

MDP-210/322GX

RMT-322A

SERVICE MANUAL

US Model
Canadian Model

: MDP-210

E Model

: MDP-322GX



Photo : MDP-322GX

SPECIFICATIONS

Type
Signal readout
Signal format
Playing time

CD/CDV/LD Player
Optical (Laser beam reflection)
EIA standard, NTSC color

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

(minutes)

Channel separation More than 100 dB (EIAJ)
Wow and flutter Below measurement limit
(±0.001% W.PEAK) (EIAJ)
Horizontal video resolution 425 lines
Video output 1.0 Vp-p, 75 ohms, unbalanced
Audio output Analog: 200 mVrms (1 kHz, 40% modulation)
Digital: 200 mVrms (1 kHz, -20 dB)
VHF input/output 75 ohms, unbalanced LD output, NTSC channel 3 or 4 (switchable)
Headphone output 28 mW (32 ohms), impedance = 8 ohms

— Continued on page 2 —

● SERVICE OF REMOTE COMMANDER RMT-322A

Remote commander RMT-322A is available as a unit. But as individual parts the battery case lid of commander is only available.

Digital audio specifications

Frequency response 4 Hz to 20 kHz (+0.5 dB, -1.0 dB)
Signal-to-noise ratio More than 107 dB (EIAJ)*
Dynamic range More than 96 dB (EIAJ)
Total harmonic distortion 0.003% or less (at 1 kHz, EIAJ)

CD VIDEO CD/CDV/LD PLAYER
SONY®



Power requirements	MDP-210: 120 V AC, 60 Hz MDP-322GX: 100/120/220/240 V AC adjustable, 50/60 Hz MDP-322GX (tourist model): 120/220/240 V AC adjustable, 50/60 Hz
Power consumption	40 watts
Weight	Approx. 7.6 kg (16 lb 12 oz)
Dimensions	Approx. 430 x 110 x 400 mm (w/h/d) (17 × 4 ³ / ₈ × 15 ³ / ₄ inches)
Operating temperature	+5°C to +35°C
Ambient humidity	5 to 90%

* Measured according to EIAJ (Electronic Industries Association of Japan) standards.

Remote Commander RMT-322A



Principle of operation	Infrared pulse
Power requirements	3 V DC, (2 size AA batteries)
Dimensions	Approx. 62 × 20 × 175 mm (w/h/d) (2 ⁷ / ₁₆ × 3 ³ / ₄ × 7 inches)
Weight	Approx. 130 g (including batteries), (4 ¹ / ₂ oz)

Supplied accessories


Remote Commander RMT-322A (1)
Size AA (R6) batteries (2)
External antenna connector (for MDP-322GX only) (1)
Coaxial cable with F-type connector (1)
Video connecting cord (phono plug 1 ↔ phono plug 1) (1)
Audio connecting cord (phono plug 2 ↔ phono plug 2) (1)
AC plug adaptor (for MDP-322GX only) (1)

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.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE  SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

PRECAUTIONS

On safety

- Should any solid object or liquid enter the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the wall outlet if it is not to be used for an extended period of time. To disconnect a cord, pull it out by the plug. Never pull the cord itself.
- One blade of the plug is wider than the other for the purpose of safety and will fit into the power outlet only one way. If you are unable to insert the plug fully into the outlet, contact your dealer.

On installation

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

On moisture condensation

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

On operation

- Remove the disc from the tray after playing it, if the unit will not be used for any length of time. Do not transport the set with a disc in place.
- When the disc tray is in the open position, do not press down on it strongly, or place heavy objects on it.

On cleaning

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

On repacking

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

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

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
6. Check the B+ voltage to see it is at the values specified.
7. Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

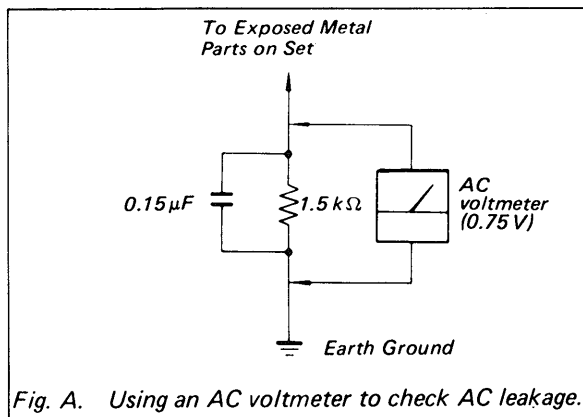


Fig. A. Using an AC voltmeter to check AC leakage.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

As the laser beam used in this Videodisc Player is harmful to eyes, do not attempt to disassemble the cabinet.

Refer servicing to qualified personnel only.

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Location and Function of Controls

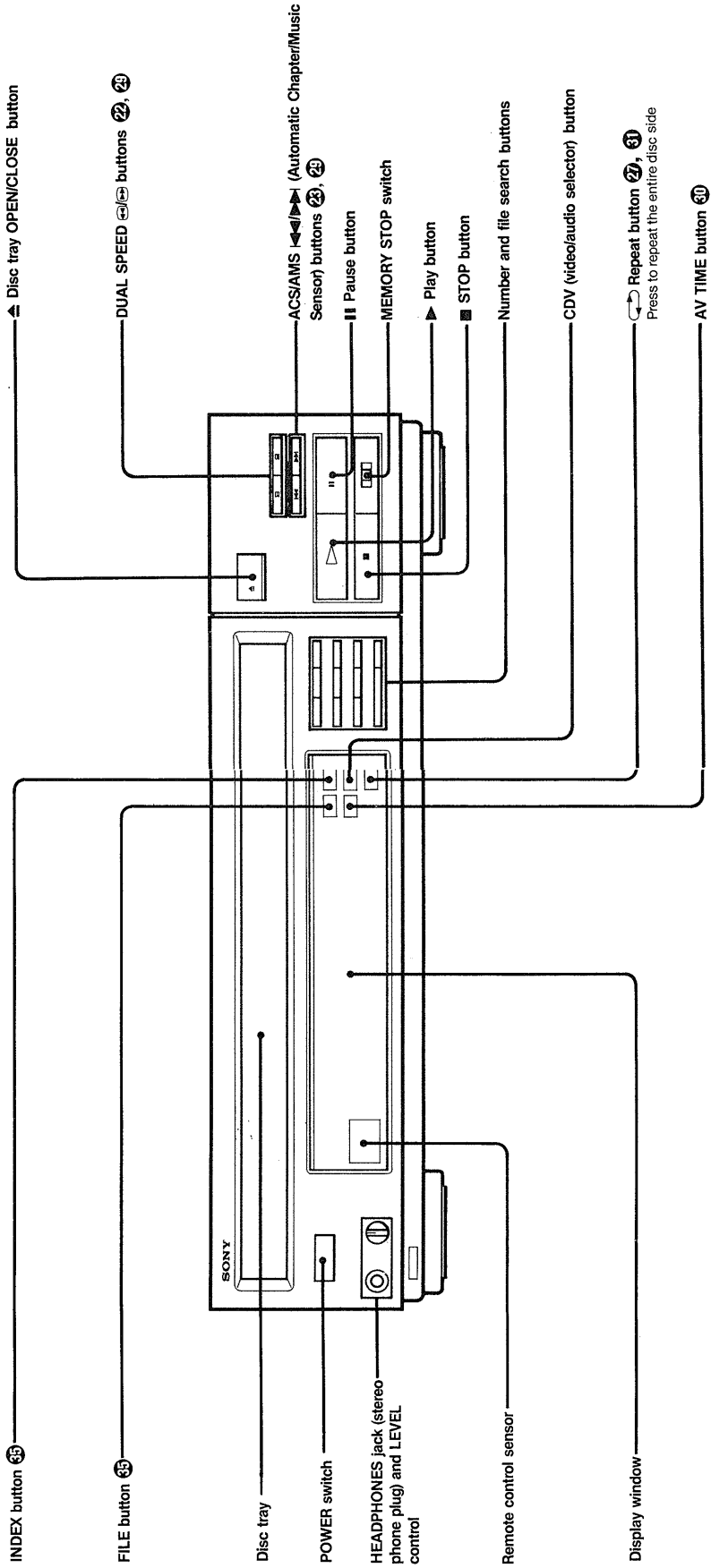
Refer to the page indicated in the black circle for details.

Continued overleaf

SECTION 1 GENERAL

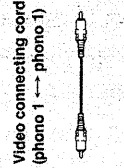
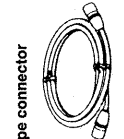
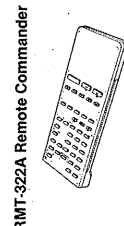
This section is extracted from instruction manual.

Front panel



Accessories

The shipping box should contain the following accessories.



for MDP-322GX

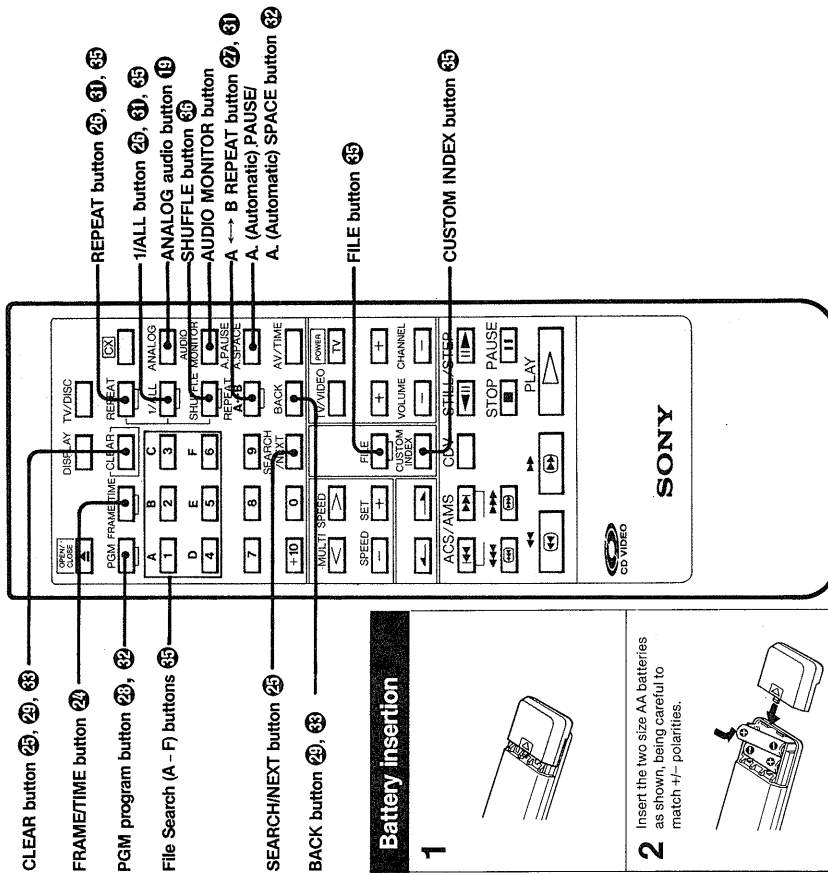
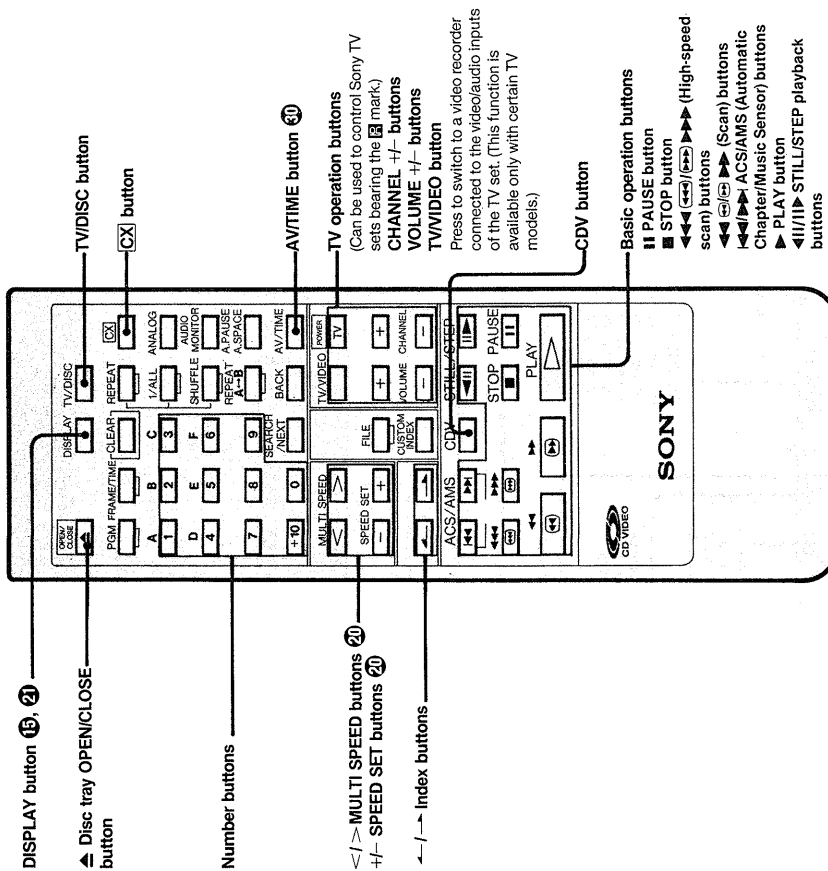
for MDP-210

for MDP-322GX only

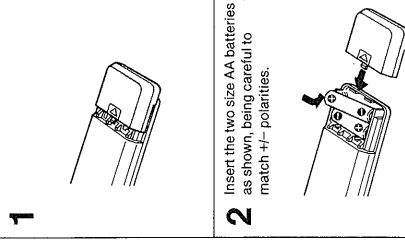
Location and Function of Controls

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

Remote Commander



Battery insertion



Remote Commander Precautions

- Do not let sunlight or light from a powerful artificial light source fall directly on the Remote Commander sensor on the front panel as it may interfere with operation or damage the sensor.

Battery life

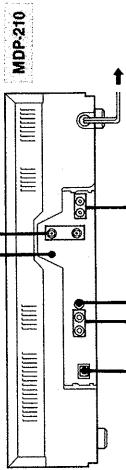
- In normal operation, batteries will last for about six months. If the operating range of the Remote Commander becomes noticeably short, replace the batteries with new ones.

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

RF channel selector

Use this to change the VHF channel.

VHF IN/OUT terminals (F-type)
The VHF OUT terminal provides only monaural output.



DIGITAL OUTPUT CONNECTOR (optical)
This jack permits optical fiber connection to an amplifier or D/A converter unit with optical input. For connection, use the optional audio fiber cable POC-15.

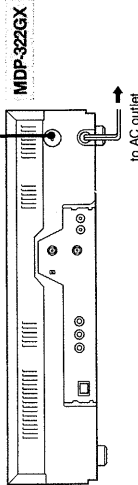
AUDIO OUT jacks (phono jacks)
Connect to the audio input jacks of a TV set or the AUX input jacks of an amplifier. The output signal is the same—that is, digital or analog—as that recorded on the disc.

VIDEO OUT jack (phono jack)
Connect to the video input jack of a TV set or VCR.

CONTROL S IN/OUT jacks (mini jacks)
Connect the IN jack to the CONTROL S OUT jack on a TV set and the OUT jack to the CONTROL S IN jack on a VCR. These connections permit the control of the player and the VCR using the remote sensor on the TV.
• Attaching the CONTROL S IN jack to the CONTROL S OUT jack on a TV set with the RK-G69 connecting cord (optional) allows you to operate the player by pointing the Remote Commander at the TV set instead of at the player.

Input/output terminals for the MDP-322GX are identical to those of the MDP-210. The only differences are that the MDP-322GX has a voltage selector and no AC outlet.

Voltage selector



Connection Precautions

- Make sure that all equipment is OFF before connecting or disconnecting any cables.
- Check the color of the plugs; yellow indicates video; white, left audio channel; red, right audio channel.
- Firmly insert the plugs into the jacks. A loose connection can lead to noise.
- When unplugging a cable, grasp the plug. Never pull on the cable.
- To prevent interference, turn off all equipment that is connected, but not currently in use.

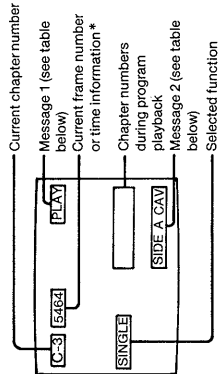
- If there is noise in the audio or video output, try moving the equipment further apart.
- Connection methods differ; when in doubt, consult the manufacturer's manual.

Connection of optical fiber cable

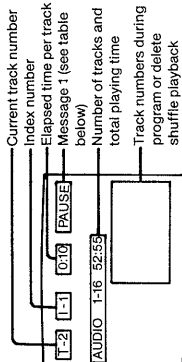
- Remove protective cover.
- Plug in connector firmly.

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 for LD and CDV is shown on a blue background and information for CD is shown on a green background.

LD

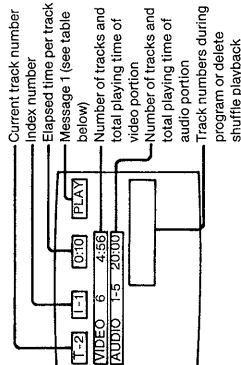


CD



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

CDV



To call up the on-screen display.



Remote commander

Press the button again to turn the display off.

Message 1

Display	Explanation	(Examples)
OPEN	Disc table open	
CLOSE	Disc table closed	
PLAY	Playback	
STOP	Stop	
PAUSE	Pause	
⏮	Forward/reverse speed scan	
SEARCH	Search	
▶ × 1/2	1/2 speed display in forward direction	

Message 2

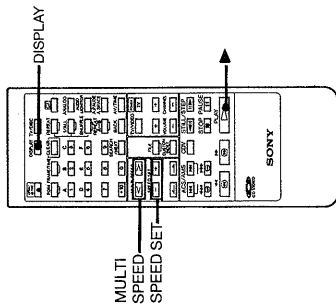
Display	Explanation	(Examples)
SIDE A CAV	Standard-play disc side A	
SIDE B CAV	Standard-play disc side B	
SIDE A CLV	Long-play disc side A	
SIDE B CLV	Long-play disc side B	
1L	Main soundtrack/left channel	
2R	Second soundtrack/right channel	
⌂ DIGITAL	Digital sound	
⌂ ANALOG	Analog sound	

LD precaution

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

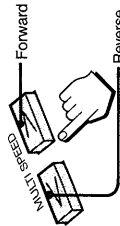
To Change Playback Speed and Direction

—Speed Play (CAV standard-play)

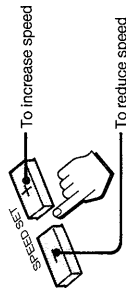


To change the speed

1 Select the playback direction.



2 Select the playback speed.

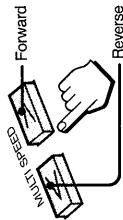


Speed Indication	Speed (approx)
x10	10 times normal speed
x5	5 times normal speed
x3	3 times normal speed
x2	2 times normal speed
x1	Normal speed
x1/2	1/2 normal speed
x1/4	1/4 normal speed
x1/8	1/8 normal speed
x1/16	1/16 normal speed
x1/30	1/30 normal speed
x1/90	1/90 normal speed

Fast ← → Slow

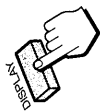
Press the **▶** button to resume normal playback.

To change the direction

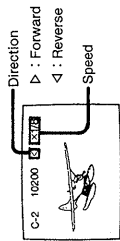


Press the **▶** button to resume normal playback.

To display the speed and direction



The direction and speed appear on the screen for 2-3 seconds.



To Play Frame by Frame

—Freeze-frame, STEP playback (CAV standard-play)

To view a still picture:

—Freeze-frame



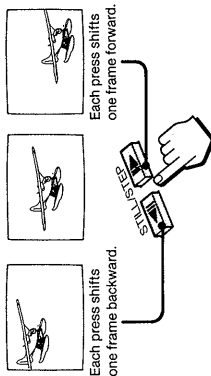
The screen stops at the current frame.
Press the **▶** button to resume normal playback.

To view one frame at a time:

—STEP playback



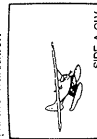
Press once for freeze-frame.



Each press shifts one frame forward.
Each press shifts one frame backward.
Hold the button down for continuous frame by frame viewing.
Press the **▶** button to resume normal playback.

Sound during speed play
Audio output occurs only during x1 (normal) speed play in the forward direction. There is no sound output for other speed and direction combinations.

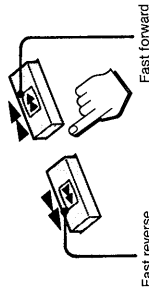
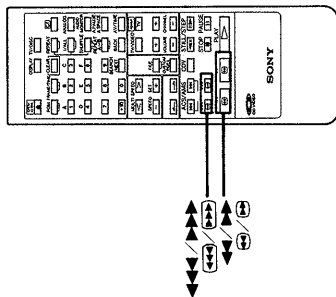
CLV discs
Speed play, freeze-frame and step playback are not possible with CLV discs.
When a multispeed button is pressed, the indication "SIDE A CLV" or "SIDE B CLV" is shown for 3 seconds. When the **▶** button is pressed, the screen becomes blue and the indication "SIDE A CLV" (or "SIDE B CLV") is shown.



During freeze-frame or step playback operation
There is no sound output.

Discs with automatic picture stop code
When a recorded picture stop code is encountered during speed playback (at x1, 1/2, 1/4, 1/8, 1/16, 1/30, 1/90), the unit automatically stops at that frame. To resume playback, press the **▶** button or one of the **◀▶**, **◀▶**, **◀▶**, **◀▶** buttons.

To Search for a Particular Scene — Scanning

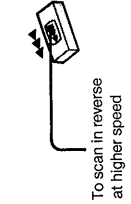


Fast reverse

Fast forward

Scanning continues until the button is released.

To scan at higher speed

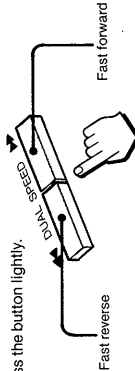


To scan in reverse at higher speed

To scan forward at higher speed

Using the buttons on the main unit

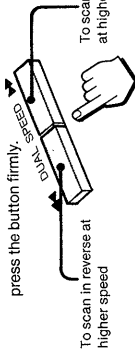
For normal scan in forward or reverse, press the button lightly.



Fast reverse

Fast forward

For high-speed scan in forward or reverse, press the button firmly.



To scan in reverse at higher speed

To scan forward at higher speed

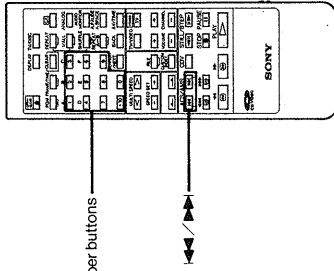
While scanning in either direction

- There is no sound output.
- The image during scanning with a CLV disc will be in black and white with some instability.
- Scanning speed varies according to the position on the CLV disc.
- A certain amount of noise is inevitable with all scanning operations.

To check the current chapter/track and frame/time numbers

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

To Search for a Particular Scene — Searching by Chapter/Track Number



Number buttons

Direct chapter or track search

Example Locate the beginning of chapter 8.



Press "8" button.

If you've pressed the wrong number, simply press the correct one.

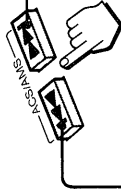


Searching for chapter 8.

CAV

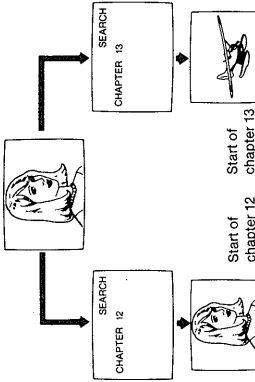
On the CAV disc, search can occur while in freeze-frame, pause and speed play operation as well as normal playback. When the desired chapter appears after search, playback will continue in the same mode.

Skip chapter or track search



Press once to return to the start of the current chapter/track. Press a second time—before the picture reappears—to return to the start of the previous chapter/track.

Example Current chapter = 12



To enter a number greater than 10

Use the +10 and -10 buttons.

Examples: 14: $\text{SEARCH} \rightarrow \text{+10} \rightarrow \text{4}$
20: $\text{SEARCH} \rightarrow \text{+10} \rightarrow \text{+10} \rightarrow \text{0}$

If the +10 button was pressed by mistake

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

NOTES

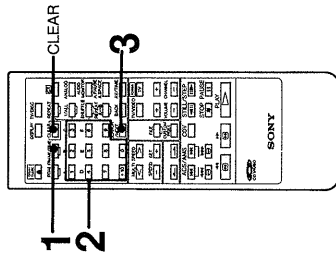
- The chapter search feature will not function if the disc does not include chapter numbers. In this case, the screen message will give only frame or time numbers.
- If a chapter number not contained on an LD is entered, playback stops. If the REPEAT function is on (see page 28), playback will resume from the start 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

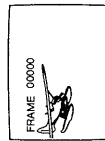
—Searching by Frame Number

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

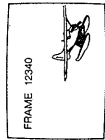
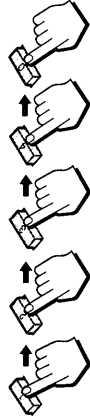
Example Locate frame number 12340.



1 Press the FRAME/TIME button.

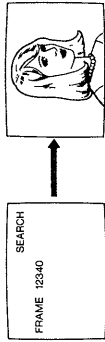


2 Enter the frame number.



If you make a mistake
Press the FRAME/TIME button once more to return the display indication to zero, and then enter the correct number.

3 Press SEARCH/NEXT button.



Playback starts at that number.

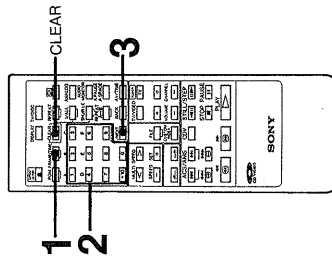
Search can occur while in the freeze-frame, pause, and speed play modes as well as the normal playback mode. When the desired frame appears after the search, playback continues in the same mode.

To Search for a Particular Scene

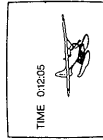
—Searching by Time

Extended-play discs keep track of position as elapsed time from the beginning of the disc.

Example Locate the 12 min 05 sec point.

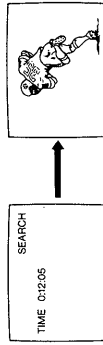


2 Enter the time.



If you make a mistake
Press the FRAME/TIME button once more to return the display indication to zero, and then enter the correct number.

3 Press the SEARCH/NEXT button.



Playback starts at that number.

Frame search

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

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

Warning

If a frame number not contained on a disc is entered, playback stops. If the REPEAT function is on (see page 20), playback will resume from the start of the disc.

Time search

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

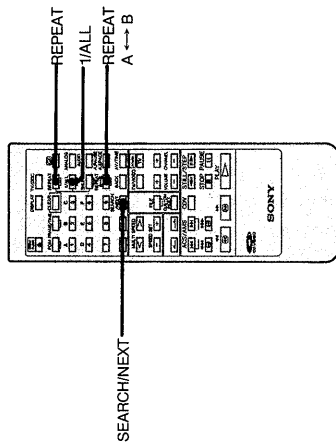
To check the current chapter and time numbers
These numbers appear in the display window on the player. Press the DISPLAY button on the Remote Commander to display them on the screen.

Warning

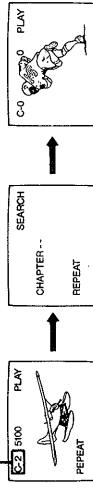
- If the disc does not include time data to the second, enter the time in minutes only.
- If the number selected is greater than the total time of the disc, playback stops. If the REPEAT ALL function is on, however, playback then resumes from the beginning of the disc.

To Play Repeatedly

To repeat the entire side of the disc



Current chapter/track



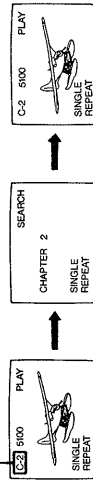
When the player reaches the end of the side, it automatically repeats the side.

(Shown on TV screen when DISPLAY button is pressed) REPEAT lights up in the player's display window.

To repeat the current chapter or track



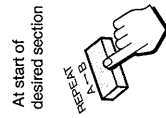
Current chapter/track



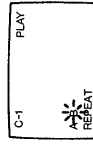
When the player reaches the end of the chapter/track, it automatically repeats that chapter/track.

(Shown on TV screen when DISPLAY button is pressed) REPEAT, SINGLE lights up in the player's display window.

To repeat a specific section of a disc



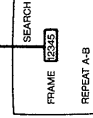
At start of desired section



(Shown on TV screen when DISPLAY button is pressed) A ↔ B lights up in the player's display window.

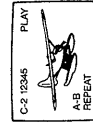


At end of desired section



A ↔ B lights up in the player's display window.

Start of A ↔ B repeat section



Unit returns to start of specified section and resumes playback.

To use custom repeat
To carry out repeat playback between two predefined points on the disc, refer to page 8.

To cancel A ↔ B repeat
Press the CLEAR button.

To cancel repeat functions other than A ↔ B
Press the REPEAT button again to cause the REPEAT indicator in the display window to go out. (The same button that was used to activate repeat — on the main unit or the Remote Commander — must be pressed to cancel it.)

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

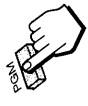
To Play Only Certain Chapters/Tracks — Program Playback

This function plays up to 20 chapters or tracks in a specified order.

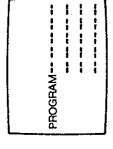
Example Play LD chapters 5, 4, 2, and 6 — in that order.

1 CLEAR
2 BACK
3 SEARCH/NEXT
4 PGM
5 PGM
6 PGM

1 Press the PGM button.



PGM indication lights in the player's display window.



2 Enter the chapter numbers.

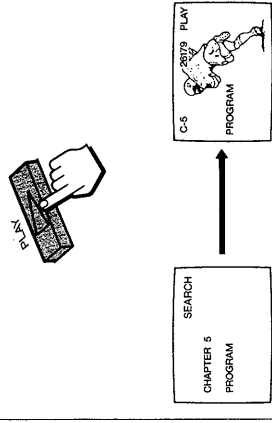
If you make a mistake
Press the CLEAR and PGM button and enter the correct numbers.

To start over
Press the CLEAR and PGM button and enter the correct numbers.

To change a number
Press the NEXT (to advance) or BACK (to back up) buttons until the incorrect number on the screen flashes. Enter a new number.

For LDs containing TOC (Table of Contents) data, the total playback time of programmed chapters is shown.

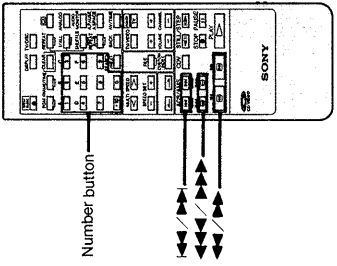
3 Press the ► button.



The player searches for and then plays the first chapter/track specified—chapter 5 here. After playing all programmed chapters, playback stops.

To Search for a Particular Selection

To search by track number



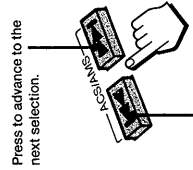
Number button

Enter the track number.

To play a single track once
Use the 1/ALL button on the remote control to call up the SINGLE display. 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 the 1/ALL button again.

When a wrong number was entered
Press the button for the correct number.

To skip selections



Press to advance to the next selection.

Press once to return to the beginning of the current selection. Press again to return to the previous selection.

To search for a particular point

To scan forward
Release the button to resume normal playback.

To scan backward
Press the button to resume normal playback.

To scan at higher speed
Press strongly.

To scan at higher speed
Press the button repeatedly to revert to normal scan.

To release or cancel program playback
Press the CLEAR button or the 1/ALL button. The unit reverts to normal playback.

To repeat program playback
Press the REPEAT button to call up the REPEAT display.

To enter chapter numbers over 10
Use the 10 and 0 buttons.
Example: To enter 14: 10 4
To enter 20: 10 0 0 0

If the 10 button was pressed by mistake
Press the button repeatedly to enter 0—07.

To move to a preceding or following programmed track
Press the ◀ or ▶ button.

To check the program contents
Press the PROGRAM button. The program is displayed for about 3 seconds. The currently played program number is flashing.

Warning

- When the 10 or 0 button is kept depressed during program playback, and the end of the current selection is reached, the next programmed chapter or track is played back. When the 10 or 0 button is kept depressed, the start of the current selection is recalled, but the unit does not go back to previous tracks.
- When the program contains chapters or track numbers which are not in use, the program may not be played. Use of track numbers which are not in use, the program contents are shown until the disc is removed or its power is switched off.

LD with TOC Data
When a program was entered for an LD containing TOC data, the following display is shown.
Example: 5, 4, 2, 6 are programmed.

LD	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20
CH	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20
TIME	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

LD with TOC Data
When a program was entered for an LD containing TOC data, the following display is shown.
Example: 5, 4, 2, 6 are programmed.

Currently playing chapter: 5
Order in which the chapter is programmed: 5, 4, 2, 6

Total playback time of all programmed chapters: 00:20:00

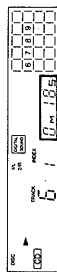
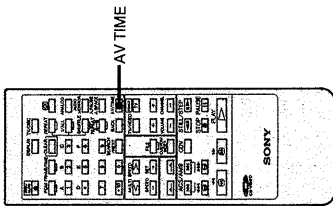
If the chapter number, 0 or track or chapter numbers higher than 20 were programmed, on if the total playback time exceeds 100 minutes, the total playback time is not shown.

To enter chapter numbers over 10
Use the 10 and 0 buttons.
Example: To enter 14: 10 4
To enter 20: 10 0 0 0

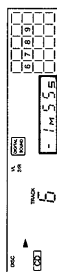
If the 10 button was pressed by mistake
Press the button repeatedly to revert to normal scan.

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

To Change Time Display



Elapsed time for selection



Time remaining for selection



Reverts to elapsed time for selection

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



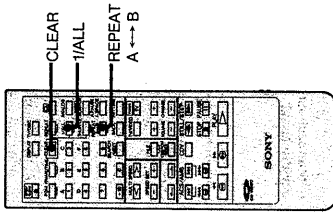
Display on TV screen

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

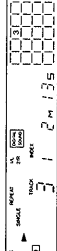
Note

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

To Play Repeatedly

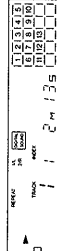


To repeat the current selection —SINGLE Repeat



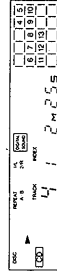
Current selection (track) is continuously repeated. Deactivate REPEAT display to repeat selection only once.

To repeat all selections —ALL Repeat



The entire disc is continuously repeated.

To repeat a specific section of a disc — A ↔ B Repeat

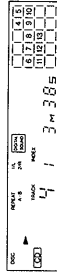


At start of desired section



At end of desired section

Flashing of A ↔ B indicator stops and the specified section is continuously repeated.



To cancel A ↔ B Repeat, press the CLEAR button.

To cancel ALL or SINGLE Repeat

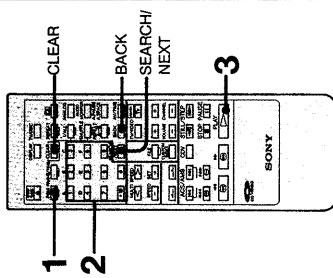
Press the REPEAT button that was used to activate repeat—on the main unit or the Remote Commander—again.

Note on LD discs

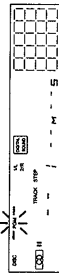
The time display function is available only with an LD containing TOC data. First, the elapsed time or the number of frames is displayed. Pressing the AV TIME button then changes the time display as shown above.

To Play Only Certain Selections

Example Play tracks 5, 4, 2, and 6—in that order.



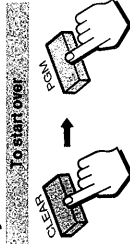
1 Press the PGM button.



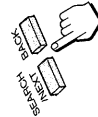
2 Enter the track numbers.



If you make a mistake



To change a number



Press the NEXT (to advance) or BACK (to back up) buttons until the incorrect number on the screen flashes. Enter a new number.

Press the CLEAR and PGM button and enter the correct numbers.

3 Press the ► button.



The player searches for and then plays the first selection specified—track 5 here. After playing all programmed tracks, playback stops.

Auto Pause

After a selection is played, the player enters the pause mode.

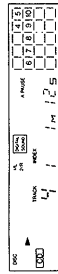
Auto Space

A blank interval of 3 seconds is inserted between playback of each selection.

The same button is used to activate auto pause and auto space.

Auto Pause

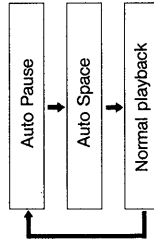
Press the A. PAUSE/A. SPACE button.



To start playback of next selection Press the ► button.

To return to normal playback

Each press of the A. PAUSE/A. SPACE button cycles the unit through the following conditions.



Auto Space

Press the A. PAUSE/A. SPACE button.



To release or cancel program playback
Press the CLEAR button or the SINGLE/ALL button. The unit reverts to normal playback.

To enter chapter numbers over 10
Use the +10 and 10⁻ buttons.

Example: To enter 14: [+10] → [4] → [0]

To enter 20: [+10] → [+10] → [0]

If the +10 button was pressed by mistake
Press the button repeatedly to revert to — or 1.

To check track and time information on a TV or monitor screen
Turn on power to the TV or monitor. Time and track for the CD/CDV is shown on the screen.

During program play

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

Note

Once program playback begins, there are two ways to switch to a different chapter/track in the program:

(1) Use the ► button to advance to the next chapter/track on the list. Using the ◀ button will return the player to the beginning of the current chapter/track and no further.

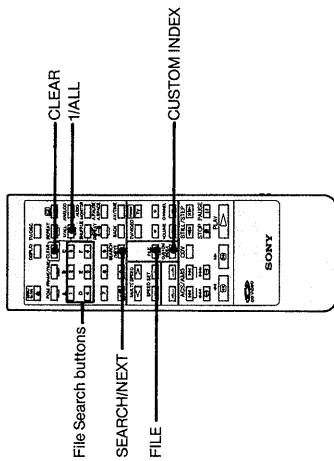
(2) To switch to the previous or next program, use the +10 and 10⁻ buttons (forward or reverse) as you normally would to skip chapters/tracks within the program list.

• Track numbers not contained on a disc cannot be entered.

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.

To repeat a program
Press the REPEAT button to cause the REPEAT indicator in the display window to light up.

Custom Index



Custom Index

The Custom Index function lets you set up to six index marks at any point on the disc. Playback can then be started from an index point at the push of a button, and repeat playback between index points is also possible. This chapter explains how to set custom index marks on an LD, but the function can also be used for CDs or CDVs.

To set a custom index mark

Press the FILE button during playback.



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

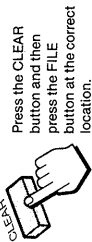
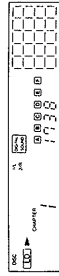


Indicators A, B, C, etc. light up for each custom index mark.

If you make a mistake



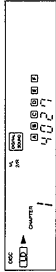
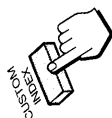
Use the SEARCH/NEXT button to cause the file indicator to flash.



Press the CLEAR button and then press the FILE button at the correct location.

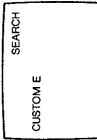
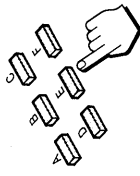
Custom Index Search

1 Press the CUSTOM INDEX button.



The AV calendar goes out and the number buttons 1 - 6 act as file search buttons A - F.

2 Press the file search button for the desired location.



Playback starts from the specified index point and continues until the end of the disc.

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

To return to normal playback
Press the CUSTOM INDEX button or the CLEAR button.

Index point rearrangement

The custom index points are arranged on the disc not by the order in which they were input but by their relative location from the start of the disc. If a new index mark is set before an old one, the A, B, C, ... order is rearranged.

Note

While custom index search is performed, the A, B, C, ... file search indicators go out one by one, but the indicator for the last index point remains lit.

Custom index with a CDV disc

Although playback begins from the video portion, files will be arranged from the audio portion in A, B, C order.

How is the custom index stored?

The custom index data are not actually recorded on the disc but stored in the memory of the player. Therefore the custom index points set with one player cannot be used when the disc is played on another unit.

To clear a custom index mark

Information on index marks is retained also when the player is switched to normal playback. To cancel a stored index mark, use the SEARCH/NEXT button to cause the corresponding file search indicator to flash, and then press the CLEAR button.

Note

When the disc is removed or the player is turned off, the contents of the custom index are lost.

To play a section between custom index points once

Press the 1/ALL button, so that the indication SINGLE is shown on the display window. Then perform custom index search to the desired index start point. The section between this point and the next custom index point is played once.

To play a section between custom index points repeatedly

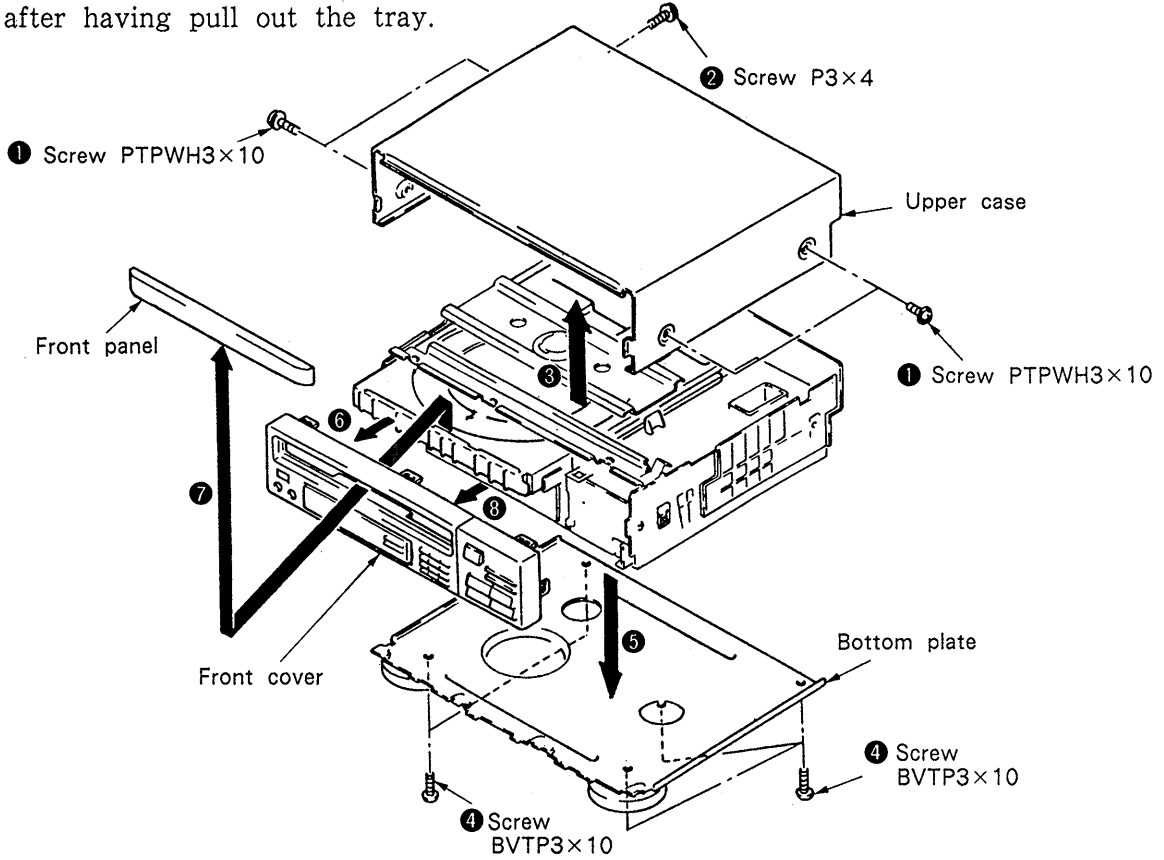
Press the 1/ALL button, so that the indication SINGLE is shown on the display window and press the REPEAT button to activate the REPEAT display. Then perform custom index search to the desired index start point. The section between this point and the next custom index point is continuously repeated.

SECTION 2 DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

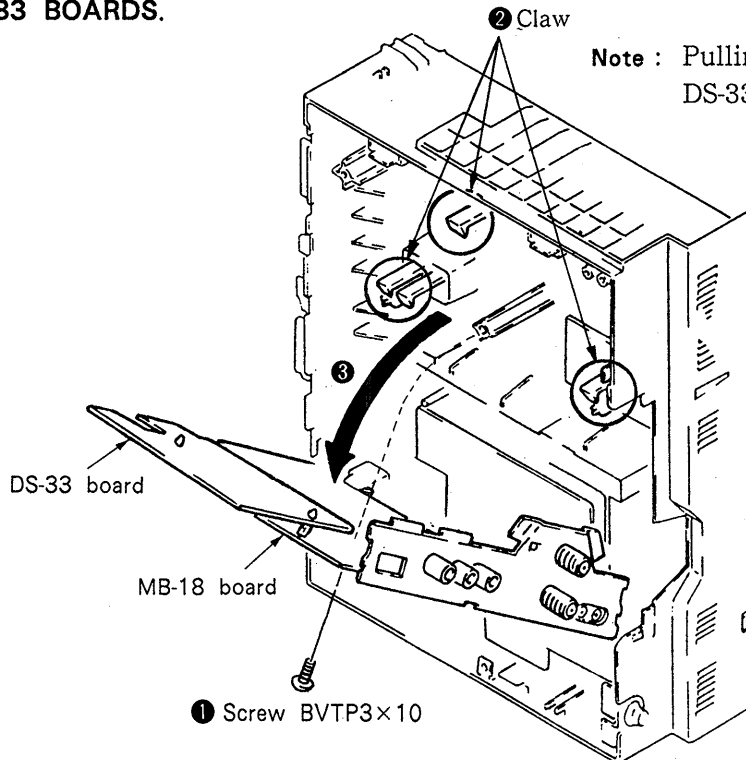
2-1. REMOVAL OF THE UPPER CASE, FRONT PANEL, BOTTOM PLATE.

Note : Make sure to remove the front cover after having pull out the tray.

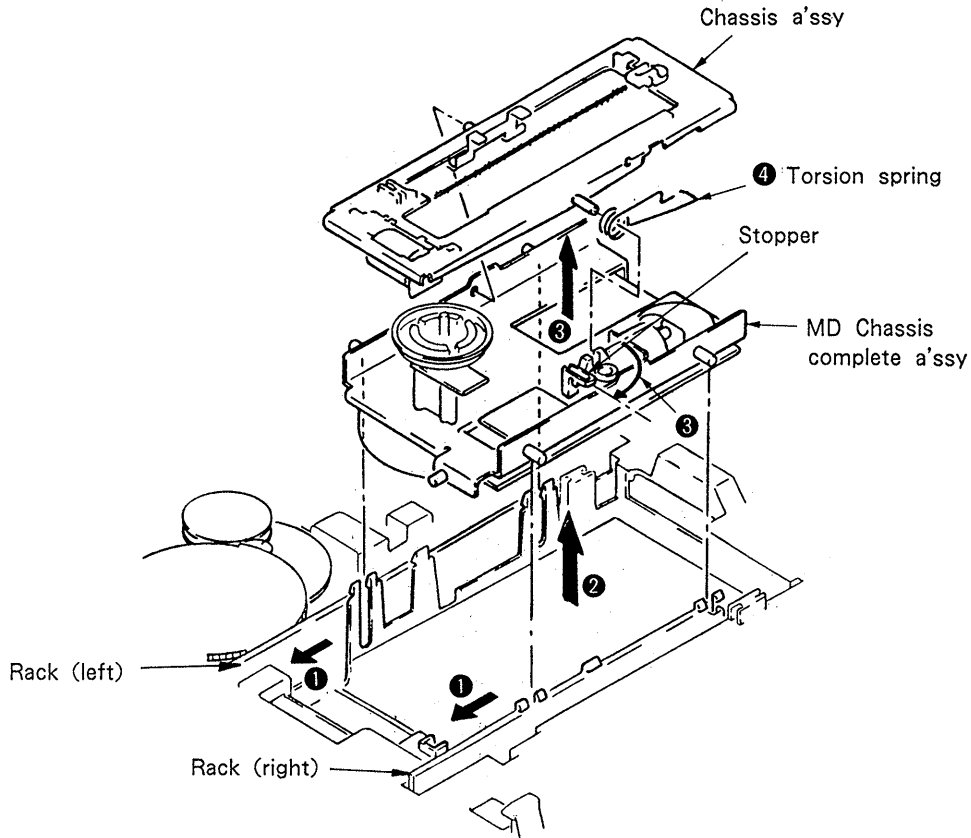


2-2. REMOVAL OF THE MB-18, DS-33 BOARDS.

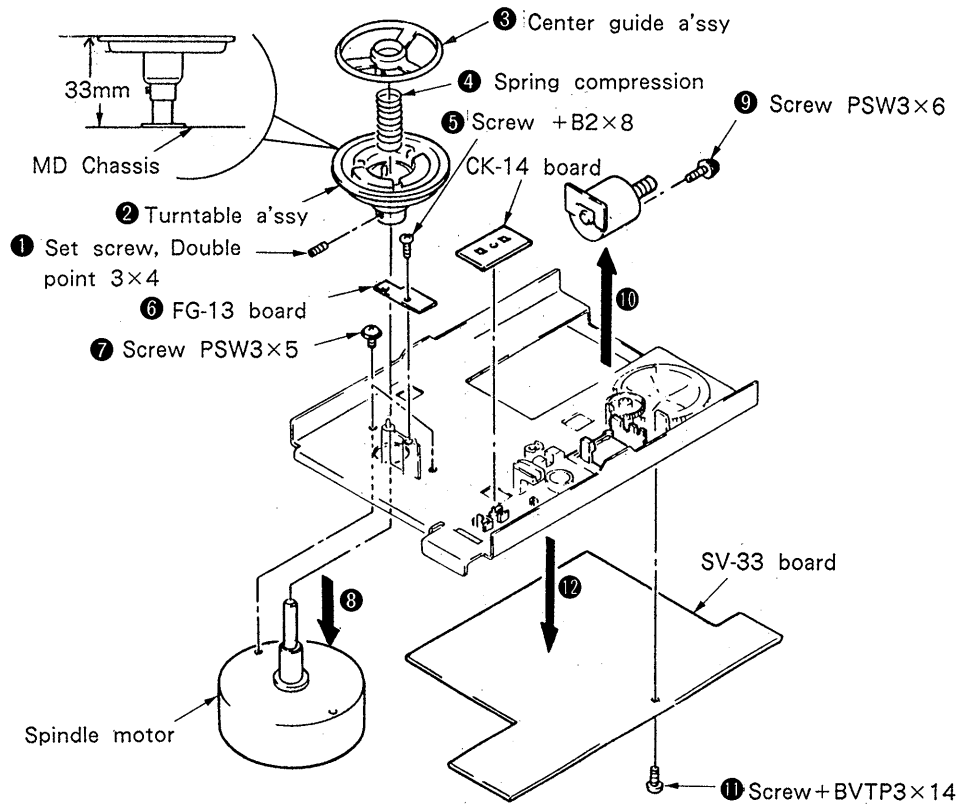
Note : Pulling out claws from fram, MB-18, DS-33 boards.



2-3. REMOVAL OF THE CHASSIS A'SSY,
MD CHASSIS.

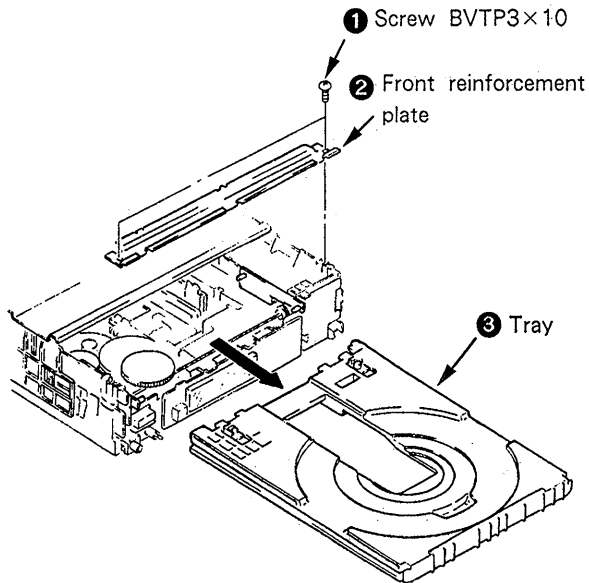


2-4. REMOVAL OF THE TURNTABLE, SPINDLEMOTOR,
TILT MOTOR, SV-33 BOARD, FG-13 BOARD.



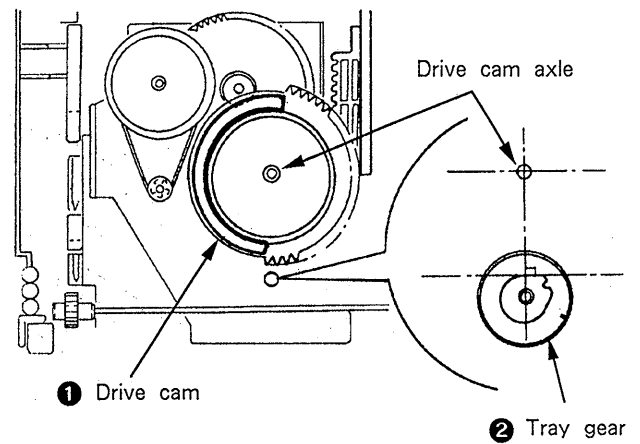
2-5. REMOVAL OF THE TRAY

Note : Make sure to remove the tray after having removed the front panel and the front reinforcement plate.



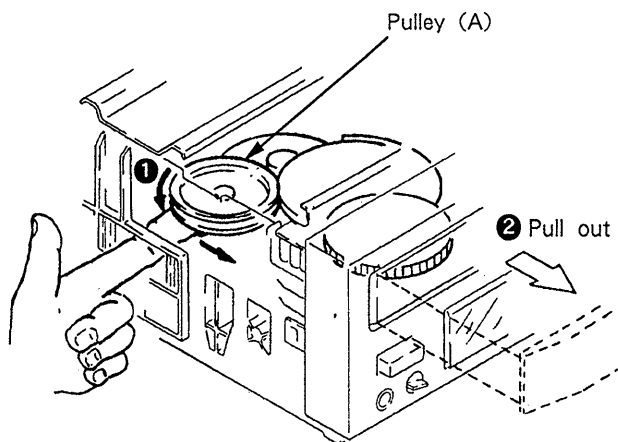
2-7. ALIGNMENT OF THE LOADING GEAR PHASE

- 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.



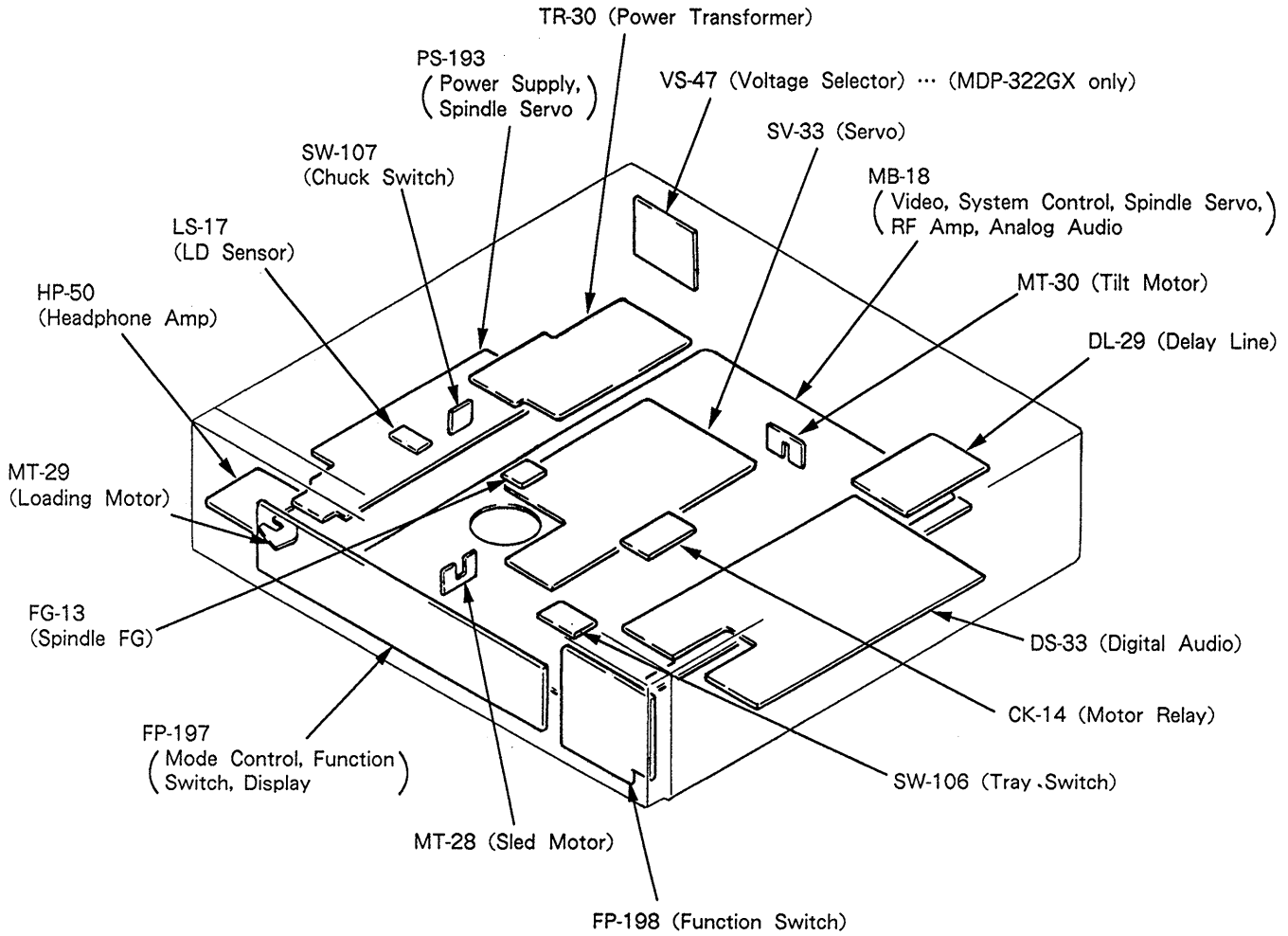
2-6. REMOVAL OF THE DISC WHEN A PROBLEM HAS OCCURRED WITH THE DISC LOADED.

- 1) Turn the pulley (A) in counter-clockwise direction until the tray starts moving.
- 2) Pull out the tray.

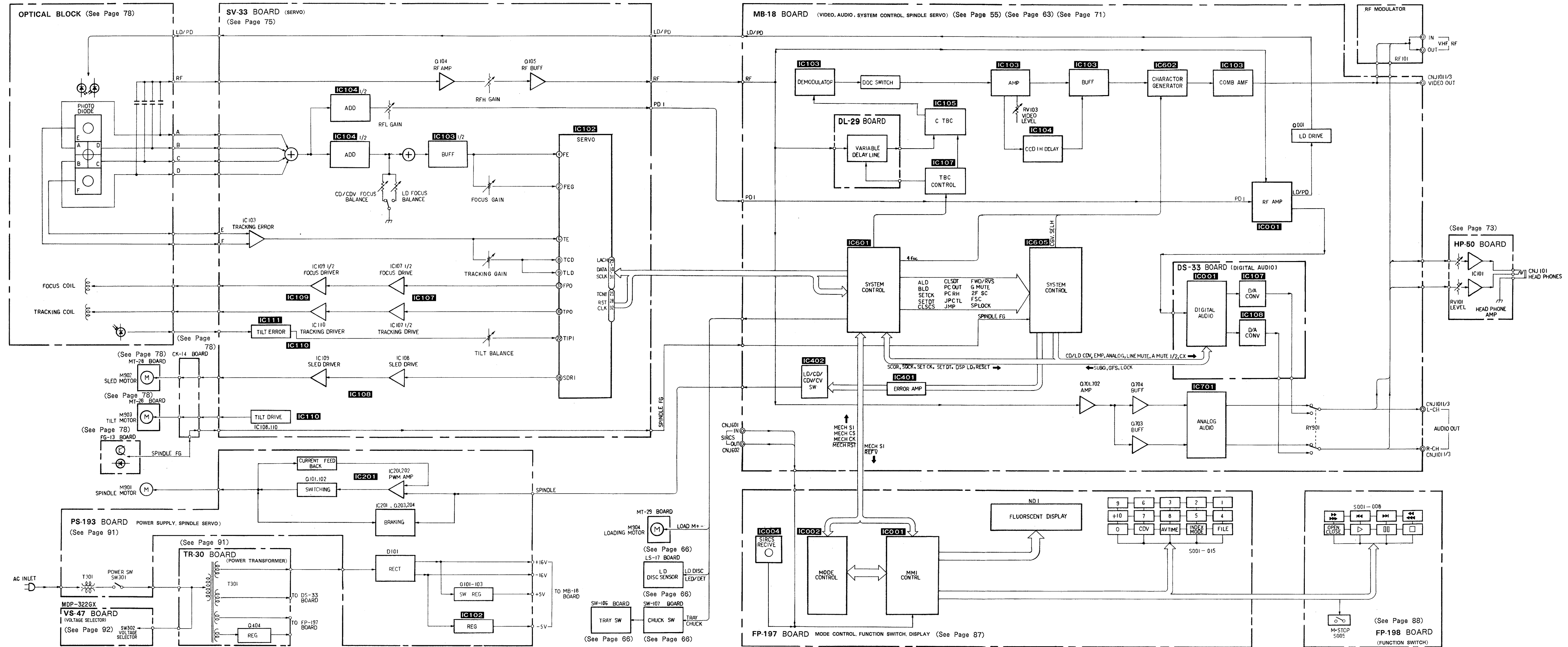


SECTION 3 DIAGRAMS

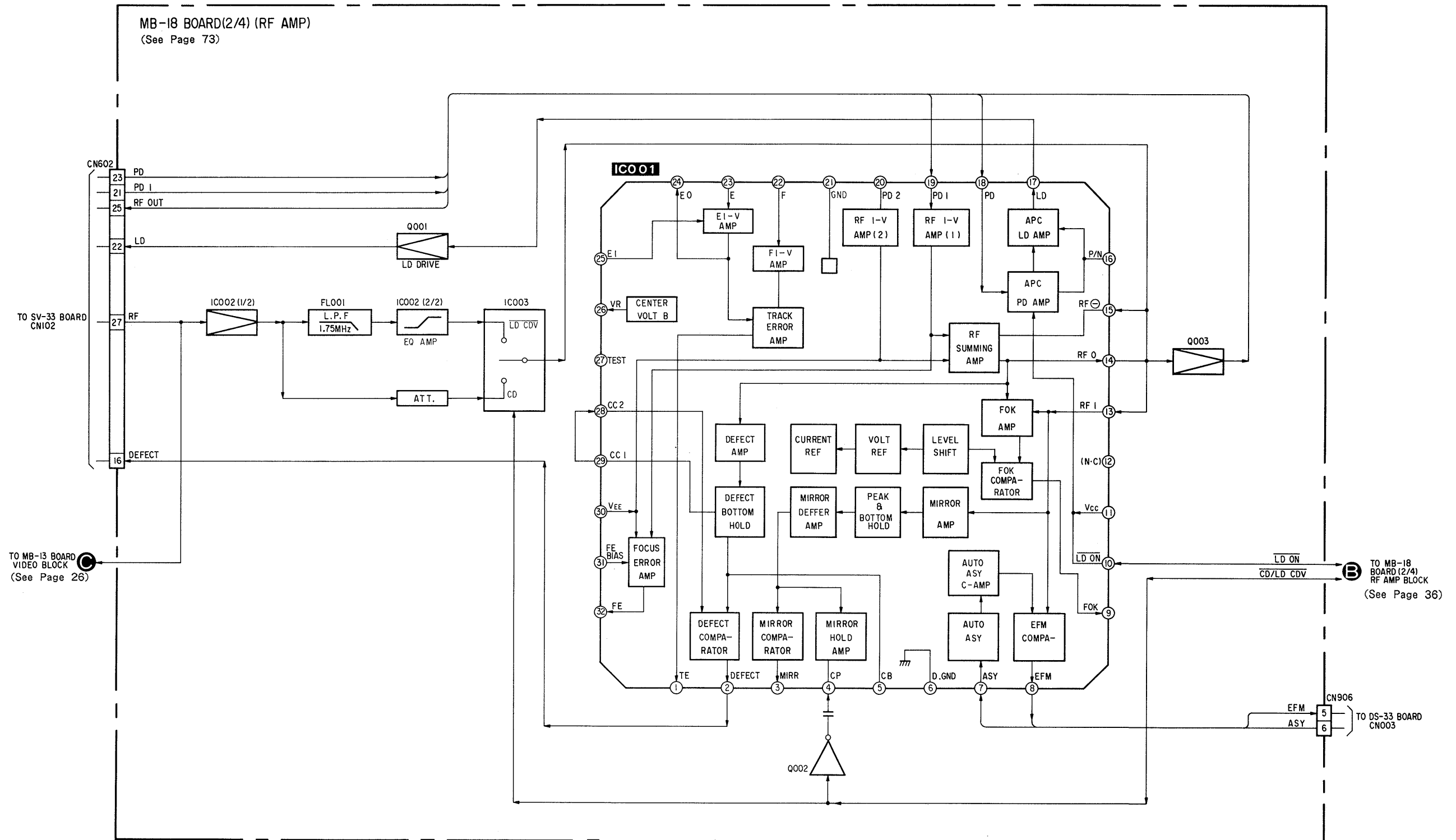
3-1. CIRCUIT BOARDS LOCATION



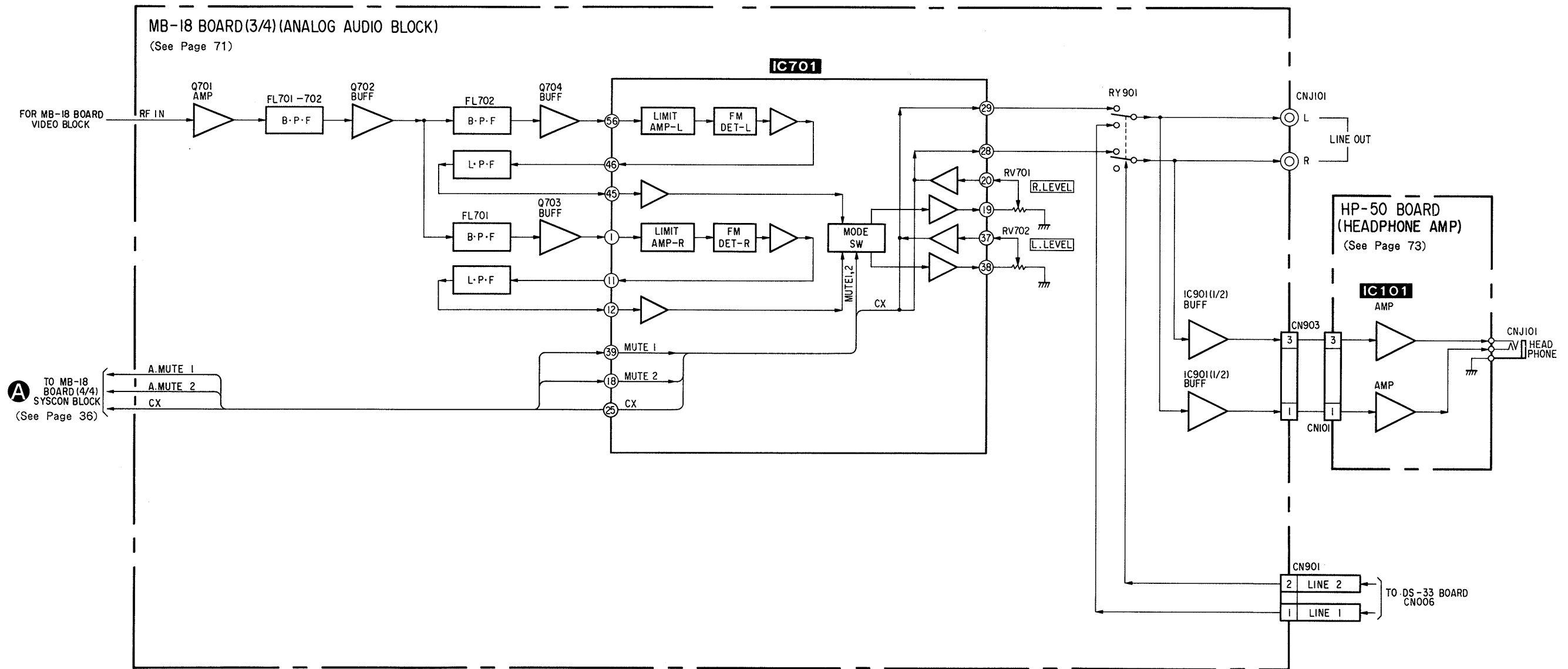
3.2. OVERALL BLOCK DIAGRAM



34. RF AMP BLOCK DIAGRAM

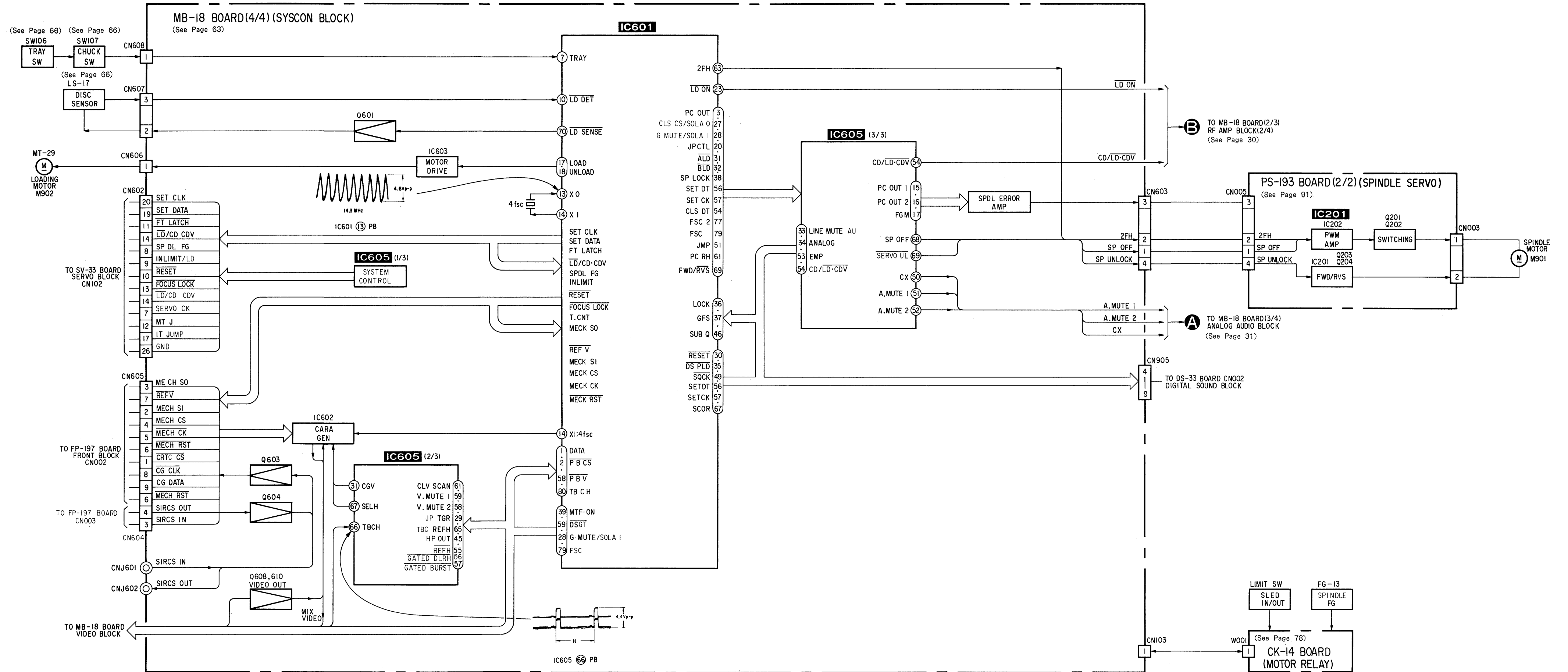


3.5. ANALOG AUDIO BLOCK DIAGRAM

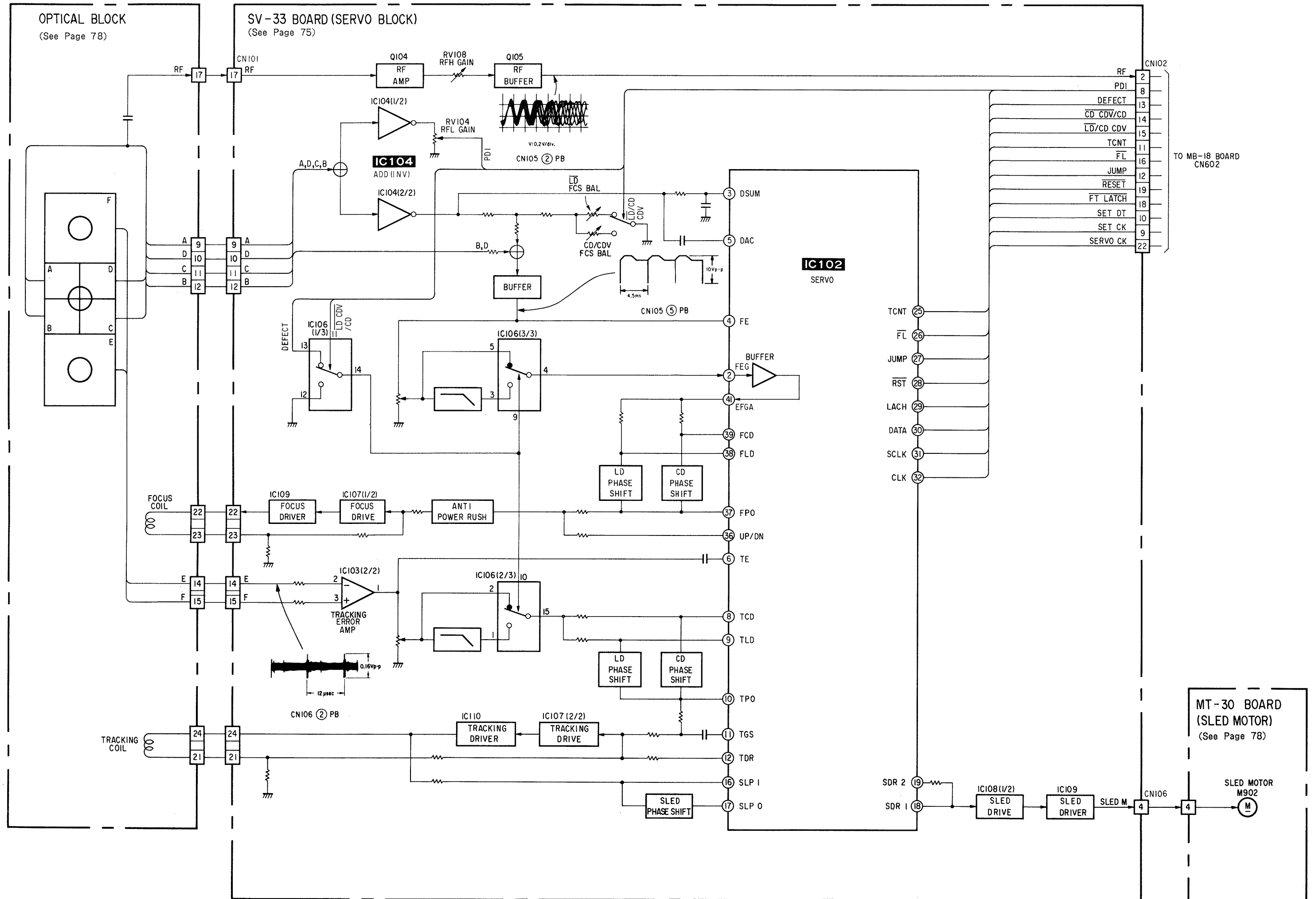


A TO MB-18 BOARD (4/4) SYSCON BLOCK (See Page 36)

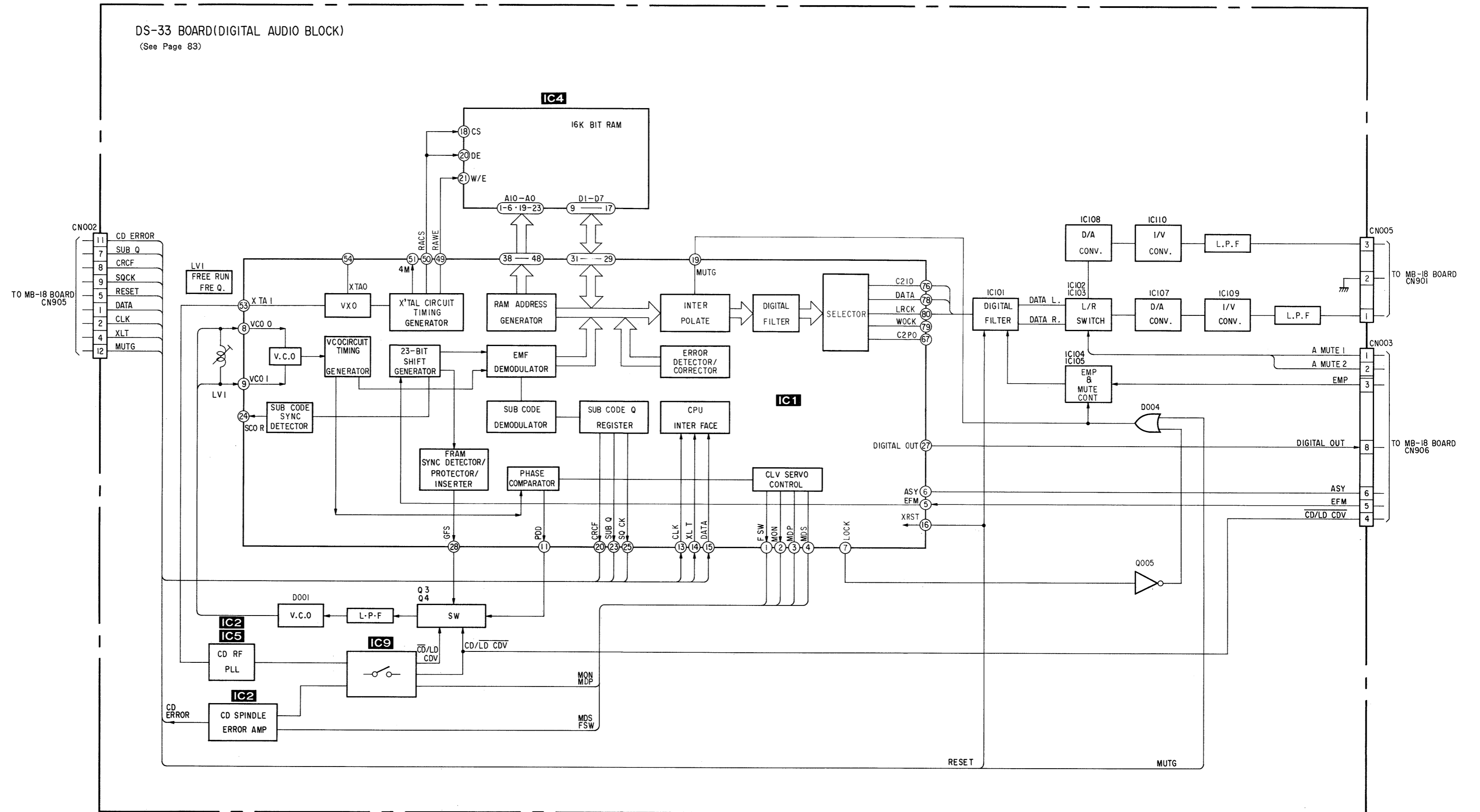
3.6. SYSTEM CONTROL BLOCK DIAGRAM



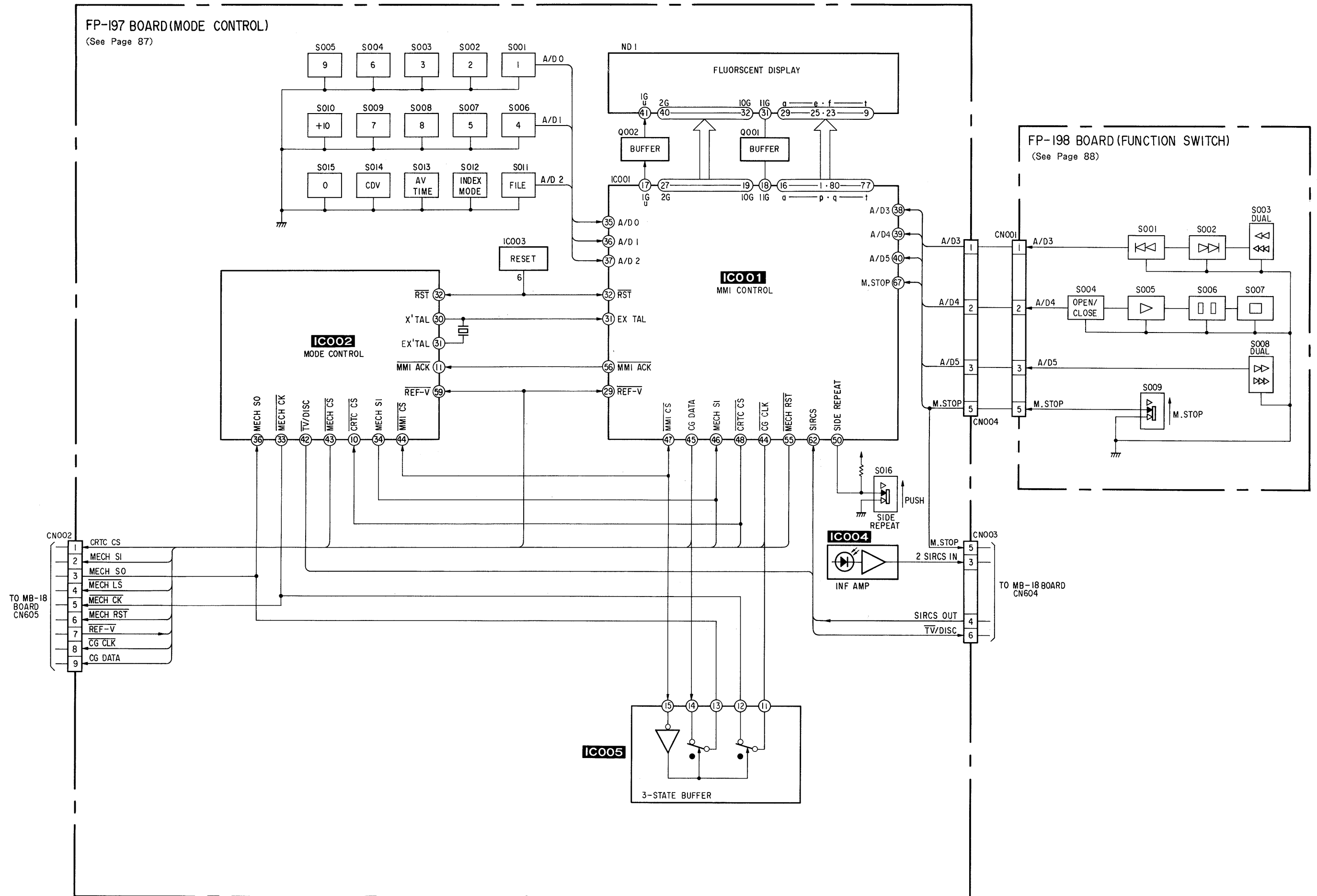
3.7. SERVO BLOCK DIAGRAM



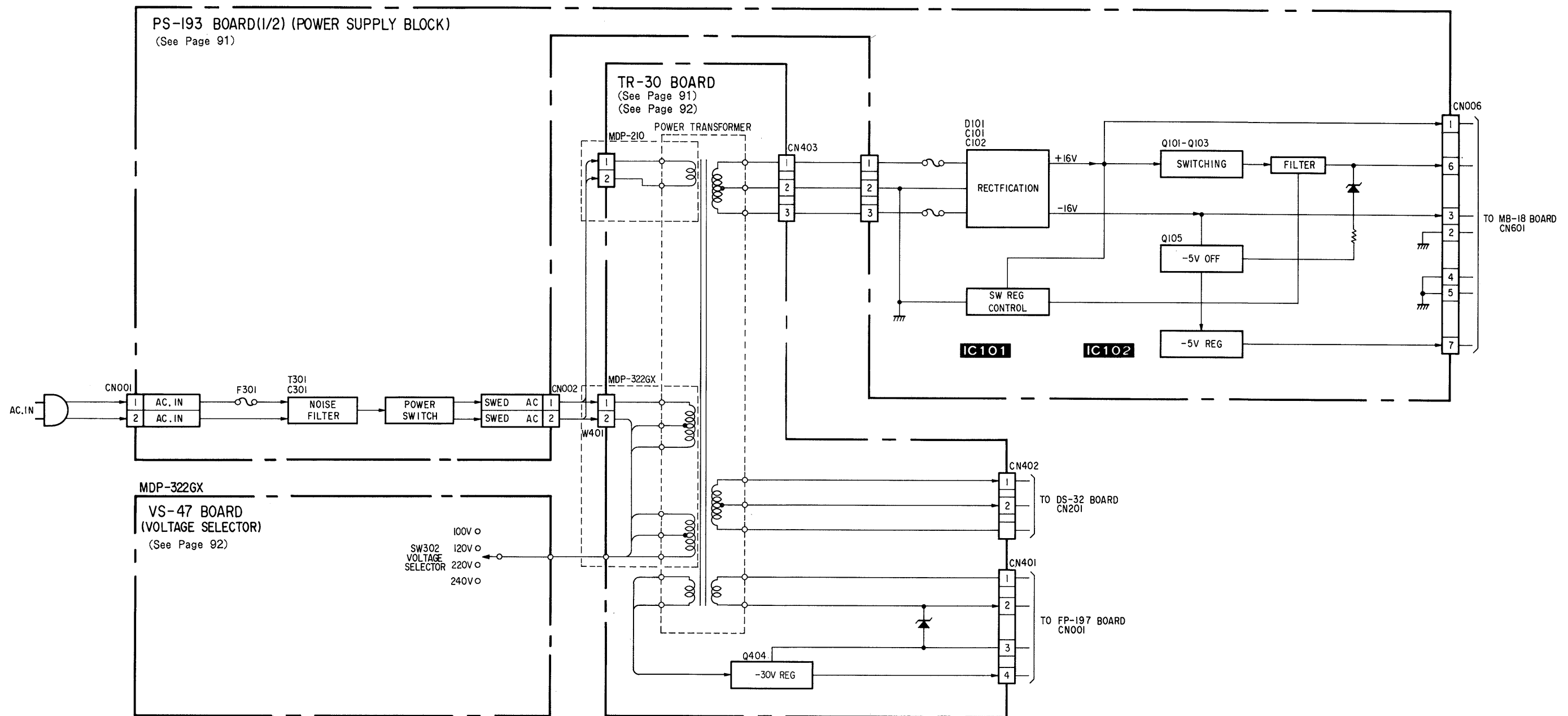
3.8. DIGITAL AUDIO BLOCK DIAGRAM



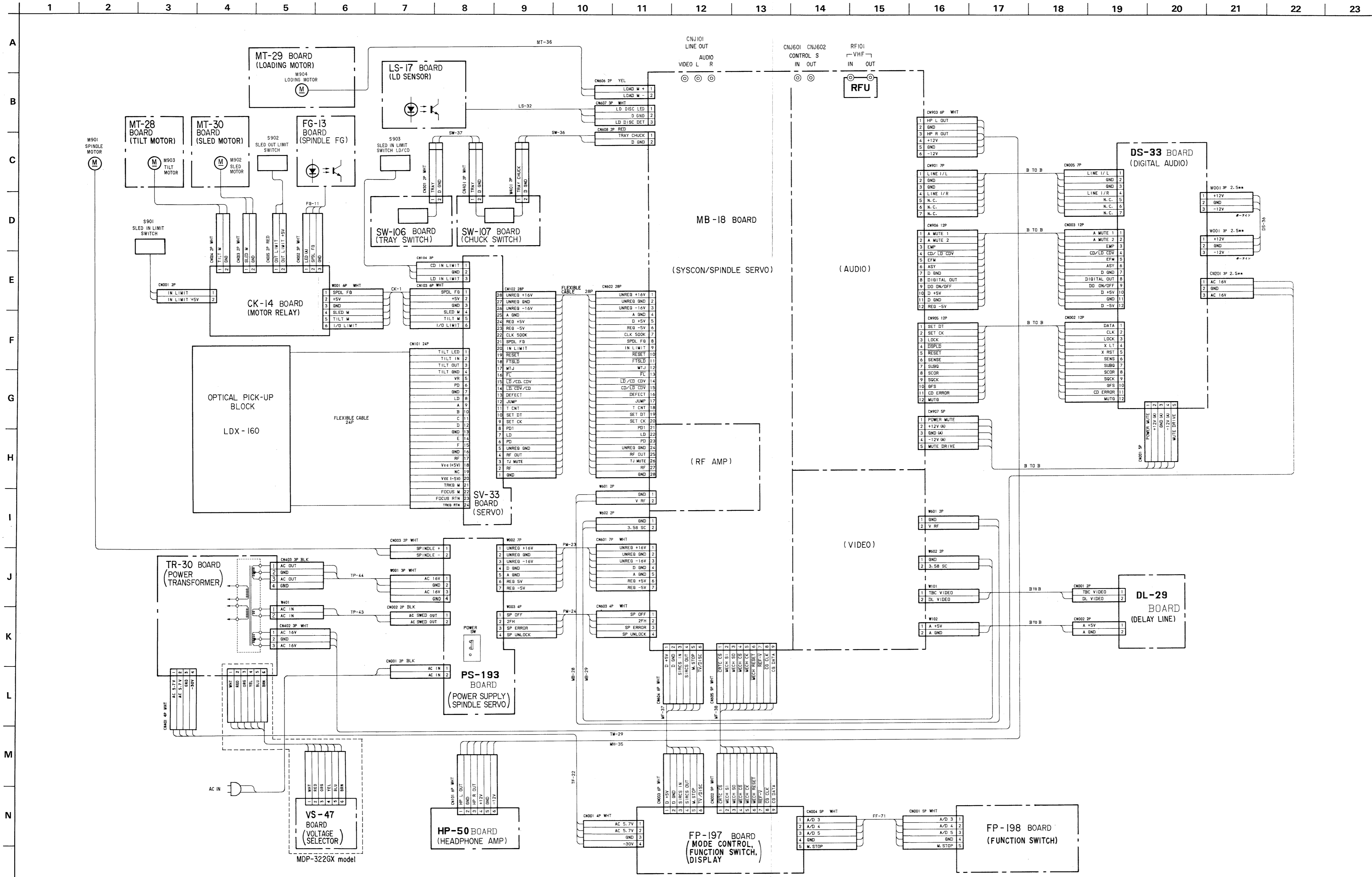
3.9. MODE CONTROL/FUNCTION SWITCH BLOCK DIAGRAM



3-10. POWER BLOCK DIAGRAM



4-1. FRAME SCHEMATIC DIAGRAM



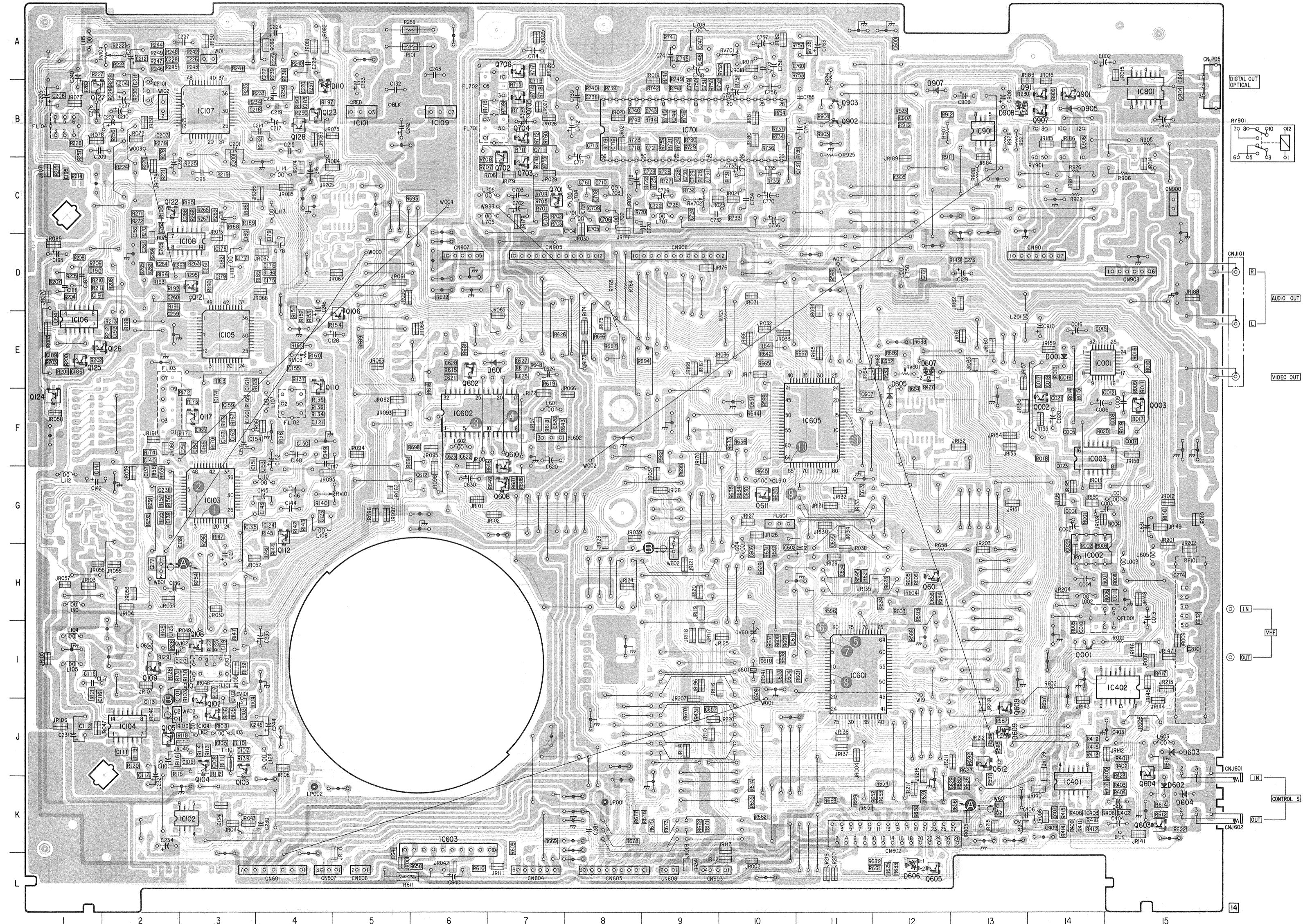
MB-18 Board

D001	E-14	Q102	J-3
D110	B-4	Q103	J-3
D601	E-7	Q104	J-3
D602	K-15	Q105	J-2
D603	J-15	Q106	E-5
D604	K-15	Q108	I-3
D605	F-12	Q109	I-2
D606	L-12	Q110	E-4
D607	E-12	Q112	G-4
D805	B-14	Q117	F-3
D907	B-12	Q121	D-3
D908	B-13	Q122	C-2
		Q123	B-4
IC001	E-14	Q124	F-1
IC002	H-14	Q125	E-1
IC003	F-14	Q126	E-1
IC101	B-5	Q127	B-1
IC102	K-3	Q128	B-4
IC103	G-3	Q801	H-12
IC104	J-2	Q802	F-6
IC105	E-3	Q803	K-15
IC106	E-1	Q804	J-15
IC107	B-3	Q805	L-12
IC108	D-3	Q808	F-7
IC109	B-6	Q809	J-13
IC401	K-14	Q810	F-7
IC402	I-15	Q811	G-10
IC601	I-11	Q812	J-13
IC602	F-6	Q701	C-7
IC603	K-6	Q702	C-7
IC605	F-11	Q703	C-7
IC701	B-9	Q704	B-7
IC801	B-15	Q705	B-7
IC901	B-13	Q706	A-7
Q901	B-14	Q902	B-11
Q902	F-14	Q903	B-11
Q903	F-15	Q907	B-14
Q101	J-3	Q911	B-14

MB-18 (VIDEO) PRINTED WIRING BOARD

-Ref. No. MB-18 BOARD : 1,000 Series-

MB-18 BOARD



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.
- ⚡ : Jumper wire connected to the ground pattern on the component side.

For schematic diagram :

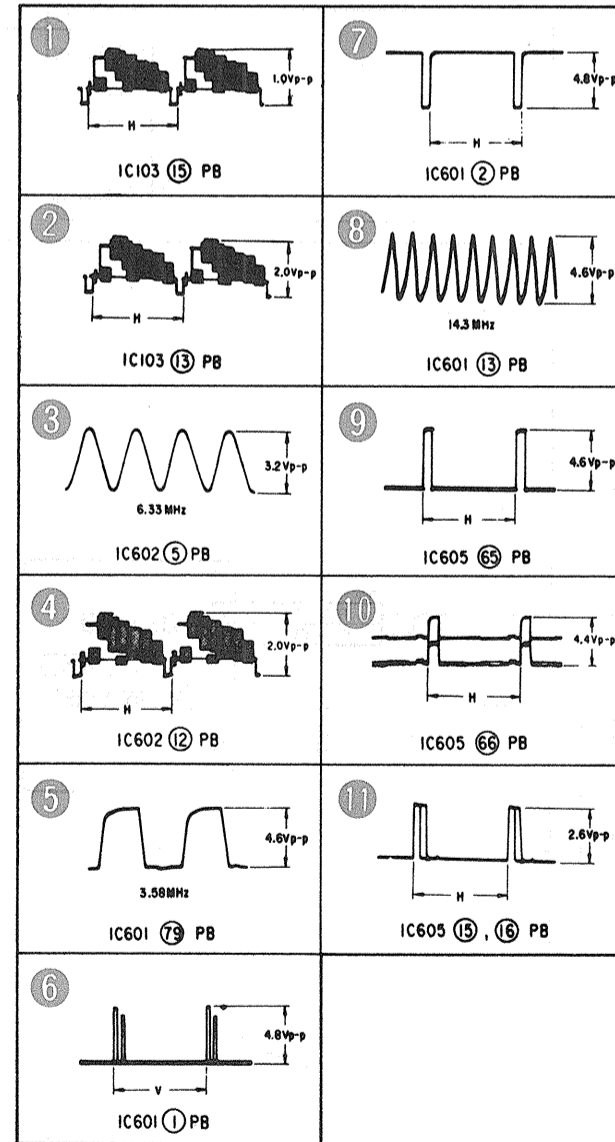
- Caution when replacing chip parts. New parts must be attached after removal of chip. Be careful not to heat the minuts side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, chip resistors are 1/10W unless otherwise noted. k Ω : 1000 Ω, M Ω : 1000k Ω.
- All capacitors are in μ F unless otherwise noted, pF : μ 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.
- ▭ : adjustment for repair.
- : B+ line.
- : B- line.
- ▭ : IN/OUT direction of B line (+, -).
- : Circled numbers refer to waveforms.
- Readings are taken with color-bar signal playback.

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

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

Les composants identifiés par une marque A sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

MB-18

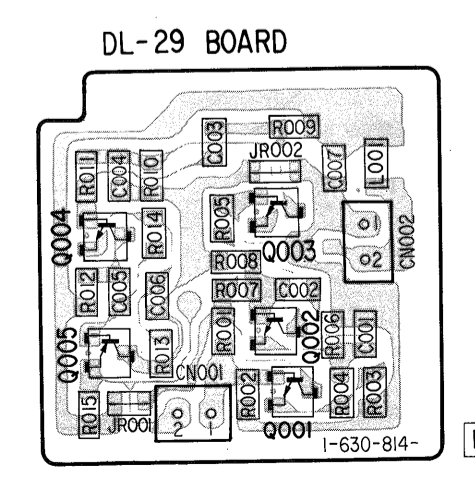
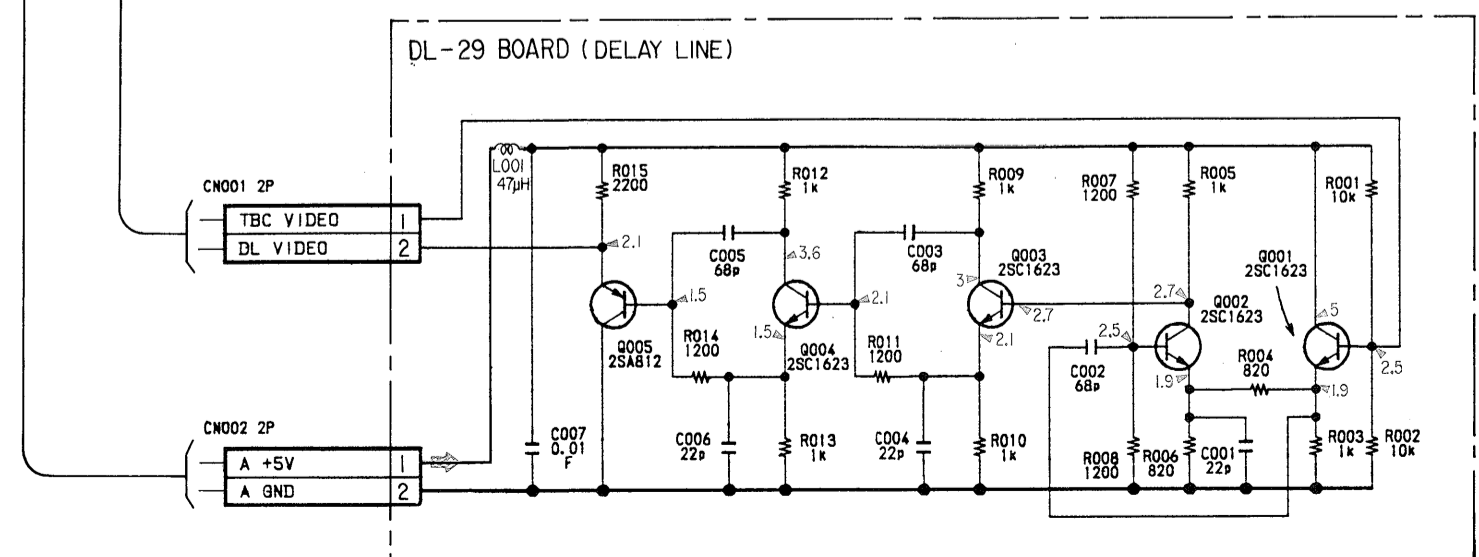
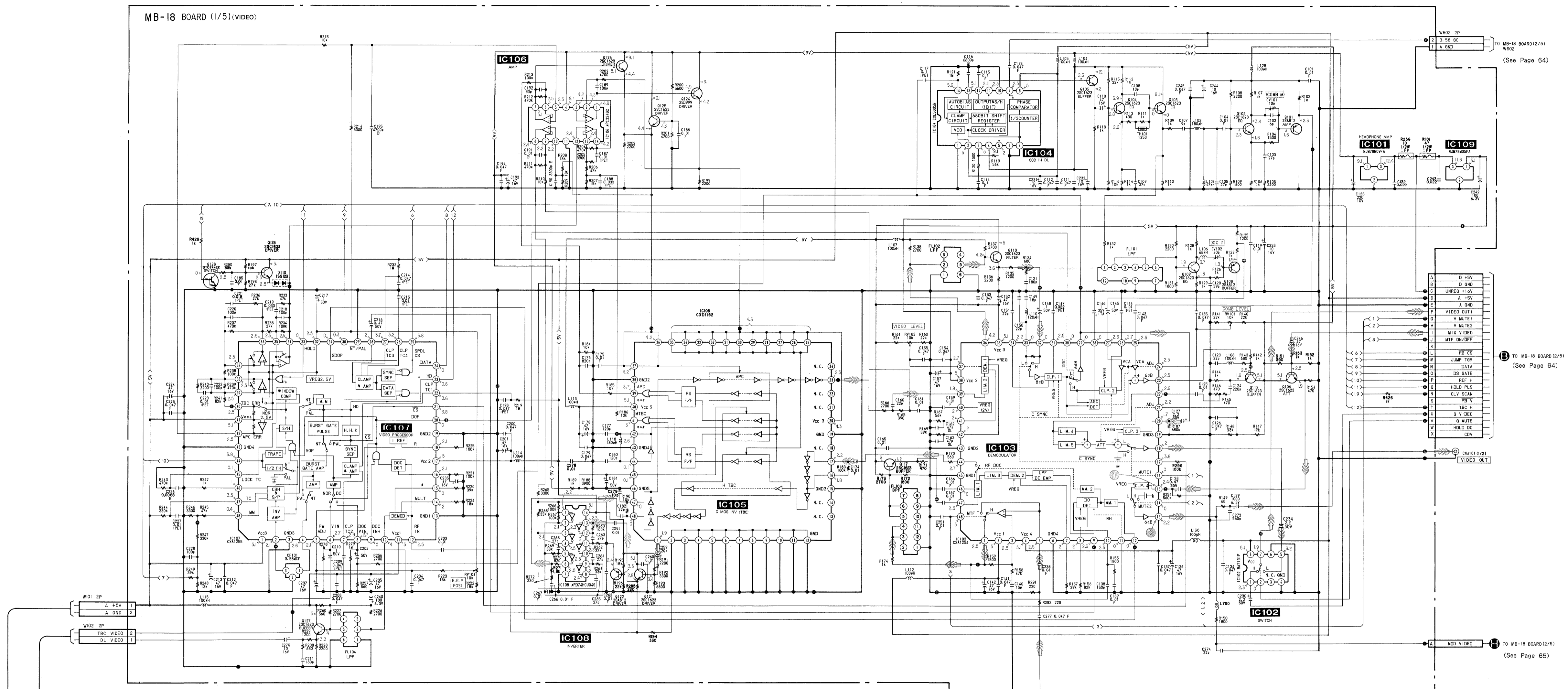


For printed wiring boards :

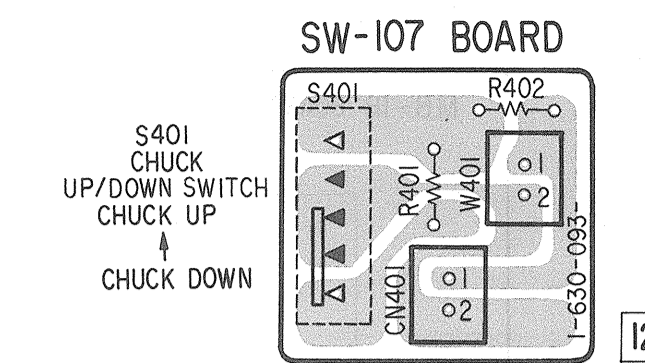
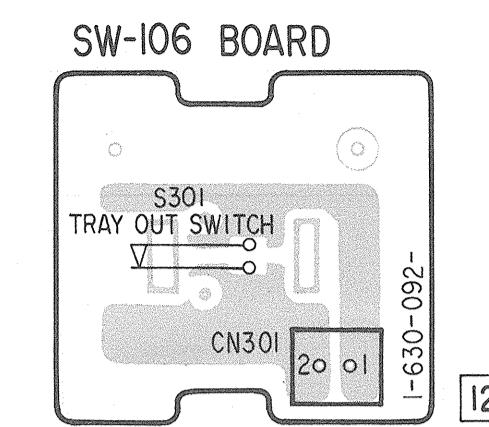
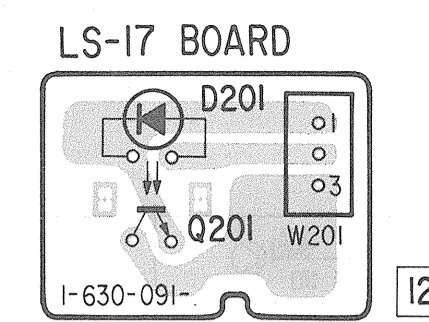
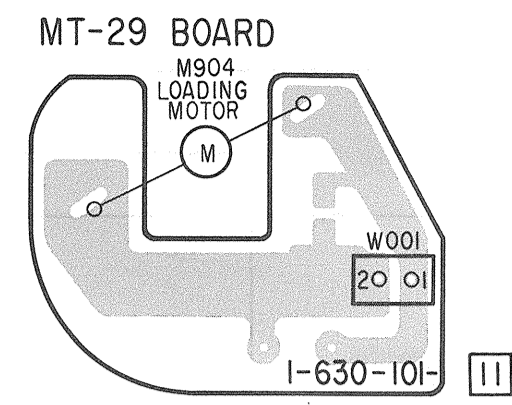
- : indicates a lead wire mounted on the component side.
- : Pattern from the side which enables seeing.
- : Pattern of the rear side.
- : Circled numbers refer to waveforms.
- ⚡ : Jumper wire connected to the ground pattern on the component side.
- : Jumper wire connected to the pattern on the component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

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27

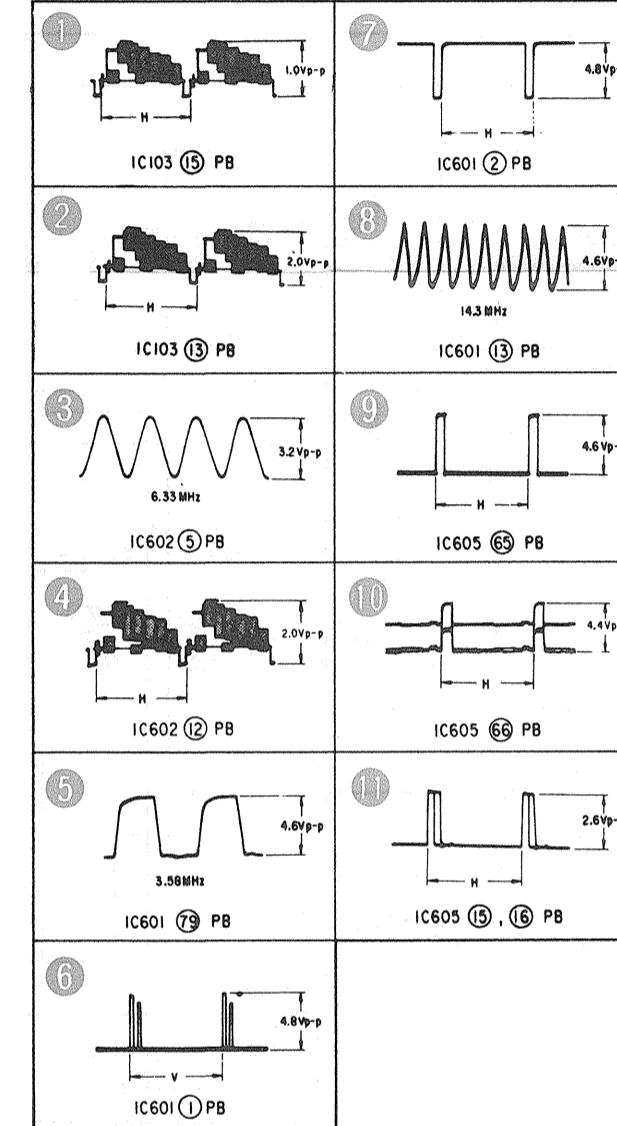
A
B
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D
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I
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K
L
M
N
O



Signal path
 : PB/Y CHROMA Signal



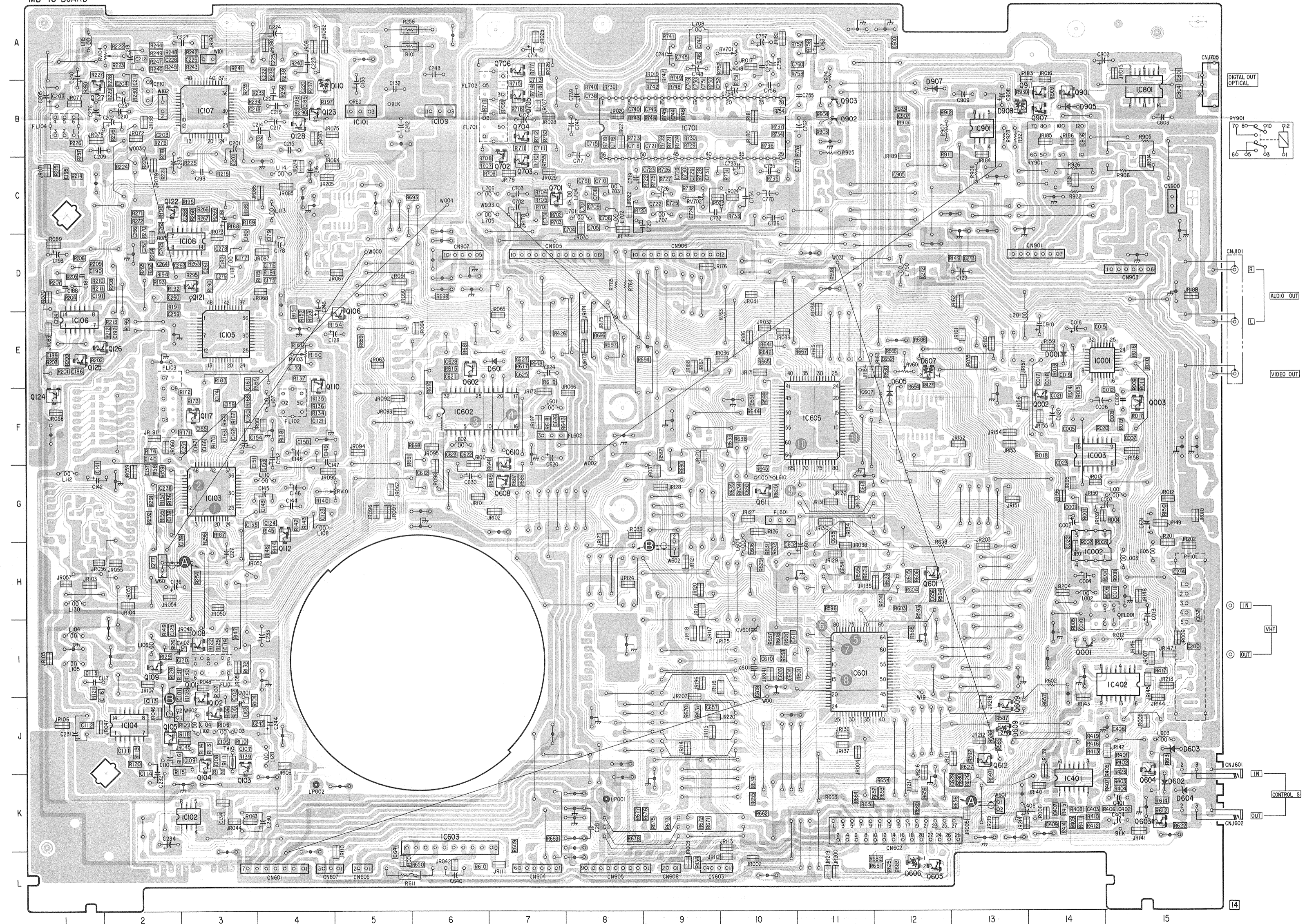
MB-18



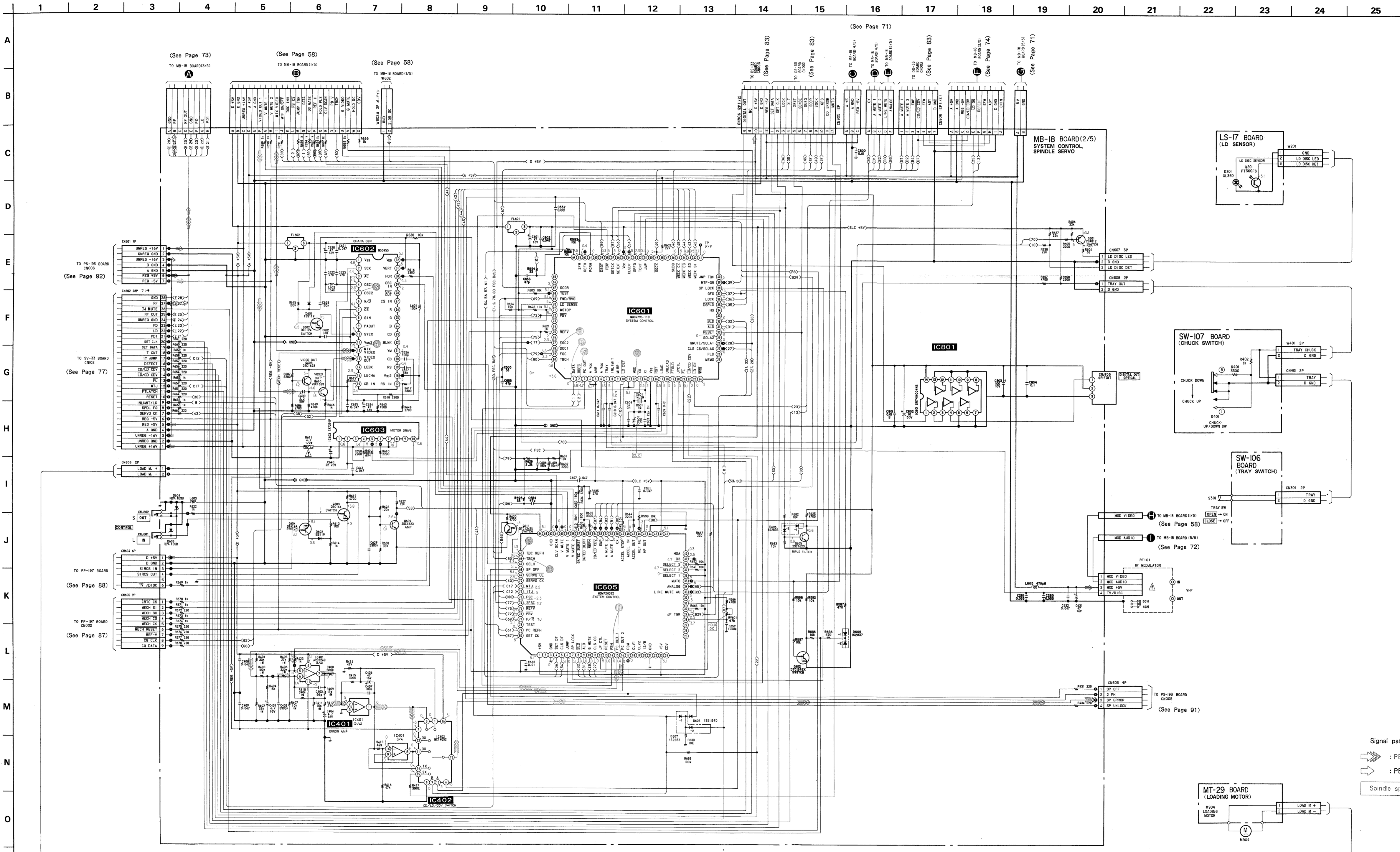
MB-18 Board

D001	E-14	Q102	J-3
D110	B-4	Q103	J-3
D601	E-7	Q104	J-3
D602	K-15	Q105	J-2
D603	J-15	Q106	E-5
D604	K-15	Q108	I-3
D605	F-12	Q109	I-2
D606	L-12	Q110	E-4
D607	E-12	Q112	G-4
D905	B-14	Q117	F-3
D907	B-12	Q121	D-3
D908	B-13	Q122	C-2
		Q123	B-4
IC001	E-14	Q124	F-1
IC002	H-14	Q125	E-1
IC003	F-14	Q126	E-1
IC101	B-5	Q127	B-1
IC102	K-3	Q128	B-4
IC103	G-3	Q601	H-12
IC104	J-2	Q602	F-6
IC105	E-3	Q603	K-15
IC106	E-1	Q604	J-15
IC107	B-3	Q605	L-12
IC108	D-3	Q608	F-7
IC109	B-6	Q609	J-13
IC401	K-14	Q610	F-7
IC402	I-15	Q611	G-10
IC601	I-11	Q612	J-13
IC602	F-8	Q701	C-7
IC603	K-8	Q702	C-7
IC605	F-11	Q703	C-7
IC701	B-9	Q704	B-7
IC801	B-15	Q705	B-7
IC901	B-13	Q901	B-14
		Q902	B-11
Q001	I-14	Q903	B-11
Q002	F-14	Q907	B-14
Q003	F-15	Q911	B-14
Q101	J-3		

MB-18 BOARD

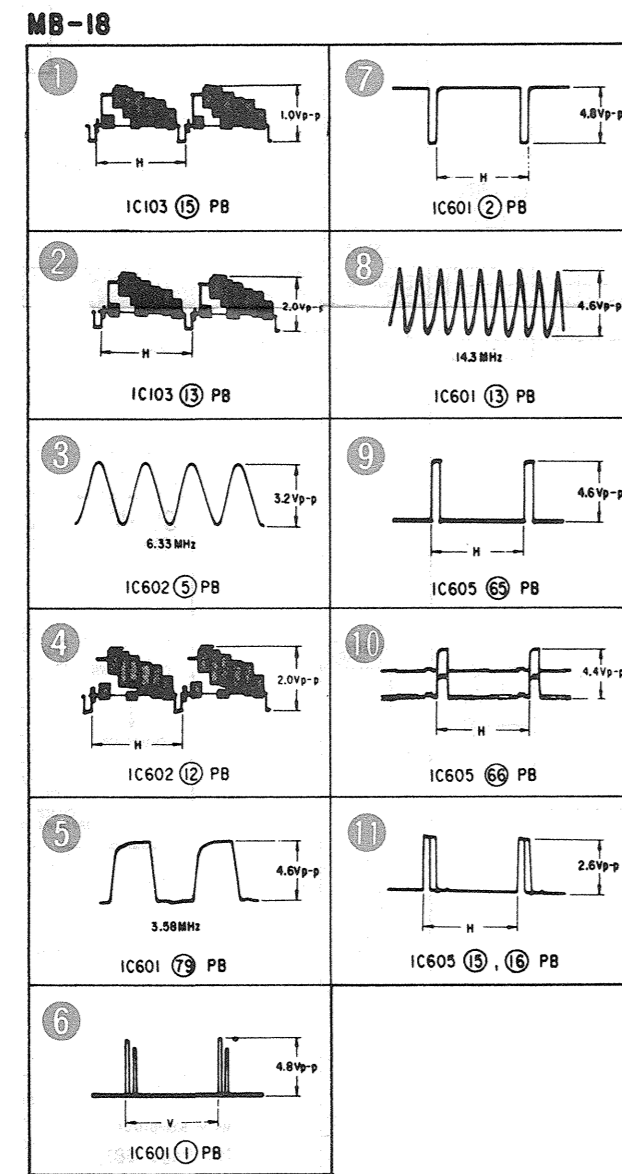


For printed wiring boards :
 • ○ — : indicates a lead wire mounted on the component side.
 • ■ : Pattern from the side which enables seeing.
 • □ : Pattern of the rear side.
 • ○ : Circled numbers refer to waveforms.
 • — : Jumper wire connected to the ground pattern on the component side.
 • — : Jumper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



Signal path
 ———— : PB/Y CHROMA Signal
 ———— : PB CHROMA ANALOG Signal
 ———— : Spindle speed servo+phase

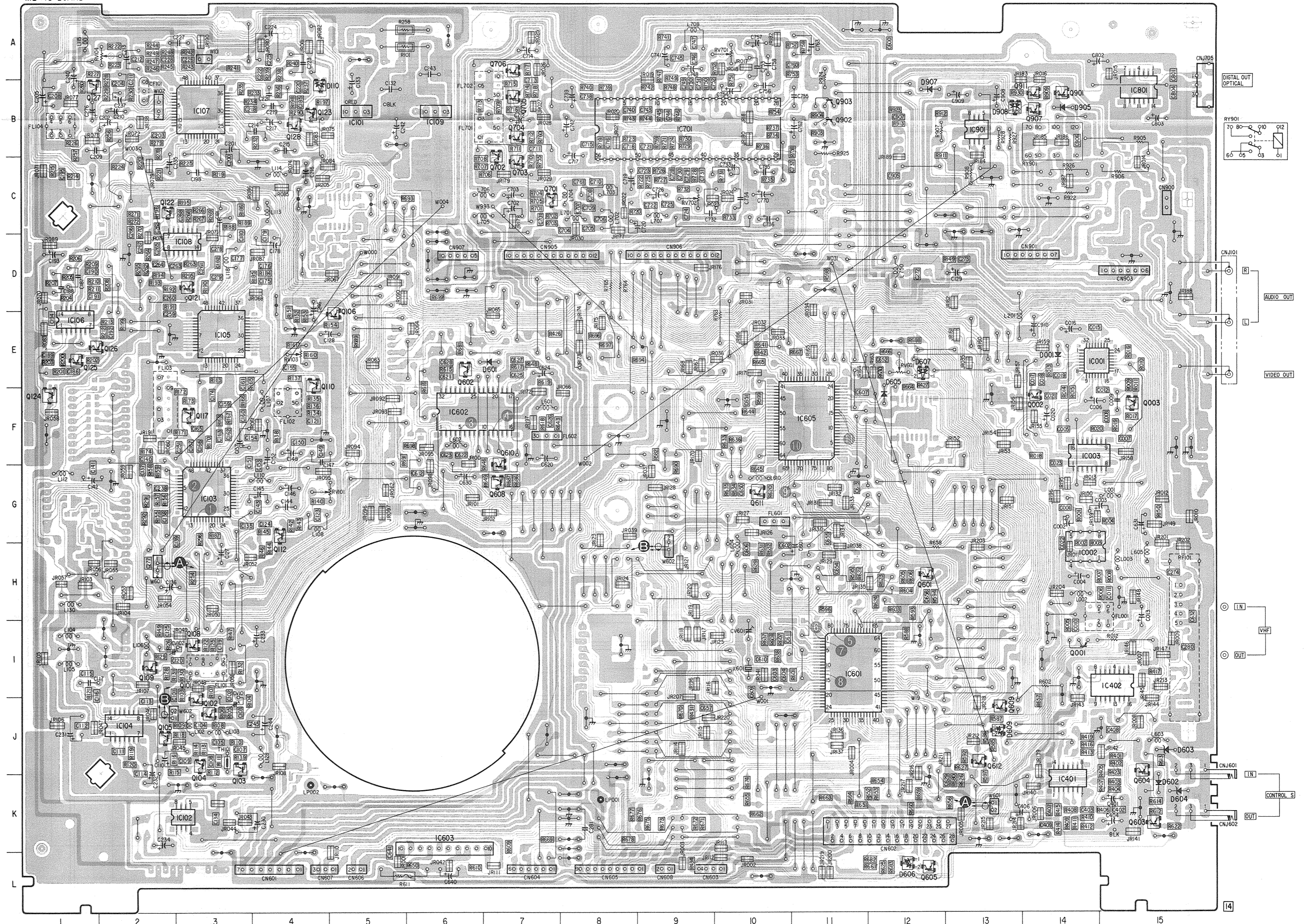
MB-18 (RF AMP, ANALOG AUDIO, AUDIO OUTPUT) PRINTED WIRING BOARD
 -Ref. No. MB-18 BOARD : 1,000 Series-



MB-18 Board

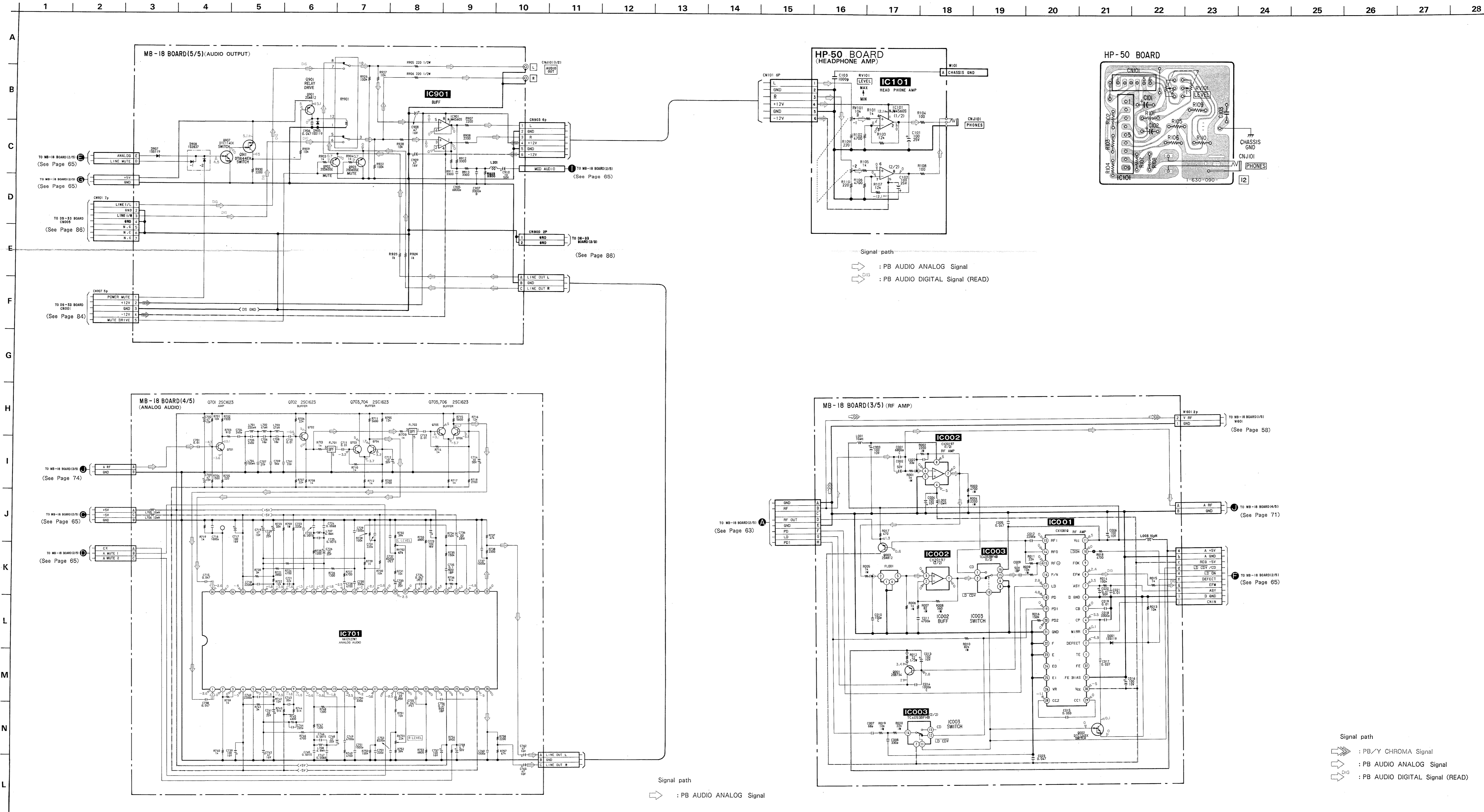
D001	E-14	Q102	J-3
D110	B-4	Q103	J-3
D801	E-7	Q104	J-3
D602	K-15	Q105	J-2
D603	J-15	Q106	E-5
D604	K-15	Q108	I-3
D605	F-12	Q109	I-2
D606	L-12	Q110	E-4
D907	E-12	Q112	C-4
D905	B-14	Q117	F-3
D907	B-12	Q121	D-3
D908	B-13	Q122	C-2
IC001	E-14	Q123	B-4
IC00	H-14	Q124	F-1
IC003	F-14	Q125	E-1
IC101	B-5	Q127	B-1
IC102	K-3	Q128	B-4
IC103	G-3	Q601	H-12
IC104	J-2	Q602	F-6
IC105	E-3	Q603	K-15
IC108	E-1	Q604	J-15
IC107	B-3	Q605	L-12
IC108	D-3	Q608	F-7
IC109	B-6	Q609	J-13
IC401	K-14	Q810	F-7
IC402	I-15	Q811	G-10
IC801	I-11	Q812	J-13
IC802	F-6	Q701	C-7
IC803	K-6	Q702	C-7
IC805	F-11	Q703	C-7
IC701	B-9	Q704	B-7
IC801	B-15	Q705	B-7
IC901	B-13	Q706	A-7
Q001	I-14	Q902	B-11
Q002	F-14	Q903	B-11
Q003	F-15	Q907	B-1
Q101	J-3	Q911	B-1

MB-18 BOARD

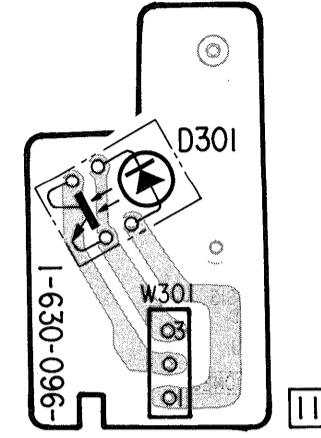


For printed wiring boards :

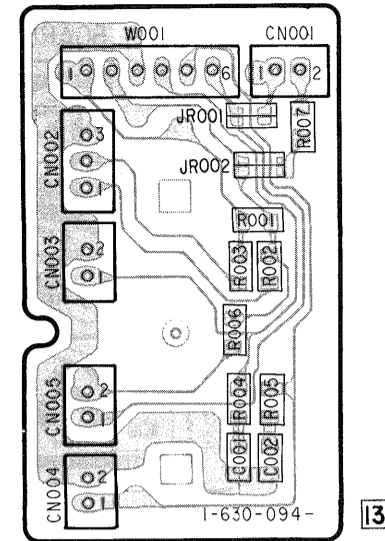
- : indicates a lead wire mounted on the component side.
- : Pattern from the side which enables seeing.
- : Pattern of the rear side.
- : Circled numbers refer to waveforms.
- : Jumper wire connected to the ground pattern on the component side.
- : Jumper wire connected to the pattern on the component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



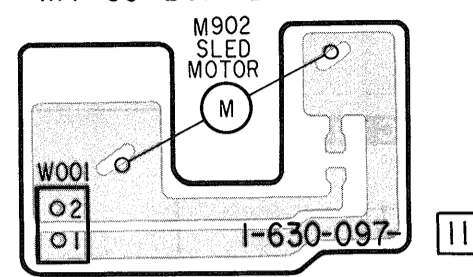
FG-13 BOARD



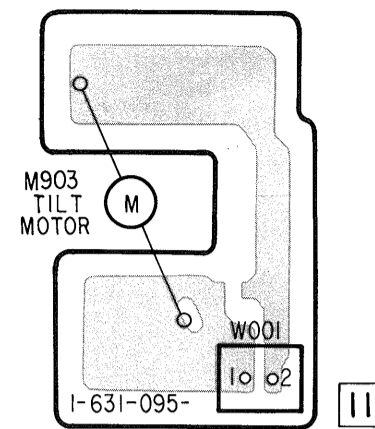
CK-14 BOARD



MT-30 BOARD

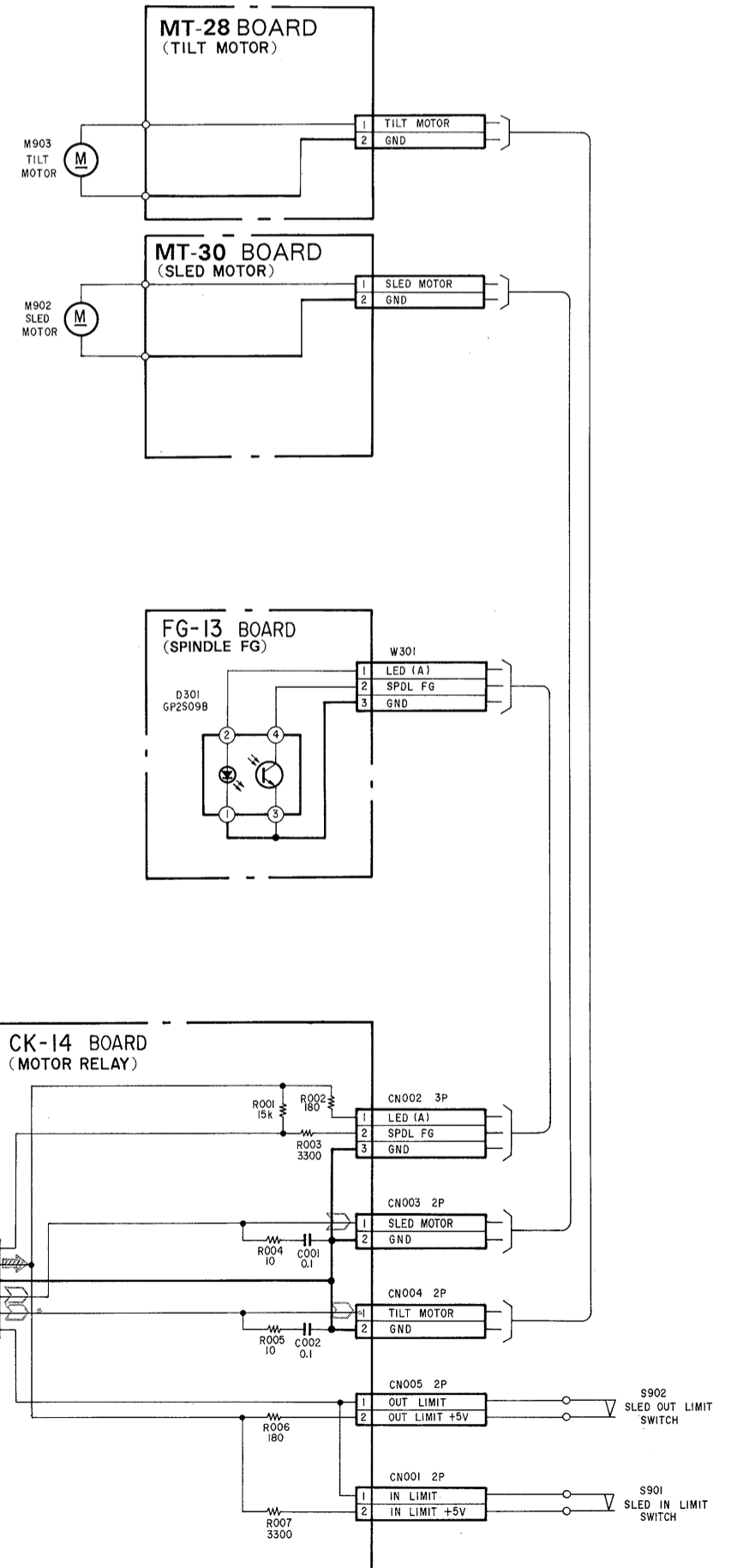
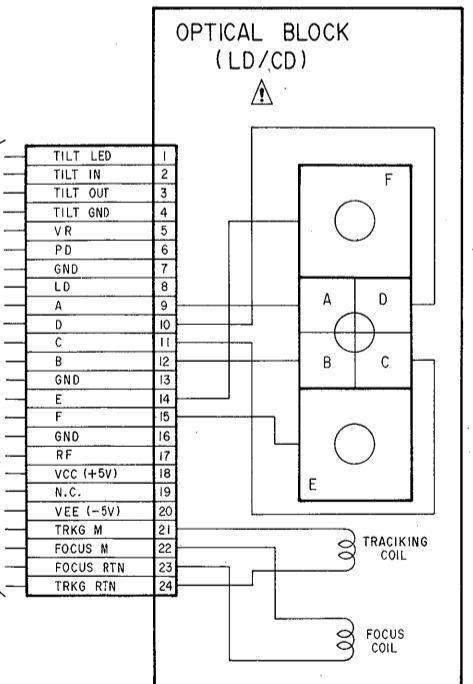
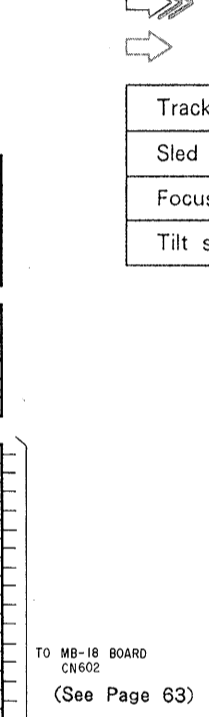
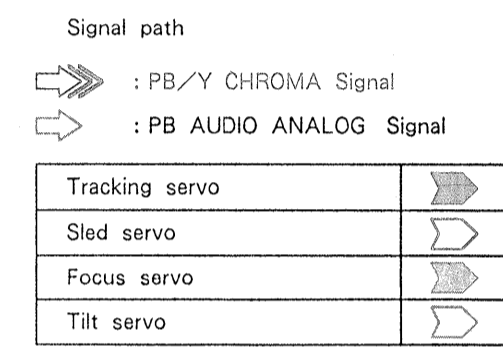
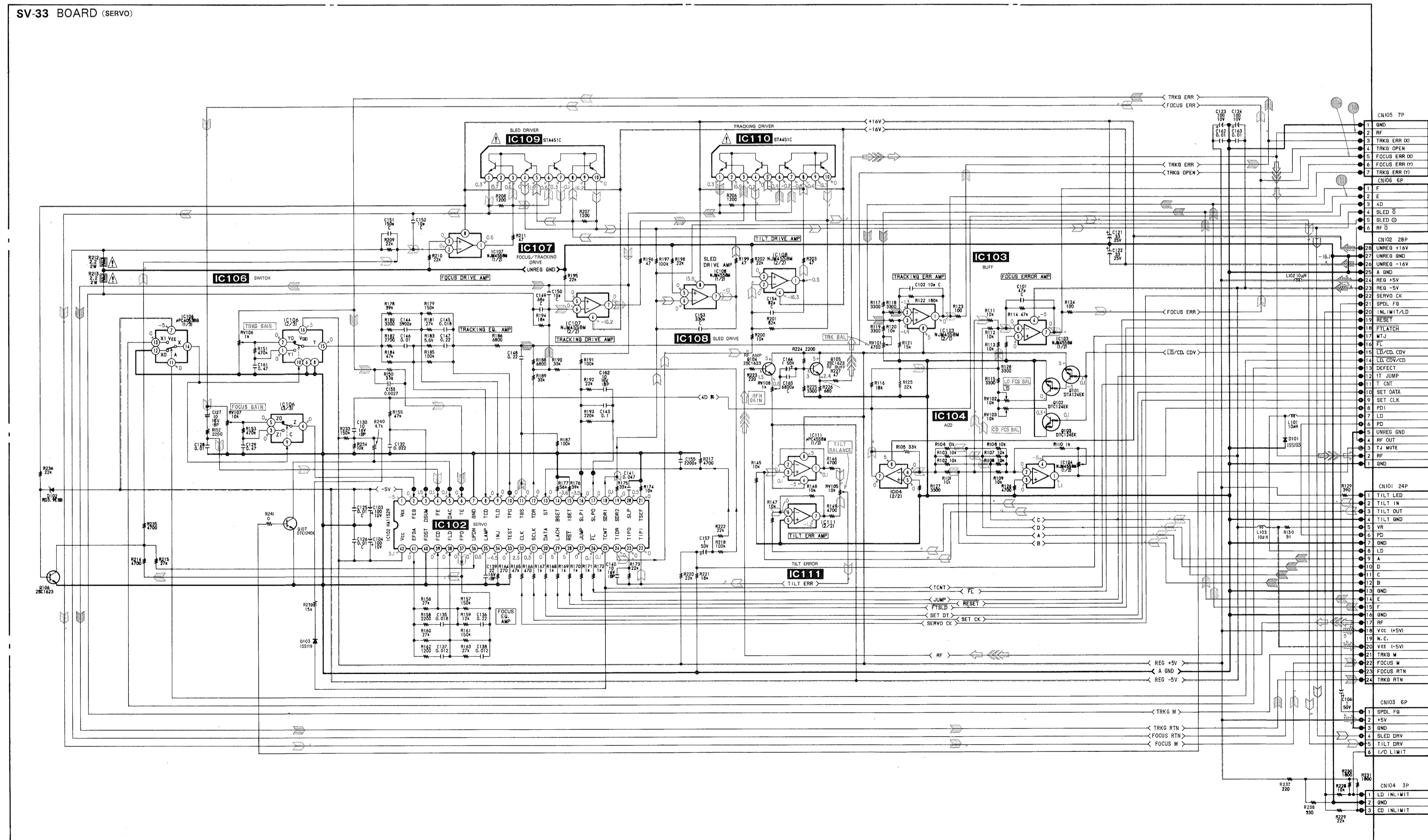


MT-28 BOARD



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27

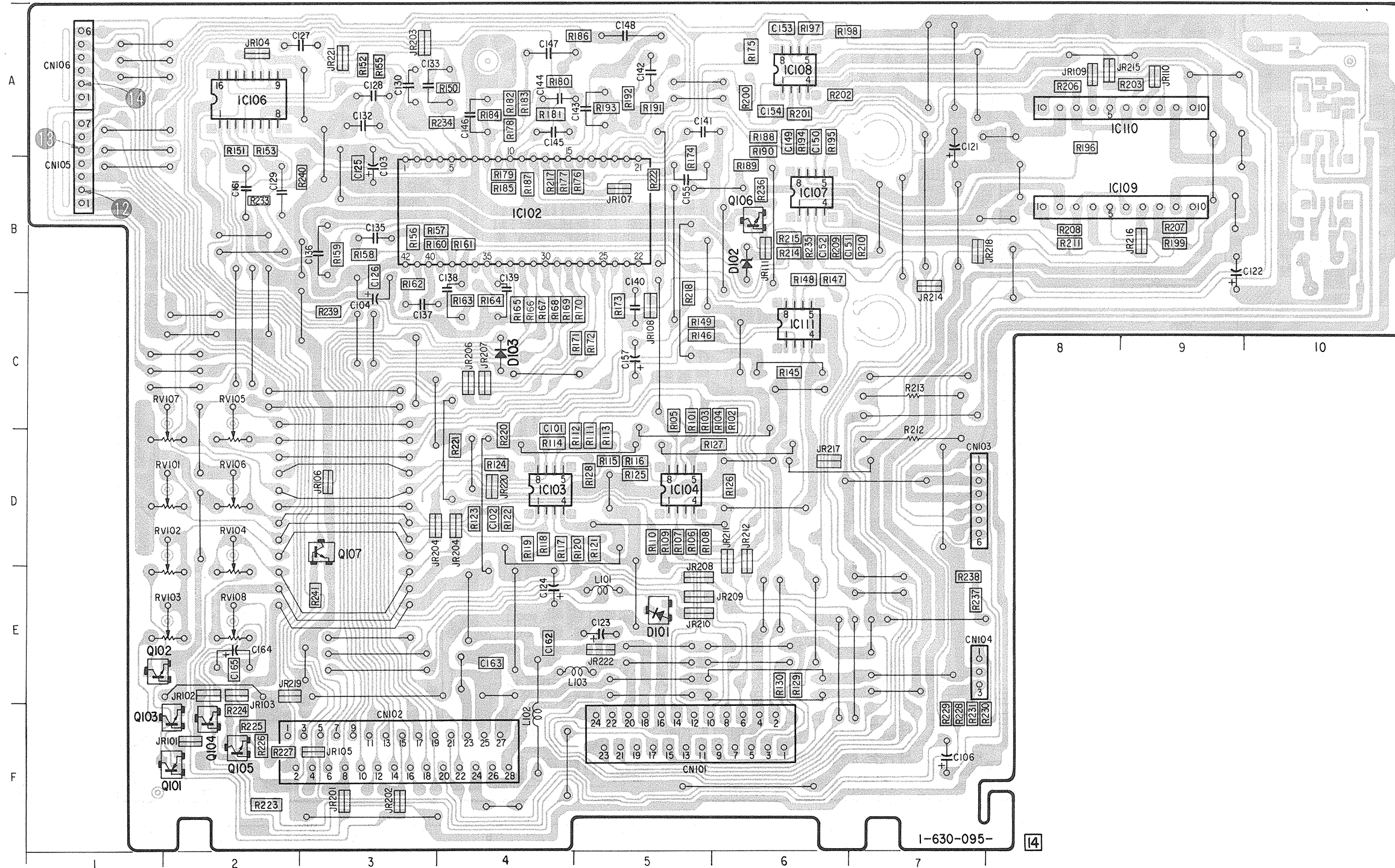
A
B
C
D
E
F
G
H
I
J
K



SV-33 (SERVO) PRINTED WIRING BOARD

—Ref. No. SV-33 BOARD : 7,000 Series—

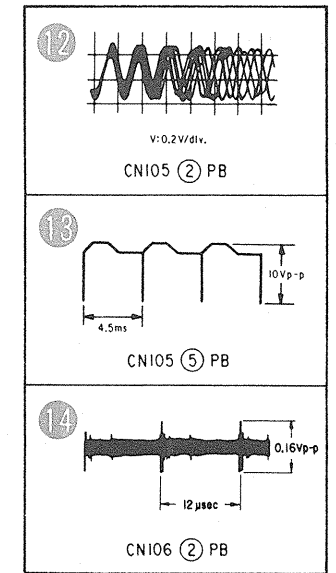
SV-33 BOARD



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-9
IC110	A-9
IC111	C-6
Q101	F-2
Q102	E-1
Q103	F-2
Q104	F-2
Q105	F-2
Q106	B-6
Q107	D-3

SV-33 BOARD (SERVO)

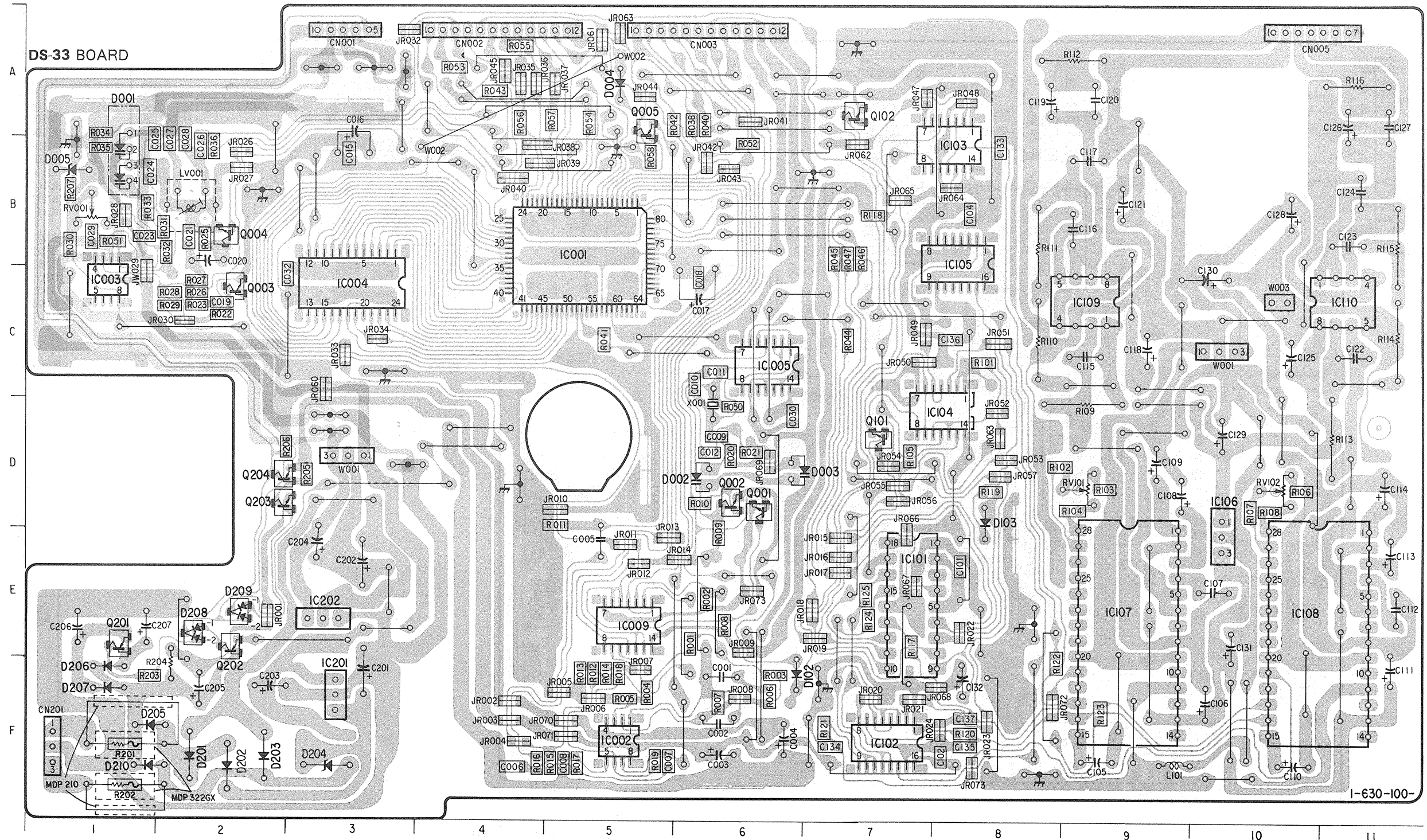


DS-33 (DIGITAL AUDIO) PRINTED WIRING BOARD

—Ref. No. DS-33 BOARD : 8,000 Series—

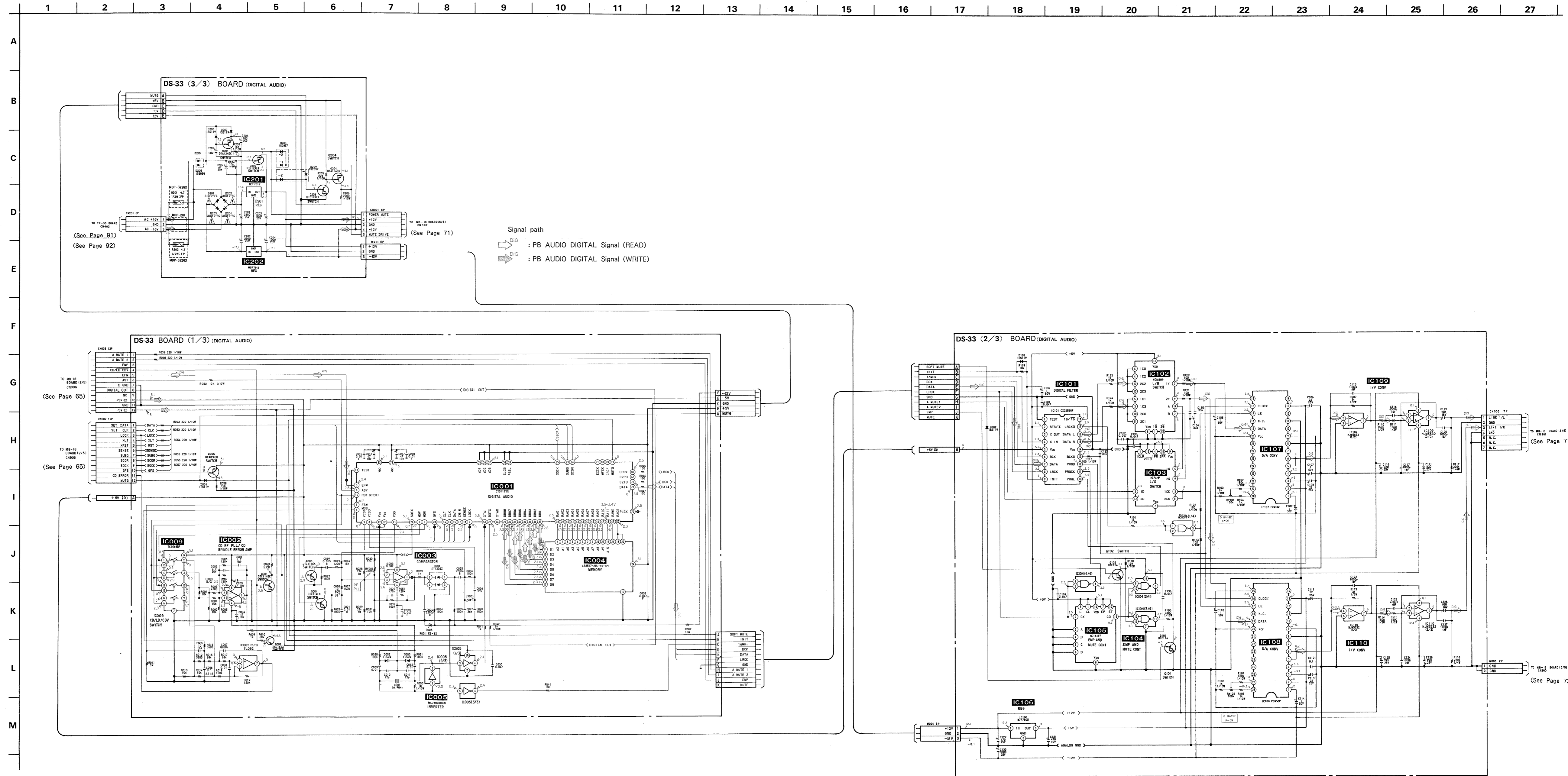
DS-33 Board

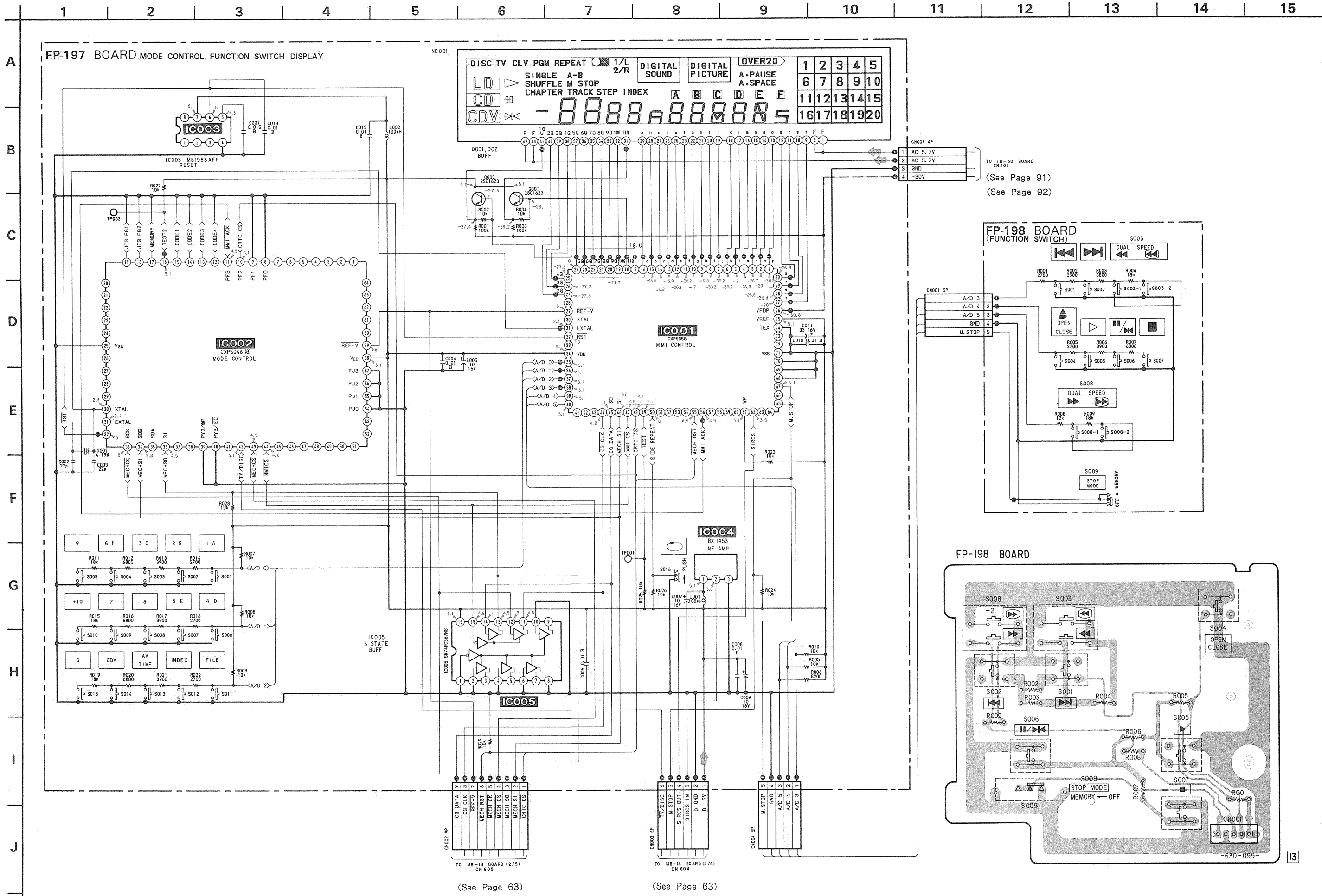
D001	B-1
D002	D-6
D003	D-7
D004	A-5
D005	B-1
D102	F-6
D103	D-8
D201	F-2
D202	F-2
D203	F-2
D204	F-3
D205	F-1
D206	F-1
D207	F-1
D208	E-2
D209	E-2
D210	F-1
IC001	B-5
IC002	F-5
IC003	C-1
IC004	C-3
IC005	C-6
IC009	E-5
IC101	E-7
IC102	F-7
IC103	B-8
IC104	D-8
IC105	B-8
IC106	D-10
IC107	E-9
IC108	E-10
IC109	C-9
IC110	C-11
IC201	F-3
IC202	E-3
Q001	D-6
Q002	D-6
Q003	C-2
Q004	B-2
Q005	A-5
Q101	D-7
Q102	A-7
D201	E-1
Q201	E-2
Q202	E-2
Q203	D-2
Q204	D-2



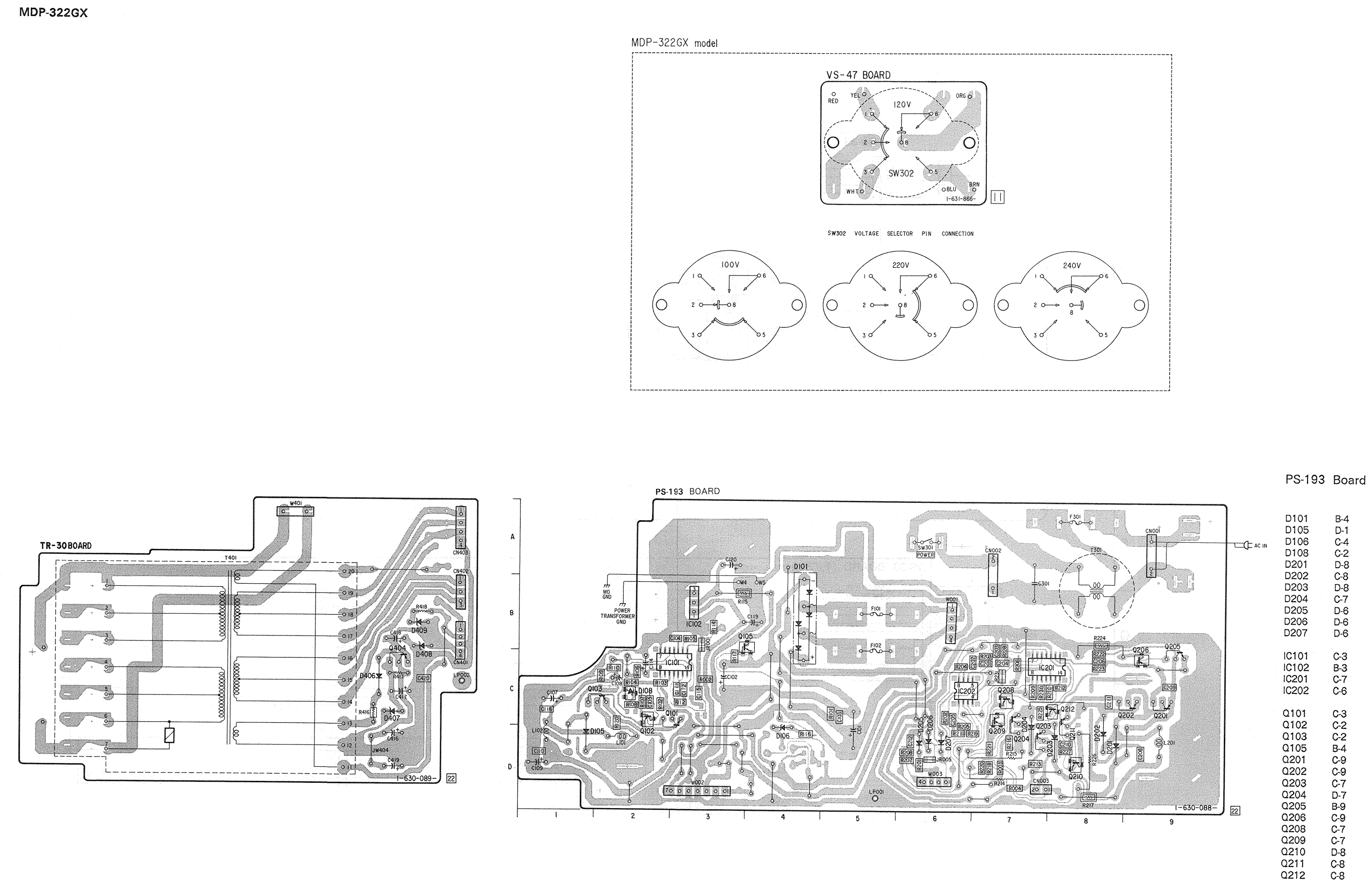
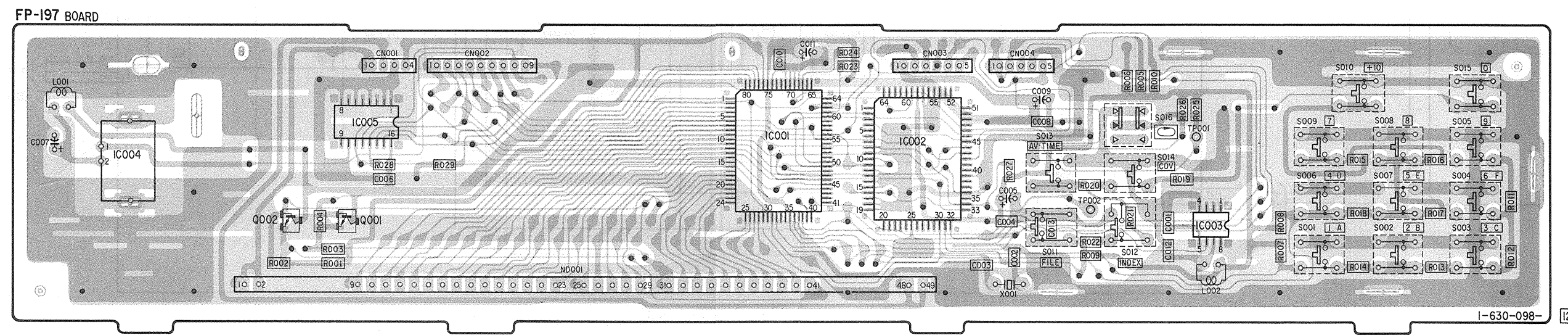
For printed wiring boards :

- —○— : 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.

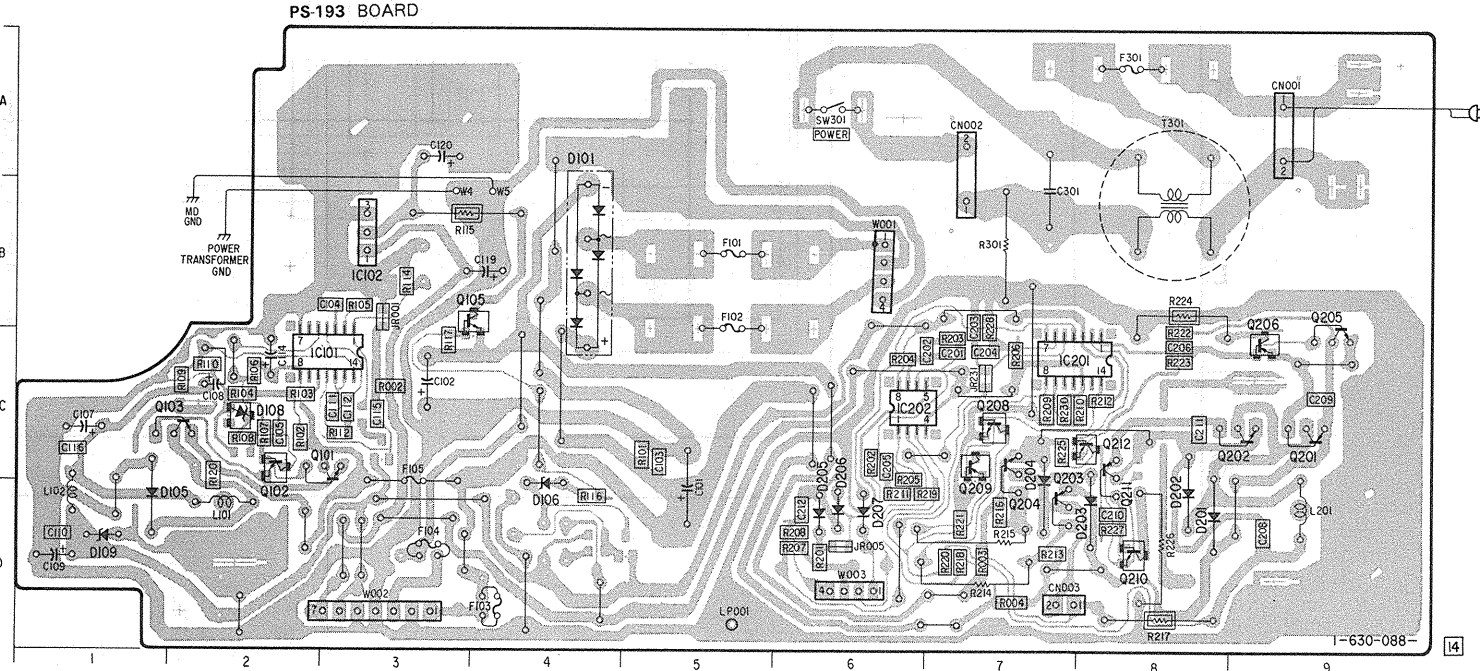
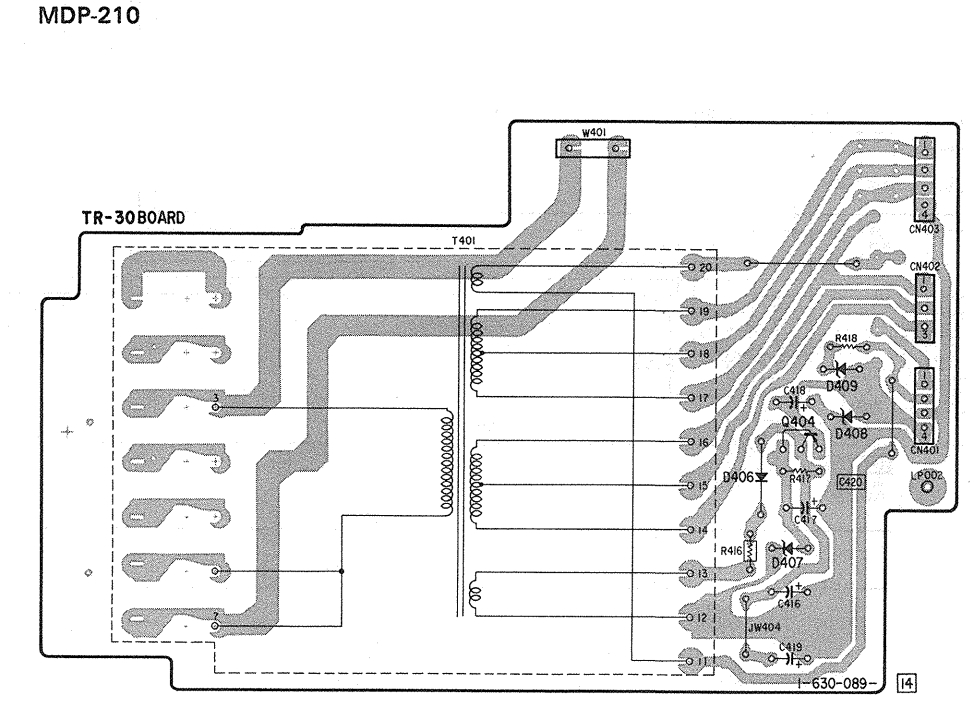




(See Page 63) (See Page 63)



PS-193 Board
 D101 B-4
 D105 D-1
 D106 C-4
 D108 C-2
 D201 D-8
 D202 C-8
 D203 D-8
 D204 C-7
 D205 D-6
 D206 D-6
 D207 D-6
 IC101 C-3
 IC102 B-3
 IC201 C-7
 IC202 C-6
 Q101 C-3
 Q102 C-2
 Q103 C-2
 Q105 B-4
 Q201 C-9
 Q202 C-9
 Q203 C-7
 Q204 D-7
 Q205 B-9
 Q206 C-9
 Q208 C-7
 Q209 C-7
 Q210 D-8
 Q211 C-8
 Q212 C-8

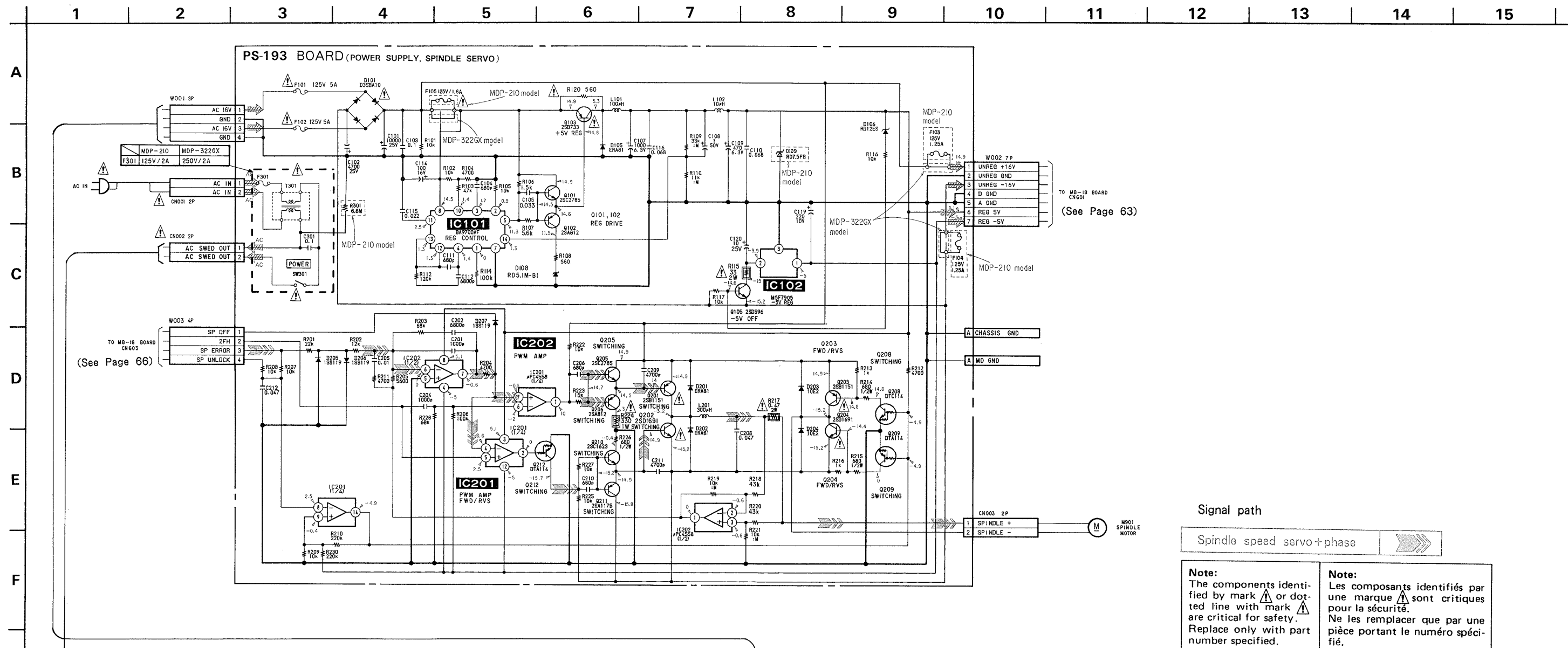


PS-193 Board
 D101 B-4
 D105 D-1
 D106 C-4
 D108 C-2
 D109 D-1
 D201 D-8
 D202 C-8
 D203 D-8
 D204 C-7
 D205 D-6
 D206 D-6
 D207 D-6
 IC101 C-3
 IC102 B-3
 IC201 C-7
 IC202 C-6
 Q101 C-3
 Q102 C-2
 Q103 C-2
 Q105 B-4
 Q201 C-9
 Q202 C-9
 Q203 C-7
 Q204 D-7
 Q205 B-9
 Q206 C-9
 Q208 C-7
 Q209 C-7
 Q210 D-8
 Q211 C-8
 Q212 C-8

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.

PS-193 (POWER SUPPLY, SPINDLE SERVO), VS-47 (VOLTAGE SELECTOR), TR-30 (POWER TRANSFORMER) SCHEMATIC DIAGRAMS

-Ref. No. PS-193 and VS-47 BOARDS : 2,000 Series, TR-30 BOARD : 3,000 Series-



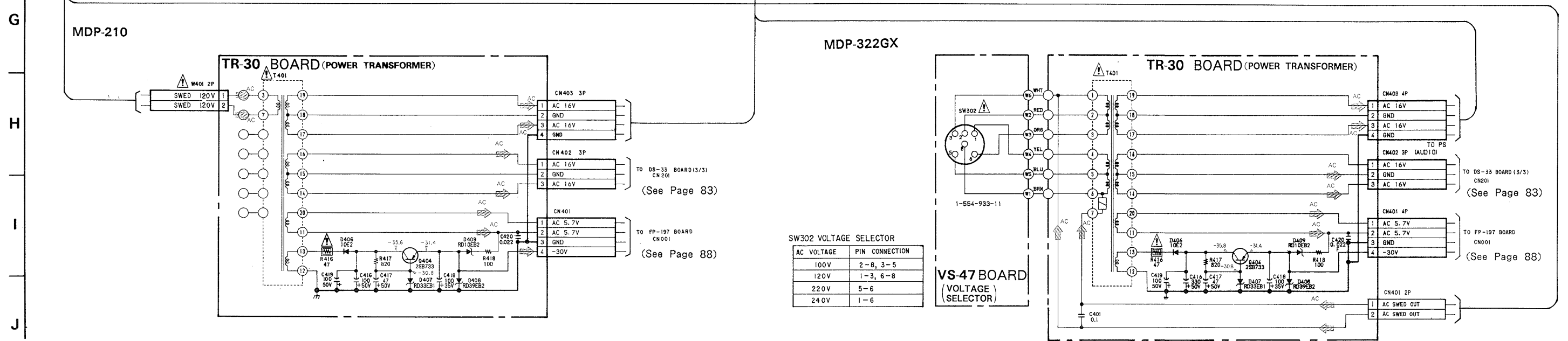
TO MB-18 BOARD
CN601
(See Page 63)

TO MB-18 BOARD
CN603
(See Page 66)

Signal path
Spindle speed servo+phase

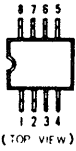
Note:
The components identified by mark \triangle or dotted line with mark \triangle are critical for safety. Replace only with part number specified.

Note:
Les composants identifiés par une marque \triangle sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



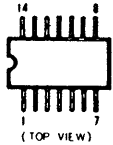
4.3. SEMICONDUCTORS

BA7131F
M51953AFP
NJM4558M
NJM4560M
TL082CPS
μ PC393G2
μ PC4558G2



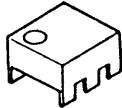
(TOP VIEW)

BA9700AF
CXL5005M
SN74HCU04NS
TC4066BF
TC74HC00F
TC74HC74F
μ PC324G2
μ PD74HCU04G

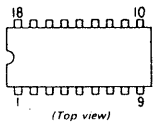


(TOP VIEW)

BX-1453

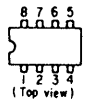


CXD2550P



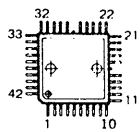
(Top view)

CX20197
NJM5532D-D



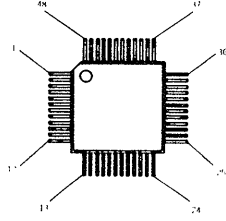
(Top view)

CXA1081Q

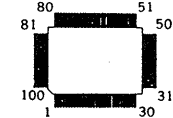


(Top view)

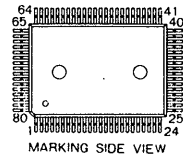
CXA1254Q
CXA1255Q
CXD1152



CXD1125Q
CXP5058H-640Q

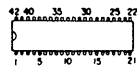


CXP5048H-189Q
MB89795-117



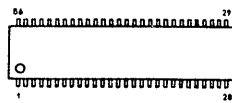
MARKING SIDE VIEW

HA11529



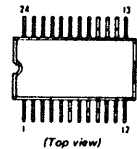
(Top view)

HA12127NT



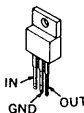
(TOP VIEW)

LC3517BML-15



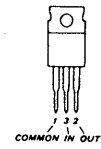
(Top view)

M5F7805
M5F7812
NJM78M09
RC78M05FA



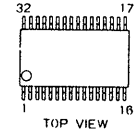
IN GND OUT

M5F7905
M5F7912



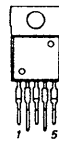
COMMON IN OUT

M50455-080FP



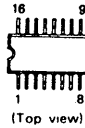
TOP VIEW

MC14052BF



(Top view)

MC14053BF
MSM72H032
SN74HC161F
TC4053BFHB



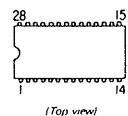
(Top view)

NJM4560S-D



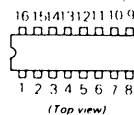
(Top view)

PCM58P



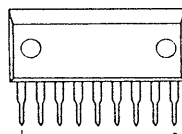
(Top view)

SN74HC153NS
SN74HC367NS



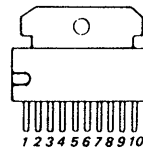
(Top view)

STA-451C



(Top view)

TA7291P



1 2 3 4 5 6 7 8 9 10

DTA124EK
DTA144EK
DTC114EK
DTC124EK
DTC144EK
2SA812
2SA1162
2SC1623
2SC1623-L7
2SC3052TP-1F



C B E

PT-360FS



E C B

2SB733-4
2SB734-34



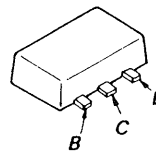
E C B

2SD655-E



E C B

2SD999-T1CK



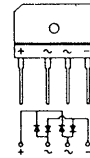
B C E

DA204K



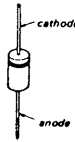
3 2 1

D3SBA10



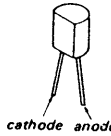
3 2 1

ERA81-005
RD7.5F-B
10E2
31DF2-FER



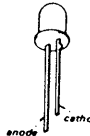
cathode anode

FC52M-5



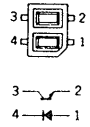
cathode anode

GL-360



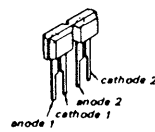
anode cathode

GP-2S09-B



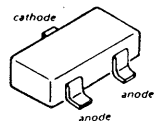
3c 2 4c 1

KV1236-D



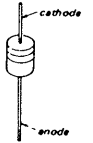
cathode 2 anode 2 cathode 1 anode 1

MA151WK
1S2837



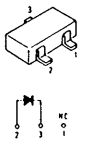
cathode anode

RD3.9ES-B2
RD5.1ES-B2
RD9.1ES-B1
RD10ES-B2
RD12ES-B2
RD33ES-B2
RD39ES-B2
1SS119



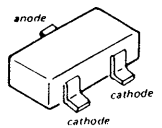
cathode anode

RD5.1M-B2



3 2 1

1S2835






anode cathode

SECTION 5 EXPLODED VIEWS

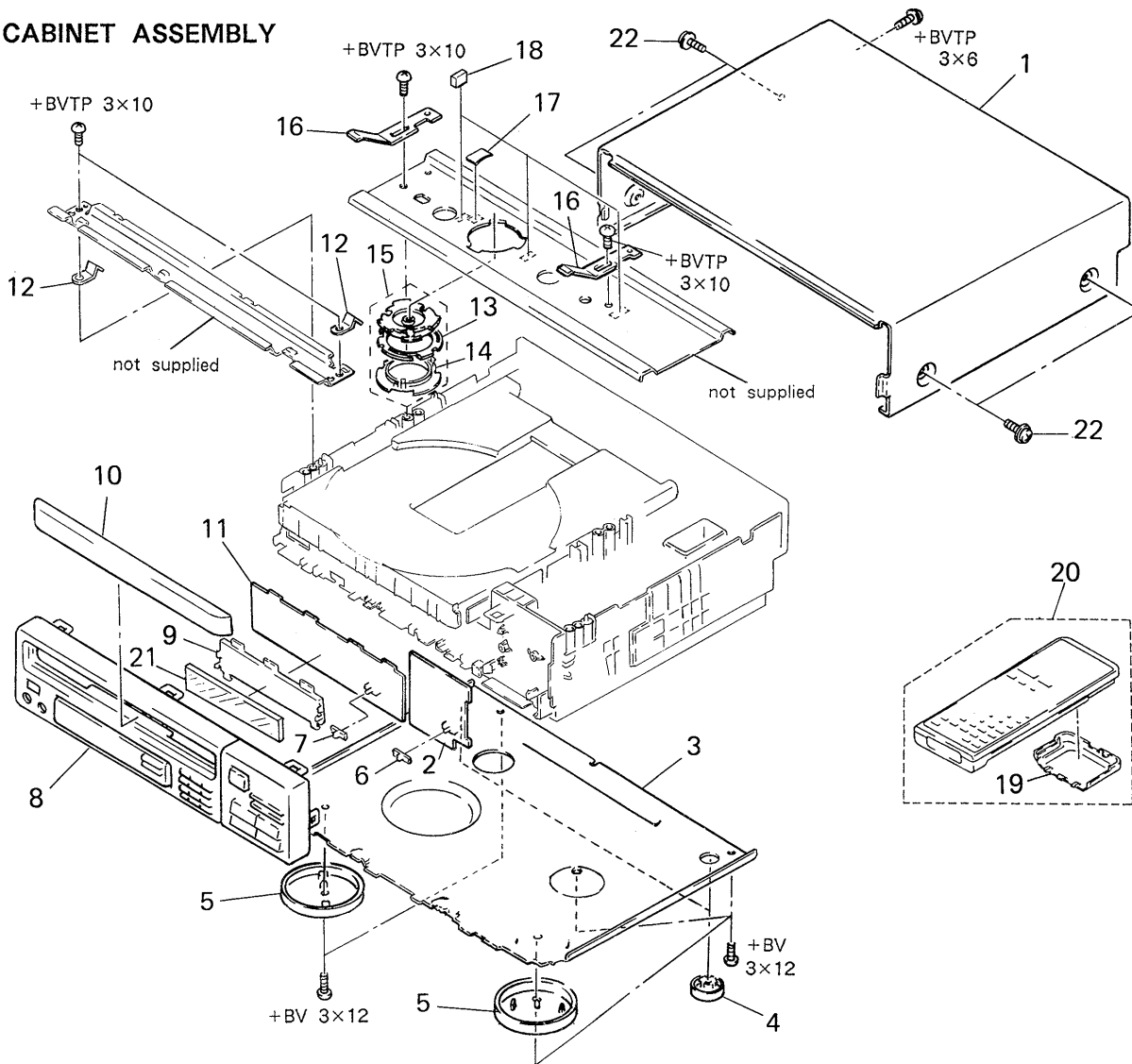
NOTE:


- The mechanical parts with no reference number in the exploded views are not supplied.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX, -X mean standardized parts, so they may have some differences from the original one.

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

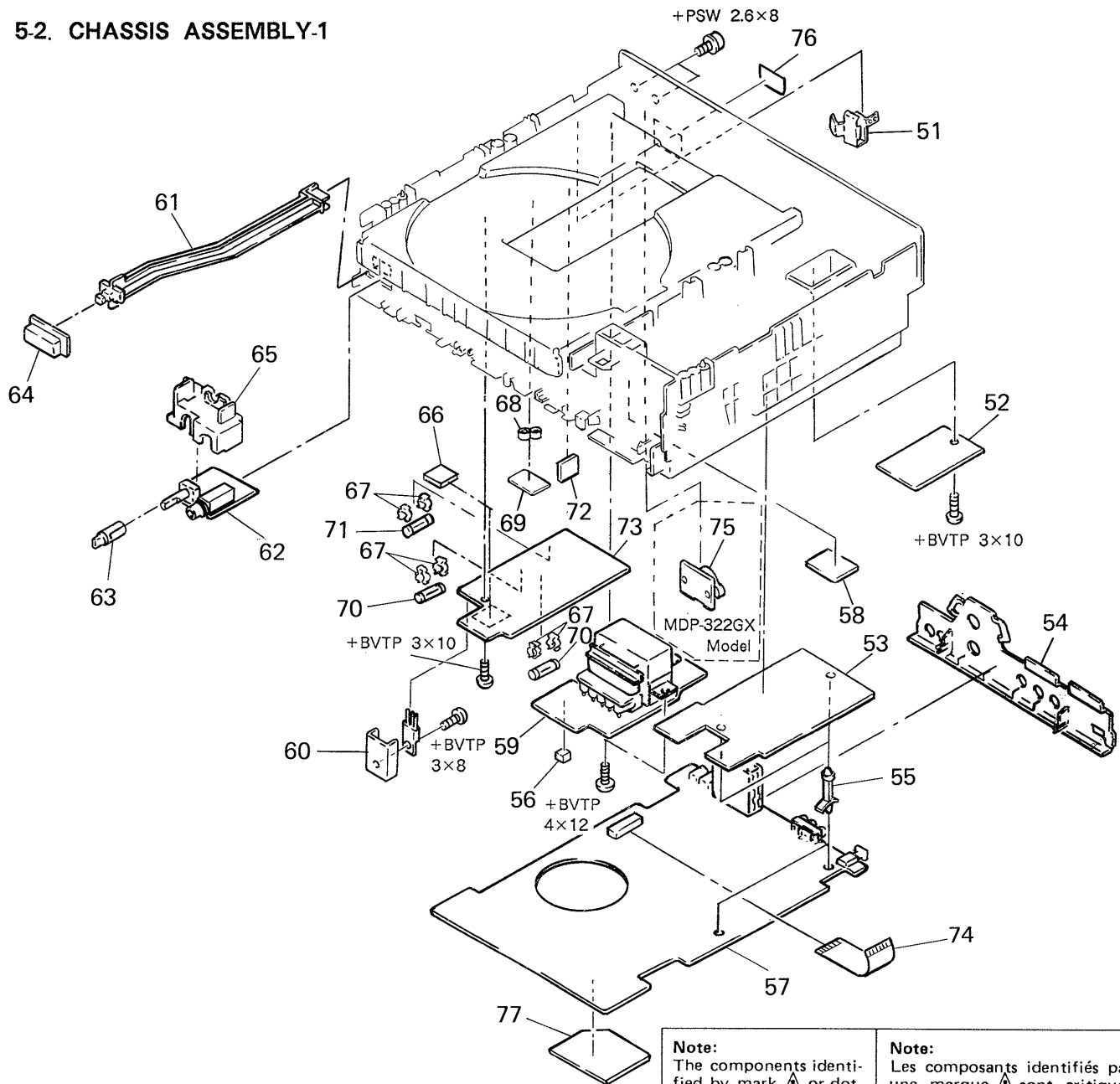
Les composants identifiés par une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



5-1. CABINET ASSEMBLY







No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
1	*3-735-065-01	CASE, UPPER		11	*A-6421-308-A	FP-197 BOARD, COMPLETE	
2	*1-630-099-11	FP-198 BOARD		12	3-735-090-01	SPRING	
3	*3-735-075-01	PLATE, BOTTOM		13	3-735-011-01	SPRING	
4	X-3318-955-1	FOOT ASSY (REAR)		14	3-735-010-01	PLATE (1), PRESS	
5	X-3735-007-1	FOOT ASSY, FRONT (MDP-210)		15	X-3735-006-1	PLATE ASSY, PRESS	
5	X-3735-025-1	FOOT ASSY (GOLD) (MDP-322GX)		16	3-735-089-01	SPRING	
6	3-735-004-01	KNOB, M.STOP		17	*3-737-454-01	SHEET, HOLDER	
7	3-735-045-01	KNOB, A/REPEAT		18	3-846-312-00	SPACER	
8	X-3735-026-1	PANAL ASSY, FRONT (MDP-322GX)		19	*3-707-584-01	RID BATTERY	
	X-3735-027-1	PANEL ASSY, FRONT (MDP-210)		20	1-465-161-21	REMOTE COMMANDER (RMT-322A)	
9	 3-735-049-01	HOLDER, FL TUBE		21	1-519-511-11	INDICATOR TUBE, FLUORESCENT (ND001)	
10	3-735-055-01	COVER, FRONT		22	7-685-646-79	SCREW, TAPPING	

5.2. CHASSIS ASSEMBLY-1

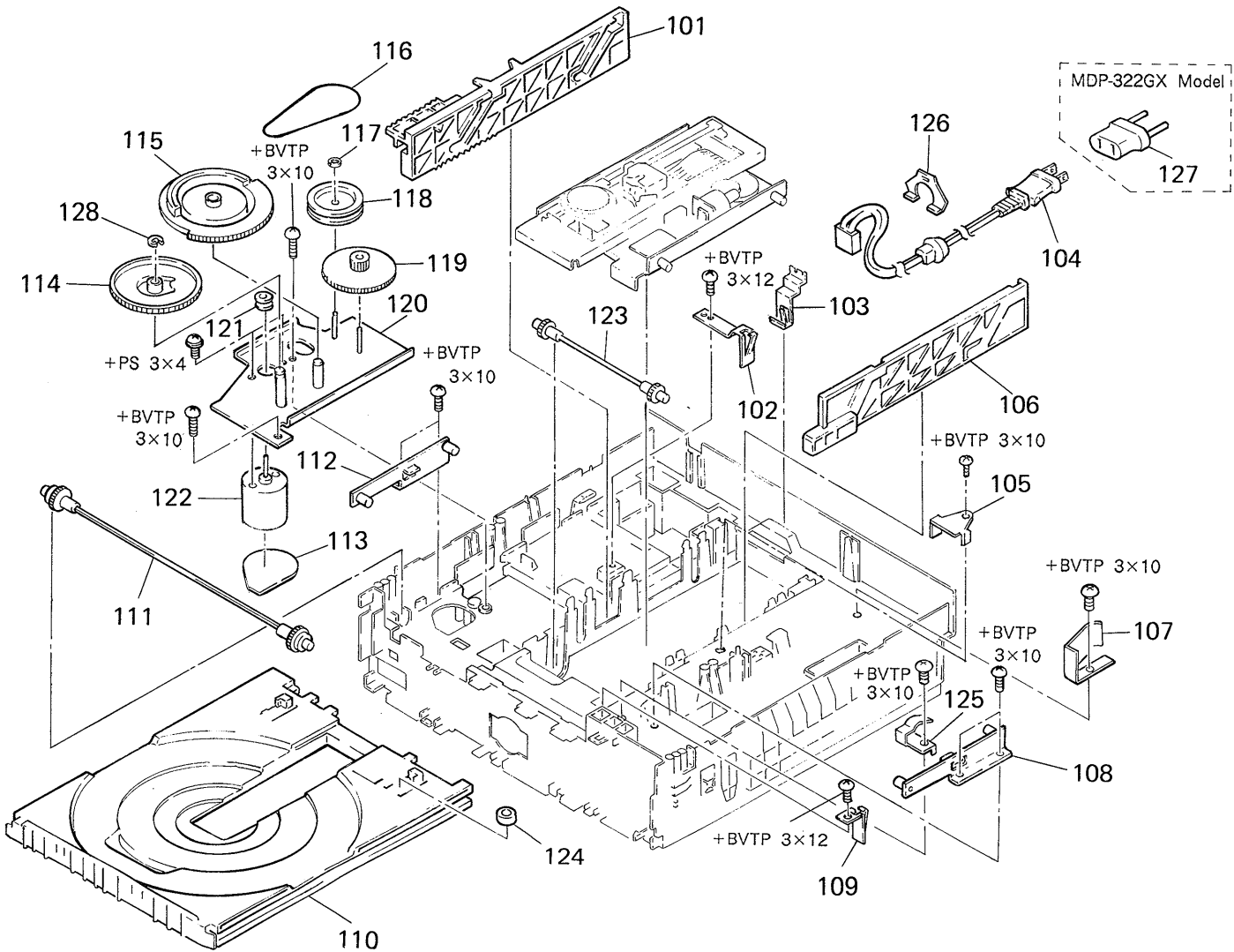





Note:
The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.




Note:
Les composants identifiés par une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
51	3-735-091-01	SPRING		65	3-735-057-01	HOLDER, HP	
52	*1-630-814-12	DL-29 BOARD		66	X-3735-019-1	SHIELD ASSY, PS LID	
53	*A-6421-305-A	DS-33 BOARD, COMPLETE		67	 1-533-189-11	HOLDER, FUSE	
54	*3-735-076-21	PLATE, JACK		68	3-735-054-01	HOLDER, SENSOR	
55	*3-703-353-08	SUPPORTER, PC BOARD		69	*1-630-091-11	LS-17 BOARD	
56	9-911-843-XX	CUSHION		70	 1-532-747-11	FUSE, GLASS TUBE (125V 5A) (F101, 102)	
57	*A-6421-349-A	MB-18 (U) BOARD, COMPLETE (MDP-322GX)		71	 1-532-825-11	FUSE, GLASS TUBE (250V 2A) (F103)	(MDP-322GX)
	*A-6421-364-A	MB-18 (U1) BOARD, COMPLETE (MDP-210)		72	*1-630-093-11	SW-107 BOARD	
58	*1-630-092-11	SW-106 BOARD		73	*A-6421-341-A	PS-193 (U) BOARD, COMPLETE (MDP-210)	
59	*1-630-089-11	TR-30 BOARD (MDP-210)			*A-6421-343-A	PS-193 (E) BOARD, COMPLETE (MDP-322GX)	
	*1-630-089-22	TR-30 BOARD (MDP-322GX)		74	*1-574-755-11	WIRE, FLAT TYPE 28P	
60	*3-309-144-21	HEAT SINK		75	*1-631-866-11	VS-47 BOARD (MDP-322GX)	
61	3-735-050-01	LEVER, POWER SW		76	*3-737-407-01	LABEL, MODEL NUMBER (NO.4) (MDP-210)	
62	*1-630-090-11	HP-50 BOARD			*3-737-409-01	LABEL, MODEL NUMBER (NO.3) (MDP-322GX)	
63	4-922-531-01	KNOB (A TYPE), LOV		77	*3-738-615-01	PLATE, SHIELD MB	
64	3-735-051-01	BUTTON, POWER (SW301) (MDP-210)					
	3-735-051-11	BUTTON, POWER (MDP-322GX)					

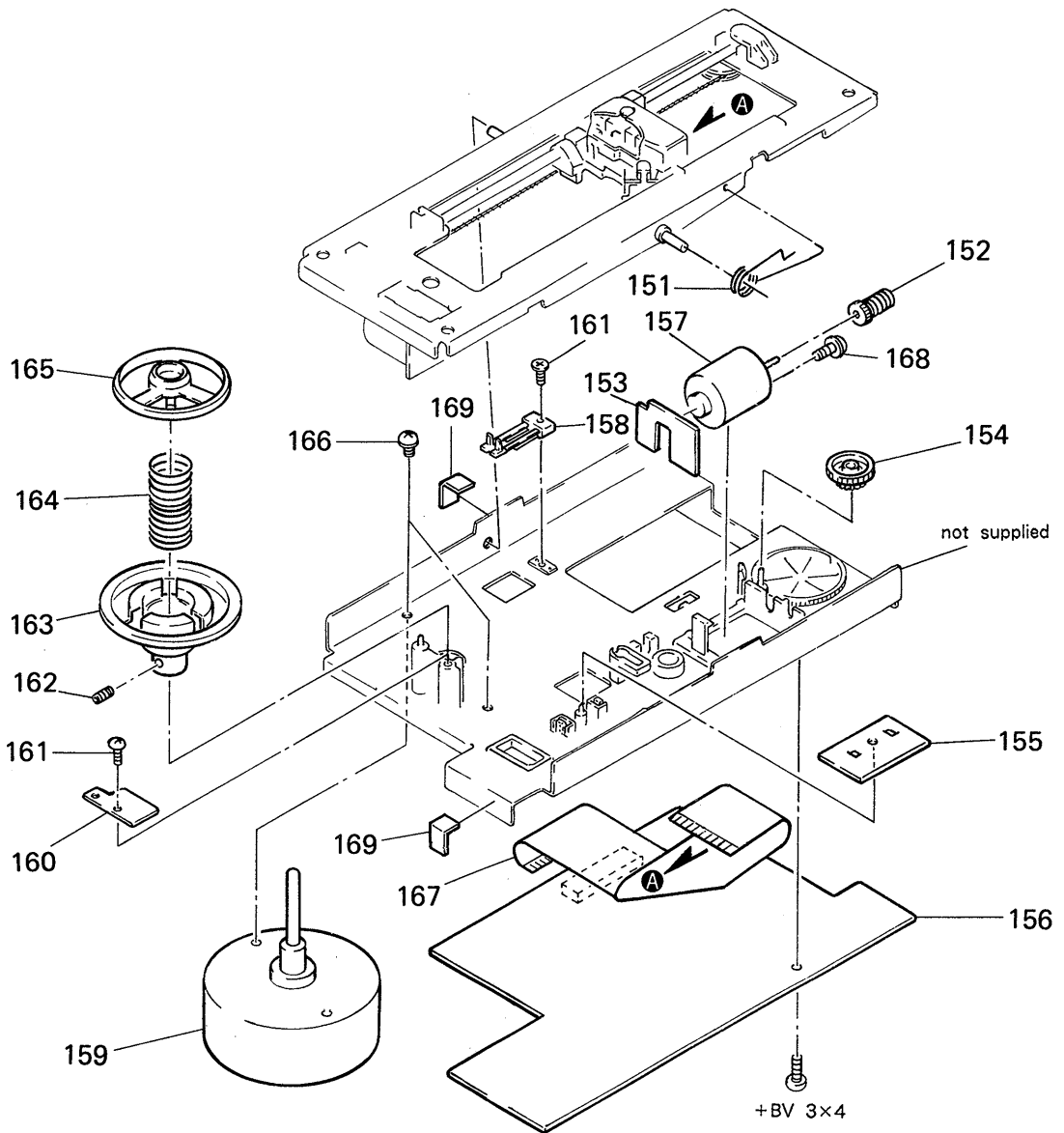
5.3. CHASSIS ASSEMBLY-2



<p>Note: The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.</p>	<p>Note: Les composants identifiés par une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.</p>
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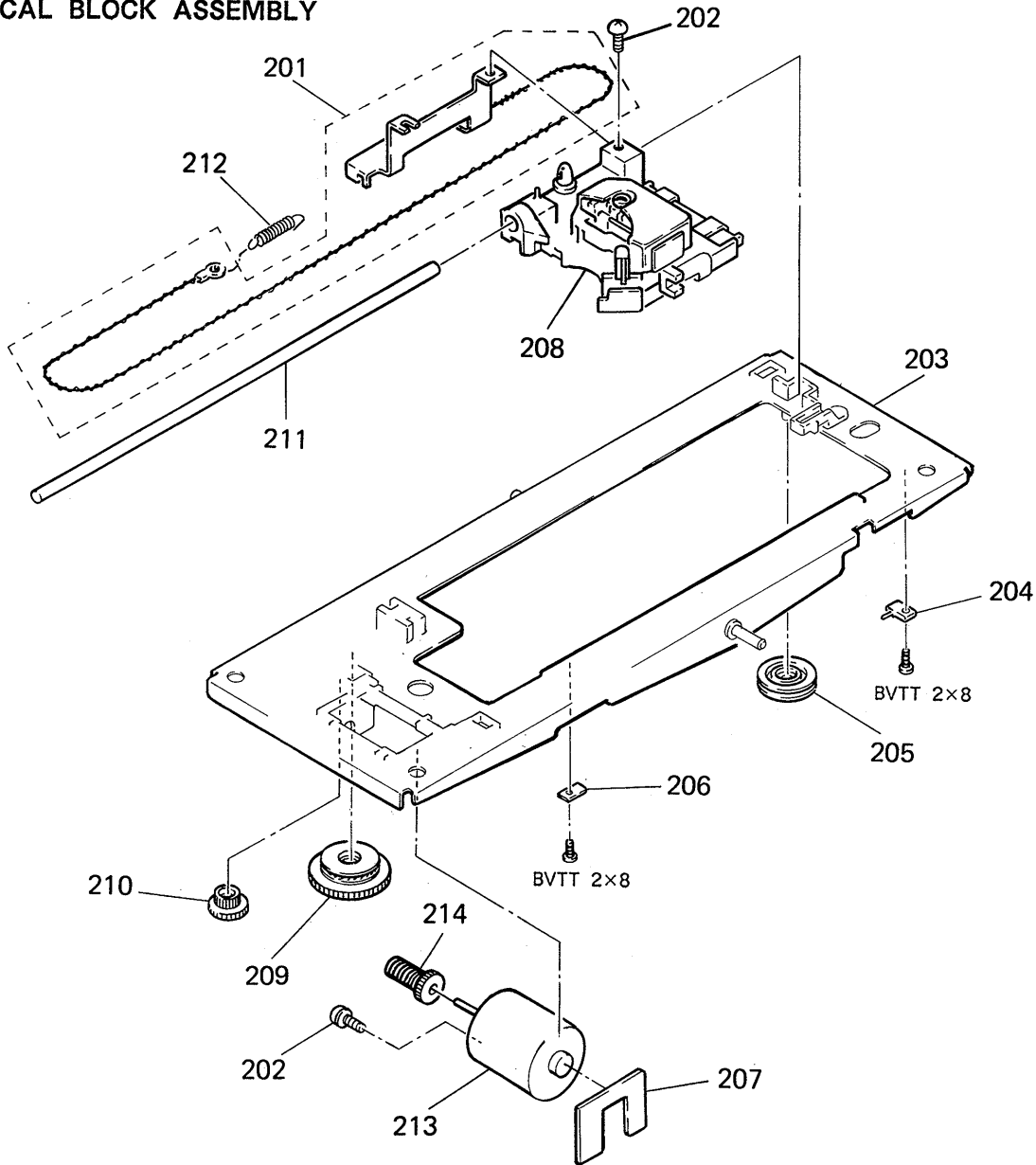
No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
101	3-735-053-01	RACK (LEFT)		114	3-735-035-01	GEAR, TRAY	
102	3-737-401-01	SPRING (1)		115	3-735-056-01	CAM, DRIVING	
103	*3-737-414-01	PLATE, GROUND, RF		116	3-513-066-XX	BELT, FAST FORWARD	
104	 1-559-129-51	CORD, POWER (MDP-210)		117	3-669-595-00	WASHER (2), STOPPER	
	 1-559-627-11	CORD, POWER (MDP-322GX)		118	3-735-036-01	PULLEY (A)	
105	*3-737-415-01	RETAINER, RACK		119	3-735-037-01	GEAR, MIDWAY	
106	3-735-052-01	RACK (RIGHT)		120	*X-3735-002-1	BASE ASSY, THREADING	
107	3-737-412-01	SPRING, LEAF		121	3-713-318-01	PULLEY, MOTOR	
108	X-3735-022-1	GUIDE ASSY (RIGHT), TRAY		122	1-541-309-11	MOTOR, LOADING (RF-370C) (M904)	
109	3-737-402-01	SPRING (2)		123	X-3735-008-1	GEAR ASSY, MD PHASE	
110	X-3720-452-1	TRAY ASSY (MDP-210)		124	*4-914-248-01	STOPPER, RUBBER	
	X-3735-032-2	TRAY ASSY (MDP-322GX)		125	3-737-448-01	SPRING, LEAF	
111	X-3735-009-1	GEAR ASSY, PHASE		126	*3-737-438-01	BRACKET, AC CORD	
112	X-3735-021-1	GUIDE ASSY (LEFT), TRAY		127	 1-526-565-00	AC PLUG ADAPTOR (MDP-322GX)	
113	*1-630-101-11	MT-29 BOARD		128	7-624-108-04	STOP RING 4.0, TYPE -E	

5.4. MD BLOCK ASSEMBLY





No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
151	3-735-021-01	SPRING, TORSION		161	3-719-845-11	SCREW (B2X8), TAPPING	
152	3-735-038-01	GEAR, WORM		162	3-701-506-01	SET SCREW, DOUBLE POINT (M3X4)	
153	*1-631-095-11	MT-30 BOARD		163	X-3735-003-1	TURNTABLE ASSY	
154	3-735-025-01	GEAR, SKEW		164	3-735-026-01	SPRING, COMPRESSION	
155	*1-630-094-11	CK-14 BOARD		165	X-3735-004-1	GUIDE ASSY, CENTER	
156	*A-6421-311-A	SV-33 BOARD, COMPLETE		166	4-606-833-01	SCREW (3X5), + PSW	
157	1-541-659-11	MOTOR, DC (TILT) (M903)		167	1-574-648-11	CABLE, FLEXIBLE FLAT (24 CORE)	
158	1-554-468-00	SWITCH, LEAF (SLED IN LIMIT LD/CD) (S903)		168	3-899-248-01	SCREW (M3X6)	
159	1-541-665-11	MOTOR, SPINDLE (M901)		169	*3-737-413-01	SHEET, TEFLON	
160	*1-630-096-11	FG-13 BOARD					


5-5. OPTICAL BLOCK ASSEMBLY




Note:

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

Note:

Les composants identifiés par une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

No.	Part No.	Description	Remark	No.	Part No.	Description	Remark
201	X-3735-001-1	WIRE ASSY		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-3735-014-1	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	1-541-659-11	MOTOR, DC (SLED) (M902)	
207	*1-630-097-11	MT-28 BOARD		214	3-735-038-01	GEAR, WORM	

SECTION 6
ELECTRICAL PARTS LIST

DS-33

NOTE:

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

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

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

- 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.
- 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.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- SEMICONDUCTORS
In each case, U: μ , for example:
UA.....: μA, UPA.....: μPA,
UPB.....: μPB, UPC.....: μPC,
UPD.....: μPD
- CAPACITORS
MF: μF , PF: $\mu \mu F$
- COILS
MMH: mH, UH: μH

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
*A-6421-305-A DS-33 BOARD, COMPLETE (Ref.No 8,000 Series)				C123	1-136-232-11	FILM 0.0043MF	3% 100V
*****				C124	1-136-250-11	FILM 0.001MF	3% 100V
<u>CAPACITOR</u>				C125	1-126-024-11	ELECT 220MF	20% 25V
C001	1-124-768-11	ELECT 4.7MF	20% 50V	C126	1-126-023-11	ELECT 100MF	20% 16V
C002	1-124-767-00	ELECT 2.2MF	20% 50V	C127	1-136-250-11	FILM 0.001MF	3% 100V
C003	1-124-446-11	ELECT 47MF	20% 10V	C128	1-126-024-11	ELECT 220MF	20% 25V
C004	1-124-446-11	ELECT 47MF	20% 10V	C129	1-126-646-71	ELECT 470MF	20% 25V
C005	1-126-320-11	ELECT 10MF	20% 16V	C130	1-126-649-11	ELECT 3300MF	20% 25V
C006	1-163-077-00	CERAMIC CHIP 0.1MF	10% 25V	C131	1-124-997-11	ELECT 470MF	20% 10V
C007	1-163-058-00	CERAMIC CHIP 0.0082MF	10% 50V	C132	1-126-160-11	ELECT 1MF	20% 50V
C008	1-163-021-91	CERAMIC CHIP 0.01MF	10% 50V	C133	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C009	1-163-021-91	CERAMIC CHIP 0.01MF	10% 50V	C134	1-163-105-00	CERAMIC CHIP 33PF	5% 50V
C010	1-163-101-00	CERAMIC CHIP 22PF	5% 50V	C135	1-163-105-00	CERAMIC CHIP 33PF	5% 50V
C011	1-163-101-00	CERAMIC CHIP 22PF	5% 50V	C136	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C012	1-163-021-91	CERAMIC CHIP 0.01MF	10% 50V	C137	1-163-105-00	CERAMIC CHIP 33PF	5% 50V
C015	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C201	1-126-649-11	ELECT 3300MF	20% 25V
C016	1-124-589-11	ELECT 47MF	20% 10V	C202	1-126-649-11	ELECT 3300MF	20% 25V
C017	1-124-589-11	ELECT 47MF	20% 10V	C203	1-126-648-11	ELECT 1000MF	20% 25V
C018	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C204	1-126-648-11	ELECT 1000MF	20% 25V
C019	1-163-023-00	CERAMIC CHIP 0.015MF	10% 50V	C205	1-124-477-11	ELECT 47MF	20% 25V
C020	1-126-157-11	ELECT 10MF	20% 10V	C206	1-124-478-11	ELECT 100MF	20% 25V
C021	1-163-021-91	CERAMIC CHIP 0.01MF	10% 50V	C207	1-124-499-11	ELECT 1MF	20% 50V
C023	1-163-035-00	CERAMIC CHIP 0.047MF	50V	<u>CONNECTOR</u>			
C024	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V	CN001	1-568-316-11	CONNECTOR, BOARD TO BOARD 5P	
C025	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V	CN002	*1-566-709-11	CONNECTOR, BOARD TO BOARD 12P	
C026	1-163-241-11	CERAMIC CHIP 39PF	5% 50V	CN003	*1-566-709-11	CONNECTOR, BOARD TO BOARD 12P	
C027	1-163-106-00	CERAMIC CHIP 36PF	5% 50V	CN005	*1-566-708-11	CONNECTOR, BOARD TO BOARD 7P	
C028	1-163-123-00	CERAMIC CHIP 180PF	5% 50V	CN201	*1-560-891-00	PIN, CONNECTOR 3P	
C029	1-163-133-00	CERAMIC CHIP 470PF	5% 50V	<u>DIODE</u>			
C030	1-163-035-00	CERAMIC CHIP 0.047MF	50V	D001	8-719-923-64	DIODE KV1236D	
C032	1-163-035-00	CERAMIC CHIP 0.047MF	50V	D002	8-719-907-19	DIODE FC52M-5	
C101	1-163-035-00	CERAMIC CHIP 0.047MF	50V	D003	8-719-907-19	DIODE FC52M-5	
C102	1-163-035-00	CERAMIC CHIP 0.047MF	50V	D004	8-719-911-19	DIODE 1S119	
C104	1-163-035-00	CERAMIC CHIP 0.047MF	50V	D005	8-719-109-85	DIODE RDS.1ES-82	
C105	1-126-301-11	ELECT 1MF	20% 50V	D102	8-719-911-19	DIODE 1S119	
C106	1-126-049-11	ELECT 22MF	20% 25V	D103	8-719-911-19	DIODE 1S119	
C107	1-136-165-00	FILM 0.1MF	5% 50V	D201	Δ 8-719-210-18	DIODE 31DF2-FER	
C108	1-126-049-11	ELECT 22MF	20% 25V	D202	Δ 8-719-210-18	DIODE 31DF2-FER	
C109	1-126-301-11	ELECT 1MF	20% 50V	D203	Δ 8-719-210-18	DIODE 31DF2-FER	
C110	1-126-301-11	ELECT 1MF	20% 50V	D204	Δ 8-719-210-18	DIODE 31DF2-FER	
C111	1-126-049-11	ELECT 22MF	20% 25V	D205	8-719-911-19	DIODE 1S119	
C112	1-136-165-00	FILM 0.1MF	5% 50V	D206	8-719-911-19	DIODE 1S119	
C113	1-126-049-11	ELECT 22MF	20% 25V	D207	8-719-911-19	DIODE 1S119	
C114	1-126-301-11	ELECT 1MF	20% 50V	D208	8-719-100-05	DIODE 1S2837	
C115	1-136-250-11	FILM 0.001MF	3% 100V	D209	8-719-100-05	DIODE 1S2837	
C116	1-136-232-11	FILM 0.0043MF	3% 100V	D210	8-719-911-19	DIODE 1S119	
C117	1-136-250-11	FILM 0.001MF	3% 100V	<u>IC</u>			
C118	1-126-024-11	ELECT 220MF	20% 25V	IC001	8-752-328-62	IC CXD1125Q	
C119	1-126-023-11	ELECT 100MF	20% 16V	IC002	8-759-908-17	IC TL082CPS	
C120	1-136-250-11	FILM 0.001MF	3% 100V	IC003	8-759-908-17	IC TL082CPS	
C121	1-126-024-11	ELECT 220MF	20% 25V				
C122	1-136-250-11	FILM 0.001MF	3% 100V				

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
IC004	8-759-804-93	IC LC3517BML-15		R021	1-216-097-00	METAL GLAZE 100K 5%	1/10W
IC005	8-759-927-29	IC SN74HCU04NS		R022	1-216-097-00	METAL GLAZE 100K 5%	1/10W
IC009	8-759-201-01	IC TC4066BF		R023	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W
IC101	8-752-328-72	IC CXD2550P		R025	1-216-097-00	METAL GLAZE 100K 5%	1/10W
IC102	8-759-926-17	IC SN74HC153NS		R026	1-216-077-00	METAL GLAZE 15K 5%	1/10W
IC103	8-759-205-06	IC TC74HC74F		R027	1-216-053-00	METAL GLAZE 1.5K 5%	1/10W
IC104	8-759-204-94	IC TC74HC00F		R028	1-216-334-11	METAL GLAZE 22K 1%	1/10W
IC105	8-759-205-16	IC SN74HC161F		R029	1-216-334-11	METAL GLAZE 22K 1%	1/10W
IC106	8-759-604-29	IC M5F7805		R030	1-216-073-00	METAL GLAZE 10K 5%	1/10W
IC107	8-759-979-09	IC PCM58P		R031	1-216-075-00	METAL GLAZE 12K 5%	1/10W
IC108	8-759-979-09	IC PCM58P		R032	1-216-097-00	METAL GLAZE 100K 5%	1/10W
IC109	8-759-701-21	IC NJM5532D-D		R033	1-216-049-00	METAL GLAZE 1K 5%	1/10W
IC110	8-759-701-21	IC NJM5532D-D		R034	1-216-097-00	METAL GLAZE 100K 5%	1/10W
IC201	8-759-604-33	IC M5F7812		R035	1-216-097-00	METAL GLAZE 100K 5%	1/10W
IC202	8-759-604-51	IC M5F7912		R036	1-216-097-00	METAL GLAZE 100K 5%	1/10W
<u>VARIABLE COIL</u>				R038	1-216-033-00	METAL GLAZE 220 5%	1/10W
LV001	1-426-212-11	COIL (RF)		R040	1-216-033-00	METAL GLAZE 220 5%	1/10W
<u>TRANSISTOR</u>				R041	1-216-049-00	METAL GLAZE 1K 5%	1/10W
Q001	8-729-900-53	TRANSISTOR DTC114EK		R042	1-216-049-00	METAL GLAZE 1K 5%	1/10W
Q002	8-729-100-67	TRANSISTOR 2SC1623-L7		R043	1-216-033-00	METAL GLAZE 220 5%	1/10W
Q003	8-729-900-53	TRANSISTOR DTC114EK		R044	1-216-025-00	METAL GLAZE 100 5%	1/10W
Q004	8-729-900-53	TRANSISTOR DTC114EK		R045	1-216-025-00	METAL GLAZE 100 5%	1/10W
Q005	8-729-901-05	TRANSISTOR DTA124EK		R046	1-216-025-00	METAL GLAZE 100 5%	1/10W
Q101	8-729-900-53	TRANSISTOR DTC114EK		R047	1-216-025-00	METAL GLAZE 100 5%	1/10W
Q102	8-729-901-00	TRANSISTOR DTC124EK		R050	1-216-121-00	METAL GLAZE 1M 5%	1/10W
Q201	8-729-901-05	TRANSISTOR DTA124EK		R051	1-216-099-00	METAL GLAZE 120K 5%	1/10W
Q202	8-729-901-05	TRANSISTOR DTA124EK		R052	1-216-073-00	METAL GLAZE 10K 5%	1/10W
Q203	8-729-901-00	TRANSISTOR DTC124EK		R053	1-216-033-00	METAL GLAZE 220 5%	1/10W
Q204	8-729-901-05	TRANSISTOR DTA124EK		R054	1-216-033-00	METAL GLAZE 220 5%	1/10W
Q205	8-729-901-05	TRANSISTOR DTA124EK		R055	1-216-033-00	METAL GLAZE 220 5%	1/10W
<u>RESISTOR</u>				R056	1-216-033-00	METAL GLAZE 220 5%	1/10W
R001	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R057	1-216-033-00	METAL GLAZE 220 5%	1/10W
R002	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R058	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R003	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	R101	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R004	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R102	1-216-103-00	METAL GLAZE 180K 5%	1/10W
R005	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R103	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R006	1-216-099-00	METAL GLAZE 120K 5%	1/10W	R104	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R007	1-216-101-00	METAL GLAZE 150K 5%	1/10W	R105	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
R008	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W	R106	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R009	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R107	1-216-103-00	METAL GLAZE 180K 5%	1/10W
R010	1-216-093-00	METAL GLAZE 68K 5%	1/10W	R108	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R011	1-216-121-00	METAL GLAZE 1M 5%	1/10W	R109	1-249-684-91	CARBON 3K 5%	1/2W
R012	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W	R110	1-249-677-11	CARBON 1.5K 5%	1/2W
R013	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R111	1-249-677-11	CARBON 1.5K 5%	1/2W
R014	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R112	1-247-887-00	CARBON 220K 5%	1/4W
R015	1-216-093-00	METAL GLAZE 68K 5%	1/10W	R113	1-249-684-91	CARBON 3K 5%	1/2W
R016	1-216-062-00	METAL GLAZE 3.6K 5%	1/10W	R114	1-249-677-11	CARBON 1.5K 5%	1/2W
R017	1-216-093-00	METAL GLAZE 68K 5%	1/10W	R115	1-249-677-11	CARBON 1.5K 5%	1/2W
R018	1-216-099-00	METAL GLAZE 120K 5%	1/10W	R116	1-247-887-00	CARBON 220K 5%	1/4W
R019	1-216-099-00	METAL GLAZE 120K 5%	1/10W	R117	1-216-025-00	METAL GLAZE 100 5%	1/10W
R020	1-216-097-00	METAL GLAZE 100K 5%	1/10W	R118	1-216-073-00	METAL GLAZE 10K 5%	1/10W
				R119	1-216-073-00	METAL GLAZE 10K 5%	1/10W
				R120	1-216-025-00	METAL GLAZE 100 5%	1/10W

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

<u>Ref.No</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>	<u>Ref.No</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
R121	1-216-025-00	METAL GLAZE 100 5%	1/10W			<u>COIL</u>	
R122	1-216-025-00	METAL GLAZE 100 5%	1/10W				
R123	1-216-025-00	METAL GLAZE 100 5%	1/10W				
R124	1-216-049-00	METAL GLAZE 1K 5%	1/10W	L001	1-407-169-XX	INDUCTOR 100UH	
R125	1-216-049-00	METAL GLAZE 1K 5%	1/10W	L002	1-407-169-XX	INDUCTOR 100UH	
R203	1-216-077-00	METAL GLAZE 15K 5%	1/10W			<u>INDICATOR TUBE</u>	
R204	1-247-855-00	CARBON 10K 5%	1/6W	ND001	1-519-511-11	INDICATOR TUBE, FLUORESCENT	
R205	1-216-081-00	METAL GLAZE 22K 5%	1/10W			<u>TRANSISTOR</u>	
R206	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W				
R207	1-218-152-11	METAL GLAZE 1.5K 1%	1/10W	Q001	8-729-100-66	TRANSISTOR 2SC1623	
		<u>VARIABLE RESISTOR</u>		Q002	8-729-100-66	TRANSISTOR 2SC1623	
RV001	1-228-993-00	RES, ADJ, CARBON 4.7K				<u>RESISTOR</u>	
RV101	1-228-997-00	RES, ADJ, CARBON 100K					
RV102	1-228-997-00	RES, ADJ, CARBON 100K		R001	1-216-097-00	METAL GLAZE 100K 5%	1/10W
		<u>CRYSTAL</u>		R002	1-216-073-00	METAL GLAZE 10K 5%	1/10W
X001	1-567-515-11	VIBRATOR, VARIABLE CRYSTAL (16.9MHz)		R003	1-216-097-00	METAL GLAZE 100K 5%	1/10W

	*A-6421-308-A	FP-197 BOARD, COMPLETE (Ref.No 4,000 Series)		R004	1-216-073-00	METAL GLAZE 10K 5%	1/10W
		*****		R005	1-216-073-00	METAL GLAZE 10K 5%	1/10W
	*3-735-049-01	HOLDER, FL TUBE		R006	1-216-071-00	METAL GLAZE 8.2K 5%	1/10W
		<u>CAPACITOR</u>		R007	1-216-073-00	METAL GLAZE 10K 5%	1/10W
C001	1-163-023-00	CERAMIC CHIP 0.015MF 10%	50V	R008	1-216-073-00	METAL GLAZE 10K 5%	1/10W
C002	1-163-101-00	CERAMIC CHIP 22PF 5%	50V	R009	1-216-073-00	METAL GLAZE 10K 5%	1/10W
C003	1-163-101-00	CERAMIC CHIP 22PF 5%	50V	R010	1-216-073-00	METAL GLAZE 10K 5%	1/10W
C004	1-163-021-91	CERAMIC CHIP 0.01MF 10%	50V	R011	1-216-079-00	METAL GLAZE 18K 5%	1/10W
C005	1-126-157-11	ELECT 10MF 20%	16V	R012	1-216-069-00	METAL GLAZE 6.8K 5%	1/10W
C006	1-163-021-91	CERAMIC CHIP 0.01MF 10%	50V	R013	1-216-063-00	METAL GLAZE 3.9K 5%	1/10W
C007	1-126-157-11	ELECT 10MF 20%	16V	R014	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W
C008	1-163-021-91	CERAMIC CHIP 0.01MF 10%	50V	R015	1-216-079-00	METAL GLAZE 18K 5%	1/10W
C009	1-126-157-11	ELECT 10MF 20%	16V	R016	1-216-069-00	METAL GLAZE 6.8K 5%	1/10W
C010	1-163-021-91	CERAMIC CHIP 0.01MF 10%	50V	R017	1-216-063-00	METAL GLAZE 3.9K 5%	1/10W
C011	1-124-242-00	ELECT 33MF 20%	16V	R018	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W
C012	1-163-021-91	CERAMIC CHIP 0.01MF 10%	50V	R019	1-216-079-00	METAL GLAZE 18K 5%	1/10W
C013	1-163-021-91	CERAMIC CHIP 0.01MF 10%	50V	R020	1-216-069-00	METAL GLAZE 6.8K 5%	1/10W
		<u>CONNECTOR</u>		R021	1-216-063-00	METAL GLAZE 3.9K 5%	1/10W
CN001	1-506-483-21	PIN, CONNECTOR 4P		R022	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W
CN002	*1-564-019-11	PIN, CONNECTOR 9P		R023	1-216-073-00	METAL GLAZE 10K 5%	1/10W
CN003	1-506-485-11	PIN, CONNECTOR 6P		R024	1-216-073-00	METAL GLAZE 10K 5%	1/10W
CN004	1-506-484-11	PIN, CONNECTOR 5P		R025	1-216-073-00	METAL GLAZE 10K 5%	1/10W
		<u>IC</u>		R026	1-216-073-00	METAL GLAZE 10K 5%	1/10W
IC001	8-752-808-91	IC CXP5058H-640Q		R027	1-216-073-00	METAL GLAZE 10K 5%	1/10W
IC002	8-752-808-90	IC CXP5048H-189Q		R028	1-216-073-00	METAL GLAZE 10K 5%	1/10W
IC003	8-759-605-21	IC M51953AFP		R029	1-216-073-00	METAL GLAZE 10K 5%	1/10W
IC004	8-741-138-78	IC BX-1453				<u>SWITCH</u>	
IC005	8-759-926-64	IC SN74HC367NS		S001	1-553-856-00	SWITCH, KEY BOARD (1 A)	
				S002	1-553-856-00	SWITCH, KEY BOARD (2 B)	
				S003	1-553-856-00	SWITCH, KEY BOARD (3 C)	
				S004	1-553-856-00	SWITCH, KEY BOARD (6 F)	
				S005	1-553-856-00	SWITCH, KEY BOARD (9)	
				S006	1-553-856-00	SWITCH, KEY BOARD (4 D)	
				S007	1-553-856-00	SWITCH, KEY BOARD (5 E)	
				S008	1-553-856-00	SWITCH, KEY BOARD (8)	
				S009	1-553-856-00	SWITCH, KEY BOARD (7)	


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












FP-197

FP-198

HP-50

SV-33

Ref.No	Part No.	Description	Remark
S010	1-553-856-00	SWITCH, KEY BOARD (+10)	
S011	1-553-856-00	SWITCH, KEY BOARD (FILE)	
S012	1-553-856-00	SWITCH, KEY BOARD (INDEX)	
S013	1-553-856-00	SWITCH, KEY BOARD (AV TIME)	
S014	1-553-856-00	SWITCH, KEY BOARD (CDV)	
S015	1-553-856-00	SWITCH, KEY BOARD (0)	
S016	1-571-758-11	SWITCH, PUSH (1 KEY) ()	
<u>CRYSTAL</u>			
X001	1-567-160-21	OSCILLATOR, CERAMIC (4.197MHz)	

	*1-630-099-11	FP-198 BOARD (Ref.No 5,000 Series)	*****
<u>CONNECTOR</u>			
CN001	1-506-484-11	PIN, CONNECTOR 5P	
<u>RESISTOR</u>			
R001	1-249-422-11	CARBON	2.7K 5% 1/4W
R002	1-249-424-11	CARBON	3.9K 5% 1/4W
R003	1-249-427-11	CARBON	6.8K 5% 1/4W
R004	1-249-432-11	CARBON	18K 5% 1/4W
R005	1-249-422-11	CARBON	2.7K 5% 1/4W
R006	1-249-424-11	CARBON	3.9K 5% 1/4W
R007	1-249-427-11	CARBON	6.8K 5% 1/4W
R008	1-249-430-11	CARBON	12K 5% 1/4W
R009	1-249-432-11	CARBON	18K 5% 1/4W
<u>SWITCH</u>			
S001	1-553-856-00	SWITCH, KEY BOARD ()	
S002	1-553-856-00	SWITCH, KEY BOARD ()	
S003	1-554-592-21	SWITCH, KEY BOARD (DUBLE ACTION) (  DUAL SPEED)	
S004	1-553-856-00	SWITCH, KEY BOARD ( OPEN/CLOSE)	
S005	1-553-856-00	SWITCH, KEY BOARD ()	
S006	1-553-856-00	SWITCH, KEY BOARD ( / )	
S007	1-553-856-00	SWITCH, KEY BOARD ()	
S008	1-554-592-21	SWITCH, KEY BOARD (DUBLE ACTION) (  DUAL SPEED)	
S009	1-570-157-21	SWITCH, SLIDE (STOP MODE)	

	*1-630-090-11	HP-50 BOARD (Ref.No 6,000 Series)	*****
	3-735-057-01	HOLDER, HP	
<u>CAPACITOR</u>			
C101	1-124-478-11	ELECT	100MF 20% 25V
C102	1-124-478-11	ELECT	100MF 20% 25V
C103	1-162-294-31	CERAMIC	0.001MF 10% 50V

Ref.No	Part No.	Description	Remark
<u>CONNECTOR</u>			
CN101	1-506-471-11	PIN, CONNECTOR 6P	
<u>JACK</u>			
CNJ101	1-507-796-71	JACK (PHONES)	
<u>IC</u>			
IC101	8-759-701-45	IC NJM4560S-D	
<u>RESISTOR</u>			
R101	1-249-417-11	CARBON	1K 5% 1/4W
R102	1-249-425-11	CARBON	4.7K 5% 1/4W
R103	1-249-430-11	CARBON	12K 5% 1/4W
R104	1-249-405-11	CARBON	100 5% 1/4W
R105	1-249-417-11	CARBON	1K 5% 1/4W
R106	1-249-425-11	CARBON	4.7K 5% 1/4W
R107	1-249-430-11	CARBON	12K 5% 1/4W
R108	1-249-405-11	CARBON	100 5% 1/4W
R109	1-249-409-11	CARBON	220 5% 1/4W
R110	1-249-409-11	CARBON	220 5% 1/4W
<u>VARIABLE RESISTOR</u>			
RV101	1-238-581-11	RES, VAR (PHONES↔LEVEL)	

	*A-6421-311-A	SV-33 BOARD, COMPLETE (Ref.No 7,000 Series)	*****
<u>CAPACITOR</u>			
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	100MF 20% 10V
C104	1-124-584-00	ELECT	100MF 20% 10V
C106	1-126-160-11	ELECT	1MF 20% 50V
C121	1-124-242-00	ELECT	33MF 20% 25V
C122	1-124-242-00	ELECT	33MF 20% 25V
C123	1-124-584-00	ELECT	100MF 20% 10V
C124	1-124-584-00	ELECT	100MF 20% 10V
C125	1-163-021-91	CERAMIC CHIP	0.01MF 10% 50V
C126	1-163-021-91	CERAMIC CHIP	0.01MF 10% 50V
C127	1-124-284-91	ELECT	10MF 20% 16V
C128	1-136-153-00	FILM	0.01MF 5% 50V
C129	1-136-173-00	FILM	0.47MF 5% 50V
C130	1-124-284-91	ELECT	10MF 20% 16V
C132	1-130-487-00	MYLAR	0.022MF 5% 50V
C133	1-130-476-00	MYLAR	0.0027MF 5% 50V
C135	1-130-486-00	MYLAR	0.018MF 5% 50V
C136	1-136-169-00	FILM	0.22MF 5% 50V
C137	1-130-484-00	MYLAR	0.012MF 5% 50V
C138	1-130-484-00	MYLAR	0.012MF 5% 50V
C139	1-124-285-91	ELECT	22MF 20% 16V

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

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R126	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	R193	1-216-105-00	METAL GLAZE	220K 5% 1/10W
R127	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W	R194	1-216-079-00	METAL GLAZE	18K 5% 1/10W
R128	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W	R195	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R129	1-216-039-00	METAL GLAZE	390 5% 1/10W	R196	1-216-017-00	METAL GLAZE	47 5% 1/10W
R130	1-216-024-00	METAL GLAZE	91 5% 1/10W	R197	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R145	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R198	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R146	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	R199	1-216-017-00	METAL GLAZE	47 5% 1/10W
R147	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R200	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R148	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R201	1-216-095-00	METAL GLAZE	82K 5% 1/10W
R149	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	R202	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R150	1-216-085-00	METAL GLAZE	33K 5% 1/10W	R203	1-216-017-00	METAL GLAZE	47 5% 1/10W
R151	1-216-113-00	METAL GLAZE	470K 5% 1/10W	R206	1-216-051-00	METAL GLAZE	1.2K 5% 1/10W
R152	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R207	1-216-051-00	METAL GLAZE	1.2K 5% 1/10W
R153	1-216-113-00	METAL GLAZE	470K 5% 1/10W	R208	1-216-051-00	METAL GLAZE	1.2K 5% 1/10W
R155	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R209	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R156	1-216-083-00	METAL GLAZE	27K 5% 1/10W	R210	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R157	1-216-101-00	METAL GLAZE	150K 5% 1/10W	R211	1-216-017-00	METAL GLAZE	47 5% 1/10W
R158	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R212	△ 1-216-373-11	METAL OXIDE	2.2 5% 2W F
R159	1-216-075-00	METAL GLAZE	12K 5% 1/10W	R213	△ 1-216-373-11	METAL OXIDE	2.2 5% 2W F
R160	1-216-083-00	METAL GLAZE	27K 5% 1/10W	R214	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R161	1-216-101-00	METAL GLAZE	150K 5% 1/10W	R215	1-216-083-00	METAL GLAZE	27K 5% 1/10W
R162	1-216-051-00	METAL GLAZE	1.2K 5% 1/10W	R217	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R163	1-216-083-00	METAL GLAZE	27K 5% 1/10W	R218	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R164	1-216-035-00	METAL GLAZE	270 5% 1/10W	R220	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R165	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R221	1-216-079-00	METAL GLAZE	18K 5% 1/10W
R166	1-216-041-00	METAL GLAZE	470 5% 1/10W	R222	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R167	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R223	1-216-033-00	METAL GLAZE	220 5% 1/10W
R168	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R224	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W
R169	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R225	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W
R170	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R226	1-216-037-00	METAL GLAZE	330 5% 1/10W (MDP-322GX)
R171	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R226	1-216-045-00	METAL GLAZE	680 5% 1/10W (MDP-210)
R172	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R227	1-216-017-00	METAL GLAZE	47 5% 1/10W
R173	1-216-081-00	METAL GLAZE	22K 5% 1/10W	R228	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R174	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R229	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R175	1-216-085-00	METAL GLAZE	33K 5% 1/10W	R230	1-216-055-00	METAL GLAZE	1.8K 5% 1/10W
R176	1-216-748-11	METAL GLAZE	39K 5% 1/10W	R231	1-216-055-00	METAL GLAZE	1.8K 5% 1/10W
R177	1-216-091-00	METAL GLAZE	56K 5% 1/10W	R233	1-216-101-00	METAL GLAZE	150K 5% 1/10W
R178	1-216-748-11	METAL GLAZE	39K 5% 1/10W	R234	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R179	1-216-101-00	METAL GLAZE	150K 5% 1/10W	R235	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R180	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W	R236	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R181	1-216-083-00	METAL GLAZE	27K 5% 1/10W (MDP-210)	R237	1-216-033-00	METAL GLAZE	220 5% 1/10W
R182	1-216-059-00	METAL GLAZE	2.7K 5% 1/10W	R238	1-216-037-00	METAL GLAZE	330 5% 1/10W
R182	1-216-067-00	METAL GLAZE	5.6K 5% 1/10W (MDP-322GX)	R239	1-216-077-00	METAL GLAZE	15K 5% 1/10W
R183	1-216-067-00	METAL GLAZE	5.6K 5% 1/10W	R240	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R184	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R241	1-216-295-00	METAL CHIP	0 5% 1/10W
R185	1-216-097-00	METAL GLAZE	100K 5% 1/10W	<u>JUMPER RESISTOR</u>			
R186	1-216-069-00	METAL GLAZE	6.8K 5% 1/10W	RJ101	1-216-295-00	METAL GLAZE	0 5% 1/10W
R187	1-216-097-00	METAL GLAZE	100K 5% 1/10W	RJ102	1-216-295-00	METAL GLAZE	0 5% 1/10W
R188	1-216-069-00	METAL GLAZE	6.8K 5% 1/10W	RJ103	1-216-295-00	METAL GLAZE	0 5% 1/10W
R189	1-216-085-00	METAL GLAZE	33K 5% 1/10W	RJ104	1-216-295-00	METAL GLAZE	0 5% 1/10W
R190	1-216-085-00	METAL GLAZE	33K 5% 1/10W	RJ105	1-216-295-00	METAL GLAZE	0 5% 1/10W
R191	1-216-097-00	METAL GLAZE	100K 5% 1/10W	RJ106	1-216-295-00	METAL GLAZE	0 5% 1/10W
R192	1-216-081-00	METAL GLAZE	22K 5% 1/10W				

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

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

Note:
Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No	Part No.	Description	Remark
RJ107	1-216-295-00	METAL GLAZE 0 5% 1/10W	
RJ108	1-216-295-00	METAL GLAZE 0 5% 1/10W	
RJ109	1-216-295-00	METAL GLAZE 0 5% 1/10W	
RJ110	1-216-295-00	METAL GLAZE 0 5% 1/10W	
RJ111	1-216-295-00	METAL GLAZE 0 5% 1/10W	
RJ218	1-216-295-00	METAL GLAZE 0 5% 1/10W	
RJ219	1-216-295-00	METAL GLAZE 0 5% 1/10W	
RJ220	1-216-295-00	METAL GLAZE 0 5% 1/10W	
RJ241	1-216-295-00	METAL GLAZE 0 5% 1/10W	

VARIABLE RESISTOR

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

(Ref.No 2,000 Series)

*A-6421-341-A PS-193 (U) BOARD, COMPLETE (MDP-210)

*A-6421-343-A PS-193 (E) BOARD, COMPLETE (MDP-322GX)

*1-533-189-11 HOLDER, FUSE
*3-309-144-21 HEAT SINK

CAPACITOR

C101	1-125-298-00	ELECT(BLOCK) 10000MF 20% 25V
C102	1-124-314-00	ELECT 4700MF 20% 25V
C103	1-163-038-00	CERAMIC CHIP 0.1MF 25V
C104	1-164-161-11	CERAMIC CHIP 0.0022MF 10% 50V
C106	1-163-021-91	CERAMIC CHIP 0.01MF 10% 50V
C107	1-124-471-00	ELECT 1000MF 20% 6.3V
C108	1-124-499-11	ELECT 1MF 20% 50V
C109	1-124-472-11	ELECT 470MF 20% 6.3V
C110	1-163-833-00	CERAMIC CHIP 0.068MF 25V
C111	1-163-007-11	CERAMIC CHIP 680PF 10% 50V
C112	1-163-019-00	CERAMIC CHIP 0.0068MF 10% 50V
C114	1-126-101-11	ELECT 100MF 20% 16V
C115	1-163-037-11	CERAMIC CHIP 0.022MF 10% 25V
C116	1-163-833-00	CERAMIC CHIP 0.068MF 25V
C119	1-126-176-11	ELECT 220MF 20% 10V
C120	1-126-096-11	ELECT 10MF 20% 25V
C201	1-163-009-11	CERAMIC CHIP 0.001MF 10% 50V
C202	1-163-019-00	CERAMIC CHIP 0.0068MF 10% 50V
C204	1-163-009-11	CERAMIC CHIP 0.001MF 10% 50V
C205	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V(MDP-322GX)

Ref.No	Part No.	Description	Remark
C205	1-163-021-91	CERAMIC CHIP 0.01MF 10% 50V (MDP-210)	
C206	1-163-007-11	CERAMIC CHIP 680PF 10% 50V	
C208	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C209	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V	
C210	1-163-007-11	CERAMIC CHIP 680PF 10% 50V	
C211	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V	
C212	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C301	△1-136-345-21	FILM 0.1MF 20% 125V (MDP-210)	

CONNECTOR

CN002 *1-564-419-11 HEADER, SPRING (POWER) 2P
CN003 *1-560-890-00 PIN, CONNECTOR 2P

DIODE

D101 △8-719-500-55 DIODE D3SBA10
D105 8-719-908-06 DIODE ERA81-005
D106 8-719-110-31 DIODE RD12ES-82
D108 8-719-105-82 DIODE RD5.1M-B
D109 8-719-175-88 DIODE RD7.5F-B (MDP-210)

D201 8-719-908-06 DIODE ERA81-005
D202 8-719-908-06 DIODE ERA81-005
D203 8-719-200-02 DIODE 10E2
D204 8-719-200-02 DIODE 10E2
D205 8-719-911-19 DIODE 1SS119

D206 8-719-911-19 DIODE 1SS119
D207 8-719-911-19 DIODE 1SS119

FUSE

F101 △1-532-747-11 FUSE, GLASS TUBE (125V 5A)
F102 △1-532-747-11 FUSE, GLASS TUBE (125V 5A)
F103 △1-532-960-11 FUSE, MICRO (125V 1.25A)
F104 △1-532-960-11 FUSE, MICRO (125V 1.25A) (MDP-210)
F105 1-532-778-21 FUSE, MICRO (SECONDARY) (MDP-210)
F301 △1-532-743-11 FUSE, GLASS TUBE (125V 2A) (MDP-210)

IC

IC101 8-759-971-39 IC BA9700AF
IC102 8-759-604-47 IC M5F7905
IC201 8-759-100-93 IC UPC393G2
IC202 8-759-100-96 IC UPC4558G2

JUMPER RESISTOR

JR001 1-216-295-00 METAL GLAZE 0 5% 1/10W
JR005 1-216-295-00 METAL GLAZE 0 5% 1/10W
JR231 1-216-295-00 METAL GLAZE 0 5% 1/10W

COIL

L101 1-412-012-11 INDUCTOR 100UH
L102 1-410-339-11 COIL, CHOKE 10UH
L201 1-424-219-11 COIL, CHOKE 300UH

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.

Note:
Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No	Part No.	Description	Remark
<u>TRANSISTOR</u>			
Q101	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q102	8-729-102-73	TRANSISTOR 2SA1162	
Q103	△8-729-113-31	TRANSISTOR 2SB733-2	
Q105	8-729-102-90	TRANSISTOR 2SD596	
Q201	△8-729-117-11	TRANSISTOR 2SB1151	
Q202	8-729-142-63	TRANSISTOR 2SD1691	
Q203	△8-729-117-11	TRANSISTOR 2SB1151	
Q204	8-729-142-63	TRANSISTOR 2SD1691	
Q205	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q206	8-729-216-22	TRANSISTOR 2SA1162	
Q208	8-729-900-53	TRANSISTOR DTC114EK	
Q209	8-729-901-04	TRANSISTOR DTA114EK	
Q210	8-729-100-66	TRANSISTOR 2SC1623	
Q211	8-729-173-38	TRANSISTOR 2SA733-K	
Q212	8-729-901-04	TRANSISTOR DTA114EK	
<u>RESISTOR</u>			
R002	1-216-296-00	METAL GLAZE 0 5% 1/8W	
R003	1-216-296-00	METAL GLAZE 0 5% 1/8W	
R004	1-216-296-00	METAL GLAZE 0 5% 1/8W	
R101	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R102	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R103	1-216-089-00	METAL GLAZE 47K 5% 1/10W	
R104	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R105	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R106	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R107	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	
R108	1-216-043-00	METAL GLAZE 560 5% 1/10W	
R109	1-216-687-11	METAL CHIP 33K 0.50% 1/10W	
R110	1-216-676-11	METAL CHIP 11K 0.50% 1/10W	
R112	1-216-099-00	METAL GLAZE 120K 5% 1/10W	
R114	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R115	△1-216-447-00	METAL OXIDE 27 5% 2W F	
R116	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R117	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R120	△1-216-043-00	METAL GLAZE 560 5% 1/10W	
R201	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R202	1-216-075-00	METAL GLAZE 12K 5% 1/10W	
R203	1-216-093-00	METAL GLAZE 68K 5% 1/10W	
R204	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R205	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W (MDP-210)	
R205	1-216-075-00	METAL GLAZE 12K 5% 1/10W (MDP-322GX)	
R206	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R207	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R208	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R209	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R210	1-216-105-00	METAL GLAZE 220K 5% 1/10W	
R211	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W (MDP-210)	
R211	1-216-073-00	METAL GLAZE 10K 5% 1/10W (MDP-322GX)	
R212	1-216-065-00	METAL GLAZE 4.7K 5% 1/10W	
R213	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R214	1-247-750-11	CARBON 680 5% 1/2W	

Ref.No	Part No.	Description	Remark
R215	1-247-750-11	CARBON 680 5% 1/2W	
R216	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R217	△1-216-365-00	METAL OXIDE 0.47 5% 2W F (MDP-210)	
R217	△1-216-369-00	METAL OXIDE 1 5% 2W F (MDP-322GX)	
R218	1-216-690-11	METAL CHIP 43K 0.50% 1/10W	
R219	1-216-675-11	METAL CHIP 10K 0.50% 1/10W	
R220	1-216-690-11	METAL CHIP 43K 0.50% 1/10W	
R221	1-216-675-11	METAL CHIP 10K 0.50% 1/10W	
R222	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R223	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R224	△1-215-866-11	METAL OXIDE 330 5% 1W F	
R225	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R226	1-247-750-11	CARBON 680 5% 1/2W	
R227	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R228	1-216-093-00	METAL GLAZE 68K 5% 1/10W	
R230	1-216-105-00	METAL GLAZE 220K 5% 1/10W	
R301	△1-202-729-00	SOLID 6.8M 10% 1/2W (MDP-210)	
<u>SWITCH</u>			
SW301	△1-553-318-61	SWITCH, PUSH (AC POWER)(1 KEY) (POWER)	
<u>FILTER</u>			
T301	△1-421-771-11	FILTER, LINE (2A)	

(Ref.No 3,000 Series)			
*1-630-089-22	TR-30 BOARD (MDP-322GX)	*****	
*1-630-089-11	TR-30 BOARD (MDP-210)	*****	
<u>CAPACITOR</u>			
C401	△1-136-472-11	FILM 0.1MF 20% 250V (MDP-322GX)	
C416	1-124-122-11	ELECT 100MF 20% 50V	
C417	1-124-910-11	ELECT 47MF 20% 50V	
C418	1-124-122-11	ELECT 100MF 20% 35V	
C419	1-124-122-11	ELECT 100MF 20% 50V	
C420	1-163-033-00	CERAMIC CHIP 0.022MF 50V	
<u>CONNECTOR</u>			
CN401	1-506-483-21	PIN, CONNECTOR 4P	
CN402	*1-564-028-00	PIN, CONNECTOR 3P	
CN403	*1-564-028-00	PIN, CONNECTOR 3P	
<u>DIODE</u>			
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	
<u>TRANSISTOR</u>			
Q404	8-729-113-33	TRANSISTOR 2SB733-4	

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

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Ref.No	Part No.	Description	Remark
<u>RESISTOR</u>			
R416	△1-249-401-11	CARBON 47 5% 1/4W F	
R417	1-249-416-11	CARBON 820 5% 1/4W	
R418	1-249-405-11	CARBON 100 5% 1/4W	
<u>SWITCH</u>			
SW302	△1-554-933-11	SELECTOR, VOLTAGE (MDP-322GX)	
<u>TRANSFORMER</u>			
T401	△1-449-798-11	TRANSFORMER POWER (MDP-322GX)	
T401	△1-449-804-11	TRANSFORMER POWER (MDP-210)	
***** (Ref.No 1,000 Series)			
*A-6421-349-A	MB-18 (U) BOARD, COMPLETE (MDP-322GX) *****		
*A-6421-364-A	MB-18 (U1) BOARD, COMPLETE (MDP-210) *****		
*3-738-615-01	PLATE, SHIELD, MB		
*3-738-616-01	PLATE, GROUND, SIRCS		
<u>CAPACITOR</u>			
C001	1-163-019-00	CERAMIC CHIP 0.0068MF 10% 50V	
C002	1-126-160-11	ELECT 1MF 20% 50V	
C003	1-124-584-00	ELECT 100MF 20% 10V	
C004	1-124-584-00	ELECT 100MF 20% 10V	
C005	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C006	1-124-584-00	ELECT 100MF 20% 10V	
C007	1-163-113-00	CERAMIC CHIP 68PF 5% 50V	
C008	1-163-129-00	CERAMIC CHIP 330PF 5% 50V	
C009	1-124-499-11	ELECT 1MF 20% 50V	
C010	1-163-121-00	CERAMIC CHIP 150PF 5% 50V	
C011	1-163-017-00	CERAMIC CHIP 0.0047MF 10% 50V	
C012	1-164-161-11	CERAMIC CHIP 0.0022MF 10% 50V	
C013	1-124-584-00	ELECT 100MF 20% 10V	
C014	1-163-009-11	CERAMIC CHIP 0.001MF 10% 50V	
C015	1-163-989-11	CERAMIC CHIP 0.033MF 10% 25V	
C016	1-124-584-00	ELECT 100MF 20% 10V	
C017	1-163-986-00	CERAMIC CHIP 0.027MF 10% 25V	
C018	1-163-015-00	CERAMIC CHIP 0.0033MF 10% 50V	
C019	1-163-021-91	CERAMIC CHIP 0.01MF 10% 50V	
C020	1-124-465-00	ELECT 0.47MF 20% 50V	
C021	1-163-021-91	CERAMIC CHIP 0.01MF 10% 50V	
C022	1-163-105-00	CERAMIC CHIP 33PF 5% 50V	
C023	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C101	1-164-232-11	CERAMIC CHIP 0.01MF 50V	
C102	1-163-089-00	CERAMIC CHIP 6PF 0.5PF 50V	
C103	1-163-103-00	CERAMIC CHIP 27PF 5% 50V	
C104	1-164-232-11	CERAMIC CHIP 0.01MF 50V	
C105	1-163-103-00	CERAMIC CHIP 27PF 5% 50V	
C107	1-163-092-00	CERAMIC CHIP 9PF 0.25PF 50V	

Ref.No	Part No.	Description	Remark
C108	1-163-093-00	CERAMIC CHIP 10PF 5% 50V	
C109	1-163-103-00	CERAMIC CHIP 27PF 5% 50V	
C110	1-124-589-11	ELECT 47MF 20% 16V	
C111	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C112	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C113	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C114	1-163-038-00	CERAMIC CHIP 0.1MF 25V	
C115	1-163-038-00	CERAMIC CHIP 0.1MF 25V	
C116	1-163-019-00	CERAMIC CHIP 0.0068MF 10% 50V	
C117	1-130-495-00	MYLAR 0.1MF 5% 50V	
C119	1-164-232-11	CERAMIC CHIP 0.01MF 50V	
C120	1-163-241-11	CERAMIC CHIP 39PF 5% 50V	
C121	1-163-123-00	CERAMIC CHIP 180PF 5% 50V	
C123	1-163-101-00	CERAMIC CHIP 22PF 5% 50V	
C124	1-163-125-00	CERAMIC CHIP 220PF 5% 50V	
C125	1-164-232-11	CERAMIC CHIP 0.01MF 50V	
C126	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C127	1-124-257-00	ELECT 2.2MF 20% 50V	
C128	1-131-345-00	TANTALUM 0.47MF 10% 35V	
C129	1-124-471-00	ELECT 1000MF 20% 6.3V	
C132	1-101-005-00	CERAMIC 0.022MF 50V	
C133	1-126-176-11	ELECT 220MF 20% 10V	
C134	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C135	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C136	1-124-589-11	ELECT 47MF 20% 16V	
C137	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C138	1-163-121-00	CERAMIC CHIP 150PF 5% 50V	
C139	1-164-232-11	CERAMIC CHIP 0.01MF 50V	
C140	1-163-097-00	CERAMIC CHIP 15PF 5% 50V	
C141	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C142	1-124-589-11	ELECT 47MF 20% 16V	
C143	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C144	1-130-483-00	MYLAR 0.01MF 5% 50V	
C145	1-126-160-11	ELECT 1MF 20% 50V	
C146	1-131-347-00	TANTALUM 1MF 10% 35V	
C147	1-130-487-00	MYLAR 0.022MF 5% 50V	
C148	1-126-160-11	ELECT 1MF 20% 50V	
C149	1-163-099-00	CERAMIC CHIP 18PF 5% 50V	
C150	1-163-101-00	CERAMIC CHIP 22PF 5% 50V	
C151	1-163-101-00	CERAMIC CHIP 22PF 5% 50V	
C152	1-124-589-11	ELECT 47MF 20% 16V	
C153	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C154	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C155	1-163-035-00	CERAMIC CHIP 0.047MF 50V	
C157	1-124-589-11	ELECT 47MF 20% 16V	
C159	1-164-232-11	CERAMIC CHIP 0.01MF 50V	
C160	1-163-101-00	CERAMIC CHIP 22PF 5% 50V	
C161	1-164-232-11	CERAMIC CHIP 0.01MF 50V	
C162	1-163-109-00	CERAMIC CHIP 47PF 5% 50V	
C163	1-163-109-00	CERAMIC CHIP 47PF 5% 50V	
C165	1-164-232-11	CERAMIC CHIP 0.01MF 50V	
C166	1-164-232-11	CERAMIC CHIP 0.01MF 50V	
C167	1-164-232-11	CERAMIC CHIP 0.01MF 50V	

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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
C172	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C234	1-124-257-00	ELECT 2.2MF	20% 50V
C174	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C235	1-124-589-11	ELECT 47MF	20% 16V
C175	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C237	1-124-589-11	ELECT 47MF	20% 16V
C176	1-163-139-00	CERAMIC CHIP 820PF	5% 50V	C238	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C177	1-163-119-00	CERAMIC CHIP 120PF	5% 50V	C240	1-124-225-00	ELECT 100MF	20% 6.3V
C178	1-124-589-11	ELECT 47MF	20% 16V	C242	1-126-177-11	ELECT 100MF	20% 6.3V
C179	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C243	1-101-005-00	CERAMIC 0.022MF	50V
C180	1-163-119-00	CERAMIC CHIP 120PF	5% 50V	C244	1-126-157-11	ELECT 10MF	20% 16V
C181	1-126-160-11	ELECT 1MF	20% 50V	C245	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C182	1-163-101-00	CERAMIC CHIP 22PF	5% 50V	C246	1-124-589-11	ELECT 47MF	20% 16V
C185	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C251	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C186	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C259	1-163-119-00	CERAMIC CHIP 120PF	5% 50V
C187	1-130-483-00	MYLAR 0.01MF	5% 50V	C260	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C188	1-130-489-00	MYLAR 0.033MF	5% 50V	C261	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C189	1-163-117-00	CERAMIC CHIP 100PF	5% 50V	C262	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C190	1-163-015-00	CERAMIC CHIP 0.0033MF	10% 50V	C263	1-163-103-00	CERAMIC CHIP 27PF	5% 50V
C191	1-163-021-91	CERAMIC CHIP 0.01MF	10% 50V	C264	1-163-103-00	CERAMIC CHIP 27PF	5% 50V
C192	1-163-105-00	CERAMIC CHIP 33PF	5% 50V	C265	1-163-103-00	CERAMIC CHIP 27PF	5% 50V
C193	1-124-589-11	ELECT 47MF	20% 16V	C266	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C194	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C267	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C195	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V	C268	1-163-103-00	CERAMIC CHIP 27PF	5% 50V
C198	1-130-491-00	MYLAR 0.047MF	5% 50V	C273	1-163-135-00	CERAMIC CHIP 560PF	5% 50V
C200	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C274	1-163-101-00	CERAMIC CHIP 22PF	5% 50V
C201	1-124-589-11	ELECT 47MF	20% 16V	C276	1-126-157-11	ELECT 10MF	20% 16V
C202	1-126-160-11	ELECT 1MF	20% 50V	C277	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C203	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C278	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C204	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C279	1-163-093-00	CERAMIC CHIP 10PF	5% 50V
C205	1-124-589-11	ELECT 47MF	20% 16V	C280	1-163-015-00	CERAMIC CHIP 0.0033MF	10% 50V
C208	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C281	1-161-327-00	CERAMIC 0.0033MF	20% 16V
C209	1-130-491-00	MYLAR 0.047MF	5% 50V	C401	1-126-094-11	ELECT 4.7MF	20% 16V
C210	1-124-499-11	ELECT 1MF	20% 50V	C402	1-163-015-00	CERAMIC CHIP 0.0033MF	10% 50V
C211	1-163-123-00	CERAMIC CHIP 180PF	5% 50V	C403	1-163-111-00	CERAMIC CHIP 56PF	5% 50V
C212	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C404	1-126-094-11	ELECT 4.7MF	20% 16V
C213	1-124-589-11	ELECT 47MF	20% 16V	C406	1-124-589-11	ELECT 47MF	20% 16V
C214	1-130-491-00	MYLAR 0.047MF	5% 50V	C407	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C215	1-130-491-00	MYLAR 0.047MF	5% 50V	C408	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C216	1-124-465-00	ELECT 0.47MF	20% 50V	C409	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C217	1-126-160-11	ELECT 1MF	20% 50V	C600	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C218	1-163-117-00	CERAMIC CHIP 100PF	5% 50V	C601	1-124-589-11	ELECT 47MF	20% 16V
C219	1-130-489-00	MYLAR 0.033MF	5% 50V	C602	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C220	1-163-117-00	CERAMIC CHIP 100PF	5% 50V	C603	1-163-101-00	CERAMIC CHIP 22PF	5% 50V
C221	1-130-486-00	MYLAR 0.018MF	5% 50V	C604	1-163-088-00	CERAMIC CHIP 5PF	0.25PF 50V
C222	1-163-117-00	CERAMIC CHIP 100PF	5% 50V	C606	1-163-123-00	CERAMIC CHIP 180PF	5% 50V
C223	1-130-483-00	MYLAR 0.01MF	5% 50V	C607	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C224	1-124-589-11	ELECT 47MF	20% 16V	C609	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C225	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C610	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C226	1-163-019-00	CERAMIC CHIP 0.0068MF	10% 50V	C611	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C227	1-130-483-00	MYLAR 0.01MF	5% 50V	C612	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C228	1-163-117-00	CERAMIC CHIP 100PF	5% 50V	C613	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C230	1-124-257-00	ELECT 2.2MF	20% 50V	C620	1-124-589-11	ELECT 47MF	20% 16V
C231	1-126-157-11	ELECT 10MF	20% 16V	C621	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C232	1-126-157-11	ELECT 10MF	20% 16V	C622	1-163-103-00	CERAMIC CHIP 27PF	5% 50V
C233	1-126-157-11	ELECT 10MF	20% 16V				

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Ref.No	Part No.	Description	Remark
C623	1-163-103-00	CERAMIC CHIP 27PF	5% 50V
C624	1-124-589-11	ELECT 47MF	20% 16V
C625	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C626	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C627	1-163-111-00	CERAMIC CHIP 56PF	5% 50V
C628	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C629	1-163-015-00	CERAMIC CHIP 0.0033MF	10% 50V
C630	1-124-257-00	ELECT 2.2MF	20% 50V
C631	1-124-589-11	ELECT 47MF	20% 16V
C632	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C641	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C650	1-163-123-00	CERAMIC CHIP 180PF	5% 50V
C651	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V
C652	1-163-141-00	CERAMIC CHIP 0.001MF	5% 50V
C654	1-163-109-00	CERAMIC CHIP 47PF	5% 50V
C655	1-163-109-00	CERAMIC CHIP 47PF	5% 50V
C656	1-163-109-00	CERAMIC CHIP 47PF	5% 50V
C657	1-163-009-11	CERAMIC CHIP 0.001MF	10% 50V
C701	1-163-021-91	CERAMIC CHIP 0.01MF	10% 50V
C702	1-124-446-11	ELECT 47MF	20% 10V
C703	1-124-446-11	ELECT 47MF	20% 10V
C704	1-163-126-00	CERAMIC CHIP 240PF	5% 50V
C705	1-163-126-00	CERAMIC CHIP 240PF	5% 50V
C706	1-163-099-00	CERAMIC CHIP 18PF	5% 50V
C707	1-163-101-00	CERAMIC CHIP 22PF	5% 50V
C708	1-163-099-00	CERAMIC CHIP 18PF	5% 50V
C709	1-163-111-00	CERAMIC CHIP 56PF	5% 50V
C710	1-163-021-91	CERAMIC CHIP 0.01MF	10% 50V
C711	1-163-021-91	CERAMIC CHIP 0.01MF	10% 50V
C712	1-123-875-11	ELECT 10MF	20% 50V
C713	1-163-021-91	CERAMIC CHIP 0.01MF	10% 50V
C714	1-123-875-11	ELECT 10MF	20% 50V
C715	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V
C716	1-163-141-00	CERAMIC CHIP 0.001MF	5% 50V
C717	1-126-023-11	ELECT 100MF	20% 16V
C718	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V
C719	1-126-022-11	ELECT 47MF	20% 16V
C720	1-126-049-11	ELECT 22MF	20% 25V
C721	1-163-101-00	CERAMIC CHIP 22PF	5% 50V
C722	1-163-145-00	CERAMIC CHIP 0.0015MF	5% 50V
C723	1-163-125-00	CERAMIC CHIP 220PF	5% 50V
C724	1-163-019-00	CERAMIC CHIP 0.0068MF	10% 50V
C725	1-163-145-00	CERAMIC CHIP 0.0015MF	5% 50V
C726	1-124-248-00	ELECT 22MF	20% 25V
C728	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
C729	1-163-145-00	CERAMIC CHIP 0.0015MF	5% 50V
C730	1-163-129-00	CERAMIC CHIP 330PF	5% 50V
C731	1-163-125-00	CERAMIC CHIP 220PF	5% 50V
C732	1-130-482-00	MYLAR 0.0082MF	5% 50V
C733	1-126-049-11	ELECT 22MF	20% 25V
C734	1-130-491-00	MYLAR 0.047MF	5% 50V

Ref.No	Part No.	Description	Remark
C735	1-124-766-00	ELECT 0.1MF	20% 50V
C736	1-126-049-11	ELECT 22MF	20% 25V
C737	1-163-141-00	CERAMIC CHIP 0.001MF	5% 50V
C738	1-163-809-11	CERAMIC CHIP 0.047MF	10% 25V
C739	1-126-023-11	ELECT 100MF	20% 16V
C740	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V
C741	1-124-248-00	ELECT 22MF	20% 25V
C742	1-126-022-11	ELECT 47MF	20% 16V
C743	1-163-100-00	CERAMIC CHIP 20PF	5% 50V
C744	1-163-125-00	CERAMIC CHIP 220PF	5% 50V
C745	1-163-145-00	CERAMIC CHIP 0.0015MF	5% 50V
C746	1-163-145-00	CERAMIC CHIP 0.0015MF	5% 50V
C747	1-163-019-00	CERAMIC CHIP 0.0068MF	10% 50V
C748	1-124-248-00	ELECT 22MF	20% 25V
C749	1-163-017-00	CERAMIC CHIP 0.0047MF	10% 50V
C750	1-163-129-00	CERAMIC CHIP 330PF	5% 50V
C751	1-163-145-00	CERAMIC CHIP 0.0015MF	5% 50V
C752	1-163-125-00	CERAMIC CHIP 220PF	5% 50V
C753	1-130-482-00	MYLAR 0.0082MF	5% 50V
C754	1-126-049-11	ELECT 22MF	20% 25V
C755	1-130-491-00	MYLAR 0.047MF	5% 50V
C756	1-124-270-11	ELECT 0.47MF	20% 50V
C757	1-126-023-11	ELECT 100MF	20% 16V
C758	1-124-927-11	ELECT 4.7MF	20% 50V
C760	1-163-141-00	CERAMIC CHIP 0.001MF	5% 50V
C761	1-163-101-00	CERAMIC CHIP 22PF	5% 50V
C762	1-126-022-11	ELECT 47MF	20% 16V
C763	1-126-022-11	ELECT 47MF	20% 16V
C770	1-126-023-11	ELECT 100MF	20% 16V
C801	1-163-021-91	CERAMIC CHIP 0.01MF	10% 50V
C802	1-123-875-11	ELECT 10MF	20% 50V
C803	1-124-584-00	ELECT 100MF	20% 10V
C804	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C905	1-163-019-00	CERAMIC CHIP 0.0068MF	10% 50V
C906	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C907	1-163-015-00	CERAMIC CHIP 0.0033MF	10% 50V
C908	1-124-589-11	ELECT 47MF	20% 16V
C909	1-124-589-11	ELECT 47MF	20% 16V
C910	1-123-875-11	ELECT 10MF	20% 50V

FILTER

CF101 1-527-831-00 FILTER, CERAMIC

CONNECTOR

CN601 *1-564-032-00 PIN, CONNECTOR 7P
 CN602 1-563-493-11 CONNECTOR, F.P.C 28P
 CN603 *1-564-014-21 PIN, CONNECTOR 4P
 CN604 1-506-485-11 PIN, CONNECTOR 6P
 CN605 *1-564-019-11 PIN, CONNECTOR 9P
 CN606 1-506-481-11 PIN, CONNECTOR 2P

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

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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
CN607	1-506-482-11	PIN, CONNECTOR 3P		IC108	8-759-106-65	IC UPD74HCU04G	
CN608	*1-564-012-31	PIN, CONNECTOR 2P		IC109	8-759-982-05	IC RC78M05FA	
CN900	*1-560-890-00	PIN, CONNECTOR 2P		IC401	8-759-100-95	IC UPC324G2	
CN903	1-506-471-11	PIN, CONNECTOR 6P		IC402	8-759-009-06	IC MC14052BF	
CN907	1-568-315-11	CONNECTOR, BOARD TO BOARD 5P		IC601	8-759-994-96	IC MB89795-117	
<u>JACK</u>				IC602	8-759-630-74	M50455-080FP	
CNJ101	1-565-351-51	JACK, PIN 3P (LINE OUT)		IC603	8-759-231-92	IC TA7291P	
CNJ601	1-507-678-00	JACK (CONTROL S IN)		IC605	8-759-987-71	IC MSM72H032	
CNJ602	1-507-678-00	JACK (CONTROL S OUT)		IC701	8-759-321-46	IC HA12127NT	
CNJ705	8-759-977-71	GP1F31T (OPTICAL DIGITAL OUT)		IC801	8-759-927-29	IC SN74HCU04NS	
<u>TRIMAR</u>				IC901	8-759-745-64	IC NJM4560M	
CV101	1-141-304-21	TRIMAR, CERAMIC 10P		<u>JUMPER RESISTOR</u>			
CV102	1-141-227-00	CAP, CERAMIC TRIMMER 20P		JR001	1-216-295-00	METAL GLAZE 0 5% 1/10W	
CV601	1-141-227-00	CAP, CERAMIC TRIMMER 20P		JR002	1-216-295-00	METAL GLAZE 0 5% 1/10W	
<u>DIODE</u>				JR003	1-216-295-00	METAL GLAZE 0 5% 1/10W	
D001	8-719-911-19	DIODE 1SS119		JR004	1-216-295-00	METAL GLAZE 0 5% 1/10W	
D110	8-719-800-76	DIODE DA204K		JR005	1-216-295-00	METAL GLAZE 0 5% 1/10W	
D601	8-719-911-19	DIODE 1SS119		JR006	1-216-295-00	METAL GLAZE 0 5% 1/10W	
D602	8-719-911-19	DIODE 1SS119		JR007	1-216-295-00	METAL GLAZE 0 5% 1/10W	
D603	8-719-110-12	DIODE RD9.1ES-B1		JR008	1-216-295-00	METAL GLAZE 0 5% 1/10W	
D604	8-719-110-12	DIODE RD9.1ES-B1		JR009	1-216-295-00	METAL GLAZE 0 5% 1/10W	
D605	8-719-911-19	DIODE 1SS119		JR010	1-216-295-00	METAL GLAZE 0 5% 1/10W	
D606	8-719-100-03	DIODE 1S2835		JR011	1-216-295-00	METAL GLAZE 0 5% 1/10W	
D607	8-719-100-05	DIODE 1S2837		JR012	1-216-295-00	METAL GLAZE 0 5% 1/10W	
D905	8-719-911-19	DIODE 1SS119		JR013	1-216-295-00	METAL GLAZE 0 5% 1/10W	
D907	8-719-911-19	DIODE 1SS119		JR014	1-216-295-00	METAL GLAZE 0 5% 1/10W	
D908	8-719-100-05	DIODE MA151WK		JR015	1-216-295-00	METAL GLAZE 0 5% 1/10W	
<u>FILTER</u>				JR016	1-216-295-00	METAL GLAZE 0 5% 1/10W	
FL001	1-235-922-11	FILTER, LOW PASS (1.7MHZ)		JR017	1-216-295-00	METAL GLAZE 0 5% 1/10W	
FL101	1-235-901-11	FILTER, LOW PASS		JR018	1-216-295-00	METAL GLAZE 0 5% 1/10W	
FL102	1-236-478-11	FILTER, LOW PASS		JR019	1-216-295-00	METAL GLAZE 0 5% 1/10W	
FL103	1-235-943-11	BPF		JR020	1-216-295-00	METAL GLAZE 0 5% 1/10W	
FL104	1-236-478-11	FILTER, LOW PASS		JR021	1-216-295-00	METAL GLAZE 0 5% 1/10W	
FL601	1-424-031-11	FILTER, NOISE		JR022	1-216-295-00	METAL GLAZE 0 5% 1/10W	
FL602	1-424-031-11	FILTER, NOISE		JR023	1-216-295-00	METAL GLAZE 0 5% 1/10W	
FL701	1-235-925-11	FILTER, BAND PASS (2.3MHZ)		JR024	1-216-295-00	METAL GLAZE 0 5% 1/10W	
FL702	1-235-926-11	FILTER, BAND PASS (2.8MHZ)		JR025	1-216-295-00	METAL GLAZE 0 5% 1/10W	
<u>IC</u>				JR026	1-216-295-00	METAL GLAZE 0 5% 1/10W	
IC001	8-752-033-14	IC CXA1081Q		JR027	1-216-295-00	METAL GLAZE 0 5% 1/10W	
IC002	8-759-603-24	IC CX20197		JR028	1-216-295-00	METAL GLAZE 0 5% 1/10W	
IC003	8-759-009-07	IC MC14053BF		JR029	1-216-295-00	METAL GLAZE 0 5% 1/10W	
IC101	8-759-604-37	IC NJM78M09		JR030	1-216-295-00	METAL GLAZE 0 5% 1/10W	
IC102	8-759-941-68	IC BA7131F		JR031	1-216-295-00	METAL GLAZE 0 5% 1/10W	
IC103	8-752-322-35	IC CXA1254Q		JR032	1-216-295-00	METAL GLAZE 0 5% 1/10W	
IC104	8-752-323-27	IC CXL5005M		JR033	1-216-295-00	METAL GLAZE 0 5% 1/10W	
IC105	8-759-983-48	IC CXD1152		JR034	1-216-295-00	METAL GLAZE 0 5% 1/10W	
IC106	8-759-100-95	IC UPC324G2		JR035	1-216-295-00	METAL GLAZE 0 5% 1/10W	
IC107	8-752-036-24	IC CXA1255Q		JR036	1-216-295-00	METAL GLAZE 0 5% 1/10W	
				JR037	1-216-295-00	METAL GLAZE 0 5% 1/10W	
				JR038	1-216-295-00	METAL GLAZE 0 5% 1/10W	
				JR039	1-216-295-00	METAL GLAZE 0 5% 1/10W	
				JR041	1-216-295-00	METAL GLAZE 0 5% 1/10W	

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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
JR150	1-216-296-00	METAL GLAZE	0 5% 1/8W	JR204	1-216-296-00	METAL GLAZE	0 5% 1/8W
JR151	1-216-296-00	METAL GLAZE	0 5% 1/8W	JR205	1-216-296-00	METAL GLAZE	0 5% 1/8W
JR152	1-216-296-00	METAL GLAZE	0 5% 1/8W	JR206	1-216-295-00	METAL GLAZE	0 5% 1/10W
JR153	1-216-296-00	METAL GLAZE	0 5% 1/8W	JR207	1-216-296-00	METAL GLAZE	0 5% 1/8W
JR154	1-216-296-00	METAL GLAZE	0 5% 1/8W	JR219	1-216-256-00	METAL GLAZE	0 5% 1/8W
JR155	1-216-296-00	METAL GLAZE	0 5% 1/8W	JR220	1-216-256-00	METAL GLAZE	0 5% 1/8W
JR156	1-216-296-00	METAL GLAZE	0 5% 1/8W	<u>COIL</u>			
JR157	1-216-296-00	METAL GLAZE	0 5% 1/8W	L001	1-410-509-11	INDUCTOR	10UH
JR158	1-216-296-00	METAL GLAZE	0 5% 1/8W	L002	1-410-509-11	INDUCTOR	10UH
JR159	1-216-296-00	METAL GLAZE	0 5% 1/8W	L003	1-410-328-11	INDUCTOR	10UH
JR160	1-216-296-00	METAL GLAZE	0 5% 1/8W	L102	1-408-417-00	INDUCTOR	47UH
JR161	1-216-296-00	METAL GLAZE	0 5% 1/8W	L103	1-408-618-41	INDUCTOR	180UH
JR162	1-216-296-00	METAL GLAZE	0 5% 1/8W	L104	1-408-421-00	INDUCTOR	100UH
JR163	1-216-295-00	METAL GLAZE	0 5% 1/10W	L106	1-408-419-00	INDUCTOR	68UH
JR164	1-216-295-00	METAL GLAZE	0 5% 1/10W	L107	1-408-421-00	INDUCTOR	100UH
JR165	1-216-296-00	METAL GLAZE	0 5% 1/8W	L108	1-408-421-00	INDUCTOR	100UH
JR166	1-216-296-00	METAL GLAZE	0 5% 1/8W	L110	1-408-616-41	INDUCTOR	120UH
JR167	1-216-296-00	METAL GLAZE	0 5% 1/8W	L112	1-408-421-00	INDUCTOR	100UH
JR168	1-216-296-00	METAL GLAZE	0 5% 1/8W	L114	1-410-521-11	INDUCTOR	100UH
JR170	1-216-296-00	METAL GLAZE	0 5% 1/8W	L115	1-408-421-00	INDUCTOR	100UH
JR171	1-216-296-00	METAL GLAZE	0 5% 1/8W	L118	1-408-618-41	INDUCTOR	180UH
JR172	1-216-296-00	METAL GLAZE	0 5% 1/8W	L128	1-408-421-00	INDUCTOR	100UH
JR173	1-216-296-00	METAL GLAZE	0 5% 1/8W	L130	1-408-421-00	INDUCTOR	100UH
JR174	1-216-296-00	METAL GLAZE	0 5% 1/8W	L201	1-424-033-11	FILTER, NOISE	
JR175	1-216-296-00	METAL GLAZE	0 5% 1/8W	L601	1-410-521-11	INDUCTOR	100UH
JR176	1-216-296-00	METAL GLAZE	0 5% 1/8W	L602	1-410-511-11	INDUCTOR	15UH
JR177	1-216-296-00	METAL GLAZE	0 5% 1/8W	L603	1-424-033-21	FILTER, NOISE	
JR178	1-216-296-00	METAL GLAZE	0 5% 1/8W	L604	1-410-509-11	INDUCTOR	10UH
JR179	1-216-296-00	METAL GLAZE	0 5% 1/8W	L605	1-408-429-00	INDUCTOR	470UH
JR180	1-216-296-00	METAL GLAZE	0 5% 1/8W	L610	1-410-509-11	INDUCTOR	10UH
JR181	1-216-296-00	METAL GLAZE	0 5% 1/8W	L701	1-408-425-00	INDUCTOR	220UH
JR182	1-216-296-00	METAL GLAZE	0 5% 1/8W	L702	1-408-417-00	INDUCTOR	47UH
JR183	1-216-296-00	METAL GLAZE	0 5% 1/8W	L703	1-408-417-00	INDUCTOR	47UH
JR184	1-216-296-00	METAL GLAZE	0 5% 1/8W	L704	1-408-421-00	INDUCTOR	100UH
JR185	1-216-296-00	METAL GLAZE	0 5% 1/8W	L705	1-408-409-00	INDUCTOR	10UH
JR186	1-216-296-00	METAL GLAZE	0 5% 1/8W	L706	1-408-409-00	INDUCTOR	10UH
JR187	1-216-296-00	METAL GLAZE	0 5% 1/8W	L707	1-410-069-11	INDUCTOR	6.8MMH
JR188	1-216-296-00	METAL GLAZE	0 5% 1/8W	L708	1-410-069-11	INDUCTOR	6.8MMH
JR189	1-216-295-00	METAL GLAZE	0 5% 1/10W	L750	1-424-033-11	FILTER, NOISE	
JR190	1-216-296-00	METAL GLAZE	0 5% 1/8W	<u>TRANSISTOR</u>			
JR191	1-216-295-00	METAL GLAZE	0 5% 1/10W	Q001	8-729-140-97	TRANSISTOR 2SB734-34	
JR192	1-216-295-00	METAL GLAZE	0 5% 1/10W	Q002	8-729-901-00	TRANSISTOR DTC124EK	
JR193	1-216-295-00	METAL GLAZE	0 5% 1/10W	Q003	8-729-216-22	TRANSISTOR 2SA1162	
JR194	1-216-295-00	METAL GLAZE	0 5% 1/10W	Q101	8-729-216-22	TRANSISTOR 2SA1162	
JR195	1-216-295-00	METAL GLAZE	0 5% 1/10W	Q102	8-729-100-67	TRANSISTOR 2SC1623-L7	
JR196	1-216-295-00	METAL GLAZE	0 5% 1/10W	Q103	8-729-100-67	TRANSISTOR 2SC1623-L7	
JR197	1-216-295-00	METAL GLAZE	0 5% 1/10W	Q104	8-729-100-67	TRANSISTOR 2SC1623-L7	
JR198	1-216-295-00	METAL GLAZE	0 5% 1/10W	Q105	8-729-100-67	TRANSISTOR 2SC1623-L7	
JR199	1-216-295-00	METAL GLAZE	0 5% 1/10W				
JR200	1-216-295-00	METAL GLAZE	0 5% 1/10W				
JR201	1-216-296-00	METAL GLAZE	0 5% 1/8W				
JR202	1-216-296-00	METAL GLAZE	0 5% 1/8W				
JR203	1-216-296-00	METAL GLAZE	0 5% 1/8W				

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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
Q106	8-729-100-67	TRANSISTOR 2SC1623-L7		R016	1-216-101-00	METAL GLAZE 150K 5%	1/10W
Q108	8-729-216-22	TRANSISTOR 2SA1162		R017	1-216-041-00	METAL GLAZE 470 5%	1/10W
Q109	8-729-100-67	TRANSISTOR 2SC1623-L7		R018	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
Q110	8-729-100-67	TRANSISTOR 2SC1623-L7		R019	1-216-675-11	METAL CHIP 10K 0.50%	1/10W
Q112	8-729-100-67	TRANSISTOR 2SC1623-L7		R020	1-216-683-11	METAL CHIP 22K 0.50%	1/10W
Q117	8-729-100-67	TRANSISTOR 2SC1623-L7		R101	△ 1-212-974-00	FUSIBLE 47 5%	1/2W F
Q121	8-729-100-67	TRANSISTOR 2SC1623-L7		R103	1-216-049-00	METAL GLAZE 1K 5%	1/10W
Q122	8-729-216-22	TRANSISTOR 2SA1162		R104	1-216-053-00	METAL GLAZE 1.5K 5%	1/10W
Q123	8-729-100-67	TRANSISTOR 2SC1623-L7		R105	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
Q124	8-729-104-06	TRANSISTOR 2SD999-T1CK		R106	1-216-049-00	METAL GLAZE 1K 5%	1/10W
Q125	8-729-100-67	TRANSISTOR 2SC1623-L7		R107	1-216-049-00	METAL GLAZE 1K 5%	1/10W
Q126	8-729-100-67	TRANSISTOR 2SC1623-L7		R108	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
Q127	8-729-100-67	TRANSISTOR 2SC1623-L7		R109	1-216-055-00	METAL GLAZE 1.8K 5%	1/10W
Q128	8-729-901-01	TRANSISTOR DTC144EK		R110	1-216-049-00	METAL GLAZE 1K 5%	1/10W
Q601	8-729-216-22	TRANSISTOR 2SA1162		R111	1-216-049-00	METAL GLAZE 1K 5%	1/10W
Q602	8-729-901-00	TRANSISTOR DTC124EK		R112	1-216-049-00	METAL GLAZE 1K 5%	1/10W
Q603	8-729-901-01	TRANSISTOR DTC144EK		R113	1-216-040-00	METAL GLAZE 430 5%	1/10W
Q604	8-729-901-06	TRANSISTOR DTA144EK		R114	1-216-049-00	METAL GLAZE 1K 5%	1/10W
Q605	8-729-100-67	TRANSISTOR 2SC1623-L7		R115	1-216-081-00	METAL GLAZE 22K 5%	1/10W
Q608	8-729-102-63	TRANSISTOR 2SC1623-L7		R116	1-216-073-00	METAL GLAZE 10K 5%	1/10W
Q609	8-729-100-67	TRANSISTOR 2SC1623-L7		R118	1-216-049-00	METAL GLAZE 1K 5%	1/10W
Q610	8-729-100-67	TRANSISTOR 2SC1623-L7		R119	1-216-091-00	METAL GLAZE 56K 5%	1/10W
Q611	8-729-901-00	TRANSISTOR DTC124EK		R120	1-216-053-00	METAL GLAZE 1.5K 5%	1/10W
Q612	8-729-100-66	TRANSISTOR 2SC3052TP-1F		R121	1-216-121-00	METAL GLAZE 1M 5%	1/10W
Q701	8-729-100-67	TRANSISTOR 2SC1623-L7		R122	1-216-049-00	METAL GLAZE 1K 5%	1/10W
Q702	8-729-100-67	TRANSISTOR 2SC1623-L7		R125	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W
Q703	8-729-100-67	TRANSISTOR 2SC1623-L7		R126	1-216-049-00	METAL GLAZE 1K 5%	1/10W
Q704	8-729-100-67	TRANSISTOR 2SC1623-L7		R128	1-216-049-00	METAL GLAZE 1K 5%	1/10W
Q705	8-729-100-67	TRANSISTOR 2SC1623-L7		R129	1-216-049-00	METAL GLAZE 1K 5%	1/10W
Q706	8-729-100-67	TRANSISTOR 2SC1623-L7		R130	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
Q901	8-729-216-22	TRANSISTOR 2SA1162		R131	1-216-055-00	METAL GLAZE 1.8K 5%	1/10W
Q902	8-729-303-37	TRANSISTOR 2SD655-E		R132	1-216-049-00	METAL GLAZE 1K 5%	1/10W
Q903	8-729-303-37	TRANSISTOR 2SD655-E		R134	1-216-045-00	METAL GLAZE 680 5%	1/10W
Q907	8-729-900-53	TRANSISTOR DTC114EK		R135	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W
Q911	8-729-901-06	TRANSISTOR DTA144EK		R136	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
<u>RESISTOR</u>				R137	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W
R001	1-216-651-11	METAL CHIP 1K 0.50%	1/10W	R138	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W
R002	1-216-659-11	METAL CHIP 2.2K 0.50%	1/10W	R139	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R003	1-216-667-11	METAL CHIP 4.7K 0.50%	1/10W	R140	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R004	1-216-659-11	METAL CHIP 2.2K 0.50%	1/10W	R141	1-216-081-00	METAL GLAZE 22K 5%	1/10W
R005	1-216-651-11	METAL CHIP 1K 0.50%	1/10W	R142	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R006	1-216-651-11	METAL CHIP 1K 0.50%	1/10W	R143	1-216-045-00	METAL GLAZE 680 5%	1/10W
R007	1-216-625-11	METAL CHIP 82 0.50%	1/10W	R144	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R008	1-216-645-11	METAL CHIP 560 0.50%	1/10W	R145	1-216-041-00	METAL GLAZE 470 5%	1/10W
R009	1-216-675-11	METAL CHIP 10K 0.50%	1/10W	R146	1-216-041-00	METAL GLAZE 470 5%	1/10W
R010	1-216-697-11	METAL CHIP 82K 0.50%	1/10W	R147	1-216-075-00	METAL GLAZE 12K 5%	1/10W
R011	1-216-081-00	METAL GLAZE 22K 5%	1/10W	R148	1-216-085-00	METAL GLAZE 33K 5%	1/10W
R012	1-247-731-11	CARBON 22 5%	1/2W	R149	1-216-021-00	METAL GLAZE 68 5%	1/10W
R013	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R150	1-216-055-00	METAL GLAZE 1.8K 5%	1/10W
R014	1-216-097-00	METAL GLAZE 100K 5%	1/10W	R151	1-216-039-00	METAL GLAZE 390 5%	1/10W
R015	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R152	1-216-049-00	METAL GLAZE 1K 5%	1/10W
				R153	1-216-049-00	METAL GLAZE 1K 5%	1/10W
				R154	1-216-041-00	METAL GLAZE 470 5%	1/10W

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

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MB-18

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R155	1-216-055-00	METAL GLAZE	1.8K 5% 1/10W	R223	1-216-077-00	METAL GLAZE	15K 5% 1/10W
R156	1-216-095-00	METAL GLAZE	82K 5% 1/10W	R224	1-216-079-00	METAL GLAZE	18K 5% 1/10W
R157	1-216-748-11	METAL GLAZE	39K 5% 1/10W	R225	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R158	1-216-041-00	METAL GLAZE	470 5% 1/10W	R226	1-216-059-00	METAL GLAZE	2.7K 5% 1/10W
R159	1-216-053-00	METAL GLAZE	1.5K 5% 1/10W	R227	1-216-059-00	METAL GLAZE	2.7K 5% 1/10W
R160	1-216-081-00	METAL GLAZE	22K 5% 1/10W	R228	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W
R161	1-216-081-00	METAL GLAZE	22K 5% 1/10W	R229	1-216-051-00	METAL GLAZE	1.2K 5% 1/10W
R165	1-216-039-00	METAL GLAZE	390 5% 1/10W	R230	1-216-045-00	METAL GLAZE	680 5% 1/10W
R166	1-216-059-00	METAL GLAZE	2.7K 5% 1/10W	R232	1-216-121-00	METAL GLAZE	1M 5% 1/10W
R167	1-216-091-00	METAL GLAZE	56K 5% 1/10W	R233	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R169	1-216-748-11	METAL GLAZE	39K 5% 1/10W	R234	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R170	1-216-043-00	METAL GLAZE	560 5% 1/10W	R235	1-216-083-00	METAL GLAZE	27K 5% 1/10W
R171	1-216-041-00	METAL GLAZE	470 5% 1/10W	R236	1-216-083-00	METAL GLAZE	27K 5% 1/10W
R172	1-216-053-00	METAL GLAZE	1.5K 5% 1/10W	R237	1-216-113-00	METAL GLAZE	470K 5% 1/10W
R173	1-216-059-00	METAL GLAZE	2.7K 5% 1/10W	R238	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R174	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R239	1-216-113-00	METAL GLAZE	470K 5% 1/10W
R183	1-216-097-00	METAL GLAZE	100K 5% 1/10W	R240	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W
R184	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R241	1-216-095-00	METAL GLAZE	82K 5% 1/10W
R185	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R242	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R186	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R243	1-216-113-00	METAL GLAZE	470K 5% 1/10W
R187	1-216-117-00	METAL GLAZE	680K 5% 1/10W	R244	1-216-109-00	METAL GLAZE	330K 5% 1/10W
R188	1-216-063-00	METAL GLAZE	3.9K 5% 1/10W	R245	1-216-089-00	METAL GLAZE	47K 5% 1/10W
R189	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R246	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W
R190	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R247	1-216-109-00	METAL GLAZE	330K 5% 1/10W
R191	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R248	1-216-075-00	METAL GLAZE	12K 5% 1/10W
R192	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W	R249	1-216-748-11	METAL GLAZE	39K 5% 1/10W
R193	1-216-069-00	METAL GLAZE	6.8K 5% 1/10W	R254	1-216-115-00	METAL GLAZE	560K 5% 1/10W
R194	1-216-037-00	METAL GLAZE	330 5% 1/10W	R256	1-216-059-00	METAL GLAZE	2.7K 5% 1/10W
R195	1-216-079-00	METAL GLAZE	18K 5% 1/10W	R257	1-216-043-00	METAL GLAZE	560 5% 1/10W
R196	1-216-081-00	METAL GLAZE	22K 5% 1/10W	R258	△ 1-212-958-00	FUSIBLE	10 5% 1/2W F
R197	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R260	1-216-043-00	METAL GLAZE	560 5% 1/10W
R198	1-216-083-00	METAL GLAZE	27K 5% 1/10W	R262	1-216-085-00	METAL GLAZE	33K 5% 1/10W
R199	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R263	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R200	1-216-067-00	METAL GLAZE	5.6K 5% 1/10W	R264	1-216-085-00	METAL GLAZE	33K 5% 1/10W
R201	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	R265	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W
R202	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R266	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R203	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	R267	1-216-097-00	METAL GLAZE	100K 5% 1/10W
R204	1-216-113-00	METAL GLAZE	470K 5% 1/10W	R268	1-216-085-00	METAL GLAZE	33K 5% 1/10W
R205	1-216-063-00	METAL GLAZE	3.9K 5% 1/10W	R269	1-216-085-00	METAL GLAZE	33K 5% 1/10W
R206	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R270	1-216-047-00	METAL GLAZE	820 5% 1/10W
R207	1-216-077-00	METAL GLAZE	15K 5% 1/10W	R272	1-216-037-00	METAL GLAZE	330 5% 1/10W
R208	1-216-079-00	METAL GLAZE	18K 5% 1/10W	R278	1-216-121-00	METAL GLAZE	1M 5% 1/10W
R209	1-216-079-00	METAL GLAZE	18K 5% 1/10W	R279	1-216-121-00	METAL GLAZE	1M 5% 1/10W
R210	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R290	1-216-085-00	METAL GLAZE	33K 5% 1/10W
R211	1-216-113-00	METAL GLAZE	470K 5% 1/10W	R291	1-216-033-00	METAL GLAZE	220 5% 1/10W
R212	1-216-113-00	METAL GLAZE	470K 5% 1/10W	R292	1-216-033-00	METAL GLAZE	220 5% 1/10W
R213	1-216-097-00	METAL GLAZE	100K 5% 1/10W	R295	1-216-033-00	METAL GLAZE	220 5% 1/10W
R214	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W	R296	1-249-441-11	CARBON	100K 5% 1/4W
R215	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R401	1-216-687-11	METAL CHIP	33K 0.50% 1/10W
R219	1-216-121-00	METAL GLAZE	1M 5% 1/10W	R402	1-216-687-11	METAL CHIP	33K 0.50% 1/10W
R220	1-216-748-11	METAL GLAZE	39K 5% 1/10W	R403	1-216-699-11	METAL CHIP	100K 0.50% 1/10W
R221	1-216-097-00	METAL GLAZE	100K 5% 1/10W	R404	1-216-077-00	METAL GLAZE	15K 5% 1/10W
R222	1-216-079-00	METAL GLAZE	18K 5% 1/10W	R405	1-216-685-11	METAL CHIP	27K 0.50% 1/10W

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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R406	1-218-165-11	METAL GLAZE	220K 1% 1/10W	R622	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R407	1-216-675-11	METAL CHIP	10K 0.50% 1/10W	R623	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R408	1-216-117-00	METAL GLAZE	680K 5% 1/10W	R624	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R409	1-216-677-11	METAL CHIP	12K 0.50% 1/10W	R625	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R410	1-216-530-00	METAL GLAZE	390K 1% 1/10W	R626	1-216-099-00	METAL GLAZE	120K 5% 1/10W
R411	1-216-679-11	METAL CHIP	15K 0.50% 1/10W	R627	1-216-075-00	METAL GLAZE	12K 5% 1/10W
R412	1-216-035-00	METAL GLAZE	270 5% 1/10W	R629	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W
R413	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R630	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R414	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R631	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R415	1-216-111-00	METAL GLAZE	390K 5% 1/10W	R632	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W
R416	1-216-089-00	METAL GLAZE	47K 5% 1/10W	R633	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W
R417	1-216-111-00	METAL GLAZE	390K 5% 1/10W	R634	1-216-051-00	METAL GLAZE	1.2K 5% 1/10W
R423	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R635	1-216-035-00	METAL GLAZE	270 5% 1/10W
R431	1-216-033-00	METAL GLAZE	220 5% 1/10W	R636	1-216-055-00	METAL GLAZE	1.8K 5% 1/10W
R434	1-216-033-00	METAL GLAZE	220 5% 1/10W	R637	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R500	1-216-121-00	METAL GLAZE	1M 5% 1/10W (MDP-322GX)	R638	1-216-081-00	METAL GLAZE	22K 5% 1/10W
R501	1-216-121-00	METAL GLAZE	1M 5% 1/10W (MDP-322GX)	R641	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R585	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R642	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R586	1-216-041-00	METAL GLAZE	470 5% 1/10W	R643	1-216-053-00	METAL GLAZE	1.5K 5% 1/10W
R587	1-216-041-00	METAL GLAZE	470 5% 1/10W	R644	1-216-105-00	METAL GLAZE	220K 5% 1/10W
R588	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R645	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R592	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R646	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R593	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R648	1-216-059-00	METAL GLAZE	2.7K 5% 1/10W
R594	1-216-013-00	METAL GLAZE	33 5% 1/10W	R649	1-216-113-00	METAL GLAZE	470K 5% 1/10W
R595	1-216-013-00	METAL GLAZE	33 5% 1/10W	R650	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W
R596	1-216-013-00	METAL GLAZE	33 5% 1/10W	R651	1-216-033-00	METAL GLAZE	220 5% 1/10W
R597	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R652	1-216-033-00	METAL GLAZE	220 5% 1/10W
R598	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R653	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R599	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R654	1-216-033-00	METAL GLAZE	220 5% 1/10W
R601	1-216-121-00	METAL GLAZE	1M 5% 1/10W	R655	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R602	1-216-081-00	METAL GLAZE	22K 5% 1/10W	R656	1-216-033-00	METAL GLAZE	220 5% 1/10W
R603	1-216-073-00	METAL GLAZE	10K 5% 1/10W	R657	1-216-033-00	METAL GLAZE	220 5% 1/10W
R604	1-216-021-00	METAL GLAZE	68 5% 1/10W	R658	1-216-033-00	METAL GLAZE	220 5% 1/10W
R605	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R659	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R606	1-216-081-00	METAL GLAZE	22K 5% 1/10W	R660	1-216-033-00	METAL GLAZE	220 5% 1/10W
R607	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	R661	1-216-033-00	METAL GLAZE	220 5% 1/10W
R608	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R662	1-216-033-00	METAL GLAZE	220 5% 1/10W
R609	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R663	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R610	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R664	1-216-033-00	METAL GLAZE	220 5% 1/10W
R611	△ 1-212-950-00	FUSIBLE	4.7 5% 1/2W F	R665	1-216-073-00	METAL GLAZE	10K 5% 1/10W
R612	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	R666	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W
R613	1-216-025-00	METAL GLAZE	100 5% 1/10W	R667	1-216-033-00	METAL GLAZE	220 5% 1/10W
R614	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R669	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R615	1-216-097-00	METAL GLAZE	100K 5% 1/10W	R670	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R616	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W	R671	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R617	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W	R671	1-216-055-00	METAL GLAZE	1.8K 5% 1/10W
R618	1-216-057-00	METAL GLAZE	2.2K 5% 1/10W	R672	1-216-033-00	METAL GLAZE	220 5% 1/10W
R619	1-216-061-00	METAL GLAZE	3.3K 5% 1/10W	R673	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R620	1-216-065-00	METAL GLAZE	4.7K 5% 1/10W	R674	1-216-049-00	METAL GLAZE	1K 5% 1/10W
R621	1-216-049-00	METAL GLAZE	1K 5% 1/10W	R675	1-216-033-00	METAL GLAZE	220 5% 1/10W
				R676	1-216-033-00	METAL GLAZE	220 5% 1/10W
				R677	1-216-033-00	METAL GLAZE	220 5% 1/10W

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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
R678	1-216-033-00	METAL GLAZE 220 5%	1/10W	R735	1-216-101-00	METAL GLAZE 150K 5%	1/10W
R680	1-216-085-00	METAL GLAZE 33K 5%	1/10W	R736	1-216-096-00	METAL GLAZE 91K 5%	1/10W
R681	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R737	1-216-089-00	METAL GLAZE 47K 5%	1/10W
R682	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R738	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R683	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R739	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R686	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W	R740	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R687	1-216-071-00	METAL GLAZE 8.2K 5%	1/10W	R741	1-216-060-00	METAL GLAZE 3K 5%	1/10W
R688	1-216-097-00	METAL GLAZE 100K 5%	1/10W	R742	1-216-075-00	METAL GLAZE 12K 5%	1/10W
R689	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R743	1-216-090-00	METAL GLAZE 51K 5%	1/10W
R690	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R744	1-216-090-00	METAL GLAZE 51K 5%	1/10W
R691	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R745	1-216-064-00	METAL GLAZE 4.3K 5%	1/10W
R693	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R746	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R694	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R747	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W
R695	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R748	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W
R696	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R749	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W
R697	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R750	1-216-097-00	METAL GLAZE 100K 5%	1/10W
R698	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R751	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R699	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R752	1-216-748-11	METAL GLAZE 39K 5%	1/10W
R701	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R753	1-216-069-00	METAL GLAZE 6.8K 5%	1/10W
R702	1-216-053-00	METAL GLAZE 1.5K 5%	1/10W	R754	1-216-063-00	METAL GLAZE 3.9K 5%	1/10W
R703	1-216-048-00	METAL GLAZE 910 5%	1/10W	R755	1-216-075-00	METAL GLAZE 12K 5%	1/10W
R704	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R757	1-216-089-00	METAL GLAZE 47K 5%	1/10W
R704	1-216-053-00	METAL GLAZE 1.5K 5%	1/10W	R758	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R705	1-216-033-00	METAL GLAZE 220 5%	1/10W	R759	1-216-121-00	METAL GLAZE 1M 5%	1/10W
R706	1-216-081-00	METAL GLAZE 22K 5%	1/10W	R760	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W
R707	1-216-081-00	METAL GLAZE 22K 5%	1/10W	R903	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R708	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R904	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R709	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R905	1-249-657-11	CARBON 220 5%	1/2W
R710	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R906	1-249-657-11	CARBON 220 5%	1/2W
R711	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W	R907	1-249-421-11	CARBON 2.2K 5%	1/4W
R712	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R908	1-249-421-11	CARBON 2.2K 5%	1/4W
R713	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R909	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R714	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R911	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
R715	1-216-067-00	METAL GLAZE 5.6K 5%	1/10W	R912	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
R716	1-216-075-00	METAL GLAZE 12K 5%	1/10W	R913	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
R717	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R922	1-249-600-11	CARBON 100K 5%	1/4W
R718	1-216-059-00	METAL GLAZE 2.7K 5%	1/10W	R923	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
R719	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R924	1-249-417-11	CARBON 1K 5%	1/4W
R720	1-216-060-00	METAL GLAZE 3K 5%	1/10W	R925	1-249-417-11	CARBON 1K 5%	1/4W
R721	1-216-063-00	METAL GLAZE 3.9K 5%	1/10W	R926	1-249-600-11	CARBON 100K 5%	1/4W
R722	1-216-075-00	METAL GLAZE 12K 5%	1/10W	R927	1-249-429-11	CARBON 10K 5%	1/4W
R723	1-216-085-00	METAL GLAZE 33K 5%	1/10W	R928	1-249-429-11	CARBON 10K 5%	1/4W
R724	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	R930	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
R725	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W				
R726	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W				
R727	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W				
R728	1-216-097-00	METAL GLAZE 100K 5%	1/10W				
R729	1-216-049-00	METAL GLAZE 1K 5%	1/10W				
R730	1-216-073-00	METAL GLAZE 10K 5%	1/10W				
R731	1-216-073-00	METAL GLAZE 10K 5%	1/10W				
R732	1-216-748-11	METAL GLAZE 39K 5%	1/10W				
R733	1-216-069-00	METAL GLAZE 6.8K 5%	1/10W				
R734	1-216-101-00	METAL GLAZE 150K 5%	1/10W				

RF MODULATOR

RF101 Δ 1-466-174-11 MODULATOR, RF (RFU-1017) (RF IN/OUT)

VARIABLE RESISTOR

RV101 1-228-994-00 RES, ADJ, CARBON 10K
 RV103 1-228-994-00 RES, ADJ, CARBON 10K
 RV104 1-228-994-00 RES, ADJ, CARBON 10K
 RV601 1-228-996-00 RES, ADJ, CARBON 47K
 RV701 1-228-996-00 RES, ADJ, CARBON 47K

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

<p>Note: The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.</p>	<p>Note: Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.</p>
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MB-18	DL-29	LS-17	SW-106	SW-107	CK-14
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Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
RV702	1-228-996-00	RES, ADJ, CARBON 47K		R009	1-216-049-00	METAL GLAZE 1K 5%	1/10W
	<u>RELAY</u>			R010	1-216-049-00	METAL GLAZE 1K 5%	1/10W
RY901	1-515-608-11	RELAY		R011	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W
	<u>THERMISTOR</u>			R012	1-216-049-00	METAL GLAZE 1K 5%	1/10W
TH101	1-800-625-11	THERMISTOR		R013	1-216-049-00	METAL GLAZE 1K 5%	1/10W
	<u>CRYSTAL</u>			R014	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W
X601	1-567-900-11	VIBRATOR, CRYSTAL (14.31MHz)		R015	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W
*****				*****			
	*1-630-814-12	DL-29 BOARD (Ref.No 6,000 Series)			*1-630-091-11	LS-17 BOARD (Ref.No 3,000 Series)	
	<u>CAPACITOR</u>				*****		
C001	1-163-101-00	CERAMIC CHIP 22PF	5% 50V		3-735-054-01	HOLDER, SENSOR	
C002	1-163-113-00	CERAMIC CHIP 68PF	5% 50V		<u>DIODE</u>		
C003	1-163-113-00	CERAMIC CHIP 68PF	5% 50V	D201	8-719-941-81	DIODE GL360	
C004	1-163-101-00	CERAMIC CHIP 22PF	5% 50V		<u>TRANSISTOR</u>		
C005	1-163-113-00	CERAMIC CHIP 68PF	5% 50V	Q201	8-729-904-10	PT360FS	
C006	1-163-101-00	CERAMIC CHIP 22PF	5% 50V	*****			
C007	1-164-232-11	CERAMIC CHIP 0.01MF	50V		*1-630-092-11	SW-106 BOARD (Ref.No 5,000 Series)	
	<u>CONNECTOR</u>				*****		
CN001	1-568-683-11	PIN, CONNECTOR (PC BOARD) 2P			<u>CONNECTOR</u>		
CN002	1-568-683-11	PIN, CONNECTOR (PC BOARD) 2P		CN301	1-506-467-11	PIN, CONNECTOR 2P	
	<u>JUMPER RESISTOR</u>				<u>SWITCH</u>		
JR001	1-216-295-00	METAL GLAZE 0 5%	1/10W	S301	1-554-655-00	SWITCH, LEAF	
JR002	1-216-296-00	METAL GLAZE 0 5%	1/8W	*****			
	<u>COIL</u>				*1-630-093-11	SW-107 BOARD (Ref.No 2,000 Series)	
L001	1-408-785-21	INDUCTOR CHIP 47UH			*****		
	<u>TRANSISTOR</u>				<u>CONNECTOR</u>		
Q001	8-729-100-67	TRANSISTOR 2SC1623-L7		CN401	1-506-481-11	PIN, CONNECTOR 2P	
Q002	8-729-100-67	TRANSISTOR 2SC1623-L7			<u>RESISTOR</u>		
Q003	8-729-100-67	TRANSISTOR 2SC1623-L7		R401	1-249-423-11	CARBON 3.3K 5%	1/4W
Q004	8-729-102-67	TRANSISTOR 2SC1623-L7		R402	1-249-417-11	CARBON 1K 5%	1/4W
Q005	8-729-102-73	TRANSISTOR 2SA812			<u>SWITCH</u>		
	<u>RESISTOR</u>			S401	1-571-300-11	SWITCH, ROTARY	
R001	1-216-073-00	METAL GLAZE 10K 5%	1/10W	*****			
R002	1-216-073-00	METAL GLAZE 10K 5%	1/10W		*1-630-094-11	CK-14 BOARD (Ref.No 7,000 Series)	
R003	1-216-049-00	METAL GLAZE 1K 5%	1/10W		*****		
R004	1-216-047-00	METAL GLAZE 820 5%	1/10W		<u>CAPACITOR</u>		
R005	1-216-049-00	METAL GLAZE 1K 5%	1/10W	C001	1-163-038-00	CERAMIC CHIP 0.1MF	25V
R006	1-216-047-00	METAL GLAZE 820 5%	1/10W				
R007	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W				
R008	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W				

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

CK-14

FG-13

MT-28

MT-29

MT-30

VS-47

Ref.No	Part No.	Description	Remark
C002	1-163-038-00	CERAMIC CHIP 0.1MF	25V
<u>CONNECTOR</u>			
CN001	*1-564-001-41	PIN, CONNECTOR 2P	
CN002	1-506-468-11	PIN, CONNECTOR 3P	
CN003	1-506-467-11	PIN, CONNECTOR 2P	
CN004	*1-564-001-21	PIN, CONNECTOR 2P	
CN005	*1-564-001-31	PIN, CONNECTOR 2P	
<u>JUMPER RESISTOR</u>			
JR001	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR002	1-216-296-00	METAL GLAZE 0 5% 1/8W	
<u>RESISTOR</u>			
R001	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R002	1-216-031-00	METAL GLAZE 180 5% 1/10W	
R003	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	
R004	1-216-001-00	METAL GLAZE 10 5% 1/10W	
R005	1-216-001-00	METAL GLAZE 10 5% 1/10W	
R006	1-216-031-00	METAL GLAZE 180 5% 1/10W	
R007	1-216-061-00	METAL GLAZE 3.3K 5% 1/10W	

	*1-630-096-11	FG-13 BOARD (Ref.No 3,000 Series)	

<u>DIODE</u>			
D301	8-719-939-11	GP2S09-B	

	*1-630-097-11	MT-28 BOARD (Ref.No 3,000 Series)	

<u>MOTOR</u>			
M902	1-541-659-11	SLED MOTOR	

	*1-630-101-11	MT-29 BOARD (Ref.No 2,000 Series)	

<u>MOTOR</u>			
M904	1-541-309-11	LOADING MOTOR (RF-370C)	

	*1-631-095-11	MT-30 BOARD (Ref.No 5,000 Series)	

<u>MOTOR</u>			
M903	1-541-659-11	TILT MOTOR	

	*1-631-866-11	VS-47 BOARD (MDP-322GX) (Ref.No 2,000 Series)	

<u>SWITCH</u>			
SW302	1-554-933-11	SELECTOR, VOLTAGE	

Ref.No	Part No.	Description	Remark
MISCELLANEOUS *****			
	1-551-478-00	CORD, POWER (MDP-210)	
	1-559-627-11	CORD, POWER (MDP-322GX)	
	1-574-648-11	CABLE, FLEXIBLE FLAT (24 CORE)	
	*1-574-755-11	WIRE, FLAT TYPE 28P	
	8-848-138-11	DEVICE, OPTICAL KHS-130A	
F101	1-532-747-11	FUSE, GLASS TUBE (125V 5A)	
F102	1-532-747-11	FUSE, GLASS TUBE (125V 5A)	
F103	1-532-825-11	FUSE, GLASS TUBE (250V 2A) (MDP-322GX)	
F301	1-532-743-11	FUSE, GLASS TUBE (125V 2A)	
M901	1-541-665-11	MOTOR, SPINDLE	
M902	1-541-659-11	MOTOR, DC (SLED)	
M903	1-541-659-11	MOTOR, DC (TILT)	
M904	1-541-309-11	MOTOR, LOADING (RF-370C)	
N001	1-519-511-11	INDICATOR TUBE, FLUORESCENT	
S901	1-571-435-11	SWITCH (SLED IN LIMIT)	
S902	1-570-771-21	SWITCH (SLED OUT LIMIT)	
S903	1-554-468-00	SWITCH, LEAF (SLED IN LIMIT LD/CD)	
T401	1-449-798-11	TRANSFORMER, POWER (MDP-322GX)	
T401	1-449-804-11	TRANSFORMER, POWER (MDP-210)	

ACCESSORIES AND PACKING MATERIALS *****			
Part No.	Description	Remark	
1-465-161-21	REMOTE COMMANDER (RMT-322A)		
1-558-076-41	CORD, CONNECTION (COAXIAL CONNECTOR ASSY, J TYPE) (MDP-210)		
1-551-769-00	CORD, CONNECTION (COAXIAL CONNECTOR ASSY, J TYPE) (MDP-322GX)		
1-559-533-11	CORD, CONNECTION (2 PHONO TO 2 PHONO AUDIO)		
1-574-121-12	CORD, CONNECTION (1 PHONO TO 1 PHONO VIDEO)		
*3-735-072-01	CUSHION (UPPER)		
*3-735-073-01	CUSHION (LOWER)		
*3-737-442-01	INDIVIDUAL CARTON (MDP-322GX)		
*3-737-442-11	INDIVIDUAL CARTON (MDP-210)		
3-750-544-21	MANUAL, INSTRUCTION (ENGLISH)		
3-750-544-31	MANUAL, INSTRUCTION (FRENCH) (MDP-210)		

HARDWARE LIST *****			
<u>SCREW</u>			
7-621-255-55	SCREW +P 2X8		
7-628-254-20	SCREW +PSW 2.6X8		
7-682-545-04	SCREW (3X4) (G), TAPPING, (+) P		
7-682-645-01	SCREW +PS 3X4		
7-685-645-79	SCREW +BVTP 3X6 TYPE2 IT-3		
7-685-646-79	SCREW +BVTP 3X8		
7-685-647-79	SCREW +BVTP 3X10 TYPE2 IT-3		
7-685-648-79	SCREW +BVTP 3X12 TYPE2 IT-3		
7-685-649-79	SCREW +BVTP 3X14 TYPE2 IT-3		
7-685-661-79	SCREW +BVTP 4X12 TYPE2 SLIT		

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

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

Note:
Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ELECTRICAL ADJUSTMENTS

7-4. DS Board Adjustment Cable

During these adjustment, see the parts arrangement diagram relevant to the adjustment on page from 132.

DS board adjustment cable is used extension cable between the board to board connector of DS-32 board (CN001-003, 005) and MB-18 board (CN901, 905-907). It used 8-9-3. RF PLL Free-Run Adjustment (LV001).

7-1. LIST OF SERVICING JIGS

- Oscilloscope
- Color monitor TV
- Digital voltmeter
- Audio level meter
- Frequency counter
- Remote commander (RMT-322A)
- LD alignment disc REF7C-8AL (8-597-901-03)
- CD alignment disc YEDS-18 (3-702-101-01)
- MD adjustment cable (J-6082-059-A)

	MB-18 BOARD CONNECTOR	DS-32 BOARD CONNECTOR
12P CABLE (J-6082-089-A) 2pcs	CN905	CN002
	CN906	CN003
7P CABLE (J-6082-088-A) 1pcs	CN901	CN005
5P CABLE (J-6082-087-A) 1pcs	CN907	CN001

7-2. 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.

7-3. 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

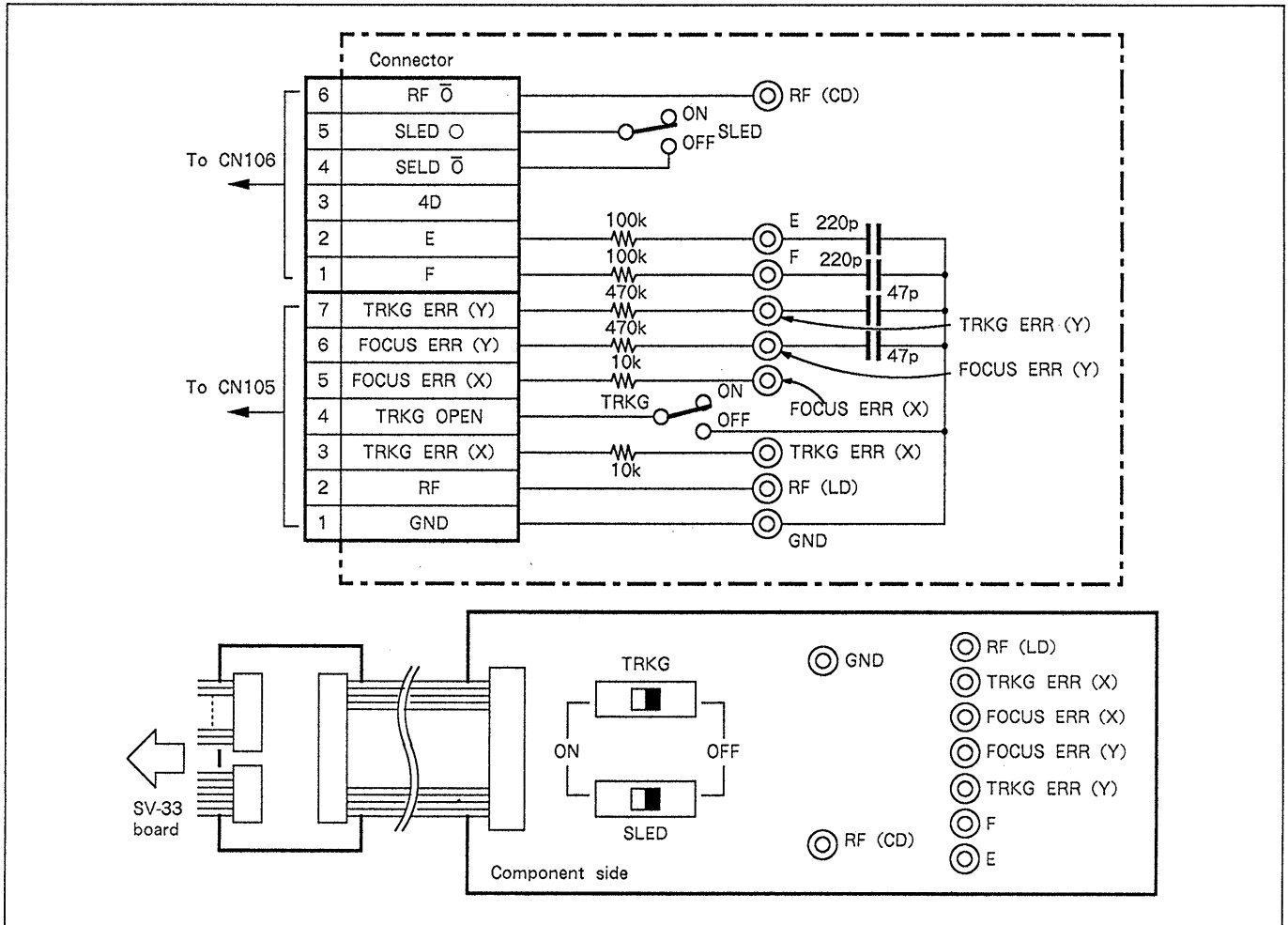


Fig. 7-1.

7-4. POWER SUPPLY CHECK (PS-193 BOARD)

Mode	Stop
Measuring Equipment	Digital voltmeter
UN REG +16V check	
Measurement Point	Pin ① of W001
	(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.

7-5. SYSTEM CONTROL SYSTEM ADJUSTMENT

7-5-1. Microprocessor Clock Adjustment (MB-18 Board)

Mode	Stop
Measurement Point	Pin ⑩ of IC601
Measuring Equipment	Frequency counter
Adjusting Element	CV601
Specified Value	3,579,545±10Hz

Adjustment method :

- 1) Adjust CV601 to 3,579,545±10Hz.

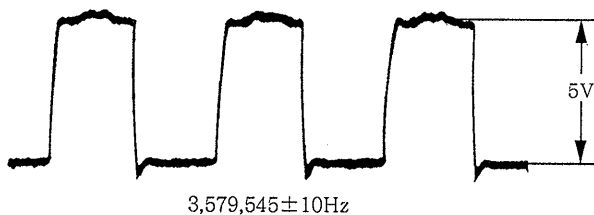


Fig. 7-2.

7-6. 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

7-6-1. 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)
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 RV102 so as to maximize the signal level.

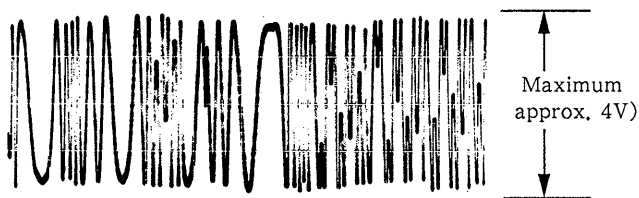


Fig. 7-3.

2) Tracking balance adjustment

Mode	Still
Signal	Frame 2201 (GRAY)
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 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.

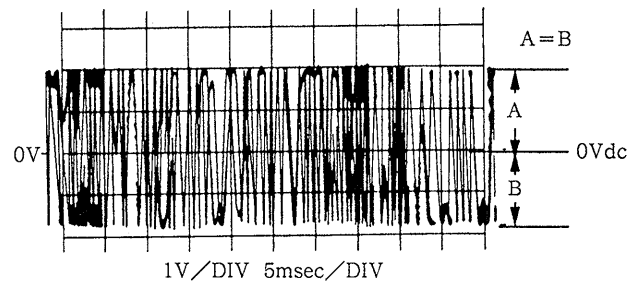




Fig. 7-4.

REVISED

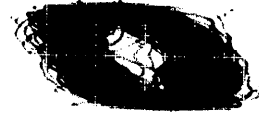
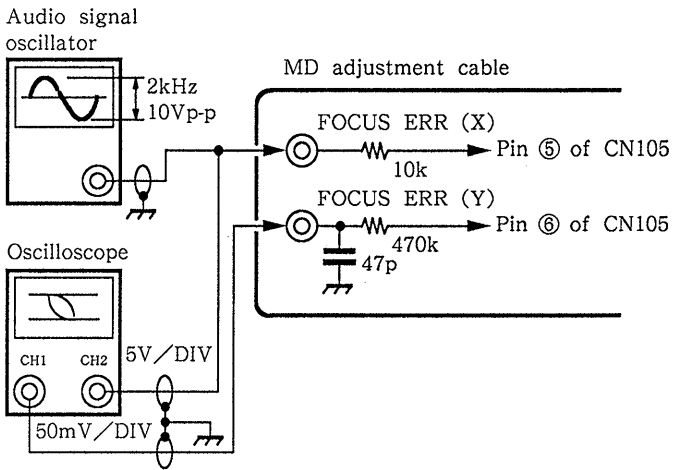
2. LD Focus Gain Adjustment (SV-33 Board)

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

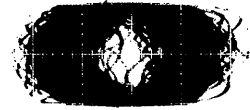
Adjustment method :

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

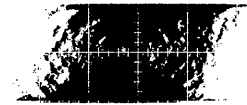
Connections :



NG



OK



NG

Fig. 7-5.

3. LD Cross Talk Balance Adjustment

1) TAN cam adjustment (MD)

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

*Mechanical center :

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

Adjustment method :

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

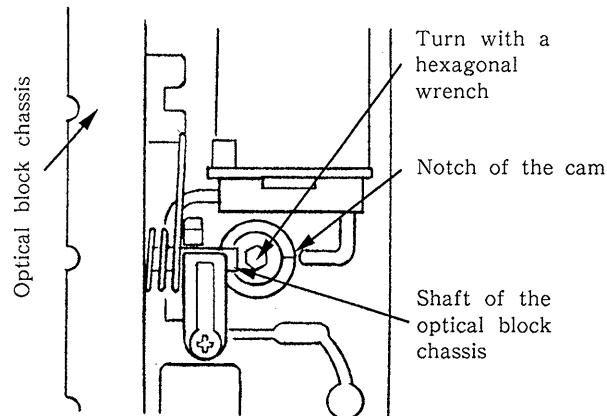


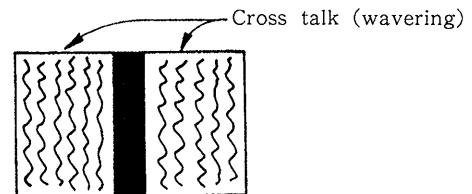
Fig. 7-6.

2) RAD TILT adjustment (SV-33 board)

Mode	Still
Signal	Frame 770 (V BAR)
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 770 and apply a vertical bar signal.
- 3) Adjust RV105 so that the right and left cross talks (wavering) become minimum as well as the same level.



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

Fig. 7-7.

3) Focus balance adjustment (SV-33 board)

Mode	Still
Signal	Frame 770 (V BAR)
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 770 and apply a vertical bar signal.
- 3) Adjust RV102 to minimize the right and left cross talks (wavering) level.

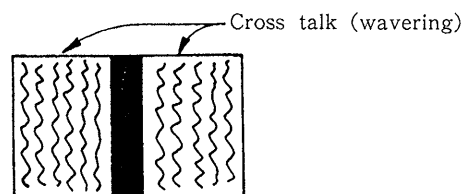
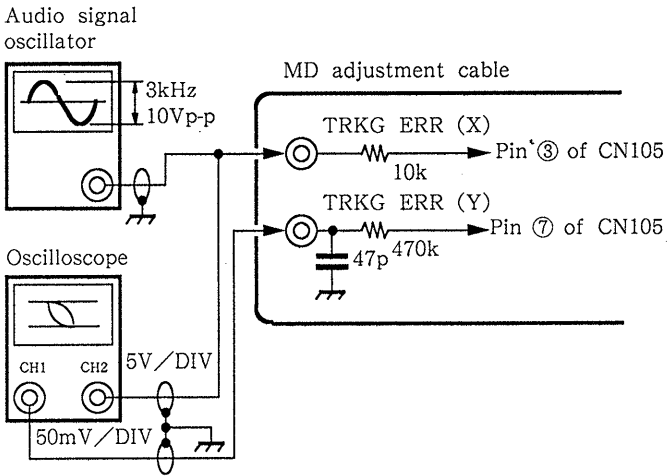


Fig. 7-8.

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

Mode	Still
Signal	Frame 2201 (GRAY)
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 RV107.

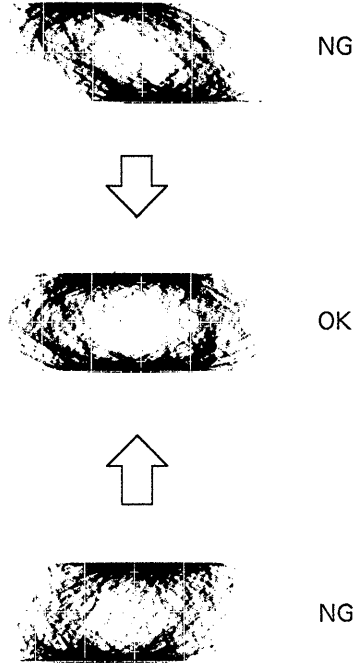


Fig. 7-9.

7-6-2. 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.

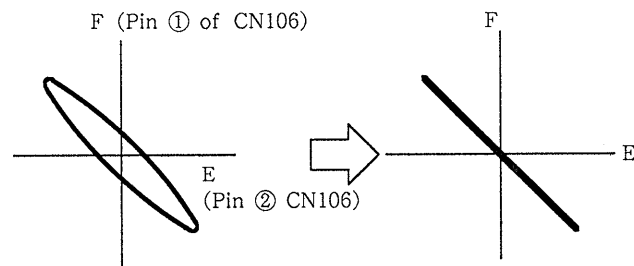


Fig. 7-10.

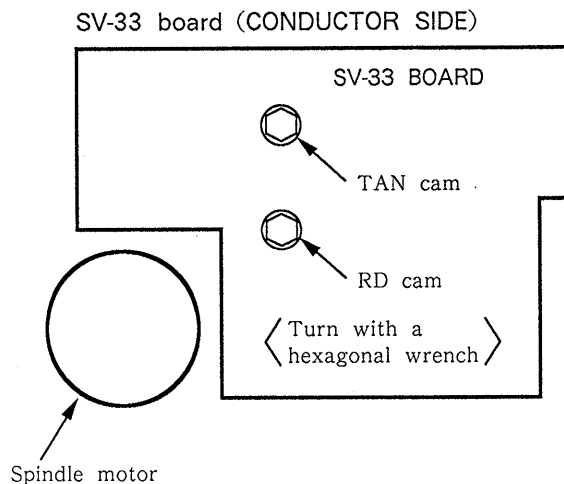


Fig. 7-11.

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 RV103 for maximum level.

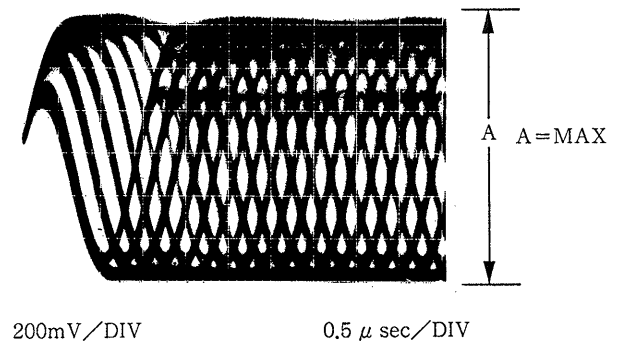


Fig. 7-12.

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 RV108 for $1.2 \pm 0.1V_{p-p}$.

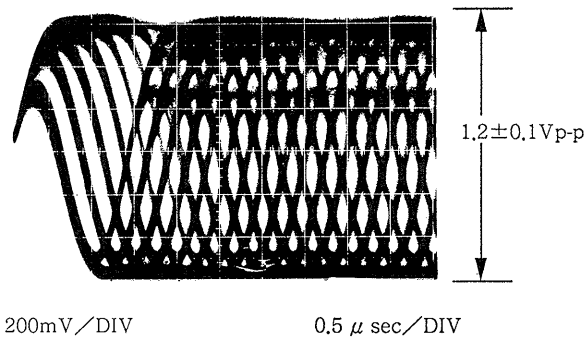


Fig. 7-13.

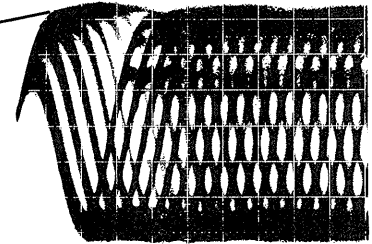
4. CD RF L Level Adjustment (SV-33 Board)

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

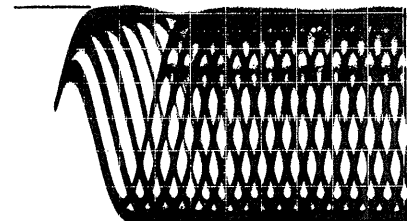
Adjustment method :

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

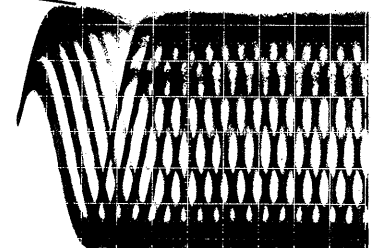
- Waveform slant at the rising edge.
 - Waveform of lozenge-shaped portions are not clear.
- (RV104 : Excessively rotated in clockwise direction (⌚) .



OK
200mV/DIV
0.5msec/DIV



- Waveform slant at the rising edge.
 - Waveform of lozenge-shaped portions are not clear.
- (RV104 : Excessively rotated in counterclockwise direction (⌚) .



7-8. VIDEO SYSTEM ADJUSTMENT

7-8-1. Video Output Level Adjustment (MB-18 Board)

Mode	Still
Signal	Frame 4100 (color bar)
Measurement Point	CNJ101 (VIDEO OUT terminal) (Terminated to 75 Ω)
Measuring Equipment	Oscilloscope
Adjusting Element	RV103
Specified Value	$1.03 \pm 0.03 \text{Vp-p}$

Adjustment method :

- 1) Select STILL (⏸) mode.
- 2) Search the frame 4100 and apply a color bar signal.
- 3) Adjust RV103 for $1.03 \pm 0.03 \text{Vp-p}$.

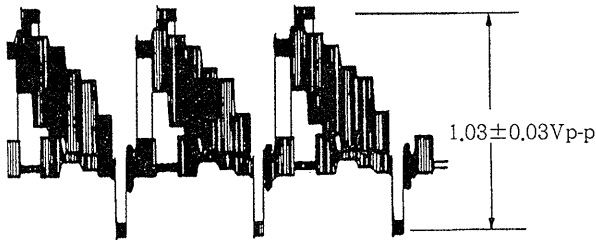


Fig. 7-15.

7-8-2. Burst Gate Position Adjustment (MB-18 Board)

Mode	Still
Signal	Frame 4100 (color bar)
Measurement Point	Pin ② of CN107
Adjusting Element	RV104
Specified Value	$8.5 \pm 0.3 \mu\text{sec}$

Adjustment method :

- 1) Select STILL (⏸) mode.
- 2) Search the frame 4100.
- 3) Adjust RV104 so that t_w becomes $8.5 \pm 0.3 \mu\text{sec}$.

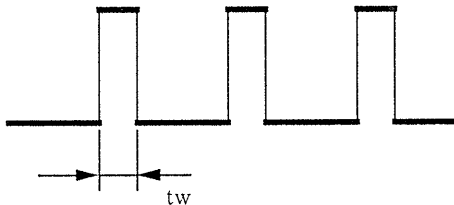


Fig. 7-16.

7-8-3. Comb Type Filter Adjustment (MB-18 Board)

Mode	Still
Signal	Frame 4100 (color bar)
Measurement Point	Q112 base (Pin ② of IC103)
Measuring Equipment	Oscilloscope
Adjusting Element	CV101 and RV101
Specified Value	Minimum residual chroma component (less than 50mV)

Adjustment method :

- 1) Select STILL (⏸) mode.
- 2) Search the frame 4100 and apply a color bar signal.
- 3) Adjust RV101 and CV101 alternately so that the residual chroma component (especially cyan portion) become minimum.

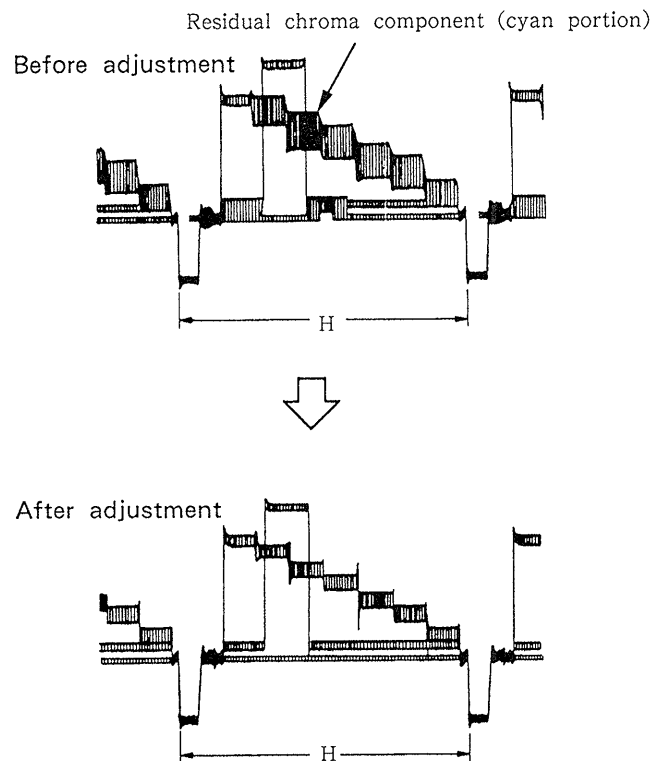


Fig. 7-17.

7-8-4. REF H Adjustment

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

Mode	Still
Signal	Frame 4100 (Color bar)
Measuring Equipment	Oscilloscope
Adjusting Element	RV601
Measurement Point	[Adjustment 1] CH1 : Pin ⑳ of IC107 External trigger : Pin ㉔ of IC107 [Adjustment 2] CH1 : Pin ㉓ of IC605 CH2 : Pin ㉔ of IC605
Specified Value	[Adjustment 1] $22 \pm 1 \mu\text{sec}$ [Adjustment 2] $100 \pm 50 \mu\text{sec}$

Connection :

- Apply 4.5Vdc to Pin ㉔ of IC107.

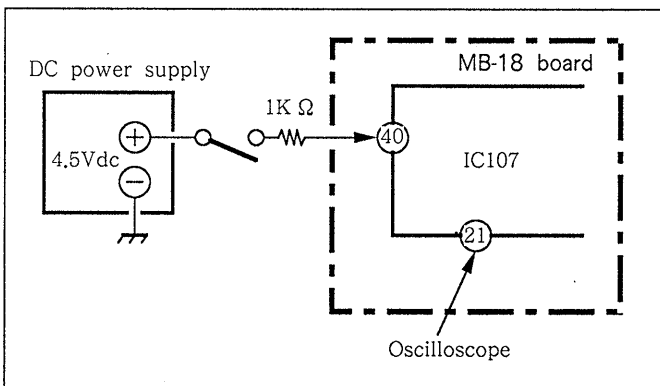


Fig. 7-18.

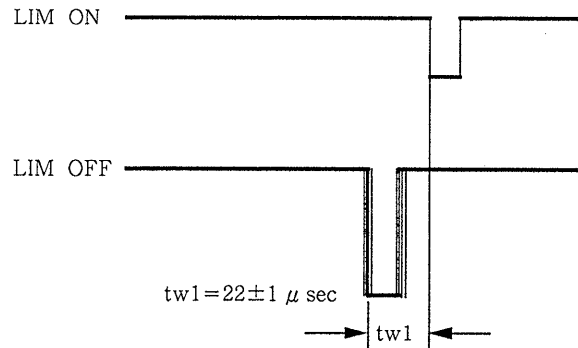
Adjustment method :

[Adjustment 1]

- 1) Select STILL (⏸) mode.
- 2) Search the frame 4100.
- 3) Connect the DC power supply (4.5Vdc) to Pin ㉔ of IC107.
- 4) Adjust so that falling time difference between when the power (4.5Vdc) 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 ㉑ of IC107 (CH1)



- Pin ㉔ of IC107 (Trigger pulse)



Fig. 7-19.

[Adjustment 2]

- 5) Set to LIM OFF (4.5Vdc off) states.
- 6) Adjust so that the phase difference in the nearest portion between the falling edge of Pin ㉔ of IC605 and the rising edge of Pin ㉓ of IC605 is $100 \pm 50 \mu\text{sec}$.

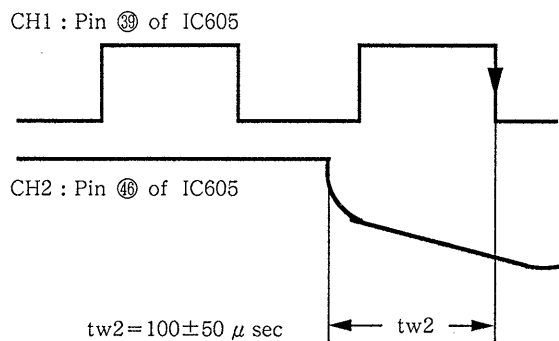


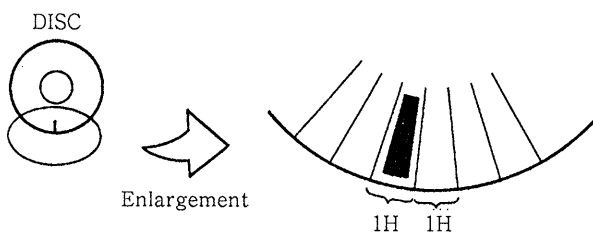
Fig. 7-20.

7-8-5. Color DOC Adjustment (MB-18 Board)

Mode	Still
Signal	Frame 23500 (Yellow Green)
Measuring Equipment	Monitor display
Adjusting Element	CV102
Specified Value	Drop out portion and its peripherals are the same color

Preparations :

Stick a black adhesive tape (approx. 10mm length) on the outer track 1H period of the alignment disc (REF7C-8AL).



Adjustment method :

- 1) Select STILL (M) mode.
- 2) Search the frame 23500.
- 3) Adjust CV102 so that the drop out portion and its peripherals on the monitor picture are the same color.

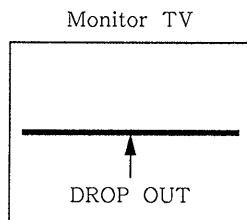


Fig. 7-21.

7-9. AUDIO SYSTEM ADJUSTMENT

7-9-1. Analog Audio System Adjustment (MB-18 Board)

1. Audio output level adjustment

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

Mode	Playback
Signal	Chapter 6 (RAMP/1kHz)
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 ± 25mVrms Oscilloscope : 1.4 ± 0.07Vp-p

Adjustment method :

- 1) Set the chapter 6 to the search mode.
- 2) Turn off the [CX] with remote commander. (Confirm that the indications on the front panel of the main unit are disappeared.)
- 3) Adjust RV701 [RV702] for 500 ± 25mVrms or 1.4 ± 0.07Vp-p.

7-9-2. Digital Audio System Adjustment

1. RF PLL offset adjustment (DS-33 board)

Mode	Stop
Measurement Point	Pin ① of IC003
Measuring Equipment	Digital voltmeter
Adjusting Element	RV001
Specified Value	0 ± 0.05Vdc

Connections :

Connect the chemical capacitor (1 μF or more) in between Pin ⑤ of IC001 (EFM) and GND.

Adjustment method :

- 1) Adjust RV001 so that the voltage at Pin ① of IC003 becomes 0 ± 0.05Vdc.

7-9-3. RF PLL Free-Run Adjustment (DS-33 Board)

Mode	Stop
Measurement Point	Pin ⑩ of IC003
Measuring Equipment	Frequency counter
Adjusting Element	LV001
Specified Value	$4.61 \pm 0.005\text{MHz}$

Connections :

- Use the DS board adjustment cable between DS-33 board and MB-18 board.
- Connect the chemical capacitor ($1 \mu\text{F}$ or more) in between Pin ⑤ (EFM) of IC001 and GND.

Adjustment method :

- 1) Adjust LV001 for the specified value.

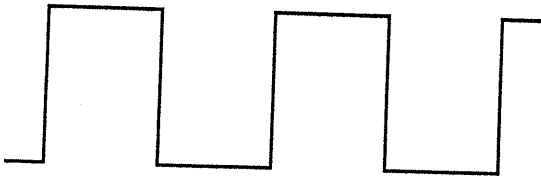


Fig. 7-22.

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

7-9-4. D Range Adjustment (DS-33 Board)

Note : Adjusting element of R-CH is indicated in brackets [].

Mode	Playback
Signal	Track No.17, YEDS-18
Measurement Point	AUDIO OUT 1/L [2/R]
Measuring Equipment	Distortion meter
Adjusting Element	RV102 [RV101]
Specified Value	Minimum distortion

Adjustment method :

- 1) Play back the track No.17 (1kHz, -60dB).
- 2) Adjust RV102 [RV101] for minimum distortion.

Note : Adjustment is also possible by an oscilloscope as well as a distortion meter. When using an oscilloscope, eliminate a distortion of the waveform on the display. At this time, adjust carefully since the level is small.

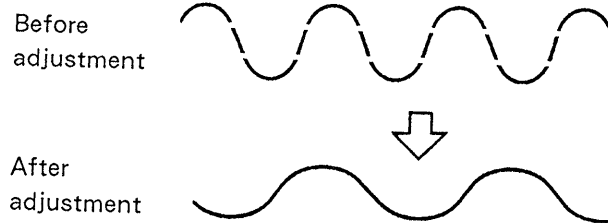
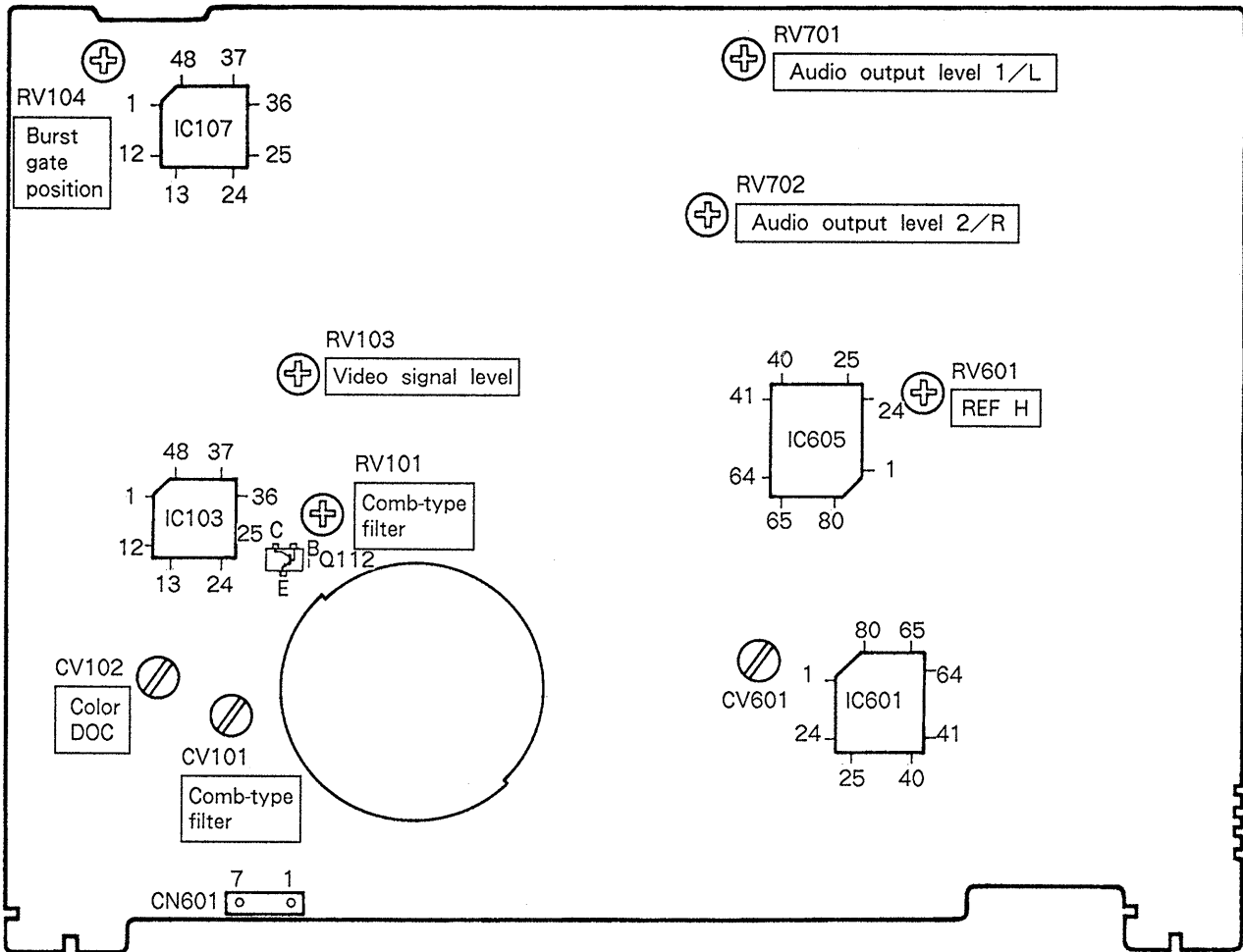


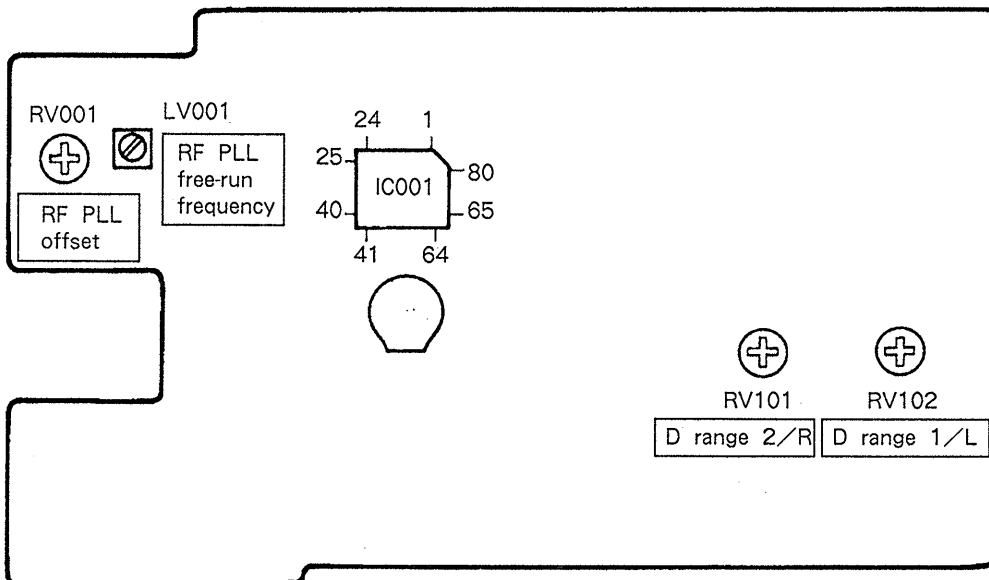
Fig. 7-23.

7-10. ADJUSTMENT RELATED PARTS LOCATION

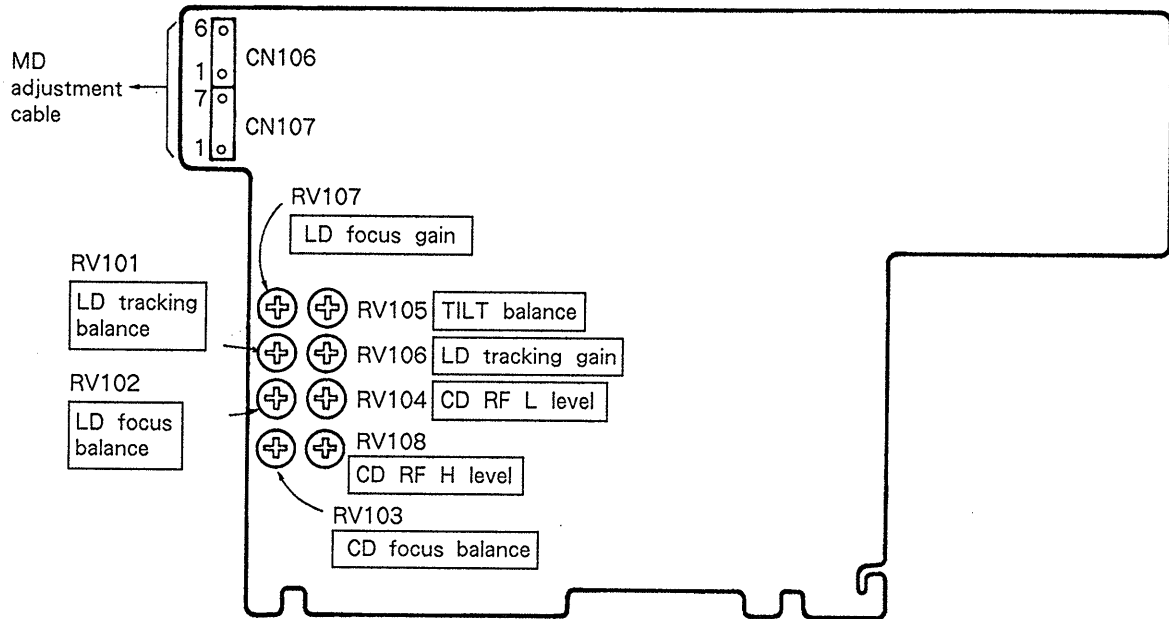
MB-18 board (Component side)



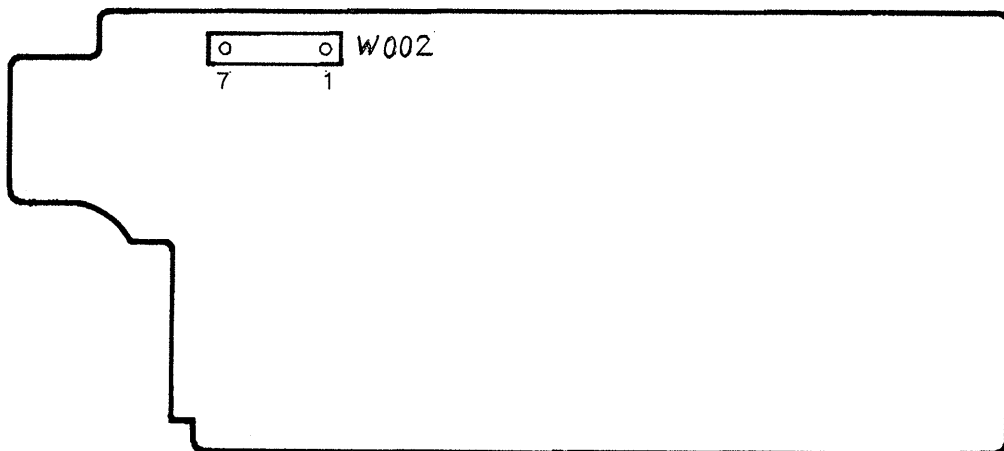
DS-33 board (Conductor side)



SV-33 board (Conductor side)



PS-193 board (Component side)



MDP-210/322GX

RMT-322A

SONY[®] SERVICE MANUAL

US Model
Canadian Model

: MDP-210

E Model

: MDP-322GX

SUPPLEMENT-1

File this Supplement with the Service Manual.

Subject : Circuit Modifications

- DS-33 BOARD ⇒ DS-32 BOARD
- FP-197 BOARD ⇒ FP-290 BOARD

■■■■■■■■■■■■■■■■■■■■ TABLE OF CONTENTS ■■■■■■■■■■■■■■■■■■■■

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ELECTRICAL PARTS LIST

NOTE:

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

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

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

- 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.
- 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.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- SEMICONDUCTORS
In each case, U: μ , for example:
UA....: μ A...., UPA....: μ PA...., UPB....: μ PB...., UPC....: μ PC...., UPD....: μ PD....
- CAPACITORS
MF: μ F, PF: μ μF
- COILS
MMH: mH, UH: μ H

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
*A-6421-390-A	DS-32 (A) BOARD, COMPLETE	*****		C115	1-136-250-11	FILM 0.001MF	3% 100V
*1-566-708-11	CONNECTOR, BOARD TO BOARD 7P			C116	1-136-232-11	FILM 0.0043MF	3% 100V
*1-566-709-11	CONNECTOR, BOARD TO BOARD 12P			C117	1-136-250-11	FILM 0.001MF	3% 100V
3-831-441-XX	CUSHION (5)			C118	1-126-024-11	ELECT 220MF	20% 25V
				C119	1-126-023-11	ELECT 100MF	20% 16V
	<u>CAPACITOR</u>			C120	1-136-250-11	FILM 0.001MF	3% 100V
C001	1-124-768-11	ELECT 4.7MF	20% 50V	C121	1-126-024-11	ELECT 220MF	20% 25V
C002	1-124-767-00	ELECT 2.2MF	20% 50V	C122	1-136-250-11	FILM 0.001MF	3% 100V
C003	1-124-446-11	ELECT 47MF	20% 10V	C123	1-136-232-11	FILM 0.0043MF	3% 100V
C004	1-124-446-11	ELECT 47MF	20% 10V	C124	1-136-250-11	FILM 0.001MF	3% 100V
C005	1-126-320-11	ELECT 10MF	20% 16V	C125	1-126-024-11	ELECT 220MF	20% 25V
C006	1-163-077-00	CERAMIC CHIP 0.1MF	10% 25V	C126	1-126-023-11	ELECT 100MF	20% 16V
C007	1-163-058-00	CERAMIC CHIP 0.0082MF	10% 50V	C127	1-136-250-11	FILM 0.001MF	3% 100V
C008	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C128	1-126-024-11	ELECT 220MF	20% 25V
C009	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C129	1-126-376-11	ELECT 470MF	20% 25V
C010	1-163-101-00	CERAMIC CHIP 22PF	5% 50V	C130	1-126-649-11	ELECT 3300MF	20% 25V
C011	1-163-101-00	CERAMIC CHIP 22PF	5% 50V	C131	1-124-997-11	ELECT 470MF	20% 10V
C012	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C132	1-126-160-11	ELECT 1MF	20% 50V
C015	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C133	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C016	1-124-589-11	ELECT 47MF	20% 10V	C134	1-163-105-00	CERAMIC CHIP 33PF	5% 50V
C017	1-124-589-11	ELECT 47MF	20% 10V	C135	1-163-105-00	CERAMIC CHIP 33PF	5% 50V
C018	1-164-232-11	CERAMIC CHIP 0.01MF	50V	C136	1-163-035-00	CERAMIC CHIP 0.047MF	50V
C019	1-163-023-00	CERAMIC CHIP 0.015MF	10% 50V	C137	1-163-105-00	CERAMIC CHIP 33PF	5% 50V
C020	1-124-261-00	ELECT 10MF	20% 50V	C201	1-126-649-11	ELECT 3300MF	20% 25V
C021	1-164-232-11	CERAMIC CHIP 0.01MF	10% 50V	C202	1-126-649-11	ELECT 3300MF	20% 25V
C022	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C203	1-126-648-11	ELECT 1000MF	20% 25V
C023	1-163-035-00	CERAMIC CHIP 0.047MF	50V	C204	1-126-648-11	ELECT 1000MF	20% 25V
C024	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V	C205	1-124-477-11	ELECT 47MF	20% 25V
C025	1-164-161-11	CERAMIC CHIP 0.0022MF	10% 50V	C206	1-124-478-11	ELECT 100MF	20% 25V
C026	1-163-241-11	CERAMIC CHIP 39PF	5% 50V	C207	1-124-791-11	ELECT 1MF	20% 50V
C027	1-163-106-00	CERAMIC CHIP 36PF	5% 50V	C300	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C028	1-163-123-00	CERAMIC CHIP 180PF	5% 50V	C302	1-164-232-11	CERAMIC CHIP 0.01MF	50V
C029	1-163-133-00	CERAMIC CHIP 470PF	5% 50V	C303	1-163-038-00	CERAMIC CHIP 0.1MF	25V
C030	1-163-035-00	CERAMIC CHIP 0.047MF	50V				
C032	1-163-035-00	CERAMIC CHIP 0.047MF	50V		<u>CONNECTOR</u>		
C050	1-163-117-00	CERAMIC CHIP 100PF	5% 50V	CN001	1-568-316-11	CONNECTOR, BOARD TO BOARD 5P	
C101	1-163-035-00	CERAMIC CHIP 0.047MF	50V	CN201	*1-560-891-00	PIN, CONNECTOR 3P	
C102	1-163-035-00	CERAMIC CHIP 0.047MF	50V				
C104	1-163-035-00	CERAMIC CHIP 0.047MF	50V		<u>DIODE</u>		
C105	1-126-301-11	ELECT 1MF	20% 50V	D001	8-719-923-64	DIODE KV1236Z	
C106	1-126-049-11	ELECT 22MF	20% 25V	D002	8-719-907-19	DIODE FC52M-5	
C107	1-126-162-11	ELECT 3.3MF	20% 50V	D003	8-719-907-19	DIODE FC52M-5	
C107	1-136-165-00	FILM 0.1MF	5% 50V	D004	8-719-911-19	DIODE 1SS119	
C108	1-126-049-11	ELECT 22MF	20% 25V	D005	8-719-109-85	DIODE RD5.1ES-B2	
C109	1-126-162-11	ELECT 3.3MF	20% 50V	D102	8-719-911-19	DIODE 1SS119	
C110	1-126-301-11	ELECT 1MF	20% 50V	D103	8-719-911-19	DIODE 1SS119	
C111	1-126-049-11	ELECT 22MF	20% 25V	D201	Δ 8-719-210-18	DIODE 31DF2-FER	
C112	1-126-162-11	ELECT 3.3MF	20% 50V	D202	Δ 8-719-210-18	DIODE 31DF2-FER	
C112	1-136-165-00	FILM 0.1MF	5% 50V	D203	Δ 8-719-210-18	DIODE 31DF2-FER	
C113	1-126-049-11	ELECT 22MF	20% 25V	D204	Δ 8-719-210-18	DIODE 31DF2-FER	
C114	1-126-162-11	ELECT 3.3MF	20% 50V	D206	8-719-911-19	DIODE 1SS119	
				D207	8-719-911-19	DIODE 1SS119	
				D208	8-719-400-18	DIODE 1S2837	

Ref.No	Part No.	Description	Remark	Ref.No	Part No.	Description	Remark
D209	8-719-400-18	DIODE 1S2837-T1		R011	1-216-121-00	METAL GLAZE 1M 5%	1/10W
D210	8-719-911-19	DIODE 1SS119		R012	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
D211	8-719-911-19	DIODE 1SS119		R013	1-216-073-00	METAL GLAZE 10K 5%	1/10W
				R014	1-216-073-00	METAL GLAZE 10K 5%	1/10W
				R015	1-216-093-00	METAL GLAZE 68K 5%	1/10W
		<u>IC</u>		R016	1-216-062-00	METAL GLAZE 3.6K 5%	1/10W
IC001	8-752-332-28	IC CXD1125Q		R017	1-216-093-00	METAL GLAZE 68K 5%	1/10W
IC002	8-759-908-17	IC TL082CPS		R018	1-216-099-00	METAL GLAZE 120K 5%	1/10W
IC003	8-759-908-17	IC TL082CPS		R019	1-216-099-00	METAL GLAZE 120K 5%	1/10W
IC004	8-759-804-88	IC LC3517BML-15		R020	1-216-097-00	METAL GLAZE 100K 5%	1/10W
IC005	8-759-927-29	IC SN74HC004NS		R021	1-216-097-00	METAL GLAZE 100K 5%	1/10W
IC009	8-759-932-54	IC MC14066BF		R022	1-216-097-00	METAL GLAZE 100K 5%	1/10W
IC101	8-752-334-06	IC CXD2550P		R023	1-216-051-00	METAL GLAZE 1.2K 5%	1/10W
IC102	8-759-926-17	IC SN74HC153NS		R025	1-216-097-00	METAL GLAZE 100K 5%	1/10W
IC103	8-759-925-90	IC SN74HC74NS		R026	1-216-073-00	METAL GLAZE 10K 5%	1/10W
IC104	8-759-927-46	IC SN74HC00NS		R027	1-216-053-00	METAL GLAZE 1.5K 5%	1/10W
IC105	8-759-926-21	IC SN74HC161NS		R028	1-216-334-11	METAL GLAZE 22K 1%	1/10W
IC106	8-759-604-29	IC M5F7805		R029	1-216-334-11	METAL GLAZE 22K 1%	1/10W
IC107	8-759-979-09	IC PCM58P		R030	1-216-073-00	METAL GLAZE 10K 5%	1/10W
IC108	8-759-979-09	IC PCM58P		R031	1-216-075-00	METAL GLAZE 12K 5%	1/10W
IC109	8-759-982-03	IC NJM5532D-D		R032	1-216-097-00	METAL GLAZE 100K 5%	1/10W
IC110	8-759-982-03	IC NJM5532D-D		R033	1-216-049-00	METAL GLAZE 1K 5%	1/10W
IC201	8-759-604-33	IC M5F7812		R034	1-216-097-00	METAL GLAZE 100K 5%	1/10W
IC202	8-759-604-51	IC M5F7912		R035	1-216-097-00	METAL GLAZE 100K 5%	1/10W
IC108	1-426-212-11	COIL (RF)		R036	1-216-097-00	METAL GLAZE 100K 5%	1/10W
		<u>VARIABLE COIL</u>		R038	1-216-033-00	METAL GLAZE 220 5%	1/10W
LV001	1-426-212-11	COIL (RF)		R040	1-216-033-00	METAL GLAZE 220 5%	1/10W
		<u>TRANSISTOR</u>		R041	1-216-049-00	METAL GLAZE 1K 5%	1/10W
Q001	8-729-900-53	TRANSISTOR DTC114EK		R043	1-216-033-00	METAL GLAZE 220 5%	1/10W
Q002	8-729-100-67	TRANSISTOR 2SC1623		R044	1-216-025-00	METAL GLAZE 100 5%	1/10W
Q003	8-729-900-53	TRANSISTOR DTC114EK		R045	1-216-025-00	METAL GLAZE 100 5%	1/10W
Q004	8-729-900-53	TRANSISTOR DTC114EK		R046	1-216-025-00	METAL GLAZE 100 5%	1/10W
Q005	8-729-901-05	TRANSISTOR DTA124EK		R047	1-216-025-00	METAL GLAZE 100 5%	1/10W
Q101	8-729-900-53	TRANSISTOR DTC114EK		R050	1-216-121-00	METAL GLAZE 1M 5%	1/10W
Q102	8-729-901-00	TRANSISTOR DTC124EK		R051	1-216-099-00	METAL GLAZE 120K 5%	1/10W
Q201	8-729-901-05	TRANSISTOR DTA124EK		R052	1-216-073-00	METAL GLAZE 10K 5%	1/10W
Q202	8-729-901-05	TRANSISTOR DTA124EK		R053	1-216-033-00	METAL GLAZE 220 5%	1/10W
Q203	8-729-901-00	TRANSISTOR DTC124EK		R054	1-216-033-00	METAL GLAZE 220 5%	1/10W
Q204	8-729-901-05	TRANSISTOR DTA124EK		R055	1-216-033-00	METAL GLAZE 220 5%	1/10W
		<u>RESISTOR</u>		R056	1-216-033-00	METAL GLAZE 220 5%	1/10W
R001	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R057	1-216-033-00	METAL GLAZE 220 5%	1/10W
R002	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R058	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R003	1-216-065-00	METAL GLAZE 4.7K 5%	1/10W	R101	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R004	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R102	1-216-103-00	METAL GLAZE 180K 5%	1/10W
R005	1-216-073-00	METAL GLAZE 10K 5%	1/10W	R103	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R006	1-216-099-00	METAL GLAZE 120K 5%	1/10W	R104	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R007	1-216-101-00	METAL GLAZE 150K 5%	1/10W	R105	1-216-061-00	METAL GLAZE 3.3K 5%	1/10W
R008	1-216-057-00	METAL GLAZE 2.2K 5%	1/10W	R106	1-216-049-00	METAL GLAZE 1K 5%	1/10W
R009	1-216-049-00	METAL GLAZE 1K 5%	1/10W	R107	1-216-103-00	METAL GLAZE 180K 5%	1/10W
R010	1-216-093-00	METAL GLAZE 68K 5%	1/10W	R108	1-216-049-00	METAL GLAZE 1K 5%	1/10W
				R109	1-249-684-91	CARBON 3K 5%	1/2W
				R110	1-249-677-11	CARBON 1.5K 5%	1/2W
				R111	1-249-677-11	CARBON 1.5K 5%	1/2W

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

DS-32

FP-290

Ref.No	Part No.	Description	Remark
R112	1-247-887-00	CARBON 220K 5% 1/4W	
R113	1-249-684-91	CARBON 3K 5% 1/2W	
R114	1-249-677-11	CARBON 1.5K 5% 1/2W	
R115	1-249-677-11	CARBON 1.5K 5% 1/2W	
R116	1-247-887-00	CARBON 220K 5% 1/4W	
R117	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R118	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R119	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R120	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R121	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R122	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R123	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R124	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R125	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R203	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R204	1-249-429-11	CARBON 10K 5% 1/4W	
R205	1-216-081-00	METAL GLAZE 22K 5% 1/10W	
R206	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R207	1-218-152-11	METAL GLAZE 1.5K 1% 1/10W	
R300	1-216-025-00	METAL GLAZE 100 5% 1/10W	
<u>VARIABLE RESISTOR</u>			
RV001	1-228-993-00	RES, ADJ, CARBON 4.7K	
RV101	1-228-997-00	RES, ADJ, CARBON 100K	
RV102	1-228-997-00	RES, ADJ, CARBON 100K	
<u>CRYSTAL</u>			
X001	1-567-515-11	VIBRATOR, VARIABLE CRYSTAL (16.9MHZ)	

*A-6421-395-A	FP-290	BOARD, COMPLETED	*****
*3-735-049-01	HOLDER,	FL TUBE	
<u>CAPACITOR</u>			
C001	1-163-023-00	CERAMIC CHIP 0.015MF 10% 50V	
C002	1-163-101-00	CERAMIC CHIP 22PF 5% 50V	
C003	1-163-101-00	CERAMIC CHIP 22PF 5% 50V	
C004	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C005	1-126-157-11	ELECT 10MF 20% 16V	
C006	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C007	1-126-157-11	ELECT 10MF 20% 16V	
C008	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
C009	1-126-157-11	ELECT 10MF 20% 16V	
C010	1-164-232-11	CERAMIC CHIP 0.01MF 10% 50V	
<u>CONNECTOR</u>			
CN001	1-506-483-21	PIN, CONNECTOR 4P	
CN002	1-506-485-11	PIN, CONNECTOR 6P	
CN003	1-506-488-11	PIN, CONNECTOR 9P	
CN004	1-506-484-11	PIN, CONNECTOR 5P	

Ref.No	Part No.	Description	Remark
<u>IC</u>			
IC001	8-752-814-91	IC CXP50116-042Q	
IC002	8-759-605-21	IC M51953AFP	
IC003	8-741-138-78	IC BX-1453	
<u>JUMPER RESISTOR</u>			
JR001	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR002	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR003	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR004	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR005	1-216-296-00	METAL GLAZE 0 5% 1/8W	
JR006	1-216-295-00	METAL GLAZE 0 5% 1/10W	
JR007	1-216-296-00	METAL GLAZE 0 5% 1/8W	
<u>COIL</u>			
L001	1-407-169-XX	INDUCTOR 100UH	
L002	1-407-169-XX	INDUCTOR 100UH	
<u>INDICATOR TUBE</u>			
ND001	1-519-511-11	INDICATOR TUBE, FLUORESCENT	
<u>TRANSISTOR</u>			
Q001	8-729-100-66	TRANSISTOR 2SC1623	
Q002	8-729-100-66	TRANSISTOR 2SC1623	
<u>RESISTOR</u>			
R001	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R002	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R003	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R004	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R005	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R006	1-216-071-00	METAL GLAZE 8.2K 5% 1/10W	
R007	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R008	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R009	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R010	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R011	1-216-079-00	METAL GLAZE 18K 5% 1/10W	
R012	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
R013	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W	
R014	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	
R015	1-216-079-00	METAL GLAZE 18K 5% 1/10W	
R016	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
R017	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W	
R018	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	
R019	1-216-079-00	METAL GLAZE 18K 5% 1/10W	
R020	1-216-069-00	METAL GLAZE 6.8K 5% 1/10W	
R021	1-216-063-00	METAL GLAZE 3.9K 5% 1/10W	
R022	1-216-059-00	METAL GLAZE 2.7K 5% 1/10W	
R023	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R024	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R025	1-216-073-00	METAL GLAZE 10K 5% 1/10W	

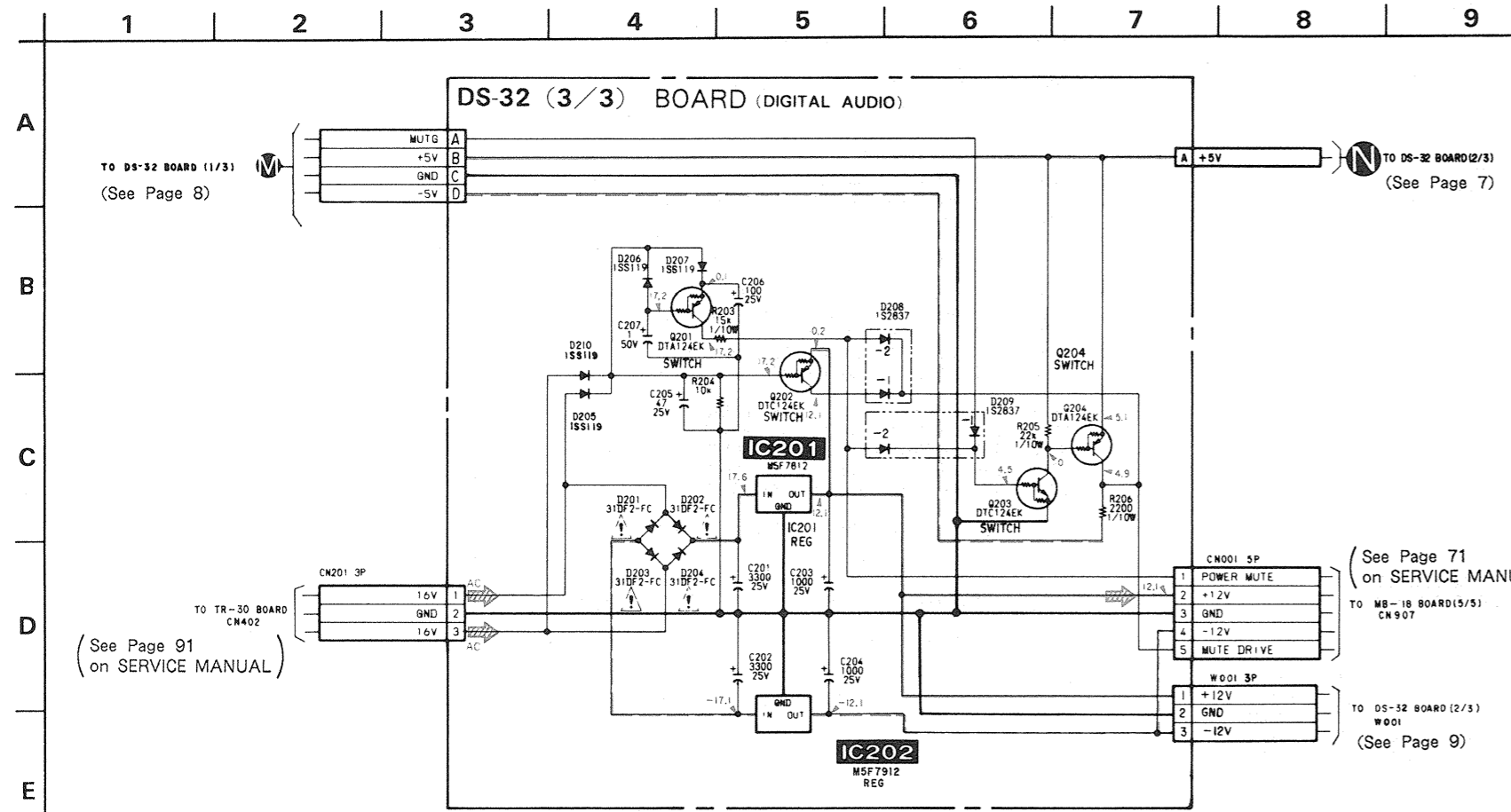
When indicating parts by reference number, please include the board name.

<u>Ref.No</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>
R026	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R027	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R028	1-216-073-00	METAL GLAZE 10K 5%	1/10W
R029	1-216-073-00	METAL GLAZE 10K 5%	1/10W
<u>SWITCH</u>			
S001	1-553-856-00	SWITCH, KEY BOARD (1A)	
S002	1-553-856-00	SWITCH, KEY BOARD (2B)	
S003	1-553-856-00	SWITCH, KEY BOARD (3C)	
S004	1-553-856-00	SWITCH, KEY BOARD (6F)	
S005	1-553-856-00	SWITCH, KEY BOARD (9)	
S006	1-553-856-00	SWITCH, KEY BOARD (4D)	
S007	1-553-856-00	SWITCH, KEY BOARD (5E)	
S008	1-553-856-00	SWITCH, KEY BOARD (8)	
S009	1-553-856-00	SWITCH, KEY BOARD (7)	
S010	1-553-856-00	SWITCH, KEY BOARD (+10)	
S011	1-553-856-00	SWITCH, KEY BOARD (FILE)	
S012	1-553-856-00	SWITCH, KEY BOARD (INDEX)	
S013	1-553-856-00	SWITCH, KEY BOARD (AV TIME)	
S014	1-553-856-00	SWITCH, KEY BOARD (CDV)	
S015	1-553-856-00	SWITCH, KEY BOARD (0)	
S016	1-571-758-11	SWITCH, PUSH (1 KEY) (O)	
<u>CRYSTAL</u>			
X001	1-567-160-21	OSCILLATOR, CERAMIC (4.197MHz)	

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

DS-32 (3/3) (DIGITAL AUDIO) SCHEMATIC DIAGRAM

-Ref. No. DS-32 BOARD : 8,000 Series-

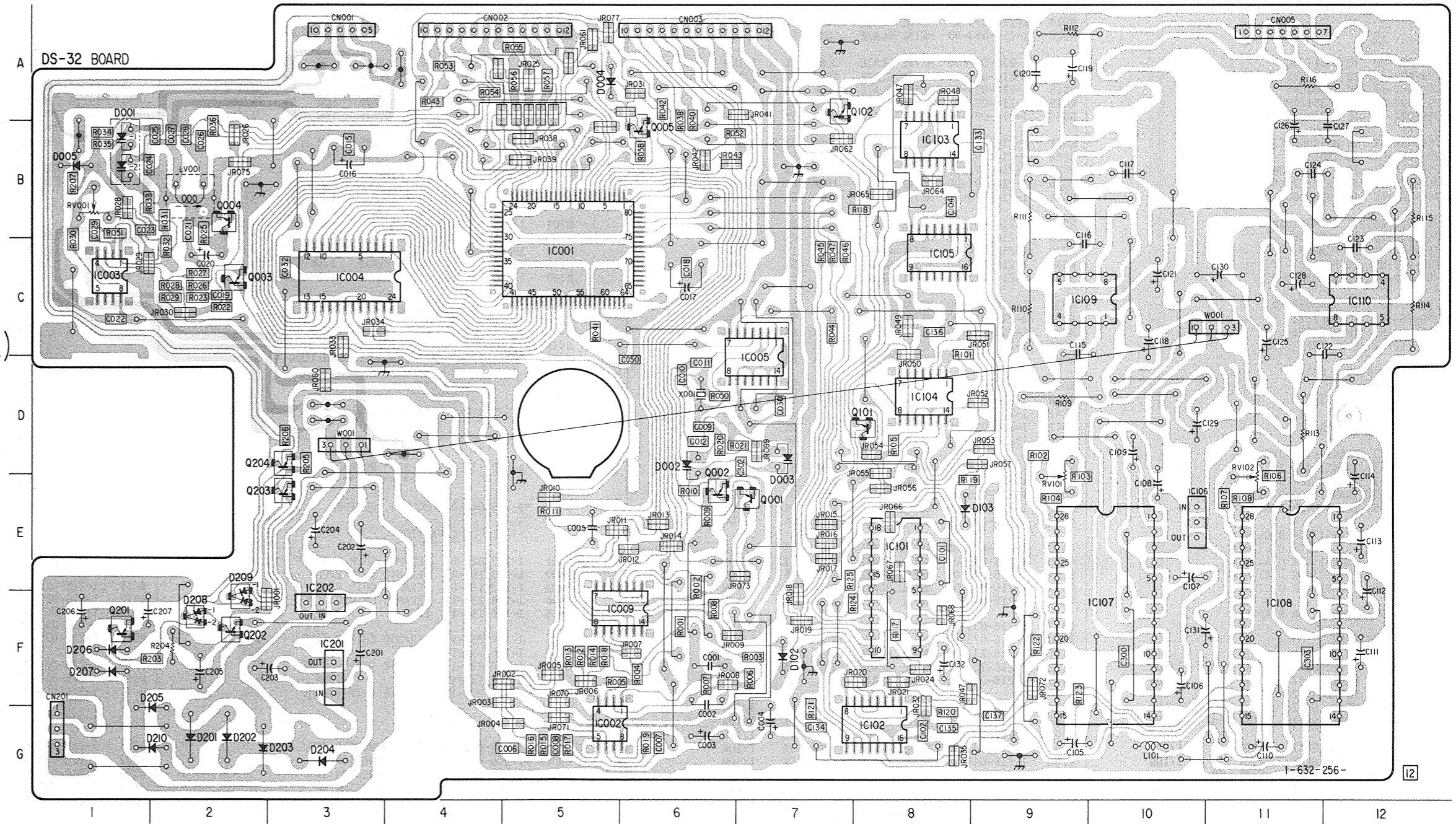


DS-32 Board

D001	B-1	IC001	C-5	Q001	E-7
D002	D-6	IC002	G-5	Q002	E-6
D003	D-7	IC003	C-1	Q003	C-2
D004	A-5	IC004	C-3	Q004	B-2
D102	F-7	IC005	C-7	Q005	B-6
D103	E-8	IC009	F-6	Q101	D-8
D105	B-1	IC101	E-8	Q102	A-7
D201	G-2	IC102	G-8	Q201	F-1
D202	G-2	IC103	B-8	Q202	F-2
D203	G-2	IC104	D-8	Q203	E-3
D204	G-3	IC105	C-8	Q204	D-3
D205	G-2	IC106	E-10		
D206	F-1	IC107	F-10		
D207	F-1	IC108	F-11		
D208	F-2	IC109	C-9		
D209	F-2	IC110	C-12		
D210	G-2	IC111	B-9		
		IC112	B-12		
		IC201	F-3		
		IC202	F-3		

DS-32 (DIGITAL AUDIO) PRINTED WIRING BOARD

-Ref. No. DS-32 BOARD : 8,000 Series-

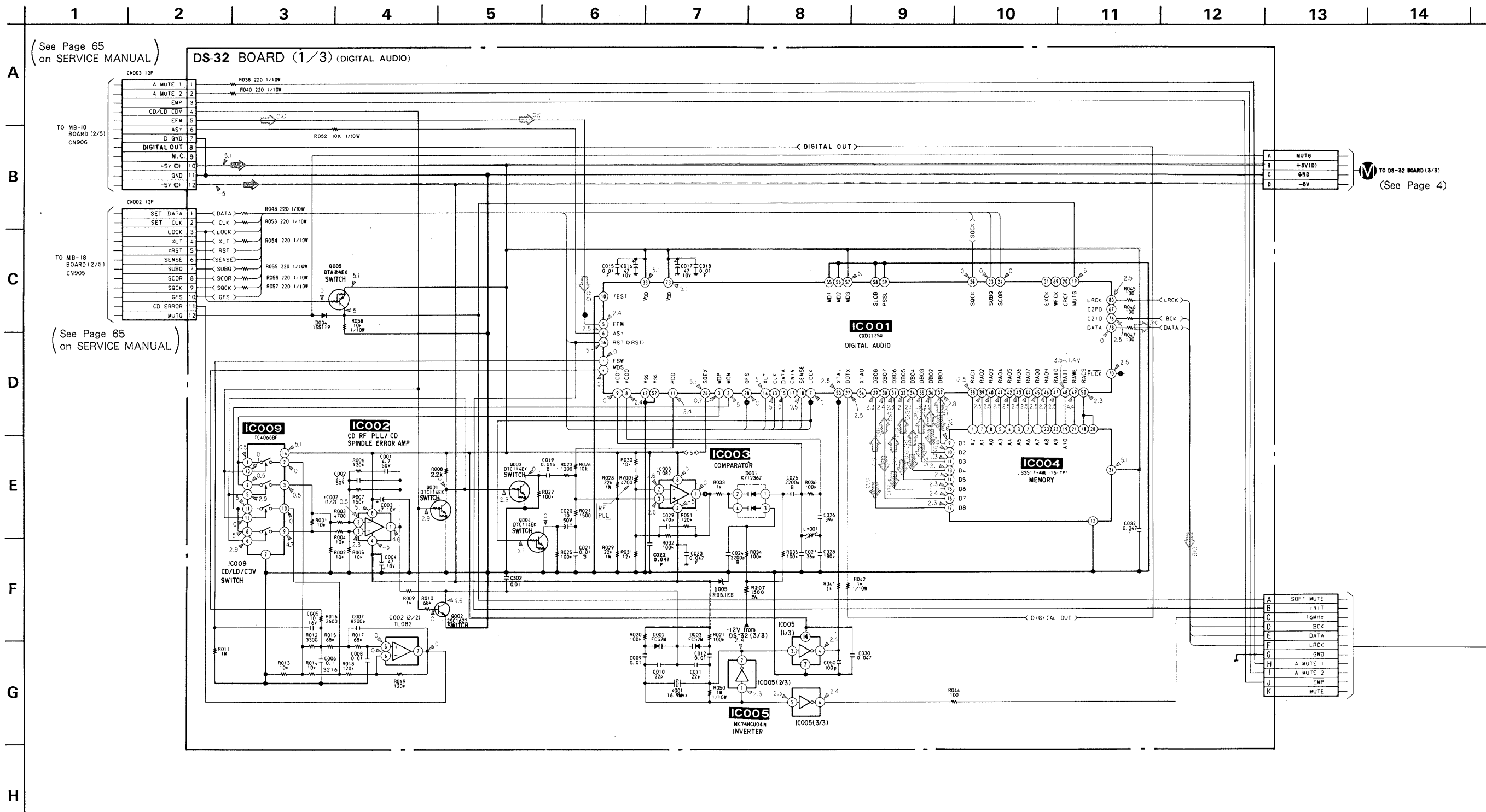


For printed wiring boards :

- ○ : 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.

DS-32 (1/3~2/3) (DIGITAL AUDIO) SCHEMATIC DIAGRAM

-Ref. No. DS-32 BOARD : 8,000 Series-

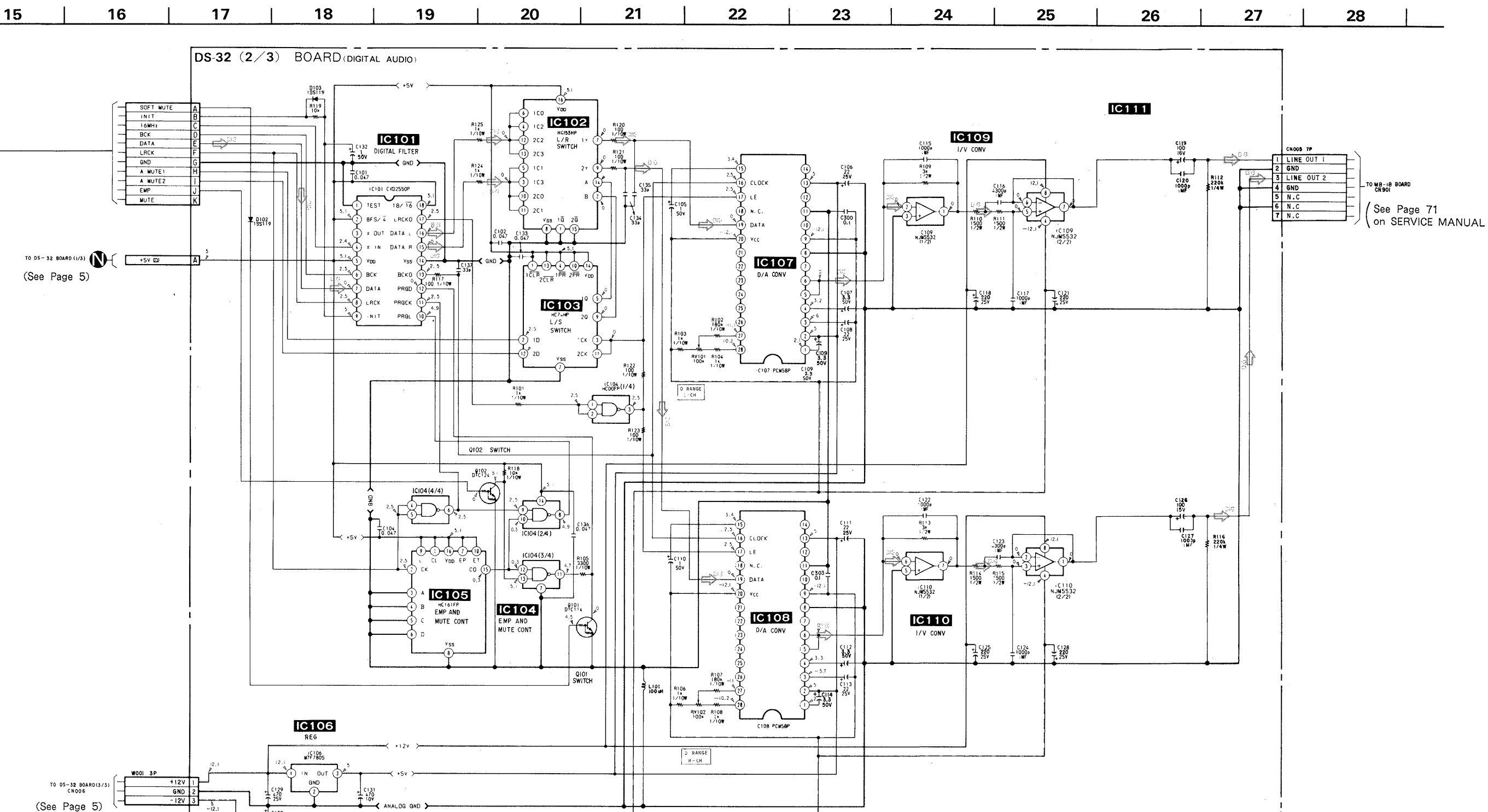


(See Page 65 on SERVICE MANUAL)

(See Page 65 on SERVICE MANUAL)

Signal path
 : PB AUDIO DIGITAL Signal (READ)
 : PB AUDIO DIGITAL Signal (WRITE)

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



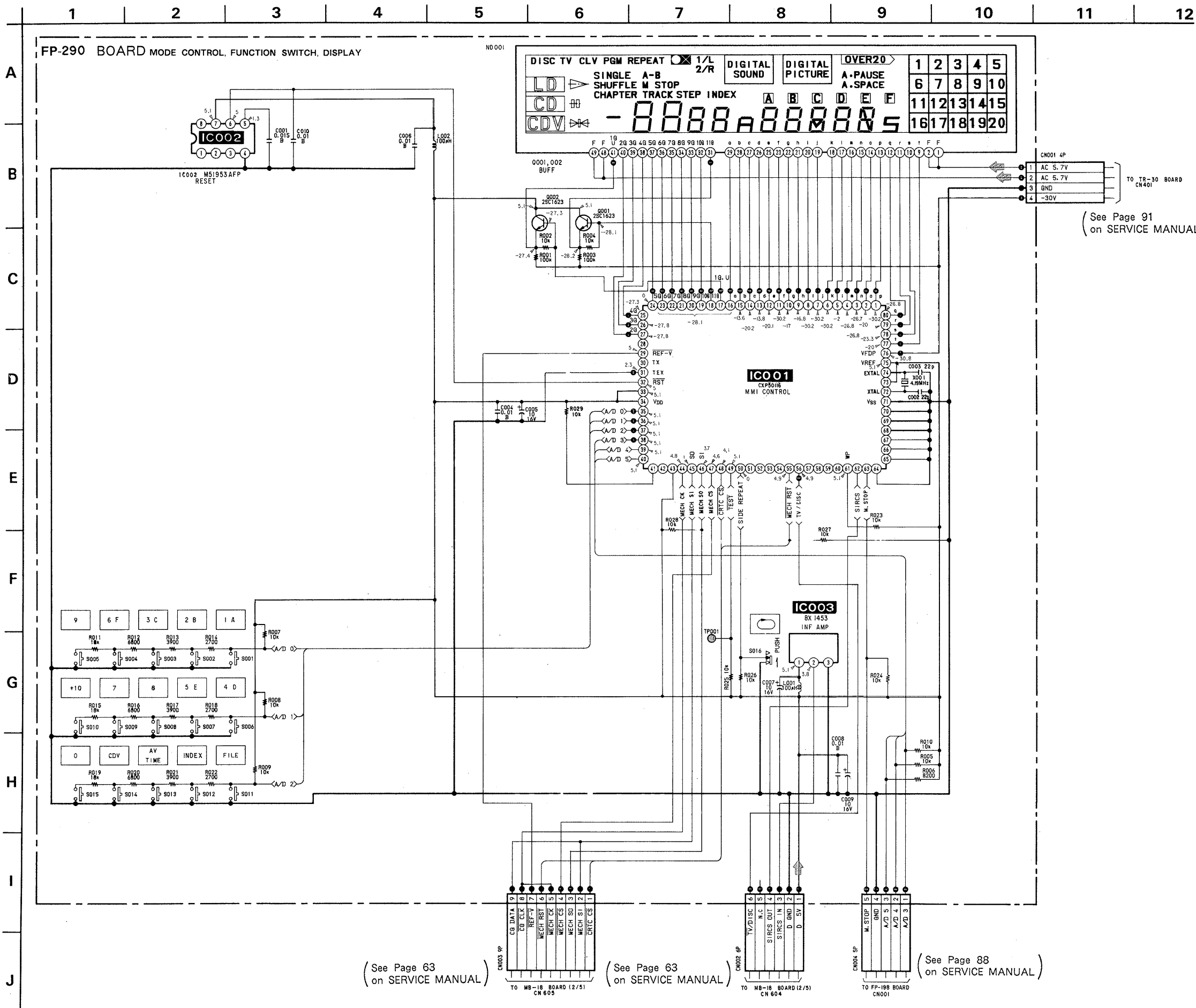
(See Page 5)

Signal path
 : PB AUDIO DIGITAL Signal (READ)

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

FP-290 (MODE CONTROL, FUNCTION SWITCH, DISPLAY) SCHEMATIC DIAGRAM

-Ref. No. FP-290 BOARD : 4,000 Series -



FP-290 BOARD

