKS
1	V- Curve	TP2-E terminal TP3-E terminal SM-E terminal	Sweep generator Oscilloscope Refer to Fig. 9.	CF105 T106	Adjust for a curve like that in Fig. 10.	Output voltage: More than 500mV Intermediate frequency: Within 455kHz ± 10kHz Bandwidth: More than 5kHz Note: Intermediate frequency in South Africa is 470kHz ± 10kHz)	

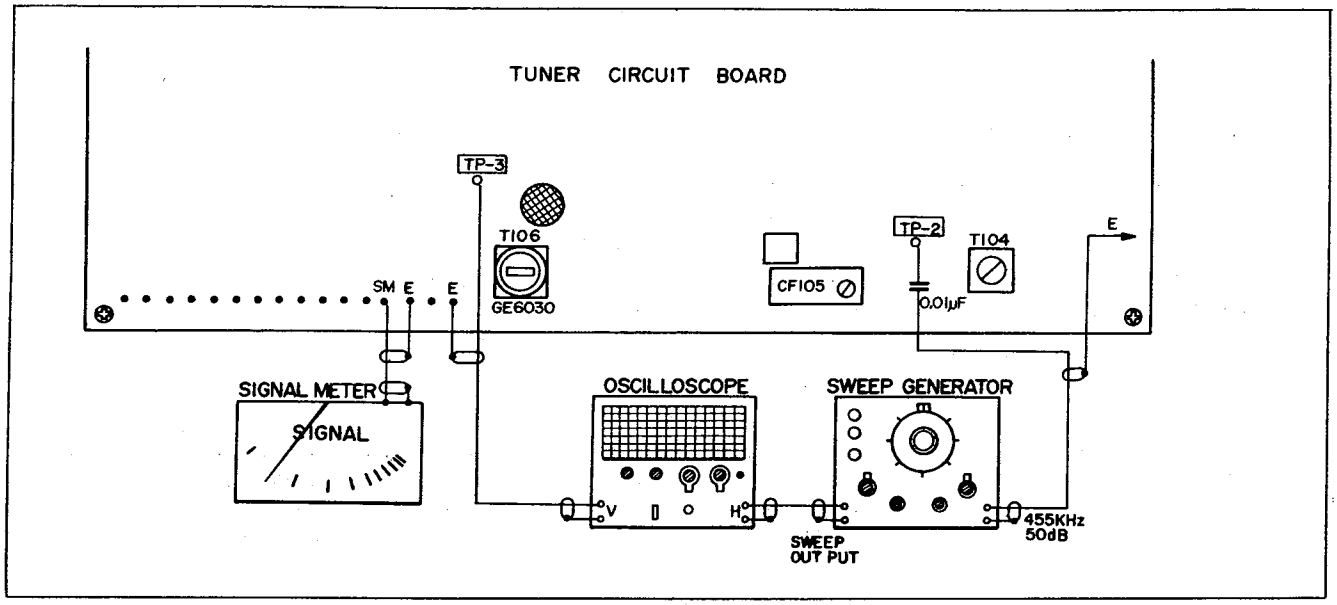
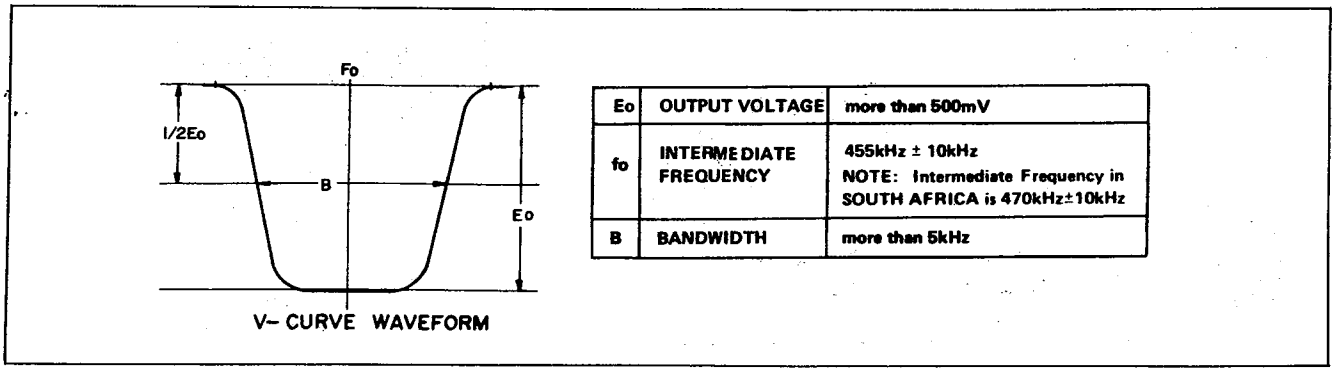


Fig. 9



Eo	OUTPUT VOLTAGE	more than 500mV
fo	INTERMEDIATE FREQUENCY	455kHz ± 10kHz NOTE: Intermediate Frequency in SOUTH AFRICA is 470kHz±10kHz
B	BANDWIDTH	more than 5kHz

Fig. 10

AM TRACKING ADJUSTMENT

- Be sure to carry out this adjustment after FM adjustment

STEP	ALIGNMENT ITEM	TERMINALS TO BE CONNECTED	INSTRUMENT REQUIRED	ADJUST	HOW TO ADJUST	RATING OR STANDARD	REMARKS
1	OSC coil	Bar antenna REC OUT jack	AMSG (600kHz) Oscilloscope Electronic voltmeter	Tuning knob AM tuner circuit board I105 coil Refer to Fig. 11.	Set indicator at 600kHz. Set it to tune at 600kHz.		
2	LOW-RANGE sensitivity adjustment	Bar antenna REC OUT jack	AMSG (600kHz) Oscilloscope Electronic voltmeter	Bar antenna core and T104 coil Refer to Fig. 11.	Set for maximum sensitivity (according to the meter) at a tuning point of 600kHz.		
3	OSC trimmer adjustment	Bar antenna REC OUT ja	AMSG (1350-kHz) Oscilloscope Electronic voltmeter	Tuning knob Variable capacitor AM trimmer condenser Refer to Fig.12 .	Set the indicator 1350kHz. Adjust at 1350kHz to tune.		Liner gauge
4	HIGH-RANGE sensitivity adjustment	Bar antenna REC OUT jack	AMSG (1350-kHz) Oscilloscope Electronic voltmeter	Variable capacitor AM1, AM2 Refer to Fig.12 .	Set for maximum sensitivity (by the meter) at 1350kHz tuning point.		
5	Sensitivity variation adjustment	Bar antenna REC OUT jack	AMSG (600-kHz ~ 1350kHz) Oscilloscope Electronic voltmeter	Repeat steps 1-4.	Set to both 600kHz and 1350kHz.		
6	Mid-range conformation	Bar antenna REC OUT jack	AMSG (90kHz) Oscilloscope Electronic voltmeter	Tuning knob	Tune at maximum sensitivity (on the meter)	Within 1.5mm deviation from the 950kHz letter	Equation gauge 5.51

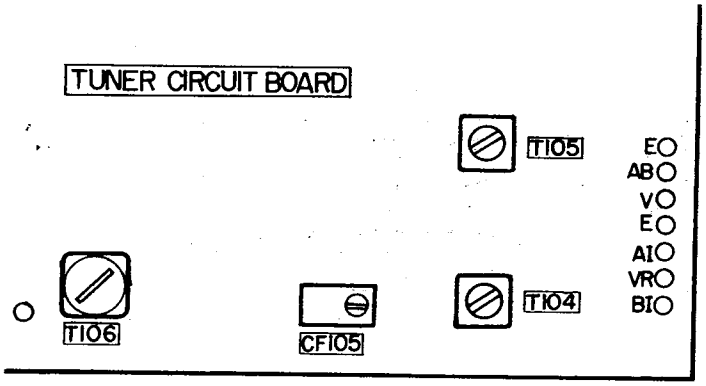


Fig.11

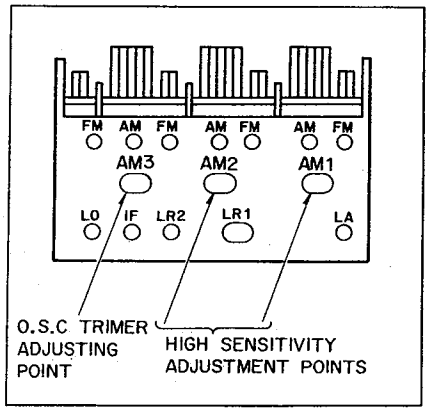


Fig.12

MAIN AMP CIRCUIT

STEP	ALIGNMENT ITEM	TERMINALS TO BE CONNECTED	INSTRUMENT REQUIRED	ADJUST	HOW TO ADJUST	RATING OR STANDARD	REMARKS
1	Mid-point Voltage	TP3–TP5 TP4–TP6	Electronic Voltmeter	VR701 VR702	Set at standard ratio	0 ± 0.01V	Refer to Fig.14
2	Idling current	TP1–TP3 TP2–TP4	Electronic Voltmeter	VR703 VR704	Set at standard ratio	0.023±0.005V	Refer to Fig. 14
3	Make sure by repeating steps 1 and 2 several times.						

Note: TP5 and TP6 ground terminals can be grounded to the main sheet input ground terminal during midpoint voltage adjustment.

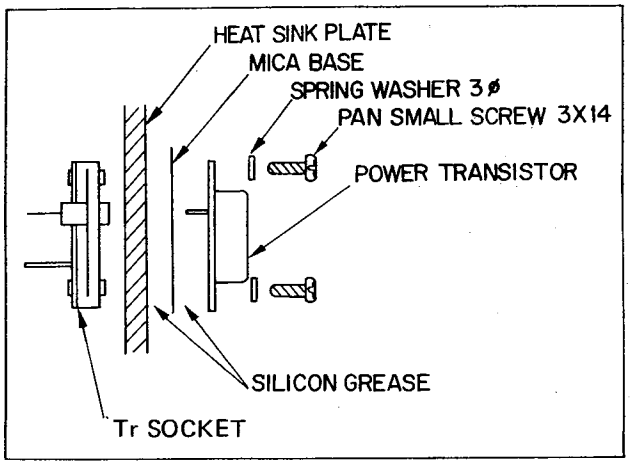


Fig. 13

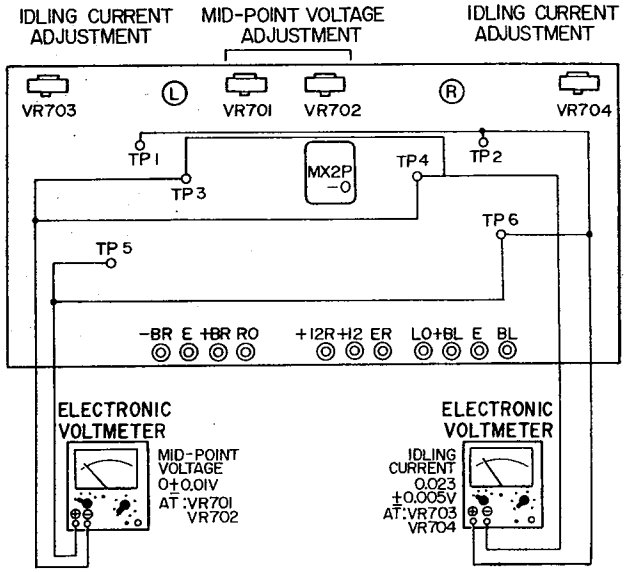


Fig. 14

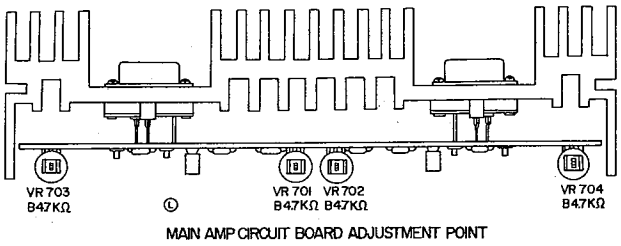
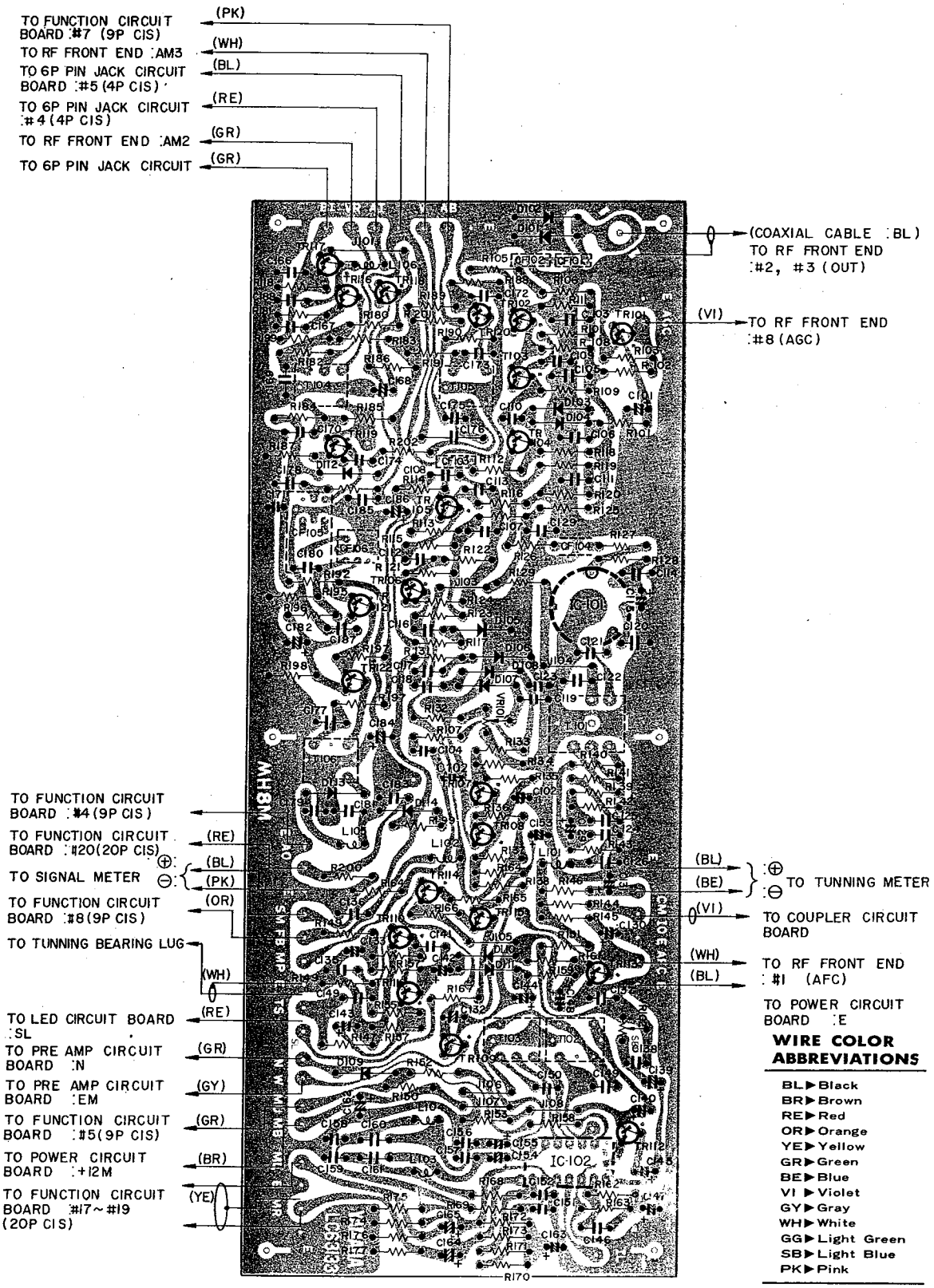


Fig. 15

PRINTED CIRCUIT BOARD

TUNER CIRCUIT BOARD

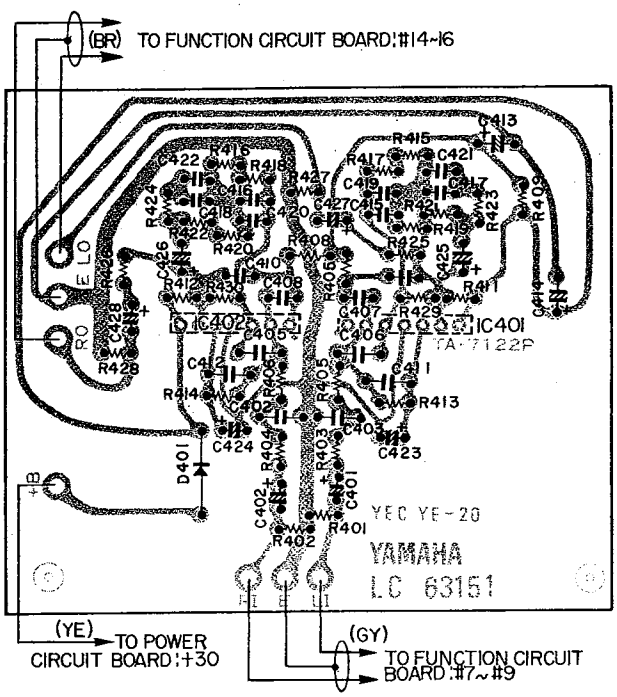
NA06431	U.S., Canadian Models
NA06432	General, Australian, European Models
NA06438	South African Model



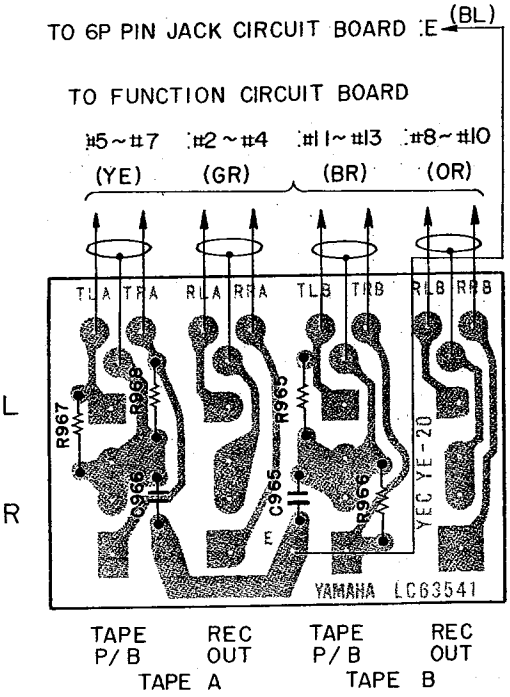
WIRE COLOR ABBREVIATIONS

BL ▶	Black
BR ▶	Brown
RE ▶	Red
OR ▶	Orange
YE ▶	Yellow
GR ▶	Green
BE ▶	Blue
VI ▶	Violet
GY ▶	Gray
WH ▶	White
GG ▶	Light Green
SB ▶	Light Blue
PK ▶	Pink

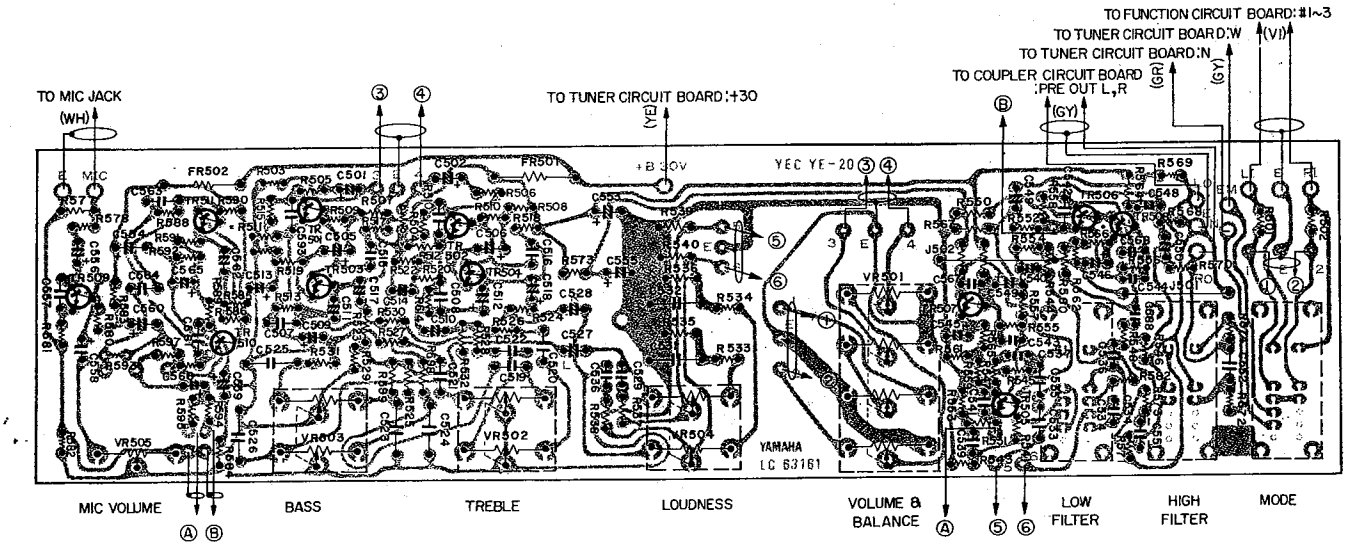
EQ AMP CIRCUIT BOARD NA06433



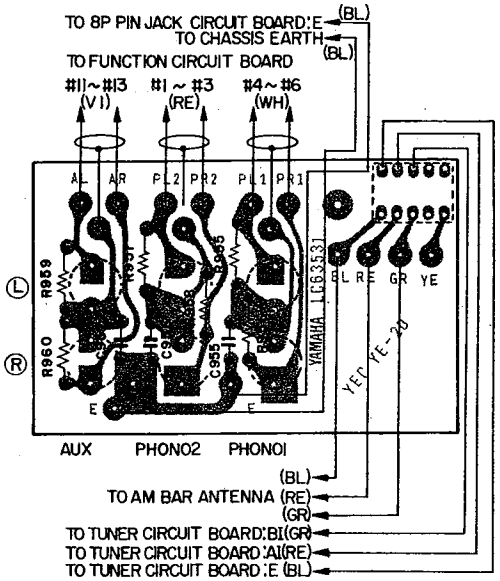
8P PIN JACK CIRCUIT BOARD NA06417



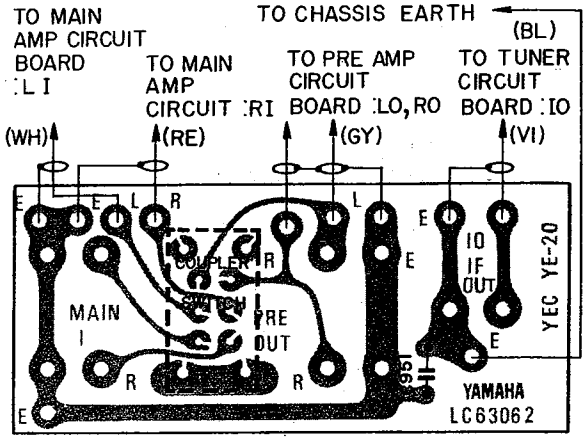
PRE AMP CIRCUIT BOARD NA06434



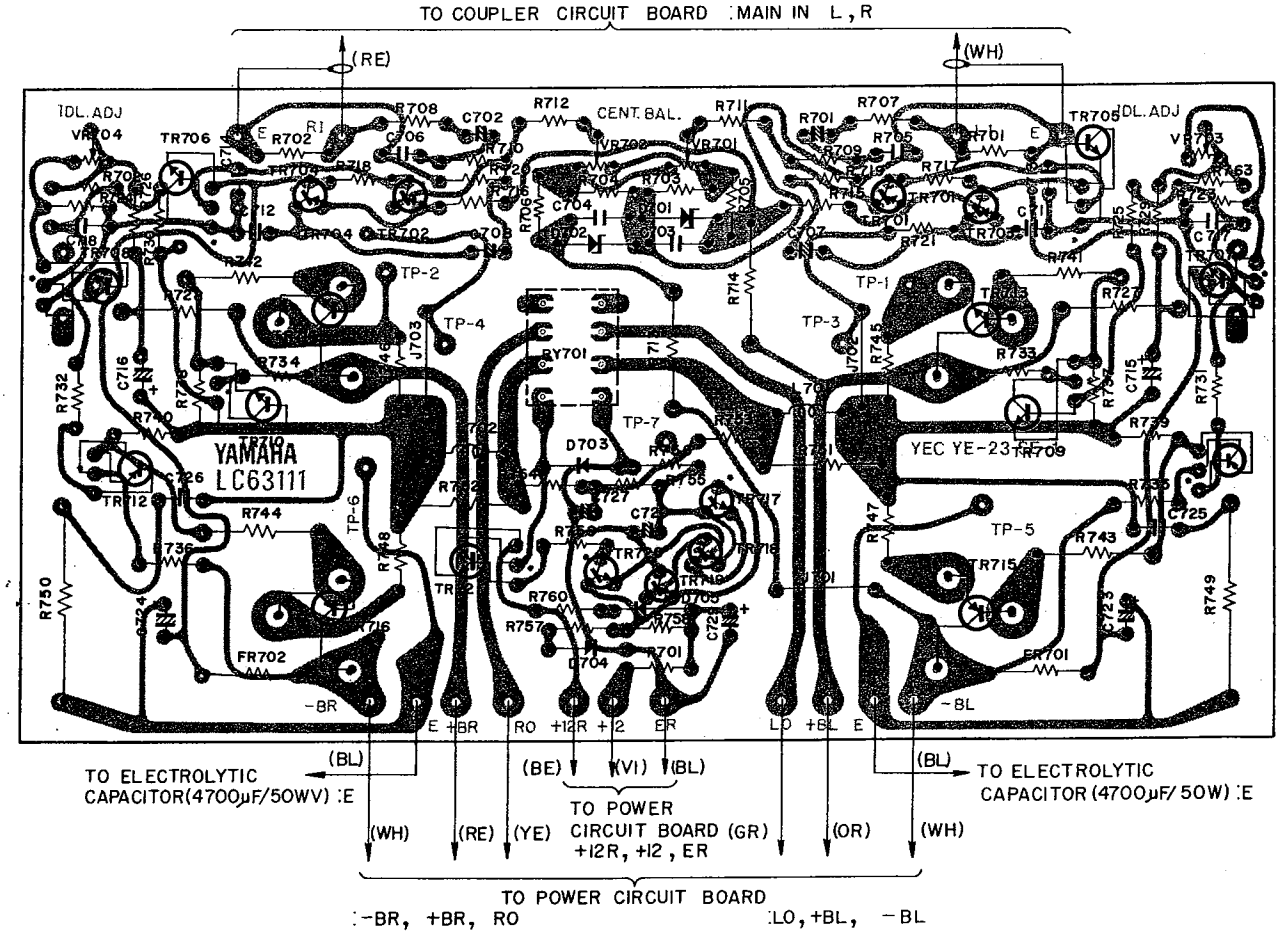
6P PIN JACK CIRCUIT BOARD NA06416



COUPLER CIRCUIT BOARD NA06414



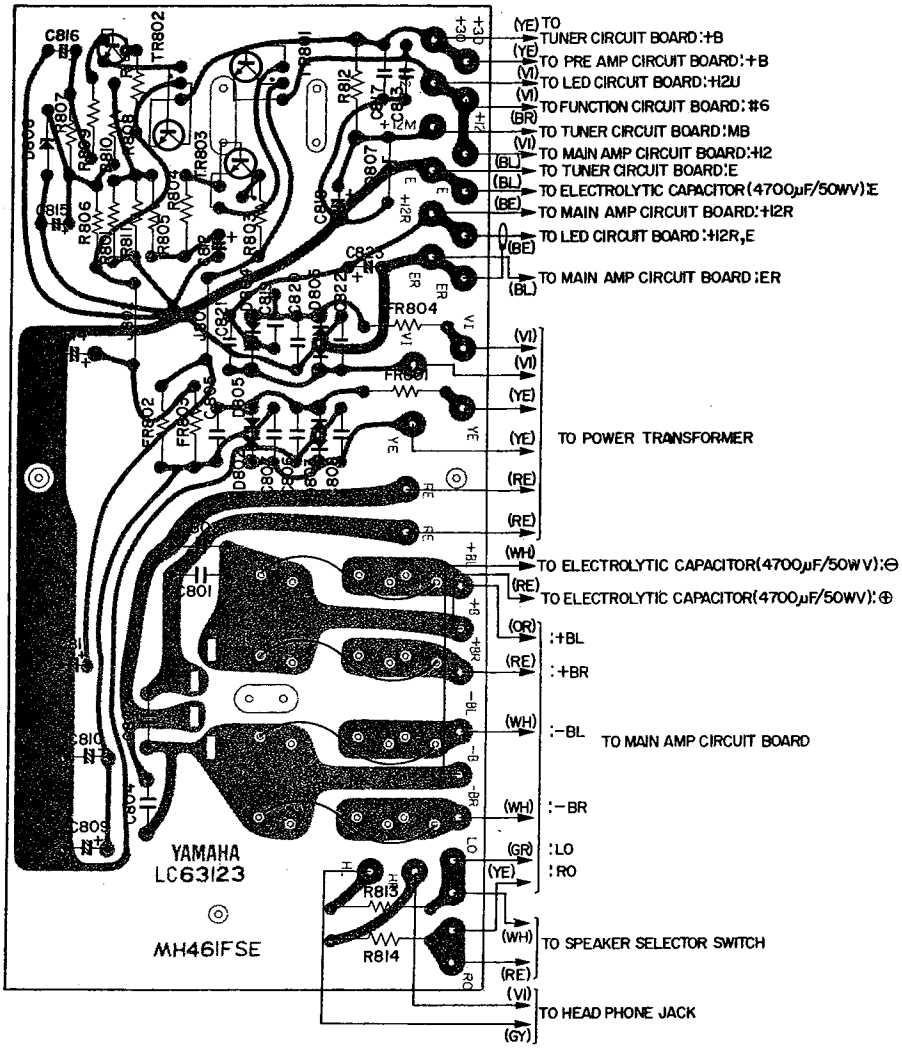
MAIN AMP CIRCUIT BOARD NA06427

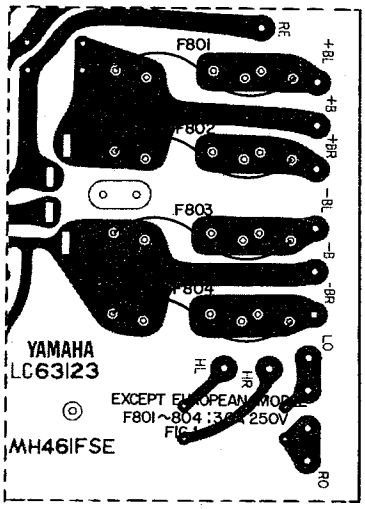


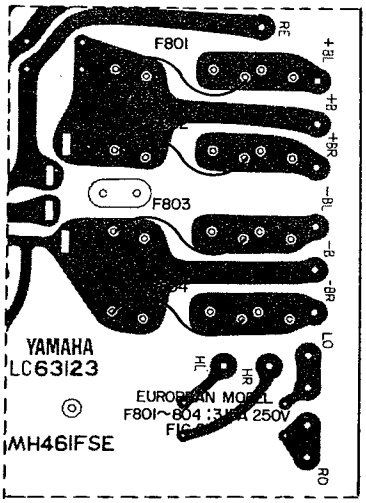
POWER CIRCUIT BOARD

NA06428 General, U.S., Canadian, Southe African, Australian Models

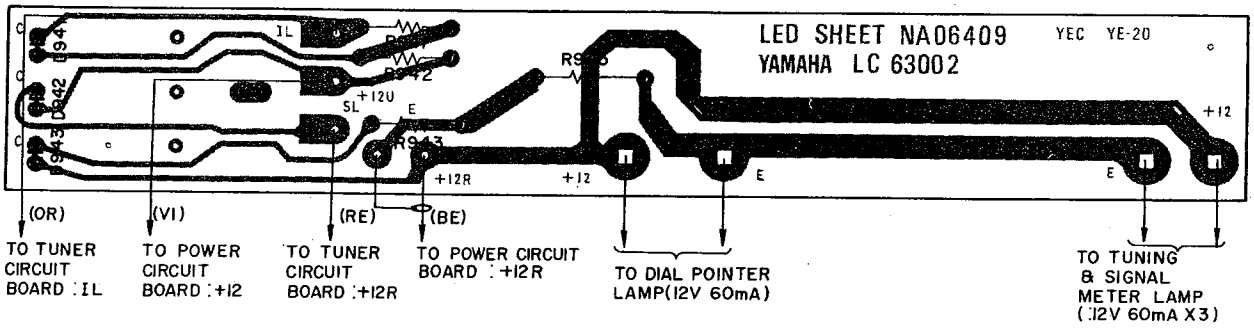
NA06429 European Model



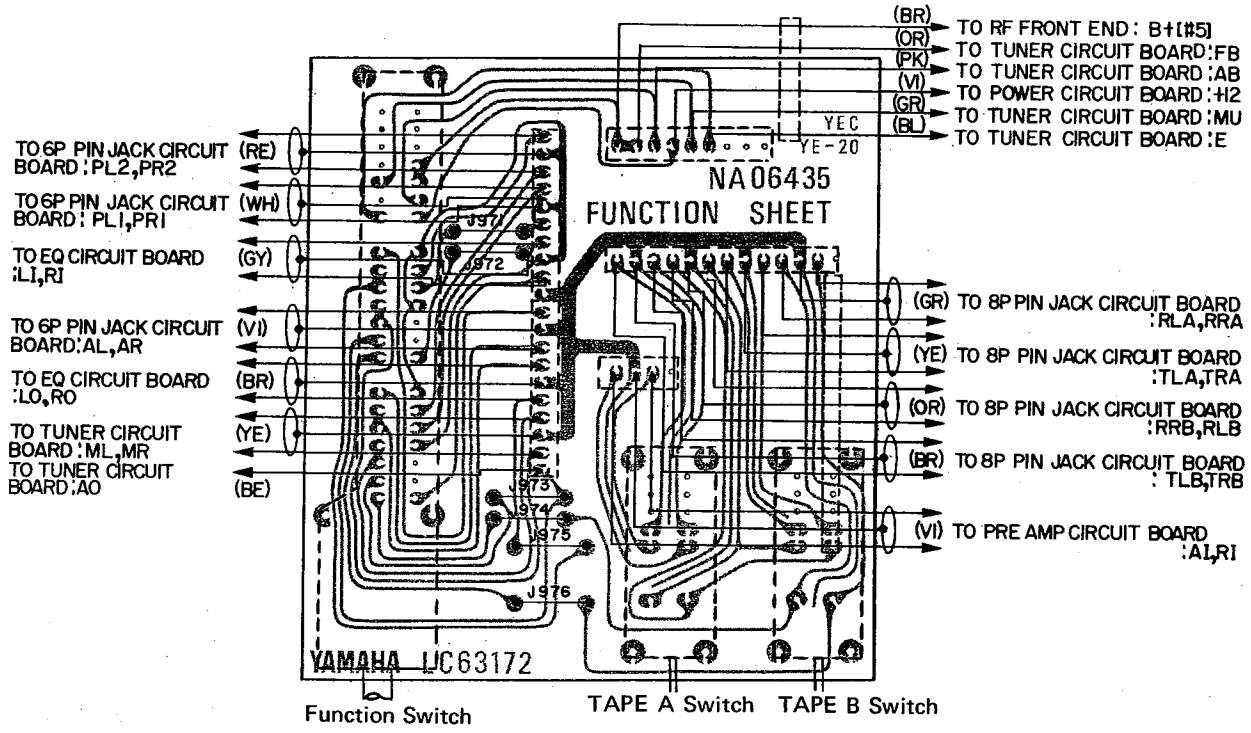




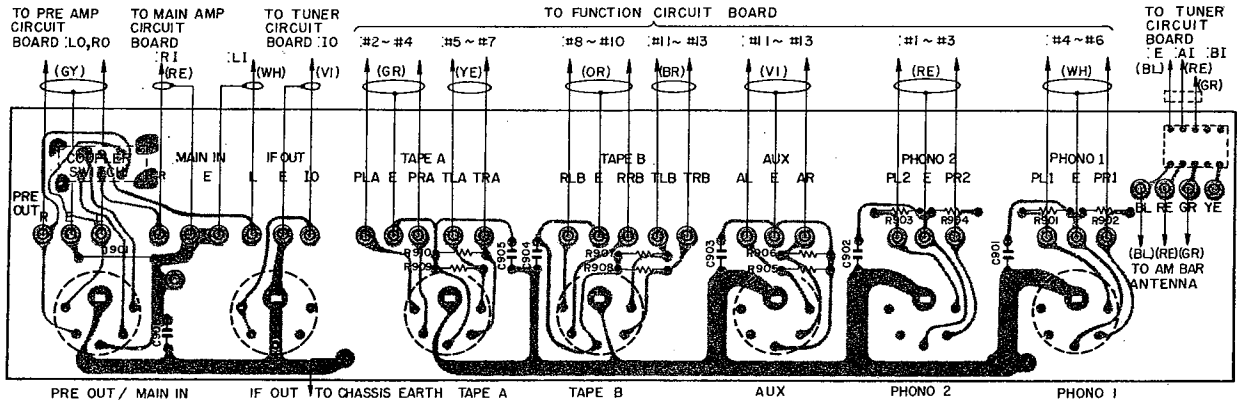
LIGHT EMITTING DIODE CIRCUIT BOARD NA06409

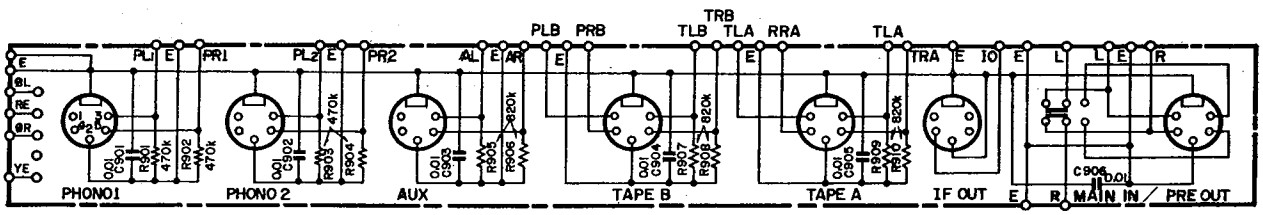


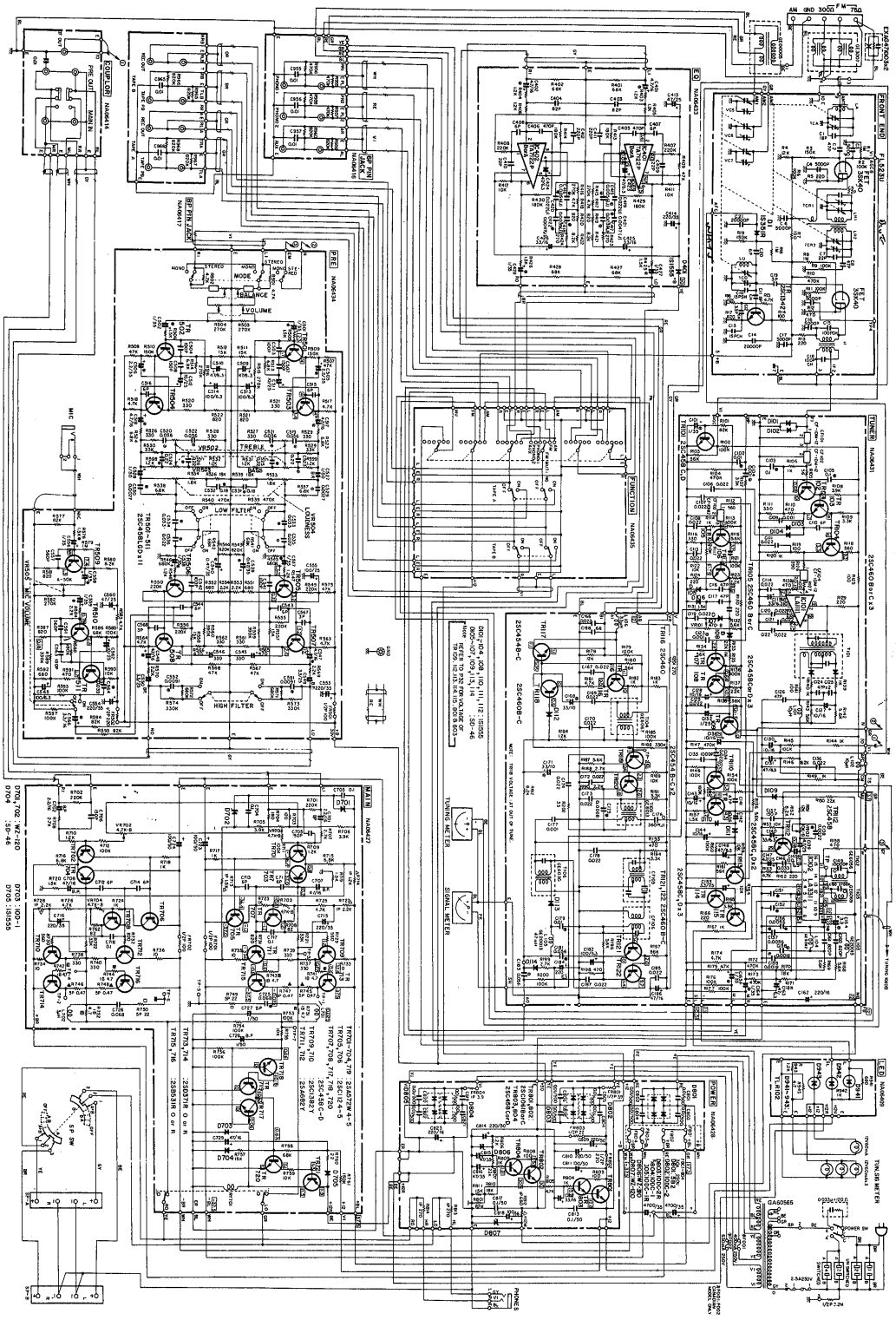
FUNCTION CIRCUIT BOARD NA06435



DIN CONNECTOR CIRCUIT BOARD (EUROPEAN MODEL ONLY) NA06415







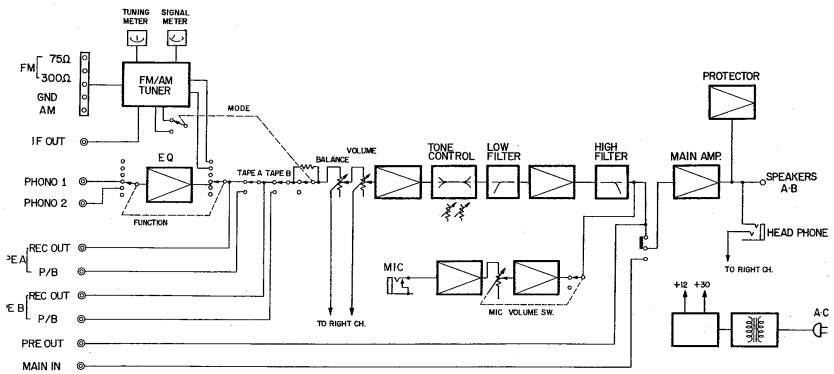
• RESISTOR

SYMBOL	PART NAME
⊸∿∿⊸	FUSE RESISTOR
△	METAL OXIDE RESISTOR
▲	METAL PLATE RESISTOR
□	CEMENT MOLDED RESISTOR
⊠	FIRE PROOFING RESISTOR
NO MARK	CARBON RESISTOR

• CAPACITOR

SYMBOL	PART NAME	REMARK
⊗	TANTALUM CAPACITOR	—||—
NO MARK	BI-POLAR ELECTROLYTIC CAPACITOR	
◎	MYLAR CAPACITOR	—||—
○	POLYSTYRENE CAPACITOR	
NO MARK	CERAMIC CAPACITOR	—||—

.OCK DIAGRAM



LTAGE TABLE of Tr109,112,113,114,115,801,803.

	E	B	C	
TR 109	0	0.02	3.7	AT FM MUTING
TR 112	0	0.65	0	AT FM MUTING

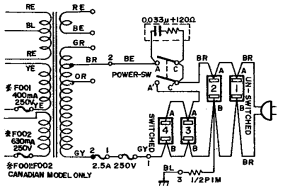
	AUX	FM	AM	
TR 801	44	27	41	COLLECTOR VOLT.
TR803	44	27	41	COLLECTOR VOLT.

TRI13			TRI14			TRI15			
E	B	C	E	B	C	E	B	C	
)	0	0.54	0	0	0.024	0	0.024	10.5	When tuning knob is retached.
)	0.65	0	0	0.58	0.006	0	0.01	10.5	When tuning knob is touched.

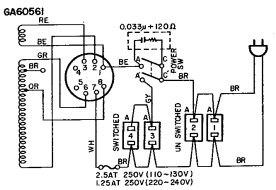
PARTIAL CHANGES MADE ACCORDING TO DESTINATION

▼POWER

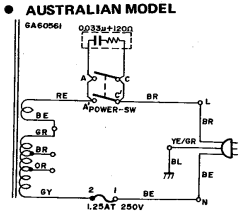
- **U.S. & CANADIAN MODELS**



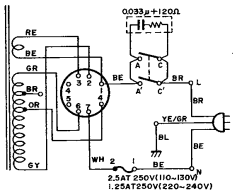
- **GENERAL MODEL**



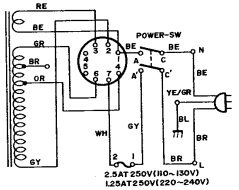
- **AUSTRALIAN MODEL**



- **SOUTH AFRICAN MODEL**

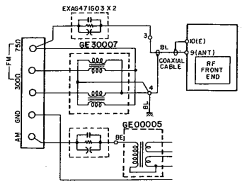


- **EUROPEAN MODEL**

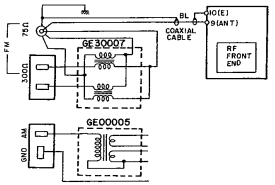


▼ANTENNA

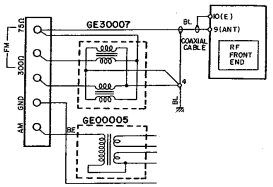
- **U.S. & CANADIAN MODELS**



- **EUROPEAN MODEL**

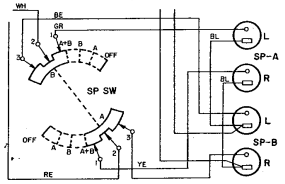


- **EXCEPT U.S. & CANADIAN AND EUROPEAN MODELS**



▼SPEAKER

- **EUROPEAN MODEL**



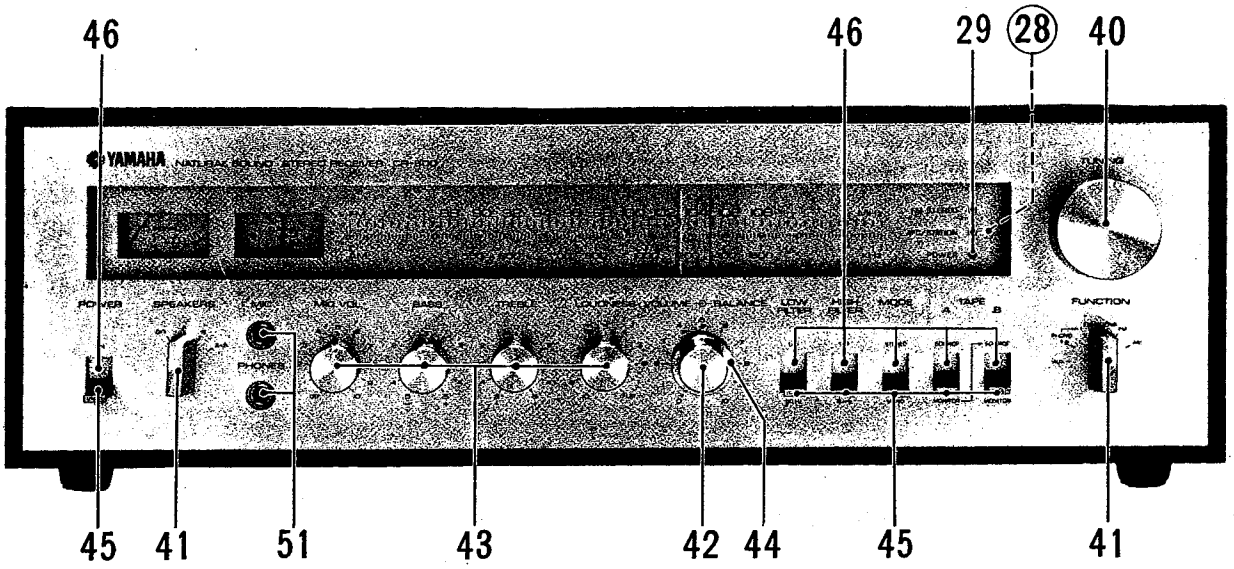
- **EXCEPT EUROPEAN MODEL**
  Refer to OVERALL SCHEMATIC DIAGRAM

▼TUNER

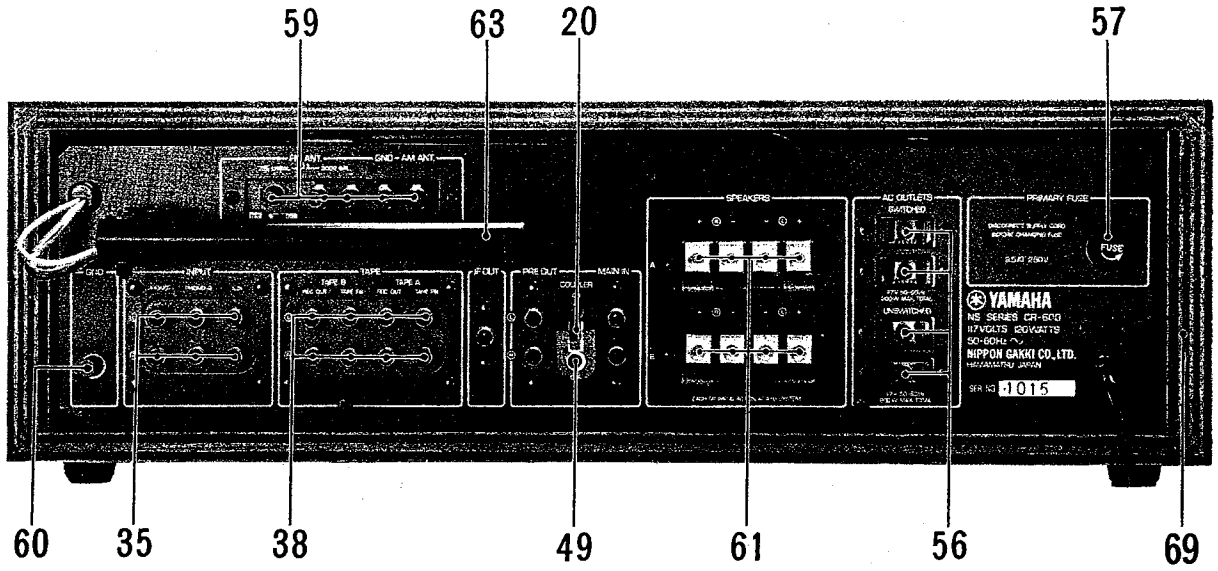
PART NAME / DESTINATION	FM IFT T101	MYLAR CAPACITOR C151	MYLAR CAPACITOR C152	AM CERAMIC FILTER CF105	AM CERAMIC FILTER CF106	RF FRONT END
SOUTH AFRICAN	GE 6025	0.0075μF	0.0075μF	FSN 1047	FSN 1048	FL-523S
U.S. & CANADIAN	GE 6019	0.01μF	0.011μF	FSN 1038	FSN 1036	FL-523U
GENERAL EUROPEAN & AUSTRALIAN	GE 6019	0.0075μF	0.0075μF	FSN 1038	FSN 1036	FL-523U

PARTS LIST

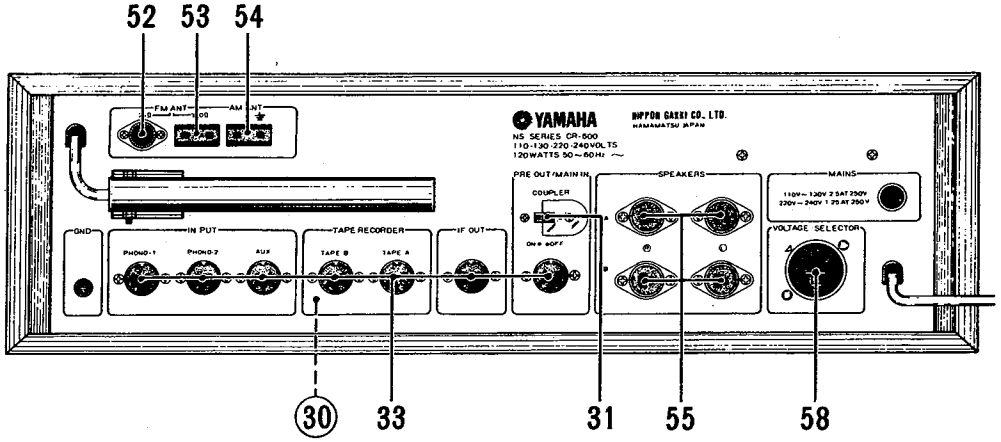
FRONT VIEW



BACK VIEW



BACK VIEW(EUROPEAN MODEL)



Ref. No.	Part No.	Description			Remarks	Common Models	
	iC04608	Transistor	2SC460 (B or C)	トランジスタ			
3	LB10020	1 P Pin jack	SQ-3056	基板型ピンジャック			
④	NA06433	Equalizer Circuit board	#63151	イコライザーシート			
	FP13647	Tantalum capacitor	4.7μF 16 WV	タンタル固体コンデンサ			
	FP15610	– do. –	1μF 35 WV	〃			
	iG00011	Integrated circuit	TA-7122P (B or A)	IC			
	iF00020	Diode	IS1555	ダイオード			
⑤	NA06435	Function Circuit board	# 63172	ファンクションシート			
6	KA20017	Lever switch	SLA-34251	レバースイッチ			
7	KA50035	Rotary switch	SRZ-066	ロータリースイッチ			
8	LB60035	CIS Connector socket	20 P	CISソケット			
9	LB60030	– do. –	13 P	〃			
10	LB60025	– do. –	9 P	〃			
11	LB40008	– do. –	4 P	〃			
	LB10006	CIS Keying pin		CISキーイングピン			
⑫	NA06434	Pre-amp Circuit board	# 63161	プリシート			
	HZ00017	Fuse resistor	100 Ω ½W	ヒューズ抵抗			
	HZ00014	– do. –	220 Ω 〃	〃			
	FM22633	Bipolar electrolytic capacitor (vert. type)	3.3μF 25WV	バイポーラケミコン			
	FM11610	– do. –	(vert. type) 1μF 50WV	〃			
	FP13633	Tantalum capacitor	3.3μF 16 WV	タンタル固体コンデンサ			
	FP13647	– do. –	4.7μF 〃	〃			
	FP15547	– do. –	0.47μF 35 WV	〃			
	FP15610	– do. –	1μF 〃	〃			
	FP15622	– do. –	2.2μF 〃	〃			
	iC04585	Transistor	2SC458LG (D or C)	トランジスタ			

Ref. No.	Part No.	Description		Remarks	Common Models	
13	HS12031	Variable resistor HB 250KΩ, A 100K Ω	可変抵抗器	LEVEL	CA-1000	
14	HS12034	— do. — (with click) B20KΩx 2	〃	LOUDNESS	〃	
15	HS12035	— do. — XZ25KΩx 2	〃	BASS	CA-800	
16	HS12036	— do. — XZ10KΩx 2	〃	TREBLE	〃	
17	HS12037	— do. — (with SW.) A 50KΩ	〃	MIC	CR-800	
18	KA20012	Lever switch SLA34202	レバースイッチ		CA-1000	
⑲	NA06414	Coupler Circuit board ＃63032	カプラーシート	except European Model		
	FG14410	Ceramic capacitor 0.01μF	セラミックコンデンサ			
	LB20066	2 P Pin jack (PC)	2 Pピンジャック			
	LB10008	1 P 〃 (〃)	1 Pピンジャック			
20	KA40021	Slide switch SL222B4	スライドスイッチ			
㉑	NA06427	Main-amp Circuit board ＃63111	メインシート			
	HL41612	Metal oxide resistor 1.2 K Ω 1 W	酸化金属抵抗			
	HL41615	— do. — 1.5 K Ω 〃	〃			
	HL41622	— do. — 2.2 K Ω 〃	〃			
	HZ00027	Metal plate resistor 0.47 Ω 5 W	金属板抵抗			
	HM55422	Cement molded resistor 22 Ω 5 W	セメント抵抗			
	HZ00021	Cement molded resistor (fireproof) 4.7 Ω 1 B	不燃性抵抗			
	HZ00017	Fuse resistor 100 Ω ½W	ヒューズ抵抗			
	FM10810	Bipolar electrolytic capacitor (vert. type) 100μF 6.3 WV	バイポーラケミコン			
	FM09622	— do. — (〃) 2.2μF 16 WV	〃			
	FM09747	— do. — (〃) 47μF 〃	〃			
	FM11610	— do. — (〃) 1μF 50 WV	〃			
	HT41004	Variable resistor (SV10KR) B 4.7K Ω	ソリッドVR			
22	GD90005	Air-core coil 3μH	空芯コイル			
	iF00002	Diode SD-46	ダイオード			
	iH00003	— do. — 10D-1	〃			

Ref. No.	Part No.	Description			Remarks	Common Models	
	iF00004	Diode	IS1555	ダイオード			
	iF00020	Zener diode	WZ-120	ツェナーダイオード			
	iA05720	Transistor	2SA572 (W-4.5)	トランジスタ			
	iA06820	— do. —	2SA682 (O or Y)	〃			
	iB05310	— do. —	2SB531 (O or R)	〃			
	iC04583	— do. —	2SC458 (C or D)	〃			
	iC11242	— do. —	2SC1124 (—2)	〃			
	iC13822	— do. —	2SC1382 (Y or O)	〃			
	iD03710	— do. —	2SD371 (O or R)	〃			
23	KC00009	Relay	MX-2PO	リレー			
	BB06308	Transistor clamp		トランジスタ押え			
	LB30011	Transistor socket	S2-110B-00	トランジスタソケット			
24	BA06480	Heat sink		放熱板			
㉕	NA06428	Power supply circuit board	#63122	電源シート	except European Model		
	NA06429	— do. —		〃	European Model		
	HL41527	Metal oxide resistor	270Ω 1W	酸化金属抵抗			
	HL31568	— do. —	680Ω 〃	〃			
	HZ00030	Fuse resistor	3.9Ω 1 W	ヒューズ抵抗			
	HZ00016	— do. —	3.9Ω (300 mA) ½W	〃			
	HZ00014	— do. —	220Ω ½W	〃			
	HZ00029	— do. —	22Ω 〃	〃			
	iH00008	Diode	10DC-1	ダイオード			
	iH00009	— do. —	10DC-1R	〃			
	iH00005	— do. —	10DC-2	〃			
	iH00013	— do. —	10DC-2R	〃			
	iH00011	— do. —	5B-2	〃			
	iF00020	Zener diode	WZ-120	ツェナーダイオード			
	iF00022	— do. —	WZ-310	〃			
	iC04583	Transistor	2SC458 (C or D)	トランジスタ			
	iC10613	— do. —	2SC1061 (B or C)	〃			
26	BA06276	Heat sink		放熱板		CR-700	
	LB20057	Fuse holder pin	SN-5053	ヒューズホルダーピン			
27	KB00104	Fuse (UL listed)	3.0A 250V	ヒューズ(UL規格)	except European Model		