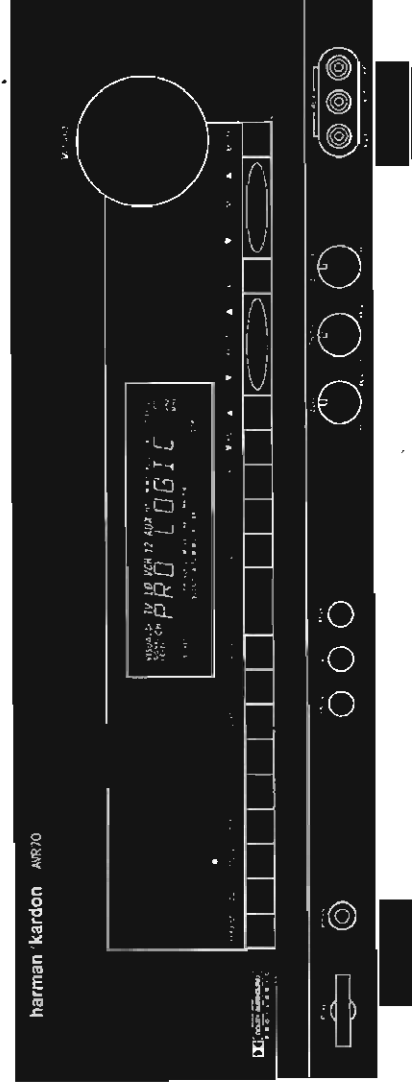


The Harman Kardon Model AVR70/AVR70MK II AUDIO AND VIDEO RECEIVER

Manual A

Technical Manual



The following marks found in the parts list of this manual identify the models as follows.

- BK** AVR70 :North America area model Black version
(with Tact type mains switch)
- IB** AVR70 :International model Black version
(with Tact type mains switch)
- BK** AVR70MK II :North America area model Black version
(with Manual Operated Mechanical type mains switch)
- IB** AVR70[MOMS] :International model Black version
(with Manual Operated Mechanical type mains switch)

CONTENTS

SPECIFICATIONS	2	GENERAL UNIT PARTS LIST	12
ELECTROSTATICALLY SENSITIVE (ES) DEVICE ...	3	GENERAL UNIT EXPLODED VIEW	13
LEAKAGE TEST	4	P.C. BOARDS	15
CONTROLS AND FUNCTIONS	5	ELECTRICAL PARTS LIST	23
SERVICE PROCEDURE	7	IC BLOCK DIAGRAMS	38
TEST EQUIPMENT REQUIRED	7	SCHEMATIC DIAGRAMS BK	43
ALIGNMENT PROCEDURES	7	SCHEMATIC DIAGRAMS IB	52
ALIGNMENT AND TEST POINTS	9	PIN CONNECTION DIAGRAM	61
CIRCUIT DESCRIPTION	10	WIRING DIAGRAM	62
BLOCK DIAGRAM	11	PACKING MATERIAL AND PARTS LIST	63
DISASSEMBLY PROCEDURES	12		

harman/kardon

Parts and Service Office
80 Crossways Park West, Woodbury, N.Y. 11797
1112-AVR70 1200 Printed in Japan

SPECIFICATIONS

FRONT AMP SECTION

	Nominal	Limit
Continuous Power Output (STEREO MODE), Input: CD		
THD : 0.09% 20 Hz-20 kHz	≥80 W	≥70 W
Both Channel Driven (1 kHz) (SURROUND MODE)	≥30 W	≥25 W
THD: 0.3%, 8 ohms, 1 kHz		
THD at 70 W, 8 ohms, Input: CD		
20 Hz	≤0.03%	≤0.09%
1 kHz	≤0.01%	≤0.09%
20 kHz	≤0.05%	≤0.09%
IM Distortion at 70 W, 8 ohms, Vol: Max.	≤0.03%	≤0.09%
Input Sensitivity for Rated Power Output (70W) (STEREO MODE, 1 kHz 8 ohms, Volume : Max)		
CD	275 mV	235-315 mV
TAPE1/2, TV/LD VCR1/2, AUX	220 mV	180-260 mV
S/N Ratio Input Shorted at 1kHz 1W Output (WTD IHF-A)		
CD 0.5 V Input	≥82 dB	≥78 dB
Tone Control		
Bass: 100 Hz	+10 dB	+10 ±2.5 dB
	-10 dB	-10 ±2.5 dB
Treble: 10kHz	+10 dB	+10 ±2.5 dB
	-10 dB	-10 ±2.5 dB
Frequency Response at -3dB		
Mode: Stereo, Ref: 1 kHz	10 Hz-70 kHz	15 Hz-50kHz
Channel Crosstalk Input Shorted by 1 kohms		
100Hz	≥55 dB	≥50 dB
1 kHz	≥45 dB	≥40 dB
10 kHz	≥35 dB	≥30 dB

CENTER AMP SECTION

	Nominal	Limit
RMS Output Power		
THD (0.3%, 8 ohms, 1 kHz)		
Only Center Channel Driven	≥80 W	≥70 W
S/N Ratio (Input Level : 245 mV)		
Input Shorted, IHF-A WTD	≥70 dB	≥65 dB
Frequency Response at-3 dB		
8 ohms, Dolby Pro-Logic	15 Hz - 22 kHz	30 Hz - 20 kHz

REAR AMP SECTION

	Nominal	Limit
RMS Output Power		
THD (0.7%, 8 ohms, 1 kHz)		
Only Rear Channel Driven	≥35 W	≥25 W
S/N Ratio (Input Shorted, IHF-A WTD)		
Delay : 20 ms, Input Level : 245 mV	≥70 dB	≥65 dB
Frequency Response at-3 dB		
8 ohms, Dolby Pro-Logic	15 Hz - 7 kHz	30 Hz - 6.5 kHz

SUB WOOFER SECTION

Line level at Pre out	Approx. 150 mVrms
Surround mode : Dolby Pro-Logic	
Center speaker mode : Large	
Input signal : L ch (only) 200mV	
Master volume : 0 dB	
Low pass crossover frequency	80 Hz cut off
Slope (Low Pass filter)	24 dB / octave

VIDEO AMP SECTION

	Nominal	Limit
Input Sensitivity/Impedance		
LD, TV, VCR1, VCR2, AUX	1 VP-P/75 Ω	±1 dB
Output Level/Impedance		
VCR1, VCR2, Monitor	1 VP-P/75 Ω	±1 dB
Frequency Response at-3 dB	DC-8 MHz	DC-6MHz

FM SECTION

	Nominal	Limit
Tuning Cover Range 75 kHz Step	87.50 - 108.00 MHz	
Mono Usable Sensitivity (75 ohms Input, 98 MHz)	≤13.5 dbf	≤19.2 dbf
Image Rejection (at 98 MHz)		
USA/Canada	>50 dB	≥40 dB
Europe	≥70 dB	≥60 dB
IF Rejection (at 98 MHz)	≥70 dB	≥65 dB
50 dB Quieting Sensitivity (at 98 Mhz, 100% MOD.)		
IHF Band Pass Filter		
Stereo	≤39.2 dbf	≤43.3 dbf
Distortion (1 kHz, 100% MOD. at 98 MHz, 65dbf Input)		
IHF Band Pass Filter		
Mono	≤0.2%	≤0.5%
S/N Ratio (500 μV Input, 100% MOD. at 98 MHz)		
IHF Band Pass Filter		
Stereo	≥68 dB	≥63 dB
Frequency Response (30 Hz - 15 kHz)		
USA/Canada De-Emphasis: 75μS	+0.5 dB	+1.0 dB
Europe De-Emphasis: 50μS	-2.0 dB	-4.0 dB
AM Suppression at 98 MHz		
	≥55 dB	≥45 dB
Muting Threshold (at 98 MHz)	27.2 dbf	23.3-32.0dbf
Overload Break-up at 98 MHz	71 dbf	65 dbf
Capture Ratio at 65 dbf	≤1.5 dB	≤2.5 dB
Stereo Separation (at 98 MHz, 100% MOD., 500 μV Input)		
IHF Band Pass Filter		
1 kHz	≥40 dB	≥30 dB
Tape out Level (at 98 MHz)	800 mV	600-1300 mV

AM SECTION

	Nominal	Limit
Tuning Cover Range (MW)		
USA/Canada : 10 kHz Step	520 - 1710 kHz	
Other : 9 kHz Step	531 - 1602 kHz	
Tuning Cover Range (LW)		
1 kHz Step	152 kHz - 282 kHz	
Usable Sensitivity		
MW at 999/1000 kHz	≤500 μV/m	≤800 μV/m
LW at 207 kHz	≤1500 μV/m	≤2000 μV/m
Image Rejection (at 999 kHz)	≥40 dB	≥35 dB
IF Rejection (at 999/1000 kHz)	≥60 dB	≥50 dB
Spurious Rejection (at 999/1000 kHz)		
	≥65 dB	≥55 dB
AGC Figure of Merit (From 100 mV/m at 999/1000 kHz)		
	≥55 dB	≥48 dB
Distortion (999/1000 Hz, 30% MOD. 50 mV/m Input)		
	≤1.0%	≤2.0%
Frequency Response (999/1000 kHz)		
at -3 dB	100 Hz - 2.2 kHz	150 Hz - 1.8 kHz
Selectivity (at 999/1000 Hz)		
9 kHz/10 kHz	≥30 dB	≥20 dB
18 kHz/20kHz	≥70 dB	≥60 dB
S/N Ratio (999/1000 kHz, With Antenna Input 50 mV/m)		
(Europe : Using 15 kHz L.P.F.)	≥50 dB	≥45 dB
Overload Break-up at 999/1000 kHz (THD 10%)		
	≥1000 mV/m	≥500 mV/m
TAPE Output Level at 999/1000 kHz (5 mV/m Input)	240 mV	150-340 mV

GENERAL

	Nominal	Limit
Power Consumption		
At Rated Power 2 Channel Driven	300 W	250 - 350 W
Idling at Minimum Volume Control	45 W	35 - 65 W
Power Supplies:		
USA/Canada	AC 120 V, 60 Hz	
Europe	AC 230 V, 50 Hz	
Dimensions (W x H x D) :		
inches	17 1/16 x 6 3/32 x 18 1/16	
mm	444 x 160 x 459	
Weight (lbs/kgs)	27.8/12.5	

These specifications are service target specs. Specifications and components are subject to change without notice. Overall performance will be maintained or improved.

ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical change sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material.)
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

PRODUCT SAFETY NOTICE

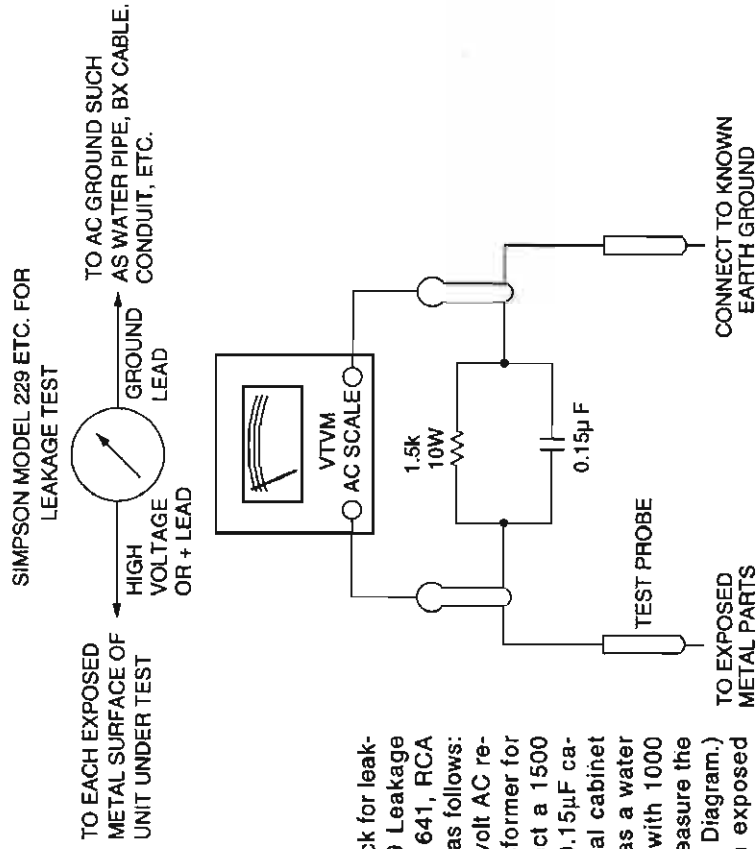
Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol **▲** in the parts list are of special significance to safety. When replacing a component identified with **▲**, use only the replacement parts designated, or parts with the same ratings or resistance, wattage, or voltage that are designated in the parts list in this manual. Leakage - current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

LEAKAGE TEST (FOR SERVICE ENGINEERS IN THE U.S.A.)

Before returning the unit to the user, perform the following safety checks:

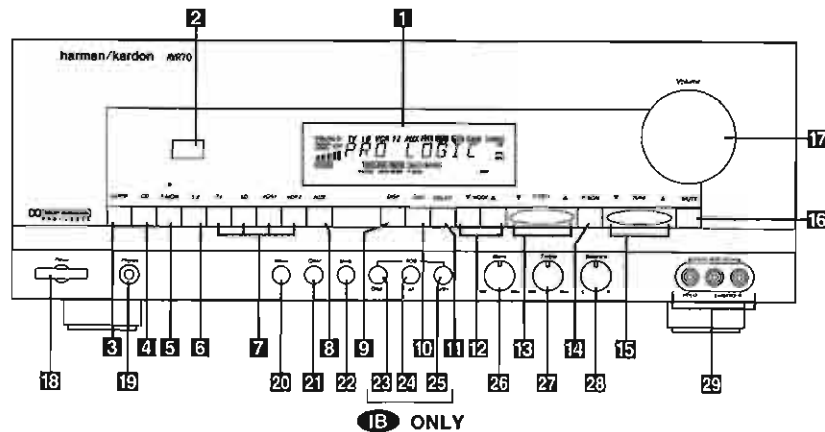
1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the unit.
2. Be sure that any protective devices such as nonmetallic control knobs, insulating fishpapers, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators, etc. Which were removed for servicing are properly reinstalled.
3. Be sure that no shock hazard exists; check for leakage current using Simpson Model 229 Leakage Tester, standard equipment item No. 21641, RCA Model WT540A or use alternate method as follows: Plug the power cord directly into a 120-volt AC receptacle (do not use an Isolation Transformer for this test). Using two clip leads, connect a 1500 Ohm, 10-watt resistor paralleled by a 0.15 μ F capacitor, in series with all exposed metal cabinet parts and a known earth ground, such as a water pipe or conduit. Use a VTVM or VOM with 1000 Ohms per volt, or higher sensitivity to measure the AC voltage drop across the resistor. (See Diagram.) Move the resistor connection to each exposed metal part having a return path to the chassis (antenna, metal, cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor. (This test should be performed with the power switch in both the On and Off positions.)

A reading of 0.35 volt RMS or more is excessive and indicates a potential shock hazard which must be corrected before returning the unit to the owner.



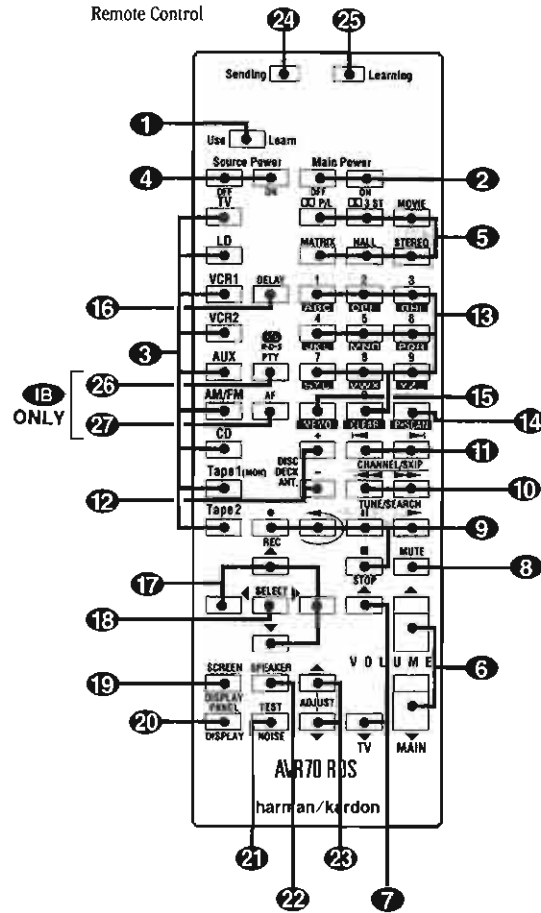
CONTROL AND FUNCTIONS

Front Panel



- 1 Information Display:** This display delivers messages and status indications to help you operate the receiver. Refer to the separate diagram for a complete explanation of the FL display.
- 2 Remote Sensor Window:** The sensor behind this window receives infrared signals from the remote control. Aim the remote at this area and do not block or cover it unless an external remote sensor is installed.
- 3 AM/FM Tuner Mode Selection:** Press this button once to select the tuner. Press it again to switch between FM, MW and LW.
- 4 CD:** Press this button to select the CD player.
- 5 Tape1/Monitor:** Press this button to select Tape One as the input source. A red LED above the button will illuminate to indicate that the Tape Monitor has been selected.
- 6 Tape 2:** Press this button to select Tape 2.
- 7 Video Sources:** Press any of these buttons to select a video input source.
- 8 Aux:** Press this button to select the source connected to the front panel Aux jacks.
- 9 Display:** Press this button to turn off the front panel FL display. The DISP indicator will illuminate to remind you that the unit is still turned on.
- 10 OSD (On Screen Display):** Press the button briefly to display a system status report on your video screen. Press and hold to change the video standard.
- 11 Delay:** Press this button to increase the delay to the rear (surround) channels.
- 12 Mode:** Press these buttons to scroll up ▲ or down ▼ through the list of available surround modes.
- 13 P-Set:** Press these buttons to manually scroll up ▲ or down ▼ through the FM, LW or AM stations programmed into the receiver's preset memory.
- 14 P-Scan:** Press this button to automatically scan through the FM or AM stations preset into the receiver's memory. Press the button again to stop the scan when the tuner is at the desired station.
- 15 Tune:** Press these buttons to manually scan up ▲ or down ▼ through the FM or AM bands.
- 16 Mute:** Press this button to cut the output to the speakers. Press it again to return to the previous volume level.
- 17 Volume Control:** Turn the knob clockwise to increase volume, counterclockwise to decrease the volume. Note that approximately two revolutions of the knob are required to go from no output to maximum volume.
- 18 Power:** Press this button once to turn the unit on or off. In order to use the remote control to turn the unit on the power switch must be pressed once, and then the unit must be turned off via the remote. The LED indicator light surrounding the power switch will glow amber when the unit is in the Standby mode and green when the unit is on.
- 19 Headphone Jack:** Plug standard stereo headphones into this jack for private listening.
NOTE: When the headphones are in use the output to the speakers is muted and the surround mode is automatically switched to STEREO. When the headphones are removed from the jack, sound to the speakers is restored and the unit returns to the previous sound mode.
- 20 Memo:** The memo button is used to enter stations to the tuner's preset memory in either the manual or automatic modes. It is also used in clearing the memory and entering the sleep timer period.
- 21 Clear:** The clear button is used to cancel tuning, memory input or when clearing the unit's memories.
- 22 FM Mode:** Press this button to select the tuning mode for FM stations.
- 23 RDS Display:** When a station transmitting RDS data is tuned, press this button to view the tuning frequency.
- 24 RDS AF:** The button is used to search for stations transmitting a specific programme type that offers better reception than the currently tuned station.
- 25 RDS PTY:** Press this button to view the programme type (PTY) when an RDS station is tuned. It is also used to initiate a search for RDS stations transmitting a specific programme type.
- 26 Bass:** This knob adjusts the tone of low frequency sounds. Turn it to the right to boost bass frequencies or to the left to cut bass frequencies.
- 27 Treble:** This knob adjusts the tone of high frequency sounds. Turn it to the right to boost high frequencies or to the left to cut high frequencies.
- 28 Balance:** This knob adjusts the balance between the front left and right speakers.
- 29 Front Panel Inputs:** Audio or Video sources connected to these jacks may be selected by pressing the Aux button 8.

Remote Control



- 1 Use/Learn:** This switch selects the operation mode of the remote control. Slide it to the left for normal operation. Slide it to the right when the remote is being programmed.
- 2 Main Power:** Press these buttons to turn the unit on or off.
- 3 Source Selection:** Pressing one of these buttons selects the input source that will be listened to through the receiver. When a source is selected the remote's transport and numeric number buttons will also transmit the commands needed to control that machine.
- 4 Source Power:** Press these buttons to control power for the last source device selected.
- 5 Surround Mode Selection:** Press one of these buttons to select a surround mode for the current listening session.
- 6 Main Volume:** These buttons control the unit's volume. Note that all channels are controlled simultaneously.
- 7 TV Volume:** These buttons adjust the volume for TV using the remote control codes programmed into the remote for a TV set or cable box. These buttons control the TV set only, regardless of which source is selected. This enables you to control the audio level of a TV set even when the receiver is not in use.
- 8 Mute:** Press this button to temporarily cut the audio output of the receiver. Press it again to return to the previous volume level.
- 9 Transport Controls:** These buttons control the tape or disc motion of the last playback source selected with the Source Selection buttons 4. Use them as you would the Play, Stop, Pause, Reverse Play and Record buttons on any VCR, CD or LD remote control.
- 10 Tune/Search & Fast Forward:** (These buttons have multiple functions, which vary according to the input device selected.)
a. When the TUNER has been selected, these buttons are used to manually tune stations.

b. When CD, LD or VCR is the input source, these buttons act as the Fast Scan Forward ►►► or Fast Scan Reverse ◄◄◄ controls.

11 Channel/Skip: (These buttons have multiple functions, which vary according to the input device selected.)

a. When the TUNER has been selected, these buttons will scroll up ► or down ◄ through the stations that have been programmed in the preset memory.

b. When TV or VCR is selected, they are the channel up ► or channel down ◄ tuning buttons.

c. When CD or LD is selected these buttons act as forward and reverse "Skip" buttons to move to the next track or chapter on the disc.

d. When a compatible Harman Kardon cassette player has been selected as Tape 1 or Tape 2, these buttons move the tape forward ► or backwards ◄ to the next selection using the Music Scan feature.

12 Disc/Deck/Ant: (These buttons have multiple functions, which vary according to the input device selected.)

a. When CD is selected and the unit is a CD changer, these buttons will change to the next disc + or previous disc -.

b. When Tape 1 or Tape 2 is the input source, and the tape machine is a compatible Harman Kardon dual cassette deck, these buttons will switch between the "A" and "B" sides.

c. When VCR 1 or VCR 2 is the input source, these buttons switch between VCR and TV as the unit's output.

d. When TV is the input source, these buttons may switch between video input sources or antenna/video, depending on the TV model.

e. When LD is the input source, these buttons will switch the side being played from "A" to "B" on compatible dual side players.

13 Number Keys: These buttons serve as a ten button numeric keypad to enter tuner preset positions. They are also to be used to select channel numbers when TV has been selected on the remote, or to select track numbers on a CD or LD player, depending on how the remote has been programmed. The letters below the buttons are used to enter information for tuner station names.

14 RDS PTY: Press this button to view the Programme Type information for stations transmitting RDS data. This button is also used for PTY Auto Search functions.

15 Memo: The memo button is used to enter stations to the tuner's preset memory in either the manual or automatic modes. It is also used in the process of clearing the memory.

16 Delay: This button controls the amount of sound delay to the rear (surround) channels. Press it to increase the delay in the steps shown in the main Information Display or on-screen graphics.

17 Menu Controls: These buttons control the action of the cursor or the selection of menu items when the receiver is being configured using the setup menus.

18 Select: This button enters settings to the receiver's memory during system configuration.

19 Screen Display: Press this button to activate the on screen menu system.

20 Panel Display: Press this button to turn off all displays and indicators in the Information Display except for a small DSP indication in the lower right corner of the display 12. Press the button again to turn the display back on. Note that the display will briefly illuminate when a command is sent to the unit from the front panel or remote, even though the display is turned off.

21 Test Noise: Press this button to begin calibration of the output level for each channel. A test signal will immediately be heard from the left front speaker and the TEST indicator 2 will flash.

22 Speaker Select: When setting the system output levels, this button selects the speaker position being adjusted. Press it once to advance to the next speaker after each position is adjusted.

23 Level Adjust: When setting the system output levels, press these buttons to increase or decrease the output level.

24 Sending LED: This indicator should flash any time a button is pressed to confirm that a command is being sent to the receiver or another unit. If the light is dim or does not illuminate when a button is pressed the batteries in the remote should be replaced.

25 Learn LED: This indicator will illuminate when a button on the remote is being programmed with signals from another remote during the "learning" mode. The light will go out when the signal is received and memorized.

26 RDS PTY: Press this button to view the Programme Type information for stations transmitting RDS data. This button is also used for PTY Auto Search functions.

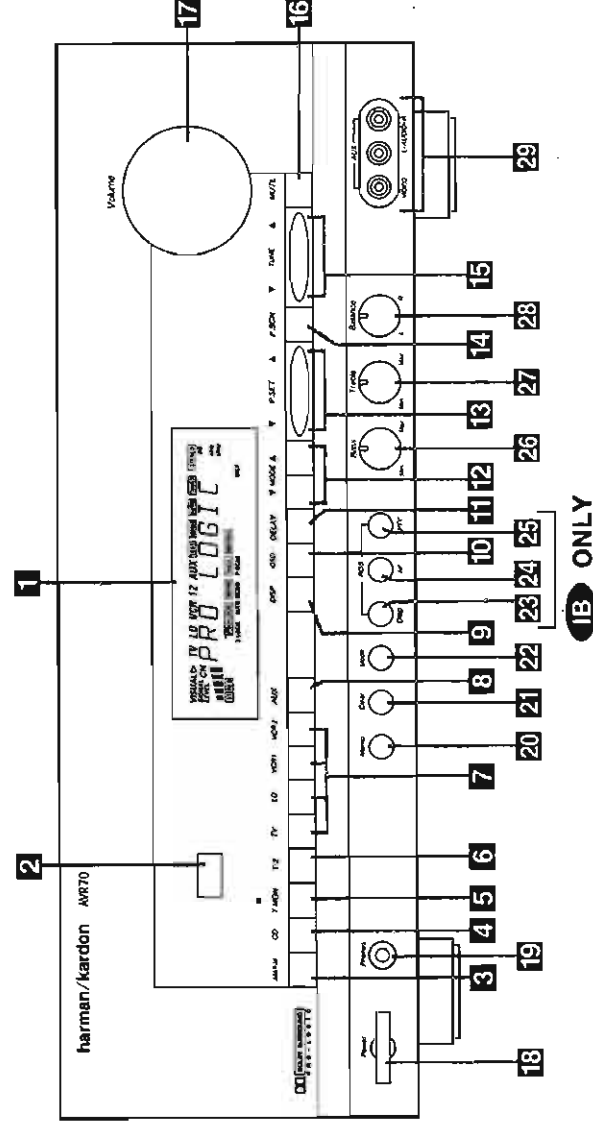
27 RDS AF: This button initiates a search of all RDS stations to find a stronger signal for the programme type currently selected.

NOTE: The 0 button has a dual function. It also serves as the CLEAR button for use in programming the tuner or clearing the system memory.

14 P-Scan: Press this button to automatically scan through the stations preset into the tuner memory. Press the button again to end the scan when the tuner stops at the desired station.

CONTROL AND FUNCTIONS

Front Panel



1 Information Display: This display delivers messages and status indications to help you operate the receiver. Refer to the separate diagram for a complete explanation of the FL display.

2 Remote Sensor Window: The sensor behind this window receives infrared signals from the remote control. Aim the remote at this area and do not block or cover it unless an external remote sensor is installed.

3 AM/FM Tuner Mode Selection: Press this button once to select the tuner. Press it again to switch between FM, MW and LW.

4 CD: Press this button to select the CD player.

5 Tape1/Monitor: Press this button to select Tape One as the input source. A red LED above the button will illuminate to indicate that the Tape Monitor has been selected.

6 Tape 2: Press this button to select Tape 2.

7 Video Sources: Press any of these buttons to select a video input source.

8 Aux: Press this button to select the source connected to the front panel Aux jacks.

9 Display: Press this button to turn off the front panel FL display. The DISP indicator will illuminate to remind you that the unit is still turned on.

10 OSD (On Screen Display): Press the button briefly to display a system status report on your video screen. Press and hold to change the video standard.

11 Delay: Press this button to increase the delay to the rear (surround) channels.

12 Mode: Press these buttons to scroll up ▲ or down ▼ through the list of available surround modes.

13 P-Set: Press these buttons to manually scroll up ▲ or down ▼ through the FM, LW or AM stations programmed into the receiver's preset memory.

14 P-Scan: Press this button to automatically scan through the FM or AM stations preset into the receiver's memory. Press the button again to stop the scan when the tuner is at the desired station.

15 Tune: Press these buttons to manually scan up ▲ or down ▼ through the FM or AM bands.

16 Mute: Press this button to cut the output to the speakers. Press it again to return to the previous volume level.

17 Volume Control: Turn the knob clockwise to increase volume, counterclockwise to decrease the volume. Note that approximately two revolutions of the knob are required to go from no output to maximum volume.

18 Power: press this button once to turn the unit on or off. In order to use the remote control to turn the unit on, the power switch must be pressed once, and then the unit must be turned off via the remote. The LED indicator light surrounding the power switch will glow amber when the unit is in the Standby mode and green when the unit is on.

19 Headphone Jack: Plug standard stereo headphones into this jack for private listening.

NOTE: When the headphones are in use the output to the speakers is muted and the surround mode is automatically switched to STEREO. When the headphones are removed from the jack, sound to the speakers is restored and the unit returns to the previous sound mode.

20 Memo: The memo button is used to enter stations to the tuner's preset memory in either the manual or automatic modes. It is also used in clearing the memory and entering the sleep timer period.

21 Clear: The clear button is used to cancel tuning, memory input or when clearing the unit's memories.

22 FM Mode: Press this button to select the tuning mode for FM stations.

23 RDS Display: When a station transmitting RDS data is tuned, press this button to view the tuning frequency.

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25 RDS PTY: Press this button to view the programme type (PTY) when an RDS station is tuned. It is also used to initiate a search for RDS stations transmitting a specific programme type.

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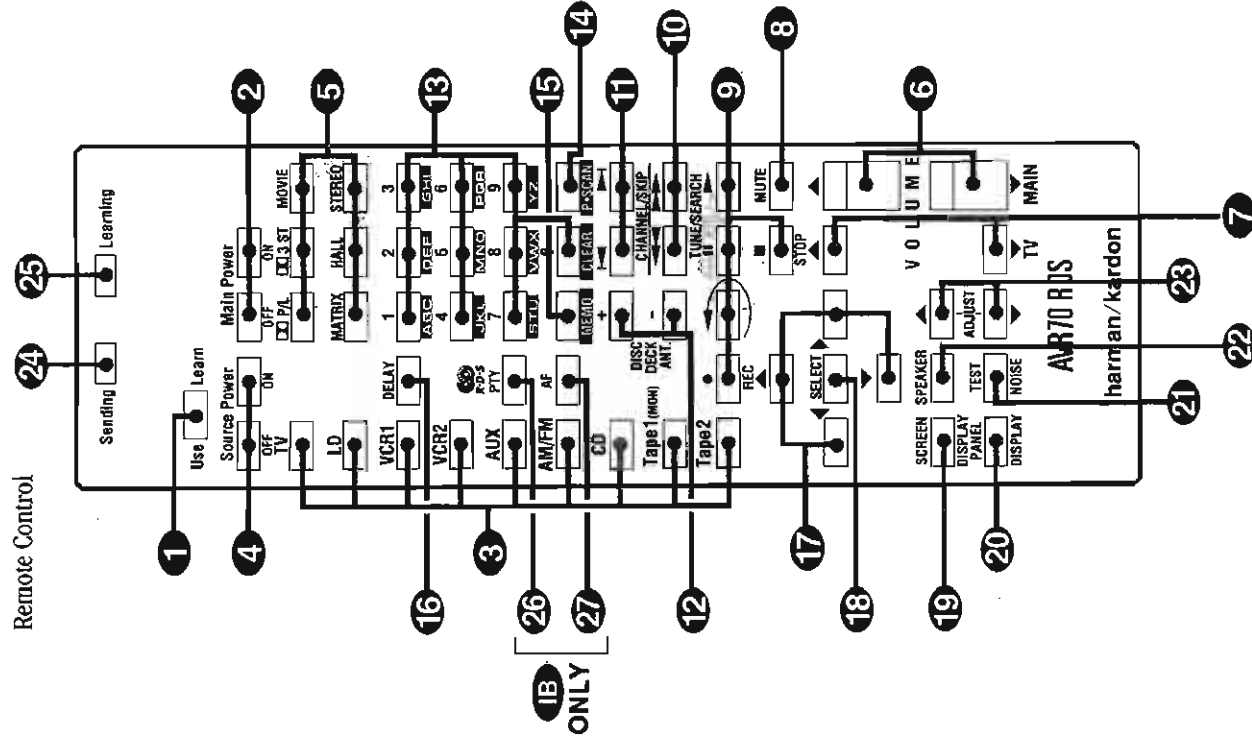
29 Front Panel Inputs: Audio or Video sources connected to these jacks may be selected by pressing the Aux button **8**.

- 1 Use/L** the operat control. Still operation. the remote
- 2 Main** buttons to
- 3 Sourc** of these bl source th through th is selecte and numer also trans to control
- 4 Sourc** tons to col source del
- 5 Surro** Press one a surround tening ses
- 6 Main** control the all channe neously.

B
ONLY

B
ONLY

Remote Control



b. When **CD**, **LD** or **VCR** is the input source, these buttons act as the Fast Scan Forward \blacktriangle or Fast Scan Reverse \blacktriangleright controls.

11 Channel/Skip: (These buttons have multiple functions, which vary according to the input device selected.)

a. When the **TUNER** has been selected, these buttons will scroll up \blacktriangle or down \blacktriangleright through the stations that have been programmed in the preset memory.

b. When **TV** or **VCR** is selected, they are the channel up \blacktriangle or channel down \blacktriangleright tuning buttons.

c. When **CD** or **LD** is selected these buttons act as forward and reverse "Skip" buttons to move to the next track or chapter on the disc.

d. When a compatible Harman Kardon cassette player has been selected as **Tape 1** or **Tape 2**, these buttons move the tape forward \blacktriangle or backwards \blacktriangleright to the next selection using the Music Scan feature.

12 Disc/Deck/Ant: (These buttons have multiple functions, which vary according to the input device selected.)

a. When **CD** is selected and the unit is a CD changer, these buttons will change to the next disc $+$ or previous disc $-$.

b. When **Tape 1** or **Tape 2** is the input source, and the tape machine is a compatible Harman Kardon dual cassette deck, these buttons will switch between the "A" and "B" sides.

c. When **VCR 1** or **VCR 2** is the input source, these buttons switch between **VCR** and **TV** as the unit's output.

d. When **TV** is the input source, these buttons may switch between video input sources or antenna/video, depending on the TV model.

e. When **LD** is the input source, these buttons will switch the side being played from "A" to "B" on compatible dual side players.

13 Number Keys: These buttons serve as a ten button numeric keypad to enter tuner preset positions. They are also to be used to select channel numbers when **TV** has been selected on the remote, or to select track numbers on a **CD** or **LD** player, depending on how the remote has been programmed. The letters below the buttons are used to enter information for tuner station names.

NOTE: The **0** button has a dual function. It also serves as the **CLEAR** button for use in programming the tuner or clearing the system memory.

14 P-Scan: Press this button to automatically scan through the stations preset into the tuner memory. Press the button again to end the scan when the tuner stops at the desired station.

15 Memo: The memo button is used to enter stations to the tuner's preset memory in either the manual or automatic modes. It is also used in the process of clearing the memory.

16 Delay: This button controls the amount of sound delay to the rear (surround) channels. Press it to increase the delay in the steps shown in the main Information Display or on-screen graphics.

17 Menu Controls: These buttons control the action of the cursor or the selection of menu items when the receiver is being configured using the setup menu.

18 Select: This button enters settings to the receiver's memory during system configuration.

19 Screen Display: Press this button to activate the on screen menu system.

20 Panel Display: Press this button to turn off all displays and indicators in the Information Display except for a small **D I S P** indication in the lower right corner of the display. Press the button again to turn the display back on. Note that the display will briefly illuminate when a command is sent to the unit from the front panel or remote, even though the display is turned off.

21 Test Noise: Press this button to begin calibration of the output level for each channel. A test signal will immediately be heard from the left front speaker and the **TEST** indicator L will flash.

22 Speaker Select: When setting the system output levels, this button selects the speaker position being adjusted. Press it once to advance to the next speaker after each position is adjusted.

23 Level Adjust: When setting the system output levels, press these buttons to increase or decrease the output level.

24 Sending LED: This indicator should flash any time a button is pressed to confirm that a command is being sent to the receiver or another unit. If the light is dim or does not illuminate when a button is pressed the batteries in the remote should be replaced.

25 Learn LED: This indicator will illuminate when a button on the remote is being programmed with signals from another remote during the "learning" mode. The light will go out when the signal is received and memorized.

26 RDS PTY: Press this button to view the Programme Type information for stations transmitting RDS data. This button is also used for PTY Auto Search functions.

27 RDS AF: This button initiates a search of all RDS stations to find a stronger signal for the programme type currently selected.

1 Use/Learn: This switch selects the operation mode of the remote control. Slide it to the left for normal operation. Slide it to the right when the remote is being programmed.

2 Main Power: Press these buttons to turn the unit on or off.

3 Source Selection: Pressing one of these buttons selects the input source that will be listened to through the receiver. When a source is selected the remote's transport and numeric number buttons will also transmit the commands needed to control that machine.

4 Source Power: Press these buttons to control power for the last source device selected.

5 Surround Mode Selection: Press one of these buttons to select a surround mode for the current listening session.

6 Main Volume: These buttons control the unit's volume. Note that all channels are controlled simultaneously.

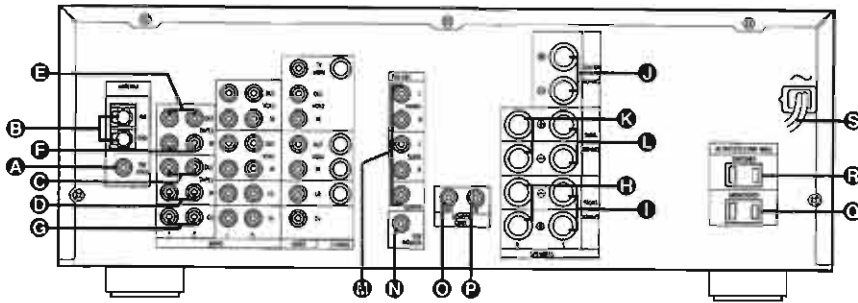
7 TV Volume: These buttons adjust the volume for TV using the remote control codes programmed into the remote for a TV set or cable box. These buttons control the TV set only, regardless of which source is selected. This enables you to control the audio level of a TV set even when the receiver is not in use.

8 Mute: Press this button to temporarily cut the audio output of the receiver. Press it again to return to the previous volume level.

9 Transport Controls: These buttons control the tape or disc motion of the last playback source selected with the Source Selection buttons. Use them as you would the Play, Stop, Pause, Reverse Play and Record buttons on any **VCR**, **CD** or **LD** remote control.

10 Tune/Search & Fast Forward: (These buttons have multiple functions, which vary according to the input device selected.)

a. When the **TUNER** has been selected, these buttons are used to manually tune stations.



A FM Antenna: Connect an indoor or external FM antenna to these terminals.

B AM Antenna: Connect the AM loop antenna supplied with the receiver to these terminals. If an external AM antenna is used, make connections to the AM and GND terminals in accordance with the instructions supplied with the antenna.

C Tape 1 Out: Connect these jacks to the RECORD/INPUT jacks of an audio recorder.

D Tape 1 In: Connect these jacks to the PLAY/OUT jacks of an audio recorder.

E Tape 2 Out: Connect these jacks to the RECORD/INPUT jacks of a second audio recorder.

F Tape 2 In: Connect these jacks to the PLAY/OUT jacks of a second audio recorder.

G CD IN: Connect these jacks to the output of a compact disc player or CD changer.

H Front R: Connect these terminals to the front right speaker.

I Front L: Connect these terminals to the front left speaker.

J Center: Connect these terminals to the center speaker.

K Surround R: Connect these terminals to the right surround speaker.

L Surround L: Connect these terminals to the left surround speaker.

M Pre-Outs: If external power amplifiers are used for any channels, connect these jacks to the inputs of the amplifier.

N Subwoofer Pre-Out: Connect this jack to the line level input of a powered subwoofer. If an external subwoofer amplifier is used, connect this jack to the subwoofer amplifier input.

O Remote IR Out: This connection permits the IR sensor in the receiver to serve other remote controlled devices. Connect this jack to the "IR IN" jack on Harman Kardon or other compatible equipment.

P Remote IR In: If the AVR70's front panel IR sensor is blocked due to cabinet doors or other obstructions, an external IR sensor may be used. Connect the output of the sensor to this jack.

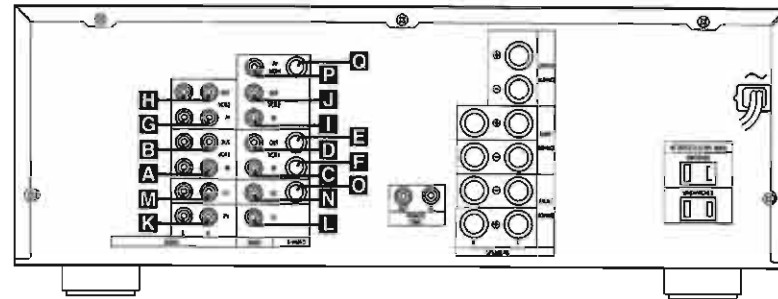
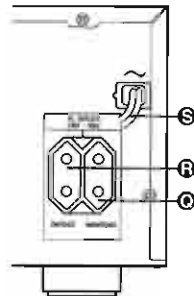
Q Unswitched AC Outlet: This outlet may be used to power any AC device. The power will remain on at this outlet regardless of whether the AVR70 is on or off.

R Switched AC Outlet: This outlet may be used to power any device that you wish to have on when the unit is turned on.

NOTE: The power consumption of the device plugged into each of these outlets should not exceed 120 watts.

S Power Cable: Connect the AC plug to a non-switched AC wall output.

B ONLY



A VCR 1 Audio In: Connect these jacks to the audio PLAY/OUT jacks of a VCR.

B VCR 1 Audio Out: Connect these jacks to the RECORD/IN audio jacks of a VCR.

C VCR 1 Video In: Connect this jack to the composite video PLAY/OUT jacks of a VCR.

D VCR 1 Video Out: Connect this jack to the composite video RECORD/IN jacks of a VCR.

E VCR 1 S Video Out: Connect this jack to the "S" video RECORD/IN jacks of a VCR.

F VCR 1 S Video In: Connect this jack to the "S" video RECORD/IN jacks of a VCR.

G VCR 2 Audio In: Connect these jacks to the audio jacks PLAY/OUT of a second VCR.

H VCR 2 Audio Out: Connect these jacks to the audio RECORD/IN jacks of a second VCR.

I VCR 2 Video In: Connect this jack to the composite video PLAY/OUT jacks of a second VCR.

J VCR 2 Video Out: Connect this jack to the composite video RECORD/IN jacks of a second VCR.

K TV Audio In: Connect the audio outputs of a TV, cable converter or satellite receiver to these jacks.

L TV Video In: Connect the composite video output of a TV, cable converter or satellite receiver to this jack. The signals received at this jack are also used to trigger the "TV Auto-On" feature.

M LD Audio In: Connect the audio output of a laser disc player to these jacks.

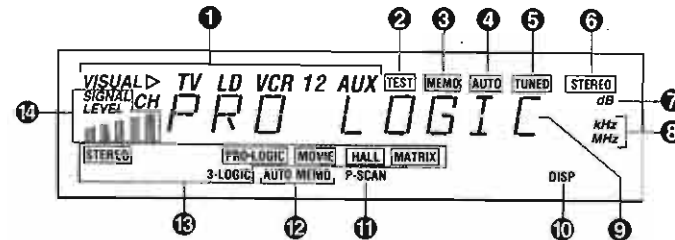
N LD Video In: Connect the composite video output of a laser disc player to this jack.

O LD S Video In: Connect the "S" video output of a laser disc player to this jack.

P TV Monitor Video Out: Connect this jack to the composite video input of a TV monitor or video projector to view the on screen control menus and output of the receiver's video switcher.

Q TV Monitor S Video Out: Connect this jack to the S video input of a TV monitor or video projector to view S video sources selected by the receiver's video switcher.

Information Display



1 "Visual" Indicator: These indicators display which input source is being fed to the video monitor output.

2 Test: This indicator flashes when the output levels are being set using the built in test signal generator.

3 Memo: This indicator flashes when the Memo button is pressed when entering presets and other information into the tuner's memory.

4 Auto: This indicator signifies that the Automatic Tuning mode is in use for FM broadcasts.

5 Tuned: This indicator lights when an AM or FM station is properly tuned and locked.

6 Stereo: This indicator lights when an FM station is broadcasting in stereo.

7 Volume Indication: The last two indicators on the information display indicate the volume level. Note that dB is the reference level, not an indication that there is no output.

8 Tuner Frequency Indication: When the tuner is in use, the main Information Display will show the preset channel number, if any, the frequency band and the station frequency. Indicators at the right side of the display show kHz when an LW or MW station is tuned or MHz when an FM station is tuned.

9 Main Information Display: This ten digit display shows messages relating to the status, input source, surround mode, tuner, volume level or other aspects of the unit's operation.

10 DISP: This indicator lights when the FL display has been turned off using the Display button **10** to remind you that the unit is still turned on.

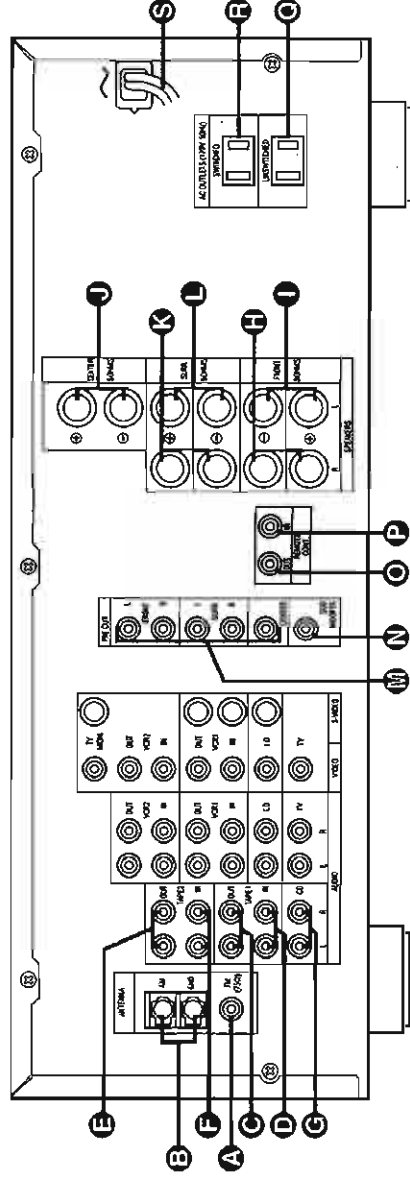
11 P-Scan: This indicator flashes when the stations programmed into the tuner memory are being automatically reviewed.

12 Auto Memo: This indicator flashes when the tuner is automatically scanning for stations and entering them into the preset memory.

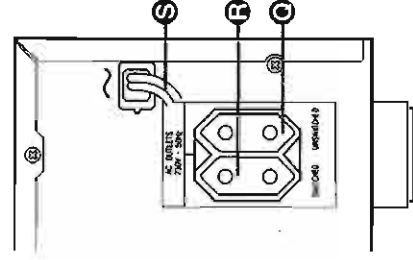
13 Mode Status: These indicators display the currently selected surround mode.

14 Signal Level Indication: This is a visual indication of the strength of a radio station signal. The more bars visible, the stronger the station.

Rear Panel – Audio and System Connections



IB ONLY



Front R: Connect these terminals to the front right speaker.

Front L: Connect these terminals to the front left speaker.

Center: Connect these terminals to the center speaker.

Surround R: Connect these terminals to the right surround speaker.

Surround L: Connect these terminals to the left surround speaker.

Pre-Outs: If external power amplifiers are used for any channels, connect these jacks to the inputs of the amplifier.

Subwoofer Pre-Out: Connect this jack to the line level input of a powered subwoofer. If an external subwoofer amplifier is used, connect this jack to the subwoofer amplifier input.

Remote IR Out: This connection permits the IR sensor in the receiver to serve other remote controlled devices. Connect this jack to the "IR IN" jack on Harman Kardon or other compatible equipment.

Remote IR In: If the AVR70's front panel IR sensor is blocked due to cabinet doors or other obstructions, an external IR sensor may be used. Connect the output of the sensor to this jack.

FM Antenna: Connect an indoor or external FM antenna to these terminals.

AM Antenna: Connect the AM loop antenna supplied with the receiver to these terminals. If an external AM antenna is used, make connections to the **AM** and **GND** terminals in accordance with the instructions supplied with the antenna.

Tape 1 Out: Connect these jacks to the **RECORD/INPUT** jacks of an audio recorder.

Tape 1 In: Connect these jacks to the **PLAY/OUT** jacks of an audio recorder.

Tape 2 Out: Connect these jacks to the **RECORD/INPUT** jacks of a second audio recorder.

Tape 2 In: Connect these jacks to the **PLAY/OUT** jacks of a second audio recorder.

CD IN: Connect these jacks to the output of a compact disc player or CD changer.

Unswitched AC Outlet: This outlet may be used to power any AC device. The power will remain on at this outlet regardless of whether the AVR70 is on or off.

Switched AC Outlet: This outlet may be used to power any device that you wish to have on when the unit is turned on.

NOTE: The power consumption of the device plugged into each of these outlets should not exceed 120 watts.

Power Cable: Connect the AC plug to a non-switched AC wall outlet.

1 "Visual" Indicators: This indicator displays which being fed to the vic

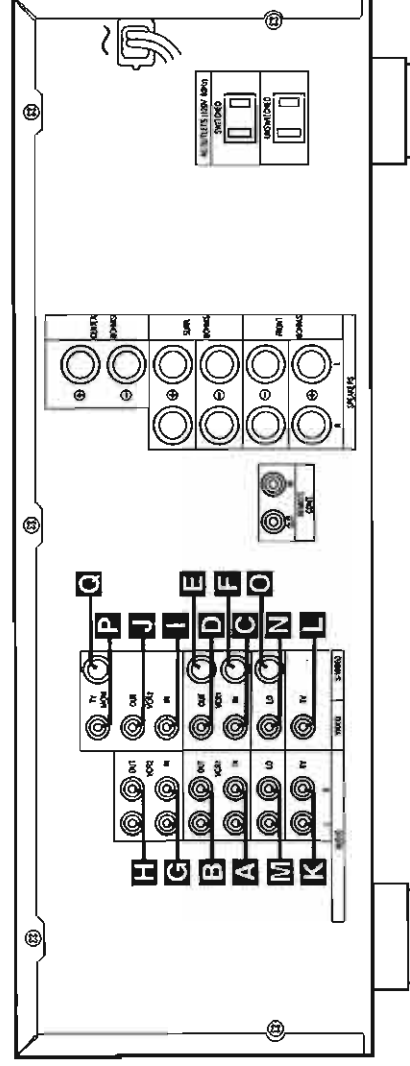
2 Test: This indicator displays the output levels a the built in test sig

3 Memo: This indicator displays when the Memo button is pressed when entering pre information into the

4 Auto: This indicator displays when the Automatic Tuning function is used for FM broadcasts

5 Tuned: This indicator displays when an AM or FM station is tuned and locked.

Rear Panel – Video Connections



A VCR 1 Audio In: Connect these jacks to the audio PLAY/OUT jacks of a VCR.

B VCR 1 Audio Out: Connect these jacks to the RECORD/IN audio jacks of a VCR.

C VCR 1 Video In: Connect this jack to the composite video PLAY/OUT jacks of a VCR.

D VCR 1 Video Out: Connect this jack to the composite video RECORD/IN jacks of a VCR.

E VCR 1 S Video Out: Connect this jack to the "S" video RECORD/IN jacks of a VCR.

F VCR 1 S Video In: Connect this jack to the "S" video RECORD/IN jacks of a VCR.

G VCR 2 Audio In: Connect these jacks to the audio jacks PLAY/OUT of a second VCR.

H VCR 2 Audio Out: Connect these jacks to the audio RECORD/IN jacks of a second VCR.

I VCR 2 Video In: Connect this jack to the composite video PLAY/OUT jacks of a second VCR.

J VCR 2 Video Out: Connect this jack to the composite video RECORD/IN jacks of a second VCR.

K TV Audio In: Connect the audio outputs of a TV, cable converter or satellite receiver to these jacks.

L TV Video In: Connect the composite video output of a TV, cable converter or satellite receiver to this jack. The signals received at this jack are also used to trigger the "TV Auto-On" feature.

M LD Audio In: Connect the audio output of a laser disc player to these jacks.

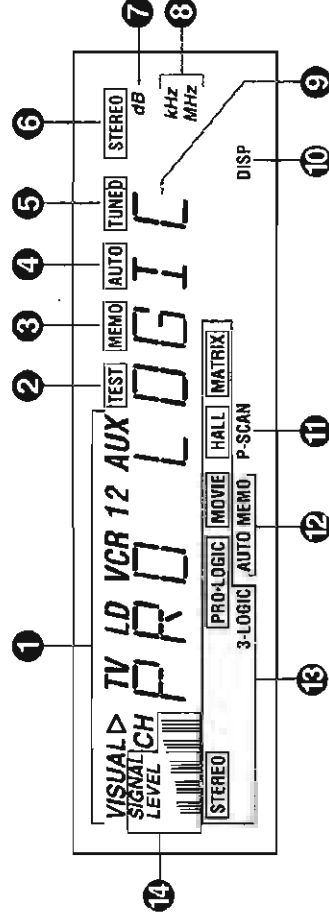
N LD Video In: Connect the composite video output of a laser disc player to this jack.

O LD S Video In: Connect the "S" video output of a laser disc player to this jack.

P TV Monitor Video Out: Connect this jack to the composite video input of a TV monitor or video projector to view the on screen control menus and output of the receiver's video switcher.

Q TV Monitor S Video Out: Connect this jack to the S video input of a TV monitor or video projector to view S video sources selected by the receiver's video switcher.

Information Display



"Visual" Indicator: These indicators show which input source is selected to the video monitor output.

This indicator flashes when input levels are being set using the test signal generator.

This indicator flashes when the Memo button is pressed, entering presets and other information into the tuner's memory.

This indicator signifies that automatic tuning mode is in use for broadcasts.

This indicator lights when an FM station is properly tuned and locked.

6 Stereo: This indicator lights when an FM station is broadcasting in stereo.

7 Volume Indication: The last two indicators on the information display indicate the volume level. Note that 0dB is the reference level, not an indication that there is no output.

8 Tuner Frequency Indication: When the tuner is in use, the main Information Display will show the preset channel number, if any, the frequency band and the station frequency. Indicators at the right side of the display show kHz when an LW or MW station is tuned or MHz when an FM station is tuned.

9 Main Information Display: This ten digit display shows messages relating to the status, input source, surround mode, tuner, volume level or other aspects of the unit's operation.

10 DISP: This indicator lights when the FL display has been turned off using the Display button 10 to remind you that the unit is still turned on.

11 P-Scan: This indicator flashes when the stations programmed into the tuner memory are being automatically reviewed.

12 Auto Memo: This indicator flashes when the tuner is automatically scanning for stations and entering them into the preset memory.

13 Mode Status: These indicators display the currently selected surround mode.

14 Signal Level Indication: This is a visual indication of the strength of a radio station signal. The more bars visible, the stronger the station.

SERVICE PROCEDURE

1. Tracking point memory

This service procedure can be used for measurement of the tuner circuit. With the POWER ON, press the "PRESET UP" button while pressing the "MEMO" button for at least 3 seconds or more. FLD will display "TRACKING". Frequencies will be memorized as follows:

	VERSION	P1	P2	P3	P4
FM	8K 1B	90.0	98.0	106.0	87.5

	SCAN STEP	P5	P6	P7	P8	P9	P10	P11	P12~P30
MW	10 KHz	600.0	1000.0	1400.0	520.0	←	←	←	←
	9 KHz	603.0	999.0	1404.0	531.0	←	←	←	←
	LW	↑	↑	↑	171.0	207.0	270.0	152.0	531.0

2. FLD segment luminous

This service procedure will illuminate all segments by the following steps: With the POWER ON, press the "FM/AM(TUNER)" button while pressing the "MEMO" button for at least three seconds or more. This procedure takes 1 minute and 40 seconds to finish; at this point the procedure is complete.

- All segments will be illuminated for 5 seconds.
- At the grid "1G", segments are illuminated in the following order:
 - ① KHz → ② MHz → ③ R → ④ PEAK → ⑤ L → ⑥ MULTI → ⑦ MONO → ⑧ MATRIX → ⑨ HALL → ⑩ P-SCAN → ⑪ TAPE → ⑫ COPY → ⑬ VCR1 → ⑭ SLEEP → ⑮ DISP → ⑯ TX

- At the grid "2G", to "11G", each one segment is illuminated individually.
- At the grid "12G", segments are illuminated in the following order:

- ① VISUAL → ② SIGNAL LEVEL → ③ CH → ④ SIGNAL BAR (LEFT SIDE) → ⑤ SIGNAL BAR (2nd LEFT) → ⑥ SIGNAL BAR (CENTER) → ⑦ SIGNAL BAR (2nd RIGHT) → ⑧ SIGNAL BAR (RIGHT SIDE) → ⑨ STEREO → ⑩ THX CINEMA → ⑪ PRO.LOGIC → ⑫ MOVIE → ⑬ AUTO MEMO → ⑭ 3.LOGIC → ⑮ SIMUL'D → ⑯ SURROUND

3. Selector check mode

This service program automatically operates input selector and surround mode by the following procedure. This service program continually repeats until power is shut off. When the POWER ON, press the "SURROUND MODE+" button while pressing the "MEMO" button 3 seconds or more.

STEP	INPUT SELECTOR	DSP MODE	FM MODE BAND	FREQUENCY	COPY SWITCH		NOTES
					TAPE	VCR1	
1	FM	STEREO	AUTO	98.0	SOURCE	SOURCE	
2	FM	STEREO	MONO	LAST	↑	↑	
3	CD	STEREO	AUTO	LAST	↑	↑	
4	TAPE1	P-LOGIC	AUTO	LAST	TUNER	SOURCE	TUNER-ON
5	TAPE2	MOVIE	AUTO	LAST	SOURCE	TV	
6	TV	3 CH	AUTO	LAST	↑	SOURCE	
7	TV	HALL	AUTO	LAST	CD	LD	
8	LD	MATRIX	AUTO	LAST	TAPE2	TV	
9	VCR1	MATRIX	AM/MW	1000/999	TUNER	VCR2	
10	VCR2	STEREO	AUTO	98.0	TUNER	SOURCE	TUNER-ON
11	AUX	STEREO	AUTO	LAST	SOURCE	AUX	

4. All clear

This service program can clear all memorized operations and functions. When the POWER ON, press the "CLEAR" button while pressing the "MEMO" button 3 seconds or more. FLD shows "CLEAR MEMO" and power will be OFF.

TEST EQUIPMENT REQUIRED

- AM/FM Signal Generator
- Video Signal Generator
- Digital Multimeter
- Distortion level meter

ALIGNMENT PROCEDURES

1. FM MONO. Distortion Adjustment

Step	Input Signal Source Connection	Signal Frequency	Source Signal Output Level and Modulation	Reception Frequency	Adjustment Point	Adjustment Value
1	Signal generator output to FM antenna terminal. (75 ohm)	98 MHz	500 uV/m (54 dB/m) MONO 1 KHz / Dev. 40KHz 53.3% 1B MONO 1KHz / Dev. 75KHz 100% 1BK	98 MHz (P2)	L201	Distortion level Minimum at TAPE-OUT

2. FM Muting Level Adjustment

Turn variable resistor R212 and stop at position "TUNED" is not shown (not indicated), then again turn the variable resistor R212 to the opposite revolution and stop at a position "TUNED" is shown.

Step	Input Signal Source Connection	Signal Frequency	Source Signal Output Level and Modulation	Reception Frequency	Adjustment Point	Adjustment Value
1	Signal generator output to FM antenna terminal. (75 ohm)	98 MHz	10 uV/m (20 dB/m) MONO 1 KHz / Dev. 40KHz 53.3% 1B MONO 1KHz / Dev. 75KHz 100% 1BK	98 MHz (P2)	R212	"TUNED" indicate on FLD
2			Over mentioned level +3 dB	AUTO SCAN	Only Confirm	"TUNED" indicate on FLD

3. FM STEREO Distortion Adjustment

Adjust the L channel with the RF signal modulated only L channel first and confirm the R channel with the RF signal modulated only R channel.

Step	Input Signal Source Connection	Signal Frequency	Source Signal Output Level and Modulation	Reception Frequency	Adjustment Point	Adjustment Value
1	Signal generator output to FM antenna terminal. (75 ohm)	98 MHz	500 uV/m (54 dB/m) L+R 1KHz / Dev. 40KHz 53.3% PILOT 19KHz / Dev. 8KHz 8% 1B	98 MHz (P2)	IF COIL in FRONT END	Distortion level Minimum at TAPE-OUT
2			L+R 1KHz / Dev. 67.5KHz 90% PILOT 19KHz / Dev. 6.75KHz 9% 1BK		R218	Distortion level Minimum at TAPE-OUT

REMARK: Adjustment with R128 is not necessary when the distortion level is less than 0.5% with adjusting IF coil.

4. FM STEREO Separation Adjustment

Step	Input Signal Source Connection	Signal Frequency	Source Signal Output Level and Modulation	Reception Frequency	Adjustment Point	Adjustment Value
1	Signal generator output to FM antenna terminal. (75 ohm)	98 MHz	same specification as FM STEREO distortion adjustment. Input only L channel.	98 MHz (P2)	R211	Output level Minimum at TAPE-OUT channel R
2		98 MHz	same specification as FM STEREO distortion adjustment. Input only R channel.	98 MHz (P2)	R211	Output level Similar as Rch at TAPE-OUT channel L

SERVICE PROCEDURE

1. Tracking point memory

This service procedure can be used for measurement of the tuner circuit. With the POWER ON, press the "PRESET UP" button while pressing the "MEMO" button for at least 3 seconds or more. FLD will display "TRACKING". Frequencies will be memorized as follows :

	VERSION	P1	P2	P3	P4
FM	IB	90.0	98.0	106.0	87.5

	SCAN STEP	P5	P6	P7	P8	P9	P10	P11	P12~ P30
MW	10 KHz	600.0	1000.0	1400.0	520.0	←	←	←	←
	9 KHz	603.0	999.0	1404.0	531.0	←	←	←	←
	LW	↑	↑	↑	171.0	207.0	270.0	152.0	531.0

2. FLD segment luminous

This service procedure will illuminate all segments by the following steps :
With the POWER ON, press the "FM/AM(TUNER)" button while pressing the "MEMO" button for at least three seconds or more. This procedure takes 1 minute and 40 seconds to finish; at this point the procedure is complete.

- All segments will be illuminated for 5 seconds.
- At the grid "1G", segments are illuminated in the following order :
 - KHz → ② MHz → ③ R → ④ PEAK → ⑤ L → ⑥ MULTI → ⑦ MONO → ⑧ MATRIX →
 - HALL → ⑩ P-SCAN → ⑪ TAPE → ⑫ COPY → ⑬ VCR1 → ⑭ SLEEP → ⑮ DISP → ⑯ TX
- At the grid "2G", to "11G", each one segment is illuminated individually.
- At the grid "12G", segments are illuminated in the following order :
 - VISUAL → ② SIGNAL LEVEL → ③ CH → ④ SIGNAL BAR (LEFT SIDE) →
 - SIGNAL BAR (2nd LEFT) → ⑥ SIGNAL BAR (CENTER) → ⑦ SIGNAL BAR (2nd RIGHT) →
 - SIGNAL BAR (RIGHT SIDE) → ⑨ STEREO → ⑩ THX CINEMA → ⑪ PRO. LOGIC →
 - MOVIE → ⑬ AUTO MEMO → ⑭ 3. LOGIC → ⑮ SIMUL'D → ⑯ SURROUND

3. Selector check mode

This service program automatically operates input selector and surround mode by the following procedure. This service program continually repeats until power is shut off. When the POWER ON, press the "SURROUND MODE+*" button while pressing the "MEMO" button 3 seconds or more.

STEP	INPUT SELECTOR	DSP MODE	FM MODE BAND	FREQUENCY	COPY SWITCH		NOTES
					TAPE	VCR1	
1	FM	STEREO	AUTO	98.0	SOURCE	SOURCE	
2	FM	STEREO	MONO	LAST	↑	↑	
3	CD	STEREO	AUTO	LAST	↑	↑	
4	TAPE1	P-LOGIC	AUTO	LAST	TUNER	SOURCE TUNER-ON	
5	TAPE2	MOVIE	AUTO	LAST	SOURCE	TV	
6	TV	3 CH	AUTO	LAST	↑	SOURCE	
7	TV	HALL	AUTO	LAST	CD	LD	
8	LD	MATRIX	AUTO	LAST	TAPE2	TV	
9	VCR1	MATRIX	AM/MW	1000/999	TUNER	VCR2	
10	VCR2	STEREO	AUTO	98.0	TUNER	SOURCE TUNER-ON	
11	AUX	STEREO	AUTO	LAST	SOURCE	AUX	

4. All clear

This service program can clear all memorized operations and functions. When the POWER ON, press the "CLEAR" button while pressing the "MEMO" button 3 seconds or more. FLD shows "CLEAR MEMO" and power will be OFF.

TEST EQUIPMENT REQUIRED

- 1) AM/FM Signal Generator
- 2) Video Signal Generator
- 3) Digital Multimeter
- 4) Distortion level meter

ALIGNMENT PROCEDURES

1. FM MONO. Distortion Adjustment

Step	Input Signal Source Connection	Signal Frequency	Source Signal Output Level and Modulation	Reception Frequency	Adjustment Point	Adjustment Value
1	Signal generator output to FM antenna terminal. (75 ohm)	98 MHz	500 uV/m (54 dB/m) MONO 1 KHz / Dev. 40KHz 53.3% IB MONO 1KHz / Dev. 75KHz 100% BK	98 MHz (P2)	L201	Distortion level Minimum at TAPE-OUT

2. FM Muting Level Adjustment

Turn variable resistor R212 and stop at position "TUNED" is not shown (not indicated), then again turn the variable resistor R212 to the opposite revolution and stop at a position "TUNED" is shown.

Step	Input Signal Source Connection	Signal Frequency	Source Signal Output Level and Modulation	Reception Frequency	Adjustment Point	Adjustment Value
1	Signal generator output to FM antenna terminal. (75 ohm)	98 MHz	10 uV/m (20 dB/m) MONO 1 KHz / Dev. 40KHz 53.3% IB MONO 1KHz / Dev. 75KHz 100% BK	98 MHz (P2)	R212	"TUNED" Indicate on FLD
2			Over mentioned level +3 dB	AUTO SCAN	Only Confirm	"TUNED" Indicate on FLD

3. FM STEREO Distortion Adjustment

Adjust the L channel with the RF signal modulated only L channel first and confirm the R channel with the RF signal modulated only R channel.

Step	Input Signal Source Connection	Signal Frequency	Source Signal Output Level and Modulation	Reception Frequency	Adjustment Point	Adjustment Value
1	Signal generator output to FM antenna terminal. (75 ohm)	98 MHz	500 uV/m (54 dB/m) L+R 1KHz / Dev. 40KHz 53.3% PILOT 19KHz / Dev. 6KHz 8% IB	98 MHz (P2)	IF COIL In FRONT END	Distortion level Minimum at TAPE-OUT
2			L+R 1KHz / Dev. 67.5KHz 90% PILOT 19KHz / Dev. 6.75KHz 9% BK		R218	Distortion level Minimum at TAPE-OUT

REMARK: Adjustment with R128 is not necessary when the distortion level is less than 0.5% with adjusting IF coil.

4. FM STEREO Separation Adjustment

Step	Input Signal Source Connection	Signal Frequency	Source Signal Output Level and Modulation	Reception Frequency	Adjustment Point	Adjustment Value
1	Signal generator output to FM antenna terminal. (75 ohm)	98 MHz	same specification as FM STEREO distortion adjustment. Input only L channel.	98 MHz (P2)	R211	Output level Minimum at TAPE-OUT channel R
2		98 MHz	same specification as FM STEREO distortion adjustment. Input only R channel.	98 MHz (P2)	R211	Output level Similar as Rich at TAPE-OUT channel L

5. AM IF Adjustment

Step	Input Signal Source Connection	Signal Frequency	Source Signal Output Level and Modulation	Reception Frequency	Adjustment Point	Adjustment Value
1	Signal generator output to transmission loop antenna. (*:Standard required loop)	999 KHz 1000 KHz	300 uV/m (50 dB/m)	Tuning point	LA06	Output level (L or R) Maximum at TAPE-OUT

This adjustment is normally not necessary, because the coil LA06 is preset by the original supplier.

6. AM Tracking Adjustment (MW)

Step	Input Signal Source Connection	Signal Frequency	Source Signal Output Level and Modulation	Reception Frequency	Adjustment Point	Adjustment Value
1	Signal generator output to transmission loop antenna. (*:Standard required loop)	603 KHz 600 KHz	Level 300 - 400 uV/m Mod. 400 Hz 30%	603 KHz 600 KHz	LA01	Output level (L or R) Maximum at TAPE-OUT
2		1404 KHz 1400 KHz		1404 KHz 1400 KHz		
3	Repeat step 1 and 2 until level is at maximum reading.					

7. AM Tracking Adjustment (LW)

Step	Input Signal Source Connection	Signal Frequency	Source Signal Output Level and Modulation	Reception Frequency	Adjustment Point	Adjustment Value
1	Signal generator output to transmission loop antenna. (*:Standard required loop)	171 KHz	Level 300 - 400 uV/m Mod. 400 Hz 30%	171 KHz	LA03	Output level (L or R) Maximum at TAPE-OUT
2		270 KHz		270 KHz	CA08	Output level (L or R) Maximum at TAPE-OUT
3	Repeat step 1 and 2 until level is at maximum reading.					

8. AM auto stop Adjustment

Step	Input Signal Source Connection	Signal Frequency	Source Signal Output Level and Modulation	Reception Frequency	Adjustment Point	Adjustment Value
1	Signal generator output to transmission loop antenna. (*:Standard required loop)	999 KHz 1000 KHz	500 uV/m (54 dB/m)	999 KHz 1000 KHz	RA11	"TUNED" indicate on FLD
2			1000 uV/m (60 dB/m)	AUTO SCAN		Only Confirm

REMARK: This adjustment is related to the FM muting Level Adjustment. The FM muting Level re-adjustment is necessary after this adjustment.

9. On Screen Display VCO Adjustment

Step	Input Signal Source and Connection	Measuring position	Measuring equipment	Input selector	Adjustment Point	Adjustment Value
1	Color bar or other standard video signal. Video signal generator output to LD video input.	IC QX60 26pin and GND.	DC voltmeter (Impedance > 10K ohmV)	LD	CX67	2.5V ±0.1V

REMARK: Connect the TV monitor to the monitor output terminal of the product.

10. Main amp idling current adjustment

- 1) With the power OFF, set semi - fixed resistor R743 (Lch), R744 (Rch), R786 (Center ch) on the PC board (PV04) to the center position.
- 2) Connect a digital voltmeter, set for the DC range, on the emitter resistor [R759 (Lch), R760 (Rch), R794 (Center ch)] on the PC board (PV04).
- 3) After the above, adjust the idling current as follows: Turn the power ON and adjust semi - fixed resistor R743 (Lch), R744 (Rch), R786 (Center ch) while observing the digital multimeter indication. The target value is 7.2 mV (20 mA).

All values are with no load on speaker terminals, volume set to minimum and no input with the unit switched to the CD position. Always allow the amplifier to stabilize for 10 minutes or longer prior to adjusting idle current.

11. Main amp DC offset adjustment

- 1) With the power OFF, connect a digital voltmeter, set for the DC range, to the speaker terminal.
- 2) After the above, adjust the DC offset as follows: Turn the power ON and adjust RN63 (Lch), RN64 (Rch), RN70 (Center ch) so that the output is ±20 mV.

5. AM IF Adjustment

Step	Input Signal Source Connection	Signal Frequency	Source Signal Output Level and Modulation	Reception Frequency	Adjustment Point	Adjustment Value
1	Signal generator output to transmission *loop antenna. (*:Standard required loop)	999 KHz IB 1000 KHz EK	300 μ V/m (50 dB/m)	Tuning point	LA06	Output level (L or R) Maximum at TAPE-OUT

This adjustment is normally not necessary, because the coil LA06 is preset by the original supplier.

6. AM Tracking Adjustment (MW)

Step	Input Signal Source Connection	Signal Frequency	Source Signal Output Level and Modulation	Reception Frequency	Adjustment Point	Adjustment Value
1	Signal generator output to transmission *loop antenna. (*:Standard required loop)	603 KHz IB 600 KHz EK	Level 300 - 400 μ V/m Mod. 400 Hz 30%	603 KHz IB 600 KHz EK	LA01	Output level (L or R) Maximum at TAPE-OUT
2		1404 KHz IB 1400 KHz EK	Level 300 - 400 μ V/m Mod. 400 Hz 30%	1404 KHz IB 1400 KHz EK	CA01	Output level (L or R) Maximum at TAPE-OUT
3	Repeat step 1 and 2 until level is at maximum reading.					

7. AM Tracking Adjustment (LW)

Step	Input Signal Source Connection	Signal Frequency	Source Signal Output Level and Modulation	Reception Frequency	Adjustment Point	Adjustment Value
1	Signal generator output to transmission *loop antenna. (*:Standard required loop)	171 KHz	Level 300 - 400 μ V/m Mod. 400 Hz 30%	171 KHz	LA03	Output level (L or R) Maximum at TAPE-OUT
2		270 KHz	Level 300 - 400 μ V/m Mod. 400 Hz 30%	270 KHz	CA08	Output level (L or R) Maximum at TAPE-OUT
3	Repeat step 1 and 2 until level is at maximum reading.					

8. AM auto stop Adjustment

Step	Input Signal Source Connection	Signal Frequency	Source Signal Output Level and Modulation	Reception Frequency	Adjustment Point	Adjustment Value
1	Signal generator output to transmission *loop antenna. (*:Standard required loop)	999 KHz IB 1000 KHz EK	500 μ V/m (54 dB/m)	999 KHz IB 1000 KHz EK	RA11	"TUNED" Indicate on FLD
2			1000 μ V/m (60 dB/m)	AUTO SCAN	Only Confirm	"TUNED" Indicate on FLD

REMARK: This adjustment is related to the FM muting Level Adjustment. The FM muting Level re-adjustment is necessary after this adjustment.

9. On Screen Display VCO Adjustment

Step	Input Signal Source and Connection	Measuring position	Measuring equipment	Input selector	Adjustment Point	Adjustment Value
1	Color bar or other standard video signal. Video signal generator output to LD video input.	IC QX60 26pin and GND.	DC voltmeter (Impedance > 10K ohm/V)	LD	CX67	2.5V \pm 0.1V

REMARK: Connect the TV monitor to the monitor output terminal of the product.

10. Main amp idling current adjustment

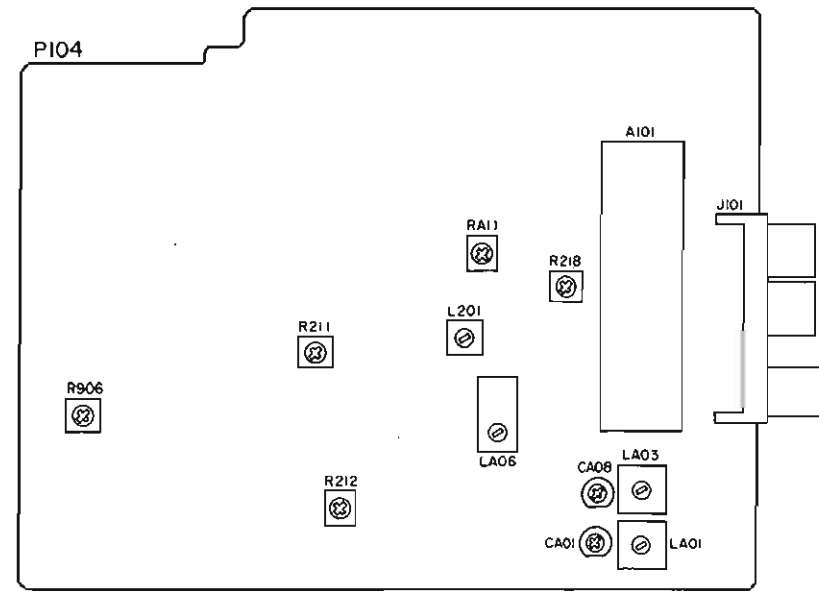
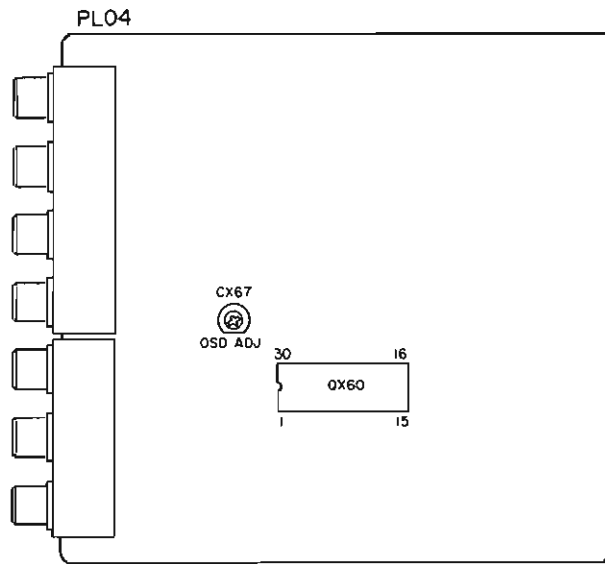
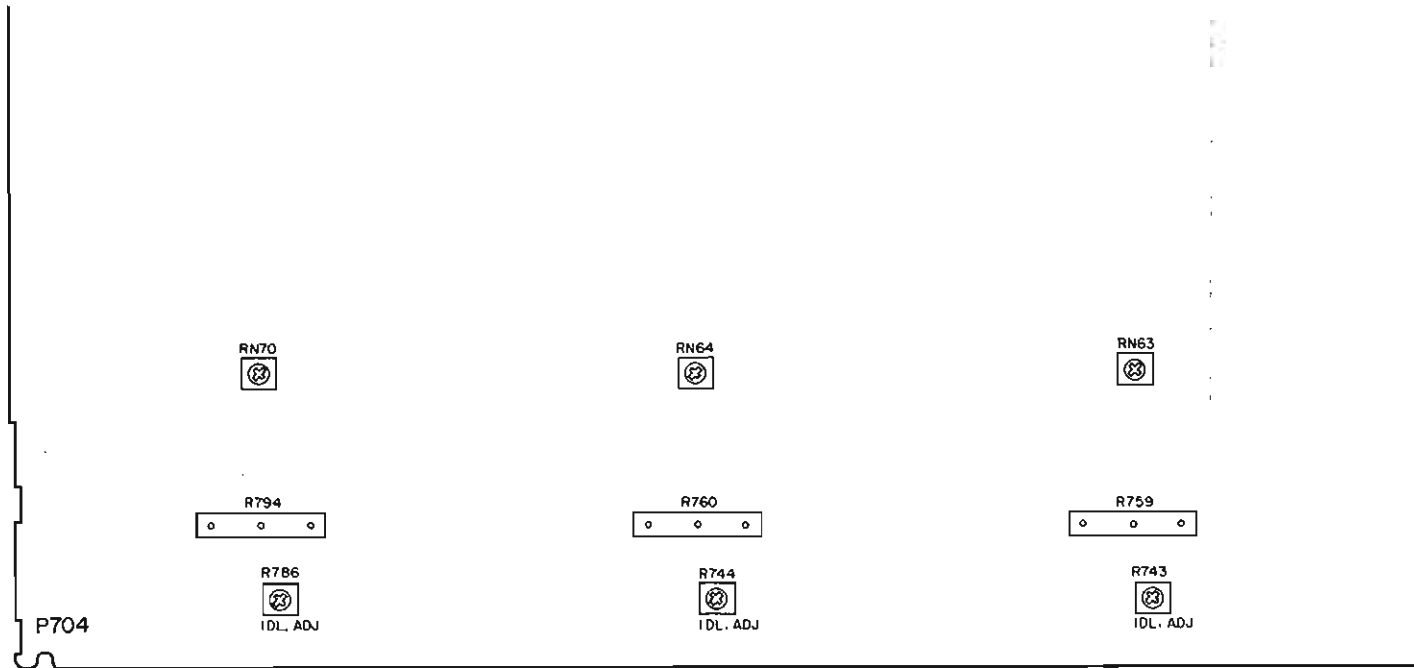
- 1) With the power OFF, set semi – fixed resistor R743 (Lch), R744 (Rch), R786 (Center ch) on the PC board (PV04) to the center position.
- 2) Connect a digital voltmeter, set for the DC range, on the emitter resistor [R759 (Lch), R760 (Rch), R794 (Center ch)] on the PC board (PV04).
- 3) After the above, adjust the idling current as follows:
Turn the power ON and adjust semi – fixed resistor R743 (Lch), R744 (Rch), R786 (Center ch) while observing the digital multimeter indication.
The target value is 7.2 mV (20 mA).

All values are with no load on speaker terminals, volume set to minimum and no input with the unit switched to the CD position. Always allow the amplifier to stabilize for 10 minutes or longer prior to adjusting idle current.

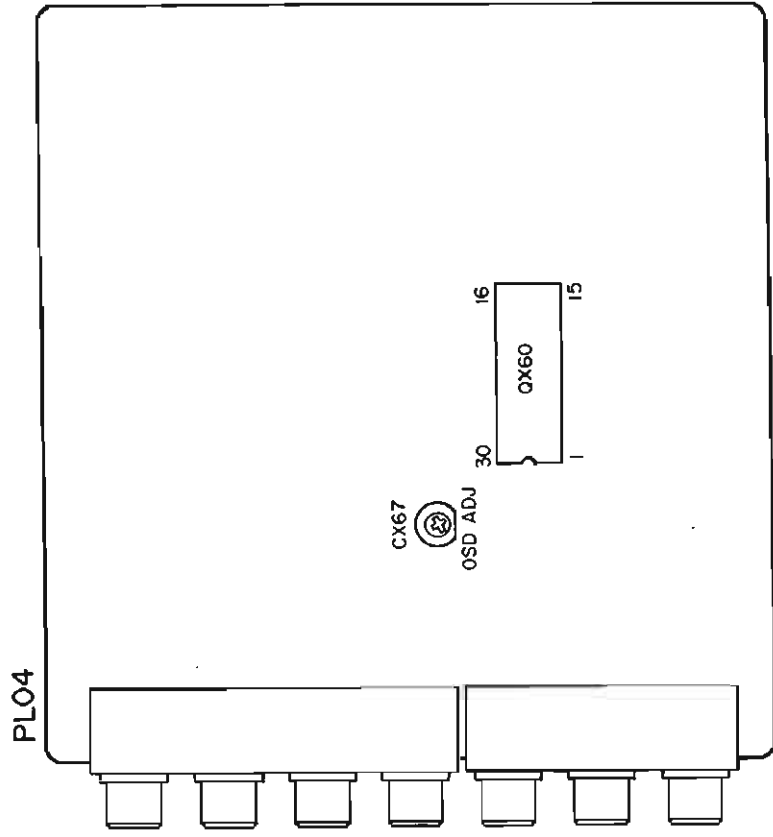
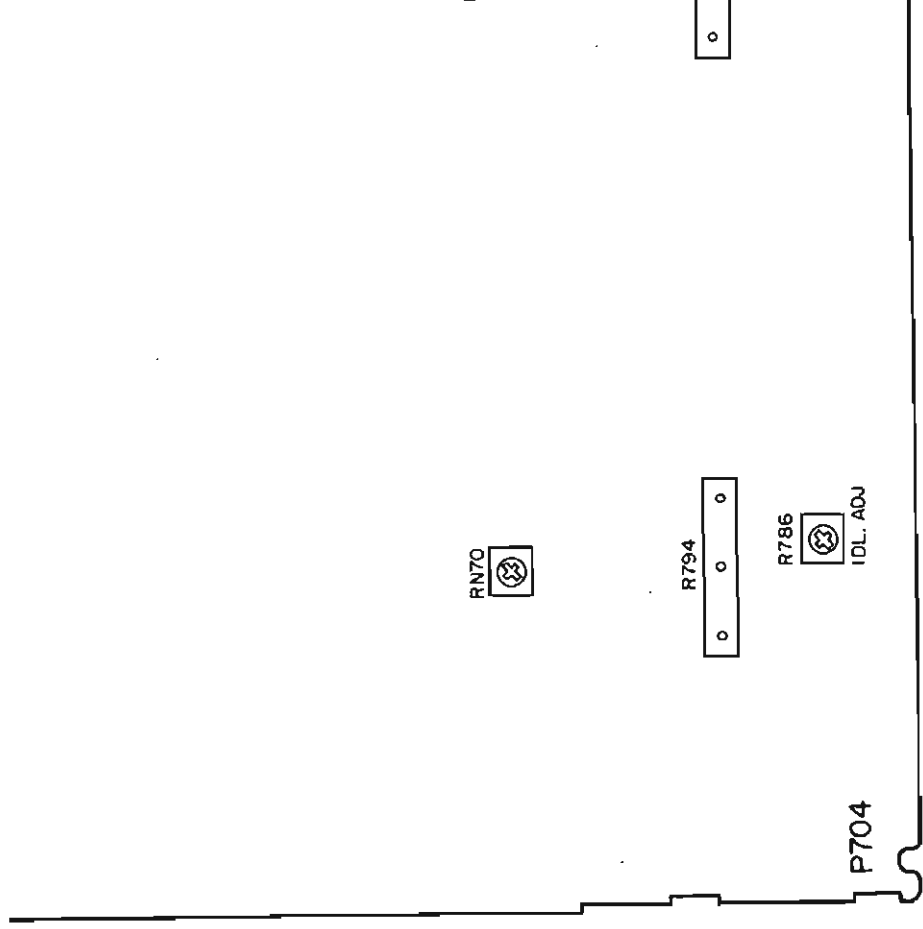
11. Main amp DC offset adjustment

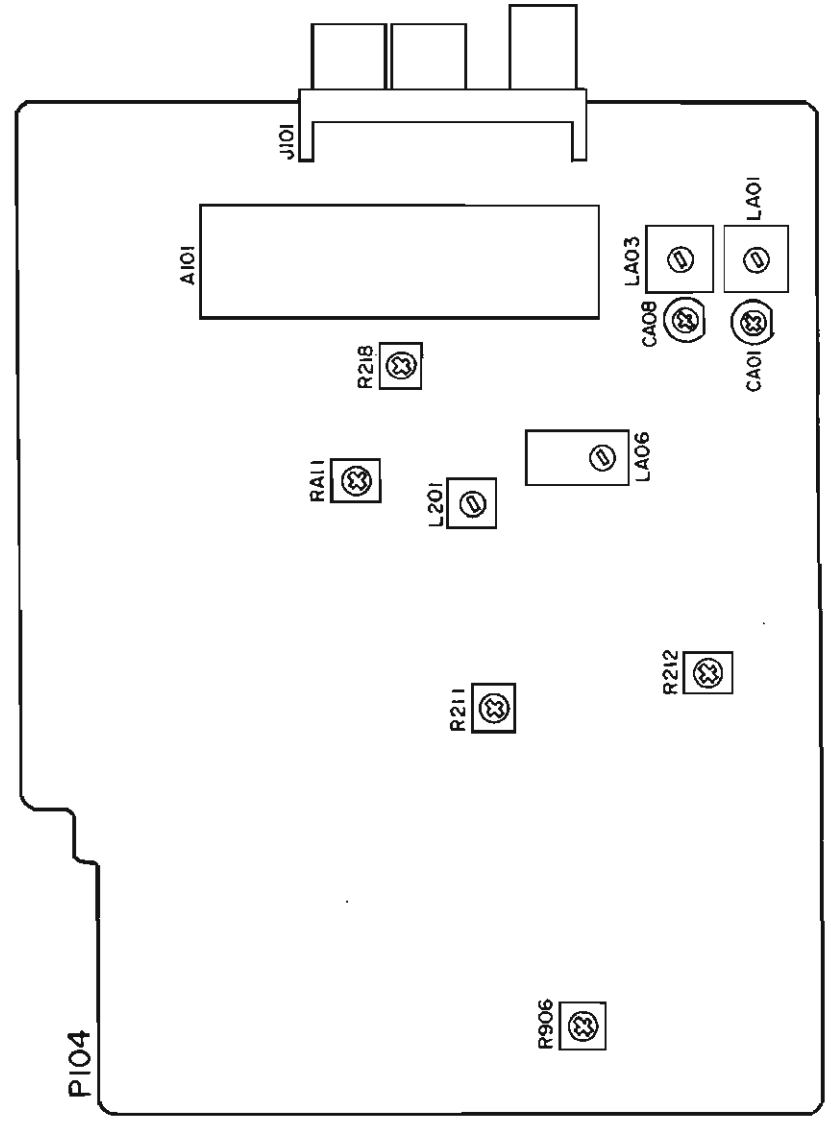
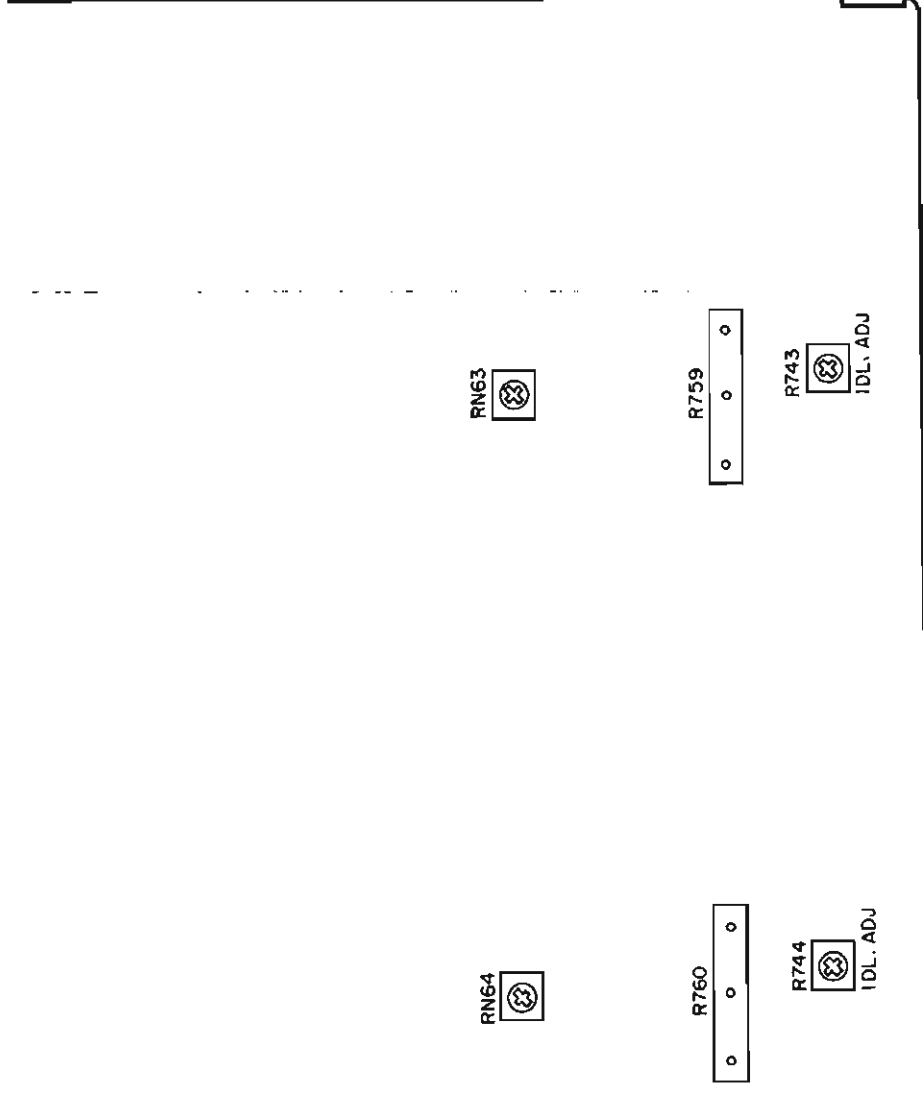
- 1) With the power OFF, connect a digital voltmeter, set for the DC range, to the speaker terminal.
- 2) After the above, adjust the DC offset as follows:
Turn the power ON and adjust RN63 (Lch), RN64 (Rch), RN70 (Center ch) so that the output is ± 20 mV.

ALIGNMENT AND TEST POINTS



ALIGNMENT AND TEST POINTS



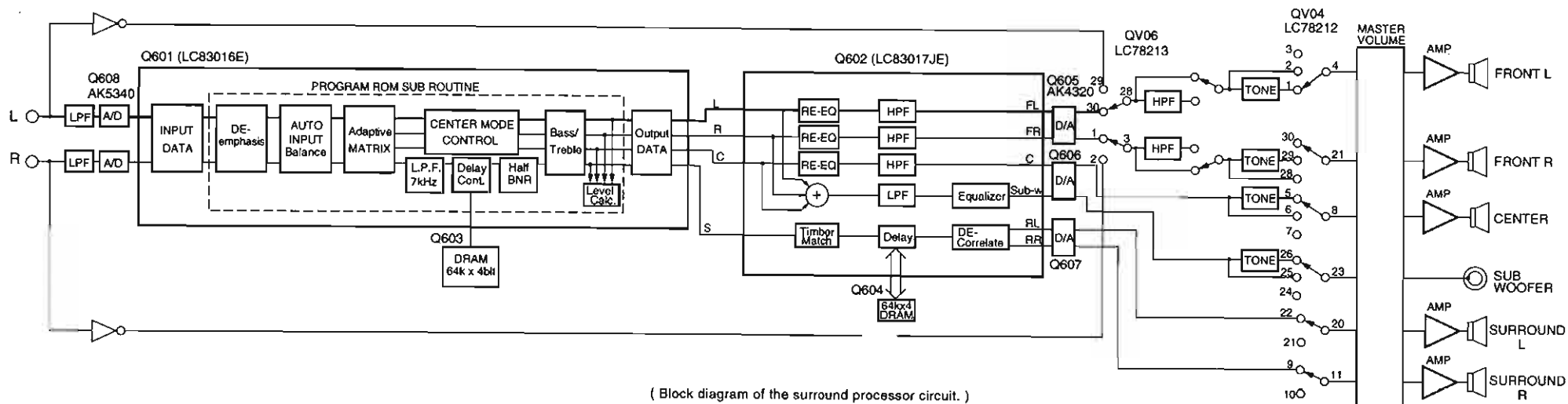


CIRCUIT DESCRIPTION

1. SURROUND CIRCUIT

This model incorporates a surround processor circuit that provides 6 types of the surround sound. Fig. 1-1 is a block diagram of the surround processor circuit.

The microprocessor transfers the data to the parameter control (Serial data, Serial clock, Request Ready) to operate the circuits in each mode.



(Block diagram of the surround processor circuit.)

Fig. 1-1

(1) Stereo

Set to this mode to listen to ordinary stereo sound. The rear L/R and center outputs will be muted.

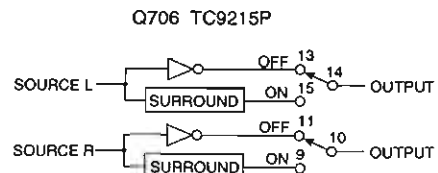


Fig. 1-2

(2) Dolby pro logic

Q601 (LC8316E) is a Dolby pro logic decoder IC. When an audio signal recorded using the Dolby pro logic system is sent to this IC, the left, right, center and surround components are separated. The surround signal component is delayed by the digital delay circuit by 15-30 mS and is sent to the modified B-type decoder Q601 where noise reduction processing is performed.

(3) Movie, 3CH Logic Hall, Matrix

The Movie mode provides the feeling of presence you get from a 35-mm movie in a movie theater. 3CH Logic mode is used to improve the sound field center by applying directivity enhancement provided by the Dolby Pro Logic Surround decoder. Hall mode provides a sound-field effect of medium-sized circular hall with rich reverberations. Matrix mode is effective for playing sports broadcasts or outdoor live concerts. It provides a surround mode with a wide surround effect. All the connections of the circuits are the same in these modes. Q601, controlled by the microprocessor, processes the audio signals to produce various sound effects and creates surround components to use them as signals to drive the surround channel.

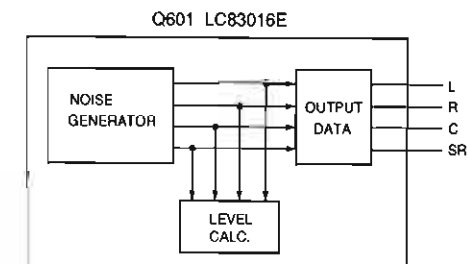
2. CENTER MODE

With Dolby pro logic, three center modes depend on the use of a center speaker as follows :

NORMAL	: Bass frequencies are sent only to the Left and Right Front channels. Select this mode when the Center Speaker is smaller than the Left and Right speakers.
WIDE	: Bass frequencies are sent to the Left, Center and Right speakers. Select this mode when the Center speaker is approximately the same size as the Left and Right speakers.
PHANTOM	: Center channel information is sent to the Left and Right speakers. Select this mode when you do not have a center channel speaker.

3. TEST TONE GENERATOR

The test tone generator generates a test tone (noise) to check the balance of sound output from each speaker in the Dolby pro logic mode. (This circuit is produced under license of the Dolby Laboratories Licensing Corp.)



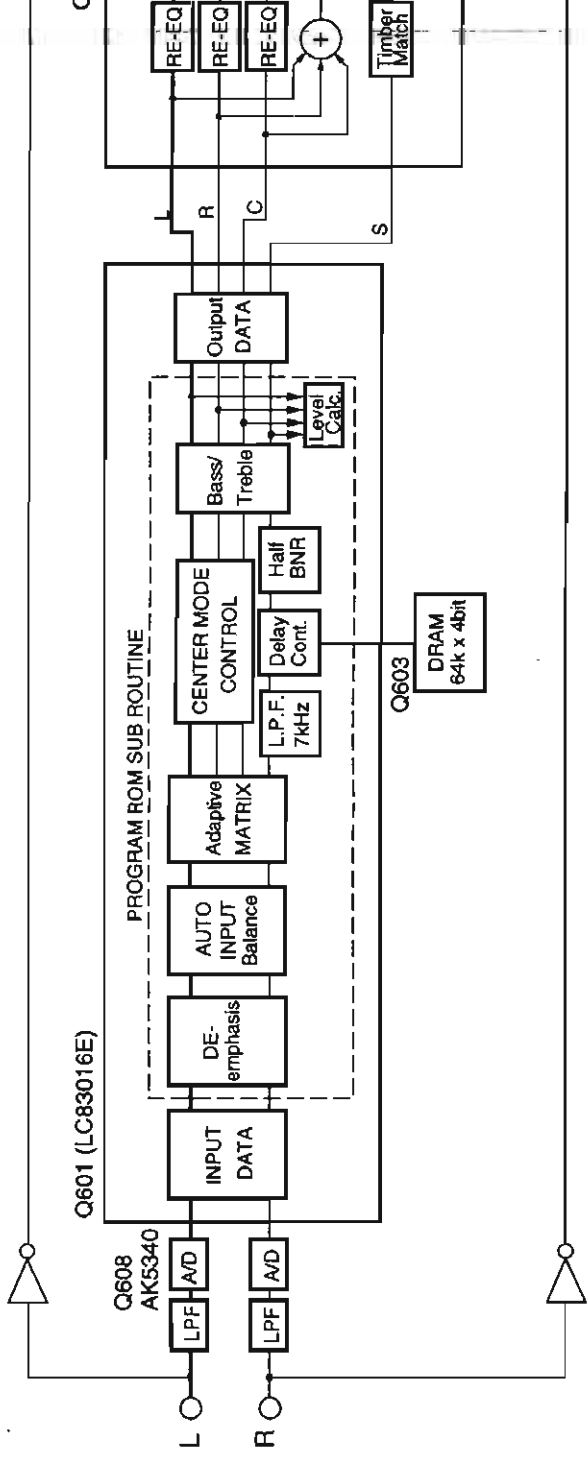
(Flow of noise signals within the system.)

Fig. 3

CIRCUIT DESCRIPTION

1. SURROUND CIRCUIT

This model incorporates a surround processor circuit that provides 6 types of the surround sound. Fig. 1-1 is a block diagram of the surround processor circuit. The microprocessor transfers the data to the parameter control (Serial data, Serial clock, Request Ready) to operate the circuits in each mode.



(Block diagram of the surround processor circuit)
Fig. 1-1

(1) Stereo

Set to this mode to listen to ordinary stereo sound. The rear L/R and center outputs will be muted.

Q706 TC9215P

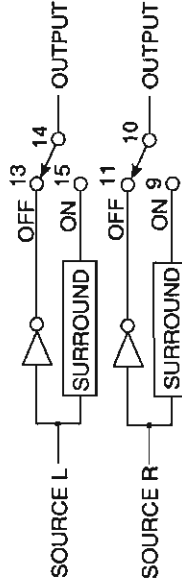


Fig. 1-2

(2) Dolby pro logic

Q601 (LC8316E) is a Dolby pro logic decoder IC. When an audio signal recorded using the Dolby pro logic system is sent to this IC, the left, right, center and surround component are separated. The surround signal component is delayed by the digital delay circuit by 15-30 mS and is sent to the modified B-type decoder Q601 where noise reduction processing is performed.

(3) Movie, 3CH Logic Hall, Matrix

The Movie mode provides the feeling of presence you get from a 35-mm movie in a movie theater. 3CH Logic mode is used to improve the sound field center by applying directivity enhancement provided by the Dolby Pro Logic Surround decoder. Hall mode provides a sound-field effect of medium-sized circular hall with rich reverberations. Matrix mode is effective for playing sports broadcasts or outdoor live concerts. It provides a surround mode with a wide surround effect. All the connections of the circuits are the same in these modes. Q601, controlled by the microprocessor, processes the audio signals to produce various sound effects and creates surround components to use them as signals to drive the surround channel.

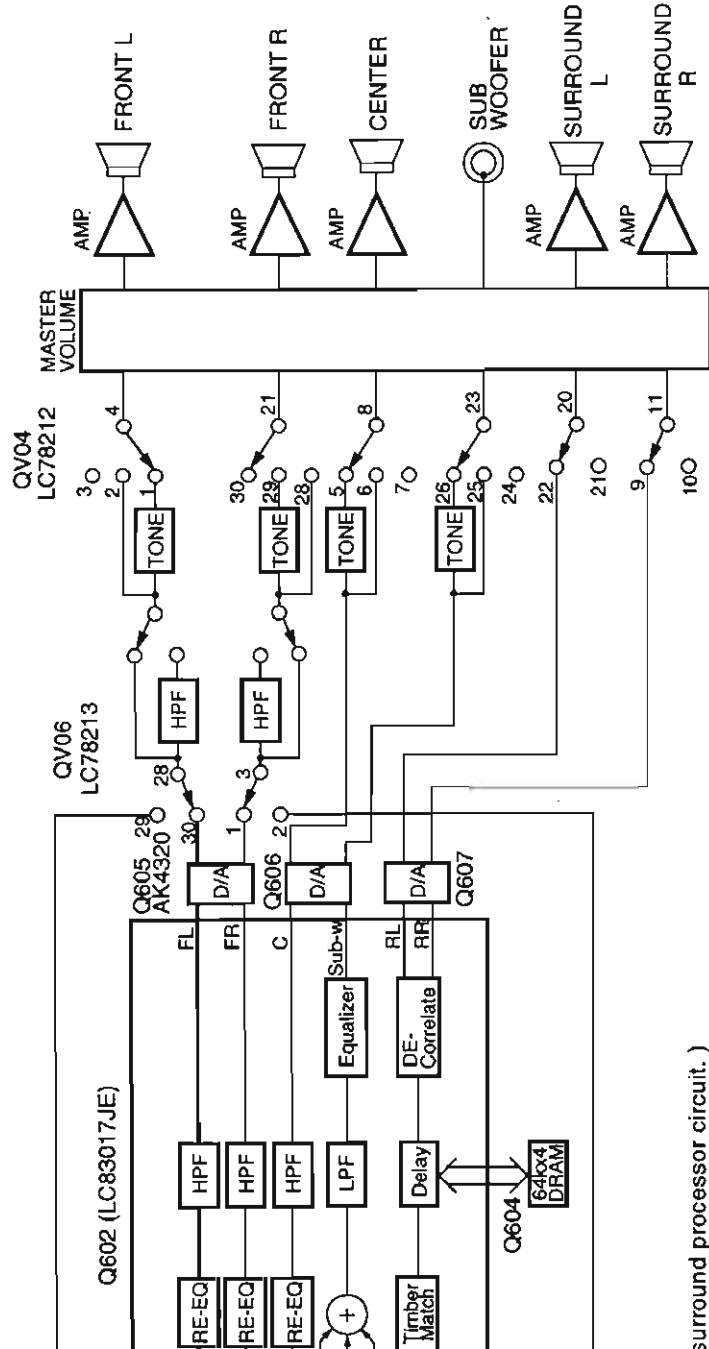
2. CI

With use of

NOF

WID

PH



surround processor circuit.)

2. CENTER MODE

With Dolby pro logic, three center modes depend on the use of a center speaker as follows :

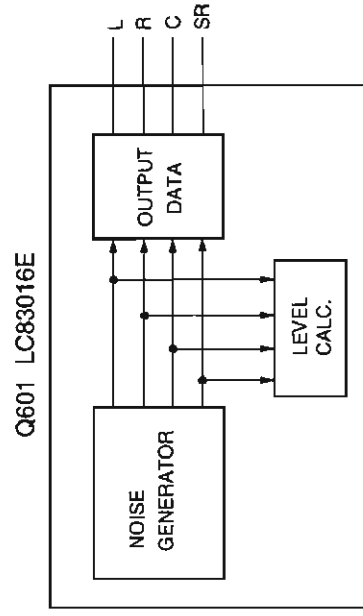
NORMAL : Bass frequencies are sent only to the Left and Right Front channels. Select this mode when the Center Speaker is smaller than the Left and Right speakers.

WIDE : Bass frequencies are sent to the Left, Center and Right speakers. Select this mode when the Center speaker is approximately the same size as the Left and Right speakers.

PHANTOM : Center channel information is sent to the Left and Right speakers. Select this mode when you do not have a center channel speaker.

3. TEST TONE GENERATOR

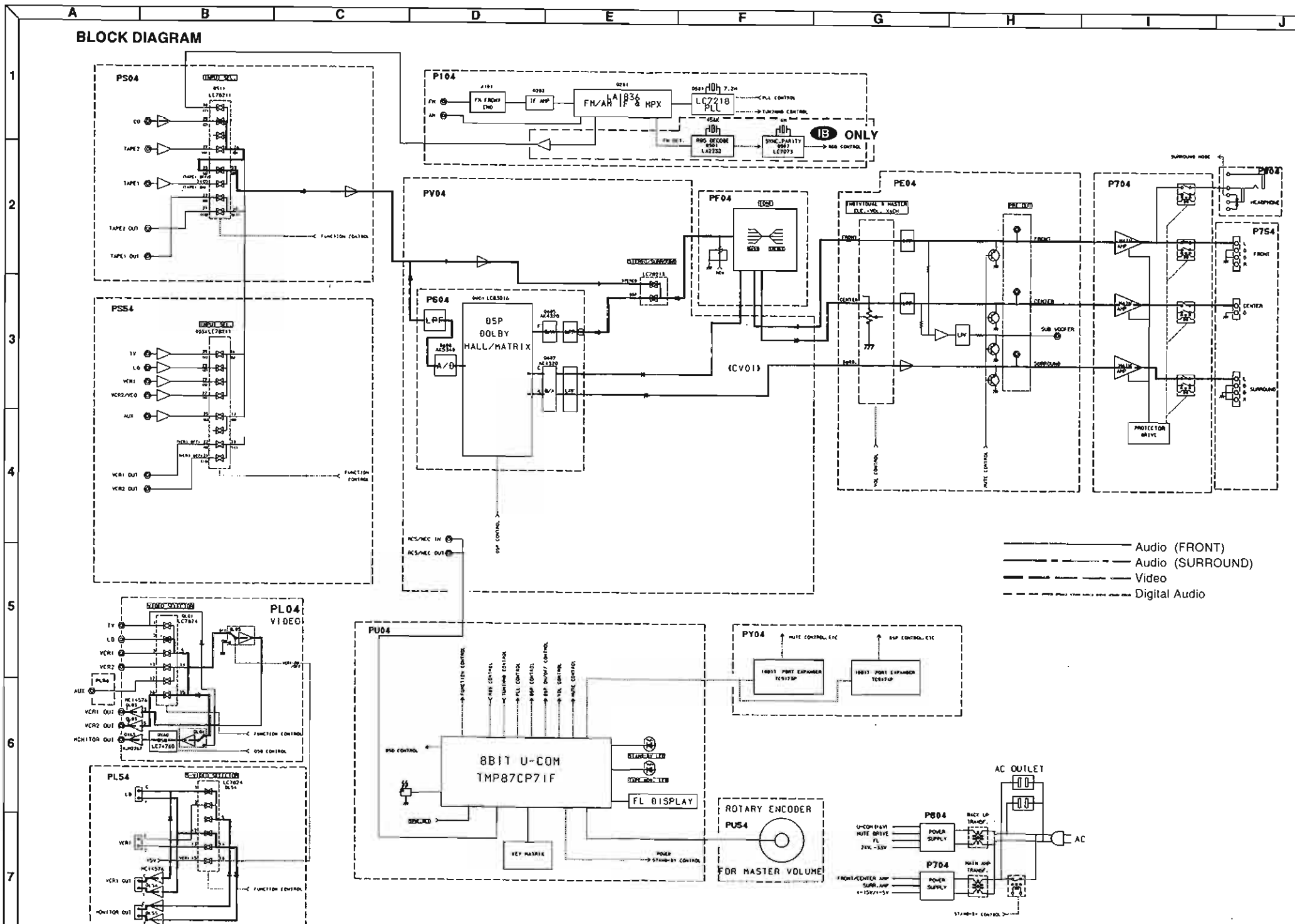
The test tone generator generates a test tone (noise) to check the balance of sound output from each speaker in the Dolby pro logic mode. (This circuit is produced under license of the Dolby Laboratories Licensing Corp.)



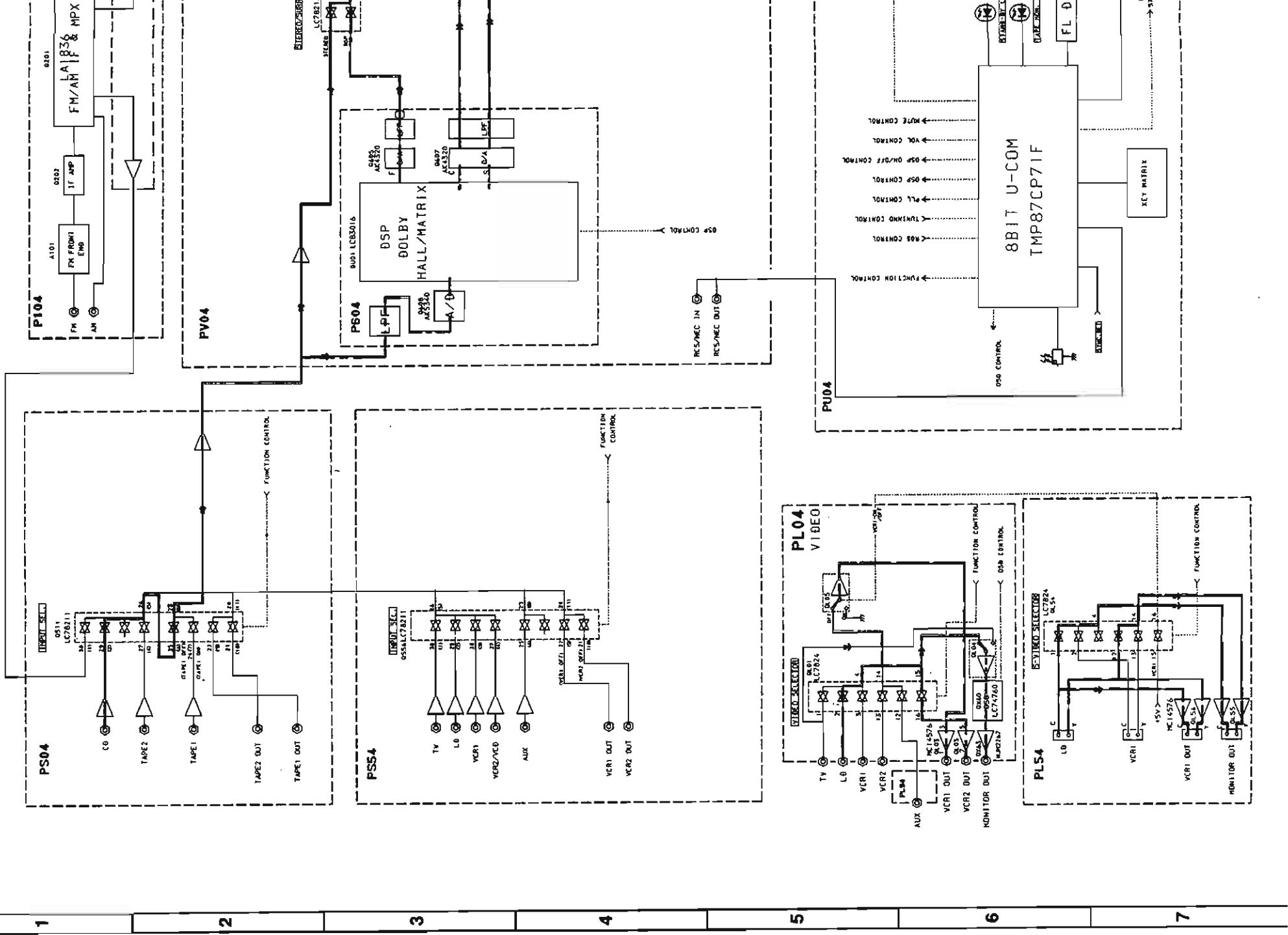
(Flow of noise signals within the system.)

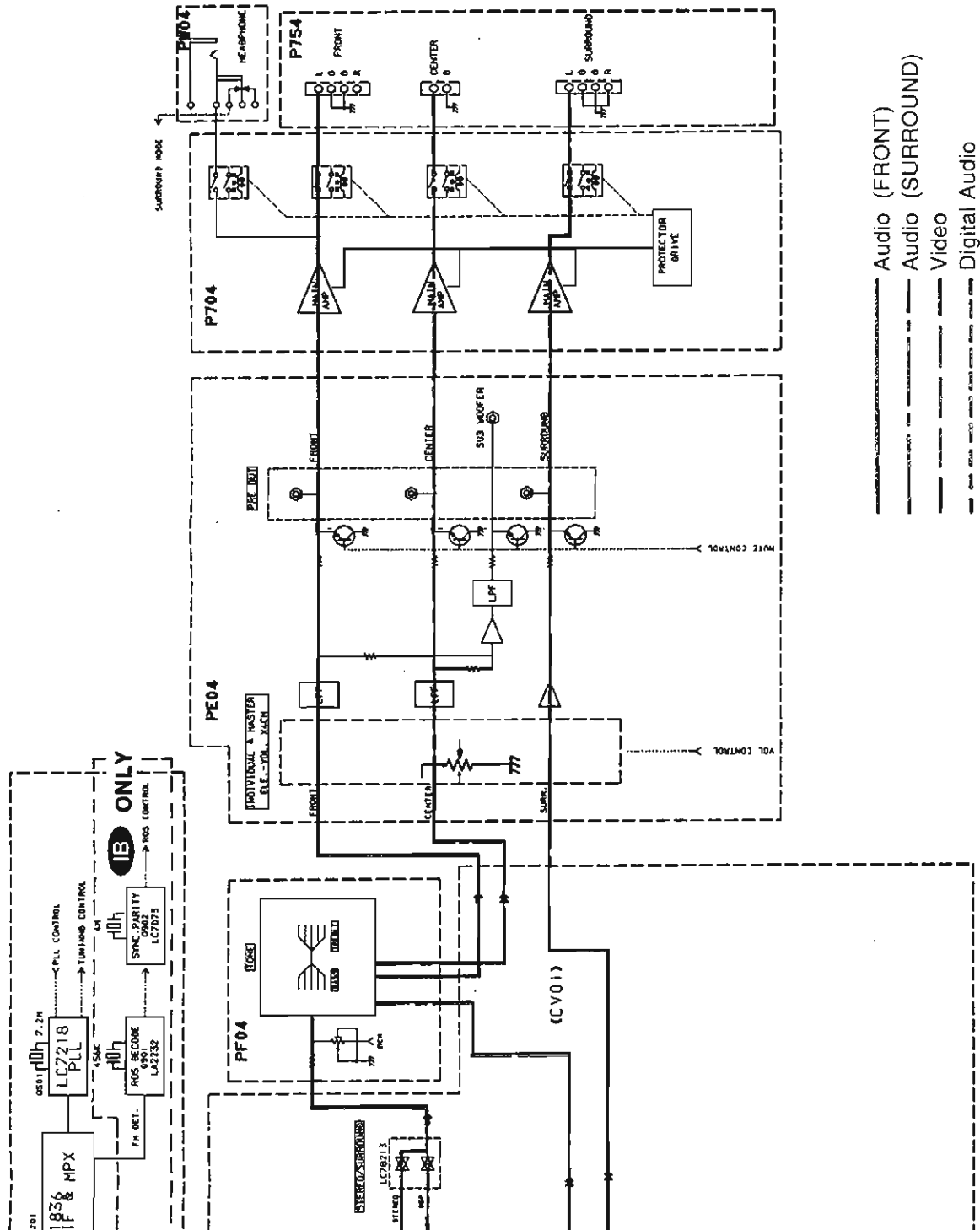
Fig. 3

BLOCK DIAGRAM

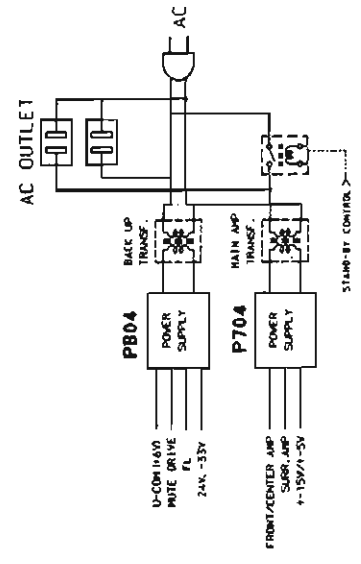
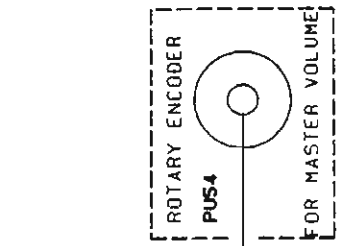
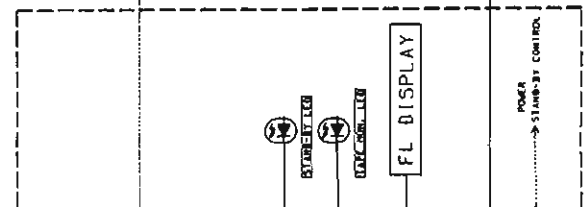
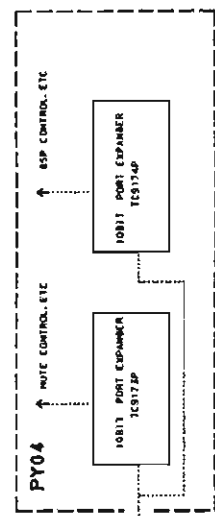


BLOCK DIAGRAM





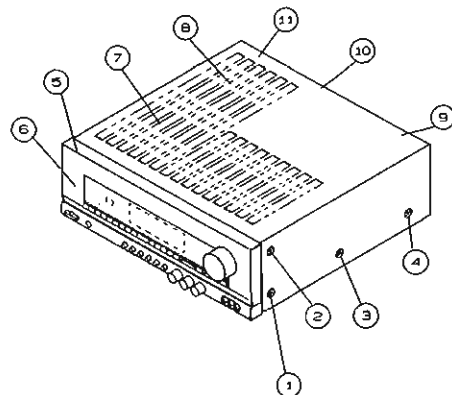
_____ Audio (FRONT)
 _____ Audio (SURROUND)
 _____ Video
 _____ Digital Audio



DISASSEMBLY PROCEDURES

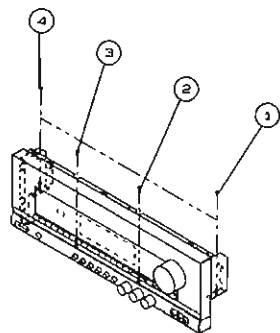
1. Removing the top Cover

Remove the screws ① ~ ⑪



2. Removing the front panel

Remove the screws ① - ④



MAIN PCB BLOCK (P704)

1. Remove all of the screws on REAR PANEL. (900G)
2. Remove the REAR PANEL.
3. Remove the SPEAKER TERMINAL PCB. (P754)
4. Remove the screw x4 for MAIN PCB mounting.
5. Remove the screw x2 for both sides GIRD PCB of main heatsink.
6. Remove the both sides GIRD PCB.
7. Remove the screw x4 for MAIN PCB BLOCK mounting.
8. Remove the MAIN PCB BLOCK.

POWER SUPPLY PCB (PB04)

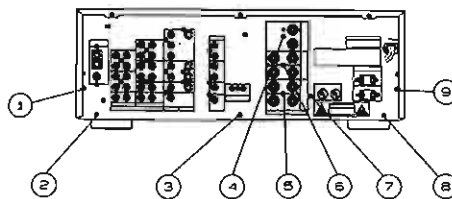
1. Remove the screw x2 for TRANSF mounting.
2. Remove the screw x2 for POWER SUPPLY PCB mounting.
3. Remove the POWER SUPPLY PCB.

MAIN VOL PCB (PU54)

1. Remove the MAIN VOL KNOB. (035B)
2. Remove the MAIN VOL NUT.
3. Pull out the MAIN VOL PCB.

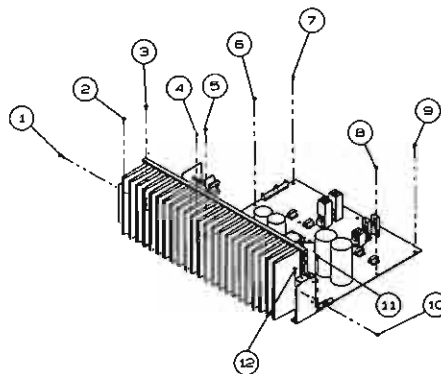
3. Removing the rear panel

Remove the screws ① ~ ⑨



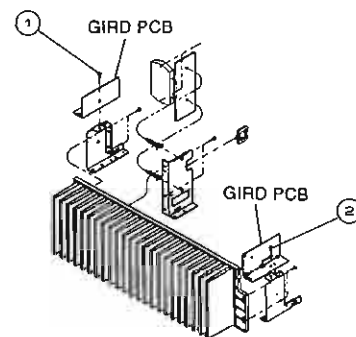
4. Removing the main PCB Block

Remove the screws ① ~ ⑫



5. Removing the shield plate

Remove the screws ① ②



TONE VOL PCB (PF04)

1. Remove the three TONE VOL KNOBS. (036B)
2. Remove the three TONE VOL NUTS.
3. Pull out the TONE VOL PCB.

FRONT FUNCTION PCB (PU04)

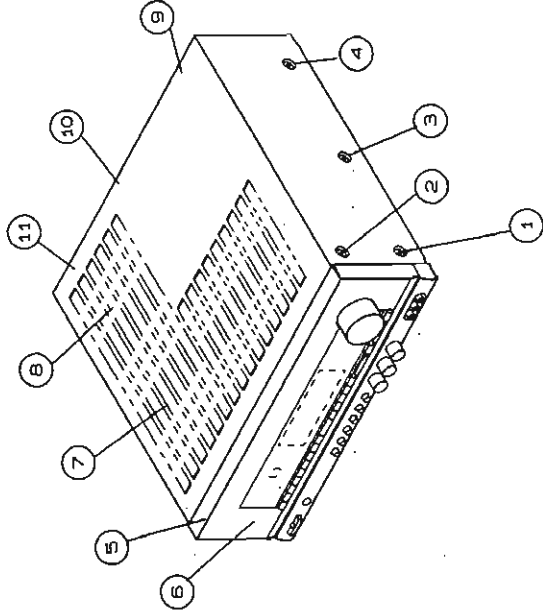
1. Remove the screw x4 for FRONT PANEL ASSY mounting.
2. Lay down the FRONT PANEL ASSY.
3. Remove the screw x16 for FRONT FUNCTION PCB.
4. Remove the FRONT FUNCTION PCB.

GENERAL UNIT PARTS LIST

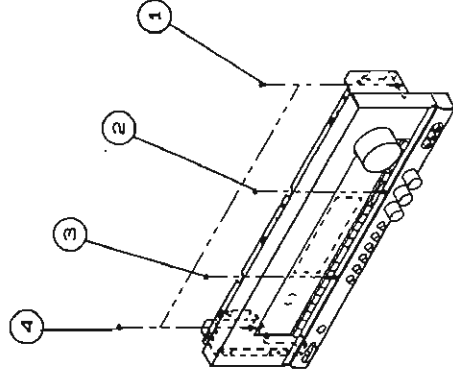
Ref. No.	Part. No.	Description	QTY	Ref. No.	Part. No.	Description	QTY
001B	260J248120	FRONT PANEL (IB)	1	▲ L001	TS19637020	POWER TRANSF. 230V (IB)	1
001B	260J248110	FRONT PANEL (BK)	1	▲ L001	TS19637010	POWER TRANSF. 120V (BK)	1
005B	260J105010	CHASSIS, FRONT	1	L002	FC50380010	FERRITE CORE (IB)	1
008B	260J158110	WINDOW	1	▲ W001	YC01800790	A.C POWER CORD (IB)	1
010B	260J270010	BUTTON, FUNCTION	1	▲ W001	YC01800780	A.C POWER CORD (BK)	1
013B	260J2700510	BUTTON KIT, POWER	1	5110	51100306M0	B. H. M SCREW 5110 ø3x6 (M)	6
014B	260J270040	BUTTON, POWER	1	5110	51100308A0	B. H. M SCREW 5110 ø3x8 (A)	4
015B	260J355020	LENS, POWER	1	5126	51260308U0	B.T.SCREW(W/W) 5126 ø3x8 (U)	11
017B	260J270220	BUTTON, MODE (IB)	1	5126	51260308M0	B.T.SCREW(W/W) 5126 ø3x8 (M)	8
017B	260J270320	BUTTON, MODE (BK)	1	5128	51280308M0	B. H. TAP. SCREW 5128 ø3x8 (M)	93
019B	183J271020	HOLDER, FL	1	5128	51280308U0	B. H. TAP. SCREW 5128 ø3x8 (U)	3
020B	056J122010	STICKER, FL	1	5128	51280325B0	B. H. TAP. SCREW 5128 ø3x25 (B)	2
021B	4220005040	CLAMPER	1	5128	51280410U0	B. H. TAP. SCREW 5128 ø4x10 (U)	1
023B	183J010010	SCREW, PHONE PCB	1	5128	51480310A0	F. WASHER SCREW 5148 ø3x10(A)	9
025B	264J160040	BRACKET, LEFT	1	5128	51480315M0	F. WASHER SCREW 5148 ø3x15(M)	2
027B	264J160050	BRACKET, RIGHT	1	5128	52040408M0	H. HEAD BOLT 5204 ø4x8 (M)	4
035B	063J154180	KNOB, MAIN VOL	1				
036B	042J154020	KNOB, TONE VOL	3				
001D	264J257110	LID, TOP COVER	1				
001G	264J105500	CHASSIS ASSEMBLY, MAIN	1				
002G	264J105010	CHASSIS, MAIN	1				
003G	030J114010	STOPPER	1				
006G	227J056010	BUFFER	4				
007G	183J057010	LEG, FRONT	2				
008G	183J057110	LEG, REAR	2				
010G	264J160010	BRACKET, TRANSF.	1				
013G	260J271010	HOLDER, SUB TRANSF.	1				
016G	2218271020	HOLDER, PCB	7				
017G	054J101020	SUPPORT, MAIN PCB	4				
020G	087J861010	LABEL, FUSE (IB)	1				
020G	258J861010	LABEL, FUSE (BK)	1				
021G	058J861240	LABEL, FUSE (IB)	1				
021G	058J861220	LABEL, FUSE (BK)	1				
030G	136J101020	SUPPORT	1				
900G	260J250120	REAR PANEL (IB)	1				
900G	260J250110	REAR PANEL (BK)	1				
910G	450H259010	BUSHING, AC CODE	1				
915G	260J861010	LABEL (BK)	1				
920G	95109111D0	LABEL (BK)	1				
001L	264J267010	HEATSINK, MAIN	1				
005L	264J160020	BRACKET, HEAT SINK (L)	1				
009L	264J160030	BRACKET, HEAT SINK (R)	1				
013L	261J104010	RETAINER, MAIN PCB	2				
015L	264J160060	BRACKET, HEATSINK CENTER	1				
017L	090J101010	SUPPORT	2				
020L	287S005010	CLAMPER	1				
001K	009D267010	HEATSINK	1				
002K	009D267010	HEATSINK	1				
003K	001J267030	HEATSINK	1				
004K	001J267030	HEATSINK	1				
005K	309V267010	HEATSINK	1				
007K	309V267010	HEATSINK	1				
011K	260J123010	CONTACTOR	1				
012K	152J118030	SPACER	1				
014K	306V259030	BUSHING (IB)	1				
061K	415T101010	SUPPORT	1				

DISASSEMBLY PROCEDURES

1. Removing the top cover
Remove the screws ① ~ ⑪



2. Removing the front panel
Remove the screws ① ~ ④



MAIN PCB BLOCK (P704)

1. Remove all of the screws on REAR PANEL. (900G)
2. Remove the REAR PANEL.
3. Remove the SPEAKER TERMINAL PCB. (P754)
4. Remove the screw x4 for MAIN PCB mounting.
5. Remove the screw x2 for both sides GIRD PCB of main heatsink.
6. Remove the both sides GIRD PCB.
7. Remove the screw x4 for MAIN PCB BLOCK mounting.
8. Remove the MAIN PCB BLOCK.

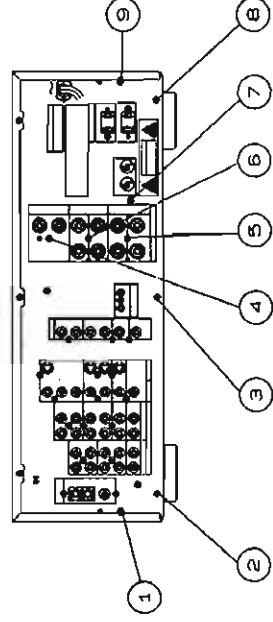
POWER SUPPLY PCB (PB04)

1. Remove the screw x2 for TRANSF mounting.
2. Remove the screw x2 for POWER SUPPLY PCB mounting.
3. Remove the POWER SUPPLY PCB.

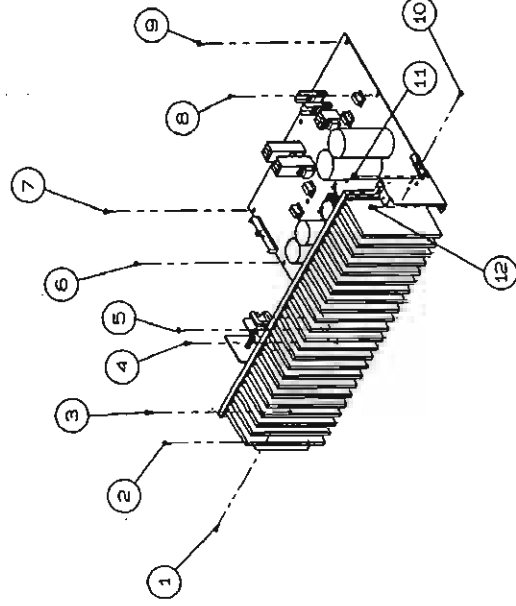
MAIN VOL PCB (PU54)

1. Remove the MAIN VOL KNOB. (035B)
2. Remove the MAIN VOL NUT.
3. Pull out the MAIN VOL PCB.

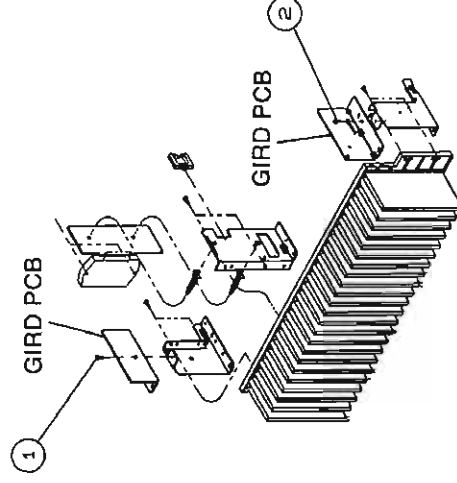
3. Removing the rear panel
Remove the screws ① ~ ⑨



4. Removing the main PCB Block
Remove the screws ① ~ ⑫



5. Removing the shield plate
Remove the screws ① ②



TONE VOL PCB (PF04)

1. Remove the three TONE VOL KNOBS. (036B)
2. Remove the three TONE VOL NUTS.
3. Pull out the TONE VOL PCB.

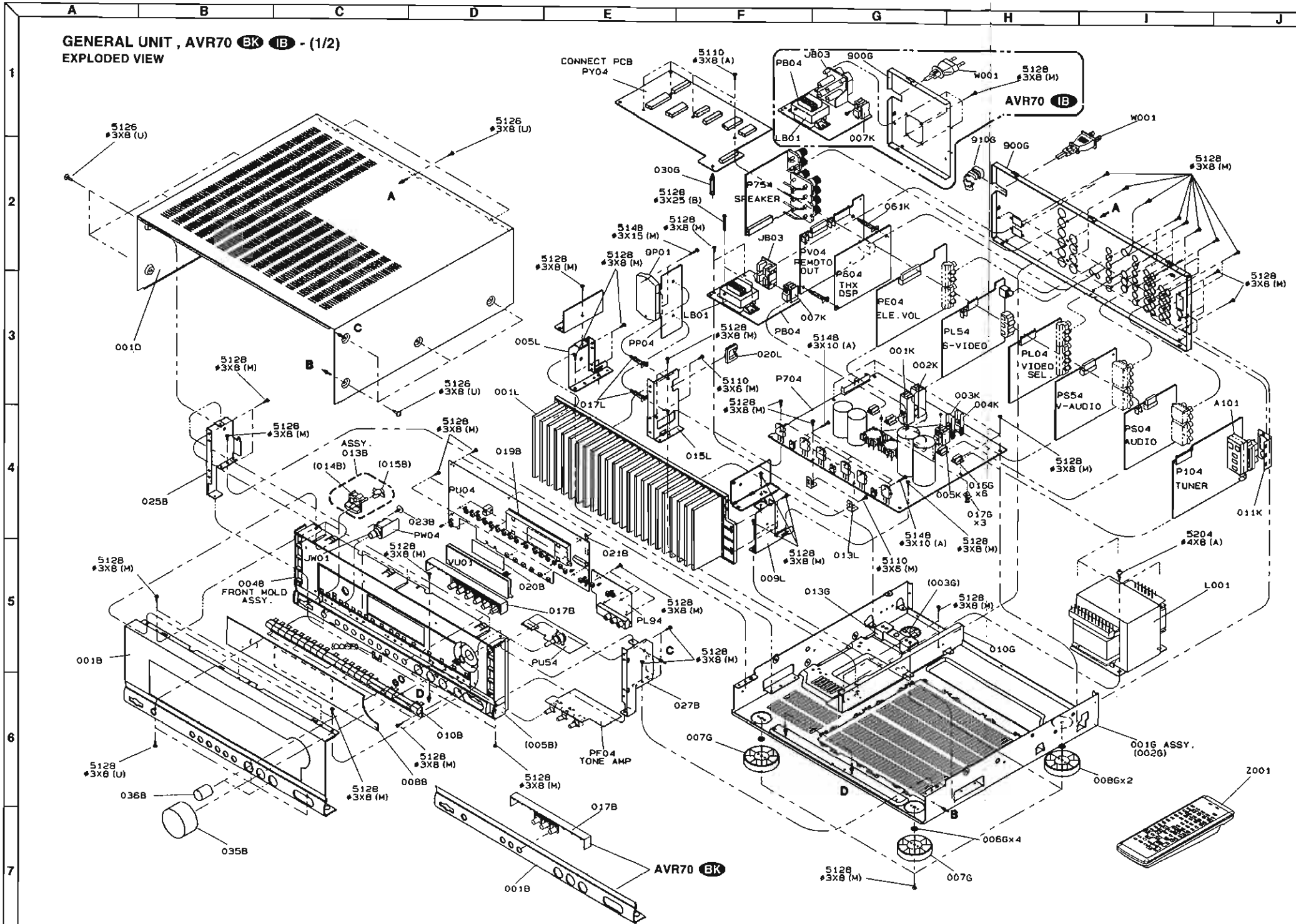
FRONT FUNCTION PCB (PU04)

1. Remove the screw x4 for FRONT PANEL ASSY mounting.
2. Lay down the FRONT PANEL ASSY.
3. Remove the screw x16 for FRONT FUNCTION PCB.
4. Remove the FRONT FUNCTION PCB.

GENERAL UNIT PARTS LIST

Ref. No.	Part. No.	Description	QTY	Ref. No.	Part. No.	Description	QTY
001B	260J248120	FRONT PANEL IB	1	▲ L001	TS19637020	POWER TRANSF. 230V IB	1
001B	260J248110	FRONT PANEL BK	1	▲ L001	TS19637010	POWER TRANSF. 120V EK	1
005B	260J105010	CHASSIS, FRONT	1	L002	FC50380010	FERRITE CORE IB	1
008B	260J158110	WINDOW	1	▲ W001	YC01800790	A.C POWER CORD IB	1
010B	260J270010	BUTTON, FUNCTION	1	▲ W001	YC01800780	A.C POWER CORD EK	1
013B	260J270510	BUTTON KIT, POWER	1				
014B	260J270040	BUTTON, POWER	1	5110	51100306M0	B. H. M SCREW 5110 ø3x6 (M)	6
015B	260J355020	LENS, POWER	1	5110	51100308A0	B. H. M SCREW 5110 ø3x8 (A)	4
017B	260J270220	BUTTON, MODE IB	1	5126	512660308U0	B.T.SCREW(W/W) 5126 ø3x8 (U)	11
017B	260J270320	BUTTON, MODE EK	1	5126	512660308M0	B.T.SCREW(W/W) 5126 ø3x8 (M)	8
019B	183J271020	HOLDER, FL	1	5128	51280308M0	B. H. TAP. SCREW 5128 ø3x8 (M)	93
020B	056J122010	STICKER, FL	1	5128	51280308U0	B. H. TAP. SCREW 5128 ø3x8 (U)	3
021B	4220005040	CLAMPER	1	5128	51280325B0	B. H. TAP. SCREW 5128 ø3x25 (B)	2
023B	183J010010	SCREW, PHONE PCB	1	5128	51280410U0	B. H. TAP. SCREW 5128 ø4x10 (U)	1
025B	264J160040	BRACKET, LEFT	1	5128	51480310A0	F. WASHER SCREW 5148 ø3x10(A)	9
027B	264J160050	BRACKET, RIGHT	1	5128	51480315M0	F. WASHER SCREW 5148 ø3x15(M)	2
035B	063J154180	KNOB, MAIN VOL	1	5128	52040408M0	H. HEAD BOLT 5204 ø4x8 (M)	4
036B	042J154020	KNOB, TONE VOL	3				
001D	264J257110	LID, TOP COVER	1				
001G	264J105500	CHASSIS ASSEMBLY, MAIN	1				
002G	264J105010	CHASSIS, MAIN	1				
003G	030J114010	STOPPER	1				
006G	227J056010	BUFFER	4				
007G	183J057010	LEG, FRONT	2				
008G	183J057110	LEG, REAR	2				
010G	264J160010	BRACKET, TRANSF.	1				
013G	260J271010	HOLDER, SUB TRANSF.	1				
016G	2218271020	HOLDER, PCB	7				
017G	054J101020	SUPPORT, MAIN PCB	4				
020G	087J861010	LABEL, FUSE IB	1				
020G	259J861010	LABEL, FUSE BK	1				
021G	058J861240	LABEL, FUSE IB	1				
021G	058J861220	LABEL, FUSE BK	1				
030G	136J101020	SUPPORT	1				
900G	260J250120	REAR PANEL IB	1				
900G	260J250110	REAR PANEL BK	1				
910G	450H259010	BUSHING, AC CODE	1				
915G	260J861010	LABEL BK	1				
920G	95109111D0	LABEL BK	1				
001L	264J267010	HEATSINK, MAIN	1				
005L	264J160020	BRACKET, HEAT SINK (L)	1				
009L	264J160030	BRACKET, HEAT SINK (R)	1				
013L	261J104010	RETAINER, MAIN PCB	2				
015L	264J160060	BRACKET, HEATSINK CENTER	1				
017L	090J101010	SUPPORT	2				
020L	287S005010	CLAMPER	1				
001K	009D267010	HEATSINK	1				
002K	009D267010	HEATSINK	1				
003K	001J267030	HEATSINK	1				
004K	001J267030	HEATSINK	1				
005K	309V267010	HEATSINK	1				
007K	309V267010	HEATSINK	1				
011K	260J123010	CONTACTOR	1				
012K	152J118030	SPACER	1				
014K	306V259030	BUSHING IB	1				
061K	415T101010	SUPPORT	1				

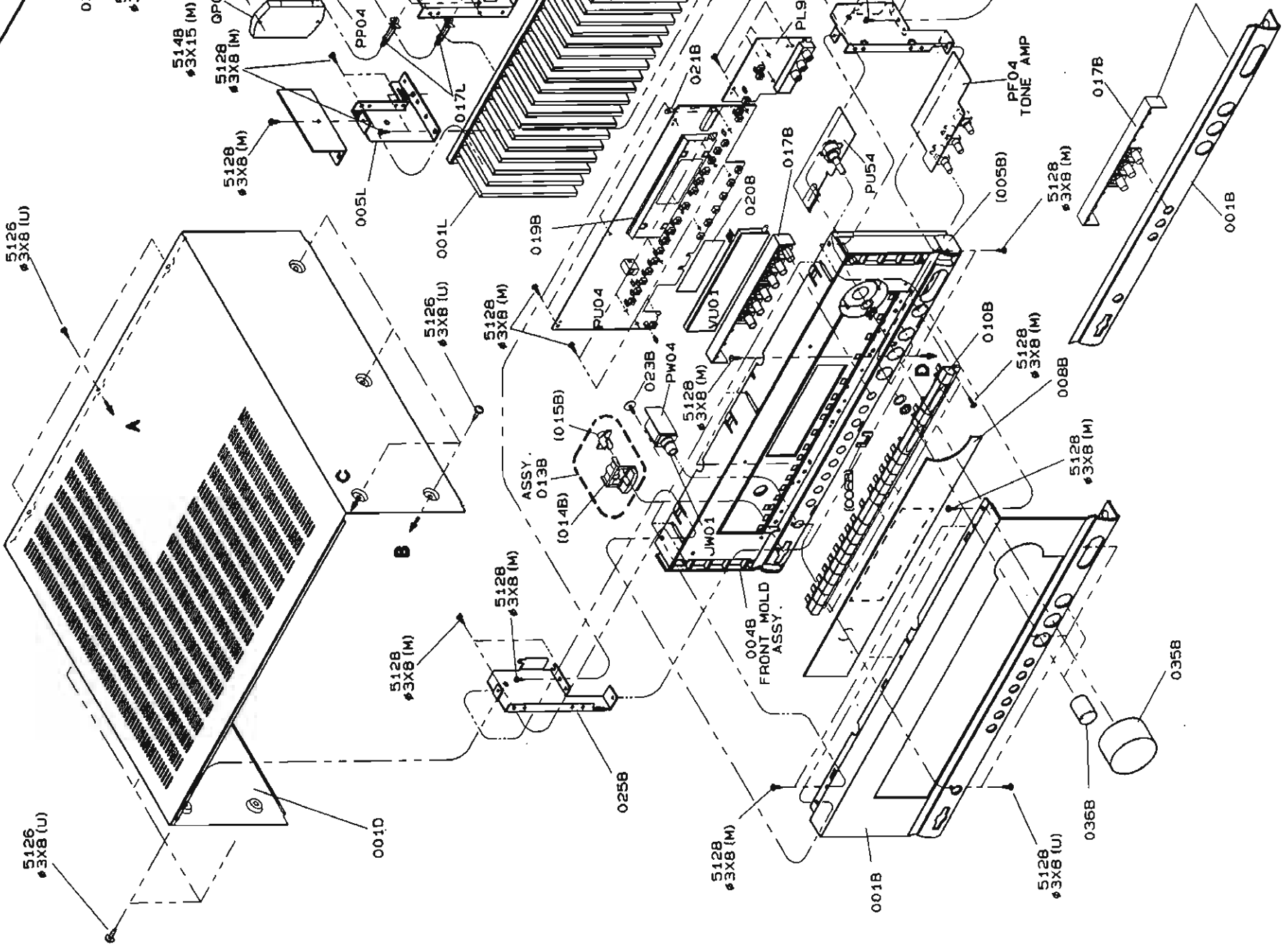
GENERAL UNIT, AVR70 BK IB - (1/2)
EXPLODED VIEW



A B C D E

GENERAL UNIT , AVR70 BK IB - (1/2) EXPLODED VIEW

CONNECT PCB
PY04



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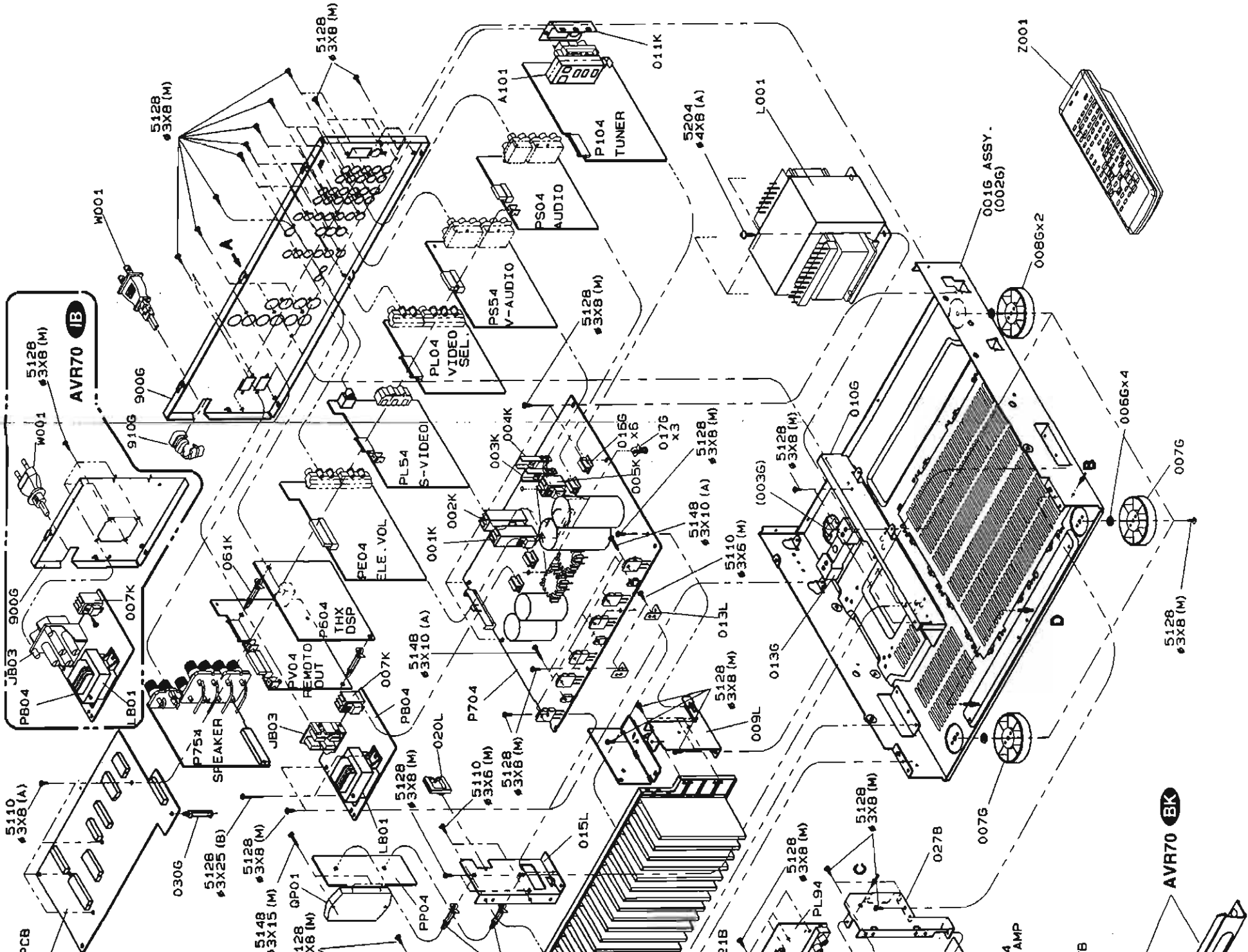
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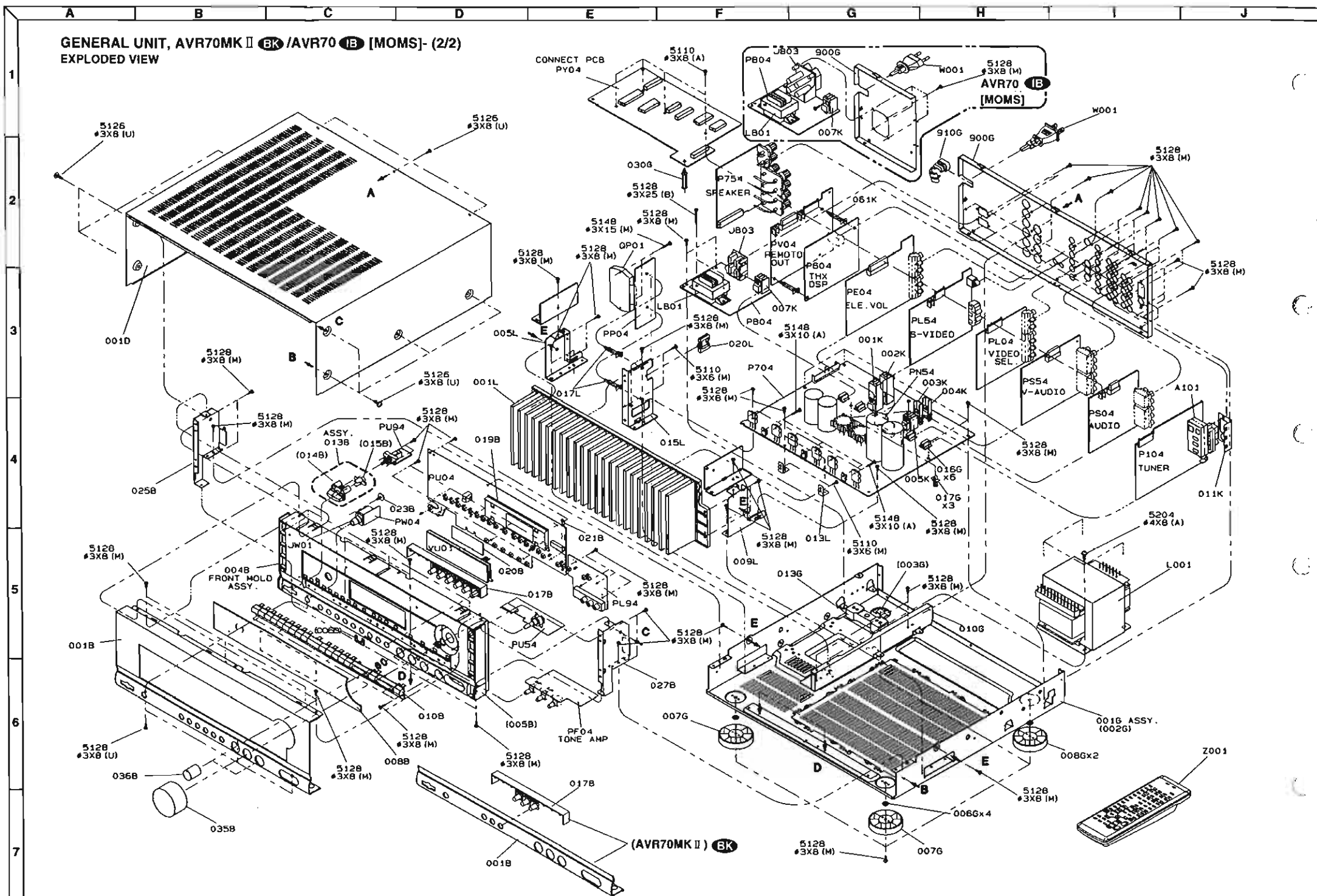
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GENERAL UNIT, AVR70MK II (BK) /AVR70 (B) [MOMS]- (2/2)
EXPLODED VIEW



(AVR70MK II) (BK)

1 2 3 4 5 6 7

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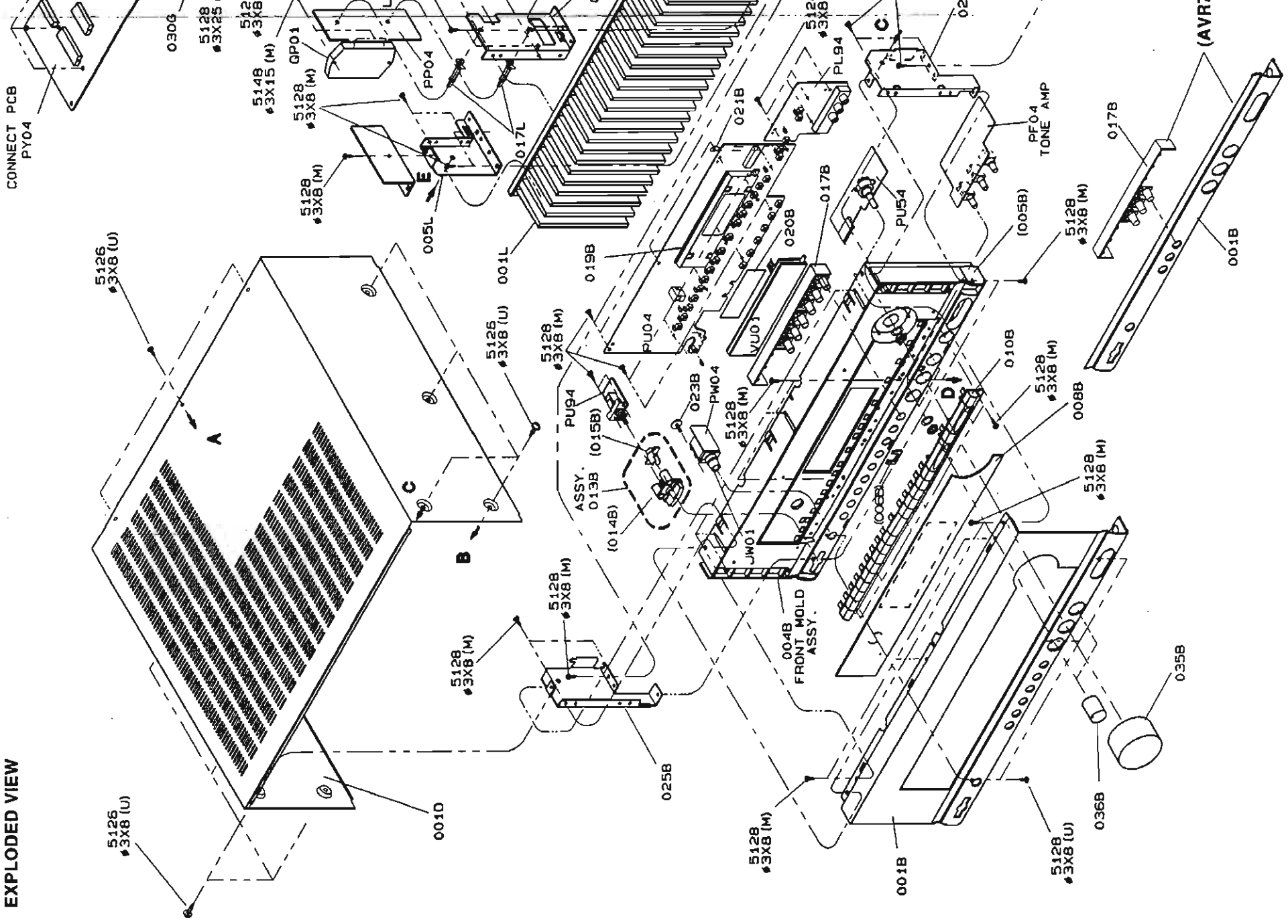
B

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GENERAL UNIT, AVR70MK II BK /AVR70 IB [MOMS]- (2/2)
EXPLODED VIEW



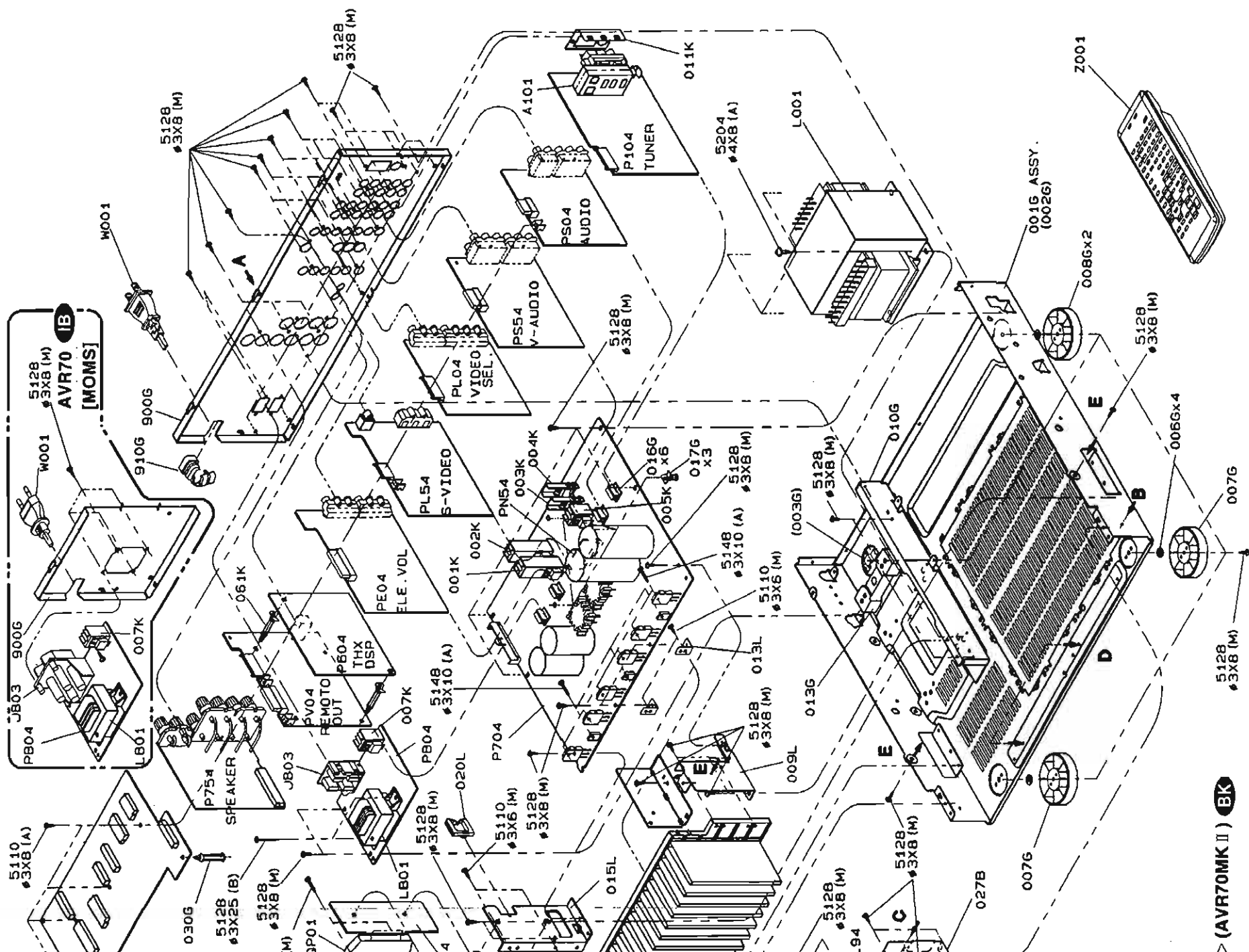
J

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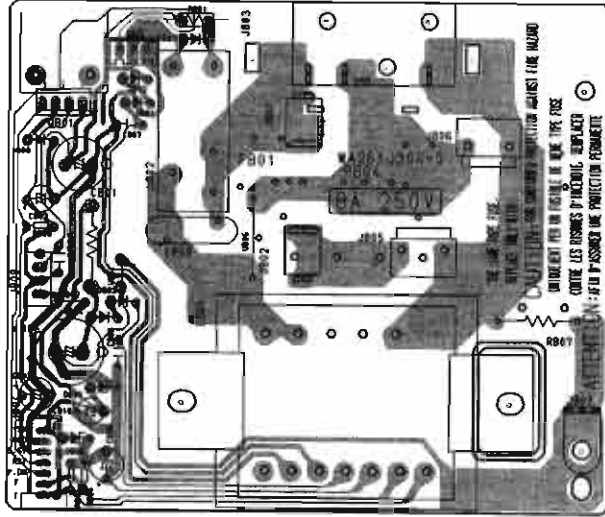
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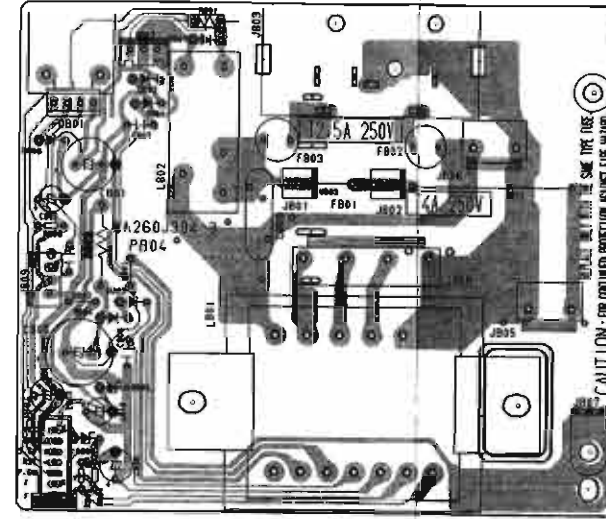


P.C. BOARDS (1)

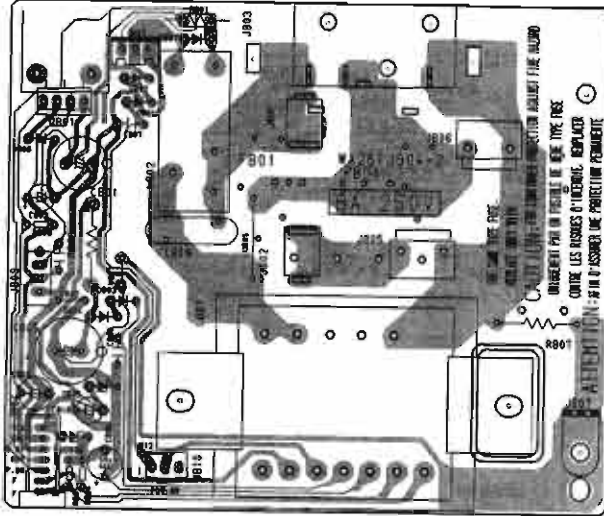
PB04-Back-up P.C. Board , AVR70 **BK** Version



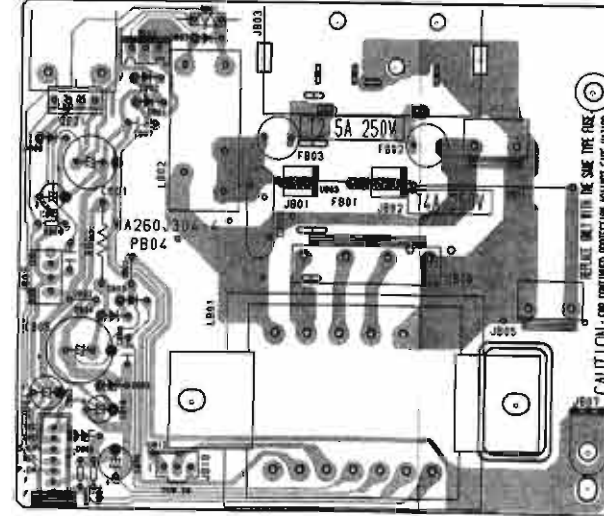
PB04-Back-up P.C. Board , AVR70 **IB** Version



PB04-Back-up P.C. Board , AVR70MK II **BK** Version



PB04-Back-up P.C. Board , AVR70 **IB** [MOMS] Version

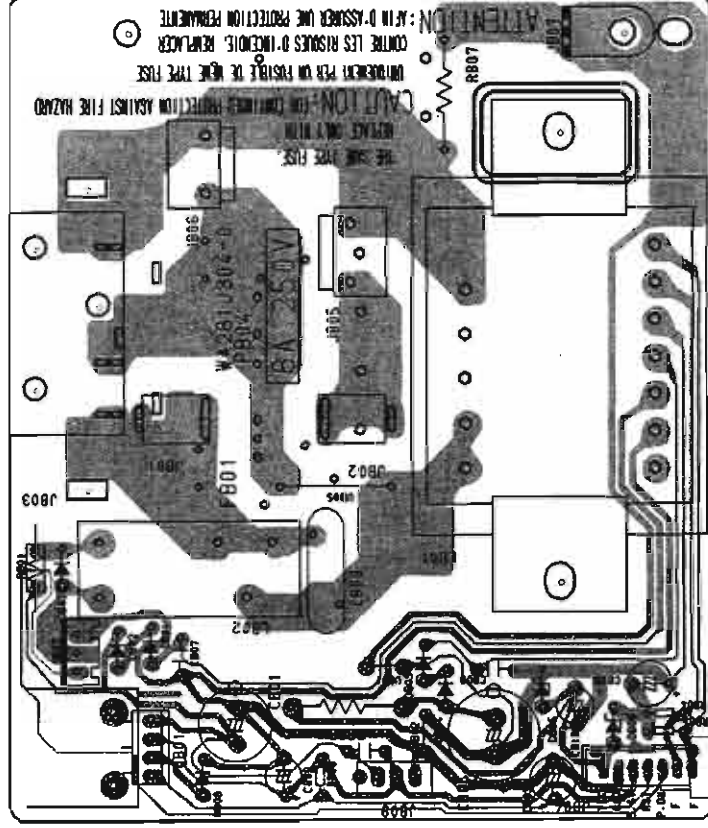


A B C D E

P.C. BOARDS (1)

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PB04-Back-up P.C. Board , AVR70 **BK** Version

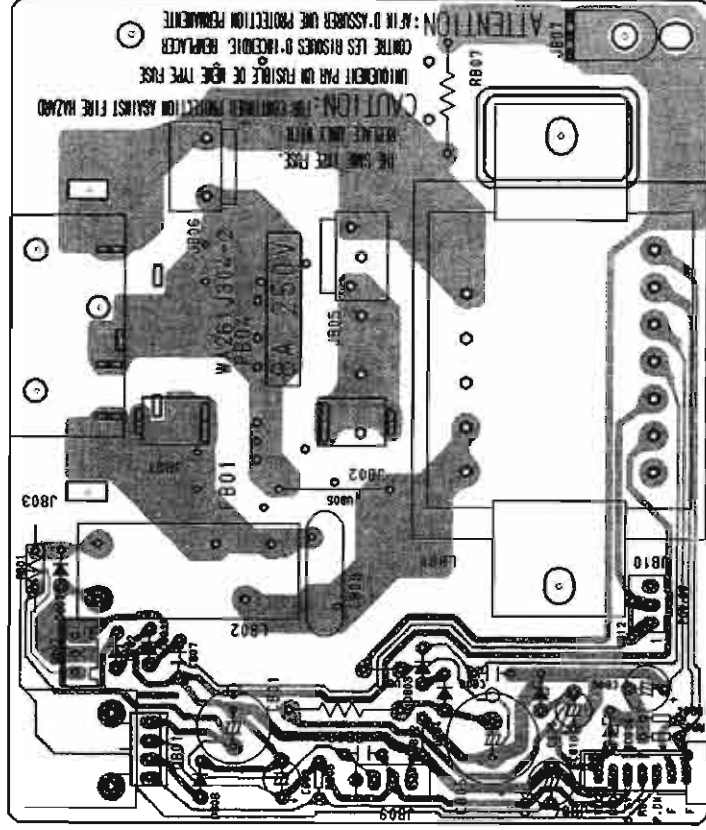


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PB04-Back-up P.C. Board , AVR70MK II **BK** Version



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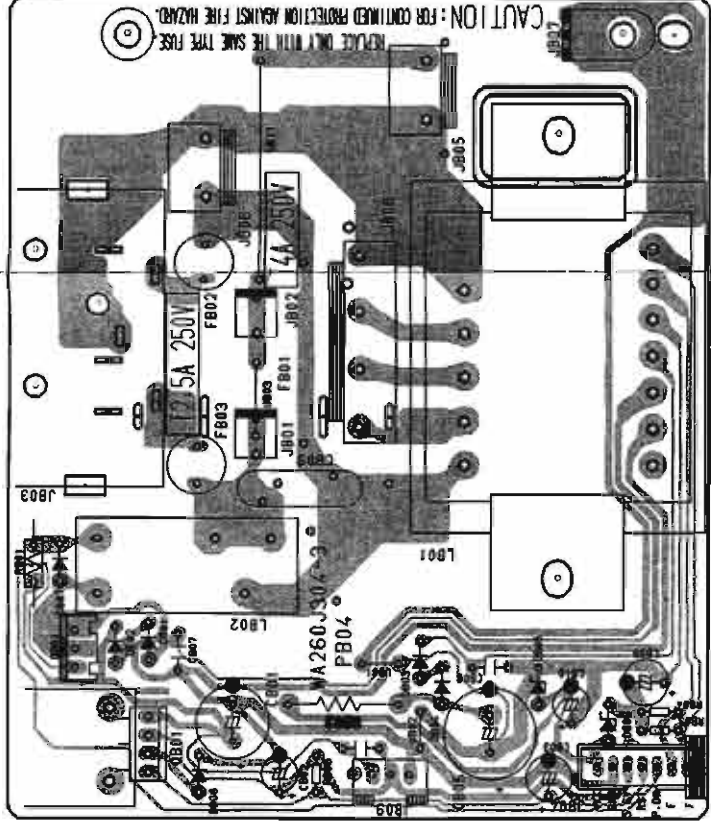
F

G

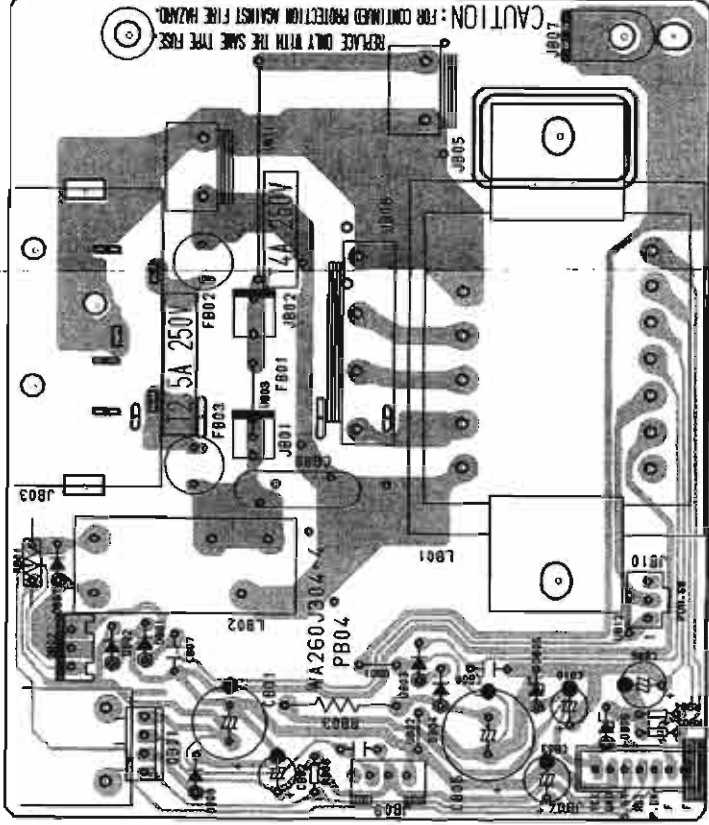
H

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PB04-Back-up P.C. Board , AVR70 **IB** Version



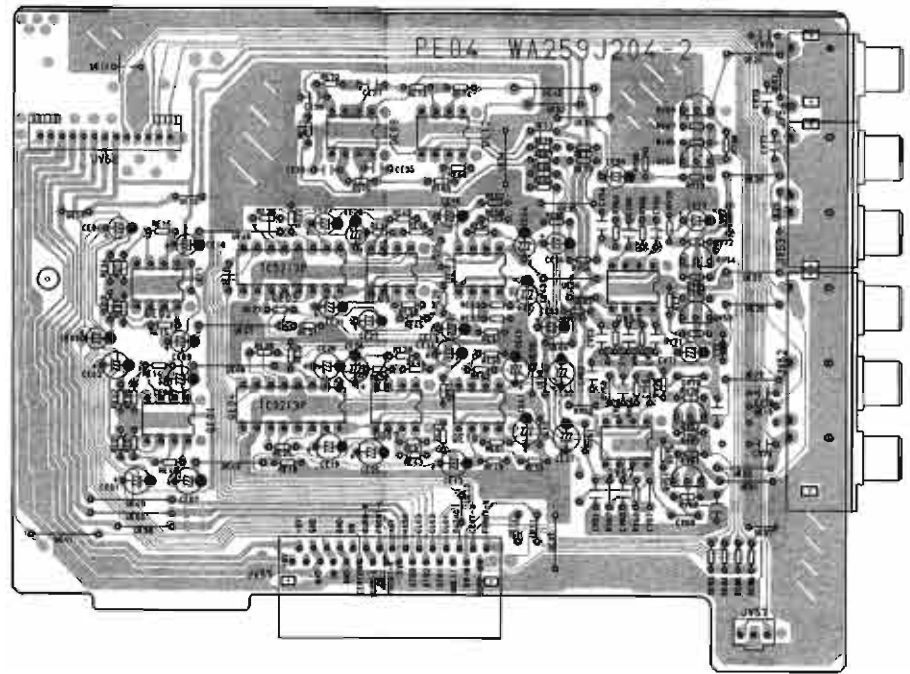
PB04-Back-up P.C. Board , AVR70 **IB** [MOMS] Version



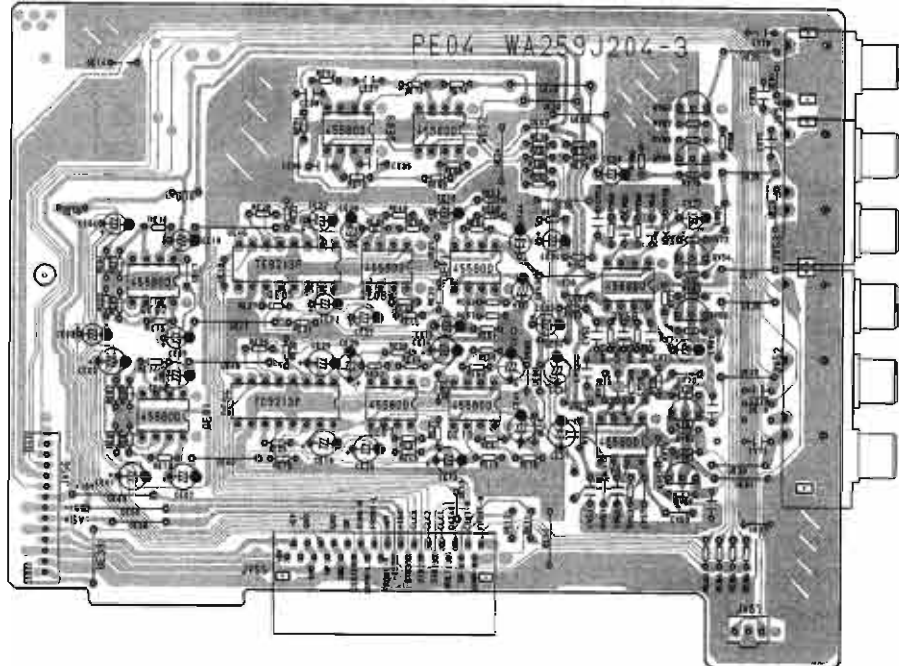
A B C D E F G H I J

P.C. BOARDS (2)

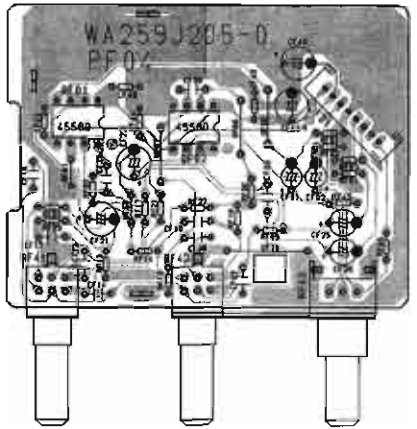
PE04-Ele. Vol P.C. Board , AVR70 **BK** **IB** Only



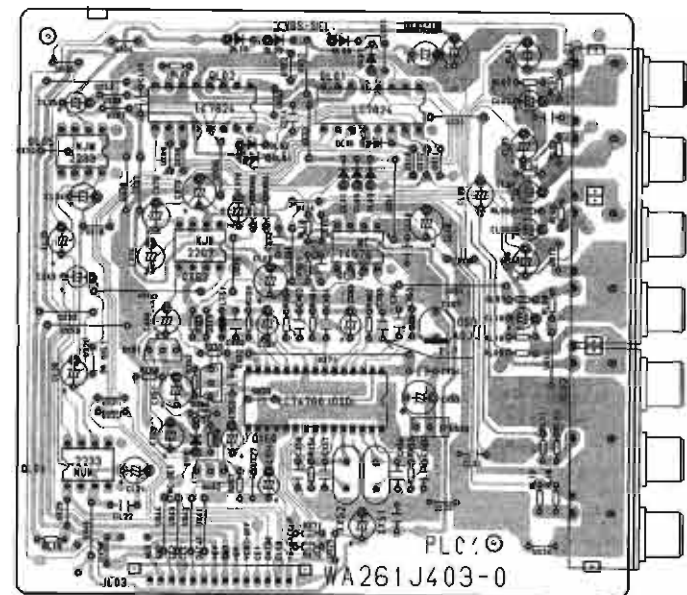
PE04-Ele. Vol P.C. Board , AVR70MK II **BK**/AVR70 **IB** [MOMS]



PF04-Tone P.C. Board



PL04-Video Selector P.C. Board

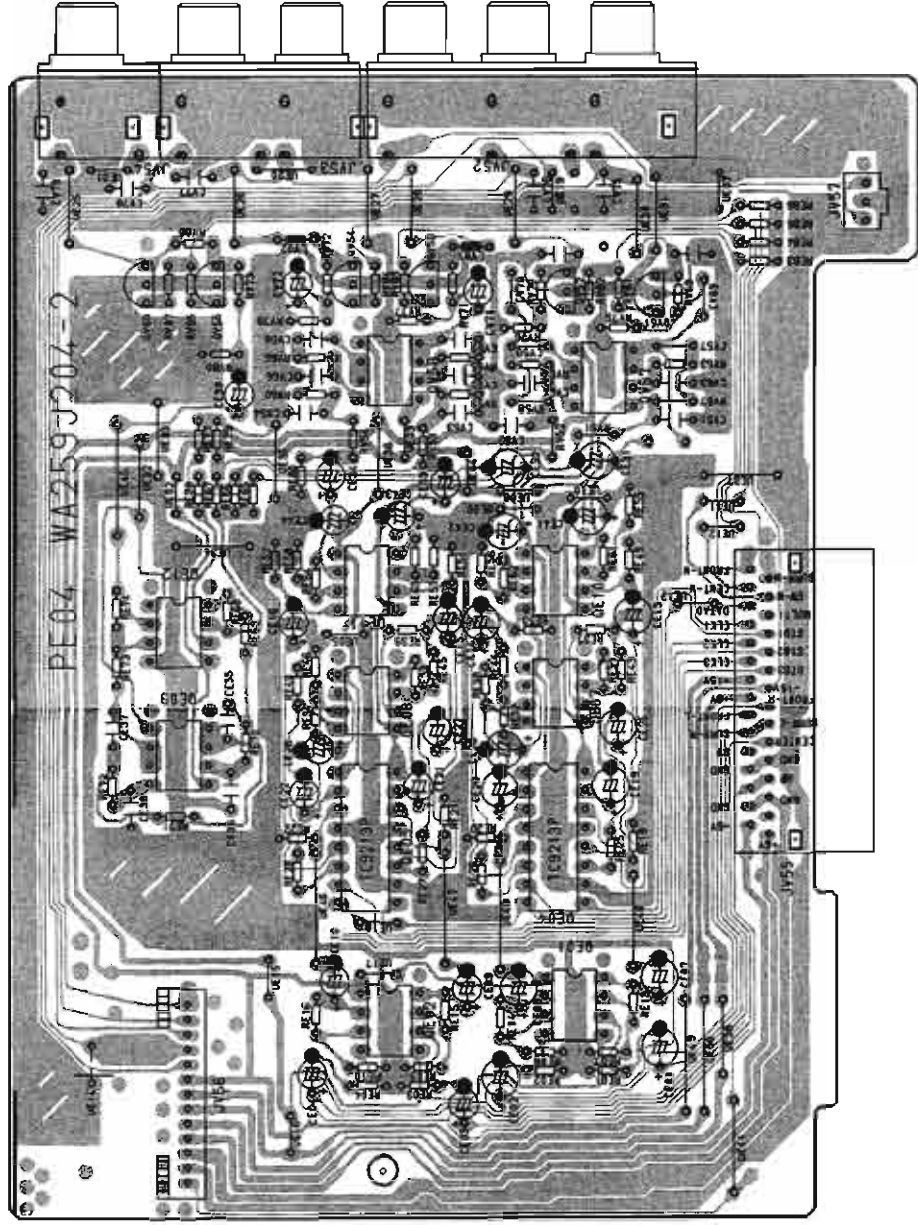


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A B C D E

P.C. BOARDS (2)

PE04-Ele. Vol P.C. Board , AVR70 **BK** **IB** Only



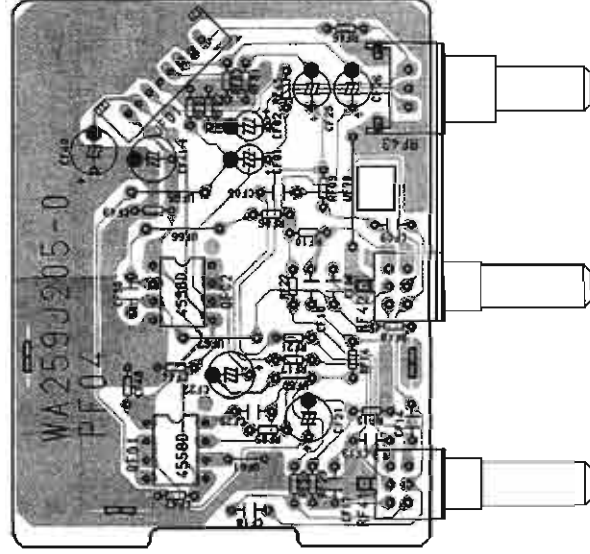
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PF04-Tone P.C. Board

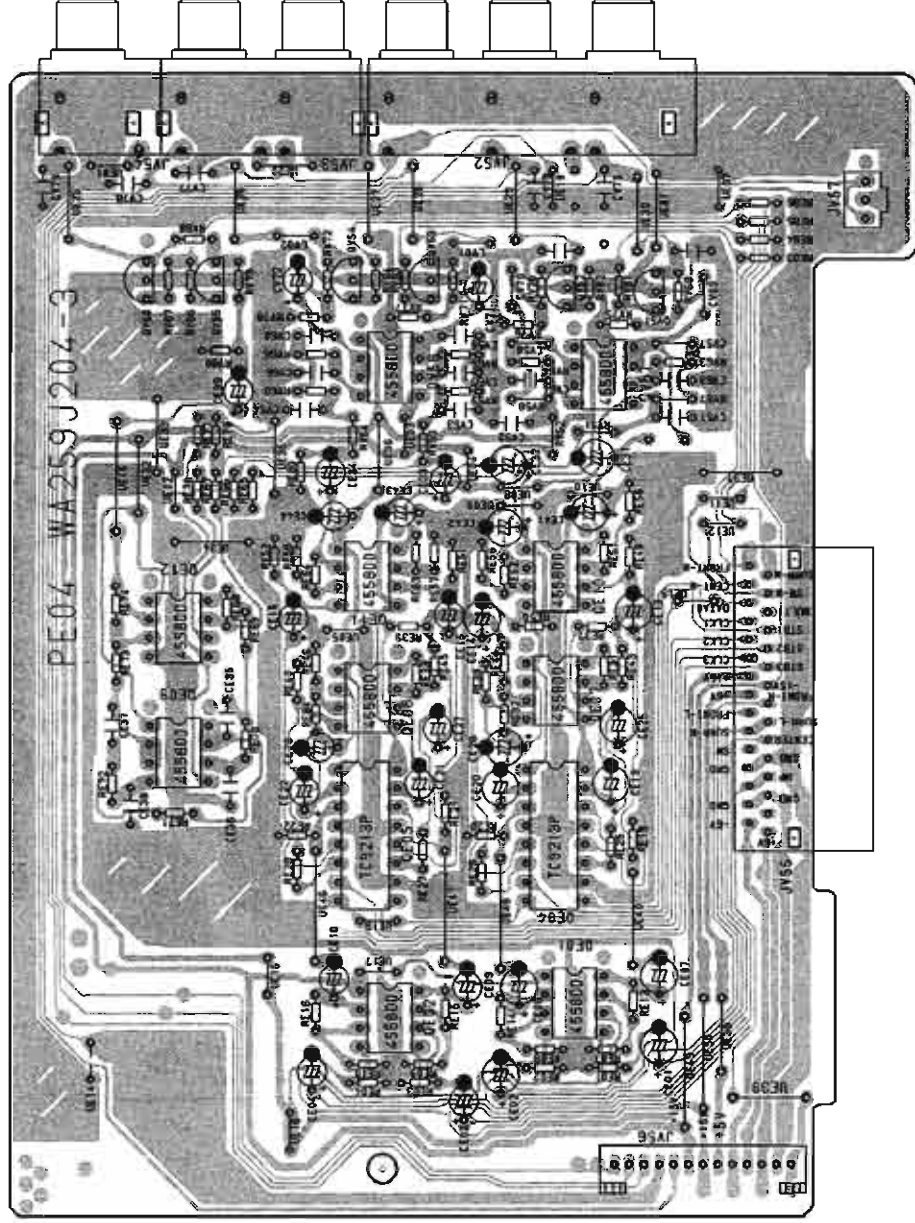


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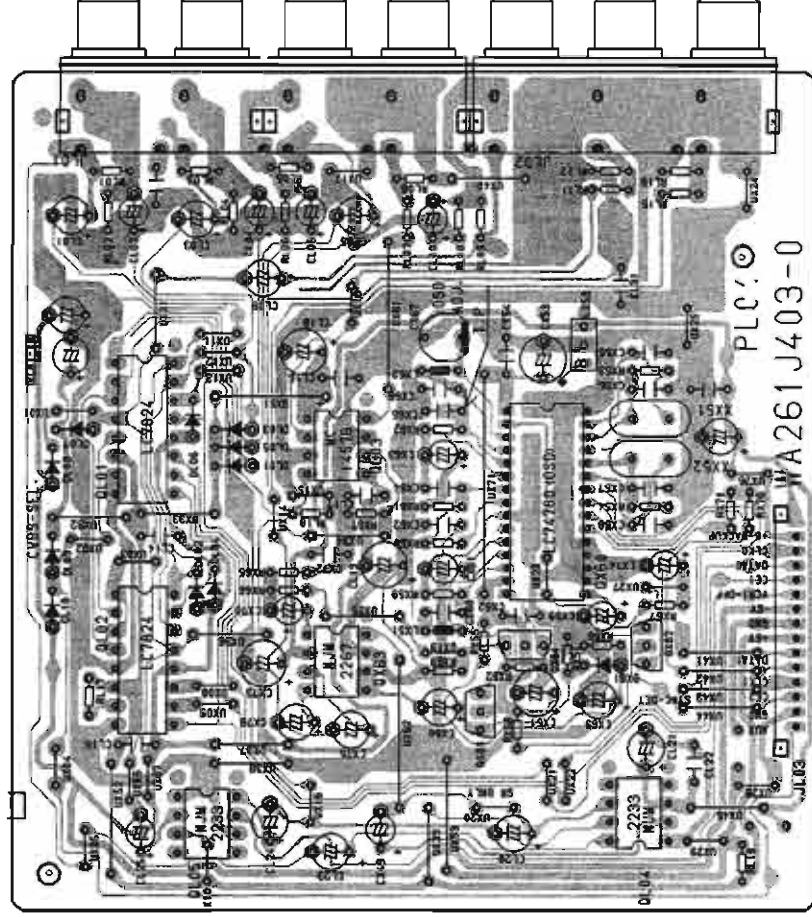
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PE04-Ele. Vol P.C. Board , AVR70MK II **BK**/AVR70 **IB** [MOMS]

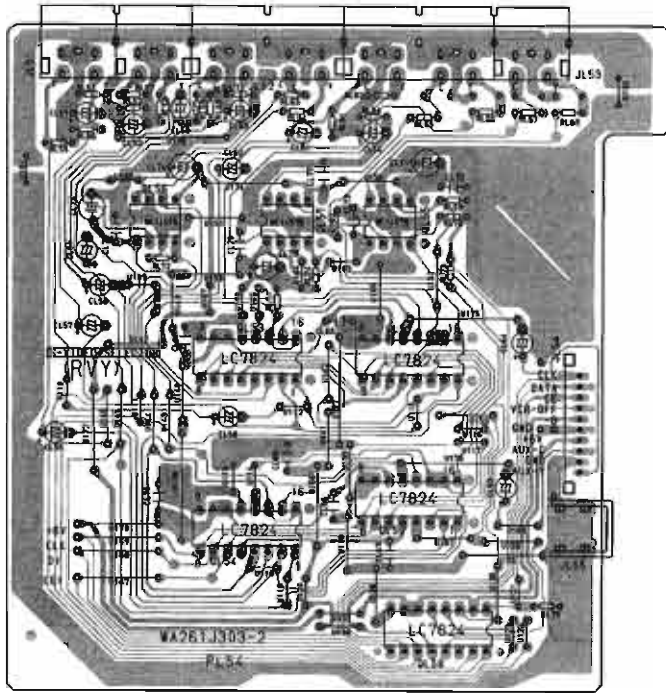


PL04-Video Selector P.C. Board

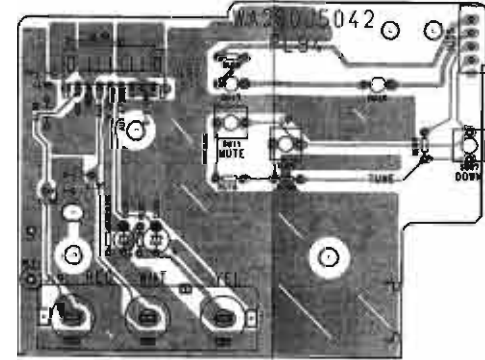


P.C. BOARD (3)

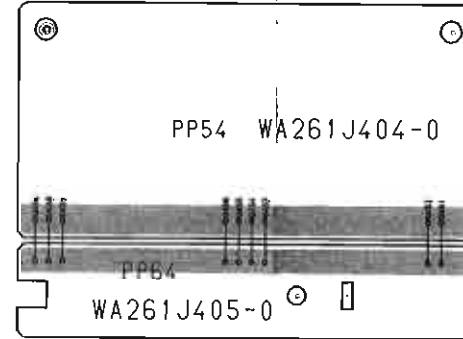
PL54-S-Video P.C. Board



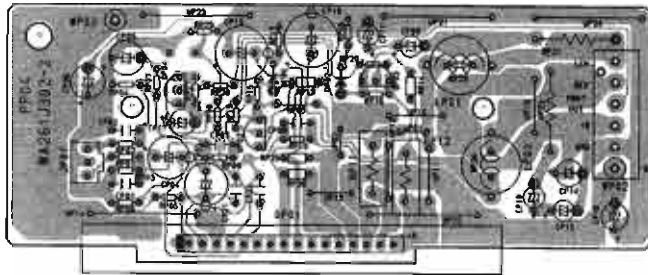
PL94-AUX In P.C. Board



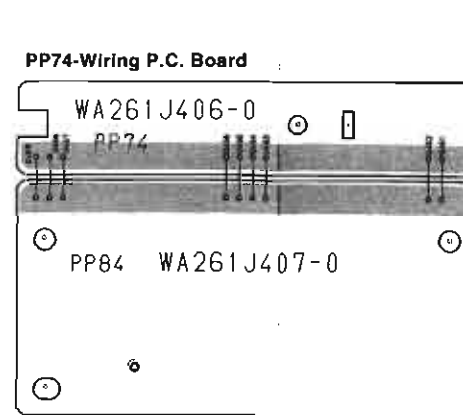
PP54-Wiring P.C. Board



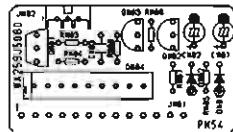
PP04-Surround Amp P.C. Board



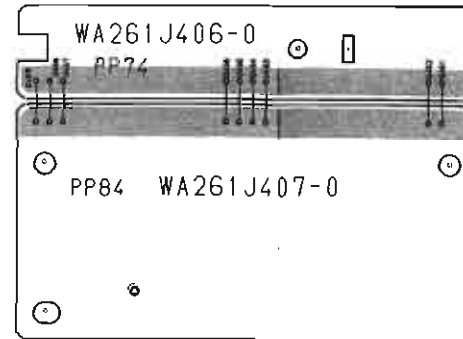
PP64-Wiring P.C. Board



PN54-SPK Protect P.C. Board , AVR70MK II (BK) /AVR70 (IB) [MOMS]



PP74-Wiring P.C. Board



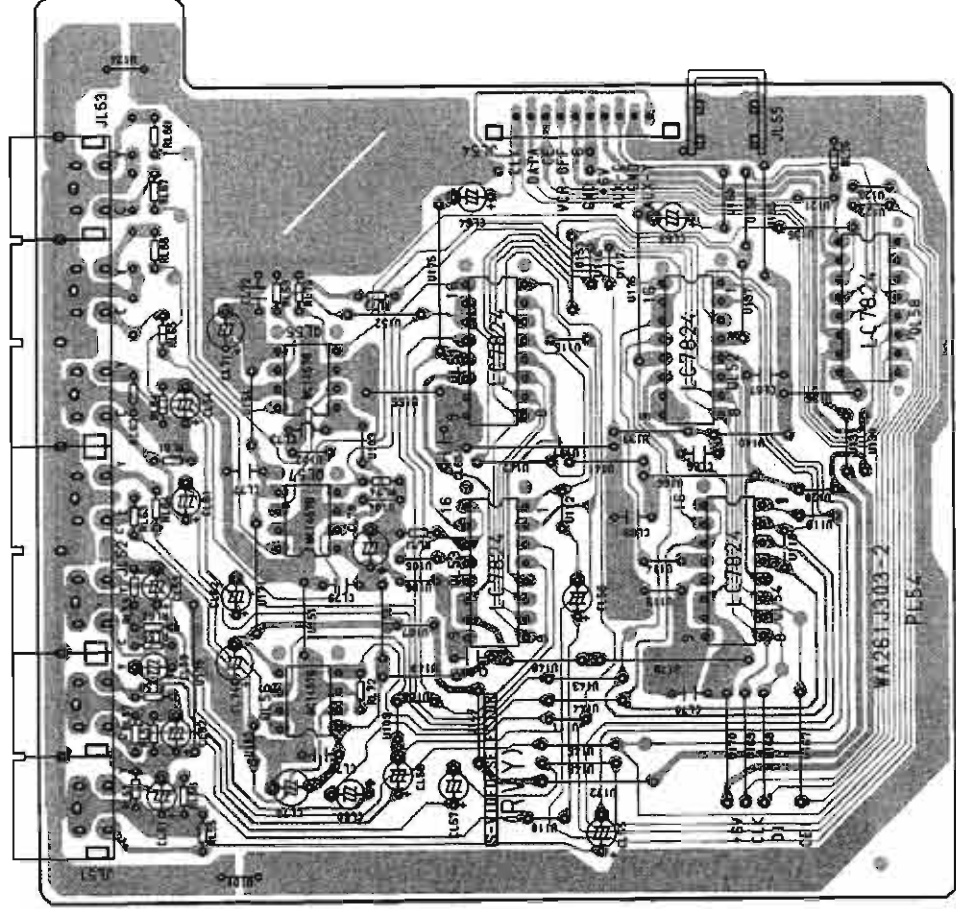
PP84-Wiring P.C. Board

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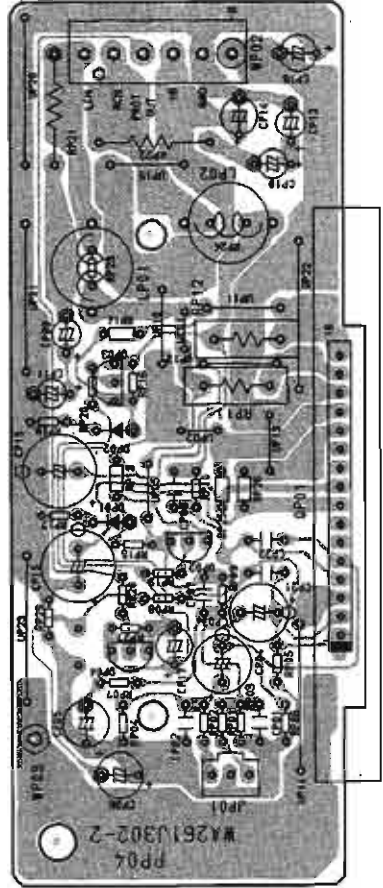
A B C D E
1 2 3 4 5 6 7

P.C. BOARD (3)

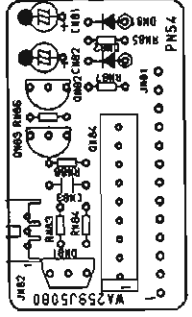
PL54-S-Video P.C. Board



PP04-Surround Amp P.C. Board



PN54-SPK Protect P.C. Board , AVR70MK II BK /AVR70 IB [MOMS]



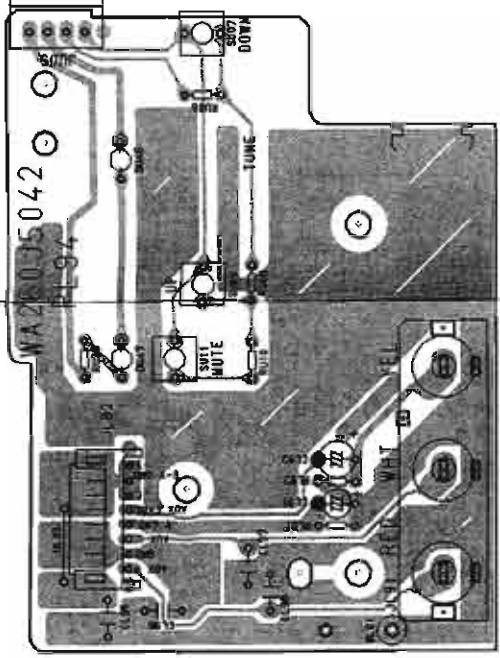
F

G

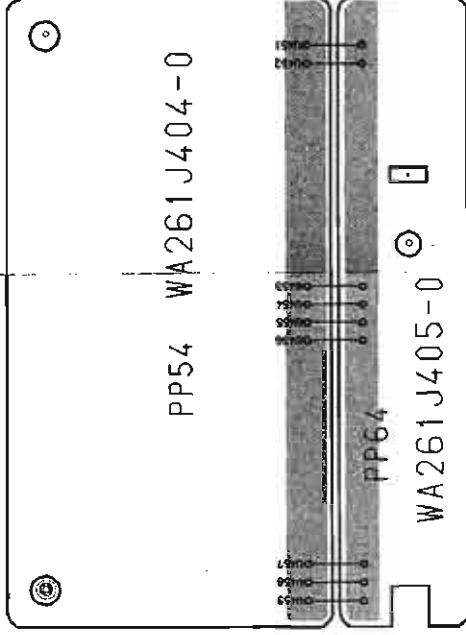
H

J

PL94-AUX In P.C. Board

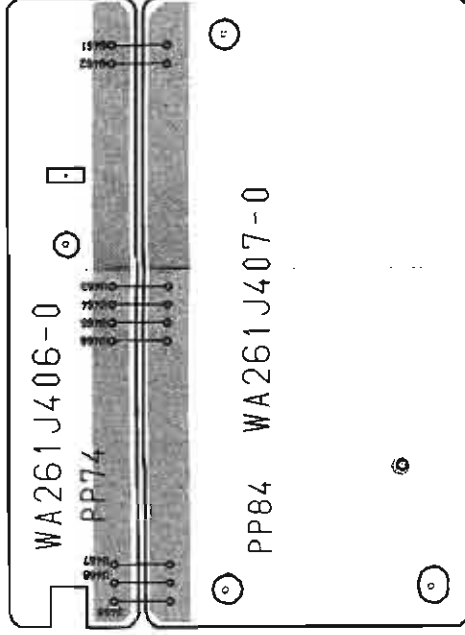


PP54-Wiring P.C. Board



PP64-Wiring P.C. Board

PP74-Wiring P.C. Board



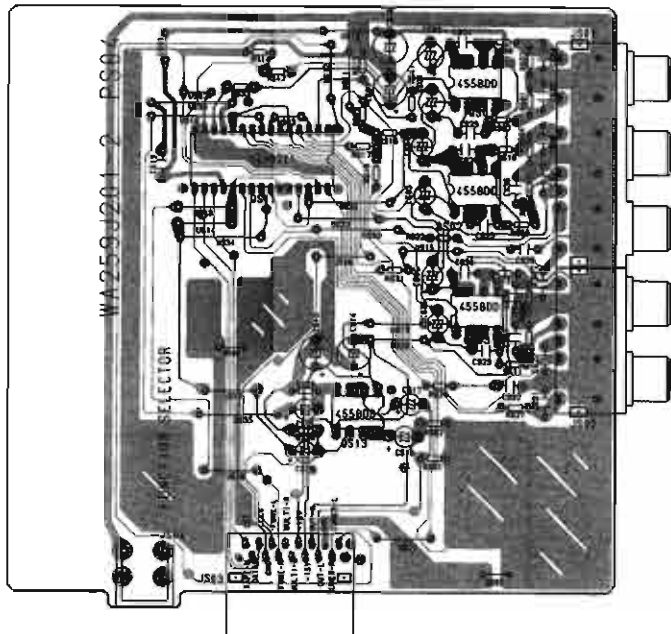
PP84-Wiring P.C. Board

A B C D E F G H I J

P.C. BOARD (4)

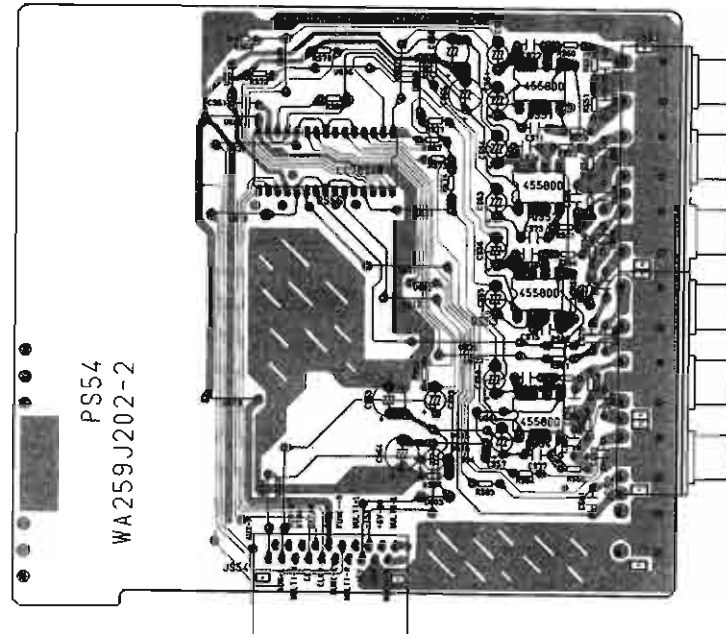
1

PS04-Audio Function P.C. Board



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PS54-V-Audio Function P.C. Board



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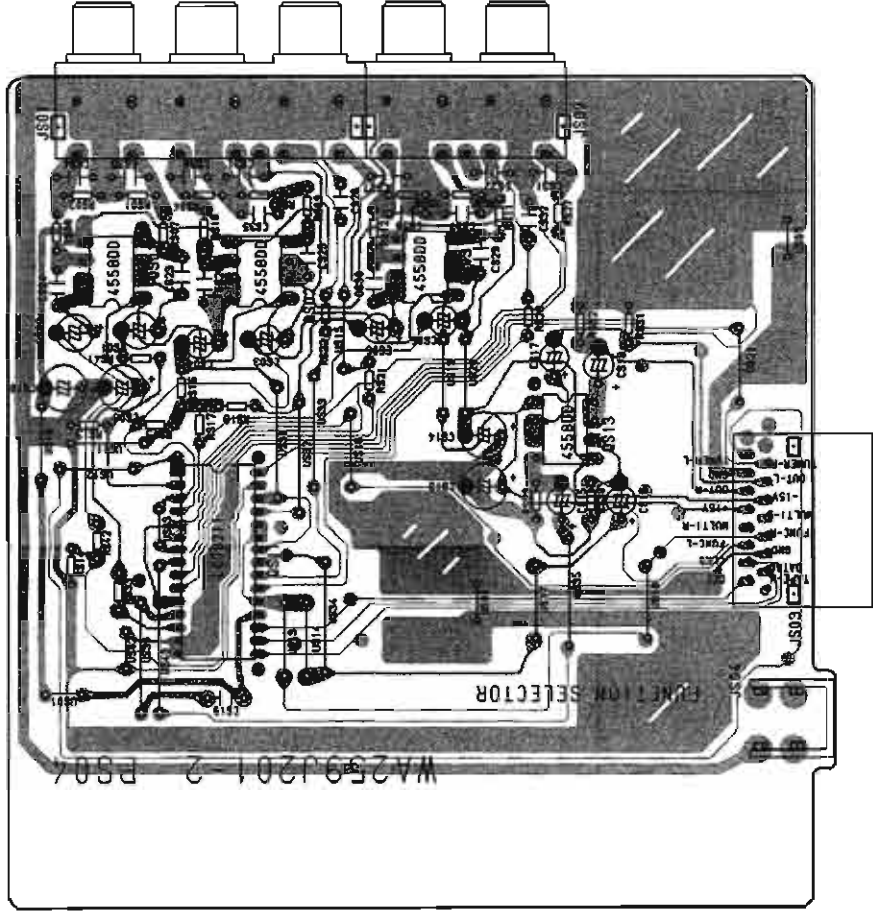
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A B C D E

P.C. BOARD (4)

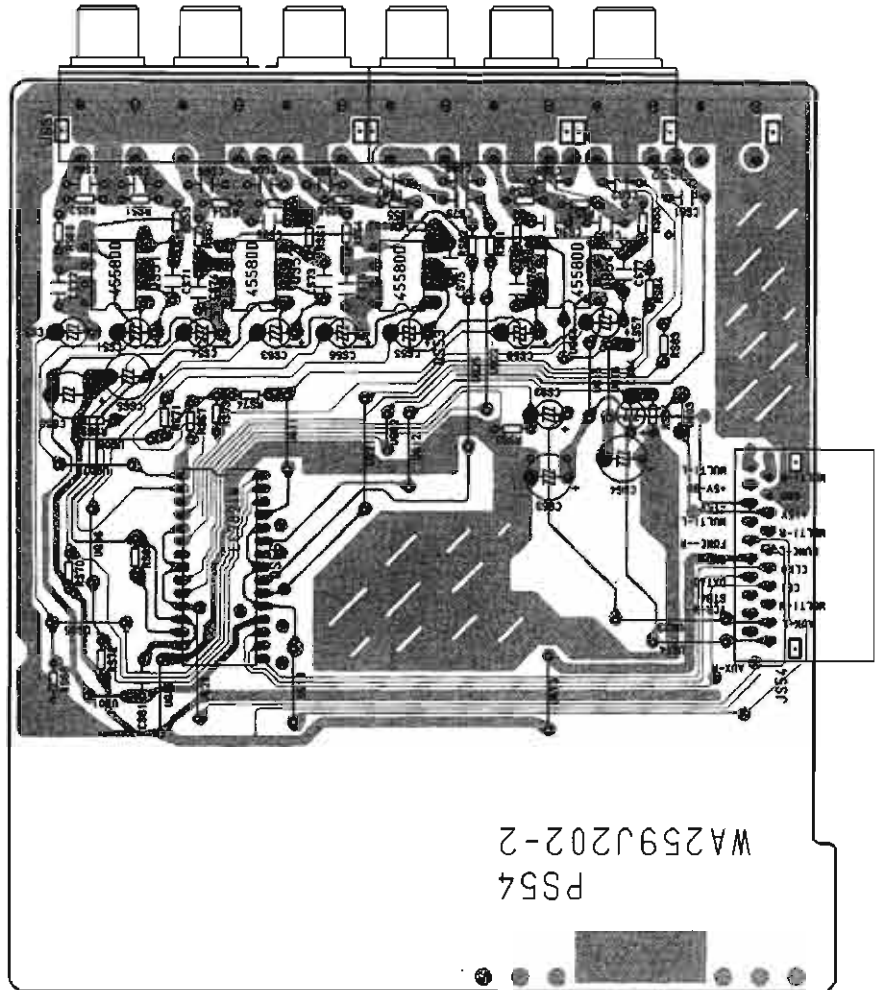
PS04-Audio Function P.C. Board



1 2 3 4 5 6 7

F G H J

PS54-V-Audio Function P.C. Board

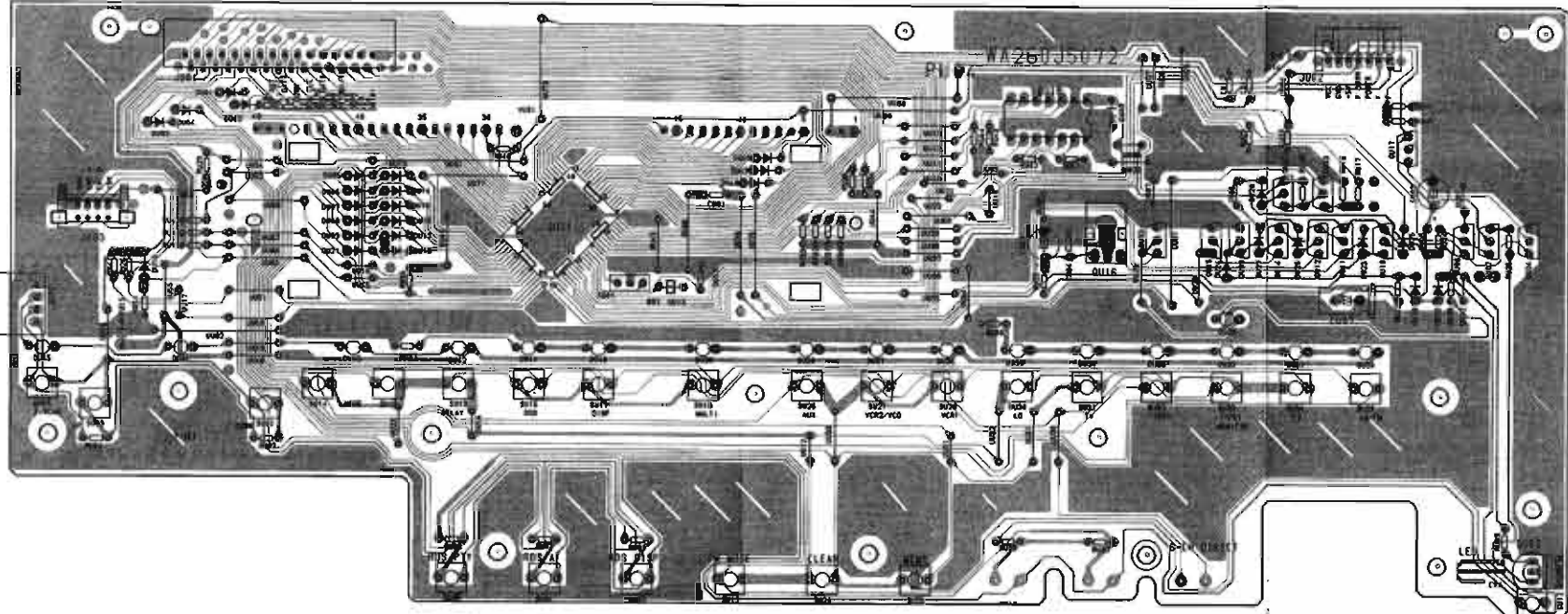


A B C D E F G H I J

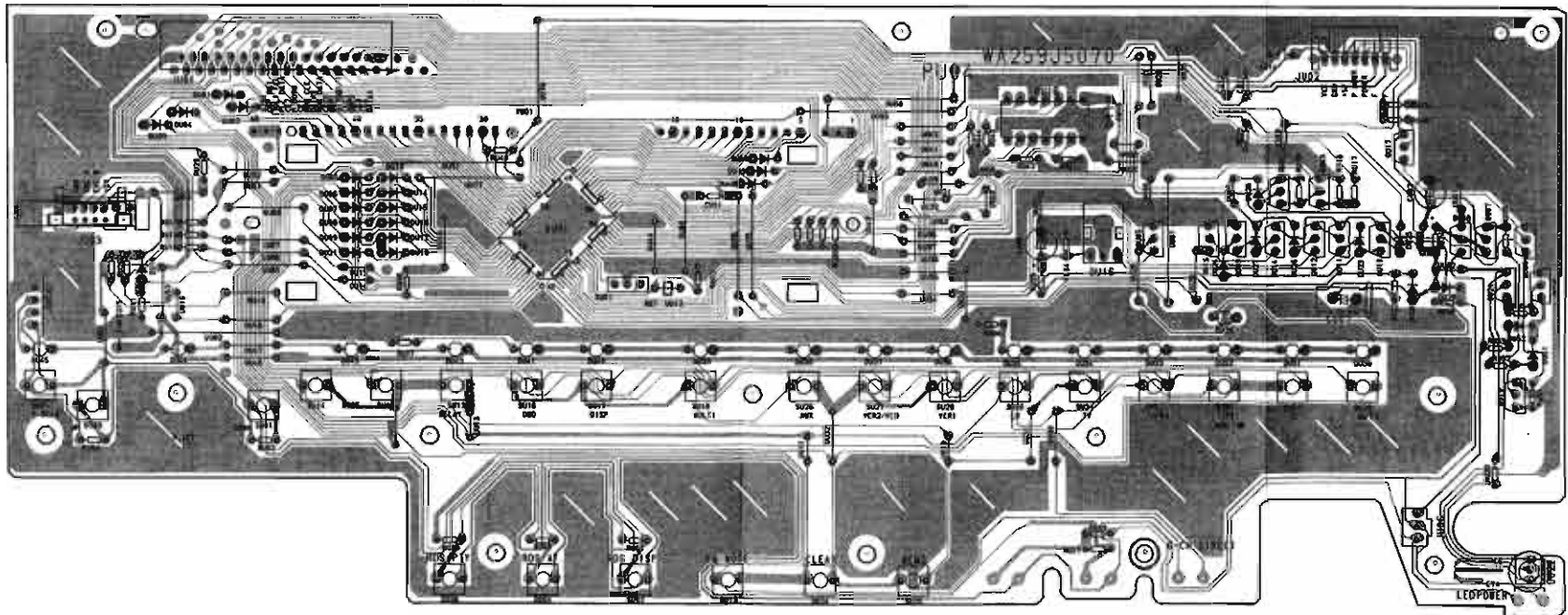
P.C. BOARD (5)

PU04-Front P.C. Board , AVR70 BK IB Only

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PU04-Front P.C. Board , AVR70MK II BK /AVR70 IB [MOMS]



A

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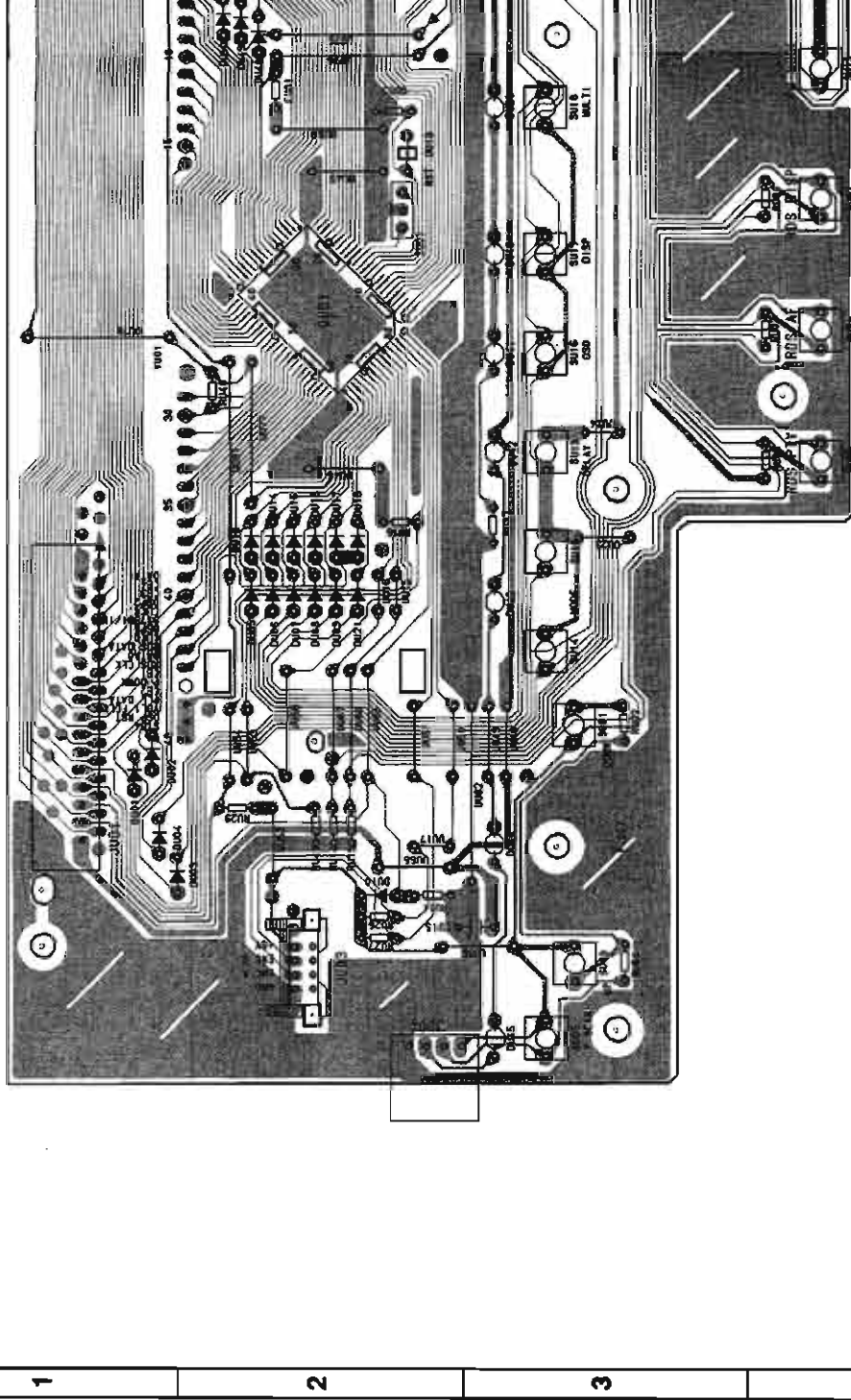
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D

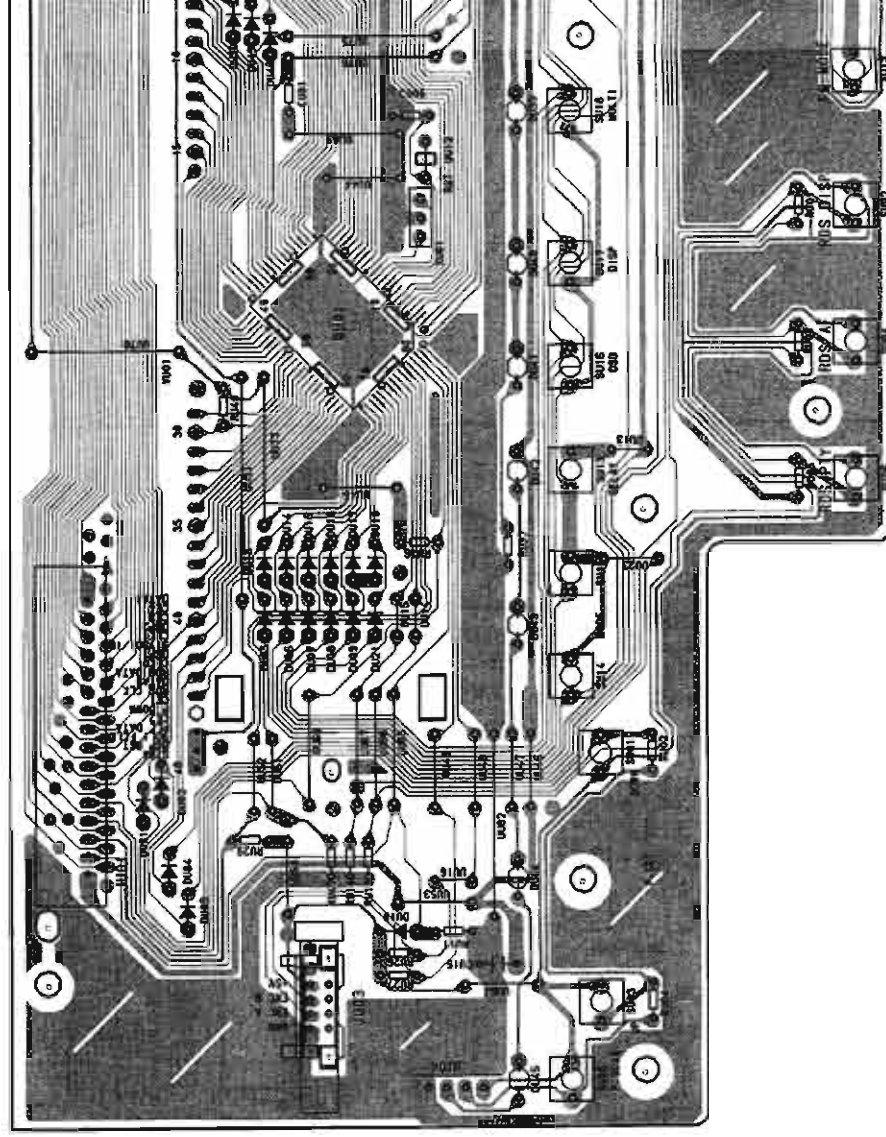
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P.C. BOARD (5)

PU04-Front P.C. Board , AVR70 BK IB Only

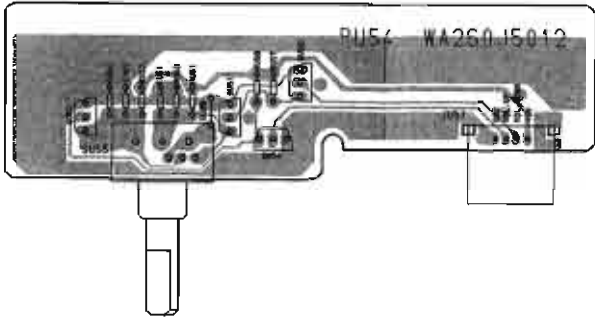


PU04-Front P.C. Board , AVR70MK II BK /AVR70 IB [MOMS]

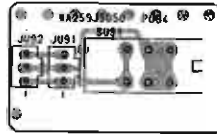


P.C. BOARD (6)

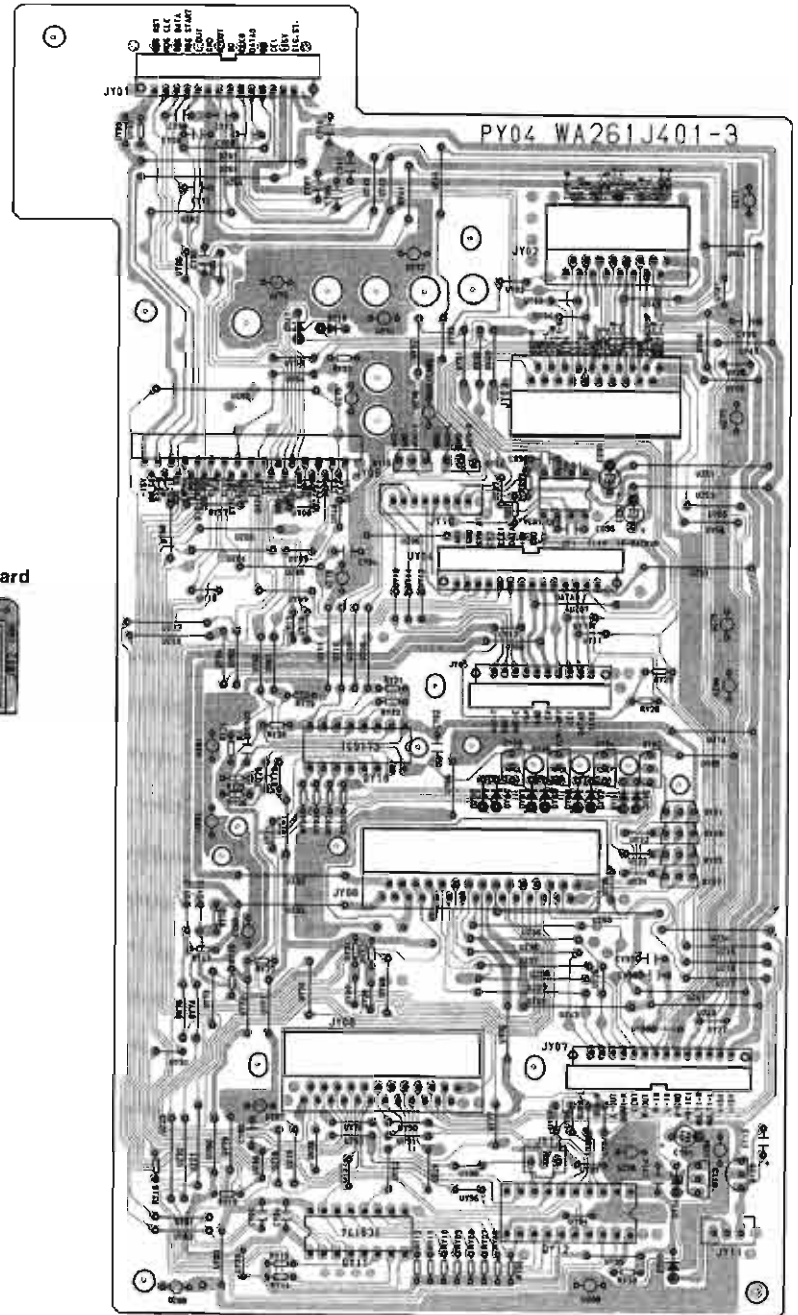
PU54-Master Vol P.C. Board



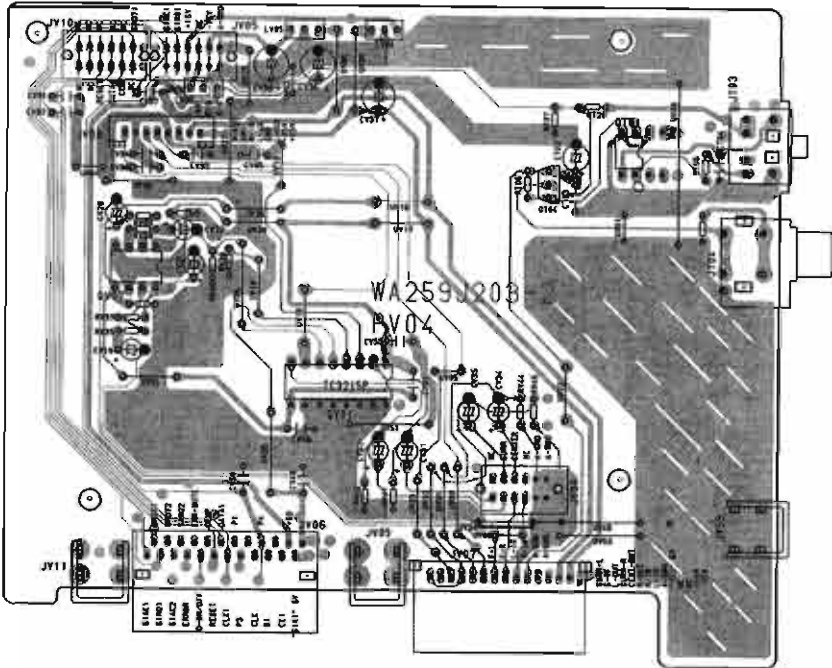
PU94-Power SW P.C. Board
AVR70MK II BK /AVR70 IB [MOMS]



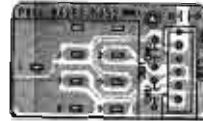
PY04-Connect P.C. Board



PV04-Remote Out P.C. Board



PW04-H.P. P.C. Board



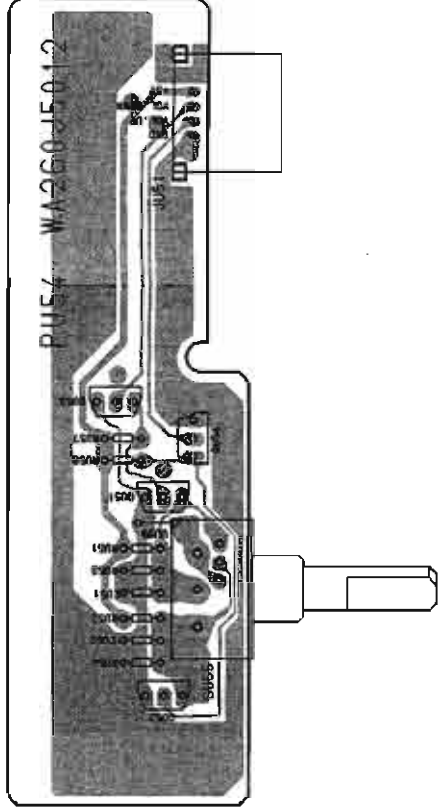
A B C D E

P.C. BOARD (6)

1

PU94-Power SW P.C. Board
AVR70MK II BK /AVR70 BE

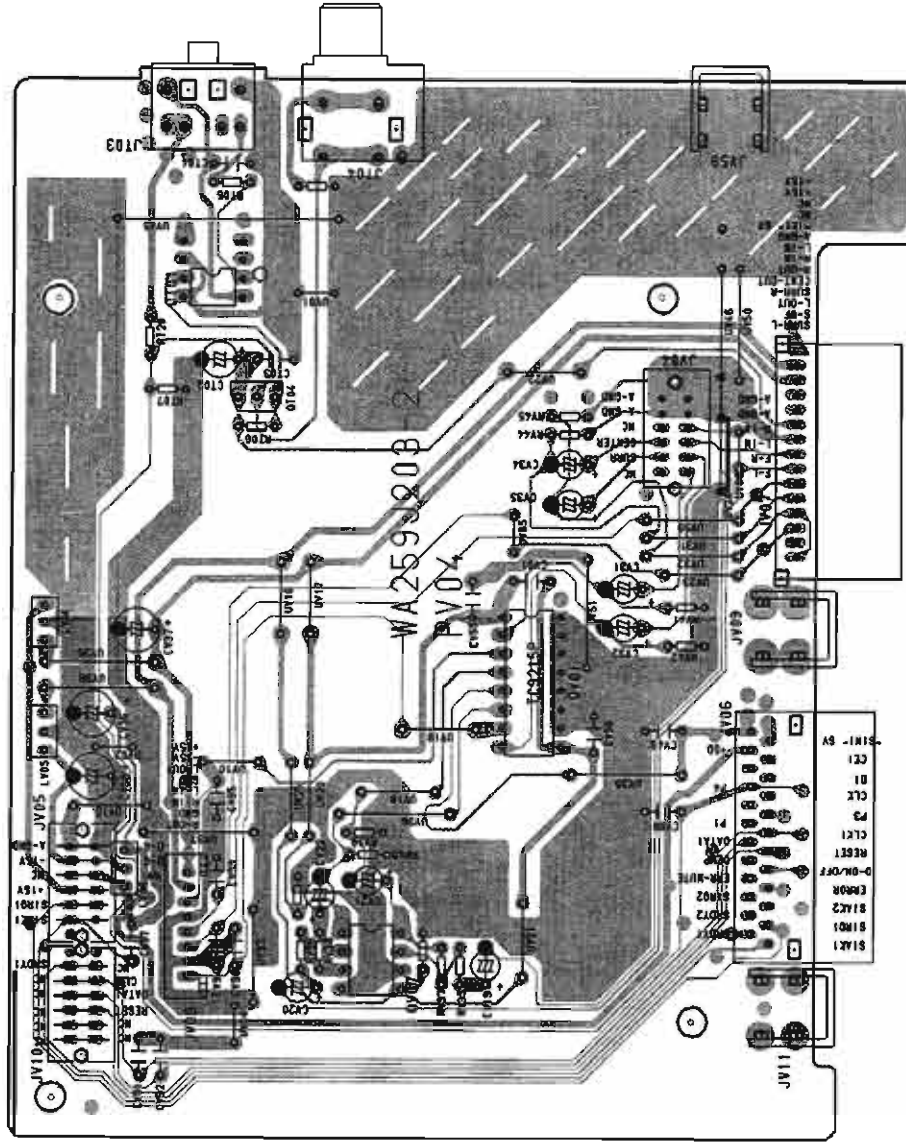
PU54-Master Vol P.C. Board



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PV04-Remote Out P.C. Board



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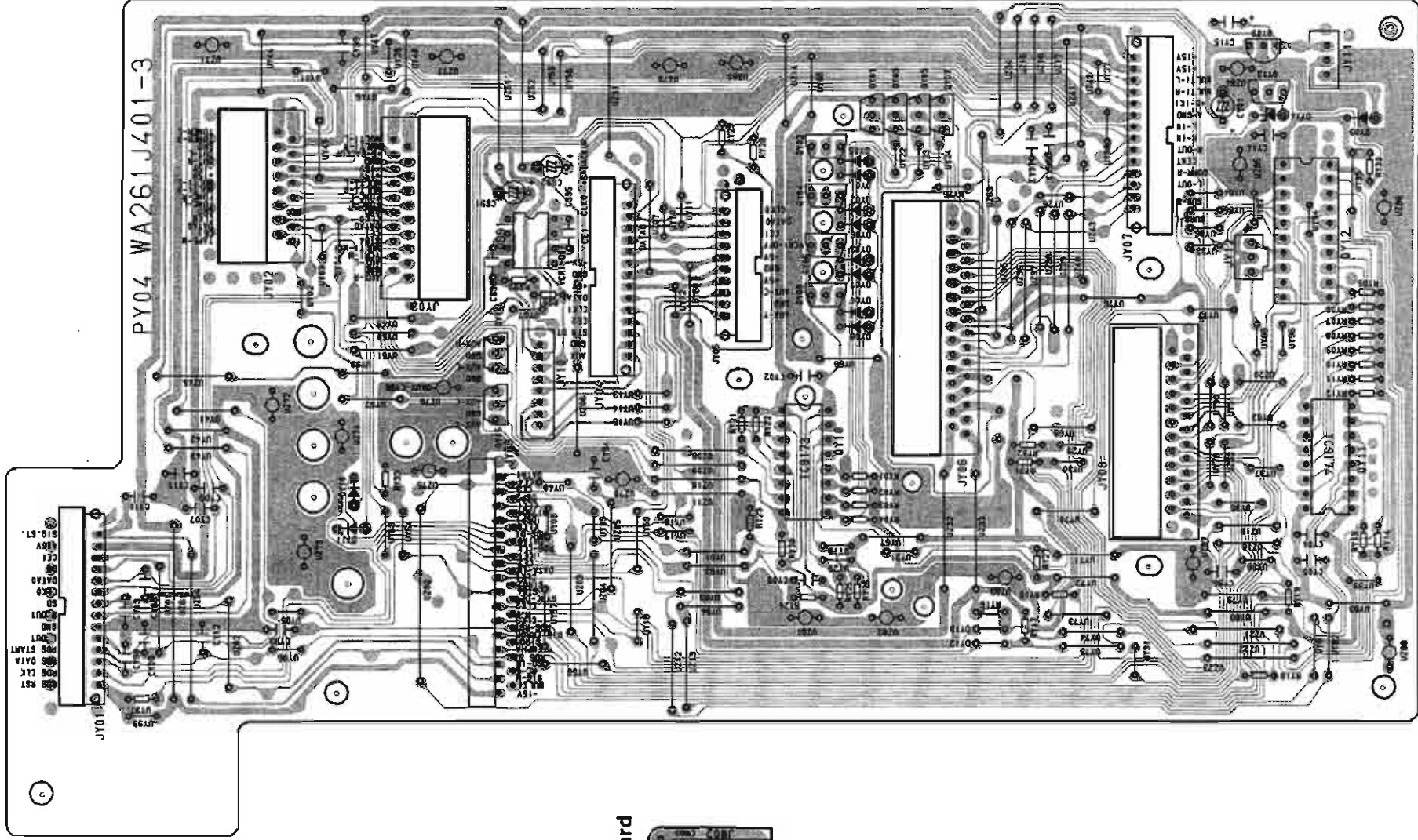
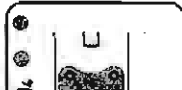
PW04



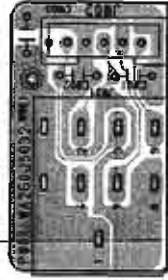
PY04-Connect P.C. Board

Board

RR70 IB [MOMS]

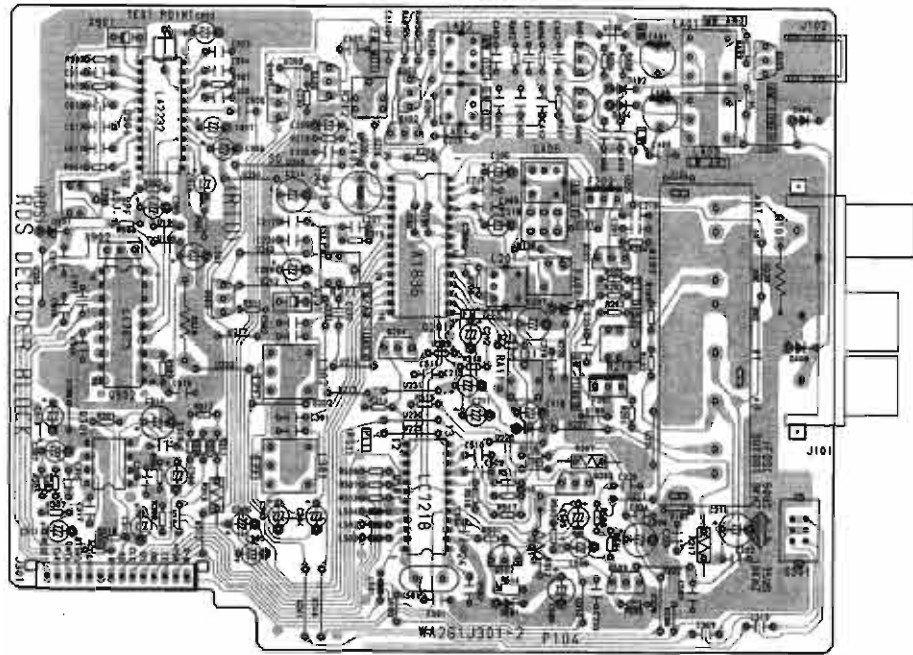


PW04-H.P. P.C. Board

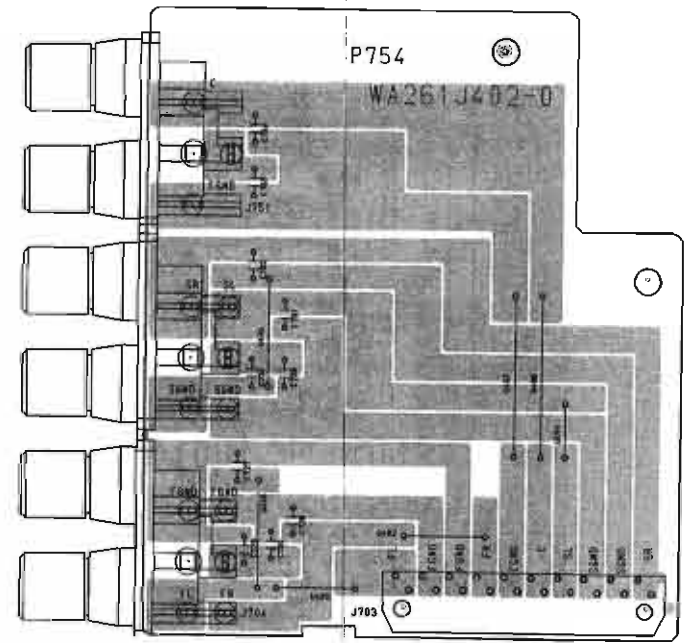


P.C. BOARD (7)

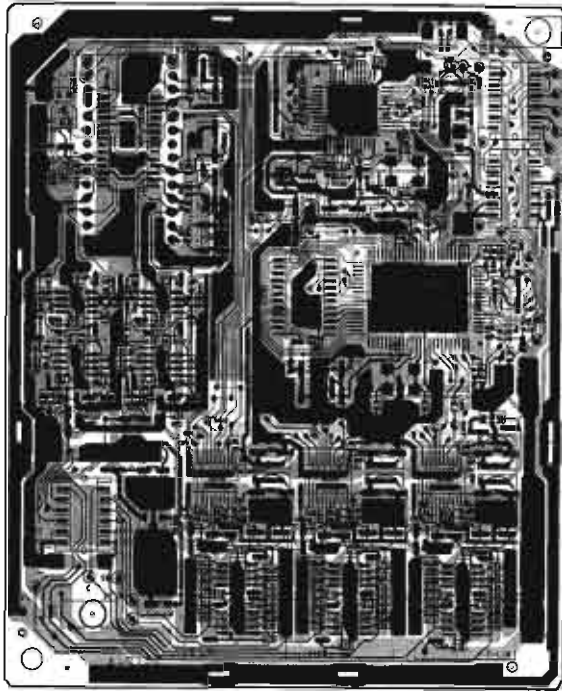
P104-Tuner P.C. Board



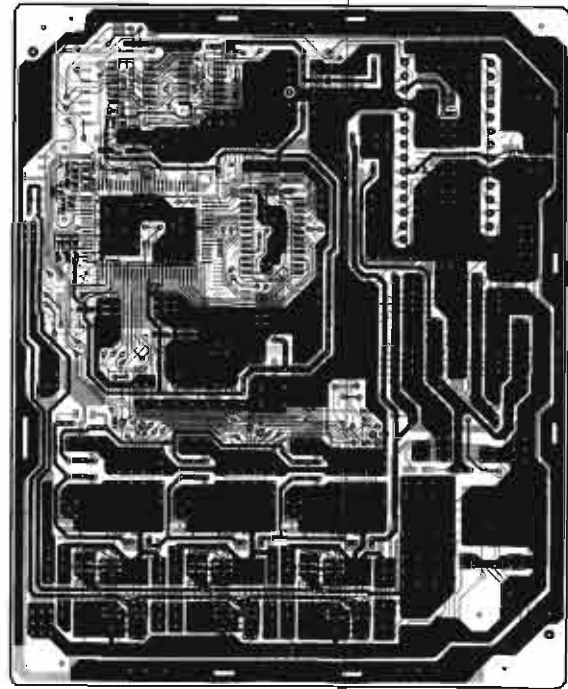
P754-SPK Terminal P.C. Board



P604-THX Pro-Logic DSP P.C. Board



P604-THX Pro-Logic DSP P.C. Board



	A	B	C	D	E	F	G	H	I	J
1										
2										
3										
4										
5										
6										
7										

A

B

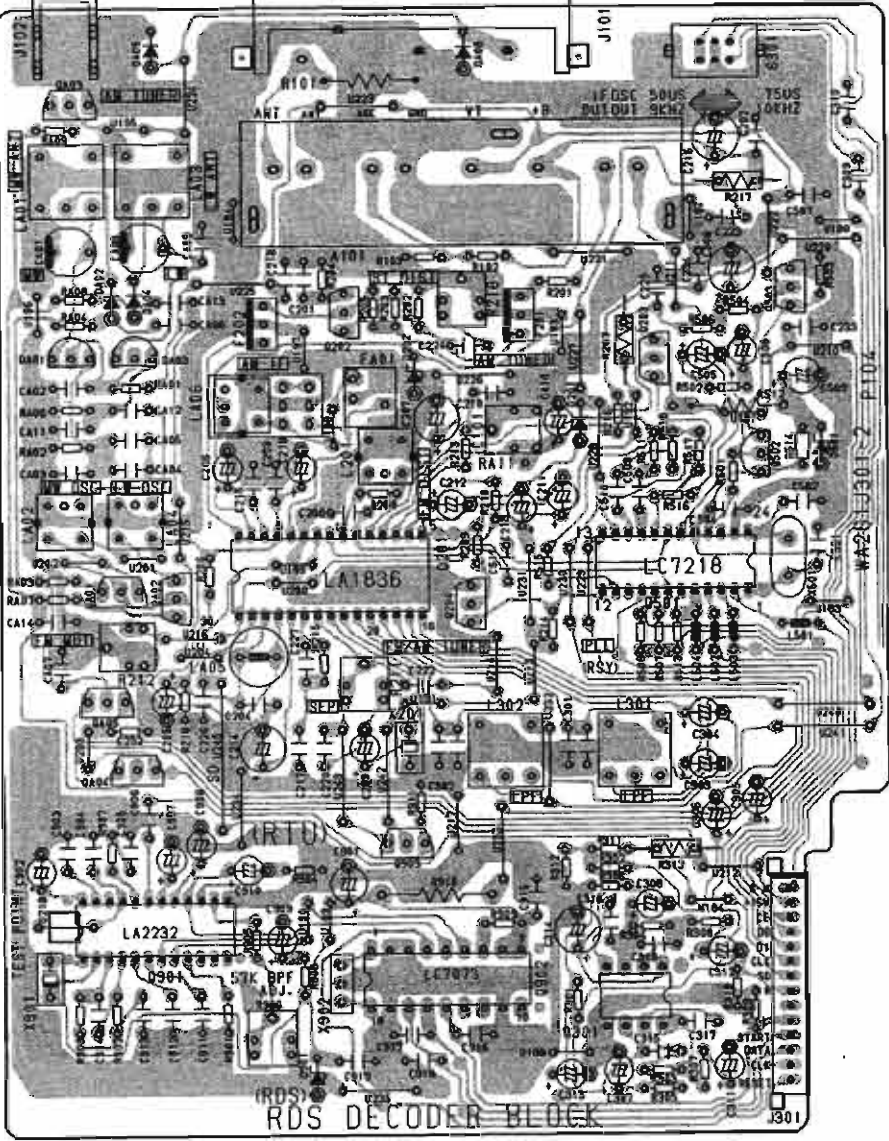
C

D

E

P.C. BOARD (7)

P104-Tuner P.C. Board



1

2

3

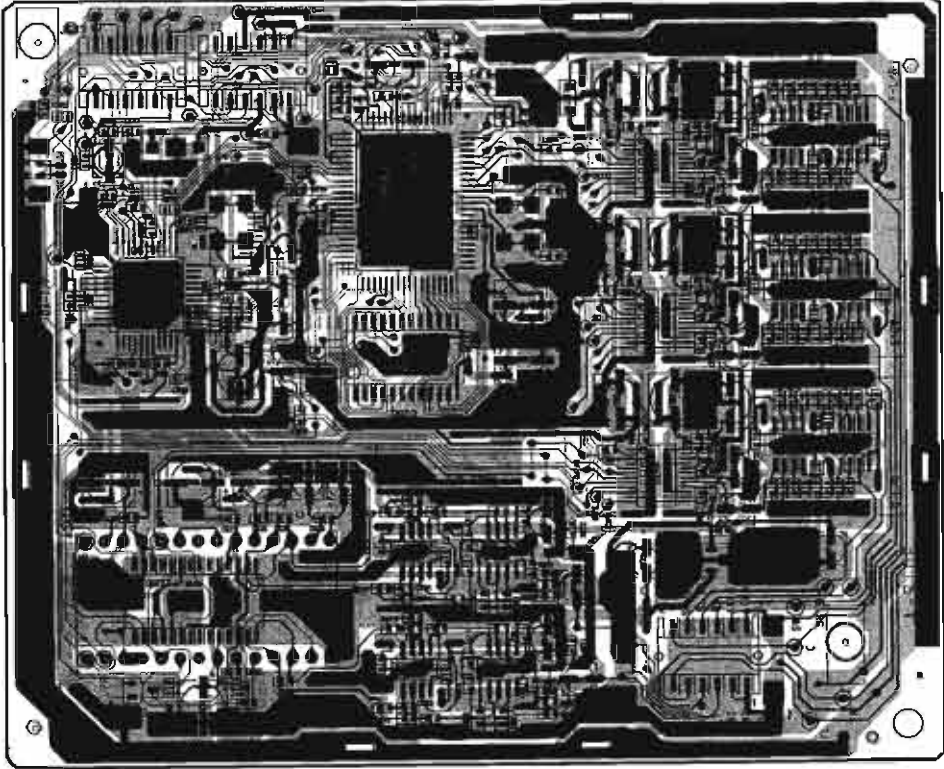
4

5

6

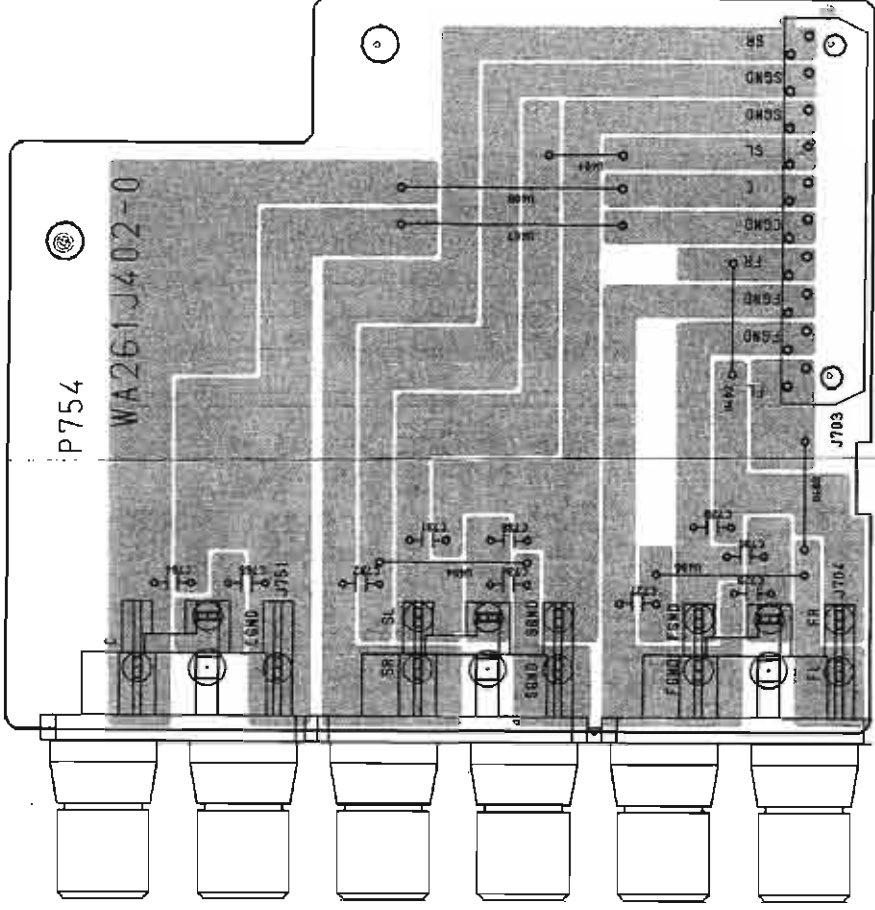
7

P604-THX Pro-Logic DSP P.C. Board

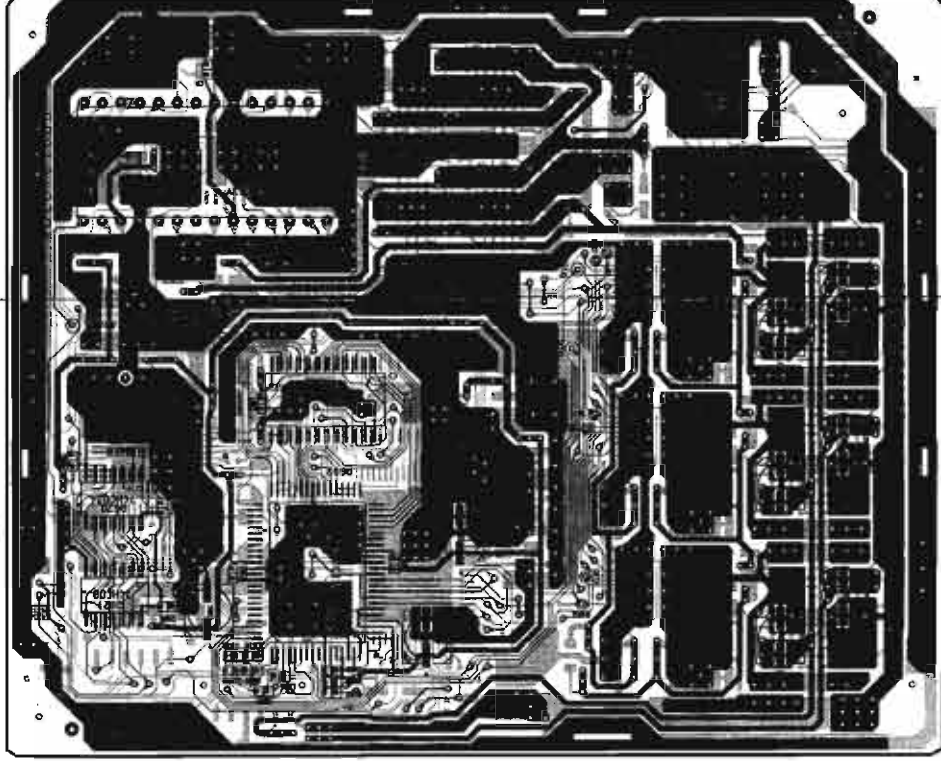


F G H J

P754-SPK Terminal P.C. Board

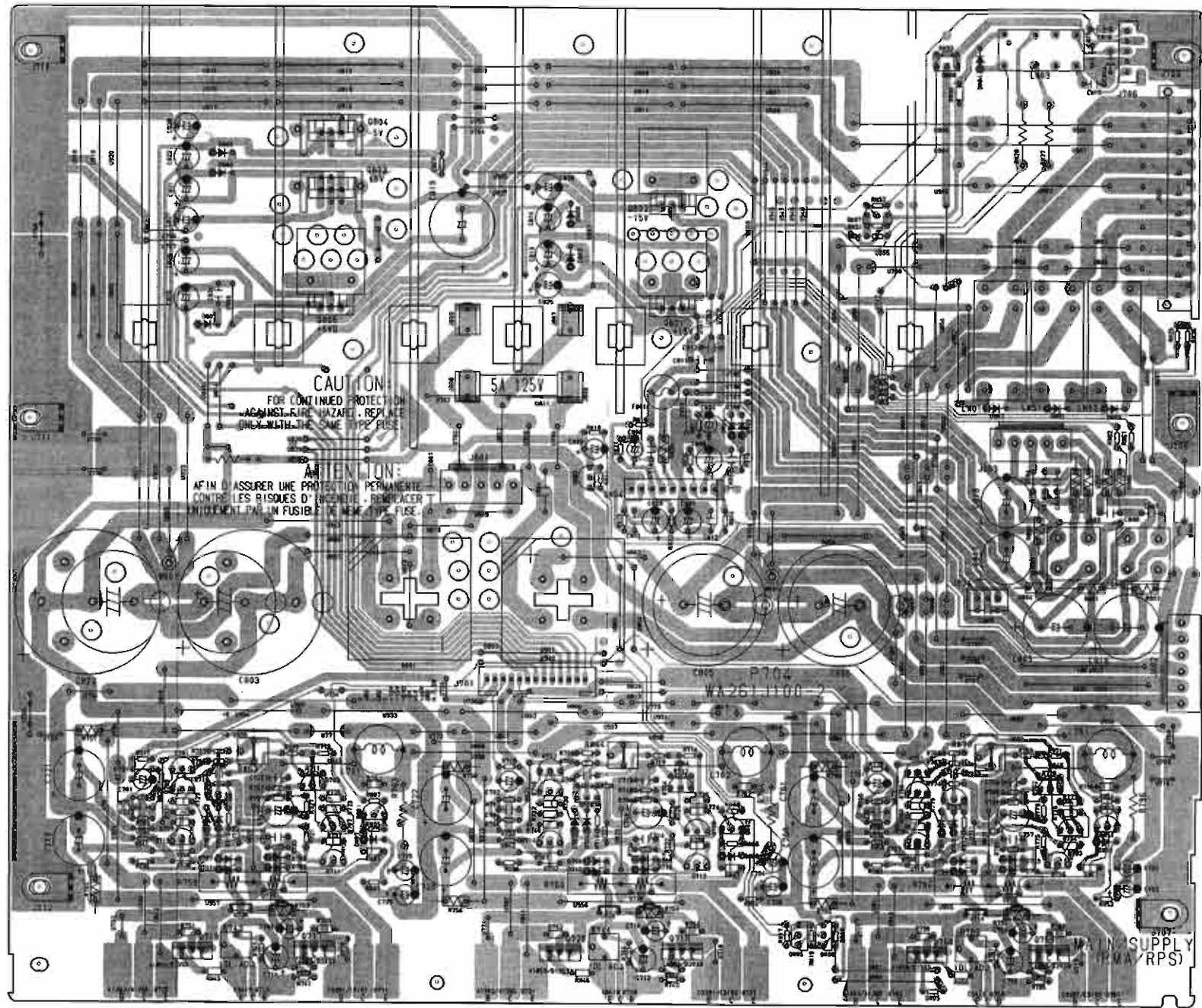


P604-THX Pro-Logic DSP P.C. Board



P.C. BOARD (8)

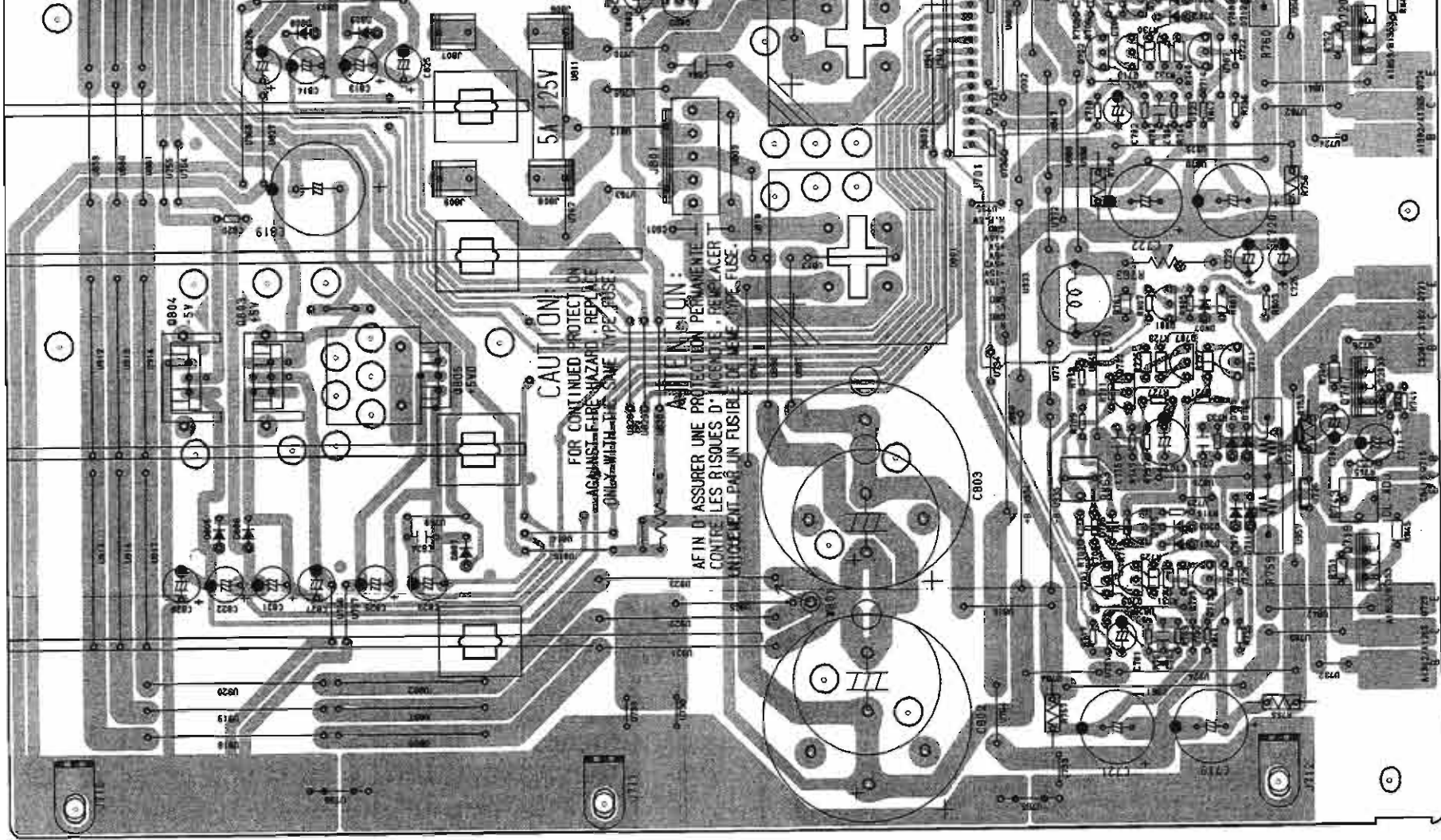
P704-Main Amp P.C. Board



A B C D E

P.C. BOARD (8)

P704-Main Amp P.C. Board



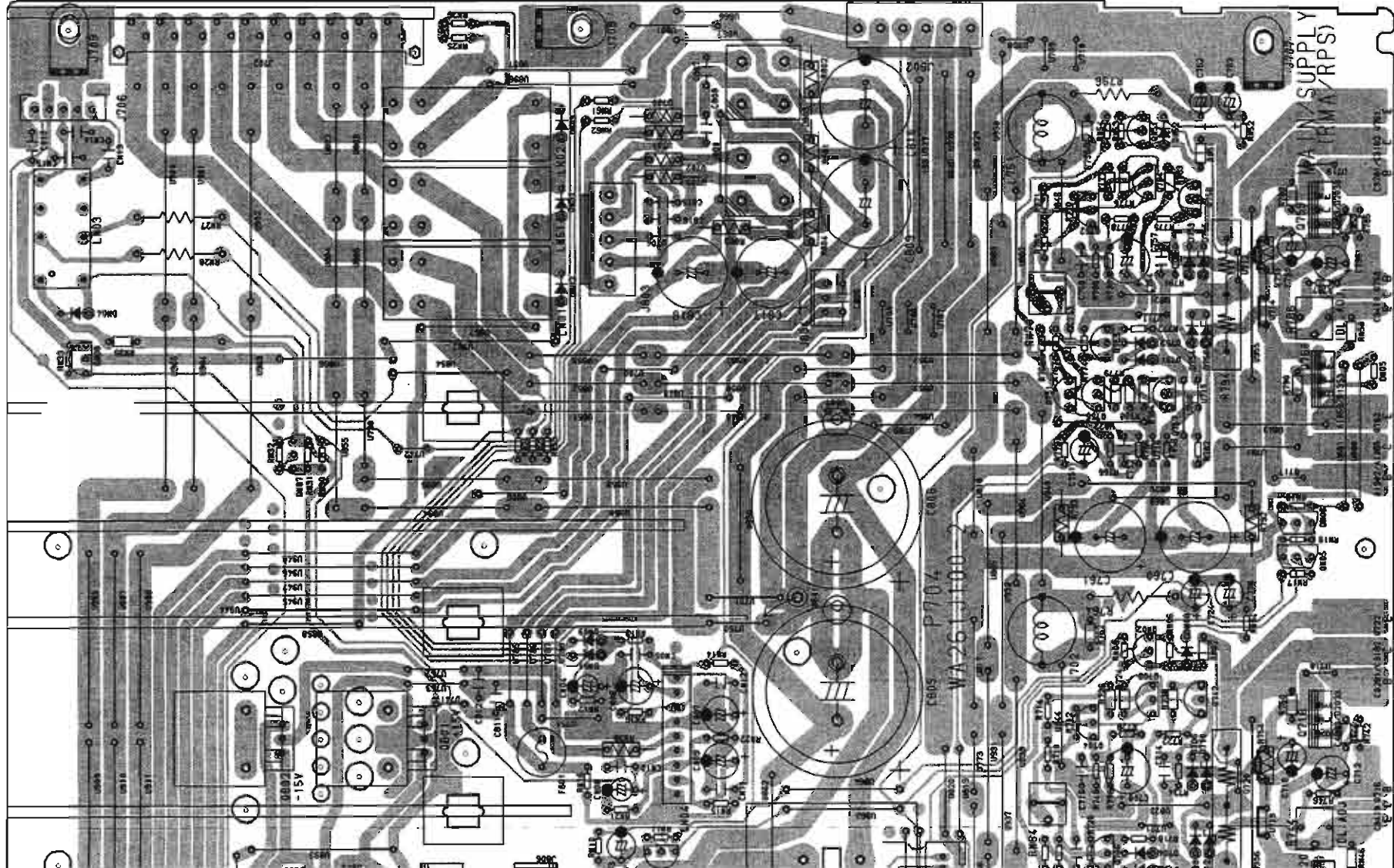
1 2 3 4 5 6 7

J

H

G

F



ELECTRICAL PARTS LIST

Ref. No.	Part. No.	Description	Ref. No.	Part. No.	Description
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PB04-BACK-UP P.C. BOARD

Ref. No.	Part. No.	Description
CB01	EA47703510	CAPACITORS
CB02	EA10606310	ELECT 470µF 35V
CB03	EA47603510	ELECT 10µF 63V
CB05	EA47705010	ELECT 47µF 35V
CB06	EA47603510	ELECT 470µF 50V
CB07	DK18103310	ELECT 47µF 35V
CB08	DK18103310	CERAMIC 0.01µF +80% -20%
CB09	DK17103840	CERAMIC 0.01µF +80% -20%
CB10	EA10606310	CERAMIC 0.01µF ±20%
		ELECT 10µF 63V
RB01	GG05100140	RESISTORS
RB03	GA05471010	1/4W 10 Ω ±5%
RB04	GD05101160	1W 470 Ω ±5%
RB05	GD05101160	1/6W 100 Ω ±5%
RB07	RC10225820	1/6W 100 Ω ±5%
RB08	GD05103160	1/2W 2.2M Ω ±10% BK
		1/6W 10K Ω ±5%

INTEGRATED CIRCUITS

QB01	HC38905320	IC PQ05RR1 Voltage Regulator
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TRANSISTOR

QB02	HT420331E0	2SD2033 (E)
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DIODES

DB01	HD20002710	1D3 1A/200V
DB02	HD20002710	1D3 1A/200V
DB03	HD20002710	1D3 1A/200V
DB04	HD20002710	1D3 1A/200V
DB05	HD33301000	ZENER MTZJ33D
DB06	HD30821000	ZENER NTJ8.2C
DB07	HD20002710	1D3 1A/200V
DB08	HD20002710	1D3 1A/200V

MISCELLANEOUS

FB01	FS10400650	FUSE S506 4A 250V IB
FB02	FS108000540	FUSE S506 8A 125V IB
FB03	FS20250200	FUSE TR5 T2.5A 250V IB
JB01	YJ08000580	FUSE TR5 T2.5A 250V IB
JB01	YJ08000590	JACK, FUSE CLIP IB [MOMS]
JB01	YJ08000170	JACK, FUSE CLIP IB (AVR70)
JB01	YJ08000590	JACK, FUSE CLIP BK
JB02	YJ08000580	JACK, FUSE CLIP IB [MOMS]
JB02	YJ08000170	JACK, FUSE CLIP IB (AVR70)
JB03	YJ04002080	JACK, FUSE CLIP BK
JB04	YJ04002040	JACK, AC OUTLET 2P IB
JB04	YP06006670	JACK, AC OUTLET 2P BK
JB05	YP04000760	PLUG, 7P
JB06	YP04000760	PLUG, 2P
JB07	YL01010240	TERMINAL, GND
JB09	YP06003830	PLUG, 3P
JB10	YP06006930	PLUG, 3P (AVR70MK II)
LB01	TS14823240	POWER TRANSF. IB
LB01	TS14823230	POWER TRANSF. BK
LB02	LY10240240	RELAY, VS24MB-NR

PE04-ELE-VOL P.C. BOARD

Ref. No.	Part. No.	Description
CE01	OA10601620	CAPACITORS
CE02	OA10601620	ELECT 10µF 16V
CE03	EJ47502510	ELECT 10µF 16V
CE04	EJ47502510	ELECT 4.7µF 25V
CE07	OA47505020	ELECT 4.7µF 25V
CE08	OA47505020	ELECT 4.7µF 50V
CE09	EJ47502510	ELECT 4.7µF 50V
CE10	EJ47502510	ELECT 4.7µF 25V
CE13	OA47505020	ELECT 4.7µF 50V
CE14	OA47505020	ELECT 4.7µF 50V
CE15	EJ47502510	ELECT 4.7µF 25V
CE16	EJ47502510	ELECT 4.7µF 25V
CE19	OA47505020	ELECT 4.7µF 50V
CE20	OA47505020	ELECT 4.7µF 50V
CE21	EJ47502510	ELECT 4.7µF 25V
CE22	EJ47502510	ELECT 4.7µF 25V
CE25	OA47505020	ELECT 4.7µF 50V
CE26	OA47505020	ELECT 4.7µF 50V
CE27	EJ47502510	ELECT 4.7µF 25V
CE28	EJ47502510	ELECT 4.7µF 25V
CE31	OA10601620	ELECT 10µF 16V
CE32	OA10601620	ELECT 10µF 16V
CE33	EJ47502510	ELECT 4.7µF 25V
CE34	EJ47502510	ELECT 4.7µF 25V
CE35	DF15104350	FILM 0.1µF ±5%
CE36	DF15104350	FILM 0.1µF ±5%
CE37	DF15104350	FILM 0.1µF ±5%
CE38	DF15104350	FILM 0.1µF ±5%
CE41	OA10601620	ELECT 10µF 16V
CE42	OA10601620	ELECT 10µF 16V
CE43	EJ10601610	ELECT 10µF 16V
CE44	EJ10601610	ELECT 10µF 16V
CV53	DF15182350	FILM 1800PF ±5%
CV54	DF15182350	FILM 1800PF ±5%
CV59	DF15472350	FILM 4700PF ±5%
CV60	DF15472350	FILM 4700PF ±5%
CV65	DK16271300	CERAMIC 270PF ±10%
CV66	DK16271300	CERAMIC 270PF ±10%
CV71	EJ10601610	ELECT 10µF 16V
CV72	EJ10601610	ELECT 10µF 16V
CV75	DK16471300	CERAMIC 470PF ±10% IB
CV76	DK16471300	CERAMIC 470PF ±10% IB
CV77	DK16221300	CERAMIC 220PF ±10% IB
CV78	DK16221300	CERAMIC 220PF ±10% IB
CV79	DK16102300	CERAMIC 1000PF ±10% IB

RESISTORS

RE01	GD05104160	1/6W 100K Ω ±5%
RE02	GD05104160	1/6W 100K Ω ±5%
RE03	GD05104160	1/6W 100K Ω ±5%
RE04	GD05104160	1/6W 100K Ω ±5%
RE07	GD05332160	1/6W 3.3K Ω ±5%
RE08	GD05332160	1/6W 3.3K Ω ±5%
RE09	GD05332160	1/6W 3.3K Ω ±5%
RE10	GD05332160	1/6W 3.3K Ω ±5%
RE13	GD05152160	1/6W 1.5K Ω ±5%
RE14	GD05152160	1/6W 1.5K Ω ±5%
RE15	GD05152160	1/6W 1.5K Ω ±5%
RE16	GD05152160	1/6W 1.5K Ω ±5%
RE19	GD05104160	1/6W 100K Ω ±5%
RE20	GD05104160	1/6W 100K Ω ±5%
RE21	GD05104160	1/6W 100K Ω ±5%
RE22	GD05104160	1/6W 100K Ω ±5%
RE25	GD05331160	1/6W 330 Ω ±5%
RE26	GD05331160	1/6W 330 Ω ±5%

Ref. No.	Part. No.	Description	Ref. No.	Part. No.	Description
RE27	GD05331160	1/6W 330 Ω ±5%	QV58	HC10008090	INTEGRATED CIRCUITS
RE28	GD05331160	1/6W 330 Ω ±5%	QE01	HC10008090	IC NJM4558DD Dual OP AMP
RE31	GD05152160	1/6W 1.5K Ω ±5%	QE02	HC10008090	IC NJM4558DD Dual OP AMP
RE32	GD05152160	1/6W 1.5K Ω ±5%	QE04	HC10304050	IC TC9213P Electric Volume (2ch)
RE33	GD05152160	1/6W 1.5K Ω ±5%	QE05	HC10304050	IC TC9213P Electric Volume (2ch)
RE34	GD05152160	1/6W 1.5K Ω ±5%	QE07	HC10008090	IC NJM4558DD Dual OP AMP
RE37	GD05334160	1/6W 330K Ω ±5%	QE08	HC10008090	IC NJM4558DD Dual OP AMP
RE38	GD05334160	1/6W 330K Ω ±5%	QE09	HC10008090	IC NJM4558DD Dual OP AMP
RE39	GD05334160	1/6W 330K Ω ±5%	QE10	HC10008090	IC NJM4558DD Dual OP AMP
RE40	GD05334160	1/6W 330K Ω ±5%	QE11	HC10008090	IC NJM4558DD Dual OP AMP
RE43	GD05152160	1/6W 1.5K Ω ±5%	QE12	HC10008090	IC NJM4558DD Dual OP AMP
RE44	GD05152160	1/6W 1.5K Ω ±5%	QV58	HC10008090	IC NJM4558DD Dual OP AMP
RE45	GD05152160	1/6W 1.5K Ω ±5%			
RE46	GD05152160	1/6W 1.5K Ω ±5%			
RE49	GD05104160	1/6W 100K Ω ±5%	QV51	HT328782A0	TRANSISTORS
RE50	GD05104160	1/6W 100K Ω ±5%	QV52	HT328782A0	2SC2878 (A, B)
RE51	GD05104160	1/6W 100K Ω ±5%	QV53	HT328782A0	2SC2878 (A, B)
RE52	GD05104160	1/6W 100K Ω ±5%	QV54	HT328782A0	2SC2878 (A, B)
RE55	GD05152160	1/6W 1.5K Ω ±5%	QV55	HT328782A0	2SC2878 (A, B)
RE56	GD05152160	1/6W 1.5K Ω ±5%	QV60	HT328782A0	2SC2878 (A, B)
RE57	GD05152160	1/6W 1.5K Ω ±5%			
RE58	GD05152160	1/6W 1.5K Ω ±5%			
RE61	GD05152160	1/6W 1.5K Ω ±5%	LV01	LC14733800	COILS
RE62	GD05152160	1/6W 1.5K Ω ±5%	LV02	LC14733800	CHOKO 47μH (B) CHOKO 47μH (B)
RE63	GD05152160	1/6W 1.5K Ω ±5%			
RE64	GD05152160	1/6W 1.5K Ω ±5%			
RE65	GD05103160	1/6W 10K Ω ±5%	JV52	YT02030420	MISCELLANEOUS
RE66	GD05103160	1/6W 10K Ω ±5%	JV52	YT02030380	TERMINAL, 3P RCA PIN JACK (B)
RE67	GD05103160	1/6W 10K Ω ±5%	JV53	YT02021400	TERMINAL, 3P RCA PIN JACK (BK)
RE68	GD05103160	1/6W 10K Ω ±5%	JV53	YT02021070	TERMINAL, 2P RCA PIN JACK (B)
RE69	GD05183160	1/6W 18K Ω ±5%	JV54	YT02011020	TERMINAL, 2P RCA PIN JACK (BK)
RE70	GD05562160	1/6W 5.6K Ω ±5%	JV54	YT02010780	TERMINAL, 1P RCA PIN JACK (B)
RE71	GD05183160	1/6W 18K Ω ±5%	JV55	YJ06030600	TERMINAL, 1P RCA PIN JACK (BK)
RE72	GD05562160	1/6W 5.6K Ω ±5%	JV55	YJ06030600	JACK, 30P
RE73	GD05103160	1/6W 10K Ω ±5%	JV56	YP06004570	PLUG, 13P
RE74	GD05103160	1/6W 10K Ω ±5%	JV57	YP06006990	PLUG, 3P
RE79	GD05104160	1/6W 100K Ω ±5%			
RE80	GD05104160	1/6W 100K Ω ±5%			
RE83	GD05105160	1/6W 1M Ω ±5%			
RE84	GD05105160	1/6W 1M Ω ±5%			
RE85	GD05105160	1/6W 1M Ω ±5%			
RE86	GD05105160	1/6W 1M Ω ±5%			
RV53	GD05392160	1/6W 3.9K Ω ±5%	CF01	EJ10601610	CAPACITORS
RV54	GD05392160	1/6W 3.9K Ω ±5%	CF02	EJ10601610	ELECT 10μF 16V
RV59	GD05392160	1/6W 3.9K Ω ±5%	CF05	DK16222300	ELECT 10μF 16V
RV60	GD05392160	1/6W 3.9K Ω ±5%	CF09	DK16222300	CERAMIC 2200PF ±10%
RV65	GD05392160	1/6W 3.9K Ω ±5%	CF08	DD15101300	CERAMIC 2200PF ±10%
RV66	GD05392160	1/6W 3.9K Ω ±5%	CF09	DD15101300	CERAMIC 100PF ±5%
RV69	GD05102160	1/6W 1K Ω ±5%	CF10	DD15101300	CERAMIC 100PF ±5%
RV70	GD05102160	1/6W 1K Ω ±5%	CF13	DF15153350	FILM 0.015μF ±5%
RV71	GD05102160	1/6W 1K Ω ±5%	CF14	DF15153350	FILM 0.015μF ±5%
RV72	GD05102160	1/6W 1K Ω ±5%	CF17	DF15153350	FILM 0.015μF ±5%
RV73	GD05471160	1/6W 470 Ω ±5%	CF18	DF15153350	FILM 0.015μF ±5%
RV75	GD05473160	1/6W 47K Ω ±5%	CF21	EJ47601610	FILM 47μF 16V
RV76	GD05473160	1/6W 47K Ω ±5%	CF22	EJ47601610	ELECT 47μF 16V
RV77	GD05473160	1/6W 47K Ω ±5%	CF25	OA22601620	ELECT 22μF 16V
RV78	GD05473160	1/6W 47K Ω ±5%	CF26	OA22601620	ELECT 22μF 16V
RV80	GD05473160	1/6W 47K Ω ±5%	CF29	DD15470300	CERAMIC 47PF ±5%
RV81	GD05103160	1/6W 10K Ω ±5%	CF30	DD15470300	CERAMIC 47PF ±5%
RV82	GD05103160	1/6W 10K Ω ±5%	CF40	OA10701620	ELECT 100μF 16V
RV83	GD05103160	1/6W 10K Ω ±5%	CF41	OA10701620	ELECT 100μF 16V
RV84	GD05103160	1/6W 10K Ω ±5%	CF43	DA17223110	CERAMIC 0.022μF ±20%
RV85	GD05103160	1/6W 10K Ω ±5%	CF44	DA17223110	CERAMIC 0.022μF ±20%
RV87	GD05103160	1/6W 10K Ω ±5%	CF47	DA17223110	CERAMIC 0.022μF ±20%
RV88	GD05471160	1/6W 470 Ω ±5%	CF48	DA17223110	CERAMIC 0.022μF ±20%

PF04-TONE P.C. BOARD

Ref. No. Part. No. Description

DL07	HD20002000	1SS176
DL08	HD20002000	1SS176
DL09	HD20002000	1SS176
DL10	HD20002000	1SS176
DX61	HD20002000	1SS176
LX51	LC12233800	COILS
LX52	LC15623800	CHOKE, 22 μ H
		CHOKE, 5.6 μ H
JL01	YT02041130	MISCELLANEOUS
JL02	YT02030370	TERMINAL, 4P RCA PIN JACK
JL03	YP06020640	TERMINAL, 3P RCA PIN JACK
LX53	FM12223010	PLUG, 14P
XX51	JX14001260	EMI FILTER
XX52	JX17001260	CRYSTAL, 14.31818MHz
		CRYSTAL, 17.7MHz (B)

PL54-S-VIDEO P.C. BOARD

Ref. No.	Part. No.	Description
CL52	EJ10601610	CAPACITORS
CL53	EJ10601610	ELECT 10 μ F 16V
CL57	EJ10601610	ELECT 10 μ F 16V
CL58	EJ10601610	ELECT 10 μ F 16V
CL59	EJ10601610	ELECT 10 μ F 16V
CL60	EJ10601610	ELECT 10 μ F 16V
CL67	DD38104010	CERAMIC 0.1 μ F +80% -20%
CL71	EJ10601610	ELECT 10 μ F 16V
CL76	DK18103310	CERAMIC 0.01 μ F +80% -20%
CL78	EJ10601610	ELECT 10 μ F 16V
RL52	GD05100160	RESISTORS
RL53	GD05100160	1/6W 10 Ω \pm 5%
RL57	GD05820160	1/6W 10 Ω \pm 5%
RL58	GD05820160	1/6W 82 Ω \pm 5%
RL59	GD05820160	1/6W 82 Ω \pm 5%
RL60	GD05820160	1/6W 82 Ω \pm 5%
RL63	GD05750160	1/6W 75 Ω \pm 5%
RL64	GD05750160	1/6W 75 Ω \pm 5%
RL67	GD05750160	1/6W 75 Ω \pm 5%
RL68	GD05750160	1/6W 75 Ω \pm 5%
RL69	GD05104160	1/6W 100K Ω \pm 5%
RL70	GD05104160	1/6W 100K Ω \pm 5%
RL71	GD05104160	1/6W 100K Ω \pm 5%
RL72	GD05104160	1/6W 100K Ω \pm 5%
RL75	GD05103160	1/6W 10K Ω \pm 5%

Ref. No.	Part. No.	Description
QL55	HC10046170	INTEGRATED CIRCUITS
QL56	HC10046170	IC MC14576 Dual Video AMP
QL58	HC10275030	IC MC14576 Dual Video AMP
		IC LC7824 Analogue Switch

MISCELLANEOUS

JL52	YT02030350	TERMINAL, 3P
JL53	YT02011010	TERMINAL, 1P
JL54	YP06020600	PLUG, 10P
JL55	YL01010140	TERMINAL, GND

Ref. No. Part. No. Description

PL94-AUX IN P.C. BOARD

Ref. No.	Part. No.	Description
CL91	EJ10601610	CAPACITORS
CL92	EJ22601610	ELECT 10 μ F 16V
CL95	DD38104010	ELECT 22 μ F 16V
CL96	DD38104010	CERAMIC 0.1 μ F +80% -20%
CL97	DK16221300	CERAMIC 0.1 μ F +80% -20%
CL98	DK16102300	CERAMIC 220PF \pm 10% (B) (MOMS)
CL99	DK16221300	CERAMIC 1000PF \pm 10% (B) (AVR70)
CL98	DK16221300	CERAMIC 220PF \pm 10% (B) (MOMS)
CL98	DK16102300	CERAMIC 1000PF \pm 10% (B) (AVR70)

Ref. No.	Part. No.	Description
RL91	GD05100160	RESISTORS
RL92	GD05750160	1/6W 10 Ω \pm 5%
RL97	GD05102160	1/6W 75 Ω \pm 5%
RL98	GD05102160	1/6W 1K Ω \pm 5% (B) (MOMS)
RU06	GD05332160	1/6W 1K Ω \pm 5% (B) (MOMS)
RU08	GD05682160	1/6W 3.3K Ω \pm 5%
RU10	GD05103160	1/6W 6.8K Ω \pm 5%
RU38	GD05151160	1/6W 10K Ω \pm 5%
		1/6W 150 Ω \pm 5%

Ref. No.	Part. No.	Description
DU46	HI10095320	DIODES
DU47	HI10095320	L.E.D. LT3K44B (GRN)
		L.E.D. LT3K44B (GRN)

MISCELLANEOUS

JL91	YT02030390	TERMINAL, 3P RCA PIN JACK
JL92	YP06007260	PLUG, 8P
JU05	YJ06018040	JACK, 4P
SU07	SP01011280	PUSH SWITCH, TACT
SU09	SP01011280	PUSH SWITCH, TACT
SU11	SP01011280	PUSH SWITCH, TACT
WL01	YB00152110	CONNECTIVE CORD, 1P

PNE-SPK PROTECT P.C. BOARD (AVR70M-K11)

Ref. No.	Part. No.	Description
CN81	EJ10505010	CAPACITORS
CN82	EJ10505010	ELECT 1 μ F 50V
CN83	DD38104010	ELECT 1 μ F 50V
		CERAMIC 0.1 μ F +80% -20%

Ref. No.	Part. No.	Description
RN83	GD05473160	RESISTORS
RN84	GD05473160	1/6W 47K Ω \pm 5%
RN85	GD05104160	1/6W 47K Ω \pm 5%
RN86	GD05103160	1/6W 100K Ω \pm 5%
RN87	GD05473160	1/6W 10K Ω \pm 5%
RN88	GD05473160	1/6W 47K Ω \pm 5%

INTEGRATED CIRCUITS

QN84	HC10042050	IC TA7317P
		Over Load Protector

TRANSISTORS

QN81	BA10007210	DIGITAL DTA114ES
QN82	HT322402A0	2SC2240 (GR, BL)
QN83	HT322402A0	2SC2240 (GR, BL)

DIODES

DN81	HD20002000	1SS176
DN82	HD20002000	1SS176

Ref. No.	Part. No.	Description	Ref. No.	Part. No.	Description
JN81	YJ06019130	MISCELLANEOUS	QP02	HT322402A0	TRANSISTORS
JN82	YP06007130	JACK, 13P PLUG, 3P	QP03	HT322402A0	2SC2240 (GR, BL)
			QP04	HT109702A0	2SC2240 (GR, BL)
					2SA970 (GR, BL)

PP04-SURROUND AMP P.C. BOARD

Ref. No.	Part. No.	Description	Ref. No.	Part. No.	Description
CP01	DK16102300	CAPACITORS	DP01	HD20027010	DIODES
CP02	DK16102300	CERAMIC 1000PF ±10%	DP02	HD20027010	HSS81TD
CP03	EQ10606390	CERAMIC 1000PF ±10%			
CP04	EQ10606390	ELECT 10µF 63V	LP01	ML08010030	COILS
CP05	EA10701610	ELECT 10µF 63V	LP02	ML08010030	AIR, SPK CHOCK
CP06	EA10701610	ELECT 100µF 16V			
CP07	EA10701610	ELECT 100µF 16V			
CP07	DD11100300	CERAMIC 10PF ±0.5PF IB	JP01	YP06006930	MISCELLANEOUS
CP08	DD10030300	CERAMIC 3PF ±0.25PF BK	WP03	YB00170870	PLUG, 3P
CP08	DD11100300	CERAMIC 10PF ±0.5PF IB			
CP09	DD10030300	CERAMIC 3PF ±0.5PF IB			
CP09	DD10030300	CERAMIC 3PF ±0.25PF BK			
CP10	EJ22405010	ELECT 0.22µF 50V			
CP11	EJ22405010	ELECT 0.22µF 50V			
CP12	EJ22405010	ELECT 0.22µF 50V			
CP13	EA10706310	ELECT 100µF 63V			
CP14	EA10606310	ELECT 10µF 63V			
CP15	EA10706310	ELECT 100µF 63V			
CP16	EA10606310	ELECT 10µF 63V			
CP17	EJ22601010	ELECT 22µF 10V			
CP21	DD15470300	CERAMIC 47PF ±5% IB			
CP22	DD15470300	CERAMIC 47PF ±5% IB			

PS04-AUDIO FUNCTION P.C. BOARD

Ref. No.	Part. No.	Description	Ref. No.	Part. No.	Description
CS01	EJ47600610	CAPACITORS	CS19	DD38104010	CERAMIC 0.1µF +80% -20%
CS02	EJ47600610	ELECT 47µF 6.3V	CS21	DD38104010	CERAMIC 0.1µF +80% -20%
CS03	EJ10601610	ELECT 10µF 16V	CS22	DD38104010	CERAMIC 0.1µF +80% -20%
CS04	EJ10601610	ELECT 10µF 16V	CS23	DK16151300	CERAMIC 150PF ±10% IB
CS05	EJ10601610	ELECT 10µF 16V	CS24	DK16151300	CERAMIC 150PF ±10% IB
CS06	EJ10601610	ELECT 10µF 16V	CS25	DK16151300	CERAMIC 150PF ±10% IB
CS09	EA10701610	ELECT 100µF 16V	CS26	DK16151300	CERAMIC 150PF ±10% IB
CS10	EA10701610	ELECT 100µF 16V	CS27	DK16221300	CERAMIC 220PF ±10% IB
CS13	EA10701610	ELECT 100µF 16V	CS28	DK16221300	CERAMIC 220PF ±10% IB
CS14	EA10701610	ELECT 100µF 16V	CS29	DK16151300	CERAMIC 150PF ±10% IB
CS15	EJ47502510	ELECT 4.7µF 25V	CS30	DK16151300	CERAMIC 150PF ±10% IB
CS16	EJ47502510	ELECT 4.7µF 25V	CS31	DK16221300	CERAMIC 220PF ±10% IB
CS17	EJ47502510	ELECT 4.7µF 25V	CS32	DK16221300	CERAMIC 220PF ±10% IB
CS18	EJ47502510	ELECT 4.7µF 25V	CS33	DK16221300	CERAMIC 220PF ±10% IB
CS19	DD38104010	CERAMIC 0.1µF +80% -20%	CS34	DK16221300	CERAMIC 220PF ±10% IB
CS21	DD38104010	CERAMIC 0.1µF +80% -20%	CS35	DK16221300	CERAMIC 220PF ±10% IB
CS22	DD38104010	CERAMIC 0.1µF +80% -20%	CS36	DK16221300	CERAMIC 220PF ±10% IB
CS23	DK16151300	CERAMIC 150PF ±10% IB	CS37	DK16221300	CERAMIC 220PF ±10% IB
CS24	DK16151300	CERAMIC 150PF ±10% IB	CS38	DK16221300	CERAMIC 220PF ±10% IB
CS25	DK16151300	CERAMIC 150PF ±10% IB			
CS26	DK16151300	CERAMIC 150PF ±10% IB			
CS27	DK16221300	CERAMIC 220PF ±10% IB			
CS28	DK16221300	CERAMIC 220PF ±10% IB			
CS29	DK16151300	CERAMIC 150PF ±10% IB			
CS30	DK16151300	CERAMIC 150PF ±10% IB			
CS31	DK16221300	CERAMIC 220PF ±10% IB			
CS32	DK16221300	CERAMIC 220PF ±10% IB			
CS33	DK16221300	CERAMIC 220PF ±10% IB			
CS34	DK16221300	CERAMIC 220PF ±10% IB			
CS35	DK16221300	CERAMIC 220PF ±10% IB			
CS36	DK16221300	CERAMIC 220PF ±10% IB			
CS37	DK16221300	CERAMIC 220PF ±10% IB			
CS38	DK16221300	CERAMIC 220PF ±10% IB			

Ref. No.	Part. No.	Description	Ref. No.	Part. No.	Description
RS01	GD05473160	RESISTORS	RS12	GD05102160	1K Ω ±5%
RS02	GD05473160	1/6W 47K Ω ±5%			
RS03	GD05473160	1/6W 47K Ω ±5%			
RS04	GD05473160	1/6W 47K Ω ±5%			
RS05	GD05473160	1/6W 47K Ω ±5%			
RS06	GD05473160	1/6W 47K Ω ±5%			
RS07	GD05102160	1/6W 1K Ω ±5%			
RS08	GD05102160	1/6W 1K Ω ±5%			
RS09	GD05102160	1/6W 1K Ω ±5%			
RS10	GD05102160	1/6W 1K Ω ±5%			
RS11	GD05102160	1/6W 1K Ω ±5%			
RS12	GD05102160	1/6W 1K Ω ±5%			

INTEGRATED CIRCUITS

QP01	HC10358030	IC STK401-050 AF Power AMP (2ch)
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Ref. No.	Part. No.	Description	Ref. No.	Part. No.	Description
RS13	GD05222160	1/6W 2.2K Ω $\pm 5\%$	CS71	DK16151300	CERAMIC 150PF $\pm 10\%$ (B)
RS14	GD05222160	1/6W 2.2K Ω $\pm 5\%$	CS72	DK16151300	CERAMIC 150PF $\pm 10\%$ (B)
RS15	GD05473160	1/6W 47K Ω $\pm 5\%$	CS73	DK16151300	CERAMIC 150PF $\pm 10\%$ (B)
RS16	GD05473160	1/6W 47K Ω $\pm 5\%$	CS74	DK16151300	CERAMIC 150PF $\pm 10\%$ (B)
RS17	GD05473160	1/6W 47K Ω $\pm 5\%$	CS75	DK16151300	CERAMIC 150PF $\pm 10\%$ (B)
RS18	GD05473160	1/6W 47K Ω $\pm 5\%$	CS76	DK16151300	CERAMIC 150PF $\pm 10\%$ (B)
RS21	GD05102160	1/6W 1K Ω $\pm 5\%$	CS77	DK16151300	CERAMIC 150PF $\pm 10\%$ (B)
RS22	GD05102160	1/6W 1K Ω $\pm 5\%$	CS78	DK16151300	CERAMIC 150PF $\pm 10\%$ (B)
RS27	GD05102160	1/6W 1K Ω $\pm 5\%$	CS79	DK16221300	CERAMIC 220PF $\pm 10\%$ (B)
RS28	GD05102160	1/6W 1K Ω $\pm 5\%$	CS80	DK16221300	CERAMIC 220PF $\pm 10\%$ (B)
RS29	GD05104160	1/6W 100K Ω $\pm 5\%$	CS81	DK16221300	CERAMIC 220PF $\pm 10\%$ (B)
RS30	GD05104160	1/6W 100K Ω $\pm 5\%$	CS82	DK16221300	CERAMIC 220PF $\pm 10\%$ (B)
RS31	GD05104160	1/6W 100K Ω $\pm 5\%$	CS83	DK16221300	CERAMIC 220PF $\pm 10\%$ (B)
RS32	GD05104160	1/6W 100K Ω $\pm 5\%$	CS84	DK16221300	CERAMIC 220PF $\pm 10\%$ (B)
RS33	GD05104160	1/6W 100K Ω $\pm 5\%$	CS85	DK16221300	CERAMIC 220PF $\pm 10\%$ (B)
RS41	GD05561160	1/6W 560 Ω $\pm 5\%$	CS86	DK16221300	CERAMIC 220PF $\pm 10\%$ (B)
RS42	GD05561160	1/6W 560 Ω $\pm 5\%$	CS87	DK16221300	CERAMIC 220PF $\pm 10\%$ (B)
INTEGRATED CIRCUIT					
QS01	HC10008090	IC NJM4558DD Dual OP AMP	CS88	DK16221300	CERAMIC 220PF $\pm 10\%$ (B)
QS02	HC10008090	IC NJM4558DD Dual OP AMP	CS89	DK16221300	CERAMIC 220PF $\pm 10\%$ (B)
QS03	HC10008090	IC NJM4558DD Dual OP AMP	CS90	DK16221300	CERAMIC 220PF $\pm 10\%$ (B)
QS11	HC10308030	IC LC78211 Analogue Switch	CS93	EJ10601610	ELECT 10 μ F 16V
QS13	HC10008090	IC NJM4558DD Dual OP AMP	CS94	EJ10601610	ELECT 10 μ F 16V
CS95			CS95	DK16151300	CERAMIC 150PF $\pm 10\%$ (B)
CS96			CS96	DK16151300	CERAMIC 150PF $\pm 10\%$ (B)

TRANSISTORS

QS07	HT421442A0	2SD2144S (U, V)
QS08	HT421442A0	2SD2144S (U, V)
QS09	BA20001000	DIGITAL DTC114ES
QS10	BA10001000	DIGITAL DTA114ES

MISCELLANEOUS

JS01	YT02060460	TERMINAL, 6P RCA PIN JACK
JS02	YT02040940	TERMINAL, 4P RCA PIN JACK
JS03	YJ06030570	JACK, 16P
JS04	YL01010140	TERMINAL, GND

PS54-V-AUDIO FUNCTION P.C. BOARD**CAPACITORS**

CG51	EJ47502510	4.7 μ F 25V	(B)
CG52	EJ47502510	4.7 μ F 25V	(B)
CG55	EJ47502510	4.7 μ F 25V	
CG56	EJ47502510	4.7 μ F 25V	
CG57	EJ47502510	4.7 μ F 25V	
CG58	EJ47502510	4.7 μ F 25V	
CG59	EJ47502510	4.7 μ F 25V	
CG60	EJ47502510	4.7 μ F 25V	
CG61	DK16101300	100PF $\pm 10\%$	(B)
CG62	DK16101300	100PF $\pm 10\%$	(B)
CG63	EJ47502510	4.7 μ F 25V	
CG64	EJ47502510	4.7 μ F 25V	
CS51	EJ10601610	10 μ F 16V	
CS52	EJ10601610	10 μ F 16V	
CS53	EJ10601610	10 μ F 16V	
CS54	EJ10601610	10 μ F 16V	
CS55	EJ10601610	10 μ F 16V	
CS56	EJ10601610	10 μ F 16V	
CS57	EJ10601610	10 μ F 16V	
CS58	EJ10601610	10 μ F 16V	
CS61	DD38104010	0.1 μ F +80% -20%	
CS63	EA10701610	100 μ F 16V	
CS64	EA10701610	100 μ F 16V	
CS65	EA10701610	100 μ F 16V	
CS66	EA10701610	100 μ F 16V	
CS68	DD38104010	0.1 μ F +80% -20%	
CS69	DD38104010	0.1 μ F +80% -20%	

RESISTORS

RG51	GD05473160	1/6W 47K Ω $\pm 5\%$
RG52	GD05473160	1/6W 47K Ω $\pm 5\%$
RG53	GD05471160	1/6W 470 Ω $\pm 5\%$
RG54	GD05471160	1/6W 470 Ω $\pm 5\%$
RG55	GD05473160	1/6W 47K Ω $\pm 5\%$
RG56	GD05473160	1/6W 47K Ω $\pm 5\%$
RG57	GD05104160	1/6W 100K Ω $\pm 5\%$
RG58	GD05104160	1/6W 100K Ω $\pm 5\%$
RG59	GD05334160	1/6W 330K Ω $\pm 5\%$
RG60	GD05334160	1/6W 330K Ω $\pm 5\%$
RG61	GD05152160	1/6W 1.5K Ω $\pm 5\%$
RG62	GD05152160	1/6W 1.5K Ω $\pm 5\%$
RG63	GD05472160	1/6W 4.7K Ω $\pm 5\%$
RG64	GD05472160	1/6W 4.7K Ω $\pm 5\%$
RG65	GD05331160	1/6W 330 Ω $\pm 5\%$
RG66	GD05331160	1/6W 330 Ω $\pm 5\%$
RG67	GD05473160	1/6W 47K Ω $\pm 5\%$
RG68	GD05473160	1/6W 47K Ω $\pm 5\%$
RG69	GD05103160	1/6W 10K Ω $\pm 5\%$
RG70	GD05103160	1/6W 10K Ω $\pm 5\%$
RG71	GD05471160	1/6W 470 Ω $\pm 5\%$
RG72	GD05471160	1/6W 470 Ω $\pm 5\%$
RS51	GD05473160	1/6W 47K Ω $\pm 5\%$
RS52	GD05473160	1/6W 47K Ω $\pm 5\%$
RS53	GD05473160	1/6W 47K Ω $\pm 5\%$
RS54	GD05473160	1/6W 47K Ω $\pm 5\%$
RS55	GD05473160	1/6W 47K Ω $\pm 5\%$
RS56	GD05473160	1/6W 47K Ω $\pm 5\%$
RS57	GD05473160	1/6W 47K Ω $\pm 5\%$
RS58	GD05102160	1/6W 1K Ω $\pm 5\%$
RS59	GD05102160	1/6W 1K Ω $\pm 5\%$
RS60	GD05102160	1/6W 1K Ω $\pm 5\%$
RS61	GD05102160	1/6W 1K Ω $\pm 5\%$
RS62	GD05102160	1/6W 1K Ω $\pm 5\%$
RS63	GD05102160	1/6W 1K Ω $\pm 5\%$
RS64	GD05102160	1/6W 1K Ω $\pm 5\%$
RS65	GD05102160	1/6W 1K Ω $\pm 5\%$
RS66	GD05102160	1/6W 1K Ω $\pm 5\%$
RS67	GD05473160	1/6W 47K Ω $\pm 5\%$
RS68	GD05473160	1/6W 47K Ω $\pm 5\%$
RS69	GD05473160	1/6W 47K Ω $\pm 5\%$
RS70	GD05473160	1/6W 47K Ω $\pm 5\%$

Ref. No.	Part. No.	Description	Ref. No.	Part. No.	Description
RV35	GD05103160	1/6W 10K Ω $\pm 5\%$	RS91	GD05473160	RESISTORS
RV36	GD05103160	1/6W 10K Ω $\pm 5\%$	RS92	GD05473160	1/6W 47K Ω $\pm 5\%$
RV37	GD05752160	1/6W 7.5K Ω $\pm 5\%$	RY01	GD05103160	1/6W 10K Ω $\pm 5\%$
RV38	GD05752160	1/6W 7.5K Ω $\pm 5\%$	RY02	GD05103160	1/6W 10K Ω $\pm 5\%$
RV39	GD05104160	1/6W 100K Ω $\pm 5\%$	RY03	GD05103160	1/6W 10K Ω $\pm 5\%$
RV40	GD05104160	1/6W 100K Ω $\pm 5\%$	RY04	GD05103160	1/6W 10K Ω $\pm 5\%$
RV41	GD05473160	1/6W 47K Ω $\pm 5\%$	RY05	GD05103160	1/6W 10K Ω $\pm 5\%$
RV42	GD05473160	1/6W 47K Ω $\pm 5\%$	RY06	GD05103160	1/6W 10K Ω $\pm 5\%$
RV44	GD05473160	1/6W 47K Ω $\pm 5\%$	RY07	GD05103160	1/6W 10K Ω $\pm 5\%$
RV45	GD05473160	1/6W 47K Ω $\pm 5\%$	RY08	GD05103160	1/6W 10K Ω $\pm 5\%$
QV01	HC10262050	INTEGRATED CIRCUITS	RY09	GD05103160	1/6W 10K Ω $\pm 5\%$
QV07	HC10008090	IC TC9215P Analogue Switch	RY10	GD05103160	1/6W 10K Ω $\pm 5\%$
QT01	HW10006320	IC NJM4558DD Dual OP AMP	RY11	GD05103160	1/6W 10K Ω $\pm 5\%$
QT04	BA10007210	TRANSISTORS	RY12	GD05103160	1/6W 10K Ω $\pm 5\%$
JT03	YJ01004230	PHOTO UNIT PC-817	RY13	GD05103160	1/6W 10K Ω $\pm 5\%$
JV04	YP06020940	DIGITAL DTA114ES	RY14	GD05103160	1/6W 10K Ω $\pm 5\%$
JV05	YP06020940	MISCELLANEOUS	RY15	GD05103160	1/6W 10K Ω $\pm 5\%$
JV06	YJ06030590	JACK, MINI	RY18	GD05472160	1/6W 4.7K Ω $\pm 5\%$
JV07	YP06020640	PLUG, 12P	RY19	GD05472160	1/6W 4.7K Ω $\pm 5\%$
JV08	YP06006680	PLUG, 12P	RY20	GD05103160	1/6W 10K Ω $\pm 5\%$
JV09	YL01010140	PLUG, 12P	RY21	GD05103160	1/6W 10K Ω $\pm 5\%$
JV10	YP06020940	PLUG, 12P	RY22	GD05103160	1/6W 10K Ω $\pm 5\%$
JV11	YL01010140	PLUG, 12P	RY23	GD05332160	1/6W 3.3K Ω $\pm 5\%$
JV59	YL01010140	PLUG, 14P	RY24	GD05103160	1/6W 10K Ω $\pm 5\%$
LV04	FM12223010	PLUG, 8P	RY25	GD05103160	1/6W 10K Ω $\pm 5\%$
LV05	FM12223010	TERMINAL, GND	RY26	GD05103160	1/6W 10K Ω $\pm 5\%$
LV06	FM12223010	TERMINAL, GND	RY27	GD05103160	1/6W 10K Ω $\pm 5\%$
		TERMINAL, GND	RY28	GD05472160	1/6W 4.7K Ω $\pm 5\%$
		EMI FILTER	RY29	GD05472160	1/6W 4.7K Ω $\pm 5\%$
		EMI FILTER	RY30	GD05103160	1/6W 10K Ω $\pm 5\%$
		EMI FILTER	RY31	GD05103160	1/6W 10K Ω $\pm 5\%$
		EMI FILTER	RY32	GD05103160	1/6W 10K Ω $\pm 5\%$
		EMI FILTER	RY33	GD05103160	1/6W 10K Ω $\pm 5\%$
			UY97	GD05102160	1/6W 1K Ω $\pm 5\%$ (B)

PW04-H.P.P.C. BOARD

Ref. No.	Part. No.	Description
CW01	DK18103310	CAPACITORS
CW02	DK18103310	CERAMIC 0.01 μ F +80% -20% (B)
CW03	DK18103310	CERAMIC 0.01 μ F +80% -20% (B)
		CERAMIC 0.01 μ F +80% -20% (B)

Ref. No.	Part. No.	Description
JW01	YJ01004240	MISCELLANEOUS
JW02	YP06010450	JACK, PHONE
WW01	YB00152110	PLUG, 5P
		CONNECTIVE CORD, 1P

PY04-CONNECT P.C. BOARD

Ref. No.	Part. No.	Description
CS91	EJ10601610	CAPACITORS
CS92	EJ10601610	ELECT 10 μ F 16V
CY01	EJ47502510	ELECT 10 μ F 16V
CY02	DD38104010	ELECT 4.7 μ F 25V (BK)
CY04	DD38104010	CERAMIC 0.1 μ F +80% -20%
CY06	DD15470300	CERAMIC 0.1 μ F +80% -20%
CY08	DD15470300	CERAMIC 47PF $\pm 5\%$
CY12	DD15470300	CERAMIC 47PF $\pm 5\%$ (B)
CY14	DD38104010	CERAMIC 47PF $\pm 5\%$
CY15	DK18103310	CERAMIC 0.1 μ F +80% -20%
CY96	DK18103310	CERAMIC 0.01 μ F +80% -20% (B)
CY97	DK18103310	CERAMIC 0.01 μ F +80% -20% (B)
CY98	DD15470300	CERAMIC 0.01 μ F +80% -20% (B)
CY99	DK18103310	CERAMIC 47PF $\pm 5\%$ (B)
		CERAMIC 0.01 μ F +80% -20% (B)

Ref. No.	Part. No.	Description
IC	TC9173P	Port Expander
IC	TC9174P	Port Expander
IC	74HC541	Octal Buffer/Line Drivers

INTEGRATED CIRCUITS

Ref. No.	Part. No.	Description
QY10	HC10370050	TRANSISTORS
QY11	HC10250050	DIGITAL DTA114ES
QY12	HC754100B0	DIGITAL DTC144ES
		DIGITAL DTA114ES
		DIGITAL DTC144ES
		DIGITAL DTA114ES
		DIGITAL DTC144ES
		DIGITAL DTA114ES
		DIGITAL DTC144ES
		DIGITAL DTA114ES
		DIGITAL DTC144ES
		DIGITAL DTA114ES
		DIGITAL DTC144ES

Ref. No.	Part. No.	Description
DY01	HD20002000	DIODES
DY02	HD20002000	1SS176
DY03	HD20002000	1SS176
DY04	HD20002000	1SS176
DY09	HD20002710	1D3 1A/200V
DY10	HD20002000	1SS176
DY11	HD20002000	1SS176
DY14	HD30361000	ZENER, 3.6V

Ref. No.	Part. No.	Description
JY01	YJ06030140	MISCELLANEOUS
JY02	YP06020670	JACK, 14P
		PLUG, 16P

Ref. No.	Part. No.	Description	Ref. No.	Part. No.	Description
JY03	YP06020680	PLUG, 20P	C311	EJ47502510	ELECT 4.7µF 25V
JY04	YJ06030140	JACK, 14P	C312	EJ47502510	ELECT 4.7µF 25V
JY05	YJ06030100	JACK, 10P	C313	EJ10601610	ELECT 10µF 16V
JY06	YP06020700	PLUG, 30P	C314	EA47603510	ELECT 47µF 35V
JY07	YJ06030140	JACK, 14P	C315	DK16151300	CERAMIC 150PF ±10%
JY08	YP06020690	PLUG, 24P	C316	DK16151300	CERAMIC 150PF ±10%
JY09	YJ07011240	JACK, 31P	C317	DK16101300	CERAMIC 100PF ±10%
JY10	YP06006680	PLUG, 8P	C318	DK16101300	CERAMIC 100PF ±10%
JY11	YP06003830	PLUG, 3P	C501	DD15470300	CERAMIC 47PF ±5%

P104-TUNER P.C. BOARD

Ref. No.	Part. No.	Description	Ref. No.	Part. No.	Description
CA01	CT12000200	CAPACITORS	C502	DD15470300	CERAMIC 47PF ±5%
CA02	DK18473310	TRIM.CAP. 20PF	C503	EA10700610	ELECT 100µF 6.3V
CA03	DD15150300	CERAMIC 0.047µF +80%-20%	C504	DK18103310	CERAMIC 0.01µF +80%-20%
CA04	DF15391550	CERAMIC 15PF ±5%	C505	EJ10505010	ELECT 1µF 50V
CA05	DD15470300	FILM 390PF ±5%	C506	EJ10405010	ELECT 0.1µF 50V
CA06	DK18103310	CERAMIC 47PF ±5%	C507	DK18103310	CERAMIC 0.01µF +80%-20%
CA07	DK18103310	CERAMIC 0.01µF +80%-20%	C508	EA10701610	ELECT 100µF 16V
CA08	CT12000200	TRIMMING 20PF ±1%	C509	DK16101300	CERAMIC 100PF ±10%
CA09	DD15150300	CERAMIC 15PF ±5%	C510	DK16101300	CERAMIC 100PF ±10%
CA11	DD15680300	CERAMIC 68PF ±5%	C511	DK18103310	CERAMIC 0.01µF +80%-20%
CA12	DD15151300	CERAMIC 150PF ±5%	C901	EA10700610	ELECT 100µF 6.3V
CA13	DK18103310	CERAMIC 0.01µF +80%-20%	C902	EJ10601610	ELECT 10µF 16V
CA14	DK18103310	CERAMIC 0.01µF +80%-20%	C903	DK16332300	CERAMIC 3300PF ±10%
CA18	EJ47502510	ELECT 4.7µF 25V	C904	DK16332300	CERAMIC 3300PF ±10%
C201	DK18103310	CERAMIC 0.01µF +80%-20%	C905	DK18103310	CERAMIC 0.01µF +80%-20%
C202	DK18103310	CERAMIC 0.01µF +80%-20%	C906	DK18103310	CERAMIC 0.01µF +80%-20%
C203	DK18473310	CERAMIC 0.047µF +80%-20%	C907	EJ10601610	ELECT 10µF 16V
C204	DK18473310	CERAMIC 0.047µF +80%-20%	C908	EJ10601610	ELECT 10µF 16V
C205	EJ10505010	ELECT 1µF 50V	C909	EJ47502510	ELECT 4.7µF 25V
C206	EJ10601610	ELECT 10µF 16V	C910	EJ10601610	ELECT 10µF 16V
C207	EA10701610	ELECT 100µF 16V	C911	DK18223310	CERAMIC 0.022µF +80%-20%
C208	DK18473310	CERAMIC 0.047µF +80%-20%	C912	DF15333310	FILM 0.033µF ±5%
C209	EJ10505010	ELECT 1µF 50V	C913	DF15333310	FILM 0.033µF ±5%
C210	DK18103310	CERAMIC 0.01µF +80%-20%	C914	DF15682350	FILM 0.0068µF ±5%
C211	EJ22505010	ELECT 2.2µF 50V	C915	DK18103310	CERAMIC 0.01µF +80%-20%
C212	EJ10505010	ELECT 1µF 50V			
C213	EJ47405010	ELECT 47µF 16V			
C214	EA47601610	ELECT 47µF 16V			
C215	DK18473310	CERAMIC 0.047µF +80%-20%			
C216	EA10701610	ELECT 100µF 16V			
C217	DK16332300	CERAMIC 3300PF ±10%			
C218	DF15822350	FILM 8200PF ±5%			
C219	DK18103310	CERAMIC 0.01µF +80%-20%			
C220	DK16222300	CERAMIC 4700PF ±10%			
C222	DK16152300	CERAMIC 1500PF ±10%			
C223	DK18103310	CERAMIC 0.01µF +80%-20%			
C224	DK18103310	CERAMIC 0.01µF +80%-20%			
C225	DK18103310	CERAMIC 0.01µF +80%-20%			
C226	DK18103310	CERAMIC 0.01µF +80%-20%			
C227	DK16272300	CERAMIC 2700PF ±10%			
C233	DK18103310	CERAMIC 0.01µF +80%-20%			
C234	DK18103310	CERAMIC 0.01µF +80%-20%			
C301	DF15333310	FILM 0.033µF ±5%			
C301	DF15473310	FILM 0.047µF ±5%			
C302	DF15333310	FILM 0.033µF ±5%			
C302	DF15473310	FILM 0.047µF ±5%			
C303	EJ10601610	ELECT 10µF 16V			
C304	EJ10601610	ELECT 10µF 16V			
C305	EJ47502510	ELECT 4.7µF 25V			
C306	EJ47502510	ELECT 4.7µF 25V			
C307	EJ10601610	ELECT 10µF 16V			
C308	EJ10601610	ELECT 10µF 16V			

RESISTORS

RA01	GD05103160	1/6W 10K Ω ±5%
RA02	GD05104160	1/6W 100K Ω ±5%
RA03	GD05103160	1/6W 10K Ω ±5%
RA04	GD05154160	1/6W 150K Ω ±5%
RA06	GD05104160	1/6W 100K Ω ±5%
RA07	GD05103160	1/6W 10K Ω ±5%
RA08	GD05154160	1/6W 150K Ω ±5%
RA09	GD05222160	1/6W 2.2K Ω ±5%
R102	GD05103160	1/6W 10K Ω ±5%
R103	GD05103160	1/6W 10K Ω ±5%
R201	GD05101160	1/6W 100 Ω ±5%
R202	GD05471160	1/6W 470 Ω ±5%
R202	GD05391160	1/6W 390 Ω ±5%
R203	GD05222160	1/6W 2.2K Ω ±5%
R204	GD05471160	1/6W 470 Ω ±5%
R205	GD05331160	1/6W 330 Ω ±5%
R206	GD05153160	1/6W 15 Ω ±5%
R207	GG05181140	1/4W 180 Ω ±5%
R208	GD05392160	1/6W 3.9K Ω ±5%
R209	GD05104160	1/6W 100K Ω ±5%
R210	GD05332160	1/6W 3.3K Ω ±5%
R213	GD05220160	1/6W 22 Ω ±5%
R214	GD05473160	1/6W 47K Ω ±5%
R215	GD05154160	1/6W 150K Ω ±5%
R215	GD05333160	1/6W 33K Ω ±5%
R216	GD05103160	1/6W 10K Ω ±5%
R217	GG05181140	1/4W 180 Ω ±5%
R217	GG05221140	1/4W 220 Ω ±5%
R219	GD05334160	1/6W 330K Ω ±5%
R301	GD05104160	1/6W 100K Ω ±5%
R302	GD05104160	1/6W 100K Ω ±5%
R303	GD05103160	1/6W 10K Ω ±5%

Ref. No.	Part. No.	Description	Ref. No.	Part. No.	Description
R304	GD05103160	1/6W 10K Ω ±5% (IB)	DA01	HD40009030	DIODES
R305	GD05153160	1/6W 15K Ω ±5% (IB)	DA02	HD20017210	VARICAP SVC342-L
R306	GD05153160	1/6W 15K Ω ±5% (IB)	DA03	HD40009030	1SS135 (IB)
R307	GD05221160	1/6W 220 Ω ±5%	DA04	HD20017210	VARICAP SVC342-L (IB)
R308	GD05221160	1/6W 220 Ω ±5%	DA05	HD20002900	1SS135 (IB)
R309	GD05473160	1/6W 47K Ω ±5%	DA06	HD20002000	1SS176
R310	GD05473160	1/6W 47K Ω ±5%	D201	HD20002000	1SS176
R311	GD05473160	1/6W 47K Ω ±5% (IB)	D202	HD30681000	1SS176
R312	GD05473160	1/6W 47K Ω ±5% (IB)	D501	HD30511000	ZENER 6.8V
R313	GG05221140	1/4W 220 Ω ±5%	D901	HD30511000	ZENER 5.1V (IB)
R501	GD05102160	1/6W 1K Ω ±5%			
R502	GD05332160	1/6W 3.3K Ω ±5%			
R503	GD05102160	1/6W 1K Ω ±5%			
R504	GD05103160	1/6W 10K Ω ±5%			
R506	GD05102160	1/6W 1K Ω ±5%	LA01	LA10295170	COILS
R507	GD05332160	1/6W 3.3K Ω ±5%	LA02	LO70013010	ANT, MW 280μH
R508	GD05473160	1/6W 47K Ω ±5%	LA03	LA10295160	OSC, MW
R510	GD05102160	1/6W 1K Ω ±5%	LA04	LO70013020	ANT, LW (IB)
R511	GD05102160	1/6W 1K Ω ±5%	LA05	LC23960710	OSC, LW (IB)
R512	GA05271010	1W 270 Ω ±5%	L201	LI70376010	CHOKe, 39mH
R513	GD05103160	1/6W 10K Ω ±5%	L301	LS10293020	I.F.T., FM DET
R514	GG05470160	1/6W 47 Ω ±5%	L302	LS10293020	M.P.X., 19.38KHz
R515	GD05683160	1/6W 68K Ω ±5%	L501	LC14733800	M.P.X., 19.38KHz
R516	GD05473160	1/6W 47K Ω ±5%	L502	LC14733800	CHOKe, 47μH
R517	GD05473160	1/6W 47K Ω ±5%	L503	LC14733800	CHOKe, 47μH
R901	GD05333160	1/6W 33K Ω ±5% (IB)	L504	LC14733800	CHOKe, 47μH
R902	GD05103160	1/6W 10K Ω ±5% (IB)			
R903	GD05223160	1/6W 22K Ω ±5% (IB)			
R904	GD05102160	1/6W 1K Ω ±5% (IB)	A101	AV01203020	MISCELLANEOUS
R905	GD05682160	1/6W 6.8K Ω ±5% (IB)	A101	AV01202220	VHF TUNER, FE415-G11 (IB)
R907	GD05102160	1/6W 1K Ω ±5% (IB)	F201	FF11070620	VHF TUNER, FE337-A05 (BK)
R908	GD05332160	1/6W 3.3K Ω ±5% (IB)	F201	FF11070610	CERAMIC FILTER (IB)
R909	GD05103160	1/6W 10K Ω ±5% (IB)	F202	FF11070620	CERAMIC FILTER (BK)
R910	GA05221010	1W 220 Ω ±5% (IB)	J101	YT03030020	CERAMIC FILTER
R911	GD05103160	1/6W 10K Ω ±5% (IB)	J101	YT03030080	TERMINAL, ANT (IB)
			J102	YL01010140	TERMINAL, ANT (BK)
			J301	YP06020640	TERMINAL, GND
			LA06	FF10045330	PLUG, 14P
RA11	RA02230780	TRIM-POTS 22K Ω	LA06	FF10045330	CERAMIC FILTER
R211	RA02230780	TRIM-POTS 22K Ω (B)	X201	FQ04563040	CERAMIC VIB.
R212	RA04720780	TRIM-POTS 4.7K Ω (B)	X501	JX07001260	CRYSTAL, 7.2MHz
R218	RA04720780	TRIM-POTS 4.7K Ω (B) (IB)	X901	FQ04563040	CERAMIC VIB. CSB456F33 (IB)
R906	RA04720780	TRIM-POTS 4.7K Ω (B) (IB)	X902	FQ04004030	CERAMIC VIB. 4.00MHz (IB)

CONTROLS

RA11	RA02230780	TRIM-POTS 22K Ω
R211	RA02230780	TRIM-POTS 22K Ω (B)
R212	RA04720780	TRIM-POTS 4.7K Ω (B)
R218	RA04720780	TRIM-POTS 4.7K Ω (B) (IB)
R906	RA04720780	TRIM-POTS 4.7K Ω (B) (IB)

INTEGRATED CIRCUITS

Q201	HC10342030	IC LA1836 FM/AM IF, MPX IC
Q301	HC10008090	IC NJM4558DD (IB) Dual OP AMP
Q501	HC10221030	IC LC7218
		PLL Frequency Synthesizer
Q901	HC10315030	IC LA2232 (IB)
		RDS Demodulator
Q902	HC10333030	IC LC7073 (IB)
		RDS Error Corrector

TRANSISTORS

QA01	HT30001000	2SC536SP (IB)
QA02	HT30001000	2SC536SP (IB)
QA03	HT421442A0	2SD2144S (U, V) (IB)
QA04	BA10002000	DIGITAL DTA144ES (IB)
QA05	BA10002000	DIGITAL DTA144ES (IB)
Q202	HT318091P0	2SC1809SP
Q203	BA10007210	DIGITAL DTA114ES
Q204	BA20002000	DIGITAL DTC144ES
Q503	HT30001000	2SC536SP
Q903	HT30001000	2SC536SP (IB)

F.E.T.

Q502	HF200300B0	2SK30A7M
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P604-THX PRO-LOGIC DSP P. C. BOARD

CR01	DK98104200	CAPACITORS, CHIP
CR02	EY10700620	CERAMIC 0.1μF +80% -20%
CR03	EY10700620	ELECT 100μF 6.3V
CR04	DK98104200	ELECT 100μF 6.3V
CR05	DK98104200	CERAMIC 0.1μF +80% -20%
CR06	DK98104200	CERAMIC 0.1μF +80% -20%
CR07	EY10700620	CERAMIC 0.1μF +80% -20%
CR08	DK96103200	ELECT 100μF 6.3V
CR09	EY10601620	CERAMIC 0.01μF ±10%
CR10	EY10601620	ELECT 10μF 16V
CR11	DD95101300	ELECT 10μF 16V
CR12	DD95101300	CERAMIC 100PF ±5%
CR13	DK98104200	CERAMIC 100PF ±5%
CR14	DK98104200	CERAMIC 0.1μF +80% -20%
CR15	DD95331300	CERAMIC 0.1μF +80% -20%
CR16	DD95331300	CERAMIC 330PF ±5%
CR17	DD95151300	CERAMIC 330PF ±5%
CR18	DD95151300	CERAMIC 150PF ±5%
CR19	DK98104200	CERAMIC 150PF ±5%
		CERAMIC 0.1μF +80% -20%

Ref. No.	Part. No.	Description	Ref. No.	Part. No.	Description
CR20	DK98104200	CERAMIC	RR03	NN05103610	1/16W 10K Ω ±5%
CR61	DK98104200	CERAMIC	RR04	NN05103610	1/16W 10K Ω ±5%
CR62	EY10700620	ELECT	RR05	NN05223610	1/16W 22K Ω ±5%
CR63	EY10700620	ELECT	RR06	NN05223610	1/16W 22K Ω ±5%
CR64	DK98104200	CERAMIC	RR07	NN05223610	1/16W 22K Ω ±5%
CR65	DK98104200	CERAMIC	RR08	NN05223610	1/16W 22K Ω ±5%
CR66	DK98104200	CERAMIC	RR09	NN05223610	1/16W 22K Ω ±5%
CR67	EY10700620	ELECT	RR10	NN05223610	1/16W 22K Ω ±5%
CR68	DK96103200	CERAMIC	RR41	NN05473610	1/16W 47K Ω ±5%
CR69	EY10601620	ELECT	RR42	NN05473610	1/16W 47K Ω ±5%
CR70	EY10601620	ELECT	RR43	NN05103610	1/16W 10K Ω ±5%
CR71	DD95101300	CERAMIC	RR44	NN05103610	1/16W 10K Ω ±5%
CR72	DD95101300	CERAMIC	RR45	NN05103610	1/16W 10K Ω ±5%
CR73	DK98104200	CERAMIC	RR46	NN05103610	1/16W 10K Ω ±5%
CR74	DK98104200	CERAMIC	RR47	NN05223610	1/16W 22K Ω ±5%
CR75	DD95331300	CERAMIC	RR48	NN05223610	1/16W 22K Ω ±5%
CR76	DD95331300	CERAMIC	RR49	NN05223610	1/16W 22K Ω ±5%
CR77	DD95151300	CERAMIC	RR50	NN05000610	1/16W 0 Ω ±5%
CR78	DD95151300	CERAMIC	RR71	NN05000610	1/16W 0 Ω ±5%
CR79	DK98104200	CERAMIC	RR72	NN05000610	1/16W 0 Ω ±5%
CR80	DK98104200	CERAMIC	RR73	NN05000610	1/16W 0 Ω ±5%
C601	EY10601620	ELECT	RR74	NN05000610	1/16W 0 Ω ±5%
C602	EY10601620	ELECT	RR75	NN05000610	1/16W 0 Ω ±5%
C603	DD95151300	CERAMIC	RR76	NN05000610	1/16W 0 Ω ±5%
C604	DD95151300	CERAMIC	RR77	NN05000610	1/16W 0 Ω ±5%
C605	DD95151300	CERAMIC	RR78	NN05000610	1/16W 0 Ω ±5%
C606	DD95151300	CERAMIC	RR79	NN05000610	1/16W 0 Ω ±5%
C609	DK98104200	CERAMIC	RR83	NN05000610	1/16W 0 Ω ±5%
C610	DK98104200	CERAMIC	RR84	NN05000610	1/16W 0 Ω ±5%
C617	DK98104200	CERAMIC	R601	NN05153610	1/16W 15K Ω ±5%
C618	DK98104200	CERAMIC	R602	NN05153610	1/16W 15K Ω ±5%
C619	DD95331300	CERAMIC	R603	NN05103610	1/16W 10K Ω ±5%
C620	DD95331300	CERAMIC	R604	NN05103610	1/16W 10K Ω ±5%
C625	EY10700620	ELECT	R605	NN05103610	1/16W 10K Ω ±5%
C627	DK98104200	CERAMIC	R606	NN05103610	1/16W 10K Ω ±5%
C628	EY10700620	ELECT	R607	NN05103610	1/16W 10K Ω ±5%
C629	DK98104200	CERAMIC	R608	NN05103610	1/16W 10K Ω ±5%
C630	EY10700620	ELECT	R609	NN05103610	1/16W 10K Ω ±5%
C631	DK98104200	CERAMIC	R610	NN05103610	1/16W 10K Ω ±5%
C632	DK98104200	CERAMIC	R611	NN05103610	1/16W 10K Ω ±5%
C635	DK96103200	CERAMIC	R612	NN05103610	1/16W 10K Ω ±5%
C636	DK96103200	CERAMIC	R613	NN05103610	1/16W 10K Ω ±5%
C641	DK98104200	CERAMIC	R614	NN05103610	1/16W 10K Ω ±5%
C642	DK98104200	CERAMIC	R615	NN05151610	1/16W 150 Ω ±5%
C643	EY10601620	ELECT	R616	NN05151610	1/16W 150 Ω ±5%
C644	EY10601620	ELECT	R617	NN05103610	1/16W 10K Ω ±5%
C651	DK98104200	CERAMIC	R618	NN05103610	1/16W 10K Ω ±5%
C652	EY10700620	ELECT	R619	NN05151610	1/16W 150 Ω ±5%
C653	DK98104200	CERAMIC	R620	NN05151610	1/16W 150 Ω ±5%
C654	EY10700620	ELECT	R621	NN05103610	1/16W 10K Ω ±5%
C655	DD91100300	CERAMIC	R622	NN05000610	1/16W 0 Ω ±5%
C656	DD95120300	CERAMIC	R661	NN05222610	1/16W 2.2K Ω ±5%
C657	DK98104200	CERAMIC	R662	NN05222610	1/16W 2.2K Ω ±5%
C658	EY10700620	ELECT	R671	NN05472610	1/16W 4.7K Ω ±5%
C659	DK98104200	CERAMIC	R672	NN05472610	1/16W 4.7K Ω ±5%
C660	EY10700620	ELECT	R673	NN05472610	1/16W 4.7K Ω ±5%
C661	DK98104200	CERAMIC	R674	NN05472610	1/16W 4.7K Ω ±5%
C667	DK98104200	CERAMIC	R698	NN05000610	1/16W 0 Ω ±5%
C677	DK98104200	CERAMIC	R699	NN05000610	1/16W 0 Ω ±5%
			L606	NN05000610	1/16W 0 Ω ±5%
			L607	RI05000180	1/8W 0 Ω ±5%
RESISTORS, CHIP					
C607	NN05000610	1/16W 0 Ω ±5%			INTEGRATED CIRCUITS
C608	NN05000610	1/16W 0 Ω ±5%	Q601	HC10359030	IC LC83016JE
C611	NN05000610	1/16W 0 Ω ±5%	Q603	HC10338030	Digital Signal Processor
C612	NN05000610	1/16W 0 Ω ±5%	Q605	HC10015480	LC32464PM-80 64kx4bit Dram
RR01	NN05682610	1/16W 6.8K Ω ±5%	Q607	HC10015480	IC AK4320 (DAC)
RR02	NN05682610	1/16W 6.8K Ω ±5%			Digital Analogue Converter
			Q609	HC10172090	Digital Analogue Converter
					Dual OP AMP

Ref. No.	Part. No.	Description	Ref. No.	Part. No.	Description
RN42	GD05100160	1/6W 10 Ω ±5%	▲ R757	GG05100140	1/4W 10 Ω ±5%
▲ RN43	GG05101160	1/6W 100 Ω ±5%	▲ R758	GG05100140	1/4W 10 Ω ±5%
▲ RN44	GG05101160	1/6W 100 Ω ±5%	▲ R759	BZ10182020	0.18 Ω 5W x 2 ARRAY
▲ RN45	GG05101160	1/6W 100 Ω ±5%	▲ R760	BZ10182020	0.18 Ω 5W x 2 ARRAY
▲ RN46	GG05101160	1/6W 100 Ω ±5%	▲ R761	GG05100160	1/6W 10 Ω ±5%
▲ RN51	GG05471160	1/6W 470 Ω ±5%	▲ R762	GG05100160	1/6W 10 Ω ±5%
RN52	GD05682160	1/6W 6.8K Ω ±5%	▲ R763	GA05100010	1W 10 Ω ±5%
RN53	GD05102160	1/6W 1K Ω ±5%	▲ R764	GA05100010	1W 10 Ω ±5%
RN54	GD05223160	1/6W 22K Ω ±5%	R765	GD05333160	1/6W 33K Ω ±5%
RN55	GD05683160	1/6W 58K Ω ±5%	R766	GD05331160	1/6W 330 Ω ±5%
RN56	GD05100160	1/6W 10 Ω ±5%	R767	GD05221160	1/6W 220 Ω ±5%
▲ RN57	GG05101160	1/6W 100 Ω ±5%	R768	GD05152160	1/6W 1.5K Ω ±5%
▲ RN58	GG05101160	1/6W 100 Ω ±5%	R769	GD05561160	1/6W 560 Ω ±5%
RN61	GD05472160	1/6W 4.7K Ω ±5%	R770	GD05151160	1/6W 150 Ω ±5%
RN62	GD05472160	1/6W 4.7K Ω ±5%	R771	GD05152160	1/6W 1.5K Ω ±5%
R701	GD05333160	1/6W 33K Ω ±5%	R772	GD05271160	1/6W 270 Ω ±5%
R702	GD05333160	1/6W 33K Ω ±5%	R773	GD05224160	1/6W 220K Ω ±5%
R703	GD05331160	1/6W 330 Ω ±5%	R774	GD05473160	1/6W 47K Ω ±5%
R704	GD05331160	1/6W 330 Ω ±5%	▲ R775	GG05561160	1/6W 560 Ω ±5%
R705	GD05221160	1/6W 220 Ω ±5%	▲ R776	GG05561160	1/6W 560 Ω ±5%
R706	GD05221160	1/6W 220 Ω ±5%	R777	GG05561160	1/6W 1.2K Ω ±5%
R707	GG05152160	1/6W 1.5K Ω ±5%	R778	GD05122160	1/6W 560 Ω ±5%
R708	GG05152160	1/6W 1.5K Ω ±5%	▲ R779	GG05561160	1/6W 560 Ω ±5%
R709	GD05561160	1/6W 560 Ω ±5%	▲ R780	GG05561160	1/6W 560 Ω ±5%
R710	GD05561160	1/6W 560 Ω ±5%	R781	GD05104160	1/6W 100K Ω ±5%
R711	GD05151160	1/6W 150 Ω ±5%	▲ R783	GG05560160	1/6W 56 Ω ±5%
R712	GD05151160	1/6W 150 Ω ±5%	▲ R784	GG05560160	1/6W 56 Ω ±5%
R713	GD05152160	1/6W 1.5K Ω ±5%	R785	GD05682160	1/6W 6.8K Ω ±5%
R714	GD05152160	1/6W 1.5K Ω ±5%	R787	GD05272160	1/6W 2.7K Ω ±5%
R715	GD05271160	1/6W 270 Ω ±5%	R788	GD05333160	1/6W 33K Ω ±5%
R716	GD05271160	1/6W 270 Ω ±5%	▲ R789	GG05022160	1/6W 2.2 Ω ±5%
R717	GD05224160	1/6W 220K Ω ±5%	▲ R790	GG05022160	1/6W 2.2 Ω ±5%
R718	GD05224160	1/6W 220K Ω ±5%	▲ R791	GG05151160	1/6W 150 Ω ±5%
R719	GD05473160	1/6W 47K Ω ±5%	▲ R791	GG05181140	1/6W 180 Ω ±5%
R720	GD05473160	1/6W 47K Ω ±5%	▲ R792	GG05100140	1/4W 10 Ω ±5%
▲ R721	GG05561160	1/6W 560 Ω ±5%	▲ R793	GG05100140	1/4W 10 Ω ±5%
R721	GD05561160	1/6W 560 Ω ±5%	▲ R794	BZ10182020	0.18 Ω 5W x 2 ARRAY
▲ R722	GG05561160	1/6W 560 Ω ±5%	▲ R795	GG05100160	1/6W 10 Ω ±5%
▲ R723	GG05561160	1/6W 560 Ω ±5%	▲ R796	GA05100010	1W 10 Ω ±5%
▲ R725	GG05561160	1/6W 560 Ω ±5%	R797	GD05102160	1/6W 1K Ω ±5%
▲ R726	GG05561160	1/6W 560 Ω ±5%	R797	GD05222160	1/6W 2.2K Ω ±5%
R727	GD05122160	1/6W 1.2K Ω ±5%	R798	GD05102160	1/6W 1K Ω ±5%
R728	GD05122160	1/6W 1.2K Ω ±5%	R798	GD05222160	1/6W 2.2K Ω ±5%
▲ R729	GG05561160	1/6W 560 Ω ±5%	R799	GD05222160	1/6W 2.2K Ω ±5%
▲ R730	GG05561160	1/6W 560 Ω ±5%	R799	GD05102160	1/6W 1K Ω ±5%
▲ R731	GG05561160	1/6W 560 Ω ±5%	R799	GD05222160	1/6W 2.2K Ω ±5%
▲ R732	GG05561160	1/6W 560 Ω ±5%	▲ R801	GG05010140	1/4W 1 Ω ±5%
R733	GD05104160	1/6W 100K Ω ±5%	▲ R802	GG05010140	1/4W 1 Ω ±5%
R734	GD05104160	1/6W 100K Ω ±5%	▲ R803	GG05010140	1/4W 1 Ω ±5%
▲ R737	GG05560160	1/6W 56 Ω ±5%	▲ R804	GG05010140	1/4W 1 Ω ±5%
▲ R738	GG05560160	1/6W 56 Ω ±5%	▲ U700	GG05010140	1/4W 1 Ω ±5%
▲ R739	GG05560160	1/6W 56 Ω ±5%	▲ U701	GG05010140	1/4W 1 Ω ±5%
▲ R740	GG05560160	1/6W 56 Ω ±5%	▲ U702	GG05010140	1/4W 1 Ω ±5%
R741	GD05682160	1/6W 6.8K Ω ±5%	▲ U703	GG05010140	1/4W 1 Ω ±5%
R742	GD05682160	1/6W 6.8K Ω ±5%			
R745	GD05272160	1/6W 2.7K Ω ±5%			
R746	GD05272160	1/6W 2.7K Ω ±5%			
R747	GD05333160	1/6W 33K Ω ±5%			
R748	GD05333160	1/6W 33K Ω ±5%			
▲ R749	GG05022160	1/6W 2.2 Ω ±5%			
▲ R750	GG05022160	1/6W 2.2 Ω ±5%			
▲ R751	GG05022160	1/6W 2.2 Ω ±5%			
▲ R752	GG05022160	1/6W 2.2 Ω ±5%			
R753	GD05151160	1/6W 150 Ω ±5%	QN04	HC10042050	IC TA7317P (AVR70) Over Load Protector
▲ R754	GG05181140	1/4W 180 Ω ±5%	▲ Q801	HC38915090	IC NJM7815FA Voltage Regulator
R754	GD05151160	1/6W 150 Ω ±5%	▲ Q802	HC38915090	IC NJM7915FA Voltage Regulator
▲ R754	GG05181140	1/4W 180 Ω ±5%	▲ Q803	HC38905090	IC NJM7805FA Voltage Regulator
R755	GG05100140	1/4W 10 Ω ±5%			
▲ R756	GG05100140	1/4W 10 Ω ±5%			

CONTROLS

TRIM-POTS	100 Ω
TRIM-POTS	100 Ω
TRIM-POTS	100 Ω
TRIM-POTS	2.2K Ω
TRIM-POTS	2.2K Ω

INTEGRATED CIRCUITS

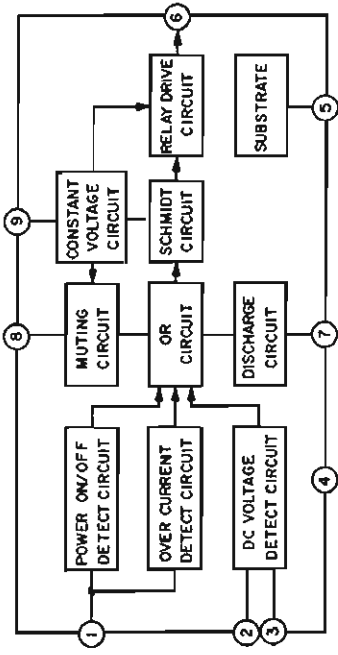
IC	TA7317P (AVR70)	Over Load Protector
IC	NJM7815FA	Voltage Regulator
IC	NJM7915FA	Voltage Regulator
IC	NJM7805FA	Voltage Regulator

Ref. No.	Part. No.	Description	Ref. No.	Part. No.	Description
▲ Q804	HC39905090	IC NJM7905FA Voltage Regulator	D751	HD20002000	1SS176
▲ Q805	HC38905090	IC NJM7805FA Voltage Regulator	D752	HD20002000	1SS176
		TRANSISTORS	D753	HD20027010	HSS81TD
▲ QN01	HT322402A0	2SC2240 (GR, BL)	D754	HD20027010	HSS81TD
▲ QN02	HT322402A0	2SC2240 (GR, BL)	D755	HD30751000	ZENER, 7.5V
QN03	HT109702A0	2SA970 (GR, BL)	D756	HD30751000	ZENER, 7.5V
QN07	HT10001000	2SA970 (GR, BL)	▲ D801	HE20012290	D5FB20
QN08	HT316272B0	2SA608SP	▲ D802	HE20015290	S4VB20
▲ QN51	HT322402A0	2SC1627 (O, Y)	▲ D803	HE20011290	S2VB20
Q701	HT109702A0	2SC2240 (GR, BL)	▲ D804	HE20011290	S2VB20
Q702	HT109702A0	2SA970 (GR, BL)	D805	HD20002710	1D3
Q703	HT109702A0	2SA970 (GR, BL)	D806	HD20002710	1D3
Q704	HT109702A0	2SA970 (GR, BL)	D807	HD20002710	1D3
Q705	HT109702A0	2SA970 (GR, BL)	D808	HD20002710	1D3
Q706	HT109702A0	2SA970 (GR, BL)	D809	HD20002710	1D3
Q707	HT322402A0	2SC2240 (GR, BL)			
Q708	HT322402A0	2SC2240 (GR, BL)	L701	ML08010030	COILS
Q709	HT322402A0	2SC2240 (GR, BL)	L702	ML08010030	AIR, SPK CHOCK
Q710	HT322402A0	2SC2240 (GR, BL)	L751	ML08010030	AIR, SPK CHOCK
Q711	HT11452A0	2SA1145 (O, Y)			
Q712	HT11452A0	2SA1145 (O, Y)			
Q713	HT327052A0	2SC2705 (O, Y)	▲ F802	FS10400850	MISCELLANEOUS
Q714	HT327052A0	2SC2705 (O, Y)	▲ F802	FS10500350	FUSE S506 T4A 250V
Q715	HT334191Y0	2SC2705 (O, Y)	▲ F803	FS10400850	FUSE FBT 5A 125V
Q716	HT334191Y0	2SC3419Y	▲ F803	FS10500350	FUSE S506 T4A 250V
▲ Q717	HT420331E0	2SC3419Y	JN01	YP06013130	FUSE FBT 5A 125V
▲ Q718	HT420331E0	2SD2033 (E)	J701	YP060004570	PLUG, 13P (AVR70 II)
▲ Q719	HT213531E0	2SB1353 (E)	J702	YP060019700	PLUG, 13P
▲ Q720	HT213531E0	2SB1353 (E)	J706	YP06010450	PLUG, 5P
▲ Q721	HT331822A0	2SC3182 (R, O)	J707	YL01010240	TERMINAL, GND
▲ Q722	HT331822A0	2SC3182 (R, O)	J708	YL01010240	TERMINAL, GND
▲ Q723	HT112652A0	2SA1265 (R, O)	J709	YL01010240	TERMINAL, GND
▲ Q724	HT112652A0	2SA1265 (R, O)	J710	YL01010240	TERMINAL, GND
Q751	HT109702A0	2SA970 (GR, BL)	J712	YL01010240	TERMINAL, GND
Q752	HT109702A0	2SA970 (GR, BL)	J801	YP06010950	PLUG, 5P
Q753	HT109702A0	2SA970 (GR, BL)	J802	YP06003690	PLUG, 6P
Q754	HT322402A0	2SC2240 (GR, BL)	J806	YJ08000590	PLUG, 5P
Q755	HT322402A0	2SC2240 (GR, BL)	J807	YJ08000580	JACK, FUSE CLIP
Q756	HT11452A0	2SA1145 (O, Y)	J808	YJ08000590	JACK, FUSE CLIP
Q757	HT327052A0	2SC2705 (O, Y)	J809	YJ08000580	JACK, FUSE CLIP
Q758	HT334191Y0	2SC3419Y	LN01	LY20180020	JACK, FUSE CLIP
▲ Q759	HT420331E0	2SD2033 (E)	LN02	LY20180020	RELAY
▲ Q760	HT213531E0	2SB1353 (E)	LN03	LY20240410	RELAY (AVR70MK II)
▲ Q761	HT331822A0	2SC3182 (R, O)	LN03	LY20240450	RELAY (AVR70)
▲ Q762	HT112652A0	2SA1265 (R, O)	LN51	LY20180020	RELAY
		DIODES			
DN01	HD20002710	1D3	C727	DK18103310	CAPACITORS
DN02	HD20002710	1D3	C728	DK18103310	CERAMIC 0.01µF +80% -20%
DN03	HD20002710	1D3	C729	DK18103310	CERAMIC 0.01µF +80% -20%
DN04	HD20002710	1D3	C730	DK18103310	CERAMIC 0.01µF +80% -20%
DN07	HD20027010	HSS81TD	C731	DK18223310	CERAMIC 0.01µF +80% -20%
DN08	HD20027010	HSS81TD	C732	DK18223310	CERAMIC 0.022µF +80% -20%
DN09	HD20002710	1D3	C733	DK18103310	CERAMIC 0.01µF +80% -20%
DN51	HD20002710	1D3	C734	DK18103310	CERAMIC 0.01µF +80% -20%
DN52	HD20027010	HSS81TD	C764	DK18103310	CERAMIC 0.01µF +80% -20%
D701	HD20002000	1SS176	C765	DK18103310	CERAMIC 0.01µF +80% -20%
D702	HD20002000	1SS176			
D703	HD20002000	1SS176			
D704	HD20002000	1SS176			
D705	HD20027010	HSS81TD	J703	YJ06020800	MISCELLANEOUS
D706	HD20027010	HSS81TD	J704	YT01080120	JACK, 20P
D707	HD20027010	HSS81TD	J751	YT01020220	TERMINAL, SPK 8P
D708	HD20027010	HSS81TD			TERMINAL, SPK2P
D709	HD30751000	ZENER, 7.5V			
D710	HD30751000	ZENER, 7.5V			
C711	HD30751000	ZENER, 7.5V			
C712	HD30751000	ZENER, 7.5V			

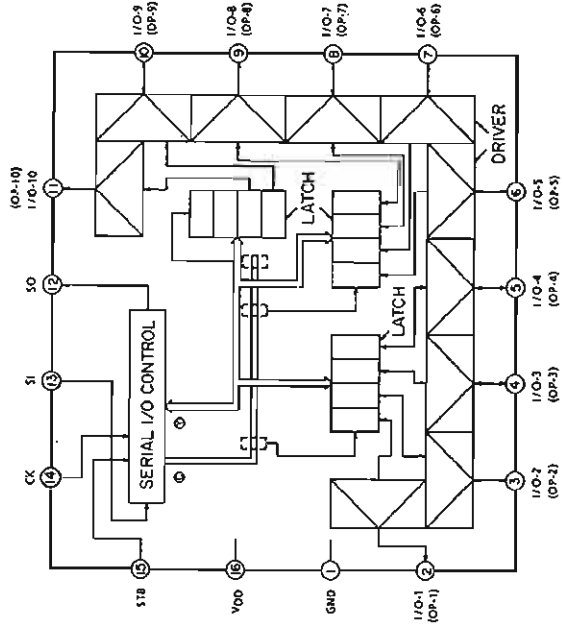
P77-SPK TERMINAL P.C. BOARD

IC BLOCK DIAGRAMS

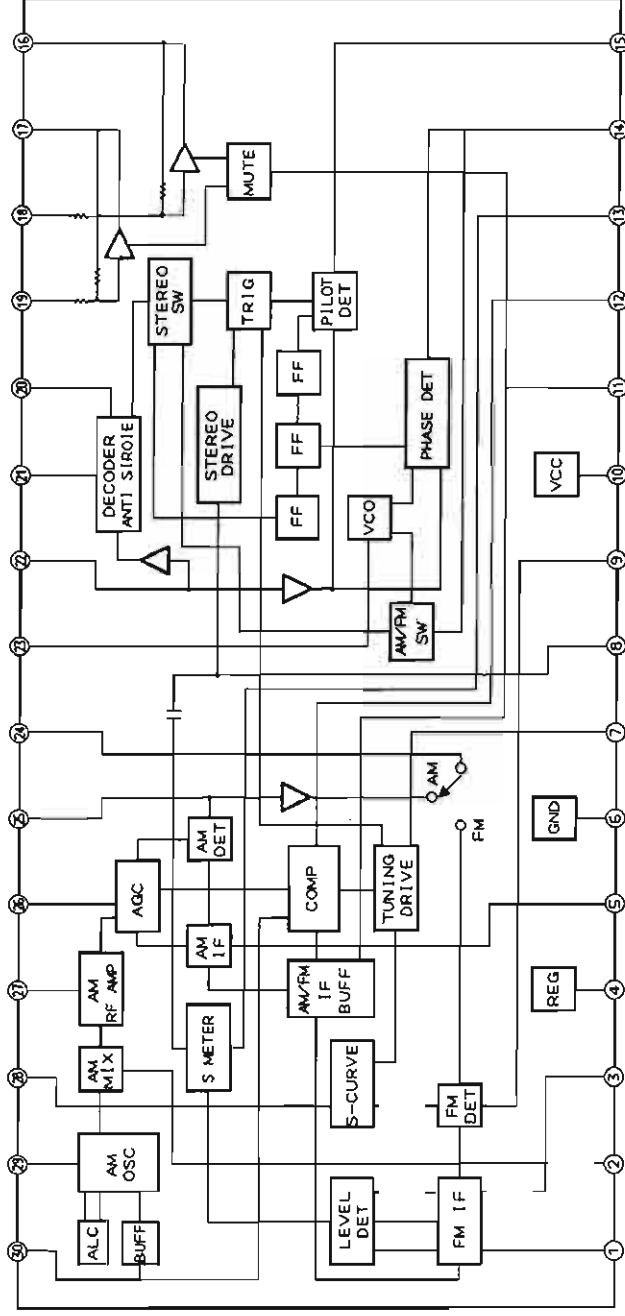
QN04 : TA7317P
OVER LOAD PROTECTOR



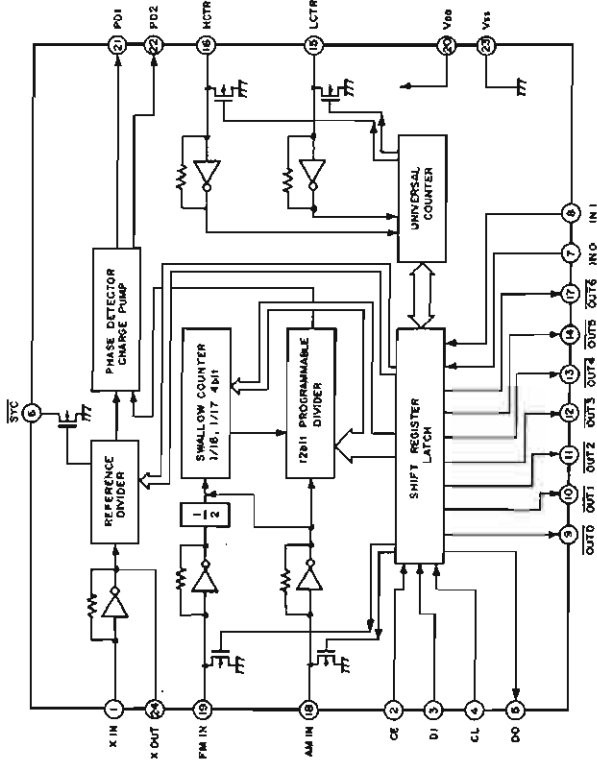
QY10 : TC9173 QY11 : TC9174
PORT EXPANDER



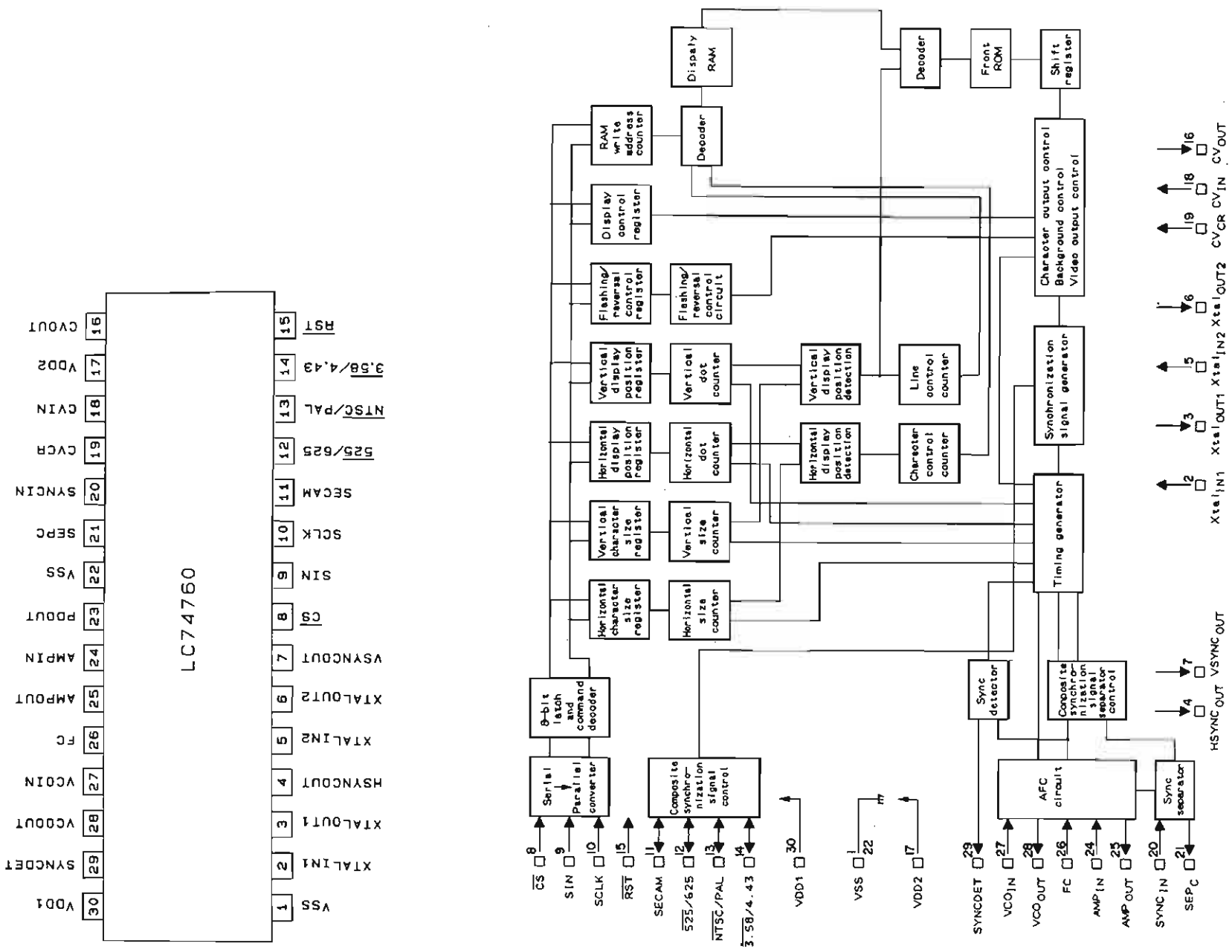
Q201 : LA1836
FM / AM IF, MPX IC



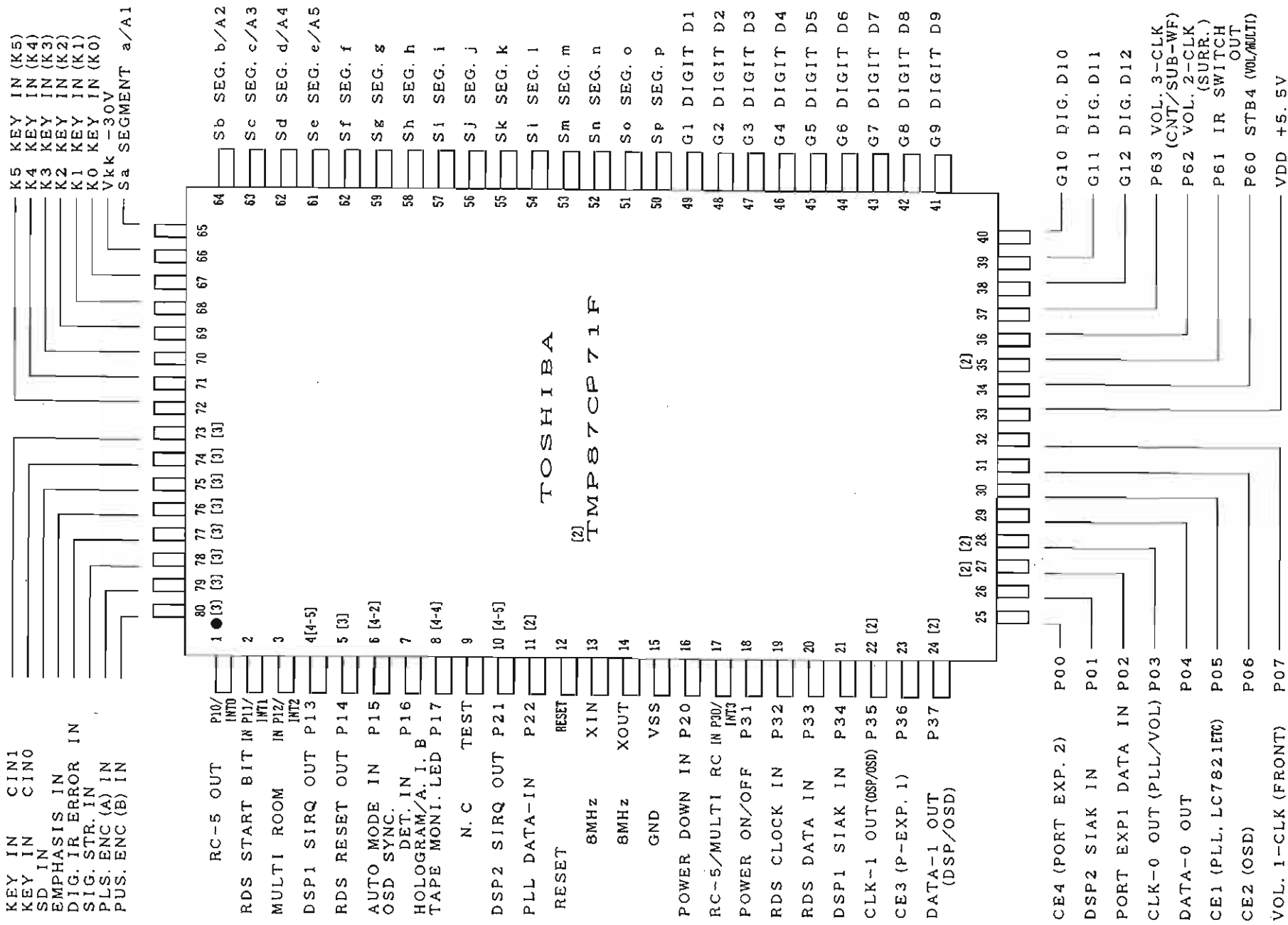
Q501 : LC7218 PLL FREQUENCY SYNTHESIZER



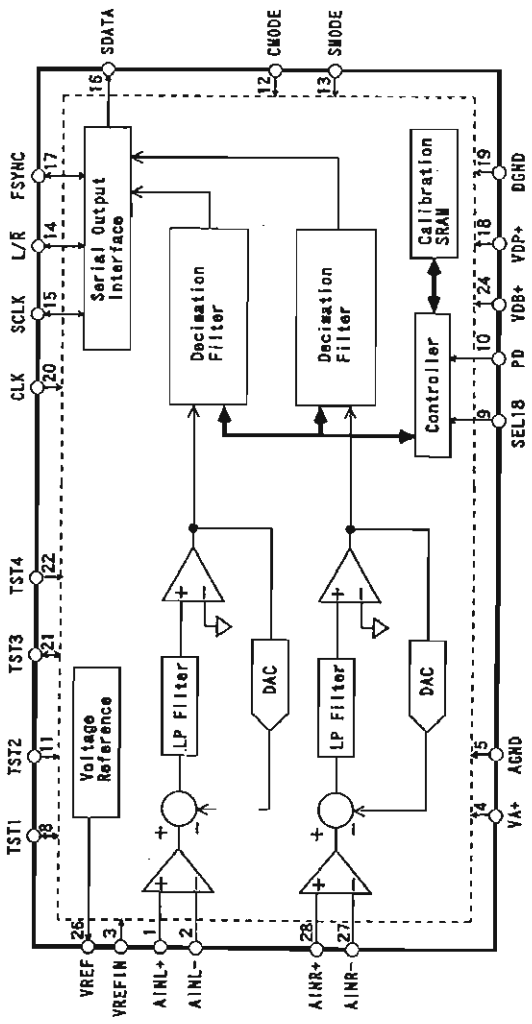
**QX60 : LC74760
OSD LSI**



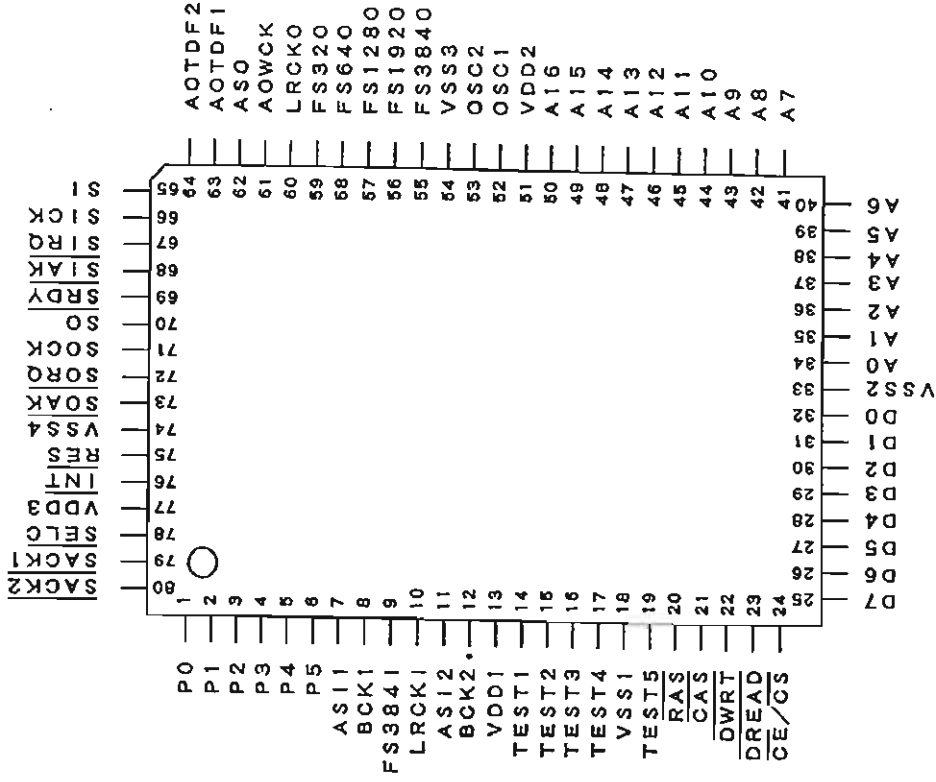
QU01 : TMP87CP71F MICROPROCESSOR



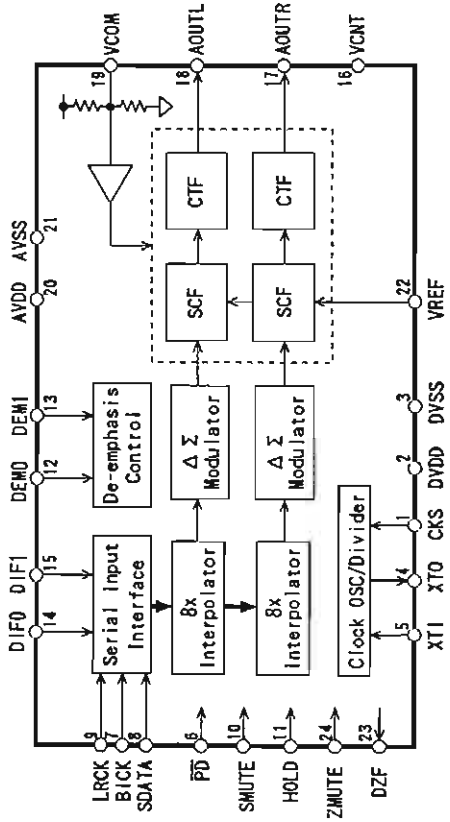
**Q671 : AK5340
ANALOGUE DIGITAL CONVERTER**



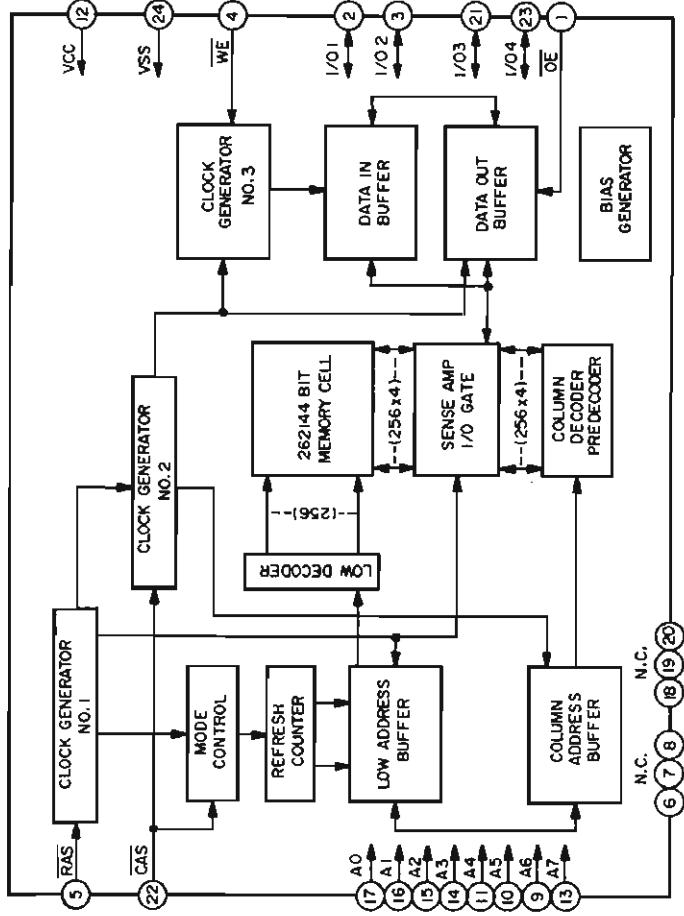
**Q601 : LC83016JE
DIGITAL SIGNAL PROCESSOR**



**Q605, Q607 : AK4320
DIGITAL ANALOGUE CONVERTER**

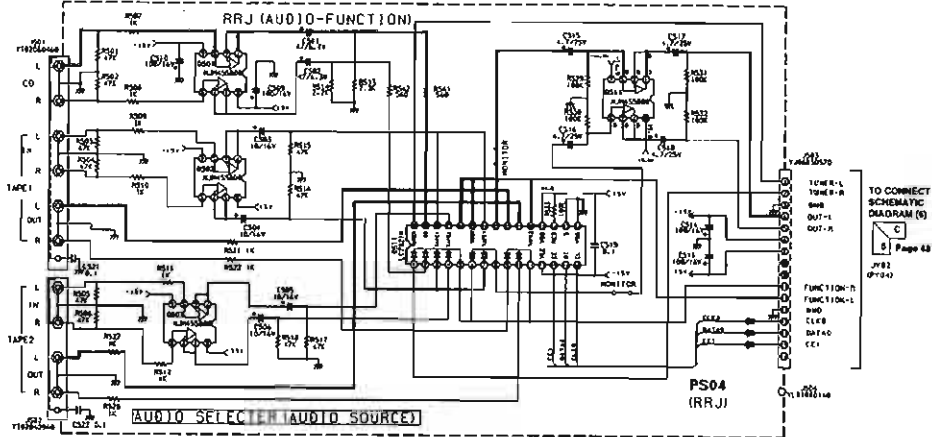


**Q603 : LC32464PM-80
64K x 4BIT DRAM**

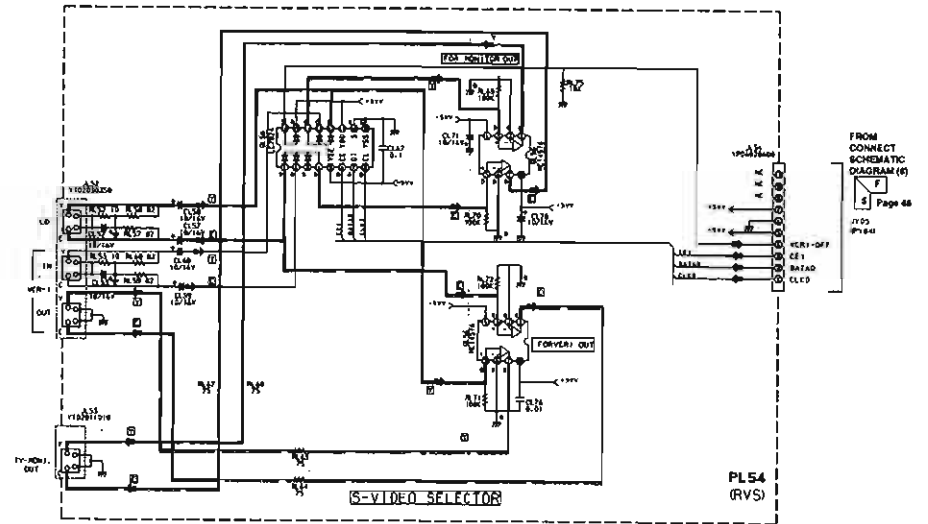


SCHMATIC DIAGRAM (1) BK VERSION

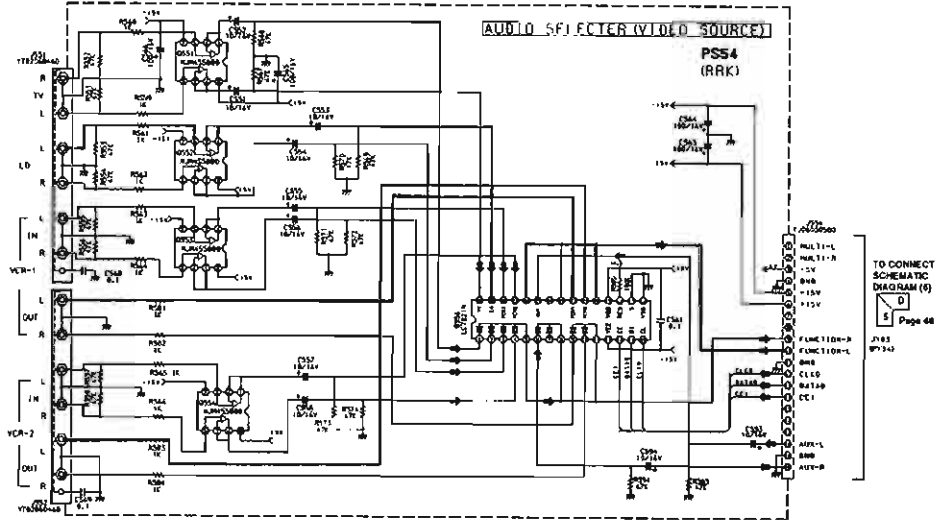
PS04-AUDIO FUNCTION



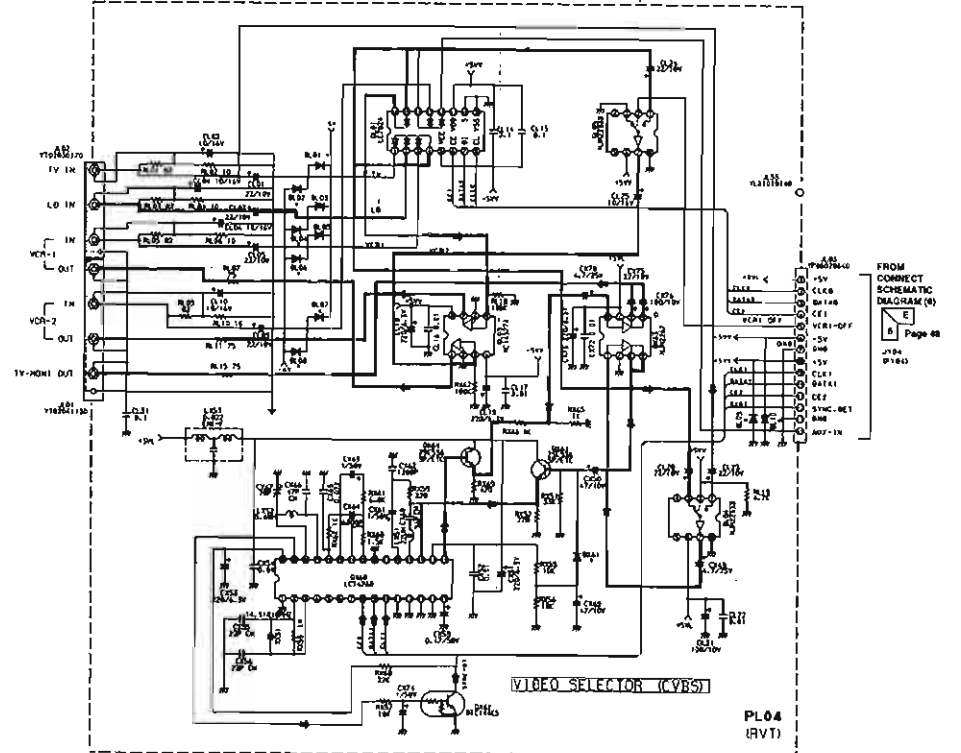
PL54-S-VIDEO



PS54-V-AUDIO FUNCTION

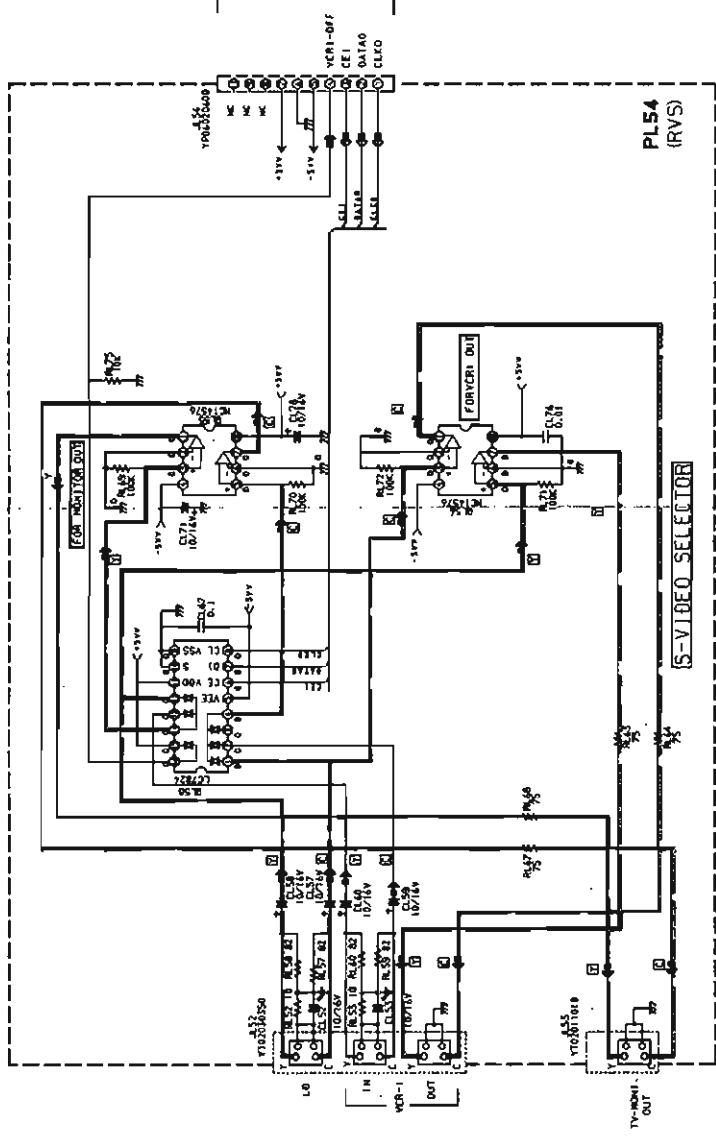


PL04-VIDEO SELECTOR



F G H I J

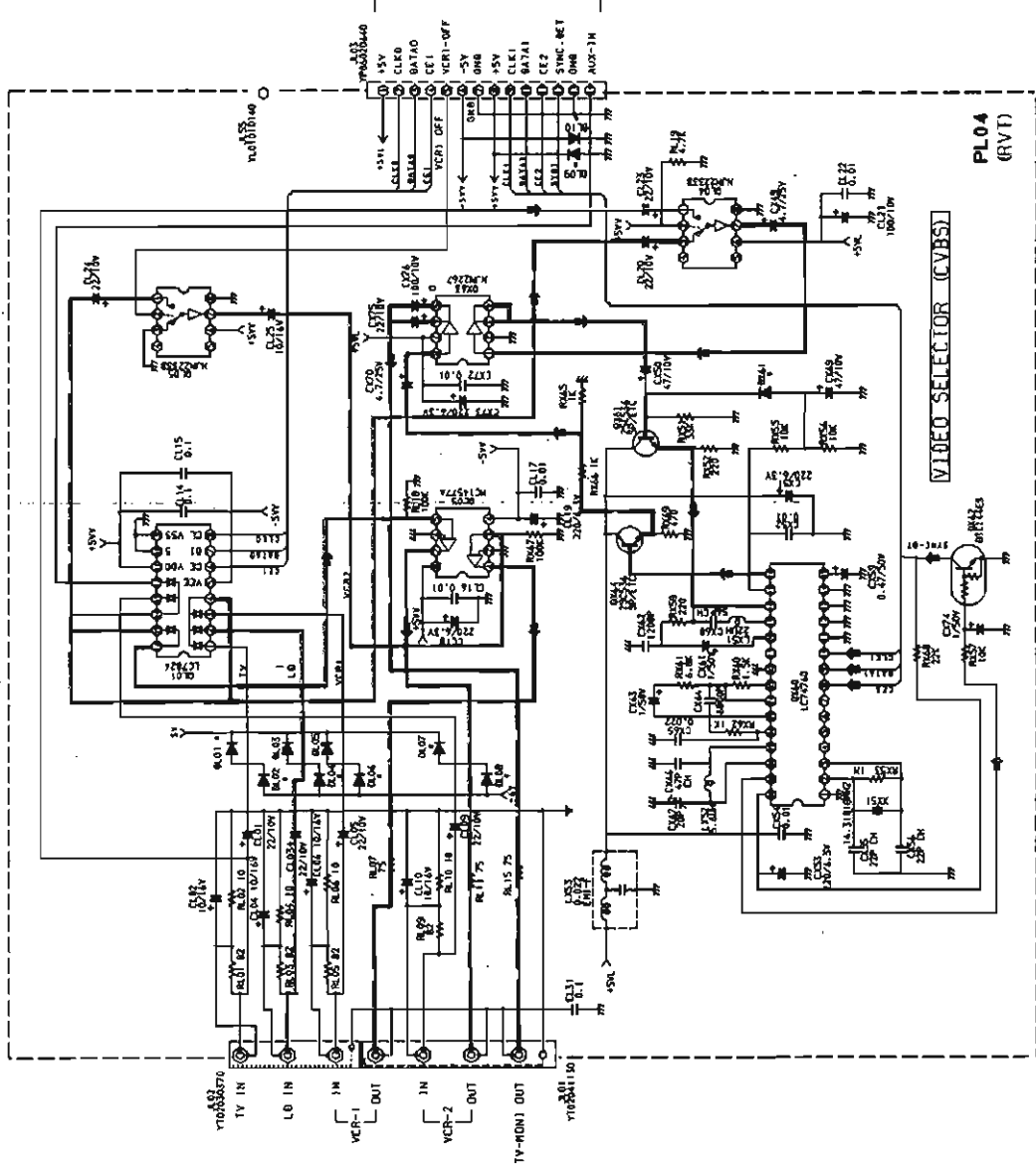
PL54-S-VIDEO



FROM CONNECT SCHEMATIC DIAGRAM (6)
 F Page 48
 J705
 0704

TO CONNECT SCHEMATIC DIAGRAM (6)
 C Page 48
 J702
 0703

PL04-VIDEO SELECTOR

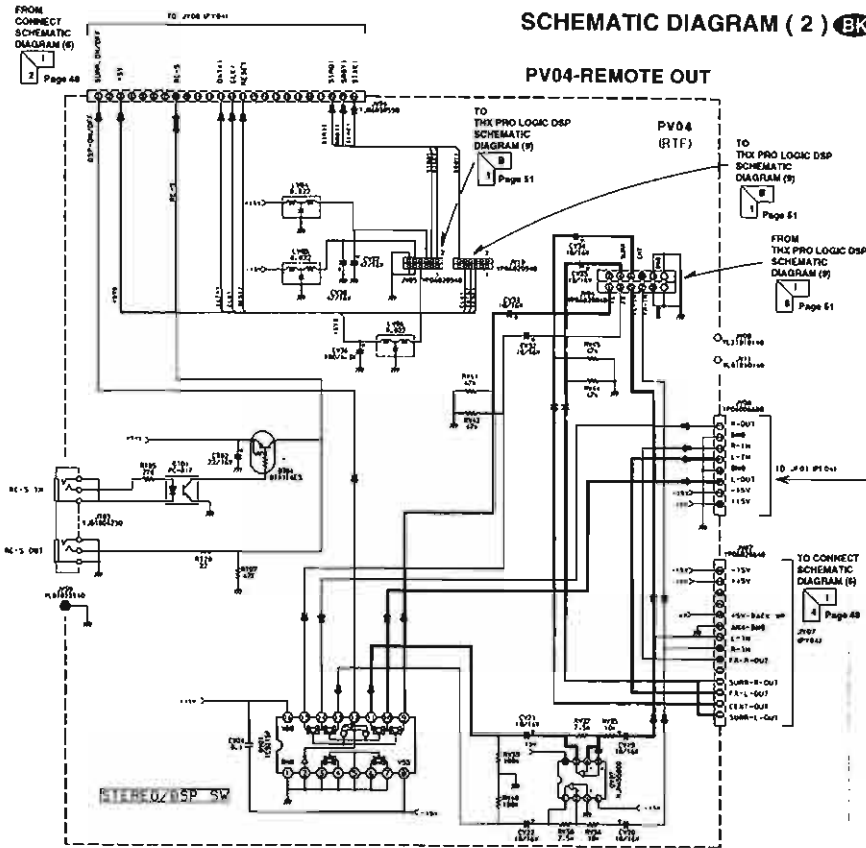


FROM CONNECT SCHEMATIC DIAGRAM (6)
 E Page 48
 J704
 0704

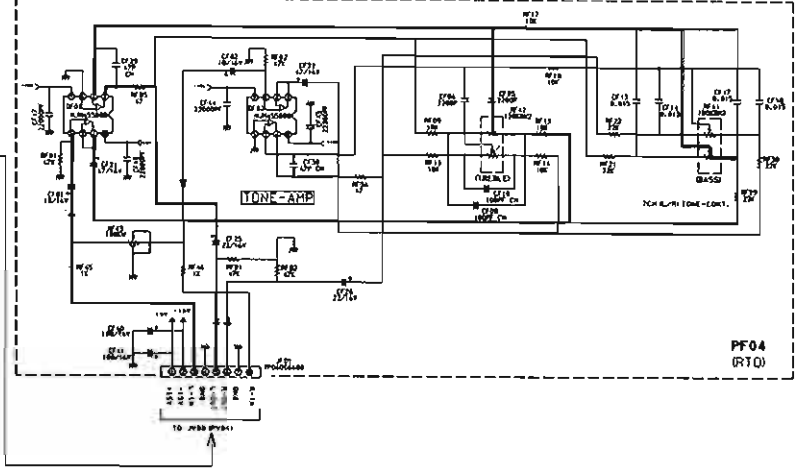
TO CONNECT SCHEMATIC DIAGRAM (6)
 D Page 48
 J703
 0704

SCHMATIC DIAGRAM (2) BK VERSION

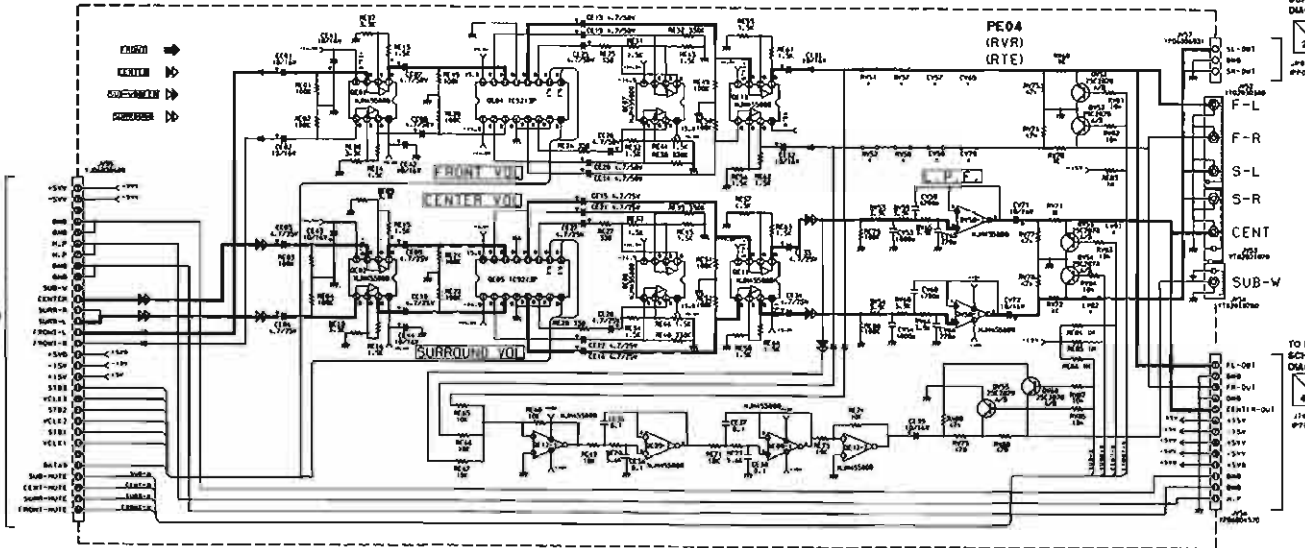
PV04-REMOTE OUT



PF04-TONE



PE04-ELE. VOL

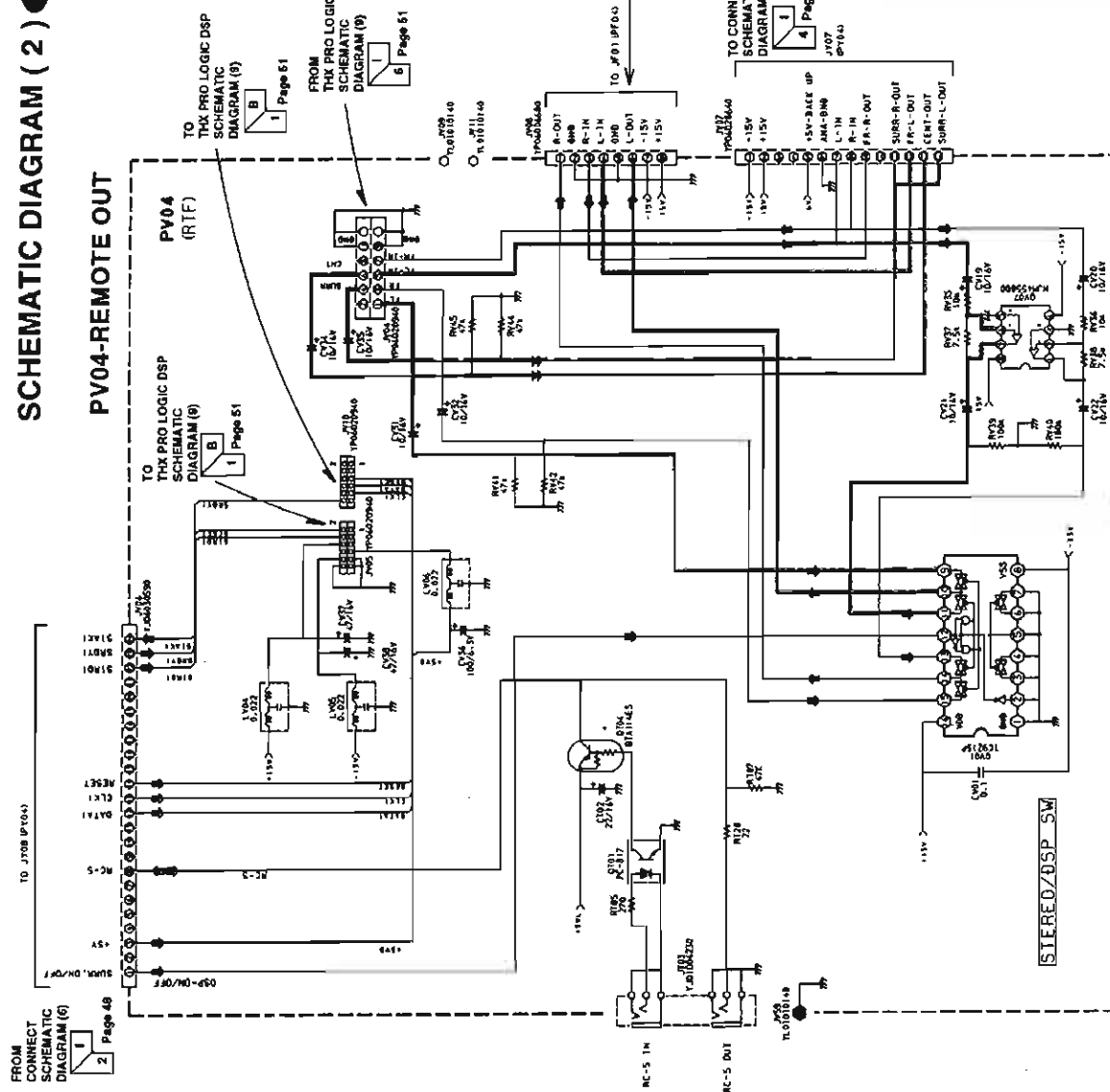


- TO SURROUND AMP SCHEMATIC DIAGRAM (7) or (8) Page 48 or 50
- TO MAIN AMP SCHEMATIC DIAGRAM (7) or (8) Page 48 or 50
- TO SURROUND AMP SCHEMATIC DIAGRAM (7) or (8) Page 48 or 50
- TO MAIN AMP SCHEMATIC DIAGRAM (7) or (8) Page 48 or 50

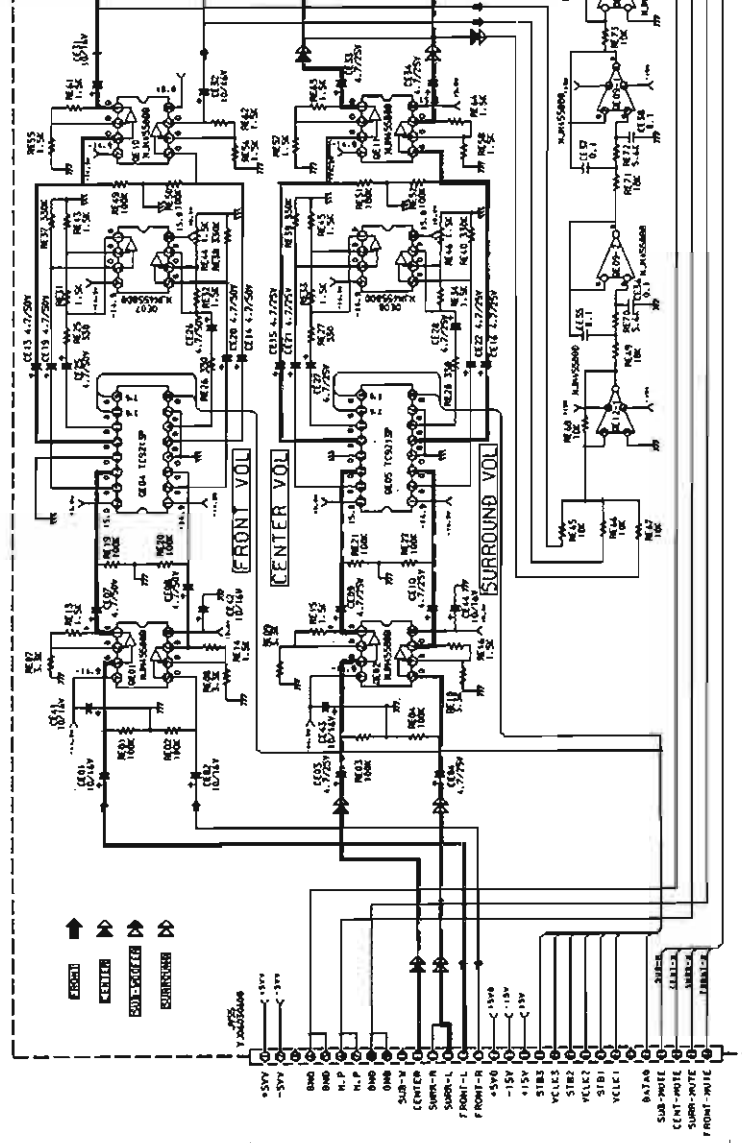
A B C D E

SCHEMATIC DIAGRAM (2) B

PV04-REMOTE OUT



PE04-ELE. VOL



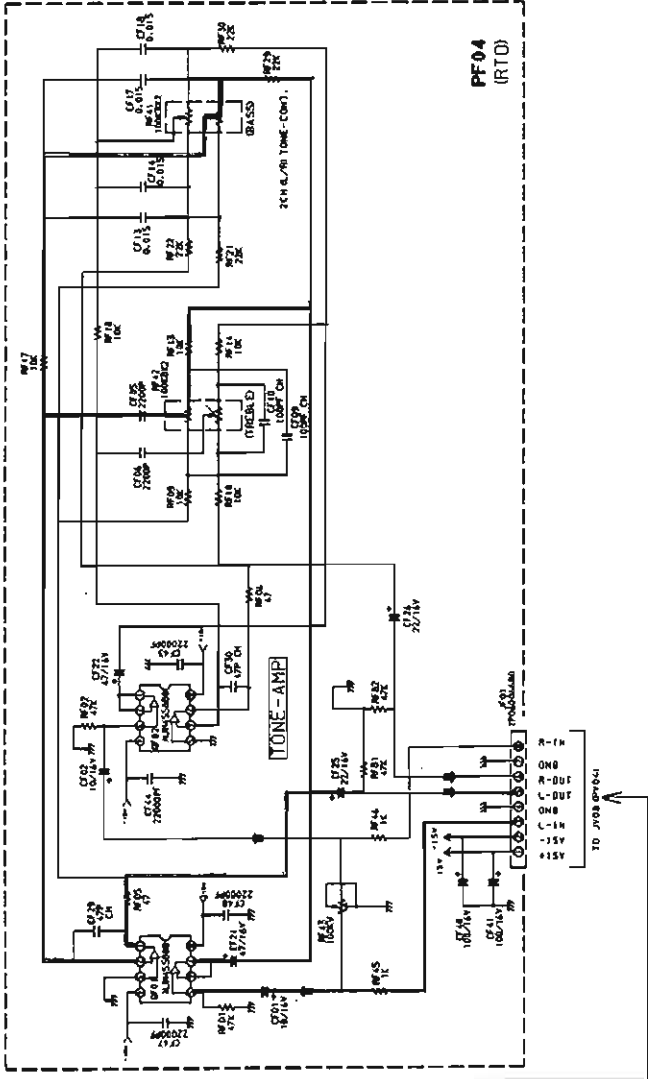
BK VERSION

DSP

DSP LOGIC DSP
 ITC
 M (9)

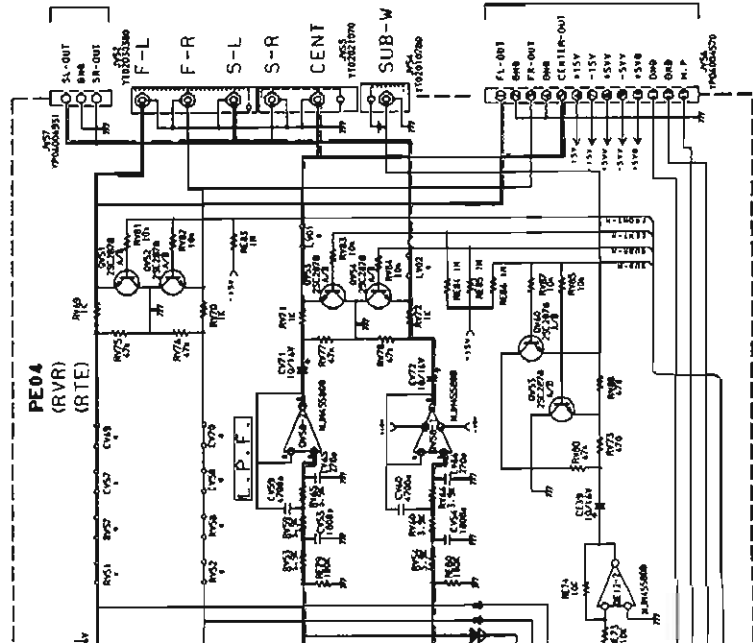
98 51

PF04-TONE



CONNECT
 SCHEMATIC
 DIAGRAM (9)
 4 Page 48
 27 704

TO SURROUND AMP
 SCHEMATIC
 DIAGRAM (7)or(8)
 2 Page 48 or 50
 27 704



TO MAIN AMP
 SCHEMATIC
 DIAGRAM (7)or(8)
 4 Page 48 or 50
 27 704

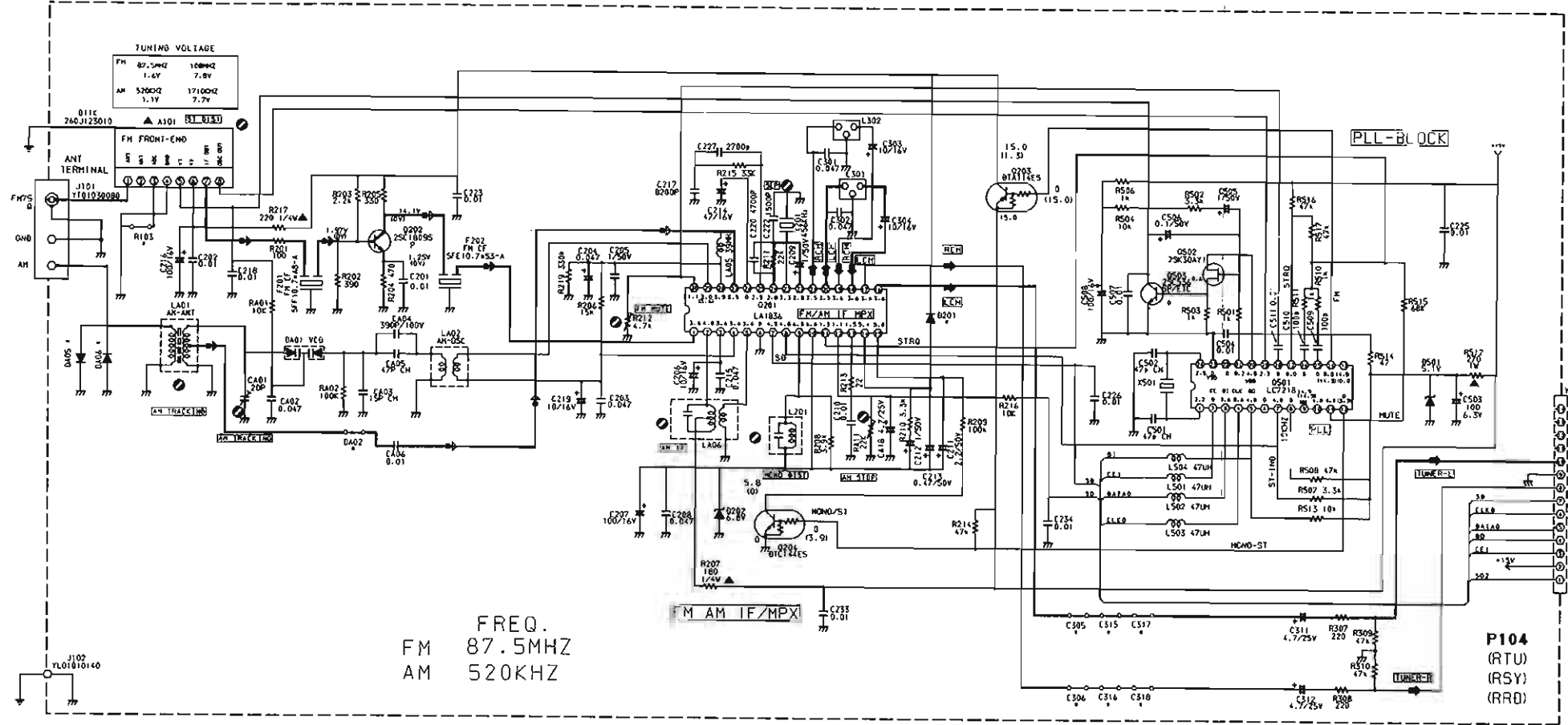
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- ➔ [Symbol]
- ➔ [Symbol]
- ➔ [Symbol]

SCHMATIC DIAGRAM (3) EK VERSION

P104-TUNER

TUNING VOLTAGE

FH	87.5MHZ	100MHZ
	1.6V	7.8V
AH	520KHZ	17100KHZ
	1.1V	7.7V



FREQ.
FM 87.5MHZ
AM 520KHZ

P104
(RTU)
(RSY)
(RRD)

- RESET
 - CLOCK
 - DATA
 - START
 - TUNER-L
 - 6MHz
 - TUNER-R
 - 50
 - CLKO
 - DATA0
 - BD
 - DI
 - CE1
 - +13V
 - S-METER
- TO JY01 (PY04)
- TO CONNECT SCHEMATIC DIAGRAM (4)
- Page 44

A

B

C

D

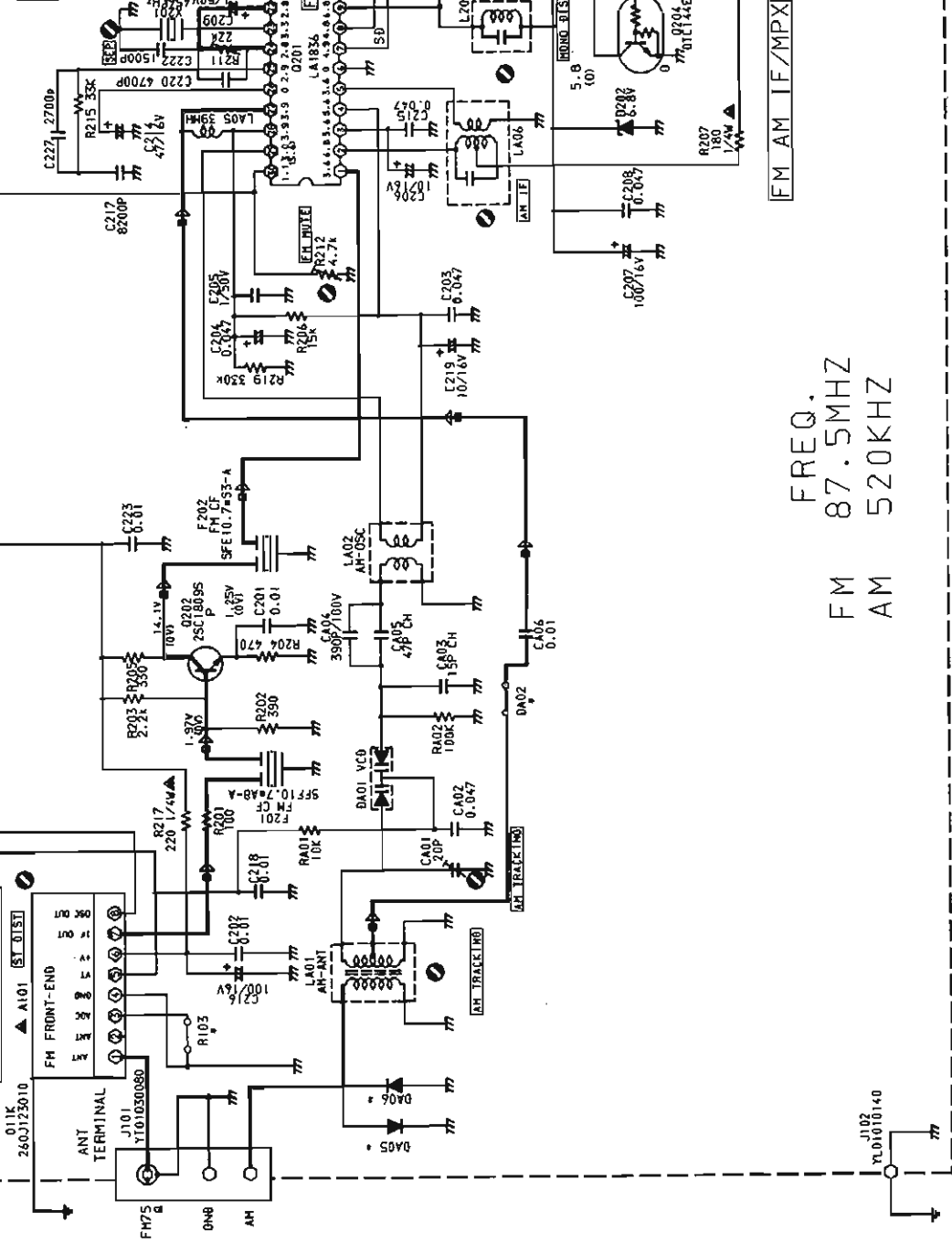
E

SCHEMATIC DIAGRAM (3) EK VERSION

P104-TUNER

TUNING VOLTAGE

FH	87.5MHZ	100PPHZ
	1-.6V	7-.8V
AM	520KHZ	1710KHZ
	1-.1V	7-.7V



FREQ. 87.5MHZ
 AM 520KHZ

FM AM IF/MPX

1

2

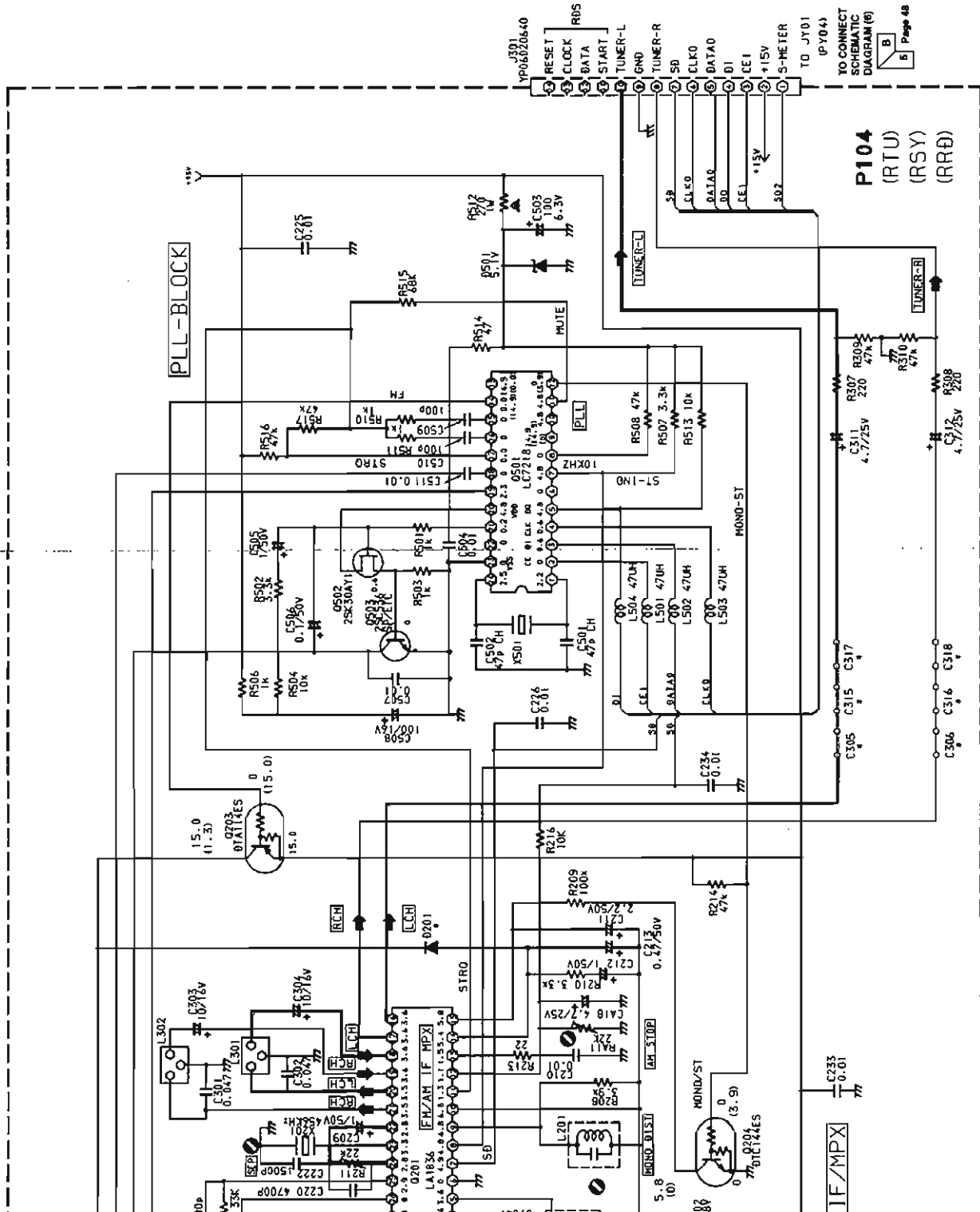
3

4

5

6

7

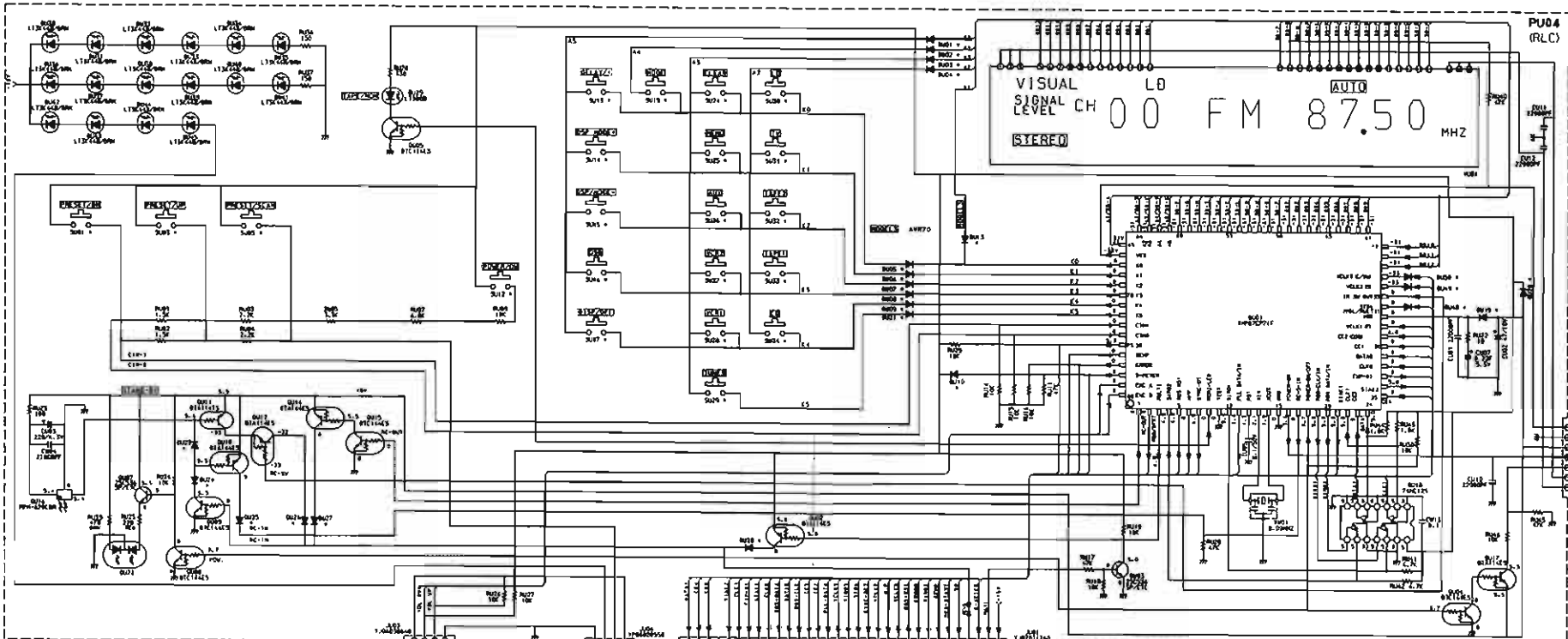


TO JY01
(P-Y04)
TO CONNECT
SCHEMATIC
DIAGRAM (6)

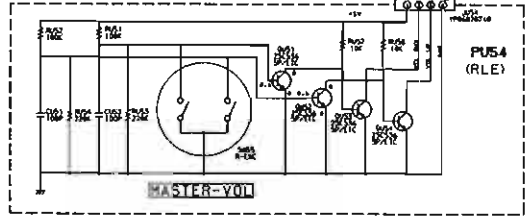


SCHMATIC DIAGRAM (4) BK VERSION

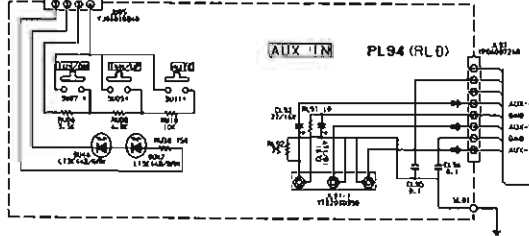
PU04-FRONT (AVR70) ONLY



PU54-MASTER VOL



PL94-AUX IN



TO CONNECT SCHEMATIC DIAGRAM (5) Page 48

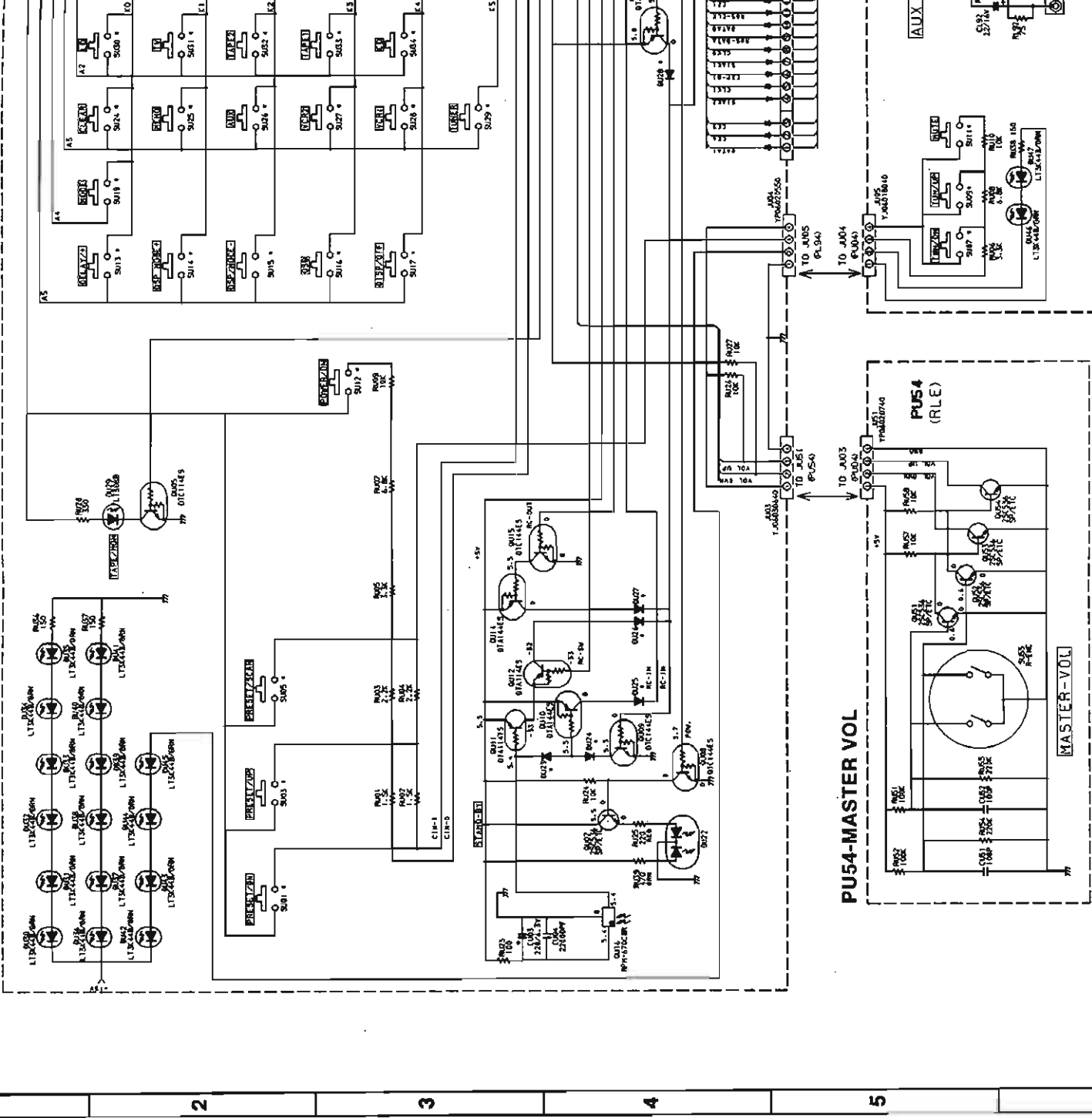
TO CONNECT SCHEMATIC DIAGRAM (5) Page 48

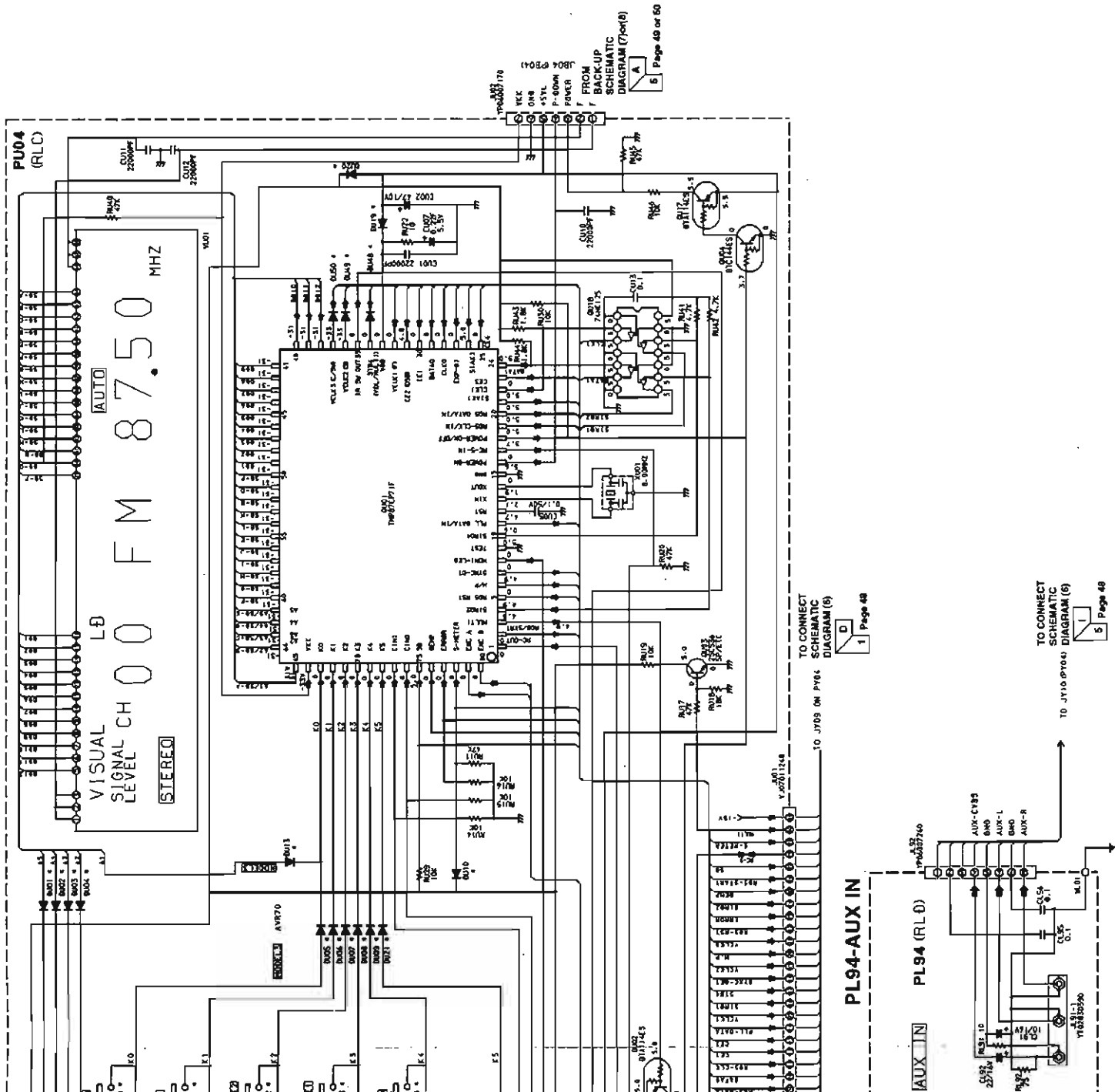
FROM BACK-UP SCHEMATIC DIAGRAM (7)(9)(1) Page 48 of 80

A B C D E

SCHEMATIC DIAGRAM (4) BK VERSION

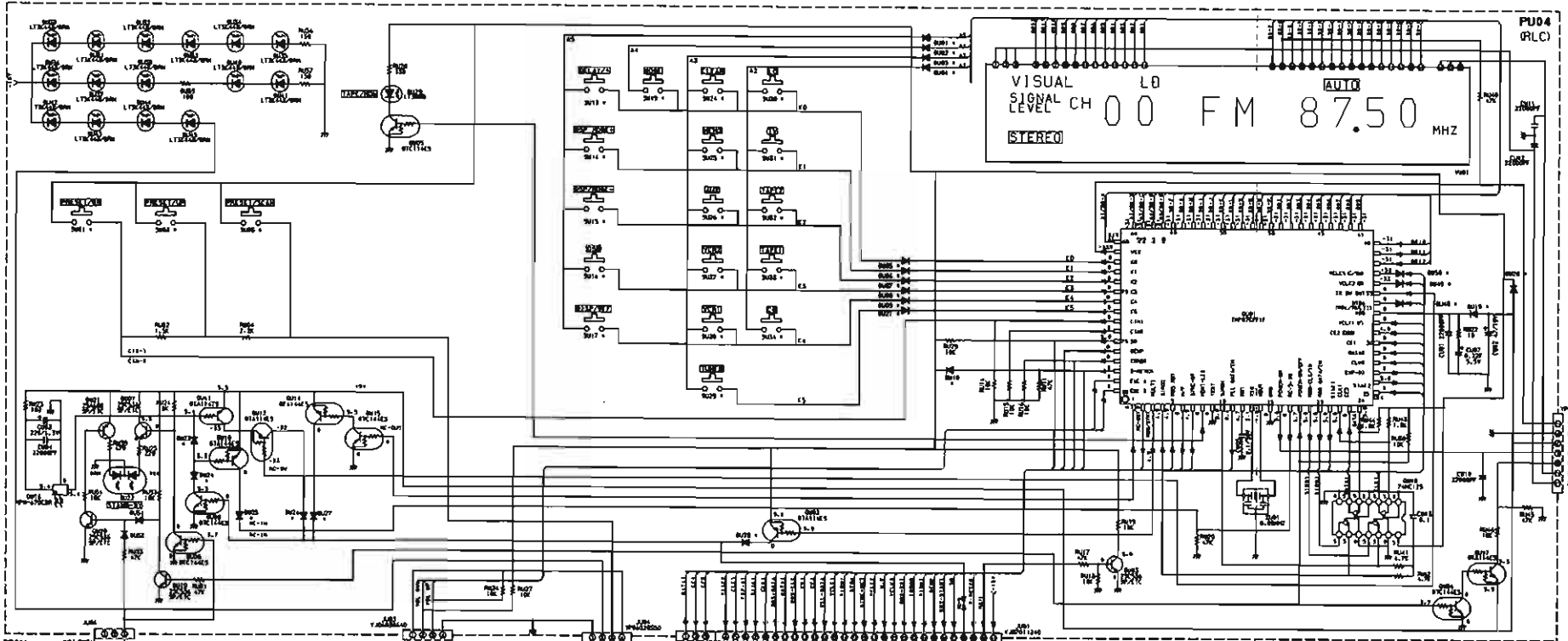
PU04-FRONT (AVR70) ONLY





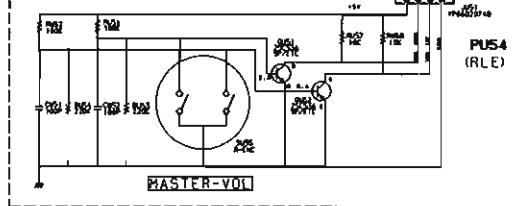
SCHMATIC DIAGRAM (5) BK VERSION

PU04-FRONT (AVR70MK II) ONLY

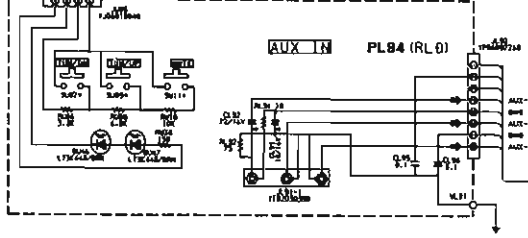


FROM POWER SW SCHEMATIC DIAGRAM (8)
C
Page 50

PU54-MASTER VOL



PL94-AUX IN



TO CONNECT SCHEMATIC DIAGRAM (4)
1
Page 48

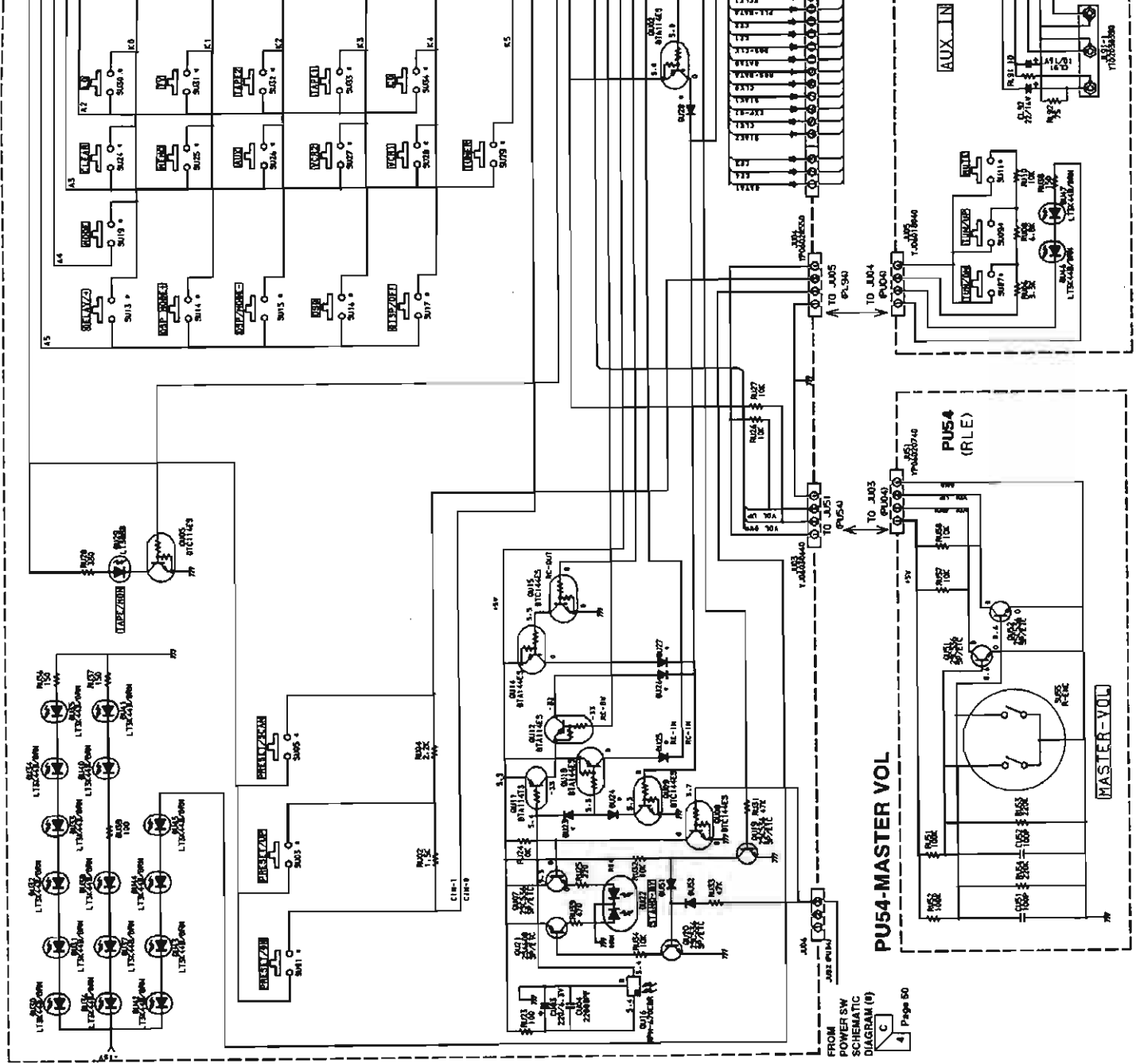
TO CONNECT SCHEMATIC DIAGRAM (4)
1
Page 48

FROM BACK-UP SCHEMATIC DIAGRAM (7)(16)
1
Page 48 or 50

1
2
3
4
5
6
7

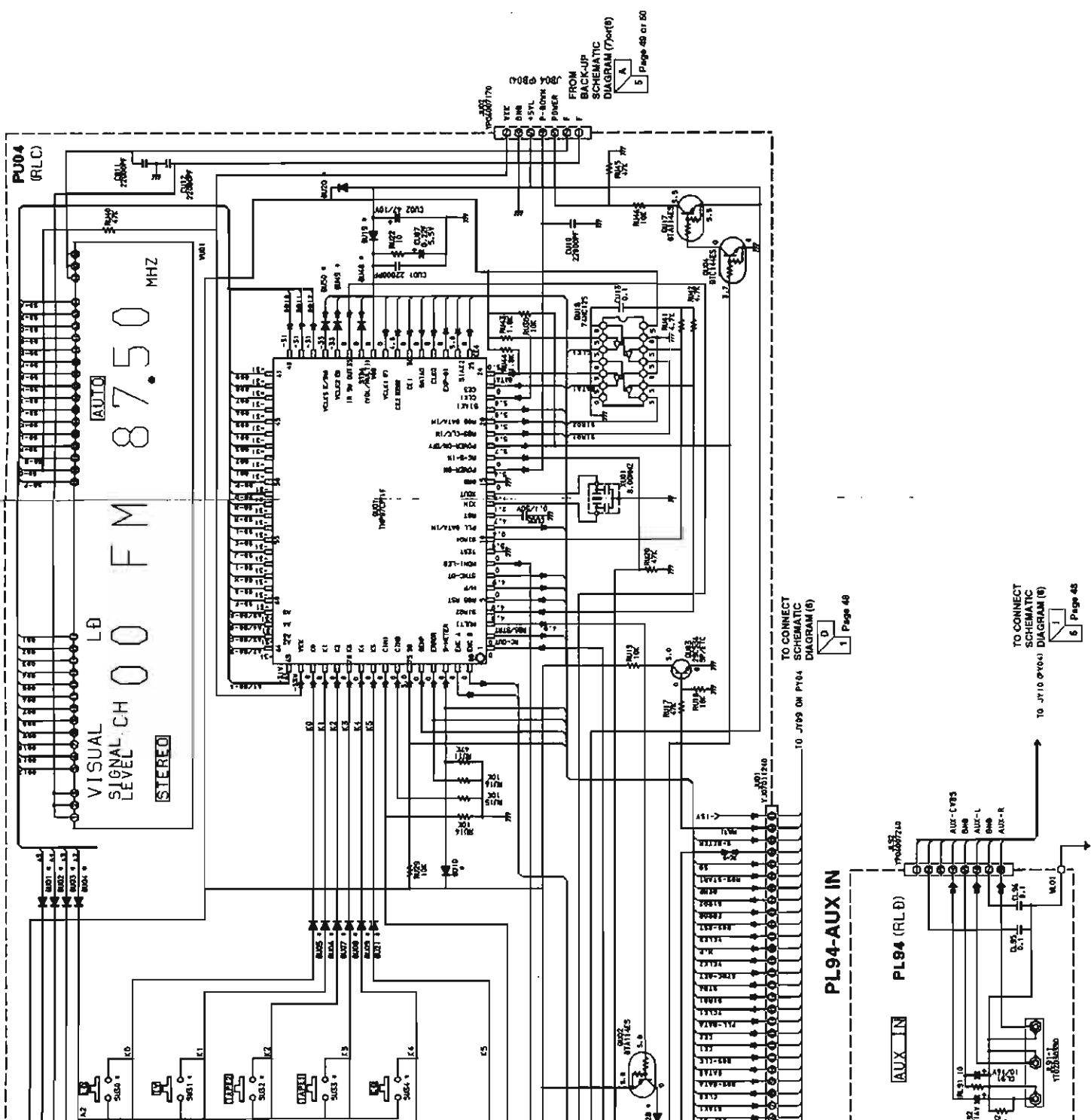
SCHEMATIC DIAGRAM (5) BK VERSION

PU04-FRONT (AVR70MK II) ONLY

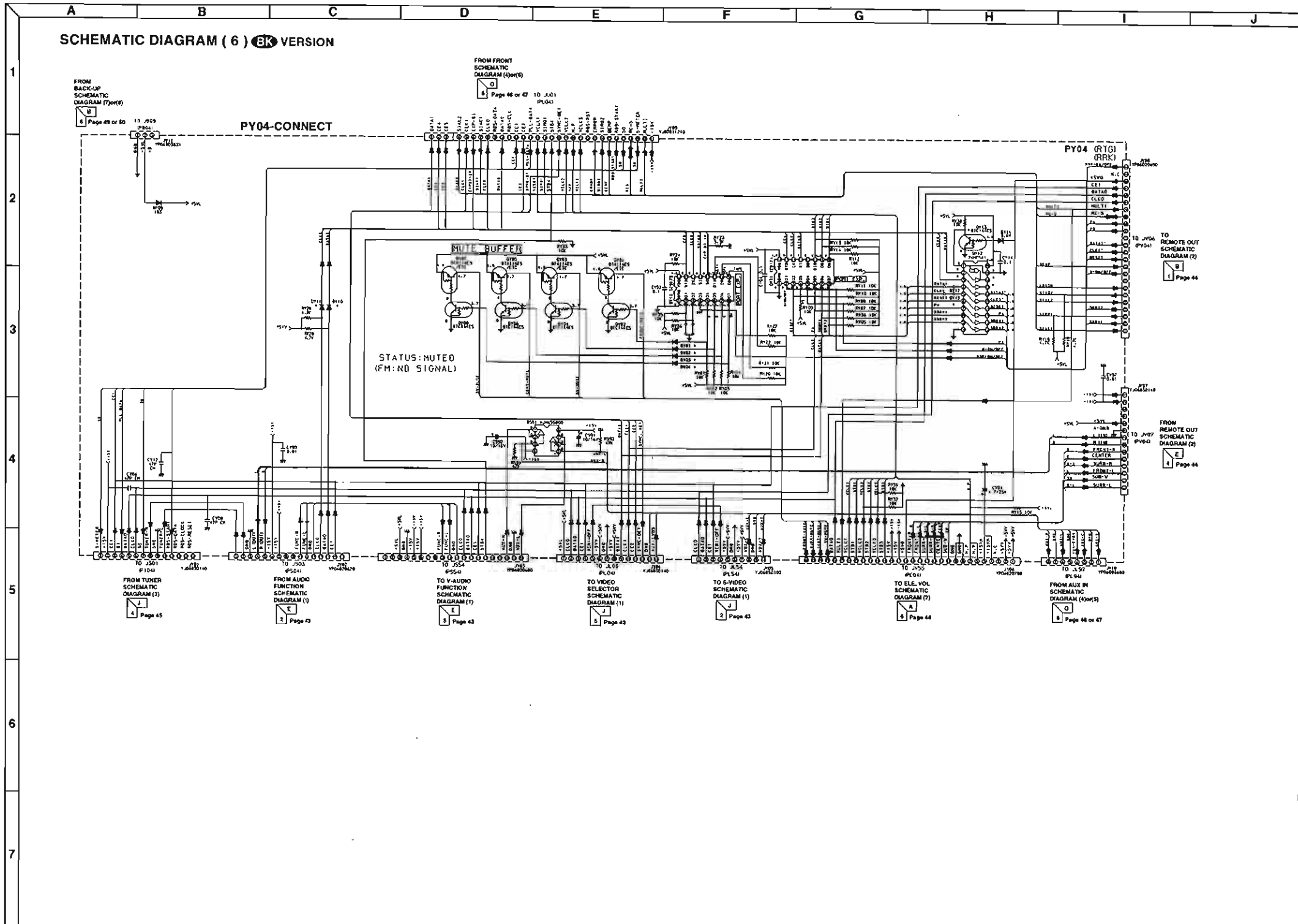


FROM
POWER SW
SCHEMATIC
DIAGRAM (4)
C
4 Page 50

F G H J



SCHMATIC DIAGRAM (6) BK VERSION



TO REMOTE OUT SCHEMATIC DIAGRAM (2)
 B
 Page 44

FROM REMOTE OUT SCHEMATIC DIAGRAM (2)
 E
 Page 44

A B C D E

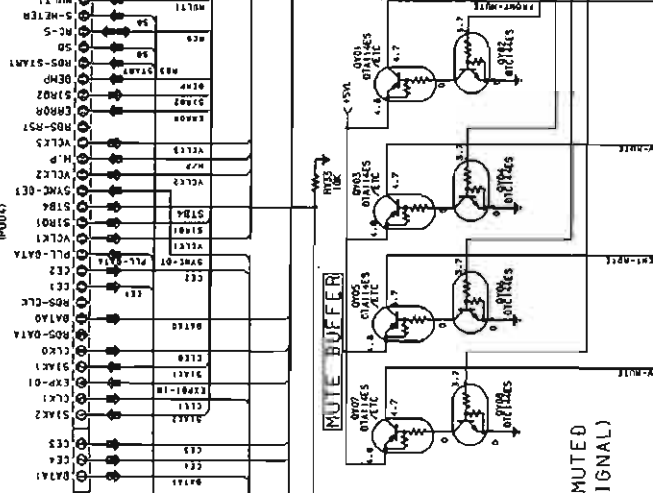
SCHEMATIC DIAGRAM (6) EK VERSION

1

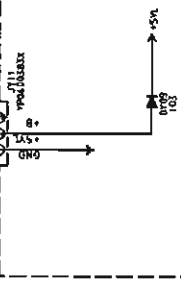
FROM BACK-UP SCHEMATIC DIAGRAM (7)(19) **B** Page 43 or 50

FROM FRONT SCHEMATIC DIAGRAM (4)(16) **G** Page 46 or 47

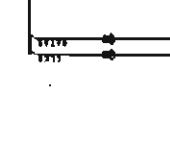
TO J001 (P10.1)



PY04-CONNECT



2

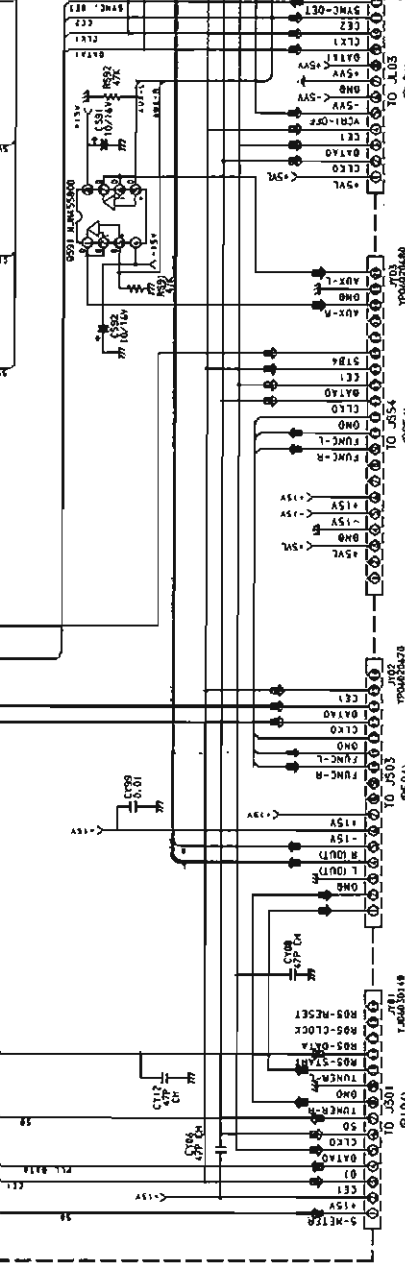


3

STATUS: MUTED
(FM: NO SIGNAL)



4



FROM TUNER SCHEMATIC DIAGRAM (3) **J** Page 45

FROM AUDIO FUNCTION SCHEMATIC DIAGRAM (1) **E** Page 43

TO V-AUDIO FUNCTION SCHEMATIC DIAGRAM (1) **E** Page 43

TO VIDEO SELECTOR SCHEMATIC DIAGRAM (1) **J** Page 43

5

6

7

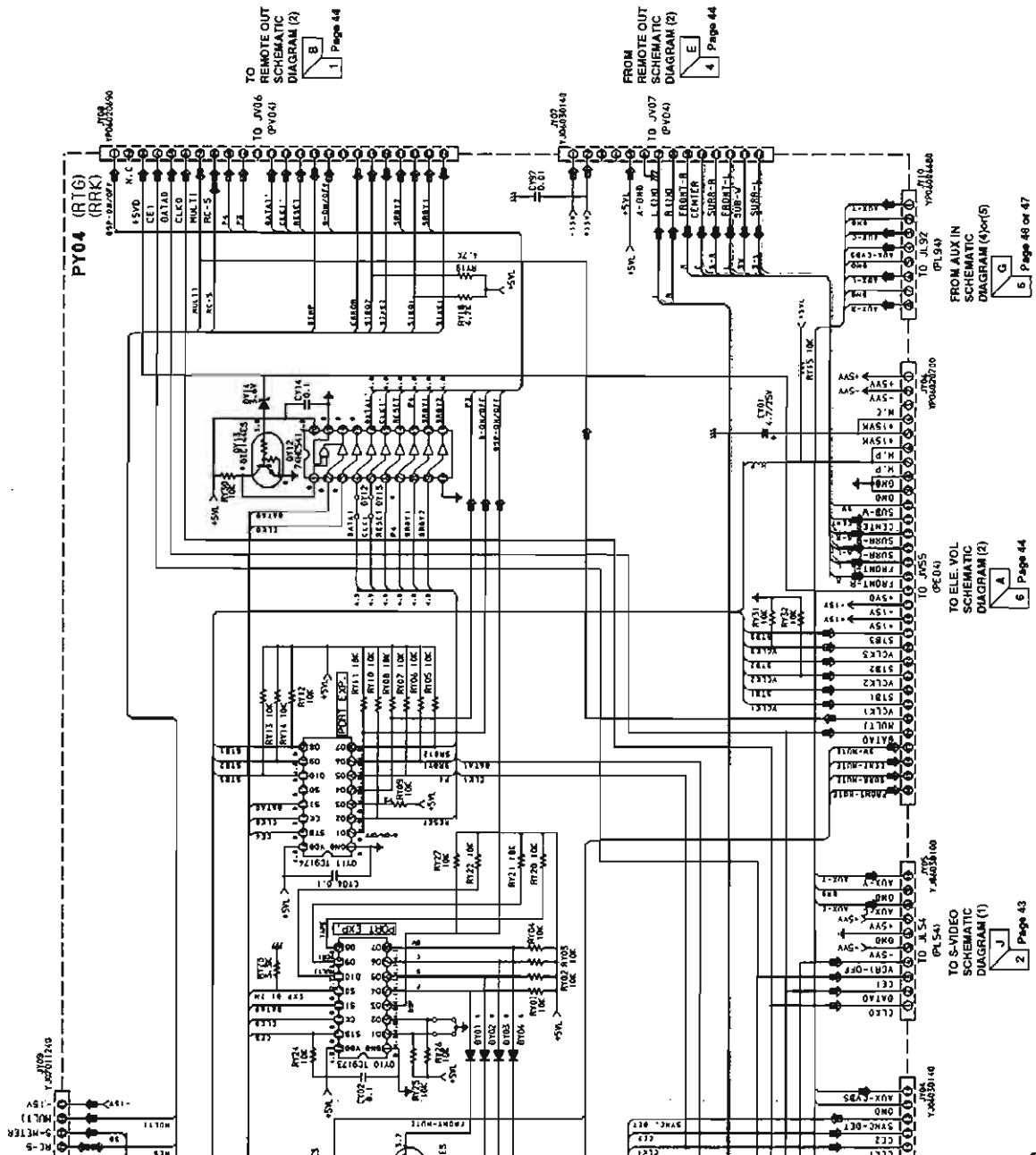
F

G

H

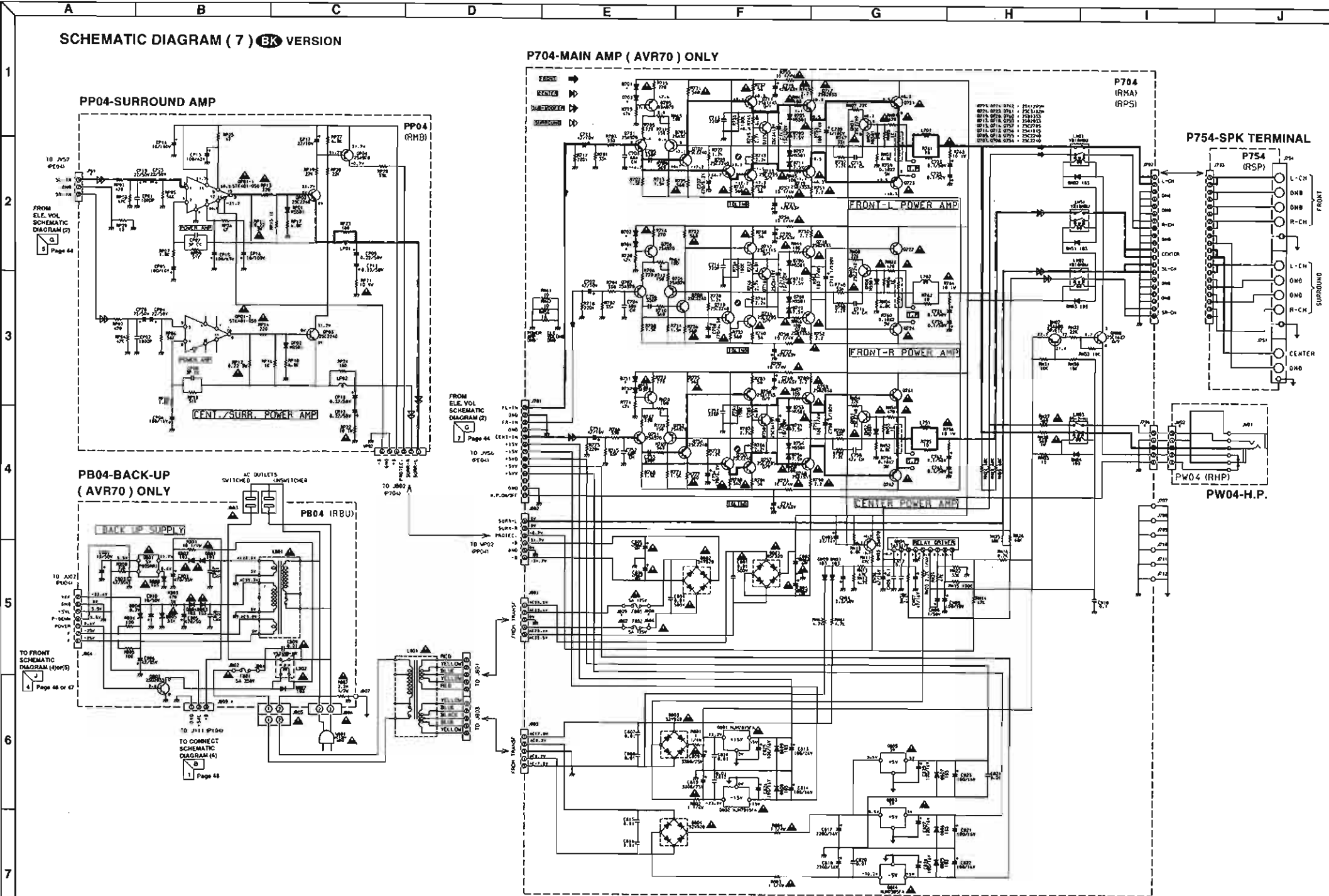
I

J



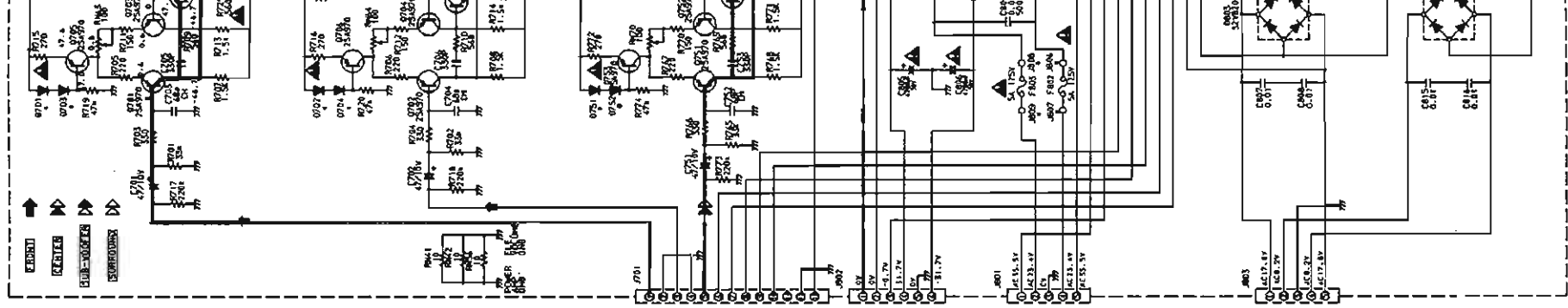
SCHMATIC DIAGRAM (7) BK VERSION

P704-MAIN AMP (AVR70) ONLY

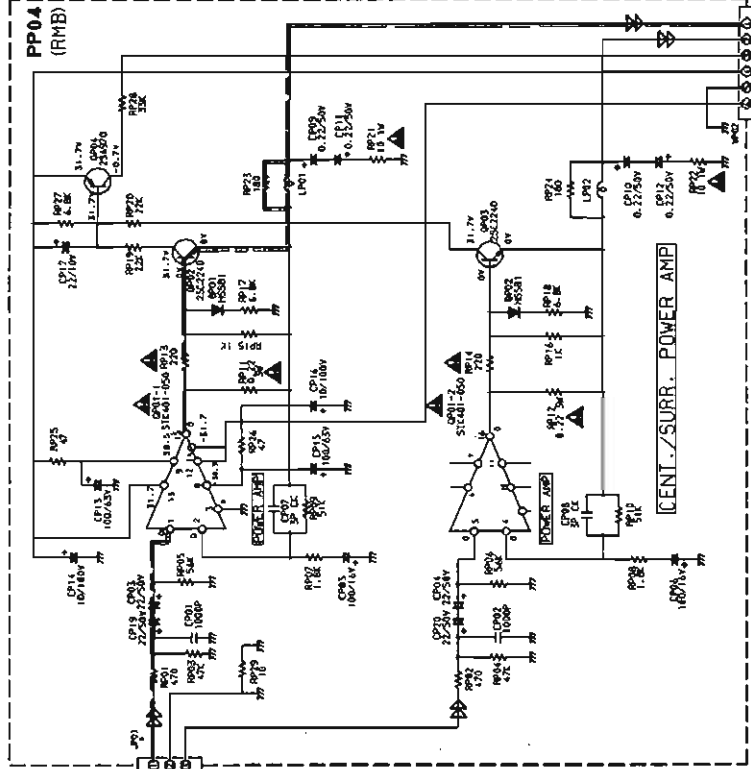


SCHEMATIC DIAGRAM (7) BK VERSION

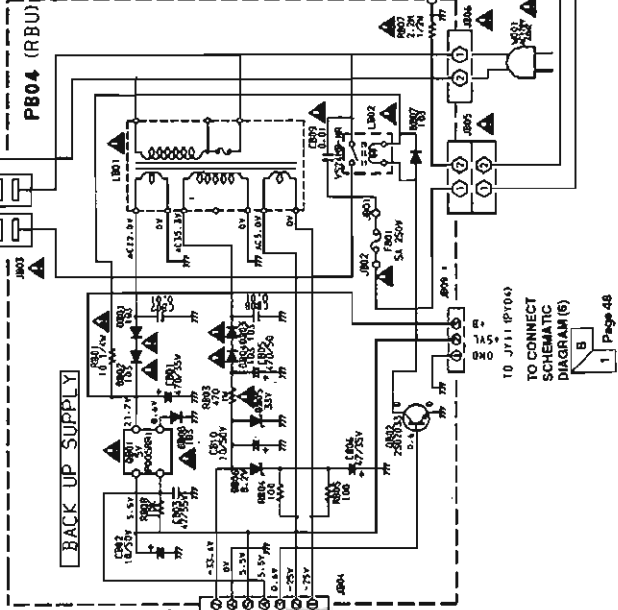
P704-MAIN AMP (AVR70)



PP04-SURROUND AMP



PB04-BACK-UP ONLY (AVR70) ONLY



FROM ELE. VOL. SCHEMATIC DIAGRAM (2) 5 Page 44

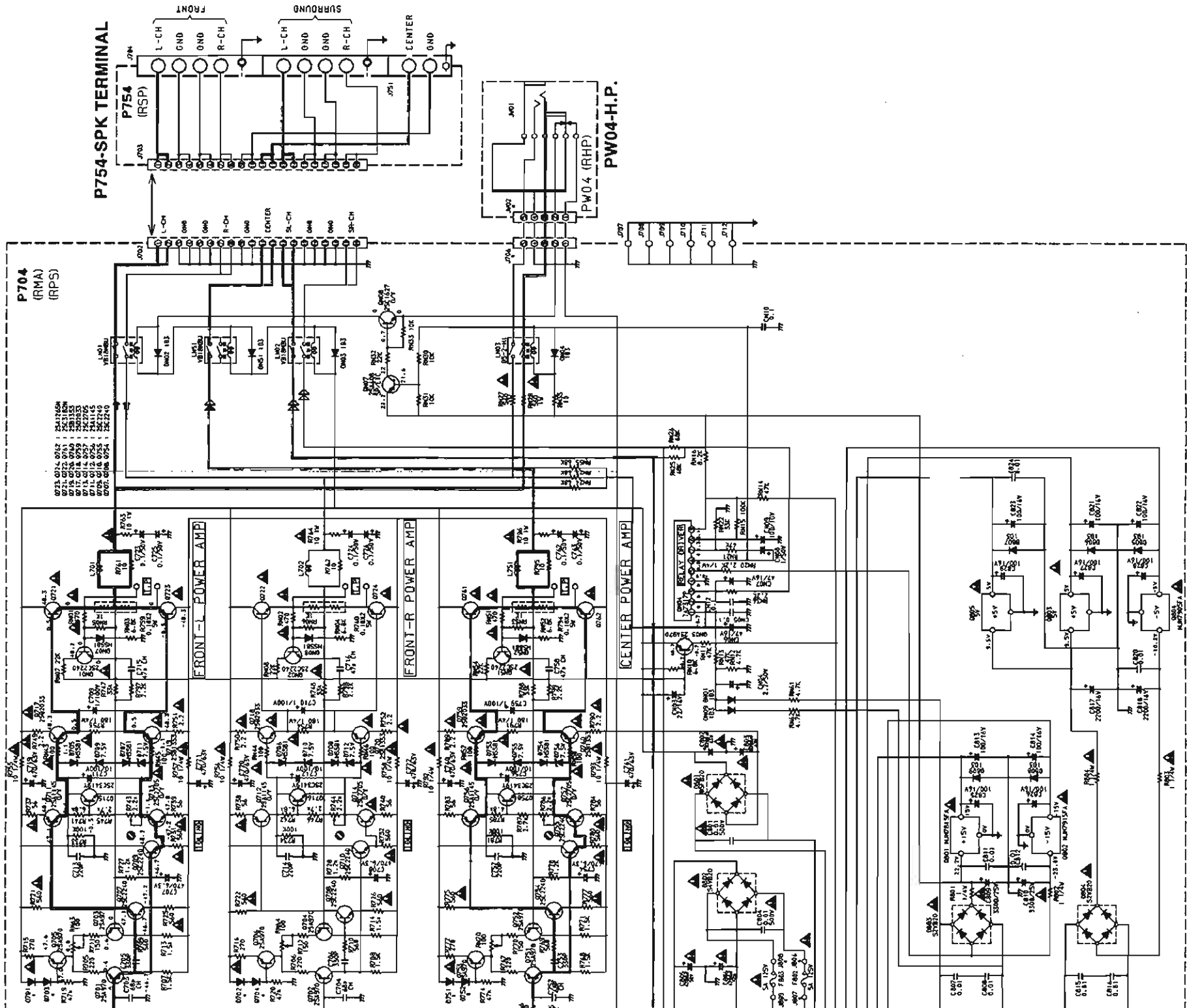
FROM ELE. VOL. SCHEMATIC DIAGRAM (2) 7 Page 44

TO FRONT SCHEMATIC DIAGRAM (4) (P104) 4 Page 46 or 47

TO J111 (P104) TO CONNECT SCHEMATIC DIAGRAM (6) 1 Page 48

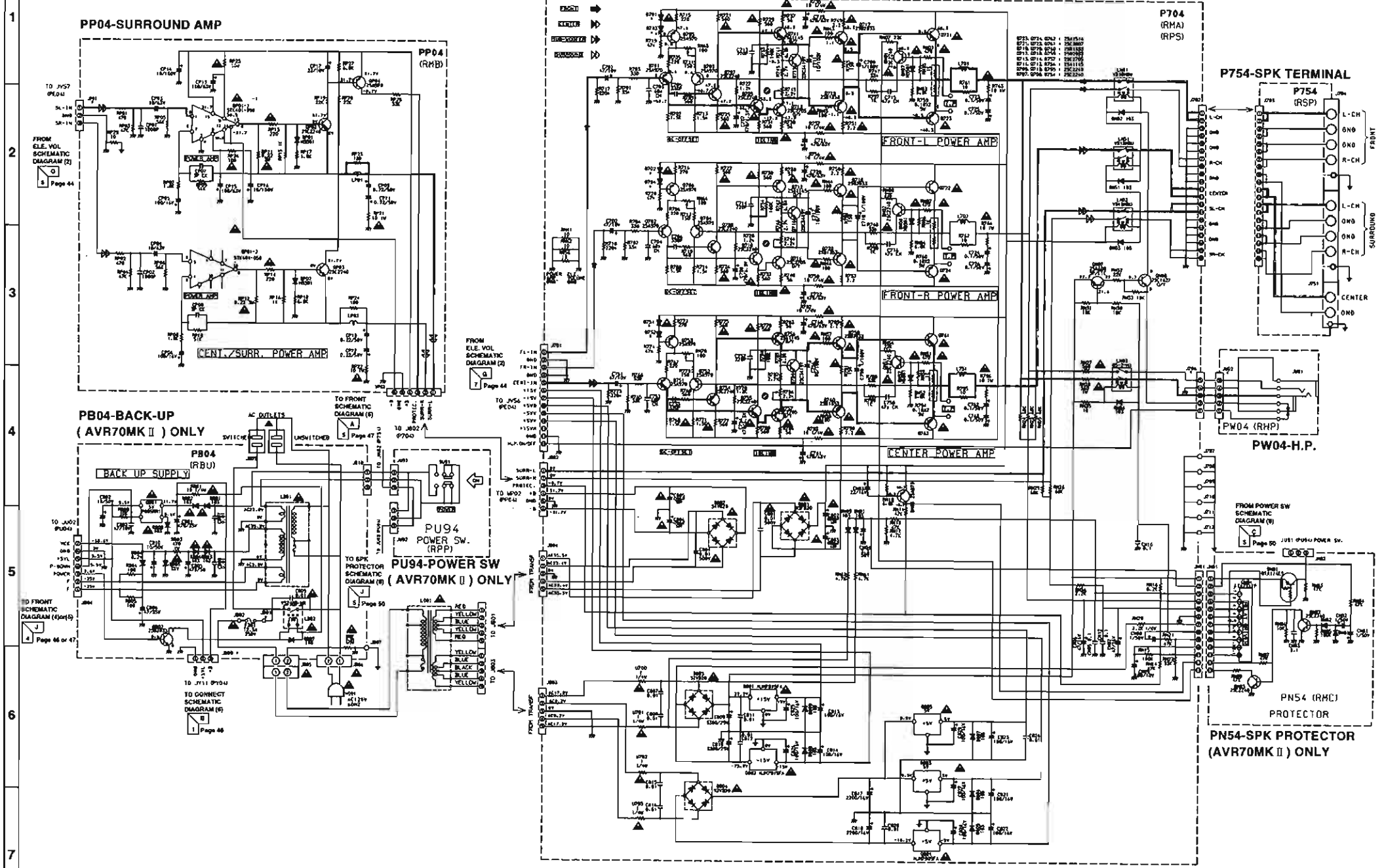
F G H I J

AVR70 (AVR70) ONLY



SCHMATIC DIAGRAM (8) BK VERSION

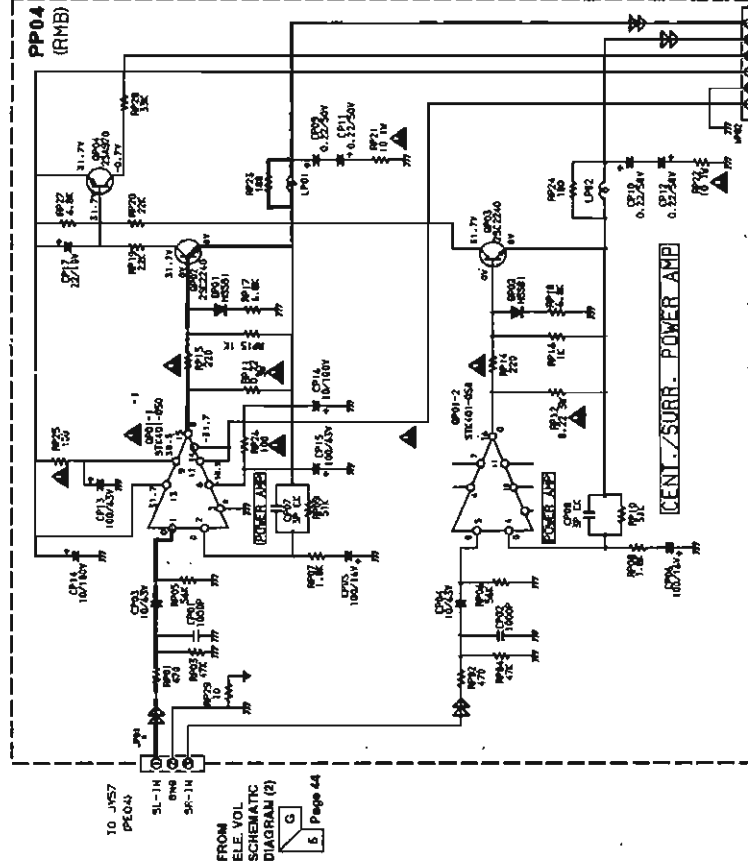
P704-MAIN AMP (AVR70MK II) ONLY



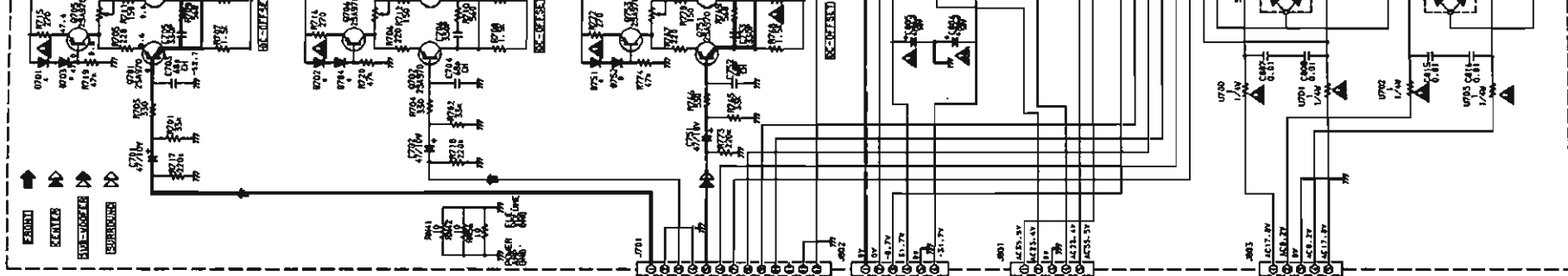
A B C D E

SCHEMATIC DIAGRAM (8) BK VERSION

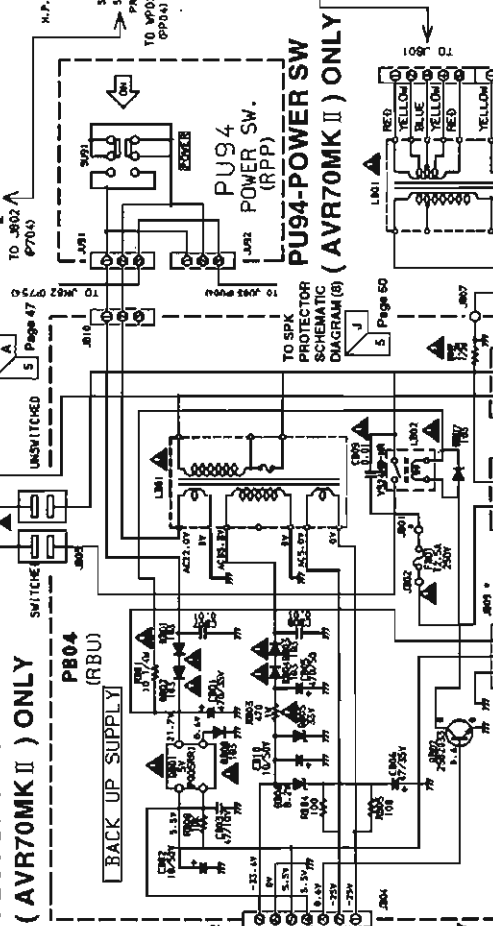
PP04-SURROUND AMP



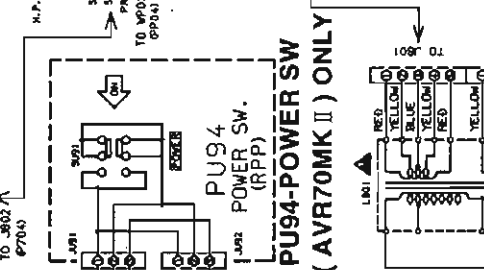
P704-MAIN AMP (AVR70)



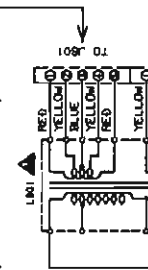
PB04-BACK-UP (AVR70MK II) ONLY



PB04 (RBU) BACK UP SUPPLY



PU94-POWER SW (AVR70MK II) ONLY



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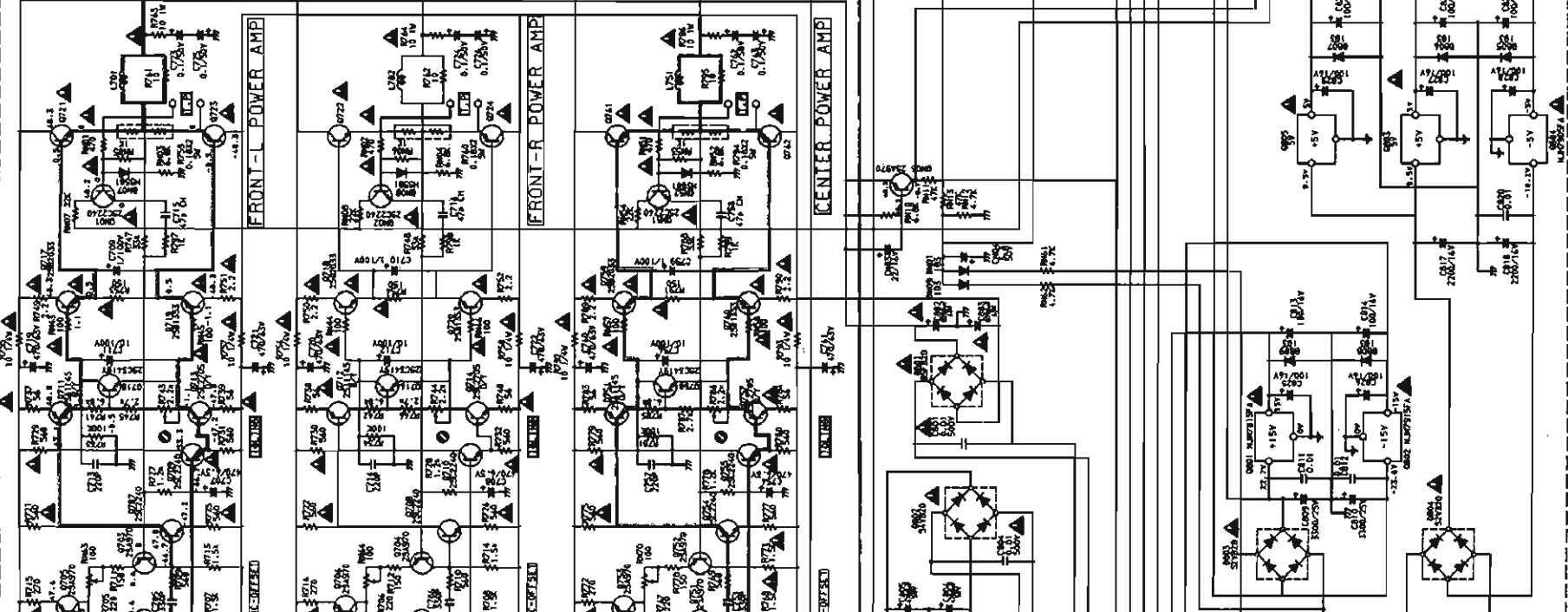
F

G

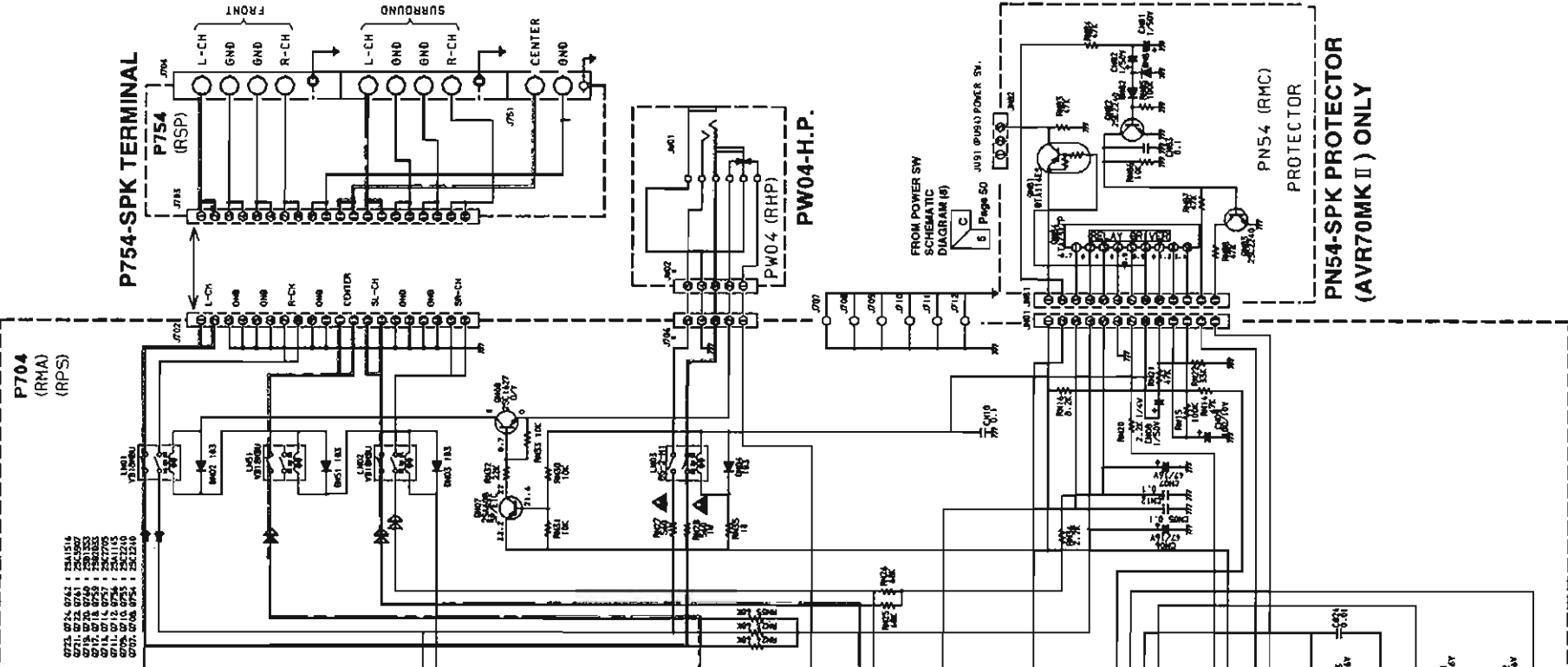
H

J

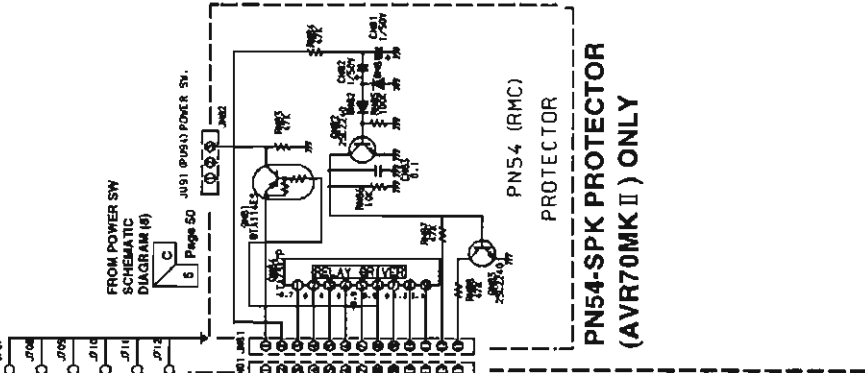
R70MK II) ONLY



- 0223 0724 0741 25A1514
- 0216 0722 0741 25C4507
- 0215 0718 0745 25B1532
- 0214 0716 0745 25B1533
- 0214 0714 0757 25C7705
- 0214 0712 0745 25C1115
- 0214 0710 0745 25C1116
- 0202 0708 0754 25C1216



PW04-H.P.



FROM POWER SW SCHEMATIC DIAGRAM (6)

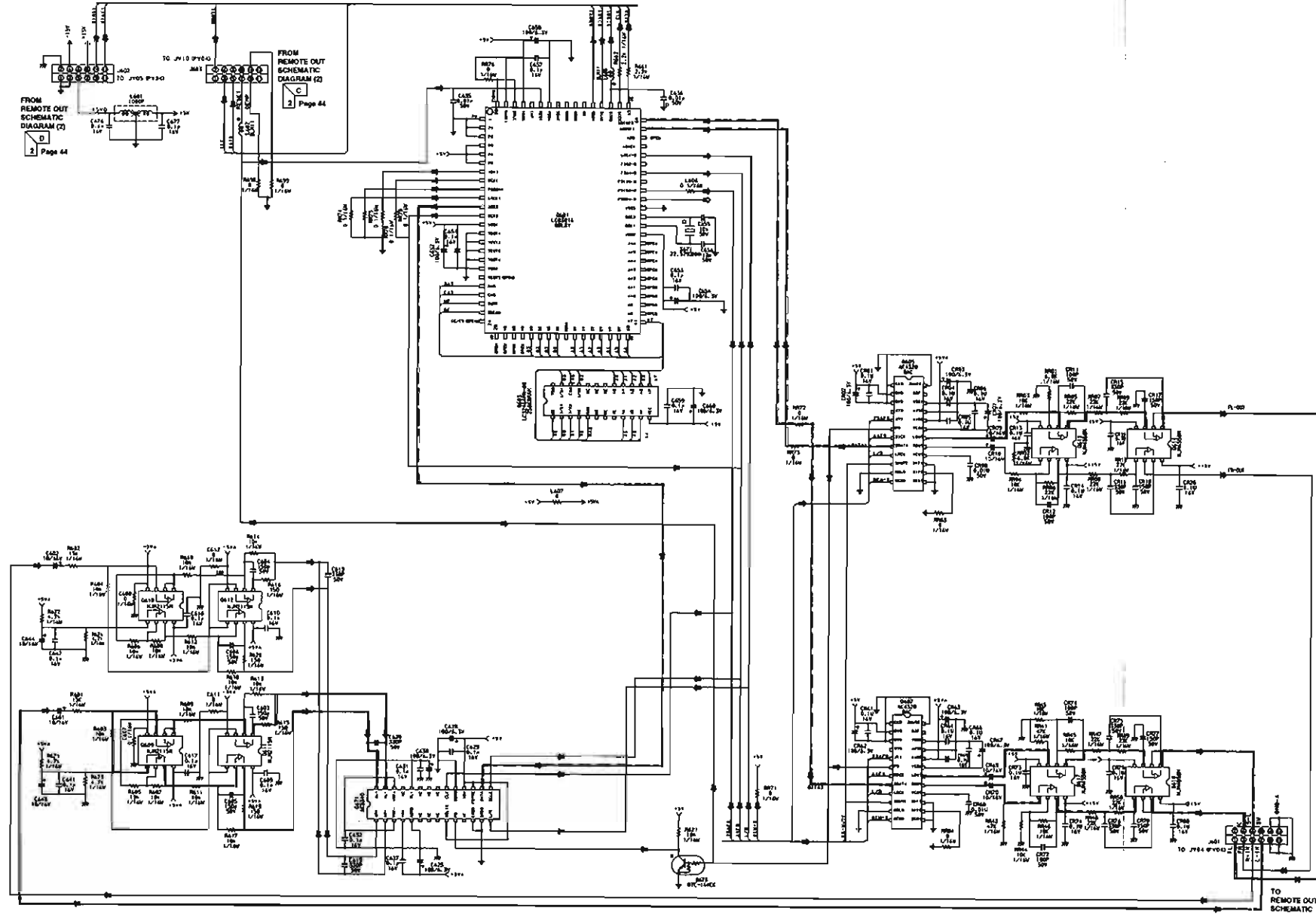
Page 50

PN54-SPK PROTECTOR (AVR70MK II) ONLY

SCHMATIC DIAGRAM (9) **EK** VERSION

P604-THX PRO-LOGIC DSP

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- Ⓢ DIGITAL
- Ⓢ ANALOG-IN
- Ⓢ ANALOG-OUT
- Ⓢ ANALOG-OUT
- Ⓢ ANALOG-OUT
- Ⓢ ANALOG-OUT
- Ⓢ ANALOG-OUT
- Ⓢ ANALOG-OUT

TO REMOTE OUT SCHEMATIC DIAGRAM (2)
0
2 Page 44

A

B

C

D

E

SCHEMATIC DIAGRAM (9) BK VERSION

P604-THX PRO-LOGIC DSP

1

FROM REMOTE OUT SCHEMATIC DIAGRAM (2) D Page 44

FROM REMOTE OUT SCHEMATIC DIAGRAM (2) C Page 44

2

3

FROM REMOTE OUT SCHEMATIC DIAGRAM (2) C Page 44

4

FROM REMOTE OUT SCHEMATIC DIAGRAM (2) C Page 44

5

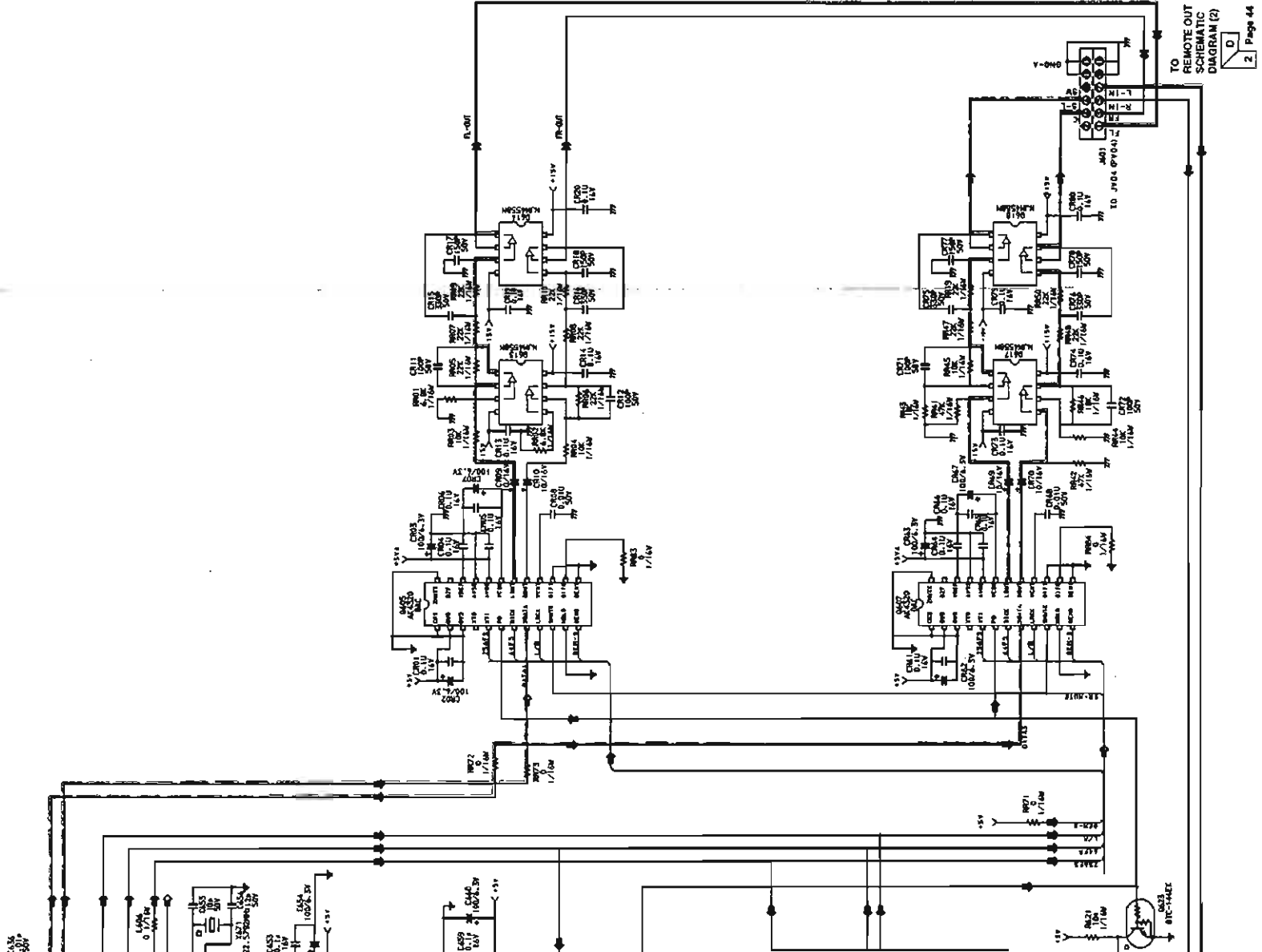
FROM REMOTE OUT SCHEMATIC DIAGRAM (2) C Page 44

6

FROM REMOTE OUT SCHEMATIC DIAGRAM (2) C Page 44

7

FROM REMOTE OUT SCHEMATIC DIAGRAM (2) C Page 44

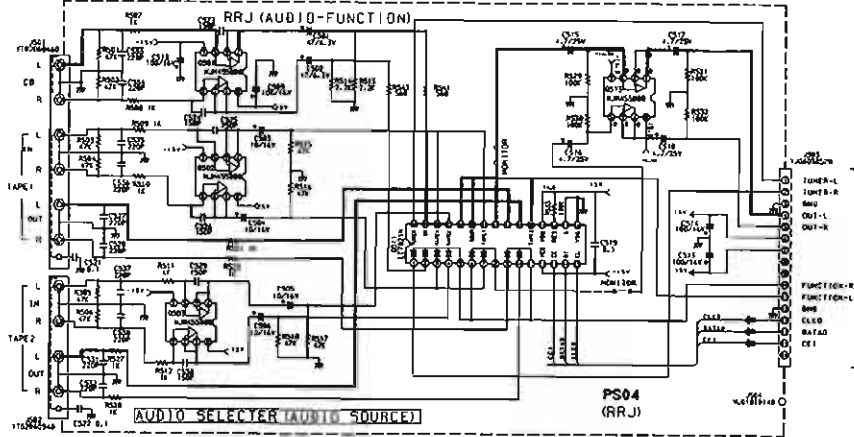


- ⊖ BITAL
- ⊖ ANALOG-L-IN
- ⊖ ANALOG-R-IN
- ⊖ ANALOG-L-OUT
- ⊖ ANALOG-R-OUT
- ⊖ ANALOG-C-OUT
- ⊖ ANALOG-S-OUT
- ⊖ ANALOG-SR-OUT

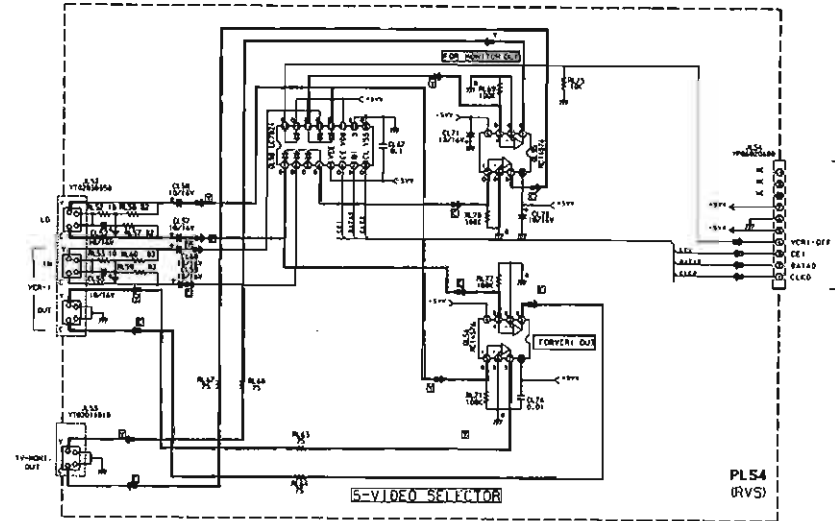
TO REMOTE OUT
SCHEMATIC
DIAGRAM (2)

SCHMATIC DIAGRAM (10) 1B VERSION

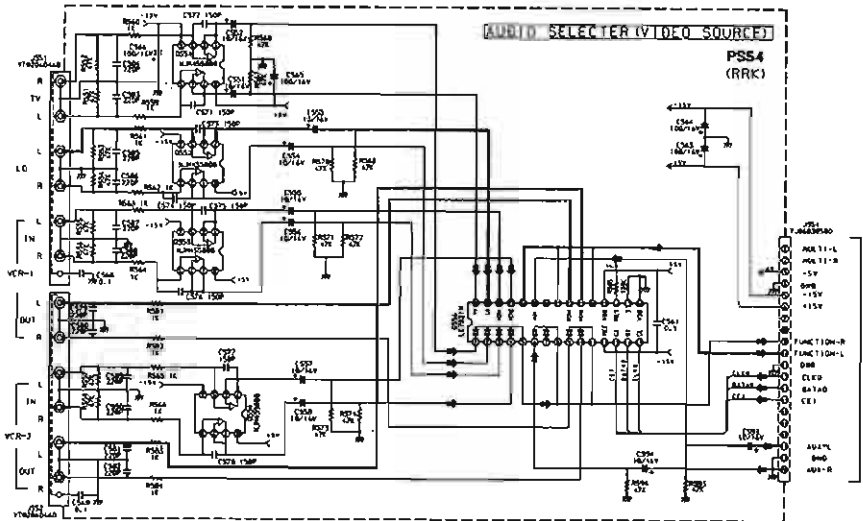
PS04-AUDIO FUNCTION



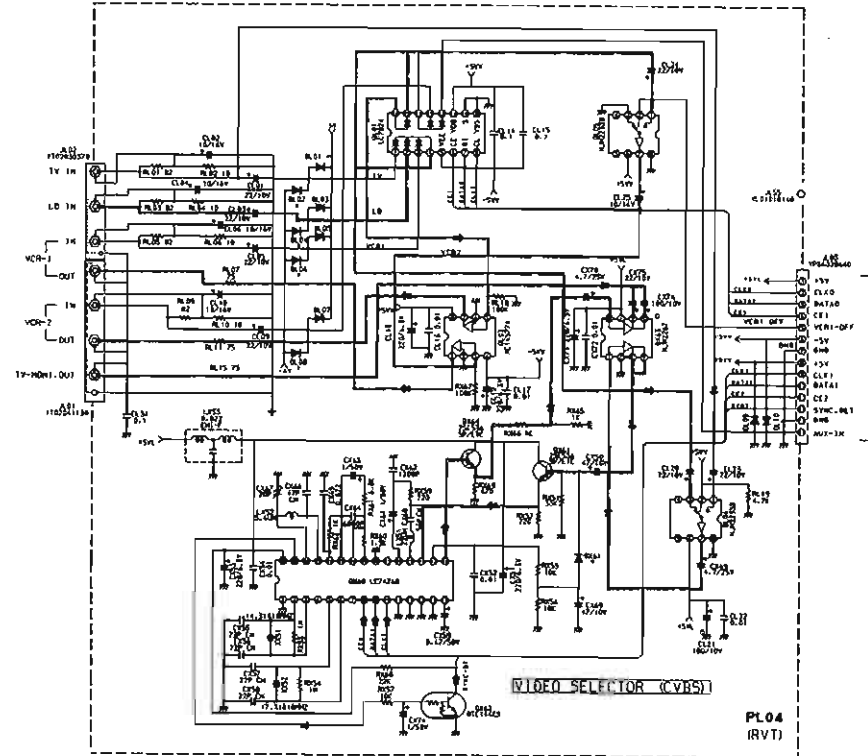
PL04-VIDEO SELECTOR



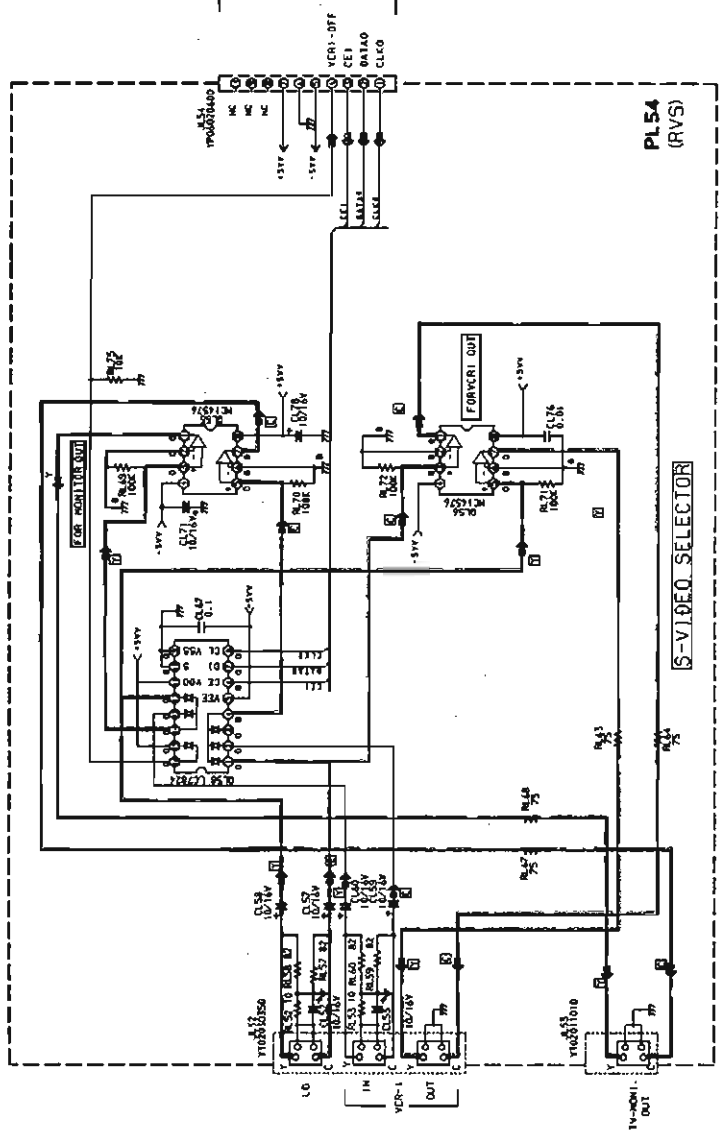
PS54-V-AUDIO FUNCTION



PL54-S-VIDEO



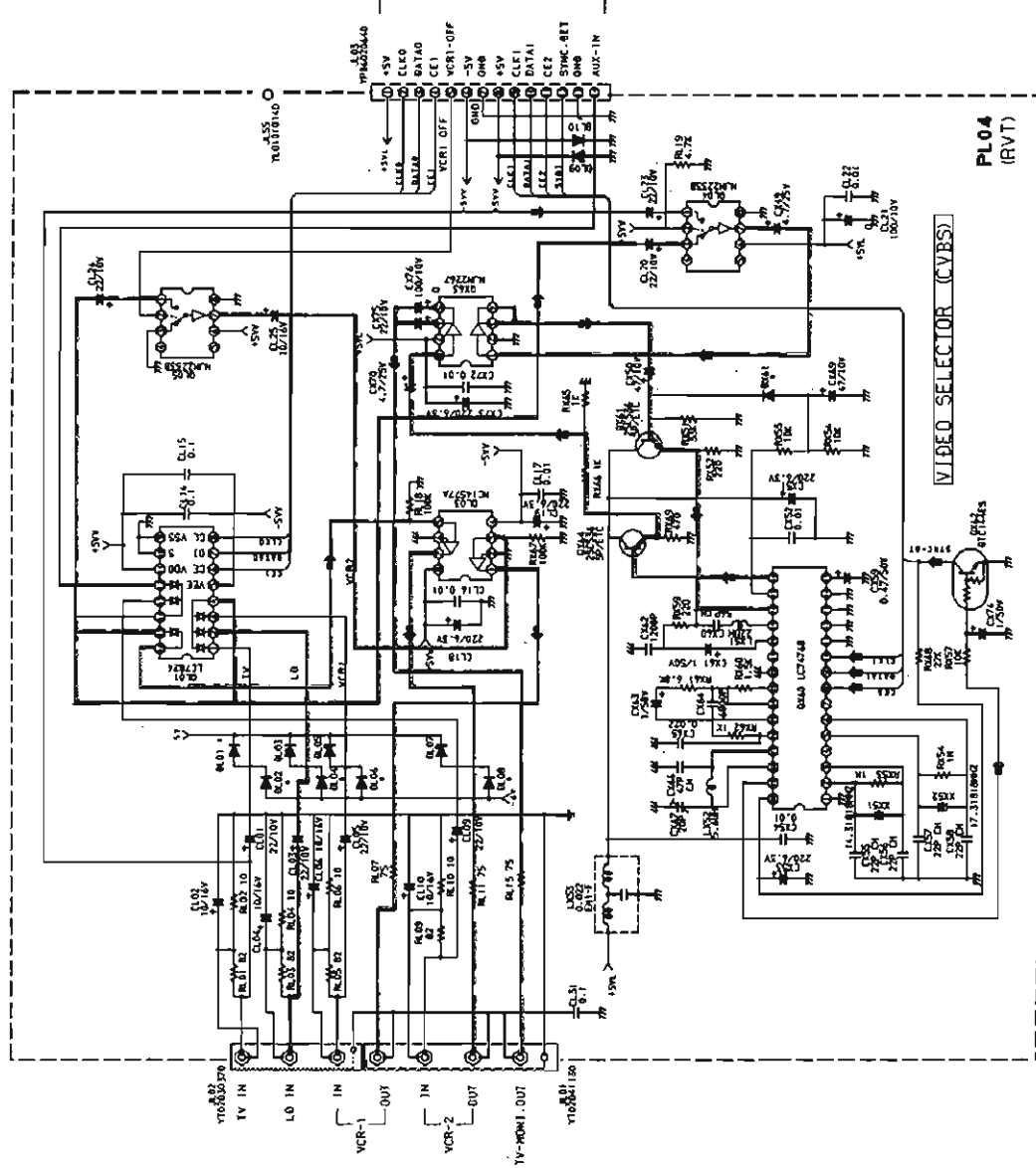
PL04-VIDEO SELECTOR



TO CONNECT SCHEMATIC DIAGRAM (15) Page 57
J105 OPT04

CONNECT SCHEMATIC DIAGRAM (15) Page 57
C

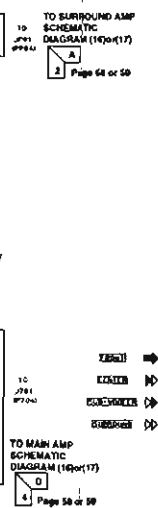
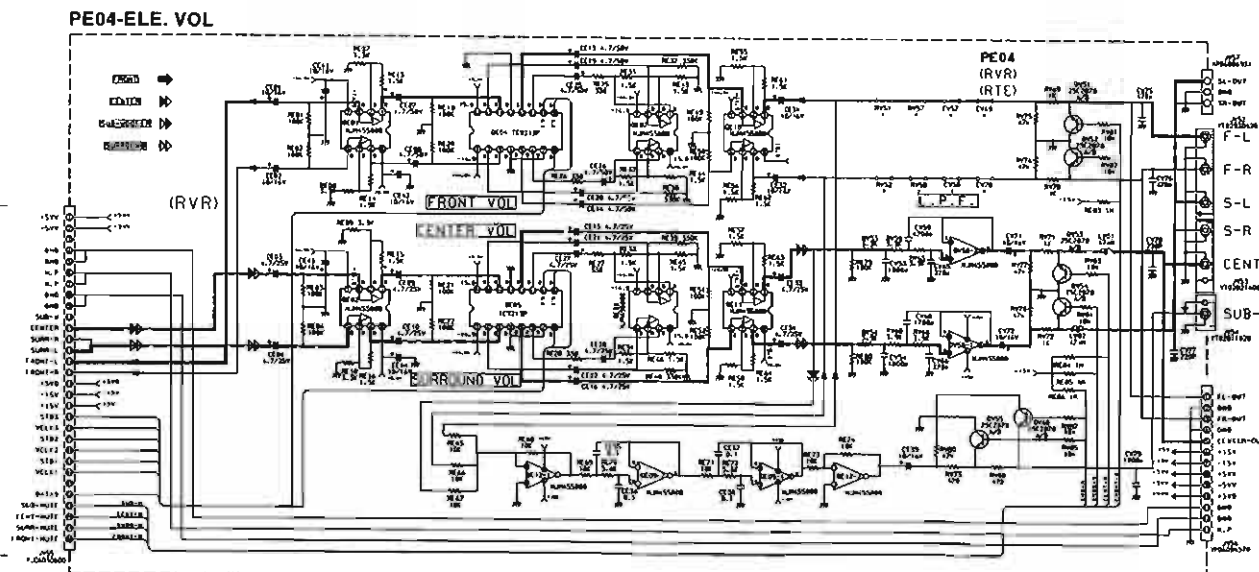
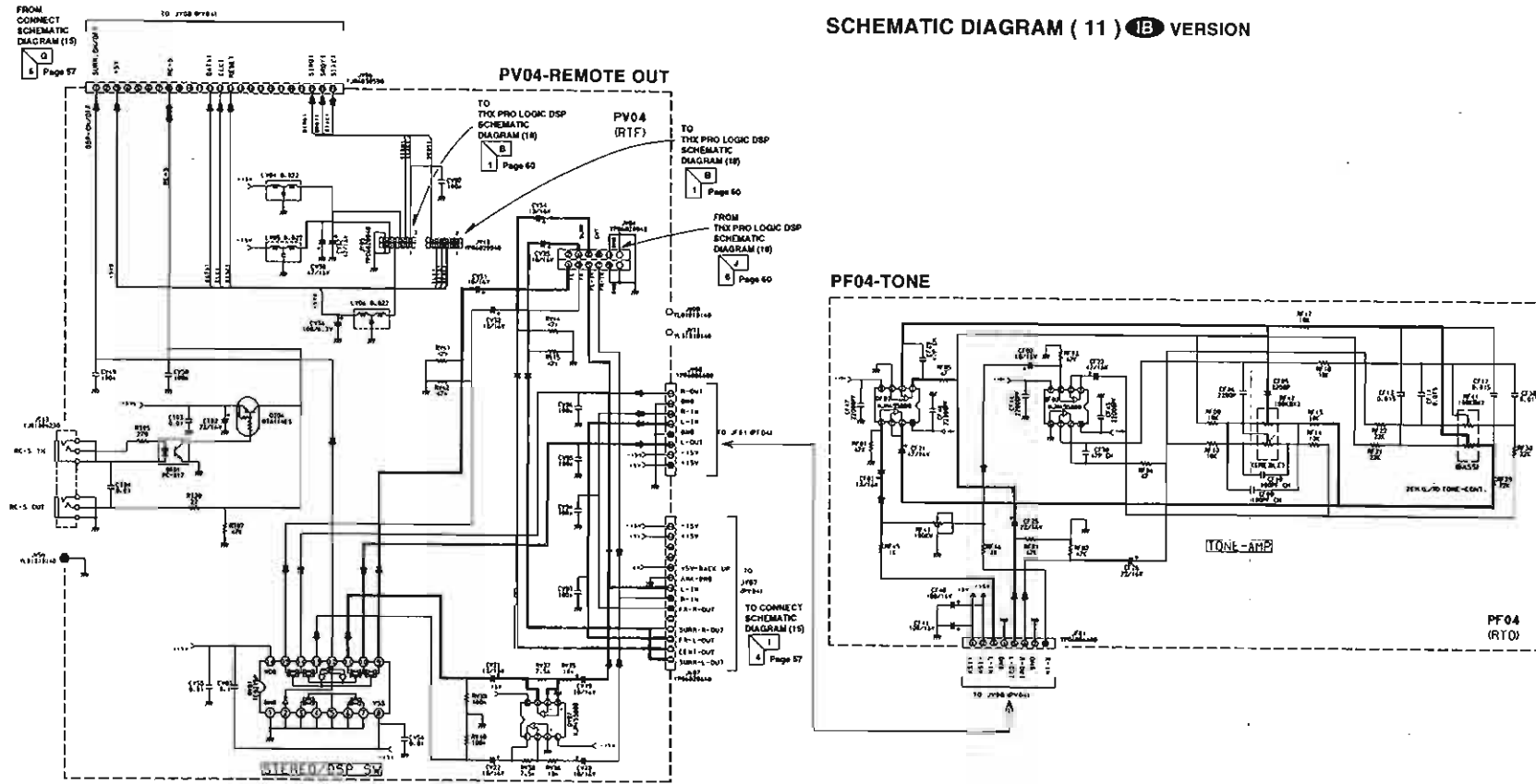
PL54-S-VIDEO



FROM CONNECT SCHEMATIC DIAGRAM (16) Page 57
J104 OPT04

CONNECT SCHEMATIC DIAGRAM (16) Page 57
E

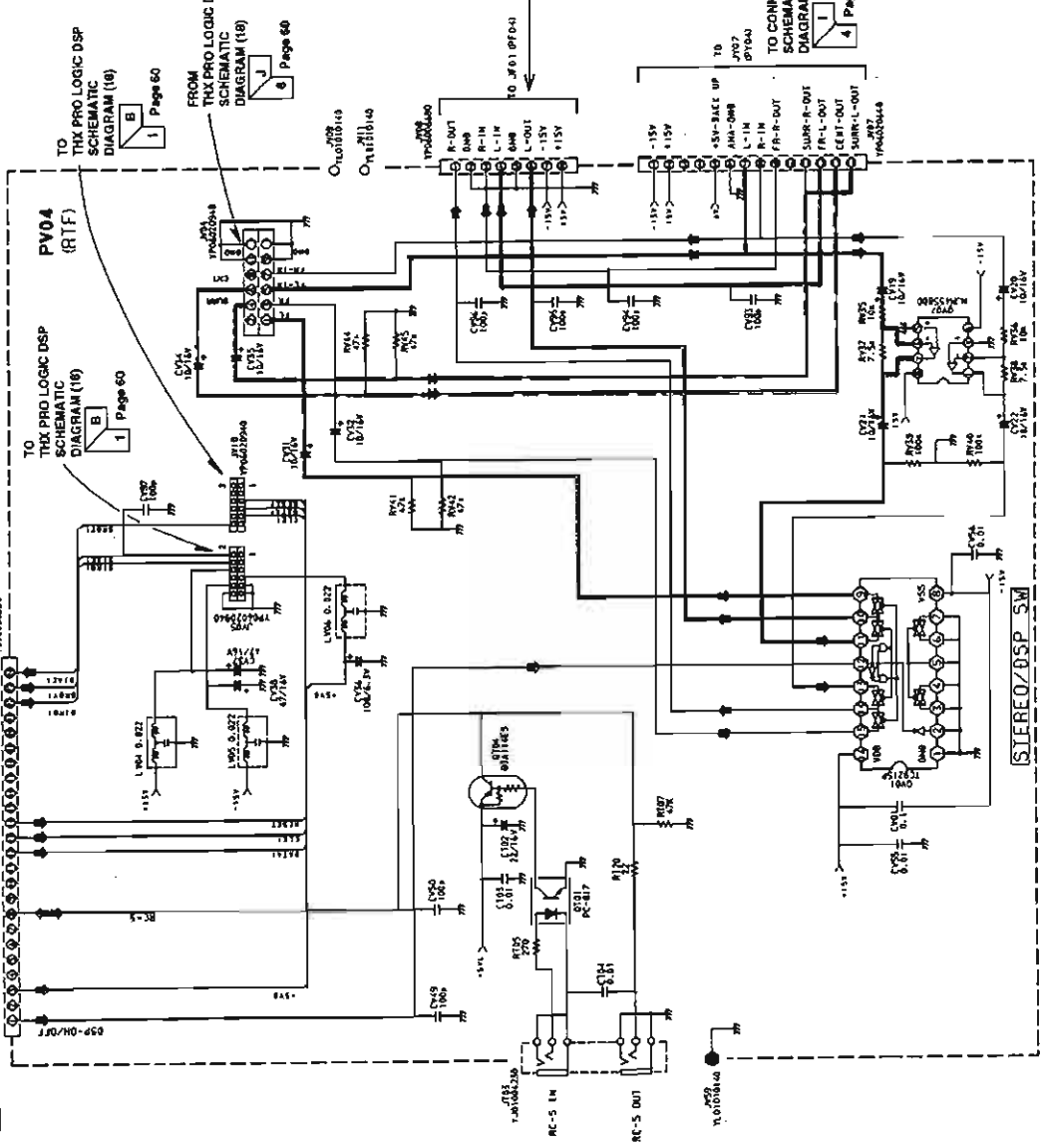
SCHEMATIC DIAGRAM (11) IB VERSION



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FROM CONNECT SCHEMATIC DIAGRAM (15) **5** Page 57

PV04-REMOTE OUT

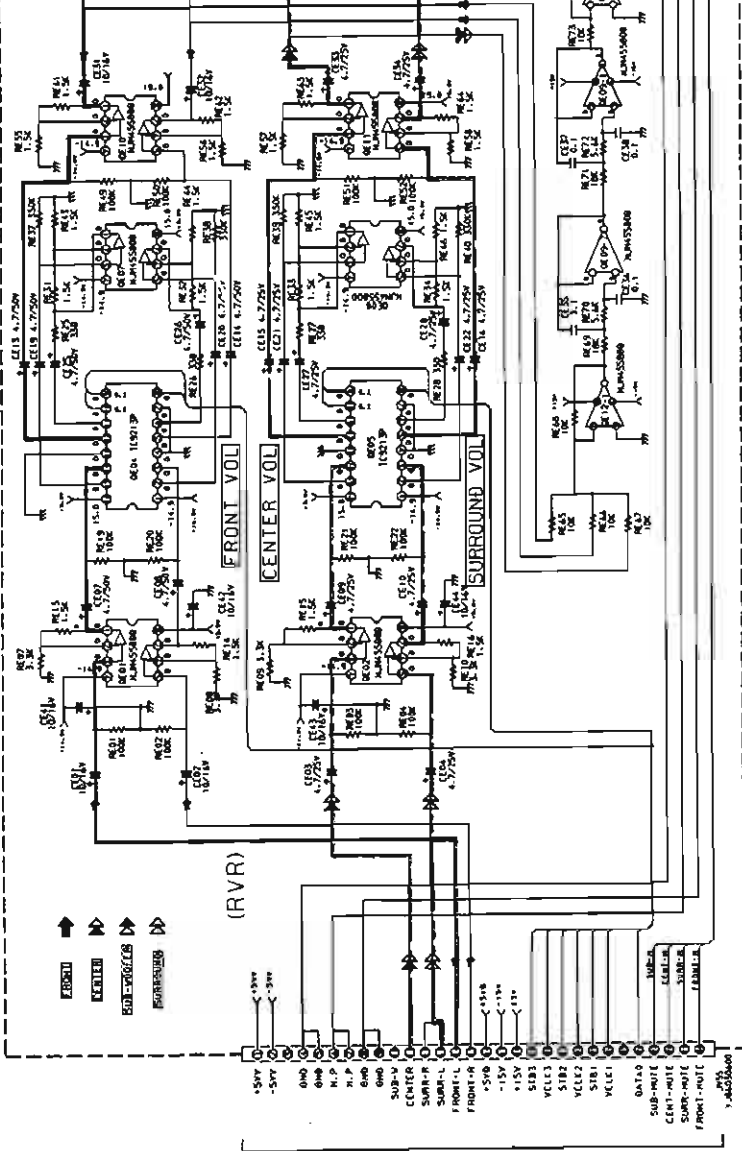


TO TRX PRO LOGIC DSP SCHEMATIC DIAGRAM (16) **1** Page 60

FROM TRX PRO LOGIC DSP SCHEMATIC DIAGRAM (18) **6** Page 60

TO CONN SCHEMATIC DIAGRAM **4** Page 4

PE04-ELE. VOL



- FRONT
- LEFT
- RIGHT
- REAR

(RVR)

TO J161 (PFD4) **4** Page 4

FROM CONNECT SCHEMATIC DIAGRAM (15) **5** Page 57

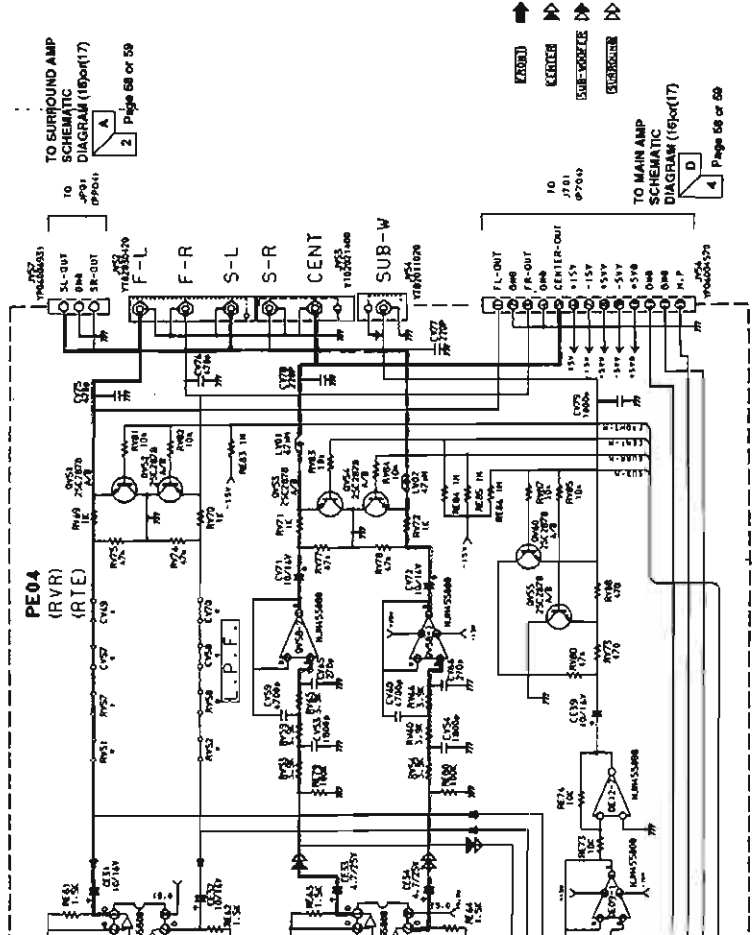
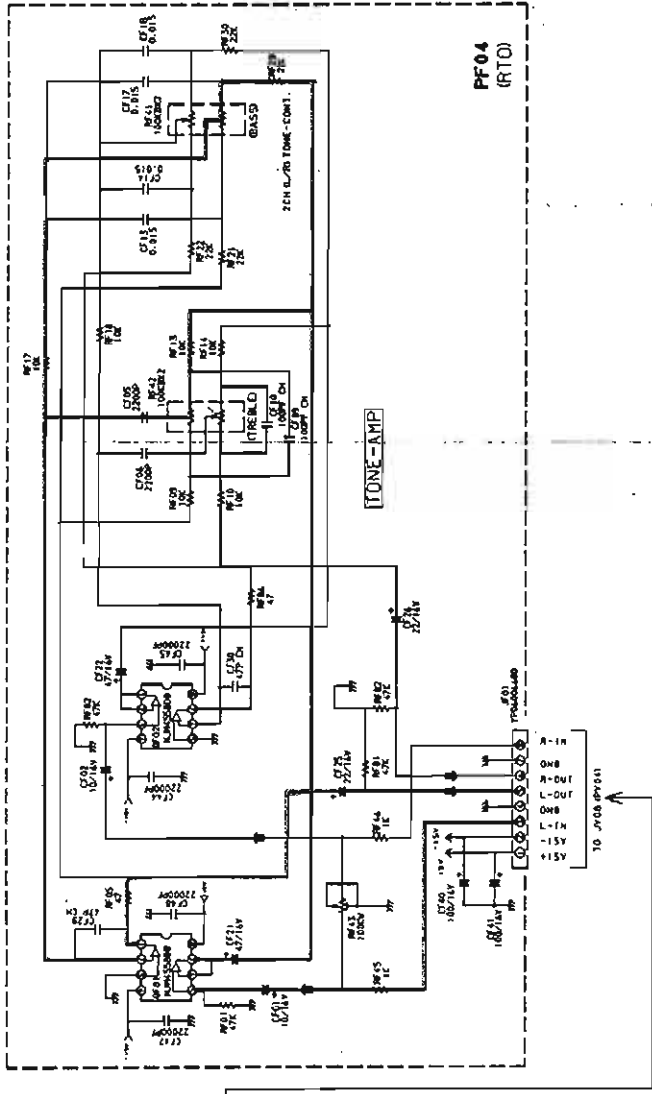
SCHEMATIC DIAGRAM (11) IB VERSION

FROM THX PRO LOGIC DSP SCHEMATIC DIAGRAM (15)

Page 60

TO MAIN AMP SCHEMATIC DIAGRAM (16)

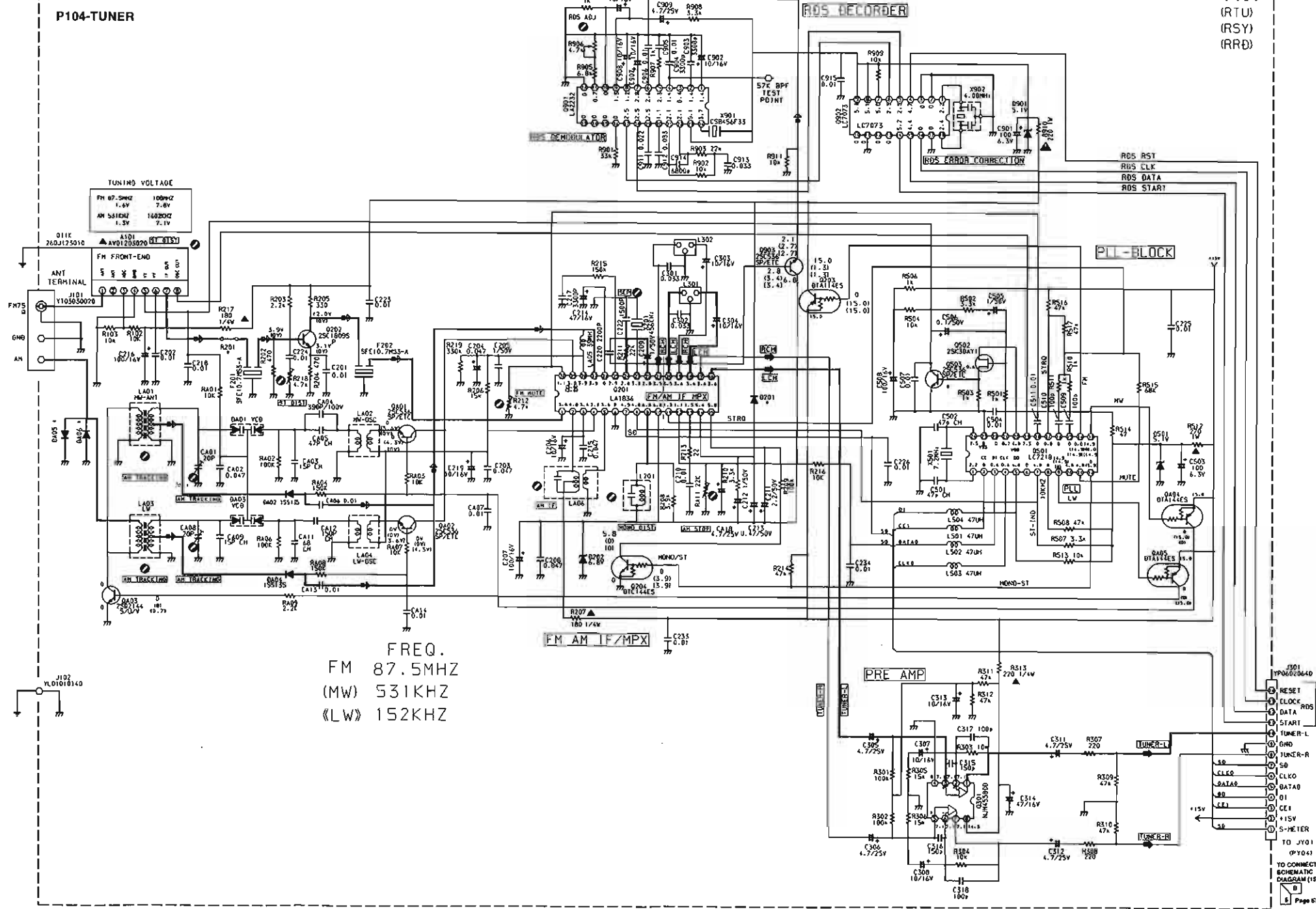
Page 60



- ➔ (A) TO SURROUND AMP SCHEMATIC DIAGRAM (16) (P17)
- ➔ (B) TO MAIN AMP SCHEMATIC DIAGRAM (16) (P17)
- ➔ (C) TO SURROUND AMP SCHEMATIC DIAGRAM (16) (P17)
- ➔ (D) TO MAIN AMP SCHEMATIC DIAGRAM (16) (P17)

SCHEMATIC DIAGRAM (12) B VERSION

P104-TUNER



TUNING VOLTAGE

FM 87.5MHZ	100MHZ
1.6V	7.6V
AM 541KHZ	160KHZ
1.5V	7.1V

FREQ.
 FM 87.5MHZ
 (MW) 531KHZ
 (LW) 152KHZ

P104
 (RTU)
 (RSY)
 (IRR)

- RESET
 - CLOCK
 - DATA
 - START
 - TUNER-L
 - GND
 - TUNER-R
 - SO
 - CLEO
 - BATAR
 - O1
 - CE1
 - +15V
 - S-METER
- TO JY01
 (PY04)
- TO CONNECT
 SCHEMATIC
 DIAGRAM (15)
- Page 67

A

B

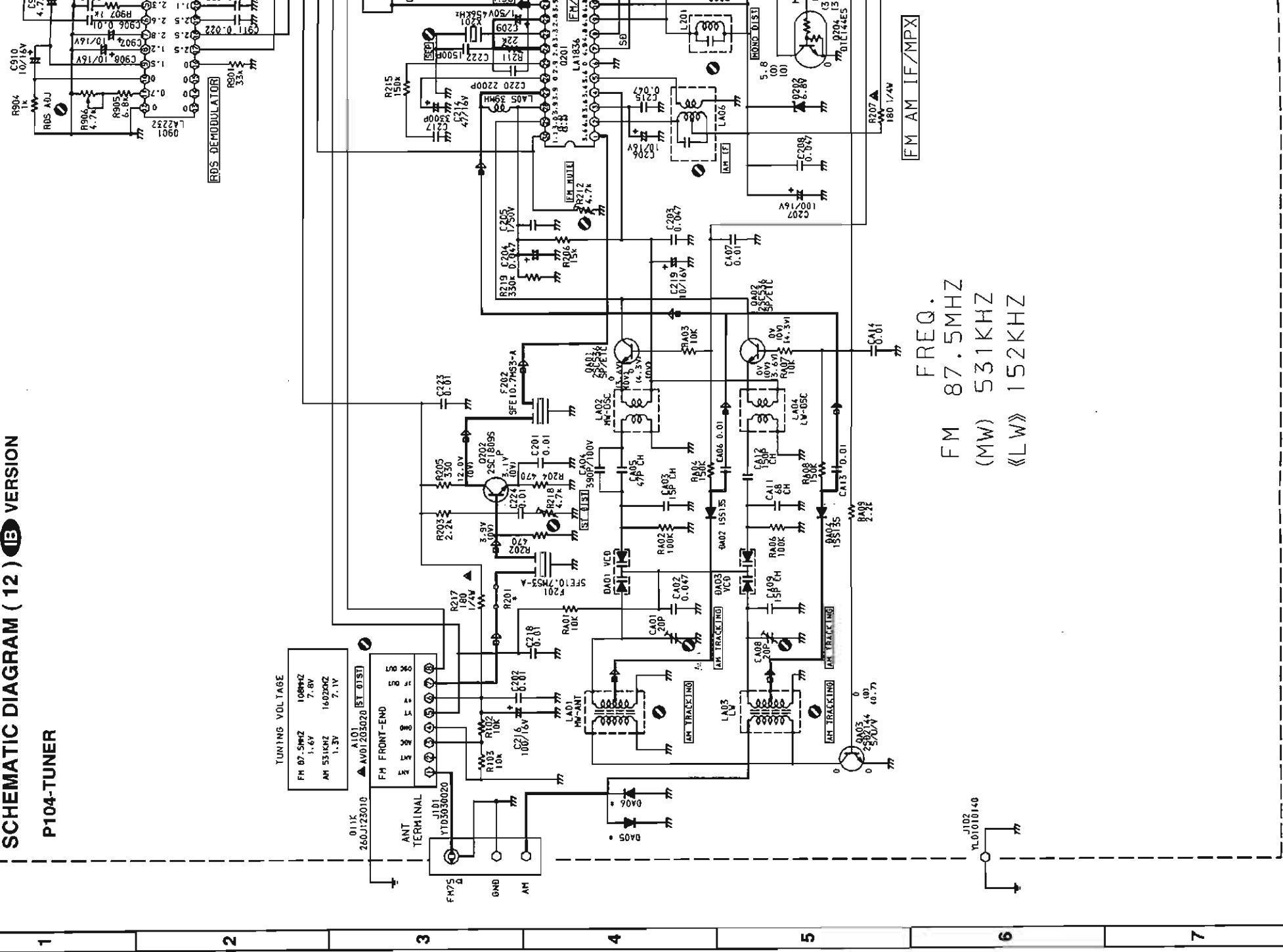
C

D

E

SCHEMATIC DIAGRAM (12) (B) VERSION

P104-TUNER



FM AM IF/MPX

FREQ.
FM 87.5MHZ
(MW) 531KHZ
《LW》 152KHZ

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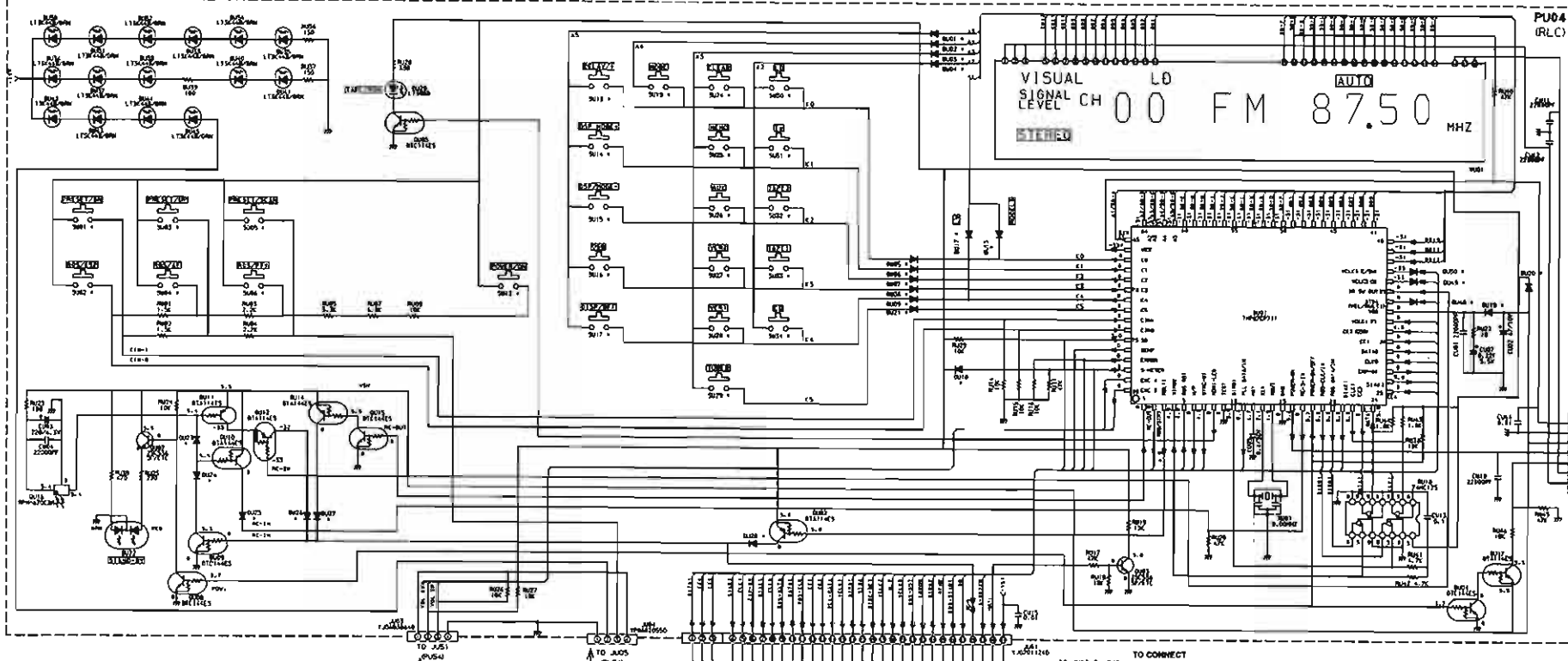
5

6

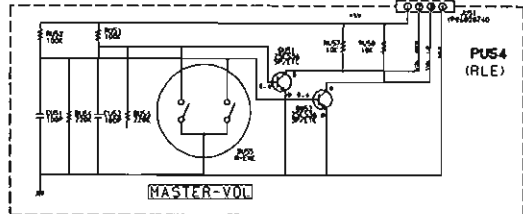
7

SCHMATIC DIAGRAM (13) **IB** VERSION

PU04-FRONT (AVR70) ONLY

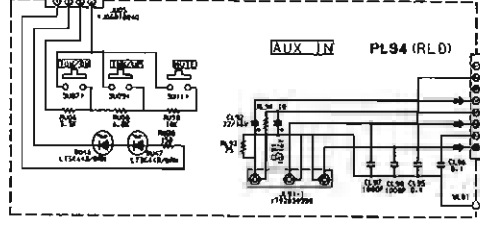


PU54-MASTER VOL



PU54 (RLE)

PL94-AUX IN



AUX IN PL94 (RLD)

TO CONNECT SCHEMATIC DIAGRAM (15) Page 67

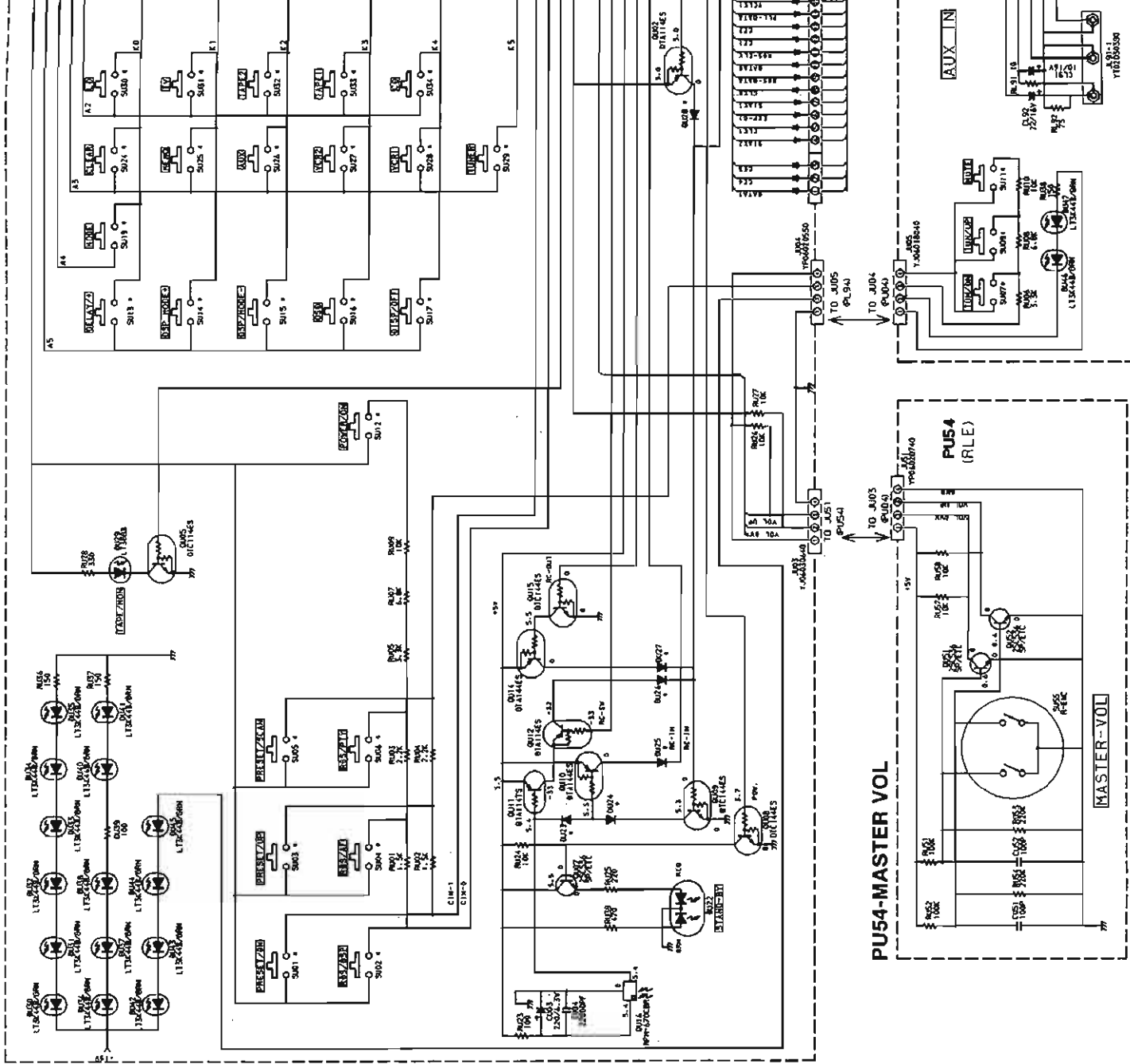
TO CONNECT SCHEMATIC DIAGRAM (15) Page 67

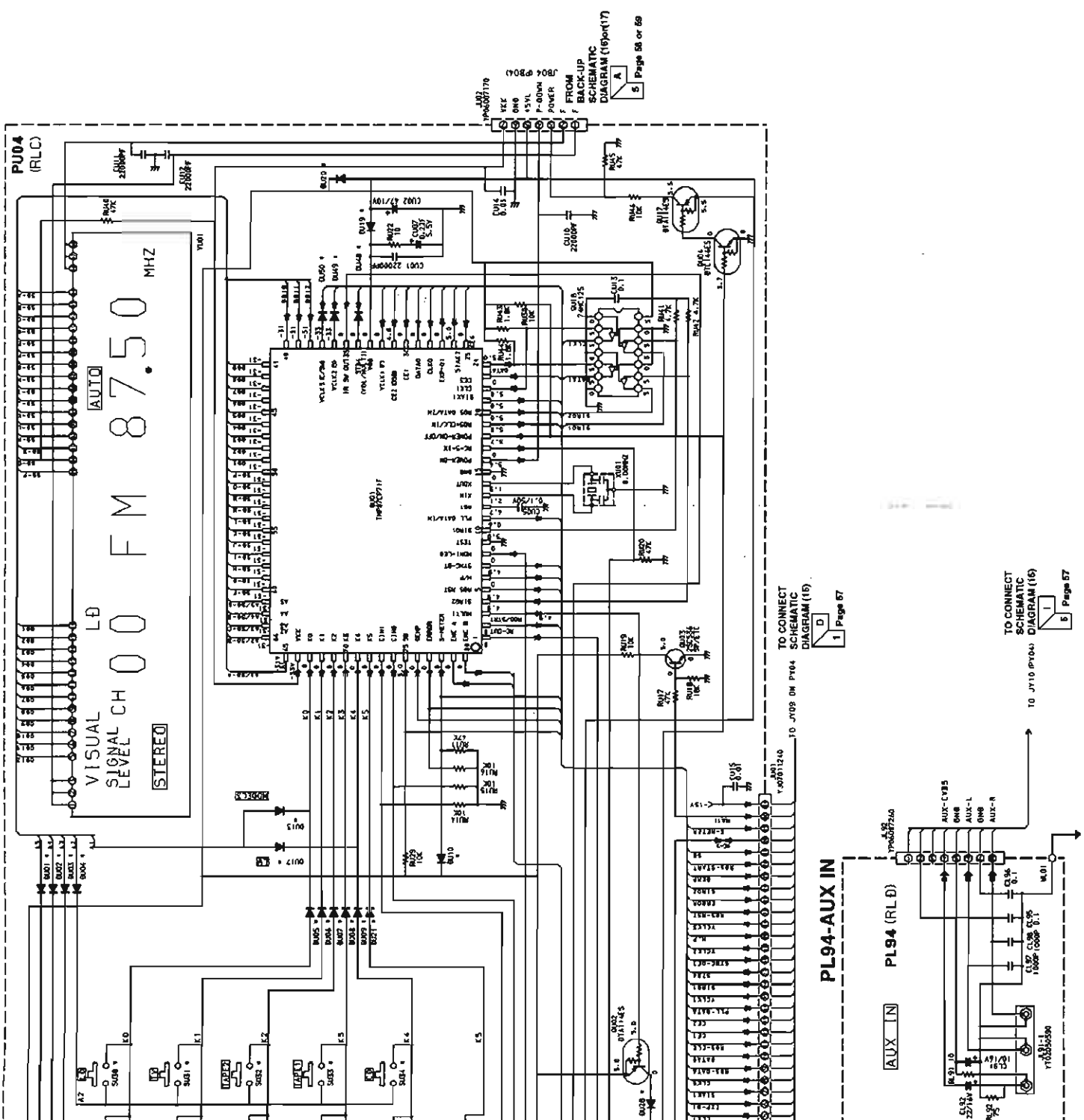
FROM BACK-UP SCHEMATIC DIAGRAM (15) (P17) Page 68 of 68

1
2
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SCHEMATIC DIAGRAM (13) (B) VERSION

PU04-FRONT (AVR70) ONLY





FROM
SCHEMATIC
DIAGRAM (16) or (17)

5 Page 58 or 59

TO CONNECT
SCHEMATIC
DIAGRAM (16)

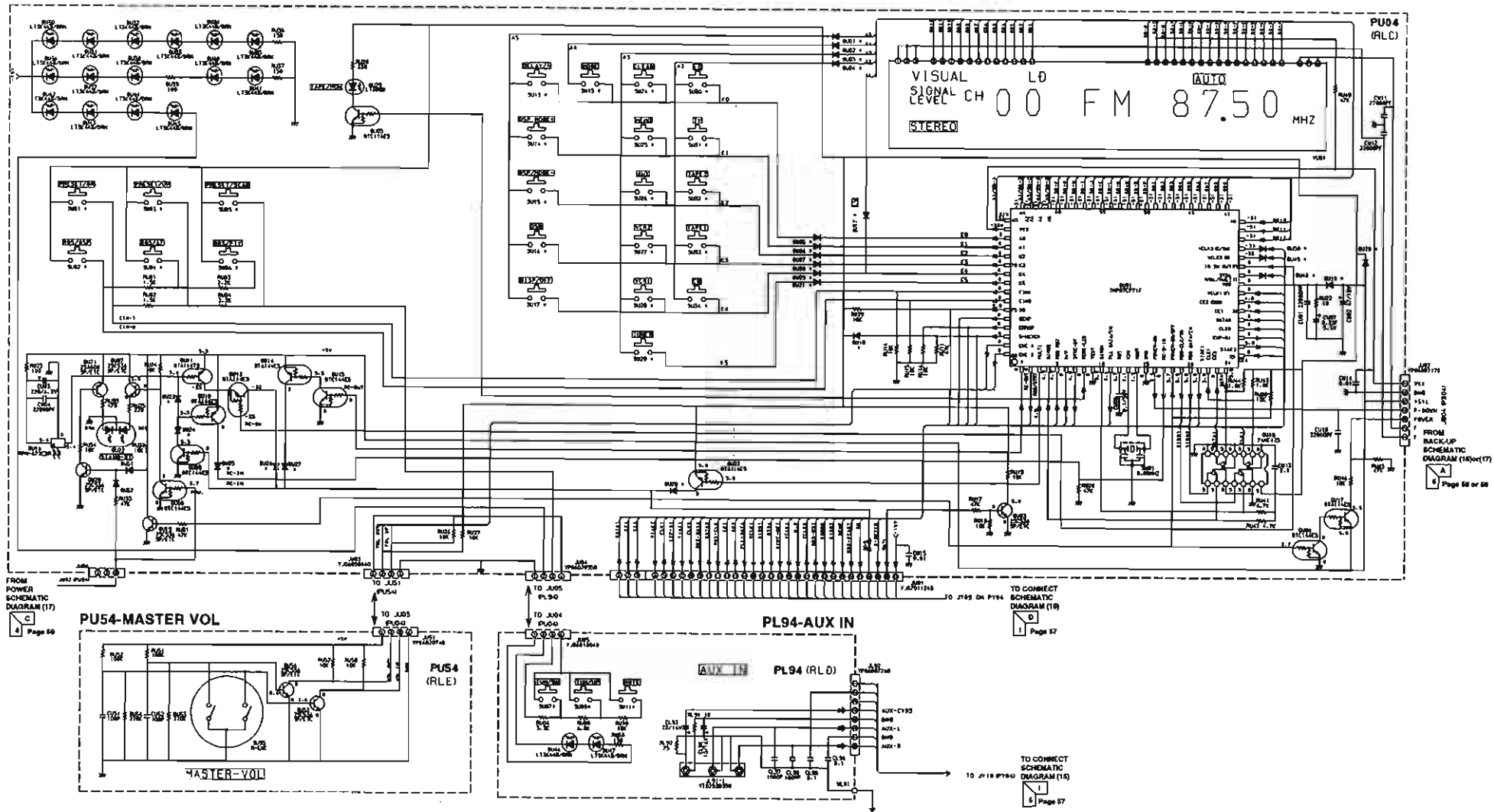
1 Page 57

TO CONNECT
SCHEMATIC
DIAGRAM (16)

1 Page 57

SCHEMATIC DIAGRAM (14) **IB VERSION**

PU04-FRONT (AVR70) [MOMS] ONLY



FROM
BACK-UP
SCHEMATIC
DIAGRAM (16)(17)
A
Page 56 of 58

TO CONNECT
SCHEMATIC
DIAGRAM (19)
D
Page 57

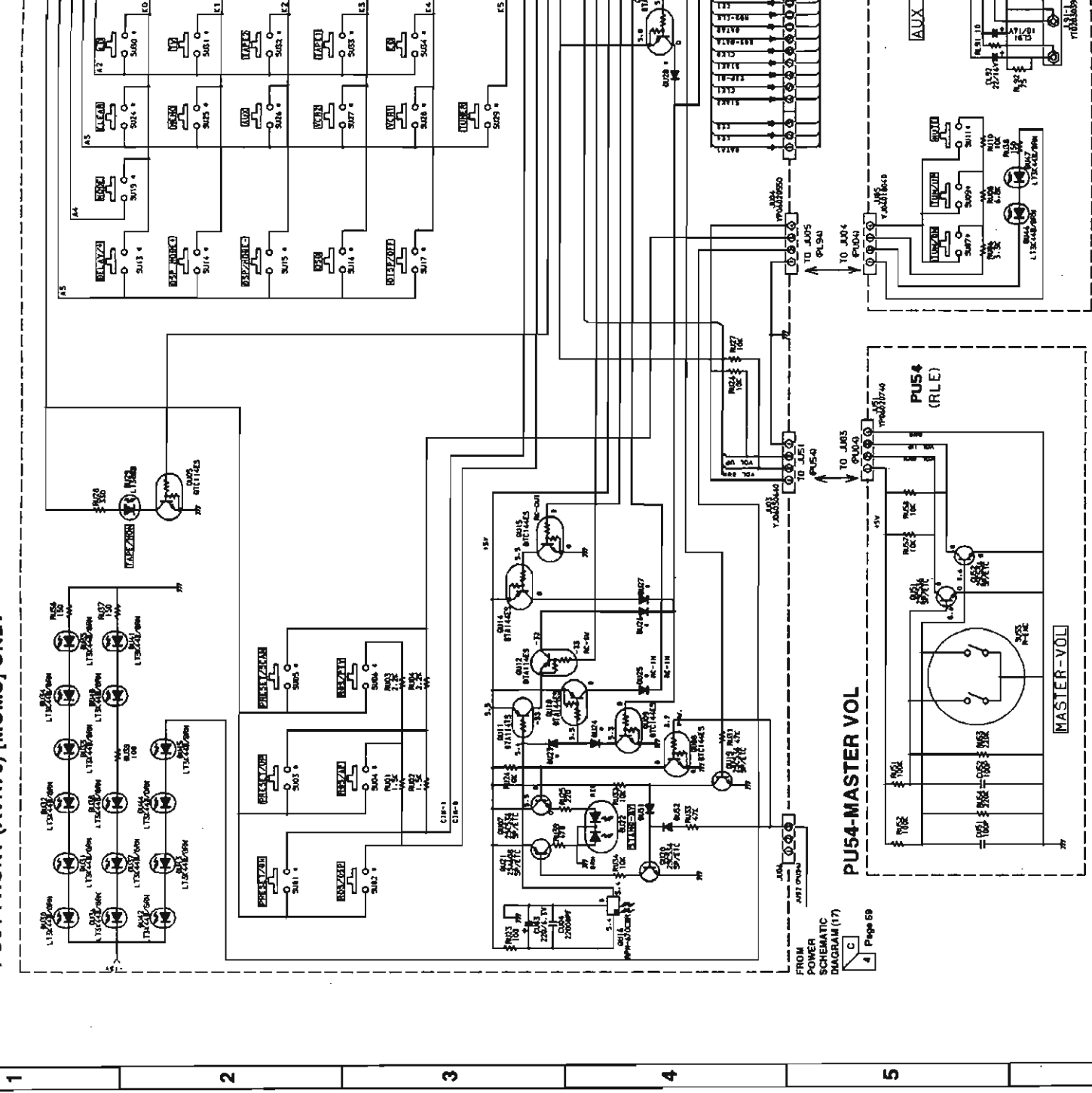
TO CONNECT
SCHEMATIC
DIAGRAM (15)
E
Page 57

1
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7

A B C D E F G H I J

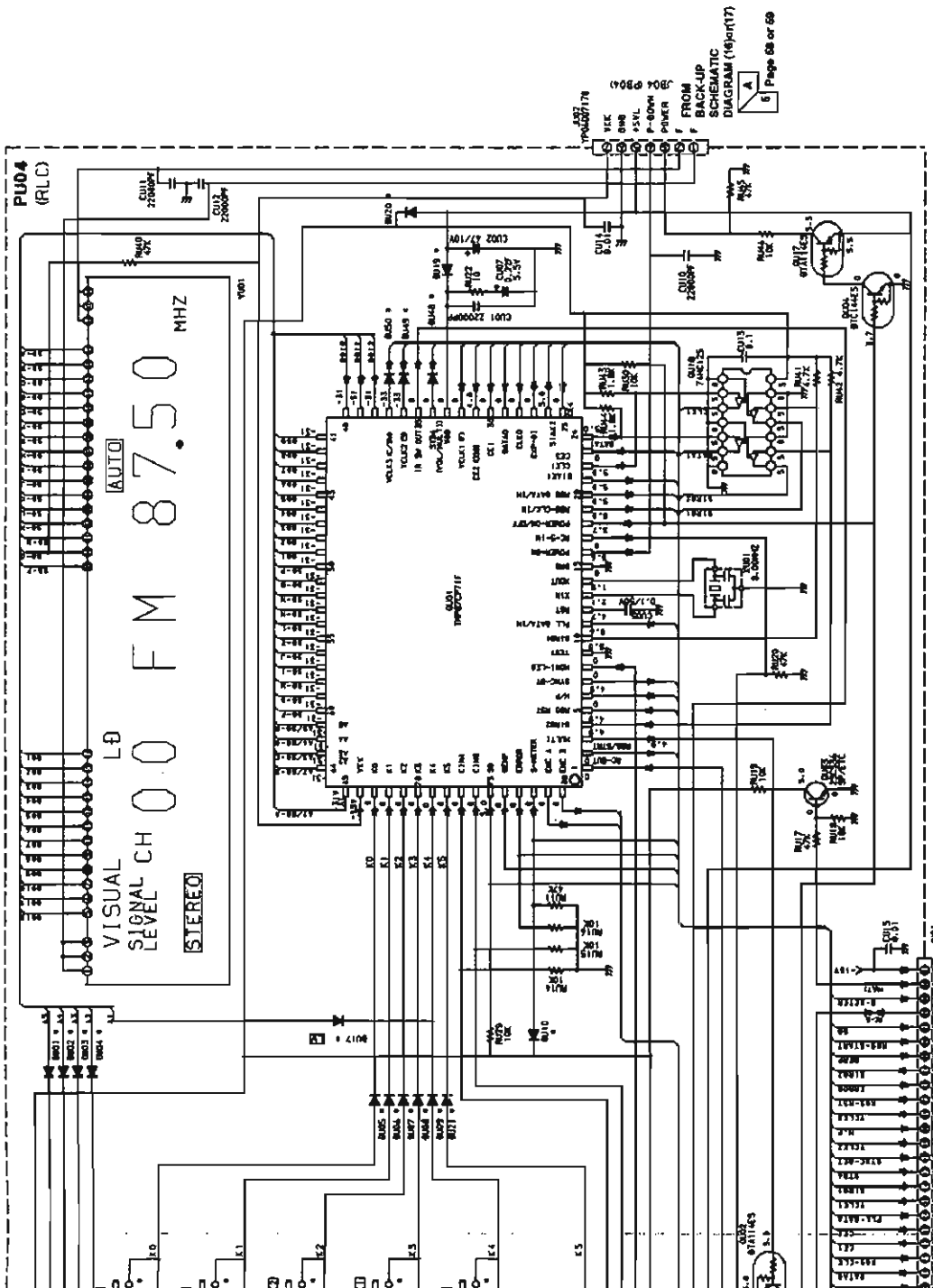
A B C D E

SCHEMATIC DIAGRAM (14) (B) VERSION
PU04-FRONT (AVR70) [MOMS] ONLY



FROM
POWER
SCHEMATIC
DIAGRAM (17)

4 | Page 69

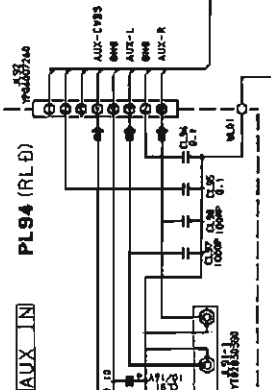


TO CONNECT SCHEMATIC DIAGRAM (15) TO J109 ON P104 SCHEMATIC DIAGRAM (15)



1 Page 67

PL94-AUX IN



TO CONNECT SCHEMATIC DIAGRAM (15) TO J110 ON P104 SCHEMATIC DIAGRAM (15)



5 Page 67

SCHEMATIC DIAGRAM (15) 13 VERSION

FROM BACK-UP
SCHEMATIC
DIAGRAM (160)(17)

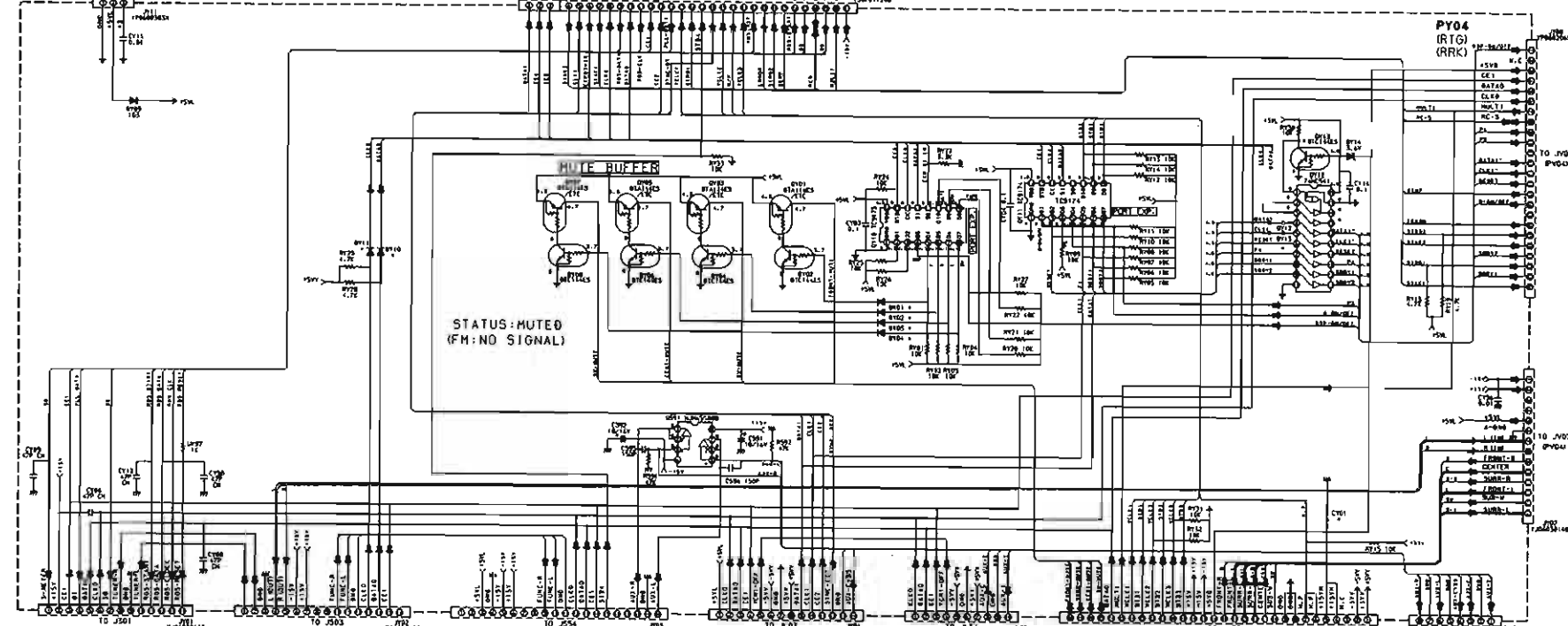
Page 58 or 59

FROM FRONT
SCHEMATIC
DIAGRAM (13)(14)

Page 55 or 56

PY04-CONNECT

PY04
(RTG)
(RRK)



FROM TURNER
SCHEMATIC
DIAGRAM (12)

Page 54

FROM AUDIO
FUNCTION
SCHEMATIC
DIAGRAM (10)

Page 52

TO V-AUDIO
FUNCTION
SCHEMATIC
DIAGRAM (10)

Page 52

TO VIDEO
SELECTOR
SCHEMATIC
DIAGRAM (10)

Page 52

TO S-VIDEO
FUNCTION
SCHEMATIC
DIAGRAM (10)

Page 52

TO ELE. VOL
SCHEMATIC
DIAGRAM (11)

Page 53

FROM AUX IN
SCHEMATIC
DIAGRAM (19)(14)

Page 55 or 56

TO REMOTE OUT
SCHEMATIC
DIAGRAM (11)

Page 53

FROM REMOTE OUT
SCHEMATIC
DIAGRAM (11)

Page 53

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2
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4
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6
7

A

B

C

D

E

SCHEMATIC DIAGRAM (15) **B** VERSION

1

FROM BACK-UP
SCHEMATIC
DIAGRAM (16) or (17)5 Page 58 of 58
TO J401
(P100)

PY04-CONNECT

FROM FRONT
SCHEMATIC
DIAGRAM (13) or (14)5 Page 55 of 56
TO J401
(P100)

2

MUTE BUFFER

STATUS: MUTED
(FM: NO SIGNAL)

3

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FROM TUNER
SCHEMATIC
DIAGRAM (12)8 Page 54
TO J501
(P100)TO J505
(P304)FROM AUDIO
FUNCTION
SCHEMATIC
DIAGRAM (10)2 Page 52
TO J554
(P554)TO J554
(P554)FROM AUDIO
FUNCTION
SCHEMATIC
DIAGRAM (10)5 Page 52
TO J554
(P554)TO J404
(P104)TO VIDEO
SELECTOR
SCHEMATIC
DIAGRAM (10)2 Page 52
TO J404
(P104)

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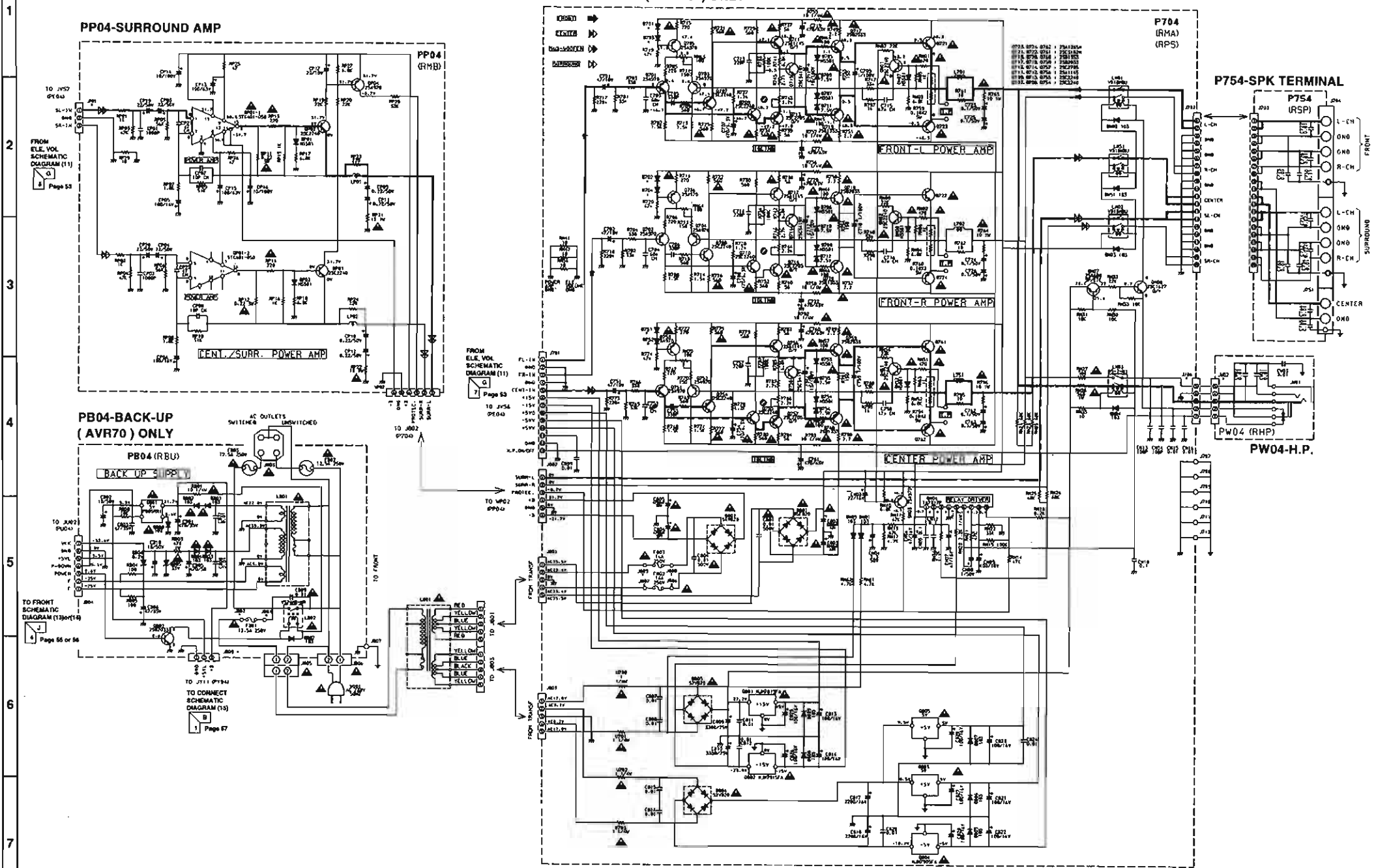
5

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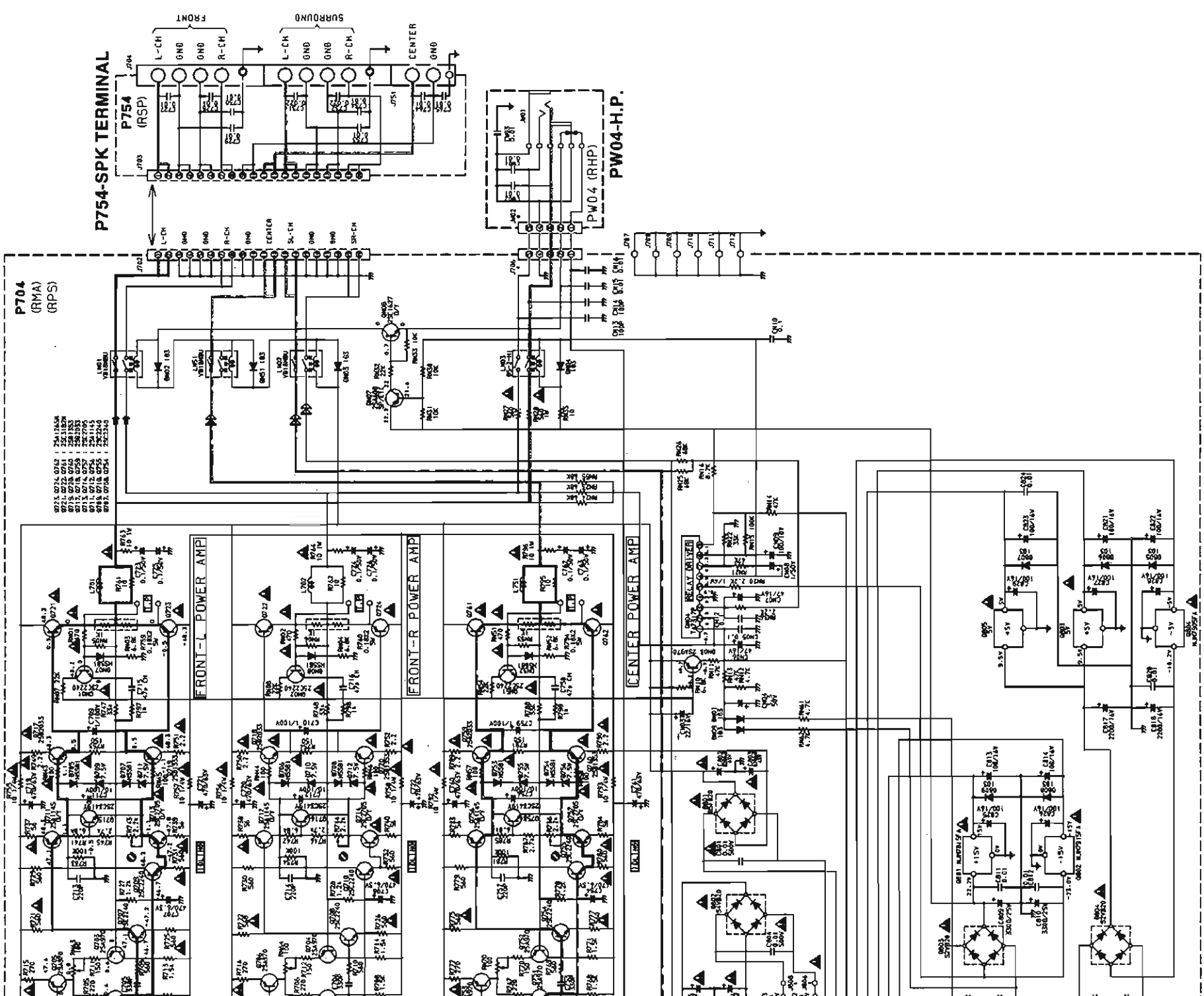
SCHEMATIC DIAGRAM (16) IE VERSION

P704-MAIN AMP (AVR70) ONLY



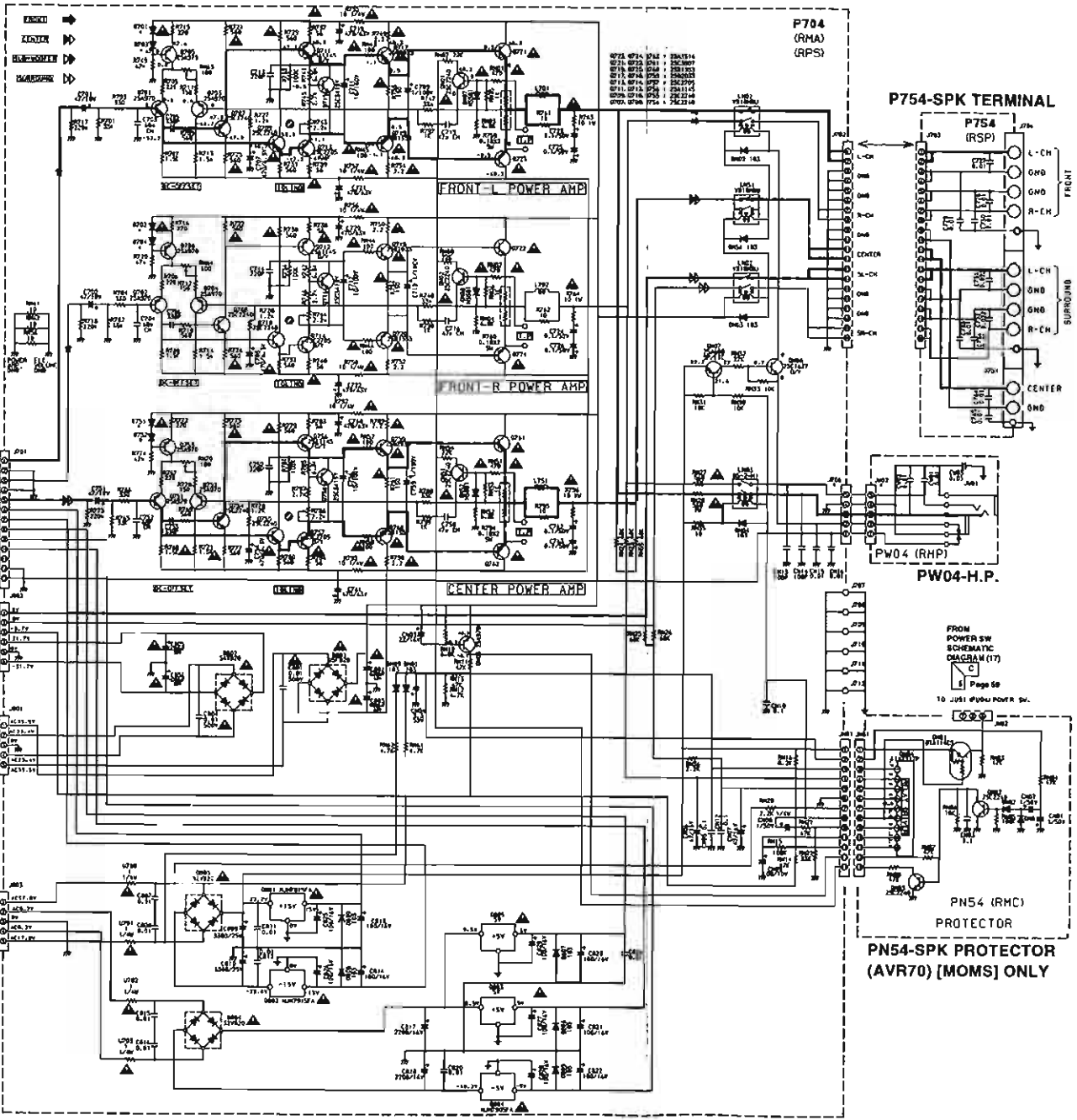
WR70) ONLY

F G H J

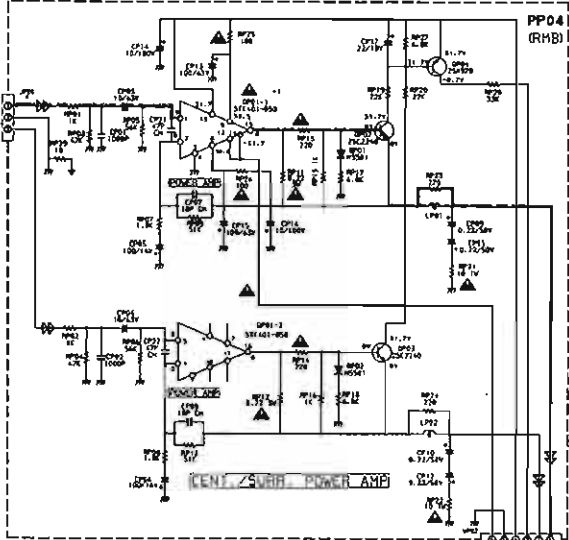


SCHMATIC DIAGRAM (17) 1B VERSION

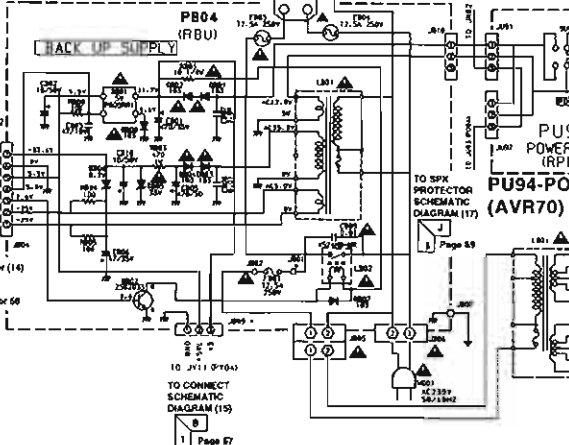
P704-MAIN AMP (AVR70) [MOMS] ONLY



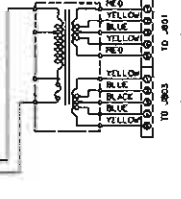
PP04-SURROUND AMP



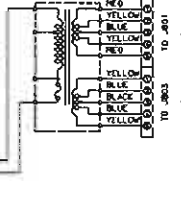
PB04-BACK-UP (AVR70) [MOMS] ONLY



PUS4 POWER SW (RPP)



PN94-POWER SW (AVR70) [MOMS] ONLY

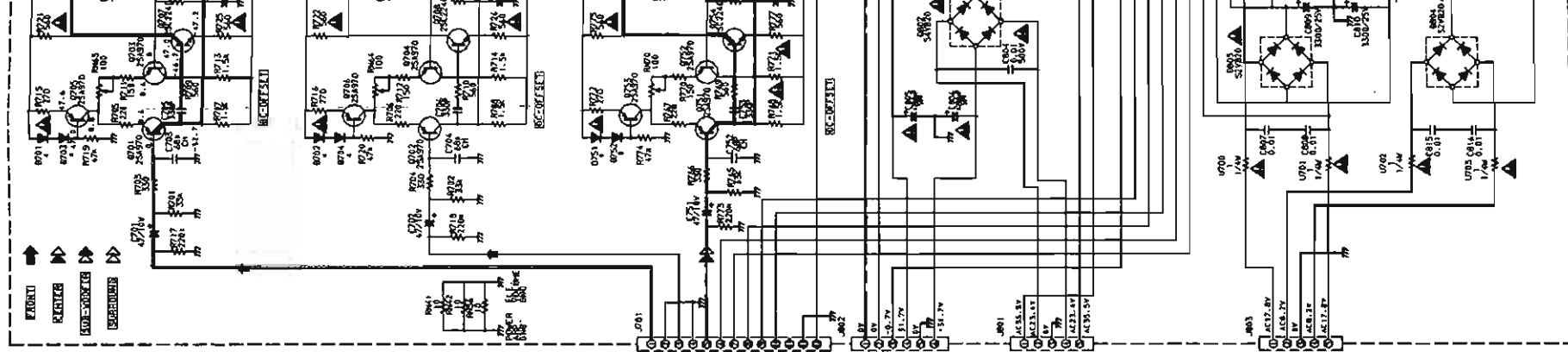


PN54-SPK PROTECTOR (AVR70) [MOMS] ONLY

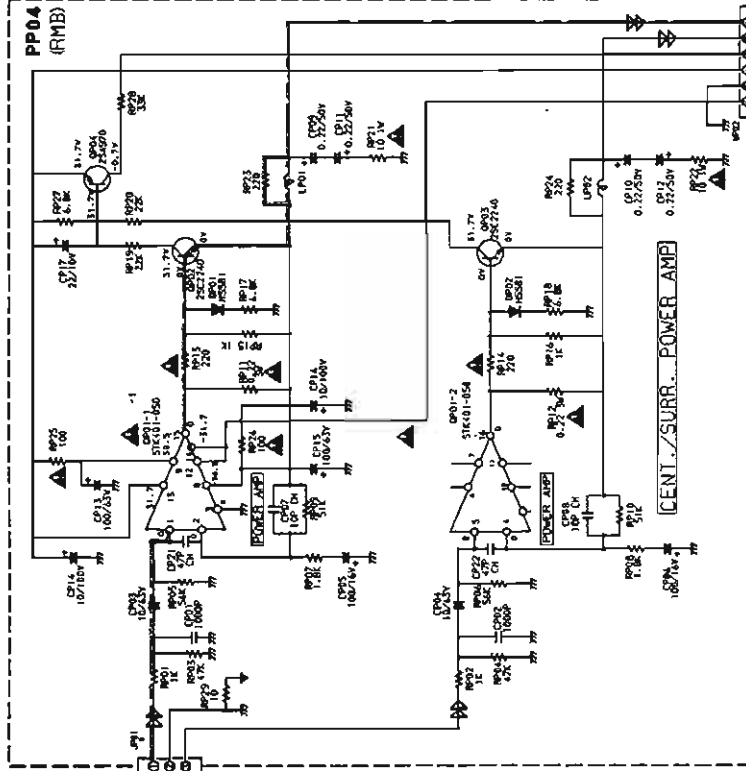


SCHEMATIC DIAGRAM (17) (B) VERSION

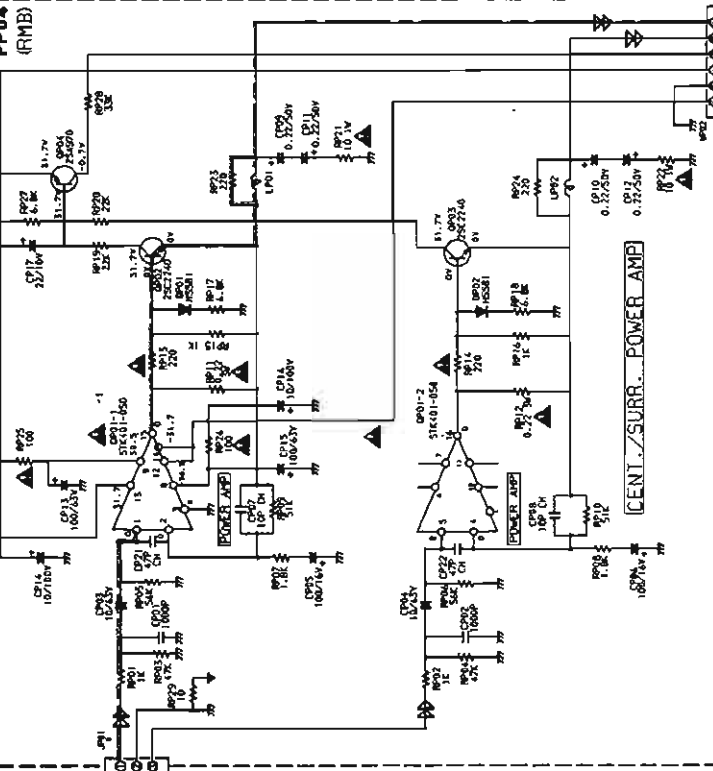
P704-MAIN AMP (AVR70) [MOM]



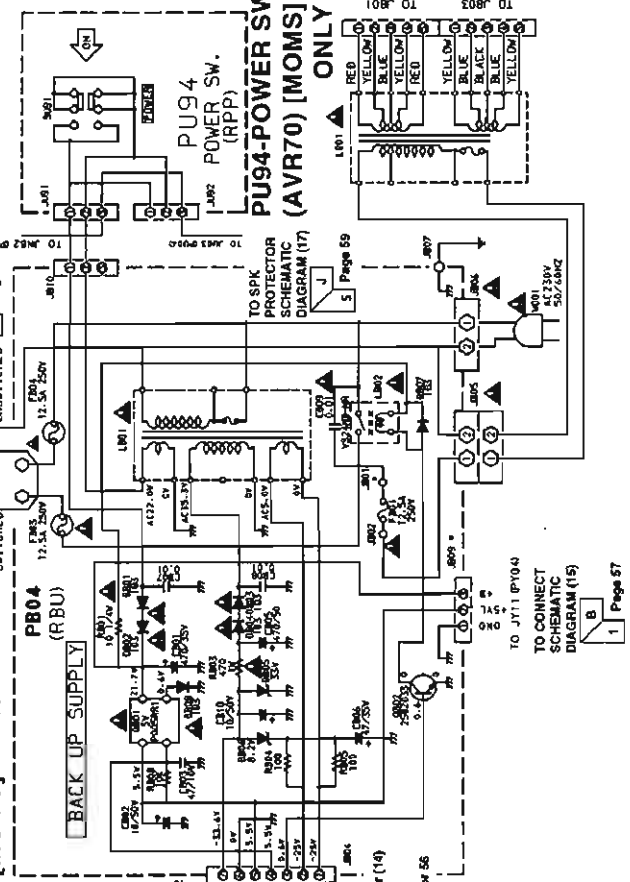
PP04-SURROUND AMP



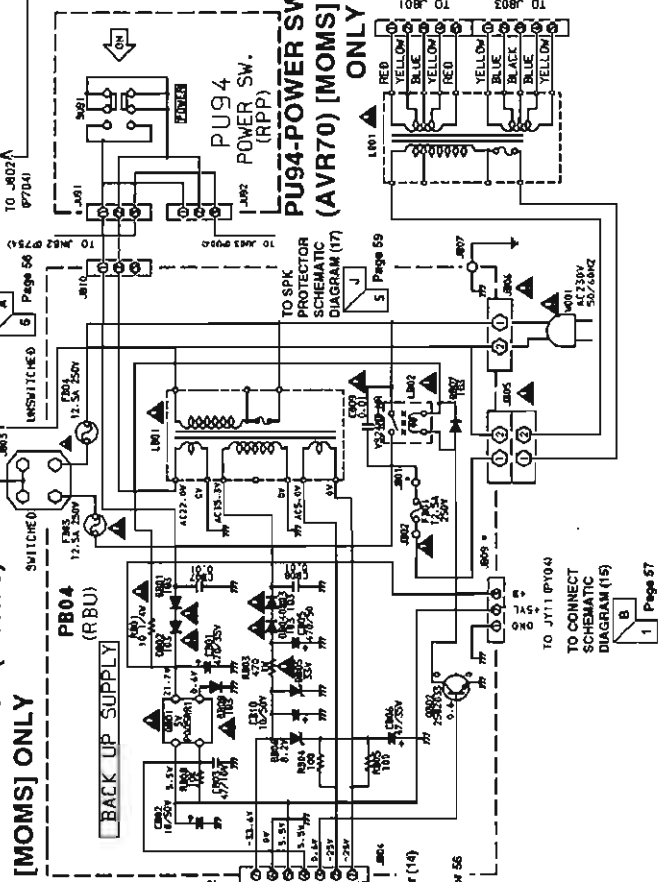
PP04 (RMB)



PB04-BACK-UP (AVR70) [MOMS] ONLY



PU94-POWER SW (AVR70) [MOMS] ONLY



TO JMS7 PEG04

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FROM ELE. VOL SCHEMATIC DIAGRAM (11) 5 Page 53

TO FRONT SCHEMATIC DIAGRAM (14) 5 Page 56

TO FRONT SCHEMATIC DIAGRAM (11) 7 Page 53

TO FRONT SCHEMATIC DIAGRAM (14) 5 Page 56

TO FRONT SCHEMATIC DIAGRAM (11) 7 Page 53

TO FRONT SCHEMATIC DIAGRAM (14) 5 Page 56

TO FRONT SCHEMATIC DIAGRAM (11) 7 Page 53

TO FRONT SCHEMATIC DIAGRAM (14) 5 Page 56

TO FRONT SCHEMATIC DIAGRAM (11) 7 Page 53

TO FRONT SCHEMATIC DIAGRAM (14) 5 Page 56

TO FRONT SCHEMATIC DIAGRAM (11) 7 Page 53

TO FRONT SCHEMATIC DIAGRAM (14) 5 Page 56

TO FRONT SCHEMATIC DIAGRAM (11) 7 Page 53

TO FRONT SCHEMATIC DIAGRAM (14) 5 Page 56

TO FRONT SCHEMATIC DIAGRAM (11) 7 Page 53

TO FRONT SCHEMATIC DIAGRAM (14) 5 Page 56

TO FRONT SCHEMATIC DIAGRAM (11) 7 Page 53

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TO FRONT SCHEMATIC DIAGRAM (11) 7 Page 53

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TO FRONT SCHEMATIC DIAGRAM (11) 7 Page 53

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TO FRONT SCHEMATIC DIAGRAM (14) 5 Page 56

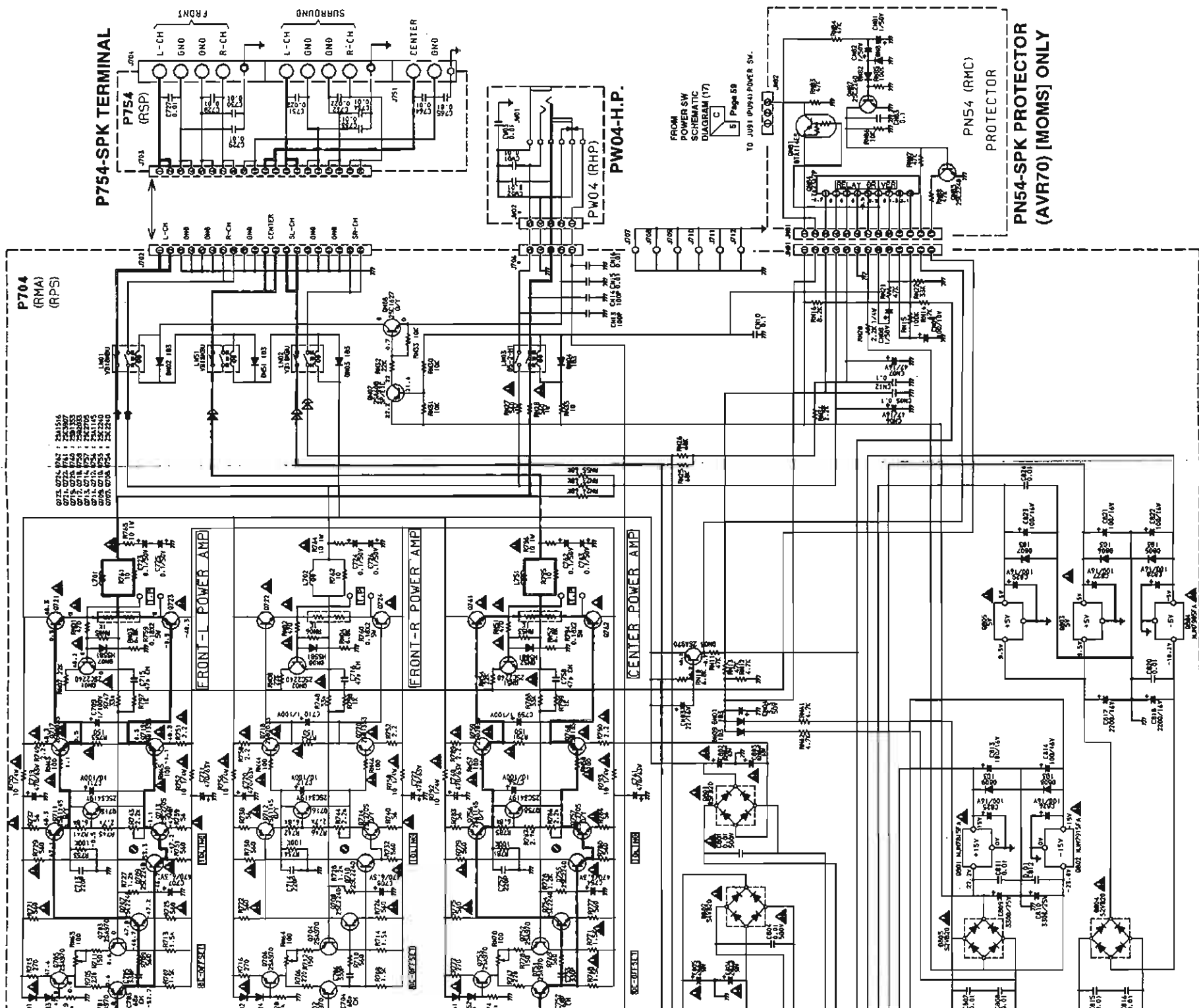
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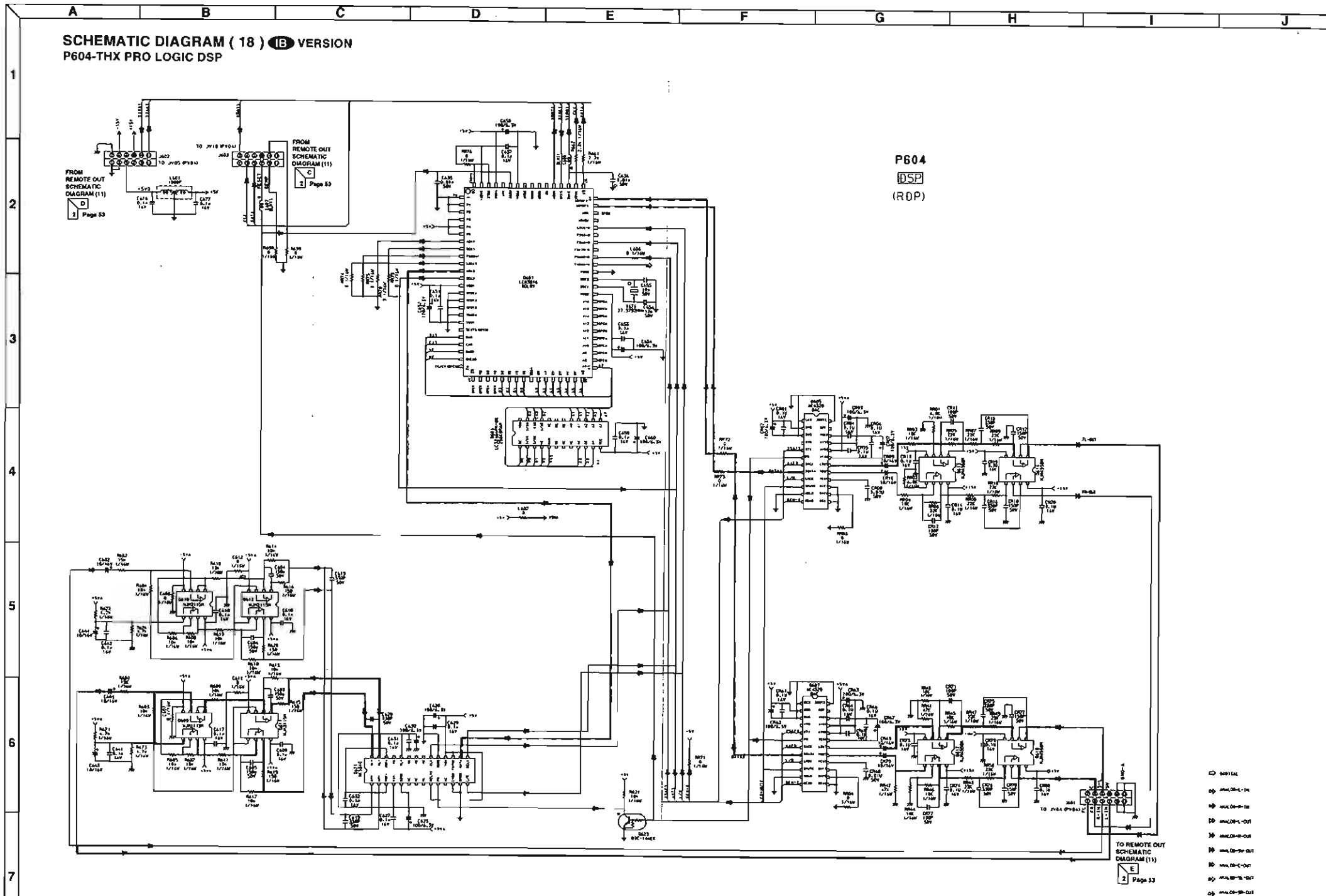
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AVR70 [MOMS] ONLY



SCHEMATIC DIAGRAM (18) (B) VERSION
P604-THX PRO LOGIC DSP



P604
DSP
(R0P)

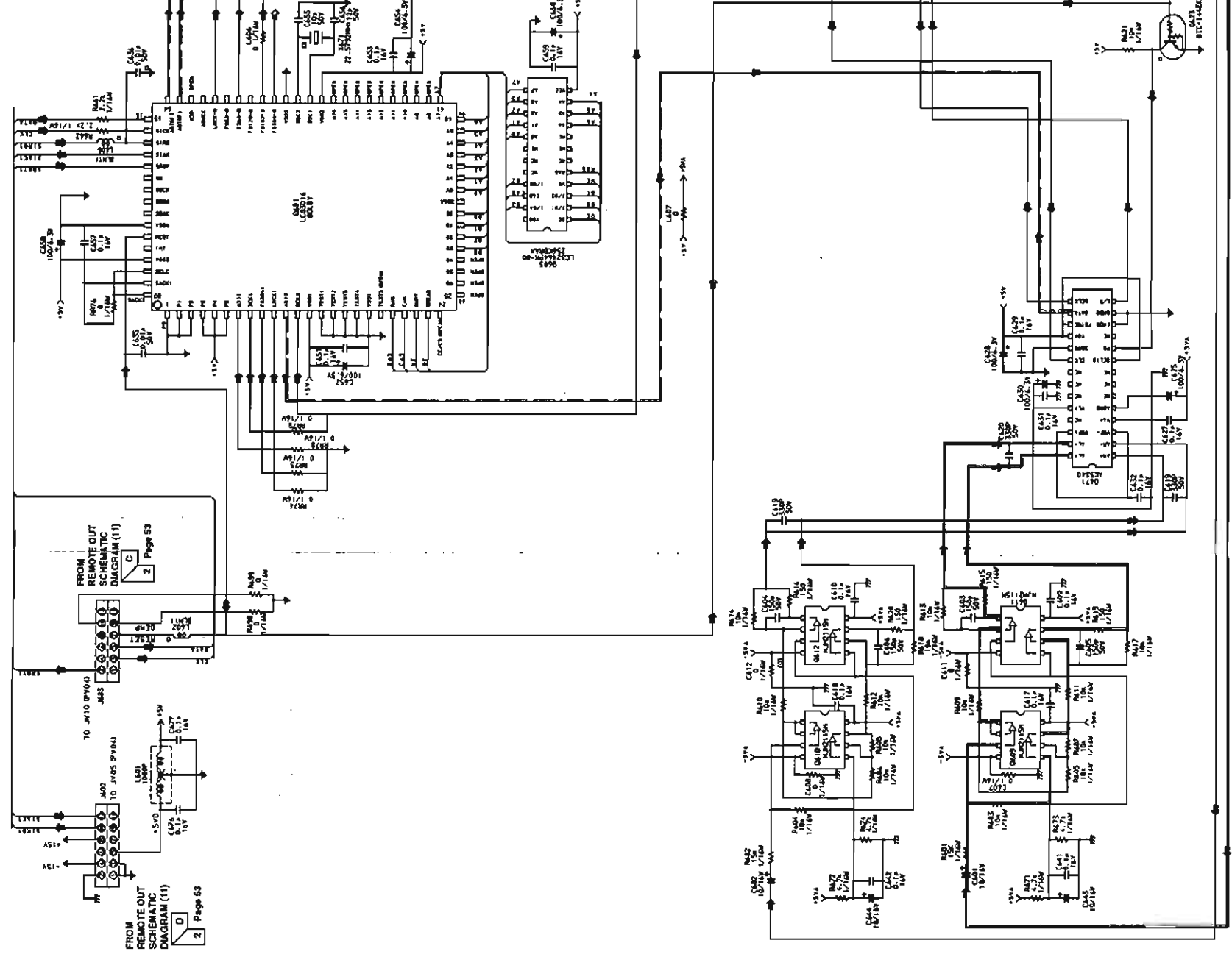
TO REMOTE OUT
SCHEMATIC DIAGRAM (11)
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2 Page 33

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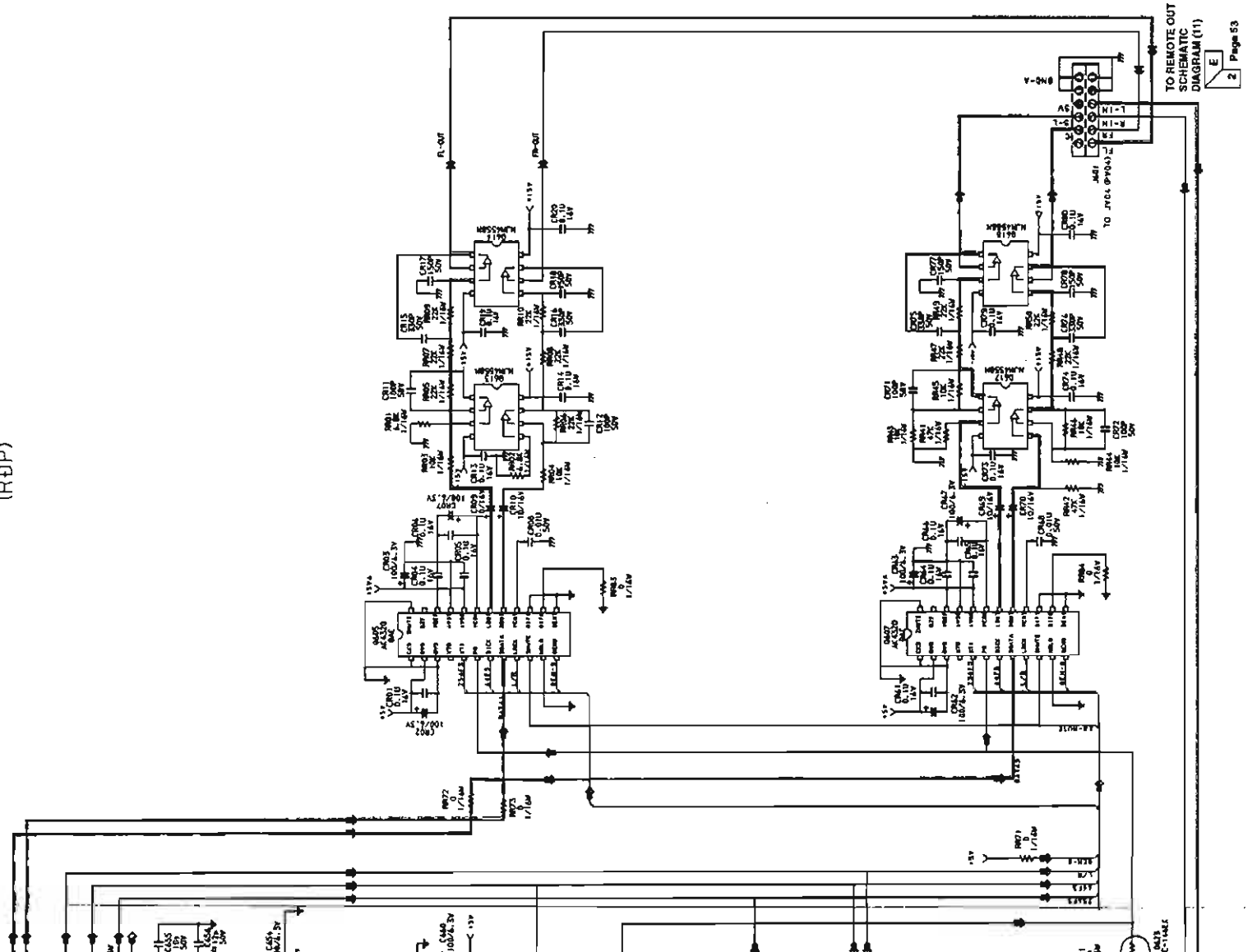
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SCHEMATIC DIAGRAM (18) (B) VERSION
P604-THX PRO LOGIC DSP

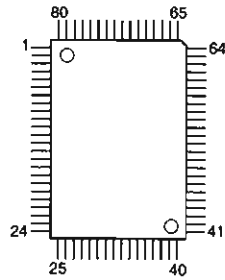
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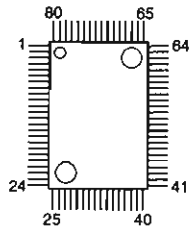
P604
 DSP
 (RDP)



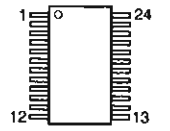
PIN CONNECTION DIAGRAM



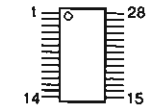
Q601: LC83016JE



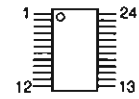
QU01: TMP87CP71F



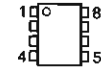
Q603: LC32464PM-80



Q671: AK5340(ADC)

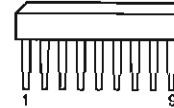


Q605, Q607: AK4320(DAC)

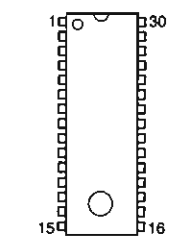


QL04, QL05: NJM2233BD
QX63: NJM2267D

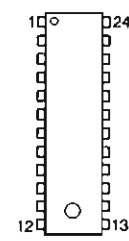
QE01, QE02, QE07-QE12,
QF01, QF02, QG55, QG56,
QS01-QS03, QS13,
QS51-QS54, QS91,
QV07, QV58, Q301, Q613,
Q614, Q617, Q618:
NJM4558DD



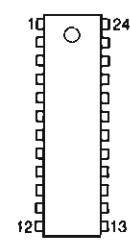
QN04, QN84: TA7317P



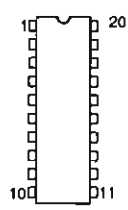
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QS11, QS56: LC78211
QX60: LC4760-9004



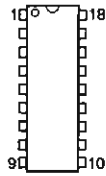
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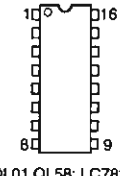
Q501: LC7218



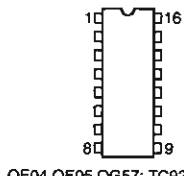
QY12: 74HCS41



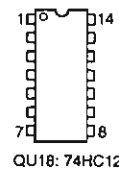
Q902: LC7073



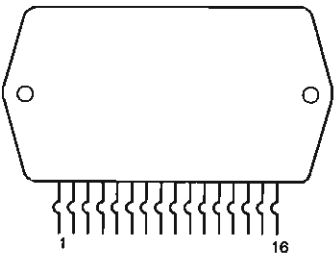
QL01, QL58: LC7824



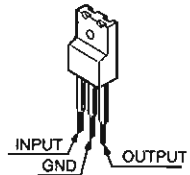
QE04, QE05, QG57: TC9213P
QY10: TC9173P
QY11: TC9174P
QV01: TC9215P



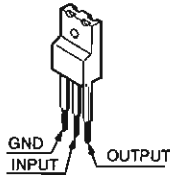
QU18: 74HC125



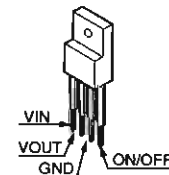
QP01: STK401-050



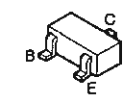
Q801: NJM7815FA
Q803, Q805: NJM7805FA



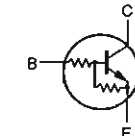
Q802: NJM7915FA
Q804: NJM7905FA



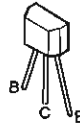
QB01: PQ05RR1



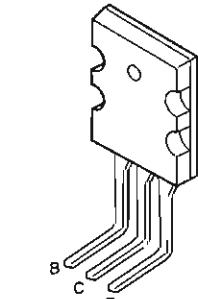
Q823: DTC144EK



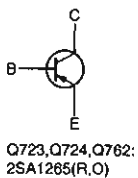
QS62: DTC114ES
QU04, QU05, QU08, QU09,
QU15, QX62, QY02, QY04,
QY06, QY08, QY13, Q204:
DTC144ES



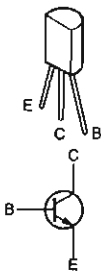
QN81, QS61, QT04, QU02,
QU12, QU17, QY01, QY03,
QY05, QY07, Q203:
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QA04, QA05, QU10, QU14:
DTA144ES



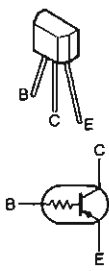
Q721, Q722, Q761:
2SC3182(R,O)



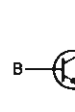
Q723, Q724, Q762:
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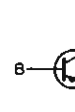
Q713, Q714, Q757:
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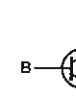
QU11: DTA114TS



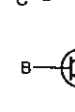
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Q758:
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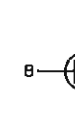
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Q756:
2SA1145(O,Y)



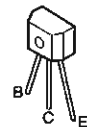
Q717, Q718,
Q759:
2SD2033(E)



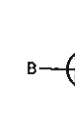
Q719, Q720,
Q760:
2SB1353(E)



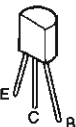
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QA01, QA02, QU03,
QU07, QU19-QU21,
QU51-QU54, QX61,
QX64, Q503, Q903:
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QA03, QG51, QG52,
QG59, QG60, QS07,
QS08, QS59, QS60
: 2SD2144S



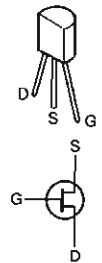
QN07: 2SA608SP



QN08: 2SC1627(Q,Y)
QN01, QN02, QN51,
QN82, QN83, QP02,
QP03, Q707-Q710
Q754, Q755:
2SC2240(GR, BL)
QV51-QV55, QV60:
2SC2878(A, B)

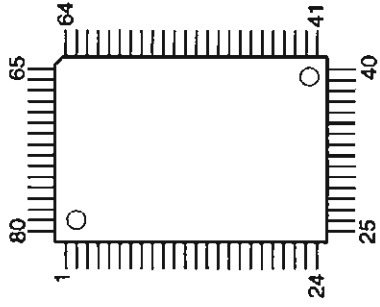


QN03, QP04,
Q751-Q753,
Q701-Q706:
2SA970(GR, BL)

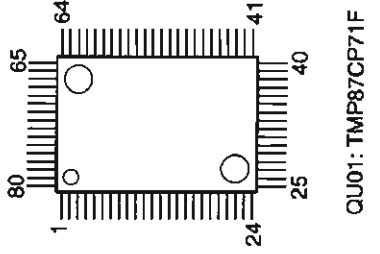


Q502: 2SK30ATM

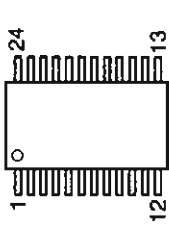
PIN CONNECTION DIAGRAM



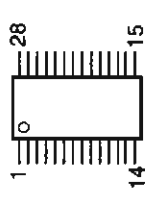
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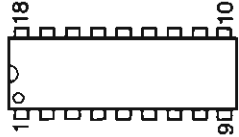
QU01: TMP87CP71F



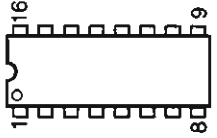
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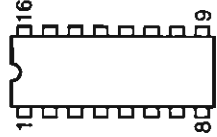
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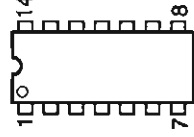
Q902: LC7073



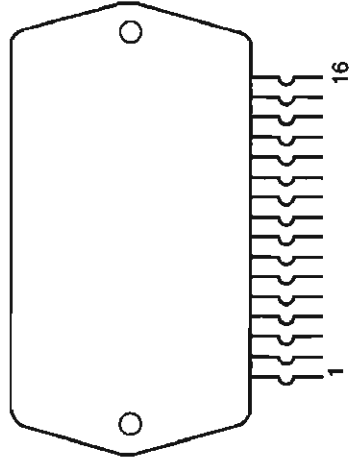
QL01, QL58: LC7824



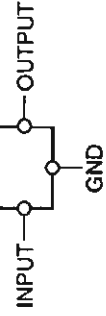
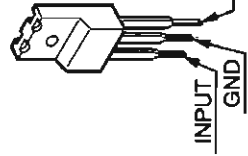
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QY10: TC9173P
QY11: TC9174P
QV01: TC9215P



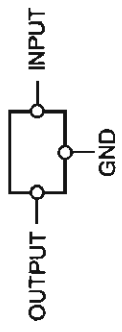
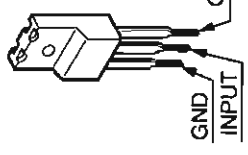
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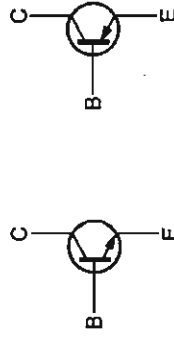
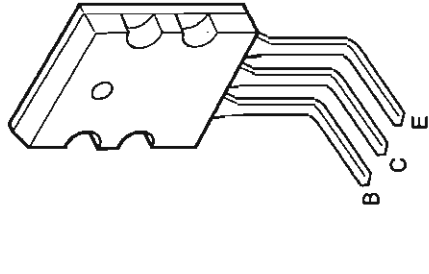
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Q801: NJM7815FA
Q803, Q805: NJM7805FA

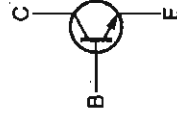
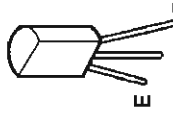


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Q804: NJM7905FA

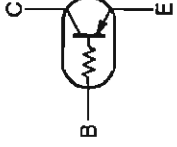
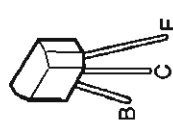


Q721, Q722, Q761:
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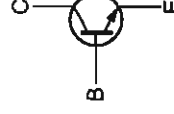
Q723, Q724, Q762:
2SA1265(R,O)



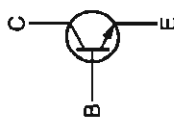
Q713, Q714, Q757:
2SC2705(Q, Y)



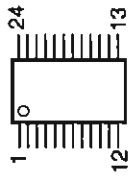
Q715, Q716,
Q758: 2SC3419Y



Q711, Q712,
Q756: 2SA1145(O, Y)



Q717, Q718,
Q759: 2SD2033(E)



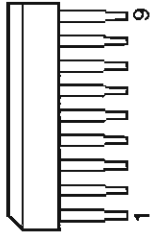
Q605, Q607:
AK4320(DAC)



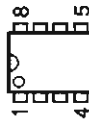
Q201: LA1896
Q556: LC78211
QX60: LC4760-9004

233BD
2267D

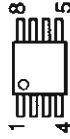
~QE12,
QG56,
Q613,



QN04, QN84: TA7317P



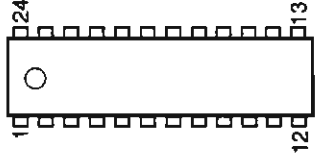
QL03, QL55, QL56:
MC14576



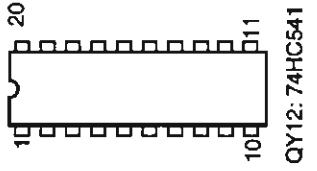
Q609-Q612: NJM2115M
Q613-Q618: NJM4558M



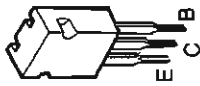
QT01: PC-817



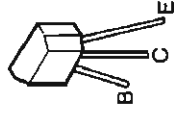
Q501: LC7218



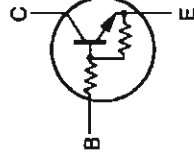
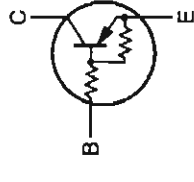
QY12: 74HC541



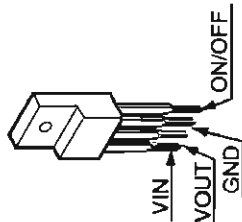
QB02, Q717, Q718:
2SD2033(E)



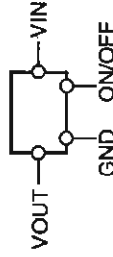
QN81, QS61, QT04, QU02,
QU12, QU17, QY01, QY03,
QY05, QY07, Q203:
DTA114ES
QA04, QA05, QU10, QU14:
DTA144ES



QS62: DTC114ES
QU04, QU05, QU08, QU09,
QU15, QX62, QY02, QY04,
QY06, QY08, QY13, Q204:
DTC144ES



Q801: PQ05RR1



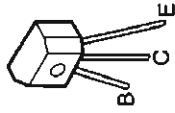
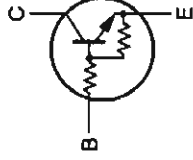
OUTPUT

INPUT

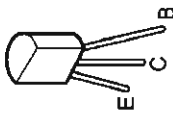
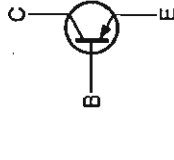
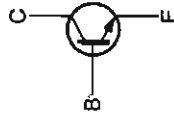
15FA
03FA



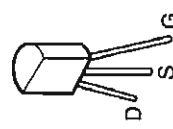
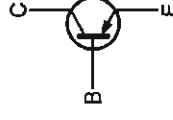
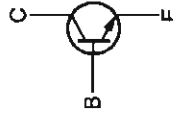
Q623: DTC144EK



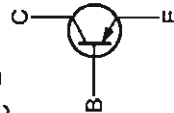
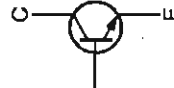
Q202: 2SC1809SP
QA01, QA02, QU03,
QU07, QU19-QU21,
QU51-QU54, QX61,
QX64, Q503, Q903:
2SC536SP
QA03, QG51, QG52,
QG59, QG60, QS07,
QS08, QS59, QS60
: 2SD2144S



QN08: 2SC1627(Q, Y)
QN01, QN02, QN51,
QN82, QN83, QP02,
QP03, Q707-Q710
Q754, Q755:
2SC2240(GR, BL)
QV51-QV55, QV60:
2SC2878(A, B)

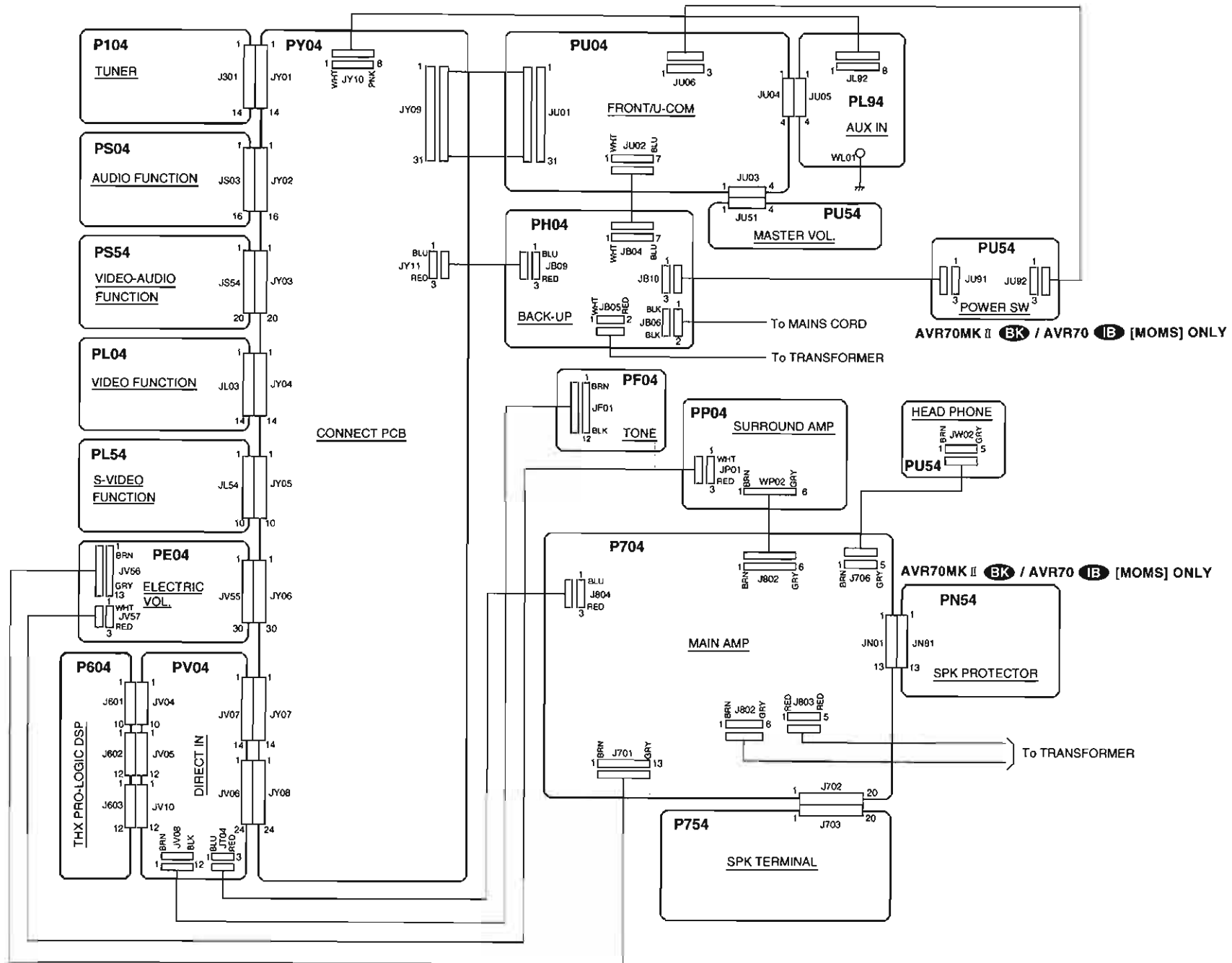


QN03, QP04,
Q751-Q753,
Q701-Q706:
2SA970(GR, BL)
Q502: 2SK30ATM



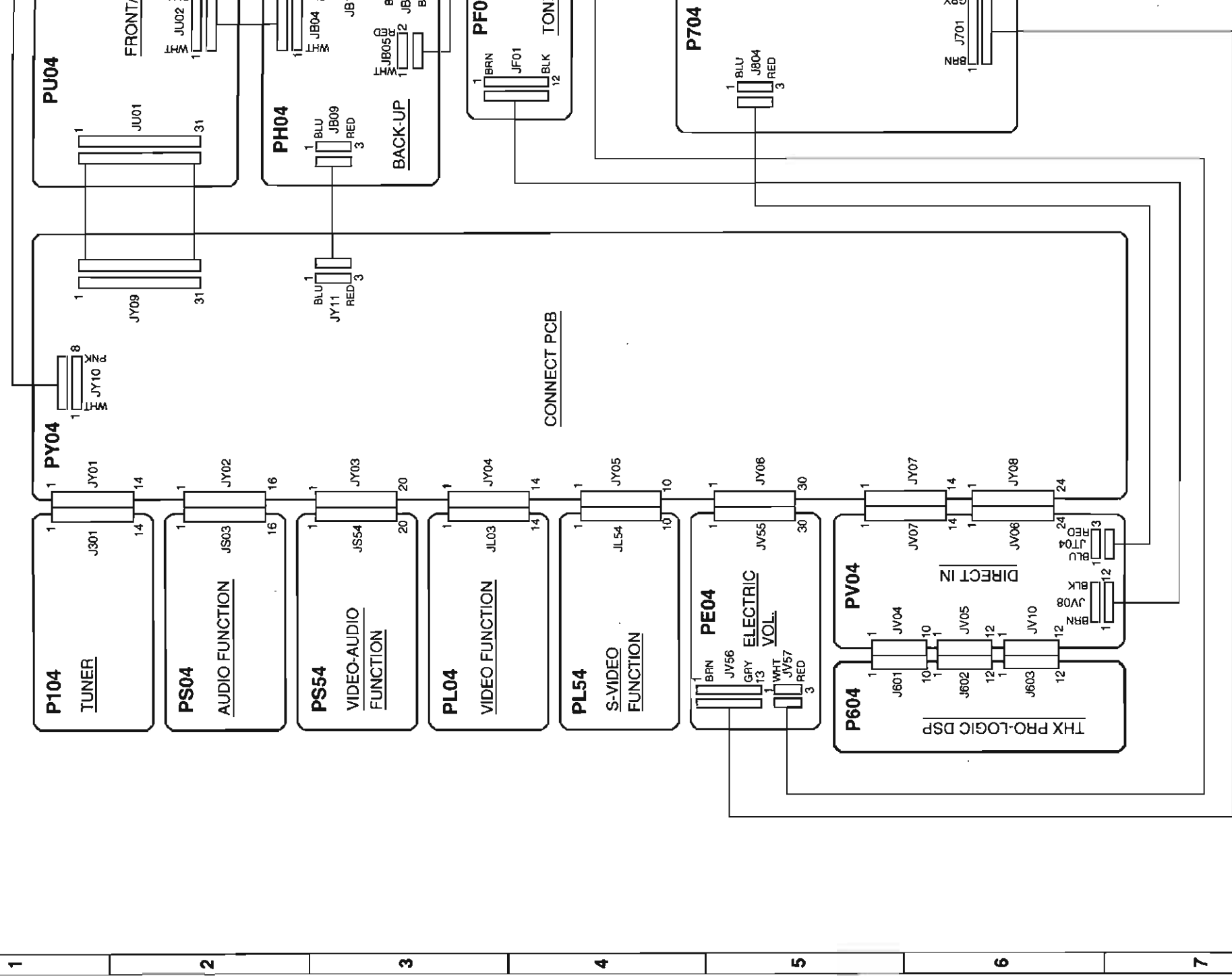
17, Q718,
Q59:
D2033(E)
2SB1353(E)

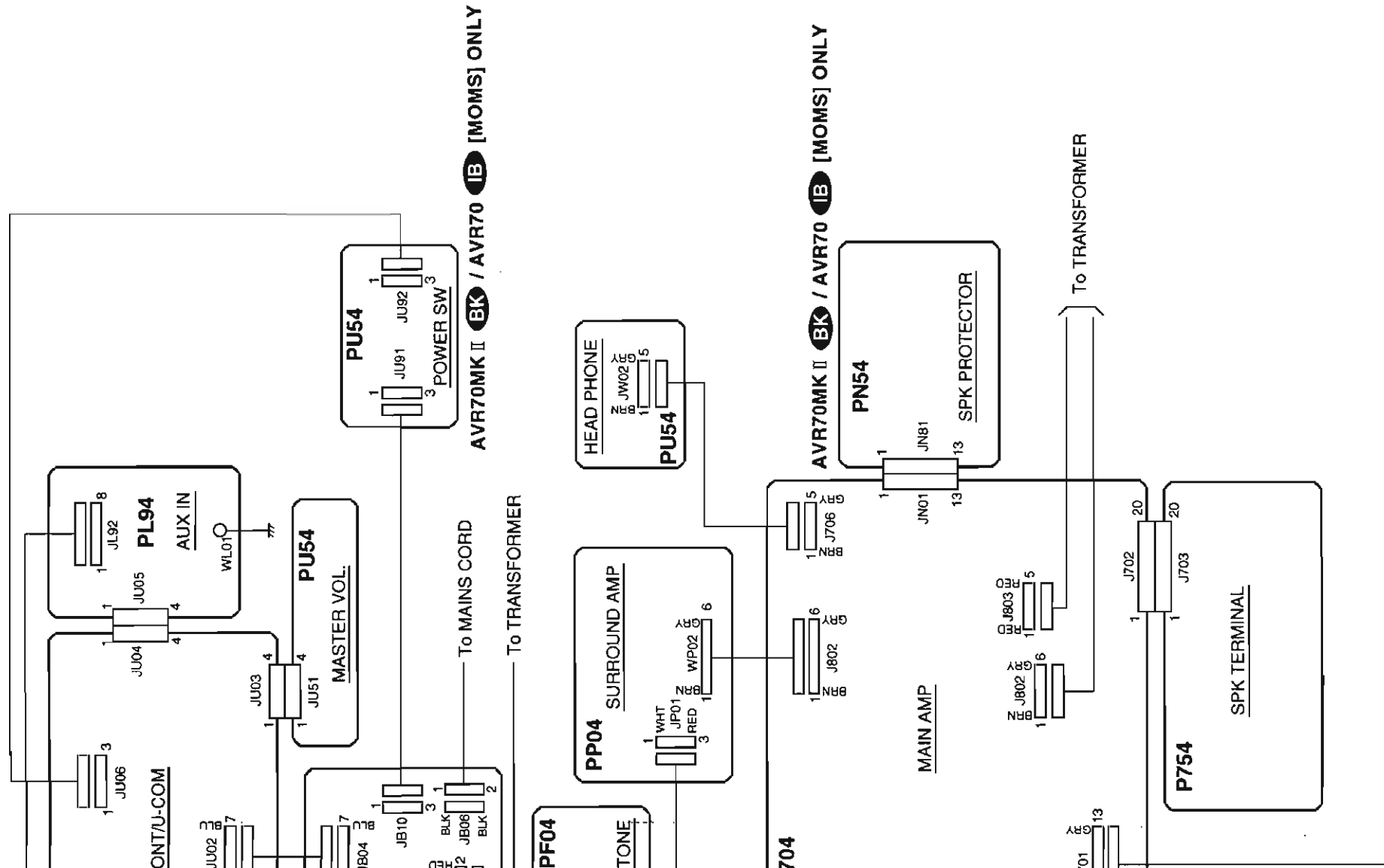
WIRING DIAGRAM



A B C D E

WIRING DIAGRAM



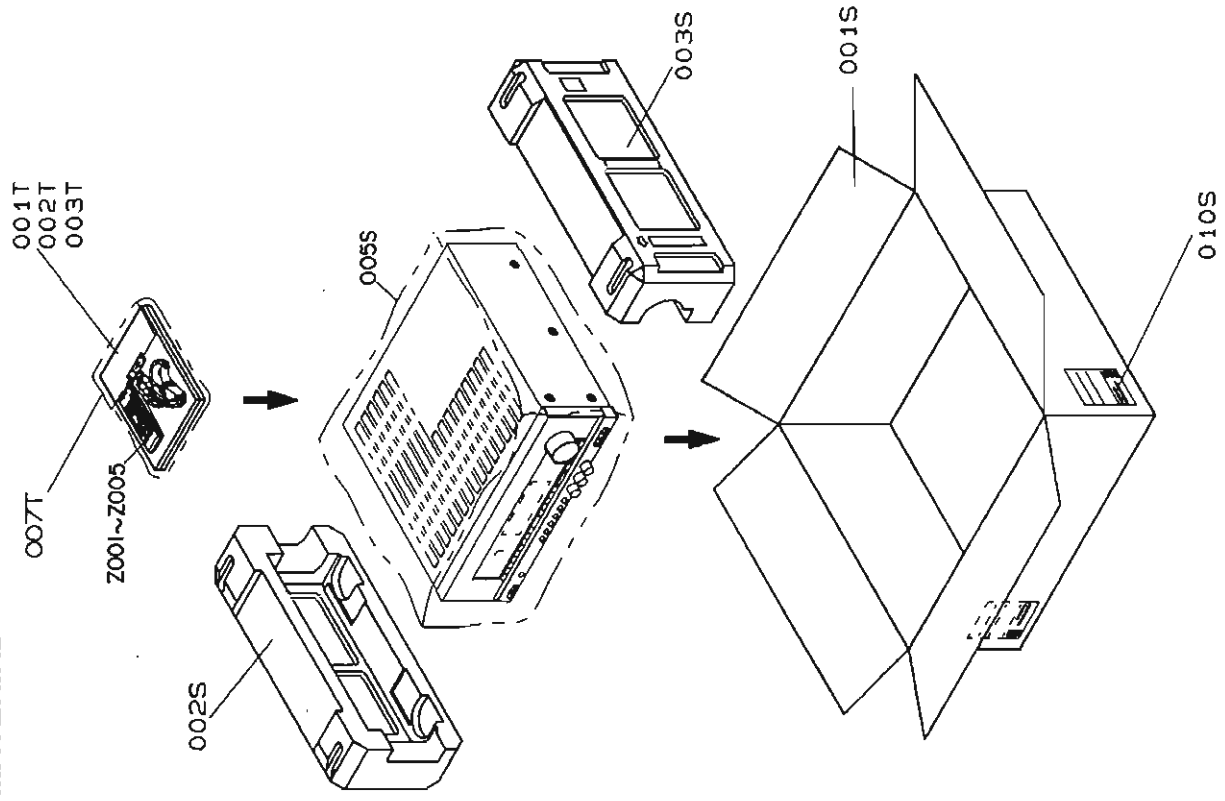


AVR70MK II BK / AVR70 IB [MOMS] ONLY

AVR70MK II BK / AVR70 IB [MOMS] ONLY

A B C D E

PACKING MATERIAL



Ref. No.	Part. No.	Description	QTY
001S	259J801010	PACKING CASE IB	1
001S	259J801020	PACKING CASE BK	1
002S	260J809010	CUSHION, (L)	1
003S	260J809020	CUSHION, (R)	1
005S	9091111030	POLYETHY SHEET	1
010S	9510901260	LABEL	2
001T	259J851310	USER MANUAL IB (AVR70)	1
001T	259J851360	USER MANUAL IB (MOMS)	1
001T	259J851250	USER MANUAL BK (AVR70)	1
001T	259J851260	USER MANUAL EK (AVR70MK II)	1
002T	260J854010	WARRANTY CARD BK	1
003T	260J865010	CARD EK	1
007T	9012540010	POLYETHY BAG	1
Z001	ZK260J0010	UNIT KIT, REMOTE IB	1
Z001	ZK260J0020	UNIT KIT, REMOTE BK	1
Z002	ZF24302000	BATTERY, UM-4NEPH X 2	1
Z003	ZA02800020	EXT. ANTENNA FM IB	1
Z003	ZA02800070	EXT. ANTENNA FM BK	1
Z004	LA00065020	ANT COIL	1
Z005	YP90000310	PLUG EK	1