

Service Manual

Receiver

AV Control Stereo Receiver



SA-GX303

Color

(K)... Black Type

Area

Country Code	Area	Color
(P)	U.S.A.	(K)
(PC)	Canada.	



SPECIFICATIONS (IHF'78)

■ AMPLIFIER SECTION

Rated minimum sine wave
RMS power output
 20 Hz~20 kHz both channels driven
 0.05% total harmonic distortion
 85 W per channel (8 Ω)

1 kHz continuous power output
 both channels driven
 0.05% total harmonic distortion 87 W per channel (8 Ω)

Total harmonic distortion
 rated power at 20 Hz~20 kHz 0.05% (8 Ω)
 half power at 1 kHz 0.03% (8 Ω)

Dynamic headroom 1.2 dB (8 Ω)
SMPTE intermodulation distortion 0.3% (8 Ω)

Frequency response
PHONO RIAA standard curve ±0.8 dB
CD, VCR 1, VCR 2, TAPE 7 Hz~70 kHz, ±3 dB

Input sensitivity
PHONO 0.4 mV (3 mV, IHF '66)
CD, VCR 1, VCR 2, TAPE 27 mV (200 mV, IHF '66)

S/N (IHF, A)
PHONO 70 dB (80 dB, IHF '66)
CD, VCR 1, VCR 2, TAPE 70 dB (90 dB, IHF '66)

Phono maximum input voltage 160 mV (IHF '66)

Input impedance
PHONO 47 kΩ
CD, VCR 1, VCR 2, TAPE 22 kΩ

Tone controls
BASS 50 Hz, +10~-10 dB
TREBLE 20 kHz, +10~-10 dB

4 band parametric equalizer +10~-10 dB

Loudness control (volume at -30 dB) 50 Hz, +9 dB

Low frequency damping factor 20 (8 Ω)

Load impedance
A or B 8 Ω
A and B 8 Ω

* Manufactured under license from Dolby Laboratories Licensing Corporation. Additionnally licenced under one or more of the following patents: U.S. numbers 3,632,886, 3,746,792 and 3,959,590; Canadian numbers 1,004,603 and 1,037,877.

"Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

■ SURROUND AMPLIFIER SECTION

Power output (Rear) 1 kHz, 10 W (8 Ω)
 (T.H.D. 0.8 %)

■ FM TUNER SECTION

Frequency range 87.9~107.9 MHz
Sensitivity 11.2 dBf (2 μV, IHF '58)

50 dB quieting sensitivity
MONO 20.2 dBf (5.6 μV, IHF '58)
STEREO 40.2 dBf (56 μV, IHF '58)

Total harmonic distortion
MONO 0.2%
STEREO 0.3%

S/N
MONO 75 dB
STEREO 70 dB

Frequency response 20 Hz~15 kHz, +1 dB, -2 dB

Alternate channel selectivity 65 dB

Capture ratio 1.0 dB

Image rejection at 98 MHz 45 dB

IF rejection at 98 MHz 80 dB

Spurious response rejection at 98 MHz 75 dB

AM suppression 50 dB

Stereo separation
1 kHz 40 dB
10 kHz 30 dB

Carrier leak
19 kHz -35 dB
38 kHz -50 dB

Antenna terminals 300 Ω (balanced)
 75 Ω (unbalanced)

Technics

■ AM TUNER SECTION

Frequency range	530~1720 kHz
Sensitivity	20 μ V, 330 μ V/m
Selectivity	55 dB
Image rejection at 1000 kHz	40 dB
IF rejection at 1000 kHz	60 dB

■ VIDEO SECTION

Output voltage at 1 V input (unbalanced)	
Maximum input voltage	
Input/output impedance	75 Ω (unbalanced)

■ GENERAL

Power consumption	275 W, 370 VA
Power supply	AC 120V, 60Hz
Dimensions (W $\times$ H $\times$ D)	430 $\times$ 134 $\times$ 305 mm (16-15/16" $\times$ 5-9/32" $\times$ 12")
Weight	8.5 kg (18.7 lb.)

Notes:

1. Specifications are subject to change without notice. Weight and dimensions are approximate.
2. Total harmonic distortion is measured by the digital spectrum analyzer.

■ CONTENTS

	Page
SAFETY PRECAUTION	2
REAR PANEL TERMINALS AND FUNCTIONS	3, 4
ACCESSORIES	4
FRONT PANEL CONTROLS AND FUNCTIONS	5~12
DISASSEMBLY INSTRUCTIONS	13~17
INTERNAL CONNECTION OF FL	18, 19
MEASUREMENTS AND ADJUSTMENTS	20
TERMINAL FUNCTION OF IC'S	21, 22
BLOCK DIAGRAM	23~26

	Page
SCHEMATIC DIAGRAM	27~44
TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES	45
WIRING CONNECTION DIAGRAM	46
PRINTED CIRCUIT BOARDS	47~53
EXPLODED VIEWS	54, 55
REPLACEMENT PARTS LIST	56~60
RESISTORS & CAPACITORS	60~63
PACKING	63

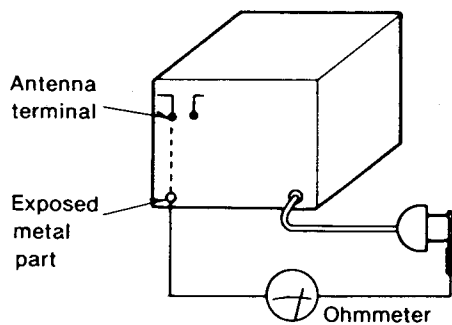
■ SAFETY PRECAUTION (This "safety precaution" is applied only in U.S.A.)

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

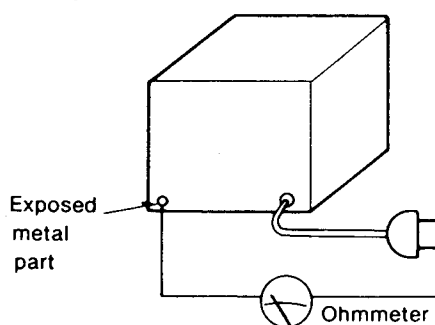
● INSULATION RESISTANCE TEST

1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between 3M Ω and 5.2M Ω to all exposed parts. (Fig. A) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. B)

Note: Some exposed parts may be isolated from the chassis by design. These will read infinity.



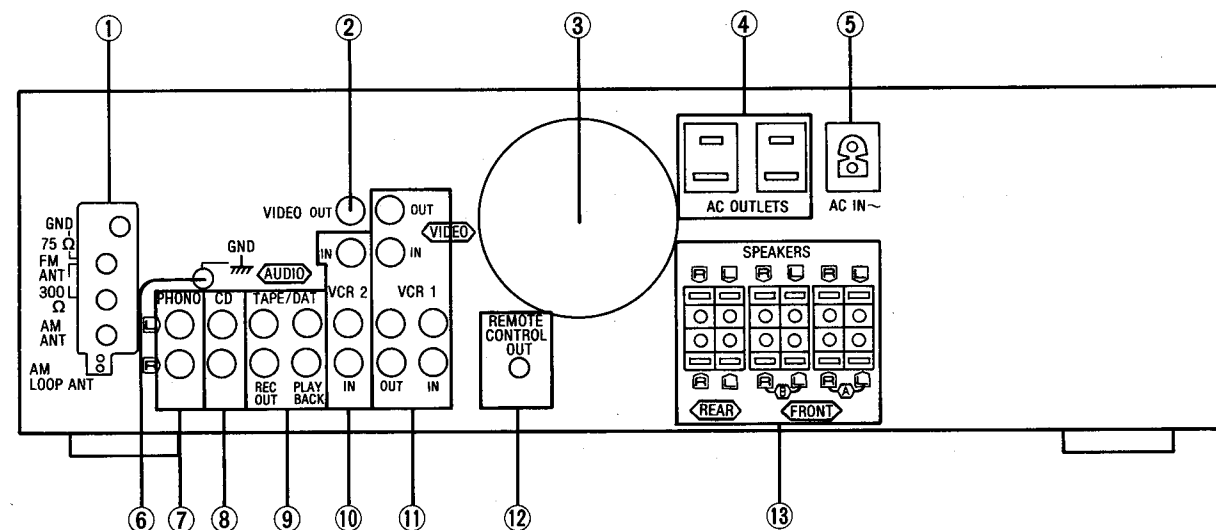
Resistance = 3M Ω —5.2M Ω



Resistance = Approx ∞

4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.

REAR PANEL TERMINALS AND FUNCTIONS



① Antenna connection terminals

② "VIDEO OUT" terminal

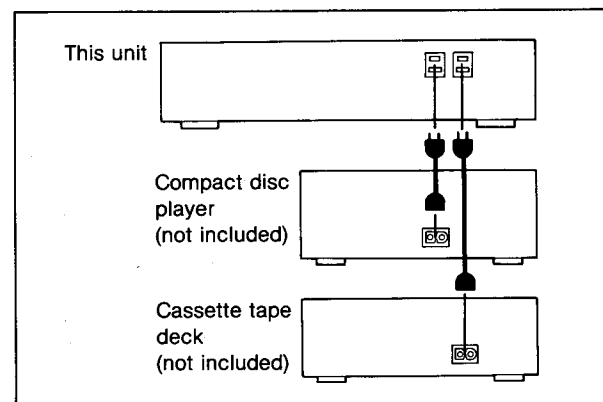
Connect a video connection cable (not included) to the video input terminal of TV or projection TV.

③ Cooling fan

The cooling fan operates at high output power levels only.

④ Outlets "SWITCHED"

Power to these outlets is controlled by the power switch of this unit. Audio equipment rated up to 80 W (total for all outlets) can be connected here. For proper remote-control operation, connect the power cords of the tape deck and compact disc player to these outlets as indicated below:



⑤ AC IN socket (AC IN)

Connect this socket to an AC outlet on the wall using the power supply cord.

⑥ "GND" terminal

Connect the turntable's ground wire to this terminal (if applicable).

⑦ "PHONO" terminals

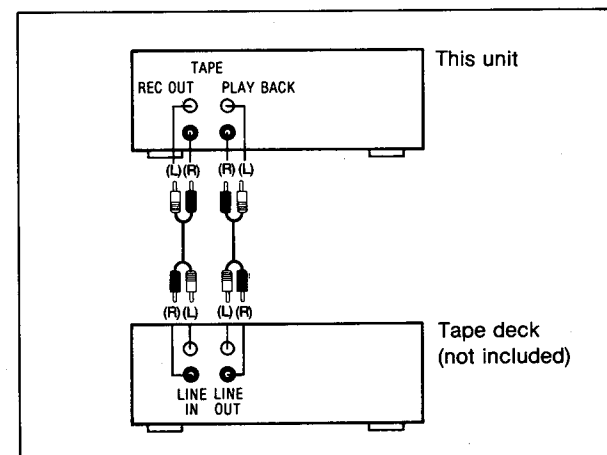
Connect a turntable only. Do not connect any other sound source to these terminals.

⑧ "CD" terminals

Connect a stereo connection cable (not included) to the "LINE OUT" terminal of the compact disc player.

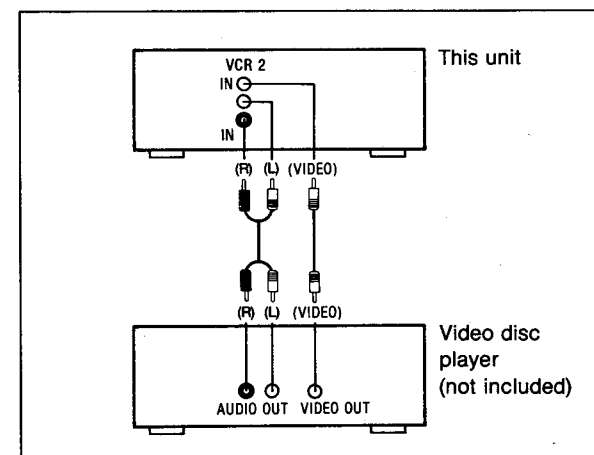
⑨ "TAPE/DAT" terminals

Connect a tape deck or a digital audio tape deck (DAT) by using stereo connection cables (not included).



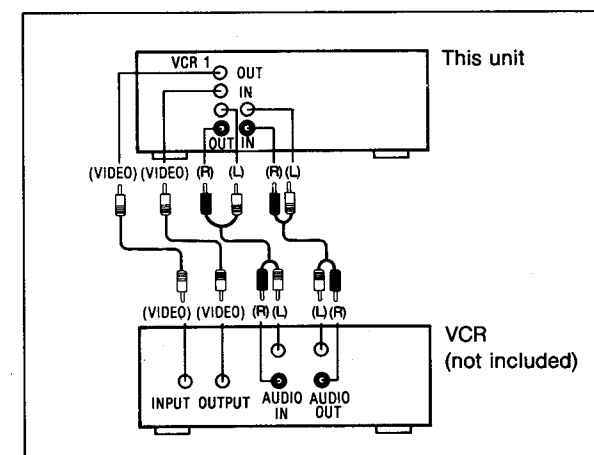
⑩ "VCR 2" terminals

Connect a second VCR or a video disc player by using stereo connection cable (not included) and video connection cable (not included).



⑪ "VCR 1" terminals

Connect a VCR by using stereo connection cables (not included) and video connection cables (not included).

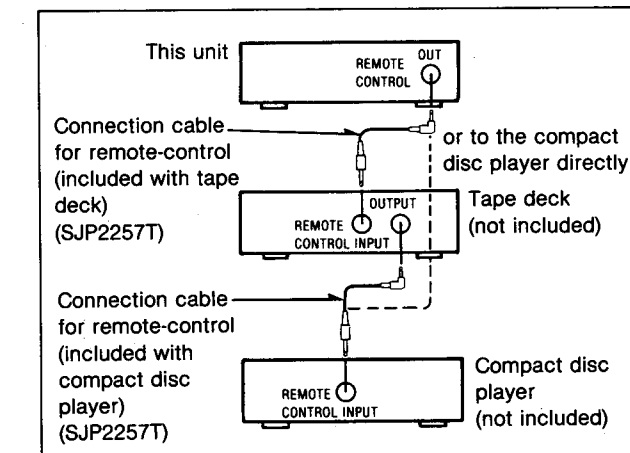


⑫ Remote-control OUT terminal (REMOTE CONTROL OUT)

This terminal can be used only with Technics components which have the appropriate remote-control terminal. (Consult your dealer for details.)

Proper connection with remote-control connection cables SJP2257T will allow control of some functions from this unit's remote-control transmitter.

Connect to a tape deck and/or compact disc player as shown below.



⑬ Speaker connection terminals

ACCESSORIES

AC power supply cord 1 pc.
(SJA172-1): (P)
(SJA172): (PC)

AM loop antenna
(SPB1163T) 1 pc.

FM indoor antenna
(SSA272M) 1 pc.

Remote-control transmitter
(RAK-SA501P1) 1 pc.

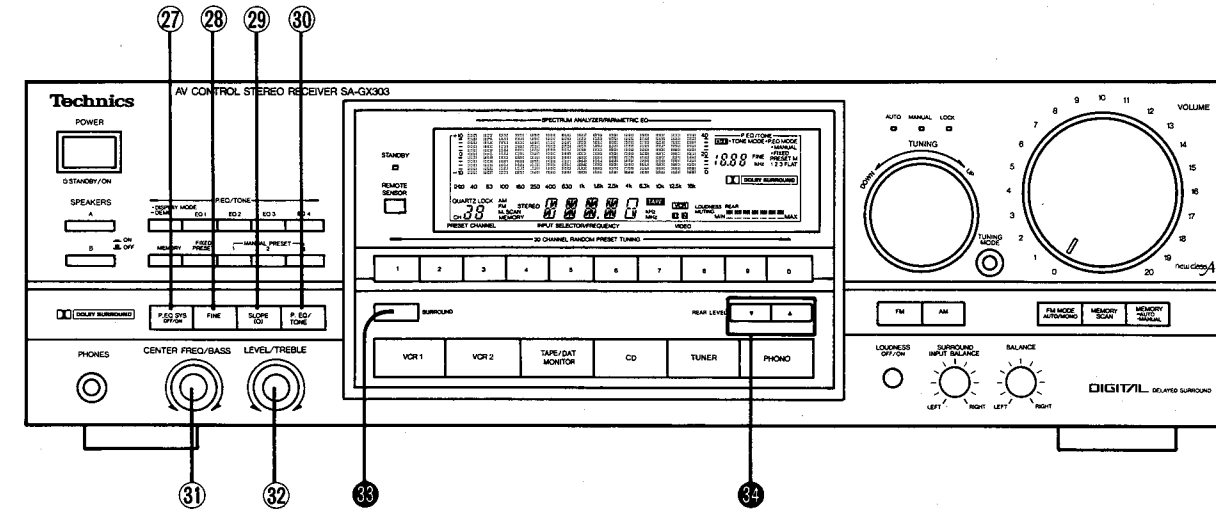
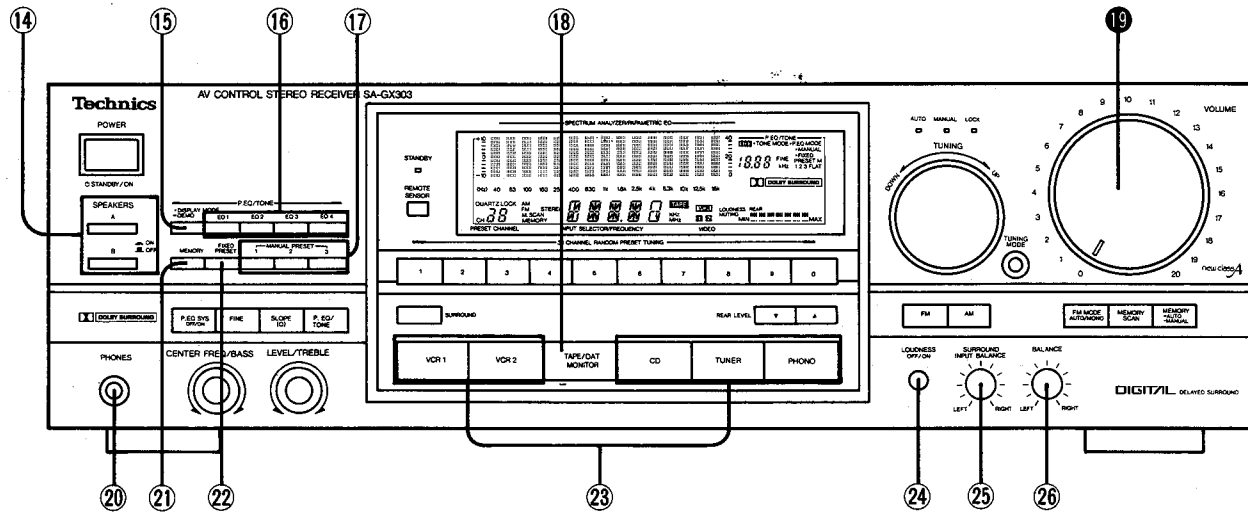
AM antenna holder 1 pc.
(SMA233-1M)

Batteries
(UM-4, "AAA", R03) 2 pcs.

Screws 2 pcs.
(XTN3+10AFZ)

FRONT PANEL CONTROLS AND FUNCTIONS

The functions indicated by the numbers with black background (for example ⑮) can be activated from the main unit and the remote control transmitter. (See pages 10–12.)



Amplifier section

⑭ Speaker selectors (SPEAKERS)

These selectors are used to select the speaker system(s) (A and/or B).

⑮ Display mode select button (-DISPLAY MODE, -DEMO)

This button is used to select either the spectrum analysis level ("Bar-type display" or "Dot display") or equalization level display.

If the button is pressed for 3 seconds or more, this unit will start a demonstration mode for the parametric EQ system. (Refer to page 27 for detailed information.)

⑯ Parametric EQ band select buttons

These buttons are used to select the band to be adjusted.

⑰ Equalization preset buttons (MANUAL PRESET)

These buttons are used for storing or recalling the curves made by the parametric EQ system.

⑱ Tape-monitor switch (TAPE/DAT MONITOR)

Press this button to listen to a tape or a digital audio tape connected to the "TAPE/DAT" terminals.

To listen to some other source, press this button once again (so that the indicator is switched OFF).

⑲ Volume control (VOLUME)

⑳ Headphones jack (PHONES)

㉑ Parametric EQ system memory button (MEMORY)

This button enables the curves to be stored in the parametric EQ system memory.

㉒ Fixed preset button (FIXED PRESET)

This button is used to recall a "fixed preset" curve from the main unit's memory.

㉓ Input selector buttons

These buttons are used to select the sound source to be heard, such as a disc, radio broadcasts, etc. The selected sound source is shown on the audio input selector/frequency display.

The "PHONO" input selector has two functions: When pressed momentarily it selects "PHONO". When pressed and held for about 4 seconds, it de-activates the muting function.

㉔ Loudness switch (LOUDNESS)

Set to the "ON" position (the loudness indicator will illuminate); when listening to music at low volume. Auditory perception of sound in the low frequency range falls off at low volume, but when the switch is in this position, this deficiency is compensated for, so that the full impact of the musical performance can be enjoyed.

㉕ Dolby surround input balance control (SURROUND INPUT BALANCE)

This control is used to minimize dialogue leakage in the surround channel thereby optimizing the Dolby surround decoding operation.

㉖ Balance control (BALANCE)

Amplifier section

㉗ Parametric EQ system ON/OFF button (P. EQ SYS)

This button is used to turn the parametric EQ system ON or OFF.

㉘ Fine mode select button (FINE)

This button is used to fine-adjust the center frequency of the parametric EQ.

㉙ Slope changeover button [SLOPE (Q)]

This button is used to increase or decrease the slope of the parametric EQ curves.

㉚ Parametric EQ/tone mode select button (P.EQ/TONE)

This button is used to select parametric EQ mode or tone mode.

㉛ Center frequency select/bass control (CENTER FREQ/BASS)

This control is used to select the center frequency in the parametric EQ mode or to adjust the low-frequency sounds in the tone mode.

㉜ Frequency level/treble control (LEVEL/TREBLE)

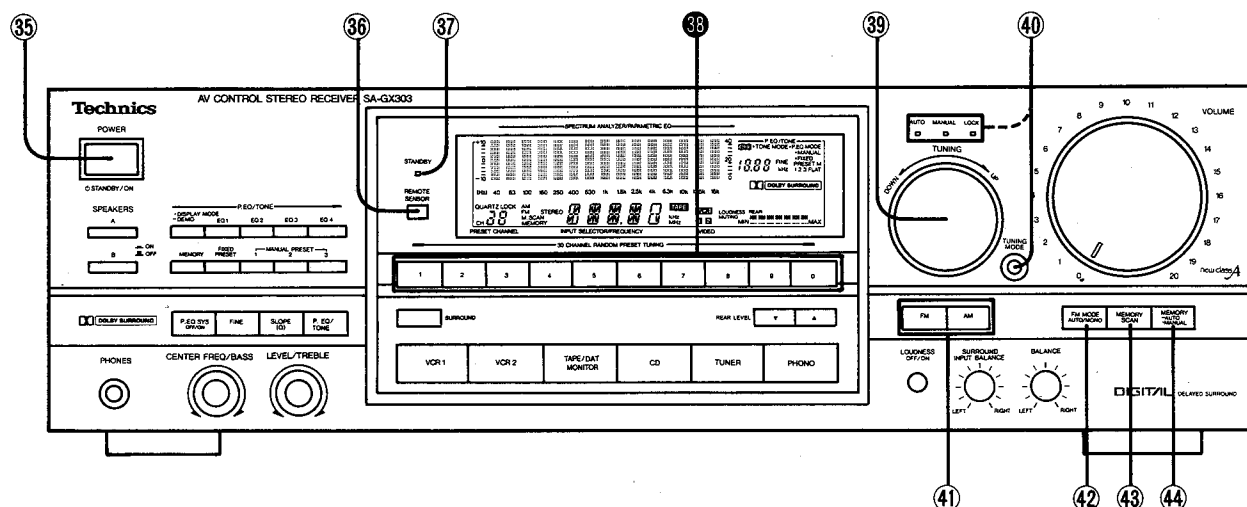
This control is used to adjust the frequency level in the parametric EQ mode or the high-frequency sounds in the tone mode.

㉝ Dolby surround ON/OFF button (SURROUND)

This button is used to activate the Dolby surround effect. When this button is switched OFF, no sound will be heard from the rear speaker systems.

㉞ Rear speaker level adjustment buttons (REAR LEVEL)

These buttons are used to adjust the volume level of the rear speakers.



Tuner section

35 Power “ STANDBY/ON” switch (POWER, STANDBY/ON)

This switch is used to turn the power to the main unit ON and OFF.

Selecting “OFF” from the remote control transmitter actually sets the main unit to the “STANDBY” mode.

36 Remote-control signal receptor (REMOTE SENSOR)

Receives the signals from the remote-control.

37 “STANDBY” indicator (STANDBY)

This indicator illuminates when the “STANDBY” mode is set by the main unit or the remote control transmitter.

38 Preset-tuning buttons (1–0) (30 CHANNEL RANDOM PRESET TUNING)

These buttons are used to preset broadcast frequencies into the memory of this unit and to recall the desired preset stations.

39 Tuning control (TUNING)

This control is used to select an FM or AM broadcast.

When turning the control to the left, the frequency changes downward. When turning the control to the right, the frequency changes upward.

40 Tuning-mode selector/indicator (TUNING MODE)

Each time this selector is pressed, the selection changes, in sequence, to “AUTO”, “MANUAL” and “LOCK”.

AUTO:

In this position, broadcast channels are automatically selected when the tuning control is momentarily turned to the left or right to start the frequency changing.

MANUAL:

In this position, the tuning control can be used to locate the desired channel manually.

The frequency changes only as the tuning control is turned to the right to left.

LOCK:

In this position, the broadcast channel presently being heard is locked in, and other broadcast stations cannot be tuned to, even if the tuning control is turned.

41 Band selectors

FM: Press this button to listen to an FM broadcast.

AM: Press this button to listen to an AM broadcast.

42 FM mode selector (FM MODE)

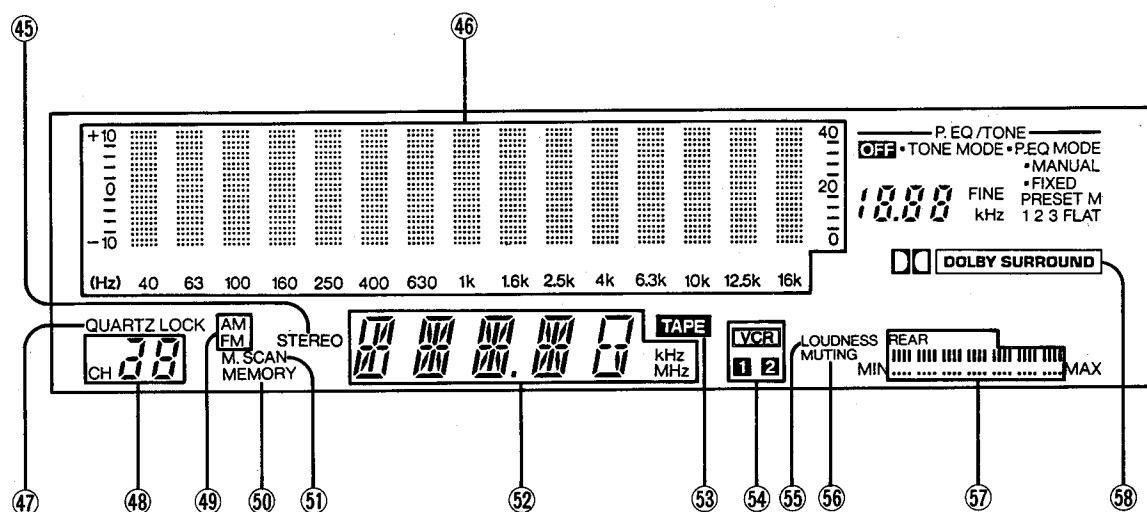
This unit automatically switches to the stereo mode when an FM stereo broadcast is received. This selector is used to select the mode (stereo or monaural) of FM broadcast signals.

43 Memory scan button (MEMORY SCAN)

This button is used to locate a desired broadcast station; each broadcast station is selected for about 3 seconds.

44 Memory button (MEMORY)

This button is used when presetting broadcast station frequencies into memory.



Display section

④⑤ FM stereo indicator (STEREO)

This indicator automatically illuminates when an FM stereo broadcast is being received.

It will not illuminate if the FM mode selector is set to the monaural mode.

④⑥ Spectrum analysis/parametric EQ level display (SPECTRUM ANALYZER/PARAMETRIC EQ)

This display shows the spectrum analysis level ("Bar-type display" or "Dot display") or equalization level.

④⑦ Quartz-lock indicator (QUARTZ LOCK)

This indicator illuminates when the unit is tuned precisely to a broadcast station.

④⑧ Channel display

This display shows the channel number selected by one of the preset-tuning buttons. Also this display shows the channel number for about 3 seconds during memory scan operation.

④⑨ Band indicators (AM, FM)

Indicates the selected band.

④⑩ Memory indicator (MEMORY)

This indicator illuminates when the memory button is pressed.

④⑪ Memory scan indicator (M. SCAN)

This indicator illuminates when the memory scan button is pressed.

⑤② Audio input selector/frequency display (INPUT SELECTOR/FREQUENCY)

Displays the selected source or broadcast frequency.

⑤③ Tape indicator (TAPE)

This indicator will illuminate when the tape-monitor switch is pressed.

⑤④ VCR display (VCR)

Displays the selected VCR.

⑤⑤ Loudness indicator (LOUDNESS)

This indicator will illuminate when the loudness switch is pressed.

⑤⑥ Muting indicator (MUTING)

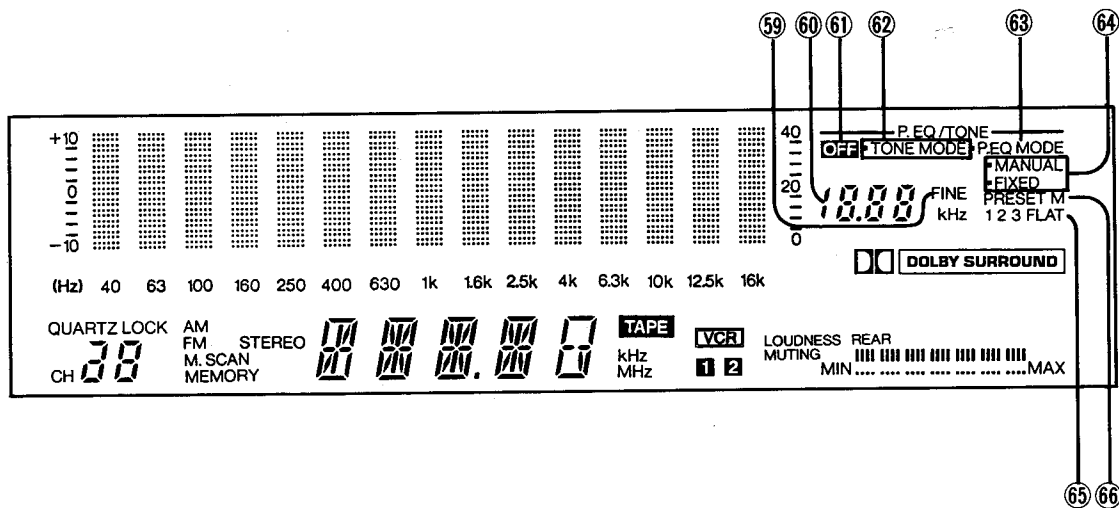
This indicator will illuminate when the muting button (on the remote-control transmitter) is pressed.

⑤⑦ Rear level indicator

Displays the level adjusted by rear speaker level adjustment button.

⑤⑧ Dolby surround indicator (DOLBY SURROUND)

This indicator illuminates when the Dolby surround ON/OFF button is set to ON.



⑤⑨ Fine mode indicator (FINE)

This indicator illuminates when the fine mode select button is pressed in the parametric EQ mode.

⑥⑩ Parametric EQ system center frequency display

It displays the center frequency of the curves in the parametric EQ mode arranged by the user with the parametric EQ system or the curves pre-programmed in this unit's memory.

⑥① Parametric EQ system off indicator (OFF)

This indicator illuminates when the parametric EQ system is off.

⑥② Tone mode indicator (TONE MODE)

This indicator illuminates when the parametric EQ/tone mode select button is set to the tone mode.

⑥③ Parametric EQ mode indicator (P.EQ MODE)

This indicator illuminates when the parametric EQ/tone mode select button is set to the parametric EQ mode.

⑥④ Parametric EQ system operation select indicators (MANUAL/FIXED)

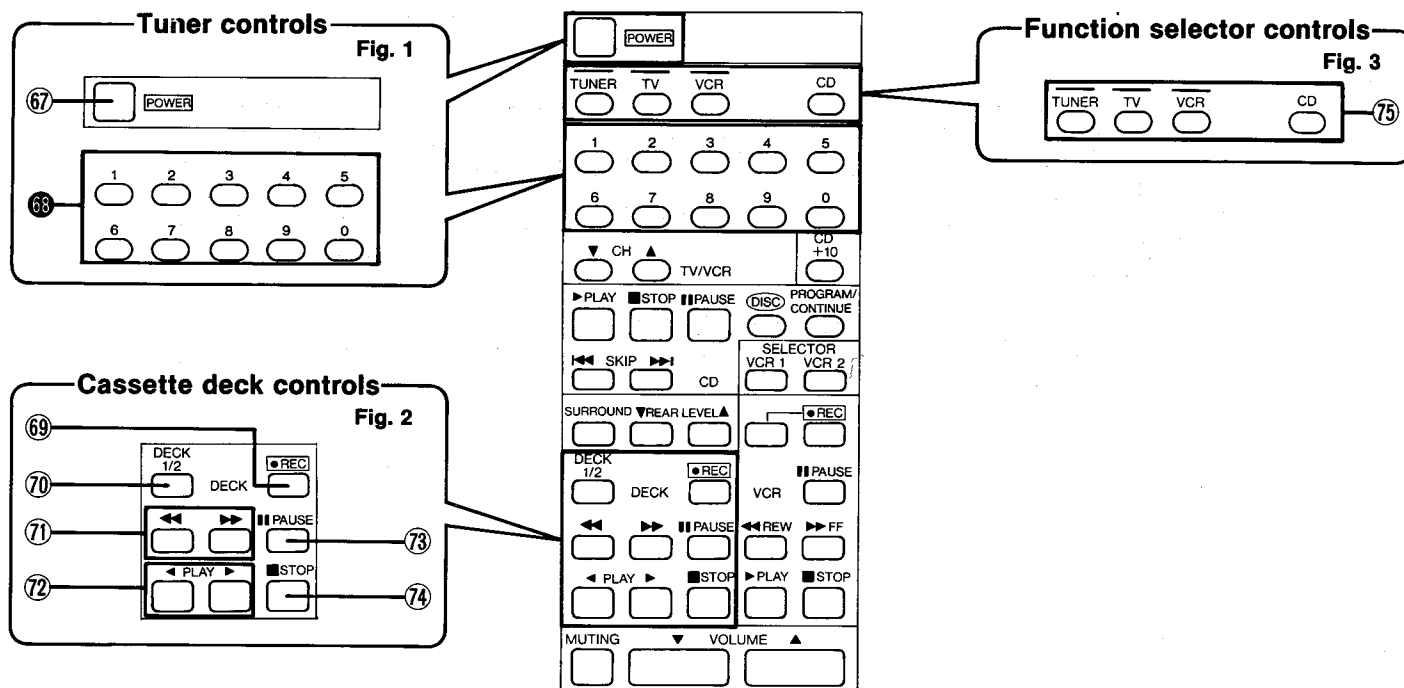
One of these indicators will illuminate in accordance with the fixed preset button or equalization preset buttons setting.

⑥⑤ Manual/fixed preset indicators (1 2 3 FLAT)

It displays the type of curve selected with the equalization preset buttons or fixed preset button in the parametric EQ mode.

⑥⑥ Parametric EQ system memory indicator (M)

This indicator illuminates when the parametric EQ system memory button is pressed in the parametric EQ mode.



Remote control section

Tuner controls (Fig. 1)

67 Power switch (POWER)

This power switch is used for controlling the power (ON/OFF) of this system as well as any Panasonic remote controlled TV and/or VCR.

When switching the power of each unit ON and OFF, be sure to first press the appropriate function selector button on the remote control transmitter.

68 Preset-tuning buttons (1-0)

These buttons are used to tune to broadcast stations that have been preset to the unit's memory.

When these buttons are used, be sure to first press the "TUNER" button of the function selector buttons on the remote control transmitter.

Cassette deck controls (Fig. 2)

69 Record button (● REC)

Press this button to change to the recording stand-by mode.

70 Deck 1/Deck 2 selector (DECK 1/2)

This button is used to select the deck to be operated by remote control when a double cassette deck is connected with this unit.

71 Fast-forward/cue/rewind/review buttons (◀◀, ▶▶)

Press this button to advance or rewind the tape while the unit is in the stop mode.

Press this button to cue or review the contents at high speed, while the unit is in the play mode.

72 Playback buttons (◀ PLAY ▶)

To begin playback or recording, press one of these buttons corresponding to the side of the tape to be played (or recorded).

▶: For the "A"-side of the tape

◀: For the "B"-side of the tape

73 Pause button (|| PAUSE)

Press this button to temporarily stop playback or recording. Press the playback button to resume the play or recording.

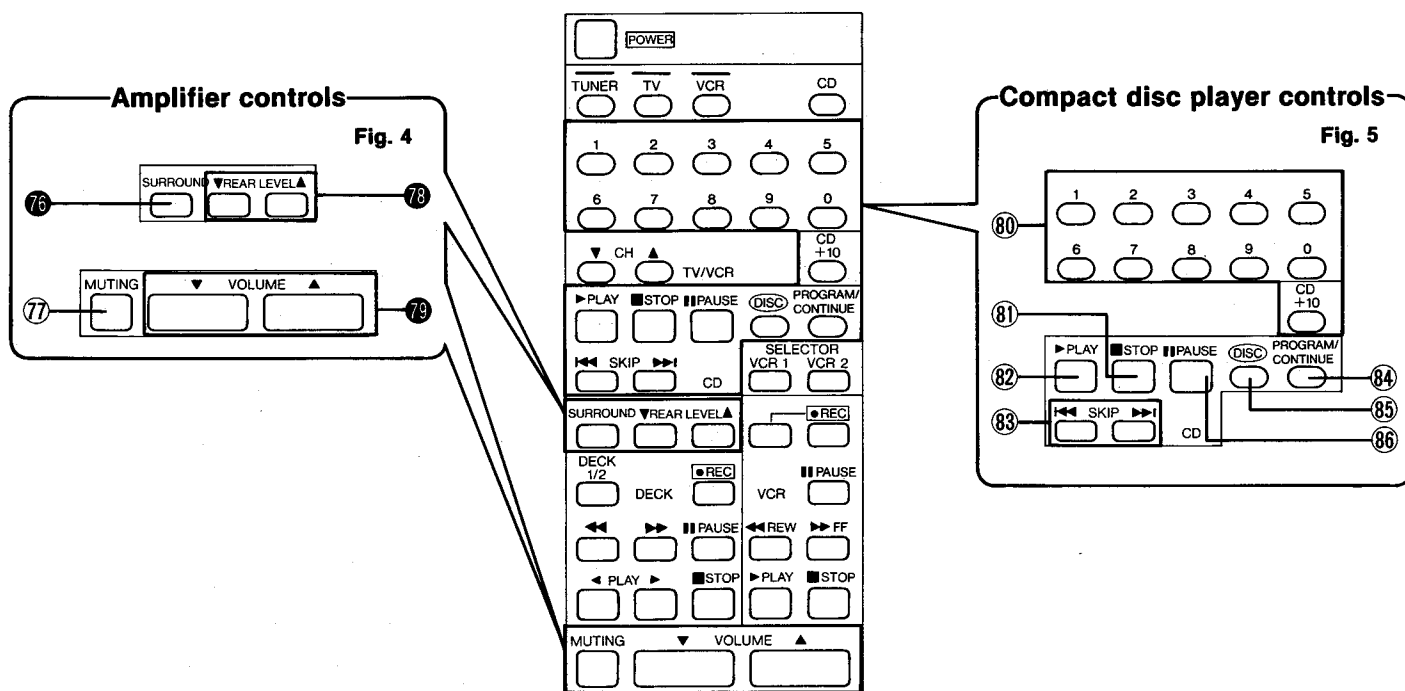
74 Stop button (■ STOP)

To stop tape movement.

Function selector controls (Fig. 3)

75 Function selector buttons (TUNER, TV, VCR, CD)

These buttons are used to change the functions of this remote control.



Amplifier controls (Fig. 4)

76 Dolby surround ON/OFF button (SURROUND)

This button is used to activate the Dolby surround effect.

77 Muting button (MUTING)

This button is used to temporarily attenuate ("mute") the volume level.

78 Rear speaker level adjustment buttons (▼ REAR LEVEL ▲)

These buttons are used to adjust the volume level of the rear speaker systems.

79 Volume control (▼ VOLUME ▲)

These buttons are used to adjust the volume level.

▼: To reduce the volume level.

▲: To increase the volume level.

Compact disc player controls (Fig. 5)

80 Numeric buttons (1-0, +10)

These buttons are used to select the track or the disc number (only 1-5).

When these buttons are used, be sure to first press the "CD" button of the function selector buttons of the remote control transmitter.

81 Stop button (■ STOP)

To stop compact disc play.

82 Play button (▶ PLAY)

To start compact disc play.

83 Skip buttons (◀◀ SKIP ▶▶▶)

Press one of these buttons briefly to move the pickup (backward or forward) to the beginning of a specific track.

84 Program/continue button (PROGRAM/CONTINUE)

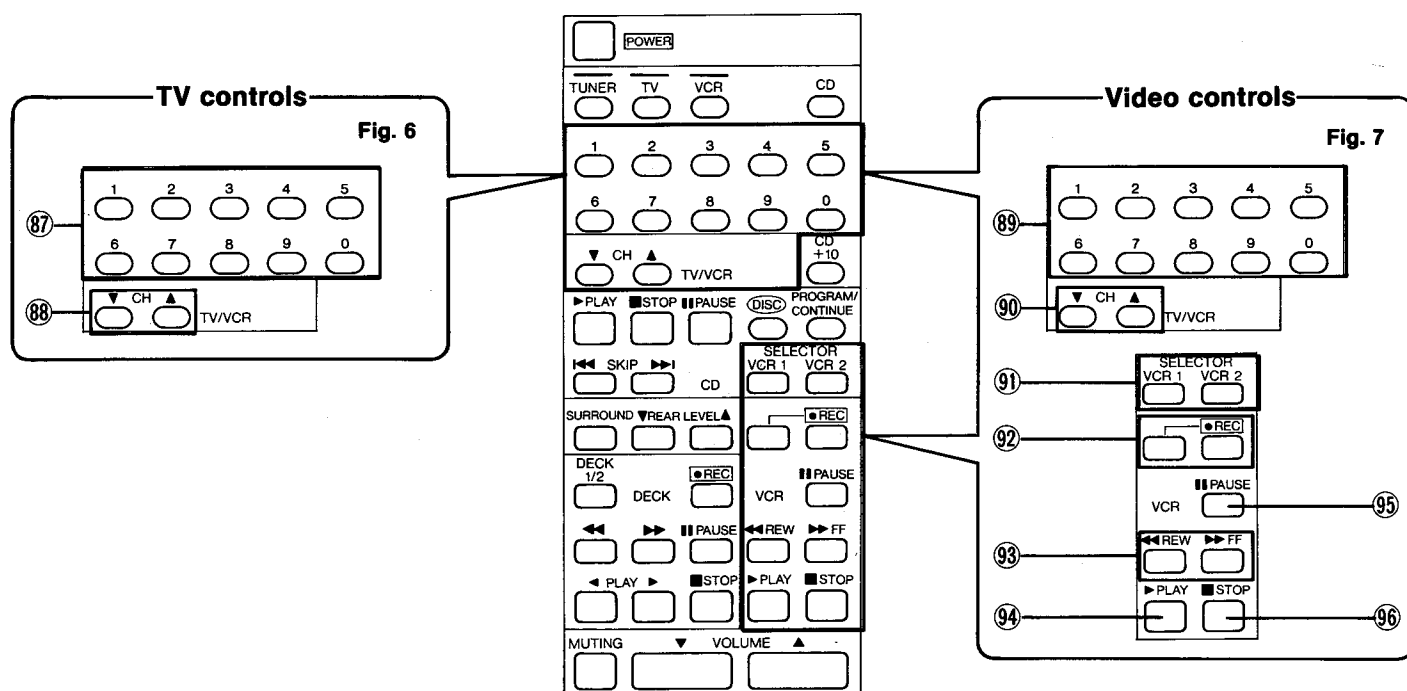
This button is used to select either the sequential play or program play mode.

85 Disc button (DISC)

This button is used to select the disc when a multi compact disc player is connected with this unit.

86 Pause button (|| PAUSE)

To temporarily stop compact disc play.



Remote control section

TV controls (Fig. 6)

When the buttons (87, 88) are used, be sure to first press the "TV" button of the function selector buttons of the remote control transmitter.

87 Preset channel buttons (1 – 0)

These buttons are used to select TV channels.

88 Channel up/down buttons (▼ CH ▲)

These buttons are used to select TV channels.

Video controls (Fig. 7)

When the buttons (89, 90) are used, be sure to first press the "VCR" button of the function selector buttons of the remote control transmitter.

89 Preset channel buttons (1 – 0)

These buttons are used to select video channels.

90 Channel up/down buttons (▼ CH ▲)

These buttons are used to select video channels.

91 Selector buttons (SELECTOR)

VCR 1: Press this button to select the "VCR 1" input selector position on the main unit.

VCR 2: Press this button to select the "VCR 2" input selector position on the main unit.

92 Record buttons (● REC)

These buttons are used to record.

93 Fast-forward/rewind buttons (◀◀ REW, ▶▶ FF)

Press one of these buttons to advance or rewind the tape while the unit is in the stop mode.

94 Playback button (▶ PLAY)

This button is used for video playback.

95 Pause button (|| PAUSE)

This button is used to pause during playback or video recording.

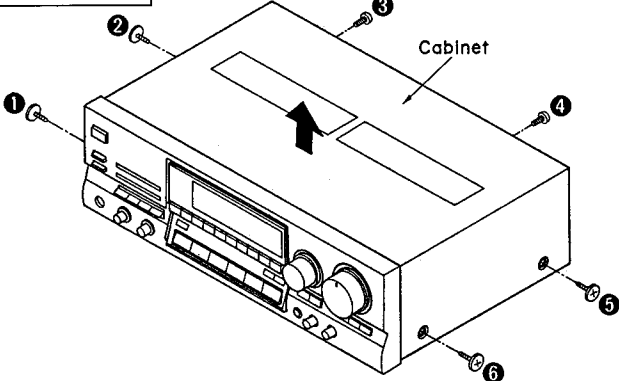
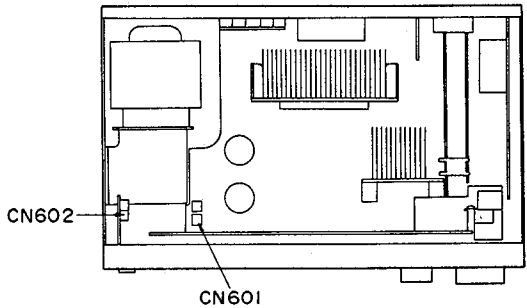
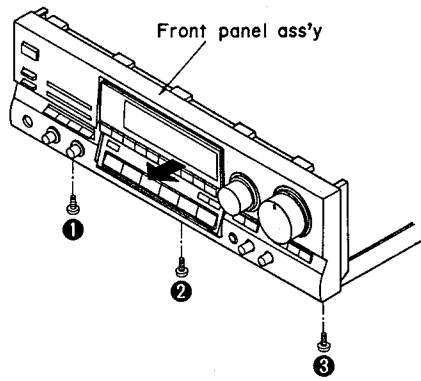
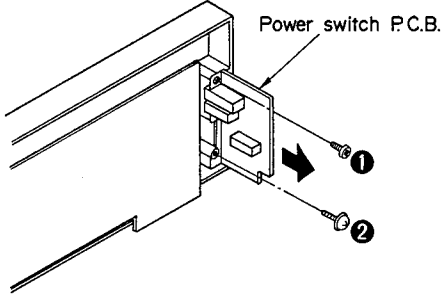
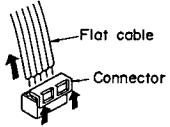
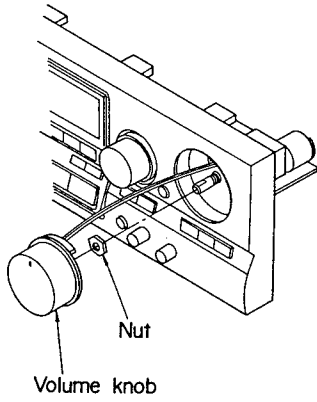
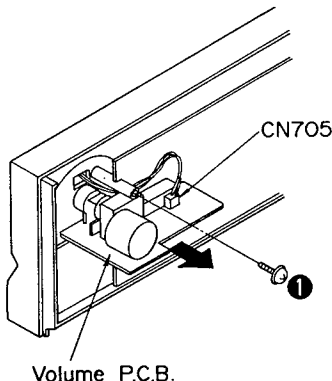
96 Stop button (■ STOP)

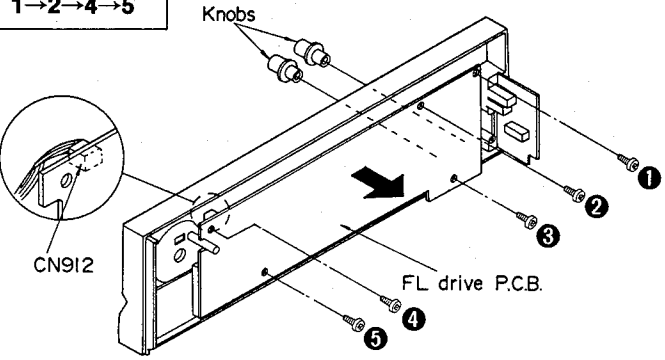
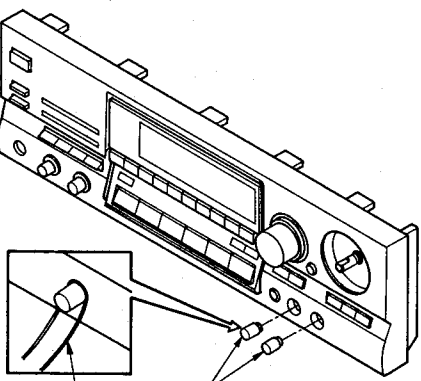
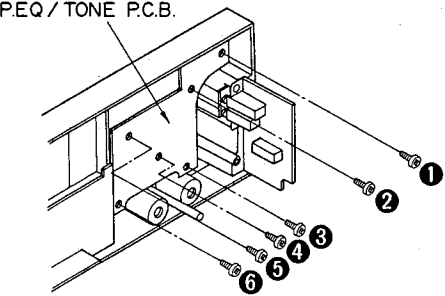
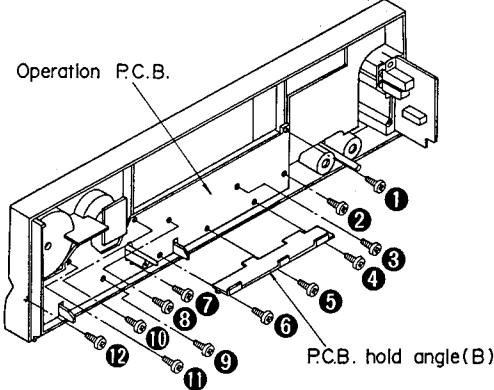
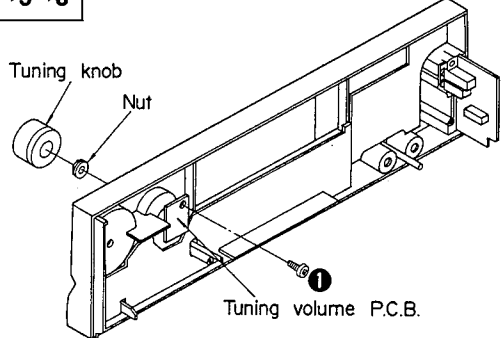
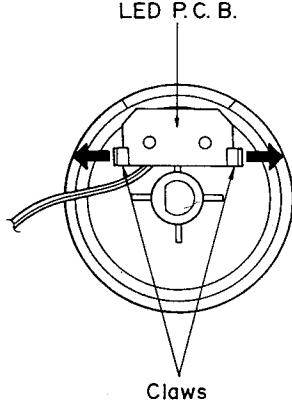
This button is used to stop playback or video recording.

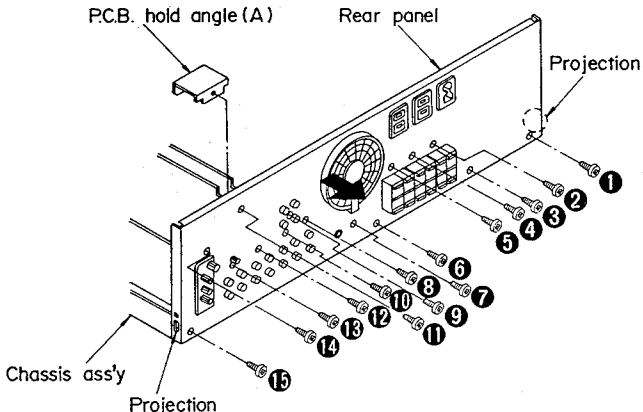
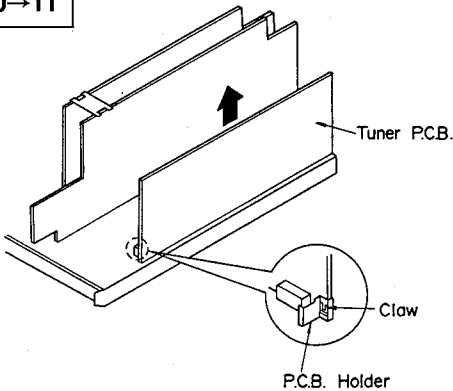
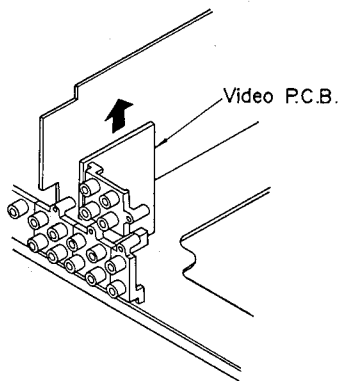
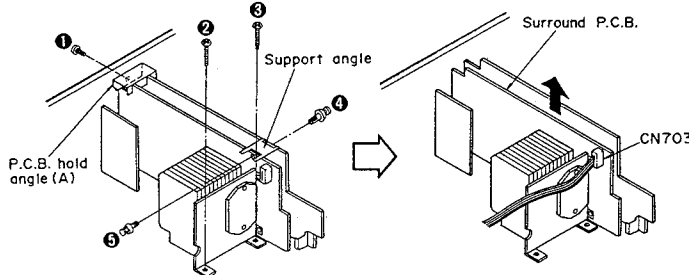
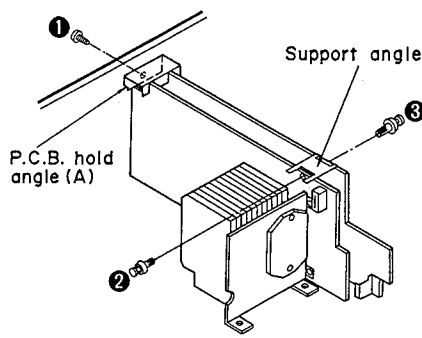
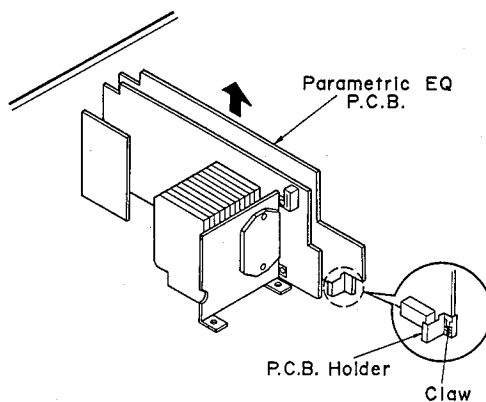
DISASSEMBLY INSTRUCTIONS

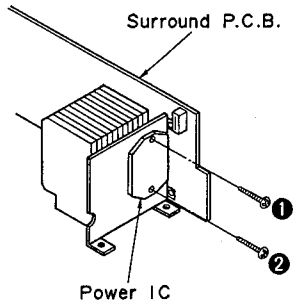
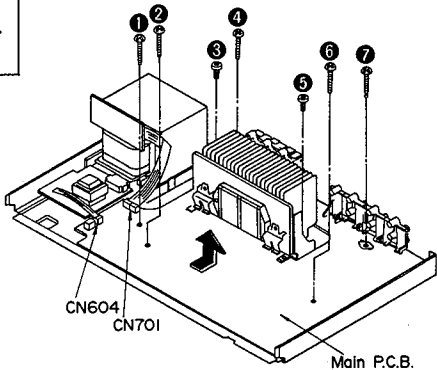
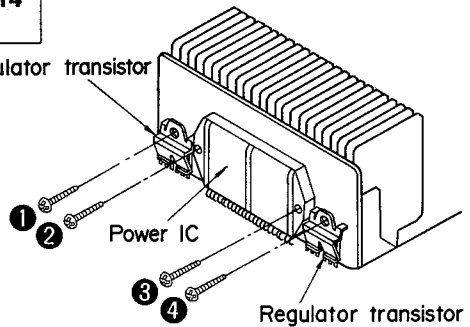
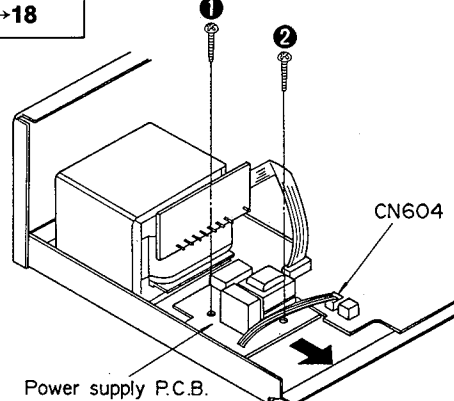
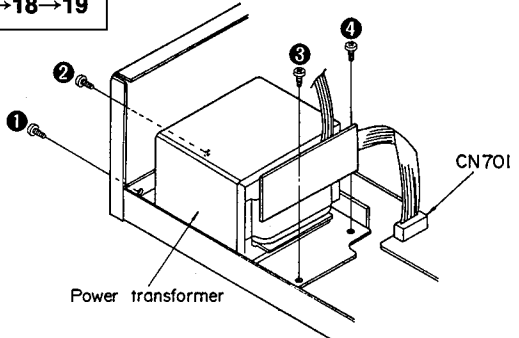
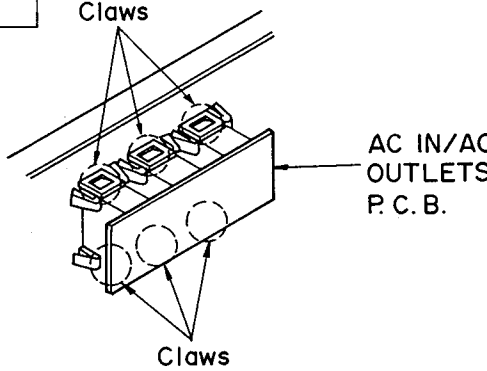
"ATTENTION SERVICER"

Some chassis components may have sharp edges. Be careful when disassembling and servicing.

Ref. No. 1	Removal of the cabinet	Ref. No. 2	Removal of the front panel ass'y
Procedure 1	 • Remove the 6 screws (①~⑥).	Procedure 1→2	1. Remove the 2 flat cables (CN601, CN602).  2. Remove the 3 screws (①~③). 3. Remove the front panel ass'y in the direction of arrow. 
Ref. No. 3	Removal of the power switch P.C.B.	Removal of the flat cable	
Procedure 1→2→3	 • Remove the 2 screws (①, ②).	1. Lift the connector. 2. Pull out the flat cable. 	
Ref. No. 4	Removal of the volume P.C.B.	3. Remove the 1 screw (①). 4. Remove the 1 connector (CN705). 5. Remove the volume P.C.B. in the direction of arrow.	
Procedure 1→2→4	 1. Pull out the volume knob. 2. Remove the nut.		

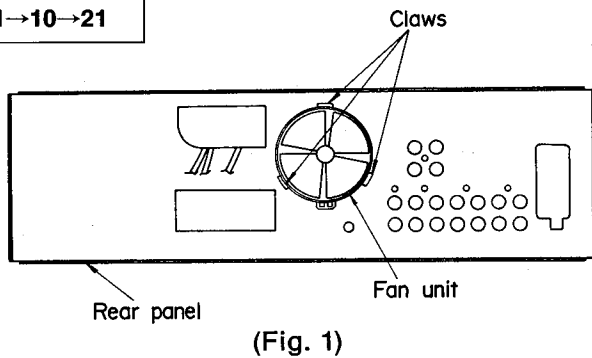
Ref. No. 5	Removal of the FL drive P.C.B.	Ref. No. 6	Removal of the operation P.C.B.
Procedure 1→2→4→5	 Knobs CN912 FL drive P.C.B. 1. Remove the 2 knobs. 2. Remove the 5 screws (①~⑤). 3. Remove the FL drive P.C.B. in the direction of arrow. 4. Remove the 1 flat cable (CN912).	Procedure 1→2→4→5→6	 Knobs Piece of cord ※ If the knob is difficult to remove, wrap a piece of cord or something similar around it to remove it. 1. Remove the 2 knobs.
Ref. No. 7	Removal of the P. EQ/TONE P.C.B.		
Procedure 1→2→4→5→7	 P.EQ/TONE P.C.B. • Remove the 6 screws (①~⑥).		 Operation P.C.B. P.C.B. hold angle(B) 2. Remove the 12 screws (①~⑫). 3. Remove the P.C.B. hold angle (B).
Ref. No. 8	Removal of the tuning volume P.C.B.	Ref. No. 9	Removal of the LED P.C.B.
Procedure 1→2→4→5→8	 Tuning knob Nut Tuning volume P.C.B. 1. Pull out the tuning knob. 2. Remove the nut. 3. Remove the 1 screw (①).	Procedure 1→2→4→9	 LED P.C.B. Claws • Release the 2 claws.

Ref. No. 10 Procedure 1→10	Removal of the rear panel	Ref. No. 11 Procedure 1→2→10→11	Removal of the tuner P.C.B.
	 1. Remove the 15 screws (①~⑮). 2. Remove the P.C.B. hold angle (A). 3. Remove the rear panel from the projection of the chassis ass'y.		 1. Release the 1 claw. 2. Remove the tuner P.C.B. in the direction of arrow.
Ref. No. 12	Removal of the video P.C.B.	Ref. No. 13 Procedure 1→2→13	Removal of the surround P.C.B.
Procedure 1→2→10→12	 • Remove the video P.C.B. in the direction of arrow.		 1. Remove the 3 screws (①~③). 2. Remove the P.C.B. hold angle (A). 3. Remove the 2 latch (④, ⑤). 4. Remove the support angle. 5. Remove the 1 flat cable (CN703). 6. Remove the surround P.C.B. in the direction of arrow.
Ref. No. 14	Removal of the parametric EQ P.C.B.		
Procedure 1→2→14	 1. Remove the 1 screw (①). 2. Remove the P.C.B. hold angle (A). 3. Remove the 2 latch (②, ③). 4. Remove the support angle.		 5. Release the 1 claw. 6. Remove the parametric EQ P.C.B. in the direction of arrow.

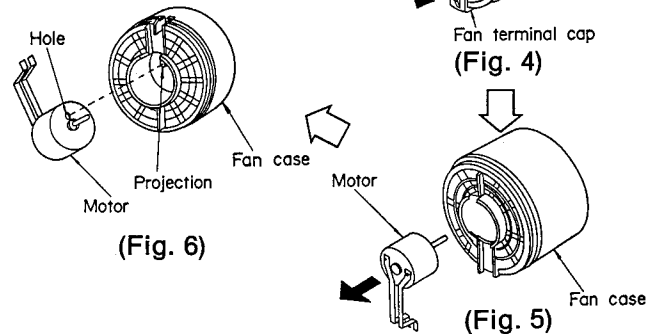
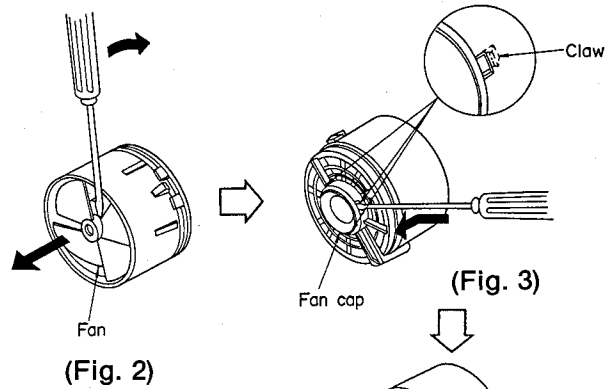
Ref. No. 15	Removal of the power IC	Ref. No. 16	Removal of the main P.C.B.
Procedure 1→2→13→15	 1. Unsolder the power IC. 2. Remove the 2 screws (①, ②). •When mounting the power IC, apply silicon thermal compound (SZZ0L15 or equivalent) to the rear of the power IC.	Procedure 1→2→10→11 →12→13→14 →16	 1. Remove the 2 flat cables (CN604, CN701). 2. Remove the 7 screws (①~⑦). 3. Remove the main P.C.B. in the direction of arrow.
Ref. No. 17	Removal of the power IC and regulator transistor	Ref. No. 18	Removal of the power supply P.C.B.
Procedure 1→2→10→11 →12→13→14 →16→17	 1. Unsolder the power IC or regulator transistor. 2. Remove the 4 screws (①~④). •When mounting the power IC or regulator transistor. Apply silicone compound (SZZ0L15) to the rear side of power IC or regulator transistor.	Procedure 1→2→18	 1. Remove the 1 flat cable (CN604). 2. Remove the 2 screws (①, ②). 3. Remove the power supply P.C.B. in the direction of arrow.
Ref. No. 19	Removal of the power transformer	Ref. No. 20	Removal of the AC IN/AC OUTLETS P.C.B.
Procedure 1→2→18→19	 1. Remove the 1 flat cable (CN701). 2. Remove the 4 screws (①~④).	Procedure 1→20	 •Release the 6 claws.

Ref. No.
21

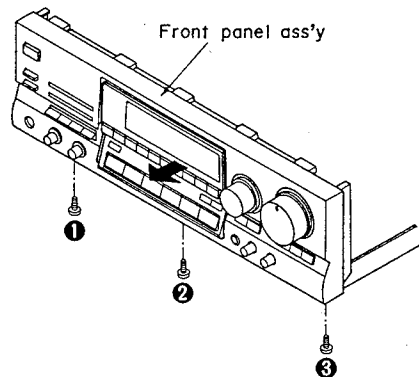
Removal of the fan motor

Procedure
1→10→21

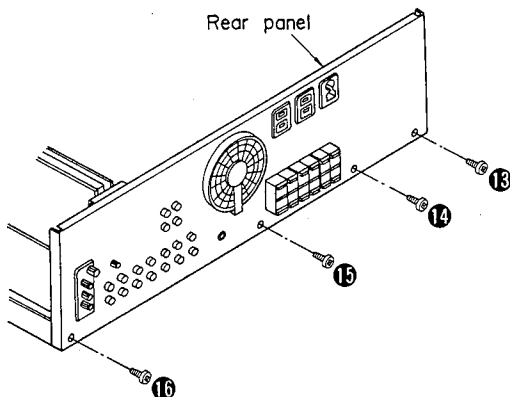
1. Release the 3 claws. (See Fig. 1)
2. Insert a screwdriver at the root of the fan. Force it out of the motor shaft. (See Fig. 2)
3. Remove the fan cap by used $\ominus$ screwdriver. (See Fig. 3)
4. Remove the fan terminal cap in the direction of arrow. (See Fig. 4).
5. Remove the motor from the fan case. (See Fig. 5).
6. When mounting the motor, align the fan casing's projection with the hole of the motor. (See Fig. 6).

Ref. No.
22

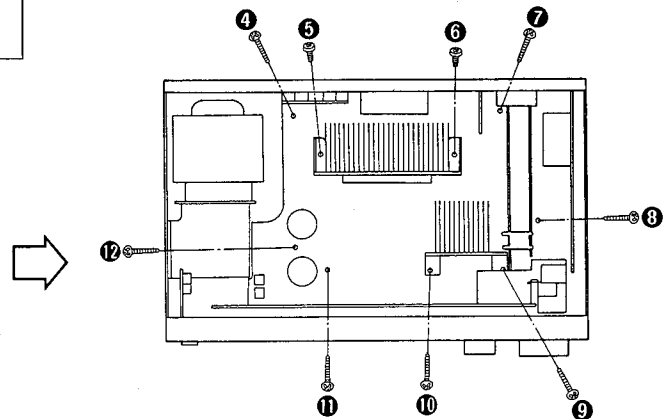
How to check the main P.C.B.

Procedure
1→12

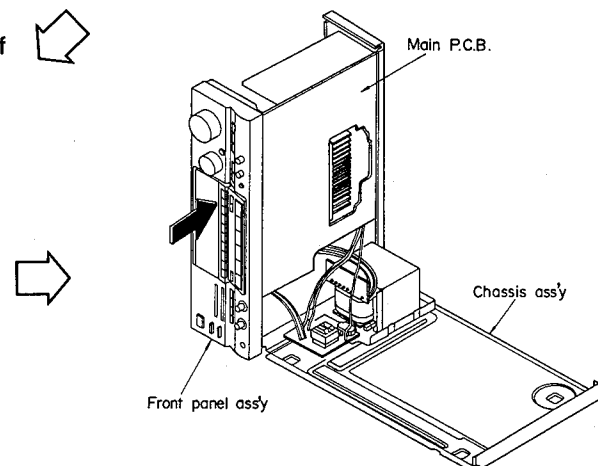
1. Remove the 3 screws (1~3).
2. Remove the front panel ass'y in the direction of arrow.



4. Remove the 4 screws (13~16).



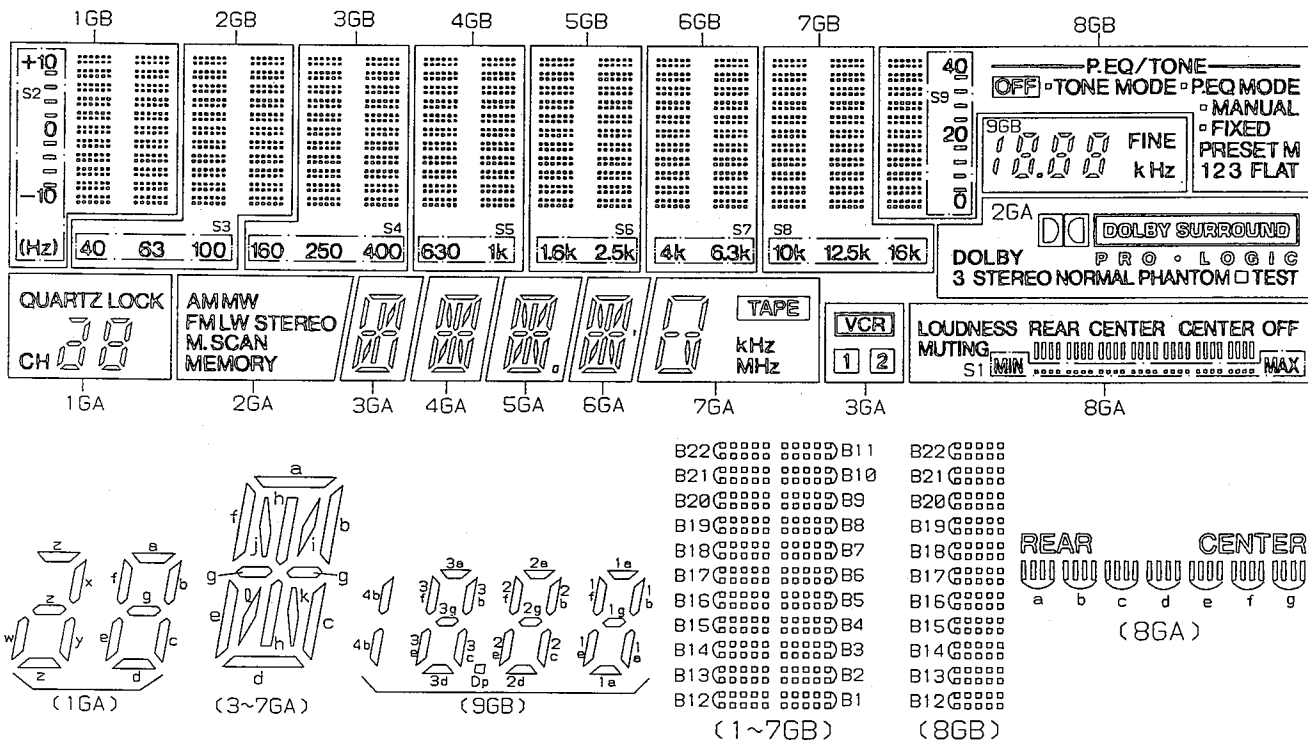
3. Remove the 9 screws (4~12).



5. Remove the chassis ass'y.
6. Reinstall the front panel ass'y to the main P.C.B.

INTERNAL CONNECTION OF FL

- **Grid connection diagram**



- **Pin connection**

[illegible]

- **Anode connection table (A)**

	1GA	2GA	3GA	4GA	5GA	6GA	7GA	8GA
P1A	a	NORMAL	a	a	a	a	a	S1
P2A	x	PHANTOM	i, l	j	j	j	-	a
P3A	y	AM	h	h	h	h	TAPE	b
P4A	z	MW	1	i	i	i	-	c
P5A	f	FM	f	f	f	f	f	d
P6A	b	LW	b	b	b	b	b	e
P7A	g	DOLBY MONITORING	g	g	g	g	g	f
P8A	e	PRO • LOGIC	e	e	e	e	e	g
P9A	c	M. SCAN	c	c	c	c	c	MUTING
P10A	w	MEMORY	2	l	l	l	KHz	LOUDNESS
P11A	d	DOLBY 3 STEREO	d	d	d	d	d	REAR
P12A	QUARTZ LOCK	TEST	VCR	k	k	k	k	CENTER
P13A	CH	STEREO (LW)	-	-	-	-	MHz	CENTER OFF

• Anode connection table (B)

	1GB	2GB	3GB	4GB	5GB	6GB	7GB	8GB	9GB
P1B	S2	S3	S4	S5	S6	S7	S8	S9 —P.EQ/TONE—	Hz
P2B	B1	B1	B1	B1	B1	B1	B1	M	Dp k
P3B	B2	B2	B2	B2	B2	B2	B2	PRESET	FINE
P4B	B3	B3	B3	B3	B3	B3	B3	▷FIXED	1 a
P5B	B4	B4	B4	B4	B4	B4	B4	▷MANUAL	1 b
P6B	B5	B5	B5	B5	B5	B5	B5	3	1 e
P7B	B6	B6	B6	B6	B6	B6	B6	2	1 f
P8B	B7	B7	B7	B7	B7	B7	B7	1	1 g
P9B	B8	B8	B8	B8	B8	B8	B8	FLAT	2c
P10B	B9	B9	B9	B9	B9	B9	B9	▷P.EQ MODE	2b
P11B	B10	B10	B10	B10	B10	B10	B10	▷TONE MODE	2d
P12B	B11	B11	B11	B11	B11	B11	B11	OFF	2g
P13B	B12	B12	B12	B12	B12	B12	B12	B12	2a
P14B	B13	B13	B13	B13	B13	B13	B13	B13	2e
P15B	B14	B14	B14	B14	B14	B14	B14	B14	2f
P16B	B15	B15	B15	B15	B15	B15	B15	B15	3c
P17B	B16	B16	B16	B16	B16	B16	B16	B16	3b
P18B	B17	B17	B17	B17	B17	B17	B17	B17	3d
P19B	B18	B18	B18	B18	B18	B18	B18	B18	3g
P20B	B19	B19	B19	B19	B19	B19	B19	B19	3a
P21B	B20	B20	B20	B20	B20	B20	B20	B20	3e
P22B	B21	B21	B21	B21	B21	B21	B21	B21	3f
P23B	B22	B22	B22	B22	B22	B22	B22	B22	4b

■ PROTECTION CIRCUITRY

The protection circuitry may have operated if either of the following conditions is noticed:

- No sound is heard when the power is turned on.
- Sound stops during a performance.

The function of this circuitry is to prevent circuitry damage if, for example, the positive and negative speaker connection wires are "shorted", or if speaker systems with an impedance less than the indicated rated impedance of the amplifier are used.

If this occurs, follow the procedure outlines below:

1. Turn off the power.
2. Determine the cause of the problem and correct it.
3. Turn on the power once again after one minute.

Note:

When the protection circuitry functions, the unit will not operate unless the power is first turned off and then on again.

■ BEFORE REPAIR AND ADJUSTMENT

Disconnect AC power, Discharge both Power Supply Capacitors C701 and C702 through a 10Ω, 5W resistor to ground. DO NOT SHORT-CIRCUIT DIRECTLY (with a screwdriver blade, for instance), as this may destroy solid state devices. After repairs are completed, restore power gradually using a variac, to avoid overcurrent. Current consumption at 120V, 60Hz in NO SIGNAL mode should be 0.4~1A.

MEASUREMENTS AND ADJUSTMENTS

Note: For Z201 (AM ANT and OSC coil), Z202 (AM-IFT), they are supplied as adjusted parts. So, do not turn the cores of the parts. It is not necessary to adjust the AM circuit.

FM ADJUSTMENT

Control positions and equipment used

- FM signal generator (FM-SG).
- Distortion analyser
- Oscilloscope
- DC electronic voltmeter (DC EVM)
- Frequency counter
- Choke coil (100 μ H)
- Resistor (100k Ω)

FM MONO DISTORTION ADJUSTMENT

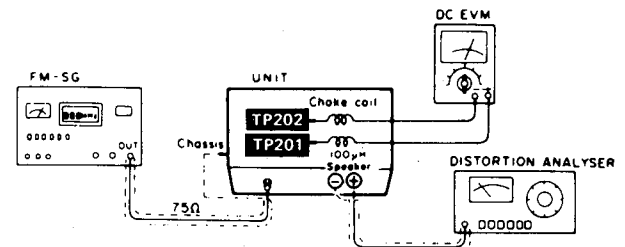
1. Test equipment connection is shown in figure.
2. Set the unit to "FM" position.
3. Set the radio frequency display and signal generator to 100.10 MHz.
4. Adjust T201 core so that voltage measured in signal mode is 0mV (0 $\pm$ 20mV) in 300mV range.
5. Adjust T202 so that the distortion factor of Lch is minimized.
6. Repeat steps 4 and 5 a few times.
7. Make sure that the distortion factors of Lch and Rch are nearly the same with each other to minimum.

Note:

The adjusting screwdriver used should be made of resin.

FM SIGNAL GENERATOR CONDITION

Modulation 100 %
Modulation frequency 1 kHz
(MONO)
Output level 66 dB

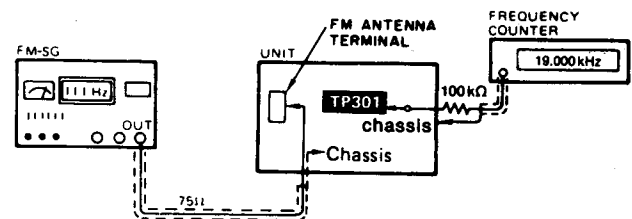


FM MPX VCO ADJUSTMENT

1. Test equipment connection is shown in figure.
2. Set the unit to "FM auto" position.
3. Set the radio frequency display and signal generator to 100.10 MHz.
4. Adjust VR301 for 19.00 $\pm$ 0.03kHz on frequency counter reading.

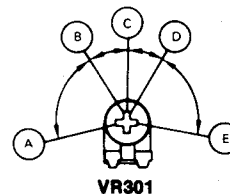
FM SIGNAL GENERATOR CONDITION

Modulation 0 %
(non-modulation)
Output level 66 dB



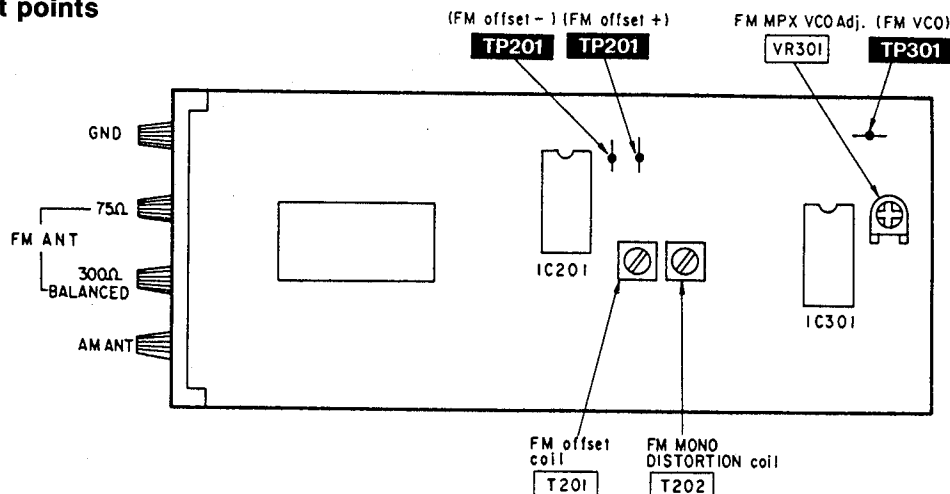
★ USING ALTERNATE SYSTEM

1. Apply stereo signal from generator or receive the stereo broadcast.
2. Adjust VR301 until stereo indicator lights up. Cement arm of VR301 as shown in figure.



- A - B : Stereo OFF position
- B - D : Stereo ON position (indicator lighting)
- C : Adjust point of Pilot circuit

Adjustment points



■ TERMINAL FUNCTION OF IC'S

• IC801 (M50946-150FP): Microcomputer

Pin No.	Mark	I/O Division	Function
1	f6	I	Spectrum analyzer signal
2	f7		
3	KIN	I	Key return signal
4	NC	—	Not connected
5 } 8	KS1/DIGA } KS4/DIGD	O	Key scan signal and digit signal to FL display
9	CURSW	—	Not used, connected to resistor
10	SEL MUTE		
11	EQSW	O	Equalizer selector control terminal
12	DT	O	Serial data signal
13	CK	O	Serial clock signal
14	ST	—	Not used, connected to resistor
15	CE	O	Chip enable terminal
16	BCK	—	Not used, connected to resistor
17	WCK		
18	CD		
19	NO SIGNAL	I	Mixing signal level detect terminal
20	HOLD	I	Power failure detect terminal
21	CNVss	—	GND terminal
22	RST	I	Reset detect terminal
23	NC	—	Not connected
24	NC		
25	Xin	I	Crystal oscillator terminal (6MHz)
26	Xout	O	

Pin No.	Mark	I/O Division	Function
27	Xcin	—	Not used, connected to GND
28	Xcout	—	Not used, open
29	Vss	—	GND terminal
30	NC	—	Not connected
31	LVLA	I	Frequency level or high-frequency sound detect terminal
32	LVLB		
33	FRGA	I	Center frequency or low-frequency sound detect terminal
34	FRGB		
35	NC	—	Not connected
36	Vp	I	Power supply terminal to FL display
37	MUTE	I	Muting detect terminal
38 } 54	S7 } S23	O	Segment signal to FL display
55	NC	—	Not connected
56	NC		
57 } 62	S1 } S6	O	Segment signal to FL display
63	AVcc	I	Power supply terminal
64	Vdd		
65	Vss	—	GND terminal
66	AVss		
67	Vref	I	Power supply terminal
68 } 72	f1 } f5	I	Spectrum analyzer signal

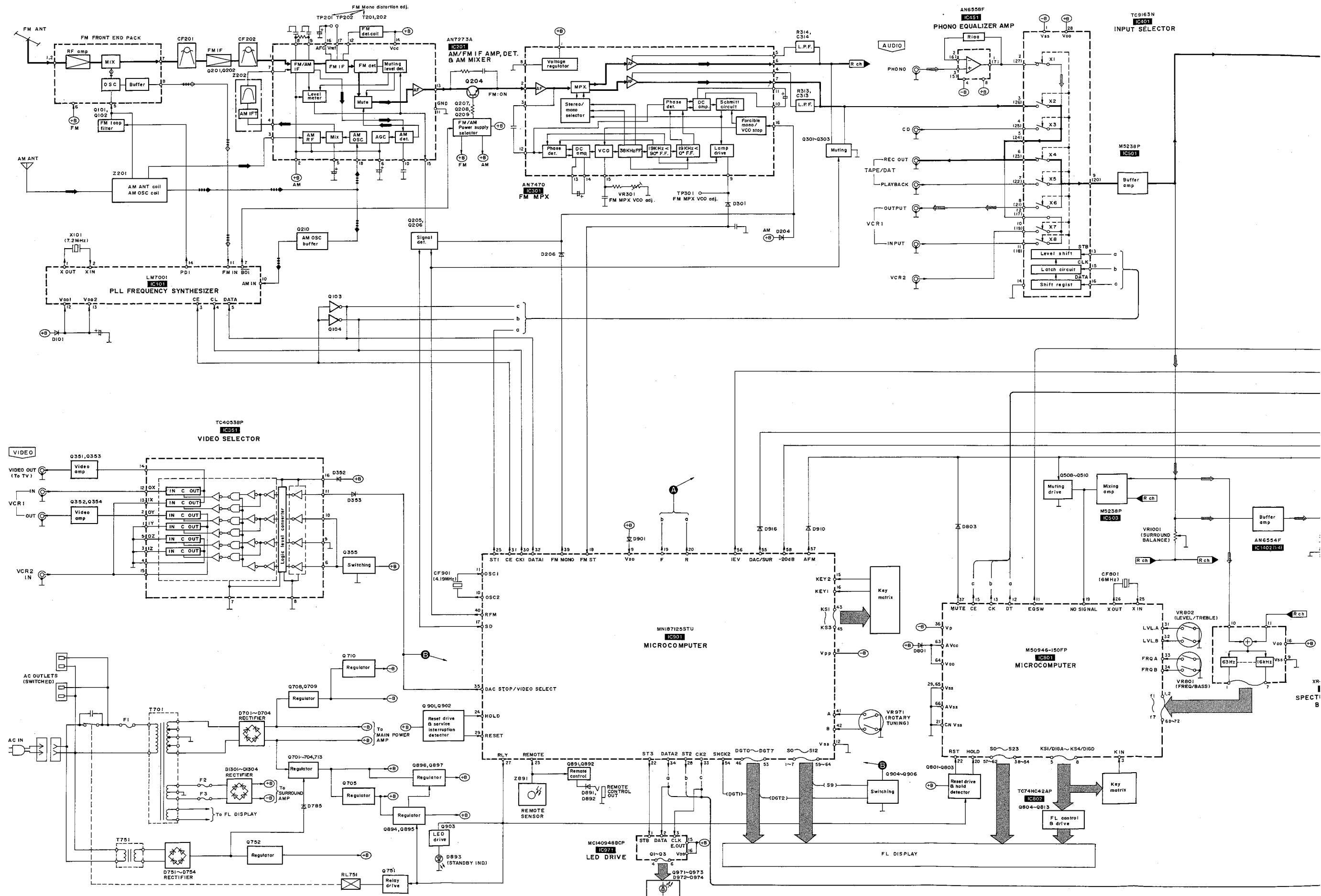
• IC901 (MN187125STU): Microcomputer

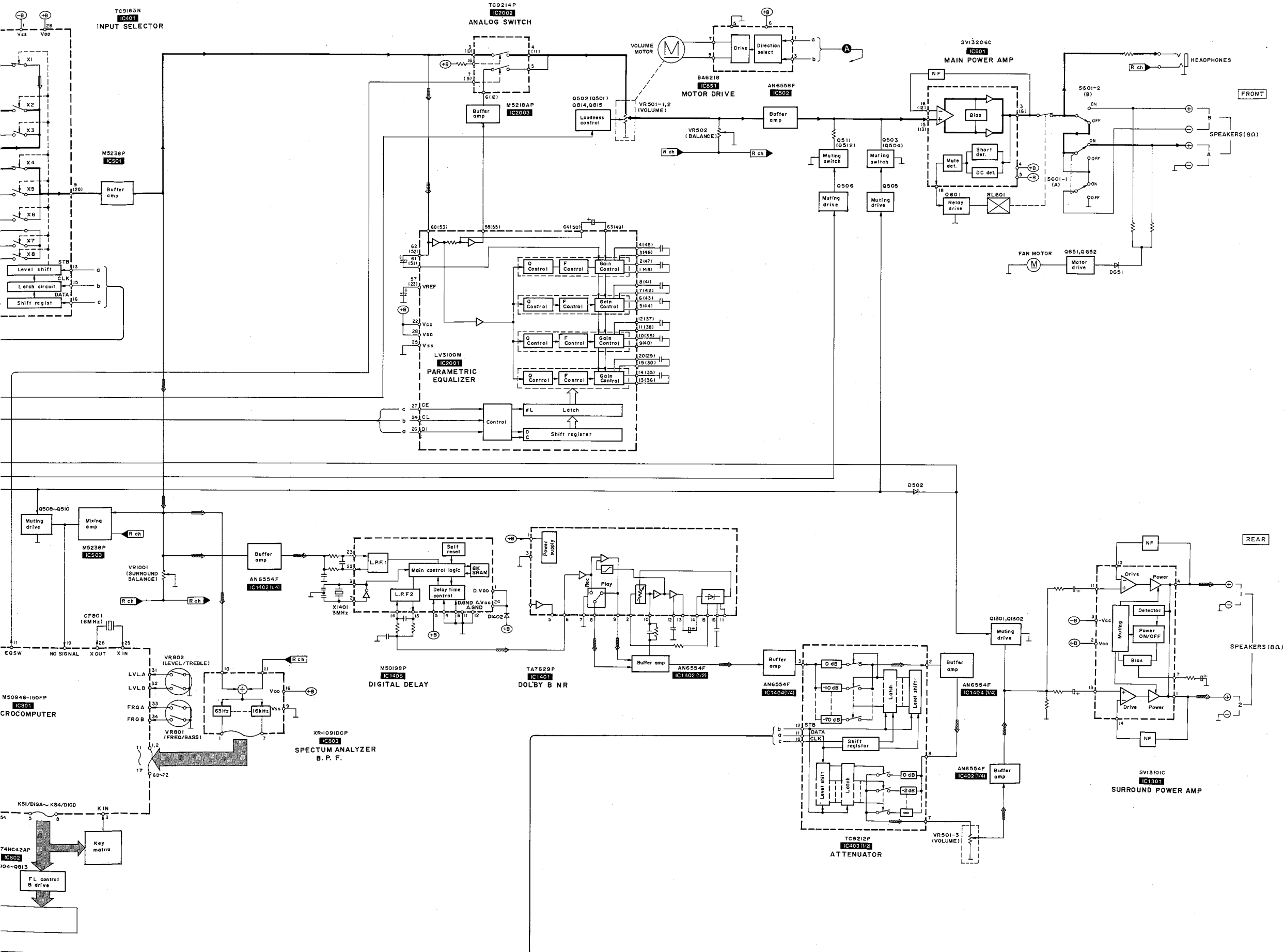
Pin No.	Mark	I/O Division	Function
1 } 7	S0 } S6	O	Segment signal to FL display
8	Vpp	I	Power supply terminal to FL display
9	Vdd	I	Power supply terminal
10	OSC2	O	Crystal oscillator terminal (4.19MHz)
11	OSC1	I	
12	Vss	—	GND terminal
13	XI	—	Not used, connected to GND
14	XO	—	Not used, open
15	KEY2	I	Key return signal
16	KEY1		
17	SD	I	Received signal detect terminal
18	FM ST	I	Stereo signal detect terminal
19	F	O	Sense of rotation for volume motor control terminal
20	R		
21	5-6	—	Not used, connected to resistor
22	ST3	O	Level shift control terminal
23	REMOTE	I	Remote control terminal
24	TEIDEN	I	Service interruption detect terminal
25	ST1	O	Level shift control terminal
26	OFF	—	Not used, connected to GND
27	RLY	O	Relay control terminal
28	ST2	O	Level shift control terminal
29	RESET	I	Reset detect terminal
30	CK1	O	Serial clock signal

Pin No.	Mark	I/O Division	Function
31	CE	O	Chip enable terminal
32	DATA1	O	Serial data signal
33	CK2	O	Serial clock signal
34	DATA2	O	Serial data signal
35	DAC STOP/EIZOU	O	Video selector control terminal
36	SYNC	—	Not used, open
37	CM	—	Not used, connected to GND
38	3ST	—	Not used, connected to resistor
39	FM mono	O	Forcible monaural signal
40	RFM	O	Muting control to tuner circuit
41	A	I	Rotary tuning control terminal
42	B		
43 } 45	KS1 } KS3	O	Key scan signal
46 } 53	DGT0 } DGT7	O	Digit signal to FL display
54	initial	I	Serial data detect terminal
55	DAC/sur	O	Muting control signal
56	lou	O	Loudness control signal
57	AFM	O	Muting control to amplifier circuit
58	−20dB	O	Muting control (−20dB) to amplifier circuit
59 } 64	S7 } S12	O	Segment signal to FL display

BLOCK DIAGRAM

SA-GX303 SA-GX303





- Note:**
- FM Signal
 - FM OSC
 - AM Signal
 - AM OSC
 - Rec out signal
 - P. equalizer signal
 - Spectrum analyzer signal
 - Rear speaker drive signal

* () indicates Pin No. of right channel.

■ SCHEMATIC DIAGRAM (This schematic diagram may be modified at any time) with the development of new technology.) (Parts list on pages 57~63.)

Note 1:

- S601 : Speaker selectors (SPEAKERS) switches.
[S601-1: A, S601-2: B]
- S801 : Display mode select (-DISPLAY MODE, -DEMO) switch.
- S802~805: Parametric EQ band switches.
[S802: EQ1, S803: EQ2, S804: EQ3]
[S805: EQ4]
- S806 : Parametric EQ system ON/OFF (P. EQ SYS) switch.
- S807 : Fine mode (FINE) switch.
- S808 : Slope changeover [SLOPE (Q)] switch.
- S809 : Parametric EQ/tone mode select (P. EQ/TONE) switch.
- S810 : Parametric EQ system memory (MEMORY) switch.
- S811 : Fixed preset (FIXED PRESET) switch.
- S812~814: Equalization preset (MANUAL PRESET) switches.
[S812: 1, S813: 2, S814: 3]
- S901~910: Preset-tuning (1-0)
(30 CHANNEL RANDOM PRESET TUNING) switches.
[S901: 1, S902: 2, S903: 3, S904: 4, S905: 5,
[S906: 6, S907: 7, S908: 8, S909: 9, S910: 0]
- S911 : Dolby surround ON/OFF (SURROUND) switch.
- S914, 915 : Rear speaker level adjustment (REAR LEVEL) switches.
[S914: ▼, S915: ▲]
- S916, 917,
921~923 : Input selector switches.
[S916: PHONO, S917: TUNER, S921: VCR2]
[S922: VCR1, S923: CD
- S918 : Tape-monitor (TAPE/DAT MONITOR) switch.
- S925 : Loudness (LOUDNESS) switch.
- S926 : Tuning- mode selector (TUNING MODE) switch.
[AUTO↔MANUAL↔LOCK]
- S927, 928 : Band selector switches.
[S927: FM, S928: AM]
- S929 : FM mode selector (FM MODE) switch.
- S930 : Memory scan (MEMORY SCAN) switch.
- S931 : Memory (MEMORY) switch.
- S932 : Power "⏻ STANDBY/ON" switch.

Signal line

- ▷ : FM OSC
- ▷ : AM OSC
- ▤▤▤▤▷ : Rec out signal (Lch)
- ▥▥▥▥▷ : Spectrum analyzer signal (Lch)
- ▧▧▧▧▷ : Rear speaker drive signal (Lch)
- ▨▨▨▨▷ : P. equalizer signal (Lch)
- — — — : Positive voltage lines
- - - - : Negative voltage lines
- ▬▬▬▬▷ : FM signal
- ▬▬▬▬▷ : AM signal
- ▬▬▬▬▷ : AF signal (Lch)

Important safety notice:

- Components identified by  mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts. Indicated voltage values are standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on internal impedance of the DC circuit tester.
- All voltage values shown in circuitry are DC voltage in FM signal (Stereo signal) reception mode.
 - * Figures in () Stand for DC-voltage in AM signal reception mode.

- The supply part number is described alone in the replacement parts list.

Ref. No.	Production Part No.	Supply Part No.
IC301	AN7470	SVIUPC1161C3
IC501, 503	M5238P	M5238P-1

*** Caution!**

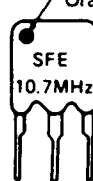
- IC and LSI are sensitive to static electricity. Secondary trouble can be prevented by taking care during repair.
- * Cover the parts boxes made of plastics with alminum foil.
- * Ground the soldering iron.
- * Put a conductive mat on the work table.
- * Do not touch the legs of IC or LSI with the fingers directly.

Note 2:

• Use of ceramic filters in pairs

The ceramic filters (CF201, CF202) for FM-IF circuit are available in three ranks. For this circuit, be sure to use the ceramics of the same rank in a pair. At repairing and replacement, pay close attention to the short jumpers (J956, J957) for use as different short jumpers must be used depending on each rank of the ceramic filters.

Color marking
(Blue, Red or Orange)



RANK (Color)	J956 (BL)	J957 (OR)	CENTER FREQUENCY
Blue	○	×	10.675MHz
Red	○	○	10.700MHz
Orange	×	○	10.725MHz

Note: ○ mark: short jumper is used.
× mark: short jumper is not used.

Note 3:

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE 5A 125V AND 2.5A 125V FUSES.



RISK OF FIRE-REPLACE FUSE AS MARKED.

FUSE CAUTION

 This symbol located near the fuse indicates that the fuse used is fast operating type. For continued protection against fire hazard, replace with same type fuse. For fuse rating, refer to the marking adjacent to the symbol.

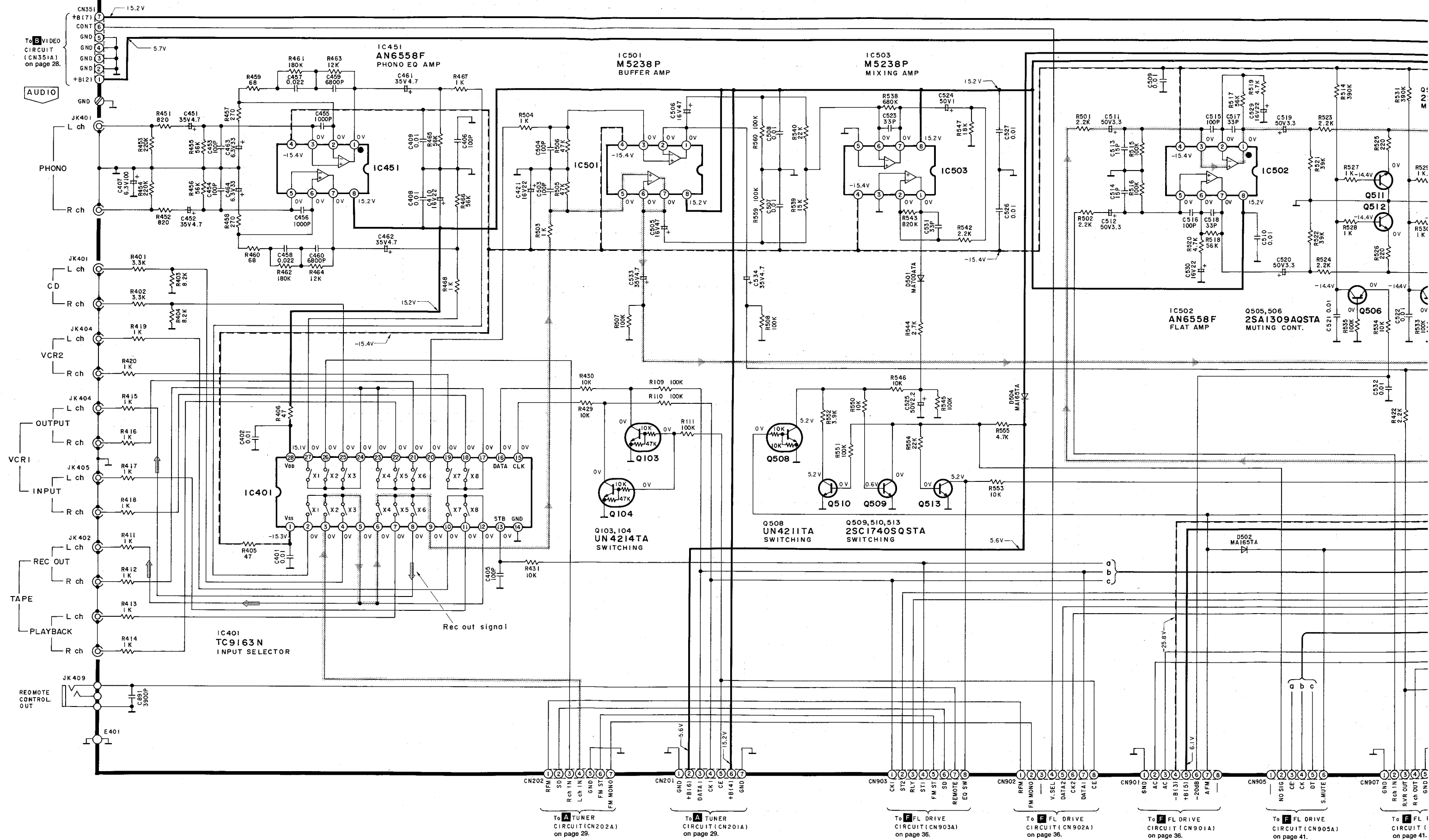
 Ce symbole indique que le fusible utilisé est à rapide. Pour une protection permanente, n' utiliser que des fusibles de même type. Ce dernier est Indiqué là où le présent symbole est apposé.

A



— 28 —

MAIN CIRCUIT



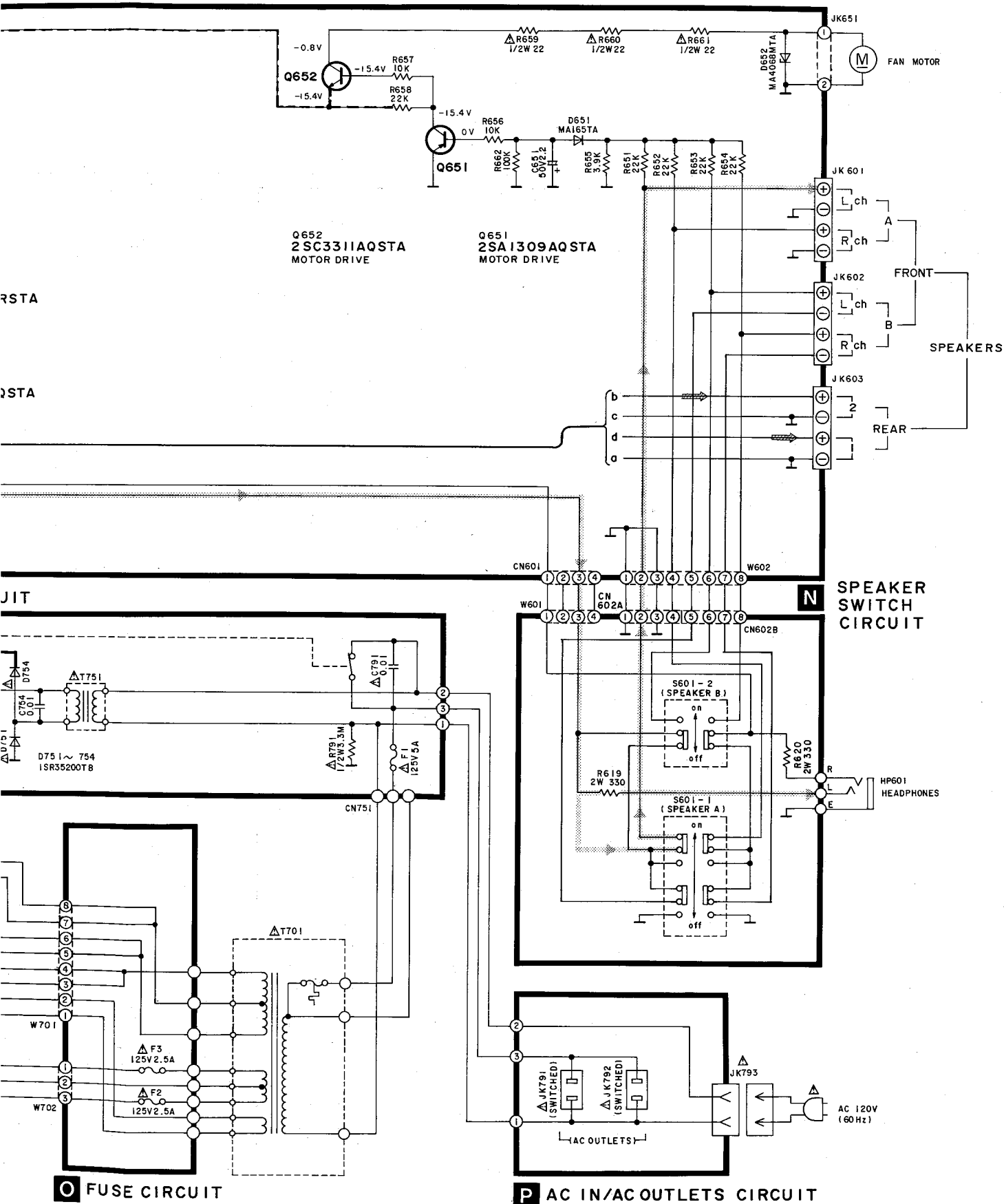
25

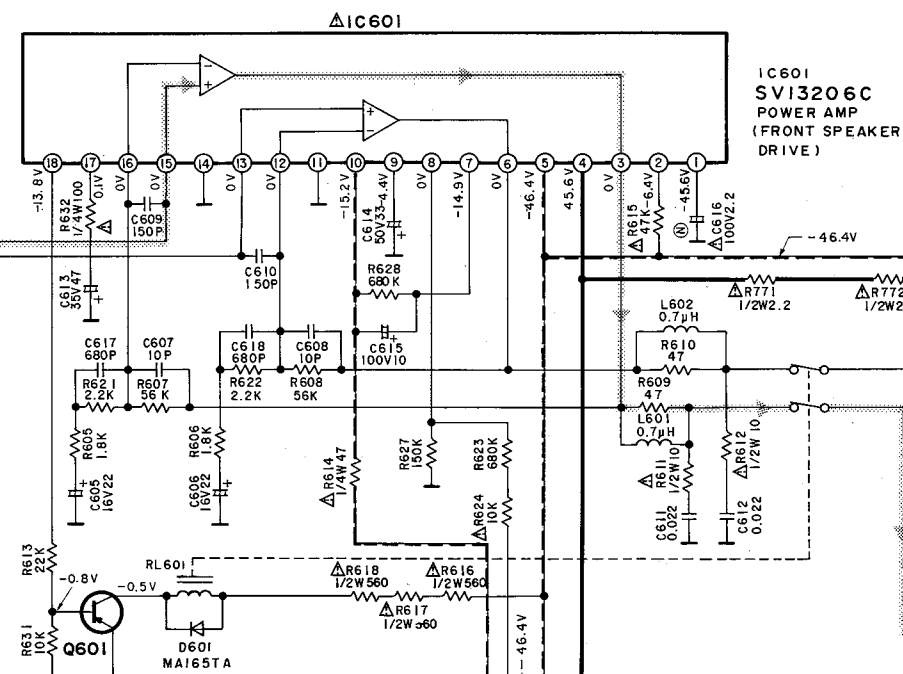
26

28

29

30

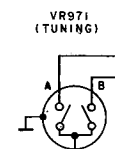




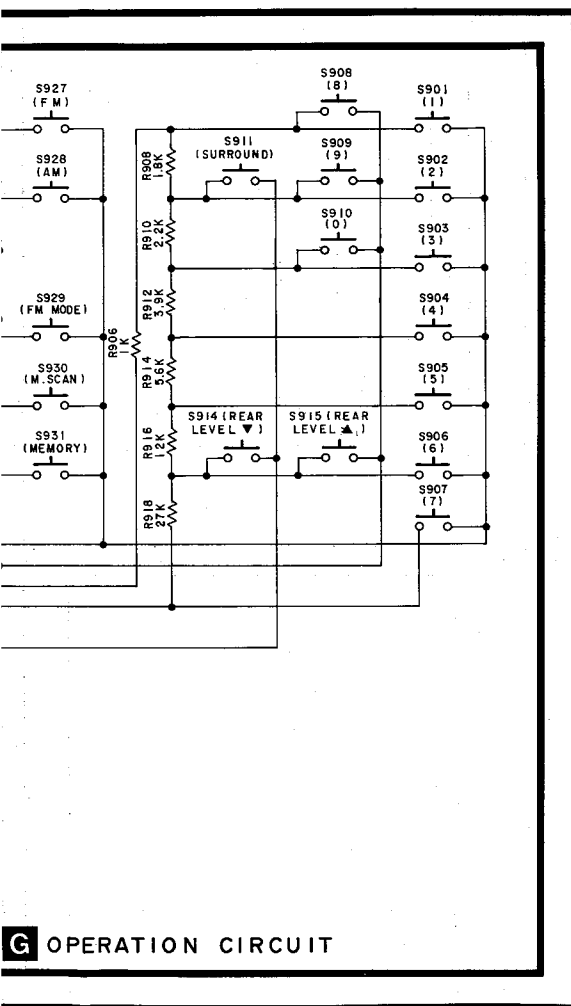
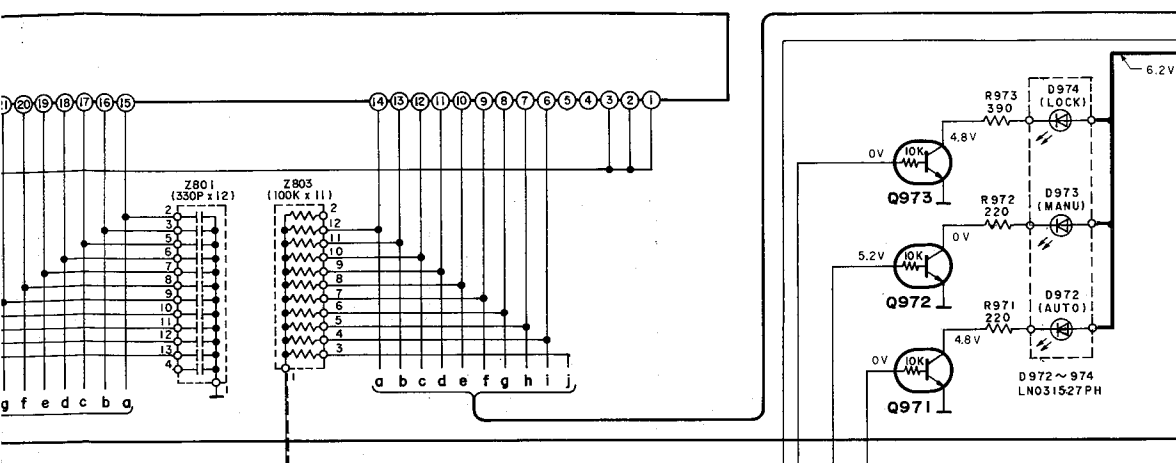




FL DISPLAY

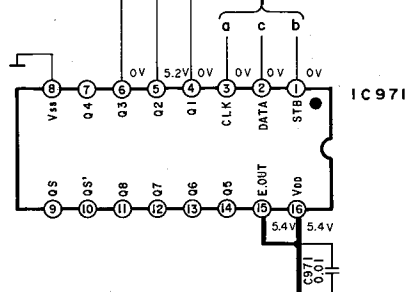


OPERATION CIRCUIT



Q971~973
UN4215TA
LED DRIVE

IC971
MC14094BCP
LED DRIVE

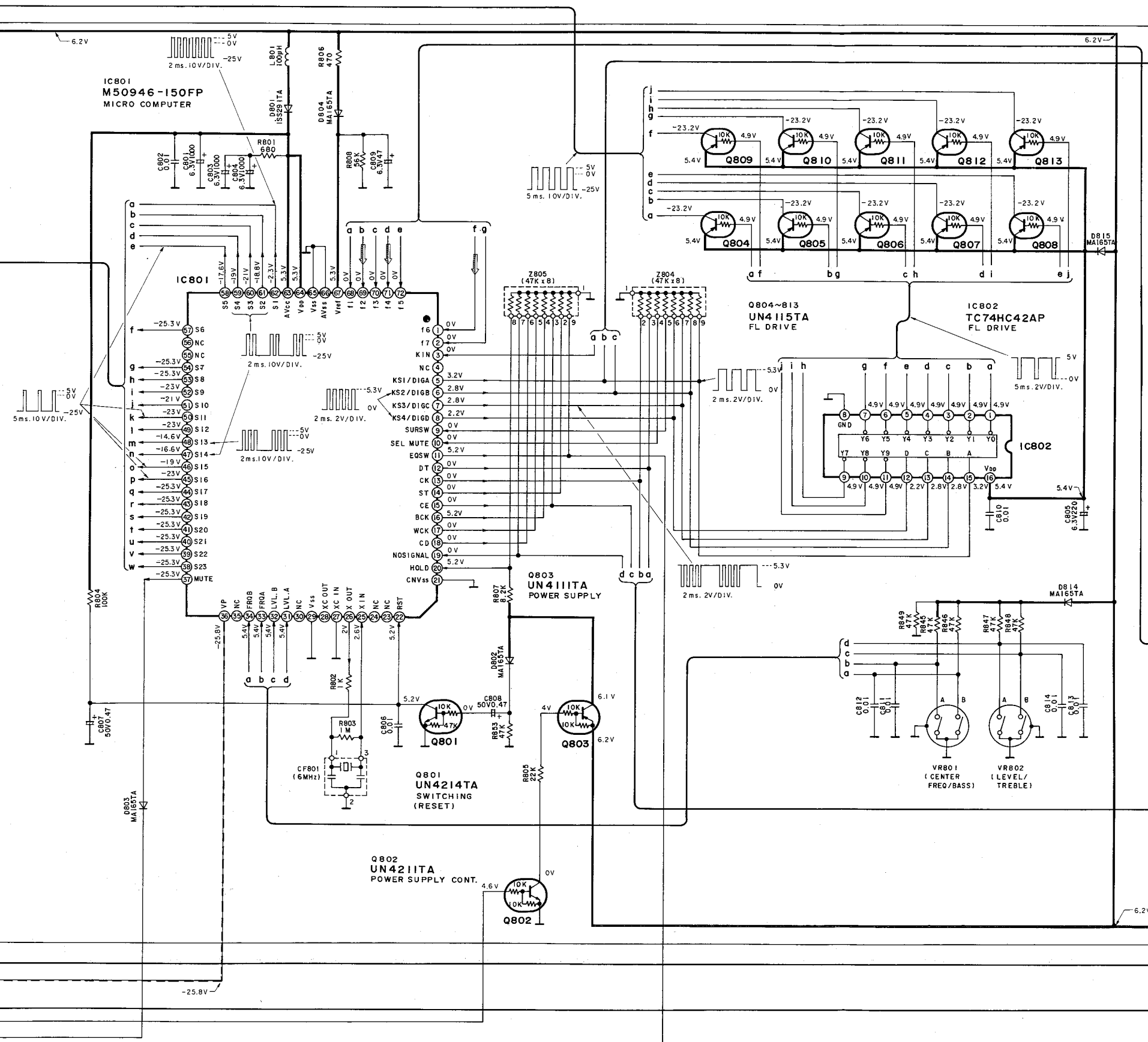


D971
MA165TA

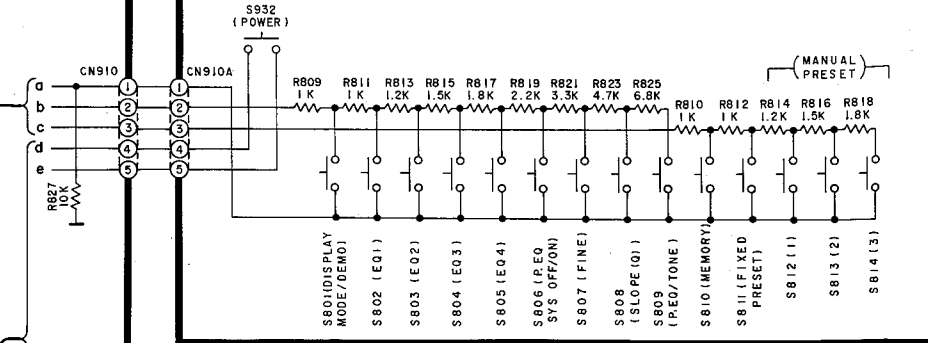
D916
MA165TA

-25.8V

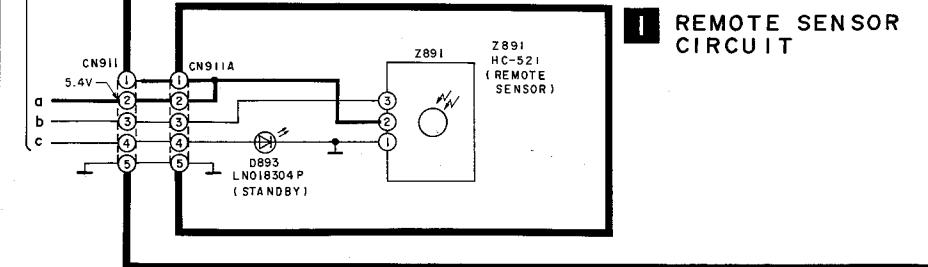
6.1V



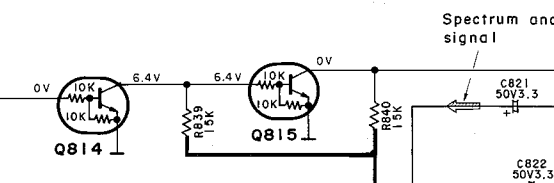
H P.EQ/TONE CIRCUIT



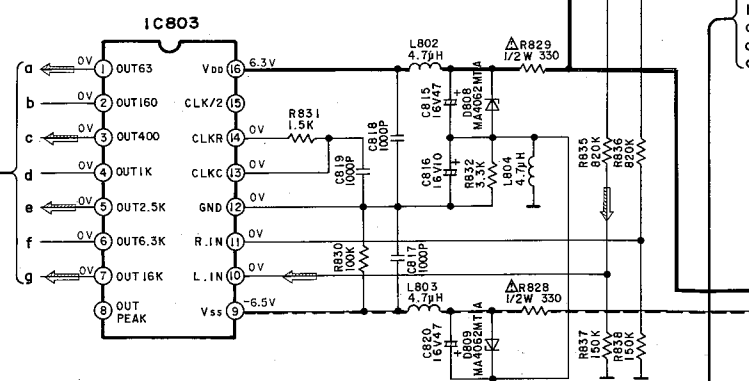
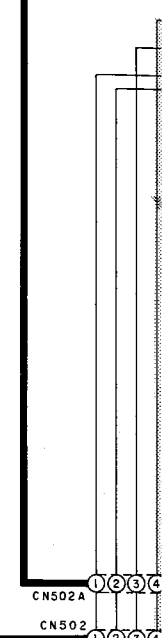
REMOTE SENSOR CIRCUIT



Q814, 815
UN4211TA
SWITCHING
(LOUDNESS)



IC 803
XR-1091DCP
SPECTRUM
ANALYZER B.P.F.

**J** VOLUN

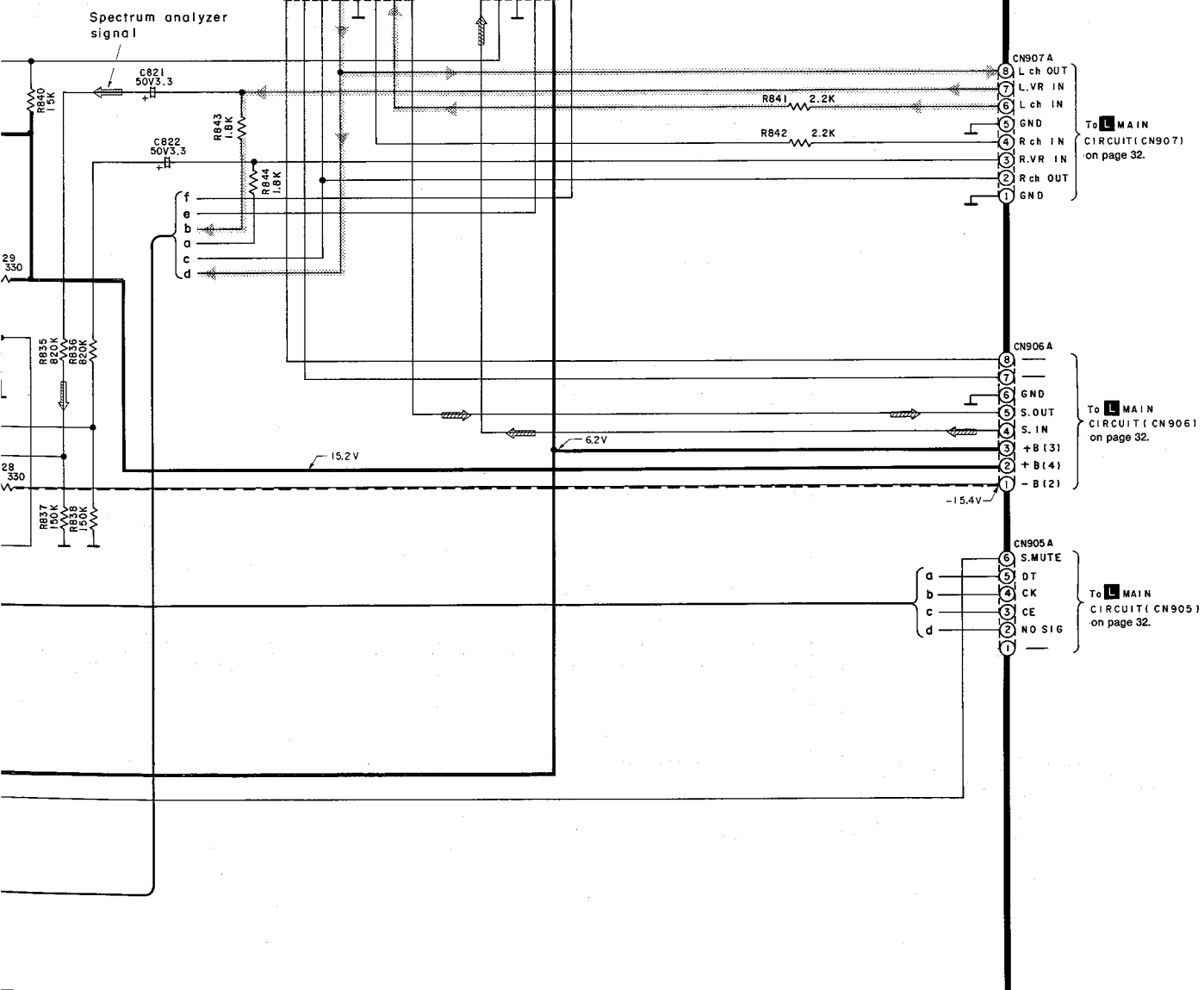
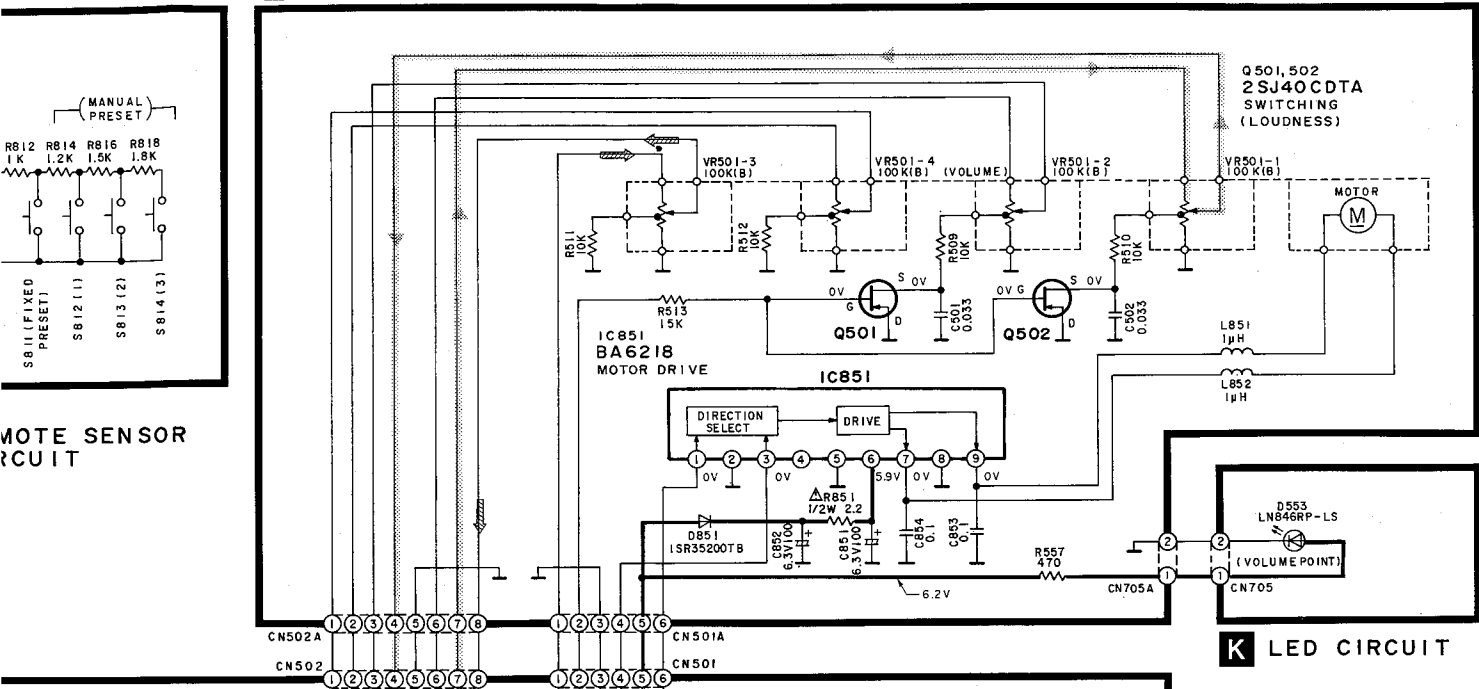
25

26

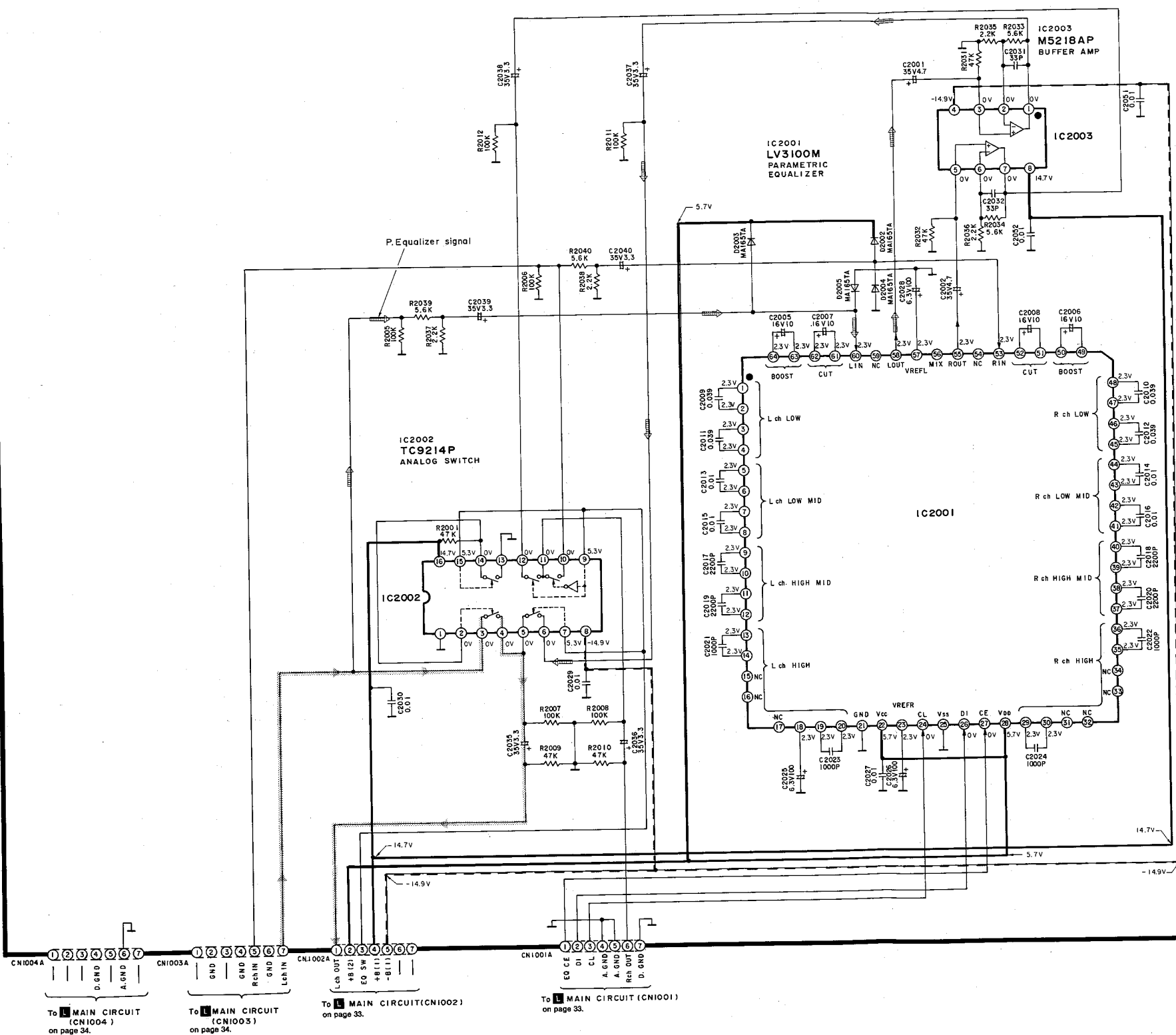
28

29

30

J VOLUME CIRCUIT

C PARAMETRIC EQ CIRCUIT



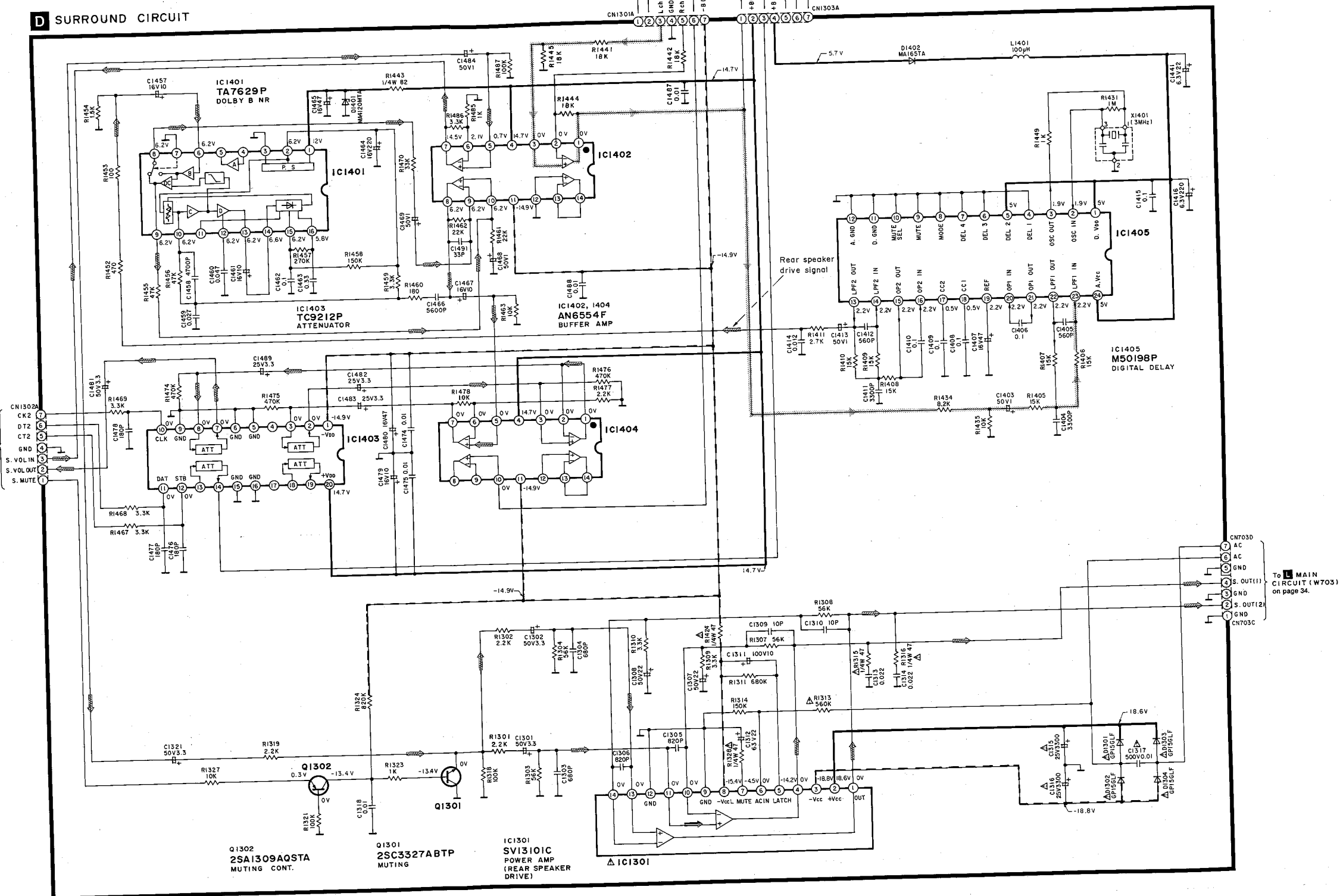
D SURROUND CIRCUIT

To MAIN CIRCUIT(CN1301) on page 33.

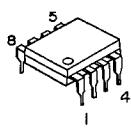
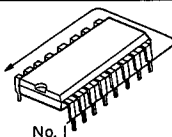
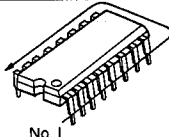
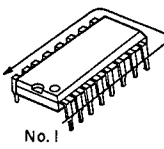
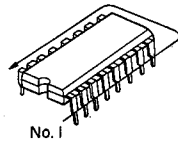
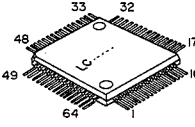
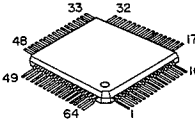
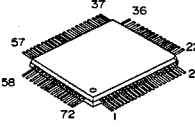
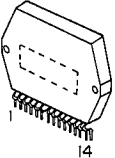
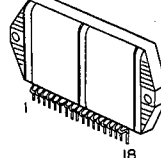
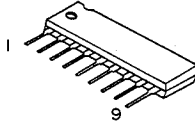
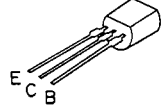
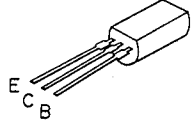
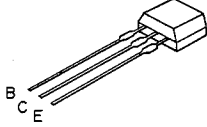
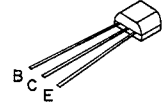
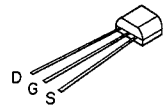
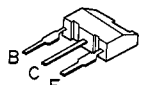
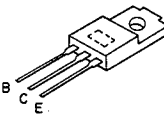
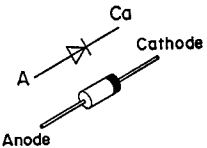
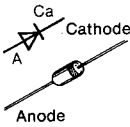
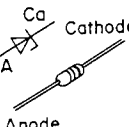
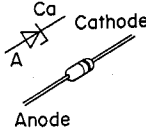
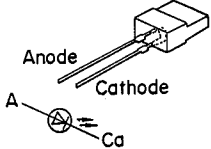
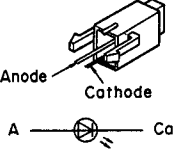
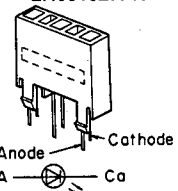
To MAIN CIRCUIT(CN1303) on page 33.

CN1301A 1 2 3 4 5 6 7

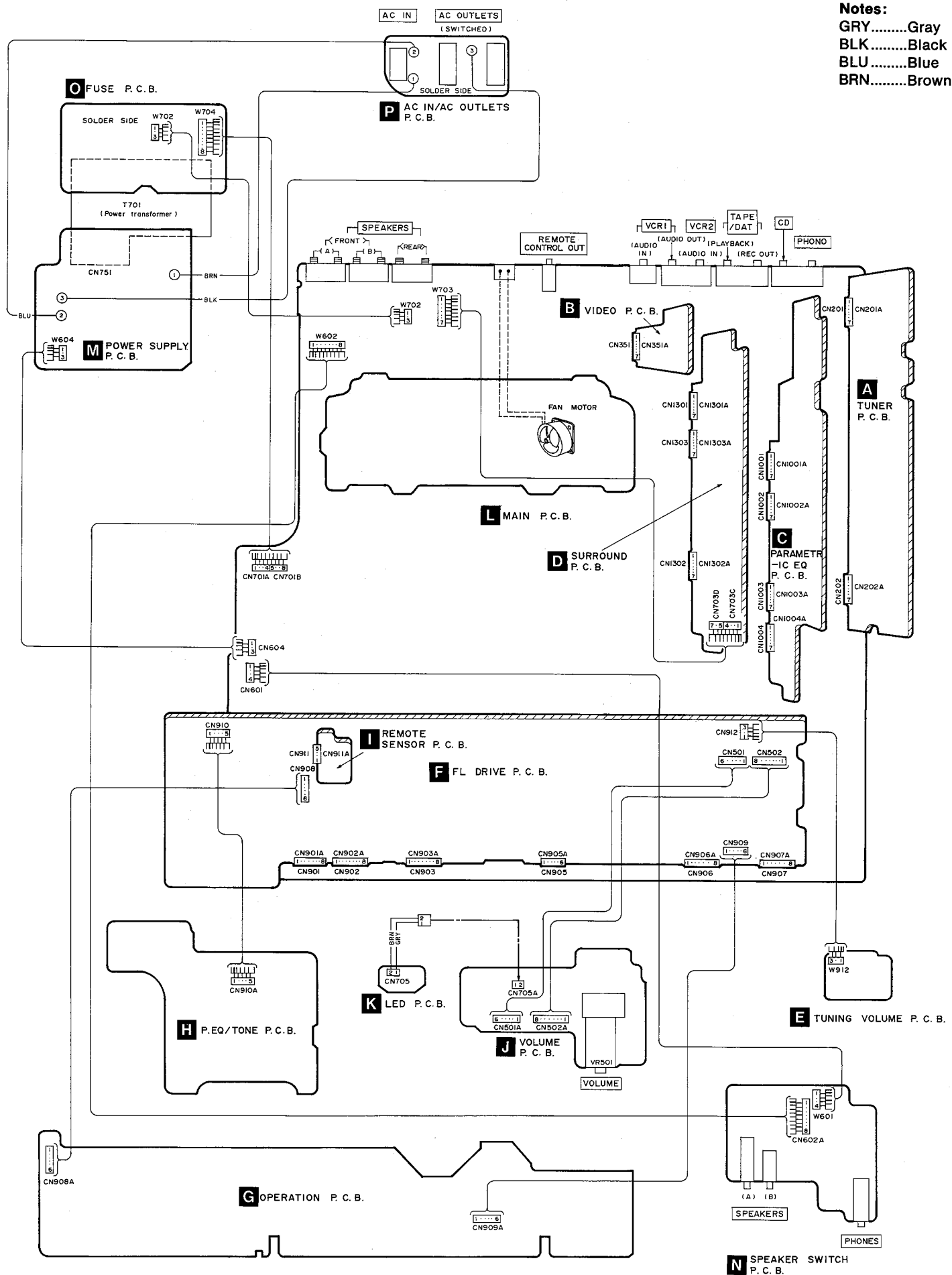
CN1303A 1 2 3 4 5 6 7



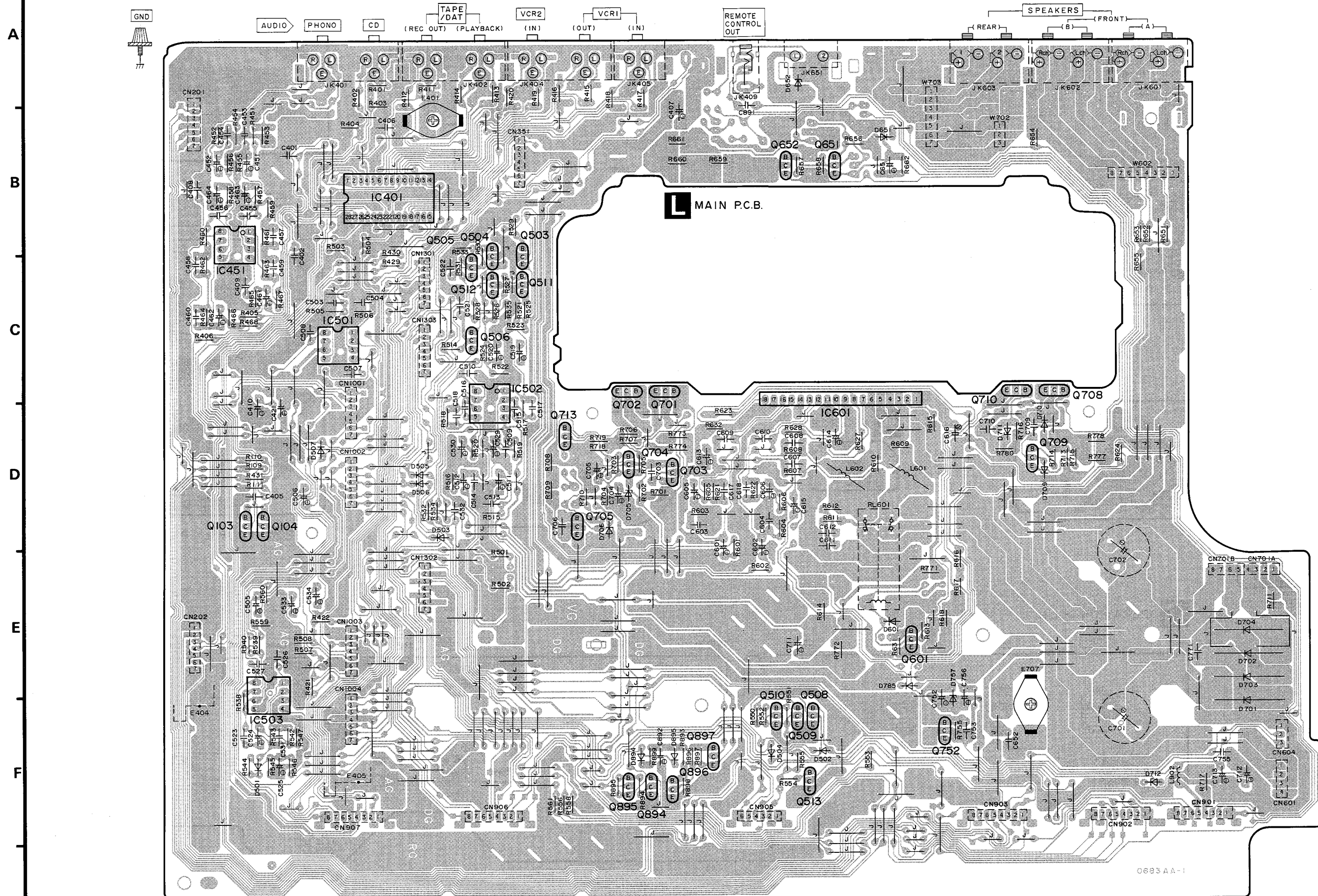
■ TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

M5218AP 	M5238P8 Pin XR-1091DCP16 Pin 	AN6554F14 Pin LM700116 Pin 	 AN6558F8 Pin AN747016 Pin MC14094BCD16 Pin AN7273A18 Pin	
	TA7629P16 Pin TC4053BP16 Pin TC74HC42AP16 Pin TC9214P16 Pin TC9212P20 Pin	M50198P24 Pin TC9163N28 Pin	LV3110M 	MN187125STU 
M50946-150FP 	SVI3101C 	SVI3206C 	BA6218 	2SA720NCQR 2SA992EFTA 2SC2631QRSTA 
2SC3940AQSTA 		2SA1309AQSTA 2SC2785FETA 2SC2787LTA 2SC3311AQSTA 2SD1450QRSTA UN4111TA	UN4113TA UN4115TA UN4211TA UN4214TA UN4215TA	2SA933SQRSTA 2SC1740SQSTA 
2SC3327ABTP 	2SJ40CDTA 	2SB1240PRTV6 	2SB1187DET 2SD1761DET 	P300DLF GP15GLF 
	MA29WATA MA165TA MA700ATA 1SS291TA 1SR35200TB		MA4030MTA MA4056MTA MA4062MTA MA4068MTA MA4082MTA	MA4120MTA MA4160MTA MA4330MTA 
LN846RP-LS 	LN018304P 	LN031527PH 		

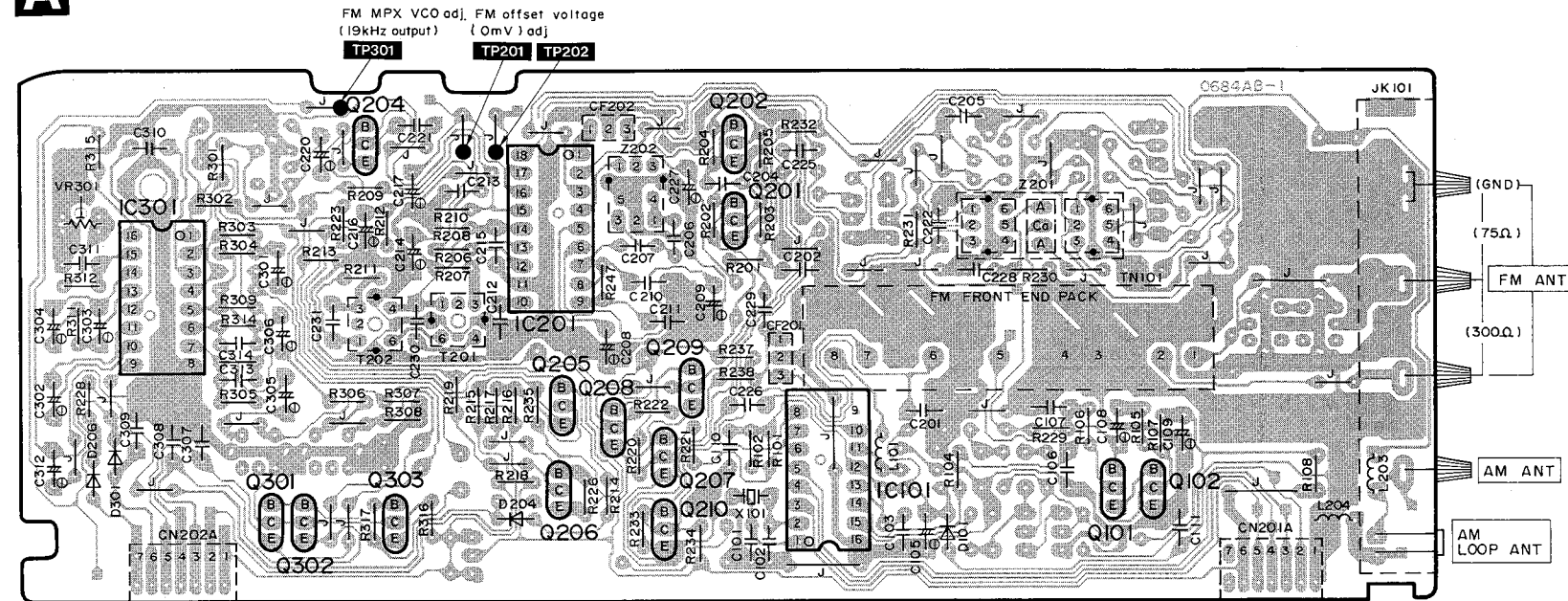
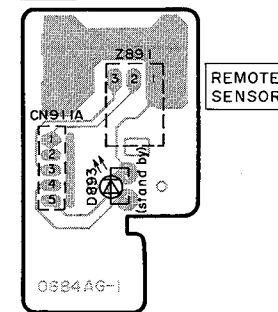
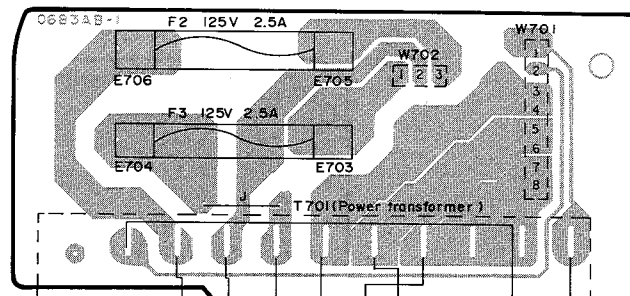
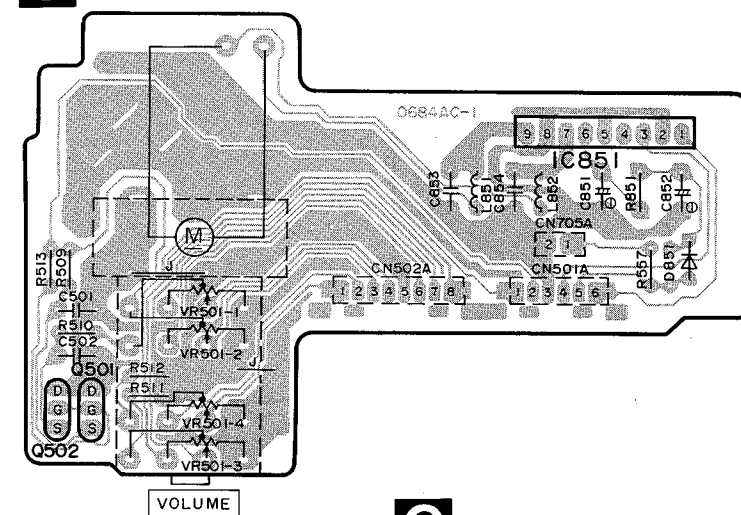
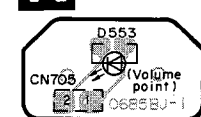
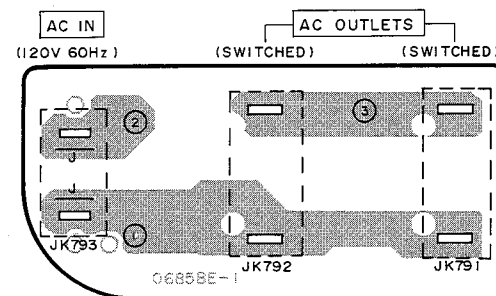
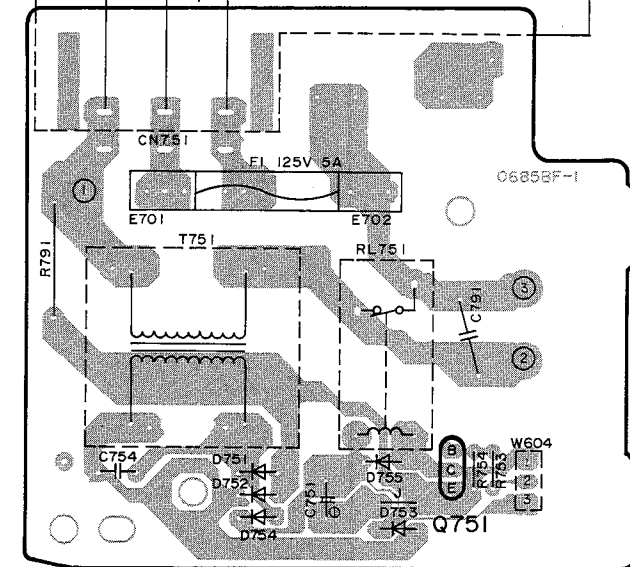
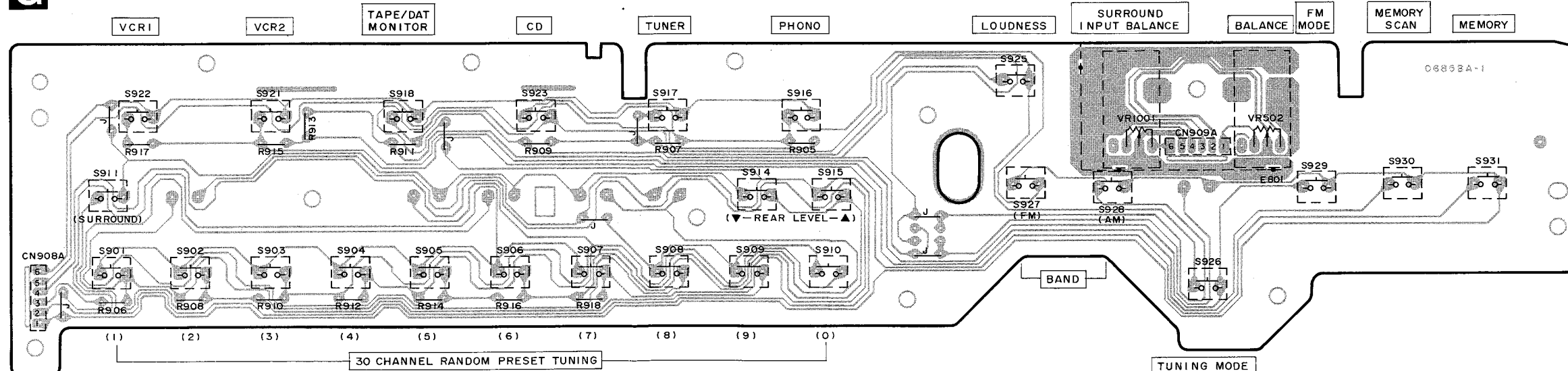
WIRING CONNECTION DIAGRAM



PRINTED CIRCUIT BOARDS

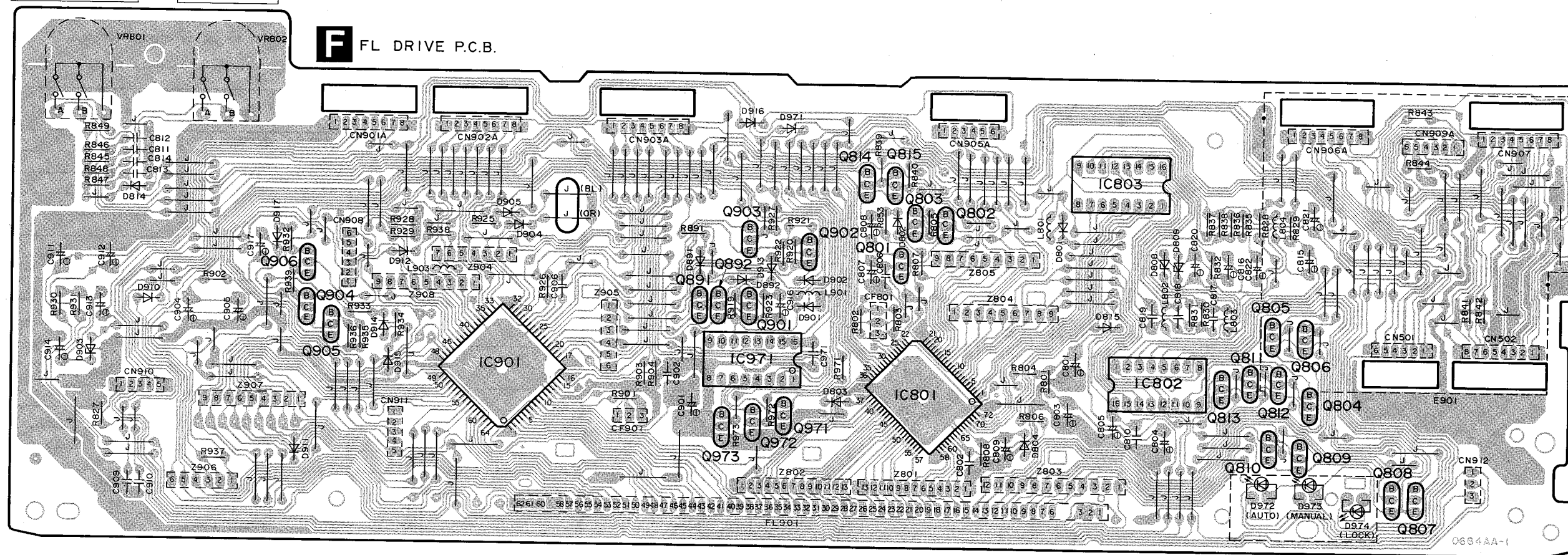
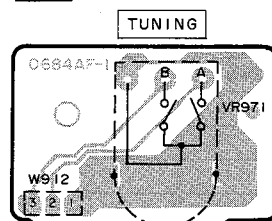
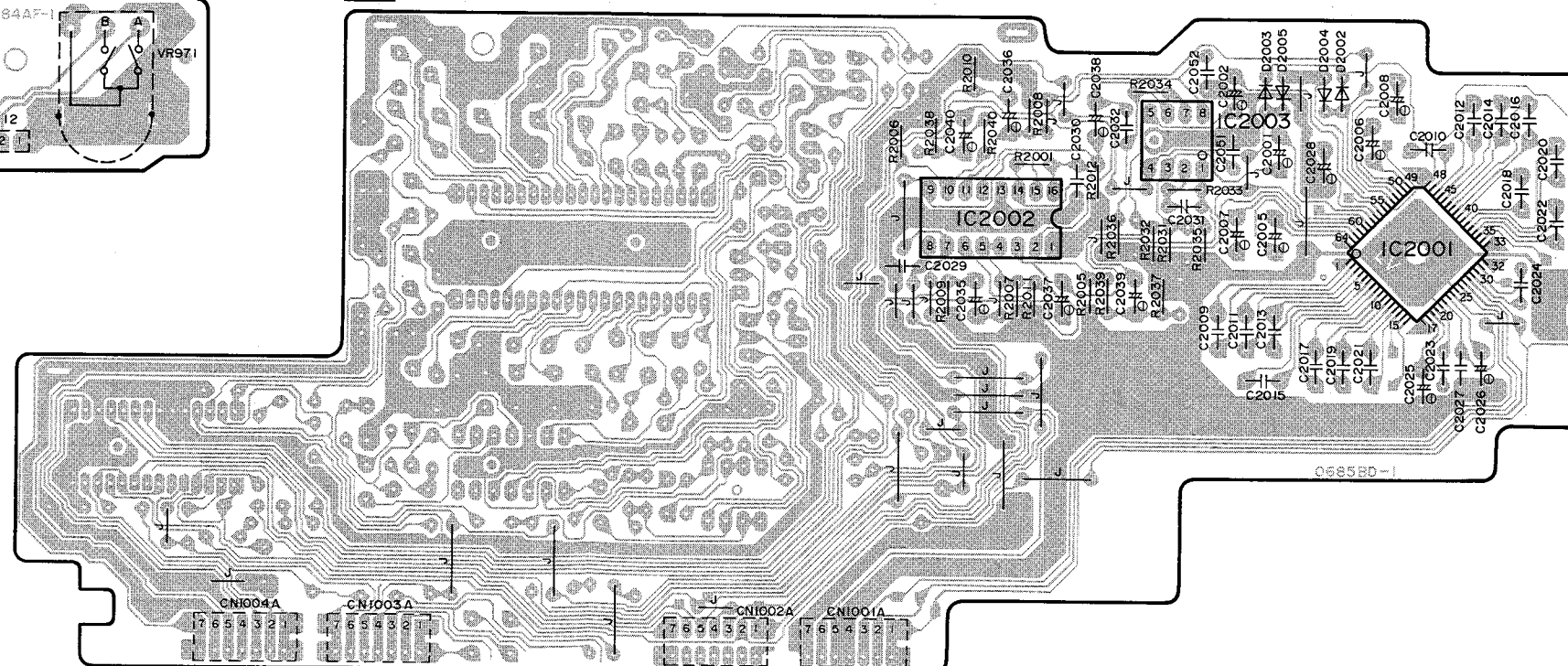
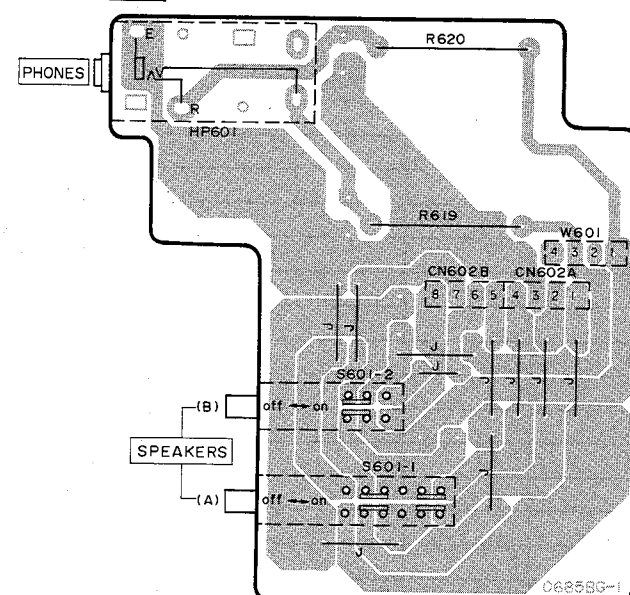


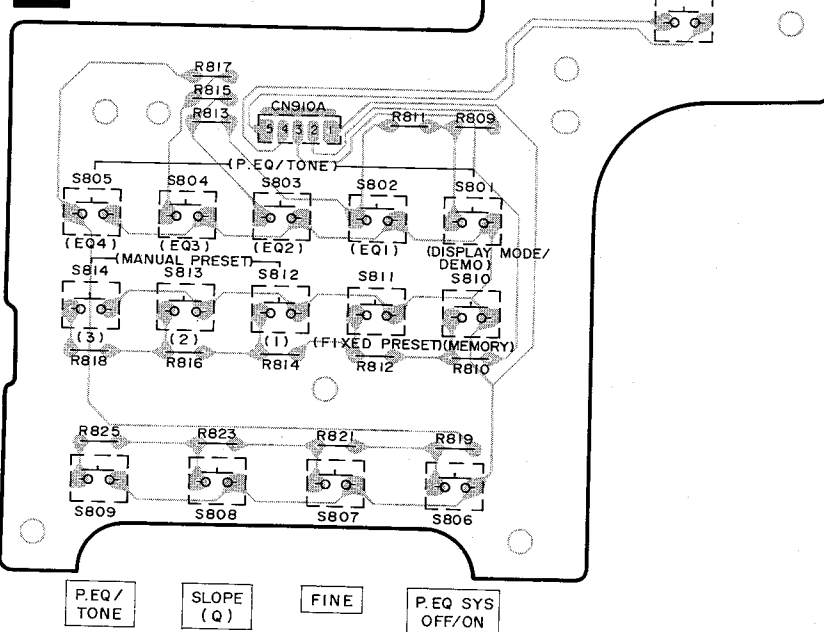
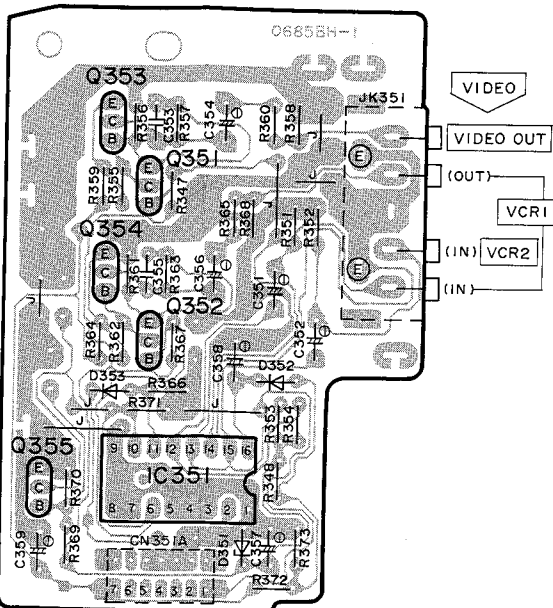
Q683 AA-1

A TUNER P.C.B.**I** REMOTE SENSOR P.C.B.**O** FUSE P.C.B.**J** VOLUME P.C.B.**K** LED P.C.B.**P** AC IN/AC OUTLETS P.C.B.**M** POWER SUPPLY P.C.B.**G** OPERATION P.C.B.

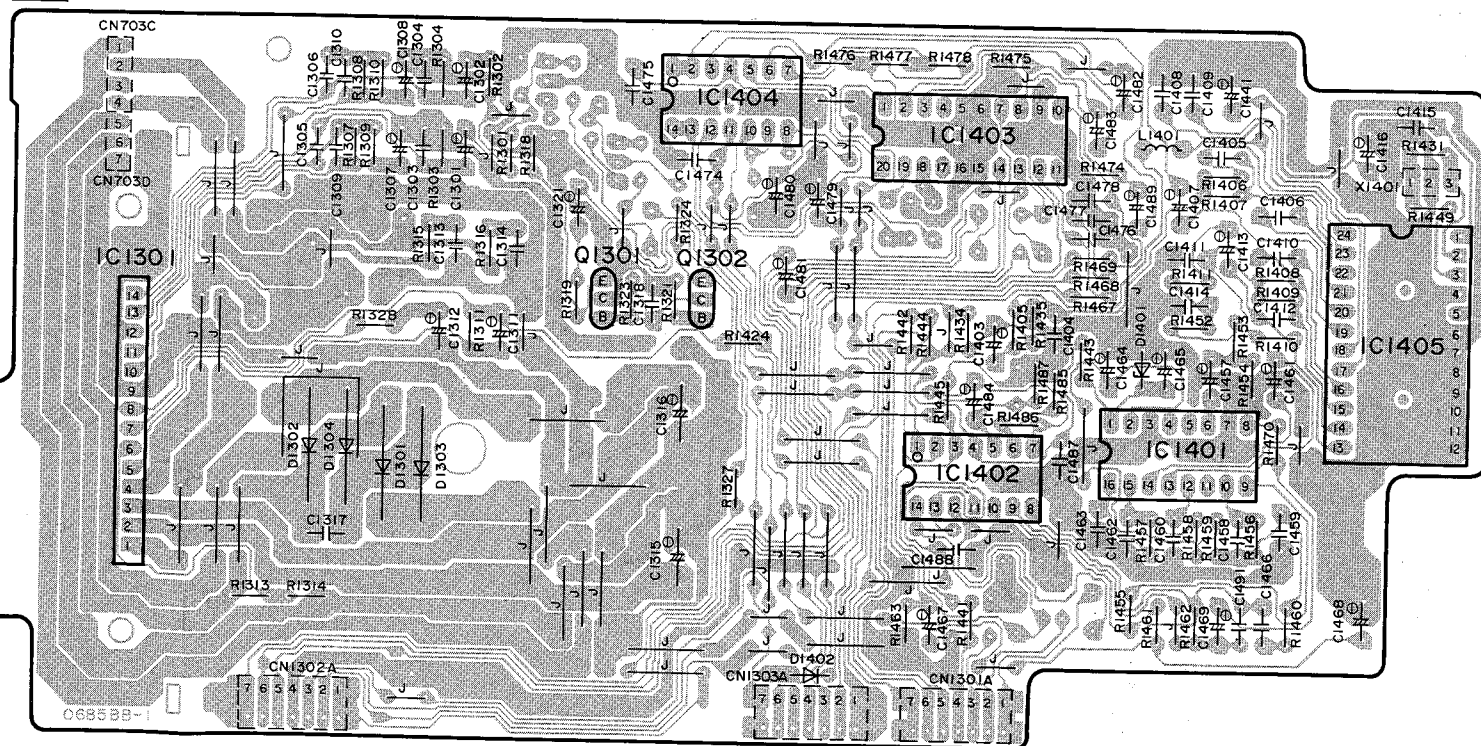
CENTER FREQ/BASS

LEVEL/TREBLE

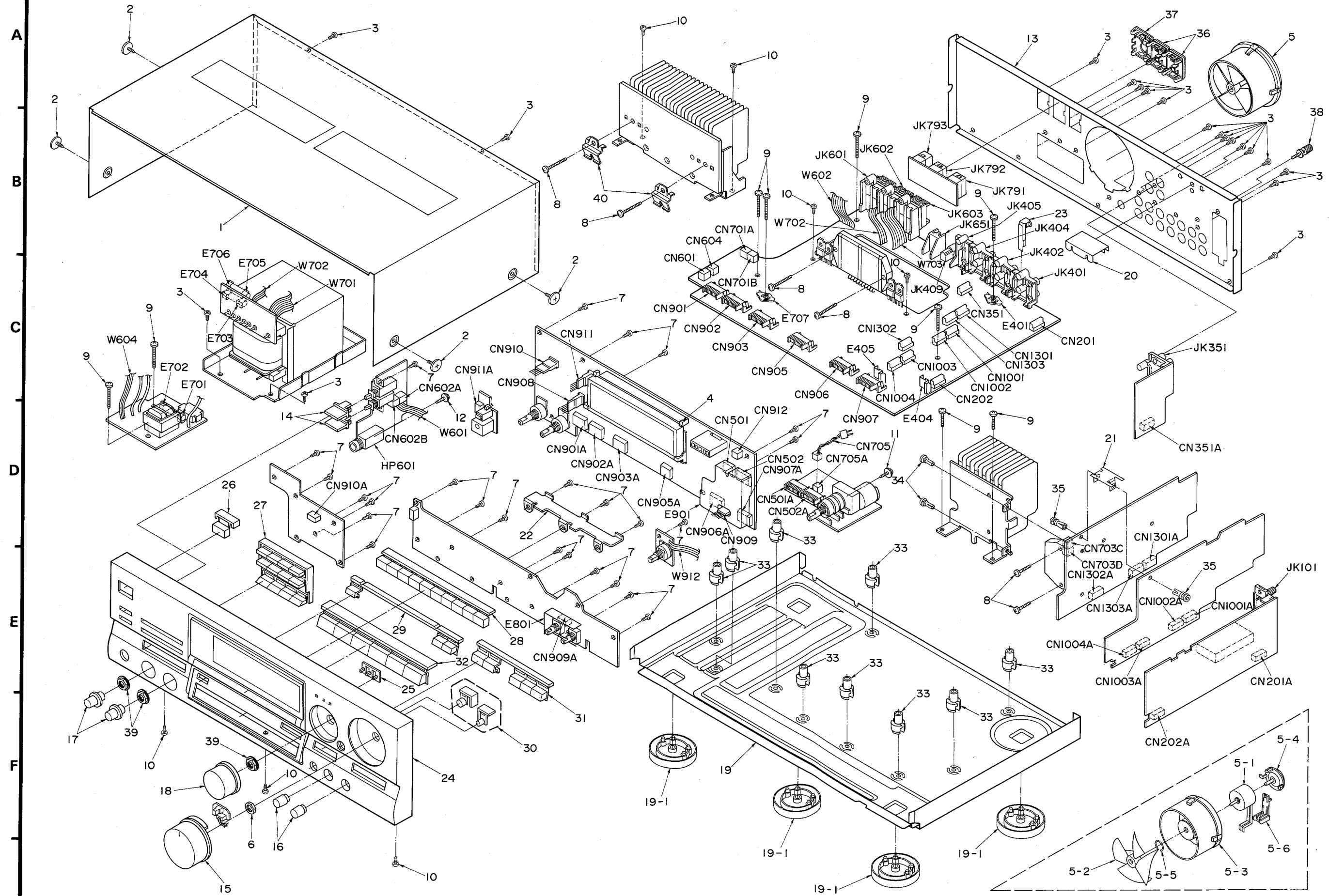
F FL DRIVE P.C.B.**E** TUNING VOLUME P.C.B.**C** PARAMETRIC EQ P.C.B.**N** SPEAKER SWITCH P.C.B.

B

D



EXPLODED VIEWS



REPLACEMENT PARTS LIST

Notes : * Important safety notice:

Components identified by Δ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

- * The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)
Parts without these indications can be used for all areas.

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS		38	SNE2123	GND TERMINAL	
1	RKMD016A-K	CABINET		39	SNE4021-1	NUT	
2	SNE2129-3	SCREW		40	SUS894-1	TRANSISTOR ANGLE	
3	XTBS3+8JFZ1	SCREW				PACKING MATERIAL	
4	RMND079-1	FL HOLDER		P1	RPG0972	PACKING CASE	(P)
5	REMD020-1	FAN UNIT		P1	RPG0973	PACKING CASE	(PC)
5-1	MDN-4RB4MRC	MOTOR		P2	RPN0324-2	PAD	
5-2	SHE232-1	FAN		P3	XZB60X60A01	PROTECTION BAG (UNIT)	
5-3	RMQ0209-K	FAN CASE		P4	XZB24X33C04	PROTECTION BAG (F. B.)	(P)
5-4	RMQ0208-K	FAN CAP		P4	SPB1061	PROTECTION BAG (F. B.)	(PC)
5-5	SUS271	SPRING		P5	SPSD152	ACCESSORIES BOX	
5-6	RMQ0212-K	FAN TERMINAL CAP				ACCESSORIES	
6	XNS7S	NUT					
7	XTBS26+8J	SCREW		A1	RQT1149-P	INSTRUCTION MANUAL	(P)
8	XTB3+16JFZ	SCREW		A1	RFKSAGX303PC	INST. MANUAL ASS'Y	(PC)
9	XTB3+20JFZ	SCREW		A2	SQX7180	WARRANTY CARD	(P)
10	XTB3+8JFZ	SCREW		A2	SQX7183	WARRANTY CARD	(PC)
11	XTWS3+10Q	SCREW		A3	SQX9129-1	SERVICENTER LIST	(P)
12	XTWS3+8T	SCREW		A3	SQX9131	SERVICENTER LIST	(PC)
13	RGR0126A-A1	REAR PANEL		A4	RAK-SA501P1	REMOTE CONTROL TRANSMITTER	
14	RGU0101	SPEAKER SELECTOR BUTTON		A4-1	RKK0020-K	BATTERY COVER	
15	RGW0070	VOLUME KNOB		A5	SJA172-1	AC POWER SUPPLY CORD	(P) Δ
16	RGW0073	BALANCE KNOB		A5	SJA172	AC POWER SUPPLY CORD	(PC) Δ
17	RGW0083-1	BASS/TREBLE KNOB		A6	SPB1163T	AM LOOP ANTENNA	
18	RGW0085	TUNING KNOB		A6-1	SMA233-1M	AM ANTENNA HOLDER	
19	RFKJAGX500PP	CHASSIS ASS'Y		A6-2	XTN3+10AFZ	SCREW	
19-1	RKA0009-1	FOOT		A7	SSA272M	FM INDOOR ANTENNA	
20	RMA0295	PCB HOLD ANGLE A					
21	RMA0310	SUPPORT ANGLE					
22	RMN0139	PCB HOLD ANGLE B					
23	RSC0105	PHONO SHIELD PLATE					
24	RFGAGX303P	FRONT PANEL ASS'Y					
25	RGL0129	PANEL LIGHT					
26	RGU0453-K	POWER BUTTON					
27	RGU0592	P. EQ BUTTON					
28	RGU0593	PRESET BUTTON					
29	RGU0594D	DOLBY BUTTON					
30	RGU0597	MODE BUTTON					
31	RGU0612A-K	BAND SELECTOR BUTTON					
32	RGU0613A-K	SELECTOR BUTTON					
33	SHE187-3	PCB SUPPORT					
34	SHR411	LATCH					
35	SHR415	LATCH					
36	SJS9233A	AC OUTLET COVER					
37	SJS9234A	AC INLET COVER					

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)		Q701, 702	2SD1761DEF	TRANSISTOR	△
				Q703	2SC2631QRSTA	TRANSISTOR	△
				Q704	2SC3311A-Q	TRANSISTOR	
IC101	LM7001	IC, PLL FREQ. SYNTHESIZER		Q705	2SC3940AQSTA	TRANSISTOR	
IC201	AN7273A	IC, FM/AM IF AMP&MIXER		Q708	2SB1187DEF	TRANSISTOR	△
IC301	SVIUPC1161C3	IC, FM MPX		Q709	2SC2631QRSTA	TRANSISTOR	△
IC351	TC4053BP	IC, VIDEO SELECTOR		Q710	2SB1187DEF	TRANSISTOR	△
IC401	TC9163N	IC, INPUT SELECTOR		Q713	2SC3311A-Q	TRANSISTOR	△
IC451	AN6558F	IC, PHONO EQ. AMP		Q751	2SC1740SQ	TRANSISTOR	
IC501	M5238P-1	IC, BUFFER AMP		Q752	2SC3940AQSTA	TRANSISTOR	
IC502	AN6558F	IC, BUFFER AMP		Q801	UN4214TA	TRANSISTOR	
IC503	M5238P-1	IC, BUFFER AMP		Q802	UN4211	TRANSISTOR	
IC601	SVI3206C	IC, POWER AMP	△	Q803	UN4111	TRANSISTOR	
IC801	M50946-150FP	IC, MICROCOMPUTER		Q804-813	UN4115	TRANSISTOR	
IC802	TC74HC42AP	IC, BCD/DECIMAL DECODER		Q814, 815	UN4211	TRANSISTOR	
IC803	XR-1091DCP	IC, SPECTRUM ANALYZER		Q891	UN4113TA	TRANSISTOR	
IC851	BA6218	IC, MOTOR DRIVE		Q892	UN4214TA	TRANSISTOR	
IC901	MN187125STU	IC, MICROCOMPUTER		Q894	UN4211	TRANSISTOR	
IC971	MC14094BCP	IC, LED DRIVE	△	Q895	2SB1240PRTV6	TRANSISTOR	
IC1301	SVI3101C	IC, POWER AMP (REAR)		Q896	2SC1740SQ	TRANSISTOR	
IC1401	TA7629P	IC, DOLBY B NR		Q897	2SB1240PRTV6	TRANSISTOR	
IC1402	AN6554F	IC, BUFFER AMP		Q901	UN4214TA	TRANSISTOR	
IC1403	TC9212P	IC, ATTENUATOR		Q902	2SA933SQR	TRANSISTOR	
IC1404	AN6554F	IC, BUFFER AMP		Q903	UN4211	TRANSISTOR	
IC1405	M50198P	IC, DIGITAL DELAY		Q904, 905	2SC1740SQ	TRANSISTOR	
IC2001	LV3100M	IC, PARAMETRIC EQUALIZER		Q906	2SA933SQR	TRANSISTOR	
IC2002	TC9214P	IC, ANALOG SWITCH		Q971-973	UN4215	TRANSISTOR	
IC2003	M5218AP	IC, BUFFER AMP		Q1301	2SC3327-A	TRANSISTOR	
		TRANSISTOR(S)		Q1302	2SA1309A-R	TRANSISTOR	
						DIODE(S)	
Q101, 102	2SC2785FE	TRANSISTOR					
Q103, 104	UN4214TA	TRANSISTOR		D101	MA165	DIODE	
Q201, 202	2SC2787L	TRANSISTOR		D204	MA165	DIODE	
Q204-207	2SC1740SQ	TRANSISTOR		D206	MA165	DIODE	
Q208, 209	2SA933SQR	TRANSISTOR		D301	MA165	DIODE	
Q210	2SC1740SQ	TRANSISTOR		D351	MA4030MTA	DIODE	
Q301, 302	2SD1450QRSTA	TRANSISTOR		D352, 353	MA165	DIODE	
Q303	2SA933SQR	TRANSISTOR		D501	MA700	DIODE	
Q351, 352	2SC3311A-Q	TRANSISTOR		D502-507	MA165	DIODE	
Q353, 354	2SA720NC-Q	TRANSISTOR		D553	LN846RP	L. E. D.	
Q355	2SC1740SQ	TRANSISTOR		D601	MA165	DIODE	
Q501, 502	2SJ40CDA	TRANSISTOR		D651	MA165	DIODE	
Q503, 504	2SC3327-A	TRANSISTOR		D652	MA4068M	DIODE	
Q505, 506	2SA1309A-R	TRANSISTOR		D701-704	P300DLF	DIODE	△
Q508	UN4211	TRANSISTOR		D705	MA4062MTA	DIODE	
Q509, 510	2SC1740SQ	TRANSISTOR		D706	MA4068M	DIODE	
Q511, 512	2SC3327-A	TRANSISTOR		D709	MA4330MTA	DIODE	
Q513	2SC1740SQ	TRANSISTOR		D710	MA29WA	DIODE	△
Q601	2SA992EFTA	TRANSISTOR		D711	MA4160-L	DIODE	
Q651	2SA1309A-R	TRANSISTOR		D712	MA4082MTA	DIODE	△
Q652	2SC3311A-Q	TRANSISTOR		D751-754	1SR35200TB	DIODE	△

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
D755	MA165	DIODE		L801	RLQZP101KT-Y	COIL	
D757	MA4068M	DIODE		L802-804	RLQZP4R7KT-Y	COIL	
D785	MA165	DIODE		L851, 852	RLQZP1R0KT-Y	COIL	
D801	1SS291TA	DIODE		L901, 902	ELEPK101KA	COIL	
D802-804	MA165	DIODE		L903	ELEXT101KA9	COIL	
D808, 809	MA4062MTA	DIODE		L1401	ELEPK101KA	COIL	
D814, 815	MA165	DIODE				TRANSFORMER(S)	
D851	1SR35200TB	DIODE					
D891, 892	MA165	DIODE		T201	RLI4B012-Z	TRANSFORMER	
D893	LN018304P	L. E. D.		T202	RLI4B013-Z	TRANSFORMER	
D894, 895	MA165	DIODE		T701	RTP1P5C009-V	POWER TRANSFORMER	△
D901	1SS291TA	DIODE		T751	RTP1H5C001-V	TRANSFORMER	△
D902	MA165	DIODE				FUSE(S)	
D903	MA4056MTA	DIODE					
D904, 905	MA165	DIODE		F1	XBAIF50NU14	FUSE, 125V 5A	△
D910-917	MA165	DIODE		F2, 3	XBAIF25NU14	FUSE, 125V 2.5A	△
D971	MA165	DIODE				FILTER(S) & OSCILLATOR(S)	
D972-974	LN031527PH	L. E. D. BLOCK					
D1301-1304	GP15GLF	DIODE	△	CF201, 202	RLFETNGM02LA	RED (10.700MHz)	
D1401	MA4120	DIODE		CF201, 202	RLFETNGM02LB	BLUE (10.675MHz)	
D1402	MA165	DIODE		CF201, 202	RLFETNGM02LC	ORANGE (10.725MHz)	
D2002-2005	MA165	DIODE		CF801	EF0GC6004T4	OSCILLATOR (6MHz)	
		VARIABLE RESISTOR(S)		CF901	EF0GC4194T4	OSCILLATOR (4.19MHz)	
VR301	EVNDXAA00B53	V. R. FM VCO ADJ.		X101	SVQ49U722-S	OSCILLATOR (7.2MHz)	
VR501	EUMMJCF25B15	V. R. MAIN VOLUME		X1401	EF0GC3004T4	OSCILLATOR (3MHz)	
VR502	EVJ02SF01G15	V. R. BALANCE				DISPLAY TUBE	
VR801	EVQWQ202224B	V. R. CENTER FREQ/BASS					
VR802	EVQWQ202224B	V. R. LEVEL/TREBLE		FL901	RSL0101-F	DISPLAY TUBE	
VR971	EVQWPCF2024B	V. R. ROTARY TUNING				SWITCH(ES)	
VR1001	EVJ02SF01G15	V. R. SURROUND BALANCE					
		COMPONENT COMBINATION(S)		S601	RSP2008-J	SW, SPEAKERS	
Z201	RLA2Z001-T	COMPONENT COMBINATION		S801	EVQ21405R	SW, DISPLAY MODE	
Z202	SLI7Z101-T	COMPONENT COMBINATION		S802	EVQ21405R	SW, EQ1	
Z801, 802	EXFP12331MF	COMPONENT COMBINATION		S803	EVQ21405R	SW, EQ2	
Z803	EXBF12E104J	COMPONENT COMBINATION		S804	EVQ21405R	SW, EQ3	
Z804, 805	EXBF9E473J	COMPONENT COMBINATION		S805	EVQ21405R	SW, EQ4	
Z891	HC-521	REMOTE SENSOR		S806	EVQ21405R	SW, P. EQ SYS ON/OFF	
Z904	EXBF7E103J	COMPONENT COMBINATION		S807	EVQ21405R	SW, FINE	
Z905	EXBF6E103J	COMPONENT COMBINATION		S808	EVQ21405R	SW, SLOPE (Q)	
Z906	EXBF6E104J	COMPONENT COMBINATION		S809	EVQ21405R	SW, P. EQ/TONE	
Z907	EXFP8331MW	COMPONENT COMBINATION		S810	EVQ21405R	SW, MEMORY	
Z908	EXBF9E104J	COMPONENT COMBINATION		S811	EVQ21405R	SW, FIXED PRESET	
		COIL(S)		S812	EVQ21405R	SW, MANUAL PRESET 1	
L101	RLQZPR47KT-Y	COIL		S813	EVQ21405R	SW, MANUAL PRESET 2	
L203, 204	ELEPK1ROMA	COIL		S814	EVQ21405R	SW, MANUAL PRESET 3	
L601, 602	SLQY07G-40	COIL		S901	EVQ21405R	SW, PRESET TUNING 1	
				S902	EVQ21405R	SW, PRESET TUNING 2	

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
S903	EVQ21405R	SW, PRESET TUNING 3		CN910	SJT30548BB1	CONNECTOR (5P)	
S904	EVQ21405R	SW, PRESET TUNING 4		CN911	SJT30549BB1	CONNECTOR (5P)	
S905	EVQ21405R	SW, PRESET TUNING 5		CN912	RJS1A1703	CONNECTOR (3P)	
S906	EVQ21405R	SW, PRESET TUNING 6		CN1001	RJT057W007-1	CONNECTOR (7P)	
S907	EVQ21405R	SW, PRESET TUNING 7		CN1001A	RJU057W007	SOCKET (7P)	
S908	EVQ21405R	SW, PRESET TUNING 8		CN1002	RJT057W007-1	CONNECTOR (7P)	
S909	EVQ21405R	SW, PRESET TUNING 9		CN1002A	RJU057W007	SOCKET (7P)	
S910	EVQ21405R	SW, PRESET TUNING 0		CN1003	RJT057W007-1	CONNECTOR (7P)	
S911	EVQ21405R	SW, SURROUND		CN1003A	RJU057W007	SOCKET (7P)	
S914	EVQ21405R	SW, REAR LEVEL (DOWN)		CN1004	RJT057W007-1	CONNECTOR (7P)	
S915	EVQ21405R	SW, REAR LEVEL (UP)		CN1004A	RJU057W007	SOCKET (7P)	
S916	EVQ21405R	SW, INPUT SELECTOR (PHONO)		CN1301	RJT057W007-1	CONNECTOR (7P)	
S917	EVQ21405R	SW, INPUT SELECTOR (TUNER)		CN1301A	RJU057W007	SOCKET (7P)	
S918	EVQ21405R	SW, TAPE/DAT MONITOR		CN1302	RJT057W007-1	CONNECTOR (7P)	
S921	EVQ21405R	SW, INPUT SELECTOR (VCR2)		CN1302A	RJU057W007	SOCKET (7P)	
S922	EVQ21405R	SW, INPUT SELECTOR (VCR1)		CN1303	RJT057W007-1	CONNECTOR (7P)	
S923	EVQ21405R	SW, INPUT SELECTOR (CD)		CN1303A	RJU057W007	SOCKET (7P)	
S925	EVQ21405R	SW, LOUDNESS		CN501A	RJU003K006M1	SOCKET (6P)	
S926	EVQ21405R	SW, TUNING MODE		CN502A	RJU003K008M1	SOCKET (8P)	
S927	EVQ21405R	SW, BAND SELECTOR (FM)		CN602A	RJS1A1704	SOCKET (4P)	
S928	EVQ21405R	SW, BAND SELECTOR (AM)		CN701A	RJS1A1704	SOCKET (4P)	
S929	EVQ21405R	SW, FM MODE		CN705A	SJT3213	CONNECTOR (2P)	
S930	EVQ21405R	SW, MEMORY SCAN		CN908A	SJS50681BB	SOCKET (6P)	
S931	EVQ21405R	SW, MEMORY		CN909A	SJS50681BB	SOCKET (6P)	
S932	EVQ21405R	SW, POWER		CN910A	SJS50581BB	SOCKET (5P)	
				CN911A	SJS50581BB	SOCKET (5P)	
		CONNECTOR (S) & SOCKET (S)		CN602B	RJS1A1704	SOCKET (4P)	
				CN701B	RJS1A1704	SOCKET (4P)	
CN201	RJT057W007-1	CONNECTOR (7P)		CN703C	RJS1A1704	SOCKET (4P)	
CN201A	RJU057W007	SOCKET (7P)		CN703D	RJS1A1703	CONNECTOR (3P)	
CN202	RJT057W007-1	CONNECTOR (7P)					
CN202A	RJU057W007	SOCKET (7P)				SHIELD PART(S)	
CN351	RJT057W007-1	CONNECTOR (7P)					
CN351A	RJU057W007	SOCKET (7P)		E401	SNE1004-1	GND PLATE	
CN501	RJT003K006M1	CONNECTOR (6P)		E404, 405	SME103-6	P. C. B. HOLDER	
CN502	RJT003K008M1	CONNECTOR (8P)		E701-706	RJR0011	FUSE HOLDER	
CN601	RJS1A1704	SOCKET (4P)		E707	SNE1004-1	GND PLATE	
CN604	RJS1A1703	CONNECTOR (3P)		E801	RSC0218	SHIELD PLATE	
CN705	REE0023	CONNECTOR ASS'Y (2P)		E901	RSC0219	SHIELD PLATE	
CN901A	RJT003K008M1	CONNECTOR (8P)					
CN901	RJU003K008M1	SOCKET (8P)				JACK(S)	
CN902A	RJT003K008M1	CONNECTOR (8P)					
CN902	RJU003K008M1	SOCKET (8P)		JK101	RJH4405	ANTENNA TERMINAL	
CN903A	RJT003K008M1	CONNECTOR (8P)		JK351	SJF3069-3N	VCR1/VCR2/VIDEO OUT	
CN903	RJU003K008M1	SOCKET (8P)		JK401	SJF3069N	TERMINAL, PHONO/CD	
CN905A	RJT003K006M1	CONNECTOR (6P)		JK402	SJF3069N	TERMINAL, TAPE/DAT	
CN905	RJU003K006M1	SOCKET (6P)		JK404	SJF3069N	TERMINAL, VCR1	
CN906A	RJT003K008M1	CONNECTOR (8P)		JK405	SJF3068N	TERMINAL, VCR2	
CN906	RJU003K008M1	SOCKET (8P)		JK409	RJJ33TR01	REMOTE CONTROL OUT	
CN907A	RJT003K008M1	CONNECTOR (8P)		JK601	RJR0054	FRONT SPEAKERS A	
CN907	RJU003K008M1	SOCKET (8P)		JK602	RJR0054	FRONT SPEAKERS B	
CN908, 909	SJT30648BB1	CONNECTOR (6P)		JK603	RJR0054	REAR SPEAKERS	

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
JK651	RJS1A7402-1	MOTOR JACK					
JK791	SJS9233B	AC OUTLET	△			FLAT CABLE(S)	
JK792	SJS9233B	AC OUTLET	△				
JK793	SJS9234B	AC INLET	△	W601	RWJ1804120QK	FLAT CABLE(4P)	
HP601	RJ63TS01	HEADPHONES JACK		W602	RWJ1808320QK	FLAT CABLE(8P)	
				W604	RWJ1803120QK	FLAT CABLE(3P)	
		RELAY(S)		W701	RWJ1808150QK	FLAT CABLE(8P)	
				W702	RWJ1803220KK	FLAT CABLE(3P)	
RL601	SSY134	RELAY		W703	RWJ1807430QK	FLAT CABLE(7P)	
RL751	RSY0005-1C	RELAY	△	W912	RWJ1803110QK	FLAT CABLE(3P)	
		FRONT END PACK ASS'Y					
TN101	RAL0006	FM FRONT END					

RESISTORS & CAPACITORS

Notes : * Capacity value are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)
 * Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM) , 1M=1,000k(OHM)

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
		RESISTORS	R219	ERDS2TJ223	1/4W 22K	R317	ERDS2TJ473	1/4W 47K
			R220	ERDS2TJ103	1/4W 10K	R347	ERDS2TJ272T	1/4W 2.7K
			R221	ERDS2TJ104	1/4W 100K	R348	ERDS2TJ221	1/4W 220
R101, 102	ERDS2TJ103	1/4W 10K	R222	ERDS2TJ473	1/4W 47K	R351, 352	ERDS2EJ820	1/4W 82
R104	ERDS2TJ102	1/4W 1K	R223	ERDS2TJ154	1/4W 150K	R353, 354	ERDS2TJ104	1/4W 100K
R105	ERDS2TJ561	1/4W 560	R226	ERDS2TJ103	1/4W 10K	R355-357	ERDS2TJ680T	1/4W 68
R106	ERDS2TJ562	1/4W 5.6K	R228	ERDS2TJ123	1/4W 12K	R358	ERDS2TJ272T	1/4W 2.7K
R107	ERDS2TJ103	1/4W 10K	R229	ERDS2TJ102	1/4W 1K	R359	ERDS2TJ330	1/4W 33
R108	ERDS2TJ151	1/4W 150	R230	ERDS2TJ104	1/4W 100K	R360	ERDS2TJ560T	1/4W 56
R109-111	ERDS2TJ104	1/4W 100K	R231	ERDS2TJ471	1/4W 470	R361-363	ERDS2TJ680T	1/4W 68
R201	ERDS2TJ152	1/4W 1.5K	R232	ERDS2TJ122	1/4W 1.2K	R364	ERDS2TJ330	1/4W 33
R202	ERDS2TJ824	1/4W 820K	R233	ERDS2TJ684	1/4W 680K	R365	ERDS2TJ560T	1/4W 56
R203	ERDS2TJ122	1/4W 1.2K	R234	ERDS2TJ103	1/4W 10K	R366	ERDS2TJ473	1/4W 47K
R204	ERDS2TJ474	1/4W 470K	R235	ERDS2TJ471	1/4W 470	R367, 368	ERDS2TJ272T	1/4W 2.7K
R205	ERDS2TJ391	1/4W 390	R237	ERDS2TJ221	1/4W 220	R369	ERDS2TJ103	1/4W 10K
R206	ERDS2TJ561	1/4W 560	R238	ERDS2TJ471	1/4W 470	R370, 371	ERDS2TJ473	1/4W 47K
R207	ERDS2TJ822	1/4W 8.2K	R247	ERDS2TJ103	1/4W 10K	R372	ERDS2TJ102	1/4W 1K
R208	ERDS2TJ102	1/4W 1K	R301	ERDS2TJ393	1/4W 39K	R373	ERDS2TJ103	1/4W 10K
R209	ERDS2TJ471	1/4W 470	R302	ERDS2TJ151	1/4W 150	R401, 402	ERDS2TJ332	1/4W 3.3K
R210	ERDS2TJ332	1/4W 3.3K	R303, 304	ERDS2TJ223	1/4W 22K	R403, 404	ERDS2TJ822	1/4W 8.2K
R211	ERDS2TJ222	1/4W 2.2K	R305, 306	ERDS2TJ272T	1/4W 2.7K	R405, 406	ERDS2TJ470	1/4W 47
R212	ERDS2TJ153	1/4W 15K	R307, 308	ERDS2TJ104	1/4W 100K	R411-420	ERDS2TJ102	1/4W 1K
R213	ERDS2TJ104	1/4W 100K	R309	ERDS2TJ334	1/4W 330K	R421, 422	ERDS2TJ222	1/4W 2.2K
R214	ERDS2TJ824	1/4W 820K	R311	ERDS2TJ102	1/4W 1K	R429-431	ERDS2TJ103	1/4W 10K
R215	ERDS2TJ153	1/4W 15K	R312	ERDS2TJ153	1/4W 15K	R451, 452	ERDS2TJ821	1/4W 820
R216	ERDS2TJ563	1/4W 56K	R313, 314	ERDS2TJ473	1/4W 47K	R453, 454	ERDS2TJ224T	1/4W 220K
R217	ERDS2TJ223	1/4W 22K	R315	ERDS2TJ103	1/4W 10K	R455, 456	ERDS2TJ563	1/4W 56K
R218	ERDS2TJ563	1/4W 56K	R316	ERDS2TJ222	1/4W 2.2K	R457, 458	ERDS2TJ271	1/4W 270

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
R459, 460	ERDS2TJ680T	1/4W 68	R616-618	ERDS1FVJ561T	1/2W 560 Δ	R825	ERDS2TJ682T	1/4W 6.8K
R461, 462	ERDS2TJ184T	1/4W 180K	R619, 620	ERG2ANJP331S	2W 330	R827	ERDS2TJ103	1/4W 10K
R463, 464	ERDS2TJ123	1/4W 12K	R621, 622	ERDS2TJ222	1/4W 2.2K	R828, 829	ERDS1FVJ331T	1/2W 330 Δ
R465, 466	ERDS2TJ563	1/4W 56K	R623	ERDS2TJ684	1/4W 680K	R830	ERDS2TJ104	1/4W 100K
R467, 468	ERDS2TJ102	1/4W 1K	R624	ERDS2TJ103	1/4W 10K Δ	R831	ERDS2TJ152	1/4W 1.5K
R501, 502	ERDS2TJ222	1/4W 2.2K	R627	ERDS2TJ154	1/4W 150K	R832	ERDS2TJ332	1/4W 3.3K
R503, 504	ERDS2TJ102	1/4W 1K	R628	ERDS2TJ684	1/4W 680K	R835, 836	ERDS2TJ824	1/4W 820K
R505, 506	ERDS2TJ473	1/4W 47K	R631	ERDS2TJ103	1/4W 10K	R837, 838	ERDS2TJ154	1/4W 150K
R507, 508	ERDS2TJ104	1/4W 100K	R632	ERD25FJ101	1/4W 100 Δ	R839, 840	ERDS2TJ153	1/4W 15K
R509-512	ERDS2TJ103	1/4W 10K	R651-654	ERDS2TJ223	1/4W 22K	R841, 842	ERDS2TJ222	1/4W 2.2K
R513	ERDS2TJ153	1/4W 15K	R655	ERDS2TJ392T	1/4W 3.9K	R843, 844	ERDS2TJ182	1/4W 1.8K
R514	ERDS2TJ394	1/4W 390K	R656, 657	ERDS2TJ103	1/4W 10K	R845-849	ERDS2TJ473	1/4W 47K
R515, 516	ERDS2TJ104	1/4W 100K	R658	ERDS2TJ223	1/4W 22K	R851	ERDS1FVJ2R2T	1/2W 2.2 Δ
R517, 518	ERDS2TJ563	1/4W 56K	R659-661	ERDS1FVJ220T	1/2W 22 Δ	R853	ERDS2TJ473	1/4W 47K
R519, 520	ERDS2TJ472	1/4W 4.7K	R662	ERDS2TJ104	1/4W 100K	R891	ERDS2TJ102	1/4W 1K
R521, 522	ERDS2TJ393	1/4W 39K	R701	ERDS1FVJ332T	1/2W 3.3K Δ	R893	ERDS2TJ333	1/4W 33K
R523, 524	ERDS2TJ222	1/4W 2.2K	R702	ERDS2TJ122	1/4W 1.2K	R894	ERDS2TJ102	1/4W 1K
R525, 526	ERDS2TJ221	1/4W 220	R703	ERDS2TJ272T	1/4W 2.7K	R895	ERDS2TJ103	1/4W 10K
R527-530	ERDS2TJ102	1/4W 1K	R704	ERDS2TJ222	1/4W 2.2K	R896	ERDS2TJ222	1/4W 2.2K
R531	ERDS2TJ394	1/4W 390K	R705	ERDS2TJ272T	1/4W 2.7K Δ	R897	ERDS2TJ221	1/4W 220
R532	ERDS2TJ103	1/4W 10K	R706, 707	ERDS2TJ1R2	1/4W 1.2 Δ	R898	ERDS2TJ223	1/4W 22K
R533	ERDS2TJ104	1/4W 100K	R708, 709	ERDS1FVJ180T	1/2W 18 Δ	R899	ERDS2TJ473	1/4W 47K
R534	ERDS2TJ103	1/4W 10K	R710	ERDS2TJ272T	1/4W 2.7K	R901	ERDS2TJ102	1/4W 1K
R535	ERDS2TJ104	1/4W 100K	R711	ERDS1FVJ2R2T	1/2W 2.2 Δ	R902	ERDS2TJ681	1/4W 680
R538	ERDS2TJ684	1/4W 680K	R713	ERDS2TJ183T	1/4W 18K Δ	R903, 904	ERDS2TJ103	1/4W 10K
R539	ERDS2TJ153	1/4W 15K	R714	ERDS2TJ102	1/4W 1K Δ	R905, 906	ERDS2TJ102	1/4W 1K
R540	ERDS2TJ223	1/4W 22K	R715	ERDS2TJ101	1/4W 100 Δ	R907, 908	ERDS2TJ182	1/4W 1.8K
R542	ERDS2TJ222	1/4W 2.2K	R716	ERDS2TJ222	1/4W 2.2K Δ	R909, 910	ERDS2TJ222	1/4W 2.2K
R543	ERDS2TJ824	1/4W 820K	R717	ERD25FVJ150T	1/4W 15 Δ	R911, 912	ERDS2TJ392T	1/4W 3.9K
R544	ERDS2TJ272T	1/4W 2.7K	R718, 719	ERDS2TJ1R5T	1/4W 1.5 Δ	R913, 914	ERDS2TJ562	1/4W 5.6K
R545	ERDS2TJ104	1/4W 100K	R753, 754	ERDS2TJ472	1/4W 4.7K	R915, 916	ERDS2TJ123	1/4W 12K
R546	ERDS2TJ103	1/4W 10K	R755	ERDS2TJ102	1/4W 1K	R917, 918	ERDS2TJ273	1/4W 27K
R547	ERDS2TJ183T	1/4W 18K	R771, 772	ERDS1FVJ2R2T	1/2W 2.2 Δ	R919	ERDS2TJ224T	1/4W 220K
R550	ERDS2TJ103	1/4W 10K	R773, 774	ERDS1FVJ6R8T	1/2W 6.8 Δ	R920	ERDS2TJ222	1/4W 2.2K
R551	ERDS2TJ104	1/4W 100K	R777, 778	ERDS1FJ270	1/2W 27 Δ	R921	ERDS2TJ103	1/4W 10K
R552	ERDS2TJ392T	1/4W 3.9K	R780	ERDS1FVJ4R7T	1/2W 4.7 Δ	R922, 923	ERDS2TJ472	1/4W 4.7K
R553	ERDS2TJ103	1/4W 10K	R791	ERC12ZGK335	1/2W 3.3M Δ	R925, 926	ERDS2TJ102	1/4W 1K
R554	ERDS2TJ223	1/4W 22K	R801	ERDS2TJ681	1/4W 680	R927	ERDS2TJ331	1/4W 330
R555	ERDS2TJ472	1/4W 4.7K	R802	ERDS2TJ102	1/4W 1K	R928, 929	ERDS2TJ103	1/4W 10K
R556	ERDS2TJ104	1/4W 100K	R803	ERDS2TJ105T	1/4W 1M	R930, 931	ERD25FJ101	1/4W 100 Δ
R557	ERDS2TJ471	1/4W 470	R804	ERDS2TJ104	1/4W 100K	R932	ERDS2TJ102	1/4W 1K
R558	ERDS2TJ103	1/4W 10K	R805	ERDS2TJ223	1/4W 22K	R933, 934	ERDS2TJ473	1/4W 47K
R559-561	ERDS2TJ104	1/4W 100K	R806	ERDS2TJ471	1/4W 470	R935, 936	ERDS2TJ474	1/4W 470K
R601, 602	ERDS2TJ102	1/4W 1K	R807	ERDS2TJ822	1/4W 8.2K	R937	ERDS2TJ103	1/4W 10K
R603, 604	ERDS2TJ563	1/4W 56K	R808	ERDS2TJ563	1/4W 56K	R938	ERDS2TJ102	1/4W 1K
R605, 606	ERDS2TJ182	1/4W 1.8K	R809-812	ERDS2TJ102	1/4W 1K	R939	ERDS2TJ103	1/4W 10K
R607, 608	ERDS2TJ563	1/4W 56K	R813, 814	ERDS2TJ122	1/4W 1.2K	R971, 972	ERDS2TJ221	1/4W 220
R609, 610	ERDS2TJ470	1/4W 47	R815, 816	ERDS2TJ152	1/4W 1.5K	R973	ERDS2TJ391	1/4W 390
R611, 612	ERDS1FVJ100T	1/2W 10 Δ	R817, 818	ERDS2TJ182	1/4W 1.8K	R1301, 1302	ERDS2TJ222	1/4W 2.2K
R613	ERDS2TJ223	1/4W 22K	R819	ERDS2TJ222	1/4W 2.2K	R1303, 1304	ERDS2TJ563	1/4W 56K
R614	ERD25FJ470	1/4W 47 Δ	R821	ERDS2TJ332	1/4W 3.3K	R1307, 1308	ERDS2TJ563	1/4W 56K
R615	ERDS2TJ473	1/4W 47K Δ	R823	ERDS2TJ472	1/4W 4.7K	R1309, 1310	ERDS2TJ332	1/4W 3.3K

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
R1311	ERDS2TJ684	1/4W 680K	C105	ECEAOJU221	6. 3V 220U	C410	ECEACU220	16V 22U
R1313	ERDS2TJ564	1/4W 560K △	C106	ECKR1H103ZF5	50V 0. 01U	C421	ECEACU220	16V 22U
R1314	ERDS2TJ154	1/4W 150K	C107	ECKT1H223ZF	50V 0. 022U	C451, 452	ECEA1VPS4R7	35V 4. 7U
R1315, 1316	ERD25FVJ4R7T	1/4W 4. 7 △	C108	ECEA1EK4R7	25V 4. 7U	C453, 454	ECBT1H101KB5	50V 100P
R1318	ERDS2TJ104	1/4W 100K	C109	ECEACU330	16V 33U	C455, 456	ECBT1H102KB5	50V 1000P
R1319	ERDS2TJ222	1/4W 2. 2K	C110, 111	ECBT1H102KB5	50V 1000P	C457, 458	ECFR1E223KR	25V 0. 022U
R1321	ERDS2TJ104	1/4W 100K	C201, 202	ECKR1H103ZF5	50V 0. 01U	C459, 460	ECFR1E682KR	25V 6800P
R1323	ERDS2TJ102	1/4W 1K	C204	ECBT1C103MS5	16V 0. 01U	C461, 462	ECEA1VPS4R7	35V 4. 7U
R1324	ERDS2TJ824	1/4W 820K	C205	ECKT1H223ZF	50V 0. 022U	C463, 464	ECEAOJPS330	6. 3V 33U
R1327	ERDS2TJ103	1/4W 10K	C206	ECBT1H150JC5	50V 15P	C501, 502	ECFR1E333KR	25V 0. 033U
R1328	ERD25FJ470	1/4W 47 △	C207	ECBT1C103MS5	16V 0. 01U	C503, 504	ECBT1H101KB5	50V 100P
R1405-1410	ERDS2TJ153	1/4W 15K	C208	ECEAOJU101B	6. 3V 100U	C505, 506	ECEACU470	16V 47U
R1411	ERDS2TJ272T	1/4W 2. 7K	C209	ECEAHK100	50V 10U	C507-510	ECBT1E103ZF	25V 0. 01U
R1424	ERD25FJ470	1/4W 47 △	C210-212	ECKT1H223ZF	50V 0. 022U	C511, 512	ECEAHK3R3	50V 3. 3U
R1431	ERDS2TJ105T	1/4W 1M	C213	ECBT1H101KB5	50V 100P	C513, 514	ECBT1H150J5	50V 15P
R1434	ERDS2TJ822	1/4W 8. 2K	C214	ECEA1CK100B	16V 10U	C515, 516	ECBT1H101KB5	50V 100P
R1435	ERDS2TJ103	1/4W 10K	C215	ECKR1H103ZF5	50V 0. 01U	C517, 518	ECBT1H330J5	50V 33P
R1441, 1442	ERDS2TJ183T	1/4W 18K	C216	ECEA1CK100B	16V 10U	C519, 520	ECEAHK3R3	50V 3. 3U
R1443	ERDS2EJ820	1/4W 82	C217	ECEAHK2R2B	50V 2. 2U	C521, 522	ECKR1H103ZF5	50V 0. 01U
R1444, 1445	ERDS2TJ183T	1/4W 18K	C220	ECEA1CK100B	16V 10U	C523	ECBT1H330J5	50V 33P
R1449	ERDS2TJ102	1/4W 1K	C221	ECFR1E183KR	25V 0. 018U	C524	ECEAHK010B	50V 1U
R1452	ERDS2TJ471	1/4W 470	C222	ECQM1H473JZ	50V 0. 047U	C525	ECEAHK2R2B	50V 2. 2U
R1453	ERDS2TJ101	1/4W 100	C225	ECBT1H180JC5	50V 18P	C526, 527	ECBT1E103ZF	25V 0. 01U
R1454	ERDS2TJ152	1/4W 1. 5K	C226	ECKR1H103ZF5	50V 0. 01U	C529, 530	ECEACU220	16V 22U
R1455, 1456	ERDS2TJ473	1/4W 47K	C227	ECEA1CK100B	16V 10U	C531	ECBT1H330J5	50V 33P
R1457	ERDS2TJ274	1/4W 270K	C228	ECBT1H100JC5	50V 10P	C532	ECBT1E103ZF	25V 0. 01U
R1458	ERDS2TJ154	1/4W 150K	C229	ECBT1H102KB5	50V 1000P	C533, 534	ECEA1VPS4R7	35V 4. 7U
R1459	ERDS2TJ332	1/4W 3. 3K	C230	ECCRIH680JS5	50V 68P	C601, 602	ECEA1VPS4R7	35V 4. 7U
R1460	ERDS2TJ181T	1/4W 180	C231	ECCRIH820JS5	50V 82P	C603, 604	ECQP1271JZ	50V 270P
R1461, 1462	ERDS2TJ223	1/4W 22K	C301	ECEACU101	16V 100U	C605, 606	ECEA1CPS220	16V 22U
R1463	ERDS2TJ103	1/4W 10K	C302	ECEAHKR47	50V 0. 47U	C607, 608	ECCRIH100K5	50V 10P
R1467-1469	ERDS2TJ332	1/4W 3. 3K	C303	ECEAHK010B	50V 1U	C609, 610	ECCD1H151K	50V 150P
R1470	ERDS2TJ333	1/4W 33K	C304-306	ECEAHK3R3	50V 3. 3U	C611, 612	ECKT1H223ZF	50V 0. 022U
R1474-1476	ERDS2TJ474	1/4W 470K	C307, 308	ECFR1E273KR	25V 0. 027U	C613	ECEA1VU470	35V 47U
R1477	ERDS2TJ222	1/4W 2. 2K	C309	ECKT1H223ZF	50V 0. 022U	C614	ECEAHU330	50V 33U
R1478	ERDS2TJ103	1/4W 10K	C310	ECFR1E473KR	25V 0. 047U	C615	ECEA2AU100	100V 10U
R1485	ERDS2TJ102	1/4W 1K	C311	ECQP1471JZ	50V 470P	C616	ECEA2AN2R2SB	100V 2. 2U △
R1486	ERDS2TJ332	1/4W 3. 3K	C312	ECEA1VK4R7	35V 4. 7U	C617, 618	ECQB1H681KF3	50V 680P
R1487	ERDS2TJ104	1/4W 100K	C313, 314	ECBT1H181KB5	50V 180P	C651	ECEAHK2R2B	50V 2. 2U
R2001	ERDS2TJ473	1/4W 47K	C351	ECEAOJU101B	6. 3V 100U	C652	ECKR1H103ZF5	50V 0. 01U
R2005-2008	ERDS2TJ104	1/4W 100K	C352	ECEAOJK101	6. 3V 100U	C701, 702	ECES1JU822U	63V 8200U △
R2009, 2010	ERDS2TJ473	1/4W 47K	C353	ECBT1H120J5	50V 12P	C703	ECKR1H103ZF5	50V 0. 01U △
R2011, 2012	ERDS2TJ104	1/4W 100K	C354	ECEAOJU102	6. 3V 1000U	C704	ECEA1VU101B	35V 100U
R2031, 2032	ERDS2TJ473	1/4W 47K	C355	ECBT1H120J5	50V 12P	C705	ECEACU101	16V 100U
R2033, 2034	ERDS2TJ562	1/4W 5. 6K	C356	ECEAOJU102	6. 3V 1000U	C706	ECKR1H103ZF5	50V 0. 01U
R2035-2038	ERDS2TJ222	1/4W 2. 2K	C357	ECEACU470	16V 47U	C709, 710	ECKR1H103ZF5	50V 0. 01U △
R2039, 2040	ERDS2TJ562	1/4W 5. 6K	C358	ECEA1CK100B	16V 10U	C711	ECEACU101	16V 100U
			C359	ECEACU470	16V 47U	C712	ECEA1VU470	35V 47U △
		CAPACITORS	C401, 402	ECBT1E103ZF	25V 0. 01U	C713	ECEAOJU101B	6. 3V 100U
			C405, 406	ECBT1H101KB5	50V 100P	C751	ECEACU102	16V 1000U
C101, 102	ECBT1H150JC5	50V 15P	C407	ECEAOJPS101B	6. 3V 100U	C752	ECEACU470	16V 47U
C103	ECBT1H102KB5	50V 1000P	C408, 409	ECBT1E103ZF	25V 0. 01U	C753, 754	ECKR1H103ZF5	50V 0. 01U

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
C755	ECBT1E103ZF	25V 0.01U	C917	ECEA1CK100B	16V 10U	C1462	ECQB1H104KF3	50V 0.1U
C756	ECEA1CU220	16V 22U	C971	ECKR1H103ZF5	50V 0.01U	C1463	ECQV1H334JZ3	50V 0.33U
C771	ECQE2104KF3	250V 0.1U Δ	C1301, 1302	ECEA1HU3R3	50V 3.3U	C1464	ECEA1CU221	16V 220U
C791	ECKWNS103ZV	500V 0.01U Δ	C1303, 1304	ECBA1H681KB5	50V 680P	C1465	ECEA1CK470	16V 47U
C801	ECEAOJU102	6.3V 1000U	C1305, 1306	ECBT1H821KB5	50V 820P	C1466	ECQM1H562JZ	50V 5600P
C802	ECBT1E103ZF	25V 0.01U	C1307, 1308	ECEA1HU220	50V 22U	C1467	ECEA1CK100B	16V 10U
C803, 804	ECEAOJU102	6.3V 1000U	C1309, 1310	ECBT1H100JC5	50V 10P	C1468, 1469	ECEA1HK010B	50V 1U
C805	ECEAOJK221B	6.3V 220U	C1311	ECEA2AU100	100V 10U	C1474, 1475	ECKR1H103ZF5	50V 0.01U
C806	ECBT1E103ZF	25V 0.01U	C1312	ECEA1JU220	63V 22U	C1476-1478	ECBT1H181KB5	50V 180P
C807, 808	ECEA1HK47	50V 0.47U	C1313, 1314	ECKT1H223ZF	50V 0.022U	C1479	ECEA1CK100B	16V 10U
C809	ECEAOJK470	6.3V 47U	C1315, 1316	ECEA1EU332E	25V 3300U Δ	C1480	ECEA1CK470	16V 47U
C810	ECKR1H103ZF5	50V 0.01U	C1317	ECKR2H103ZU	500V 0.01U Δ	C1481	ECEA1HK3R3	50V 3.3U
C811-814	ECBT1E103ZF	25V 0.01U	C1318	ECKR1H103ZF5	50V 0.01U	C1482, 1483	ECEA1EK3R3B	25V 3.3U
C815	ECEA1CK470	16V 47U	C1321	ECEA1HK3R3	50V 3.3U	C1484	ECEA1HK010B	50V 1U
C816	ECEA1CK100B	16V 10U	C1403	ECEA1HU010	50V 1U	C1487, 1488	ECBT1E103ZF	25V 0.01U
C817, 818	ECBT1H102KB5	50V 1000P	C1404	ECQM1H332KV3	50V 3300P	C1489	ECEA1EK3R3B	25V 3.3U
C819	ECQP1102JZ3	100V 1000P	C1405	ECBT1H561KB5	50V 560P	C1491	ECBT1H330J5	50V 33P
C820	ECEA1CK470	16V 47U	C1406	ECQB1H104KF3	50V 0.1U	C2001, 2002	ECEA1VK47	35V 4.7U
C821, 822	ECEA1HK3R3	50V 3.3U	C1407	ECEA1CK470	16V 47U	C2005-2008	ECEA1CK100B	16V 10U
C851, 852	ECEAOJU101B	6.3V 100U	C1408-1410	ECQB1H104KF3	50V 0.1U	C2009-2012	ECQV1H393JZ3	50V 0.039U
C853, 854	ECFR1E104KR	25V 0.1U	C1411	ECQM1H332KV3	50V 3300P	C2013-2016	ECBT1C103KS5	16V 0.01U
C891	ECFR1E392KR	25V 3900P	C1412	ECBT1H561KB5	50V 560P	C2017-2020	ECBT1C222KR5	16V 2200P
C892	ECEAOJU470B	6.3V 47U	C1413	ECEA1HK010B	50V 1U	C2021-2024	ECBT1H102KB5	50V 1000P
C901	ECEAOJU102	6.3V 1000U	C1414	ECQM1H123JZ	50V 0.012U	C2025, 2026	ECEAOJK101	6.3V 100U
C902	ECBT1E103ZF	25V 0.01U	C1415	ECFR1E104KR	25V 0.1U	C2027	ECBT1E103ZF	25V 0.01U
C904, 905	ECEAOJU102	6.3V 1000U	C1416	ECEAOJU221	6.3V 220U	C2028	ECEAOJK101	6.3V 100U
C906	ECBT1E103ZF	25V 0.01U	C1441	ECEAOJU220B	6.3V 22U	C2029, 2030	ECBT1E103ZF	25V 0.01U
C909, 910	ECBT1H101KB5	50V 100P	C1457	ECEA1CK100B	16V 10U	C2031, 2032	ECBT1H330J5	50V 33P
C911, 912	ECEA2AU100	100V 10U	C1458	ECQM1H472JZ	50V 4700P	C2035-2040	ECEA1VK3R3	35V 3.3U
C913	ECEA1VK100B	35V 10U	C1459	ECQM1H273KV3	50V 0.027U	C2051, 2052	ECBT1E103ZF	25V 0.01U
C914	ECEA1HK100	50V 10U	C1460	ECQM1H473JZ	50V 0.047U			
C916	ECEA1HK010B	50V 1U	C1461	ECEA1CK100B	16V 10U			

PACKING

