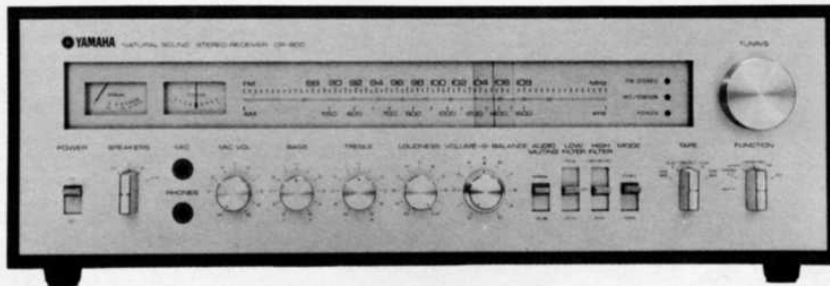


YAMAHA Hi-Fi STEREO SERVICE MANUAL FM/AM STEREO RECEIVER MODEL CR-800



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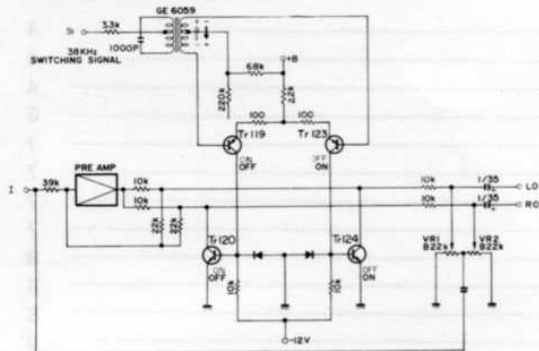
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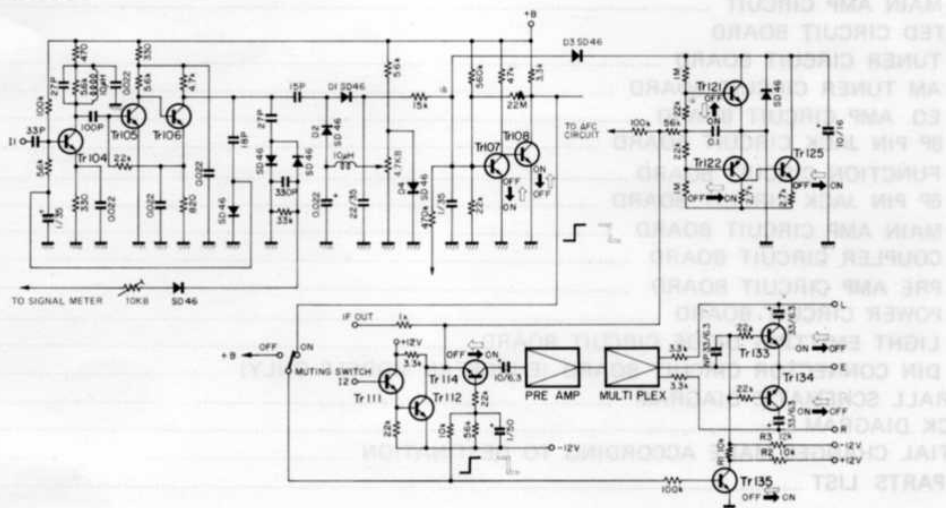
CIRCUIT DESCRIPTION

• **MULTIPLEX DEMODULATOR WITH TRANSISTOR FEEDBACK SWITCHING CIRCUIT EMPLOYING NEGATIVE**



As this circuit's name implies, the 38kHz switching signal (entering via terminal S1) which turns Tr 119 and Tr 123 on and off also turns Tr 120 and Tr 124 on and off. The stereo signal entering via terminal I is separated into L and R. At this time, cross-talk factor are removed from the L and R signals by VR1 and VR2 and negative feedback is fed to terminal I. In this way left and right signals with excellent separation realism are produced.

• **MUTING CIRCUIT**



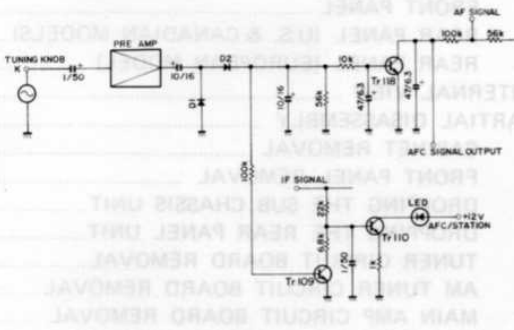
1. **When Signal is Received**

The IF signal received via I₁ is amplified by Tr 104~Tr 106. This signal is rectified by D1 and D2, becoming positive DC potential before being fed to the base of Tr 107. This switches Tr 107 on and Tr 108 off, so that the Tr 108 collector switches to positive potential. This raises the Tr 114 base potential, switching Tr 114 on, and the FM detection signal entering via I₂ is passed to the pre-amp. At the same time, Tr 135 base potential is raised, switching Tr 135 on. In order to create E potential in Tr 135 collector -12V is fed to the bases of Tr 133 and Tr 134, switching them off. In this way output signal is created at the L and R terminals.

2. **When No Signal is Received**

In this condition, since no IF signal is entering via I₁, Tr 107 is off and Tr 108 is on. This causes the Tr 108 potential to equal E potential more or less. Tr 114 is off. At the same time Tr 135 is off, and because of the connection with R1, R2 and R3 positive potential is fed to the bases of Tr 133 and

• **AUTO TOUCH AFC OFF**



When the tuning knob (K) is touched current flows due to the body's negative potential (G). This current is amplified by the pre-amp, and then the doubled voltage is rectified by D1 and D2. This voltage is then fed to the base of Tr 118 and Tr 118 turns on. The AFC signal is completed and the AFC goes off.

At the same time, DC voltage (rectified by D1, D2) is fed to the base of Tr 109 and Tr 109 turns on, thus reducing the Tr 110 base potential. It also lowers the LED brightness.

Tr 134. Tr 133 and Tr 134 are switched on, and a complete muting action is achieved thanks to Tr 114, Tr 133 and Tr 134.

3. **Signal Received, But Tuning Not Centered**

In the best signal detection conditions (center of S curve) the detected output signal does not include DC components. However, if the tuning is off this point even slightly, the signal will include such DC components (+ or -). Using these DC components it is possible to determine whether the receiving conditions are good or bad. The CR-800 muting circuit utilizes this phenomenon. The AC component is achieved using a capacitor 0.1μF taking the output of Tr 111 and Tr 112 and amplifying the detection signal, feeding only the DC component to point (a). If the +DC component generates Tr 121 goes on; if the -DC component generates, Tr 122 goes on and thus: switches on Tr 125. On the other hand, if the signal fed to point (a) is different than the E potential, Tr 125 goes on and point (b) is grounded; thus it receives no signal. In this way all noise which occurs during tuning is canceled.

SPECIFICATIONS

■ AUDIO SECTION

POWER OUTPUT

Dynamic Power (IHF)	150 watts (4Ω) 130 watts (8Ω)
Continuous RMS Power (each channel driven)	70/70 watts (4Ω) at 1,000Hz 55/55 watts (8Ω) at 1,000Hz
Continuous RMS Power (both channels driven)	60+60 watts (4Ω) at 1,000Hz 50+50 watts (8Ω) at 1,000Hz
Continuous RMS Power (both channels driven)	50+50 watts (4Ω) at 20 to 20,000Hz 45+45 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

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
Deviation from RIAA (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)	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	240mV (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 (50kΩ)

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	+15dB, -15dB at 50Hz
TREBLE	+10dB, -10dB at 10,000Hz

FILTERS

LOW	-3dB at 20Hz, 70Hz (12dB/oct.)
HIGH	-3dB at 8,000Hz (6dB/oct.) HIGH BLEND

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)	1.7μV
Quieting Slope	55dB at 5μV 60dB at 10μV
Image Frequency Rejection	100dB
IF Rejection	100dB
Spurious Response Rejection	100dB
AM Rejection	55dB
Capture Ratio	1.0dB
Alternate Channel Selectivity (IHF)	80dB
Signal-to-Noise Ratio	75dB
Total Harmonic Distortion	MONO 0.15% at 400Hz 0.3% at 50 to 10,000Hz STEREO 0.3% at 400Hz 1.0% at 50 to 10,000Hz
Stereo Separation	45dB at 400Hz 35dB at 50 to 10,000Hz

Frequency Response

+0.5dB, -0.5dB at 50 to 10,000Hz
+1.5dB, -1.5dB at 20 to 15,000Hz

Sub-Carrier Suppression

60dB

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

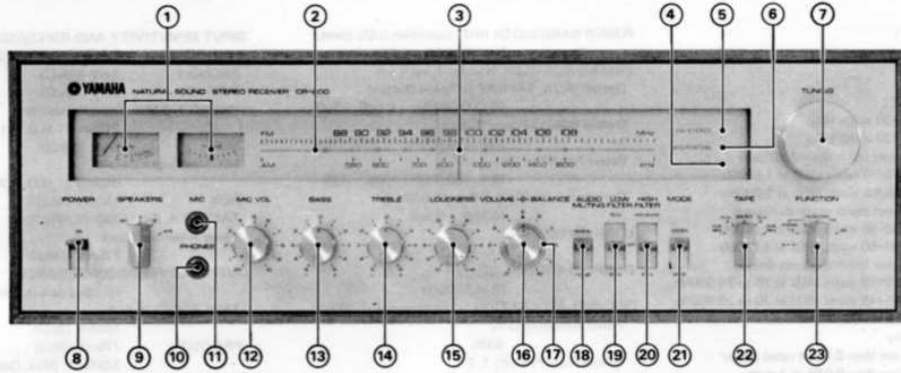
■ GENERAL

Semiconductors	2 ICs; 3 MOS FETs; 98 Transistors;
	3 LEDs; 60 Diodes; 6 Zener Diodes
Power Source	AC 117V, 50/60Hz
Power Consumption	
Rated	
U.S. MODEL	220W 280VA
CANADIAN MODEL	220W 280VA
EXCEPT	190W
U.S. & CANADIAN MODELS	
Max.	300W
AC Outlets	
Switched	2 (total 200 watts)
Unswitched	2 (total 200 watts)
Dimensions	474mm (18 1/2") W x 158mm (6 1/4") H x 300mm (11 3/4") D
Weight	14kg (31 lbs.)

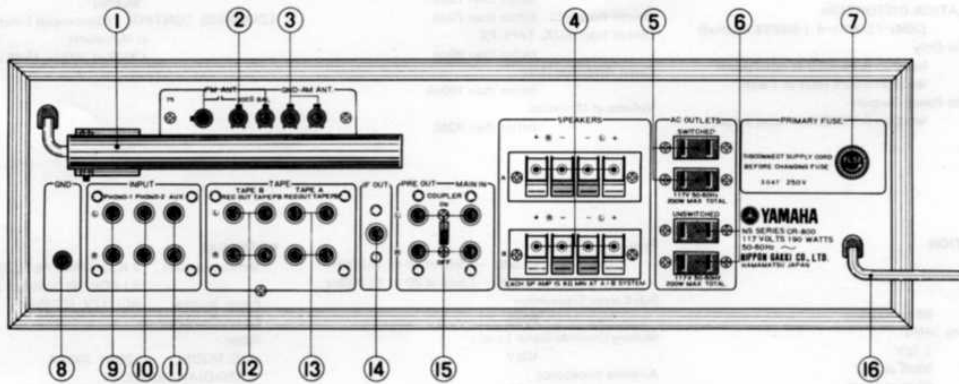
EXTERNAL VIEW

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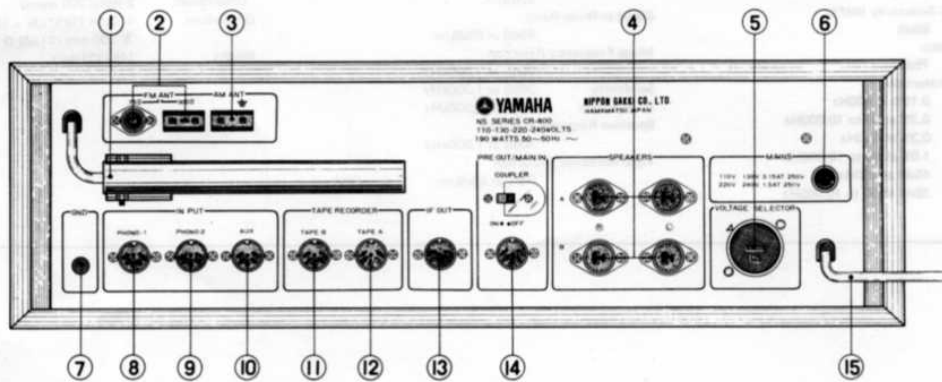
FRONT PANEL



REAR PANEL (U.S. & CANADIAN MODELS)




REAR PANEL (EUROPEAN MODEL)



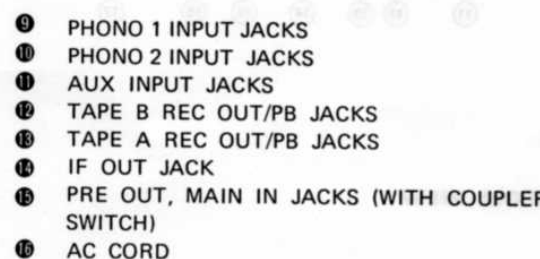
INTERNAL VIEW

TOP VIEW

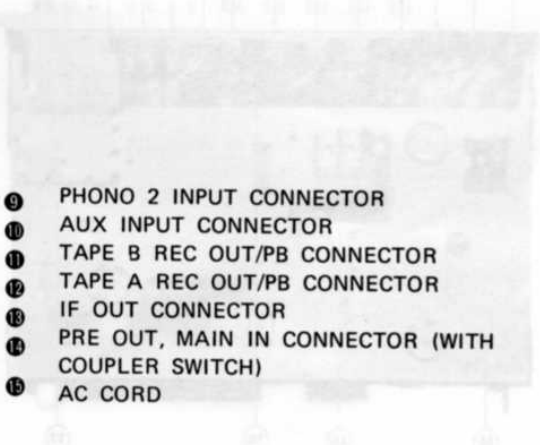
FRONT PANEL

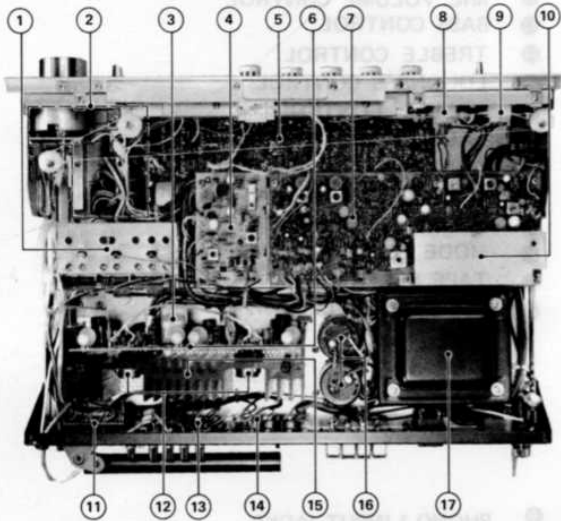
- 
- ① SIGNAL & TUNING METERS
 - ② DIAL SCALE
 - ③ DIAL POINTER
 - ④ POWER INDICATOR
 - ⑤ FM STEREO INDICATOR
 - ⑥ AFC/STATION INDICATOR
 - ⑦ TUNING KNOB
 - ⑧ POWER SWITCH
 - ⑨ SPEAKER SELECTOR
 - ⑩ HEADPHONE JACK
 - ⑪ MIC JACK
 - ⑫ MIC VOLUME CONTROL
 - ⑬ BASS CONTROL
 - ⑭ TREBLE CONTROL
 - ⑮ LOUDNESS CONTROL
 - ⑯ VOLUME CONTROL
 - ⑰ BALANCE CONTROL
 - ⑱ AUDIO MUTING SWITCH
 - ⑲ LOW FILTER SWITCH
 - ⑳ HIGH FILTER SWITCH
 - ㉑ MODE SELECTOR SWITCH
 - ㉒ TAPE SELECTOR
 - ㉓ FUNCTION SELECTOR

REAR PANEL (U.S. & CANADIAN MODELS)

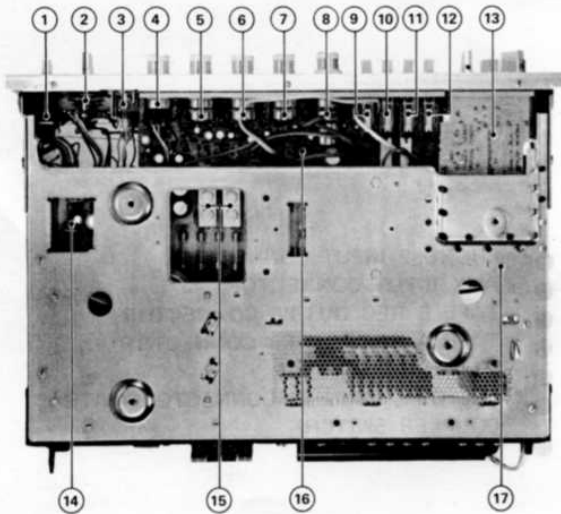
- 
- ① AM FERRITE BAR ANTENNA
 - ② FM ANTENNA TERMINALS
 - ③ AM ANTENNA TERMINAL
 - ④ SPEAKER TERMINALS
 - ⑤ AC OUTLETS-SWITCHED
 - ⑥ AC OUTLETS-UNSWITCHED
 - ⑦ PRIMARY FUSE
 - ⑧ GROUND TERMINAL
 - ⑨ PHONO 1 INPUT JACKS
 - ⑩ PHONO 2 INPUT JACKS
 - ⑪ AUX INPUT JACKS
 - ⑫ TAPE B REC OUT/PB JACKS
 - ⑬ TAPE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

INTERNAL VIEW**TOP VIEW**

- ① RF FRONT END
(FL-422U):
General, U.S., Canadian,
European & Australian Models
(FL-422S):
South African Model
- ② FUNCTION CIRCUIT BOARD (NA06413)
- ③ PROTECTION CIRCUIT RELAY (HC-2P)
- ④ AM TUNER CIRCUIT BOARD
(NA06410):
General
U.S., Canadian,
Australian & European Models
(NA06437):
South African Model
- ⑤ PRE AMP CIRCUIT BOARD (NA06412)
- ⑥ MAIN AMP CIRCUIT BOARD (NA06408)
- ⑦ TUNER CIRCUIT BOARD
(NA06372):
South African Model
(NA06405):
U.S. & Canadian Models
(NA06406):
European Model
- ⑧ TUNING METER
- ⑨ SIGNAL METER
- ⑩ SHIELD COVER
- ⑪ 6P PIN JACK CIRCUIT BOARD (NA06416)
- ⑫ POWER TRANSISTORS
- ⑬ 8P PIN JACK CIRCUIT BOARD (NA06417)
- ⑭ COUPLER CIRCUIT BOARD (NA06414)
- ⑮ HEAT SINK
- ⑯ ELECTROLYTIC CAPACITORS (6800 μ F/50WV)
- ⑰ POWER TRANSFORMER (GA60574)

BOTTOM VIEW

- ① POWER SWITCH
- ② SPEAKER SELECTOR SWITCH
- ③ HEADPHONE JACK
- ④ VARIABLE RESISTOR (MIC VOLUME CONTROL:
A 50k Ω with switch)
- ⑤ VARIABLE RESISTOR (BASS CONTROL:
W 25k Ω x 2 with click)
- ⑥ VARIABLE RESISTOR (TREBLE CONTROL:
B 10k Ω x 2 with click)
- ⑦ VARIABLE RESISTOR (LOUDNESS CONTROL:
B 20k Ω x 2 with click)
- ⑧ VARIABLE RESISTOR (VOLUME & BALANCE
CONTROL: HB 250k Ω x 2, Q 100k Ω x 2)
- ⑨ LEVER SWITCH (AUDIO MUTING SWITCH)
- ⑩ LEVER SWITCH (LOWER FILTER SWITCH)
- ⑪ LEVER SWITCH (HIGH FILTER SWITCH)
- ⑫ LEVER SWITCH (MODE SWITCH)
- ⑬ FUNCTION CIRCUIT BOARD
- ⑭ POWER CIRCUIT BOARD
(NA06407):
General, U.S., Canadian,
South African & Australian Models
(NA06425):
European Model
- ⑮ SILICON RECTIFIER (S5151 & S5151R)
- ⑯ PRE-AMP CIRCUIT BOARD
- ⑰ 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.

Be careful not to install levers and knobs in the wrong place or upside-down. See Fig. 1.

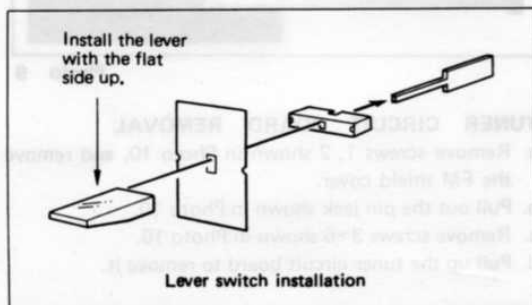


Fig. 1

CABINET REMOVAL

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

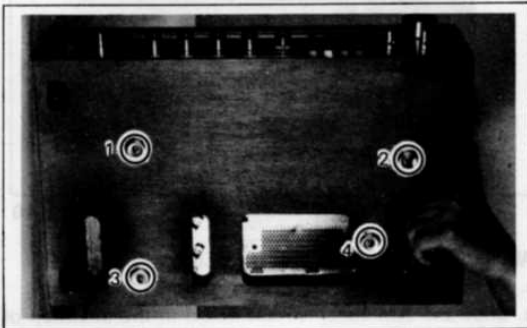


Photo 1



Photo 2

FRONT PANEL REMOVAL

- Remove the FUNCTION, TAPE, SPEAKERS and TUNING knobs using the hexagonal wrench.
- Pull off the MIC VOL, BASS, TREBLE, LOUDNESS and VOLUME/BALANCE knobs.
- Remove 1~6 screws as shown in Photo 3; then remove the front panel by pulling it forward.

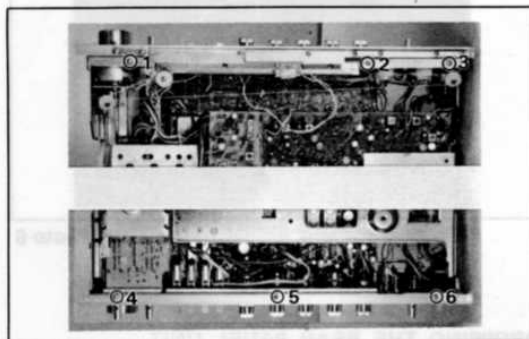


Photo 3

DROPPING THE SUB CHASSIS UNIT

- Pull out the rear panel connector as shown in Photo 4.
- Remove the red-headed screws 1, 2 and loosen screw 3 shown in Photo 5.

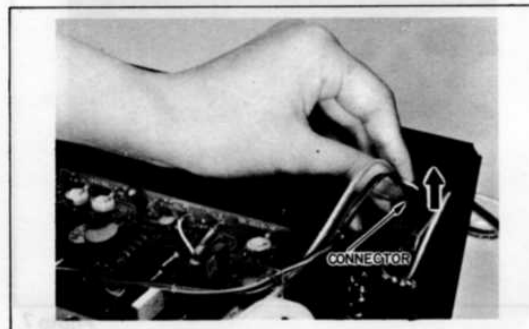


Photo 4

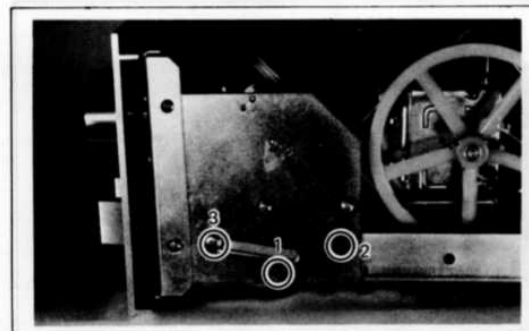


Photo 5

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

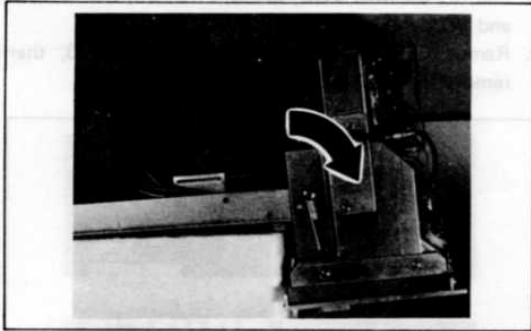


Photo 6

DROPPING THE REAR PANEL UNIT

- a. Pull out the connector (refer to Photo 4).
- b. Remove the red-headed screw in Photo 7 and screws 1, 2 in Photo 8.
- c. Loosen the screw 1 in Photo 7.

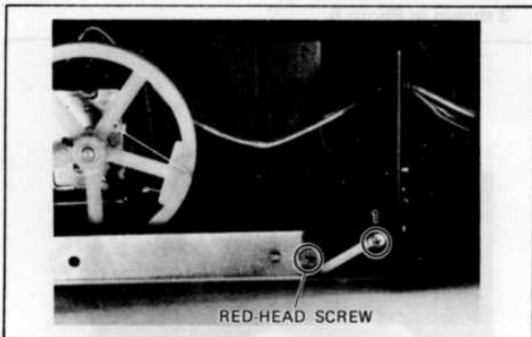


Photo 7

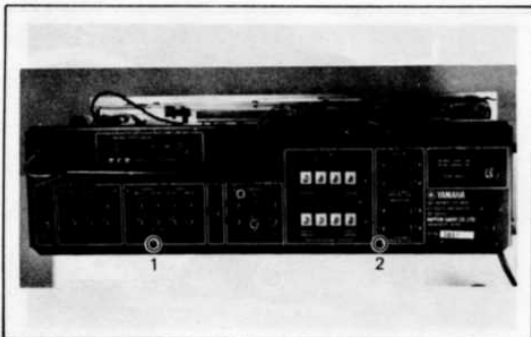


Photo 8

- d. Bring the rear panel, down as shown in Photo 9.

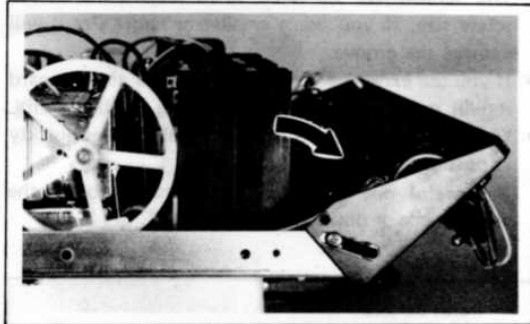


Photo 9

TUNER CIRCUIT BOARD REMOVAL

- a. Remove screws 1, 2 shown in Photo 10, and remove the FM shield cover.
- b. Pull out the pin jack shown in Photo 10.
- c. Remove screws 3~6 shown in Photo 10.
- d. Pull up the tuner circuit board to remove it.

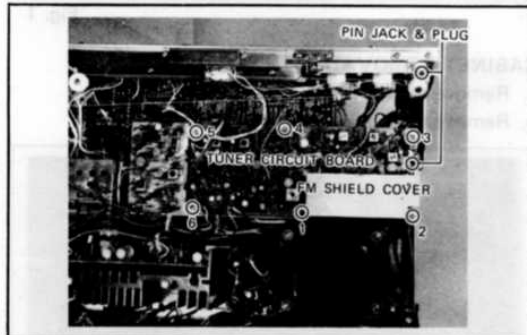


Photo 10

AM TUNER CIRCUIT BOARD REMOVAL

- a. Remove screws 1, 2 shown in Photo 11.
- b. Slide the AM tuner circuit board in the direction of the arrow to remove it.

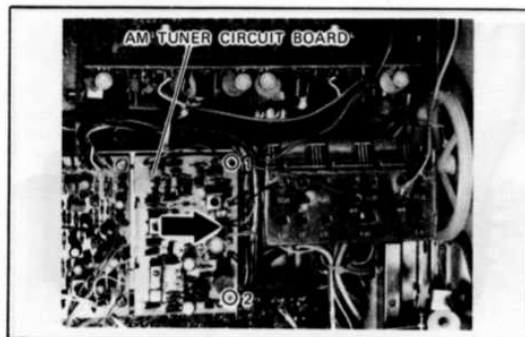


Photo 11

MAIN AMP CIRCUIT BOARD REMOVAL

- Remove screws 1, 2 shown in Photo 12, and then pull up the main amp circuit board with heat sink.
- Remove power transistor retaining screws and then remove the main amp circuit board from heat sink. See Photo 13.

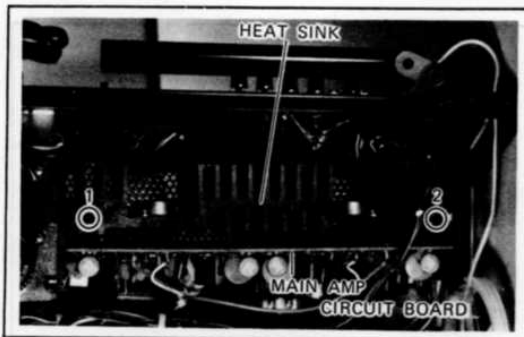


Photo 12

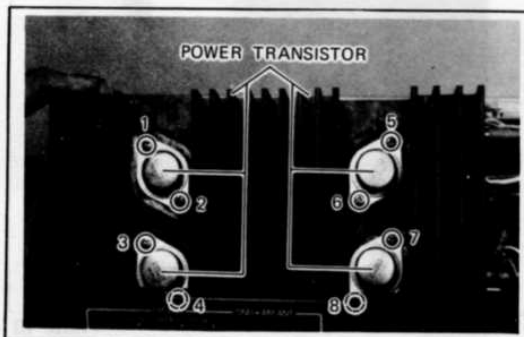


Photo 13

Note: Attach as shown in Fig. 2. Avoid overtightening the screw. Lubricate fully with silicone grease.

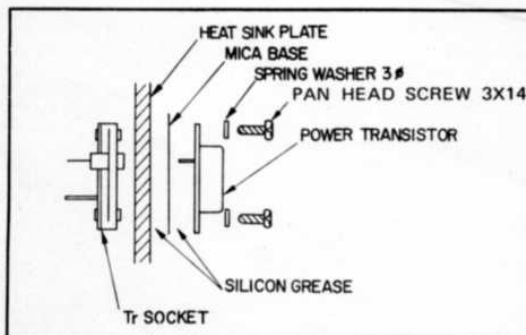


Fig. 2

PRE AMP CIRCUIT BOARD REMOVAL

- Remove the front panel (refer to Photo 3).
- Pull off the AUDIO MUTING, LOW FILTER, HIGH FILTER, MODE lever switches, switch aprons and bushings.
- Remove screws 1~4 shown in Photo 14.
- Drop the sub chassis down forward (refer to Photo 6).
- Remove the pre amp circuit board by pulling it up.

FUNCTION CIRCUIT BOARD REMOVAL

- Remove the front panel (refer to Photo 3).
- Remove screws 5~7 shown in Photo 14.
- Tilt the sub chassis down forward (refer to Photo 6).
- Remove the function circuit board by lifting it up.

POWER SWITCH REMOVAL

- Remove the front panel (refer to Photo 3).
- Pull off the POWER lever knob, switch apron and bushing.
- Remove screws 8, 9 shown in Photo 14.
- Pull off the power switch.

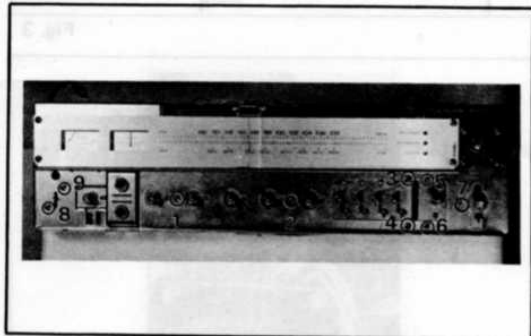


Photo 14

POWER CIRCUIT BOARD & EQ CIRCUIT BOARD REMOVAL

- Bring the sub chassis unit down forward (refer to Photo 6.)
- Hold the three (or two: EQ circuit board) circuit board holders shown in Photo 15 with a long-nosed pliers as shown in Photo 16. Pull the power circuit board or EQ circuit board up and pull it out from the circuit board holder.

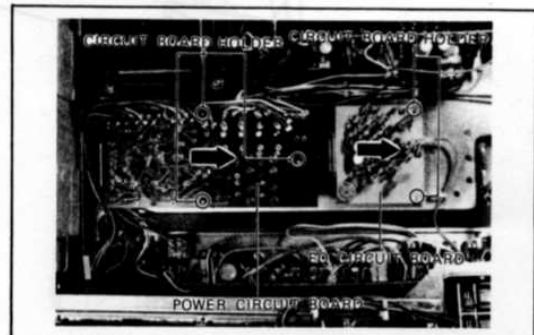


Photo 15

- Note: If you pull only on the circuit board holders, this will apply excessive force to the board/chassis joint (see Fig. 3). 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 shown in Photo 15.

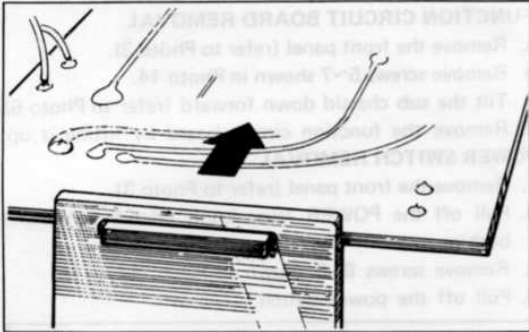
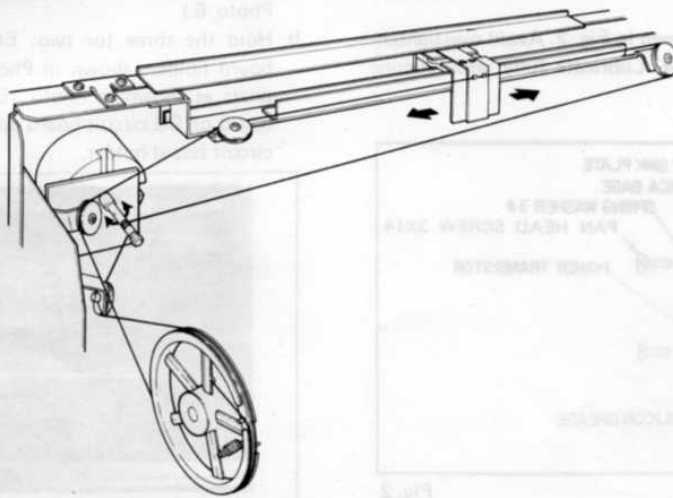


Fig. 3



Photo 16

DIAL MECHANISM



TUNING, 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 shown in Photo 17, and then remove the meter as shown in Photo 18.

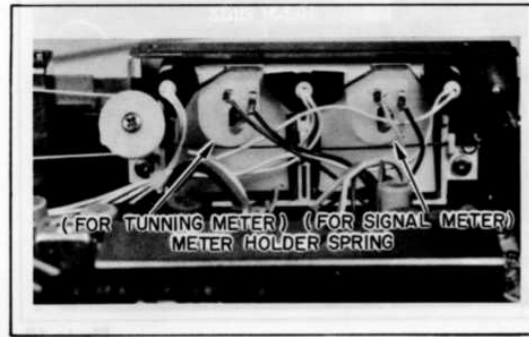


Photo 17

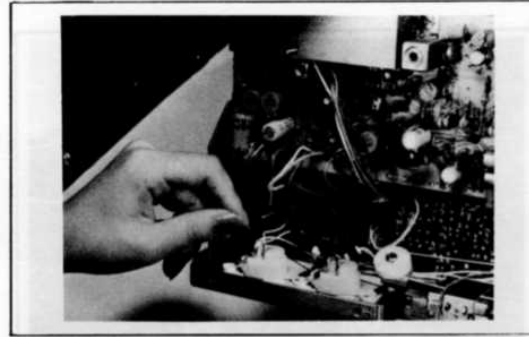


Photo 18

MEASUREMENT AND ADJUSTMENT

FM SECTION

STEP	ADJUSTMENT ITEM	TERMINALS TO BE CONNECTED & INSTRUMENTS REQUIRED	ADJUST	HOW TO ADJUST	RATING OR STANDARD	REMARKS
1	S-Curve	Input jack Sweep generator Output: 40dB/400 ± 100Ω IO and E terminals Oscilloscope (Refer to Fig. 1)	Top (secondary) and bottom (primary) cores of T101	Adjust for symmetrical S-curve with the top core. Adjust for max. height with the bottom core.	Output Voltage: more than 400mVp-p Intermediate Frequency: within 10.7-MHz ± 200, kHz Bandwidth: 300kHz (Refer to Fig. 2)	

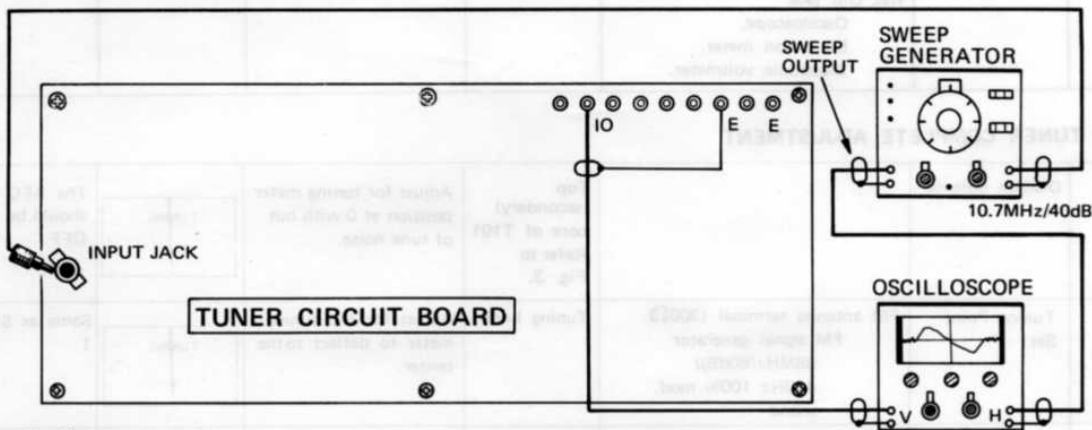


Fig. 1

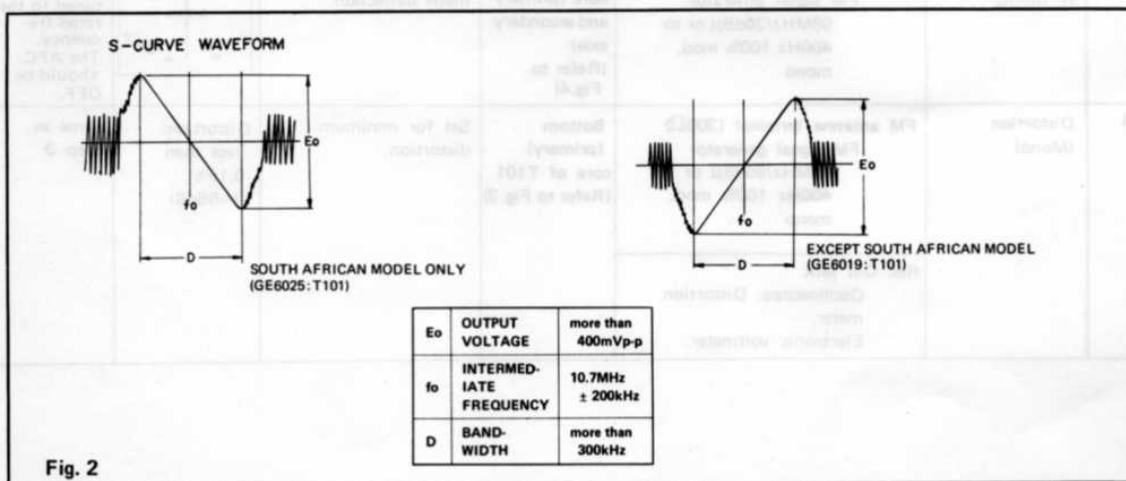


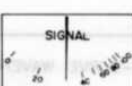



Fig. 2

FM MPX ADJUSTMENT

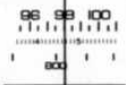
STEP	ADJUSTMENT ITEM	TERMINALS TO BE CONNECTED & INSTRUMENTS REQUIRED	ADJUST	HOW TO ADJUST	RATING OR STANDARD	REMARKS
1	19kHz Filter	FM antenna terminal (300Ω) FM signal generator 98MHz/60dBμ ● Modulate the stereo pilot signal only. Rec Out Jack Oscilloscope, Distortion meter, Electronic voltmeter	T105 (L) T106 (R) GE6057 (Refer to Fig. 3)	Adjust for minimum 19kHz leak element.	Leak level: less than -60dB	The set should be tuned to the rated frequency. The AFC should be OFF (ground the AFC terminal).
2	Separation	FM antenna terminal (300Ω) FM signal generator 98MHz/60dBμ 400Hz 100% mod. stereo (L,R & L-R) Rec Out jack Oscilloscope, Distortion meter, Electronic voltmeter.	VR103 (L) VR104 (R) B22kΩ (Refer to Fig. 3)	Adjust for maximum separation (obtain this maximum by repeated left and right adjustments).	Separation: more than 45dB	Same as Step 1

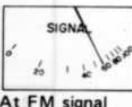
FM TUNER COMPLETE ADJUSTMENT

1	Discrim Balance		Top (secondary) core of T101 Refer to Fig. 3.	Adjust for tuning meter position at 0 with out of tune noise.		The AFC should be OFF.
2	Tuning Point Set	FM antenna terminal (300Ω) FM signal generator 98MHz/60dBμ 400Hz 100% mod. mono	Tuning knob	Adjust for the tuning meter to deflect to the center.		Same as Step 1
3	Front end IF tuning	FM antenna terminal (300Ω) FM signal generator 98MHz/30dBμ or so 400Hz 100% mod. mono	Front end IF core (primary and secondary side) (Refer to Fig.4)	Set for max. signal meter deflection.		The set should be tuned to the rated frequency. The AFC should be OFF.
4	Distortion (Mono)	FM antenna terminal (300Ω) FM signal generator 98MHz/60dBμ or so 400Hz 100% mod. mono Rec Out jack Oscilloscope, Distortion meter, Electronic voltmeter.	Bottom (primary) core of T101 (Refer to Fig.3)	Set for minimum distortion.	Distortion: less than 0.15% (-56dB)	Same as Step 3

STEP	ADJUSTMENT ITEM	TERMINALS TO BE CONNECTED & INSTRUMENTS REQUIRED	ADJUST	HOW TO ADJUST	RATING OR STANDARD	REMARKS
5	Distortion (Stereo)	FM antenna terminal (300Ω) FM signal generator 98MHz/60dBμ 400Hz 100% mod. stereo (L, R & L-R)	T104(GE-6059), Front end IF core (top and bottom) (Refer to Fig. 4)	Adjust T104 for minimum distortion at maximum L-R signal. Adjust front end IF cores (top and bottom) via L or R for minimum distortion.	Distortion: less than 0.3% (-50dB)	Same as Step 3
		Rec Out jack Oscilloscope Distortion meter, Electronic voltmeter.				
6	Meter setting	FM antenna terminal (300Ω) FM signal generator 98MHz/100dBμ 400Hz 100% mod. mono	VR102 (Refer to Fig. 3)	Set for maximum ("100") signal meter deflection.	Allowable Error: +0mm, -1mm. 	Same as Step 3
7	Muting level	FM antenna terminal (300Ω) FM signal generator 98MHz/20dBμ 400Hz 100% mod. mono	VR101 (Refer to Fig. 3)	Turn to the right little by little until output power appears.	Level where output appears: 20dBμ ±3dBμ	Same as Step 3
		Rec Out jack Oscilloscope, Electronic voltmeter				

FM TRACKING ADJUSTMENT

STEP	ADJUSTMENT ITEM	TERMINALS TO BE CONNECTED & INSTRUMENT REQUIRED	ADJUST	HOW TO ADJUST	RATING OR STANDARD	REMARKS
1	Dial pointer	FM antenna terminal FM signal generator 98MHz/60dBμ	Tuning knob Dial pointer	Tune to the rated frequency and set the dial pointer to the "98" on the dial scale. 		The AFC should be OFF.
2	Low-band tracking conformation	FM antenna terminal FM signal generator 90MHz/60dBμ	Tuning knob	Tune to the rated frequency.	Deviation should be within ±1.5 mm of the center of the numbers.	The AFC should be OFF. If the check shows that only one of the standards (2 and 2') are not met, adjust the dial pointer for that measurement to within the standard.
2'	High-band tracking conformation	FM antenna terminal FM signal generator 106MHz/60dBμ	Dial pointer	Inspect for deviation from the center of the numbers on the dial scale.		
3	Tracking correction I	FM antenna terminal 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.

STEP	ADJUSTMENT ITEM	TERMINALS TO BE CONNECTED & INSTRUMENTS REQUIRED	ADJUST	HOW TO ADJUST	RATING OR STANDARD	REMARKS
4	Tracking correction II	FM antenna terminal FM signal generator 90, 98, 106MHz/60dBμ	Tuning knob	Match the pointer to the numbers.	 At FM signal generator OUTPUT:60dBμ	When the standard is not met even after adjustments 2, 2' and 3.
		FM antenna terminal FM signal generator 88MHz/60dBμ 88MHz/30dBμ	Front end LOSC core	Match the dial pointer to the number and set for maximum signal meter deflection.		
		FM antenna terminal FM signal generator 106MHz/60dBμ 106MHz/30dBμ	Front end RF, ANT core. (Refer to Fig. 4.)	Same as the above		
		Front end LOSC trimmer	Front end RF, ANT trimmer (Refer to Fig. 4.)			

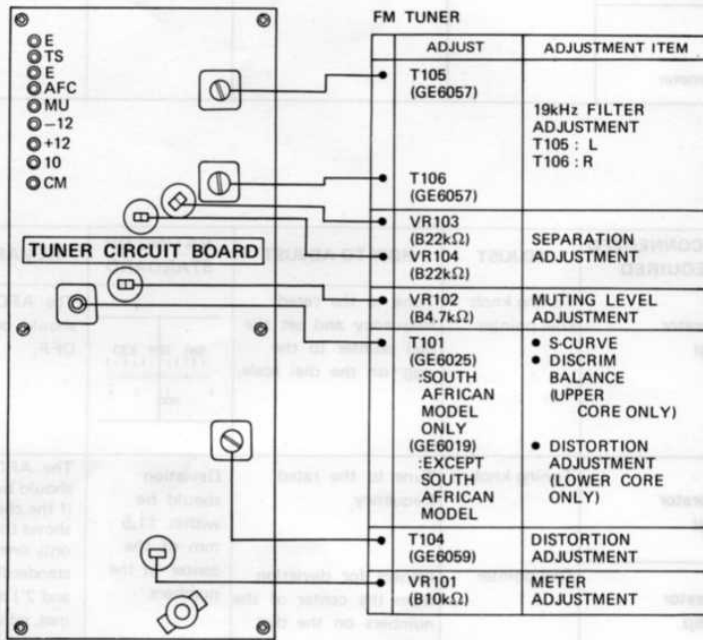
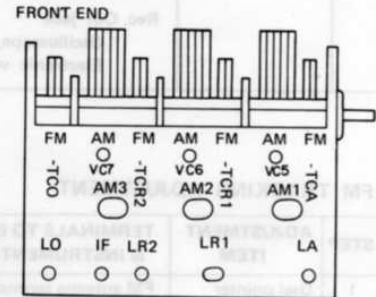


Fig. 3



CORE	TRIMMER	ADJUSTMENT ITEM
IF		<ul style="list-style-type: none"> FRONT END IF TUNING DISTORTION ADJUSTMENT
LO LR2 LR1 LA	TCO TCR2 TCR1 TCA	<ul style="list-style-type: none"> SENSITIVITY ADJUSTMENT TRACKING ADJUSTMENT

Fig. 4

AM IF ADJUSTMENT

STEP	ADJUSTMENT ITEM	TERMINAL TO BE CONNECTED & INSTRUMENTS REQUIRED	ADJUST	HOW TO ADJUST	RATING OR STANDARD	REMARKS
1	V-curve	TP-T1 and E terminals Sweep generator 50dB (Connect the capacitor: 0.1 μ F or so)	CF301 T303 (GE6030)	Adjust for a curve like that in Fig. 6	Output Voltage: more than 500mV Intermediate Frequency: within 455 \pm 10kHz Bandwidth: more than 5kHz Note: Intermediate frequency in South African model: 470kHz \pm 10kHz	
		TP-TO and E terminals Oscilloscope				
		M and E terminals Signal meter or resistor (600 Ω) (Refer to Fig. 5).				

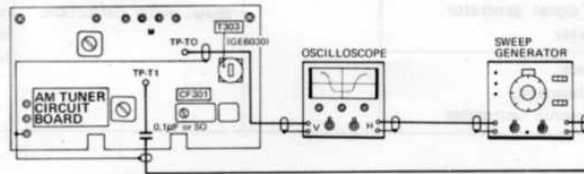


Fig. 5

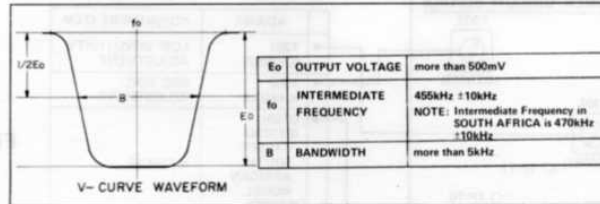
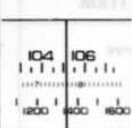
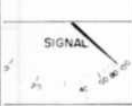


Fig. 6

AM TRACKING ADJUSTMENT

- Be sure to carry out this adjustment after FM adjustment.

STEP	ADJUSTMENT ITEM	TERMINALS TO BE CONNECTED & INSTRUMENTS REQUIRED	ADJUST	HOW TO ADJUST	RATING OR STANDARD	REMARKS
1	OSC coil	Bar antenna AM signal generator 600kHz	Tuning knob T302 (GE6013) (Refer to Fig. 7)	Set dial pointer at 600kHz. Set it to tune at 600kHz.		
		Rec Out terminal Oscilloscope, Electronic voltmeter.				
2	Low-range sensitivity	Bar antenna AM signal generator 600kHz	Bar antenna core and T301 (GE6067) (Refer to Fig. 7)	Set for maximum sensi- tivity (according to the meter) at a tuning point of 600kHz.		
		Rec Out jack Oscilloscope, Electronic voltmeter.				

STEP	ADJUSTMENT ITEM	TERMINAL TO BE CONNECTED & INSTRUMENTS REQUIRED	ADJUST	HOW TO ADJUST	RATING OR STANDARD	REMARKS
3	OSC trimmer	Bar antenna AM signal generator 1350kHz	Tuning knob Variable Capacitor: VC7 trimmer (Refer to Fig. 8)	Set the dial pointer at 1350kHz. Adjust at 1350kHz to tune.		Frequency gauge : 1350 =Liner gauge : 7.7
		Rec Out jack Oscilloscope, Electronic voltmeter.				
4	High-range sensitivity	Bar antenna AM signal generator 1350kHz	VC5 and VC6 (Refer to Fig. 8)	Set for maximum sensitivity (by the meter) at 1350kHz tuning point.		
		Rec Out jack Oscilloscope, Electronic voltmeter				
5	Sensitivity variation	Bar antenna AM signal generator 600, 1350kHz		Repeat Steps 1 ~ 4.		
6	Mid-range conformation	Bar antenna AM signal generator 950kHz	Tuning knob	Tune for maximum signal meter deflection.	Within ± 1.5 mm deviation from the 950kHz letter.	Frequency gauge: 950 =Liner gauge : 5.51
		Rec Out jack Oscilloscope, Electronic voltmeter				

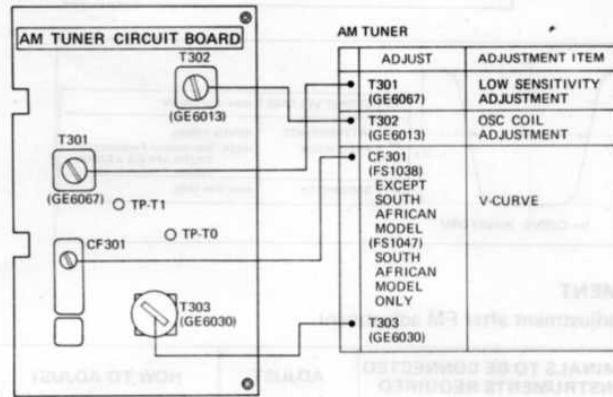


Fig. 7

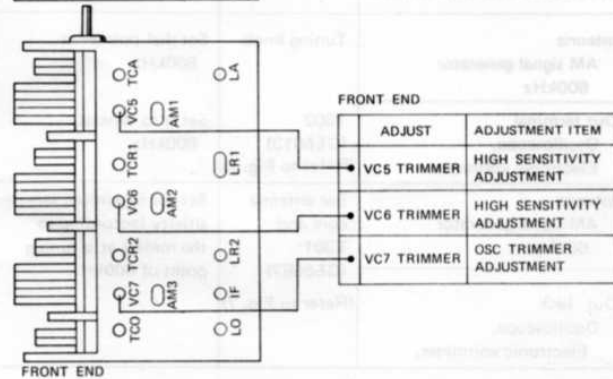


Fig. 8

PRINTED CIRCUIT BOARD

MAIN AMP ADJUSTMENT

Before measurement

- After the power switch is turned on, wait about 1 minute before measuring, to be sure of the most stable operation.
- Do not connect speakers or dummy load resistance to the speaker terminals.

STEP	ALIGNMENT ITEM	TERMINALS TO BE CONNECTED	INSTRUMENT REQUIRED	ADJUST	HOW TO ADJUST	RATING OR STANDARD
1	Mid-point Voltage	TP-3 (+) ~ TP-5 (-) TP-4 (+) ~ TP-6 (-)	Electronic Voltmeter	VR701 VR702	Set as standard Value	$0 \pm 0.01V$
2	Idling current	TP-1 (+) ~ TP-3(-) TP-2 (+) ~ TP-4 (-)	Electronic Voltmeter	VR703 VR704	Set as standard Value	$0.023 \pm 0.005V$
3	Make sure by repeating steps 1 and 2 several times. (Refer to Fig. 9, 10)					

Note: TP-5 and TP-6 ground terminals can be grounded to the main circuit board input ground terminal during midpoint voltage adjustment.

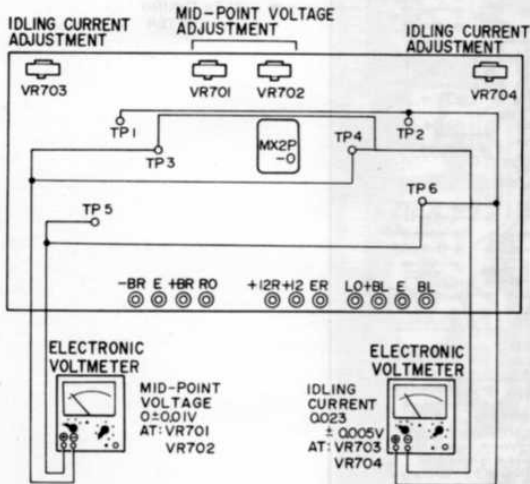
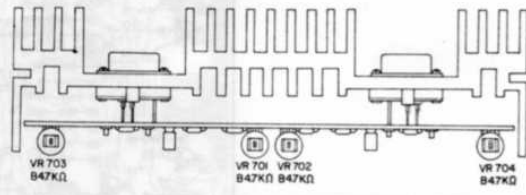


Fig. 9



MAIN AMP CIRCUIT BOARD ADJUSTMENT POINTS

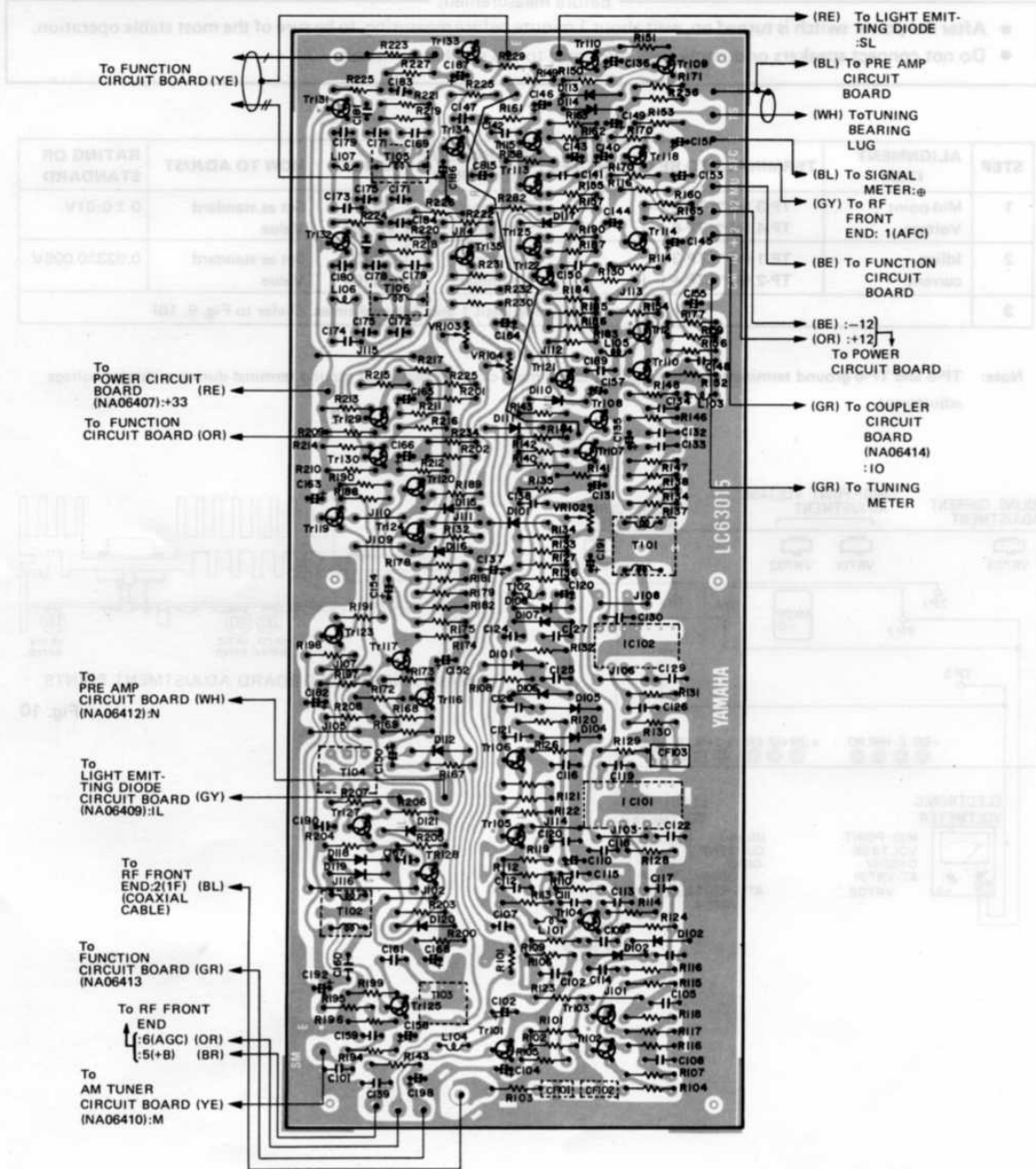
Fig. 10

WIRE COLORS ABBREVIATIONS

BR	Black	BL	Blue
OR	Orange	GR	Green
RD	Red	WH	White
PK	Pink	YK	Yellow
VT	Violet		
BR	Brown		
GR	Green		
OR	Orange		
PK	Pink		
VT	Violet		
WH	White		
YK	Yellow		

PRINTED CIRCUIT BOARD

TUNER CIRCUIT BOARD NA06405 U.S. & CANADIAN MODELS
 NA06406 GENERAL AUSTRALIAN & EUROPEAN MODELS
 NA06372 SOUTH AFRICAN MODELS

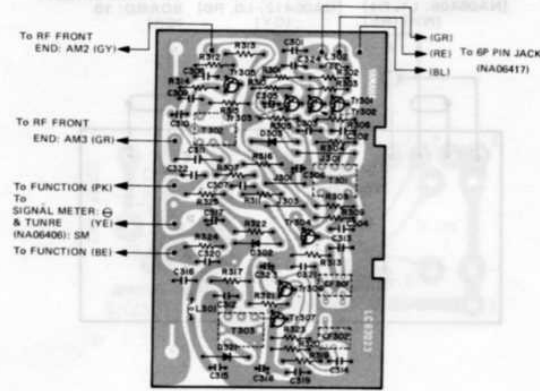


WIRE COLORS ABBREVIATIONS

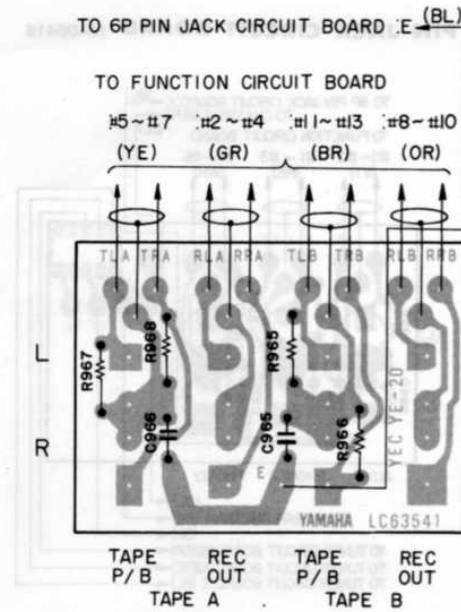
BL ▶ Black	GR ▶ Green	GG ▶ Light Green
BR ▶ Brown	BE ▶ Blue	SB ▶ Light Blue
RE ▶ Red	VI ▶ Violet	PK ▶ Pink
OR ▶ Orange	GY ▶ Gray	
YE ▶ Yellow	WH ▶ White	

AM TUNER CIRCUIT BOARD

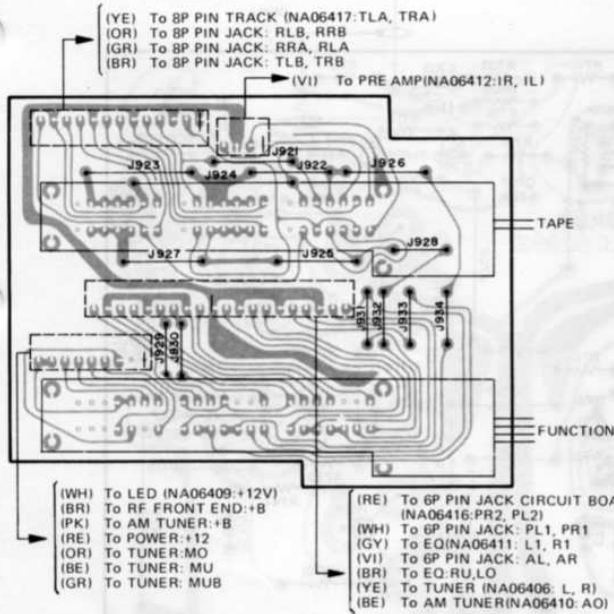
NA06410 General, U.S. & Canadian, Australian, European Models
 NA06437 South African Model



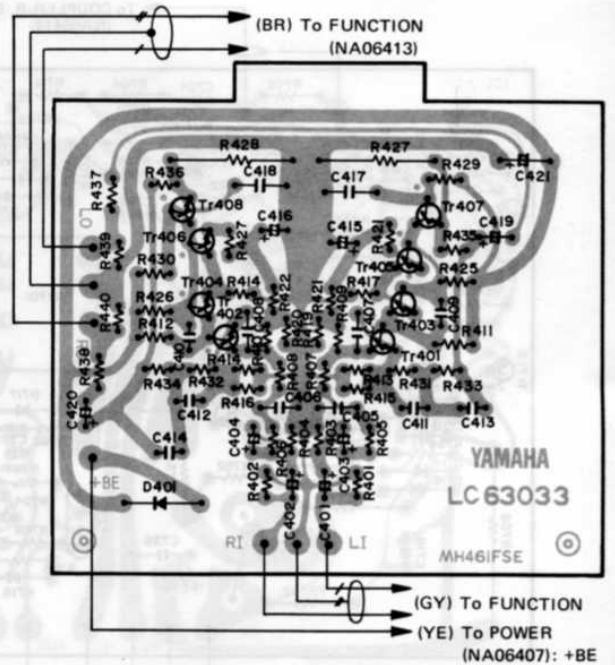
8P PIN JACK CIRCUIT BOARD NA06417



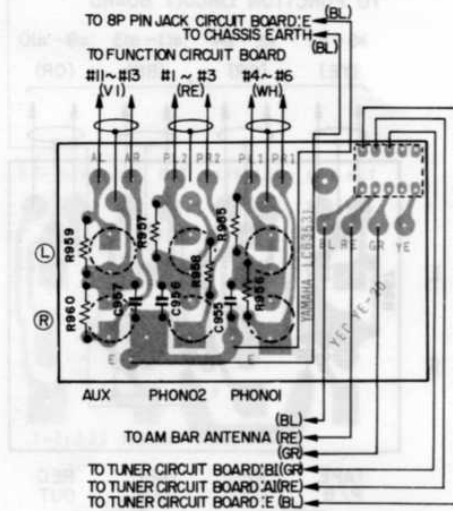
FUNCTION CIRCUIT BOARD NA06413



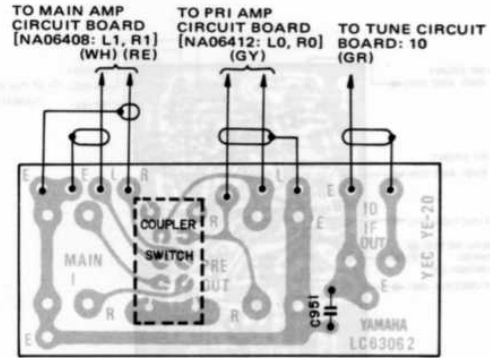
EQ AMP CIRCUIT BOARD NA06411



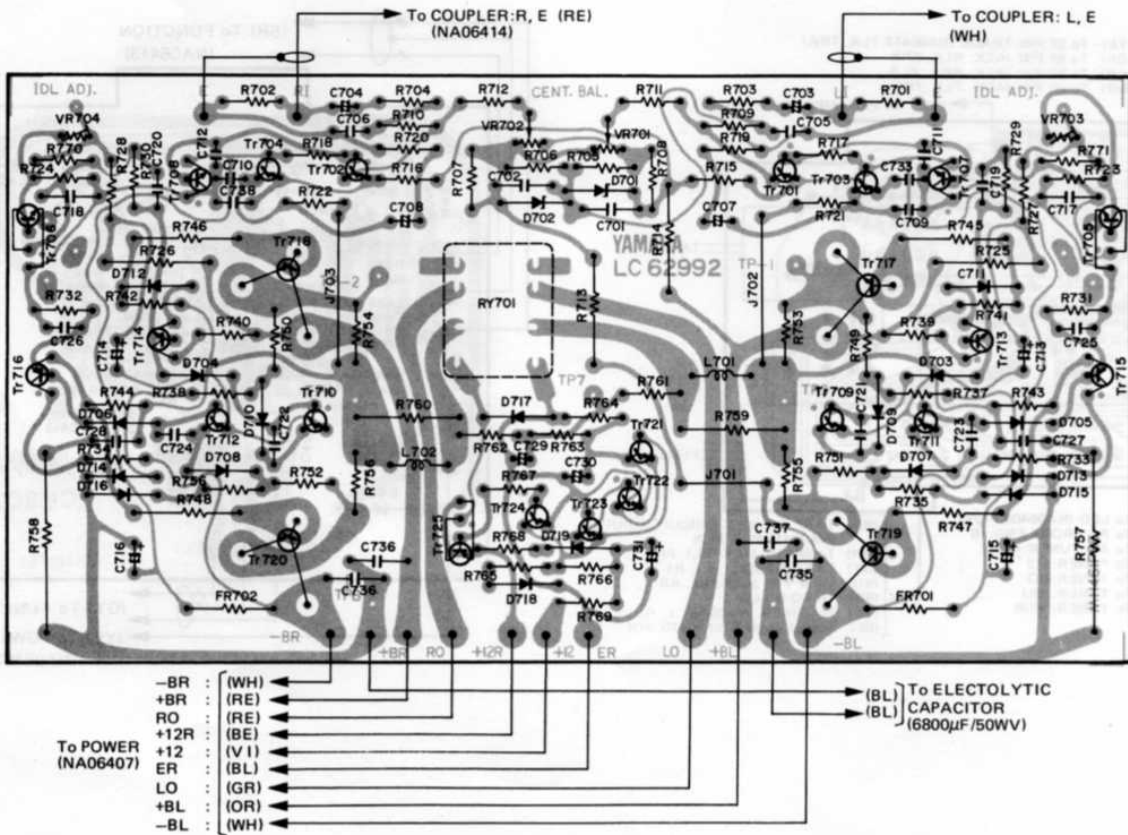
6P PIN JACK CIRCUIT BOARD NA06416



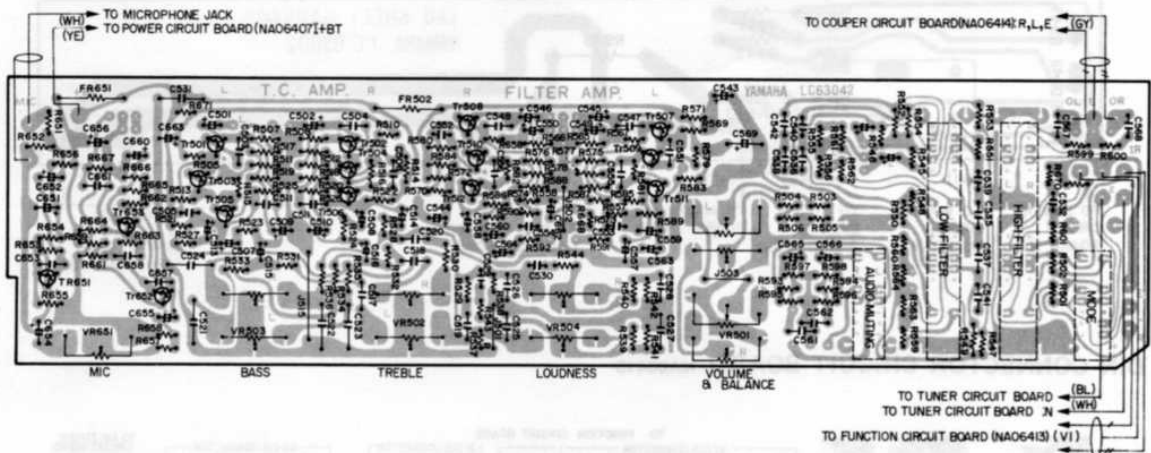
COUPLER CIRCUIT BOARD NA06414



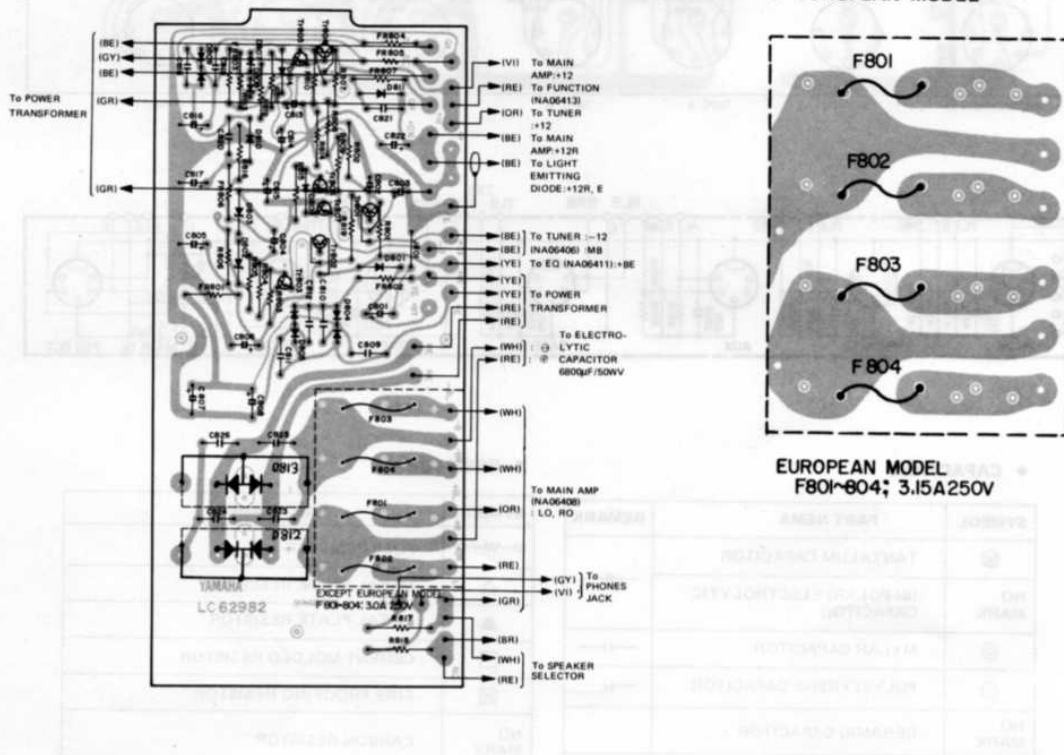
MAIN AMP CIRCUIT BOARD NA06408



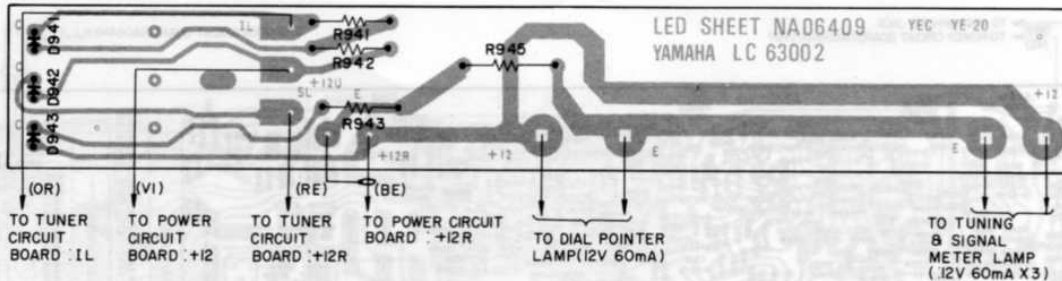
PRE-AMP CIRCUIT BOARD NA06412



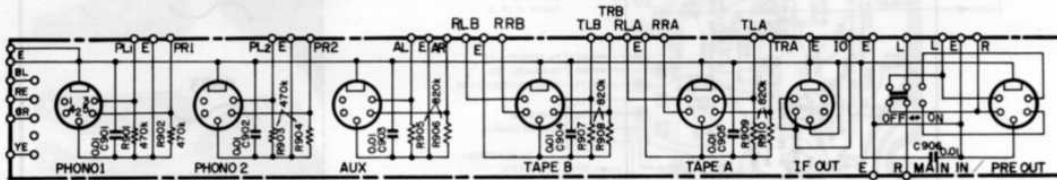
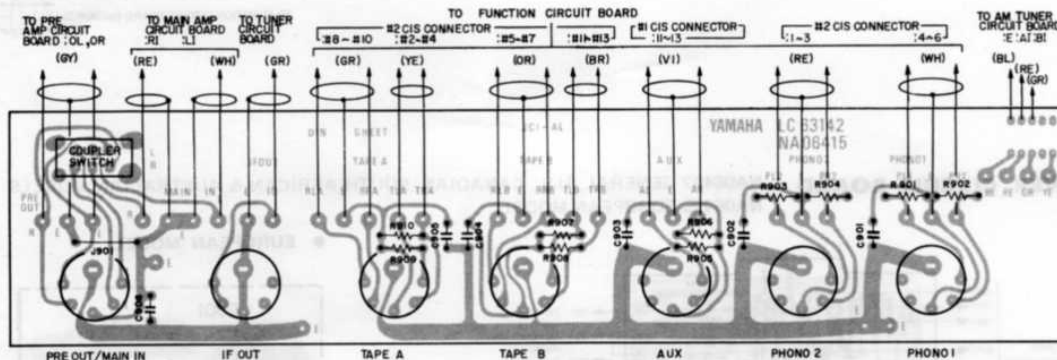
POWER CIRCUIT BOARD NA06407 GENERAL, U.S., CANADIAN, SOUTH AFRICAN & AUSTRALIAN MODELS NA06425 EUROPEAN MODEL



LIGHT EMITTING DIODE CIRCUIT BOARD NA06409



DIN CONNECTOR CIRCUIT BOARD NA06415



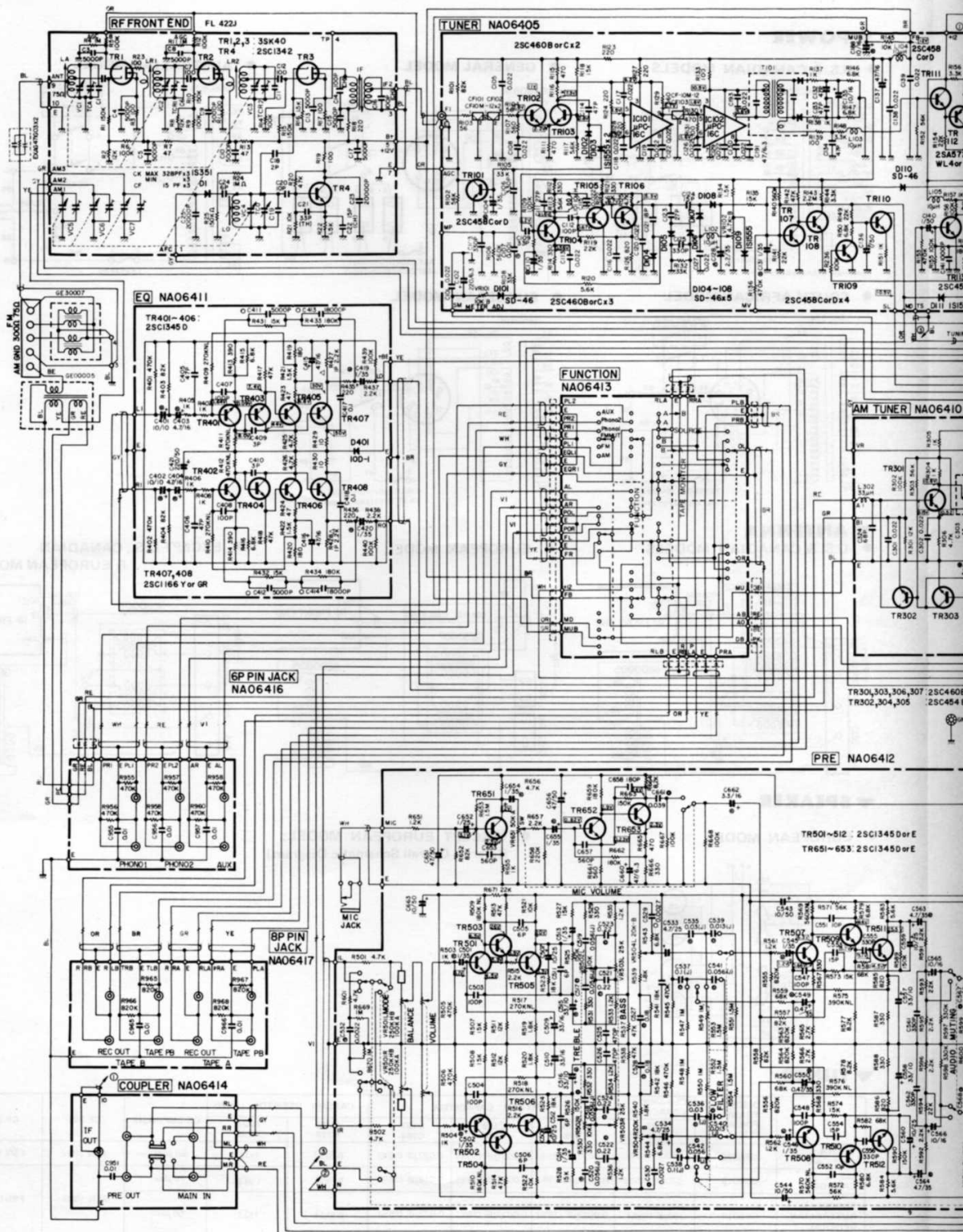
● CAPACITOR

SYMBOL	PART NEMA	REMARK
⊗	TANTALUM CAPACITOR	— —
NO MARK	(BI-POLAR) ELECTROLYTIC CAPACITOR	
⊙	MYLAR CAPACITOR	— —
○	POLYSTYRENE CAPACITOR	— —
NO MARK	CERAMIC CAPACITOR	

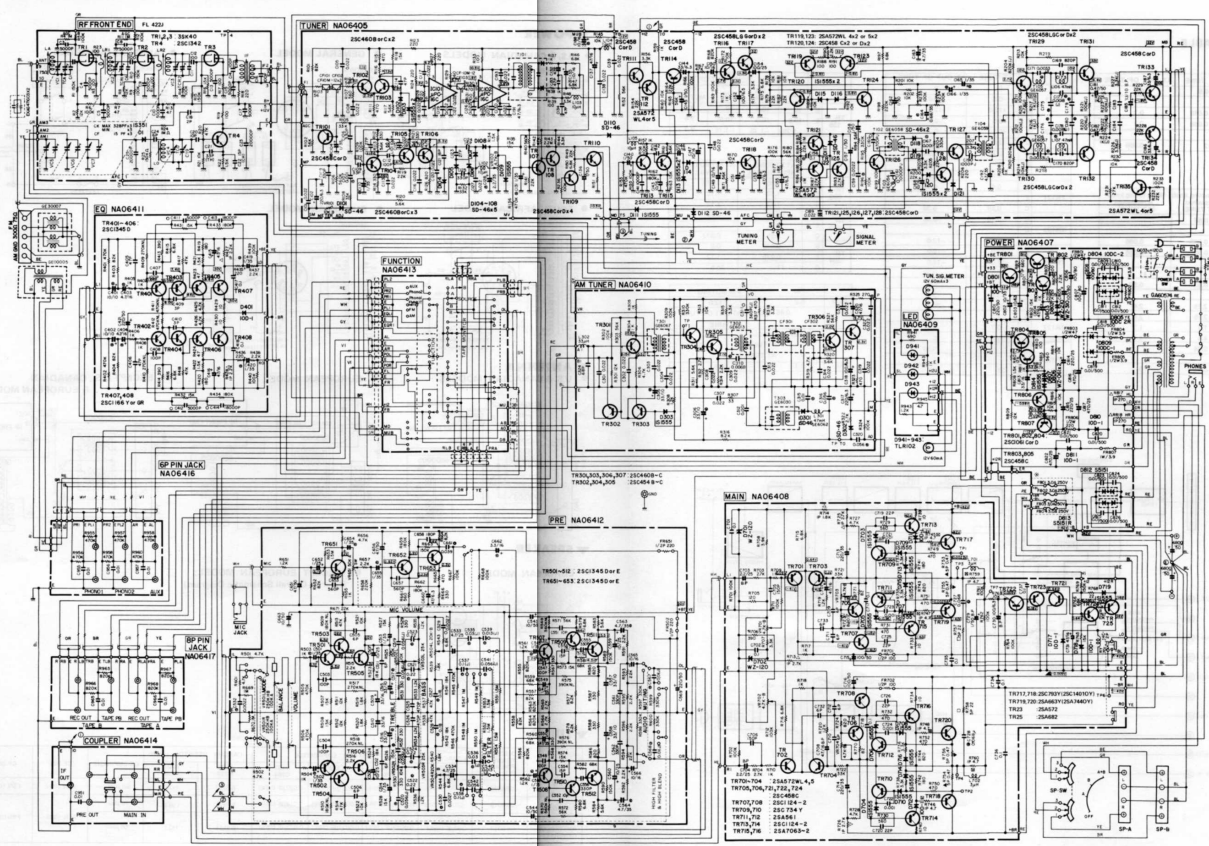
● RESISTOR

SYMBOL	PART NAME
○—W—○	FUSE RESISTOR
△	METAL OXIDE RESISTOR
▲	METAL PLATE RESISTOR
□	CEMENT MOLDED RESISTOR
⊠	FIRE PROOFING RESISTOR
NO MARK	CARBON RESISTOR

OVERALL SCHEMATIC DIAGRAM



OVERALL SCHEMATIC DIAGRAM



OVERALL SCHEMATIC DIAGRAM

VOLTAGE TABLE

		AT TUNE	AT OUT OF TUNE
TR107	B	0.6	0.4
	E		
	C	0.048	0.7
TR108	B	0.048	0.7
	E		
	C	12	0.056

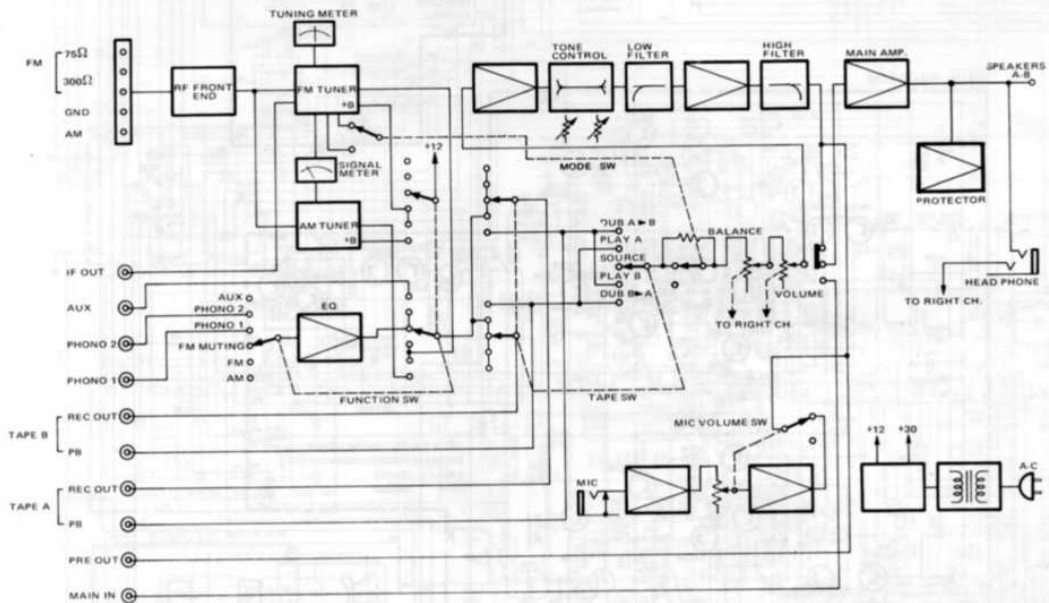
		When tuning knob is touched. (AT TUNE)	When tuning knob is retouched. (AT TUNE)
TR-109	B	0.58	
	E		
	C	0.008	0.056
TR-110	B	0.02	0.056
	E		
	C	11	11
TR-113	B	0.57	0.57
	E		
	C	2.15	2.4
TR-115	B	2.15	2.4
	E	1.7	1.7
	C	4.4	4.4
TR-118	B	0.64	
	E		
	C	-0.14	0

		AT TUNE	AT OUT OF TUNE
TR111	B	0	0
	E	-0.6	-0.6
	C	+12.0	+12.0
TR112	B	-0.6	-0.6
	E	+0.1	0
	C	-12.0	-12.0
TR114	B	0.74	0.044
	E	0	-0.18
	C	0.11	-0.2
TR121	B	0.4	0.15
	E		
	C	0.59	0.38
TR122	B	-0.16	-0.36
	E		
	C	-12.0	-12.0
TR125	B	-12.0	-12.0
	E	-12.0	-12.0
	C	0.59	0.38
TR126	B	4.5	4.5
	E	3.9	3.9
	C	25	25
TR127	B	1.3	1.3
	E	0.7	0.7
	C	15	15
TR128	B		0.38
	E		
	C	31	31

		AT TUNE		AT OUT OF TUNE	
		FM	FM MUTING	FM	FM MUTING
TR-135	B	10	10.5	10	8.7
	E	10.5	10.5	10.5	9.4
	C	-1.75	-1.75	-1.75	9.3

		AT STRONG INPUT SIGNAL	AT NO INPUT SIGNAL
TR-302	B	1.55	0.073
	E	1.12	1.12
	C	1.12	1.12
TR-303	B	0.62	0.63
	E		
	C	1.55	0.073
TR-304	B	0.078	0.8
	E	0.275	1.12
	C	11	10.5

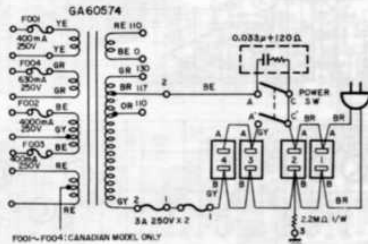
		FM	FM MUTING
MUB		8.2	12.0
IO		0.48 (AC) : AT OUT OF TUNE 0 : AT TUNE	
N		0.59 : AT OUT OF TUNE 0 : AT TUNE	
MU		8.3	10.5



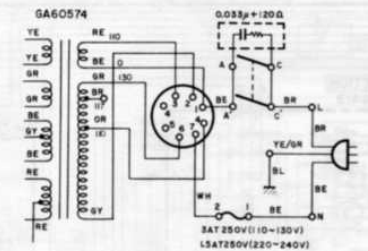
PARTIAL CHANGES MADE ACCORDING TO DESTINATION OVERALL

▼ POWER

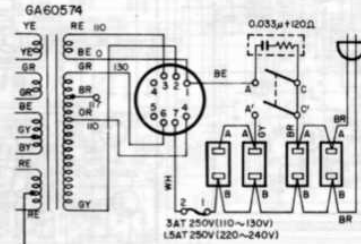
● U.S. & CANADIAN MODELS



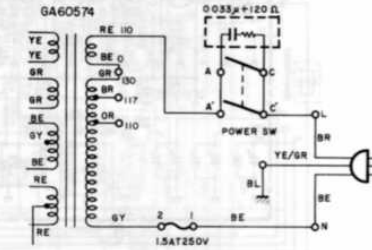
● SOUTH AFRICAN MODEL



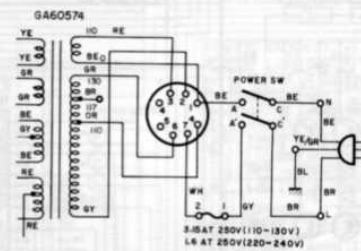
● GENERAL MODEL



● AUSTRALIAN MODEL

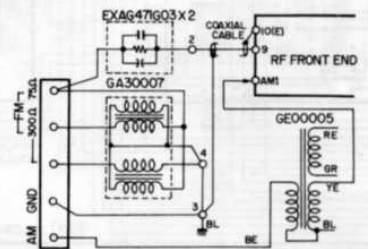


● EUROPEAN MODEL

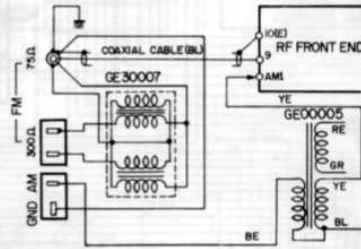


▼ ANTENNA

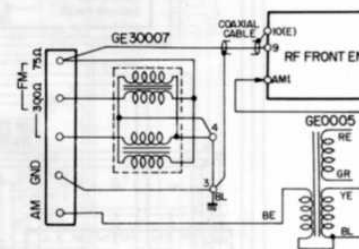
● U.S. & CANADIAN MODELS



● EUROPEAN MODEL

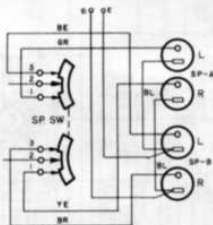


● EXCEPT U.S., CANADIAN & EUROPEAN MODELS



▼ SPEAKER

● EUROPEAN MODEL



● (EXCEPT EUROPEAN MODEL; Refer to Overall Schematic Diagram)

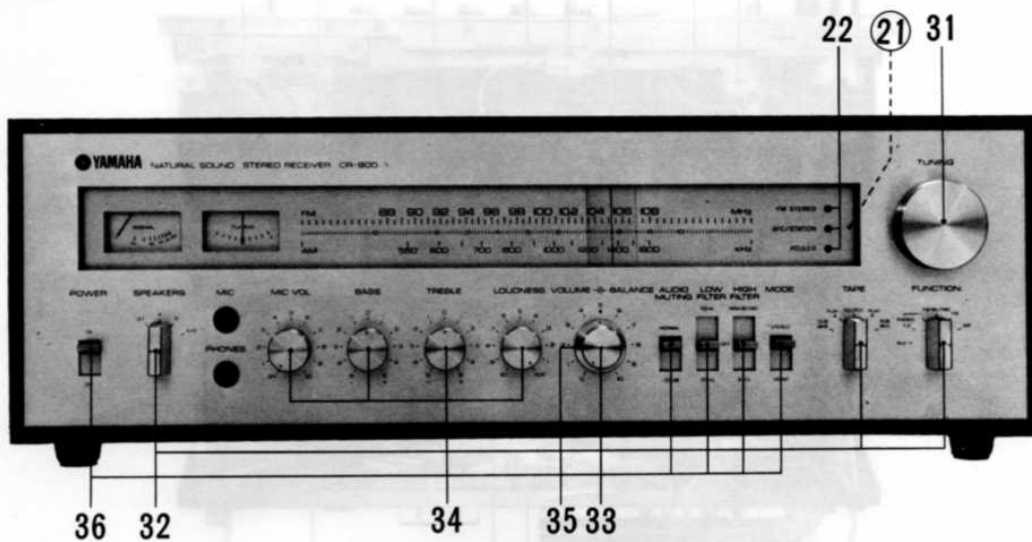
▼ TUNER

	DISCRIM TRANSFORMER (T101)	CERAMIC CAPACITOR		MYLAR CAPACITOR				CARBON RESISTOR (1/4W)		DE-EMPHASIS	CF 301	CF 302
		C173 C174	C175 C176	C179 C180	C183 C184	R218 R219	R224 R225					
SOUTH AFRICAN	GE6025	330pF (±5%)	0.0027µF (±5%)	0.0027µF (±5%)	0.022µF (±5%)	6.8kΩ	1kΩ	50 µsec	FSN 1047	FSN 1048		
U.S. & CANADIAN	GE6019	330pF (±5%)	0.0047µF (±5%)	0.0033µF (±5%)	0.018µF (±5%)	5.6kΩ	1.2Ω	75 µsec	FSN 1038	FSN 1036		
EUROPEAN, AUSTRALIAN, GENERAL	GE6019	330pF (±5%)	0.0027µF (±5%)	0.0027µF (±5%)	0.022µF (±5%)	6.8kΩ	1kΩ	50 µsec				

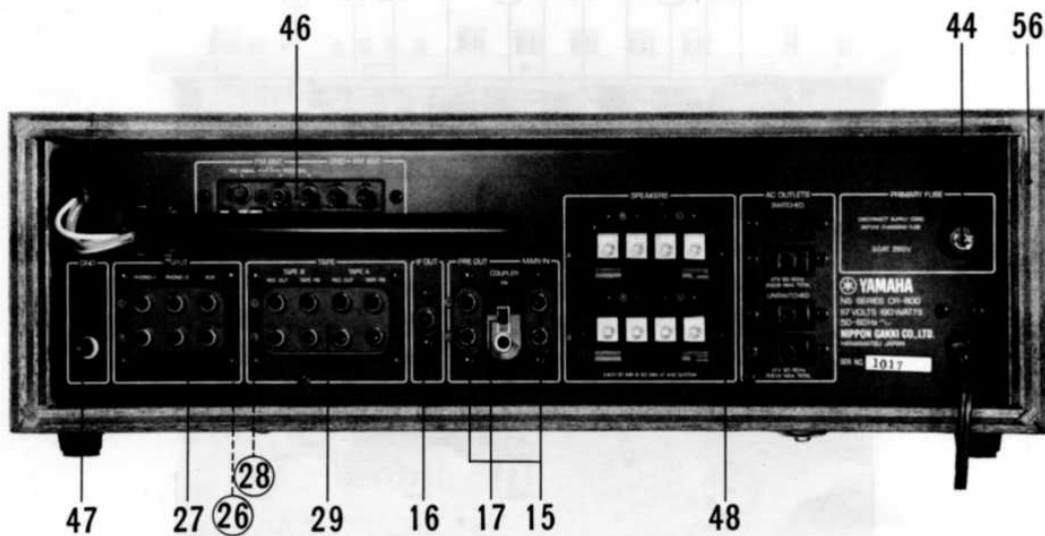
PARTS LIST

INTERNAL VIEW

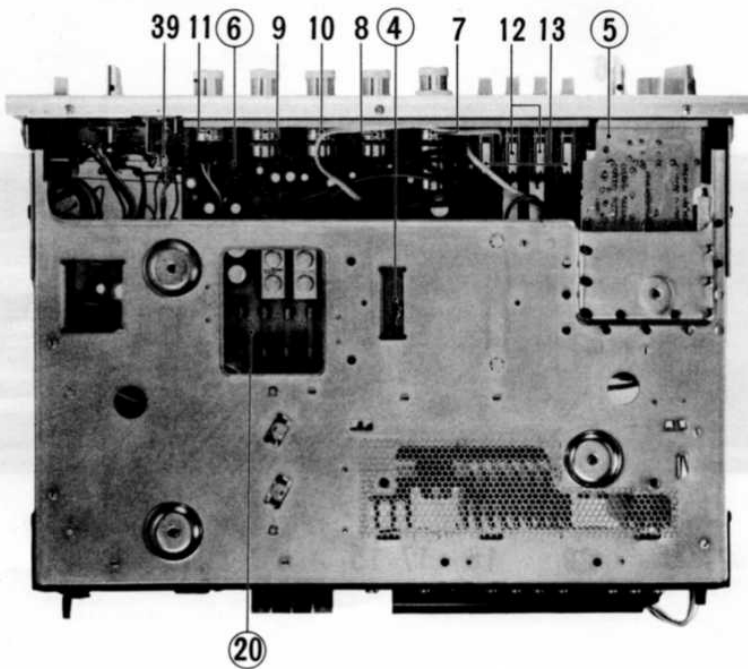
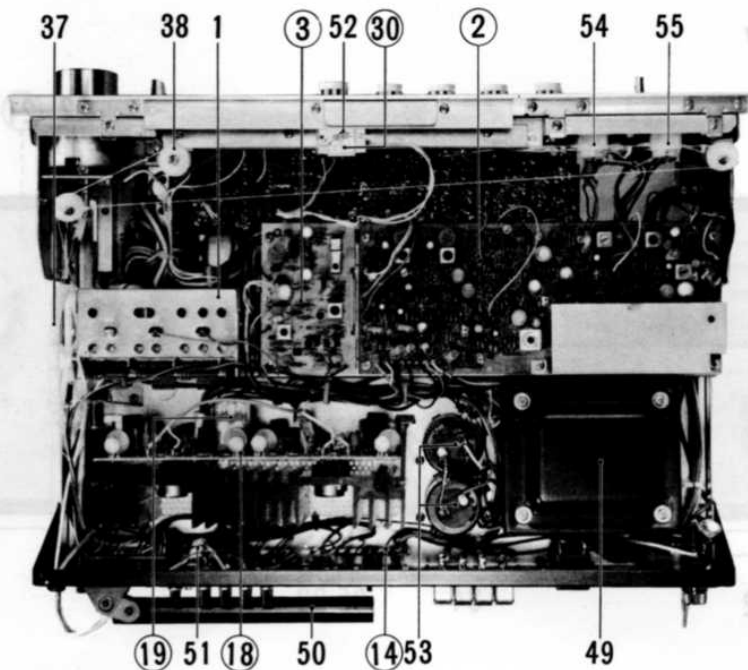
FRONT VIEW



BACK VIEW



INTERNAL VIEW



Ref. No.	Part No.	Description	Remarks	Common Models
1	PA00020	FM/AM RF Pack FL421U	R F パ ッ ク	except South African model Servicing 420000PA000230
	PA00021	-do.- FL421S	"	South African model Servicing 420000PA000240
	320000NA064610	FM IF Circuit Board # 63017	F M I F シ ー ト	South African model (NA06372 # 63012) CR1000, CR800
2	320000NA064620	-do.- # 63017	"	U.S. Canadian models (NA06405 # 63012) -do.-
	320000NA064630	-do.- # 63017	"	Australian, General & European models (NA06406 # 63012) -do.-
	420000FF043100	Polystyrene Capacitor X-type 1000PF	X 型 ス チ ロ ー ル コ ン デ ン サ	
	420000FF043470	-do.- 4700PF	"	
	420000FF044100	-do.- 10000PF	"	
	420000FP137100	Tantalum Capacitor 10 μ F 16WV	タ ン タ ル 固 体 コ ン デ ン サ	
	420000FP155680	-do.- 0.68 μ F 35WV	"	
	420000FP156100	-do.- 1 μ F 35WV	"	
	420000FP156220	-do.- 2.2 μ F 35WV	"	
	420000FM226330	Bipolar Electrolytic Capacitor 3.3 μ F 25WV	バ イ ポ ー ラ コ ン デ ン サ	
	420000HT410040	Variable Resistor (SV10KR) B4.7K Ω	ソ リ ッ ド ボ リ ュ ー ム	
	420000HT410070	-do.- (SV10KR) B10K Ω	"	
	420000HY000160	Variable Resistor (TM-10K) B22K Ω	メ タ ル グ レ ー ス V R	
	420000GE300010	RF Inductor 10 μ H	R F イ ン ダ ク タ ー	
	420000GE100050	FM IFT	F M I F T	GE6019
	420000GE100060	-do.-	"	GE6025
	420000GE200080	MPX Coil	M P X コ イ ル	GE6057
	420000GE200090	-do.-	"	GE6058
	420000GE200100	-do.-	"	GE6059
	420000GE200110	-do.- 47mH	"	GE6062
	420000GG990030	Ceramic Filter CF-10M-12	セ ラ ミ ッ ク フ ィ ル タ ー	
	420000IG000030	Integrated Circuit μ PC-16C	I C	
	420000IF000040	Diode IS1555	ダ イ オ ー ド	
	iF00002	-do.- SD-46	"	Servicing 420000iF000330
	iA05720	Transistor 2SA572 (WL-4.5)	ト ラ ン ジ ス タ	Servicing 420000iA076300
	iC04583	-do.- 2SC458 (C or D)	"	-do.- 420000iC045890
	iC04585	-do.- 2SC458LG (C or D)	"	-do.- 420000iC045890
	420000iC046080	-do.- 2SC460 (B or C)	"	
	420000LB100200	Pin Jack SQ3056	基 板 型 ピ ン ジャ ッ ク	
3	320000NA064100	AM IF Circuit Board # 63021	A M シ ー ト	except South African model CR800
	320000NA064370	-do.-	"	South African model

Ref. No.	Part No.	Description	Remarks	Common Models
	FE15236	Polystyrene Capacitor 360PF	スチロール コンデンサ	Servicing 420000FD152360
	FP52733	Tantalum Capacitor 33 μ F 10WV	タンタル コンデンサ	Servicing 420000FP127330
	420000GE200110	MPX Coil GE6062	M P X コイル	
	420000GE300110	RF Inductor 33 μ H	R F インダクター	
	420000GE100150	AM OSC Coil GE6013	A M O S C コイル	
	420000GE100100	AM IFT GE6030	A M I F T	
	420000GE900010	AM RF Coil GE6067	A M R F コイル	
	420000GE900130	Filter Coil FSN1036	フィルターコイル	except South African model
	420000GG000090	AM Ceramic Filter FSN1038	A M セラミック フィルター	-do.-
	420000GE900140	Filter Coil FSN1048	フィルターコイル	South African model
	420000GG000100	AM Ceramic Filter FSN1047	A M セラミック フィルター	-do.-
	iF00002	Diode SD-46	ダイオード	Servicing 420000iF000330
	420000iF000040	-do.- IS1555	"	
	420000iC045480	Transistor 2SC454 (B or C)	トランジスタ	
	420000iC046080	-do.- 2SC460 (B or C)	"	
4	320000NA064110	Equalizer Circuit Board #63034	イコライザ ート	except U.S. model
	320000NA066010	-do.- #64990	"	U.S. model
	420000HE158270	Low Noise Resistor 270K Ω $\frac{1}{4}$ W	ローノイズ抵抗	
	420000HE158470	-do.- 470K Ω $\frac{1}{4}$ W	"	
	420000HL316220	Metal Oxide Resistor 2.2K Ω 1W	酸化金抵抗	
	420000FP127100	Tantalum Capacitor 10 μ F 10WV	タンタル コンデンサ	
	FP13647	-do.- 4.7 μ F 16WV	"	Servicing 420000FP156470
	420000FP156100	-do.- 1 μ F 35WV	"	
	420000FD193500	Polystyrene Capacitor (very type) 5000PF 2%	スチロール コンデンサ	
	420000FD184180	-do.- 18000PF 2%	"	
	iH00003	Diode 10D-1	ダイオード	Servicing 420000iH000060
	iC11663	Transistor 2SC1166 (H or GR)	トランジスタ	Servicing 420000iC116610
	iC13453	-do.- 2SC1345 (D or E)	"	-do.- 420000iC134540
5	320000NA064130	Function Circuit Board #64960	ファンクショ ンボード	(# 63051)
	420000KA500340	Rotary Switch SRZ-065	ロータリー スイッチ	TAPE
	420000KA500350	-do.- SRZ-066	"	FUNCTION
	420000LB400080	Connector Socket 4P	C I S コネクター ソケット	
	420000LB600250	-do.- 9P	"	

Ref. No.	Part No.	Description		Remarks	Common Models
	420000LB600300	Connector Socket 13P	C1コネクタ ソケット		
	420000LB600350	-do.- 20P	"		
	420000LB100160	Keying Pin	C1Sキーイング ピン		
6	320000NA065750	Pre-amp Circuit Board # 65031	ブリアンプシート	U.S. model (NA06412 #63041)	
	320000NA066720	-do.- # 63043	"	except U.S. model (NA06412 # 63041)	
	420000HE158180	Low Noise Resistor 180KΩ 1/4 W	ローノイズ抵抗		
	420000HE158270	-do.- 270KΩ 1/4 W	"		
	420000HE158560	-do.- 560KΩ 1/4 W	"		
	420000HE158390	-do.- 390KΩ 1/4 W	"		
	420000HW405220	Fuse Resistor 220Ω 1/4 W	ヒューズ抵抗	U.S. model (HZ00014)	
	420000HW105220	-do.- 220Ω 45mA	"	except U.S. model (HZ00014)	
	420000FP127330	Tantalum Capacitor 33μF 10WV	タンタル固体 コンデンサ		
	FP33633	-do.- 3.3μF 16WV	"	Servicing 420000FP156330	
	420000FP155470	-do.- 0.47μF 35WV	"		
	420000FP156100	-do.- 1μF 35WV	"		
	420000FP156470	-do.- 4.7μF 35WV	"		
7	420000HS120470	Variable Resistor 1Z250KΩ x 2, 10A100kΩ x 2	可変抵抗	BALANCE VOLUME	
8	420000HS120340	-do.- (with click) B20KΩ x 2	"	LOUDNESS	
9	420000HS120350	-do.- (with click V-24-8Z) W25KΩ x 2	"	BASS	
10	420000HS120360	-do.- (with click V-24-QZ) B10KΩ x 2	"	TREBLE	
11	420000HS120370	-do.- (with SW.) A50KΩ	"	MIC	
12	420000KA200140	Lever Switch SLA34301	レバースイッチ		
13	420000KA200120	-do.- SLA34202	"		
	iC13453	Transistor 2SC1345 (D or E)	トランジスタ	Servicing 420000iC134540	
14	320000NA064140	Coupler Circuit Board # 64700	カプラーシート	except U.S. model (#63061)	CR600 CR800
	320000NA066420	-do.- # 64700	"	U.S. model	-do.-
15	420000LB200660	2P Pin Jack (for PC)	2Pピン ジャック		
16	420000LB100080	1P " (for PC)	1P "		
17	420000KA400210	Slide Switch SL 222B4	スライド スイッチ	Coupler	
18	320000NA065770	Main-amp Circuit Board #65041	メインシート	U.S. model (NA06408 # 62991)	
	320000NA066370	-do.- # 62994	"	Except U.S. model	
	420000HL316180	Metal Oxide Resistor 1.8KΩ 1W	酸化金属抵抗		
	420000HL316270	-do.- 2.7KΩ 1W	"		

Ref. No.	Part No.	Description	Remarks	Common Models
	420000HW405100	Fuse Resistor 100Ω ½W	ヒューズ抵抗	U.S. model (HZ00017)
	420000HW105100	-do.- 100Ω 70mA		except U.S. model (HZ00017)
	420000HZ000210	Cement Molded Resistor (fireproof) 4.7Ω 1W	不燃性抵抗	
	420000HZ000270	Cement Molded Resistor 0.47Ω 5W	金属板抵抗	
	420000HM554220	Cement Resistor 22Ω 5W	セメント抵抗	
	420000FM108100	Bi-polar Electrolytic Capacitor (vert type) 100μF 6.3WV	バイポーラケミコン	
	420000FM226220	-do.- 2.2μF 25WV	"	
	420000FM097470	-do.- 47μF 16WV	"	
	420000FM116100	-do.- 1μF 50WV	"	
	420000HT410040	Variable Resistor B4.7KΩ (SV10KR)	ソリッドVR	
	420000GD900050	Coil 3μH	空芯コイル	
	420000iF000040	Diode IS1555	ダイオード	
	iF00002	-do.- SD-46	"	Servicing 420000iF000330
	iH00003	-do.- 10D-1	"	-do.- 420000iH000060
	420000iF000200	Zener Diode WZ-120	ツェナーダイオード	
	420000iA056120	Transistor 2SA561 (Y)	トランジスタ	
	iA05720	-do.- 2SA572 (W-4.5)	"	Servicing 420000iA076300
	iA06632	-do.- 2SA663 (Y)	"	-do.- 420000iA074710
	iA06822	-do.- 2SA682 (O ~ Y)	"	-do.- 420000iA068200
	420000iA070630	-do.- 2SA706 (3 ~ 2)	"	
	iC04583	-do.- 2SC458 (C)	"	Servicing 420000iC045890
	420000iC073420	-do.- 2SC734 (Y)	"	
	iC07932	-do.- 2SC793 (Y)	"	Servicing 420000iC111610
	420000iC112420	-do.- 2SC1124 (-2)	"	
19	420000KC000080	Relay HC-2P	リレー	
	320000BB063080	Transistor Clamp	トランジスタ押え	
	420000LB300110	Transistor Socket S2-110B-00	トランジスタソケット	
	320000BA064800	Heat Sink	放熱板	
20	320000NA065780	Power Supply Circuit Board # 62984	電源シート	Canadian, General & Australian models (NA06407 #62981)
	320000NA064250	-do.- # 62984	"	European model
	320000NA065990	-do.- # 65052	"	U.S. model
	420000HL315270	Metal Oxide Resistor 270Ω 1W	酸化金属抵抗	
	420000HL315680	-do.- 680Ω 1W	"	
	420000HW403390	Fuse Resistor 3.9Ω ½W	ヒューズ抵抗	(HZ00016)
	420000HW404470	-do.- 47Ω ½W	"	U.S. model (HZ00015)

Ref. No.	Part No.	Description	Remarks	Common Models
	420000HW405220	Fuse Resistor 220Ω ½ W	ヒューズ抵抗 U.S. model (HZ00014)	
	420000HW413390	-do.- 3.9Ω 1W	-do.- (HZ00030)	
	420000HW104470	-do.- 47Ω 100mA	-do.- except U.S. model (HZ00015)	
	420000HW105220	-do.- 220Ω 45mA	-do.- (HZ00014)	
	420000HW113390	-do.- 3.9Ω 500mA	-do.- (HZ00030)	
	420000iF000040	Diode IS1555	ダイオード	
	iH00003	-do.- 10D-1	"	Servicing 420000iH000060
	iH00008	-do.- 10DC-1	"	-do.- 420000iH000140
	iH00005	-do.- 10DC-2	"	-do.- 420000iH000140
	iH00013	-do.- 10DC-2R	"	-do.- 420000iH000150
	420000iH000210	-do.- S-5151 (red)	"	
	420000iH000220	-do.- S5151R (black)	"	
	420000iF000320	Zener Diode WZ-061	ツェナーダイオード	
	420000iF000280	-do.- WZ-210	"	
	420000iF000220	-do.- WZ-310	"	
	420000iA056120	Transistor 2SA561 (O or Y)	トランジスタ	
	iA05720	-do.- 2SA572	"	Servicing 420000iA076300
	iC04583	-do.- 2SC458 (C)	"	-do.- 420000iC045890
	iC10613	-do.- 2SC1061 (C or D)	"	-do.- 420000iC078910
	320000BA062760	Heat Sink	放熱板	
	420000LB200570	Fuse Holder Pin	ヒューズホルダーピン	
	420000KB001040	Lead Type Fuse (UL listed) 3.0A 250V	リード付ヒューズ	Except European model
	420000KB000570	Miniature Fuse 3.15A 250V	ミニチュアヒューズ	European model
21	320000NA064090	L.E.D. Circuit Board #64690	L E D シート	(#63001) CR600
	420000HZ000210	Cement Molded Resistor (fireproof) 4.7Ω ½W	不燃性抵抗	
22	420000iF000290	Light Emitting Diode TLR 102	発光ダイオード	
23	320000NA064150	DIN Connector Circuit Board #63142	D I N シート	European model
24	420000KA400210	Slide Switch SL22284	スライドスイッチ	
	420000LB500050	5P Socket	C I S 5 P サイドエントリ	
	420000LB100160	Keying Pin	C I S キーイング	
25	420000LB500090	DIN Connector 5P	D I N コネクタ 5	
26	320000NA064160	6P Pin Jack Circuit Board #64710	6 P ピンジャック シート	General and Australian models (#63631) U.S. model (NA06416 #63631)
	320000NA066400	-do.- #64710	"	

Ref. No.	Part No.	Description		Remarks	Common Models
27	420000LB600380	6P Pin Jack	6 P ピンジャック		
	420000LB500050	5P Connector (side entry)	C I S 5 P コネクタ		
	420000LB100160	Keying Pin	C I S キーイング ピン		
28	320000NA064170	8P Pin Jack Circuit Board # 64720	8 P ピンジャック シ	General and Australian models (#63541)	
	320000NA066410	-do.- # 64720		U.S. model (NA06417 #63541)	
29	LB60039	8P Pin Jack	8 P ピン ジャック	Servicing 420000LB600760	
	320000NB068160	Front Panel Unit	パネルユニット		
	420000NB067860	Dial Scale Panel Unit	目盛板ユニット		CR600
30	320000NB066680	Dial Pointer Unit	ダイヤル指針 ユニット		CR400
	320000AA064900	Dial Spring	ダイヤル スプリング		CR1000
31	320000BA064380	Knob (Tuning)	チューニング つまみ		CR400
32	320000BA064410	Knob (switch)	スイッチつまみ		"
33	320000BA064440	Double Knob (volume)	ダブルつまみ		CA1000
34	320000BA064450	Knob (mic, bass, treble, loudness)	つまみ		CR400
35	320000BA064470	Double Knob (balance)	ダブルつまみ		CA1000
36	320000CB068570	Knob (lever switch)	レバースイッチ用 つまみ		"
	420000CB068720	Switch Apron 15 x 29	スイッチ プロテクター		"
37	320000CB060540	Pully for Variable Capacitor	バリコン プーリー		
	420000CB068630	Cord Stopper (small)	コード ストッパー		
	420000CB004410	-do.- (large)	"		
38	420000CB065990	Pully	滑車		CR400
	420000CG060270	Dial Panel (3t glass)	ダイヤルパネル		CR600
39	420000LB300070	Phone Jack JH-5020K	ホーンジャック		
40	420000LB200150	75 ohm Coreaxial Cable Connector Socket	75 Ω 同軸コネク タソケット	European model	
41	420000LB200070	DIN FM Antenna Socket	D I N F M アンテナソケット	-do.-	
42	420000LB200090	DIN AM Antenna Socket	D I N A M アンテナソケット	-do.-	
43	420000LB200050	DIN 2P Socket	D I N 2 P ソケット		
44	420000LB200440	Fuse Holder	ヒューズホルダー	except European model	
45	420000LB200590	-do.-	"	European model	
46	420000LA001090	5P Antenna Terminal	5 P アンテナ端子		CR400
47	420000LA001070	Ground Terminal	アース端子		
48	420000LA001110	Push Terminal 4PD type	4 P D 型プッシュ ターミナル		CA1000
49	420000GA605740	Power Transformer	電源トランス		
50	GE00005	AM Bar Antenna	A M バーアンテナ	Servicing 420000GE000080	
51	420000GE300070	Balun Transformer GE6053	バルウントランス		
52	420000JB000230	Pilot Lamp (Lead type) 12V 60mA	パイロットランプ		
53	420000FL269680	Electrolytic Capacitor 6800 μF 50WV	電解コンデンサ		
54	420000Ji000190	Tuning Meter	チューニングメータ		
55	420000Ji000200	Signal Meter	シグナルメータ		
56	32001070050000	Outside Case	外装		
57	420000KA500310	Rotary Switch	スピーカー切替スイッチ		
58	420000KA200100	Lever Switch JL-04	電源スイッチ	except European model	
	420000KA200110	-do.- JL-08	"	European model	
	420000LB200470	Fuse Holder HN1150	ヒューズホルダー	Canadian model	
	420000KB000660	Miniature Fuse 400mA 250V	ヒューズ	-do.-	

