

MDP-A7/800

RMT-M20A

SERVICE MANUAL

US Model
Canadian Model
MDP-800
E Model
MDP-A7



Photo : MDP-A7

SPECIFICATIONS

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

Video specifications

Horizontal video resolution 425 lines
Signal-to-noise ratio More than 50 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)
S video output 1, 2 Luminance: 1 Vp-p, 75 ohms, unbalanced, sync negative
Chrominance: 0.286 Vp-p, 75 ohms, unbalanced
-18 dBm, wavelength 660 nm
Audio digital output (optical)
Headphone output 12 mW (8 ohms)
Impedance = 8 ohms
CONTROL S IN Mini jack
Mic jack Standard jack
1mV (Impedance below 1 kilohm)

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

— Continued on next page —

Digital audio specifications

Frequency response 4 Hz to 20kHz (± 0.3 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)



CD VIDEO CD/CDV/LD PLAYER
SONY®

Power requirements

Power requirements	120V AC 60 Hz (MDP-800) 120/220/240 V AC adjustable, 50/60 Hz (MDP-A7)
Power consumption	45 W
Mass	10 kg (22 lb)
Dimensions	Approx. 430 × 120 × 429 mm (w/h/d) (17 × 4 ³ / ₄ × 17 in.)
Operating temperature	+5°C to +35 °C
Ambient humidity	5% to 90%

Remote Commander RMT-M20A



Principle of operation	Infrared pulse
Power requirements	3 V DC (2 size AA batteries)
Dimensions	Approx. 68 × 38.5 × 200 mm (w/h/d) (2 ³ / ₄ × 1 ⁹ / ₁₆ × 7 ⁷ / ₈ in.)
Mass	Approx. 200 g (7 oz) (including batteries)

Supplied accessories


Remote Commander RMT-M20A (1)
Size AA (R6) batteries (2)
Audio/Video cable (phono plug 3↔phono plug 3) (1)
AC power cable (1) (MDP-800 only)
AC plug adaptor (1) (MDP-A7 only)

Design and specifications are subject to change
without notice.

SAFETY-RELATED COMPONENT WARNING!!

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

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

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

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 CHECK-OUT

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

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

LEAKAGE TEST

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

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

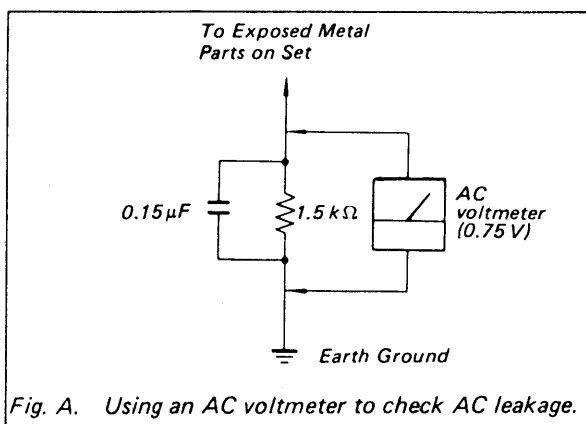


Fig. A. Using an AC voltmeter to check AC leakage.

TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>	<u>Sèction</u>	<u>Title</u>	<u>Page</u>
1.	GENERAL		5.	EXPLODED VIEWS	
	About Operating Voltage	5	5-1.	Upper Case, Front Panel Assembly	113
	Introduction	5	5-2.	Chuck Frame Assembly	114
	Installation and Connection	7	5-3.	Sub Front Panel Assembly	115
	To Play a Laser Disc	9	5-4.	Chassis Assembly	116
	To Play a Compact Disc	16	5-5.	MD Chassis Assembly	117
	To Play a Compact Disc Video	20	6.	ELECTRICAL PARTS LIST	118
	To Play Any Disc	21	7.	IC PIN DESCRIPTION	
	To Play Karaoke	24	7-1.	MB-702 Board IC501 MB89094 Pin Function	140
2.	DISASSEMBLY		7-2.	FP-722 Board IC201 MB89095 Pin Function	141
2-1.	Upper Case, Front Panel Assembly	25	8.	ELECTRICAL ADJUSTMENTS	
2-2.	MB-702 Board	26	8-1.	List of Servicing Jigs	142
2-3.	Chuck Assembly	26	8-2.	Cautions on Adjustment	142
2-4.	Optical Pick-up Block	27	8-3.	Operation of the MDP-A7/800 with Hidden Key Functions	142
2-5.	MD Chassis Assembly	29	8-4.	Operation of the MDP-A7/800 in the Service Mode	143
2-6.	Control Gear	31	8-5.	Operation of the MDP-A7/800 in the Debugging Mode	144
2-7.	Tray Assembly Insertion	32	8-6.	Power Supply Check	151
2-8.	Putting Out Disc when a Trouble has Occurred with the Disc Loaded	32	8-7.	System Control System Adjustment	151
2-9.	Turntable Assembly Height Adjustment	33	8-7-1.	Microprocessor Clock Adjustment	151
3.	DIAGRAMS		8-8.	Servo System Adjustment	151
3-1.	Circuit Boards Location	33	8-8-1.	Side A Tilt Balance Adjustment	151
3-2.	Overall Block Diagram	34	8-8-2.	Side B Tilt Balance Adjustment	152
3-3.	Servo Block Diagram	36	8-9.	Video System Adjustment	152
3-4.	Video Block Diagram	39	8-9-1.	Video Output Level Adjustment	152
3-5.	System Control Block Diagram	42	8-10.	Parts Arrangement Diagram for Adjustments	152
3-6.	Audio Block Diagram	45			
3-7.	Mode Control Block Diagram	48			
3-8.	Power Supply Block Diagram	49			
4.	PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS				
4-1.	Frame Schematic Diagram	51			
4-2.	Printed Wiring Boards and Schematic Diagrams	54			
	MB-702 (RF Amplifier, Servo), BI-702, FG-704, MD-703 MT-703 Boards	55			
	MB-702 (Video), ME-701 Boards	69			
	MB-702 (System Control), SW-719, MT-702 Boards	74			
	MB-702 (Audio), MI-703, HP-713 Boards	89			
	MB-702 (Power Supply), PS-713, TR-717, VS-706 Boards	94			
	FP-722, SW-725, PW-706 Boards	104			
4-3.	Semiconductors	112			

SECTION 1
GENERAL

This section is extracted from instruction manual.

Introduction

This introduction explains the organization of this manual and the principles of operation of the Multi Disc Player (MDP).

About These Instructions

Consumer electronics manuals have been notorious for being hard to comprehend. Having recognized this fact, we have made an attempt with this manual to avoid the usual pitfalls by trying to not pretend that the equipment being described is as simple as a bread toaster. Most likely this is your first Multi Disc Player and may be the only one you will own. With that in mind, we have striven to write the instructions in straight-forward English while trying to keep the procedures simple and systematic.

Differences between the models

This manual covers the MDP-800 and MDP-A7. Their differences are as follows:

	MDP-800	MDP-A7
Front panel		
• (LD) QUICK START button and indicator	QUICK START	LD QUICK START
• (CAV) STILL MODE button	STILL MODE	CAV STILL MODE
Rear panel		
• Voltage selector	not equipped	equipped
• AC power cable	detachable	not detachable
Supplied accessories		
• AC plug adaptor	not supplied	supplied

The illustrations in this manual are of the MDP-A7.

Because the Multi Disc Player is capable of playing laser discs (LDs), compact discs (CDs), and compact disc videos (CDVs), these instructions are divided into the equivalent of three "manuals"—one for each type of disc—with a fourth section providing instructions common to all discs and the fifth section for enjoying Karaoke.

The following summarizes what you'll find in this manual.

To Play a Laser Disc (LD)

This section covers all functions associated with playing LDs (page 13). Unique to LD play are Step Play, Multi Speed Play, Memory Play, Frame Search and Digital Picture functions. The MDP-800/A7 allows you to playback both sides of an LD without turning it over. The (LD) Quick Start function shortens the waiting time before an LD starts playing. The Digital Picture function allows you to flash, freeze or recall pictures as the normal sound continues.

To Play a Compact Disc (CD)

This section explains the operation of CDs and compares most closely to CDV audio operations (page 27).

To Play a Compact Disc Video (CDV)

This section covers procedures for CDV operation and shares many functions with CD play (page 34). There are no functions unique to CDV play in this Multi Disc Player.

To Play Any Disc (LD, CD, CDV)

Most of the procedures in this section fall into the advanced category (page 36) and are collected here because they are common to LD, CD and CDV play.

To Play Karaoke

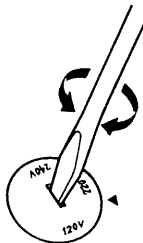
This section is a short instruction for Karaoke playing (page 42).

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.

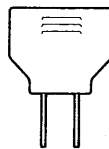
How to Determine the Correct Operating Voltage

- MDP-800 The MDP-800 operates at 120 V AC 60 Hz only and does not have a voltage selector.
- MDP-A7 The MDP-A7 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 Power Plug Adaptor (supplied with the MDP-A7)

- 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.

What to Do First

Once you have read "Principles of Operation", 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. After you have done this, you will be ready to play a disc. We suggest an LD or CD. Begin with the section, "How to Load and Play an LD (or a CD)".

The Principles of Operation

Beyond the playing of discs, the functions of the Multi Disc Player range from simple to advanced. Some functions vary depending on what type of disc (laser disc, compact disc, or compact disc video) you are playing. Nevertheless, keep in mind that the majority of the buttons have been designed to achieve a comparable effect for each type of disc you are playing. Therefore, the following paragraphs can briefly summarize what the basic Multi Disc Player functions allow you to do. (Control names that differ from the function name appear in uppercase letters.)

Primary Functions

are so-called because they entail the traditional functions of all disc players.

Variable Speed Functions

group operations according to the fact that they let you vary play speed, therefore, easily locate ("search") scenes or tracks as you watch or listen.

Repeatable Functions

are memory functions that let you play selections repeatedly, according to a play list or randomly. Playback can be started from the point you stopped at. Because the system finds and plays selections according to your request, some repeatable functions also serve as "search" functions.

Auxiliary Functions

are 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

Variable Speed Scan
(JOG/SHUTTLE
Ring)
Still/Step Scan
(STILL/STEP)
Variable Speed Play
(MULTI SPEED)
Digital Picture functions:
(FLASH MOTION,
STOP MOTION,
PICTURE CALL)

Repeatable Functions

Pre-Programmed Play
(AUTO PGM, PGM)
Intro Scan (INTRO)
Random Play
(SHUFFLE)
Chapter/Track Search
(ACS/AMS)
Frame/Time Search
(FRAME/TIME)
Memory Play
(MEMORY PLAY)
Auto Pause
(AUTO PAUSE)
Repeat Play
(1/SIDE/ALL, REPEAT,
REPEAT A(+B))

Auxiliary Functions




Picture Enhance Function:
(PICTURE ENHANCE)
Sound Quality Functions:
(AUDIO MONITOR,
ANALOG/CX)
On-Screen Display
(DISPLAY)
Audio/Video Time Counter
(AV TIME)
Karaoke Functions:
(ECHO/MIC LEVEL)

Introduction to Your Player

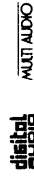
The MDP-800/A7 Multi Disc Player integrates the functions of three machines into one: laser disc, compact disc, and compact disc video player. The entertainment potential afforded by the combined capabilities of this multi-faceted machine amounts to some 40 to 45 functions. Below is an explanation of the kinds of discs the Multi Disc Player plays.

The MDP-800/A7 Plays Three Classes of Optical/Digital Discs*

The MDP-800/A7 Multi Disc Player plays 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	14 min CAV 20 min CLV
		8-inch LD	8 in. (20 cm)	Double Side	28 min CAV 40 min CLV
		12-inch LD	12 in. (30 cm)	Double Side	1 hr CAV 2 hr CLV
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



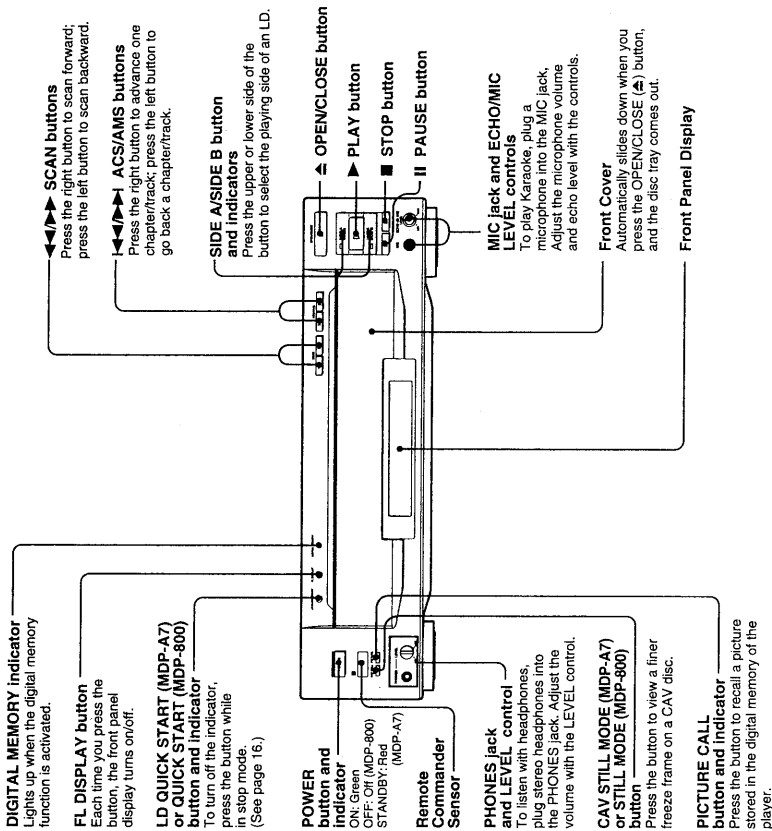
On laser discs bearing this logo, the analog tracks are recorded in multiplex, and the digital tracks are recorded in stereo.

* These apply only to those discs recorded in the NTSC standard. The MDP-800/A7 cannot play CED, VHD discs or PAL video discs, CD-ROM, CD-Graphics, CD-I discs or aluminum-lined discs.

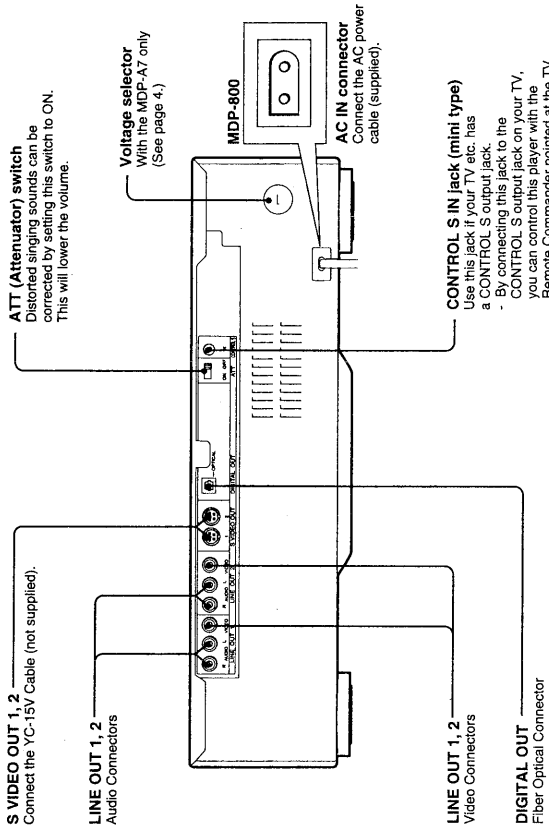
Installation and Connection

Front and Rear Panel Controls and Supplied Accessories

Front Panel



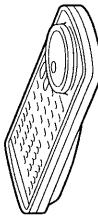
Rear Panel



Accessories

Make sure the shipping box contains the following accessories:

RMT-M20A Remote Commander



Two AA (R6) batteries



Audio/Video connecting cable

(phono 3+ phono 3)



AC plug adaptor supplied with the MDP-A7

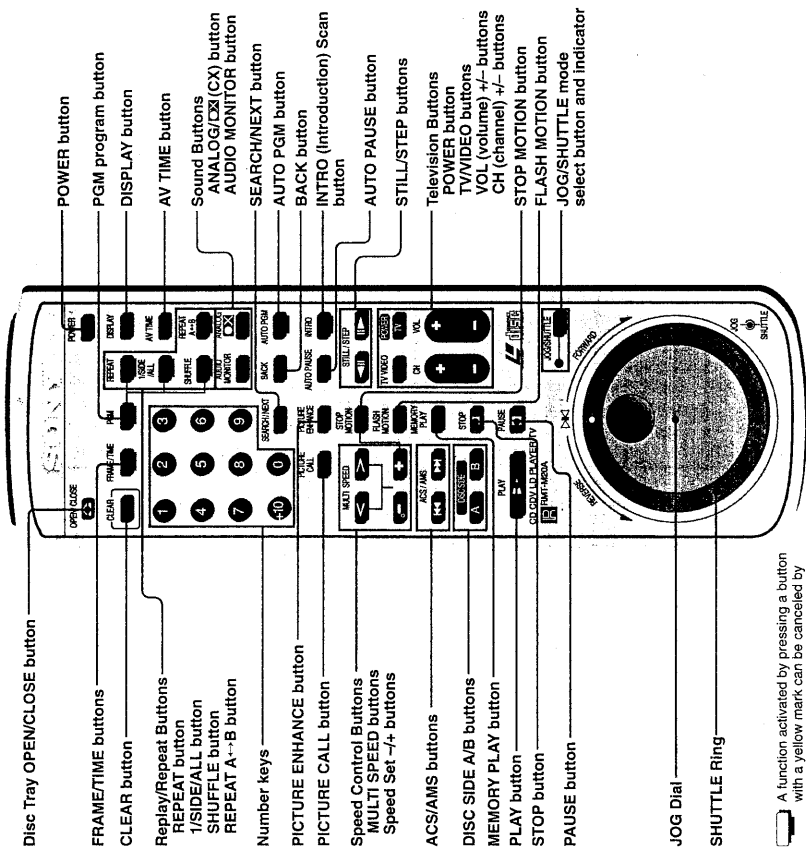
(See page 4.)

AC power cable supplied with the MDP-800



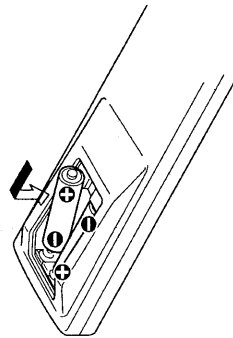
Controls on the Remote Commander

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



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.

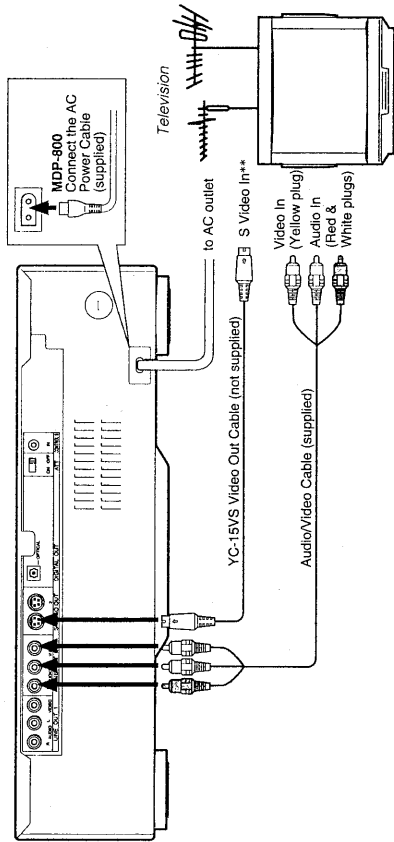


Insert two size AA (R6) batteries

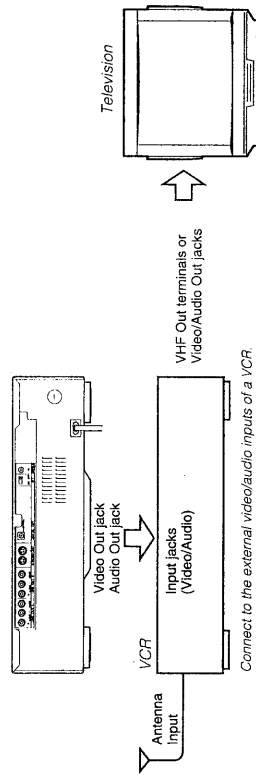
How to Connect the Television

To play LDs or DVDs, 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 has only a monaural phono jack for audio input, use a VMC-910MS/915MS Connecting Cable (not supplied).
 ** If your TV has an S Video Input jack, obtain a YC-15V S Video Connecting Cable, and use this instead of the supplied video cable to connect your television to the S VIDEO OUT connector on the Multi Disc Player.

To Play a Laser Disc

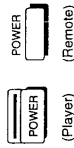
This section shows you how to conduct all the procedures associated with playing LDs.

How to Load and Play an LD (Laser Disc)

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

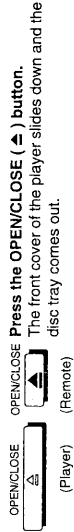
Do not transport the player while playing a disc as it may cause damage to the disc.

- 1 Turn on the multi disc player.
 - Press the POWER button on the player or Remote commander (Remote).

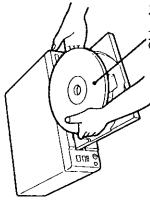


- 2 Turn on the TV and stereo system.
 - TV: Set the input selector on the TV to "Video".
 - Stereo System: Turn on the amplifier or receiver and select CD or AUX for audio output.

- 3 Open the disc tray.
 - Press the OPEN/CLOSE (▲) button. 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 damage the unit.

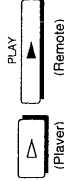


What is this indication?

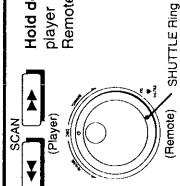
NO DISC

This indication appears in the front panel display when the tray is empty.

- 5 Start playback.
 - Press the PLAY (▶) button.** The disc tray closes and the upper side of the disc starts playing.



- To Advance or Reverse
 - Hold down the SCAN (◀▶) button on the player or rotate the SHUTTLE Ring on the Remote.



- To Advance or Go Back One Chapter at a Time
 - Press the ACS/AMS (◀▶) button. (Player or Remote)



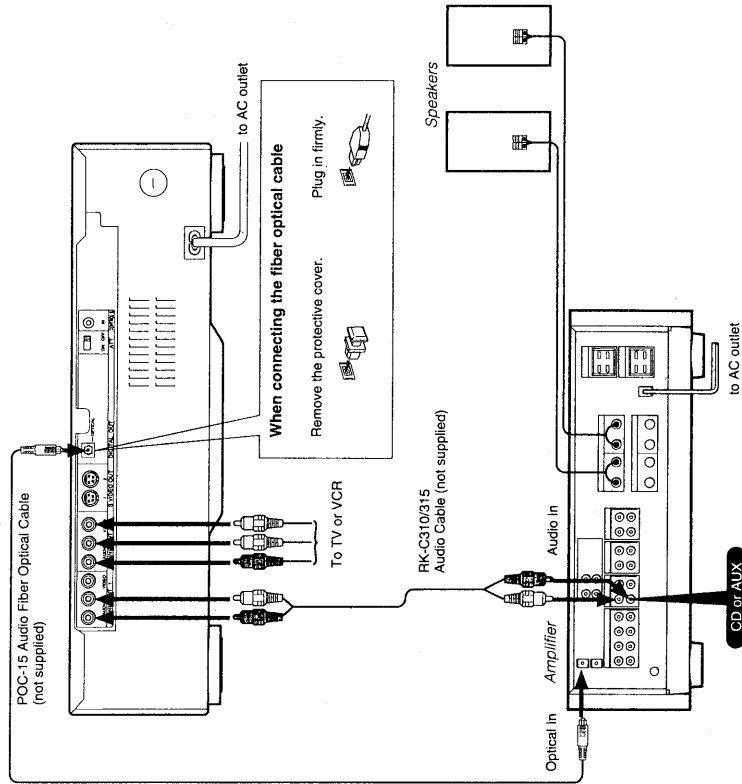
How to Connect Audio Equipment

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.

To Achieve Digital Sound

Digital sound recordings afford high quality sound reproduction, (see Glossary, page 46). If your amplifier also has a fiber optical connector, or if you have a D/A converter unit with optical input, according to the diagram below, connect the POC-15 Audio Fiber Optical Cable (not supplied) between the DIGITAL OUT connector on the Multi Disc Player and the amplifier or D/A converter. Note that digital signals are always output from the Multi Disc Player except when you play discs that are not digitally recorded. Such discs output analog sound from LINE OUT only. Sound from a microphone cannot be output from the DIGITAL OUT connector. To output sound from a microphone, connect the player to the amplifier with an Audio Cable (Red & White plugs).

Audio Equipment Hook-Up

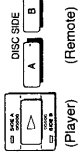


Connection Precautions

- 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 Select the Disc Side

Press the **(DISC)SIDE A** button to play the upper side of the disc from the beginning.
 Press the **(DISC)SIDE B** button to play the other side of the disc from the beginning.*



To Interrupt Play

Press the **PAUSE (II)** button. The sound mutes and the picture freezes. To resume playback, press **PAUSE (II)** or **PLAY (▶)**.



To Stop Playback

Press the **STOP (■)** button. To play again from the beginning of the disc, press **PLAY (▶)**. If you want to resume playback from the point you stopped at, press **MEMORY PLAY** on the Remote.



To Stop Play and Remove the Disc

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



To Have the Player Pause Before Starting

Press the **PAUSE (II)** button after doing step 4 on page 13. The tray closes and the player waits at the start of the disc until you press **PLAY (▶)** or **PAUSE (II)**. If you want to play side B, press **(DISC)SIDE B**, then **PAUSE (II)**.



To Get Sharp/Soft Image

Press the **PICTURE ENHANCE** button on the Remote to select the mode. The selected mode appears on the TV screen (lower left-hand corner) for three seconds. Each time you press the button, the mode changes in the order of **SHARP**, **SOFT** and **STANDARD**.



SHARP: Sharp picture
 Refines the images
SOFT: Soft picture
 Reduces screen noise
STANDARD: Standard picture
 Even if you turn off the power, the mode will remain stored in the player's memory. If you unplug the power cord, the mode will be reset to **STANDARD**.

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

Press the **PLAY (▶)** button, then press the **AUDIO MONITOR** button on the Remote. 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. It always appears in the front panel display. 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

Press the **ANALOG/CX** button on the Remote 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 the **ANALOG/CX** button on the Remote. "J ANALOG" appears on screen for three seconds. To return to digital sound, press the **ANALOG/CX** button until "J DIGITAL" appears on screen. With certain discs there may be a difference in volume.



Discs 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 when you switch to analog sound, it 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 the **ANALOG/CX** button until "CX ON" appears on screen. The CX noise reduction system will be activated.



* When playback of side B ends, the player stops playing.

Understanding Displays and Messages When Playing LDs

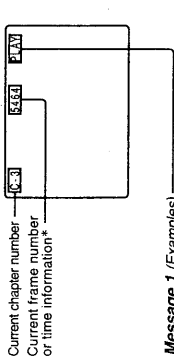
You can determine the player operating status or disc information in one of two ways: (1) by displaying the information on the TV screen, or (2) by looking at the front panel display. Locate the DISPLAY button on the Remote Commander.

To View On-Screen Information ...



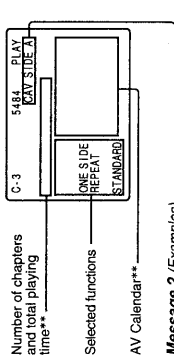
Press DISPLAY on the Remote.
Each time you press DISPLAY, messages appear on the TV screen as shown below. The tables below are keys to the messages that appear on the right of the screen.

Press DISPLAY twice.



Message 1 (Examples)

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	Variable speed (SHUTTLE Ring) scan
X 1/2	Scanning at 1/2-speed



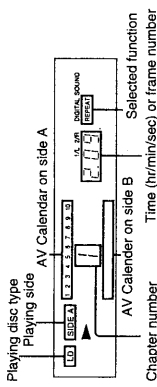
Message 2 (Examples)

Screen Display	Currently Playing
CAV SIDE A	Standard-play disc side A
CAV SIDE B	Standard-play disc side B
CLV SIDE A	Extended-play disc side A
CLV SIDE B	Extended-play disc side B
1/L	First soundtrack/left channel
2/R	Second soundtrack/right channel
DIGITAL	Digital sound
ANALOG	Analog sound

To turn off the display, press DISPLAY again.
* Discs not indicating time data to the second indicate instead as two-digit numbers such as "22."
** Appears when the (LD) QUICK START indicator is off (for an LD with TOC).

Reading the Front Panel Display

The illustration to the right is an example of what is displayed on the front panel of the player.



When playing an LD containing TOC (Table of Contents) data, the AV Calendar is available. Press the (LD) QUICK START button on the player while in stop mode to turn off the indicator on the button, then press PLAY (▶). The AV Calendar on disc side A will be displayed. To view the AV Calendar on side B, press (DISC) SIDE B while the (LD) QUICK START indicator is off, the AV Calendar on disc side B will be displayed. The calendar shows information on the total number of selections on the disc or those programmed to play. As selections are played, the corresponding numbers in the AV Calendar disappear.

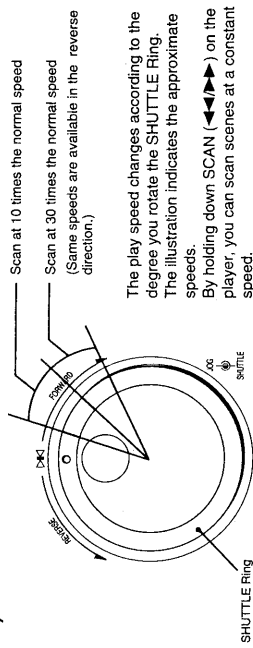
Press FL DISPLAY on the player. Each time you press FL DISPLAY, the display turns on/off. When the front panel display is turned on, the blue TV screen during stop turns to gray.

To Turn Off the Front Panel Display ...

How to Search for a Particular Scene

To find a scene, play the disc in reverse or forward at high speed. The sound is automatically muted during search play. Locate the SHUTTLE Ring on the Remote Commander or the SCAN (◀▶) buttons on the front panel of the player.

To Change Speed and Direction Gradually (Variable Speed Scan)*



To Resume Normal Play

Release the SHUTTLE Ring or SCAN (◀▶) button.

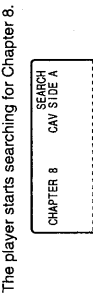
* A certain amount of visual noise and instability is inevitable with all variable speed operations.

How to Search by Chapter Numbers—Chapter Search

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

To Locate a Particular Chapter (Chapter Search)

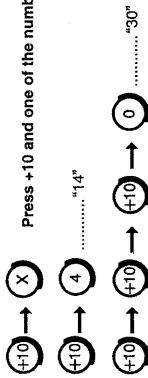
For example, to locate chapter 8, press "8" on the Remote.



The player starts searching for Chapter 8.

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

Press +10 and one of the number keys.



10*

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.

If you make a mistake while entering, press CLEAR, then enter the correct numbers. The current chapter number appears in the front panel display.

To Check the Current Chapter Number



Press DISPLAY on the Remote to display the chapter number (upper left-hand corner) on screen. When the (LD) QUICK START indicator is off, you can also look at the AV Calendar (see page 16) for the chapters remaining to be played on the LD (with TOC) by pressing DISPLAY twice.

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



Press ACS/AMS (◀▶) once to return to the beginning of the current chapter. Press ACS/AMS (▶▶) to advance to the beginning of the next chapter.

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

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

To Resume Normal Play**

Release ACS/AMS (◀▶ or ▶▶). The player automatically resumes play from the beginning of the selected chapter.

* Chapter Search does not function properly if the disc does not contain chapter numbers, or the chapter number entered does not exist.
 ** In addition to normal play mode, you can conduct Chapter Search and Skip Search while in Freeze-Frame, Variable Speed Play, Repeat or Pause mode. When the specified chapter appears after the search, play continues in the same mode.

How to Search by Frame Number or Time—Frame/Time Search

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/NEXT buttons, and number keys on the Remote Commander.

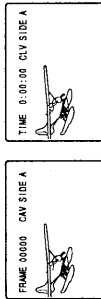
On CAV (standard-play) discs, enter a frame number. On CLV (extended-play) discs, enter the time.*

To Enter the Elapsed Frame or Time



1 Press FRAME/TIME on the Remote.

The screen displays "00000" (for CAVs) or "0:00:00" (for CLVs).
 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.

Sample Entry for CAV Discs

To locate frame number 12340, press the number keys in the order shown on the right:



Sample Entry for CLV Discs

To locate the 12-minute, 5-second point, press the number keys in the order shown on the right:



If you pressed the wrong key, press BACK to clear the number, then enter the correct number.

3 Press SEARCH/NEXT on the Remote



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

To Check the Frame/Time Numbers



The current frame or current time numbers appear on screen when you press DISPLAY. You can also find them on the front panel display.

To Cancel Frame/Time Search



Before pressing SEARCH/NEXT, press CLEAR.

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

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

How to Search Using Variable Speed Play

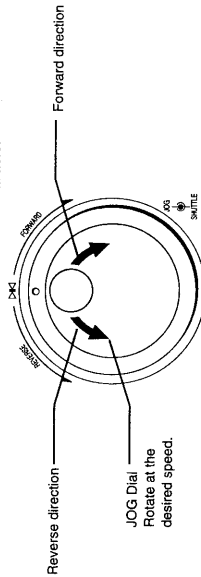
To find a scene, you can play the disc in reverse or forward at varying speeds. There are two ways, using JOG/SHUTTLE and Multi Speed. Locate the JOG/SHUTTLE mode select button, JOG/SHUTTLE Ring, DISPLAY, MULTI SPEED and Speed Set \pm buttons on the Remote Commander.

To Change Speed and Direction (Using JOG/SHUTTLE)

- 1 Press JOG/SHUTTLE on the Remote. The indicator lights up* and the frame freezes. If you use the JOG/SHUTTLE Ring on the Remote, press PAUSE (II) to freeze the frame.
- 2 Rotate the JOG Dial or the SHUTTLE Ring in the forward or reverse direction.

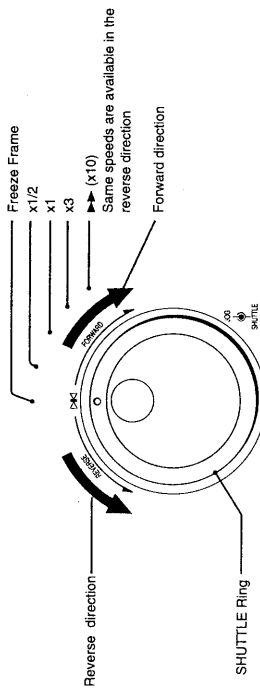
When using the JOG Dial

One rotation of the dial corresponds to one picture frame. The speed varies according to the speed you rotate the dial at. Frame-by-frame, x1/2 the normal, and normal speed are available.



When using the SHUTTLE Ring

The speed varies according to the degree you rotate the ring. The illustration below indicates the approximate positions of each speed.



The frame freezes when you release the JOG Dial or the SHUTTLE Ring.

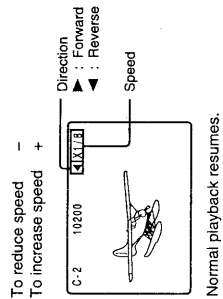
- 3 Press PLAY (▶).

Normal playback resumes.

* When the JOG/SHUTTLE mode select indicator is not lit, only x1/2 and x3/10 the normal speed are available with the SHUTTLE Ring (See page 17).

To Change Speed and Direction (Multi Speed)

- 1 Press DISPLAY on the Remote. The play speed and direction appear on screen.
- 2 Press MULTI SPEED on the Remote to select the direction.
- 3 Press Speed Set \pm on the Remote to select the speed.
- 4 Press PLAY (▶).



Discs with Automatic Picture Stop Code

When an automatic picture stop code (found on educational discs) is encountered during X1 or less variable speed play, the unit automatically stops at that frame. To resume playback, press PLAY, MULTI SPEED, or turn the SHUTTLE Ring.

How to Play Frame-by-Frame

Once you have found a particular scene, 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 PAUSE, and STILL/STEP buttons on the Remote Commander.

To Play One Frame at a Time (Step Play)

- 1 Press PAUSE (II) once. The frame freezes (Pause mode).
- 2 Press STILL/STEP on the Remote repeatedly. For continuous frame-by-frame action, press STILL/STEP once, then hold down STILL/STEP.

In addition to pause mode, you can achieve Step Play while the player is in play mode by pressing one of the STILL/STEP buttons while the disc is playing.

To Freeze the Action (Freeze Frame)

- 1 Press PAUSE (II) once. Press PAUSE (II) once.
- 2 Press STILL/STEP on the Remote repeatedly. For continuous frame-by-frame action, press STILL/STEP once, then hold down STILL/STEP.

When you view a freeze frame from a scene on a CAV disc that is relatively motionless, press PAUSE (II), then the (CAV) STILL MODE button on the player to turn off the DIGITAL PICTURE indicator. You can then view a finer picture which is not output through the player's memory.

How to Use Digital Picture Functions

During Variable Speed Play, Step Play or Freeze Frame, the sound is automatically muted. However, if you use the player's unique digital picture functions, you can view successive flashing pictures (Flash Motion) or a freeze picture (Stop Motion) as the normal sound continues. You can also recall a picture stored in the digital memory of the player at any time, for example, in stop mode, when no disc is loaded, while playing another LD, CD, or CDV (Picture Call). Locate the FLASH MOTION, STOP MOTION and Picture Call buttons on the Remote Commander.

To Flash Pictures (Flash Motion)



Press FLASH MOTION on the Remote.
The DIGITAL MEMORY indicator on the player lights up. Still pictures flash in succession at specified intervals. During this, the sound is played normally.

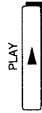
To Change the Interval of the Flashing Pictures



Press Speed Set (-/+) to extend or shorten the interval of the flashing pictures.

To extend -
To shorten +

To Resume Normal Play



Press PLAY (▶).
To switch to the STOP MOTION mode, press STOP MOTION.

To See a Freeze Picture with Sound (Stop Motion)



Press STOP MOTION on the Remote.
The DIGITAL MEMORY indicator lights up and the picture freezes. During this, the sound is played normally.
The disc continues to be played even while you see only one still picture. If you press STOP MOTION again, the picture advances to correspond with the sound track.

To Resume Normal Play

Press PLAY (▶).

To switch to the STOP MOTION mode, press STOP MOTION.

To Recall a Picture Stored in the Digital Memory (Picture Call)

- 1 Press PAUSE (II) at the picture you want to store.
- 2 You can then play, stop, or replace the disc.
- 3 Press PICTURE CALL on the Remote.**



The picture stored in the memory appears. To make the picture disappear, press PICTURE CALL again.

What Picture is Stored in the Digital Memory?

The player automatically stores the last picture viewed while the DIGITAL MEMORY indicator is lit by such operations as shown below:

- When you press PAUSE (II)
- Flash Motion, Stop Motion, Intro Scan or Search Play
- Scan, Variable Speed, Step Play on a CLV, VSD or video section of CDV disc
- When an LD's playing side is automatically changed from side A to B

* The picture stored in the digital memory is cleared when the player is turned off.
** Picture Call is not operable during Stop Motion or Flash Motion play.

How to Replay the Same LD Selections

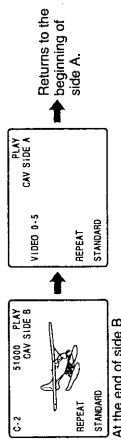
These instructions show you how to program the player to play the same scenes over and over until you signal the repetition to stop. You can replay both sides, a single side, a single chapter or a section between one pair of points on the disc. Locate the REPEAT, 1/SIDE/ALL, and the REPEAT A+B buttons on the Remote Commander.

To Repeat Both Sides of the Disc



Press REPEAT on the Remote.

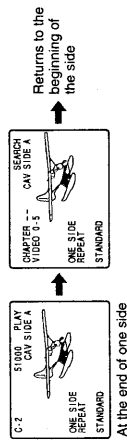
"REPEAT" lights up in the front panel display. When the player reaches the end side B, it returns to the beginning of side A and starts playing again.



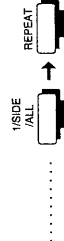
To Repeat the Current Side of the Disc (One Side Repeat)



Press 1/SIDE/ALL twice, then REPEAT on the Remote.
"REPEAT" and "1 SIDE" light up in the front panel display. When the player reaches the end of one side, it returns to the beginning and starts playing the side again.



To Repeat the Current Chapter (Single Repeat)



Press 1/SIDE/ALL once, then REPEAT.
"REPEAT" and "1" light up in the front panel display. The current chapter repeats continuously.

To Cancel Repeat Play



Press REPEAT.

To Cancel One Side Repeat



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

To Cancel Single Repeat

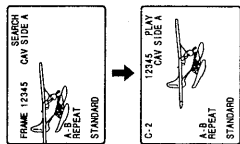


Press 1/SIDE/ALL twice, then REPEAT.*

* You can also cancel Repeat, One Side Repeat and Single Repeat by pressing CLEAR.

To Repeat One Section of the Disc (Repeat A↔B)

- 1 Go back to the start of the scene you want to replay.
- 2 Press **REPEAT A↔B** on the Remote at the beginning of where you want replay to begin. This marks where replay is to begin. The "REPEAT" and "A," light up, and "B" indication flashes.
- 3 Let the player run to the end of the scene you want to repeat.
- 4 Press **REPEAT A↔B** again. This marks where replay is to end.



"REPEAT" and "A-B" light up in the front panel display. The player repeatedly plays the scene between the two points selected.

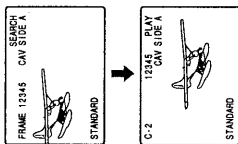
Press **CLEAR**.



To Cancel Repeat A↔B

To Replay From a Specific Point on the Disc (Memory Search)

- 1 Go to the point from where you want to start playback.
- 2 Press **REPEAT A↔B** to mark the starting point.
- 3 Press **CLEAR** to turn off the indication "A-B REPEAT". (Thus not setting an end point.)
- 4 Press **SEARCH/NEXT** on the Remote at any point you like on the disc.



The player goes to the point you marked and starts playing.*



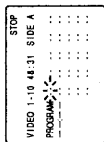
How to Play Only Certain Chapters—Programmed Play

You can choose, in any order you like, the chapters the Multi Disc Player plays. This play list is stored in the player until you either remove the disc or turn off the power. After playing all the selections, the player stops and waits for your next command. You can program up to 25 chapters for sides A and B combined. Locate the number keys, **DISC SIDE A/B**, **PGM** and **PLAY** buttons on the Remote Commander.

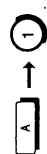
For example, you want to play chapters 1, 2, 3 on side A, chapter 10 on side B, then stop playing momentarily. Continuing with chapter 4 on side B, then back to side A to play 7 (in that order).

- 1 Press **PGM** on the Remote.

"PROGRAM ---" appears on screen.
"PGM" flashes in the front panel display.

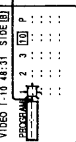


- 2 Press **DISC SIDE A**, then 1, 2 and 3.



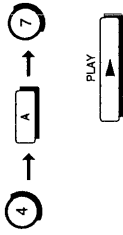
Total playing time* (See the section below, "To Check the Total Playing Time".)

- 3 Press **DISC SIDE B**, then +10, 0, **PAUSE (II)**.



When you enter **PAUSE (II)**, the display returns to "---". "P" indicates that a **PAUSE (II)** is entered.

- 4 Press 4, **DISC SIDE A**, then, 7.



The total playing time of the programmed chapters entered after the **PAUSE (II)**.

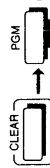


To Check the Total Playing Time

You can check the total playing time of the programmed chapters on the LD containing TOC (Table of Contents) data. To display the total playing time of the programmed chapters, press the (LD) **QUICK START** button while in stop mode to turn off the indicator, then press **PLAY (▶)** to display the AV Calendar before you press the **PGM** button. When you program chapters on side B while checking the total playing time, press (DISC) **SIDE B** to display the AV Calendar on side B before pressing the **PGM** button.

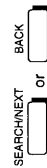
To Start Over

Press **CLEAR**, then **PGM**. Enter the new chapter numbers.



To Change an Entry

Press **SEARCH/NEXT** or **BACK** to advance or go back one entry. Enter the correct number.



* The point marked "A" from where you can resume playback is cleared if you open the disc tray, turn off the player, carry out a Frame/Time Search or Chapter Search.

To Enter a Number Greater Than 10



Press +10 and one of the number keys, following the same procedure as on page 18.

To Cancel Programmed Play



Press CLEAR. The player resumes normal playback.

To Replay the Programmed Chapters



Press REPEAT. "REPEAT" is displayed on the screen.

To Advance or Go Back One Chapter*



Press ACS/AMS (◀▶).

To Check the Contents of the Program



Press DISPLAY twice. The flashing number indicates the chapter now playing.

How to Continue Play From the Point You Stopped at — Memory Play —

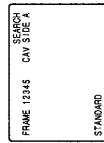
This function can only be used for LDs, and in continuous play mode. Even if you use the STOP (■) button to stop, you can still continue play from the point you stopped at. Locate the MEMORY PLAY button on the Remote Commander.

To Play Again from the Point You Stopped at



Press MEMORY PLAY on the Remote while in stop mode.

The player starts searching for the point you stopped at.



Play starts from the point you stopped at.

The point at which you stopped playing is stored in the player's memory until you press STOP (■) again. It is retained even if you turn off the power. ** Press MEMORY PLAY. The player turns on and resumes playback from the point you stopped at.

* The player does not go back to previous chapters if the SHUTTLE Ring is rotated to the left, although, it does advance to forward chapters if rotated to the right. To go back to preceding chapters press the ACS/AMS (◀▶) button.

** If you press ▲, the memory is cleared and this function is canceled.

To Play a Compact Disc

This section explains how to perform procedures associated with playing CDs.

How to Load and Play a CD (Compact Disc)

After you have connected the Multi Disc Player to the stereo system, you can begin playing a compact 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.

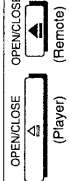


Press the POWER button on the player or Remote Commander (Remote).

2 Turn on the stereo system.

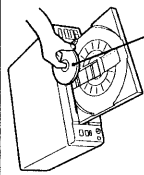
Turn on the amplifier or receiver and select CD, AUX or other desired audio input.

3 Open the disc tray.



Press the OPEN/CLOSE (▲) button. 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 CD on the tray. * If you insert more than one disc, or the disc is not seated properly, it may not play or damage the unit.

What is this indication?

NO DISC

This indication appears in the front panel display when the tray is empty.

5 Start playback.

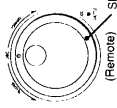


Press PLAY (▶).**

To Advance or Reverse



Hold down the SCAN (◀▶) button on the player or rotate the Shuttle Ring on the Remote.



To Advance or Go Back One Track at a Time



Press the ACS/AMS (◀▶) button.

To Interrupt Play



Press the PAUSE (||) button. To resume playback, press PAUSE (||) or PLAY (▶).

* Do not use a CD stabilizer as it may cause damage to your disc or player.

** You can start playing by pressing (DISC) SIDE A instead of PLAY (▶). If you press (DISC) SIDE B, the player stops.

To Stop Playback

STOP (■) button.
To play again from the beginning, press PLAY (▶).

To Stop Play and Remove the Disc

OPEN/CLOSE (⏏) button.
Remove the CD and press OPEN/CLOSE (⏏) again to close the empty tray.

To Have the Player Pause Before Starting

PAUSE (⏏) button after doing step 4 on page 27.
The tray closes and the player waits at the start of the disc until you press PLAY (▶) or PAUSE (⏏).

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

PLAY (▶) button, then press the AUDIO MONITOR button on the Remote.

The procedure below indicates how the output and the display change with each press. The active tracks appears for three seconds on the TV screen. It always appears in the front panel display.

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)

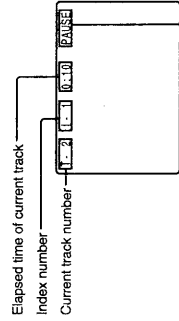
Understanding Displays and Messages When Playing CDs

You can determine the player operating status or disc information in one of two ways: (1) by displaying the information on the TV screen, or (2) by looking at the front panel display. Locate the DISPLAY button on the Remote Commander.

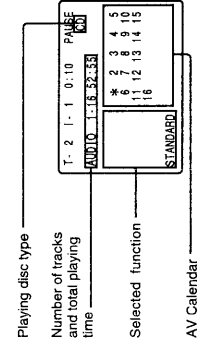
To View On-Screen Information

Turn on the television, and press DISPLAY on the Remote.
Each time you press DISPLAY, messages appear on the TV screen as shown below. The table is a key to the messages that appear on the right of the screen.

Press DISPLAY once.



Press DISPLAY twice.



To turn off the display, press DISPLAY again.

Message (Examples)

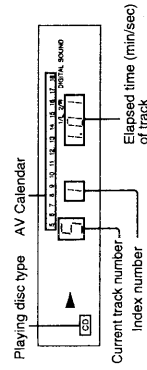
Screen Display	Current Status of the Player
OPEN	Disc tray open
CLOSE	Disc tray closed
PLAY	Playing CD
STOP	Operation stopped
PAUSE	Operation momentarily stopped
Ⓜ / Ⓜ	Variable Speed (SHUTTLE Ring) Scanning
SEARCH	Searching

Reading the Front Panel Display

The illustration to the right is an example of what is displayed on the front panel of the player.

Finding Out Play Status

When playing a CD, the AV Calendar shows information on the total number of tracks on the disc or those programmed to play. As tracks are played, the corresponding numbers in the calendar disappear. If the CD contains more than 20 tracks, ">" appears to the right of the calendar.



To Turn Off the Front Panel Display

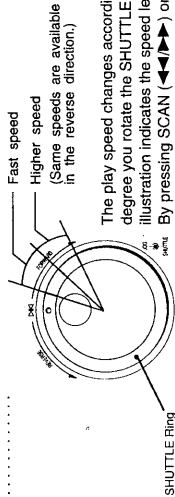
Press FL DISPLAY on the player. Each time you press FL DISPLAY, the display turns on/off.

How to Locate a Certain Track

CDs are divided into sections called "tracks". To scan a disc and find a certain point, use the SHUTTLE Ring. To find and play from the beginning of a certain track, use the number keys. In addition, use the ACS/AMS (◀◀▶▶) buttons to advance or reverse one track at a time. Locate the SHUTTLE Ring and number keys on the Remote Commander, the ACS/AMS (◀◀▶▶) buttons on the Remote Commander or player.

To Find a Certain Point on the Disc

Rotate the SHUTTLE Ring in the forward or reverse direction.



To Locate a Particular Track (Track Search)

Press one of the number keys on the Remote to enter the track number you want played.

8

To Enter a Number Greater Than 10

Press +10 and one of the number keys.

+10 → X
+10 → 8
+10 → 0

Do this to make a numerical sum. For example, to enter 18, press +10 and 8; to enter 20, press +10, +10 and 0.

"18"

"20"

If you make a mistake while entering press CLEAR, then enter the correct number.

See the front panel display (page 29).

To Check the Current Track Number

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

Press ACS/AMS (◀◀) once to return to the beginning of the current track. Press it again before the selection starts to return to the beginning of the previous track.



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

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

To Play a Single Track Once

- 1 Press 1/SIDE/ALL on the Remote.
- 2 Enter the track number you want played.



8

"1" is displayed on the front panel display.

When the track has been played, the player stops. To cancel the setting, press 1/SIDE/ALL again or CLEAR.

If you press the wrong number keys, simply press the correct ones.

How to Replay the Same CD Selections

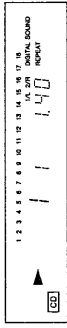
You can program the player to play the same selections over and over until you signal the repetition to stop. You can replay the entire disc, a single track, or a section between one pair of points on the disc. Locate the REPEAT, 1/SIDE/ALL, and the REPEAT A↔B buttons on the Remote Commander.

To Repeat the Entire Disc

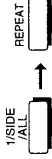


Press REPEAT on the Remote.

"REPEAT" lights up in the front panel display. The player plays all tracks on the CD. When the player reaches the end of the disc, it plays again.

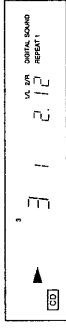


To Repeat the Current Track (Single Repeat)



Press 1/SIDE/ALL, then REPEAT on the Remote.

"REPEAT" and "1" light up in the front panel display. The current track repeats continuously.



To Cancel Repeat Play



Press REPEAT. "REPEAT" disappears.*

To Cancel Single Repeat



Press 1/SIDE/ALL and REPEAT.*

To Repeat One Section of the Disc (Repeat A↔B)

- 1 Go back to the start of the section you want to replay.
- 2 Press REPEAT A↔B on the Remote to mark the beginning of the section.
- 3 Let the player run to the end of the section you want to repeat.
- 4 Press REPEAT A↔B again to mark the end of the section.



The "REPEAT" and "A-" lights up, and "B" indication begins flashing in the front panel display.



"REPEAT" and "A-B" light up in the front panel display. The player repeatedly plays the selection between the two selected points.

To Cancel Repeat A↔B



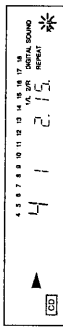
Press CLEAR.

* You can also cancel Repeat and Single Repeat by pressing CLEAR.

To Replay From a Specific Point on the Disc (Memory Search)

- 1 Go to the point from where you want to start playback.
- 2 Press REPEAT A+B to mark the starting point.
- 3 Press CLEAR to turn off the indication "A-B REPEAT". (Thus not setting an end point.)
- 4 Press SEARCH/NEXT on the Remote at any point you like on the disc.

The "REPEAT" and "A-B" lights up, and "B" indication begins flashing in the front panel display.





The player goes to the point you marked and starts playing.*



How to Search by Elapsed Playing Time—Time Search

You can locate a particular point on a CD by specifying the elapsed playing time from the beginning of the disc. Locate the FRAME/TIME, SEARCH/NEXT and number keys on the Remote Commander.

To Enter the Elapsed Playing Time

- 1 Press FRAME/TIME on the Remote.
- "00.00" appears in the front panel display.
- 
- 2 Enter the desired multi-digit number corresponding to the time you want found.**
- Enter four digits.
- 
- If you press the wrong key, press BACK to clear the number, then enter the correct number.
- Sample Entry for CDs
To locate the 12-minute, 5-second point, press the number keys in the order on the right:
- 3 Press SEARCH/NEXT on the Remote.
- Play starts from the time specified in step 2.

To Cancel Time Search

Before pressing SEARCH/NEXT, press CLEAR.


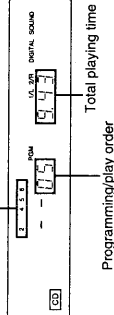


In addition to normal play mode, you can conduct Time Search while in Repeat or Pause mode. When the specified time appears after the search, play continues in the same mode.

* The point marked "A" from where you can resume playback is cleared if you open the disc tray, turn off the player, carry out a Frame/Time Search or Chapter Search.
** If you enter a time number not contained on the disc, play stops.

How to Play Only Certain Tracks—Programmed Play

You can program, in any order you like, the tracks the Multi Disc Player plays. This play list is stored in the player until you either remove the disc or turn off the power. You can program up to 25 tracks. After playing all the selections, the player stops and waits for your next command. Locate the number keys, PGM, and PLAY buttons on the Remote Commander.

- 1 Press PGM on the Remote.
- "PGM" flashes in the front panel display.
- 
- 2 Press one of the number keys.
- The total playing time of the programmed tracks is displayed on the front panel display.
- 
- 3 Press PLAY (▶).

To Start Over

Press CLEAR and PGM. Then, enter the correct track numbers.



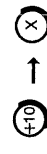
To Change an Entry

Press SEARCH/NEXT or BACK to go back one entry. Enter the new number.



To Enter a Number Greater Than 10

Press +10 and one of the number keys following the same procedure as on page 30.



To Program a Pause

Press PAUSE at the point you want the program to stop playing. A pause is counted as a selection.



To Cancel Programmed Play

Press CLEAR. The player resumes normal playback.



To Replay the Same Programmed Tracks

Press REPEAT. "REPEAT" is displayed in the front panel display.



To Advance or Go Back One Track*

Press ACS/AMS (◀▶). The player moves to the preceding or following programmed tracks.



To Check the Contents of the Program (TV screen)

Press DISPLAY twice. The programmed track numbers are displayed on the TV screen. The flashing number indicates the current track. Once a track has been played, that track number in the front panel display (AV Calendar) disappears.

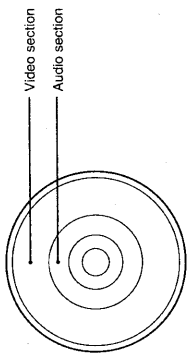


To Play a Compact Disc Video

This section explains basic procedures for playing CDVs and VSDs. Since CDV and VSD play holds so many functions in common with CD and LD play, see other sections of this manual for details of applicable functions mentioned here.

How to Load and Play a CDV (Compact Disc Video) or VSD (Video Single Disc)

CDVs are divided into two sections: video and audio. The video section of the disc consists of 5 minutes of video play with digital audio output. The audio section consists of 20 minutes of solely digital audio output (playable on any CD player). Thus, the CDV has the function of both an LD and CD combined in one disc. The audio and the video sections of the CDV are assigned track numbers. The track on the video section corresponds to the chapter on the LD and the same on the CD. You can regard VSDs as CDVs that have no audio tracks.



- 1 Turn on the TV, stereo system (if connected), and Multi Disc Player.**
- 2 Place the disc on the tray.**
- 3 Press PLAY (▶).**
Play begins from the video section. To start play from the audio section, using the number keys, enter the track number that starts the audio section.

To Stop and Remove the Disc OPEN/CLOSE

To Advance or Go Back One Track at a Time ACS/AMS

To Interrupt Play PAUSE

To Find a Certain Audio or Video Track (X) (Remote)

To Play Certain Video Tracks PLAY

To Repeat the Current Track 1/SIDE /ALL REPEAT (Remote)

To Repeat All Selections REPEAT (Remote)

To Repeat a Section of the Disc REPEAT A-B (Remote)

To Use Variable Speed Scan (Audio and Video) SHUTTLE Ring or SCAN

Understanding Displays and Messages When Playing CDVs or VSDs

You can determine the player operating status or CDV information in one of two ways: (1) by displaying the information on the TV screen, or (2) by looking at the front panel display. Locate the DISPLAY and AV TIME buttons on the Remote Commander.

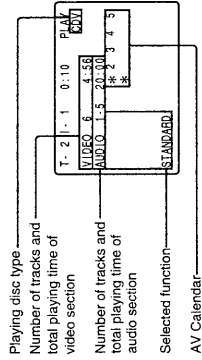
To View On-Screen Information



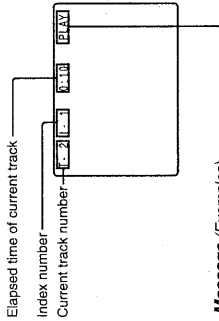
Press DISPLAY on the Remote.

Each time you press DISPLAY, messages appear on the TV screen as shown below. The table is a key to the messages that appear on the right of the screen.

Press DISPLAY twice.



Press DISPLAY once.



Message (Examples)

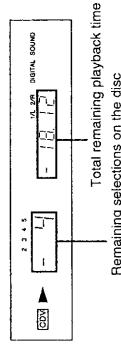
Screen Display	Current Status of the Player
OPEN	Disc tray open
CLOSE	Disc tray closed
PLAY	Playing CDV
STOP	Operation stopped
PAUSE	Operation momentarily stopped
SEARCH	Variable Speed (SHUTTLE Ring) Scanning

To turn off the display, press DISPLAY again.

To Display Remaining Playback Time



Press AV TIME on the Remote. See "How to Display the Elapsed Playing Time - Time Counter" on page 37. Example, Press AV TIME three times.



Finding Out Play Status

When playing a CDV, the AV Calendar on the front panel display shows information on the total number of selections. As selections are played, the corresponding numbers in the calendar disappear.

To Turn Off the Front Panel Display

Press FL DISPLAY on the player. Each time you press FL DISPLAY, the display turns on/off.

To Play Any Disc (Advanced Functions for LD, CD, or CDV Play)

This section explains advanced functions which apply to any one of the three types of discs.

How to Have the Disc Play Within a Set Period of Time

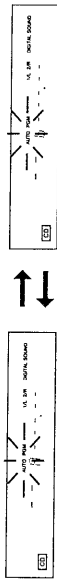
You can program the disc to play within a specified period of time. This is called "Auto Program Playback." Decide how long you want the disc to play and then enter half that amount of time. The player divides the selections on the disc into what it calls "Program A" and "Program B," playing both A and B for the amount of time entered. The player pauses between the two programs. The following procedure explains how to conduct Auto Program Playback on a CD, but you can also use the function for LDs with TOC and CDVs. (Auto Program does not function on LDs that do not contain TOC data.) Locate the AUTO PGM button and number keys on the Remote Commander.

To Ensure Correct Operation

When you play an LD with TOC, press the (LD) QUICK START button on the player while in stop mode to turn off the indicator, then press PAUSE (II) to display the AV calendar before you press the AUTO PGM button. When you operate Auto Program on side B of the LD in the player, press PAUSE (II), then (DISC) SIDE B to display the AV Calendar on side B before you press the AUTO PGM button.*

To Play Selections Using Auto Program

- 1 Press AUTO PGM on the Remote. "AUTO PGM" flashes in the front panel display.



- 2 Enter the desired play time.

Using the number keys, enter the time. For example, to enter 30 minutes, press +10 three times and 0.**

If you press the wrong number, simply press the correct one.

Program A and Program B appear alternately in the AV Calendar displays the contents of the two different programs:



Program A and B, separated by a pause.

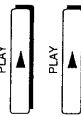
If you designate a play time shorter than half the length of the disc, some selections on the disc may not fit into the time span given and therefore may not play. On the other hand, if you designate a play time longer than the length of the disc, the whole program of selections may run on Program A, with none running on Program B. This is because Program A always has priority over B.

Example for a Forty-Minute Disc

Let's say your disc is 40 minutes long (see table below) and you designate playing time to run 15 minutes. Program A will run for 15 minutes (or less) and Program B will also run for 15 minutes (or less) for a total of about 30 minutes of play (see table below).

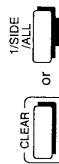
You enter	Program A plays	Program B plays	Total play time
15	15 min (or less)	15 min (or less)	30 min (or less)
30	30 min (or less)	10 min (about)	40 min
45	40 min (all selections)	0 min	40 min

- 3 Press PLAY (▶).



Program A selections start playing. The player pauses at the end of Program A and waits for you to press PLAY (▶) again for Program B.

- 4 Press PLAY (▶) again to play Program B.



To Resume Normal Play from Auto Program Press CLEAR or 1/SIDE/ALL.

* You cannot make programs consisting of selections from both sides of an LD using Auto Program.
** If your LD contains 51 or more chapters on the playing side, Auto Program may not operate correctly.

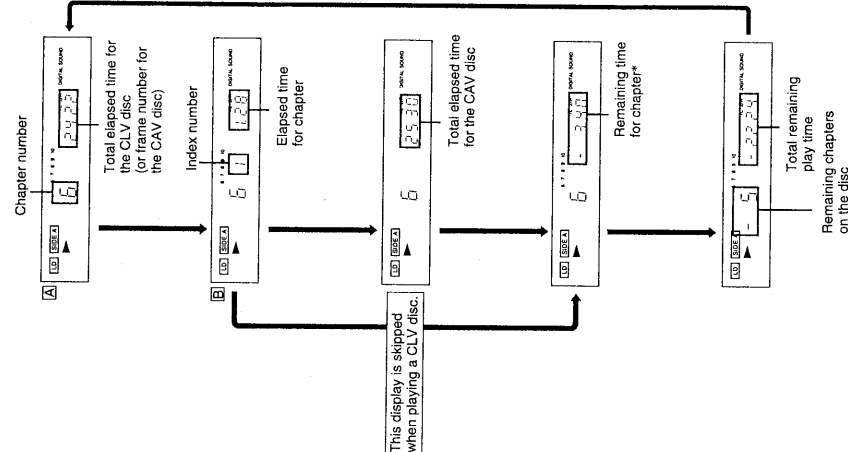
How to Display the Elapsed Playing Time — Time Counter

You can display elapsed time information on the front panel display or TV screen. How the information is displayed depends on the type of disc being played. When playing an LD, press (LD) QUICK START while in stop mode to turn off the indicator on the button. When the indicator is lit, remaining time is not displayed. Locate the AV TIME button on the Remote Commander.

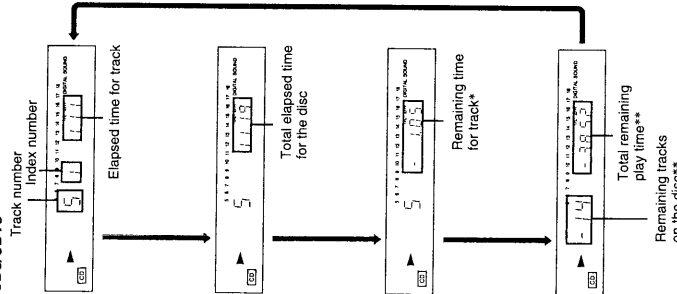
To View the Elapsed or Remaining Time

Each time you press AV TIME on the remote, the front panel display changes as follows.

LDs with TOC



CDs/CDVs



When the (LD) QUICK START indicator is lit you can only change the display between [A] and [B].

* The display does not show remaining play time for chapters or tracks numbered 51 or greater.
** When playing CDVs, these figures refer only to the current section (audio or video) being played.

How to Program the Player to Pause or Scan Automatically

There are many functions you can program the Multi Disc Player to do automatically. Two of them are Auto Pause and Intro Scan. To make the player stop every time a selection ends, use Auto Pause. When you want to find a particular track, use the INTRO button to make the player play the first 8 seconds (approximately) of each chapter or track on the CD, LD, or CDV. Locate the AUTO PAUSE and INTRO buttons on the Remote Commander.

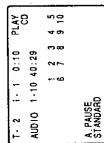
To Make the Player Stop Momentarily (Auto Pause)



Press AUTO PAUSE on the Remote.

When the current selection ends, the player pauses. To play the next selection, press PLAY (▶).*

To display "A. PAUSE" on the TV screen, press DISPLAY twice. If you have pressed DISPLAY once, "A. PAUSE" appears for three seconds, then disappears.



Press AUTO PAUSE again.



To Resume Normal Playback

To Scan the Beginning of Each Chapter/Track (Intro Scan)



Press INTRO on the Remote.
The player plays only the first 8 seconds (introduction) of each chapter or track on the disc.** When playing an LD, the player pauses after introducing the last chapter on side B of the disc. On CDVs, intro-scanning starts from the video section of the disc.

To Resume Normal Play



Press CLEAR.
Play resumes from the selection just introduced.

To Stop Play



Press STOP (■).

How to Play Selections in Random Order—Shuffle Play

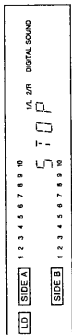
Shuffle Play is another of the Multi Disc Player's programmable functions. As the name implies, this function allows you to play all the tracks or chapters on a disc in random order once or repeatedly. From this random order you may program the player to delete tracks or chapters you don't want played. (Note that Shuffle Play can only be conducted on LDs containing TOC data, CDs and CDVs.) Locate the number keys, SHUFFLE, and PLAY buttons on the Remote Commander.

Before Shuffle Play on an LD With TOC

You can shuffle play on an LD only when the AV Calendar on the playing side is displayed. Make sure that the AV Calendar(s) on the playing side(s) are displayed before shuffle playing.

- 1 Press the (LD) QUICK START button on the player while in stop mode. The (LD) QUICK START indicator goes off.
- 2 Press (DISC) SIDE A to display the AV Calendar on side A.
- 3 Press (DISC) SIDE B to display the AV Calendar on side B.
- 4 Press STOP (■).

The AV Calendars on side A and B appear.



To Shuffle Play All Chapters on Both Sides of an LD (Both Sides Shuffle)

- 1 Make sure that the AV Calendars on both sides of the LD are displayed.
 - 2 Press SHUFFLE on the Remote.
 - 3 Press 1/SIDE/ALL on the Remote to turn off "ONE SIDE".
 - 4 Press PLAY (▶).
- All the chapters on side A, then side B are played once in random order. After all the chapters on side B are played, the player stops.

To Shuffle Play All Chapters on One Side of an LD (One Side Shuffle)

- 1 Make sure that the AV Calendar on the disc side you want to play is displayed.
 - 2 Press (DISC) SIDE A or B to select the playing side.
 - 3 Press SHUFFLE on the Remote.
 - 4 Press PLAY (▶).
- All the chapters on the side selected in step 2 are played once in random order. After the chapters are played, the player stops.

* In Single Repeat mode, the same selection starts playing again. In Repeat A-B mode, playback starts from the point marked "A".
** In stop mode, intro-scanning starts from the first chapter or track on the disc. If you press INTRO while playing a chapter or track, scanning starts from the next one. If you press INTRO while the player is introducing a chapter or track, the scanning skips to the next one.

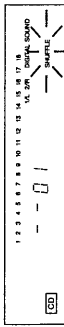
To Shuffle Play All Tracks on a CD or CDV

When you play a CD or CDV, make sure the disc tray has closed completely, and the "STOP" indication in the front panel display has stopped flashing, then press the SHUFFLE button.

- 1 Press SHUFFLE.



"SHUFFLE" flashes in the front panel display.



- 2 Press PLAY (▶).



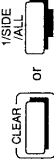
All the selections on the disc play once in random order. After all the selections play, the player stops. CDV selections play randomly from both the audio and video parts of the disc.

To Advance to the Next Selection



Press ACS/AMS (▶▶) to skip to the next track or chapter. (The ACS/AMS (◀◀) button does not function to return to a previous track or chapter in Shuffle Play mode.) Or, use the SHUTTLE Ring.

To Resume Normal Play



Press CLEAR or 1/SIDE/ALL. This clears Shuffle Play. Playback resumes from the next selection.

To Delete Certain Selections From Shuffle Play (Delete Shuffle)

- 1 Press SHUFFLE.



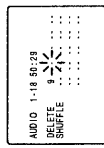
- 2 Enter the chapter or track number of the selection you do not want the player to play.*



- 3 Press PLAY (▶).



The player automatically plays a random program of selections without the ones you deleted.



(TV Screen)

To Clear an Entry

- 1 Press CLEAR.



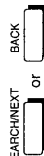
- 2 Press SHUFFLE.



To clear the entry during play, press CLEAR and SHUFFLE again before entering the correct numbers.

To Change an Entered Number

- 1 Press SEARCH/NEXT (to advance) or BACK (to go back) until the number you want to change flashes on the front panel display.



- 2 Using the number keys, enter the correct number.



* When shuffle playing on an LD, you can delete chapters from each side of the LD. Press one of the DISC SIDE A/B buttons corresponding to the disc side on which you want to delete chapters, then enter the chapter number. The chapter numbers on side B are displayed in squares.

To Repeat Shuffle Play



Press REPEAT on the Remote. This activates the REPEAT indication in the front panel display. The player reshuffles the selections and plays them back in a different random order.

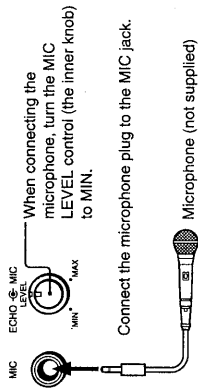
To Clear Shuffle Play



Press CLEAR or 1/SIDE/ALL. When you turn off the player, or you remove the disc, all shuffle functions clear from the memory of the player.

To Play Karaoke

1 Connect the microphone.



Microphone (not supplied)

Extra Functions for Karaoke Entertainment

Using the AUDIO MONITOR and ANALOG buttons (page 15)
 Karaoke discs can be recorded using one of three formats: multi audio (MULTIAUDIO), multiplex and stereo. Multi audio and multiplex discs include vocals. Stereo discs do not. If the disc loaded in the player is a multi audio or multiplex disc, you can play Karaoke listening to the voice recorded on the disc by alternating the sound using the AUDIO MONITOR or ANALOG button on the Remote Commander.

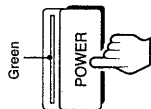
Auto Pause (page 38)

You can make the player pause every time a selection ends. To play the next selection, press PLAY (▶) or PAUSE (⏸), or choose the selection directly with the number key(s).

Programmed Play (page 25)

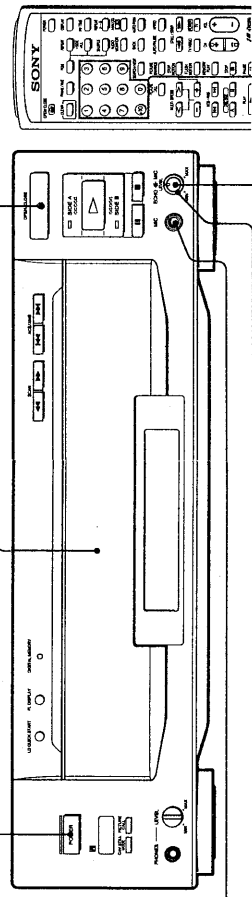
You can choose the selections in any order you like and play them continuously for non-stop Karaoke entertainment.

2 Turn on the player.

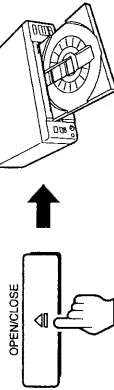


3 Turn on the TV and stereo system.

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



4 Open the disc tray.



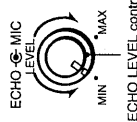
5 Place a disc on the tray.

Carefully center a single disc on the tray. The disc will not play if it is not seated properly.



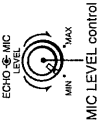
Always insert one disc at a time. Inserting more than one may damage the player.

8 Adjust the microphone echo.



Adjust the strength of the echo with the ECHO LEVEL control (the outer knob).

7 Adjust the microphone volume.



Adjust the microphone volume with the MIC LEVEL control (the inner knob).
 Sound from a microphone cannot be output when the player is connected to the amplifier with a Fiber Optical Cable. To output sound from a microphone, use an Audio Cable (Red & White plugs) for connection.

6 Choose a selection to play.



The disc tray closes automatically and the selection starts playing. If you enter the wrong number, simply reenter the correct one.

- Press PLAY (▶) or push the disc tray to playback from the beginning of the disc (side A of the LD).
- To choose a selection on side B of the LD, press DISC SIDE B, then press the number key(s).

If howling occurs

- Correct by doing the following:
- Move the microphone away from the speakers
 - Lower the MIC or ECHO LEVEL
 - Lower the volume of the speakers

When listening through headphones

Once the headphones are connected, the volume must be adjusted with the LEVEL control beside the PHONES jack.

Note about disc sides

The player determines that the upper side of the disc is side "A", and the other side is "B", regardless of label "A" or "B" printed on the disc.

If the picture on the TV flickers

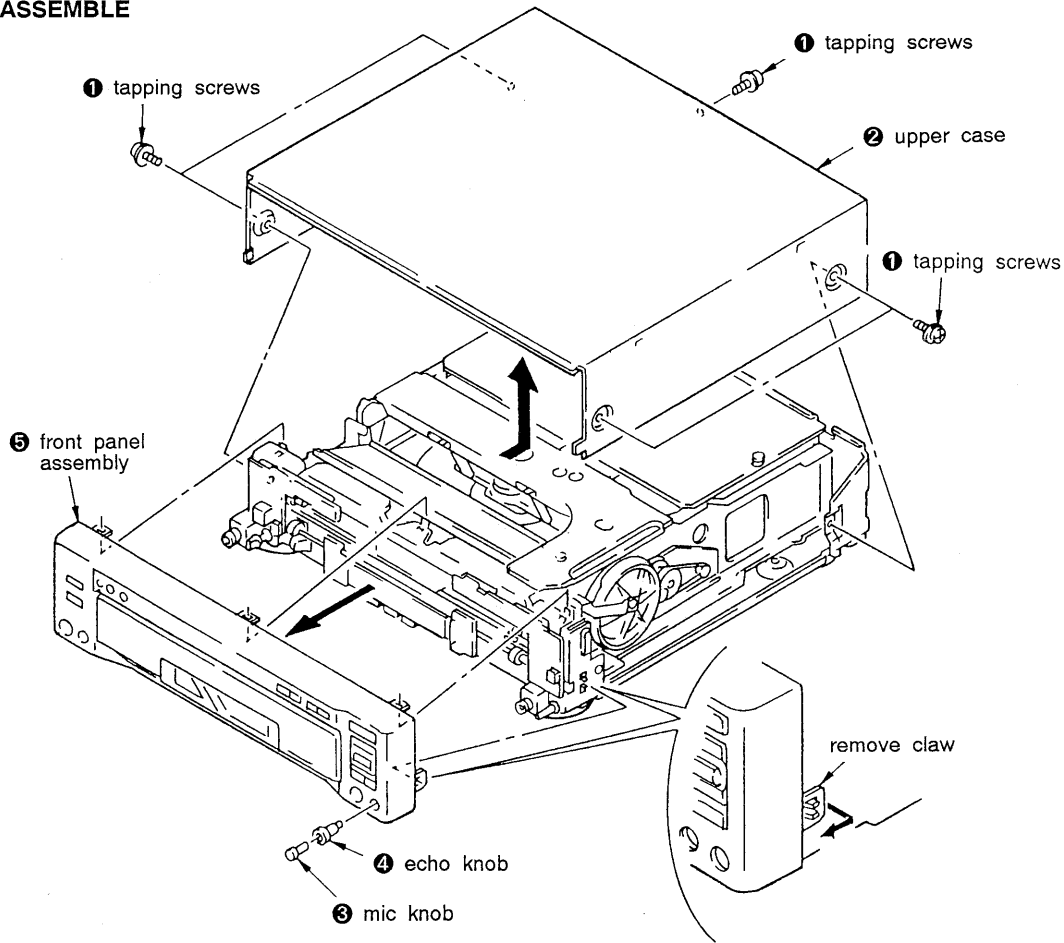
The picture appearing on the TV screen may flicker when listening through your TV speakers and the MIC volume is set too high. Correct this by setting the ATT (Attenuator) switch on the rear panel to ON, or lower the MIC LEVEL.

**SECTION 2
DISASSEMBLY**

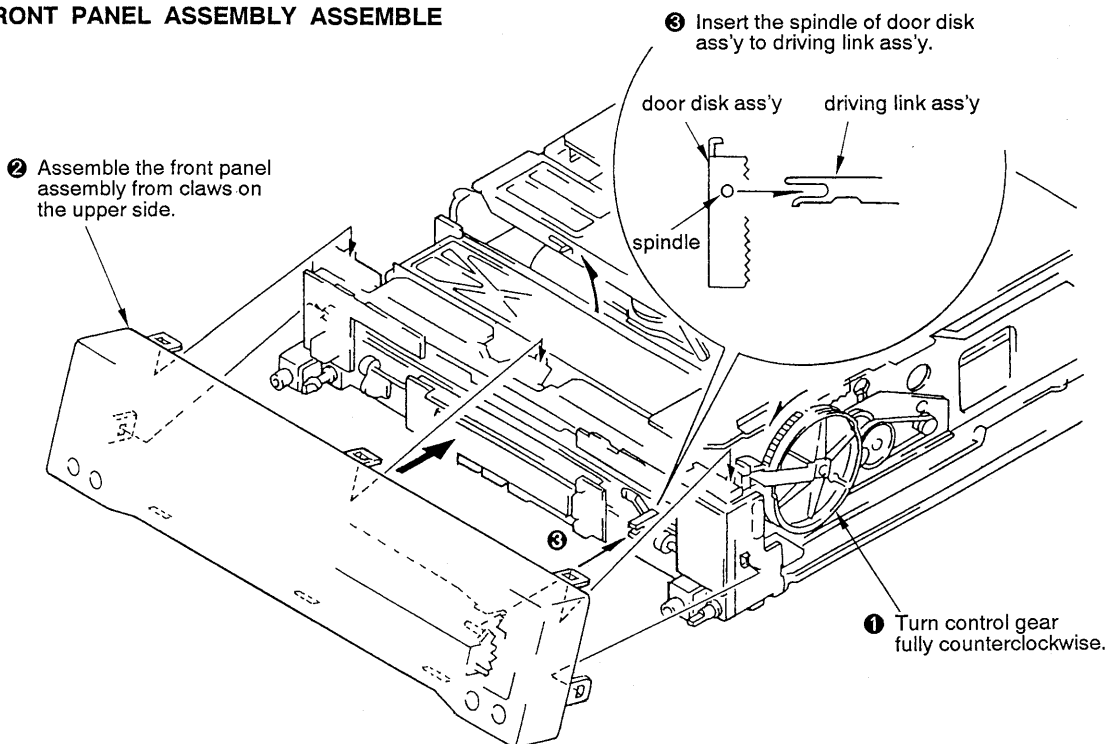
Note: Follow the disassembly procedure in the numerical order given.

2-1. UPPER CASE, FRONT PANEL ASSEMBLY

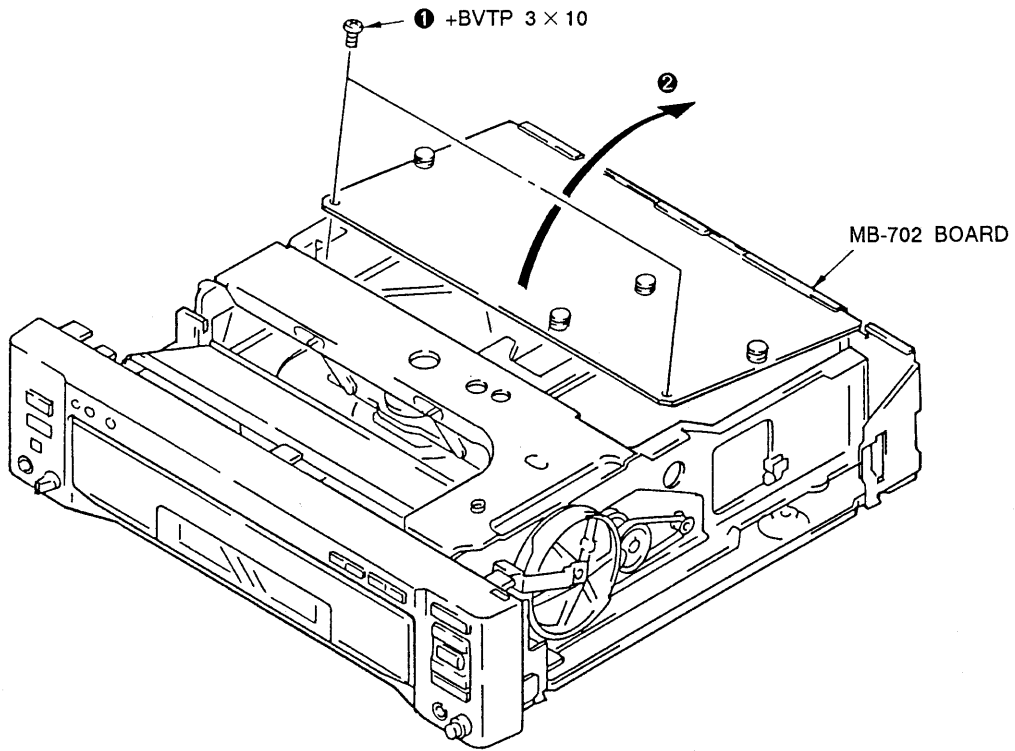
• **DISASSEMBLE**



• **FRONT PANEL ASSEMBLY ASSEMBLE**

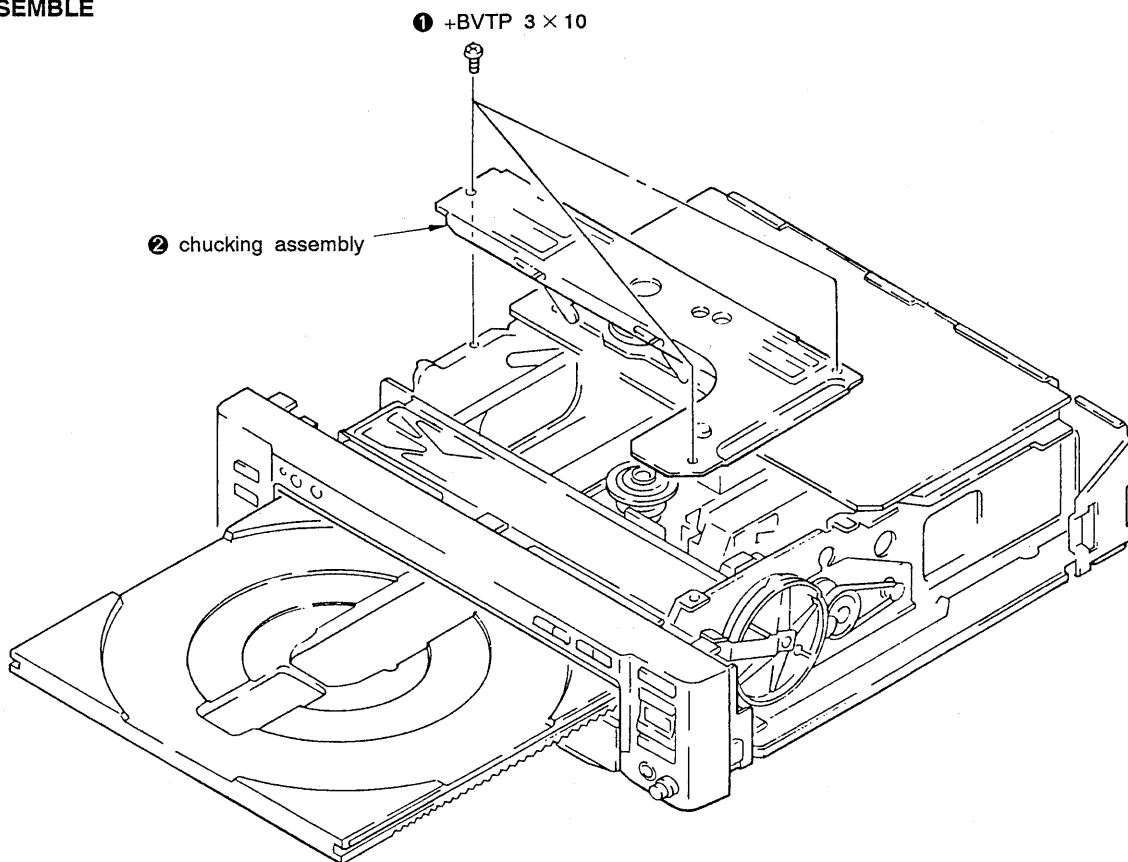


2-2. MB-702 BOARD

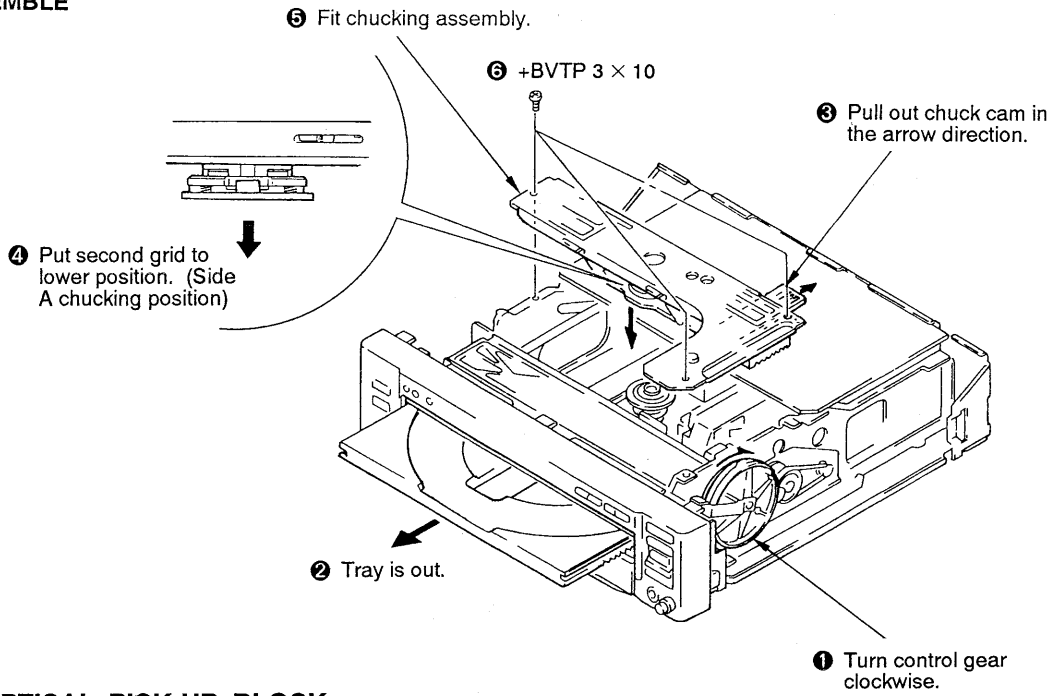


2-3. CHUCKING ASSEMBLY

• DISASSEMBLE

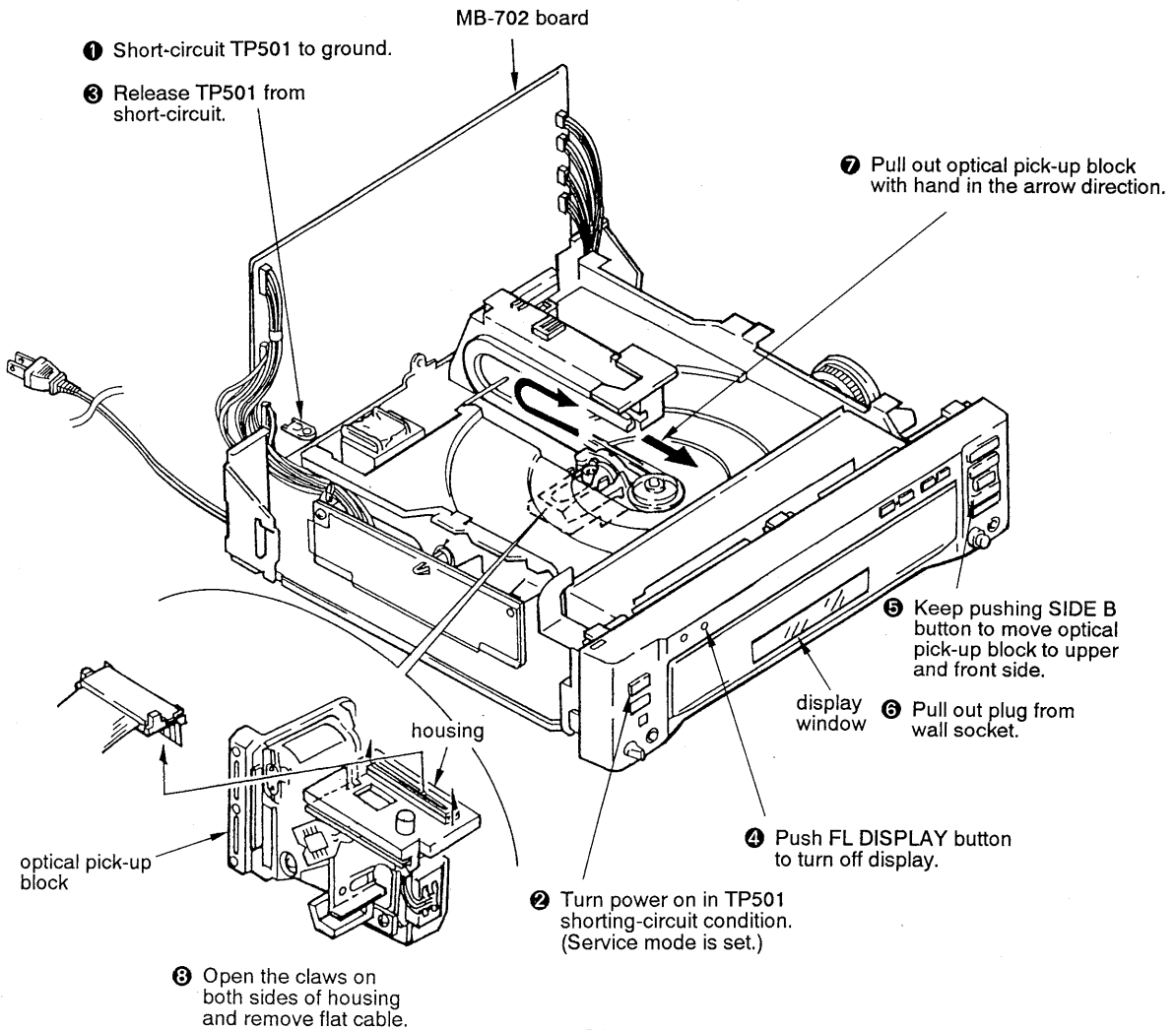


• ASSEMBLE



2-4. OPTICAL PICK-UP BLOCK

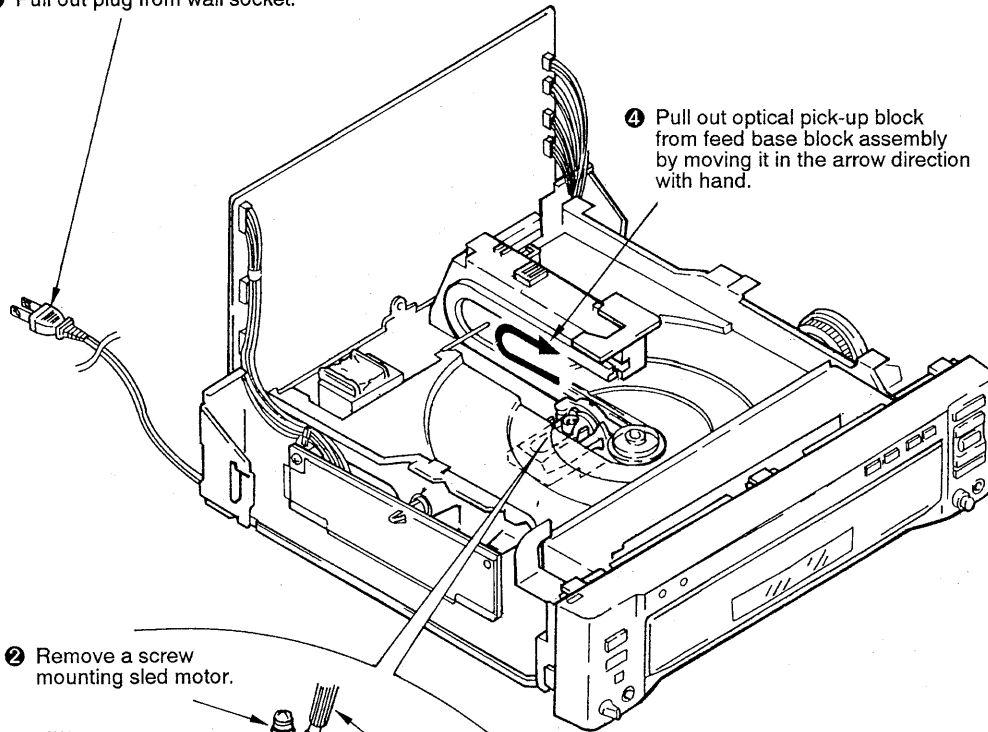
• DISASSEMBLE I
(OPTICAL PICK-UP BLOCK MOTOR OPERATES)



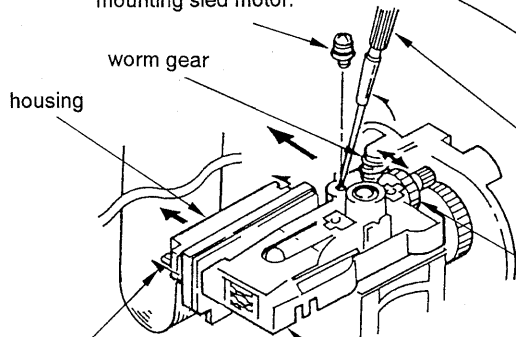
• **DISASSEMBLE II**
(OPTICAL PICK-UP BLOCK MOTOR DOESN'T OPERATE)

① Pull out plug from wall socket.

④ Pull out optical pick-up block from feed base block assembly by moving it in the arrow direction with hand.



② Remove a screw mounting sled motor.

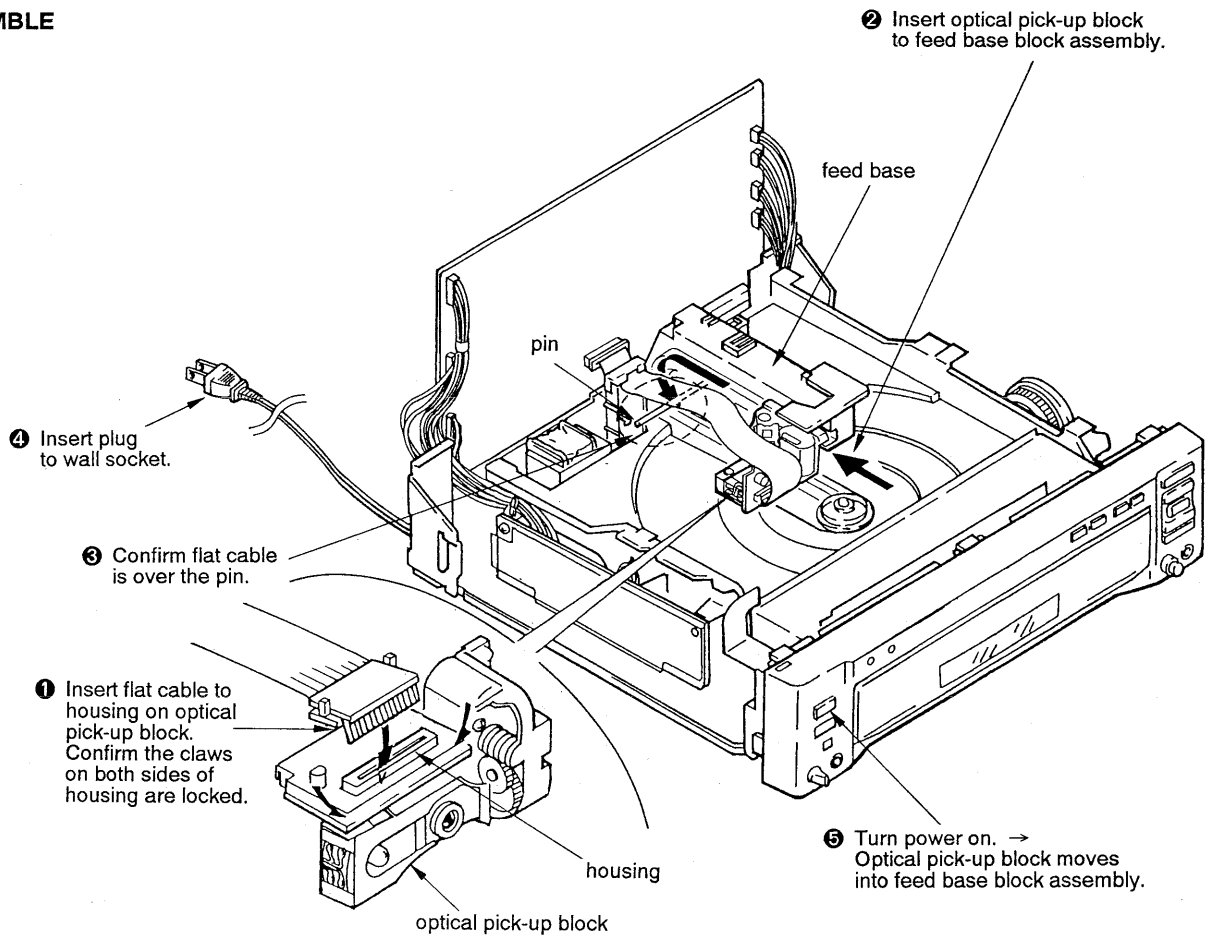


③ Insert screwdriver to hole for screw removed in step ② and move a little sled motor in the arrow direction.
 → Disengage worm gear and midway gear.

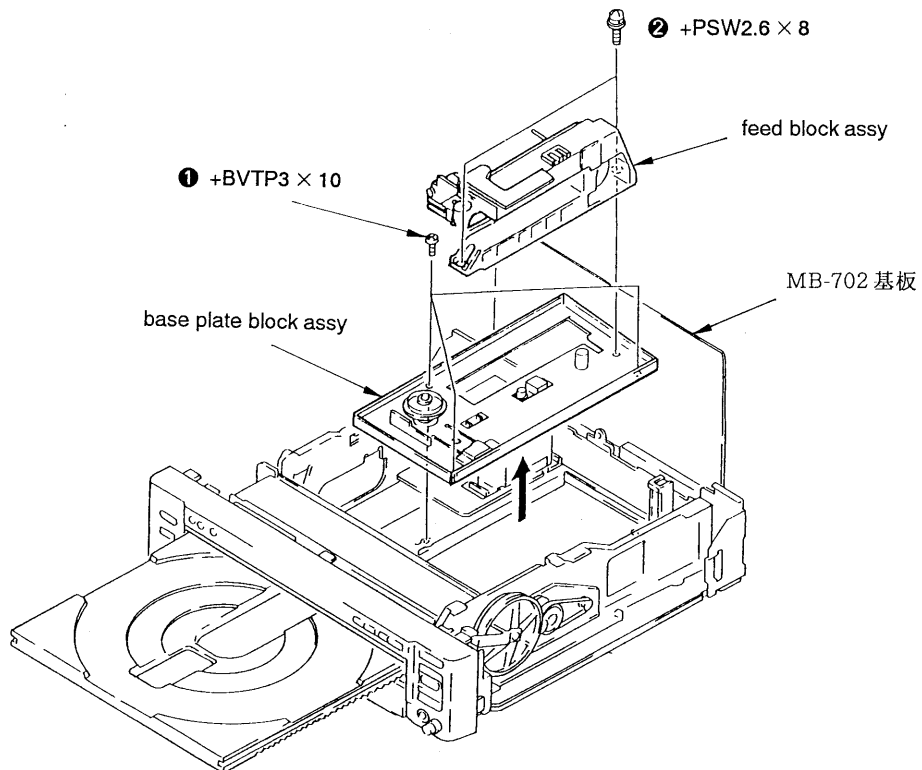
⑤ Open the claws on both sides of housing and remove flat cable.

optical pick-up block

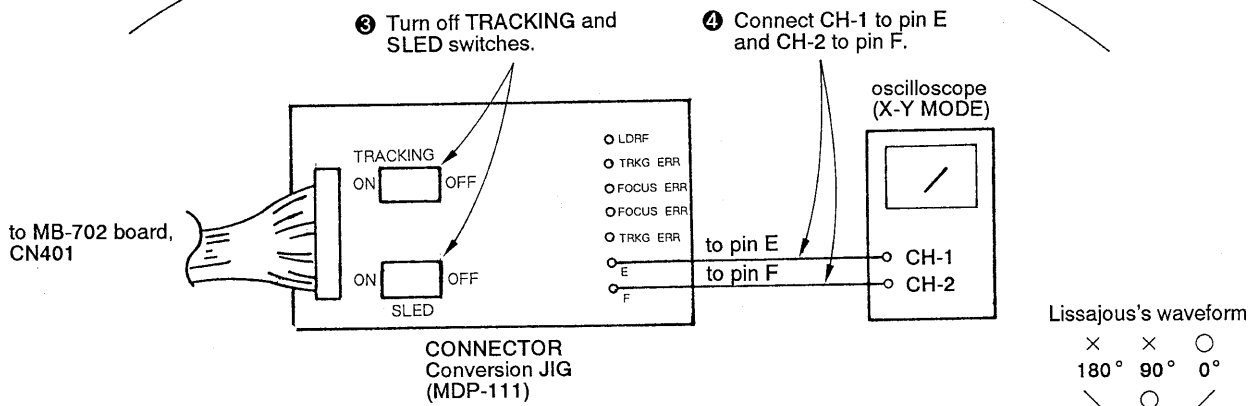
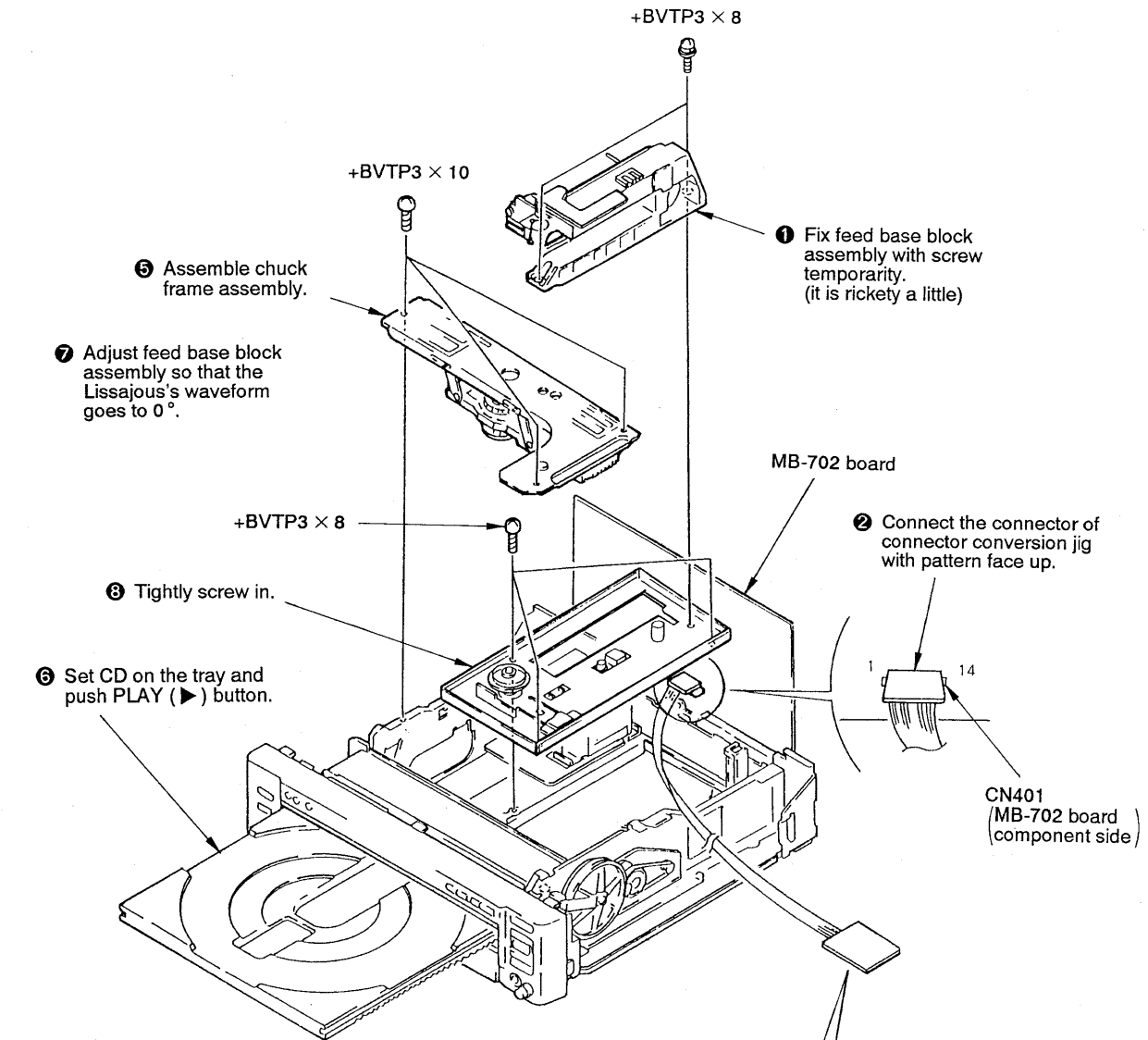
• ASSEMBLE



2-5. MD CHASSIS ASSEMBLY
(Base Plate Block and Feed Block Assy)

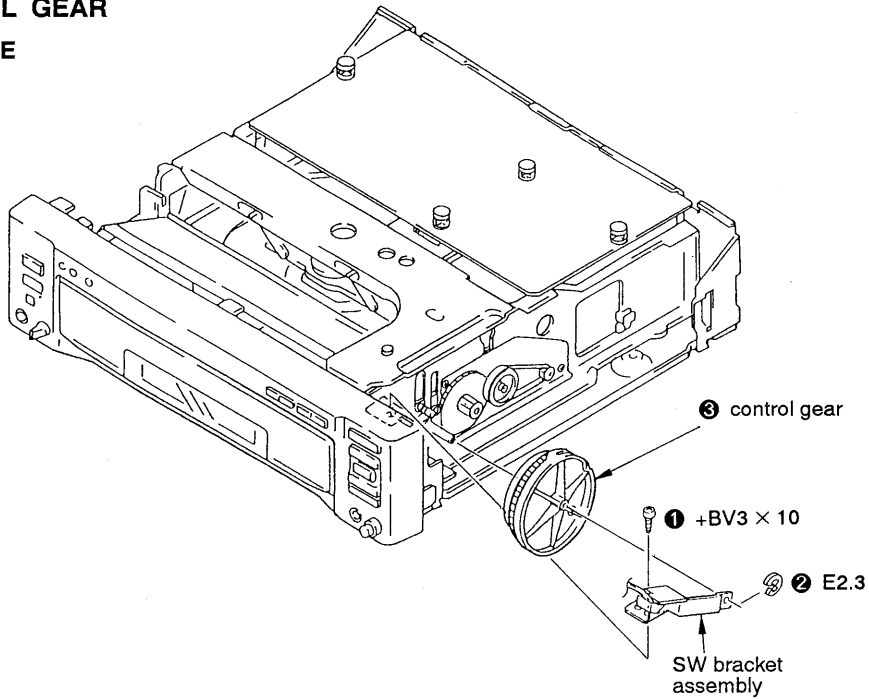


• ASSEMBLE



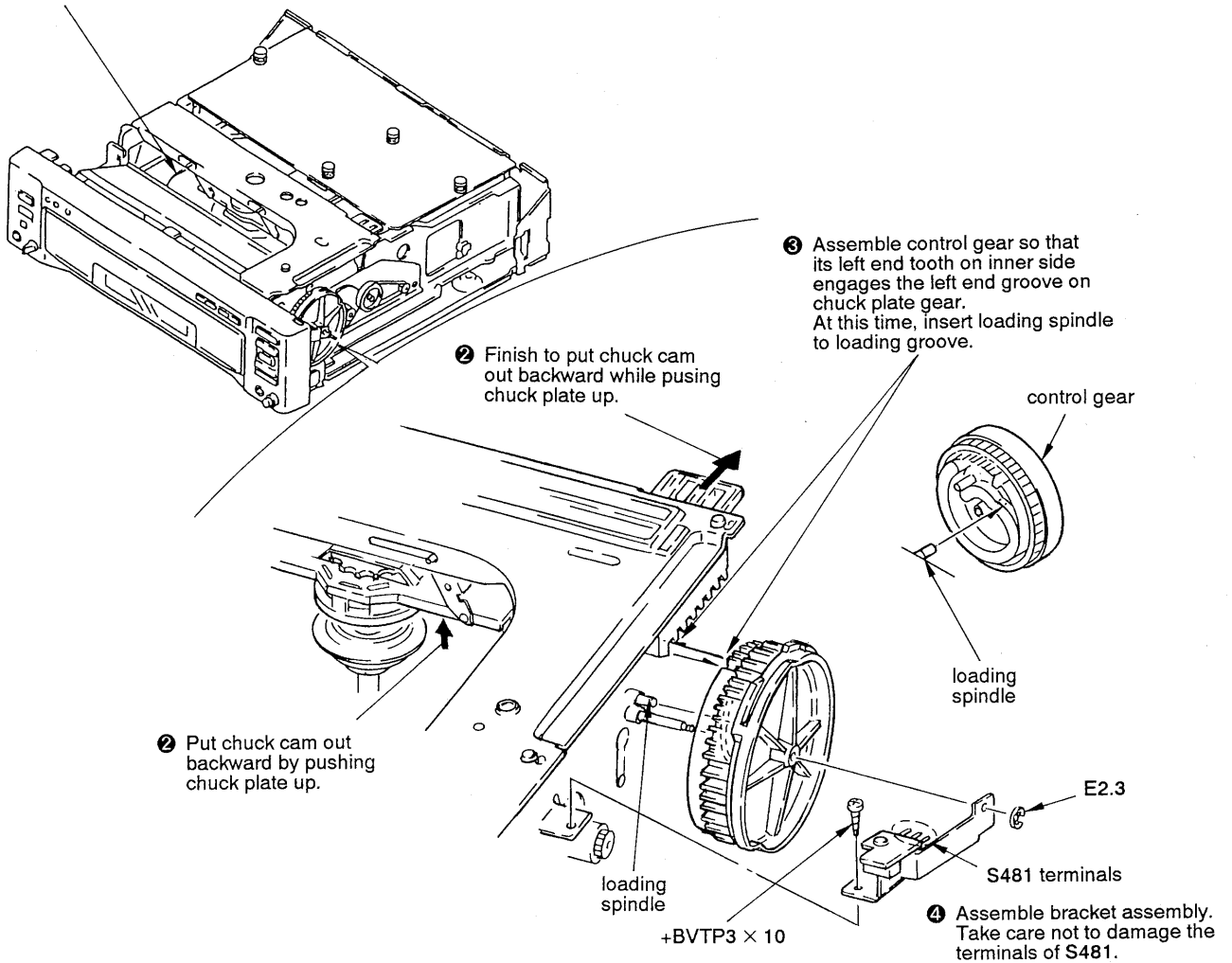
2-6. CONTROL GEAR

• DISASSEMBLE



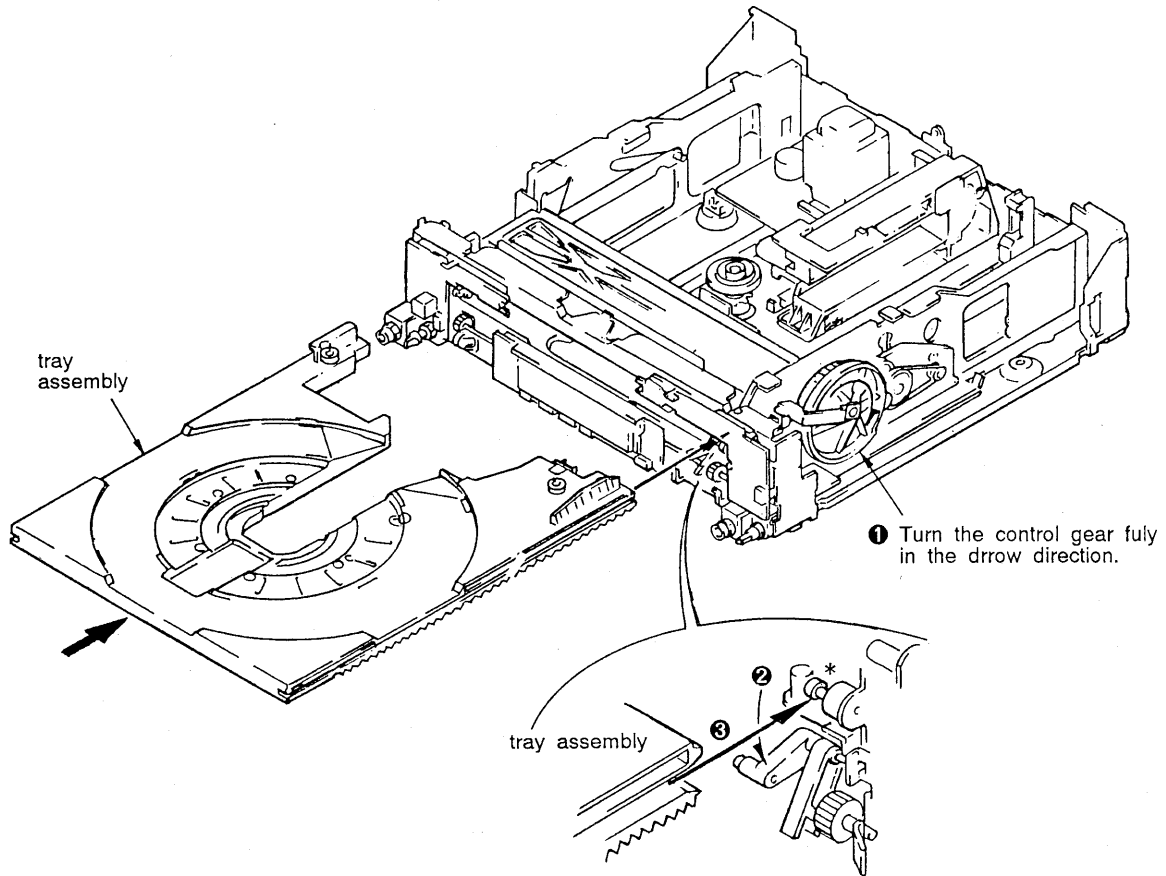
• ASSEMBLE

- 1 Make tray holding in the set.

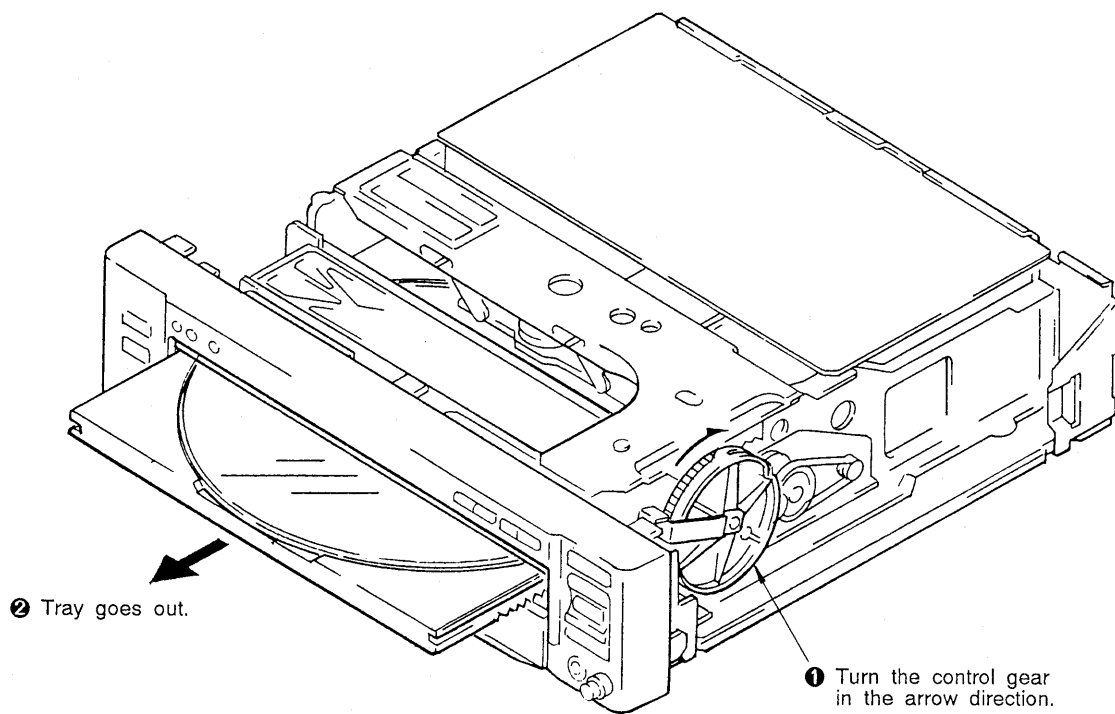


MDP-A7/800

2-7. TRAY ASSEMBLY INSERTION.

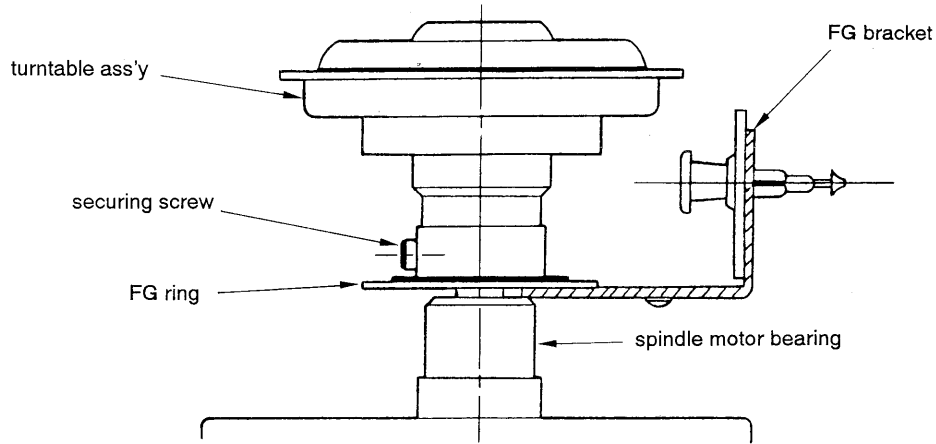


2-8. PUTTING OUT DISC WHEN A TROUBLE HAS OCCURRED WITH THE DISK LOADED



2-9. TURNTABLE ASSEMBLY HEIGHT ADJUSTMENT

1. Open the tray by turning the control gear secured 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.

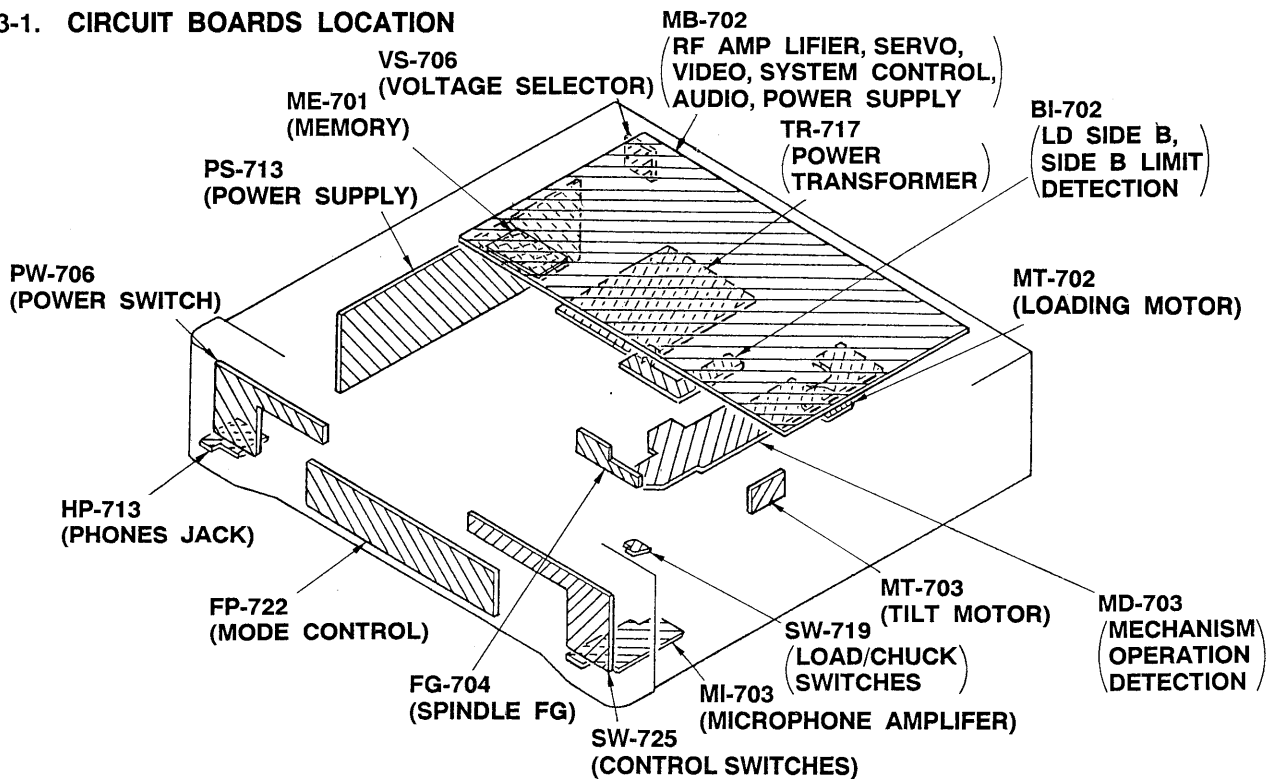


Insert FG bracket between spindle motor bearing and FG ring to set height and tighten securing screw.

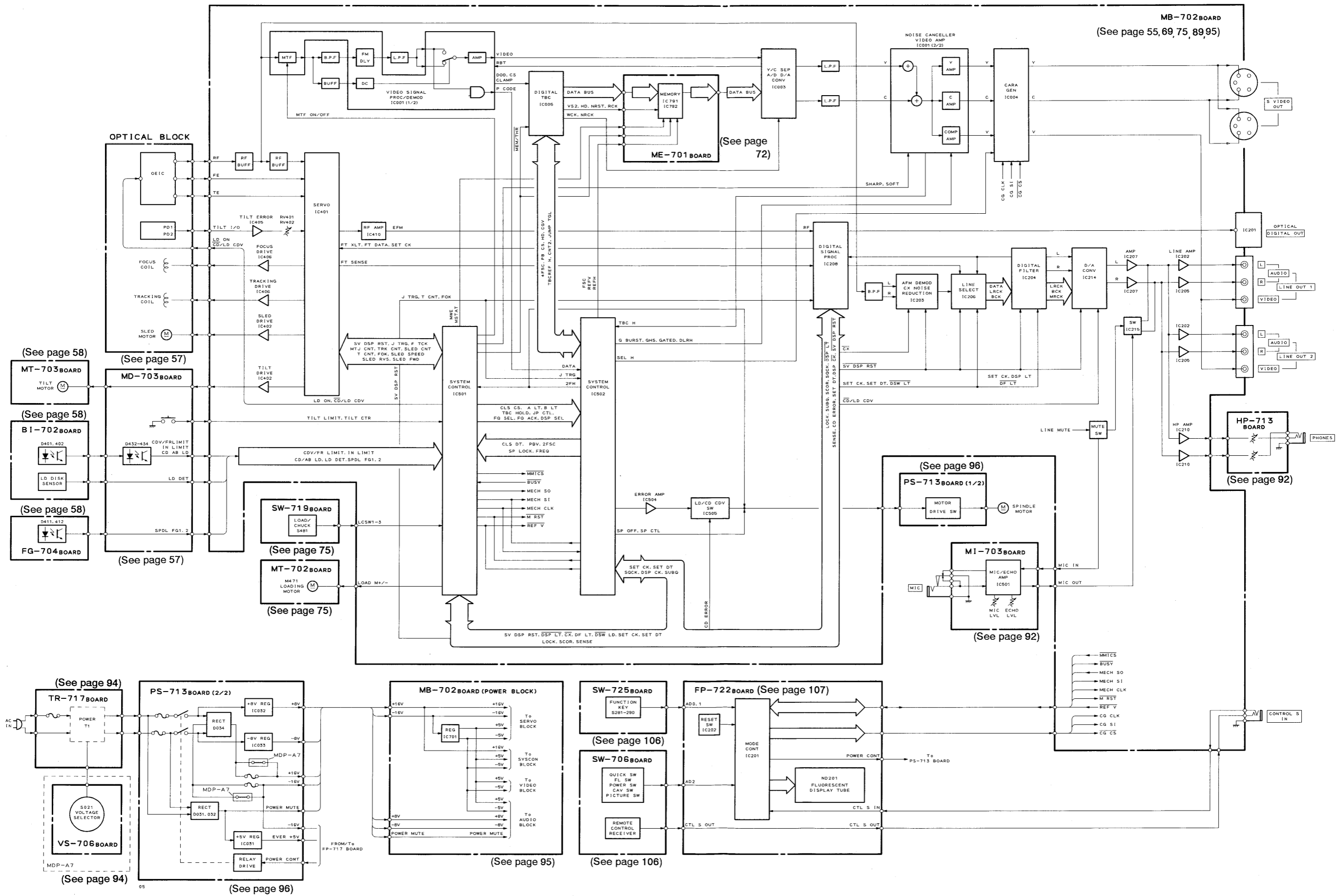
5. Fit FG bracket with FG board in its original position.

SECTION 3 DIAGRAMS

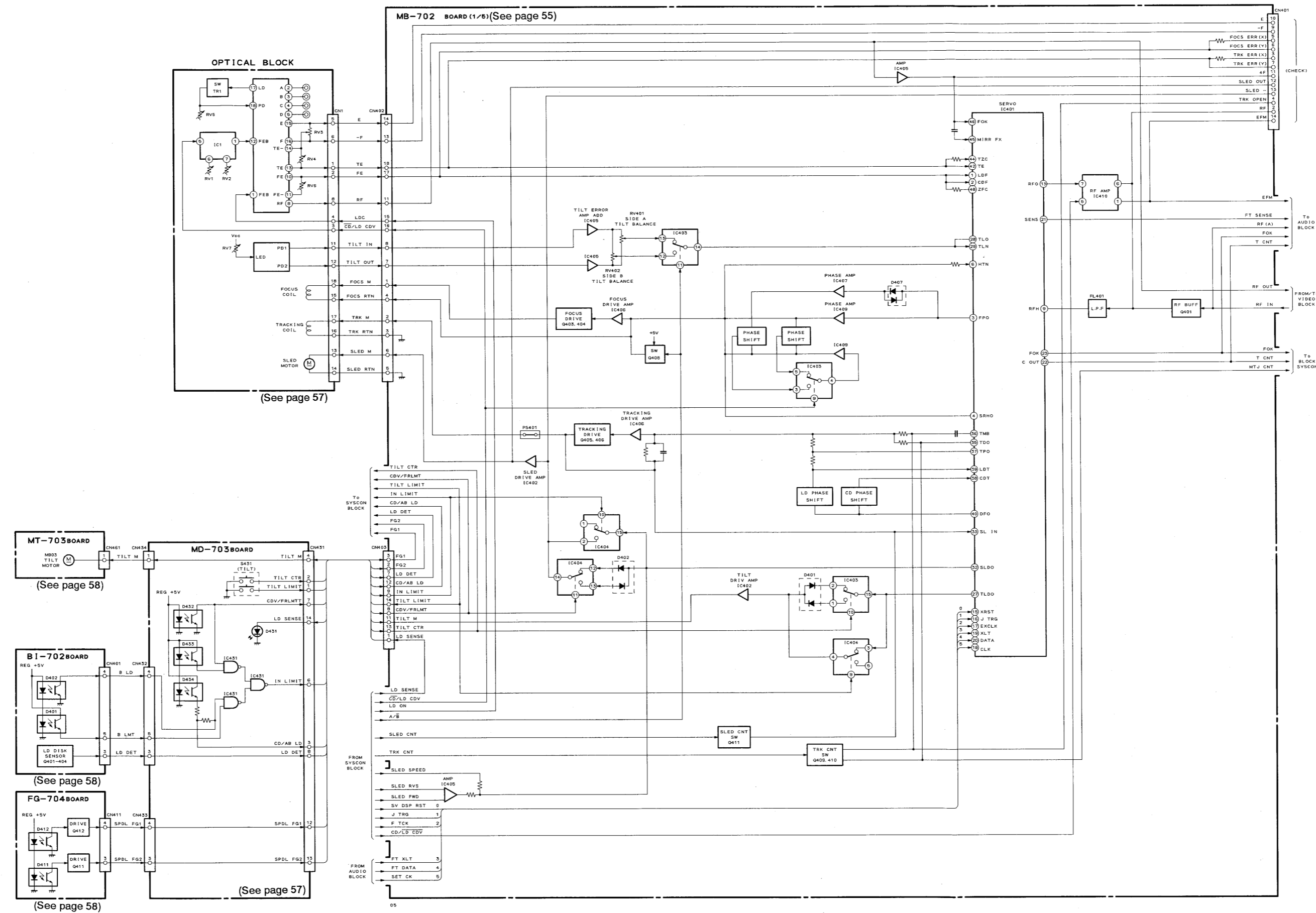
3-1. CIRCUIT BOARDS LOCATION



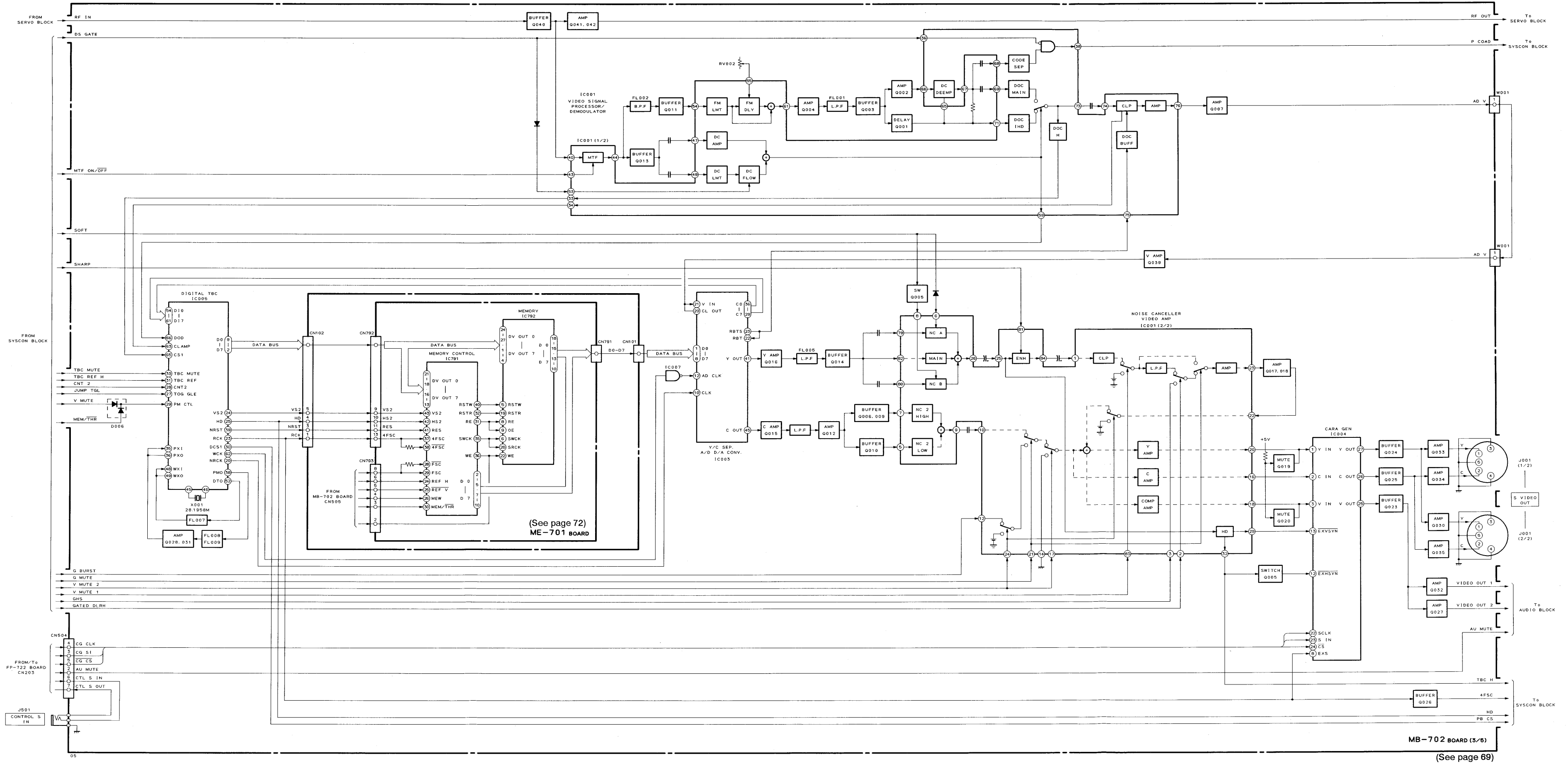
3-2. OVERALL BLOCK DIAGRAM



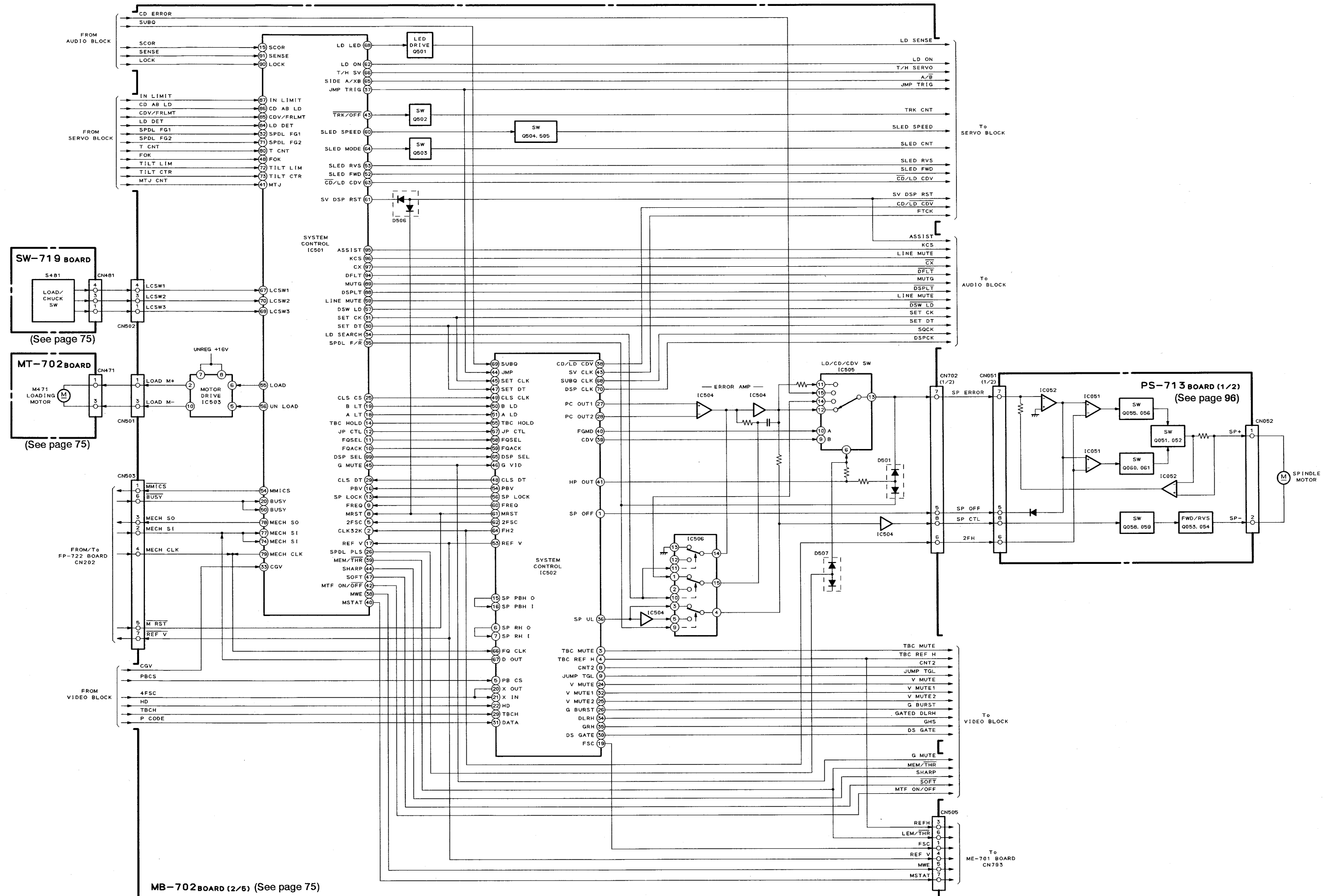
3-3. SERVO BLOCK DIAGRAM



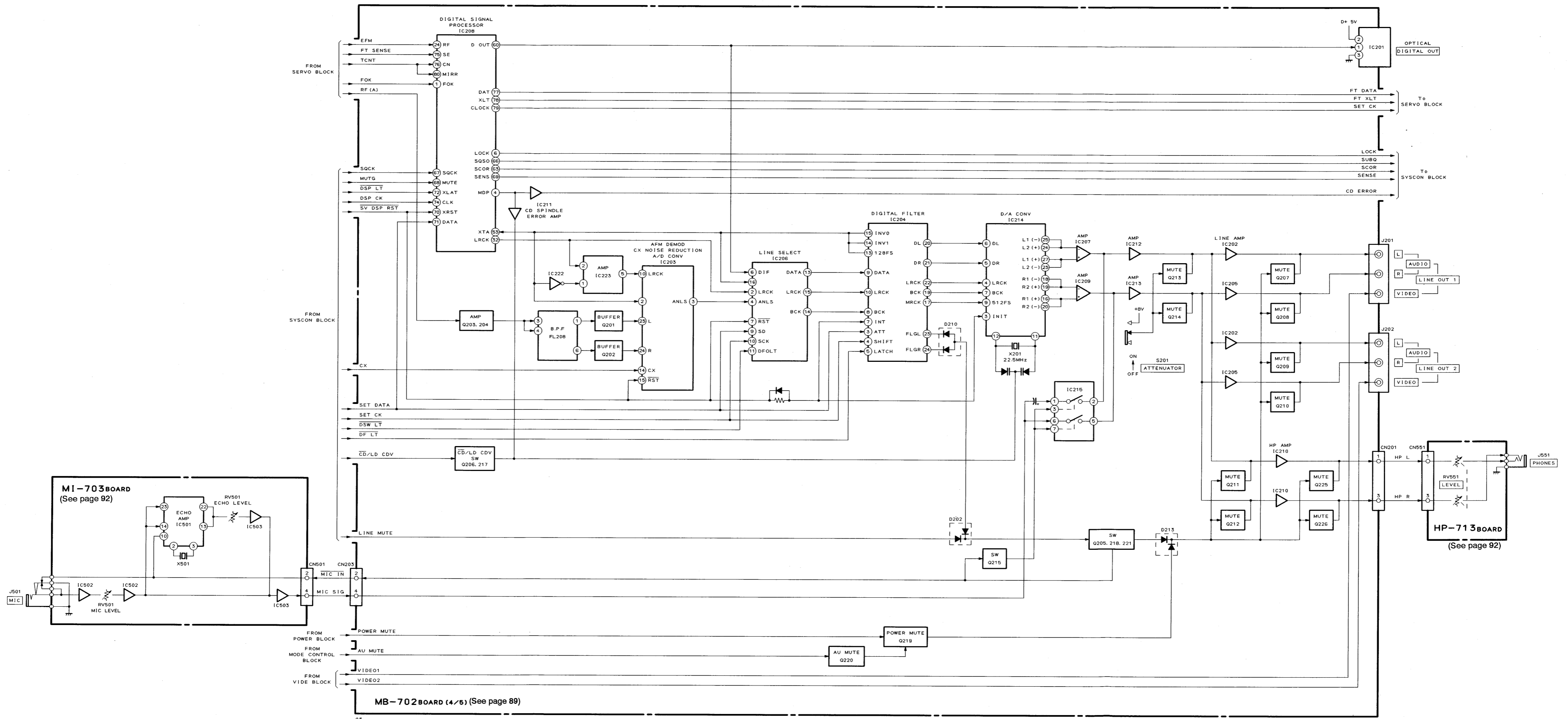
3-4. VIDEO BLOCK DIAGRAM



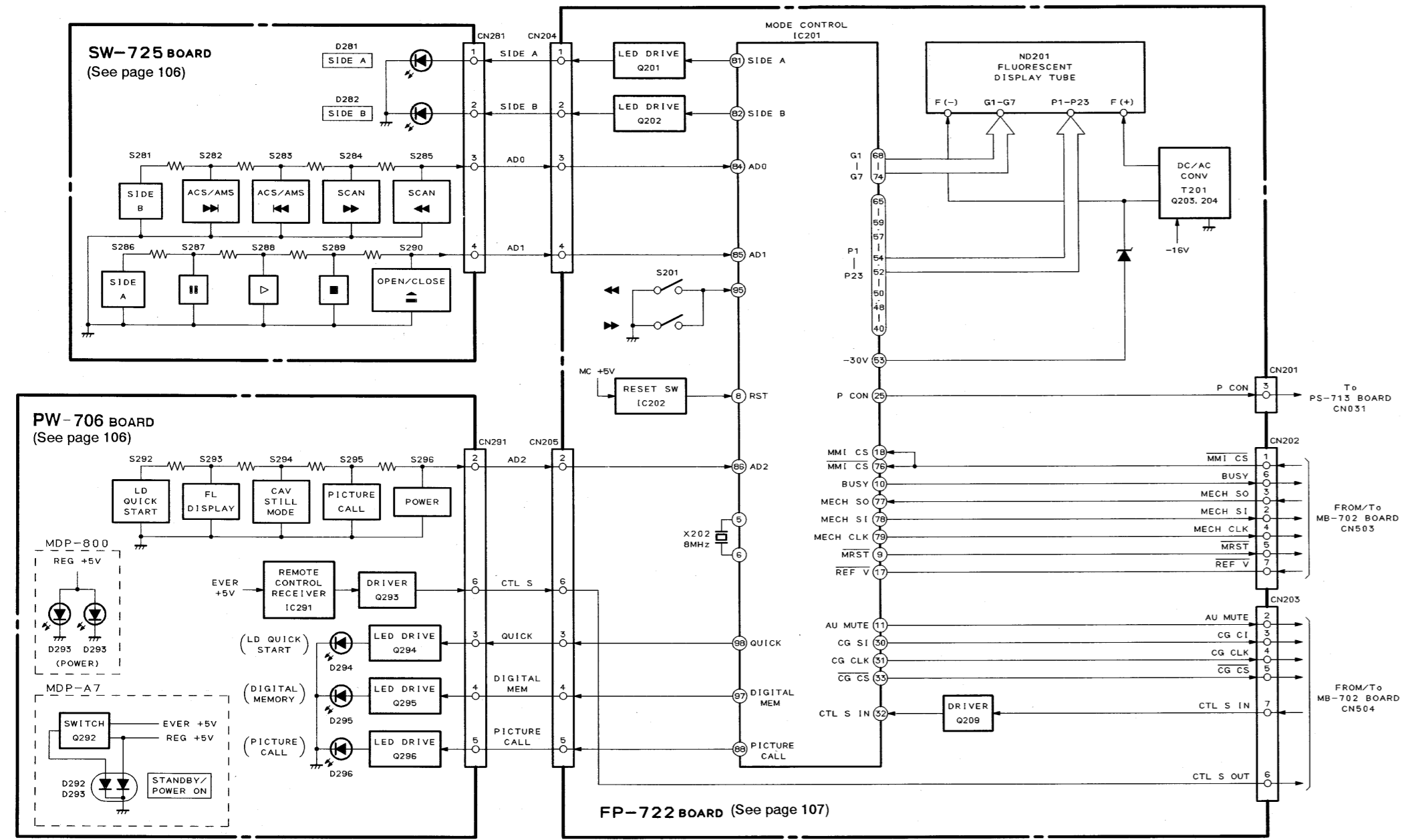
3-5. SYSTEM CONTROL BLOCK DIAGRAM



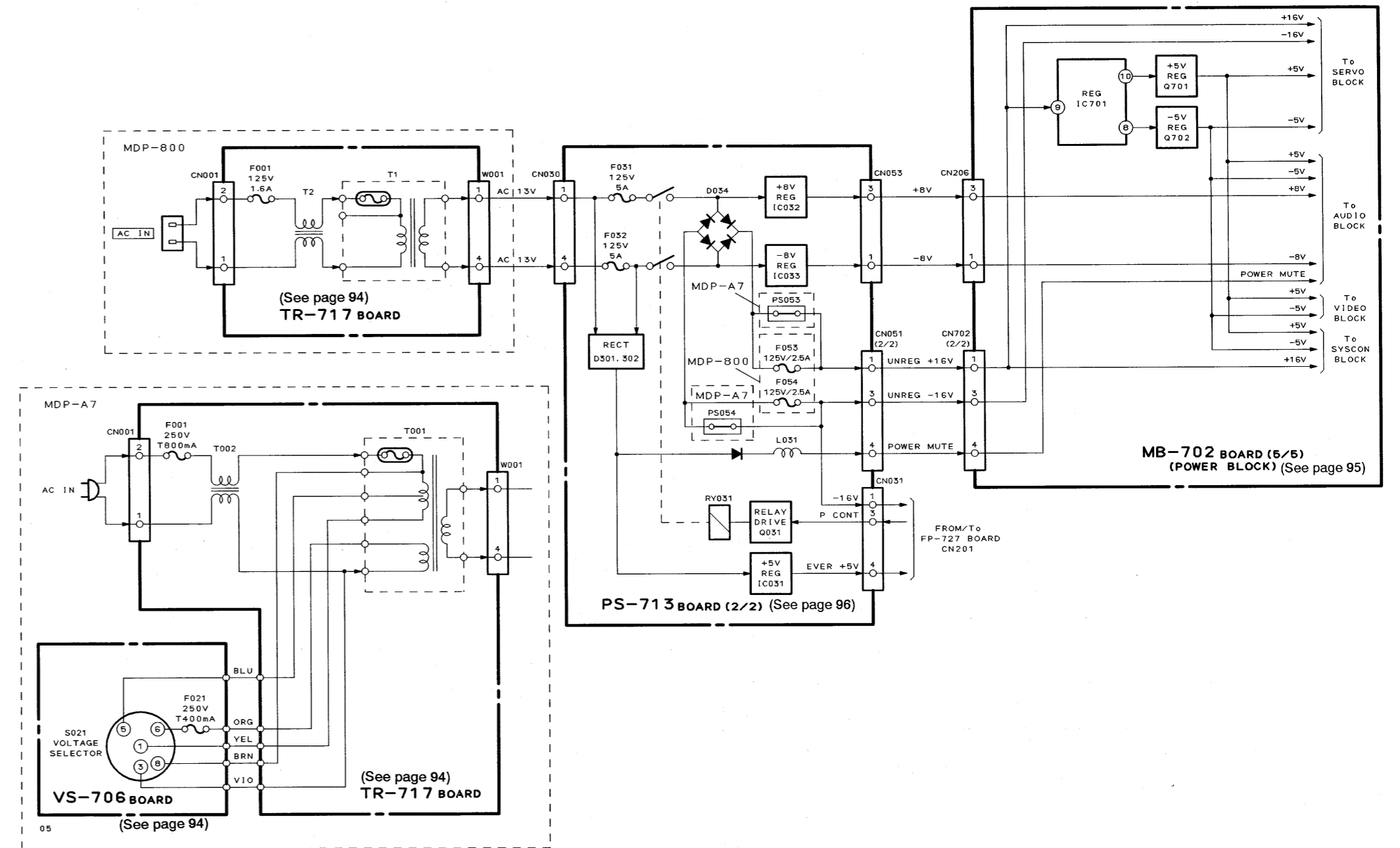
3-6. AUDIO BLOCK DIAGRAM



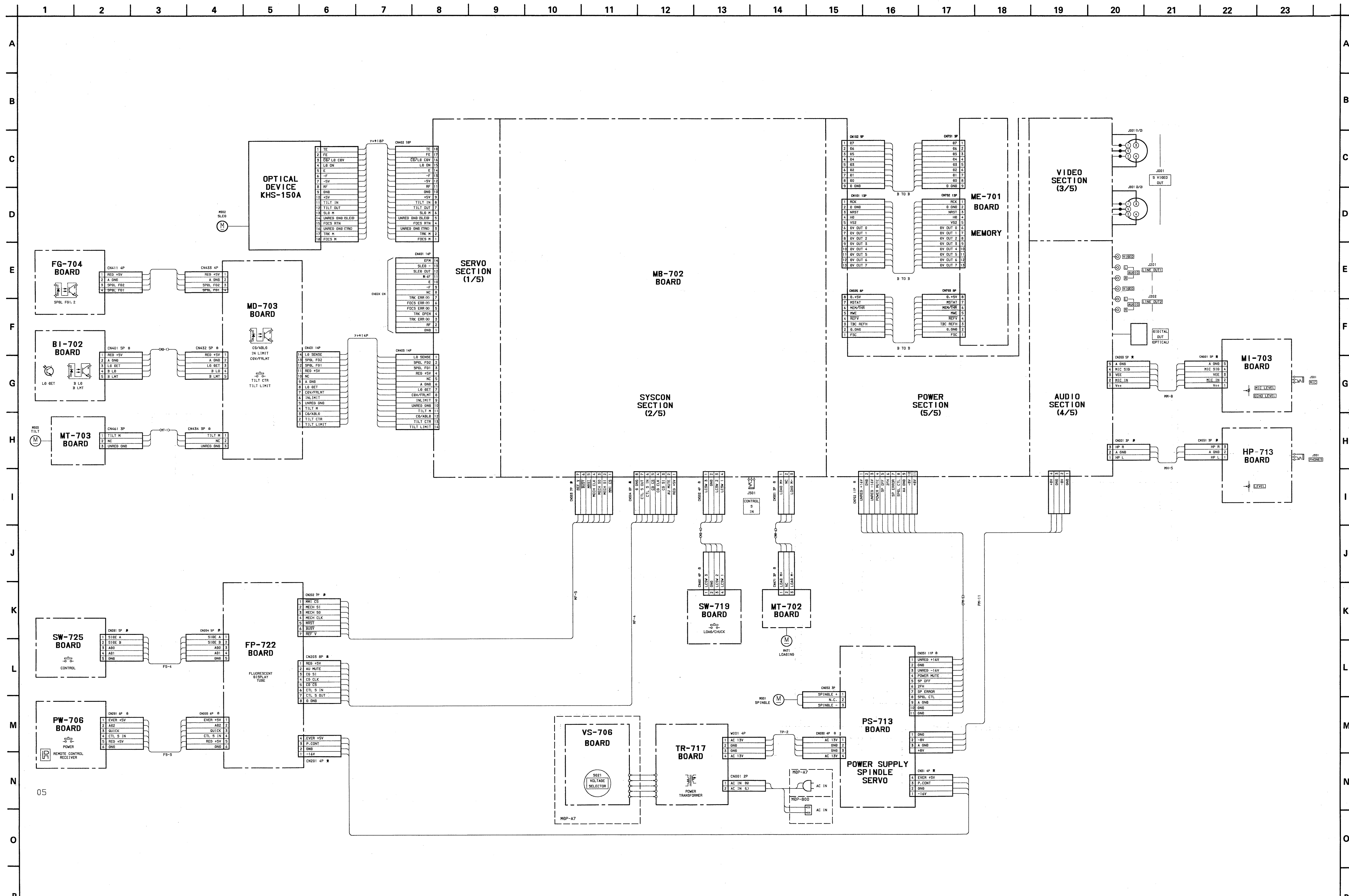
3-7. MODE CONTROL BLOCK DIAGRAM



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.
 - : Through hole.
 - ▨ : Pattern from the side which enables seeing.
 - ▩ : Pattern of the rear side.*

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.

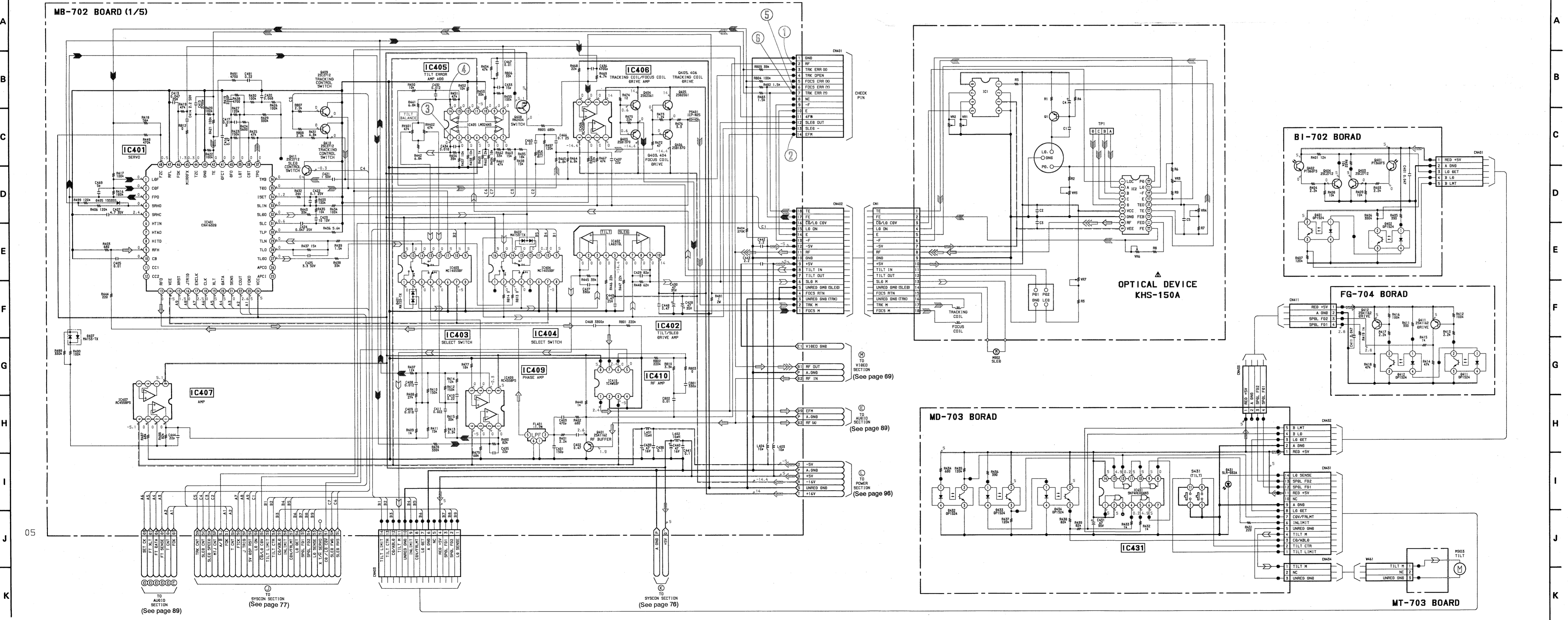
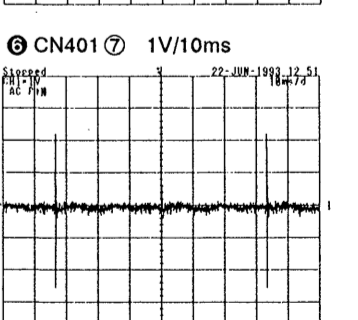
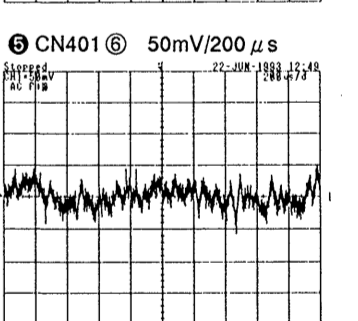
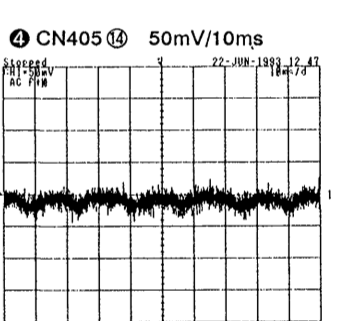
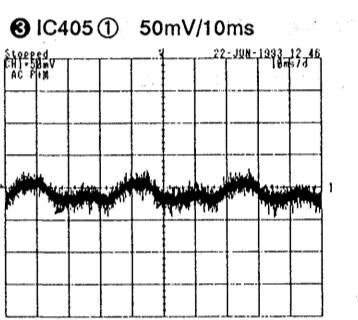
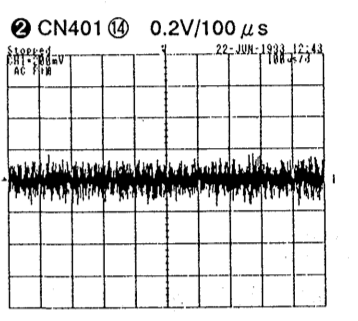
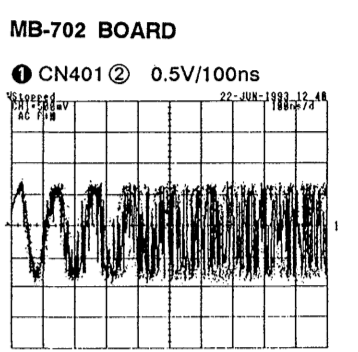
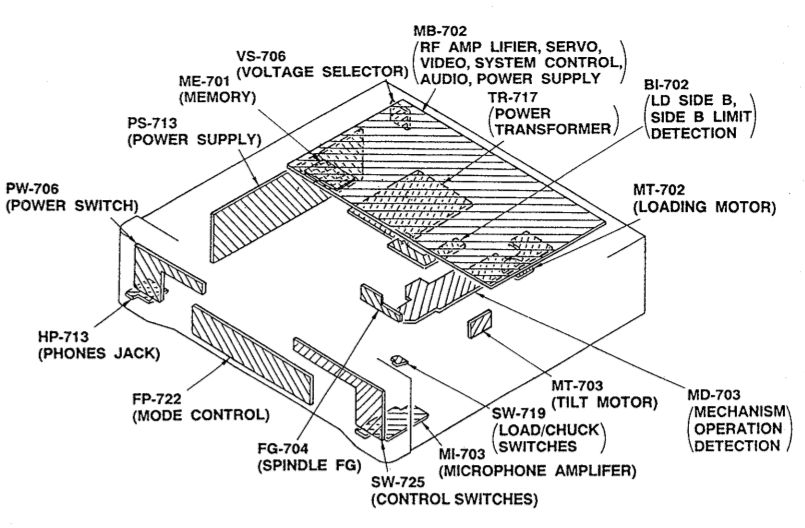
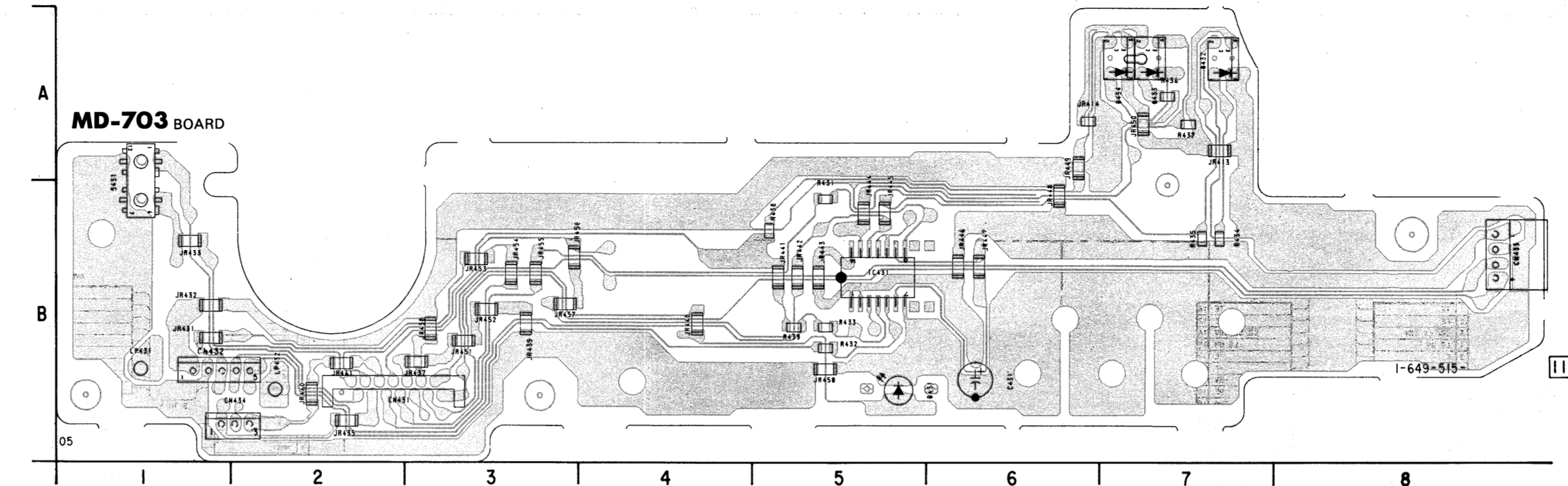
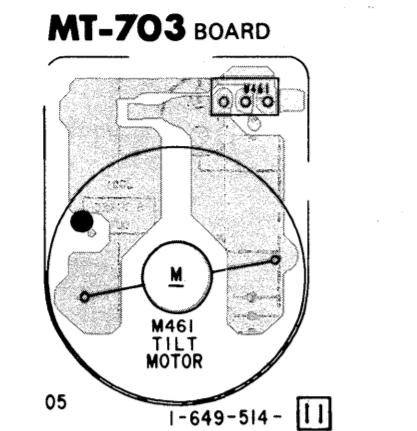
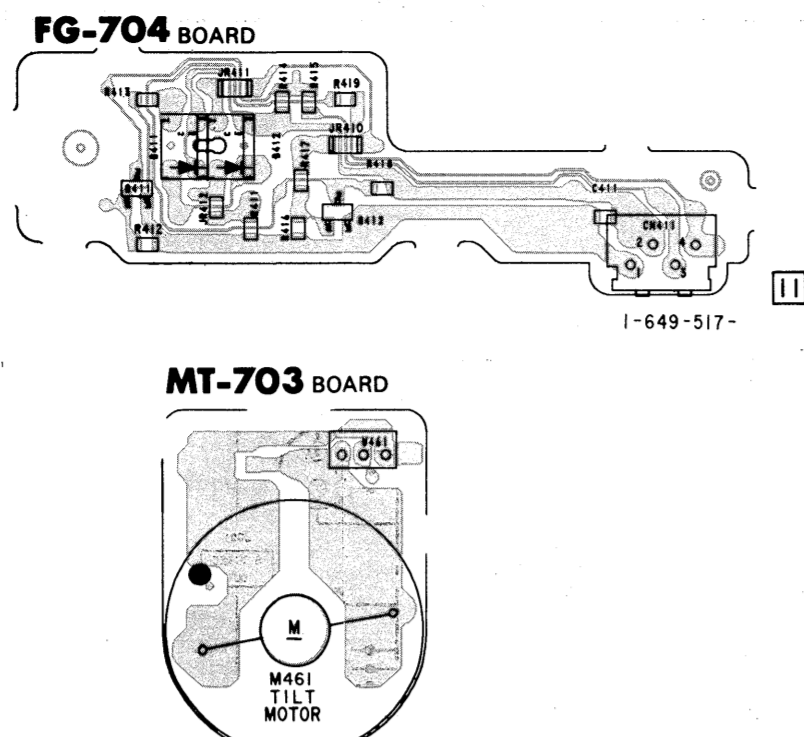
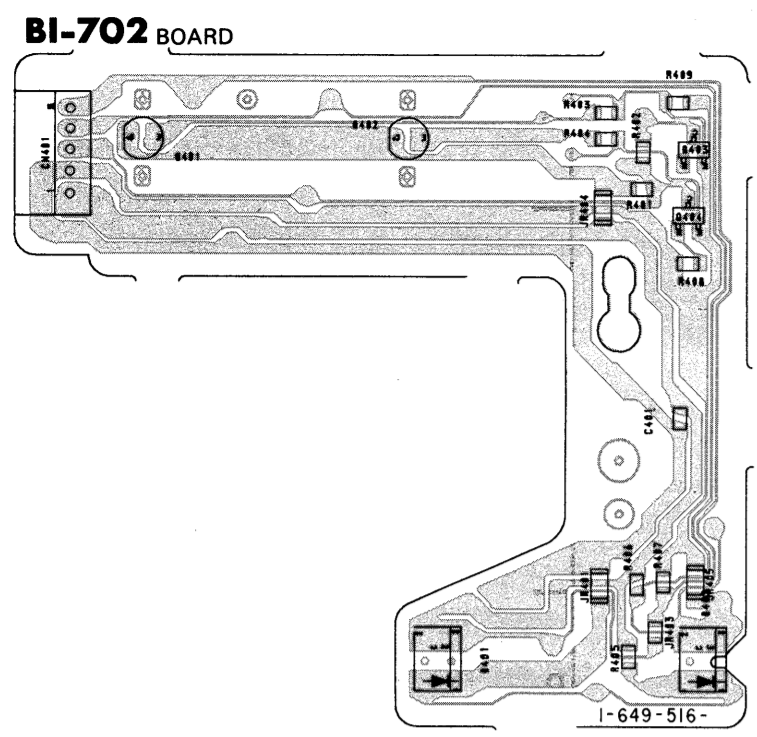
- For schematic diagram:
- Caution when replacing chip parts. New parts must be attached after removal of chip. Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
 - All resistors are in ohms, 1/4W (Chip resistors: 1/10W) unless otherwise noted. kΩ: 1000Ω, 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 color-bar signal playback.*
 - Readings are taken with a digital multimeter (DC10MΩ).*
 - Voltage variations may be noted due to normal production tolerances.
 - : IN/OUT direction of B line (+, -, ...)*
 - : 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.

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

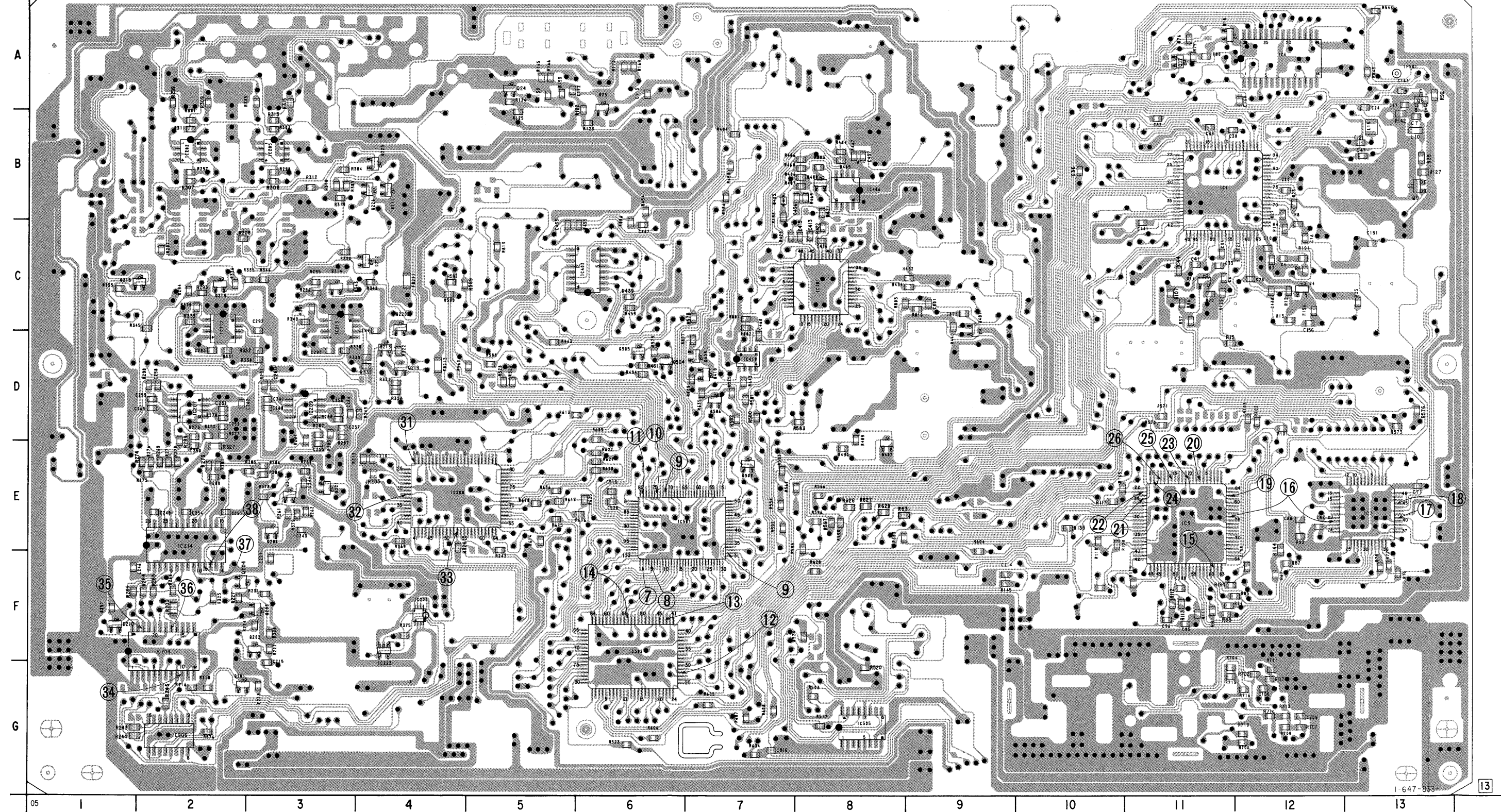
* : indicated by the color red.



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

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

MB-702 BOARD (COMPONENT SIDE)



MB-702 BOARD (CONDUCTOR SIDE)



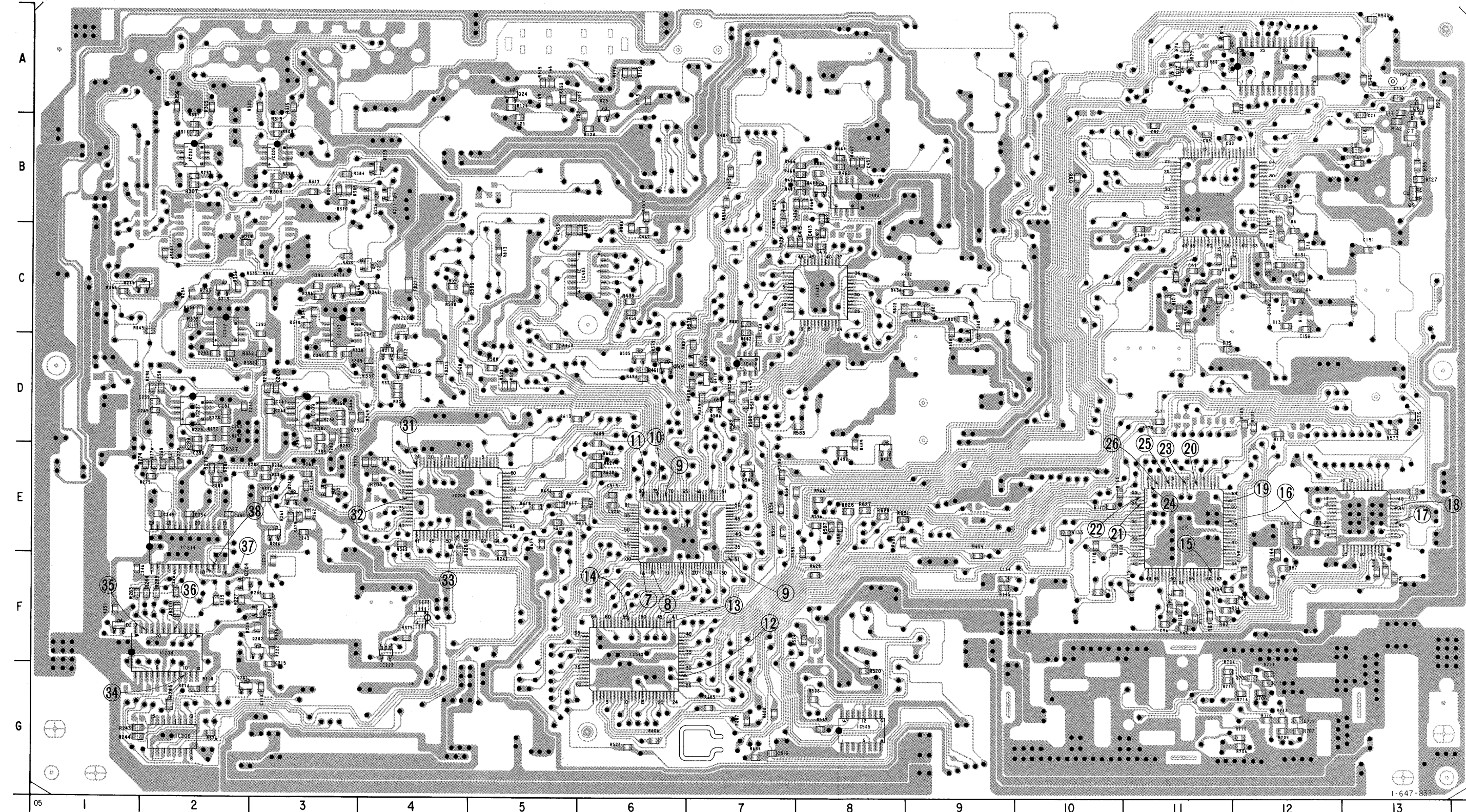
MB-702 BOARD

CN103	D-16	Q001	C-16
CN104	F-16	Q002	C-16
CN201	B-27	Q003	D-16
CN203	C-27	Q004	C-12
CN204	C-27	Q005	B-17
CN205	E-27	Q006	A-13
CN206	D-27	Q007	C-16
CN401	B-21	Q008	B-18
CN402	A-20	Q009	B-13
CN403	B-24	Q010	B-15
CN501	E-27	Q011	C-11
CN502	D-27	Q012	B-15
CN503	D-15	Q013	C-17
CN504	B-15	Q014	C-15
CN505	E-18	Q015	C-15
CN702	G-15	Q016	D-15
		Q017	A-11
D002	B-16	Q018	A-11
D003	A-16	Q019	A-17
D004	C-18	Q020	A-17
D006	E-18	Q023	A-24
D201	F-24	Q024	A-5
D202	E-24	Q025	A-6
D203	E-25	Q026	E-18
D205	A-25	Q027	B-24
D208	A-26	Q028	E-17
D207	E-25	Q030	A-23
D208	D-24	Q031	E-17
D209	D-24	Q032	A-24
D210	F-1	Q033	A-23
D213	D-4	Q034	A-22
D401	D-22	Q035	A-22
D402	C-23	Q039	E-16
D405	B-7	Q040	A-18
D407	E-8	Q041	B-18
D502	A-18	Q042	B-18
D503	G-21	Q201	G-2
D504	A-17	Q202	F-3
D506	D-7	Q203	F-3
D507	F-21	Q204	F-2
D703	G-17	Q205	E-24
D704	G-17	Q206	E-3
		Q207	A-28
IC001	B-11	Q208	A-28
IC003	E-13	Q209	A-24
IC004	A-12	Q210	A-28
IC005	E-11	Q211	B-4
IC007	F-17	Q212	C-4
IC201	A-21	Q213	C-2
IC202	B-2	Q214	C-3
IC203	G-24	Q215	C-1
IC204	F-2	Q217	E-3
IC205	B-3	Q218	E-3
IC206	G-2	Q219	D-4
IC207	D-2	Q220	C-4
IC208	E-4	Q221	E-3
IC209	D-3	Q225	B-4
IC210	B-24	Q226	B-4
IC211	E-23	Q401	C-9
IC212	C-2	Q403	A-19
IC213	C-3	Q404	A-19
IC214	E-2	Q405	B-19
IC215	D-26	Q406	A-19
IC220	E-27	Q408	B-8
IC222	F-4	Q409	D-7
IC223	F-4	Q410	D-7
IC401	C-8	Q411	C-20
IC402	B-22	Q501	C-24
IC403	C-8	Q502	E-7
IC404	C-23	Q503	C-22
IC405	C-22	Q504	D-6
IC406	B-8	Q505	D-6
IC407	D-20	Q701	F-17
IC408	C-22	Q702	G-17
IC410	D-7		
IC501	E-6		
IC502	F-6		
IC503	A-19		
IC504	G-20		
IC505	G-8		
IC506	F-20		
IC701	G-16		

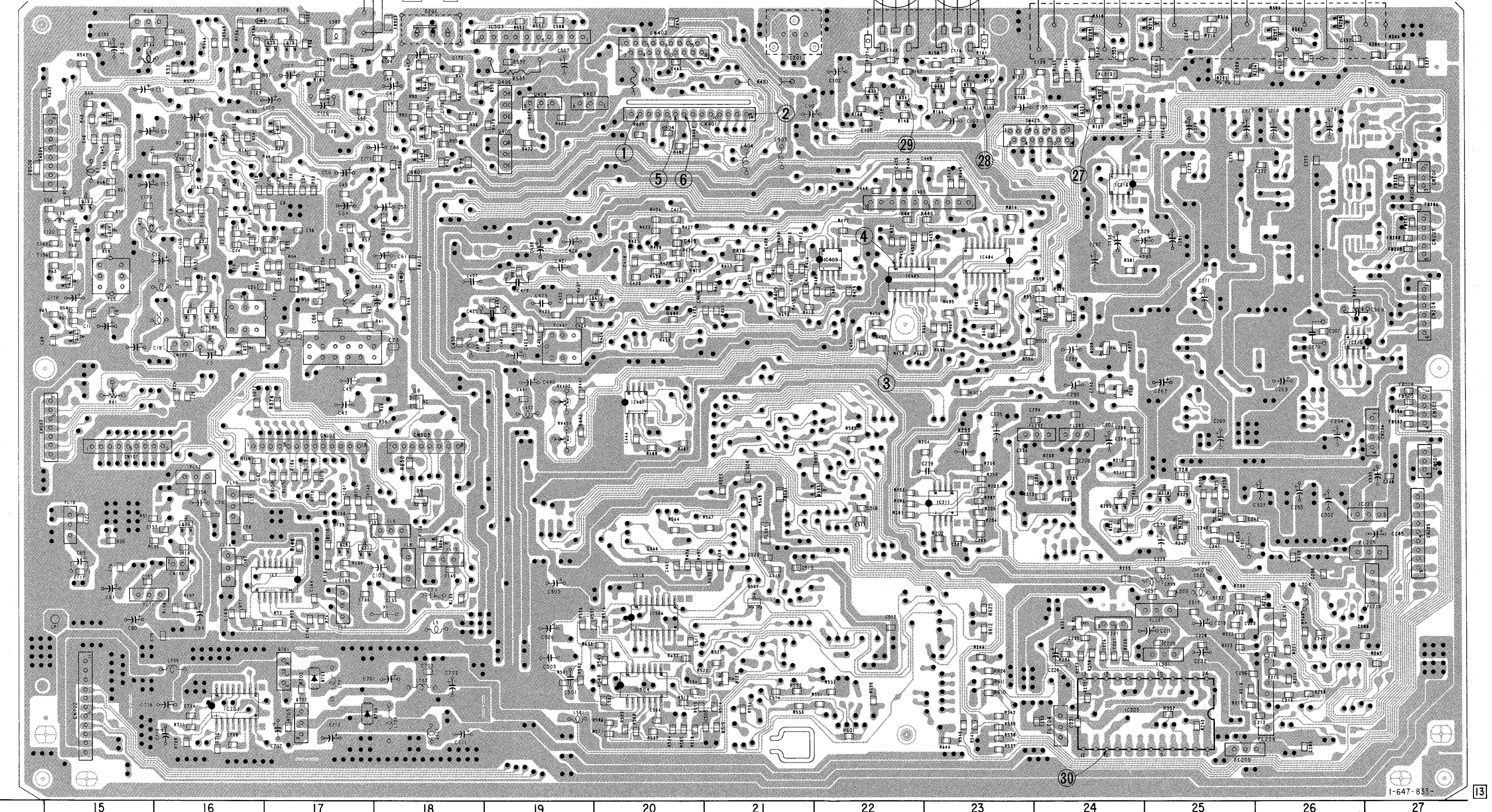
MB-702 BOARD

CN103	D-16	Q001	C-16
CN104	F-16	Q002	C-16
CN201	B-27	Q003	D-16
CN203	C-27	Q004	C-12
CN204	C-27	Q005	B-17
CN205	E-27	Q006	A-13
CN206	D-27	Q007	C-16
CN401	B-21	Q008	B-18
CN402	A-20	Q009	B-13
CN403	B-24	Q010	B-15
CN401	E-21	Q011	C-11
CN502	D-27	Q012	B-15
CN503	D-15	Q013	C-17
CN504	B-15	Q014	C-15
CN605	E-18	Q015	C-15
CN702	G-15	Q016	D-15
		Q017	A-11
		Q018	A-11
D002	B-16	Q019	A-17
D003	A-16	Q020	A-17
D004	C-18	Q021	A-17
D006	E-18	Q022	A-24
D201	F-24	Q023	A-5
D202	E-24	Q024	A-5
D203	E-25	Q025	A-5
D205	A-25	Q026	E-18
D206	A-26	Q027	B-24
D207	A-26	Q028	E-17
D208	D-24	Q029	A-23
D209	D-24	Q030	E-17
D210	F-1	Q031	A-24
D213	D-4	Q032	A-24
D401	C-23	Q033	A-23
D402	C-23	Q034	A-22
D405	B-7	Q035	B-23
D407	E-8	Q036	E-16
D502	A-16	Q040	A-18
D503	G-21	Q041	B-18
D504	A-17	Q042	B-18
D506	D-7	Q201	C-2
D507	F-21	Q202	F-3
D703	C-17	Q203	F-3
D704	G-17	Q204	F-2
		Q205	E-24
		Q206	E-3
		Q207	A-26
IC001	B-11	Q208	A-26
IC003	C-13	Q209	A-26
IC004	A-12	Q210	A-25
IC005	E-11	Q211	B-4
IC007	F-17	Q212	C-4
IC201	A-21	Q213	C-4
IC202	B-2	Q214	C-3
IC203	G-24	Q215	C-1
IC204	F-2	Q216	E-3
IC205	B-3	Q217	E-3
IC206	G-2	Q218	E-15
IC207	D-2	Q219	D-4
IC208	E-4	Q220	C-4
IC209	D-3	Q221	E-3
IC210	B-24	Q222	B-4
IC211	E-23	Q401	C-9
IC212	C-2	Q403	A-19
IC213	C-3	Q404	A-19
IC214	E-2	Q405	B-9
IC215	D-26	Q406	A-19
IC220	E-27	Q408	B-8
IC222	F-4	Q409	D-7
IC223	F-4	Q410	D-7
IC401	C-8	Q411	C-20
IC402	B-22	Q501	C-24
IC403	C-8	Q502	E-7
IC404	C-23	Q503	C-23
IC405	C-22	Q504	D-5
IC408	B-8	Q505	D-6
IC407	D-20	Q701	F-17
IC409	C-22	Q702	G-17
IC410	D-7		
IC501	E-6		
IC502	F-8		
IC503	A-19		
IC504	G-20		
IC505	G-8		
IC506	F-20		
IC701	G-16		

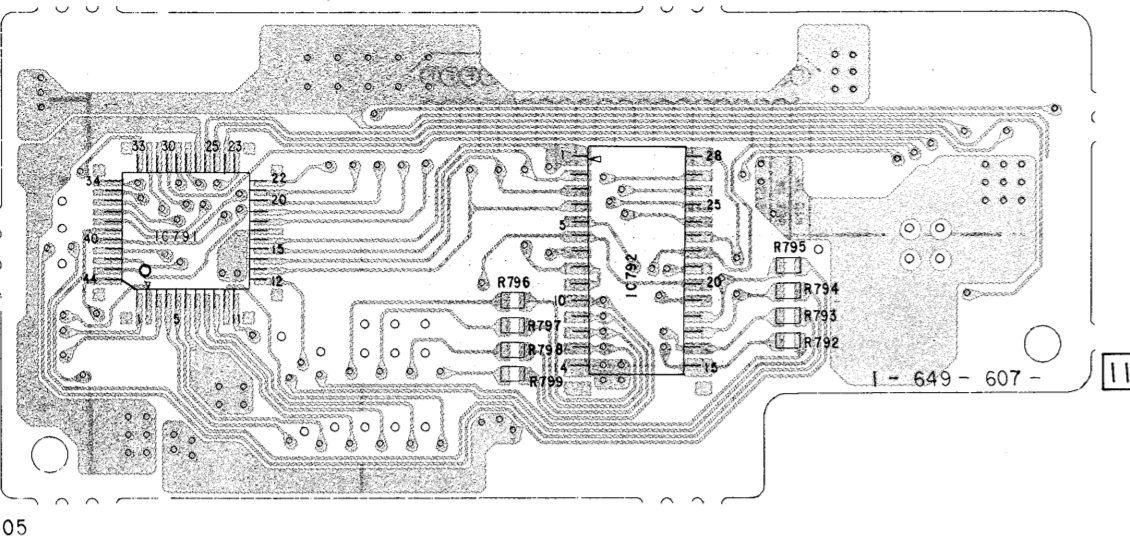
MB-702 BOARD (COMPONENT SIDE)



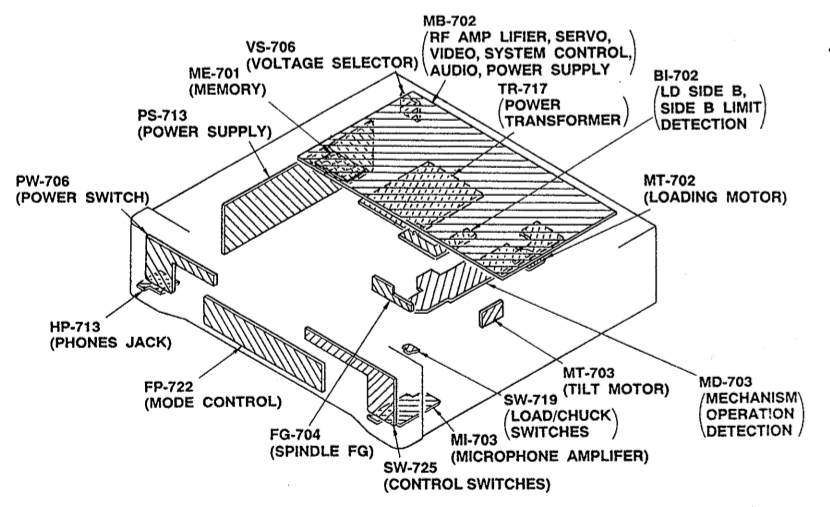
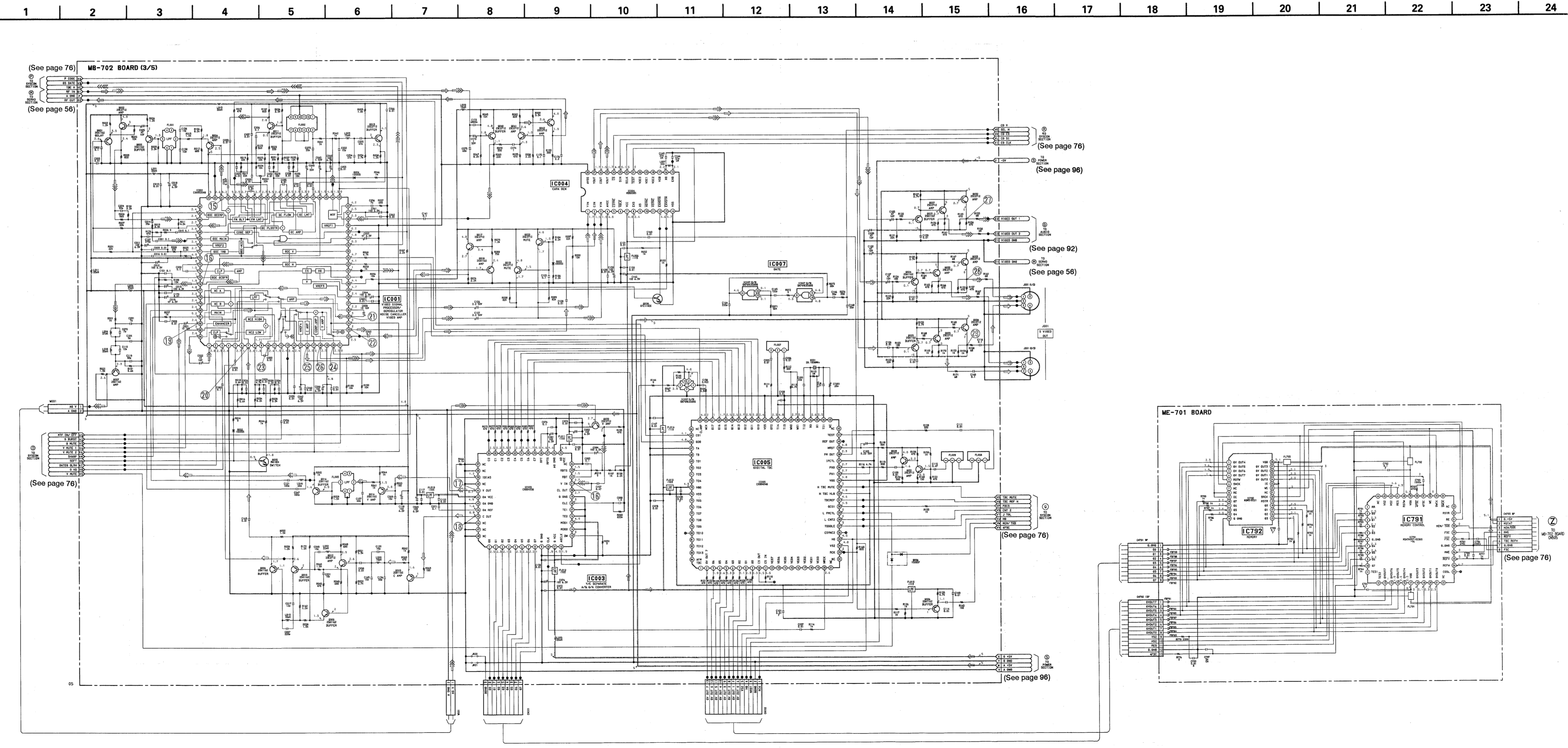
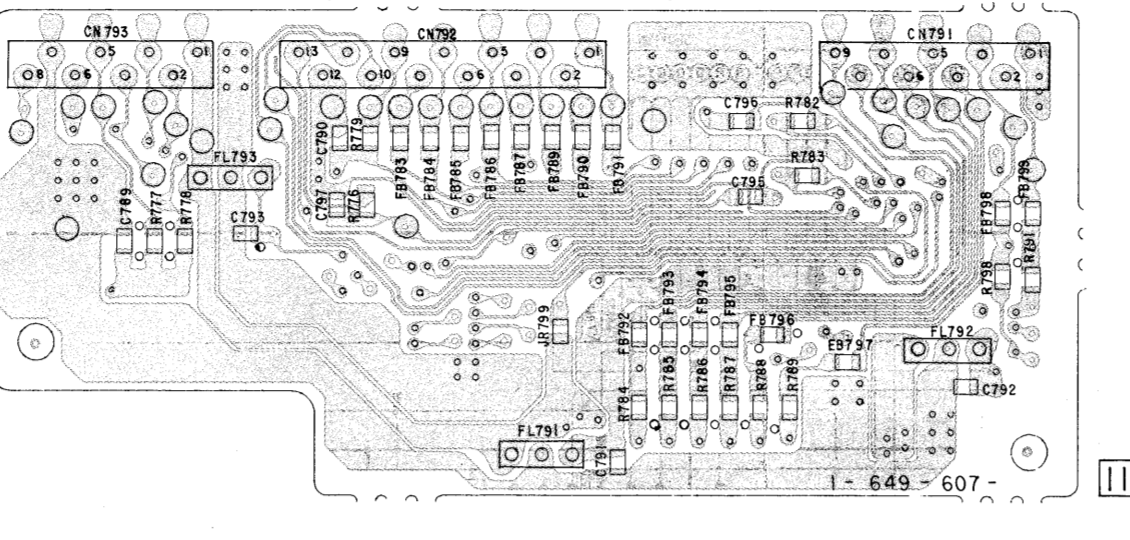
MB-702 BOARD (CONDUCTOR SIDE)



ME-701 BOARD (COMPONENT SIDE)



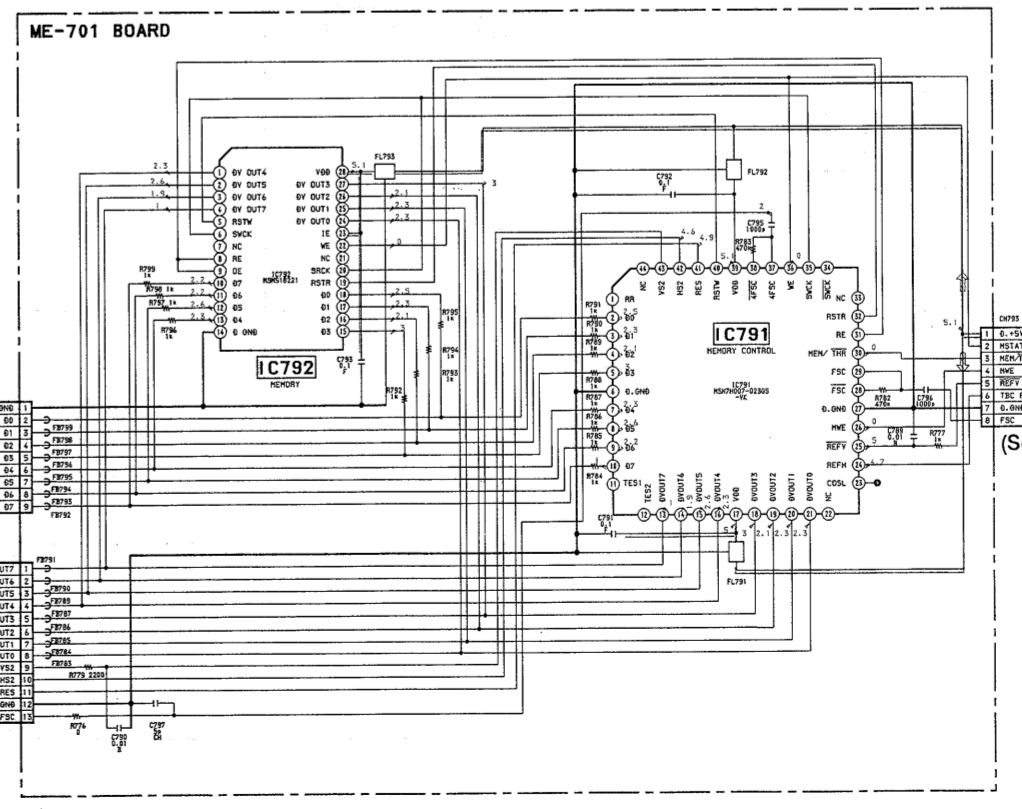
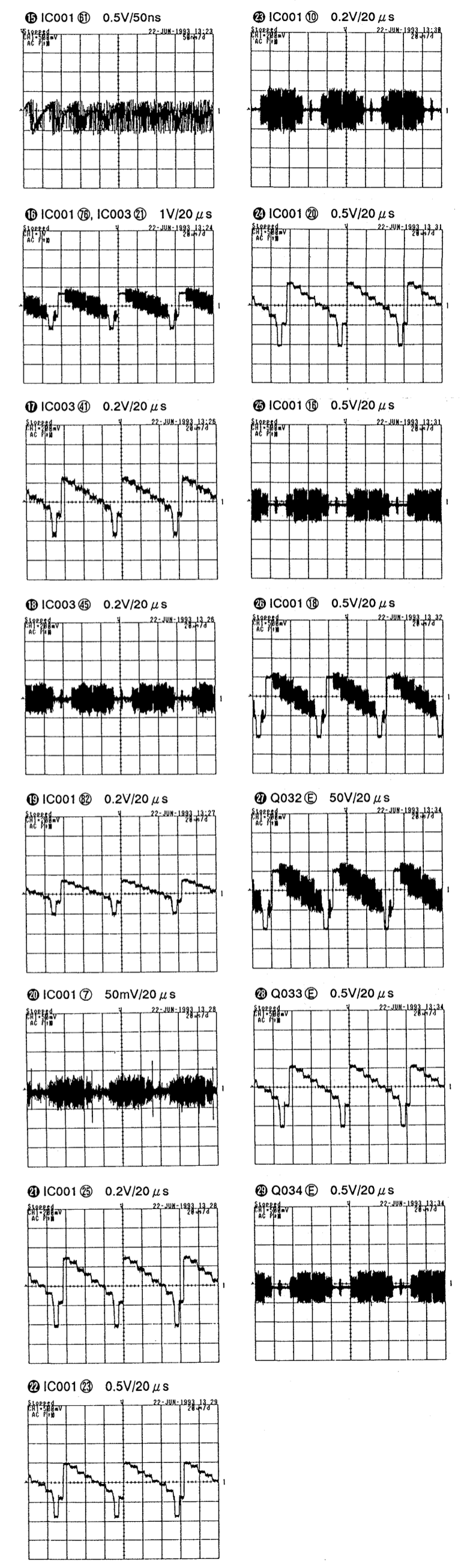
ME-701 BOARD (CONDUCTOR SIDE)

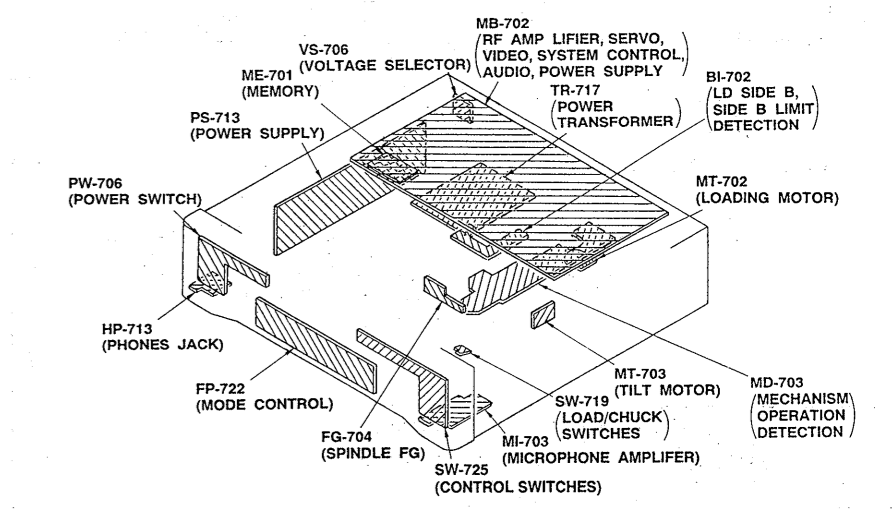
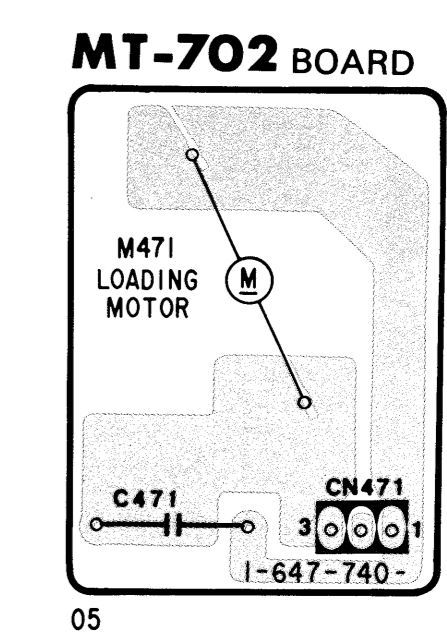
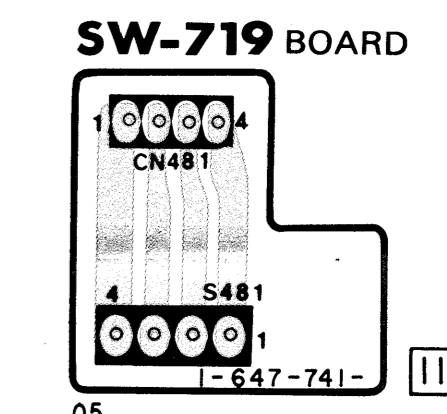
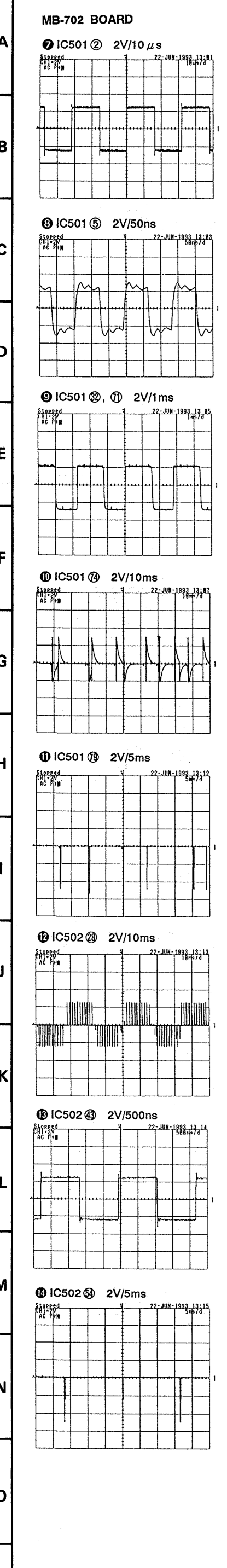
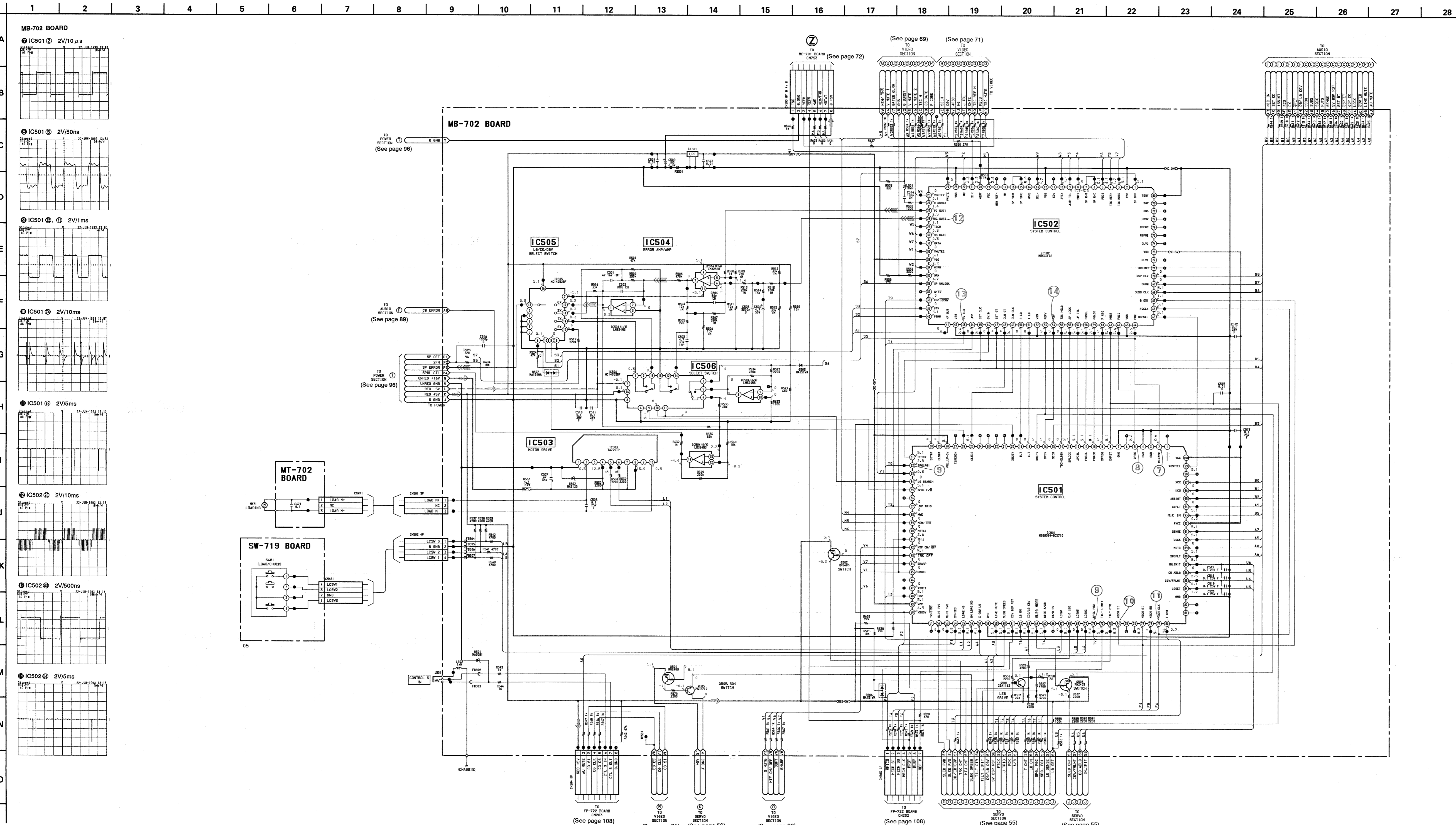


	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	YCHROMA	
PB	⇐	⇒	⇒⇒	⇒

SPINDLE PHASE SERVO	⇒⇒
SPINDLE SERVO (SPEED AND PHASE)	⇒⇒⇒
TRACKING SERVO LD/CD/CDV	⇒⇒⇒
SLIDE SERVO LD/CD	⇒⇒
FOCUS SERVO LD/CD	⇒
SKEW SERVO LD TILT	⇒

MB-702 BOARD





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	▶▶▶▶

MB-702 BOARD (COMPONENT SIDE)



MB-702 BOARD (CONDUCTOR SIDE)



MB-702 BOARD

CN103	D-16	Q001	C-16
CN104	F-16	Q002	C-16
CN201	B-27	Q003	D-16
CN203	C-27	Q004	C-12
CN204	C-27	Q005	B-17
CN205	E-27	Q006	A-13
CN206	D-27	Q007	C-16
CN401	B-21	Q008	B-18
CN402	A-20	Q009	B-13
CN403	B-24	Q010	B-15
CN501	E-27	Q011	C-11
CN502	D-27	Q012	B-15
CN503	D-15	Q013	C-17
CN504	B-15	Q014	C-15
CN505	E-18	Q015	C-15
CN702	G-15	Q016	D-15
		Q017	A-11
D002	B-16	Q018	A-11
D003	A-16	Q019	A-17
D004	C-18	Q020	A-17
D006	E-18	Q023	A-24
D201	F-24	Q024	A-5
D202	E-24	Q025	A-6
D203	E-25	Q026	E-18
D205	A-25	Q027	B-24
D206	A-26	Q028	E-17
D207	E-26	Q030	A-23
D208	D-24	Q031	E-17
D209	D-4	Q032	A-24
D210	F-1	Q033	A-23
D213	D-4	Q034	A-22
D401	C-23	Q035	A-22
D402	C-23	Q038	E-16
D405	B-7	Q040	A-18
D407	E-8	Q041	B-18
D502	A-18	Q042	B-18
D503	G-21	Q201	G-2
D504	A-17	Q202	F-3
D506	D-7	Q203	F-3
D507	F-21	Q204	F-2
D703	G-17	Q205	E-24
D704	G-17	Q206	E-3
		Q207	A-26
IC001	B-11	Q208	A-26
IC003	E-13	Q209	A-24
IC094	A-12	Q210	A-25
IC005	E-11	Q211	B-4
IC007	F-17	Q212	C-4
IC201	A-21	Q213	C-2
IC202	B-2	Q214	C-3
IC203	G-24	Q215	C-1
IC204	F-2	Q217	E-3
IC205	B-3	Q218	E-25
IC206	G-2	Q219	D-4
IC207	D-2	Q220	C-4
IC208	E-4	Q221	E-3
IC209	D-3	Q225	B-4
IC210	B-24	Q226	B-4
IC211	E-23	Q401	C-9
IC212	C-2	Q403	A-19
IC213	C-3	Q404	A-19
IC214	E-2	Q405	B-19
IC215	D-26	Q406	A-19
IC220	E-21	Q407	D-7
IC222	F-4	Q409	D-7
IC223	F-4	Q410	D-7
IC401	C-8	Q411	C-20
IC402	B-22	Q502	C-24
IC403	C-8	Q502	E-7
IC404	C-23	Q503	E-22
IC405	C-22	Q504	D-6
IC406	E-6	Q505	D-6
IC407	F-20	Q701	F-17
IC409	C-22	Q702	G-17
IC410	D-7		
IC501	E-6		
IC502	F-6		
IC503	A-19		
IC504	G-20		
IC505	G-8		
IC506	F-20		
IC701	G-16		

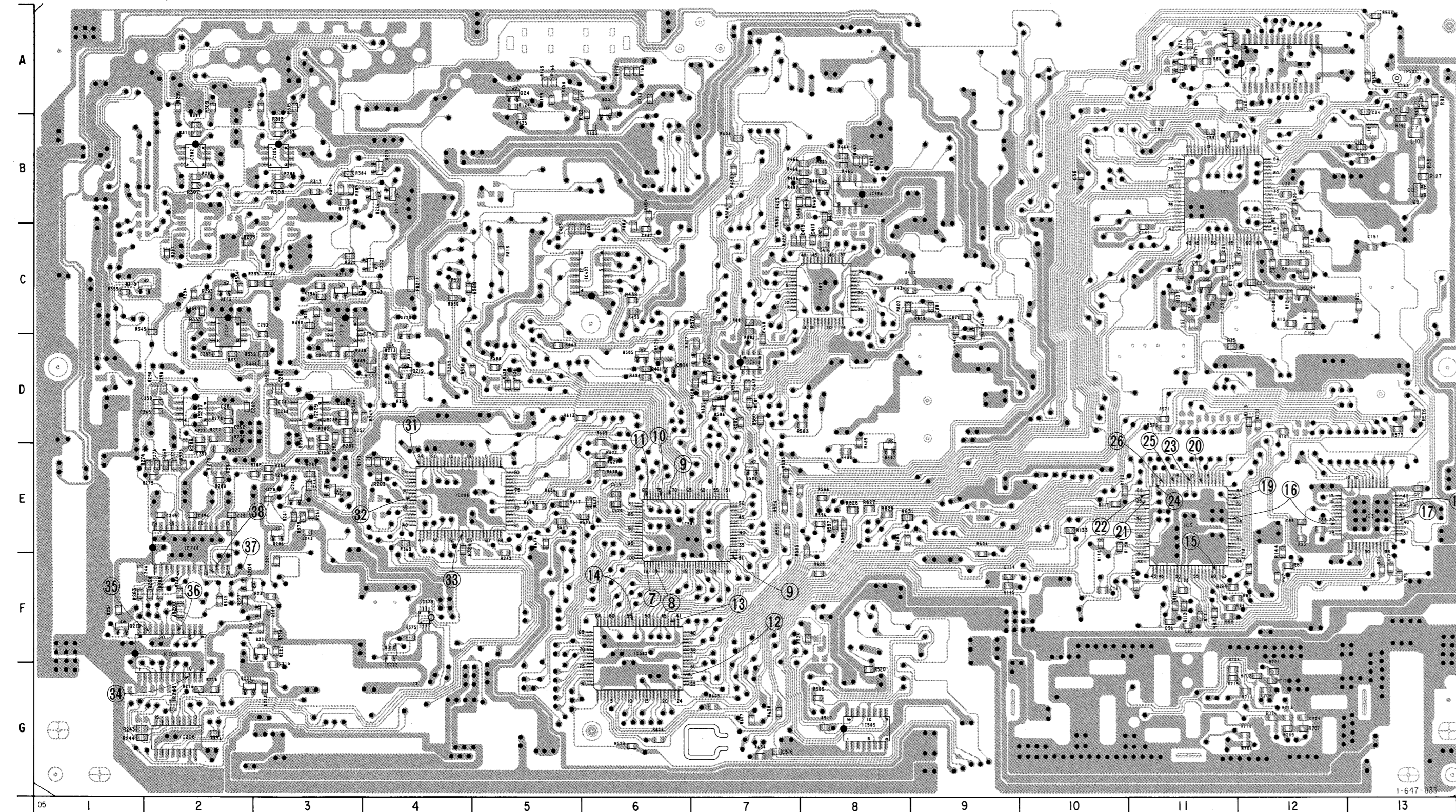
MB-702 (AUDIO) PRINTED WIRING BOARD

- Ref. No.: MB-702 Board; 1,000 series -

MB-702 BOARD

CN103	D-16	0001	C-16
CN104	F-16	0002	C-16
CN201	B-27	0003	D-16
CN203	C-27	0004	C-12
CN204	C-27	0005	B-17
CN205	C-27	0006	C-13
CN206	D-27	0007	C-16
CN401	B-21	0008	B-18
CN402	A-20	0009	B-13
CN403	B-24	0010	B-16
CN501	E-27	0011	C-11
CN502	D-27	0012	B-15
CN503	D-15	0013	C-17
CN504	B-15	0014	C-15
CN505	E-18	0015	C-15
CN702	G-15	0016	D-15
		0017	A-11
D002	B-16	0018	A-11
D003	A-18	0019	A-17
D004	C-18	0020	A-17
D006	E-18	0023	A-24
D201	F-24	0024	A-5
D202	E-24	0025	A-6
D203	E-25	0026	E-18
D205	A-25	0027	B-24
D206	A-26	0028	E-17
D207	E-25	0029	A-23
D208	D-24	0031	E-17
D209	D-24	0032	A-24
D210	F-1	0033	A-23
D213	D-4	0034	A-22
D401	C-23	0035	A-22
D402	C-23	0039	E-18
D405	B-7	0040	A-18
D407	E-8	0041	B-18
D502	A-18	0042	B-18
D503	G-21	0201	G-2
D504	A-17	0202	F-3
D506	D-7	0203	F-3
D507	F-21	0204	F-2
D703	G-17	0205	E-24
D704	G-17	0206	E-3
		0207	A-28
IC001	B-11	0208	A-20
IC003	E-13	0209	A-24
IC004	A-12	0210	A-25
IC005	E-11	0211	B-4
IC007	F-17	0212	C-4
IC201	A-21	0213	C-2
IC202	B-2	0214	C-3
IC203	G-24	0215	C-1
IC204	F-2	0217	E-3
IC205	B-3	0218	E-25
IC206	G-2	0219	D-4
IC207	D-2	0220	C-4
IC208	E-4	0221	E-3
IC209	D-3	0225	A-2
IC210	B-24	0226	B-4
IC211	E-23	0401	C-9
IC212	C-2	0403	A-19
IC213	C-3	0404	A-19
IC214	E-2	0405	B-19
IC215	D-26	0406	A-19
IC220	E-27	0408	B-8
IC222	F-4	0701	F-17
IC223	F-4	0702	G-17
IC401	C-8	0411	C-20
IC402	B-22	0501	C-24
IC403	C-9	0504	D-6
IC404	C-23	0503	E-22
IC405	C-22	0504	D-6
IC406	B-8	0505	D-6
IC407	D-20	0701	F-17
IC409	C-22	0702	G-17
IC410	D-7		
IC501	E-6		
IC502	F-6		
IC503	A-19		
IC504	G-20		
IC505	G-8		
IC506	F-20		
IC701	G-16		

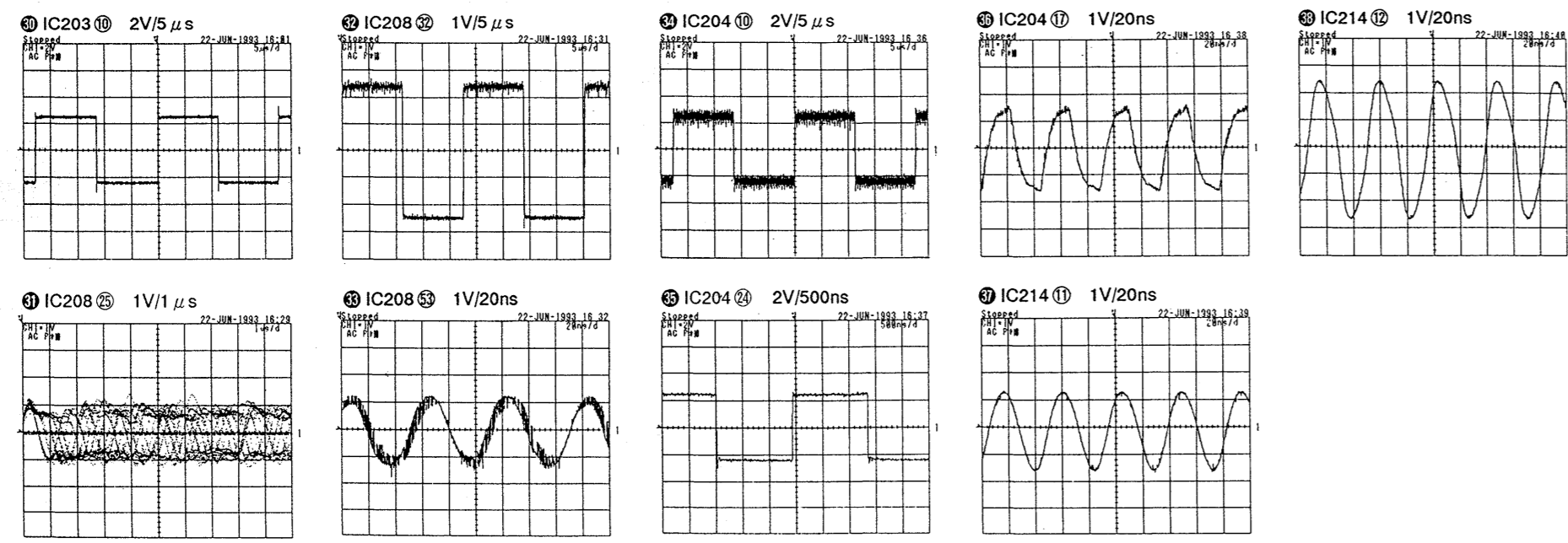
MB-702 BOARD (COMPONENT SIDE)



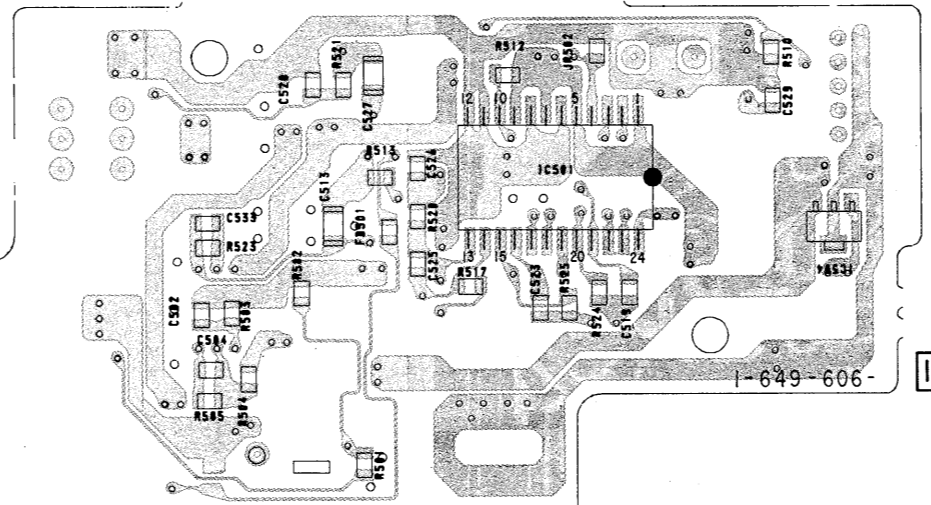
MB-702 BOARD (CONDUCTOR SIDE)



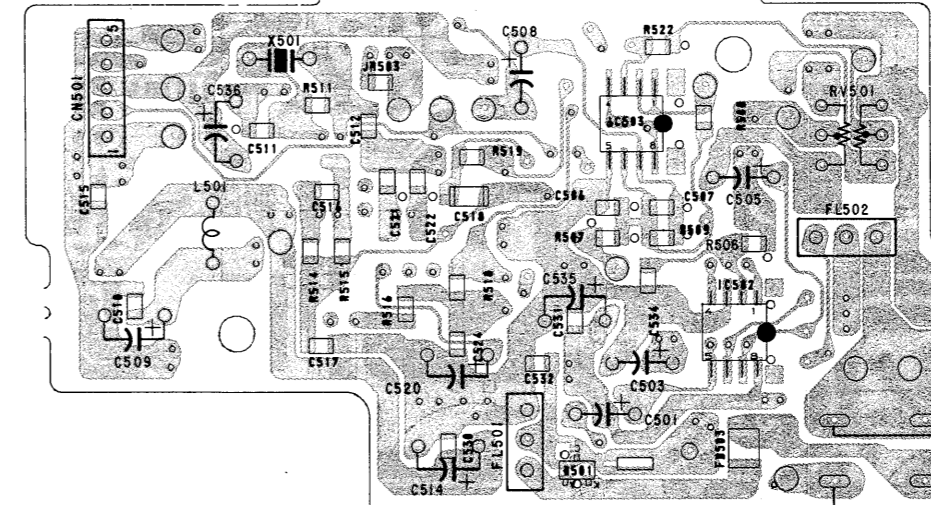
MB-702 BOARD



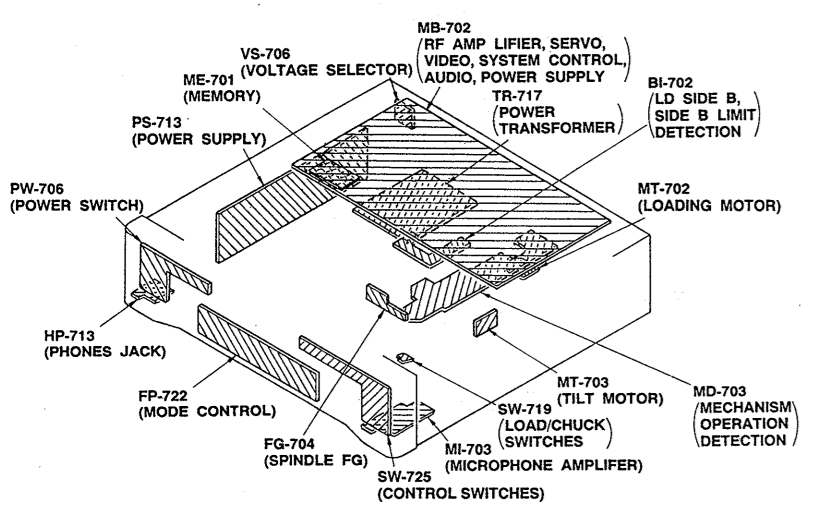
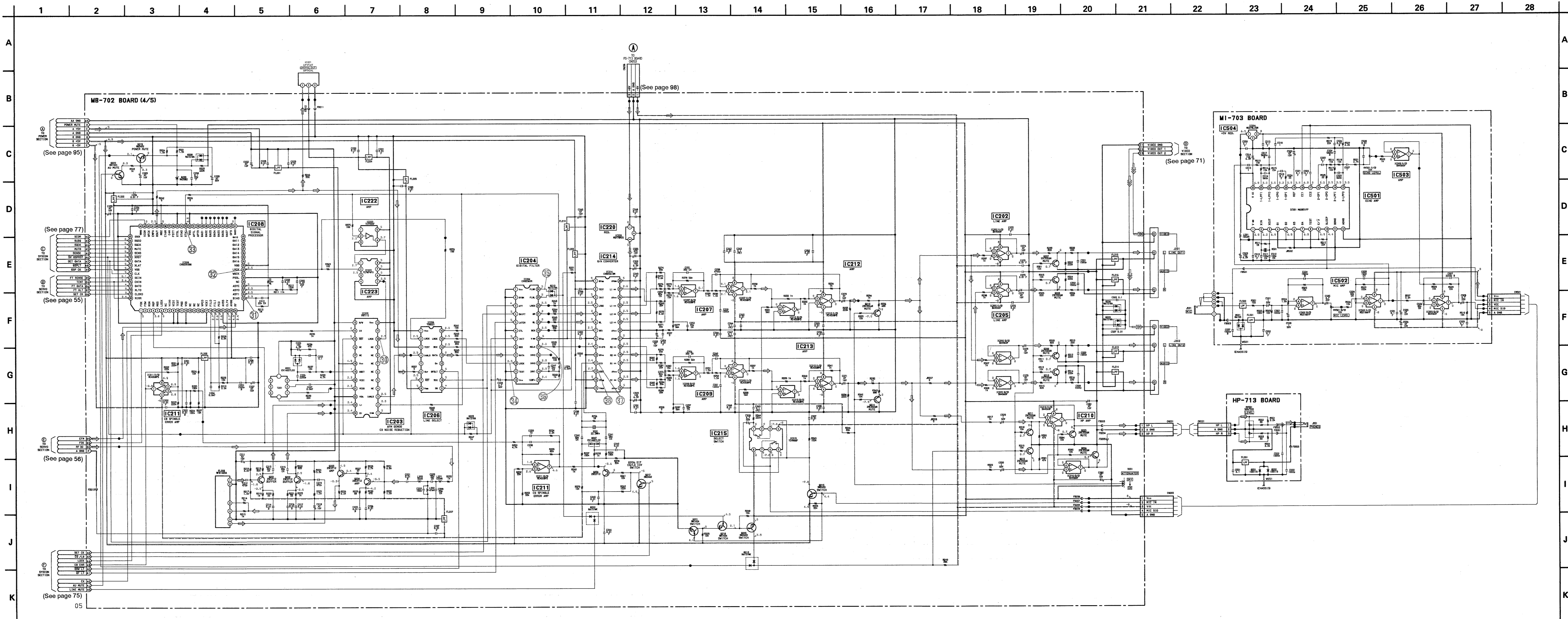
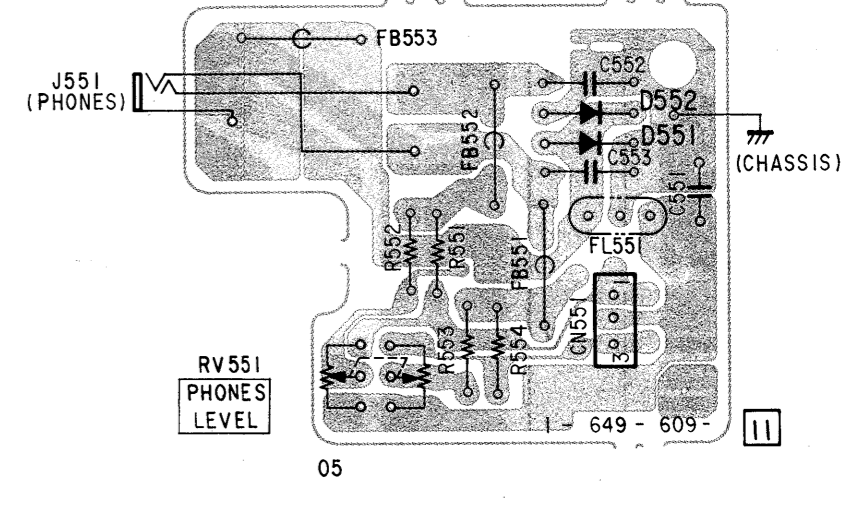
MI-703 BOARD (COMPONENT SIDE)



MI-703 BOARD (CONDUCTOR SIDE)



HP-713 BOARD



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

MB-702 BOARD (COMPONENT SIDE)



MB-702 BOARD (CONDUCTOR SIDE)

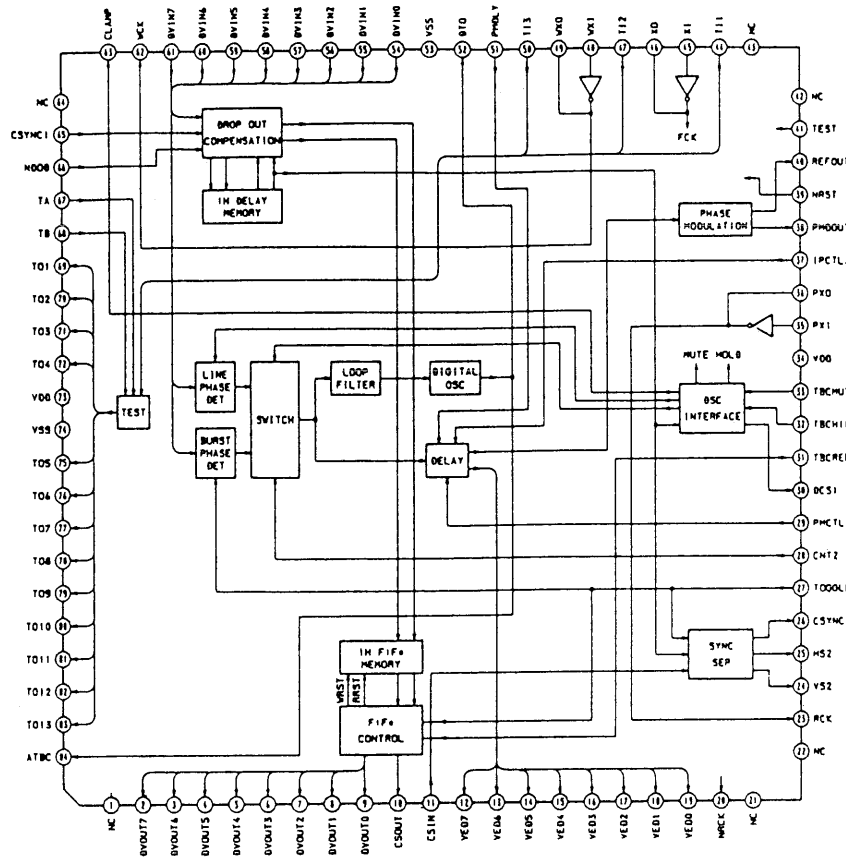


MB-702 BOARD

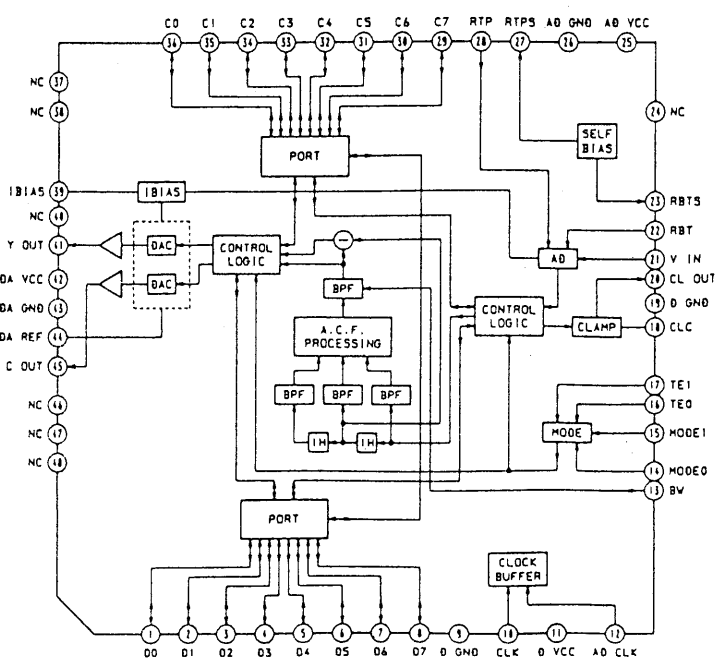
CN103	D-16	O001	C-16
CN104	F-16	O002	C-16
CN201	B-27	O003	D-16
CN203	C-27	O004	C-12
CN204	C-27	O005	B-17
CN205	E-27	O006	A-13
CN206	D-27	O007	C-16
CN401	B-21	O008	B-18
CN402	A-20	O009	B-13
CN403	B-24	O010	B-15
CN501	E-27	O011	C-11
CN502	D-27	O012	B-15
CN503	D-15	O013	C-17
CN504	B-15	O014	C-15
CN505	E-18	O015	C-15
CN702	G-15	O016	D-15
		O017	A-11
D002	B-16	O018	A-11
D003	A-16	O019	A-17
D004	C-18	O020	A-17
D006	E-18	O023	A-24
D201	F-24	O024	A-5
D202	E-24	O025	A-6
D203	E-25	O026	E-6
D204	A-26	O027	B-24
D206	A-26	O028	E-17
D207	E-25	O030	A-23
D208	D-24	O031	E-17
D209	C-24	O032	A-24
D210	F-1	O033	A-23
D213	D-4	O034	A-22
D401	C-23	O035	A-22
D402	C-23	O036	E-18
D405	B-7	O040	A-18
D407	E-8	O041	B-18
D502	A-18	O042	B-18
D503	D-11	O201	G-2
D504	A-17	O202	F-3
D506	D-7	O203	F-3
D507	F-21	O204	F-2
D703	G-17	O205	E-24
D704	G-17	O206	E-3
		O207	A-26
IC001	B-11	O208	A-26
IC003	E-13	O209	A-24
IC004	A-12	O210	A-25
IC005	E-11	O211	B-4
IC007	F-17	O212	C-4
IC201	A-21	O213	C-2
IC202	E-2	O214	C-3
IC203	G-24	O215	C-1
IC204	F-2	O217	E-3
IC205	B-3	O218	E-25
IC206	C-2	O219	D-4
IC207	D-2	O220	C-4
IC208	E-4	O221	E-3
IC209	D-3	O225	B-4
IC210	B-24	O226	B-4
IC211	E-23	O401	C-9
IC212	C-2	O403	A-19
IC213	C-3	O404	A-19
IC214	E-2	O405	B-19
IC215	D-26	O406	A-19
IC220	E-27	O408	B-8
IC222	F-4	O409	D-7
IC223	F-4	O410	D-7
IC401	C-8	O411	C-20
IC402	B-22	O501	C-24
IC403	C-6	O502	E-7
IC404	C-23	O503	C-22
IC405	C-22	O504	D-8
IC406	B-8	O505	D-6
IC407	D-20	O701	F-17
IC409	C-22	O702	G-17
IC410	D-7		
IC501	E-6		
IC502	F-6		
IC503	A-19		
IC504	C-20		
IC505	G-8		
IC506	F-20		
IC701	G-16		

• IC BLOCK DIAGRAMS

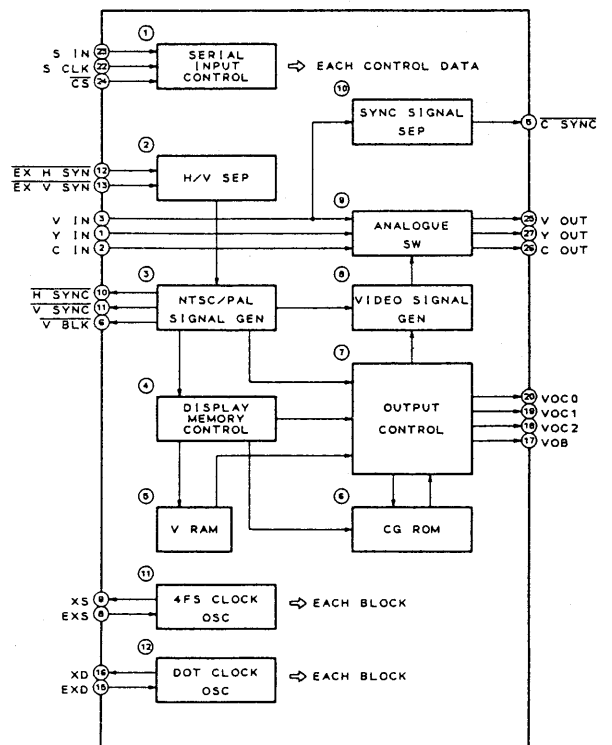
IC001 CXD8404Q (MB-702 Board)



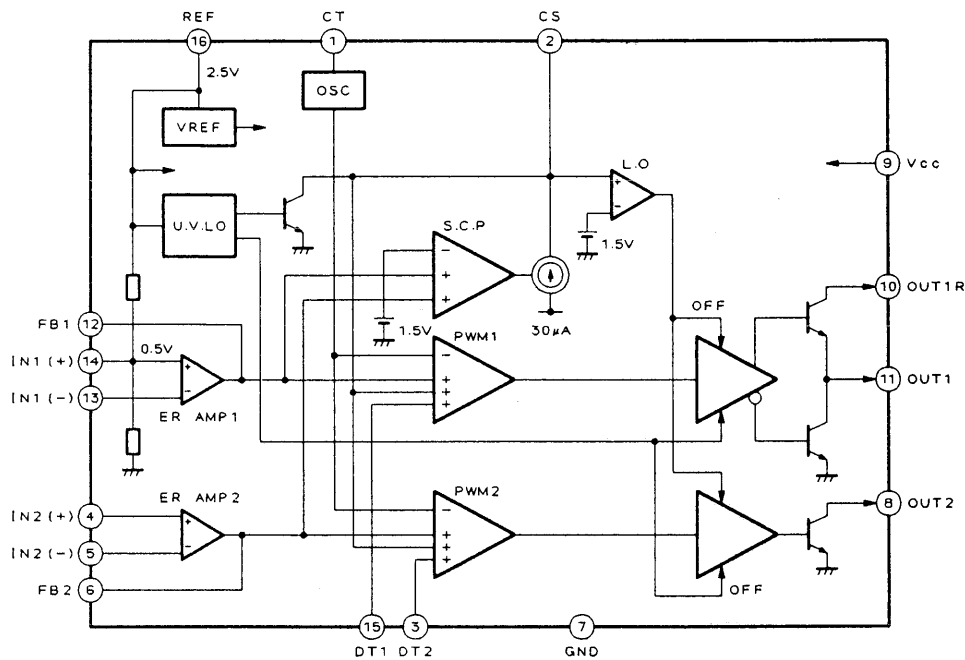
IC003 CXD8405Q (MB-702 Board)



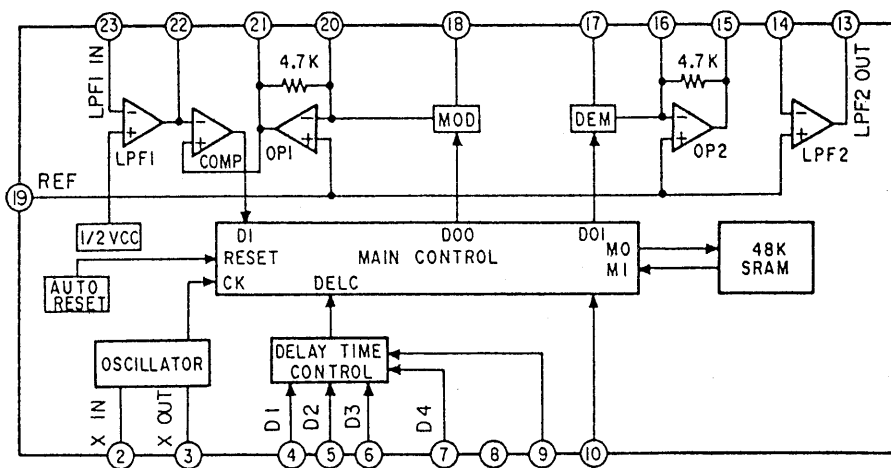
IC004 MB90085 (MB-702 Board)



IC701 FA7611M (MB-702 Board)

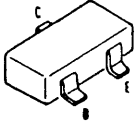


IC501 M65831FP-600C (MI-703 Board)

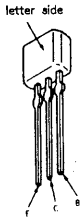


4-3. SEMICONDUCTORS

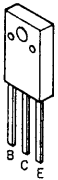
RN1404
RN2402
RN2403
2SA1162
2SC2712-G
2SC3326N



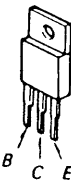
2SA1309A
2SC3311A



2SB1009R



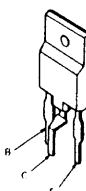
2SB1370



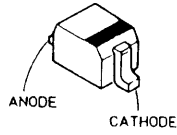
2SB734



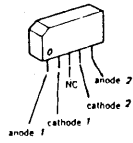
2SD2061



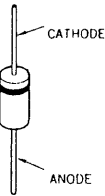
DTZ30B
EC10QS-04
1SS355



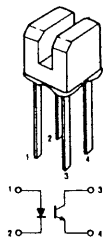
D3SBA10-4100



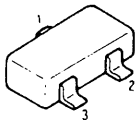
ERA81-004



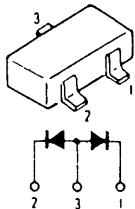
GP1S24



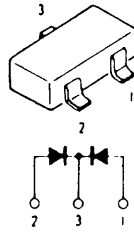
KV1460TL00



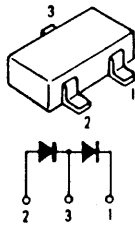
MA151WA



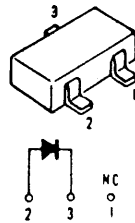
MA151WK



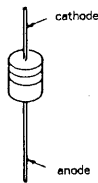
MA153



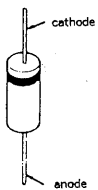
MA3047
MA3082
MA3091
MA3120



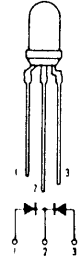
RD4.3ES-B2
RD5.1ES-B2
1SS119
11ES2



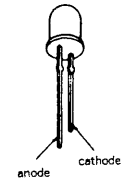
S3V40



SLR-305MCA47



SLR932A



SECTION 5
EXPLODED VIEWS

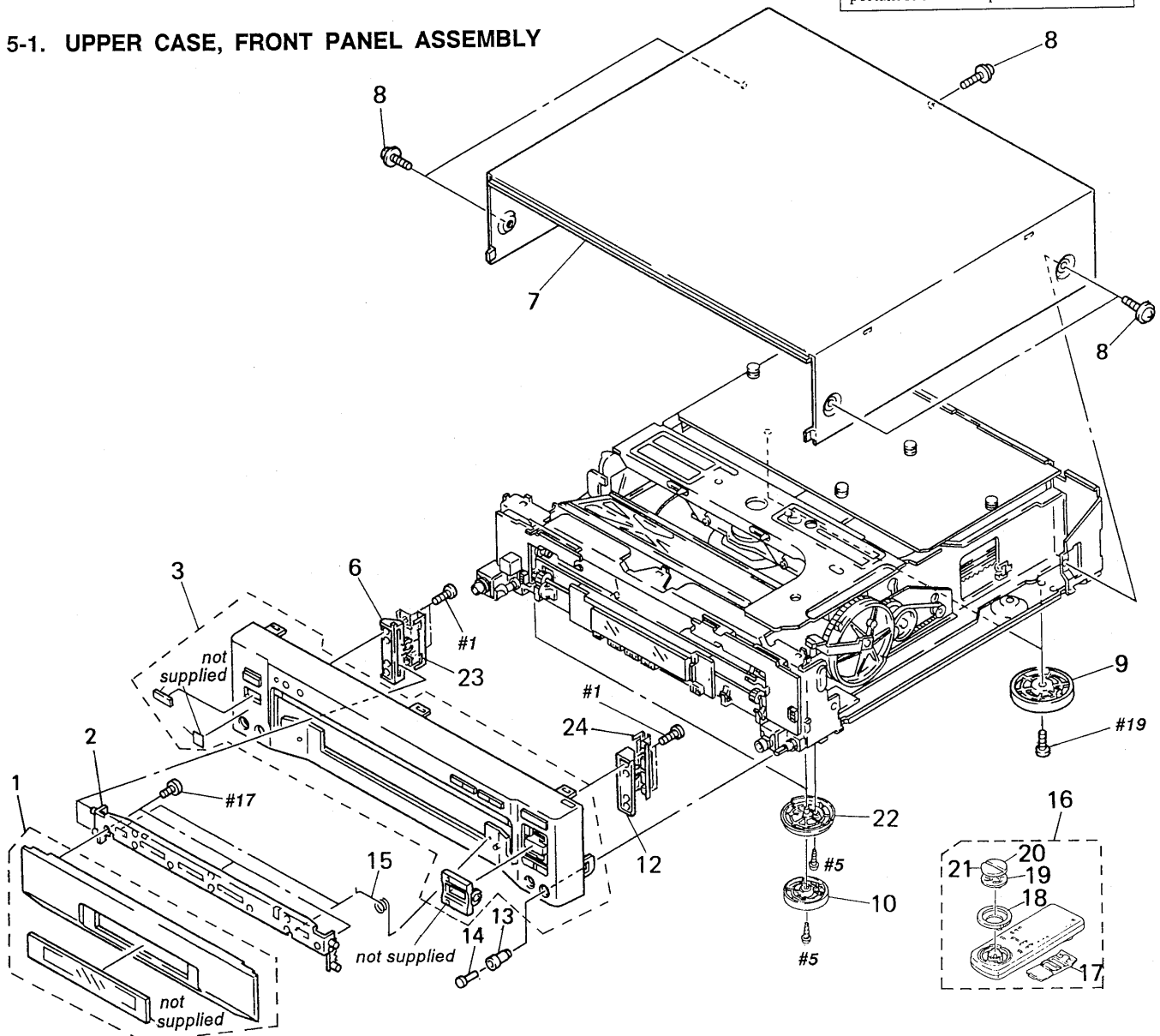
NOTE:

- 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.

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

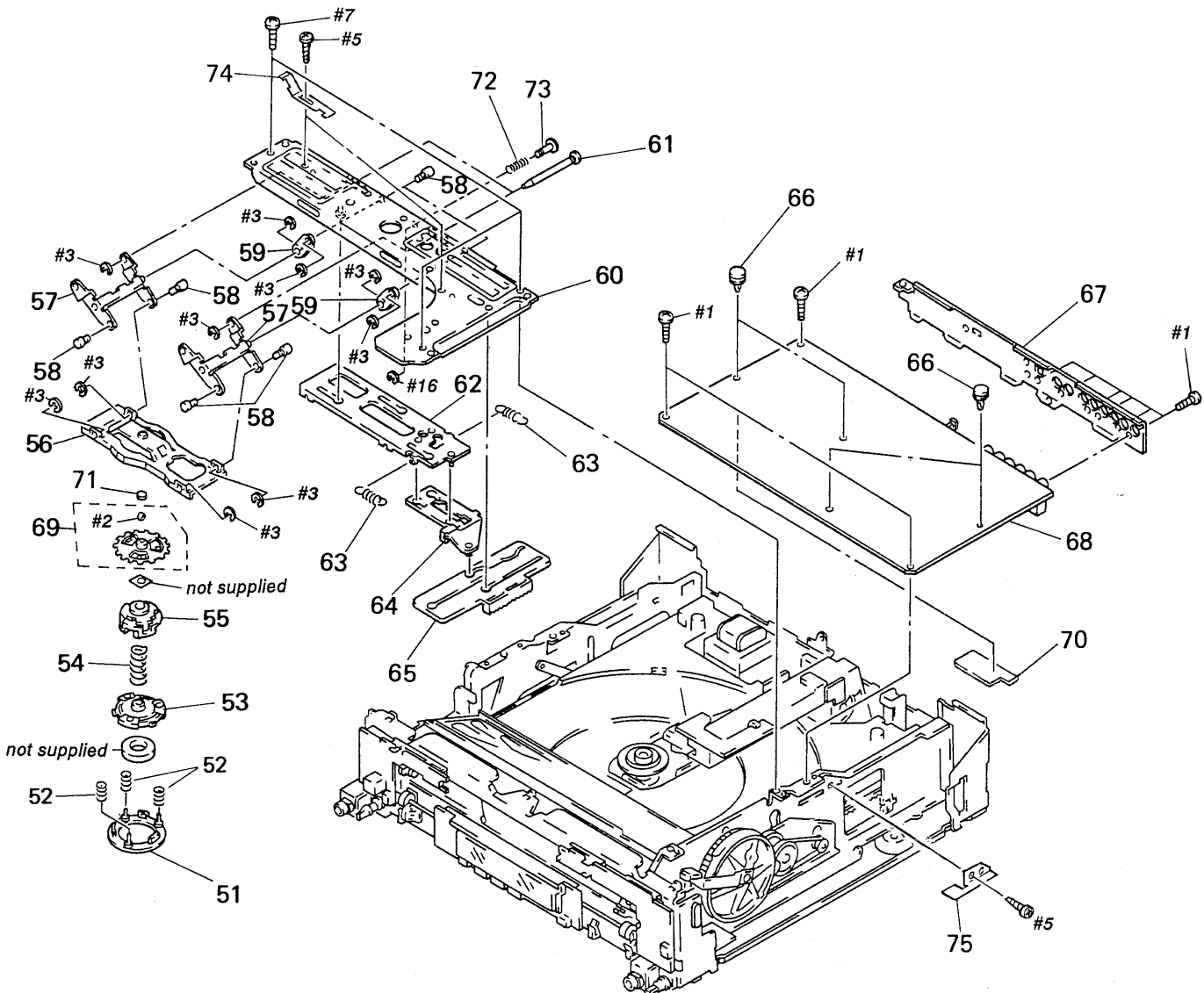
5-1. UPPER CASE, FRONT PANEL ASSEMBLY



Ref. No.	Part No.	Description	Remark
1	X-3943-247-1	DOOR ASSY (A7)	
1	X-3943-254-1	DOOR ASSY (800)	
2	X-3942-785-1	DISK ASSY, DOOR	
3	X-3943-252-1	PANEL ASSY FRONT (800)	
3	X-3943-257-1	PANEL ASSY FRONT (A7)	
* 6	3-953-312-01	HOLDER (L), SLIDE	
* 7	X-3942-909-1	CASE ASSY, UPPER	
8	3-710-901-41	SCREW, TAPPING	
9	X-3943-008-1	FOOT ASSY	
10	X-3363-548-1	FOOT ASSY	
* 12	3-953-313-01	HOLDER (R), SLIDE	
13	3-953-319-11	KNOB, ECHO	

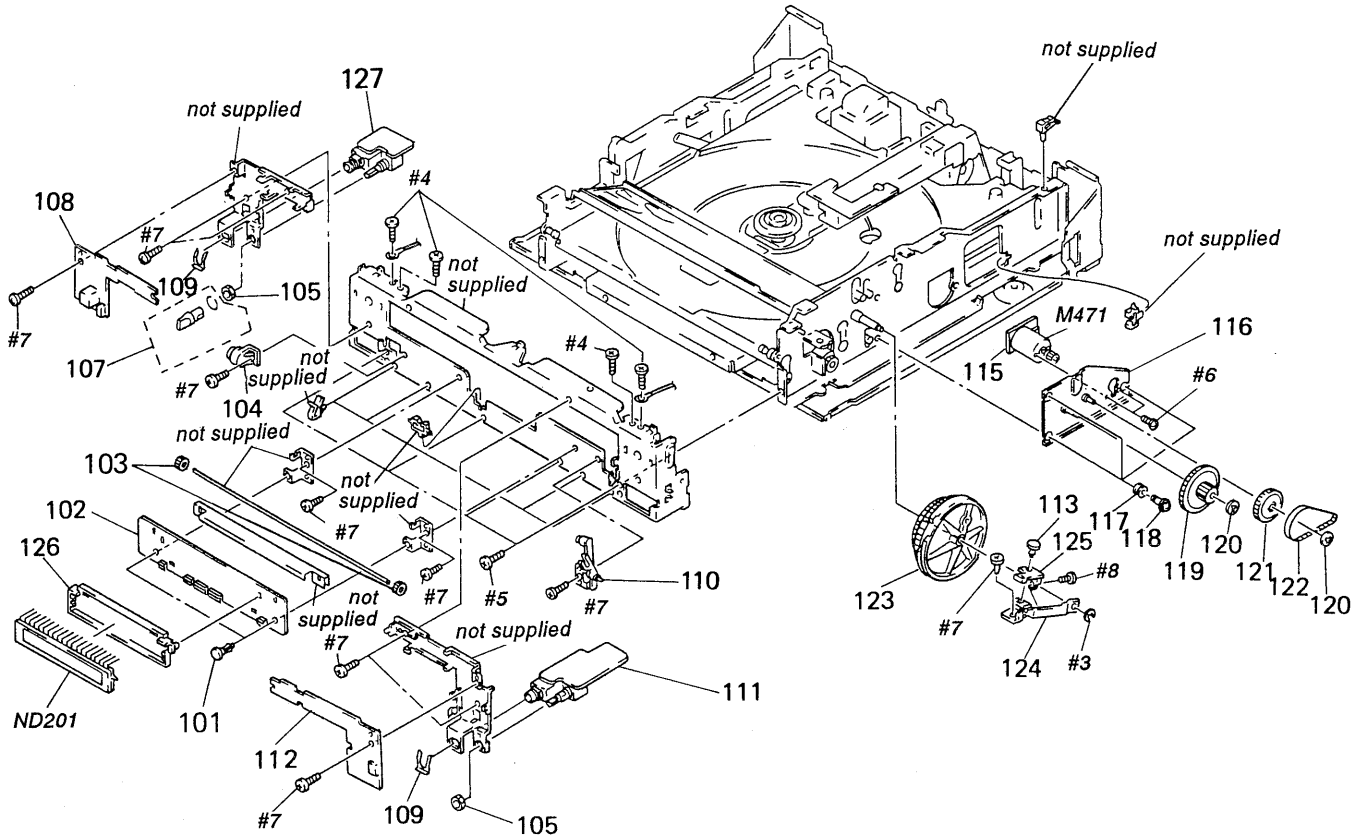
Ref. No.	Part No.	Description	Remark
14	3-953-318-11	KNOB, MICROPHONE	
15	3-955-346-11	SPRING, TORSION	
16	1-466-828-41	REMOTE COMMANDER (RMT-M20A)	
17	3-943-535-01	LID, BATTERY CASE	
18	3-951-034-01	RING, SHUTTLE	
19	3-951-033-01	HOLDER, DIAL	
20	3-941-617-21	BUTTON PLAY	
21	3-941-618-21	BUTTON PAUSE	
22	3-955-343-11	COVER, FOOT	
23	3-955-613-01	SPRING (MAIN) (L), ELECTROSTATIC	
24	3-955-614-01	SPRING (MAIN) (R), ELECTROSTATIC	

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		* 64	X-3942-800-1	LIMITER ASSY	
52	3-953-290-01	SPRING (2), COMPRESSION		65	3-953-348-01	CAM, CHUCK	
53	X-3942-776-1	HOLDER ASSY, MAGNET		* 66	4-386-173-01	SPACER	
54	3-953-291-01	SPRING (1), COMPRESSION		* 67	3-953-380-11	PLATE, JACK	
55	3-953-288-01	PLATE, CHUCKING		* 68	A-6423-038-A	MB-702 BOARD, COMPLETE (A7)	
* 56	3-953-354-01	PLATE, CHUCK		* 68	A-6423-047-A	MB-702 BOARD, COMPLETE (800)	
* 57	X-3942-801-1	ARM (L) ASSY		69	X-3942-787-1	PLATE ASSY, TOP	
* 58	3-953-345-01	SHAFT, ARM (S)		* 70	A-6423-049-A	ME-701 BOARD, COMPLETE	
* 59	3-953-352-01	ARM (S)		71	3-953-392-01	RETAINER, THRUST	
* 60	X-3942-798-1	FRAME ASSY, CHUCK		72	3-353-241-01	SPRING, COMPRESSION	
* 61	3-953-355-01	SHAFT, SLIDE		* 73	3-953-831-01	STOPPER, OPT	
* 62	X-3942-799-1	PLATE ASSY, SLIDE		74	3-735-089-01	SPRING (800)	
63	3-486-135-XX	SPRING, TENSION		75	3-955-673-01	SPRING, LEAF	

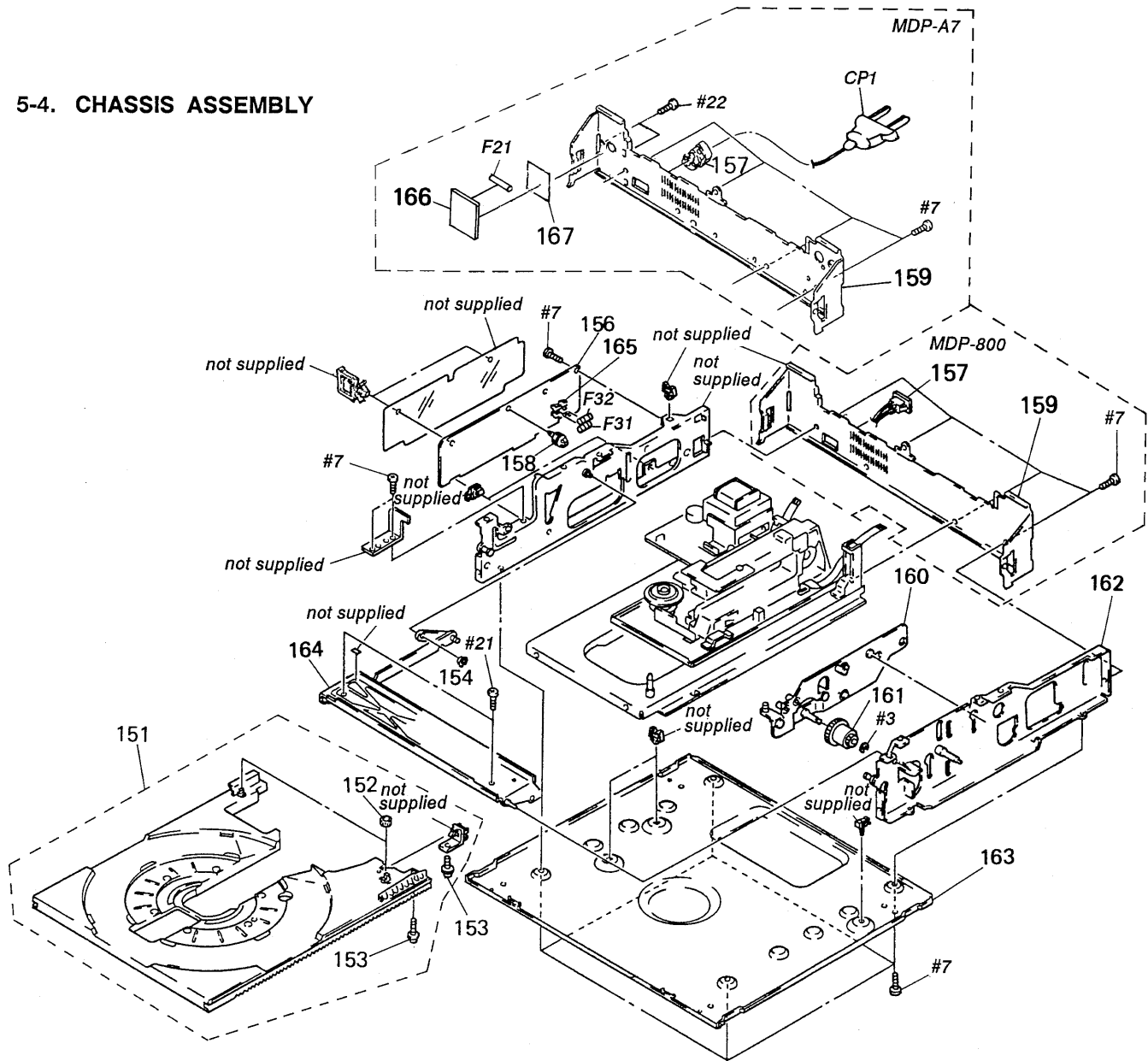
5-3. SUB FRONT PANEL ASSEMBLY



Ref. No.	Part No.	Description	Remark
* 101	3-954-681-01	RIVET, NYLON	
* 102	A-6423-041-A	FP-722 BOARD, COMPLETE	
103	3-953-325-01	GEAR, PHASE	
104	4-919-393-01	DAMPER	
105	3-950-989-01	NUT (M7), HEXAGON	
107	A-6415-522-A	KNOB BLOCK ASSY (BR)	
* 108	A-6423-044-A	PW-706 BOARD, COMPLETE (800)	
* 108	A-6423-046-A	PW-706 BOARD, COMPLETE (A7)	
* 109	3-684-436-01	PLATE, MOUNT	
110	X-3942-786-1	LINK ASSY, DRIVING	
* 111	A-6423-043-A	MI-703 BOARD, COMPLETE	
* 112	A-6423-042-A	SW-725 BOARD, COMPLETE	
113	3-531-576-11	RIVET	
* 115	A-6421-953-A	MT-702 BOARD, COMPLETE	

Ref. No.	Part No.	Description	Remark
* 116	X-3942-805-1	BRACKET ASSY, GEAR	
117	3-570-118-00	CUSHION, MOTOR	
118	3-570-027-00	SCREW, MOTOR	
119	3-953-358-01	GEAR, MIDWAY	
120	3-669-595-00	WASHER (2), STOPPER	
121	3-953-394-01	PULLEY (A)	
122	3-953-393-01	BELT, TIMING	
123	3-953-356-01	GEAR, CONTROL	
* 124	3-953-357-01	BRACKET, SW	
* 125	A-6421-954-A	SW-719 BOARD, COMPLETE	
126	3-953-317-01	HOLDER, TUBE, FL	
* 127	A-6423-040-A	HP-713 BOARD, COMPLETE	
M471	X-3942-963-1	MOTOR ASSY	
ND201	1-517-161-11	INDICATOR TUBE, FLUORESCENT	

5-4. CHASSIS ASSEMBLY



Ref. No.	Part No.	Description	Remark
151	X-3943-255-1	TRAY ASSY (800)	
151	X-3943-292-1	TRAY ASSY (A7)	
* 152	4-914-248-01	STOPPER, RUBBER	
153	3-710-901-11	SCREW, TAPPING	
154	3-703-074-01	CAP 3, SHAFT	
* 156	A-6423-039-A	PS-713 BOARD, COMPLETE (800)	
* 156	A-6423-045-A	PS-713 BOARD, COMPLETE (A7)	
△157	1-951-569-11	HARNES (AC-1) (800)	
△157	3-703-244-00	BUSHING (2104), CORD (A7)	
* 158	4-884-834-00	SUPPORT, PC	
* 159	3-953-382-21	PANEL, REAR (800)	
* 159	3-953-382-92	PANEL, REAR (A7)	
160	X-3942-802-1	PLATE ASSY, BASE, LOADING	

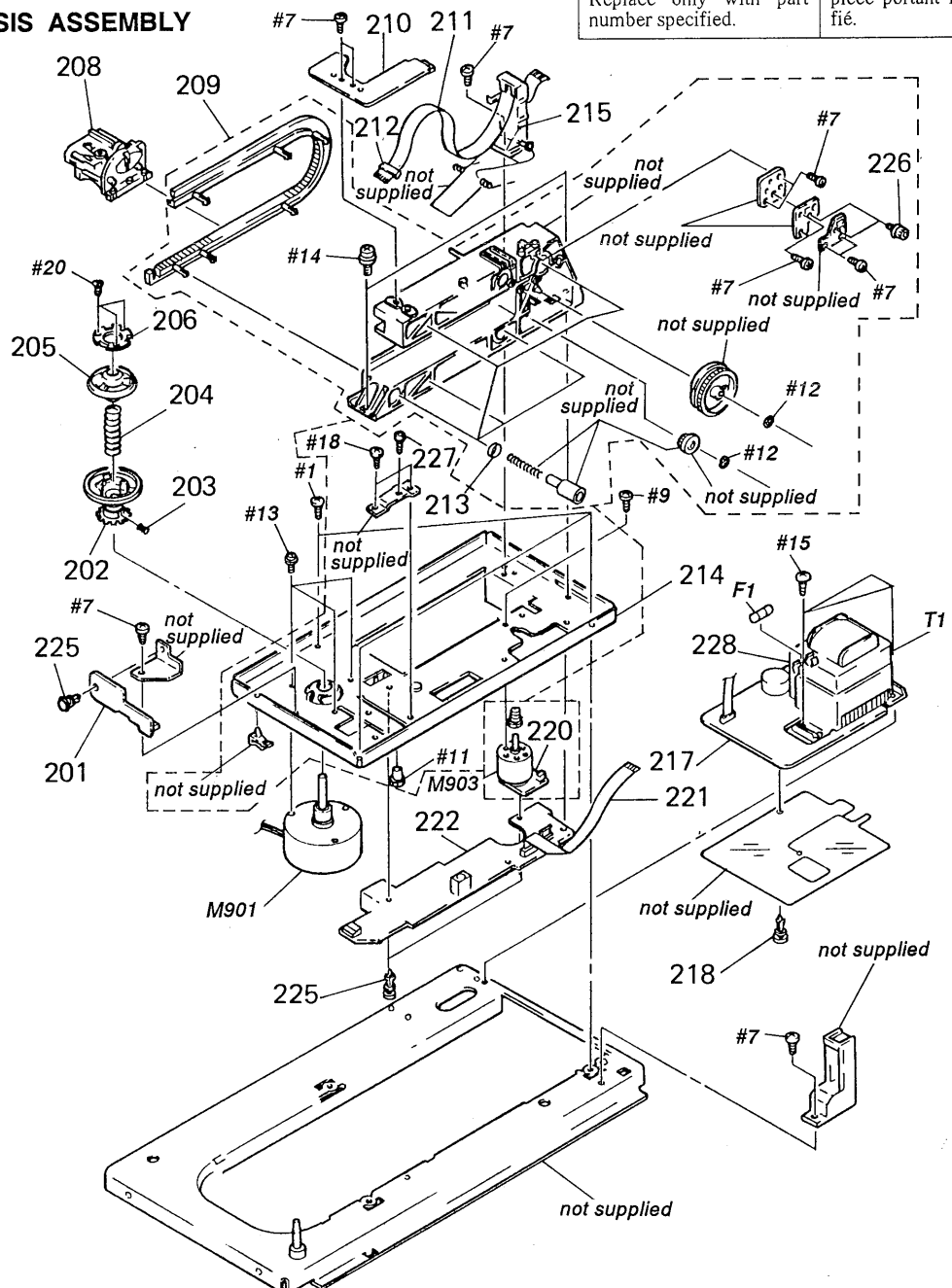
Ref. No.	Part No.	Description	Remark
161	3-953-361-01	GEAR, IDLER	
* 162	X-3942-803-1	FRAME (R) ASSY	
163	3-953-383-01	PLATE, BOTTOM	
* 164	X-3942-796-1	FRAME ASSY, TRAY T	
△165	1-533-189-11	HOLDER, FUSE	
* 166	A-6423-011-A	VS-706 BOARD, COMPLETE (A7)	
* 167	3-953-821-03	SHEET, INSULATING (A7)	
△CP1	1-575-912-21	CORD, POWER (A7)	
△F21	1-532-066-00	FUSE, TIME-LAG 0.4A 250V (A7)	
△F31	1-532-299-00	FUSE, TIME-LAG 5A 250V (A7)	
△F31	1-532-747-11	FUSE, GLASS TUBE 5A 1 25V (800)	
△F32	1-532-299-00	FUSE, TIME-LAG 5A 250V (A7)	
△F32	1-532-747-11	FUSE, GLASS TUBE 5A 1 25V (800)	

<p>Note: The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.</p>	<p>Note: Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.</p>
---	---

5-5. MD CHASSIS ASSEMBLY

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

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



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
201	A-6421-957-A	FG-704 BOARD, COMPLETE		* 217	A-6423-048-A	TR-717 BOARD, COMPLETE (800)	
202	X-3942-779-1	TURNTABLE ASSY		218	3-531-576-11	RIVET	
203	3-701-507-00	SET SCREW, DOUBLE POINT, (M3X5)		* 220	A-6421-955-A	MT-703 BOARD, COMPLETE	
204	3-953-289-01	SPRING (3), COMPRESSION		221	1-751-084-11	CABLE, FLEXIBLE FLAT (14 CORE)	
205	3-953-292-01	GUIDE, CENTER		222	A-6421-956-A	MD-703 BOARD, COMPLETE	
206	3-953-293-01	PLATE (C), YOKE		225	3-703-356-00	RIVET, T TYPE	
Δ 208	8-848-286-01	DEVICE, OPTICAL KHS-150A		226	3-899-249-01	BOLT, HEXAGON SOCKET	
209	A-6404-082-A	BASE BLOCK ASSY, FEED		227	3-953-829-01	BOLT	
210	A-6421-958-A	BI-702 BOARD, COMPLETE		Δ 228	1-533-189-11	HOLDER, FUSE	
211	1-751-083-11	CABLE, FLEXIBLE FLAT (18 CORE)		Δ F1	1-532-215-00	FUSE, TIME-LAG 0.8A 250V (A7)	
212	3-953-268-01	HOLDER (18P), FLEXIBLE		Δ F1	1-532-742-11	FUSE, GLASS TUBE 1.6A 125V (800)	
213	3-953-830-01	WASHER, U		M901	1-698-109-11	MOTOR, DD (SPINDLE)	
* 214	A-6404-074-A	PLATE BLOCK ASSY, BASE		M903	X-3942-968-1	TILT MOTOR ASSY	
215	A-6404-076-A	STAND ASSY, FLEXIBLE RETAINER		Δ T1	1-423-522-11	TRANSFORMER, POWER (800)	
* 217	A-6423-010-A	TR-717 BOARD, COMPLETE (A7)		Δ T1	1-423-556-11	TRANSFORMER, POWER (A7)	

SECTION 6

BI-702

FG-704

ELECTRICAL PARTS LIST

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

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

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

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

Ref. No.	Part No.	Description	Remark
	A-6421-958-A	BI-702 BOARD, COMPLETE ***** (Ref. No. 2, 000 Series)	
	3-953-261-01	HOLDER, PD < CAPACITOR >	
C401	1-163-035-00	CERAMIC CHIP 0.047uF	50V
		< CONNECTOR >	
CN401	1-506-484-11	PIN, CONNECTOR 5P < DIODE >	
D401	8-729-020-74	DIODE GP1S24	
D402	8-729-020-74	DIODE GP1S24 < JUMPER RESISTOR >	
JR401	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR403	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR404	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR405	1-216-296-00	METAL CHIP 0 5% 1/8W < TRANSISTOR >	
Q401	8-729-904-10	TRANSISTOR PT-360FS	
Q402	8-729-904-10	TRANSISTOR PT-360FS	
Q403	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q404	8-729-230-49	TRANSISTOR 2SC2712-YG < RESISTOR >	
R401	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R402	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R403	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R404	1-216-057-00	METAL CHIP 2.2K 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-6421-957-A	FG-704 BOARD, COMPLETE ***** (Ref. No. 2, 000 Series)	
		< CAPACITOR >	
C411	1-163-035-00	CERAMIC CHIP 0.047uF	50V
		< CONNECTOR >	
CN411	1-691-863-11	CONNECTOR, BOARD TO BOARD < DIODE >	
D411	8-729-020-74	DIODE GP1S24	
D412	8-729-020-74	DIODE GP1S24 < JUMPER RESISTOR >	
JR410	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR411	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR412	1-216-295-00	METAL CHIP 0 5% 1/10W < TRANSISTOR >	
Q411	8-729-216-22	TRANSISTOR 2SA1162-G	
Q412	8-729-216-22	TRANSISTOR 2SA1162-G < RESISTOR >	
R411	1-216-037-00	METAL CHIP 330 5% 1/10W	
R412	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R413	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R414	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R415	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R416	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R417	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R418	1-216-089-91	METAL GLAZE 47K 5% 1/10W	
R419	1-216-049-00	METAL CHIP 1K 5% 1/10W	

Ref. No.	Part No.	Description	Remark
*	A-6423-041-A	FP-722 BOARD, COMPLETE ***** (Ref. No. 7,000 Series)	
	3-953-317-01	HOLDER, TUBE, FL	
		< CAPACITOR >	
C201	1-124-589-11	ELECT 47uF	20% 16V
C202	1-124-589-11	ELECT 47uF	20% 16V
C203	1-163-117-00	CERAMIC CHIP 100PF	5% 50V
C204	1-126-163-11	ELECT 4.7uF	20% 50V
C205	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C206	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C207	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C208	1-124-248-00	ELECT 22uF	20% 35V
C209	1-126-096-11	ELECT 10uF	20% 35V
C210	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C211	1-124-589-11	ELECT 47uF	20% 16V
C212	1-124-589-11	ELECT 47uF	20% 16V
C213	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C215	1-163-035-00	CERAMIC CHIP 0.047uF	50V
△C216	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C217	1-163-101-00	CERAMIC CHIP 22PF	5% 50V
C218	1-163-101-00	CERAMIC CHIP 22PF	5% 50V
C219	1-163-093-00	CERAMIC CHIP 10PF	5% 50V
△C220	1-163-035-00	CERAMIC CHIP 0.047uF	50V
		< CONNECTOR >	
CN201	1-506-483-21	PIN, CONNECTOR 4P	
CN202	1-506-486-11	PIN, CONNECTOR 7P	
* CN203	1-564-018-61	PIN, CONNECTOR 8P	
CN204	1-506-484-11	PIN, CONNECTOR 5P	
CN205	1-506-487-11	PIN, CONNECTOR 8P	
		< DIODE >	
D201	8-719-210-39	DIODE EC10QS-04	
D202	8-719-978-93	DIODE DTZ30B-TT11	
D203	8-719-210-39	DIODE EC10QS-04	
D204	8-719-105-73	DIODE RD4.7M-B2	
D205	8-719-210-39	DIODE EC10QS-04	
△D206	8-719-400-18	DIODE MA152WK	
		< FILTER >	
FL201	1-421-927-21	FILTER, NOISE	

Ref. No.	Part No.	Description	Remark
		< IC >	
IC201	8-759-173-23	IC MB89095PF-G-142	
IC202	8-759-074-40	IC PST572DMT-T1	
		< COIL >	
L201	1-414-189-31	INDUCTOR 100uH	
L202	1-414-189-31	INDUCTOR 100uH	
		< FLUORESCENT INDICATOR >	
ND201	1-517-161-11	INDICATOR TUBE, FLUORESCENT	
		< TRANSISTOR >	
Q201	8-729-207-69	TRANSISTOR RN2403	
Q202	8-729-207-69	TRANSISTOR RN2403	
Q203	8-729-140-97	TRANSISTOR 2SB734-34	
Q204	8-729-216-22	TRANSISTOR 2SA1162-G	
Q209	8-729-207-58	TRANSISTOR RN1404	
		< RESISTOR >	
R201	1-216-037-00	METAL CHIP 330 5%	1/10W
R202	1-216-037-00	METAL CHIP 330 5%	1/10W
R203	1-216-009-00	METAL CHIP 22 5%	1/10W
R204	1-216-073-00	METAL CHIP 10K 5%	1/10W
R205	1-216-063-00	METAL CHIP 3.9K 5%	1/10W
R206	1-216-063-00	METAL CHIP 3.9K 5%	1/10W
R207	1-216-059-00	METAL CHIP 2.7K 5%	1/10W
R208	1-216-081-00	METAL CHIP 22K 5%	1/10W
R209	1-216-073-00	METAL CHIP 10K 5%	1/10W
R210	1-216-075-00	METAL CHIP 12K 5%	1/10W
R211	1-216-073-00	METAL CHIP 10K 5%	1/10W
R212	1-216-049-00	METAL CHIP 1K 5%	1/10W
R213	1-216-073-00	METAL CHIP 10K 5%	1/10W
R214	1-216-073-00	METAL CHIP 10K 5%	1/10W
R215	1-216-033-00	METAL CHIP 220 5%	1/10W
R216	1-216-073-00	METAL CHIP 10K 5%	1/10W
R217	1-216-049-00	METAL CHIP 1K 5%	1/10W
R218	1-216-073-00	METAL CHIP 10K 5%	1/10W
R219	1-216-033-00	METAL CHIP 220 5%	1/10W
R220	1-216-033-00	METAL CHIP 220 5%	1/10W
R221	1-216-049-00	METAL CHIP 1K 5%	1/10W
R222	1-216-073-00	METAL CHIP 10K 5%	1/10W
R223	1-216-033-00	METAL CHIP 220 5%	1/10W
R224	1-216-049-00	METAL CHIP 1K 5%	1/10W
R230	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
△R233	1-216-675-11	METAL CHIP 10K 0.5%	1/10W
R234	1-216-073-00	METAL CHIP 10K 5%	1/10W
△R235	1-216-675-11	METAL CHIP 10K 0.5%	1/10W
R236	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.	Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
--	--

FP-722

HP-713

MB-702

Ref. No.	Part No.	Description	Remark		
R237	1-216-049-00	METAL CHIP	1K	5%	1/10W
R238	1-216-033-00	METAL CHIP	220	5%	1/10W
R239	1-216-033-00	METAL CHIP	220	5%	1/10W
R240	1-216-033-00	METAL CHIP	220	5%	1/10W
△R250	1-216-049-00	METAL CHIP	1K	5%	1/10W
△R251	1-216-073-00	METAL CHIP	10K	5%	1/10W
△R252	1-216-073-00	METAL CHIP	10K	5%	1/10W
R253	1-216-075-00	METAL CHIP	12K	5%	1/10W
R254	1-216-075-00	METAL CHIP	12K	5%	1/10W
< SWITCH >					
S201	1-692-440-11	SWITCH, PUSH (DOOR)			
< TRANSFORMER >					
T201	1-448-740-21	TRANSFORMER, DC-DC CONVERTER			
< VIBRATOR >					
X201	1-579-431-11	VIBLATOR, CRYSTAL 32KHz			
X202	1-579-223-11	OSCILLATOR, CERAMIC 8MHz			

*	A-6423-040-A	HP-713 BOARD, COMPLETE			

(Ref. No. 5, 000 Series)					
< CAPACITOR >					
C551	1-161-772-11	CERAMIC	0.1uF	10%	25V
C552	1-162-294-31	CERAMIC	0.001uF	10%	50V
C553	1-162-294-31	CERAMIC	0.001uF	10%	50V
< CONNECTOR >					
CN551	1-506-468-11	PIN, CONNECTOR 3P			
< DIODE >					
D551	8-719-911-19	DIODE 1SS119			
D552	8-719-911-19	DIODE 1SS119			
< FERRITE BEAD >					
FB551	1-410-396-41	INDUCTOR 0.45UH			
FB552	1-410-396-41	INDUCTOR 0.45UH			
FB553	1-410-396-41	INDUCTOR 0.45UH			
< FILTER >					
FL551	1-236-071-11	ENCAPSULATED COMPONENT			
< JACK >					
J551	1-568-151-21	JACK, LARGE TYPE (PHONES)			

Ref. No.	Part No.	Description	Remark		
< RESISTOR >					
R551	1-249-421-11	CARBON	2.2K	5%	1/4W F
R552	1-249-399-11	CARBON	33	5%	1/4W F
R553	1-249-399-11	CARBON	33	5%	1/4W F
R554	1-249-421-11	CARBON	2.2K	5%	1/4W F
< VARIABLE RESISTOR >					
RV551	1-223-191-11	RES, VAR, CARBON 500/500 (PHONES LEVEL)			

*	A-6423-038-A	MB-702 BOARD, COMPLETE (A7)			

(Ref. No. 1, 000 Series)					
*	A-6423-047-A	MB-702 BOARD, COMPLETE (800)			

(Ref. No. 1, 000 Series)					
3-954-678-01 SHIELD (UPPER), MB					
9-911-839-XX CUSHION					
< CAPACITOR >					
C001	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C002	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C003	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C004	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C005	1-124-126-00	ELECT	47uF	20%	16V
C006	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C007	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C008	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C009	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C010	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C011	1-126-177-11	ELECT	100uF	20%	10V
C012	1-126-177-11	ELECT	100uF	20%	10V
C013	1-126-177-11	ELECT	100uF	20%	10V
C014	1-163-241-11	CERAMIC CHIP	39PF	5%	50V
C015	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C016	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C017	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C018	1-126-177-11	ELECT	100uF	20%	10V
C019	1-126-154-11	ELECT	47uF	20%	6.3V
C020	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C021	1-126-157-11	ELECT	10uF	20%	16V
C022	1-126-157-11	ELECT	10uF	20%	16V
C023	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C024	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C025	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C026	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C027	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C028	1-163-031-11	CERAMIC CHIP	0.01uF		50V

<p>The components identified by mark △ or dotted line with mark. △ are critical for safety. Replace only with part number specified.</p>	<p>Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.</p>
--	---

Ref. No.	Part No.	Description	Remark
C029	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C030	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C031	1-163-224-11	CERAMIC CHIP	7PF 0.25PF 50V
C032	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C033	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C034	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C035	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C036	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C037	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C038	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C039	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C040	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C041	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C042	1-126-177-11	ELECT	100uF 20% 10V
C043	1-124-903-11	ELECT	1uF 20% 50V
C044	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C045	1-124-903-11	ELECT	1uF 20% 50V
C046	1-126-177-11	ELECT	100uF 20% 10V
C047	1-163-257-11	CERAMIC CHIP	180PF 5% 50V
C048	1-163-096-00	CERAMIC CHIP	13PF 5% 50V
C049	1-126-177-11	ELECT	100uF 20% 10V
C051	1-163-099-00	CERAMIC CHIP	18PF 5% 50V
C052	1-163-097-00	CERAMIC CHIP	15PF 5% 50V
C053	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C054	1-163-237-11	CERAMIC CHIP	27PF 5% 50V
C055	1-163-243-11	CERAMIC CHIP	47PF 5% 50V
C056	1-163-224-11	CERAMIC CHIP	7PF 0.25PF 50V
C057	1-126-154-11	ELECT	47uF 20% 6.3V
C058	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C059	1-126-157-11	ELECT	10uF 20% 16V
C060	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C061	1-126-177-11	ELECT	100uF 20% 10V
C062	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C064	1-126-177-11	ELECT	100uF 20% 10V
C065	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C066	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C068	1-163-099-00	CERAMIC CHIP	18PF 5% 50V
C069	1-126-177-11	ELECT	100uF 20% 10V
C070	1-163-224-11	CERAMIC CHIP	7PF 0.25PF 50V
C071	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C072	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C073	1-163-239-11	CERAMIC CHIP	33PF 5% 50V
C074	1-126-177-11	ELECT	100uF 20% 10V
C075	1-162-219-31	CERAMIC	68PF 5% 50V
C075	1-163-113-00	CERAMIC CHIP	68PF 5% 50V
C076	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C078	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C079	1-163-031-11	CERAMIC CHIP	0.01uF 50V

Ref. No.	Part No.	Description	Remark
C080	1-126-177-11	ELECT	100uF 20% 10V
C081	1-126-177-11	ELECT	100uF 20% 10V
C082	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C083	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C084	1-126-177-11	ELECT	100uF 20% 10V
C088	1-164-346-11	CERAMIC CHIP	1uF 16V
C095	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C096	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C097	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C099	1-124-126-00	ELECT	47uF 20% 16V
C100	1-163-235-11	CERAMIC CHIP	22PF 5% 50V
C101	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C102	1-124-126-00	ELECT	47uF 20% 16V
C103	1-124-464-11	ELECT	0.22uF 20% 50V
C104	1-163-222-11	CERAMIC CHIP	5PF 0.25PF 50V
C105	1-124-589-11	ELECT	47uF 20% 16V
C106	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C107	1-124-126-00	ELECT	47uF 20% 16V
C108	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C109	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C110	1-163-229-11	CERAMIC CHIP	12PF 5% 50V
C111	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C112	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C113	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C114	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C115	1-164-005-11	CERAMIC CHIP	0.47uF 25V
C116	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C117	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C118	1-126-177-11	ELECT	100uF 20% 10V
C119	1-163-239-11	CERAMIC CHIP	33PF 5% 50V
C120	1-163-227-11	CERAMIC CHIP	10PF 0.5PF 50V
C121	1-163-251-11	CERAMIC CHIP	100PF 5% 50V
C122	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C125	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C126	1-124-257-00	ELECT	2.2uF 20% 50V
C127	1-124-257-00	ELECT	2.2uF 20% 50V
C128	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C129	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C130	1-126-177-11	ELECT	100uF 20% 10V
C131	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C133	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C134	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C135	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C136	1-163-239-11	CERAMIC CHIP	33PF 5% 50V
C137	1-163-235-11	CERAMIC CHIP	22PF 5% 50V
C138	1-163-229-11	CERAMIC CHIP	12PF 5% 50V
C139	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C140	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C141	1-163-038-00	CERAMIC CHIP	0.1uF 25V

MB-702

Ref. No.	Part No.	Description	Remark
C142	1-126-177-11	ELECT	100uF 20% 10V
C143	1-163-237-11	CERAMIC CHIP	27PF 5% 50V
C144	1-163-237-11	CERAMIC CHIP	27PF 5% 50V
C145	1-163-251-11	CERAMIC CHIP	100PF 5% 50V
C146	1-163-241-11	CERAMIC CHIP	39PF 5% 50V
C147	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C148	1-163-239-11	CERAMIC CHIP	33PF 5% 50V
C149	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C150	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C151	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C155	1-163-097-00	CERAMIC CHIP	15PF 5% 50V
C156	1-163-097-00	CERAMIC CHIP	15PF 5% 50V
C157	1-164-005-11	CERAMIC CHIP	0.47uF 25V
C158	1-163-037-11	CERAMIC CHIP	0.022uF 10% 25V
C160	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C162	1-163-127-00	CERAMIC CHIP	270PF 5% 50V
C163	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C164	1-163-125-00	CERAMIC CHIP	220PF 5% 50V
C165	1-163-097-00	CERAMIC CHIP	15PF 5% 50V
C170	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C171	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C172	1-163-019-00	CERAMIC CHIP	0.0068uF 10% 50V
C173	1-124-903-11	ELECT	1uF 20% 50V
C174	1-164-346-11	CERAMIC CHIP	1uF 16V
C175	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C176	1-164-505-11	CERAMIC CHIP	2.2uF 16V
C201	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C202	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C203	1-164-232-11	CERAMIC CHIP	0.01uF 50V
C204	1-163-809-11	CERAMIC CHIP	0.047uF 10% 25V
C205	1-163-011-11	CERAMIC CHIP	0.0015uF 10% 50V
C206	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C207	1-124-126-00	ELECT	47uF 20% 16V
C208	1-164-232-11	CERAMIC CHIP	0.01uF 50V
C209	1-164-005-11	CERAMIC CHIP	0.47uF 25V
C210	1-163-235-11	CERAMIC CHIP	22PF 5% 50V
C211	1-124-126-00	ELECT	47uF 20% 16V
C212	1-163-133-00	CERAMIC CHIP	470PF 5% 50V
C213	1-163-241-11	CERAMIC CHIP	39PF 5% 50V
C214	1-164-232-11	CERAMIC CHIP	0.01uF 50V
C215	1-163-241-11	CERAMIC CHIP	39PF 5% 50V
C216	1-164-232-11	CERAMIC CHIP	0.01uF 50V
C217	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C218	1-124-126-00	ELECT	47uF 20% 16V
C219	1-163-133-00	CERAMIC CHIP	470PF 5% 50V
C220	1-164-232-11	CERAMIC CHIP	0.01uF 50V
C221	1-164-232-11	CERAMIC CHIP	0.01uF 50V
C222	1-163-121-00	CERAMIC CHIP	150PF 5% 50V
C223	1-163-241-11	CERAMIC CHIP	39PF 5% 50V

Ref. No.	Part No.	Description	Remark
C224	1-126-177-11	ELECT	100uF 20% 10V
C225	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C226	1-164-695-11	CERAMIC CHIP	0.0022uF 5% 50V
C227	1-163-809-11	CERAMIC CHIP	0.047uF 10% 25V
C228	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C229	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C230	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C231	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C232	1-124-126-00	ELECT	47uF 20% 16V
C233	1-124-927-11	ELECT	4.7uF 20% 100V
C234	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C235	1-124-126-00	ELECT	47uF 20% 16V
C236	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C238	1-124-499-11	ELECT, NONPOLAR	1uF 20% 50V
C239	1-124-287-00	ELECT	10uF 20% 10V
C240	1-163-113-00	CERAMIC CHIP	68PF 5% 50V
C241	1-163-113-00	CERAMIC CHIP	68PF 5% 50V
C242	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C243	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C244	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C245	1-124-126-00	ELECT	47uF 20% 16V
C246	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C247	1-163-102-00	CERAMIC CHIP	24PF 5% 50V
C248	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C249	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C250	1-163-115-00	CERAMIC CHIP	82PF 5% 50V
C251	1-163-241-11	CERAMIC CHIP	39PF 5% 50V
C252	1-163-241-11	CERAMIC CHIP	39PF 5% 50V
C253	1-124-126-00	ELECT	47uF 20% 16V
C254	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C255	1-163-115-00	CERAMIC CHIP	82PF 5% 50V
C256	1-163-241-11	CERAMIC CHIP	39PF 5% 50V
C257	1-163-241-11	CERAMIC CHIP	39PF 5% 50V
C258	1-104-547-11	FILM CHIP	0.0047uF 5% 16V
C259	1-104-540-11	FILM CHIP	0.0012uF 5% 50V
C260	1-104-547-11	FILM CHIP	0.0047uF 5% 16V
C261	1-104-540-11	FILM CHIP	0.0012uF 5% 50V
C262	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C263	1-130-495-00	MYLAR	0.1uF 5% 50V
C264	1-130-495-00	MYLAR	0.1uF 5% 50V
C265	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C266	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C267	1-130-495-00	MYLAR	0.1uF 5% 50V
C268	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C269	1-130-495-00	MYLAR	0.1uF 5% 50V
C270	1-126-022-11	ELECT	47uF 20% 16V
C271	1-126-022-11	ELECT	47uF 20% 16V
C272	1-163-031-11	CERAMIC CHIP	0.01uF 50V

Ref. No.	Part No.	Description	Remark		Ref. No.	Part No.	Description	Remark	
C273	1-163-031-11	CERAMIC CHIP	0.01uF	50V	C416	1-164-005-11	CERAMIC CHIP	0.47uF	25V
C274	1-126-022-11	ELECT	47uF	20% 16V	C417	1-164-232-11	CERAMIC CHIP	0.01uF	50V
C275	1-163-031-11	CERAMIC CHIP	0.01uF	50V	C419	1-164-161-11	CERAMIC CHIP	0.0022uF	10% 50V
C276	1-163-031-11	CERAMIC CHIP	0.01uF	50V	C420	1-137-375-11	FILM	0.068uF	5% 50V
C277	1-126-022-11	ELECT	47uF	20% 16V	C421	1-124-499-11	ELECT, NONPOLAR	1uF	20% 50V
C278	1-126-022-11	ELECT	47uF	20% 16V	C422	1-164-004-11	CERAMIC CHIP	0.1uF	10% 25V
C279	1-126-022-11	ELECT	47uF	20% 16V	C423	1-124-287-00	ELECT	10uF	20% 10V
C280	1-163-031-11	CERAMIC CHIP	0.01uF	50V	C424	1-163-809-11	CERAMIC CHIP	0.047uF	10% 25V
C281	1-124-126-00	ELECT	47uF	20% 16V	C425	1-124-273-00	ELECT	3.3uF	20% 50V
C282	1-124-126-00	ELECT	47uF	20% 16V	C427	1-163-129-00	CERAMIC CHIP	330PF	5% 50V
C283	1-163-031-11	CERAMIC CHIP	0.01uF	50V	C428	1-126-947-11	ELECT	47uF	20% 35V
C289	1-124-126-00	ELECT	47uF	20% 16V	C429	1-163-115-00	CERAMIC CHIP	82PF	5% 50V
C290	1-163-038-00	CERAMIC CHIP	0.1uF	25V	C430	1-126-947-11	ELECT	47uF	20% 35V
C291	1-163-031-11	CERAMIC CHIP	0.01uF	50V	C432	1-163-022-00	CERAMIC CHIP	0.012uF	10% 50V
C292	1-163-031-11	CERAMIC CHIP	0.01uF	50V	C433	1-163-097-00	CERAMIC CHIP	15PF	5% 50V
C293	1-163-031-11	CERAMIC CHIP	0.01uF	50V	C434	1-163-024-00	CERAMIC CHIP	0.018uF	10% 50V
C294	1-163-031-11	CERAMIC CHIP	0.01uF	50V	C435	1-163-235-11	CERAMIC CHIP	22PF	5% 50V
C295	1-163-031-11	CERAMIC CHIP	0.01uF	50V	C436	1-163-017-00	CERAMIC CHIP	0.0047uF	5% 50V
C296	1-163-031-11	CERAMIC CHIP	0.01uF	50V	C437	1-163-235-11	CERAMIC CHIP	22PF	5% 50V
C297	1-163-031-11	CERAMIC CHIP	0.01uF	50V	C438	1-163-038-00	CERAMIC CHIP	0.1uF	25V
C298	1-163-031-11	CERAMIC CHIP	0.01uF	50V	C439	1-124-126-00	ELECT	47uF	20% 16V
C299	1-126-947-11	ELECT	47uF	20% 35V	C440	1-124-126-00	ELECT	47uF	20% 16V
C300	1-163-038-00	CERAMIC CHIP	0.1uF	25V	C441	1-163-038-00	CERAMIC CHIP	0.1uF	25V
C302	1-126-177-11	ELECT	100uF	20% 10V	C442	1-164-505-11	CERAMIC CHIP	2.2uF	16V
C303	1-126-177-11	ELECT	100uF	20% 10V	C443	1-164-505-11	CERAMIC CHIP	2.2uF	16V
C307	1-163-031-11	CERAMIC CHIP	0.01uF	50V	C444	1-163-235-11	CERAMIC CHIP	22PF	5% 50V
C308	1-124-927-11	ELECT	4.7uF	20% 100V	C448	1-164-005-11	CERAMIC CHIP	0.47uF	25V
C327	1-163-031-11	CERAMIC CHIP	0.01uF	50V	C449	1-164-005-11	CERAMIC CHIP	0.47uF	25V
C329	1-124-903-11	ELECT	1uF	20% 50V	C465	1-164-232-11	CERAMIC CHIP	0.01uF	50V
C330	1-124-903-11	ELECT	1uF	20% 50V	C466	1-164-004-11	CERAMIC CHIP	0.1uF	10% 25V
C331	1-104-541-11	FILM CHIP	0.0015uF	5% 50V	C467	1-164-232-11	CERAMIC CHIP	0.01uF	50V
C332	1-104-541-11	FILM CHIP	0.0015uF	5% 50V	C468	1-164-182-11	CERAMIC CHIP	0.0033uF	10% 50V
C333	1-104-541-11	FILM CHIP	0.0015uF	5% 50V	C469	1-163-222-11	CERAMIC CHIP	5PF	0.25PF 50V
C334	1-104-541-11	FILM CHIP	0.0015uF	5% 50V	C491	1-137-378-11	FILM	0.22uF	5% 50V
C335	1-124-997-11	ELECT	470uF	20% 10V	C501	1-124-631-11	ELECT	47uF	20% 16V
C399	1-163-241-11	CERAMIC CHIP	39PF	5% 50V	C502	1-163-251-11	CERAMIC CHIP	100PF	5% 50V
C401	1-163-121-00	CERAMIC CHIP	150PF	5% 50V	C503	1-124-277-11	ELECT	4.7uF	20% 35V
C402	1-164-005-11	CERAMIC CHIP	0.47uF	25V	C504	1-163-245-11	CERAMIC CHIP	56PF	5% 50V
C403	1-163-133-00	CERAMIC CHIP	470PF	5% 50V	C505	1-164-182-11	CERAMIC CHIP	0.0033uF	10% 50V
C405	1-164-232-11	CERAMIC CHIP	0.01uF	50V	C506	1-124-927-11	ELECT	4.7uF	20% 100V
C407	1-124-277-11	ELECT	4.7uF	20% 35V	C507	1-126-947-11	ELECT	47uF	20% 35V
C408	1-163-022-00	CERAMIC CHIP	0.012uF	10% 50V	C508	1-163-038-00	CERAMIC CHIP	0.1uF	25V
C409	1-163-024-00	CERAMIC CHIP	0.018uF	10% 50V	C509	1-126-177-11	ELECT	100uF	20% 10V
C410	1-164-489-11	CERAMIC CHIP	0.22uF	10% 16V	C510	1-163-038-00	CERAMIC CHIP	0.1uF	25V
C411	1-163-037-11	CERAMIC CHIP	0.022uF	10% 25V	C511	1-163-038-00	CERAMIC CHIP	0.1uF	25V
C413	1-163-809-11	CERAMIC CHIP	0.047uF	10% 25V	C512	1-163-038-00	CERAMIC CHIP	0.1uF	25V
C414	1-124-767-00	ELECT	2.2uF	20% 50V	C513	1-163-038-00	CERAMIC CHIP	0.1uF	25V
C415	1-163-014-00	CERAMIC CHIP	0.0027uF	5% 50V	C514	1-163-257-11	CERAMIC CHIP	180PF	5% 50V
					C515	1-164-232-11	CERAMIC CHIP	0.01uF	50V

MB-702

Ref. No.	Part No.	Description	Remark
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
C523	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C524	1-163-031-11	CERAMIC CHIP 0.01uF	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	1-126-948-11	ELECT 100uF	20% 35V
C708	1-163-037-11	CERAMIC CHIP 0.022uF	10% 25V
C709	1-164-693-11	CERAMIC CHIP 0.0018uF	5% 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
C718	1-126-948-11	ELECT 100uF	20% 35V
C801	1-163-129-00	CERAMIC CHIP 330PF	5% 50V
C802	1-164-232-11	CERAMIC CHIP 0.01uF	50V
< CONNECTOR >			
* CN101	1-568-786-11	PIN, CONNECTOR 9P	
* CN102	1-568-790-11	PIN, CONNECTOR 13P	
* CN103	1-568-779-11	PIN, CONNECTOR 2P	
* CN104	1-568-779-11	PIN, CONNECTOR 2P	
CN201	1-506-468-11	PIN, CONNECTOR 3P	
CN203	1-506-470-11	PIN, CONNECTOR 5P	
CN206	1-506-469-11	PIN, CONNECTOR 4P	
CN401	1-750-687-11	HOUSING, CONNECTOR (PC BOARD)	
CN402	1-750-505-11	CONNECTOR, FPC 18P	
* CN403	1-691-503-11	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	1-506-473-11	PIN, CONNECTOR 8P	
* CN702	1-568-788-21	PIN, CONNECTOR 11P	
< TRIMMER >			
CT001	1-141-442-91	TRIMMER, CERAMIC	
< DIODE >			
D002	8-719-988-62	DIODE 1SS355	
D003	8-719-988-62	DIODE 1SS355	
D004	8-719-988-62	DIODE 1SS355	

Ref. No.	Part No.	Description	Remark
D006	8-719-400-18	DIODE MA152WK	
D201	8-719-032-05	DIODE KV1460TL00	
D202	8-719-400-18	DIODE MA152WK	
D203	8-719-104-34	DIODE 1S2836	
D205	8-719-104-34	DIODE 1S2836	
D206	8-719-104-34	DIODE 1S2836	
D207	8-719-032-05	DIODE KV1460TL00	
D208	8-719-104-34	DIODE 1S2836	
D209	8-719-401-92	DIODE MA3082M-TX	
D210	8-719-104-34	DIODE 1S2836	
D213	8-719-400-18	DIODE MA152WK	
D401	8-719-800-76	DIODE 1SS226	
D402	8-719-800-76	DIODE 1SS226	
D405	8-719-988-62	DIODE 1SS355	
D407	8-719-800-76	DIODE 1SS226	
D502	8-719-402-34	DIODE MA3120-TX	
D503	8-719-104-34	DIODE 1S2836	
D504	8-719-400-75	DIODE MA3091	
D506	8-719-104-34	DIODE 1S2836	
D507	8-719-104-34	DIODE 1S2836	
D703	8-719-210-39	DIODE EC10QS-04	
D704	8-719-210-39	DIODE EC10QS-04	
< FERRITE BEAD >			
FB203	1-412-390-21	INDUCTOR CHIP 0uH	
FB204	1-412-390-21	INDUCTOR CHIP 0uH	
FB205	1-412-390-21	INDUCTOR CHIP 0uH	
FB206	1-412-390-21	INDUCTOR CHIP 0uH	
FB207	1-412-390-21	INDUCTOR CHIP 0uH	
FB208	1-412-390-21	INDUCTOR CHIP 0uH	
FB209	1-412-390-21	INDUCTOR CHIP 0uH	
FB211	1-216-296-00	METAL CHIP 0	5% 1/8W
FB212	1-410-370-31	INDUCTOR CHIP 1.2UH	
FB501	1-543-775-11	FILTER, EMI	
FB502	1-543-775-11	FILTER, EMI	
FB503	1-543-775-11	FILTER, EMI	
FB504	1-412-390-21	INDUCTOR CHIP 0uH	
FB505	1-412-390-21	INDUCTOR CHIP 0uH	
FB506	1-412-390-21	INDUCTOR CHIP 0uH	
FB507	1-412-390-21	INDUCTOR CHIP 0uH	
FB508	1-543-775-11	FILTER, EMI	
< FILTER >			
FL001	1-239-319-11	FILTER, LOW PASS	
FL002	1-236-843-11	FILTER, BAND PASS	
FL005	1-239-557-11	LPF (5.5MHZ)	
FL006	1-236-071-11	ENCAPSULATED COMPONENT	
FL007	1-577-543-11	FILTER, CERAMIC	

Ref. No.	Part No.	Description	Remark
FL008	1-577-543-11	FILTER, CERAMIC	
FL009	1-577-543-11	FILTER, CERAMIC	
FL010	1-236-071-11	ENCAPSULATED COMPONENT	
FL011	1-236-071-11	ENCAPSULATED COMPONENT	
FL012	1-236-071-11	ENCAPSULATED COMPONENT	
FL013	1-236-071-11	ENCAPSULATED COMPONENT	
FL014	1-236-071-11	ENCAPSULATED COMPONENT	
FL015	1-236-071-11	ENCAPSULATED COMPONENT	
FL201	1-236-071-11	ENCAPSULATED COMPONENT	
FL202	1-236-071-11	ENCAPSULATED COMPONENT	
FL203	1-236-071-11	ENCAPSULATED COMPONENT	
FL204	1-236-071-11	ENCAPSULATED COMPONENT	
FL205	1-236-071-11	ENCAPSULATED COMPONENT	
FL207	1-236-071-11	ENCAPSULATED COMPONENT	
FL208	1-236-840-11	FILTER, BAND PASS	
FL209	1-236-071-11	ENCAPSULATED COMPONENT	
FL210	1-236-071-11	ENCAPSULATED COMPONENT	
FL213	1-236-744-21	FILTER, EMI	
FL214	1-236-744-21	FILTER, EMI	
FL215	1-236-744-21	FILTER, EMI	
FL216	1-236-744-21	FILTER, EMI	
FL401	1-235-922-11	FILTER, LOW PASS (1.7MHz)	
FL501	1-236-744-21	FILTER, EMI	
< IC >			
IC001	8-759-160-72	IC CXA8020AQ	
IC003	8-759-063-26	IC CXD8405Q	
IC004	8-759-098-80	IC MB90085-123-EF	
IC005	8-759-063-27	IC CXD8404Q	
IC007	8-759-927-46	IC SN74HC00ANS	
IC201	8-749-921-12	IC GP1F32T	
IC202	8-759-924-46	IC BA4560F	
IC203	8-759-098-82	IC YM7110	
IC204	8-752-342-65	IC CXD2560M	
IC205	8-759-924-46	IC BA4560F	
IC206	8-759-164-56	IC YSD221-ME2	
IC207	8-759-996-43	IC RC4558PS	
IC208	8-752-352-93	IC CXD2500BQ	
IC209	8-759-996-43	IC RC4558PS	
IC210	8-759-924-46	IC BA4560F	
IC211	8-759-996-43	IC RC4558PS	
IC212	8-759-996-43	IC RC4558PS	
IC213	8-759-996-43	IC RC4558PS	
IC214	8-752-351-19	IC CXD2561BM	
IC215	8-759-242-66	IC TC4W66F	
IC220	8-759-604-35	IC M5F78M05	
IC222	8-759-031-84	IC SC7S04F	
IC223	8-759-083-94	IC TC7W74FU	
IC401	8-752-067-81	IC CXA1632AQ	

Ref. No.	Part No.	Description	Remark
△IC402	8-759-048-30	IC LA6510L	
IC403	8-759-300-71	IC HD14053BFP	
IC404	8-759-300-71	IC HD14053BFP	
IC405	8-759-983-74	IC LM324NS	
IC406	8-759-996-43	IC RC4558PS	
IC407	8-759-996-43	IC RC4558PS	
IC409	8-759-996-43	IC RC4558PS	
IC410	8-759-242-64	IC TC4W53F	
IC501	8-759-173-22	IC MB89094PF-G-110	
IC502	8-759-098-78	IC MB606F06	
IC503	8-759-231-92	IC TA7291P	
IC504	8-759-983-74	IC LM324NS	
IC505	8-759-009-06	IC MC14052BF	
IC506	8-759-300-71	IC HD14053BFP	
△IC701	8-759-946-09	IC FA7611M	
< JACK >			
J001	1-750-503-21	CONNECTOR, ROUND TYPE (S VIDEO 1/2)	
* J201	1-565-351-71	JACK, PIN 3P (LINE OUT 1)	
* J202	1-565-351-71	JACK, PIN 3P (LINE OUT 2)	
J501	1-507-678-00	JACK (CONTROL S IN)	
< JUMPER RESISTOR >			
JR018	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR200	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR203	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR207	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR208	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR401	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR502	1-216-295-00	METAL CHIP 0 5% 1/10W	
< COIL >			
L001	1-414-186-31	INDUCTOR 33uH	
L002	1-414-185-41	INDUCTOR 22uH	
L003	1-414-184-41	INDUCTOR 15uH	
L004	1-408-414-00	INDUCTOR 27uH	
L005	1-414-186-31	INDUCTOR 33uH	
L006	1-414-186-31	INDUCTOR 33uH	
L007	1-410-423-11	INDUCTOR 22uH	
L008	1-414-186-31	INDUCTOR 33uH	
L009	1-410-381-11	INDUCTOR CHIP 10uH	
L010	1-410-381-11	INDUCTOR CHIP 10uH	
L011	1-414-186-31	INDUCTOR 33uH	
L013	1-414-186-31	INDUCTOR 33uH	
L018	1-410-391-11	INDUCTOR CHIP 68uH	
L020	1-408-412-00	INDUCTOR 18uH	
L201	1-414-189-31	INDUCTOR 100uH	
L202	1-414-187-11	INDUCTOR 47uH	

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

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

MB-702

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
L203	1-408-418-00	INDUCTOR 56uH		Q041	8-729-230-49	TRANSISTOR 2SC2712-YG	
L204	1-414-180-11	INDUCTOR 3.3uH		Q042	8-729-230-49	TRANSISTOR 2SC2712-YG	
L401	1-414-183-41	INDUCTOR 10uH		Q201	8-729-230-49	TRANSISTOR 2SC2712-YG	
L402	1-414-183-41	INDUCTOR 10uH		Q202	8-729-230-49	TRANSISTOR 2SC2712-YG	
L403	1-414-183-41	INDUCTOR 10uH		Q203	8-729-230-49	TRANSISTOR 2SC2712-YG	
L404	1-414-183-41	INDUCTOR 10uH		Q204	8-729-230-49	TRANSISTOR 2SC2712-YG	
L501	1-414-183-41	INDUCTOR 10uH		Q205	8-729-207-68	TRANSISTOR RN2402	
L502	1-408-765-21	INDUCTOR CHIP 1uH		Q206	8-729-230-49	TRANSISTOR 2SC2712-YG	
L701	1-424-219-21	COIL, CHOKE 300uH		Q207	8-729-202-38	TRANSISTOR 2SC3326N	
L702	1-410-339-11	COIL, CHOKE 10uH		Q208	8-729-202-38	TRANSISTOR 2SC3326N	
L703	1-414-183-41	INDUCTOR 10uH		Q209	8-729-202-38	TRANSISTOR 2SC3326N	
L704	1-424-219-11	COIL, CHOKE 300uH		Q210	8-729-202-38	TRANSISTOR 2SC3326N	
L705	1-410-339-11	COIL, CHOKE 10uH		Q211	8-729-202-38	TRANSISTOR 2SC3326N	
< TRANSISTOR >				Q212	8-729-202-38	TRANSISTOR 2SC3326N	
Q001	8-729-216-22	TRANSISTOR 2SA1162-G		Q213	8-729-202-38	TRANSISTOR 2SC3326N	
Q002	8-729-230-49	TRANSISTOR 2SC2712-YG		Q214	8-729-202-38	TRANSISTOR 2SC3326N	
Q003	8-729-216-22	TRANSISTOR 2SA1162-G		Q215	8-729-207-68	TRANSISTOR RN2402	
Q004	8-729-230-49	TRANSISTOR 2SC2712-YG		Q217	8-729-207-68	TRANSISTOR RN2402	
Q005	8-729-207-58	TRANSISTOR RN1404		Q218	8-729-207-58	TRANSISTOR RN1404	
Q006	8-729-216-22	TRANSISTOR 2SA1162-G		Q219	8-729-207-68	TRANSISTOR RN2402	
Q007	8-729-216-22	TRANSISTOR 2SA1162-G		Q220	8-729-207-58	TRANSISTOR RN1404	
Q008	8-729-900-53	TRANSISTOR DTC114EK		Q221	8-729-207-58	TRANSISTOR RN1404	
Q009	8-729-216-22	TRANSISTOR 2SA1162-G		Q225	8-729-202-38	TRANSISTOR 2SC3326N	
Q010	8-729-216-22	TRANSISTOR 2SA1162-G		Q226	8-729-202-38	TRANSISTOR 2SC3326N	
Q011	8-729-230-49	TRANSISTOR 2SC2712-YG		Q401	8-729-216-22	TRANSISTOR 2SA1162-G	
Q012	8-729-230-49	TRANSISTOR 2SC2712-YG		Q403	8-729-924-90	TRANSISTOR 2SB1370-EF	
Q013	8-729-230-49	TRANSISTOR 2SC2712-YG		Q404	8-729-209-15	TRANSISTOR 2SD2012	
Q014	8-729-216-22	TRANSISTOR 2SA1162-G		Q405	8-729-209-15	TRANSISTOR 2SD2012	
Q015	8-729-216-22	TRANSISTOR 2SA1162-G		Q406	8-729-924-90	TRANSISTOR 2SB1370-EF	
Q016	8-729-216-22	TRANSISTOR 2SA1162-G		Q408	8-729-207-70	TRANSISTOR RN2404	
Q017	8-729-230-49	TRANSISTOR 2SC2712-YG		Q409	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q018	8-729-216-22	TRANSISTOR 2SA1162-G		Q410	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q019	8-729-230-49	TRANSISTOR 2SC2712-YG		Q411	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q020	8-729-230-49	TRANSISTOR 2SC2712-YG		Q501	8-729-216-22	TRANSISTOR 2SA1162-G	
Q023	8-729-216-22	TRANSISTOR 2SA1162-G		Q502	8-729-207-69	TRANSISTOR RN2403	
Q024	8-729-216-22	TRANSISTOR 2SA1162-G		Q503	8-729-207-69	TRANSISTOR RN2403	
Q025	8-729-216-22	TRANSISTOR 2SA1162-G		Q504	8-729-207-69	TRANSISTOR RN2403	
Q026	8-729-216-22	TRANSISTOR 2SA1162-G		Q505	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q027	8-729-230-49	TRANSISTOR 2SC2712-YG		△Q701	8-729-019-29	TRANSISTOR 2SB1009R	
Q028	8-729-230-49	TRANSISTOR 2SC2712-YG		△Q702	8-729-019-29	TRANSISTOR 2SB1009R	
Q030	8-729-230-49	TRANSISTOR 2SC2712-YG		< RESISTOR >			
Q031	8-729-230-49	TRANSISTOR 2SC2712-YG		R001	1-216-081-00	METAL CHIP 22K 5% 1/10W	
Q032	8-729-230-49	TRANSISTOR 2SC2712-YG		R002	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
Q033	8-729-230-49	TRANSISTOR 2SC2712-YG		R003	1-216-047-00	METAL CHIP 820 5% 1/10W	
Q034	8-729-230-49	TRANSISTOR 2SC2712-YG		R004	1-216-043-00	METAL CHIP 560 5% 1/10W	
Q035	8-729-230-49	TRANSISTOR 2SC2712-YG		R005	1-216-073-00	METAL CHIP 10K 5% 1/10W	
Q039	8-729-230-49	TRANSISTOR 2SC2712-YG		R006	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
Q040	8-729-230-49	TRANSISTOR 2SC2712-YG					

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

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

Ref. No.	Part No.	Description	Remark		
R007	1-216-049-00	METAL CHIP	1K	5%	1/10W
R008	1-216-035-00	METAL CHIP	270	5%	1/10W
R009	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R010	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R011	1-216-064-00	METAL CHIP	4.3K	5%	1/10W
R012	1-216-045-00	METAL CHIP	680	5%	1/10W
R013	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R014	1-216-295-00	METAL CHIP	0	5%	1/10W
R015	1-216-041-00	METAL CHIP	470	5%	1/10W
R016	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R017	1-216-081-00	METAL CHIP	22K	5%	1/10W
R018	1-216-062-00	METAL CHIP	3.6K	5%	1/10W
R019	1-216-081-00	METAL CHIP	22K	5%	1/10W
R020	1-216-037-00	METAL CHIP	330	5%	1/10W
R021	1-216-049-00	METAL CHIP	1K	5%	1/10W
R022	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R023	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R024	1-216-073-00	METAL CHIP	10K	5%	1/10W
R025	1-216-073-00	METAL CHIP	10K	5%	1/10W
R026	1-216-295-00	METAL CHIP	0	5%	1/10W
R027	1-216-081-00	METAL CHIP	22K	5%	1/10W
R028	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R029	1-216-085-00	METAL CHIP	33K	5%	1/10W
R030	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R031	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R032	1-216-049-00	METAL CHIP	1K	5%	1/10W
R033	1-216-079-00	METAL CHIP	18K	5%	1/10W
R034	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R035	1-216-075-00	METAL CHIP	12K	5%	1/10W
R036	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R037	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R038	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R039	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R040	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R041	1-216-049-00	METAL CHIP	1K	5%	1/10W
R042	1-216-049-00	METAL CHIP	1K	5%	1/10W
R043	1-216-075-00	METAL CHIP	12K	5%	1/10W
R044	1-216-049-00	METAL CHIP	1K	5%	1/10W
R045	1-216-041-00	METAL CHIP	470	5%	1/10W
R046	1-216-049-00	METAL CHIP	1K	5%	1/10W
R047	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R048	1-216-045-00	METAL CHIP	680	5%	1/10W
R049	1-216-045-00	METAL CHIP	680	5%	1/10W
R050	1-216-049-00	METAL CHIP	1K	5%	1/10W
R051	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R052	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R053	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R054	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R055	1-216-049-00	METAL CHIP	1K	5%	1/10W

Ref. No.	Part No.	Description	Remark		
R056	1-216-073-00	METAL CHIP	10K	5%	1/10W
R057	1-216-045-00	METAL CHIP	680	5%	1/10W
R058	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R059	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R060	1-216-041-00	METAL CHIP	470	5%	1/10W
R061	1-216-049-00	METAL CHIP	1K	5%	1/10W
R062	1-216-049-00	METAL CHIP	1K	5%	1/10W
R063	1-216-031-00	METAL CHIP	180	5%	1/10W
R064	1-216-049-00	METAL CHIP	1K	5%	1/10W
R065	1-216-031-00	METAL CHIP	180	5%	1/10W
R066	1-216-674-11	METAL CHIP	9.1K	0.5%	1/10W
R067	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R068	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R069	1-216-033-00	METAL CHIP	220	5%	1/10W
R070	1-216-037-00	METAL CHIP	330	5%	1/10W
R071	1-216-693-11	METAL CHIP	56K	0.5%	1/10W
R072	1-216-295-00	METAL CHIP	0	5%	1/10W
R073	1-216-093-00	METAL CHIP	68K	5%	1/10W
R074	1-216-037-00	METAL CHIP	330	5%	1/10W
R075	1-216-041-00	METAL CHIP	470	5%	1/10W
R076	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R077	1-216-041-00	METAL CHIP	470	5%	1/10W
R078	1-216-041-00	METAL CHIP	470	5%	1/10W
R079	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R080	1-216-046-00	METAL CHIP	750	5%	1/10W
R081	1-216-041-00	METAL CHIP	470	5%	1/10W
R082	1-216-047-00	METAL CHIP	820	5%	1/10W
R083	1-216-041-00	METAL CHIP	470	5%	1/10W
R084	1-216-041-00	METAL CHIP	470	5%	1/10W
R085	1-216-041-00	METAL CHIP	470	5%	1/10W
R087	1-216-041-00	METAL CHIP	470	5%	1/10W
R088	1-216-073-00	METAL CHIP	10K	5%	1/10W
R089	1-216-095-00	METAL CHIP	82K	5%	1/10W
R090	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R091	1-216-295-00	METAL CHIP	0	5%	1/10W
R092	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R093	1-216-119-00	METAL CHIP	820K	5%	1/10W
R095	1-216-041-00	METAL CHIP	470	5%	1/10W
R096	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R097	1-216-081-00	METAL CHIP	22K	5%	1/10W
R098	1-216-095-00	METAL CHIP	82K	5%	1/10W
R100	1-216-039-00	METAL CHIP	390	5%	1/10W
R101	1-216-041-00	METAL CHIP	470	5%	1/10W
R102	1-216-041-00	METAL CHIP	470	5%	1/10W
R103	1-216-041-00	METAL CHIP	470	5%	1/10W
R104	1-216-041-00	METAL CHIP	470	5%	1/10W
R105	1-216-041-00	METAL CHIP	470	5%	1/10W
R106	1-216-041-00	METAL CHIP	470	5%	1/10W
R107	1-216-047-00	METAL CHIP	820	5%	1/10W

MB-702

Ref. No.	Part No.	Description	Remark		
R108	1-216-041-00	METAL CHIP	470	5%	1/10W
R109	1-216-041-00	METAL CHIP	470	5%	1/10W
R110	1-216-295-00	METAL CHIP	0	5%	1/10W
R111	1-216-295-00	METAL CHIP	0	5%	1/10W
R112	1-216-037-00	METAL CHIP	330	5%	1/10W
R113	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R114	1-216-049-00	METAL CHIP	1K	5%	1/10W
R115	1-216-121-00	METAL CHIP	1M	5%	1/10W
R116	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R117	1-216-049-00	METAL CHIP	1K	5%	1/10W
R118	1-216-091-00	METAL CHIP	56K	5%	1/10W
R119	1-216-037-00	METAL CHIP	330	5%	1/10W
R120	1-216-031-00	METAL CHIP	180	5%	1/10W
R121	1-216-081-00	METAL CHIP	22K	5%	1/10W
R122	1-216-081-00	METAL CHIP	22K	5%	1/10W
R123	1-216-031-00	METAL CHIP	180	5%	1/10W
R124	1-216-031-00	METAL CHIP	180	5%	1/10W
R125	1-216-081-00	METAL CHIP	22K	5%	1/10W
R126	1-216-049-00	METAL CHIP	1K	5%	1/10W
R127	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R128	1-216-037-00	METAL CHIP	330	5%	1/10W
R129	1-216-043-00	METAL CHIP	560	5%	1/10W
R130	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R131	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R132	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R133	1-216-049-00	METAL CHIP	1K	5%	1/10W
R134	1-216-043-00	METAL CHIP	560	5%	1/10W
R135	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R136	1-216-041-00	METAL CHIP	470	5%	1/10W
R138	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R139	1-216-041-00	METAL CHIP	470	5%	1/10W
R140	1-216-029-00	METAL CHIP	150	5%	1/10W
R141	1-216-041-00	METAL CHIP	470	5%	1/10W
R142	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R144	1-216-295-00	METAL CHIP	0	5%	1/10W
R145	1-216-025-00	METAL CHIP	100	5%	1/10W
R146	1-216-113-00	METAL CHIP	470K	5%	1/10W
R147	1-216-021-00	METAL CHIP	68	5%	1/10W
R148	1-216-021-00	METAL CHIP	68	5%	1/10W
R149	1-216-041-00	METAL CHIP	470	5%	1/10W
R150	1-216-049-00	METAL CHIP	1K	5%	1/10W
R151	1-216-041-00	METAL CHIP	470	5%	1/10W
R152	1-216-041-00	METAL CHIP	470	5%	1/10W
R153	1-216-049-00	METAL CHIP	1K	5%	1/10W
R154	1-216-041-00	METAL CHIP	470	5%	1/10W
R155	1-216-021-00	METAL CHIP	68	5%	1/10W
R156	1-216-021-00	METAL CHIP	68	5%	1/10W
R157	1-216-041-00	METAL CHIP	470	5%	1/10W

Ref. No.	Part No.	Description	Remark		
R158	1-216-021-00	METAL CHIP	68	5%	1/10W
R159	1-216-049-00	METAL CHIP	1K	5%	1/10W
R161	1-216-021-00	METAL CHIP	68	5%	1/10W
R163	1-216-047-00	METAL CHIP	820	5%	1/10W
R164	1-216-021-00	METAL CHIP	68	5%	1/10W
R165	1-216-041-00	METAL CHIP	470	5%	1/10W
R166	1-216-041-00	METAL CHIP	470	5%	1/10W
R167	1-216-021-00	METAL CHIP	68	5%	1/10W
R168	1-216-021-00	METAL CHIP	68	5%	1/10W
R169	1-216-049-00	METAL CHIP	1K	5%	1/10W
R170	1-216-049-00	METAL CHIP	1K	5%	1/10W
R171	1-216-021-00	METAL CHIP	68	5%	1/10W
R172	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R176	1-216-041-00	METAL CHIP	470	5%	1/10W
R184	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R186	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R187	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R188	1-216-073-00	METAL CHIP	10K	5%	1/10W
R189	1-216-073-00	METAL CHIP	10K	5%	1/10W
R190	1-216-073-00	METAL CHIP	10K	5%	1/10W
R191	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R192	1-216-049-00	METAL CHIP	1K	5%	1/10W
R194	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R195	1-216-041-00	METAL CHIP	470	5%	1/10W
R196	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R197	1-216-049-00	METAL CHIP	1K	5%	1/10W
R198	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R201	1-216-105-00	METAL CHIP	220K	5%	1/10W
R202	1-216-097-00	METAL CHIP	100K	5%	1/10W
R203	1-216-105-00	METAL CHIP	220K	5%	1/10W
R204	1-216-097-00	METAL CHIP	100K	5%	1/10W
R205	1-216-097-00	METAL CHIP	100K	5%	1/10W
R206	1-216-073-00	METAL CHIP	10K	5%	1/10W
R207	1-216-073-00	METAL CHIP	10K	5%	1/10W
R208	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R209	1-216-073-00	METAL CHIP	10K	5%	1/10W
R210	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R211	1-216-074-00	METAL CHIP	11K	5%	1/10W
R212	1-216-097-00	METAL CHIP	100K	5%	1/10W
R213	1-216-121-00	METAL CHIP	1M	5%	1/10W
R214	1-216-049-00	METAL CHIP	1K	5%	1/10W
R215	1-216-049-00	METAL CHIP	1K	5%	1/10W
R216	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R217	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R218	1-216-047-00	METAL CHIP	820	5%	1/10W
R219	1-216-049-00	METAL CHIP	1K	5%	1/10W
R220	1-216-013-00	METAL CHIP	33	5%	1/10W
R221	1-216-013-00	METAL CHIP	33	5%	1/10W

Ref. No.	Part No.	Description	Remark		
R222	1-216-047-00	METAL CHIP	820	5%	1/10W
R223	1-216-049-00	METAL CHIP	1K	5%	1/10W
R224	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R225	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R226	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R227	1-216-017-00	METAL CHIP	47	5%	1/10W
R228	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R229	1-216-021-00	METAL CHIP	68	5%	1/10W
R230	1-216-041-00	METAL CHIP	470	5%	1/10W
R231	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R232	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R233	1-216-049-00	METAL CHIP	1K	5%	1/10W
R235	1-216-049-00	METAL CHIP	1K	5%	1/10W
R236	1-216-041-00	METAL CHIP	470	5%	1/10W
R237	1-216-073-00	METAL CHIP	10K	5%	1/10W
R238	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R239	1-216-033-00	METAL CHIP	220	5%	1/10W
R240	1-216-025-00	METAL CHIP	100	5%	1/10W
R241	1-216-025-00	METAL CHIP	100	5%	1/10W
R242	1-216-295-00	METAL CHIP	0	5%	1/10W
R243	1-216-037-00	METAL CHIP	330	5%	1/10W
R244	1-216-037-00	METAL CHIP	330	5%	1/10W
R245	1-216-037-00	METAL CHIP	330	5%	1/10W
R246	1-216-037-00	METAL CHIP	330	5%	1/10W
R247	1-216-049-00	METAL CHIP	1K	5%	1/10W
R248	1-216-073-00	METAL CHIP	10K	5%	1/10W
R249	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R250	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R251	1-216-073-00	METAL CHIP	10K	5%	1/10W
R252	1-216-085-00	METAL CHIP	33K	5%	1/10W
R253	1-216-085-00	METAL CHIP	33K	5%	1/10W
R254	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R255	1-216-095-00	METAL CHIP	82K	5%	1/10W
R256	1-216-121-00	METAL CHIP	1M	5%	1/10W
R257	1-216-097-00	METAL CHIP	100K	5%	1/10W
R258	1-216-049-00	METAL CHIP	1K	5%	1/10W
R259	1-216-097-00	METAL CHIP	100K	5%	1/10W
R260	1-216-049-00	METAL CHIP	1K	5%	1/10W
R261	1-216-073-00	METAL CHIP	10K	5%	1/10W
R262	1-216-097-00	METAL CHIP	100K	5%	1/10W
R263	1-216-049-00	METAL CHIP	1K	5%	1/10W
R264	1-216-037-00	METAL CHIP	330	5%	1/10W
R265	1-216-037-00	METAL CHIP	330	5%	1/10W
R266	1-216-037-00	METAL CHIP	330	5%	1/10W
R267	1-216-025-00	METAL CHIP	100	5%	1/10W
R268	1-216-049-00	METAL CHIP	1K	5%	1/10W
R269	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R270	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R271	1-216-689-11	METAL CHIP	39K	0.5%	1/10W

Ref. No.	Part No.	Description	Remark		
R272	1-216-077-00	METAL CHIP	15K	5%	1/10W
R273	1-216-077-00	METAL CHIP	15K	5%	1/10W
R274	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R275	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R276	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R277	1-216-091-00	METAL CHIP	56K	5%	1/10W
R278	1-216-091-00	METAL CHIP	56K	5%	1/10W
R279	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R280	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R281	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R282	1-216-077-00	METAL CHIP	15K	5%	1/10W
R283	1-216-077-00	METAL CHIP	15K	5%	1/10W
R284	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R285	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R286	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R287	1-216-091-00	METAL CHIP	56K	5%	1/10W
R288	1-216-091-00	METAL CHIP	56K	5%	1/10W
R289	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R290	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R291	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R292	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R293	1-216-105-00	METAL CHIP	220K	5%	1/10W
R294	1-216-049-00	METAL CHIP	1K	5%	1/10W
R295	1-216-049-00	METAL CHIP	1K	5%	1/10W
R296	1-216-105-00	METAL CHIP	220K	5%	1/10W
R297	1-216-049-00	METAL CHIP	1K	5%	1/10W
R298	1-216-049-00	METAL CHIP	1K	5%	1/10W
R299	1-216-047-00	METAL CHIP	820	5%	1/10W
R300	1-216-033-00	METAL CHIP	220	5%	1/10W
R301	1-216-073-00	METAL CHIP	10K	5%	1/10W
R302	1-216-105-00	METAL CHIP	220K	5%	1/10W
R303	1-216-073-00	METAL CHIP	10K	5%	1/10W
R304	1-216-105-00	METAL CHIP	220K	5%	1/10W
R305	1-216-047-00	METAL CHIP	820	5%	1/10W
R306	1-216-033-00	METAL CHIP	220	5%	1/10W
R307	1-216-049-00	METAL CHIP	1K	5%	1/10W
R308	1-216-049-00	METAL CHIP	1K	5%	1/10W
R309	1-216-047-00	METAL CHIP	820	5%	1/10W
R310	1-216-033-00	METAL CHIP	220	5%	1/10W
R311	1-216-073-00	METAL CHIP	10K	5%	1/10W
R312	1-216-105-00	METAL CHIP	220K	5%	1/10W
R313	1-216-073-00	METAL CHIP	10K	5%	1/10W
R314	1-216-105-00	METAL CHIP	220K	5%	1/10W
R315	1-216-047-00	METAL CHIP	820	5%	1/10W
R316	1-216-033-00	METAL CHIP	220	5%	1/10W
R317	1-216-049-00	METAL CHIP	1K	5%	1/10W
R318	1-216-073-00	METAL CHIP	10K	5%	1/10W
R319	1-216-073-00	METAL CHIP	10K	5%	1/10W

MB-702

Ref. No.	Part No.	Description	Remark		
R320	1-216-049-00	METAL CHIP	1K	5%	1/10W
R321	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R322	1-216-049-00	METAL CHIP	1K	5%	1/10W
R323	1-216-105-00	METAL CHIP	220K	5%	1/10W
R324	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R325	1-216-033-00	METAL CHIP	220	5%	1/10W
R326	1-216-295-00	METAL CHIP	0	5%	1/10W
R327	1-216-296-00	METAL CHIP	0	5%	1/8W
R328	1-216-296-00	METAL CHIP	0	5%	1/8W
R329	1-216-073-00	METAL CHIP	10K	5%	1/10W
R330	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R331	1-216-043-00	METAL CHIP	560	5%	1/10W
R332	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R333	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R334	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R335	1-216-073-00	METAL CHIP	10K	5%	1/10W
R336	1-216-045-00	METAL CHIP	680	5%	1/10W
R337	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R338	1-216-043-00	METAL CHIP	560	5%	1/10W
R339	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R340	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R341	1-216-651-11	METAL CHIP	1K	0.5%	1/10W
R342	1-216-073-00	METAL CHIP	10K	5%	1/10W
R343	1-216-045-00	METAL CHIP	680	5%	1/10W
R344	1-216-105-00	METAL CHIP	220K	5%	1/10W
R345	1-216-097-00	METAL CHIP	100K	5%	1/10W
R346	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R347	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R357	1-216-295-00	METAL CHIP	0	5%	1/10W
R358	1-216-295-00	METAL CHIP	0	5%	1/10W
R369	1-216-025-00	METAL CHIP	100	5%	1/10W
R375	1-216-025-00	METAL CHIP	100	5%	1/10W
R376	1-216-025-00	METAL CHIP	100	5%	1/10W
R378	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R379	1-216-077-00	METAL CHIP	15K	5%	1/10W
R380	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R381	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R384	1-216-073-00	METAL CHIP	10K	5%	1/10W
R385	1-216-073-00	METAL CHIP	10K	5%	1/10W
R401	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R402	1-216-045-00	METAL CHIP	680	5%	1/10W
R403	1-216-045-00	METAL CHIP	680	5%	1/10W
R404	1-216-107-00	METAL CHIP	270K	5%	1/10W
R406	1-216-099-00	METAL CHIP	120K	5%	1/10W
R407	1-216-075-00	METAL CHIP	12K	5%	1/10W
R408	1-216-083-00	METAL CHIP	27K	5%	1/10W
R409	1-216-049-00	METAL CHIP	1K	5%	1/10W
R410	1-216-101-00	METAL CHIP	150K	5%	1/10W

Ref. No.	Part No.	Description	Remark		
R411	1-216-077-00	METAL CHIP	15K	5%	1/10W
R412	1-216-101-00	METAL CHIP	150K	5%	1/10W
R413	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R414	1-216-075-00	METAL CHIP	12K	5%	1/10W
R415	1-216-085-00	METAL CHIP	33K	5%	1/10W
R416	1-216-103-00	METAL CHIP	180K	5%	1/10W
R417	1-216-097-00	METAL CHIP	100K	5%	1/10W
R418	1-216-091-00	METAL CHIP	56K	5%	1/10W
R419	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R420	1-216-097-00	METAL CHIP	100K	5%	1/10W
R421	1-216-097-00	METAL CHIP	100K	5%	1/10W
R422	1-216-097-00	METAL CHIP	100K	5%	1/10W
R423	1-216-101-00	METAL CHIP	150K	5%	1/10W
R424	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R425	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R426	1-216-097-00	METAL CHIP	100K	5%	1/10W
R427	1-216-099-00	METAL CHIP	120K	5%	1/10W
R428	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R429	1-216-109-00	METAL CHIP	330K	5%	1/10W
R430	1-216-097-00	METAL CHIP	100K	5%	1/10W
R431	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R432	1-216-082-00	METAL GLAZE	24K	5%	1/10W
R433	1-216-100-00	METAL GLAZE	130K	5%	1/10W
R434	1-216-097-00	METAL CHIP	100K	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
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

Ref. No.	Part No.	Description	Remark		
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
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	1-249-387-11	CARBON	3.3	5%	1/4W F
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
R487	1-216-093-00	METAL CHIP	68K	5%	1/10W
R488	1-216-095-00	METAL CHIP	82K	5%	1/10W
R489	1-216-109-00	METAL CHIP	330K	5%	1/10W
R490	1-216-097-00	METAL CHIP	100K	5%	1/10W
R491	1-249-425-11	CARBON	4.7K	5%	1/4W F
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
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	1-216-679-11	METAL CHIP	15K	0.5%	1/10W
R515	1-216-687-11	METAL CHIP	33K	0.5%	1/10W

Ref. No.	Part No.	Description	Remark		
R516	1-216-085-00	METAL CHIP	33K	5%	1/10W
R517	1-216-105-00	METAL CHIP	220K	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
R534	1-216-105-00	METAL CHIP	220K	5%	1/10W
R535	1-216-093-00	METAL CHIP	68K	5%	1/10W
R536	1-216-095-00	METAL CHIP	82K	5%	1/10W
R537	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R538	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R539	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R540	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R541	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R542	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R543	1-216-049-00	METAL CHIP	1K	5%	1/10W
R544	1-216-049-00	METAL CHIP	1K	5%	1/10W
R546	1-216-049-00	METAL CHIP	1K	5%	1/10W
R547	1-216-049-00	METAL CHIP	1K	5%	1/10W
R548	1-216-073-00	METAL CHIP	10K	5%	1/10W
R549	1-216-105-00	METAL CHIP	220K	5%	1/10W
R550	1-216-035-00	METAL CHIP	270	5%	1/10W
R551	1-216-121-00	METAL CHIP	1M	5%	1/10W
R552	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R553	1-216-013-00	METAL CHIP	33	5%	1/10W
R554	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R555	1-216-035-00	METAL CHIP	270	5%	1/10W
R556	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R557	1-216-081-00	METAL CHIP	22K	5%	1/10W
R558	1-216-021-00	METAL CHIP	68	5%	1/10W
R559	1-216-097-00	METAL CHIP	100K	5%	1/10W
R560	1-216-049-00	METAL CHIP	1K	5%	1/10W
R561	1-216-049-00	METAL CHIP	1K	5%	1/10W
R564	1-216-049-00	METAL CHIP	1K	5%	1/10W
R566	1-216-049-00	METAL CHIP	1K	5%	1/10W
R567	1-216-049-00	METAL CHIP	1K	5%	1/10W
R568	1-216-049-00	METAL CHIP	1K	5%	1/10W
R569	1-216-049-00	METAL CHIP	1K	5%	1/10W

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

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

MB-702

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
R570	1-216-049-00	METAL CHIP	1K	5%	1/10W	R624	1-216-049-00	METAL CHIP	1K	5%	1/10W
R571	1-216-049-00	METAL CHIP	1K	5%	1/10W	R625	1-216-049-00	METAL CHIP	1K	5%	1/10W
R572	1-216-049-00	METAL CHIP	1K	5%	1/10W	R626	1-216-049-00	METAL CHIP	1K	5%	1/10W
R573	1-216-049-00	METAL CHIP	1K	5%	1/10W	R627	1-216-295-00	METAL CHIP	0	5%	1/10W
R574	1-216-049-00	METAL CHIP	1K	5%	1/10W	R628	1-216-041-00	METAL CHIP	470	5%	1/10W
R576	1-216-049-00	METAL CHIP	1K	5%	1/10W	R629	1-216-295-00	METAL CHIP	0	5%	1/10W
R577	1-216-049-00	METAL CHIP	1K	5%	1/10W	R630	1-216-295-00	METAL CHIP	0	5%	1/10W
R578	1-216-049-00	METAL CHIP	1K	5%	1/10W	R631	1-216-295-00	METAL CHIP	0	5%	1/10W
R579	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R632	1-216-049-00	METAL CHIP	1K	5%	1/10W
R580	1-216-049-00	METAL CHIP	1K	5%	1/10W	R633	1-216-097-00	METAL CHIP	100K	5%	1/10W
R581	1-216-049-00	METAL CHIP	1K	5%	1/10W	R634	1-216-073-00	METAL CHIP	10K	5%	1/10W
R582	1-216-049-00	METAL CHIP	1K	5%	1/10W	R635	1-216-049-00	METAL CHIP	1K	5%	1/10W
R583	1-216-049-00	METAL CHIP	1K	5%	1/10W	R636	1-216-049-00	METAL CHIP	1K	5%	1/10W
R585	1-216-049-00	METAL CHIP	1K	5%	1/10W	R637	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R586	1-216-049-00	METAL CHIP	1K	5%	1/10W	R638	1-216-081-00	METAL CHIP	22K	5%	1/10W
R587	1-216-049-00	METAL CHIP	1K	5%	1/10W	R639	1-216-081-00	METAL CHIP	22K	5%	1/10W
R588	1-216-049-00	METAL CHIP	1K	5%	1/10W	R642	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R589	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R643	1-216-049-00	METAL CHIP	1K	5%	1/10W
R590	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R644	1-216-049-00	METAL CHIP	1K	5%	1/10W
R591	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R701	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W
R592	1-216-049-00	METAL CHIP	1K	5%	1/10W	R702	1-216-683-11	METAL CHIP	22K	0.5%	1/10W
R593	1-216-049-00	METAL CHIP	1K	5%	1/10W	R703	1-216-035-00	METAL CHIP	270	5%	1/10W
R594	1-216-049-00	METAL CHIP	1K	5%	1/10W	R704	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R595	1-216-049-00	METAL CHIP	1K	5%	1/10W	R705	1-216-043-00	METAL CHIP	560	5%	1/10W
R596	1-216-049-00	METAL CHIP	1K	5%	1/10W	R706	1-216-043-00	METAL CHIP	560	5%	1/10W
R597	1-216-049-00	METAL CHIP	1K	5%	1/10W	R707	1-216-091-00	METAL CHIP	56K	5%	1/10W
R598	1-216-049-00	METAL CHIP	1K	5%	1/10W	R708	1-216-109-00	METAL CHIP	330K	5%	1/10W
R599	1-216-049-00	METAL CHIP	1K	5%	1/10W	R709	1-216-119-00	METAL CHIP	820K	5%	1/10W
R601	1-216-049-00	METAL CHIP	1K	5%	1/10W	R710	1-216-043-00	METAL CHIP	560	5%	1/10W
R603	1-216-049-00	METAL CHIP	1K	5%	1/10W	R711	1-216-699-11	METAL CHIP	100K	0.5%	1/10W
R604	1-216-049-00	METAL CHIP	1K	5%	1/10W	R712	1-216-683-11	METAL CHIP	22K	0.5%	1/10W
R605	1-216-049-00	METAL CHIP	1K	5%	1/10W	R713	1-216-663-11	METAL CHIP	3.3K	0.5%	1/10W
R606	1-216-049-00	METAL CHIP	1K	5%	1/10W	R714	1-216-674-11	METAL CHIP	9.1K	0.5%	1/10W
R607	1-216-049-00	METAL CHIP	1K	5%	1/10W	R715	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R608	1-216-049-00	METAL CHIP	1K	5%	1/10W	R716	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R609	1-216-049-00	METAL CHIP	1K	5%	1/10W	R717	1-216-029-00	METAL CHIP	150	5%	1/10W
R610	1-216-049-00	METAL CHIP	1K	5%	1/10W	R801	1-216-105-00	METAL CHIP	220K	5%	1/10W
R611	1-216-049-00	METAL CHIP	1K	5%	1/10W	R802	1-216-105-00	METAL CHIP	220K	5%	1/10W
R612	1-216-049-00	METAL CHIP	1K	5%	1/10W	R803	1-216-295-00	METAL CHIP	0	5%	1/10W
R613	1-216-049-00	METAL CHIP	1K	5%	1/10W	R804	1-216-097-00	METAL CHIP	100K	5%	1/10W
R614	1-216-049-00	METAL CHIP	1K	5%	1/10W	R805	1-216-117-00	METAL CHIP	680K	5%	1/10W
R615	1-216-049-00	METAL CHIP	1K	5%	1/10W	R806	1-216-085-00	METAL CHIP	33K	5%	1/10W
R616	1-216-049-00	METAL CHIP	1K	5%	1/10W	R807	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R617	1-216-049-00	METAL CHIP	1K	5%	1/10W	R808	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R618	1-216-049-00	METAL CHIP	1K	5%	1/10W	R809	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R620	1-216-049-00	METAL CHIP	1K	5%	1/10W	R810	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R621	1-216-049-00	METAL CHIP	1K	5%	1/10W	R812	1-216-295-00	METAL CHIP	0	5%	1/10W
R622	1-216-049-00	METAL CHIP	1K	5%	1/10W	R813	1-216-295-00	METAL CHIP	0	5%	1/10W
R623	1-216-049-00	METAL CHIP	1K	5%	1/10W						

MB-702

MD-703

ME-701

Ref. No.	Part No.	Description	Remark
R814	1-216-295-00	METAL CHIP 0 5% 1/10W	
		< VARIABLE RESISTOR >	
RV001	1-241-081-11	RES, ADJ, CARBON 22K	
RV401	1-241-083-11	RES, ADJ, CARBON 47K	
RV402	1-241-083-11	RES, ADJ, CARBON 47K	
		< SWITCH >	
S201	1-553-725-21	SWITCH, SLIDE (ATTENUATOR)	
		< TRANSFORMER >	
T201	1-406-647-11	COIL	
		< VIBRATOR >	
X001	1-579-617-11	VIBRATOR, CRYSTAL 29.1958MHz	
X201	1-579-618-11	VIBRATOR, CRYSTAL 22.5MHz	

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

		(Ref. No. 2,000 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 CHIP 0 5% 1/8W	
JR414	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR431	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR432	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR433	1-216-296-00	METAL CHIP 0 5% 1/8W	

Ref. No.	Part No.	Description	Remark
JR435	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR437	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR438	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR439	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR440	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR441	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR442	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR443	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR444	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR445	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR446	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR447	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR448	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR449	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR450	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR451	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR452	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR453	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR454	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR455	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR456	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR457	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR458	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR460	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR461	1-216-296-00	METAL CHIP 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-6423-049-A		ME-701 BOARD, COMPLETE	

		(Ref. No. 1,000 Series)	
		< CAPACITOR >	
C789	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C790	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C791	1-165-319-11	CERAMIC CHIP 0.1uF 50V	
C792	1-165-319-11	CERAMIC CHIP 0.1uF 50V	

ME-701

MI-703

Ref. No.	Part No.	Description	Remark		
C793	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C795	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
C796	1-163-141-00	CERAMIC CHIP	0.001uF	5%	50V
< CONNECTOR >					
CN791	1-569-335-11	CONNECTOR, BOARD TO BOARD 9P			
CN792	1-764-179-11	CONNECTOR, BOARD TO BOARD 13P			
CN793	1-573-538-11	CONNECTOR, BOARD TO BOARD 8P			
< FERRITE BEAD >					
FB783	1-414-135-11	INDUCTOR CHIP OUH			
FB784	1-414-135-11	INDUCTOR CHIP OUH			
FB785	1-414-135-11	INDUCTOR CHIP OUH			
FB786	1-414-135-11	INDUCTOR CHIP OUH			
FB787	1-414-135-11	INDUCTOR CHIP OUH			
FB789	1-414-135-11	INDUCTOR CHIP OUH			
FB790	1-414-135-11	INDUCTOR CHIP OUH			
FB791	1-414-135-11	INDUCTOR CHIP OUH			
FB792	1-414-135-11	INDUCTOR CHIP OUH			
FB793	1-414-135-11	INDUCTOR CHIP OUH			
FB794	1-414-135-11	INDUCTOR CHIP OUH			
FB795	1-414-135-11	INDUCTOR CHIP OUH			
FB796	1-414-135-11	INDUCTOR CHIP OUH			
FB797	1-414-135-11	INDUCTOR CHIP OUH			
FB798	1-414-135-11	INDUCTOR CHIP OUH			
FB799	1-414-135-11	INDUCTOR CHIP OUH			
< FILTER >					
FL791	1-236-071-11	ENCAPSULATED COMPONENT			
FL792	1-236-071-11	ENCAPSULATED COMPONENT			
FL793	1-236-071-11	ENCAPSULATED COMPONENT			
< IC >					
IC791	8-759-081-65	IC MSM7H007-023GS-VK			
IC792	8-759-172-96	IC MSM518221-30JS			
< RESISTOR >					
R776	1-216-295-00	METAL CHIP	0	5%	1/10W
R777	1-216-049-00	METAL CHIP	1K	5%	1/10W
R779	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R782	1-216-113-00	METAL CHIP	470K	5%	1/10W
R783	1-216-113-00	METAL CHIP	470K	5%	1/10W
R784	1-216-049-00	METAL CHIP	1K	5%	1/10W
R785	1-216-049-00	METAL CHIP	1K	5%	1/10W
R786	1-216-049-00	METAL CHIP	1K	5%	1/10W
R787	1-216-049-00	METAL CHIP	1K	5%	1/10W
R788	1-216-049-00	METAL CHIP	1K	5%	1/10W

Ref. No.	Part No.	Description	Remark		
R789	1-216-049-00	METAL CHIP	1K	5%	1/10W
R790	1-216-049-00	METAL CHIP	1K	5%	1/10W
R791	1-216-049-00	METAL CHIP	1K	5%	1/10W
R792	1-216-049-00	METAL CHIP	1K	5%	1/10W
R793	1-216-049-00	METAL CHIP	1K	5%	1/10W
R794	1-216-049-00	METAL CHIP	1K	5%	1/10W
R795	1-216-049-00	METAL CHIP	1K	5%	1/10W
R796	1-216-049-00	METAL CHIP	1K	5%	1/10W
R797	1-216-049-00	METAL CHIP	1K	5%	1/10W
R798	1-216-049-00	METAL CHIP	1K	5%	1/10W
R799	1-216-049-00	METAL CHIP	1K	5%	1/10W

* A-6423-043-A MI-703 BOARD, COMPLETE					

(Ref. No. 4,000 Series)					
< CAPACITOR >					
C501	1-126-160-11	ELECT	1uF	20%	50V
C502	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C503	1-126-160-11	ELECT	1uF	20%	50V
C504	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C505	1-126-163-11	ELECT	4.7uF	20%	50V
C506	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C507	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C508	1-126-163-11	ELECT	4.7uF	20%	50V
C509	1-124-584-00	ELECT	100uF	20%	10V
C510	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C511	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C512	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C513	1-162-638-11	CERAMIC CHIP	1uF		16V
C514	1-124-584-00	ELECT	100uF	20%	10V
C515	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C516	1-163-135-00	CERAMIC CHIP	560PF	5%	50V
C517	1-163-018-00	CERAMIC CHIP	0.0056uF	5%	50V
C518	1-162-638-11	CERAMIC CHIP	1uF		16V
C519	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C520	1-124-589-11	ELECT	47uF	20%	16V
C521	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C522	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C523	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C524	1-163-018-00	CERAMIC CHIP	0.0056uF	5%	50V
C525	1-163-135-00	CERAMIC CHIP	560PF	5%	50V
C526	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C527	1-162-638-11	CERAMIC CHIP	1uF		16V
C528	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C529	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C530	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C531	1-163-038-00	CERAMIC CHIP	0.1uF		25V

MI-703

MT-702

MT-703

Ref. No.	Part No.	Description	Remark
C532	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C533	1-163-251-11	CERAMIC CHIP 100PF	5% 50V
C534	1-163-239-11	CERAMIC CHIP 33PF	5% 50V
C535	1-124-589-11	ELECT 47uF	20% 16V
C536	1-124-589-11	ELECT 47uF	20% 16V
< CONNECTOR >			
CN501	1-506-470-11	PIN, CONNECTOR 5P	
< DIODE >			
D501	8-719-800-76	DIODE 1SS226	
< FERRITE BEAD >			
FB501	1-410-991-11	INDUCTOR CHIP 0.68UH	
FB503	1-410-377-31	INDUCTOR CHIP 4.7uH	
< FILTER >			
FL501	1-236-728-11	ENCAPSULATED COMPONENT	
FL502	1-236-728-11	ENCAPSULATED COMPONENT	
< IC >			
IC501	8-759-053-14	IC M65831FP-600C	
IC502	8-759-636-55	IC M5218AFP	
IC503	8-759-924-46	IC BA4560F	
△IC504	8-759-630-34	IC M5278L05M	
< JACK >			
J501	1-569-112-31	JACK, LARGE TYPE (MIC)	
< JUMPER RESISTOR >			
JR502	1-216-295-00	METAL CHIP 0 5%	1/10W (A7)
< COIL >			
L501	1-414-189-31	INDUCTOR 100uH	
< RESISTOR >			
R501	1-216-025-00	METAL CHIP 100 5%	1/10W
R502	1-216-097-00	METAL CHIP 100K 5%	1/10W
R503	1-216-073-00	METAL CHIP 10K 5%	1/10W
R504	1-216-055-00	METAL CHIP 1.8K 5%	1/10W
R505	1-216-077-00	METAL CHIP 15K 5%	1/10W
R506	1-216-073-00	METAL CHIP 10K 5%	1/10W
R507	1-216-067-00	METAL CHIP 5.6K 5%	1/10W
R508	1-216-073-00	METAL CHIP 10K 5%	1/10W
R509	1-216-073-00	METAL CHIP 10K 5%	1/10W
R510	1-216-073-00	METAL CHIP 10K 5%	1/10W

Ref. No.	Part No.	Description	Remark
R511	1-216-121-00	METAL CHIP 1M 5%	1/10W
R512	1-216-081-00	METAL CHIP 22K 5%	1/10W
R513	1-216-077-00	METAL CHIP 15K 5%	1/10W
R514	1-216-073-00	METAL CHIP 10K 5%	1/10W
R515	1-216-077-00	METAL CHIP 15K 5%	1/10W
R516	1-216-077-00	METAL CHIP 15K 5%	1/10W
R517	1-216-073-00	METAL CHIP 10K 5%	1/10W
R518	1-216-077-00	METAL CHIP 15K 5%	1/10W
R519	1-216-081-00	METAL CHIP 22K 5%	1/10W
R520	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R521	1-216-059-00	METAL CHIP 2.7K 5%	1/10W
R522	1-216-049-00	METAL CHIP 1K 5%	1/10W
R523	1-216-097-00	METAL CHIP 100K 5%	1/10W
R524	1-216-009-00	METAL CHIP 22 5%	1/10W
R525	1-216-009-00	METAL CHIP 22 5%	1/10W
< VARIABLE RESISTOR >			
RV501	1-223-190-11	RES, VAR, CARBON 10K/10K (MIC ECHO)	
< VIBRATOR >			
X501	1-577-260-21	VIBRATOR, CERAMIC	

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

(Ref. No. 3, 000 Series)			
< CAPACITOR >			
C471	1-161-063-00	CERAMIC 0.1uF	10% 50V
< CONNECTOR >			
* CN471	1-695-105-11	PIN, CONNECTOR (PC BOARD) 3P	
< MOTOR >			
M471	X-3942-963-1	MOTOR ASSY (LOADING)	

*	A-6421-955-A	MT-703 BOARD, COMPLETE	

(Ref. No. 2, 000 Series)			
< MOTOR >			
M903	X-3942-968-1	TILT MOTOR ASSY	

<p>The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.</p>	<p>Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.</p>
---	---

PS-713

Ref. No.	Part No.	Description	Remark
*	A-6423-039-A	PS-713 BOARD, COMPLETE (800) ***** (Ref. No. 6, 000 Series)	
*	A-6423-045-A	PS-713 BOARD, COMPLETE (A7) ***** (Ref. No. 6, 000 Series)	
△	1-533-189-11	HOLDER, FUSE	
< 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
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
C039	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C040	1-126-103-11	ELECT 470uF	20% 16V
C041	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C042	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C043	1-126-103-11	ELECT 470uF	20% 16V
C044	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C045	1-124-563-11	ELECT 2200uF	20% 25V
C047	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
< CONNECTOR >			
* CN030	1-564-029-00	PIN, CONNECTOR 4P	
CN031	1-506-483-21	PIN, CONNECTOR 4P	
CN051	1-506-490-21	PIN, CONNECTOR 11P	
CN052	1-564-506-11	PLUG, CONNECTOR 3P	
CN053	1-506-483-21	PIN, CONNECTOR 4P	
< DIODE >			
△D031	8-719-200-82	DIODE 11ES2	
△D032	8-719-200-82	DIODE 11ES2	

Ref. No.	Part No.	Description	Remark
D033	8-719-911-19	DIODE 1SS119	
△D034	8-719-025-17	DIODE D3SBA10-4100	
△D035	8-719-200-82	DIODE 11ES2	
△D036	8-719-980-78	DIODE ERA81-006	
△D037	8-719-980-78	DIODE ERA81-006	
△D038	8-719-980-78	DIODE ERA81-006	
△D039	8-719-980-78	DIODE ERA81-006	
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	
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	
< FUSE >			
△F031	1-532-299-00	FUSE, TIME-LAG 5A 250V (A7)	
△F031	1-532-747-11	FUSE, GLASS TUBE 5A 125V (800)	
△F032	1-532-299-00	FUSE, TIME-LAG 5A 250V (A7)	
△F032	1-532-747-11	FUSE, GLASS TUBE 5A 125V (800)	
F053	1-532-780-21	FUSE, MICRO 2.5A 125V (800)	
F054	1-532-780-21	FUSE, MICRO 2.5A 125V (800)	
< IC >			
△IC031	8-759-231-53	IC TA7805S	
△IC032	8-759-701-58	IC NJM78M08FA	
△IC033	8-759-701-67	IC NJM79M08FA	
IC051	8-759-100-93	IC uPC393G2	
IC052	8-759-996-43	IC RC4558PS	
< COIL >			
△L031	1-410-521-11	INDUCTOR 100uH	
L051	1-424-219-11	COIL, CHOKE 300uH	
< 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 (A7)	
△PS054	1-532-843-21	LINK, IC (A7)	
< TRANSISTOR >			
△Q031	8-729-141-75	TRANSISTOR 2SD596DV345	
△Q051	8-729-117-11	TRANSISTOR 2SB1151-L	
△Q052	8-729-019-31	TRANSISTOR 2SC4596E	
△Q053	8-729-117-11	TRANSISTOR 2SB1151-L	

<p>The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.</p>	<p>Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.</p>
---	---

Ref. No.	Part No.	Description	Remark
△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
< 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
< RELAY >			
△RY031	1-515-833-11	RELAY	

Ref. No.	Part No.	Description	Remark
*	A-6423-044-A	PW-706 BOARD, COMPLETE (800)	***** (Ref. No. 7, 000 Series)
*	A-6423-046-A	PW-706 BOARD, COMPLETE (A7)	***** (Ref. No. 7, 000 Series)
< CAPACITOR >			
C291	1-124-589-11	ELECT	47uF 20% 16V
< CONNECTOR >			
CN291	1-506-487-11	PIN, CONNECTOR	8P
< DIODE >			
D291	8-719-400-18	DIODE	MA152WK
D292	8-719-028-30	DIODE	SPR-39MVWF (A7)
D292	8-719-992-30	LED	SLR305MC3F (800)
D293	8-719-028-30	DIODE	SPR-39MVWF (A7)
D293	8-719-992-30	LED	SLR305MC3F (800)
D294	8-719-992-26	DIODE	SLR-305D3F
D295	8-719-992-30	LED	SLR305MC3F
D296	8-719-992-30	LED	SLR305MC3F
< IC >			
IC291	8-741-100-48	IC	SBX1610-59
< TRANSISTOR >			
Q292	8-729-207-69	TRANSISTOR	RN2403 (A7)
Q293	8-729-207-69	TRANSISTOR	RN2403
Q294	8-729-207-69	TRANSISTOR	RN2403
Q295	8-729-207-69	TRANSISTOR	RN2403
Q296	8-729-207-69	TRANSISTOR	RN2403
< RESISTOR >			
R277	1-216-037-00	METAL CHIP	330 5% 1/10W
R278	1-216-037-00	METAL CHIP	330 5% 1/10W
R279	1-216-059-00	METAL CHIP	2. 7K 5% 1/10W
R280	1-216-063-00	METAL CHIP	3. 9K 5% 1/10W
R291	1-216-037-00	METAL CHIP	330 5% 1/10W (A7)
R292	1-216-037-00	METAL CHIP	330 5% 1/10W
R293	1-216-081-00	METAL CHIP	22K 5% 1/10W
R294	1-216-071-00	METAL CHIP	8. 2K 5% 1/10W
R295	1-216-025-00	METAL CHIP	100 5% 1/10W
R296	1-216-033-00	METAL CHIP	220 5% 1/10W
R297	1-216-037-00	METAL CHIP	330 5% 1/10W (A7)
R298	1-216-033-00	METAL CHIP	220 5% 1/10W
R299	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.	Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
--	--

PW-706

SW-719

SW-725

TR-717

VS-706

Ref. No.	Part No.	Description	Remark
		< SWITCH >	
S292	1-571-977-11	SWITCH, TACTIL (LD QUICK START)	
S293	1-571-977-11	SWITCH, TACTIL (FL DISPLAY)	
S294	1-571-977-11	SWITCH, TACTIL (CAV STILL MODE)	
S295	1-571-977-11	SWITCH, TACTIL (PICTURE CALL)	
S296	1-571-977-11	SWITCH, TACTIL (STANDBY/POWER)	

*	A-6421-954-A	SW-719 BOARD, COMPLETE ***** (Ref. No. 3,000 Series)	
		< CONNECTOR >	
* CN481	1-566-779-11	PIN, CONNECTOR (PC BOARD) 4P	
		< SWITCH >	
S481	1-692-439-11	SWITCH, PUSH (LOAD/CHUCK)	

*	A-6423-042-A	SW-725 BOARD, COMPLETE ***** (Ref. No. 7,000 Series)	
		< CONNECTOR >	
CN281	1-506-484-11	PIN, CONNECTOR 5P	
		< DIODE >	
D281	8-719-992-30	LED SLR305MC3F	
D282	8-719-992-30	LED SLR305MC3F	
		< RESISTOR >	
R281	1-249-433-11	CARBON 22K 5% 1/4W	
R282	1-249-428-11	CARBON 8.2K 5% 1/4W F	
R283	1-249-424-11	CARBON 3.9K 5% 1/4W F	
R284	1-249-422-11	CARBON 2.7K 5% 1/4W F	
R285	1-249-433-11	CARBON 22K 5% 1/4W	
R286	1-249-428-11	CARBON 8.2K 5% 1/4W F	
R287	1-249-424-11	CARBON 3.9K 5% 1/4W F	
R288	1-249-422-11	CARBON 2.7K 5% 1/4W F	
		< SWITCH >	
S281	1-571-977-11	SWITCH, TACTIL (SIDE B)	
S282	1-571-977-11	SWITCH, TACTIL (ACS/AMS ►►)	
S283	1-571-977-11	SWITCH, TACTIL (ACS/AMS ◄◄)	
S284	1-571-977-11	SWITCH, TACTIL (SCAN ►►)	
S285	1-571-977-11	SWITCH, TACTIL (SCAN ◄◄)	
S286	1-571-977-11	SWITCH, TACTIL (SIDE A)	
S287	1-571-977-11	SWITCH, TACTIL (■)	

Ref. No.	Part No.	Description	Remark
S288	1-571-977-11	SWITCH, TACTIL (▷)	
S289	1-571-977-11	SWITCH, TACTIL (■)	
S290	1-571-977-11	SWITCH, TACTIL (OPEN/CLOSE ⇄)	

*	A-6423-010-A	TR-717 BOARD, COMPLETE (A7) ***** (Ref. No. 6,000 Series)	
*	A-6423-048-A	TR-717 BOARD, COMPLETE (800) ***** (Ref. No. 6,000 Series)	
△	1-533-189-11	HOLDER, FUSE	
		< CAPACITOR >	
△C001	1-104-705-11	FILM 0.1uF 20% 250V	
		< CONNECTOR >	
△CN001	1-564-419-11	HEADER, SPRING (POWER) 2P	
		< FUSE >	
△F001	1-532-215-00	FUSE, TIME-LAG 0.8A 250V (A7)	
△F001	1-532-742-11	FUSE, GLASS TUBE 1.6A 125V (800)	
		< TRANSFORMER >	
△T001	1-423-522-11	TRANSFORMER, POWER (800)	
△T001	1-423-556-11	TRANSFORMER, POWER (A7)	
△T002	1-406-884-11	FILTER, LINE	

*	A-6423-011-A	VS-706 BOARD, COMPLETE (A7) ***** (Ref. No. 6,000 Series)	
△	1-533-189-11	HOLDER, FUSE	
		< FUSE >	
△F021	1-532-066-00	FUSE, TIME-LAG 0.4A 250V (A7)	
		< SWITCH >	
△S021	1-570-615-11	SELECTOR, POWER VOLTAGE (VOLTAGE SELECTOR)	

		MISCELLANEOUS *****	
△157	1-951-569-11	HARNES (AC-1) (800)	
208	8-848-286-01	DEVICE, OPTICAL KHS-150A	
211	1-751-083-11	CABLE, FLEXIBLE FLAT (18 CORE)	
221	1-751-084-11	CABLE, FLEXIBLE FLAT (14 CORE)	

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
--	--

Ref. No.	Part No.	Description	Remark
M901	1-698-109-11	MOTOR, DD (SPINDLE)	

ACCESSORIES & PACKING MATERIALS

△	1-569-008-11	ADAPTER, CONVERSION 2P (A7)	
△	1-574-085-11	CORD, POWER (800)	
	1-575-334-11	CORD, CONNECTION (VIDEO/AUDIO CONNECTING CABLE 1.5m)	
	3-757-487-21	MANUAL, INSTRUCTION (ENGLISH, CHINESE)	
	3-757-487-31	MANUAL, INSTRUCTION (FRENCH) (800:Canadian)	
*	3-795-581-21	SAFEGUARD (SONY), IMPORTANT	(800:US)
*	3-953-404-01	CUSHION (UPPER)	
*	3-953-405-01	CUSHION (LOWER)	
*	3-953-410-21	INDIVIDUAL CARTON	(800)
*	3-953-410-31	INDIVIDUAL CARTON	(A7)

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
#5	7-685-645-79	SCREW +BVTP 3X6 TYPE2 N-S
#6	7-682-645-01	SCREW +PS 3X4
#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	7-682-947-01	SCREW +PSW 3X6
#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 (A7)
#23	7-623-210-22	SW 4, TYPE 2
#24	7-688-003-11	W 3, MIDDLE

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

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

IC PIN DESCRIPTION

7-1. MB-702 BOARD IC501 MB89094 PIN FUNCTION

Pin No.	Pin Name	I/O	Description
1	N/C		
2	CLK32	I	CRYSTAL OSCILLATOR (32 kHz) Input
3	GND	I	
4	GND	I	
5	2F5C	I	CRYSTAL OSCILLATOR (2 Esc) Input
6	N/C		
7	V _{ss}	I	GND
8	XRST	I	RESET TERMINAL (L: RESET)
9	XFREQ	I	PHIL CODE READ OUT ENABLE
10	FQACK	O	DISC DATA READ IN
11	FQSEL	O	PHILLIPS CODE/SUBO DATA SELECT (L: SUBO)
12	JPCTRL	O	ITI/MTJ SELECT SIGNAL (H: ITI)
13	SPLOCK	I	SPINDLE LOCK SIGNAL (H: DURING SPINDLE LOCKING)
14	TBCHOLDIN	O	CHROMA TBC CONTROL
15	SCOR	I	H WHEN SUB CODE SYNC IS DETECTED
16	XPBV	I	V SYNC SIGNAL
17	XREFV	I	REFERENCE V SYNC SIGNAL
18	ALT	O	A REGISTER LATCH
19	BLT	O	B REGISTER LATCH
20	XBUSY	I	COMMUNICATION ENABLE SIGNAL FROM MMI (H: COMMUNICATION ENABLE)
21			
24	N/C		
25	CLSCS	O	CHIP SELECT FOR READING PHASE DIFFERENCE DATA
26	SPDPLS	O	SPINDLE PULSE DRIVE SIGNAL (H: spdl. free run)
27	TBRKMON	O	SERVO IC BRAKE MONITOR (H: BRAKE ON)
28	+5V	I	
29	CLSDT	I	SERIAL INPUT DATA
30	SETDT	O	SERIAL OUTPUT DATA
31	SETCK	O	SERIAL TRANSFERRING CLOCK
32	SPDLFG1	I	SPINDLE FG INPUT 1 (I ROTATION: IZ WAVES)
33	CGV_MUTE	I	CGV MUTE SIGNAL (H: L OUTPUT) NORMALLY HIMP
34	LD SEARCH	O	FOR SPDLE BR AMP C SHORT (H: DURING SEARCHING)
35	SPDLFR	O	SPINDLE ROTATING DIRECTION SIGNAL (H: FWD)
36	N/C		
37	JMP TRIG	O	TRACK JUMP TRIGGER PULSE OUTPUT
38	MWE	O	NOT USED
39	MEM/THR	O	NOT USED
40	MSTAT	O	NOT USED
41	MTJ	I	TRACKING PULSE GENERATOR FOR MTJ NORMALLY INPUT, OUTPUT DURING ACTIVATE (L: FWD)
42	MTF ON/OFF	O	MTF CORRECTION ON/OFF SIGNAL (H: MTF ON)
43	TRK OFF	O	PUT OFF SERVO IC TRACKING CONTROL (L: TRACKING OFF)
44	SHARP	O	PICTURE ENHANCE SHARP
45	GNUTE	O	GRAY SCREEN ON/OFF SIGNAL ON CLS (ON: H)
46	N/C		
47	XSOFT	O	PICTURE ENHANCE SOFT
48	FOK	I	FOCUS LOCK SIGNAL (H: FOCUS LOCK)
49	V _{cc}	I	+5V POWER SUPPLY
50	XBUSY	I	COMMUNICATION ENABLE SIGNAL FROM MMI (H: COMMUNICATION ENABLE)

Pin No.	Pin Name	I/O	Description
51	TV/DISC	O	ANTENNA TV/DISC SELECT
52	SLED FWD	O	SLED FWD FORCE MOVE FROM PORT
53	SLED REV	O	SLED REV FORCE MOVE FROM PORT
54	XMMICS	O	COMMUNICATION CHIP SELECT TO MMI
55	LOADING	O	TRAY LOADING DRIVE
56	UNLOADING	O	TRAY EJECT DRIVE
57	X DSW LD	O	YSD221 CHIP SELECT (L: COMMUNICATING)
58	V _{ss}	I	GND
59	LINE MUTE	O	AUDIO OUTPUT MUTE SIGNAL (H: MUTE)
60	SLED SPEED	O	SLED DRIVE SPEED CHANGE (L: SLOW)
61	XSV/DSP RST	O	SERVO DSP DF RESET (L: RESET)
62	LD ON	O	OPT LIGHT EMITTING * TILT ON (H: EMITTING)
63	XCD/LD CDV	O	CD /VDV: L DURING APART, OTHERS H
64	SLED MODE	O	I: SLED IS IN PLAY MODE
65	SIDE AV/B	O	TILT SERVO SIDE SELECT (A: H, B: L)
66	XTH SV	O	TILT /HIGH SELECT (L: TILT)
67	LCSW1	I	LOADING /CHUCKING POSITION SENSOR INPUT 1
68	XLD 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	N/C		
76	N/C		
77	MECH SO	I	32-BYTE SERIAL TRANSFERRING DATA OUTPUT
78	MECH SI	O	32-BYTE SERIAL TRANSFERRING DATA INPUT
79	MECH CLK	O	32-BYTE SERIAL TRANSFERRING CLOCK
80	T CNT	I	NOT USED
81	N/C		
82	N/C		
83	AV _{ss}	I	GND
84	LDDDET	I	A/D INPUT THERE IS DISC OR NOT, 8/12 INCH DETECTION
85	CDV/FRLMT	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	XDSPLT	O	DSP LATCH SIGNAL
89	MUTG	O	DSP MUTE SIGNAL (H: MUTE)
90	LOCK	I	FRAME SYNC (BFM) LOCK SIGNAL (HI LOCK)
91	SENSE	I	VARIOUS SENSE INPUT SIGNAL FROM DSP
92	AV _{cc}	I	+5V POWER SUPPLY
93	MIC IN	I	NOT USED
94	XDFLT	O	DIGITAL FILTER LATCH SIGNAL
95	ASSIST	O	NOT USED
96	KCS	O	NOT USED
97	CX	O	CX ON/OFF (H: ON)
98	N/C		
99	XDSPSEL	O	SELECTS COMMUNICATION WITH DSP (L: CONNECT, H: SEPARATE)
100	V _{cc}	I	POWER SUPPLY TERMINAL (+5V)

7-2. FP-722 BOARD IC201 MB89095 PIN FUNCTION

Pin No.	Pin Name	I/O	Description
1	CLK32KHZ	O	FOR CRYSTAL OSCILLATOR (32 KHZ)
2	CLK32KHZ	I	FOR CRYSTAL OSCILLATOR (32 KHZ)
3	GND	I	
4	GND	I	
5	CLK8MHZ	I	FOR CRYSTAL OSCILLATOR (8 MHZ)
6	CLK8MHZ	O	FOR CRYSTAL OSCILLATOR (8 MHZ)
7	V _{ss}	I	GND
8	X RST	I	RESET IN (L : RESET)
9	X MRST	I	SLC RESET IN (L : RESET)
10	X BUSY	O	L WHEN COMMUNICATING WITH SLC
11	AUMUTE	O	H WHEN AUDIO MUTING
12	N/C		
13			
16	X REFV	I	REFERENCE V SYNC SIGNAL
17	X MMI CS	I	CHIP SELECT FOR COMMUNICATION WITH SLC (L : COMMUNICATING)
19	N/C		
20			
24	POW CTR	O	POWER ON/OFF CONTROL OF THE SET (H : POWER ON)
25	N/C		
26	N/C		
27	N/C		
28	+5V PULLUP	I	START MODE SELECTIONS INPUT AFTER IS RELEASED
29	N/C		
30	CG SI	O	CHARACTER GENERATOR SERIAL TRANSFERRING DATA OUT
31	CG CLK	O	CHARACTER GENERATOR SERIAL TRANSFERRING DATA CLOCK OUT
32	SIRCS IN	I	SIRCS DATA IN
33	X CG CS	O	CHARACTER GENERATOR SERIAL TRANSFERRING CHIP SELECT (L : COMMUNICATING)
34			
37			
38	N/C		
39	FL P1	O	FL TUBE SEGMENT OUT
40	P2	O	FL TUBE SEGMENT OUT
41	P3	O	FL TUBE SEGMENT OUT
42	P4	O	FL TUBE SEGMENT OUT
43	P5	O	FL TUBE SEGMENT OUT
44	P6	O	FL TUBE SEGMENT OUT
45	P7	O	FL TUBE SEGMENT OUT
46	P8	O	FL TUBE SEGMENT OUT
47	P9	O	FL TUBE SEGMENT OUT
48	P10	O	FL TUBE SEGMENT OUT
49	V _{cc}	I	EVER +5V POWER SUPPLY
50	FL P11	O	FL TUBE SEGMENT OUT
51	P12	O	FL TUBE SEGMENT OUT
52	P13	O	FL TUBE SEGMENT OUT
53	VRDP	I	-30V HIGH WITH SAND VOLT PGE PULL DOWN POWER SUPPLY
54	FL P14	O	FL TUBE SEGMENT OUT
55	P15	O	FL TUBE SEGMENT OUT
56	P16	O	FL TUBE SEGMENT OUT

Pin No.	Pin Name	I/O	Description
57	FL P17	O	FL TUBE SEGMENT OUT
58	V _{ss}	I	GND
59	FL P18	O	FL TUBE SEGMENT OUT
60	P19	O	FL TUBE SEGMENT OUT
61	P20	O	FL TUBE SEGMENT OUT
62	P21	O	FL TUBE SEGMENT OUT
63	P22	O	FL TUBE SEGMENT OUT
64	P23	O	FL TUBE SEGMENT OUT
65	N/C	O	
66	N/C	O	
67	V _{cc}	I	EVER +5V POWER SUPPLY
68	FL 7G	O	FL TUBE GRID OUT
69	6G	O	FL TUBE GRID OUT
70	5G	O	FL TUBE GRID OUT
71	4G	O	FL TUBE GRID OUT
72	3G	O	FL TUBE GRID OUT
73	2G	O	FL TUBE GRID OUT
74	1G	O	FL TUBE GRID OUT
75	N/C		
76	X MMI CS	I	32 BYTE SERIAL TRANSFERRING CHIP SELECT (L : COMMUNICATING)
77	MECH SO	I	32 BYTE SERIAL TRANSFERRING DATA INPUT
78	MECH SI	O	32 BYTE SERIAL TRANSFERRING DATA OUTPUT
79	MECH CLK	O	32 BYTE SERIAL TRANSFERRING CLOCK
80	N/C		
81	X SA LED	O	SIDE A LED OUT (L : LIGHTING UP)
82	X SB LED	O	SIDE B LED OUT (L : LIGHTING UP)
83	AV _{ss}	I	GND
84	AD0	I	KEY INPUT
85	AD1	I	KEY INPUT
86	AD2	I	KEY INPUT
87			
88	N/C		
92	AV _{cc}	I	EVER +5V POWER SUPPLY
93	N/C		
94	-16V MONITOR	I	-16V MONITOR
95	AD3	I	DOOR SWITCH INPUT
96	REG MONITOR	I	REG +5V MONITOR
97	N/C		
98	X QUICK LED	I	DIRECT ACCESS LED OUTPUT (L : LIGHTING UP)
99	N/C		
100	V _{cc}	I	EVER +5V POWER SUPPLY

SECTION 8 ELECTRICAL ADJUSTMENTS

During the adjustment, see the parts arrangement diagram for adjustments on page from 152.

8-1. LIST OF SERVICING JIGS

- Oscilloscope
- Color monitor TV
- Digital voltmeter
- Frequency counter
- Remote commander (RMT-M20A)
- LD alignment disc HVL-8 (8-797-008-00) NTSC Ref. Disc 8

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-A7/800 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-A7/800 are available by pressing at the same time and in specific order the multiple function keys on the main unit and/or on the remote control 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,
- the debugging mode, or
- the normal operation mode.

The special key functions can be divided into two groups according to the key control operations as follows:

- Simultaneous main-unit-key-press functions
Some control functions can be used by pressing simultaneously multiple specific keys on the main unit.
- Simultaneous main-and-remote-control-units-key-press functions

Some other control functions can be used by pressing simultaneously two specific keys on the remote control unit while holding down a specific key on the main unit.

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
Reverse direction scanning 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. Note that once this function has been carried out, all information, including the history of emergency case, other than the trap-flag information in the debugging mode, will be deleted.
B side key and door open/close key and power key (With power off only)	(3) Lighting up all the FL display (all the segments of the FL tube) and LEDs on the main unit This function turns on all the FL tube segments and LEDs after turning on the power automatically. Until you switched off the power, normal operation is possible while all the FL tube segments and LEDs are lit.

3. How to use "simultaneous main-and-remote-control-units-key-press functions"

The functions available by pressing the two specific keys on the remote control unit while holding down the specific key on the main unit are called "simultaneous main-and-remote-control-units-key-press functions". It is necessary to press two keys on

the remote control unit within about one second. This prevents an accidental use of these functions by the user.

These functions are to be carried out by using the FL display key, so that the operation of the mechanisms is not affected.

The following table lists the currently available simultaneous main-and-remote-control-units-key-press functions.

Table 8-2. List of simultaneous main-and-remote-control-units-key-press functions

Step	Keys to be pressed on the main unit and on the remote control unit	Functions
1 2	FL display key and 0 key FL display key and STOP key	(1) Debugging mode ON/OFF This function puts the unit in the debugging mode from another mode, or puts the unit in the mode other than the debugging mode from the debugging mode. For details on the debugging mode, refer to 8-5. "OPERATION OF THE MDP-A7/800 IN THE DEBUGGING MODE".
1 2	FL display key and 0 key FL display key and screen display key	(2) Forced V muting ON/OFF This function releases the unit from the forced V muting condition if it is in the forced V muting condition, or puts the unit in the forced V muting condition if it is not in the forced V muting condition. It can be used to obtain a blue background during playback, or removing the blue background while the unit is in the stop mode.
1 2	FL display key and 0 key FL display key and clear key	(3) Resetting of V muting This function resets the unit in the V muting condition to normal condition. That is, it releases the unit from condition (2) above.
1 2	FL display key and 0 key FL display key and +10 key	(4) Make mechanism controller time out ineffective. Make the function turning power off ineffective when communication with mechanism controller cannot be done. When mechanism controller doesn't operate, it used to hasten to operate mode controller.
1 2	FL display key and 0 key FL display key and 0 key	(5) Make mechanism controller time out effective. Make the function turning power off effective when communication with mechanism controller cannot be done.

8-4. OPERATION OF THE MDP-A7/800 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-A7/800. 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.
- (3) When entering the service mode, also the debugging mode is started automatically. (For details of the debugging mode, refer to 8-5. "OPERATION OF THE MDP-A7/800 IN THE DEBUGGING MODE".

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 put in the debugging mode (the functions those available in both the modes can be used). Therefore, the version No. of the microprocessor appears on the screen. For details of the debugging mode, refer to 8-5. "OPERATION OF THE MDP-A7/800 IN THE DEBUGGING MODE".

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 reverse direction scanning 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 or on the FL display. In order to carry out the special key functions listed in table 8-3, in the status above, turn off the FL display, and then 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 side B 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.

When the FL display is turned off, some keys are not effective.

Be sure to turn on the FL display if you don't want to carry out the special key functions.

Table 8-3. 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-A7/800.

- (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 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. OPERATION OF THE MDP-A7/800 IN THE DEBUGGING MODE

1. Explanation of the debugging mode

The contents in the RAM of the microprocessor can be displayed on the screen for the repair and maintenance purposes. The status of the MDP-A7/800 in which this debugging function is available is called "the debugging mode".

The following are the differences between the debugging mode and the normal operation mode.

- (1) The background color of the screen changes in green when the FL display is turned off.
- (2) Under the status described item (1) above, pressing the key on the remote control unit displays the history of emergency conditions or other debugging information. Some keys are not effective when the FL display is turned off.

2. Entering the debugging mode

To enter the debugging mode from a normal operation mode (in a normal status of operation), turn on the unit, press the 0 key and then the STOP key on the remote control unit while holding down the FL display key on the main unit.

When the following display appears on the screen, the unit is in the debugging mode. This display shows the version No. of the microprocessor. For details, refer to 5. (1) "[FRAME/TIME] key for displaying version No. of the microprocessor".

In the debugging mode, when the FL display is turned off in the stop or some other modes, the background color changes in green. (Note that it is violet in the service mode.)

	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	
1st line																									STOP
2nd line	V	E	R																						
3rd line	M	M	I	-	7	1	0	A		1	2	/	2	5	A										
4th line																									
5th line																									
6th line																									
7th line	M	C	M	-	7	1	0	A		9	3	1	2		2	5	0	A							
8th line																									
9th line																									
10th line																									

Fig. 8-1. Initial display in the debugging mode

3. Quitting the debugging mode

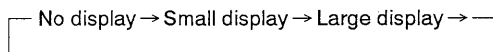
To quit the debugging mode, press the clear key on the remote control unit when the menu (version No. of the microprocessor indication in FL display off) in figure (8-1) is displayed.

The same key operation as step (2) also sets the mode back in the normal operation mode.

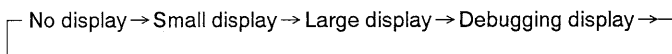
4. Changing the display on the screen

The display is set for "debugging display" immediately after entering the debugging mode. The display mode can be changed in the same manner as in the normal operation mode by pressing the screen display key. In the debugging mode, however, "debugging display" mode can be selected as one of the display modes, in addition to "no display (displays nothing in most cases)", "small display (displays only the 1st line in most cases)", and "large display (displays full screen in most cases)" modes.

Pressing the screen display key in the normal operation mode changes the display mode as follows:



Pressing the screen display key in the debugging mode changes the display mode as follows:



5. Explanation of the debugging display

In the debugging display mode, the information on the mode controller is displayed on the screen as a dump list. The title is displayed at the left on the 2nd line from the top. The data is displayed on the 3rd line through the 9th line.

The display of the data in one line consists of up to four sets (total of 8 bytes) of four character (2 bytes character each) sets in hexadecimal notation.

The information to be displayed can be selected in the debugging mode, by turning off the FL display and pressing the desired key (as listed below).

The following table lists the information which are currently available and which can be displayed.

Table 8-4. List of the keys to be used in the debugging mode and corresponding information

Keys	Information to be displayed
[FRAME/TIME]	Version No. of the microprocessor
[1]	History of the function modes
[2]	History of the emergency occurrence
[3]	Information for repair service of normally
[4]	Trap-flag
[5]	Key/remote control data
[7]	Information on communication with the mechanism controller

- (1) [FRAME/TIME] key for displaying version No. of the microprocessor

Pressing this key displays the version No. of the microprocessor. The version No. of the mode controller appears on the 3rd line, and that of the mechanism controller appears on the 7th line. An example in figure 8-2 shows that the version No. of the mode controller is "MMI-710A, 12/25A" and that of the mechanism controller is "MCM-710A 93/12/25A".

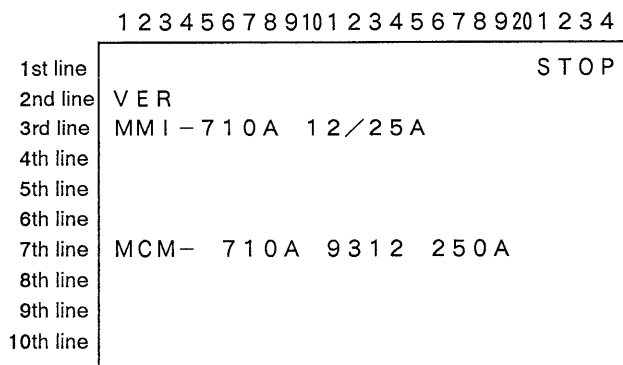


Fig. 8-2. Version No. of the microprocessor

- (2) [1] key for displaying the history of the function modes
Pressing this key displays the history of the principal operation commands (which represent function modes) sent from the mode controller to the mechanism controller.

Up to 8 histories of the function modes can be displayed on a line. A total of 16 histories of the function modes are available using two lines. Unless the unit is unplugged, the data are kept intact in memory even when the unit is turned off.

The data to be stored appears on the screen from left to right 1 byte by 1 byte, and "FF" appears to the right of the last data byte. The data byte continues from the right end on the 1st line to the left end on the 2nd line, and from the right end on the 2nd line to the left end on the 1st line. The last stored data of the function modes (which is the mode selected at present) appears on the left of "FF". That is, when "FF" appears at the left end on the 1st (or the 2nd) line, the last stored data appears at the right end on the 2nd (or the 1st respectively) line.

"FE" means there has been an emergency case at the data point. To check the type of the emergency case, refer to 5. (3) "[2] key for displaying the history of the emergency occurrence".

Table 8-5. List of the function modes

	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	20	1	2	3	4
1st line																								STOP
2nd line	F	M			H	I	S	T																
3rd line			0	1	2	0	3	0	F	E	5	0	6	0	7	0	6	0						
4th line			2	0	F	F	0	0	0	0	0	0	0	0	0	0	0	0						
5th line																								
6th line																								
7th line																								
8th line																								
9th line																								
10th line																								

Fig. 8-3. History of the function modes

Figure 8-3 shows that the function modes have changed as follows:

- 01 (Power on start up)
- 20 (Stop)
- 30 (Start up of side A)
- FE (An emergency occurred.)
- 50 (Searching a chapter)
- 60 (Playback)
- 70 (Slow speed scanning in normal direction)
- 60 (Playback)
- 20 (Stop) [The last function mode]

Table 8-5 lists the function modes.

00	Power OFF
01	Power ON and start up
10	Open
20	Stop
30	Preparation for playback of side A
40	Preparation for playback of side B
50	Searching a chapter
51	Searching a frame/time
60	Playback
61	Pause
70	Slow speed scanning in normal direction
71	High speed scanning in normal direction
72	Slow speed scanning in reverse direction
73	High speed scanning in reverse direction
80	Still playback in normal direction
81	Step playback in normal direction
82	1/90 times speed playback in normal direction
83	1/30 times speed playback in normal direction
84	1/16 times speed playback in normal direction
85	1/8 times speed playback in normal direction
86	1/4 times speed playback in normal direction
87	1/2 times speed playback in normal direction
88	Normal (1 time) speed playback in normal direction
89	2 times speed playback in normal direction
8A	3 times speed playback in normal direction
8B	5 times speed playback in normal direction
8C	10 times speed playback in normal direction
90	Still playback in reverse direction
91	Step playback in reverse direction
92	1/90 times speed playback in reverse direction
93	1/30 times speed playback in reverse direction
94	1/16 times speed playback in reverse direction
95	1/8 times speed playback in reverse direction
96	1/4 times speed playback in reverse direction
97	1/2 times speed playback in reverse direction
98	Normal (1 time) speed playback in reverse direction
99	2 times speed playback in reverse direction
9A	3 times speed playback in reverse direction
9B	5 times speed playback in reverse direction
9C	10 times speed playback in reverse direction

FE Appears for indicating an occurrence of emergency
FF Appears next to the last data.

(3) [2] key for displaying the history of the emergency occurrence

Pressing this key displays the history of the emergency occurrence with the codes sent from the mechanism controller to the mode controller.

The data will be "〇〇" if there has been no emergency case since when the unit has been plugged in.

The display type is the same as that for the history of the function modes. However, up to 8 histories using only one line are available in this case. The emergency code which appears just before "FF" corresponds to the data of "FE" in the history of the function modes, which is the closest one to "FF".

	1	2	3	4	5	6	7	8	9	10	1	2	3	4								
1st line															STOP							
2nd line	E	M	G		H	I	S	T														
3rd line				6	0	7	4		6	4	6	1		6	4	6	4		7	4	F	F
4th line																						
5th line																						
6th line																						
7th line																						
8th line																						
9th line																						
10th line																						

Fig. 8-4. History of emergency

Figure 8-4 shows that the emergency has occurred in the following order because the data next to "FF" is 60 on the left of the line.

- 60 (Detection of lead-in point)
- 74 (Focusing failed)
- 64 (Detection of minimum chapter)
- 61 (Detection of lead-out point)
- 64 (Detection of minimum chapter)
- 64 (Detection of minimum chapter)
- 74 (Focusing failed) [The last emergency]

Table 8-6 lists the emergency codes.

Table 8-6. List of the emergency codes

◎ For operation of forced modes condition		
		Operation after occurrence
01	Requirement of forced power off	Power off
02	Requirement of forced ejection of the tray	Eject
03	Requirement of stop	Stop
04	Requirement of stop when opening the door	Stop
05	Requirement of forced playback	Play
06	Requirement of determination for mode change when power off	Freezes power off display
07	Requirement of power off after communication stops.	Power off
◎ For operation of mechanisms		
10	Detection of movement for pushing in the tray	Play
11	Detection of no movement of the tray	Power off
20	Detection of no movement of the slider	Power off
30	Detection of no movement of the tilt	Power off
◎ For operation of Spindle control		
40	No detection of the spindle FG	Power off
41	No achievement of continuous servo lock from FG servo to H servo	Stop
42	Above the high rotation limit	Stop
43	Below the low rotation limit	Stop
44	No complete stop operation for the spindle movement	Power off
45	Time over error for the spindle control operation	Power off
◎ For start up operation		
50	Focusing failed	Stop
51	Focusing failed (with a disc loaded)	Stop
52	Detected as if the disc was an LD	None
53	Focusing of LD8 failed	Stop
54	Reading of TOC failed on a disc of CD or CDV	Stop
◎ For playback operation		
60	Detection of the lead-in code	Play or soon
61	Detection of the lead-out code	Stop/Pause or soon
62	Detection of the lead-out of part A on CDV	Stop/Pause or soon
63	Detection of a picture stop	Still
64	Detection of the minimum chapter	None
65	Reading of sub code failed on a disc of CD or CDV	Stop
66	Reading of philips code failed and disc of LD	Stop
◎ For search operation		
70	Detection of over search	Play
71	Detection of under search	Play
72	Time over for the search operation	Play
74	Focusing failed during searching	Stop
◎ The following emergency occurs in mode controller		
80	Emergency time out	Power off
81	Search time out	Play
82	Mechanism controller communication time out	Power off

(4) [3] key for displaying the information for repair service, sent from the mechanism controller

Pressing this key displays the information sent from the mechanism controller, which is necessary for repair service.

At present, the information listed in table 8-7 is available.

Data numbers in the table correspond to the numbers on the 3rd line through the 5th line in figure 8-5.

Table 8-7. Information for repair service, sent from the mechanism controller

Data number	Data
(02)	Mode of mechanisms (internal mode of the mechanism controller) See the following section for details.

	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4
1st line																								STOP
2nd line	S	E	R	V	I	C	E																	
3rd line		(00)	(01)	(02)	(03)	(04)	(05)	(06)	(07)															
4th line		(08)	(09)	(10)	(11)	(12)	(13)	(14)	(15)															
5th line		(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)															
6th line																								
7th line																								
8th line																								
9th line																								
10th line																								

Fig. 8-5. Information for repair service sent from the mechanism controller

- © About the operation modes of the mechanisms
The operation modes of the mechanisms are the basic operation mode in the mechanism controller. Those almost the same as those available with the unit as the function modes. But, there are several supplemental modes for the mechanisms.
The table below shows the operation modes of the mechanisms.

Table 8-8. Operation modes of the mechanisms

Modes of the mechanisms	Functions
00	Power off
01	Initialization of the mechanism controller (Without operating the mechanisms)
03	In the process from power ON to power OFF
04	In the process from power OFF to power ON
05	Initialization of the mechanisms and related ICs.
10	Ejected status of the tray
11	In the process of ejection of the tray
12	In the process of loading of the tray
20	In stop status with the disc chucking up
21	In the process of chucking up form chucking of side A
22	In the process of chucking of side A from chucking up
23	In chucking status of side A
30	Until focusing of side A has been achieved
31	From lock of focusing to start-up of 0 search
32	In operation from side A/B to stop
33	In process of reversing side B form side A
40	Until focusing of side B has been achieved
50	Chapter search
60	Frame/Time search
61	Pause
70	Slow speed normal direction scanning
71	High speed normal direction scanning
72	Slow speed reverse direction scanning
73	High speed reverse direction scanning
74	In the process of scanning completion
80~	FF (The same as function mode)

Table 8-10. List of SIRCS codes for MDPs

00	Numeral 1
01	Numeral 2
02	Numeral 3
03	Numeral 4
04	Numeral 5
05	Numeral 6
06	Numeral 7
07	Numeral 8
08	Numeral 9
09	Numeral 0
0B	Search/sledding
0C	Frame/time
0F	Clear
15	Power ON/OFF
16	Close/open of tray
17	Audio monitoring
18	Stop
19	Pause
1A	Playback
1B	High speed reverse direction scanning
1C	High speed normal direction scanning
1E	Slow speed reverse direction scanning
1F	Slow speed normal direction scanning
20	Still
21	Acceleration of speed
22	Deceleration of speed
23	Fast/slow motion playback in normal direction
24	Fast/slow motion playback in reverse direction
25	Playback by memory
28	Time display
29	Repeat
2B	Step in normal direction
2C	Step in reverse direction
30	Program
34	ACS in normal direction
35	ACS in reverse direction
38	A-B repeat
39	Numeral + 10
3A	Screen display
40	Analog audio/CX
41	Shuffle
44	Return
45	Automatic program
46	Automatic pause
47	1/one side/double side
4F	Medium speed normal direction playback
50	Medium or slow speed normal direction playback
51	Slow speed normal direction playback
52	Normal direction jog step
55	Reverse direction jog step
56	Slow speed reverse direction playback
57	Medium or slow speed reverse direction playback
58	Medium speed reverse direction playback
5D	side A
5E	side B
68	Intro-scanning
71	Stop motion
72	Picture call

- 73 Flash motion
- 7A Picture enhancement
- 81 FL display ON/OFF
- 82 LD quick start
- 83 Change of CAV still

FF Appears when there is no input.

- (7) [6] key for displaying the information on communication with the mechanism controller
- Pressing this key displays the communication data with the mechanism controller.
- The data transmitted from the mode controller to the mechanism controller appears on the 3rd line through the 5th line. The data transmitted from the mechanism controller to the mode controller appears on the 7th line through the 9th line. The exclamation marks ! at the left on the 8th and the 9th lines indicate that the communication is carried out successfully. Question mark ? appears if communication stops. A bracket mark [■] appears if communication stops after carrying out once the communication on the purpose of servicing.

	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4
1st line																								
2nd line	M	E	S	S																				
3rd line	S	(00)	(01)	(02)	(03)	(04)	(05)	(06)	(07)															
4th line		(08)	(09)	(10)	(11)	(12)	(13)	(14)	(15)															
5th line		(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)															
6th line																								
7th line	R	(00)	(01)	(02)	(03)	(04)	(05)	(06)	(07)															
8th line	!	(08)	(09)	(10)	(11)	(12)	(13)	(14)	(15)															
9th line	!	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)															
10th line																								

Fig. 8-8. Information on communication with the mechanism controller

The table below shows some communication information.

Table 8-11. Principal communication information

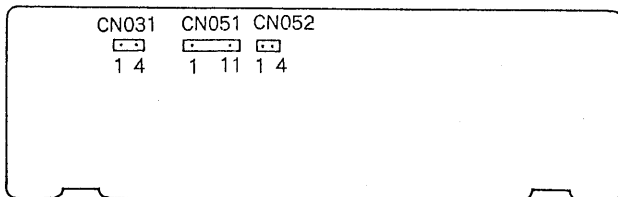
Data from the mode controller to the mechanism	
(01)	The function mode at present (next)
(02)	The function mode of final purpose
(03 - 05)	Target address of search (Time/Frame)
Data from the mechanism controller to the mode controller	
(01)	The function mode at present (next)
(06)	The flag for completion of function mode change (0 bit)
(13)	Current chapter/track number
(14)	Current index number
(15 - 17)	Current address (Time/Frame)

8-6. POWER SUPPLY CHECK (PS-713 BOARD)

Mode	Stop
Measuring equipment	Digital voltmeter
UNREG +16 V check	
Measurement point	Pin ① of CN051 (Pin ②, GND)
Specified value	16.0 ± 1.0 V
UNREG -16 V check	
Measurement point	Pin ③ of CN051 (Pin ③, GND)
Specified value	-16.0 ± 1.0 V
REG +8 V check	
Measurement point	Pin ③ of CN053 (Pin ②, GND)
Specified value	8.0 ± 0.5 V
REG -8 V check	
Measurement point	Pin ① of CN053 (Pin ③, GND)
Specified value	-8.0 ± 0.5 V
POWER MUTE check	
Measurement point	Pin ④ of CN051 (Pin ②, GND)
Specified value	17.0 ± 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.

PS-713 Board (Conductor Side)



8-7. SYSTEM CONTROL SYSTEM ADJUSTMENT

8-7-1. Microprocessor Clock Adjustment (MB-702 Board)

Mode	Stop
Measurement point	Pin ① of CN102
Measuring equipment	Frequency counter
Adjusting Element	CT001
Specified value	14,318,180 ± 40 Hz

Adjustment method:

- 1) Adjust CT001 to 14,318,180 ± 40 Hz.

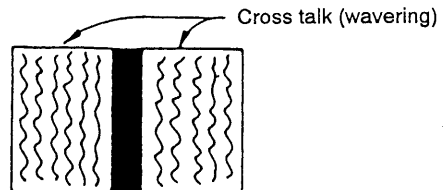
8-8. SERVO SYSTEM ADJUSTMENT

8-8-1. Side A Tilt Balance Adjustment (MB-702 Board)

Mode	Still
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) Select STILL (▶◀) mode.
- 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.

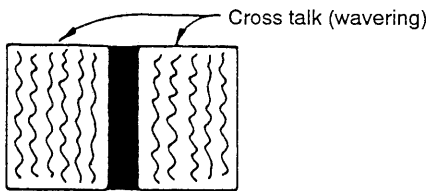
Fig. 8-9.

8-8-2. Side B Tilt Balance Adjustment (MB-702 Board)

Mode	Still
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) Select STILL (▶▶) mode.
- 2) Search the frame 770 and apply a vertical bar signal.
- 3) Adjust RV402 to minimize the right and left cross talks (wavering) level.



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

Fig. 8-10.

8-9. VIDEO SYSTEM ADJUSTMENT

8-9-1. Video Output Level Adjustment (MB-702 Board)

Mode	Still
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 ± 0.02 V _{p-p}

Adjustment method:

- 1) Select STILL (▶▶) mode.
- 2) Search the frame 4100 and apply a vertical bar signal.
- 3) Adjust RV001 for 1.00 ± 0.02 V_{p-p}.

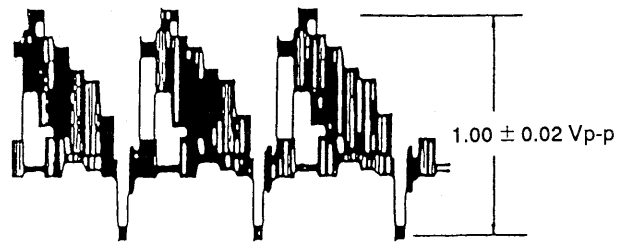
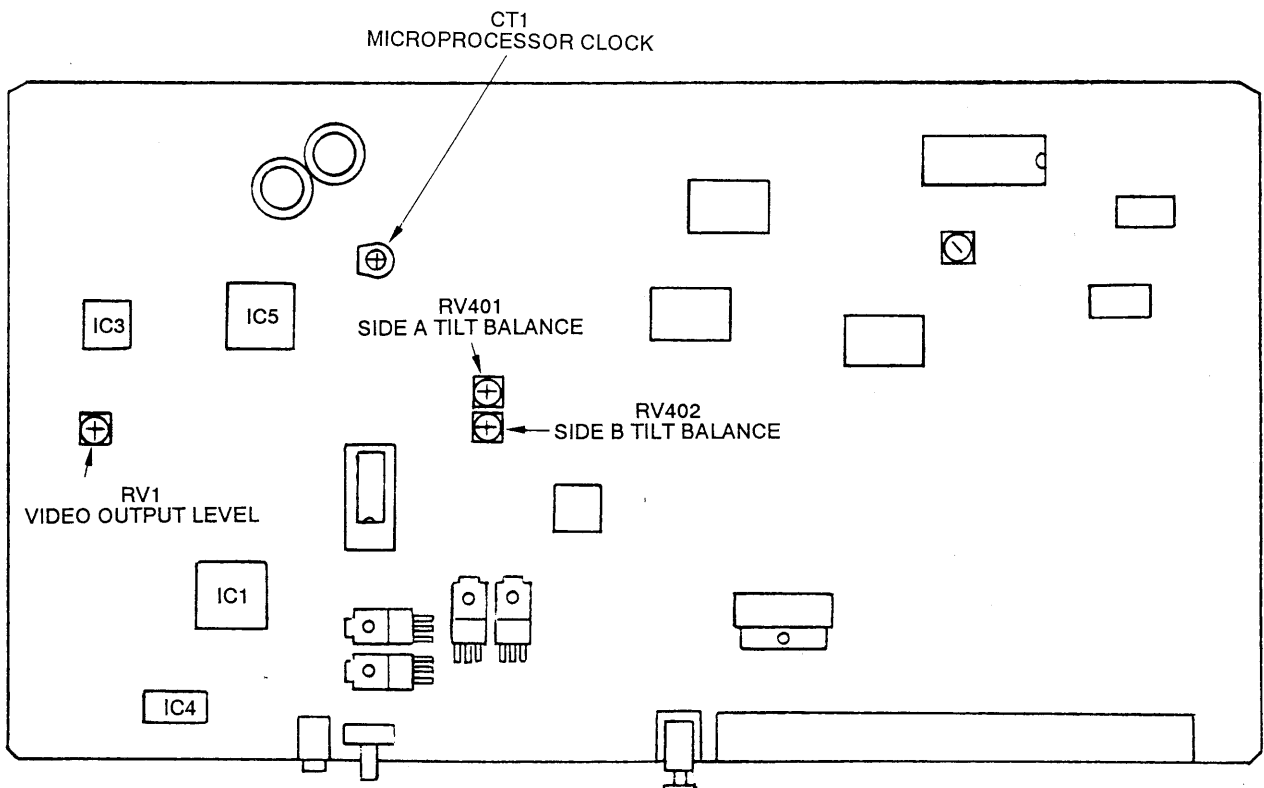


Fig. 8-11.

8-10. PARTS ARRANGEMENT DIAGRAM FOR ADJUSTMENT

MB-702 Board (Component Side)



MDP-A7/800

MDP-A7/800

RMT-M20A

SONY® SERVICE MANUAL

US Model
Canadian Model
MDP-800
E Model
MDP-A7

SUPPLEMENT-1

File this supplement with the service manual.

Subject:

- Removal and installation of the optical pick-up block revision.
- Adjustment after the attachment of the optical pick-up block.
- LD tilt balance adjustment correction.

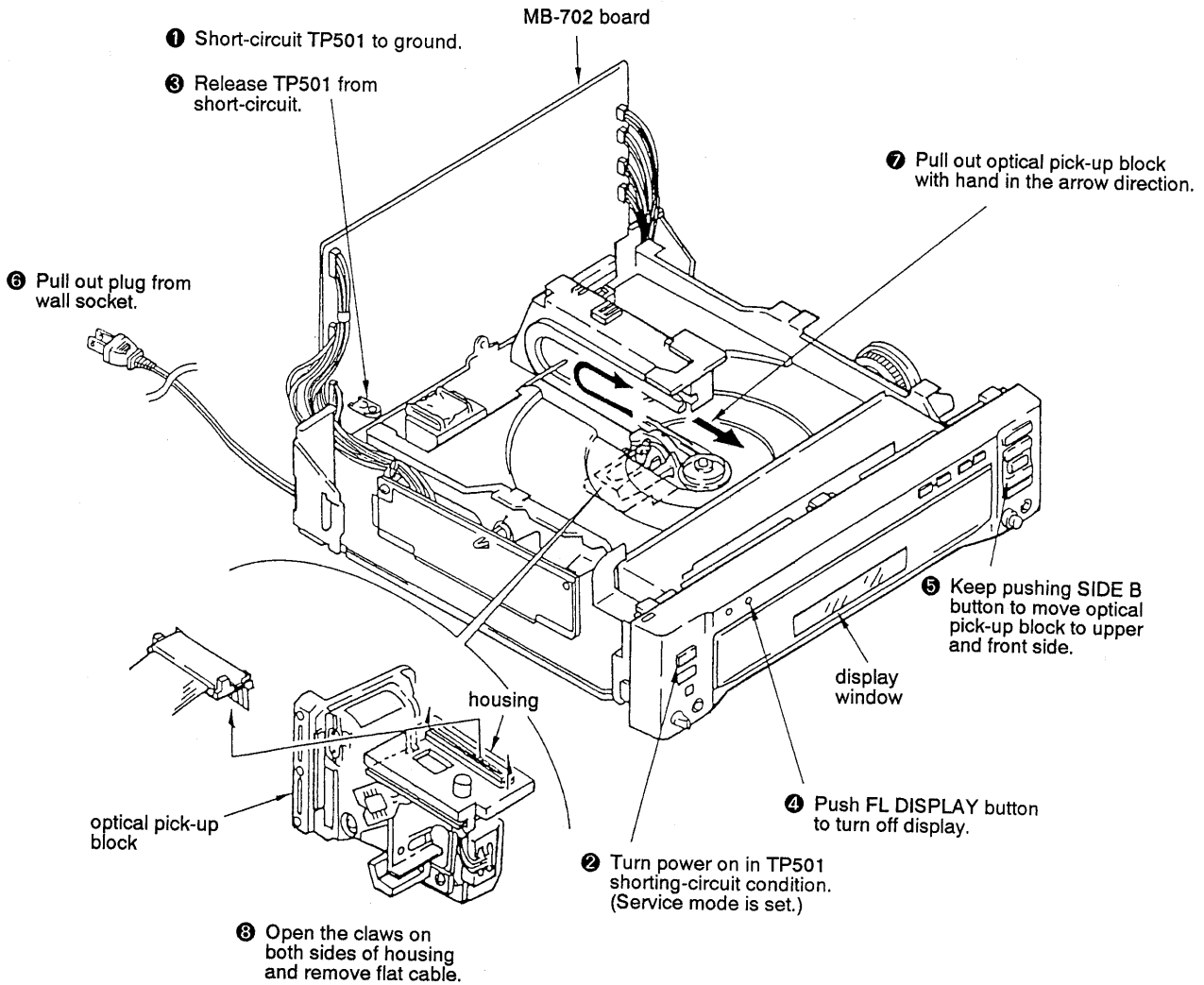
 : Added portion.

TABLE OF CONTENTS

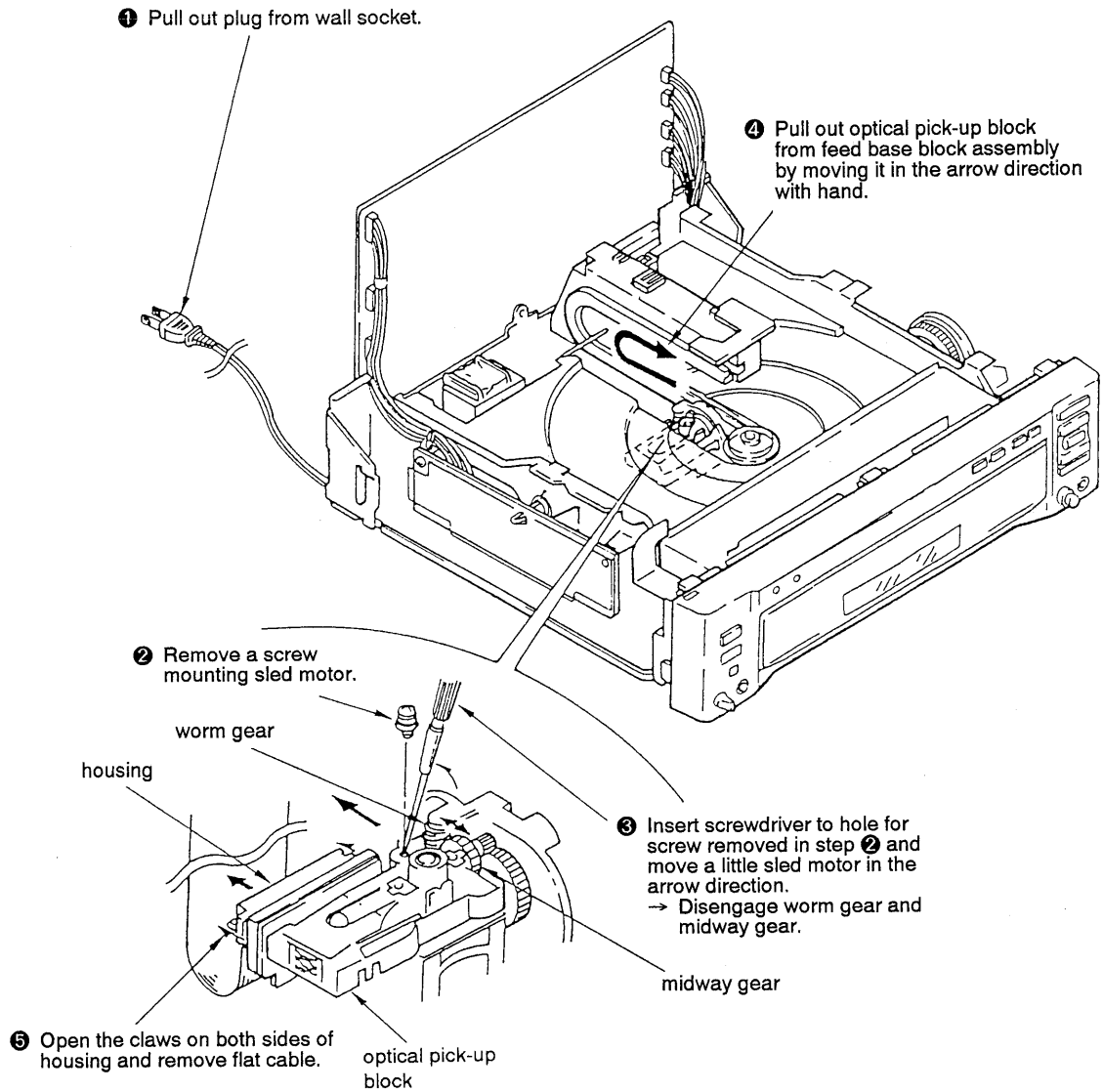
<u>Section</u>	<u>Title</u>	<u>Page</u>
1.	Removal and Installation of the Optical Pick-up Block	2
2.	Adjustment after the Attachment of the Optical Pick-up Block	5
2-1.	Jigs and Tools	5
2-2.	CD Adjustment	5
2-3.	LD Side A Tilt Balance Adjustment	7
2-4.	LD Side B Tilt Balance Adjustment	8
2-5.	Parts Arrangement Diagram for Adjustments	9

1. REMOVAL AND INSTALLATION OF THE OPTICAL PICK-UP BLOCK

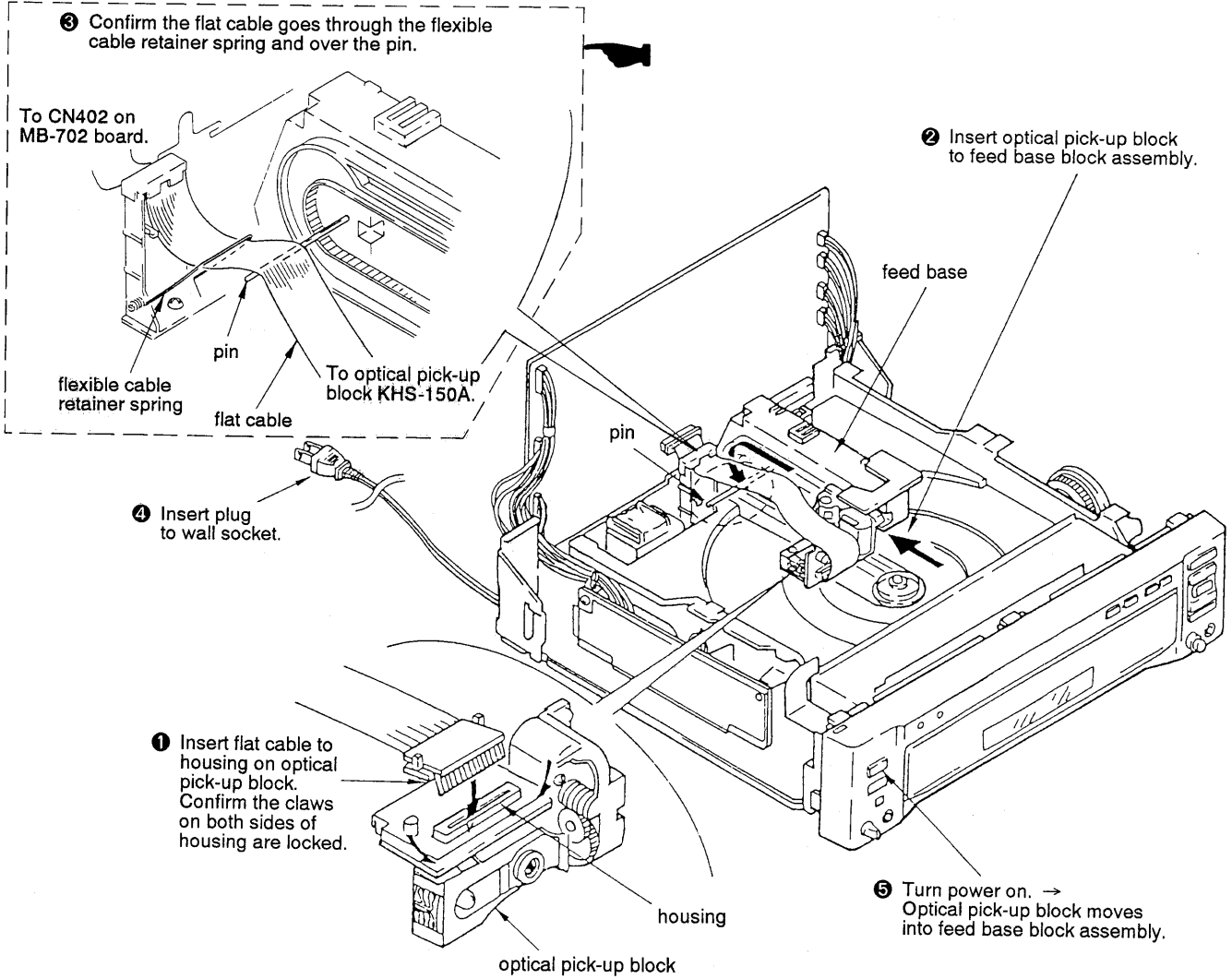
• REMOVAL I (OPTICAL PICK-UP BLOCK MOTOR OPERATES)



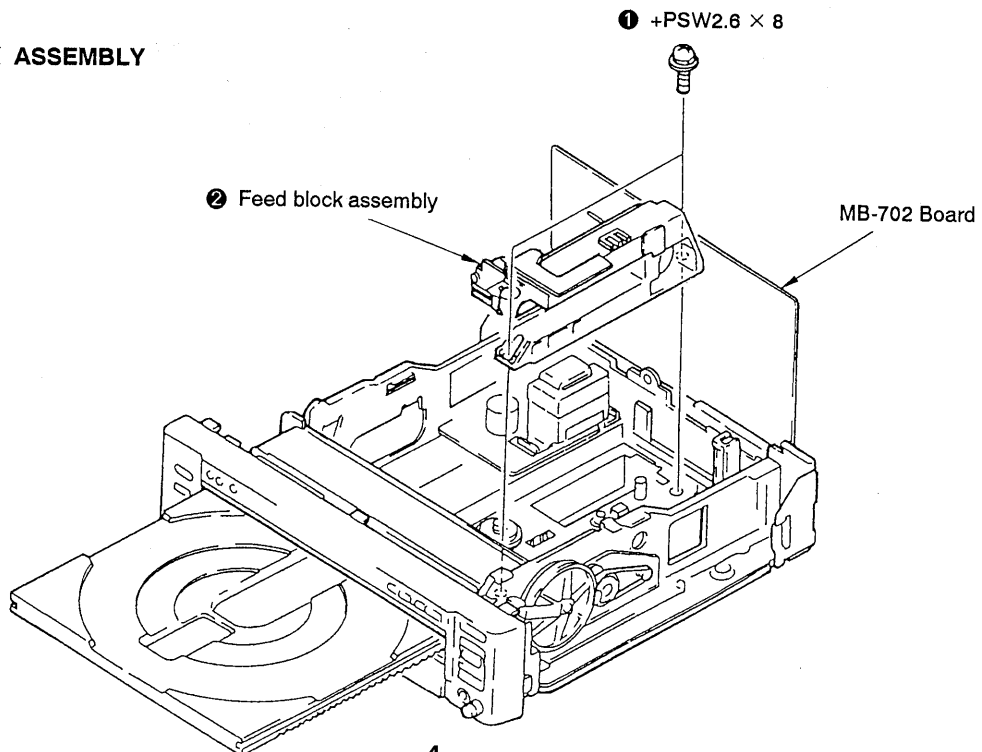
• **REMOVAL II**
(OPTICAL PICK-UP BLOCK MOTOR DOESN'T OPERATES)



• **INSTALLATION**



• **FEED BLOCK ASSEMBLY**

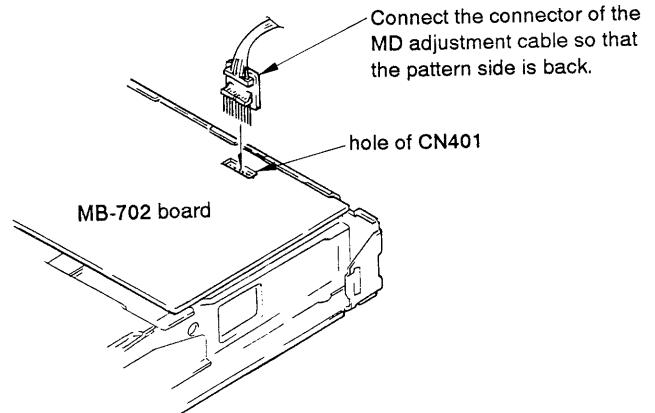




2 ADJUSTMENT AFTER THE ATTACHMENT OF THE OPTICAL PICK-UP BLOCK

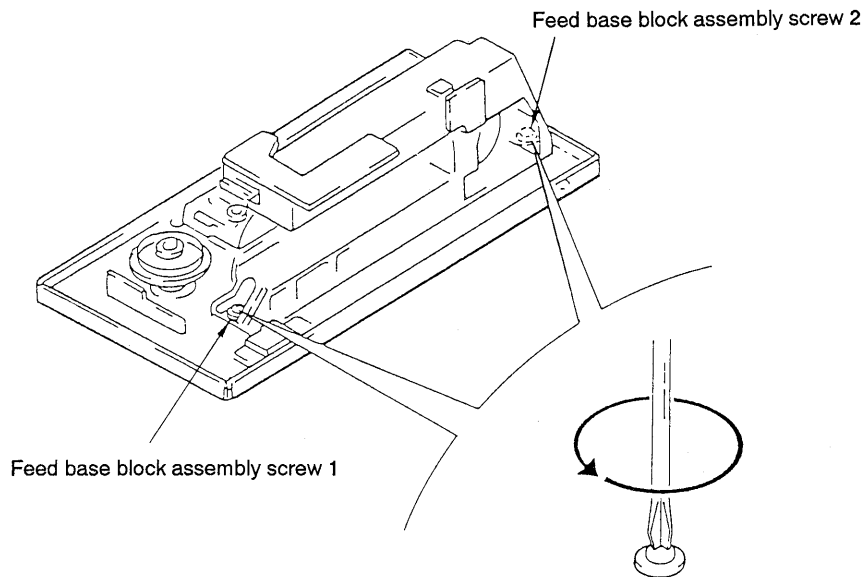
2-1. JIGS AND TOOLS

- Hexagonal wrench (Tangential screwdriver: 7-700-766-04)
 - Oscilloscope
 - MD adjustment cable (J-6082-059-B)
 - Alignment disc Ref. 8 (HLV8: 8-797-008-00)/LD YEDS-18 (3-702-101-01) or an equivalent/CD
 - Decentering screwdriver 4 ϕ (J-6095-029-A)
- * Insert the terminal of the MD adjustment cable to CN401 of the MB-702 Board.



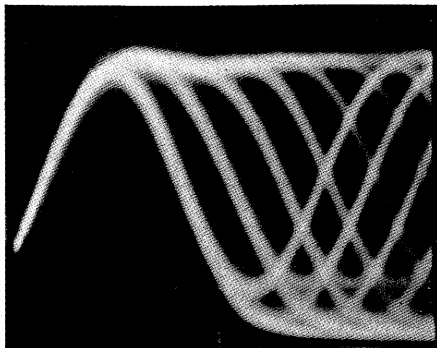
2-2. CD ADJUSTMENT

- ① Loosen the screws of feed base block assembly.



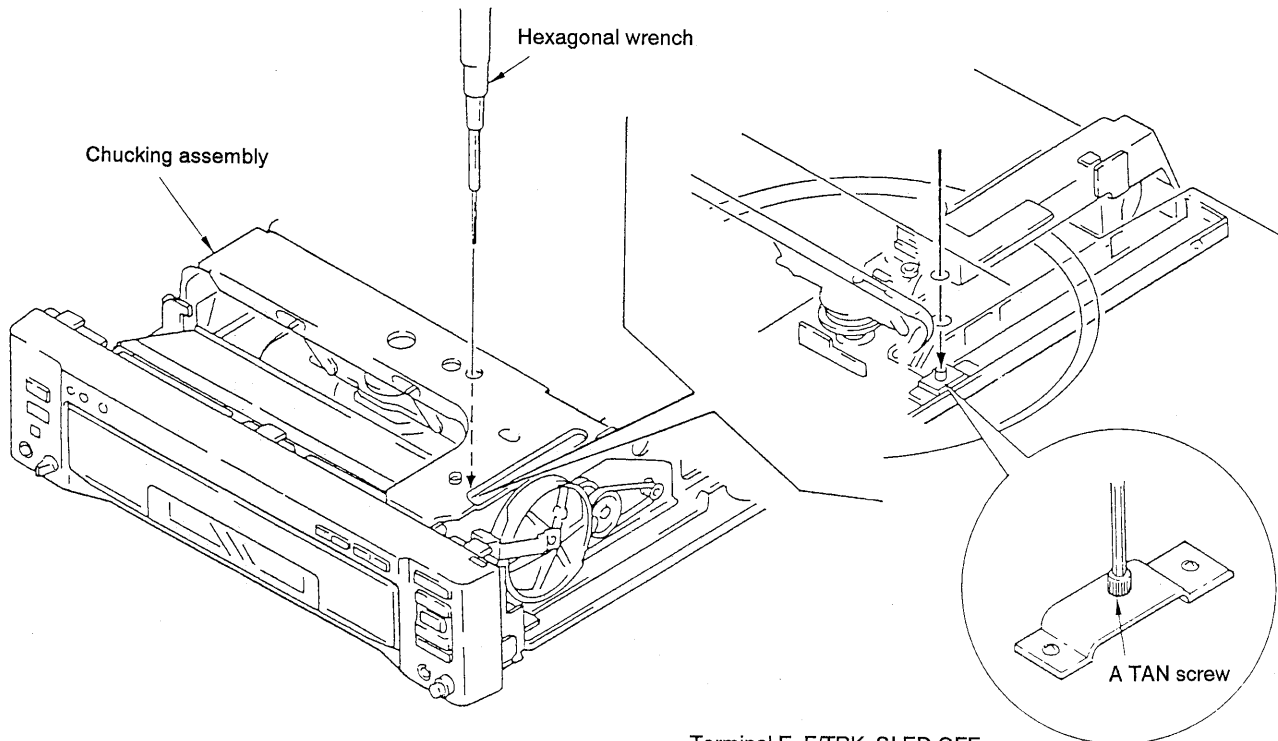
Loosen the screw about a turn from the state of being tight.

- ② Playback the CD to press the Pause button about 3 seconds later.
- ③ Connect the oscilloscope to LD RF of the MD adjustment cable to see if the waveform shown below appears.



Oscilloscope range : 0.1 V/div.
RF level over : 1.7 Vp-p

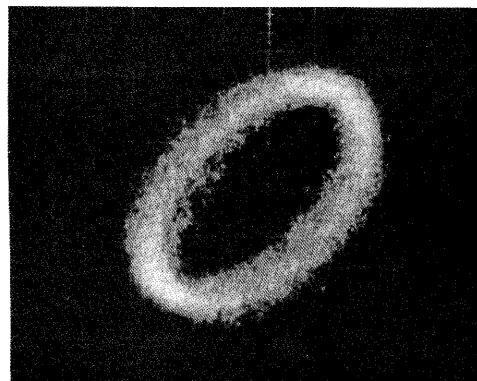
- ④ Insert the A TAN screw with hexagonal wrench 2.6 into the hole of top surface of chucking assembly to adjust so that RF Level is maximum. (Over 1.7 Vp-p)



- ⑤ Insert decentering screwdriver into the feed base block assembly for RD adjustment.

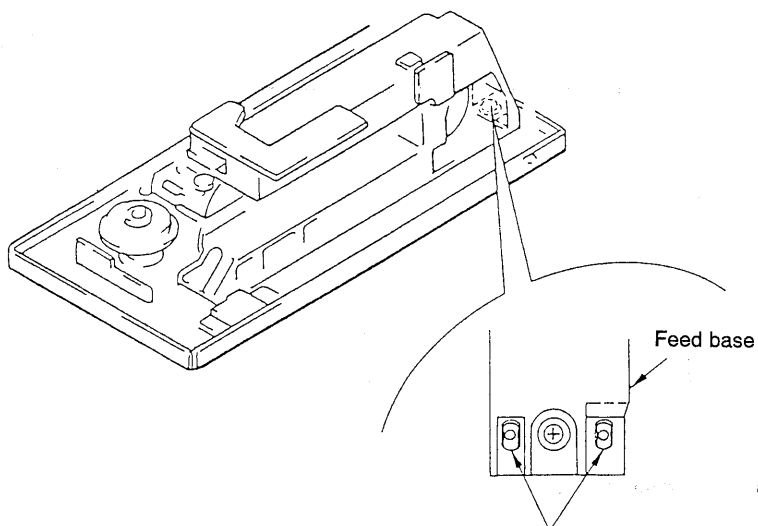
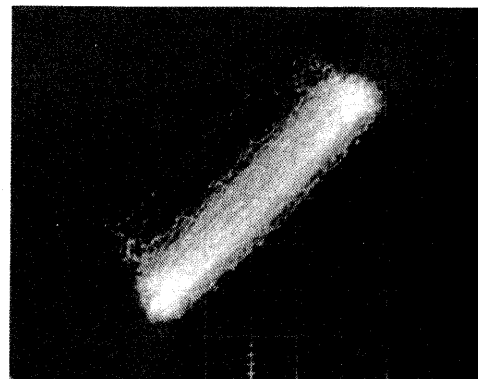
Terminal E, F/TRK, SLED OFF
 Oscilloscope X/Y Lissagous range
 Difference within 35° with each 20 mV/div.

Before the adjustment.



↓ Make the figure straight.

After the adjustment.

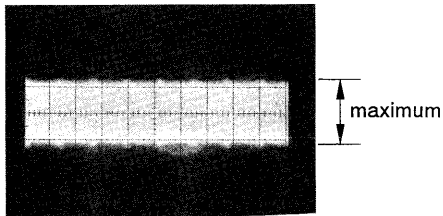


Insert the decentering screwdriver to either one of the holes for adjustment.

- ⑥ Take the DISC out to tighten the 2 screws of the feed base.
- ⑦ Apply suitable locking compound to A TAN screw.

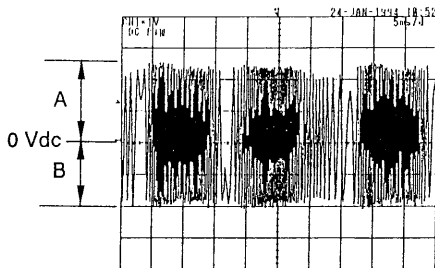
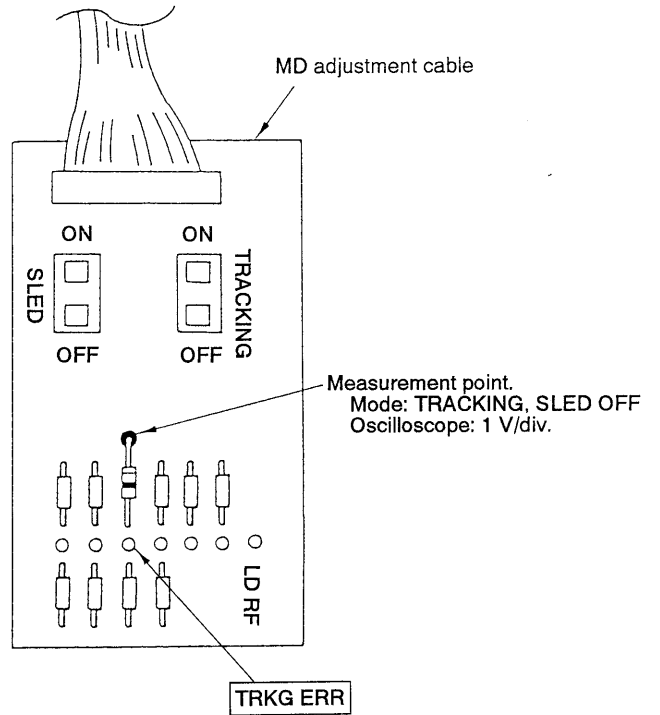
2-3. LD SIDE A TILT BALANCE ADJUSTMENT

- ① Put the LD alignment disc HLV-8 in with the CAV side to the side A, play it and pause at the chapter 3 (#2201).
- ② Connect an oscilloscope to LD RF terminal on the MD adjustment cable and adjust RV401 so that the RF waveform goes maximum in the state the tracking and the sled are on.



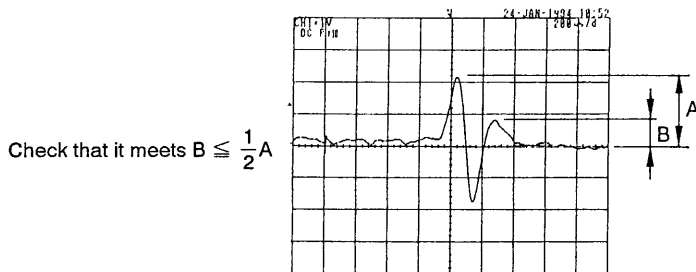
- ③ Play #770 and pause.
- ④ Check that the vertical bar appears on TV monitor and right and left crosstalks (moire) are the same level and minimum. — Already adjusted at the optical pick-up block side —
- ⑤ Check the tracking bal.
Measure the registance at the Y terminal of TRACKING ERR on jig with oscilloscope.

Check the TRACKING BAL.



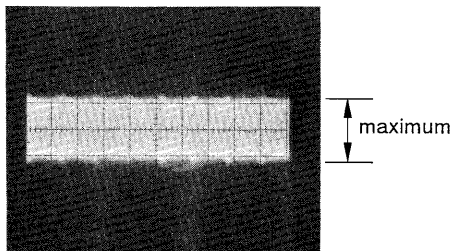
Check that it meets
$$-5 \leq \frac{A - B}{2(A+B)} \times 100 (\%) \leq 8$$

Then turn on the TRACKING and SLED to check the waveform of 1 track jump in STILL.



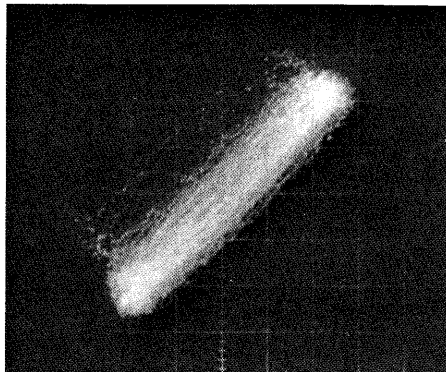
2-4. LD SIDE B TILT BALANCE ADJUSTMENT

- ① Loosen the side B RD screw and TAN screw (hexagonal screw 2.6) on the feed base.
- ② Put the LD alignment disc HLV-8 in with the CAV side to the side B, play it and pause at the chapter 3 (#2201).
- ③ Connect an oscilloscope to LD RF terminal on the MD adjustment cable and adjust RV402 so that the RF waveform goes maximum in the state the tracking and the sled are on.



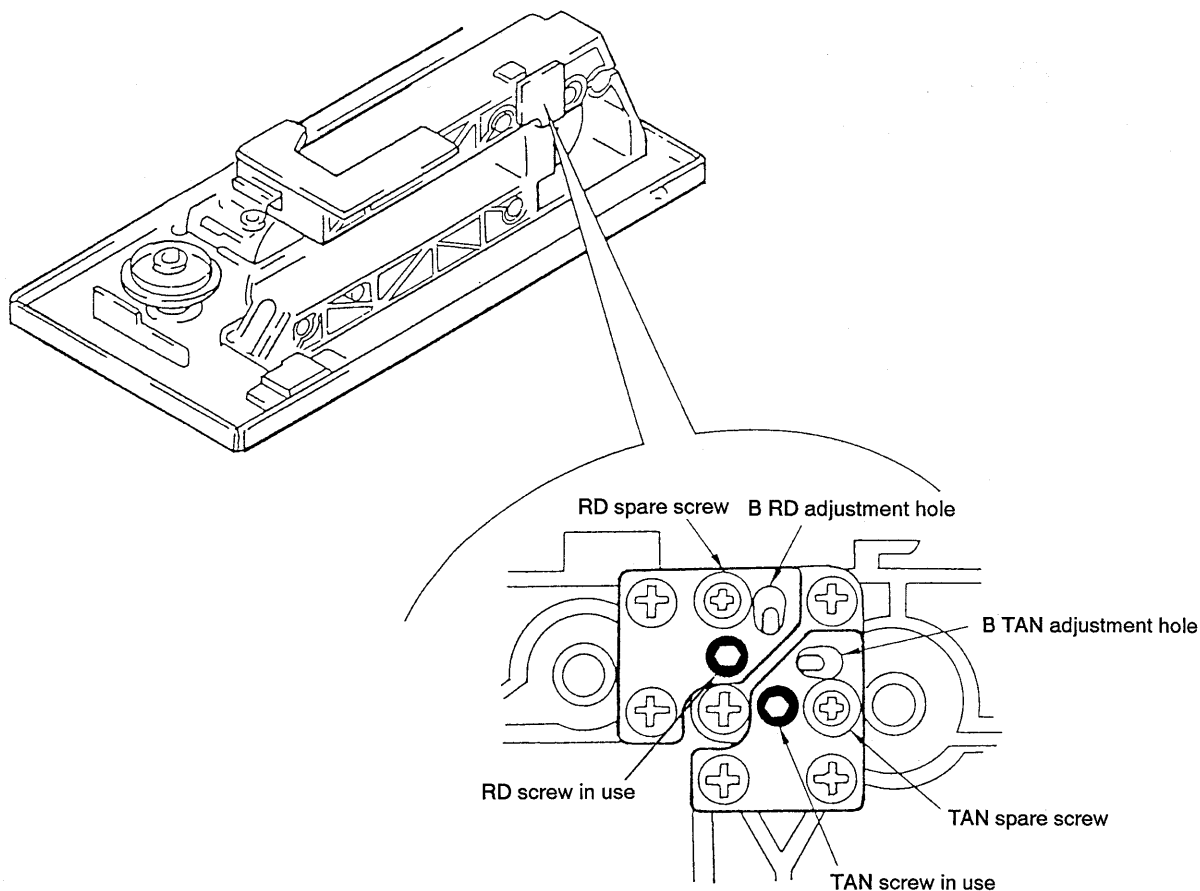
- ④ Insert an eccentric screwdriver to B TAN adjustment hole and adjust the RF waveform goes maximum similarly to the item ③.
- ⑤ Play #770 and pause.
At this time in the same manner as the side A, check that the vertical bar appears on TV monitor and right and left crosstalks (moire) are the same level and maximum.
- ⑥ Forward the chapter 3 (#2201) and pause.

- ⑦ Turn off the SLED and tracking, and adjust inserting an eccentric screwdriver to B RD adjustment hole so that the Lissagous waveform meets the standard.



Jig terminal : E, F
 Oscilloscope : X/Y lissagous 20 mV/div.
 Phase difference : Within 35°

- ⑧ Take out the disc to tighten B TAN and RD screws.



2-5. PARTS ARRANGEMENT DIAGRAM FOR ADJUSTMENTS

MB-702 Board (Component Side)

