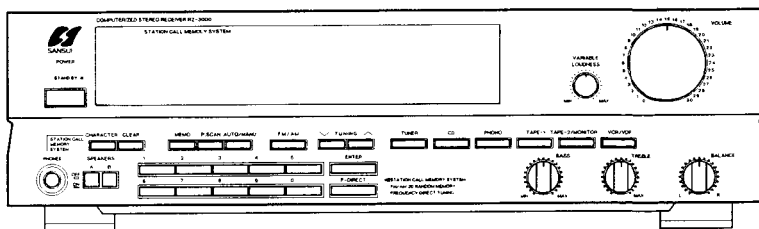




SERVICE MANUAL

RZ-3000

COMPUTERIZED STEREO RECEIVER



CAUTION

1. Parts identified by the \triangle symbol on the schematic diagram and the parts list are critical for safety. Use only replacement parts that have critical characteristics recommended by the manufacturer.
2. Make leakage-current or resistance measurements to determine that exposed parts are acceptably insulated from the supply circuit before returning the appliance to the customer.

NOTE

The symbols, UL, CSA, SEV, EU, SS, EG & XX <EXPORT> on the parts list and the schematic diagram mean followings respectively.

UL..... Manufactured for U.S.A market.
(Underwriters Laboratories approved model.)

CSA..... Manufactured for Canadian market.

SEV..... Manufactured for Swiss market.

EU..... Manufactured for European market.

SS..... Manufactured for Saudi Arabia market.

EG..... Manufactured for F.R. West Germany market.

XX <EXPORT> Standard Version

NON MARK..... Common Parts.

•SPECIFICATIONS

Audio section

Power output

Min. RMS, both channels driven, from 20 to 20,000 Hz with no more than 0.09% total harmonic distortion

50 watts per channel into 8 ohms

DIN

65 watts per channel into 8 ohms.

Total harmonic distortion less than 0.09% at or below rated min. RMS power output

Load impedance..... 4~16 ohms

Input sensitivity and impedance (1 kHz)

PHONO..... 2.5 mV/47 kohms

CD..... 200 mV/47 kohms

TAPE PLAY..... 150 mV/47 kohms

Frequency response (at 1 watt)

..... 10 to 70,000 Hz,

+1 dB, -3 dB

Signal to noise ratio (short-circuit, A-network)

PHONO..... 73 dB

CD, TAPE PLAY..... 90 dB

Controls

BASS..... ± 8 dB at 50 Hz

TREBLE..... ± 7 dB at 10 kHz

LOUDNESS..... +10 dB at 50 Hz

..... +6 dB at 10 kHz

(VOLUME: -30 dB position)

FM section

Tuning range..... 88 to 108 MHz

Usable sensitivity

Mono IHF..... 13.2 dBf (2.5 μ V: T-100)

50 dB quieting sensitivity

Stereo..... 40 dBf

Signal to noise ratio (at 65 dBf)

Stereo..... 70 dB

Distortion (at 65 dBf)

Stereo..... less than 0.3% at 1,000 Hz

Stereo separation..... 40 dB at 1,000 Hz

AM section

Tuning range..... 530 to 1,600 kHz

Usable sensitivity (Loop antenna)

..... 55 dB/m (562 μ V/m)

Signal to noise ratio..... 40 dB

Others

Power requirements..... 120/220/240V

50/60 Hz

For U.S.A. and Canada 120V (60 Hz)

Power consumption..... 280 watts 320 VA Rated

410 watts Maximum

Dimensions..... 430 mm (16-15/16") W

125 mm (4-15/16") H

335 mm (13-1/4") D

Weight..... 9.5 kg (20.9 lbs) net

10.9 kg (24.0 lbs) packed

Remote controller: RS-1070

Control system..... Infra-red ray pulse system

Power requirements..... DC 3V

Dimensions..... 60 mm (2-3/8") W

17 mm (11/16") H

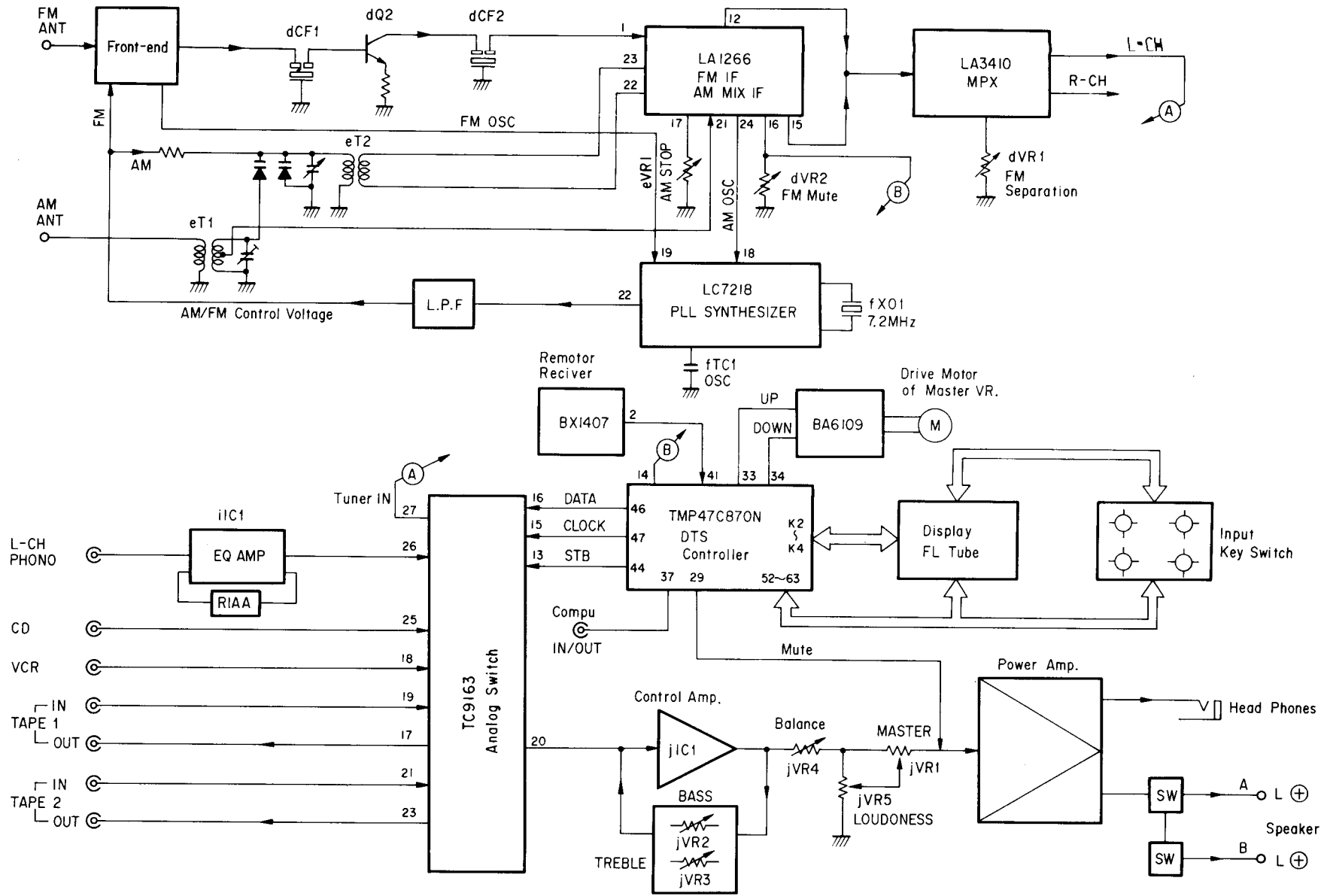
121 mm (4-13/16") D

Weight..... 65 g (0.1 lbs)

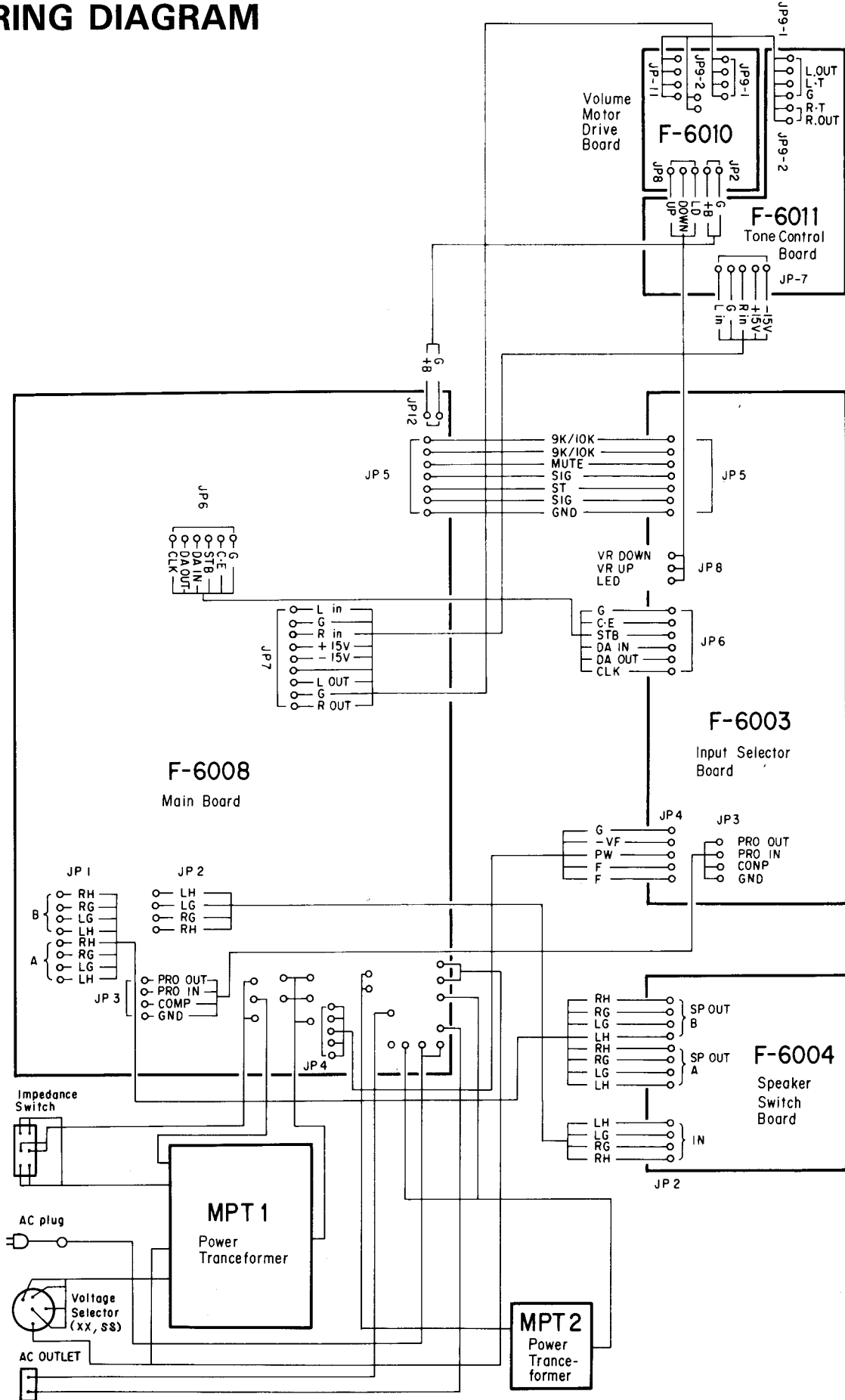
including dry batteries

- * Design and specifications subject to changes without notice for improvements.
- * Due to local laws and regulations, this unit sold in some areas is not equipped with variable voltage selector.

1. BLOCK DIAGRAM



2. WIRING DIAGRAM



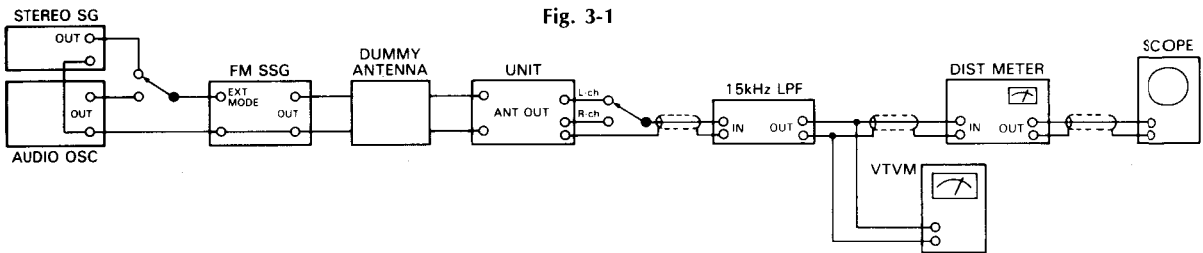
3. ADJUSTMENT

3-1. Bias Adjustment of Power Amp. (See Parts Location F-6007 on page 9 and F-6008 on page 8)

- Note:** 1. Master Volume Minimum
 2. Room Temperature 18°C ~ 28°C (65°F ~ 83°F)
 3. For this adjustment, run the unit for more than 5 minutes after the power is switched ON.
 4. Before turning ON power switch, set kVR1 on F-6007 to center position.

| STEP | SUBJECT | MEASURE OUTPUT | ADJUST | ADJUST FOR | REMARKS |
|------|------------------------|--|---------------------|---------------|--|
| 1. | Bias Current Adj. L-CH | Between Point(A) & Point(B) < Between emitters of power transistor (kQ12 & kQ13) > DC Volt Meter | kVR1, L-CH (F-6007) | DC8.5 ~ 9.5mV | •This bias value is converted from current value to voltage by ohms law. |
| 2. | Bias Current Adj. R-CH | Between Point(C) & Point(D) < Between emitters of power transistor (kQ12 & kQ13) > DC Volt Meter | kVR1, R-CH (F-6007) | DC8.5 ~ 9.5mV | |

3-2. FM Adjustment (See Parts Location F-6008 on page 8)



1) FM IF & Reference Frequency Adjustment

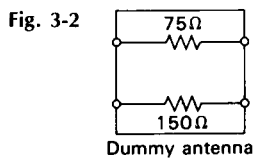
- Note:** 1. SELECTOR FM
 2. FM MUTING/MODE OFF/MONO

| STEP | SUBJECT | FEED SIGNAL | | MEASURE OUTPUT | ADJUST | ADJUST FOR | REMARKS |
|------|--------------------------|--------------------------|---|---|--|------------------|--|
| | | FROM | TO | | | | |
| 1. | Reference Frequency Adj. | No Input (Tune to 98MHz) | — | Between Point(E) (Pin 1 of Front-end) & Earth Freq. counter | fTC1 (F-6008) | 108.7MHz ± 100Hz | |
| 2. | Discriminator Coil Adj. | 1 | 98MHz ANT. Input 65dBf (59.8dB), 1kHz (100% MOD.), FM SSG | ANT Terminal 300Ω | Between Point(F) & Point(G) (Across dR17, F-6008) DC Volt Meter | DC 0V ± 30mV | •Repeat procedures as stated in subject 1 & 1. |
| | | 2 | Same as above | Same as above | REC OUT L or R-CH | dT2 (F-6008) | |

◆ Technical Hint for FM Adjustment

- There are two kind in indication of FM SSG output attenuator.
- Attenuator with marking of 75Ω open open indication type.
 - Attenuator with marking of 75Ω load or close load or close indication type.
- FM SSG output level in this FM adjustment are described as open indication type.
 To feed FM signal, a dummy antenna circuit as Fig. 3-1 must be connected between FM SSG output and ANT terminal (300Ω) of the unit.

- The following table shows relations among FM SSG attenuator indication (dB), available power ratio (dBf) and antenna terminal voltage (dB/μV) in each indication type.



| | FM SSG Attenuator Indication | Available Power Ratio | Antenna Terminal Voltage |
|-------------------------------|------------------------------|-----------------------|--------------------------|
| Open indication type | 0 dB 66 dB | -0.8 dBf 65.2 dBf | -6 dB/μV 60 dB/μV |
| Load or close indication type | 0 dB 60 dB | 5.2 dBf 65.2 dBf | 0 dB/μV 60 dB/μV |

2) FM STEREO Adjustment

Note: 1. SELECTOR FM

2. FM MUTING/MODE AUTO

| STEP | SUBJECT | FEED SIGNAL | | MEASURE OUTPUT | ADJUST | ADJUST FOR | REMARKS |
|------|-------------------|---|-------------------|--|---------------|--|----------------|
| | | FROM | TO | | | | |
| 1. | Separation Adj. | 98MHz ANT Input 65dBf (59.8dB), FM SSG, Pilot 19kHz (9% MOD.), R or L MODE 1kHz+Pilot (100% MOD.), STEREO SG. | ANT Terminal 300Ω | REC OUT L-CH VTVM & SCOPE REC OUT R-CH VTVM & SCOPE | dVR1 (F-6008) | Max. Separation | Confirm R→L-CH |
| 2. | Muting Level Adj. | 98MHz ANT Input 20dBf (14.8dB), FM SSG, Pilot 19kHz (9% MOD.), L or R MODE 1kHz+Pilot (100% MOD.), STEREO SG. | Same as above | Stereo indicator OUTPUT L-CH or R-CH, VTVM & SCOPE | dVR2 (F-6008) | Stereo indicator turns On or Output Signal comes out | |

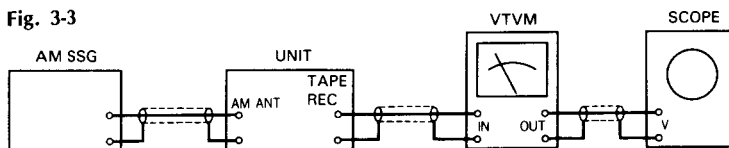
3-3. AM Adjustment (See Parts Location F-6008 on page 8)


1) AM IF Adjustment & Tuning Adjustment

Note: 1. SELECTOR AM

2. Connect

Fig. 3-3



| STEP | SUBJECT | FEED SIGNAL | | MEASURE OUTPUT | ADJUST | ADJUST FOR | REMARKS |
|------|---|---|---------------|---|---------------|------------------------------------|---|
| | | FROM | TO | | | | |
| 1. | IF Coil Adj. | 1400kHz (9kHz step) or 1404kHz (10kHz step) ANT Input 55dB 400Hz (30% MOD.), AM SSG | ANT Terminal | REC OUT L or R-CH VTVM & SCOPE | eT3 (F-6008) | Max, Waveform |  |
| 2. | 531kHz (9kHz step) or 530kHz (10kHz step) Tuning Adj. | No Input | — | Between Point⊕ (collector of eQ3) & GND DC Volt Meter | eT2 (F-6008) | 1V | •Repeat procedures as stated in subject 2 & 3. |
| 3. | 1602kHz (9kHz step) or 1710kHz (10kHz step) Tuning Adj. | No Input | — | Same as above | eTC2 (F-6008) | 8V (9kHz step) 10V (10kHz step) | |
| 4. | 603kHz (9kHz step) or 600kHz (10kHz step) RF Adj. | 603kHz (or 600kHz) ANT Input 0dB 400Hz (30% MOD.), AM SSG | ANT Terminal | REC OUT L-CH or R-CH VTVM & Scope | eT1 (F-6008) | Max. Output | |
| 5. | 1404kHz (9kHz step) or 1400kHz (10kHz step) RF Adj. | 1400kHz (or 1400kHz) ANT Input 30dB 400Hz (30% MOD.), AM SSG | Same as above | Same as above | eTC1 (F-6008) | Max. Output | |
| 6. | Auto Stop Level Adj. | 999kHz (9kHz step) or 1000kHz (10kHz step) ANT Input 65dB 400Hz (30% MOD.), AM SSG | Same as above | Point⊖ (Pin 8 of dIC1) DC Volt Meter | eVR1 | L-Level (0V) | |

*NOTE

Notice when the frequency-step of AM board casting is set to 9kHz or 10kHz by the AM channel (9kHz/10kHz) selection switch. Set the AM channel selection switch (oS30) on the F-6008 board in the following sequence.

1. Pull out the power supply cord.
2. Remove the bonnet.
3. Short the Pin 64 of sIC1 (TMP47C870N-4612Z) on the F-6003 board and ground for more than thirty seconds.
4. Set the AM channel selection switch (oS30) on the F-6008 board to proper position.

4. PARTS LIST OF BOARD

Note

- Some printed circuit boards are not supplied assembled. To separate these in this service manual, the stock numbers are not indicated for these boards. However, stock numbers for individual parts are indicated.
- Since some capacitors and resistors are omitted from parts lists in this service manual, refer to the Common Parts List for capacitors and resistors, which was issued on June 1987.
- Abbreviations in this service manual are as follows.

•Abbreviations List

| | |
|--------|---|
| C.R. | : Carbon Resistor |
| Ce.R. | : Cement Resistor |
| M.R. | : Metal Film Resistor |
| F.R. | : Fusing Resistor |
| N.I.R. | : Non-Inflammable Resistor |
| A.R. | : Array Resistor |
| C.C. | : Ceramic Capacitor |
| C.T. | : Ceramic Capacitor, Temperature Compensation |
| E.C. | : Electrolytic Capacitor |
| E.L. | : Low Leak Electrolytic Capacitor |
| E.B. | : Bi-Polar Electrolytic Capacitor |
| E.B.L. | : Low Leak Bi-Polar Electrolytic Capacitor |
| Ta.C. | : Tantalum Capacitor |
| F.C. | : Film Capacitor |
| M.P. | : Metalized Paper Capacitor |
| P.C. | : Polystyrene Capacitor |
| M.M.C. | : Metalized Mylar Capacitor |
| A.C. | : Array Capacitor |
| V.R. | : Variable Resistor |
| S.V.R. | : Semi Variable Resistor |
| SW. | : Switch |

4-1. F-6008 Main Board

<Stock No. 01117605 = EU, EG, SEV>
<Stock No. 01117601 = XX, SS, UL, CSA>

| Parts No. | Stock No. | Description |
|-------------|-------------|--|
| | 49316500 | FM Frontend Pack |
| •Transistor | | |
| dQ1 | 46834300 | DTC144ES |
| dQ2 | 46393201 | 2SC2786 |
| dQ3 | 46540801 | 2SC2878 |
| | or 46604301 | 2SC3327 |
| dQ4 ~ 7 | 46834300 | DTC144ES |
| dQ8 | 46834200 | DTA144ES |
| dQ9 | 46367101 | 2SC2603 |
| | or 48058801 | 2SC1740S |
| dQ11 | 46834300 | DTC144ES |
| •IC | | |
| dIC1 | 48715100 | LA1266 |
| dIC2 | 48491000 | LA3410A |
| dXO1 | 83000200 | Ceramic RESONATOR |
| •Diode | | |
| dD1 ~ 9 | 46464100 | 1SS133 |
| dD10 | 46078000 | 1SS133 |
| △dR9 | 46402000 | 10Ω 1/2W N.I.R. |
| △dR19 | 46402400 | 22Ω 1/2W N.I.R. |
| dC4 ~ 8 | 48426900 | 22000pF 25V C.C. |
| dC9 | 48103300 | 0.68μF 50V E.B. |
| dC11 | 48662600 | 100pF 50V C.C. |
| dC12, 13 | 48102400 | 4.7μF 25V E.B. |
| dC18 | 48663100 | 270pF 50V C.C. |
| dC27 | 48426900 | 22000pF 25V C.C. |
| dCF1, dCF2 | 83000000 | Ceramic Filter SFE10.7MS2 (XX·SS·UL·CSA) |
| dCF1, dCF2 | 48064800 | Ceramic Filter SFE10.7MS2 (EU·EG·SEV) |

| Parts No. | Stock No. | Description |
|-------------|-------------|--------------------------------------|
| dL1 | 83043200 | Inductor 100μH |
| dT1 | 83005900 | FM IF Coil |
| dT2 | 83006000 | FM IF Coil |
| dT3 | 46202400 | Filter (EG) |
| dVR1 | 83007600 | 200kΩ S.V.R., SEPALATION |
| dVR2 | 83007600 | 200kΩ S.V.R., FM MUTE |
| •Transistor | | |
| eQ1, 2 | 46367001 | 2SA1115 |
| | or 48058601 | 2SA933S |
| eQ3 | 46367101 | 2SC2603 |
| | or 48058801 | 2SC1740S |
| •FET | | |
| eFT2 | 46643501 | 2SK163-K2 |
| | or 46643502 | 2SK163-L1 |
| | or 46643601 | 2SK117-Y |
| | or 46643602 | 2SK117-GR |
| eD1 | 46146300 | Variable Capacitance, Diode KV1236Z2 |
| •Diode | | |
| eD2, 3 | 46464100 | 1SS133 |
| eC10 ~ 12 | 48426900 | 22000pF 25V C.C. |
| eC16 | 48426900 | 22000pF 25V C.C. |
| eC17 | 48666200 | 0.01μF 50V C.C. |
| eC20, 21 | 48426900 | 22000pF 25V C.C. |
| eC23 | 48663800 | 1000pF 50V C.C. |
| eC24 | 48103500 | 2.2μF 50V E.B. |
| eTC1, 2 | 46095700 | Trimmer Capacitor 3OpF |
| | or 46162900 | Trimmer Capacitor 3OpF |
| eCF1 | 48865700 | Ceramic Filter BFCF_-450 |
| eL1 | 83020300 | Coil 39mH |
| eT1 | 48528900 | AM ANT Coil |
| eT2 | 83005700 | AM OSC Coil |
| eT3 | 83013400 | AM IF Coil |
| eVR1 | 83007500 | 100kΩ S.V.R., AM STOP |
| •IC | | |
| fIC1 | 49317500 | LC7218 |
| fXO1 | 83004400 | Quartz Element |
| •Diode | | |
| fD1 | 46464100 | 1SS133 |
| fTC1 | 46095700 | Trimmer Capacitor 3OpF |
| | or 46162900 | Trimmer Capacitor 3OpF |
| fL1 | 83042600 | Inductor 10μH |
| •IC | | |
| iIC1 | 46078900 | M5218L |
| iC2 | 48663000 | 220pF 50V C.C. |
| iC100 | 46663400 | 470pF 50V C.C. (EG) |
| •Transistor | | |
| kQ7 | 03067401 | 2SC1845 |
| kQ12 | 49320301 | 2SC3854 |
| kQ13 | 49320201 | 2SA1490 |
| kR34, 35 | 46542500 | 0.22Ω 3W Ce.R. |
| •Transistor | | |
| IQ1 | 48863701 | 2SC2857 |
| | or 48863901 | 2SC1473 |
| IQ2 | 46367001 | 2SA1115 |
| | or 48058601 | 2SA933S |

< F-6008 >

| Parts No. | Stock No. | Description |
|-----------------------|--|-------------------------------------|
| •Diode ID1 | 46464100 | 1SS133 |
| •Zener Diode IDZ2 | 48551900 | MTZ4.7CT-77 |
| IF1 | 83049100 | Fuse 5A |
| •Transistor mQ1 | 48581701 | 2SD438 |
| mQ2 | 03083901 | 2SD313HP |
| mQ3 | 46367101 | 2SC2603 |
| or 48058801 | | 2SC1740S |
| mQ4, 5 | 48064001 | 2SA1284 |
| mQ10 | 48581701 | 2SD438 |
| mQ50 | 03083901 | 2SD313HP |
| mQ51, 52 | 46367101 | 2SC2603 |
| or 48058801 | | 2SC1740S |
| mQ60 | 48061801 | 2SC3244 |
| •FET mFT50 | 46643601 or 46643701 or 46643502 | 2SK117-YR 2SK246-GR 2SK163-LI |
| •Diode mD1 ~ 4 | 83024700 | 1N4003 |
| mD5 | 83002100 | KBU4D |
| mD50 | 83020200 | DF04mH |
| mD51 | 83024700 | 1N4003 |
| •Zener Diode mDZ1 | 48552700 | MTZ6.2BT-77 |
| mDZ2, 3 | 48555200 | MTZ13BT-77 |
| or 48555300 | | MTZ13CT-77 |
| mDZ4 | 48552100 | MTZ5.1BT-77 |
| or 48552200 | | MTZ5.1CT-77 |
| mDZ5 | 48558000 | MTZ30BT-77 |
| or 48558100 | | MTZ30CT-77 |
| mDZ6 | 48556100 | MTZ18BT-77 |
| mDZ7 | 48552700 | MTZ6.2BT-77 |
| mDZ50 | 48555300 | MTZ13CT-77 |
| △mR1 | 46242100 | 56Ω 1W N.I.R. |
| mR4 | 46623700 | 33Ω 2W N.I.R. |
| △mR23 | 46402900 | 56Ω 1W N.I.R. |
| △mR50 | 46402000 | 10Ω 1/2W N.I.R. |
| △mR60 | 46402400 | 22Ω 1W N.I.R. |
| △mR100 | 46401600 | 4.7Ω 1/2W N.I.R. |
| △mR101 | 46402000 | 10Ω 1/2W N.I.R. |
| mC8, 9 | 49338700 | 5600μF 63V E.C.* |
| mC10, 11 | 08680400 | 0.01μF 500V C.C. |
| mRL1 | 48982000 | Relay, |
| •Transistor oQ1 | 46540801 or 46604301 | 2SC2878 2SC3327 |
| oQ2 | 46367101 or 48058801 | 2SC2603 2SC1740S |
| oQ3 | 46834200 | DTA144ES |
| oQ21 | 48229400 | DTA114TS |
| •IC oIC1 | 49312200 | TC9163N |
| oIC2 | 46147700 | M5218L |
| •Diode oD20 | 83000100 | 1N414Z |
| •Zener Diode oDZ21 | 48554300 or 48554400 or 48229400 | MTZ10C MTZ10D DTA114TS |

| Parts No. | Stock No. | Description |
|-----------|-------------|------------------------------------|
| oC1 | 48660200 | 47pF 50V C.C. |
| oC2 | 48659400 | 22pF 50V C.C. |
| oC3 | 48660200 | 47pF 50V C.C. |
| oC4 | 48659400 | 22pF 50V C.C. |
| oC5 | 48663000 | 220pF 50V C.C. |
| oS30 | 83045800 | Slide SW., |
| △pC1 | 46425800 | 0.01μF 400V C.C. |
| △ | or 46943200 | 0.01μF 400V C.C. |
| △pF1 | 83021900 | Fuse 3A (XX·SS) |
| △ | 83022200 | Fuse 6A (UL·CSA) |
| △ | 83024000 | Fuse 3 15A (EU·EG·SEV) |
| △pF2 | 83021900 | Fuse 3A (XX·SS) |
| | 83012600 | Mini Jack, SYSTEM CONTROL |
| | 48528400 | 2P Terminal, PHONO |
| | 48528300 | 6P Terminal, TAPE1/CD |
| | 48528200 | 4P Terminal, TAPE2 |
| | 48987400 | 2P Pin Jack, VCR/VDP |
| | 49299700 | Antenna 4P Terminal (XX·SS·UL·CSA) |
| | 49320400 | Antenna 2P Terminal (EU·EG·SEV) |
| | 46947500 | Speaker 8P Terminal |
| qZ47 | 83041800 | Spring |

4-2. F-6007 Power Amp. Board

< Stock No. 01122401 >

| Parts No. | Stock No. | Description |
|--------------------|-------------------------|--------------------|
| •Transistor kQ1 | 46367001 or 46392001 | 2SA1115 2SA1175 |
| kQ2 | 48577701 | 2SA1349 |
| kQ3, 4 | 46728301 | 2SC2705 |
| or 48113001 | | 2SC2229 |
| kQ5 | 03064001 | 2SC1904 |
| or 46128101 | | 2SC2911 |
| kQ6 | 03007901 | 2SA899 |
| or 46128001 | | 2SA1209 |
| kQ8 | 48061801 | 2SC3244 |
| kQ9 | 48064001 | 2SA1284 |
| kQ10 | 49318301 | 2SC3421 |
| or 49318501 | | 2SC2590 |
| kQ11 | 49318201 | 2SA1358 |
| or 49318401 | | 2SA1110 |
| •Diode kD1 | 46464100 | 1SS133 |
| kVR1 | 48078600 | 1kΩ S.V.R., BIAS |
| △kR11 | 46404400 | 1kΩ 1/2W N.I.R. |
| △kR12 | 46403400 | 150Ω 1/2W N.I.R. |
| △kR18 | 46405300 | 5.6kΩ 1/2W N.I.R. |
| △kR19 | 46402700 | 39Ω 1/2W N.I.R. |
| △kR20 | 46403400 | 150Ω 1/2W N.I.R. |
| △kR21 | 46404400 | 1kΩ 1/2W N.I.R. |
| △kR23, 24 | 46402600 | 33Ω 1/2W N.I.R. |
| △kR29 | 46404400 | 1kΩ 1/2W N.I.R. |
| △kR30 | 46403300 | 120Ω 1/2W N.I.R. |
| △kR31 | 46404400 | 1kΩ 1/2W N.I.R. |
| △kR32, 33 | 46401600 | 4.7Ω 1/2W N.I.R. |

4-3. F-6003 Input Selector Board

<Stock No. 01117201>

| Parts No. | Stock No. | Description |
|-------------|-------------|----------------------------------|
| nLD1 | 48841100 | SEL3210S |
| •IC | | |
| oIC3 | 48525000 | Remote Control Receiver BX1407 |
| •Diode | | |
| oD1 ~ 10 | 46464100 | 1SS133 |
| oS1 | 83003000 | Push SW., 1 |
| oS2 | 83003000 | Push SW., 2 |
| oS3 | 83003000 | Push SW., 3 |
| oS4 | 83003000 | Push SW., 4 |
| oS5 | 83003000 | Push SW., 5 |
| oS6 | 83003000 | Push SW., 6 |
| oS7 | 83003000 | Push SW., 7 |
| oS8 | 83003000 | Push SW., 8 |
| oS9 | 83003000 | Push SW., 9 |
| oS10 | 83003000 | Push SW., 0 |
| oS11 | 83003000 | Push SW., \wedge |
| oS12 | 83003000 | Push SW., \vee |
| oS13 | 83003000 | Push SW., CHARA |
| oS14 | 83003000 | Push SW., CLEAR |
| oS15 | 83003000 | Push SW., MONO |
| oS16 | 83003000 | Push SW., ENT |
| oS17 | 83003000 | Push SW., F DIRECT |
| oS18 | 83003000 | Push SW., P SCAN |
| oS19 | 83003000 | Push SW., BAND |
| oS20 | 83003000 | Push SW., AUTO/H |
| oS22 | 83003000 | Push SW., POWER |
| oS23 | 83003000 | Push SW., PHONO |
| oS24 | 83003000 | Push SW., CD |
| oS25 | 83003000 | Push SW., TU |
| oS26 | 83003000 | Push SW., TA |
| oS27 | 83003000 | Push SW., V1 |
| oS28 | 83003000 | Push SW., V2 |
| •Transistor | | |
| sQ1, 2 | 46367101 | 2SC2603 |
| sQ2 | 48058801 | 2SC1740S |
| sQ3 | 46367101 | 2SC2603 |
| | or 48058801 | 2SC1740S |
| sQ4 ~ 6 | 46719900 | DTC124ES |
| sQ7 | 46367101 | 2SC2603 |
| | or 48058801 | 2SC1740S |
| sQ9 | 46834300 | DTC144ES |
| •IC | | |
| sIC1 | 49346400 | TMP47C870N-4612Z |
| sXO1 | 48241600 | Ceramic OSC Element KBR 4.0MS |
| •Diode | | |
| sD1 ~ 5 | 46464100 | 1SS133 |
| sFL1 | 49317100 | FL. Display Tube CP3023 |
| sR10, 11 | 49346000 | 10k Ω X7 A.R. |
| sC4 | 49299400 | 047 μ F 5.5V E.C. |
| sC6 | 49345000 | 470 μ F 6.3V E.C. |

4-4. F-6004 Speaker Switch Board

| Parts No. | Stock No. | Description |
|-------------------|-----------|-------------------------|
| Δ kR39, 40 | 46402000 | 10 Ω 1/2W N.I.R. |
| Δ kR41 | 46242800 | 220 Ω 1W N.I.R. |
| kL1 | 83020100 | Inductor |
| oS31 | 83045900 | Push SW., SPEAKERS |
| | 46579600 | Jack, PHONE |

4-5. F-6009 Voltage Selector Board (SEV only)

| Parts No. | Stock No. | Description |
|-----------|-----------|-----------------------------|
| pF3 | 83023500 | Slide SW., Voltage Selector |

4-6. F-6010 Volume Motor Drive Board

| Parts No. | Stock No. | Description |
|--------------|-----------|--|
| •IC | | |
| jIC2 | 07233100 | BA6109 |
| •Zener Diode | | |
| jDZ1 | 48552200 | MTZ5.1CT-77 |
| jC15 | 48666200 | 0.01 μ F 50V C.C. |
| jVR1 | 48977500 | R V.R., 150k Ω B Master VR with Motor |

4-7. F-6011 Tone Control Board

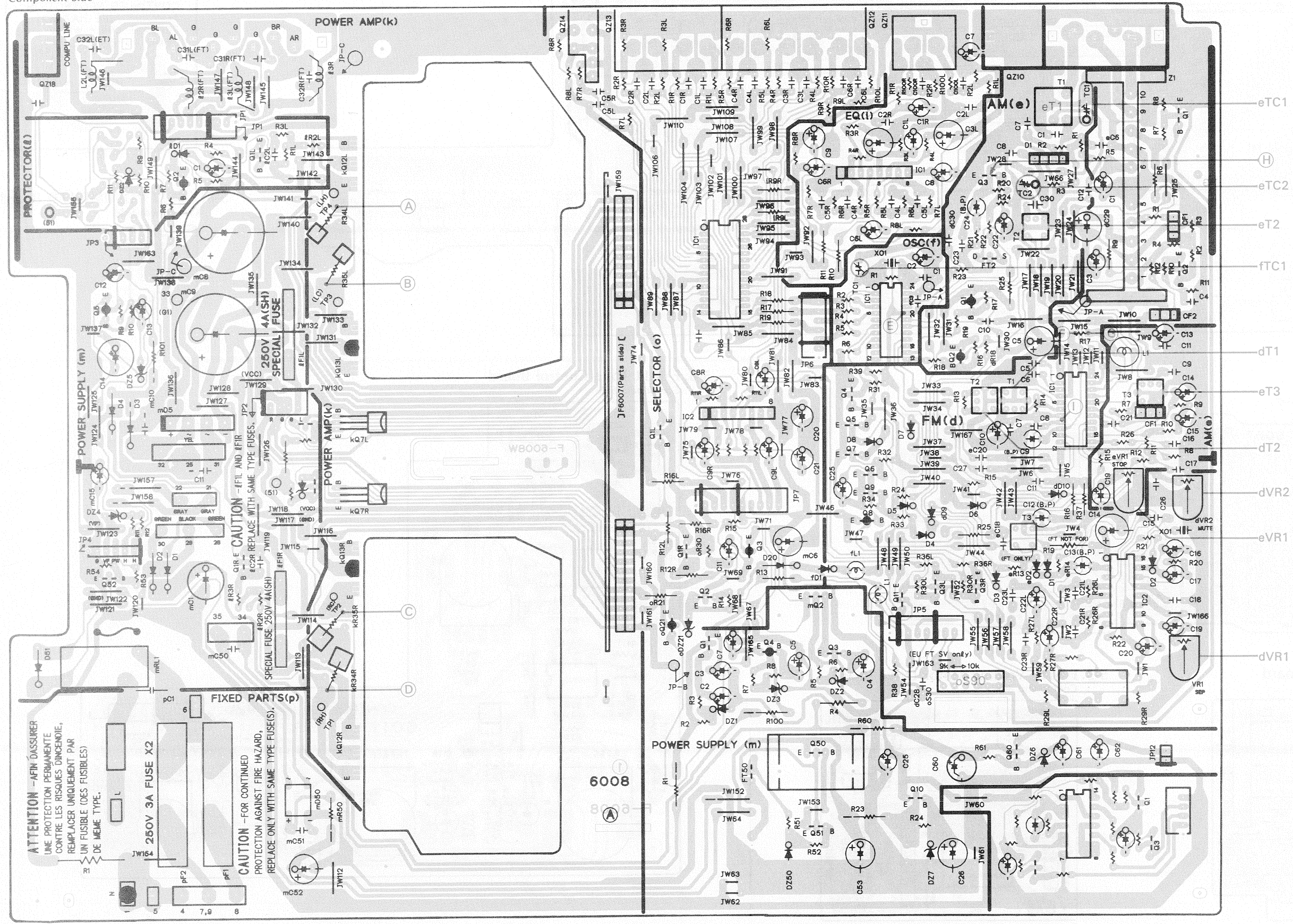
| Parts No. | Stock No. | Description |
|-----------|-----------|----------------------------------|
| •IC | | |
| jIC1 | 46673800 | M5218P |
| jC2 | 48660200 | 47pF 50V C.C. |
| jC3 | 48102000 | 10 μ F 16V E.B. |
| jC5 | 48102900 | 0.15 μ F 50V E.B. |
| jC9 | 48663700 | 820pF 50V C.C. |
| jC10 | 48665900 | 5600pF 50V C.C. |
| jVR2 | 83012800 | 50k Ω (C) V.R., BASS |
| jVR3 | 83012800 | 50k Ω (C) V.R., TREBLE |
| jVR4 | 83013000 | 250k Ω V.R., BALANCE |
| jVR5 | 83046000 | 150k Ω (B) V.R., LOUDNESS |

4-8. F-6012 VOLUME LED Board

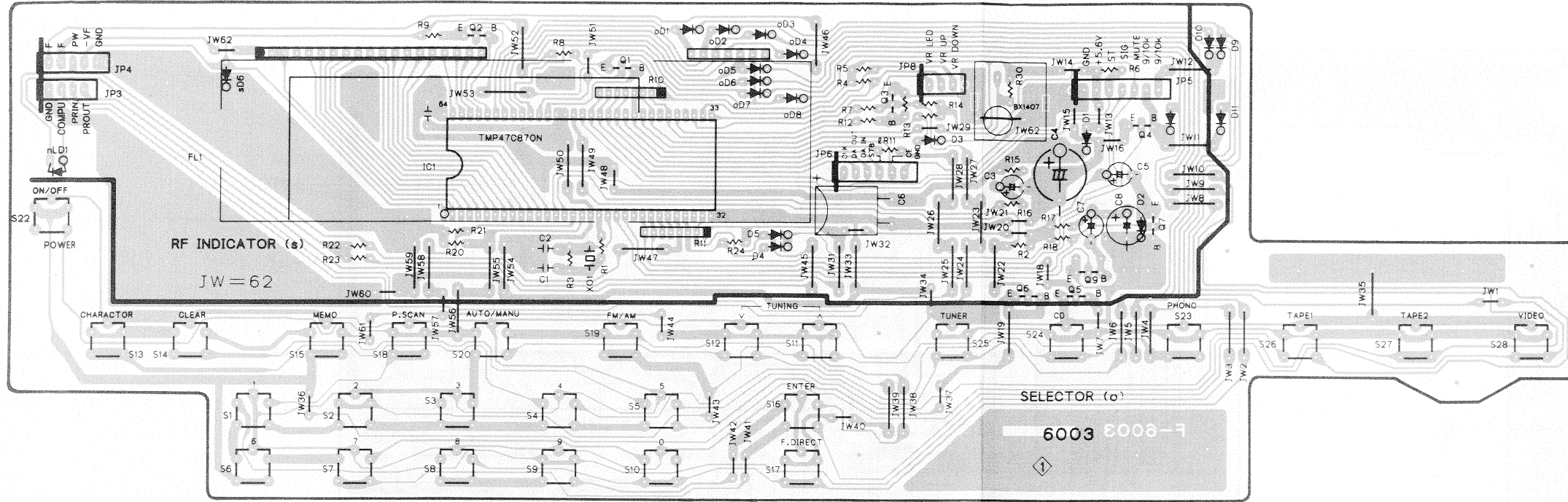
| Parts No. | Stock No. | Description |
|-----------|-----------|-------------|
| •LED | | |
| nLD2 | 48126300 | SEL2210S |

5. PARTS LOCATION ON BOARD

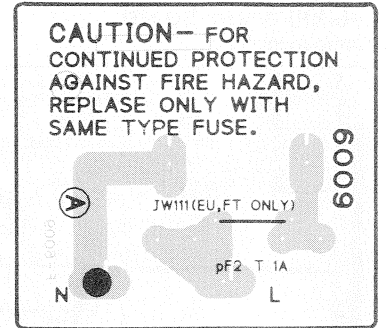
5-1. F-6008 Main Board Component Side



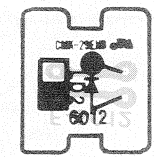
5-2. F-6003 Input Selector Board
Component Side



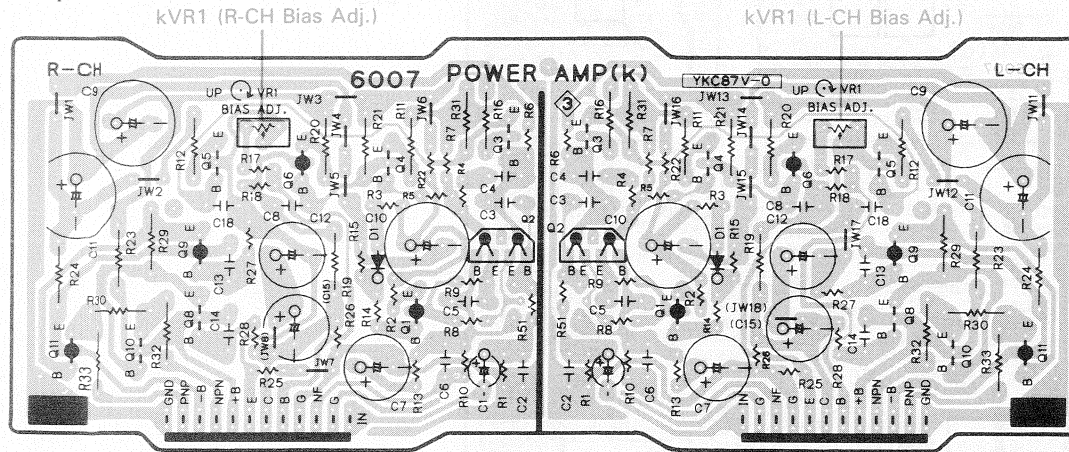
5-7. F-6009 Voltage Selector Board
Component Side



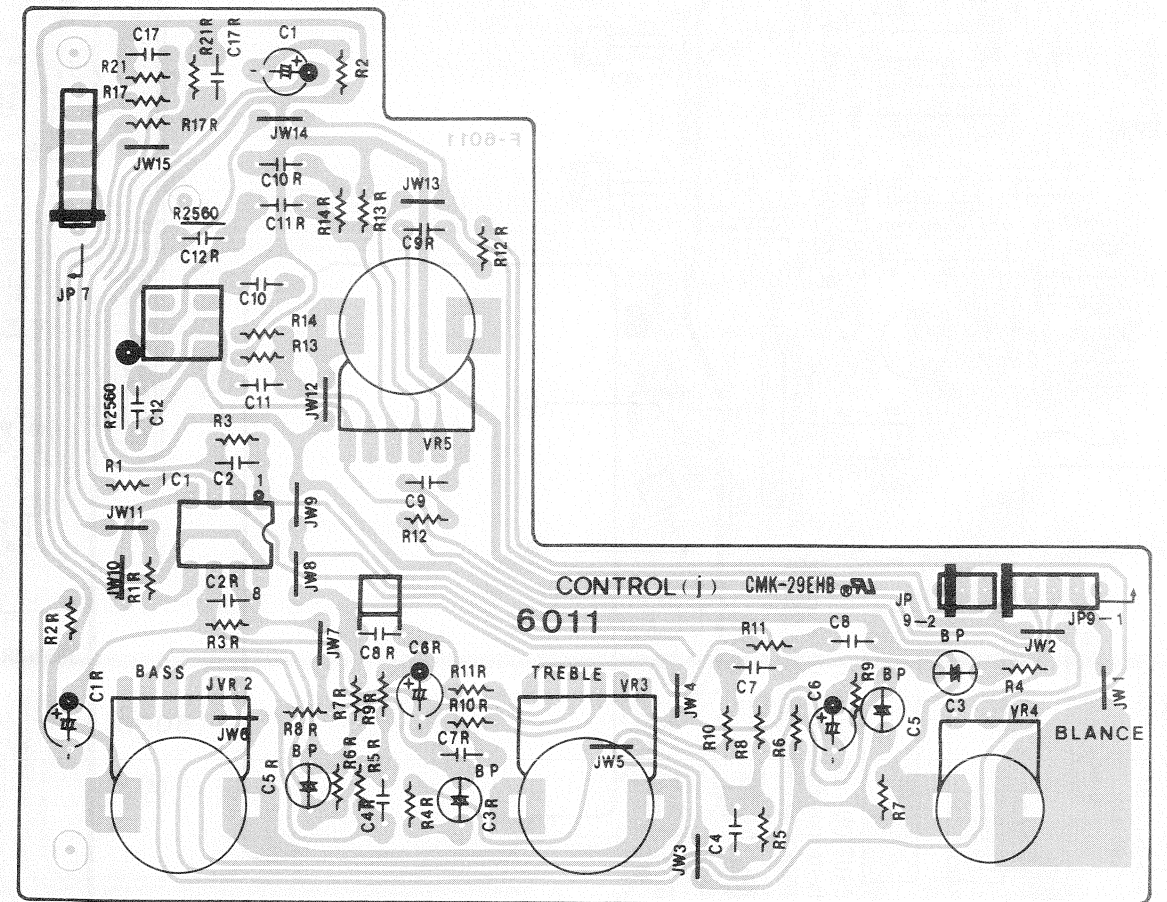
5-8. F-6012 VOLUME LED Board
Component Side



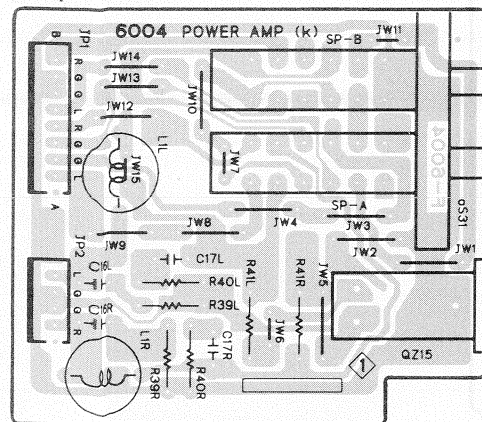
5-3. F-6007 Amp. Board
Component Side



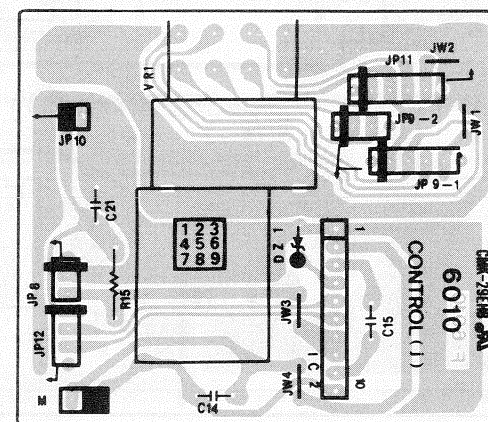
5-6. F-6011 Tone Control Board
Component Side



5-4. F-6004 Speaker Switch Board
Component Side

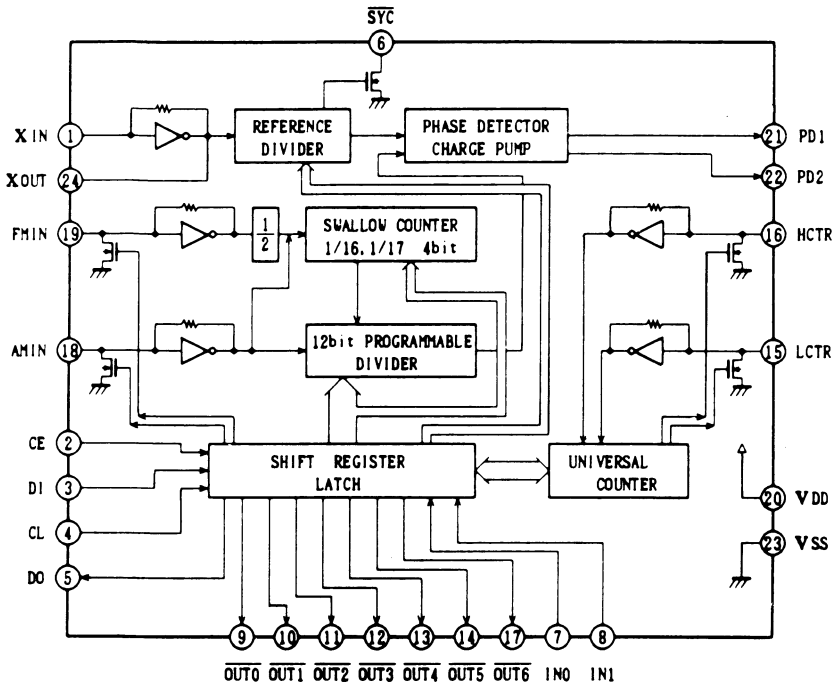


5-5. F-6010 Volume Motor Drive Board
Component Side



6. INTERIOR BLOCK DIAGRAM & TERMINAL FUNCTION OF IC

•LC7218 (PLL SYNTHESIZER)

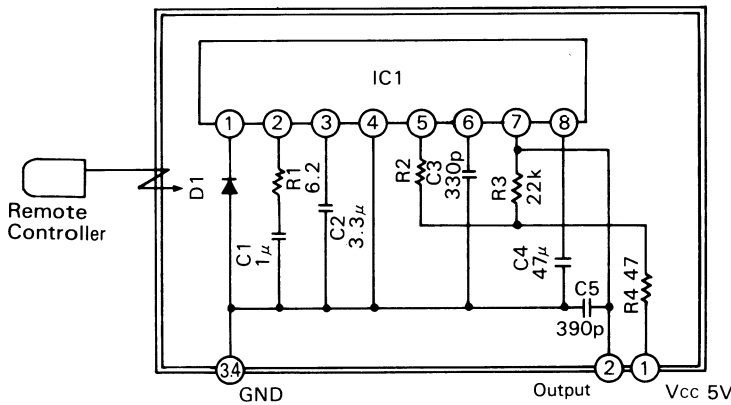


◆ Terminal Function

| PIN NO. | FUNCTION | L level | H level |
|---------|-----------|---------|---------|
| 7 | SOTP | SCAN | STOP |
| 8 | LW ENABLE | MW ONLY | LW/MW |
| 9 | TUNING | MANUAL | AUTO |
| 10 | TAPE 2 | SOURCE | MONITOR |
| 11 | VCR | OTHERS | VCR |
| 12 | GEQ | OFF | ON |
| 13 | FM | FM | OTHERS |
| 14 | MW | MW | OTHERS |

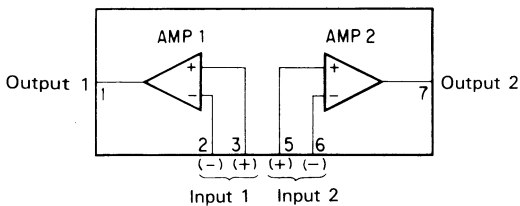
XIN, XOUT : X'tal OSC (7.2 MHz)
 FMIN, AMIN : OSC INPUT
 CE, CL, D1, D0 : Serial Data Input
 OUT0~OUT6 : Output Port
 IN0, IN1 : Input Port
 HCTR, LCTR : Counter Input
 PD1, PD2 : Charge Pump Output
 SYC : Clock for Controller (400 kHz)

•BX-1407 (Remote Control Receiver)

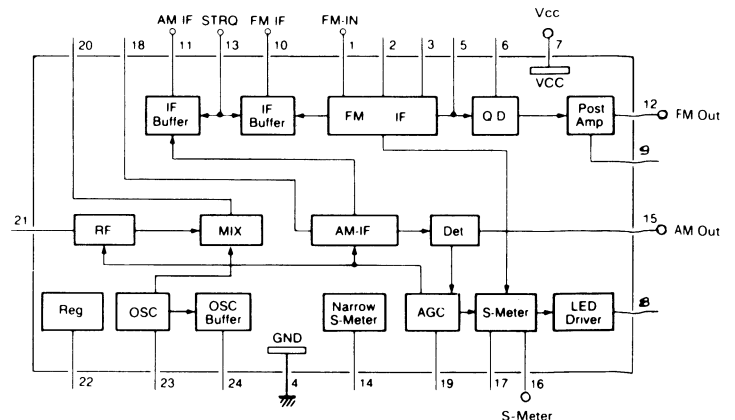


IC1: CX20106A Chip
 D1: PIN Photo Diode
 C1, C2, C4: E.C. 5%
 C3, C3: C.C.
 R2: ± 1% (for Adjust)

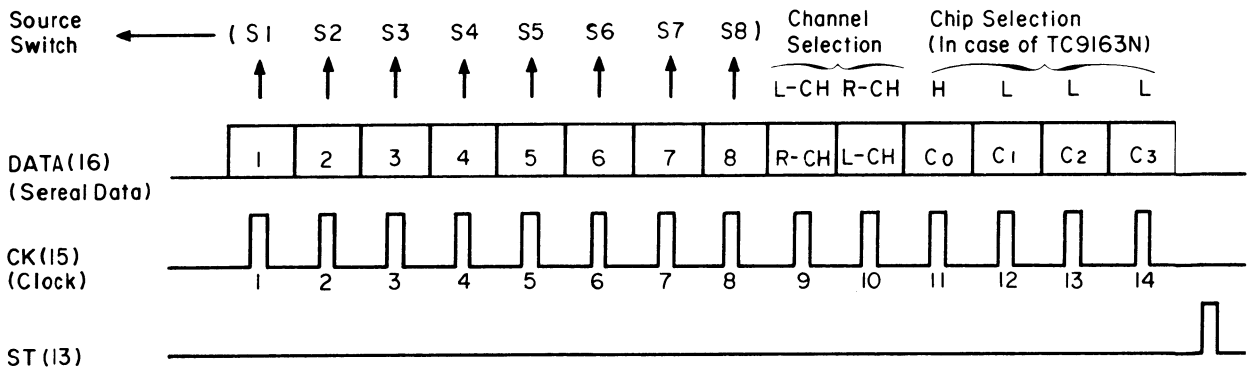
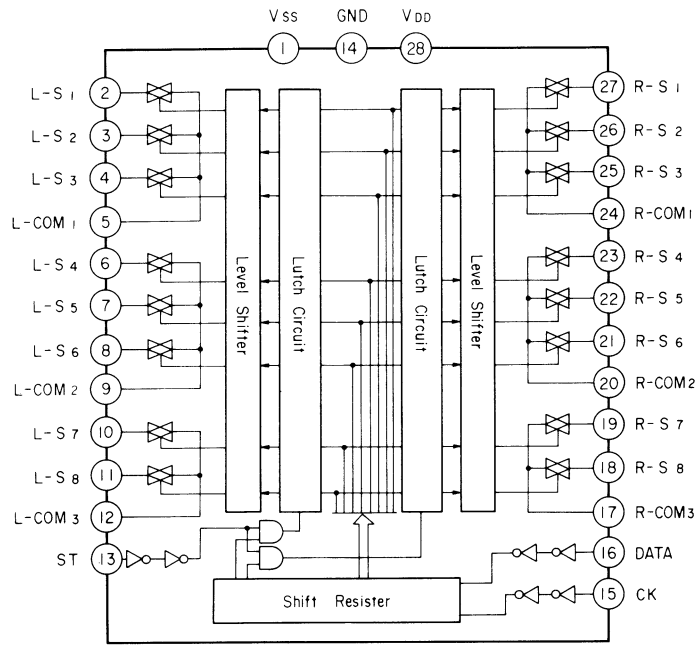
•M5218L (Op Amp.)



•LA1266 (FM-IF, AM-RF•MIX•IF)



•TC9163N (Analog Switch)



◆ ST Terminal Function

- * When data bit 1 is High level, source switch 1 is ON.
- In the same manner, when data bit 2 (3~8) is High level, source switch 2 (3~8) is ON.
- * Shift register receives 14 bit serial datas, and their datas are sent to the latch circuit by the ST signal.

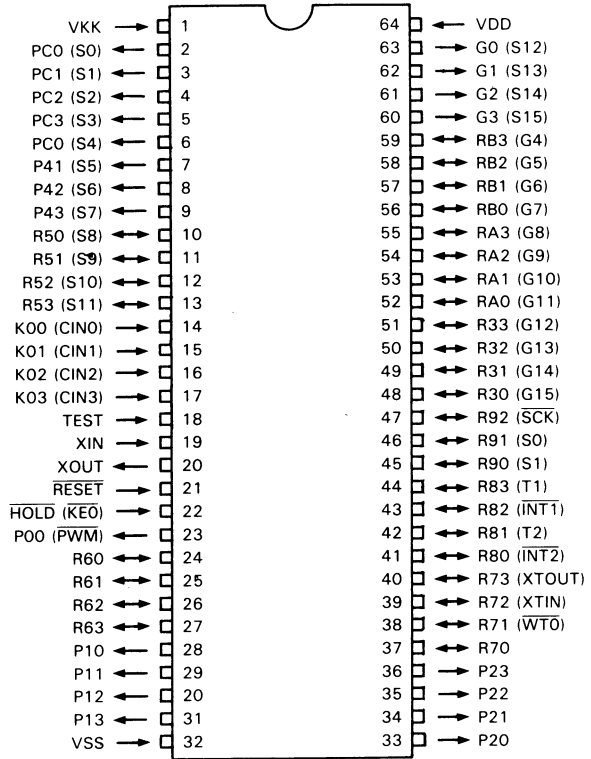
•TMP47C870N (DTS/Audio Controller)

◆ Terminal Function

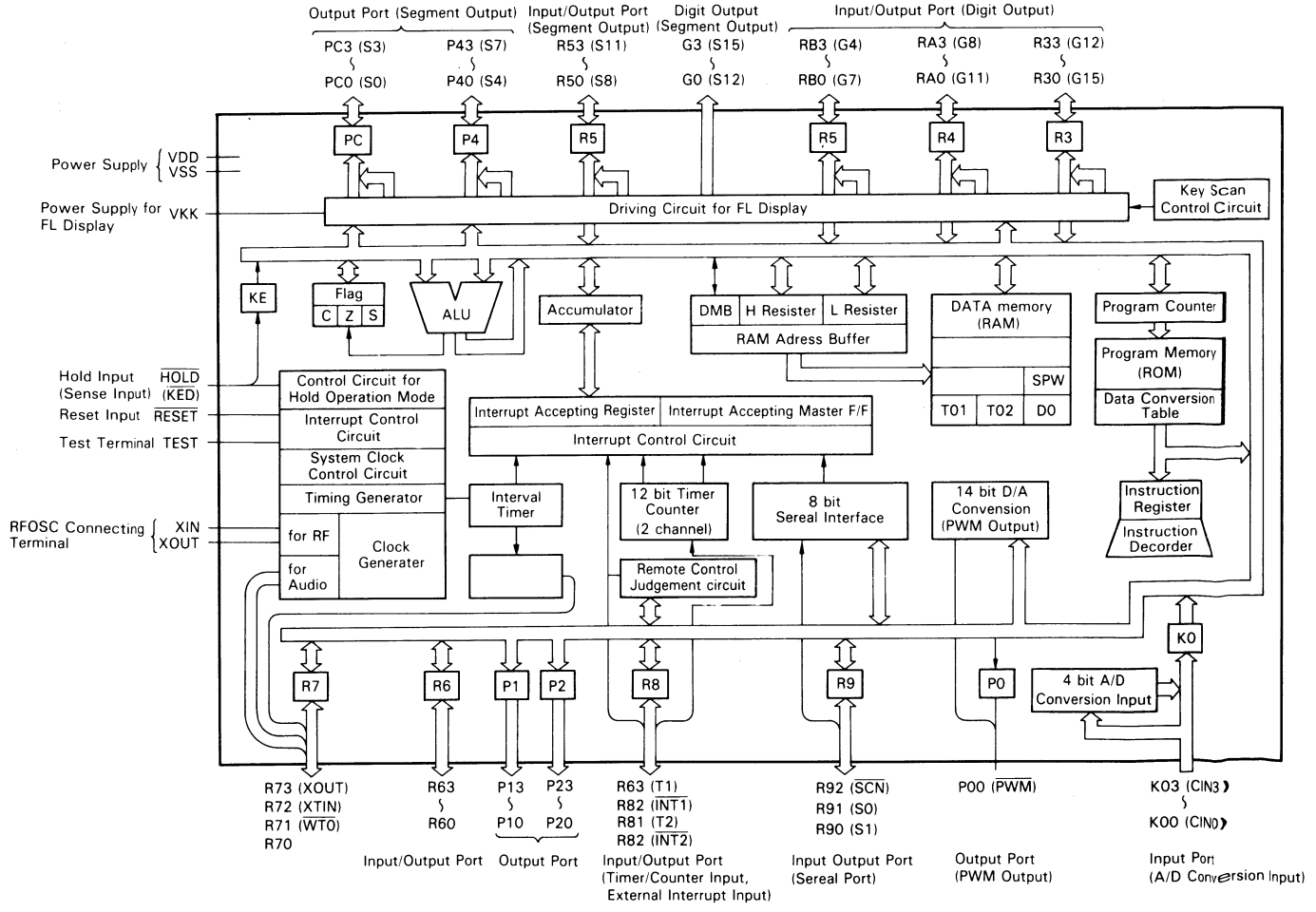
| PORT | PIN NO. | FUNCTION | L | H |
|---------|---------|----------------|---------------------|--------------------|
| K00 | i 14 | SIG. LEVEL IN | — | — |
| K01 | i 15 | BACKUP VOLT | RAM CLEAR < 1.25 | RAM KEEP > 1.25 |
| K02 | i 16 | K2 IN | | H > 0.94V |
| K03 | i 17 | K3 IN | | H > 0.94V |
| P00 PWM | o 23 | PEE OUT | | 2kHz |
| P10 | o 28 | POWER OUT | OFF | ON |
| P11 | o 29 | MUTE OUT | NORMAL | MUTE |
| P12 | o 30 | IF BW OUT | WIDE | NARROW |
| P13 | o 31 | PROTECTOR OUT | NORMAL | PROTECT |
| P20 | o 33 | VR UP OUT | UP | STOP |
| P21 | o 34 | VR DOWN OUT | DOWN | STOP |
| P22 | o 35 | VR LED OUT | OFF | ON |
| 23 | o 36 | DAT MONITOR | SOURCE | MONITOR |
| R60 | i 24 | K4 IN | ○ | |
| R61 | i 25 | K5 (D-MATX) IN | ○ | |
| R62 | i 26 | PHONO T/T IN | PLAY | STOP |
| R63 | i/o 27 | PHONO S/S I/O | ○ | |

| PORT | PIN NO. | FUNCTION | L | H |
|------|---------|-----------------|---------|-----|
| R70 | i 37 | COMPULINE IN | ○ | |
| R71 | o 38 | COMPULINE OUT | | ○ |
| R72 | o 39 | | | ○ |
| R73 | o 40 | ATT. (MUTE) OUT | | ○ |
| R80 | i 41 | RECEIV RF IN | ○ | |
| R81 | o 42 | PERIOD/CE OUT | | ○ |
| R82 | i 43 | PROTECTOR IN | | ○ |
| R83 | o 44 | STB OUT | | ○ |
| R90 | i 45 | SER. DATA IN | | ○ |
| R91 | o 46 | SER. DATA OUT | | ○ |
| R92 | o 47 | SER. CLK OUT | | ○ |
| KE0 | i 22 | BACK UP IN | BACK UP | RUN |
| R30 | i 48 | STEREO IND IN | FL ON | OFF |
| R31 | i 49 | K1 IN | ○ | |
| R32 | i 50 | FL DUTY1 IN | | ○ |
| R33 | i 51 | FL DUTY2 IN | | ○ |

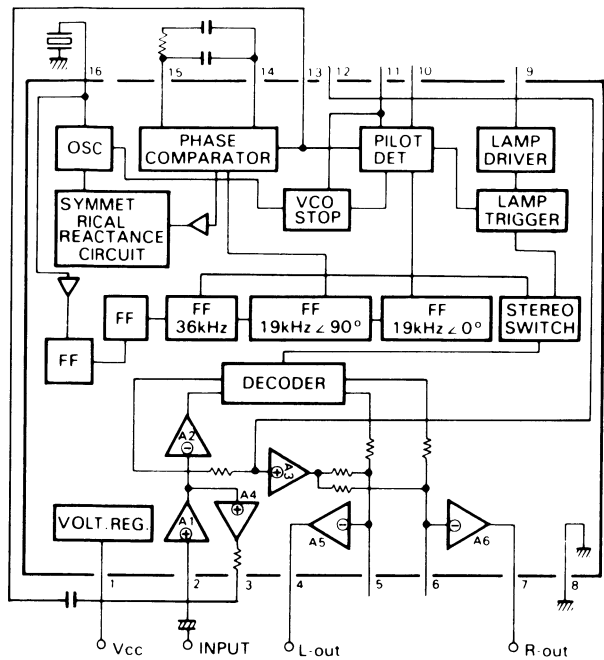
◆ Figuer <TMP47C870N>



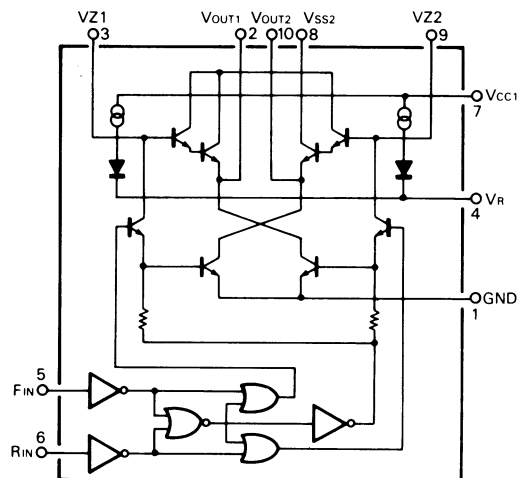
◆ Block Diagram <TMP47C870N>



•LA3410 (MPX)



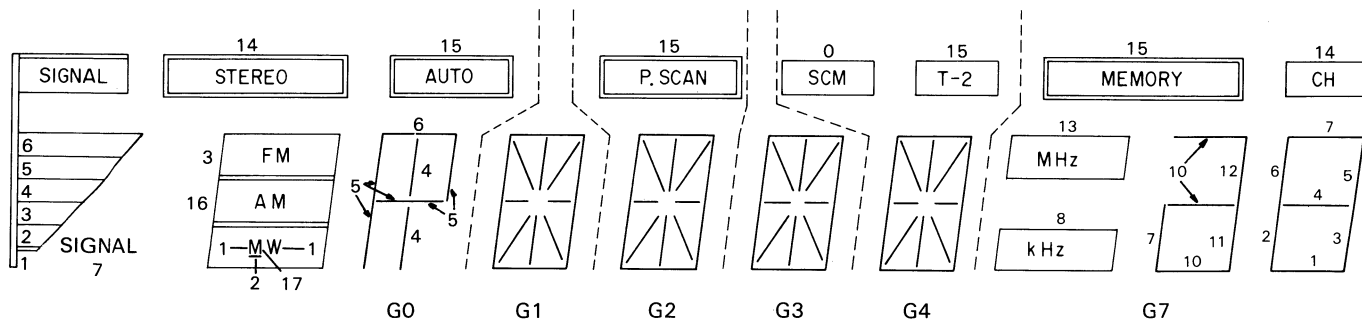
•BA6109 (Motor Driver)



| FIN | RIN | Vout 1 | Vout 2 |
|-----|-----|--------|--------|
| 1 | 1 | L | L |
| 0 | 1 | L | H |
| 1 | 0 | H | L |
| 0 | 0 | L | L |

Input level 1 = 2.0V or more
Input level 0 = 0.7V or less

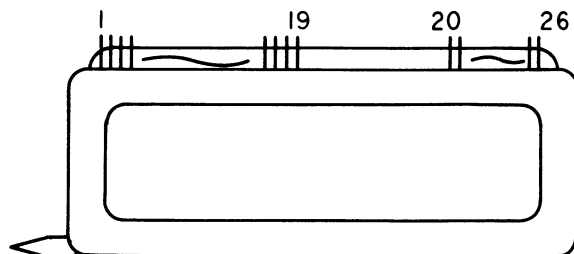
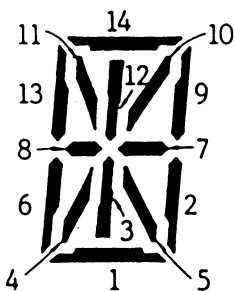
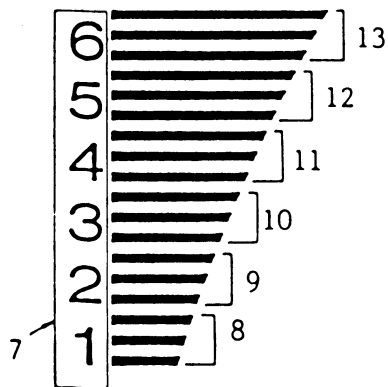
•FL Display (CP3023) Terminal Function



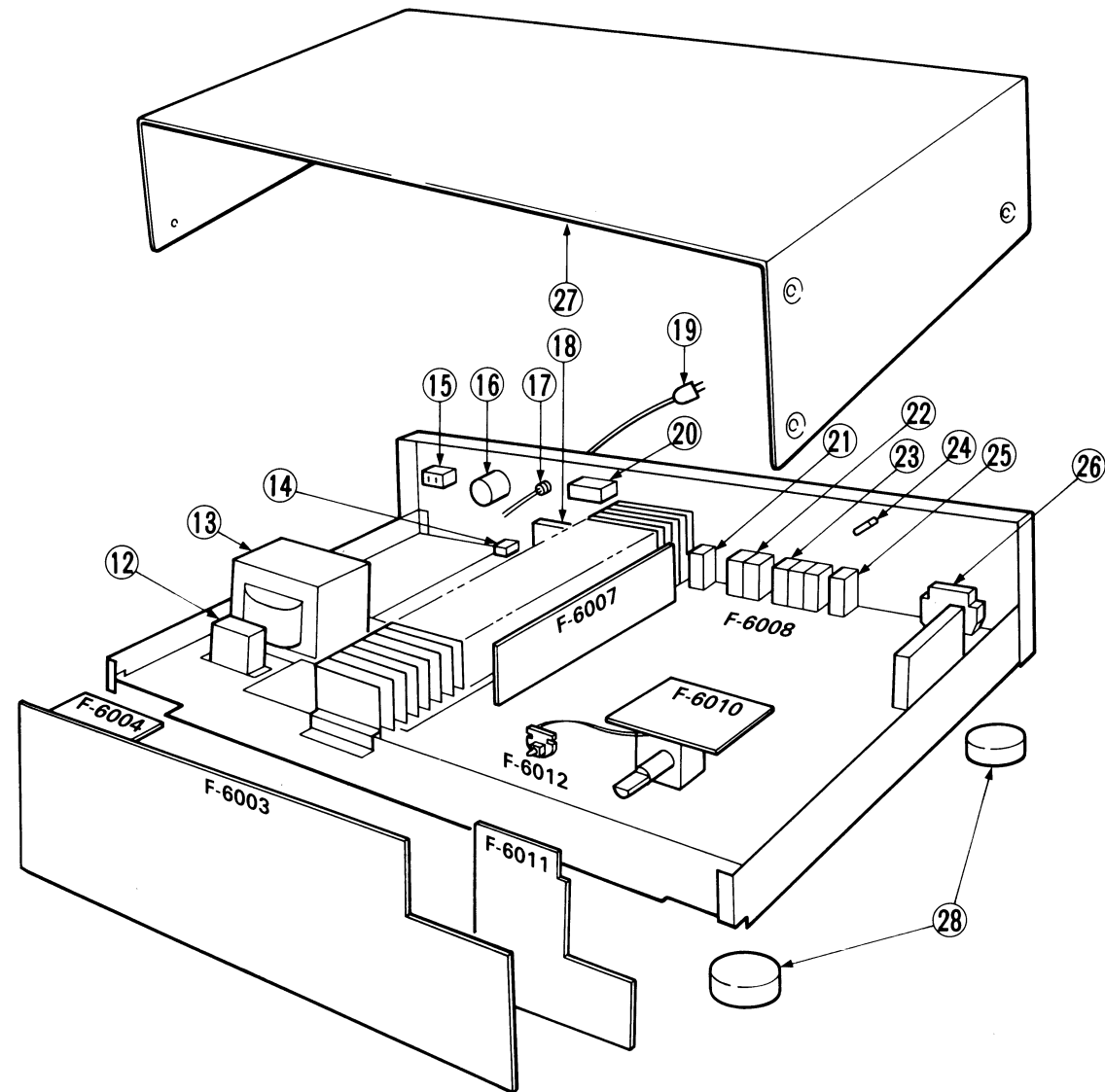
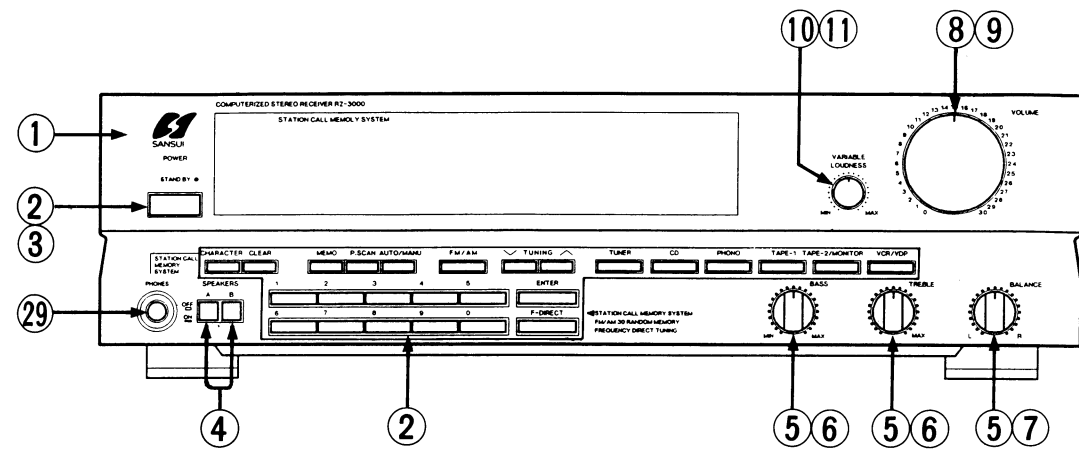
◆ Pin Assignment

| Pin No. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|------------|---|----|-----|-----|----|----|----|----|----|----|----|----|----|
| Assignment | F | P0 | P16 | P17 | P1 | P2 | P3 | P4 | P5 | P6 | P7 | P8 | P9 |

| Pin No. | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |
|------------|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|
| Assignment | P10 | P11 | P12 | P13 | P14 | P15 | G0 | G1 | G2 | G3 | G4 | G7 | F |



8. EXPLODED VIEW OF SET & PARTS LIST

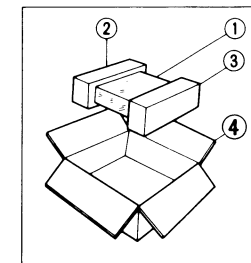


Parts List

| Parts No. | Stock No. | Description | Parts No. | Stock No. | Description |
|-----------|-----------|--------------------------------------|-----------|-----------|-------------------------------------|
| 1 | 37502501 | Front Panel Ass'y (XX•SS•EU•CSA•SEV) | △16 | 48175200 | Voltage Selector (XX•SS) |
| | 37502502 | Front Panel Ass'y (UL) | △ | 07204700 | Voltage Selector Switch (EU•EG•SEV) |
| 2 | 83003000 | Push Switch | 17 | 39106000 | Strain Relief (XX) |
| 3 | 84580000 | Knob, SPEAKERS | | 48913500 | Strain Relief (SS•EU•EG•SEV) |
| 4 | 83045900 | Push Switch, SPEAKERS | | 39104900 | Strain Relief (UL•CSA) |
| 5 | 84580100 | Knob, BASS•TREBLE•BALANCE | 18 | 46947500 | 8P Speaker Terminal |
| 6 | 83012800 | Tone Control VR., 50kΩ | △19 | 83000400 | Power Supply Cord (XX) |
| 7 | 83013000 | Balance VR., 250kΩ | △ | 83000500 | Power Supply Cord (CSA) |
| 8 | 84599900 | Knob, Master Volume | △ | 83003600 | Power Supply Cord (UL) |
| 9 | 48977500 | Master VR., 150kΩ | △ | 83034900 | Power Supply Cord (SS) |
| 10 | 48580200 | Knob, LOUDNESS | △ | 83000600 | Power Supply Cord (EU•EG•SEV) |
| 11 | 83046000 | LOUDNESS VR., 150kΩ | 20 | 49338500 | Speaker Impedance Switch |
| △12 | 83046401 | Power Transformer, MPT2 (XX•SS) | 21 | 48987400 | 2P VCR/VDP Terminal |
| △ | 83046402 | Power Transformer, MPT2 (UL•CSA) | 22 | 48528200 | 4P TAPE2 Terminal |
| △ | 83046405 | Power Transformer, MPT2 (EU•EG•SEV) | 23 | 48528300 | 6P TAPE1/CD Terminal |
| △13 | 83046309 | Power Transformer, MPT1 (XX•SS) | 24 | 84528300 | Ground Terminal |
| △ | 83046302 | Power Transformer, MPT1 (UL•CSA) | 25 | 48528400 | 2P PHONO Terminal |
| △ | 83046305 | Power Transformer, MPT1 (EU•EG•SEV) | 26 | 49299700 | 4P Antenna Terminal (XX•UL•CSA•SS) |
| 14 | 83012600 | System Control Jack | | 49320400 | 2P Antenna Terminal (EU•EG•SEV) |
| △15 | 83002500 | AC Outlet (EU•EG•SEV) | 27 | 84578500 | Bonnet |
| △ | 83004100 | AC Outlet (XX•SS) | 28 | 84526700 | Foot |
| △ | 83002200 | AC Outlet (UL•CSA) | 29 | 46579600 | Head Phone Jack |

9. PACKING LIST

| Parts No. | Stock No. | Description |
|-----------|-----------|-------------------------------|
| 1 | 47859600 | Vinyl Bag |
| 2 | 84582400 | Styrofoam Packing, Front Side |
| 3 | 84584600 | Styrofoam Packing, Rear Side |
| 4 | 84582000 | Carton Case |



10. ACCESSORY LIST

| Stock No. | Description |
|-----------|--------------------------------|
| 84453900 | Operating Instructor (*E•F•S) |
| 84454000 | Operating Instructor (*G•I•Sw) |
| 46051700 | Antenna Wire |
| 48529800 | Antenna Holder |
| 48489800 | Antenna Plug |
| 83041000 | AM Loop Antenna |
| | Dry Battery, UM-4 |
| | Remote Controller, RS-1070 |

*Note:
E•F•S: English•French and Spanish Version
G•I•Sw: German•Italian and Swedish Version



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