

MDP-A500

RMT-M23A

SERVICE MANUAL

E Model



SPECIFICATIONS

Type
Signal readout
Signal format system
Playing time

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

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
		20 cm (8 in) single-sided	20
CD	12 cm (5 in) single-sided	74	
	8 cm (3 in) single-sided	20	
CDV	Audio portion	20	
	Video portion	5	
VSD	Video portion	5	

Digital audio specifications

Frequency response 4 Hz to 20kHz (± 0.5 dB)
Signal-to-noise ratio More than 115 dB (EIAJ)*
Dynamic range More than 99 dB (EIAJ)
Wow and flutter Below measurement limit ($\pm 0.001\%$ W.PEAK) (EIAJ)

Video specifications

Horizontal video resolution 425 lines
Signal-to-noise ratio More than 49 dB

Input/output specifications

Video output 1, 2 1.0 Vp-p, 75 ohms, unbalanced
Audio output 1, 2 Stereo L, R
Analog: 200 mVrms (1 kHz, 40% modulation)
Digital: 200 mVrms (1 kHz, -20 dB)

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

— Continued on next page —

CD VIDEO CD/CDV/LD PLAYER
SONY®

Power requirements

Power requirements	120/220/240 V AC adjustable, 50/60 Hz
Power consumption	40 W
Mass	10 kg
Dimensions	Approx. 430 × 117 × 420.5 mm (w/h/d)
Operating temperature	+5 °C to +35 °C
Ambient humidity	5% to 90%

Remote Commander RMT-M23A

Principle of operation	Infrared pulse
Power requirements	3 V DC (2 size AA batteries)
Dimensions	Approx. 44 × 23.5 × 214.5 mm (w/h/d)
Mass	Approx. 100 g (including batteries)

Supplied accessories

Remote Commander RMT-M23A (1)
Size AA (R6) batteries (2)
Audio/Video cable
(phono plug 3↔phono plug 3) (1)
AC plug adaptor (1)

Design and specifications are subject to change
without notice.

WARNING !!

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



CAUTION:

The use of optical instrument with this product will increase eye hazard.

CAUTION

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

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.

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 B+ voltage to see it is at the values specified.

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This section is extracted from instruction manual.

Introduction

This introduction explains the features and principles of operation of the Multi Disc Player (MDP).

Before operating the unit, please read this manual thoroughly and retain it for future reference.

Introduction to Your Player

The Multi Disc Player is capable of playing laser discs (LDs), compact discs (CDs), and compact disc videos (CDVs). As operating procedures are the same or similar for all discs, each procedure applies to all disc types.

To Play a Laser Disc (LD), Compact Disc (CD) or Compact Disc Video (CDV)

With the MDP-A500, you can playback both sides of an LD without replacing it and resume playback from any point on an LD by simply pressing the PLAY (▶) button —Auto Resume. Also unique to LD play are STILL/STEP for CAV LDs (see page 24) and FRAME/TIME search.

Most operations for CDs are comparable to those of LDs. The procedures for CLV LDs and CDs are also for the CDV's video and audio sections respectively. VSDs are CDVs that have no audio section.

What to Do First

Once you have read through this page, read "The Principles of Operation" (page 6), then go ahead and connect up the Multi Disc Player to your television and/or stereo system using the connection diagrams on pages 11 and 12. You will then be ready to play a disc.

About Operating Voltage

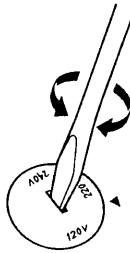
Before operating the Multi Disc Player, make sure that the operating voltage of your unit is identical with that of your local power supply.

How to Determine the Correct Operating Voltage

The MDP-A500 has a voltage selector.

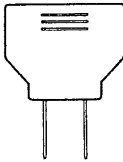
Before operating the unit, find out the local voltage, and if necessary reset the selector at the rear of the Multi Disc Player to the voltage corresponding to your local power supply (120, 220 or 240 volts AC). The voltage selector of this unit is set to 220 V AC originally. When using in Malaysia, reset the selector to 240 V AC.

To reset the voltage selector, disconnect the power cord and turn the selector with a blade screwdriver so that the arrow on the rear panel points to the appropriate voltage.



How to Use the AC Plug Adaptor

If the AC plug on your Multi Disc Player does not fit into the wall outlet, attach the supplied AC plug adaptor.



If you have any questions or problems concerning your unit, please contact your nearest Sony dealer.

The Principles of Operation

The MDP-A500 allows you to play discs by simple operation. Although some functions of the player vary depending on what type of disc (laser disc, compact disc or compact disc video) you are playing, keep in mind that the majority of the buttons on the player and Remote Commander have been designed to achieve a comparable effect for each type of disc. The following paragraphs briefly summarize what the basic Multi Disc Player functions allow you to do.

Primary Functions

include the traditional functions of disc players.

Variable Speed Functions

let you vary play speed so that you can easily locate ("search") scenes or tracks as you watch or listen.

Repeatable Functions

memory functions that let you repeat playback. Because the player locates a point on the disc and starts playing according to your request, some repeatable functions also serve as "search" functions.

Auxiliary Functions

additional functions that simply add to what you can do with the Multi Disc Player.

Primary Functions

Power
Open/Close
Play
Pause
Stop
Side A/B

Variable Speed Functions

Speed Scan
(SCAN)
Still/Step Scan
(STILL/STEP)

Repeatable Functions

Auto Resume Playback
Chapter/Track Search
(ACS/AMS)
Frame/Time Search
(FRAME/TIME)
Repeat Play
(1/SIDE/ALL,
REPEAT)

Auxiliary Functions



Sound Quality Functions:
(AUDIO MONITOR,
ANALOG/CX)
On-Screen Display
(DISPLAY)

Playing Disc Types

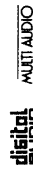
The MDP-A500 Multi Disc Player integrates the functions of three machines into one: laser disc, compact disc, and compact disc video player. Below follows an explanation of the kinds of discs the Multi Disc Player can play.

The MDP-A500 Plays Three Classes of Optical/Digital Discs*

The MDP-A500 Multi Disc Player can play all three types of optical discs currently available for home entertainment. The following table illustrates their types and features.

Disc Class	Disc Logo	Disc Type	Size	Play Side	Play Time
Laser Discs For movies, operas, and concerts		LD Single	8 in. (20 cm)	Single Side	CAV 14 min CLV 20 min
		8-inch LD	8 in. (20 cm)	Double Side	CAV 28 min CLV 40 min
		12-inch LD	12 in. (30 cm)	Double Side	CAV 1 hr CLV 2 hr
Compact Discs For music		CD Single	3 in. (8 cm)	Single Side	20 min
		CD	5 in. (12 cm)	Single Side	74 min
Compact Disc Videos For music videos and educational material (Digital Audio)		CDV	5 in. (12 cm)	Single Side	Video+Audio 5 min Audio 20 min
		VSD	5 in. (12 cm)	Single Side	Video+Audio 5 min

Multi Audio Discs



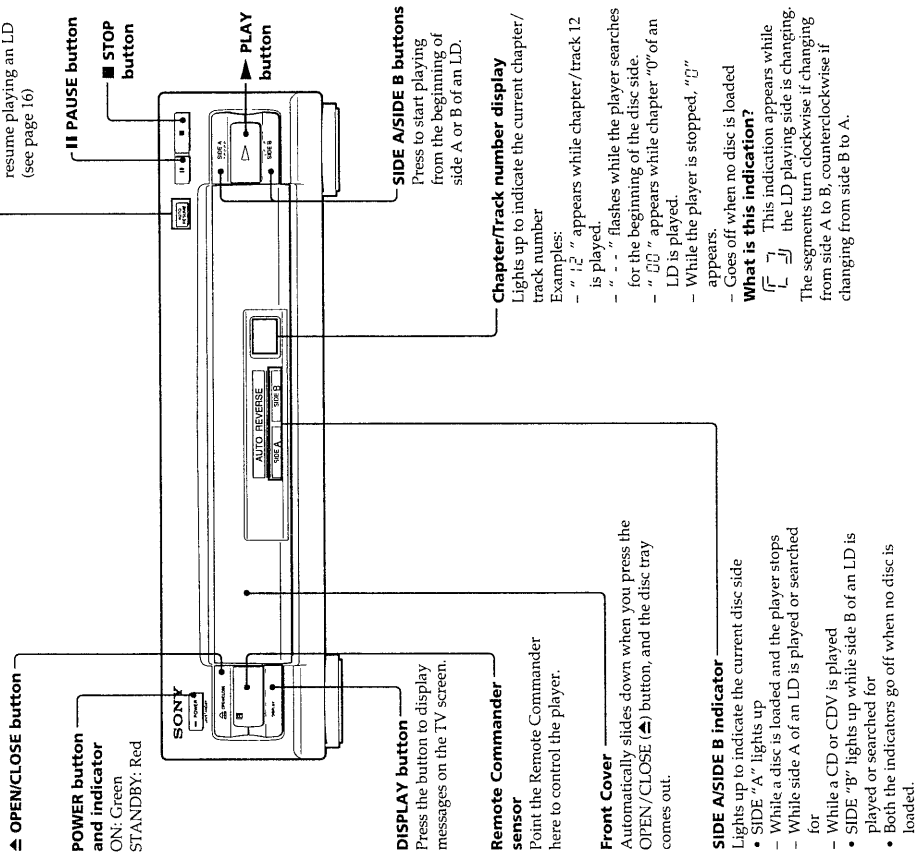
On laser discs bearing this logo, the analog tracks are recorded in multiplex, and the digital tracks are recorded in stereo.

* These apply only to those discs recorded in the NTSC standard. The MDP-A500 cannot play CED, VHD discs or PAL video discs; CD-ROM, CD-Graphics, CD-I discs, aluminum-lined discs or MD (MiniDisc) discs.

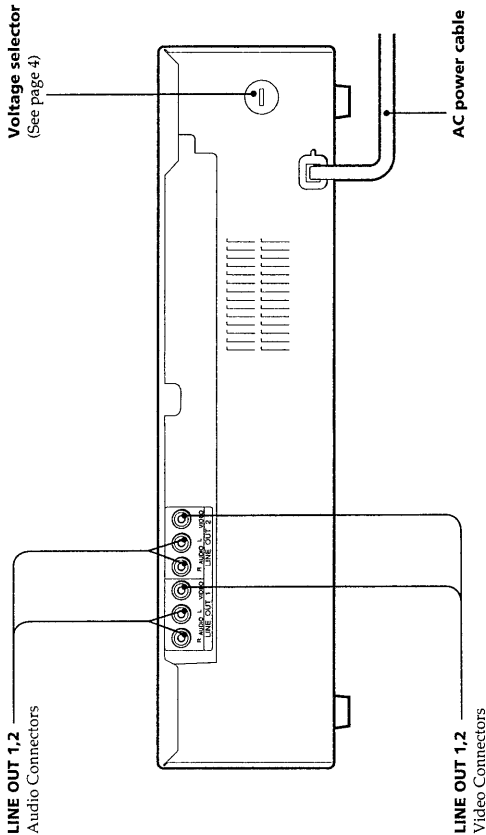
Installation and Connection

Front and Rear Panel Controls and Supplied Accessories

Front Panel



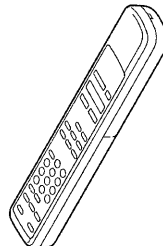
Rear Panel



Accessories

Make sure the shipping box contains the following accessories:

RMT-M23A Remote Commander



Audio/Video connecting cable
(phono 3 ↔ phono 3)



Two AA (R6) batteries

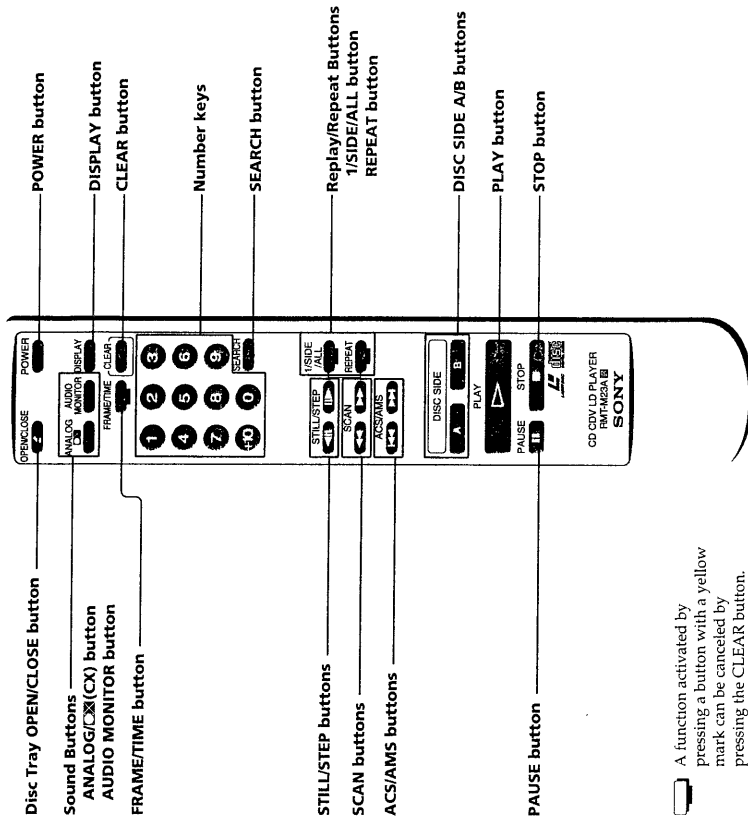


AC plug adaptor
(See page 4)



Controls on the Remote Commander

You can use the Remote Commander to control the player or the identical buttons on the player itself.



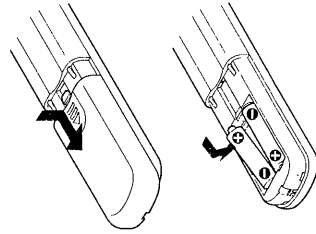
A function activated by pressing a button with a yellow mark can be canceled by pressing the CLEAR button.

To Activate the Remote Commander

Open the back cover, and insert two size AA (R6) batteries according to the polarity indicated in the illustration. The batteries will last for about 6 months. If the range of the Remote Commander becomes noticeably short, replace all the batteries with new ones. If the Remote Commander is not to be used for a long time, remove the batteries to avoid damage from possible battery leakage.

Remote Commander Precautions

- Do not let sunlight or powerful artificial light fall directly on the Remote Commander sensor on the front panel (of the player) as it may interfere with Remote Commander operation.
- Use size AA (R6) batteries only.

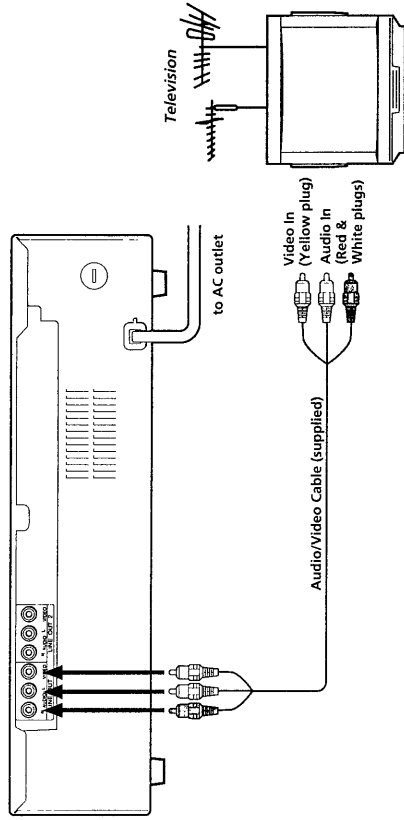


Insert two size AA (R6) batteries.

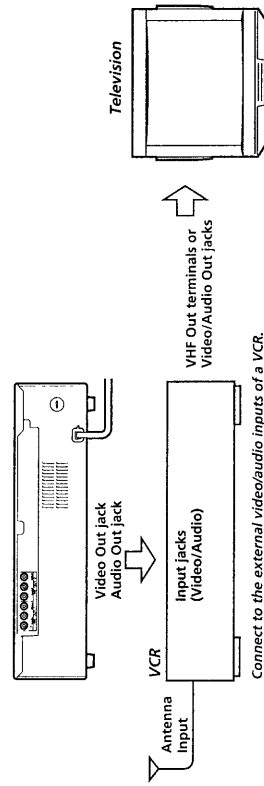
How to Connect the Television

To play LDs or CDs, hook up a television to the Multi Disc Player. Take out the supplied audio/video connecting cable (yellow, red and white plugs). Use this to connect the player to the television.* Once you have hooked-up the television, set the input selector on the TV to "Video". Before connecting or disconnecting any of the cables, turn off all equipment.

Television Hook-Up



Television/VCR Hook-Up



Connecting Precautions

- Make sure all equipment is turned off before connecting or disconnecting any cables.
- Connection methods may differ; when in doubt about a connection consult the TV or VCR manufacturer's manual.
- If the sound or picture is disturbed by noise, try moving the equipment farther apart.
- Firmly insert plugs into the jacks. A loose connection may cause noise.
- To prevent later interference with TV broadcast reception, turn off all equipment connected but not currently in use.

* If the TV only has a monaural phono jack for audio input, use a VMC-970M5/9715M5 Connecting Cable (not supplied).

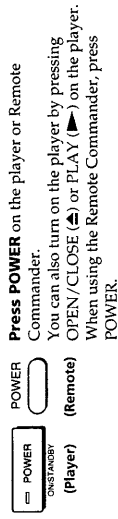
To Play a Disc

This section shows you how to conduct all the procedures associated with playing both LDs and CDs (CDVs's).

How to Load and Play a Disc

After you have connected the Multi Disc Player to the TV and/or stereo system, you can begin playing a disc. Locate the POWER, OPEN/CLOSE, and PLAY buttons on the Remote Commander or the front panel of the player.

1 Turn on the multi disc player.

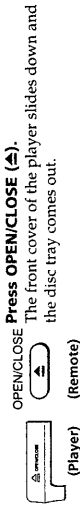


Press POWER on the player or Remote Commander.
You can also turn on the player by pressing OPEN/CLOSE (▲) or PLAY (▶) on the player. When using the Remote Commander, press POWER.

2 Turn on the TV and stereo system.

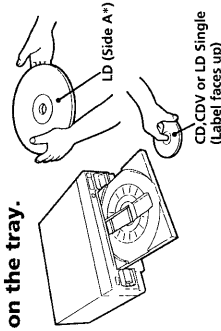
TV: Set the input selector on the TV to "Video".
Stereo System: Turn on the amplifier or receiver and select CD or AUX for audio output.

3 Open the disc tray.



Press OPEN/CLOSE (▲). The front cover of the player slides down and the disc tray comes out.

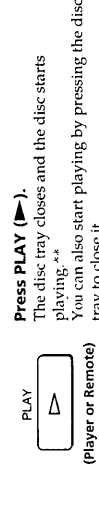
4 Place a disc on the tray.



Carefully center a single disc on the tray. If you insert more than one disc, or if the disc is not seated properly, it may not play or it may damage the player.

When playing a CD, do not use a CD stabilizer as it may cause damage to your disc or player.

5 Start playback.



Press PLAY (▶). The disc tray closes and the disc starts playing.** You can also start playing by pressing the disc tray to close it.

Do not transport the player while playing a disc as it may cause damage to the disc.

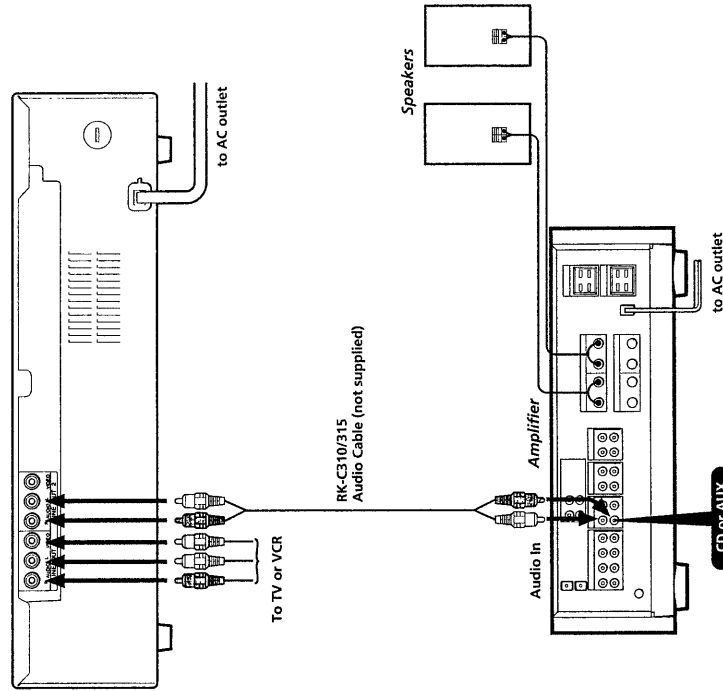
* When playing an LD, the player determines that the upper side of the LD is side "A," and the other side is "B," regardless of the label "A" or "B" printed on the disc.

** When playback of the upper side of an LD (side A) ends, the other side (side B) starts playing automatically.

How to Connect Audio Equipment

To achieve full stereo sound from your Multi Disc Player, hook up a stereo system following the diagram below. Use an RK-C310 (or RK-C315) audio connecting cable (not supplied) to connect the Multi Disc Player to your amplifier or receiver. Before connecting or disconnecting any of the below cables, turn off all equipment.

Audio Equipment Hook-Up



Connection Precautions

- Make sure all equipment is turned off before making any of the above connections.
- Firmly insert plugs into the jacks. A loose connection may cause noise.
- When listening to a radio broadcast, switch off the Multi Disc Player to get better reception.

To Advance or Reverse

Hold down **SCAN** (◀▶ or ▶▶) on the Remote Commander



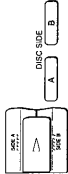
To Advance or Go Back a Chapter or Track at a Time

Press **ACS/AMS** (◀▶ or ▶▶) on the Remote Commander.

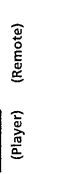


To Start From the Beginning of Each LD Side

Press **(DISC) SIDE A** to play the upper side of the LD from the beginning.



Press **(DISC) SIDE B** to play the other side of the LD from the beginning.*



To Interrupt Playback

Press **PAUSE (II)**. The sound mutes, and "PAUSE" appears on the TV screen. When playing a CAV disc, the picture freezes.** To resume playback, press **PAUSE (II)** or **PLAY (▶)**.



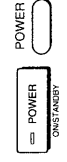
To Stop Playback

Press **STOP (■)**. To resume playback of an LD from the point you stopped at, press **PLAY (▶)** (see page 16). If you want to pause playing at the point before starting, press **PAUSE (II)** instead of **PLAY (▶)**. To play again from the beginning of disc side A (or B), press **(DISC) SIDE A** (or B).



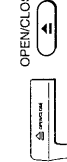
To Stop Playback and Turn the Power Off

Press **POWER** on the player or Remote Commander. To resume playback of an LD from the point you stopped at, press **PLAY (▶)** (see page 16).



To Stop Play and Remove the Disc

Press **OPEN/CLOSE** (⬇). Remove the disc and press **▶** again to close the empty tray.



To Pause the Player Just Before Starting

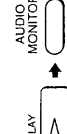
Press **PAUSE (II)** after doing step 4 on page 13.

The tray closes, "PAUSE" appears on the TV screen, and the player waits at the start of the disc until you press **PLAY (▶)** or **PAUSE (II)**. If you want to play side B of an LD, press **PAUSE (II)**, then **(DISC) SIDE B**.



To Play a Stereo Disc or a Second Audio Program (SAP) Disc

Press **PLAY (▶)**, then press **AUDIO MONITOR** on the Remote Commander. This function alternates the sound output on a disc that has been recorded with two sound tracks, such as bilingual discs.



The procedure below indicates how the output and the display changes with each press. The active track appears for three seconds on the TV screen. When you select 1/L (or 2/R), the sound of the left (or right) channel is output from both speakers.

Procedure	Screen message	Output Sound	
		Stereo Disc	SAP Disc
1 Press PLAY (▶) .	No message	Stereo (Both channels)	Soundtrack 1 (left channel) Soundtrack 2 (right channel)
2 Press AUDIO MONITOR .	1/L	Left channel	Soundtrack 1 (left channel)
3 Press AUDIO MONITOR again.	2/R	Right channel	Soundtrack 2 (right channel)
4 Press AUDIO MONITOR again to return to stereo status.	1/L 2/R	Stereo (Both channels)	Soundtrack 1 (left channel) Soundtrack 2 (right channel)

To Switch from Digital to Analog Sound (for LDs only)*

Press **ANALOG/DIGITAL** on the Remote Commander to switch the player to analog or digital sound. Digital affords a better quality sound reproduction. If the LD contains a digital sound signal, the player automatically sends that output to the amplifier or receiver. To switch to analog sound, press **ANALOG/DIGITAL** on the Remote Commander. "ANALOG" appears on screen for three seconds. To return to digital sound, press **ANALOG/DIGITAL** until "DIGITAL" appears on screen. With certain discs there may be a difference in volume.



LDs with a (CX) Label

Discs bearing the (CX) label are recorded with the CX noise reduction system, which gives lower noise levels and higher dynamic range on analog sound. The player detects most (CX) discs and activates the CX noise reduction system automatically. When playing a (CX) disc which does not contain a code to activate the CX noise reduction system, press **ANALOG/DIGITAL** on the Remote Commander until "CX ON" appears on screen. The CX noise reduction system will be activated.




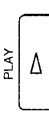
* When playback of LD side B ends, the player stops playing. When playing a CD, playback stops if you press (DISC) SIDE B.
** When playing a CLV LD or the video section of CDV, the TV screen goes blank.

How to Resume Playback—Auto Resume (only for LDs)

This function can only be used for LDs. Even if you press STOP (■) or POWER to stop playback, you can still continue viewing from the scene you stopped at.

To View From the Scene You Stopped at

1. Press STOP (■) or POWER to stop playback.


The AUTO RESUME indicator on the front panel lights up and the point you stopped at is stored.* When you press POWER, the indicator lights up briefly, then goes off with the power.
 (Player or Remote)
2. Press PLAY (▶).**



The AUTO RESUME indicator lights up as the player searches for the scene where you stopped playing, then playback starts. If you want to pause playing just before starting, press PAUSE (⏸) instead of PLAY (▶).

* The point where you stopped playing is cleared when:
 - you press OPEN/CLOSE (⏏), (DISC)SIDE A/B or ACS/AMS (⏏▶▶).
 - you carry out Chapter Search or Frame/Time Search.
 ** When the power is off, press PLAY (▶) on the Front Panel. The player turns on automatically and resumes playback. When you use the Remote Commander, press POWER, then PLAY (▶).


How to Search for a Particular Point on a Disc

To find a particular point, play the disc in reverse or forward at high speed.* The sound is automatically muted while scanning an LD.** You can monitor sound while scanning a CD. Locate the SCAN ◀◀/▶▶ buttons on the Remote Commander.

To Scan in Forward or Reverse

.....

 SCAN
 Hold down SCAN (▶▶) on the Remote Commander to forward scan.
 Hold down SCAN (◀◀) to scan a disc in reverse.

To Resume Normal Playback

.....

 Release SCAN (◀◀ or ▶▶).

* A certain amount of visual noise and instability is inevitable while scanning an LD or the video section of a CDV.
 ** When scanning a CLV LD or the video section of a CDV, frames are skipped.

Understanding Displays and Messages When Playing Discs

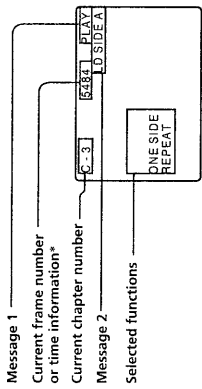
You can check the player operating status or disc information on the TV screen. Locate the DISPLAY button on the Remote Commander or the front panel of the Player.

To View On-Screen Information

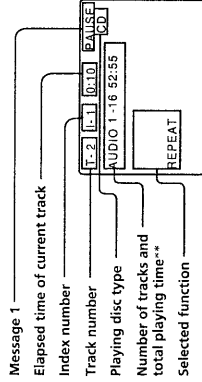
.....

 DISPLAY
 (Remote) Press DISPLAY twice.
 When pressing DISPLAY once, only the first line appears. The tables below are keys to the messages that appear on the right of the screen.

Display for LD



Display for CD or CDV



Message 1 (Examples for LD)

Screen Display	Current Status of the Player
OPEN	Disc tray open
CLOSE	Disc tray closed
PLAY	Playing LD
STOP	Operation stopped
PAUSE (⏸)	Operation momentarily stopped
SEARCH	Speed scanning
	Searching

Message 2 (Examples for LD)

Screen Display	Currently Playing
LD SIDE A	Side A of LD
LD SIDE B	Side B of LD
L/R	First soundtrack/left channel
R/L	Second soundtrack/right channel
DIGITAL	Digital sound
ANALOG	Analog sound

Message 1 (Examples for CD or CDV)

Screen Display	Current Status of the Player
OPEN	Disc tray open
CLOSE	Disc tray closed
PLAY	Playing CD or CDV
STOP	Operation stopped
PAUSE (⏸)	Operation momentarily stopped
SEARCH	Speed scanning
	Searching

To Turn Off the Display

.....

 DISPLAY
 (Remote) Press DISPLAY again.

How to Search by Chapter/Track Numbers

LDs are divided into sections called "chapters". CDs are divided into sections called "tracks". Chapters or tracks are usually listed on the jacket or label of the disc. By entering the desired chapter/track number, you can have the player find the chapter/track and play it. Use ACS/AMS (◀◀/▶▶) —Automatic Chapter Sensing/Automatic Music Sensing—to advance or reverse a chapter at a time.* Locate the number keys and the ACS/AMS (◀◀/▶▶) buttons on the Remote Commander.

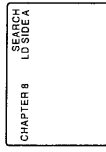
To Locate a Particular Chapter or Track (Chapter/Track Search)

For example, to locate chapter 8, press "8" on the Remote Commander.**

8

Press one of the number keys on the Remote Commander corresponding to the chapter/track you want to play.

The player starts searching for Chapter 8.



The player finds Chapter 8 and starts playing from the beginning of Chapter 8.

To Enter a Number Greater Than 10

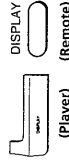
+10 → X
+10 → 4
+10 → +10 → 0

Do this to make a numerical sum. For example, to enter 14, press +10 and 4; to enter 30, press +10, +10, +10 and 0.

....."14"
....."30"

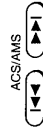
If you make a mistake while entering numbers, press CLEAR on the Remote Commander, then enter the correct numbers.

To Check the Current Chapter/Track Number



The current chapter/track number lights up on the front panel. Press DISPLAY to display the chapter/track number in the upper left-hand corner of the screen. If the LD does not contain chapter numbers, the number is not displayed.

To Advance or Go Back a Chapter/Track at a Time (Skip Search)



Press ACS/AMS (◀◀) on the Remote Commander once to return to the beginning of the current chapter/track.

Press ACS/AMS (▶▶) to advance to the beginning of the next chapter/track.

Press ACS/AMS (◀◀) twice before the picture reappears to return to the beginning of the previous chapter/track.

Hold down ACS/AMS (◀◀ or ▶▶) for continuous skip search.

To Resume Normal Playback

The player automatically resumes playback from the beginning of the selected chapter/track.

* In addition to normal play mode, you can conduct Chapter/Track Search and Skip Search while in Freeze-Frame, Repeat or Pause mode. When the specified chapter or track is located after the search, playback continues in the same mode.

** Chapter Search does not function properly if the LD does not contain chapter numbers, or the chapter number entered does not exist.

How to Search by Frame Number or Time —Frame/Time Search (only for LDs)

This function can only be used for LDs. Video scenes are counted as a series of still pictures or "frames". The player keeps track of the number of frames that have been played from the beginning of the disc to the current position. Similarly, the player also keeps track of the elapsed playing time from the beginning of the disc. To play from a particular frame or time, use the Frame/Time Search function. Locate the FRAME/TIME, SEARCH buttons, and number keys on the Remote Commander.

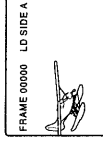
On CAV (standard-play) discs, enter a frame number. On CLV (extended-play) discs, enter the time.**

To Enter the Elapsed Frame or Time

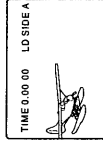


1 Press FRAME/TIME on the Remote Commander.

CAV (standard-play) disc



CLV (extended-play) disc



2 Enter the desired multi-digit number corresponding to the frame or time you want to find.

Enter five digits for CAVs. Enter four digits for CLVs displaying the time to the second. Enter two digits for CLVs displaying the time to the minute.

1 → 2 → 3 → 4 → 0

Sample Entry for CAV Discs
To locate frame number 12340, press the number keys in the order on the right:

1 → 2 → 0 → 0 → 5

Sample Entry for CLV Discs
To locate the 12-minute, 5-second point, press the number keys on the Remote Commander in the order on the right:

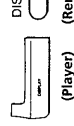
If you pressed the wrong key, press FRAME/TIME to clear the number, then enter the correct number.

3 Press SEARCH on the Remote Commander.



Play starts from the time or frame specified in step 2.**

To Check the Frame/Time Numbers



Press DISPLAY. The current frame or current time number appears.

To Cancel Frame/Time Search



Press CLEAR on the Remote Commander before pressing the SEARCH button.

* In addition to normal play mode, you can conduct Frame/Time Search while in Freeze-Frame, Repeat or Pause mode. When the specified frame or time is located after the search, play continues in the same mode.

** "CAV" or "CLV" should be noted somewhere on the disc jacket.

How to Play Frame-by-Frame (only for CAV LDs)

Once you have found a particular scene on a CAV LD, you can examine the progression of that scene by advancing or reversing the action one frame at a time (Step Play),* or freezing the action into a still picture (Freeze Frame).*

Locate the STILL/STEP ◀||/||▶ buttons on the Remote Commander.

To Play One Frame at a Time (Step Play)

1 Press STILL/STEP (◀|| or ||▶) on the Remote Commander once.



The frame freezes.

2 Press STILL/STEP (◀|| or ||▶) repeatedly.



Each press shifts the image one frame backward or forward.
Hold down the button for continuous frame-by-frame action.

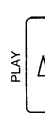
To Freeze the Action (Freeze Frame)



(Player or Remote)

Press PAUSE (II) once.

To Resume Normal Play



(Player or Remote)

Press PLAY (▶) .

Extended-Play (CLV) Discs

Freeze Frame and Step Play are not possible with CLV discs. When STILL/STEP is pressed, the screen goes blank and the message "CLV SIDE A (or B)" appears. When PAUSE (II) is pressed, the screen goes blank and the message "PAUSE" appears.

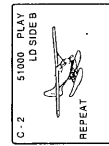
How to Replay the Same Selections

These instructions show you how to set the player to play the same scenes or selections over and over until you signal the repetition to stop. You can replay both sides, a single side or one chapter of an LD, and a whole disc or a single track on a CD. Locate the REPEAT and 1/SIDE/ALL on the Remote Commander.

To Repeat the Whole Disc (Whole Disc Repeat)



Press REPEAT on the Remote Commander. "REPEAT" appears on screen for three seconds. When playing an LD, the player repeats playing both disc sides, side A to B. When playing a CD or CDV, the player repeats playing all the tracks on the disc.



Returns to the beginning of the disc

At the end of the disc

To Repeat the Current Side of the LD (One Side Repeat)



Press 1/SIDE/ALL twice, then REPEAT on the Remote Commander. "REPEAT" and "ONE SIDE" appear on the screen for three seconds.* The player repeats playing the current disc side.



Returns to the beginning of the side

At the end of one side of the disc

To Repeat the Current Chapter or Track (Single Repeat)



Press 1/SIDE/ALL once, then REPEAT. "REPEAT" and "SINGLE" appear on the screen for three seconds. The current chapter repeats continuously. If you press 1/SIDE/ALL once and do not press REPEAT, the player plays the current chapter/track once, then stops.

To Check the Replaying Status



Press DISPLAY twice. Playing status information appears as shown above.

To Cancel Whole Repeat



Press REPEAT.**

To Cancel One Side Repeat



Press 1/SIDE/ALL once, then REPEAT.**

To Cancel Single Repeat



Press 1/SIDE/ALL twice, then REPEAT.**

* "ONE SIDE" appears only when playing an LD.

** You can also cancel Whole Disc Repeat, One Side Repeat and Single Repeat by pressing CLEAR. "CLEAR" appears on the screen for three seconds.

Additional Information

This section contains information that will help you if you have problems with your player. It also contains maintenance information and glossary.

Troubleshooting

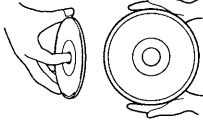
Check the following before requesting service.

Symptom	Point to check
No power PLAY (▶) button or Number keys do not produce playback.	<ul style="list-style-type: none"> AC Power cable properly connected? Disc inserted? Disc properly seated? Label side of the CD facing upward?
No picture or sound	<ul style="list-style-type: none"> TV or monitor switched on? TV properly connected to player? The input selector on TV set to "Video"?
Poor picture or sound quality	<ul style="list-style-type: none"> TV properly connected? Any source of noise nearby? Disc dirty or scratched? Any condensation on player objective lens?
No sound	<ul style="list-style-type: none"> TV properly connected to player? Volume control on TV, monitor, or amplifier high enough? Playback at normal speed? (The player produces sound only during normal speed playback.)
Remote Commander does not operate.	<ul style="list-style-type: none"> Batteries correctly inserted? Batteries weak? Any obstacles between the Remote Commander and the Sensor on the player? The Remote Commander is pointed at the sensor on the player?
Picture distorted during scan.	<ul style="list-style-type: none"> Some distortion in the lower part of the picture is normal – even for CAV discs.

Optical Disc Maintenance

Holding CDs or DVDs

Hold CDs and DVDs by putting your index finger through the center hole and grasping the edges of the disc with the thumb and other fingers as pictured in the illustration.



Holding LDs

Hold LDs by grasping the outside edge in both hands as illustrated.

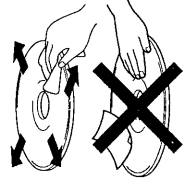


Light Exposure

Do not expose the disc to direct sunlight or heat sources such as hot air ducts, or leave the disc in a car parked in direct sunlight where there can be a considerable rise in temperature.

Cracked or Damaged Discs

Do not play cracked or damaged discs, or try to play discs that have been repaired with adhesive glues.



Keeping the Disc Surface Clean

Clean the surface of the disc before playing, using a soft, dry cleaning cloth. Wipe the disc from the center out. Do not use solvents such as benzene, paint thinner, commercially available cleaners, or anti-static spray intended for LP record discs. To prevent marring, after playing, remove the disc and put it back into its jacket. Putting your fingers on, or adhering anything to the surface of the disc such as sticky note pad paper or adhesive tape will deteriorate the quality of the playing surface, and thus the output quality.

Player Maintenance and Safety

On Electrical Safety

- Should any foreign object or liquid fall into the cabinet of the player, unplug the player and have it checked by qualified personnel before operating it any further.
- Unplug the player from the wall outlet if you are not going to use it for an extended period of time. To disconnect the cord, pull it out by the plug. Never pull the cord itself.

On Player Location

- Avoid placing the player where there is:
 - high humidity
 - high temperature
 - excessive dust
- Allow adequate air circulation to prevent internal heat build-up. Do not place the player on surfaces such as shag pile rugs, blankets or near materials such as curtains, drapes that may block the ventilation holes.

On Moisture Condensation

- Do not operate the player where the temperature has risen suddenly or in a location where the temperature is radically different from the previous location because moisture may condense in the operating section of the player. Wait about an hour before turning the power on in a different location or keep the rise in the room temperature gradual.
- If you operate the player with moisture condensation, the player and the disc may be damaged. Therefore, remove the disc immediately when there is a possibility of moisture condensation.
- To evaporate moisture rapidly, leave the player turned on without a disc inside.

On Operation

- Remove the disc from the tray after playing if you are not going to use the player for any length of time. Do not transport the player with a disc in place.
- When the disc tray is in the open position, do not press down on it forcefully, or place heavy objects on it.

On Cleaning

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

On Repacking

Do not throw away the carton and the packing materials. The carton makes an ideal container to transport the player in.

Glossary

ACS/AMS Automatic Chapter Sensor/ Automatic Music Sensor is a function in the player that allows the laser beam to sense the beginning of chapters or tracks on a disc.

CAV Discs Constant Angular Velocity (CAV) or standard-play discs rotate at a constant 1800 r/min. Each track traced by the laser for a single rotation of the disc produces a single frame. Up to 54,000 frames make up each side of the disc, for up to 30 minutes of play. Each frame has a number that is stored with other data on the disc. When searching for a particular location on CAV discs, you must enter that "frame number".

Chapters Some laser discs are divided into sections, called chapters. These are analogous to tracks on CDs. Such discs usually have a numbered list of chapters on the jacket or label. Each chapter has been numbered for easy location when you use Chapter Search or Repeat functions.

CLV Discs Constant Linear Velocity (CLV) or extended-play discs double maximum playing time to 60 minutes by varying the rotational speed from a maximum of 1800 r/min to a minimum of 600 r/min as the laser beam moves away from the center of the disc. The disc surface therefore moves past the laser head at a constant rate, and each track is longer than its predecessor. For this reason, Variable Speed Play, Freeze Frame, and Step Play are not possible with CLV discs, so when searching for a scene on CLV discs you must enter the time instead of the frame number.

Digital Sound Recordings Sound translated into digital signals has a better signal-to-noise ratio. Therefore, digital sound recordings offer a higher quality reproduction than the alternative, analog recordings (found on LPs and older audio cassette tapes). However, some laser discs have been recorded in the higher-quality digital audio signal as well as the conventional analog type signal. This player reproduces both signals with priority given to the digital signal when it is encountered.

Indexes Signs marked in a track so that you can find a particular point on the disc easily.

MULTI AUDIO Disc Different sounds are recorded on analog and digital tracks. You can select either sound by switching one to the other.

SAP Second Audio Programs are double soundtrack recordings found on bilingual and karaoke (sing-along) recordings. Two completely different sound programs have been recorded on the disc. By pressing the AUDIO MONITOR button, you can switch from one sound track to the other.

Tracks CDs and CDVs are divided into sections, called tracks. Each track has been numbered for easy location when you use Track Search or Repeat functions. The tracks usually correspond to the selections on the disc.

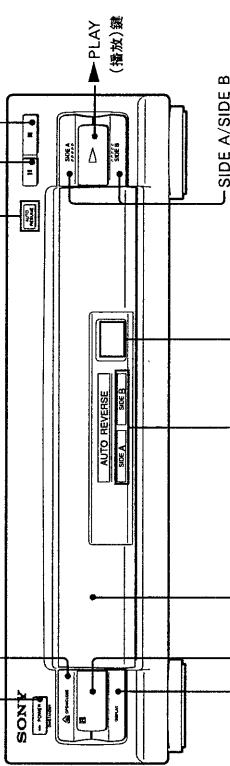
安裝及線路之連接

前、後面板控制器及附件

機前面板

▲ OPEN/CLOSE(開/關)鍵

POWER(電源) 鍵及指示燈
ON: 綠色
STANDBY: 紅色



顯示鍵

按壓此鍵，則電視機螢幕出現數值及英文標記。

遙控器感知器

把遙控器對準此處操作。

機前蓋子

按壓OPEN/CLOSE(▲)鍵時，此蓋子自動關閉，而影碟則被送出來。

SIDE A/SIDE B(A面/B面)指示燈

此燈能發亮指示出所播放的為哪一面。

- 在下列情形下，“A”面指示燈發亮：
 - 當裝入一張影碟，而影碟機處於停止狀態時
 - LD影碟的A面在播放中或尋找中時
 - CD或CDV影碟在播放中時
- LD影碟的B面在播放中或尋找中時，“B”面指示燈發亮。
- 當裝入任何影碟時，2個指示燈都熄滅。

AUTO RESUME(自動回覆) 指示燈

當影碟機從上次停止之處再播放起的話，使此燈發亮(參考第12頁)。

■ PAUSE(暫停)鍵

■ STOP(停止)鍵

▶ PLAY(播放)鍵

SIDE A/SIDE B(A面/B面)鍵

要從LD影碟的A面或B面起點開始播放時，按壓此鍵。

章/軌跡號碼顯示燈

此燈顯示出章/軌跡號碼。

例如：

- 在播放12章或12軌跡時，此處出現“12”
- 當影碟機在尋找影碟開頭部分時，此處閃爍著出現“- - -”
- 播放LD影碟的“0”章時，出現“00”
- 影碟機停止下來時，出現“0”
- 裝入影碟時，此處燈光熄滅。

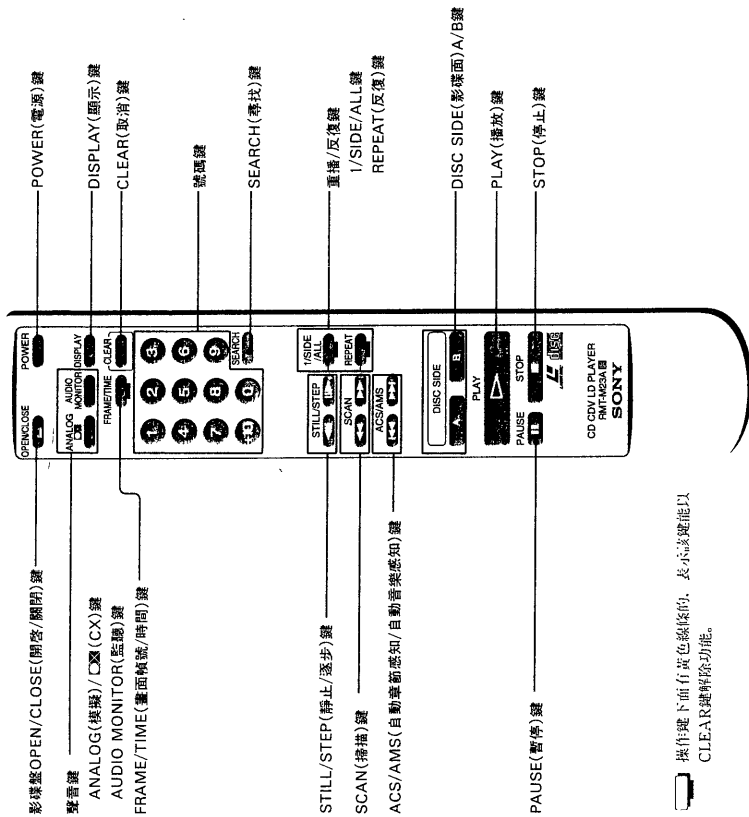
下面標誌表示甚麼意思？



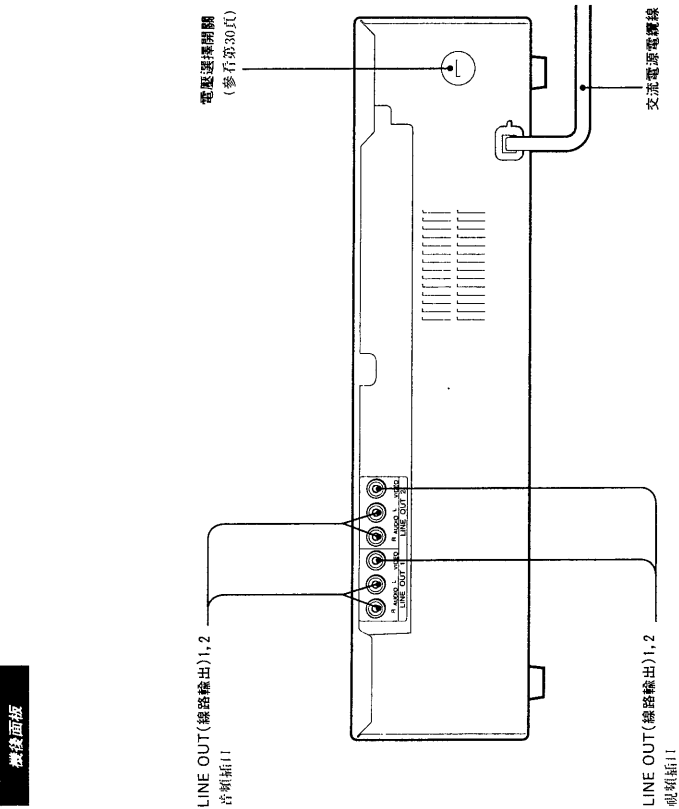
LD影碟的播放面正在改換之中時，便出現此標誌。從A面轉換到B面時，線條便從右向左流轉。若從B面轉換到A面時，線條便從右向右流轉。

機後面板

使用遙控器，您可操縱本影碟機或與影碟機相同的按鍵之操作。



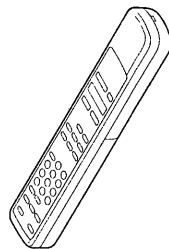
按有鍵下面有黃色綫條的，表示該鍵能以 CLEAR 鍵解除功能。



附件

請查本機裝箱內是否含有下列附件：

RMT-M23A 遙控器



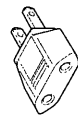
音頻/視頻連接用電線 (phono 型插頭3 → phono 型插頭3)



2 個 AA (R6) 型電池

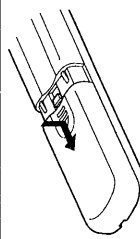


交流電源插頭轉接器 (參看第30頁)



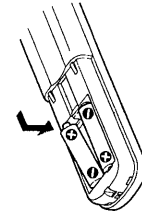
1

要使用遙控器時，打開遙控器背後的蓋子，裝入 2 個 AAA (R6) 型電池，表時須使正、一極性按照插頭圖所示方向裝入。電池大約可使用半年之久。若遙控器開關著縮小，請更換新電池。若長期不使用遙控器時，請取出電池以免電池液滲漏。



2

遙控器使用前須知注意事項
 ● 不要讓陽光或強烈照明燈直射照向影碟機前面的遙控器，以免損壞遙控器之操作。
 ● 本遙控器只能使用 AA (R6) 型電池。



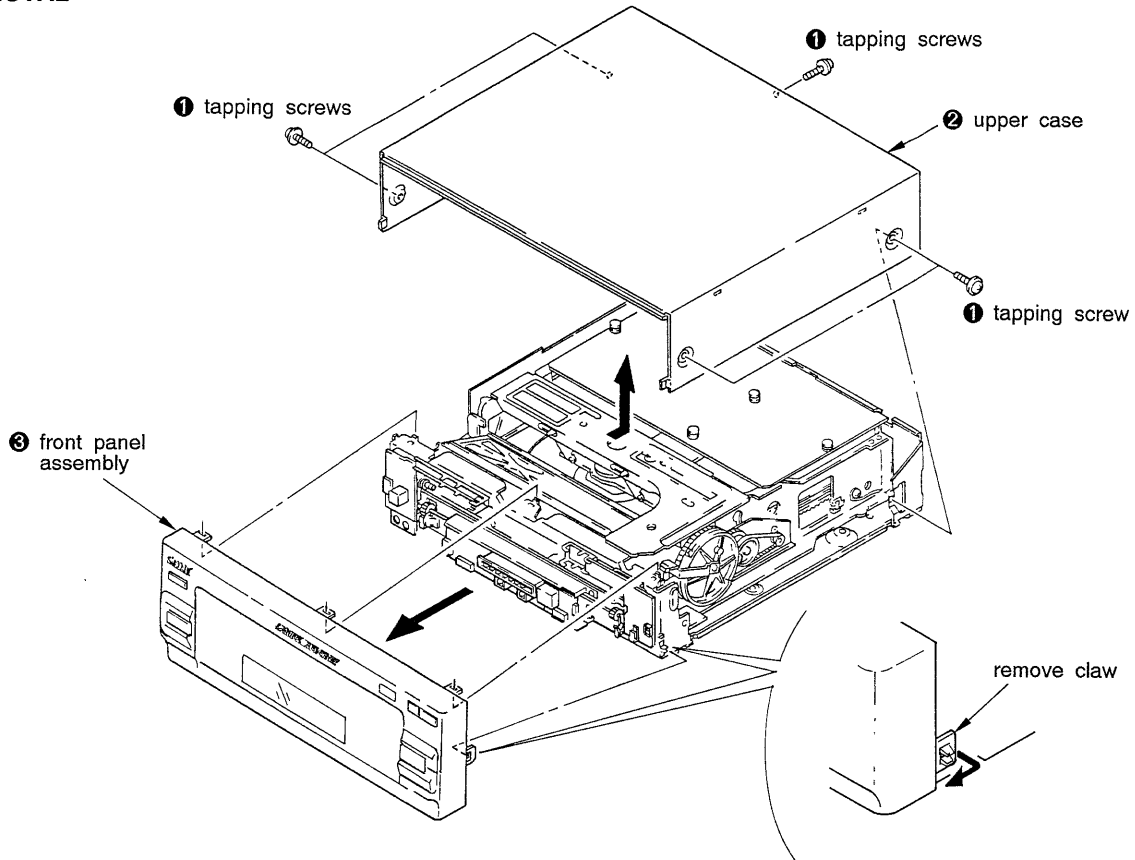
裝入 2 個 AAA 尺寸 (R6 號) 電池

SECTION 2 DISASSEMBLY

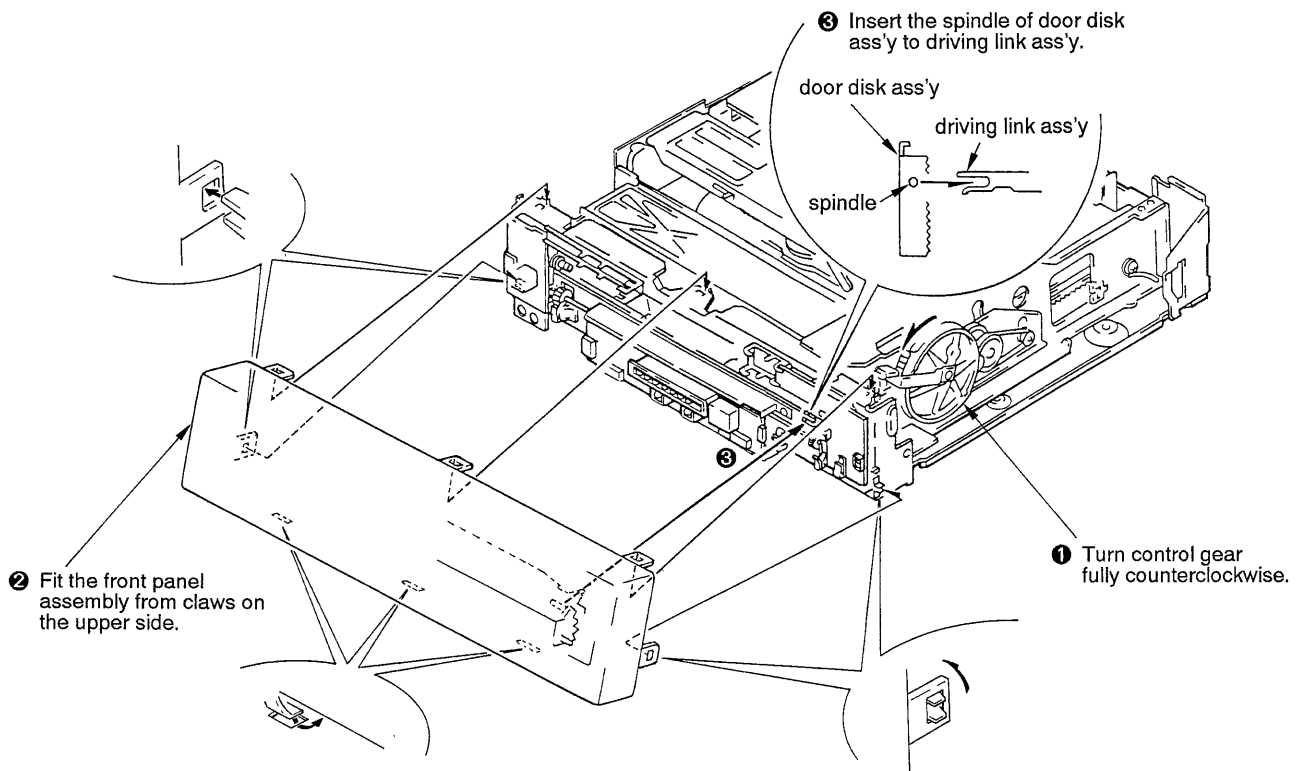
Note: Follow the disassembly procedure in the numerical order given.

2-1. UPPER CASE, FRONT PANEL ASSEMBLY

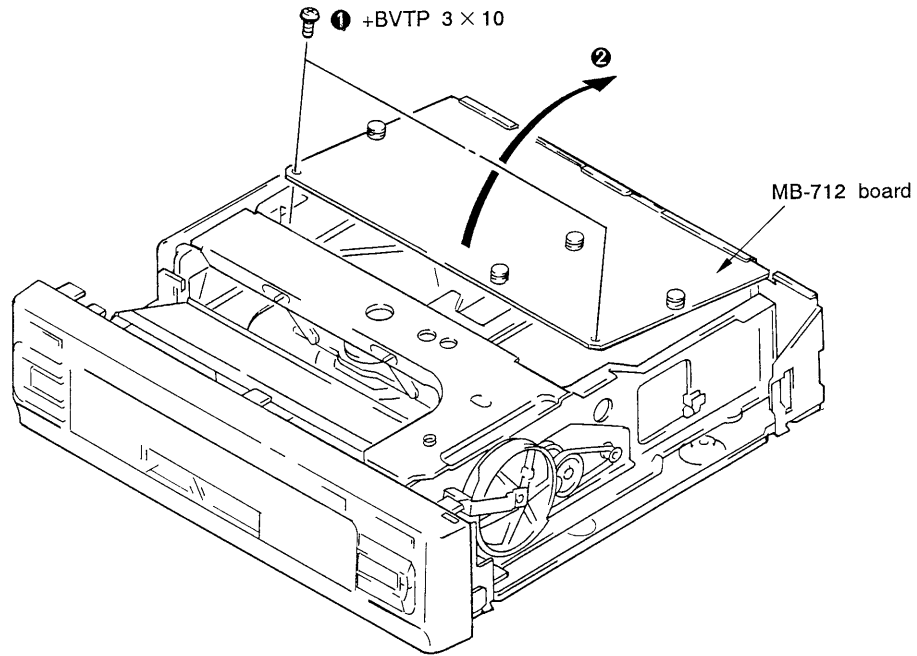
• REMOVAL



• FRONT PANEL ASSEMBLY FITTING

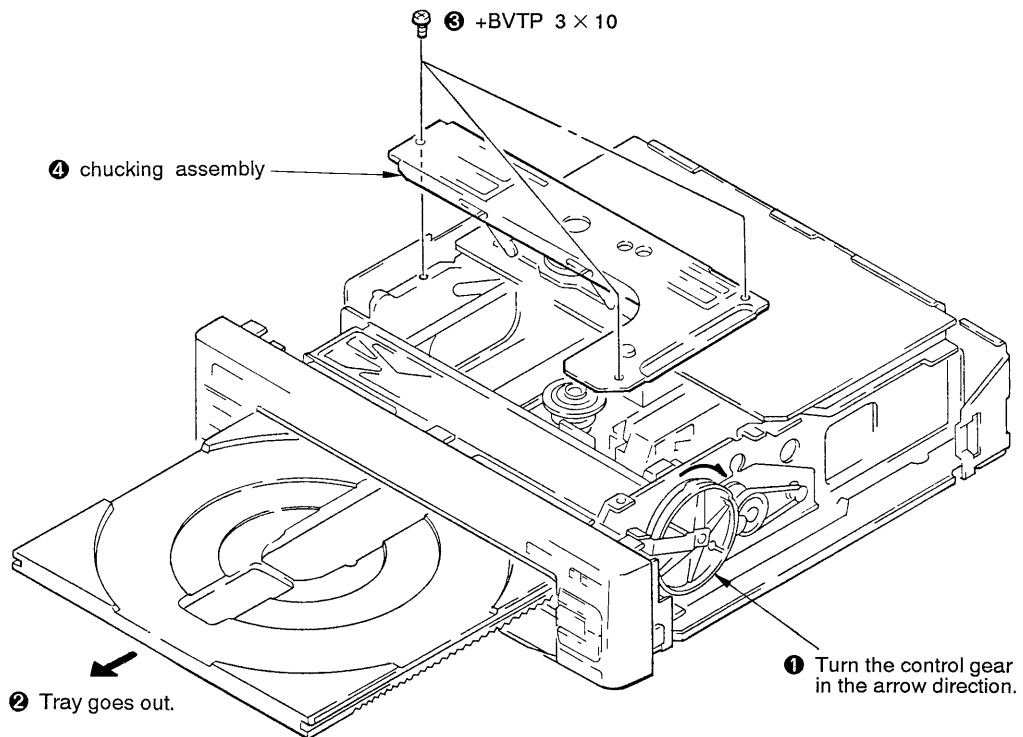


2-2. MB-712 BOARD

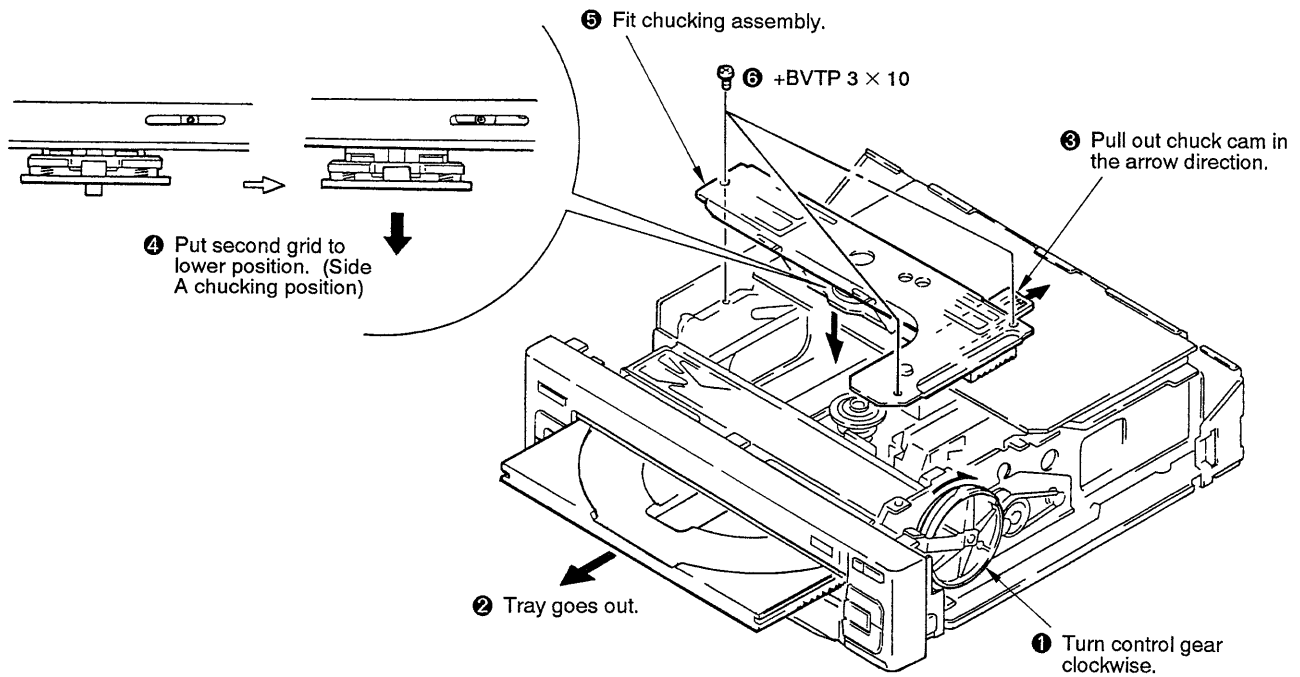


2-3. CHUCKING ASSEMBLY

• REMOVAL

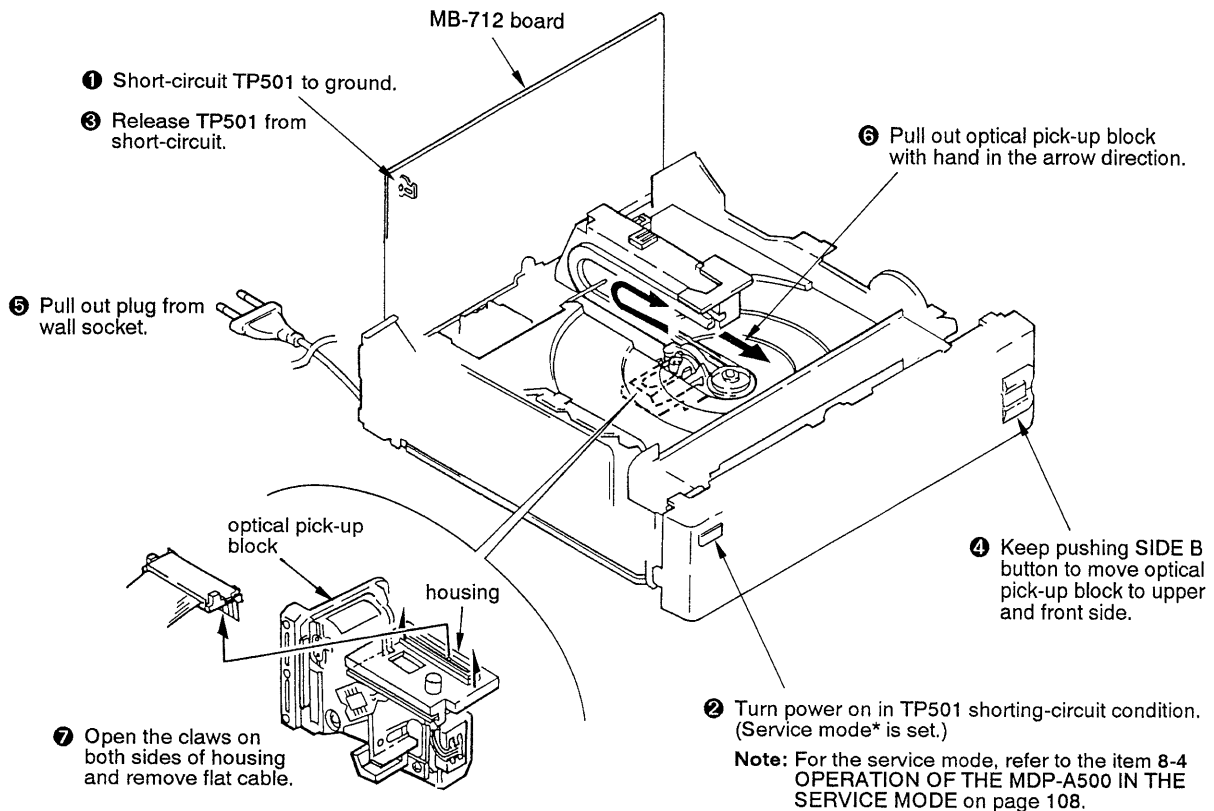


• FITTING

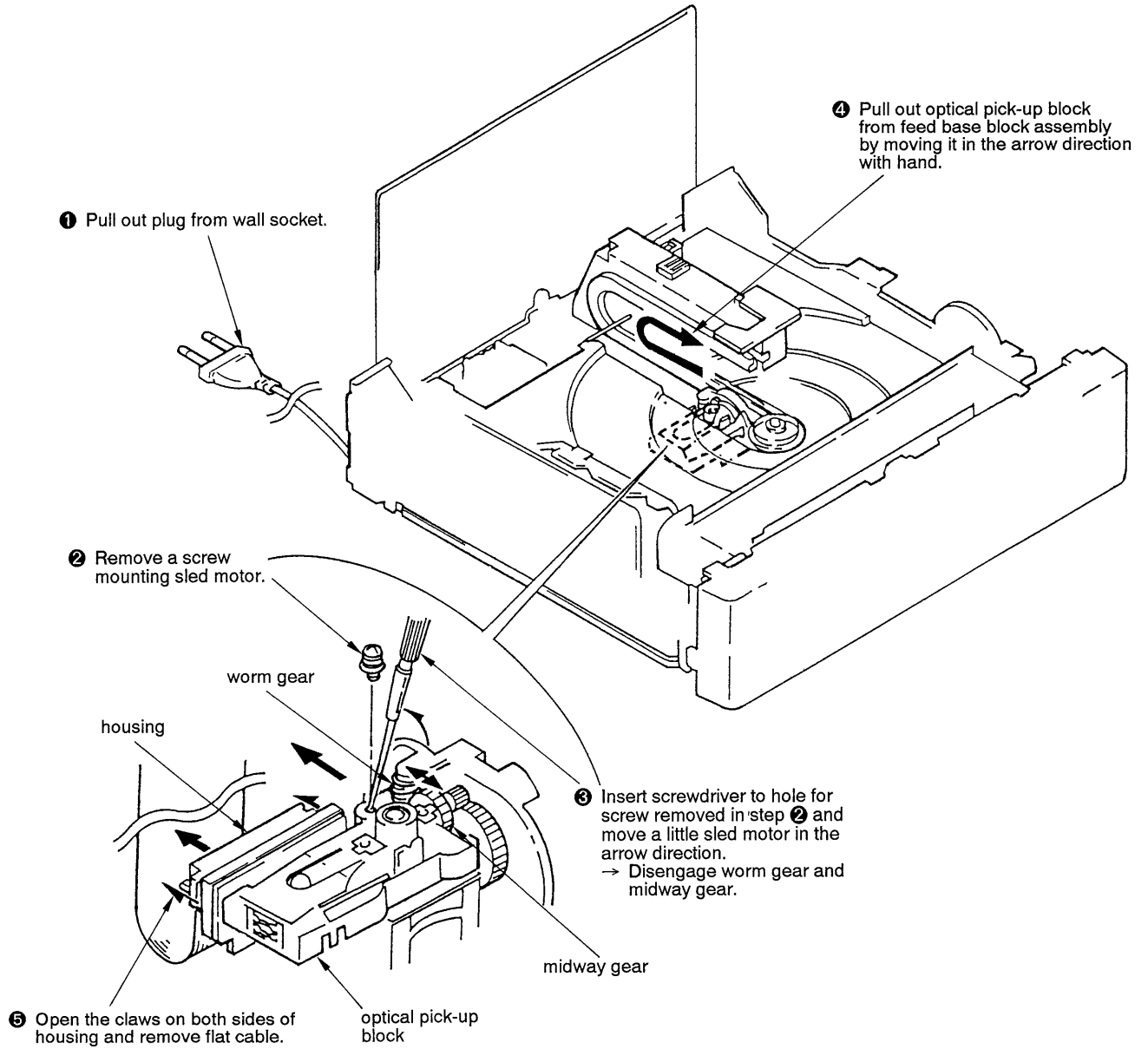


2-4. OPTICAL PICK-UP BLOCK

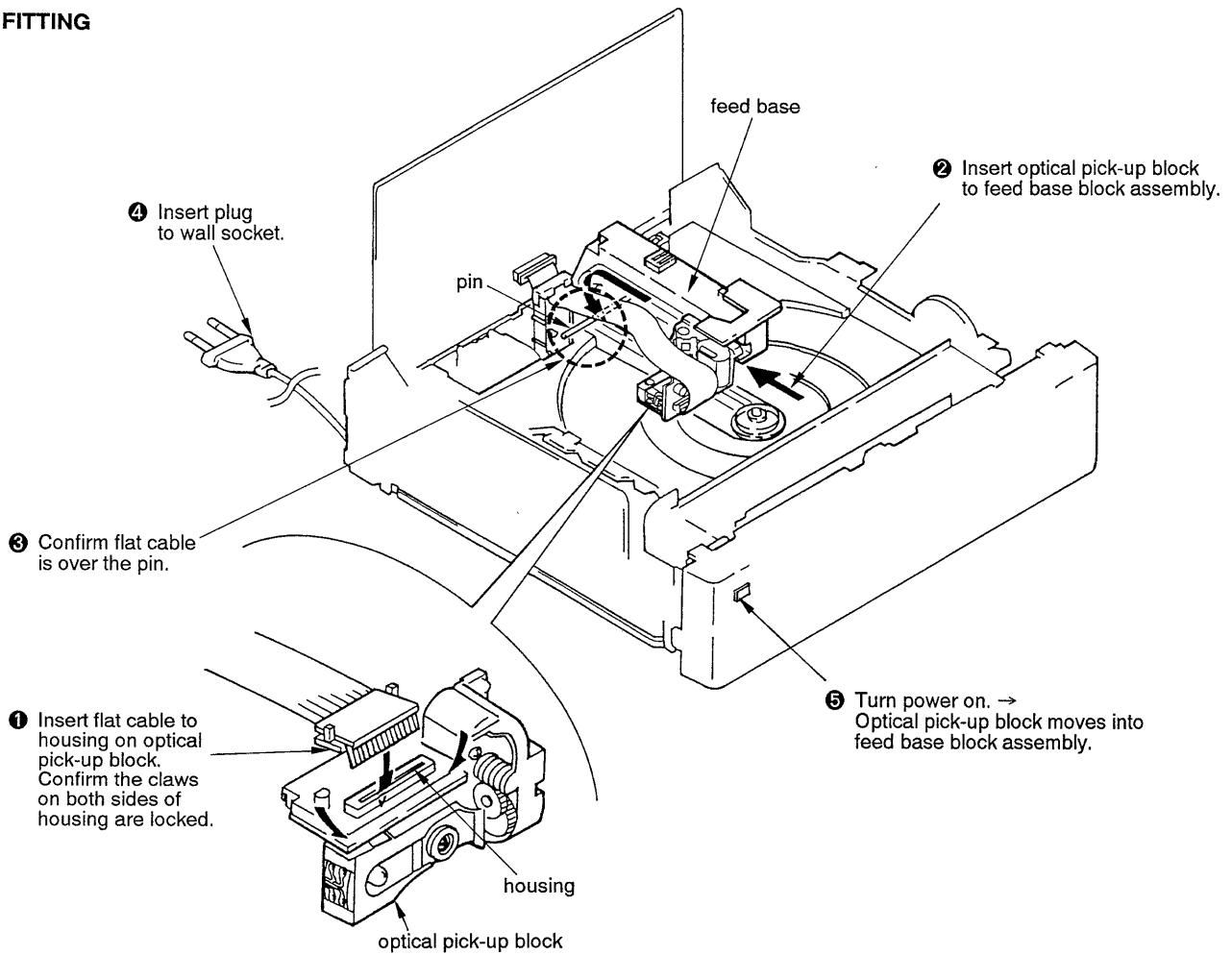
• REMOVAL I
(OPTICAL PICK-UP BLOCK MOTOR OPERATES)



• **REMOVAL II**
(OPTICAL PICK-UP BLOCK MOTOR DOESN'T OPERATE)

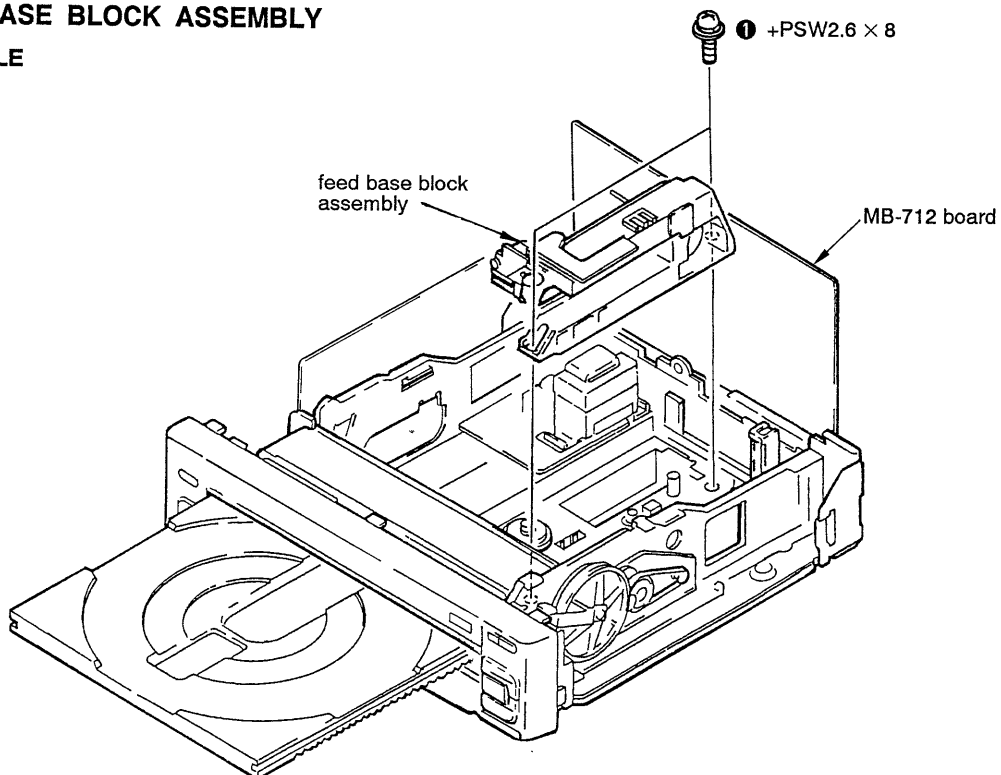


• FITTING

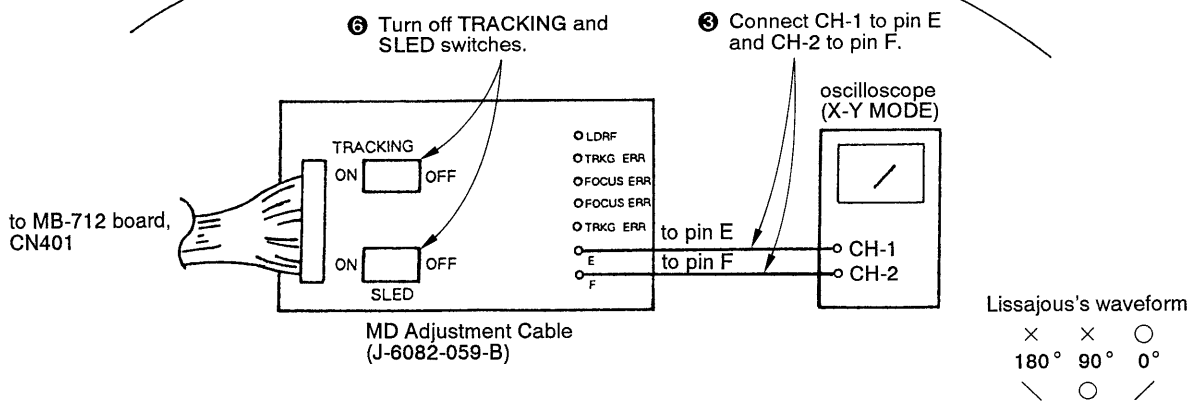
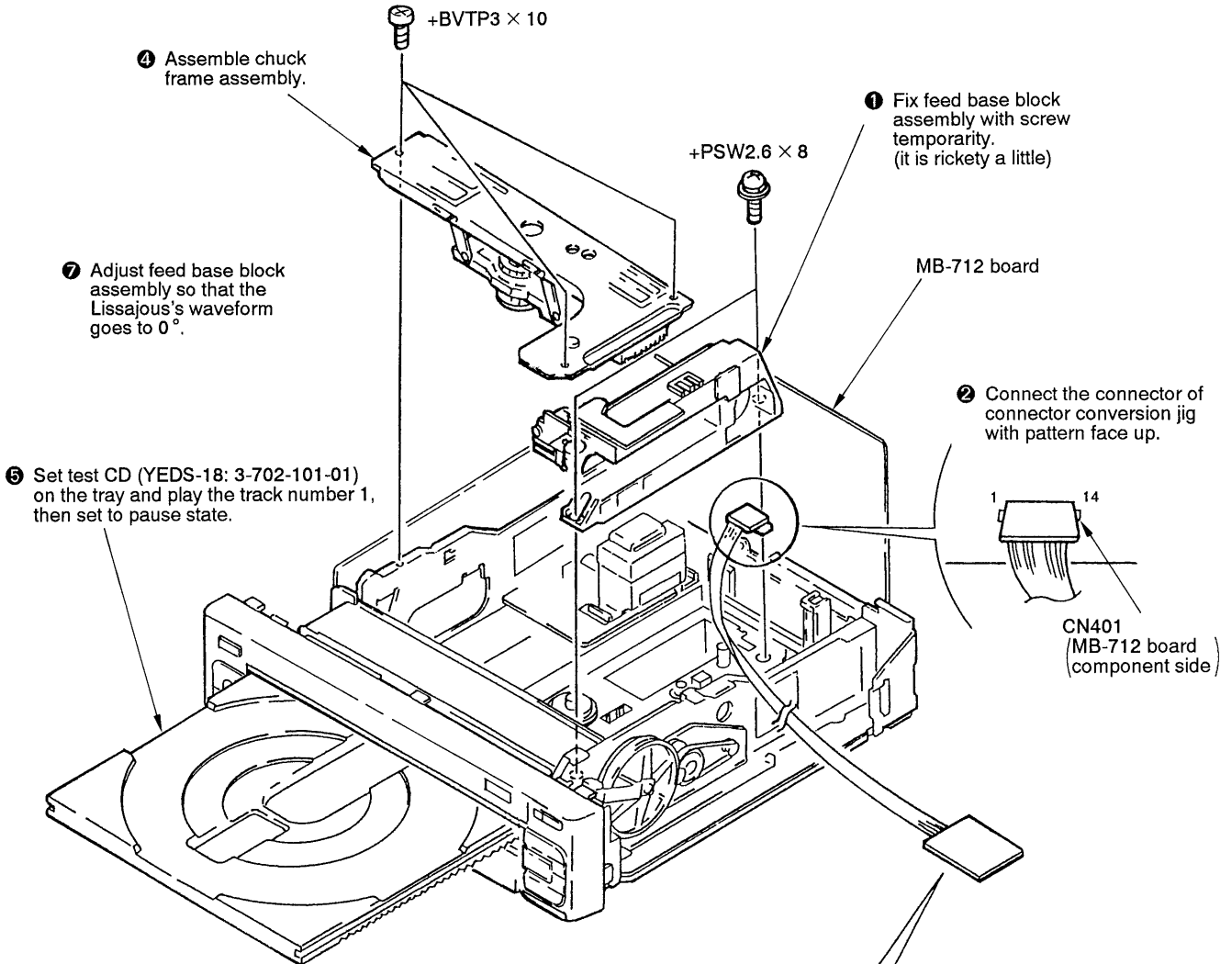


2-5. FEED BASE BLOCK ASSEMBLY

• DISASSEMBLE

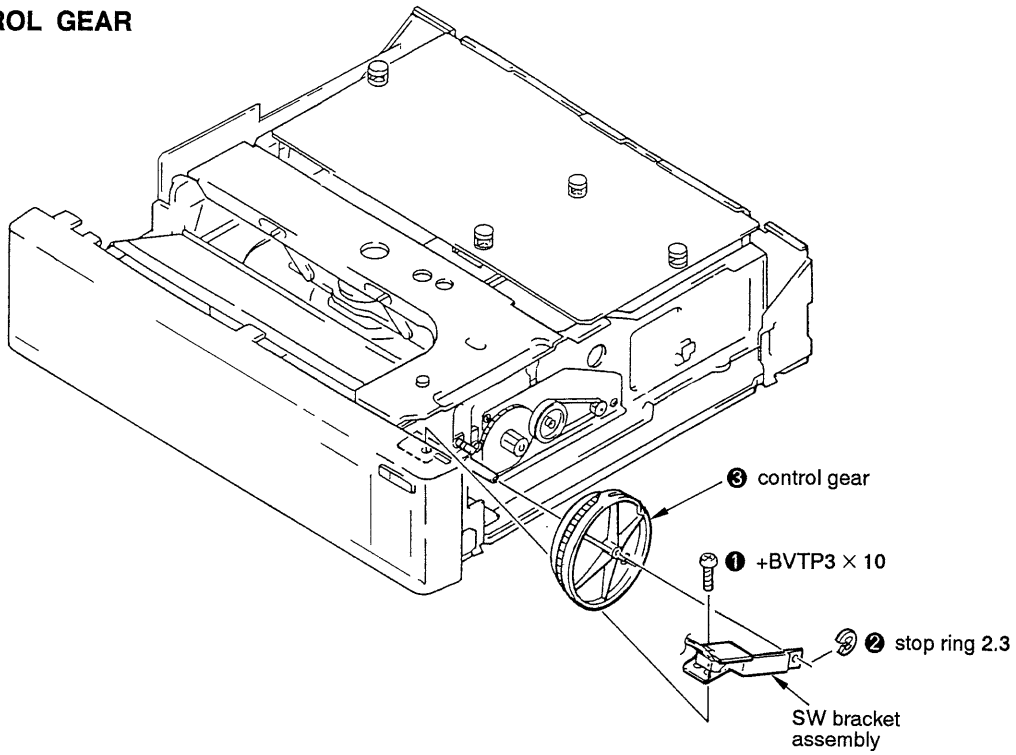


• INSTALLATION



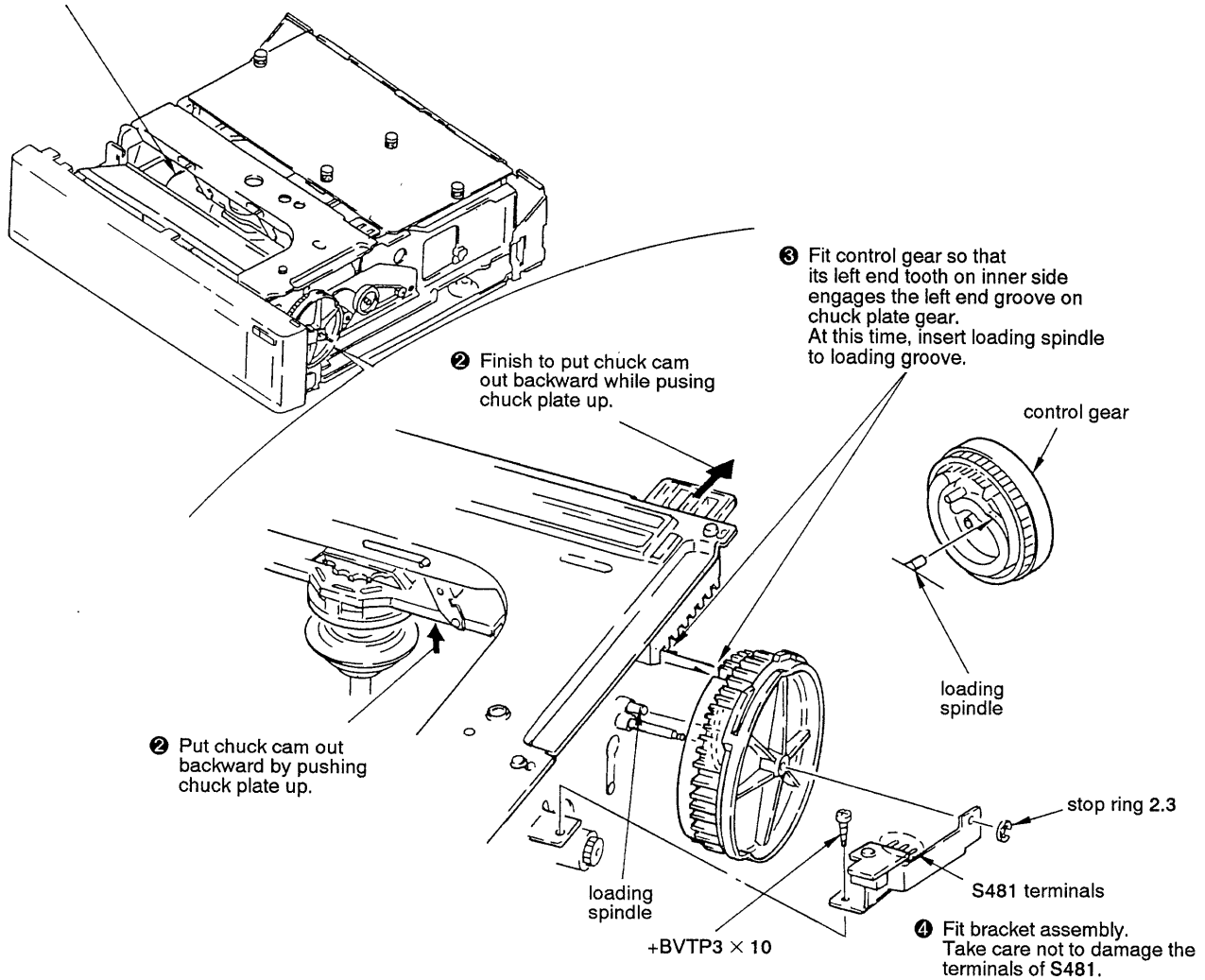
2-6. CONTROL GEAR

• REMOVAL

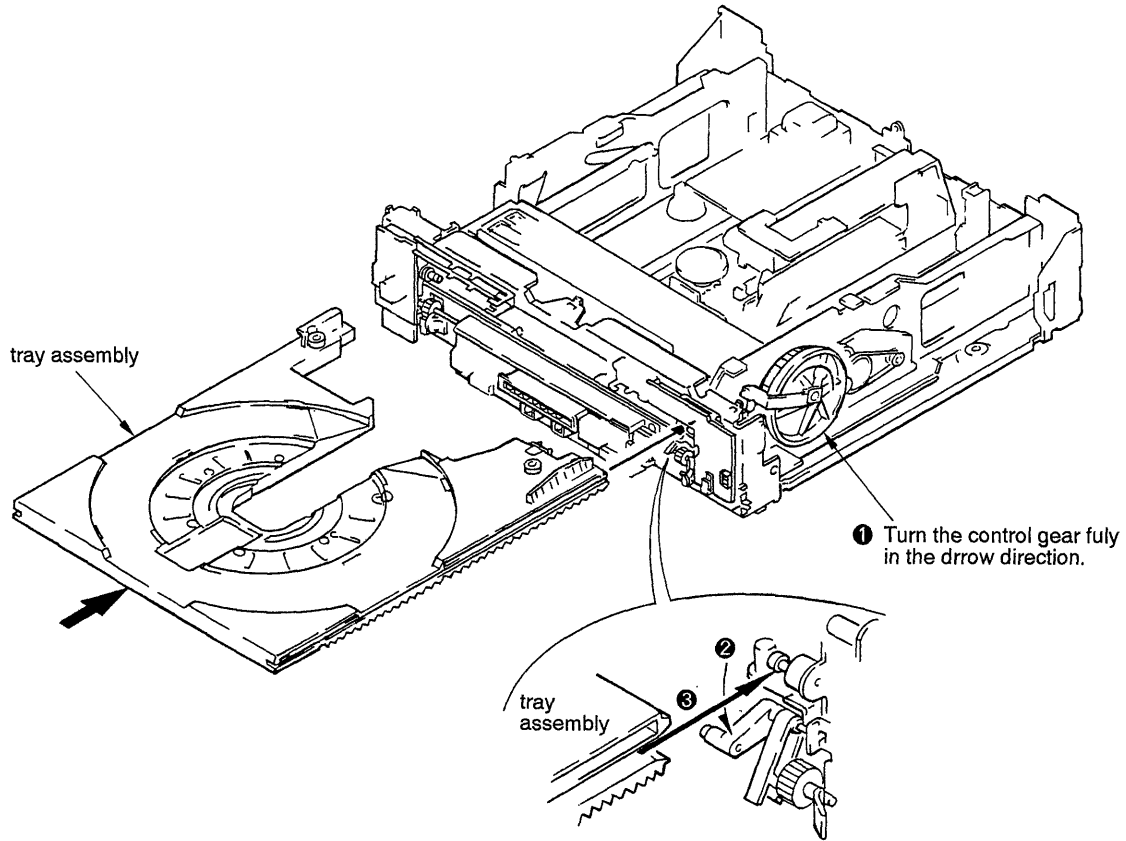


• FITTING

- 1 Make tray holding in the set.



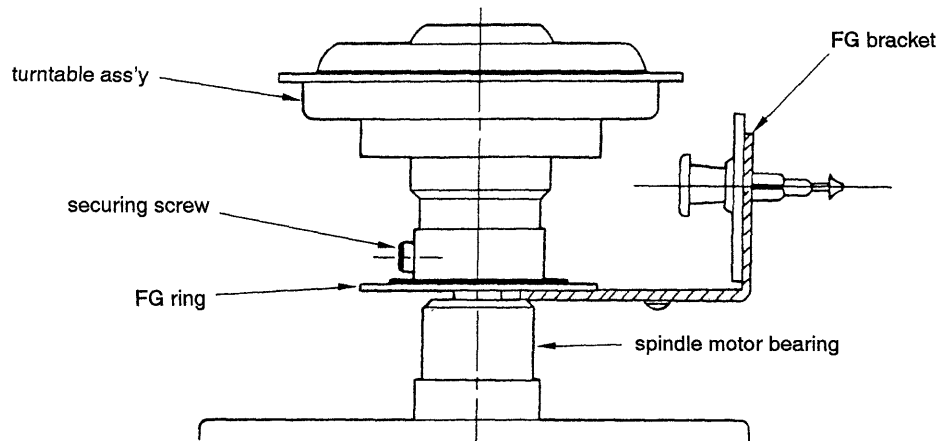
2-7. TRAY ASSEMBLY INSERTION



2-8. TURNTABLE ASSEMBLY HEIGHT ADJUSTMENT

1. Open the tray by turning the control gear recured on the right side of the set clockwise.
2. Remove chucking assembly.
3. Remove FG bracket with FG board.
4. Replace turntable assembly.

Adjust turntable assembly height using FG bracket (1 mm thickness) as followings.

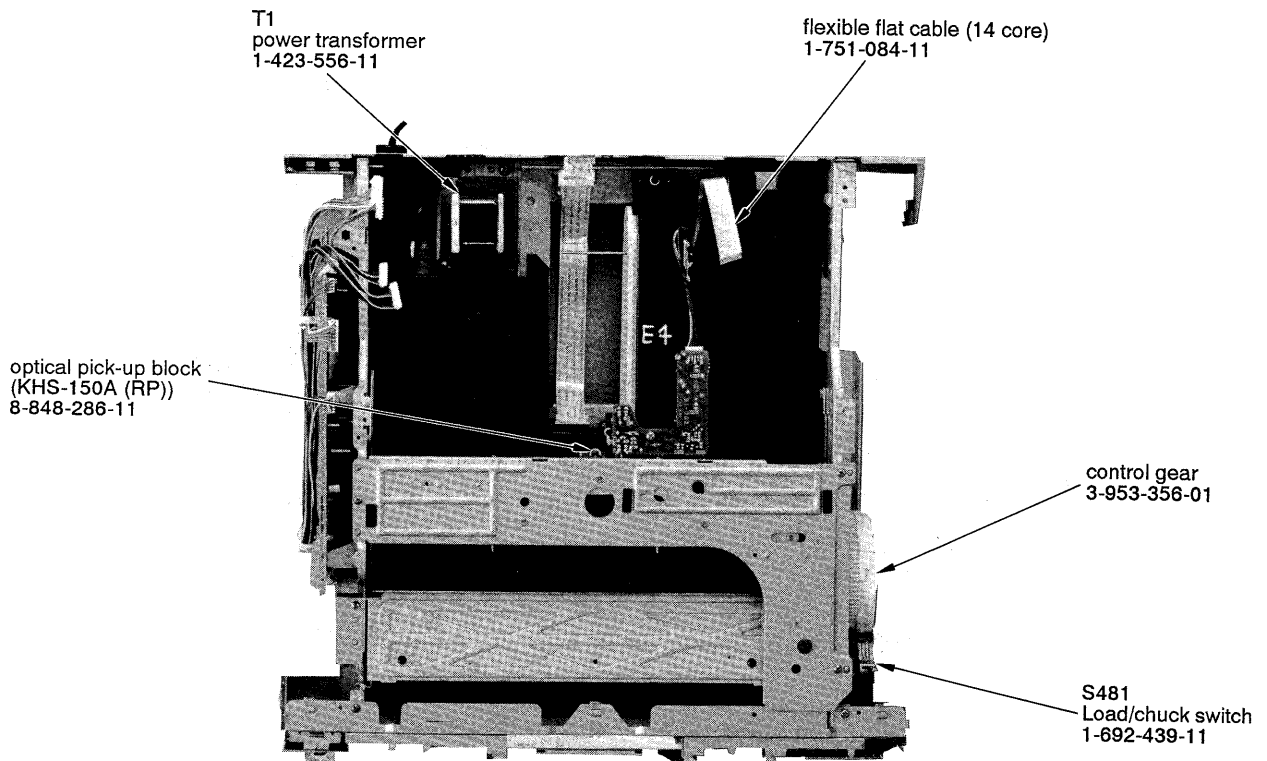


Insert FG bracket between spindle motor bearing and FG ring to set height and tighten securing screw.

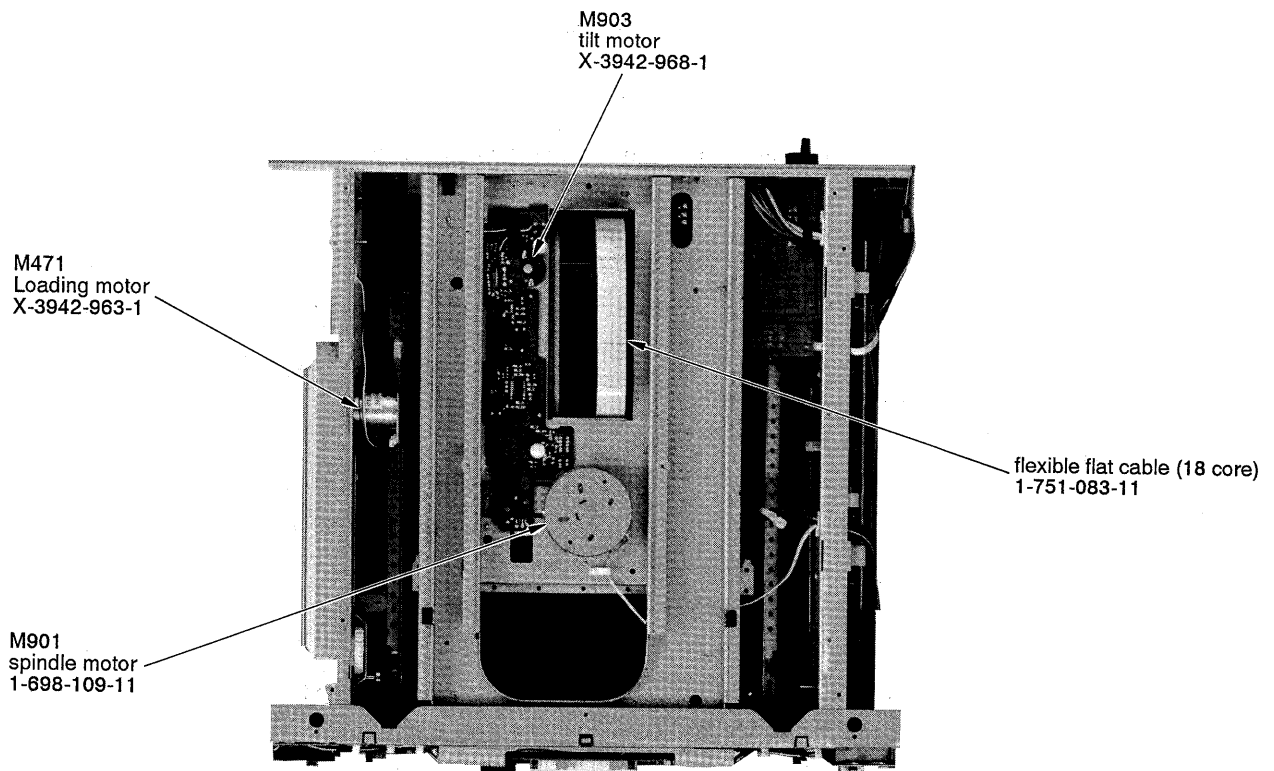
5. Fit FG bracket with FG board in its original position.

2-9. INTERNAL VIEWS

– Top Side –



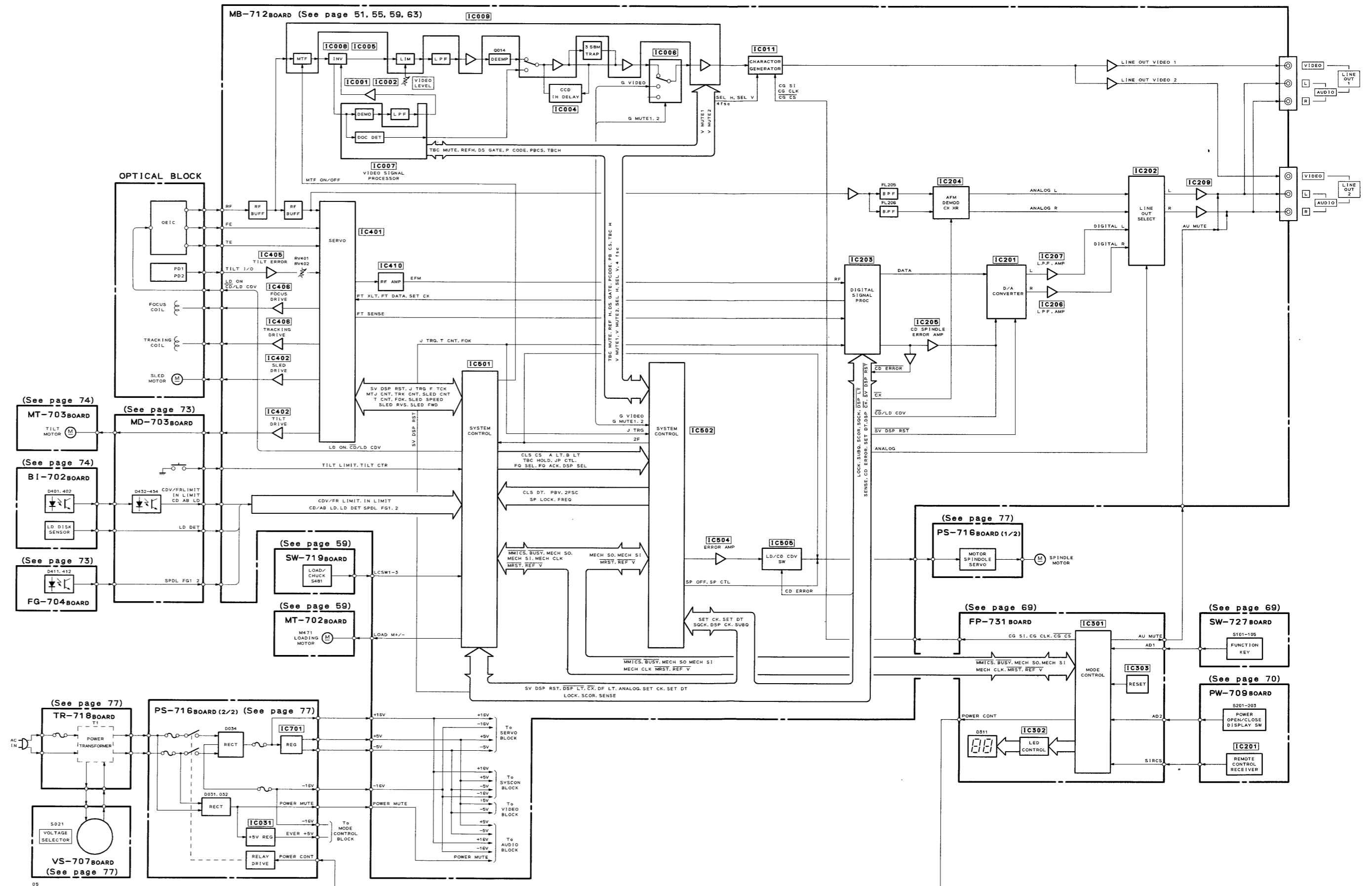
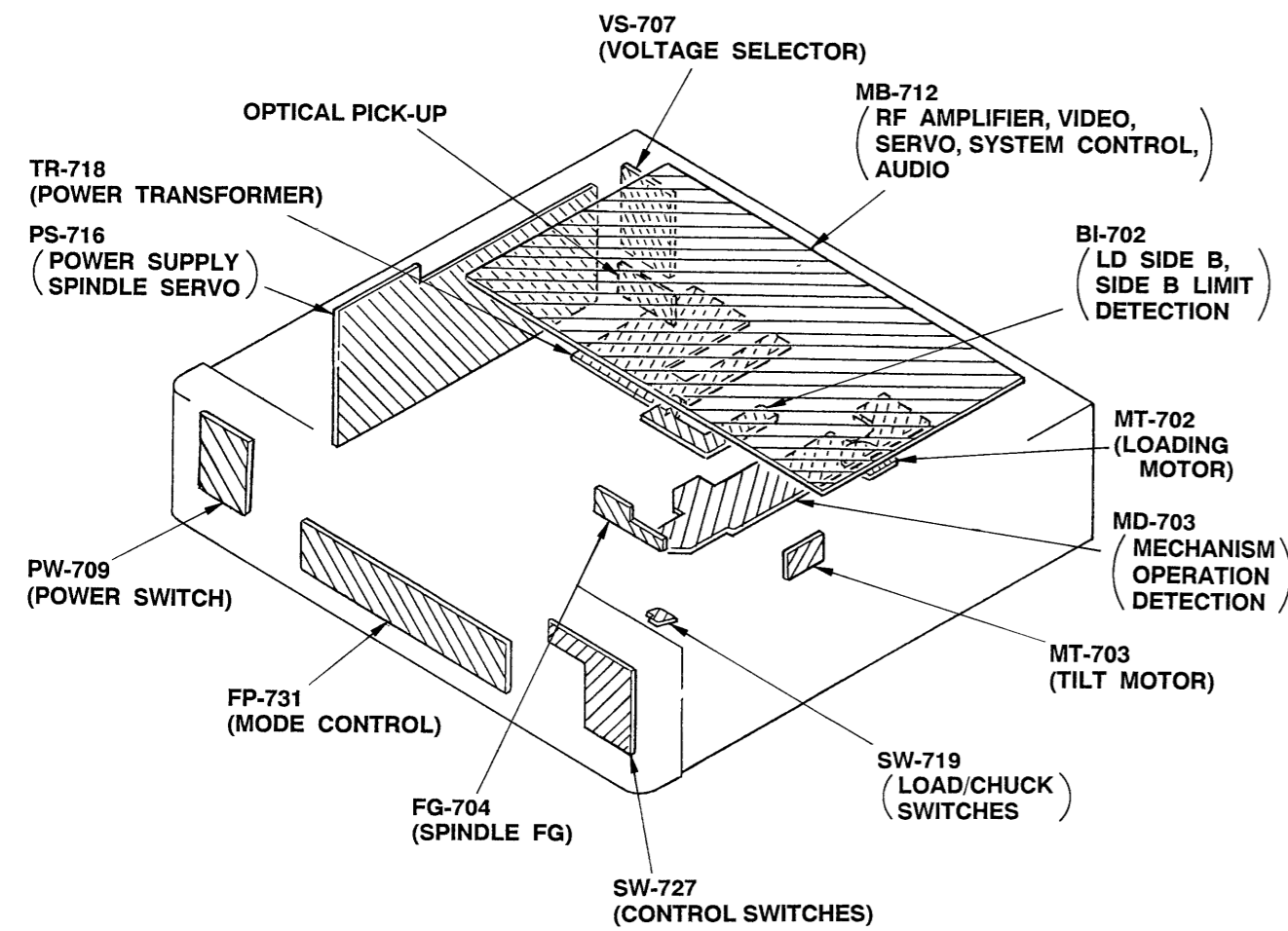
– Bottom Side –



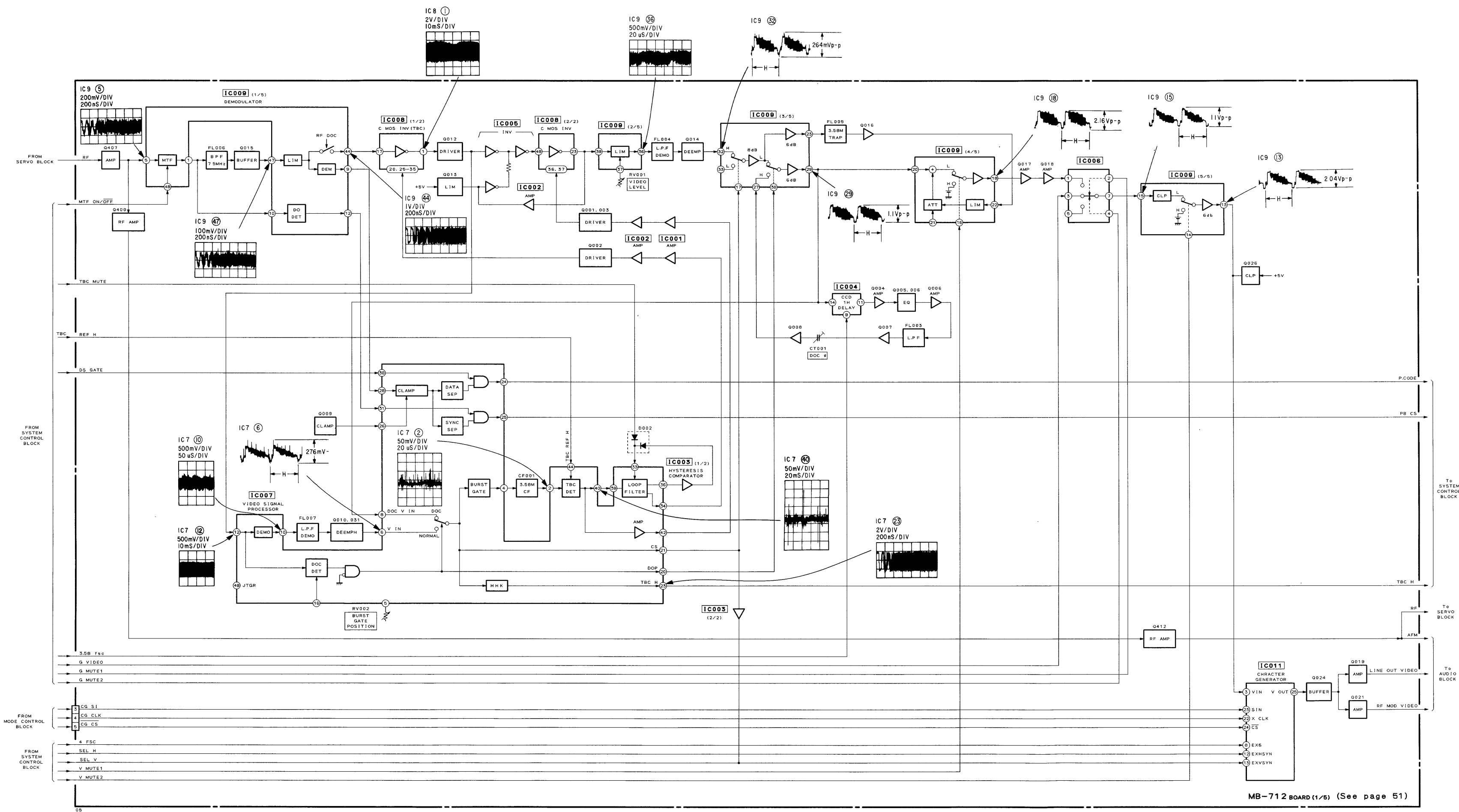
SECTION 3
DIAGRAMS

3-2. OVERALL BLOCK DIAGRAM

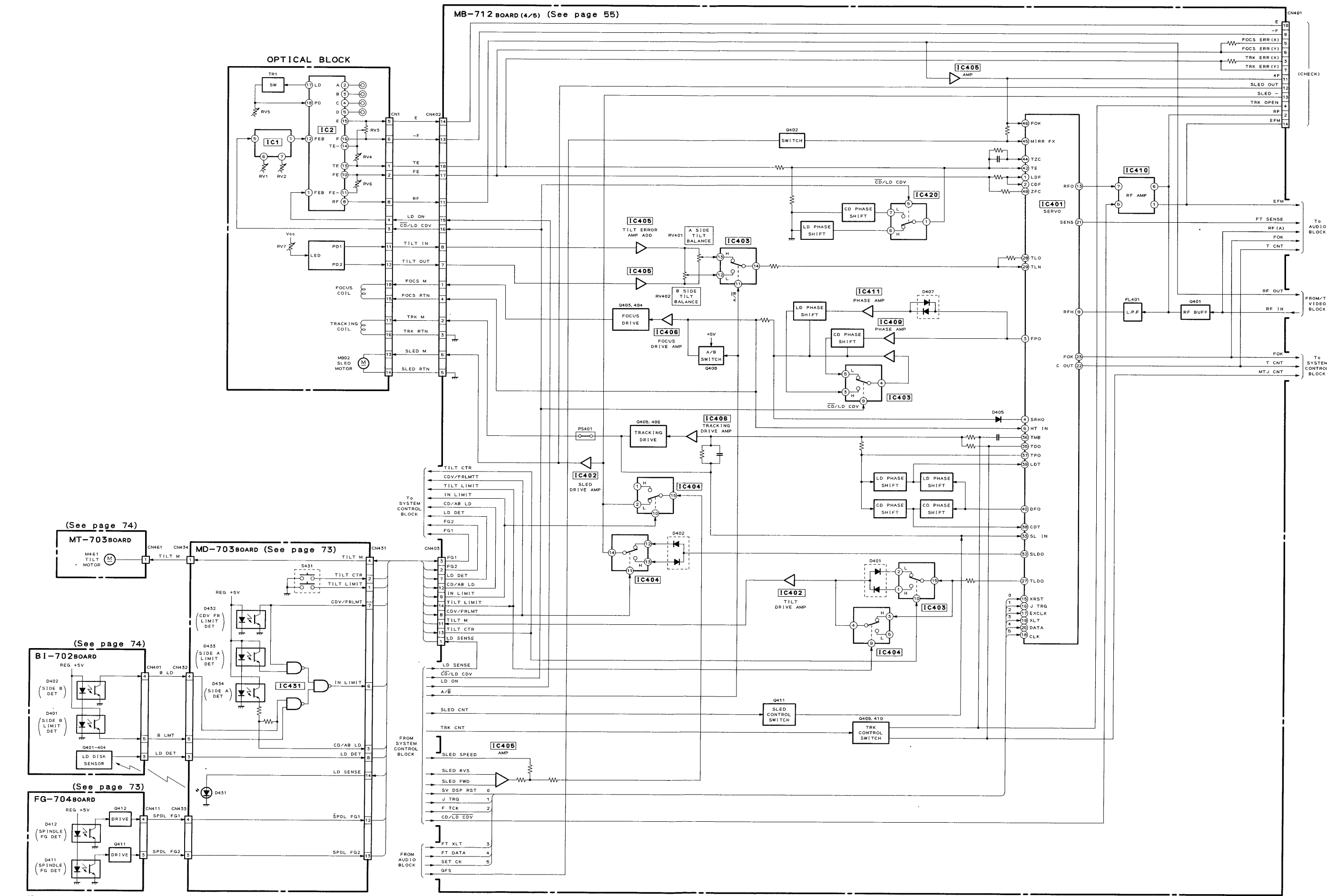
3-1. CIRCUIT BOARDS LOCATION



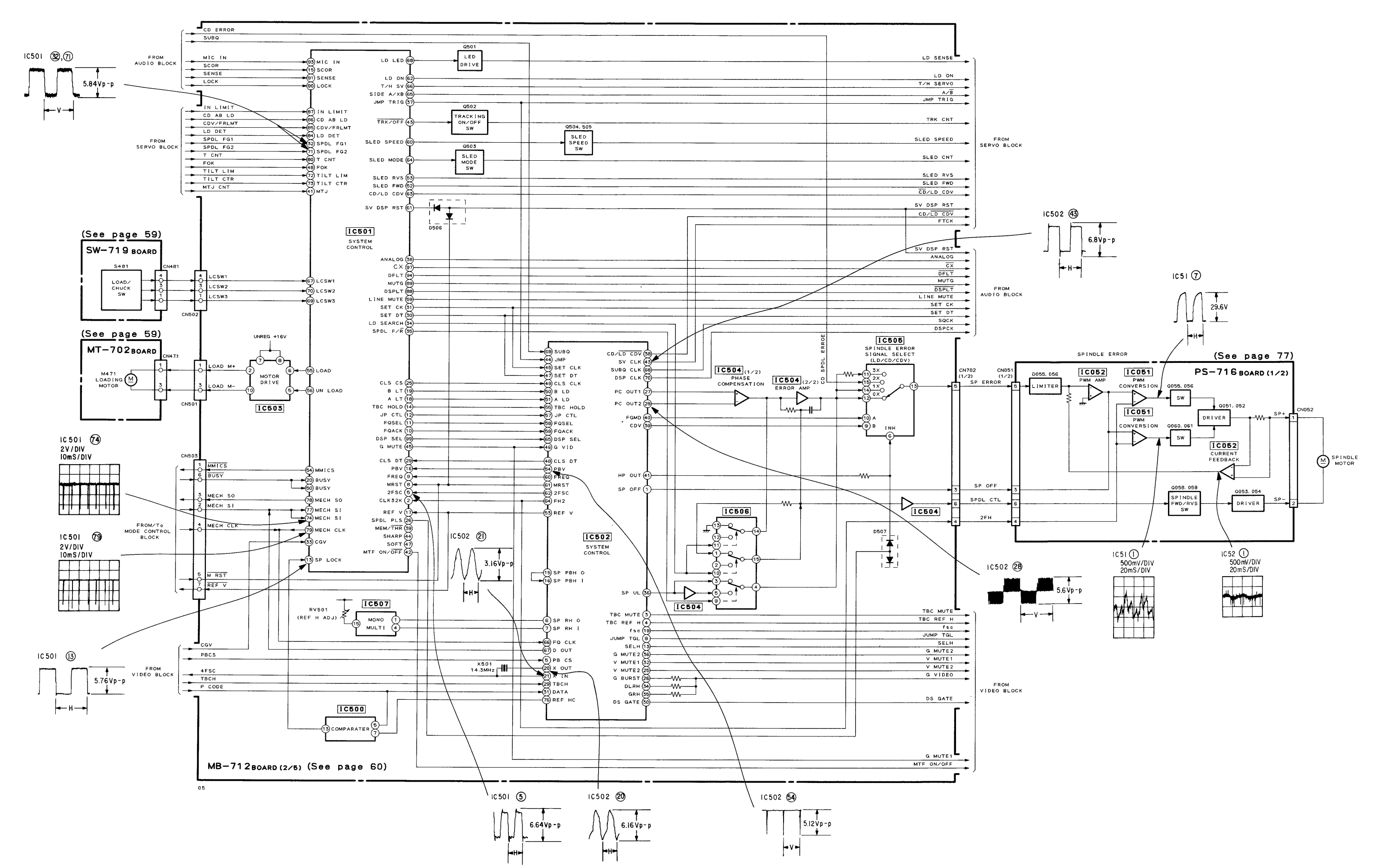
MDP-A500
 3-3. VIDEO BLOCK DIAGRAM



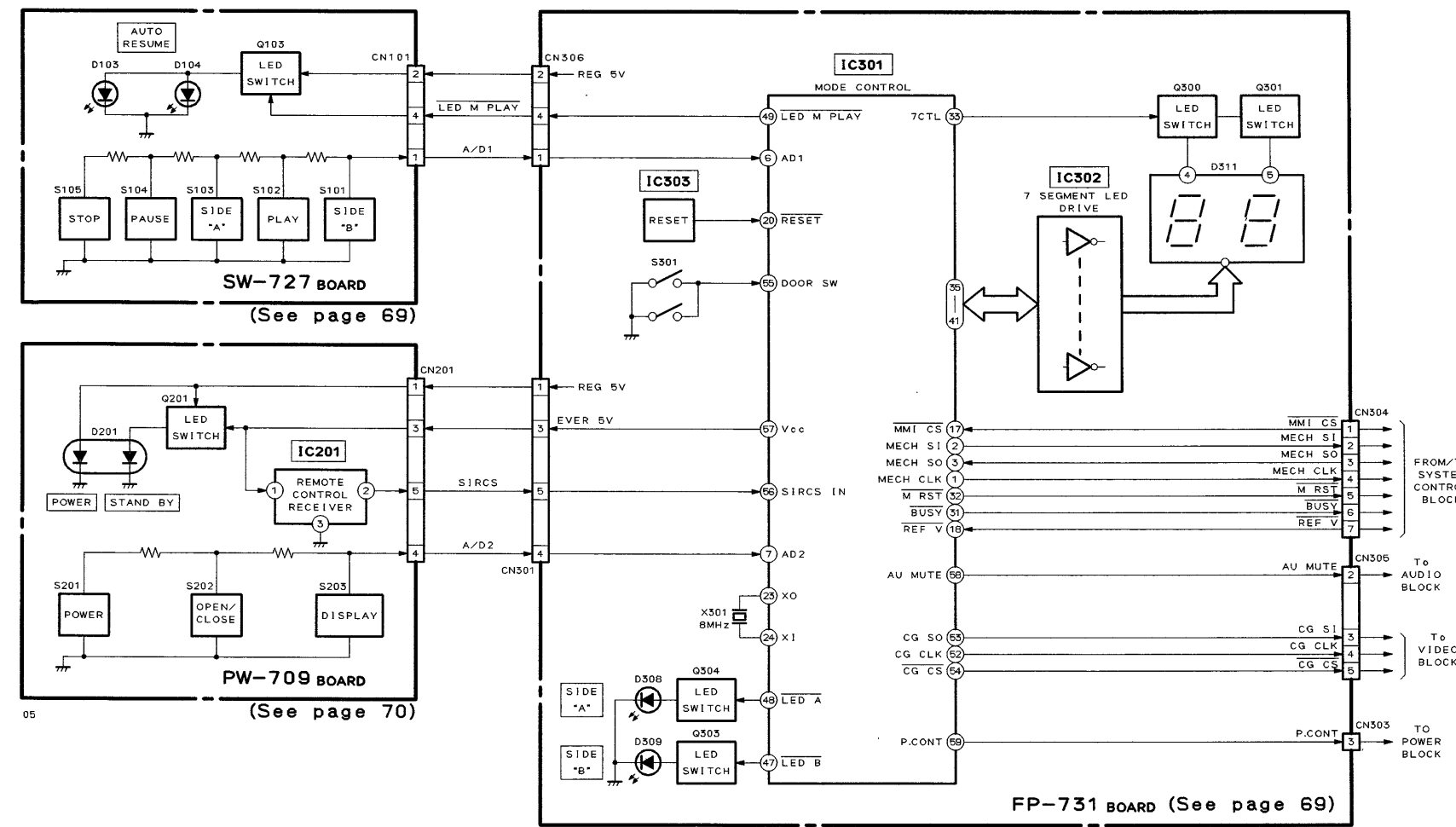
3-4. SERVO BLOCK DIAGRAM



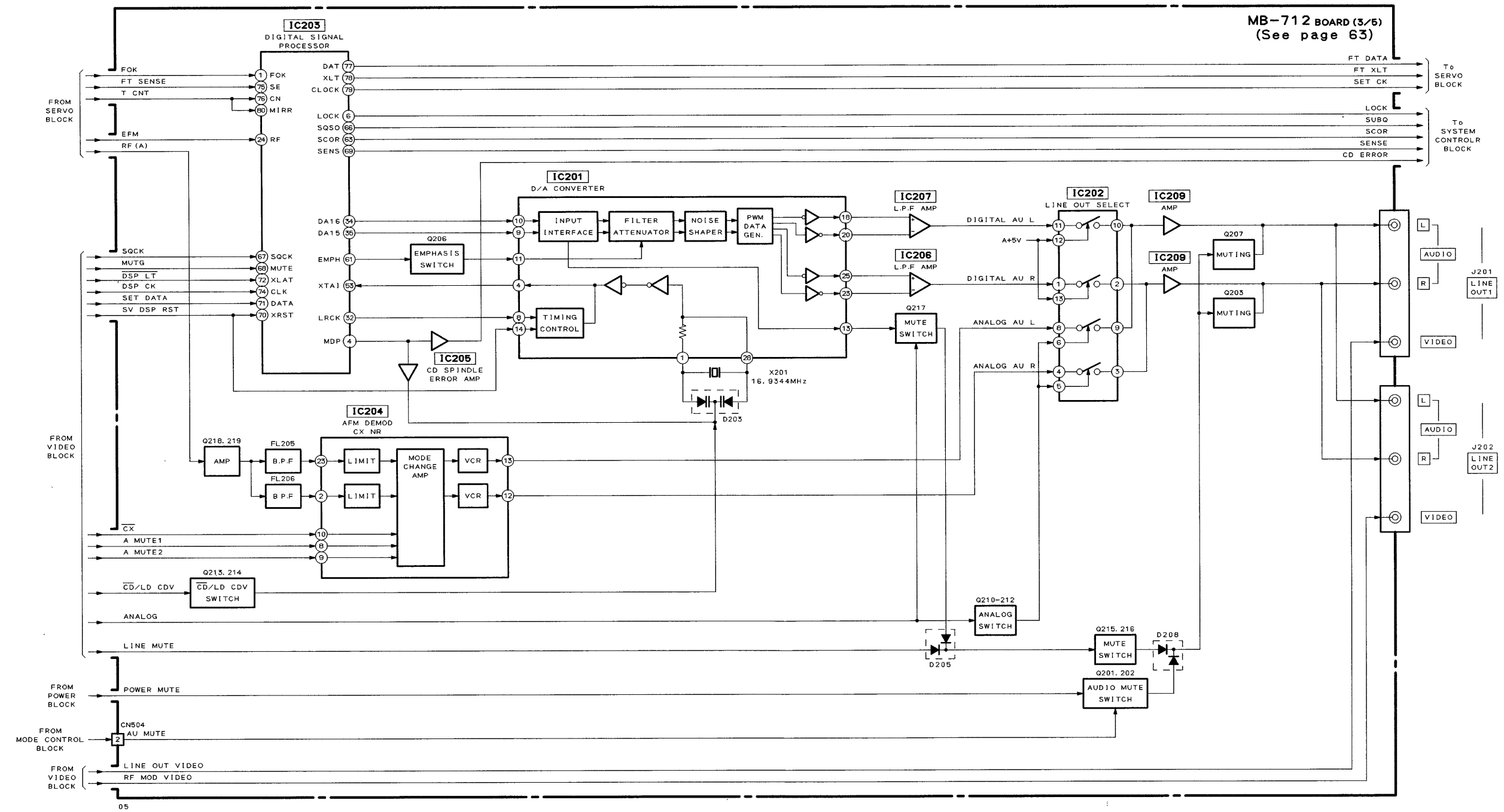
3-5. SYSTEM CONTROL BLOCK DIAGRAM



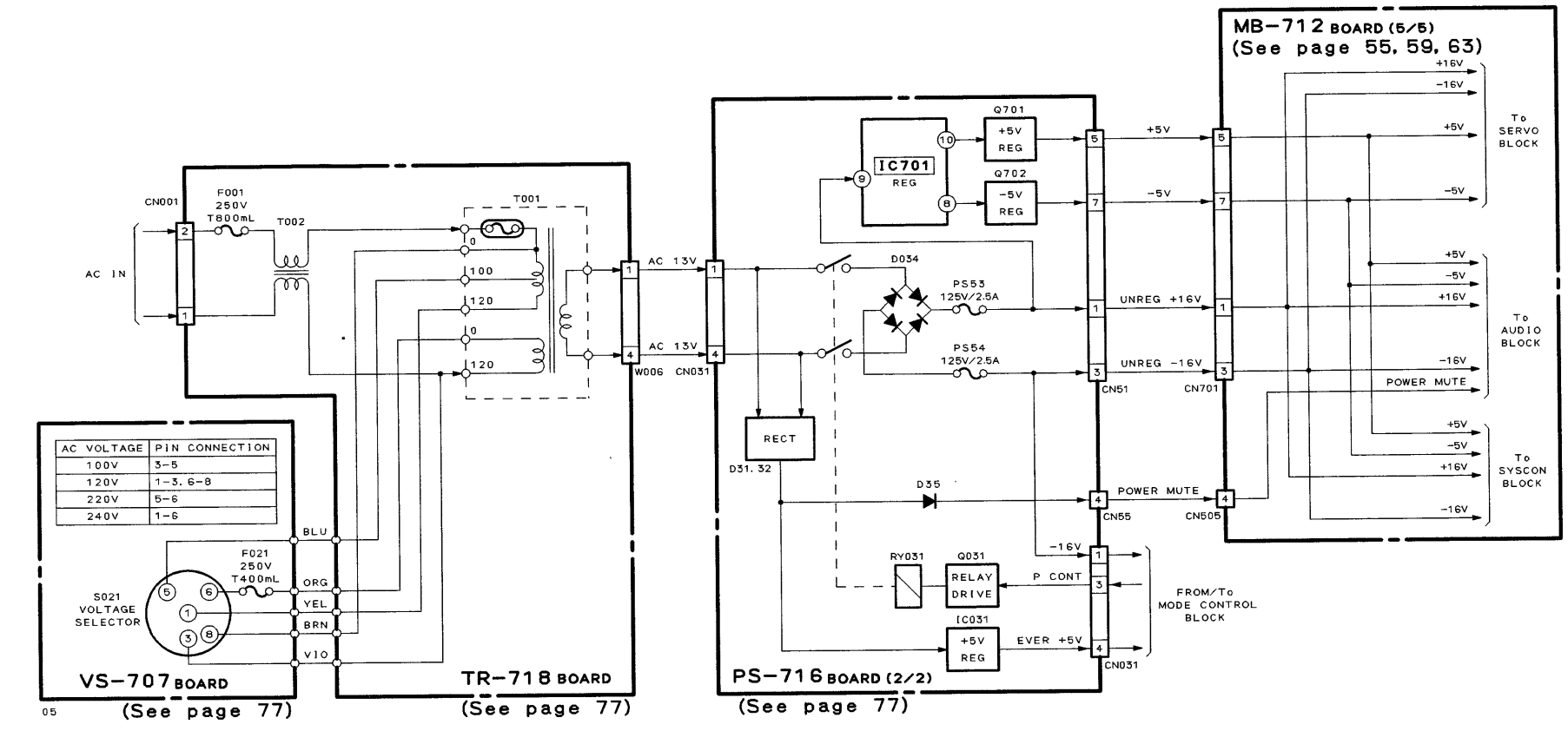
3-6. MODE CONTROL BLOCK DIAGRAM



3-7. AUDIO BLOCK DIAGRAM

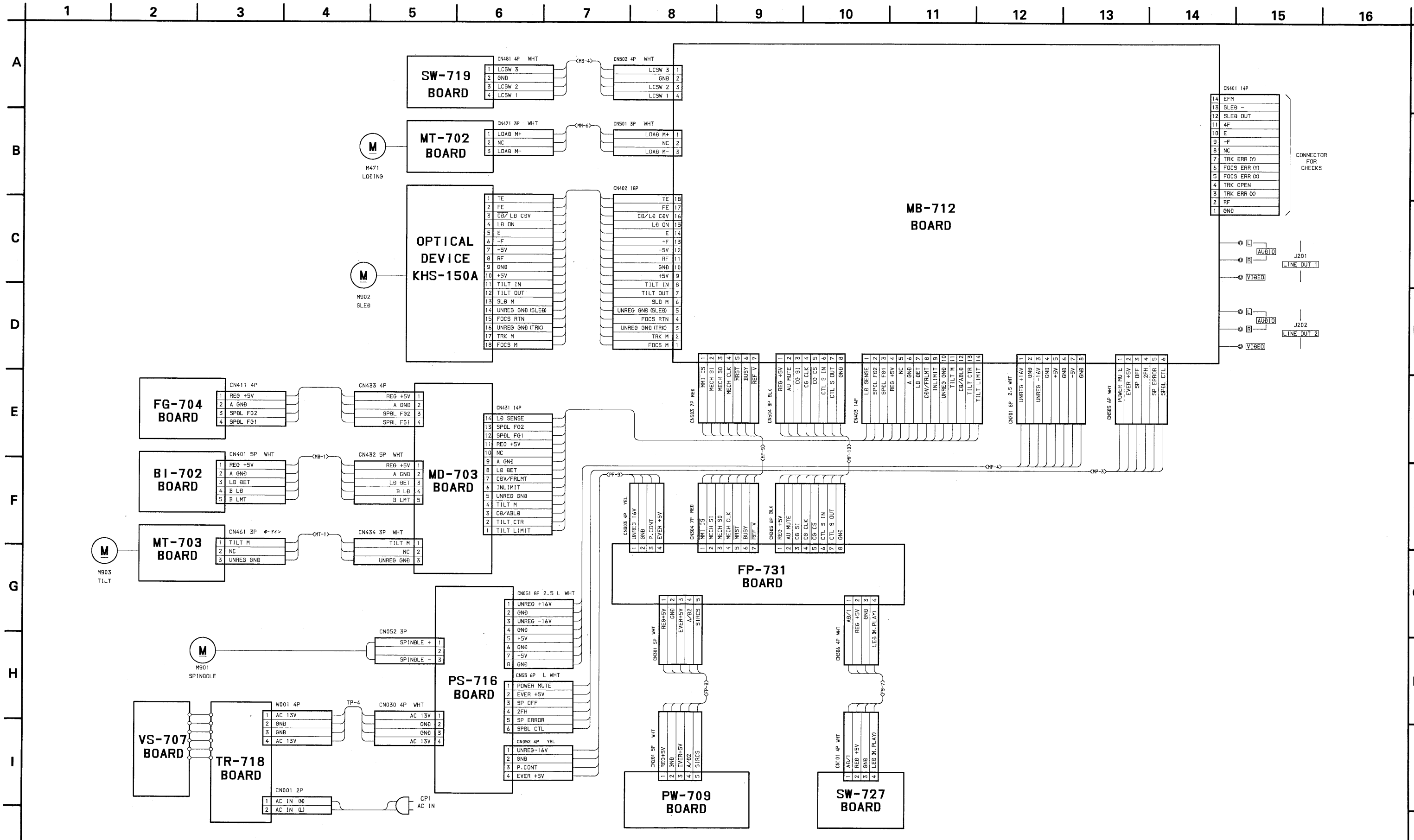


3-8. POWER SUPPLY BLOCK DIAGRAM



SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM



4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

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

- For printed wiring boards:
- — : indicates a lead wire mounted on the component side.
 - — : indicates a lead wire mounted on the printed side.
 - : Pattern from the side which enables seeing.

Caution:
Pattern face side: Parts on the pattern face side seen from the (Conductor Side) pattern face are indicated.
Parts face side: Parts on the parts face side seen from the (Component Side) parts face are indicated.

- For schematic diagram:
- Caution when replacing chip parts.
 - New parts must be attached after removal of chip.
 - Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
 - All resistors are in ohms, 1/4W (Chip resistors: 1/10W) unless otherwise noted.
 - kΩ: 1000Ω, MΩ: 1000kΩ.
 - All capacitors are in μF unless otherwise noted. pF: μF 50V or less are not indicated except for electrolytics and tantalums.
 - All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
 - ⊠ : nonflammable resistor.
 - ⊞ : fusible resistor.
 - : panel designation.
 - △ : internal component.
 - ⊞ : adjustment for repair.*
 - : B + Line.*
 - - - : B - Line.*
 - Voltages are dc between measurement points and ground unless otherwise noted.*
 - Readings are taken with a digital multimeter (DC10MΩ).*
 - Voltage variations may be noted due to normal production tolerances.
 - ⇨ : IN/OUT direction of B line (+, -).*
 - Circled numbers refer to waveforms.*

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

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

- * : indicated by the color red.

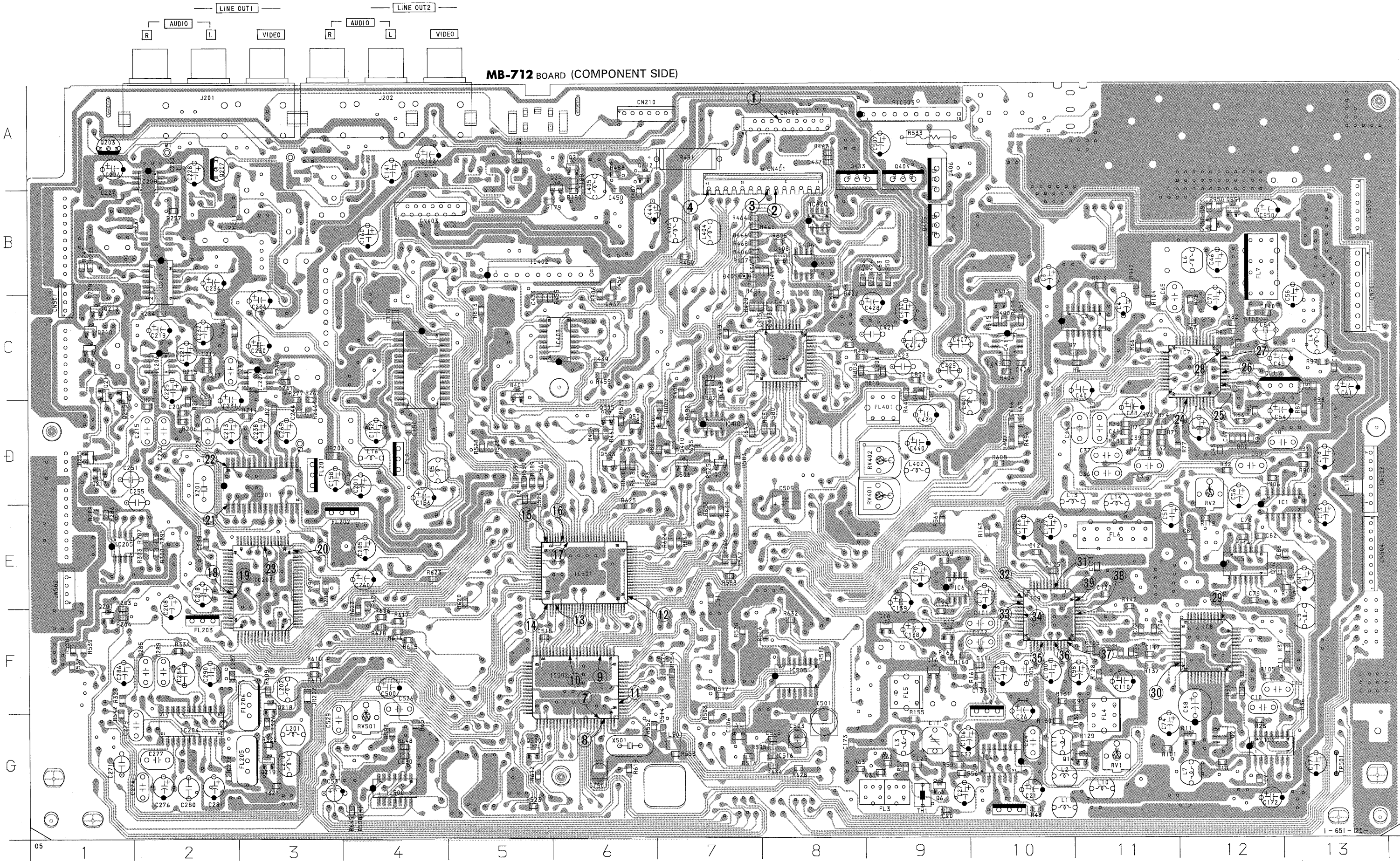
MDP-A500

MB-712 (VIDEO, RF AMPLIFIER, SERVO, SYSTEM CONTROL, AUDIO) PRINTED WIRING BOARD

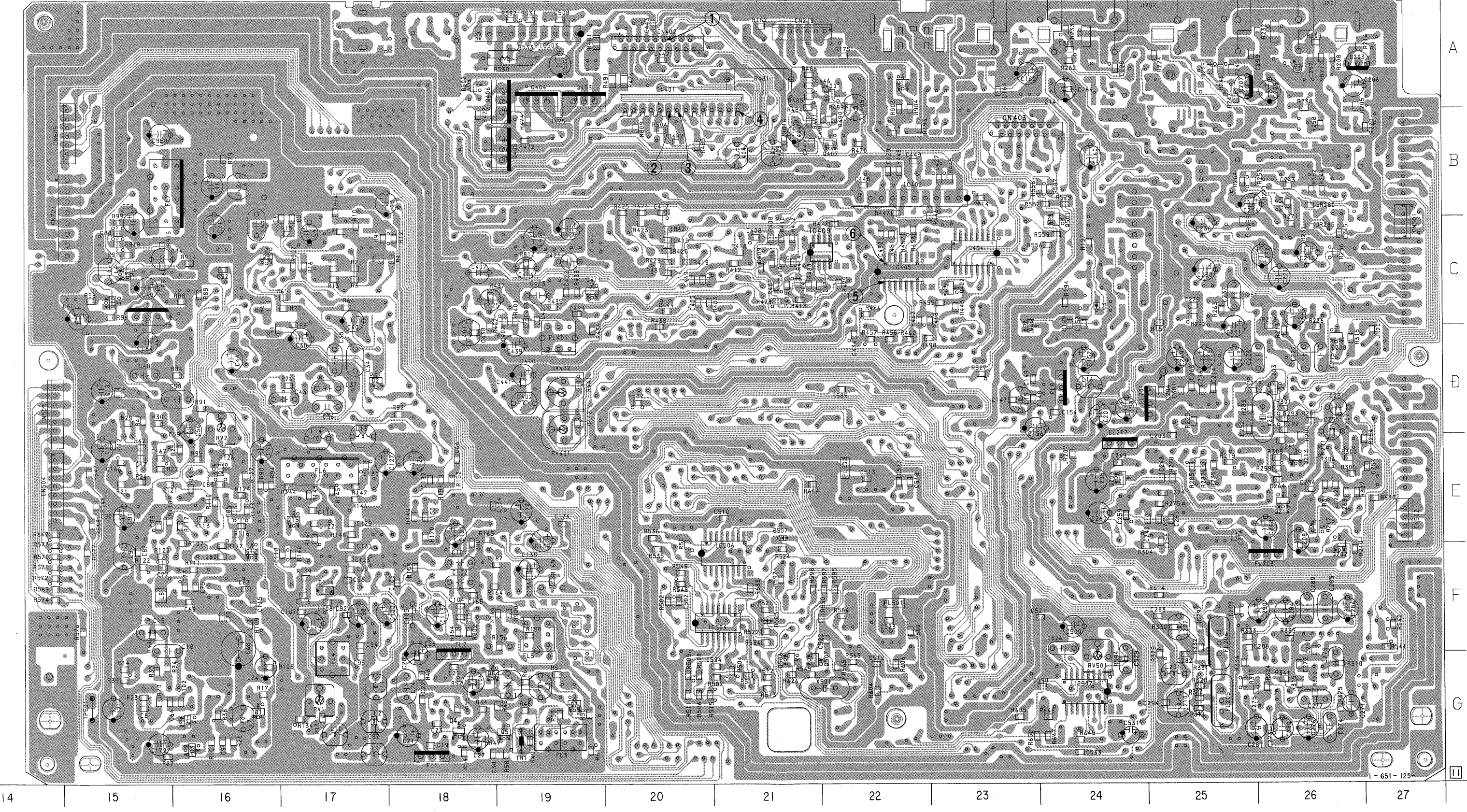
- Ref. No.: MB-712 Board; 1,000 series -

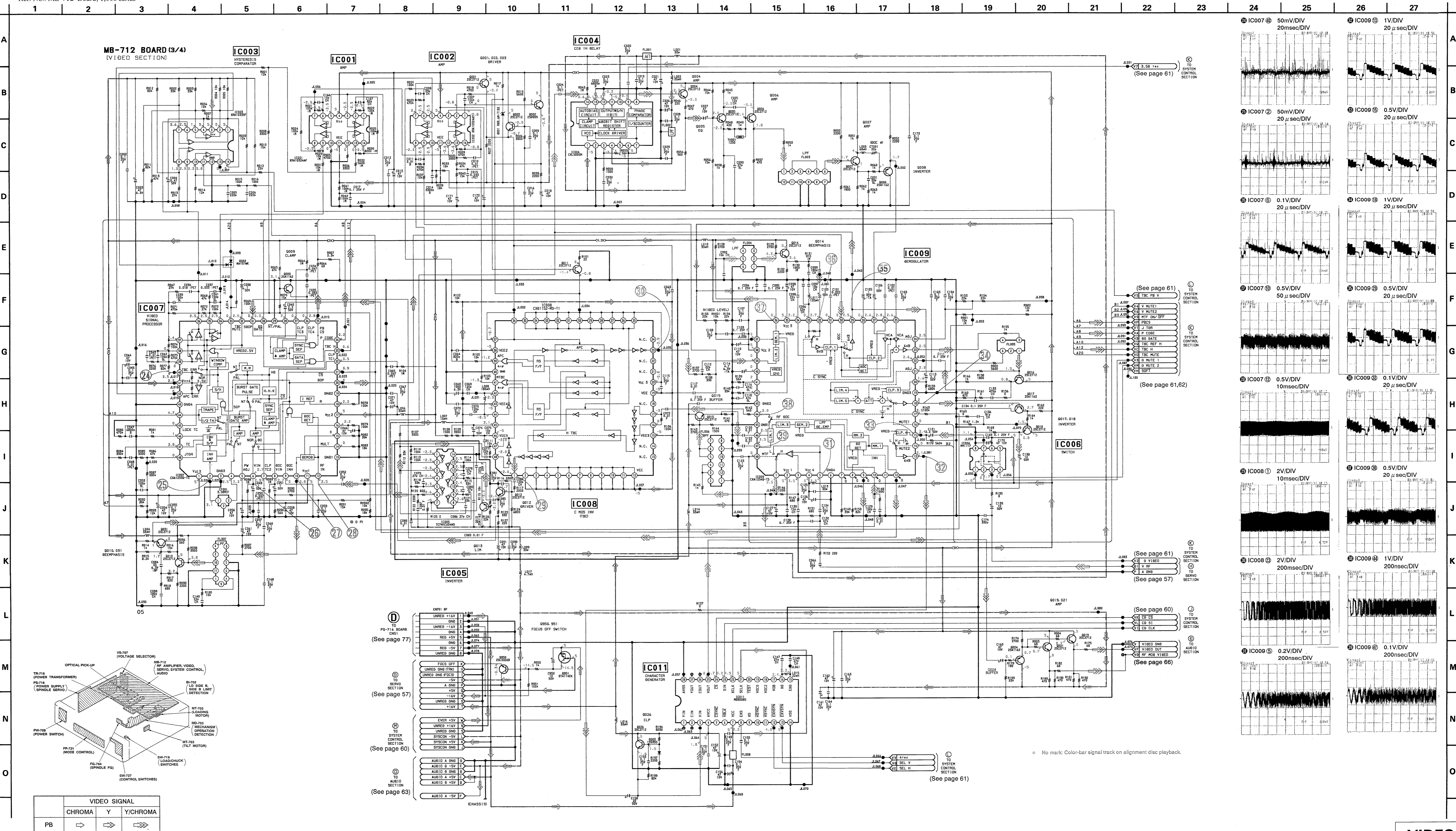
MB-712 BOARD

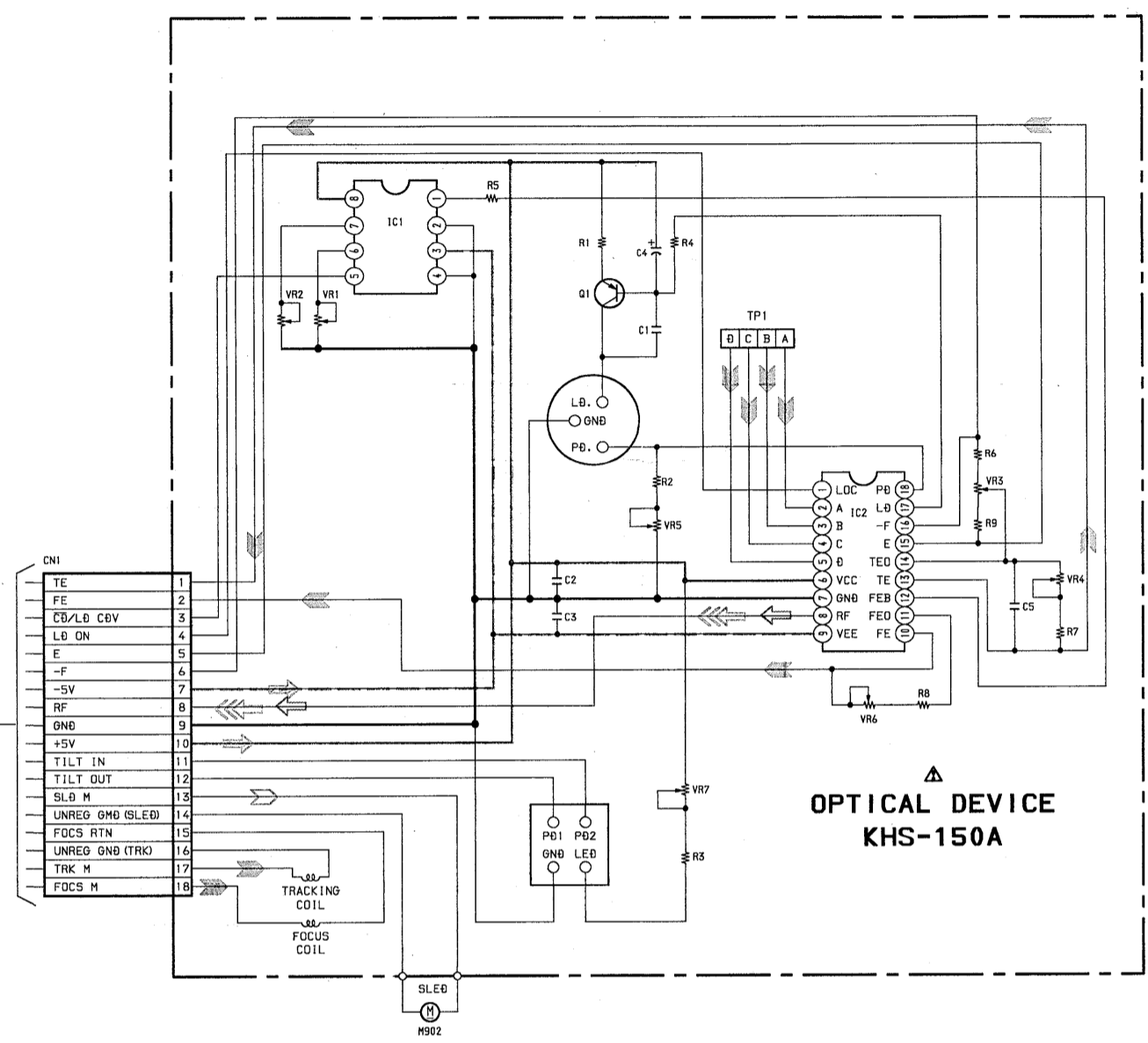
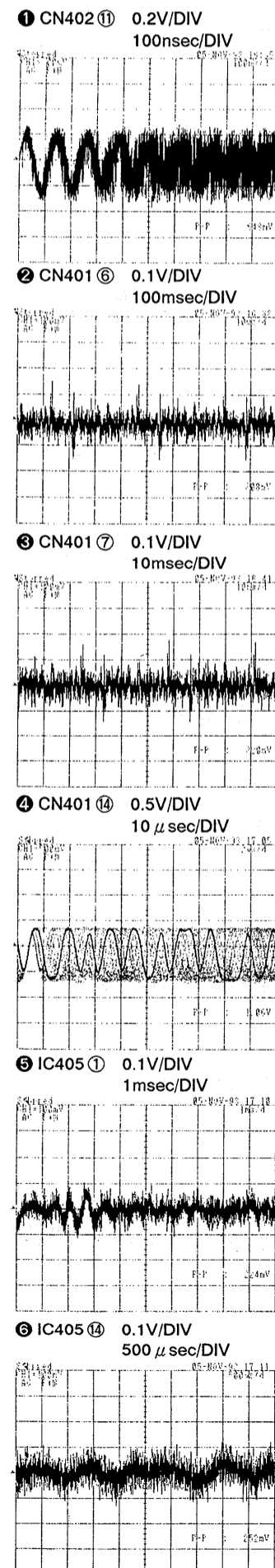
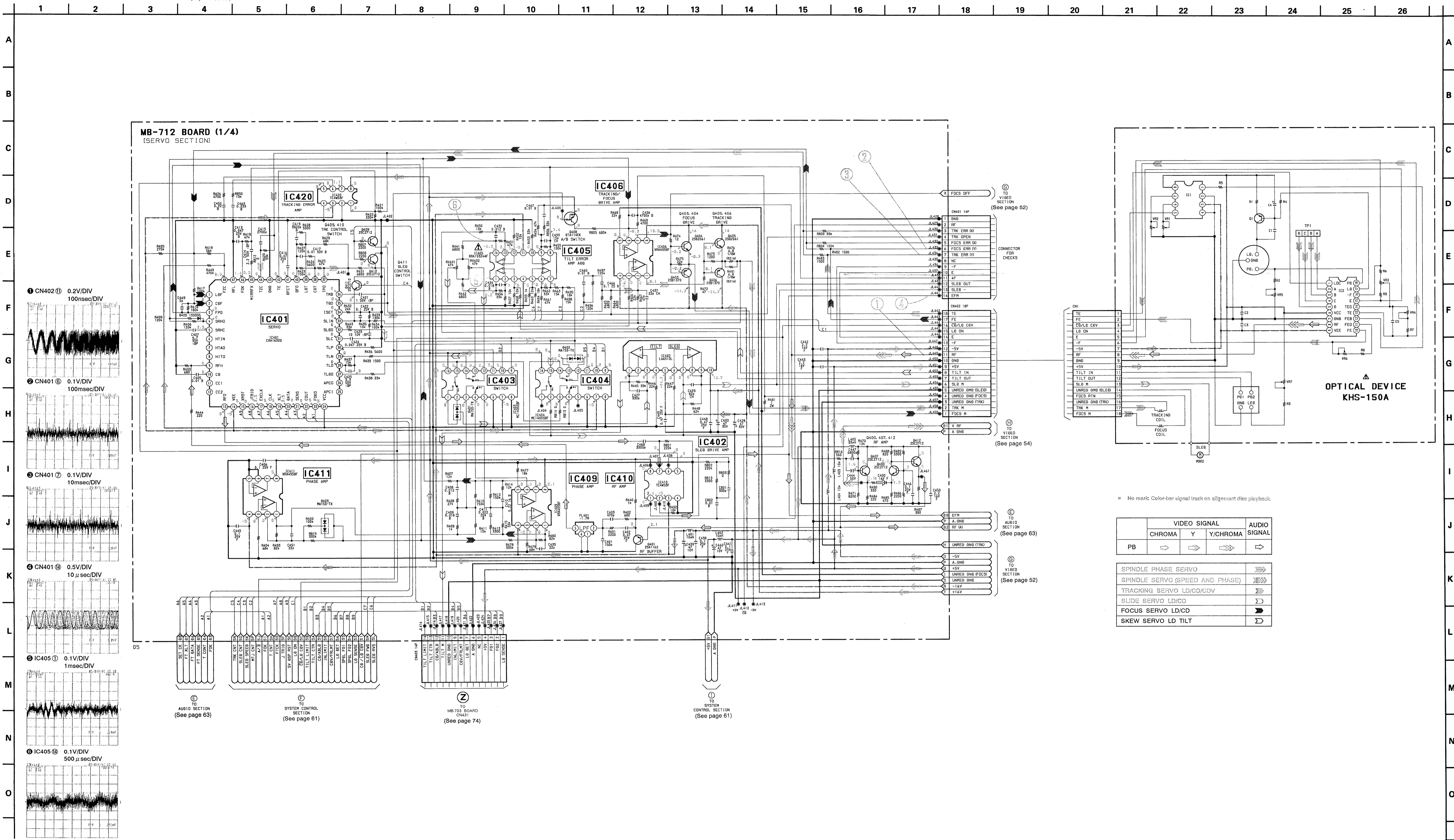
CN210	A-6, A-21	O001	G-16
CN401	A-7, A-20	O002	G-12
CN402	A-8, A-20	O003	G-16
CN403	B-4, B-23	O004	G-18
CN501	C-1, C-27	O005	G-19
CN502	E-1, E-27	O006	G-9
CN503	D-13, D-14	O007	G-18
CN504	E-13, E-14	O008	G-18
CN505	B-13, B-15	O009	C-16
CN701	B-13, B-15	O010	C-15
		O011	G-12
D001	G-16	O012	F-16
D002	D-17	O013	E-16
D003	C-24	O014	C-11
D002	E-28	O015	E-17
D203	D-28	O016	F-9
D205	D-1	O017	F-9
D206	D-26	O018	F-9
D401	C-5	O019	A-22
D402	C-23	O021	A-8
D403	C-10	O024	A-8
D405	B-7	O026	D-23
D502	A-18	O031	C-15
D503	F-21	O201	F-1
D506	D-7	O202	F-26
D507	E-21	O203	A-1, A-26
D508	G-4	O206	E-24
		O207	A-2, A-25
IC001	D-12	O210	C-1
IC002	G-12	O211	C-1
IC003	C-11	O212	C-1
IC004	G-10	O213	E-28
IC005	E-12	O214	E-28
IC006	E-9	O215	C-1
IC007	C-12	O216	C-1
IC008	F-12	O217	D-1
IC009	E-10	O218	F-3
IC011	C-4	O219	G-3
IC201	D-3	O400	A-21
IC202	B-2	O401	C-9
IC203	E-3	O403	A-8, A-19
IC204	G-2	O404	A-9, A-19
IC205	E-2	O405	B-9, B-18
IC206	C-2	O406	A-9, A-18
IC207	C-3	O407	B-22
IC209	A-2	O408	B-8
IC401	C-8	O409	D-7
IC402	B-5, B-22	O410	D-7
IC403	C-6	O411	C-19
IC404	C-23	O412	A-6
IC405	C-22	O500	G-5
IC406	B-8	O501	C-24
IC409	C-22	O502	D-7
IC410	D-7	O503	D-6
IC411	C-10	O504	D-6
IC420	B-9	O505	D-6
IC500	G-4	O506	G-21
IC501	E-8	O507	G-21
IC502	F-8	O509	B-12
IC503	A-9, A-19	O511	B-12
IC504	F-21	O512	B-12
IC505	F-8		
IC506	F-21		
IC507	G-24		



MB-712 BOARD (CONDUCTOR SIDE)



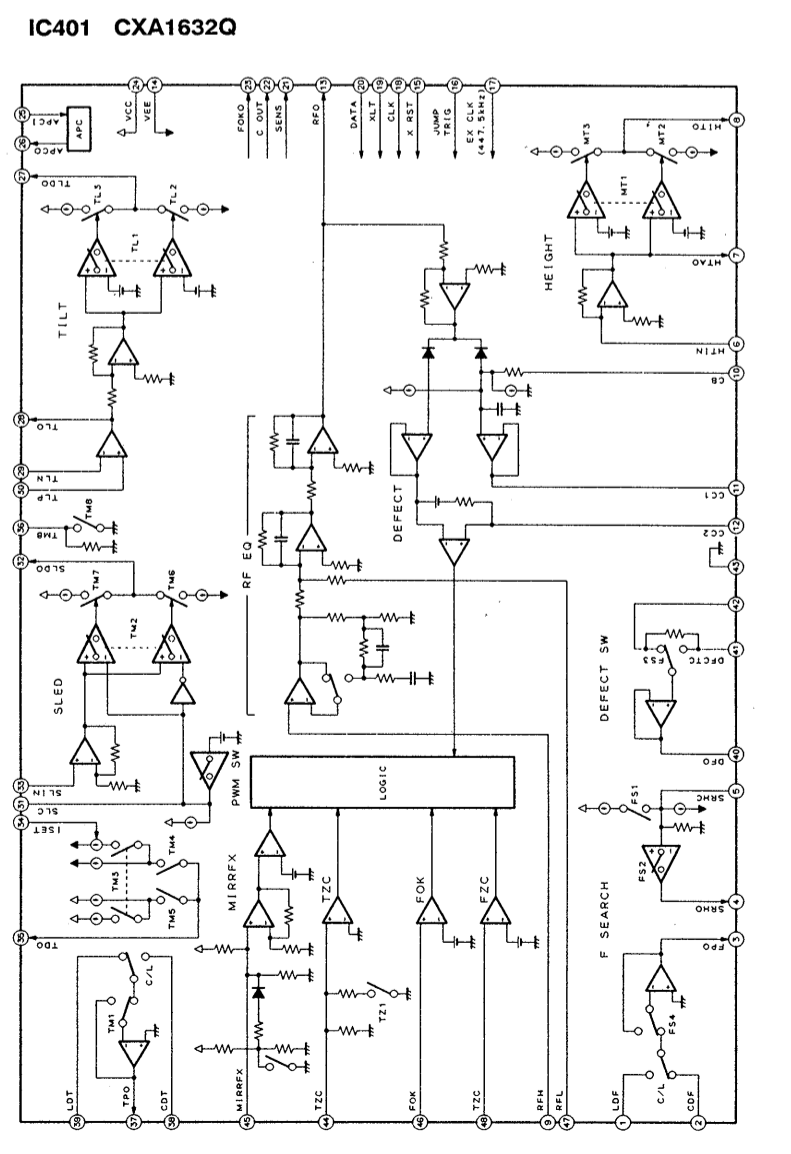


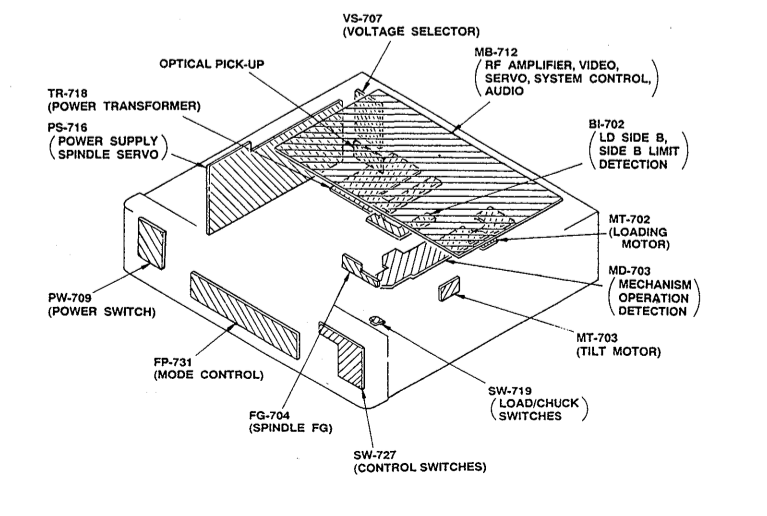
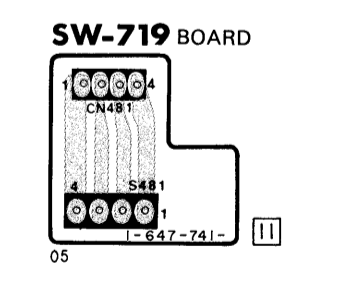
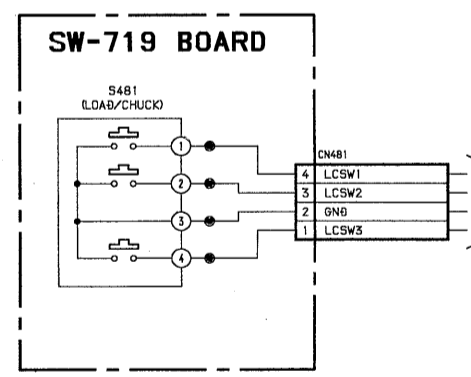
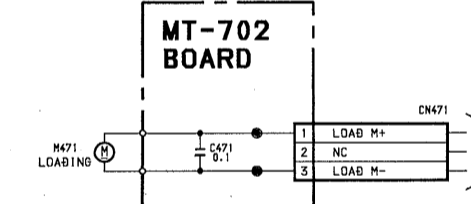
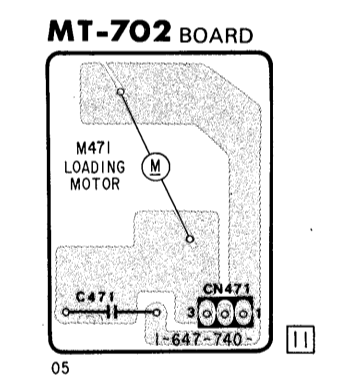
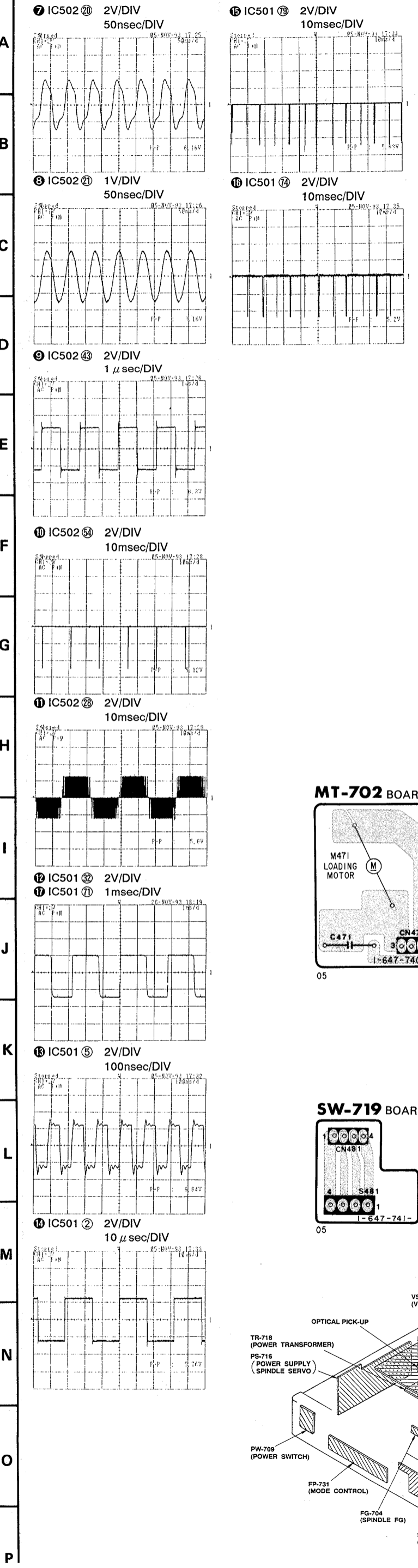
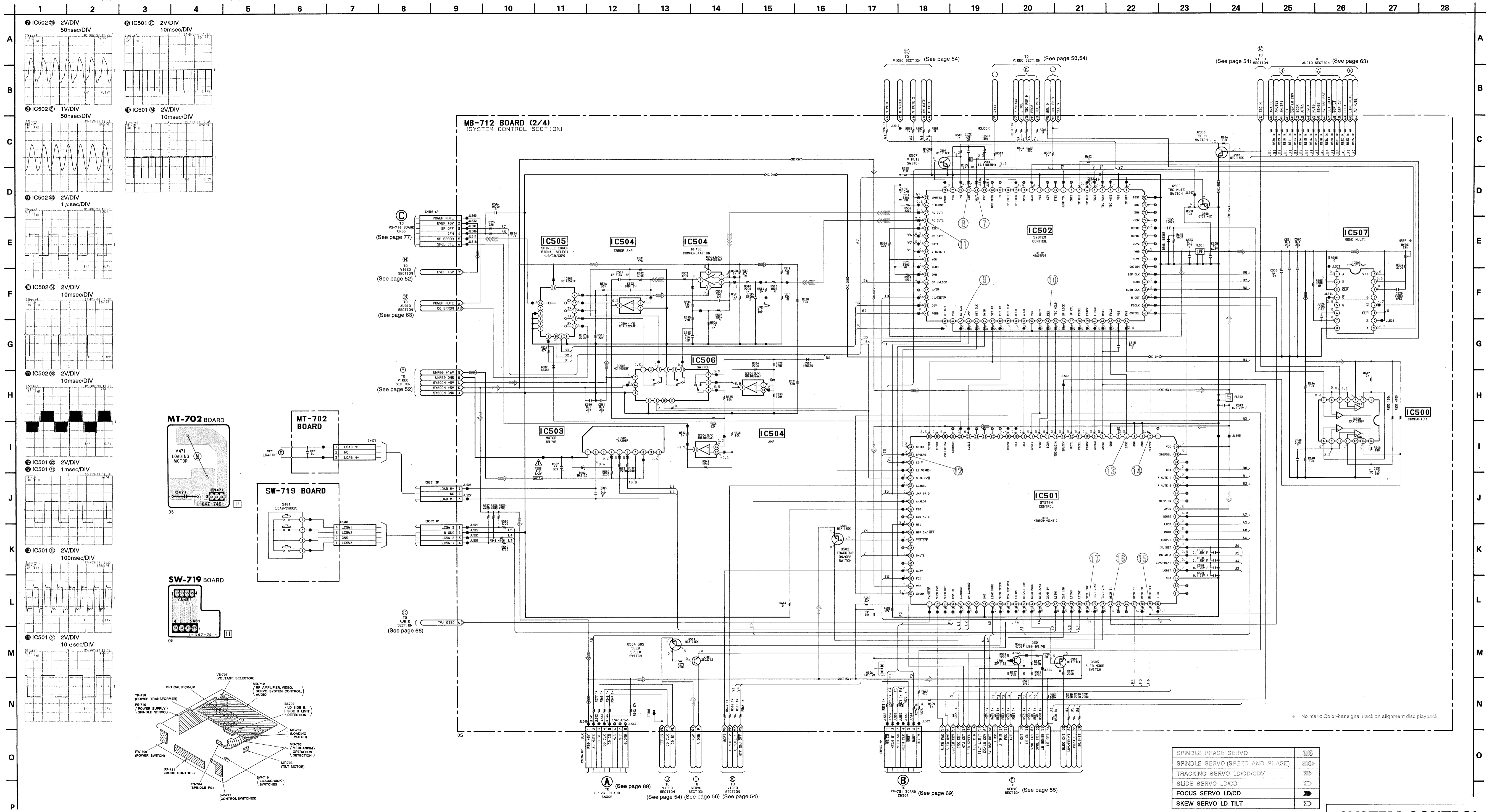


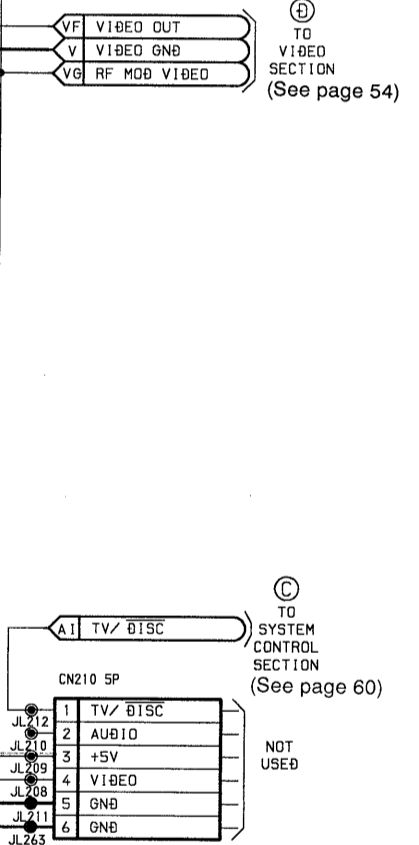
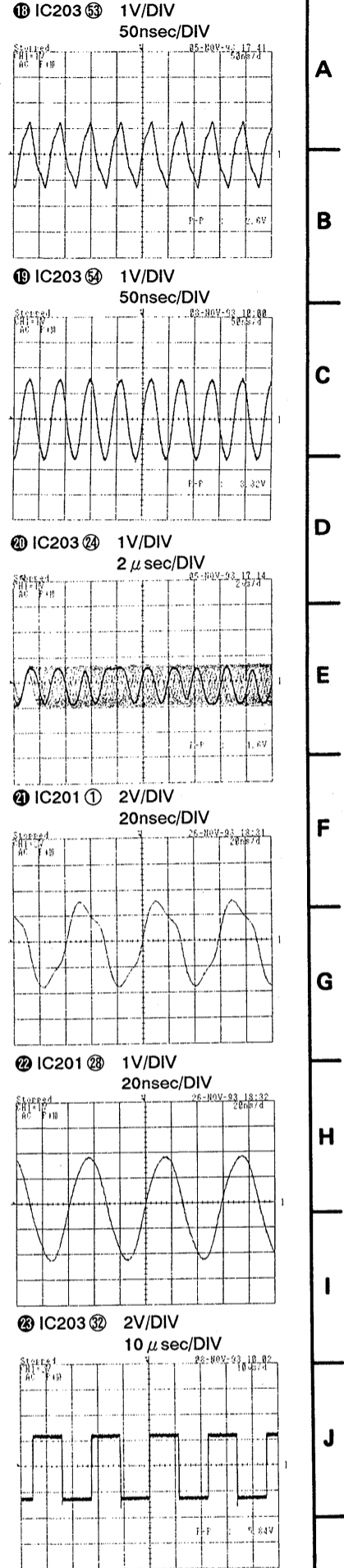
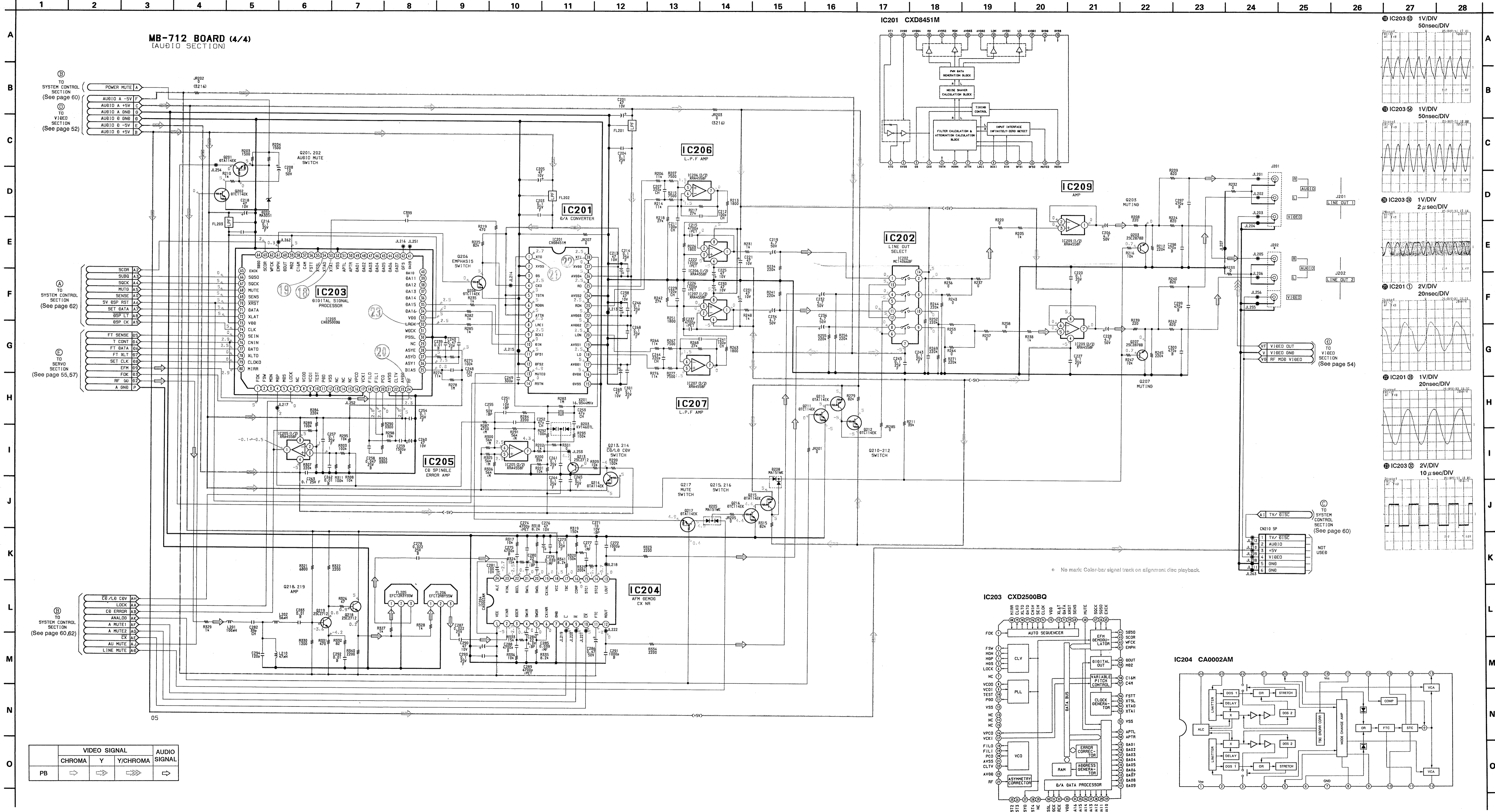
* No mark Color-bar signal track on alignment disc playback.

VIDEO SIGNAL	AUDIO SIGNAL	
	CHROMA	Y/CHROMA
PB	→	→

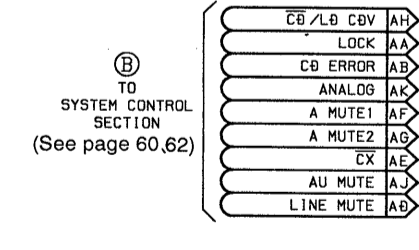
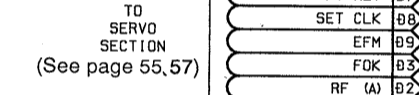
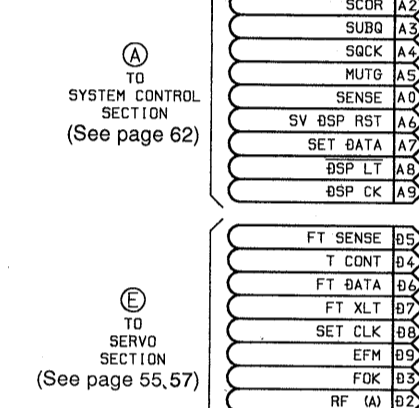
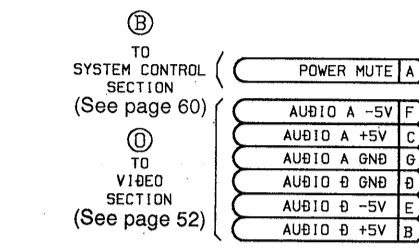
SPINDLE PHASE SERVO	→
SPINDLE SERVO (SPEED AND PHASE)	→
TRACKING SERVO LD/CD/CDV	→
SLIDE SERVO LD/CD	→
FOCUS SERVO LD/CD	→
SKREW SERVO LD TILT	→



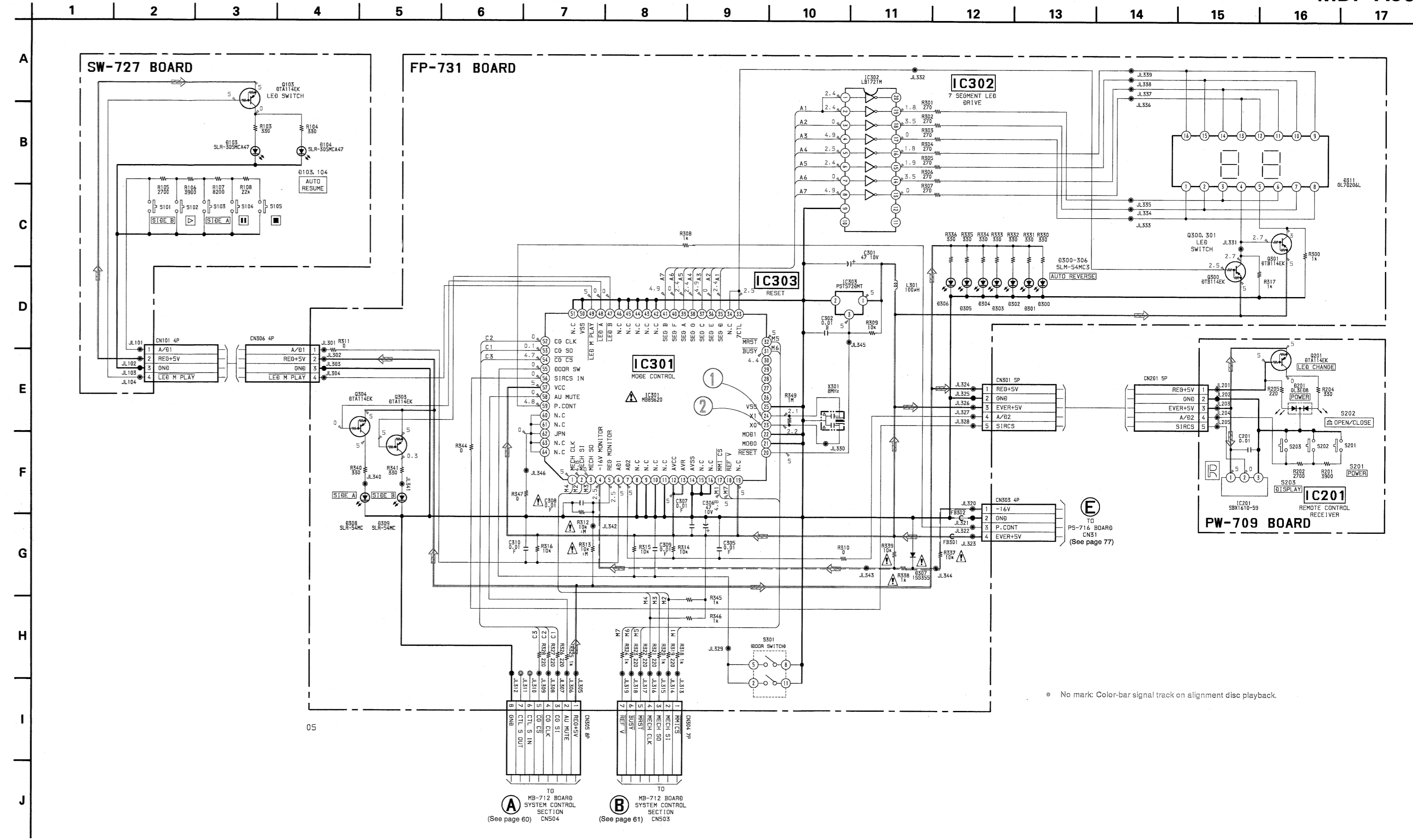
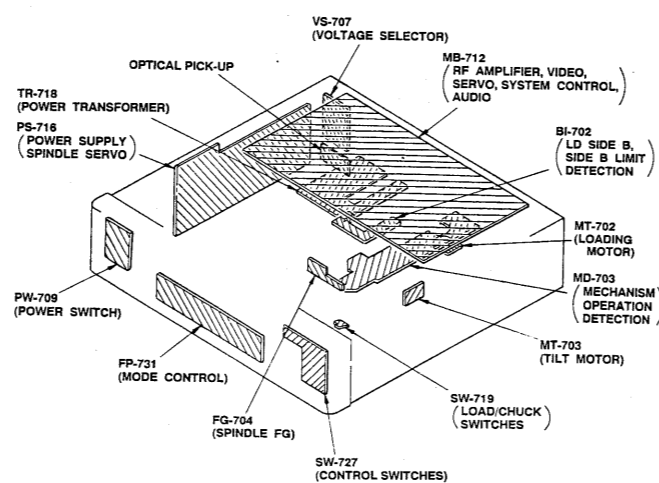
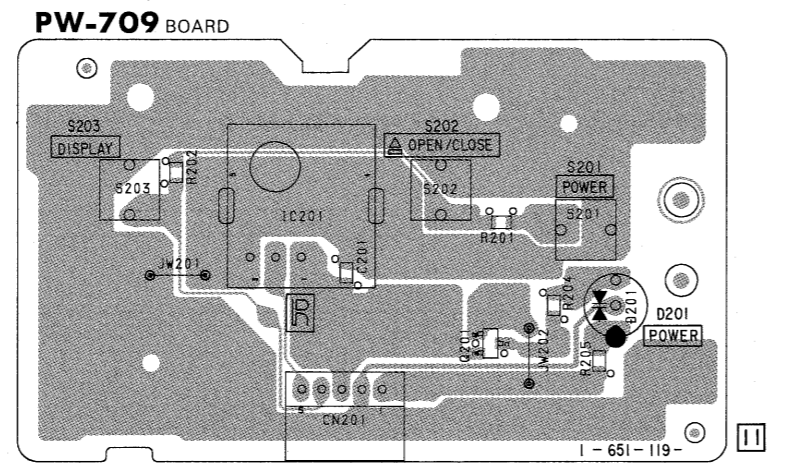
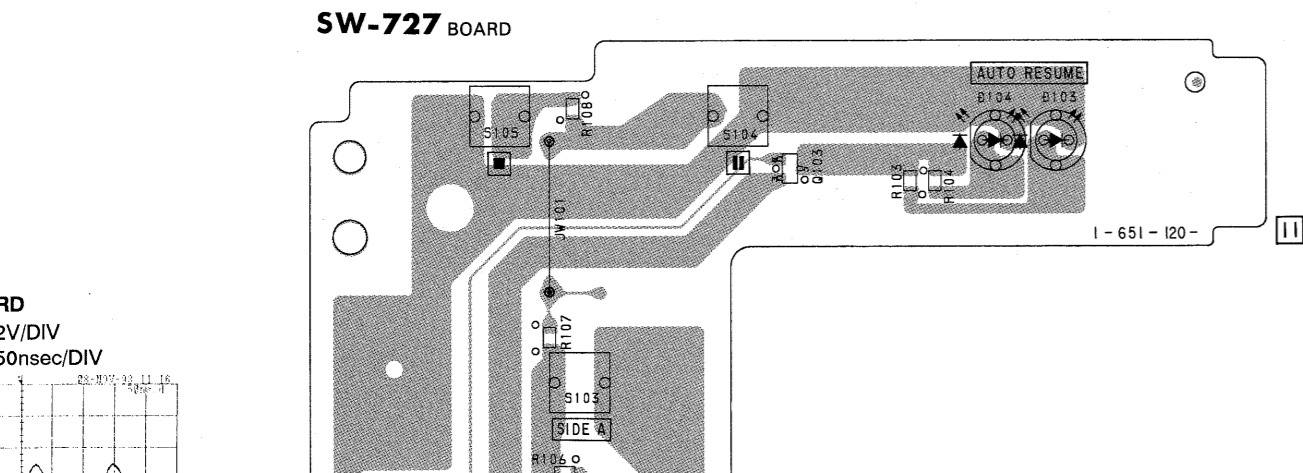
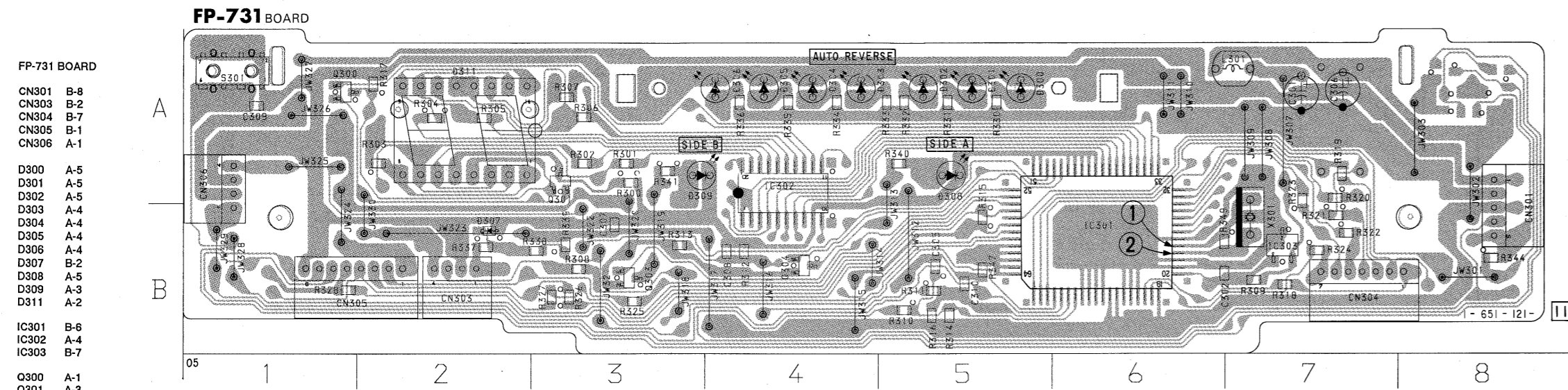




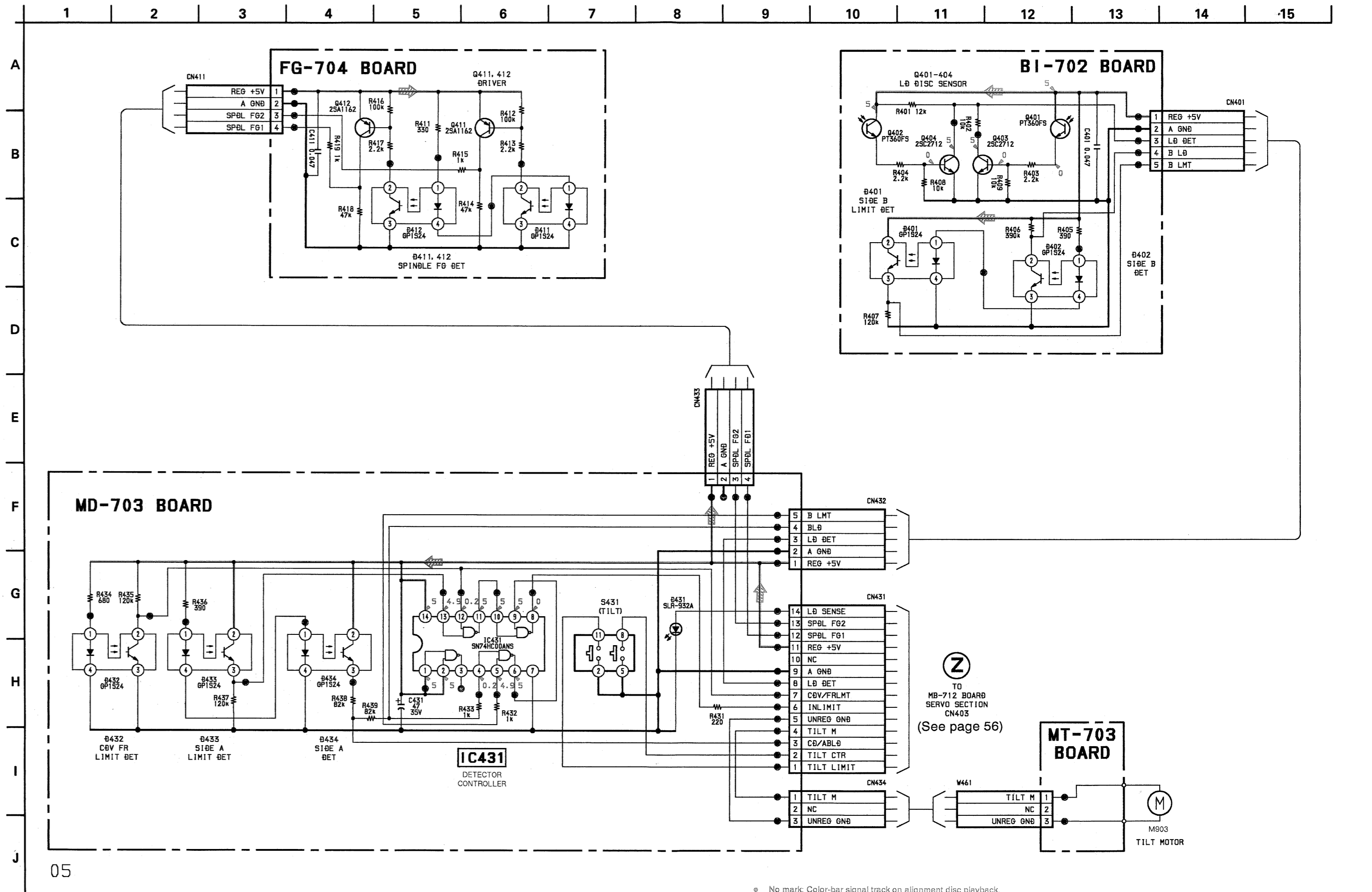
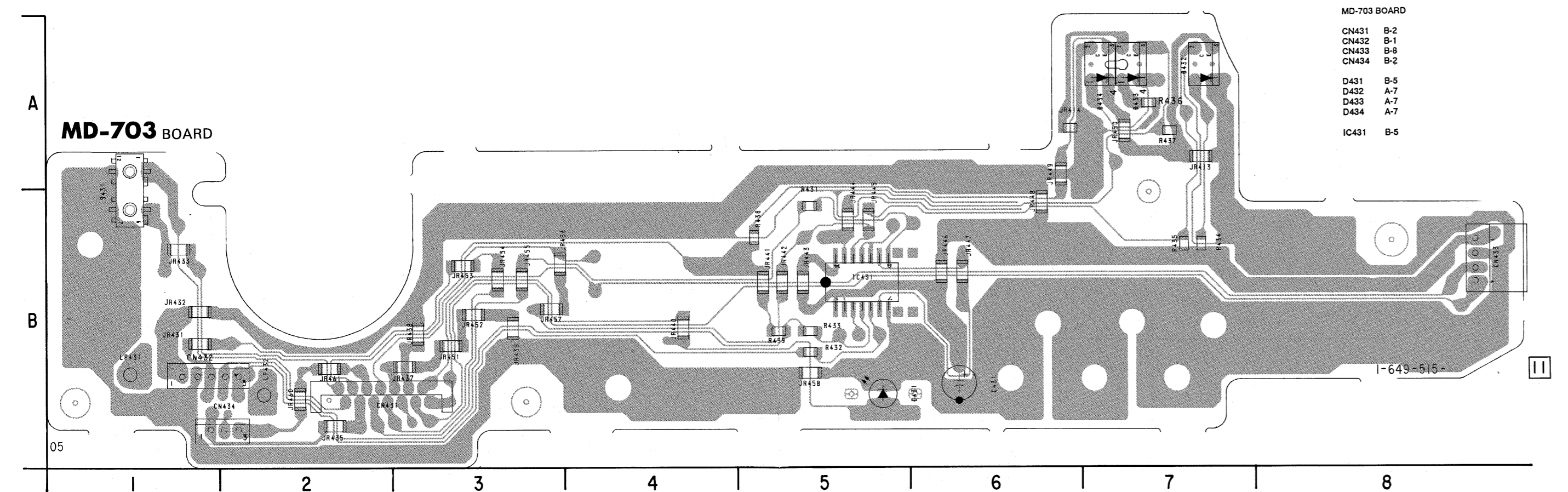
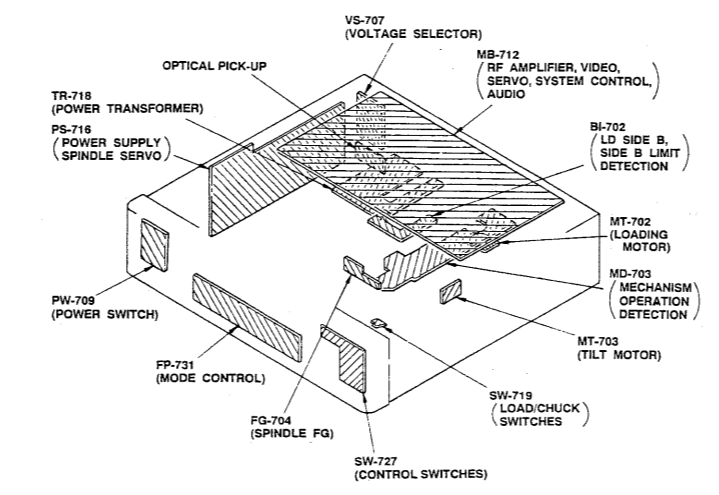
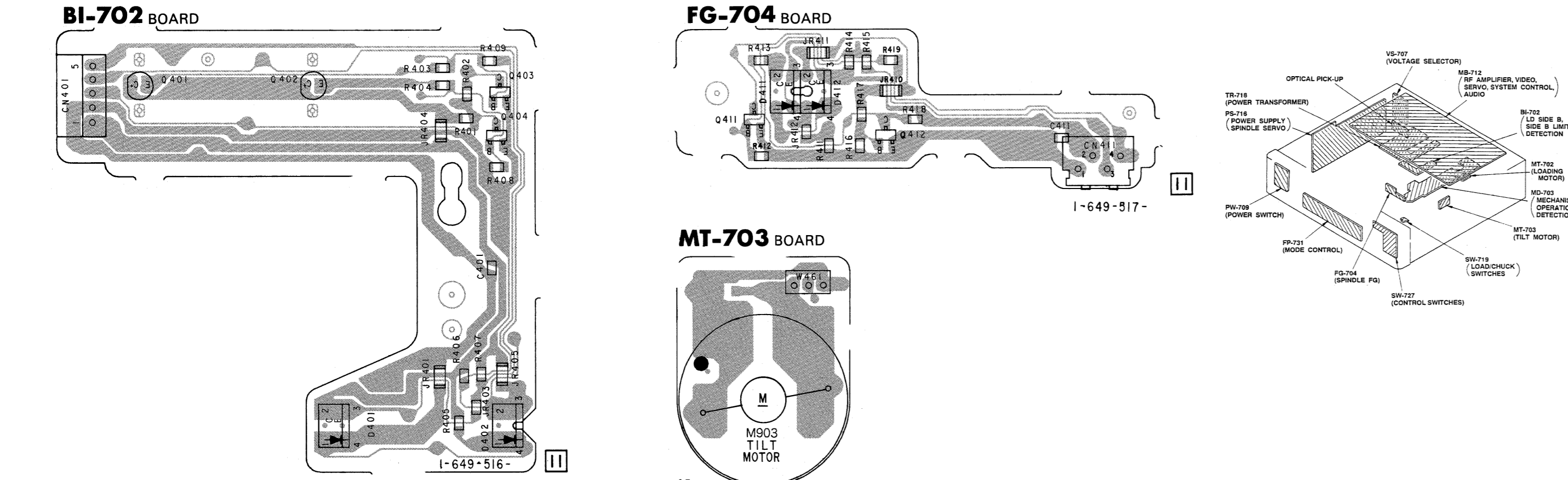
• No mark Color-bar signal track on alignment disc playback.



VIDEO SIGNAL		AUDIO SIGNAL	
CHROMA	Y	Y/CHROMA	
PB	→	→	→



• No mark: Color-bar signal track on alignment disc playback.



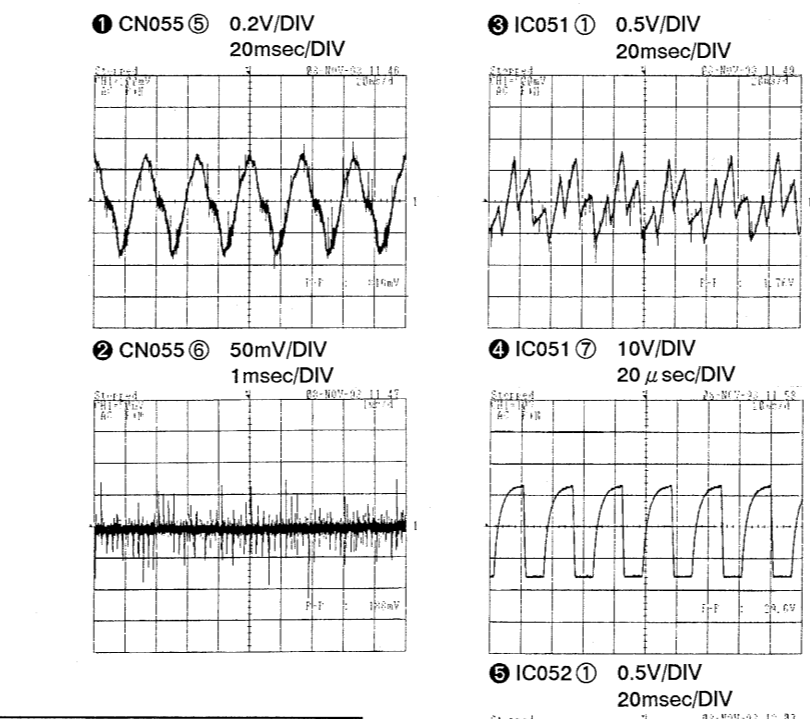
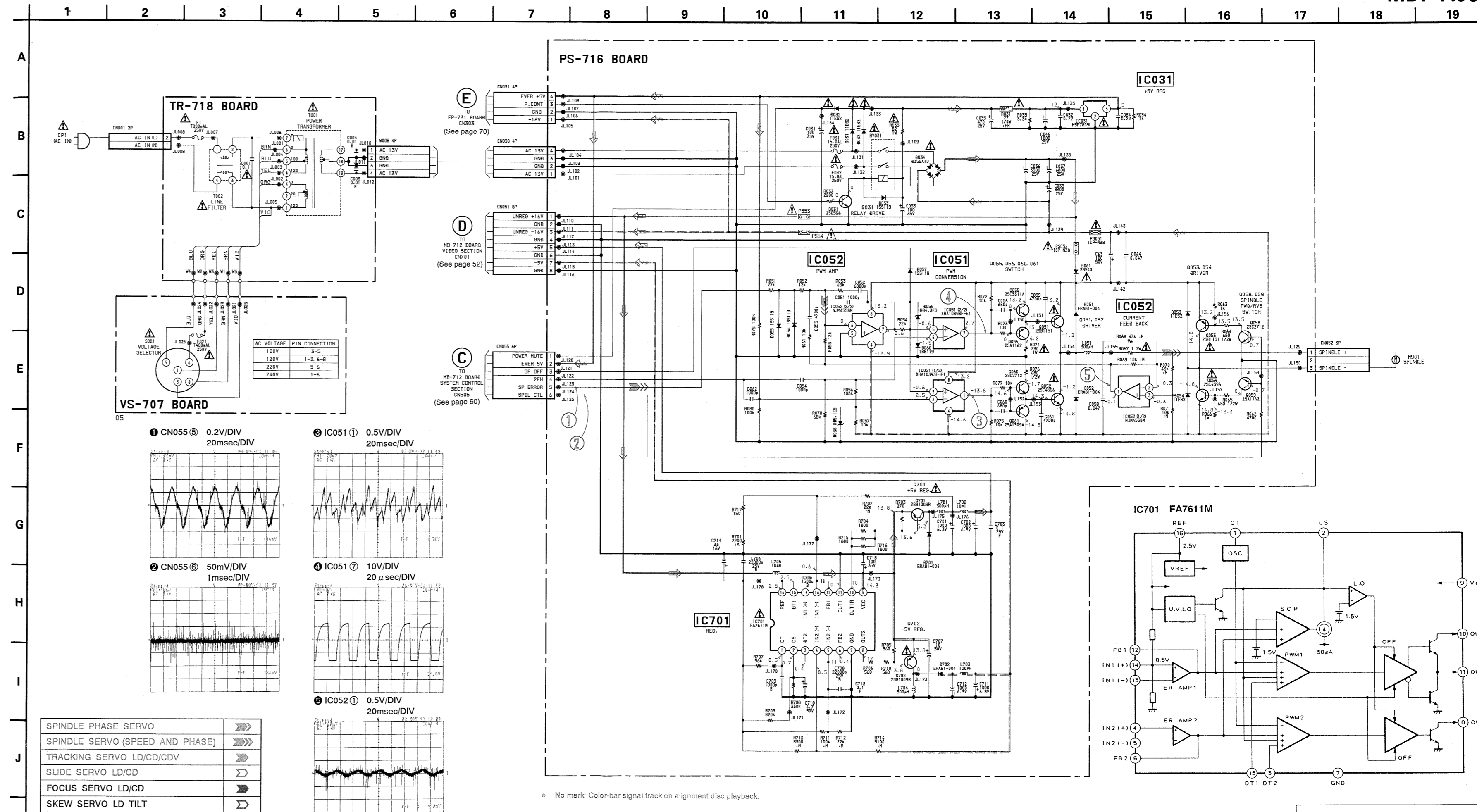
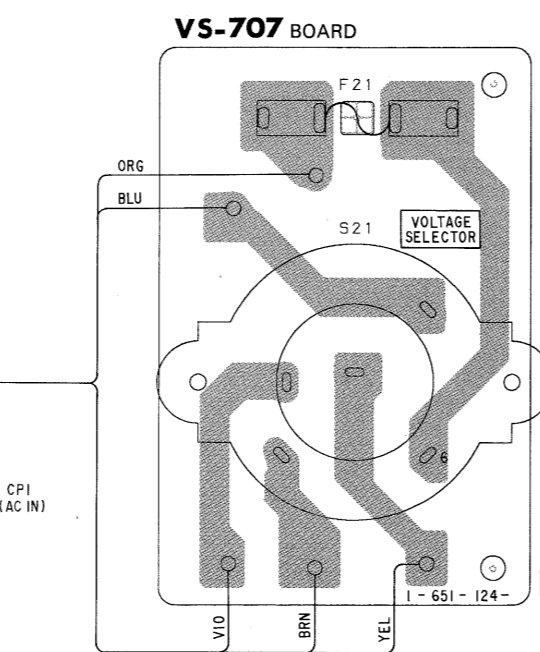
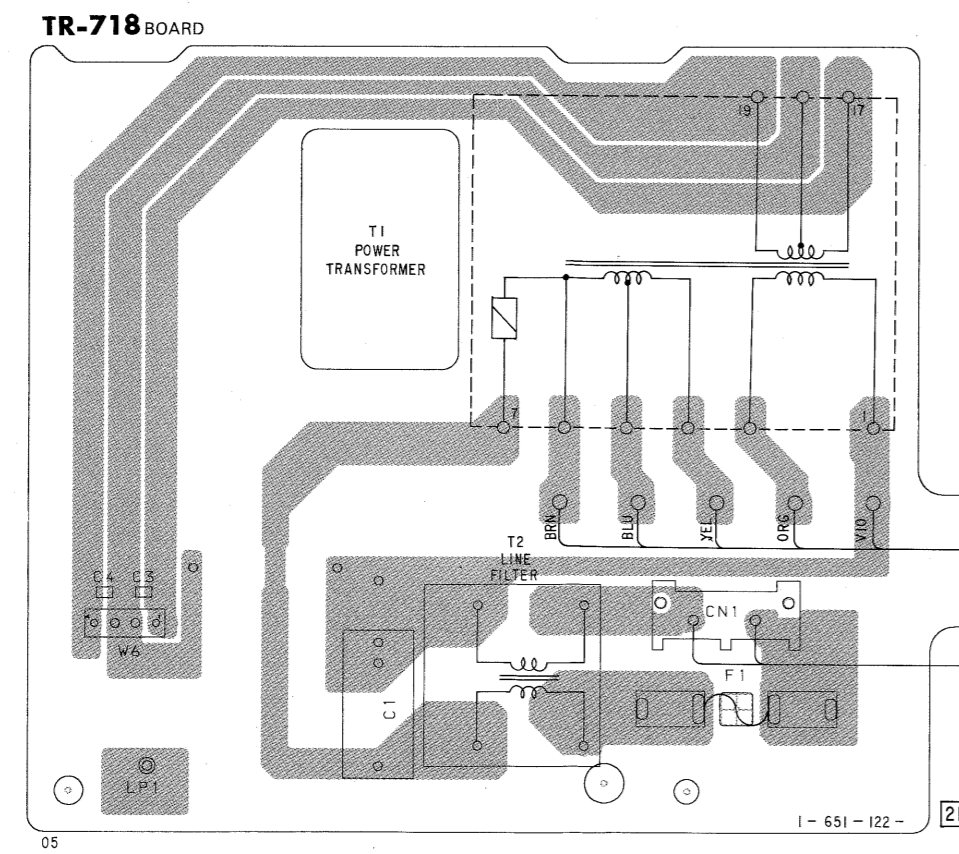
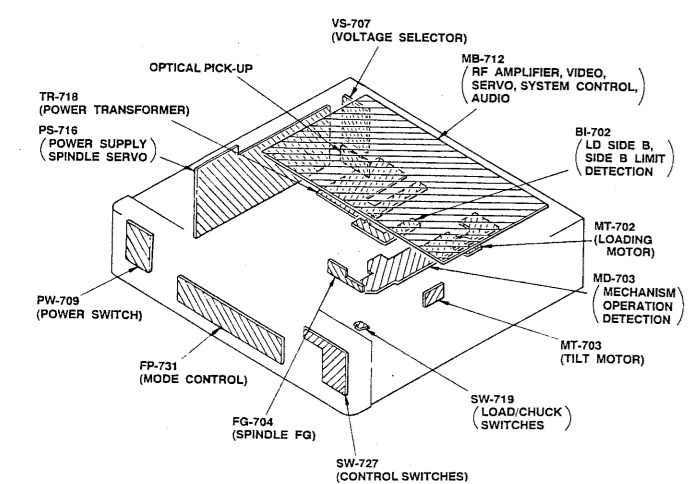
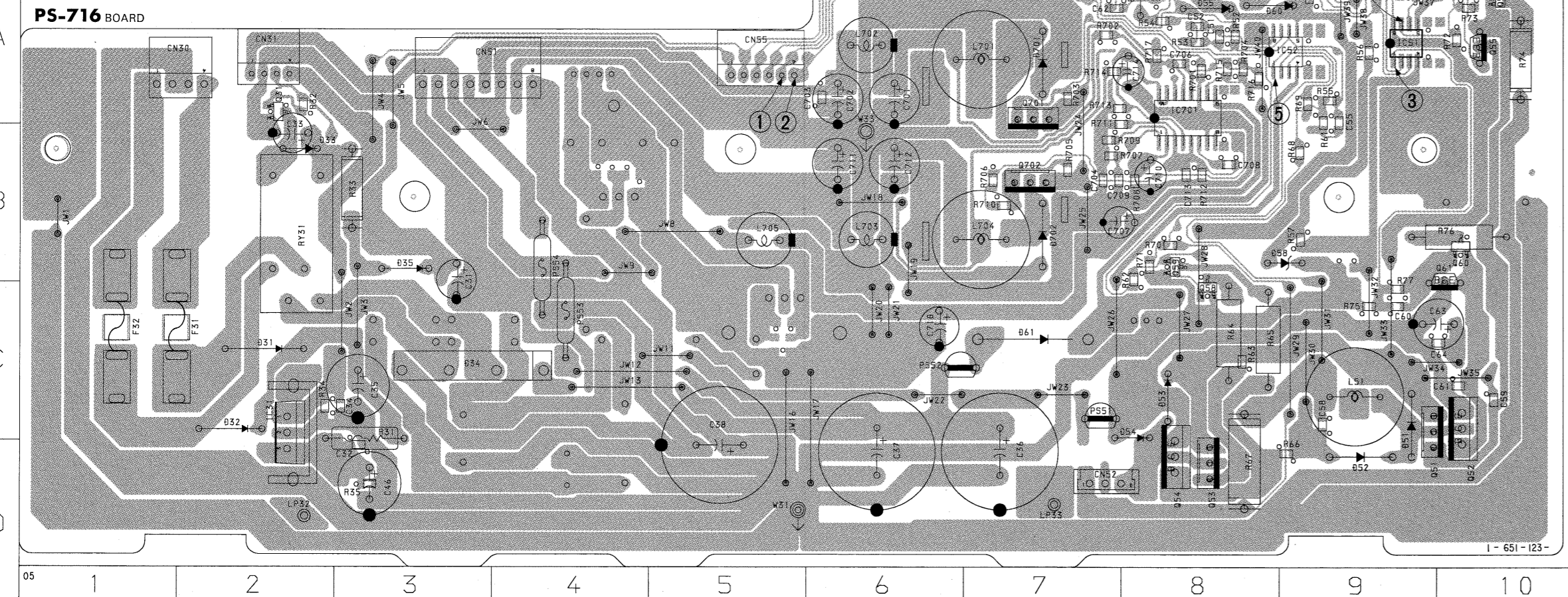
o No mark: Color-bar signal track on alignment disc playback.

PS-716 BOARD
 CN030 A-1
 CN031 A-2
 CN051 A-3
 CN052 D-7
 CN055 A-5

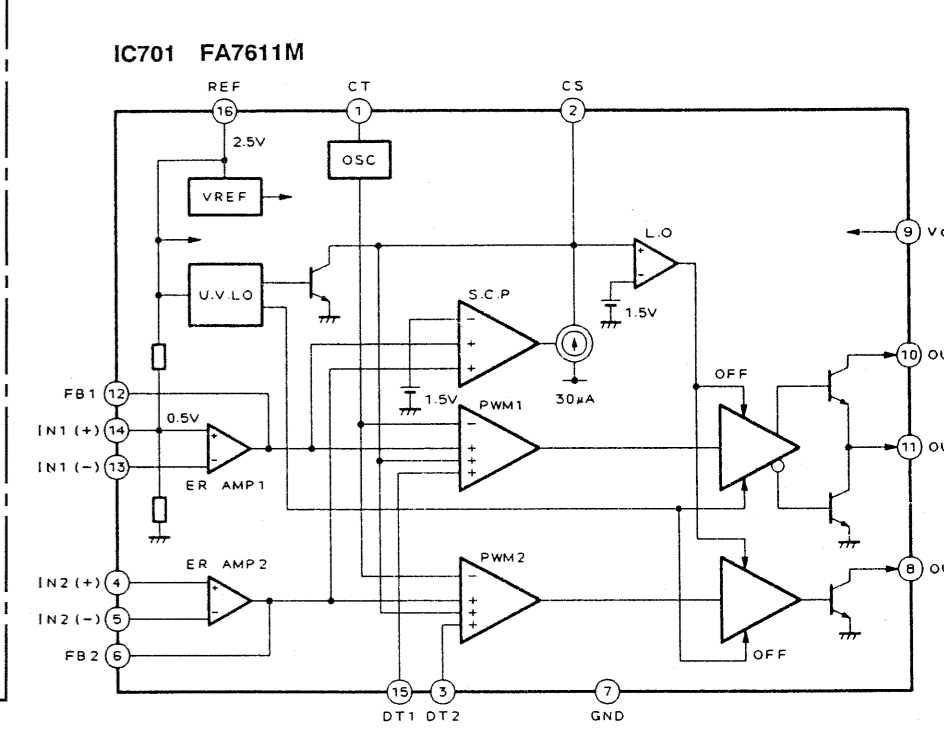
D031 C-2
 D032 C-2
 D033 B-2
 D034 C-3
 D035 B-3
 D051 D-9
 D052 D-9
 D053 C-8
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 D055 A-8
 D056 A-8
 D057 A-8
 D058 B-9
 D059 A-9
 D060 A-9
 D061 C-7
 D701 A-7
 D702 B-7

IC031 C-2
 IC051 A-9
 IC052 A-9
 IC701 A-8

Q031 A-2
 Q051 D-9
 Q052 D-10
 Q053 D-8
 Q054 D-8
 Q055 A-10
 Q056 A-10
 Q058 C-8
 Q059 C-8
 Q060 B-10
 Q061 C-10
 Q701 A-7
 Q702 B-7



No mark: Color-bar signal track on alignment disc playback.



SECTION 5 EXPLODED VIEWS

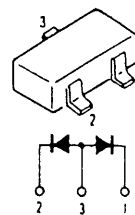
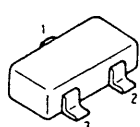
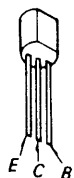
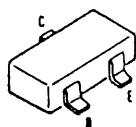
4-3. SEMICONDUCTORS

DTA114EK
DTC114EK
2SA1162-G
2SC2712-YG
2SC3326N
2SD596DV345

2SC2878-AB

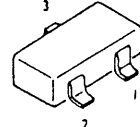
KV1460TL00

1S2836



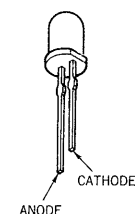
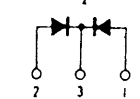
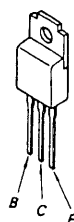
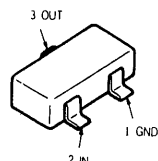
MA152WK

2SC4596E



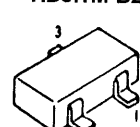
PY5504S-1

DTB114EK



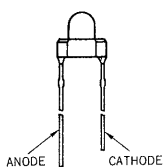
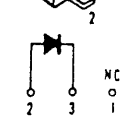
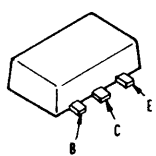
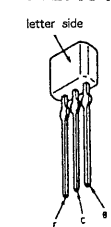
MA3120-TX
RD3.6M-B2
RD5.1M-B2

2SD999-CLCK



SLR305MC3F

2SA1175-HFE
2SC2785-HFE

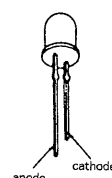
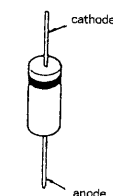
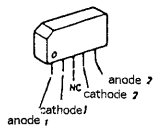
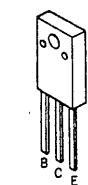


D3SBA10-4100

S3V40

SLR932A

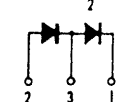
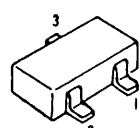
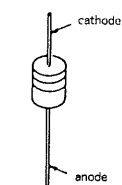
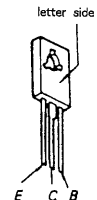
2SB1009R



ERA81-006
RD4.3ES-B2
RD5.1ES-B2
1S119
11ES2

1S1226

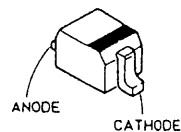
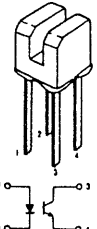
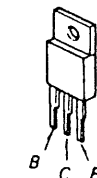
2SB1151



2SB1370-EF
2SD2012

GP1S24
PT-360FS

1S1355



NOTE:

- XX and -X mean standardized parts, so they may have some difference from the original one.

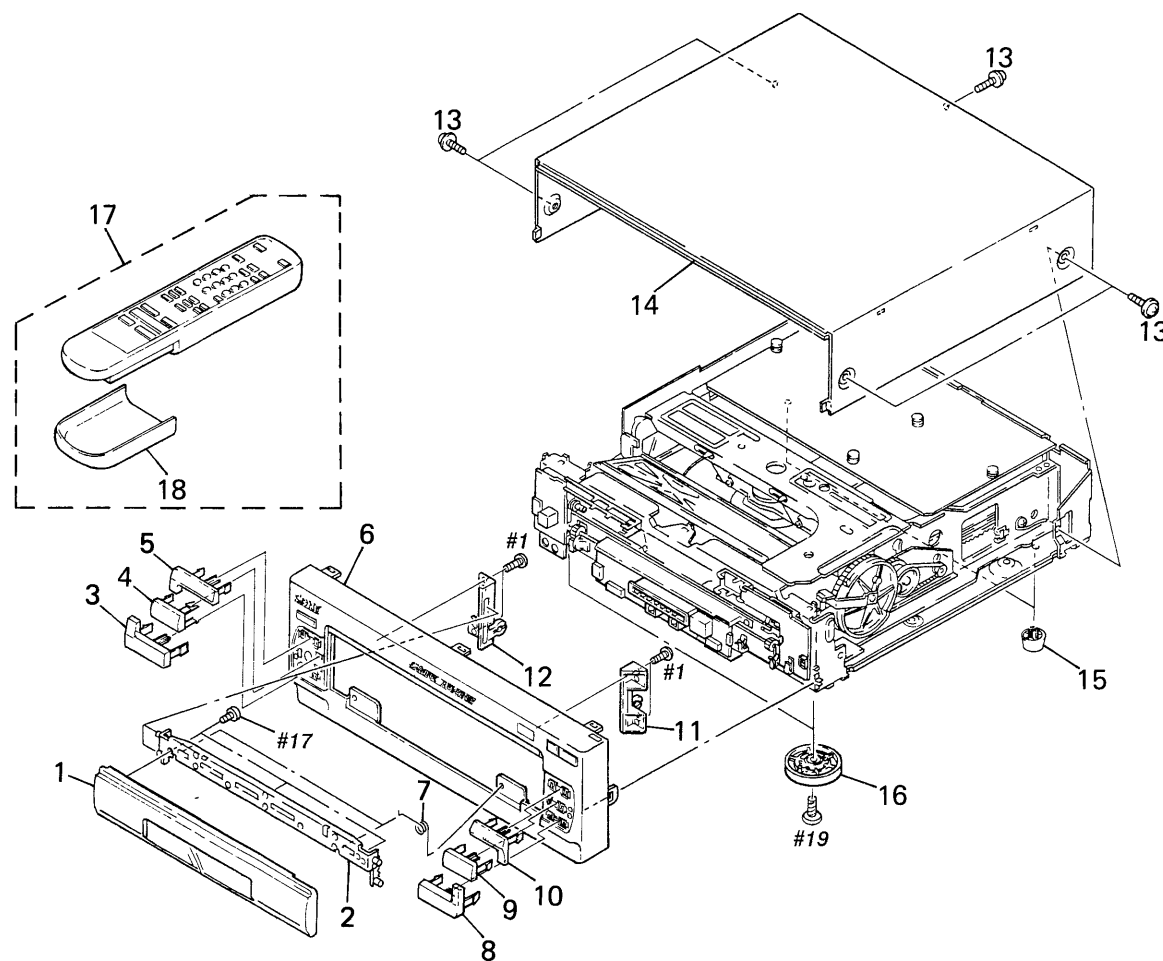
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- The mechanical parts with no reference number in the exploded views are not supplied.

- Hardware (# mark) list is given in the last of this parts list.

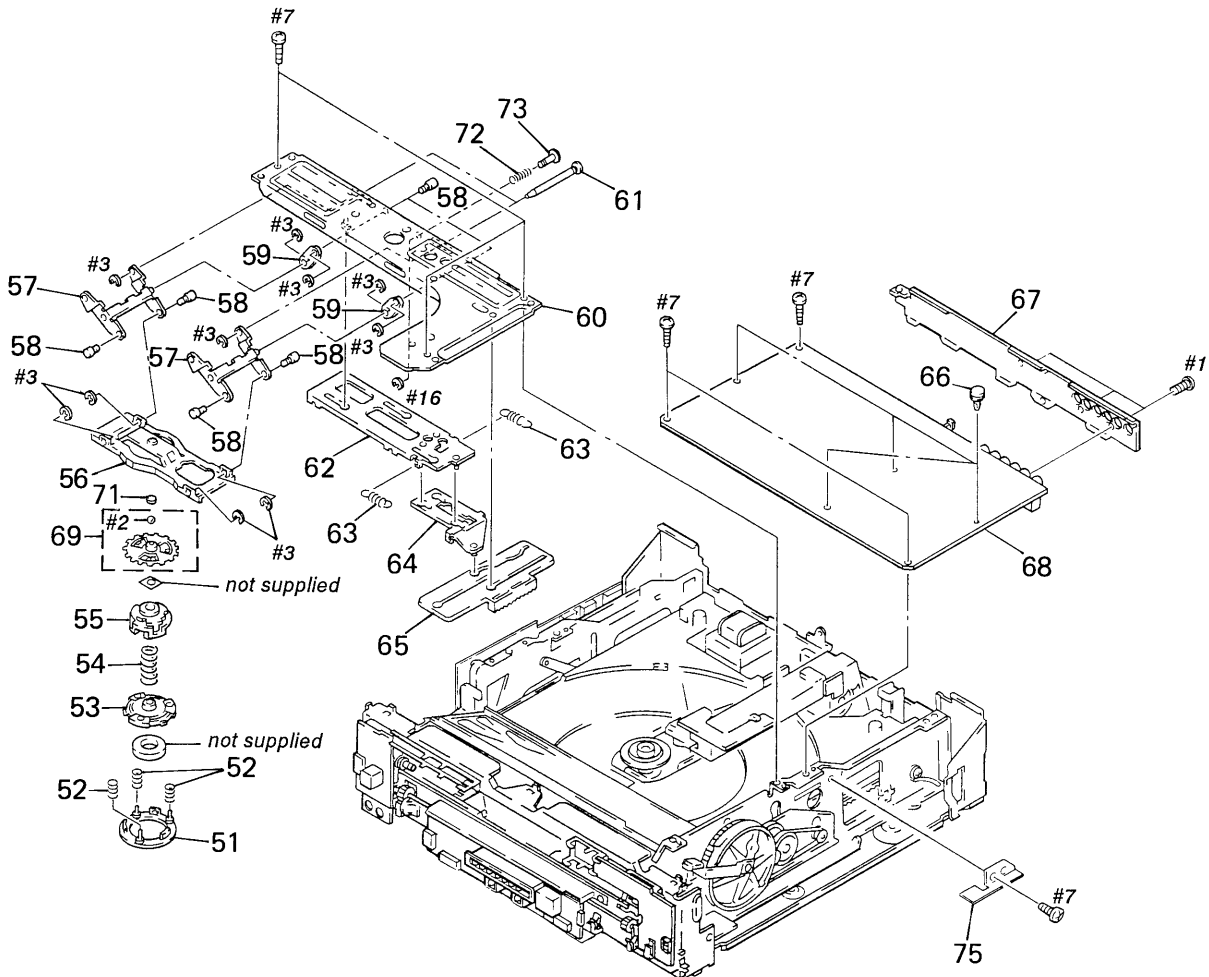
The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

5-1. UPPER CASE, FRONT PANEL ASSEMBLY



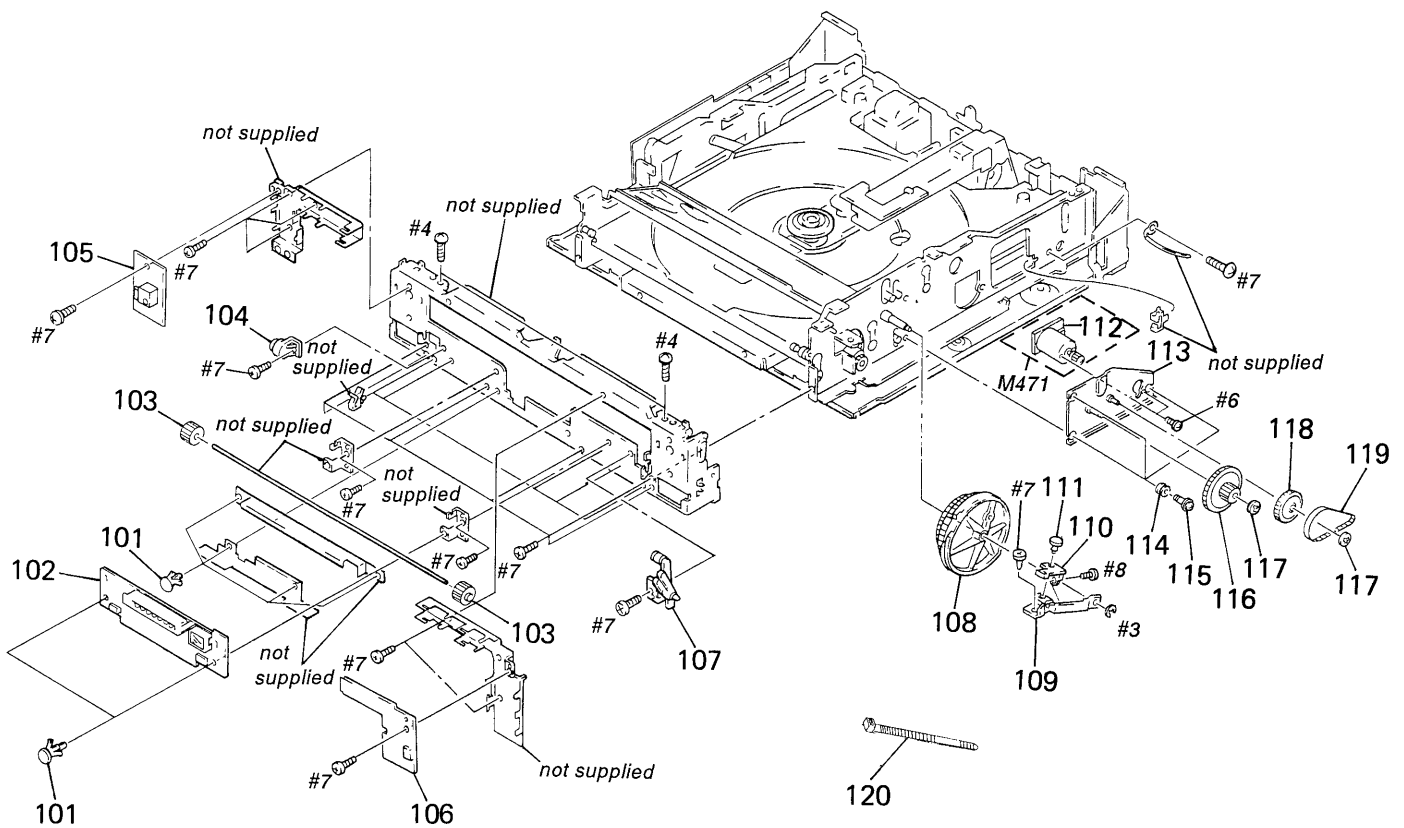
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	X-3943-385-1	DOOR ASSY		10	3-956-064-01	BUTTON, SIDE A	
2	X-3942-785-1	DISK ASSY, DOOR		* 11	3-956-073-01	HOLDER (R), SLIDE	
3	3-956-061-01	BUTTON, DISPLAY		* 12	3-956-074-01	HOLDER (L), SLIDE	
4	3-956-062-01	WINDOW, REMOTE CONTROL		13	3-710-901-41	SCREW, TAPPING	
5	3-956-060-01	BUTTON, OPEN		* 14	X-3942-908-1	CASE ASSY, UPPER	
6	X-3943-383-1	PANEL ASSY, FRONT		* 15	3-957-819-01	FOOT	
7	3-955-346-11	SPRING, TORSION		16	X-3943-312-1	FOOT ASSY (2.5)	
8	3-956-065-01	BUTTON, SIDE B		17	1-467-603-21	REMOTE COMMANDER (RMT-M23A)	
9	3-956-066-01	BUTTON, PLAY		18	9-900-029-01	LID, BATTERY CASE	

5-2. CHUCK FRAME ASSEMBLY



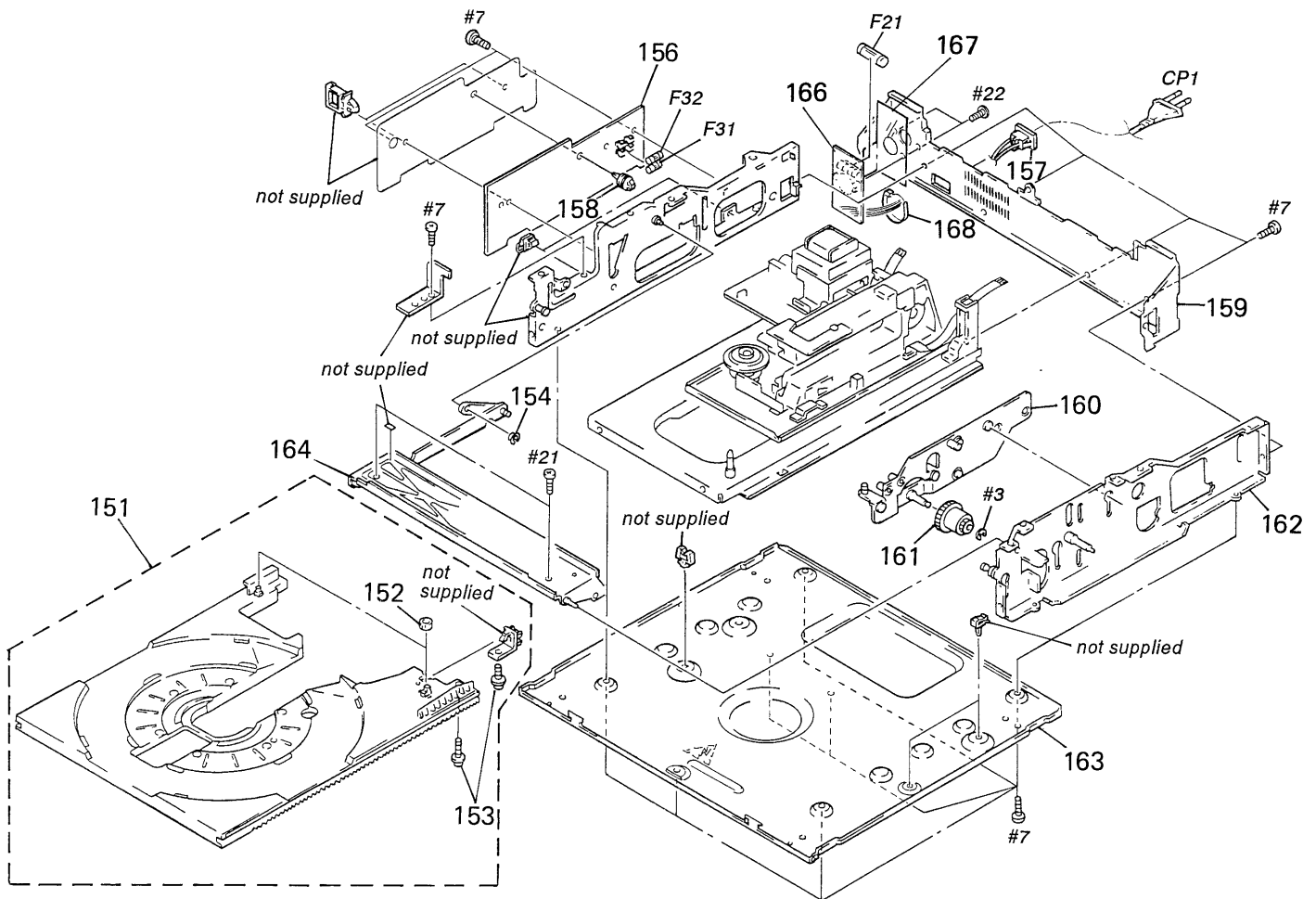
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	X-3943-043-1	GUIDE (B) ASSY, CENTER		63	3-486-135-XX	SPRING, TENSION	
52	3-953-290-01	SPRING (2), COMPRESSION		* 64	X-3942-800-1	LIMITER ASSY	
53	X-3942-776-1	HOLDER ASSY, MAGNET		65	3-953-348-01	CAM, CHUCK	
54	3-953-291-01	SPRING (1), COMPRESSION		* 66	4-386-173-01	SPACER	
55	3-953-288-01	PLATE, CHUCKING		* 67	3-956-077-01	PLATE, JACK	
* 56	3-953-354-01	PLATE, CHUCK		* 68	A-6423-081-A	MB-712 BOARD, COMPLETE	
* 57	X-3942-801-1	ARM (L) ASSY		69	X-3942-787-1	PLATE ASSY, TOP	
* 58	3-953-345-01	SHAFT, ARM (S)		71	3-953-392-01	RETAINER, THRUST	
* 59	3-953-352-01	ARM (S)		72	3-353-241-01	SPRING, COMPRESSION	
* 60	X-3942-798-1	FRAME ASSY, CHUCK		* 73	3-953-831-01	STOPPER, OPT	
* 61	3-953-355-01	SHAFT, SLIDE		75	3-955-673-01	SPRING, LEAF	
* 62	X-3942-799-1	PLATE ASSY, SLIDE					

5-3. SUB FRONT PANEL ASSEMBLY



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
101	4-812-134-11	RIVET NYLON, 3.5		* 112	A-6421-953-A	MT-702 BOARD, COMPLETE	
* 102	A-6423-084-A	FP-731 BOARD, COMPLETE		* 113	X-3942-805-1	BRACKET ASSY, GEAR	
103	3-953-325-01	GEAR, PHASE		114	3-570-118-00	CUSHION, MOTOR	
104	4-919-393-01	DAMPER		115	3-570-027-00	SCREW, MOTOR	
* 105	A-6423-087-A	PW-709 BOARD, COMPLETE		116	3-953-358-01	GEAR, MIDWAY	
* 106	A-6423-085-A	SW-727 BOARD, COMPLETE		117	3-669-595-00	WASHER (2), STOPPER	
107	X-3942-786-1	LINK ASSY, DRIVING		118	3-953-394-01	PULLEY (A)	
108	3-953-356-01	GEAR, CONTROL		119	3-953-393-01	BELT, TIMING	
* 109	3-953-357-01	BRACKET, SW		120	3-701-748-00	CLAMP	
* 110	A-6421-954-A	SW-719 BOARD, COMPLETE		M471	X-3942-963-1	MOTOR ASSY (LOADING)	
111	3-531-576-11	RIVET					

5-4. CHASSIS ASSEMBLY

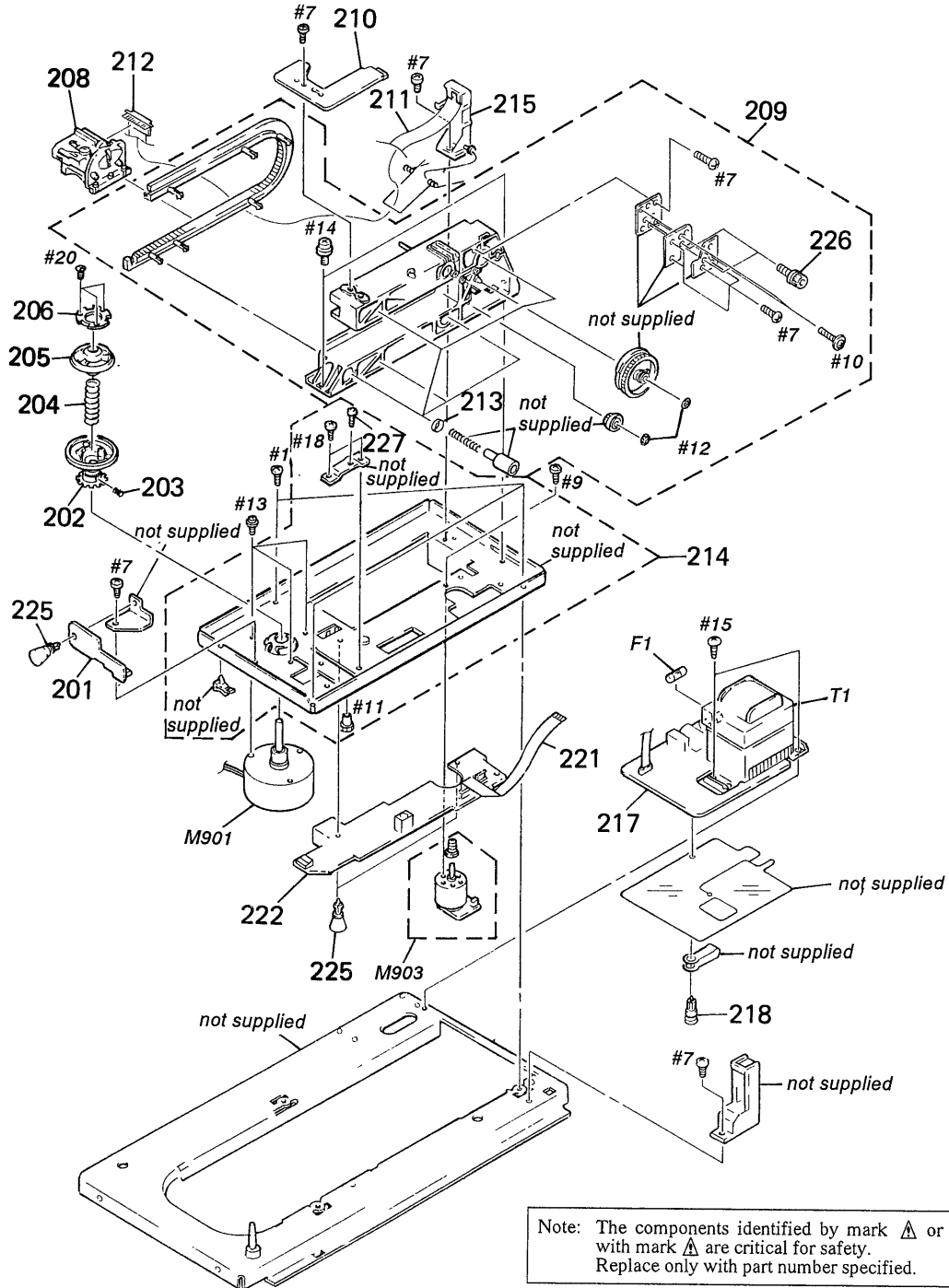


Ref. No.	Part No.	Description	Remark
151	X-3942-780-1	TRAY ASSY	
* 152	4-914-248-01	STOPPER, RUBBER	
153	3-710-901-11	SCREW, TAPPING	
154	3-703-074-01	CAP 3, SHAFT	
* 156	A-6423-082-A	PS-716 BOARD, COMPLETE	
△157	3-703-244-00	BUSHING (2104), CORD	
* 158	4-884-834-00	SUPPORT, PC	
* 159	3-956-082-01	PANEL, REAR	
160	X-3942-802-1	PLATE ASSY, BASE, LOADING	
161	3-953-361-01	GEAR, IDLER	

Ref. No.	Part No.	Description	Remark
* 162	X-3943-483-2	FRAME (R) ASSY	
163	3-953-383-01	PLATE, BOTTOM	
* 164	X-3942-796-1	FRAME ASSY, TRAY T	
* 166	A-6423-086-A	VS-707 BOARD, COMPLETE	
* 167	3-953-821-03	SHEET, INSULATING	
168	3-701-748-00	CLAMP	
△CP1	1-575-912-21	CORD, POWER	
△F21	1-532-066-00	FUSE, TIME-LAG (0.4A 250V)	
△F31	1-532-299-00	FUSE, TIME-LAG (5A 250V)	
△F32	1-532-299-00	FUSE, TIME-LAG (5A 250V)	

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

5-5. MD CHASSIS ASSEMBLY



Ref. No.	Part No.	Description	Remark
* 201	A-6421-957-A	FG-704 BOARD, COMPLETE	
202	X-3942-779-1	TURNTABLE ASSY	
203	3-701-507-00	SET SCREW, DOUBLE POINT, (M3X5)	
204	3-953-289-01	SPRING (3), COMPRESSION	
205	3-953-292-01	GUIDE, CENTER	
206	3-953-293-01	PLATE (C), YOKE	
Δ208	8-848-286-11	DEVICE, OPTICAL KHS-150A (RP)	
209	A-6404-082-A	BASE BLOCK ASSY, FEED	
* 210	A-6421-958-A	BI-702 BOARD, COMPLETE	
211	1-751-083-11	CABLE, FLEXIBLE FLAT (18 CORE)	
212	3-953-268-01	HOLDER (18P), FLEXIBLE	
213	3-953-830-01	WASHER, U	
* 214	A-6404-074-A	PLATE BLOCK ASSY, BASE	

Ref. No.	Part No.	Description	Remark
215	A-6404-076-A	STAND ASSY, FLEXIBLE RETAINER	
* 217	A-6423-083-A	TR-718 BOARD, COMPLETE	
218	3-531-576-11	RIVET	
221	1-751-084-11	CABLE, FLEXIBLE FLAT (14 CORE)	
* 222	A-6421-956-A	MD-703 BOARD, COMPLETE	
225	3-703-356-00	RIVET, T TYPE	
226	3-899-249-01	BOLT, HEXAGON SOCKET	
227	3-953-829-01	BOLT	
ΔF1	1-532-215-00	FUSE, TIME-LAG (0.8A 250V)	
ΔM901	1-698-109-11	MOTOR, DD (SPINDLE)	
M903	X-3942-968-1	TILT MOTOR ASSY	
ΔT1	1-423-556-11	TRANSFORMER, POWER	

MDP-A500

SECTION 6 ELECTRICAL PARTS LIST

BI-702

FG-704

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
All resistors are in ohms.
METAL: Metal-film resistor.
METAL OXIDE: Metal oxide-film resistor.
F: nonflammable

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

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

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

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	A-6421-958-A	BI-702 BOARD, COMPLETE ***** (Ref. NO. 2000 Series)		*	A-6421-957-A	FG-704 BOARD, COMPLETE ***** (Ref. NO. 2000 Series)	
	3-953-261-01	HOLDER, PD				< CAPACITOR >	
		< CAPACITOR >		C411	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C401	1-163-035-00	CERAMIC CHIP 0.047uF	50V			< CONNECTOR >	
		< CONNECTOR >		CN411	1-691-863-11	CONNECTOR, BOARD TO BOARD	
CN401	1-506-484-11	PIN, CONNECTOR 5P				< DIODE >	
		< DIODE >		D411	8-729-020-74	DIODE GP1S24	
D401	8-729-020-74	DIODE GP1S24		D412	8-729-020-74	DIODE GP1S24	
D402	8-729-020-74	DIODE GP1S24				< JUMPER RESISTOR >	
		< JUMPER RESISTOR >		JR410	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR401	1-216-296-91	METAL GLAZE 0 5% 1/8W		JR411	1-216-296-91	METAL GLAZE 0 5% 1/8W	
JR403	1-216-295-00	METAL CHIP 0 5% 1/10W		JR412	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR404	1-216-296-91	METAL GLAZE 0 5% 1/8W				< TRANSISTOR >	
JR405	1-216-296-91	METAL GLAZE 0 5% 1/8W		Q411	8-729-216-22	TRANSISTOR 2SA1162-G	
		< TRANSISTOR >		Q412	8-729-216-22	TRANSISTOR 2SA1162-G	
		< TRANSISTOR >				< RESISTOR >	
Q401	8-729-904-10	TRANSISTOR PT-360FS		R411	1-216-037-00	METAL CHIP 330 5% 1/10W	
Q402	8-729-904-10	TRANSISTOR PT-360FS		R412	1-216-097-00	METAL CHIP 100K 5% 1/10W	
Q403	8-729-230-49	TRANSISTOR 2SC2712-YG		R413	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
Q404	8-729-230-49	TRANSISTOR 2SC2712-YG		R414	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
		< RESISTOR >		R415	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R401	1-216-075-00	METAL CHIP 12K 5% 1/10W		R416	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R402	1-216-073-00	METAL CHIP 10K 5% 1/10W		R417	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R403	1-216-057-00	METAL CHIP 2.2K 5% 1/10W		R418	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R404	1-216-057-00	METAL CHIP 2.2K 5% 1/10W		R419	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R405	1-216-039-00	METAL CHIP 390 5% 1/10W				*****	
R406	1-216-111-00	METAL CHIP 390K 5% 1/10W					
R407	1-216-099-00	METAL CHIP 120K 5% 1/10W					
R408	1-216-073-00	METAL CHIP 10K 5% 1/10W					
R409	1-216-073-00	METAL CHIP 10K 5% 1/10W					

Ref. No.	Part No.	Description	Remark
*	A-6423-084-A	FP-731 BOARD, COMPLETE ***** (Ref. NO. 3000 Series)	
*	3-956-076-01	HOLDER, SEGMENT	
*	3-956-078-01	REFLECTOR	
< CAPACITOR >			
C301	1-124-589-11	ELECT 47uF	20% 16V
C302	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C305	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C306	1-124-589-11	ELECT 47uF	20% 16V
C307	1-163-031-11	CERAMIC CHIP 0.01uF	50V
△C308	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C309	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C310	1-163-031-11	CERAMIC CHIP 0.01uF	50V
< CONNECTOR >			
CN301	1-506-484-11	PIN, CONNECTOR 5P	
CN303	1-506-483-21	PIN, CONNECTOR 4P	
CN304	1-506-486-11	PIN, CONNECTOR 7P	
* CN305	1-564-018-61	PIN, CONNECTOR 8P	
* CN306	1-564-014-51	PIN, CONNECTOR 4P	
< DIODE >			
D300	8-719-955-04	LED PY5504S-1 (AUTO REVERSE)	
D301	8-719-955-04	LED PY5504S-1 (AUTO REVERSE)	
D302	8-719-955-04	LED PY5504S-1 (AUTO REVERSE)	
D303	8-719-955-04	LED PY5504S-1 (AUTO REVERSE)	
D304	8-719-955-04	LED PY5504S-1 (AUTO REVERSE)	
D305	8-719-955-04	LED PY5504S-1 (AUTO REVERSE)	
D306	8-719-955-04	LED PY5504S-1 (AUTO REVERSE)	
△D307	8-719-988-62	DIODE 1SS355	
D308	8-719-955-04	LED PY5504S-1	
D309	8-719-955-04	LED PY5504S-1	
D311	8-719-046-96	DIODE GL7P206L	
< FERRITE BEAD >			
FB301	1-216-296-00	METAL GLAZE 0 5% 1/8W	
FB302	1-216-296-00	METAL GLAZE 0 5% 1/8W	
< IC >			
△IC301	8-759-253-27	IC MB89625PF-G-141-BND	
IC302	8-759-043-33	IC LB1721M	
IC303	8-759-074-39	IC PST572DMT	

Ref. No.	Part No.	Description	Remark
< COIL >			
L301	1-408-421-00	INDUCTOR 100uH	
< TRANSISTOR >			
Q300	8-729-904-57	TRANSISTOR DTB114EK	
Q301	8-729-904-57	TRANSISTOR DTB114EK	
Q303	8-729-901-04	TRANSISTOR DTA114EK	
Q304	8-729-901-04	TRANSISTOR DTA114EK	
< RESISTOR >			
R300	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R301	1-216-035-00	METAL CHIP 270 5% 1/10W	
R302	1-216-035-00	METAL CHIP 270 5% 1/10W	
R303	1-216-035-00	METAL CHIP 270 5% 1/10W	
R304	1-216-035-00	METAL CHIP 270 5% 1/10W	
R305	1-216-035-00	METAL CHIP 270 5% 1/10W	
R306	1-216-035-00	METAL CHIP 270 5% 1/10W	
R307	1-216-035-00	METAL CHIP 270 5% 1/10W	
R308	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R309	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R310	1-216-295-00	METAL CHIP 0 5% 1/10W	
R311	1-216-295-00	METAL CHIP 0 5% 1/10W	
△R312	1-216-675-11	METAL CHIP 10K 0.5% 1/10W	
△R313	1-216-675-11	METAL CHIP 10K 0.5% 1/10W	
R314	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R315	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R316	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R317	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R318	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R319	1-216-033-00	METAL CHIP 220 5% 1/10W	
R320	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R321	1-216-033-00	METAL CHIP 220 5% 1/10W	
R322	1-216-033-00	METAL CHIP 220 5% 1/10W	
R323	1-216-033-00	METAL CHIP 220 5% 1/10W	
R324	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R325	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R326	1-216-033-00	METAL CHIP 220 5% 1/10W	
R327	1-216-033-00	METAL CHIP 220 5% 1/10W	
R328	1-216-033-00	METAL CHIP 220 5% 1/10W	
R330	1-216-037-00	METAL CHIP 330 5% 1/10W	
R331	1-216-037-00	METAL CHIP 330 5% 1/10W	
R332	1-216-037-00	METAL CHIP 330 5% 1/10W	
R333	1-216-037-00	METAL CHIP 330 5% 1/10W	
R334	1-216-037-00	METAL CHIP 330 5% 1/10W	
R335	1-216-037-00	METAL CHIP 330 5% 1/10W	
R336	1-216-037-00	METAL CHIP 330 5% 1/10W	
△R337	1-216-073-00	METAL CHIP 10K 5% 1/10W	
△R338	1-216-049-00	METAL CHIP 1K 5% 1/10W	

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

FP-731

MB-712

Ref. No.	Part No.	Description	Remark		
<u>△</u> R339	1-216-073-00	METAL CHIP	10K	5%	1/10W
R340	1-216-037-00	METAL CHIP	330	5%	1/10W
R341	1-216-037-00	METAL CHIP	330	5%	1/10W
R344	1-216-295-00	METAL CHIP	0	5%	1/10W
R347	1-216-295-00	METAL CHIP	0	5%	1/10W
R349	1-216-121-00	METAL CHIP	1M	5%	1/10W
< SWITCH >					
S301	1-692-440-11	SWITCH, PUSH (DOOR SWITCH)			
< VIBRATOR >					
X301	1-579-952-21	VIBRATOR, CERAMIC (8MHz)			

*	A-6423-081-A	MB-712 BOARD, COMPLETE			

(Ref. NO. 1000 Series)					
< CAPACITOR >					
C002	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C003	1-126-154-11	ELECT	47uF	20%	6.3V
C004	1-124-465-00	ELECT	0.47uF	20%	50V
C005	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C006	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C007	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C008	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C009	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C010	1-137-370-11	FILM	0.01uF	5%	50V
C011	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C012	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C013	1-126-947-11	ELECT	47uF	20%	10V
C014	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C015	1-130-489-00	MYLAR	0.033uF	5%	50V
C016	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C017	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C018	1-126-947-11	ELECT	47uF	20%	10V
C019	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C020	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C021	1-126-947-11	ELECT	47uF	20%	10V
C022	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C023	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C024	1-137-399-11	FILM	0.1uF	5%	50V
C025	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C026	1-126-947-11	ELECT	47uF	20%	10V
C027	1-126-947-11	ELECT	47uF	20%	10V
C028	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C029	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C030	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C031	1-163-107-00	CERAMIC CHIP	39PF	5%	50V

Ref. No.	Part No.	Description	Remark		
C032	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C034	1-137-374-11	FILM	0.047uF	5%	50V
C035	1-130-489-00	MYLAR	0.033uF	5%	50V
C036	1-137-440-11	FILM	0.018uF	5%	50V
C037	1-130-489-00	MYLAR	0.033uF	5%	50V
C038	1-124-903-11	ELECT	1uF	20%	50V
C039	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C040	1-124-925-11	ELECT	2.2uF	20%	100V
C041	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C042	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C043	1-137-370-11	FILM	0.01uF	5%	50V
C044	1-126-947-11	ELECT	47uF	20%	10V
C045	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C046	1-126-947-11	ELECT	47uF	20%	10V
C047	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C048	1-137-370-11	FILM	0.01uF	5%	50V
C049	1-124-903-11	ELECT	1uF	20%	50V
C050	1-137-374-11	FILM	0.047uF	5%	50V
C051	1-124-903-11	ELECT	1uF	20%	50V
C052	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C053	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C054	1-126-947-11	ELECT	47uF	20%	10V
C055	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C056	1-126-947-11	ELECT	47uF	20%	10V
C057	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C058	1-126-947-11	ELECT	47uF	20%	10V
C059	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C060	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C061	1-126-947-11	ELECT	47uF	20%	10V
C063	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C064	1-163-139-00	CERAMIC CHIP	820PF	5%	50V
C065	1-137-374-11	FILM	0.047uF	5%	50V
C066	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C067	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C068	1-126-916-11	ELECT	1000uF	20%	6.3V
C069	1-163-253-11	CERAMIC CHIP	120PF	5%	50V
C070	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C071	1-126-947-11	ELECT	47uF	20%	10V
C072	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C073	1-163-253-11	CERAMIC CHIP	120PF	5%	50V
C074	1-124-903-11	ELECT	1uF	20%	50V
C075	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C076	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C077	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C078	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C079	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C080	1-163-253-11	CERAMIC CHIP	120PF	5%	50V
C081	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C082	1-163-103-00	CERAMIC CHIP	27PF	5%	50V

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

Ref. No.	Part No.	Description	Remark		
C083	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C084	1-124-292-00	ELECT	33uF	20%	6.3V
C085	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C086	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C087	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C088	1-163-257-11	CERAMIC CHIP	180PF	5%	50V
C089	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C090	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C091	1-126-947-11	ELECT	47uF	20%	10V
C092	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C093	1-163-257-11	CERAMIC CHIP	180PF	5%	50V
C094	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C095	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C096	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C097	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C098	1-126-947-11	ELECT	47uF	20%	10V
C099	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C100	1-124-903-11	ELECT	1uF	20%	50V
C101	1-137-372-11	FILM	0.022uF	5%	50V
C102	1-137-370-11	FILM	0.01uF	5%	50V
C103	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C104	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C105	1-131-347-00	TANTALUM	1uF	10%	35V
C106	1-124-903-11	ELECT	1uF	20%	50V
C107	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C108	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C109	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C110	1-126-947-11	ELECT	47uF	20%	10V
C111	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C112	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C113	1-124-925-11	ELECT	2.2uF	20%	100V
C114	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C115	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C116	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C117	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C118	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C119	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C120	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C121	1-124-925-11	ELECT	2.2uF	20%	100V
C122	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C123	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C124	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C125	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C126	1-126-947-11	ELECT	47uF	20%	10V
C127	1-126-947-11	ELECT	47uF	20%	10V
C128	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C129	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C130	1-163-097-00	CERAMIC CHIP	15PF	5%	50V

Ref. No.	Part No.	Description	Remark		
C131	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C132	1-163-243-11	CERAMIC CHIP	47PF	5%	50V
C133	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C134	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C136	1-163-116-00	CERAMIC CHIP	91PF	5%	50V
C138	1-124-915-11	ELECT	10uF	20%	63V
C139	1-124-915-11	ELECT	10uF	20%	63V
C140	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C141	1-126-947-11	ELECT	47uF	20%	10V
C147	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C148	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C149	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C150	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C151	1-163-077-91	CERAMIC CHIP	0.1uF		50V
C152	1-126-947-11	ELECT	47uF	20%	10V
C153	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C154	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C156	1-126-947-11	ELECT	47uF	20%	10V
C158	1-124-925-11	ELECT	2.2uF	20%	100V
C160	1-126-947-11	ELECT	47uF	20%	10V
C162	1-126-947-11	ELECT	47uF	20%	10V
C163	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C164	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C165	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C166	1-163-097-00	CERAMIC CHIP	15PF	5%	50V
C167	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C168	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C169	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C170	1-126-947-11	ELECT	47uF	20%	10V
C171	1-126-947-11	ELECT	47uF	20%	10V
C172	1-126-947-11	ELECT	47uF	20%	10V
C173	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C174	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C201	1-126-947-11	ELECT	47uF	20%	10V
C203	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C204	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C205	1-126-947-11	ELECT	47uF	20%	10V
C206	1-124-927-11	ELECT	4.7uF	20%	100V
C207	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C208	1-124-915-11	ELECT	10uF	20%	63V
C211	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C212	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C213	1-126-947-11	ELECT	47uF	20%	10V
C214	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C215	1-137-368-11	FILM	0.0047uF	5%	50V
C216	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C218	1-126-947-11	ELECT	47uF	20%	10V
C219	1-124-927-11	ELECT	4.7uF	20%	100V

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Ref. No.	Part No.	Description	Remark		Ref. No.	Part No.	Description	Remark	
C220	1-163-038-00	CERAMIC CHIP	0.1uF	25V	C280	1-124-288-00	ELECT	22uF	20% 6.3V
C221	1-126-947-11	ELECT	47uF	20% 10V	C281	1-126-933-11	ELECT	100uF	20% 10V
C222	1-137-433-11	FILM	0.0012uF	5% 50V	C282	1-163-241-11	CERAMIC CHIP	39PF	5% 50V
C225	1-126-947-11	ELECT	47uF	20% 10V	C283	1-164-232-11	CERAMIC CHIP	0.01uF	50V
C226	1-137-433-11	FILM	0.0012uF	5% 50V	C284	1-124-288-00	ELECT	22uF	20% 6.3V
C227	1-163-038-00	CERAMIC CHIP	0.1uF	25V	C285	1-137-442-11	FILM	0.039uF	5% 50V
C228	1-124-927-11	ELECT	4.7uF	20% 100V	C286	1-124-902-00	ELECT	0.47uF	20% 50V
C229	1-163-251-11	CERAMIC CHIP	100PF	5% 50V	C287	1-163-037-11	CERAMIC CHIP	0.022uF	10% 25V
C230	1-126-947-11	ELECT	47uF	20% 10V	C288	1-163-017-00	CERAMIC CHIP	0.0047uF	5% 50V
C231	1-126-947-11	ELECT	47uF	20% 10V	C289	1-137-368-11	FILM	0.0047uF	5% 50V
C232	1-124-927-11	ELECT	4.7uF	20% 100V	C290	1-126-947-11	ELECT	47uF	20% 10V
C234	1-124-927-11	ELECT	4.7uF	20% 100V	C291	1-163-009-11	CERAMIC CHIP	0.001uF	10% 50V
C236	1-124-927-11	ELECT	4.7uF	20% 100V	C292	1-164-232-11	CERAMIC CHIP	0.01uF	50V
C237	1-137-368-11	FILM	0.0047uF	5% 50V	C293	1-163-038-00	CERAMIC CHIP	0.1uF	25V
C238	1-126-947-11	ELECT	47uF	20% 10V	C294	1-163-119-00	CERAMIC CHIP	120PF	5% 50V
C239	1-164-232-11	CERAMIC CHIP	0.01uF	50V	C297	1-163-005-11	CERAMIC CHIP	470PF	10% 50V
C240	1-164-005-11	CERAMIC CHIP	0.47uF	25V	C298	1-163-005-11	CERAMIC CHIP	470PF	10% 50V
C241	1-163-251-11	CERAMIC CHIP	100PF	5% 50V	C299	1-163-005-11	CERAMIC CHIP	470PF	10% 50V
C243	1-163-038-00	CERAMIC CHIP	0.1uF	25V	C300	1-163-005-11	CERAMIC CHIP	470PF	10% 50V
C244	1-163-125-00	CERAMIC CHIP	220PF	5% 50V	C301	1-163-038-00	CERAMIC CHIP	0.1uF	25V
C245	1-163-038-00	CERAMIC CHIP	0.1uF	25V	C399	1-216-295-00	METAL CHIP	0 5%	1/10W
C246	1-163-038-00	CERAMIC CHIP	0.1uF	25V	C400	1-164-346-11	CERAMIC CHIP	1uF	16V
C248	1-163-235-11	CERAMIC CHIP	22PF	5% 50V	C401	1-163-121-00	CERAMIC CHIP	150PF	5% 50V
C249	1-163-128-00	CERAMIC CHIP	300PF	5% 50V	C402	1-164-005-11	CERAMIC CHIP	0.47uF	25V
C251	1-124-287-00	ELECT	10uF	20% 10V	C403	1-163-133-00	CERAMIC CHIP	470PF	5% 50V
C252	1-163-243-11	CERAMIC CHIP	47PF	5% 50V	C405	1-164-232-11	CERAMIC CHIP	0.01uF	50V
C253	1-163-243-11	CERAMIC CHIP	47PF	5% 50V	C406	1-163-038-00	CERAMIC CHIP	0.1uF	25V
C254	1-163-038-00	CERAMIC CHIP	0.1uF	25V	C407	1-124-277-11	ELECT	4.7uF	20% 35V
C255	1-124-499-11	ELECT, NONPOLAR	1uF	20% 50V	C408	1-163-022-00	CERAMIC CHIP	0.012uF	10% 50V
C257	1-163-038-00	CERAMIC CHIP	0.1uF	25V	C409	1-163-024-00	CERAMIC CHIP	0.018uF	10% 50V
C258	1-163-809-11	CERAMIC CHIP	0.047uF	10% 25V	C410	1-164-489-11	CERAMIC CHIP	0.22uF	10% 16V
C259	1-163-011-11	CERAMIC CHIP	0.0015uF	10% 50V	C411	1-163-037-11	CERAMIC CHIP	0.022uF	10% 25V
C260	1-126-947-11	ELECT	47uF	20% 10V	C413	1-163-809-11	CERAMIC CHIP	0.047uF	10% 25V
C261	1-163-038-00	CERAMIC CHIP	0.1uF	25V	C414	1-124-767-00	ELECT	2.2uF	20% 50V
C262	1-164-232-11	CERAMIC CHIP	0.01uF	50V	C415	1-163-014-00	CERAMIC CHIP	0.0027uF	5% 50V
C263	1-163-038-00	CERAMIC CHIP	0.1uF	25V	C416	1-164-005-11	CERAMIC CHIP	0.47uF	25V
C264	1-163-038-00	CERAMIC CHIP	0.1uF	25V	C417	1-164-232-11	CERAMIC CHIP	0.01uF	50V
C265	1-163-038-00	CERAMIC CHIP	0.1uF	25V	C419	1-163-016-00	CERAMIC CHIP	0.0039uF	10% 50V
C268	1-163-038-00	CERAMIC CHIP	0.1uF	25V	C421	1-124-499-11	ELECT, NONPOLAR	1uF	20% 50V
C269	1-126-947-11	ELECT	47uF	20% 10V	C422	1-164-004-11	CERAMIC CHIP	0.1uF	10% 25V
C271	1-124-287-00	ELECT	10uF	20% 10V	C423	1-124-287-00	ELECT	10uF	20% 10V
C272	1-163-009-11	CERAMIC CHIP	0.001uF	10% 50V	C424	1-163-809-11	CERAMIC CHIP	0.047uF	10% 25V
C273	1-163-038-00	CERAMIC CHIP	0.1uF	25V	C425	1-124-273-00	ELECT	3.3uF	20% 50V
C274	1-137-368-11	FILM	0.0047uF	5% 50V	C427	1-163-129-00	CERAMIC CHIP	330PF	5% 50V
C275	1-163-017-00	CERAMIC CHIP	0.0047uF	5% 50V	C428	1-126-947-11	ELECT	47uF	20% 35V
C276	1-126-947-11	ELECT	47uF	20% 10V	C429	1-163-115-00	CERAMIC CHIP	82PF	5% 50V
C277	1-137-399-11	FILM	0.1uF	5% 50V	C430	1-126-947-11	ELECT	47uF	20% 35V
C278	1-163-037-11	CERAMIC CHIP	0.022uF	10% 25V	C432	1-163-022-00	CERAMIC CHIP	0.012uF	10% 50V
C279	1-137-442-11	FILM	0.039uF	5% 50V					

Ref. No.	Part No.	Description	Remark
C433	1-163-097-00	CERAMIC CHIP	15PF 5% 50V
C434	1-163-024-00	CERAMIC CHIP	0.018uF 10% 50V
C435	1-163-101-00	CERAMIC CHIP	22PF 5% 50V
C436	1-163-017-00	CERAMIC CHIP	0.0047uF 5% 50V
C437	1-163-235-11	CERAMIC CHIP	22PF 5% 50V
C438	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C439	1-126-947-11	ELECT	47uF 20% 10V
C440	1-126-947-11	ELECT	47uF 20% 10V
C441	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C442	1-164-505-11	CERAMIC CHIP	2.2uF 16V
C443	1-164-505-11	CERAMIC CHIP	2.2uF 16V
C444	1-126-160-11	ELECT	1uF 20% 50V
C445	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C446	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C447	1-163-019-00	CERAMIC CHIP	0.0068uF 10% 50V
C448	1-164-005-11	CERAMIC CHIP	0.47uF 25V
C449	1-164-005-11	CERAMIC CHIP	0.47uF 25V
C450	1-164-505-11	CERAMIC CHIP	2.2uF 16V
C451	1-163-101-00	CERAMIC CHIP	22PF 5% 50V
C452	1-164-489-11	CERAMIC CHIP	0.22uF 10% 16V
C463	1-163-989-11	CERAMIC CHIP	0.033uF 10% 25V
C465	1-164-232-11	CERAMIC CHIP	0.01uF 50V
C466	1-164-004-11	CERAMIC CHIP	0.1uF 10% 25V
C467	1-164-232-11	CERAMIC CHIP	0.01uF 50V
C468	1-164-699-11	CERAMIC CHIP	0.0033uF 5% 50V
C469	1-163-088-00	CERAMIC CHIP	5PF 50V
C500	1-126-947-11	ELECT	47uF 20% 10V
C501	1-128-453-21	ELECT CHIP	47uF 20% 6.3V
C502	1-163-251-11	CERAMIC CHIP	100PF 5% 50V
C503	1-126-603-11	ELECT CHIP	4.7uF 20% 35V
C504	1-163-245-11	CERAMIC CHIP	56PF 5% 50V
C505	1-164-182-11	CERAMIC CHIP	0.0033uF 10% 50V
C506	1-128-024-11	ELECT CHIP	4.7uF 0 10V
C507	1-126-947-11	ELECT	47uF 20% 35V
C508	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C509	1-128-021-11	ELECT CHIP	15uF 0 6.3V
C510	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C511	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C512	1-163-257-11	CERAMIC CHIP	180PF 5% 50V
C513	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C514	1-163-257-11	CERAMIC CHIP	180PF 5% 50V
C515	1-164-232-11	CERAMIC CHIP	0.01uF 50V
C516	1-163-009-11	CERAMIC CHIP	0.001uF 10% 50V
C517	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C518	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C519	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C520	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C521	1-163-038-00	CERAMIC CHIP	0.1uF 25V

Ref. No.	Part No.	Description	Remark
C522	1-163-235-11	CERAMIC CHIP	22PF 5% 50V
C523	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C526	1-137-364-11	FILM	0.001uF 5% 50V
C529	1-137-366-11	FILM	0.0022uF 5% 50V
C530	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C531	1-124-925-11	ELECT	2.2uF 20% 100V
C533	1-163-141-00	CERAMIC CHIP	0.001uF 5% 50V
C590	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C801	1-163-129-00	CERAMIC CHIP	330PF 5% 50V
C802	1-164-232-11	CERAMIC CHIP	0.01uF 50V
C950	1-124-915-11	ELECT	10uF 20% 63V
< FILTER >			
CF001	1-527-831-41	FILTER, CERAMIC	
< CONNECTOR >			
CN210	1-506-470-11	PIN, CONNECTOR 5P	
CN401	1-750-687-11	HOUSING, CONNECTOR (PC BOARD)	
* CN402	1-764-594-21	CONNECTOR, FPC 18P	
* CN403	1-764-595-21	CONNECTOR, FPC 14P	
CN501	1-506-468-11	PIN, CONNECTOR 3P	
CN502	1-506-469-11	PIN, CONNECTOR 4P	
CN503	1-506-472-11	PIN, CONNECTOR 7P	
CN504	1-506-473-11	PIN, CONNECTOR 8P	
* CN505	1-568-783-11	PIN, CONNECTOR 6P	
* CN701	1-560-896-00	PIN, CONNECTOR 8P	
< TRIMMER >			
CT001	1-141-442-91	TRIMMER, CERAMIC	
CT501	1-141-424-11	CAP, ADJ	
< DIODE >			
D001	8-719-105-52	DIODE RD3.6M-B2	
D002	8-719-400-18	DIODE MA152WK	
D003	8-719-988-62	DIODE 1SS355	
D202	8-719-105-82	DIODE RD5.1M-B2	
D203	8-719-032-05	DIODE KV1460TL00	
D205	8-719-400-18	DIODE MA152WK	
D208	8-719-400-18	DIODE MA152WK	
D401	8-719-800-76	DIODE 1SS226	
D402	8-719-800-76	DIODE 1SS226	
D403	8-719-800-76	DIODE 1SS226	
D405	8-719-988-62	DIODE 1SS355	
D502	8-719-402-34	DIODE MA3120-TX	
D503	8-719-988-62	DIODE 1SS355	
D506	8-719-104-34	DIODE 1S2836	
D507	8-719-988-62	DIODE 1SS355	
D508	8-719-988-62	DIODE 1SS355	

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Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
		< FILTER >					
FL001	1-424-031-11	FILTER, NOISE		IC501	8-759-249-27	IC MB89094PF-G-113	
FL002	1-424-031-11	FILTER, NOISE		IC502	8-759-098-78	IC MB606F06	
FL003	1-235-901-11	FILTER, LOW PASS		IC503	8-759-231-92	IC TA7291P	
FL004	1-236-478-11	FILTER, LOW PASS		IC504	8-759-058-52	IC XRA10324AF-E2	
FL005	1-239-823-11	FILTER, CHROMA TRAP		IC505	8-759-009-06	IC MC14052BF	
				IC506	8-759-300-71	IC HD14053BFP	
FL006	1-236-843-11	FILTER, BAND PASS		IC507	8-759-206-28	IC MC74HC123AF	
FL007	1-239-824-11	FILTER, LOW PASS				< JACK >	
FL008	1-424-031-11	FILTER, NOISE		J201	1-764-592-11	JACK 3P (LINE OUT1)	
FL201	1-424-031-11	FILTER, NOISE		J202	1-764-592-11	JACK 3P (LINE OUT2)	
FL202	1-424-031-11	FILTER, NOISE				< JUMPER RESISTOR >	
FL203	1-424-031-11	FILTER, NOISE		JR201	1-216-295-00	METAL CHIP 0 5% 1/10W	
FL205	1-760-185-11	FILTER, CERAMIC		JR202	1-216-296-00	METAL GLAZE 0 5% 1/8W	
FL206	1-760-186-11	FILTER, CERAMIC		JR203	1-216-296-00	METAL GLAZE 0 5% 1/8W	
FL401	1-235-922-11	FILTER, LOW PASS (1.7MHz)		JR205	1-216-295-00	METAL CHIP 0 5% 1/10W	
FL501	1-236-744-21	FILTER, EMI		JR207	1-216-295-00	METAL CHIP 0 5% 1/10W	
FL502	1-236-744-21	FILTER, EMI		JR280	1-216-295-00	METAL CHIP 0 5% 1/10W	
		< IC >		JR285	1-216-295-00	METAL CHIP 0 5% 1/10W	
IC001	8-759-058-52	IC XRA10324AF-E2		JR401	1-216-296-00	METAL GLAZE 0 5% 1/8W	
IC002	8-759-058-52	IC XRA10324AF-E2				< COIL >	
IC003	8-759-509-96	IC XRA10339F-E2		L001	1-408-609-41	INDUCTOR 33uH	
IC004	8-752-353-92	IC CXL5005M-T4		L002	1-408-609-41	INDUCTOR 33uH	
IC005	8-759-233-64	IC TC74HCU04AF		L003	1-408-419-00	INDUCTOR 68uH	
IC006	8-759-257-87	IC MM1117XFBE		L004	1-408-609-41	INDUCTOR 33uH	
IC007	8-752-055-37	IC CXA1255Q		L006	1-408-609-41	INDUCTOR 33uH	
IC008	8-759-502-69	IC CXD1152-MS		L007	1-408-409-00	INDUCTOR 10uH	
IC009	8-752-055-36	IC CXA1254Q		L008	1-410-657-21	INDUCTOR CHIP 180uH	
IC011	8-759-098-80	IC MB90085-123-EF		L009	1-408-609-41	INDUCTOR 33uH	
IC201	8-759-093-98	IC CXD8451M		L010	1-408-609-41	INDUCTOR 33uH	
IC202	8-759-008-67	IC MC14066BF		L011	1-408-422-00	INDUCTOR 120uH	
IC203	8-752-352-93	IC CXD2500BQ		L013	1-408-609-41	INDUCTOR 33uH	
IC204	8-759-253-26	IC CA0002AM-TP		L014	1-408-609-41	INDUCTOR 33uH	
IC205	8-759-509-99	IC XRA4558F-E2		L015	1-408-413-00	INDUCTOR 22uH	
IC206	8-759-509-99	IC XRA4558F-E2		L016	1-408-609-41	INDUCTOR 33uH	
IC207	8-759-509-99	IC XRA4558F-E2		L017	1-408-773-31	INDUCTOR CHIP 4.7uH	
IC209	8-759-509-99	IC XRA4558F-E2		L201	1-408-421-00	INDUCTOR 100uH	
IC401	8-752-056-79	IC CXA1632Q		L202	1-408-418-00	INDUCTOR 56uH	
IC402	8-759-048-30	IC LA6510L		L210	1-408-417-00	INDUCTOR 47uH	
IC403	8-759-300-71	IC HD14053BFP		L401	1-408-409-00	INDUCTOR 10uH	
IC404	8-759-300-71	IC HD14053BFP		L402	1-408-409-00	INDUCTOR 10uH	
△IC405	8-759-058-52	IC XRA10324AF-E2		L403	1-408-409-00	INDUCTOR 10uH	
IC406	8-759-509-99	IC XRA4558F-E2		L404	1-408-409-00	INDUCTOR 10uH	
IC409	8-759-509-99	IC XRA4558F-E2		L405	1-408-609-41	INDUCTOR 33uH	
IC410	8-759-242-64	IC TC4W53F		L501	1-410-381-11	INDUCTOR CHIP 10uH	
IC411	8-759-509-99	IC XRA4558F-E2					
IC420	8-759-242-64	IC TC4W53F					
IC500	8-759-509-96	IC XRA10339F-E2					

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

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
< TRANSISTOR >							
Q001	8-729-230-49	TRANSISTOR	2SC2712-YG	Q410	8-729-230-49	TRANSISTOR	2SC2712-YG
Q002	8-729-140-75	TRANSISTOR	2SD999-CLCK	Q411	8-729-230-49	TRANSISTOR	2SC2712-YG
Q003	8-729-230-49	TRANSISTOR	2SC2712-YG	Q412	8-729-230-49	TRANSISTOR	2SC2712-YG
Q004	8-729-230-49	TRANSISTOR	2SC2712-YG	Q500	8-729-900-53	TRANSISTOR	DTC114EK
Q005	8-729-230-49	TRANSISTOR	2SC2712-YG	Q501	8-729-216-22	TRANSISTOR	2SA1162-G
Q006	8-729-230-49	TRANSISTOR	2SC2712-YG	Q502	8-729-901-04	TRANSISTOR	DTA114EK
Q007	8-729-230-49	TRANSISTOR	2SC2712-YG	Q503	8-729-901-04	TRANSISTOR	DTA114EK
Q008	8-729-216-22	TRANSISTOR	2SA1162-G	Q504	8-729-901-04	TRANSISTOR	DTA114EK
Q009	8-729-216-22	TRANSISTOR	2SA1162-G	Q505	8-729-230-49	TRANSISTOR	2SC2712-YG
Q010	8-729-230-49	TRANSISTOR	2SC2712-YG	Q506	8-729-900-53	TRANSISTOR	DTC114EK
Q011	8-729-230-49	TRANSISTOR	2SC2712-YG	Q507	8-729-900-53	TRANSISTOR	DTC114EK
Q012	8-729-230-49	TRANSISTOR	2SC2712-YG	Q950	8-729-202-38	TRANSISTOR	2SC3326N
Q013	8-729-216-22	TRANSISTOR	2SA1162-G	Q951	8-729-901-04	TRANSISTOR	DTA114EK
Q014	8-729-230-49	TRANSISTOR	2SC2712-YG	< RESISTOR >			
Q015	8-729-230-49	TRANSISTOR	2SC2712-YG	R001	1-216-075-00	METAL CHIP	12K 5% 1/10W
Q016	8-729-230-49	TRANSISTOR	2SC2712-YG	R002	1-216-085-00	METAL CHIP	33K 5% 1/10W
Q017	8-729-216-22	TRANSISTOR	2SA1162-G	R003	1-216-085-00	METAL CHIP	33K 5% 1/10W
Q018	8-729-230-49	TRANSISTOR	2SC2712-YG	R004	1-216-073-00	METAL CHIP	10K 5% 1/10W
Q019	8-729-230-49	TRANSISTOR	2SC2712-YG	R005	1-216-073-00	METAL CHIP	10K 5% 1/10W
Q021	8-729-230-49	TRANSISTOR	2SC2712-YG	R006	1-216-073-00	METAL CHIP	10K 5% 1/10W
Q024	8-729-216-22	TRANSISTOR	2SA1162-G	R007	1-216-049-00	METAL CHIP	1K 5% 1/10W
Q026	8-729-230-49	TRANSISTOR	2SC2712-YG	R008	1-216-061-00	METAL CHIP	3.3K 5% 1/10W
Q031	8-729-230-49	TRANSISTOR	2SC2712-YG	R009	1-216-073-00	METAL CHIP	10K 5% 1/10W
Q201	8-729-901-04	TRANSISTOR	DTA114EK	R010	1-216-077-00	METAL CHIP	15K 5% 1/10W
Q202	8-729-900-53	TRANSISTOR	DTC114EK	R011	1-216-095-00	METAL CHIP	82K 5% 1/10W
Q203	8-729-231-55	TRANSISTOR	2SC2878-AB	R012	1-216-081-00	METAL CHIP	22K 5% 1/10W
Q206	8-729-900-53	TRANSISTOR	DTC114EK	R013	1-216-089-91	METAL GLAZE	47K 5% 1/10W
Q207	8-729-231-55	TRANSISTOR	2SC2878-AB	R014	1-216-075-00	METAL CHIP	12K 5% 1/10W
Q210	8-729-901-04	TRANSISTOR	DTA114EK	R015	1-216-097-00	METAL CHIP	100K 5% 1/10W
Q211	8-729-900-53	TRANSISTOR	DTC114EK	R016	1-216-097-00	METAL CHIP	100K 5% 1/10W
Q212	8-729-900-53	TRANSISTOR	DTC114EK	R017	1-216-049-00	METAL CHIP	1K 5% 1/10W
Q213	8-729-230-49	TRANSISTOR	2SC2712-YG	R018	1-216-065-00	METAL CHIP	4.7K 5% 1/10W
Q214	8-729-901-04	TRANSISTOR	DTA114EK	R019	1-216-067-00	METAL CHIP	5.6K 5% 1/10W
Q215	8-729-901-04	TRANSISTOR	DTA114EK	R020	1-216-097-00	METAL CHIP	100K 5% 1/10W
Q216	8-729-900-53	TRANSISTOR	DTC114EK	R021	1-216-699-11	METAL CHIP	100K 0.5% 1/10W
Q217	8-729-901-04	TRANSISTOR	DTA114EK	R022	1-216-699-11	METAL CHIP	100K 0.5% 1/10W
Q218	8-729-230-49	TRANSISTOR	2SC2712-YG	R023	1-216-113-00	METAL CHIP	470K 5% 1/10W
Q219	8-729-230-49	TRANSISTOR	2SC2712-YG	R024	1-216-699-11	METAL CHIP	100K 0.5% 1/10W
Q400	8-729-230-49	TRANSISTOR	2SC2712-YG	R025	1-216-699-11	METAL CHIP	100K 0.5% 1/10W
Q401	8-729-216-22	TRANSISTOR	2SA1162-G	R026	1-216-063-00	METAL CHIP	3.9K 5% 1/10W
Q403	8-729-924-90	TRANSISTOR	2SB1370-EF	R027	1-216-057-00	METAL CHIP	2.2K 5% 1/10W
Q404	8-729-209-15	TRANSISTOR	2SD2012	R028	1-216-113-00	METAL CHIP	470K 5% 1/10W
Q405	8-729-209-15	TRANSISTOR	2SD2012	R029	1-216-675-11	METAL CHIP	10K 0.5% 1/10W
Q406	8-729-924-90	TRANSISTOR	2SB1370-EF	R030	1-216-673-11	METAL CHIP	8.2K 0.5% 1/10W
Q407	8-729-230-49	TRANSISTOR	2SC2712-YG	R031	1-216-675-11	METAL CHIP	10K 0.5% 1/10W
Q408	8-729-901-04	TRANSISTOR	DTA114EK	R032	1-216-669-11	METAL CHIP	5.6K 0.5% 1/10W
Q409	8-729-230-49	TRANSISTOR	2SC2712-YG	R033	1-216-079-00	METAL CHIP	18K 5% 1/10W
				R034	1-216-089-91	METAL GLAZE	47K 5% 1/10W

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Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
R035	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	R083	1-216-079-00	METAL CHIP	18K	5%	1/10W
R036	1-216-113-00	METAL CHIP	470K	5%	1/10W	R084	1-216-109-00	METAL CHIP	330K	5%	1/10W
R037	1-216-073-00	METAL CHIP	10K	5%	1/10W	R085	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R038	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R086	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R039	1-216-079-00	METAL CHIP	18K	5%	1/10W	R087	1-216-109-00	METAL CHIP	330K	5%	1/10W
R040	1-216-077-00	METAL CHIP	15K	5%	1/10W	R088	1-216-121-00	METAL CHIP	1M	5%	1/10W
R041	1-216-699-11	METAL CHIP	100K	0.5%	1/10W	R089	1-216-121-00	METAL CHIP	1M	5%	1/10W
R042	1-216-699-11	METAL CHIP	100K	0.5%	1/10W	R090	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R043	1-216-121-00	METAL CHIP	1M	5%	1/10W	R091	1-216-077-00	METAL CHIP	15K	5%	1/10W
R044	1-216-077-00	METAL CHIP	15K	5%	1/10W	R092	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R045	1-216-049-00	METAL CHIP	1K	5%	1/10W	R093	1-216-075-00	METAL CHIP	12K	5%	1/10W
R046	1-216-033-00	METAL CHIP	220	5%	1/10W	R094	1-216-043-00	METAL CHIP	560	5%	1/10W
R047	1-216-041-00	METAL CHIP	470	5%	1/10W	R095	1-216-079-00	METAL CHIP	18K	5%	1/10W
R048	1-216-040-00	METAL GLAZE	430	5%	1/10W	R096	1-216-043-00	METAL CHIP	560	5%	1/10W
R049	1-216-049-00	METAL CHIP	1K	5%	1/10W	R097	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R050	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R098	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R051	1-216-049-00	METAL CHIP	1K	5%	1/10W	R099	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R052	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R100	1-216-073-00	METAL CHIP	10K	5%	1/10W
R053	1-216-049-00	METAL CHIP	1K	5%	1/10W	R101	1-216-009-00	METAL CHIP	22	5%	1/10W
R054	1-216-043-00	METAL CHIP	560	5%	1/10W	R102	1-216-073-00	METAL CHIP	10K	5%	1/10W
R055	1-216-091-00	METAL CHIP	56K	5%	1/10W	R103	1-216-073-00	METAL CHIP	10K	5%	1/10W
R056	1-216-077-00	METAL CHIP	15K	5%	1/10W	R104	1-216-121-00	METAL CHIP	1M	5%	1/10W
R057	1-216-041-00	METAL CHIP	470	5%	1/10W	R105	1-216-073-00	METAL CHIP	10K	5%	1/10W
R058	1-216-049-00	METAL CHIP	1K	5%	1/10W	R106	1-216-097-00	METAL CHIP	100K	5%	1/10W
R059	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	R107	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R060	1-216-049-00	METAL CHIP	1K	5%	1/10W	R108	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R061	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	R109	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R062	1-216-049-00	METAL CHIP	1K	5%	1/10W	R110	1-216-097-00	METAL CHIP	100K	5%	1/10W
R063	1-216-049-00	METAL CHIP	1K	5%	1/10W	R111	1-216-073-00	METAL CHIP	10K	5%	1/10W
R064	1-216-121-00	METAL CHIP	1M	5%	1/10W	R112	1-216-085-00	METAL CHIP	33K	5%	1/10W
R065	1-216-089-91	METAL GLAZE	47K	5%	1/10W	R113	1-216-097-00	METAL CHIP	100K	5%	1/10W
R066	1-216-021-00	METAL CHIP	68	5%	1/10W	R114	1-216-097-00	METAL CHIP	100K	5%	1/10W
R067	1-216-083-00	METAL CHIP	27K	5%	1/10W	R115	1-216-085-00	METAL CHIP	33K	5%	1/10W
R068	1-216-089-91	METAL GLAZE	47K	5%	1/10W	R116	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R069	1-216-097-00	METAL CHIP	100K	5%	1/10W	R117	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R070	1-216-077-00	METAL CHIP	15K	5%	1/10W	R118	1-216-085-00	METAL CHIP	33K	5%	1/10W
R071	1-216-113-00	METAL CHIP	470K	5%	1/10W	R119	1-216-079-00	METAL CHIP	18K	5%	1/10W
R072	1-216-083-00	METAL CHIP	27K	5%	1/10W	R120	1-216-047-00	METAL CHIP	820	5%	1/10W
R073	1-216-097-00	METAL CHIP	100K	5%	1/10W	R121	1-216-085-00	METAL CHIP	33K	5%	1/10W
R074	1-216-097-00	METAL CHIP	100K	5%	1/10W	R122	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R075	1-216-113-00	METAL CHIP	470K	5%	1/10W	R123	1-216-037-00	METAL CHIP	330	5%	1/10W
R076	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R124	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R077	1-216-095-00	METAL CHIP	82K	5%	1/10W	R125	1-216-295-00	METAL CHIP	0	5%	1/10W
R078	1-216-097-00	METAL CHIP	100K	5%	1/10W	R126	1-216-081-00	METAL CHIP	22K	5%	1/10W
R079	1-216-097-00	METAL CHIP	100K	5%	1/10W	R127	1-216-033-00	METAL CHIP	220	5%	1/10W
R080	1-216-113-00	METAL CHIP	470K	5%	1/10W	R128	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R081	1-216-049-00	METAL CHIP	1K	5%	1/10W	R129	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R082	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	R130	1-216-651-11	METAL CHIP	1K	0.5%	1/10W

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
R131	1-216-650-11	METAL CHIP	910	0.5%	1/10W	R200	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R132	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R201	1-216-073-00	METAL CHIP	10K	5%	1/10W
R133	1-216-081-00	METAL CHIP	22K	5%	1/10W	R202	1-216-049-00	METAL CHIP	1K	5%	1/10W
R134	1-216-081-00	METAL CHIP	22K	5%	1/10W	R203	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R135	1-216-295-00	METAL CHIP	0	5%	1/10W	R204	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R137	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	R205	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R138	1-216-039-00	METAL CHIP	390	5%	1/10W	R206	1-216-676-11	METAL CHIP	11K	0.5%	1/10W
R139	1-216-091-00	METAL CHIP	56K	5%	1/10W	R207	1-216-672-11	METAL CHIP	7.5K	0.5%	1/10W
R140	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	R208	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R141	1-216-041-00	METAL CHIP	470	5%	1/10W	R209	1-216-649-11	METAL CHIP	820	0.5%	1/10W
R142	1-216-043-00	METAL CHIP	560	5%	1/10W	R210	1-216-049-00	METAL CHIP	1K	5%	1/10W
R143	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	R211	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R144	1-216-053-00	METAL CHIP	1.5K	5%	1/10W	R212	1-218-760-11	METAL GLAZE	220K	2%	1/10W
R145	1-216-049-00	METAL CHIP	1K	5%	1/10W	R213	1-216-657-11	METAL CHIP	1.8K	0.5%	1/10W
R146	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	R214	1-216-676-11	METAL CHIP	11K	0.5%	1/10W
R147	1-216-045-00	METAL CHIP	680	5%	1/10W	R215	1-216-672-11	METAL CHIP	7.5K	0.5%	1/10W
R148	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	R216	1-216-073-00	METAL CHIP	10K	5%	1/10W
R149	1-216-689-11	METAL CHIP	39K	0.5%	1/10W	R217	1-216-685-11	METAL CHIP	27K	0.5%	1/10W
R150	1-216-095-00	METAL CHIP	82K	5%	1/10W	R218	1-216-685-11	METAL CHIP	27K	0.5%	1/10W
R151	1-216-045-00	METAL CHIP	680	5%	1/10W	R219	1-216-041-00	METAL CHIP	470	5%	1/10W
R152	1-216-033-00	METAL CHIP	220	5%	1/10W	R220	1-216-295-00	METAL CHIP	0	5%	1/10W
R153	1-216-081-00	METAL CHIP	22K	5%	1/10W	R224	1-216-649-11	METAL CHIP	820	0.5%	1/10W
R154	1-216-081-00	METAL CHIP	22K	5%	1/10W	R225	1-216-095-00	METAL CHIP	82K	5%	1/10W
R155	1-216-049-00	METAL CHIP	1K	5%	1/10W	R226	1-216-657-11	METAL CHIP	1.8K	0.5%	1/10W
R156	1-216-295-00	METAL CHIP	0	5%	1/10W	R231	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R157	1-216-295-00	METAL CHIP	0	5%	1/10W	R232	1-216-295-00	METAL CHIP	0	5%	1/10W
R158	1-216-055-00	METAL CHIP	1.8K	5%	1/10W	R233	1-216-295-00	METAL CHIP	0	5%	1/10W
R159	1-216-117-00	METAL CHIP	680K	5%	1/10W	R234	1-218-760-11	METAL GLAZE	220K	2%	1/10W
R160	1-216-041-00	METAL CHIP	470	5%	1/10W	R235	1-216-049-00	METAL CHIP	1K	5%	1/10W
R161	1-216-295-00	METAL CHIP	0	5%	1/10W	R236	1-216-295-00	METAL CHIP	0	5%	1/10W
R162	1-216-033-00	METAL CHIP	220	5%	1/10W	R237	1-216-295-00	METAL CHIP	0	5%	1/10W
R163	1-216-097-00	METAL CHIP	100K	5%	1/10W	R238	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R164	1-216-049-00	METAL CHIP	1K	5%	1/10W	R239	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R165	1-216-295-00	METAL CHIP	0	5%	1/10W	R240	1-216-649-11	METAL CHIP	820	0.5%	1/10W
R166	1-216-049-00	METAL CHIP	1K	5%	1/10W	R241	1-218-760-11	METAL GLAZE	220K	2%	1/10W
R167	1-216-051-00	METAL CHIP	1.2K	5%	1/10W	R242	1-216-685-11	METAL CHIP	27K	0.5%	1/10W
R169	1-216-049-00	METAL CHIP	1K	5%	1/10W	R243	1-216-295-00	METAL CHIP	0	5%	1/10W
R170	1-216-115-00	METAL CHIP	560K	5%	1/10W	R244	1-218-760-11	METAL GLAZE	220K	2%	1/10W
R174	1-216-059-00	METAL CHIP	2.7K	5%	1/10W	R245	1-218-760-11	METAL GLAZE	220K	2%	1/10W
R175	1-216-021-00	METAL CHIP	68	5%	1/10W	R247	1-216-073-00	METAL CHIP	10K	5%	1/10W
R179	1-216-031-00	METAL CHIP	180	5%	1/10W	R248	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R182	1-216-021-00	METAL CHIP	68	5%	1/10W	R251	1-216-657-11	METAL CHIP	1.8K	0.5%	1/10W
R189	1-216-041-00	METAL CHIP	470	5%	1/10W	R252	1-218-760-11	METAL GLAZE	220K	2%	1/10W
R190	1-216-041-00	METAL CHIP	470	5%	1/10W	R253	1-216-295-00	METAL CHIP	0	5%	1/10W
R192	1-216-041-00	METAL CHIP	470	5%	1/10W	R255	1-218-760-11	METAL GLAZE	220K	2%	1/10W
R193	1-216-081-00	METAL CHIP	22K	5%	1/10W	R256	1-218-760-11	METAL GLAZE	220K	2%	1/10W
R194	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	R257	1-216-295-00	METAL CHIP	0	5%	1/10W
R197	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R258	1-216-295-00	METAL CHIP	0	5%	1/10W
R199	1-216-095-00	METAL CHIP	82K	5%	1/10W						

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Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
R262	1-216-649-11	METAL CHIP	820	0.5%	1/10W	R326	1-216-017-00	METAL CHIP	47	5%	1/10W
R263	1-216-657-11	METAL CHIP	1.8K	0.5%	1/10W	R327	1-216-049-00	METAL CHIP	1K	5%	1/10W
R264	1-216-295-00	METAL CHIP	0	5%	1/10W	R328	1-216-049-00	METAL CHIP	1K	5%	1/10W
R266	1-216-676-11	METAL CHIP	11K	0.5%	1/10W	R329	1-216-049-00	METAL CHIP	1K	5%	1/10W
R267	1-216-672-11	METAL CHIP	7.5K	0.5%	1/10W	R330	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R268	1-216-685-11	METAL CHIP	27K	0.5%	1/10W	R331	1-216-041-00	METAL CHIP	470	5%	1/10W
R269	1-218-760-11	METAL GLAZE	220K	2%	1/10W	R332	1-216-023-00	METAL CHIP	82	5%	1/10W
R271	1-218-760-11	METAL GLAZE	220K	2%	1/10W	R333	1-216-077-00	METAL CHIP	15K	5%	1/10W
R274	1-216-074-00	METAL CHIP	11K	5%	1/10W	R334	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R275	1-216-097-00	METAL CHIP	100K	5%	1/10W	R335	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R276	1-216-676-11	METAL CHIP	11K	0.5%	1/10W	R336	1-216-073-00	METAL CHIP	10K	5%	1/10W
R277	1-216-672-11	METAL CHIP	7.5K	0.5%	1/10W	R340	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R278	1-216-121-00	METAL CHIP	1M	5%	1/10W	R341	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R279	1-216-095-00	METAL CHIP	82K	5%	1/10W	R400	1-216-097-00	METAL CHIP	100K	5%	1/10W
R282	1-216-049-00	METAL CHIP	1K	5%	1/10W	R401	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R283	1-216-121-00	METAL CHIP	1M	5%	1/10W	R402	1-216-045-00	METAL CHIP	680	5%	1/10W
R284	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R403	1-216-045-00	METAL CHIP	680	5%	1/10W
R285	1-216-049-00	METAL CHIP	1K	5%	1/10W	R404	1-216-093-00	METAL CHIP	68K	5%	1/10W
R286	1-216-105-00	METAL CHIP	220K	5%	1/10W	R405	1-216-107-00	METAL CHIP	270K	5%	1/10W
R287	1-216-667-11	METAL CHIP	4.7K	0.5%	1/10W	R406	1-216-099-00	METAL CHIP	120K	5%	1/10W
R289	1-216-097-00	METAL CHIP	100K	5%	1/10W	R407	1-216-075-00	METAL CHIP	12K	5%	1/10W
R290	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	R408	1-216-083-00	METAL CHIP	27K	5%	1/10W
R291	1-216-693-11	METAL CHIP	56K	0.5%	1/10W	R409	1-216-049-00	METAL CHIP	1K	5%	1/10W
R292	1-216-097-00	METAL CHIP	100K	5%	1/10W	R410	1-216-101-00	METAL CHIP	150K	5%	1/10W
R293	1-216-097-00	METAL CHIP	100K	5%	1/10W	R411	1-216-077-00	METAL CHIP	15K	5%	1/10W
R295	1-216-073-00	METAL CHIP	10K	5%	1/10W	R412	1-216-101-00	METAL CHIP	150K	5%	1/10W
R298	1-216-073-00	METAL CHIP	10K	5%	1/10W	R413	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R299	1-216-097-00	METAL CHIP	100K	5%	1/10W	R414	1-216-075-00	METAL CHIP	12K	5%	1/10W
R300	1-216-693-11	METAL CHIP	56K	0.5%	1/10W	R415	1-216-085-00	METAL CHIP	33K	5%	1/10W
R301	1-216-295-00	METAL CHIP	0	5%	1/10W	R416	1-216-103-91	METAL GLAZE	180K	5%	1/10W
R303	1-216-097-00	METAL CHIP	100K	5%	1/10W	R417	1-216-097-00	METAL CHIP	100K	5%	1/10W
R304	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	R418	1-216-091-00	METAL CHIP	56K	5%	1/10W
R305	1-216-693-11	METAL CHIP	56K	0.5%	1/10W	R419	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R306	1-216-693-11	METAL CHIP	56K	0.5%	1/10W	R420	1-216-085-00	METAL CHIP	33K	5%	1/10W
R307	1-216-105-00	METAL CHIP	220K	5%	1/10W	R421	1-216-097-00	METAL CHIP	100K	5%	1/10W
R308	1-216-073-00	METAL CHIP	10K	5%	1/10W	R422	1-216-109-00	METAL CHIP	330K	5%	1/10W
R309	1-216-073-00	METAL CHIP	10K	5%	1/10W	R423	1-216-101-00	METAL CHIP	150K	5%	1/10W
R311	1-216-097-00	METAL CHIP	100K	5%	1/10W	R424	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R315	1-216-095-00	METAL CHIP	82K	5%	1/10W	R425	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R317	1-216-073-00	METAL CHIP	10K	5%	1/10W	R426	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R318	1-216-071-00	METAL CHIP	8.2K	5%	1/10W	R427	1-216-099-00	METAL CHIP	120K	5%	1/10W
R319	1-216-101-00	METAL CHIP	150K	5%	1/10W	R428	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R320	1-216-101-00	METAL CHIP	150K	5%	1/10W	R429	1-216-093-00	METAL CHIP	68K	5%	1/10W
R321	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	R431	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R322	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R432	1-216-082-00	METAL GLAZE	24K	5%	1/10W
R323	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R433	1-216-100-00	METAL GLAZE	130K	5%	1/10W
R324	1-216-077-00	METAL CHIP	15K	5%	1/10W	R434	1-216-097-00	METAL CHIP	100K	5%	1/10W
R325	1-216-104-00	METAL CHIP	200K	5%	1/10W	R435	1-216-073-00	METAL CHIP	10K	5%	1/10W
						R436	1-216-067-00	METAL CHIP	5.6K	5%	1/10W

Ref. No.	Part No.	Description	Remark		
R437	1-216-077-00	METAL CHIP	15K	5%	1/10W
R438	1-216-085-00	METAL CHIP	33K	5%	1/10W
R439	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R440	1-216-049-00	METAL CHIP	1K	5%	1/10W
R441	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R442	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R443	1-216-085-00	METAL CHIP	33K	5%	1/10W
R444	1-216-033-00	METAL CHIP	220	5%	1/10W
R445	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R446	1-216-081-00	METAL CHIP	22K	5%	1/10W
R447	1-216-081-00	METAL CHIP	22K	5%	1/10W
R448	1-216-092-00	METAL GLAZE	62K	5%	1/10W
R449	1-216-113-00	METAL CHIP	470K	5%	1/10W
R450	1-216-073-00	METAL CHIP	10K	5%	1/10W
R451	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R452	1-216-073-00	METAL CHIP	10K	5%	1/10W
R453	1-216-085-00	METAL CHIP	33K	5%	1/10W
R454	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R455	1-216-097-00	METAL CHIP	100K	5%	1/10W
R456	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R457	1-216-073-00	METAL CHIP	10K	5%	1/10W
R458	1-216-073-00	METAL CHIP	10K	5%	1/10W
R459	1-216-049-00	METAL CHIP	1K	5%	1/10W
R460	1-216-075-00	METAL CHIP	12K	5%	1/10W
R461	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R462	1-216-085-00	METAL CHIP	33K	5%	1/10W
R463	1-216-077-00	METAL CHIP	15K	5%	1/10W
R464	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R465	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R466	1-216-081-00	METAL CHIP	22K	5%	1/10W
R467	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R468	1-216-081-00	METAL CHIP	22K	5%	1/10W
R469	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R470	1-216-075-00	METAL CHIP	12K	5%	1/10W
R471	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R472	1-216-017-00	METAL CHIP	47	5%	1/10W
R473	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R474	1-216-003-11	METAL GLAZE	12	5%	1/10W
R475	1-216-081-00	METAL CHIP	22K	5%	1/10W
R476	1-216-146-00	METAL GLAZE	6.8	5%	1/8W
R477	1-216-079-00	METAL CHIP	18K	5%	1/10W
R478	1-216-109-00	METAL CHIP	330K	5%	1/10W
R479	1-216-093-00	METAL CHIP	68K	5%	1/10W
R480	1-216-095-00	METAL CHIP	82K	5%	1/10W
R481	1-216-369-00	METAL OXIDE	1	5%	2W F
R482	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R483	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R484	1-216-033-00	METAL CHIP	220	5%	1/10W

Ref. No.	Part No.	Description	Remark		
R485	1-216-041-00	METAL CHIP	470	5%	1/10W
R486	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R487	1-216-039-00	METAL CHIP	390	5%	1/10W
R488	1-216-047-00	METAL CHIP	820	5%	1/10W
R489	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R490	1-216-037-00	METAL CHIP	330	5%	1/10W
R491	1-216-146-00	METAL GLAZE	6.8	5%	1/8W
R492	1-216-073-00	METAL CHIP	10K	5%	1/10W
R493	1-216-095-00	METAL CHIP	82K	5%	1/10W
R494	1-216-079-00	METAL CHIP	18K	5%	1/10W
R495	1-216-079-00	METAL CHIP	18K	5%	1/10W
R496	1-216-099-00	METAL CHIP	120K	5%	1/10W
R497	1-216-099-00	METAL CHIP	120K	5%	1/10W
R498	1-216-077-00	METAL CHIP	15K	5%	1/10W
R499	1-216-099-00	METAL CHIP	120K	5%	1/10W
R500	1-216-073-00	METAL CHIP	10K	5%	1/10W
R501	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R502	1-216-111-00	METAL CHIP	390K	5%	1/10W
R503	1-216-113-00	METAL CHIP	470K	5%	1/10W
R504	1-216-677-11	METAL CHIP	12K	0.5%	1/10W
R505	1-216-035-00	METAL CHIP	270	5%	1/10W
R506	1-216-679-11	METAL CHIP	15K	0.5%	1/10W
R507	1-218-766-11	METAL CHIP	390K	0.50%	1/10W
R508	1-216-049-00	METAL CHIP	1K	5%	1/10W
R509	1-216-685-11	METAL CHIP	27K	0.5%	1/10W
R510	1-218-760-11	METAL CHIP	220K	0.50%	1/10W
R511	1-216-675-11	METAL CHIP	10K	0.5%	1/10W
R512	1-216-687-11	METAL CHIP	33K	0.5%	1/10W
R513	1-216-699-11	METAL CHIP	100K	0.5%	1/10W
R514	1-216-077-00	METAL CHIP	15K	5%	1/10W
R515	1-216-687-11	METAL CHIP	33K	0.5%	1/10W
R516	1-216-085-00	METAL CHIP	33K	5%	1/10W
R517	1-216-105-00	METAL CHIP	220K	5%	1/10W
R518	1-216-081-00	METAL CHIP	22K	5%	1/10W
R520	1-216-073-00	METAL CHIP	10K	5%	1/10W
R521	1-216-045-00	METAL CHIP	680	5%	1/10W
R522	1-216-105-00	METAL CHIP	220K	5%	1/10W
R523	1-216-033-00	METAL CHIP	220	5%	1/10W
R524	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R525	1-216-073-00	METAL CHIP	10K	5%	1/10W
R526	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R527	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R528	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R529	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R530	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R531	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R532	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
△R533	1-212-950-00	FUSIBLE	4.7	5%	1/2W F

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

MB-712

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
R534	1-216-105-00	METAL CHIP	220K	5%	1/10W	R588	1-216-049-00	METAL CHIP	1K	5%	1/10W
R535	1-216-093-00	METAL CHIP	68K	5%	1/10W	R589	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R536	1-216-095-00	METAL CHIP	82K	5%	1/10W	R590	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R537	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	R591	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R538	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	R592	1-216-049-00	METAL CHIP	1K	5%	1/10W
R539	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	R593	1-216-664-11	METAL CHIP	3.6K	0.5%	1/10W
R540	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	R594	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R541	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	R595	1-216-049-00	METAL CHIP	1K	5%	1/10W
R542	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	R597	1-216-049-00	METAL CHIP	1K	5%	1/10W
R545	1-216-049-00	METAL CHIP	1K	5%	1/10W	R598	1-216-295-00	METAL CHIP	0	5%	1/10W
R546	1-216-049-00	METAL CHIP	1K	5%	1/10W	R604	1-216-049-00	METAL CHIP	1K	5%	1/10W
R547	1-216-049-00	METAL CHIP	1K	5%	1/10W	R605	1-216-295-00	METAL CHIP	0	5%	1/10W
R548	1-216-073-00	METAL CHIP	10K	5%	1/10W	R606	1-216-037-00	METAL CHIP	330	5%	1/10W
R549	1-216-105-00	METAL CHIP	220K	5%	1/10W	R608	1-216-049-00	METAL CHIP	1K	5%	1/10W
R550	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	R609	1-216-049-00	METAL CHIP	1K	5%	1/10W
R552	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R610	1-216-049-00	METAL CHIP	1K	5%	1/10W
R553	1-216-029-00	METAL CHIP	150	5%	1/10W	R611	1-216-049-00	METAL CHIP	1K	5%	1/10W
R554	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R612	1-216-295-00	METAL CHIP	0	5%	1/10W
R556	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R613	1-216-049-00	METAL CHIP	1K	5%	1/10W
R557	1-216-081-00	METAL CHIP	22K	5%	1/10W	R614	1-216-049-00	METAL CHIP	1K	5%	1/10W
R558	1-216-021-00	METAL CHIP	68	5%	1/10W	R615	1-216-049-00	METAL CHIP	1K	5%	1/10W
R559	1-216-097-00	METAL CHIP	100K	5%	1/10W	R616	1-216-049-00	METAL CHIP	1K	5%	1/10W
R560	1-216-049-00	METAL CHIP	1K	5%	1/10W	R617	1-216-049-00	METAL CHIP	1K	5%	1/10W
R561	1-216-049-00	METAL CHIP	1K	5%	1/10W	R618	1-216-049-00	METAL CHIP	1K	5%	1/10W
R562	1-216-049-00	METAL CHIP	1K	5%	1/10W	R619	1-216-073-00	METAL CHIP	10K	5%	1/10W
R563	1-216-049-00	METAL CHIP	1K	5%	1/10W	R620	1-216-049-00	METAL CHIP	1K	5%	1/10W
R564	1-216-049-00	METAL CHIP	1K	5%	1/10W	R621	1-216-049-00	METAL CHIP	1K	5%	1/10W
R565	1-216-121-00	METAL CHIP	1M	5%	1/10W	R622	1-216-049-00	METAL CHIP	1K	5%	1/10W
R566	1-216-049-00	METAL CHIP	1K	5%	1/10W	R623	1-216-049-00	METAL CHIP	1K	5%	1/10W
R568	1-216-049-00	METAL CHIP	1K	5%	1/10W	R624	1-216-049-00	METAL CHIP	1K	5%	1/10W
R569	1-216-049-00	METAL CHIP	1K	5%	1/10W	R625	1-216-049-00	METAL CHIP	1K	5%	1/10W
R570	1-216-049-00	METAL CHIP	1K	5%	1/10W	R626	1-216-073-00	METAL CHIP	10K	5%	1/10W
R571	1-216-049-00	METAL CHIP	1K	5%	1/10W	R628	1-216-041-00	METAL CHIP	470	5%	1/10W
R572	1-216-049-00	METAL CHIP	1K	5%	1/10W	R630	1-216-049-00	METAL CHIP	1K	5%	1/10W
R573	1-216-049-00	METAL CHIP	1K	5%	1/10W	R632	1-216-049-00	METAL CHIP	1K	5%	1/10W
R574	1-216-049-00	METAL CHIP	1K	5%	1/10W	R633	1-216-097-00	METAL CHIP	100K	5%	1/10W
R575	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	R634	1-216-073-00	METAL CHIP	10K	5%	1/10W
R576	1-216-049-00	METAL CHIP	1K	5%	1/10W	R635	1-216-049-00	METAL CHIP	1K	5%	1/10W
R577	1-216-049-00	METAL CHIP	1K	5%	1/10W	R636	1-216-049-00	METAL CHIP	1K	5%	1/10W
R578	1-216-049-00	METAL CHIP	1K	5%	1/10W	R637	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R579	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R638	1-216-081-00	METAL CHIP	22K	5%	1/10W
R580	1-216-049-00	METAL CHIP	1K	5%	1/10W	R639	1-216-081-00	METAL CHIP	22K	5%	1/10W
R581	1-216-049-00	METAL CHIP	1K	5%	1/10W	R642	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R582	1-216-049-00	METAL CHIP	1K	5%	1/10W	R643	1-216-049-00	METAL CHIP	1K	5%	1/10W
R583	1-216-049-00	METAL CHIP	1K	5%	1/10W	R644	1-216-295-00	METAL CHIP	0	5%	1/10W
R584	1-216-089-91	METAL GLAZE	47K	5%	1/10W	R645	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R585	1-216-049-00	METAL CHIP	1K	5%	1/10W	R646	1-216-073-00	METAL CHIP	10K	5%	1/10W
R586	1-216-049-00	METAL CHIP	1K	5%	1/10W	R647	1-216-073-00	METAL CHIP	10K	5%	1/10W
R587	1-216-049-00	METAL CHIP	1K	5%	1/10W						

Ref. No.	Part No.	Description	Remark		
R648	1-216-073-00	METAL CHIP	10K	5%	1/10W
R649	1-216-025-00	METAL CHIP	100	5%	1/10W
R650	1-216-101-00	METAL CHIP	150K	5%	1/10W
R651	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R801	1-216-105-00	METAL CHIP	220K	5%	1/10W
R802	1-216-105-00	METAL CHIP	220K	5%	1/10W
R803	1-216-295-00	METAL CHIP	0	5%	1/10W
R804	1-216-097-00	METAL CHIP	100K	5%	1/10W
R805	1-216-117-00	METAL CHIP	680K	5%	1/10W
R806	1-216-085-00	METAL CHIP	33K	5%	1/10W
R807	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R808	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R809	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R810	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R812	1-216-295-00	METAL CHIP	0	5%	1/10W
R813	1-216-295-00	METAL CHIP	0	5%	1/10W
R814	1-216-295-00	METAL CHIP	0	5%	1/10W
R815	1-216-109-00	METAL CHIP	330K	5%	1/10W
R816	1-216-043-00	METAL CHIP	560	5%	1/10W
R850	1-216-077-00	METAL CHIP	15K	5%	1/10W
R900	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R901	1-216-675-11	METAL CHIP	10K	0.5%	1/10W
R902	1-216-677-11	METAL CHIP	12K	0.5%	1/10W
R903	1-216-021-00	METAL CHIP	68	5%	1/10W
R904	1-216-021-00	METAL CHIP	68	5%	1/10W
R905	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R906	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R907	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R912	1-216-095-00	METAL CHIP	82K	5%	1/10W
R913	1-216-083-00	METAL CHIP	27K	5%	1/10W
R914	1-216-049-00	METAL CHIP	1K	5%	1/10W
R915	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R916	1-216-077-00	METAL CHIP	15K	5%	1/10W
R917	1-216-047-00	METAL CHIP	820	5%	1/10W
R918	1-216-045-00	METAL CHIP	680	5%	1/10W
R950	1-216-049-00	METAL CHIP	1K	5%	1/10W
R951	1-216-097-00	METAL CHIP	100K	5%	1/10W
< VARIABLE RESISTOR >					
RV001	1-223-239-11	RES, ADJ, CARBON 10K			
RV002	1-223-239-11	RES, ADJ, CARBON 10K			
RV401	1-223-241-11	RES, ADJ, CARBON 47K			
RV402	1-223-241-11	RES, ADJ, CARBON 47K			
RV501	1-223-240-11	RES, ADJ, CARBON 22K			
< THERMISTOR >					
TH001	1-800-199-00	THERMISTOR			

Ref. No.	Part No.	Description	Remark		
< VIBRATOR >					
X201	1-567-908-11	VIBRATOR, CRYSTAL (16.9344MHz)			
X501	1-567-900-11	OSCILLATOR, CRYSTAL (14.31818MHz)			

*	A-6421-956-A	MD-703 BOARD, COMPLETE			

(Ref. NO. 2000 Series)					
3-953-262-01 HOLDER, LED					
< CAPACITOR >					
C431	1-126-947-11	ELECT	47uF	20%	35V
< CONNECTOR >					
* CN431	1-691-503-11	CONNECTOR, FPC 14P			
CN432	1-506-470-11	PIN, CONNECTOR 5P			
CN433	1-564-014-11	PIN, CONNECTOR 4P			
CN434	1-506-468-11	PIN, CONNECTOR 3P			
< DIODE >					
D431	8-719-912-39	LED SLR932A			
D432	8-729-020-74	DIODE GP1S24			
D433	8-729-020-74	DIODE GP1S24			
D434	8-729-020-74	DIODE GP1S24			
< IC >					
IC431	8-759-927-46	IC SN74HC00ANS			
< JUMPER RESISTOR >					
JR413	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR414	1-216-295-00	METAL CHIP	0	5%	1/10W
JR431	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR432	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR433	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR435	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR437	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR438	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR439	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR440	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR441	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR442	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR443	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR444	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR445	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR446	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR447	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR448	1-216-296-00	METAL GLAZE	0	5%	1/8W
JR449	1-216-296-00	METAL GLAZE	0	5%	1/8W

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MT-702

PS-716

Ref. No.	Part No.	Description	Remark
JR450	1-216-296-00	METAL GLAZE 0 5%	1/8W
JR451	1-216-296-00	METAL GLAZE 0 5%	1/8W
JR452	1-216-296-00	METAL GLAZE 0 5%	1/8W
JR453	1-216-296-00	METAL GLAZE 0 5%	1/8W
JR454	1-216-296-00	METAL GLAZE 0 5%	1/8W
JR455	1-216-296-00	METAL GLAZE 0 5%	1/8W
JR456	1-216-296-00	METAL GLAZE 0 5%	1/8W
JR457	1-216-296-00	METAL GLAZE 0 5%	1/8W
JR458	1-216-296-00	METAL GLAZE 0 5%	1/8W
JR460	1-216-296-00	METAL GLAZE 0 5%	1/8W
JR461	1-216-296-00	METAL GLAZE 0 5%	1/8W
< RESISTOR >			
R431	1-216-033-00	METAL CHIP 220 5%	1/10W
R432	1-216-049-00	METAL CHIP 1K 5%	1/10W
R433	1-216-049-00	METAL CHIP 1K 5%	1/10W
R434	1-216-045-00	METAL CHIP 680 5%	1/10W
R435	1-216-099-00	METAL CHIP 120K 5%	1/10W
R436	1-216-039-00	METAL CHIP 390 5%	1/10W
R437	1-216-099-00	METAL CHIP 120K 5%	1/10W
R438	1-216-095-00	METAL CHIP 82K 5%	1/10W
R439	1-216-095-00	METAL CHIP 82K 5%	1/10W
< SWITCH >			
S431	1-692-440-11	SWITCH, PUSH (TILT)	

*	A-6421-953-A	MT-702 BOARD, COMPLETE	

(Ref. NO. 4000 Series)			
< CAPACITOR >			
C471	1-161-063-00	CERAMIC 0.1uF	10% 50V
< CONNECTOR >			
* CN471	1-695-105-11	PIN, CONNECTOR (PC BOARD) 3P	

*	A-6423-082-A	PS-716 BOARD, COMPLETE	

(Ref. NO. 6000 Series)			
△	1-533-189-11	HOLDER, FUSE	
	7-685-646-81	SCREW +BVTP 3X8 TYPE2	
< CAPACITOR >			
C031	1-126-948-11	ELECT 100uF	20% 35V
C032	1-164-222-11	CERAMIC CHIP 0.22uF	25V
C033	1-126-948-11	ELECT 100uF	20% 35V
C034	1-164-222-11	CERAMIC CHIP 0.22uF	25V

Ref. No.	Part No.	Description	Remark
C035	1-126-941-11	ELECT 470uF	20% 25V
C036	1-126-944-11	ELECT 3300uF	20% 25V
C037	1-126-946-11	ELECT 6800uF	20% 25V
C038	1-126-944-11	ELECT 3300uF	20% 25V
C046	1-124-557-11	ELECT 1000uF	20% 25V
C051	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
C052	1-163-019-00	CERAMIC CHIP 0.0068uF	10% 50V
C054	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
C055	1-163-017-00	CERAMIC CHIP 0.0047uF	5% 50V
C056	1-163-007-11	CERAMIC CHIP 680PF	10% 50V
C058	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C059	1-163-017-00	CERAMIC CHIP 0.0047uF	5% 50V
C060	1-163-007-11	CERAMIC CHIP 680PF	10% 50V
C061	1-163-017-00	CERAMIC CHIP 0.0047uF	5% 50V
C062	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
C063	1-124-122-11	ELECT 100uF	20% 50V
C064	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C701	1-126-916-11	ELECT 1000uF	20% 6.3V
C702	1-126-916-11	ELECT 1000uF	20% 6.3V
C703	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C704	1-163-037-11	CERAMIC CHIP 0.022uF	10% 25V
C706	1-163-011-11	CERAMIC CHIP 0.0015uF	10% 50V
C707	1-124-915-11	ELECT 10uF	20% 63V
C708	1-163-037-11	CERAMIC CHIP 0.022uF	10% 25V
C709	1-163-009-11	CERAMIC CHIP 0.001uF	10% 50V
C710	1-124-927-11	ELECT 4.7uF	20% 100V
C711	1-126-916-11	ELECT 1000uF	20% 6.3V
C712	1-126-916-11	ELECT 1000uF	20% 6.3V
C713	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C714	1-126-966-11	ELECT 33uF	20% 16V
C718	1-126-948-11	ELECT 100uF	20% 35V
< CONNECTOR >			
* CN030	1-564-029-00	PIN, CONNECTOR 4P	
CN031	1-506-483-21	PIN, CONNECTOR 4P	
* CN051	1-564-033-00	PIN, CONNECTOR 8P	
CN052	1-564-506-11	PLUG, CONNECTOR 3P	
CN055	1-506-485-11	PIN, CONNECTOR 6P	
< DIODE >			
△D031	8-719-200-82	DIODE 11ES2	
△D032	8-719-200-82	DIODE 11ES2	
D033	8-719-911-19	DIODE 1SS119	
△D034	8-719-025-17	DIODE D3SBA10-4100	
△D035	8-719-200-82	DIODE 11ES2	
D051	8-719-980-78	DIODE ERA81-006	
D052	8-719-980-78	DIODE ERA81-006	
D053	8-719-200-82	DIODE 11ES2	
D054	8-719-200-82	DIODE 11ES2	

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

Ref. No.	Part No.	Description	Remark
D055	8-719-911-19	DIODE 1SS119	
D056	8-719-911-19	DIODE 1SS119	
D057	8-719-911-19	DIODE 1SS119	
D058	8-719-109-85	DIODE RD5.1ES-B2	
D059	8-719-109-75	DIODE RD4.3ES-B2	
D060	8-719-911-19	DIODE 1SS119	
△D061	8-719-503-40	DIODE S3V40	
D701	8-719-980-78	DIODE ERA81-006	
D702	8-719-980-78	DIODE ERA81-006	
< FUSE >			
△F031	1-532-299-00	FUSE, TIME-LAG (5A 250V)	
△F032	1-532-299-00	FUSE, TIME-LAG (5A 250V)	
< IC >			
△IC031	8-759-231-53	IC M5F7805	
IC051	8-759-509-91	IC XRA10393F	
IC052	8-759-100-96	IC uPC4558G2	
△IC701	8-759-946-09	IC FA7611M	
< COIL >			
L051	1-424-219-11	COIL, CHOKE 300uH	
L701	1-424-219-11	COIL, CHOKE 300uH	
L702	1-412-525-21	INDUCTOR 10uH	
L703	1-412-537-31	INDUCTOR 100uH	
L704	1-424-219-11	COIL, CHOKE 300uH	
L705	1-412-525-21	INDUCTOR 10uH	
< IC LINK >			
△PS051	1-532-675-00	LINK, IC 1.5A	
△PS052	1-532-675-00	LINK, IC 1.5A	
△PS053	1-532-843-21	LINK, IC	
△PS054	1-532-843-21	LINK, IC	
< TRANSISTOR >			
Q031	8-729-141-75	TRANSISTOR 2SD596DV345	
△Q051	8-729-117-11	TRANSISTOR 2SB1151	
△Q052	8-729-019-31	TRANSISTOR 2SC4596E	
△Q053	8-729-117-11	TRANSISTOR 2SB1151	
△Q054	8-729-019-31	TRANSISTOR 2SC4596E	
Q055	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q056	8-729-216-22	TRANSISTOR 2SA1162-G	
Q058	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q059	8-729-216-22	TRANSISTOR 2SA1162-G	
Q060	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q061	8-729-119-76	TRANSISTOR 2SA1175-HFE	
△Q701	8-729-019-29	TRANSISTOR 2SB1009R	
△Q702	8-729-019-29	TRANSISTOR 2SB1009R	

Ref. No.	Part No.	Description	Remark
< RESISTOR >			
△R031	1-212-867-00	FUSIBLE	27 5% 1/4W F
R032	1-216-057-00	METAL CHIP	2.2K 5% 1/10W
△R033	1-216-426-11	METAL OXIDE	82 5% 1W F
R034	1-216-049-00	METAL CHIP	1K 5% 1/10W
R035	1-216-061-00	METAL CHIP	3.3K 5% 1/10W
R051	1-216-081-00	METAL CHIP	22K 5% 1/10W
R052	1-216-075-00	METAL CHIP	12K 5% 1/10W
R053	1-216-093-00	METAL CHIP	68K 5% 1/10W
R054	1-216-081-00	METAL CHIP	22K 5% 1/10W
R055	1-216-075-00	METAL CHIP	12K 5% 1/10W
R056	1-216-097-00	METAL CHIP	100K 5% 1/10W
R057	1-216-073-00	METAL CHIP	10K 5% 1/10W
R061	1-216-073-00	METAL CHIP	10K 5% 1/10W
R062	1-216-065-00	METAL CHIP	4.7K 5% 1/10W
R063	1-216-049-00	METAL CHIP	1K 5% 1/10W
R064	1-247-750-11	CARBON	680 5% 1/2W
R065	1-247-750-11	CARBON	680 5% 1/2W
R066	1-216-049-00	METAL CHIP	1K 5% 1/10W
△R067	1-216-369-00	METAL OXIDE	1 5% 2W F
R068	1-216-690-11	METAL CHIP	43K 0.5% 1/10W
R069	1-216-675-11	METAL CHIP	10K 0.5% 1/10W
R070	1-216-690-11	METAL CHIP	43K 0.5% 1/10W
R071	1-216-675-11	METAL CHIP	10K 0.5% 1/10W
R072	1-216-073-00	METAL CHIP	10K 5% 1/10W
R073	1-216-073-00	METAL CHIP	10K 5% 1/10W
△R074	1-215-866-11	METAL OXIDE	330 5% 1W F
R075	1-216-073-00	METAL CHIP	10K 5% 1/10W
R076	1-247-750-11	CARBON	680 5% 1/2W
R077	1-216-073-00	METAL CHIP	10K 5% 1/10W
R078	1-216-093-00	METAL CHIP	68K 5% 1/10W
R079	1-216-097-00	METAL CHIP	100K 5% 1/10W
R080	1-216-097-00	METAL CHIP	100K 5% 1/10W
R701	1-216-659-11	METAL CHIP	2.2K 0.5% 1/10W
R702	1-216-683-11	METAL CHIP	22K 0.5% 1/10W
R703	1-216-035-00	METAL CHIP	270 5% 1/10W
R704	1-216-055-00	METAL CHIP	1.8K 5% 1/10W
R705	1-216-043-00	METAL CHIP	560 5% 1/10W
R706	1-216-043-00	METAL CHIP	560 5% 1/10W
R707	1-216-091-00	METAL CHIP	56K 5% 1/10W
R708	1-216-109-00	METAL CHIP	330K 5% 1/10W
R709	1-216-119-00	METAL CHIP	820K 5% 1/10W
R710	1-216-043-00	METAL CHIP	560 5% 1/10W
R711	1-216-699-11	METAL CHIP	100K 0.5% 1/10W
R712	1-216-683-11	METAL CHIP	22K 0.5% 1/10W
R713	1-216-663-11	METAL CHIP	3.3K 0.5% 1/10W
R714	1-216-674-11	METAL CHIP	9.1K 0.5% 1/10W
R715	1-216-055-00	METAL CHIP	1.8K 5% 1/10W

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PS-716

PW-709

SW-719

SW-727

TR-718

Ref.No.	Part No.	Description	Remark
R716	1-216-055-00	METAL CHIP	1.8K 5% 1/10W
R717	1-216-029-00	METAL CHIP	150 5% 1/10W
< RELAY >			
△RY031	1-515-833-11	RELAY	

*	A-6423-087-A	PW-709 BOARD, COMPLETE	
		*****	(Ref.NO. 7000 Series)
< CAPACITOR >			
C201	1-164-232-11	CERAMIC CHIP	0.01uF 50V
< DIODE >			
D201	8-719-046-97	DIODE GL8ED5	
< CONNECTOR >			
CN201	1-506-484-11	PIN, CONNECTOR 5P	
< IC >			
IC201	8-741-100-48	IC SBX1610-59	
< TRANSISTOR >			
Q201	8-729-901-04	TRANSISTOR DTA114EK	
< RESISTOR >			
R201	1-216-063-00	METAL CHIP	3.9K 5% 1/10W
R202	1-216-059-00	METAL CHIP	2.7K 5% 1/10W
R204	1-216-037-00	METAL CHIP	330 5% 1/10W
R205	1-216-033-00	METAL CHIP	220 5% 1/10W
< SWITCH >			
S201	1-572-946-11	SWITCH, TACTIL (POWER)	
S202	1-572-946-11	SWITCH, TACTIL (△ OPEN/CLOSE)	
S203	1-572-946-11	SWITCH, TACTIL (DISPLAY)	

*	A-6421-954-A	SW-719 BOARD, COMPLETE	
		*****	(Ref.NO. 4000 Series)
< CONNECTOR >			
* CN481	1-566-779-11	PIN, CONNECTOR (PC BOARD) 4P	
< SWITCH >			
S481	1-692-439-11	SWITCH, PUSH	

Ref.No.	Part No.	Description	Remark
*	A-6423-085-A	SW-727 BOARD, COMPLETE	
		*****	(Ref.NO. 7000 Series)
< CONNECTOR >			
* CN101	1-564-014-51	PIN, CONNECTOR 4P	
< DIODE >			
D103	8-719-992-30	LED SLR305MC3F (AUTO RESUME)	
D104	8-719-992-30	LED SLR305MC3F (AUTO RESUME)	
< TRANSISTOR >			
Q103	8-729-901-04	TRANSISTOR DTA114EK	
< RESISTOR >			
R103	1-216-037-00	METAL CHIP	330 5% 1/10W
R104	1-216-037-00	METAL CHIP	330 5% 1/10W
R105	1-216-059-00	METAL CHIP	2.7K 5% 1/10W
R106	1-216-063-00	METAL CHIP	3.9K 5% 1/10W
R107	1-216-071-00	METAL CHIP	8.2K 5% 1/10W
R108	1-216-081-00	METAL CHIP	22K 5% 1/10W
< SWITCH >			
S101	1-572-946-11	SWITCH, TACTIL (SIDE B)	
S102	1-572-946-11	SWITCH, TACTIL (▷)	
S103	1-572-946-11	SWITCH, TACTIL (SIDE A)	
S104	1-572-946-11	SWITCH, TACTIL (▨)	
S105	1-572-946-11	SWITCH, TACTIL (■)	

*	A-6423-083-A	TR-718 BOARD, COMPLETE	
		*****	(Ref.NO. 5000 Series)
△	1-533-189-11	HOLDER, FUSE	
< CAPACITOR >			
△C001	1-104-705-11	FILM	0.1uF 20% 250V
C003	1-164-232-11	CERAMIC CHIP	0.01uF 50V
C004	1-164-232-11	CERAMIC CHIP	0.01uF 50V
< CONNECTOR >			
△CN001	1-564-419-11	HEADER, SPRING (POWER) 2P	
< FUSE >			
△F001	1-532-215-00	FUSE, TIME-LAG (0.8A 250V)	

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

Ref. No.	Part No.	Description	Remark
		< TRANSFORMER >	
△T001	1-423-556-11	TRANSFORMER, POWER	
△T002	1-406-884-11	FILTER, LINE	

*	A-6423-086-A	VS-707 BOARD, COMPLETE	

		(Ref. NO. 5000 Series)	
△	1-533-189-11	HOLDER, FUSE	
		< FUSE >	
△F021	1-532-066-00	FUSE, TIME-LAG (0.4A 250V)	
		< SWITCH >	
△S021	1-570-615-11	SELECTOR, POWER VOLTAGE	
		(VOLTAGE SELECTOR)	

		MISCELLANEOUS	

△208	8-848-286-11	DEVICE, OPTICAL KHS-150A (RP)	
211	1-751-083-11	CABLE, FLEXIBLE FLAT (18 CORE)	
221	1-751-084-11	CABLE, FLEXIBLE FLAT (14 CORE)	
△CP1	1-575-912-21	CORD, POWER	
M471	X-3942-963-1	MOTOR ASSY (LOADING)	
△M901	1-698-109-11	MOTOR, DD (SPINDLE)	
M903	X-3942-968-1	TILT MOTOR ASSY	

		ACCESSORIES & PACKING MATERIALS	

△	1-569-008-11	ADAPTER, CONVERSION 2P	
	1-751-271-11	CORD, CONNECTION (A/V Cable, 1.5m)	
	3-757-581-11	MANUAL, INSTRUCTION (ENGLISH, CHINESE)	
*	3-955-619-11	INDIVIDUAL CARTON	
*	3-957-895-01	CUSHION (UPPER)	
*	3-957-896-01	CUSHION (LOWER)	

		HARDWARE LIST	

#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#2	7-671-155-01	STEEL BALL 3.0	
#3	7-624-105-04	STOP RING 2.3, TYPE -E	
#4	7-685-144-11	SCREW +P 3X5 TYPE2 NON-SLIT	
#6	7-682-645-01	SCREW +PS 3X4	

Ref. No.	Part No.	Description	Remark
#7	7-685-647-79	SCREW +BVTP 3X10 TYPE2	
#8	7-627-553-48	SCREW, PRECISION +P 2X4	
#9	7-628-253-05	SCREW +PS 2X4	
#10	7-621-759-35	+PSW, 2.6X5	
#11	7-684-220-02	NUT 3, HEXAGON CAP	
#12	7-624-190-81	STOP RING 2, TYPE-CS	
#13	7-682-946-01	SCREW +PSW 3X5	
#14	7-621-759-65	+PSW, 2.6X8	
#15	7-685-661-14	SCREW +BVTP 4X12 TYPE2 IT-3	
#16	7-624-102-04	STOP RING 1.5, TYPE -E	
#17	7-685-131-19	SCREW +P 2.6X4 TYPE2 NON-SLIT	
#18	7-685-646-81	SCREW +BVTP 3X8 TYPE2	
#19	7-685-158-19	SCREW +P 4X6 TYPE2 NON-SLIT	
#20	7-685-103-19	SCREW +P 2X5 TYPE2 SLIT	
#21	7-685-648-79	SCREW +BVTP 3X12 TYPE2	
#22	7-621-775-20	SCREW +B 2.6X5	

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

IC PIN FUNCTION DESCRIPTION

7-1. SYSTEM CONTROL MICROPROCESSOR PIN FUNCTION
(MB-712 BOARD IC501 MB89094)

PIN NO.	PIN NAME	I/O	FUNCTION
1	N.C.		NOT USED. OPEN
2	CLK32	I	CRYSTAL OSCILLATOR (32 KHZ) INPUT
3	GND	I	GND
4	GND	I	GND
5	2P5C	I	2.5V (7.159 MHz) INPUT
6	N.C.		NOT USED. OPEN
7	V _{SS}	I	GND
8	MRST	I	RESET INPUT TERMINAL (L: RESET)
9	FREQ	I	PHILLIPS CODE (FRAME NO.) READ OUT ENABLE INPUT
10	FOACK	O	PHILLIPS CODE, SUBO (SUB CODE) DATA OUTPUT CONTROL (H: DATA OUTPUT)
11	FOSEL	O	PHILLIPS CODE/SUBO DATA SELECT (L: SUBOQ)
12	JPCR1	O	I TRACK JUMP (ITJ)/MULTI TRACK JUMP (MTJ) SELECT SIGNAL OUTPUT (H: ITJ)
13	SPLOCK	O	SPINDLE SERVO LOCK SIGNAL (H: DURING SPINDLE SERVO IS LOCKING)
14	TBCHOLDIN	O	CHROMA TBC CONTROL SIGNAL OUTPUT
15	SCOR	I	H WHEN SUB CODE SYNC IS DETECTED
16	PB V	I	PLAYBACK V SYNC SIGNAL INPUT
17	REF V	I	REFERENCE V SYNC SIGNAL
18	ALT	O	INTERNAL A REGISTER LATCH OF EXPANSION OUTPUT PORT IC (IC502 ON MB-712 BOARD) OUTPUT
19	BLT	O	INTERNAL B REGISTER LATCH OF EXPANSION OUTPUT PORT IC (IC502 ON MB-712 BOARD) OUTPUT
20	BUSY	I	COMMUNICATION ENABLE SIGNAL FROM MODE CONTROL MICROPROCESSOR (H: COMMUNICATION ENABLE)
21-24	N.C.		NOT USED. OPEN
25	CLSCS	O	CHIP SELECT SIGNAL OUTPUT FOR CLS DT (PIN 28) SIGNAL
26	SPDLPLS	O	SPINDLE PULSE DRIVE SIGNAL OUTPUT (H: SPINDLE FREE-RUN)
27	TBRKMON	O	SERVO IC BRAKE MONITOR (H: BRAKE ON), NOT USED
28	PULL UP +5V	I	+5V
29	CLSDT	I	CLV SCAN V SYNC COUNTER SERIAL DATA FROM IC502 INPUT, NORMALLY L. WHEN CLS CS (PIN 25) IS H, DATA IS IN CLOCK IS SET CK (PIN 29)
30	SETDT	O	SERIAL DATA OUTPUT TO DSP (DIGITAL SIGNAL PROCESSOR) IC (IC203 ON MB-712 BOARD) AND EXPANSION OUTPUT PORT IC
31	SETCK	O	SERIAL TRANSFERRING CLOCK TO DSP IC AND IC502
32	SPDLFGI	I	SPINDLE FG INPUT 1 (I ROTATION; IZ WAVES)
33	CG V	I	CGV SYNC SIGNAL
34	LD SEARCH	O	SPINDLE SERVO CONTROL OUTPUT (H: DURING LD SEARCHING)
35	SPDL FIR	O	SPINDLE ROTATING DIRECTION SIGNAL OUTPUT (H: FWD)
36	AUX SEL	O	H WHEN THERE IS AUXILIARY INPUT, NOT USED. FIXED TO L
37	JMF TRIG	O	TRACK JUMP TRIGGER PULSE OUTPUT
38	ANALOG	O	AUDIO ANALOG/DIGITAL SELECT (H: ANALOGUE, L: DIGITAL)
39	CDG	I	NOT USED. CONNECTED TO GND
40	CDG MUTE	O	NOT USED. OPEN
41	MTJ	I	TRACKING PULSE OUTPUT FOR MTJ, NORMALLY INPUT, OUTPUT DURING JUMPING TRACKS (L: FWD)
42	MTF ON/OFF	O	MTF CORRECTION ON/OFF SIGNAL (H: MTF ON)
43	TRK OFF	O	PUL OFF SERVO IC TRACKING CONTROL (L: TRACKING OFF)
44	N.C.		NOT USED. OPEN
45	GMUTE	O	ON CLV SCAN, GRAY PICTURE MUTE CONTROL OUTPUT (L: PLAYBACK PICTURE) (H: GRAY PICTURE)
46	N.C.		NOT USED. OPEN
47	CAV	O	H: CAV DISC, L: OTHERS OR UNIDENTIFIED
48	FOK	I	FOCUS LOCK SIGNAL INPUT (H: FOCUS LOCK)
49	V _{CC}	I	+5V POWER SUPPLY
50	BUSY	I	COMMUNICATION ENABLE SIGNAL FROM MODE CONTROL MICROPROCESSOR (H: COMMUNICATION ENABLE)
51	TV/DISC	O	RF TV/DISC SELECT (H: TV, L: DISC), NOT USED. OPEN
52	SLED FWD	O	SLED FWD FORCED MOVE SIGNAL OUTPUT FROM PORT (H: FWD MOVE)
53	SLED REV	O	SLED REV FORCED MOVE SIGNAL OUTPUT FROM PORT (H: REV MOVE)
54	MMICS	O	SERIAL COMMUNICATION CHIP SELECT SIGNAL OUTPUT TO MODE CONTROL MICROPROCESSOR
55	LOADING	O	TRAY LOADING DRIVE
56	UN LOADING	O	TRAY EJECT DRIVE
57	N.C.		NOT USED. OPEN

PIN NO.	PIN NAME	I/O	FUNCTION
58	V _{SS}	I	GND
59	LINE MUTE	O	AUDIO OUTPUT MUTE SIGNAL OUTPUT (H: MUTE)
60	SLED SPEED	O	SLED DRIVE SPEED CHANGE (L: SLOW)
61	SV DSP RST	O	RESET OUTPUT TO (L: RESET) SERVO IC (IC401 ON MB-712 BOARD), DSP IC AND D/A CONVERTER (IC201 ON MB-712 BOARD)
62	LD ON	O	LASER DIODE ON/OFF SIGNAL (H: ON EMITTING)
63	CD/LD CDV	O	L: PLAYING CD OR AUDIO PART OF CDV, H: OTHERS
64	SLED MODE	O	SLED CONTROL OUTPUT
65	SIDE A/B	O	TILT SERVO SIDE SELECT (A: H, B: L)
66	7/4 SV	O	TILT/TWIGHT SELECT (L: TILT)
67	LCSW1	I	LOADING/CHUCKING POSITION SENSOR INPUT 1
68	LB LED	O	LED EMITTING SIGNAL FOR DISC DISCRIMINATION
69	LCSW3	I	LOADING/CHUCKING POSITION SENSOR INPUT 2
70	LCSW2	I	LOADING/CHUCKING POSITION SENSOR INPUT 3
71	SPDL FG2	I	SPINDLE FG INPUT 2
72	TILT LIMIT	I	TILT UP/DOWN LIMIT SW INPUT
73	TILT CTR	I	TILT CENTER POSITION SW INPUT
74	MECH SI	I	32-BYTE SERIAL TRANSFERRING DATA INPUT
75, 76	N.C.		NOT USED. OPEN
77	MECH SI	I	32-BYTE SERIAL TRANSFERRING DATA OUTPUT, SERIAL DATA INPUT FROM MODE CONTROL MICROPROCESSOR
78	MECH SO	O	32-BYTE SERIAL TRANSFERRING DATA INPUT, SERIAL DATA OUTPUT TO MODE CONTROL MICROPROCESSOR
79	MECH CLK	O	32-BYTE SERIAL TRANSFERRING CLOCK
80	T CNT	I	JUMPING TRACKS COUNTING SIGNAL INPUT, NOT USED
81, 82	N.C.		NOT USED. OPEN
83	AV _{SS}	I	GND
84	LDDET	I	A/D INPUT THERE IS DISC OR NOT, 8/12 INCH DETECTION
85	CDV/FR/LMT	I	A/D INPUT SLED POSITION INFORMATION (CDV)
86	CD ABLD	I	A/D INPUT SLED POSITION INFORMATION (CD, ALD, BLD)
87	INLIMIT	I	A/D INPUT SLED POSITION INFORMATION (INLIMIT)
88	DSPLT	O	LATCH SIGNAL FOR DSP IC OUTPUT
89	MUTG	O	DSP MUTE SIGNAL (H: MUTE)
90	LOCK	I	FRAME SYNC (ERM) LOCK SIGNAL (H: LOCK)
91	SENSE	I	VARIOUS SENSE INPUT SIGNAL FROM DSP
92	AV _{CC}	I	+5V POWER SUPPLY
93	EMP ON	O	EMPHASIS SELECT SIGNAL OUTPUT (L: EMPHASIS ON)
94	N.C.		NOT USED. OPEN
95	A MUTE 2	O	L CH AUDIO OUTPUT MODE SELECT *
96	A MUTE 1	O	R CH AUDIO OUTPUT MODE SELECT *
97	CX	O	CX ON/OFF CONTROL OUTPUT (L: CX ON)
98	N.C.		NOT USED. OPEN
99	DSRSEL	O	SELECTS COMMUNICATION WITH DSP (L: CONNECT, H: SEPARATE)
100	V _{CC}	I	POWER SUPPLY TERMINAL (+5V)

* AUDIO OUTPUT MODE SELECT

A MUTE 1	A MUTE 2	MODE	AUDIO OUTPUT
L	L	L	L
L	L	L	H
L	H	L	H
L	H	H	MUTE
L	L	STEREO	MONO (L)
L	L	L/CHI	L/CHI
R	R	R/CH2	R/CH2
			MUTE

**7-2. EXPANSION OUTPUT PORT IC PIN FUNCTION
(MB-712 BOARD IC502 MB606F06)**

PIN NO.	PIN NAME	I/O	FUNCTION
1	SP OFF	0	SPINDLE MOTOR ON/OFF SIGNAL OUTPUT (H: SPINDLE MOTOR ON)
2	V _{SS}		GND
3	TBC MUT	0	TBC MUTE SIGNAL OUTPUT
4	TBC REFH	0	REFERENCE HORIZONTAL SYNC. SIGNAL FOR TBC OUTPUT
5	PBCS	1	PB COMPOSITE V. H SYNC. SIGNAL INPUT
6	SP RHO	0	REFERENCE H SYNC. SIGNAL FOR SPINDLE SERVO OUTPUT
7	SP RHI	1	REFERENCE H SYNC. SIGNAL FOR SPINDLE SERVO INPUT
8	CNT2	0	TBC CONTROL OUTPUT (H: LINE SYSTEM, L: BURST SYSTEM)
9	JUMP TGL	0	JUMP TOGGLE OUTPUT
10	SVEX	0	SYNC. SIGNAL FOR CHARACTER GENERATOR SELECT. NOT USED
11	CGV	0	V SYNC. GENERAL FOR CHARACTER GENERATOR OUTPUT. NOT USED
12	V _{SS}		GND
13	SELH	0	H SYNC. SIGNAL FOR CHARACTER GENERATOR (IC011 ON MB-712 BOARD) OUTPUT
14	XPHS	0	PB H SYNC. SIGNAL OUTPUT. NOT USED
15	SP PBHO	0	PB H SYNC. SIGNAL FOR SPINDLE SERVO OUTPUT
16	SP PBHI	1	PB H SYNC. SIGNAL FOR SPINDLE SERVO INPUT
17	HS	0	CENTER OF ECCENTRICITY OUTPUT. NOT USED
18	MEM REFH	0	REF H OUTPUT FOR THE SET WITH MEMORY (NOT RESET). NOT USED
19	FSC	0	fsc (3.579545 MHz) OUTPUT
20	XOUT	0	4 fsc (14.31818 MHz) OUTPUT
21	XIN	1	4 fsc (14.31818 MHz) INPUT (CLOCK)
22	HD	1	H SYNC. SIGNAL FOR DIGITAL TBC INPUT
23	V _{SS}		GND
24	V MUTE	0	VIDEO MUTE SIGNAL OUTPUT
25	V MUTE2	0	SIGNAL FOR ADDING REF. V SYNC. SIGNAL TO PLAYBACK VIDEO SIGNAL DURING CLV SCANNING
26	G BURST	0	BURST SIGNAL (3.58 MHz) FOR GRAY PICTURE GENERATION DURING CLV SCANNING
27	PC OUT1	0	SPINDLE SERVO FORCED ACCELERATION/DECELERATION SIGNAL OUTPUT. (H: ACCELERATION, L: DECELERATION, Hiz: OTHERS)
28	PC OUT2	0	SPINDLE SERVO H SERVO ERROR OUTPUT
29	TBC H	1	H SYNC. SIGNAL AFTER TBC CORRECTION FOR CHARACTER GENERATOR INPUT
30	DS GATE	0	GATE SIGNAL FOR READING OUT PHILLIPS CODE (FRAME NO.)
31	DATA	1	PHILLIPS CODE DATA INPUT
32	V MUTE1	0	BLANKING V SYNC. SIGNAL OR PLAYBACK VIDEO SIGNAL DURING CLV SCANNING
33	V _{DD}		+5 V
34	DIRH	0	GRAY SIGNAL FOR GENERATING GRAY PICTURE DURING CLV SCANNING
35	-GRH	0	H SYNC. SIGNAL FOR GENERATING GRAY PICTURE DURING CLV SCANNING
36	SP UNLOCK	0	SIGNAL FOR SETTING BY MECHANISM CONTROLLER OUTPUT WHEN SPINDLE IS UNLOCKED
37	8/12	0	LD DISC SIZE SET OUTPUT (H: 8 INCHES, L: 12 INCHES)
38	CD/LDCDV	0	DISC TYPE SET OUTPUT H: PLAYBACK CD OR AUDIO PART OF CDV L: PLAYBACK LD OR VIDEO PART OF CDV
39	CDV	0	SPINDLE SERVO MODE SET (H: VIDEO PART OF CDV)
40	FGMD	0	SPINDLE SERVO MODE SET (H: FG MODE (WHILE COUNTING SPINDLE FG, FORCING TO ACCELERATE/DECELERATE SPINDLE, MOTOR))

PIN NO.	PIN NAME	I/O	FUNCTION
41	HP OUT	0	HOLD PULSE OUTPUT NORMALLY OUT. PULSE OUTPUT DURING JUMPING TRACKS
42	V _{SS}		GND
43	SV CLK	0	CLOCK FOR SERVO IC (IC401 ON MB-712 BOARD). 1/8 fsc (APPROX. 450 kHz)
44	JMP	1	TRACK JUMP CONTROL SIGNAL INPUT (GATE FOR HP OUT)
45	SET CLK	1	INTERNAL A. B REGISTER CLOCK INPUT FROM SYSTEM CONTROL MICROPROCESSOR (IC501 ON MB-712 BOARD)
46	GVID	1	GRAY PICTURE CONTROL SIGNAL INPUT DURING CLV SCANNING (H: GRAY PICTURE, L: PLAYBACK PICTURE)
47	SET DT	1	INTERNAL A. B REGISTER SERIAL DATA INPUT FROM SYSTEM CONTROLLER
48	CLS DT	0	CLV SCAN V SYNC. COUNTER DATA OUTPUT TO SYSTEM CONTROLLER NORMALLY L. DATA OUTPUT WHEN CLS CLK (PIN 48) IS H.
49	CLS CLK	1	CLOCK FOR READING OUT CLV SCAN V SYNC COUNTER DATA CONTROL SIGNAL INPUT
50	B LD	1	INTERNAL B REGISTER LATCH INPUT
51	A LD	1	INTERNAL A REGISTER LATCH INPUT
52	V _{SS}		GND
53	REF V	0	REFERENCE V SYNC. SIGNAL OUTPUT
54	PB V	0	PLAYBACK V SYNC. SIGNAL OUTPUT
55	TBC HOLD	1	CHROMA TBC CONTROL SIGNAL INPUT
56	SP LOCK	0	SPINDLE SERVO LOCK SIGNAL OUTPUT (H: DURING LOCKING). NOT USED
57	JP CTL	1	TRACK JUMP SELECT SIGNAL INPUT (H: 1 TRACK JUMP, L: MULTI TRACK JUMP)
58	FOSEL	1	PHILLIPS CODE/SUBQ (SUB CODE) SELECT SIGNAL INPUT (L: SUBQ)
59	FOACK	1	PHILLIPS CODE, SUBQ DATA OUTPUT CONTROL (H: DATA OUTPUT)
60	F REO	0	PHILLIPS CODE READING OUT ENABLE SIGNAL OUTPUT
61	MRST	1	SYSTEM RESET INPUT (L: RESET)
62	FSC2	0	2 fsc (7.159 MHz) OUTPUT
63	V _{SS}		GND
64	FH2	0	2 fh (3.15 kHz). CARRIER FOR SPINDLE MOTOR PWM DRIVE CIRCUIT
65	DSPSEL	1	CLOCK CONTROL SIGNAL FOR DSP IC (IC203 ON MB-712 BOARD) (L: CONNECTED TO DSP)
66	FOCLK	1	CLOCK FOR READING OUT PHILLIPS CODE, SUBQ DATA INPUT
67	D OUT	0	PHILLIPS CODE, SUBQ CODE SERIAL DATA OUTPUT
68	SUBQ CLK	0	SUBQ TRANSFERRING CLOCK
69	SUBQ	1	SUBQ DATA INPUT
70	DSP CLK	0	CLOCK FOR DSP IC OUTPUT
71	DOCNH	0	DROP OUT CORRECTION INHIBITION OUTPUT. NOT USED
72	CLV1	0	SPINDLE SERVO GAIN MONITOR OUTPUT. NOT USED
73	V _{DD}		+5 V
74	CLV2	0	SPINDLE SERVO GAIN MONITOR OUTPUT. NOT USED
75	REF HE	0	REF HE MONITOR OUTPUT. NOT USED
76	REF HC	0	REF HC MONITOR OUTPUT
77	HMSK	0	PHILLIPS CODE MASKING SIGNAL MONITOR OUTPUT
78	B06	0	B REGISTER D6 OUTPUT. NOT USED
79	B07	0	B REGISTER D7 OUTPUT. NOT USED
80	TEST	1	TEST MODE INPUT (H: TEST)

7-3. MODE CONTROL MICROPROCESSOR PIN FUNCTION (FP-731 BOARD IC301 MB89625)

PIN NO.	PIN NAME	I/O	FUNCTION
1	MECH CLK	O	SERIAL COMMUNICATION CLOCK OUTPUT TO SYSTEM CONTROL MICROPROCESSOR (IC301 ON MB-712 BOARD)
2	MECH SI	O	SERIAL DATA OUTPUT TO SYSTEM CONTROL MICROPROCESSOR
3	MECH SO	I	SERIAL DATA INPUT FROM SYSTEM CONTROL MICROPROCESSOR
4	-16 V MONITOR	I	-16 V MONITOR
5	REG MONITOR	I	REG +5 V MONITOR
6	AD1	I	KEY BUILT IN SET READING A/D INPUT 1*
7	AD2	I	KEY BUILT IN SET READING A/D INPUT 2*
8-11	N.C	(I)	NOT USED. CONNECTED TO GND
12	AVCC		A/D CONVERTER POWER SUPPLY. CONNECTED TO EVER +5 V
13	AVR		A/D CONVERTER REFERENCE VOLTAGE. CONNECTED TO EVER +5 V
14	AVSS		A/D CONVERTER GND
15, 16	N.C	(I)	NOT USED. CONNECTED TO GND
17	MMTCS	I	SERIAL COMMUNICATION CHIP SELECT SIGNAL INPUT FROM SYSTEM CONTROL MICROPROCESSOR.
18	REF V	I	REFERENCE V SYNC. SIGNAL INPUT
19	N.C	(I)	NOT USED. CONNECTED TO EVER +5 V
20	RESET	I	RESET SIGNAL INPUT (L: RESET)
21	MOD0	I	NOT USED. CONNECTED TO GND
22	MOD1	I	NOT USED. CONNECTED TO GND
23	X0		8 MHz CRYSTAL OSCILLATING CIRCUIT
24	X1		
25	VSS		GND
26-30	N.C	(O)	NOT USED.
31	BUSY	O	OPEN COMMUNICATION ENABLE SIGNAL TO SYSTEM CONTROL MICROPROCESSOR (L: COMMUNICATING)
32	MRST	O	RESET SIGNAL FOR SYSTEM CONTROL MICROPROCESSOR OUTPUT (L: RESET)
33	7CTL	O	7 SEGMENTS DIGIT CONTROL SIGNAL OUTPUT

* KEY BUILT IN SET READING A/D INPUT

INPUT TERMINAL	INPUT VOLTAGE	0 V	1 V	2 V	3 V	4 V	5 V
AD1	SIDE B (SW-727 S101)	PLAY (SW-727 S102)	SIDE A (SW-727 S103)	PAUSE (SW-727 S104)	STOP (SW-727 S105)	THERE IS NO KEY INPUT	
AD2	DISPLAY (PW-709 S203)	OPEN/CLOSE (PW-709 S202)	POWER (PW-709 S201)			THERE IS NO KEY INPUT	

PIN NO.	PIN NAME	I/O	FUNCTION
34	N.C	(I)	NOT USED. CONNECTED TO PIN 30
35	SEG D	O	7 SEGMENTS ON/OFF SIGNAL OUTPUT (H: LIGHTING UP)
36	SEG E	O	
37	SEG C	O	
38	SEG G	O	
39	SEG A	O	
40	SEG F	O	
41	SEG B	O	
42-46	N.C	(I)	NOT USED. CONNECTED TO GND
47	LED B		SIDE B LED ON/OFF SIGNAL OUTPUT (L: LIGHTING UP)
48	LED A		SIDE A LED ON/OFF SIGNAL OUTPUT (L: LIGHTING UP)
49	LED M PLAY		GND
50	VSS		
51	N.C	(I)	NOT USED. CONNECTED TO GND
52	CG CLK	O	SERIAL TRANSFERRING CLOCK OUTPUT TO CHARACTER GENERATOR IC (IC011 ON MB-712 BOARD)
53	CG SO	O	SERIAL DATA OUTPUT TO CHARACTER GENERATOR IC
54	CG CS	O	SERIAL TRANSFERRING CHIP SELECT SIGNAL OUTPUT TO CHARACTER GENERATOR IC (L: COMMUNICATING)
55	DOOR SW	I	DOOR SWITCH (S301 ON FP-731 BOARD) INFORMATION INPUT (H: OPEN)
56	SIRCS IN	I	SIRCS DATA (REMOTE COMMANDER, CONTROL S SIGNAL) INPUT
57	Vcc		POWER SUPPLY. EVER +5 V
58	AU MUTE	O	AUDIO MUTE SIGNAL OUTPUT (H: MUTE)
59	P.CONT	O	POWER ON/OFF CONTROL FOR SET (H: POWER ON)
60, 61	N.C	(I)	NOT USED. CONNECTED TO GND
62	JPN	I	CHARACTER GENERATOR SELECT (H: JAPANESE, L: ENGLISH)
63, 64	N.C	(I)	NOT USED. CONNECTED TO GND

SECTION 8 ELECTRICAL ADJUSTMENTS

During the adjustment, see the parts arrangement diagram for adjustments on page from 112.

8-1. LIST OF SERVICING JIGS

- Oscilloscope
- Color monitor TV
- Digital voltmeter
- Frequency counter
- Remote commander (RMT-M23A)
- LD alignment disc (NTSC) HLV-8 (8-797-008-00)
(Ref. Disc 7 can also be used.)

8-2. 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.

8-3. OPERATION OF THE MDP-A500 WITH HIDDEN KEY FUNCTIONS

1. Explanation of the hidden key functions

Special control functions to be used for the test or some other purposes of the MDP-A500 are available by pressing simultaneously multiple function keys on the main unit. The control functions available in this way are called "special key functions". The special key functions can be used in either of the following modes.

- the service mode, or
- the normal operation mode.

2. How to use "simultaneous main-unit-key-press functions"

The functions available by pressing simultaneously the multiple specific keys only on the main unit are called "simultaneous main-unit-key-press functions". These functions are to be used when a quick operation such as "forced power off" is required. The following table lists the currently available simultaneous main-unit-key-press functions.

Table 8-1. List of simultaneous main-unit-key-press functions

Keys to be pressed on the main unit	Functions
Pause key and power key	(1) Forced power off This function turns off power forcibly. It is to be used if you want to turn off the power in the following cases. <ul style="list-style-type: none"> • Operation of the mechanisms is out of control. • Power cannot be turned off by pressing the power key. Note that this function should be used with care because it may turn off the power in a half way of the operation of the mechanisms.
STOP key and power key	(2) Forced reset This function carries out initialization of the mode controller in addition to the forced power off function. It is to be used if you want to reset the mode controller in the following case. Something is wrong with the mode controller such that it operates with incorrect display.
B side key and power key (Only when the power is off.)	(3) Lighting up all the 7 segments and LEDs on the main unit This function turns on all the 7 segments and LEDs after turning on the power automatically. Until you switched off the power, normal operation is possible while all the 7 segments and LEDs are lit.

8-4. OPERATION OF THE MDP-A500 IN THE SERVICE MODE

1. Explanation of the service mode

The functions for the use on reparation and maintenance (the service mode) are incorporated in the MDP-A500. The mode in which those functions are available is called "the service mode". The following are the differences between the service mode and the normal operation mode.

- (1) Special operations such as focusing search and sledding can be carried out.
- (2) Power is not turned off automatically in an emergency condition of power off.

2. Entering the service mode

The following procedure shows how to enter the service mode.

- (1) While the power is turned off, connect the test pin (TP501 for service mode setting) on the MB board of the main unit, to the ground.
- (2) Turn on the power by pressing the power key of the main unit. Nothing is displayed on the screen at this moment.
- (3) Disconnect the test pin (the connection was performed in step (1) above) from the ground.

The service mode can be started when the background color changes in violet. If the background color is blue or black, the service mode is not available yet. If so, restart the procedure from step (1) above. When the unit is in the service mode, it is also light up the 7 segments and A/B side LEDs on the main unit.

3. Quitting the service mode

To quit the service mode, press the power key and turn off the power. If you cannot turn off the power in this way (the operation of the mechanisms is not complete), carry out the forced power off function by pressing the pause key and the power key on the main unit at the same time.

4. Operating with the special key functions

The special key functions in the service mode are available only under NO DISC and STOP conditions, for safety purposes. Check that the indication for those conditions is displayed without flashing on the screen. In order to carry out the special key functions listed in table 8-2, in the status above, press the desired key such as PLAY or PAUSE on the main unit.

The sledding motion with the SIDE A or SIDE B key is effective only while holding the key pressed. However, the operation started with the PLAY or PAUSE key continues, once it is pressed, until you press the STOP key. While the unit is carrying out the special key function, the LED of auto resume of the main unit is lit.

Note that multiple special key functions cannot be started even if you press multiple keys at the same time.

Table 8-2. List of the special key functions

Key	Special key functions
SIDE A	Sledding in reverse direction (downward)
SIDE B	Sledding in normal direction (upward)
PLAY	Focusing search
PAUSE	Tilt servo ON
STOP	Stop special operations

The following are the details of the special key functions available with the MDP-A500.

- (1) PLAY key for focusing search
Focusing search operation can be carried out repeatedly by holding down the PLAY key. There is no fault with the unit if the pick-up lens moves up and down.
Be sure to start the focusing search operation after checking the condition that the the sled is placed in appropriate position (at around the center of side A). To stop the focusing search operation, press the STOP key.
- (2) SIDE A key for sledding in reverse direction
The sled can be moved in reverse direction (center of side B, to edge of side B, to edge of side A, and then to center of side A) after completing initialization of the tilt (the tilt is placed in neutral position) by holding down the SIDE A key. To stop the sledding in reverse direction, release the SIDE A key.
- (3) SIDE B key for sledding in normal direction
As contrary to item (2) above, the sled can be moved in normal direction (center of side A, to edge of side A, to edge of side B, and then to center of side B). This movement of the sled is desired when replacing the optical part. To stop the sledding in normal direction, release the SIDE B key.
- (4) PAUSE key for tilt servo ON
The tilt servo is activated while holding down the PAUSE key. Move the sled to around the center of side A with the SIDE A and SIDE B keys, and put a CD or equivalent on the tray so that it screens the skew sensor. Then, if the tilt moves by pressing the PAUSE key, operation is normal.
The tilt can be placed back in neutral position by moving the sled with the SIDE A and SIDE B keys. To deactivate the tilt servo, press the STOP key.

8-5. POWER SUPPLY CHECK (PS-716 BOARD)

Mode	Stop
Measuring equipment	Digital voltmeter
UNREG +16 V check	
Measurement point	Pin ① of CN051 (Pin ②, GND)
Specified value	15.5 ± 1.0 V
UNREG -16 V check	
Measurement point	Pin ③ of CN051 (Pin ③, GND)
Specified value	-16.5 ± 1.0 V
REG +5 V check	
Measurement point	Pin ⑤ of CN051 (Pin ④, GND)
Specified value	5.1 ± 0.5 V
REG -5 V check	
Measurement point	Pin ⑦ of CN051 (Pin ④, GND)
Specified value	-5.1 ± 0.5 V
POWER MUTE check	
Measurement point	Pin ① of CN055 (Pin ② of CN051, GND)
Specified value	15.7 ± 1.0 V
EVER 5 V check	
Measurement point	Pin ④ of CN031 (Pin ②, GND)
Specified value	5.0 ± 0.3 V

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

8-6. SYSTEM CONTROL SYSTEM ADJUSTMENT

8-6-1. Master Clock Adjustment (MB-712 Board)

Mode	Stop
Measurement point	Pin ⑩ of IC502
Measuring equipment	Frequency counter
Adjusting Element	CT501
Specified value	3,579,545 ± 10 Hz

Adjustment method:

- 1) Adjust CT501 to 3,579,545 ± 10 Hz.

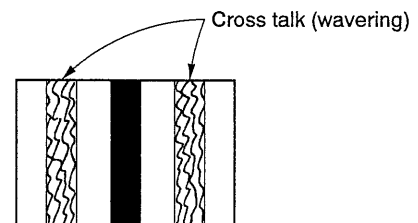
8-7. SERVO SYSTEM ADJUSTMENT

8-7-1. Side A Tilt Balance Adjustment (MB-712 Board)

Mode	Pause (Side A)
Signal	Frame 770 (V BAR)
Measurement point	Monitor TV
Measuring equipment	Monitor TV
Adjustment element	RV401
Specified value	Cross talk (wavering) with minimum as well as the same level.

Adjustment method:

- 1) Press PAUSE (II) button.
- 2) Search the frame 770 and apply a vertical bar signal.
- 3) Adjust RV401 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.

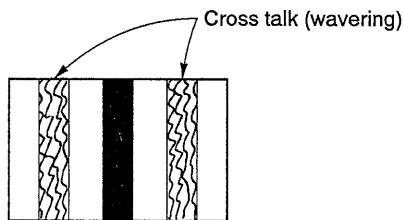
Fig. 8-1.

8-7-2. Side B Tilt Balance Adjustment (MB-712 Board)

Mode	Pause (Side B)
Signal	Frame 770 (V BAR)
Measurement point	Monitor TV
Measuring equipment	Monitor TV
Adjustment element	RV402
Specified value	Cross talk (wavering) with minimum as well as the same level.

Adjustment method:

- 1) Set the alignment disc CAV recorded side down.
- 2) Press PAUSE (II) button.
- 3) Search the frame 770 and apply a vertical bar signal.
- 4) Adjust RV402 to minimize the right and left cross talks (wavering) level.
- 5) Reset the alignment disc CAV recorded side up.



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

Fig. 8-2.

8-8. VIDEO SYSTEM ADJUSTMENT

8-8-1. Burst Gate Position Adjustment (MB-712 Board)

Mode	Pause
Signal	Frame 4100 (Color bar)
Measurement point	Pin ② of IC007
Adjustment element	RV002
Specified value	$8.5 \pm 0.1 \mu\text{sec}$

Adjustment method:

- 1) Press PAUSE (II) button.
- 2) Search the frame 4100.
- 3) Adjust RV002 so that t_w is $8.5 \pm 0.1 \mu\text{sec}$.

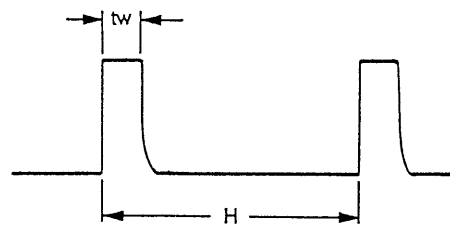


Fig. 8-3.

8-8-2. REF H Adjustment (MB-712 Board)

Mode	Pause
Signal	Frame 4100 (Color bar)
Measurement point	CH1: Pin ② of IC008 CH2: Pin ② of IC008
Measuring instrument	Oscilloscope (DC range)
Adjustment element	RV501
Specified value	Potential difference: $4.2 \pm 0.1 \text{ Vdc}$

Adjustment method:

- 1) Press PAUSE (II) button.
- 2) Search the frame 4100.
- 3) Adjust RV501 so that the electric difference between the center value of the TBC voltage (Pin ② of IC008) and the VEE (Pin ② of IC008) is $4.2 \pm 0.1 \text{ Vdc}$.

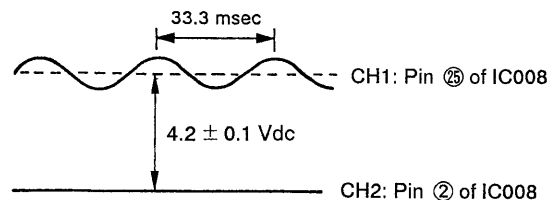


Fig. 8-4.

8-8-3. Color DOC Adjustment (MB-712 Board)

Mode	Pause
Signal	Frame 23500 (Yellow Green)
Measuring instrument	Monitor screen
Adjustment element	CT001
Specified value	Dropout section and surrounding section are of the same colors.

Preparations:

- 1) Paste a black tape onto the 1H interval of the outer most circumference of the LD reference disc CAV recording side (The side where the radial can be seen).
(Length: Approx. 10 mm)

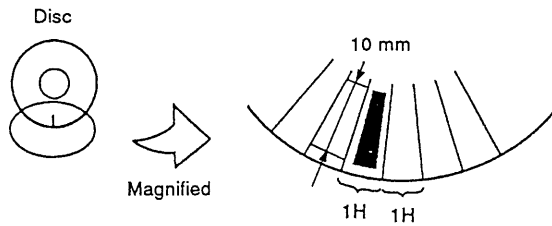


Fig. 8-5.

Adjustment method:

- 1) Press PAUSE (II) button.
- 2) Search the frame 23500.
- 3) Adjust the color of the dropout section of CV001 to that of the surrounding section.

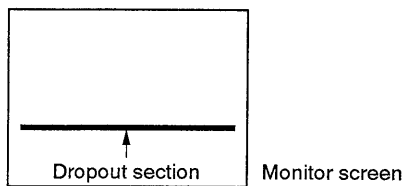


Fig. 8-6.

8-8-4. Video Output Level Adjustment (MB-712 Board)

Mode	Pause
Signal	Frame 4100 (Color bar)
Measurement point	J201 (VIDEO OUT terminal) (Terminated to 75 Ω)
Measuring equipment	Oscilloscope
Adjustment element	RV001
Specified value	1.00 ± 0.03 Vp-p

Adjustment method:

- 1) Press PAUSE (II) button.
- 2) Search the frame 4100 and apply a vertical bar signal.
- 3) Adjust RV001 for 1.00 ± 0.03 Vp-p.

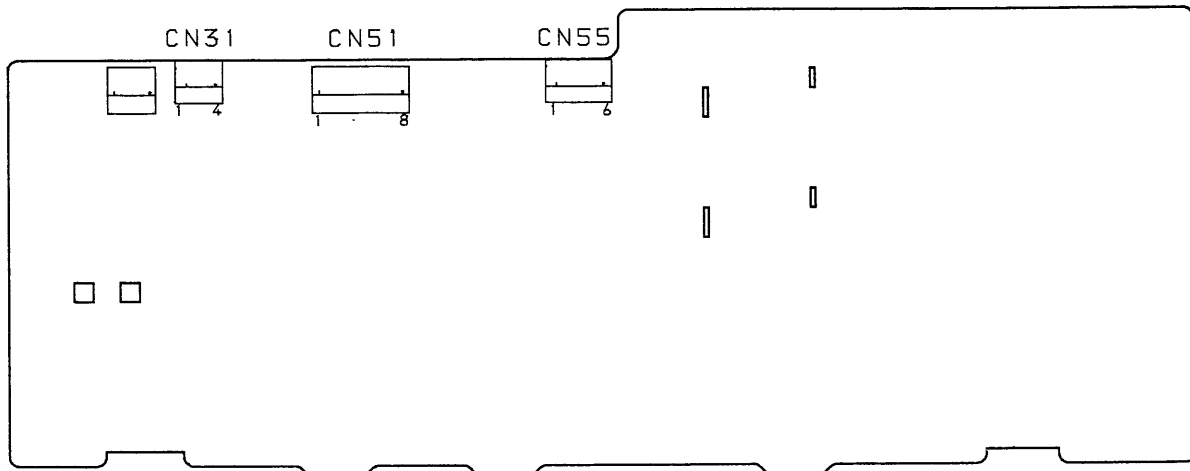


Fig. 8-7.

8-9. PARTS ARRANGEMENT DIAGRAM FOR ADJUSTMENT

PS-716 BOARD (CONDUCTOR SIDE)

NOTE: CN31/51/55 ARE MOUNTED COMPONENT SIDE.



MB-712 BOARD (COMPONENT SIDE)

