

# SERVICE MANUAL

AEP Model  
MDP-315,515

Australian Model  
MDP-515



photo: MDP-515D

## SPECIFICATIONS

Type: 12" CD/LD Player  
Signal reception: Optical laser beam detection  
Standards: CCIR standard PAL color system  
Disc standards: NTSC, PAL color discs

**Frequency response**  
Video: 0-15 kHz, 100% modulation  
Audio: 20-20,000 Hz, 100% modulation  
S/N ratio: 48 dB (A-weighted, 1 kHz, 100% modulation)  
Total harmonic distortion: 0.02% (1 kHz, 100% modulation)  
Channel separation: More than 95 dB (EIAJ)  
Wow and jitter: Less than 0.01% W.P.EAK (EIAJ)  
\* Measurement conditions: on the basis of standards of the  
Industrial Association of Japan (JIS-B15)

Color: 16.7 million

**Digital audio specifications**

Frequency response: 20-20,000 Hz

Signal-to-noise ratio: More than 95 dB (A-weighted)

Dynamic range: More than 95 dB (A-weighted)

Total harmonic distortion: 0.02% (1 kHz, 100% modulation)

Channel separation: More than 95 dB (EIAJ)

Wow and jitter: Less than 0.01% W.P.EAK (EIAJ)

\* Measurement conditions: on the basis of standards of the  
Industrial Association of Japan (JIS-B15)

Horizontal video resolution

PAL: 440 lines

NTSC: 420 lines

**Input/output**

Video output: 1.0 Vp-p, 75 Ω, impedance terminated

S/P output: 1.0 Vp-p, 75 Ω, impedance terminated

Audio output: 2 channels, 200 mW (100 mW per channel), 16 Ω, impedance terminated

Control input: 1.0 Vp-p, 75 Ω, impedance terminated

Control output: 1.0 Vp-p, 75 Ω, impedance terminated

MDP-315

Weight: 3.5 kg (7.7 lb)

Dimensions: 430 (W) x 130 (H) x 330 (D) mm (16.5 (W) x 5.1 (H) x 13.0 (D) in.)

MDP-515

Weight: 3.5 kg (7.7 lb)

Dimensions: 430 (W) x 130 (H) x 330 (D) mm (16.5 (W) x 5.1 (H) x 13.0 (D) in.)

Operating temperature: 5 to 35°C (41 to 95°F)

Storage temperature: -10 to 40°C (14 to 104°F)

### \* SERVICE OF REMOTE COMMANDER RMI-515D

Remote commander RMT-515D is available  
as a standard. But its individual parts (such as battery  
cell) and an transmitter is only available  
separately.



MICROFILM



CD VIDEO

CD/CDV/LD/PLAYER

SONY

# SERVICE MANUAL

*AEP Model*  
MDP-315/515D

*Australian Model*  
MDP-515D

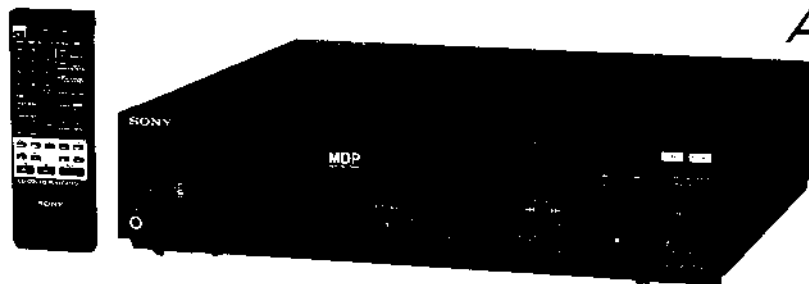


photo: MDP-515D

## SPECIFICATIONS

Type CD/CDV/LD Player  
Signal readout Optical (Laser beam reflection)  
Signal format CCIR standard, PAL color system  
EIA standard, NTSC color system (Note)

Playing time (Note)

		PAL	NTSC
CAV	30 cm (12 in) double-sided	72	60
	20 cm (8 in) double-sided	32	28
	20 cm (8 in) single-sided	-	14
LD	30 cm (12 in) double-sided	120	120
	20 cm (8 in) double-sided	40	40
	20 cm (8 in) single-sided	-	20
CDV	Audio portion	20	20
	Video portion	6	5
CD	12 cm (5 in) single-sided	74	74
	8 cm (3 in) single-sided	20	20

(minutes)

[Note] MDP-515D only

### Digital audio specifications

Frequency response

4 Hz to 20 kHz ( $\pm 0.3$  dB)

Signal-to-noise ratio

More than 105 dB (EIAJ\*)

Dynamic range

More than 95 dB (EIAJ\*)

Total harmonic distortion

0.003% or less (EIAJ\* at 1 kHz)

Channel separation

More than 95 dB (EIAJ\*)

Wow and flutter

Below measurement limit

( $\pm 0.001\%$  W.PEAK) (EIAJ\*)

\* Measurement by under condition of standards of Electric

Industries Association of Japan (VTC-015)

Horizontal video resolution

PAL 440 lines

NTSC 425 lines

### Input/output

Video output 1.0 Vp-p, 75 ohms, unbalanced

RGB output 0.7 Vp-p

Audio output Analog: 200 mVrms (1 kHz, 40% modulation)

Digital: 200 mVrms (1 kHz, -20 dB)

Headphone output

28 mW (32 ohms), 8 ohms

Power requirements

Model for Continental Europe:

220 V AC, 50/60 Hz

Model for the United Kingdom:

240 V AC, 50/60 Hz

### MDP-315:

Power consumption

33 watts

Weight

Approx. 7.7 kg (16 lb 12 oz)

Dimensions

Approx. 430 x 110 x 400 mm (w/h/d)  
(17 x 4<sup>3</sup>/<sub>8</sub> x 15<sup>3</sup>/<sub>4</sub> inches)

Operating temperature

+5°C to +35°C

Ambient humidity 5% to 90%

### MDP-515D:

Power consumption

40 watts

Weight

Approx. 7.9 kg (16 lb 23 oz)

Dimensions

Approx. 430 x 110 x 408 mm (w/h/d)  
(17 x 4<sup>3</sup>/<sub>8</sub> x 16<sup>1</sup>/<sub>8</sub> inches)

Operating temperature

+5°C to +35°C

Ambient humidity 5% to 90%

—Continued on page 2—

### • SERVICE OF REMOTE COMMANDER RMT-515D

Remote commander RMT-515D is available as a unit. But as individual parts the battery case lid of commander is only available.



MICROFILM



CD VIDEO CD/CDV/LD/PLAYER

SONY®

## Remote Commander RMT-515D

### Principle of operation

Infrared pulse

### Power requirements

3 V DC, (2 IEC R6 size AA batteries)

Dimensions      Approx. 62 × 20 × 175 mm (w/h/d)  
(2<sup>7</sup>/<sub>16</sub> × 3/4 × 7 inches)

Weight            Approx. 130 g (including batteries)  
(4.5 oz)

### Supplied accessories

Remote Commander RMT-515D (1)

IEC R6 (size AA) batteries (2)

## Precautions

### On safety

- Before operating, check that the operating voltage of the unit is identical to that of your local power supply.
- Should any solid object or liquid enter the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the wall outlet if it is not to be used for an extended period of time.  
To disconnect a cord, pull it out by the plug. Never pull the cord itself.

### On installation

- Avoid placing the player in a location subject to:
  - high humidity
  - high temperature
  - excessive dust
  - mechanical vibration
  - direct sunlight
- Allow adequate air circulation to prevent internal heat build-up. Do not place the unit on surfaces (rugs, blankets, etc.) or near materials (curtains, draperies) that may block the ventilation holes.

### On moisture condensation

Do not operate the unit right after having transported it from a cold location to a warm location or in a room where the temperature rises suddenly, because moisture may condense in the operating section of the unit. Wait for about an hour before turning the power on in the new location or keep the rise in room temperature gradual. If the unit is operated with moisture condensation, the unit and the disc may be damaged. Therefore remove the disc immediately when there is a possibility of moisture condensation and no picture is obtained. To evaporate the moisture rapidly, leave the player turned on without a disc loaded.

### On operation

- When turning off the power, wait until "no disc" message appears after a disc has been removed and the tray has been closed. Especially, this must be practiced when the player is to be transported.
- Remove the disc from the tray after playing it, if the unit will not be used for any length of time. Do not transport the set with a disc in place.
- When the disc tray is in the open position, do not press down on it strongly, or place heavy objects on it.


### On cleaning

Clean the cabinet, panel and controls with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent, such as alcohol or benzine, which may damage the finish.

### On repacking



Do not throw away the carton and the packing material. They make an ideal container to transport the unit in.

### On disc tray

- If the disc tray does not close properly and slides out again, reinsert the disc.
- Be careful not to pinch your fingers between the tray and the unit.
- Always keep the tray closed when not using the unit to keep dust or dirt from entering the optical system of the unit.
- If the unit does not operate, press the  OPEN/CLOSE button and reinsert the disc.
- Insert only one disc at a time.
- Make sure the disc is placed properly in the tray. Incorrect positioning may result in permanent damage to the disc.

If you have any question or problem concerning your unit, please contact your nearest Sony dealer.

### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  OR DOTTED LINE WITH MARK  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

## PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs a laser. Therefore, be sure to follow carefully the instructions below when servicing.

### WARNING !!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION, BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 25 cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.

### 1. Laser Diode Properties

- Material: GaAlAs
- Wavelength: 780 nm
- Emission Duration: continuous

2. During service, do not take the Optical Pick-up Block apart, and do not adjust the APC circuit. If there is a breakdown in the APC circuit (including laser diode), replace the entire Optical Pick-up Block (including APC board).

### DANGER

Invisible laser radiations when open and interlock failed or defeated.  
Avoid direct exposure to beam.

### CLASS I LASER PRODUCT

ADVARSEL:  
USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAF-  
BRYDERE ER UD AF FUNCTION UNDGÅ. UDSAETTELSE FOR  
STRÅLING.

### CLASS 3B LASER

VAROITUS!  
SUOJAKOTELOA EI SAA AVATA. LAITE SISÄLTÄÄ LASERDIODIN,  
JOKA LÄHETTÄÄ (NÄKYMÄTÖNTÄ)  
SILMILLE VAARALLISTA LASERSÄTEILYÄ.

LASER COMPONENT IN PRODUCT IS CAPABLE OF EMITTING  
RADIATION EXCEEDING THE LIMIT FOR CLASS I.

## TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>	<u>Section</u>	<u>Title</u>	<u>Page</u>
1.	GENERAL		3.	DIAGRAMS	
	Location and Function of Controls(MDP-315) .....	6	3-1.	Circuit Boards Location .....	20
	Location and Function of Controls(MDP-515D) .....	7	3-2.	Overall Block Diagram .....	21
	Remote Commander .....	8	3-3.	Video Block Diagram .....	24
	Rear panel .....	9	3-4.	RF Amp Block Diagram .....	27
	To Play a Disc		3-5.	Analog Audio Block Diagram .....	29
	Starting Playback .....	10	3-6.	System Control Block diagram .....	31
	Advanced Playback .....	10	3-7.	Servo Block Diagram .....	35
	To Change Playback Speed and Direction-		3-8.	Digital Audio Block Diagram .....	38
	Speed Playback .....	11	3-9.	Mode Control/Function Switch Block Diagram .....	41
	To Play Frame by Frame-Freeze-Frame,		3-10.	Power Block Diagram .....	43
	Step Playback .....	11			
	To Search for a Particular Scene		4.	PRINTED WIRING BOARDS AND AND SCHEMATIC DIAGRAMS	
	Scan Function .....	12	4-1.	Frame Schematic Diagram .....	45
	Chapter/Track Search .....	12	4-2.	Printed Wiring Boards and Schematic Diagrams .....	48
	Frame Search .....	13		MP-15, TL-40 (Video) and RG-6 (MDP-515D) Boards .....	51
	Time Search .....	13		MP-15 (Digital Audio, Audio output), HP-50,	
	To Play Particular Portions of a Disc			AF-52 Boards .....	61
	Repeat Playback .....	14		MP-15, (System Control, Spindle Servo), SW-106,	
	Program Playback .....	14		LS-17, SW-107 and MT-29 Boards .....	71
	To Search particular Track .....	15		SV-33 (Servo), FG-13, CK-14, MT-30 and	
	To Change Time Display .....	15		MT-28 Boards .....	79
	Auto Pause (MDP-515D only) .....	16		FP-197, FP-198 (MDP-315) and FP-222,	
	Auto Space (MDP-515D only) .....	16		FP-223 (MDP-515D) Boards .....	87
	Custom Index .....	16		PS-193, TR-30 Boards .....	95
2.	DISASSEMBLY		4-3.	Semiconductors .....	99
2-1.	Removal of the Cabinet .....	17	5.	EXPLODED VIEWS	
2-2.	PULL out the Tray to Manual .....	17	5-1.	EXTERIOR ORNAMENT Assembly .....	100
2-3.	Removal of Tray .....	17	5-2.	Frame Assembly-1 .....	101
2-4.	Alignment of Loading Gear Phase .....	18	5-3.	Frame Assembly-2 .....	102
2-5.	Opening of MP-15 Board .....	18	5-4.	MD Chassis Assembly (1) .....	103
2-6.	Removal of Optical Device .....	19	5-5.	MD Chassis Assembly (2) .....	104
2-7.	Removal of MD Chassis and OPT. Chassis .....	19	6.	ELECTRICAL PARTS LIST .....	105
2-8.	Removal of Turntable, Spindle Motor,			HARDWARE LIST .....	128
	SV-33 Board and FG-13 Board .....	19			

7. ELECTRICAL ADJUSTMENTS

1-1. List of Servicing Jigs .....	129	1-7-4. Color Framing Y Level Adjustment (MP-15 Board) .....	138
1-2. Cautions on Adjustment .....	129	1-7-5. Color Framing Chroma Level (1) Adjustment (MP-15 Board) .....	138
1-3. MD Adjustment Cable (J-6082-059-A) .....	129	1-7-6. Color Framing Chroma Level (2) Adjustment (MP-15 Board) .....	139
1-4. Power Supply Check (PS-193 Board) .....	130	1-7-7. Color Framing REF H Adjustment (MP-15 Board) .....	139
1-5. System Control System Adjustment .....	130	1-7-8. Input Level (PAL) Adjustment (RG-6 Board) .....	139
1-5-1. Microprocessor Clock (PAL) Adjustment .....	130	1-7-9. Input Level (NTSC) Adjustment (RG-6 Board) .....	140
1-5-2. Microprocessor Clock (NTSC) Adjustment .....	130	1-7-10. BF Position Adjustment (RG-6 Board) .....	140
1-6. Servo System Adjustment .....	130	1-7-11. Video Level (NTSC) Adjustment (RG-6 Board) .....	141
1-6-1. LD Servo System Adjustment		1-7-12. G Level Adjustment (RG-6 Board) .....	141
1. LD Tracking Balance Adjustment (SV-33 Board) .....	131	1-7-13. B Level Adjustment (RG-6 Board) .....	141
2. LD Focus Gain Adjustment (SV-33 Board) .....	132	1-7-14. Video Level (PAL) Adjustment (RG-6 Board) .....	141
3. LD Cross Talk Balance Adjustment .....	133	1-7-15. Free-Run Frequency (PAL) Adjustment (RG-6 Board) .....	142
4. LD Tracking Gain Adjustment (SV-33 Board) .....	134	1-7-16. Free-Run Frequency (NTSC) Adjustment (RG-6 Board) .....	142
1-6-2. CD Servo System Adjustment .....	135	1-7-17. Chroma Level Adjustment (RG-6 Board) .....	142
1. RD Adjustment .....	135	1-7-18. HUE Adjustment (RG-6 Board) .....	142
2. CD Focus Balance Adjustment (SV-33 Board) .....	135	1-7-19. DL Amplifire Gain Adjustment (RG-6 Board) .....	143
3. CD RF H Level Adjustment (SV-33 Board) .....	136	1-7-20. DAT Adjustment (RG-6 Board) .....	143
4. CD RF L Level Adjustment (SV-33 Board) .....	136	1-8. Audio System Adjustment	
1-7. Video System Adjustment		1-8-1. Analog Audio System Adjustment (AF-52 Board) .....	144
1-7-1. Video Output Level Adjustment (MP-15 Board) .....	137	1-8-2. Digital Audio System Adjustment (MP-15 Board) .....	144
1-7-2. Burst Gate position Adjustment (MP-15 Board) .....	137	1-8-3. RF PLL Free-Run Adjustment (MP-15 Board) .....	145
1-7-3. REF H Adjustment .....	137	ADJUSTMENT RELATED PARTS LOCATION .....	146

# SECTION 1 GENERAL

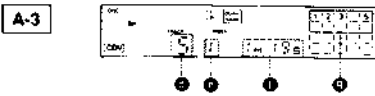
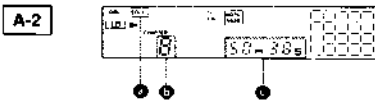
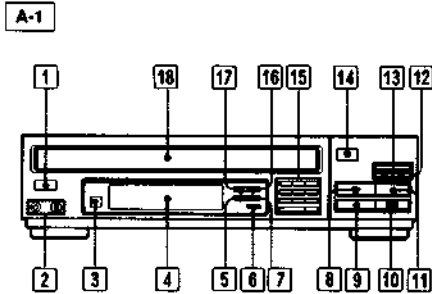
This section is extracted  
instruction manual.

## Location and Function of Parts and Controls

(MDP-315 Model)

Refer to the page indicated in the black circle for details.

### Front Panel



#### A-1

Buttons on the Remote Commander with the same indications as those of the main unit have the same function.

- 1 **POWER switch**  
Press to turn on and press again to turn off the player.
- 2 **PHONES jack (stereo phone type) and LEVEL control**  
When listening with headphones, connect the headphones with stereo phone plug here. Adjust the volume with the LEVEL control.
- 3 **Remote control sensor**  
Point the supplied Remote Commander here.
- 4 **Display window**  
When playing back a disc, the following indications appear on the display.

#### A-2

- LD**
- ① Type of LD
  - ② Chapter number
  - ③ Time (hr./min./sec.) or frame number

#### A-3

- CDV**
- ① Track number
  - ② Index
  - ③ Elapsed time (min./sec.) for track
  - ④ AV calendar

#### A-4

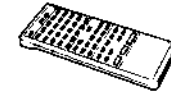
- CD**
- ① Track number
  - ② Index
  - ③ Elapsed time (min./sec.) for track
  - ④ AV calendar

- 5 **AV TIME button** ●  
Press to change time display.
- 6 **Repeat button** ●  
Press to repeat the entire disc side, and for other repeat play.

- 7 **V.PART/A.PART (video/audio selector button)** ●  
Press to locate the video portion of a CDV disc.
- 8 **Play button**
- 9 **Stop button**
- 10 **STOP MODE MEMORY switch** ●  
Use this switch to stop playback and resume at the same point later. This switch is effective for LD only.
- 11 **Pause button**
- 12 **ACS/AMS (Automatic Chapter Select/Music Sensor) buttons** ● ●  
Use these buttons for skipping chapter/track.
- 13 **DUAL SPEED buttons** ●  
Use these buttons for scanning.
- 14 **Disc tray OPEN/CLOSE button**  
Press to open or close the disc tray.
- 15 **Number/file search (1-9/A-F) buttons**  
These are used for entering program, chapter, track, frame, time numbers and File A-F.
- 16 **INDEX button** ●  
Use this button for custom index search.
- 17 **FILE button** ●  
Use this button for setting a custom index mark.
- 18 **Disc tray**

### Accessories

The following accessories are included in the carton.



RMT-515D Remote Commander



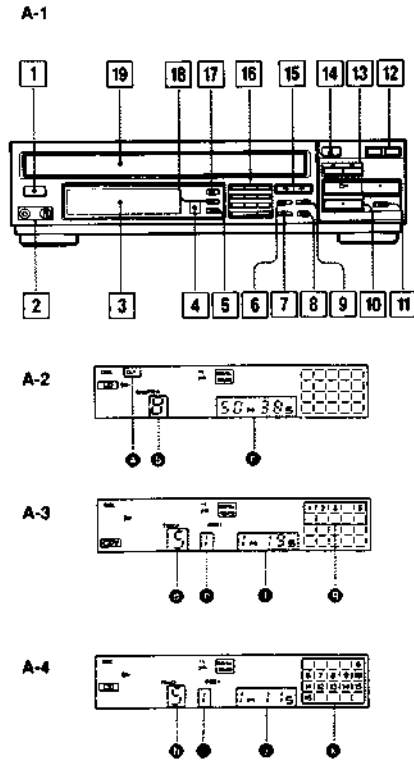
Two IEC R6 (size AA) batteries

# Location and Function of Parts and Controls

(MDP-515D Model)

Refer to the page indicated in the black circle for details.

## Front panel



- A-1**  
Buttons on the Remote Commander with the same indications as those of the main unit have the same function.
- 1 POWER switch**  
Press to turn on and press again to turn off the player.
- 2 PHONES jack (stereo phone type) and LEVEL control**  
When listening with headphones, connect the headphones with stereo phone plug here. Adjust the volume with the LEVEL control.
- 3 Display window**  
When playing back a disc, the following indications appear on the display.
- A-2**  
LD  
1 Type of LD  
2 Chapter number  
3 Time (hr./min./sec.) or frame number
- A-3**  
CDV  
1 Track number  
2 Index  
3 Elapsed time (min./sec.) for track  
4 AV calendar
- A-4**  
CD  
1 Track number  
2 Index  
3 Elapsed time (min./sec.) for track  
4 AV calendar
- 4 Remote control sensor**  
Point the supplied Remote Commander here.
- 5 AV TIME button**  
Press to change time display.
- 6 Repeat button**  
Press to repeat the entire disc side, or for other repeat playback.

- 7 1/ALL button**  
Press to repeat the single track or chapter.
- 8 RGB selector**  
When the player is connected to the TV via the EUROCONNECTOR, set to ON to view an NTSC disc on a PAL TV. The TV can be set to receive the RGB signal.  
When your TV is equipped with the RGB or composite signal selector, setting the TV to receive the RGB signal may be performed on the TV itself. Set to OFF when your TV is capable of receiving both PAL and NTSC.
- Notes**
- When the TV is set to the RGB mode, the picture brightness may change. In this case, adjust the brightness on the TV.
  - When this selector is set to ON, the picture may shift slightly to the left.
- 9 V.PART/A.PART (video/audio selector button)**  
Press to locate the video portion of a CDV disc.
- 10 Basic operation buttons**  
▶ Play button  
■ Stop button  
■ Pause button
- 11 STOP MODE MEMORY switch**  
Use this switch to stop playback and resume at the same point later. This switch is effective for LD only.
- 12 PAL/NTSC indicator**  
This unit automatically distinguishes PAL or NTSC and turns on the respective indicator.  
When the power is turned on, the PAL indicator lights up first, even if an NTSC disc has been inserted. After an NTSC disc rotates for a while, the NTSC indicator lights up and keeps on lighting until the disc is removed or the power is turned off.
- 13 DUAL SPEED buttons**  
Use these buttons for scanning.
- 14 Disc tray OPEN/CLOSE button**  
Press to open or close the disc tray.
- 15 ACS/AMS (Automatic Chapter Select/Music Sensor) buttons**  
Use these buttons for skipping chapter/track.
- 16 Number/title search (A-F) buttons**  
These are used for entering program, chapter, track, frame, time numbers and File A-F.

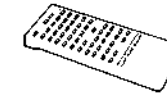
**17 FILE button**  
Use this button for setting a custom index mark.

**18 INDEX button**  
Use this button for custom index search.

**19 Disc tray**

## Accessories

The following accessories are included in the carton.



RMT-515D Remote Commander



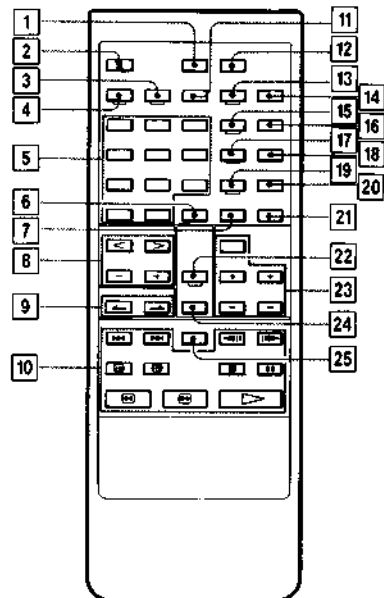
IEC R6 (size AA) batteries (2)



## Location and Function of Parts and Controls

### Remote Commander

B-1



B-1

Buttons on the Remote Commander with the same indications as those of the main unit have the same function.

- 1 **DISPLAY button**  
Press during playback to superimpose the screen messages (see page 13) on the monitor screen. Press again to remove the message.
- 2 **Disc tray OPEN/CLOSE button**  
Press to open or close the disc tray.
- 3 **FRAME/TIME search button**
- 4 **PGM (program play) button**
- 5 **Number/file search (A-F) buttons**  
These are used for entering program, chapter, track, frame, time numbers and File A-F.
- 6 **SEARCH/NEXT button**
- 7 **BACK button**
- 8 **</> MULTI SPEED buttons**   
**+/- SPEED SET buttons**
- 9 **—/— Index buttons**  
While playing back a CD, press — to advance the index or — to revert it.
- 10 **Basic operation buttons**  
 ACS/AMS (Automatic Chapter Select/Music Sensor) buttons  
 (High-speed scan) buttons  
 (Scan) buttons  
 STILL/STEP playback buttons  
 STOP button  
 PAUSE button  
 PLAY button
- 11 **CLEAR button**  
Press to cancel a wrong numerical entry or to terminate the search or other functions currently in operation. (The functions affected are marked on the Remote Commander with yellow underlines.)
- 12 **DISC/TV button**  
When the player is connected to the TV via the EUROCONNECTOR, press to monitor TV programmes. Press again to return to disc viewing.

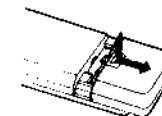
- 13 **REPEAT button**   
Press to repeat the entire disc side, or for other repeat playback.
- 14 **CX button**   
Press to manually activate the CX noise reduction system.
- 15 **1/ALL button**   
Press to repeat the single track or chapter.
- 16 **ANALOG audio button**   
Use this button to switch between digital and analog sound on an LD of NTSC video signal system.
- 17 **SHUFFLE button**  
Press to play back selections on a CD, CDV, and LD with TOC in a random order.
- 18 **AUDIO MONITOR button**   
Press to switch the audio channels of a disc in the group of stereo, 1L, and 2R.
- 19 **REPEAT A ### B button**   
Press to repeat the particular portion.
- 20 **A.(Automatic) PAUSE/A. (Automatic) SPACE button**
- 21 **AV TIME button**   
Press to change time display.
- 22 **FILE button**   
Use this button for setting a custom index mark.
- 23 **TV operation buttons**  
(Can be used to control Sony TV sets bearing the mark.)  
**PROGR (program) +/- buttons**  
 (volume) +/- buttons  
 button  
 Press to switch to a video recorder connected to the video/audio inputs of the TV set. (This function is available only with certain TV models.)
- 24 **CUSTOM INDEX button**   
Use this button for custom index search.
- 25 **V.PART/A.PART button**   
Press to locate the video portion of a CDV disc.

### Precautions on the Remote Commander

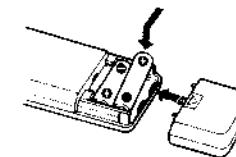
- Do not let strong sunlight or a strong artificial light source shine directly on the remote sensor, as it may interfere with the operation or damage the sensor.
- Connecting the Control S input jack on the rear of the unit to the Control S output jack on a TV set or other piece of equipment deactivates the sensor on the front and shifts operation to the sensor on the other equipment. In this case, point the Remote Commander at the latter equipment's sensor and not at the disc player.

### Installing batteries

1 Open the lid.



2 Insert the two IEC R6 (size AA) batteries with correct polarity.



### Battery life

Batteries should last for about six months under normal operating conditions. When the operating range of the Remote Commander becomes noticeably short, replace the batteries with new ones.

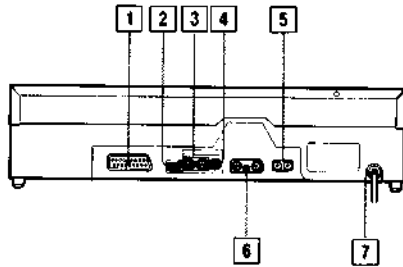
### Note

When the Remote Commander is not to be used for a long period of time, remove the batteries to avoid possible damage from battery leakage.

## Location and Function of Parts and Controls

### Rear Panel

C-1



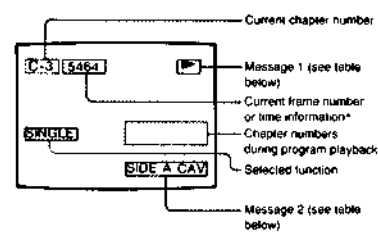
C-1

- 1 **EUROCONNECTOR** (21-pin)  
Connect to the 21-pin connector of a VTR or a TV, or to the audio/video input of these units with a commercially available connecting cable.
- 2 **DIGITAL OUT connector**  
This jack permits optical fiber connection to an amplifier or D/A converter unit with optical input. For connection, use the optional audio fiber cable POC-15. (OPTICAL)
- 3 **LINE OUT AUDIO L, R jacks** (phono jacks)  
Connect to the audio input jacks of a TV set or the AUX input jacks of an amplifier. The output signal is the same—that is, digital or analog—as that recorded on the disc.
- 4 **LINE OUT VIDEO jack** (phono jack)  
Connect to the video input jack of a TV set or VTR.
- 5 **CONTROL S IN/OUT jacks** (mini jacks)  
Connect the IN jack to the CONTROL S OUT jack on a TV set and the OUT jack to the CONTROL S IN jack on a VTR.
  - These connections permit the control of the player and the VTR using the remote sensor on the TV.
  - Attaching the CONTROL S IN jack to the CONTROL S OUT jack on a TV set with the optional RK-G69 connecting cord allows you to operate the player by pointing the Remote Commander at the TV set instead of at the player.
- 6 **VIDEO OUT jack** (phono jack)  
**AUDIO OUT (MONO) jack** (phono jack)  
**RFU DC OUT jack** (mini jack)  
Connect to a TV with the only aerial input using the optional RFU-89EA RF modulator.
- 7 **AC power cord**

## Screen Messages

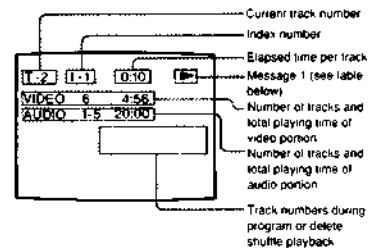
Information on the operating condition of the unit and chapter or track numbers can be superimposed on the TV or monitor screen. While no image is displayed, such as during search, information while playing back a PAL disc and a CD is shown on a blue background and information while playing back an NTSC disc is shown on a green background.

LD

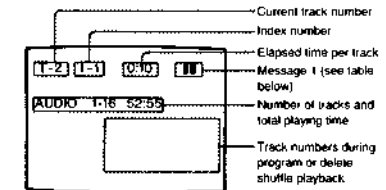


\* If seconds are not recorded on the disc, only "0:22" is shown.

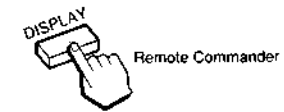
CDV



CD



To turn on the screen message



Press the button again to turn the message off.

Message 1 (Examples)

Display	Explanation
OPEN	Disc tray open
CLOSE	Disc tray close
▶	Playback
■	Stop
	Pause
⏪ ⏩	Forward/reverse speed scan
SEARCH	Search
▶ × 1/2	1/2 speed display in forward direction

Message 2 (Examples)

Display	Explanation
SIDE A CAV	Standard-play disc side A
SIDE B CAV	Standard-play disc side B
SIDE A CLV	Extended-play disc side A
SIDE B CLV	Extended-play disc side B
1L	Main soundtrack/left channel
2R	Second soundtrack/right channel
▷ DIGITAL	Digital sound
▷ ANALOG	Analog sound

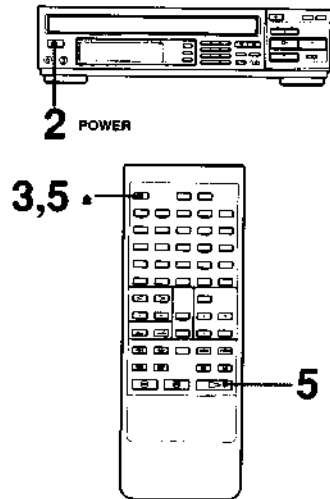
#### LD precaution

Some discs do not contain the side A or B identification code. In this case, the disc side indication may not be correct.

# To Play a Disc

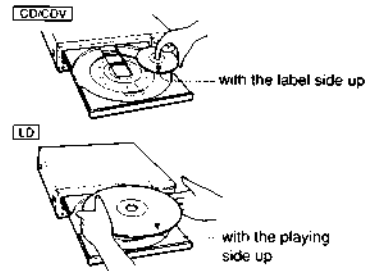
## Starting Playback

To play an NTSC disc, connect the player and a TV via EUROCONNECTOR.



- 1 Turn on the TV and stereo system.  
TV: Select the channel used for videodisc playback or the video input. (See page 11.)  
Stereo system: Turn on the amplifier or the receiver and select the proper audio input.

- 2 Press POWER to turn on the player.
- 3 Press ▲ OPEN/CLOSE to open the disc tray.
- 4 Place the disc on the tray.  
Place the disc on the center of the tray. If the disc is not placed correctly, playback may not start.



- 5 Press ▲ OPEN/CLOSE or ► (play) to start playback.  
CDV: Playback starts from the video portion.

### Notes on disc tray

- Insert only one disc at a time.
- Make sure that the disc is placed properly in the tray. Incorrect positioning may result in permanent damage to the disc.

### Using an optional timer

To automatically start playback with an optional timer, leave the POWER switch of the disc player in the depressed position. When the timer supplies power at the preset time, the unit turns on and playback starts.

### To pause at the beginning of a disc

Press II on the player or the Remote Commander. The tray closes, and the player pauses at the beginning of the disc.

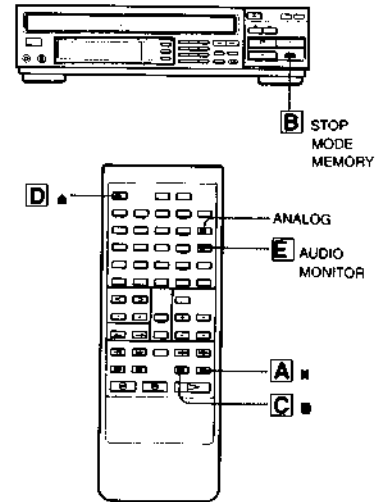
### AV calendar

When playing a CD, CDV, or an LD containing TOC (Table of Contents) data, the AV calendar shows information on the total number of tracks or chapters. As tracks or chapters are played, the corresponding numbers on the display go out.

### To switch between the video portion and the audio portion

Use the V PART:A.PART button to locate the desired track.

## Advanced Playback



### To temporarily interrupt playback

Press II (pause).  
When playing CAV discs, the sound is cut off and a still picture is shown.  
When playing other discs, the unit enters the pause condition. To resume play from the same point, press ►.

### To stop playback and resume at the same point later - for LD only

Set the STOP MODE MEMORY switch to MEMORY.

### Memory stop precaution

- Pressing any button other than ► or II (the ▲ OPEN/CLOSE button, in particular) deactivates the MEMORY STOP function.
- The MEMORY STOP function is only approximate. There may be a slight difference of a few frames between the stopping and starting positions when you use the MEMORY STOP function.
- The MEMORY STOP function does not operate during shuffle play, program play, single-chapter/track repeat, A→B repeat, or single-chapter/track stop.
- When the power was turned off, the MEMORY STOP function does not operate and playback will start from the beginning of the disc.

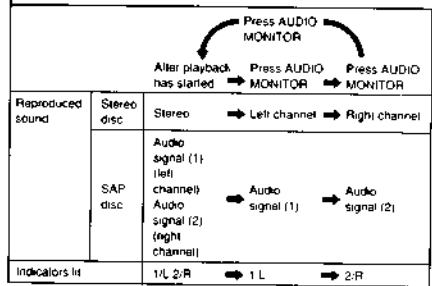
### To stop playback

Press ■ (stop).  
To restart playback from the beginning of the disc, press ►.

### To stop playback and remove the disc

Press ▲ OPEN/CLOSE.  
Remove the disc and press ▲ OPEN/CLOSE to close the tray.

### To play a stereo or a second audio program (SAP) LD



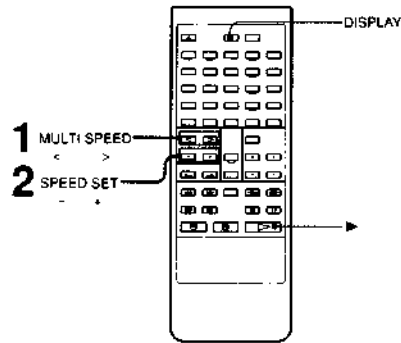
### Discs with CX Label

Discs bearing the CX label are recorded with the CX noise reduction system, which gives lower noise levels and higher dynamic range. The CX indicator should automatically light up. Some CX discs do not include the code necessary to automatically activate the player's CX noise reduction system. If the CX indicator does not light, press the CX button on the Remote Commander to manually activate the system.

### To switch between digital and analog sound on an LD (for NTSC discs only)

If the LD contains a digital stereo sound signal, the player automatically sends that to the output jacks. Pressing the ANALOG button on the Remote Commander switches to the analog audio signal and turns the DIGITAL SOUND indicator off. Press the ANALOG button a second time to return to digital sound output. With certain discs, there may be a difference in volume between the digital and the analog sound.

## To Change Playback Speed and Direction – Speed Play (CAV Standard-play)



### To change the speed

- Select the playback direction.**  
Press > for the forward direction.  
Press < for the reverse direction.
- Select the playback speed.**  
Press + to increase speed.  
Press - to reduce speed.

Speed indication	Speed (approx.)
x10	10 times normal speed
x5	5 times normal speed
x3	3 times normal speed
x2	2 times normal speed
x1	Normal speed
x1/2	1/2 normal speed
x1/4	1/4 normal speed
x1/8	1/8 normal speed
x1/16	1/16 normal speed
x1/30	1/30 normal speed
x1/90	1/90 normal speed

Press ► to resume normal playback.

### To change the direction

Press < to view the picture in reverse direction, or press > to view in forward direction.  
To resume normal playback, press ►.

### To display the speed and direction

Press DISPLAY.  
The selected direction (< or >) and speed are shown.

### Sound during speed play

The sound can be heard only during x1 (normal) speed play in the forward direction. In other speed and direction combinations the sound is muted.

### CLV discs

The above functions are available only with CAV discs. If they are attempted with CLV discs, a three-second warning message, SIDE A CLV or SIDE B CLV, will appear on the screen.

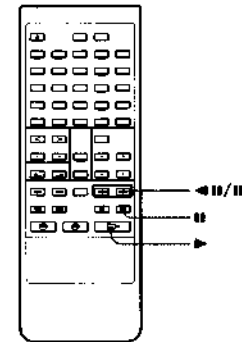
### PAL discs

The image may be in black and white during x10 (10 times) speed play in both directions.

### Discs with automatic picture stop function

When a picture stop code is encountered during playback at the normal speed or slower than the normal speed, playback stops at that frame. Press ► to resume playback or a speed play button to continue the speed play.

## To Play Frame by Frame – Freeze-Frame, Step Playback (CAV Standard-play)



### To view a still picture – freeze-frame

Press II (pause).  
The picture stops at the current frame.  
To resume normal playback, press ►.

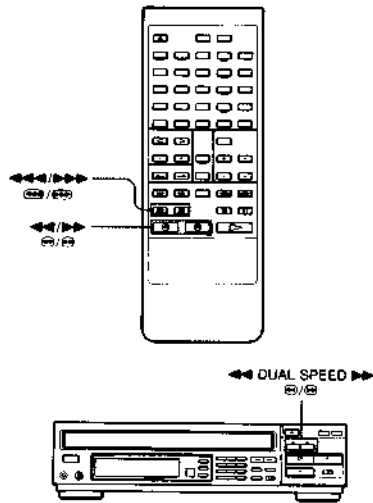
### To view one frame at a time – step playback

Press II (pause) once for freeze-frame.  
To advance the picture by one frame, press II ► (STEP in forward).  
To go back by one frame, press ◀ II (STEP in reverse).  
Hold the button down for continuous frame by frame viewing.  
To resume normal playback, press ►.

During freeze-frame or step playback operation  
The sound is muted during still and step playback.

# To Search for a Particular Scene

## Scan Function



### Normal scan

To scan in reverse, keep **[REVERSE]** pressed.  
 To scan in forward, keep **[PLAY]** pressed.  
 To stop scanning, release the button.

### High-speed scan

To scan in reverse at higher speed, keep **[REVERSE]** pressed.  
 To scan in forward at higher speed, keep **[PLAY]** pressed.

### Using the button on the main unit

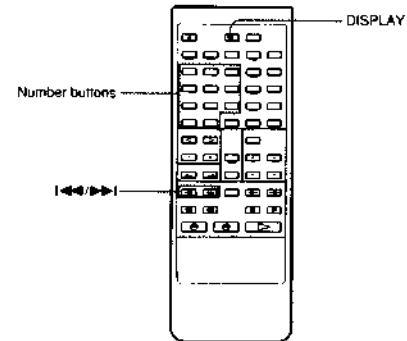
Keep **[REVERSE]** or **[PLAY]** pressed lightly for normal scan in reverse or forward.  
 Keep **[REVERSE]** or **[PLAY]** pressed firmly for high-speed scan in reverse or forward.

### While scanning in either direction

- The sound is muted.
- The image with a CLV disc will be in black and white with some instability
- Scanning speed varies according to the position on the CLV disc
- The image with a CAV discs will be in black and white on some TV
- A certain amount of noise is inevitable with all scanning operations. Especially, the image of CAV discs may be a little noisy.

## Chapter/Track Search

Some LDs are divided into sections called chapters. The selections on CDs and CDVs are called tracks. Chapters and tracks are assigned numbers and this information is usually indicated on the disc jacket or label.



### Direct chapter or track search

Enter the desired chapter or track number by pressing the number buttons.  
 If you have pressed a wrong number, simply press the correct one.  
 Playback automatically starts from the designated chapter or track.

### Chapter or track skip search

To advance to the beginning of successive chapters/tracks, press **[SKIP]** repeatedly as needed.  
 To return to the beginning of the current chapter/track, press **[SKIP]** once. Press it repeatedly - before the picture reappears - to go to the beginning of previous chapters/tracks.

**To check the current chapter/track and frame/time numbers**  
 The numbers are shown in the display window of the player. Press **[DISPLAY]** to display them on the screen.

### To enter a number greater than 10

Use the +10 and "0" buttons  
 Example To enter 14 **[+10]** → **[4]**  
 To enter 20 **[+10]** → **[+10]** → **[0]**

**If the +10 button was pressed by mistake**  
 Press the +10 button repeatedly to revert to 0- or 1-

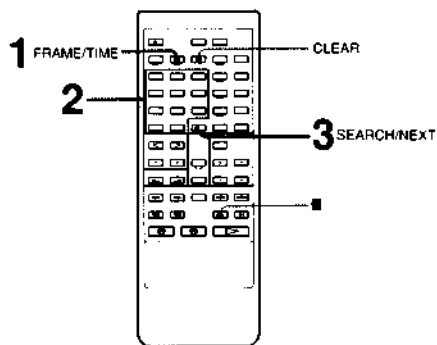
### Notes

- The chapter search feature will not function if the disc does not include chapter numbers. In this case, the screen message will give only frame or time numbers
- If a chapter number not contained on an LD is entered, playback stops. If the ALL repeat function is on (see page 22), playback will resume from the beginning of the disc.
- During CDV playback, the unit will not accept entry of track numbers not contained on the disc.

## To Search for a Particular Scene

### Frame Search (CAV Discs)

Each picture on a CAV (standard-play) disc is called a frame.



Example: Locate frame number 12340

- 1 Press FRAME/TIME.**
- 2 Press "1", "2", "3", "4", and "0" in sequence to enter the frame number.**  
If you enter a wrong frame number, press FRAME/TIME once more to return the display indication to zero, and then enter the correct number.
- 3 Press SEARCH/NEXT.**  
The desired frame is located, and playback automatically starts.

Search can be made in the freeze-frame, pause, and speed play modes as well as the normal playback mode. When the desired frame appears after the search, playback continues in the same mode.

**To cancel frame search**  
Before the SEARCH/NEXT button is pressed: Press CLEAR.  
After the SEARCH/NEXT button was pressed: Press ■.

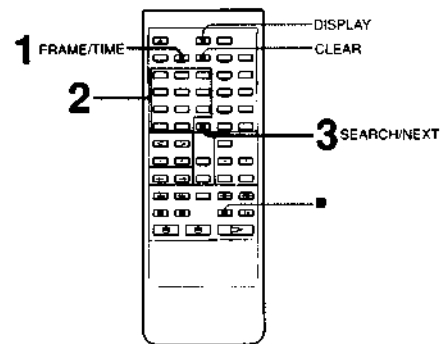
**To check the current chapter and frame numbers**  
These numbers appear in the display window on the player. Press DISPLAY on the Remote Commander to display them on the screen.

#### Note

If a frame number not contained on a disc is entered, playback stops. If the ALL repeat function is on (see page 22), playback will resume from the beginning of the disc.

### Time Search (CLV Discs)

CLV (extended-play) discs keep track of the position as elapsed time from the beginning of the disc.



Example: Locate the 12 min 05 sec point.

- 1 Press FRAME/TIME.**
- 2 Press "1", "2", "0", "5" in sequence.**  
If you enter a wrong time number, press FRAME/TIME once more to return the display indication to zero, and then enter the correct number.
- 3 Press SEARCH/NEXT.**  
The picture of the desired time number is located, and playback automatically starts.

**To cancel time search**  
Before the SEARCH/NEXT button is pressed: Press CLEAR.  
After the SEARCH/NEXT button was pressed: Press ■.

**To check the current chapter and time numbers**  
These numbers appear in the display window on the player. Press DISPLAY on the Remote Commander to display them on the screen.

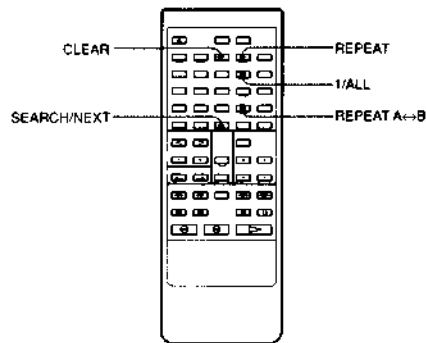
#### Notes

- If the disc does not include time data to the second, enter the time in minutes only.
- If the number selected is greater than the total time of the disc, playback stops. If the ALL repeat function is on (see page 22), playback will resume from the beginning of the disc.

# To Play Particular Portions of a Disc

## Repeat Playback

A single chapter or track, a designated portion of a disc, or the entire disc can repeatedly be played back.



### To repeat the current chapter or track - SINGLE repeat

- 1 Press REPEAT.
- 2 Press 1/ALL.  
The REPEAT and SINGLE indicators light up in the display window. When the end of the current chapter or track is reached, playback of the chapter or track is automatically repeated.

### To repeat the entire side of the disc - ALL repeat

Press REPEAT.  
The REPEAT indicator lights up in the display window, and the entire side of the disc is repeatedly played back.

### To repeat a designated portion of a disc - A↔B repeat

- 1 During playback, press REPEAT A↔B at the start point (point A) of the desired portion. The REPEAT A↔B indicator flashes in the display window.
- 2 At the end point (point B) of the desired portion, press REPEAT A↔B. REPEAT A↔B lights up in the display window. The player returns to the point where REPEAT A↔B was first pressed, and repeat playback automatically starts.

#### To use custom repeat

To carry out repeat playback between two predefined points on the disc, see page 31.

#### To check the current status

Check the indicators in the display window or use the DISPLAY button to verify the current setting on the screen.

#### To cancel A↔B repeat

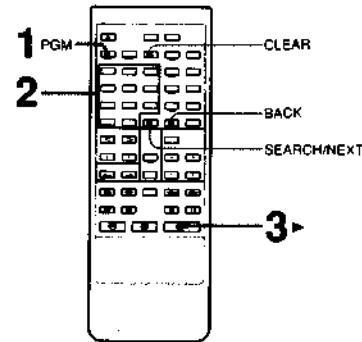
Press CLEAR.

#### To cancel repeat functions other than A↔B repeat

Press REPEAT again to cause the REPEAT indicator in the display window to go out. (The same button that was used to activate repeat - on the player unit or on the Remote Commander - must be pressed to cancel it.)

## Program Playback

Up to 20 chapters or tracks can be played back in a specified order.



Example: To play LD chapters 5, 4, 2, and 6 in that order.

- 1 Press PGM.  
The PROGRAM indicator in the display window lights up.
- 2 Enter the chapter numbers by pressing "5", "4", "2", and "6" in sequence.
- 3 Press ► (play).  
The first chapter is searched for, and playback starts from the beginning of chapter 5 and continues through chapter 4, 2, 6, and stops.

#### If you make a mistake in chapter number entry

To start over, press CLEAR and PGM again, and enter the correct numbers.

To change a number, press NEXT (for the next number) or BACK (for the previous number) until the incorrect number flashes on the screen, and then enter a new number.

#### To release or cancel program playback

Press CLEAR or 1/ALL. The player reverts to normal playback.

#### To repeat program playback

Use REPEAT to call up the REPEAT indicator.

#### To enter chapter numbers over 10

Use the +10 and -10 buttons.

#### If the +10 button was pressed by mistake

Press the +10 button repeatedly to revert to 0- or 1-

#### To move to a preceding or following programmed track

Press the ◀ or ▶ button.

#### To check the program contents

Press PGM.

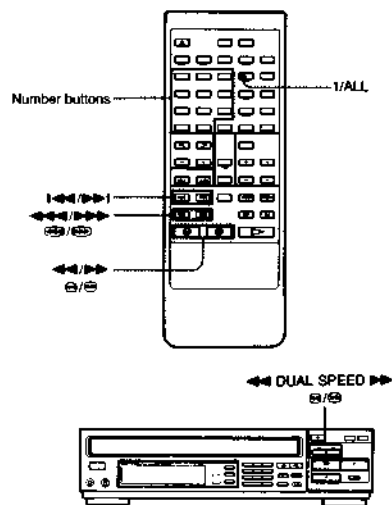
The program is displayed for about 3 seconds on the screen. The currently playing program number blinks.

#### Notes

- When the ◀ or ▶ button is kept pressed during program playback and the end of the current chapter or track is reached, the next programmed chapter or track is played back. When the ◀ or ▶ button is kept pressed, the beginning of the current chapter or track is located, but the unit does not go back to previous tracks or chapters.
- When a program contains chapter or track numbers which are not on a disc, the program may not be carried out.
- Program contents are stored until the disc is removed or the power is turned off.

## To Search for a Particular Track

The selections on CDs and CDVs are called tracks. Each track is assigned a track number which is indicated on the disc jacket or label.



### To search by a track number

Enter the desired track number by pressing the number buttons.

### To play a single track once

Use the 1/ALL button on the Remote Commander to call up the SINGLE indicator. Then select the track with the numerical buttons.

When the track has been played, the unit enters the stop mode. To release the setting, press 1/ALL again.

### When a wrong number was entered

Press the button for the correct number.

### To skip tracks

To advance to the beginning of successive tracks, press **▶▶** repeatedly as needed. To return to the beginning of the current track, press **◀◀** once. Press repeatedly to go back to the beginning of previous tracks.

### To search for a particular point

Keep **⏭** (scan forward) or **⏮** (scan backward) pressed during playback, and release it to resume normal playback.

### To scan at higher speed

Keep **⏭** (forward) or **⏮** (backward) pressed during playback, and release it to resume normal playback.

### On the player

Keep **⏭** (forward) or **⏮** (backward) pressed lightly for normal scanning. Keep them pressed firmly for high-speed scanning.

### To enter track numbers over 10

Use the +10 and '0' buttons.

### If the +10 button was pressed by mistake

Press the +10 button repeatedly to revert to 0- or 1-

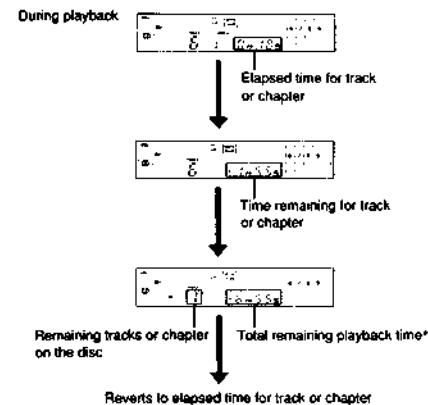
### Sound during search

When scan is started from the playback mode, the sound can be heard at a low level. When scan was started from the pause mode, the sound is muted.

## To Change Time Display

### To change the time display in the display window, press AV TIME.

The display changes in the following sequence each time the button is pressed.



\* With a CDV disc, these figures refer only to the portion (audio/video) currently in use.

### Display on the screen

If the TV set or monitor connected to the player is on and the DISPLAY button is pressed, the track number, time, and other information recorded on the CD/CDV appears on the screen.

### Note

The remaining time will not be displayed for a track number higher than 20.

### Note on LD discs

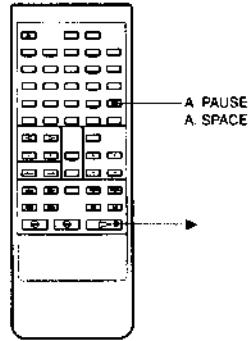
The time display function is available only with an LD containing TOC data.

First, the elapsed time or the number of frames is displayed. Pressing the AV TIME button then changes the time display as shown above.



# Auto Pause

After a chapter or track is played, the player enters the pause mode.

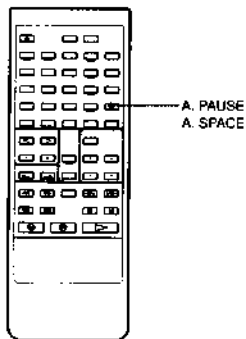


Press **A. PAUSE/A. SPACE**.

To start playback of next chapter or track  
Press **▶ (play)**.

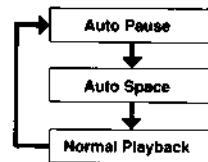
# Auto Space

A blank interval of 3 seconds is inserted between playback of each chapter or track.

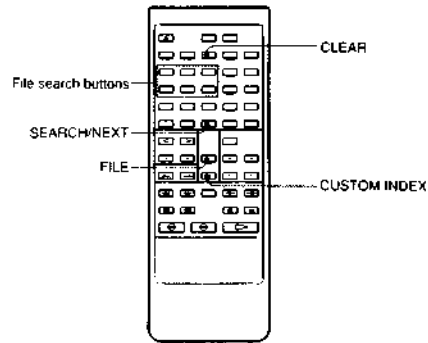


Press **A. PAUSE/A. SPACE**.

To return to normal playback  
Each press of the **A. PAUSE/A. SPACE** button cycles the unit through the following conditions



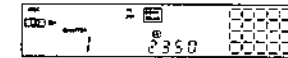
# Custom Index



To set a custom index mark

Press **FILE** during playback.

Up to six locations anywhere on the disc can be marked.



Indicators **A, B, C, etc.** light up for each custom index mark

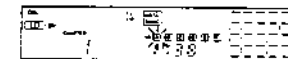
**Custom Index Search**

- 1 Press **CUSTOM INDEX**.  
The AV calendar goes out and the number buttons 1-6 act as file search buttons A-F.
- 2 Press the file search button for the desired location.  
Playback starts from the specified index point and continues until the end of the disc.

To jump to another index point  
Press the corresponding file search button.

To return to normal playback  
Press **CUSTOM INDEX** or **CLEAR**

If you make a mistake  
Press **SEARCH/NEXT** to cause the file indicator to flash.

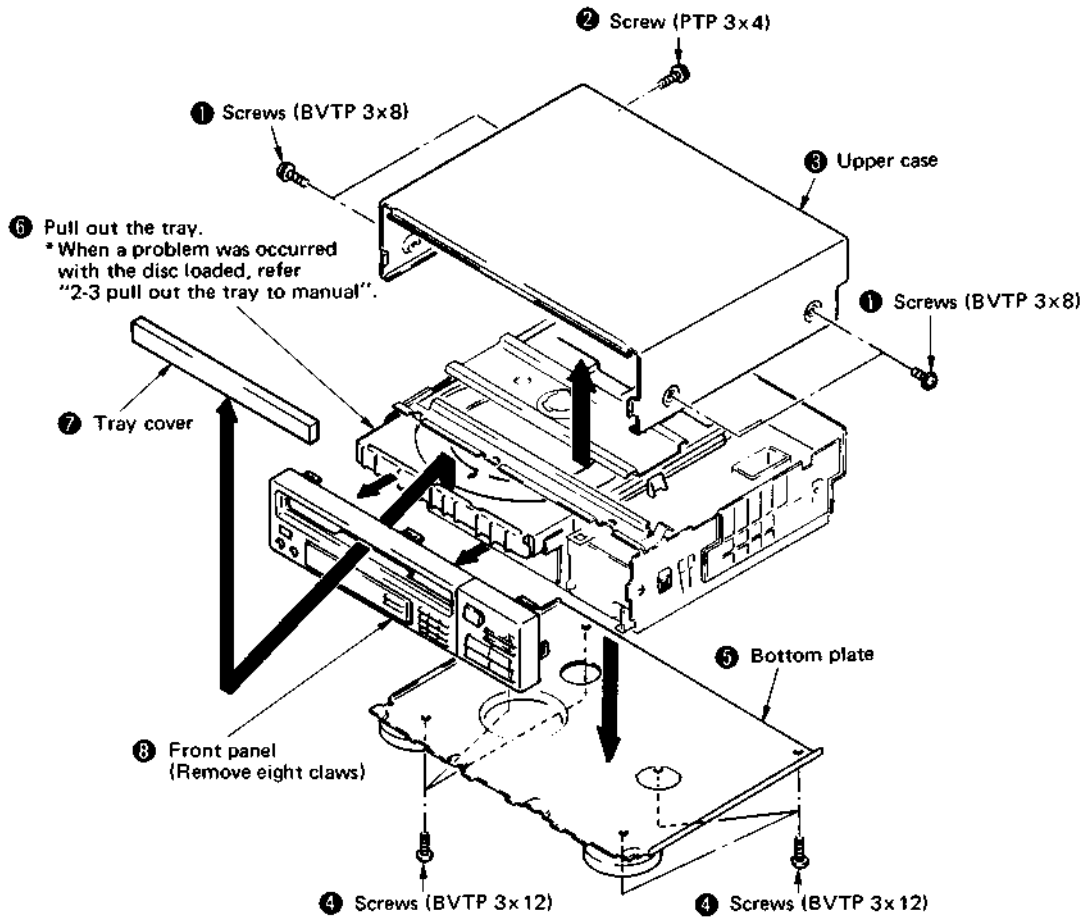


Press **CLEAR** and then **FILE** at the correct location.

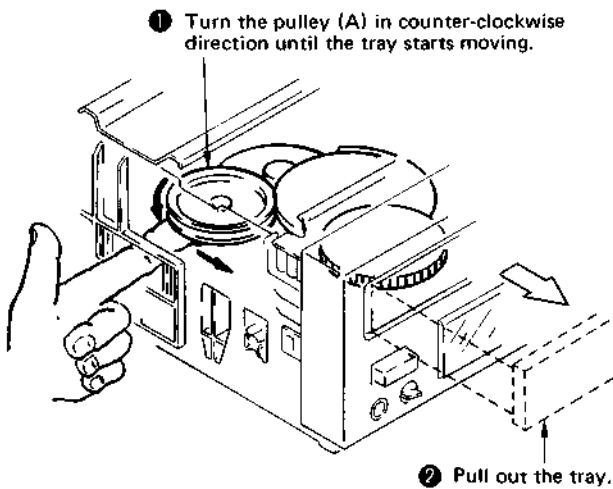
## SECTION 2 DISASSEMBLY

Note: The number within "•" means the sequential number for dismounting.

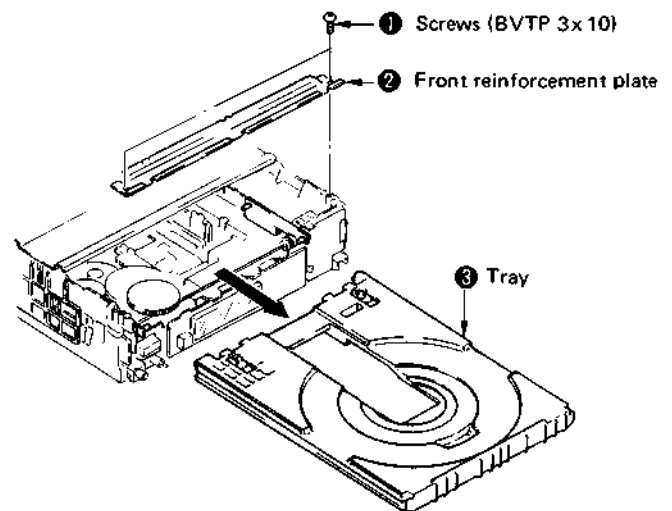
### 2-1. REMOVAL OF THE CABINET



### 2-2. PULL OUT THE TRAY TO MANUAL

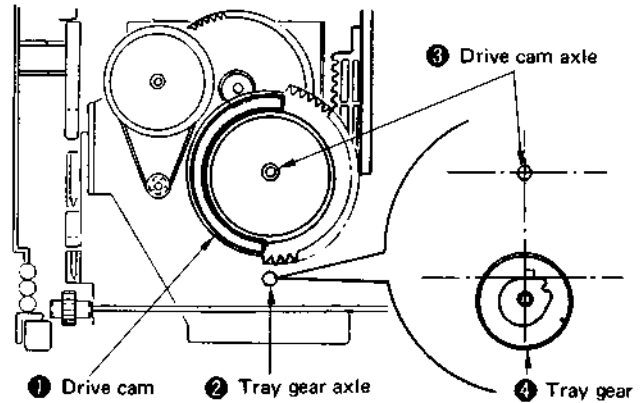


### 2-3. REMOVAL OF TRAY

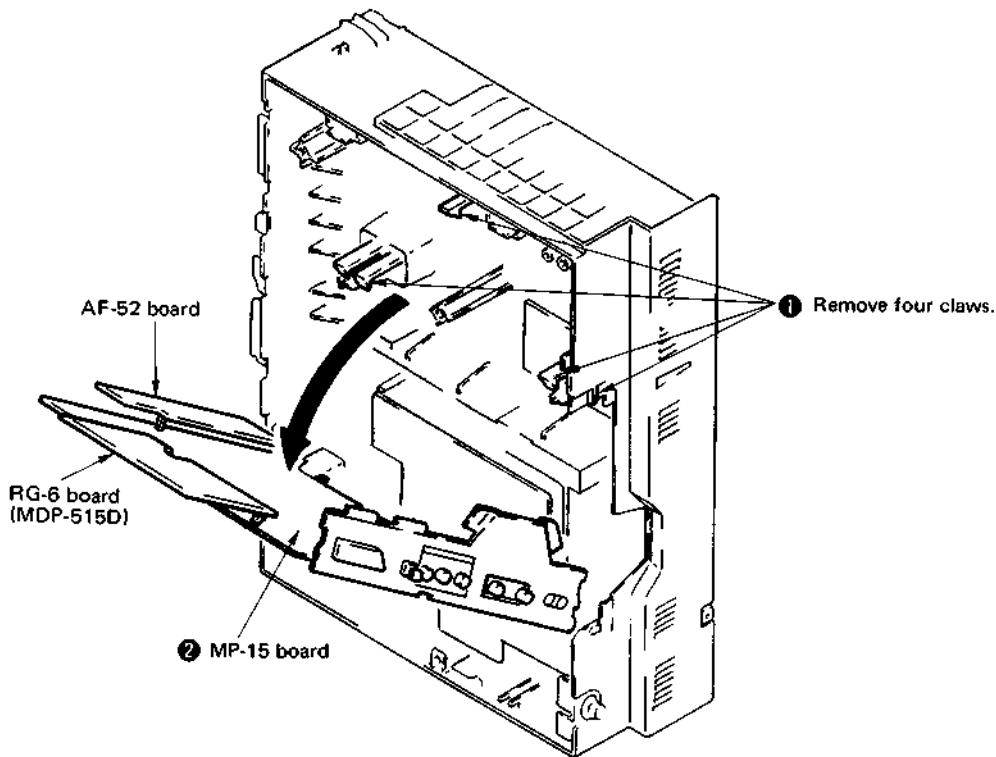


## 2-4. ALIGNMENT OF LOADING GEAR PHASE

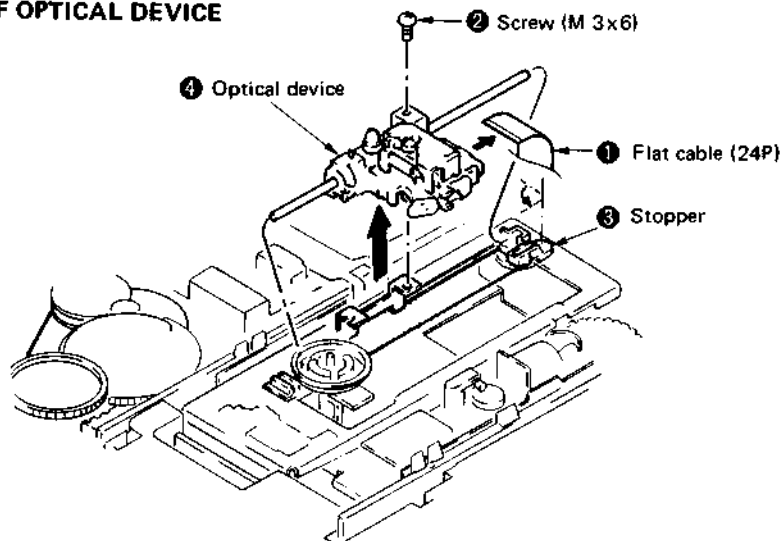
1. Install the drive cam as shown in the illustration. At this time, make sure that the last tooth of gear is aligned with the line from the center of the tray gear axle and the drive gear axle.
2. Install the tray gear as shown in the illustration. At this time, make sure the flat surface of the cam is at a right angle with the drive cam.



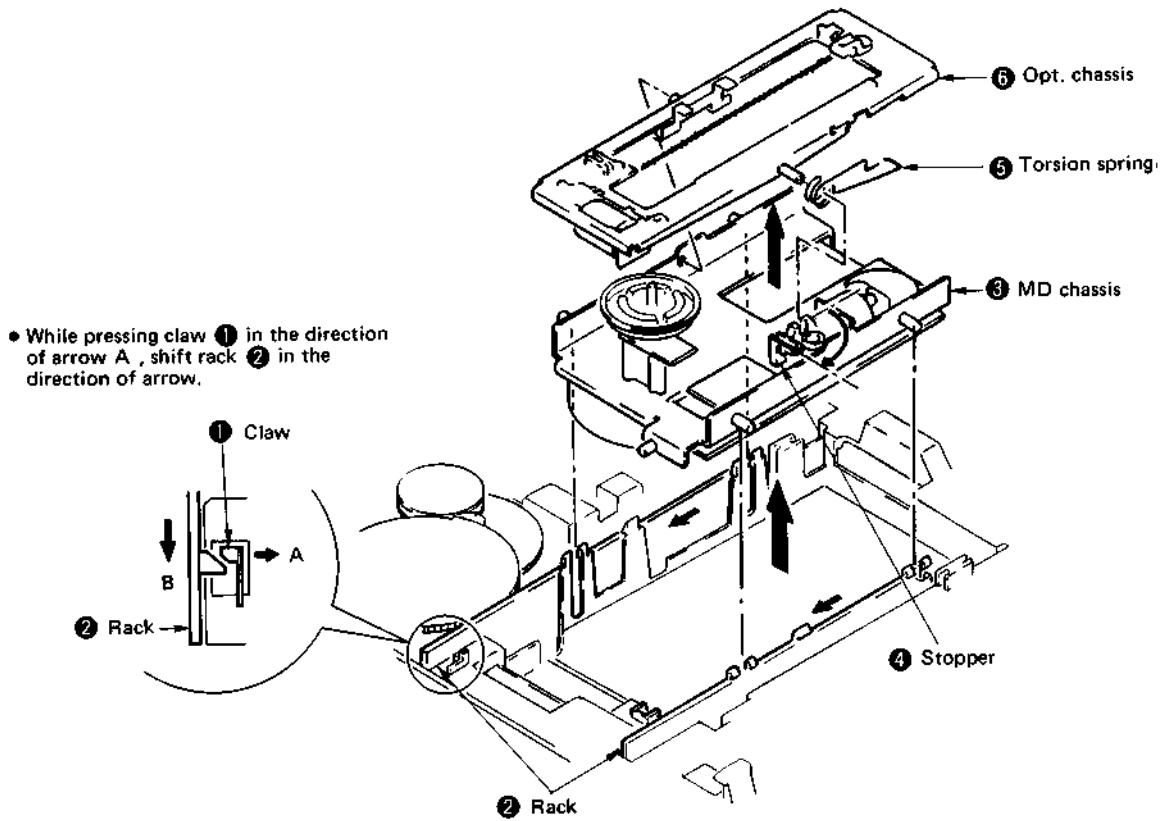
## 2-5. OPENING OF MP-15 BOARD



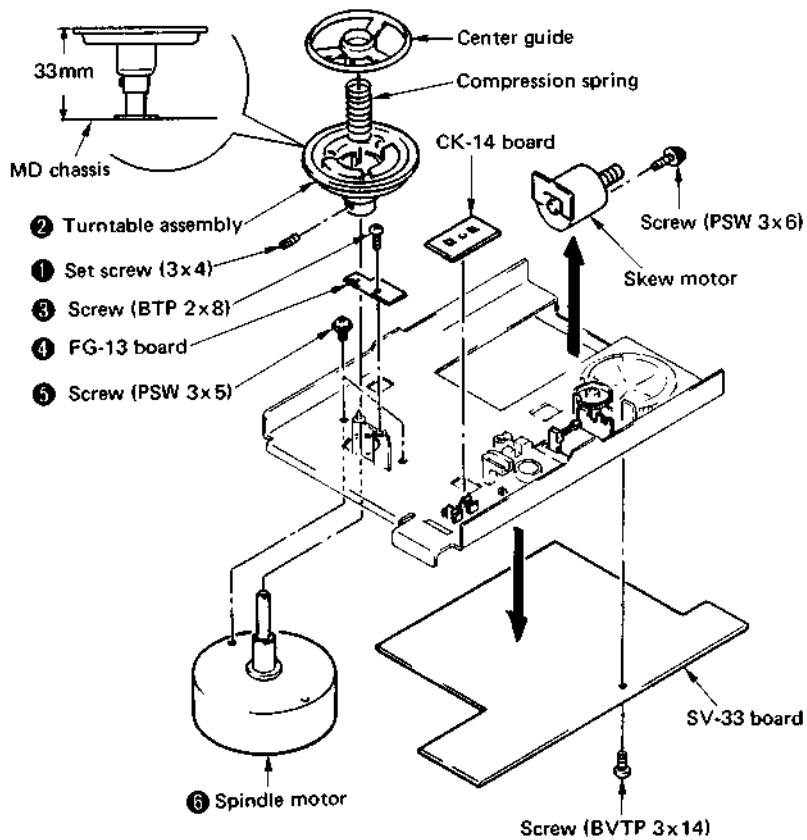
## 2-6. REMOVAL OF OPTICAL DEVICE



## 2-7. REMOVAL OF MD CHASSIS AND OPT. CHASSIS

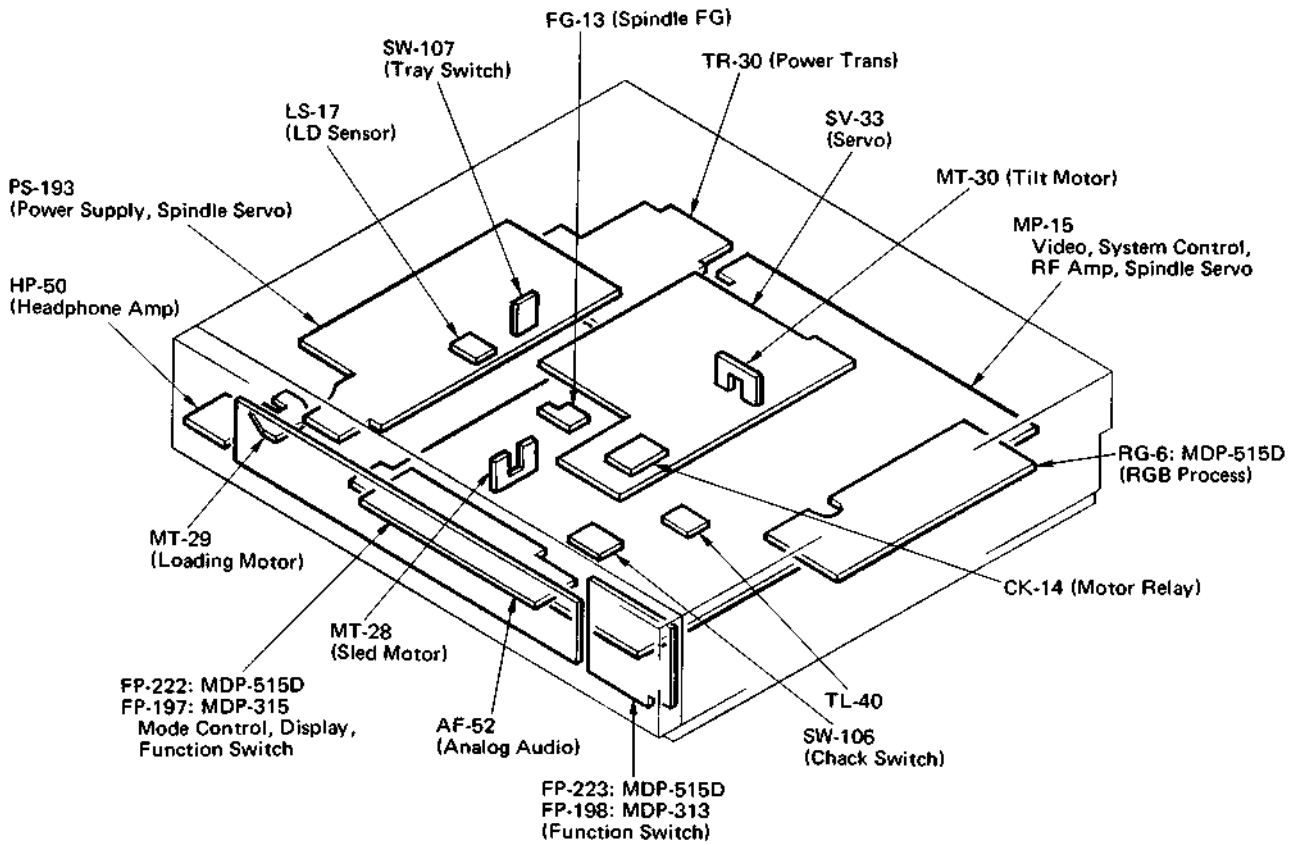


## 2-8. REMOVAL OF TURNTABLE, SPINDLE MOTOR, SV-33 BOARD AND FG-13 BOARD

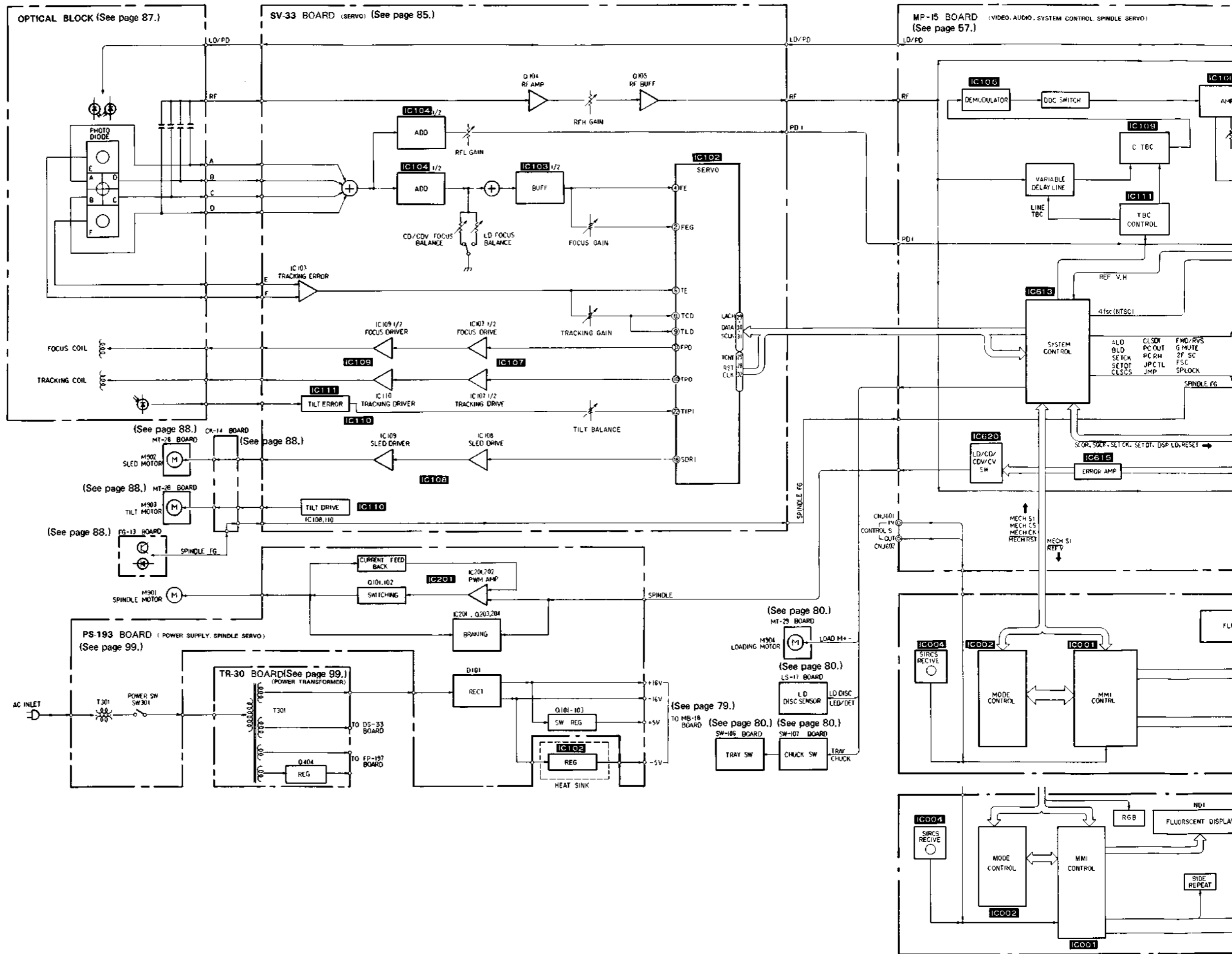


# SECTION 3 DIAGRAMS

## 3-1. CIRCUIT BOARDS LOCATION

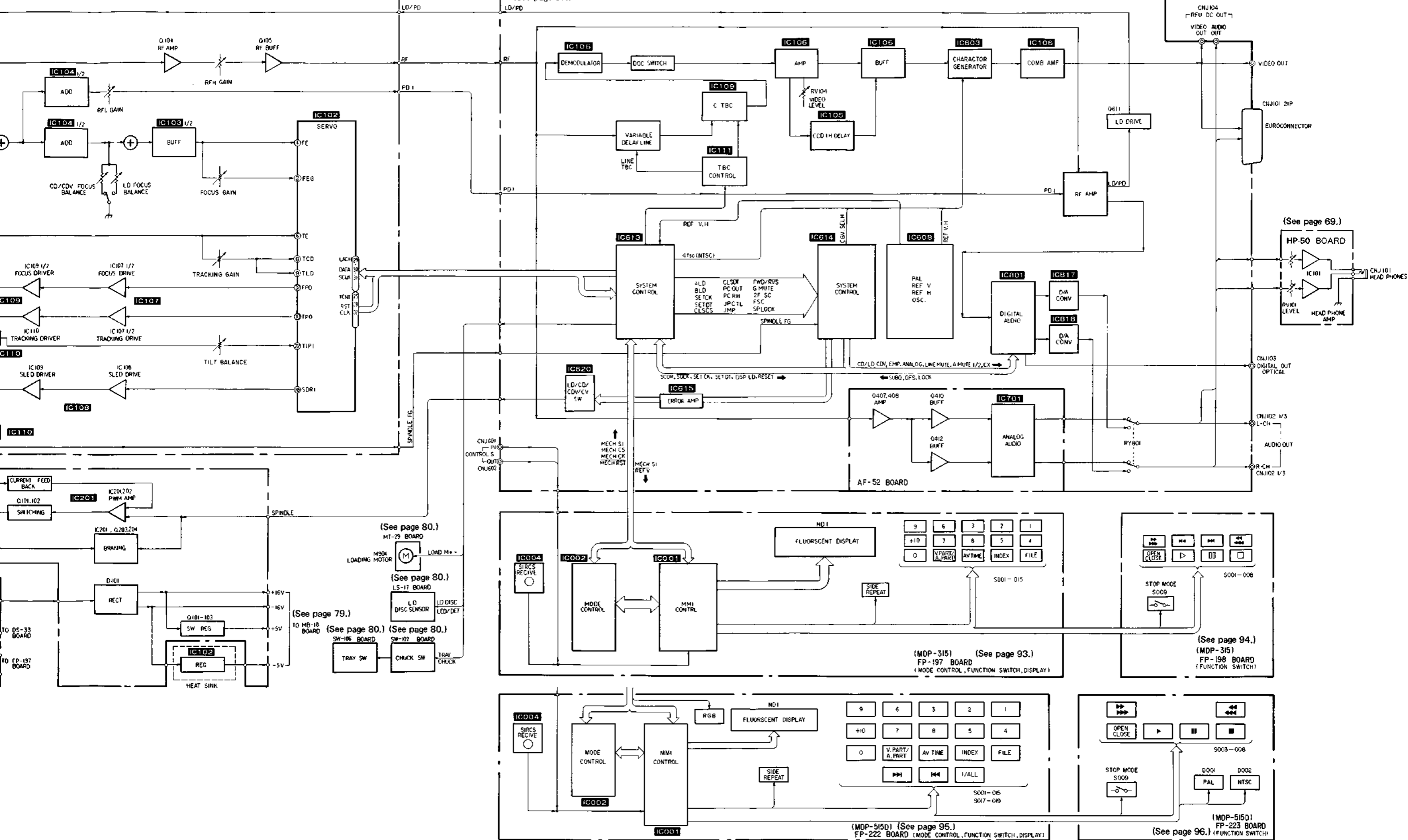


3-2. OVERALL BLOCK DIAGRAM

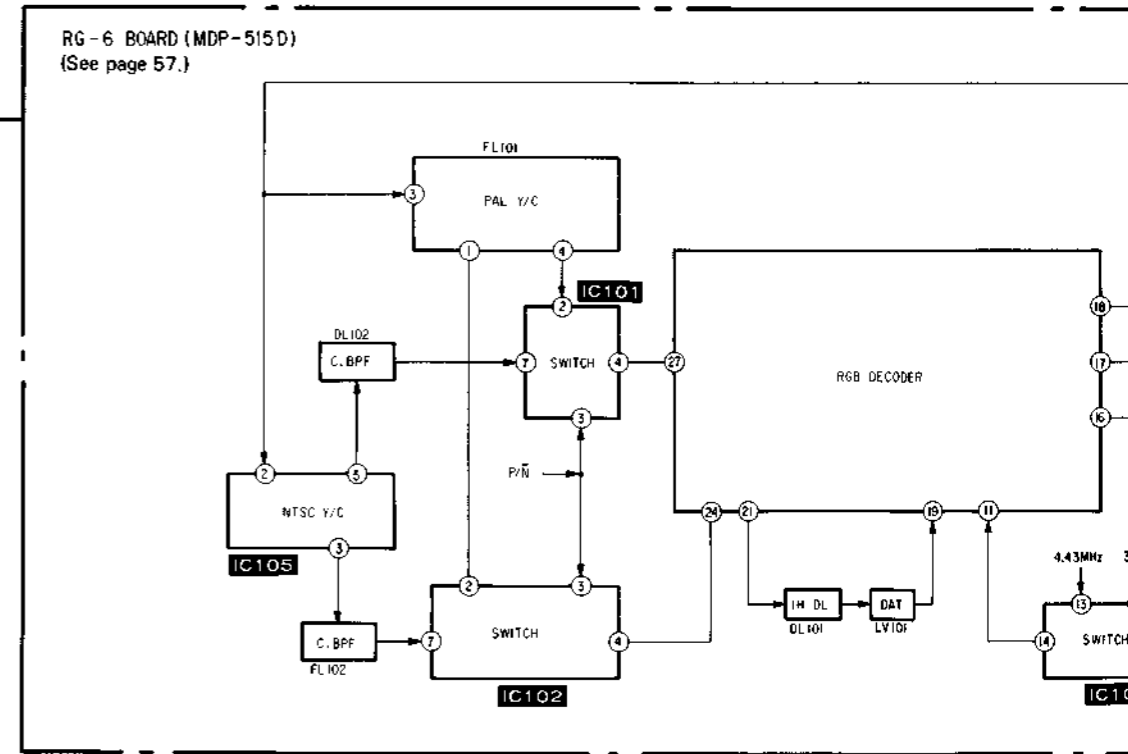
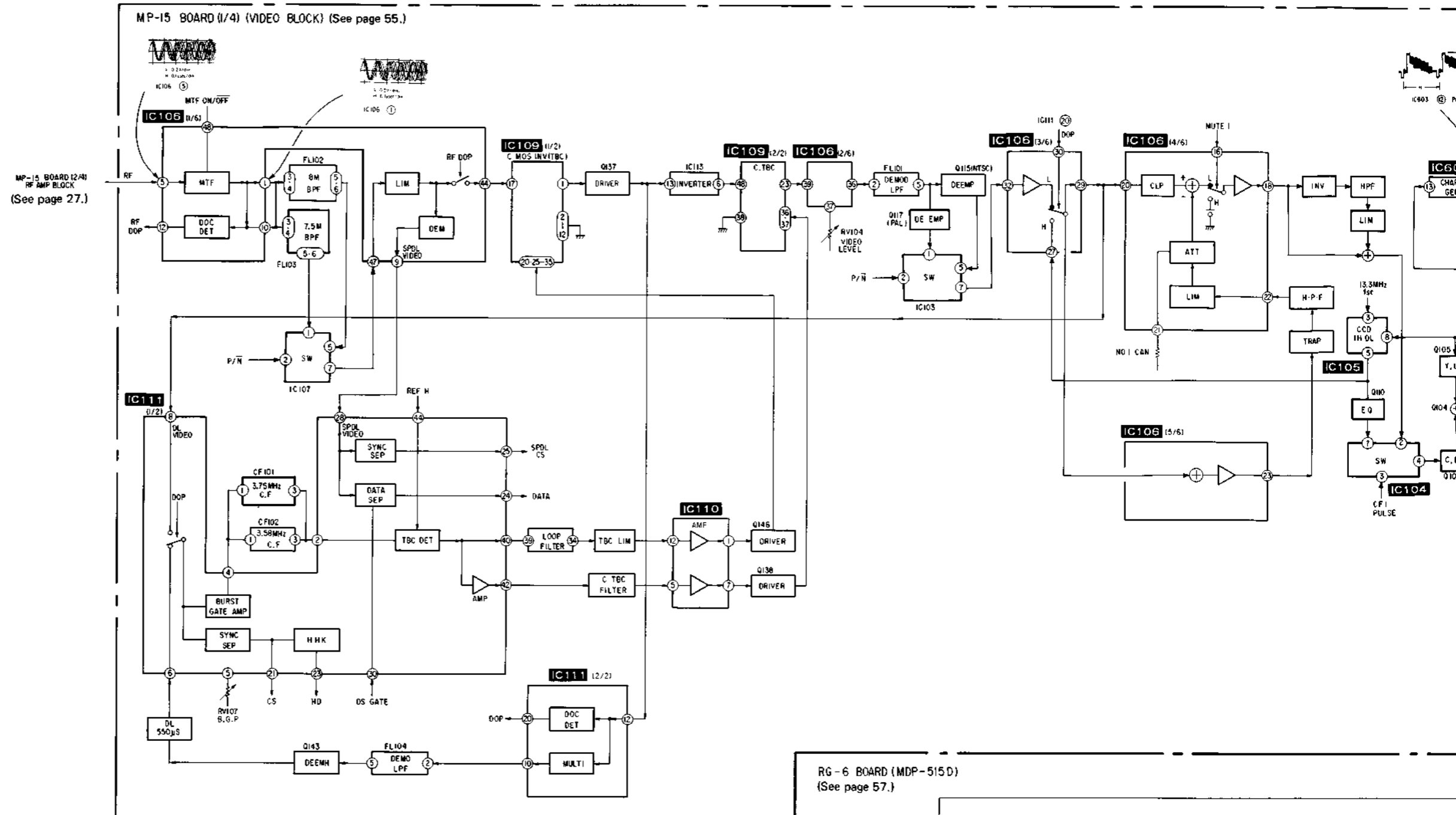


SERVO: (See page 85.)

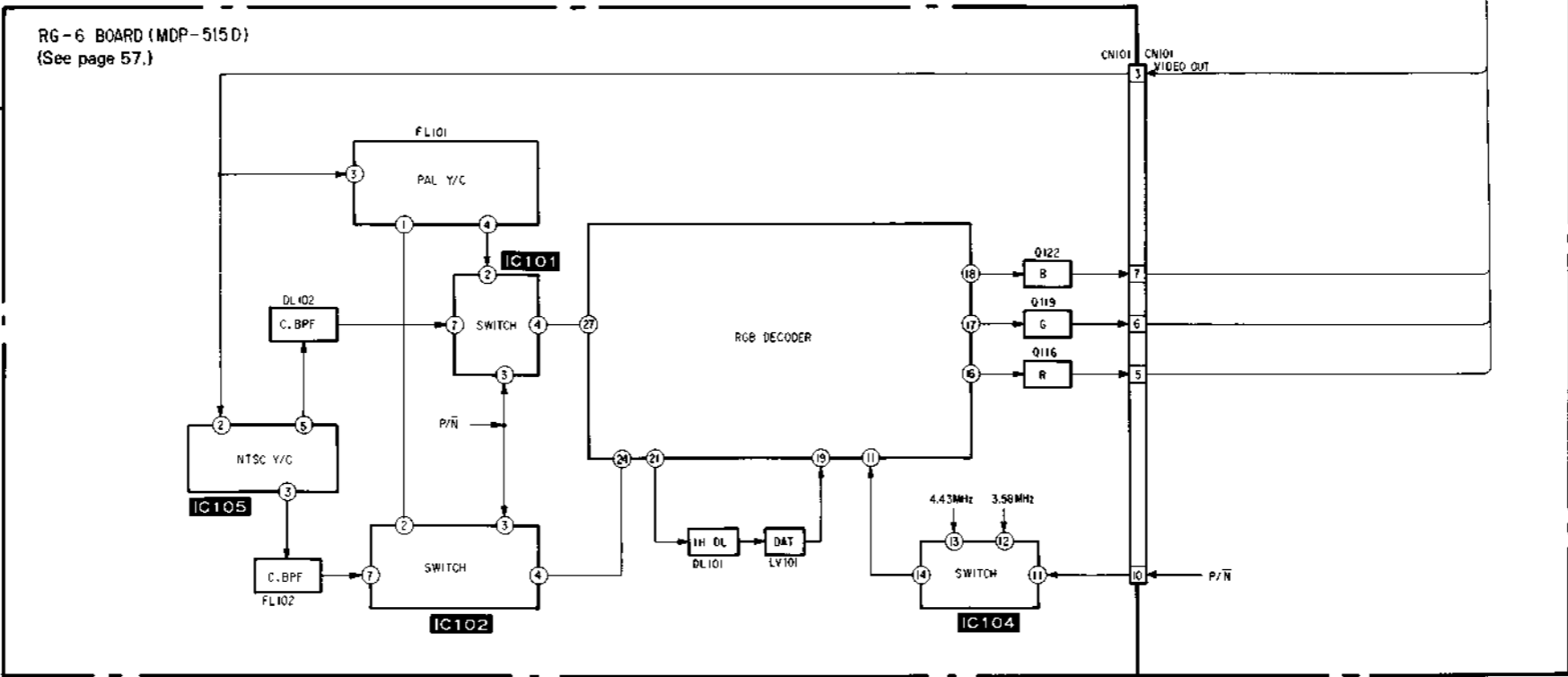
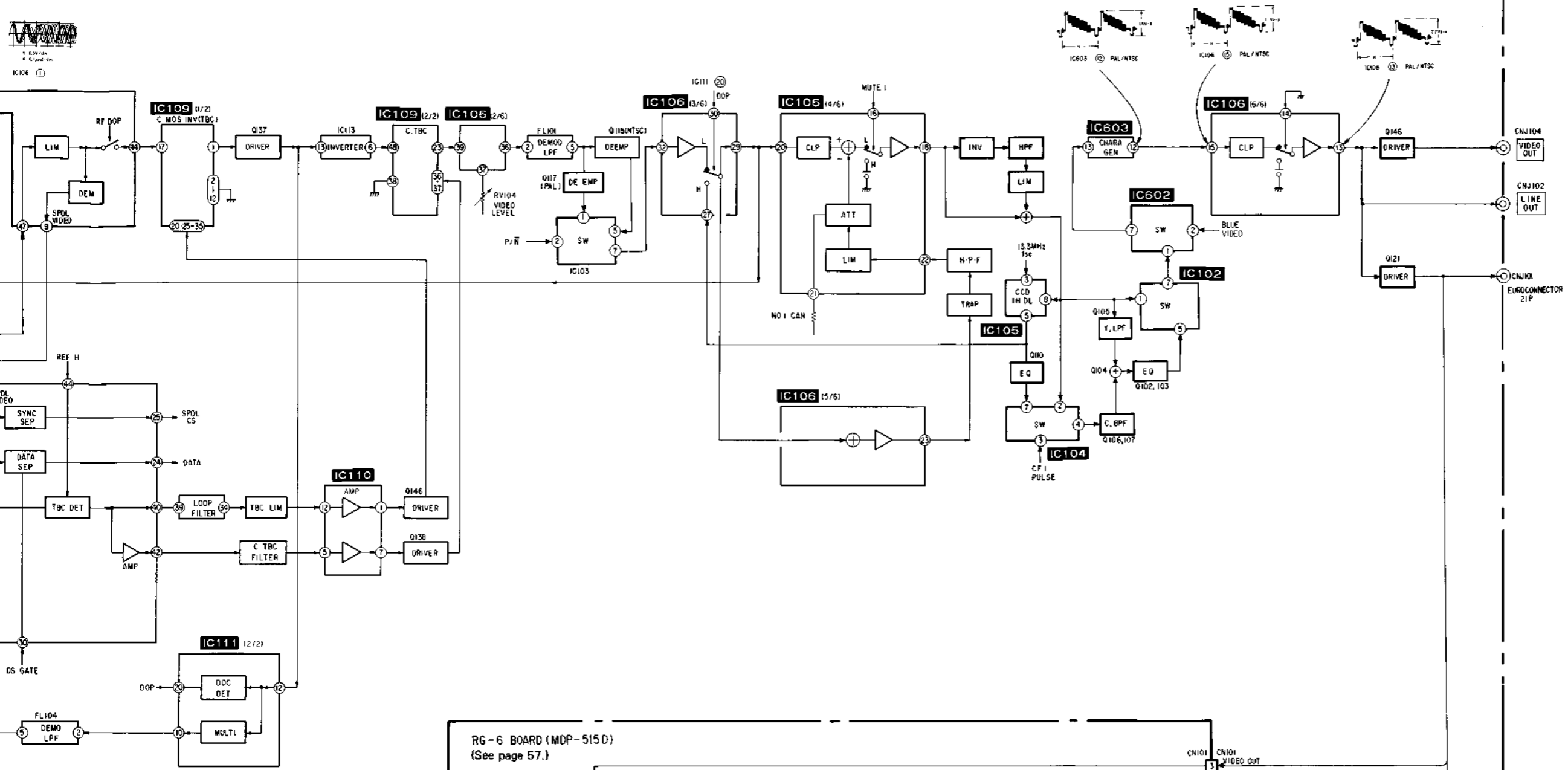
MP-15 BOARD (VIDEO, AUDIO, SYSTEM CONTROL, SPINDLE SERVO)  
(See page 57.)

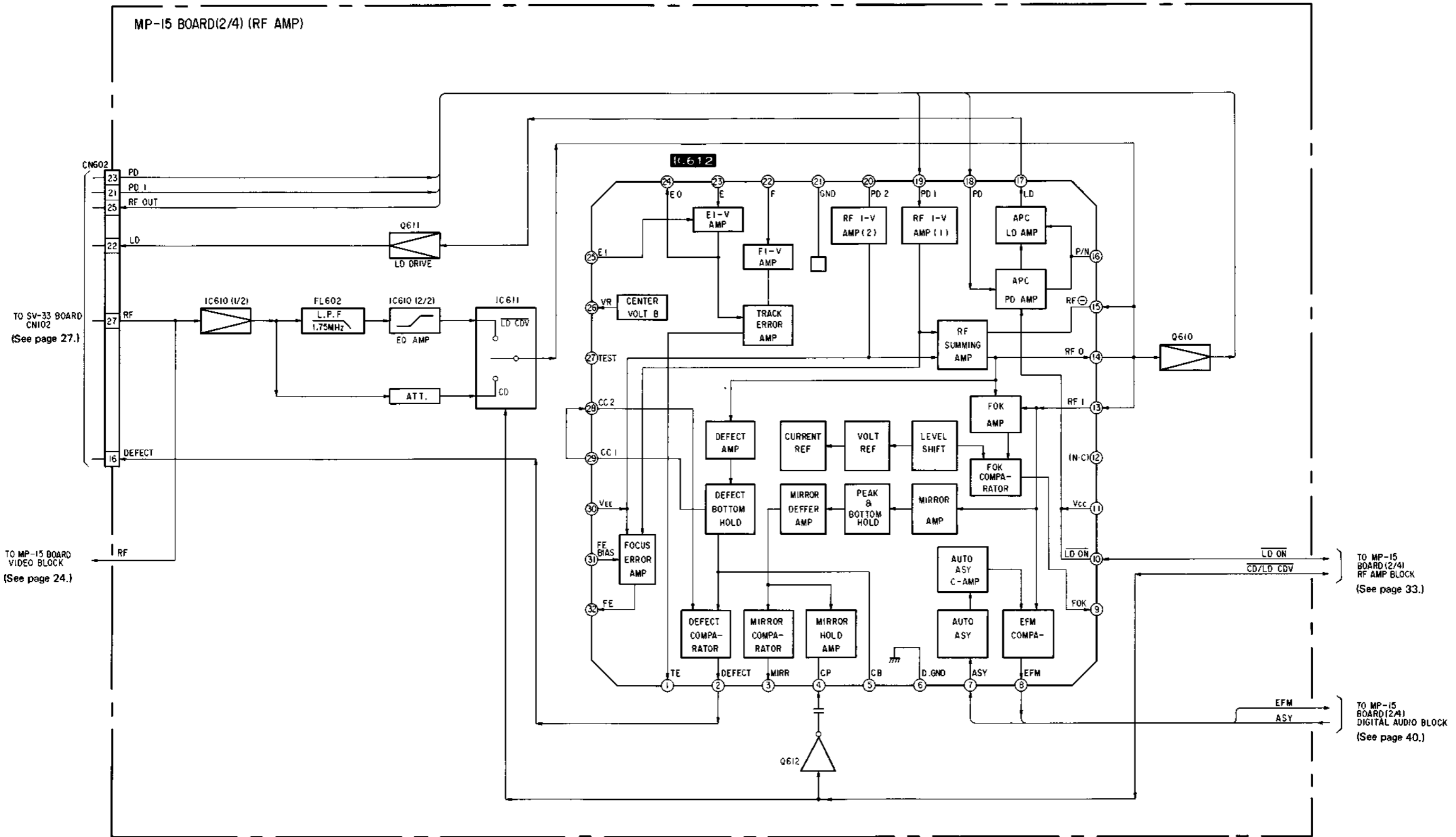


3.3. VIDEO BLOCK DIAGRAM

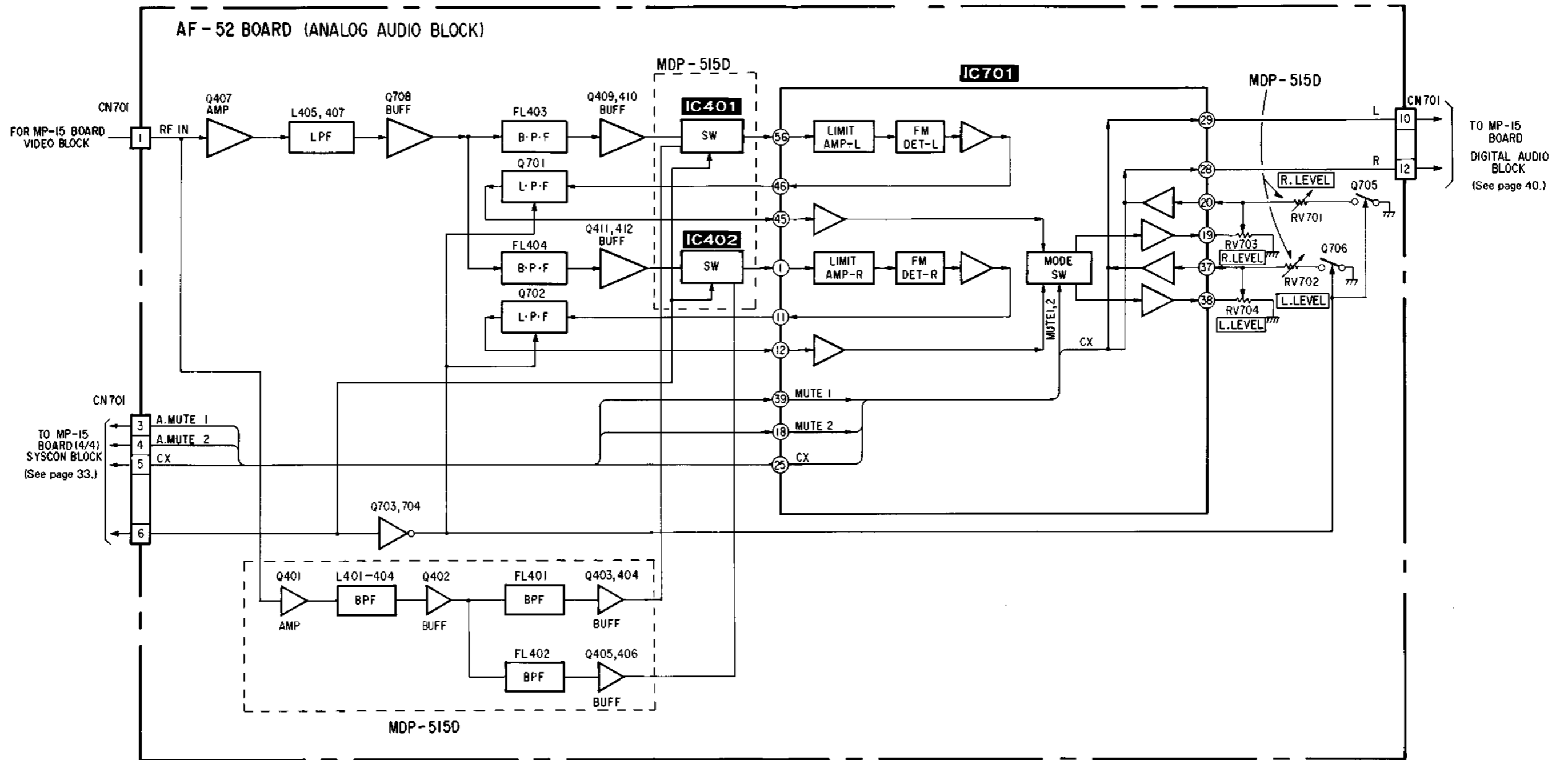




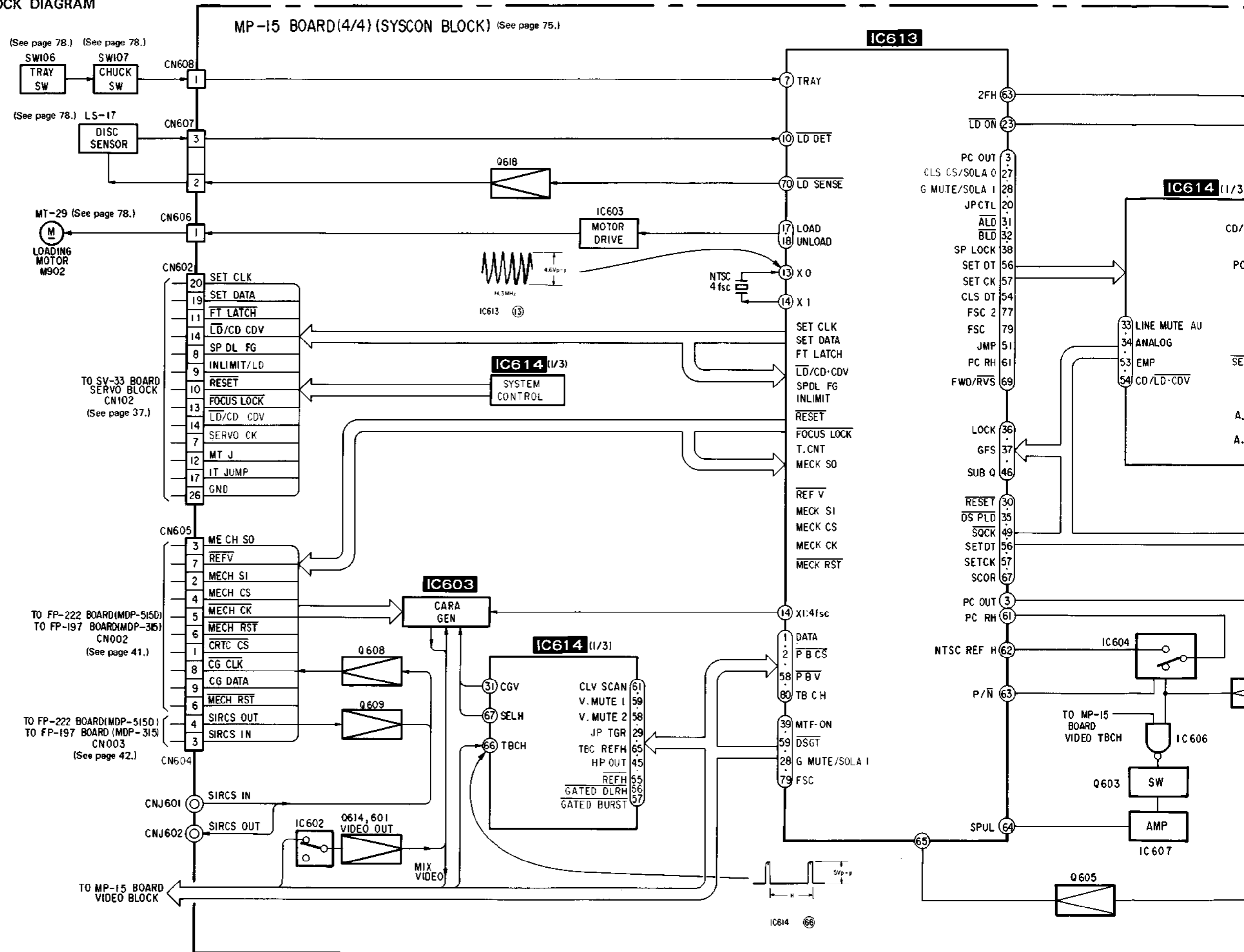


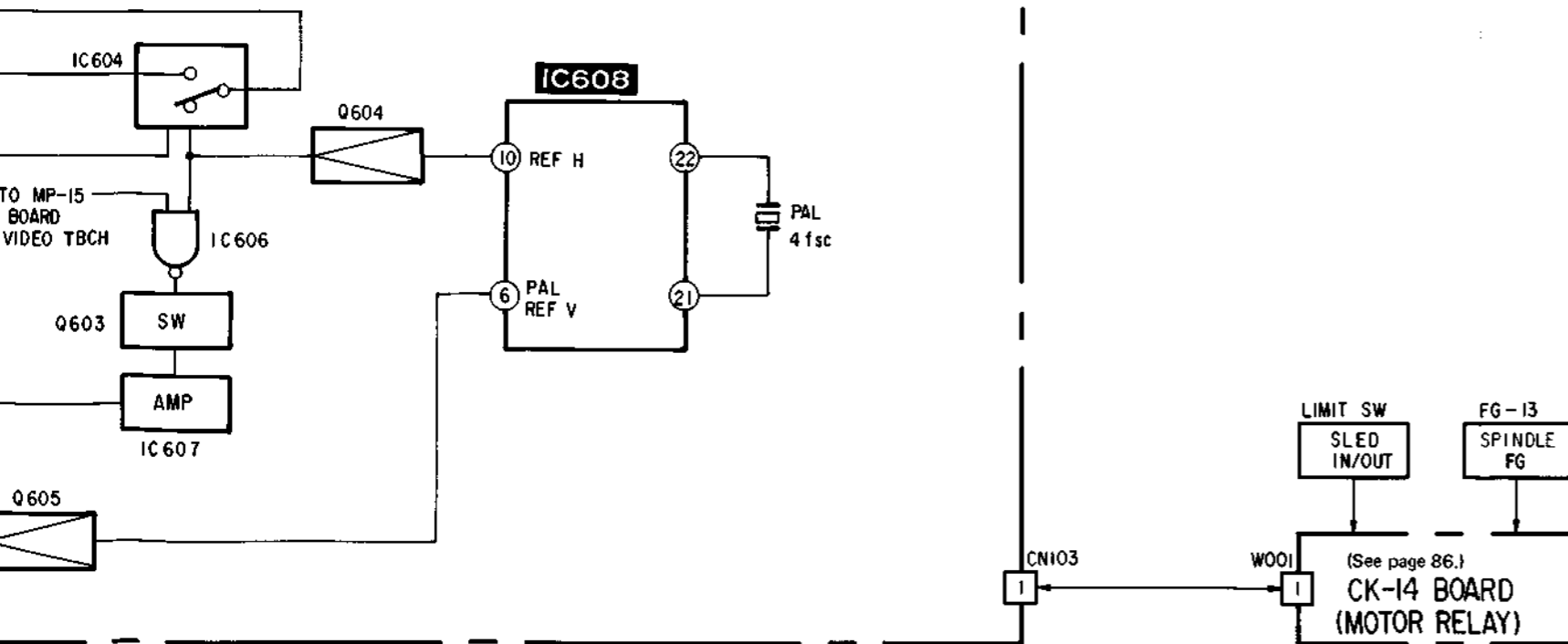
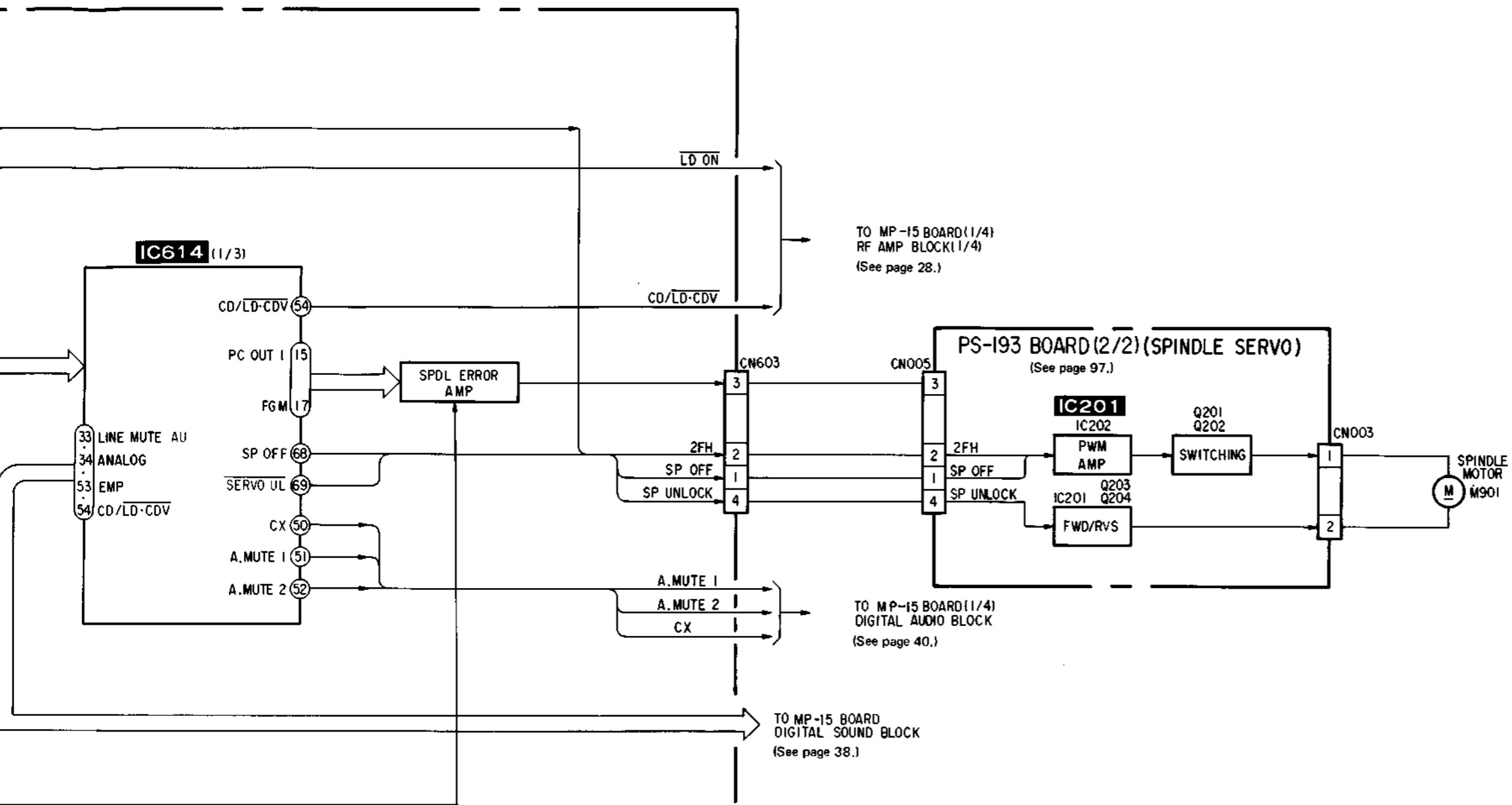


3.5. ANALOG AUDIO BLOCK DIAGRAM

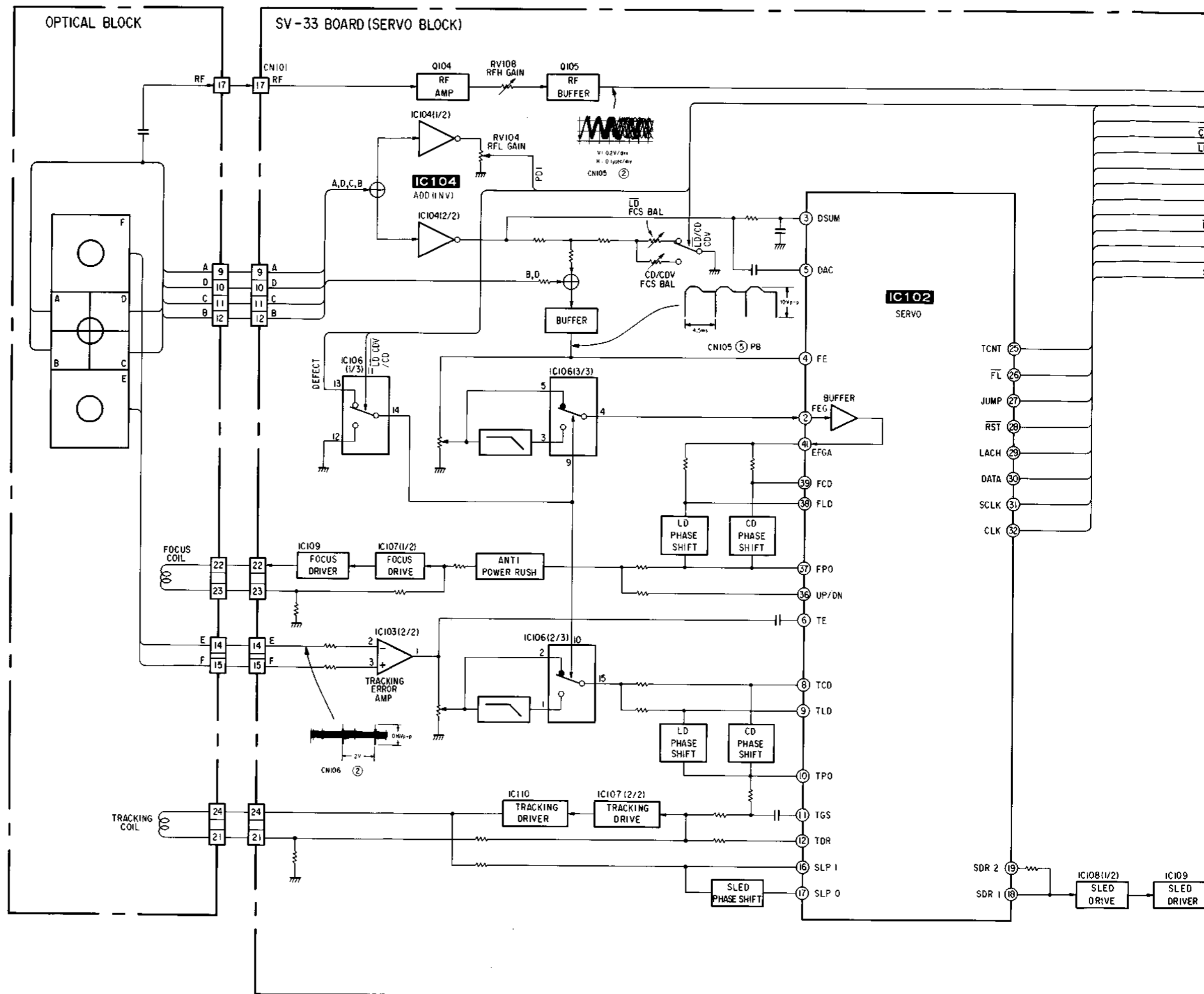


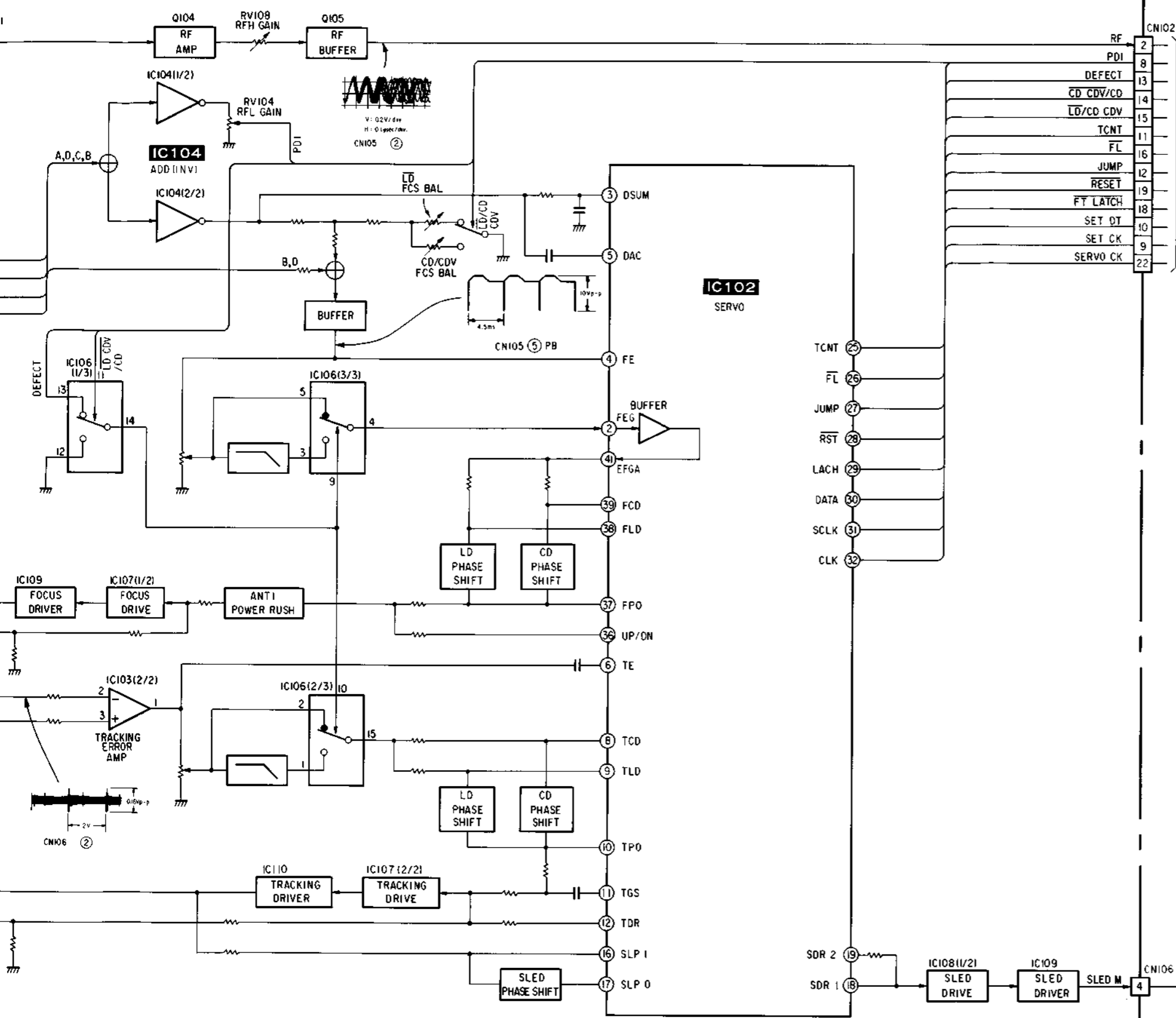
3.6. SYSTEM CONTROL BLOCK DIAGRAM





3.7. SERVO BLOCK DIAGRAM



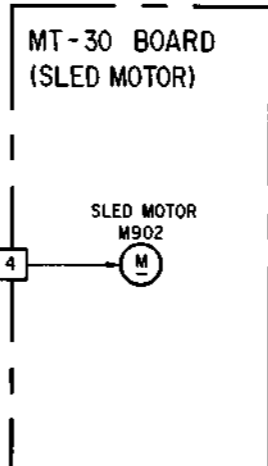


CN102

RF	2
PDI	8
DEFECT	13
CD CDV/CD	14
LD/CD CDV	15
TCNT	11
FL	16
JUMP	12
RESET	19
FT LATCH	18
SET DT	10
SET CK	9
SERVO CK	22

TO MP-15 BOARD  
CN602  
(See page 27.)

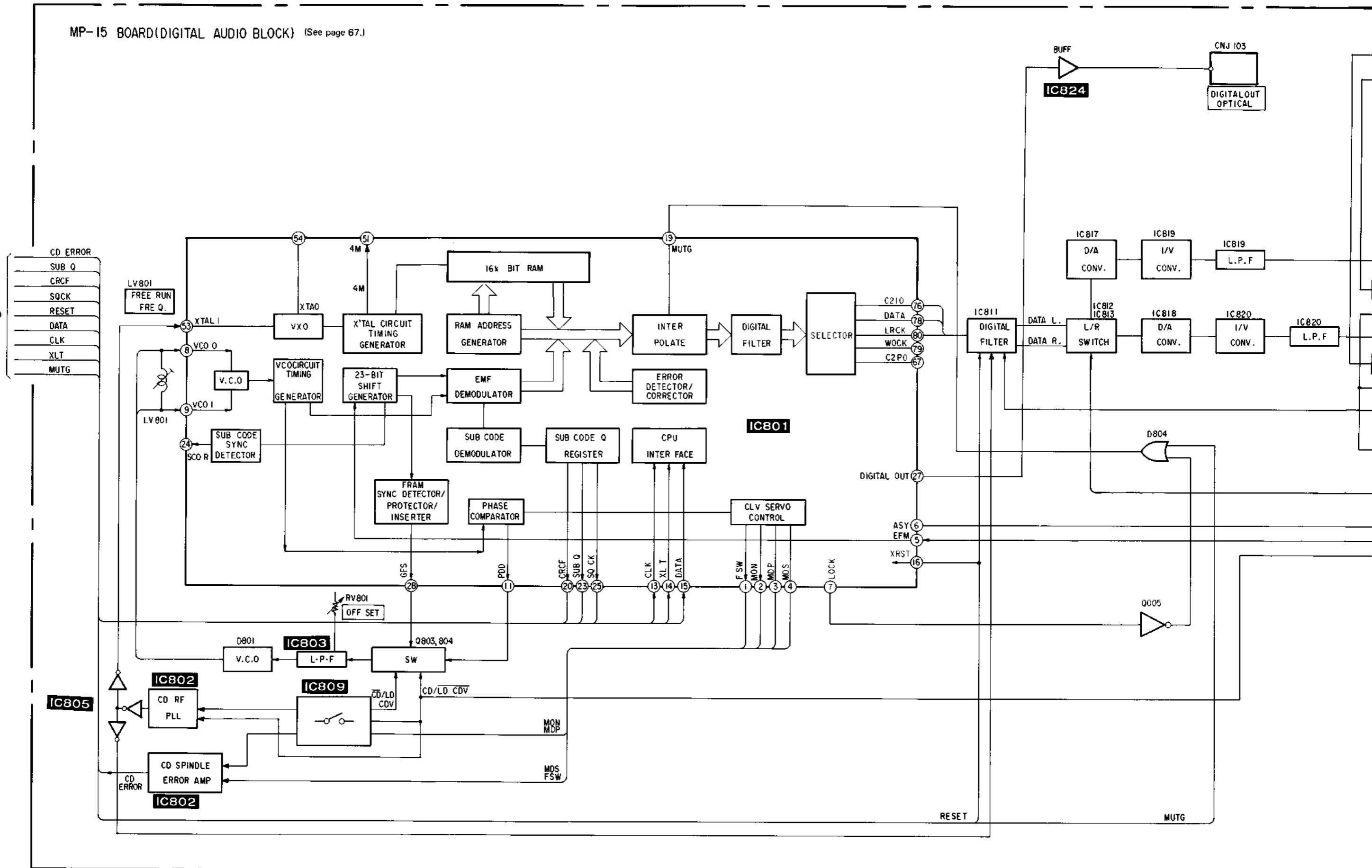
TCNT	25
FL	26
JUMP	27
RST	28
LACH	29
DATA	30
SCLK	31
CLK	32



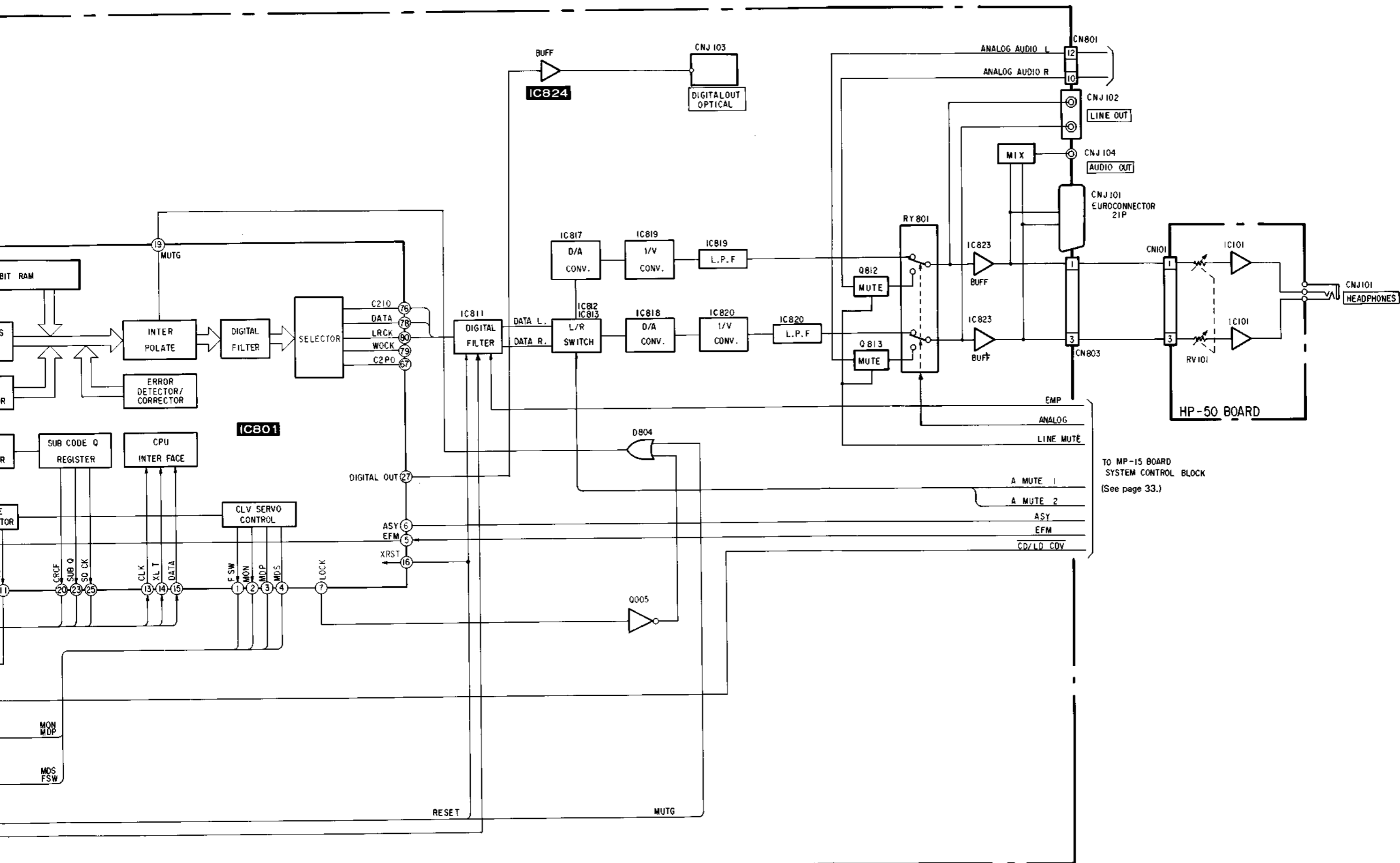
3-8. DIGITAL AUDIO BLOCK DIAGRAM

MP-15 BOARD (DIGITAL AUDIO BLOCK) (See page 67.)

TO MP-15 BOARD  
SYSTEM CONTROL  
BLOCK  
(See page 33.)

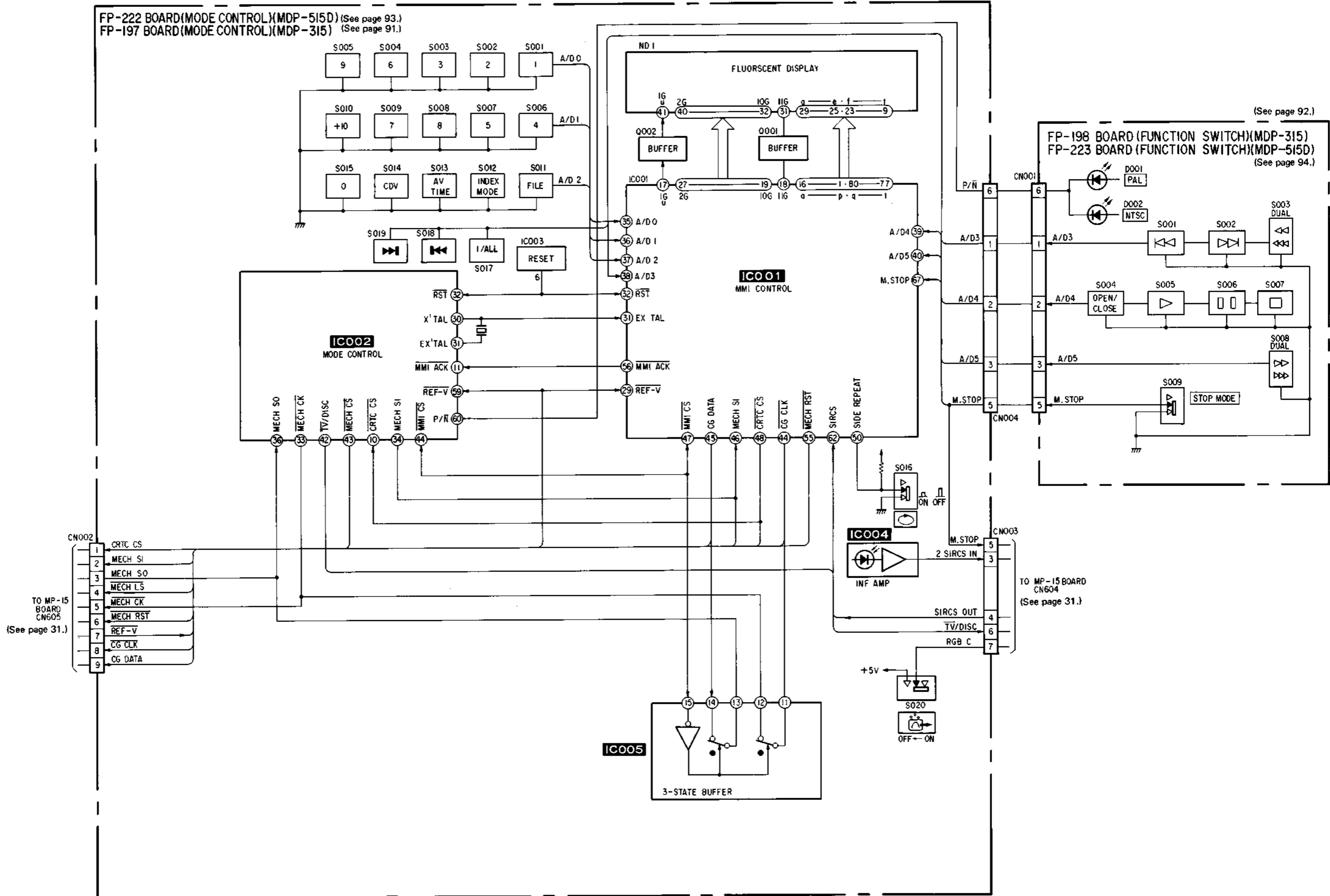




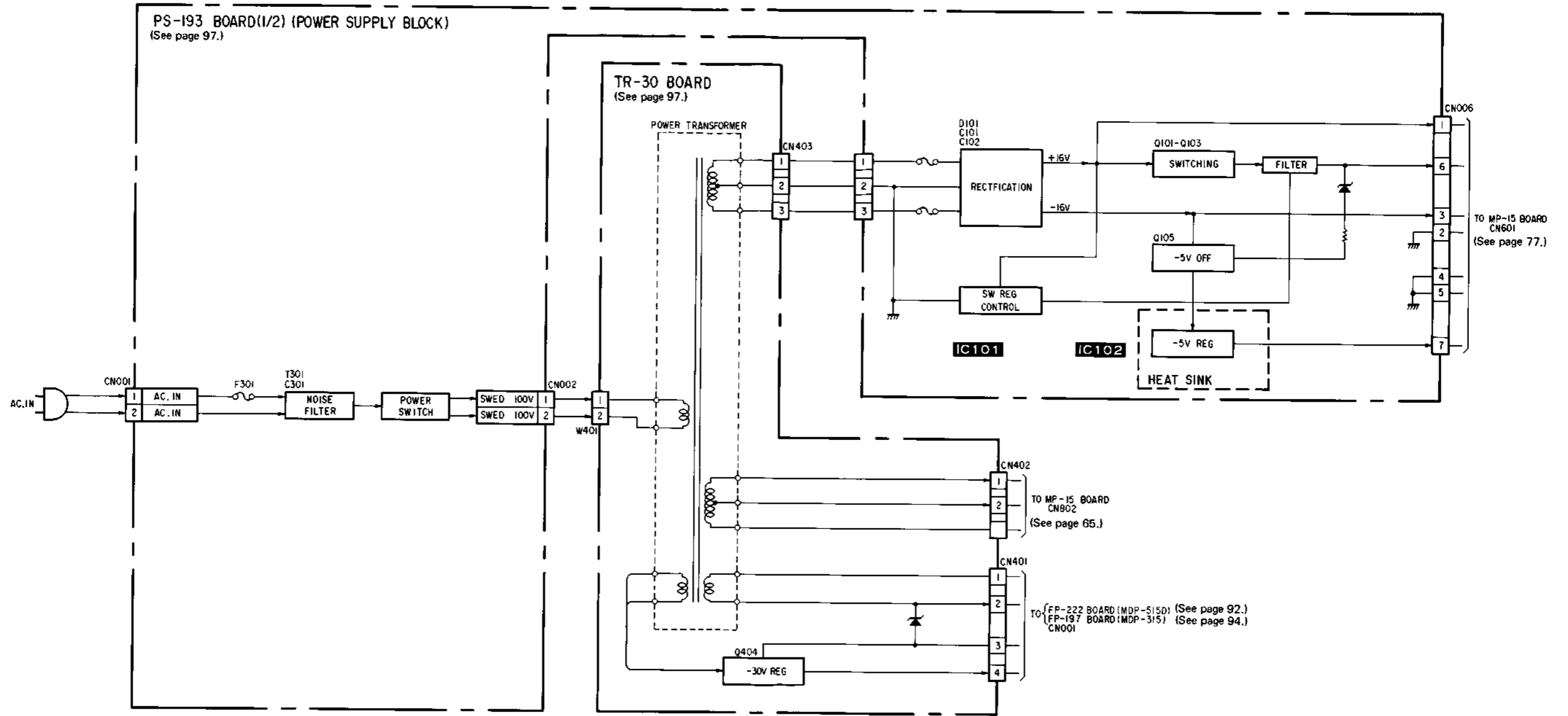


TO MP-15 BOARD  
SYSTEM CONTROL BLOCK  
(See page 33.)

3.9. MODE CONTROL/FUNCTION SWITCH BLOCK DIAGRAM

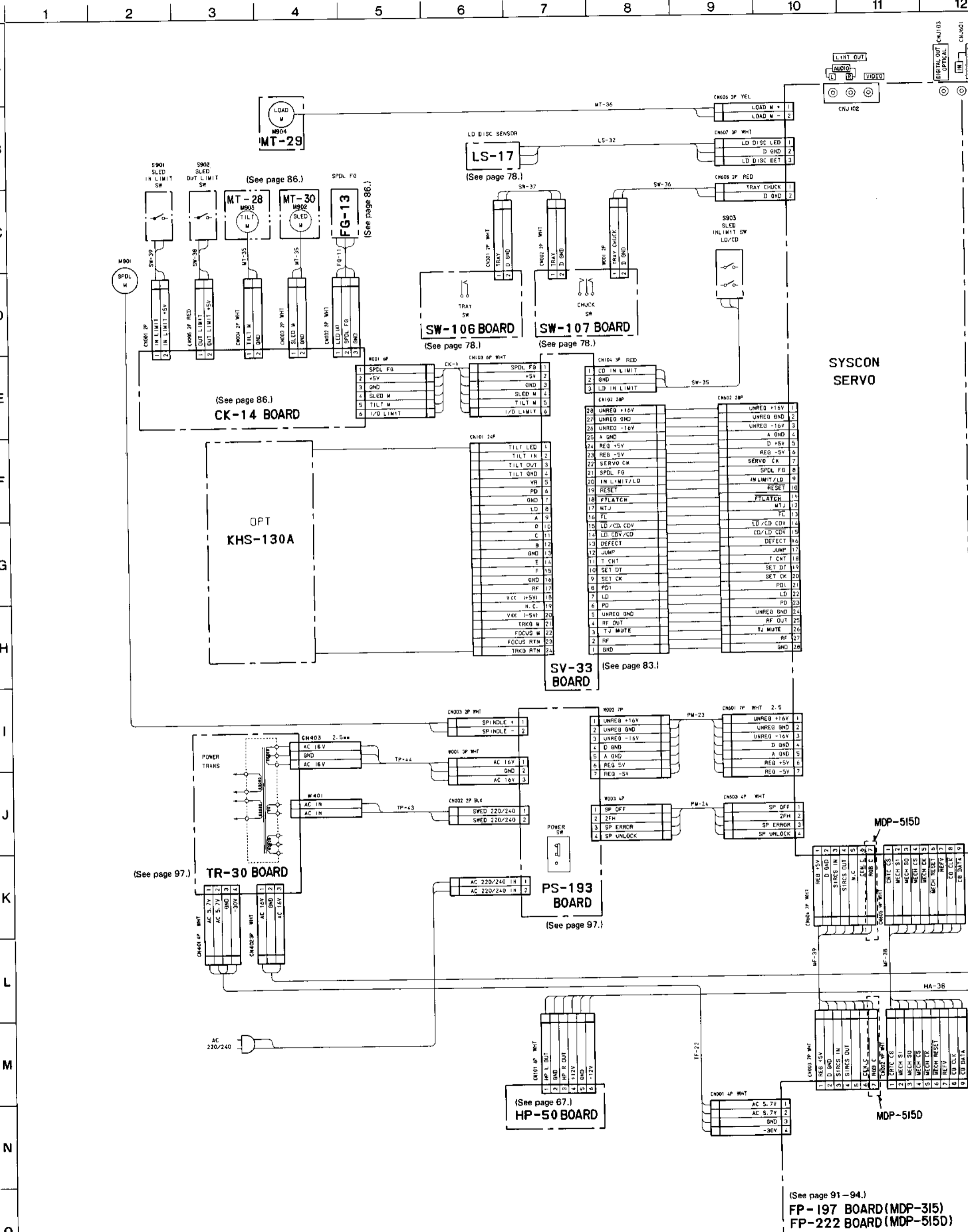


3-10. POWER BLOCK DIAGRAM

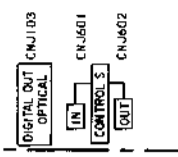
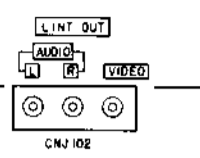


SECTION 4  
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4.1. FRAME SCHEMATIC DIAGRAM



(See page 91 - 94.)  
FP-197 BOARD (MDP-315)  
FP-222 BOARD (MDP-515D)

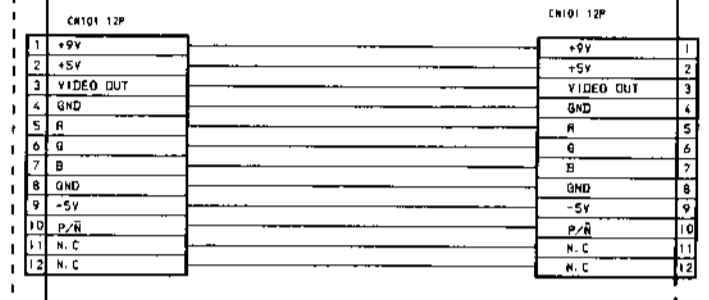


SYSCON SERVO

VIDEO

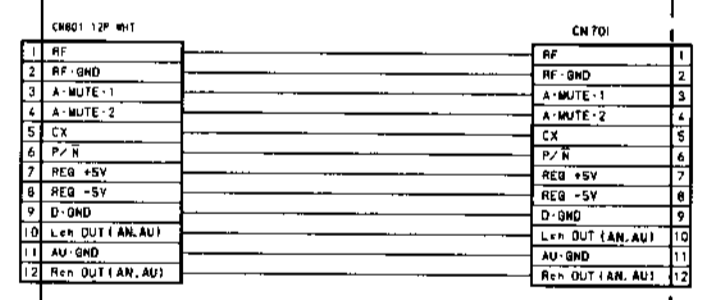
MDP-515D

RG-6 BOARD  
(See page 57.)

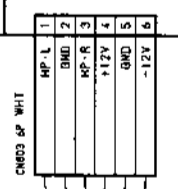
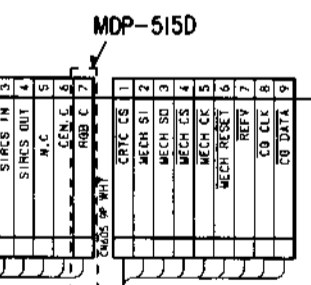


AUDIO

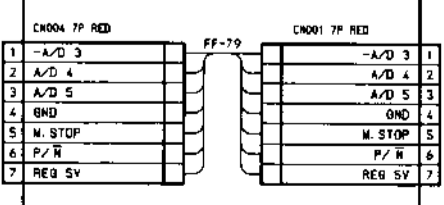
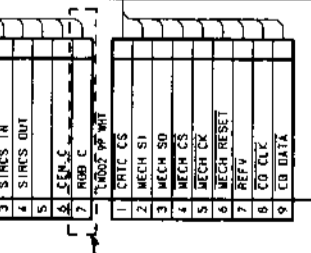
AF-52 BOARD  
(See page 67-68.)



MP-15 BOARD



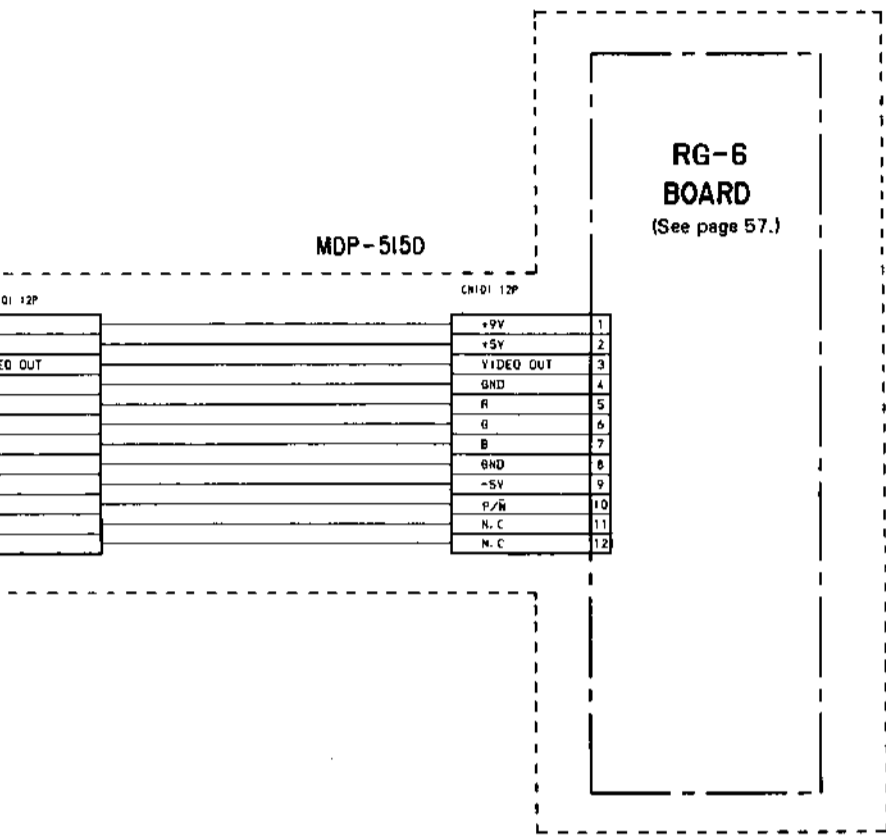
TA-40



(See page 92.)  
FP-198 BOARD (MDP-315)  
FP-223 BOARD (MDP-515D)

(See page 94.)

91-94.)  
7 BOARD (MDP-315)  
2 BOARD (MDP-515D)



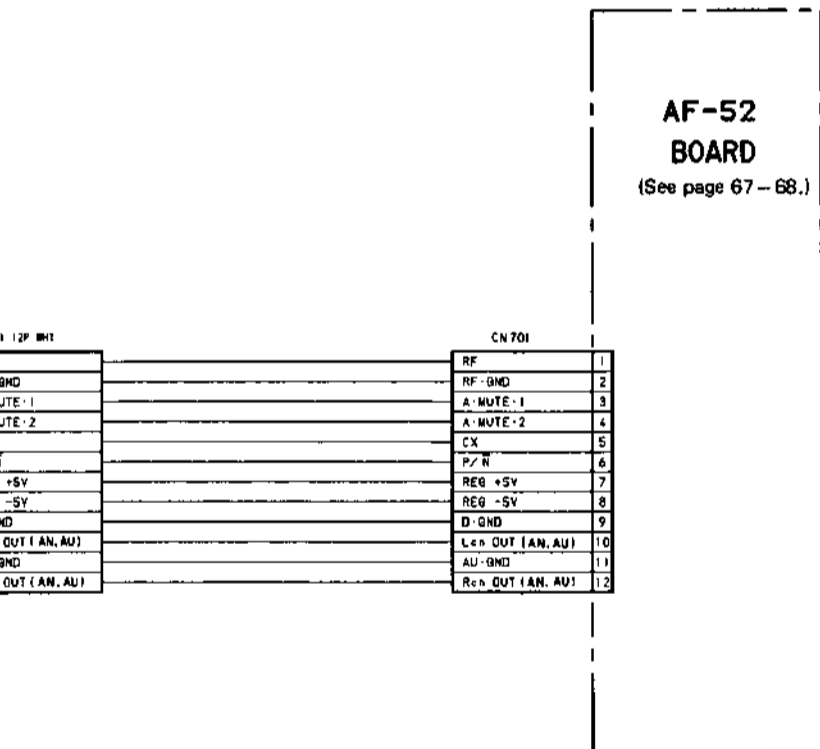
**RG-6 BOARD**  
(See page 57.)

**4.2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS**

THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS. (In addition to this, the necessary note is printed in each block.)

For printed wiring boards :

- : indicates a lead wire mounted on the component side.
- : Through hole.
- : Pattern from the side which enables seeing.
- : Pattern of the rear side.
- : Circled numbers refer to waveforms.



**AF-52 BOARD**  
(See page 67 - 68.)

For schematic diagram :

- Caution when replacing chip parts. New parts must be attached after removal of chip. Be careful not to heat the minute side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, chip resistors are 1/10W unless otherwise noted. kΩ : 1000Ω, MΩ : 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF : μμF. 50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- : nonflammable resistor.
- : fusible resistor.
- : panel designation.
- : internal component.
- : adjustment for repair.\*
- : B+ line.\*
- : B- line.\*
- Voltages are dc between measurement points and ground unless otherwise noted.\*
- Readings are taken with a color-bar signal playback.
- Readings are taken with a digital multimeter (DC10MΩ).
- Voltage variations may be noted due to normal production tolerances.
- : IN/OUT direction of B line (+, -).\*
- Readings are taken with color-bar signal playback.
- Circled numbers refer to waveforms.\*

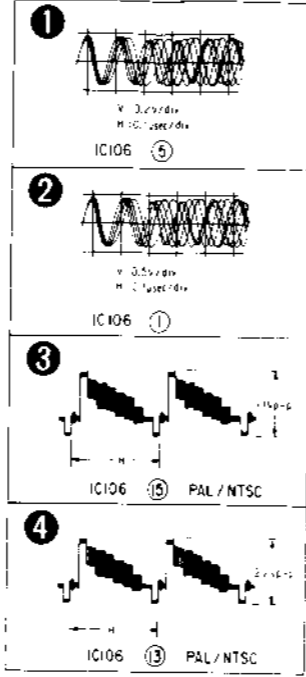
When indicating parts by reference number, please include the board name.

Note: The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

\*: indicated by the color red.

(See page 92.)  
(MDP-315)  
(MDP-515D)  
(See page 94.)

MP-15 BOARD (VIDEO)

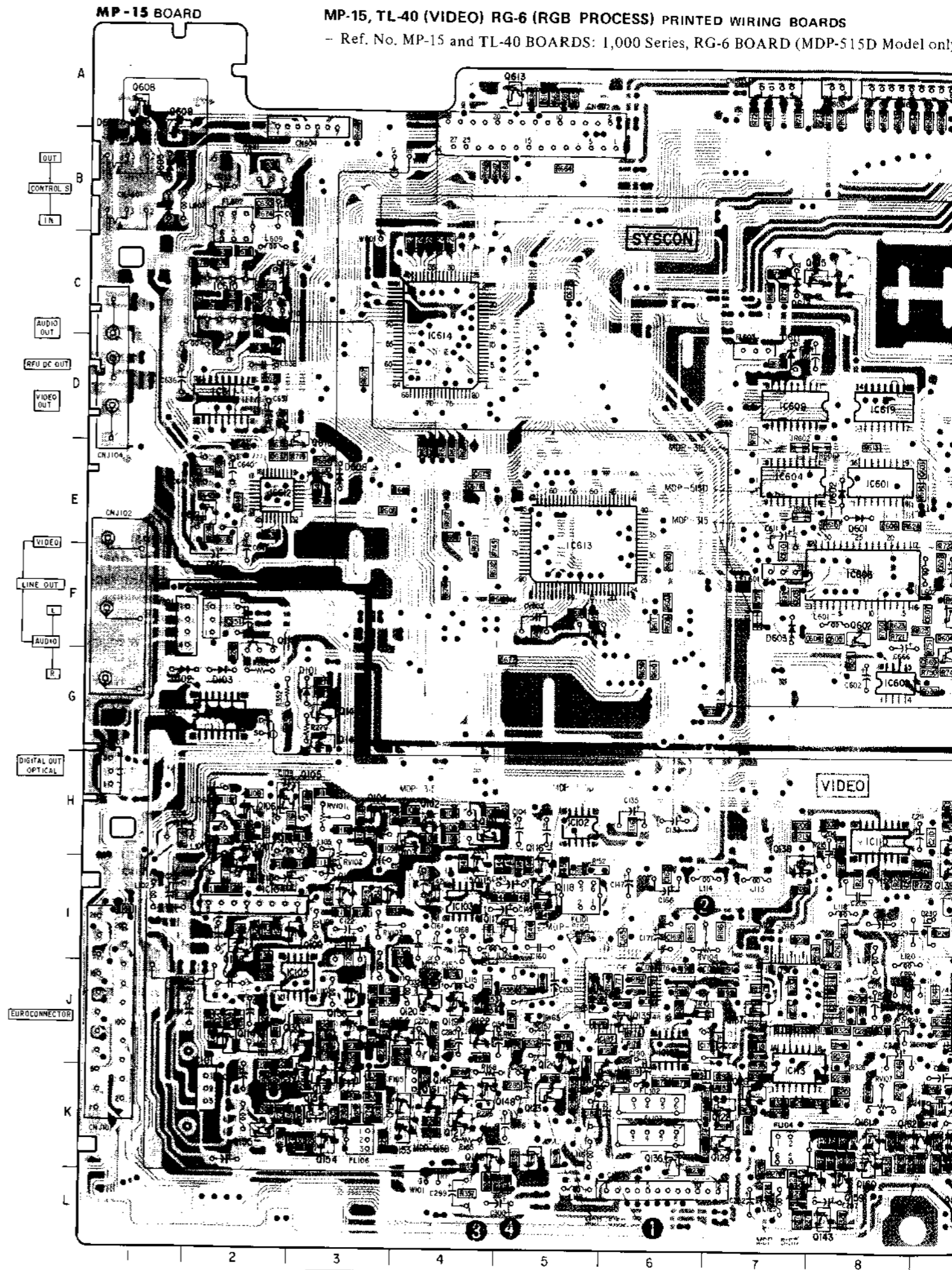


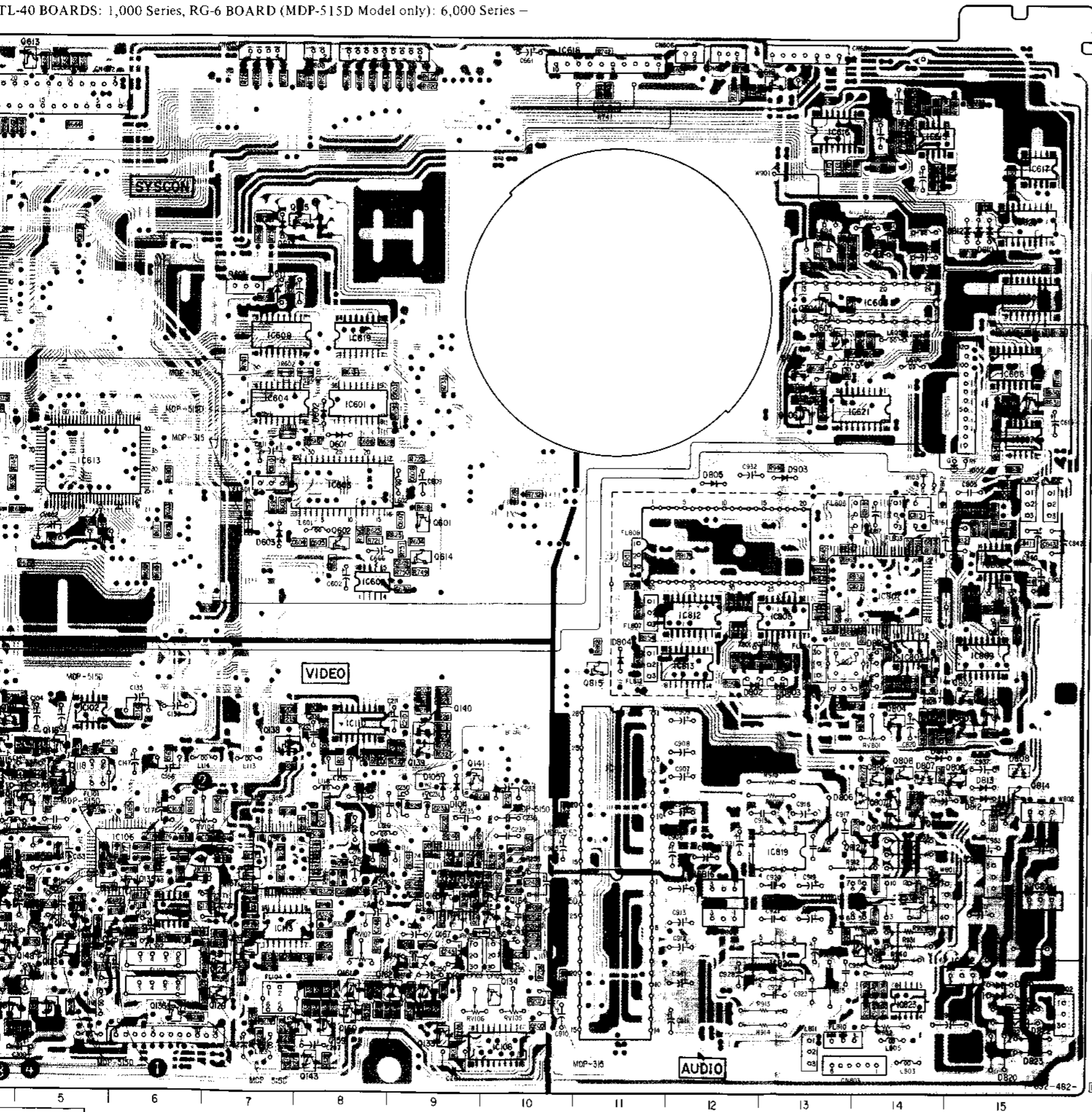
MP-15 BOARD

D101	G-3	Q105	H-2
D102	G-1	Q106	H-2
D103	G-2	Q107	H-2
D104	I-9	Q108	I-2
D105	I-9	Q109	I-3
D601	E-8	Q110	I-3
D602	E-8	Q111	I-3
D603	F-7	Q112	J-3
D604	C-13	Q114	J-2
D605	B-1	Q115	I-4
D606	A-1	Q116	I-5
D607	B-1	Q117	I-5
D608	E-3	Q118	I-5
D609	C-15	Q119	J-4
D610	C-15	Q120	J-4
D611	D-7	Q121	K-4
D612	C-15	Q122	J-4
D613	C-7	Q123	K-5
D801	G-14	Q124	J-5
D802	H-12	Q125	K-6
D803	H-13	Q126	K-7
D804	G-11	Q128	K-7
D805	F-12	Q129	K-7
D806	I-14	Q130	J-3
D807	I-14	Q131	J-3
D808	I-15	Q132	K-3
D811	I-14	Q133	L-9
D812	I-15	Q134	K-10
D813	I-15	Q135	J-6
D815	J-14	Q136	K-6
D820	L-15	Q137	J-6
D821	L-15	Q138	N-7
D822	K-15	Q139	I-9
D823	L-15	Q140	H-9
D903	F-13	Q141	I-9
D910	K-15	Q142	L-8
D911	K-15	Q143	L-8
IC101	K-2	Q145	G-3
IC102	H-5	Q146	K-4
IC103	I-4	Q147	F-2
IC104	I-2	Q148	K-4
IC105	J-3	Q150	J-4
IC106	J-6	Q151	K-4
IC107	J-6	Q152	K-4
IC108	L-10	Q153	K-4
IC109	J-8	Q154	K-3
IC110	H-8	Q155	K-2
IC111	J-10	Q156	K-3
IC113	J-7	Q157	K-3
IC601	D-8	Q158	J-3
IC602	G-8	Q159	L-8
IC603	F-8	Q160	K-8
IC604	E-7	Q161	K-8
IC605	D-15	Q162	K-9
IC606	D-15	Q163	K-9
IC607	E-15	Q164	J-10
IC608	D-14	Q165	J-9
IC609	D-7	Q166	J-10
IC610	C-2	Q167	J-9
IC611	D-2	Q168	K-4
IC612	E-2	Q169	K-5
IC613	E-5	Q601	F-9
IC614	C-4	Q602	F-8
IC615	B-14	Q603	E-15
IC616	B-13	Q604	D-13
IC617	B-15	Q605	D-13
IC618	A-10	Q606	E-13
IC619	D-8	Q607	D-13
IC620	C-15	Q608	A-1
IC621	E-14	Q609	A-1
IC801	G-14	Q610	D-3
IC802	G-15	Q611	B-2
IC803	G-14	Q612	E-2
IC805	G-13	Q613	A-5
IC809	H-15	Q614	F-9
IC811	F-12	Q615	C-7
IC812	G-12	Q618	A-13
IC813	H-12	Q801	H-15
IC814	J-15	Q802	H-15
IC816	J-12	Q803	H-15
IC817	I-11	Q804	H-14
IC818	K-11	Q806	I-15
IC819	J-13	Q807	I-14
IC820	K-13	Q808	I-14
IC821	J-15	Q809	I-14
IC822	K-15	Q810	I-14
IC823	K-14	Q811	I-14
IC824	G-2	Q812	J-14
		Q813	K-14
Q102	H-4	Q814	I-15
Q103	H-4	Q815	H-11
Q104	H-3		

For printed wiring boards :

- : indicates a lead wire mounted on the component side.
- ▨ : Pattern from the side which enables seeing.
- ▩ : Pattern of the rear side.
- : Circled numbers refer to waveforms.
- ⊕ : Jumper wire connected to the ground pattern on the component side.
- ⊖ : Jumper wire connected to the pattern on the component side.

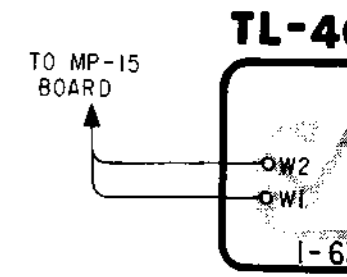
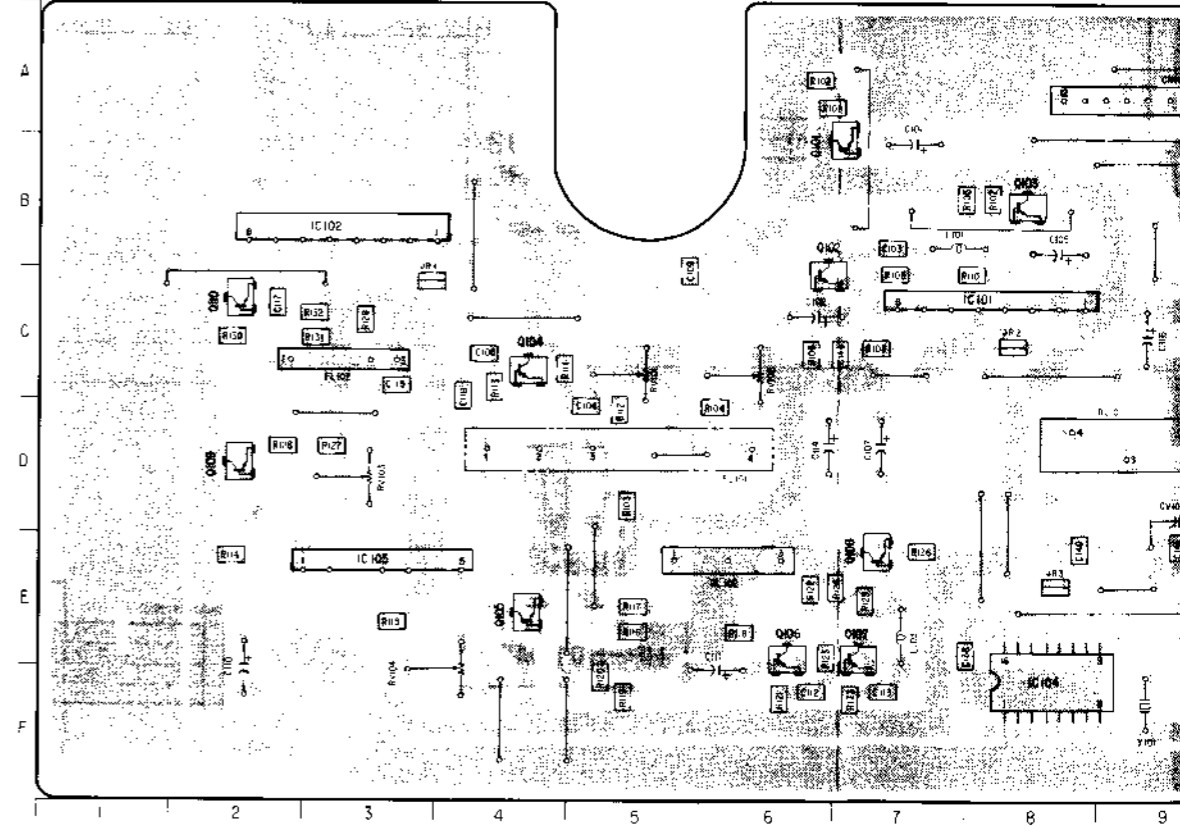




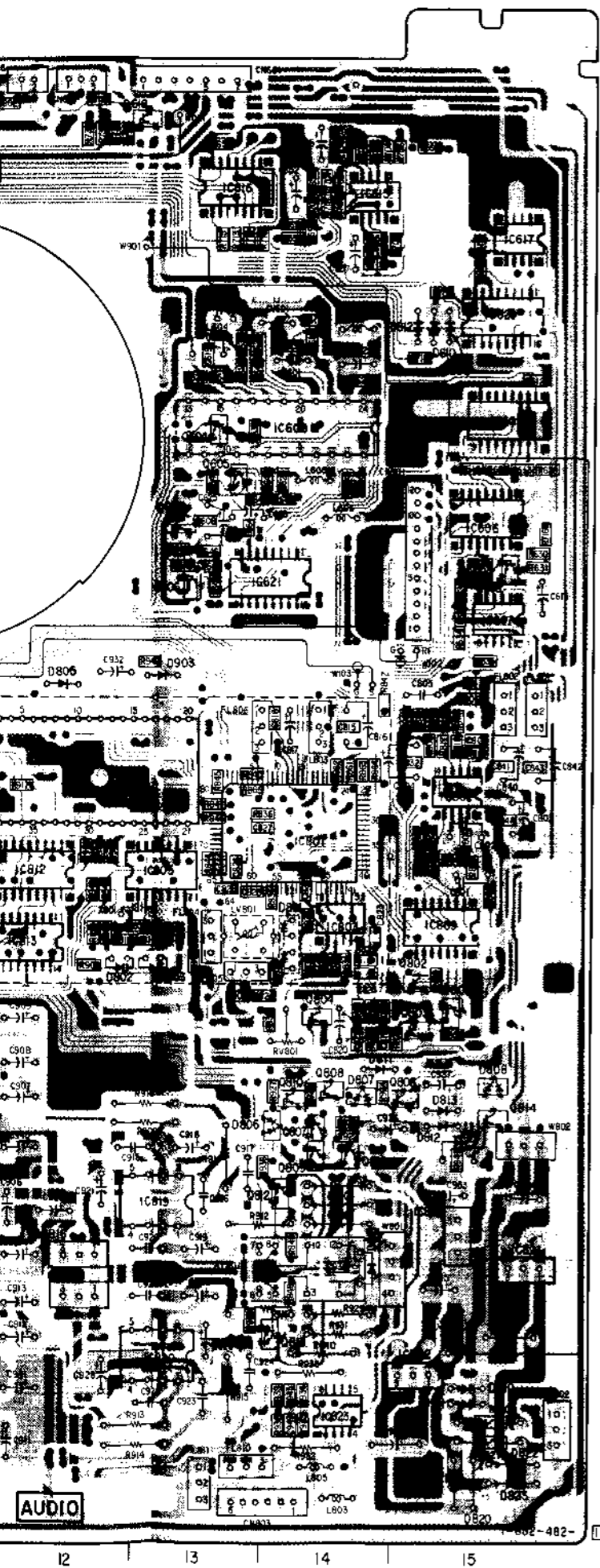
RG-6 BOARD

Q101	D-14	Q107	E-7
Q102	D-13	Q108	E-7
Q103	E-15	Q109	D-2
Q104	F-15	Q110	C-2
		Q111	D-11
IC101	C-8	Q112	D-12
IC102	B-3	Q113	B-9
IC103	E-11	Q114	B-14
IC104	F-8	Q115	C-13
IC105	E-3	Q116	C-13
		Q117	B-13
Q101	B-7	Q118	B-12
Q102	C-6	Q119	B-12
Q103	B-8	Q120	A-13
Q104	C-4	Q121	B-12
Q105	E-4	Q122	B-11
Q106	E-6	Q123	B-10

RG-6 BOARD

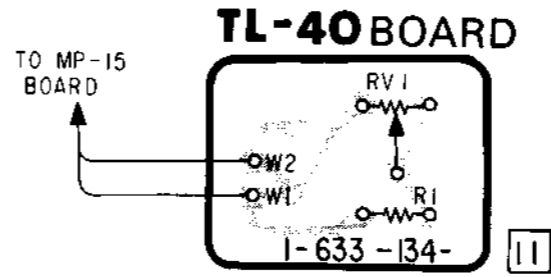




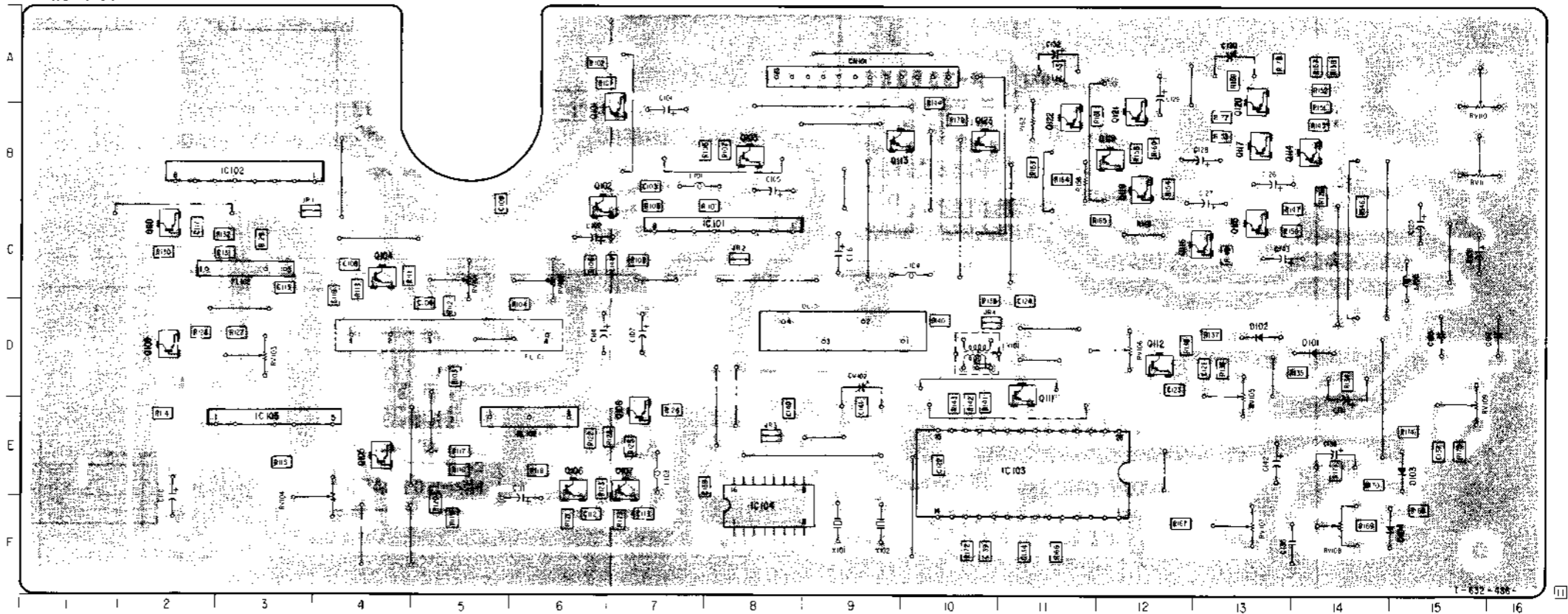


RG-6 BOARD

D101	D-14	Q107	E-7
D102	D-13	Q108	E-7
D103	E-15	Q109	D-2
D104	F-15	Q110	C-2
		Q111	D-11
IC101	C-8	Q112	D-12
IC102	B-3	Q113	B-9
IC103	E-11	Q114	B-14
IC104	F-8	Q115	C-13
IC105	E-3	Q116	C-13
		Q117	B-13
Q101	B-7	Q118	B-12
Q102	C-6	Q119	B-12
Q103	B-8	Q120	A-13
Q104	C-4	Q121	B-12
Q105	E-4	Q122	B-11
Q106	E-6	Q123	B-10



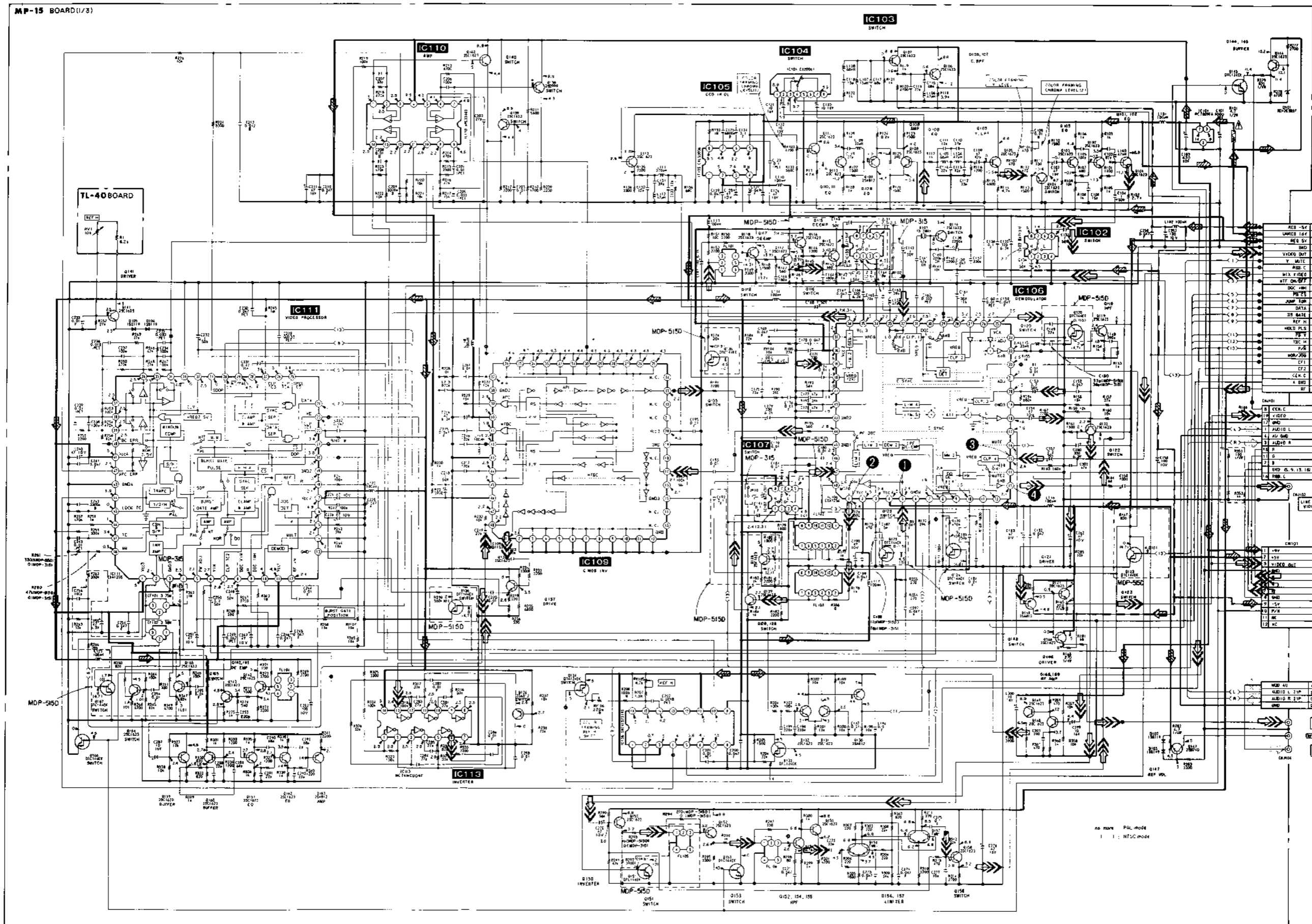
RG-6 BOARD



VIDEO VIDEO

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

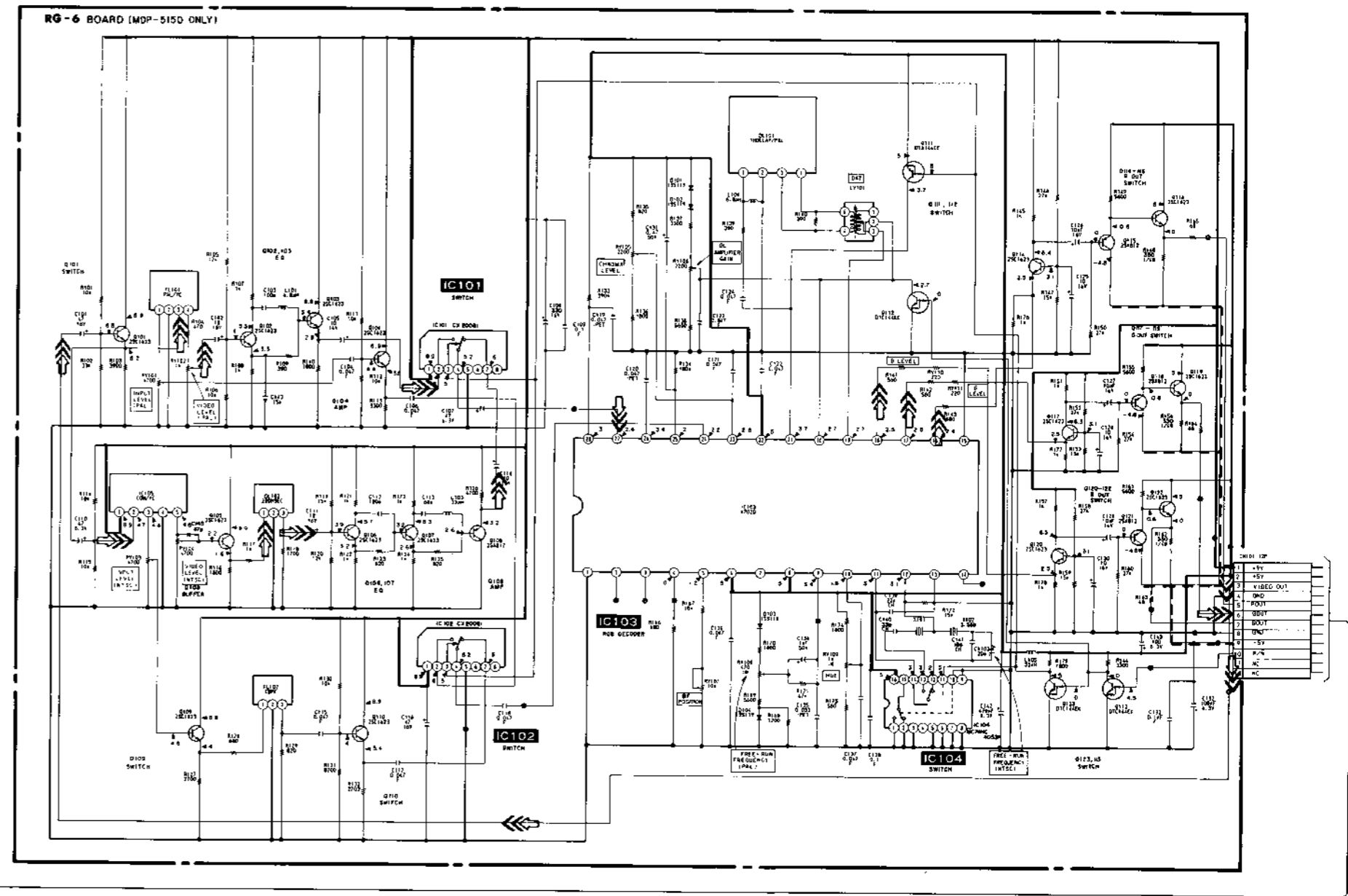
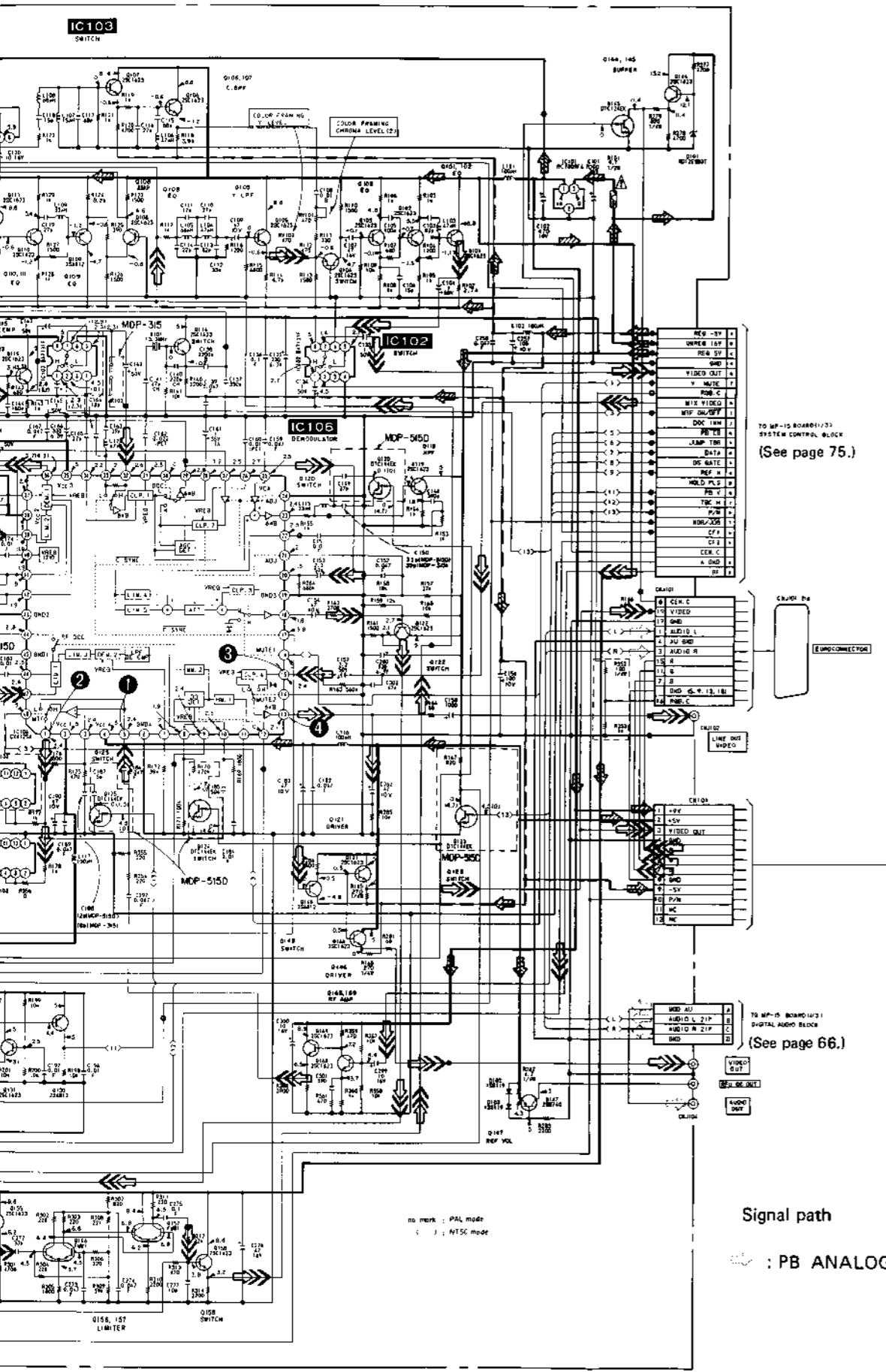
A  
B  
C  
D  
E  
F  
G  
H  
I  
J



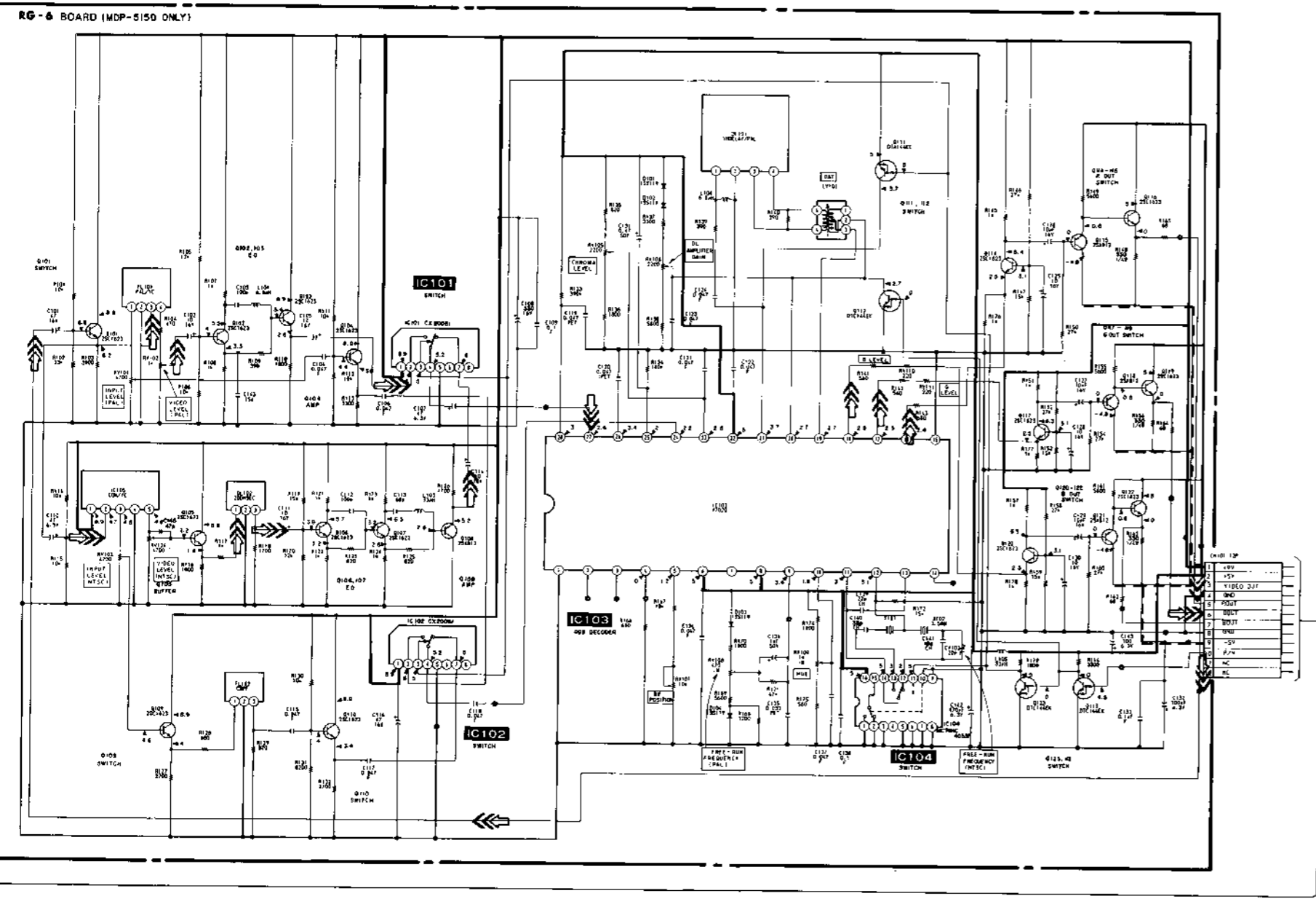
TO MP-15 BOARD (1/3) SYSTEM CONTROL BLOCK (See page 75.)

TO MP-15 BOARD (1/3) DIGITAL AUDIO BLOCK (See page 66.)

Signal path  
: PB ANALOG AUDIO

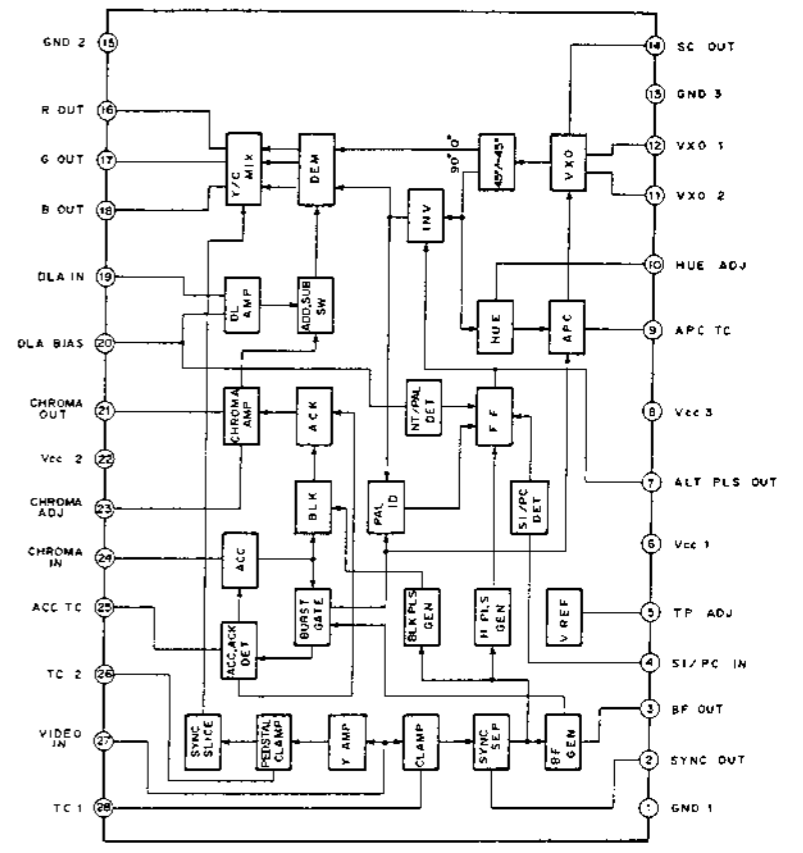


VIDEO VIDEO

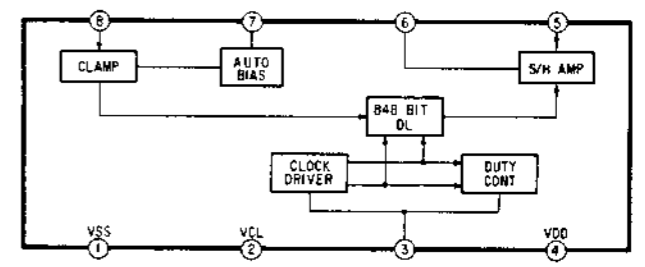


Signal path  
 ⇨⇨⇨ PB Y/CHROMA Signal

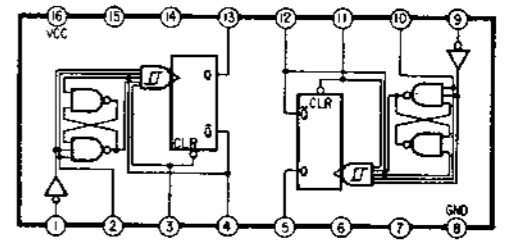
IC103 V7020



IC105 CXL5003M

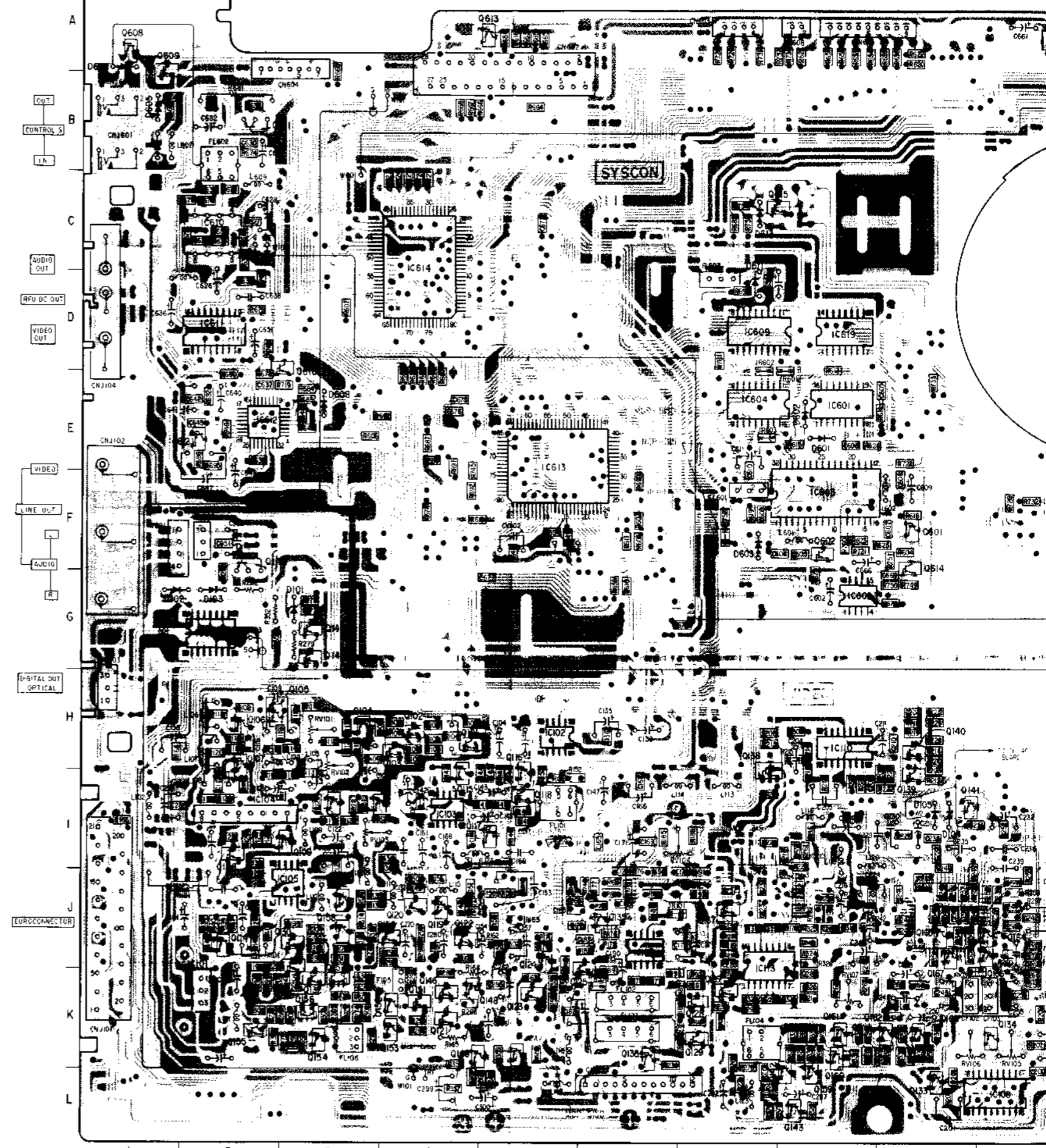


IC108 SN74LS22INS



MP-15 BOARD

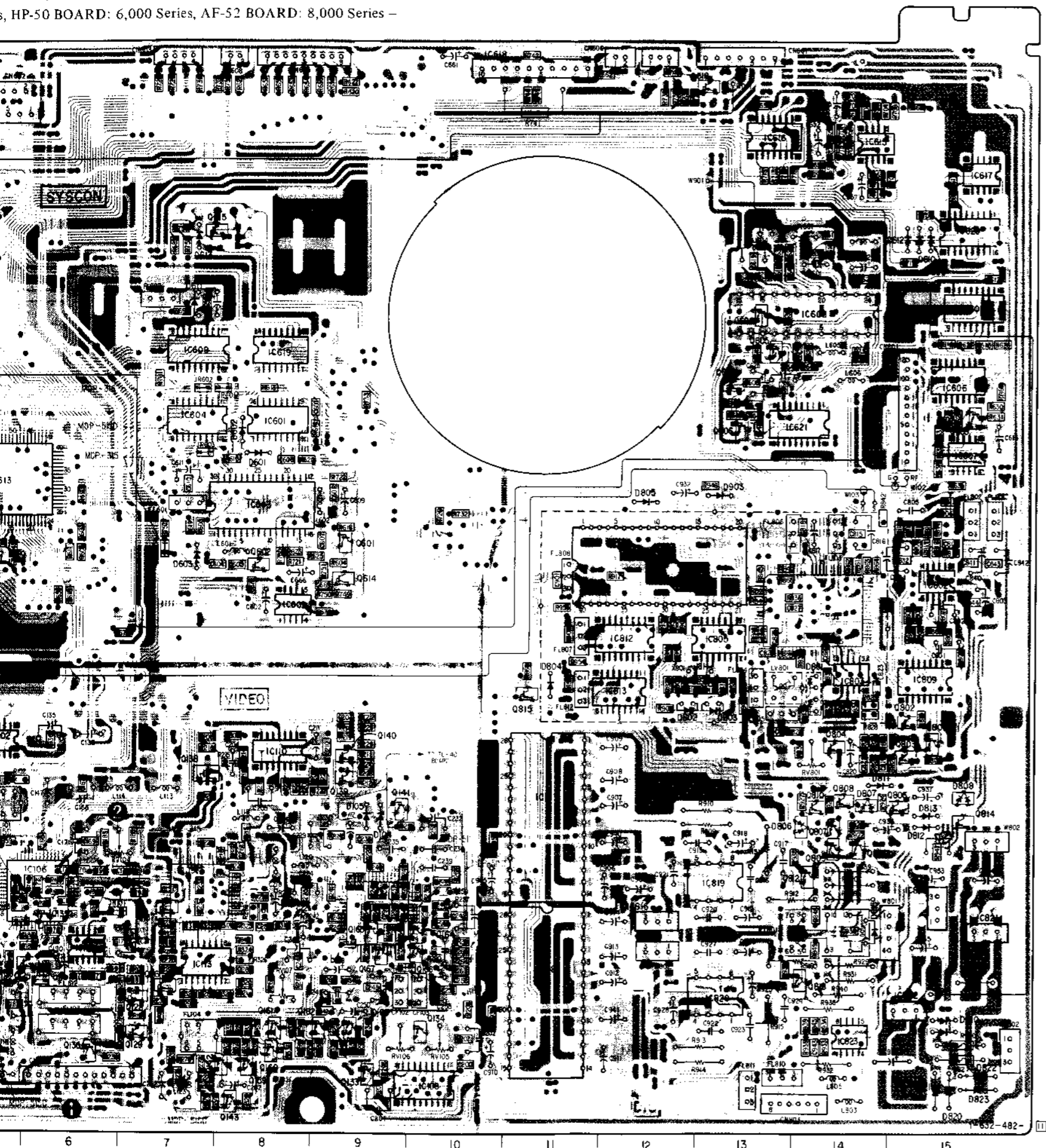
D101	G-3	Q105	H-2
D102	G-1	Q106	H-2
D103	G-2	Q107	H-2
D104	I-9	Q108	I-2
D105	I-9	Q109	I-3
D601	E-8	Q110	I-3
D602	E-8	Q111	I-3
D603	F-7	Q112	J-3
D604	C-13	Q114	J-2
D605	B-1	Q115	I-4
D606	A-1	Q116	I-5
D607	B-1	Q117	I-5
D608	E-3	Q118	I-5
D609	C-15	Q119	J-4
D610	C-15	Q120	J-4
D611	D-7	Q121	K-4
D612	C-15	Q122	J-4
D613	C-7	Q123	K-5
D801	G-14	Q124	J-5
D802	H-12	Q125	K-6
D803	H-13	Q126	K-7
D804	G-11	Q128	K-7
D805	F-12	Q129	K-7
D806	I-14	Q130	J-3
D807	I-14	Q131	J-3
D808	I-15	Q132	K-3
D811	I-14	Q133	L-9
D812	I-15	Q134	K-10
D813	I-15	Q135	J-6
D815	J-14	Q136	K-6
D820	L-15	Q137	J-6
D821	L-15	Q138	H-7
D822	K-15	Q139	I-9
D823	L-15	Q140	H-9
D903	F-13	Q141	I-9
D910	K-15	Q142	L-8
D911	K-15	Q143	L-8
IC101	K-2	Q144	G-3
IC102	H-5	Q146	K-4
IC103	I-4	Q147	F-2
IC104	I-2	Q148	K-4
IC105	J-3	Q150	J-4
IC106	J-6	Q151	K-4
IC107	J-6	Q152	K-4
IC108	L-10	Q153	K-4
IC109	J-8	Q154	K-3
IC110	H-8	Q155	K-2
IC111	J-10	Q156	K-3
IC113	J-7	Q157	K-3
IC601	D-8	Q158	J-3
IC602	G-8	Q159	L-8
IC603	F-8	Q160	K-8
IC604	E-7	Q161	K-8
IC605	D-15	Q162	K-9
IC606	D-15	Q163	K-9
IC607	E-15	Q164	J-10
IC608	D-14	Q165	J-9
IC609	D-7	Q166	J-10
IC610	C-2	Q167	J-9
IC611	D-2	Q168	K-4
IC612	E-2	Q169	K-5
IC613	E-5	Q801	F-9
IC614	C-4	Q802	F-8
IC615	B-14	Q803	E-15
IC616	B-13	Q804	D-13
IC617	B-15	Q805	D-13
IC618	A-10	Q806	E-13
IC619	D-8	Q807	D-13
IC620	C-15	Q808	A-1
IC801	G-14	Q809	A-1
IC802	G-15	Q810	D-3
IC803	G-14	Q811	B-2
IC805	G-13	Q812	E-2
IC809	H-15	Q813	A-5
IC811	F-12	Q814	F-9
IC812	G-12	Q815	C-7
IC813	H-12	Q818	A-13
IC814	J-15	Q801	H-15
IC816	J-12	Q802	H-15
IC817	I-11	Q803	H-15
IC818	K-11	Q804	H-14
IC819	J-13	Q805	I-15
IC820	K-13	Q806	I-14
IC821	J-15	Q807	I-14
IC822	K-15	Q808	I-14
IC823	K-14	Q809	I-14
IC824	G-2	Q810	I-14
		Q811	I-14
		Q812	J-14
		Q813	K-14
Q102	H-4	Q814	I-15
Q103	H-4	Q815	H-11
Q104	H-3		



For printed wiring boards :

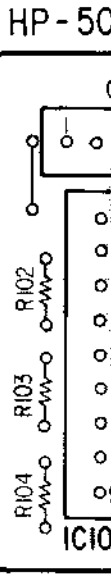
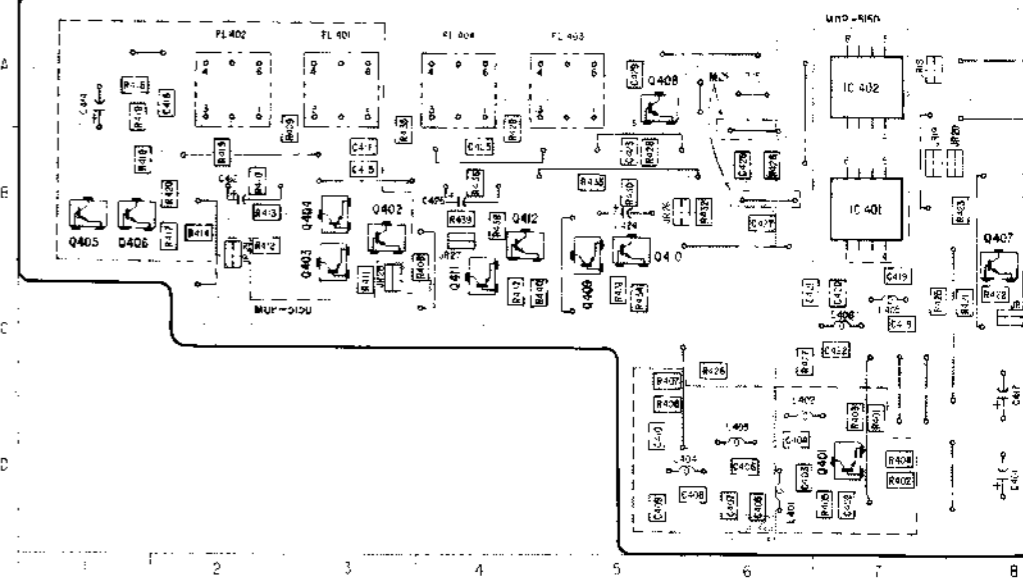
- : indicates a lead wire mounted on the component side.
- : Pattern from the side which enables seeing.
- : Numbers refer to wiring.
- : Jumper wire connected to the ground pattern on the component side.
- : Jumper wire connected to the pattern on the component side.

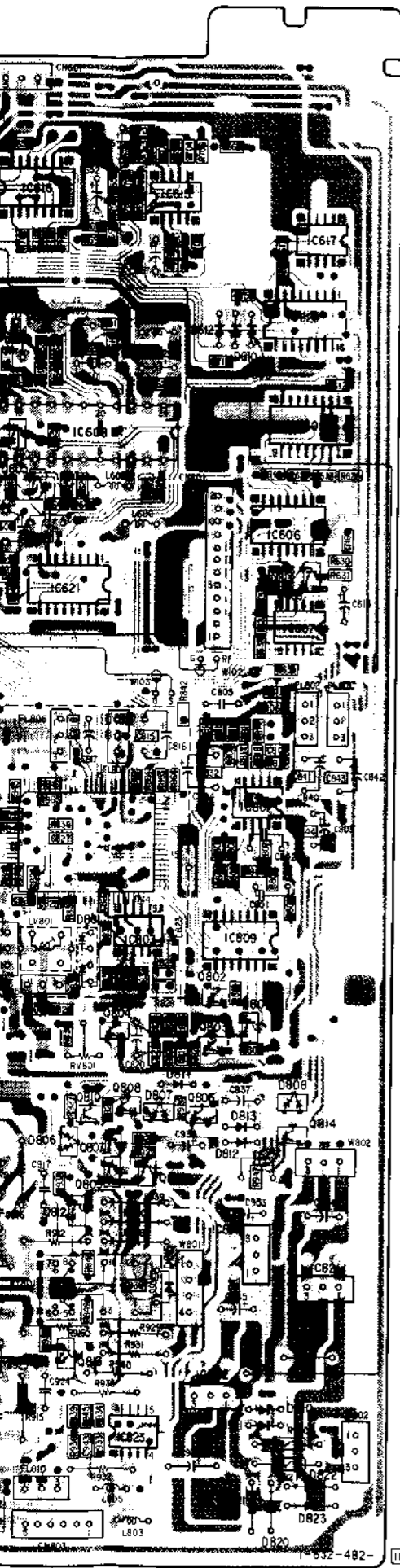




- AF-52 BOARD
- IC401 B-7
  - IC402 A-7
  - IC701 B-13
  
  - Q401 D-7
  - Q402 B-3
  - Q403 C-3
  - Q404 B-3
  - Q405 B-1
  - Q406 B-1
  - Q407 B-8
  - Q408 A-5
  - Q409 B-5
  - Q410 B-5
  - Q411 C-4
  - Q412 B-4
  - Q701 C-10
  - Q702 A-9
  - Q703 A-9
  - Q704 B-8
  - Q705 D-13
  - Q706 A-14

AF-52 BOARD

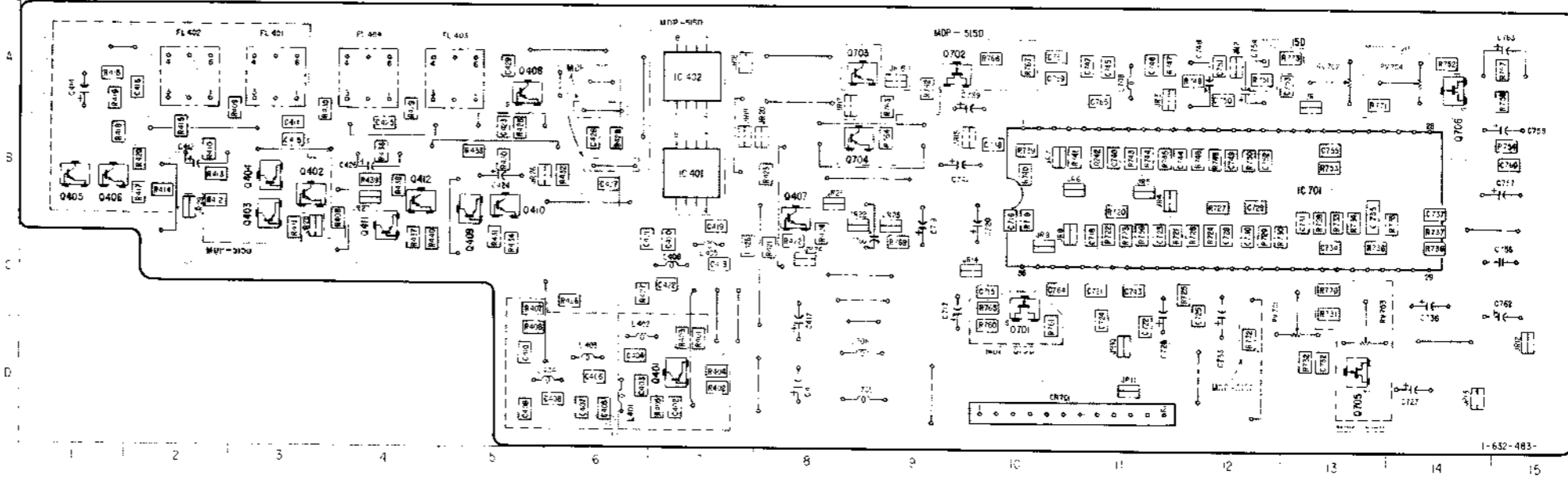




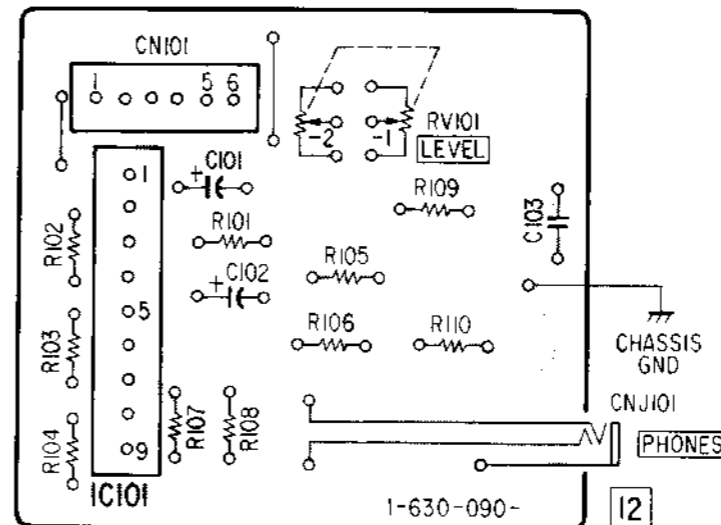
AF-52 BOARD

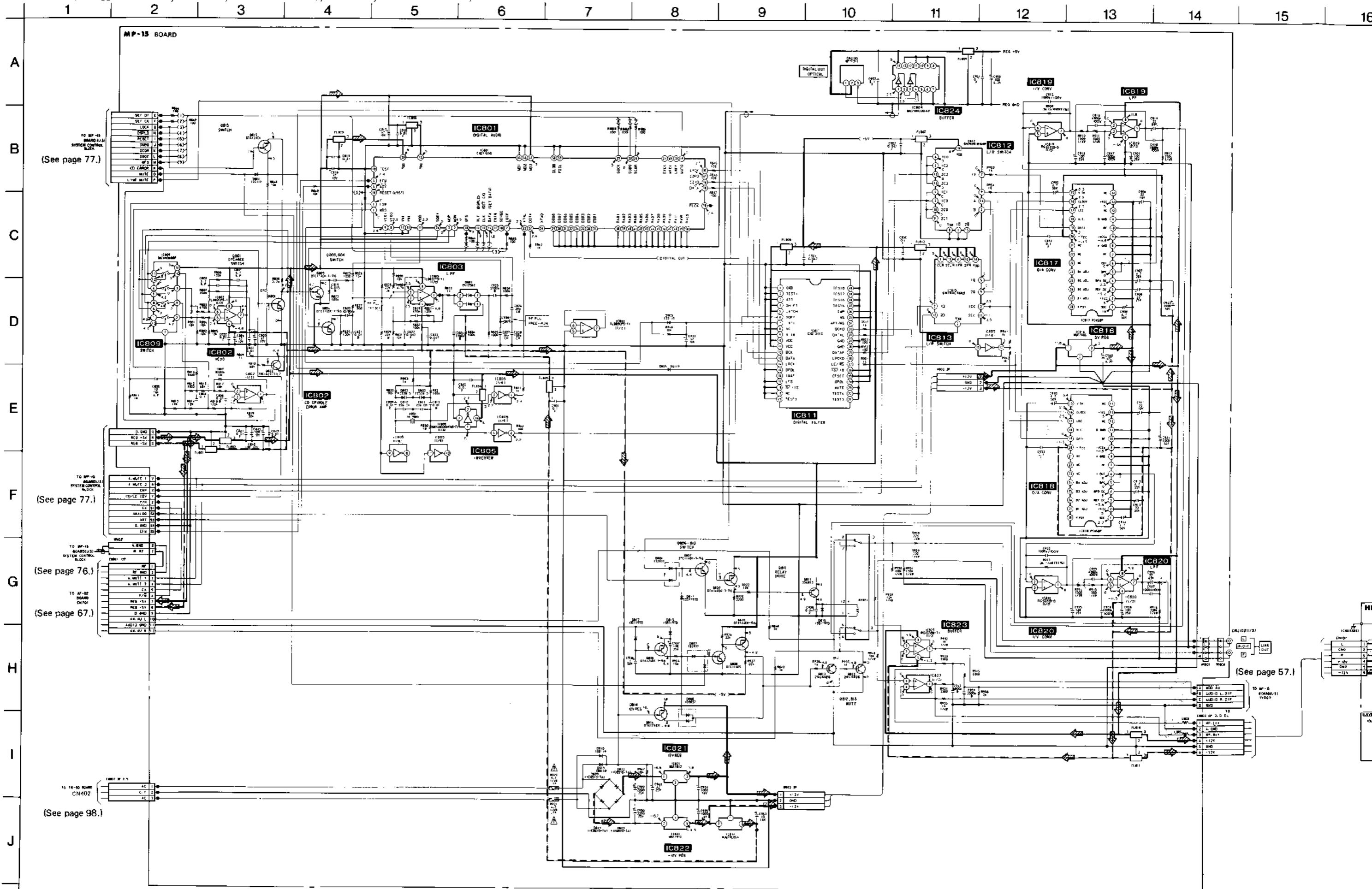
- IC401 B-7
- IC402 A-7
- IC701 B-13
- Q401 D-7
- Q402 B-3
- Q403 C-3
- Q404 B-3
- Q405 B-1
- Q406 B-1
- Q407 B-8
- Q408 A-5
- Q409 B-5
- Q410 B-5
- Q411 C-4
- Q412 B-4
- Q701 C-10
- Q702 A-9
- Q703 A-9
- Q704 B-8
- Q705 D-13
- Q706 A-14

AF-52 BOARD



HP-50 BOARD



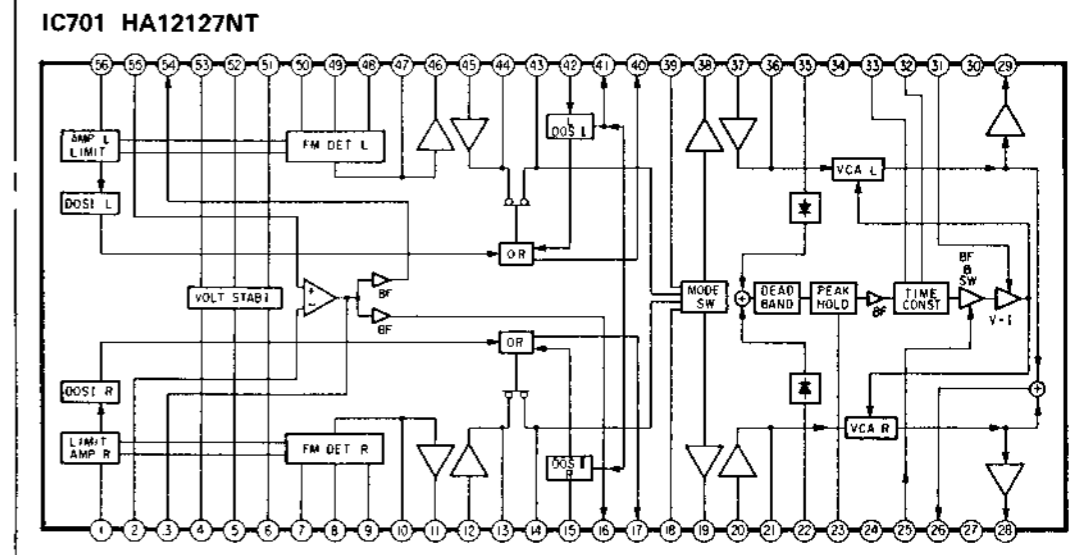
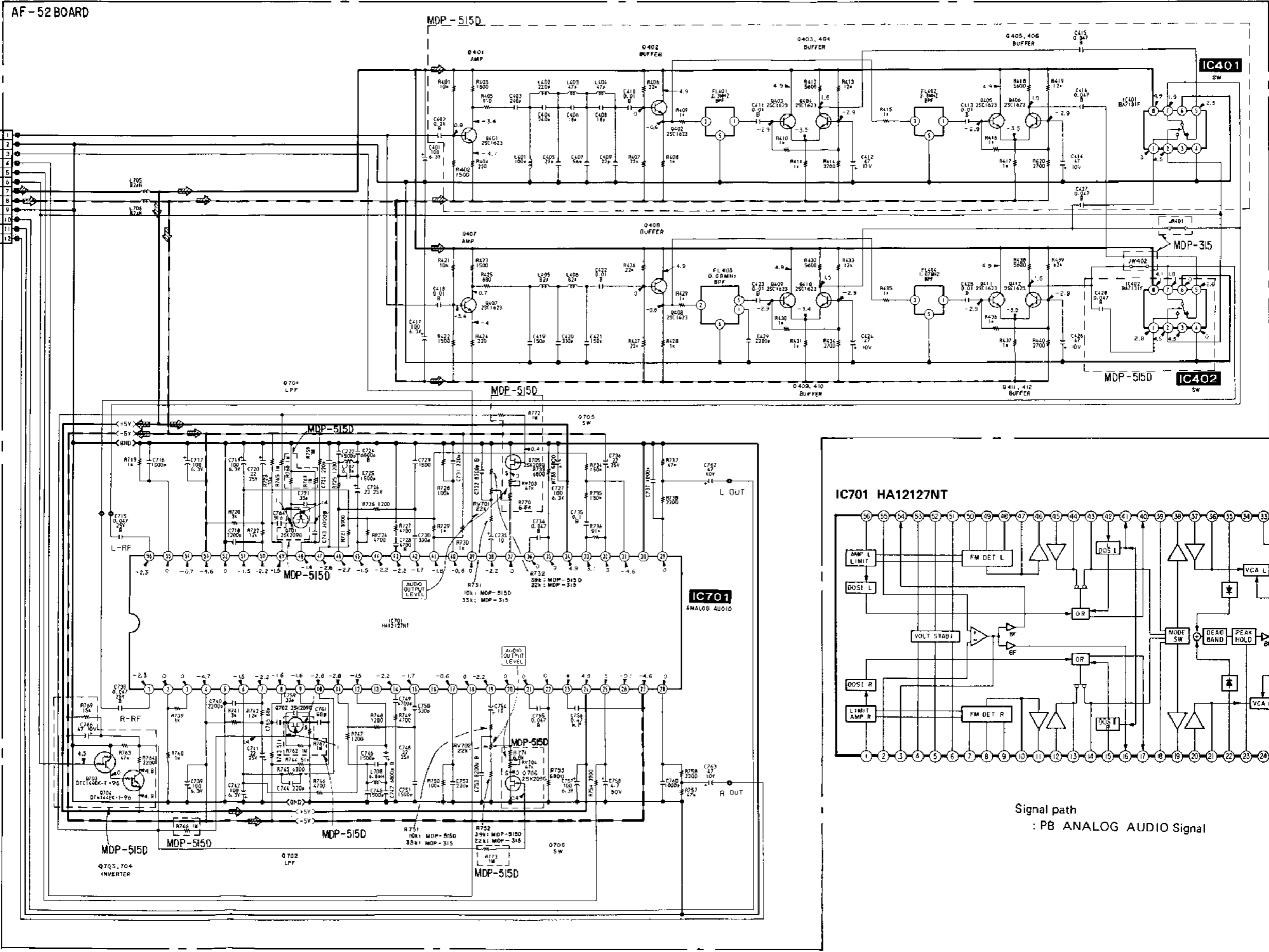






1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

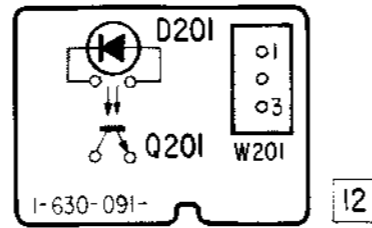
A  
B  
C  
D  
E  
F  
G  
H  
I  
J



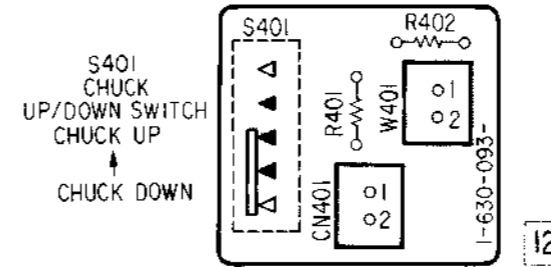
Signal path : PB ANALOG AUDIO Signal

Q101	G 3	Q105	H 2
Q102	G 1	Q106	H 2
Q103	G 2	Q107	H 2
Q104	F 9	Q108	I 2
Q105	I 9	Q109	I 3
Q106	F 8	Q110	I 3
Q107	F 8	Q111	I 3
Q108	F 7	Q112	J 3
Q109	C 13	Q114	J 2
Q110	B 1	Q115	I 4
Q111	A 1	Q116	I 5
Q112	B 1	Q117	I 5
Q113	E 3	Q118	I 5
Q114	C 15	Q119	J 4
Q115	D 7	Q120	J 4
Q116	C 15	Q121	K 4
Q117	C 7	Q122	J 4
Q118	G 14	Q123	K 5
Q119	H 12	Q124	J 5
Q120	H 13	Q125	K 6
Q121	G 11	Q126	K 7
Q122	F 12	Q127	K 7
Q123	I 14	Q128	K 7
Q124	I 14	Q129	K 7
Q125	I 14	Q130	J 3
Q126	I 15	Q131	J 3
Q127	I 14	Q132	K 3
Q128	I 15	Q133	L 9
Q129	I 15	Q134	K 10
Q130	I 15	Q135	J 6
Q131	L 15	Q136	K 6
Q132	L 15	Q137	J 6
Q133	L 15	Q138	H 7
Q134	K 15	Q139	I 9
Q135	L 15	Q140	H 9
Q136	F 13	Q141	I 9
Q137	K 15	Q142	L 8
Q138	K 15	Q143	L 8
Q139	K 2	Q144	G 3
Q140	H 5	Q145	K 4
Q141	I 4	Q146	F 7
Q142	I 2	Q147	K 4
Q143	J 3	Q148	J 4
Q144	J 6	Q149	K 4
Q145	I 6	Q150	K 4
Q146	L 10	Q151	K 4
Q147	J 9	Q152	K 4
Q148	H 8	Q153	K 4
Q149	J 10	Q154	K 3
Q150	J 7	Q155	K 2
Q151	D 8	Q156	K 3
Q152	G 8	Q157	I 3
Q153	F 8	Q158	L 8
Q154	E 7	Q159	K 8
Q155	D 15	Q160	K 8
Q156	D 15	Q161	K 8
Q157	E 15	Q162	K 9
Q158	D 14	Q163	J 10
Q159	D 7	Q164	J 9
Q160	C 2	Q165	J 9
Q161	D 2	Q166	J 10
Q162	E 2	Q167	J 9
Q163	E 5	Q168	K 4
Q164	C 4	Q169	K 5
Q165	B 14	Q170	F 9
Q166	B 13	Q171	F 8
Q167	B 15	Q172	C 15
Q168	A 10	Q173	O 13
Q169	D 8	Q174	O 13
Q170	C 15	Q175	O 13
Q171	I 14	Q176	A 7
Q172	G 14	Q177	A 1
Q173	G 15	Q178	D 3
Q174	G 14	Q179	B 2
Q175	G 13	Q180	E 2
Q176	H 15	Q181	A 5
Q177	F 12	Q182	F 9
Q178	G 12	Q183	C 7
Q179	H 12	Q184	A 13
Q180	J 15	Q185	H 15
Q181	J 12	Q186	H 15
Q182	I 11	Q187	H 14
Q183	K 11	Q188	I 15
Q184	J 13	Q189	I 14
Q185	K 13	Q190	I 14
Q186	J 15	Q191	I 14
Q187	K 14	Q192	I 14
Q188	G 2	Q193	J 14
Q189		Q194	K 14
Q190	H 4	Q195	I 15
Q191	H 4	Q196	I 15
Q192	H 3	Q197	H 11

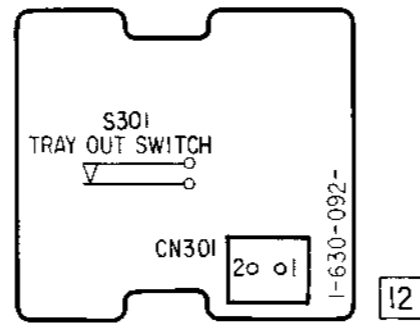
LS-17 BOARD



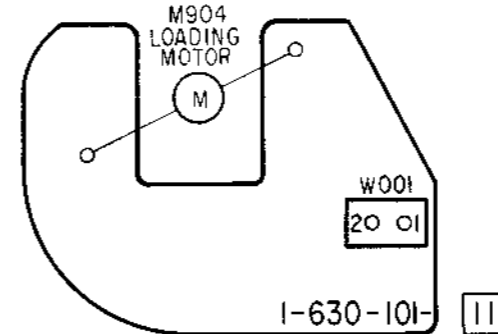
SW-107 BOARD



SW-106 BOARD



MT-29 BOARD



For printed wiring boards :

- : indicates a lead wire mounted on the component side.
- : Pattern from the side which enables seeing.
- : Jumper wire connected to the ground pattern on the component side.
- : Jumper wire connected to the pattern on the component side.

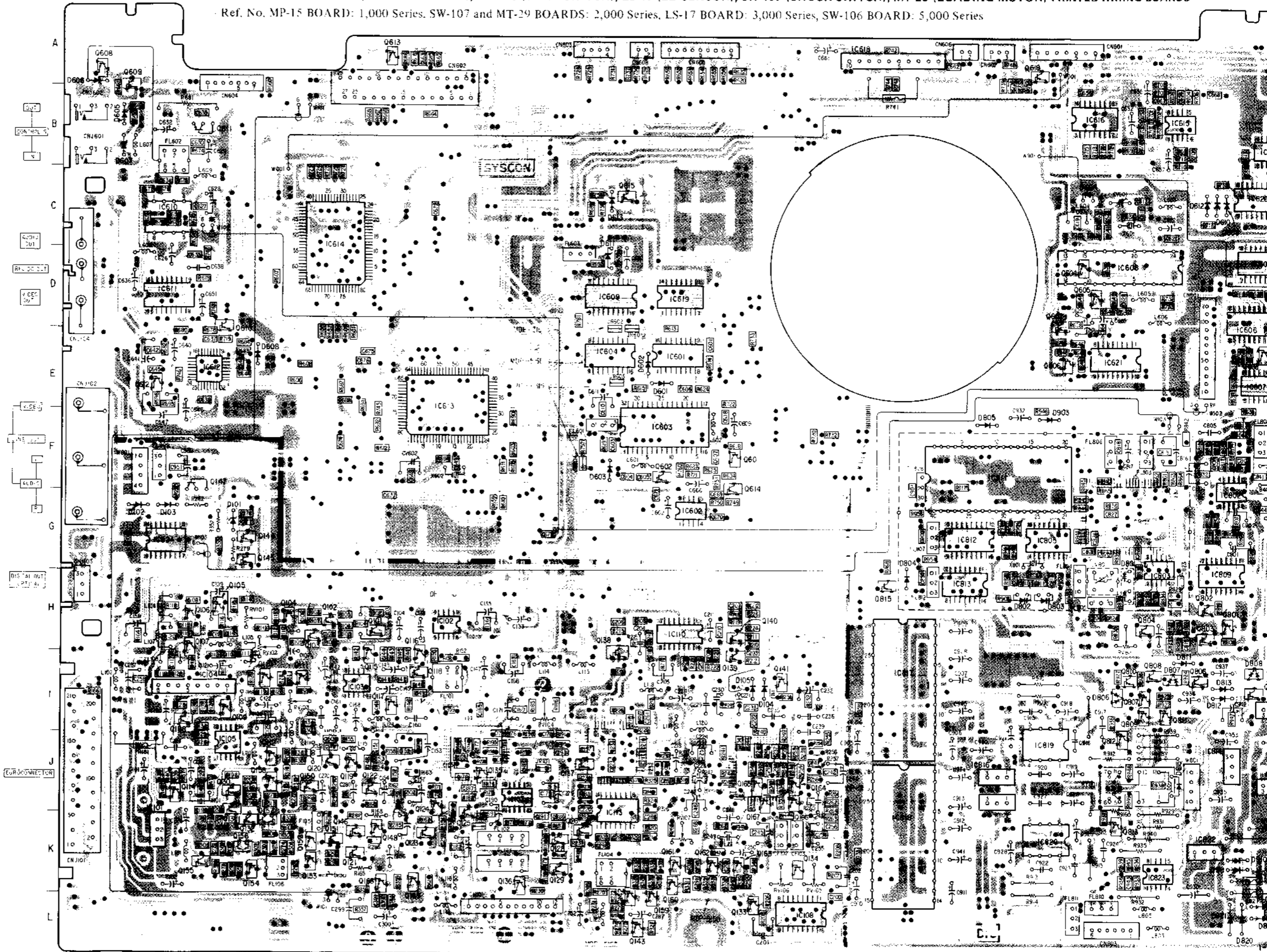
MP-15 BOARD

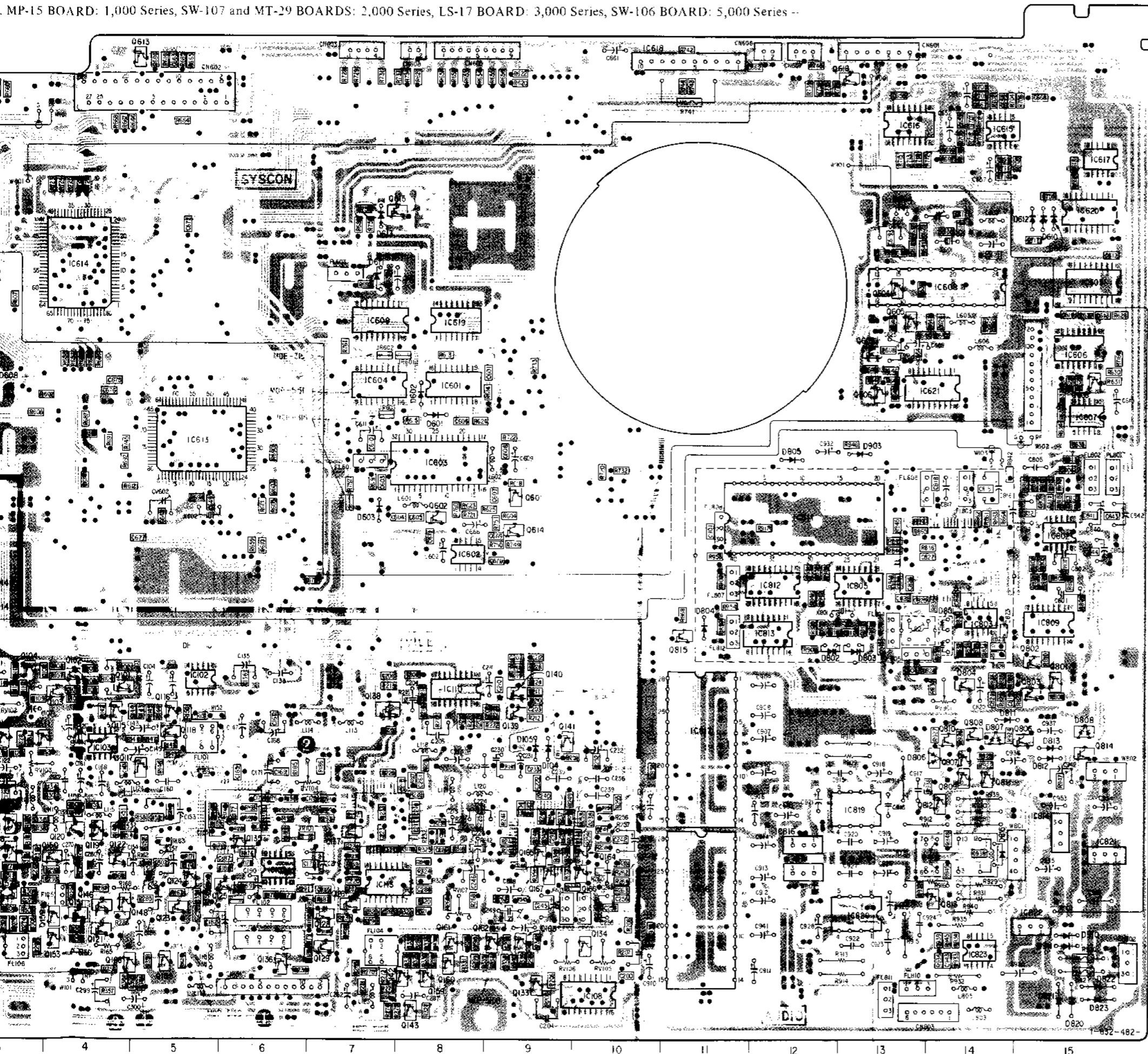
MP-15 (SYSTEM CONTROL, SPINDLE SERVO), SW-106 (TRAY SWITCH), LS-17 (LD SENSOR), SW-107 (CHUCK SWITCH), MT-29 (LOADING MOTOR) PRINTED WIRING BOARDS

Ref. No. MP-15 BOARD: 1,000 Series, SW-107 and MT-29 BOARDS: 2,000 Series, LS-17 BOARD: 3,000 Series, SW-106 BOARD: 5,000 Series

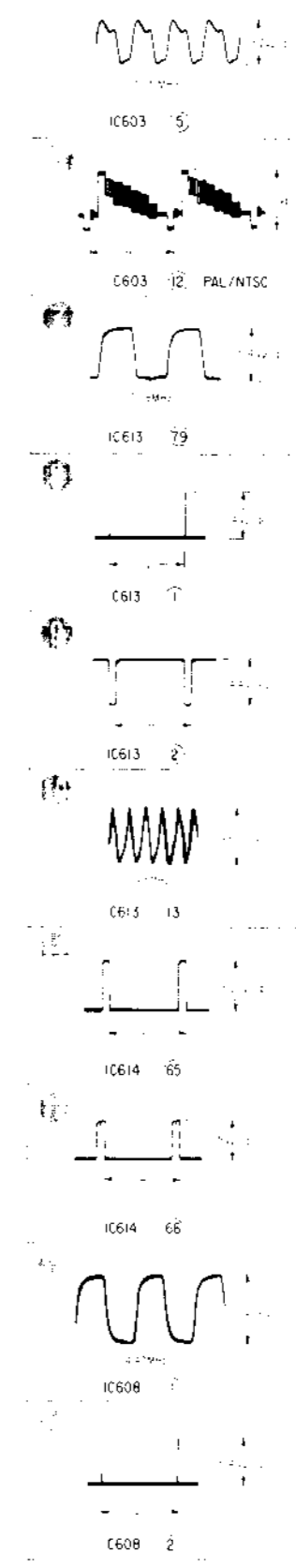
MP 15 BOARD

Q101	G 3	Q105	H 7
D102	G 1	Q106	H 2
D103	G 2	Q107	H 2
D104	F 9	Q104	I 2
D105	I 9	Q109	I 3
D601	E 8	Q110	I 3
D602	E 8	Q111	I 3
D603	F 7	Q112	J 3
D604	C 13	Q114	J 2
D605	B 1	Q115	I 4
D606	A 1	Q116	I 5
D607	B 1	Q117	I 5
D608	F 3	Q118	I 5
D609	C 15	Q119	J 4
D610	C 15	Q120	J 4
D611	D 7	Q121	K 4
D612	C 15	Q122	J 4
D613	C 7	Q123	K 5
D801	G 14	Q124	J 5
D802	H 12	Q125	K 6
D803	H 13	Q126	K 7
D804	G 11	Q128	K 7
D805	F 12	Q129	K 7
D806	I 14	Q130	J 3
D807	I 14	Q131	J 3
D808	I 15	Q132	K 3
D811	I 14	Q133	I 9
D812	I 15	Q134	K 10
D813	I 15	Q135	J 6
D815	J 14	Q136	K 6
D820	I 15	Q137	J 6
D821	L 15	Q138	H 1
D822	K 15	Q139	I 9
D823	I 15	Q140	H 9
D903	I 13	Q141	I 9
D910	K 15	Q142	I 8
D911	K 15	Q143	I 6
		Q144	G 3
		Q145	G 3
IC101	K 2	Q146	K 4
IC102	H 5	Q147	I 2
IC103	I 4	Q148	K 4
IC104	F 2	Q149	K 4
IC105	J 3	Q150	J 4
IC106	J 6	Q151	K 4
IC107	J 6	Q152	K 4
IC108	L 10	Q153	K 4
IC109	J 8	Q154	K 3
IC110	H 8	Q155	K 2
IC111	J 10	Q156	K 1
IC113	J 7	Q157	K 3
IC601	D 8	Q158	J 3
IC602	G 8	Q159	I 8
IC603	F 8	Q160	K 8
IC604	F 7	Q161	K 8
IC605	D 15	Q162	K 9
IC606	D 15	Q163	K 9
IC607	E 15	Q164	J 10
IC608	O 14	Q165	J 9
IC609	D 7	Q166	J 10
IC610	C 2	Q167	J 9
IC611	D 2	Q168	K 4
IC612	E 2	Q169	K 5
IC613	E 5	Q601	F 9
IC614	C 4	Q602	F 8
IC615	B 14	Q603	E 15
IC616	B 13	Q604	O 13
IC617	B 15	Q605	D 13
IC618	A 10	Q606	E 13
IC619	D 8	Q607	D 13
IC620	C 15	Q608	A 1
IC621	E 14	Q609	A 1
IC801	G 14	Q610	D 3
IC802	G 15	Q611	B 2
IC803	G 14	Q612	E 2
IC805	G 13	Q613	A 5
IC809	H 15	Q614	F 9
IC811	F 12	Q615	C 7
IC812	G 12	Q616	A 13
IC813	H 12	Q801	H 15
IC814	J 15	Q802	H 15
IC816	J 12	Q803	H 15
IC817	I 11	Q804	H 14
IC818	K 11	Q805	I 15
IC819	J 13	Q807	I 14
IC820	K 13	Q808	I 14
IC821	J 15	Q809	I 14
IC822	K 15	Q810	I 14
IC823	K 14	Q811	I 14
IC874	G 2	Q812	J 14
		Q813	K 14
Q102	H 4	Q814	I 15
Q103	H 4	Q815	H 11
Q104	H 3		

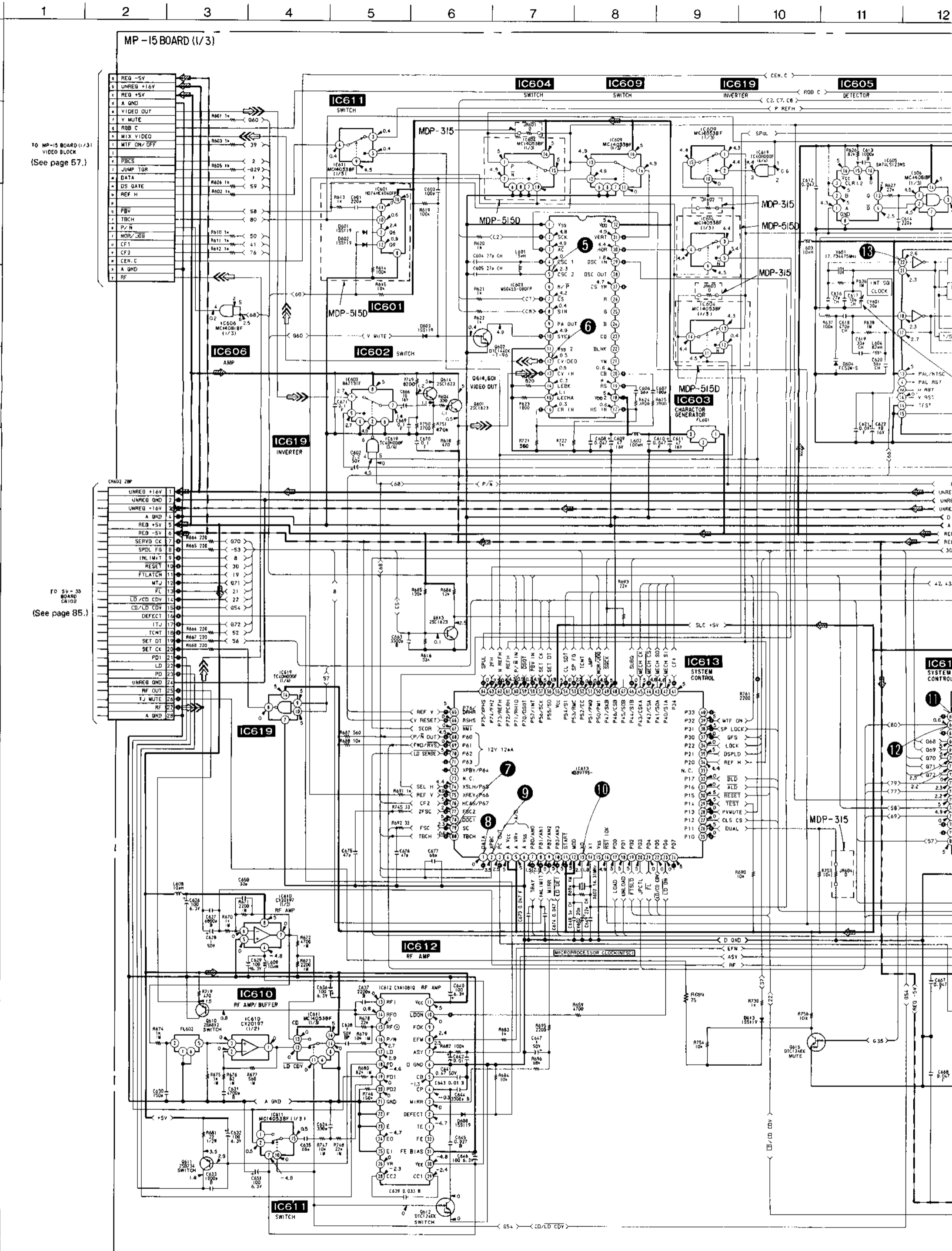


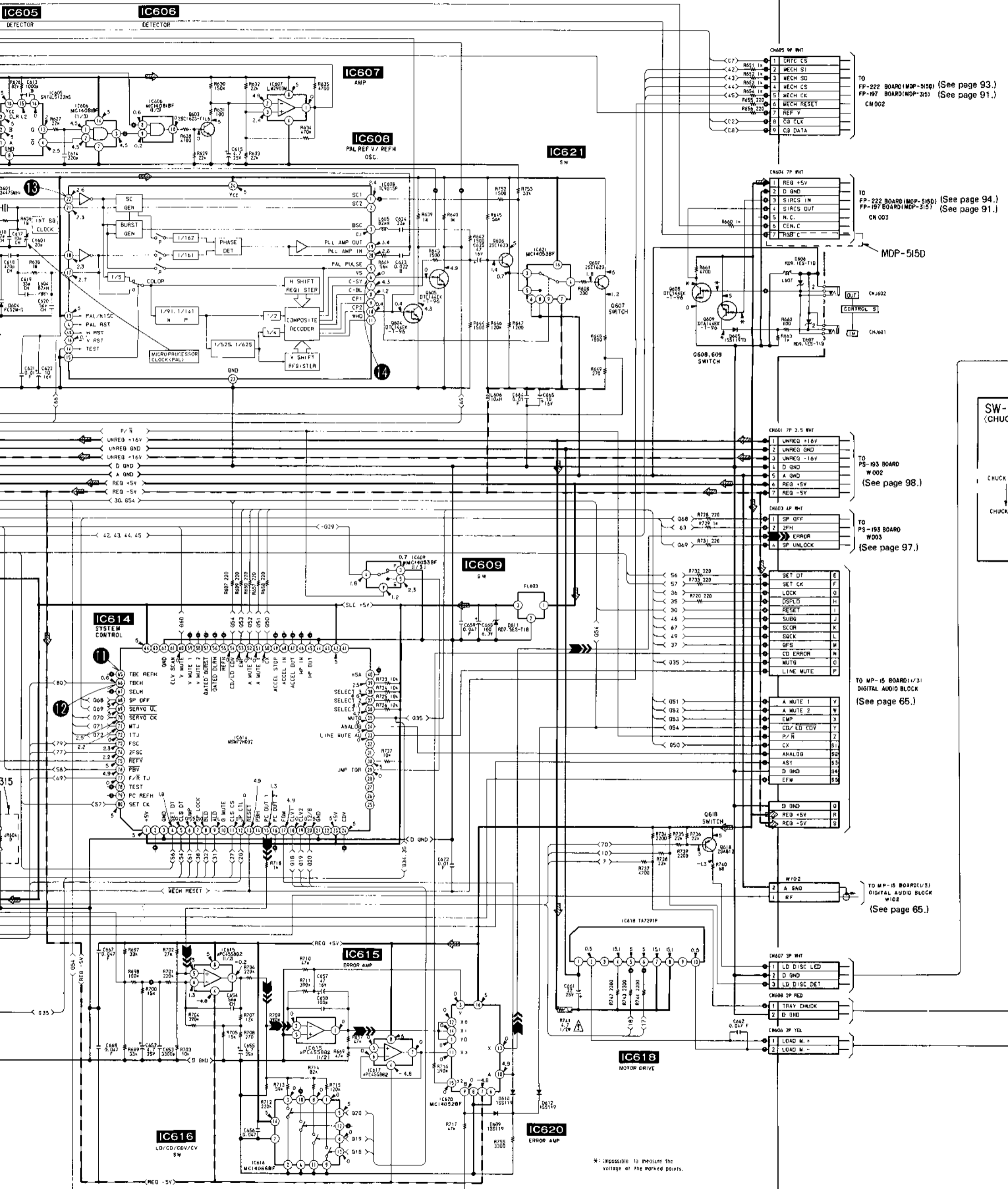


MP-15 BOARD (SYSCON)









TO FP-222 BOARD (MDP-515D) (See page 93.)  
 FP-197 BOARD (MDP-315) (See page 91.)  
 CN002

TO FP-222 BOARD (MDP-515D) (See page 94.)  
 FP-197 BOARD (MDP-315) (See page 91.)  
 CN003

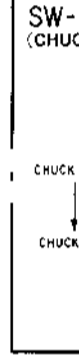
MDP-515D

TO PS-193 BOARD  
 W002  
 (See page 98.)

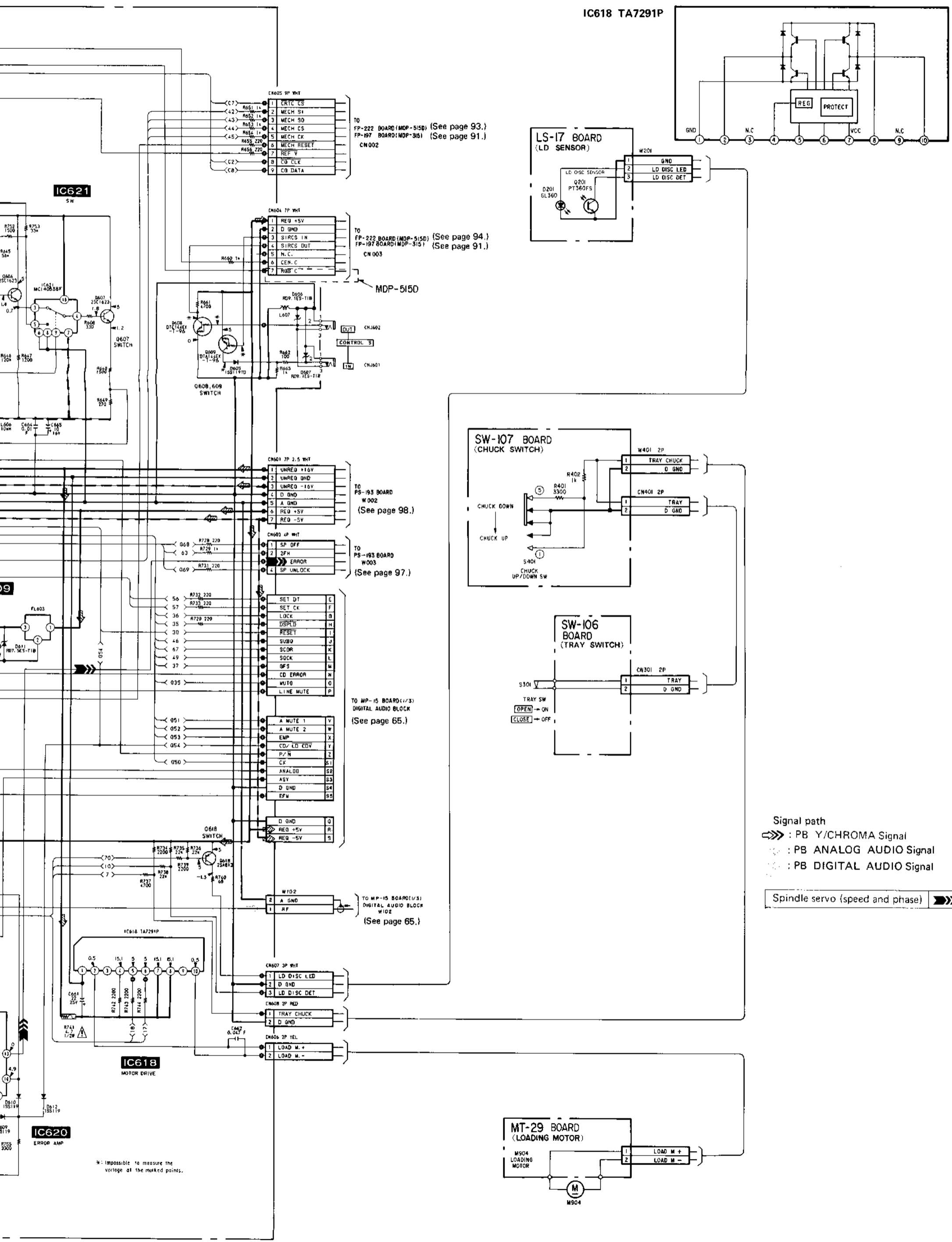
TO PS-193 BOARD  
 W003  
 (See page 97.)

TO MP-15 BOARD (1/3)  
 DIGITAL AUDIO BLOCK  
 (See page 65.)

TO MP-15 BOARD (1/3)  
 DIGITAL AUDIO BLOCK  
 W102  
 (See page 65.)



\*: impossible to measure the voltage at the marked points.



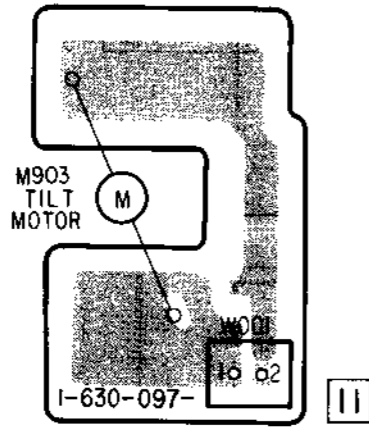
\*: impossible to measure the voltage at the marked points.

Signal path  
 ———▶ : PB Y/CHROMA Signal  
 - - - -▶ : PB ANALOG AUDIO Signal  
 ·····▶ : PB DIGITAL AUDIO Signal  
 ———▶ : Spindle servo (speed and phase)



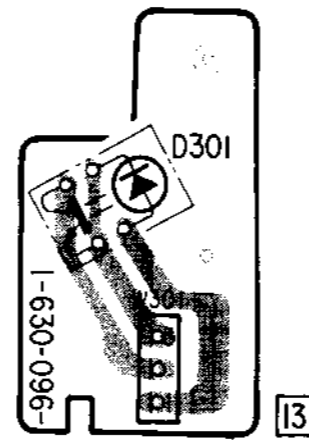
SV-33 BOARD

MT-28 BOARD



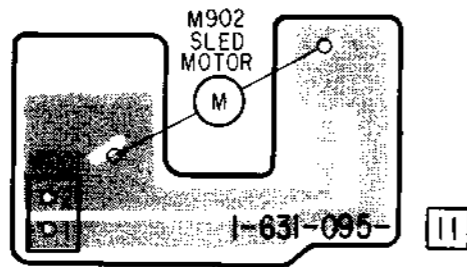
11

FG-13 BOARD



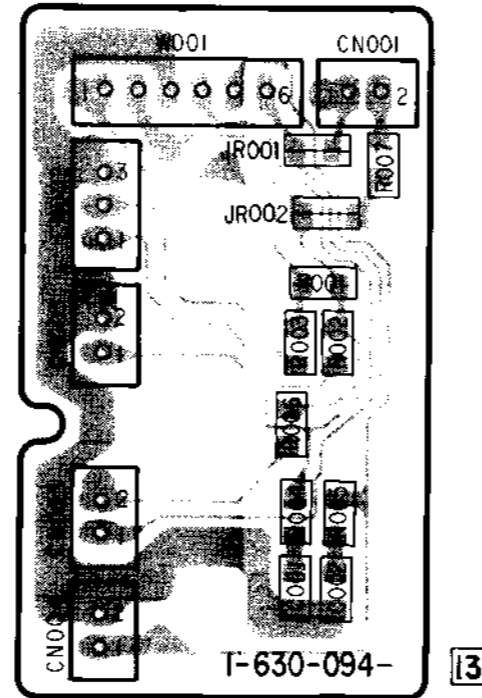
13

MT-30 BOARD



11

CK-14 BOARD

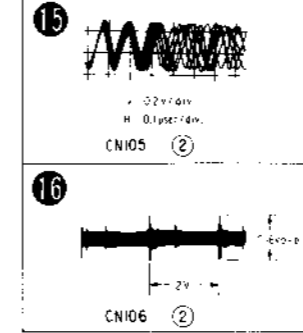


13

For printed wiring boards :

- ○ — : indicates a lead wire mounted on the component side.
- ■ — : Pattern from the side which enables seeing.
- ▨ — : Pattern of the rear side.
- ● — : Circled numbers refer to waveforms.
- ○ — ○ : Jumper wire connected to the ground pattern on the component side.
- ○ — ○ : Jumper wire connected to the pattern on the component side.

SV-33 BOARD (SERVO)

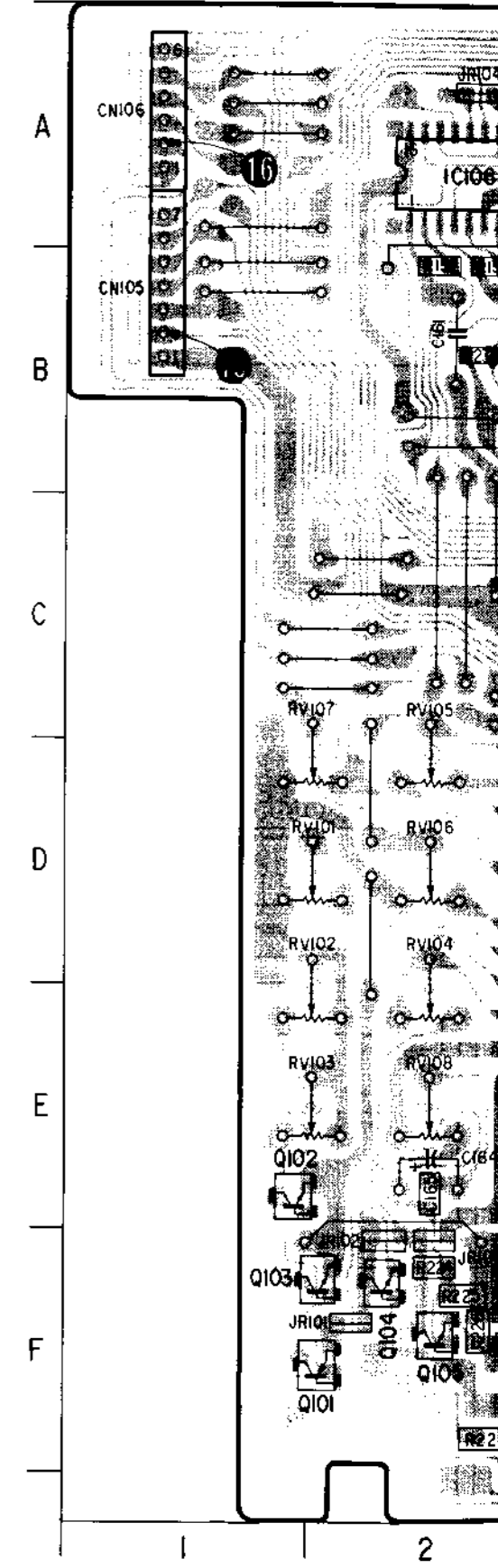


SV-33 BOARD

D101 E-5  
D102 B-6  
D103 C-4

IC102 B-4  
IC103 D-4  
IC104 D-5  
IC106 A-2  
IC107 B-6  
IC108 A-6  
IC109 B-8  
IC110 A-8  
IC111 C-6

Q101 F-2  
Q102 E-1  
Q103 F-2  
Q104 F-2  
Q105 F-2  
Q106 B-6  
Q107 E-3



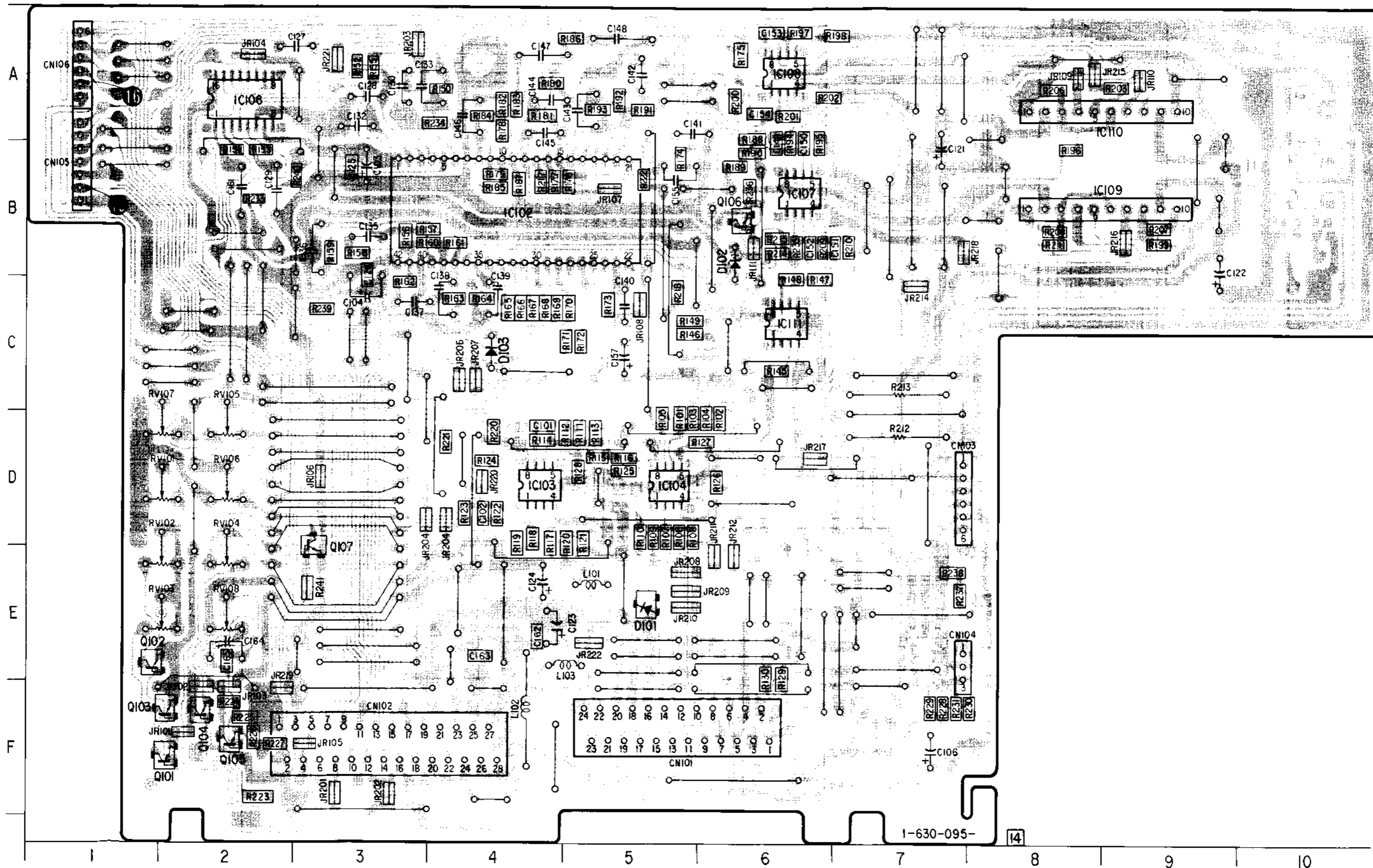
SV-33 (SERVO), FG-13 (SPINDLE FG), CK-14 (MOTOR RELAY), MT-30 (TILT MOTOR), MT-28 (SLED MOTOR) PRINTED WIRING BOARDS

- Ref. No. SV-33 and CK-14 BOARDS: 7,000 Series, MT-30 BOARD: 5,000 Series, FG-13 and MT-28 BOARDS: 3,000 Series -

SV-33 BOARD

- SV-33 BOARD
- Q101 E-5
  - D102 B-6
  - D103 C-4
  - IC102 B-4
  - IC103 D-4
  - IC104 D-5
  - IC106 A-2
  - IC107 B-6
  - IC108 A-6
  - IC109 B-8
  - IC110 A-8
  - IC111 C-6

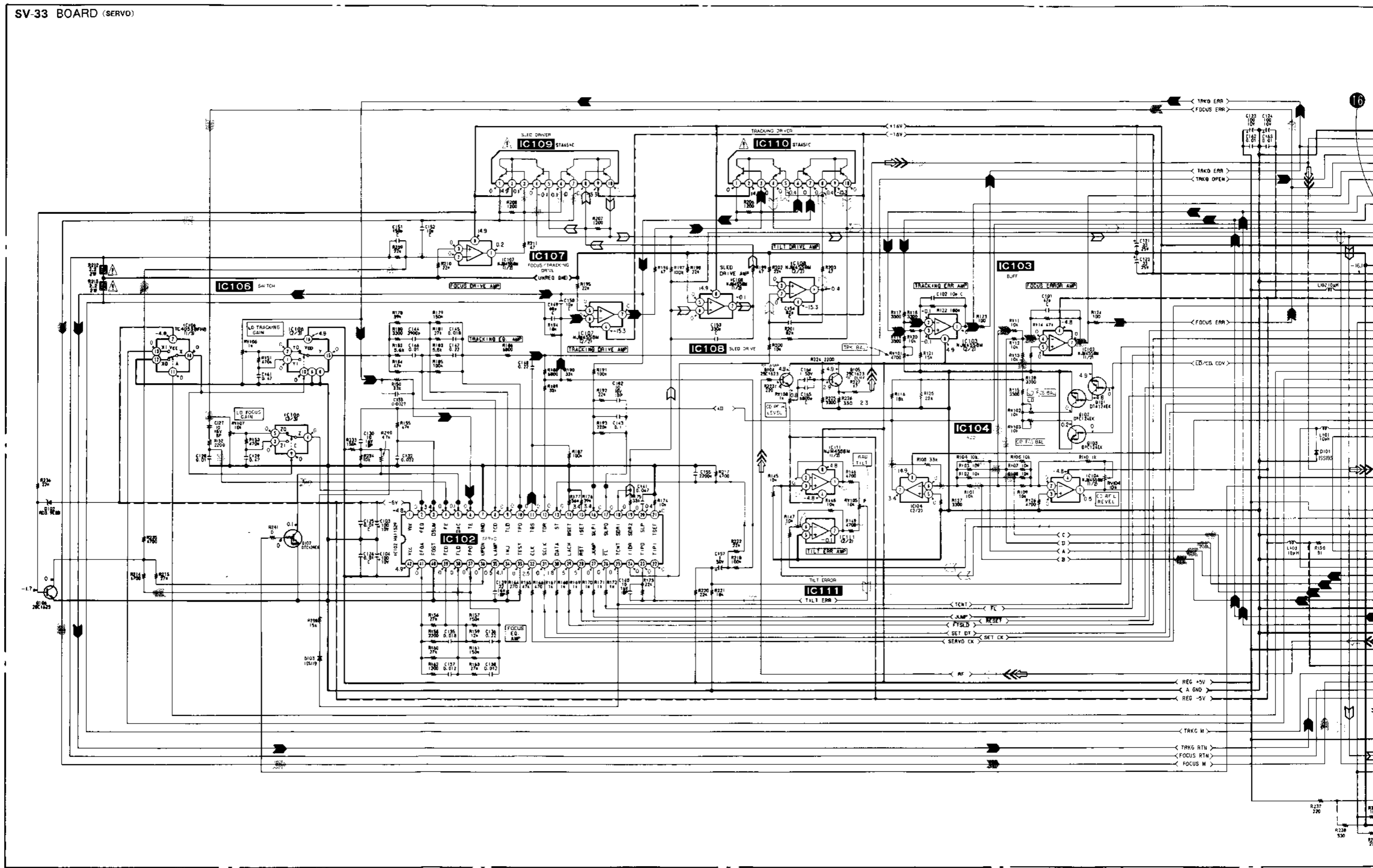
- Q101 F-2
- Q102 E-1
- Q103 F-2
- Q104 F-2
- Q105 F-2
- Q106 B-6
- Q107 E-3

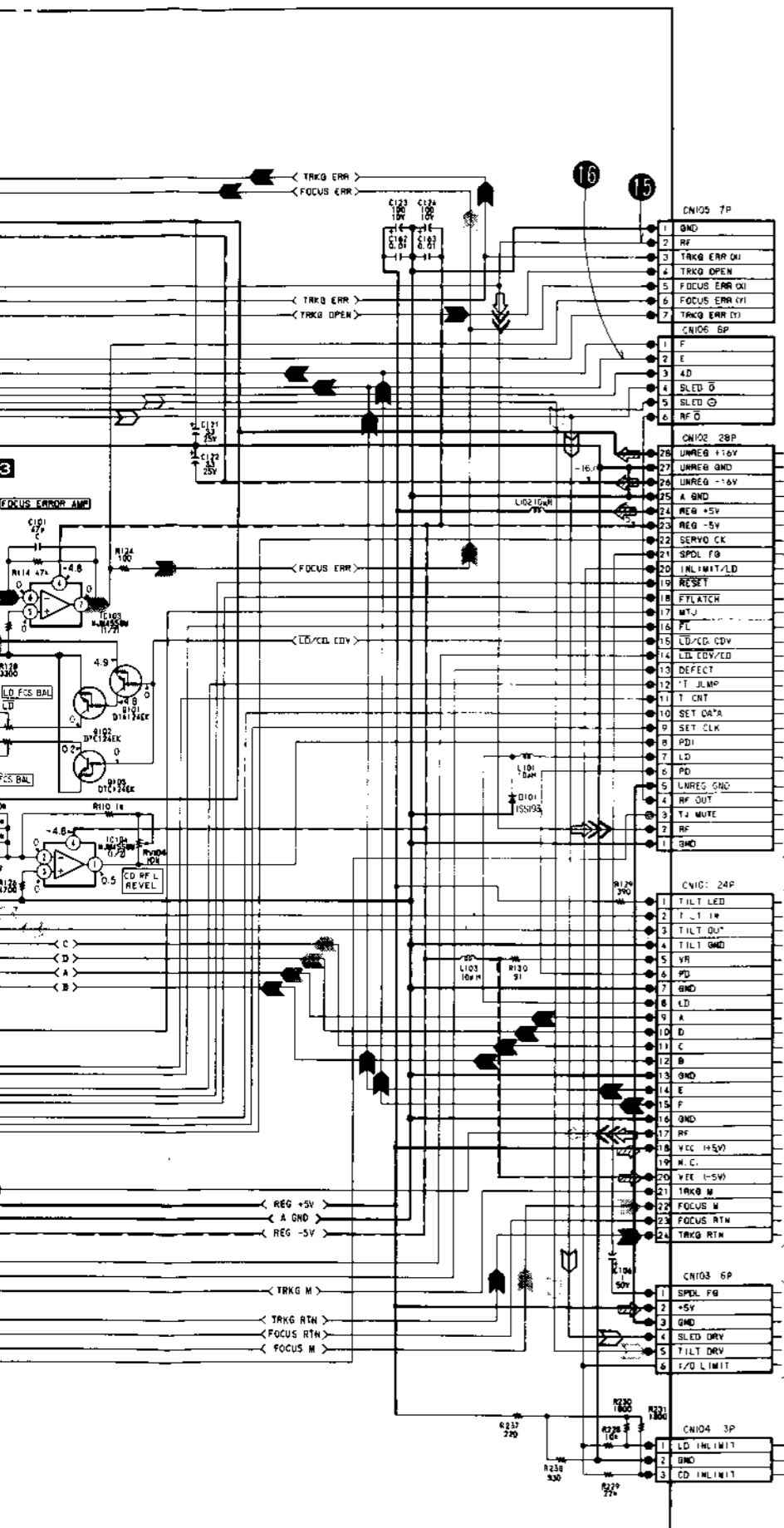


1-630-095-14

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

A  
B  
C  
D  
E  
F  
G  
H  
I  
J





Signal apth

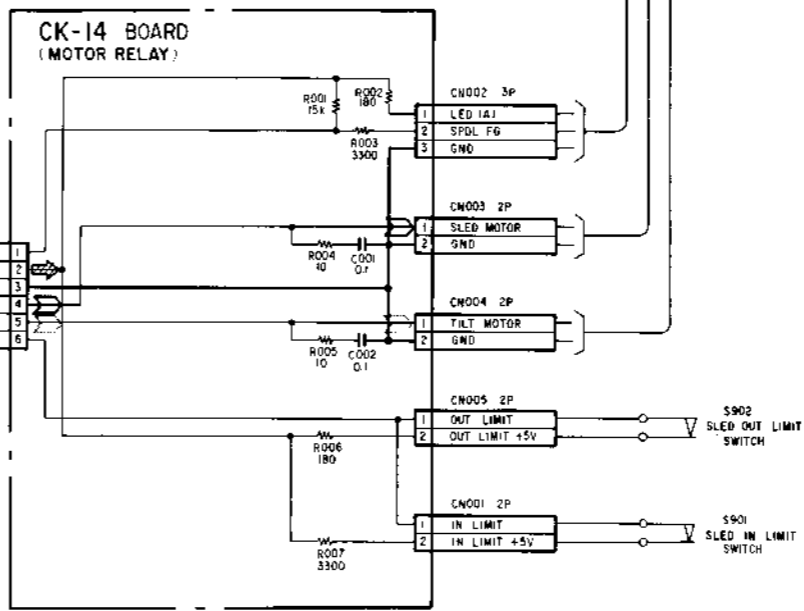
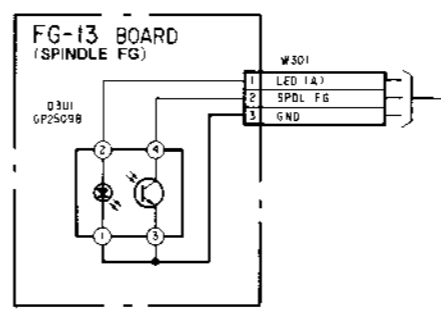
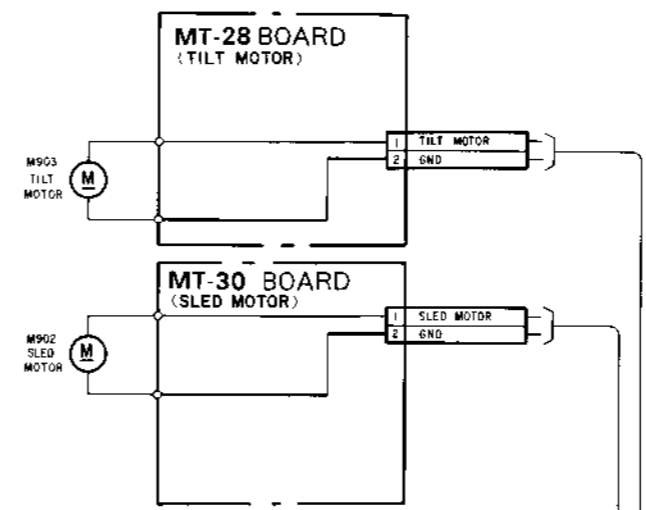
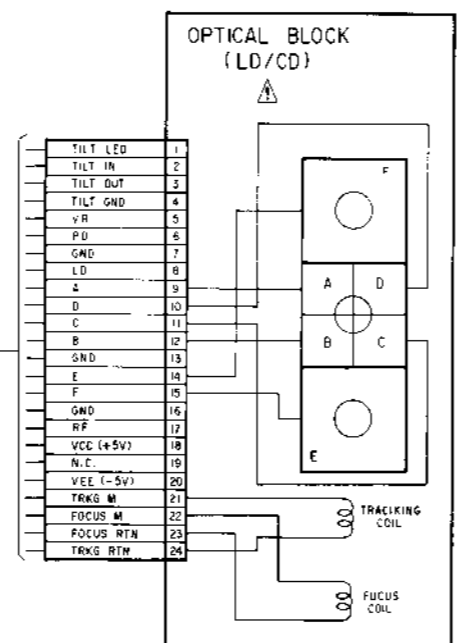
➡ : PB Y/CHROMA Signal

↔ : PB ANALOG AUDIO Signal

Tracking servo	➡
Slide servo	↔
Focus servo	➡
TILT SERVO	↔

Note: The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

TO MP-13 BOARD  
CN662  
(See page 75.)



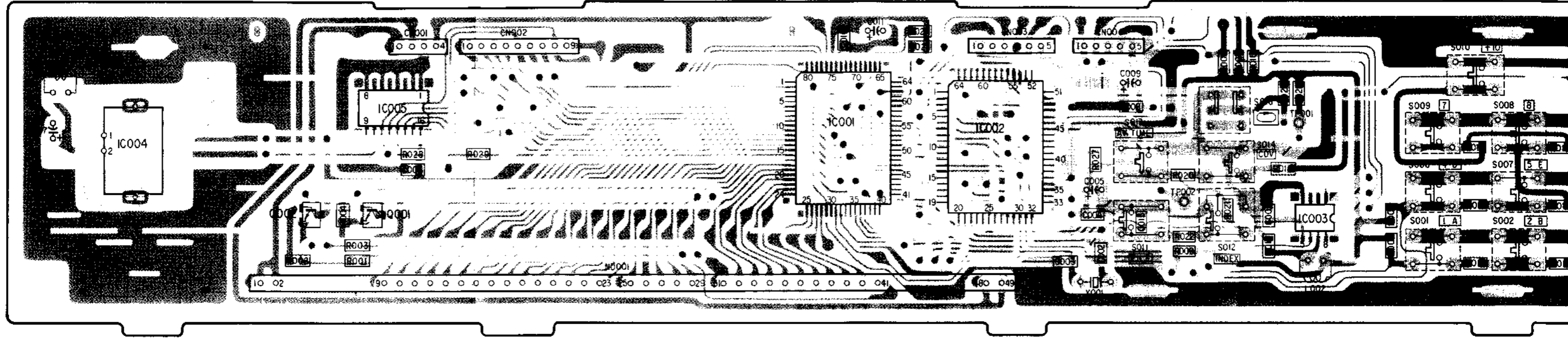
SERVO SERVO

(MDP-315 Model only)

FG-197 (MODE/FUNCTION CONTROL), FP-198 (FUNCTION SWITCH) PRINTED WIRING BOARDS

- Ref. No. FP-197 BOARD: 4,000 Series, FP-198 BOARD: 5,000 Series -

FP-197 BOARD

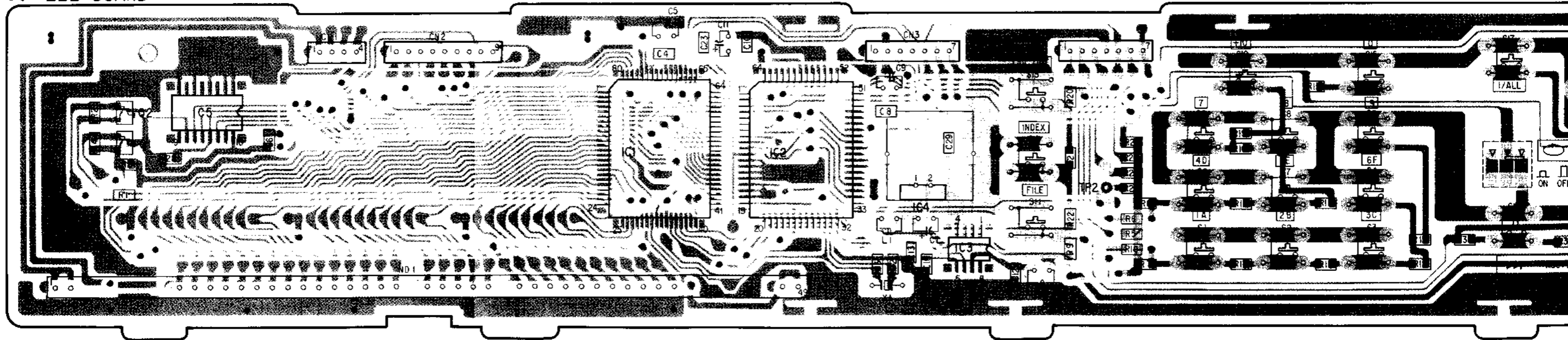


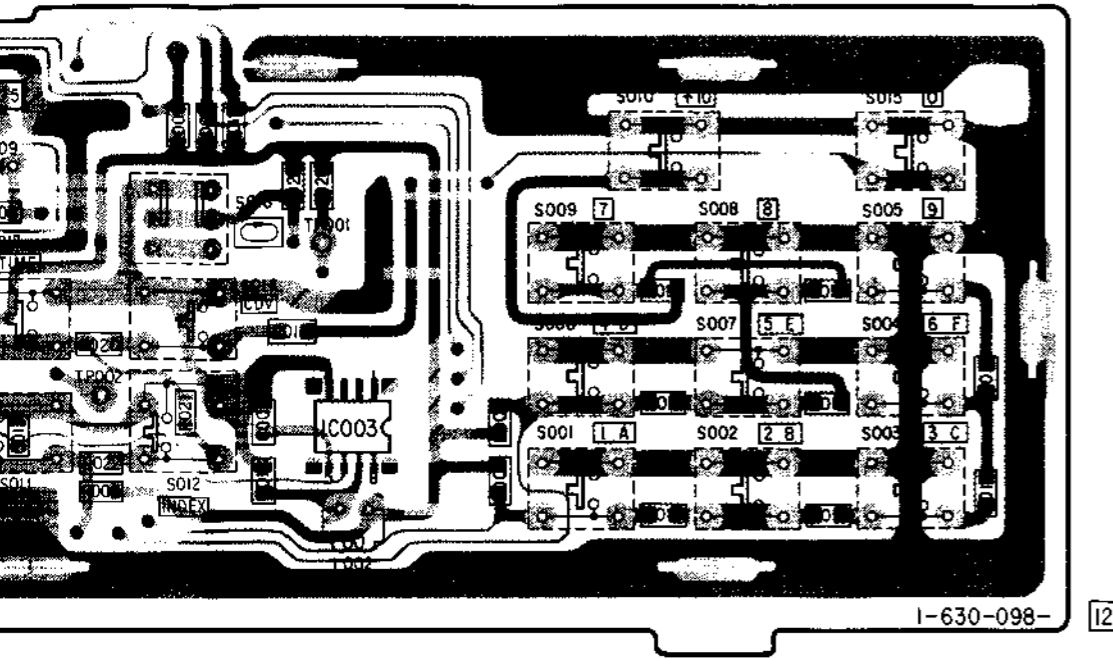
(MDP-515D Model only)

FP-222 (MODE/FUNCTION CONTROL), FP-223 (FUNCTION SWITCH) PRINTED WIRING BOARDS

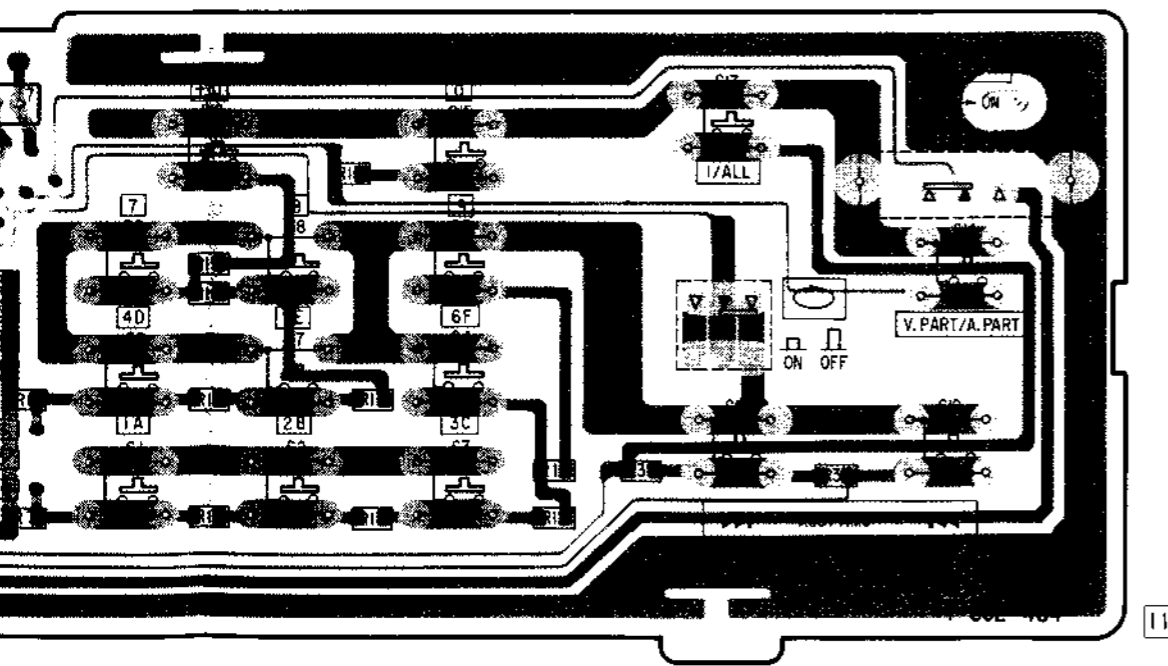
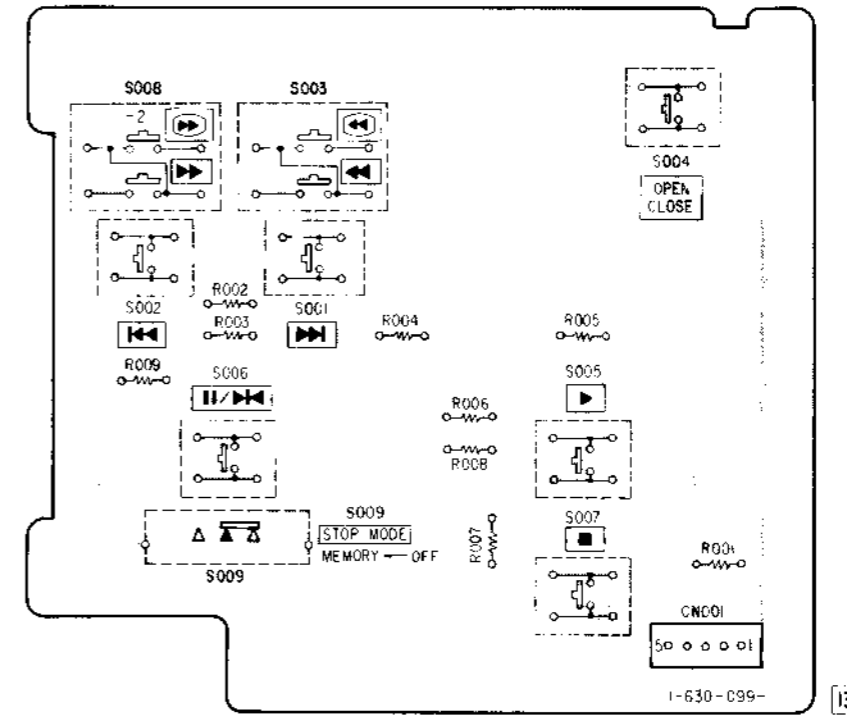
- Ref. No. FP-222 BOARD: 4,000 Series, FP-223 BOARD: 5,000 Series -

FP-222 BOARD

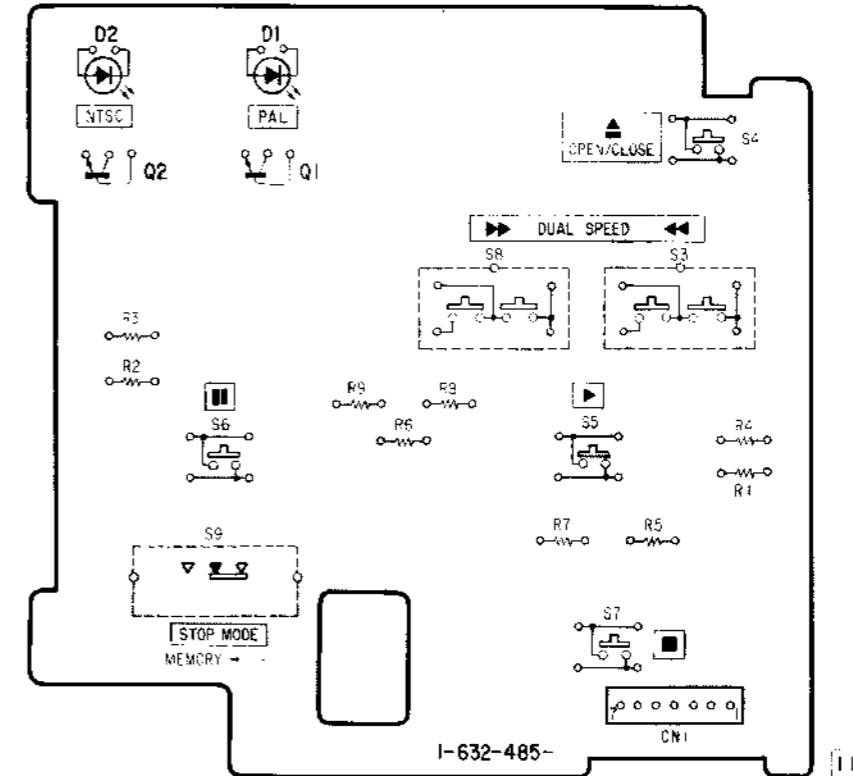


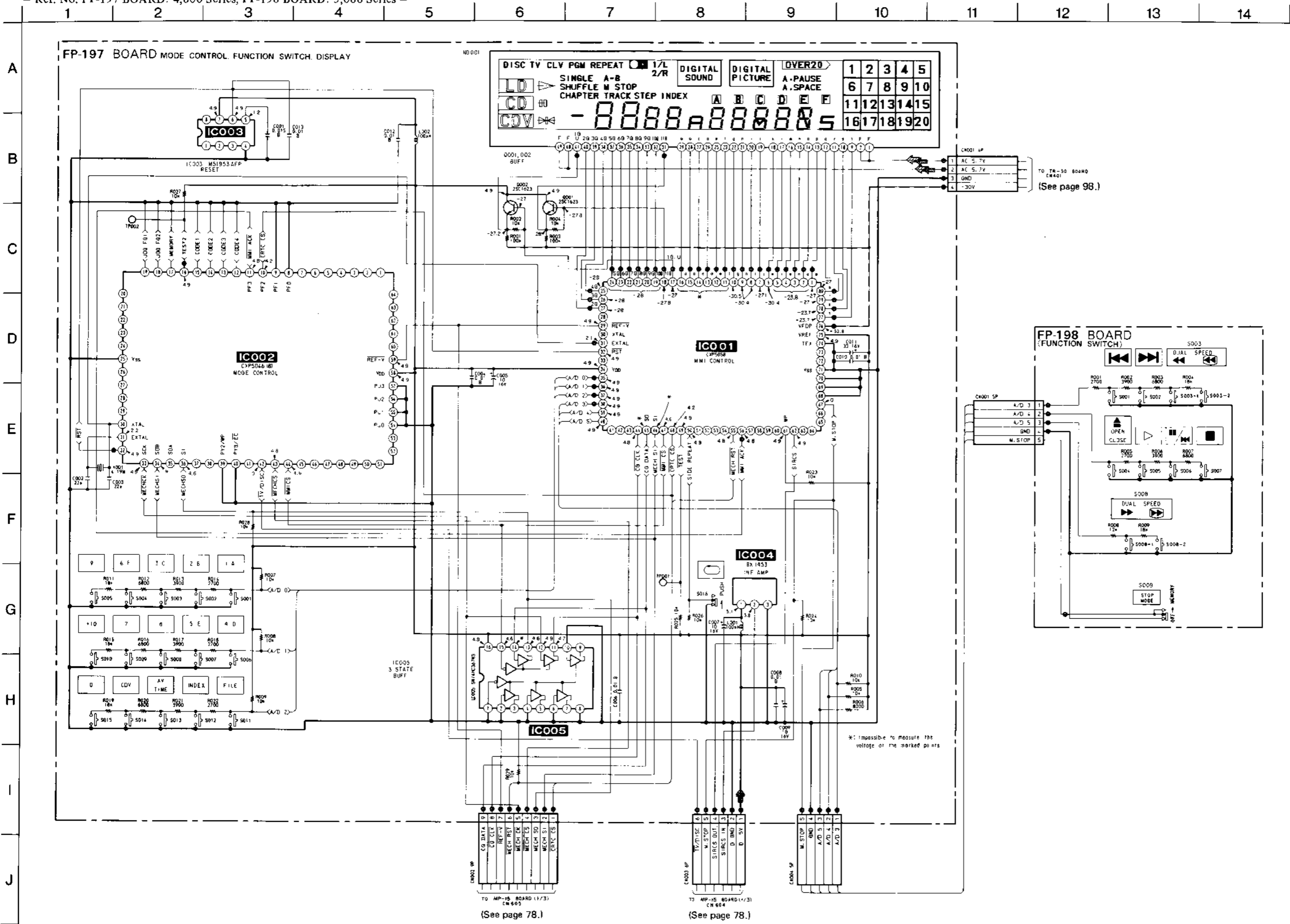


FP-198 BOARD (CONDUCTOR SIDE)

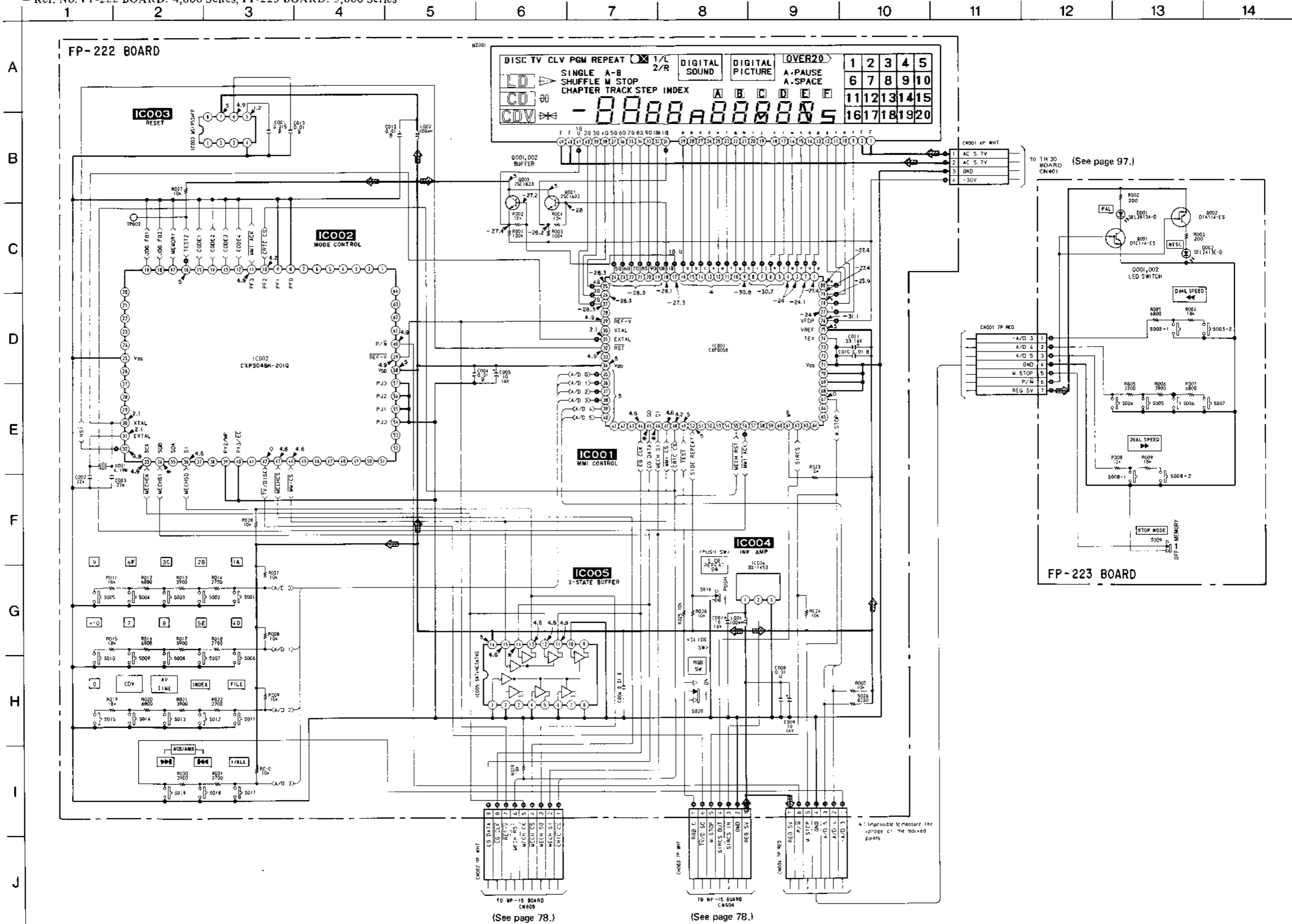


FP - 223 BOARD (CONDUCTOR SIDE)









A  
B  
C  
D  
E  
F  
G  
H  
I  
J

FP-222 BOARD

(See page 97.)

FP-223 BOARD

(See page 78.)

(See page 78.)

\* Impossible to measure the voltage at the marked points

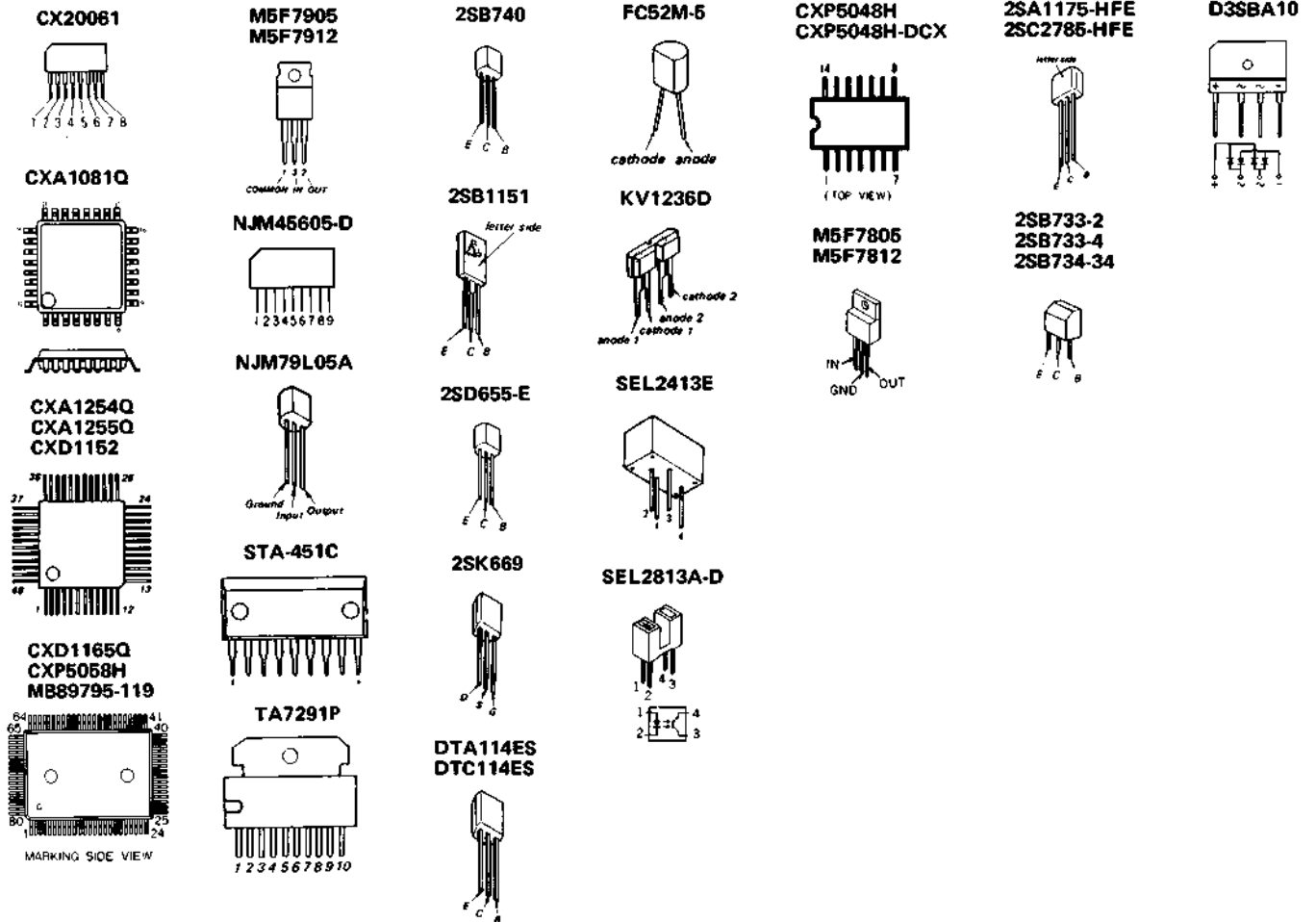
FUNCTION DISPLAY FUNCTION DISPLAY







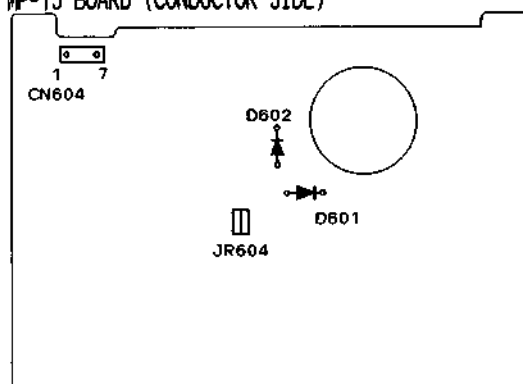
## SEMICONDUCTORS



### Precautions for replacement of MP-15 BOARD

As a repair part of MP-15 BOARD only MP-15 BOARD for the MDP-515D is supplied. To mount this type board on the MDP-315, the following arrangement should be made:

#### MP-15 BOARD (CONDUCTOR SIDE)



1. Plug the connector from FP-197 BOARD into CN604 aligning ①-pin sides of them.
2. Remove D601 and D602.
3. Mount JR604 (0Ω).

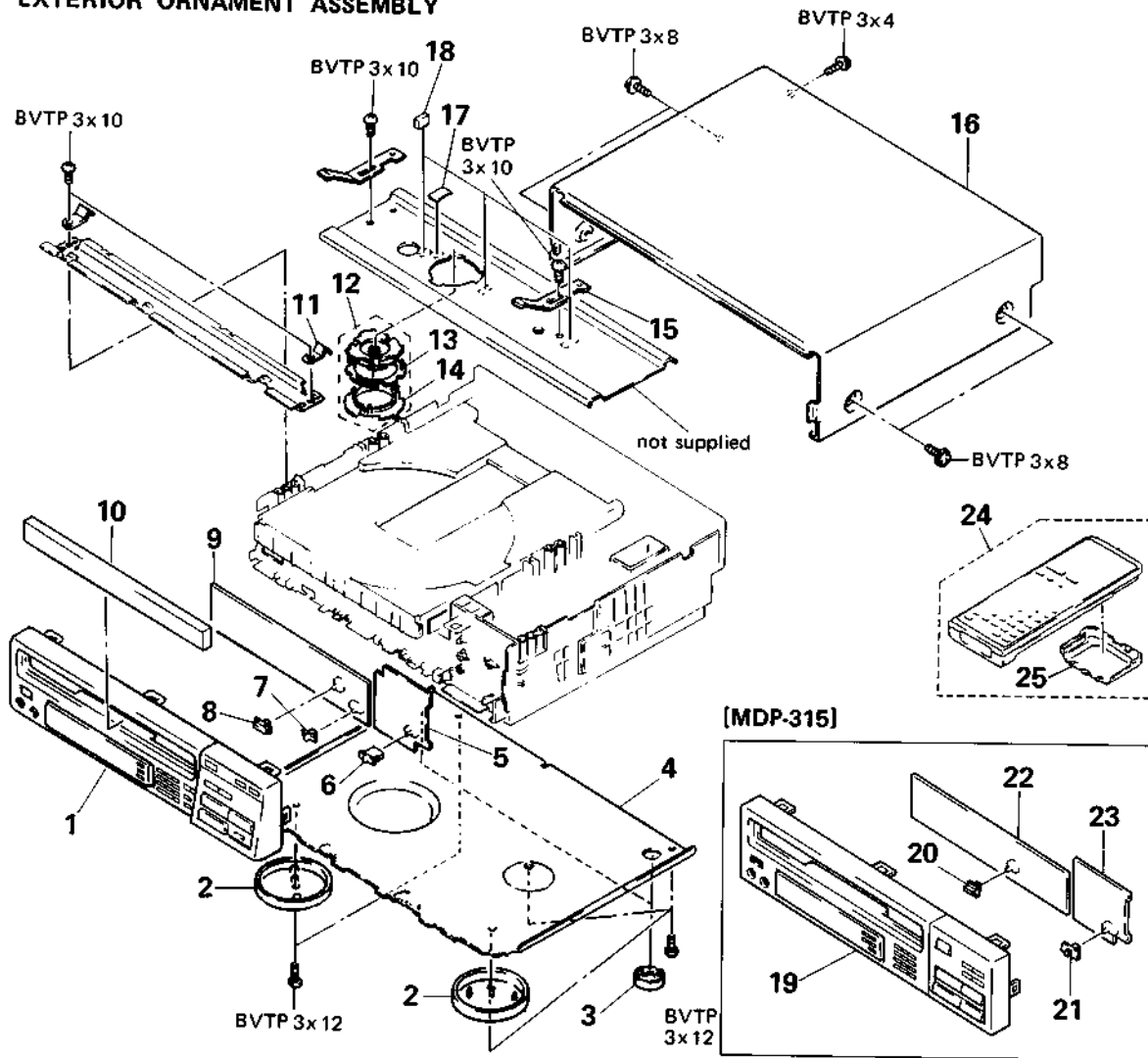
## SECTION 5 EXPLODED VIEWS

**NOTE:**

- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Due to standardization, parts with part number suffix -XX and -X may be different from the parts specified in the components used on the set.

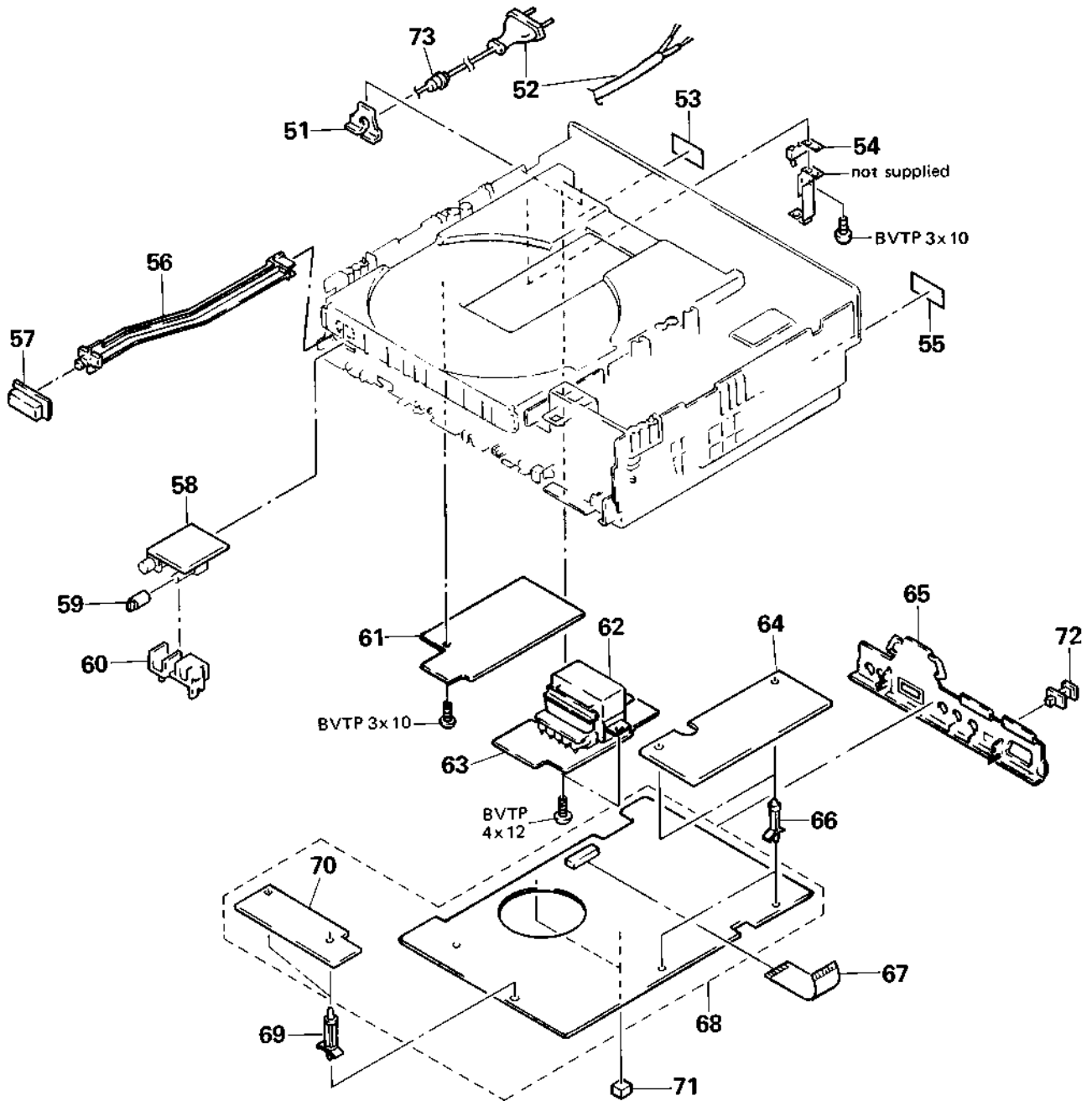
The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

### 5-1. EXTERIOR ORNAMENT ASSEMBLY



No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
1	X-3735-036-1	PANEL ASSY, FRONT (MDP-515D)		14	3-735-010-01	PLATE (1), PRESS	
2	X-3735-007-1	FOOT ASSY (L)		15	3-735-089-01	SPRING	
3	X-3318-955-1	FOOT ASSY (S)		16	*3-735-065-01	CASE, UPPER	
4	*3-735-075-01	PLATE, BOTTOM		17	*3-737-454-01	SHEET, HOLDER	
5	*A-6421-375-A	FP-223 BOARD, COMPLETE (MDP-515D)		18	*9-911-842-XX	CUSHION	
6	3-737-464-01	CAP, M/ST (MDP-515D)		19	X-3735-037-1	PANEL ASSY, FRONT (MDP-315)	
7	3-737-418-01	KNOB, M.STOP (MDP-515D)		20	3-735-045-01	KNOB, A/REPEAT (MDP-315)	
8	3-737-425-01	KNOB, A/REPEAT (MDP-515D)		21	3-735-004-01	KNOB, M.STOP (MDP-315)	
9	*A-6421-374-A	FP-222 BOARD, COMPLETE (MDP-515D)		22	*A-6421-368-A	FP-197 BOARD, COMPLETE (MDP-315)	
10	3-737-467-01	COVER, TRAY		23	*1-630-099-11	FP-198 BOARD (MDP-315)	
11	3-735-090-01	SPRING		24	1-465-161-31	REMOTE COMMANDER (RMT-515D)	25
12	X-3735-006-1	PLATE ASSY, PRESS	13, 14	25	3-707-584-01	LID, BATTERY	
13	3-735-011-01	SPRING					

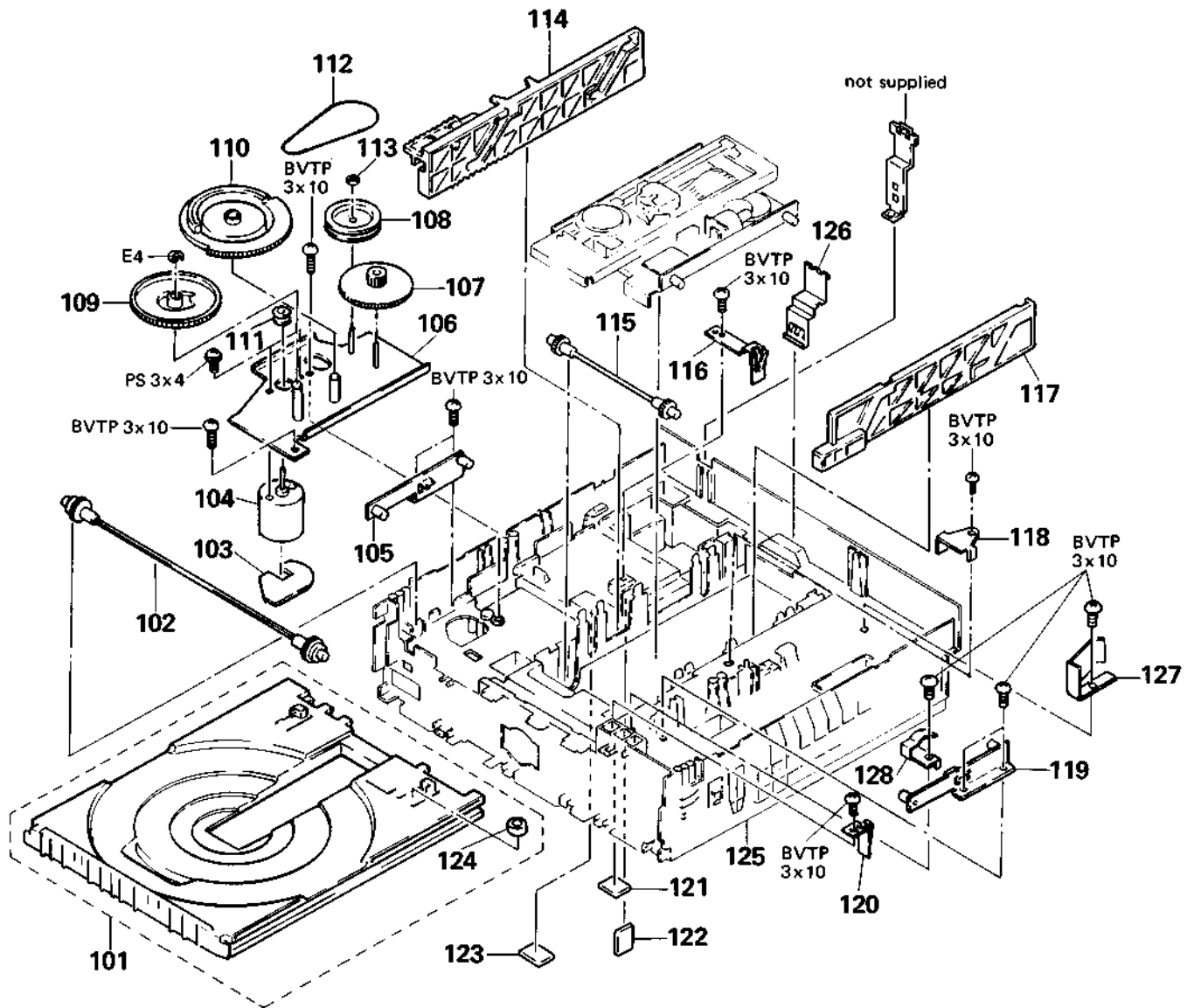
## 5-2. FRAME ASSEMBLY (1)



No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
51	*3-737-438-01	BRACKET, AC CORD		62	▲.1-449-849-11	TRANSFORMER, POWER (T401)	
52	▲.1-551-908-61	CORD, POWER, EULO PLUG (AEP MODEL)		63	*1-630-089-31	TR-30 BOARD	
	▲.1-551-884-32	CORD, POWER (AUS MODEL)		64	*A-6421-370-A	RG-6 BOARD, COMPLETE (MDP-515D)	
53	*3-737-462-11	LABEL, MODEL NUMBER (MDP-515D) (AEP MODEL)		65	X-3735-034-1	PLATE (P) ASSY, JACK	
	*3-737-474-11	LABEL, MODEL NUMBER (MDP-315)		66	*3-703-353-08	SUPPORTER, PC BOARD (MDP-515D)	
	*3-737-486-01	LABEL, MODEL NUMBER (AUS MODEL)		67	*1-574-755-11	WIRE, FLAT TYPE 28P	
54	3-735-091-01	SPRING		68	*A-6421-369-A	MP-15 BOARD, COMPLETE	70
55	*4-885-838-00	LABEL, CLASS 1		69	*3-703-353-08	SUPPORTER, PC BOARD	
56	3-735-050-01	LEVER, POWER SW		70	*A-6421-371-A	AF-52 BOARD, COMPLETE	
57	3-735-051-01	BUTTON, POWER		71	9-911-843-XX	CUSHION	
58	*1-630-090-11	HP-50 BOARD		72	8-759-977-71	COVER, OPTICAL JACK	
59	4-922-531-01	KNOB (A TYPE), LOW		73	3-699-708-01	BUSHING, CORD (AUS MODEL)	
60	3-735-057-01	HOLDER, HP					
61	*A-6421-372-A	PS-193 BOARD, COMPLETE					

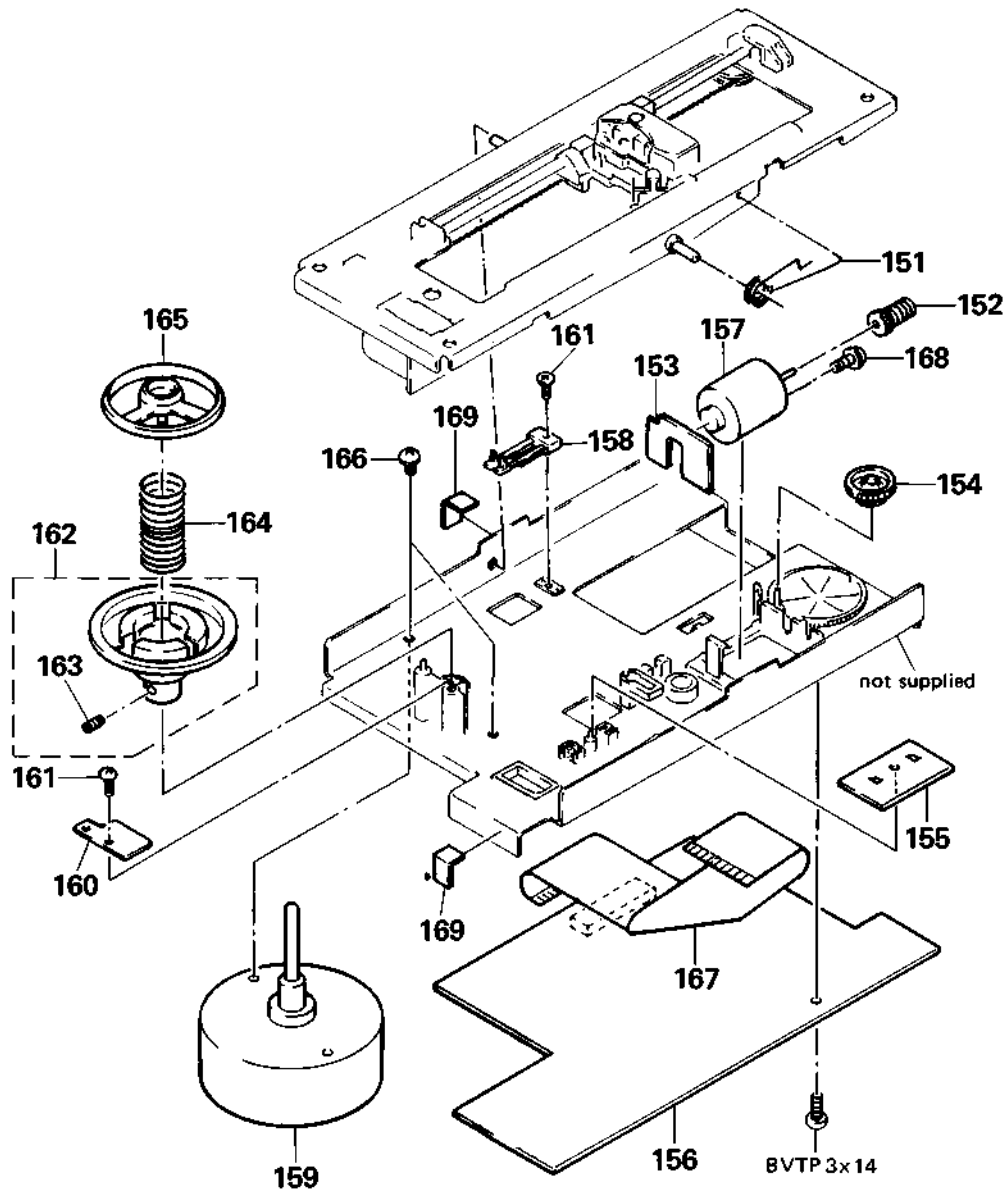
**Note:** The components identified by mark ▲ or dotted line with mark ▲ are critical for safety. Replace only with part number specified.

### 5-3. FRAME ASSEMBLY (2)



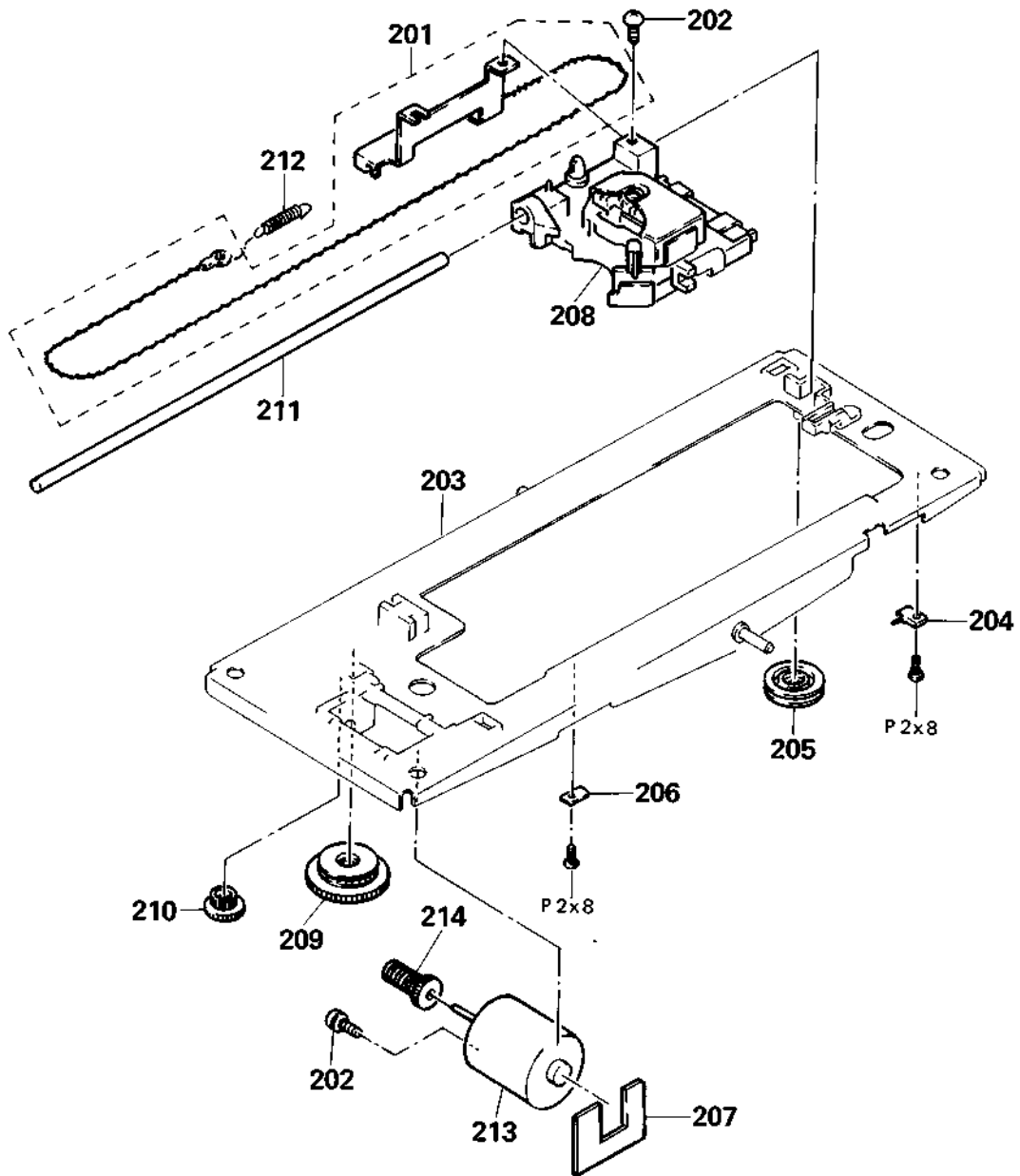
No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
101	X-3735-032-2	TRAY ASSY		115	X-3735-008-1	GEAR ASSY, MD PHASE	
102	X-3735-009-1	GEAR ASSY, PHASE	124	116	3-737-401-01	SPRING (1)	
103	*1-630-101-11	MT-29 BOARD		117	3-735-052-01	RACK (RIGHT)	
104	1-541-309-11	MOTOR, DC (RF-370C) (LOADING) (M904)		118	*3-737-415-01	RETAINER, RACK	
105	X-3735-021-1	GUIDE ASSY (LEFT), TRAY		119	X-3735-022-1	GUIDE ASSY (RIGHT), TRAY	
106	*X-3735-002-1	BASE ASSY, THREADING		120	3-737-402-01	SPRING (2)	
107	3-735-037-01	GEAR, MIDWAY		121	*1-630-092-11	SW-106 BOARD	
108	3-735-036-01	PULLEY (A)		122	*1-630-093-11	SW-107 BOARD	
109	3-735-035-01	GEAR, TRAY		123	*1-630-091-11	LS-17 BOARD	
110	3-735-056-01	CAM, DRIVING		124	*4-914-248-01	STOPPER, RUBBER	
111	3-713-318-01	PULLEY, MOTOR		125	*3-735-071-51	FRAME	
112	3-513-066-XX	BELT, FAST FORWARD		126	*3-737-414-01	PLATE, GROUND, RF	
113	3-669-595-00	WASHER (2), STOPPER		127	3-737-412-01	SPRING, LEAF	
114	3-735-053-01	RACK (LEFT)		128	3-737-448-01	SPRING, LEAF	

### 5-4. MD CHASSIS ASSEMBLY (1)





No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
151	3-735-021-01	SPRING, TORSION		161	3-719-845-11	SCREW (B2X8), TAPPING	
152	3-735-038-01	GEAR, WORM		162	X-3735-003-1	TURNTABLE ASSY	163
153	*1-631-095-11	MT-30 BOARD		163	3-701-506-01	SET SCREW, DOUBLE POINT 3X4	
154	3-735-025-01	GEAR, SKEW		164	3-735-026-01	SPRING, COMPRESSION	
155	*1-630-094-11	CK-14 BOARD		165	X-3735-004-1	GUIDE ASSY, CENTER	
156	*A-6421-311-A	SV-33 BOARD, COMPLETE		166	4-606-833-01	SCREW (3X5), + PSW	
157	1-541-659-11	MOTOR, DC (TILT) (M903)		167	1-574-648-11	CABLE, FLEXIBLE FLAT (24 CORE)	
158	1-554-468-00	SWITCH, LEAF (SLED IN LIMIT LB/CD) (S903)		168	3-899-248-01	SCREW (M3X6)	
159	1-541-665-11	MOTOR, SPINDLE (M901)		169	*3-737-413-01	SHEET, TEFLON	
160	*1-630-096-11	FG-13 BOARD					

5-5. MD CHASSIS ASSEMBLY (2)



No.	Part No.	Description	Remark
201	X-3735-001-1	WIRE ASSY	
202	3-899-248-01	SCREW (M3X6)	
203	*X-3735-014-1	CHASSIS ASSY	
204	1-570-771-21	SWITCH (SLED OUT LIMIT) (S902)	
205	3-735-017-01	PULLEY, RETURN	
206	1-571-435-11	SWITCH (SLED IN LIMIT) (S901)	
207	*1-630-097-11	MT-28 BOARD	

No.	Part No.	Description	Remark
208	Δ.8-948-138-11	DEVICE, OPTICAL KHS-130A	
209	3-735-016-01	PULLEY, DRIVING	
210	3-735-015-01	GEAR, CARRIAGE	
211	*3-735-020-01	SHAFT, CARRIAGE	
212	3-672-430-00	SPRING, TENSION	
213	1-541-659-11	MOTOR, DC (SLED) (M902)	
214	3-735-038-01	GEAR, WORM	

**Note:** The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.



# SECTION 6 ELECTRICAL PARTS LIST

**SV-33**

**NOTE:**

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

**CAPACITORS:**  
MF:  $\mu$ F, PF:  $\mu$ MF.

**RESISTORS**  
• All resistors are in ohms.  
• F: nonflammable

**COILS**  
• MMH: mH, UH:  $\mu$ H

**SEMICONDUCTORS**  
In each case, U:  $\mu$ , for example:  
UA...:  $\mu$ A..., UPA...:  $\mu$ PA...,  
UPC...:  $\mu$ PC, UPD...:  $\mu$ PD...

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
*A-6421-311-A	SV-33	BOARD, COMPLETE	(Ref. No 7.000 Series)				
		*****				<b>CONNECTOR</b>	
		<b>CAPACITOR</b>		CN101	1-566-939-11	CONNECTOR, F.P.C 24P	
C102	1-163-093-00	CERAMIC CHIP 10PF	5%	50V	CN102	1-563-493-11	CONNECTOR, F.P.C 28P
C103	1-124-584-00	ELECT 100MF	20%	10V	CN103	1-506-485-11	PIN, CONNECTOR 6P
C104	1-124-584-00	ELECT 100MF	20%	10V	CN104	1-506-482-11	PIN, CONNECTOR 3P
C106	1-126-160-11	ELECT 1MF	20%	50V	CN104	*1-565-980-11	HOUSING, CONNECTOR(PC BOARD) 9P
C121	1-124-242-00	ELECT 33MF	20%	25V	CN105	*1-566-969-11	HOUSING, CONNECTOR(PC BOARD)7P
C122	1-124-242-00	ELECT 33MF	20%	25V	CN106	*1-566-968-11	HOUSING, CONNECTOR(PC BOARD)6P
C123	1-124-584-00	ELECT 100MF	20%	10V			<b>DIODE</b>
C124	1-124-584-00	ELECT 100MF	20%	10V	D101	8-719-100-05	DIODE 1S2837
C125	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V	D102	8-719-109-72	DIODE RD3.9ESB2
C126	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V	D103	8-719-911-19	DIODE 1S5119
C127	1-126-320-11	ELECT 10MF	20%	16V			<b>IC</b>
C128	1-136-153-00	FILM 0.01MF	5%	50V	IC102	8-759-321-40	IC HA11529
C129	1-136-173-00	FILM 0.47MF	5%	50V	IC103	8-759-700-43	IC NJM4558M
C130	1-126-320-11	ELECT 10MF	20%	16V	IC104	8-759-700-43	IC NJM4558M
C131	1-130-479-00	MYLAR 0.0047MF	5%	50V	IC106	8-759-208-11	IC TC4053BFHB
C132	1-130-487-00	MYLAR 0.022MF	5%	50V	IC107	8-759-700-43	IC NJM4558M
C133	1-130-476-00	MYLAR 0.0027MF	5%	50V	IC108	8-759-700-43	IC NJM4558M
C135	1-130-486-00	MYLAR 0.018MF	5%	50V	IC109 $\Delta$	8-749-920-86	IC STA-451C
C136	1-136-169-00	FILM 0.22MF	5%	50V	IC110 $\Delta$	8-749-920-86	IC STA-451C
C137	1-130-484-00	MYLAR 0.012MF	5%	50V	IC111	8-759-700-43	IC NJM4558M
C138	1-130-484-00	MYLAR 0.012MF	5%	50V			<b>JUMPER RESISTOR</b>
C139	1-124-282-00	ELECT 22MF	20%	16V	JR201	1-216-296-00	METAL GLAZE 0 5% 1/8W
C140	1-126-320-11	ELECT 10MF	20%	16V	JR202	1-216-296-00	METAL GLAZE 0 5% 1/8W
C141	1-130-491-00	MYLAR 0.047MF	5%	50V	JR203	1-216-296-00	METAL GLAZE 0 5% 1/8W
C142	1-126-320-11	ELECT 10MF	20%	16V	JR204	1-216-296-00	METAL GLAZE 0 5% 1/8W
C143	1-136-165-00	FILM 0.1MF	5%	50V	JR205	1-216-296-00	METAL GLAZE 0 5% 1/8W
C144	1-130-478-00	MYLAR 0.0039MF	5%	50V	JR206	1-216-296-00	METAL GLAZE 0 5% 1/8W
C145	1-130-486-00	MYLAR 0.018MF	5%	50V	JR207	1-216-296-00	METAL GLAZE 0 5% 1/8W
C146	1-130-483-00	MYLAR 0.01MF	5%	50V	JR208	1-216-296-00	METAL GLAZE 0 5% 1/8W
C147	1-136-169-00	FILM 0.22MF	5%	50V	JR209	1-216-296-00	METAL GLAZE 0 5% 1/8W
C148	1-136-169-00	FILM 0.22MF	5%	50V	JR210	1-216-296-00	METAL GLAZE 0 5% 1/8W
C149	1-163-113-00	CERAMIC CHIP 68PF	5%	50V	JR211	1-216-296-00	METAL GLAZE 0 5% 1/8W
C150	1-163-093-00	CERAMIC CHIP 10PF	5%	50V	JR212	1-216-296-00	METAL GLAZE 0 5% 1/8W
C151	1-163-121-00	CERAMIC CHIP 150PF	5%	50V	JR214	1-216-296-00	METAL GLAZE 0 5% 1/8W
C152	1-163-093-00	CERAMIC CHIP 10PF	5%	50V	JR215	1-216-296-00	METAL GLAZE 0 5% 1/8W
C153	1-163-129-00	CERAMIC CHIP 330PF	5%	50V	JR216	1-216-296-00	METAL GLAZE 0 5% 1/8W
C154	1-163-115-00	CERAMIC CHIP 82PF	5%	50V	JR217	1-216-296-00	METAL GLAZE 0 5% 1/8W
C155	1-130-475-00	MYLAR 0.0022MF	5%	50V			<b>COIL</b>
C157	1-126-160-11	ELECT 1MF	20%	50V	L101	1-408-409-00	INDUCTOR 10UH
C161	1-136-173-00	FILM 0.47MF	5%	50V	L102	1-410-328-11	INDUCTOR 10UH
C162	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V	L103	1-410-509-11	INDUCTOR 10UH
C163	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V			<b>TRANSISTOR</b>
C164	1-126-160-11	ELECT 1MF	20%	50V	Q101	8-729-901-05	TRANSISTOR DTA124EK
C165	1-163-019-00	CERAMIC CHIP 0.0068MF	10%	50V	Q102	8-729-901-00	TRANSISTOR DTC124EK
C166	1-124-443-00	ELECT 100MF	20%	10V	Q103	8-729-901-00	TRANSISTOR DTC124EK

When indicating parts by reference number, please include the board name.

# SV-33

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
Q104	8-729-100-66	TRANSISTOR 2SC1623		R163	1-216-083-00	METAL GLAZE 27K 5%	1/10W
Q105	8-729-100-66	TRANSISTOR 2SC1623		R164	1-216-035-00	METAL GLAZE 270 5%	1/10W
Q106	8-729-100-66	TRANSISTOR 2SC1623		R165	1-216-089-00	METAL GLAZE 47K 5%	1/10W
Q107	8-729-900-89	TRANSISTOR DTC124ES		R166	1-216-041-00	METAL GLAZE 470 5%	1/10W
<u>RESISTOR</u>				R167	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R101	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R168	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R102	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R169	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R103	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R170	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R104	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R171	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R105	1-216-085-00	METAL GLAZE 33K 5%	1/10W	R172	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R106	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R173	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R107	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R174	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R108	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R175	1-216-085-00	METAL GLAZE 33K 5%	1/10W
R109	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R176	1-216-748-11	METAL GLAZE 39K 5%	1/10W
R110	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R177	1-216-091-00	METAL GLAZE 56K 5%	1/10W
R111	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R178	1-216-748-11	METAL GLAZE 39K 5%	1/10W
R112	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R179	1-216-101-00	METAL GLAZE 150K 5%	1/10W
R113	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R180	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
R114	1-216-089-00	METAL GLAZE 47K 5%	1/10W	R181	1-216-083-00	METAL GLAZE 27K 5%	1/10W
R115	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W	R182	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W
R116	1-216-079-00	METAL GLAZE 18K 5%	1/10W	R183	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W
R117	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W	R184	1-216-089-00	METAL GLAZE 47K 5%	1/10W
R118	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W	R185	1-216-097-00	METAL GLAZE 100K 5%	1/10W
R119	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W	R186	1-216-069-00	METAL GLAZE 6.8K 5%	1/10W
R120	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R187	1-216-097-00	METAL GLAZE 100K 5%	1/10W
R121	1-216-077-00	METAL GLAZE 15K 5%	1/10W	R188	1-216-069-00	METAL GLAZE 6.8K 5%	1/10W
R122	1-216-870-11	METAL GLAZE 180K 1%	1/10W	R189	1-216-085-00	METAL GLAZE 33K 5%	1/10W
R123	1-216-025-00	METAL GLAZE 100 5%	1/10W	R190	1-216-085-00	METAL GLAZE 33K 5%	1/10W
R124	1-216-025-00	METAL GLAZE 100 5%	1/10W	R191	1-216-097-00	METAL GLAZE 100K 5%	1/10W
R125	1-216-081-00	METAL GLAZE 22K 5%	1/10W	R192	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R126	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	R193	1-216-105-00	METAL GLAZE 220K 5%	1/10W
R127	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W	R194	1-216-079-00	METAL GLAZE 18K 5%	1/10W
R128	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W	R195	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R129	1-216-039-00	METAL GLAZE 390 5%	1/10W	R196	1-216-017-00	METAL GLAZE 47 5%	1/10W
R130	1-216-024-00	METAL GLAZE 91 5%	1/10W	R197	1-216-097-00	METAL GLAZE 100K 5%	1/10W
R145	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R198	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R146	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	R199	1-216-017-00	METAL GLAZE 47 5%	1/10W
R147	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R200	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R148	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R201	1-216-095-00	METAL GLAZE 82K 5%	1/10W
R149	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	R202	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R150	1-216-085-00	METAL GLAZE 33K 5%	1/10W	R203	1-216-017-00	METAL GLAZE 47 5%	1/10W
R151	1-216-113-00	METAL GLAZE 470K 5%	1/10W	R206	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W
R152	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W	R207	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W
R153	1-216-113-00	METAL GLAZE 470K 5%	1/10W	R208	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W
R155	1-216-089-00	METAL GLAZE 47K 5%	1/10W	R209	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R156	1-216-083-00	METAL GLAZE 27K 5%	1/10W	R210	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R157	1-216-101-00	METAL GLAZE 150K 5%	1/10W	R211	1-216-017-00	METAL GLAZE 47 5%	1/10W
R158	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W	R212	1-216-373-11	METAL OXIDE 2.2 5%	2W F
R159	1-216-075-00	METAL GLAZE 12K 5%	1/10W	R213	1-216-373-11	METAL OXIDE 2.2 5%	2W F
R160	1-216-083-00	METAL GLAZE 27K 5%	1/10W	R214	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R161	1-216-101-00	METAL GLAZE 150K 5%	1/10W	R215	1-216-083-00	METAL GLAZE 27K 5%	1/10W
R162	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W	R217	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
				R218	1-216-097-00	METAL GLAZE 100K 5%	1/10W

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark
R220	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R221	1-216-079-00	METAL GLAZE 18K 5%	1/10W
R222	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R223	1-216-033-00	METAL GLAZE 220 5%	1/10W
R224	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R225	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
R226	1-216-037-00	METAL GLAZE 330 5%	1/10W
R227	1-216-017-00	METAL GLAZE 47 5%	1/10W
R228	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R229	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R230	1-216-055-00	METAL GLAZE 1.8K 5%	1/10W
R231	1-216-055-00	METAL GLAZE 1.8K 5%	1/10W
R233	1-216-101-00	METAL GLAZE 150K 5%	1/10W
R234	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R235	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R236	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R237	1-216-033-00	METAL GLAZE 220 5%	1/10W
R238	1-216-037-00	METAL GLAZE 330 5%	1/10W
R239	1-216-077-00	METAL GLAZE 15K 5%	1/10W
R240	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W

JUMPER RESISTOR

RJ101	1-216-295-00	METAL GLAZE 0 5%	1/10W
RJ102	1-216-295-00	METAL GLAZE 0 5%	1/10W
RJ103	1-216-295-00	METAL GLAZE 0 5%	1/10W
RJ104	1-216-295-00	METAL GLAZE 0 5%	1/10W
RJ105	1-216-295-00	METAL GLAZE 0 5%	1/10W
RJ106	1-216-295-00	METAL GLAZE 0 5%	1/10W
RJ107	1-216-295-00	METAL GLAZE 0 5%	1/10W
RJ108	1-216-295-00	METAL GLAZE 0 5%	1/10W
RJ109	1-216-295-00	METAL GLAZE 0 5%	1/10W
RJ110	1-216-295-00	METAL GLAZE 0 5%	1/10W
RJ111	1-216-295-00	METAL GLAZE 0 5%	1/10W
RJ218	1-216-295-00	METAL GLAZE 0 5%	1/10W
RJ219	1-216-295-00	METAL GLAZE 0 5%	1/10W
RJ220	1-216-295-00	METAL GLAZE 0 5%	1/10W
RJ241	1-216-295-00	METAL GLAZE 0 5%	1/10W

VARIABLE RESISTOR

RV101	1-228-993-00	RES, ADJ, CARBON 4.7K	
RV102	1-228-994-00	RES, ADJ, CARBON 10K	
RV103	1-228-994-00	RES, ADJ, CARBON 10K	
RV104	1-228-994-00	RES, ADJ, CARBON 10K	
RV105	1-228-994-00	RES, ADJ, CARBON 10K	
RV106	1-228-990-00	RES, ADJ, CARBON 1K	
RV107	1-228-994-00	RES, ADJ, CARBON 10K	
RV108	1-228-990-00	RES, ADJ, CARBON 1K	

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Ref.No	Part No.	Description	Remark
*A-6421-369-A	MP-15 BOARD, COMPLETE *(Ref.No 1.000 Series)		
	*****		
		(Including the AF-52 and TL-40 BOARDS)	
*3-309-144-21	HEAT SINK		
3-737-480-01	PLATE, GROUND, JACK		
7-685-646-79	SCREW +BVTP 3X8 TYPE 2	IT-3	

CAPACITOR

C101	1-124-360-00	ELECT 1000MF	20%	16V
C102	1-124-472-11	ELECT 470MF	20%	10V
C103	1-163-115-00	CERAMIC CHIP 82PF	5%	50V
C104	1-124-438-00	ELECT 1MF	20%	50V
C105	1-163-117-00	CERAMIC CHIP 100PF	5%	50V
C106	1-163-097-00	CERAMIC CHIP 15PF	5%	50V
C107	1-124-589-11	ELECT 47MF	20%	16V
C108	1-164-232-11	CERAMIC CHIP 0.01MF	10%	50V
C109	1-124-446-11	ELECT 47MF	20%	10V
C110	1-163-103-00	CERAMIC CHIP 27PF	5%	50V
C111	1-163-095-00	CERAMIC CHIP 12PF	5%	50V
C112	1-163-105-00	CERAMIC CHIP 33PF	5%	50V
C113	1-163-115-00	CERAMIC CHIP 82PF	5%	50V
C114	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C115	1-163-113-00	CERAMIC CHIP 68PF	5%	50V
C116	1-163-103-00	CERAMIC CHIP 27PF	5%	50V
C117	1-163-113-00	CERAMIC CHIP 68PF	5%	50V
C118	1-163-097-00	CERAMIC CHIP 15PF	5%	50V
C119	1-163-103-00	CERAMIC CHIP 27PF	5%	50V
C120	1-126-157-11	ELECT 10MF	20%	16V
C121	1-126-157-11	ELECT 10MF	20%	16V
C122	1-126-157-11	ELECT 10MF	20%	16V
C123	1-136-165-00	MYLAR 0.1MF	10%	50V
C124	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C125	1-163-019-00	CERAMIC CHIP 0.0068MF	10%	50V
C126	1-124-589-11	ELECT 47MF	20%	16V
C127	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C128	1-124-446-11	ELECT 47MF	20%	10V
C129	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C130	1-163-095-00	CERAMIC CHIP 12PF	5%	50V
C131	1-163-107-00	CERAMIC CHIP 39PF	5%	50V
C132	1-163-095-00	CERAMIC CHIP 12PF	5%	50V
C133	1-124-438-00	ELECT 1MF	20%	50V
C134	1-124-438-00	ELECT 1MF	20%	50V
C135	1-124-442-00	ELECT 330MF	20%	6.3V
C136	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C137	1-163-129-00	CERAMIC CHIP 330PF	5%	50V
C138	1-164-161-11	CERAMIC CHIP 0.0022MF	10%	50V
C139	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C140	1-163-125-00	CERAMIC CHIP 220PF	5%	50V
C141	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C142	1-124-438-00	ELECT 1MF	20%	50V
C143	1-124-438-00	ELECT 1MF	20%	50V (MDP-515D)
C144	1-163-123-00	CERAMIC CHIP 180PF	5%	50V (MDP-515D)
C145	1-124-438-00	ELECT 1MF	20%	50V (MDP-515D)

When indicating parts by reference number, please include the board name.

\* Be sure to always read "precautions for replacement of MP-15 complete board" in page 99. When replacing the MP-15 complete board.

# MP-15

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
C146	1-163-123-00	CERAMIC CHIP 180PF	5% 50V	C201	1-136-153-00	MYLAR 0.01MF	10% 50V
C147	1-124-443-00	ELECT 100MF	20% 10V	C202	1-130-474-00	MYLAR 0.0018MF	5% 50V
C148	1-163-131-00	CERAMIC CHIP 390PF	5% 50V	C203	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C149	1-163-103-00	CERAMIC CHIP 27PF	5% 50V (MDP-5150)	C204	1-136-153-00	MYLAR 0.01MF	10% 50V
C150	1-163-105-00	CERAMIC CHIP 33PF	5% 50V	C205	1-136-159-00	MYLAR 0.033MF	10% 50V
C150	1-163-107-00	CERAMIC CHIP 39PF	5% 50V (MDP-315)	C206	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C151	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C207	1-163-105-00	CERAMIC CHIP 33PF	5% 50V
C152	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C208	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C153	1-124-257-00	ELECT 2.2MF	20% 50V	C209	1-163-015-00	CERAMIC CHIP 0.0033MF	10% 50V
C154	1-124-446-11	ELECT 47MF	20% 10V	C210	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C156	1-124-443-00	ELECT 100MF	20% 10V	C211	1-124-589-11	ELECT 47MF	20% 16V
C157	1-124-257-00	ELECT 2.2MF	20% 50V	C212	1-163-022-00	CERAMIC CHIP 0.012MF	10% 50V
C158	1-124-471-00	ELECT 1000MF	20% 6.3V	C213	1-163-139-00	CERAMIC CHIP 820PF	5% 50V
C159	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C214	1-124-446-11	ELECT 47MF	20% 10V
C160	1-136-153-00	MYLAR 0.01MF	10% 50V	C215	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C161	1-131-347-00	TANTALUM 1MF	10% 35V	C216	1-163-119-00	CERAMIC CHIP 120PF	5% 50V
C162	1-136-157-00	MYLAR 0.022MF	10% 50V	C217	1-163-119-00	CERAMIC CHIP 120PF	5% 50V
C163	1-163-107-00	CERAMIC CHIP 39PF	5% 50V	C218	1-124-438-00	ELECT 1MF	20% 50V
C164	1-163-099-00	CERAMIC CHIP 18PF	5% 50V	C219	1-163-101-00	CERAMIC CHIP 22PF	5% 50V
C165	1-163-101-00	CERAMIC CHIP 22PF	5% 50V	C220	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C166	1-124-442-00	ELECT 330MF	20% 6.3V	C222	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C167	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C223	1-163-119-00	CERAMIC CHIP 120PF	5% 50V
C168	1-124-438-00	ELECT 1MF	20% 50V	C224	1-124-446-11	ELECT 47MF	20% 10V
C169	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C225	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C170	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C226	1-124-446-11	ELECT 47MF	20% 10V
C171	1-124-442-00	ELECT 330MF	20% 6.3V	C229	1-136-159-00	MYLAR 0.033MF	10% 50V
C174	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C230	1-136-161-00	MYLAR 0.047MF	10% 50V
C175	1-163-101-00	CERAMIC CHIP 22PF	5% 50V	C231	1-131-345-00	TANTALUM 0.47MF	10% 35V
C176	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C232	1-124-438-00	ELECT 1MF	20% 50V
C177	1-163-109-00	CERAMIC CHIP 47PF	5% 50V	C233	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C178	1-163-109-00	CERAMIC CHIP 47PF	5% 50V	C234	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C179	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C235	1-130-489-00	MYLAR 0.033MF	5% 50V
C180	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C236	1-130-486-00	MYLAR 0.018MF	5% 50V
C181	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C237	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C182	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C238	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C183	1-124-446-11	ELECT 47MF	20% 10V	C239	1-130-483-00	MYLAR 0.01MF	5% 50V
C184	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C240	1-124-446-11	ELECT 47MF	20% 10V
C185	1-163-121-00	CERAMIC CHIP 150PF	5% 50V	C241	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C186	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C242	1-163-015-00	CERAMIC CHIP 0.0033MF	10% 50V
C187	1-163-088-00	CERAMIC CHIP 5PF 0.25PF	50V (MDP-5150)	C243	1-136-153-00	MYLAR 0.01MF	10% 50V
C188	1-163-095-00	CERAMIC CHIP 12PF	5% 50V (MDP-5150)	C244	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C188	1-163-099-00	CERAMIC CHIP 18PF	5% 50V (MDP-315)	C245	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C189	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C246	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C190	1-124-446-11	ELECT 47MF	20% 10V	C247	1-124-446-11	ELECT 47MF	20% 10V
C191	1-163-038-00	CERAMIC CHIP 0.1MF	25V (MDP-5150)	C248	1-124-438-00	ELECT 1MF	20% 50V
C192	1-163-038-00	CERAMIC CHIP 0.1MF	25V (MDP-5150)	C249	1-136-161-00	MYLAR 0.047MF	10% 50V
C193	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C250	1-124-257-00	ELECT 2.2MF	20% 50V
C195	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C251	1-124-446-11	ELECT 47MF	20% 10V
C196	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C252	1-124-443-00	ELECT 100MF	20% 10V
C197	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C253	1-163-125-00	CERAMIC CHIP 220PF	5% 50V
C198	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	C254	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C199	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	C255	1-124-446-11	ELECT 47MF	20% 10V
C200	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C256	1-163-117-00	CERAMIC CHIP 100PF	5% 50V (MDP-5150)

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
C257	1-124-443-00	ELECT	100MF 20%	10V	C618	1-163-133-00	CERAMIC CHIP 470PF 5% 50V
C258	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C619	1-163-105-00	CERAMIC CHIP 33PF 5% 50V	
C261	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C620	1-163-111-00	CERAMIC CHIP 56PF 5% 50V	
C262	1-124-446-11	ELECT	47MF 20%	10V	C621	1-164-232-11	CERAMIC CHIP 0.01MF 50V
C270	1-124-446-11	ELECT	47MF 20%	10V	C622	1-126-157-11	ELECT 10MF 20% 16V
C271	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C623	1-163-037-11	CERAMIC CHIP 0.022MF 10% 25V	
C272	1-163-105-00	CERAMIC CHIP 33PF	5% 50V	C624	1-163-101-00	CERAMIC CHIP 22PF 5% 50V	
C273	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C625	1-124-589-11	ELECT 47MF 20% 16V	
C274	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C626	1-126-177-11	ELECT 100MF 20% 6.3V	
C275	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C627	1-163-019-00	CERAMIC CHIP 0.0068MF 10% 50V	
C276	1-124-589-11	ELECT	47MF 20%	16V	C628	1-124-438-00	ELECT 1MF 20% 50V
C277	1-163-093-00	CERAMIC CHIP 10PF	5% 50V	C629	1-126-177-11	ELECT 100MF 20% 6.3V	
C279	1-124-442-00	ELECT	330MF 20%	6.3V	C630	1-163-121-00	CERAMIC CHIP 150PF 5% 50V
C280	1-124-442-00	ELECT	330MF 20%	6.3V	C631	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V
C281	1-163-103-00	CERAMIC CHIP 27PF	5% 50V	C632	1-126-177-11	ELECT 100MF 20% 6.3V	
C282	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C633	1-163-009-11	CERAMIC CHIP 0.001MF 10% 50V	
C283	1-163-103-00	CERAMIC CHIP 27PF	5% 50V	C634	1-163-129-00	CERAMIC CHIP 330PF 5% 50V	
C284	1-163-103-00	CERAMIC CHIP 27PF	5% 50V	C635	1-163-113-00	CERAMIC CHIP 68PF 5% 50V	
C285	1-163-103-00	CERAMIC CHIP 27PF	5% 50V	C636	1-126-177-11	ELECT 100MF 20% 6.3V	
C286	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C637	1-164-161-11	CERAMIC CHIP 0.0022MF 10% 50V	
C287	1-126-157-11	ELECT	10MF 20%	16V	C638	1-124-499-11	ELECT 1MF 20% 50V
C288	1-163-101-00	CERAMIC CHIP 22PF	5% 50V	C639	1-163-989-11	CERAMIC CHIP 0.033MF 10% 25V	
C289	1-163-113-00	CERAMIC CHIP 68PF	5% 50V	C640	1-126-177-11	ELECT 100MF 20% 6.3V	
C290	1-163-113-00	CERAMIC CHIP 68PF	5% 50V	C641	1-124-465-00	ELECT 0.47MF 20% 50V	
C291	1-163-101-00	CERAMIC CHIP 22PF	5% 50V	C642	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C292	1-163-113-00	CERAMIC CHIP 68PF	5% 50V	C643	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C293	1-163-101-00	CERAMIC CHIP 22PF	5% 50V	C644	1-163-015-00	CERAMIC CHIP 0.0033MF 10% 50V	
C294	1-164-232-11	CERAMIC CHIP 0.01MF	50V (MDP-515D)	C645	1-163-986-00	CERAMIC CHIP 0.027MF 10% 25V	
C295	1-164-232-11	CERAMIC CHIP 0.01MF	50V (MDP-515D)	C646	1-126-177-11	ELECT 100MF 20% 6.3V	
C297	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C647	1-124-438-00	ELECT 1MF 20% 50V	
C298	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C648	1-163-088-00	CERAMIC CHIP 5PF 0.25PF 50V	
C299	1-126-157-11	ELECT	10MF 20%	16V	C649	1-163-101-00	CERAMIC CHIP 22PF 5% 50V
C300	1-126-157-11	ELECT	10MF 20%	16V	C650	1-163-105-00	CERAMIC CHIP 33PF 5% 50V
C301	1-163-131-00	CERAMIC CHIP 390PF	5% 50V	C651	1-126-177-11	ELECT 100MF 20% 6.3V	
C302	1-163-109-00	CERAMIC CHIP 47PF	5% 50V	C652	1-126-094-11	ELECT 4.7MF 20% 25V	
C303	1-163-103-00	CERAMIC CHIP 27PF	5% 50V	C653	1-163-015-00	CERAMIC CHIP 0.0033MF 10% 50V	
C601	1-163-125-00	CERAMIC CHIP 220PF	5% 50V (MDP-515D)	C654	1-163-111-00	CERAMIC CHIP 56PF 5% 50V	
C602	1-124-257-00	ELECT	2.2MF 20%	50V	C655	1-126-094-11	ELECT 4.7MF 20% 25V
C603	1-163-117-00	CERAMIC CHIP 100PF	5% 50V	C656	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C604	1-163-103-00	CERAMIC CHIP 27PF	5% 50V	C657	1-124-589-11	ELECT 47MF 20% 16V	
C605	1-163-103-00	CERAMIC CHIP 27PF	5% 50V	C658	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C606	1-163-111-00	CERAMIC CHIP 56PF	5% 50V	C659	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C607	1-163-117-00	CERAMIC CHIP 100PF	5% 50V	C660	1-126-177-11	ELECT 100MF 20% 6.3V	
C608	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C661	1-124-598-11	ELECT 22MF 20% 25V	
C609	1-124-589-11	ELECT	47MF 20%	16V	C662	1-163-035-00	CERAMIC CHIP 0.047MF 50V
C610	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C663	1-163-015-00	CERAMIC CHIP 0.0033MF 10% 50V	
C611	1-124-589-11	ELECT	47MF 20%	16V	C664	1-164-232-11	CERAMIC CHIP 0.01MF 50V
C612	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C665	1-126-157-11	ELECT 10MF 20% 16V	
C613	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V	C666	1-126-157-11	ELECT 10MF 20% 16V	
C614	1-163-125-00	CERAMIC CHIP 220PF	5% 50V	C667	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C615	1-126-094-11	ELECT	4.7MF 20%	25V	C668	1-163-035-00	CERAMIC CHIP 0.047MF 50V
C616	1-163-103-00	CERAMIC CHIP 27PF	5% 50V	C669	1-163-038-00	CERAMIC CHIP 0.1MF 25V	
C617	1-163-093-00	CERAMIC CHIP 10PF	5% 50V	C670	1-163-038-00	CERAMIC CHIP 0.1MF 25V	

When indicating parts by reference number, please include the board name.

# MP-15

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
C671	1-163-038-00	CERAMIC CHIP 0.1MF	25V	C912	1-126-094-11	ELECT 4.7MF	20% 25V
C672	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C913	1-126-020-71	ELECT 22MF	20% 25V
C673	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C914	1-124-045-00	ELECT 4.7MF	20% 50V
C674	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C915	1-136-250-11	FILM 0.001MF	3% 100V
C675	1-163-109-00	CERAMIC CHIP 47PF	5% 50V	C916	1-136-232-51	FILM 0.0043MF	3% 100V
C676	1-163-109-00	CERAMIC CHIP 47PF	5% 50V	C917	1-136-250-11	FILM 0.001MF	3% 100V
C677	1-163-113-00	CERAMIC CHIP 68PF	5% 50V	C918	1-126-023-11	ELECT 100MF	20% 25V
C801	1-124-768-11	ELECT 4.7MF	20% 50V	C919	1-126-060-71	ELECT 22MF	20% 63V
C802	1-124-767-00	ELECT 2.2MF	20% 50V	C920	1-136-250-11	FILM 0.001MF	3% 100V
C803	1-124-446-11	ELECT 47MF	20% 10V	C921	1-126-023-11	ELECT 100MF	20% 25V
C804	1-124-446-11	ELECT 47MF	20% 10V	C922	1-136-250-11	FILM 0.001MF	3% 100V
C805	1-126-320-11	ELECT 10MF	20% 16V	C923	1-136-232-51	FILM 0.0043MF	3% 100V
C806	1-163-077-00	CERAMIC CHIP 0.1MF	10% 25V	C924	1-136-250-11	FILM 0.001MF	3% 100V
C807	1-163-020-00	CERAMIC CHIP 0.0082MF	10% 50V	C925	1-126-023-11	ELECT 100MF	20% 25V
C808	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C926	1-126-060-71	ELECT 22MF	20% 63V
C809	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C927	1-136-250-11	FILM 0.001MF	3% 100V
C810	1-163-101-00	CERAMIC CHIP 22PF	5% 50V	C928	1-126-023-11	ELECT 100MF	20% 25V
C811	1-163-101-00	CERAMIC CHIP 22PF	5% 50V	C929	1-126-028-11	ELECT 2200MF	20% 25V
C812	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C930	1-126-028-11	ELECT 2200MF	20% 25V
C815	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C932	1-124-446-11	ELECT 47MF	20% 10V
C816	1-124-446-11	ELECT 47MF	20% 10V	C933	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C817	1-124-446-11	ELECT 47MF	20% 10V	C934	1-126-013-11	ELECT 1000MF	20% 16V
C818	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C935	1-126-013-11	ELECT 1000MF	20% 16V
C819	1-163-023-00	CERAMIC CHIP 0.015MF	10% 50V	C936	1-126-044-11	ELECT 1MF	20% 50V
C820	1-123-875-11	ELECT 10MF	20% 50V	C937	1-124-478-11	ELECT 100MF	20% 25V
C821	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C938	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C822	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C939	1-163-015-00	CERAMIC CHIP 0.0033MF	10% 50V
C823	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C940	1-126-013-11	ELECT 1000MF	20% 16V
C824	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V	C941	1-126-013-11	ELECT 1000MF	20% 16V
C825	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V	C942	1-124-477-11	ELECT 47MF	20% 25V
C826	1-163-241-11	CERAMIC CHIP 39PF	5% 50V	C943	1-163-019-00	CERAMIC CHIP 0.0068MF	10% 50V
C827	1-163-106-00	CERAMIC CHIP 36PF	5% 50V	C950	1-126-177-11	ELECT 100MF	20% 6.3V
C828	1-163-123-00	CERAMIC CHIP 180PF	5% 50V	C951	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C829	1-163-133-00	CERAMIC CHIP 470PF	5% 50V	C952	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C832	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C953	1-126-320-11	ELECT 10MF	20% 16V
C840	1-124-443-00	ELECT 100MF	20% 10V	C960	1-124-984-71	ELECT 470MF	20% 6.3V
C841	1-164-232-11	CERAMIC CHIP 0.01MF	50V				
C842	1-124-443-00	ELECT 100MF	20% 10V				
C843	1-164-232-11	CERAMIC CHIP 0.01MF	50V				
C844	1-164-232-11	CERAMIC CHIP 0.01MF	50V				
C845	1-164-232-11	CERAMIC CHIP 0.01MF	50V				
C850	1-163-038-00	CERAMIC CHIP 0.1MF	25V				
C851	1-163-038-00	CERAMIC CHIP 0.1MF	25V				
C901	1-163-035-00	CERAMIC CHIP 0.047MF	50V				
C902	1-163-035-00	CERAMIC CHIP 0.047MF	50V				
C904	1-163-038-00	CERAMIC CHIP 0.1MF	25V				
C905	1-124-045-00	ELECT 4.7MF	20% 50V				
C906	1-126-049-11	ELECT 22MF	20% 10V				
C907	1-126-094-11	ELECT 4.7MF	20% 25V				
C908	1-126-020-71	ELECT 22MF	20% 25V				
C909	1-124-045-00	ELECT 4.7MF	20% 50V				
C910	1-124-045-00	ELECT 4.7MF	20% 50V				
C911	1-126-049-11	ELECT 22MF	20% 10V				

### FILTER

CF101	1-567-657-11	FILTER, CERAMIC (SFS-MC TYPE)
CF102	1-527-831-00	FILTER, CERAMIC (MDP-515D)

### CONNECTOR

CN101	*1-566-706-11	CONNECTOR, BOARD TO BOARD 12P (MDP-515D)
CN601	*1-564-032-00	PIN, CONNECTOR 7P
CN602	1-563-493-11	CONNECTOR, F.P.C 28P
CN603	*1-506-483-21	PIN, CONNECTOR 4P
CN604	1-506-486-11	PIN, CONNECTOR 7P
CN605	*1-506-488-11	PIN, CONNECTOR 9P
CN606	1-506-481-11	PIN, CONNECTOR 2P
CN607	1-506-482-11	PIN, CONNECTOR 3P
CN608	*1-506-481-11	PIN, CONNECTOR 2P
CN801	*1-566-706-11	CONNECTOR, BOARD TO BOARD 12P

When indicating parts by reference number, please include the board name.

<u>Ref.No</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>	<u>Ref.No</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
CN802	*1-564-028-00	PIN, CONNECTOR 3P		0911	8-719-911-19	DIODE 1SS119	
CN803	1-506-471-11	PIN, CONNECTOR 6P				<u>FILTER</u>	
		<u>JACK</u>		FL101	1-236-580-11	FILTER, LOW PASS	
CNJ101	1-561-534-82	SOCKET 21P		FL102	1-235-943-11	BPF (MDP-5150)	
CNJ102	1-565-351-51	JACK, PIN 3P		FL103	1-236-262-11	FILTER, BAND PASS	
CNJ103	8-759-977-71	GP1F31T		FL104	1-236-580-11	FILTER, LOW PASS	
CNJ104	1-537-005-21	JACK BOARD		FL105	1-409-431-11	COIL, TRAP (MDP-5150)	
CNJ601	1-507-678-00	JACK		FL106	1-409-447-11	COIL, TRAP	
CNJ602	1-507-678-00	JACK		FL601	1-421-927-21	FILTER, NOISE	
		<u>TRIMMER</u>		FL602	1-235-922-11	FILTER, LOW PASS (1.7MHZ)	
CV601	1-141-227-00	CAP, CERAMIC TRIMMER		FL603	1-421-927-21	FILTER, NOISE	
CV602	1-141-227-00	CAP, CERAMIC TRIMMER		FL801	1-424-031-11	FILTER, NOISE	
		<u>DIODE</u>		FL802	1-424-031-11	FILTER, NOISE	
D101	8-719-110-33	DIODE RD12ES-B3		FL803	1-424-031-11	FILTER, NOISE	
D102	8-719-911-19	DIODE 1SS119		FL804	1-424-031-11	FILTER, NOISE	
D103	8-719-911-19	DIODE 1SS119		FL805	1-424-031-11	FILTER, NOISE	
D104	8-719-911-19	DIODE 1SS119		FL806	1-424-031-11	FILTER, NOISE	
D105	8-719-911-19	DIODE 1SS119		FL807	1-424-031-11	FILTER, NOISE	
D601	8-719-911-19	DIODE 1SS119 (MDP-5150)		FL808	1-424-031-11	FILTER, NOISE	
D602	8-719-911-19	DIODE 1SS119 (MDP-5150)		FL809	1-424-031-11	FILTER, NOISE	
D603	8-719-911-19	DIODE 1SS119		FL810	1-424-031-11	FILTER, NOISE	
D604	8-719-907-19	DIODE FC52M-5		FL811	1-424-031-11	FILTER, NOISE	
D605	8-719-911-19	DIODE 1SS119		FL812	1-424-031-11	FILTER, NOISE	
D606	8-719-110-22	DIODE RD11ES-B2				<u>IC</u>	
D607	8-719-110-22	DIODE RD11ES-B2		IC101	8-759-982-10	IC RC7809FA	
D608	8-719-911-19	DIODE 1SS119		IC102	8-759-941-68	IC BA7131F	
D609	8-719-911-19	DIODE 1SS119		IC103	8-759-941-68	IC BA7131F (MDP-5150)	
D610	8-719-911-19	DIODE 1SS119		IC104	8-752-006-12	IC CX20061	
D611	8-719-110-03	DIODE RD7.5ES-B2		IC105	8-752-322-34	IC CXL5003M	
D612	8-719-911-19	DIODE 1SS119		IC106	8-752-036-23	IC CXA1254Q	
D613	8-719-911-19	DIODE 1SS119		IC107	8-759-941-68	IC BA7131F (MDP-5150)	
D801	8-719-923-64	DIODE KV1236D		IC108	8-759-907-81	IC SN74LS221NS	
D802	8-719-907-19	DIODE FC52M-5		IC109	8-759-983-48	IC CXD1152	
D803	8-719-907-19	DIODE FC52M-5		IC110	8-759-100-95	IC UPC32462	
D804	8-719-911-19	DIODE 1SS119		IC111	8-752-036-24	IC CXA1255Q	
D805	8-719-911-19	DIODE 1SS119		IC113	8-759-204-97	IC TC74HC04F	
D806	8-719-100-05	DIODE MA152WK		IC601	8-759-305-28	IC HD74HC4040FP (MDP-5150)	
D807	8-719-100-05	DIODE MA152WK		IC602	8-759-941-68	IC BA7131F (MDP-5150)	
D808	8-719-100-05	DIODE MA152WK		IC603	8-759-630-74	M50455-080FP	
D811	8-719-911-19	DIODE 1SS119		IC604	8-759-208-11	IC TC4053BFHB	
D812	8-719-911-19	DIODE 1SS119		IC605	8-759-902-88	IC SN74LS123NS	
D813	8-719-911-19	DIODE 1SS119		IC606	8-759-200-84	IC TC4081BF	
D815	8-719-911-19	DIODE 1SS119		IC607	8-759-700-07	IC LM2903M	
D820	8-719-200-91	DIODE 11EQS10		IC608	8-759-207-28	IC TC9015P	
D821	8-719-200-91	DIODE 11EQS10		IC609	8-759-208-11	IC TC4053BFHB	
D822	8-719-200-91	DIODE 11EQS10		IC610	8-759-603-24	IC CX20197	
D823	8-719-200-91	DIODE 11EQS10		IC611	8-759-208-11	IC TC4053BFHB	
D903	8-719-911-19	DIODE 1SS119		IC612	8-752-033-14	IC CXA1081Q	
0910	8-719-911-19	DIODE 1SS119		IC613	8-759-988-40	IC MB89795-119	
				IC614	8-759-987-71	IC MSM72H032	

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# MP-15

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
IC615	8-759-100-96	IC UPC4558G2		L119	1-408-424-00	INDUCTOR	180UH
IC616	8-759-208-15	IC TC4066BFHB		L120	1-408-421-00	INDUCTOR	100UH
IC617	8-759-100-96	IC UPC4558G2		L123	1-408-421-00	INDUCTOR	100UH
IC618	8-759-231-92	IC TA7291P		L124	1-408-417-00	INDUCTOR	47UH
IC619	8-759-201-53	IC TC40H000F		L601	1-408-411-00	INDUCTOR	15UH
IC620	8-759-932-64	IC BU4052BF		L602	1-408-421-00	INDUCTOR	100UH
IC621	8-759-208-11	IC TC40538FHB		L603	1-408-409-00	INDUCTOR	10UH
IC801	8-752-325-59	IC CXD1165Q		L604	1-408-420-00	INDUCTOR	82UH
IC802	8-759-908-17	IC TL082CPS		L605	1-408-420-00	INDUCTOR	82UH
IC803	8-759-908-17	IC TL082CPS		L606	1-408-409-00	INDUCTOR	10UH
IC805	8-759-927-29	IC SN74HC04NS		L607	1-424-033-21	FILTER, NOISE	
IC809	8-759-208-15	IC TC4066BFHB		L608	1-408-409-00	INDUCTOR	10UH
IC811	8-752-328-61	IC CXD1244S		L609	1-408-409-00	INDUCTOR	10UH
IC812	8-759-926-17	IC SN74HC153NS		L803	1-424-033-21	FILTER, NOISE	
IC813	8-759-205-06	IC TC74HC74F		L805	1-424-033-21	FILTER, NOISE	
IC814	8-759-982-44	IC NJM79L05A				<u>VARIABLE COIL</u>	
IC816	8-759-604-29	IC MSF7805		LV801	1-426-212-11	COIL (RF)	
IC817	8-759-979-09	IC PCM58P				<u>TRANSISTOR</u>	
IC818	8-759-979-09	IC PCM58P		Q101	8-729-100-66	TRANSISTOR 2SC1623	
IC819	8-759-701-21	IC NJM5532D-D		Q102	8-729-100-66	TRANSISTOR 2SC1623	
IC820	8-759-701-21	IC NJM5532D-D		Q103	8-729-100-66	TRANSISTOR 2SC1623	
IC821	8-759-604-33	IC MSF7812		Q104	8-729-100-66	TRANSISTOR 2SC1623	
IC822	8-759-604-51	IC MSF7912		Q105	8-729-100-66	TRANSISTOR 2SC1623	
IC823	8-759-700-43	IC NJM4558M		Q106	8-729-100-66	TRANSISTOR 2SC1623	
IC824	8-759-204-97	IC TC74HC04F		Q107	8-729-100-66	TRANSISTOR 2SC1623	
		<u>JUMPER RESISTOR</u>		Q108	8-729-100-66	TRANSISTOR 2SC1623	
JR101	1-216-295-00	METAL GLAZE	0 5% 1/10W (MDP-315)	Q109	8-729-216-22	TRANSISTOR 2SA1162	
JR102	1-216-295-00	METAL GLAZE	0 5% 1/10W (MDP-315)	Q110	8-729-100-66	TRANSISTOR 2SC1623	
JR103	1-216-295-00	METAL GLAZE	0 5% 1/10W (MDP-315)	Q111	8-729-100-66	TRANSISTOR 2SC1623	
JR601	1-216-295-00	METAL GLAZE	0 5% 1/10W (MDP-315)	Q112	8-729-100-66	TRANSISTOR 2SC1623	
JR602	1-216-295-00	METAL GLAZE	0 5% 1/10W (MDP-315)	Q114	8-729-100-66	TRANSISTOR 2SC1623	
JR604	1-216-295-00	METAL GLAZE	0 5% 1/10W (MDP-315)	Q115	8-729-100-66	TRANSISTOR 2SC1623 (MDP-5150)	
		<u>COIL</u>		Q116	8-729-100-66	TRANSISTOR 2SC1623 (MDP-5150)	
L101	1-408-421-00	INDUCTOR	100UH	Q117	8-729-100-66	TRANSISTOR 2SC1623	
L102	1-408-421-00	INDUCTOR	100UH	Q118	8-729-100-66	TRANSISTOR 2SC1623	
L103	1-408-417-00	INDUCTOR	47UH	Q119	8-729-100-66	TRANSISTOR 2SC1623	
L104	1-408-417-00	INDUCTOR	47UH	Q120	8-729-901-01	TRANSISTOR DTC144EK (MDP-5150)	
L105	1-408-419-00	INDUCTOR	68UH	Q121	8-729-100-66	TRANSISTOR 2SC1623	
L106	1-408-417-00	INDUCTOR	47UH	Q122	8-729-100-66	TRANSISTOR 2SC1623	
L107	1-408-411-00	INDUCTOR	15UH	Q123	8-729-901-01	TRANSISTOR DTC144EK (MDP-5150)	
L108	1-408-419-00	INDUCTOR	68UH	Q124	8-729-901-01	TRANSISTOR DTC144EK (MDP-5150)	
L109	1-408-609-41	INDUCTOR	33UH	Q125	8-729-901-01	TRANSISTOR DTC144EK (MDP-5150)	
L110	1-408-421-00	INDUCTOR	100UH	Q126	8-729-216-22	TRANSISTOR 2SA1162	
L111	1-408-425-00	INDUCTOR	220UH	Q128	8-729-100-66	TRANSISTOR 2SC1623 (MDP-5150)	
L112	1-408-417-00	INDUCTOR	47UH	Q129	8-729-100-66	TRANSISTOR 2SC1623	
L113	1-408-421-00	INDUCTOR	100UH	Q130	8-729-216-22	TRANSISTOR 2SA1162	
L114	1-408-421-00	INDUCTOR	100UH	Q131	8-729-100-66	TRANSISTOR 2SC1623	
L115	1-408-609-41	INDUCTOR	33UH	Q132	8-729-100-66	TRANSISTOR 2SC1623	
L116	1-408-421-00	INDUCTOR	100UH	Q133	8-729-901-00	TRANSISTOR DTC124EK	
L117	1-408-421-00	INDUCTOR	100UH	Q134	8-729-901-05	TRANSISTOR DTA124EK	
L118	1-408-421-00	INDUCTOR	100UH	Q135	8-729-901-01	TRANSISTOR DTC144EK (MDP-5150)	

When indicating parts by reference number, please include the board name.



Ref.No	Part No.	Description	Remark
Q136	8-729-901-01	TRANSISTOR DTC144EK (MDP-515D)	
Q137	8-729-100-66	TRANSISTOR 2SC1623	
Q138	8-729-140-75	TRANSISTOR 2S0999CLCK	
Q139	8-729-100-66	TRANSISTOR 2SC1623	
Q140	8-729-100-66	TRANSISTOR 2SC1623	
Q141	8-729-100-66	TRANSISTOR 2SC1623	
Q142	8-729-100-66	TRANSISTOR 2SC1623	
Q143	8-729-100-66	TRANSISTOR 2SC1623	
Q144	8-729-100-66	TRANSISTOR 2SC1623	
Q145	8-729-901-00	TRANSISTOR DTC124EK	
Q146	8-729-100-66	TRANSISTOR 2SC1623	
Q147	8-729-374-02	TRANSISTOR 2SB740	
Q148	8-729-216-22	TRANSISTOR 2SA1162	
Q150	8-729-100-66	TRANSISTOR 2SC1623	
Q151	8-729-901-01	TRANSISTOR DTC144EK (MDP-515D)	
Q152	8-729-100-66	TRANSISTOR 2SC1623	
Q153	8-729-901-01	TRANSISTOR DTC144EK	
Q154	8-729-100-66	TRANSISTOR 2SC1623	
Q155	8-729-100-66	TRANSISTOR 2SC1623	
Q156	8-729-903-10	TRANSISTOR FMW1	
Q157	8-729-903-10	TRANSISTOR FMW1	
Q158	8-729-100-66	TRANSISTOR 2SC1623	
Q159	8-729-100-66	TRANSISTOR 2SC1623	
Q160	8-729-100-66	TRANSISTOR 2SC1623	
Q161	8-729-100-66	TRANSISTOR 2SC1623	
Q162	8-729-100-66	TRANSISTOR 2SC1623	
Q163	8-729-216-22	TRANSISTOR 2SA1162	
Q164	8-729-100-66	TRANSISTOR 2SC1623 (MDP-515D)	
Q165	8-729-100-66	TRANSISTOR 2SC1623 (MDP-515D)	
Q166	8-729-901-01	TRANSISTOR DTC144EK	
Q167	8-729-901-01	TRANSISTOR DTC144EK (MDP-515D)	
Q168	8-729-100-66	TRANSISTOR 2SC1623	
Q169	8-729-100-66	TRANSISTOR 2SC1623	
Q601	8-729-100-66	TRANSISTOR 2SC1623	
Q602	8-729-901-01	TRANSISTOR DTC144EK	
Q603	8-729-100-66	TRANSISTOR 2SC1623	
Q604	8-729-901-01	TRANSISTOR DTC144EK	
Q605	8-729-901-01	TRANSISTOR DTC144EK	
Q606	8-729-100-66	TRANSISTOR 2SC1623	
Q607	8-729-100-66	TRANSISTOR 2SC1623	
Q608	8-729-901-01	TRANSISTOR DTC144EK	
Q609	8-729-901-06	TRANSISTOR DTA144EK	
Q610	8-729-216-22	TRANSISTOR 2SA1162	
Q611	8-729-140-97	TRANSISTOR 2SB734-34	
Q612	8-729-901-00	TRANSISTOR DTC124EK	
Q613	8-729-100-66	TRANSISTOR 2SC1623	
Q614	8-729-100-66	TRANSISTOR 2SC1623	
Q615	8-729-901-00	TRANSISTOR DTC124EK	
Q618	8-729-216-22	TRANSISTOR 2SA1162	
Q801	8-729-900-53	TRANSISTOR DTC114EK	
Q802	8-729-100-67	TRANSISTOR 2SC1623-L7	
Q803	8-729-900-53	TRANSISTOR DTC114EK	
Q804	8-729-900-53	TRANSISTOR DTC114EK	

Ref.No	Part No.	Description	Remark
Q806	8-729-901-05	TRANSISTOR DTA124EK	
Q807	8-729-900-53	TRANSISTOR DTC114EK	
Q808	8-729-900-53	TRANSISTOR DTC114EK	
Q809	8-729-901-06	TRANSISTOR DTA144EK	
Q810	8-729-901-06	TRANSISTOR DTA144EK	
Q811	8-729-216-22	TRANSISTOR 2SA1162	
Q812	8-729-303-37	TRANSISTOR 2SD655-E	
Q813	8-729-303-37	TRANSISTOR 2SD655-E	
Q814	8-729-901-05	TRANSISTOR DTA124EK	
Q815	8-729-901-05	TRANSISTOR DTA124EK	
<b>RESISTOR</b>			
R101	△-1-212-950-00	FUSIBLE 4.7 5%	1/2W F
R102	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W
R103	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R104	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W
R105	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R106	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R107	1-216-045-00	METAL GLAZE 680 5%	1/10W
R108	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R109	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R110	1-216-053-00	METAL GLAZE 1.5K 5%	1/10W
R111	1-216-037-00	METAL GLAZE 330 5%	1/10W
R112	1-216-041-00	METAL GLAZE 470 5%	1/10W
R113	1-216-053-00	METAL GLAZE 1.5K 5%	1/10W
R114	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R115	1-216-069-00	METAL GLAZE 6.8K 5%	1/10W
R116	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W
R117	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R118	1-216-063-00	METAL GLAZE 3.9K 5%	1/10W
R119	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R120	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R121	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R122	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R123	1-216-053-00	METAL GLAZE 1.5K 5%	1/10W
R124	1-216-071-00	METAL GLAZE 8.2K 5%	1/10W
R125	1-216-039-00	METAL GLAZE 390 5%	1/10W
R126	1-216-053-00	METAL GLAZE 1.5K 5%	1/10W
R127	1-216-053-00	METAL GLAZE 1.5K 5%	1/10W
R128	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R129	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R131	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R132	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W
R133	1-216-121-00	METAL GLAZE 1M 5%	1/10W
R134	1-216-045-00	METAL GLAZE 680 5%	1/10W
R135	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R136	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
R140	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R141	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R142	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R143	1-216-045-00	METAL GLAZE 680 5%	1/10W (MDP-515D)
R144	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W (MDP-515D)
R145	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W (MDP-515D)

When indicating parts by reference number, please include the board name.

**Note:** The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

# MP-15

Ref.No	Part No.	Description	Remark			Ref.No	Part No.	Description	Remark		
R146	1-216-049-00	METAL GLAZE	1K	5%	1/10W	R206	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R147	1-216-043-00	METAL GLAZE	560	5%	1/10W	R207	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W
R148	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	R208	1-216-699-11	METAL CHIP	100K	0.50%	1/10W
R149	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	R209	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R150	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	R210	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R151	1-216-025-00	METAL GLAZE	100	5%	1/10W	R211	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R152	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	R212	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R153	1-216-049-00	METAL GLAZE	1K	5%	1/10W	R213	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R154	1-216-049-00	METAL GLAZE	1K	5%	1/10W	R214	1-216-113-00	METAL GLAZE	470K	5%	1/10W
R155	1-216-049-00	METAL GLAZE	1K	5%	1/10W	R215	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R157	1-216-083-00	METAL GLAZE	27K	5%	1/10W	R216	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R158	1-216-079-00	METAL GLAZE	18K	5%	1/10W	R217	1-216-077-00	METAL GLAZE	19K	5%	1/10W
R159	1-216-075-00	METAL GLAZE	12K	5%	1/10W	R218	1-216-113-00	METAL GLAZE	470K	5%	1/10W
R160	1-216-073-00	METAL GLAZE	10K	5%	1/10W	R219	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R161	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	R220	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R162	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	R221	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R163	1-216-115-00	METAL GLAZE	560K	5%	1/10W	R222	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R164	1-216-021-00	METAL GLAZE	68	5%	1/10W	R223	1-216-113-00	METAL GLAZE	470K	5%	1/10W
R165	1-249-410-11	CARBON	270	5%	1/4W	R224	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R166	1-216-021-00	METAL GLAZE	68	5%	1/10W	R226	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R167	1-216-047-00	METAL GLAZE	820	5%	1/10W (MDP-515D)	R227	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R168	1-249-410-11	CARBON	270	5%	1/4W	R228	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R169	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	R229	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R170	1-216-113-00	METAL GLAZE	470K	5%	1/10W (MDP-515D)	R230	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R171	1-216-097-00	METAL GLAZE	100K	5%	1/10W	R231	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R172	1-216-748-11	METAL GLAZE	39K	5%	1/10W	R232	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R175	1-216-041-00	METAL GLAZE	470	5%	1/10W	R233	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R176	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	R234	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R177	1-216-049-00	METAL GLAZE	1K	5%	1/10W	R235	1-216-069-00	METAL GLAZE	6.8K	5%	1/10W
R178	1-216-049-00	METAL GLAZE	1K	5%	1/10W	R236	1-216-037-00	METAL GLAZE	330	5%	1/10W
R179	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	R237	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R180	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W (MDP-515D)	R238	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R181	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W (MDP-515D)	R239	1-216-115-00	METAL GLAZE	560K	5%	1/10W (MDP-515D)
R182	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	R240	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R183	1-216-049-00	METAL GLAZE	1K	5%	1/10W (MDP-515D)	R241	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R184	1-216-049-00	METAL GLAZE	1K	5%	1/10W	R242	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R185	1-216-081-00	METAL GLAZE	22K	5%	1/10W	R243	1-216-748-11	METAL GLAZE	39K	5%	1/10W
R186	1-216-081-00	METAL GLAZE	22K	5%	1/10W	R244	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R190	1-216-039-00	METAL GLAZE	390	5%	1/10W	R245	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R191	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	R246	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R192	1-216-748-11	METAL GLAZE	39K	5%	1/10W	R247	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R193	1-216-091-00	METAL GLAZE	56K	5%	1/10W (MDP-515D)	R248	1-216-083-00	METAL GLAZE	27K	5%	1/10W
R193	1-216-748-11	METAL GLAZE	39K	5%	1/10W (MDP-315)	R249	1-216-083-00	METAL GLAZE	27K	5%	1/10W
R195	1-216-043-00	METAL GLAZE	560	5%	1/10W	R250	1-216-113-00	METAL GLAZE	470K	5%	1/10W
R197	1-216-097-00	METAL GLAZE	100K	5%	1/10W	R252	1-216-083-00	METAL GLAZE	27K	5%	1/10W
R198	1-216-073-00	METAL GLAZE	10K	5%	1/10W	R253	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R199	1-216-073-00	METAL GLAZE	10K	5%	1/10W	R254	1-216-113-00	METAL GLAZE	470K	5%	1/10W
R200	1-216-073-00	METAL GLAZE	10K	5%	1/10W	R255	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R201	1-216-073-00	METAL GLAZE	10K	5%	1/10W	R256	1-216-095-00	METAL GLAZE	82K	5%	1/10W
R202	1-216-073-00	METAL GLAZE	10K	5%	1/10W	R257	1-216-113-00	METAL GLAZE	470K	5%	1/10W
R203	1-216-097-00	METAL GLAZE	100K	5%	1/10W	R258	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R204	1-216-097-00	METAL GLAZE	100K	5%	1/10W	R259	1-216-109-00	METAL GLAZE	330K	5%	1/10W
R205	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	R260	1-216-089-00	METAL GLAZE	47K	5%	1/10W (MDP-515D)

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark		
R260	1-216-295-00	METAL GLAZE	0	5%	1/10W (MDP-315)
R261	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W (MDP-515D)
R261	1-216-295-00	METAL GLAZE	0	5%	1/10W (MDP-315)
R262	1-216-109-00	METAL GLAZE	330K	5%	1/10W (MDP-515D)
R263	1-216-075-00	METAL GLAZE	12K	5%	1/10W (MDP-515D)
R264	1-216-748-11	METAL GLAZE	39K	5%	1/10W (MDP-515D)
R265	1-216-079-00	METAL GLAZE	18K	5%	1/10W
R266	1-216-077-00	METAL GLAZE	19K	5%	1/10W
R267	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W
R268	1-216-043-00	METAL GLAZE	560	5%	1/10W
R269	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W
R270	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W
R271	1-216-025-00	METAL GLAZE	100	5%	1/10W
R272	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R273	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W
R274	1-216-043-00	METAL GLAZE	560	5%	1/10W
R275	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R276	1-216-099-00	METAL GLAZE	120K	5%	1/10W (MDP-515D)
R277	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W
R278	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R279	1-249-416-11	CARBON	820	5%	1/4W
R281	1-216-021-00	METAL GLAZE	68	5%	1/10W
R282	1-249-389-11	CARBON	4.7	5%	1/4W
R283	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R284	1-216-117-00	METAL GLAZE	680K	5%	1/10W
R285	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R286	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W
R290	1-216-091-00	METAL GLAZE	56K	5%	1/10W
R291	1-216-089-00	METAL GLAZE	47K	5%	1/10W
R292	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R293	1-216-049-00	METAL GLAZE	1K	5%	1/10W (MDP-515D)
R293	1-216-295-00	METAL GLAZE	0	5%	1/10W (MDP-315)
R294	1-216-035-00	METAL GLAZE	270	5%	1/10W (MDP-515D)
R294	1-216-295-00	METAL GLAZE	0	5%	1/10W (MDP-315)
R295	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R296	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R297	1-216-037-00	METAL GLAZE	330	5%	1/10W
R298	1-216-031-00	METAL GLAZE	180	5%	1/10W
R299	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R300	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R301	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W
R302	1-216-033-00	METAL GLAZE	220	5%	1/10W
R303	1-216-033-00	METAL GLAZE	220	5%	1/10W
R304	1-216-033-00	METAL GLAZE	220	5%	1/10W
R305	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W
R306	1-216-033-00	METAL GLAZE	220	5%	1/10W
R307	1-216-047-00	METAL GLAZE	820	5%	1/10W
R308	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R309	1-216-748-11	METAL GLAZE	39K	5%	1/10W
R310	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R311	1-216-033-00	METAL GLAZE	220	5%	1/10W
R312	1-216-081-00	METAL GLAZE	22K	5%	1/10W
R313	1-216-041-00	METAL GLAZE	470	5%	1/10W

Ref.No	Part No.	Description	Remark		
R314	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W
R316	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R317	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R318	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R319	1-216-033-00	METAL GLAZE	220	5%	1/10W
R320	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R321	1-216-047-00	METAL GLAZE	820	5%	1/10W
R322	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R323	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R324	1-216-097-00	METAL GLAZE	100K	5%	1/10W
R325	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R326	1-216-085-00	METAL GLAZE	33K	5%	1/10W
R327	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R328	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R329	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R330	1-216-047-00	METAL GLAZE	820	5%	1/10W
R331	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R332	1-216-047-00	METAL GLAZE	820	5%	1/10W
R333	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R334	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R335	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R336	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R337	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R338	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R339	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R340	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W
R341	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W
R342	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R343	1-216-121-00	METAL GLAZE	1M	5%	1/10W
R344	1-216-097-00	METAL GLAZE	100K	5%	1/10W (MDP-515D)
R345	1-216-095-00	METAL GLAZE	82K	5%	1/10W (MDP-515D)
R346	1-216-097-00	METAL GLAZE	100K	5%	1/10W (MDP-515D)
R347	1-216-095-00	METAL GLAZE	82K	5%	1/10W (MDP-515D)
R348	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W (MDP-515D)
R349	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W (MDP-515D)
R350	1-216-047-00	METAL GLAZE	820	5%	1/10W (MDP-515D)
R351	1-216-037-00	METAL GLAZE	330	5%	1/10W (MDP-515D)
R352	1-249-405-11	CARBON	100	5%	1/4W (MDP-515D)
R353	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R354	1-216-033-00	METAL GLAZE	220	5%	1/10W
R355	1-216-033-00	METAL GLAZE	220	5%	1/10W
R356	1-216-295-00	METAL GLAZE	0	5%	1/10W
R357	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R358	1-216-073-00	METAL GLAZE	10K	5%	1/10W
R359	1-216-041-00	METAL GLAZE	470	5%	1/10W
R360	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R361	1-216-041-00	METAL GLAZE	470	5%	1/10W
R362	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W
R601	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R602	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R603	1-216-049-00	METAL GLAZE	1K	5%	1/10W
R604	1-216-037-00	METAL GLAZE	330	5%	1/10W
R605	1-216-049-00	METAL GLAZE	1K	5%	1/10W

When indicating parts by reference number, please include the board name.



# MP-15

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R606	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R657	1-216-033-00	METAL GLAZE	220 5% 1/10W
R607	1-216-033-00	METAL GLAZE	220 5% 1/10W	R658	1-216-033-00	METAL GLAZE	220 5% 1/10W
R608	1-216-037-00	METAL GLAZE	330 5% 1/10W	R659	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R609	1-216-033-00	METAL GLAZE	220 5% 1/10W	R660	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R610	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R661	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R611	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R662	1-216-025-00	METAL GLAZE	100 5% 1/10W
R612	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R663	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R613	1-216-049-00	METAL GLAZE	1K 5% 1/10W (MDP-5150)	R664	1-216-033-00	METAL GLAZE	220 5% 1/10W
R614	1-216-097-00	METAL GLAZE	100K 5% 1/10W (MDP-5150)	R665	1-216-033-00	METAL GLAZE	220 5% 1/10W
R615	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R666	1-216-033-00	METAL GLAZE	220 5% 1/10W
R616	1-216-085-00	METAL GLAZE	33K 5% 1/10W	R667	1-216-033-00	METAL GLAZE	220 5% 1/10W
R617	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R668	1-216-033-00	METAL GLAZE	220 5% 1/10W
R618	1-216-041-00	METAL GLAZE	470 5% 1/10W	R669	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R619	1-216-097-00	METAL GLAZE	100K 5% 1/10W	R670	1-216-651-11	METAL CHIP	1K 0.50% 1/10W
R620	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R671	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R621	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R672	1-216-667-11	METAL CHIP	4.7K 0.50% 1/10W
R622	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R673	1-216-659-11	METAL CHIP	2.2K 0.50% 1/10W
R623	1-216-055-00	METAL GLAZE	1.8K 5% 1/10W	R674	1-216-651-11	METAL CHIP	1K 0.50% 1/10W
R624	1-216-063-00	METAL GLAZE	3.9K 5% 1/10W	R675	1-216-651-11	METAL CHIP	1K 0.50% 1/10W
R625	1-216-069-00	METAL GLAZE	6.8K 5% 1/10W	R676	1-216-625-11	METAL CHIP	82 0.50% 1/10W
R626	1-216-095-00	METAL GLAZE	82K 5% 1/10W	R677	1-216-645-11	METAL CHIP	560 0.50% 1/10W
R627	1-216-081-00	METAL GLAZE	22K 5% 1/10W	R678	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R628	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	R679	1-216-675-11	METAL CHIP	10K 0.50% 1/10W
R629	1-216-081-00	METAL GLAZE	22K 5% 1/10W	R680	1-216-697-11	METAL CHIP	82K 0.50% 1/10W
R630	1-216-101-00	METAL GLAZE	150K 5% 1/10W	R681	1-247-731-11	CARBON	22 5% 1/2W
R631	1-216-025-00	METAL GLAZE	100 5% 1/10W	R682	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R632	1-216-081-00	METAL GLAZE	22K 5% 1/10W	R683	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R633	1-216-081-00	METAL GLAZE	22K 5% 1/10W	R684	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R634	1-216-113-00	METAL GLAZE	470K 5% 1/10W	R685	1-216-099-00	METAL GLAZE	120K 5% 1/10W
R635	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	R686	1-216-075-00	METAL GLAZE	12K 5% 1/10W
R636	1-216-121-00	METAL GLAZE	1M 5% 1/10W	R687	1-216-043-00	METAL GLAZE	560 5% 1/10W
R637	1-216-097-00	METAL GLAZE	100K 5% 1/10W	R688	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R638	1-216-121-00	METAL GLAZE	1M 5% 1/10W	R689	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R639	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R690	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R640	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R691	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R641	1-216-091-00	METAL GLAZE	56K 5% 1/10W	R692	1-216-013-00	METAL GLAZE	33 5% 1/10W
R642	1-216-053-00	METAL GLAZE	1.5K 5% 1/10W	R693	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R642	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W	R694	1-216-121-00	METAL GLAZE	1M 5% 1/10W
R643	1-216-053-00	METAL GLAZE	1.5K 5% 1/10W	R695	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W
R643	1-216-055-00	METAL GLAZE	1.8K 5% 1/10W	R696	1-216-093-00	METAL GLAZE	66K 5% 1/10W
R644	1-216-053-00	METAL GLAZE	1.5K 5% 1/10W	R697	1-216-085-00	METAL GLAZE	33K 5% 1/10W
R645	1-216-091-00	METAL GLAZE	56K 5% 1/10W	R698	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R646	1-216-099-00	METAL GLAZE	120K 5% 1/10W	R699	1-216-085-00	METAL GLAZE	33K 5% 1/10W
R647	1-216-051-00	METAL GLAZE	1.2K 5% 1/10W	R700	1-216-077-00	METAL GLAZE	15K 5% 1/10W
R648	1-216-053-00	METAL GLAZE	1.5K 5% 1/10W	R701	1-216-105-00	METAL GLAZE	220K 5% 1/10W
R649	1-216-035-00	METAL GLAZE	270 5% 1/10W	R702	1-216-083-00	METAL GLAZE	27K 5% 1/10W
R650	1-216-033-00	METAL GLAZE	220 5% 1/10W	R703	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R651	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R704	1-216-111-00	METAL GLAZE	390K 5% 1/10W
R652	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R705	1-216-077-00	METAL GLAZE	15K 5% 1/10W
R653	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R706	1-216-105-00	METAL GLAZE	220K 5% 1/10W
R654	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R707	1-216-075-00	METAL GLAZE	12K 5% 1/10W
R655	1-216-033-00	METAL GLAZE	220 5% 1/10W	R708	1-216-035-00	METAL GLAZE	270 5% 1/10W
R656	1-216-033-00	METAL GLAZE	220 5% 1/10W	R709	1-216-111-00	METAL GLAZE	390K 5% 1/10W

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R710	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R805	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R711	1-216-111-00	METAL GLAZE	390K 5% 1/10W	R806	1-216-099-00	METAL GLAZE	120K 5% 1/10W
R712	1-216-105-00	METAL GLAZE	220K 5% 1/10W	R807	1-216-101-00	METAL GLAZE	150K 5% 1/10W
R713	1-216-748-11	METAL GLAZE	39K 5% 1/10W	R808	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W
R714	1-216-095-00	METAL GLAZE	82K 5% 1/10W	R809	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R715	1-216-099-00	METAL GLAZE	120K 5% 1/10W	R810	1-216-093-00	METAL GLAZE	68K 5% 1/10W
R716	1-216-111-00	METAL GLAZE	390K 5% 1/10W	R811	1-216-121-00	METAL GLAZE	1M 5% 1/10W
R717	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R812	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W
R718	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R813	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R719	1-216-041-00	METAL GLAZE	470 5% 1/10W	R814	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R720	1-216-033-00	METAL GLAZE	220 5% 1/10W	R815	1-216-093-00	METAL GLAZE	68K 5% 1/10W
R721	1-216-043-00	METAL GLAZE	560 5% 1/10W	R816	1-216-062-00	METAL GLAZE	3.6K 5% 1/10W
R722	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R817	1-216-093-00	METAL GLAZE	68K 5% 1/10W
R723	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R818	1-216-099-00	METAL GLAZE	120K 5% 1/10W
R724	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R819	1-216-099-00	METAL GLAZE	120K 5% 1/10W
R725	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R820	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R726	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R821	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R727	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R822	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R728	1-216-033-00	METAL GLAZE	220 5% 1/10W	R823	1-216-051-00	METAL GLAZE	1.2K 5% 1/10W
R729	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R825	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R731	1-216-033-00	METAL GLAZE	220 5% 1/10W	R826	1-216-077-00	METAL GLAZE	15K 5% 1/10W
R732	1-216-033-00	METAL GLAZE	220 5% 1/10W	R827	1-216-053-00	METAL GLAZE	1.5K 5% 1/10W
R733	1-216-033-00	METAL GLAZE	220 5% 1/10W	R828	1-216-334-11	METAL GLAZE	22K 1% 1/10W
R734	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R829	1-216-334-11	METAL GLAZE	22K 1% 1/10W
R735	1-216-081-00	METAL GLAZE	22K 5% 1/10W	R830	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R736	1-216-081-00	METAL GLAZE	22K 5% 1/10W	R831	1-216-075-00	METAL GLAZE	12K 5% 1/10W
R737	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	R832	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R738	1-216-081-00	METAL GLAZE	22K 5% 1/10W	R833	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R739	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R834	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R740	1-216-021-00	METAL GLAZE	68 5% 1/10W	R835	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R741	△.1-212-950-00	FUSIBLE	4.7 5% 1/2W F	R836	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R742	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R840	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R743	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R841	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R744	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R842	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R745	1-216-013-00	METAL GLAZE	33 5% 1/10W	R844	1-216-025-00	METAL GLAZE	100 5% 1/10W
R746	1-216-101-00	METAL GLAZE	150K 5% 1/10W	R845	1-216-025-00	METAL GLAZE	100 5% 1/10W
R747	1-216-675-11	METAL CHIP	10K 0.50% 1/10W	R846	1-216-025-00	METAL GLAZE	100 5% 1/10W
R748	1-216-683-11	METAL CHIP	22K 0.50% 1/10W	R847	1-216-025-00	METAL GLAZE	100 5% 1/10W
R749	1-216-071-00	METAL GLAZE	8.2K 5% 1/10W	R848	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R750	1-216-059-00	METAL GLAZE	2.7K 5% 1/10W	R849	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R751	1-216-113-00	METAL GLAZE	470K 5% 1/10W	R850	1-216-121-00	METAL GLAZE	1M 5% 1/10W
R752	1-216-053-00	METAL GLAZE	1.5K 5% 1/10W	R851	1-216-099-00	METAL GLAZE	120K 5% 1/10W
R753	1-216-085-00	METAL GLAZE	33K 5% 1/10W	R861	1-216-025-00	METAL GLAZE	100 5% 1/10W
R754	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R862	1-216-025-00	METAL GLAZE	100 5% 1/10W
R755	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W	R863	1-216-025-00	METAL GLAZE	100 5% 1/10W
R756	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R864	1-216-025-00	METAL GLAZE	100 5% 1/10W
R757	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R865	1-216-025-00	METAL GLAZE	100 5% 1/10W
R760	1-216-047-00	METAL GLAZE	820 5% 1/10W	R868	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R761	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R901	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R801	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R903	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R802	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R909	1-259-178-81	CARBON	3K 1% 1/4W
R803	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	R910	1-259-171-91	CARBON	1.5K 5% 1/4W
R804	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R911	1-259-171-91	CARBON	1.5K 5% 1/4W

When indicating parts by reference number, please include the board name.

**Note:** The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

# MP-15

# AF-52

Ref.No	Part No.	Description	Remark
R912	1-259-223-91	CARBON 220K 5%	1/4W
R913	1-259-178-81	CARBON 3K 1%	1/4W
R914	1-259-171-91	CARBON 1.5K 5%	1/4W
R915	1-259-171-91	CARBON 1.5K 5%	1/4W
R916	1-259-223-91	CARBON 220K 5%	1/4W
R917	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R920	△ 1-212-849-00	FUSIBLE 4.7 5%	1/4W F
R921	△ 1-212-849-00	FUSIBLE 4.7 5%	1/4W F
R922	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R924	1-216-077-00	METAL GLAZE 15K 5%	1/10W
R925	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R926	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R927	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R928	1-259-151-91	CARBON 220 5%	1/4W
R929	1-259-151-91	CARBON 220 5%	1/4W
R930	1-259-215-91	CARBON 100K 5%	1/4W
R931	1-259-215-91	CARBON 100K 5%	1/4W
R932	1-259-167-91	CARBON 1K 5%	1/4W
R933	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
R934	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
R935	1-259-167-91	CARBON 1K 5%	1/4W
R936	1-216-060-00	METAL GLAZE 3K 5%	1/10W
R937	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R938	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R939	1-259-191-91	CARBON 10K 5%	1/4W
R940	1-259-191-91	CARBON 10K 5%	1/4W
R941	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R942	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R945	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
R946	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R947	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R951	1-216-025-00	METAL GLAZE 100 5%	1/10W
R952	1-216-025-00	METAL GLAZE 100 5%	1/10W
R953	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R954	1-216-049-00	METAL GLAZE 1K 5%	1/10W

### VARIABLE RESISTOR

RV101	1-228-989-00	RES, ADJ, CARBON 470
RV102	1-228-989-00	RES, ADJ, CARBON 470
RV103	1-228-993-00	RES, ADJ, CARBON 4.7K
RV104	1-228-994-00	RES, ADJ, CARBON 10K
RV105	1-228-993-00	RES, ADJ, CARBON 4.7K
RV106	1-228-998-00	RES, ADJ, METAL GLAZE 220K
RV107	1-228-994-00	RES, ADJ, CARBON 10K
RV801	1-228-993-00	RES, ADJ, CARBON 4.7K

### RELAY

RY801	1-515-622-11	RELAY
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### CRYSTAL

X101	1-567-652-11	VIBRATOR, CRYSTAL
X601	1-567-733-11	VIBRATOR, CRYSTAL
X602	1-567-900-11	VIBRATOR, CRYSTAL

Ref.No	Part No.	Description	Remark
X801	1-567-515-11	VIBRATOR, VARIABLE CRYSTAL	

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\*A-6421-371-A AF-52 BOARD, COMPLETE (Ref. No 8.000 Series)

### CAPACITOR

C401	1-126-177-11	ELECT 100MF	20% 6.3V (MDP-515D)
C402	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V (MDP-515D)
C403	1-163-126-00	CERAMIC CHIP 240PF	5% 50V (MDP-515D)
C404	1-163-126-00	CERAMIC CHIP 240PF	5% 50V (MDP-515D)
C405	1-163-101-00	CERAMIC CHIP 22PF	5% 50V (MDP-515D)
C406	1-163-099-00	CERAMIC CHIP 18PF	5% 50V (MDP-515D)
C407	1-163-111-00	CERAMIC CHIP 56PF	5% 50V (MDP-515D)
C408	1-163-099-00	CERAMIC CHIP 18PF	5% 50V (MDP-515D)
C409	1-163-101-00	CERAMIC CHIP 22PF	5% 50V (MDP-515D)
C410	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V (MDP-515D)
C411	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V (MDP-515D)
C412	1-124-446-11	ELECT 47MF	20% 10V (MDP-515D)
C413	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V (MDP-515D)
C414	1-124-446-11	ELECT 47MF	20% 10V (MDP-515D)
C415	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V (MDP-515D)
C416	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V (MDP-515D)
C417	1-126-177-11	ELECT 100MF	20% 6.3V (MDP-515D)
C418	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V (MDP-515D)
C419	1-163-121-00	CERAMIC CHIP 150PF	5% 50V (MDP-515D)
C420	1-163-129-00	CERAMIC CHIP 330PF	5% 50V (MDP-515D)
C421	1-163-121-00	CERAMIC CHIP 150PF	5% 50V (MDP-515D)
C422	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V (MDP-515D)
C423	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V (MDP-515D)
C424	1-124-446-11	ELECT 47MF	20% 10V (MDP-515D)
C425	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V (MDP-515D)
C426	1-124-446-11	ELECT 47MF	20% 10V (MDP-515D)
C427	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V (MDP-515D)
C428	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V (MDP-515D)
C429	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V (MDP-515D)
C715	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V
C716	1-163-141-00	CERAMIC CHIP 0.001MF	5% 50V
C717	1-124-443-00	ELECT 100MF	20% 6.3V
C718	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V
C719	1-124-443-00	ELECT 100MF	20% 6.3V
C720	1-126-233-11	ELECT 22MF	20% 25V
C721	1-163-105-00	CERAMIC CHIP 33PF	5% 50V (MDP-515D)
C721	1-216-295-00	METAL GLAZE 0	5% 1/10W (MDP-315)
C722	1-163-145-00	CERAMIC CHIP 0.0015MF	5% 50V
C723	1-163-125-00	CERAMIC CHIP 220PF	5% 50V
C724	1-163-019-00	CERAMIC CHIP 0.0068MF	10% 50V
C725	1-163-145-00	CERAMIC CHIP 0.0015MF	5% 50V
C726	1-126-233-11	ELECT 22MF	20% 25V
C727	1-124-443-00	ELECT 100MF	20% 6.3V
C728	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
C729	1-163-145-00	CERAMIC CHIP 0.0015MF	5% 50V

When indicating parts by reference number, please include the board name.

Note: The components identified by mark **A** or dotted line with mark **A** are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description	Remark
C730	1-163-129-00	CERAMIC CHIP 330PF	5% 50V
C731	1-163-125-00	CERAMIC CHIP 220PF	5% 50V
C732	1-163-020-00	CERAMIC CHIP 0.0082MF	5% 50V
C733	1-123-875-11	ELECT 10MF	20% 50V
C734	1-163-809-11	CERAMIC CHIP 0.047MF	5% 25V
C735	1-163-077-00	CERAMIC CHIP 0.1MF	10% 25V
C736	1-126-233-11	ELECT 22MF	20% 25V
C737	1-163-141-00	CERAMIC CHIP 0.001MF	5% 50V
C738	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V
C739	1-124-443-00	ELECT 100MF	20% 6.3V
C740	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V
C741	1-126-233-11	ELECT 22MF	20% 25V
C742	1-124-443-00	ELECT 100MF	20% 6.3V
C743	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C744	1-163-125-00	CERAMIC CHIP 220PF	5% 50V
C745	1-163-145-00	CERAMIC CHIP 0.0015MF	5% 50V
C746	1-163-145-00	CERAMIC CHIP 0.0015MF	5% 50V
C747	1-163-019-00	CERAMIC CHIP 0.0068MF	10% 50V
C748	1-126-233-11	ELECT 22MF	20% 25V
C749	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
C750	1-163-129-00	CERAMIC CHIP 330PF	5% 50V
C751	1-163-145-00	CERAMIC CHIP 0.0015MF	5% 50V
C752	1-163-125-00	CERAMIC CHIP 220PF	5% 50V
C753	1-163-020-00	CERAMIC CHIP 0.0082MF	5% 50V
C754	1-123-875-11	ELECT 10MF	20% 50V
C755	1-163-809-11	CERAMIC CHIP 0.047MF	5% 25V
C756	1-124-270-11	ELECT 0.47MF	20% 50V
C757	1-124-443-00	ELECT 100MF	20% 6.3V
C758	1-124-927-11	ELECT 4.7MF	20% 50V
C759	1-216-295-00	METAL GLAZE 0	5% 1/10W (MDP-315)
C759	1-163-105-00	CERAMIC CHIP 33PF	5% 50V (MDP-515D)
C760	1-163-141-00	CERAMIC CHIP 0.001MF	5% 50V
C761	1-163-113-00	CERAMIC CHIP 68PF	5% 50V
C762	1-124-446-11	ELECT 47MF	20% 10V
C763	1-124-446-11	ELECT 47MF	20% 10V
C764	1-163-116-00	CERAMIC CHIP 91PF	5% 50V
C765	1-163-113-00	CERAMIC CHIP 68PF	5% 50V
C766	1-124-446-11	ELECT 47MF	20% 10V (MDP-515D)
<u>CONNECTOR</u>			
CN701	*1-566-709-11	CONNECTOR, BOARD TO BOARD 12P	
<u>FILTER</u>			
FL401	1-235-925-11	FILTER, BAND PASS (2.3MHZ) (MDP-515D)	
FL402	1-235-926-11	FILTER, BAND PASS (2.8MHZ) (MDP-515D)	
FL403	1-236-573-11	BPF (PAL LCH) (0.68MHZ)	
FL404	1-236-574-11	BPF (PAL LCH) (1.07MHZ)	
<u>IC</u>			
IC401	8-759-941-68	IC BA7131F (MDP-515D)	
IC402	8-759-941-68	IC BA7131F (MDP-515D)	
IC701	8-759-321-46	IC HA12127NT	

Ref.No	Part No.	Description	Remark
<u>JUMPER RESISTOR</u>			
JR1	1-216-295-00	METAL GLAZE 0	5% 1/10W
JR2	1-216-295-00	METAL GLAZE 0	5% 1/10W
JR3	1-216-295-00	METAL GLAZE 0	5% 1/10W
JR4	1-216-295-00	METAL GLAZE 0	5% 1/10W
JR5	1-216-295-00	METAL GLAZE 0	5% 1/10W
JR6	1-216-295-00	METAL GLAZE 0	5% 1/10W
JR7	1-216-295-00	METAL GLAZE 0	5% 1/10W
JR8	1-216-295-00	METAL GLAZE 0	5% 1/10W
JR9	1-216-295-00	METAL GLAZE 0	5% 1/10W
JR10	1-216-295-00	METAL GLAZE 0	5% 1/10W
JR11	1-216-295-00	METAL GLAZE 0	5% 1/10W
JR12	1-216-295-00	METAL GLAZE 0	5% 1/10W
JR13	1-216-295-00	METAL GLAZE 0	5% 1/10W
JR14	1-216-295-00	METAL GLAZE 0	5% 1/10W
JR15	1-216-295-00	METAL GLAZE 0	5% 1/10W
JR16	1-216-295-00	METAL GLAZE 0	5% 1/10W
JR17	1-216-295-00	METAL GLAZE 0	5% 1/10W
JR18	1-216-295-00	METAL GLAZE 0	5% 1/10W
JR19	1-216-295-00	METAL GLAZE 0	5% 1/10W
JR20	1-216-295-00	METAL GLAZE 0	5% 1/10W
JR21	1-216-295-00	METAL GLAZE 0	5% 1/10W
JR23	1-216-295-00	METAL GLAZE 0	5% 1/10W
JR24	1-216-295-00	METAL GLAZE 0	5% 1/10W
JR25	1-216-295-00	METAL GLAZE 0	5% 1/10W
JR26	1-216-295-00	METAL GLAZE 0	5% 1/10W
JR27	1-216-295-00	METAL GLAZE 0	5% 1/10W
JR28	1-216-295-00	METAL GLAZE 0	5% 1/10W
JR29	1-216-295-00	METAL GLAZE 0	5% 1/10W
<u>COIL</u>			
L401	1-410-521-11	INDUCTOR 100UH	(MDP-515D)
L402	1-410-336-11	INDUCTOR 220UH	(MDP-515D)
L403	1-408-417-00	INDUCTOR 47UH	(MDP-515D)
L404	1-408-417-00	INDUCTOR 47UH	(MDP-515D)
L405	1-410-520-11	INDUCTOR 82UH	
L406	1-410-520-11	INDUCTOR 82UH	
L705	1-408-420-00	INDUCTOR 82UH	
L706	1-408-420-00	INDUCTOR 82UH	
L707	1-408-407-00	INDUCTOR 6.8UH	
L708	1-408-407-00	INDUCTOR 6.8UH	
<u>TRANSISTOR</u>			
Q401	8-729-100-66	TRANSISTOR 2SC1623	(MDP-515D)
Q402	8-729-100-66	TRANSISTOR 2SC1623	(MDP-515D)
Q403	8-729-100-66	TRANSISTOR 2SC1623	(MDP-515D)
Q404	8-729-100-66	TRANSISTOR 2SC1623	(MDP-515D)
Q405	8-729-100-66	TRANSISTOR 2SC1623	(MDP-515D)
Q406	8-729-100-66	TRANSISTOR 2SC1623	(MDP-515D)
Q407	8-729-100-66	TRANSISTOR 2SC1623	
Q408	8-729-100-66	TRANSISTOR 2SC1623	
Q409	8-729-100-66	TRANSISTOR 2SC1623	
Q410	8-729-100-66	TRANSISTOR 2SC1623	

When indicating parts by reference number, please include the board name.

# AF-52

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
Q411	8-729-100-66	TRANSISTOR 2SC1623		R722	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
Q412	8-729-100-66	TRANSISTOR 2SC1623		R723	1-216-085-00	METAL GLAZE 33K 5% 1/10W	
Q701	8-729-808-36	TRANSISTOR 2SK669 (MDP-515D)		R724	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
Q702	8-729-808-36	TRANSISTOR 2SK669 (MDP-515D)		R725	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
Q703	8-729-901-01	TRANSISTOR DTC144EK		R726	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
Q704	8-729-901-06	TRANSISTOR DTA144EK		R727	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
Q705	8-729-220-93	TRANSISTOR 2SK209G (MDP-515D)		R728	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
Q706	8-729-220-93	TRANSISTOR 2SK209G (MDP-515D)		R729	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
<b>RESISTOR</b>				R730	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R401	1-216-073-00	METAL GLAZE 10K 5% 1/10W (MDP-515D)		R731	1-216-073-00	METAL GLAZE 10K 5% 1/10W (MDP-515D)	
R402	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W (MDP-515D)		R732	1-216-081-00	METAL GLAZE 22K 5% 1/10W (MDP-315)	
R403	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W (MDP-515D)		R732	1-216-748-11	METAL GLAZE 39K 5% 1/10W (MDP-515D)	
R404	1-216-033-00	METAL GLAZE 220 5% 1/10W (MDP-515D)		R733	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
R405	1-216-048-00	METAL GLAZE 910 5% 1/10W (MDP-515D)		R734	1-216-101-00	METAL GLAZE 150K 5% 1/10W	
R406	1-216-081-00	METAL GLAZE 22K 5% 1/10W (MDP-515D)		R735	1-216-101-00	METAL GLAZE 150K 5% 1/10W	
R407	1-216-081-00	METAL GLAZE 22K 5% 1/10W (MDP-515D)		R736	1-216-096-00	METAL GLAZE 91K 5% 1/10W	
R408	1-216-049-00	METAL GLAZE 1K 5% 1/10W (MDP-515D)		R737	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R409	1-216-049-00	METAL GLAZE 1K 5% 1/10W (MDP-515D)		R738	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R410	1-216-049-00	METAL GLAZE 1K 5% 1/10W (MDP-515D)		R739	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R411	1-216-049-00	METAL GLAZE 1K 5% 1/10W (MDP-515D)		R740	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R412	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W (MDP-515D)		R741	1-216-060-00	METAL GLAZE 3K 5% 1/10W	
R413	1-216-075-00	METAL GLAZE 12K 5% 1/10W (MDP-515D)		R742	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R414	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W (MDP-515D)		R743	1-216-692-11	METAL CHIP 51K 0.50% 1/10W	
R415	1-216-049-00	METAL GLAZE 1K 5% 1/10W (MDP-515D)		R744	1-216-692-11	METAL CHIP 51K 0.50% 1/10W	
R416	1-216-049-00	METAL GLAZE 1K 5% 1/10W (MDP-515D)		R745	1-216-064-00	METAL GLAZE 4.3K 5% 1/10W	
R417	1-216-049-00	METAL GLAZE 1K 5% 1/10W (MDP-515D)		R746	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R418	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W (MDP-515D)		R747	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R419	1-216-075-00	METAL GLAZE 12K 5% 1/10W (MDP-515D)		R748	1-216-051-00	METAL GLAZE 1.2K 5% 1/10W	
R420	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W (MDP-515D)		R749	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R421	1-216-073-00	METAL GLAZE 10K 5% 1/10W (MDP-515D)		R750	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R422	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W (MDP-515D)		R751	1-216-073-00	METAL GLAZE 10K 5% 1/10W (MDP-515D)	
R423	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W (MDP-515D)		R751	1-216-085-00	METAL GLAZE 33K 5% 1/10W (MDP-315)	
R424	1-216-033-00	METAL GLAZE 220 5% 1/10W (MDP-515D)		R752	1-216-081-00	METAL GLAZE 22K 5% 1/10W (MDP-315)	
R425	1-216-045-00	METAL GLAZE 680 5% 1/10W (MDP-515D)		R752	1-216-748-11	METAL GLAZE 39K 5% 1/10W (MDP-515D)	
R426	1-216-081-00	METAL GLAZE 22K 5% 1/10W (MDP-515D)		R753	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
R427	1-216-081-00	METAL GLAZE 22K 5% 1/10W (MDP-515D)		R754	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W	
R428	1-216-049-00	METAL GLAZE 1K 5% 1/10W (MDP-515D)		R757	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R429	1-216-049-00	METAL GLAZE 1K 5% 1/10W (MDP-515D)		R758	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R430	1-216-049-00	METAL GLAZE 1K 5% 1/10W (MDP-515D)		R759	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
R431	1-216-049-00	METAL GLAZE 1K 5% 1/10W (MDP-515D)		R760	1-216-121-00	METAL GLAZE 1M 5% 1/10W (MDP-515D)	
R432	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W (MDP-515D)		R761	1-216-121-00	METAL GLAZE 1M 5% 1/10W (MDP-515D)	
R433	1-216-075-00	METAL GLAZE 12K 5% 1/10W (MDP-515D)		R762	1-216-121-00	METAL GLAZE 1M 5% 1/10W (MDP-515D)	
R434	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W (MDP-515D)		R763	1-216-089-00	METAL GLAZE 47K 5% 1/10W (MDP-515D)	
R435	1-216-049-00	METAL GLAZE 1K 5% 1/10W (MDP-515D)		R764	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W (MDP-515D)	
R436	1-216-049-00	METAL GLAZE 1K 5% 1/10W (MDP-515D)		R765	1-216-121-00	METAL GLAZE 1M 5% 1/10W (MDP-515D)	
R437	1-216-049-00	METAL GLAZE 1K 5% 1/10W (MDP-515D)		R766	1-216-121-00	METAL GLAZE 1M 5% 1/10W (MDP-515D)	
R438	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W (MDP-515D)		R767	1-216-121-00	METAL GLAZE 1M 5% 1/10W (MDP-515D)	
R439	1-216-075-00	METAL GLAZE 12K 5% 1/10W (MDP-515D)		R769	1-216-077-00	METAL GLAZE 15K 5% 1/10W (MDP-515D)	
R440	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W (MDP-515D)		R770	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W (MDP-515D)	
R719	1-216-049-00	METAL GLAZE 1K 5% 1/10W		R771	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W (MDP-515D)	
R720	1-216-060-00	METAL GLAZE 3K 5% 1/10W		R772	1-216-121-00	METAL GLAZE 1M 5% 1/10W (MDP-515D)	
R721	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W		R773	1-216-121-00	METAL GLAZE 1M 5% 1/10W (MDP-515D)	

When indicating parts by reference number, please include the board name.



**AF-52****TL-40****RG-6**

Ref.No	Part No.	Description	Remark
<u>VARIABLE RESISTOR</u>			
RV701	1-228-995-00	RES, ADJ, CARBON 22K	
RV702	1-228-995-00	RES, ADJ, CARBON 22K	
RV703	1-228-996-00	RES, ADJ, CARBON 47K (MDP-515D)	
RV704	1-228-996-00	RES, ADJ, CARBON 47K (MDP-515D)	

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\*1-633-134-11 TL-40 BOARD (Ref.No 2,000 Series)  
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RESISTOR

RO01	1-249-429-11	CARBON	10K	5%	1/4W
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VARIABLE RESISTOR

RV001	1-228-994-00	RES, ADJ, CARBON 10K
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\*A-6421-370-A RG-6 BOARD, COMPLETE (MDP-515D)  
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(Ref.No 2,000 Series)

CAPACITOR

C101	1-124-589-11	ELECT	47MF	20%	16V
C102	1-126-157-11	ELECT	10MF	20%	16V
C103	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C104	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C105	1-126-157-11	ELECT	10MF	20%	16V
C106	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C107	1-126-154-11	ELECT	47MF	20%	6.3V
C108	1-124-604-00	ELECT	330MF	20%	10V
C109	1-163-038-00	CERAMIC CHIP	0.1MF		25V
C110	1-126-154-11	ELECT	47MF	20%	6.3V
C111	1-126-157-11	ELECT	10MF	20%	16V
C112	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C113	1-163-113-00	CERAMIC CHIP	68PF	5%	50V
C114	1-126-157-11	ELECT	10MF	20%	16V
C115	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C116	1-124-589-11	ELECT	47MF	20%	16V
C117	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C118	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C119	1-136-161-00	MYLAR	0.047MF	10%	50V
C120	1-136-161-00	MYLAR	0.047MF	10%	50V
C121	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C122	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C123	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C124	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C125	1-126-157-11	ELECT	10MF	20%	16V
C126	1-126-157-11	ELECT	10MF	20%	16V
C127	1-126-157-11	ELECT	10MF	20%	16V
C128	1-126-157-11	ELECT	10MF	20%	16V
C129	1-126-157-11	ELECT	10MF	20%	16V
C130	1-126-157-11	ELECT	10MF	20%	16V

Ref.No	Part No.	Description	Remark
C131	1-124-465-00	ELECT	0.47MF 20% 50V
C132	1-126-177-11	ELECT	100MF 20% 6.3V
C133	1-163-038-00	CERAMIC CHIP	0.1MF 25V
C134	1-163-035-00	CERAMIC CHIP	0.047MF 50V
C135	1-136-159-00	MYLAR	0.033MF 10% 50V
C136	1-124-438-00	ELECT	1MF 20% 50V
C137	1-163-035-00	CERAMIC CHIP	0.047MF 50V
C138	1-163-038-00	CERAMIC CHIP	0.1MF 25V
C139	1-163-101-00	CERAMIC CHIP	22PF 5% 50V
C140	1-163-105-00	CERAMIC CHIP	33PF 5% 50V
C141	1-163-099-00	CERAMIC CHIP	18PF 5% 50V
C142	1-124-472-11	ELECT	470MF 20% 6.3V
C143	1-126-177-11	ELECT	100MF 20% 6.3V
C144	1-163-097-00	CERAMIC CHIP	15PF 5% 50V
C145	1-163-103-00	CERAMIC CHIP	27PF 5% 50V

CONNECTOR

CN101	*1-566-709-11	CONNECTOR, BOARD TO BOARD 12P
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TRIMMER

CV102	1-141-227-00	CAP, CERAMIC TRIMMER
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DIODE

D101	8-719-911-19	DIODE 1SS119
D102	8-719-911-19	DIODE 1SS119
D103	8-719-911-19	DIODE 1SS119
D104	8-719-911-19	DIODE 1SS119

DELAY LINE

DL101	1-415-122-31	DELAY LINE, 1H (PAL)
DL102	1-415-640-11	DELAY LINE, LC

FILTER

FL101	1-235-753-21	YC MODULE
FL102	1-235-896-11	FILTER, BAND PASS

IC

IC101	8-752-006-12	IC CX20061
IC102	8-752-006-12	IC CX20061
IC103	8-752-030-75	IC V7020
IC104	8-759-011-65	IC MC74HC4053F
IC105	1-464-932-21	FILTER BLOCK, COM (CFB-3)

COIL

L101	1-408-601-41	INDUCTOR	6.8UH
L103	1-408-609-41	INDUCTOR	33UH
L104	1-408-601-41	INDUCTOR	6.8UH
L105	1-408-609-41	INDUCTOR	33UH

VARIABLE COIL

LV101	1-415-651-11	COIL (DELAY ADJUSTMENT)
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When indicating parts by reference number, please include the board name.

# RG-6

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
<u>TRANSISTOR</u>							
Q101	8-729-100-66	TRANSISTOR 2SC1623		R127	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W
Q102	8-729-100-66	TRANSISTOR 2SC1623		R128	1-216-045-00	METAL GLAZE 680 5%	1/10W
Q103	8-729-100-66	TRANSISTOR 2SC1623		R129	1-216-047-00	METAL GLAZE 820 5%	1/10W
Q104	8-729-100-66	TRANSISTOR 2SC1623		R130	1-216-073-00	METAL GLAZE 10K 5%	1/10W
Q105	8-729-100-66	TRANSISTOR 2SC1623		R131	1-216-071-00	METAL GLAZE 8.2K 5%	1/10W
Q106	8-729-100-66	TRANSISTOR 2SC1623		R132	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W
Q107	8-729-100-66	TRANSISTOR 2SC1623		R133	1-216-111-00	METAL GLAZE 390K 5%	1/10W
Q108	8-729-216-22	TRANSISTOR 2SA1162		R134	1-216-103-00	METAL GLAZE 180K 5%	1/10W
Q109	8-729-100-66	TRANSISTOR 2SC1623		R135	1-216-047-00	METAL GLAZE 820 5%	1/10W
Q110	8-729-100-66	TRANSISTOR 2SC1623		R136	1-216-055-00	METAL GLAZE 1.8K 5%	1/10W
Q111	8-729-901-06	TRANSISTOR DTA144EK		R137	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
Q112	8-729-901-01	TRANSISTOR DTC144EK		R138	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W
Q113	8-729-901-01	TRANSISTOR DTC144EK		R139	1-216-039-00	METAL GLAZE 390 5%	1/10W
Q114	8-729-100-66	TRANSISTOR 2SC1623		R140	1-216-039-00	METAL GLAZE 390 5%	1/10W
Q115	8-729-216-22	TRANSISTOR 2SA1162		R141	1-216-043-00	METAL GLAZE 560 5%	1/10W
Q116	8-729-100-66	TRANSISTOR 2SC1623		R142	1-216-043-00	METAL GLAZE 560 5%	1/10W
Q117	8-729-100-66	TRANSISTOR 2SC1623		R143	1-216-045-00	METAL GLAZE 680 5%	1/10W
Q118	8-729-216-22	TRANSISTOR 2SA1162		R144	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
Q119	8-729-100-66	TRANSISTOR 2SC1623		R145	1-216-049-00	METAL GLAZE 1K 5%	1/10W
Q120	8-729-100-66	TRANSISTOR 2SC1623		R146	1-216-083-00	METAL GLAZE 27K 5%	1/10W
Q121	8-729-216-22	TRANSISTOR 2SA1162		R147	1-216-077-00	METAL GLAZE 15K 5%	1/10W
Q122	8-729-100-66	TRANSISTOR 2SC1623		R148	1-249-411-11	CARBON 330 5%	1/4W
Q123	8-729-901-01	TRANSISTOR DTC144EK		R149	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W
<u>RESISTOR</u>				R150	1-216-083-00	METAL GLAZE 27K 5%	1/10W
R101	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R151	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R102	1-216-085-00	METAL GLAZE 33K 5%	1/10W	R152	1-216-083-00	METAL GLAZE 27K 5%	1/10W
R103	1-216-063-00	METAL GLAZE 3.9K 5%	1/10W	R153	1-216-077-00	METAL GLAZE 15K 5%	1/10W
R104	1-216-041-00	METAL GLAZE 470 5%	1/10W	R154	1-216-083-00	METAL GLAZE 27K 5%	1/10W
R105	1-216-075-00	METAL GLAZE 12K 5%	1/10W	R155	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W
R106	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R156	1-249-411-11	CARBON 330 5%	1/4W
R107	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R157	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R108	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R158	1-216-083-00	METAL GLAZE 27K 5%	1/10W
R109	1-216-039-00	METAL GLAZE 390 5%	1/10W	R159	1-216-077-00	METAL GLAZE 15K 5%	1/10W
R110	1-216-055-00	METAL GLAZE 1.8K 5%	1/10W	R160	1-216-083-00	METAL GLAZE 27K 5%	1/10W
R111	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R161	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W
R112	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R162	1-249-411-11	CARBON 330 5%	1/4W
R113	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W	R163	1-216-021-00	METAL GLAZE 68 5%	1/10W
R114	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R164	1-216-021-00	METAL GLAZE 68 5%	1/10W
R115	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R165	1-216-021-00	METAL GLAZE 68 5%	1/10W
R116	1-216-055-00	METAL GLAZE 1.8K 5%	1/10W	R166	1-216-045-00	METAL GLAZE 680 5%	1/10W
R117	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R167	1-216-079-00	METAL GLAZE 18K 5%	1/10W
R118	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W	R168	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W
R119	1-216-077-00	METAL GLAZE 15K 5%	1/10W	R169	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W
R120	1-216-075-00	METAL GLAZE 12K 5%	1/10W	R170	1-216-055-00	METAL GLAZE 1.8K 5%	1/10W
R121	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R171	1-216-089-00	METAL GLAZE 47K 5%	1/10W
R122	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R172	1-216-077-00	METAL GLAZE 15K 5%	1/10W
R123	1-216-047-00	METAL GLAZE 820 5%	1/10W	R173	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R124	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R174	1-216-055-00	METAL GLAZE 1.8K 5%	1/10W
R125	1-216-047-00	METAL GLAZE 820 5%	1/10W	R175	1-216-043-00	METAL GLAZE 560 5%	1/10W
R126	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	R176	1-216-049-00	METAL GLAZE 1K 5%	1/10W
				R177	1-216-049-00	METAL GLAZE 1K 5%	1/10W
				R178	1-216-049-00	METAL GLAZE 1K 5%	1/10W
				R179	1-216-055-00	METAL GLAZE 1.8K 5%	1/10W

When indicating parts by reference number, please include the board name.

Ref.No	Part No.	Description	Remark		
R180	1-212-863-00	FUSIBLE 18 5% 1/4W F			
<u>VARIABLE RESISTOR</u>					
RV101	1-228-993-00	RES, ADJ, CARBON 4.7K			
RV102	1-228-990-00	RES, ADJ, CARBON 1K			
RV103	1-228-993-00	RES, ADJ, CARBON 4.7K			
RV104	1-228-993-00	RES, ADJ, CARBON 4.7K			
RV105	1-228-991-00	RES, ADJ, CARBON 2.2K			
RV106	1-228-991-00	RES, ADJ, CARBON 2.2K			
RV107	1-228-994-00	RES, ADJ, CARBON 10K			
RV108	1-228-989-00	RES, ADJ, METAL GLAZE 470			
RV109	1-228-990-00	RES, ADJ, METAL GLAZE 1K			
RV110	1-230-504-11	RES, ADJ, CARBON 220			
RV111	1-230-504-11	RES, ADJ, CARBON 220			
<u>CRYSTAL</u>					
X101	1-567-504-11	OSCILLATOR, CRYSTAL			
X102	1-567-505-11	OSCILLATOR, CRYSTAL			
*****					
	*A-6421-372-A	PS-193 BOARD, COMPLETE (Ref. No 9.000 ***** Series)			
	*1-533-189-11	HOLDER, FUSE			
	*3-309-144-21	HEAT SINK			
	7-685-646-79	SCREW +BYTP 3X8 TYPE2 IT-3			
<u>CAPACITOR</u>					
C101	1-125-298-00	ELECT(BLOCK) 10000MF 20% 25V			
C102	1-124-314-00	ELECT 4700MF 20% 25V			
C103	1-163-038-00	CERAMIC CHIP 0.1MF 25V			
C104	1-163-007-11	CERAMIC CHIP 680PF 10% 50V			
C105	1-163-989-11	CERAMIC CHIP 0.033MF 10% 25V			
C106	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V			
C107	1-124-471-00	ELECT 1000MF 20% 6.3V			
C108	1-124-499-11	ELECT 1MF 20% 50V			
C109	1-124-471-00	ELECT 1000MF 20% 6.3V			
C110	1-163-833-00	CERAMIC CHIP 0.068MF 25V			
C111	1-163-007-11	CERAMIC CHIP 680PF 10% 50V			
C112	1-163-019-00	CERAMIC CHIP 0.0068MF 10% 50V			
C114	1-126-101-11	ELECT 100MF 20% 16V			
C115	1-163-037-11	CERAMIC CHIP 0.022MF 10% 25V			
C116	1-163-833-00	CERAMIC CHIP 0.068MF 25V			
C119	1-126-176-11	ELECT 220MF 20% 10V			
C120	1-126-096-11	ELECT 10MF 20% 25V			
C201	1-163-009-11	CERAMIC CHIP 0.001MF 10% 50V			
C202	1-163-019-00	CERAMIC CHIP 0.0068MF 10% 50V			
C203	1-163-009-11	CERAMIC CHIP 0.001MF 10% 50V			
C204	1-163-009-11	CERAMIC CHIP 0.001MF 10% 50V			
C205	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V			
C206	1-163-007-11	CERAMIC CHIP 680PF 10% 50V			
C207	1-124-910-11	ELECT 47MF 20% 35V			
C208	1-163-035-00	CERAMIC CHIP 0.047MF 50V			

Ref.No	Part No.	Description	Remark		
C209	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V			
C210	1-163-007-11	CERAMIC CHIP 680PF 10% 50V			
C211	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V			
C212	1-163-035-00	CERAMIC CHIP 0.047MF 50V			
<u>CONNECTOR</u>					
CN002	*1-564-419-11	HEADER, SPRING (POWER) 2P			
CN003	*1-560-890-00	PIN, CONNECTOR 2P			
<u>DIODE</u>					
D101	△.8-719-500-55	DIODE D3SBA10			
D105	8-719-908-06	DIODE ERA81-005			
D106	8-719-110-31	DIODE RD12ES-82			
D108	8-719-105-82	DIODE RD5.1M-B2			
D110	8-719-175-88	DIODE RD7.5F-B			
D201	8-719-908-06	DIODE ERA81-005			
D202	8-719-908-06	DIODE ERA81-005			
D203	8-719-200-02	DIODE 10E2			
D204	8-719-200-02	DIODE 10E2			
D205	8-719-911-19	DIODE 1SS119			
D206	8-719-911-19	DIODE 1SS119			
D207	8-719-911-19	DIODE 1SS119			
<u>FUSE</u>					
F101	△.1-532-299-00	FUSE, TIME-LAG			
F102	△.1-532-299-00	FUSE, TIME-LAG			
F301	△.1-532-078-00	FUSE, TIME-LAG			
<u>IC</u>					
IC101	8-759-971-39	IC BA9700AF-T1			
IC102	8-759-604-47	IC M5F7905			
IC201	8-759-100-93	IC UPC339G2			
IC202	8-759-100-96	IC UPC4558G2			
<u>JUMPER RESISTOR</u>					
JR001	1-216-295-00	METAL GLAZE 0 5% 1/10W			
JR005	1-216-295-00	METAL GLAZE 0 5% 1/10W			
<u>COIL</u>					
L101	1-412-012-11	INDUCTOR 100UH			
L102	1-410-339-11	COIL, CHOKE 10UH			
L201	1-424-219-11	COIL, CHOKE 300UH			
<u>TRANSISTOR</u>					
Q101	8-729-119-78	TRANSISTOR 2SC2785-HFE			
Q102	8-729-216-22	TRANSISTOR 2SA1162			
Q103	8-729-113-31	TRANSISTOR 2SB733-2			
Q105	8-729-159-64	TRANSISTOR 2SD596			
Q201	8-729-117-11	TRANSISTOR 2SB1151			
Q202	8-729-142-63	TRANSISTOR 2SD1691			
Q203	8-729-117-11	TRANSISTOR 2SB1151			
Q204	8-729-142-63	TRANSISTOR 2SD1691			
Q205	8-729-119-78	TRANSISTOR 2SC2785-HFE			

When indicating parts by reference number, please include the board name.

**Note:** The components identified by mark **△** or dotted line with mark **△** are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description	Remark
Q206	8-729-216-22	TRANSISTOR 2SA1162	
Q208	8-729-900-53	TRANSISTOR DTC114EK	
Q209	8-729-901-04	TRANSISTOR DTA114EK	
Q210	8-729-100-67	TRANSISTOR 2SC1623	
Q211	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q212	8-729-901-04	TRANSISTOR DTA114EK	
<u>RESISTOR</u>			
R002	1-216-296-00	METAL GLAZE 0 5% 1/8W	
R003	1-216-296-00	METAL GLAZE 0 5% 1/8W	
R004	1-216-296-00	METAL GLAZE 0 5% 1/8W	
R101	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R102	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R103	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R104	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R105	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R106	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R107	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	
R108	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R109	1-216-687-11	METAL CHIP 33K 0.50% 1/10W	
R110	1-216-676-11	METAL CHIP 11K 0.50% 1/10W	
R112	1-216-099-00	METAL GLAZE 120K 5% 1/10W	
R114	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R115	1-216-446-00	METAL OXIDE 18 5% 2W F	
R116	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R117	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R120	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R201	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R202	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R203	1-216-093-00	METAL GLAZE 68K 5% 1/10W	
R204	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R205	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R206	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R207	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R208	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R209	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R210	1-216-105-00	METAL GLAZE 220K 5% 1/10W	
R211	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R212	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R213	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R214	1-247-750-11	CARBON 680 5% 1/2W	
R215	1-247-750-11	CARBON 680 5% 1/2W	
R216	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R217	1-216-369-00	METAL OXIDE 1 5% 2W F	
R218	1-216-690-11	METAL CHIP 43K 0.50% 1/10W	
R219	1-216-675-11	METAL CHIP 10K 0.50% 1/10W	
R220	1-216-690-11	METAL CHIP 43K 0.50% 1/10W	
R221	1-216-675-11	METAL CHIP 10K 0.50% 1/10W	
R222	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R223	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R224	1-215-866-11	METAL OXIDE 330 5% 1W F	
R225	1-216-073-00	METAL GLAZE 10K 5% 1/10W	

Ref.No	Part No.	Description	Remark
R226	1-247-750-11	CARBON 680 5% 1/2W	
R227	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R228	1-216-093-00	METAL GLAZE 68K 5% 1/10W	
R230	1-216-105-00	METAL GLAZE 220K 5% 1/10W	
R231	1-216-073-00	METAL GLAZE 10K 5% 1/10W	

SWITCH

SW301  $\Delta$  1-553-318-61 SWITCH, PUSH (AC POWER)(1 KEY)

LINE FILTER

T301  $\Delta$  1-421-771-11 FILTER, LINE

\*\*\*\*\*

\*1-630-089-31 TR-30 BOARD (Ref.No 1.000 Series)  
\*\*\*\*\*

CAPACITOR

C401 $\Delta$	1-136-472-11	FILM 0.1MF 20% 250V
C416	1-124-122-11	ELECT 100MF 20% 50V
C417	1-124-910-11	ELECT 47MF 20% 50V
C418	1-124-122-11	ELECT 100MF 20% 35V
C419	1-124-122-11	ELECT 100MF 20% 50V
C420	1-163-033-00	CERAMIC CHIP 0.022MF 50V

CONNECTOR

CN401	1-506-483-21	PIN, CONNECTOR 4P
CN402	*1-564-028-00	PIN, CONNECTOR 3P
CN403	*1-564-028-00	PIN, CONNECTOR 3P

DIODE

D406 $\Delta$	8-719-200-02	DIODE 10E2
D407	8-719-110-78	DIODE RD33ES-B2
D408	8-719-110-88	DIODE RD39ES-B2
D409	8-719-110-17	DIODE RD10ES-B2

TRANSISTOR

Q404 8-729-113-33 TRANSISTOR 2SB733-4

RESISTOR

R416 $\Delta$	1-249-401-11	CARBON 47 5% 1/4W F
R417	1-249-416-11	CARBON 820 5% 1/4W
R418	1-249-405-11	CARBON 100 5% 1/4W

\*\*\*\*\*

When indicating parts by reference number, please include the board name.

Note: The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

Ref.No	Part No.	Description	Remark
*A-6421-368-A	FP-197	BOARD, COMPLETE (MDP-315) ***** (Ref. No 7,000 Series)	
*A-6421-374-A	FP-222	BOARD, COMPLETE (MDP-5150) ***** (Ref. No 8,000 Series)	
*3-735-049-11	HOLDER, FL TUBE		
<u>CAPACITOR</u>			
C001	1-163-023-00	CERAMIC CHIP 0.015MF	10% 50V
C002	1-163-101-00	CERAMIC CHIP 22PF	5% 50V
C003	1-163-101-00	CERAMIC CHIP 22PF	5% 50V
C004	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C005	1-126-157-11	ELECT 10MF	20% 16V
C006	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C007	1-126-157-11	ELECT 10MF	20% 16V
C008	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C009	1-126-157-11	ELECT 10MF	20% 16V
C010	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C011	1-124-242-00	ELECT 33MF	20% 16V
C012	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
C013	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V
<u>CONNECTOR</u>			
CN001	1-506-483-21	PIN, CONNECTOR 4P	
CN002	*1-564-019-11	PIN, CONNECTOR 9P	
CN003	1-506-485-11	PIN, CONNECTOR 6P (MDP-315)	
CN003	1-506-486-11	PIN, CONNECTOR 7P (MDP-5150)	
CN004	1-506-484-11	PIN, CONNECTOR 5P (MDP-315)	
CN004	1-506-486-11	PIN, CONNECTOR 7P (MDP-5150)	
<u>IC</u>			
IC001	8-752-810-78	IC CXP5058H-647Q	
IC002	8-752-810-77	IC CXP5048H-201Q	
IC003	8-759-605-21	IC M51953AFP	
IC004	8-741-138-78	IC BX-1453	
IC005	8-759-926-64	IC SN74HC367NS	
<u>COIL</u>			
L001	1-407-169-XX	INDUCTOR 100UH	
L002	1-407-169-XX	INDUCTOR 100UH	
<u>INDICATOR TUBE</u>			
ND001	1-519-511-11	INDICATOR TUBE, FLUORESCENT	
<u>TRANSISTOR</u>			
Q001	8-729-100-66	TRANSISTOR 2SC1623	
Q002	8-729-100-66	TRANSISTOR 2SC1623	
<u>RESISTOR</u>			
R001	1-216-097-00	METAL GLAZE 100K 5%	1/10W
R002	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R003	1-216-097-00	METAL GLAZE 100K 5%	1/10W

Ref.No	Part No.	Description	Remark
R004	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R005	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R006	1-216-071-00	METAL GLAZE 8.2K 5%	1/10W
R007	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R008	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R009	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R010	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R011	1-216-079-00	METAL GLAZE 18K 5%	1/10W
R012	1-216-069-00	METAL GLAZE 6.9K 5%	1/10W
R013	1-216-063-00	METAL GLAZE 3.9K 5%	1/10W
R014	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W
R015	1-216-079-00	METAL GLAZE 18K 5%	1/10W
R016	1-216-069-00	METAL GLAZE 6.9K 5%	1/10W
R017	1-216-063-00	METAL GLAZE 3.9K 5%	1/10W
R018	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W
R019	1-216-079-00	METAL GLAZE 18K 5%	1/10W
R020	1-216-069-00	METAL GLAZE 6.9K 5%	1/10W
R021	1-216-063-00	METAL GLAZE 3.9K 5%	1/10W
R022	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W
R023	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R024	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R025	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R026	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R027	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R028	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R029	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R030	1-216-063-00	METAL GLAZE 3.9K 5%	1/10W (MDP-5150)
R031	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W (MDP-5150)
<u>SWITCH</u>			
S001	1-553-856-00	SWITCH, KEY BOARD (1A)	
S002	1-553-856-00	SWITCH, KEY BOARD (2B)	
S003	1-553-856-00	SWITCH, KEY BOARD (3C)	
S004	1-553-856-00	SWITCH, KEY BOARD (6F)	
S005	1-553-856-00	SWITCH, KEY BOARD (9)	
S006	1-553-856-00	SWITCH, KEY BOARD (4D)	
S007	1-553-856-00	SWITCH, KEY BOARD (5E)	
S008	1-553-856-00	SWITCH, KEY BOARD (8)	
S009	1-553-856-00	SWITCH, KEY BOARD (7)	
S010	1-553-856-00	SWITCH, KEY BOARD (+10)	
S011	1-553-856-00	SWITCH, KEY BOARD (FILE)	
S012	1-553-856-00	SWITCH, KEY BOARD (INDEX)	
S013	1-553-856-00	SWITCH, KEY BOARD (AV TIME)	
S014	1-553-856-00	SWITCH, KEY BOARD (CDV)	
S015	1-553-856-00	SWITCH, KEY BOARD (0)	
S016	1-571-758-11	SWITCH, PUSH (1 KEY) (SIDE REPEAT)	
S017	1-553-856-00	SWITCH, KEY BOARD (1/ALL) (MDP-5150)	
S018	1-553-856-00	SWITCH, KEY BOARD (←←) (MDP-5150)	
S019	1-553-856-00	SWITCH, KEY BOARD (→→) (MDP-5150)	
S020	1-570-157-21	SWITCH, SLIDE (RGB) (MDP-5150)	
<u>CRYSTAL</u>			
X001	1-567-160-21	OSCILLATOR, CERAMIC (4.19MHz)	

When indicating parts by reference number, please include the board name.

**FP-223**

**FP-198**

**HP-50**

**LS-17**

**SW-106**

Ref.No	Part No.	Description	Remark
*A-6421-375-A	FP-223	BOARD, COMPLETE (MDP-515D)	*****
*1-630-099-11	FP-198	BOARD (MDP-315)	*****
3-737-426-01		REFLECTOR	
<u>CONNECTOR</u>			
CN001	1-506-486-11	PIN, CONNECTOR 7P	
<u>DIODE</u>			
D001	8-719-301-56	DIODE SEL2813A-D (PAL) (MDP-515D)	
D002	8-719-301-46	DIODE SEL2413E (NTSC) (MDP-515D)	
<u>TRANSISTOR</u>			
Q001	8-729-900-80	TRANSISTOR DTC114ES (MDP-515D)	
Q002	8-729-900-61	TRANSISTOR DTA114ES (MDP-515D)	
<u>RESISTOR</u>			
R001	1-249-422-11	CARBON	2.7K 5% 1/4W (MDP-315)
R001	1-249-427-11	CARBON	6.8K 5% 1/4W (MDP-515D)
R002	1-247-814-11	CARBON	200 5% 1/4W (MDP-515D)
R002	1-249-424-11	CARBON	3.9K 5% 1/4W (MDP-315)
R003	1-247-814-11	CARBON	200 5% 1/4W (MDP-515D)
R003	1-249-427-11	CARBON	6.8K 5% 1/4W (MDP-315)
R004	1-249-432-11	CARBON	18K 5% 1/4W
R005	1-249-422-11	CARBON	2.7K 5% 1/4W
R006	1-249-424-11	CARBON	3.9K 5% 1/4W
R007	1-249-427-11	CARBON	6.8K 5% 1/4W
R008	1-249-430-11	CARBON	12K 5% 1/4W
R009	1-249-432-11	CARBON	18K 5% 1/4W
<u>SWITCH</u>			
S001	1-553-856-00	SWITCH, KEY BOARD (◀◀) (MDP-315)	
S002	1-553-856-00	SWITCH, KEY BOARD (▶▶) (MDP-315)	
S003	1-554-592-21	SWITCH, KEY BOARD (DUAL SPEED ◀◀)	
S004	1-553-856-00	SWITCH, KEY BOARD (OPEN/CLOSE)	
S005	1-553-856-00	SWITCH, KEY BOARD (▷)	
S006	1-553-856-00	SWITCH, KEY BOARD (⏪/▶◀)	
S007	1-553-856-00	SWITCH, KEY BOARD (■)	
S008	1-554-592-21	SWITCH, KEY BOARD (DUAL SPEED ▶▶)	
S009	1-570-157-21	SWITCH, SLIDE (STOP MODE)	
*****			
*1-630-090-11	HP-50	BOARD (Ref.No 5,000 Series)	*****
3-735-057-01		HOLDER, HP	
<u>CAPACITOR</u>			
C101	1-124-478-11	ELECT	100MF 20% 25V
C102	1-124-478-11	ELECT	100MF 20% 25V

Ref.No	Part No.	Description	Remark
<u>CONNECTOR</u>			
CN101	1-506-471-11	PIN, CONNECTOR 6P	
<u>JACK</u>			
CNJ101	1-507-796-71	JACK	
<u>IC</u>			
IC101	8-759-701-45	IC NJM4560S-D	
<u>RESISTOR</u>			
R101	1-249-417-11	CARBON	1K 5% 1/4W
R102	1-249-425-11	CARBON	4.7K 5% 1/4W
R103	1-249-430-11	CARBON	12K 5% 1/4W
R104	1-249-405-11	CARBON	100 5% 1/4W
R105	1-249-417-11	CARBON	1K 5% 1/4W
R106	1-249-425-11	CARBON	4.7K 5% 1/4W
R107	1-249-430-11	CARBON	12K 5% 1/4W
R108	1-249-405-11	CARBON	100 5% 1/4W
R109	1-249-409-11	CARBON	220 5% 1/4W
R110	1-249-409-11	CARBON	220 5% 1/4W
<u>VARIABLE RESISTOR</u>			
RV101	1-238-581-11	RES, VAR	
*****			
*1-630-091-11	LS-17	BOARD (Ref.No 3,000 Series)	*****
3-735-054-01		HOLDER, SENSOR	
<u>DIODE</u>			
D201	8-719-941-81	DIODE GL360	
<u>TRANSISTOR</u>			
Q201	8-729-904-10	PT360FS	
*****			
*1-630-092-11	SW-106	BOARD (Ref.No 3,000 Series)	*****
<u>CONNECTOR</u>			
CN301	1-506-467-11	PIN, CONNECTOR 2P	
<u>SWITCH</u>			
S301	1-554-655-00	SWITCH, LEAF	
*****			

When indicating parts by reference number, please include the board name.

**SW-107**

**CK-14**

**FG-13**

**MT-28**

**MT-29**

**MT-30**

Ref.No	Part No.	Description	Remark
	*1-630-093-11	SW-107 BOARD (Ref. No 3,000 ***** Series)	

CONNECTOR

CN401	1-506-481-11	PIN, CONNECTOR 2P	
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RESISTOR

R401	1-249-423-11	CARBON	3.3K	5%	1/4W
R402	1-249-417-11	CARBON	1K	5%	1/4W

SWITCH

S401	1-571-300-11	SWITCH, ROTARY	
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	*1-630-094-11	CK-14 BOARD (Ref. No 4,000 ***** Series)	
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CAPACITOR

C001	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C002	1-163-038-00	CERAMIC CHIP 0.1MF	25V

CONNECTOR

CN001	*1-564-001-41	PIN, CONNECTOR 2P	
CN002	1-506-468-11	PIN, CONNECTOR 3P	
CN003	1-506-467-11	PIN, CONNECTOR 2P	
CN004	*1-564-001-21	PIN, CONNECTOR 2P	
CN005	*1-564-001-31	PIN, CONNECTOR 2P	

JUMPER RESISTOR

JR001	1-216-295-00	METAL GLAZE	0	5%	1/10W
JR002	1-216-296-00	METAL GLAZE	0	5%	1/8W

RESISTOR

R001	1-216-077-00	METAL GLAZE	15K	5%	1/10W
R002	1-216-031-00	METAL GLAZE	180	5%	1/10W
R003	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W
R004	1-216-001-00	METAL GLAZE	10	5%	1/10W
R005	1-216-001-00	METAL GLAZE	10	5%	1/10W
R006	1-216-031-00	METAL GLAZE	180	5%	1/10W
R007	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W

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	*1-630-096-11	FG-13 BOARD (Ref. No 4,000 ***** Series)	
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DIODE

D301	8-719-939-11	GP 2S09-B	
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Ref.No	Part No.	Description	Remark
	*1-630-097-11	MT-28 BOARD *****	

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	*1-630-101-11	MT-29 BOARD *****	
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	*1-631-095-11	MT-30 BOARD *****	
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MISCELLANEOUS  
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	△.1-551-908-61	CORD, POWER, EULO PLUG	
	1-574-648-11	CABLE, FLEXIBLE FLAT (24 CORE)	
	*1-574-755-11	WIRE, FLAT TYPE 28P	
M901	1-541-665-11	MOTOR, SPINDLE	
M902	1-541-659-11	MOTOR, DC (SLED)	
M903	1-541-659-11	MOTOR, DC (TILT)	
M904	1-541-309-11	MOTOR, DC (RF-370C) (LOADING)	
S901	1-571-435-11	SWITCH (SLED IN LIMIT)	
S902	1-570-771-21	SWITCH (SLED OUT LIMIT)	
S903	1-554-468-00	SWITCH, LEAF (SLED IN LIMIT LD/CD)	
T401	△.1-449-849-11	TRANSFORMER, POWER	

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ACCESSORIES AND PACKING MATERIALS  
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Part No.	Description	Remark
1-465-161-31	REMOTE COMMANDER (RMT-515D)	
*3-710-964-01	SHEET, PROTECTION	
*3-735-072-01	CUSHION (UPPER)	
*3-735-073-01	CUSHION (LOWER)	
*3-737-442-31	INDIVIDUAL CARTON	
3-750-763-41	MANUAL, INSTRUCTION (MDP-315) (ENGLISH)	
3-750-763-51	MANUAL, INSTRUCTION (MDP-315) (FRENCH/GERMAN/SPANISH)	
3-750-763-61	MANUAL, INSTRUCTION (MDP-315) (DUTCH/SWEDISH/ITALIAN)	
3-750-764-41	MANUAL, INSTRUCTION (MDP-515D) (ENGLISH)	
3-750-764-51	MANUAL, INSTRUCTION (MDP-515D) (AEP MODEL) (FRENCH/GERMAN/SPANISH)	
3-750-764-61	MANUAL, INSTRUCTION (MDP-515D) (AEP MODEL) (DUTCH/SWEDISH/ITALIAN)	
1-559-533-11	CORD, CONNECTION (AUS MODEL) (2PHONO to 2PHONO AUDIO)	
1-551-086-31	CORD, CONNECTION (AUS MODEL) (1PHONO to 1PHONO VIDEO)	

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When indicating parts by reference number, please include the board name.

**Note:** The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

<u>Ref.No</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
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HARDWARE LIST  
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WASHER

7-623-423-07 LW 4, TYPE B

STOP RING

7-624-108-04 STOP RING 4.0, TYPE -E

SCREW

7-621-255-55 SCREW #P 2X8  
7-682-545-04 SCREW (3X4) (G), TAPPING, (+) P  
7-682-645-01 SCREW #PS 3X4  
7-685-645-79 SCREW #BVTP 3X6 TYPE2 IT-3  
7-685-646-79 SCREW #BVTP 3X8 TYPE2 IT-3  
  
7-685-647-79 SCREW #BVTP 3X10 TYPE2 IT-3  
7-685-648-79 SCREW #BVTP 3X12 TYPE2 IT-3  
7-685-649-79 SCREW #BVTP 3X14 TYPE2 IT-3  
7-685-661-79 SCREW #BVTP 4X12 TYPE2 SLIT  
7-685-870-01 SCREW #BVTT 3X5 (S)

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## SECTION 7 ELECTRICAL ADJUSTMENTS

During these adjustment, see the parts arrangement diagram relevant to the adjustment on page from 146.

### 1-1. LIST OF SERVICING JIGS

- Oscilloscope
- Color monitor TV
- Digital voltmeter
- Audio level meter
- Frequency counter
- Remote commander (RMT-5150)
- LD alignment disc { REF3P(8-597-903-01).....PAL  
REF7 (8-597-901-03).....NTSC
- CD alignment disc YEDS-18 (3-702-101-01)
- MD adjustment cable (J-6082-059-A)

### 1-2. CAUTIONS ON ADJUSTMENT

- Disc load/unload operation must not be performed when servicing with the unit laying down sideways. (Never press the OPEN and CLOSE buttons.)
- When laying the unit down sideways, perform adjustment with the left side down and turn the power on.
- When adjusting the servo system, be sure to set up the unit horizontally.

### 1-3. MD ADJUSTMENT CABLE (J-6082-059-A)

MD adjustment cable is used to adjust the servo system with connecting to the SV-33 board. Remove it except when adjusting the servo system.

MD adjustment cable

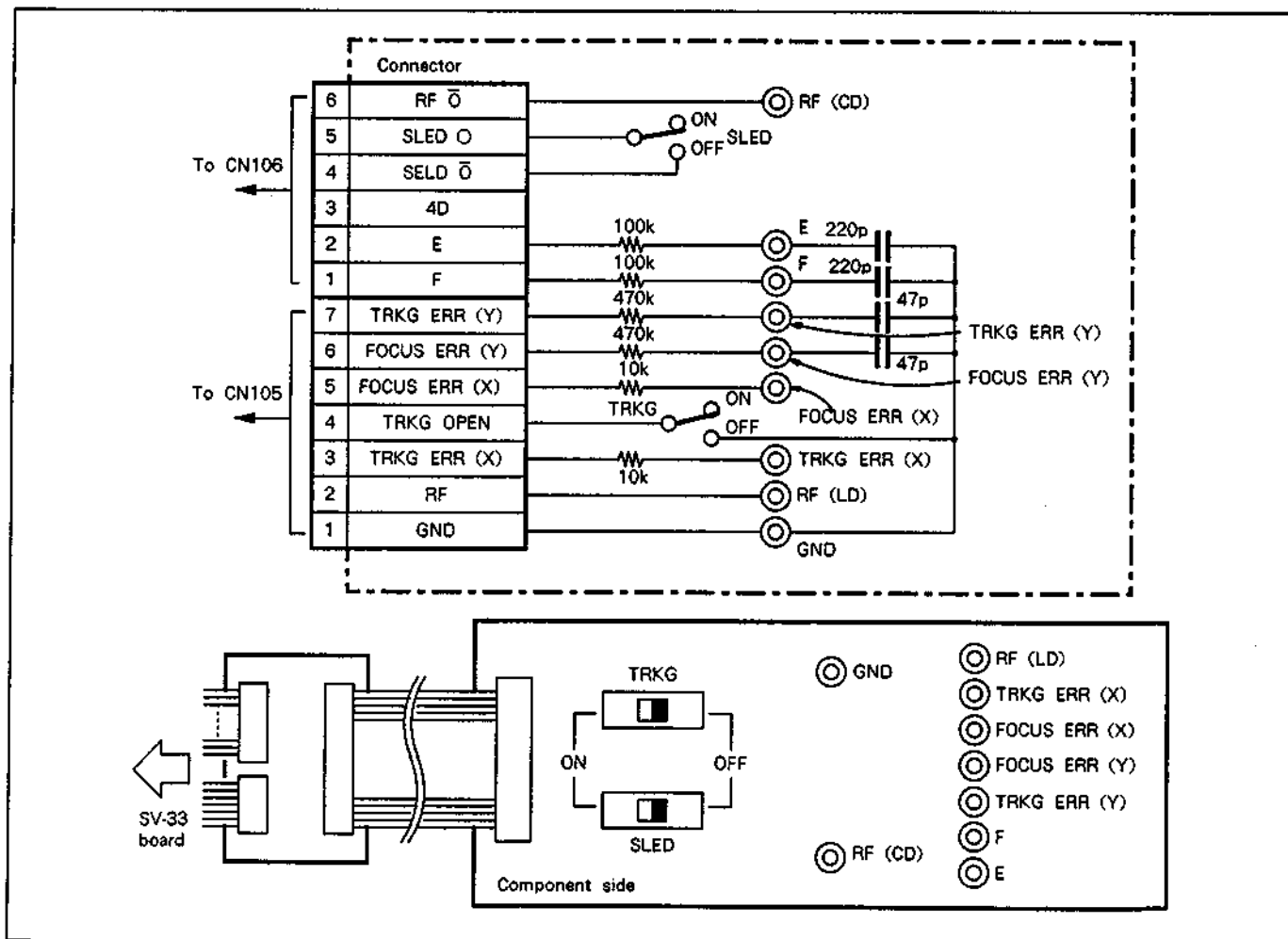


Fig. 7-1.

#### 1-4. POWER SUPPLY CHECK (PS-193 BOARD)

Mode	Stop
Measuring Equipment	Digital voltmeter
UN REG +16V check	
Measurement Point	Pin ① of W002 (Pin ②, GND)
Specified Value	14.5±1V
UN REG -16V check	
Measurement Point	Pin ③ of W002 (Pin ②, GND)
Specified Value	-14.5±1V
REG +5V check	
Measurement Point	Pin ④ of W002 (Pin ⑤, GND)
Specified Value	5.1±0.2V
REG -5V check	
Measurement Point	Pin ⑦ of W002 (Pin ⑤, GND)
Specified Value	-5±0.5V

- Confirm that the power supply voltages satisfy the respective specified values.

#### 1-5. SYSTEM CONTROL SYSTEM ADJUSTMENT

##### 1-5-1. Microprocessor Clock (PAL) Adjustment (MP-15 Board)

Mode	Stop
Measurement Point	Pin ① of IC608
Measuring Equipment	Frequency counter
Adjusting Element	CV 601
Specified Value	4,433,619 ±10Hz

Adjustment method:

- 1) Adjust with CV601 to 4,433,619 ±10Hz.

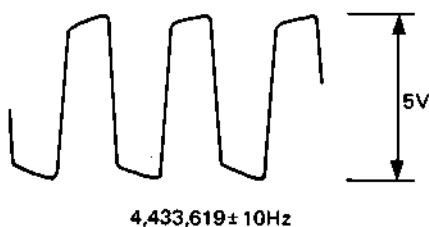


Fig. 7-2.

##### 1-5-2. Microprocessor Clock (NTSC) Adjustment (MP-15 Board)

Mode	Stop
Measurement Point	Pin ⑩ of IC 613
Measuring Equipment	Frequency counter
Adjusting Element	CV 602
Specified Value	3,579,545±10Hz

Adjustment method :

- 1) Adjust with CV 602 to 3,579,545±10Hz.

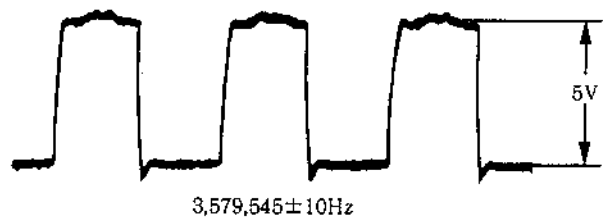


Fig. 7-3.

#### 1-6. SERVO SYSTEM ADJUSTMENT

When adjusting the servo system, look out for the following items :

- Use the MD adjustment cable (J-6082-059-A).
- Adjust the CD servo system after the digital audio system adjustment is completed.
- When setting the tracking servo to the open state, set to the STOP state once and proceed to the next step.
- When the optical block is replaced, perform the adjustment in the following order.

**Note :** Start adjustment at maximum CD RF H level (RV108 fully counterclockwise direction).

1. LD Tracking Balance Adjustment
  - 1) Focus balance adjustment
  - 2) Tracking balance adjustment
2. LD Focus Gain Adjustment
3. LD Cross Talk Balance Adjustment
  - 1) TAN cam adjustment
  - 2) RAD-TILT adjustment
  - 3) Focus balance adjustment
4. LD Tracking Gain Adjustment
5. RD Adjustment
6. CD Focus Balance Adjustment
7. CD RF H Level Adjustment
8. CD RF L Level Adjustment

## 1-6-1. LD Servo System Adjustment

### 1. LD Tracking Balance Adjustment (SV-33 Board)

#### 1) Focus balance adjustment

**Note :** Perform successively 1) and 2) adjustment in this order.

Mode	Still
Signal	Frame 2201 (GRAY) (REF3P)
Measurement Point	MD adjustment cable [TRKG ERR (X)] (Pin ③ of CN105)
Measuring Equipment	Oscilloscope
Adjusting Element	RV102
Specified Value	Maximum amplitude

#### Adjustment method :

- 1) Select STILL (M) mode.
- 2) Search the frame 2201 (GRAY).
- 3) Turn the thread servo off. (MD adjustment cable SLED SW OFF)
- 4) Turn the tracking servo off. (MD adjustment cable TRKG SW OFF)
- 5) Adjust with RV102 so as to maximize the signal level.



1V/DIV 5msec/DIV

Fig. 7-4.

#### 2) Tracking balance adjustment

Mode	Still
Signal	Frame 2201 (GRAY) (REF3P)
Measurement Point	MD adjustment cable [TRKG ERR (X)] (Pin ③ of CN105)
Measuring Equipment	Oscilloscope
Adjusting Element	RV101
Specified Value	$A - B = 0 \pm 0.1V$

#### Adjustment method :

**Note :** Perform successively this adjustment after "1) Focus balance adjustment" is completed.

- 6) Adjust with RV101 so that the center voltage of the tracking error signal becomes  $0 \pm 0.1Vdc$ .
- 7) Select STOP (■) mode.
- 8) Turn the tracking servo on.
- 9) Turn the thread servo on.

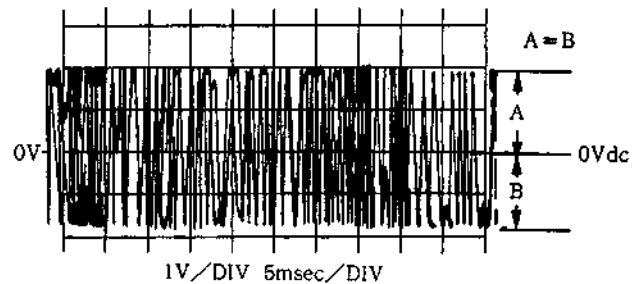


Fig. 7-5.

**2. LD Focus Gain Adjustment (SV-33 Board)**

Mode	Playback
Signal	Frame 2201 (GRAY) (REF3P)
Measurement Point	MD adjustment cable CH1 : [FOCUS ERR (Y)] (Pin ⑥ of CN105) CH2 : [FOCUS ERR (X)] (Pin ⑤ of CN105)
Measuring Equipment	Oscilloscope (X-Y mode)
Adjusting Element	RV107
Specified Value	See figure below

**Adjustment method :**

- 1) Search the frame 2201.
- 2) Adjust the waveform as shown in the figure below with RV107.

**Connections :**

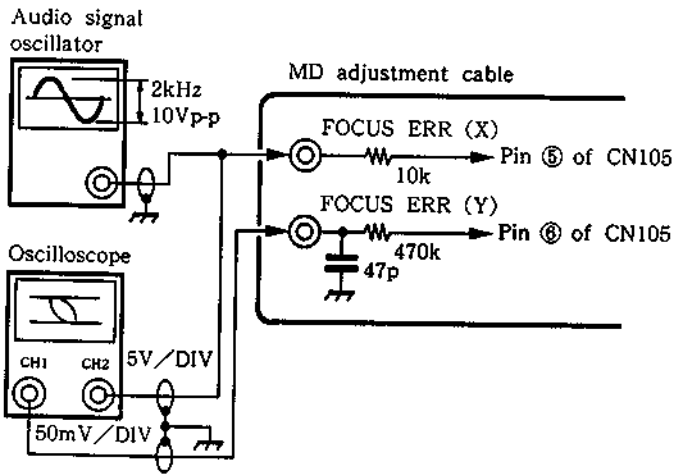


Fig. 7-6.

### 3. LD Cross Talk Balance Adjustment

#### 1) TAN cam adjustment (MD)

The cam is always set to the initial position. When replacing the optical block and so on, set the cam to the mechanical center.\*

\*Mechanical center :

Marked with the notch of the cam located at the opposite side of the optical block chassis shaft.

#### Adjustment method :

- 1) Turn the TAN cam on the bottom (See Fig. 1-11.) with a hexagonal wrench.

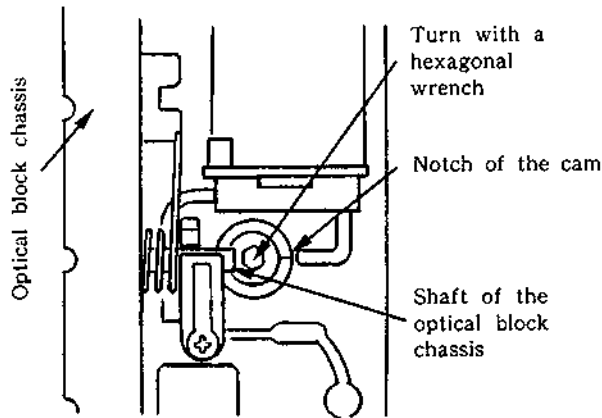


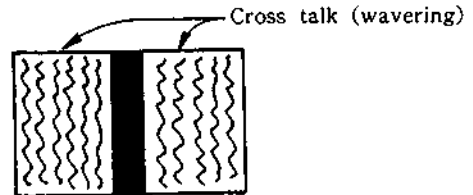
Fig. 7-7.

#### 2) RAD TILT adjustment (SV-33 board)

Mode	Still
Signal	Frame 767 (V BAR) (REF3P)
Measurement Point	Monitor TV
Measuring Equipment	Monitor TV
Adjusting Element	RV105
Specified Value	Cross talk (wavering) with minimum as well as the same level.

#### Adjustment method :

- 1) Select STILL (M) mode.
- 2) Search the frame 767 and apply a vertical bar signal.
- 3) Adjust with RV105 so that the right and left cross talks (wavering) become minimum as well as the level.



Adjust so that cross talks appeared on the both sides on the monitor display become minimum as well as the same level.

Fig. 7-8.

#### 3) Focus balance adjustment (SV-33 board)

Mode	Still
Signal	Frame 767 (V BAR) (REF3P)
Measurement Point	Monitor TV
Measuring Equipment	Monitor TV
Adjusting Element	RV102
Specified Value	Cross talk (wavering) with minimum as well as the same level.

#### Adjustment method :

- 1) Select STILL (M) mode.
- 2) Search the frame 767 and apply a vertical bar signal.
- 3) Adjust with RV102 to minimize the right and left cross talks (wavering) level.

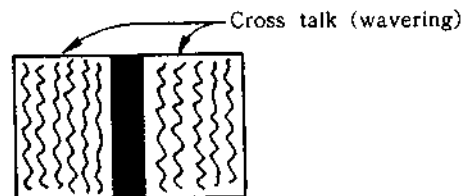
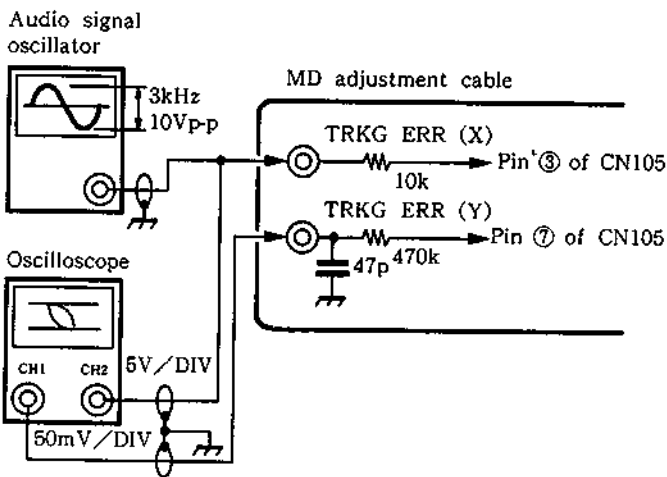


Fig. 7-9.

#### 4. LD Tracking Gain Adjustment (SV-33 Board)

Mode	Still
Signal	Frame 2201 (GRAY) (REF3P)
Measurement Point	MD adjustment cable CH1 : [TRKG (Y)] (Pin ⑦ of CN105) CH2 : [TRKG (X)] (Pin ③ of CN105)
Measuring Equipment	Oscilloscope (X-Y mode)
Adjusting Element	RV106 (TR GAIN)
Specified Value	See figure below

#### Connections :



#### Adjustment method :

- 1) Search the frame 2201.
- 2) Adjust the waveform as shown in the figure below with RV106.

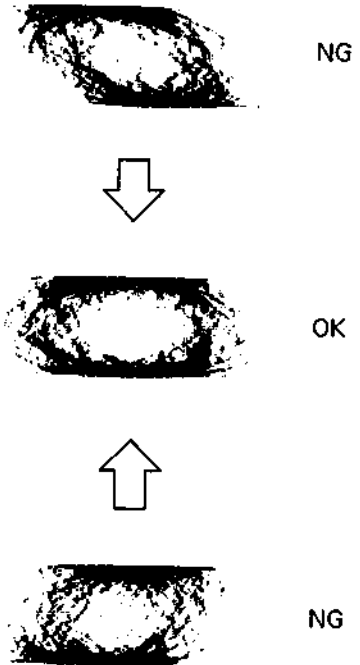


Fig. 7-10.

## 1-6-2. CD Servo System Adjustment

### 1. RD Adjustment

Mode	Pause
Signal	Track No. 1, YEDS-18
Measurement Point	MD adjustment cable CH1 : [E terminal] CH2 : [F terminal]
Measuring Equipment	Oscilloscope
Adjusting Element	RD Cam (MD)
Specified Value	A : B ≤ 10 : 1

**Note :** 1) Turn off the monitor TV switch to prevent a noise.

**Note :** 2) Long continuation of the TRKG servo off state causes the spindle motor to stop.

#### Adjustment method :

- 1) Play back the track No. 1 and select PAUSE mode.
- 2) Turn the thread servo off. (MD adjustment cable SLED SW OFF)
- 3) Turn the tracking servo off. (MD adjustment cable TRKG SW OFF)
- 4) Turn RD cam on the MD and adjust so that it becomes as a straight line as possible.

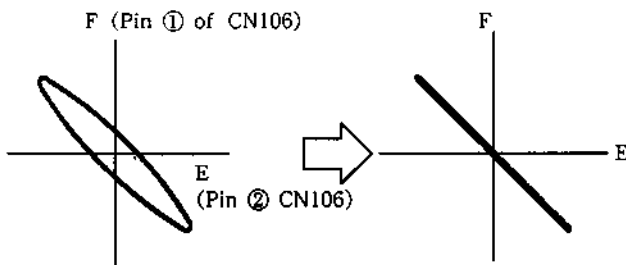


Fig. 7-11.

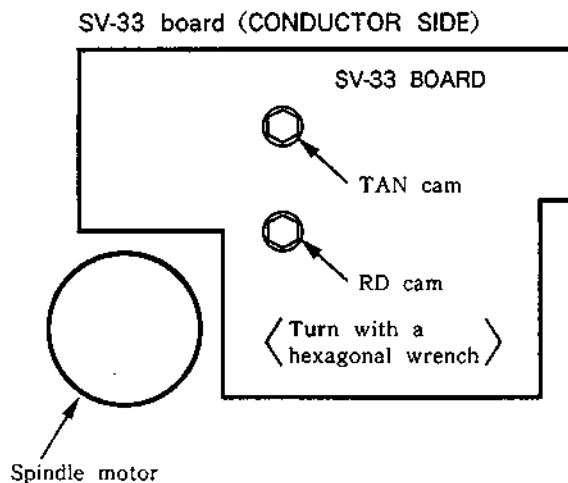


Fig. 7-12.

### 2. CD Focus Balance Adjustment (SV-33 Board)

Mode	Playback
Signal	Track No. 1, YEDS-18
Measurement Point	MD adjustment cable [RF (CD) OUT] (Pin ⑥ of CN106)
Measuring Equipment	Oscilloscope
Adjusting Element	RV103
Specified Value	Maximum amplitude

#### Adjustment method :

- 1) Play back the track No. 1.
- 2) Adjust with RV103 for maximum level.

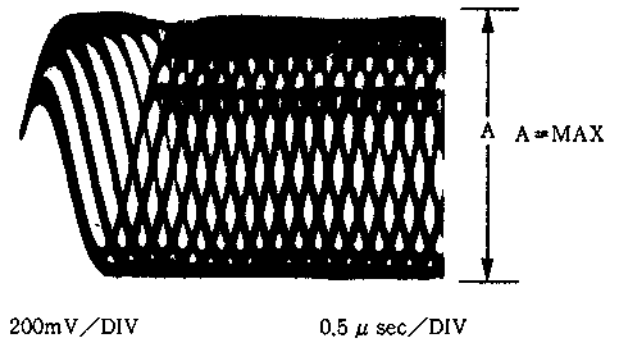


Fig. 7-13.

### 3. CD RF H Level Adjustment (SV-33 Board)

Mode	Playback
Signal	Track No. 1, YEDS-18
Measurement Point	MD adjustment cable [RF (CD) OUT] (Pin ⑥ of CN106)
Measuring Equipment	Oscilloscope
Adjusting Element	RV108
Specified Value	$1.2 \pm 0.1V_{p-p}$

#### Adjustment method :

- 1) Play back the track No. 1.
- 2) Adjust with RV108 to  $1.2 \pm 0.1V_{p-p}$ .

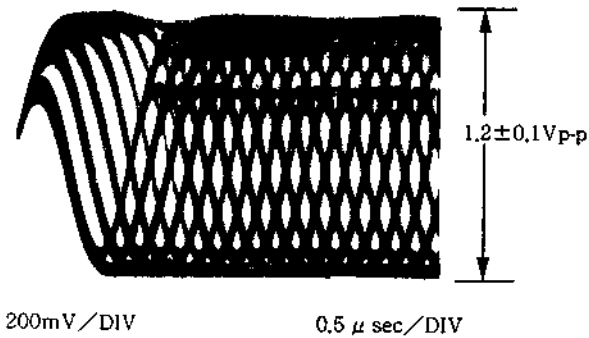


Fig. 7-14.

### 4. CD RF L Level Adjustment (SV-33 Board)

Mode	Playback
Signal	Track No. 1, YEDS-18
Measurement Point	MD adjustment cable [RF (CD) OUT] (Pin ⑥ of CN106)
Measuring Equipment	Oscilloscope
Adjusting Element	RV104
Specified Value	Clear-cut waveform

#### Adjustment method :

- 1) Play back the track No. 1.
- 2) Adjust with RV104 so that the waveform of lozenge-shaped portions becomes clear-cut and the waveform slant disappear from the rising edge portion.

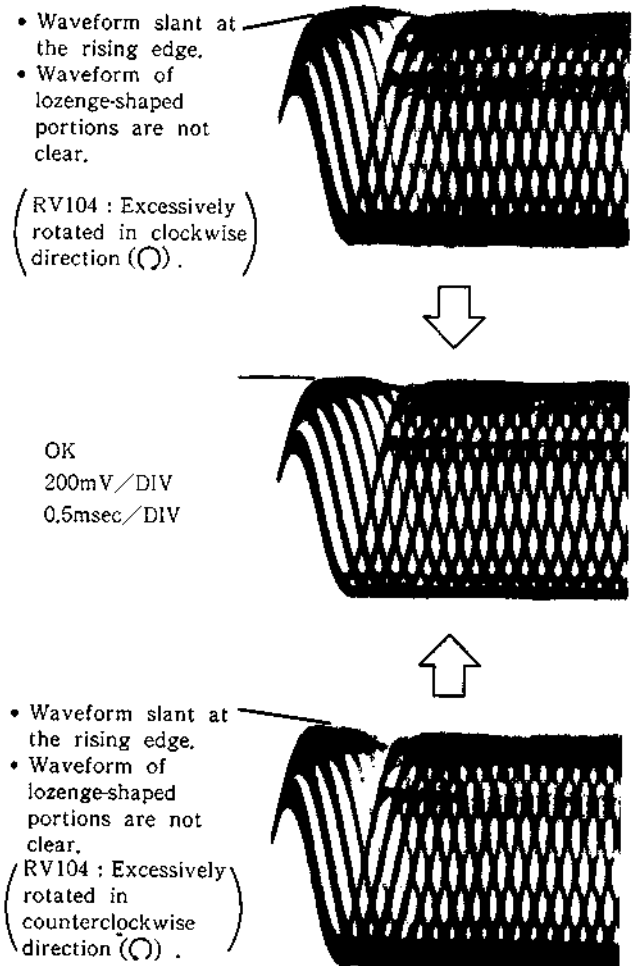


Fig. 7-15.



## 1-7. VIDEO SYSTEM ADJUSTMENT

### 1-7-1. Video Output Level Adjustment (MP-15 Board)

Mode	Still
Signal	Frame 3851(color bar) (REF3P)
Measurement Point	CNJ102 (VIDEO OUT terminal) (Terminated to 75Ω)
Measuring Equipment	Oscilloscope
Adjusting Element	RV104
Specified Value	$1.05 \pm 0.05V_{p-p}$

Adjustment method:

- 1) Select STILL (M) mode.
- 2) Search the frame 3851 and apply a color bar signal.
- 3) Turn RV104 to fully counterclockwise direction.
- 4) Adjust with RV104 to  $1.05 \pm 0.05V_{p-p}$  on the first adjusting point at turning clockwise direction.

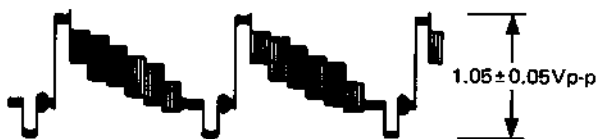


Fig. 7-16.

### 1-7-2. Burst Gate Position Adjustment (MP-15 Board)

Mode	Still
Signal	Frame 3851(color bar) (REF3P)
Measurement Point	Pin ②③ of IC111
Adjusting Element	RV107
Specified Value	$8.5 \pm 0.2 \mu sec.$

Adjustment method:

- 1) Select STILL (M) mode.
- 2) Search the frame 3851.
- 3) Adjust RV107 so that  $t_w$  becomes  $8.5 \pm 0.2 \mu sec.$

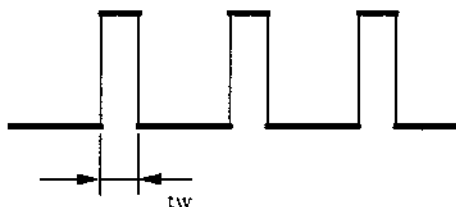


Fig. 7-17.

### 1-7-3. REF H Adjustment (MP-15 and TL-40 Boards)

Note: Perform [Adjustment 1] and [Adjustment 2] in this order.

Mode	Still
Signal	Frame 3851 (color bar) (REF3P)
Measurement Point	CH1:Pin ②① of IC111 External trigger:Pin ②⑤ of IC111
Measurement Equipment	Oscilloscope
Adjusting Elements	[Adj.1 ] RV1(TL-40 board) [Adj.2 ] RV105(MP-15 board)
Specified Value	[Adj.1 ] $85 \pm 1 \mu sec$ [Adj.2 ] $22 \pm 1 \mu sec$

Connection:

- Apply 5.0Vdc to Pin ④① of IC111.

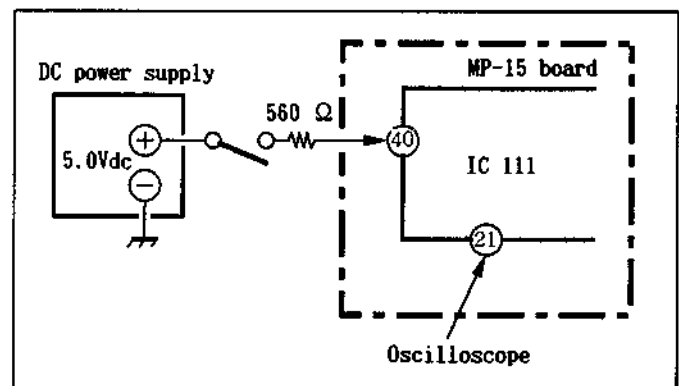


Fig. 7-18.

Adjustment method :

[Adjustment 1]

- 1) Select STILL (M) mode.
- 2) Search the frame 3851.
- 3) Connect the DC Power supply (5.0Vdc) to pin ④① of IC111.
- 4) Adjust with RV1 so that rising time difference between the pulse when the power (5.0Vdc) is on (LIM ON) and the trigger pulse (Pin ②⑤ of IC111) is  $85 \pm 1 \mu sec.$

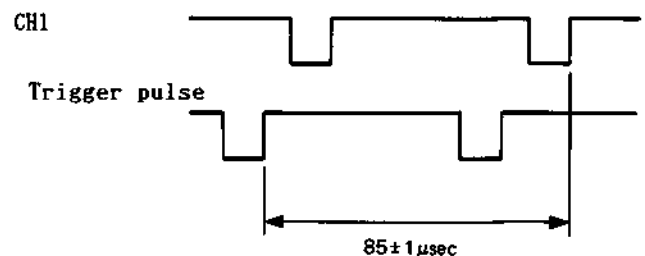


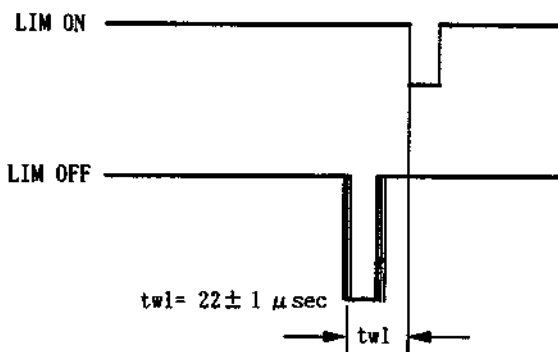
Fig. 7-19.

[ Adjustment 2 ]

- 1) Select STILL (⏸) mode.
- 2) Search the frame 3851.
- 3) Connect the DC Power supply (5.0Vdc) to pin ④ of IC111.
- 4) Adjust with RV105 so that time difference between when the power (5.0Vdc) is on (LIM ON) and when the power off (LIM OFF) is  $22 \pm 1 \mu\text{sec}$ .

Note : Since the waveform of LIM OFF is wavering, adjust at fits center position.

- Pin ② of IC111 (CH1)



- Pin 25 of IC111 (Trigger pulse)



Fig. 7-20.

1-7-4. Color Framing Y Level Adjustment (MP-15 Board)

Mode	Play back and Still
Signal	Frame 3851 (color bar) (REF3P)
Measurement point	CNJ102 (VIDEO OUT terminal) (Terminated to 75Ω)
Measuring Equipment	Oscilloscope
Adjusting Element	RV102
Specified Value	A=B

Adjustment method :

- 1) Search the frame 3851.
- 2) Equalize with RV102 Y levels on the playback mode and the still mode.

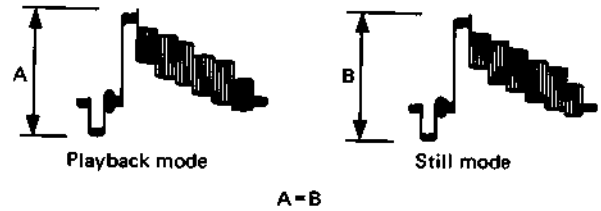


Fig. 7-21.

1-7-5. Color Framing Chroma Level (1) Adjustment (MP-15 Board)

Mode	Still
Signal	Frame 3851 (color bar) (REF3P)
Measurement point	CNJ102 (VIDEO OUT terminal) (Terminated to 75Ω)
Measuring Equipment	Oscilloscope
Adjusting Element	RV103
Specified Value	minimum

Adjustment method :

- 1) Select STILL (⏸) mode.
- 2) Search the frame 3851.
- 3) Minimize with RV103 the shaking of green position.

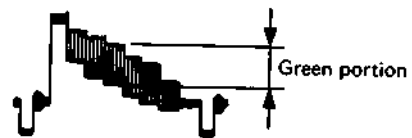


Fig. 7-22.

**1-7-6. Color Framing Chroma Level (2) Adjustment (MP-15 Board)**

Mode	Play back and Still
Signal	Frame 3851 (color bar) (REF3P)
Measurement point	CNJ102 (VIDEO OUT terminal) (Terminated to 75Ω)
Measuring Equipment	Oscilloscope
Adjusting Element	RV101
Specified Value	A=B

Adjustment method :

- 1) Search the frame 3851.
- 2) Equalize with RV101 the green levels on the playback mode and the still mode.

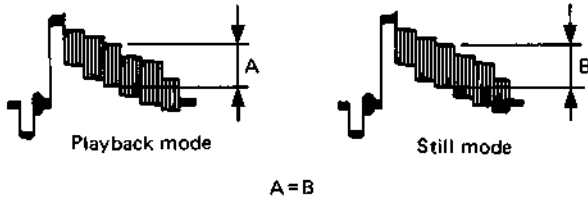


Fig. 7-23.

**1-7-7. Color Framing REF H Adjustment (MP-15 Board)**

Mode	Still
Signal	Frame 3851 (color bar) (REF3P)
Measurement point	PIN ④ of IC108
Measuring Equipment	Oscilloscope
Adjusting Element	RV106
Specified Value	$t_w = 112 \pm 5 \text{msec}$

Adjustment method :

- 1) Select STILL (M) mode.
- 2) Search the frame 3851.
- 3) Adjust with RV106 so that  $t_w$  is  $112 \pm 5 \text{msec}$ .

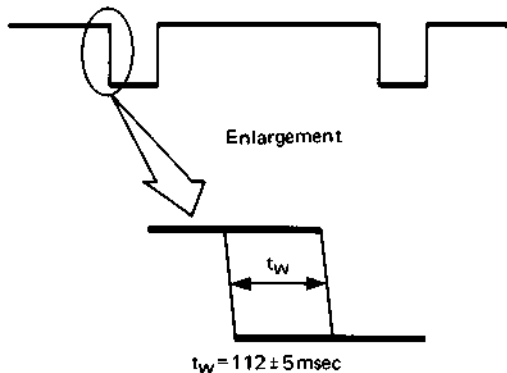


Fig. 7-24.

**1-7-8. Input Level (PAL) Adjustment (RG-6 Board)**

Mode	Still
Signal	Frame 3851 (color bar) (REF3P)
Measurement point	PIN ② of IC103
Measuring Equipment	Oscilloscope
Adjusting Element	RV101
Specified Value	$150 \pm 10 \text{mVp-p}$

Adjustment method :

- 1) Select STILL (M) mode.
- 2) Search the frame 3851 .
- 3) Adjust with RV101 to  $150 \pm 10 \text{mVp-p}$ .

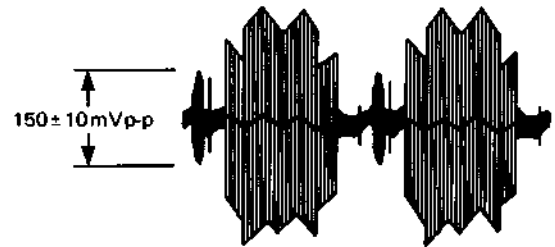


Fig. 7-25.

### 1-7-9. Input Level (NTSC) Adjustment (RG-6 Board)

Mode	Still
Signal	Frame 4100 (color bar) (REF7)
Measurement point	PIN ②④ of IC103
Measuring Equipment	Oscilloscope
Adjusting Element	RV103
Specified Value	$150 \pm 10 \text{ mVp-p}$

Adjustment method :

- 1) Select STILL (⏸) mode.
- 2) Search the frame 4100.
- 3) Adjust with RV103 to  $150 \pm 10 \text{ mVp-p}$ .

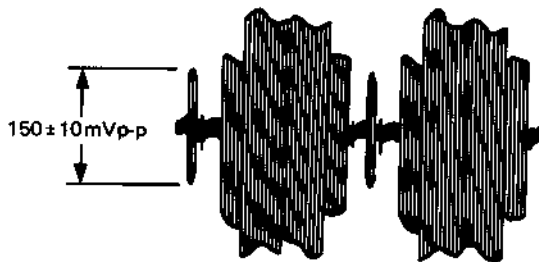


Fig. 7-26.

### 1-7-10. BF Position Adjustment (RG-6 Board)

Mode	Still
Signal	Frame 4100 (color bar) (REF7)
Measurement point	CH1: Pin ②⑦ of IC 103 CH2: Pin ③ of IC103
Measuring Equipment	Oscilloscope
Adjusting Element	RV107
Specified Value	$5.6 \pm 0.5 \mu \text{ sec}$

Adjustment method :

- 1) Select STILL (⏸) mode.
- 2) Search the frame 4100.
- 3) Adjust with RV107 to  $5.6 \pm 0.5 \mu \text{ sec}$ .

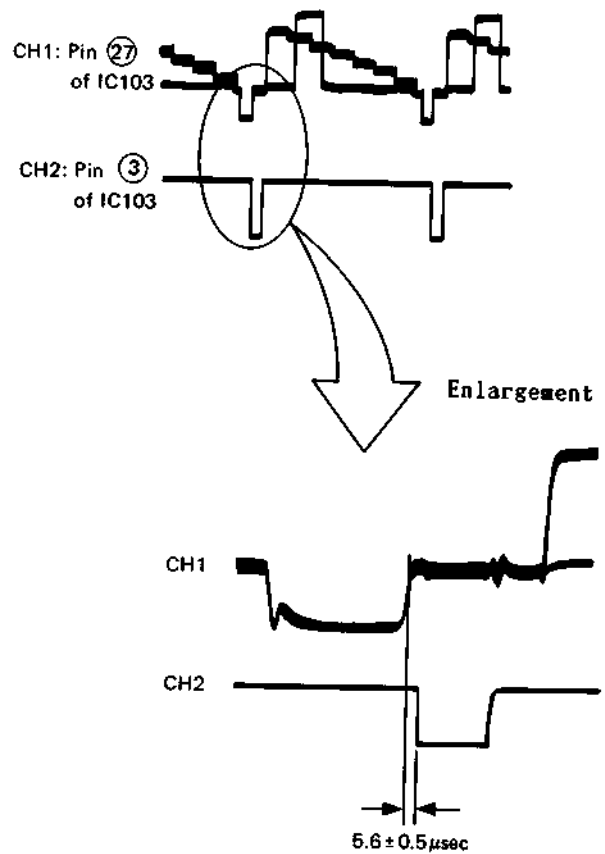


Fig. 7-27.

### 1-7-11. Video Level (NTSC) Adjustment (RG-6 Board)

Mode	Still
Signal	Frame 4100 (color bar) (REF7)
Measurement point	CH1:Pin ⑤ of CN101 (Terminated to 75Ω)
Measuring Equipment	Oscilloscope
Adjusting Element	RV104
Specified Value	$0.7 \pm 0.05V_{p-p}$

Adjustment method :

- 1) Select STILL (M) mode.
- 2) Search the frame 4100.
- 3) Adjust with RV104 to  $0.7 \pm 0.05V_{p-p}$ .



Fig. 7-28.

### 1-7-13. B Level Adjustment (RG-6 Board)

Mode	Still
Signal	Frame 4100 (color bar) (REF7)
Measurement point	Pin ⑦ of CN101 (Terminated to 75Ω)
Measuring Equipment	Oscilloscope
Adjusting Element	RV110
Specified Value	$0.7 \pm 0.05V_{p-p}$

Adjustment method :

- 1) Select STILL (M) mode.
- 2) Search the frame 4100.
- 3) Adjust with RV110 to  $0.7 \pm 0.05V_{p-p}$ .



Fig. 7-30.

### 1-7-12. G Level Adjustment (RG-6 Board)

Mode	Still
Signal	Frame 4100 (color bar) (REF7)
Measurement point	Pin ⑥ of CN101 (Terminated to 75Ω)
Measuring Equipment	Oscilloscope
Adjusting Element	RV111
Specified Value	$0.7 \pm 0.05V_{p-p}$

Adjustment method :

- 1) Select STILL (M) mode.
- 2) Search the frame 4100.
- 3) Adjust with RV111 to  $0.7 \pm 0.05V_{p-p}$ .



Fig. 7-29.

### 1-7-14. Video Level (PAL) Adjustment (RG-6 Board)

Mode	Still
Signal	Frame 3851 (color bar) (REF3P)
Measurement point	Pin ⑤ of CN101 (Terminated to 75Ω)
Measuring Equipment	Oscilloscope
Adjusting Element	RV102
Specified Value	$0.7 \pm 0.05V_{p-p}$

Adjustment method :

- 1) Select STILL (M) mode.
- 2) Search the frame 3851.
- 3) Adjust with RV102 to  $0.7 \pm 0.05V_{p-p}$ .



Fig. 7-31.

### 1-7-15. Free-Run Frequency (PAL) Adjustment (RG-6 Board)

Mode	Playback
Signal	Any Signal (REF3P)
Measurement point	Pin ⑭ of IC 103
Measuring Equipment	Frequency Counter
Adjusting Element	RV108
Specified Value	$4.433.619 \pm 15\text{Hz}$

Adjustment method :

- 1) Playback the REF3P disc.
- 2) Adjust with RV108 to  $4.433.619 \pm 15\text{Hz}$ .

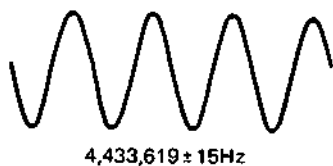


Fig. 7-32.

### 1-7-17. Chroma Level Adjustment (RG-6 Board)

Mode	Still
Signal	Frame 4100 (color bar) (REF7)
Measurement point	Pin ⑦ of CN101 (Terminated to $75\Omega$ )
Measuring Equipment	Oscilloscope
Adjusting Element	RV105
Specified Value	$0.53 \pm 0.03\text{Vp-p}$

Adjustment method :

- 1) Select STILL (⏸) mode.
- 2) Search the frame 4100.
- 3) Adjust with RV105 to  $0.53 \pm 0.03\text{Vp-p}$ .



Fig. 7-34.

### 1-7-16. Free-Run Frequency (NTSC) Adjustment (RG-6 Board)

Mode	Playback
Signal	Any Signal (REF7)
Measurement point	Pin ⑭ of IC 103
Measuring Equipment	Frequency Counter
Adjusting Element	CV102
Specified Value	$3.579.545 \pm 15\text{Hz}$

Adjustment method :

- 1) Playback the REF7 disc.
- 2) Adjust with CV102 to  $3.579.545 \pm 15\text{Hz}$ .

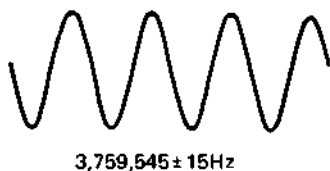


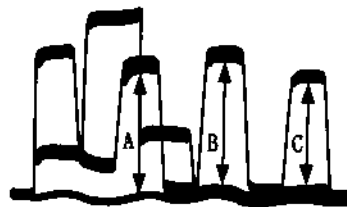
Fig. 7-33.

### 1-7-18. HUE Adjustment (RG-6 Board)

Mode	Still
Signal	Frame 4100 (color bar) (REF7)
Measurement point	Pin ⑦ of CN101 (Terminated to $75\Omega$ )
Measuring Equipment	Oscilloscope
Adjusting Element	RV109
Specified Value	$A=B=C= 0.53 \pm 0.03\text{Vp-p}$

Adjustment method :

- 1) Select STILL (⏸) mode.
- 2) Search the frame 4100.
- 3) Adjust with RV109 to  $0.53 \pm 0.03\text{Vp-p}$ .



$A=B=C=0.53 \pm 0.03\text{Vp-p}$

Fig. 7-35.

### 1-7-19. DL Amplifier Gain Adjustment (RG-6 Board)

Mode	Still
Signal	Frame 3851 (color bar) (REF3P)
Measurement point	Pin⑤ of CN101 (Terminated to 75Ω)
Measuring Equipment	Oscilloscope
Adjusting Element	RV106
Specified Value	$A=B= 0.53 \pm 0.03V_{p-p}$

Adjustment method :

- 1) Select STILL (M) mode.
- 2) Search the frame 3851.
- 3) Adjust with RV106 to  $0.53 \pm 0.03V_{p-p}$ .

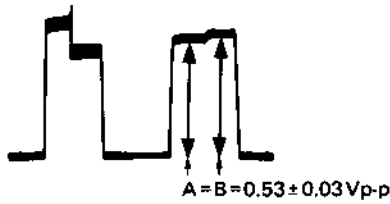


Fig. 7-36.

### 1-7-20. DAT Adjustment (RG-6 Board)

Mode	Still
Signal	Frame 3851 (color bar) (REF3P)
Measurement point	Pin⑦ of CN101 (Terminated to 75Ω)
Measuring Equipment	Oscilloscope
Adjusting Element	LV101
Specified Value	$A - B \leq 30mV$

Adjustment method :

- 1) Select STILL (M) mode.
- 2) Search the frame 3851.
- 3) Adjust with LV101 to  $A - B \leq 30mV$ .

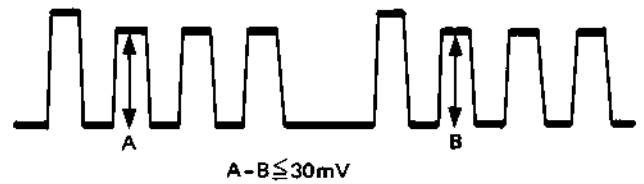


Fig. 7-37.

## 1-8. AUDIO SYSTEM ADJUSTMENT

### 1-8-1. Analog Audio System Adjustment (AF-52 Board)

#### 1. Audio output level adjustment (MDP-515)

Note: Adjusting element of the 2/R channel is indicated in brackets [ ] .

Mode	Still
Signal	Frame 4301 (RAMP/1kHz) (REF3P) Frame 4301 (RAMP/1kHz) (REF7)
Measurement point	Audio output 1/L [2/R] terminal
Measuring Equipment	Audio level meter or Oscilloscope
Adjusting Element	RV701 [RV702] (NTSC) RV703 [RV704] (PAL)
Specified Value	Audio level meter: $500 \pm 25 \text{mVrms}$ Oscilloscope : $1.4 \pm 0.07 \text{Vp-p}$

Adjustment method :

- 1) Playback the REF7 disc.
- 2) Search the Frame 4301 (chapter 6)
- 3) Turn off the [CX] with remote commander.  
(Confirm that the indication on the front panel of the main unit is disappeared.)
- 4) Adjust with RV701 [RV702] to  $500 \pm 25 \text{mVrms}$  or  $1.4 \pm 0.07 \text{Vp-p}$ .
- 5) Playback the REF3P disc.
- 6) Search the Frame 4301 (chapter 6)
- 7) Turn off the [CX] with remote commander.  
(Confirm that the indication on the front panel of the main unit is disappeared.)
- 8) Adjust with RV703 [RV702] to  $500 \pm 25 \text{mVrms}$  or  $1.4 \pm 0.07 \text{Vp-p}$ .

#### 2. Audio output level adjustment (MDP-315)

Note: Adjusting element of the 2/R channel is indicated in brackets [ ] .

Mode	Playback
Signal	Frame 4301 (RAMP/1kHz) (REF3P)
Measurement point	Audio output 1/L [2/R] terminal
Measuring Equipment	Audio level meter or Oscilloscope
Adjusting Element	RV701 [RV702]
Specified Value	Audio level meter: $500 \pm 25 \text{mVrms}$ Oscilloscope : $1.4 \pm 0.07 \text{Vp-p}$

Adjustment method :

- 1) Playback the REF3P disc.
- 2) Search the Frame 4301 (chapter 6)
- 3) Turn off the [CX] with remote commander.  
(Confirm that the indication on the front panel of the main unit is disappeared.)
- 4) Adjust with RV701 [RV702] to  $500 \pm 25 \text{mVrms}$  or  $1.4 \pm 0.07 \text{Vp-p}$

### 1-8-2. Digital Audio System Adjustment (MP-15 Board)

Mode	Stop
Measurement point	Pin① of IC803
Measuring Equipment	Digital Voltmeter
Adjusting Element	RV801
Specified Value	$0 \pm 0.2 \text{Vdc}$

Connections:

Connect the chemical capacitor ( $1 \mu\text{F}$  or more) in between Pin⑤ of IC803 (EFW) and GND.

Adjustment method :

- 1) Adjust with RV801 so that the voltage at Pin① of IC803 is  $0 \pm 0.2 \text{Vdc}$ .



1-8-3. RF PLL Free-Run Adjustment (MP-15 Board)

Mode	Stop
Measurement point	Pin ⑦ of IC803
Measuring Equipment	Frequency counter
Adjusting Element	LV801
Specified Value	4.405 ± 0.005MHz

Connections:

Connect the chemical capacitor (1μF or more) in between Pin ⑤ (EFM) of IC803 and GND.

Adjustment method :

- 1) Adjust with LV001 to 4.405 ± 0.005MHz.

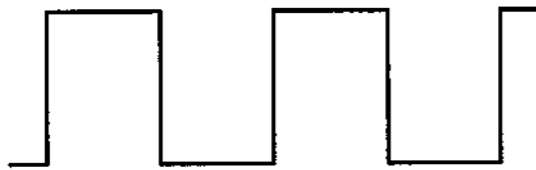
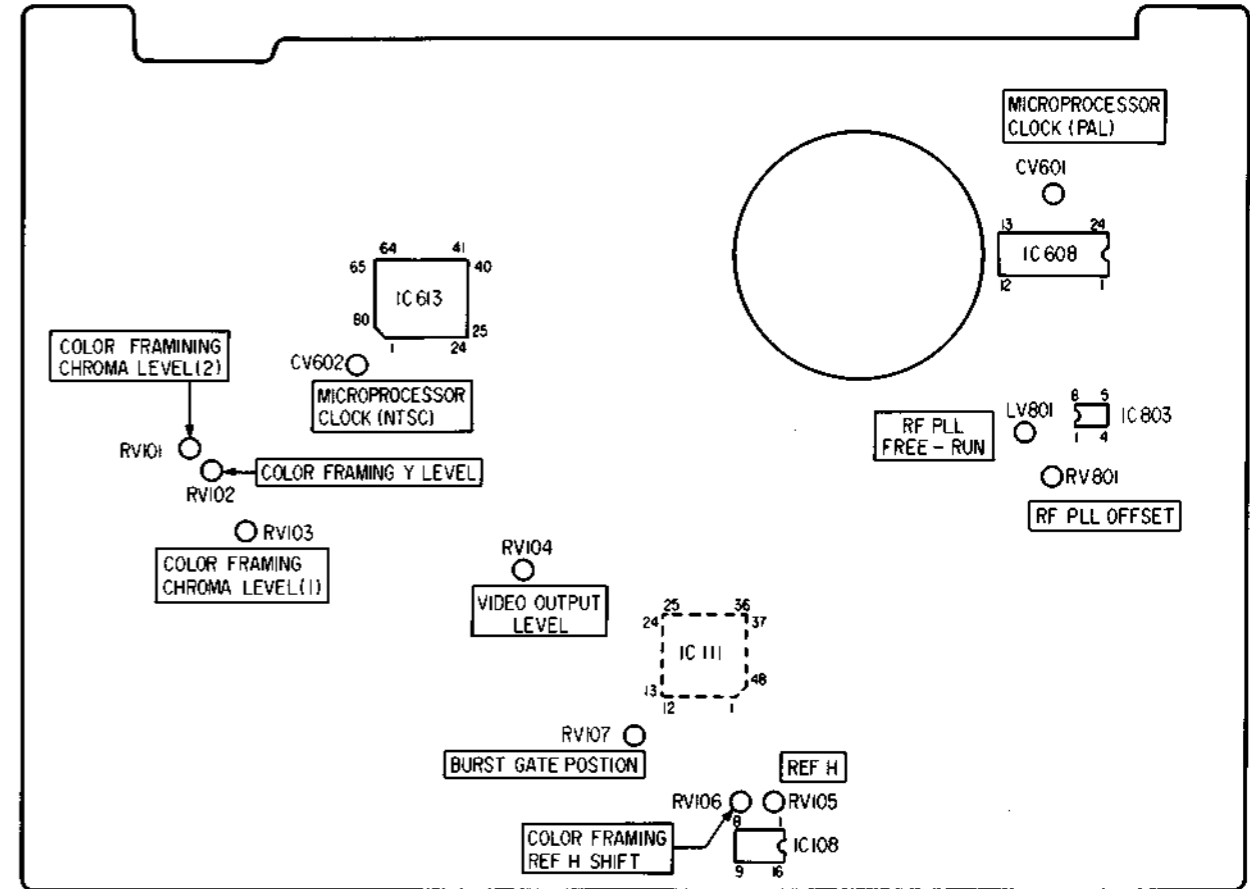


Fig. 7-38.

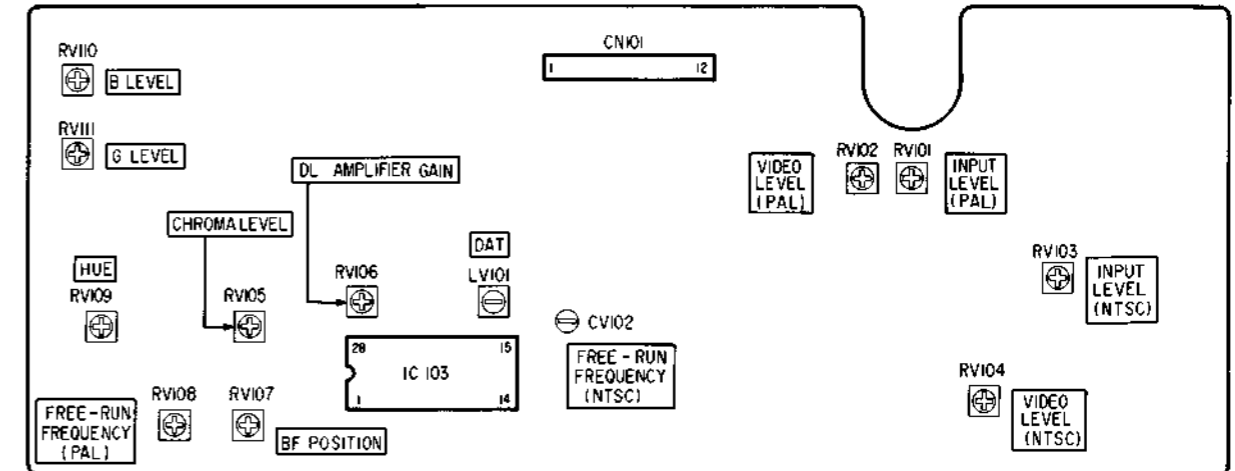
Note: If adjusting with a metallic screwdriver, a reading value may be altered. So use a ceramic screwdriver.

ADJUSTMENT RELATED PARTS LOCATION

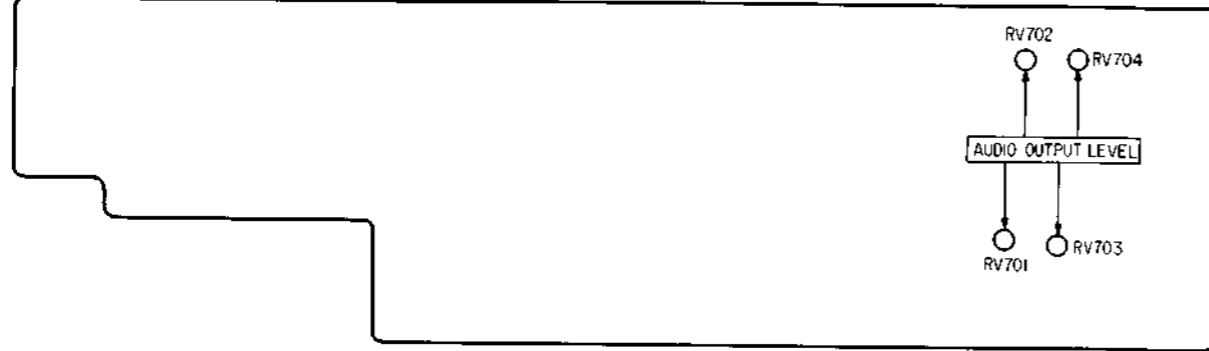
MP-15 BOARD (CONDUCTOR SIDE)



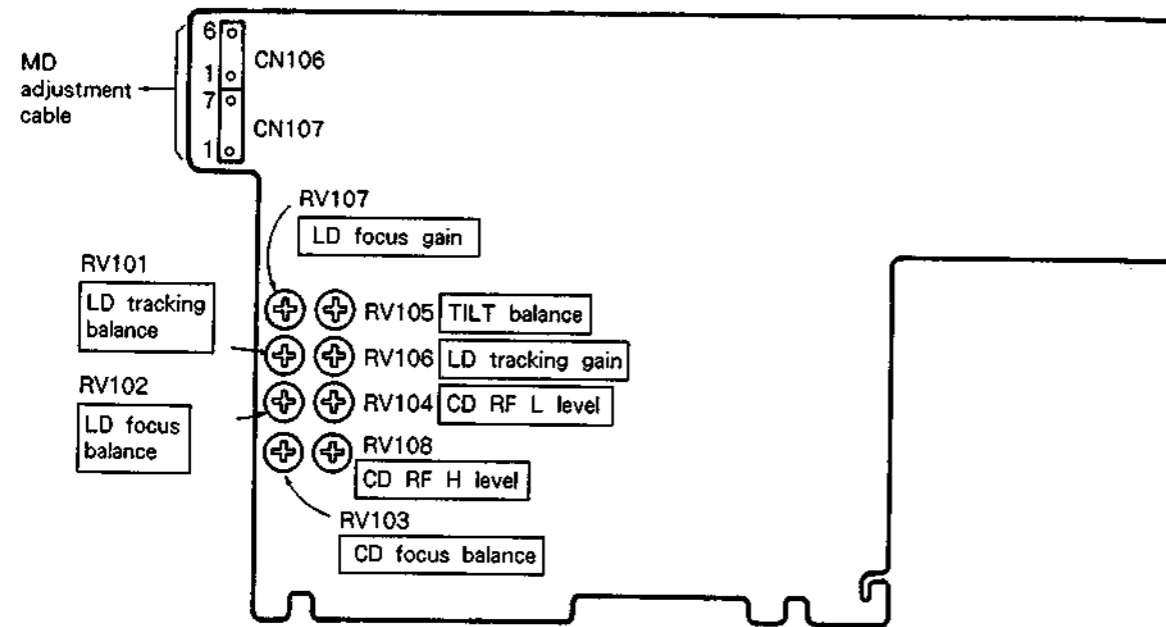
RG-6 BOARD (COMPONENT SIDE)



AF-52 BOARD (CONDUCTOR SIDE)



SV-33 board (CONDUCTOR SIDE)



PS-193 board (CONDUCTOR SIDE)

