

MDP-440/640D/740D

RMT-333E

SERVICE MANUAL

AEP Model



Photo: MDP-740D

SPECIFICATIONS

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

Playing time

			PAL	NTSC
LD	CAV	30 cm (12 in) double-sided	72	60
		20 cm (8 in) double-sided	32	28
		20 cm (8 in) single-sided	-	14
	CLV	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)

Digital audio specifications

Frequency response 4 Hz to 20 kHz (± 0.3 dB)
 Signal-to-noise ratio More than 100 dB (EIAJ*)
 Dynamic range More than 95 dB (EIAJ*)
 Total harmonic distortion 0.003% or less (EIAJ* at 1 kHz)
 Channel separation More than 90 dB (EIAJ* at 1 kHz)
 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

— Continued on next page —

• SERVICE OF REMOTE COMMANDER RMT-333E

Remote commander RMT-333E is available as a unit. But as individual parts the battery case lid of commander is only available.



CD VIDEO CD/CDV/LD/PLAYER
SONY®

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)
Audio digital output (optical) -18 dBm, wavelength 660 nm
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 and Australia: 240 V AC, 50/60 Hz
Power consumption 40 watts
Weight 640D: Approx. 8,6 kg (19 lb)
740D: Approx. 9,6 kg (21 lb 3 oz)
Dimensions 640D: Approx. 430x115x420 mm (w/h/d)
(17x4⁵/₈x16⁵/₈ inches)
740D: Approx. 470x115x420 mm (w/h/d)
(18⁵/₈x4⁵/₈x16⁵/₈ inches)
Operating temperature +5°C to +35°C
Ambient humidity 5% to 90%

Remote Commander RMT-333E



Remote control system Infrared control
Power requirements 3 V DC, (2 IEC R6 (size AA) batteries)
Dimensions Approx. 62x44.5x185 mm (w/h/d)
(2¹/₂x1¹³/₁₆x7³/₈ inches)
Weight Approx. 170 g (including batteries)
(6 oz)

Supplied accessories

Remote Commander RMT-333E (1)
IEC R6 (size AA) batteries (2)

Design and specifications are subject to change without notice.

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.

DANGER

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

CLASS 1 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 1.

1. Laser Diode Properties
 - Material: GaALAs
 - Wavelength: 780nm
 - 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 berakdown in the APC circuit (including laser diode), replace the entire Optcal Pick-up Block (including APC board).

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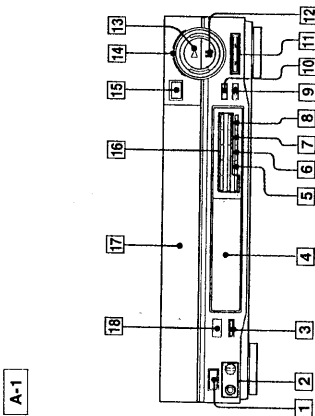
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SECTION 1
GENERAL

This section is extracted from instruction manual.

Location and Function of Parts and Controls

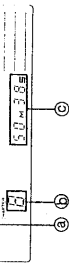
Refer to the page indicated in the black circle for details.



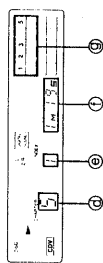
A-1

A-1

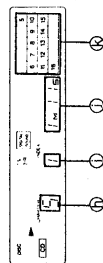
- Buttons on the Remote Commander have the same functions as those on the main unit.**
- Power switch**
Press to turn on and press again to turn off the player.
 - PHONES jack (stereo phone type) and LEVEL control**
When listening with headphones, connect the headphones with stereo phone plug here. Adjust the volume with the LEVEL control.
 - 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.



A-2



A-3



A-4

- Display window**
When playing back a disc, the following indications appear on the display.

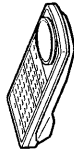
- A-2**
- LD**
- ① Type of LD
 - ② Chapter number
 - ③ Time (hr./min./sec.) or frame number
- A-3**
- CD**
- ④ Track number
 - ⑤ Index
 - ⑥ Elapsed time (min./sec.) for track
 - ⑦ AV calendar
- A-4**
- CD**
- ⑧ Track number
 - ⑨ Index
 - ⑩ Elapsed time (min./sec.) for track
 - ⑪ AV calendar

Front Panel

Accessories

The following accessories are included in the carton.

- AUTO PGM button**
- AV TIME button**
Press to change time display.
- FILE button**
Use this button for setting a custom index mark.
- CUSTOM INDEX button**
Use this button for custom index search.
- Repeat button**
Press to repeat the entire disc side.
- Stop button**
- ACS/AMS (Automatic Chapter Select/Music Sensor) buttons**
Use these buttons for skipping chapter/track.
- Pause button**
- Play button**
- Shuttle ring**
Utilize for forward or reverse speed scan.
- Disc tray OPEN/CLOSE button**
Press to open or close the disc tray.
- Number/file search (1-9/A-F) buttons**
These are used for entering program, chapter, track, frame, time numbers and File A-F.
- Disc tray**
- Remote control sensor**
Point the supplied Remote Commander here.



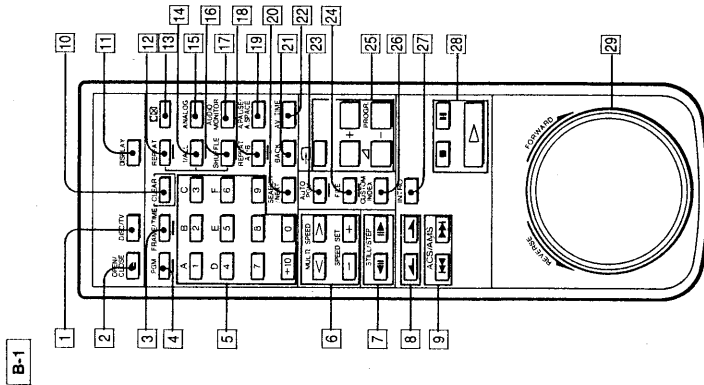
RMT-333E Remote Commander



Two IEC R6 (size AA) batteries

Location and Function of Parts and Controls

Remote Commander



B-1

- B-1** Buttons on the Remote Commander have the same functions as those on the main unit.
- 1** **DISC/TV button** When the player is connected to the TV via the EUROCONNECTOR, press to monitor TV programmers. Press again to return to disc viewing.
- 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 (1-9/A-F) buttons** These are used for entering program, chapter, track, frame, time numbers and File A-F.
- 6** **</> MULTI SPEED buttons**
- 7** **STILL/STEP buttons**
- 8** **Index buttons** While playing back a CD, press **→** to advance the index, or **←** to revert it.
- 9** **ACS/AMS (Automatic Chapter Select/Music Sensor) buttons**
- 10** **CLEAR button** Press to cancel a wrong numerical entry or to terminate the search or other function currently in operation. (The functions affected are marked on the Remote Commander with yellow underlines.)
- 11** **DISPLAY button** Press during playback to superimpose the screen messages (see page 13) on the monitor screen. Press again to remove the message.
- 12** **REPEAT button** Press to repeat the entire disc side, and for other repeat play.
- 13** **button** Press to manually activate the noise reduction system.

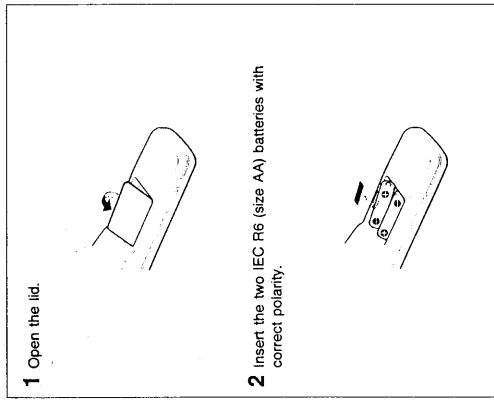
The yellow bar under a button indicates that the function of that button can be released by pressing the CLEAR button.

- 14** **1/ALL button** Press to repeat the single track or chapter.
- 15** **ANALOG audio button** Use this button to switch between digital and analog sound on an LD of NTSC video signal system.
- 16** **SHUFFLE button** Press to play back selections on a CD, CDV, and LD with TOC in random order.
- 17** **AUDIO MONITOR button** Press to switch the audio channels of a disc in the order of stereo, 1/L, and 2/R.
- 18** **REPEAT A ↔ B button** Press to repeat the particular portion.
- 19** **A/(Automatic) PAUSE/A. (Automatic) SPACE button**
- 20** **SEARCH/NEXT button**
- 21** **BACK button**
- 22** **AV TIME button** Press to change time display.
- 23** **AUTO PGM button**
- 24** **FILE button** Use this button for setting a custom index mark.
- 25** **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 equipment connected to the video/audio inputs of the TV set. (This function is available only with certain TV models.)
- 26** **CUSTOM INDEX button** Use this button for custom index search.
- 27** **INTRO (Introduction) scan button**
- 28** **Basic operation buttons** **STOP button** **PAUSE button** **PLAY button**
- 29** **Shuttle ring** Utilize for forward or reverse speed scan.

Precaution 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.

Installing batteries



1 Open the lid.

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

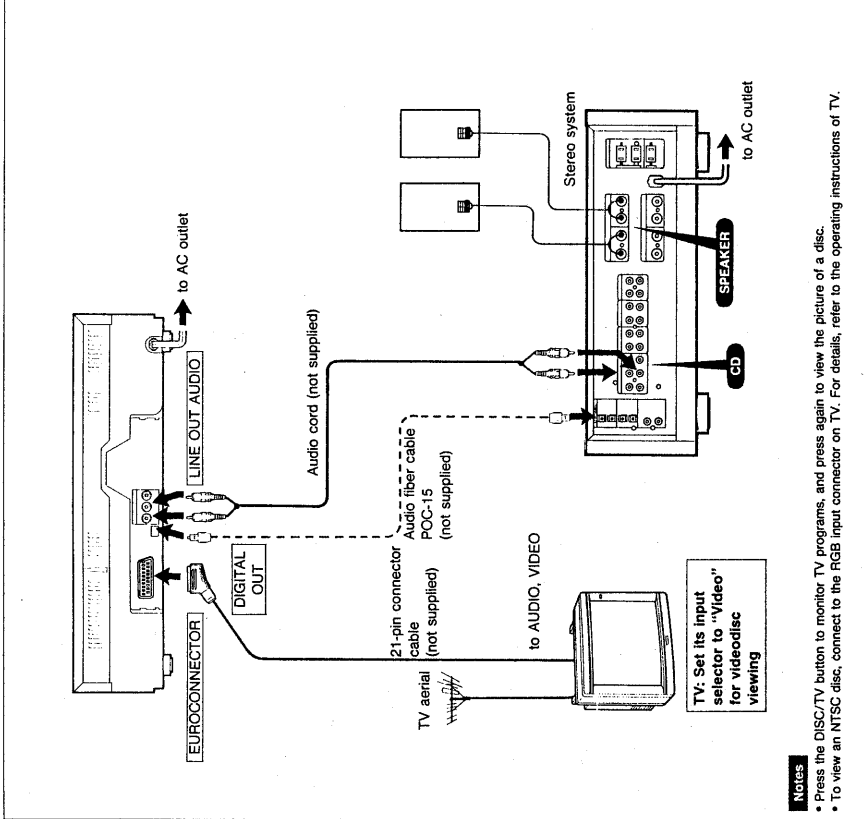
Battery life

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.

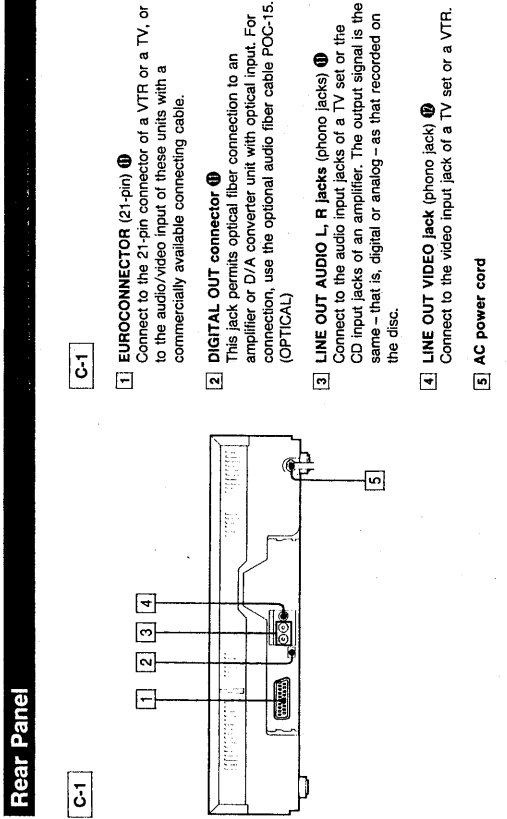
Note

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.

To Connect to Audio System and to TV with Audio/Video Inputs and EUROCONNECTOR



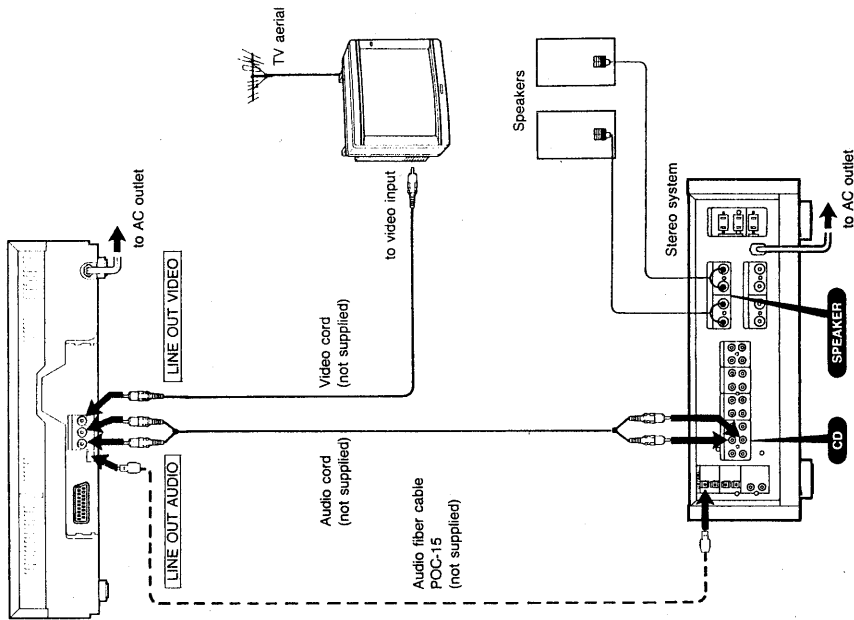
Location and Function of Parts and Controls



Rear Panel

C-1

To Connect to Audio System and TV with Audio/Video Inputs



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

Current chapter number
Message 1 (see table below)
Current frame number or time information*
Chapter numbers during program playback
Selected function
Message 2 (see table below)

CD

Current track number
Index number
Elapsed time per track
Message 1 (see table below)
Number of tracks and total playing time
Track numbers during program or delete shuffle playback

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

CDV

Current track number
Index number
Elapsed time per track
Message 1 (see table below)
Number of tracks and total playing time of video portion
Number of tracks and total playing time of audio portion
Track numbers during program or delete shuffle playback

To turn on the screen message
Press DISPLAY button.

Remote Commander

Press the button again to turn the message off.

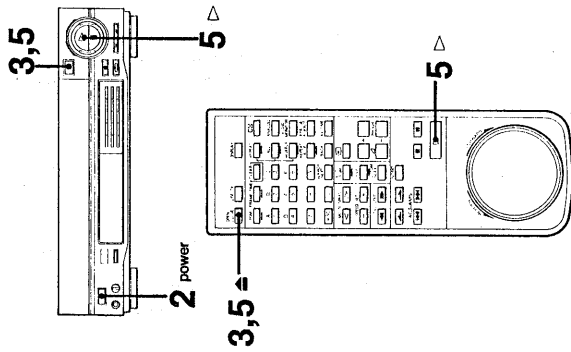
Message 1 (Examples)		Message 2 (Examples)	
Display	Explanation	Display	Explanation
OPEN	Disc tray open	SIDE A CAV	Standard-play disc side A
CLOSE	Disc tray close	SIDE B CAV	Standard-play disc side B
▶	Playback	SIDE A CLV	Extended-play disc side A
■	Stop	SIDE B CLV	Extended-play disc side B
	Pause	1/L	Main soundtrack/left channel
⏮	Forward/reverse speed scan	2/R	Second soundtrack/right channel
SEARCH	Search	> DIGITAL	Digital sound
▶ × 1/2	1/2 speed* display in forward direction	> 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.

Note
When playing an NTSC disc, the picture may be abnormal on some types of TV.

To Play a Disc

Starting Playback



- 1** Turn on the TV and stereo system.
TV: Select 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.
- CD/CDV

LD
- 5** Press (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.

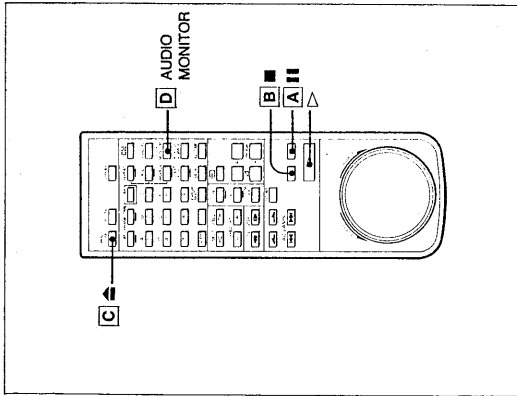
Using an optional timer

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.

Advanced Playback



- 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**
After playback has started, Press AUDIO MONITOR.
Press AUDIO MONITOR.
Stereo disc: Left channel, Right channel
SAP disc: Audio signal (1), Audio signal (2)
Indicators lit: 1/L, 2/R, 1/L, 2/R

Discs bearing the CX label are recorded with the CX noise reduction system, which gives lower noise levels and higher dynamic range. The CX indication 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 indication does not light, press the CX button on the Remote Commander to manually activate the system.

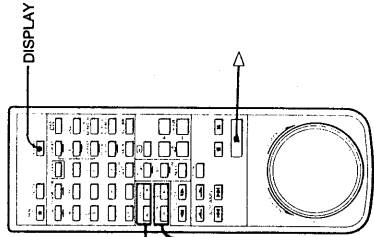
To switch between digital and analog sound on an LD (for NTSC discs only)

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 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 Change Playback Speed and Direction - Speed Play (CAV Standard-paly)



1 MULTI SPEED < >

2 SPEED SET - +

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

Fast ← → Slow

Press Δ 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 Δ.

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 X 1 (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.

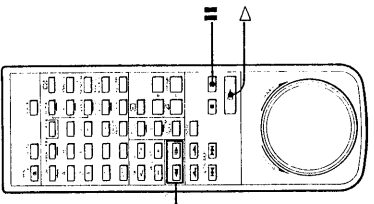
PAL discs

The image may be in black and white during X 10 (10 lines) 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 Δ to resume playback or a speed play button to continue the speed play.

To Play Frame by Frame - Step Playback (CAV standard-paly)



To view a still picture

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

To view one frame at a time - step playback

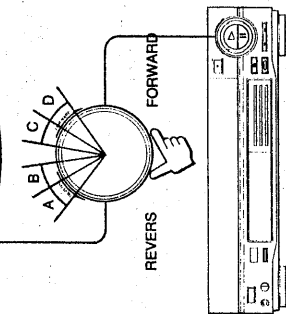
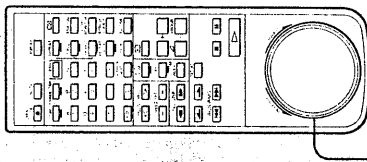
Press II (pause) once for freeze-frame.
To advance the picture by one frame, press II ▶ (STEP in forward).
To go back by one frame, press ◀ III (STEP in reverse).
Hold the button down for continuous frame by frame viewing.
To resume normal playback, press Δ.

During step playback operation
The sound is muted during step playback.

To Search for a Particular Scene

Dual Speed Scan

The playback speed can be changed depending on the angle of turning the shuttle ring.



Normal Scan

Reverse scan: Turn the shuttle ring to the B position.
Forward scan: Turn the shuttle ring to the C position.
Scans in the speed of approximately 10 times normal speed.

High-speed scan

Reverse scan: Turn the shuttle ring to the A position.
Forward scan: Turn the shuttle ring to the D position.
Scans in the speed of approximately 30 times normal speed.

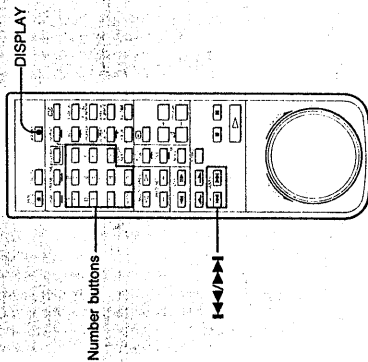
- To resume the normal play, release your finger from the shuttle ring.

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 **▶|▶** repeatedly as needed. To return to the beginning of the current chapter/track, press **◀|◀** 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 $\boxed{+10} \boxed{-4}$
To enter 20 $\boxed{+10} \boxed{+10} \boxed{-0}$

If the +10 button is pressed by mistake Press the CLEAR button, then press the other buttons for desired number.

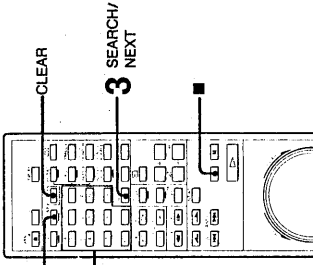
NOTES

- 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.



- 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

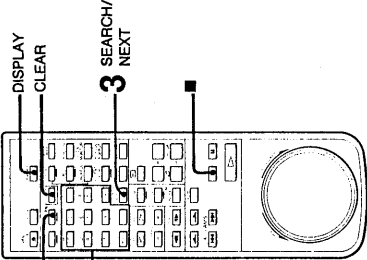
These numbers appear in the display window on the player. Press **DISPLAY** on the Remote Commander to display them on the screen.

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.



- 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.

Example: Locate the 12 min 05 sec point.

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.

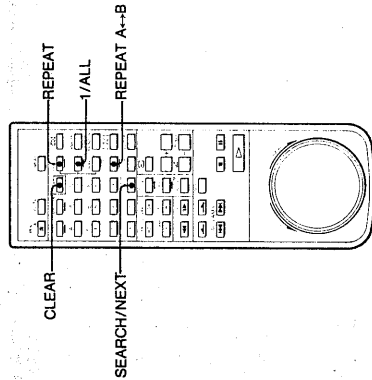
Notes

- If the disc does not include time data to the second, enter the time in minutes only.
- If the selected number 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 Portion 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. REPEAT and SINGLE indications 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 indication 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 indication flashes in the display window.
- 2 At the end point (point B) of the desired portion, press REPEAT A--B. The REPEAT A--B indication 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 33.

To check the current status

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

To cancel SINGLE or ALL repeat

Press REPEAT so that the REPEAT indication goes out. If you have used the AUTO REPEAT switch on the main unit to activate the ALL repeat function, select OFF on the switch to cancel the function.

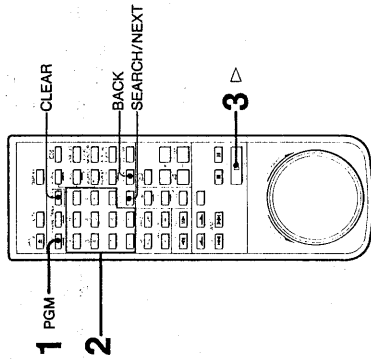
To cancel A--B repeat

Press CLEAR. AUTO REPEAT switch on the unit. Select ON to repeat the entire disc side.

Program Playback

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

- Example: To play LD chapter 5, 4, 2, and 6 in that order.
- 1 Press PGM. The PROGRAM indication in the display window lights up.
 - 2 Enter the chapter numbers by pressing "5", "4", "2", and "6" in sequence.
 - 3 Press Δ (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 SEARCH/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 indication.

To enter chapter numbers over 10

Use the +10 and "0" buttons.

If the -10 button is pressed by mistake

Press the CLEAR button, then press the other buttons for desired number.

To move to a preceding or following programmed track

Press the \leftarrow or \rightarrow button.

To check the program contents

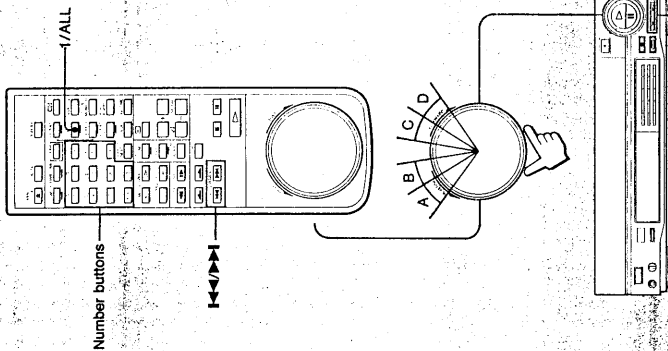
Press PGM. The program is displayed for about 3 seconds on the screen. The currently playing program number blinks.

Notes

- When the shuttle ring is kept turned to the forward direction during program playback and the playback comes to the end of the current selection, the next programmed chapter will be played back. When the shuttle ring is kept turned to the reverse direction, the unit will not go back to previous chapters. If you want to move a preceding programmed chapter, press \leftarrow button until the desired programmed number comes up.
- If not-existing chapter numbers on a disc are entered, the program cannot be conducted.
- Programmed contents are stored until the disc is removed or the power is switched off.

To Search for a Particular Track

The selections on CDs and DVDs 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 indication. 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

To scan at the fast speed

Turn the shuttle ring to B position for scanning in reverse at the fast speed and C for scanning forward.

To scan at the higher speed

Turn the shuttle ring to A position for scanning in reverse at the higher speed and D for scanning forward.

To resume the normal speed, release your finger from the shuttle ring.

To enter track numbers over 10
Use the +10 and "0" buttons.

If the +10 button is pressed by mistake
Press the CLEAR button, then press the other buttons for desired number.

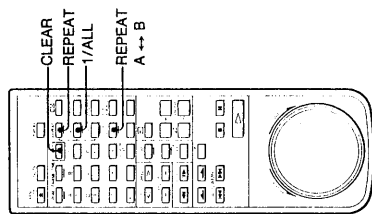
Sound during search

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 Listen Only to Particular Track(s)

Repeat Playback

A single track, a specified portion of a disc, or all the tracks on a disc can repeatedly be played back.



To repeat the current track - SINGLE repeat

1 Press 1/ALL.

2 Press REPEAT.

The REPEAT and SINGLE indications light up in the display window. When the end of the current track is reached, playback of the track is automatically repeated.

Press REPEAT to turn off the REPEAT indication to repeat the track only once.

To repeat all tracks - ALL repeat

Press REPEAT.

The REPEAT indication lights up and the entire disc is repeatedly played back.

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

1 During playback, press REPEAT A ↔ B once at the start point (point A) of the desired portion.
The REPEAT A ↔ B indication flashes in the display window.

2 At the end point (point B) of the desired portion, press REPEAT A ↔ B.

The REPEAT A ↔ B indication lights up. The player returns to the point where REPEAT A ↔ B was first pressed, and repeat playback automatically starts.

To cancel SINGLE or ALL repeat

Press REPEAT so that the REPEAT indication goes out. If you have used the AUTO REPEAT switch on the main unit to activate the ALL repeat function, select OFF on the switch to cancel the function.

To cancel A ↔ B repeat

Press CLEAR.

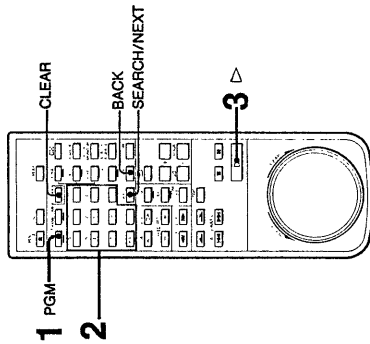
AUTO REPEAT switch on the unit

Select ON to repeat the entire disc side.

To Listen Only to Particular Track(s)

Program Playback

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



Example: To play tracks numbered 5, 4, 2, and 6 in that order.

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

If you make a mistake in track number entry

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

To change a number, press SEARCH/NEXT (for the next number) or BACK (for the previous number) until the incorrect number flashes in the display window, and then enter a new number.

To enter track numbers over 10

Use the +10 and "0" buttons.

Example: To enter 20 \rightarrow 2 \rightarrow +10 \rightarrow 0

If the +10 button is pressed by mistake

Press CLEAR button, then press the other buttons for desired number.

To release or cancel program playback

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

To repeat a program

Press REPEAT to turn on the REPEAT indication in the display window.

AUTO REPEAT switch on the unit

Select ON to repeat the entire disc side.

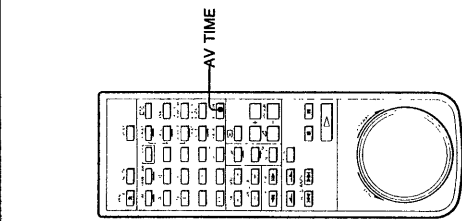
To move to a preceding programmed track

Press the \blacktriangleleft button.

To move to a following programmed track

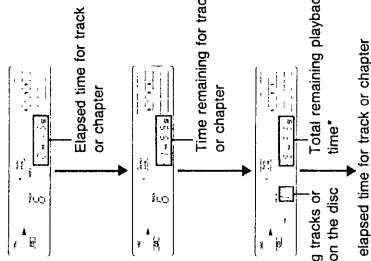
Press the \blacktriangleright button.

To Change Time Display (AV TIME)



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.

During playback



Reverts to elapsed time for track or chapter

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

NOTICES

- When the shuttle ring is kept turned to the forward direction during program playback and the playback comes to the end of the current selection, the next programmed track will be played back. When the shuttle ring is kept turned to the reverse direction, the unit will not go back to previous tracks.
- If not existing track numbers on a disc are entered, the program may not be conducted.

To check time and track information on a TV or monitor screen

Turn on the power of the TV or monitor connected to the player and press DISPLAY. Time and track information for the CD/GDV is shown on the screen.

During program play

The numbers on the AV calendar display go out, as tracks are played. The contents of a program are stored until the disc is removed or the player is turned off.

Program playing time

The total playing time of the program is displayed, only when tracks with numbers under 20 are programmed and the total playing time is less than 100 minutes.

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/GDV appears on the screen.

Note

The remaining time will not be displayed for a track number higher than 20 and playing time more than 100 minutes.

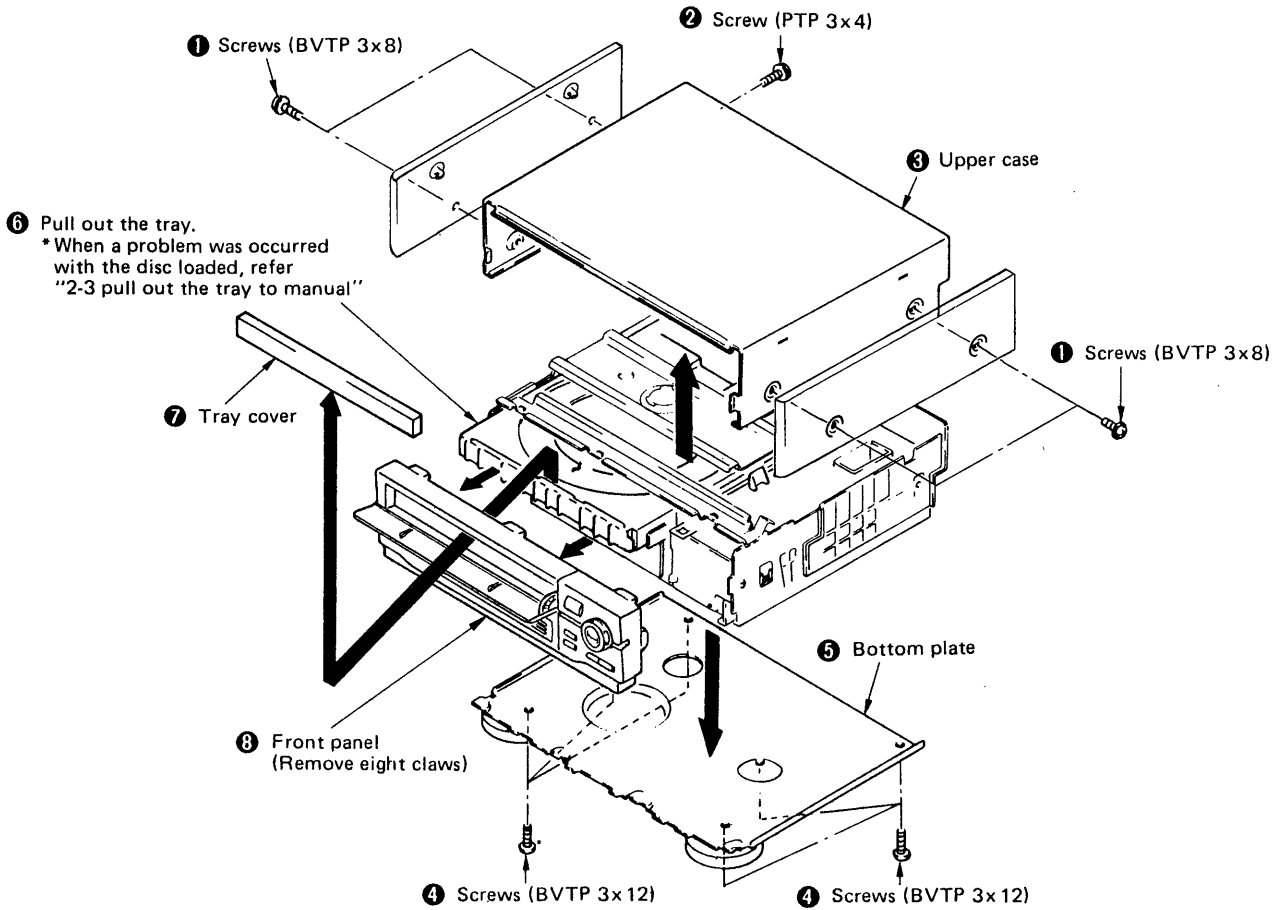
Note on LD discs

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.

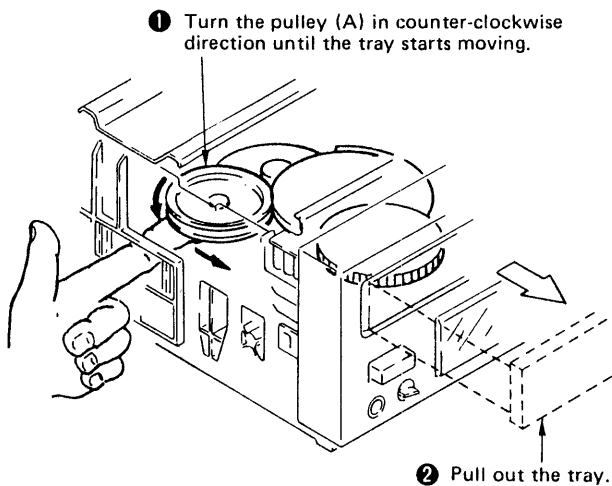
SECTION 2 DISASSEMBLY

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

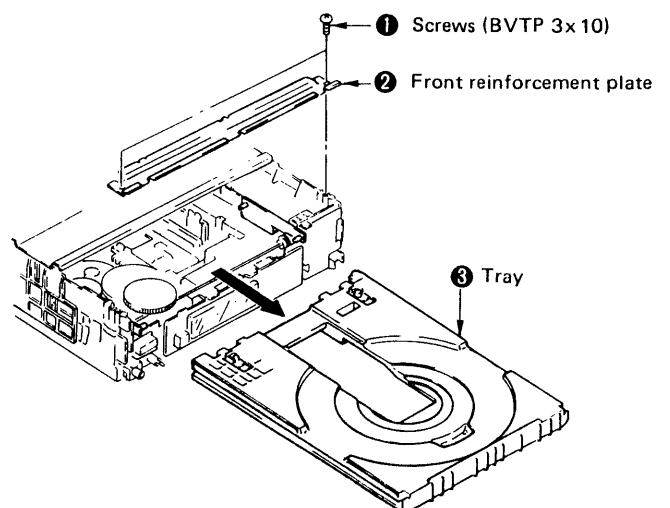
2-1. REMOVAL OF THE CABINET



2-2. PULL OUT THE TRAY TO MANUAL

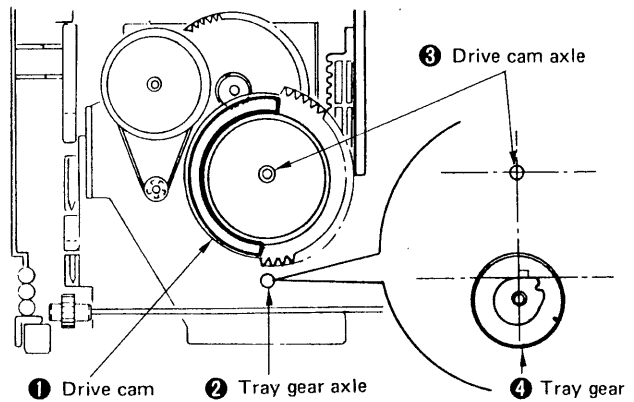


2-3. REMOVAL OF TRAY

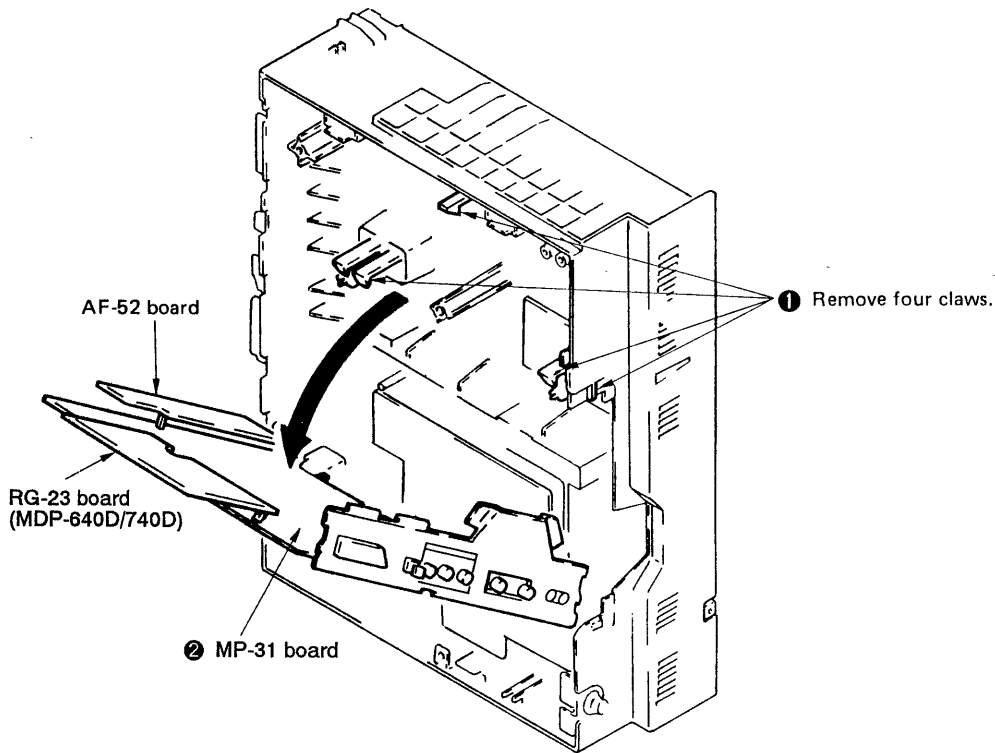


2-4. ALIGNMENT OF LOADING GEAR PHASE

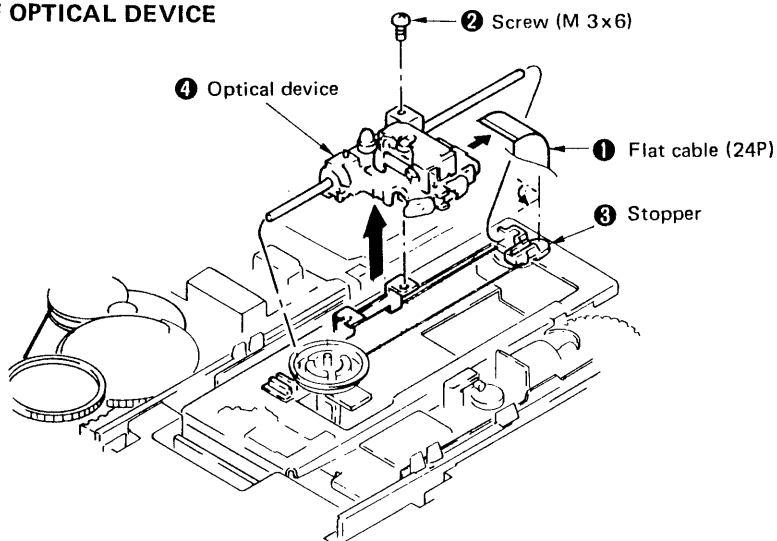
1. Install the drive cam as shown in the illustration. At this time, make sure that the last tooth of gear is aligned with the line from the center of the tray gear axle and the drive gear axle.
2. Install the tray gear as shown in the illustration. At this time, make sure the flat surface of the cam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



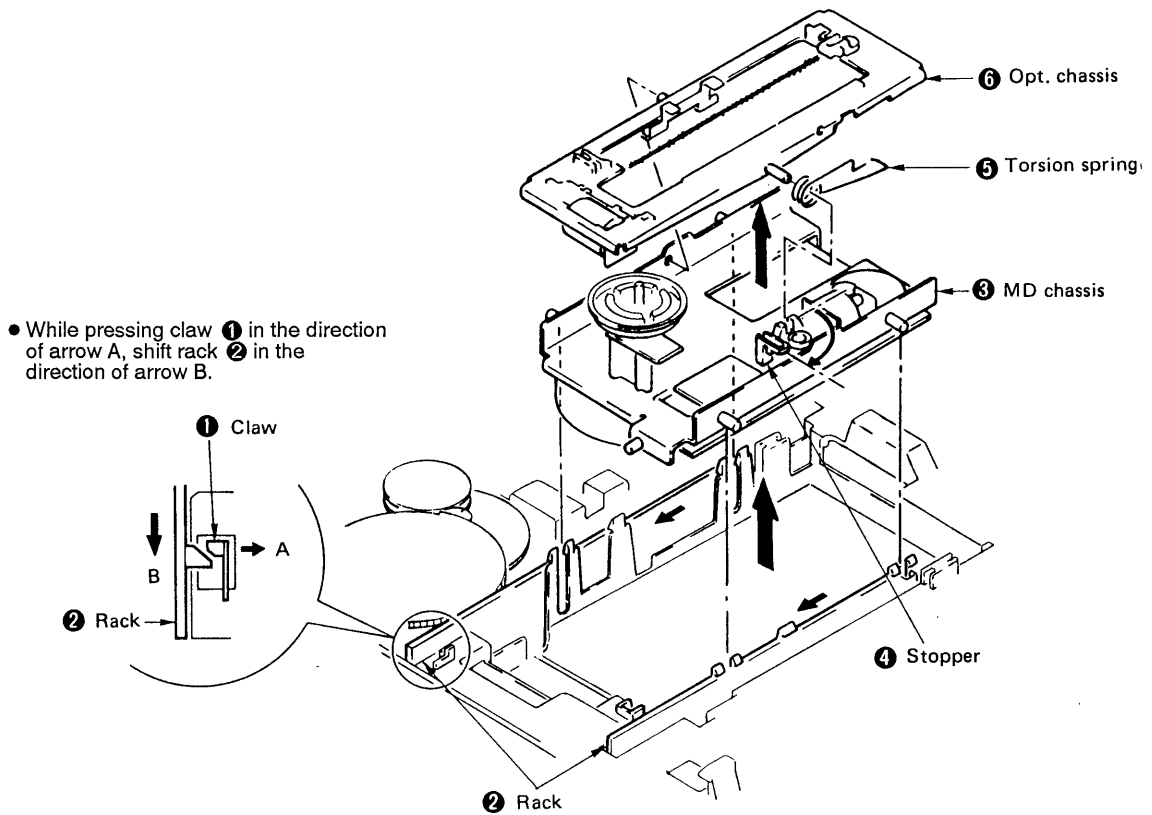
2-5. OPERATING OF MP-31 BOARD



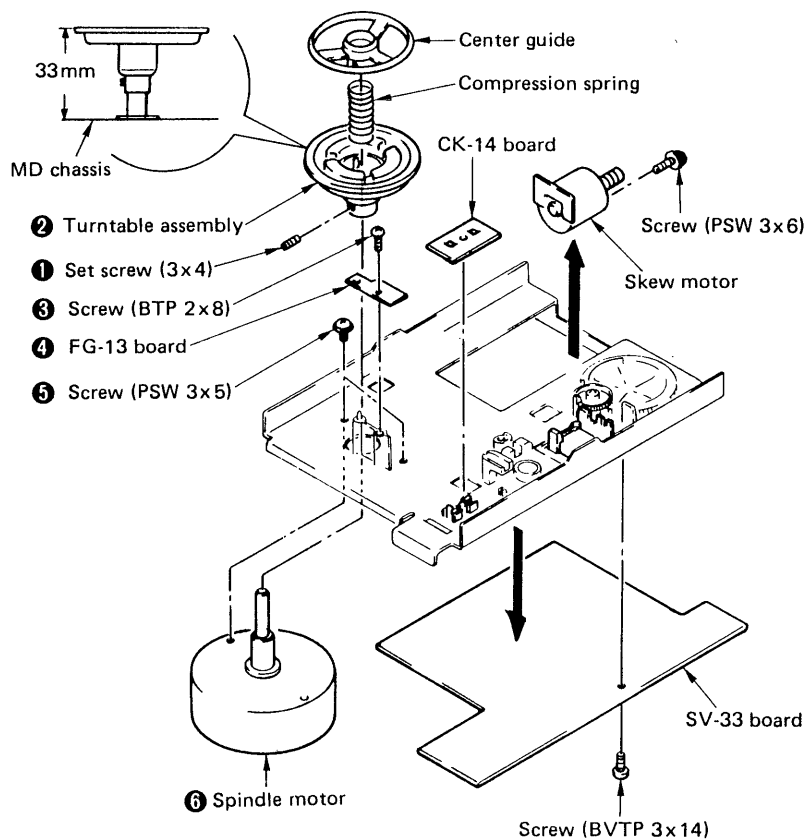
2-6. REMOVAL OF OPTICAL DEVICE



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

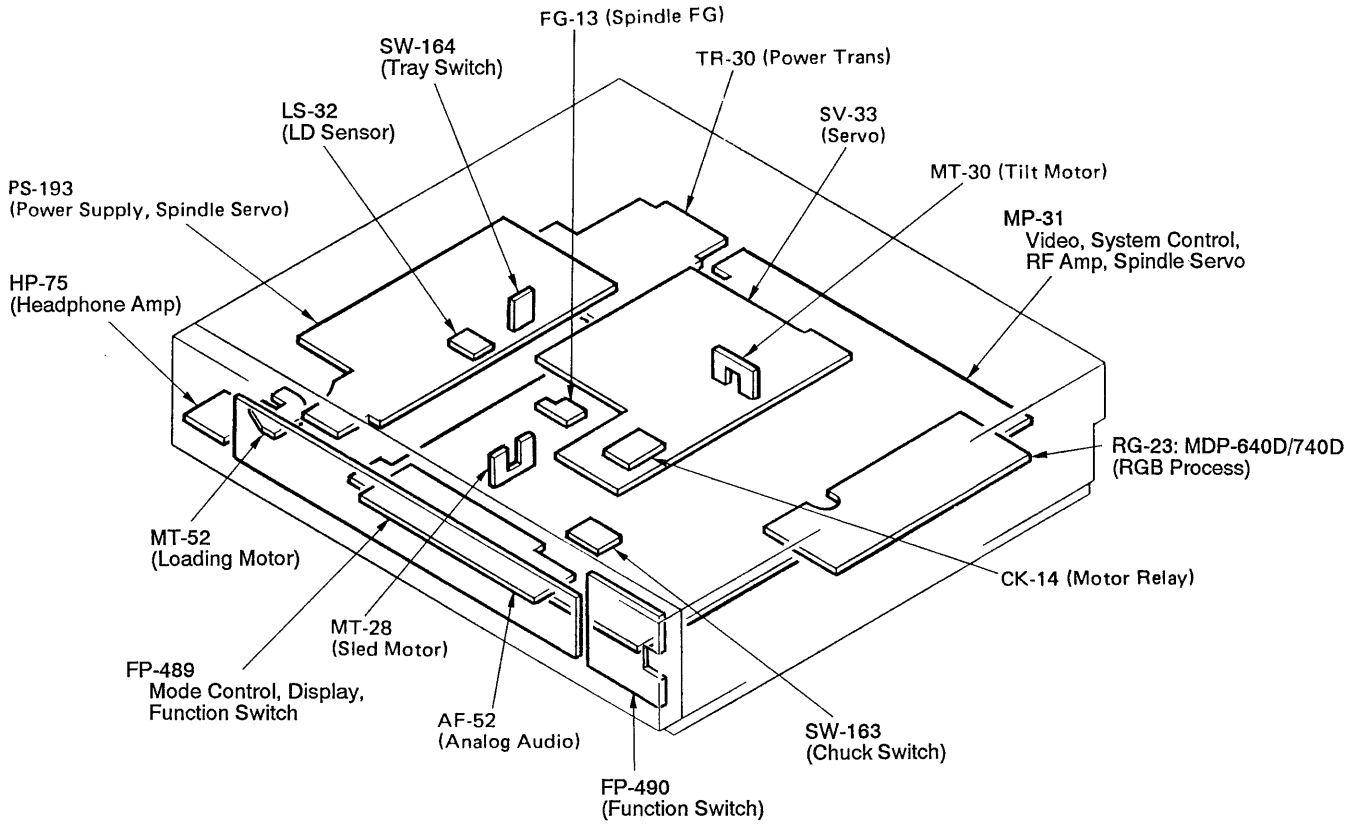


2-8. REMOVAL OF TURNTABLE, SPINDLE MOTOR, SV-33 BOARD AND FG-13 BOARD

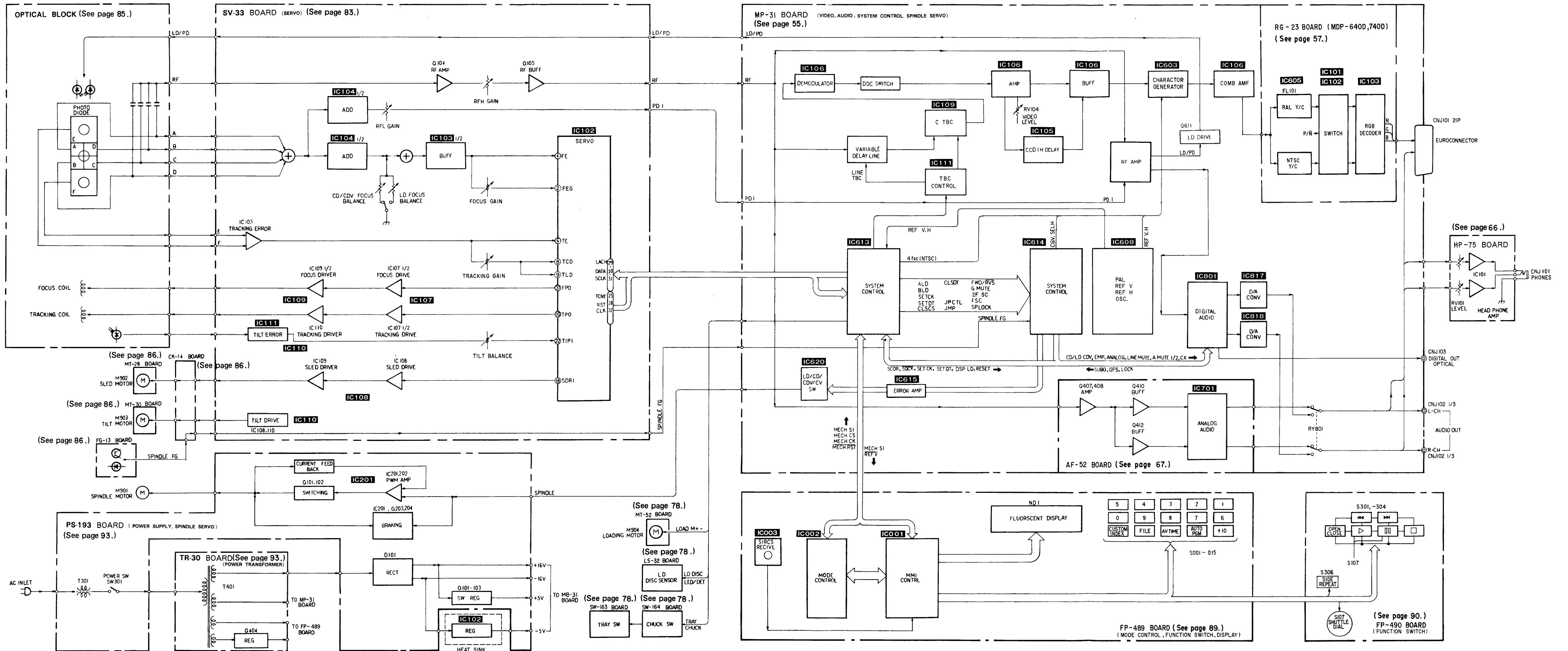


SECTION 3 DIAGRAMS

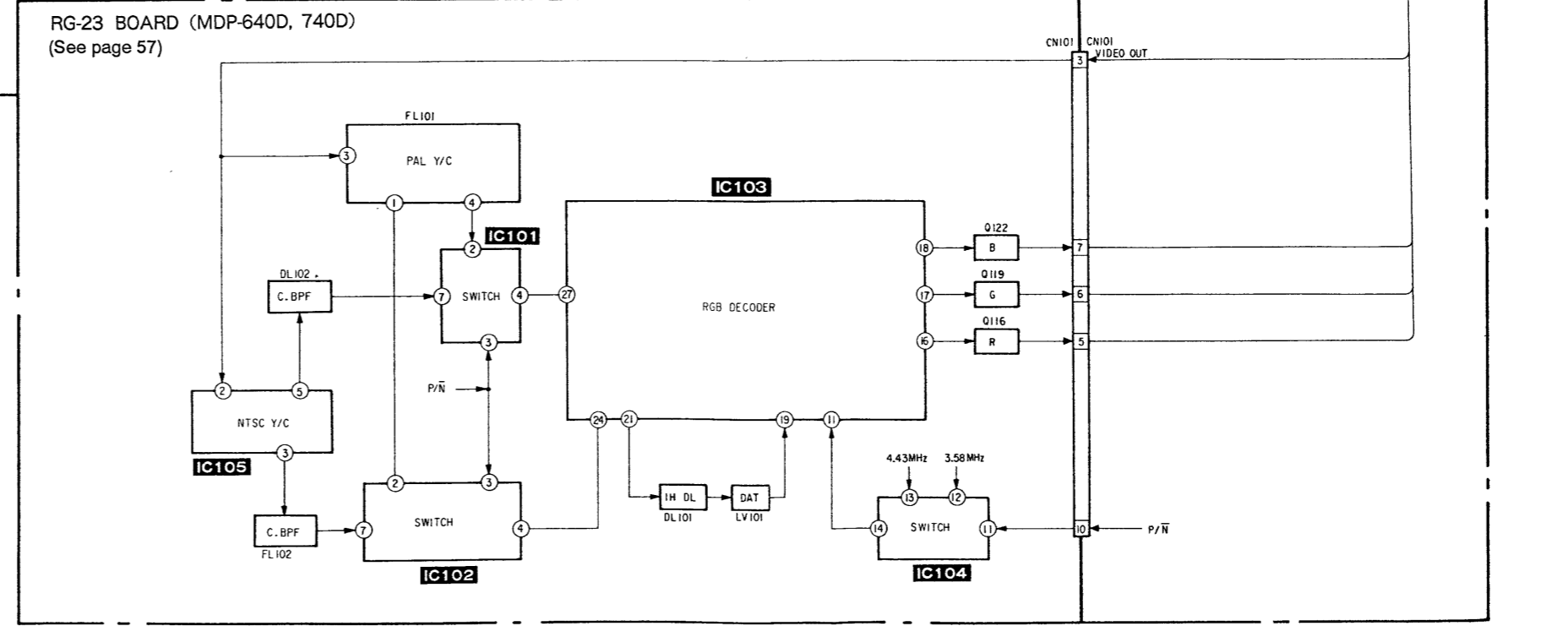
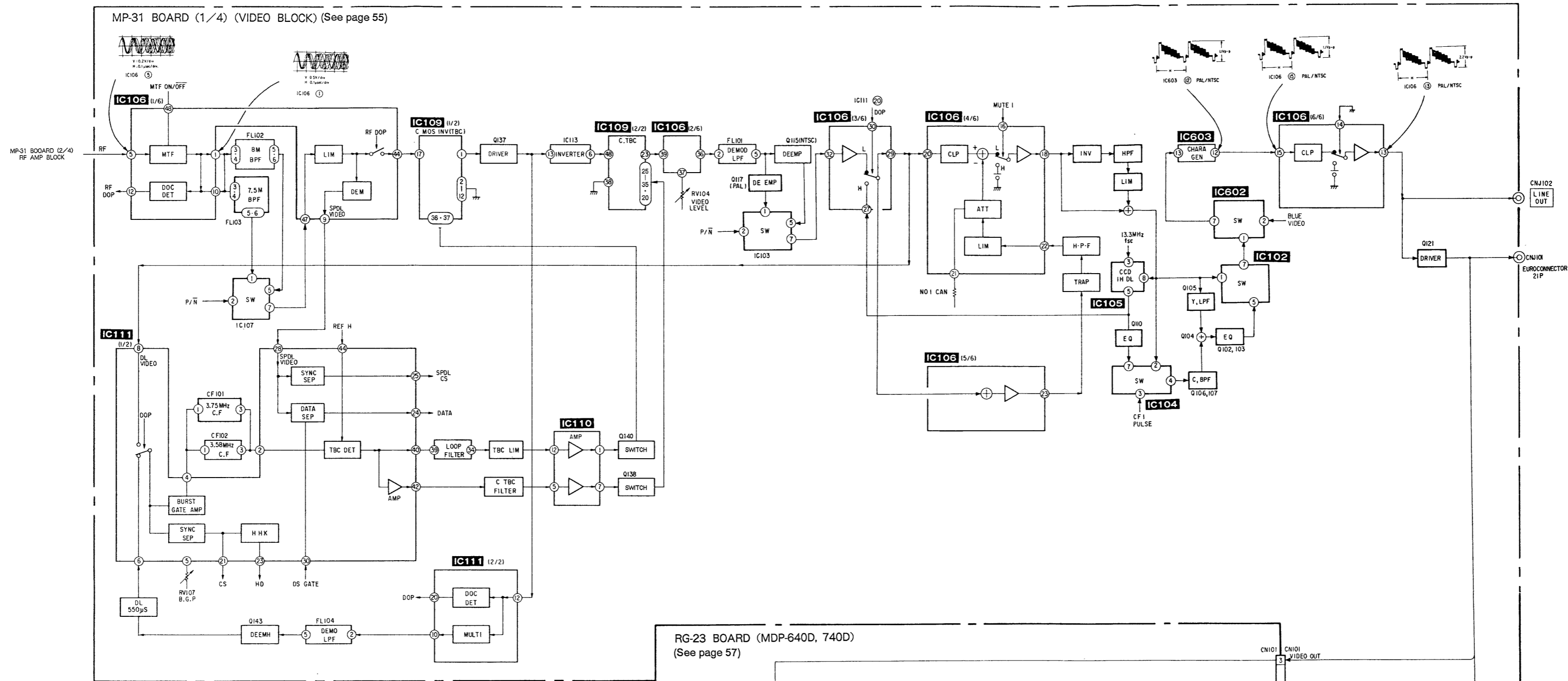
3-1. CIRCUIT BOARDS LOCATION



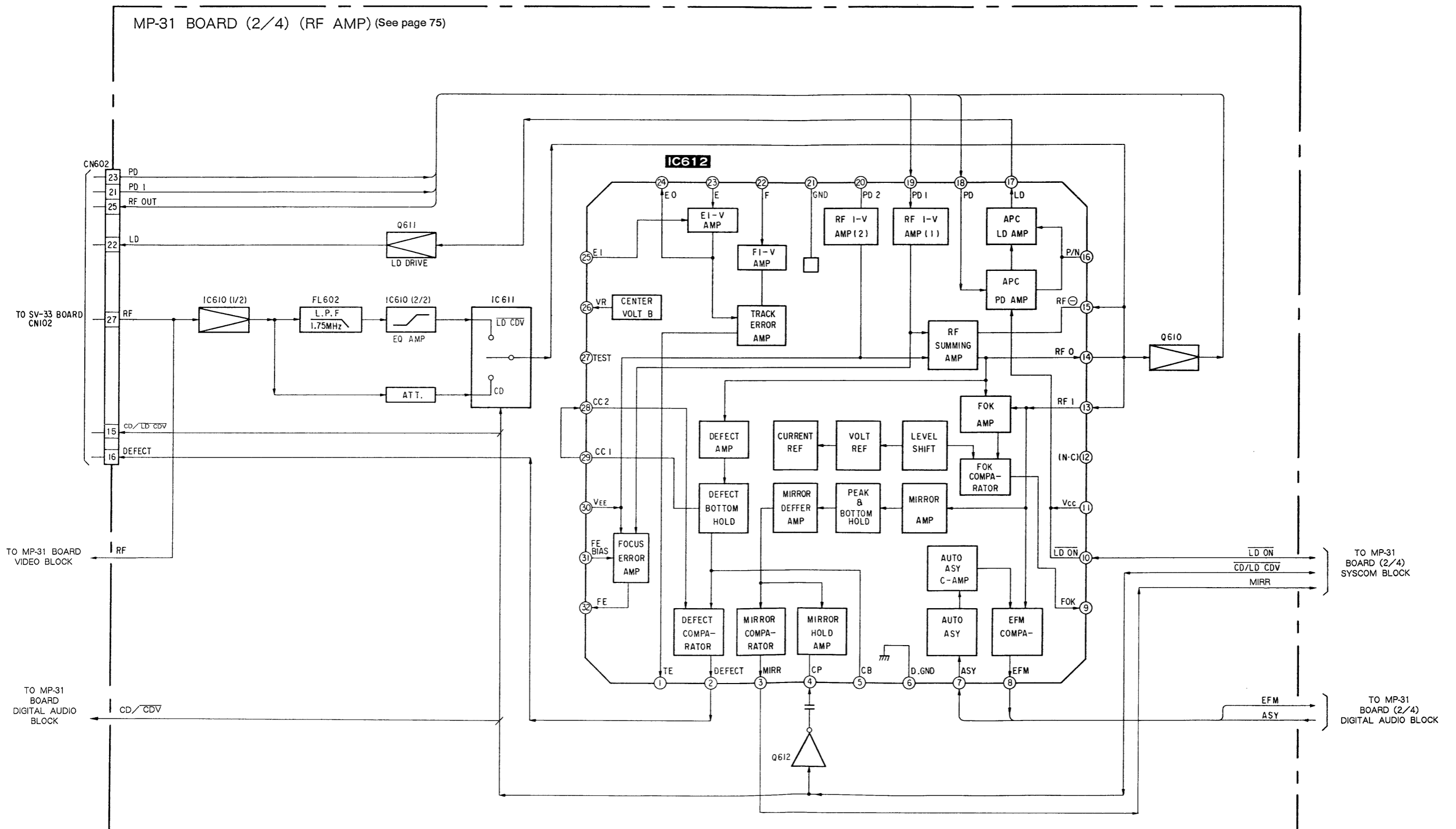
3-2. OVERALL BLOCK DIAGRAM



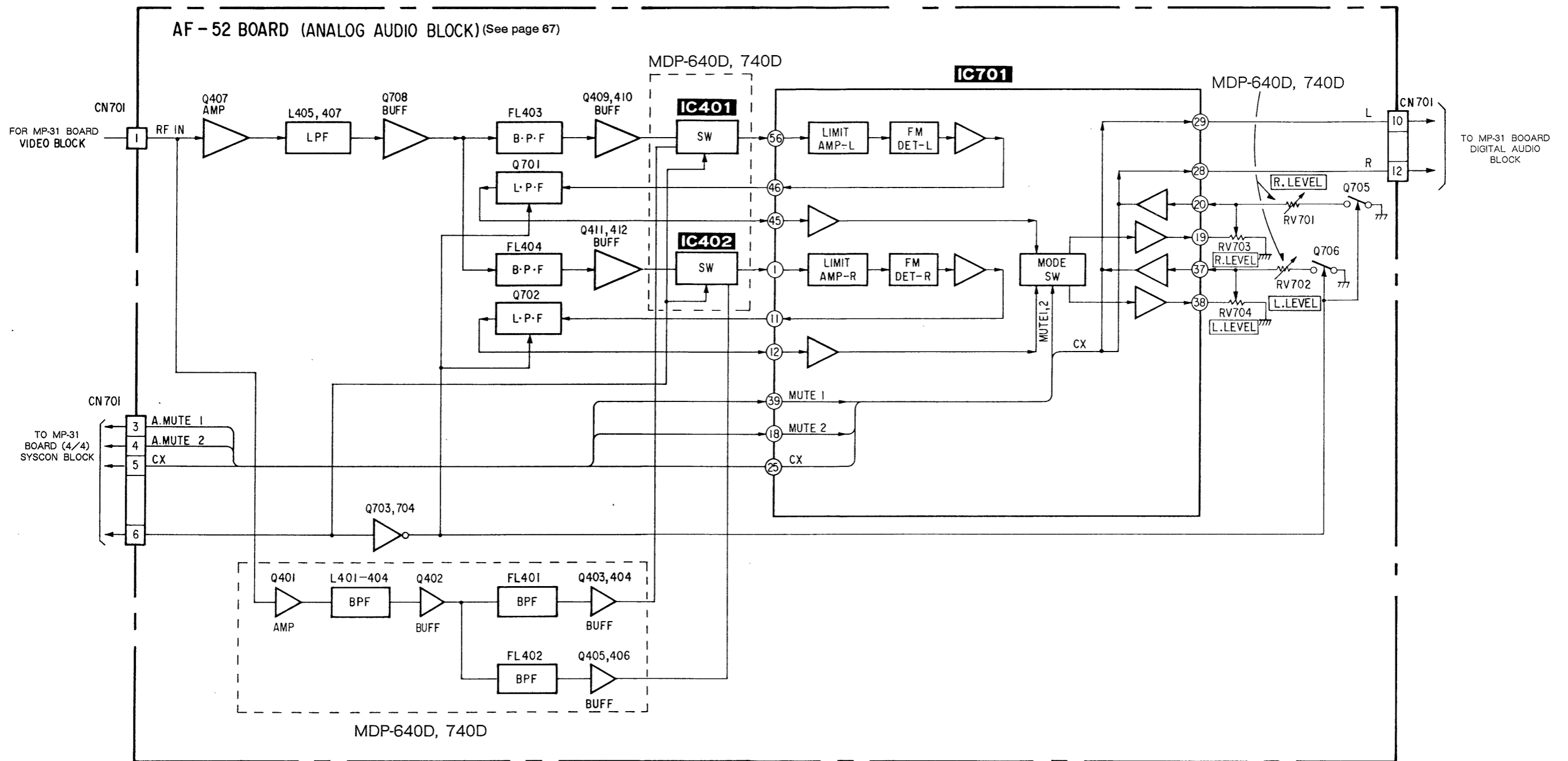
3-3. VIDEO BLOCK DIAGRAM



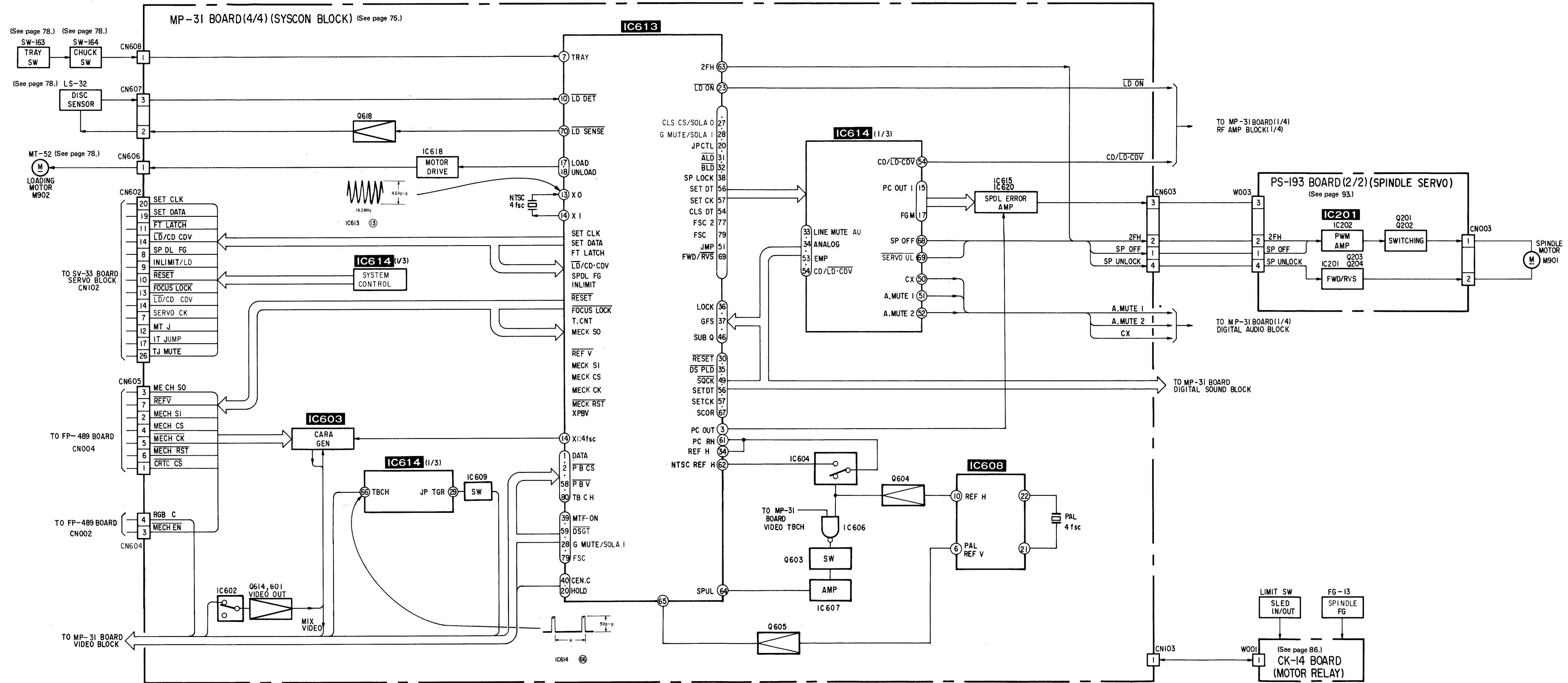
3-4. RF AMP BLOCK DIAGRAM



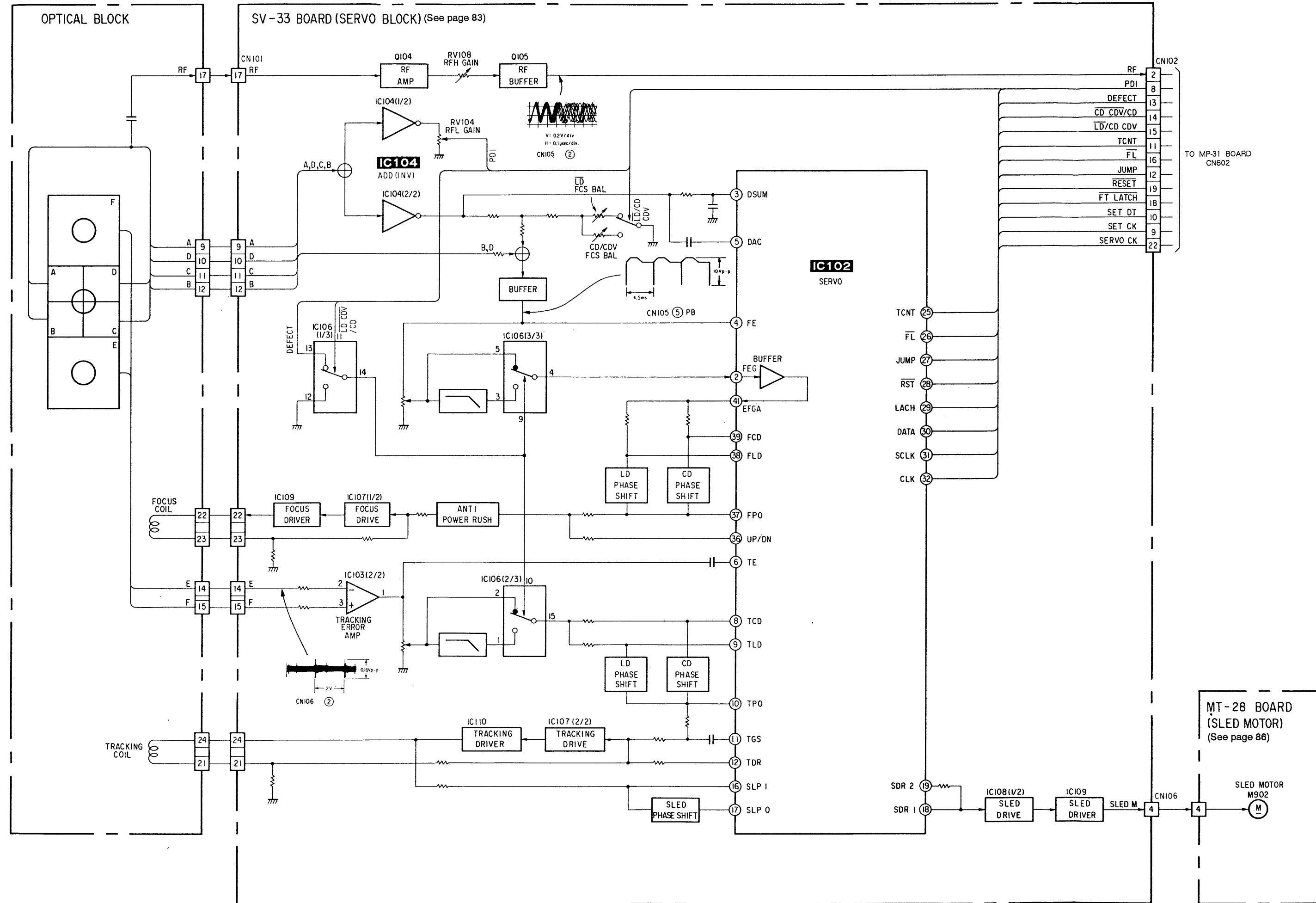
3-5. ANALOG AUDIO BLOCK DIAGRAM



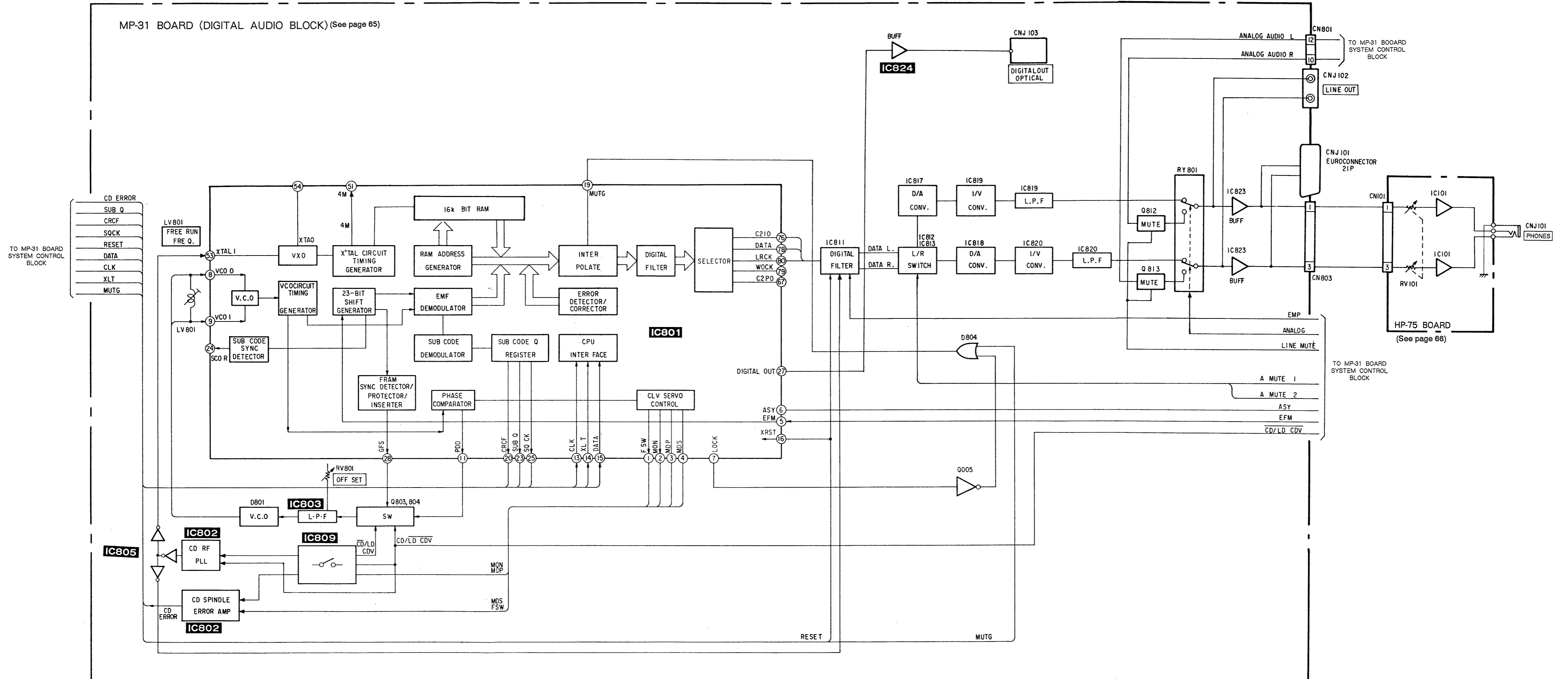
3-6. SYSTEM CONTROL BLOCK DIAGRAM



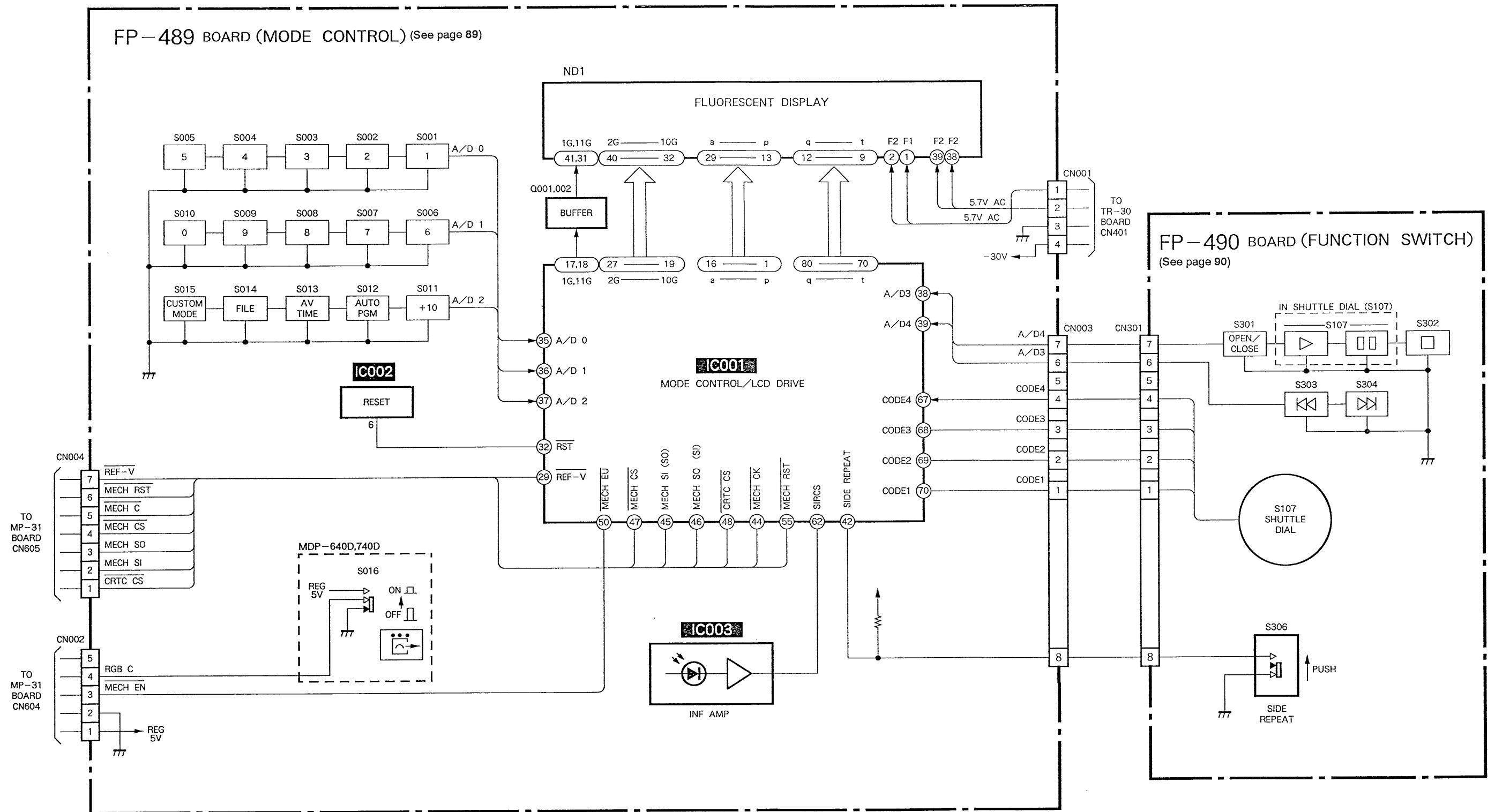
3-7. SERVO BLOCK DIAGRAM



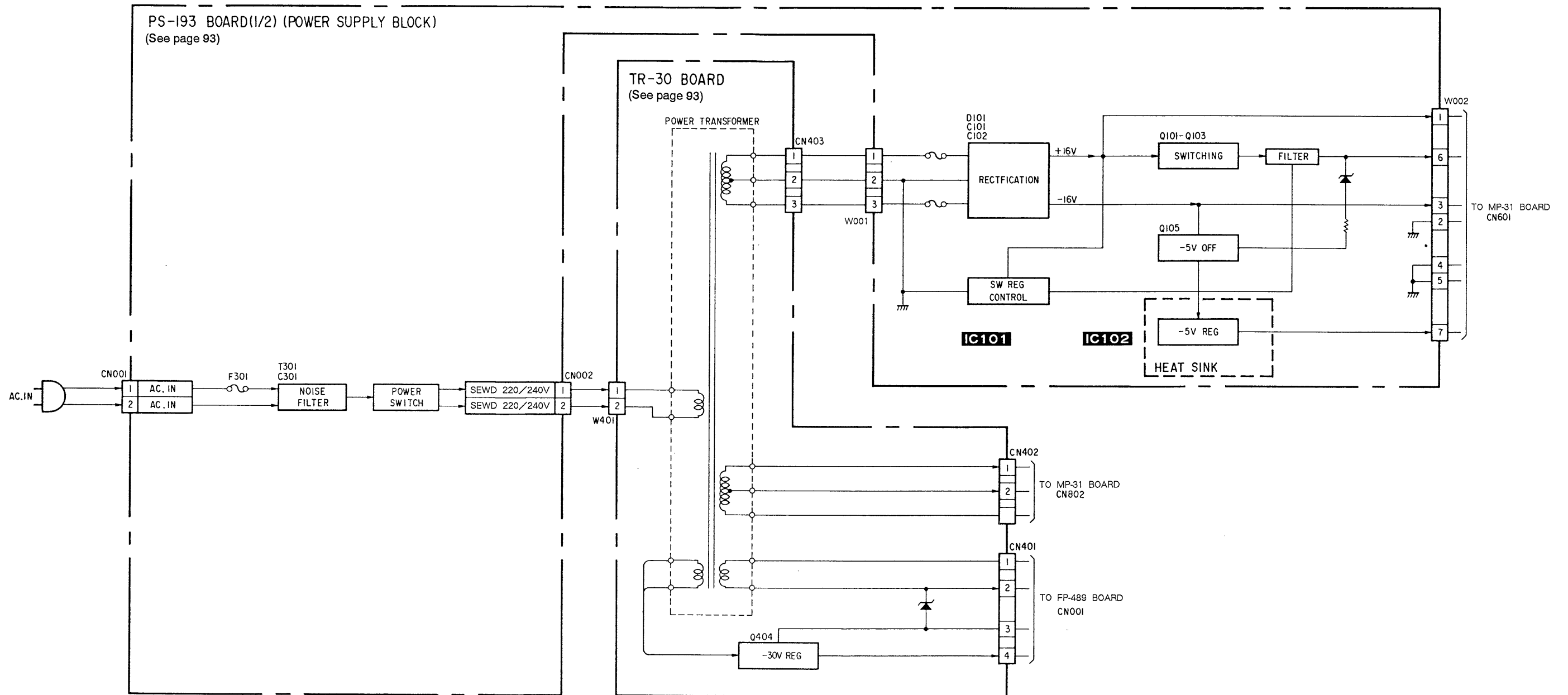
3-8. DIGITAL AUDIO BLOCK DIAGRAM



3-9. MODE CONTROL/FUNCTION SWITCH BLOCK DIAGRAM

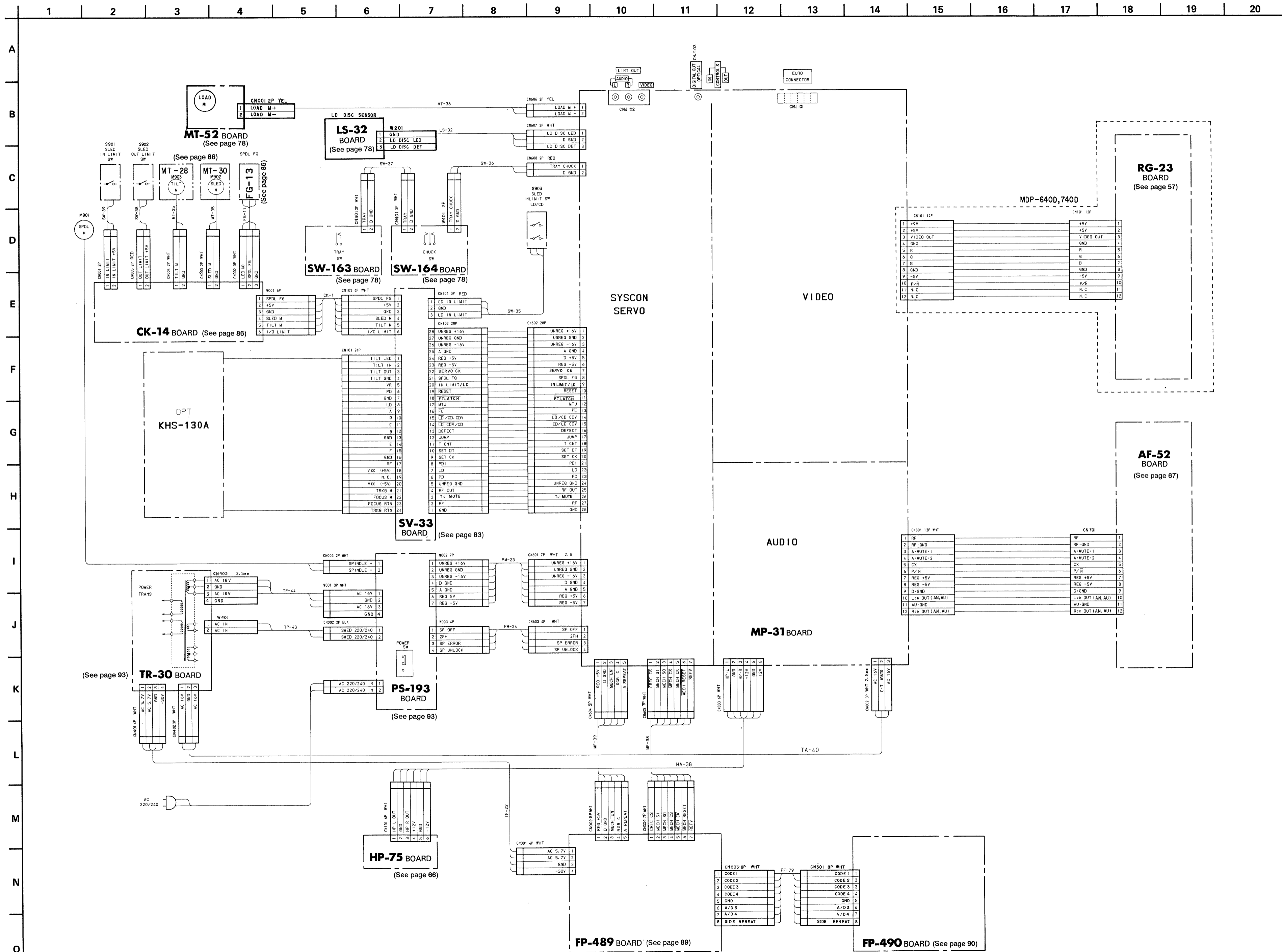


3-10. POWER BLOCK DIAGRAM



SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM



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.

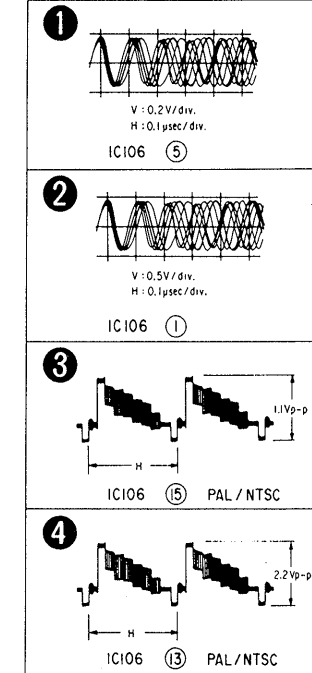
- For schematic diagram:
- Caution when replacing chip parts. New parts must be attached after removal of chip. Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
 - All resistors are in ohms, chip resistors are 1/10W unless otherwise noted.
 - All capacitors are in μ F unless otherwise noted. pF: μ F 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.*
 - Voltagess 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 (DC10M Ω).*
 - Voltage variations may be noted due to normal production tolerances.
 - ▩ : IN/OUT direction of B line (+, -, -).*
 - 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.

MP-31 BOARD (VIDEO)

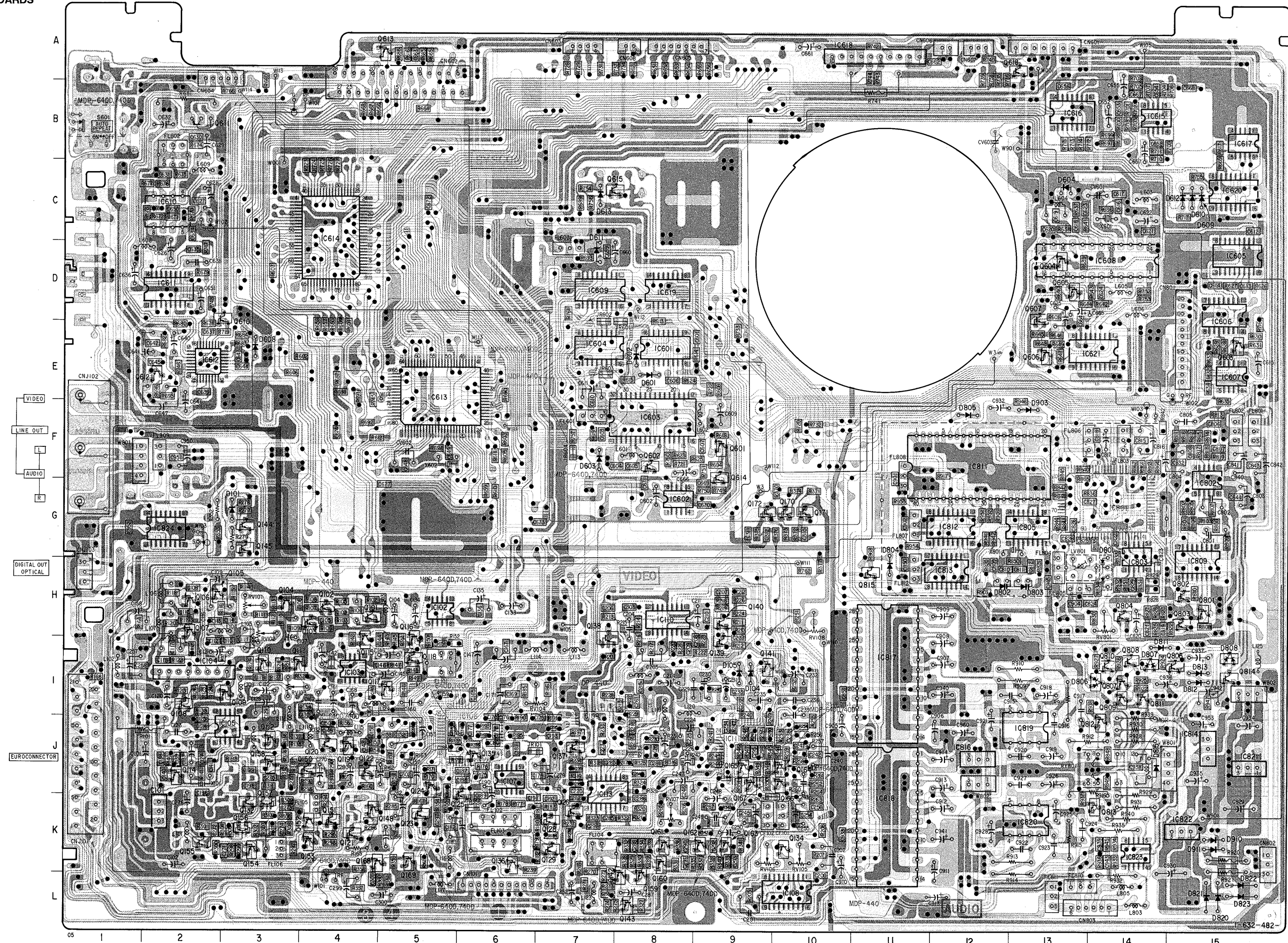


MP-31 BOARD

D101	G-3	Q105	H-2
D104	I-9	Q108	H-2
D105	I-9	Q107	H-2
D601	E-8	Q108	I-2
D602	E-8	Q109	I-3
D603	F-7	Q110	I-3
D604	C-13	Q111	I-3
D605	B-1	Q112	J-3
D606	A-1	Q114	J-2
D607	B-1	Q115	I-4
D608	E-3	Q116	I-5
D609	C-15	Q117	I-5
D610	C-15	Q118	I-5
D611	D-7	Q119	J-4
D612	C-15	Q120	J-4
D613	C-7	Q121	K-4
D601	G-14	Q122	J-4
D602	H-12	Q123	K-5
D603	H-13	Q124	J-5
D604	G-11	Q125	K-6
D605	F-12	Q126	K-7
D606	I-14	Q128	K-7
D607	I-14	Q129	K-7
D608	I-15	Q132	K-3
D611	I-14	Q134	K-10
D612	I-15	Q135	J-6
D613	I-15	Q136	K-6
D615	J-14	Q137	J-6
D620	L-15	Q138	H-7
D621	L-15	Q139	I-9
D622	K-15	Q140	H-9
D623	L-15	Q141	I-9
D903	F-13	Q142	L-8
D910	K-15	Q143	L-8
D911	K-15	Q144	G-3
IC101	K-2	Q145	G-3
IC102	H-5	Q148	K-4
IC103	I-4	Q151	K-4
IC104	I-2	Q152	K-4
IC105	J-3	Q153	K-4
IC106	J-6	Q154	K-3
IC107	J-6	Q155	K-2
IC108	L-10	Q156	K-3
IC109	J-8	Q157	K-3
IC110	H-8	Q158	J-3
IC111	J-10	Q159	H-8
IC113	J-7	Q160	K-8
IC601	D-8	Q161	K-8
IC602	G-8	Q162	K-9
IC603	F-8	Q163	K-9
IC604	E-7	Q164	J-10
IC605	D-15	Q165	J-9
IC606	D-15	Q166	J-10
IC607	E-15	Q167	J-9
IC608	D-14	Q168	K-4
IC609	D-7	Q169	K-5
IC610	C-2	Q601	F-9
IC611	F-2	Q602	F-8
IC612	E-2	Q603	E-15
IC613	E-5	Q604	D-13
IC614	C-4	Q605	D-13
IC615	B-14	Q606	E-13
IC616	B-13	Q607	D-13
IC617	B-15	Q608	A-1
IC618	A-10	Q609	A-1
IC619	D-8	Q610	D-3
IC620	C-15	Q611	B-2
IC621	E-14	Q612	E-2
IC601	G-14	Q614	A-5
IC602	G-15	Q615	F-9
IC603	G-14	Q615	C-7
IC605	G-13	Q618	A-13
IC609	H-15	Q601	H-15
IC611	F-12	Q602	H-15
IC612	G-12	Q603	H-15
IC613	H-12	Q604	H-14
IC614	J-15	Q606	I-15
IC616	J-12	Q607	I-14
IC617	I-11	Q608	I-14
IC618	K-11	Q609	I-14
IC619	J-13	Q610	I-14
IC620	K-13	Q611	I-14
IC621	J-15	Q612	J-14
IC622	K-15	Q613	K-14
IC623	K-14	Q614	I-15
IC624	G-2	Q615	H-11
Q102	H-4		
Q103	H-4		
Q104	H-3		

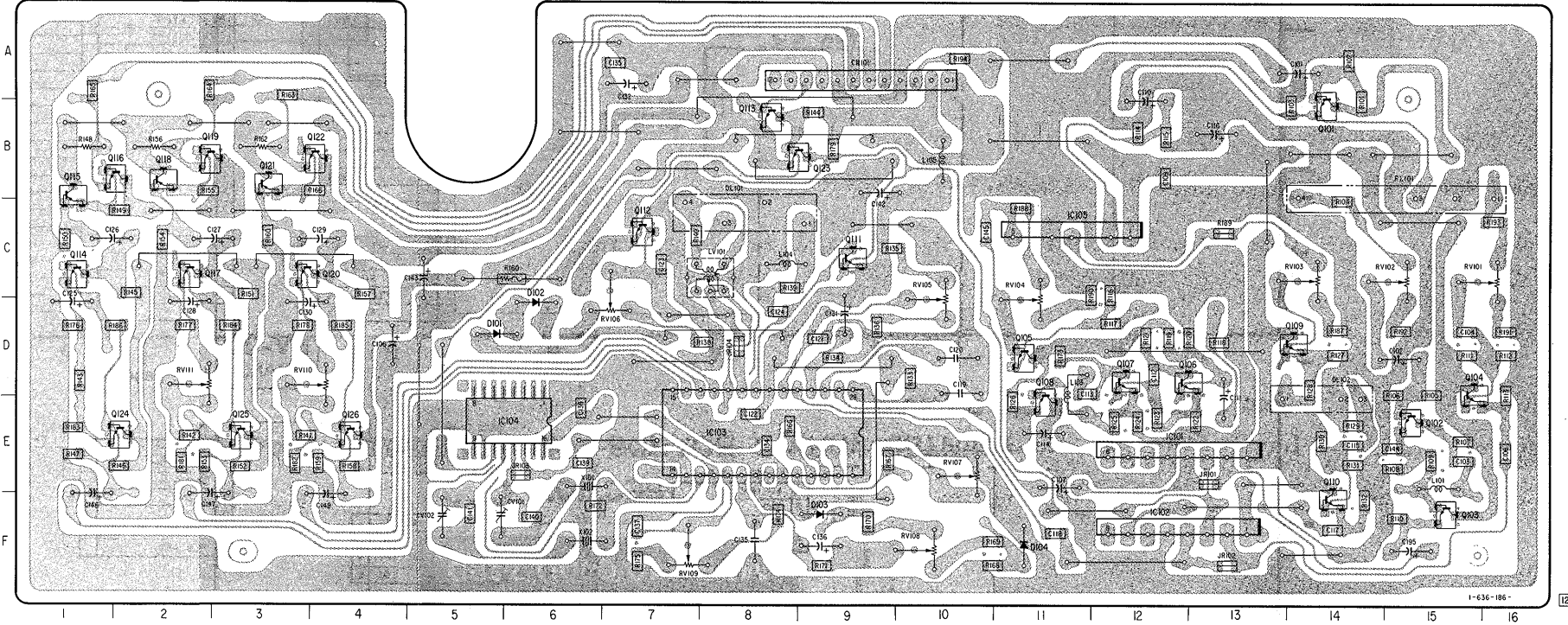
- For printed wiring boards:
- : indicates a lead wire mounted on the component side.
 - : Pattern from the side which enables seeing.
 - : Pattern of the rear side.
 - : Circled numbers refer to waveforms.
 - : Jumper wire connected to the ground pattern on the component side.
 - : Jumper wire connected to the pattern on the component side.

MP-31 BOARD



VIDEO VIDEO

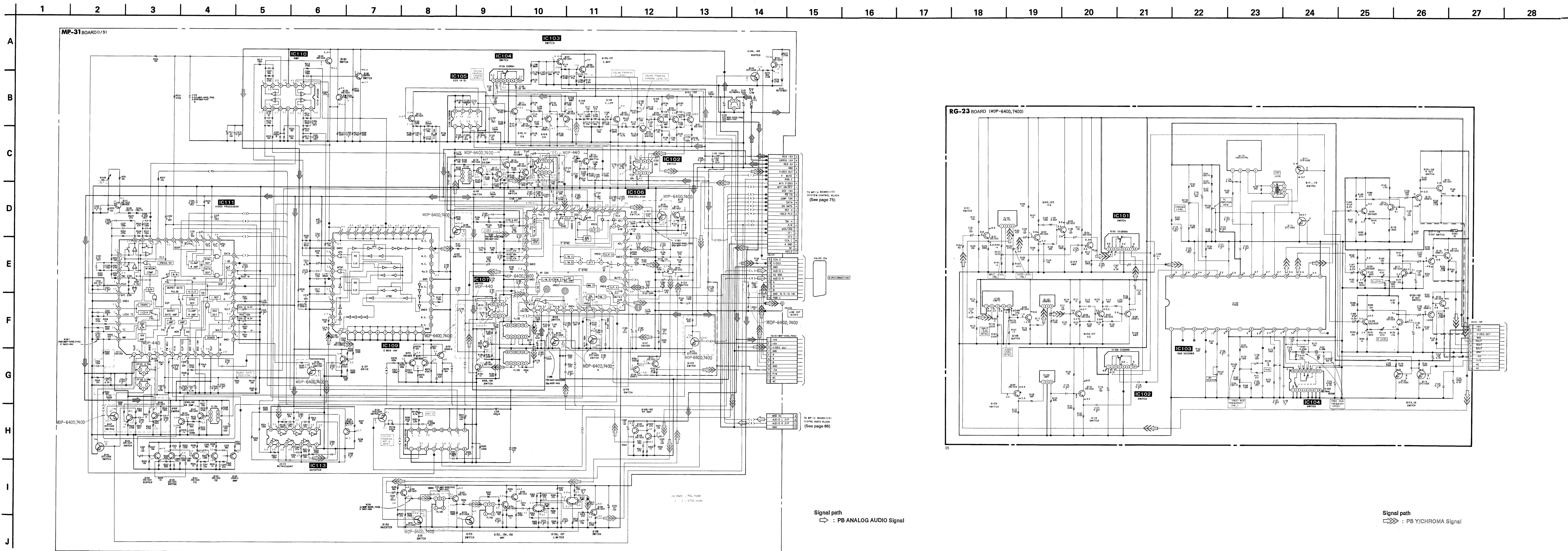
RG-23 BOARD (MDP-640D,740D)



RG-23 BOARD

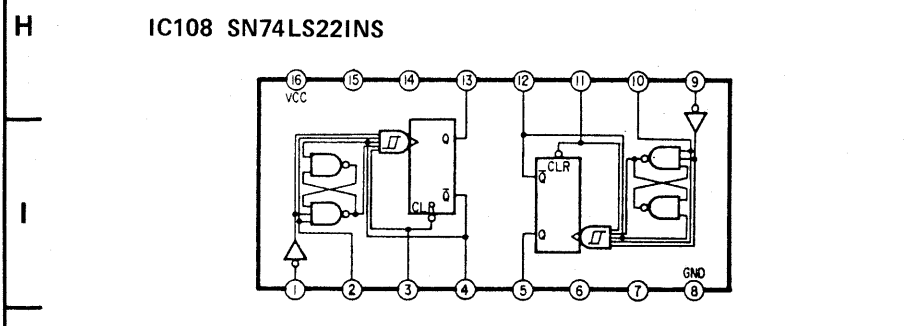
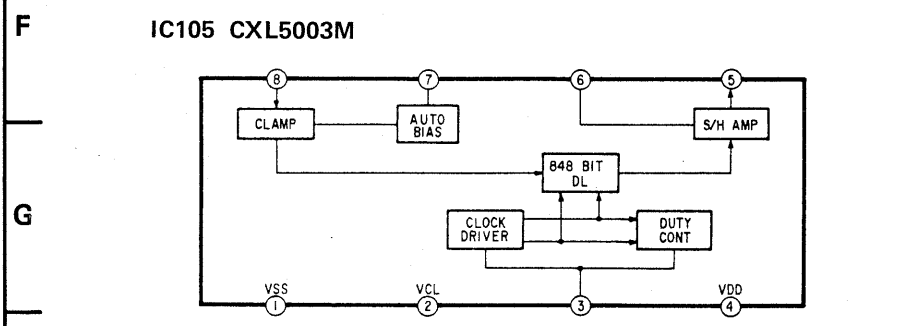
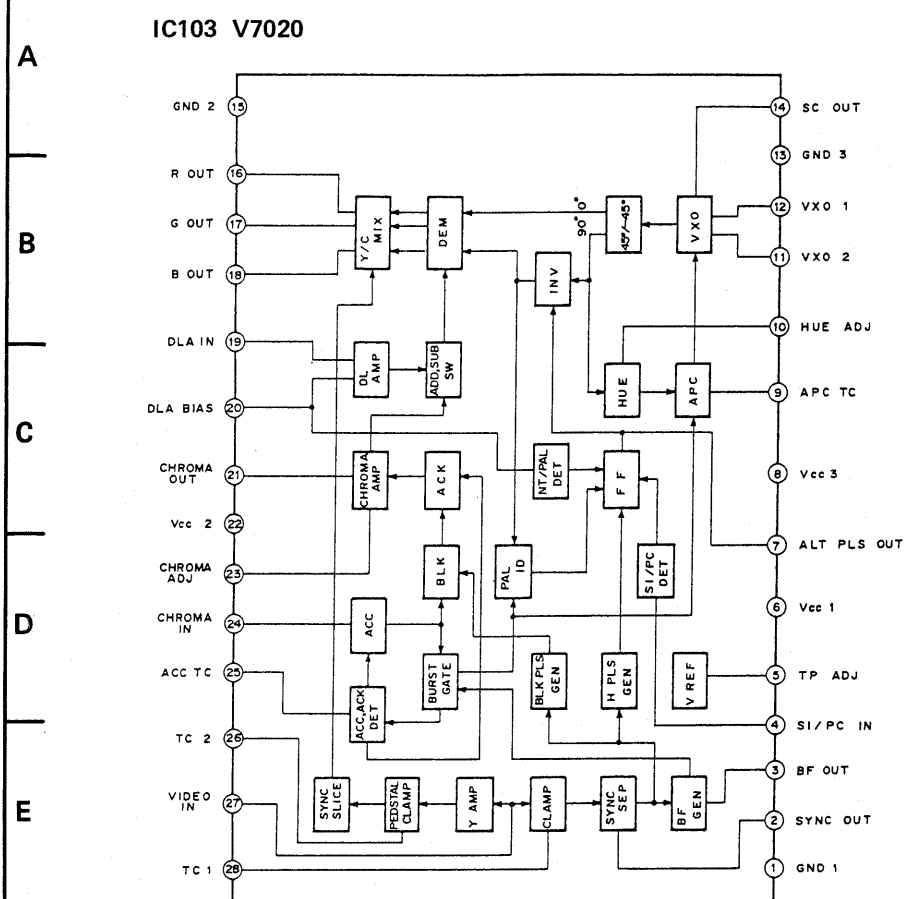
D101	D-5
D102	D-6
D103	F-9
D104	F-11
IC101	E-1
IC102	E-2
IC103	E-8
IC104	E-5
IC105	C-11
Q105	D-11
Q106	D-12
Q107	D-12
Q108	D-11
Q109	D-14
Q111	C-9
Q112	C-7
Q113	B-8
Q114	C-1
Q115	B-1
Q116	B-1
Q117	C-2
Q118	B-2
Q119	B-3
Q120	C-4
Q121	B-3
Q122	B-4
Q123	B-8
Q124	E-2
Q125	E-3
Q126	E-4

VIDEO VIDEO



Signal path
 ⇨ : PB ANALOG AUDIO Signal

Signal path
 ⇨⇨ : PB YCHROMA Signal

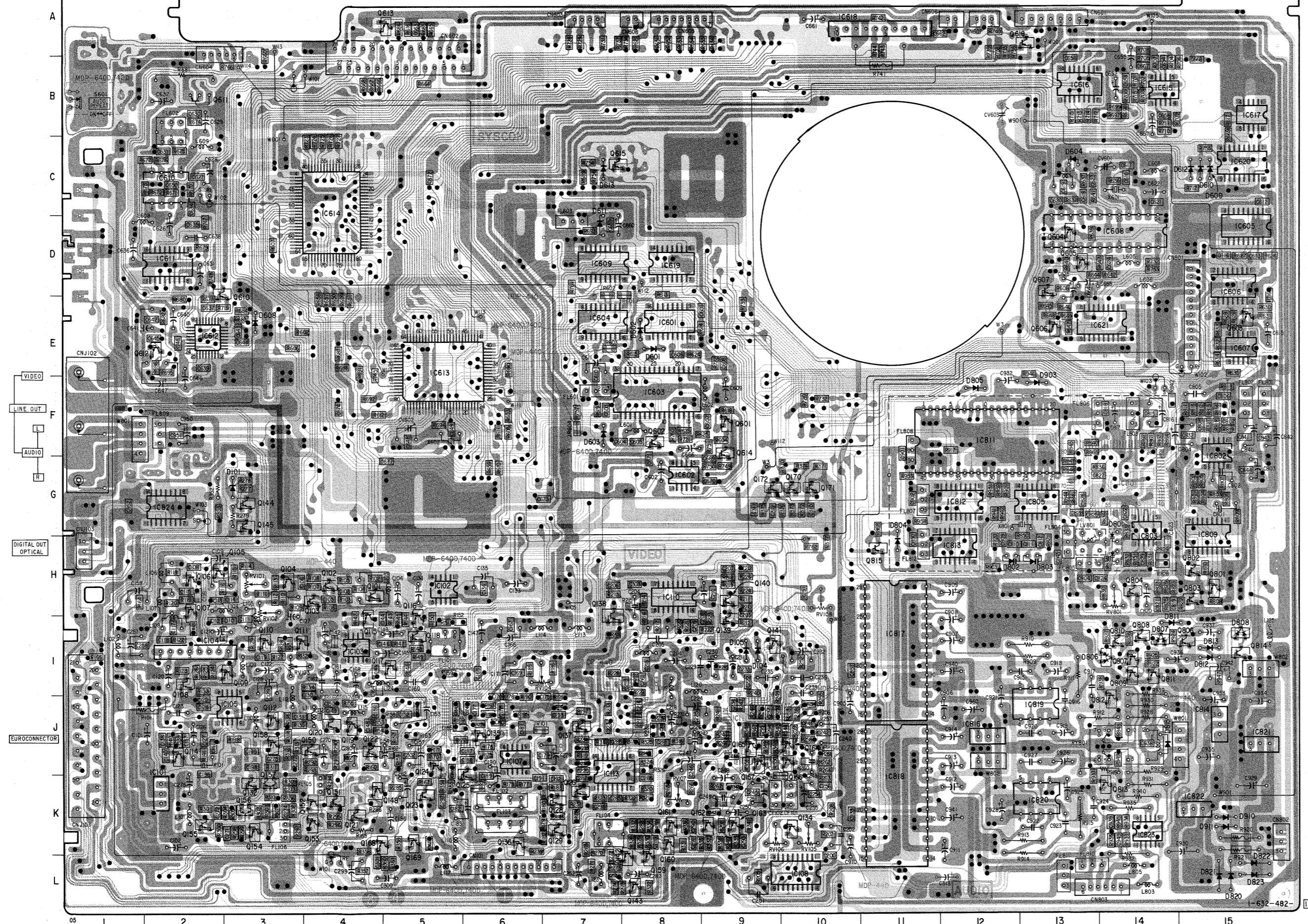


MP-31 BOARD MP-31 (DIGITAL AUDIO, AUDIO OUTPUT), HP-75 (HEADPHONE AMP), AF-52 (ANALOG AUDIO) PRINTED WIRING BOARDS

— Ref. No. MP-31 BOARD: 1,000 Series, HP-75 BOARD: 6,000 Series, AF-52 BOARD: 8,000 Series —

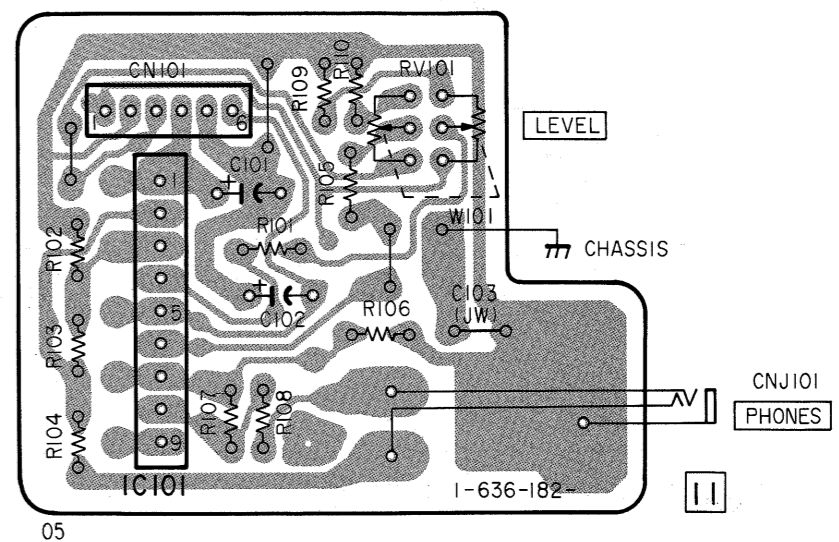
MP-31 BOARD

Q101	G-3	Q105	H-2
Q104	I-9	Q106	H-2
Q105	I-9	Q107	H-2
Q601	E-8	Q108	I-2
Q602	E-8	Q109	I-3
Q603	F-7	Q110	I-3
Q604	C-13	Q111	I-3
Q605	B-1	Q112	J-3
Q606	A-1	Q114	J-2
Q607	B-1	Q115	I-4
Q608	E-3	Q116	I-5
Q609	E-15	Q117	I-5
Q610	C-15	Q118	I-5
Q611	D-7	Q119	J-4
Q612	C-15	Q120	J-4
Q613	C-7	Q121	K-4
Q801	G-14	Q122	J-4
Q802	H-12	Q123	K-5
Q803	H-13	Q124	J-5
Q804	G-11	Q125	K-6
Q805	F-12	Q126	K-7
Q806	I-14	Q128	K-7
Q807	I-14	Q129	K-7
Q808	I-15	Q132	K-3
Q811	I-14	Q134	K-10
Q812	I-15	Q135	J-6
Q813	I-15	Q136	K-6
Q815	J-14	Q137	J-6
Q820	L-15	Q138	H-7
Q821	L-15	Q139	I-9
Q822	K-15	Q140	H-9
Q823	L-15	Q141	I-9
Q903	F-13	Q142	L-8
Q910	K-15	Q143	L-8
Q911	K-15	Q144	G-3
Q911	K-15	Q145	G-3
IC101	K-2	Q148	K-4
IC102	H-5	Q150	J-4
IC103	I-4	Q151	K-4
IC104	I-2	Q152	K-4
IC105	J-3	Q153	K-4
IC106	J-6	Q154	K-3
IC107	J-6	Q155	K-2
IC108	L-10	Q158	K-3
IC109	J-8	Q157	K-3
IC110	H-8	Q158	J-3
IC111	J-10	Q159	L-8
IC113	J-7	Q160	K-8
IC601	D-8	Q161	K-8
IC602	G-8	Q162	K-9
IC603	F-8	Q163	K-9
IC604	E-7	Q164	J-10
IC605	D-15	Q165	J-9
IC606	D-15	Q166	J-10
IC607	E-15	Q167	J-9
IC608	D-14	Q168	K-4
IC609	D-7	Q169	K-5
IC610	C-2	Q601	F-9
IC611	D-2	Q602	F-8
IC612	E-2	Q603	E-15
IC613	E-5	Q604	D-13
IC614	C-4	Q605	E-13
IC615	B-14	Q606	D-13
IC616	B-13	Q607	D-13
IC617	B-15	Q608	A-1
IC618	A-10	Q609	A-1
IC619	D-8	Q610	D-3
IC620	C-15	Q611	D-3
IC621	E-14	Q612	E-2
IC601	G-14	Q613	A-5
IC602	G-15	Q614	F-9
IC603	G-14	Q615	C-7
IC605	G-13	Q616	A-13
IC609	H-15	Q801	H-15
IC611	F-12	Q802	H-15
IC612	G-12	Q803	H-15
IC613	H-12	Q804	H-14
IC614	J-15	Q806	I-15
IC615	J-12	Q807	I-14
IC617	I-11	Q808	I-14
IC618	K-11	Q809	I-14
IC619	J-13	Q810	I-14
IC620	K-13	Q811	I-14
IC621	K-15	Q812	J-14
IC622	K-15	Q813	K-14
IC623	K-14	Q814	I-15
IC624	G-2	Q815	H-11
Q102	H-4		
Q103	H-4		
Q104	H-3		



- For printed wiring boards:**
- — : indicates a lead wire mounted on the component side.
 - — : indicates a lead wire mounted on the rear 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.

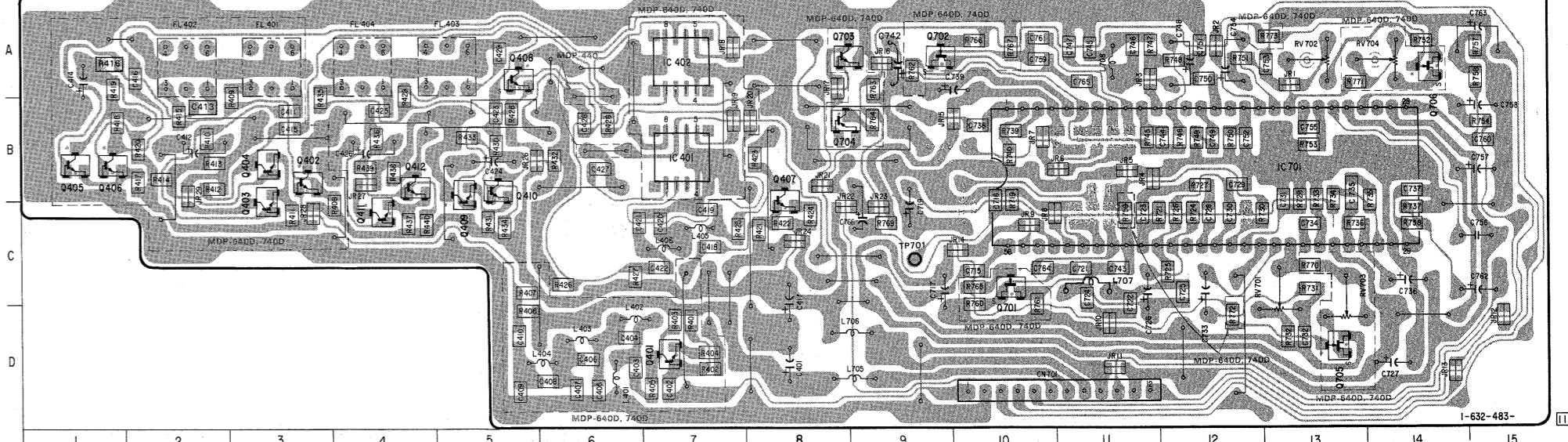
HP-75 BOARD

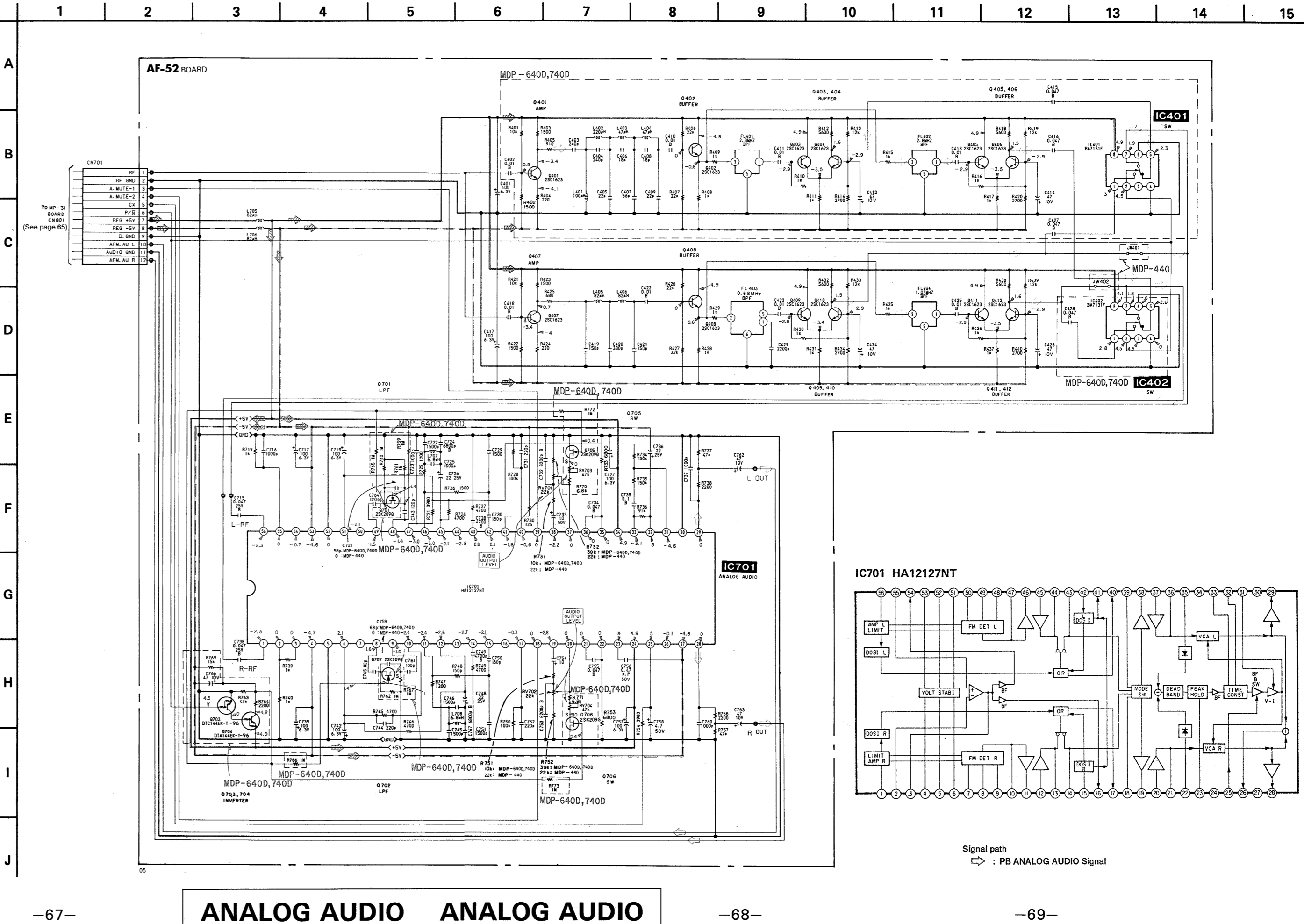
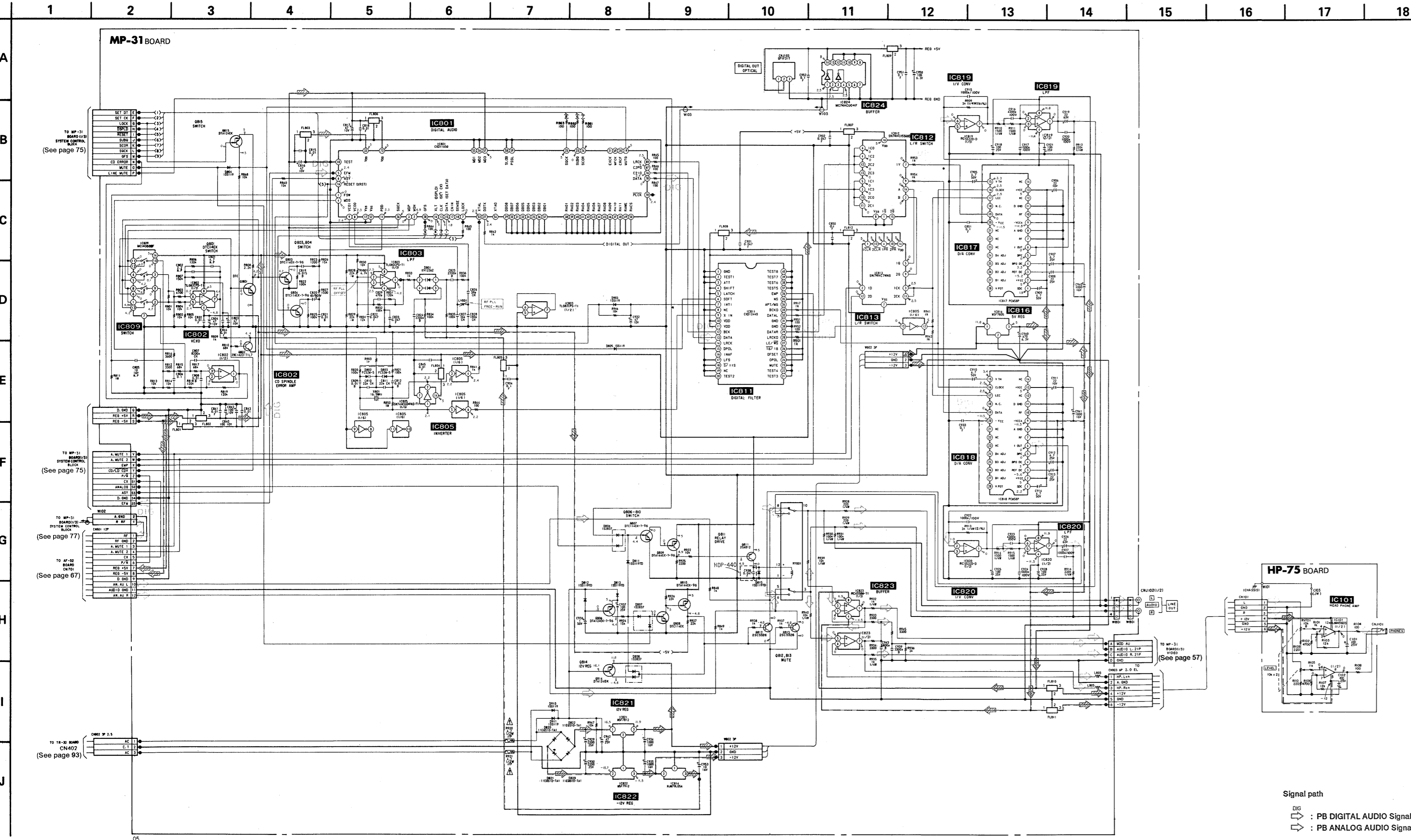


AF-52 BOARD

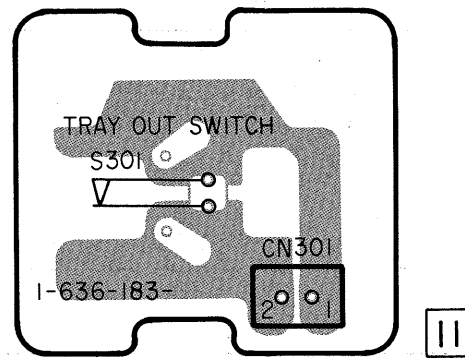
IC401	B-7
IC402	A-7
IC701	B-13
Q401	D-7
Q402	B-3
Q403	C-3
Q404	B-3
Q405	B-1
Q406	B-1
Q407	B-1
Q408	A-5
Q409	B-5
Q410	B-5
Q411	C-4
Q412	B-4
Q701	C-10
Q702	A-9
Q703	A-9
Q704	B-8
Q705	D-13
Q706	A-14

AF-52 BOARD

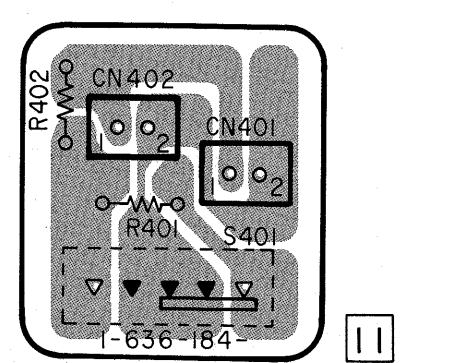




SW-163 BOARD

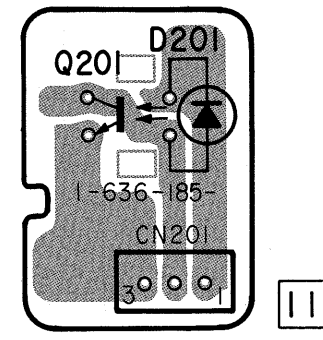


SW-164 BOARD

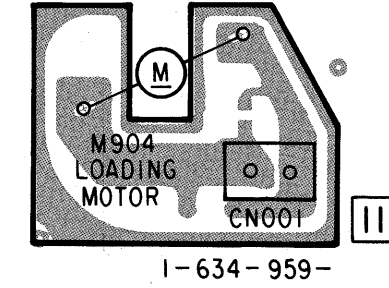


S401
CHUCK
UP/DOWN SWITCH
CHUCK UP — CHUCK DOWN

LS-32 BOARD

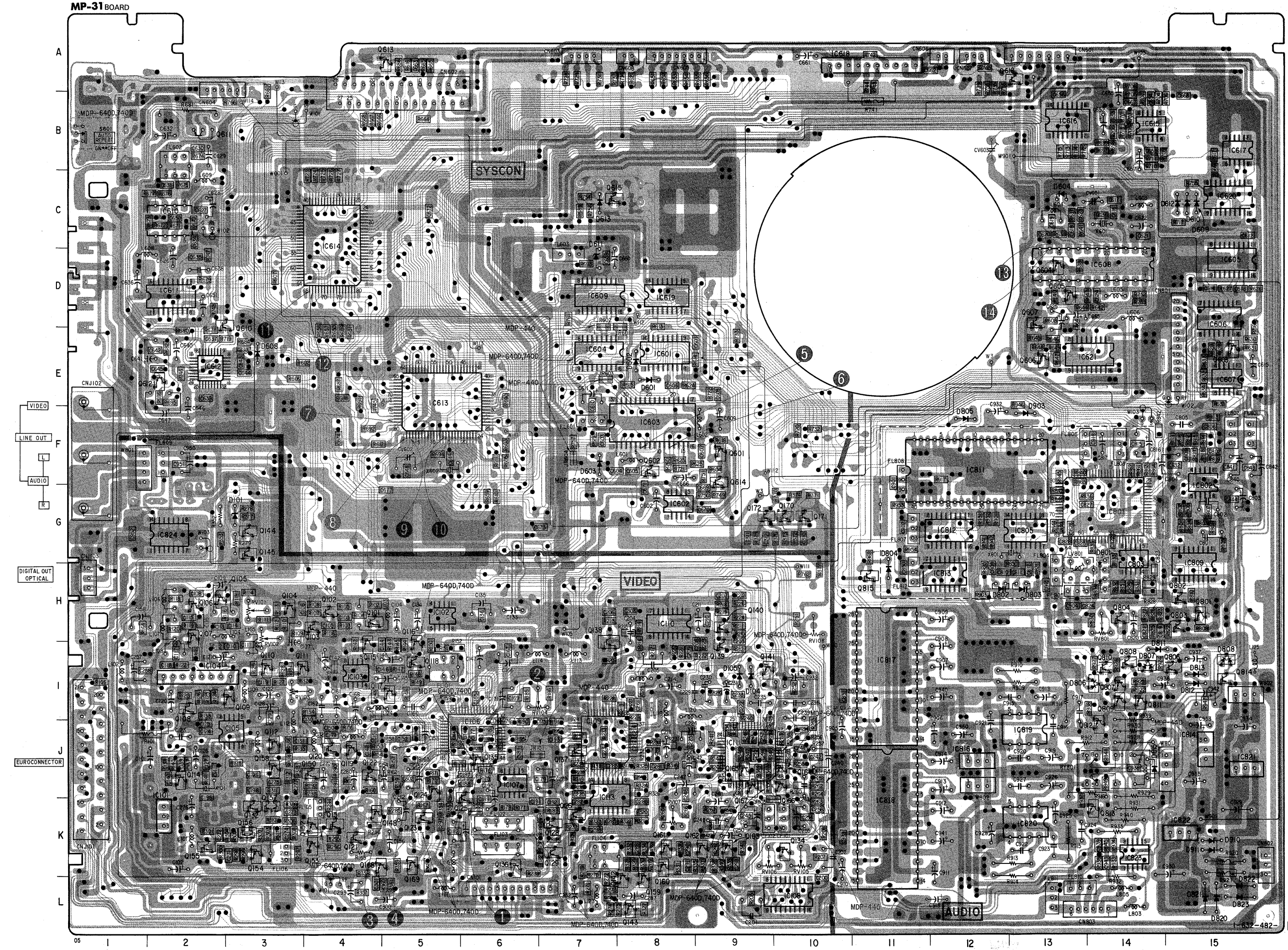


MT-52 BOARD

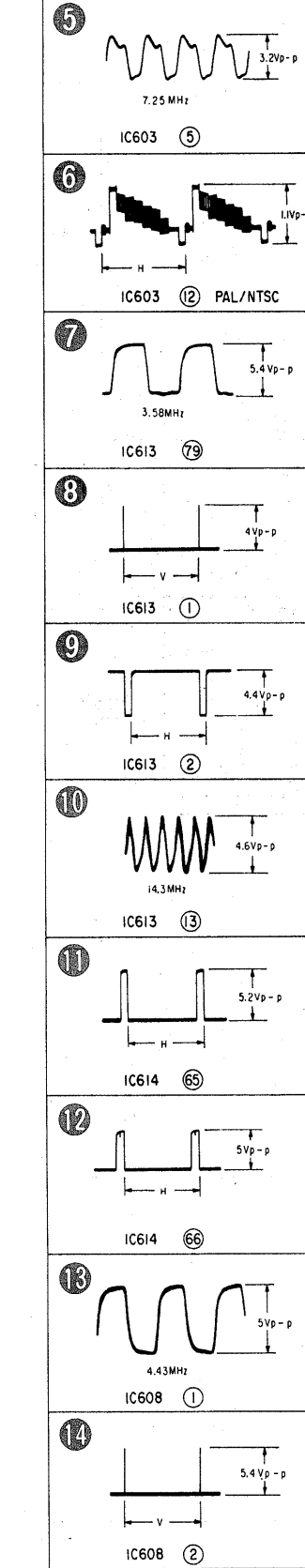


MP-31 BOARD

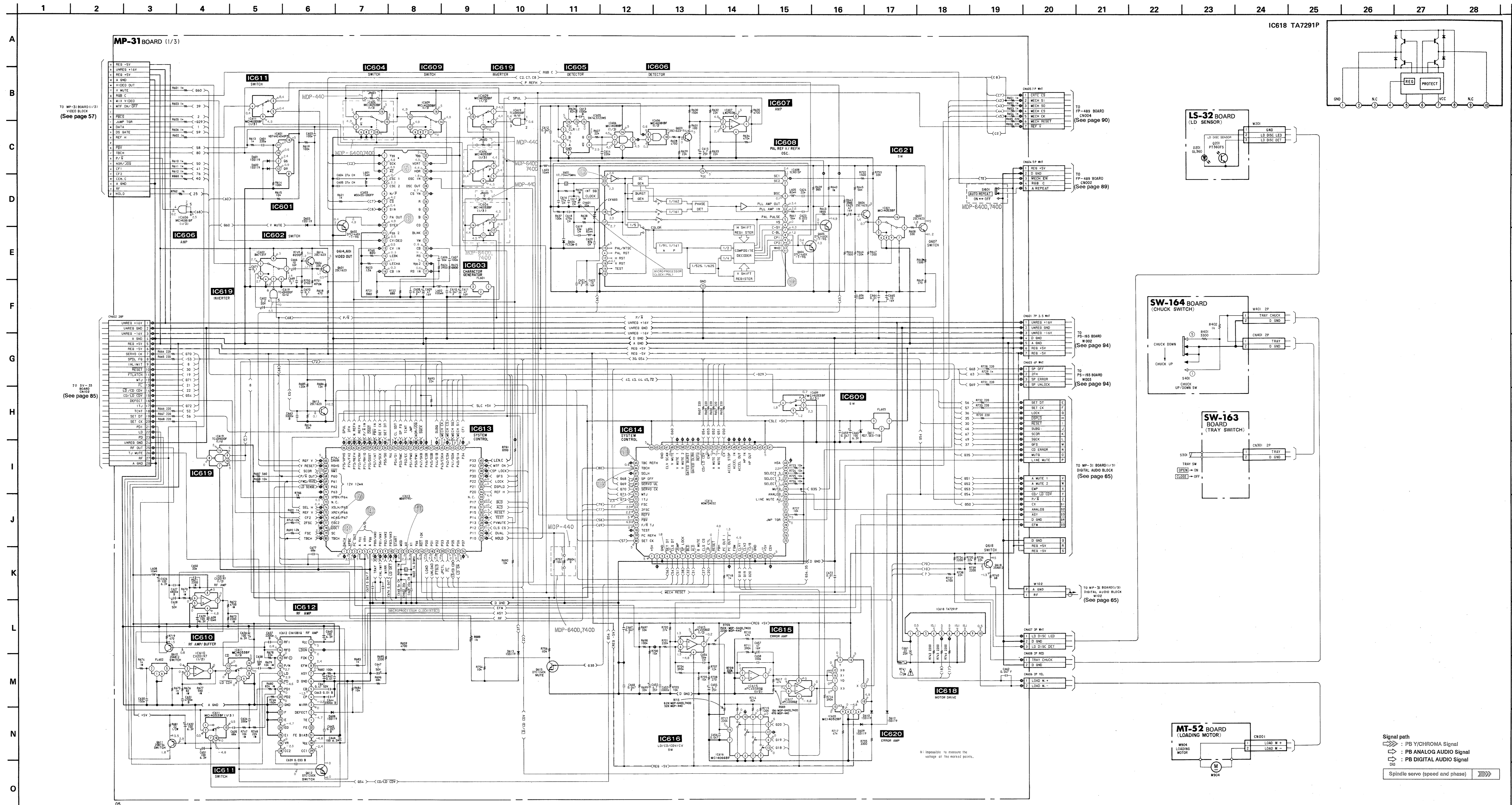
Q101	G-3	Q105	H-2
Q104	I-9	Q106	H-2
Q105	I-9	Q107	H-2
Q601	E-8	Q108	I-2
Q602	E-8	Q109	I-3
Q603	F-7	Q110	I-3
Q604	C-13	Q111	I-3
Q605	B-1	Q112	J-3
Q606	A-1	Q114	J-2
Q607	B-1	Q115	I-4
Q608	E-1	Q116	I-5
Q609	C-15	Q117	I-5
D610	C-15	Q118	I-5
D611	D-7	Q119	J-4
D612	C-15	Q120	J-4
D613	C-7	Q121	K-4
D601	G-14	Q122	J-4
D802	H-12	Q123	K-5
D803	H-13	Q124	J-5
D804	G-11	Q125	K-5
D805	F-12	Q126	K-7
D806	I-14	Q128	K-7
D807	I-14	Q129	K-7
D808	I-15	Q132	K-3
D811	I-14	Q134	K-10
D812	I-15	Q135	J-6
D813	I-15	Q136	K-6
D815	J-14	Q137	J-6
D820	L-15	Q138	H-7
D821	L-15	Q139	I-9
D822	K-15	Q140	H-9
D823	L-15	Q141	I-9
D903	F-13	Q142	L-8
D910	K-15	Q143	L-8
D911	K-15	Q144	G-3
IC101	K-2	Q145	G-3
IC102	H-5	Q148	K-4
IC103	I-4	Q150	J-4
IC104	I-2	Q151	K-4
IC105	J-2	Q152	K-4
IC106	J-2	Q153	K-4
IC107	J-6	Q154	K-3
IC108	L-10	Q155	K-2
IC109	J-8	Q156	K-3
IC110	H-8	Q157	K-3
IC111	J-10	Q158	J-3
IC113	J-7	Q159	L-8
IC601	D-8	Q160	K-8
IC602	G-8	Q162	K-9
IC603	F-8	Q163	K-9
IC604	E-7	Q164	J-10
IC605	D-15	Q165	J-9
IC606	D-15	Q166	J-9
IC607	E-15	Q167	J-9
IC608	D-14	Q168	K-4
IC609	D-7	Q169	K-5
IC610	C-2	Q601	F-9
IC611	D-2	Q602	F-8
IC612	E-2	Q603	E-15
IC613	E-5	Q604	D-13
IC614	C-4	Q605	D-13
IC615	B-14	Q606	E-13
IC616	B-13	Q607	D-13
IC617	B-15	Q608	A-1
IC618	A-10	Q609	A-1
IC619	D-8	Q610	D-3
IC620	C-15	Q611	B-2
IC621	E-14	Q612	E-2
IC601	G-14	Q613	A-5
IC602	G-15	Q614	F-9
IC603	G-14	Q615	C-7
IC605	G-13	Q618	A-13
IC609	H-15	Q801	H-15
IC611	F-12	Q802	H-15
IC612	G-12	Q803	H-15
IC613	H-12	Q804	H-14
IC614	J-15	Q805	I-15
IC616	J-12	Q806	I-14
IC617	I-11	Q807	I-14
IC618	K-11	Q808	I-14
IC619	J-13	Q810	I-14
IC620	K-13	Q811	I-14
IC621	J-15	Q812	J-14
IC622	K-15	Q813	K-14
IC623	K-14	Q814	I-15
IC624	G-2	Q815	H-11
Q102	H-4		
Q103	H-4		
Q104	H-3		

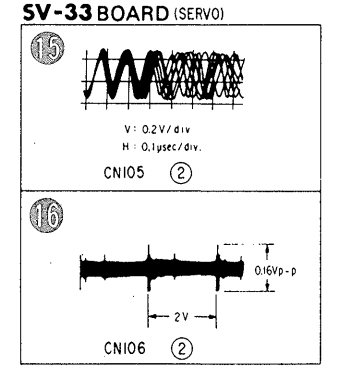
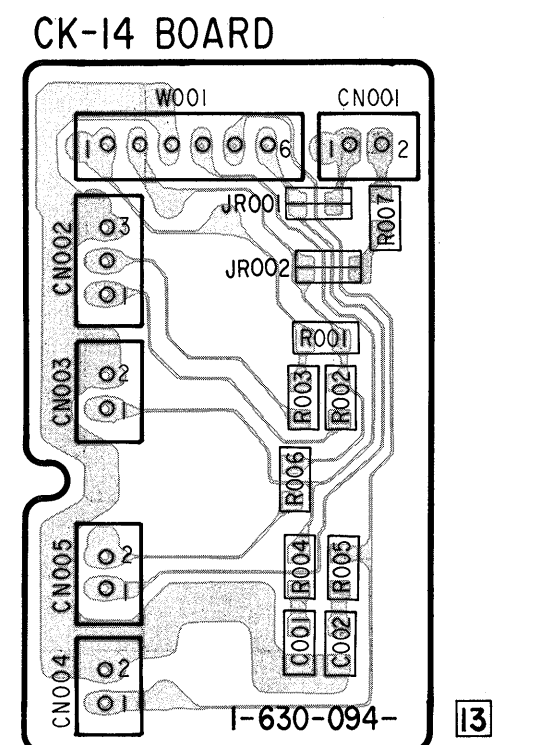
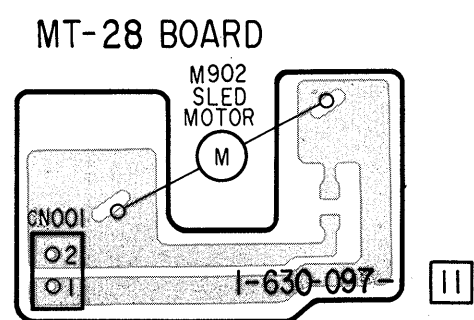
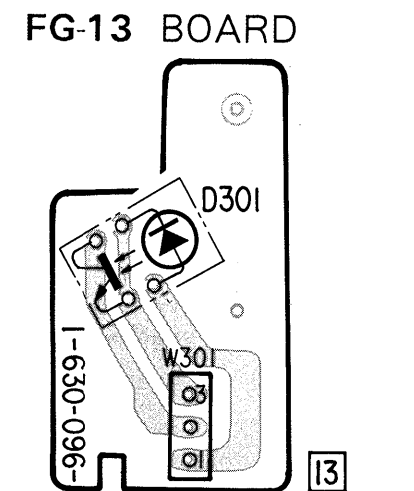
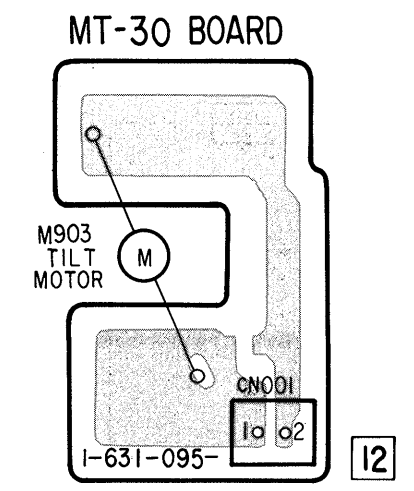


MP-31 BOARD (SYSCON)



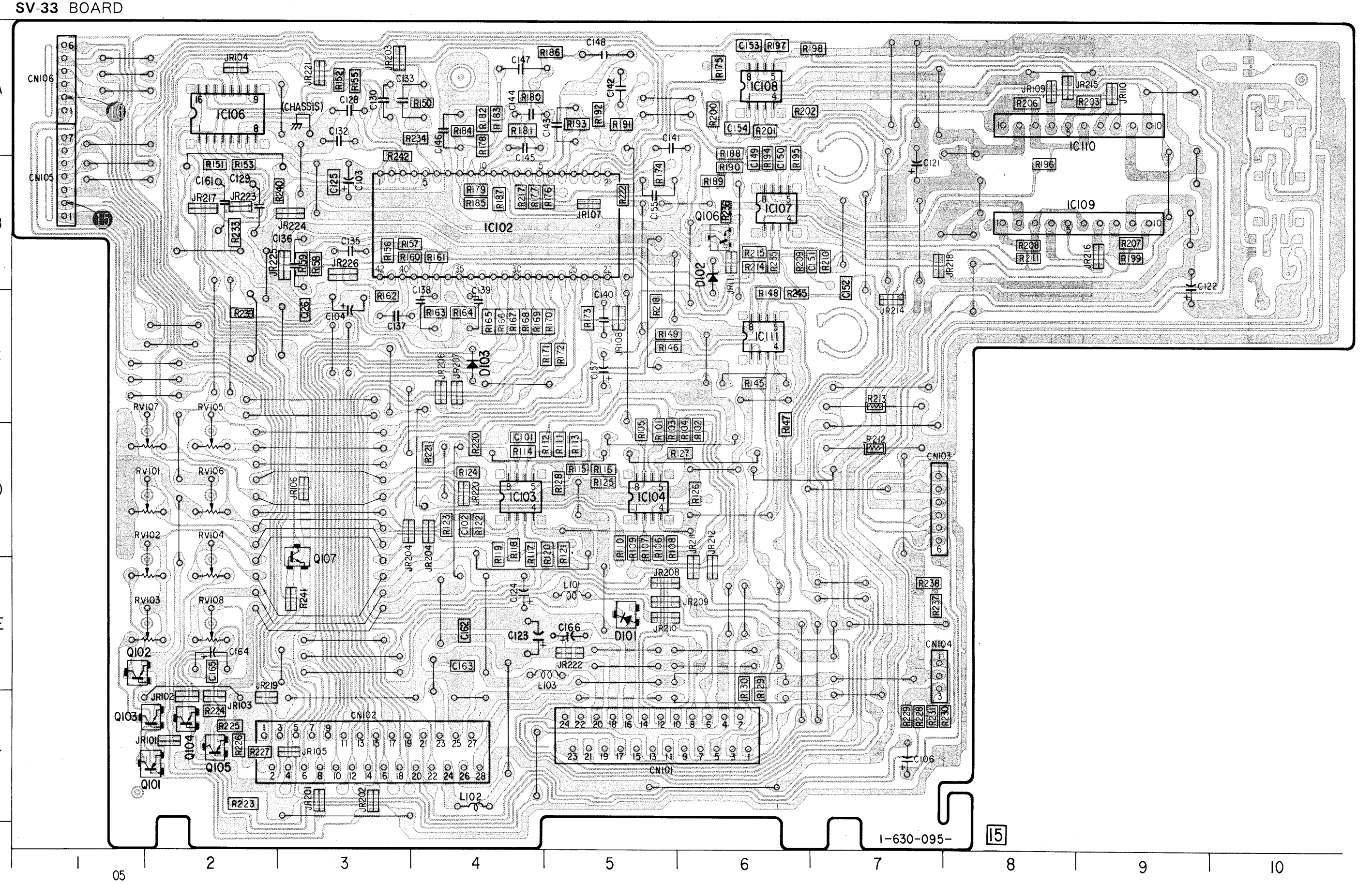
For printed wiring boards:
 • — : indicates a lead wire mounted on the component side.
 • : Pattern from the side which enables seeing.
 • : Pattern of the rear side.
 • : Circled numbers refer to waveforms.
 • — : Jumper wire connected to the ground pattern on the component side.
 • — : Jumper wire connected to the pattern on the component side.





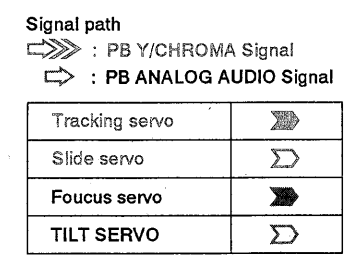
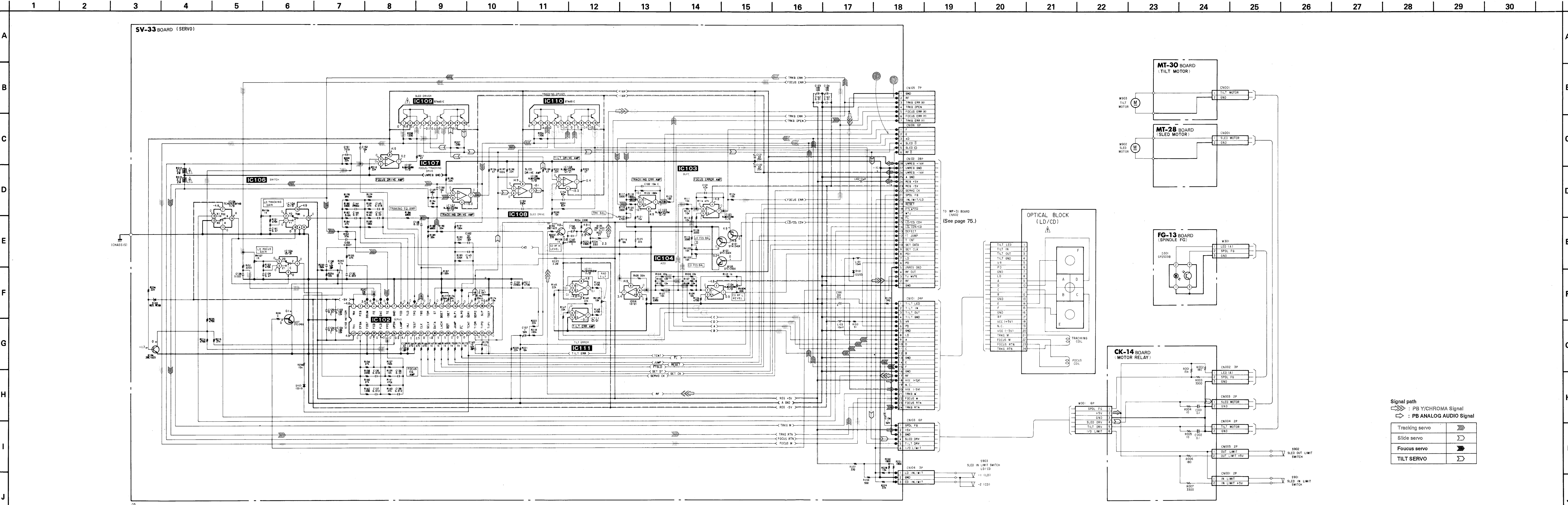
SV-33 BOARD

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



For printed wiring boards:

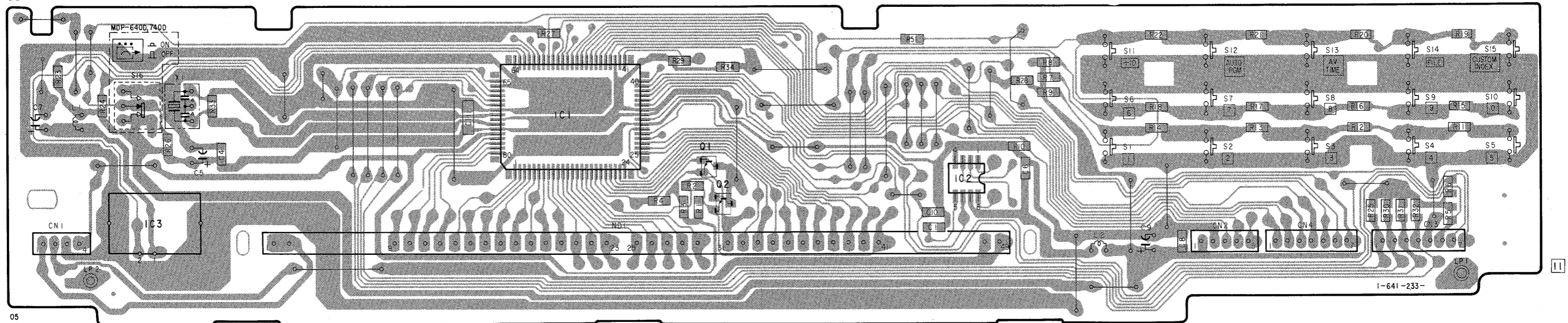
- — : indicates a lead wire mounted on the component side.
- ▨ : Pattern from the side which enables seeing.
- : Pattern of the rear side.
- : Circled numbers refer to waveforms.
- : Jumper wire connected to the ground pattern on the component side.
- : Jumper wire connected to the pattern on the component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



FP-489 (MODE/FUNCTION CONTROL), FP-490 (FUNCTION SWITCH) PRINTED WIRING BOARDS

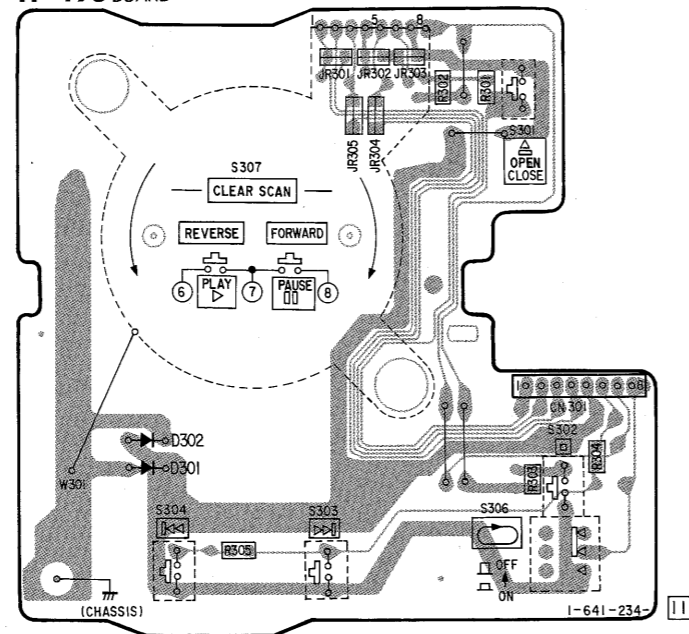
– Ref. No. FP-489 BOARD: 4,000 Series, FP-490 BOARD: 5,000 Series –

FP-489 BOARD



05

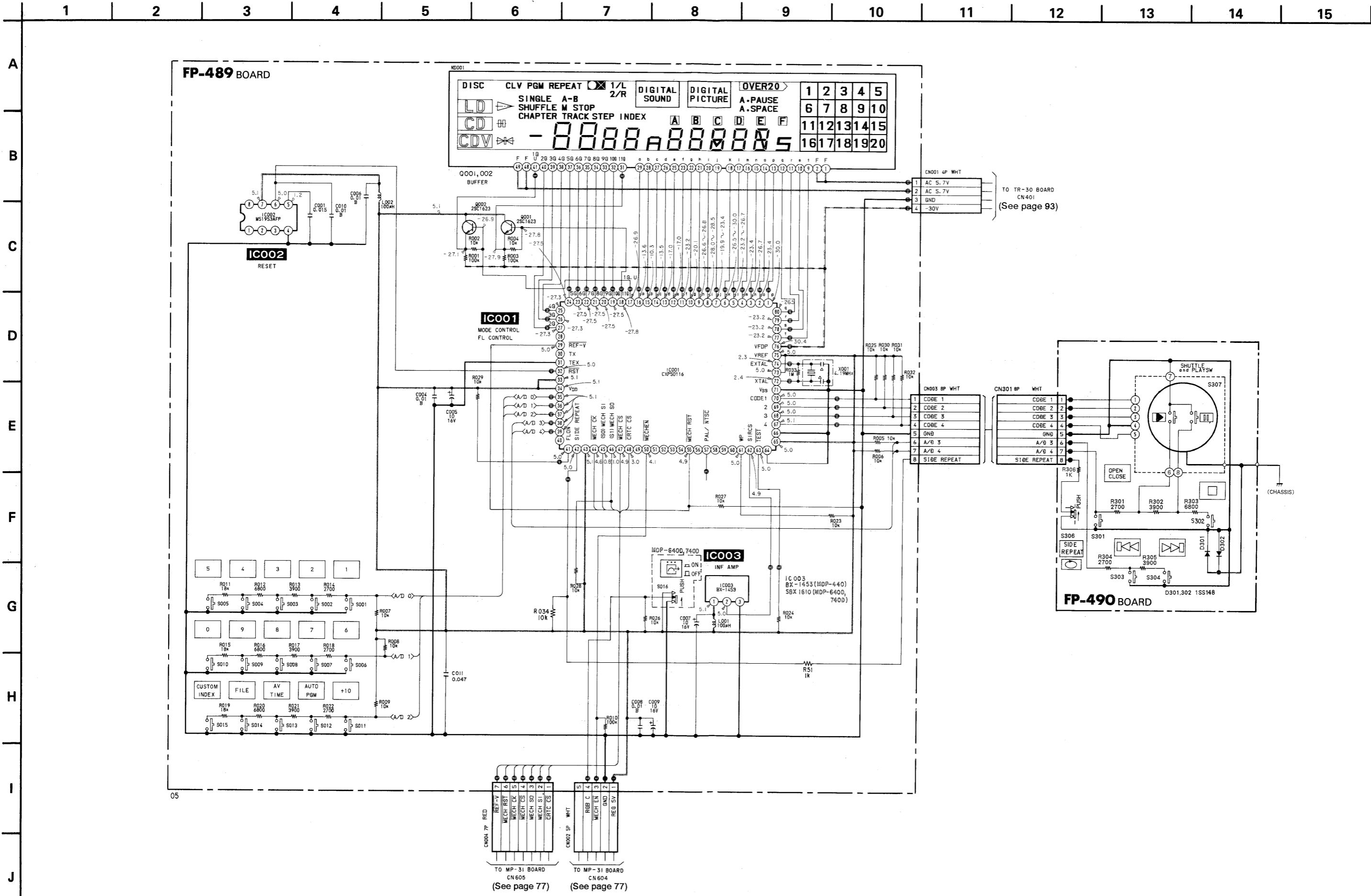
FP-490 BOARD



11

FP-489 (MODE/FUNCTION CONTROL), FP-490 (FUNCTION SWITCH) SCHEMATIC DIAGRAMS

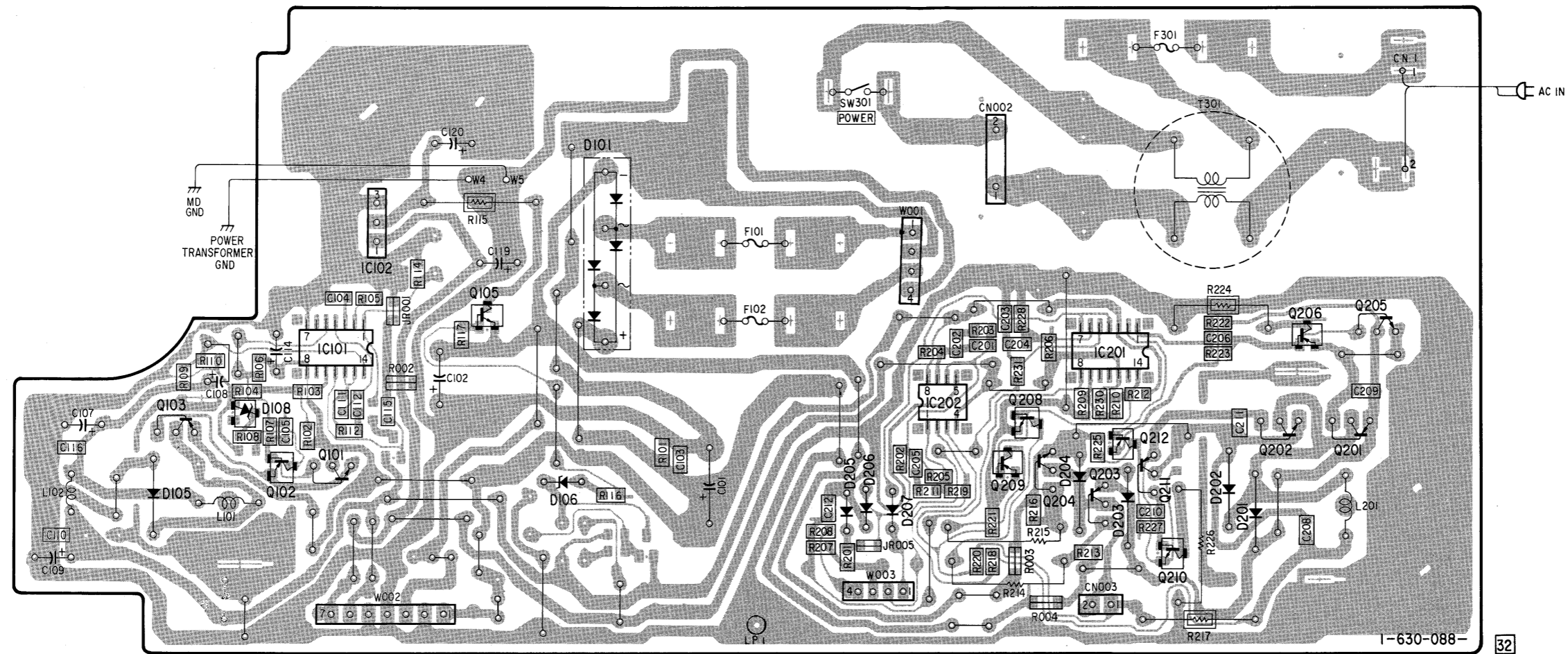
- Ref. No. FP-489 BOARD: 4,000 Series, FP-490 BOARD: 5,000 Series -



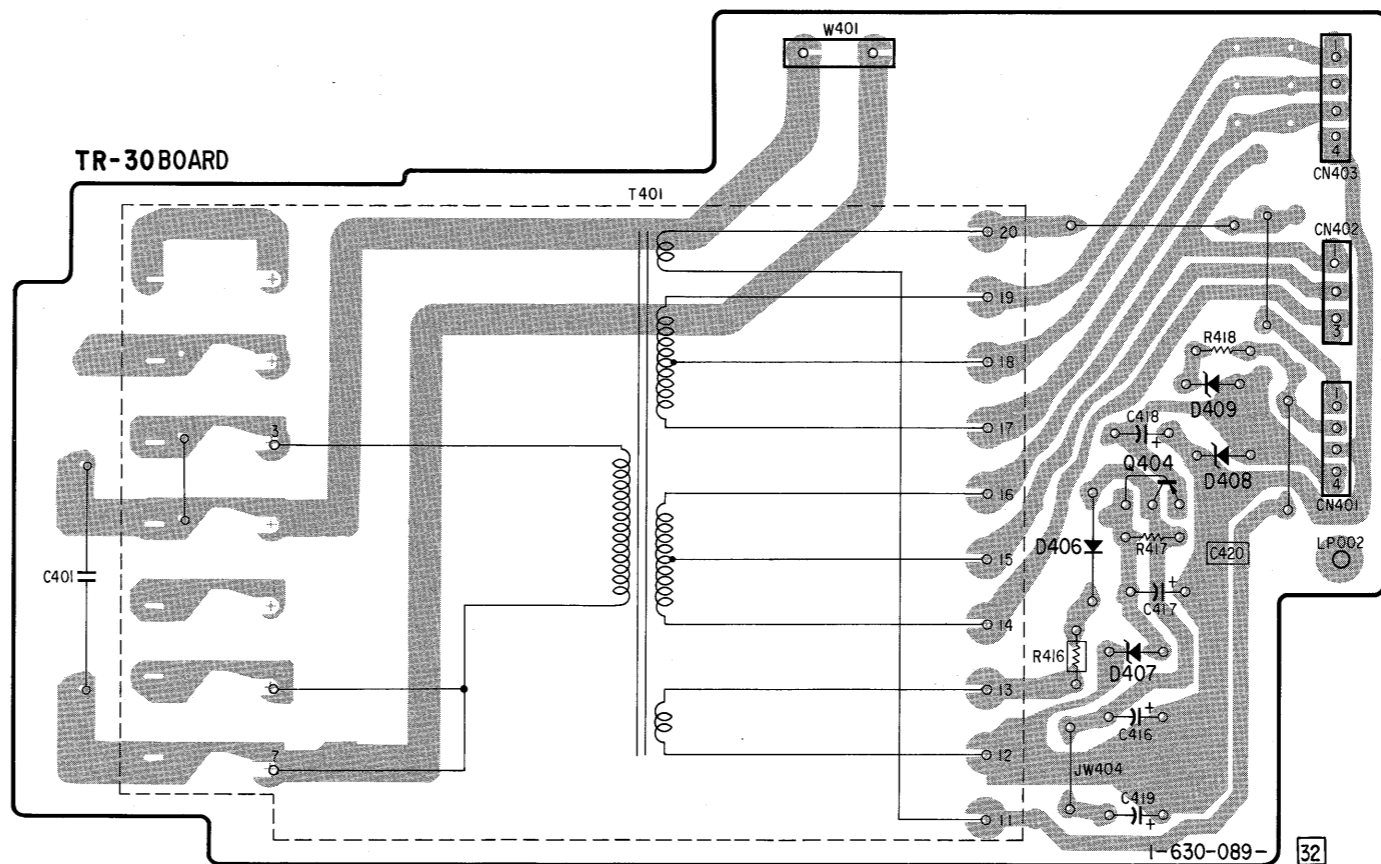
PS-193 (POWER SUPPLY, SPINDLE SERVO), TR-30 (POWER TRANSFORMER) PRINTED WIRING BOARDS

- Ref. No. PS-193 BOARD: 2,000 Series, TR-30 BOARD: 3,000 Series -

PS-193 BOARD

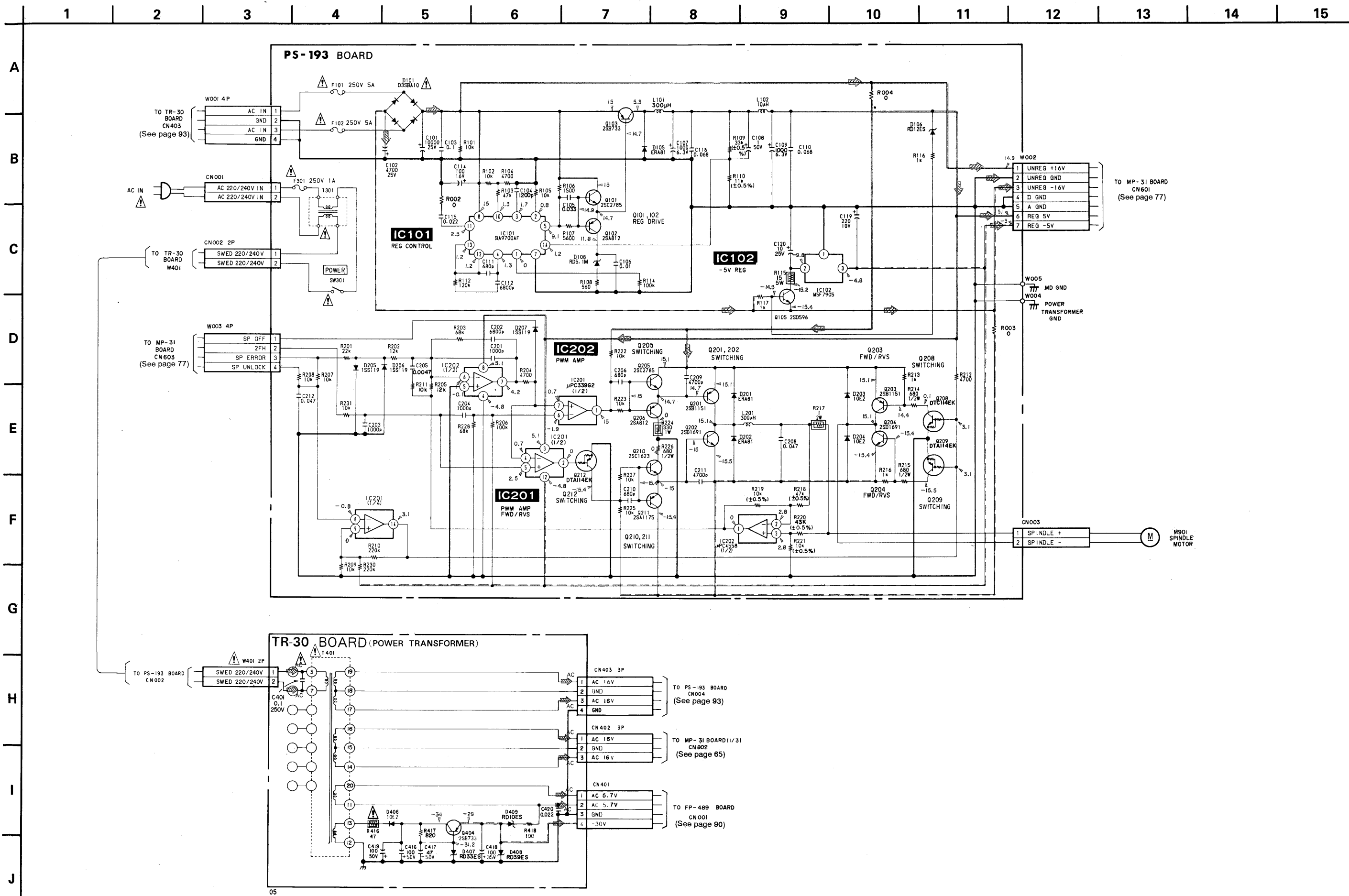


TR-30 BOARD



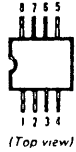
PS-193 (POWER SUPPLY, SPINDLE SERVO), TR-30 (POWER TRANSFORMER) SCHEMATIC DIAGRAMS

- Ref. No. PS-193 BOARD: 2,000 Series, TR-30 BOARD: 3,000 Series -

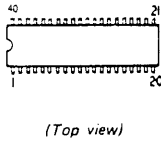


3-4. SEMICONDUCTORS

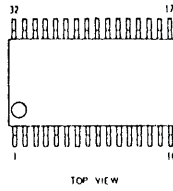
BA7131F
LM2903M
M51953AFP
RC4558M
TL082CPS
μ PC4558G2



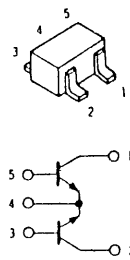
CXD1244S



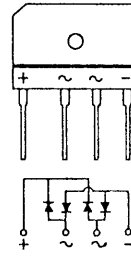
M50455-080FP



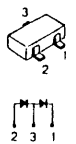
FMW1



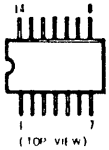
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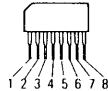
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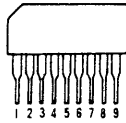
BA9700AF
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MC14066BF
SN74HCU04NS
SN74HC74ANS
TC40H000F
TC74HCU04AF
μ PC324G2
μ PC339G2



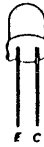
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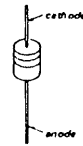
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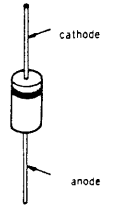
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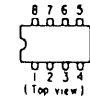
ERA81-006
RD10ES-B2
RD12ES-B2
RD12ES-B3
RD3.9ES-B2
RD39ES-B2
RD7.5ES-B2
1SS119
11ES2



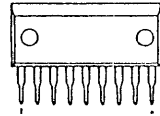
10E2



CX20197
RC5532D-D
SBX1610-09



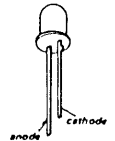
STA-451C



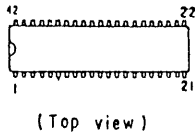
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2SC2785-HFE



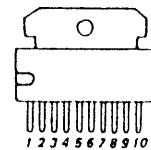
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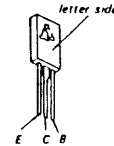
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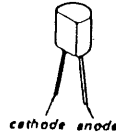
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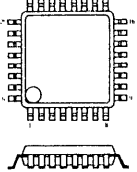
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2SD1691-K



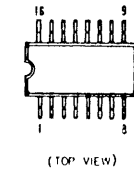
FC52M-5



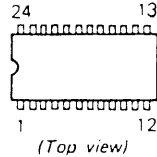
CXA1081Q



HD14053BFP
MC14052BF
MC14053BF
MC74HC4053F
MSM72H032GS-K
SN74HC4040NS
SN74LS123NS
SN74LS221NS



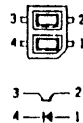
TC9015P



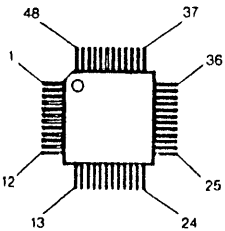
2SB733-2
2SB733-5
2SB734-34



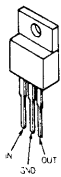
GP-2S09-B



CXA1254Q
CXA1255Q
CXD1152-MS



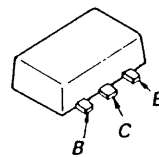
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M5F7812
RC7809FA



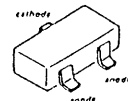
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DTA124EK
DTC114EK
DTC124EK
DTC144EK
2SA1162
2SC1623
2SC1623-L7
2SC3326N



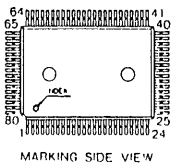
2SD999CLCK



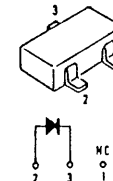
MA152WK



CXD1165Q
CXP50116-072Q
MB89795-127





RD5.1M-B2
RD6.2M-B2



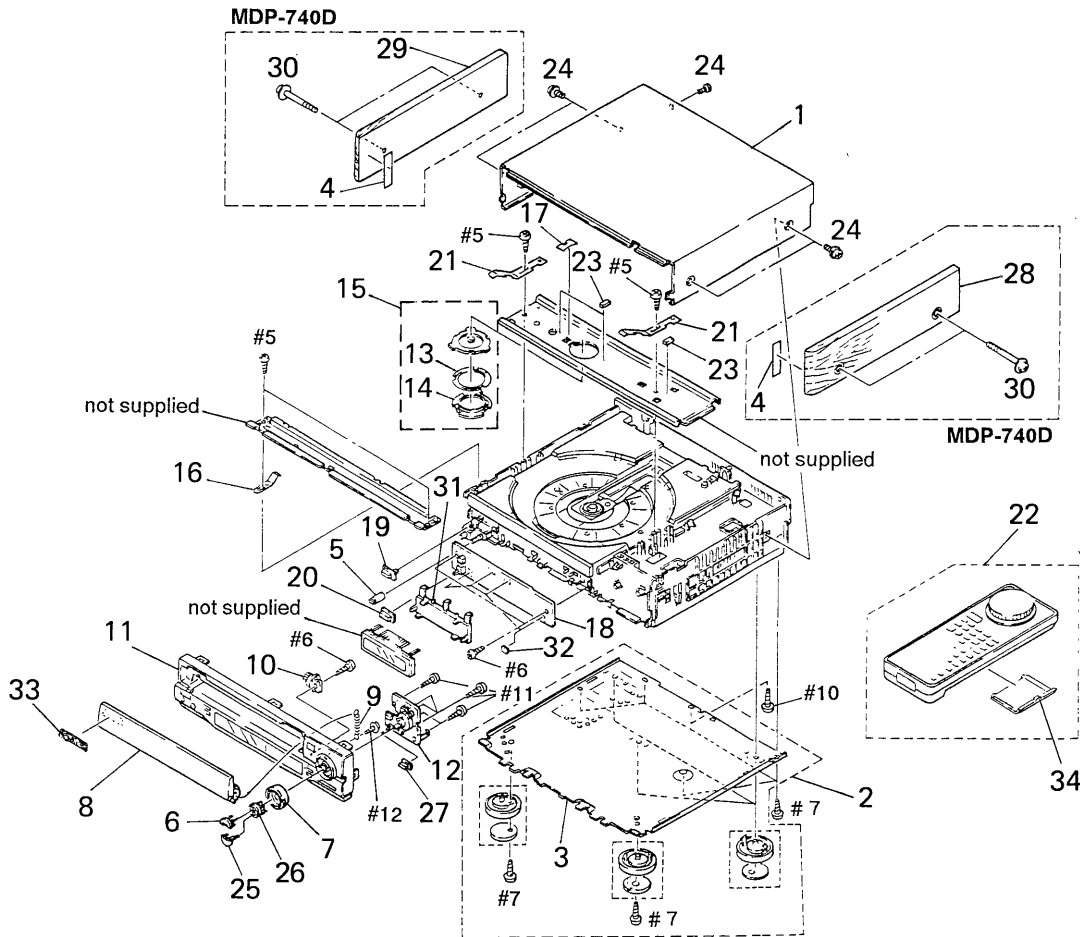
SECTION 5
EXPLODED VIEWS

NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

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

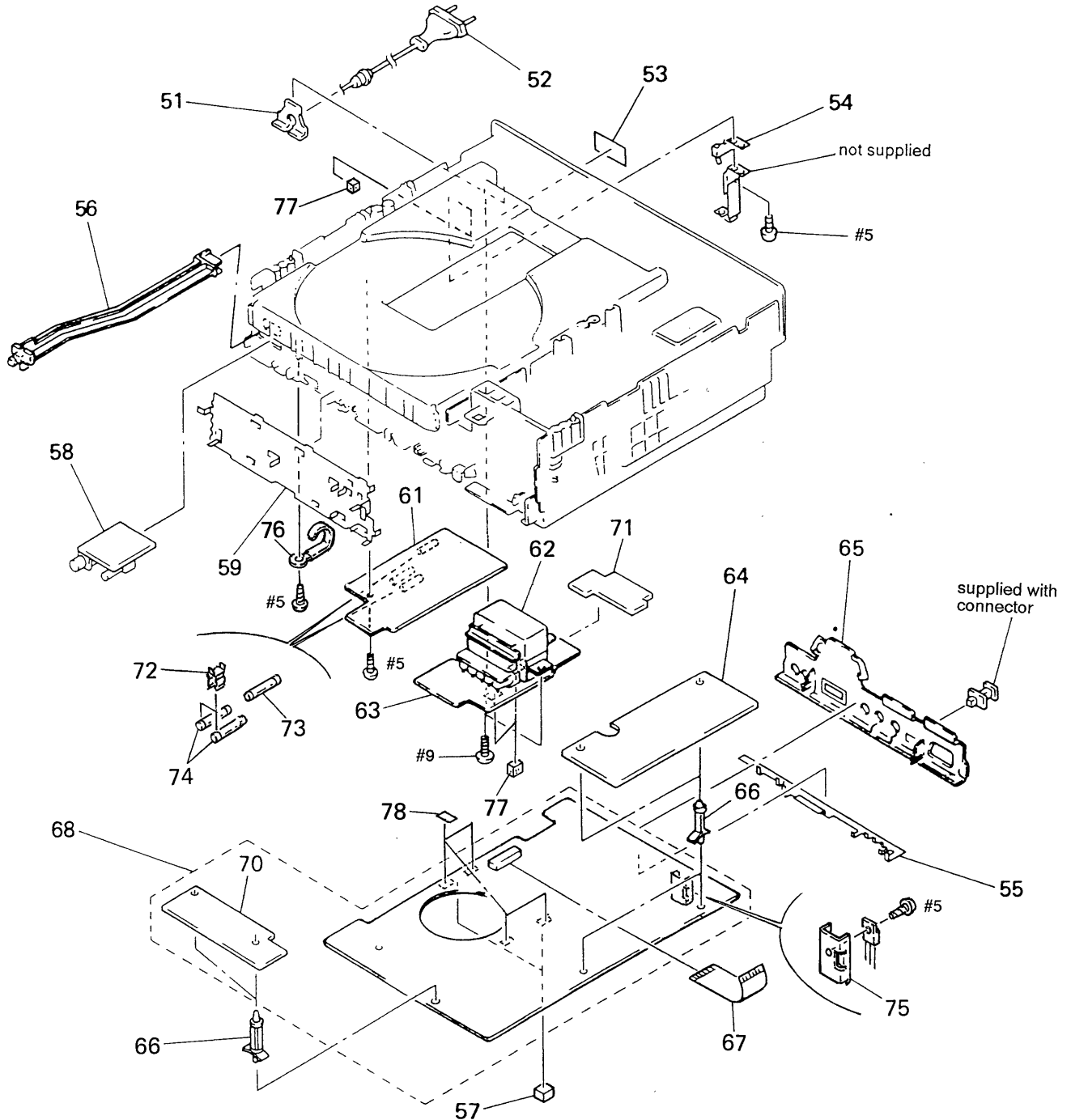
5-1. EXTERIOR ORNAMENT ASSEMBLY



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	3-735-065-01	CASE, UPPER (MDP-440/640D)		16	3-735-090-01	SPRING	
1	3-735-065-51	CASE, UPPER (MDP-740D)		* 17	3-737-454-01	SHEET, HOLDER	
2	X-3749-083-5	PLATE ASSY, BOTTOM (MDP-440/640D)		* 18	A-6421-725-1	FP-489 BOARD, COMPLETE (MDP-440)	
2	X-3940-469-3	PLATE ASSY, BOTTOM (MDP-740D)		* 18	A-6421-728-A	FP-489 (DB) BOARD, COMPLETE (640D/740D)	
3	3-942-015-11	PLATE, BOTTOM		19	3-735-051-01	BUTTON, POWER (MDP-440/640D)	
4	3-721-240-01	SPACER		19	3-735-051-51	BUTTON, POWER (MDP-740D)	
5	3-941-122-81	KNOB (A2. TYPE), LOV (MDP-740D)		20	3-741-898-31	KNOB, A/R (MDP-740D)	
5	4-922-531-01	KNOB (A2. TYPE), LOV (MDP-440/640D)		20	3-741-898-11	KNOB, A/R (MDP-440/640D)	
6	3-941-510-71	BUTTON, PLAYBACK (MDP-740D)		21	3-735-089-01	SPRING	
6	3-941-510-81	BUTTON, PLAYBACK (MDP-440/640D)		22	1-465-496-31	REMOTE COMMANDER (RMT-333E)	
7	3-941-512-03	RING, SHUTTLE (MDP-440/640D)		23	9-911-842-XX	CUSHION	
7	3-941-512-11	RING, SHUTTLE (MDP-740D)		24	3-710-901-11	SCREW, TAPPING	
8	X-3941-107-1	DOOR ASSY (MDP-440/640D)		25	3-941-511-71	BUTTON, STOP (MDP-740D)	
8	X-3941-109-1	DOOR ASSY (MDP-740D)		25	3-941-511-81	BUTTON, STOP (MDP-440/640D)	
9	3-940-250-01	SPRING (DOOR), TENSION		26	3-941-515-02	HOLDER, BUTTON	
10	4-919-393-01	DAMPER		27	3-942-820-11	BUTTON, REPEAT (MDP-740D)	
11	X-3941-108-1	PANEL ASSY, FRONT (MDP-640D)		27	3-942-820-21	BUTTON, REPEAT (MDP-440/640D)	
11	X-3941-110-1	PANEL ASSY, FRONT (MDP-740D)		28	X-3941-111-1	WOOD (R) ASSY, SIDE (MDP-740D)	
11	X-3941-113-1	PANEL ASSY, FRONT (MDP-440)		29	X-3941-112-1	WOOD (L) ASSY, SIDE (MDP-740D)	
* 12	A-6421-726-A	FP-490 BOARD, COMPLETE		30	3-943-952-11	SCREW (M3X28), TAPPING (MDP-740D)	
13	3-735-011-01	SPRING		* 31	3-746-508-01	HOLDER, FLD	
14	3-735-010-01	PLATE (1), PRESS		32	2-355-254-01	SPACER (A), LCD	
15	X-3735-006-1	PLATE ASSY, PRESS		33	4-908-848-21	EMBLEM, SONY	
				34	3-942-754-01	LID, BATTERY CASE	

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

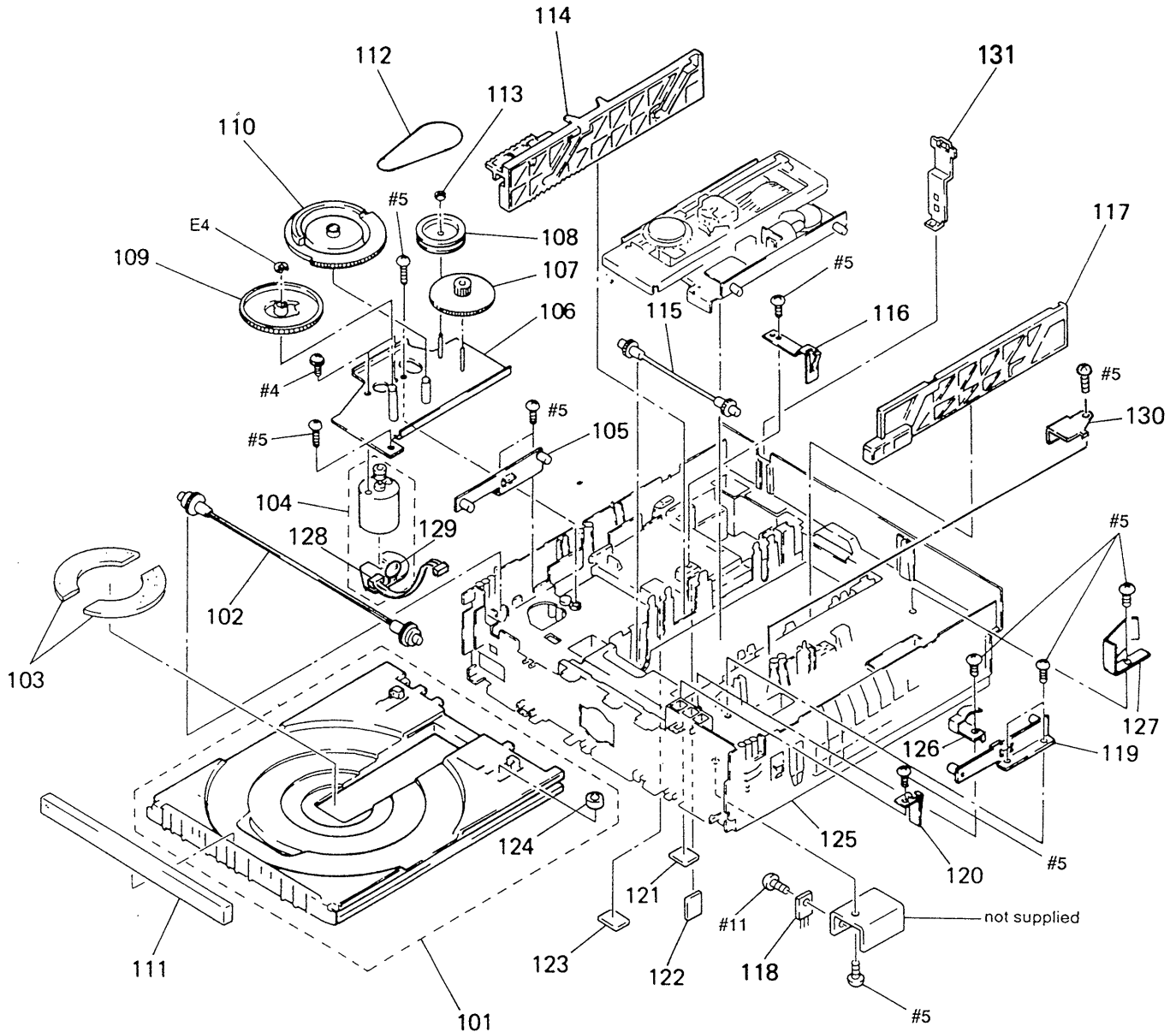
5-2. FRAME ASSEMBLY (1)



Ref. No.	Part No.	Description	Remark
* 51	3-737-438-01	BRACKET, AC CORD	
Δ 52	1-555-795-00	CORD, POWER, EULO PLUG	
* 53	3-945-172-01	LABEL, MODEL NUMBER (NO. 2) (MDP-640D)	
* 53	3-945-173-01	LABEL, MODEL NUMBER (NO. 2) (MDP-740D)	
* 53	3-945-179-01	LABEL, MODEL NUMBER (NO. 3) (MDP-440)	
54	3-735-091-01	SPRING	
55	3-737-480-01	PLATE, GROUND, JACK	
56	3-741-897-01	LEVER, POWER SW	
57	9-911-843-XX	CUSHION	
* 58	1-636-182-11	HP-75 BOARD	
* 59	A-6415-365-A	HOLDER ASSY, PC BOARD	
* 61	A-6421-372-A	PS-193 (Y) BOARD, COMPLETE	
Δ 62	1-449-849-11	TRANSFORMER, POWER (T401)	
* 63	1-630-089-31	TR-30 BOARD	
* 64	A-6421-502-A	RG-23 BOARD, COMPLETE (MDP-640D/740D)	
65	X-3749-149-1	PLATE (P) ASSY, JACK	

Ref. No.	Part No.	Description	Remark
* 66	3-703-353-08	SUPPORTER, PC BOARD	
* 67	1-574-755-11	WIRE, FLAT TYPE 28P	
* 68	A-6421-498-A	MP-31 BOARD, COMPLETE (MDP-440)	
* 68	A-6421-727-A	MP-31 BOARD, COMPLETE (MDP-640D)	
* 68	A-6421-729-A	MP-31 (DD) BOARD, COMPLETE (MDP-740D)	
* 70	A-6421-371-A	AF-52 BOARD, COMPLETE (MDP-440/640D)	
* 70	A-6421-735-A	AF-52 (DD) BOARD, COMPLETE (MDP-740D)	
Δ 71	3-746-543-01	COVER, TRANSFORMER	
* 72	1-533-189-11	HOLDER, FUSE	
Δ 73	1-532-078-00	FUSE, TIME-LAG (T1A 250V) (F301)	
Δ 74	1-532-299-00	FUSE, TIME-LAG (T5A 250V) (F101, F102)	
* 75	3-309-144-21	HEAT SINK	
* 76	3-701-822-00	HOLDER, WIRE	
* 77	3-741-863-01	CUSHION (H7), RUBBER	
78	3-831-441-XX	CUSHION (5)	

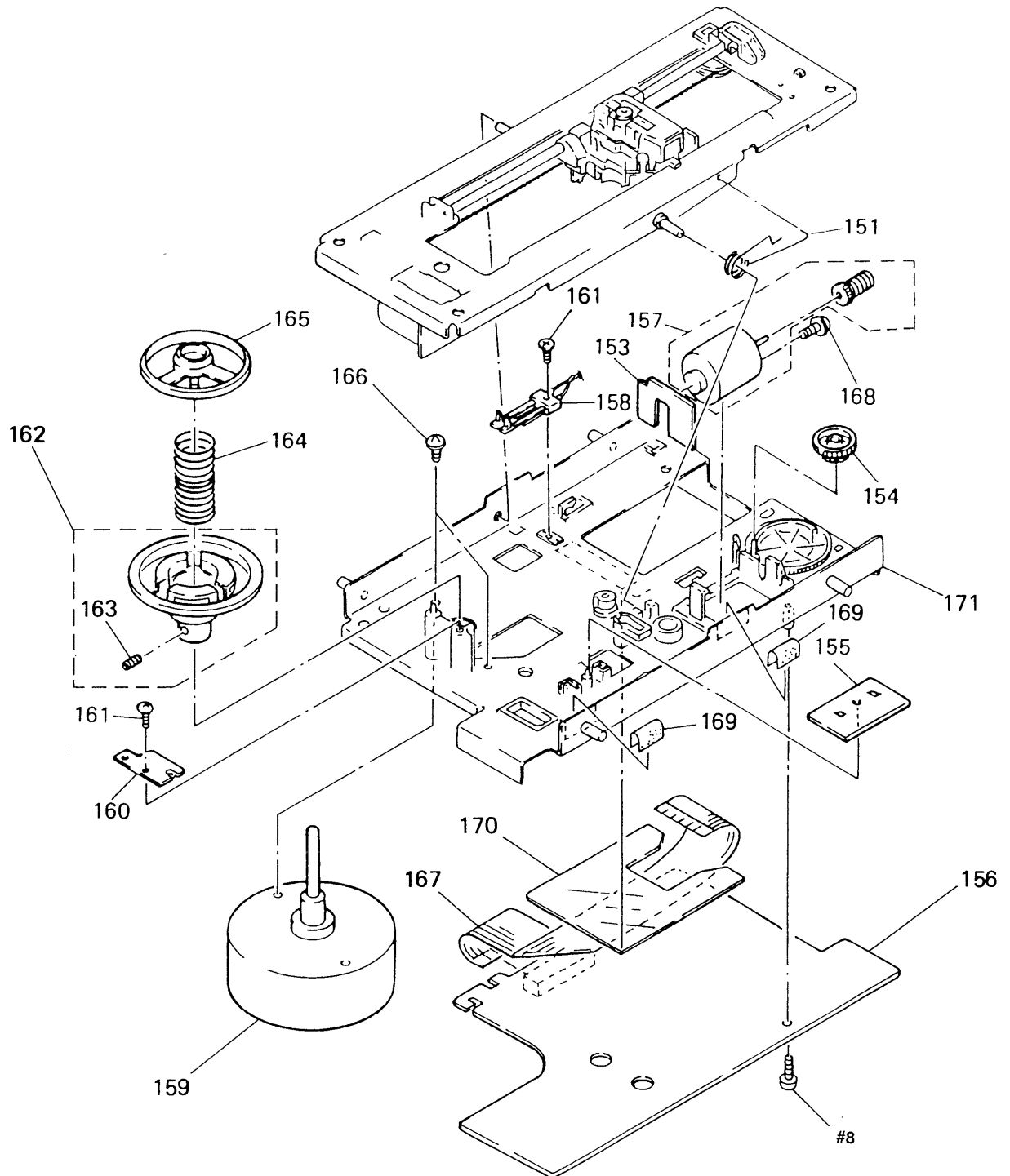
5-3. FRAME ASSEMBLY (2)



Ref. No.	Part No.	Description	Remark
101	X-3735-032-1	TRAY ASSY (MDP-740D)	
101	X-3735-037-X	TRAY ASSY (MDP-440/640D)	
102	X-3735-069-1	GEAR ASSY, PHASE	
103	3-735-039-03	SHEET, CD	
104	A-6415-359-A	MOTOR BLOCK ASSY (X), THREADING	
105	X-3735-071-1	GUIDE ASSY (L), TRAY	
* 106	X-3735-002-1	BASE ASSY, THREADING	
107	3-735-037-01	GEAR, MIDWAY	
108	3-735-036-01	PULLEY (A)	
109	3-735-035-01	GEAR, TRAY	
110	3-735-056-01	CAM, DRIVING	
111	3-746-506-02	COVER, TRAY (MDP-440/640D)	
111	3-746-506-11	COVER, TRAY (MDP-740D)	
112	3-534-779-00	BELT, DRIVE	
113	3-669-595-00	WASHER (2), STOPPER	
114	3-735-053-01	RACK (LEFT)	
115	X-3735-008-1	GEAR ASSY, MD PHASE	

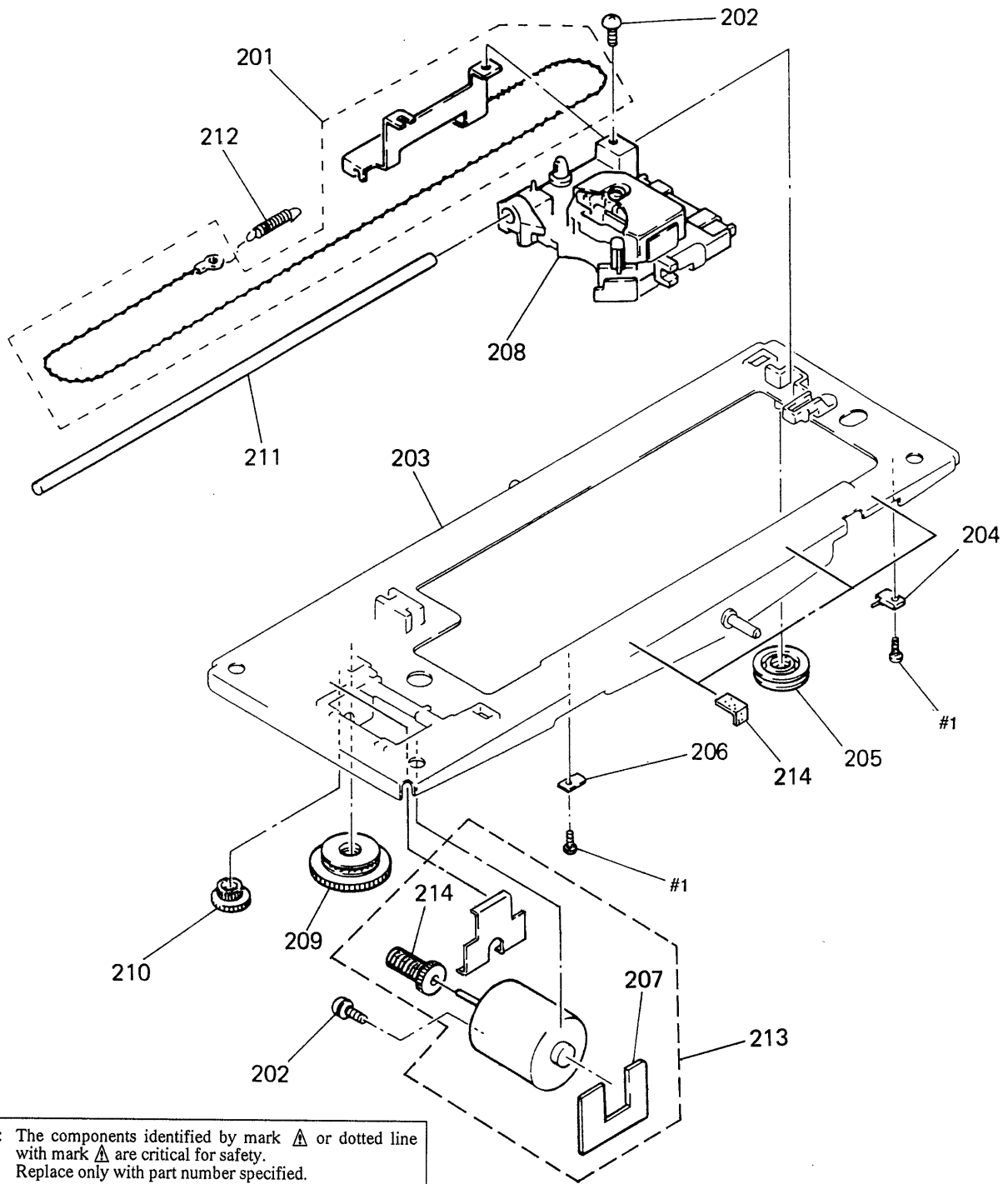
Ref. No.	Part No.	Description	Remark
116	3-737-401-01	SPRING (1)	
117	3-735-052-01	RACK (RIGHT)	
118	8-759-245-79	IC M5F7905	
119	X-3735-070-1	GUIDE ASSY (R), TRAY	
120	3-737-402-01	SPRING (2)	
* 121	1-636-183-11	SW-163 BOARD	
* 122	1-636-184-11	SW-164 BOARD	
* 123	1-636-185-11	LS-32 BOARD	
* 124	4-914-248-01	STOPPER, RUBBER	
* 125	3-942-221-51	FRAME	
126	3-737-448-01	SPRING, LEAF	
127	3-746-525-01	SPRING, TRAY	
128	1-506-481-11	CONNECTOR 2P, MALE (CNO01)	
129	1-161-063-00	CERAMIC 0.1uF 10% 50V (CO01)	
* 130	3-749-912-01	RETAINER (B), RACK	
* 131	3-746-621-01	RETAINER (R)	

5-4. MD CHASSIS ASSEMBLY (1)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
151	3-735-021-01	SPRING, TORSION		162	X-3735-003-1	TURNTABLE ASSY	
* 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-2625-077-1	GUIDE ASSY, CENTER	
* 156	A-6421-311-A	SV-33 BOARD, COMPLETE		166	4-606-833-01	SCREW (3X5), + PSW	
157	A-6415-290-A	MOTOR BLOCK ASSY, SKEW (M903)		167	1-574-648-11	CABLE, FLEXIBLE FLAT (24 CORE)	
158	1-554-468-00	SWITCH, LEAF (SLED IN LIMIT LD/CD) (S903)		168	3-899-248-01	SCREW (M3X6)	
159	1-541-776-21	MOTOR, LD SPINDLE (M901)		* 169	3-737-413-01	SHEET, TEFLON	
* 160	1-630-096-11	FG-13 BOARD		* 170	3-735-099-01	SHEET, FLEXIBLE RETAINER	
161	3-719-845-11	SCREW (B2X8), TAPPING		* 171	3-735-068-15	CHASSIS, MD	

5-5. MD CHASSIS ASSEMBLY (2)



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

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
201	X-3735-001-1	WIRE ASSY		\triangle 208	8-848-138-11	DEVICE, OPTICAL KHS-130A	
202	3-899-248-01	SCREW (M3X6)		209	3-735-016-01	PULLEY, DRIVING	
* 203	X-3940-657-1	CHASSIS ASSY		210	3-735-015-01	GEAR, CARRIAGE	
204	1-570-771-21	SWITCH (SLED OUT LIMIT) (S902)		* 211	3-735-020-01	SHAFT, CARRIAGE	
205	3-735-017-01	PULLEY, RETURN		212	3-672-430-00	SPRING, TENSION	
206	1-571-435-11	SWITCH (SLED IN LIMIT) (S901)		213	A-6415-434-A	MOTOR BLOCK ASSY, SLED (M902)	
* 207	1-630-097-11	MT-28 BOARD		214	3-846-312-00	SPACER	

SECTION 6
ELECTRICAL PARTS LIST

AF-52

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.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
All resistors are in ohms.
METAL: Metal-film resistor.
METAL OXIDE: Metal oxide-film resistor.
F: nonflammable

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
In each case, u: μ , for example:
uA.: μ A. uPA.: μ PA.
uPB.: μ PB. uPC.: μ PC. uPD.: μ PD.
- CAPACITORS
uF: μ F
- COILS
uH: μ H

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

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

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	A-6421-371-A	AF-52 BOARD, COMPLETE (MDP-440/640D) *****		C721	1-216-295-00	METAL GLAZE 0 5% 1/10W (MDP-440)	
*	A-6421-735-A	AF-52 BOARD, COMPLETE (MDP-740D) *****		C722	1-163-145-00	CERAMIC CHIP 0.0015uF 5% 50V	
		< CAPACITOR >		C723	1-163-009-11	CERAMIC CHIP 0.001uF 10% 50V	
C401	1-126-177-11	ELECT 100uF 20% 10V (640D/740D)		C724	1-163-019-00	CERAMIC CHIP 0.0068uF 10% 50V	
C402	1-164-232-11	CERAMIC CHIP 0.01uF 50V (640D/740D)		C725	1-163-145-00	CERAMIC CHIP 0.0015uF 5% 50V	
C403	1-163-126-00	CERAMIC CHIP 240PF 5% 50V (640D/740D)		C726	1-126-049-11	ELECT 22uF 20% 25V	
C404	1-163-126-00	CERAMIC CHIP 240PF 5% 50V (640D/740D)		C727	1-124-994-11	ELECT 100uF 20% 6.3V	
C405	1-163-101-00	CERAMIC CHIP 22PF 5% 50V (640D/740D)		C728	1-163-017-00	CERAMIC CHIP 0.0047uF 5% 50V	
C406	1-163-099-00	CERAMIC CHIP 18PF 5% 50V (640D/740D)		C729	1-163-145-00	CERAMIC CHIP 0.0015uF 5% 50V	
C407	1-163-111-00	CERAMIC CHIP 56PF 5% 50V (640D/740D)		C730	1-163-121-00	CERAMIC CHIP 150PF 5% 50V	
C408	1-163-099-00	CERAMIC CHIP 18PF 5% 50V (640D/740D)		C731	1-163-125-00	CERAMIC CHIP 220PF 5% 50V	
C409	1-163-101-00	CERAMIC CHIP 22PF 5% 50V (640D/740D)		C732	1-163-020-00	CERAMIC CHIP 0.0082uF 10% 50V	
C410	1-164-232-11	CERAMIC CHIP 0.01uF 50V (640D/740D)		C733	1-126-059-11	ELECT 10uF 20% 50V	
C411	1-164-232-11	CERAMIC CHIP 0.01uF 50V (640D/740D)		C734	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
C412	1-126-022-11	ELECT 47uF 20% 10V (640D/740D)		C735	1-163-077-00	CERAMIC CHIP 0.1uF 10% 25V	
C413	1-164-232-11	CERAMIC CHIP 0.01uF 50V (640D/740D)		C736	1-126-049-11	ELECT 22uF 20% 25V	
C414	1-126-022-11	ELECT 47uF 20% 10V (640D/740D)		C737	1-163-141-00	CERAMIC CHIP 0.001uF 5% 50V	
C415	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V (640D/740D)		C738	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
C416	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V (640D/740D)		C739	1-124-994-11	ELECT 100uF 20% 6.3V	
C417	1-126-177-11	ELECT 100uF 20% 10V		C742	1-124-994-11	ELECT 100uF 20% 6.3V	
C418	1-164-232-11	CERAMIC CHIP 0.01uF 50V		C743	1-163-119-00	CERAMIC CHIP 120PF 5% 50V	
C419	1-163-121-00	CERAMIC CHIP 150PF 5% 50V		C744	1-163-125-00	CERAMIC CHIP 220PF 5% 50V	
C420	1-163-129-00	CERAMIC CHIP 330PF 5% 50V		C745	1-163-145-00	CERAMIC CHIP 0.0015uF 5% 50V	
C421	1-163-121-00	CERAMIC CHIP 150PF 5% 50V		C746	1-163-145-00	CERAMIC CHIP 0.0015uF 5% 50V	
C422	1-164-232-11	CERAMIC CHIP 0.01uF 50V		C747	1-163-019-00	CERAMIC CHIP 0.0068uF 10% 50V	
C423	1-164-232-11	CERAMIC CHIP 0.01uF 50V		C748	1-126-049-11	ELECT 22uF 20% 25V	
C424	1-126-022-11	ELECT 47uF 20% 10V		C749	1-163-017-00	CERAMIC CHIP 0.0047uF 5% 50V	
C425	1-164-232-11	CERAMIC CHIP 0.01uF 50V		C750	1-163-121-00	CERAMIC CHIP 150PF 5% 50V	
C426	1-126-022-11	ELECT 47uF 20% 10V		C751	1-163-145-00	CERAMIC CHIP 0.0015uF 5% 50V	
C427	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V (640D/740D)		C752	1-163-125-00	CERAMIC CHIP 220PF 5% 50V	
C428	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V (640D/740D)		C753	1-163-020-00	CERAMIC CHIP 0.0082uF 10% 50V	
C429	1-164-161-11	CERAMIC CHIP 0.0022uF 10% 100V		C754	1-126-059-11	ELECT 10uF 20% 50V	
C715	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V		C755	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
C716	1-163-141-00	CERAMIC CHIP 0.001uF 5% 50V		C756	1-126-529-11	ELECT 0.47uF 20% 50V	
C717	1-124-994-11	ELECT 100uF 20% 6.3V		C757	1-124-994-11	ELECT 100uF 20% 6.3V	
C719	1-124-994-11	ELECT 100uF 20% 6.3V		C758	1-126-163-11	ELECT 4.7uF 20% 50V	
C721	1-163-111-00	CERAMIC CHIP 56PF 5% 50V (640D/740D)		C759	1-163-113-00	CERAMIC CHIP 68PF 5% 50V (640D/740D)	
				C759	1-216-295-00	METAL GLAZE 0 5% 1/10W (MDP-440)	
				C760	1-163-141-00	CERAMIC CHIP 0.001uF 5% 50V	

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Ref. No.	Part No.	Description	Remark
C761	1-163-117-00	CERAMIC CHIP	100PF 5% 50V
C762	1-126-022-11	ELECT	47uF 20% 10V
C763	1-126-022-11	ELECT	47uF 20% 10V
C764	1-163-119-00	CERAMIC CHIP	120PF 5% 50V
C765	1-163-115-00	CERAMIC CHIP	82PF 5% 50V
C766	1-126-022-11	ELECT	47uF 20% 10V (640D/740D)
< CONNECTOR >			
* CN701	1-566-709-11	CONNECTOR, BOARD TO BOARD 12P	
< FILTER >			
FL401	1-235-925-11	FILTER, BAND PASS (2.3MHZ)	(640D/740D)
FL402	1-235-926-11	FILTER, BAND PASS (2.8MHZ)	(640D/740D)
FL403	1-236-573-11	BPF (PAL LCH)	(0.68MHz)
FL404	1-236-574-11	BPF (PAL LCH)	(1.07MHz)
< IC >			
IC401	8-759-941-68	IC BA7131F	(MDP-640D/740D)
IC402	8-759-941-68	IC BA7131F	(MDP-640D/740D)
IC701	8-759-322-23	IC HA12127ANT	
< JUMPER RESISTOR >			
JR001	1-216-295-00	METAL CHIP	0 5% 1/10W
JR002	1-216-295-00	METAL CHIP	0 5% 1/10W
JR003	1-216-295-00	METAL CHIP	0 5% 1/10W
JR004	1-216-295-00	METAL CHIP	0 5% 1/10W
JR005	1-216-295-00	METAL CHIP	0 5% 1/10W
JR006	1-216-295-00	METAL CHIP	0 5% 1/10W
JR007	1-216-295-00	METAL CHIP	0 5% 1/10W
JR008	1-216-295-00	METAL CHIP	0 5% 1/10W
JR009	1-216-295-00	METAL CHIP	0 5% 1/10W
JR010	1-216-295-00	METAL CHIP	0 5% 1/10W
JR011	1-216-295-00	METAL CHIP	0 5% 1/10W
JR012	1-216-295-00	METAL CHIP	0 5% 1/10W
JR013	1-216-295-00	METAL CHIP	0 5% 1/10W
JR014	1-216-295-00	METAL CHIP	0 5% 1/10W
JR015	1-216-295-00	METAL CHIP	0 5% 1/10W
JR016	1-216-295-00	METAL CHIP	0 5% 1/10W
JR017	1-216-295-00	METAL CHIP	0 5% 1/10W (640D/740D)
JR018	1-216-295-00	METAL CHIP	0 5% 1/10W (640D/740D)
JR019	1-216-295-00	METAL CHIP	0 5% 1/10W (640D/740D)
JR020	1-216-295-00	METAL CHIP	0 5% 1/10W (640D/740D)
JR021	1-216-295-00	METAL CHIP	0 5% 1/10W (640D/740D)
JR022	1-216-295-00	METAL CHIP	0 5% 1/10W
JR023	1-216-295-00	METAL CHIP	0 5% 1/10W
JR024	1-216-295-00	METAL CHIP	0 5% 1/10W
JR025	1-216-295-00	METAL CHIP	0 5% 1/10W (640D/740D)
JR026	1-216-295-00	METAL CHIP	0 5% 1/10W

Ref. No.	Part No.	Description	Remark
JR027	1-216-295-00	METAL CHIP	0 5% 1/10W
JR028	1-216-295-00	METAL CHIP	0 5% 1/10W (640D/740D)
JR029	1-216-295-00	METAL CHIP	0 5% 1/10W (640D/740D)
< COIL >			
L401	1-410-521-11	INDUCTOR 100uH	(MDP-640D/740D)
L402	1-410-336-11	INDUCTOR 220uH	(MDP-640D/740D)
L403	1-408-417-00	INDUCTOR 47uH	(MDP-640D/740D)
L404	1-408-417-00	INDUCTOR 47uH	(MDP-640D/740D)
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	1-410-069-11	INDUCTOR 6.8mH	
L708	1-410-069-11	INDUCTOR 6.8mH	
< TRANSISTOR >			
Q401	8-729-100-66	TRANSISTOR	2SC1623 (MDP-640D/740D)
Q402	8-729-100-66	TRANSISTOR	2SC1623 (MDP-640D/740D)
Q403	8-729-100-66	TRANSISTOR	2SC1623 (MDP-640D/740D)
Q404	8-729-100-66	TRANSISTOR	2SC1623 (MDP-640D/740D)
Q405	8-729-100-66	TRANSISTOR	2SC1623 (MDP-640D/740D)
Q406	8-729-100-66	TRANSISTOR	2SC1623 (MDP-640D/740D)
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
Q411	8-729-100-66	TRANSISTOR	2SC1623
Q412	8-729-100-66	TRANSISTOR	2SC1623
Q701	8-729-220-93	TRANSISTOR	2SK209-G (MDP-640D/740D)
Q702	8-729-220-93	TRANSISTOR	2SK209-G (MDP-640D/740D)
Q703	8-729-901-01	TRANSISTOR	DTC144EK (MDP-640D/740D)
Q704	8-729-901-06	TRANSISTOR	DTA144EK (MDP-640D/740D)
Q705	8-729-220-93	TRANSISTOR	2SK209-G (MDP-640D/740D)
Q706	8-729-220-93	TRANSISTOR	2SK209-G (MDP-640D/740D)
< RESISTOR >			
R401	1-216-073-00	METAL CHIP	10K 5% 1/10W (640D/740D)
R402	1-216-053-00	METAL CHIP	1.5K 5% 1/10W (640D/740D)
R403	1-216-053-00	METAL CHIP	1.5K 5% 1/10W (640D/740D)
R404	1-216-033-00	METAL CHIP	220 5% 1/10W (640D/740D)
R405	1-216-048-00	METAL CHIP	910 5% 1/10W (640D/740D)
R406	1-216-081-00	METAL CHIP	22K 5% 1/10W (640D/740D)
R407	1-216-081-00	METAL CHIP	22K 5% 1/10W (640D/740D)
R408	1-216-049-00	METAL CHIP	1K 5% 1/10W (640D/740D)
R409	1-216-049-00	METAL CHIP	1K 5% 1/10W (640D/740D)
R410	1-216-049-00	METAL CHIP	1K 5% 1/10W (640D/740D)

Ref. No.	Part No.	Description	Remark
R411	1-216-049-00	METAL CHIP 1K 5% 1/10W (640D/740D)	
R412	1-216-067-00	METAL CHIP 5.6K 5% 1/10W (640D/740D)	
R413	1-216-075-00	METAL CHIP 12K 5% 1/10W (640D/740D)	
R414	1-216-059-00	METAL CHIP 2.7K 5% 1/10W (640D/740D)	
R415	1-216-049-00	METAL CHIP 1K 5% 1/10W (640D/740D)	
R416	1-216-049-00	METAL CHIP 1K 5% 1/10W (640D/740D)	
R417	1-216-049-00	METAL CHIP 1K 5% 1/10W (640D/740D)	
R418	1-216-067-00	METAL CHIP 5.6K 5% 1/10W (640D/740D)	
R419	1-216-075-00	METAL CHIP 12K 5% 1/10W (640D/740D)	
R420	1-216-059-00	METAL CHIP 2.7K 5% 1/10W (640D/740D)	
R421	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R422	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R423	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R424	1-216-033-00	METAL CHIP 220 5% 1/10W	
R425	1-216-045-00	METAL CHIP 680 5% 1/10W	
R426	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R427	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R428	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R429	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R430	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R431	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R432	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R433	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R434	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R435	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R436	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R437	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R438	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R439	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R440	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R719	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R721	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R724	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R725	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R726	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R727	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R728	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R730	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R731	1-216-073-00	METAL CHIP 10K 5% 1/10W (640D/740D)	
R731	1-216-081-00	METAL GLAZE 22K 5% 1/10W (MDP-440)	
R732	1-216-748-11	METAL CHIP 39K 1% 1/10W (640D/740D)	
R732	1-216-081-00	METAL GLAZE 22K 5% 1/10W (MDP-440)	
R733	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R734	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R735	1-216-101-00	METAL CHIP 150K 5% 1/10W	
R736	1-216-096-00	METAL GLAZE 91K 5% 1/10W	
R737	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R738	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R739	1-216-049-00	METAL CHIP 1K 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R740	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R745	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R746	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R747	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R748	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R749	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R750	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R751	1-216-073-00	METAL CHIP 10K 5% 1/10W (640D/740D)	
R751	1-216-081-00	METAL GLAZE 22K 5% 1/10W (MDP-440)	
R752	1-216-748-11	METAL CHIP 39K 1% 1/10W (640D/740D)	
R752	1-216-081-00	METAL GLAZE 22K 5% 1/10W (MDP-440)	
R753	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R754	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R757	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R758	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R759	1-216-121-00	METAL CHIP 1M 5% 1/10W (640D/740D)	
R760	1-216-121-00	METAL CHIP 1M 5% 1/10W (640D/740D)	
R761	1-216-121-00	METAL CHIP 1M 5% 1/10W (640D/740D)	
R762	1-216-121-00	METAL CHIP 1M 5% 1/10W (640D/740D)	
R763	1-216-089-00	METAL CHIP 47K 5% 1/10W (640D/740D)	
R764	1-216-057-00	METAL CHIP 2.2K 5% 1/10W (640D/740D)	
R765	1-216-121-00	METAL CHIP 1M 5% 1/10W (640D/740D)	
R766	1-216-121-00	METAL CHIP 1M 5% 1/10W (640D/740D)	
R767	1-216-121-00	METAL CHIP 1M 5% 1/10W (640D/740D)	
R769	1-216-077-00	METAL CHIP 15K 5% 1/10W (640D/740D)	
R770	1-216-069-00	METAL CHIP 6.8K 5% 1/10W (640D/740D)	
R771	1-216-069-00	METAL CHIP 6.8K 5% 1/10W (640D/740D)	
R772	1-216-121-00	METAL CHIP 1M 5% 1/10W (640D/740D)	
R773	1-216-121-00	METAL CHIP 1M 5% 1/10W (640D/740D)	
< VARIABLE RESISTOR >			
RV701	1-228-995-00	RES, ADJ, METAL 22K	
RV702	1-228-995-00	RES, ADJ, METAL 22K	
RV703	1-228-996-00	RES, ADJ, METAL 47K (MDP-640D/740D)	
RV704	1-228-996-00	RES, ADJ, METAL 47K (MDP-640D/740D)	

*	1-630-094-11	CK-14 BOARD	

< CAPACITOR >			
C001	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C002	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
< CONNECTOR >			
CN001	1-506-467-11	CONNECTOR 2P, MALE	
CN002	1-506-468-11	CONNECTOR 3P, MALE	
CN003	1-506-467-11	CONNECTOR 2P, MALE	
CN004	1-506-467-11	CONNECTOR 2P, MALE	

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FG-13

FP-489

Ref. No.	Part No.	Description	Remark		
CN005	1-506-467-11	CONNECTOR 2P, MALE			
< JUMPER RESISTOR >					
JR001	1-216-295-00	METAL CHIP	0	5%	1/10W
JR002	1-216-296-00	METAL CHIP	0	5%	1/8W
< RESISTOR >					
R001	1-216-077-00	METAL CHIP	15K	5%	1/10W
R002	1-216-031-00	METAL CHIP	180	5%	1/10W
R003	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R004	1-216-001-00	METAL CHIP	10	5%	1/10W
R005	1-216-001-00	METAL CHIP	10	5%	1/10W
R006	1-216-031-00	METAL CHIP	180	5%	1/10W
R007	1-216-061-00	METAL CHIP	3.3K	5%	1/10W

*	1-630-096-11	FG-13 BOARD	*****		
< DIODE >					
D301	8-719-939-11	DIODE GP-2S09-B			

*	A-6421-725-A	FP-489 BOARD, COMPLETE (MDP-440)	*****		
*	A-6421-728-A	FP-489 BOARD, COMPLETE (640D/740D)	*****		

	2-355-254-01	SPACER (A), LCD			
*	3-746-508-01	HOLDER, FLD			
< CAPACITOR >					
C001	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V
C004	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C005	1-126-157-11	ELECT	10uF	20%	16V
C006	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C007	1-126-157-11	ELECT	10uF	20%	16V
C008	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C009	1-126-157-11	ELECT	10uF	20%	16V
C010	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C011	1-135-210-11	TANTALUM CHIP	4.7uF	20%	10V
C011	1-163-075-00	CERAMIC CHIP	0.047uF		50V
< CONNECTOR >					
CN001	1-506-469-11	CONNECTOR 4P, MALE			
CN002	1-506-470-11	CONNECTOR 5P, MALE			
CN003	1-506-473-11	CONNECTOR 8P, MALE			
CN004	1-506-472-11	CONNECTOR 7P, MALE			

Ref. No.	Part No.	Description	Remark		
< IC >					
IC001	8-752-816-39	IC CXP50116-072Q			
IC002	8-759-605-21	IC M51953AFP			
IC003	8-741-100-47	IC SBX1610-09 (MDP-640D/740D)			
IC003	8-741-138-78	IC BX-1453 (MDP-440)			
< COIL >					
L001	1-407-169-XX	INDUCTOR 100uH			
L002	1-407-169-XX	INDUCTOR 100uH			
< INDICATOR TUBE >					
ND001	1-519-511-11	INDICATOR TUBE, FLUORESCENT			
< TRANSISTOR >					
Q001	8-729-100-67	TRANSISTOR 2SC1623-L7			
Q002	8-729-100-67	TRANSISTOR 2SC1623-L7			
< RESISTOR >					
R001	1-216-097-00	METAL CHIP	100K	5%	1/10W
R002	1-216-073-00	METAL CHIP	10K	5%	1/10W
R003	1-216-097-00	METAL CHIP	100K	5%	1/10W
R004	1-216-073-00	METAL CHIP	10K	5%	1/10W
R005	1-216-073-00	METAL CHIP	10K	5%	1/10W
R006	1-216-073-00	METAL CHIP	10K	5%	1/10W
R007	1-216-073-00	METAL CHIP	10K	5%	1/10W
R008	1-216-073-00	METAL CHIP	10K	5%	1/10W
R009	1-216-073-00	METAL CHIP	10K	5%	1/10W
R010	1-216-097-00	METAL CHIP	100K	5%	1/10W
R011	1-216-079-00	METAL CHIP	18K	5%	1/10W
R012	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R013	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R014	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R015	1-216-079-00	METAL CHIP	18K	5%	1/10W
R016	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R017	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R018	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R019	1-216-079-00	METAL CHIP	18K	5%	1/10W
R020	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R021	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R022	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R023	1-216-073-00	METAL CHIP	10K	5%	1/10W
R024	1-216-073-00	METAL CHIP	10K	5%	1/10W
R025	1-216-073-00	METAL CHIP	10K	5%	1/10W
R026	1-216-073-00	METAL CHIP	10K	5%	1/10W
R027	1-216-073-00	METAL CHIP	10K	5%	1/10W
R028	1-216-073-00	METAL CHIP	10K	5%	1/10W
R029	1-216-073-00	METAL CHIP	10K	5%	1/10W
R030	1-216-073-00	METAL CHIP	10K	5%	1/10W

FP-489**FP-490****HP-75**

Ref. No.	Part No.	Description			Remark
R031	1-216-073-00	METAL CHIP	10K	5%	1/10W
R032	1-216-073-00	METAL CHIP	10K	5%	1/10W
R033	1-216-121-00	METAL CHIP	1M	5%	1/10W
R034	1-216-073-00	METAL CHIP	10K	5%	1/10W
R051	1-216-049-00	METAL CHIP	1K	5%	1/10W
< SWITCH >					
S001	1-571-977-11	SWITCH, TACTIL (1)			
S002	1-571-977-11	SWITCH, TACTIL (2)			
S003	1-571-977-11	SWITCH, TACTIL (3)			
S004	1-571-977-11	SWITCH, TACTIL (4)			
S005	1-571-977-11	SWITCH, TACTIL (5)			
S006	1-571-977-11	SWITCH, TACTIL (6)			
S007	1-571-977-11	SWITCH, TACTIL (7)			
S008	1-571-977-11	SWITCH, TACTIL (8)			
S009	1-571-977-11	SWITCH, TACTIL (9)			
S010	1-571-977-11	SWITCH, TACTIL (0)			
S011	1-571-977-11	SWITCH, TACTIL (+10)			
S012	1-571-977-11	SWITCH, TACTIL (AUTO PGM)			
S013	1-571-977-11	SWITCH, TACTIL (AV TIME)			
S014	1-571-977-11	SWITCH, TACTIL (FILE)			
S015	1-571-977-11	SWITCH, TACTIL (CUSTOM INDEX)			
S016	1-571-758-11	SWITCH, PUSH (1 KEY) (MDP-640D/740D)			
< VIBRATOR >					
X001	1-577-359-21	VIBRATOR, CERAMIC (4.19MHz)			

*	A-6421-726-A	FP-490 BOARD, COMPLETE	*****		
< CONNECTOR >					
* CN301	1-569-750-11	PIN, CONNECTOR (PC BOARD) 8P			
< DIODE >					
D301	8-719-911-19	DIODE 1SS119			
D302	8-719-911-19	DIODE 1SS119			
< JUMPER RESISTOR >					
JR301	1-216-295-00	METAL CHIP	0	5%	1/10W
JR302	1-216-295-00	METAL CHIP	0	5%	1/10W
JR303	1-216-295-00	METAL CHIP	0	5%	1/10W
< RESISTOR >					
R301	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R302	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R303	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R304	1-216-059-00	METAL CHIP	2.7K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R305	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R306	1-249-417-11	CARBON	1K	5%	1/4W
< SWITCH >					
S301	1-571-977-11	SWITCH, TACTIL (OPEN/CLOSE)			
S302	1-571-977-11	SWITCH, TACTIL (■)			
S303	1-571-977-11	SWITCH, TACTIL (◀◀)			
S304	1-571-977-11	SWITCH, TACTIL (▶▶)			
S306	1-571-758-11	SWITCH, PUSH (1 KEY) (SIDE REREAT)			
S307	1-572-662-41	SWITCH, ROTARY (▶/ /CLEAR SCAN)			

*	1-636-182-11	HP-75 BOARD	*****		
< CAPACITOR >					
C101	1-124-478-11	ELECT	100uF	20%	25V
C102	1-124-478-11	ELECT	100uF	20%	25V
< CONNECTOR >					
CN101	1-506-471-11	CONNECTOR 6P, MALE			
< JACK >					
CNJ101	1-507-796-71	JACK (PHONES)			
< IC >					
IC101	8-759-701-45	IC NJM4560S-D			
< RESISTOR >					
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
< VARIABLE RESISTOR >					
RV101	1-238-612-11	RES, VAR (LEVEL)			

LS-32

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Ref. No.	Part No.	Description	Remark
*	1-636-185-11	LS-32 BOARD *****	
	3-735-054-01	HOLDER, SENSOR < DIODE >	
D201	8-719-941-81	DIODE GL360 < TRANSISTOR >	
Q201	8-729-904-10	TRANSISTOR PT-360FS	

*	A-6421-498-A	MP-31 BOARD, COMPLETE (MDP-440) *****	
*	A-6421-727-A	MP-31 BOARD, COMPLETE (MDP-640D) *****	
*	A-6421-729-A	MP-31 BOARD, COMPLETE (MDP-740D) *****	
*	3-309-144-21	HEAT SINK	
	3-831-441-XX	CUSHION (5)	
	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3 < CAPACITOR >	
C101	1-124-360-00	ELECT 1000uF 20% 16V	
C102	1-124-472-11	ELECT 470uF 20% 10V (640D/740D)	
C102	1-126-176-11	ELECT 220uF 20% 10V (MDP-440)	
C103	1-163-115-00	CERAMIC CHIP 82PF 5% 50V	
C104	1-126-301-11	ELECT 1uF 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 47uF 20% 16V	
C108	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C109	1-126-154-11	ELECT 47uF 20% 6.3V	
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 10uF 20% 16V	
C121	1-126-157-11	ELECT 10uF 20% 16V	
C122	1-126-157-11	ELECT 10uF 20% 16V	
C123	1-130-495-00	MYLAR 0.1uF 5% 50V	
C124	1-163-038-00	CERAMIC CHIP 0.1uF 25V	

Ref. No.	Part No.	Description	Remark
C125	1-163-019-00	CERAMIC CHIP 0.0068uF 10% 50V	
C126	1-124-589-11	ELECT 47uF 20% 16V	
C127	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C128	1-124-126-00	ELECT 47uF 20% 10V	
C129	1-163-035-00	CERAMIC CHIP 0.047uF 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	1-126-301-11	ELECT 1uF 20% 50V	
C134	1-126-301-11	ELECT 1uF 20% 50V	
C135	1-124-442-00	ELECT 330uF 20% 6.3V	
C136	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C137	1-163-129-00	CERAMIC CHIP 330PF 5% 50V	
C138	1-163-113-00	CERAMIC CHIP 68PF 5% 50V	
C139	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C140	1-163-125-00	CERAMIC CHIP 220PF 5% 50V	
C141	1-163-115-00	CERAMIC CHIP 82PF 5% 50V	
C142	1-126-301-11	ELECT 1uF 20% 50V	
C143	1-126-157-11	ELECT 10uF 20% 16V (640D/740D)	
C144	1-163-123-00	CERAMIC CHIP 180PF 5% 50V (640D/740D)	
C145	1-126-157-11	ELECT 10uF 20% 16V (640D/740D)	
C146	1-163-123-00	CERAMIC CHIP 180PF 5% 50V	
C147	1-124-443-00	ELECT 100uF 20% 10V	
C148	1-163-131-00	CERAMIC CHIP 390PF 5% 50V	
C149	1-163-103-00	CERAMIC CHIP 27PF 5% 50V (640D/740D)	
C150	1-163-105-00	CERAMIC CHIP 33PF 5% 50V (640D/740D)	
C150	1-163-107-00	CERAMIC CHIP 39PF 5% 50V (MDP-440)	
C151	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C152	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C153	1-124-257-00	ELECT 2.2uF 20% 50V	
C154	1-124-126-00	ELECT 47uF 20% 10V	
C156	1-124-443-00	ELECT 100uF 20% 10V	
C157	1-124-257-00	ELECT 2.2uF 20% 50V	
C158	1-124-471-00	ELECT 1000uF 20% 6.3V	
C159	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C160	1-130-483-00	MYLAR 0.01uF 5% 50V	
C161	1-131-347-00	TANTALUM 1uF 10% 35V	
C162	1-130-487-00	MYLAR 0.022uF 5% 50V	
C163	1-163-107-00	CERAMIC CHIP 39PF 5% 50V	
C164	1-163-099-00	CERAMIC CHIP 18PF 5% 50V	
C165	1-163-101-00	CERAMIC CHIP 22PF 5% 50V	
C166	1-124-442-00	ELECT 330uF 20% 6.3V	
C167	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C168	1-126-301-11	ELECT 1uF 20% 50V	
C169	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C170	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C171	1-124-442-00	ELECT 330uF 20% 6.3V	
C174	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C175	1-163-101-00	CERAMIC CHIP 22PF 5% 50V	

Ref. No.	Part No.	Description	Remark
C176	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C177	1-163-109-00	CERAMIC CHIP	47PF 5% 50V
C178	1-163-109-00	CERAMIC CHIP	47PF 5% 50V
C179	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C180	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C181	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C182	1-163-035-00	CERAMIC CHIP	0.047uF 50V
C183	1-124-126-00	ELECT	47uF 20% 10V
C184	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C185	1-163-121-00	CERAMIC CHIP	150PF 5% 50V
C186	1-163-035-00	CERAMIC CHIP	0.047uF 50V
C187	1-163-088-00	CERAMIC CHIP	5PF 50V (640D/740D)
C188	1-163-095-00	CERAMIC CHIP	12PF 5% 50V (640D/740D)
C188	1-163-099-00	CERAMIC CHIP	18PF 5% 50V (MDP-440)
C189	1-163-035-00	CERAMIC CHIP	0.047uF 50V
C190	1-126-154-11	ELECT	47uF 20% 6.3V
C191	1-163-038-00	CERAMIC CHIP	0.1uF 25V (640D/740D)
C192	1-163-038-00	CERAMIC CHIP	0.1uF 25V (640D/740D)
C193	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C195	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C196	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C200	1-163-035-00	CERAMIC CHIP	0.047uF 50V
C201	1-130-480-00	MYLAR	0.0056uF 5% 50V
C202	1-130-474-00	MYLAR	0.0018uF 5% 50V
C203	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C204	1-130-483-00	MYLAR	0.01uF 5% 50V
C205	1-130-489-00	MYLAR	0.033uF 5% 50V
C206	1-163-117-00	CERAMIC CHIP	100PF 5% 50V
C207	1-163-105-00	CERAMIC CHIP	33PF 5% 50V
C208	1-164-232-11	CERAMIC CHIP	0.01uF 50V
C209	1-164-182-11	CERAMIC CHIP	0.0033uF 10% 50V
C210	1-163-035-00	CERAMIC CHIP	0.047uF 50V
C211	1-124-589-11	ELECT	47uF 20% 16V
C212	1-163-017-00	CERAMIC CHIP	0.0047uF 10% 50V (MDP-440)
C212	1-163-022-00	CERAMIC CHIP	0.012uF 10% 50V (640D/740D)
C213	1-163-139-00	CERAMIC CHIP	820PF 5% 50V
C214	1-126-154-11	ELECT	47uF 20% 6.3V
C215	1-163-035-00	CERAMIC CHIP	0.047uF 50V
C216	1-163-119-00	CERAMIC CHIP	120PF 5% 50V
C217	1-163-119-00	CERAMIC CHIP	120PF 5% 50V
C218	1-126-301-11	ELECT	1uF 20% 50V
C219	1-163-101-00	CERAMIC CHIP	22PF 5% 50V
C220	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C222	1-163-035-00	CERAMIC CHIP	0.047uF 50V
C223	1-163-119-00	CERAMIC CHIP	120PF 5% 50V
C224	1-126-154-11	ELECT	47uF 20% 6.3V
C225	1-163-035-00	CERAMIC CHIP	0.047uF 50V
C226	1-126-154-11	ELECT	47uF 20% 6.3V
C229	1-130-495-00	MYLAR	0.1uF 5% 50V

Ref. No.	Part No.	Description	Remark
C230	1-130-491-00	MYLAR	0.047uF 5% 50V
C231	1-124-257-00	ELECT	2.2uF 20% 50V
C232	1-126-301-11	ELECT	1uF 20% 50V
C233	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C234	1-163-117-00	CERAMIC CHIP	100PF 5% 50V
C235	1-130-489-00	MYLAR	0.033uF 5% 50V
C236	1-130-486-00	MYLAR	0.018uF 10% 50V
C237	1-163-117-00	CERAMIC CHIP	100PF 5% 50V
C238	1-163-117-00	CERAMIC CHIP	100PF 5% 50V
C239	1-130-483-00	MYLAR	0.01uF 5% 50V
C240	1-124-443-00	ELECT	100uF 20% 10V
C241	1-163-035-00	CERAMIC CHIP	0.047uF 50V
C242	1-164-182-11	CERAMIC CHIP	0.0033uF 10% 50V
C243	1-130-483-00	MYLAR	0.01uF 5% 50V
C244	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C245	1-163-035-00	CERAMIC CHIP	0.047uF 50V
C246	1-163-035-00	CERAMIC CHIP	0.047uF 50V
C247	1-126-154-11	ELECT	47uF 20% 6.3V
C248	1-126-301-11	ELECT	1uF 20% 50V
C249	1-130-491-00	MYLAR	0.047uF 5% 50V
C250	1-124-257-00	ELECT	2.2uF 20% 50V
C251	1-126-154-11	ELECT	47uF 20% 6.3V
C252	1-124-443-00	ELECT	100uF 20% 10V
C253	1-163-125-00	CERAMIC CHIP	220PF 5% 50V
C254	1-163-035-00	CERAMIC CHIP	0.047uF 50V
C255	1-126-154-11	ELECT	47uF 20% 6.3V
C256	1-163-117-00	CERAMIC CHIP	100PF 5% 50V (640D/740D)
C257	1-124-443-00	ELECT	100uF 20% 10V
C258	1-163-035-00	CERAMIC CHIP	0.047uF 50V
C261	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C262	1-124-126-00	ELECT	47uF 20% 10V
C270	1-124-126-00	ELECT	47uF 20% 10V
C271	1-163-035-00	CERAMIC CHIP	0.047uF 50V
C272	1-163-105-00	CERAMIC CHIP	33PF 5% 50V
C273	1-163-035-00	CERAMIC CHIP	0.047uF 50V
C274	1-163-035-00	CERAMIC CHIP	0.047uF 50V
C275	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C276	1-124-589-11	ELECT	47uF 20% 16V
C277	1-163-093-00	CERAMIC CHIP	10PF 5% 50V
C279	1-124-442-00	ELECT	330uF 20% 6.3V
C280	1-124-442-00	ELECT	330uF 20% 6.3V
C281	1-163-103-00	CERAMIC CHIP	27PF 5% 50V
C282	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C283	1-163-103-00	CERAMIC CHIP	27PF 5% 50V
C284	1-163-103-00	CERAMIC CHIP	27PF 5% 50V
C285	1-163-103-00	CERAMIC CHIP	27PF 5% 50V
C286	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C287	1-126-157-11	ELECT	10uF 20% 16V

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Ref. No.	Part No.	Description	Remark
C288	1-163-101-00	CERAMIC CHIP 22PF	5% 50V
C289	1-163-113-00	CERAMIC CHIP 68PF	5% 50V
C290	1-163-113-00	CERAMIC CHIP 68PF	5% 50V
C291	1-163-101-00	CERAMIC CHIP 22PF	5% 50V
C292	1-163-113-00	CERAMIC CHIP 68PF	5% 50V
C293	1-163-101-00	CERAMIC CHIP 22PF	5% 50V
C294	1-163-031-11	CERAMIC CHIP 0.01uF	50V (640D/740D)
C295	1-163-031-11	CERAMIC CHIP 0.01uF	50V (640D/740D)
C297	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C298	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C299	1-126-157-11	ELECT 10uF	20% 16V
C300	1-126-157-11	ELECT 10uF	20% 16V
C301	1-163-131-00	CERAMIC CHIP 390PF	5% 50V
C302	1-163-109-00	CERAMIC CHIP 47PF	5% 50V
C303	1-163-103-00	CERAMIC CHIP 27PF	5% 50V
C310	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C311	1-163-125-00	CERAMIC CHIP 220PF	5% 50V
C312	1-163-125-00	CERAMIC CHIP 220PF	5% 50V
C313	1-124-443-00	ELECT 100uF	20% 10V
C314	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C601	1-163-125-00	CERAMIC CHIP 220PF	5% 50V
C602	1-124-257-00	ELECT 2.2uF	20% 50V
C603	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C604	1-163-237-11	CERAMIC CHIP 27PF	5% 50V
C605	1-163-237-11	CERAMIC CHIP 27PF	5% 50V
C606	1-163-111-00	CERAMIC CHIP 56PF	5% 50V
C607	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C608	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C609	1-124-589-11	ELECT 47uF	20% 16V
C610	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C611	1-124-589-11	ELECT 47uF	20% 16V
C612	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C613	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
C614	1-163-125-00	CERAMIC CHIP 220PF	5% 50V
C615	1-126-163-11	ELECT 4.7uF	20% 50V
C616	1-163-237-11	CERAMIC CHIP 27PF	5% 50V
C617	1-163-227-11	CERAMIC CHIP 10PF	5% 50V
C618	1-163-133-00	CERAMIC CHIP 470PF	5% 50V
C619	1-163-239-11	CERAMIC CHIP 33PF	5% 50V
C620	1-163-243-11	CERAMIC CHIP 47PF	5% 50V
C621	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C622	1-126-157-11	ELECT 10uF	20% 16V
C623	1-163-037-11	CERAMIC CHIP 0.022uF	10% 25V
C624	1-163-101-00	CERAMIC CHIP 22PF	5% 50V
C625	1-124-589-11	ELECT 47uF	20% 16V
C626	1-126-177-11	ELECT 100uF	20% 10V
C627	1-163-019-00	CERAMIC CHIP 0.0068uF	10% 50V
C628	1-126-301-11	ELECT 1uF	20% 50V
C629	1-126-177-11	ELECT 100uF	20% 10V

Ref. No.	Part No.	Description	Remark
C630	1-163-121-00	CERAMIC CHIP 150PF	5% 50V
C631	1-163-017-00	CERAMIC CHIP 0.0047uF	5% 50V
C632	1-126-177-11	ELECT 100uF	20% 10V
C634	1-163-129-00	CERAMIC CHIP 330PF	5% 50V
C635	1-163-113-00	CERAMIC CHIP 68PF	5% 50V
C636	1-126-177-11	ELECT 100uF	20% 10V
C637	1-164-161-11	CERAMIC CHIP 0.0022uF	10% 100V
C638	1-124-499-11	ELECT, NONPOLAR 1uF	20% 50V
C639	1-163-989-11	CERAMIC CHIP 0.033uF	10% 25V
C640	1-126-177-11	ELECT 100uF	20% 10V
C641	1-124-465-00	ELECT 0.47uF	20% 50V
C642	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C643	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C644	1-164-182-11	CERAMIC CHIP 0.0033uF	10% 50V
C645	1-163-986-00	CERAMIC CHIP 0.027uF	10% 25V
C646	1-126-177-11	ELECT 100uF	20% 10V
C647	1-126-301-11	ELECT 1uF	20% 50V
C648	1-163-222-11	CERAMIC CHIP 5PF	0.25PF 50V
C649	1-163-235-11	CERAMIC CHIP 22PF	5% 50V
C650	1-163-105-00	CERAMIC CHIP 33PF	5% 50V
C651	1-126-177-11	ELECT 100uF	20% 10V
C652	1-126-163-11	ELECT 4.7uF	20% 50V
C653	1-164-182-11	CERAMIC CHIP 0.0033uF	10% 50V
C654	1-163-245-11	CERAMIC CHIP 56PF	5% 50V
C655	1-126-163-11	ELECT 4.7uF	20% 50V
C656	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C657	1-124-589-11	ELECT 47uF	20% 16V
C658	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C659	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C660	1-126-177-11	ELECT 100uF	20% 10V
C661	1-124-598-11	ELECT 22uF	20% 25V
C662	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C663	1-164-182-11	CERAMIC CHIP 0.0033uF	10% 50V
C664	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C665	1-126-157-11	ELECT 10uF	20% 16V
C666	1-126-157-11	ELECT 10uF	20% 16V
C667	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C668	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C669	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C670	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C671	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C672	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C673	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C674	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C677	1-163-113-00	CERAMIC CHIP 68PF	5% 50V
C801	1-124-768-11	ELECT 4.7uF	20% 50V
C802	1-124-767-00	ELECT 2.2uF	20% 50V
C803	1-124-126-00	ELECT 47uF	20% 10V
C804	1-124-126-00	ELECT 47uF	20% 10V

Ref. No.	Part No.	Description	Remark
C805	1-126-320-11	ELECT, NONPOLAR 10uF	20% 16V
C806	1-163-077-00	CERAMIC CHIP 0.1uF	10% 25V
C807	1-163-020-00	CERAMIC CHIP 0.0082uF	10% 50V
C808	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C809	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C810	1-163-235-11	CERAMIC CHIP 22PF	5% 50V
C811	1-163-235-11	CERAMIC CHIP 22PF	5% 50V
C812	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C815	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C816	1-124-126-00	ELECT 47uF	20% 10V
C817	1-124-126-00	ELECT 47uF	20% 10V
C818	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C819	1-163-023-00	CERAMIC CHIP 0.015uF	5% 50V
C820	1-124-907-11	ELECT 10uF	20% 50V
C821	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C822	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C823	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C824	1-164-161-11	CERAMIC CHIP 0.0022uF	10% 100V
C825	1-164-161-11	CERAMIC CHIP 0.0022uF	10% 100V
C826	1-163-241-11	CERAMIC CHIP 39PF	5% 50V
C827	1-163-106-00	CERAMIC CHIP 36PF	5% 50V
C828	1-163-257-11	CERAMIC CHIP 180PF	5% 50V
C829	1-163-133-00	CERAMIC CHIP 470PF	5% 50V
C832	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C840	1-124-443-00	ELECT 100uF	20% 10V
C841	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C842	1-124-443-00	ELECT 100uF	20% 10V
C843	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C844	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C845	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C850	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C851	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C860	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C901	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C902	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C904	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C905	1-126-163-11	ELECT 4.7uF	20% 50V
C906	1-126-049-11	ELECT 22uF	20% 10V
C907	1-126-163-11	ELECT 4.7uF	20% 50V
C908	1-126-049-11	ELECT 22uF	20% 25V
C909	1-126-163-11	ELECT 4.7uF	20% 50V
C910	1-126-163-11	ELECT 4.7uF	20% 50V
C911	1-126-049-11	ELECT 22uF	20% 10V
C912	1-126-163-11	ELECT 4.7uF	20% 50V
C913	1-126-049-11	ELECT 22uF	20% 25V
C914	1-126-163-11	ELECT 4.7uF	20% 50V
C915	1-136-250-11	FILM 0.001uF	3% 100V
C916	1-136-232-11	FILM 0.0043uF	3% 100V
C917	1-136-250-11	FILM 0.001uF	3% 100V

Ref. No.	Part No.	Description	Remark
C918	1-126-023-11	ELECT 100uF	20% 25V
C919	1-126-060-11	ELECT 22uF	20% 63V
C920	1-136-250-11	FILM 0.001uF	3% 100V
C921	1-126-023-11	ELECT 100uF	20% 25V
C922	1-136-250-11	FILM 0.001uF	3% 100V
C923	1-136-232-11	FILM 0.0043uF	3% 100V
C924	1-136-250-11	FILM 0.001uF	3% 100V
C925	1-126-023-11	ELECT 100uF	20% 25V
C926	1-126-060-11	ELECT 22uF	20% 63V
C927	1-136-250-11	FILM 0.001uF	3% 100V
C928	1-126-023-11	ELECT 100uF	20% 25V
C929	1-124-563-11	ELECT 2200uF	20% 25V
C930	1-124-563-11	ELECT 2200uF	20% 25V
C932	1-124-126-00	ELECT 47uF	20% 10V
C933	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C934	1-126-013-11	ELECT 1000uF	20% 16V
C935	1-126-013-11	ELECT 1000uF	20% 16V
C936	1-126-044-11	ELECT 1uF	20% 50V
C937	1-124-478-11	ELECT 100uF	20% 25V
C938		0.047uF	
C938	1-163-035-00	CERAMIC CHIP 0.0049uF	50V (MDP-440)
C939	1-164-182-11	CERAMIC CHIP 0.0033uF	10% 50V
C940	1-126-013-11	ELECT 1000uF	20% 16V
C941	1-126-013-11	ELECT 1000uF	20% 16V
C942	1-124-477-11	ELECT 47uF	20% 25V
C943	1-163-019-00	CERAMIC CHIP 0.0068uF	10% 50V
C950	1-126-177-11	ELECT 100uF	20% 10V
C951	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C952	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C953	1-126-320-11	ELECT, NONPOLAR 10uF	20% 16V
C960	1-124-997-11	ELECT 470uF	20% 6.3V
		< FILTER >	
CF101	1-567-657-11	FILTER, CERAMIC (SFS-MC TYPE)	
CF102	1-527-831-00	FILTER, CERAMIC (MDP-640D/740D)	
		< CONNECTOR >	
* CN101	1-566-706-11	CONNECTOR, BOARD TO BOARD 12P	(640D/740D)
* CN601	1-564-032-00	PIN, CONNECTOR 7P	
CN602	1-563-493-11	CONNECTOR, F.P.C 28P	
CN603	1-506-483-21	CONNECTOR 4P, MALE	
CN604	1-506-484-11	CONNECTOR 5P, MALE	
CN605	1-506-486-11	PIN, CONNECTOR 7P	
CN606	1-506-481-11	CONNECTOR 2P, MALE	
CN607	1-506-482-11	CONNECTOR 3P, MALE	
CN608	1-506-481-11	CONNECTOR 2P, MALE	
* CN801	1-566-706-11	CONNECTOR, BOARD TO BOARD 12P	
* CN802	1-564-028-00	PIN, CONNECTOR 3P	

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Ref. No.	Part No.	Description	Remark
CN803	1-506-471-11	CONNECTOR 6P, MALE	
		< JACK >	
CNJ101	1-561-534-82	SOCKET 21P	
CNJ102	1-565-351-41	JACK, PIN 3P (LINE OUT)	
CNJ103	8-759-977-71	IC GP-1F31T (DIGITAL OUT OPTICAL)	
		< TRIMMER >	
CV601	1-141-227-00	CAP, TRIMMER 20PF	
CV602	1-141-227-00	CAP, TRIMMER 20PF	
CV603	1-141-297-11	CAP, TRIMMER 90PF	
		< DIODE >	
D101	8-719-110-33	DIODE RD12ES-B3	
D104	8-719-911-19	DIODE 1SS119	
D105	8-719-911-19	DIODE 1SS119	
D106	8-719-106-08	DIODE RD6. 2M-B2	
D601	8-719-911-19	DIODE 1SS119	
D602	8-719-911-19	DIODE 1SS119	
D603	8-719-911-19	DIODE 1SS119	
D604	8-719-907-19	DIODE FC52M-5	
D608	8-719-911-19	DIODE 1SS119	
D609	8-719-911-19	DIODE 1SS119	
D610	8-719-911-19	DIODE 1SS119	
D611	8-719-110-03	DIODE RD7. 5ES-B2	
D612	8-719-911-19	DIODE 1SS119	
D613	8-719-911-19	DIODE 1SS119	
D801	8-719-902-79	DIODE KV1236Z	
D802	8-719-907-19	DIODE FC52M-5	
D803	8-719-907-19	DIODE FC52M-5	
D804	8-719-911-19	DIODE 1SS119	
D805	8-719-911-19	DIODE 1SS119	
D806	8-719-400-18	DIODE MA152WK	
D807	8-719-400-18	DIODE MA152WK	
D808	8-719-400-18	DIODE MA152WK	
D811	8-719-911-19	DIODE 1SS119	
D812	8-719-911-19	DIODE 1SS119	
D813	8-719-911-19	DIODE 1SS119	
D815	8-719-911-19	DIODE 1SS119	
D820	8-719-200-91	DIODE 11EQS10	
D821	8-719-200-91	DIODE 11EQS10	
D822	8-719-200-91	DIODE 11EQS10	
D823	8-719-200-91	DIODE 11EQS10	
D903	8-719-911-19	DIODE 1SS119	
D910	8-719-911-19	DIODE 1SS119	
D911	8-719-911-19	DIODE 1SS119	

Ref. No.	Part No.	Description	Remark
		< FILTER >	
FL101	1-236-580-11	FILTER, LOW PASS	
FL102	1-235-943-11	BPF (MDP-640D/740D)	
FL103	1-236-262-11	FILTER, BAND PASS	
FL104	1-236-580-11	FILTER, LOW PASS	
FL105	1-409-431-11	COIL, TRAP (MDP-640D/740D)	
FL106	1-409-447-11	COIL, TRAP	
FL601	1-421-927-21	FILTER, NOISE	
FL602	1-235-922-11	FILTER, LOW PASS (1.7MHZ)	
FL603	1-421-927-21	FILTER, NOISE	
FL801	1-424-031-11	FILTER, NOISE	
FL802	1-424-031-11	FILTER, NOISE	
FL803	1-424-031-11	FILTER, NOISE	
FL804	1-424-031-11	FILTER, NOISE	
FL805	1-424-031-11	FILTER, NOISE	
FL806	1-424-031-11	FILTER, NOISE	
FL807	1-424-031-11	FILTER, NOISE	
FL808	1-424-031-11	FILTER, NOISE	
FL809	1-424-031-11	FILTER, NOISE	
FL810	1-424-031-11	FILTER, NOISE	
FL811	1-424-031-11	FILTER, NOISE	
FL812	1-424-031-11	FILTER, NOISE	
		< IC >	
IC101	8-759-982-10	IC RC7809FA	
IC102	8-759-941-68	IC BA7131F	
IC103	8-759-941-68	IC BA7131F (MDP-640D/740D)	
IC104	8-752-006-12	IC CX20061	
IC105	8-752-322-34	IC CXL5003M	
IC106	8-752-055-36	IC CXA1254Q	
IC107	8-759-941-68	IC BA7131F (MDP-640D/740D)	
IC108	8-759-907-81	IC SN74LS221NS	
IC109	8-759-502-69	IC CXD1152-MS	
IC110	8-759-100-95	IC uPC324G2	
IC111	8-752-055-37	IC CXA1255Q	
IC113	8-759-233-64	IC TC74HC004AF	
IC601	8-759-305-28	IC HD74HC4040EP	
IC602	8-759-941-68	IC BA7131F	
IC603	8-759-634-74	IC M50455-080FP	
IC604	8-759-300-71	IC TC4053BF (MDP-640D/740D)	
IC605	8-759-902-88	IC SN74LS123NS	
IC606	8-759-009-19	IC MC14081BF	
IC607	8-759-981-65	IC LM2903M	
IC608	8-759-207-28	IC TC9015P	
IC609	8-759-300-71	IC HD14053BFP	
IC610	8-759-603-24	IC CX20197	
IC611	8-759-300-71	IC HD14053BFP	
IC612	8-752-033-14	IC CXA1081Q	

Ref. No.	Part No.	Description	Remark
IC613	8-759-505-67	IC MB89795-127	
IC614	8-759-987-71	IC MSM72H032GS-K	
IC615	8-759-100-96	IC uPC4558G2	
IC616	8-759-008-67	IC MC14066BF	
IC617	8-759-100-96	IC uPC4558G2	
IC618	8-759-231-92	IC TA7291P	
IC619	8-759-201-53	IC TC40H000F	
IC620	8-759-009-06	IC MC14052BF	
IC621	8-759-300-71	IC TC4053BF	
IC801	8-752-325-59	IC CXD1165Q	
IC802	8-759-908-17	IC TL082CPS	
IC803	8-759-908-17	IC TL082CPS	
IC805	8-759-927-29	IC SN74HCU04ANS	
IC809	8-759-008-67	IC MC14066BF	
IC811	8-752-328-61	IC CXD1244S	
IC812	8-759-926-17	IC SN74HC153ANS	
IC813	8-759-925-90	IC SN74HC74ANS	
IC814	8-759-982-44	IC RC79L05AA	
△IC816	8-759-231-53	IC M5F7805	
IC817	8-759-979-09	IC PCM58P	
IC818	8-759-979-09	IC PCM58P	
IC819	8-759-982-03	IC RC5532D-D	
IC820	8-759-982-03	IC RC5532D-D	
IC821	8-759-231-58	IC M5F7812L	
IC822	8-759-245-86	IC TA7912S	
IC823	8-759-981-92	IC RC4558M	
IC824	8-759-233-74	IC TC74HCU04F	
< JUMPER RESISTOR >			
JR101	1-216-295-00	METAL GLAZE 0 5% 1/10W (MDP-440)	
JR102	1-216-295-00	METAL GLAZE 0 5% 1/10W (MDP-440)	
JR103	1-216-295-00	METAL GLAZE 0 5% 1/10W (MDP-440)	
JR601	1-216-295-00	METAL GLAZE 0 5% 1/10W (MDP-440)	
JR602	1-216-295-00	METAL GLAZE 0 5% 1/10W (MDP-440)	
JR603	1-216-295-00	METAL GLAZE 0 5% 1/10W (MDP-440)	
JR604	1-216-295-00	METAL GLAZE 0 5% 1/10W (MDP-440)	
< COIL >			
L101	1-408-421-00	INDUCTOR 100uH	
L102	1-408-421-00	INDUCTOR 100uH	
L103	1-408-417-00	INDUCTOR 47uH	
L104	1-408-417-00	INDUCTOR 47uH	
L105	1-408-419-00	INDUCTOR 68uH	
L106	1-408-417-00	INDUCTOR 47uH	
L107	1-408-411-00	INDUCTOR 15uH	
L108	1-408-419-00	INDUCTOR 68uH	
L109	1-408-609-41	INDUCTOR 33uH	
L110	1-408-421-00	INDUCTOR 100uH	

Ref. No.	Part No.	Description	Remark
L111	1-408-425-00	INDUCTOR 220uH	
L112	1-408-417-00	INDUCTOR 47uH	
L113	1-408-421-00	INDUCTOR 100uH	
L114	1-408-421-00	INDUCTOR 100uH	
L115	1-408-609-41	INDUCTOR 33uH	
L116	1-408-421-00	INDUCTOR 100uH	
L117	1-408-421-00	INDUCTOR 100uH	
L118	1-408-421-00	INDUCTOR 100uH	
L119	1-408-424-00	INDUCTOR 180uH	
L120	1-408-421-00	INDUCTOR 100uH	
L123	1-408-421-00	INDUCTOR 100uH	
L124	1-408-417-00	INDUCTOR 47uH	
L125	1-408-421-00	INDUCTOR 100uH	
L601	1-408-411-00	INDUCTOR 15uH	
L602	1-408-421-00	INDUCTOR 100uH	
L603	1-408-409-00	INDUCTOR 10uH	
L604	1-408-420-00	INDUCTOR 82uH	
L605	1-408-420-00	INDUCTOR 82uH	
L606	1-408-409-00	INDUCTOR 10uH	
L608	1-408-409-00	INDUCTOR 10uH	
L609	1-408-409-00	INDUCTOR 10uH	
L803	1-424-033-21	FILTER, NOISE	
L805	1-424-033-21	FILTER, NOISE	
< VALIABLE COIL >			
LV801	1-426-212-11	COIL (RF)	
< TRANSISTOR >			
Q101	8-729-100-66	TRANSISTOR 2SC1623	
Q102	8-729-100-66	TRANSISTOR 2SC1623	
Q103	8-729-100-66	TRANSISTOR 2SC1623	
Q104	8-729-100-66	TRANSISTOR 2SC1623	
Q105	8-729-100-66	TRANSISTOR 2SC1623	
Q106	8-729-100-66	TRANSISTOR 2SC1623	
Q107	8-729-100-66	TRANSISTOR 2SC1623	
Q108	8-729-100-66	TRANSISTOR 2SC1623	
Q109	8-729-216-22	TRANSISTOR 2SA1162	
Q110	8-729-100-66	TRANSISTOR 2SC1623	
Q111	8-729-100-66	TRANSISTOR 2SC1623	
Q112	8-729-100-66	TRANSISTOR 2SC1623	
Q114	8-729-100-66	TRANSISTOR 2SC1623	
Q115	8-729-100-66	TRANSISTOR 2SC1623 (MDP-640D/740D)	
Q116	8-729-100-66	TRANSISTOR 2SC1623 (MDP-640D/740D)	
Q117	8-729-100-66	TRANSISTOR 2SC1623	
Q118	8-729-100-66	TRANSISTOR 2SC1623	
Q119	8-729-100-66	TRANSISTOR 2SC1623	
Q120	8-729-901-01	TRANSISTOR DTC144EK (MDP-640D/740D)	
Q121	8-729-100-66	TRANSISTOR 2SC1623	

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

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Ref. No.	Part No.	Description	Remark
Q122	8-729-100-66	TRANSISTOR	2SC1623
Q123	8-729-901-01	TRANSISTOR	DTC144EK (MDP-640D/740D)
Q124	8-729-901-01	TRANSISTOR	DTC144EK (MDP-640D/740D)
Q125	8-729-901-01	TRANSISTOR	DTC144EK (MDP-640D/740D)
Q126	8-729-216-22	TRANSISTOR	2SA1162
Q128	8-729-100-66	TRANSISTOR	2SC1623 (MDP-640D/740D)
Q129	8-729-100-66	TRANSISTOR	2SC1623
Q134	8-729-901-05	TRANSISTOR	DTA124EK
Q135	8-729-901-01	TRANSISTOR	DTC144EK (MDP-640D/740D)
Q136	8-729-901-01	TRANSISTOR	DTC144EK (MDP-640D/740D)
Q137	8-729-100-66	TRANSISTOR	2SC1623
Q138	8-729-140-75	TRANSISTOR	2SD999-CLCK
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
Q148	8-729-216-22	TRANSISTOR	2SA1162
Q150	8-729-100-66	TRANSISTOR	2SC1623
Q151	8-729-901-01	TRANSISTOR	DTC144EK (MDP-640D/740D)
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-640D/740D)
Q165	8-729-100-66	TRANSISTOR	2SC1623 (MDP-640D/740D)
Q166	8-729-901-01	TRANSISTOR	DTC144EK
Q167	8-729-901-01	TRANSISTOR	DTC144EK (MDP-640D/740D)
Q168	8-729-100-66	TRANSISTOR	2SC1623
Q169	8-729-100-66	TRANSISTOR	2SC1623
Q170	8-729-216-22	TRANSISTOR	2SA1162
Q171	8-729-100-66	TRANSISTOR	2SC1623
Q172	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

Ref. No.	Part No.	Description	Remark
Q607	8-729-100-66	TRANSISTOR	2SC1623
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	2SC1623-17
Q803	8-729-900-53	TRANSISTOR	DTC114EK
Q804	8-729-900-53	TRANSISTOR	DTC114EK
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	8-729-202-38	TRANSISTOR	2SC3326N
Q813	8-729-202-38	TRANSISTOR	2SC3326N
Q814	8-729-901-05	TRANSISTOR	DTA124EK
Q815	8-729-901-05	TRANSISTOR	DTA124EK
< RESISTOR >			
△R101	1-212-950-00	FUSIBLE	4.7 5% 1/2W F
R102	1-216-059-00	METAL CHIP	2.7K 5% 1/10W
R103	1-216-049-00	METAL CHIP	1K 5% 1/10W
R104	1-216-051-00	METAL CHIP	1.2K 5% 1/10W
R105	1-216-049-00	METAL CHIP	1K 5% 1/10W
R106	1-216-049-00	METAL CHIP	1K 5% 1/10W
R107	1-216-045-00	METAL CHIP	680 5% 1/10W
R108	1-216-049-00	METAL CHIP	1K 5% 1/10W
R109	1-216-073-00	METAL CHIP	10K 5% 1/10W
R110	1-216-053-00	METAL CHIP	1.5K 5% 1/10W
R111	1-216-037-00	METAL CHIP	330 5% 1/10W
R112	1-216-041-00	METAL CHIP	470 5% 1/10W
R113	1-216-053-00	METAL CHIP	1.5K 5% 1/10W
R114	1-216-065-00	METAL CHIP	4.7K 5% 1/10W
R115	1-216-069-00	METAL CHIP	6.8K 5% 1/10W
R116	1-216-051-00	METAL CHIP	1.2K 5% 1/10W
R117	1-216-049-00	METAL CHIP	1K 5% 1/10W
R118	1-216-063-00	METAL CHIP	3.9K 5% 1/10W
R119	1-216-049-00	METAL CHIP	1K 5% 1/10W
R120	1-216-065-00	METAL CHIP	4.7K 5% 1/10W
R121	1-216-049-00	METAL CHIP	1K 5% 1/10W
R122	1-216-049-00	METAL CHIP	1K 5% 1/10W
R123	1-216-053-00	METAL CHIP	1.5K 5% 1/10W
R124	1-216-071-00	METAL CHIP	8.2K 5% 1/10W
R125	1-216-039-00	METAL CHIP	390 5% 1/10W

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		
R126	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R127	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R128	1-216-049-00	METAL CHIP	1K	5%	1/10W
R129	1-216-049-00	METAL CHIP	1K	5%	1/10W
R131	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R132	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R133	1-216-121-00	METAL CHIP	1M	5%	1/10W
R134	1-216-045-00	METAL CHIP	680	5%	1/10W
R135	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R136	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R140	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R141	1-216-073-00	METAL CHIP	10K	5%	1/10W
R142	1-216-049-00	METAL CHIP	1K	5%	1/10W (640D/740D)
R143	1-216-045-00	METAL CHIP	680	5%	1/10W (640D/740D)
R144	1-216-051-00	METAL CHIP	1.2K	5%	1/10W (640D/740D)
R145	1-216-061-00	METAL CHIP	3.3K	5%	1/10W (640D/740D)
R146	1-216-049-00	METAL CHIP	1K	5%	1/10W
R147	1-216-043-00	METAL CHIP	560	5%	1/10W
R148	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R149	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R150	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R151	1-216-025-00	METAL CHIP	100	5%	1/10W
R152	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R153	1-216-049-00	METAL CHIP	1K	5%	1/10W
R154	1-216-049-00	METAL CHIP	1K	5%	1/10W
R155	1-216-049-00	METAL CHIP	1K	5%	1/10W
R157	1-216-083-00	METAL CHIP	27K	5%	1/10W
R158	1-216-079-00	METAL CHIP	18K	5%	1/10W
R159	1-216-075-00	METAL CHIP	12K	5%	1/10W
R160	1-216-073-00	METAL CHIP	10K	5%	1/10W
R161	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R162	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R163	1-216-115-00	METAL CHIP	560K	5%	1/10W
R164	1-216-021-00	METAL CHIP	68	5%	1/10W
R165	1-249-410-11	CARBON	270	5%	1/4W
R166	1-216-021-00	METAL CHIP	68	5%	1/10W
R167	1-216-047-00	METAL CHIP	820	5%	1/10W (640D/740D)
R169	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R170	1-216-113-00	METAL CHIP	470K	5%	1/10W (640D/740D)
R171	1-216-097-00	METAL CHIP	100K	5%	1/10W
R172	1-216-748-11	METAL CHIP	39K	1%	1/10W
R175	1-216-041-00	METAL CHIP	470	5%	1/10W
R176	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R177	1-216-049-00	METAL CHIP	1K	5%	1/10W
R178	1-216-049-00	METAL CHIP	1K	5%	1/10W
R179	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R180	1-216-055-00	METAL CHIP	1.8K	5%	1/10W (640D/740D)
R181	1-216-057-00	METAL CHIP	2.2K	5%	1/10W (640D/740D)
R182	1-216-057-00	METAL CHIP	2.2K	5%	1/10W

Ref. No.	Part No.	Description	Remark		
R183	1-216-049-00	METAL CHIP	1K	5%	1/10W (640D/740D)
R184	1-216-049-00	METAL CHIP	1K	5%	1/10W
R185	1-216-081-00	METAL CHIP	22K	5%	1/10W
R186	1-216-081-00	METAL CHIP	22K	5%	1/10W
R190	1-216-039-00	METAL CHIP	390	5%	1/10W
R191	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R192	1-216-748-11	METAL CHIP	39K	1%	1/10W
R193	1-216-091-00	METAL CHIP	56K	5%	1/10W (640D/740D)
R195	1-216-043-00	METAL CHIP	560	5%	1/10W
R197	1-216-097-00	METAL CHIP	100K	5%	1/10W
R205	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R207	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R208	1-216-699-11	METAL CHIP	100K	0.5%	1/10W
R209	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R210	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R211	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R212	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R213	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R214	1-216-113-00	METAL CHIP	470K	5%	1/10W
R215	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R216	1-216-089-00	METAL CHIP	47K	5%	1/10W
R217	1-216-077-00	METAL CHIP	15K	5%	1/10W
R218	1-216-113-00	METAL CHIP	470K	5%	1/10W
R219	1-216-097-00	METAL CHIP	100K	5%	1/10W
R220	1-216-079-00	METAL CHIP	18K	5%	1/10W
R221	1-216-079-00	METAL CHIP	18K	5%	1/10W
R222	1-216-073-00	METAL CHIP	10K	5%	1/10W
R223	1-216-113-00	METAL CHIP	470K	5%	1/10W
R224	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R226	1-216-073-00	METAL CHIP	10K	5%	1/10W
R227	1-216-073-00	METAL CHIP	10K	5%	1/10W
R228	1-216-073-00	METAL CHIP	10K	5%	1/10W
R229	1-216-073-00	METAL CHIP	10K	5%	1/10W
R230	1-216-049-00	METAL CHIP	1K	5%	1/10W
R231	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R232	1-216-073-00	METAL CHIP	10K	5%	1/10W
R233	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R234	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R235	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R236	1-216-037-00	METAL CHIP	330	5%	1/10W
R237	1-216-079-00	METAL CHIP	18K	5%	1/10W
R238	1-216-081-00	METAL CHIP	22K	5%	1/10W
R239	1-216-115-00	METAL CHIP	560K	5%	1/10W (640D/740D)
R240	1-216-121-00	METAL CHIP	1M	5%	1/10W
R241	1-216-097-00	METAL CHIP	100K	5%	1/10W
R242	1-216-097-00	METAL CHIP	100K	5%	1/10W
R243	1-216-748-11	METAL CHIP	39K	1%	1/10W
R244	1-216-079-00	METAL CHIP	18K	5%	1/10W
R245	1-216-121-00	METAL CHIP	1M	5%	1/10W

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Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
R246	1-216-089-00	METAL CHIP	47K	5%	1/10W	R299	1-216-049-00	METAL CHIP	1K	5%	1/10W
R247	1-216-097-00	METAL CHIP	100K	5%	1/10W	R300	1-216-049-00	METAL CHIP	1K	5%	1/10W
R248	1-216-083-00	METAL CHIP	27K	5%	1/10W	R301	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R249	1-216-083-00	METAL CHIP	27K	5%	1/10W	R302	1-216-033-00	METAL CHIP	220	5%	1/10W
R250	1-216-113-00	METAL CHIP	470K	5%	1/10W	R303	1-216-033-00	METAL CHIP	220	5%	1/10W
R252	1-216-073-00	METAL CHIP	10K	5%	1/10W	R304	1-216-033-00	METAL CHIP	220	5%	1/10W
R252	1-216-075-00	METAL CHIP	12K	5%	1/10W	R305	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R253	1-216-097-00	METAL CHIP	100K	5%	1/10W	R306	1-216-033-00	METAL CHIP	220	5%	1/10W
R254	1-216-113-00	METAL CHIP	470K	5%	1/10W	R307	1-216-047-00	METAL CHIP	820	5%	1/10W
R255	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R308	1-216-081-00	METAL CHIP	22K	5%	1/10W
R256	1-216-095-00	METAL CHIP	82K	5%	1/10W	R309	1-216-748-11	METAL CHIP	39K	1%	1/10W
R257	1-216-113-00	METAL CHIP	470K	5%	1/10W	R310	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R258	1-216-049-00	METAL CHIP	1K	5%	1/10W	R311	1-216-033-00	METAL CHIP	220	5%	1/10W
R259	1-216-109-00	METAL CHIP	330K	5%	1/10W	R312	1-216-081-00	METAL CHIP	22K	5%	1/10W
R260	1-216-089-00	METAL CHIP	47K	5%	1/10W	R313	1-216-041-00	METAL CHIP	470	5%	1/10W
R261	1-216-065-00	METAL CHIP	4.7K	5%	1/10W (640D/740D)	R314	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R261	1-216-295-00	METAL GLAZE	0	5%	1/10W (MDP-440)	R316	1-216-085-00	METAL CHIP	33K	5%	1/10W
R262	1-216-109-00	METAL CHIP	330K	5%	1/10W (640D/740D)	R317	1-216-085-00	METAL CHIP	33K	5%	1/10W
R263	1-216-075-00	METAL CHIP	12K	5%	1/10W (640D/740D)	R318	1-216-097-00	METAL CHIP	100K	5%	1/10W
R264	1-216-748-11	METAL CHIP	39K	1%	1/10W (640D/740D)	R319	1-216-033-00	METAL CHIP	220	5%	1/10W
R265	1-216-079-00	METAL CHIP	18K	5%	1/10W	R320	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R266	1-216-077-00	METAL CHIP	15K	5%	1/10W	R321	1-216-047-00	METAL CHIP	820	5%	1/10W
R267	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	R322	1-216-085-00	METAL CHIP	33K	5%	1/10W
R268	1-216-295-00	METAL CHIP	0	5%	1/10W	R323	1-216-097-00	METAL CHIP	100K	5%	1/10W
R269	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	R324	1-216-097-00	METAL CHIP	100K	5%	1/10W
R270	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	R325	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R271	1-216-025-00	METAL CHIP	100	5%	1/10W	R326	1-216-085-00	METAL CHIP	33K	5%	1/10W
R272	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R327	1-216-073-00	METAL CHIP	10K	5%	1/10W
R273	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	R328	1-216-073-00	METAL CHIP	10K	5%	1/10W
R274	1-216-043-00	METAL CHIP	560	5%	1/10W	R329	1-216-049-00	METAL CHIP	1K	5%	1/10W
R275	1-216-049-00	METAL CHIP	1K	5%	1/10W	R330	1-216-047-00	METAL CHIP	820	5%	1/10W
R276	1-216-099-00	METAL CHIP	120K	5%	1/10W (640D/740D)	R331	1-216-049-00	METAL CHIP	1K	5%	1/10W
R277	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	R332	1-216-047-00	METAL CHIP	820	5%	1/10W
R278	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	R333	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R279	1-249-416-11	CARBON	820	5%	1/4W	R334	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R284	1-216-117-00	METAL CHIP	680K	5%	1/10W	R335	1-216-049-00	METAL CHIP	1K	5%	1/10W
R285	1-216-073-00	METAL CHIP	10K	5%	1/10W	R336	1-216-049-00	METAL CHIP	1K	5%	1/10W
R286	1-216-067-00	METAL CHIP	5.6K	5%	1/10W	R337	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R290	1-216-091-00	METAL CHIP	56K	5%	1/10W	R338	1-216-049-00	METAL CHIP	1K	5%	1/10W
R291	1-216-089-00	METAL CHIP	47K	5%	1/10W	R339	1-216-049-00	METAL CHIP	1K	5%	1/10W
R292	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	R340	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R293	1-216-049-00	METAL CHIP	1K	5%	1/10W (640D/740D)	R341	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R293	1-216-295-00	METAL GLAZE	0	5%	1/10W (MDP-440)	R342	1-216-121-00	METAL CHIP	1M	5%	1/10W
R294	1-216-035-00	METAL CHIP	270	5%	1/10W (640D/740D)	R343	1-216-121-00	METAL CHIP	1M	5%	1/10W
R294	1-216-295-00	METAL GLAZE	0	5%	1/10W (MDP-440)	R344	1-216-097-00	METAL CHIP	100K	5%	1/10W (640D/740D)
R295	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	R345	1-216-095-00	METAL CHIP	82K	5%	1/10W (640D/740D)
R296	1-216-049-00	METAL CHIP	1K	5%	1/10W	R346	1-216-097-00	METAL CHIP	100K	5%	1/10W (640D/740D)
R297	1-216-037-00	METAL CHIP	330	5%	1/10W	R347	1-216-095-00	METAL CHIP	82K	5%	1/10W (640D/740D)
R298	1-216-031-00	METAL CHIP	180	5%	1/10W	R348	1-216-065-00	METAL CHIP	4.7K	5%	1/10W (640D/740D)

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
R349	1-216-065-00	METAL CHIP	4.7K 5% 1/10W (640D/740D)	R630	1-216-101-00	METAL CHIP	150K 5% 1/10W
R350	1-216-047-00	METAL CHIP	820 5% 1/10W (640D/740D)	R631	1-216-025-00	METAL CHIP	100 5% 1/10W
R351	1-216-295-00	METAL CHIP	0 5% 1/10W (640D/740D)	R632	1-216-081-00	METAL CHIP	22K 5% 1/10W
R352	1-249-405-11	CARBON	100 5% 1/4W (640D/740D)	R633	1-216-081-00	METAL CHIP	22K 5% 1/10W
R353	1-216-049-00	METAL CHIP	1K 5% 1/10W	R634	1-216-113-00	METAL CHIP	470K 5% 1/10W
R354	1-216-033-00	METAL CHIP	220 5% 1/10W	R635	1-216-065-00	METAL CHIP	4.7K 5% 1/10W
R355	1-216-033-00	METAL CHIP	220 5% 1/10W	R636	1-216-121-00	METAL CHIP	1M 5% 1/10W
R356	1-216-295-00	METAL CHIP	0 5% 1/10W	R637	1-216-097-00	METAL CHIP	100K 5% 1/10W
R357	1-216-073-00	METAL CHIP	10K 5% 1/10W	R638	1-216-121-00	METAL CHIP	1M 5% 1/10W
R358	1-216-073-00	METAL CHIP	10K 5% 1/10W	R639	1-216-043-00	METAL CHIP	560 5% 1/10W
R359	1-216-041-00	METAL CHIP	470 5% 1/10W	R640	1-216-049-00	METAL CHIP	1K 5% 1/10W
R360	1-216-049-00	METAL CHIP	1K 5% 1/10W	R641	1-216-091-00	METAL CHIP	56K 5% 1/10W
R361	1-216-041-00	METAL CHIP	470 5% 1/10W	R642	1-216-061-00	METAL CHIP	3.3K 5% 1/10W
R362	1-216-059-00	METAL CHIP	2.7K 5% 1/10W	R643	1-216-055-00	METAL CHIP	1.8K 5% 1/10W
R370	1-216-073-00	METAL CHIP	10K 5% 1/10W	R644	1-216-053-00	METAL CHIP	1.5K 5% 1/10W
R371	1-216-073-00	METAL CHIP	10K 5% 1/10W	R645	1-216-091-00	METAL CHIP	56K 5% 1/10W
R372	1-216-065-00	METAL CHIP	4.7K 5% 1/10W	R646	1-216-099-00	METAL CHIP	120K 5% 1/10W
R373	1-216-073-00	METAL CHIP	10K 5% 1/10W	R647	1-216-051-00	METAL CHIP	1.2K 5% 1/10W
R374	1-216-073-00	METAL CHIP	10K 5% 1/10W	R648	1-216-053-00	METAL CHIP	1.5K 5% 1/10W
R375	1-216-097-00	METAL CHIP	100K 5% 1/10W	R649	1-216-035-00	METAL CHIP	270 5% 1/10W
R376	1-216-097-00	METAL CHIP	100K 5% 1/10W	R650	1-216-033-00	METAL CHIP	220 5% 1/10W
R377	1-216-073-00	METAL CHIP	10K 5% 1/10W	R651	1-216-049-00	METAL CHIP	1K 5% 1/10W
R601	1-216-049-00	METAL CHIP	1K 5% 1/10W	R652	1-216-049-00	METAL CHIP	1K 5% 1/10W
R602	1-216-049-00	METAL CHIP	1K 5% 1/10W	R653	1-216-049-00	METAL CHIP	1K 5% 1/10W
R603	1-216-049-00	METAL CHIP	1K 5% 1/10W	R654	1-216-049-00	METAL CHIP	1K 5% 1/10W
R604	1-216-037-00	METAL CHIP	330 5% 1/10W	R655	1-216-033-00	METAL CHIP	220 5% 1/10W
R605	1-216-049-00	METAL CHIP	1K 5% 1/10W	R656	1-216-033-00	METAL CHIP	220 5% 1/10W
R606	1-216-049-00	METAL CHIP	1K 5% 1/10W	R657	1-216-033-00	METAL CHIP	220 5% 1/10W
R607	1-216-033-00	METAL CHIP	220 5% 1/10W	R658	1-216-033-00	METAL CHIP	220 5% 1/10W
R608	1-216-037-00	METAL CHIP	330 5% 1/10W	R659	1-216-065-00	METAL CHIP	4.7K 5% 1/10W
R609	1-216-033-00	METAL CHIP	220 5% 1/10W	R660	1-216-049-00	METAL CHIP	1K 5% 1/10W
R610	1-216-049-00	METAL CHIP	1K 5% 1/10W	R664	1-216-033-00	METAL CHIP	220 5% 1/10W
R611	1-216-049-00	METAL CHIP	1K 5% 1/10W	R665	1-216-033-00	METAL CHIP	220 5% 1/10W
R612	1-216-049-00	METAL CHIP	1K 5% 1/10W	R666	1-216-033-00	METAL CHIP	220 5% 1/10W
R613	1-216-049-00	METAL CHIP	1K 5% 1/10W	R667	1-216-033-00	METAL CHIP	220 5% 1/10W
R614	1-216-097-00	METAL CHIP	100K 5% 1/10W	R668	1-216-033-00	METAL CHIP	220 5% 1/10W
R615	1-216-073-00	METAL CHIP	10K 5% 1/10W	R669	1-216-077-00	METAL CHIP	15K 5% 1/10W (640D/740D)
R616	1-216-085-00	METAL CHIP	33K 5% 1/10W	R669	1-216-089-00	METAL GLAZE	47K 5% 1/10W (MDP-440)
R617	1-216-089-00	METAL CHIP	47K 5% 1/10W	R670	1-216-651-11	METAL CHIP	1K 0.5% 1/10W
R618	1-216-041-00	METAL CHIP	470 5% 1/10W	R671	1-216-659-11	METAL CHIP	2.2K 0.5% 1/10W
R619	1-216-097-00	METAL CHIP	100K 5% 1/10W	R672	1-216-667-11	METAL CHIP	4.7K 0.5% 1/10W
R621	1-216-049-00	METAL CHIP	1K 5% 1/10W	R673	1-216-659-11	METAL CHIP	2.2K 0.5% 1/10W
R623	1-216-053-00	METAL CHIP	1.5K 5% 1/10W	R674	1-216-651-11	METAL CHIP	1K 0.5% 1/10W
R624	1-216-063-00	METAL CHIP	3.9K 5% 1/10W	R675	1-216-651-11	METAL CHIP	1K 0.5% 1/10W
R625	1-216-069-00	METAL CHIP	6.8K 5% 1/10W	R676	1-216-625-11	METAL CHIP	82 0.5% 1/10W
R626	1-216-095-00	METAL CHIP	82K 5% 1/10W	R677	1-216-645-11	METAL CHIP	560 0.5% 1/10W
R627	1-216-081-00	METAL CHIP	22K 5% 1/10W	R678	1-216-081-00	METAL CHIP	22K 5% 1/10W
R628	1-216-065-00	METAL CHIP	4.7K 5% 1/10W	R679	1-216-675-11	METAL CHIP	10K 0.5% 1/10W
R629	1-216-081-00	METAL CHIP	22K 5% 1/10W	R680	1-216-697-11	METAL CHIP	82K 0.5% 1/10W

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Ref. No.	Part No.	Description	Quantity	Percentage	Remark
R681	1-247-731-11	CARBON	22	5%	1/2W
R682	1-216-097-00	METAL CHIP	100K	5%	1/10W
R683	1-216-049-00	METAL CHIP	1K	5%	1/10W
R684	1-216-073-00	METAL CHIP	10K	5%	1/10W
R685	1-216-099-00	METAL CHIP	120K	5%	1/10W
R686	1-216-075-00	METAL CHIP	12K	5%	1/10W
R687	1-216-043-00	METAL CHIP	560	5%	1/10W
R688	1-216-073-00	METAL CHIP	10K	5%	1/10W
R689	1-216-049-00	METAL CHIP	1K	5%	1/10W
R690	1-216-073-00	METAL CHIP	10K	5%	1/10W
R691	1-216-049-00	METAL CHIP	1K	5%	1/10W
R692	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R693	1-216-081-00	METAL CHIP	22K	5%	1/10W
R694	1-216-121-00	METAL CHIP	1M	5%	1/10W
R695	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R696	1-216-093-00	METAL CHIP	68K	5%	1/10W
R697	1-216-085-00	METAL CHIP	33K	5%	1/10W
R698	1-216-097-00	METAL CHIP	100K	5%	1/10W
R699	1-216-085-00	METAL CHIP	33K	5%	1/10W
R700	1-216-077-00	METAL CHIP	15K	5%	1/10W
R701	1-216-105-00	METAL CHIP	220K	5%	1/10W
R702	1-216-083-00	METAL CHIP	27K	5%	1/10W
R703	1-216-073-00	METAL CHIP	10K	5%	1/10W
R704	1-216-111-00	METAL CHIP	390K	5%	1/10W
R705	1-216-077-00	METAL CHIP	15K	5%	1/10W
R706	1-216-101-00	METAL CHIP	150K	5%	1/10W (640D/740D)
R706	1-216-105-00	METAL GLAZE	220K	5%	1/10W (MDP-440)
R707	1-216-075-00	METAL CHIP	12K	5%	1/10W
R708	1-216-035-00	METAL CHIP	270	5%	1/10W
R709	1-216-096-00	METAL GLAZE	91K	5%	1/10W (640D/740D)
R709	1-216-105-00	METAL CHIP	220K	5%	1/10W
R710	1-216-089-00	METAL CHIP	47K	5%	1/10W
R711	1-216-111-00	METAL CHIP	390K	5%	1/10W
R712	1-216-105-00	METAL CHIP	220K	5%	1/10W
R713	1-216-071-00	METAL CHIP	8.2K	5%	1/10W (640D/740D)
R713	1-216-748-11	METAL GLAZE	39K	5%	1/10W (MDP-440)
R714	1-216-095-00	METAL CHIP	82K	5%	1/10W
R715	1-216-099-00	METAL CHIP	120K	5%	1/10W
R716	1-216-111-00	METAL CHIP	390K	5%	1/10W
R717	1-216-089-00	METAL CHIP	47K	5%	1/10W
R718	1-216-049-00	METAL CHIP	1K	5%	1/10W
R719	1-216-041-00	METAL CHIP	470	5%	1/10W
R720	1-216-033-00	METAL CHIP	220	5%	1/10W
R721	1-216-043-00	METAL CHIP	560	5%	1/10W
R722	1-216-045-00	METAL CHIP	680	5%	1/10W
R723	1-216-073-00	METAL CHIP	10K	5%	1/10W
R724	1-216-073-00	METAL CHIP	10K	5%	1/10W
R725	1-216-073-00	METAL CHIP	10K	5%	1/10W

Ref. No.	Part No.	Description	Quantity	Percentage	Remark
R726	1-216-073-00	METAL CHIP	10K	5%	1/10W
R727	1-216-073-00	METAL CHIP	10K	5%	1/10W
R728	1-216-033-00	METAL CHIP	220	5%	1/10W
R729	1-216-049-00	METAL CHIP	1K	5%	1/10W
R731	1-216-033-00	METAL CHIP	220	5%	1/10W
R732	1-216-033-00	METAL CHIP	220	5%	1/10W
R733	1-216-033-00	METAL CHIP	220	5%	1/10W
R734	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R735	1-216-081-00	METAL CHIP	22K	5%	1/10W
R736	1-216-081-00	METAL CHIP	22K	5%	1/10W
R737	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R738	1-216-081-00	METAL CHIP	22K	5%	1/10W
R739	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R740	1-216-021-00	METAL CHIP	68	5%	1/10W
△R741	1-212-950-00	FUSIBLE	4.7	5%	1/2W F
R742	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R743	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R744	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R745	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R746	1-216-101-00	METAL CHIP	150K	5%	1/10W
R747	1-216-675-11	METAL CHIP	10K	0.5%	1/10W
R748	1-216-683-11	METAL CHIP	22K	0.5%	1/10W
R749	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R750	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R751	1-216-113-00	METAL CHIP	470K	5%	1/10W
R752	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R753	1-216-085-00	METAL CHIP	33K	5%	1/10W
R754	1-216-073-00	METAL CHIP	10K	5%	1/10W
R755	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R756	1-216-073-00	METAL CHIP	10K	5%	1/10W
R757	1-216-073-00	METAL CHIP	10K	5%	1/10W (640D/740D)
R760	1-216-047-00	METAL CHIP	820	5%	1/10W
R761	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R762	1-216-049-00	METAL CHIP	1K	5%	1/10W
R766	1-216-049-00	METAL CHIP	1K	5%	1/10W
R801	1-216-073-00	METAL CHIP	10K	5%	1/10W
R802	1-216-073-00	METAL CHIP	10K	5%	1/10W
R803	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R804	1-216-073-00	METAL CHIP	10K	5%	1/10W
R805	1-216-073-00	METAL CHIP	10K	5%	1/10W
R806	1-216-099-00	METAL CHIP	120K	5%	1/10W
R807	1-216-101-00	METAL CHIP	150K	5%	1/10W
R808	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R809	1-216-049-00	METAL CHIP	1K	5%	1/10W
R810	1-216-093-00	METAL CHIP	68K	5%	1/10W
R811	1-216-121-00	METAL CHIP	1M	5%	1/10W
R812	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R813	1-216-073-00	METAL CHIP	10K	5%	1/10W
R814	1-216-073-00	METAL CHIP	10K	5%	1/10W

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		
R815	1-216-093-00	METAL CHIP	68K	5%	1/10W
R816	1-216-062-00	METAL CHIP	3.6K	5%	1/10W
R817	1-216-093-00	METAL CHIP	68K	5%	1/10W
R818	1-216-099-00	METAL CHIP	120K	5%	1/10W
R819	1-216-099-00	METAL CHIP	120K	5%	1/10W
R820	1-216-097-00	METAL CHIP	100K	5%	1/10W
R821	1-216-097-00	METAL CHIP	100K	5%	1/10W
R822	1-216-097-00	METAL CHIP	100K	5%	1/10W
R823	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R825	1-216-097-00	METAL CHIP	100K	5%	1/10W
R826	1-216-077-00	METAL CHIP	15K	5%	1/10W
R827	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R828	1-216-334-11	METAL GLAZE	22K	1%	1/10W
R829	1-216-334-11	METAL GLAZE	22K	1%	1/10W
R830	1-216-073-00	METAL CHIP	10K	5%	1/10W
R831	1-216-075-00	METAL CHIP	12K	5%	1/10W
R832	1-216-097-00	METAL CHIP	100K	5%	1/10W
R833	1-216-049-00	METAL CHIP	1K	5%	1/10W
R834	1-216-097-00	METAL CHIP	100K	5%	1/10W
R835	1-216-097-00	METAL CHIP	100K	5%	1/10W
R836	1-216-097-00	METAL CHIP	100K	5%	1/10W
R840	1-216-073-00	METAL CHIP	10K	5%	1/10W
R841	1-216-049-00	METAL CHIP	1K	5%	1/10W
R842	1-216-049-00	METAL CHIP	1K	5%	1/10W
R844	1-216-025-00	METAL CHIP	100	5%	1/10W
R845	1-216-025-00	METAL CHIP	100	5%	1/10W
R846	1-216-025-00	METAL CHIP	100	5%	1/10W
R847	1-216-025-00	METAL CHIP	100	5%	1/10W
R848	1-216-049-00	METAL CHIP	1K	5%	1/10W
R849	1-216-049-00	METAL CHIP	1K	5%	1/10W
R850	1-216-121-00	METAL CHIP	1M	5%	1/10W
R851	1-216-099-00	METAL CHIP	120K	5%	1/10W
R861	1-216-025-00	METAL CHIP	100	5%	1/10W
R862	1-216-025-00	METAL CHIP	100	5%	1/10W
R863	1-216-025-00	METAL CHIP	100	5%	1/10W
R864	1-216-025-00	METAL CHIP	100	5%	1/10W
R865	1-216-025-00	METAL CHIP	100	5%	1/10W
R868	1-216-073-00	METAL CHIP	10K	5%	1/10W
R901	1-216-049-00	METAL CHIP	1K	5%	1/10W
R903	1-216-049-00	METAL CHIP	1K	5%	1/10W
R909	1-259-178-21	CARBON	3K	1%	1/4W
R910	1-259-171-21	CARBON	1.5K	5%	1/4W
R911	1-259-171-21	CARBON	1.5K	5%	1/4W
R912	1-259-223-21	CARBON	220K	5%	1/4W
R913	1-259-178-21	CARBON	3K	1%	1/4W
R914	1-259-171-21	CARBON	1.5K	5%	1/4W
R915	1-259-171-21	CARBON	1.5K	5%	1/4W
R916	1-259-223-21	CARBON	220K	5%	1/4W
R917	1-216-049-00	METAL CHIP	1K	5%	1/10W

Ref. No.	Part No.	Description	Remark		
△R920	1-212-950-00	FUSIBLE	4.7	5%	1/2W F
△R921	1-212-950-00	FUSIBLE	4.7	5%	1/2W F
R922	1-216-073-00	METAL CHIP	10K	5%	1/10W
R924	1-216-077-00	METAL CHIP	15K	5%	1/10W
R925	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R926	1-216-081-00	METAL CHIP	22K	5%	1/10W
R927	1-216-081-00	METAL CHIP	22K	5%	1/10W
R928	1-259-151-21	CARBON	220	5%	1/4W
R929	1-259-151-21	CARBON	220	5%	1/4W
R930	1-259-215-21	CARBON	100K	5%	1/4W
R931	1-259-215-21	CARBON	100K	5%	1/4W
R932	1-259-167-21	CARBON	1K	5%	1/4W
R933	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R934	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R935	1-259-167-21	CARBON	1K	5%	1/4W
R936	1-216-060-00	METAL GLAZE	3K	5%	1/10W
R937	1-216-049-00	METAL CHIP	1K	5%	1/10W
R938	1-216-049-00	METAL CHIP	1K	5%	1/10W
R939	1-259-191-21	CARBON	10K	5%	1/4W
R940	1-259-191-21	CARBON	10K	5%	1/4W
R941	1-216-049-00	METAL CHIP	1K	5%	1/10W
R942	1-216-049-00	METAL CHIP	1K	5%	1/10W
R945	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R946	1-216-073-00	METAL CHIP	10K	5%	1/10W
R947	1-216-073-00	METAL CHIP	10K	5%	1/10W
R951	1-216-025-00	METAL CHIP	100	5%	1/10W
R952	1-216-025-00	METAL CHIP	100	5%	1/10W
R953	1-216-049-00	METAL CHIP	1K	5%	1/10W
R954	1-216-049-00	METAL CHIP	1K	5%	1/10W

< VARIABLE RESISTOR >

RV101	1-228-989-00	RES, ADJ, METAL	470		
RV102	1-228-989-00	RES, ADJ, METAL	470		
RV103	1-228-993-00	RES, ADJ, METAL	4.7K		
RV104	1-228-994-00	RES, ADJ, METAL	10K		
RV105	1-228-993-00	RES, ADJ, METAL	4.7K		
RV106	1-228-998-00	RES, ADJ, METAL	220K		
RV107	1-228-994-00	RES, ADJ, METAL	10K		
RV108	1-228-994-00	RES, ADJ, METAL	10K		
RV801	1-228-993-00	RES, ADJ, METAL	4.7K		

< RELAY >

RY801	1-515-622-11	RELAY			
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< SWITCH >

S601		SWITCH (AUTO REPEAT)			
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The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

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MT-28

MT-30

PS-193

Ref. No.	Part No.	Description	Remark
< VIBRATOR >			
X101	1-567-652-11	VIBRATOR, CRYSTAL (13.3MHz)	
X601	1-567-733-11	VIBRATOR, CRYSTAL (17.734475MHz)	
X602	1-567-900-11	OSCILLATOR, CRYSTAL (14.31818MHz)	
X801	1-567-515-11	VIBRATOR, VARIABLE CRYSTAL (16.9MHz)	

*	1-630-095-11	MT-28 BOARD	*****

*	1-631-095-11	MT-30 BOARD	*****

*	A-6421-372-A	PS-193 BOARD, COMPLETE	*****
*	1-533-189-11	HOLDER, FUSE	
< CAPACITOR >			
C101	1-125-298-00	ELECT 10000uF	20% 25V
C102	1-124-314-00	ELECT 4700uF	20% 25V
C103	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C104	1-163-010-11	CERAMIC CHIP 0.0012uF	10% 50V
C105	1-163-989-11	CERAMIC CHIP 0.033uF	10% 25V
C106	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C107	1-124-471-00	ELECT 1000uF	20% 6.3V
C108	1-124-903-11	ELECT 1uF	20% 50V
C109	1-124-472-11	ELECT 470uF	20% 10
C110	1-163-833-00	CERAMIC CHIP 0.068uF	25V
C111	1-163-007-11	CERAMIC CHIP 680PF	10% 50V
C112	1-163-019-00	CERAMIC CHIP 0.0068uF	10% 50V
C114	1-126-101-11	ELECT 100uF	20% 16V
C115	1-163-037-11	CERAMIC CHIP 0.022uF	10% 25V
C116	1-163-833-00	CERAMIC CHIP 0.068uF	25V
C119	1-126-176-11	ELECT 220uF	20% 10V
C120	1-126-096-11	ELECT 10uF	20% 35V
C201	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
C202	1-163-019-00	CERAMIC CHIP 0.0068uF	10% 50V
C203	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
C204	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
C205	1-163-017-00	CERAMIC CHIP 0.0047uF	5% 50V
C206	1-163-007-11	CERAMIC CHIP 680PF	10% 50V
C208	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C209	1-163-017-00	CERAMIC CHIP 0.0047uF	5% 50V
C210	1-163-007-11	CERAMIC CHIP 680PF	10% 50V
C211	1-163-017-00	CERAMIC CHIP 0.0047uF	5% 50V
C212	1-163-035-00	CERAMIC CHIP 0.047uF	50V

Ref. No.	Part No.	Description	Remark
< CONNECTOR >			
* CN002	1-564-419-11	HEADER, SPRING (POWER) 2P	
* CN003	1-560-890-00	PIN, CONNECTOR 2P	
* CN201	1-560-891-00	PIN, CONNECTOR 3P	
< FUSE >			
△F101	1-532-299-11	FUSE, TIME-LAG (250V T5A)	
△F102	1-532-299-11	FUSE, TIME-LAG (250V T5A)	
△F301	1-532-078-11	FUSE, TIME-LAG (250V T1A)	
< DIODE >			
△D101	8-719-500-55	DIODE D3SBA10	
D105	8-719-980-78	DIODE ERA81-006	
D106	8-719-110-31	DIODE RD12ES-B2	
D108	8-719-105-82	DIODE RD5.1M-B2	
D201	8-719-980-78	DIODE ERA81-006	
D202	8-719-980-78	DIODE ERA81-006	
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	
< IC >			
IC101	8-759-971-39	IC BA9700AF	
IC102		IC	
IC201	8-759-100-97	IC uPC339G2	
IC202	8-759-100-96	IC uPC4558G2	
< JUMPER RESISTOR >			
JR001	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR005	1-216-295-00	METAL CHIP 0 5% 1/10W	
< COIL >			
L101	1-424-219-11	COIL, CHOKE 300uH	
L102	1-410-339-11	COIL, CHOKE 10uH	
L201	1-424-219-11	COIL, CHOKE 300uH	
< IC LINK >			
△PS001	1-532-637-00	LINK, IC 1.0A	
△PS002	1-532-675-00	LINK, IC 1.5A	
△PS003	1-532-675-00	LINK, IC 1.5A	
△PS004	1-532-637-00	LINK, IC 1.0A	

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
< TRANSISTOR >			
Q101	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q102	8-729-216-22	TRANSISTOR 2SA1162	
Q103	8-729-113-31	TRANSISTOR 2SB733-2	
△Q105	8-729-141-75	TRANSISTOR 2SD596DV345	
Q201	8-729-117-11	TRANSISTOR 2SB1151	
Q202	8-729-143-30	TRANSISTOR 2SD1691K	
Q203	8-729-117-11	TRANSISTOR 2SB1151	
Q204	8-729-143-30	TRANSISTOR 2SD1691K	
Q205	8-729-119-78	TRANSISTOR 2SC2785-HFE	
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-L7	
Q211	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q212	8-729-901-04	TRANSISTOR DTA114EK	
< RESISTOR >			
R002	1-216-296-00	METAL CHIP 0 5% 1/8W	
R003	1-216-296-00	METAL CHIP 0 5% 1/8W	
R004	1-216-296-00	METAL CHIP 0 5% 1/8W	
R101	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R102	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R103	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R104	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R105	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R106	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R107	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R108	1-216-043-00	METAL CHIP 560 5% 1/10W	
R109	1-216-687-11	METAL CHIP 33K 0.5% 1/10W	
R110	1-216-676-11	METAL CHIP 11K 0.5% 1/10W	
R112	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R114	1-216-097-00	METAL CHIP 100K 5% 1/10W	
△R115	1-207-679-00	WIREWOUND 15 10% 5W F	
R116	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R117	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R120	1-216-192-00	METAL CHIP 560 5% 1/8W	
R201	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R202	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R203	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R204	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R205	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R206	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R207	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R208	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R209	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R210	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R211	1-216-073-00	METAL CHIP 10K 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R212	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R213	1-216-049-00	METAL CHIP 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 CHIP 1K 5% 1/10W	
△R217	1-216-369-00	METAL OXIDE 1 5% 2W F	
R218	1-216-690-11	METAL CHIP 43K 0.5% 1/10W	
R219	1-216-675-11	METAL CHIP 10K 0.5% 1/10W	
R220	1-216-690-11	METAL CHIP 43K 0.5% 1/10W	
R221	1-216-675-11	METAL CHIP 10K 0.5% 1/10W	
R222	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R223	1-216-073-00	METAL CHIP 10K 5% 1/10W	
△R224	1-215-866-11	METAL OXIDE 330 5% 1W F	
R225	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R226	1-247-750-11	CARBON 680 5% 1/2W	
R227	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R228	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R230	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R231	1-216-073-00	METAL CHIP 10K 5% 1/10W	
< SWITCH >			
△SW301	1-570-156-11	SWITCH, PUSH (AC POWER) (1 KEY)	
< FILTER >			
△T301	1-421-771-11	FILTER, LINE	

*	A-6421-502-A	RG-23 BOARD, COMPLETE (MDP-640D/740D)	

< CAPACITOR >			
C101	1-124-589-11	ELECT 47uF 20% 16V	
C102	1-126-157-11	ELECT 10uF 20% 16V	
C103	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C104	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C105	1-126-157-11	ELECT 10uF 20% 16V	
C106	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C107	1-126-154-11	ELECT 47uF 20% 6.3V	
C108	1-124-604-00	ELECT 330uF 20% 10V	
C109	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C110	1-126-154-11	ELECT 47uF 20% 6.3V	
C111	1-126-157-11	ELECT 10uF 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 10uF 20% 16V	
C115	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C116	1-124-589-11	ELECT 47uF 20% 16V	
C117	1-163-035-00	CERAMIC CHIP 0.047uF 50V	

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Ref. No.	Part No.	Description	Remark
C118	1-163-035-00	CERAMIC CHIP	0.047uF 50V
C119	1-130-491-00	MYLAR	0.047uF 5% 50V
C120	1-130-491-00	MYLAR	0.047uF 5% 50V
C121	1-163-035-00	CERAMIC CHIP	0.047uF 50V
C122	1-163-035-00	CERAMIC CHIP	0.047uF 50V
C123	1-163-035-00	CERAMIC CHIP	0.047uF 50V
C124	1-163-035-00	CERAMIC CHIP	0.047uF 50V
C125	1-126-157-11	ELECT	10uF 20% 16V
C126	1-126-157-11	ELECT	10uF 20% 16V
C127	1-126-157-11	ELECT	10uF 20% 16V
C128	1-126-157-11	ELECT	10uF 20% 16V
C129	1-126-157-11	ELECT	10uF 20% 16V
C130	1-126-154-11	ELECT	47uF 20% 6.3V
C131	1-124-465-00	ELECT	0.47uF 20% 50V
C132	1-126-177-11	ELECT	100uF 20% 10V
C133	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C134	1-163-035-00	CERAMIC CHIP	0.047uF 50V
C135	1-130-489-00	MYLAR	0.033uF 5% 50V
C136	1-126-301-11	ELECT	1uF 20% 50V
C137	1-163-035-00	CERAMIC CHIP	0.047uF 50V
C138	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C139	1-163-227-11	CERAMIC CHIP	10PF 5% 50V
C140	1-163-229-11	CERAMIC CHIP	12PF 5% 50V
C141	1-163-091-00	CERAMIC CHIP	8PF 50V
C142	1-124-472-11	ELECT	470uF 20% 10V
C143	1-126-177-11	ELECT	100uF 20% 10V
C144	1-163-097-00	CERAMIC CHIP	15PF 5% 50V
C145	1-163-103-00	CERAMIC CHIP	27PF 5% 50V
C146	1-126-154-11	ELECT	47uF 20% 6.3V
C147	1-126-154-11	ELECT	47uF 20% 6.3V
C148	1-126-154-11	ELECT	47uF 20% 6.3V
< CONNECTOR >			
* CN101	1-566-709-11	CONNECTOR, BOARD TO BOARD 12P	
< TRIMMER >			
CV101	1-141-304-21	CAP, TRIMMER 10PF	
CV102	1-141-227-00	CAP, TRIMMER 20PF	
< 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	

Ref. No.	Part No.	Description	Remark
< 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	IC FILTER BLOCK, COM (CFB-3)	
< JUMPER RESISTOR >			
JR104	1-216-295-00	METAL CHIP 0 5% 1/10W	
< COIL >			
L101	1-408-407-00	INDUCTOR 6.8uH	
L103	1-408-609-41	INDUCTOR 33uH	
L104	1-408-407-00	INDUCTOR 6.8uH	
L105	1-408-609-41	INDUCTOR 33uH	
< VARIABLE COIL >			
LV101	1-415-651-11	COIL (DELAY ADJUSTMENT)	
< TRANSISTOR >			
Q101	8-729-100-66	TRANSISTOR 2SC1623	
Q102	8-729-100-66	TRANSISTOR 2SC1623	
Q103	8-729-100-66	TRANSISTOR 2SC1623	
Q104	8-729-100-66	TRANSISTOR 2SC1623	
Q105	8-729-100-66	TRANSISTOR 2SC1623	
Q106	8-729-100-66	TRANSISTOR 2SC1623	
Q107	8-729-100-66	TRANSISTOR 2SC1623	
Q108	8-729-216-22	TRANSISTOR 2SA1162	
Q109	8-729-100-66	TRANSISTOR 2SC1623	
Q110	8-729-100-66	TRANSISTOR 2SC1623	
Q111	8-729-901-06	TRANSISTOR DTA144EK	
Q112	8-729-901-01	TRANSISTOR DTC144EK	
Q113	8-729-901-01	TRANSISTOR DTC144EK	
Q114	8-729-100-66	TRANSISTOR 2SC1623	
Q115	8-729-216-22	TRANSISTOR 2SA1162	
Q116	8-729-100-66	TRANSISTOR 2SC1623	
Q117	8-729-100-66	TRANSISTOR 2SC1623	
Q118	8-729-216-22	TRANSISTOR 2SA1162	
Q119	8-729-100-66	TRANSISTOR 2SC1623	
Q120	8-729-100-66	TRANSISTOR 2SC1623	
Q121	8-729-216-22	TRANSISTOR 2SA1162	
Q122	8-729-100-66	TRANSISTOR 2SC1623	
Q123	8-729-901-01	TRANSISTOR DTC144EK	
Q124	8-729-100-66	TRANSISTOR 2SC1623	

Ref. No.	Part No.	Description	Remark
Q125	8-729-100-66	TRANSISTOR	2SC1623
Q126	8-729-100-66	TRANSISTOR	2SC1623
< RESISTOR >			
R101	1-216-073-00	METAL CHIP	10K 5% 1/10W
R102	1-216-085-00	METAL CHIP	33K 5% 1/10W
R103	1-216-063-00	METAL CHIP	3.9K 5% 1/10W
R104	1-216-041-00	METAL CHIP	470 5% 1/10W
R105	1-216-075-00	METAL CHIP	12K 5% 1/10W
R106	1-216-073-00	METAL CHIP	10K 5% 1/10W
R107	1-216-049-00	METAL CHIP	1K 5% 1/10W
R108	1-216-049-00	METAL CHIP	1K 5% 1/10W
R109	1-216-039-00	METAL CHIP	390 5% 1/10W
R110	1-216-055-00	METAL CHIP	1.8K 5% 1/10W
R111	1-216-073-00	METAL CHIP	10K 5% 1/10W
R112	1-216-073-00	METAL CHIP	10K 5% 1/10W
R113	1-216-061-00	METAL CHIP	3.3K 5% 1/10W
R114	1-216-073-00	METAL CHIP	10K 5% 1/10W
R115	1-216-073-00	METAL CHIP	10K 5% 1/10W
R116	1-216-055-00	METAL CHIP	1.8K 5% 1/10W
R117	1-216-049-00	METAL CHIP	1K 5% 1/10W
R118	1-216-051-00	METAL CHIP	1.2K 5% 1/10W
R119	1-216-077-00	METAL CHIP	15K 5% 1/10W
R120	1-216-075-00	METAL CHIP	12K 5% 1/10W
R121	1-216-049-00	METAL CHIP	1K 5% 1/10W
R122	1-216-049-00	METAL CHIP	1K 5% 1/10W
R123	1-216-047-00	METAL CHIP	820 5% 1/10W
R124	1-216-049-00	METAL CHIP	1K 5% 1/10W
R125	1-216-047-00	METAL CHIP	820 5% 1/10W
R126	1-216-065-00	METAL CHIP	4.7K 5% 1/10W
R127	1-216-059-00	METAL CHIP	2.7K 5% 1/10W
R128	1-216-045-00	METAL CHIP	680 5% 1/10W
R129	1-216-047-00	METAL CHIP	820 5% 1/10W
R130	1-216-073-00	METAL CHIP	10K 5% 1/10W
R131	1-216-071-00	METAL CHIP	8.2K 5% 1/10W
R132	1-216-059-00	METAL CHIP	2.7K 5% 1/10W
R133	1-216-111-00	METAL CHIP	390K 5% 1/10W
R134	1-216-103-00	METAL CHIP	180K 5% 1/10W
R135	1-216-047-00	METAL CHIP	820 5% 1/10W
R136	1-216-055-00	METAL CHIP	1.8K 5% 1/10W
R137	1-216-061-00	METAL CHIP	3.3K 5% 1/10W
R138	1-216-067-00	METAL CHIP	5.6K 5% 1/10W
R139	1-216-039-00	METAL CHIP	390 5% 1/10W
R140	1-216-039-00	METAL CHIP	390 5% 1/10W
R141	1-216-047-00	METAL CHIP	820 5% 1/10W
R142	1-216-047-00	METAL CHIP	820 5% 1/10W
R143	1-216-049-00	METAL CHIP	1K 5% 1/10W
R144	1-216-061-00	METAL CHIP	3.3K 5% 1/10W
R145	1-216-053-00	METAL CHIP	1.5K 5% 1/10W

Ref. No.	Part No.	Description	Remark
R146	1-216-083-00	METAL CHIP	27K 5% 1/10W
R147	1-216-077-00	METAL CHIP	15K 5% 1/10W
R148	1-249-411-11	CARBON	330 5% 1/4W
R149	1-216-067-00	METAL CHIP	5.6K 5% 1/10W
R150	1-216-083-00	METAL CHIP	27K 5% 1/10W
R151	1-216-053-00	METAL CHIP	1.5K 5% 1/10W
R152	1-216-083-00	METAL CHIP	27K 5% 1/10W
R153	1-216-077-00	METAL CHIP	15K 5% 1/10W
R154	1-216-083-00	METAL CHIP	27K 5% 1/10W
R155	1-216-067-00	METAL CHIP	5.6K 5% 1/10W
R156	1-249-411-11	CARBON	330 5% 1/4W
R157	1-216-053-00	METAL CHIP	1.5K 5% 1/10W
R158	1-216-081-00	METAL CHIP	22K 5% 1/10W
R159	1-216-077-00	METAL CHIP	15K 5% 1/10W
R160	1-216-083-00	METAL CHIP	27K 5% 1/10W
R161	1-216-067-00	METAL CHIP	5.6K 5% 1/10W
R162	1-249-409-11	CARBON	220 5% 1/4W
R163	1-216-021-00	METAL CHIP	68 5% 1/10W
R164	1-216-021-00	METAL CHIP	68 5% 1/10W
R165	1-216-021-00	METAL CHIP	68 5% 1/10W
R166	1-216-045-00	METAL CHIP	680 5% 1/10W
R167	1-216-079-00	METAL CHIP	18K 5% 1/10W
R168	1-216-051-00	METAL CHIP	1.2K 5% 1/10W
R169	1-216-067-00	METAL CHIP	5.6K 5% 1/10W
R170	1-216-055-00	METAL CHIP	1.8K 5% 1/10W
R171	1-216-089-00	METAL CHIP	47K 5% 1/10W
R172	1-216-077-00	METAL CHIP	15K 5% 1/10W
R173	1-216-049-00	METAL CHIP	1K 5% 1/10W
R174	1-216-055-00	METAL CHIP	1.8K 5% 1/10W
R175	1-216-043-00	METAL CHIP	560 5% 1/10W
R176	1-216-053-00	METAL CHIP	1.5K 5% 1/10W
R177	1-216-053-00	METAL CHIP	1.5K 5% 1/10W
R178	1-216-053-00	METAL CHIP	1.5K 5% 1/10W
R179	1-216-055-00	METAL CHIP	1.8K 5% 1/10W
△R180	1-212-863-00	FUSIBLE	18 5% 1/4W F
R181	1-216-053-00	METAL CHIP	1.5K 5% 1/10W
R182	1-216-049-00	METAL CHIP	1K 5% 1/10W
R183	1-216-053-00	METAL CHIP	1.5K 5% 1/10W
R184	1-216-075-00	METAL CHIP	12K 5% 1/10W
R185	1-216-075-00	METAL CHIP	12K 5% 1/10W
R186	1-216-075-00	METAL CHIP	12K 5% 1/10W
R187	1-216-057-00	METAL CHIP	2.2K 5% 1/10W
R188	1-216-049-00	METAL CHIP	1K 5% 1/10W
R189	1-216-295-00	METAL CHIP	0 5% 1/10W
R190	1-216-049-00	METAL CHIP	1K 5% 1/10W
R191	1-216-049-00	METAL CHIP	1K 5% 1/10W
R192	1-216-041-00	METAL CHIP	470 5% 1/10W
R193	1-216-049-00	METAL CHIP	1K 5% 1/10W
R194	1-216-023-00	METAL CHIP	82 5% 1/10W

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RG-23 **SV-33**

Ref. No.	Part No.	Description	Remark
< VARIABLE RESISTOR >			
RV101	1-228-991-00	RES, ADJ, METAL 2.2K	
RV102	1-228-989-00	RES, ADJ, METAL 470	
RV103	1-228-991-00	RES, ADJ, METAL 2.2K	
RV104	1-228-991-00	RES, ADJ, METAL 2.2K	
RV105	1-228-991-00	RES, ADJ, METAL 2.2K	
RV106	1-228-991-00	RES, ADJ, METAL 2.2K	
RV107	1-228-994-00	RES, ADJ, METAL 10K	
RV108	1-228-989-00	RES, ADJ, METAL 470	
RV109	1-228-990-00	RES, ADJ, METAL 1K	
RV110	1-228-989-00	RES, ADJ, METAL 470	
RV111	1-228-989-00	RES, ADJ, METAL 470	
< CRYSTAL >			
X101	1-567-504-11	OSCILLATOR, CRYSTAL (4.43MHz)	
X102	1-567-505-11	OSCILLATOR, CRYSTAL (3.58MHz)	

*	A-6421-311-A	SV-33 BOARD, COMPLETE	

< CAPACITOR >			
C101	1-163-109-00	CERAMIC CHIP 47PF	5% 50V
C102	1-163-093-00	CERAMIC CHIP 10PF	5% 50V
C103	1-124-584-00	ELECT 100uF	20% 10V
C104	1-124-584-00	ELECT 100uF	20% 10V
C106	1-126-160-11	ELECT 1uF	20% 50V
C121	1-124-242-00	ELECT 33uF	20% 25V
C122	1-124-242-00	ELECT 33uF	20% 25V
C123	1-124-584-00	ELECT 100uF	20% 10V
C124	1-124-584-00	ELECT 100uF	20% 10V
C125	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C126	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C128	1-161-494-00	CERAMIC 0.022uF	25V
C129	1-136-173-00	FILM 0.47uF	5% 50V
C130	1-126-320-11	ELECT, NONPOLAR 10uF	20% 16V
C132	1-130-487-00	MYLAR 0.022uF	5% 50V
C133	1-130-476-00	MYLAR 0.0027uF	5% 50V
C135	1-130-486-00	MYLAR 0.018uF	10% 50V
C136	1-136-169-00	FILM 0.22uF	5% 50V
C137	1-130-484-00	MYLAR 0.012uF	5% 50V
C138	1-130-484-00	MYLAR 0.012uF	5% 50V
C139	1-124-282-00	ELECT 22uF	20% 16V
C140	1-126-320-11	ELECT, NONPOLAR 10uF	20% 16V
C141	1-130-491-00	MYLAR 0.047uF	5% 50V
C142	1-126-320-11	ELECT, NONPOLAR 10uF	20% 16V
C143	1-136-165-00	FILM 0.1uF	5% 50V

Ref. No.	Part No.	Description	Remark
C144	1-130-478-00	MYLAR 0.0039uF	5% 50V
C145	1-130-486-00	MYLAR 0.018uF	10% 50V
C146	1-130-483-00	MYLAR 0.01uF	5% 50V
C147	1-136-169-00	FILM 0.22uF	5% 50V
C148	1-136-169-00	FILM 0.22uF	5% 50V
C149	1-163-113-00	CERAMIC CHIP 68PF	5% 50V
C150	1-163-093-00	CERAMIC CHIP 10PF	5% 50V
C151	1-163-131-00	CERAMIC CHIP 390PF	5% 50V
C152	1-163-093-00	CERAMIC CHIP 10PF	5% 50V
C153	1-163-129-00	CERAMIC CHIP 330PF	5% 50V
C154	1-163-115-00	CERAMIC CHIP 82PF	5% 50V
C155	1-130-475-00	MYLAR 0.0022uF	5% 50V
C157	1-126-160-11	ELECT 1uF	20% 50V
C161	1-136-173-00	FILM 0.47uF	5% 50V
C162	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C163	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C164	1-126-160-11	ELECT 1uF	20% 50V
C165	1-163-019-00	CERAMIC CHIP 0.0068uF	10% 50V
C166	1-124-443-00	ELECT 100uF	20% 10V
< CONNECTOR >			
CN101	1-566-939-11	CONNECTOR, F.P.C 24P	
CN102	1-563-493-11	CONNECTOR, F.P.C 28P	
CN103	1-506-485-11	CONNECTOR 6P, MALE	
CN104	1-506-482-11	CONNECTOR 3P, MALE	
* CN105	1-566-969-11	HOUSING, CONNECTOR (PC BOARD) 7P	
* CN106	1-566-968-11	HOUSING, CONNECTOR (PC BOARD) 6P	
< DIODE >			
D101	8-719-400-18	DIODE MA152WK	
D102	8-719-109-72	DIODE RD3.9ES-B2	
D103	8-719-911-19	DIODE 1SS119	
< IC >			
IC102	8-759-321-40	IC HA11529	
IC103	8-759-981-92	IC RC4558M	
IC104	8-759-981-92	IC RC4558M	
IC106	8-759-300-71	IC TC4053BF	
IC107	8-759-981-92	IC RC4558M	
IC108	8-759-981-92	IC RC4558M	
△IC109	8-749-920-86	IC STA-451C	
IC110	8-749-920-86	IC STA-451C	
IC111	8-759-981-92	IC RC4558M	
< JUMPER RESISTOR >			
JR201	1-216-296-00	METAL CHIP 0	5% 1/8W
JR202	1-216-296-00	METAL CHIP 0	5% 1/8W
JR203	1-216-296-00	METAL CHIP 0	5% 1/8W
JR204	1-216-296-00	METAL CHIP 0	5% 1/8W

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			Ref. No.	Part No.	Description	Remark		
JR205	1-216-296-00	METAL CHIP	0	5%	1/8W	R116	1-216-079-00	METAL CHIP	18K	5%	1/10W
JR206	1-216-296-00	METAL CHIP	0	5%	1/8W	R117	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
JR207	1-216-296-00	METAL CHIP	0	5%	1/8W	R118	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
JR208	1-216-296-00	METAL CHIP	0	5%	1/8W	R119	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
JR209	1-216-296-00	METAL CHIP	0	5%	1/8W	R120	1-216-073-00	METAL CHIP	10K	5%	1/10W
JR210	1-216-296-00	METAL CHIP	0	5%	1/8W	R121	1-216-077-00	METAL CHIP	15K	5%	1/10W
JR211	1-216-296-00	METAL CHIP	0	5%	1/8W	R122	1-216-101-00	METAL CHIP	150K	5%	1/10W
JR212	1-216-296-00	METAL CHIP	0	5%	1/8W	R123	1-216-025-00	METAL CHIP	100	5%	1/10W
JR214	1-216-296-00	METAL CHIP	0	5%	1/8W	R124	1-216-025-00	METAL CHIP	100	5%	1/10W
JR215	1-216-296-00	METAL CHIP	0	5%	1/8W	R125	1-216-081-00	METAL CHIP	22K	5%	1/10W
JR216	1-216-296-00	METAL CHIP	0	5%	1/8W	R126	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
JR217	1-216-296-00	METAL CHIP	0	5%	1/8W	R127	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
JR221	1-216-296-00	METAL CHIP	0	5%	1/8W	R128	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
JR222	1-216-296-00	METAL CHIP	0	5%	1/8W	R129	1-216-039-00	METAL CHIP	390	5%	1/10W
JR223	1-216-296-00	METAL CHIP	0	5%	1/8W	R130	1-216-024-00	METAL GLAZE	91	5%	1/10W
JR224	1-216-296-00	METAL CHIP	0	5%	1/8W	R145	1-216-081-00	METAL CHIP	22K	5%	1/10W
JR225	1-216-296-00	METAL CHIP	0	5%	1/8W	R146	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
JR226	1-216-296-00	METAL CHIP	0	5%	1/8W	R147	1-216-073-00	METAL CHIP	10K	5%	1/10W
< COIL >						R148	1-216-081-00	METAL CHIP	22K	5%	1/10W
L101	1-408-409-00	INDUCTOR 10uH				R149	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
L102	1-410-509-11	INDUCTOR 10uH				R150	1-216-085-00	METAL CHIP	33K	5%	1/10W
L103	1-410-509-11	INDUCTOR 10uH				R151	1-216-113-00	METAL CHIP	470K	5%	1/10W
< TRANSISTOR >						R152	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
Q101	8-729-901-05	TRANSISTOR	DTA124EK			R153	1-216-113-00	METAL CHIP	470K	5%	1/10W
Q102	8-729-901-00	TRANSISTOR	DTC124EK			R155	1-216-238-00	METAL GLAZE	47K	5%	1/8W
Q103	8-729-901-00	TRANSISTOR	DTC124EK			R156	1-216-083-00	METAL CHIP	27K	5%	1/10W
Q104	8-729-100-66	TRANSISTOR	2SC1623			R157	1-216-101-00	METAL CHIP	150K	5%	1/10W
Q105	8-729-100-66	TRANSISTOR	2SC1623			R158	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
Q106	8-729-100-66	TRANSISTOR	2SC1623			R159	1-216-075-00	METAL CHIP	12K	5%	1/10W
Q107	8-729-901-00	TRANSISTOR	DTC124EK			R160	1-216-083-00	METAL CHIP	27K	5%	1/10W
< RESISTOR >						R161	1-216-113-00	METAL CHIP	470K	5%	1/10W
R101	1-216-073-00	METAL CHIP	10K	5%	1/10W	R162	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R102	1-216-073-00	METAL CHIP	10K	5%	1/10W	R163	1-216-083-00	METAL CHIP	27K	5%	1/10W
R103	1-216-073-00	METAL CHIP	10K	5%	1/10W	R164	1-216-035-00	METAL CHIP	270	5%	1/10W
R104	1-216-073-00	METAL CHIP	10K	5%	1/10W	R165	1-216-089-00	METAL CHIP	47K	5%	1/10W
R105	1-216-085-00	METAL CHIP	33K	5%	1/10W	R166	1-216-041-00	METAL CHIP	470	5%	1/10W
R106	1-216-073-00	METAL CHIP	10K	5%	1/10W	R167	1-216-049-00	METAL CHIP	1K	5%	1/10W
R107	1-216-073-00	METAL CHIP	10K	5%	1/10W	R168	1-216-049-00	METAL CHIP	1K	5%	1/10W
R108	1-216-073-00	METAL CHIP	10K	5%	1/10W	R169	1-216-049-00	METAL CHIP	1K	5%	1/10W
R109	1-216-073-00	METAL CHIP	10K	5%	1/10W	R170	1-216-049-00	METAL CHIP	1K	5%	1/10W
R110	1-216-049-00	METAL CHIP	1K	5%	1/10W	R171	1-216-049-00	METAL CHIP	1K	5%	1/10W
R111	1-216-073-00	METAL CHIP	10K	5%	1/10W	R172	1-216-049-00	METAL CHIP	1K	5%	1/10W
R112	1-216-073-00	METAL CHIP	10K	5%	1/10W	R173	1-216-073-00	METAL CHIP	10K	5%	1/10W
R113	1-216-073-00	METAL CHIP	10K	5%	1/10W	R174	1-216-073-00	METAL CHIP	10K	5%	1/10W
R114	1-216-089-00	METAL CHIP	47K	5%	1/10W	R175	1-216-085-00	METAL CHIP	33K	5%	1/10W
R115	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	R176	1-216-748-11	METAL CHIP	39K	1%	1/10W
						R177	1-216-091-00	METAL CHIP	56K	5%	1/10W
						R178	1-216-748-11	METAL CHIP	39K	1%	1/10W
						R179	1-216-101-00	METAL CHIP	150K	5%	1/10W

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Ref. No.	Part No.	Description	Remark		
R180	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R181	1-216-083-00	METAL CHIP	27K	5%	1/10W
R182	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R183	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R184	1-216-089-00	METAL CHIP	47K	5%	1/10W
R185	1-216-097-00	METAL CHIP	100K	5%	1/10W
R186	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R187	1-216-097-00	METAL CHIP	100K	5%	1/10W
R188	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R189	1-216-085-00	METAL CHIP	33K	5%	1/10W
R190	1-216-085-00	METAL CHIP	33K	5%	1/10W
R191	1-216-097-00	METAL CHIP	100K	5%	1/10W
R192	1-216-081-00	METAL CHIP	22K	5%	1/10W
R193	1-216-105-00	METAL CHIP	220K	5%	1/10W
R194	1-216-079-00	METAL CHIP	18K	5%	1/10W
R195	1-216-081-00	METAL CHIP	22K	5%	1/10W
R196	1-216-017-00	METAL CHIP	47	5%	1/10W
R197	1-216-097-00	METAL CHIP	100K	5%	1/10W
R198	1-216-081-00	METAL CHIP	22K	5%	1/10W
R199	1-216-017-00	METAL CHIP	47	5%	1/10W
R200	1-216-073-00	METAL CHIP	10K	5%	1/10W
R201	1-216-095-00	METAL CHIP	82K	5%	1/10W
R202	1-216-081-00	METAL CHIP	22K	5%	1/10W
R203	1-216-017-00	METAL CHIP	47	5%	1/10W
R206	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R207	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R208	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R209	1-216-081-00	METAL CHIP	22K	5%	1/10W
R210	1-216-081-00	METAL CHIP	22K	5%	1/10W
R211	1-216-017-00	METAL CHIP	47	5%	1/10W
△R212	1-216-373-11	METAL OXIDE	2.2	5%	2W F
△R213	1-216-373-11	METAL OXIDE	2.2	5%	2W F
R214	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R215	1-216-083-00	METAL CHIP	27K	5%	1/10W
R217	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R218	1-216-097-00	METAL CHIP	100K	5%	1/10W
R220	1-216-081-00	METAL CHIP	22K	5%	1/10W
R221	1-216-079-00	METAL CHIP	18K	5%	1/10W
R222	1-216-081-00	METAL CHIP	22K	5%	1/10W
R223	1-216-033-00	METAL CHIP	220	5%	1/10W
R224	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R225	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R226	1-216-037-00	METAL CHIP	330	5%	1/10W
R227	1-216-017-00	METAL CHIP	47	5%	1/10W
R228	1-216-073-00	METAL CHIP	10K	5%	1/10W
R229	1-216-081-00	METAL CHIP	22K	5%	1/10W
R230	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R231	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R233	1-216-101-00	METAL CHIP	150K	5%	1/10W

Ref. No.	Part No.	Description	Remark		
R234	1-216-073-00	METAL CHIP	10K	5%	1/10W
R235	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R236	1-216-081-00	METAL CHIP	22K	5%	1/10W
R237	1-216-033-00	METAL CHIP	220	5%	1/10W
R238	1-216-037-00	METAL CHIP	330	5%	1/10W
R239	1-216-077-00	METAL CHIP	15K	5%	1/10W
R240	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R241	1-216-295-00	METAL CHIP	0	5%	1/10W
R242	1-216-085-00	METAL CHIP	33K	5%	1/10W
R245	1-216-129-00	METAL CHIP	2.2M	5%	1/10W
< JUMPER RESISTOR >					
RJ101	1-216-295-00	METAL CHIP	0	5%	1/10W
RJ102	1-216-295-00	METAL CHIP	0	5%	1/10W
RJ103	1-216-295-00	METAL CHIP	0	5%	1/10W
RJ104	1-216-295-00	METAL CHIP	0	5%	1/10W
RJ105	1-216-295-00	METAL CHIP	0	5%	1/10W
RJ106	1-216-295-00	METAL CHIP	0	5%	1/10W
RJ107	1-216-295-00	METAL CHIP	0	5%	1/10W
RJ108	1-216-295-00	METAL CHIP	0	5%	1/10W
RJ109	1-216-295-00	METAL CHIP	0	5%	1/10W
RJ110	1-216-295-00	METAL CHIP	0	5%	1/10W
RJ111	1-216-295-00	METAL CHIP	0	5%	1/10W
RJ218	1-216-295-00	METAL CHIP	0	5%	1/10W
RJ219	1-216-295-00	METAL CHIP	0	5%	1/10W
RJ220	1-216-295-00	METAL CHIP	0	5%	1/10W

< VARIABLE RESISTOR >

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

* 1-636-183-11 SW-163 BOARD

< CONNECTOR >

CN301 1-506-467-11 CONNECTOR 2P, MALE

< SWITCH >

S301 1-554-655-00 SWITCH, LEAF

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
*	1-636-184-11	SW-164 BOARD *****	
		< CONNECTOR >	
CN401	1-506-481-11	CONNECTOR 2P, MALE	
		< RESISTOR >	
R401	1-249-423-11	CARBON 3.3K 5% 1/4W	
R402	1-249-417-11	CARBON 1K 5% 1/4W	
		< SWITCH >	
S401	1-571-300-21	SWITCH, ROTARY	

*	1-630-089-31	TR-30 BOARD *****	
		< CAPACITOR >	
△C401	1-136-472-11	FILM 0.1uF 20% 250V	
C416	1-124-122-11	ELECT 100uF 20% 50V	
C417	1-124-910-11	ELECT 47uF 20% 50V	
C418	1-124-122-11	ELECT 100uF 20% 50V	
C419	1-124-122-11	ELECT 100uF 20% 50V	
C420	1-163-033-00	CERAMIC CHIP 0.022uF 50V	
		< CONNECTOR >	
CN401	1-506-483-21	CONNECTOR 4P, MALE	
* CN402	1-564-028-00	PIN, CONNECTOR 3P	
* CN403	1-564-029-00	PIN, CONNECTOR 4P	
		< DIODE >	
△D406	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	8-729-140-93	TRANSISTOR 2SB733-5	
		< RESISTOR >	
△R416	1-249-401-11	CARBON 47 5% 1/4W	
R417	1-249-416-11	CARBON 820 5% 1/4W	
R418	1-249-405-11	CARBON 100 5% 1/4W	

Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS *****	
△52	1-555-795-00	CORD, POWER, EULO PLUG	
△62	1-449-849-11	TRANSFORMER, POWER (T401)	
* 67	1-574-755-11	WIRE, FLAT TYPE 28P	
△73	1-532-078-00	FUSE, TIME-LAG (T1A 250V) (F301)	
△74	1-532-299-00	FUSE, TIME-LAG (T5A 250V) (F101, F102)	
118	8-759-245-79	IC MSF7905	
129	1-161-063-00	CERAMIC 0.1uF 10% 50V (C001)	
158	1-554-468-00	SWITCH, LEAF (SLED IN LIMIT LD/CD) (S903)	
159	1-541-776-21	MOTOR, LD SPINDLE (M901)	
167	1-574-648-11	CABLE, FLEXIBLE FLAT (24 CORE)	
204	1-570-771-21	SWITCH (SLED OUT LIMIT) (S902)	
206	1-571-435-11	SWITCH (SLED IN LIMIT) (S901)	
△208	8-848-138-11	DEVICE, OPTICAL KHS-130A	

		ACCESSORIES & PACKING MATERIALS *****	
		1-465-496-31 REMOTE COMMANDER (RMT-333E)	
		3-701-630-01 BAG, POLYETHYLENE	
		3-752-535-02 INSTRUCTION	
		3-754-158-11 MANUAL, INSTRUCTION (ENGLISH)	
		3-754-158-41 MANUAL, INSTRUCTION (FRENCH, SPANISH, GERMAN, PORTUGUESE)	
		3-754-158-51 MANUAL, INSTRUCTION (FRENCH, GERMAN, SPANISH)	
*		3-945-176-01 CUSHION (UPPER)	
*		3-945-177-01 CUSHION (LOWER)	
*		3-945-178-01 INDIVIDUAL CARTON	

		HARDWARE LIST *****	
#1	7-621-255-55	SCREW +P 2X8	
#4	7-682-645-01	SCREW +PS 3X4	
#5	7-685-647-79	SCREW +BTP 3X10 TYPE2 N-S	
#6	7-685-645-79	SCREW +BVTP 3X6 TYPE2 IT-3	
#7	7-685-648-79	SCREW +BVTP 3X12 TYPE2 IT-3	
#8	7-685-649-79	SCREW +BVTP 3X14 TYPE2 IT-3	
#9	7-685-661-79	SCREW +BVTP 4X12 TYPE2 SLIT	
#10	7-685-870-01	SCREW +BVTT 3X5 (S)	
#11	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
#12	7-687-233-11	SCREW (+ PTPWH) (2.6X6)	

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

SECTION 7 ELECTRICAL ADJUSTMENTS

During these adjustment, see the parts arrangement diagram relevant to the adjustment on page from 142.

1-1. LIST OF SERVICING JIGS

- Oscilloscope
- Color monitor TV
- Digital voltmeter
- Audio level meter
- Frequency counter
- Remote commander (RMT-333E)
- 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

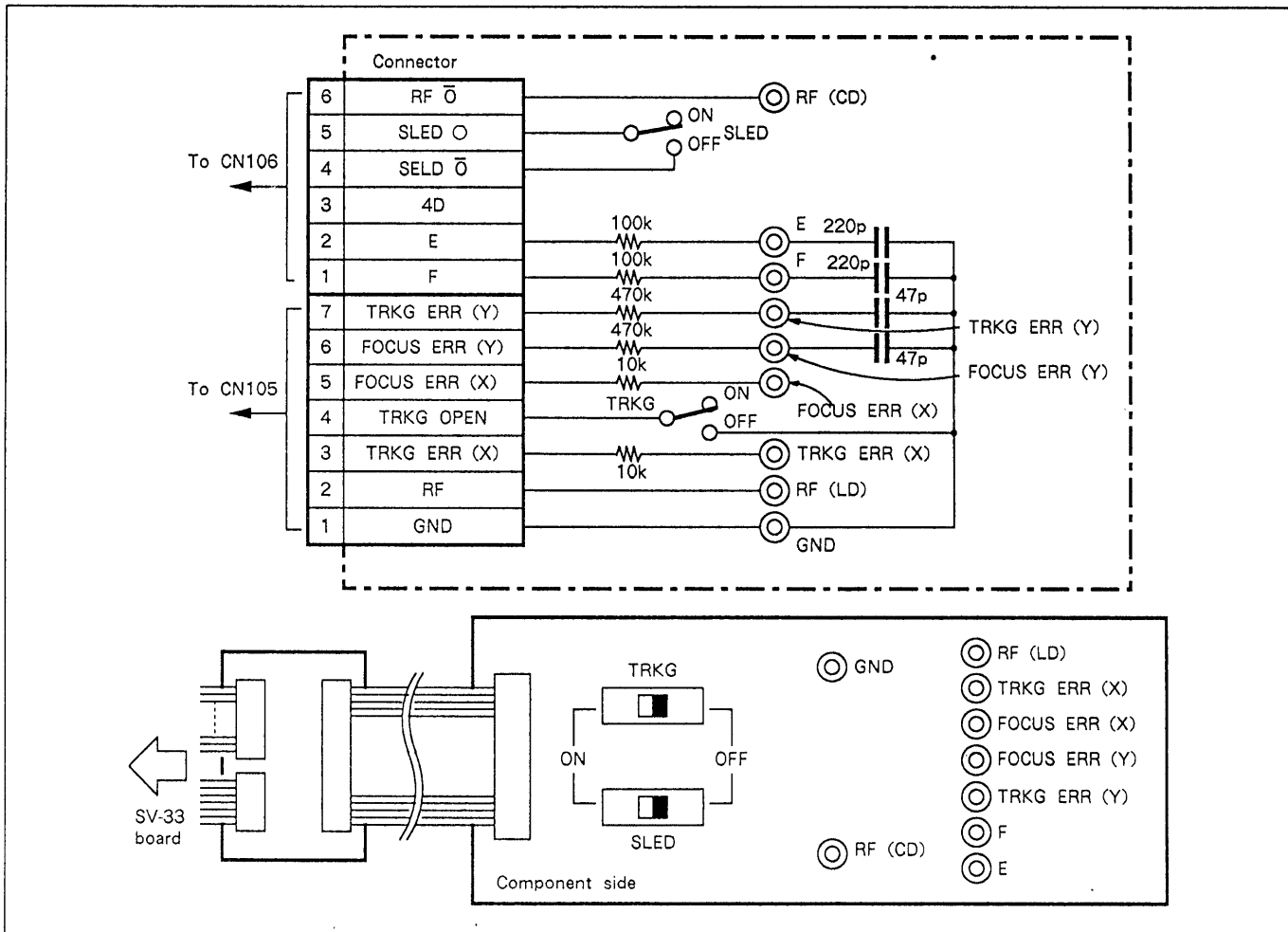


Fig. 7-1.

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 ⑥ 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-31 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.

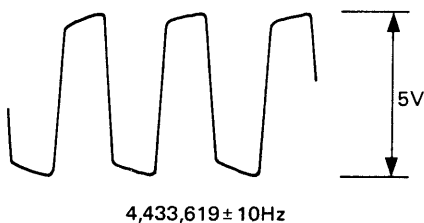


Fig. 7-2.

1-5-2. Microprocessor Clock (NTSC) Adjustment (MP-31 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 CV602 to 3,579,545±10Hz.

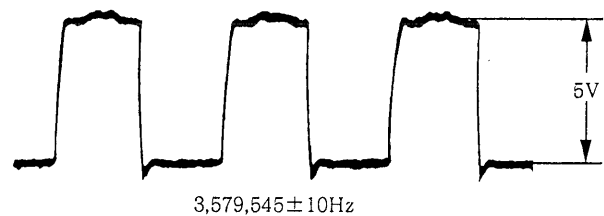


Fig. 7-3.

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 (▶) 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.

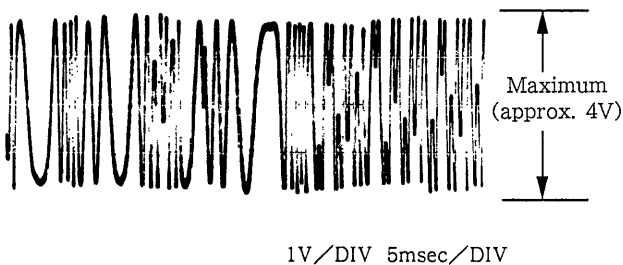


Fig. 7-4.

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.

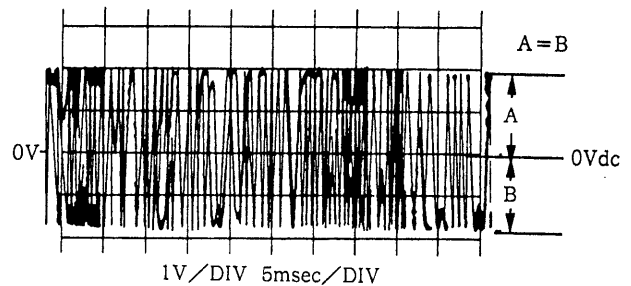
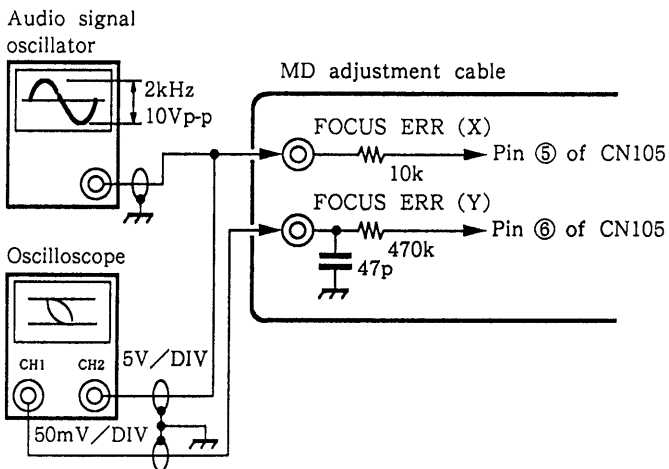


Fig. 7-5.

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

Connections :



Adjustment method :

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

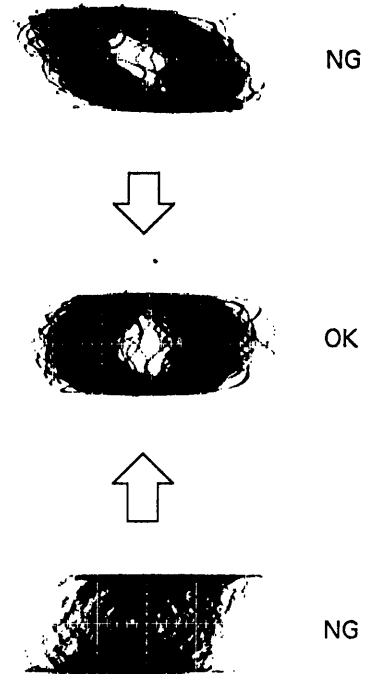


Fig. 7-6.

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. 7-7.) with a hexagonal wrench.

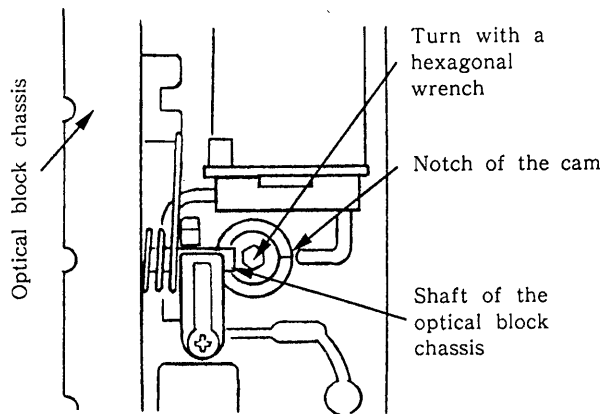


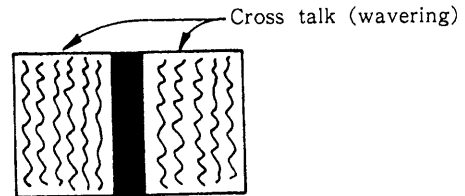
Fig. 7-7.

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 (⏸) 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 (⏸) 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.

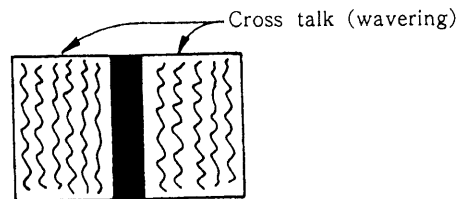
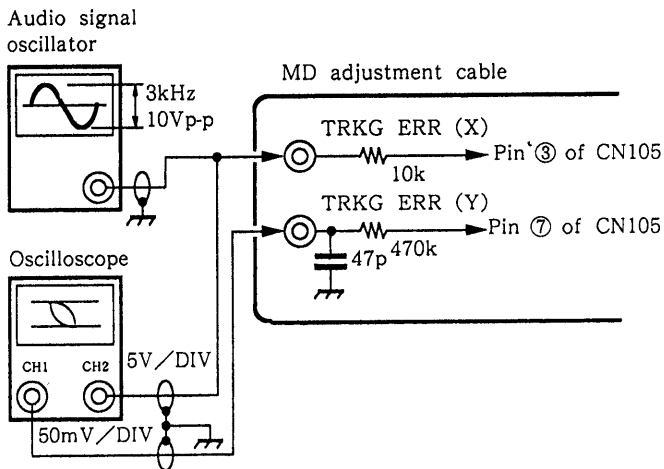


Fig. 7-9.

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.

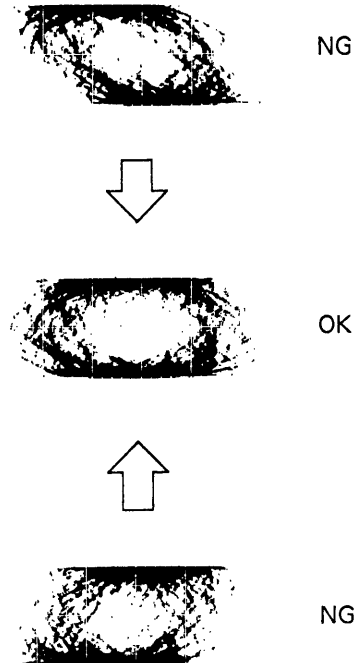


Fig. 7-10.

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.

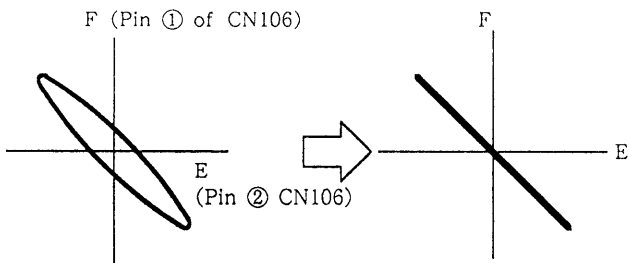


Fig. 7-11.

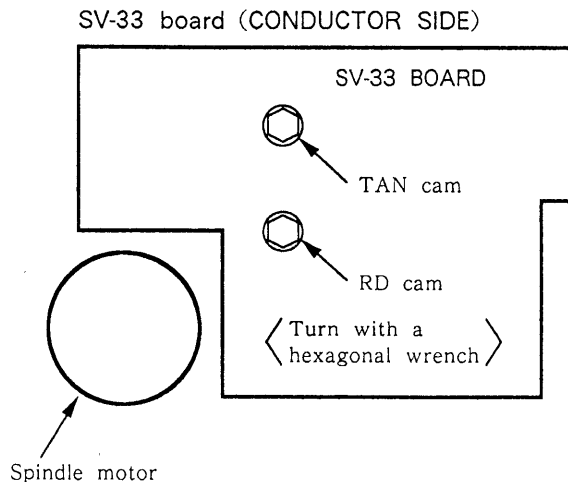


Fig. 7-12.

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.

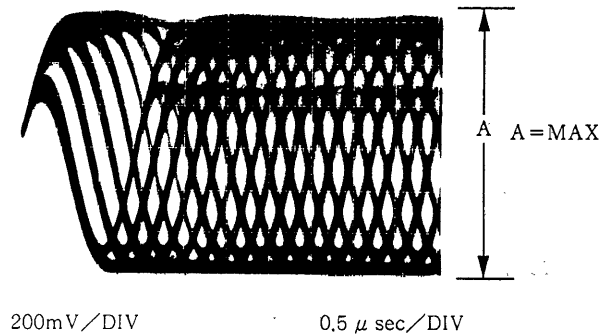


Fig. 7-13.

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 $1.2 \pm 0.1V_{p-p}$.

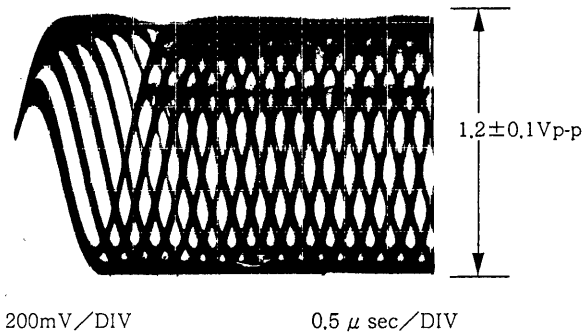


Fig. 7-14.

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.

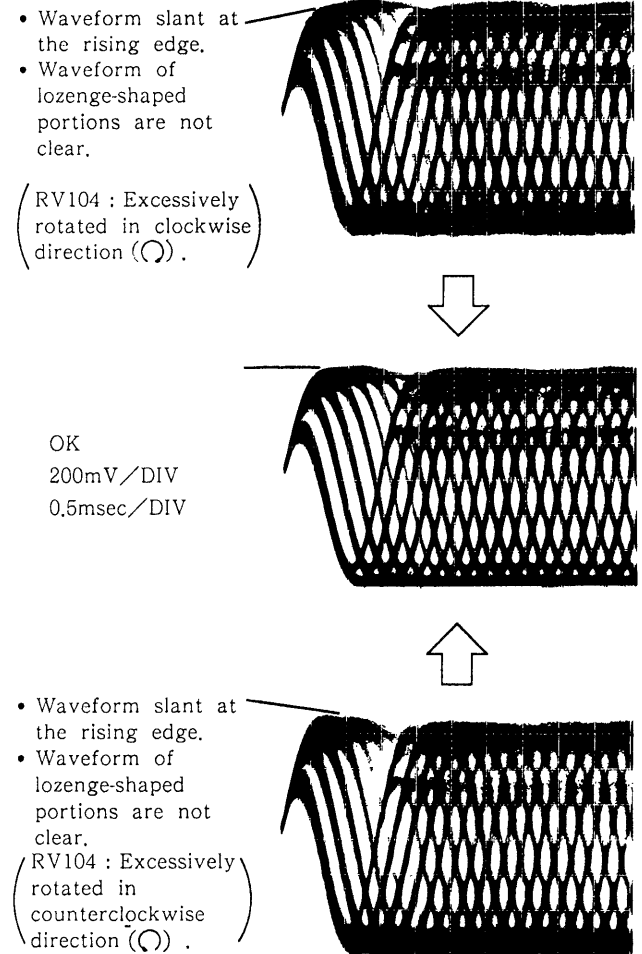


Fig. 7-15.

1-7. VIDEO SYSTEM ADJUSTMENT

1-7-1. Video Output Level Adjustment (MP-31 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.

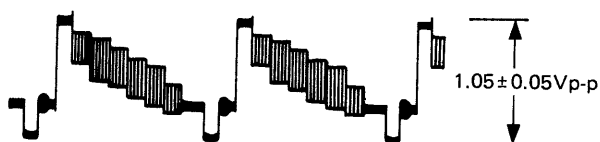


Fig. 7-16.

1-7-2. Burst Gate Position Adjustment (MP-31 Board)

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

Adjustment method:

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

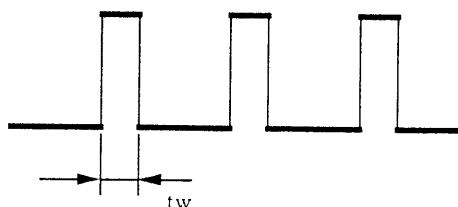


Fig. 7-17.

1-7-3. REF H Adjustment (MP-31 Board)

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] RV108 [Adj. 2] RV105
Specified Value	[Adj. 1] $85 \pm 1 \mu\text{sec}$ [Adj. 2] $22 \pm 1 \mu\text{sec}$

Connection:

- Apply 5.0Vdc to Pin ④① of IC111.

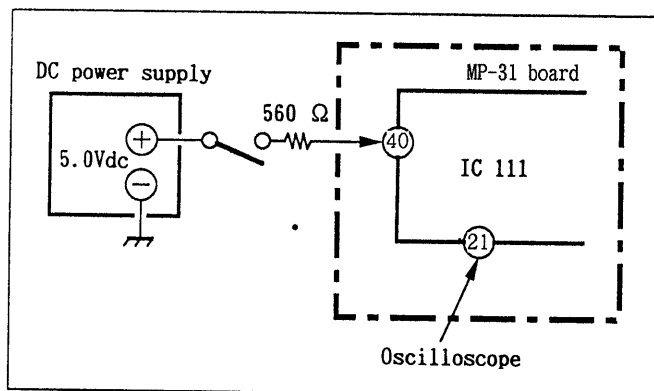


Fig. 7-18.

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 RV108 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 $85 \pm 1 \mu\text{sec.}$

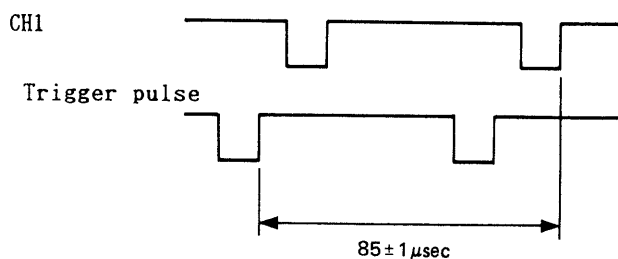


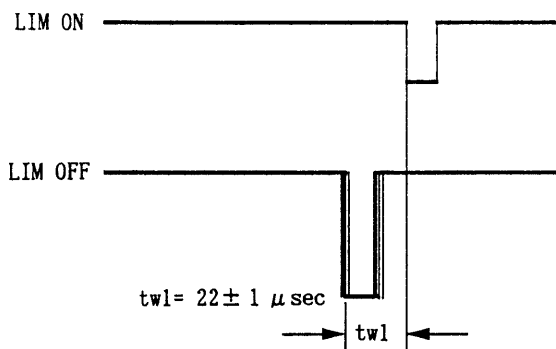
Fig. 7-19.

[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 ④ of IC111 (CH1)



- Pin 25 of IC111 (Trigger pulse)



Fig. 7-20.

1-7-4. Color Framing Y Level Adjustment (MP-31 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.

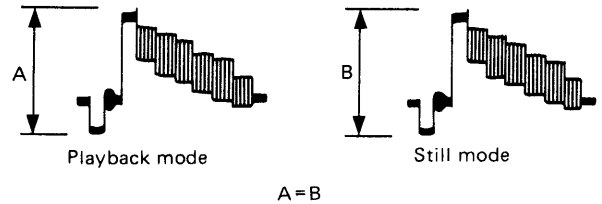


Fig. 7-21.

1-7-5. Color Framing Chroma Level (1) Adjustment (MP-31 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.

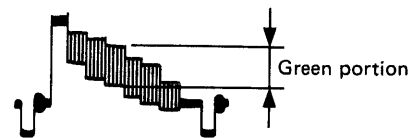


Fig. 7-22.

1-7-6. Color Framing Chroma Level (2) Adjustment (MP-31 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.

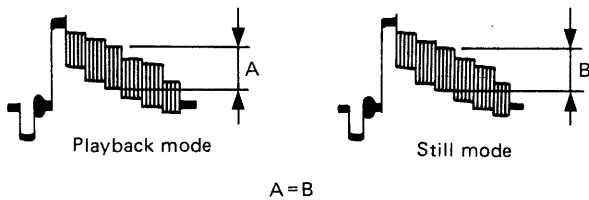


Fig. 7-23.

1-7-7. Color Framing REF H Adjustment (MP-31 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 (⏸) mode.
- 2) Search the frame 3851.
- 3) Adjust with RV106 so that t_w is $112 \pm 5 \text{msec}$.

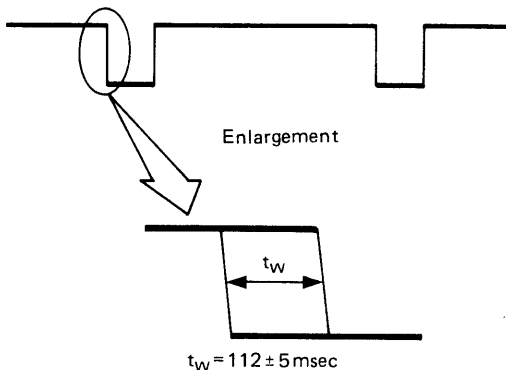


Fig. 7-24.

1-7-8. Input Level (PAL) Adjustment (RG-23 Board)

Mode	Still
Signal	Frame 3851 (color bar) (REF3P)
Measurement point	PIN ②④ of IC103
Measuring Equipment	Oscilloscope
Adjusting Element	RV101
Specified Value	$150 \pm 10 \text{mVp-p}$

Adjustment method :

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

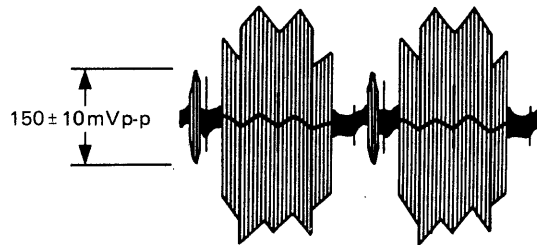


Fig. 7-25.

1-7-9. Input Level (NTSC) Adjustment (RG-23 Board)

Mode	Still
Signal	Frame 4100 (color bar) (REF7)
Measurement point	PIN ⑳ 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 $150 \pm 10 \text{mVp-p}$.

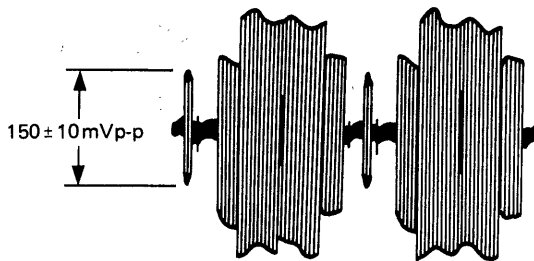


Fig. 7-26.

1-7-10. BF Position Adjustment (RG-23 Board)

Mode	Still
Signal	Frame 4100 (color bar) (REF7)
Measurement point	CH1: Pin ㉓ of IC 103 CH2: Pin ㉑ 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 $5.6 \pm 0.5 \mu \text{sec}$.

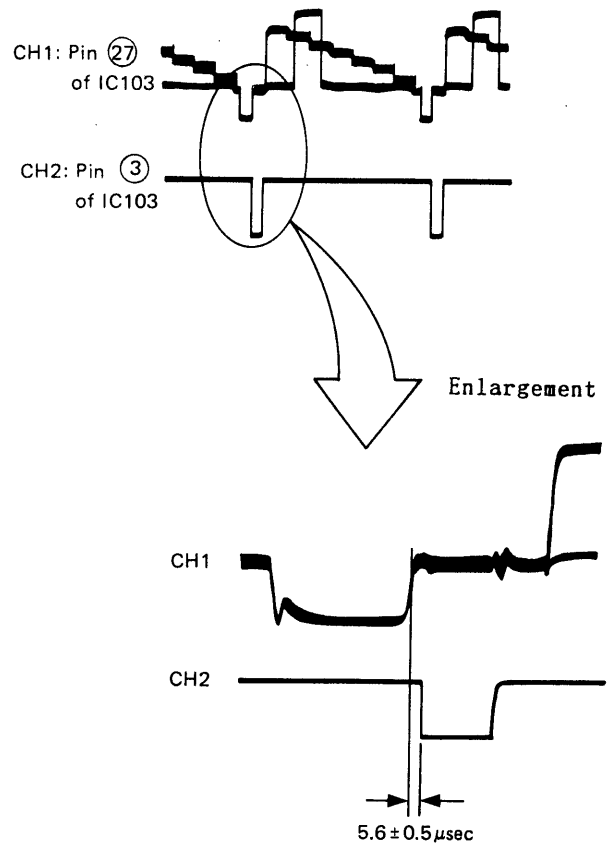


Fig. 7-27.

1-7-11. Video Level (NTSC) Adjustment (RG-23 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 (⏸) 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-23 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 (⏸) 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-23 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 (⏸) mode.
- 2) Search the frame 4100.
- 3) Adjust with RV111 to $0.7 \pm 0.05V_{p-p}$.

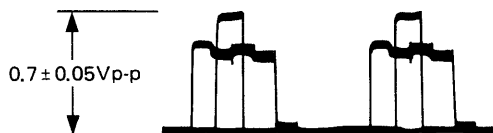


Fig. 7-29.

1-7-14. Video Level (PAL) Adjustment (RG-23 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 (⏸) 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-23 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±15Hz

Adjustment method :

- 1) Playback the REF3P disc.
- 2) Adjust with RV108 to 4,433,619±15Hz.

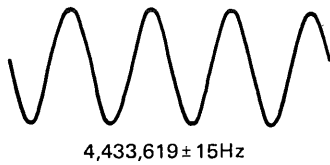


Fig. 7-32.

1-7-17. Chroma Level Adjustment (RG-23 Board)

Mode	Still
Signal	Frame 4100 (color bar) (REF7)
Measurement point	Pin ⑦ of CN101 (Terminated to 75Ω)
Measuring Equipment	Oscilloscope
Adjusting Element	RV105
Specified Value	0.53 ±0.03Vp-p

Adjustment method :

- 1) Select STILL (⏸) mode.
- 2) Search the frame 4100.
- 3) Adjust with RV105 to 0.53±0.03Vp-p.



Fig. 7-34.

1-7-16. Free-Run Frequency (NTSC) Adjustment (RG-23 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±15Hz

Adjustment method :

- 1) Playback the REF7 disc.
- 2) Adjust with CV102 to 3,579,545±15Hz.

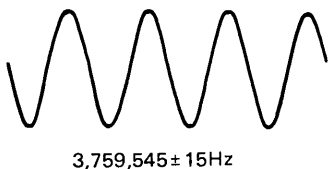


Fig. 7-33.

1-7-18. HUE Adjustment (RG-23 Board)

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

Adjustment method :

- 1) Select STILL (⏸) mode.
- 2) Search the frame 4100.
- 3) Adjust with RV109 to 0.53±0.03Vp-p.

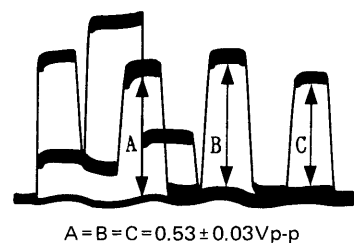


Fig. 7-35.

1-7-19. DL Amplifier Gain Adjustment (RG-23 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	$A=B=0.53\pm0.03V_{p-p}$

Adjustment method :

- 1) Select STILL (⏸) mode.
- 2) Search the frame 3851.
- 3) Adjust with RV106 to $0.53\pm0.03V_{p-p}$.

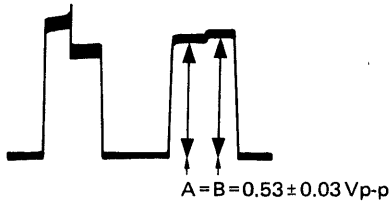


Fig. 7-36.

1-7-20. DAT Adjustment (RG-23 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 (⏸) mode.
- 2) Search the frame 3851.
- 3) Adjust with LV101 to $A-B\leq 30mV$.

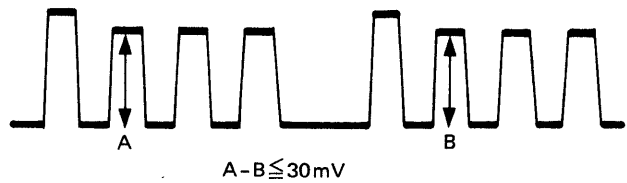


Fig. 7-37.

1-8. AUDIO SYSTEM ADJUSTMENT

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

1. Audio output level adjustment (MDP-640D/740D)

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 [RV704] to $500 \pm 25 \text{mVrms}$ or $1.4 \pm 0.07 \text{Vp-p}$.

2. Audio output level adjustment (MDP-440)

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-31 Board)

Mode	Stop
Measurement point	Pin ① 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 Pin ⑤ of IC803 (EFM) and GND.

Adjustment method :

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

1-8-3. RF PLL Free-Run Adjustment (MP-31 Board)

Mode	Stop
Measurement point	Pin ⑦ of IC803
Measuring Equipment	Frequency counter
Adjusting Element	LV801
Specified Value	$4.405 \pm 0.005 \text{MHz}$

Connections:

Connect the chemical capacitor ($1 \mu\text{F}$ or more) in between Pin ⑤ (EFM) of IC803 and GND.

Adjustment method :

- 1) Adjust with LV801 to $4.405 \pm 0.005 \text{MHz}$.

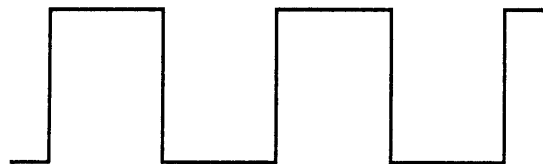
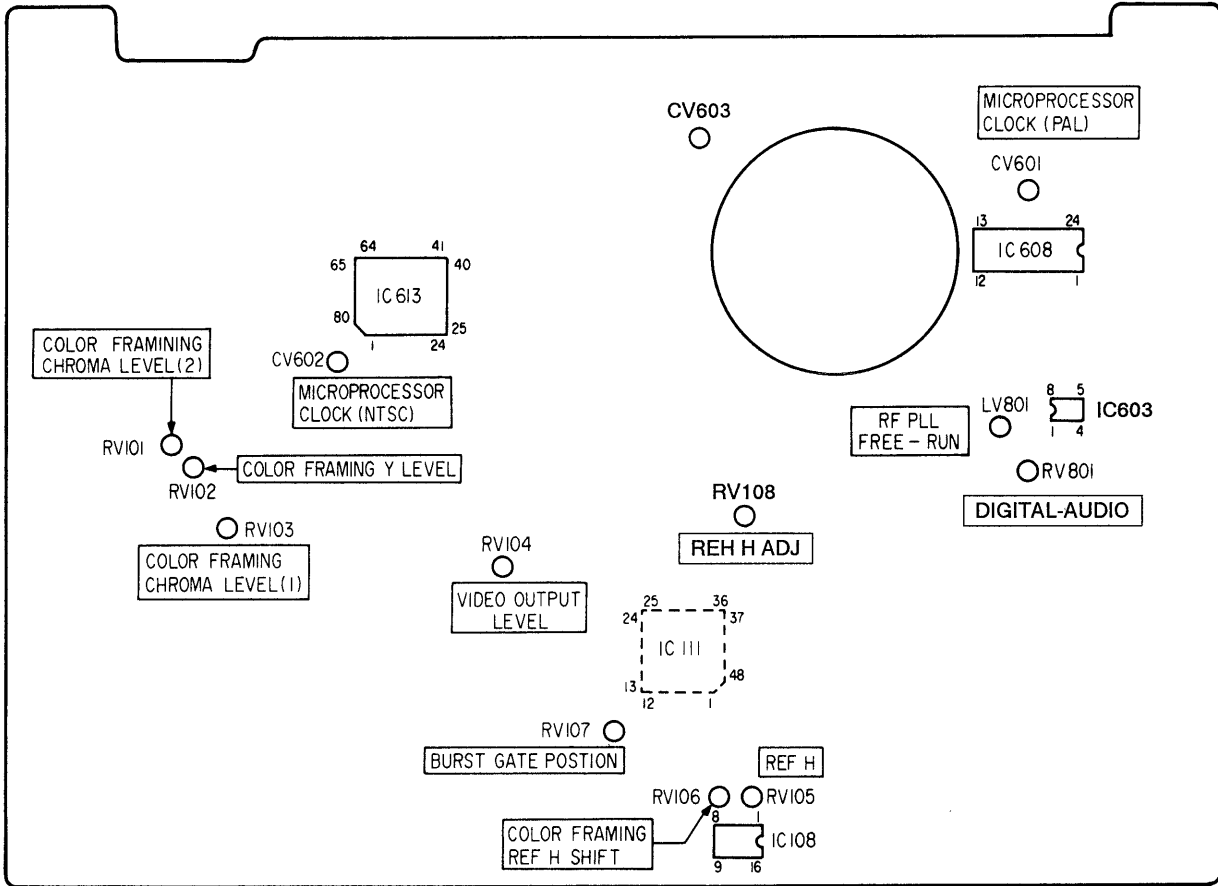


Fig. 7-38.

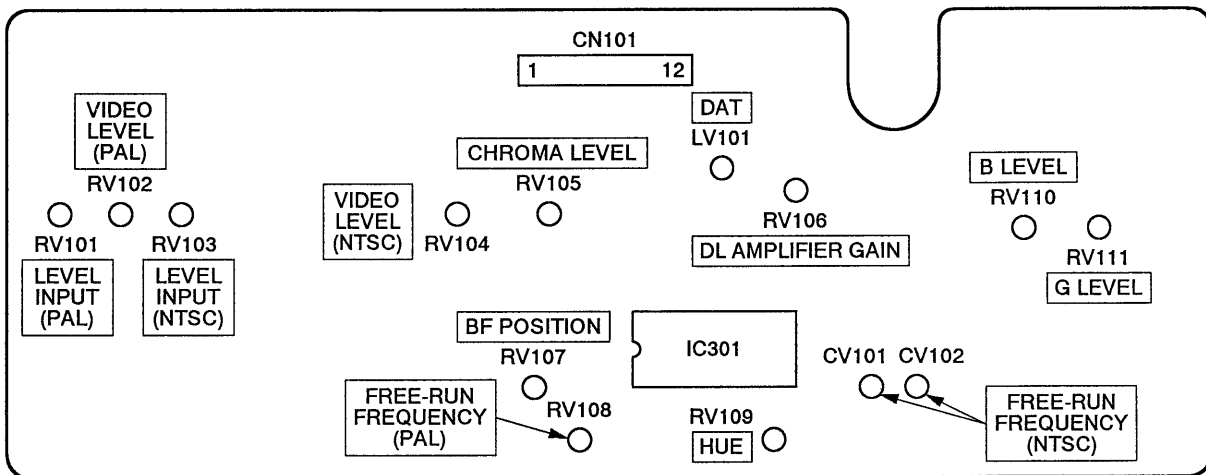
Note: If adjusting with a metallic screwdriver, a reading value may be altered. So use a ceramic screwdriver.

ADJUSTMENT RELATED PARTS LOCATION

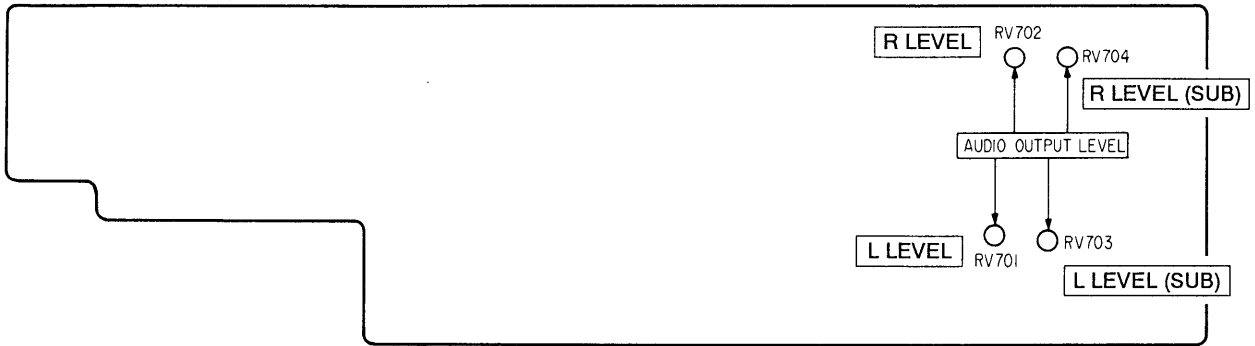
MP-31 BOARD (CONDUCTOR SIDE)



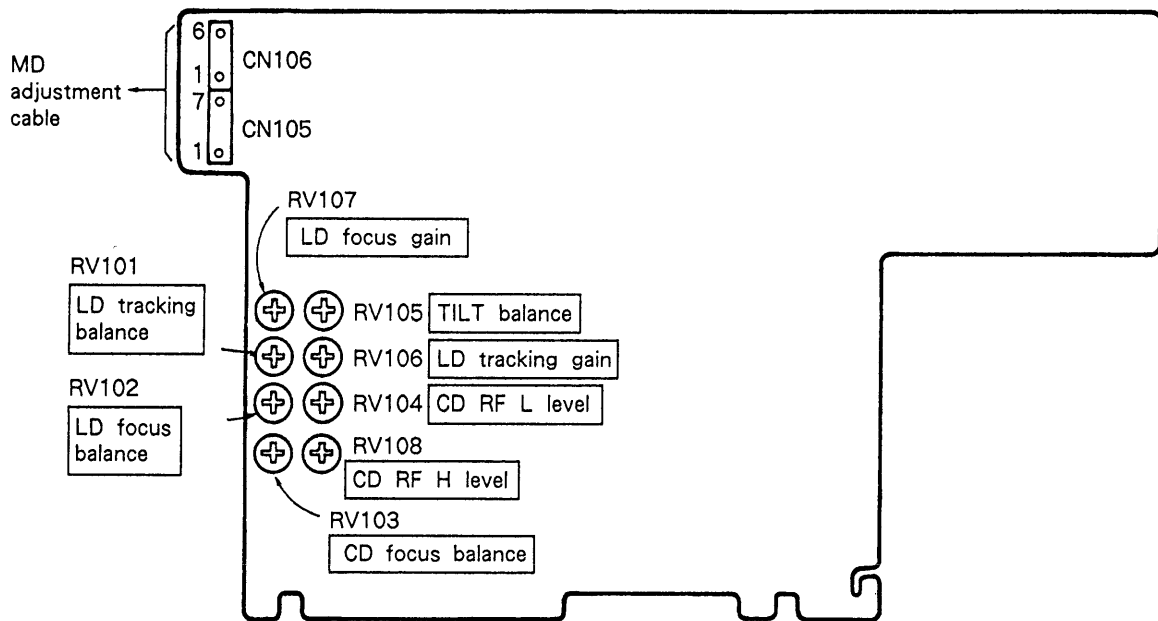
RG-23 BOARD (COMPONENT SIDE)



AF-52 BOARD (CONDUCTOR SIDE)



SV-33 board (CONDUCTOR SIDE)



PS-193 board (CONDUCTOR SIDE)

