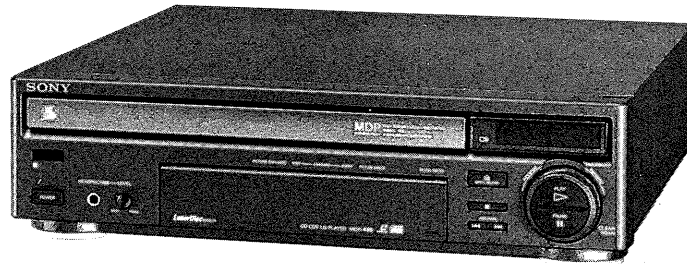


MDP-455/455GX

RMT-M12A

SERVICE MANUAL

US Model
Canadian Model
 MDP-455
PX Model
 MDP-455GX



SPECIFICATIONS

Type
 Signal readout
 Signal format system
 Playing time

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

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

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
 Video output 1.0 Vp-p, 75 ohms.
 Audio output 1, 2 Stereo L, R
 Analog: 200 mVrms (1 kHz, 40% modulation)
 Digital: 200 mVrms (1 kHz, -20 dB)
 Audio output Monaural (only for RFU adaptor)
 MIX output: 77.5 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
 Audio digital output (optical) -18 dBm, wavelength 660 nm
 RFU DC output Mini mini jack DC 5 V
 Headphone output 28 mW (32 ohms)
 Impedance = 8 ohms
 CONTROL S IN input Mini jack

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)
 Total harmonic distortion 0.003%
 Wow and flutter Below measurement limit ($\pm 0.001\%$ W.PEAK) (EIAJ)

— Continued on next page —

CD VIDEO CD/CDV/LD PLAYER
SONY®

Power requirements

Power requirements	MDP-455 120 V AC 60 Hz MDP-455GX 100/120/220/240 V AC adjustable, 50/60 Hz
Power consumption	40 W
Weight	8 kg (17 lb 11 oz)
Dimensions	Approx. 430 × 115 × 410 mm (w/h/d) (17 × 4 5/16 × 16 1/8 in.)
Operating temperature	+5°C to +35 °C
Ambient humidity	5% to 90%

Remote Commander RMT-M12A

Principle of operation	Infrared pulse
Power requirements	3 V DC (2 size AA batteries)
Dimensions	Approx. 68 × 38 × 200 mm (w/h/d) (2 11/16 × 1 1/2 × 7 7/8 in.)
Weight	Approx. 175 g (6 4/23 oz) (including batteries)

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

Supplied accessories

Remote Commander RMT-M12A (1)
Size AA (R6) batteries (2)
Video cable (phono plug 1 ↔ phono plug 1) (1)
Audio cable (phono plug 2 ↔ phono plug 2) (1)
AC plug adaptor (1) (not supplied for MDP-455)

Design and specifications are subject to change without notice.

WARNING !!

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



CAUTION:

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


CAUTION

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

SAFETY-RELATED COMPONENT WARNING!!

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

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.

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)

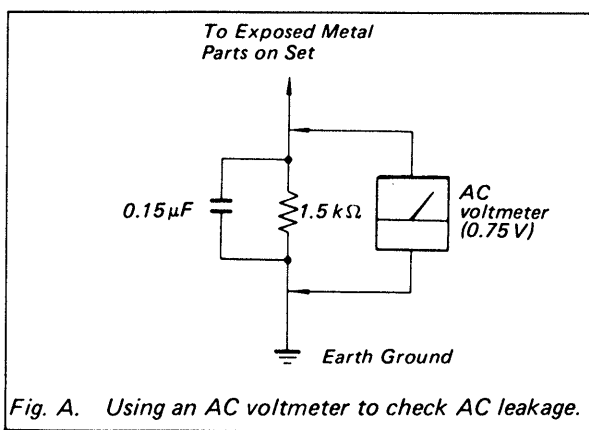


Fig. A. Using an AC voltmeter to check AC leakage.

TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>	<u>Section</u>	<u>Title</u>	<u>Page</u>
1.	GENERAL		4.	PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS	
	About Operating Voltage	5	4-1.	Frame Schematic Diagram	47
	Introduction	5	4-2.	Printed Wiring Boards and Schematic Diagrams	50
	Installation and Connection	7		SV-63, CK-44, FG-41, MT-28, MT-30 Boards	51
	To Play a Laser Disc	10		MB-701 (Video) Board	60
	To Play a Compact Disc	15		MB-701 (System Control), LS-702, MT-52, SW-706, SW-707 Boards	70
	To Play a Compact Disc Video	18		MB-701 (Audio), HP-702 Boards	80
	To Play Any Disc (Advanced Functions for LD, CD, or CDV Play)	19		FP-703, SW-704 Boards	90
				PS-701 TR-702, VS-701 Boards	93
2.	DISASSEMBLY		4-3.	Semiconductors	98
2-1.	Tray Cover	23	5.	EXPLODED VIEWS	
2-2.	Upper Case, Front Panel Assy, Bottom Plate Assy	23	5-1.	Cabinet, Front Panel Assemblies	100
2-3.	MB-701 Board	24	5-2.	Chassis (1)	101
2-4.	MD Chassis, Optical Device Chassis	24	5-3.	Chassis (2)	102
2-5.	Turntable, Spindle Motor, Skew Motor, SV-63, FG-41 Boards	25	5-4.	MD Chassis	103
2-6.	Removal of the Tray	25	5-5.	Optical Block	104
2-7.	Removal of the Disc When a Problem Has Occurred with the Disc Loaded	25	6.	ELECTRICAL PARTS LIST	105
2-8.	Alignment of the Loading Gear Phase	26		Hardware List	124
3.	DIAGRAMS		7.	ELECTRICAL ADJUSTMENTS	
3-1.	Circuit Boards Location	27	7-1.	List of Servicing Jigs	126
	Main Parts Location	27	7-2.	Cautions on Adjustment	126
3-2.	Overall Block Diagram	28	7-3.	MD Adjustment Cable	126
3-3.	Servo Block Diagram	31	7-4.	Power Supply Check (PS-701 Board)	127
3-4.	System Control Block Diagram	33	7-5.	System Control System Adjustment	127
3-5.	System Control Microcomputer Port Functions (MB-701 Board IC601 MB89795)	35		7-5-1. Microprocessor Clock Adjustment (MB-701 Board)	127
3-6.	Video Block Diagram	37	7-6.	Servo System Adjustment	127
3-7.	Audio Block Diagram	39		7-6-1. LD Servo System Adjustment	128
3-8.	Mode Control Microcomputer Port Functions (FP-703 Board IC001 CXP50116)	41		7-6-2. CD Servo System Adjustment	132
3-9.	Mode Control Block Diagram	43	7-7.	Video System Adjustment	134
3-10.	Power Supply Block Diagram	45		7-7-1. Video Output Level Adjustment (MB-701 Board) ..	134
			7-8.	Parts Arrangement Diagram for Adjustments	136

This section is extracted from instruction manual.

SECTION 1 GENERAL

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.

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.

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 14). Unique to LD play are STILL/STEP, MULTI SPEED play, MEMORY play and FRAME/TIME search.

To Play a Compact Disc (CD)

This section explains the operation of CDs and compares most closely to CDV audio operations (page 24).

To Play a Compact Disc Video (CDV)

This section covers procedures for CDV operation and shares many functions with CD play (page 30). There are no functions unique to CDV play in this MDP.

To Play Any Disc (LD, CD, CDV)

Most of the procedures in this section fall into the advanced category (see page 32) and are collected here because they are common to LD, CD and CDV play.

What to Do First

Once you have read through this page, read "Principles of Operation" (page 6), then go ahead and connect up the Multi Disc Player to your television and/or stereo system using the connection diagrams on pages 11, 12 and 13. 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)".

About Operating Voltage

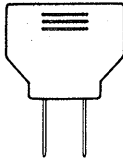
Before operating the Multi Disc Player, make sure that the operating voltage of your unit is identical with that of your local power supply.

How to Determine the Correct Operating Voltage

- Before operating the unit, find out the local voltage, and if necessary reset the selector at the rear (MDP-455GX only) of the Multi Disc Player to the voltage corresponding to your local power supply (100, 120, 220 or 240 volts AC). The voltage selector of this unit is set to 220 V AC originally. MDP-455, for the USA and Canada, operates at 120 V AC 60 Hz only and does not have the voltage selector.
- To reset the voltage selector, disconnect the power cord and turn the selector with a blade screwdriver so that the arrow on the selector points to the appropriate voltage.

How to Use the AC Power Plug Adaptor (supplied with the MDP-455GX)

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



For Customers in the USA

For detailed safety precautions, see the enclosed leaflet, "IMPORTANT SAFEGUARDS".

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

The Principles of Operation

Beyond the play 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

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. 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

Variable speed Functions

Variable Speed Scan
(SHUTTLE RING)
Still/Step Scan
(STILL/STEP)
Variable Speed Play
(MULTI SPEED,
SPEED SET)

Repeatable Functions

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

Auxiliary Functions




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

Introduction to Your Player

The MDP-455/455GX Multi Disc Player integrates the functions of three machines in one: laser disc, compact disc, and compact disc video player. The entertainment potential afforded by the combined capabilities of this multi-faceted machine amount to some 35 to 40 functions. Below follows an explanation of the kinds of discs the MDP plays.

The MDP-455/455GX Plays Three Classes of Optical/Digital Discs*

The MDP-455/455GX Multi Disc Player plays all three types of optical discs currently available for home entertainment. The following table illustrates their types and features.

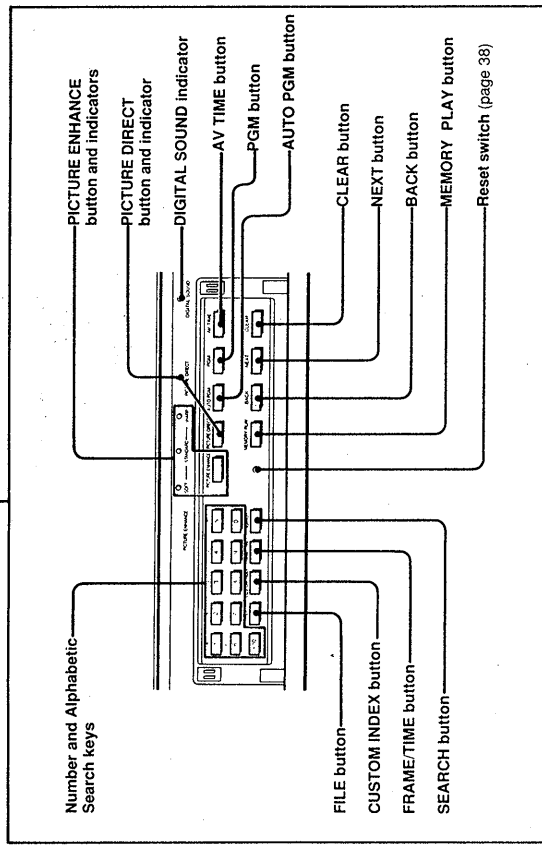
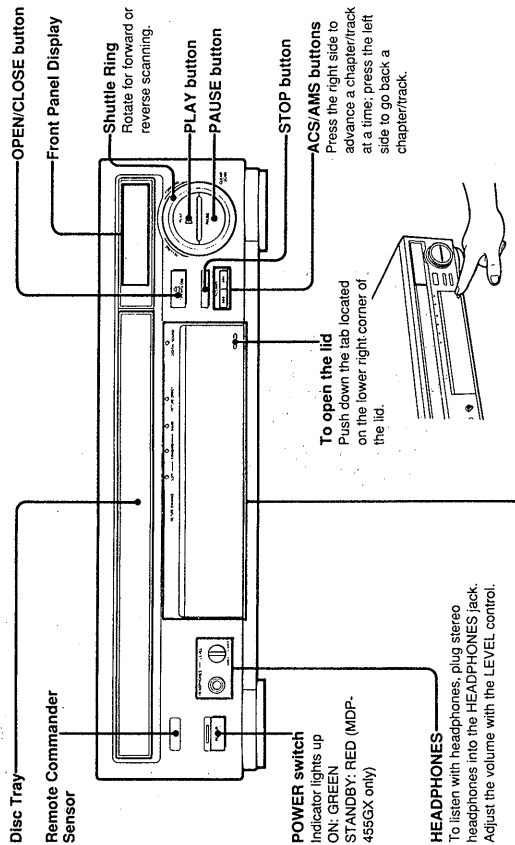
Disc Class	Disc Logo	Disc Type	Size	Play Side	Play Time
Laser Discs For movies, operas, and concerts		LD Single	8 in. (20 cm)	Single Side	CAV 14 min CLV 20 min
		8-inch LD	8 in. (20 cm)	Double Side	CAV 28 min CLV 40 min
		12-inch LD	12 in. (30 cm)	Double Side	CAV 1 hr CLV 2 hr
Compact Discs For music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

* These apply only to those discs recorded in the NTSC standard. The MDP-455/455GX cannot play CED, VHD discs or PAL video discs.

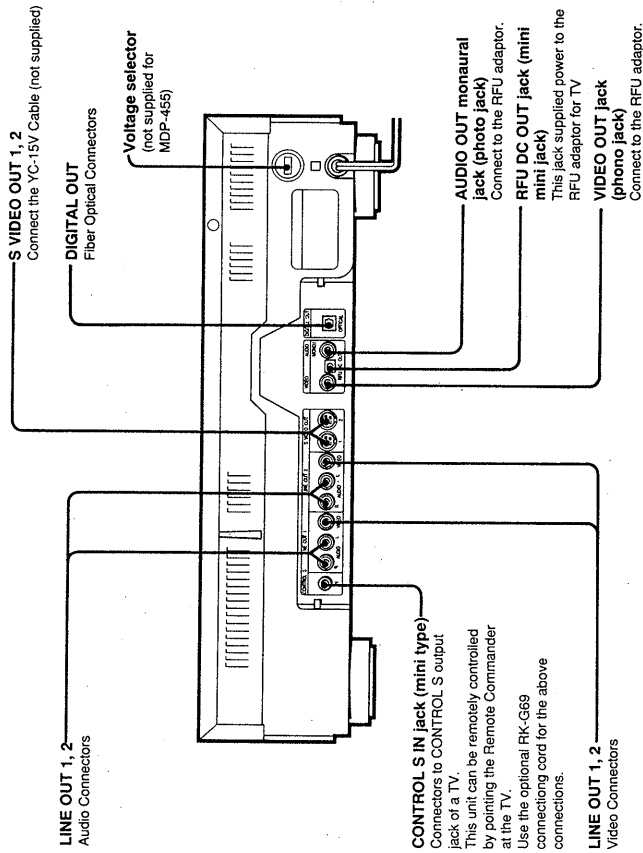
Installation and Connection

Front and Rear Panel Controls and Supplied Accessories

Front Panel



Rear Panel



Accessories

Make sure the shipping box contains the following accessories:

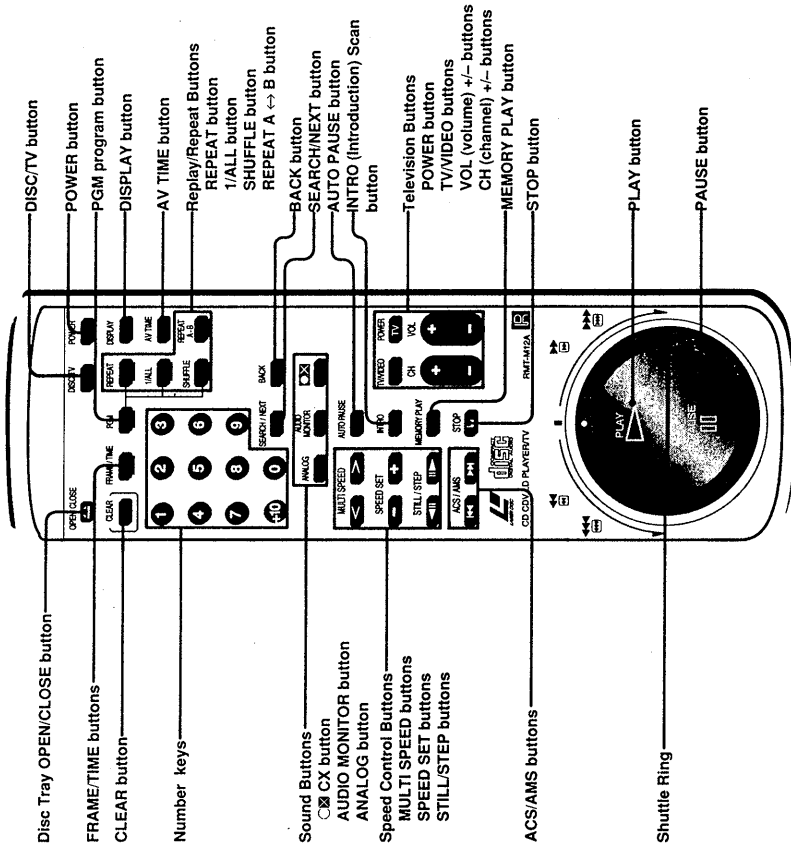
RMT-M12A Remote Commander **Two AA (R6) batteries** **Video connecting cord** (phono 1 ↔ phono 1)



AC plug adaptor (not supplied for MDP-455)
(See page 4.)

Controls on the Remote Commander

You can use the Remote Commander (the 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 or damage the sensor.

Connecting Precautions:

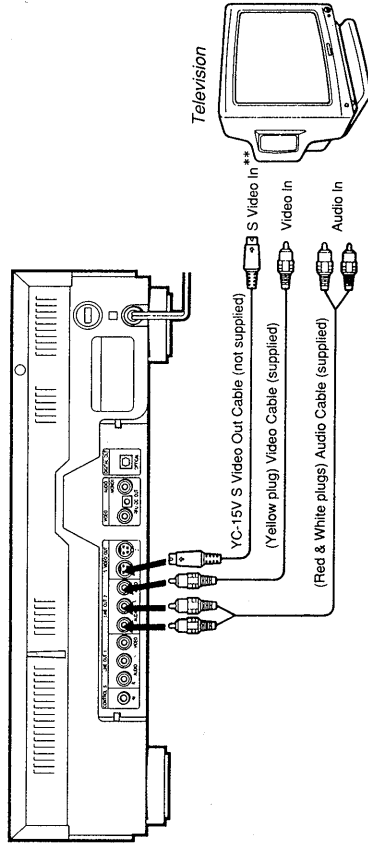
- Make sure all equipment is turned off before connecting or disconnecting any cables.
- Connection methods may differ; when in doubt about a connection consult the TV or VCR manufacturer's manual.
- If noise emits from the video or audio input, try moving the equipment farther apart.
- Firmly insert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

* If the TV only has a monaural phono jack for audio input, use a VMC-720M/730M 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.

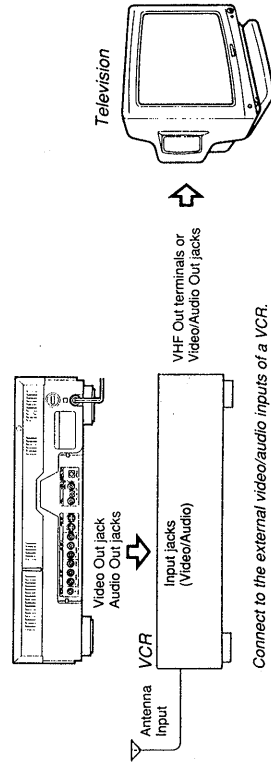
How to Connect the Television

To play LDs or CDVs, hook up a television to the Multi Disc Player. Take out the supplied yellow video connecting cable and the red and white audio cables. 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 below cables, turn off all equipment.

Television Hook-Up



Television/VCR Hook-Up



Connect to the external video/audio inputs of a VCR.

To Activate the Remote Commander

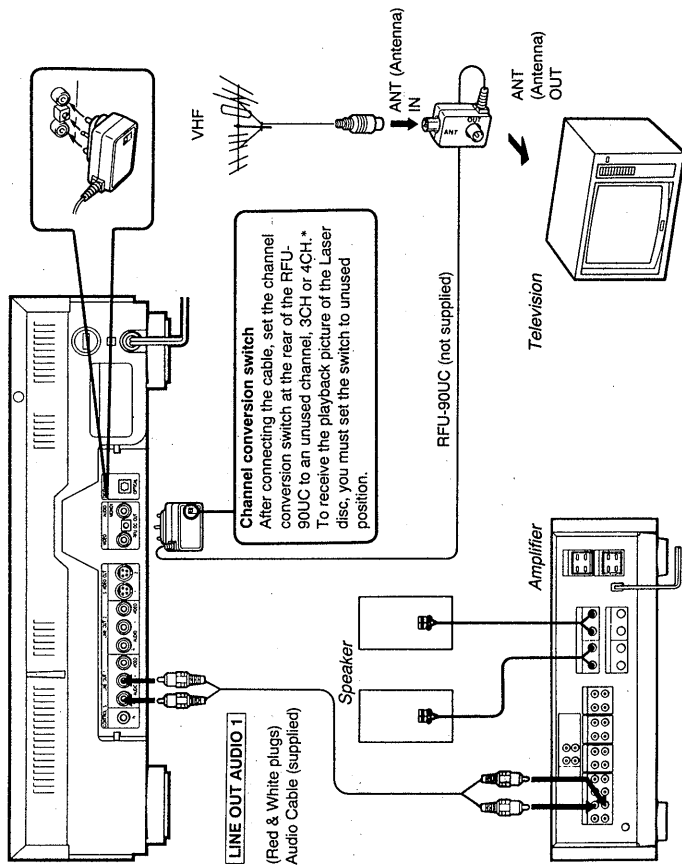
Open the back cover, and insert two size AA (R6) batteries according to the polarity indicated in the illustration. The batteries will last for about 6 months. If the range of the Remote Commander becomes noticeably short, replace all the batteries with new ones. If the Remote Commander is not to be 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 or damage the sensor.

When Your TV Does Not Have Audio/Video Inputs

For connection, use the optional RFU-90UC (RFU adaptor). The audio signal of the disc is reproduced in monaural when connected to the TV via the RFU-90UC. To enjoy the disc in stereo, connect the player to an audio system (page 13).



Note on Connection:

One of the most important benefits of your Multi Disc Player is its Digital Stereo Sound (from either LD's or CD's). In order to get the advantage of Stereo Sound, you must hook your Player's L/R audio outputs to a stereo audio system or stereo TV. In addition, by using the video output jack, you will get a noticeably better picture. In order to connect this player to a TV without AV inputs, you must purchase a RFU-90UC accessory from your dealer. However, if you connect your Player this way, you will not get stereo sound, and the picture quality will not be as good as it could be.

* Why is it necessary to select 3 or 4 ?

The Multi Disc Player sends its output to the TV as a VHF broadcast signal. Selecting an unused channel avoids interfering with regular broadcasts. When watching regular TV programs, turn the player off or press the TV/DISC button on the Remote Commander so that you can obtain a better picture. If TV picture quality is not satisfactory, refer to the manufacturer's manual and adjust the reception.

When watching TV broadcast.

Always turn off the Multi Disc Player to get better reception.

During FM or AM reception

Turn off the power of the Multi Disc Player to prevent the possibility of noise interference.

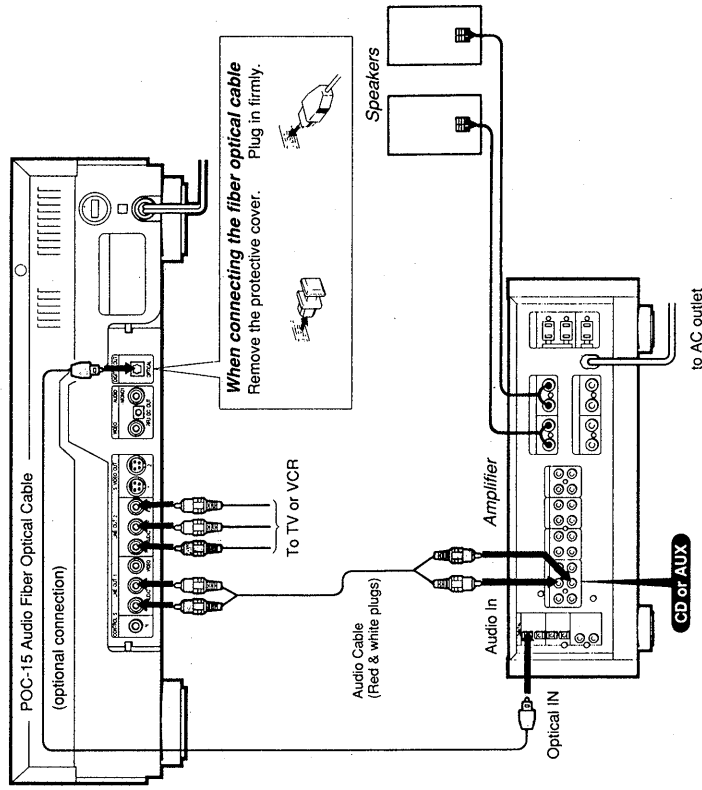
How to Connect Audio Equipment

To achieve full stereo sound from your Multi Disc Player, hook up a stereo system following the diagram below. Take out the supplied red and white audio connecting cable and use this 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, p. 41), 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 (on the right), connect the POC-15 Audio Fiber Optical Cable (not supplied) between the DIGITAL OUTPUT 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.

Audio Equipment Hook-Up



Connecting 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 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.


- 1 Turn on the TV and stereo system.**

TV. Set the input selector on the TV to "Video", or select the channel used for the Multi Disc Player playback (channel 3 or 4; when using the RFU adaptor).

Stereo System. Turn on the amplifier or receiver and select CD or AUX for audio output.

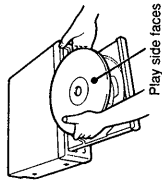
Press the **POWER** button on the player or Remote Commander (the Remote).
- 2 Turn on the multi disc player.**

POWER  Player or Remote Commander
- 3 Open the disc tray.**

OPEN/CLOSE 

4 Place the disc on the tray.

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



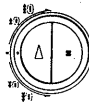
5 Start playback.

Press **PLAY** (▶) located inside the Shuttle Ring.



To Advance or Reverse

Rotate the Shuttle Ring.



To Advance or Go Back a Chapter at a Time

Press or hold down the ACS/AMS button.



To Interrupt Play

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



To Stop Playback

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



To Stop Play and Remove the Disc

Press **OPEN/CLOSE** (▲). Remove the disc and close the empty tray.



To Have the Player Pause Before Starting

Press the **PAUSE** (||) button on the player or the Remote Commander immediately after doing step 4 on page 14. The tray closes and the player waits at the start of the disc until you press **PLAY** (▶).



To Activate Play with an Optional Timer

Set the timer with the AC power cord connected to the player. When the timer supplies power at the preset time, the player starts playing the disc. If there is no disc in the player, the player goes off automatically.

To Enhance the picture

Press **PICTURE ENHANCE** on the player to select the desired mode. The indicator of the selected mode lights up. Each time you press this button, the mode lights changes in the order of STANDARD, SHARP and SOFT.



SOFT: Soft picture

Reduce screen noise

STANDARD: Standard picture

SHARP: Sharp picture

Refine the images

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 return to STANDARD.

To Play a Disc without using the Picture Enhancement Function

Press **PICTURE DIRECT** on the player. The indicator lights up. The screen noise reducing function is canceled and the player reproduces pictures faithfully in their original state. You can make the picture sharper, however, screen noise may occur on some discs.



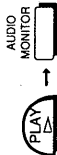
To Cancel Picture Direct Play

Press **PICTURE DIRECT** again.



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

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



The procedure below indicates how the output and the display changes with each press.

Procedure	Display	Output Sound	
		Stereo Disc	SAP Disc
1 Press PLAY (▶).	1/L 2/R	Stereo (Both speakers)	Soundtrack 1 (left channel) Soundtrack 2 (right channel)
2 Press AUDIO MONITOR .	1/L	Left speaker	Soundtrack 1 (left channel)
3 Press AUDIO MONITOR again. Press AUDIO MONITOR again to return to stereo status.	2/R	Right speaker	Soundtrack 2 (right channel)

To Switch from Digital to Analog Sound



Press the **ANALOG** button 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. When you press the **ANALOG** button on the Remote Commander, you can switch to analog sound. With certain discs there may be a difference in volume.



Discs with a CX (Crossed X) Label

Discs bearing the CX (Crossed X) label are recorded with the CX Noise Reduction system, which gives lower noise levels and higher dynamic range. The CX (Crossed X) indication appears on the screen when a CX disc is played. However, some CX discs do not include the recording necessary to activate the player's CX noise reduction system. If the CX indicator does not appear, press the button on the Remote Commander to manually activate the system.

Understanding Displays and Messages When Playing LDs

You can determine 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 Commander. To turn off the display, press **DISPLAY** again.

Reading the On-Screen Messages

The illustration below is an example of what appears on screen while the player is operating. The table below is a key to the messages that appear on the right.

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	Searching
	Scanning at 1/2-speed

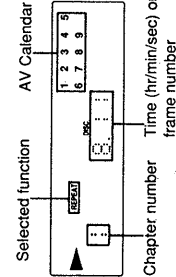
Message 2 (Examples)

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

* Discs not indicating time data to the second indicate instead as two-digit numbers such as "0,22".
** Some discs do not contain Side A or B identification coding. In that case, disc side indications may not be accurate.

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 an LD containing TOC (Table of Contents) data, the AV Calendar shows information on the total number of selections on the disc or those programmed to play. As selections are played, the corresponding numbers on the display disappear.

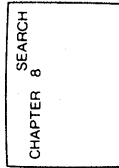
How to Search by Chapter Numbers

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 Sensing/Automatic Music Sensing—to advance or reverse a chapter at a time. Locate the number keys and the ACS/AMS buttons on the Remote Commander or the front panel of the player.

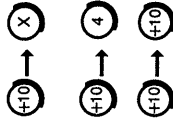
To Locate a Particular Chapter

Press one of the number keys on the Remote or front panel corresponding to the chapter you want to play.

The player starts searching for Chapter 8.



To Enter a Number Greater Than 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 numbers, press +10 repeatedly until -- or 1- is displayed, then enter the correct numbers.

To Check the Current Chapter Number



Press DISPLAY on the Remote to display the chapter number (upper left-hand corner) on screen. You can also look at the AV Calendar on the front panel display for the chapters on the disc left to be played.

To Advance or Go Back a 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 the ACS/AMS button for continuous skip search.



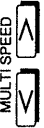
To Resume Normal Play**

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

** Once the searched chapter has played, if the player is in repeat mode ("REPEAT" is displayed on the front panel or screen), playback starts from the beginning of the disc.

To find a scene, play the disc back or forward at varying speeds.* Use Multi Speed and Speed Set for CAV standard-play LDs. Use the Shuttle Ring, which lets you scan gradually, for all discs. Locate the MULTI SPEED, SPEED SET, DISPLAY buttons and the Shuttle Ring on the Remote Commander.

To Change Speed and Direction (Multi Speed)



1 Press MULTI SPEED to select the direction.



2 Press SPEED SET to select the speed.

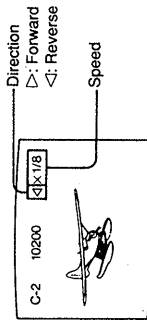


3 Press DISPLAY.

To reverse <
To advance >

To reduce speed -
To increase speed +
(You can press SPEED SET first, or do either step without the other.)

The play speed and direction appear on screen.



Normal playback resumes.



4 Press PLAY.

Discs with Automatic Picture Stop Code

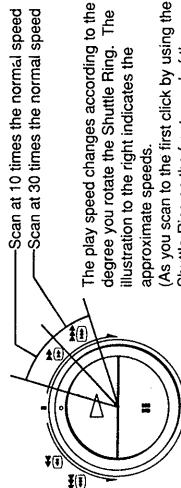
When an automatic picture stop code (found on educational discs) is encountered during variable speed play, the unit automatically stops at that frame. To resume playback, press PLAY, MULTI SPEED, or turn the Shuttle Ring.

Extended-Play (CLV) or Non-CAV Discs

Variable Speed Play, Freeze Frame, and Step Play are not possible with CLV discs. When a MULTI SPEED button is pressed, the screen goes blank and the message "SIDE A (or "B") CLV" appears.

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

Rotate the Shuttle Ring in the forward or reverse direction.



The play speed changes according to the degree you rotate the Shuttle Ring. The illustration to the right indicates the approximate speeds.

(As you scan to the first click by using the Shuttle Ring on the front panel of the player, the speed is approximately 10 times normal speed. As you continue past the first click, the 30 times normal speed.)

Release the Shuttle Ring.

To Resume Normal Play

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



** Scanning speed varies as the laser beam moves away from the center of a CLV disc.

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 (or SEARCH) buttons, and number keys on the Remote Commander or the front panel of the player.

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 the FRAME/TIME button. 
- 2 Enter the desired multi-digit number corresponding to the frame or time you want found.** 

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



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



If you make a mistake, press FRAME/TIME again to return the display to zero, and then enter the correct numbers.

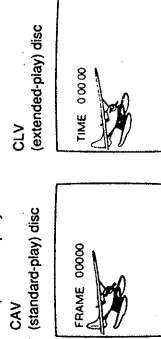
Play starts from the time or frame specified in step 2.



- 3 Press SEARCH/NEXT on the Remote (or SEARCH on the player).

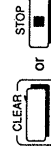
To Check the Frame/Time Numbers

These 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 the SEARCH/NEXT button, press CLEAR. If you have already pressed the SEARCH/NEXT button, press STOP (■). In addition to 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.
** If you enter a frame or time number not contained on the disc, play stops.

How to Play Frame-by-Frame (for CAV discs)

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.
- 2 Press STILL/STEP repeatedly.  Each press shifts the image one frame backward or forward.

To reverse ◀
To advance ▶

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)

Press PAUSE (II) once.

To Resume Normal Play

Press PAUSE (II) again, or Press PLAY (▶).

Extended-Play (CLV) Discs

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

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

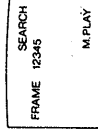
This function can only be used for LDs, and in the continuous play mode**. Even if you use the STOP (■) button to stop, you can still continue play from the point you stopped at.

To Play Again from the Point You Stopped at



Press MEMORY PLAY while in the stop mode.

The player starts searching for the point you stopped at.



Play starts at the point you stopped.

If you turn off the power, press MEMORY PLAY before you turn on the power. The player will turn on automatically and continue playing again from the point you stopped at. (If the power is turned on first, this function cannot be performed. The player will start playing from the very beginning of the disc.)

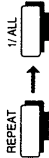
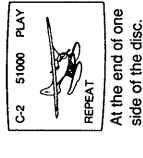
* This function can only be performed on CAV discs.
** You cannot use this function in the shuffle, program and single repeat play. If you press ◀, ▶, ⏪, ⏩ or ▲ while in the stop mode, this function is canceled.

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 a single side, a single chapter or a section between one pair of points on the disc. (To program the player to replay between a series of paired points, refer to Custom Index on page 35.) Locate the REPEAT, 1/ALL, and the REPEAT A↔B buttons on the Remote Commander.

To Repeat the Entire Side of the Disc

Press REPEAT on the Remote.
When the player reaches the end of one side, it returns to the beginning of the disc and starts playing that side again.



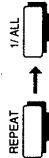
Press REPEAT then, 1/ALL on the Remote.

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

Press REPEAT.



Press REPEAT-1/ALL.



To Repeat One Section of the Disc

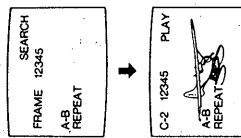
1 Go back to the start of the scene you want replayed. This marks where replay is to begin.

2 Press REPEAT A↔B at the beginning of where you want replay to begin.

3 Let the player run to the end of the scene you want repeated.

The "REPEAT" and "A" indication lights up, and "B" indication in the front panel flashes.

4 Press REPEAT A↔B again. This marks where replay is to end.



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

Press CLEAR.



To Cancel REPEAT A↔B

22 To Play a Laser Disc

How to Play Only Certain Chapters—Programmed Play

You can choose, in any order you like, the chapters the MDP plays. This playlist 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. Locate the number keys, PGM and PLAY buttons on the Remote Commander or the front panel of the player.

1 Press PGM.

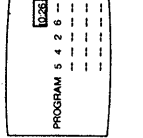
"PGM" flashes in the front panel display. "PROGRAM -- --" appears on screen.



2 Press one of the number keys.
Press numbers for all the chapters you want played.

5

For example, press 5, 4, 2, and 6 to play those chapters in that order.



3 Press PLAY (▶).



To Start Over Press CLEAR, and then PGM. Enter the new chapter numbers.



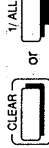
To Change an Entry Press SEARCH/NEXT (or NEXT on the player) or BACK to advance or go back one entry. Enter the correct number.



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 or 1/ALL. The player resumes normal playback.



To Replay the Programmed Chapters Press REPEAT. "REPEAT" is displayed on the screen.



To Advance or Go Back a Chapter** Press ACS/AMS (◀▶ or ▶▶).



To Check the Contents of the Program Press PGM. The flashing number indicates the chapter now playing. The display disappears after 3 seconds.



* If you enter 0 or chapter numbers greater than 21, or if total play time exceeds 100 minutes, the total play time is not displayed.
** The flashing number indicates the chapter now playing. The display disappears after 3 seconds.



23 To Play a Laser Disc

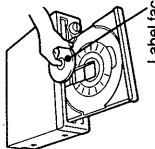
To Play a Compact Disc


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 stereo system.
Turn on the amplifier or receiver and select CD, AUX or other desired audio input.
- 2 Turn on the multi disc player.
Press the POWER button on the player or Remote Commander (the Remote).
 Player or Remote Commander
- 3 Open the disc tray.
Press the OPEN/CLOSE button on the player or Remote.


- 4 Place the 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 disc or unit.
 Label faces up.

- 5 Start playback.
Press PLAY (▶) located inside the Shuttle Ring.


- To Advance or Reverse Rotate the Shuttle Ring.
Press or hold down the ACS/AMS button.

- To Interrupt Play Press PAUSE (||).
To resume playback, press PAUSE (||) or PLAY (▶).


- To Stop Playback Press STOP (■).
To play again from the beginning, press PLAY (▶).


- To Stop Play and Remove the Disc Press OPEN/CLOSE. Remove the CD and close the empty tray.


To Have the Player Pause Before Starting

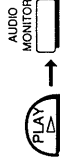


Press the PAUSE (II) button on the player or the Remote instead of pressing PLAY. The tray closes and the player waits at the start of the disc until you press PLAY (▶).

To Activate Playback with an Optional Timer

Set the timer with the AC power connected to the player. When the timer supplies power at the preset time, the player starts playing the disc. If there is no disc in the player, the player turns off automatically.

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



The procedure below indicates how the output and the display change with each press.

Procedure	Display	Output Sound	
		Stereo Disc	SAP Disc
1 Press PLAY (▶).	1/L 2/R	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. Press AUDIO MONITOR again to return to stereo status.	2/R	Right channel	Soundtrack 2 (right channel)

Understanding Displays and Messages When Playing CDs

You can determine 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.

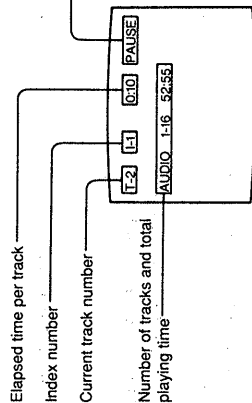


To View On-Screen Information

Turn on the television, and press DISPLAY on the Remote Commander.
To turn off the display, press DISPLAY again.

Reading the On-Screen Messages

The screen below is an example of what is displayed. The table is a key to the messages that appear on the right.



Message (Examples)

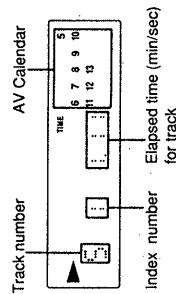
Screen Display	Current Status of the Player
OPEN	Disc tray open
CLOSE	Disc tray closed
PLAY	Playing CD
STOP	Operation stopped
PAUSE	Operation momentarily stopped
⊞ / ⊞	Variable Speed (Shuttle Ring)
SEARCH	Scanning
	Searching

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 on the display disappear.

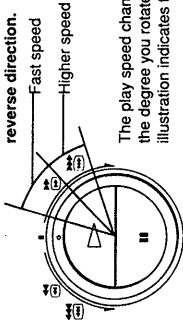


How to Locate a Certain Track

CDs are divided into sections called "tracks". To find a point within a track, 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 number keys, Shuttle Ring, and ACS/AMS buttons on the Remote Commander or the front panel of the player.

To Find a Certain Point on the Disc

Rotate the Shuttle Ring in the forward or reverse direction.

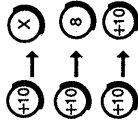


The play speed changes gradually according to the degree you rotate the Shuttle Ring. The illustration indicates the speed levels.

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



Press +10 and one of the number keys.



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

If you make a mistake while entering a numbers, press +10 repeatedly until -- or 1 - is displayed, then enter the correct number.

See the AV Calendar on the front panel display.

To Check the Current Track Number



Press ACS/AMS (10) once to return to the beginning of the current track. Press it again to return to the beginning of the previous track.

Press ACS/AMS (10) to advance to the beginning of the next track.

Hold down the ACS/AMS button to advance or go back continuously.

To Play a Single Track Once



1 Press the 1/ALL button on the Remote.



2 Enter the track number you want played.

When the track has been played, the player stops. To cancel the setting, press 1/ALL again. If you press the wrong number keys, simply press the correct ones.

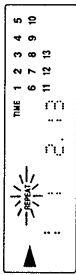
How to Replay the Same CD Selections

You can program the player to play the same scenes 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. (To program the player to replay between a series of paired points, refer to Custom Index on page 35.) Locate the REPEAT, 1/ALL, and the REPEAT A↔B buttons on the Remote Commander.

To Repeat the Entire the Disc

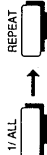


Press REPEAT on the Remote.

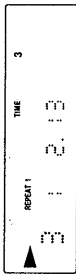


"REPEAT" lights up in front panel display. The player plays all tracks on the CD. When the player reaches the end of the disc, it plays again.

To Repeat the Current Track



Press 1/ALL on the Remote Commander; then, press REPEAT.



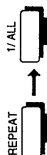
"REPEAT" and "1" light up in front panel display. The current track repeats continuously.

To Cancel REPEAT



Press REPEAT. "REPEAT" disappears.

To Cancel 1/ALL-REPEAT



Press REPEAT and 1/ALL, or CLEAR.

To Repeat One Section of the Disc

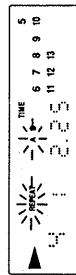
1 Go back to the start of the section you want replayed.

2 Press REPEAT A↔B to mark the beginning of the section.

3 Let the player run to the end of the section you want repeated.

4 Press REPEAT A↔B again to mark the end of the section.

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



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

To Cancel REPEAT A-B



Press CLEAR.

How to Play Only Certain Tracks—Programmed Play

You can program, in any order you like, the tracks the MDP plays. This playlist is stored in the player until you either remove the disc or turn off the power. Program up to 20 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 or front panel of the player.

1 Press PGM on the Remote.



"PGM" flashes in the front panel display.

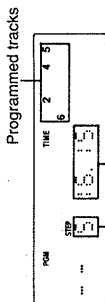


2 Press one of the number keys.



Press numbers for all the tracks you want played. For example, press 5, 4, 6 and 2 to play those tracks.

The total playing time of the programmed tracks is displayed on the front panel display.*



3 Press PLAY (▶).



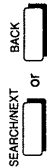
Press CLEAR or 1/ALL. The player resumes normal playback.

To Start Over



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

To Change an Entry



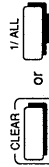
Press SEARCH/NEXT (or NEXT on the player) or BACK to advance or go back one entry. Enter the new number.

To Enter a Number Greater Than 10



Press +10 and one of the number keys following the same procedure as on page 26.

To Cancel Programmed Play



Press CLEAR or 1/ALL. The player resumes normal playback.

To Replay the Same Programmed Tracks



Press REPEAT on the Remote. "REPEAT" is displayed in the front panel.

To Advance or Go Back**



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

To Check the Contents of the Program



Press PGM. The flashing number indicates the chapter now playing. The display disappears after 3 seconds.

* If 0 or track numbers greater than 21 are entered, the total play time is not displayed

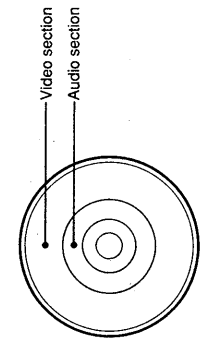
** The player does not go back to previous tracks if the Shuttle Ring is rotated to the left, although, it does advance to forward tracks if rotated to the right. To go back to preceding tracks hold down the ACS/AMS (◀◀) button.

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.



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.

OPEN/CLOSE



ACS/AMS



To Stop and Remove the Disc

To Advance or Reverse

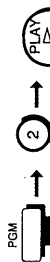
PAUSE



To Interrupt Play



To Find a Certain Audio or Video Track



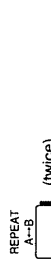
To Play Certain Video Tracks



To Repeat the Current Track



To Repeat All Selections



To Repeat a Section of the Disc



To Variable Speed Play (Audio and Video)

Shuttle Ring

Understanding Displays and Messages When Playing CDVs or VSDs

You can determine 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. To turn off the display, press DISPLAY again.

Reading the On-Screen Messages

The screen below is an example of what is displayed. The table below is a key to the messages that appear on the screen.

Display	Explanation
OPEN	Disc tray open
CLOSE	Disc tray closed
PLAY	Playback
STOP	Stop
PAUSE	Pause
SEARCH	Variable Speed (Shuttle Ring) Scanning

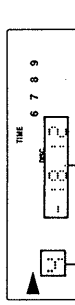
To Display Remaining Playback Time



Press AV TIME. See "How to Display the Elapsed Playing Time - Time Counter" on page 32.

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 on the display disappear.



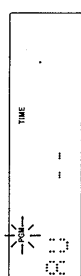
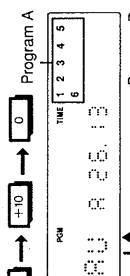
Total remaining playback time
Remaining selections on the disc

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

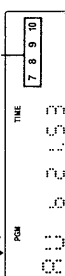
This section explains advanced functions apply to any one of the three types of discs.

How to Have the Disc to Play Within a 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 that amount of time. The player divides the selections you designate onto 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 and CDVs with TOC. (Auto Program does not function on LDs or CDVs that do not contain TOC data.) Locate the AUTO PGM button and number keys on the front panel of the player.

- 1 Press **AUTO PGM** on the player. "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 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).

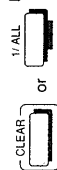
Auto Program Examples for a 40-Minute Disc

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 and waits for you to press **PLAY** again for Program B.
- 4 Press **PLAY** again to play Program B.
 

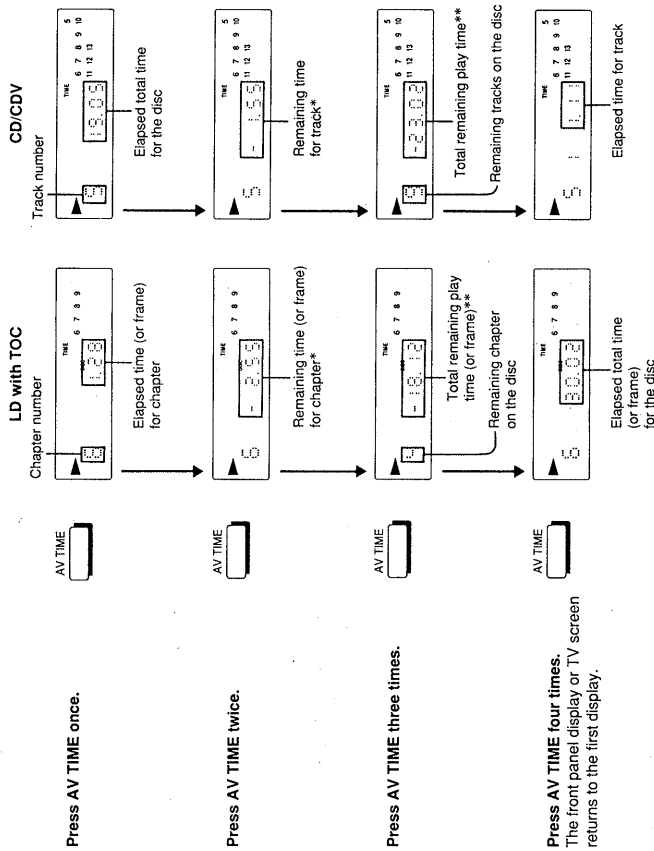
To Resume Normal Play from Auto Program



* If your disc contains more than 20 track or chapter numbers, the ones beyond 20 may not run.

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.



The Time Counter Display Depends on the Kind of Disc

CDs or CDVs

The time appears on the front panel display or TV screen.

LDs with TOC

The display shows the number of elapsed frames or elapsed time.

CDs and LDs with TOC

When you press the **STOP** (■) button, the display shows total tracks and total play time.

CDVs

The display shows the total number of tracks and total play time for the audio and video section alternately.

* The display does not show remaining play time for selection numbers above 21.

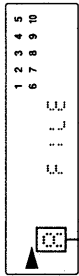
** When playing CDVs, these figures refer only to the current section (audio or video) being displayed.

How to Play from Predetermined Points—Custom Index

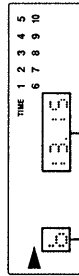
The Custom Index function lets you set up to six points from which play can begin. In other words, when you press CUSTOM INDEX, the laser beam goes to a point you have marked on the disc and plays from there. These play points are called "index points". You can also repeat play a section between index points using the 1/ALL and REPEAT buttons on the Remote Commander. Locate the FILE, NEXT, CLEAR, and CUSTOM INDEX buttons on the front panel of the player.

To Set Index Points

Press **FILE** on the player while the disc is playing a selection.
For every index point you want to set in place, press the **FILE** button. You can set up to six locations (A-F) anywhere on the disc.



Entered index point
Indicators A, B, C, etc., light up in the front panel display for each index point you set.



Index point to be cleared

To Clear a Mistake in Setting Index Points

- 1 Press **NEXT** on the player until the index point comes into view on the display.
- 2 Press **CLEAR**.
- 3 Press the **FILE** button on the player to enter the correct location.

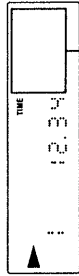


To Play from an Index Point

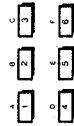
- 1 Press **CUSTOM INDEX** on the player.



The AV Calendar disappears from the front panel display and one number representing an index point appears.



The AV calendar disappears
Each press begins play from one of the six index points you have set on the disc.



- 2 Press the number key on the player corresponding to one of the index points (A-F). (The number keys now function as alphabetic keys.)

To Skip to Another Index Point

On the player, press the letter corresponding to the index point you want the player to start play from.



Press the **CUSTOM INDEX** button or the **CLEAR** button.

Custom Index Points Remain in Player Memory

The index points remain in the memory of the player even when the player enters a different mode such as normal playback mode. However, when you remove the disc or turn off the player, the index points are erased.

How the Custom Index Points are Stored

Entered index points are stored in the memory of the player, and not actually on the disc itself. Therefore, index points set using one player cannot be found on the same disc using another player.

How Custom Index Points are Ordered

The player arranges the index points on the disc not according to the order in which you input them, but according to their relative position from the start of the disc. If a new index point is set before an old one, the alphanumeric order gets rearranged. Also, in playing a CDV, although play starts from the video section of the disc, index points are arranged starting from the audio section.

To Play a Section Between Index Points One Time

- 1 Press **CUSTOM INDEX** on the player.
The AV Calendar disappears from the front panel display and one number representing an index point appears.
- 2 Press **1/ALL** on the Remote.
The indication "1" appears in the front panel display.
- 3 Press the number key on the player corresponding to one of the index points (A-F). (The number keys now function as alphabetic keys.)
Each press begins play from one of six index points you have set on the disc. The section between this point and the next index point plays once.

To Cancel **1/ALL**
Press **1/ALL**.

To Repeatedly Play a Section Between Two Index Points

- 1 Press **1/ALL** on the Remote.
The indication "1" appears in the front panel display.
- 2 Press **REPEAT** on the Remote.
"REPEAT" is displayed in the front panel.



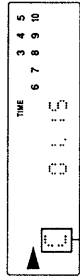
The section between this point and the next index point plays over and over.

- 3 Follow the procedure "To Play from an Index Point" (on the preceding page).

To Cancel **REPEAT**
Press **1/ALL** and **REPEAT** or **CLEAR**.

To Clear an Index Point

- 1 Press **NEXT** on the player until the index point you want to erase appears in the front panel display.
- 2 Press **CLEAR**.
The index point disappears.



Index point to be cleared.

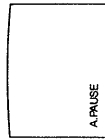
How to Program the Player to Pause or Scan Automatically

There are many functions you can program the MDP to do automatically. Three of them are Auto Pause, Auto Space, and Intro Scan. To make the player pause for three seconds between selections, use the Auto Space function. 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.

To Make the Player Stop Momentarily (Auto Pause)



Press AUTO PAUSE on the Remote once.
To play the next selection, press PLAY.



To Resume Normal Playback



Press AUTO PAUSE again.

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. After the player introduces the last chapter, the player pauses. On CDVs, intro-scanning resumes from the video section of the disc.

To Resume Normal Play



Press the PLAY (▶) button.
Play resumes from the selection just introduced.

To Stop Play



Press the STOP (■) button.

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, CDs and CDVs containing TOC data.) Locate the number keys, SHUFFLE, and PLAY buttons on the Remote Commander.

To Ensure Correct Operation

Before you press the SHUFFLE button, make sure the disc tray has closed completely, and the "▶" (Play) indication in the front panel display has stopped flashing.

To Shuffle Play all Tracks or Chapters on a Disc



- 1 Press SHUFFLE.

"SHUFFLE" flashes in the front panel display.



- 2 Press PLAY (▶).



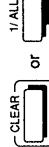
All the selections on the disc play once in random order. After all the selections play, the player stops. CDV selections play randomly from the both audio and video parts of the disc.

To Advance to the Next Selection



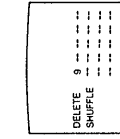
Press the ACS/AMS (▶▶) button to skip to the next track or chapter. (The ACS/AMS (▶▶) button does not function to return to a previous track or chapter in Shuffle Play mode.) Or, use the Shuttle Ring.

To Resume Normal Play



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

To Delete Certain Selections from Shuffle Play



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



Press PLAY (▶).
The player automatically plays a random program of selections without the ones you deleted.

To Clear an Entry



- 1 Press CLEAR.






- 2 Press SHUFFLE.

- 3 Enter the correct numbers.

(continued)

Shuffle Play (continued)

To Change an Entered Number

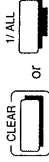
- 1 Press **SEARCH/NEXT** (to advance) or **BACK** (to go back) until the number you want to change flashes on the front panel display.
 or 
- 2 Using the number buttons, enter the correct number.


To Repeat Shuffle Play



Press the REPEAT button on the Remote Commander.
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




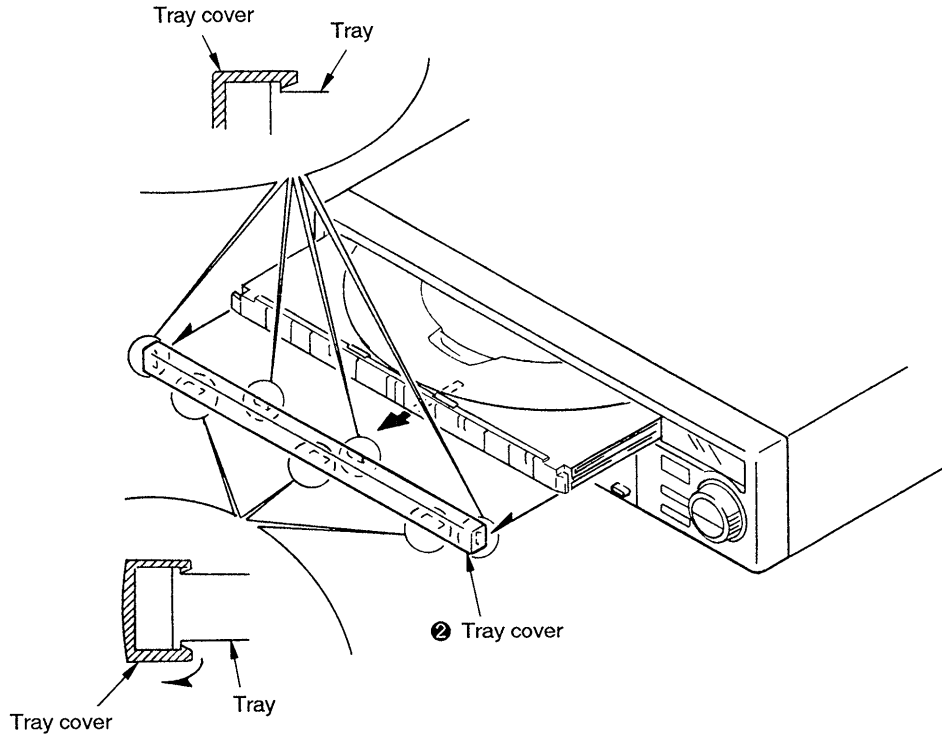
Press CLEAR or 1/ALL.
When you turn off the player, or you remove the disc, all shuffle functions clear from the memory of the player.

SECTION 2 DISASSEMBLY

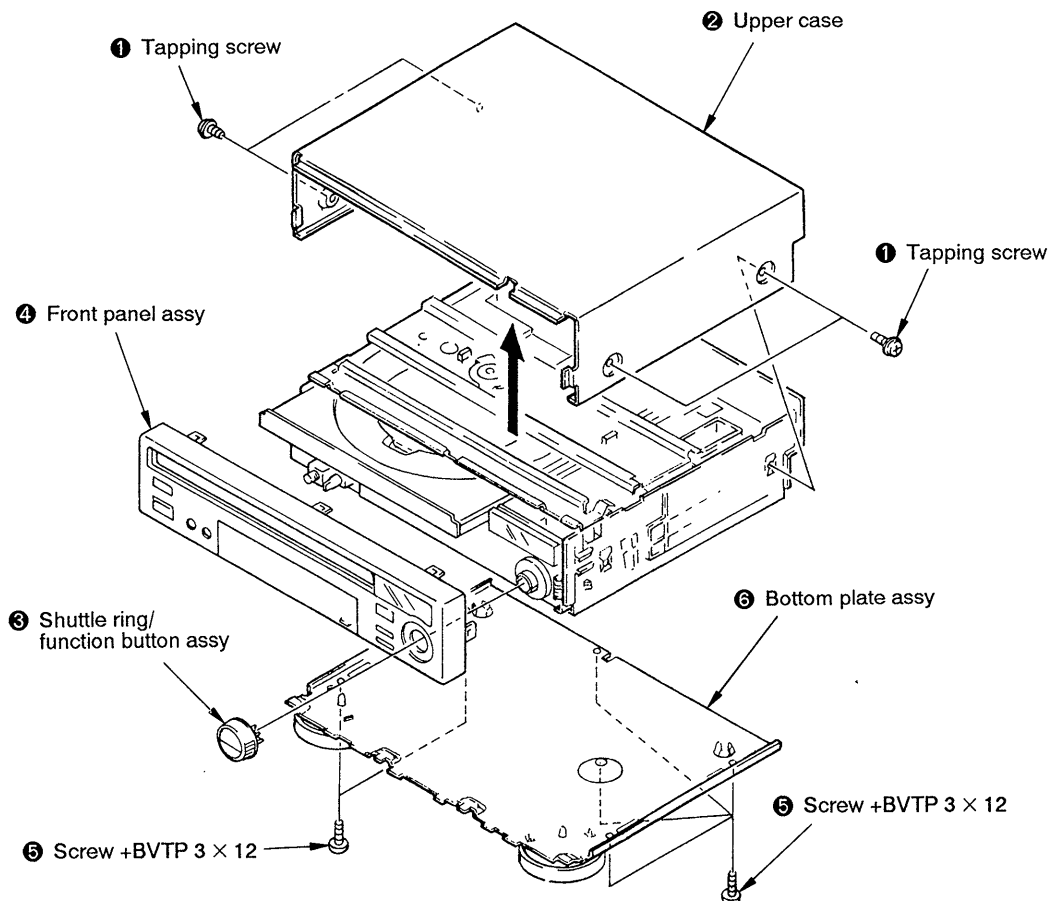
Note: Follow the disassembly procedure in the numerical order given.

2-1. TRAY COVER

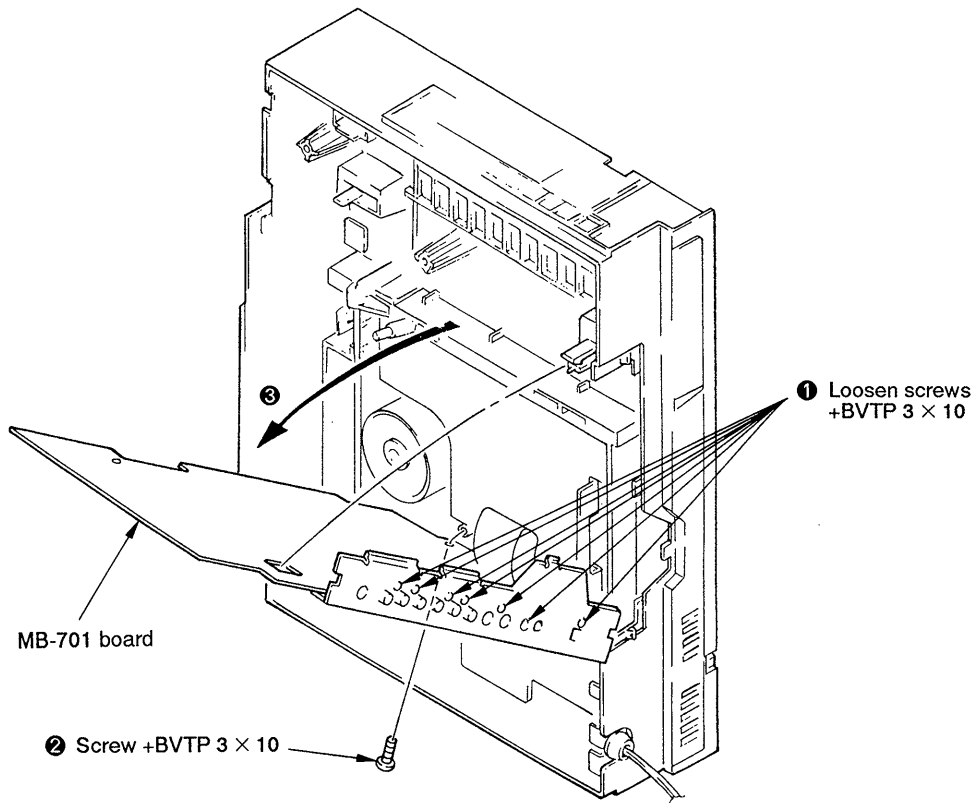
- 1 Turn power on, push  (OPEN/CLOSE) button and then the tray comes out.



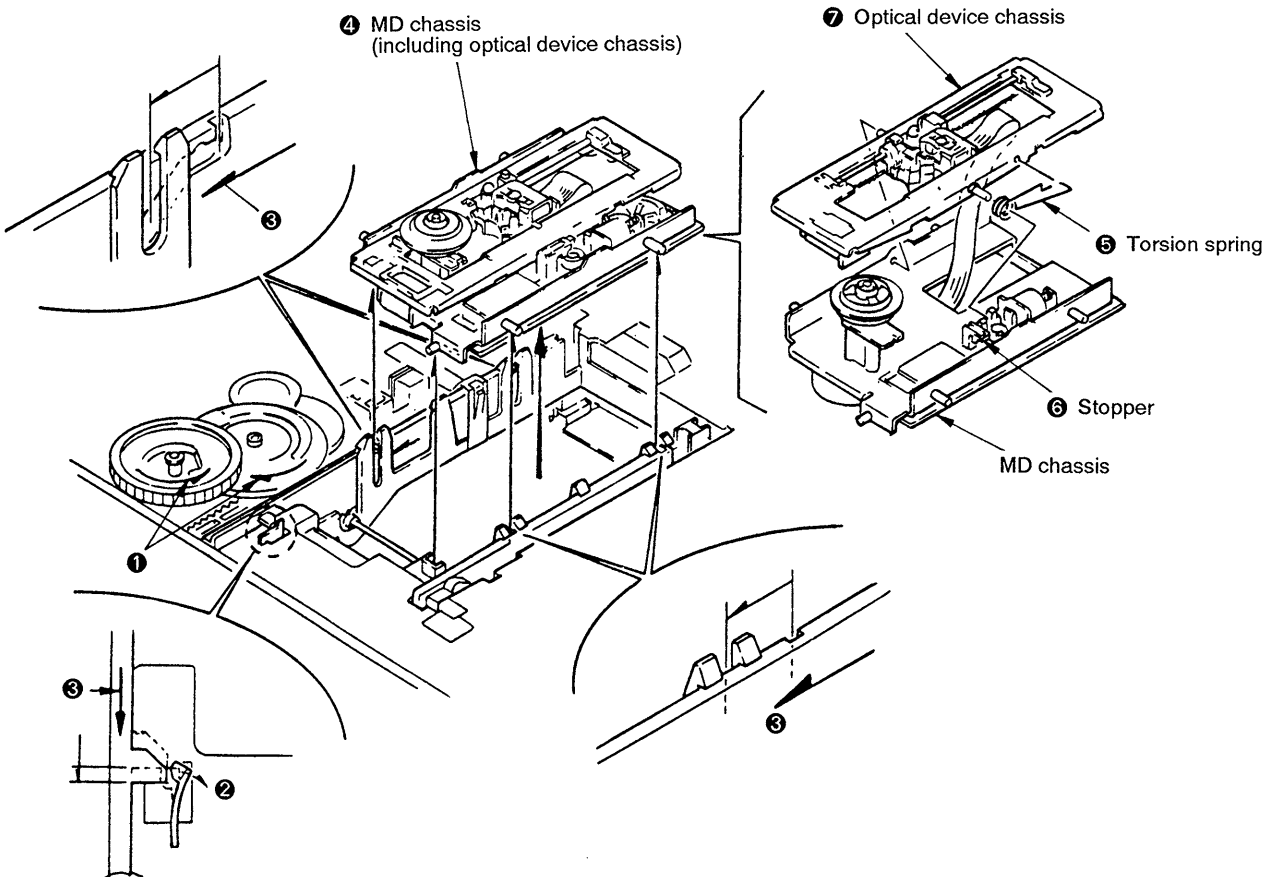
2-2. UPPER CASE, FRONT PANEL ASSY, BOTTOM PLATE ASSY



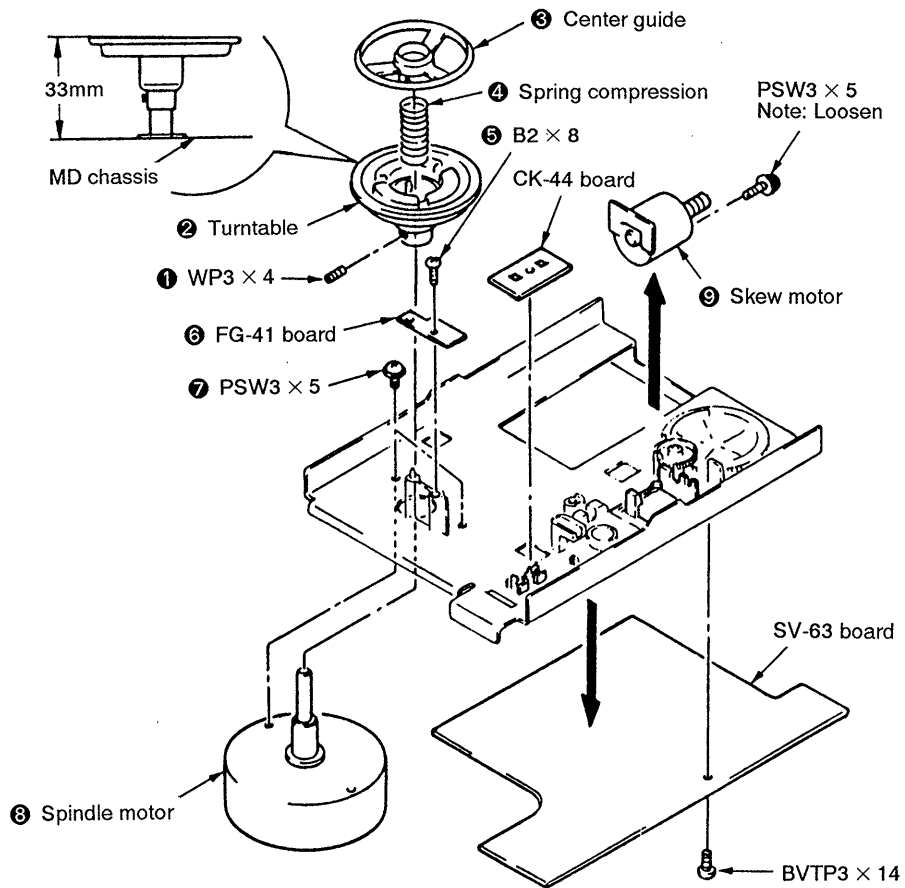
2-3. MB-701 BOARD



2-4. MD CHASSIS, OPTICAL DEVICE CHASSIS

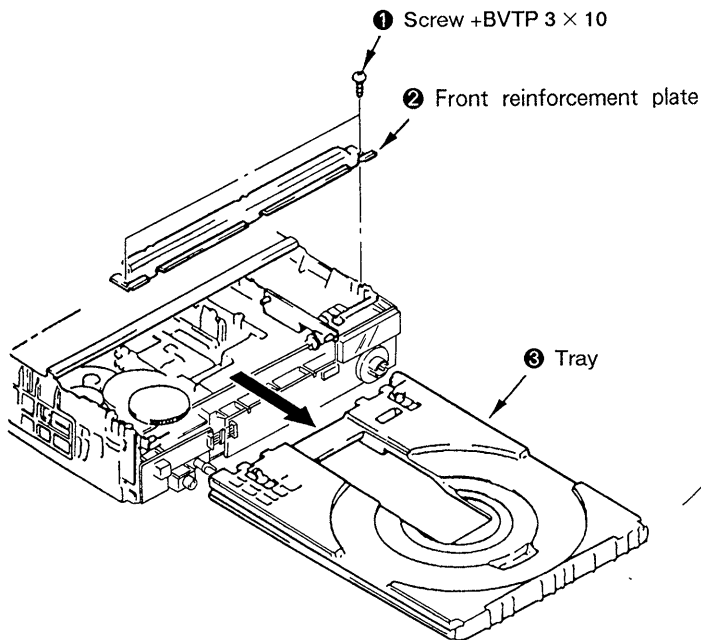


2-5. TURNTABLE, SPINDLE MOTOR, SKEW MOTOR, SV-63, FG-41 BOARDS



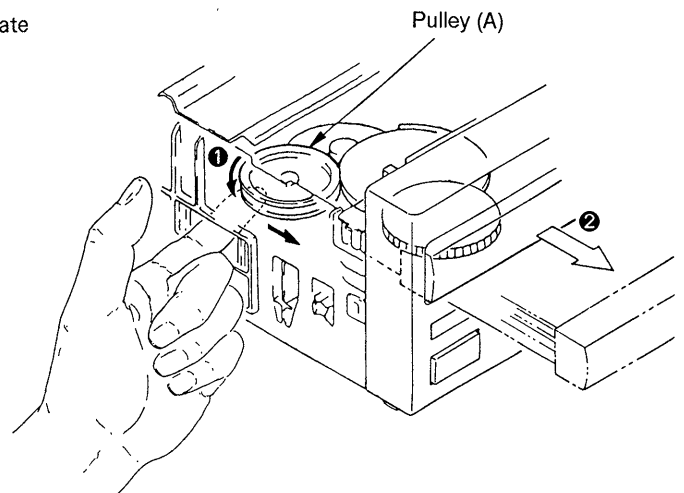
2-6. REMOVAL OF THE TRAY

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



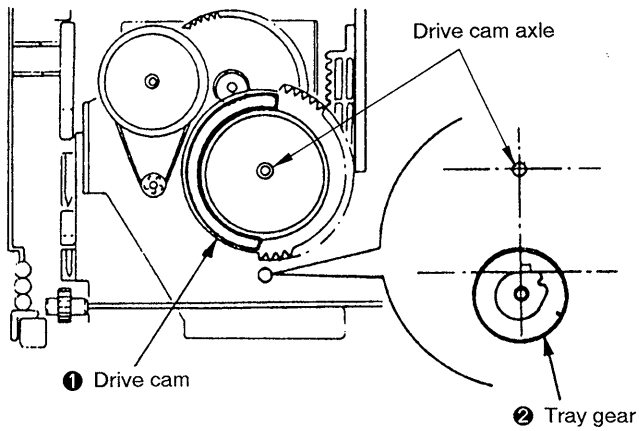
2-7. REMOVAL OF THE DISC WHEN A PROBLEM HAS OCCURRED WITH THE DISC LOADED.

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



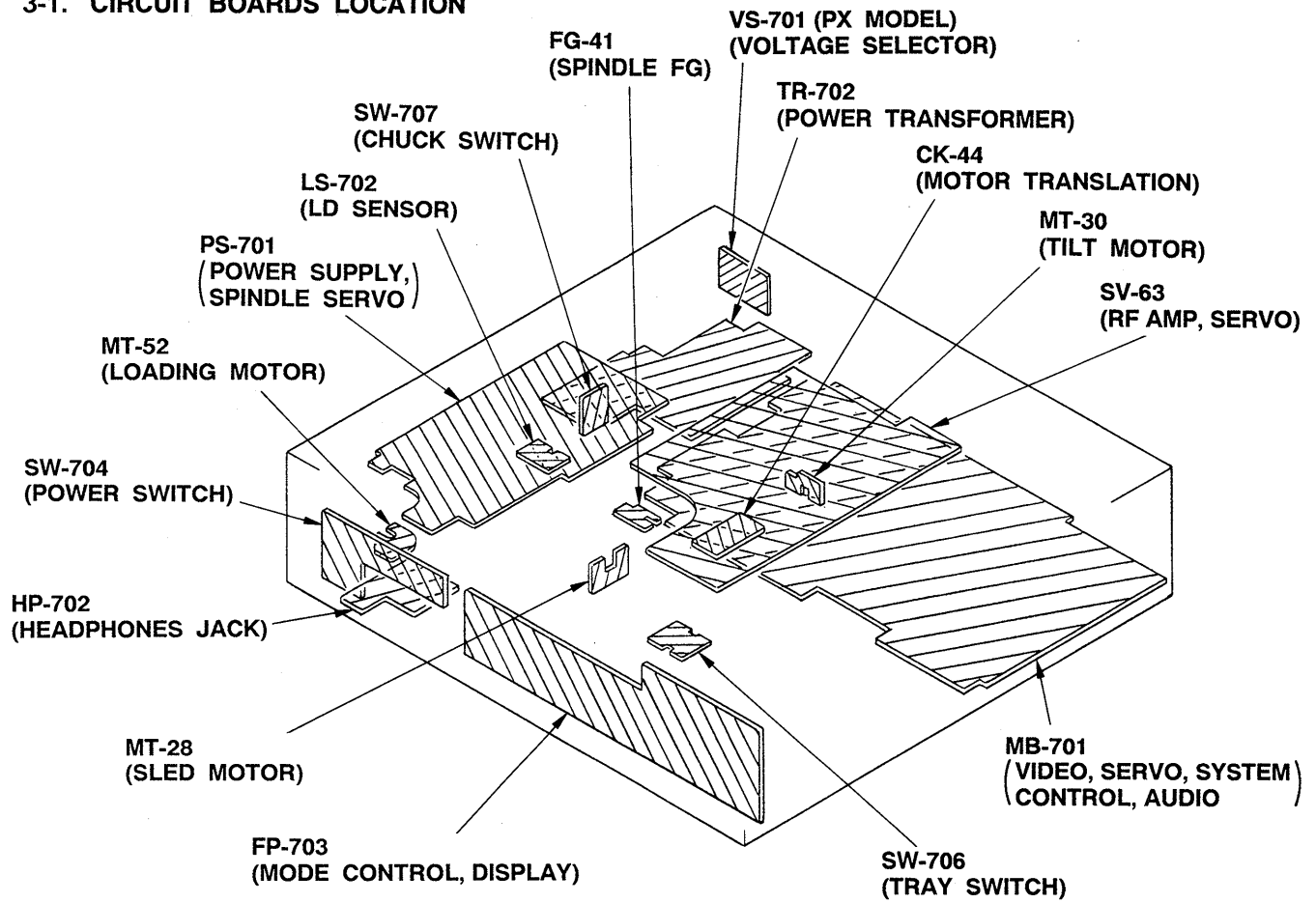
2-8. ALIGNMENT OF THE LOADING GEAR PHASE

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

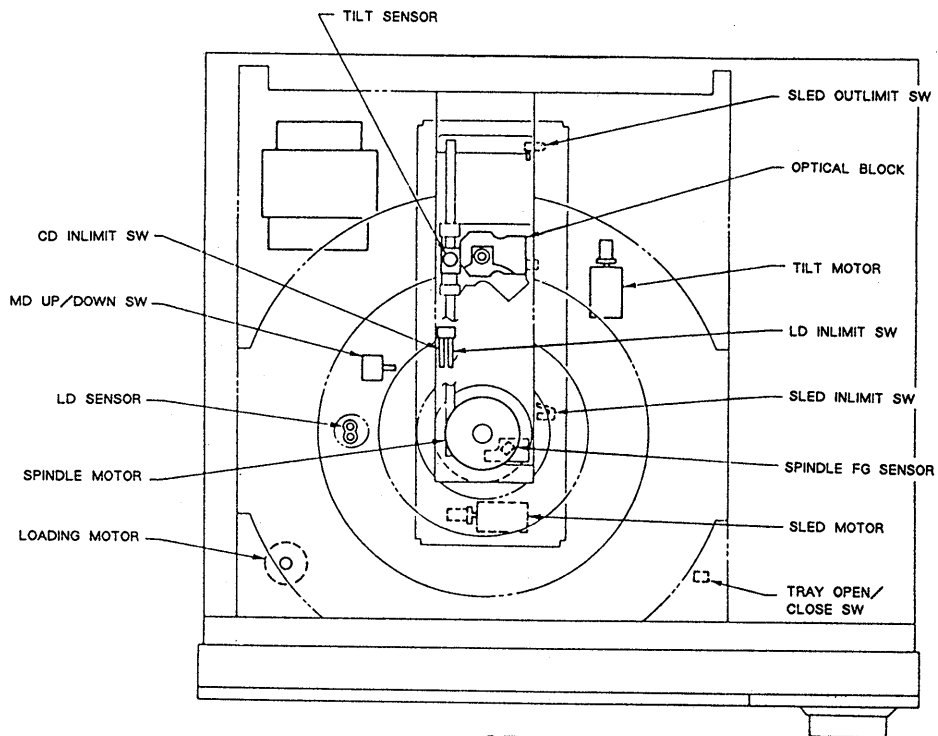


SECTION 3 DIAGRAMS

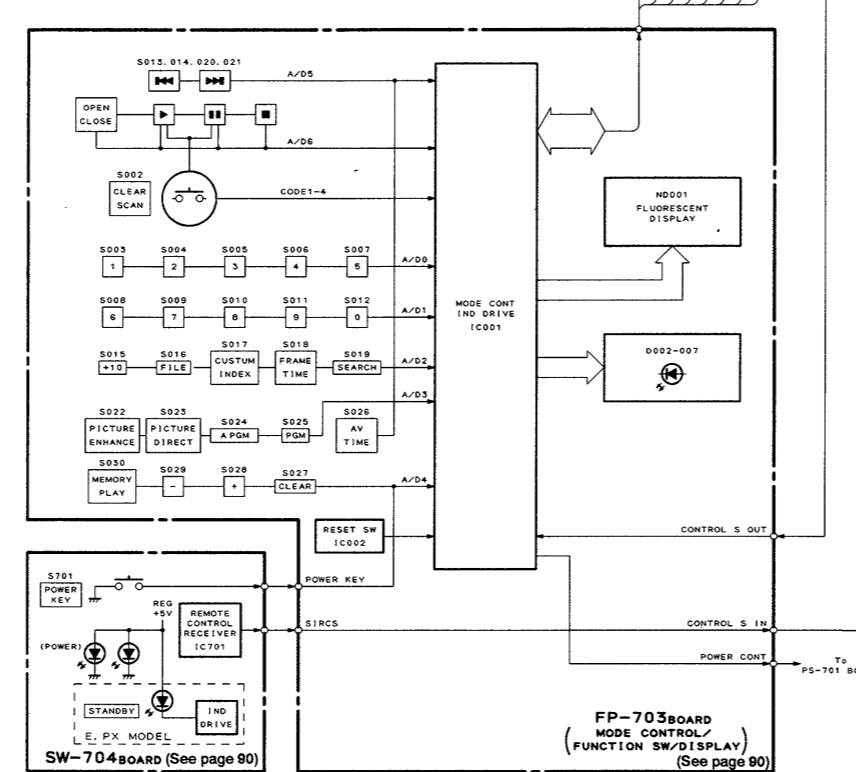
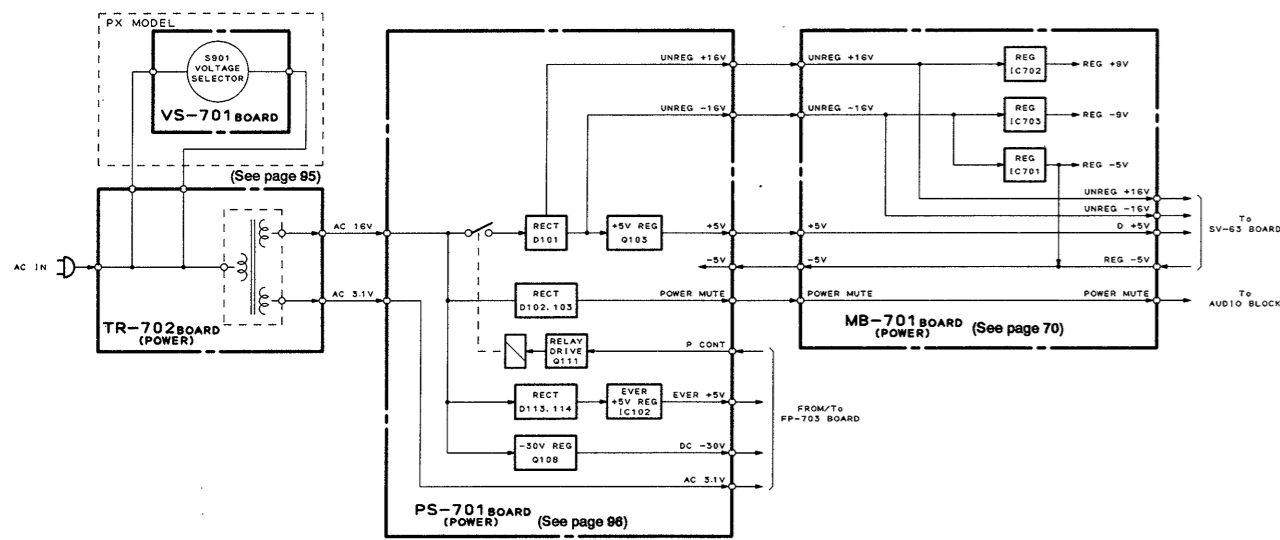
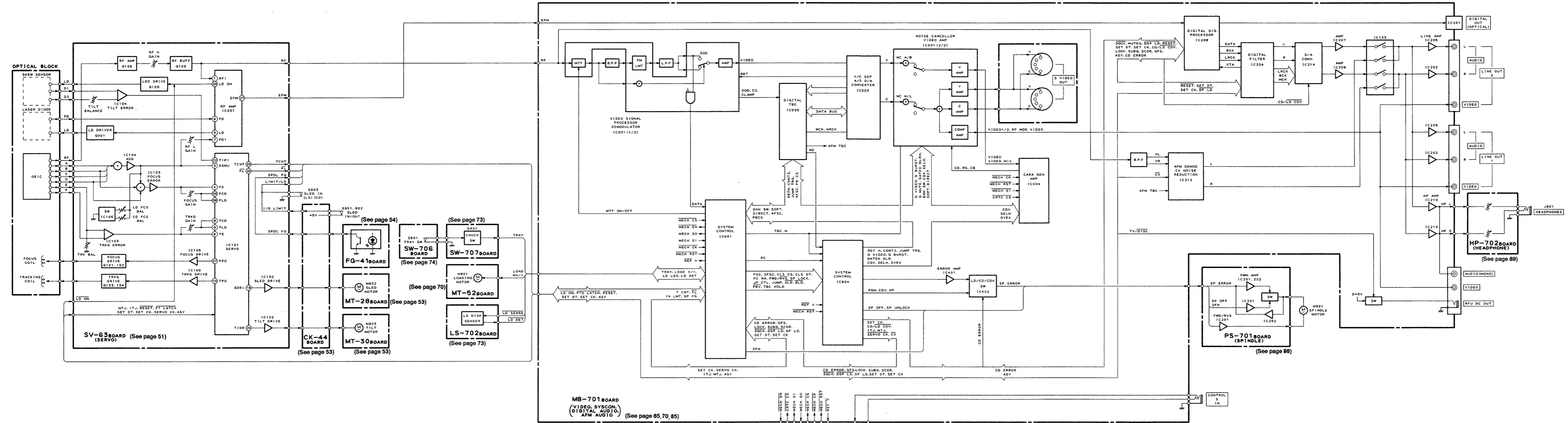
3-1. CIRCUIT BOARDS LOCATION



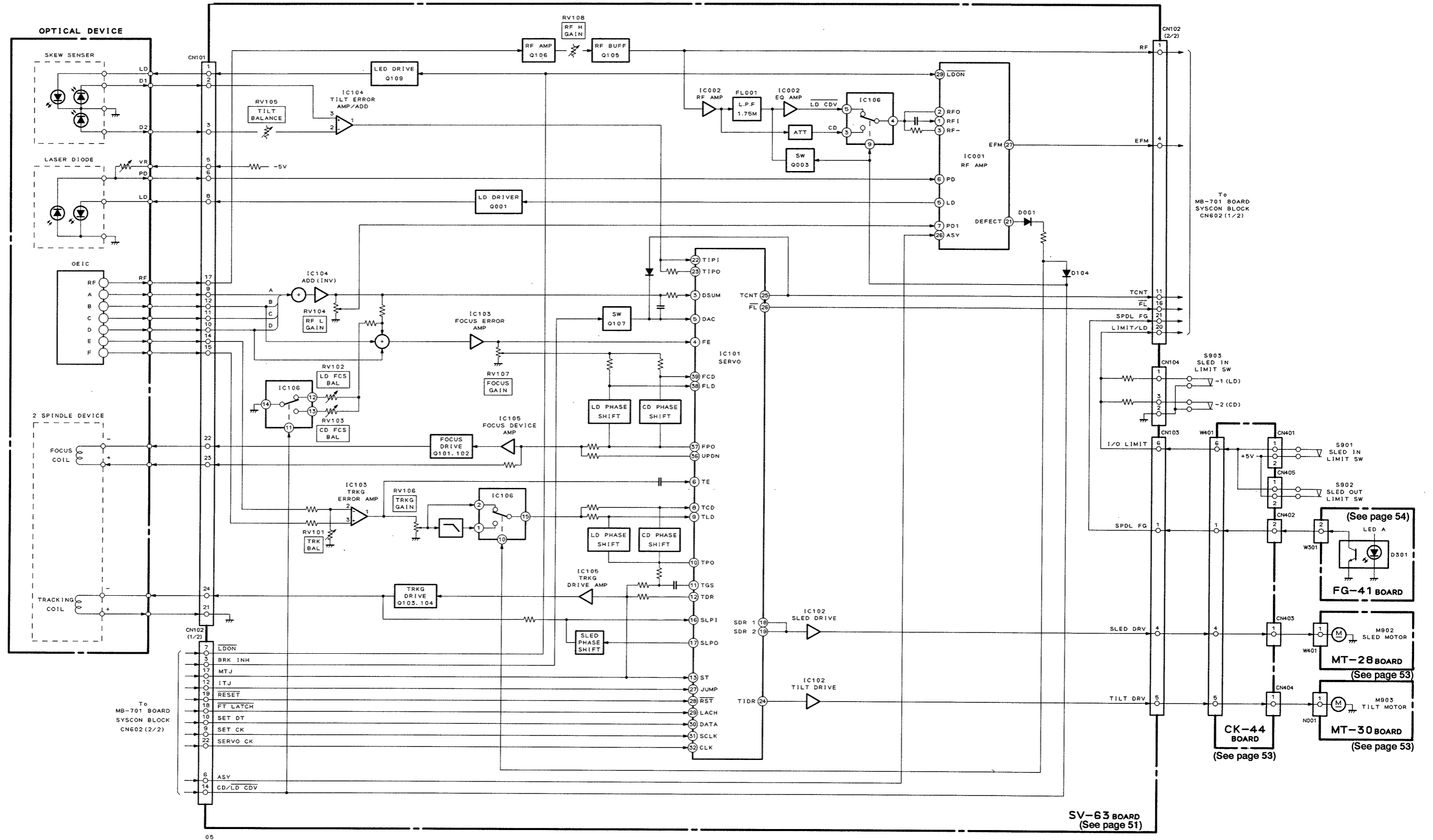
• MAIN PARTS LOCATION



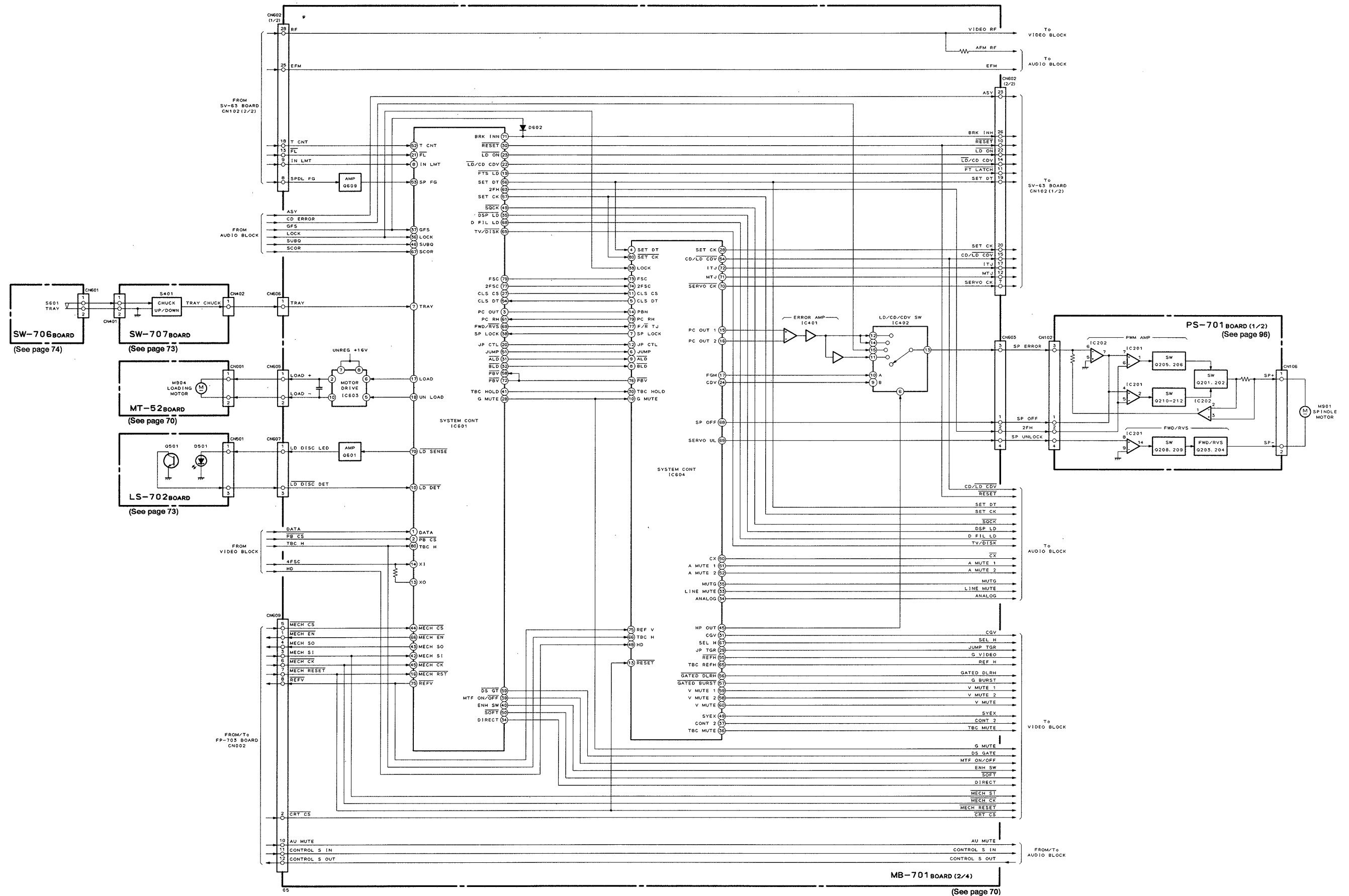
3-2. OVERALL BLOCK DIAGRAM



3-3. SERVO BLOCK DIAGRAM



3-4. SYSTEM CONTROL BLOCK DIAGRAM

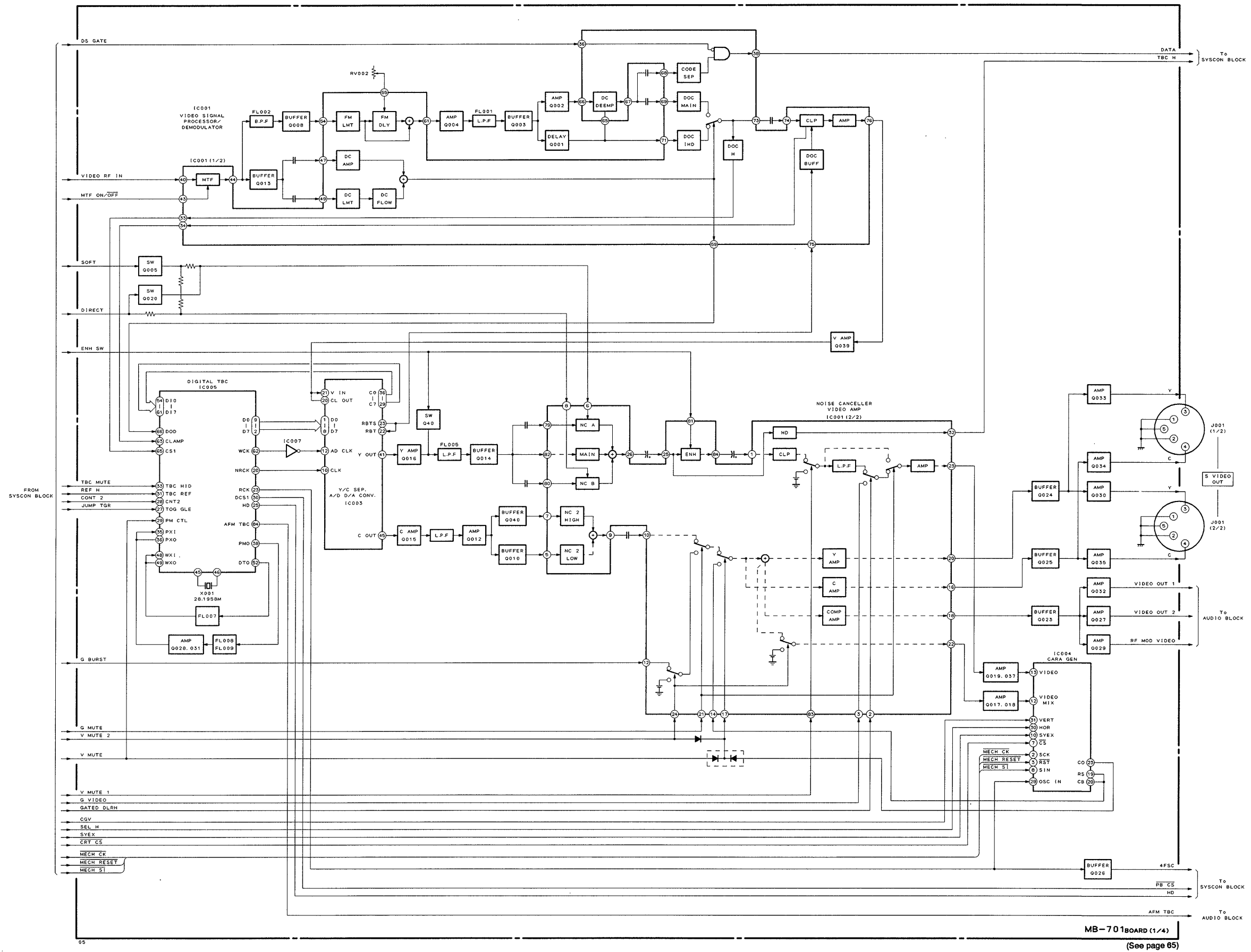


3-5. SYSTEM CONTROL MICROCOMPUTER PORT FUNCTIONS (MB-701 BOARD IC601 MB89795)

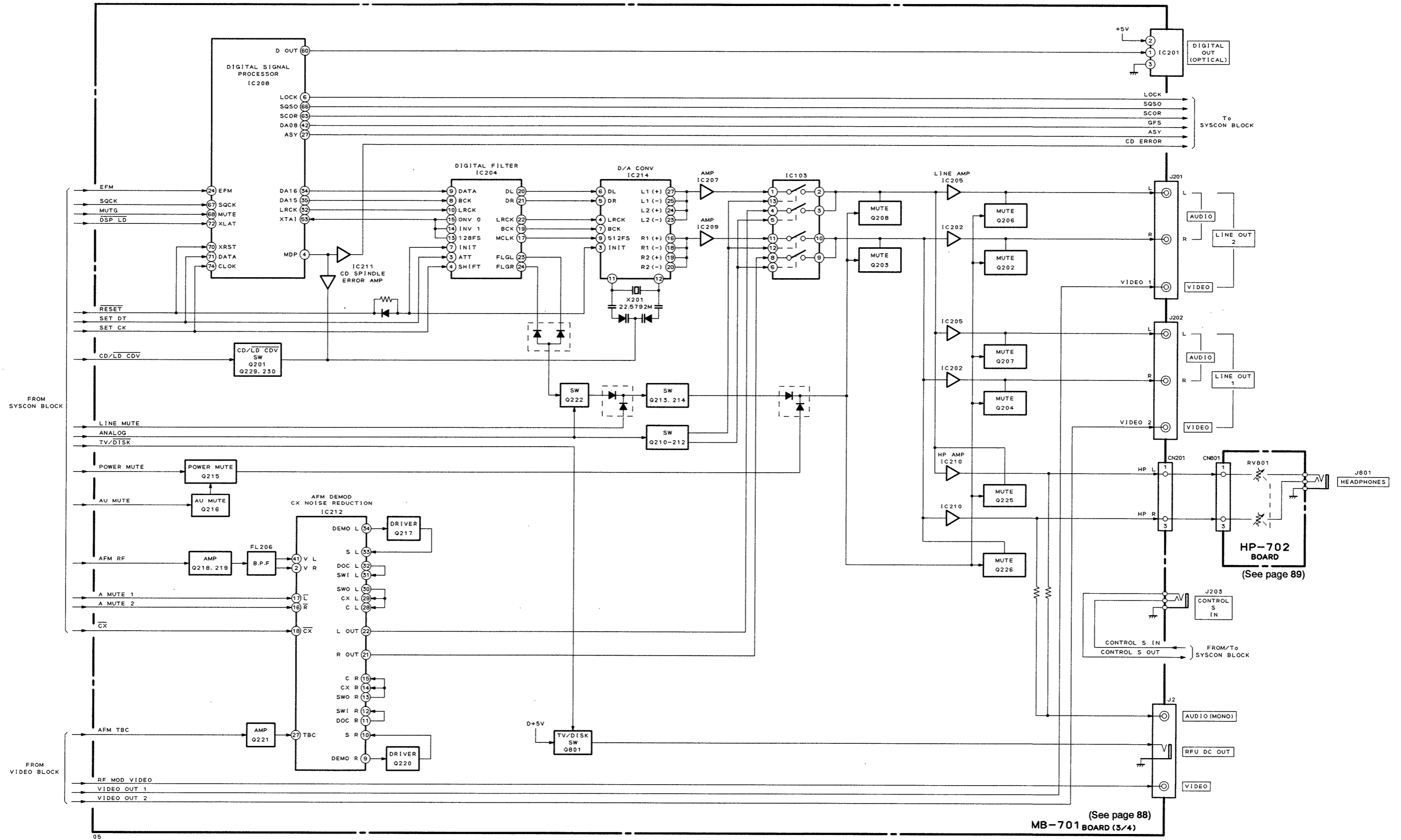
No.	Signal Name	I/O	Function
1	DATA	I	Data (Philips code) input
2	PBCS	I	Playback composite video sync. signal
3	PC OUT	O	Playback H sync. signal output
4	AVCC	—	A/D converter power supply
5	AVR	—	A/D converter reference voltage
6	AVSS	—	A/D converter ground
7	TRAY	I	Tray loading switch voltage
8	IN LIMIT	I	Sled position switch voltage
9	MIRR	I	Not used
10	LD DET	I	LD disc detection
11	—	—	Not used
12	MOD	I	Microcomputer internal/external ROM select
13	XO	O	Clock input 14.31818 MHz
14	XI	I	Clock output 14.31818 MHz
15	VSS	—	Digital ground
16	RST	I	Reset
17	LOAD	O	Loading motor control (IC603)
18	UNLOAD	O	
19	FTSLD	O	Servo IC (SV-63 board IC101) data load signal
20	JPCTL	O	Track jump control (ITJ/MTJ)
21	FL	I	Focus servo lock signal
22	LD/CD CDV	O	Disc judgement signal
23	LD ON	O	Optical pick-up laser diode emitting control
24	WRQ	—	Not used
25	MEMO		
26	FLO		
27	CLS CS	O	ENABLE signal for CLS CS (IC604 ⑩) signal
28	G MUTE	O	Gray screen muting control on clear scan
29	SOLA 2	—	Not used
30	RESET	O	Reset control
31	ALD	O	IC604 output port (register A, B) data load signal
32	BLD	O	
33	—	—	Not used
34	DIRECT	O	Enhancer control signal
35	DSPLD	O	Data load signal to DSP
36	LOCK	I	RF PLL lock signal
37	GFS	I	RF PLL lock signal
38	SP LOCK	I	Spindle servo lock signal
39	MTF ON	O	MTF control signal
40	ENH. SW	O	Enhancer control signal

No.	Signal Name	I/O	Function
41	TBC HOLD	O	TBC HOLD control signal
42	MECH SI	I	Communicating data from mode control microcomputer (FP-703 IC001)
43	MECH SO	O	Communicating data to mode control microcomputer
44	$\overline{\text{MECH CS}}$	I	Chip select signal from mode control microcomputer
45	$\overline{\text{MECH CK}}$	I	Clock from mode control microcomputer
46	SUB Q	I	SUB Q data from DSP
47	—	—	Not used
48	—	—	
49	$\overline{\text{SQCK}}$	O	Serial data clock to DSP
50	$\overline{\text{SOFT}}$	O	Enhancer control signal
51	JMP	O	Track jump trigger signal
52	TCNT	I	Pulse for traverse counting
53	SP FG	I	Spindle FG pulse
54	CLS DT	I	CLV clear scan V sync. counter data
55	VCC	—	Power supply (+5 V)
56	SET DT	O	External IC communicating data
57	SET CK	O	External IC communicating clock
58	$\overline{\text{PB V}}$	I	Playback V sync. signal
59	$\overline{\text{DS GT}}$	O	Philips code reading out control signal
60	—	—	Not used
61	PCRH	I	Reference H sync. signal for spindle servo
62	REFH	O	Not used
63	2FH	O	Spindle motor driver PWM carrier
64	$\overline{\text{TEST}}$	I	Test mode control
65	$\overline{\text{TV/DISC}}$	O	RF modulator TV/Disc select signal
66	$\overline{\text{MECH EN}}$	O	Communication control signal to mode control microcomputer (FP-703 IC001)
67	SCOR	I	SUB code sync. signal
68	DFIL LD	O	Digital filter data load signal
69	$\overline{\text{FWD/RVS}}$	O	Multi track jump direction control
70	$\overline{\text{LD SENSE}}$	O	LD disc sensor control pulse
71	BRK INH	O	Servo IC (SV-63 board IC101) track jump control
72	PB V	O	Playback V sync. signal
73	—	—	Not used
74	—	—	
75	REF V	O	Reference V sync. signal
76	—	—	Not used
77	FSC2	O	2fsc (7.519 MHz) output
78	DOCI	O	Not used
79	FSC	O	fsc (3.579545 MHz \pm 10 MHz) output
80	TBCH	I	TBC output H sync. signal

3-6. VIDEO BLOCK DIAGRAM



3-7. AUDIO BLOCK DIAGRAM



3-8. MODE CONTROL MICROCOMPUTER PORT FUNCTIONS (FP-703BORD IC001 CXP50116)

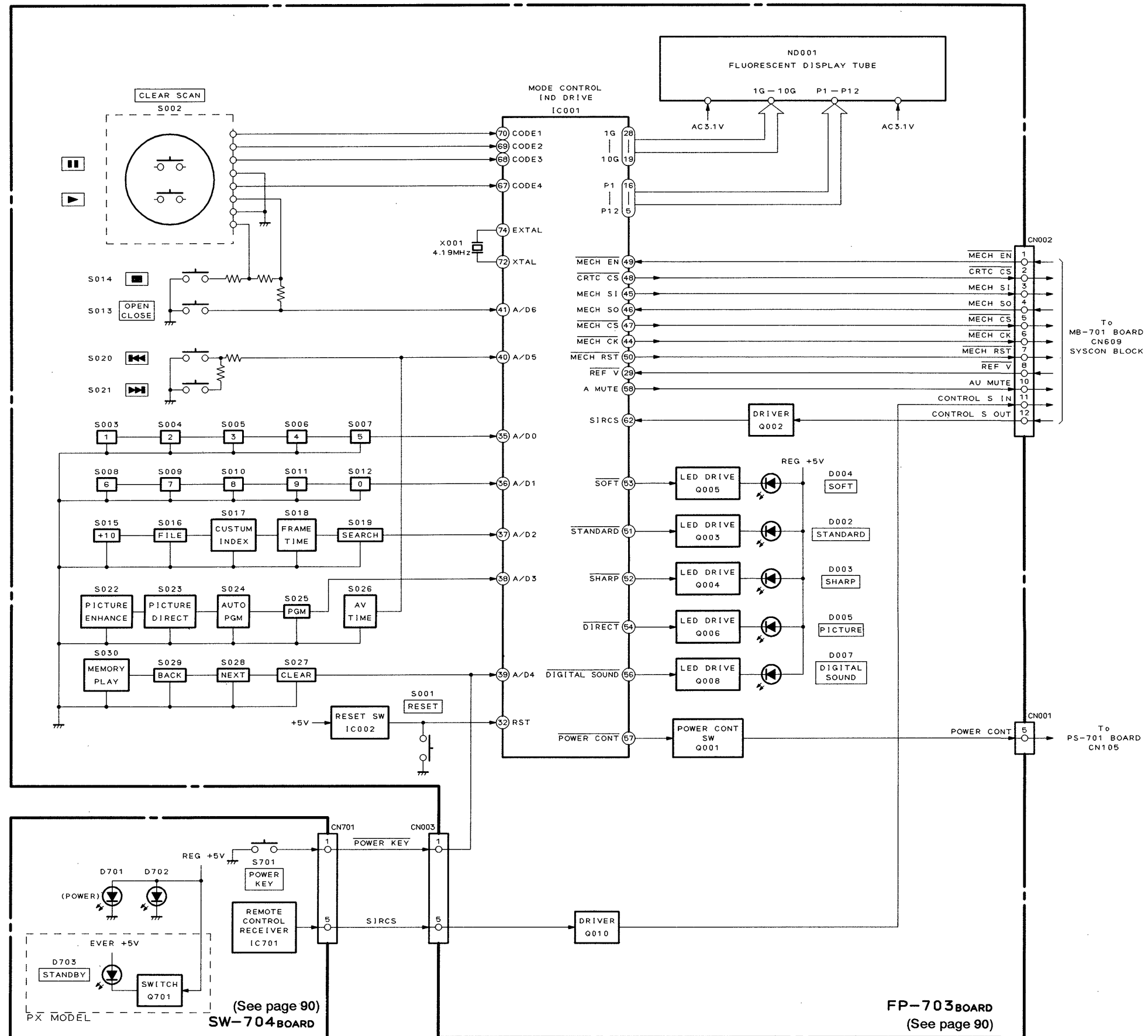
No.	Port Name	Signal	I/O	Function
1	S4/PG0		—	Not used
2	S5/PG1		—	
3	S6/PG2		—	
4	S7/PG3		—	
5	S8/PK0	P12	O	FDP segment output
6	S9/PK1	P11	O	
7	S10/PK2	P10	O	
8	S11/PK3	P9	O	
9	S12/PJ10	P8	O	
10	S13/PJ1	P7	O	
11	S14/PJ2	P6	O	
12	S15/PJ3	P5	O	
13	S16/T15	P4	O	
14	S17/T14	P3	O	
15	S18/T13	P2	O	
16	S19/T12	P1	O	
17	S20/T11		—	Not used
18	S21/T10		—	
19	S22/T9	10G	O	FDP timing output
20	S23/T8	9G	O	
21	T7	8G	O	
22	T6	7G	O	
23	T5	6G	O	
24	T4	5G	O	
25	T3	4G	O	
26	T2	3G	O	
27	T1	2G	O	
28	T0	1G	O	
29	INT	REF-V	I	Reference V sync. signal
30	TX		O	Not used
31	TEX		I	
32	RST	RST	I	Reset
33	N. C		—	Not used
34	VDD		—	VDD
35	PI0/AD0	AD0*1	I	Key input
36	PI1/AD1	AD1*1	I	
37	PI2/AD2	AD2*1	I	
38	PI3/AD3	AD3*1	I	
39	PB0/AD4	AD4*1	I	
40	PB2/AD5	AD5*1	I	
41	PB3/AD6	AD6*1	I	"L": Test mode
42	PB3/AD7	TEST	I	
43	EC		—	Not used
44	PX0/SC	MECH CK	O	Clock for communication to mechanism control, DSP control, character graphic IC.
45	PXI/SO	MECH SI	O	Communicating data to mechanism control, DSP control, character graphic ICs.
46	PX2/SI	MECH SO	I	Communicating data from mechanism control, DSP control, character graphic ICs.

No.	Port Name	Signal	I/O	Function
47	PA0	MECH CS	O	Chip select signal to mechanism control ICs.
48	PA1	CRTC CS	O	Chip select signal to character graphic IC.
49	PA2	MECH EN	I	Receiving completion signal from mechanism control IC.
50	PA3	MECH RST	O	Reset signal to mechanism control, DSP control ICs.
51	PF0	STANDARD	O	Picture enhance LED output
52	PF1	SHARP	O	
53	PF2	SOFT	O	
54	PF3	DIRECT	O	
55	PE0			Not used
56	PE1	DIGITAL SOUND	O	Digital sound LED output
57	PE2	POWER CONT	O	Power supply control output
58	PE3	A MUTE	O	Audio mute output
59	PY0		O	Not used
60	PY1/PWM		O	
61	PY2/WP	WP	I	
62	PY3/RMC	SIRCS IN	I	SIRCS input
63	PDO	J/UC	I	For destination setting
64	PD1		I	Not used
65	PD2		I	
66	PD3		I	
67	PC0	CODE 4	I	Shuttle switch input
68	PC1	CODE 3	I	
69	PC2	CODE 2	I	
70	PC3	CODE 1	I	
71	VSS	GND	—	GND
72	XTAL	XTAL	O	Clock input
73	N. C		—	Not used
74	EXTAL	EXTAL	I	Clock output
75	VREF	VDD	I	Power supply
76	VFDP	VFDP	I	Power supply for FDP (- 30 V)
77	S0/PH0		O	Not used
78	S1/PH1		O	
79	S2/PH2		O	
80	S3/PH3		O	

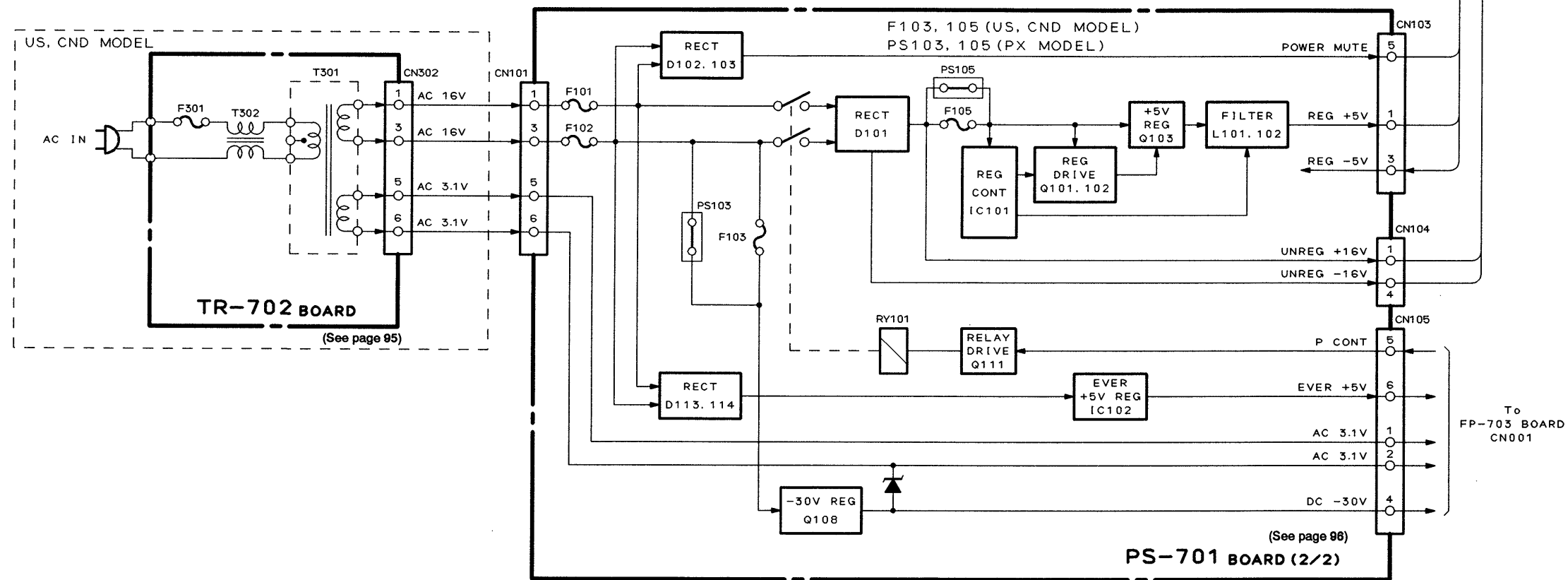
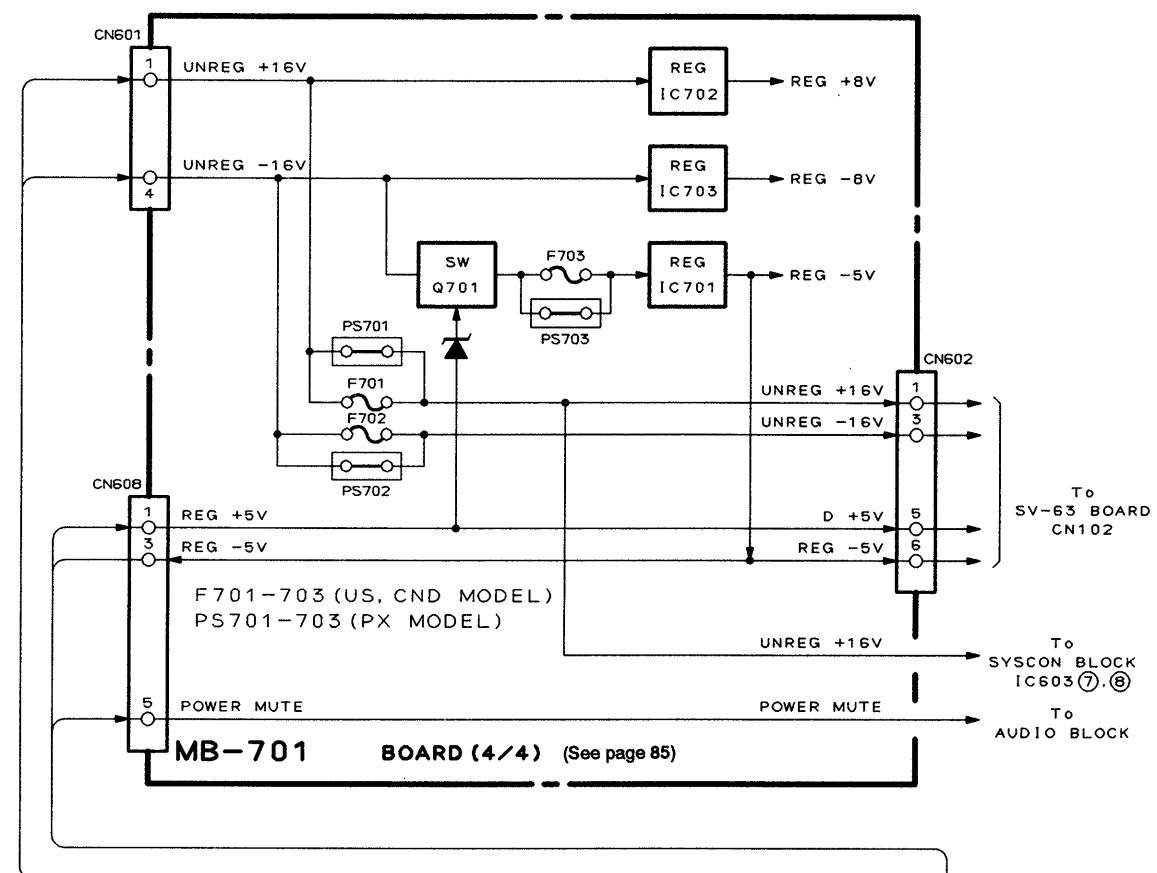
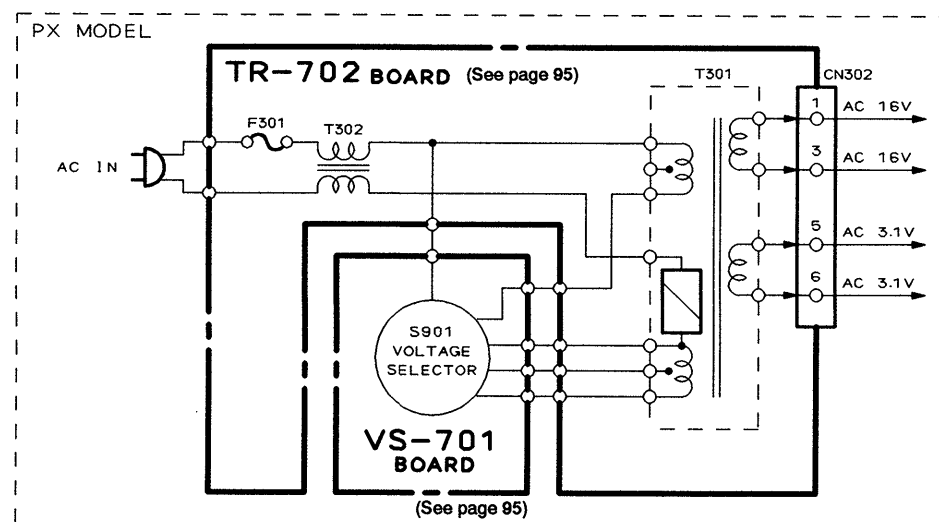
***1: Pressed keys and terminal input voltages**

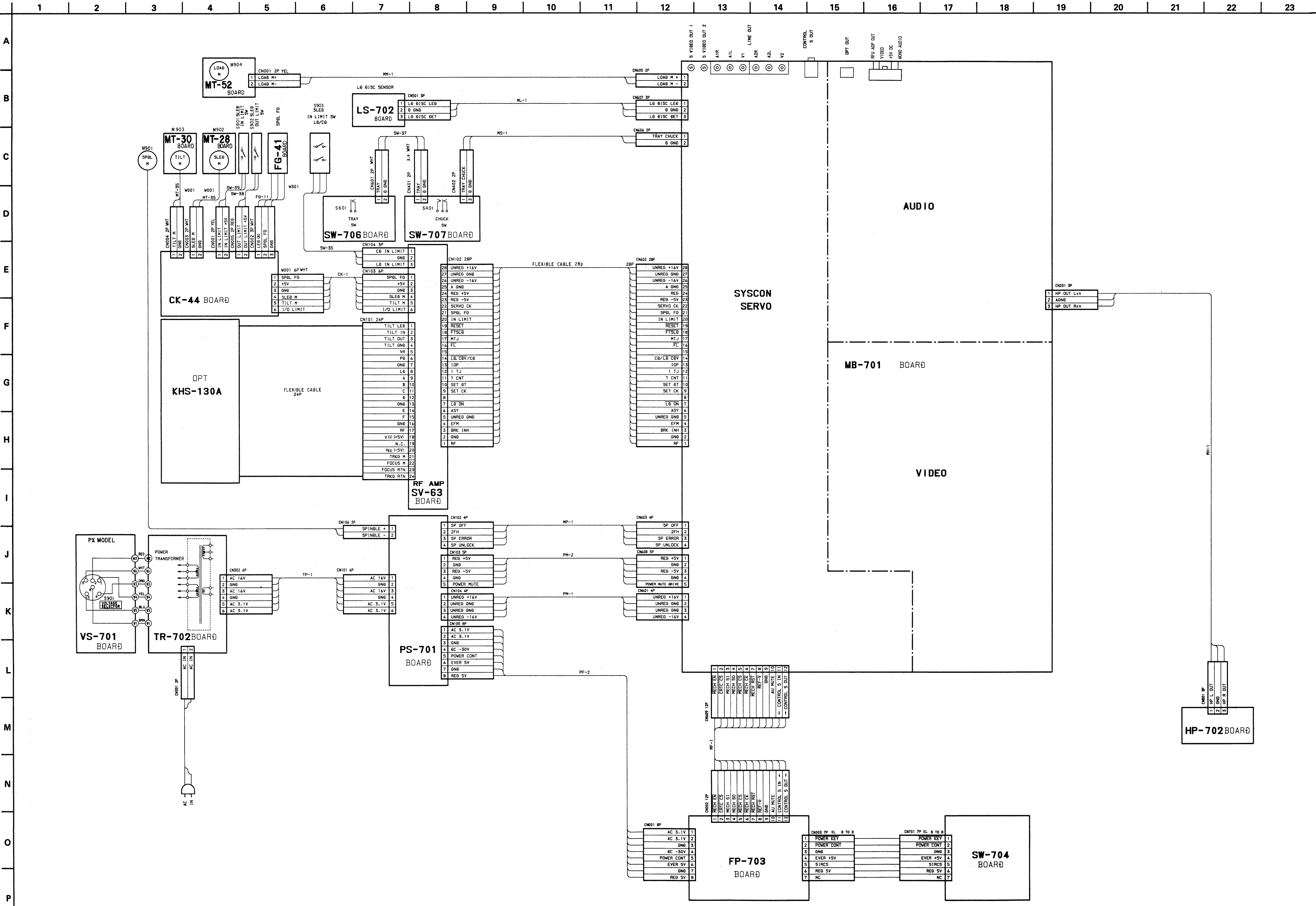
Input terminal \ Input voltage	0 V	1.1 V	2.0 V	2.9 V	3.8 V
AD0 ㉔	5	4	3	2	1
AD1 ㉕	0	9	8	7	6
AD2 ㉖	SEARCH	FRAME/TIME	CUSTOM INDEX	FILE	+10
AD3 ㉗	—	PGM	AUTO PGM	PICTURE DIRECT	PICTURE ENHANCE
AD4 ㉘	POWER	CLEAR	NEXT	BACK	MEMORY PLAY
AD5 ㉙	AV TIME	⏮	⏭	—	—
AD6 ㉚	▲	▶	⏸	■	—

3-9. MODE CONTROL BLOCK DIAGRAM



3-10. POWER SUPPLY BLOCK DIAGRAM





**SECTION 4
PRINTED WIRING
BOARDS AND
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.
(The other layers' patterns are not indicated.)

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.

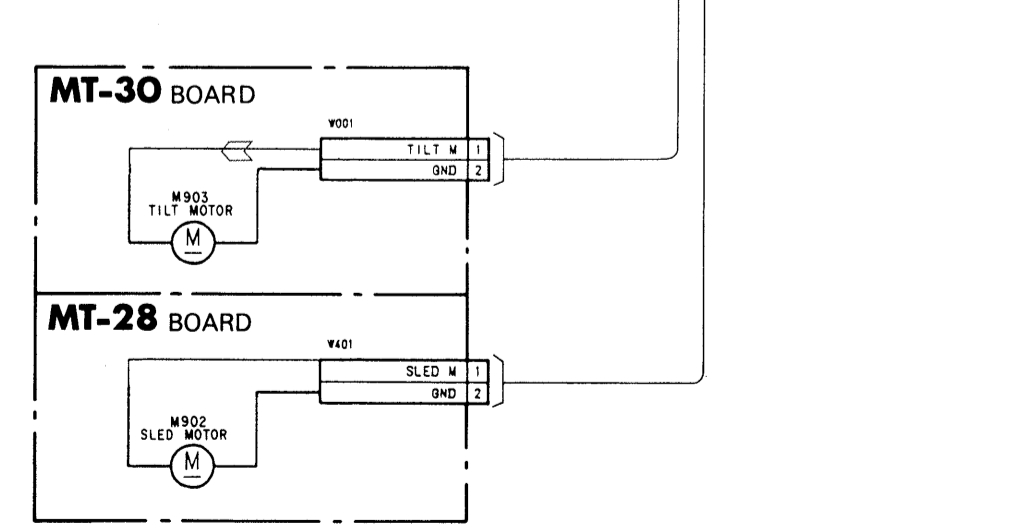
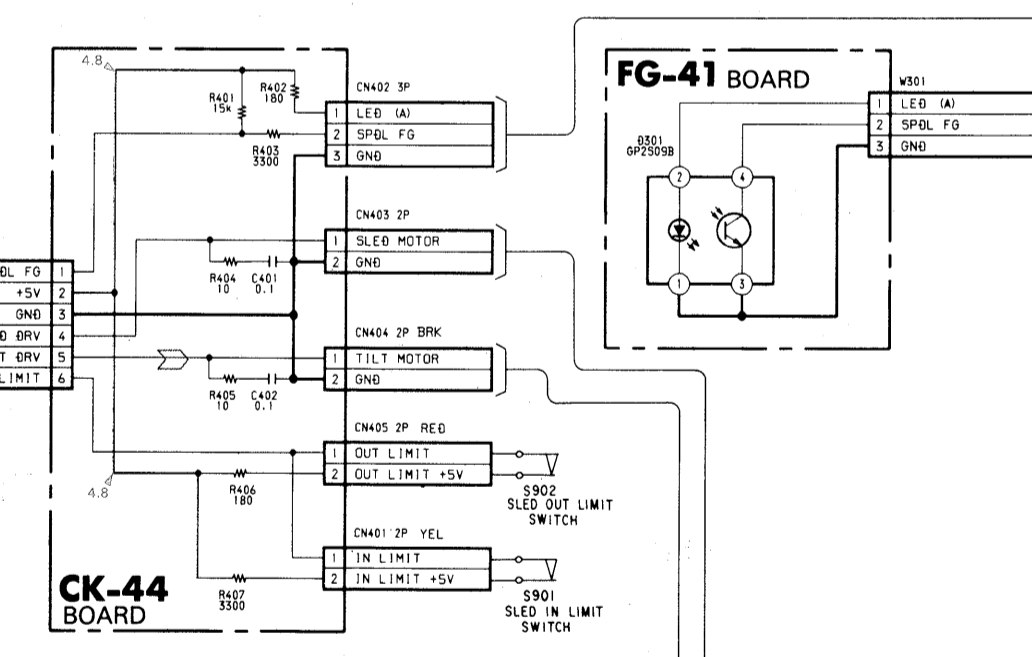
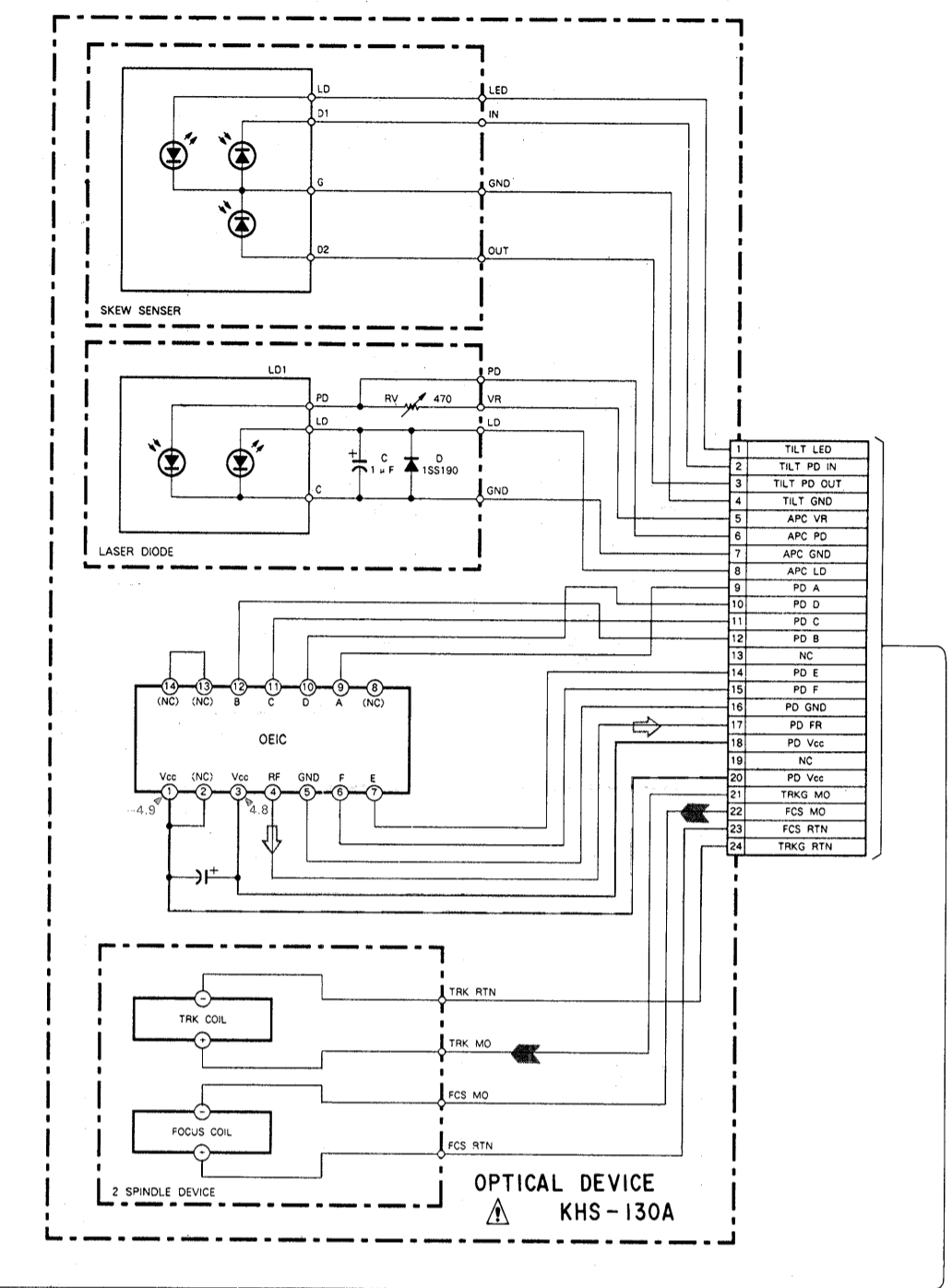
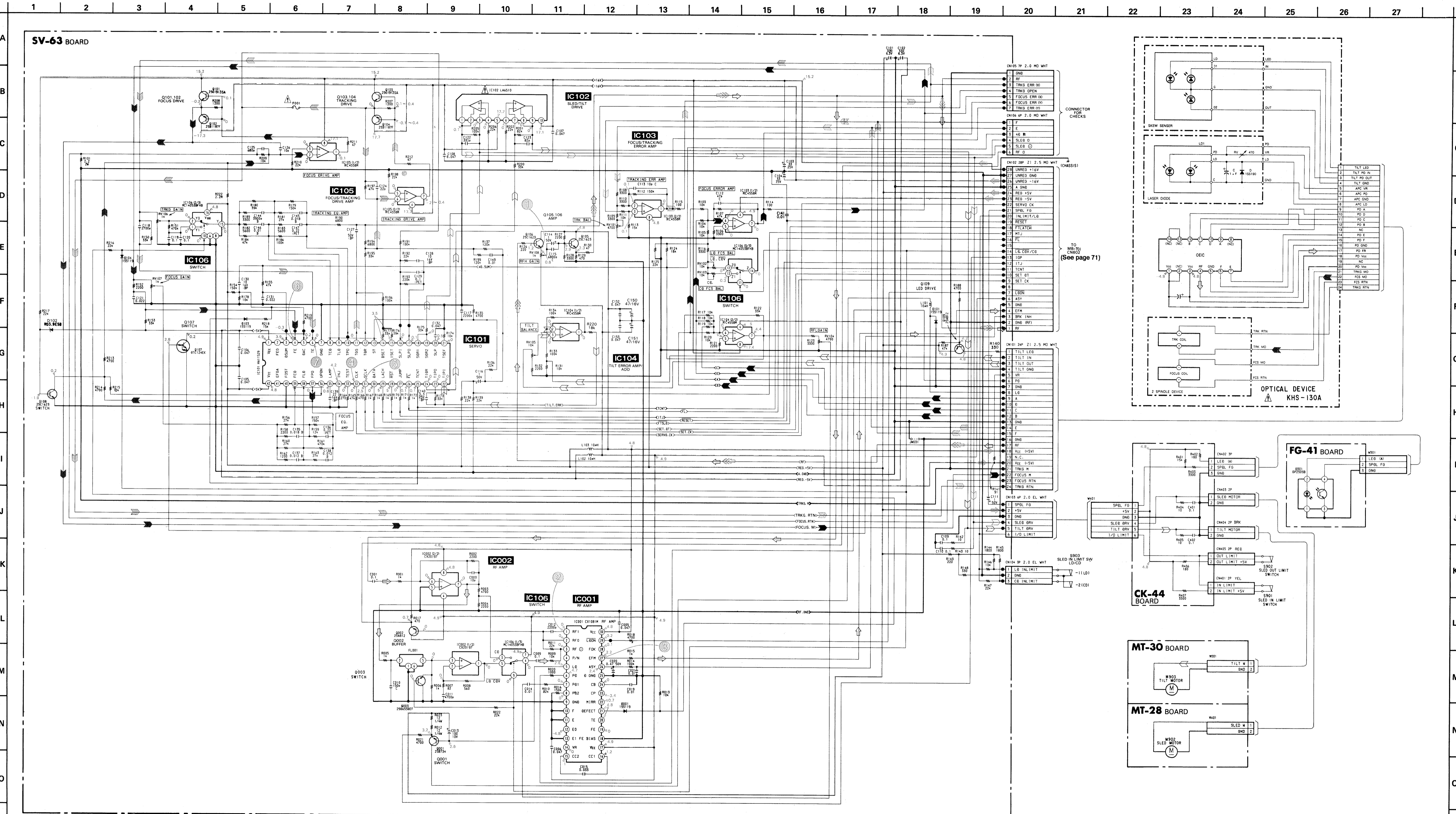
- *For schematic diagram:**
- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
 - All resistors are in ohms, 1/4W (Chip resistors: 1/10W) unless otherwise noted.
kΩ: 1000 Ω, 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.
 - $\frac{E}{W}$: nonflammable resistor.
 - $\frac{F}{W}$: fusible resistor.
 - \square : panel designation.
 - \square : internal component.
 - \triangle : 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 (DC10MG).*
 - Voltage variations may be noted due to normal production tolerances.
 - \Rightarrow : IN/OUT direction of B line (+, -).*
 - Circled numbers refer to waveforms.*

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

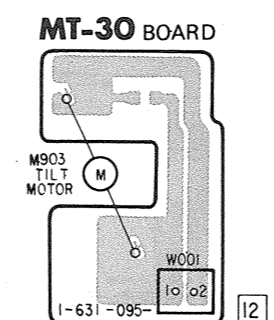
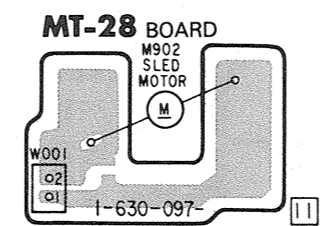
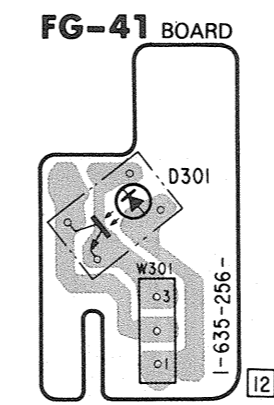
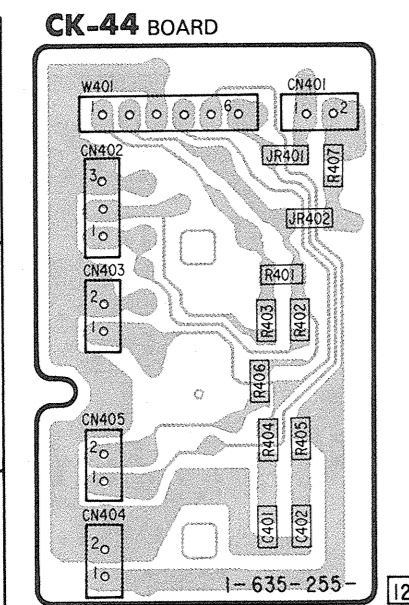
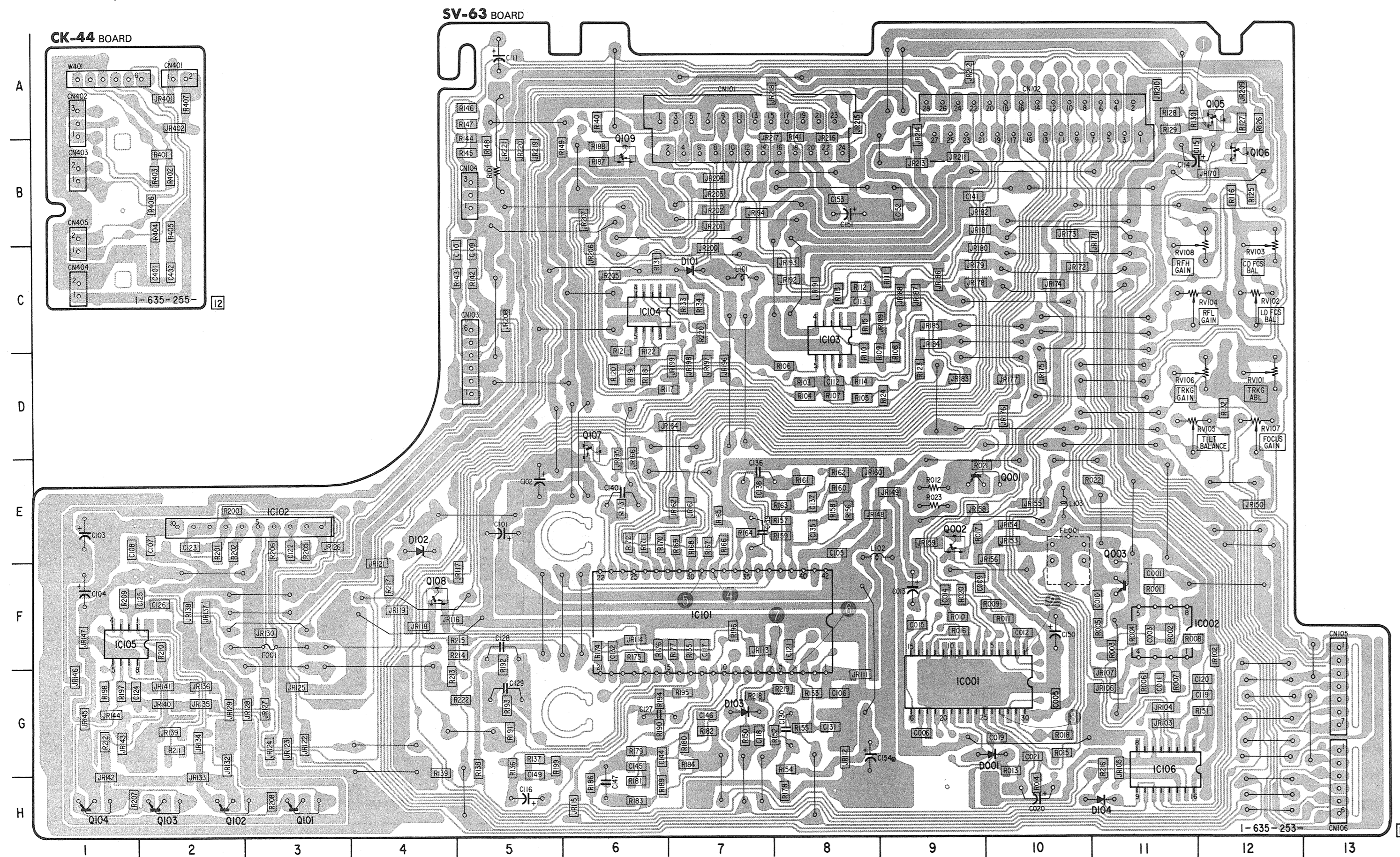
Note:
The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

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

* : indicated by the color red.

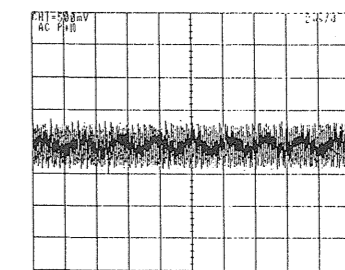


	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
PB	↔	↔	↔	↔
SPINDLE PHASE SERVO	↔			
SPINDLE SERVO (SPEED AND PHASE)	↔			
TRACKING SERVO LD/CD/CDV	↔			
SLIDE SERVO LD/CD	↔			
FOCUS SERVO LD/CD	↔			
SKREW SERVO LD TILT	↔			

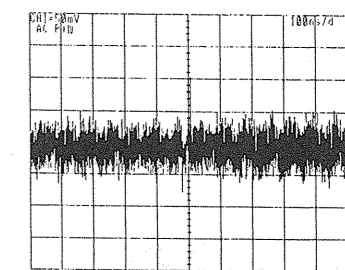


SV-63 BOARD

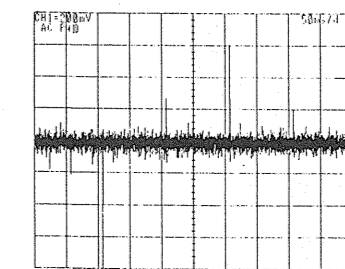
① Q106 ② 0.5V/2 μs



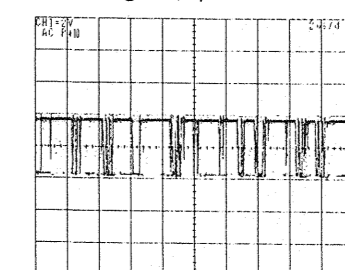
⑦ IC101 ⑧ 50mV/100ns



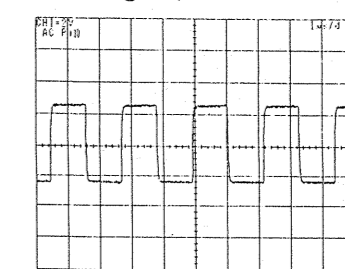
③ IC001 ① 0.2V/50ms



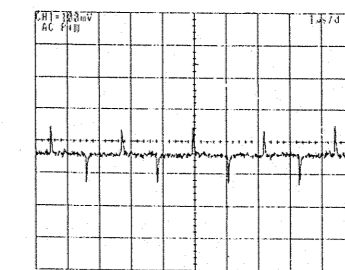
⑤ IC001 ⑦ 2V/2 μs



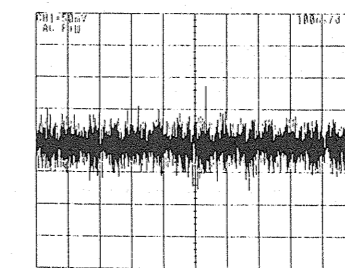
④ IC101 ② 2V/1ms



⑥ IC101 ③ 0.1V/1 μs



⑤ IC101 ④ 50mV/100ns



MB-701 (VIDEO) PRINTED WIRING BOARD

- Ref. No.: MB-701 Board; 2,000 series -

MB-701 BOARD

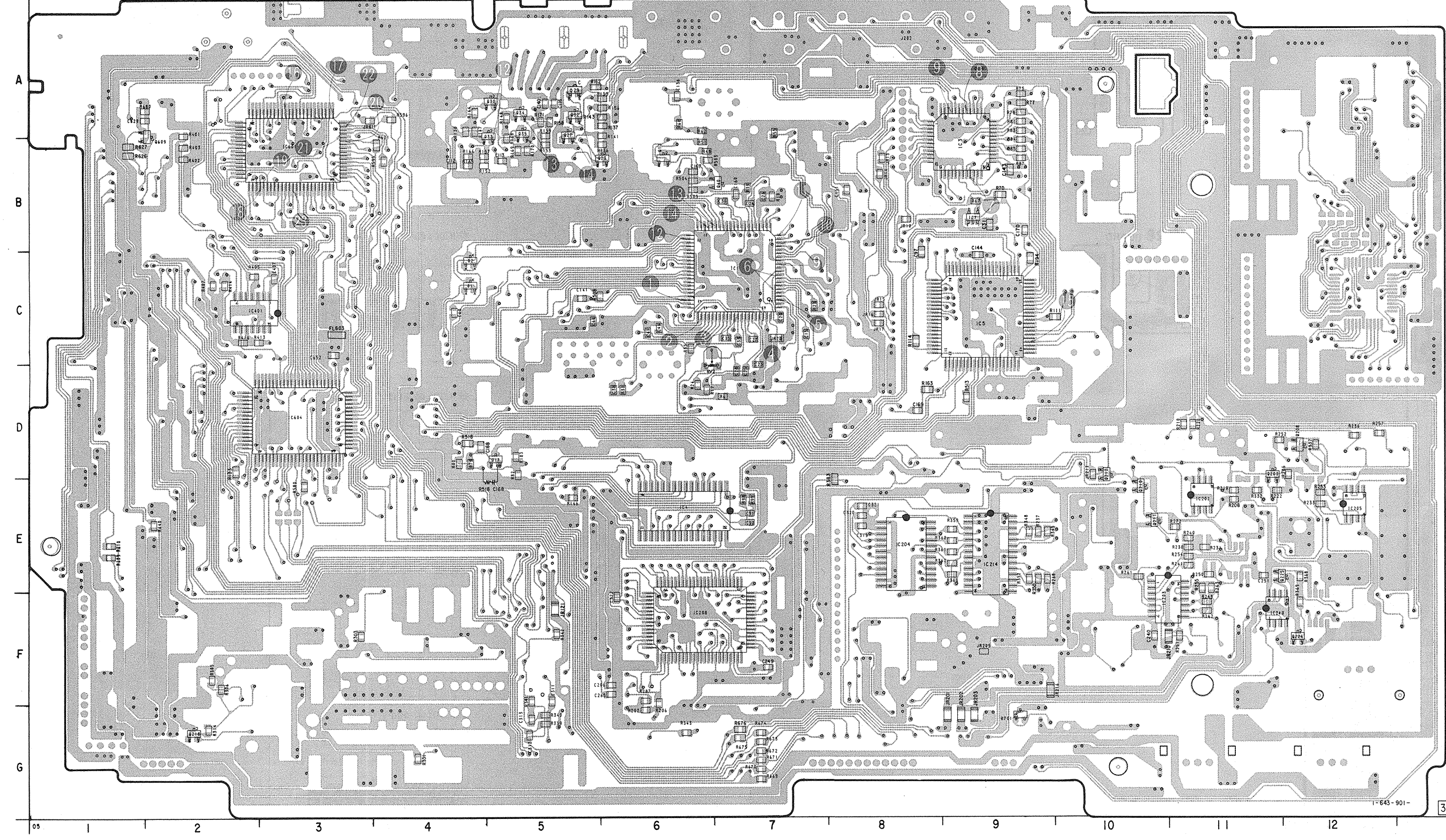
- D001 C-4
- D002 C-4
- D003 D-21
- D004 C-22
- D201 F-8
- D202 F-8
- D203 D-16
- D204 E-18
- D205 D-17
- D207 D-17
- D208 E-18
- D212 E-18
- D213 A-20
- D214 A-20
- D215 A-18
- D216 A-18
- D401 C-24
- D602 B-25
- D609 F-25
- D701 G-9
- D801 A-23

- IC001 C-7
- IC003 B-9
- IC004 E-8
- IC005 C-9
- IC007 B-9
- IC201 A-24
- IC202 E-11
- IC203 F-11
- IC204 E-8
- IC205 E-12
- IC207 E-17
- IC208 F-8
- IC209 F-17
- IC210 F-11
- IC211 F-21
- IC212 F-22
- IC214 E-9
- IC401 C-2
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- IC601 B-9
- IC803 E-25
- IC804 D-3
- IC701 F-14
- IC702 G-14
- IC703 G-16

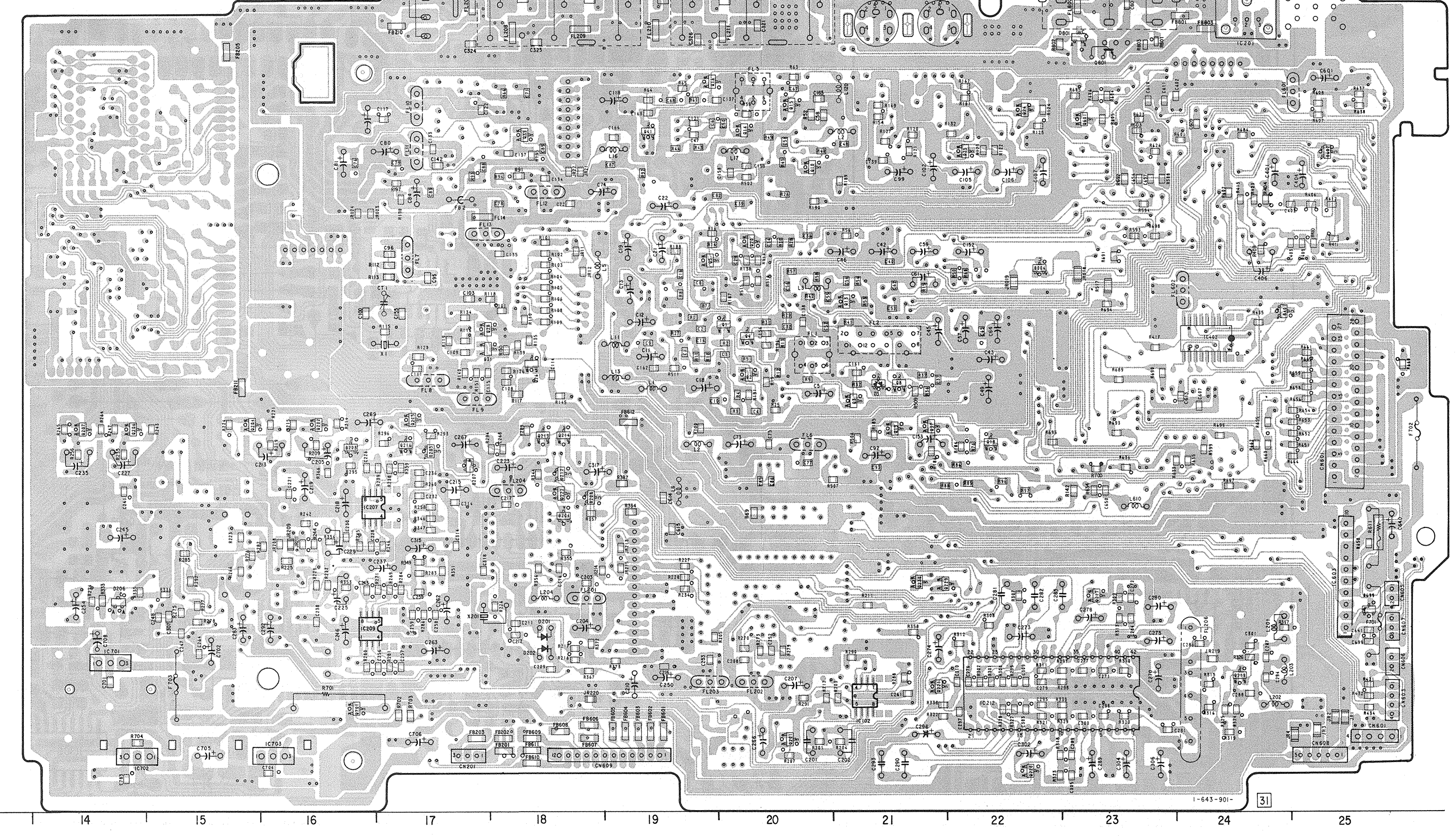
- Q001 C-20
- Q002 D-20
- Q003 D-21
- Q004 C-20
- Q005 C-19
- Q008 D-21
- Q010 B-20
- Q012 B-6
- Q013 C-21
- Q014 B-20
- Q015 A-20
- Q016 A-19
- Q017 D-5
- Q018 D-22
- Q019 D-21
- Q020 C-20
- Q023 B-6
- Q024 A-22
- Q025 B-22
- Q026 D-18
- Q027 A-5
- Q028 C-17
- Q029 A-5
- Q030 A-5
- Q031 C-17
- Q032 A-5
- Q033 A-5
- Q034 A-5
- Q035 A-5
- Q037 D-21
- Q039 B-19
- Q040 B-7
- Q041 B-19
- Q201 G-20
- Q202 D-16
- Q203 D-11
- Q204 D-15
- Q206 D-14
- Q207 D-14
- Q208 D-12
- Q210 E-10
- Q211 E-10
- Q212 D-10
- Q213 D-18
- Q214 D-18

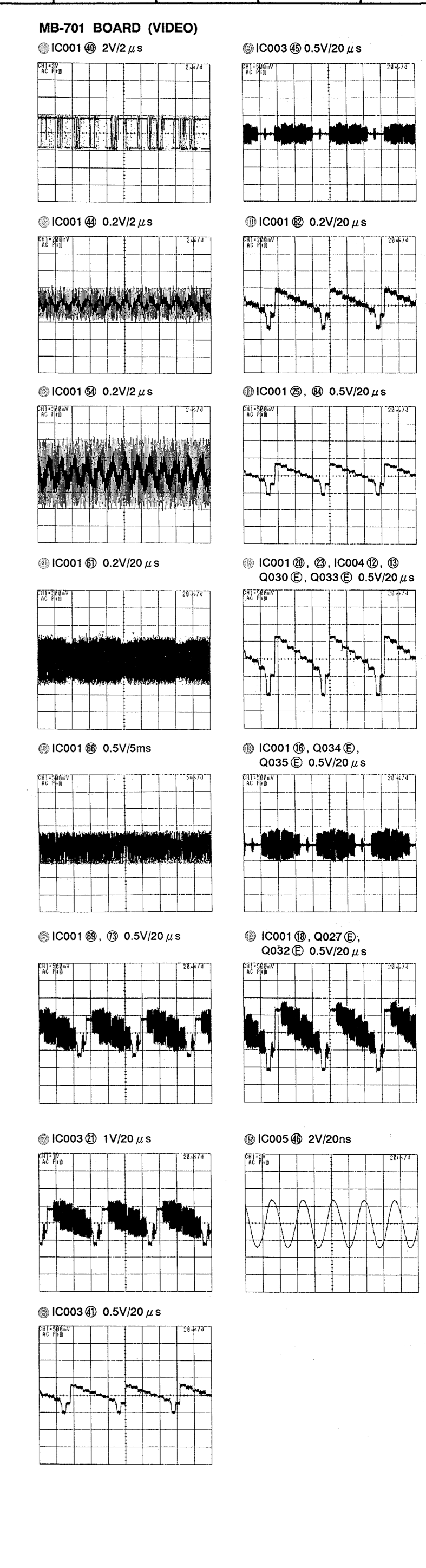
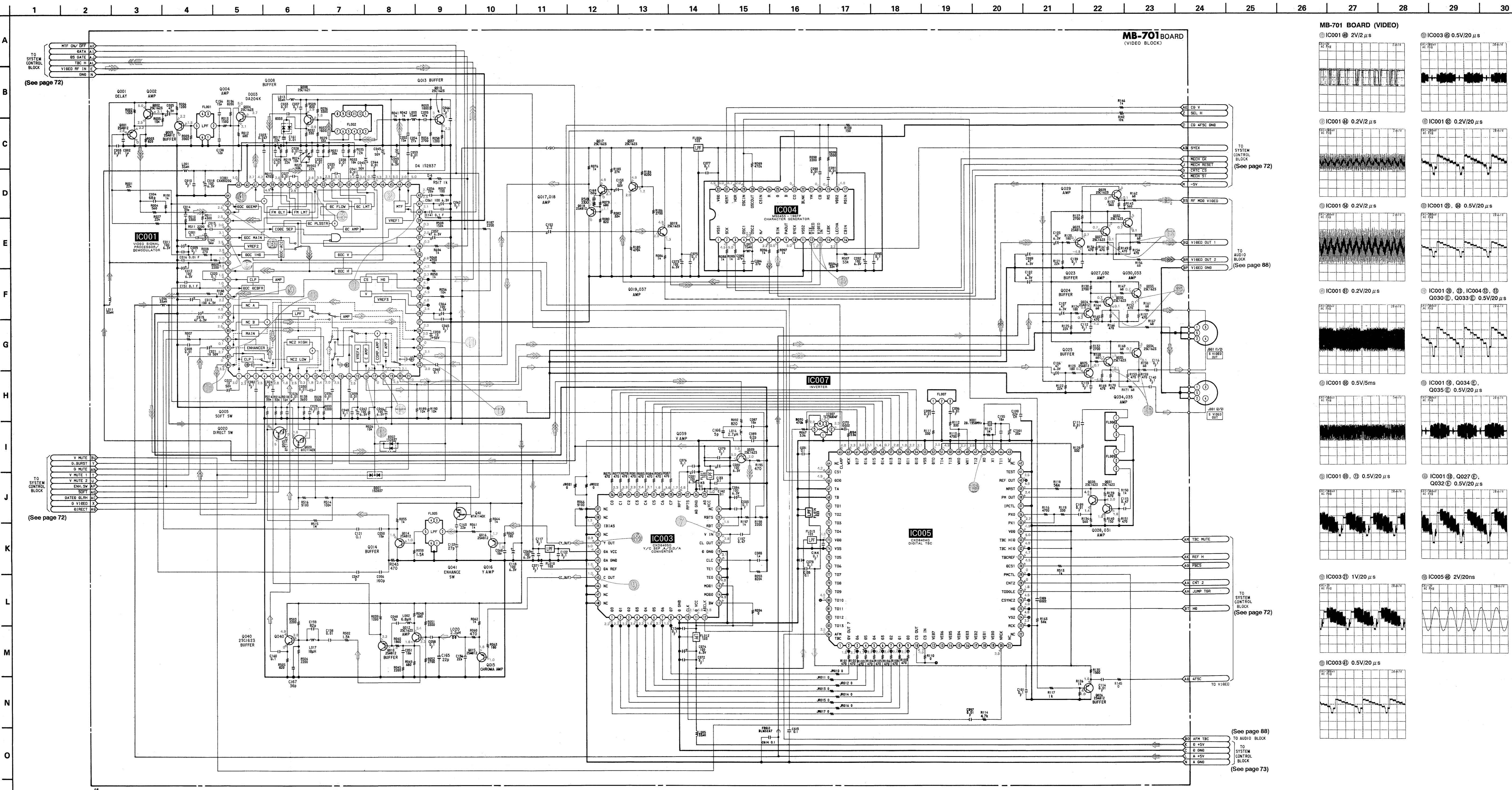
- Q215 D-17
- Q216 D-17
- Q217 F-23
- Q218 G-2
- Q219 F-24
- Q220 G-22
- Q221 F-21
- Q222 E-18
- Q225 E-12
- Q226 F-12
- Q229 F-21
- Q230 E-21
- Q601 A-23
- Q609 B-2
- Q701 G-16
- Q801 A-23

MB-701 BOARD (COMPONENT SIDE)



MB-701 BOARD (CONDUCTOR SIDE)





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

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

(See page 72)

(See page 72)

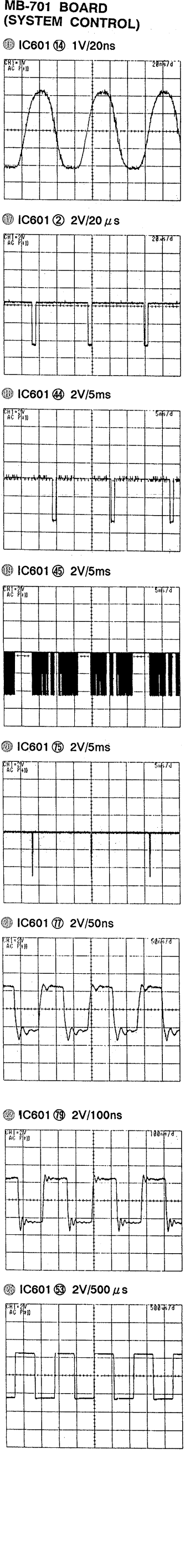
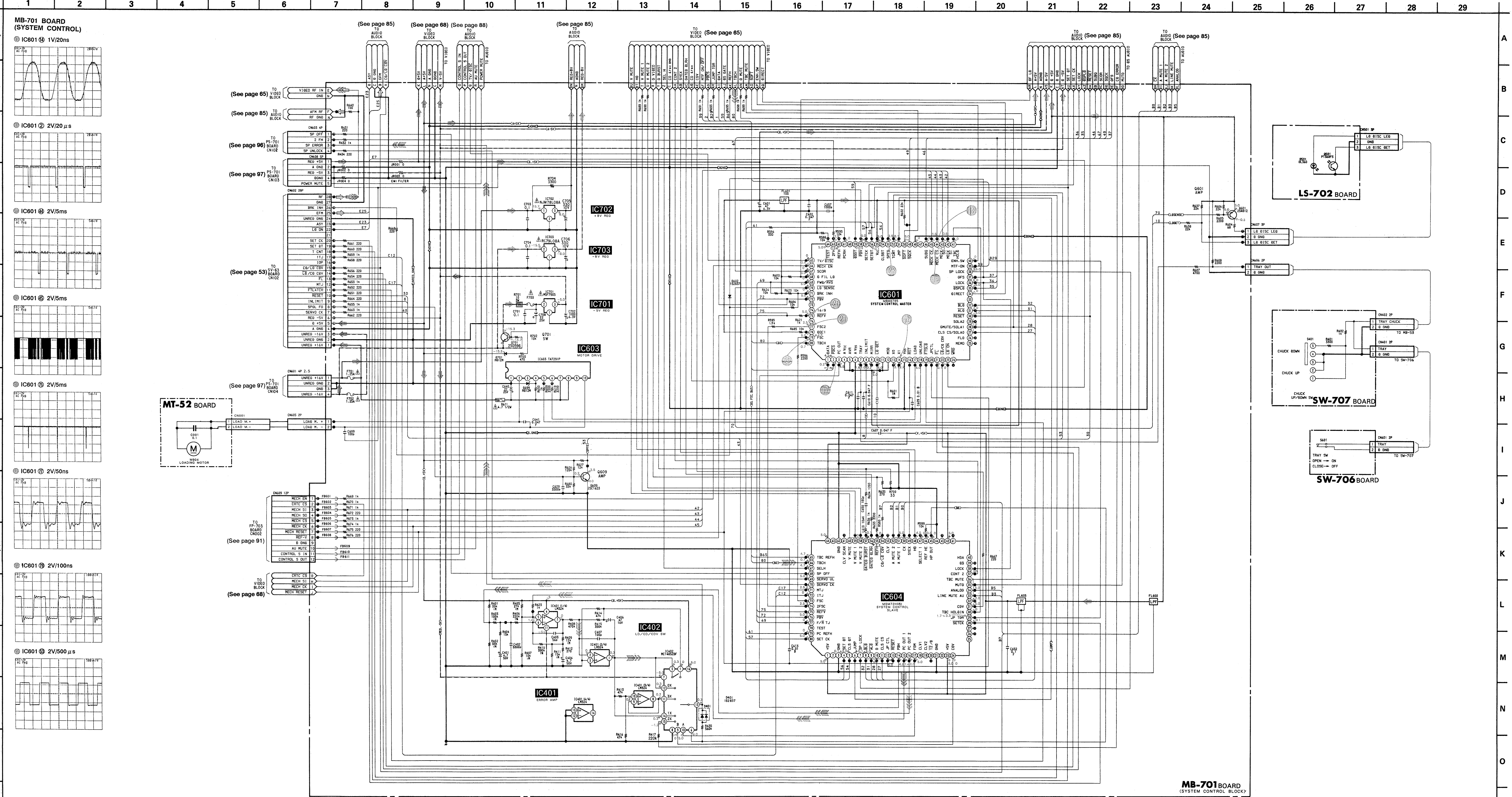
(See page 88)

(See page 72)

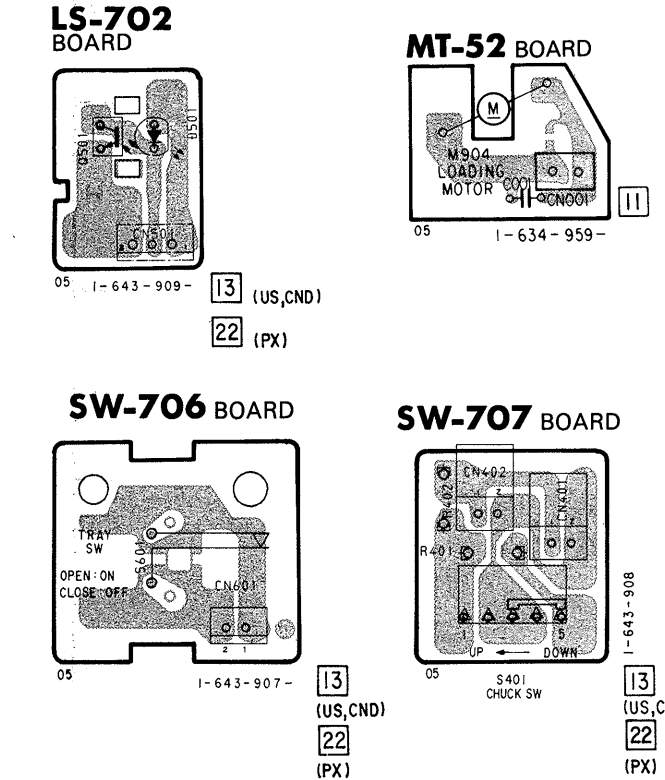
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(See page 88)

(See page 73)

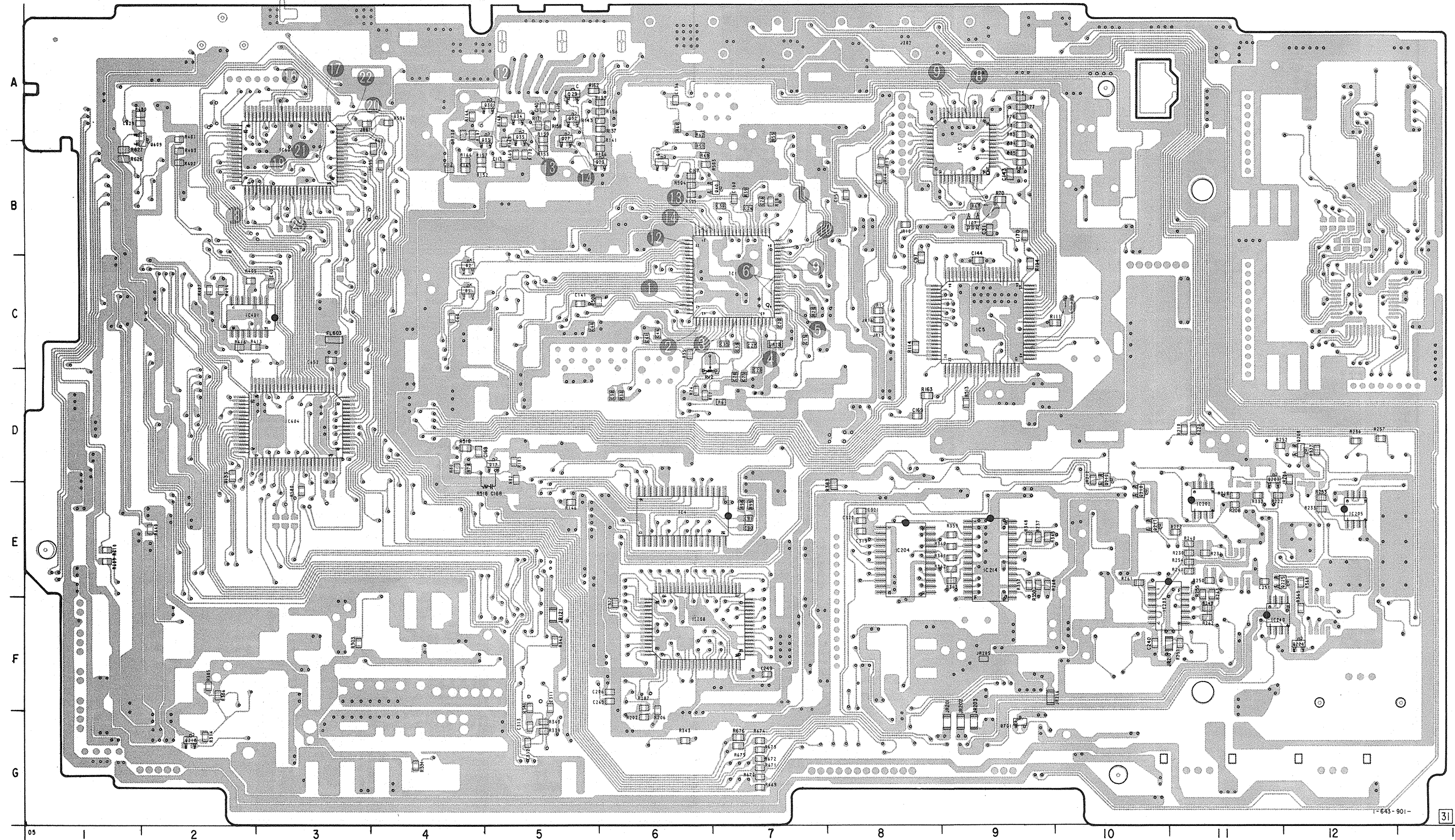


LS-702 (LD SENSOR), MT-52 (LOADING MOTOR), SW-706 (TRAY SWITCH), SW-707 (CHUCK SWITCH) PRINTED WIRING BOARDS
 - Ref. No.: LS-702, MT-52, SW-706, and SW-707 Boards; 3,000 series -

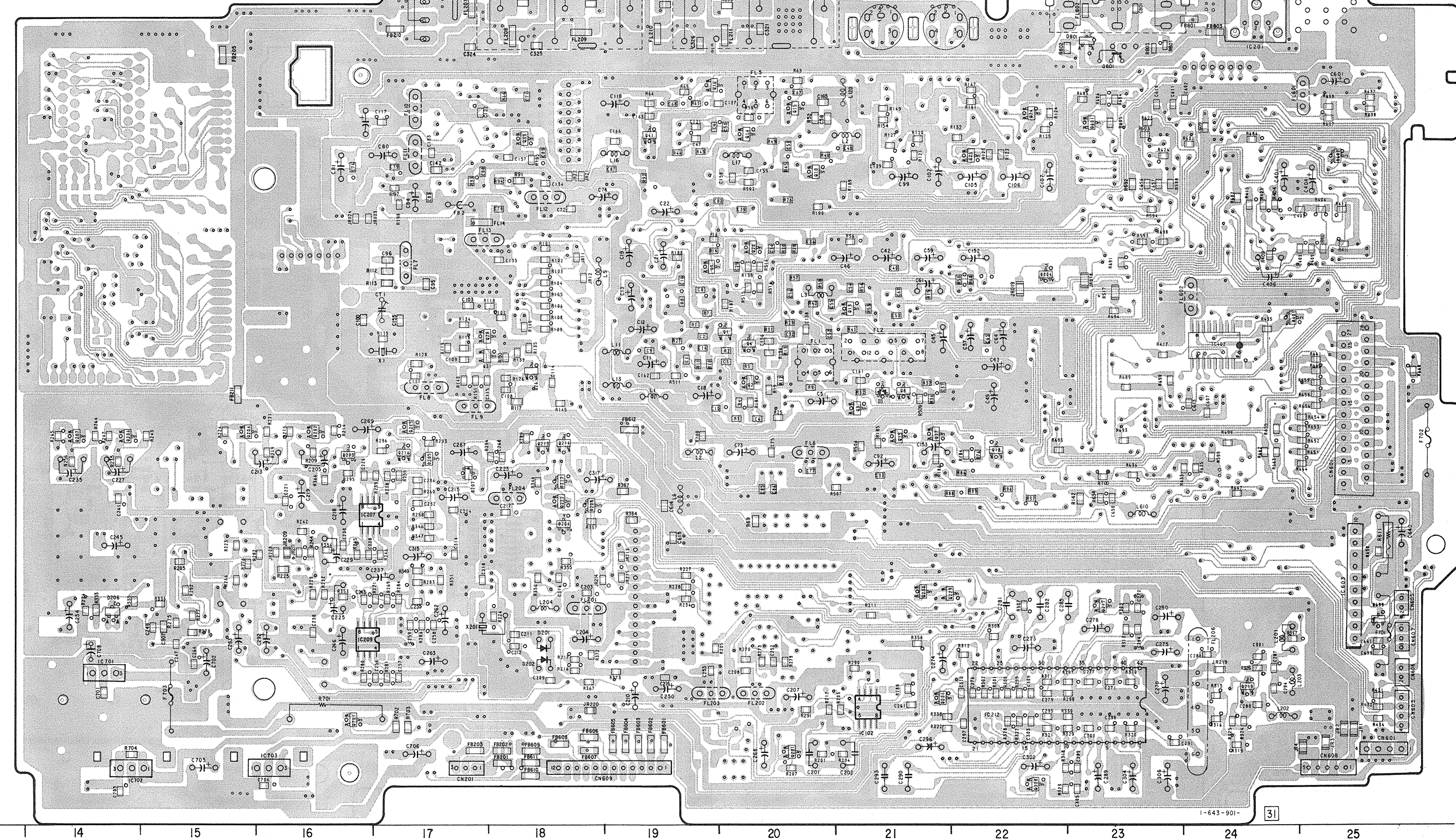


PB	VIDEO SIGNAL		AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA
			▶
			▶▶
			▶▶▶
			▶▶▶▶
			▶▶▶▶▶
			▶▶▶▶▶▶

MB-701 BOARD (COMPONENT SIDE)



MB-701 BOARD (CONDUCTOR SIDE)



MB-701 BOARD

D001	C-4	Q215	D-17
D002	C-4	Q216	D-17
D003	D-21	Q217	F-23
D004	C-22	Q218	G-2
D201	F-8	Q219	F-24
D202	F-8	Q220	G-22
D203	D-16	Q221	F-21
D204	E-18	Q222	E-18
D205	D-17	Q223	E-12
D206	F-17	Q224	F-12
D208	E-18	Q225	F-21
D212	E-18	Q229	E-21
D213	A-20	Q601	A-23
D214	A-20	Q609	B-2
D215	A-18	Q701	G-16
D216	A-18	Q801	A-23
D401	C-24		
D602	B-25		
D699	F-25		
D701	G-9		
D801	A-23		
IC001	C-7		
IC003	B-9		
IC004	E-9		
IC005	C-9		
IC007	B-9		
IC201	A-24		
IC202	F-11		
IC203	F-11		
IC204	E-8		
IC205	E-12		
IC207	E-17		
IC208	F-2		
IC209	F-17		
IC210	F-11		
IC211	F-21		
IC212	F-22		
IC214	E-9		
IC401	C-2		
IC402	C-24		
IC601	B-3		
IC603	E-25		
IC605	D-3		
IC701	F-14		
IC702	G-14		
IC703	G-16		
Q001	C-20		
Q002	D-20		
Q003	D-21		
Q004	C-20		
Q005	C-19		
Q006	D-21		
Q010	B-20		
Q012	B-6		
Q013	C-21		
Q014	B-20		
Q015	A-20		
Q016	A-19		
Q017	D-5		
Q018	D-22		
Q019	D-21		
Q020	C-20		
Q023	B-6		
Q024	A-22		
Q025	B-22		
Q026	D-18		
Q027	A-5		
Q028	C-17		
Q029	A-5		
Q030	A-5		
Q031	C-17		
Q032	A-5		
Q033	A-5		
Q034	A-5		
Q035	A-5		
Q037	D-21		
Q039	B-18		
Q040	B-7		
Q041	B-19		
Q201	G-20		
Q202	D-16		
Q203	D-11		
Q204	D-15		
Q206	D-14		
Q207	D-14		
Q208	D-12		
Q210	E-10		
Q211	E-10		
Q212	D-10		
Q213	D-18		
Q214	D-18		

MB-701 (AUDIO), HP-702 (HEADPHONES JACK) PRINTED WIRING BOARD

— Ref. No.: MB-701, HP-702 Boards; 2,000 series —

MB-701 BOARD

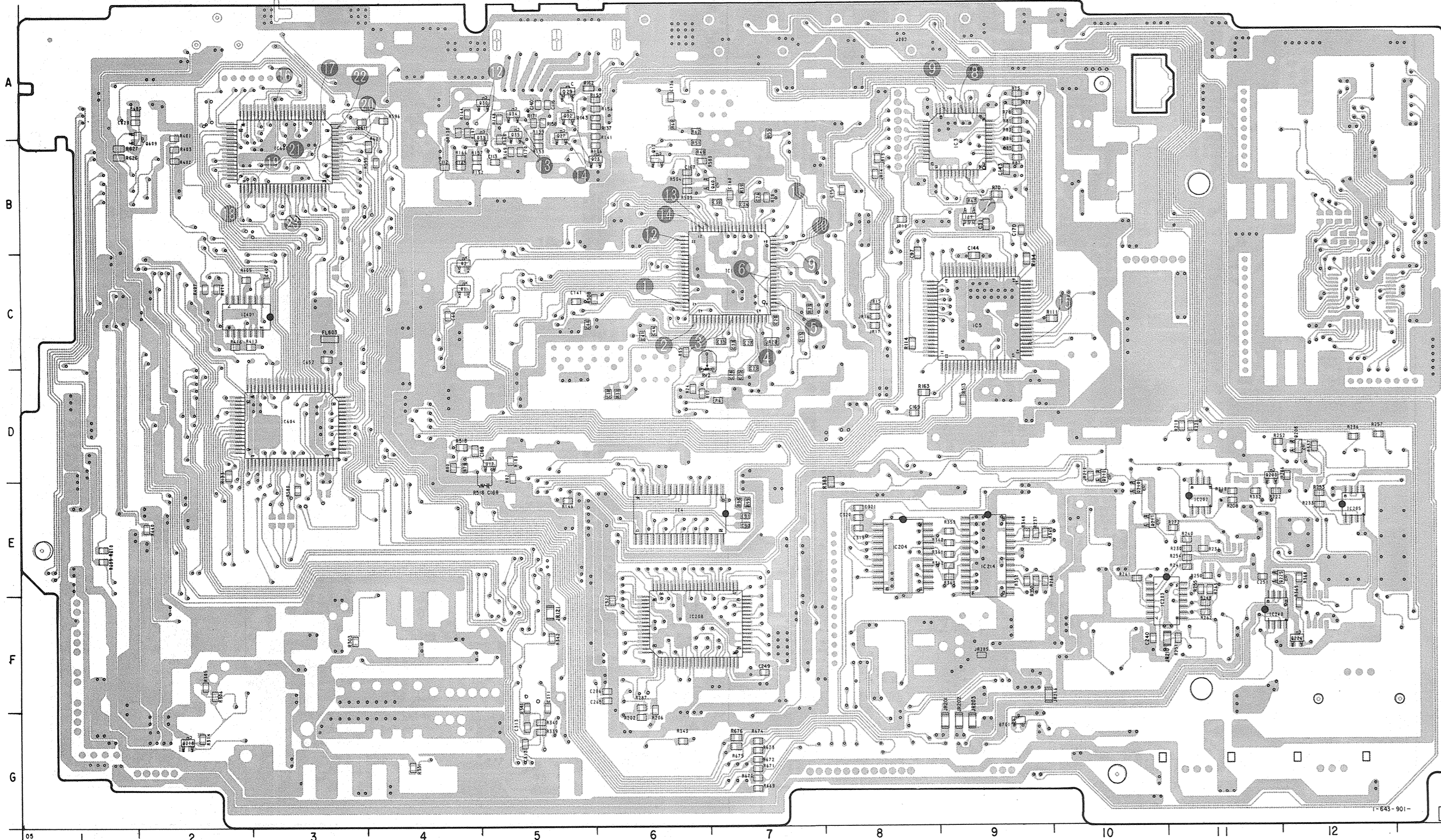
- D001 C-4
- D002 C-4
- D003 D-21
- D004 C-22
- D201 F-8
- D202 F-8
- D203 D-16
- D204 E-18
- D205 D-17
- D207 D-17
- D208 E-18
- D212 E-18
- D213 A-20
- D214 A-20
- D215 A-18
- D216 A-18
- D401 C-24
- D602 B-25
- D699 F-25
- D701 G-9
- D801 A-23

- Q215 D-17
- Q216 D-17
- Q217 F-23
- Q218 G-2
- Q219 F-24
- Q220 G-22
- Q221 F-21
- Q222 E-18
- Q225 E-12
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- Q231 A-23
- Q609 B-2
- Q701 G-16
- Q801 A-23

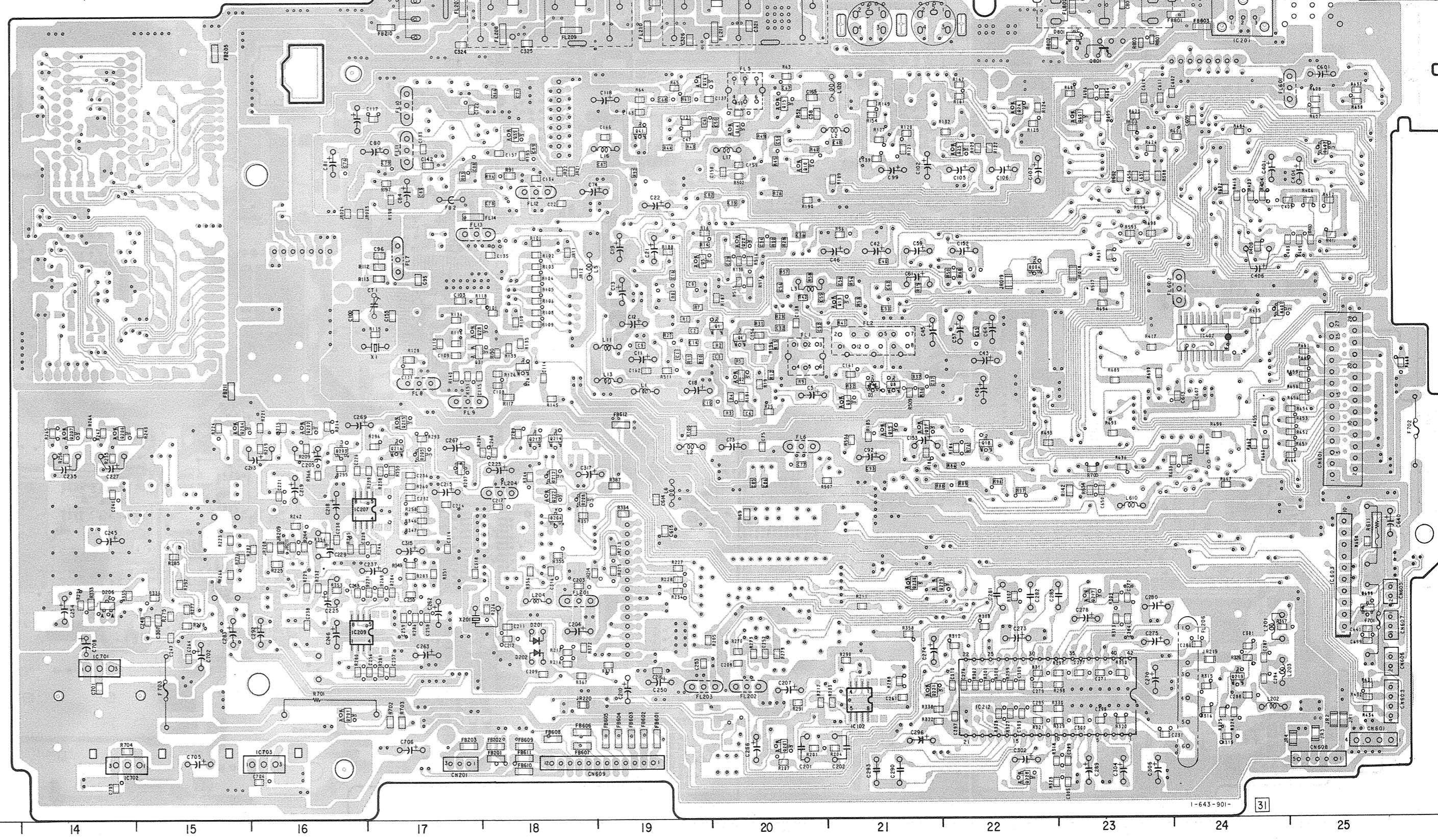
- IC001 C-7
- IC003 B-9
- IC004 E-6
- IC005 C-9
- IC007 B-9
- IC201 A-24
- IC202 F-11
- IC203 F-11
- IC204 E-8
- IC205 E-12
- IC207 E-17
- IC208 F-6
- IC209 F-17
- IC210 F-11
- IC211 F-21
- IC212 F-22
- IC214 E-9
- IC401 C-2
- IC402 C-24
- IC601 B-3
- IC603 E-25
- IC604 D-3
- IC701 F-14
- IC702 G-14
- IC703 G-16

- Q001 C-20
- Q002 D-20
- Q003 D-21
- Q004 C-20
- Q005 C-19
- Q006 D-21
- Q010 B-20
- Q012 B-6
- Q013 C-21
- Q014 B-20
- Q015 A-20
- Q016 A-19
- Q017 D-5
- Q018 D-22
- Q019 D-21
- Q020 C-20
- Q023 B-6
- Q024 A-22
- Q025 B-22
- Q026 D-18
- Q027 A-5
- Q028 C-17
- Q029 A-5
- Q030 A-5
- Q031 C-17
- Q032 A-5
- Q033 A-5
- Q034 A-5
- Q035 A-5
- Q037 D-21
- Q039 B-18
- Q040 B-7
- Q041 B-19
- Q201 G-20
- Q202 D-16
- Q203 D-11
- Q204 D-15
- Q206 D-14
- Q207 D-14
- Q208 D-12
- Q210 E-10
- Q211 E-10
- Q212 D-10
- Q213 D-18
- Q214 D-18

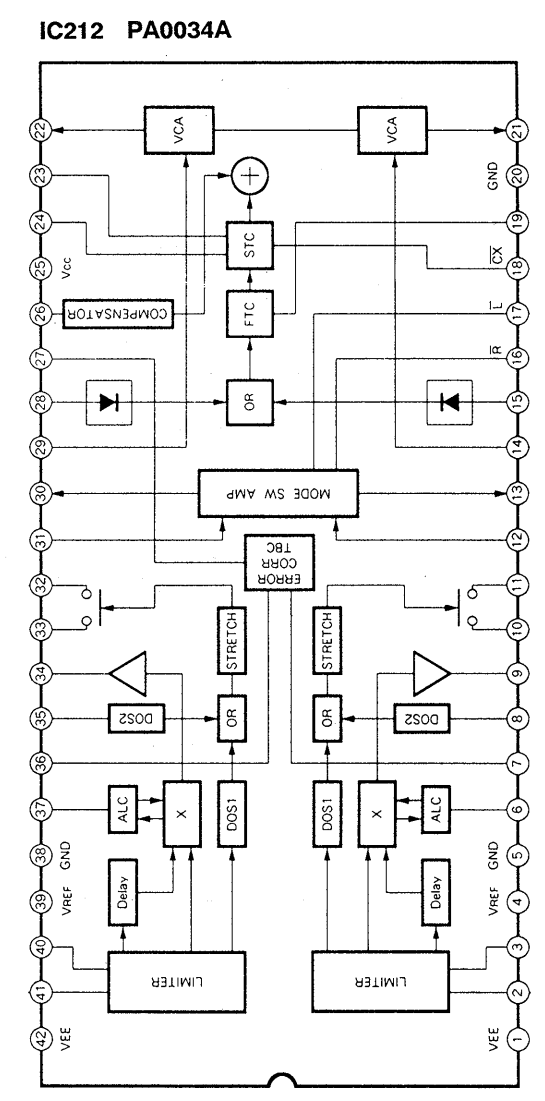
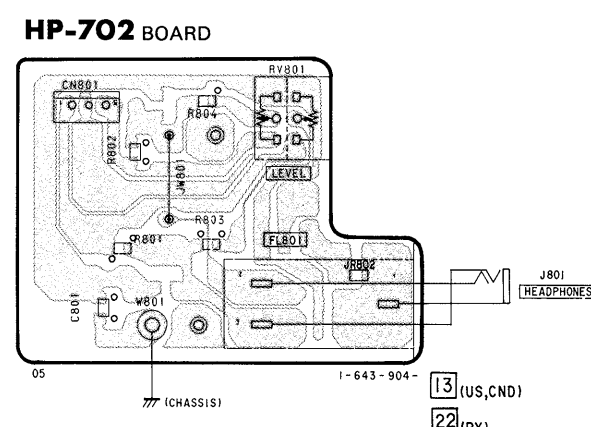
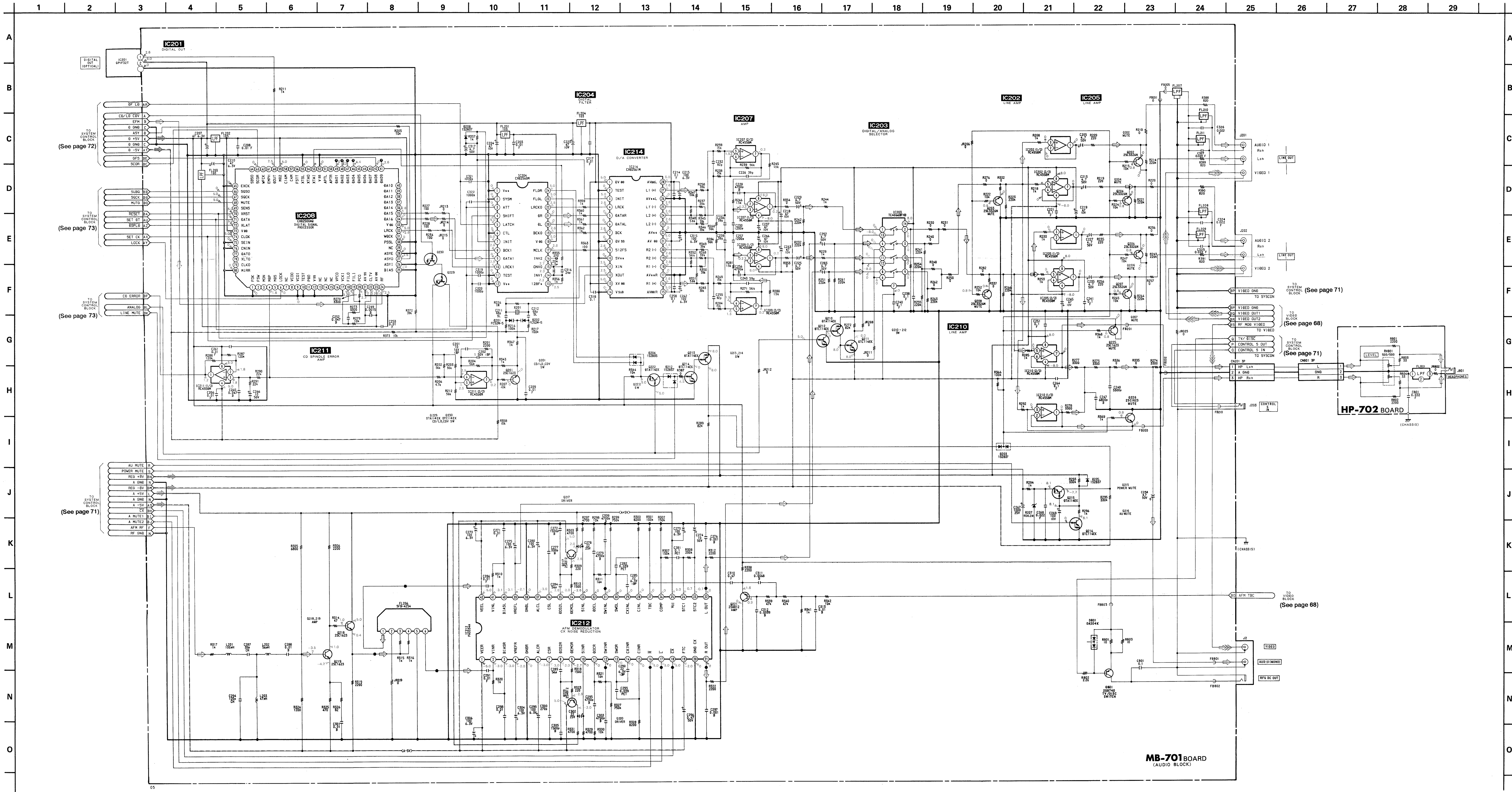
MB-701 BOARD (COMPONENT SIDE)



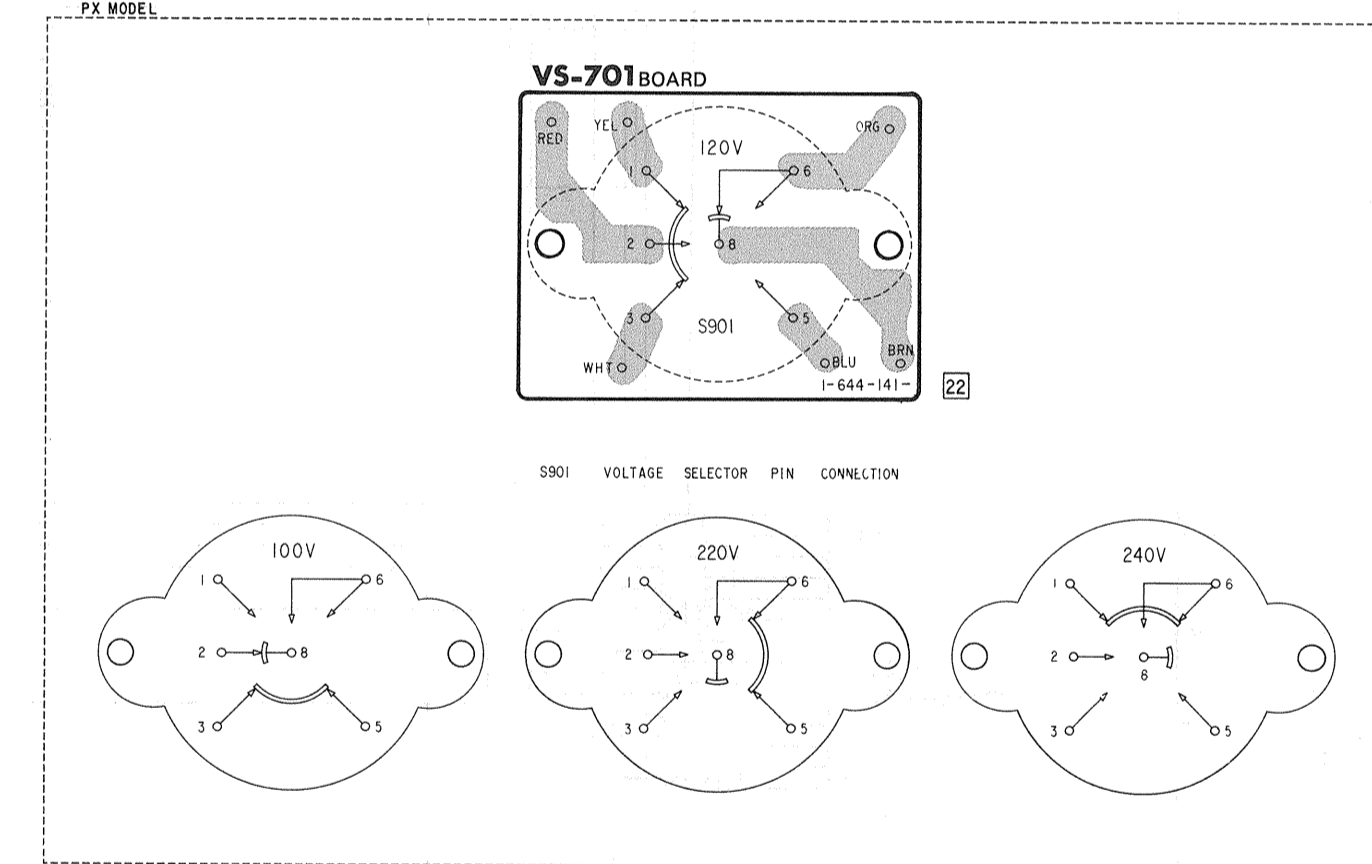
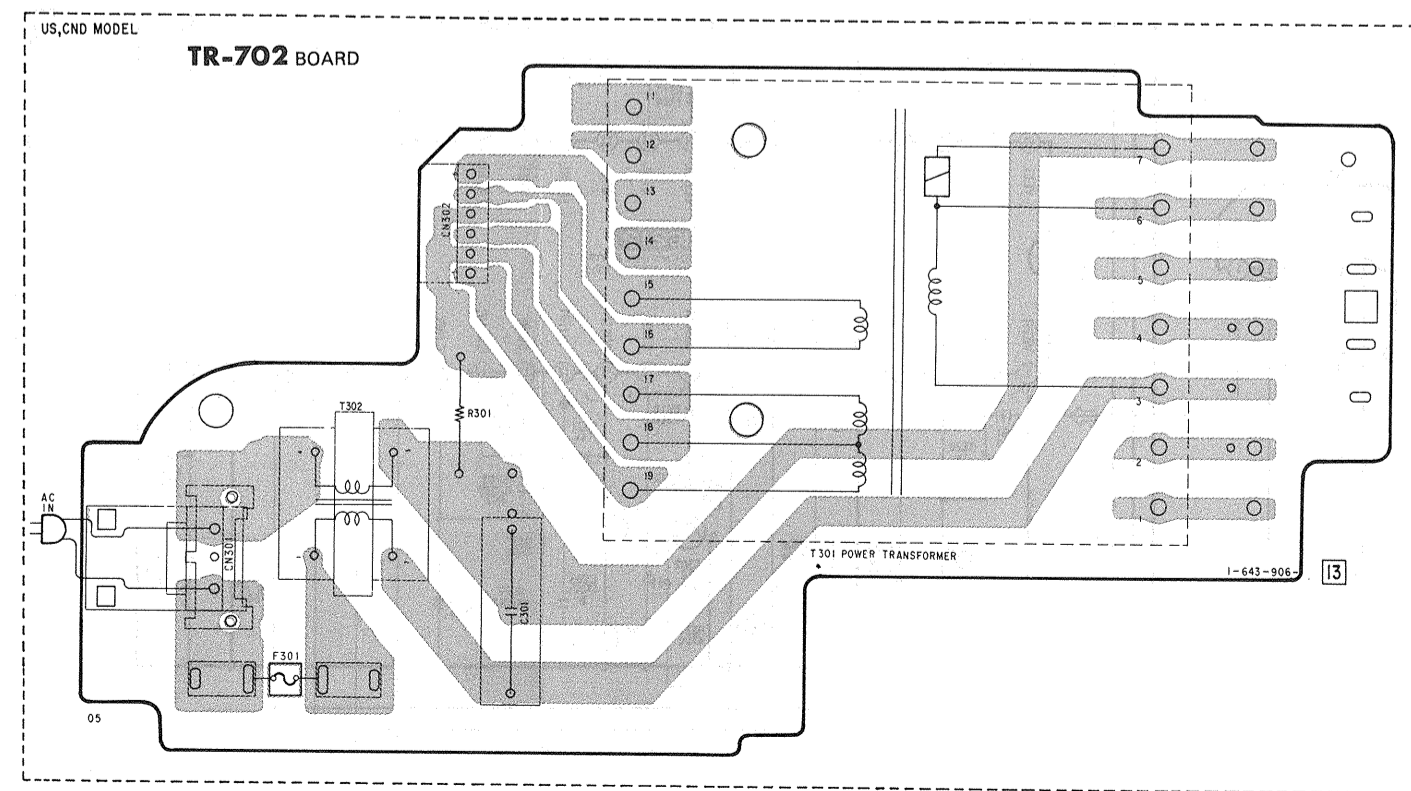
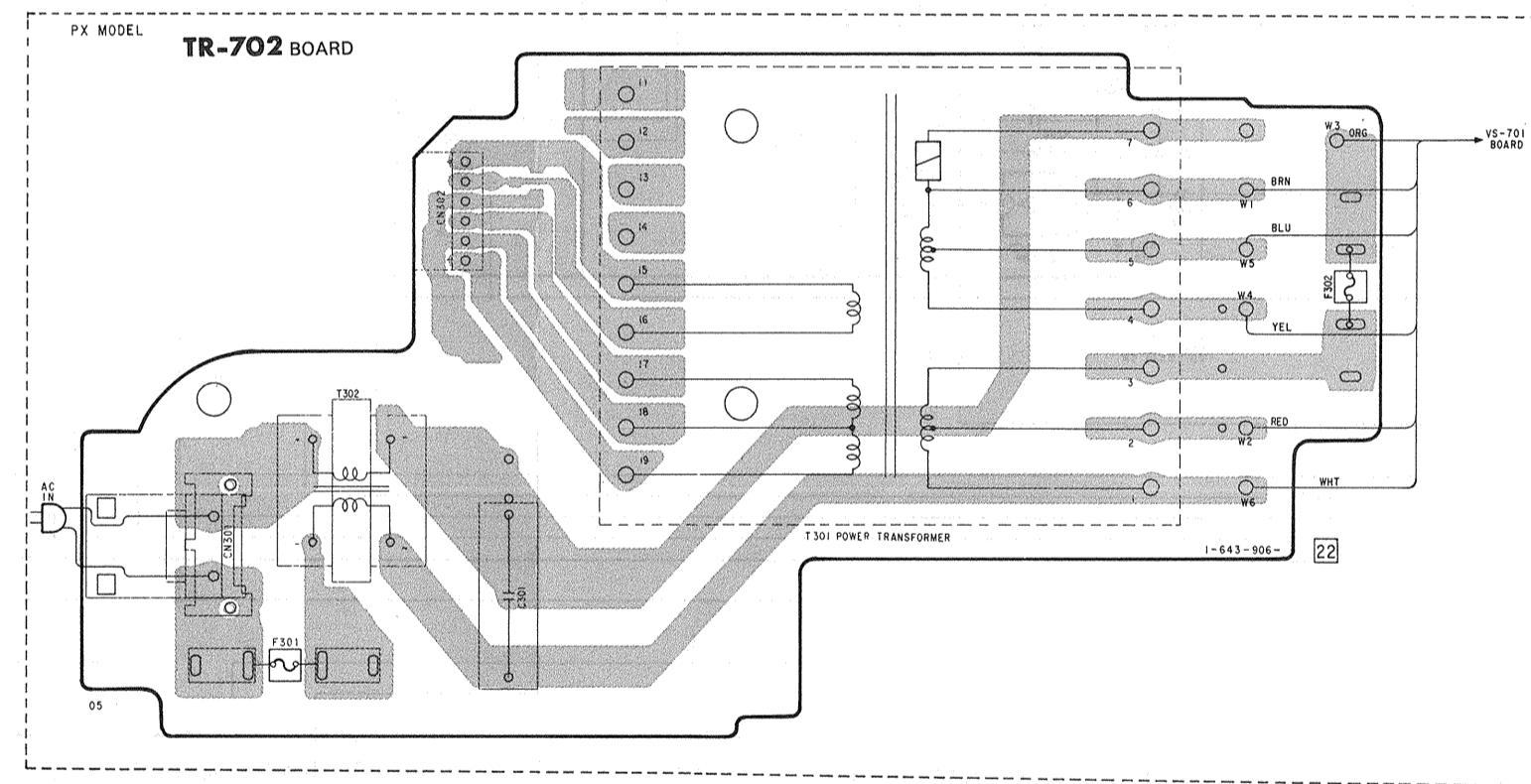
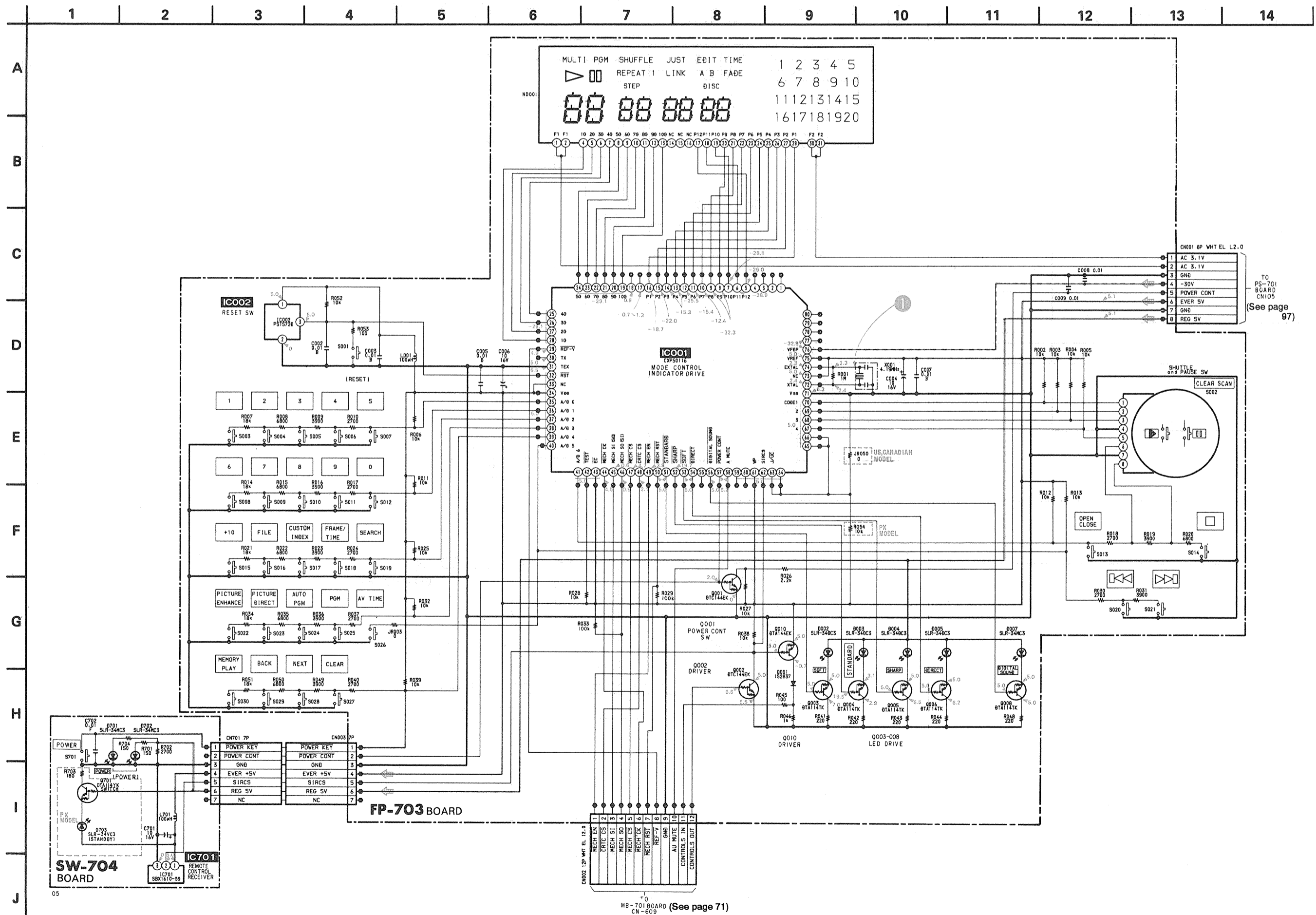
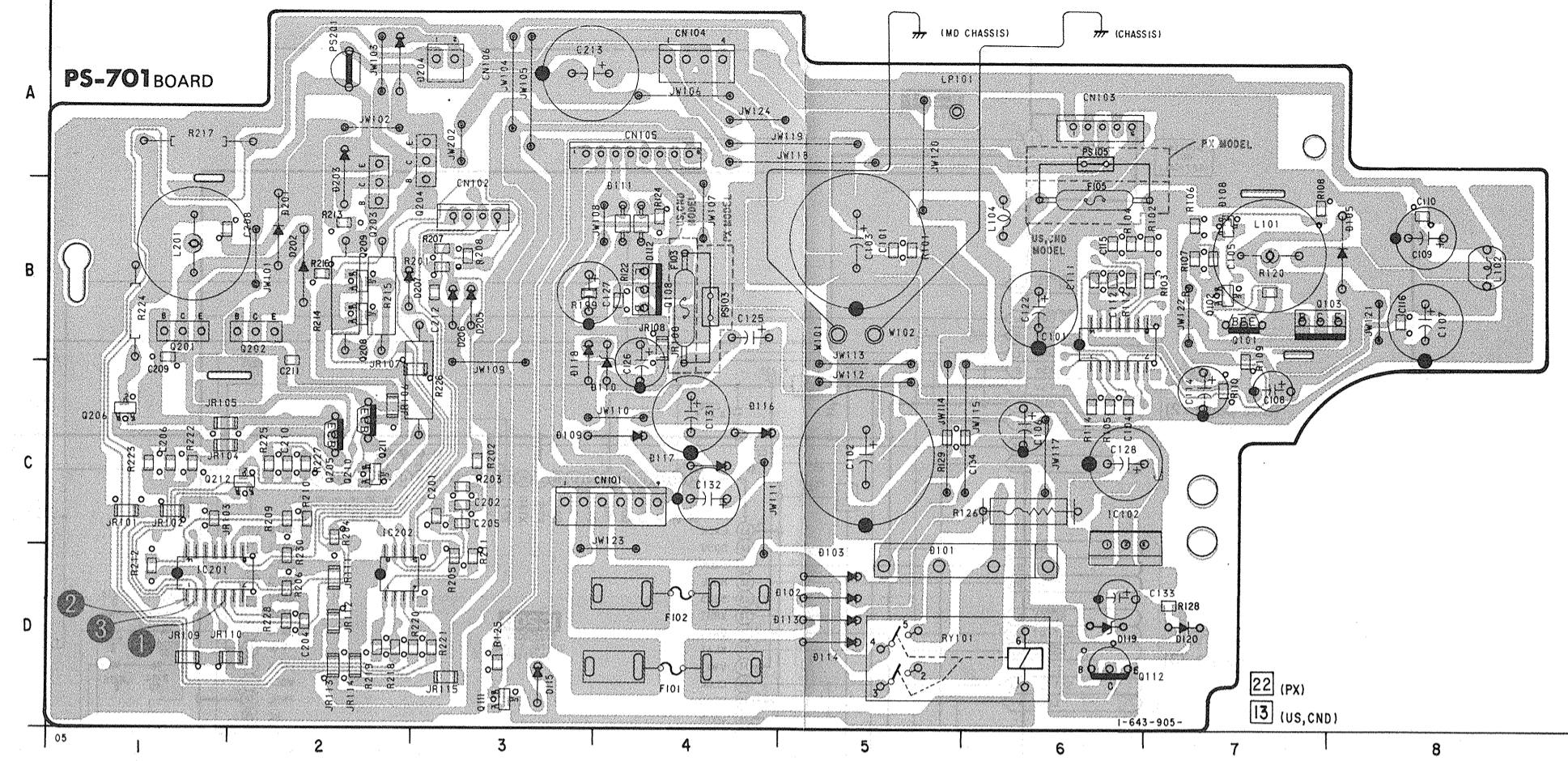
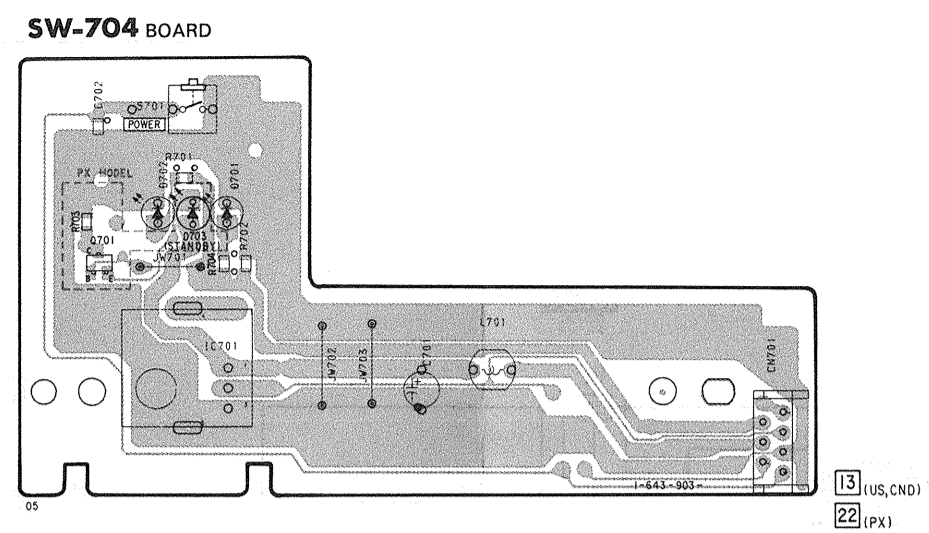
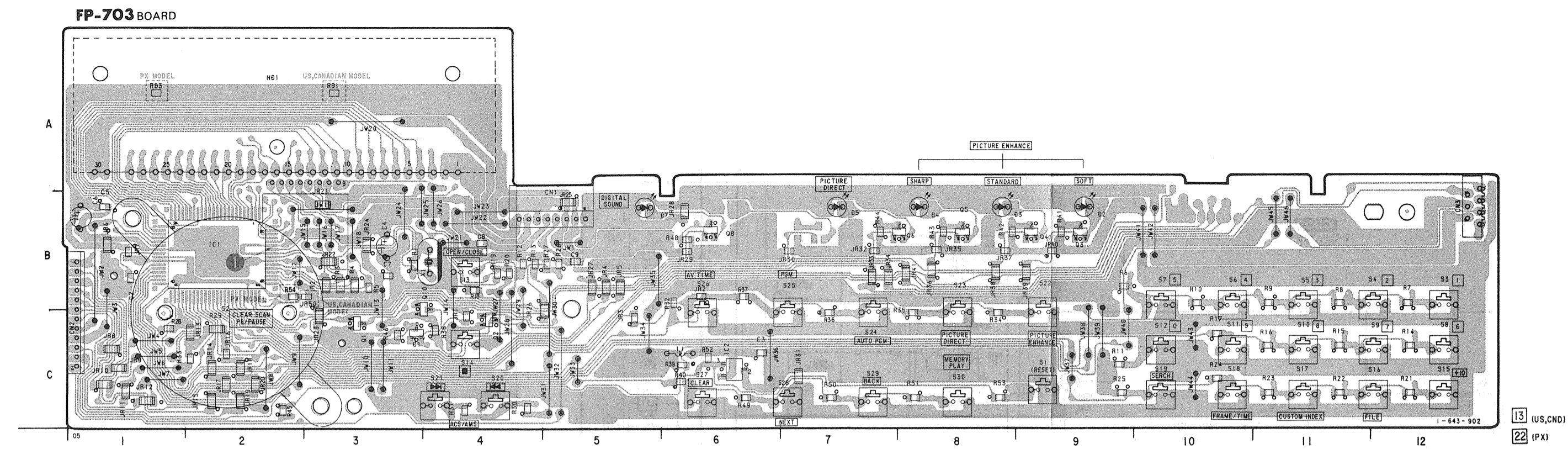
MB-701 BOARD (CONDUCTOR SIDE)



MB-701 (AUDIO), HP-702 (HEADPHONES JACK) SCHEMATIC DIAGRAM
 - Ref. No.: MB-701, HP-80 Boards; 2,000 series -

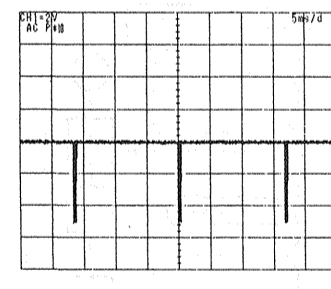


PB	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
→	→	→	→	→

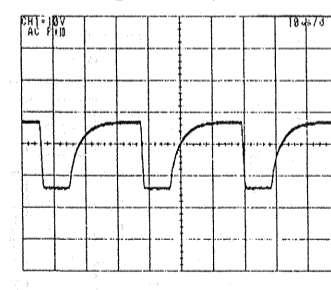


PS-701 BOARD

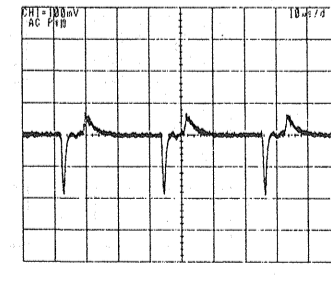
IC201 2V/5ms



IC201 10V/10 μs



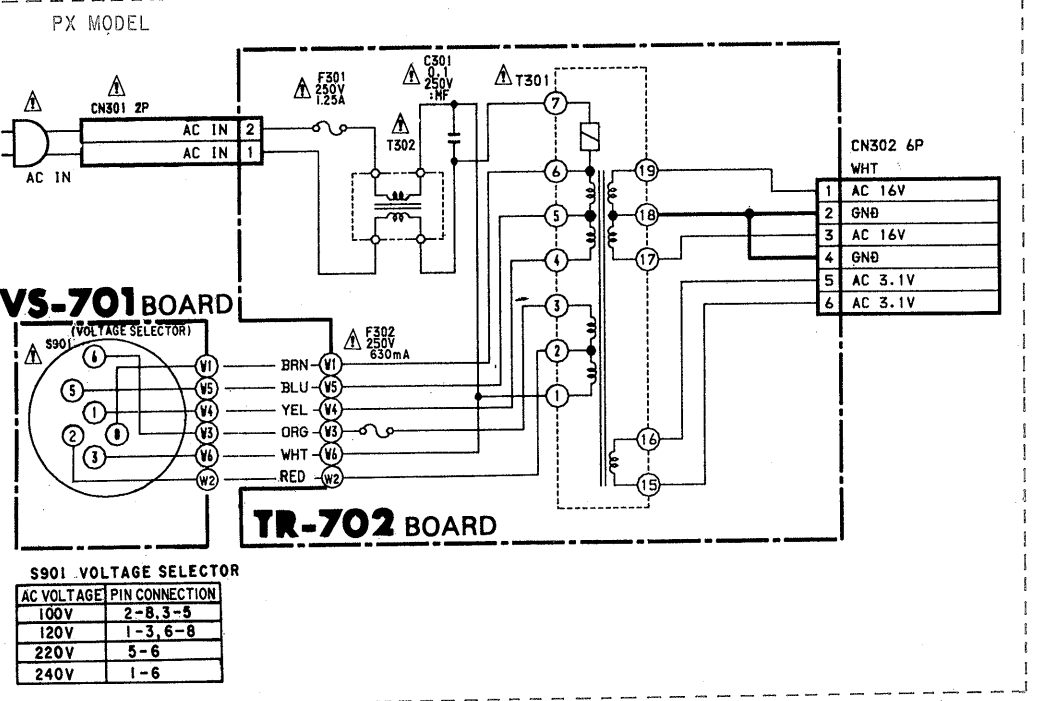
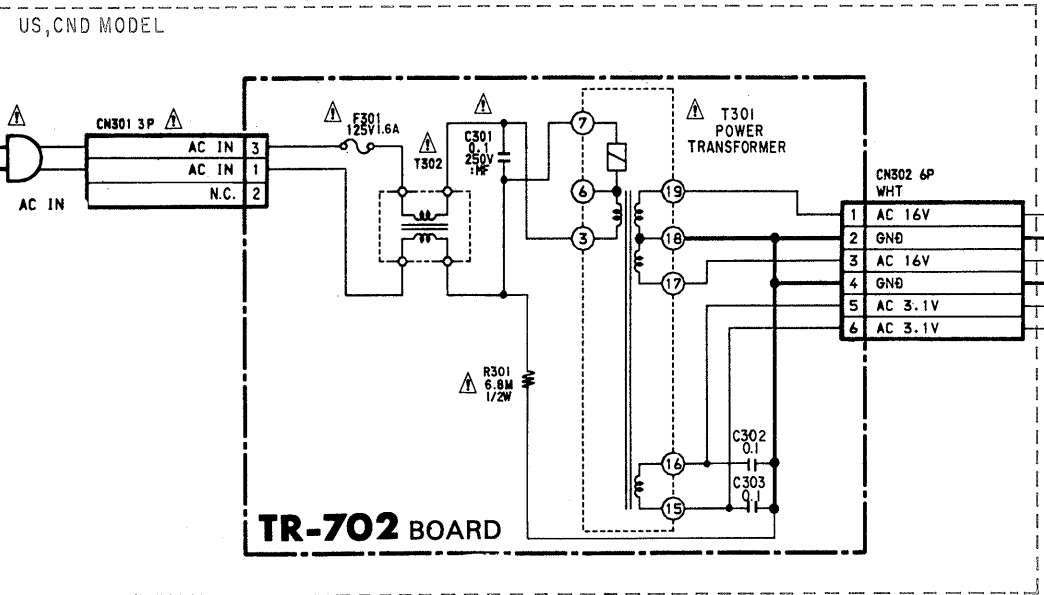
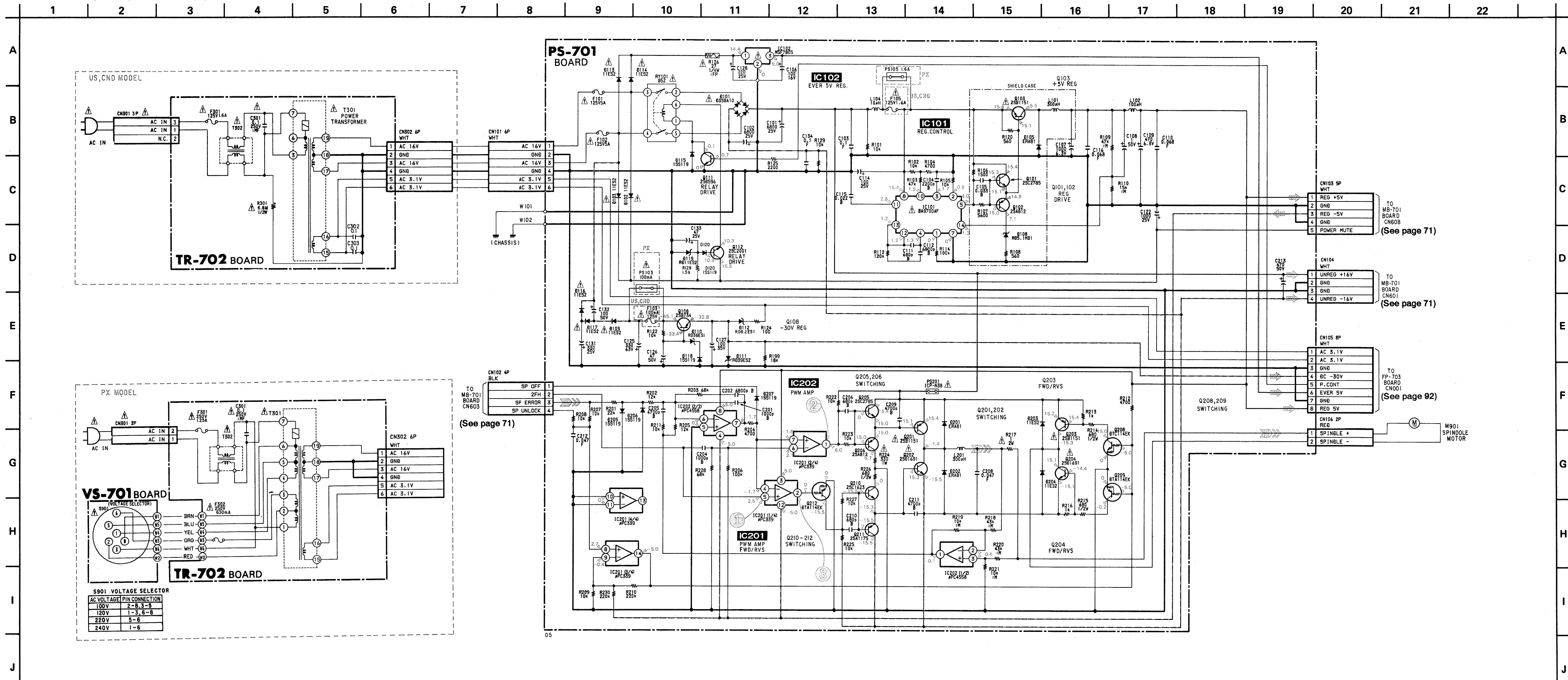
IC202 0.1V/10 μs



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	▶▶▶▶▶▶

PS-701 (POWER SUPPLY, SPINDLE SERVO), TR-702 (POWER TRANSFORMER), VS-701 (VOLTAGE SELECTOR) SCHEMATIC DIAGRAM

— Ref. No.: PS-701, TR-702, VS-701 Boards; 7,000 series —



TO MB-701 BOARD CN603 (See page 71)

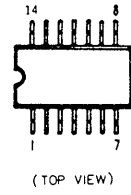
TO MB-701 BOARD CN608 (See page 71)

TO MB-701 BOARD CN601 (See page 71)

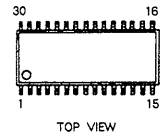
TO FP-703 BOARD CN001 (See page 92)

4-3. SEMICONDUCTORS

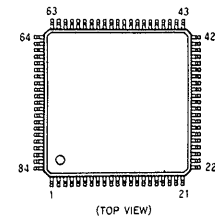
BA9700AF
MC14066BF
μ PC324G2
μ PC339G2



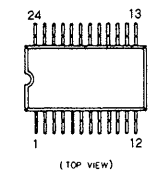
CXA1081M



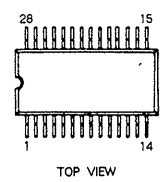
CXA8020Q
CXD8404Q



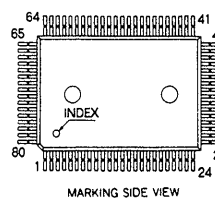
CXD2560M



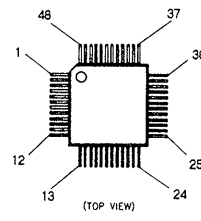
CXD2561BM



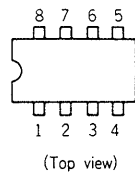
CXD2500AQ
CXP50116-283Q
MB89795-137



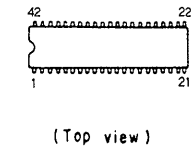
CXD8405Q



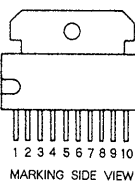
CX20197



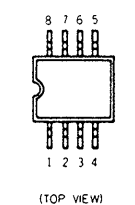
HA11529
PA0034A



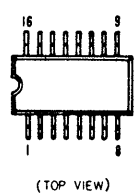
LA6510
TA7291P



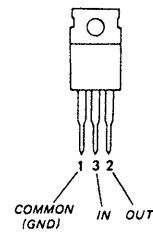
LM324NS
RC4558PS
μ PC4558G2



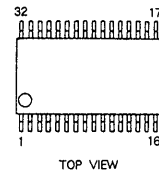
MC14052BF



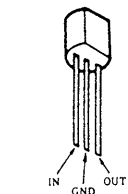
M5F7905L



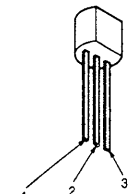
M50455-196FP



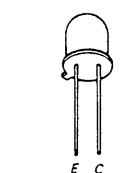
NJM78L08A



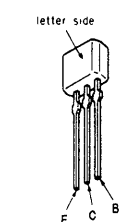
RC79L08A



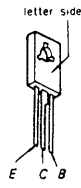
PT360FS



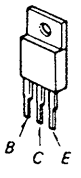
2SA1175-HFE
2SC2785-HFE



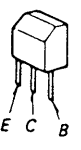
2SB1151-L
2SD1691-K



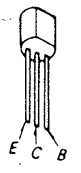
2SB1370-EF
2SD2012



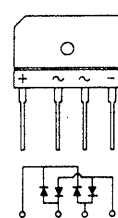
2SB733-34



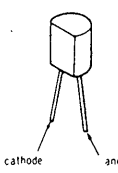
2SB740
2SC2001-LK
2SD655-E



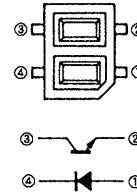
D3SBA10



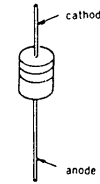
FC52M-5



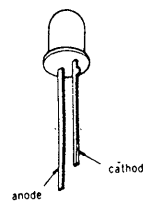
GP-2S09-B



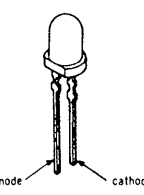
ERA81-006
RD3.9ES-B2
RD8.2ES-B1
RD11ES-B2
RD36ES-B2
RD39ES-B2
1SS119
11ES2



GL-360

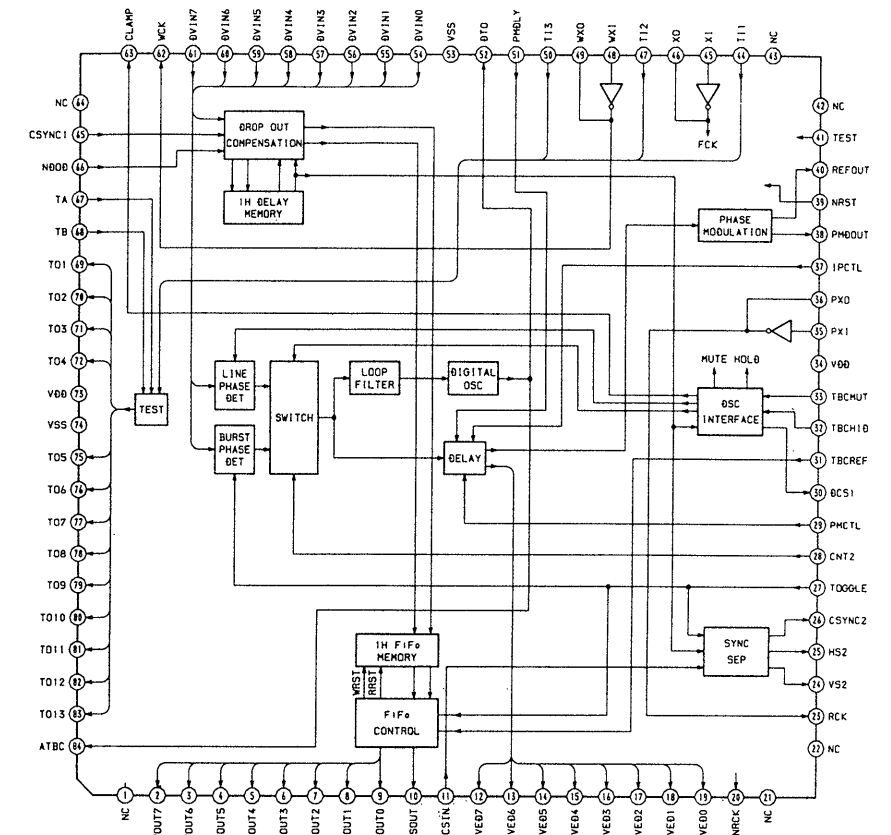


SLR34DC3
SLR34MC3

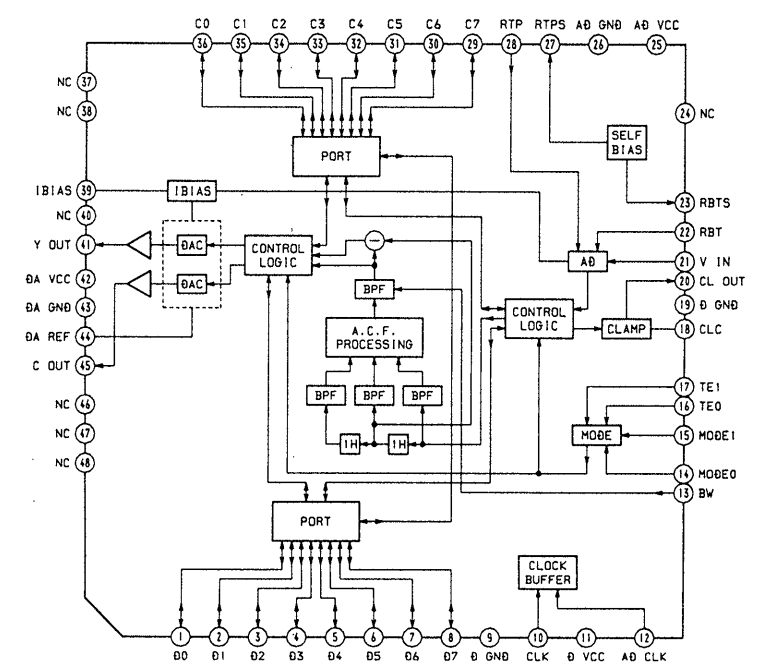


• IC BLOCK DIAGRAMS

CXD8404Q





CXD8405Q




SECTION 5 EXPLODED VIEWS

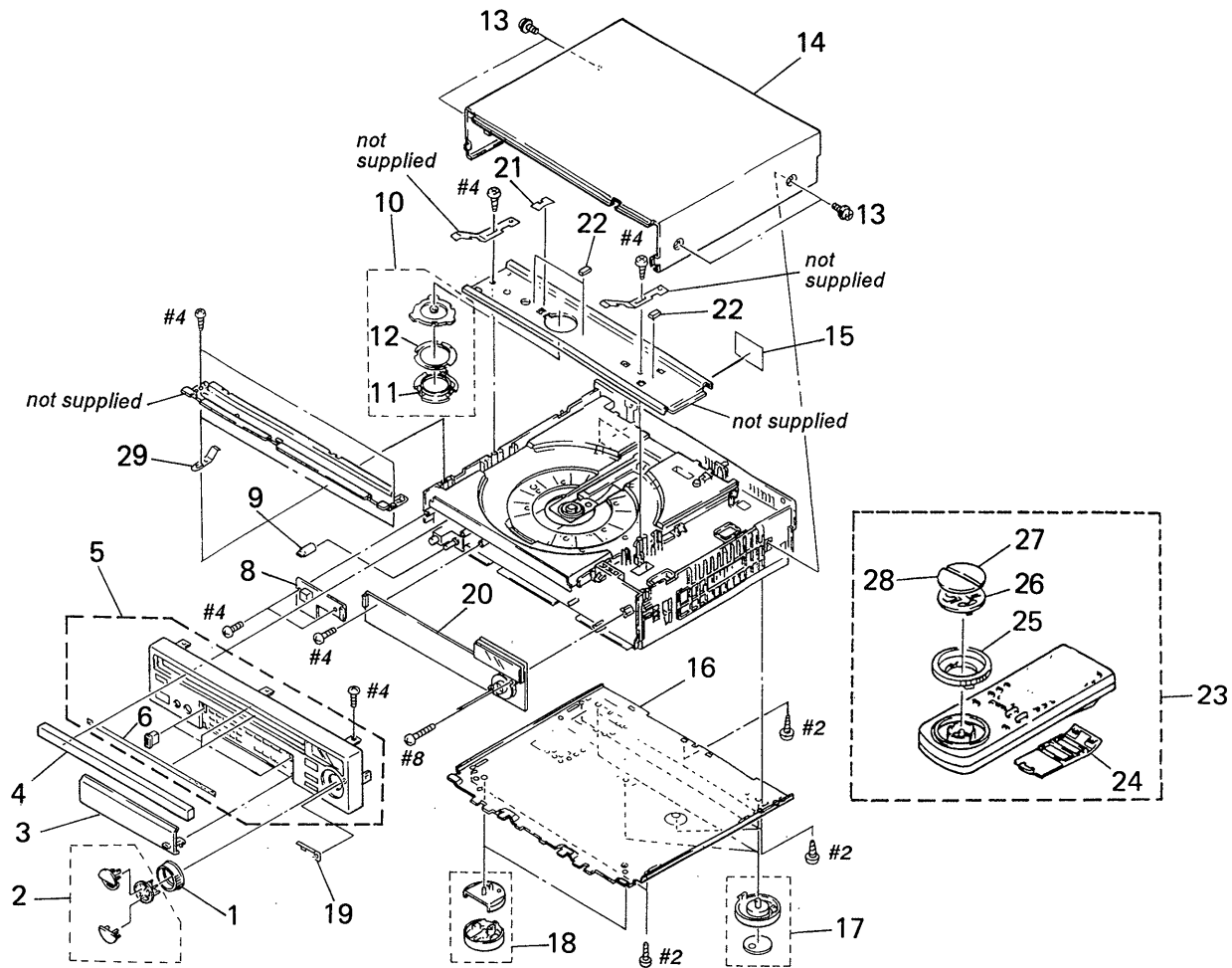
NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
Example:
KNOB, BALANCE (WHITE) . . . (RED)
 ↑ ↑
 Parts Color Cabinet's Color
- 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.
- Abbreviations
CND: Canadian

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

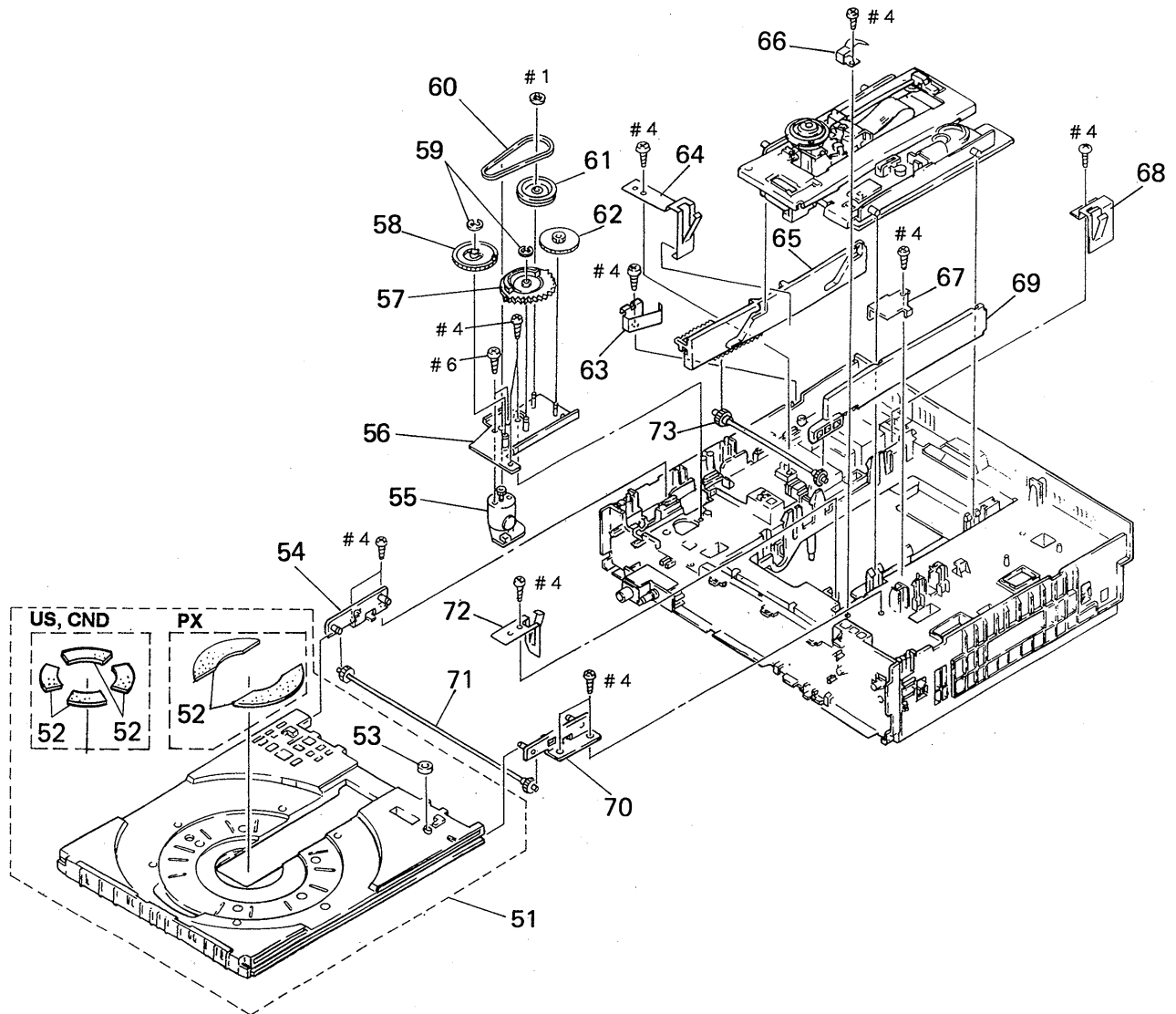
Les composants identifiés par une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

5-1. CABINET, FRONT PANEL ASSEMBLIES



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	3-948-288-01	RING, SHUTTLE (PX)		* 14	3-735-065-01	CASE, UPPER (US, CND)	
1	3-948-288-11	RING, SHUTTLE (US, CND)		* 14	3-735-065-11	CASE, UPPER (PX)	
2	X-3941-573-1	BUTTON ASSY, FUNCTION (PX)		* 15	3-947-799-01	LABEL, MODEL NUMBER (PX)	
2	X-3941-739-1	BUTTON ASSY, FUNCTION (US, CND)		* 15	3-948-310-01	LABEL, MODEL NUMBER (US, CND)	
3	X-3941-571-1	DOOR ASSY (PX)		* 16	X-3941-460-1	PLATE ASSY, BOTTOM	
3	X-3941-746-1	DOOR ASSY (US, CND)		17	X-3941-457-1	FOOT ASSY	
4	3-947-258-01	COVER, TRAY (PX)		18	X-3941-456-1	FOOT ASSY, FRONT (PX)	
4	3-947-258-11	COVER, TRAY (US, CND)		18	X-3941-572-1	FOOT ASSY, FRONT (US, CND)	
5	X-3941-570-1	PANEL ASSY, FRONT (PX)		19	A-6415-481-A	SPRING BLOCK ASSY, CLICK	
5	X-3941-745-1	PANEL ASSY, FRONT (US, CND)		* 20	A-6421-829-A	FP-703 (U58) BOARD, COMPLETE (US, CND)	
6	3-947-248-01	SHEET (2), ACOUSTIC ISOLATION		* 20	A-6421-833-A	FP-703 (PX58) BOARD, COMPLETE (PX)	
* 8	A-6426-525-A	SW-704 (J58) BOARD, COMPLETE (US, CND)		* 21	3-737-454-01	SHEET, HOLDER	
* 8	1-643-903-22	SW-704 BOARD (PX)		22	9-911-842-XX	CUSHION	
9	A-6415-521-A	KNOB BLOCK ASSY (GR) (PX)		23	1-693-095-21	REMOTE COMMANDER (RMT-M12A)	
9	A-6415-522-A	KNOB BLOCK ASSY (BR) (US, CND)		24	3-943-535-01	COVER, BATTERY	
10	X-3735-006-1	PLATE ASSY, PRESS		25	3-941-616-01	RING, SHUTTLE	
11	3-735-010-01	PLATE (1), PRESS		26	3-941-619-01	HOLDER, DIAL	
12	3-735-011-01	SPRING		27	3-941-617-31	BUTTON, PLAYBACK	
13	3-710-901-41	SCREW, TAPPING		28	3-941-618-31	BUTTON, STOP	
				29	3-735-090-01	SPRING	

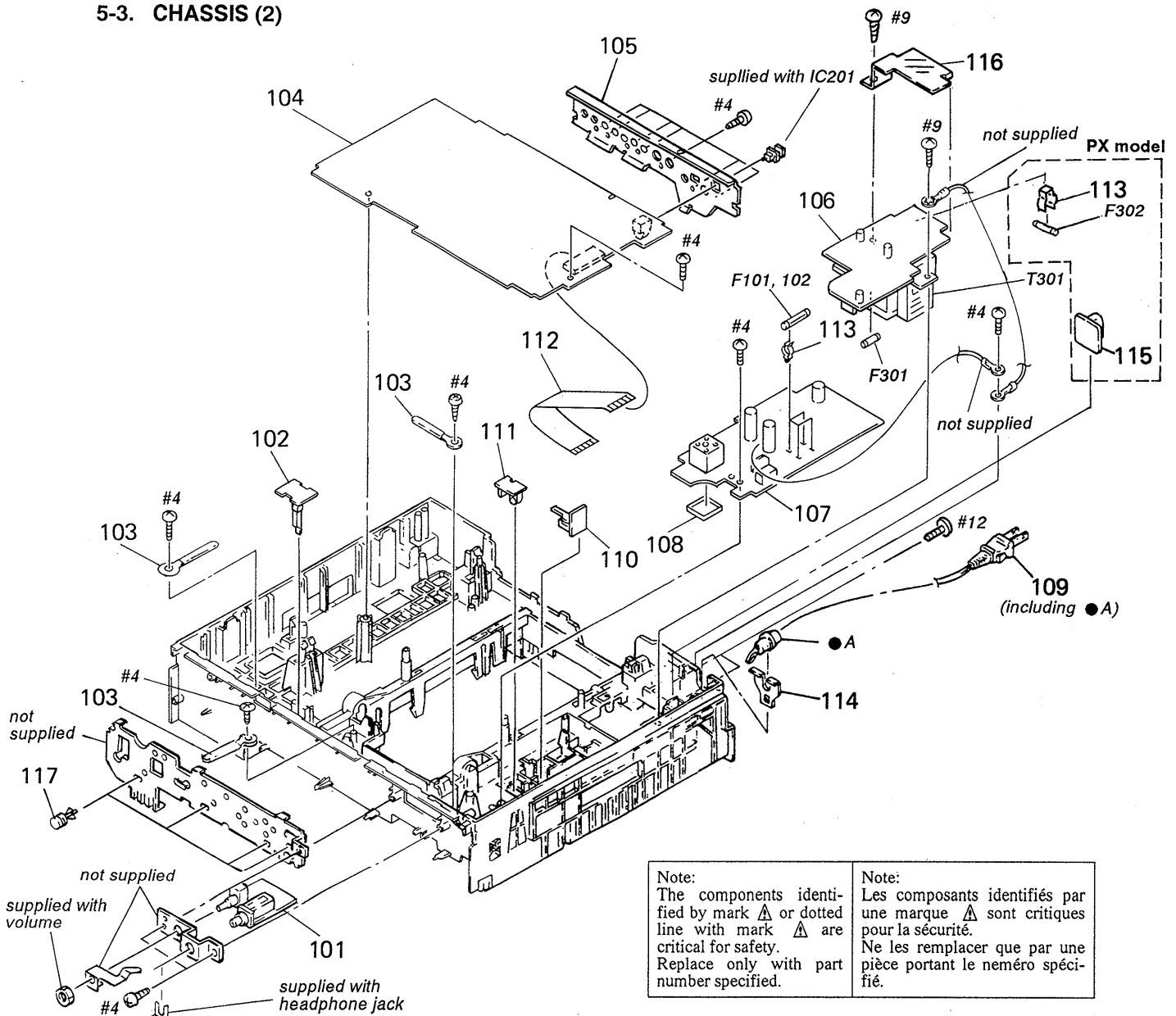
5-2. CHASSIS (1)



Ref. No.	Part No.	Description	Remark
51	X-3735-032-2	TRAY ASSY (PX)	
51	X-3941-660-1	TRAY ASSY (US, CND)	
52	3-735-039-03	SHEET, CD (PX)	
52	3-749-626-01	SHEET, CD (US, CND)	
* 53	4-914-248-01	STOPPER, RUBBER	
54	X-3735-071-1	GUIDE ASSY (L), TRAY	
55	A-6415-359-A	MOTOR BLOCK ASSY (X), THREADING (M904)	
56	X-3941-458-1	THREADING (BASE) ASSY (N)	
57	3-947-264-01	CAM (N), DRIVING	
58	3-735-035-01	GEAR, TRAY	
59	3-669-595-00	WASHER (2), STOPPER	
60	3-949-030-01	BELT, DRIVING	
61	3-735-036-01	PULLEY (A)	

Ref. No.	Part No.	Description	Remark
62	3-947-262-01	GEAR (N), MIDWAY	
63	3-948-289-01	SPRING (2), TRAY	
64	3-737-401-01	SPRING (1)	
65	3-735-053-01	RACK (LEFT)	
66	3-737-448-01	SPRING, LEAF	
* 67	3-749-912-01	RETAINER (B), RACK	
68	3-947-254-01	SPRING (3), MD RETAINER	
69	3-735-052-01	RACK (RIGHT)	
70	X-3735-070-1	GUIDE ASSY (R), TRAY	
71	X-3735-069-1	GEAR ASSY, PHASE	
72	3-737-402-01	SPRING (2)	
73	X-3735-008-1	GEAR ASSY, MD PHASE	

5-3. CHASSIS (2)

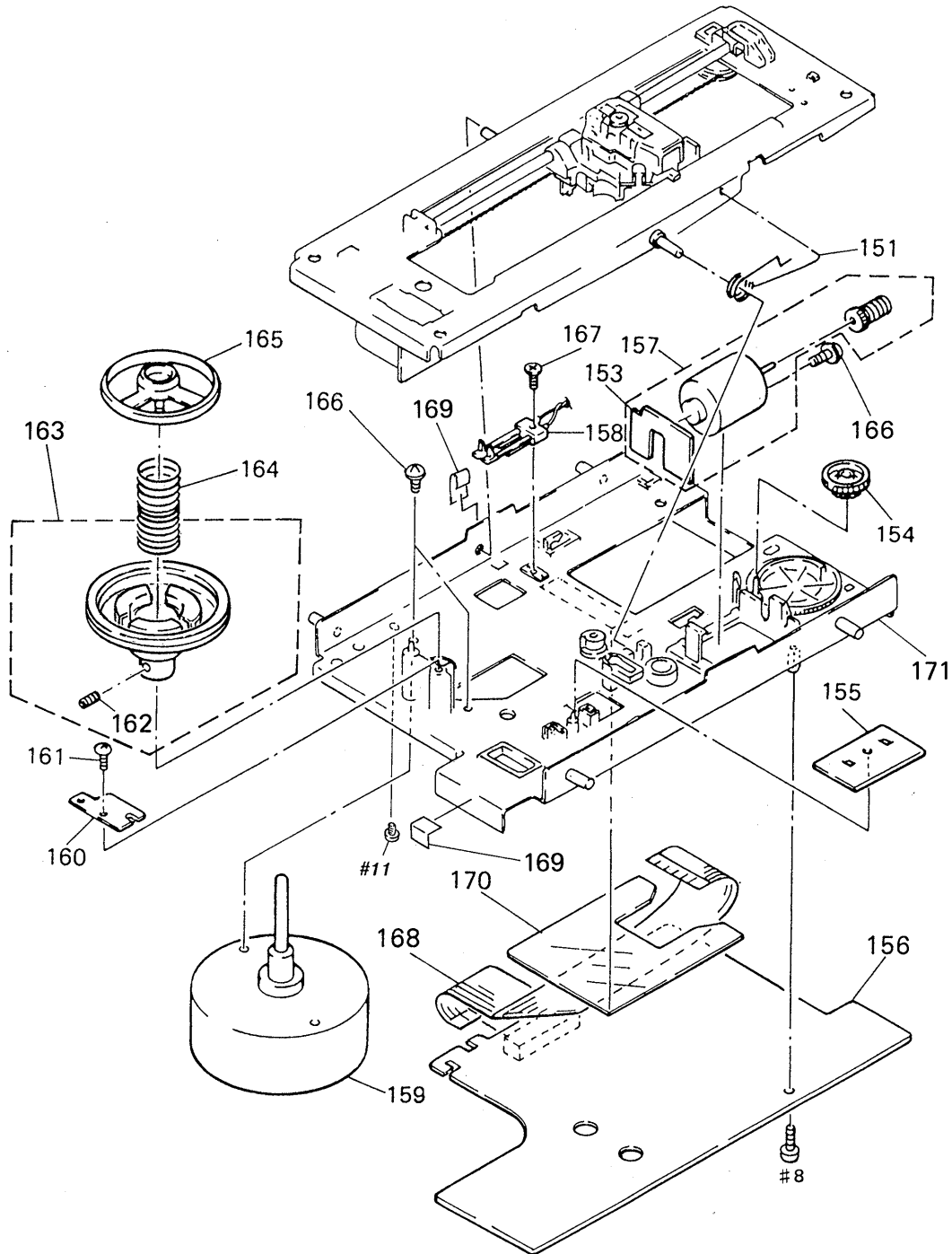


<p>Note: The components identified by mark ▲ or dotted line with mark ▲ are critical for safety. Replace only with part number specified.</p>	<p>Note: Les composants identifiés par une marque ▲ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.</p>
---	---

Ref. No.	Part No.	Description	Remark
* 101	1-643-904-11	HP-702 (U58) BOARD (US, CND)	
* 101	1-643-904-21	HP-702 (PX58) BOARD (PX)	
* 102	1-643-907-12	SW-706 BOARD (US, CND)	
* 102	1-643-907-22	SW-706 BOARD (PX)	
	103	3-703-150-11	STOPPER, WIRING
* 104	A-6421-830-A	MB-701 (U58) BOARD, COMPLETE	
	105	3-947-255-21	PLATE, JACK, MZ
* 106	1-643-906-12	TR-702 BOARD (US, CND)	
* 106	1-643-906-22	TR-702 BOARD (PX)	
* 107	A-6421-787-A	PS-701 (J58) BOARD, COMPLETE (US, CND)	
* 107	A-6421-794-A	PS-701 (E58) BOARD, COMPLETE (PX)	
* 108	X-3940-915-1	SHIELD ASSY (2), PS LID	
▲109	1-559-129-71	CORD, POWER (US, CND)	
▲109	1-575-912-21	CORD, POWER (PX)	
* 110	1-643-908-12	SW-707 BOARD (US, CND)	
* 110	1-643-908-22	SW-707 BOARD (PX)	

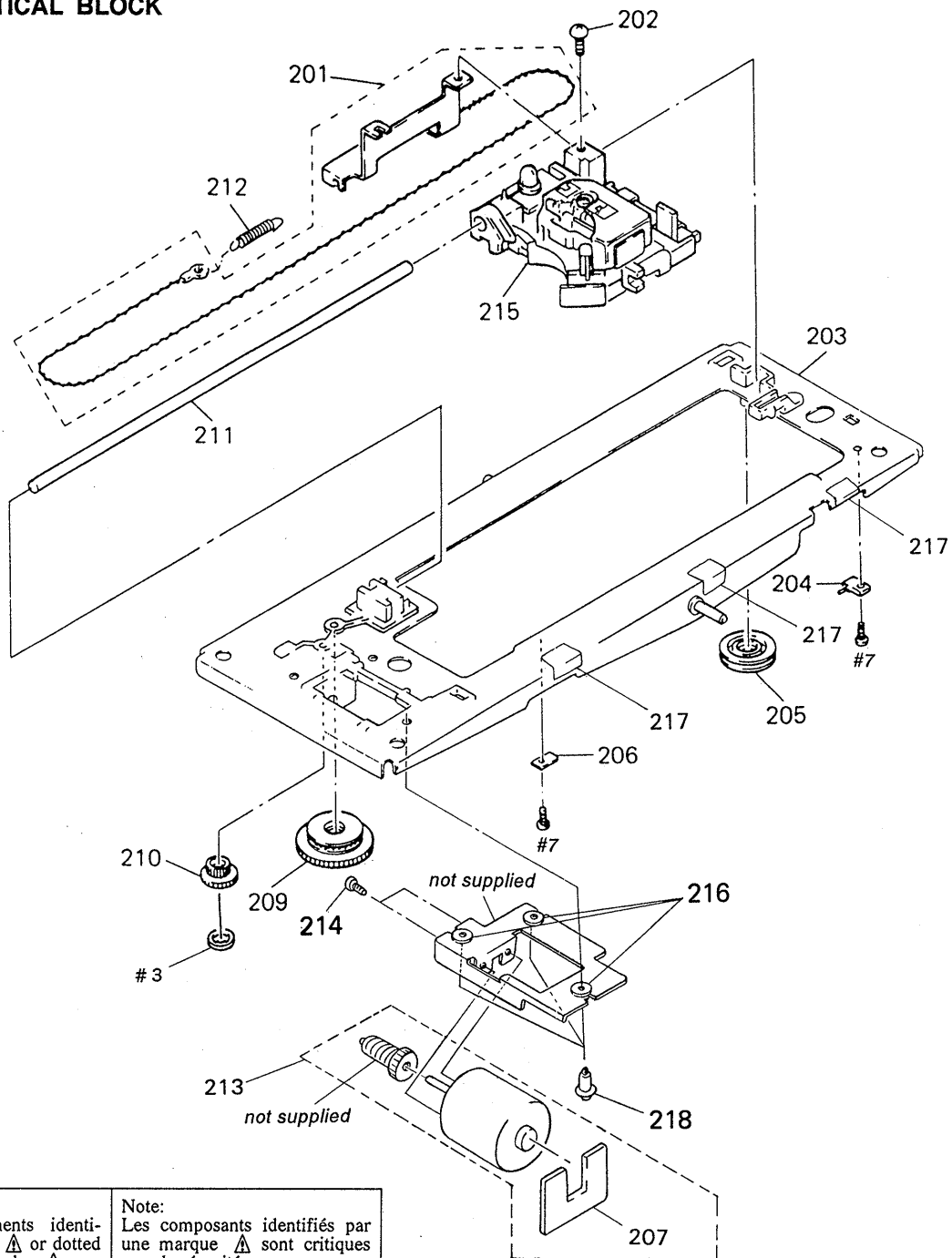
Ref. No.	Part No.	Description	Remark
* 111	1-643-909-12	LS-702 BOARD (US, CND)	
* 111	1-643-909-22	LS-702 BOARD (PX)	
* 112	1-696-664-11	WIRE, FLAT (28 CORE)	
▲113	1-533-189-11	HOLDER, FUSE	
* 114	3-737-438-01	BRACKET, AC CORD	
▲115	1-644-141-22	VS-701 BOARD (PX)	
	116	3-746-543-01	COVER, TRANSFORMER
	117	3-696-090-11	RIVET, NYLON
▲F101	1-532-299-00	FUSE, TIME-LAG (5A 250V) (PX)	
▲F101	1-532-747-11	FUSE, GLASS TUBE (5A 125V) (US, CND)	
▲F102	1-532-299-00	FUSE, TIME-LAG (5A 250V) (PX)	
▲F102	1-532-747-11	FUSE, GLASS TUBE (5A 125V) (US, CND)	
▲F301	1-532-285-00	FUSE, TIME-LAG (1.25A 250V) (PX)	
▲F301	1-532-742-11	FUSE, GLASS TUBE (1.6A 125V) (US, CND)	
▲F302	1-532-284-00	FUSE, TIME-LAG (0.63A 250V) (PX)	
▲T301	1-450-972-11	TRANSFORMER, POWER (PX)	
▲T301	1-450-973-11	TRANSFORMER, POWER (US, CND)	

5-4. MD CHASSIS



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
151	3-735-021-01	SPRING, TORSION		163	X-3735-003-1	TURNTABLE ASSY	
* 153	1-631-095-11	MT-30 BOARD		163	3-701-506-01	SET SCREW, DOUBLE POINT 3X4	
154	3-735-025-01	GEAR, SKEW		* 164	3-735-026-01	SPRING, COMPRESSION	
* 155	1-635-255-11	CK-44 BOARD		165	X-2625-077-1	GUIDE ASSY, CENTER	
* 156	A-6421-465-A	SV-63 BOARD, COMPLETE		166	4-606-833-01	SCREW (3X5), + PSW	
157	A-6415-290-A	MOTOR BLOCK ASSY, SKEW (M903)		167	3-899-248-01	SCREW (M3X6)	
158	1-554-468-00	SWITCH, LEAF (SLED IN LIMIT LD/CD) (S903)		168	1-574-648-11	CABLE, FLEXIBLE FLAT (24 CORE)	
159	1-541-776-21	MOTOR, LD SPINDLE (M901)		* 169	3-737-413-01	SHEET, TEFLON	
* 160	1-635-256-11	FG-41 BOARD		* 170	3-735-099-01	SHEET, FLEXIBLE RETAINER	
161	3-719-845-11	SCREW (B2X8), TAPPING		* 171	3-735-068-15	CHASSIS, MD	

5-5. OPTICAL BLOCK



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

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

Ref. No.	Part No.	Description	Remark
201	X-3735-001-1	WIRE ASSY	
202	3-899-248-01	SCREW (M3X6)	
* 203	X-3940-657-1	CHASSIS ASSY	
204	1-570-771-21	SWITCH (SLED OUT LIMIT) (S902)	
205	3-735-017-01	PULLEY, RETURN	
206	1-571-435-11	SWITCH (SLED IN LIMIT) (S901)	
* 207	1-630-097-11	MT-28 BOARD	
209	3-735-016-01	PULLEY, DRIVING	
210	3-735-015-01	GEAR, CARRIAGE	

Ref. No.	Part No.	Description	Remark
* 211	3-735-020-01	SHAFT, CARRIAGE	
212	3-672-430-00	SPRING, TENSION	
213	A-6415-434-A	MOTOR BLOCK ASSY, SLED (M902)	
214	3-949-324-01	SCREW (3X4), +PSW	
▲215	8-848-138-11	DEVICE, OPTICAL KHS-130A	
216	3-570-118-00	CUSHION, MOTOR	
217	3-846-312-00	SPACER	
218	3-570-027-00	SCREW, MOTOR	

SECTION 6 ELECTRICAL PARTS LIST

CK-44

FG-41

FP-703

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
- Abbreviations
CND: Canadian

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

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

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

Ref. No.	Part No.	Description	Remark
*	1-635-255-11	CK-44 BOARD *****	
		< CAPACITOR >	
C401	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C402	1-163-038-00	CERAMIC CHIP 0.1uF	25V
		< CONNECTOR >	
CN401	1-506-467-11	PIN, CONNECTOR 2P	
CN402	1-506-468-11	PIN, CONNECTOR 3P	
CN403	1-506-467-11	PIN, CONNECTOR 2P	
CN404	1-506-467-11	PIN, CONNECTOR 2P	
CN405	1-506-467-11	PIN, CONNECTOR 2P	
		< JUMPER RESISTOR >	
JR401	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR402	1-216-296-00	METAL CHIP 0 5% 1/8W	
		< RESISTOR >	
R401	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R402	1-216-031-00	METAL CHIP 180 5% 1/10W	
R403	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R404	1-216-001-00	METAL CHIP 10 5% 1/10W	
R405	1-216-001-00	METAL CHIP 10 5% 1/10W	
R406	1-216-031-00	METAL CHIP 180 5% 1/10W	
R407	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	

*	1-635-256-11	FG-41 BOARD *****	
		< DIODE >	
D301	8-719-939-11	DIODE GP-2S09-B	

Ref. No.	Part No.	Description	Remark
*	A-6421-829-A	FP-703 (U58) BOARD, COMPLETE (US, CND) *****	
*	A-6421-833-A	FP-703 (PX58) BOARD, COMPLETE (PX) *****	
		< CAPACITOR >	
*	3-947-249-01	HOLDER, FL	
*	3-949-760-01	SPACER (2), LCD	
		< CAPACITOR >	
C002	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C003	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C004	1-126-157-11	ELECT 10uF	20% 16V
C005	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C006	1-126-157-11	ELECT 10uF	20% 16V
C007	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C008	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C009	1-164-232-11	CERAMIC CHIP 0.01uF	50V
		< CONNECTOR >	
CN001	1-506-487-11	PIN, CONNECTOR 8P	
CN002	1-506-477-11	PIN, CONNECTOR 12P	
CN003	1-569-336-11	CONNECTOR, BOARD TO BOARD 7P	
		< DIODE >	
D001	8-719-400-18	DIODE MA152WK	
D002	8-719-946-30	LED SLR34DC3	
D003	8-719-946-30	LED SLR34DC3	
D004	8-719-946-30	LED SLR34DC3	
D005	8-719-946-30	LED SLR34DC3	
D007	8-719-940-82	LED SLR34MC3	
		< IC >	
IC001	8-752-834-95	IC CXP50116-283Q	
IC002	8-759-074-40	IC PST572DMT	
		< JUMPER RESISTOR >	
JR003	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR004	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR005	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR006	1-216-296-00	METAL CHIP 0 5% 1/8W	

Ref. No.	Part No.	Description	Remark		
JR007	1-216-295-00	METAL CHIP	0	5%	1/10W
JR008	1-216-296-00	METAL CHIP	0	5%	1/8W
JR009	1-216-296-00	METAL CHIP	0	5%	1/8W
JR010	1-216-296-00	METAL CHIP	0	5%	1/8W
JR011	1-216-296-00	METAL CHIP	0	5%	1/8W
JR012	1-216-296-00	METAL CHIP	0	5%	1/8W
JR013	1-216-296-00	METAL CHIP	0	5%	1/8W
JR014	1-216-296-00	METAL CHIP	0	5%	1/8W
JR015	1-216-296-00	METAL CHIP	0	5%	1/8W
JR016	1-216-295-00	METAL CHIP	0	5%	1/10W
JR017	1-216-296-00	METAL CHIP	0	5%	1/8W
JR018	1-216-296-00	METAL CHIP	0	5%	1/8W
JR019	1-216-296-00	METAL CHIP	0	5%	1/8W
JR020	1-216-296-00	METAL CHIP	0	5%	1/8W
JR021	1-216-296-00	METAL CHIP	0	5%	1/8W
JR022	1-216-296-00	METAL CHIP	0	5%	1/8W
JR023	1-216-296-00	METAL CHIP	0	5%	1/8W
JR024	1-216-296-00	METAL CHIP	0	5%	1/8W
JR025	1-216-296-00	METAL CHIP	0	5%	1/8W
JR026	1-216-296-00	METAL CHIP	0	5%	1/8W
JR027	1-216-296-00	METAL CHIP	0	5%	1/8W
JR028	1-216-296-00	METAL CHIP	0	5%	1/8W
JR029	1-216-295-00	METAL CHIP	0	5%	1/10W
JR030	1-216-295-00	METAL CHIP	0	5%	1/10W
JR031	1-216-296-00	METAL CHIP	0	5%	1/8W
JR032	1-216-295-00	METAL CHIP	0	5%	1/10W
JR033	1-216-296-00	METAL CHIP	0	5%	1/8W
JR034	1-216-296-00	METAL CHIP	0	5%	1/8W
JR035	1-216-295-00	METAL CHIP	0	5%	1/10W
JR036	1-216-296-00	METAL CHIP	0	5%	1/8W
JR037	1-216-295-00	METAL CHIP	0	5%	1/10W
JR038	1-216-296-00	METAL CHIP	0	5%	1/8W
JR039	1-216-296-00	METAL CHIP	0	5%	1/8W
JR040	1-216-295-00	METAL CHIP	0	5%	1/10W
JR050	1-216-295-00	METAL CHIP	0	5%	1/10W(US, CND)
< COIL >					
L001	1-410-521-11	INDUCTOR 100uH			
< FLUORESCENT INDICATOR >					
ND001	1-519-652-11	INDICATOR TUBE, FLUORESCENT			
< TRANSISTOR >					
Q001	8-729-901-01	TRANSISTOR	DTC144EK		
Q002	8-729-901-01	TRANSISTOR	DTC144EK		
Q003	8-729-900-51	TRANSISTOR	DTA114TK		
Q004	8-729-900-51	TRANSISTOR	DTA114TK		
Q005	8-729-900-51	TRANSISTOR	DTA114TK		

Ref. No.	Part No.	Description	Remark		
Q006	8-729-900-51	TRANSISTOR	DTA114TK		
Q008	8-729-900-51	TRANSISTOR	DTA114TK		
Q010	8-729-901-06	TRANSISTOR	DTA144EK		
< RESISTOR >					
R001	1-216-121-00	METAL CHIP	1M	5%	1/10W
R002	1-216-222-00	METAL GLAZE	10K	5%	1/8W
R003	1-216-222-00	METAL GLAZE	10K	5%	1/8W
R004	1-216-222-00	METAL GLAZE	10K	5%	1/8W
R005	1-216-073-00	METAL CHIP	10K	5%	1/10W
R006	1-216-073-00	METAL CHIP	10K	5%	1/10W
R007	1-216-079-00	METAL CHIP	18K	5%	1/10W
R008	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R009	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R010	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R011	1-216-073-00	METAL CHIP	10K	5%	1/10W
R012	1-216-073-00	METAL CHIP	10K	5%	1/10W
R013	1-216-073-00	METAL CHIP	10K	5%	1/10W
R014	1-216-079-00	METAL CHIP	18K	5%	1/10W
R015	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R016	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R017	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R018	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R019	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R020	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R021	1-216-079-00	METAL CHIP	18K	5%	1/10W
R022	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R023	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R024	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R025	1-216-073-00	METAL CHIP	10K	5%	1/10W
R026	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R027	1-216-073-00	METAL CHIP	10K	5%	1/10W
R028	1-216-073-00	METAL CHIP	10K	5%	1/10W
R029	1-216-246-00	METAL GLAZE	100K	5%	1/8W
R030	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R031	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R032	1-216-073-00	METAL CHIP	10K	5%	1/10W
R033	1-216-097-00	METAL CHIP	100K	5%	1/10W
R034	1-216-079-00	METAL CHIP	18K	5%	1/10W
R035	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R036	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R037	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R038	1-216-073-00	METAL CHIP	10K	5%	1/10W
R039	1-216-073-00	METAL CHIP	10K	5%	1/10W
R040	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R041	1-216-033-00	METAL CHIP	220	5%	1/10W
R042	1-216-033-00	METAL CHIP	220	5%	1/10W
R043	1-216-033-00	METAL CHIP	220	5%	1/10W
R044	1-216-033-00	METAL CHIP	220	5%	1/10W

Ref. No.	Part No.	Description	Remark
R045	1-216-025-00	METAL CHIP	100 5% 1/10W
R046	1-216-049-00	METAL CHIP	1K 5% 1/10W
R048	1-216-033-00	METAL CHIP	220 5% 1/10W
R049	1-216-063-00	METAL CHIP	3.9K 5% 1/10W
R050	1-216-069-00	METAL CHIP	6.8K 5% 1/10W
R051	1-216-079-00	METAL CHIP	18K 5% 1/10W
R052	1-216-073-00	METAL CHIP	10K 5% 1/10W
R053	1-216-025-00	METAL CHIP	100 5% 1/10W
R054	1-216-073-00	METAL CHIP	10K 5% 1/10W (PX)
R091	1-216-295-00	METAL CHIP	0 5% 1/10W (US, CND)
R093	1-216-295-00	METAL CHIP	0 5% 1/10W (PX)
< SWITCH >			
S001	1-572-946-11	SWITCH, TACTIL (RESET)	
S002	1-572-662-41	SWITCH, ROTARY (PLAY/PAUSE/CLEARSCAN)	
S003	1-572-946-11	SWITCH, TACTIL (1)	
S004	1-572-946-11	SWITCH, TACTIL (2)	
S005	1-572-946-11	SWITCH, TACTIL (3)	
S006	1-572-946-11	SWITCH, TACTIL (4)	
S007	1-572-946-11	SWITCH, TACTIL (5)	
S008	1-572-946-11	SWITCH, TACTIL (6)	
S009	1-572-946-11	SWITCH, TACTIL (7)	
S010	1-572-946-11	SWITCH, TACTIL (8)	
S011	1-572-946-11	SWITCH, TACTIL (9)	
S012	1-572-946-11	SWITCH, TACTIL (0)	
S013	1-572-946-11	SWITCH, TACTIL (OPEN/CLOSE)	
S014	1-572-946-11	SWITCH, TACTIL (STOP)	
S015	1-572-946-11	SWITCH, TACTIL (+10)	
S016	1-572-946-11	SWITCH, TACTIL (FILE)	
S017	1-572-946-11	SWITCH, TACTIL (CUSTOM INDEX)	
S018	1-572-946-11	SWITCH, TACTIL (FRAME/TIME)	
S019	1-572-946-11	SWITCH, TACTIL (SEARCH)	
S020	1-572-946-11	SWITCH, TACTIL (ACS/AMS: ⏪)	
S021	1-572-946-11	SWITCH, TACTIL (ACS/AMS: ⏩)	
S022	1-572-946-11	SWITCH, TACTIL (PICTURE ENHANCE)	
S023	1-572-946-11	SWITCH, TACTIL (PICTURE DIRECT)	
S024	1-572-946-11	SWITCH, TACTIL (AUTO PGM)	
S025	1-572-946-11	SWITCH, TACTIL (PGM)	
S026	1-572-946-11	SWITCH, TACTIL (AV TIME)	
S027	1-572-946-11	SWITCH, TACTIL (CLEAR)	
S028	1-572-946-11	SWITCH, TACTIL (NEXT)	
S029	1-572-946-11	SWITCH, TACTIL (BACK)	
S030	1-572-946-11	SWITCH, TACTIL (MEMORY PLAY)	
< VIBRATOR >			
X001	1-577-359-21	VIBRATOR, CERAMIC (4.19MHz)	

Ref. No.	Part No.	Description	Remark
*	1-643-904-11	HP-702 BOARD (US, CND)	

*	1-643-904-21	HP-702 BOARD (PX)	

< CAPACITOR >			
C801	1-163-033-00	CERAMIC CHIP 0.022uF	50V
< CONNECTOR >			
CN801	1-506-468-11	PIN, CONNECTOR 3P	
< FILTER >			
FL801	1-236-744-21	FILTER, EMI	
< JACK >			
J801	1-507-796-71	JACK (HEADPHONES)	
< JUMPER RESISTOR >			
JR802	1-216-296-00	METAL CHIP 0 5% 1/8W	
< RESISTOR >			
R801	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R802	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R803	1-216-013-00	METAL CHIP 33 5% 1/10W	
R804	1-216-013-00	METAL CHIP 33 5% 1/10W	
< VARIABLE RESISTOR >			
RV801	1-241-139-11	RES, VAR, CARBON 500/500 (LEVEL)	

*	1-643-909-12	LS-702 BOARD (US, CND)	

*	1-643-909-22	LS-702 BOARD (PX)	

3-947-260-01 HOLDER, SENSOR			
< CONNECTOR >			
CN501	1-506-468-11	PIN, CONNECTOR 3P	
< DIODE >			
D501	8-719-941-81	DIODE GL360	
< TRANSISTOR >			
Q501	8-729-904-10	TRANSISTOR PT-360FS	

MB-701

Ref.No.	Part No.	Description	Remark
*	A-6421-830-A	MB-701 (U58) BOARD, COMPLETE *****	
*	3-947-805-01	PLATE, GROUND, JACK	
	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
		< CAPACITOR >	
C001	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C002	1-164-346-11	CERAMIC CHIP 1uF	16V
C003	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C004	1-163-113-00	CERAMIC CHIP 68PF	5% 50V
C005	1-126-154-11	ELECT 47uF	20% 6.3V
C006	1-163-122-00	CERAMIC CHIP 160PF	5% 50V
C008	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C009	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C010	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C011	1-124-584-00	ELECT 100uF	20% 10V
C012	1-124-584-00	ELECT 100uF	20% 10V
C013	1-124-584-00	ELECT 100uF	20% 10V
C014	1-163-107-00	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
C018	1-124-584-00	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	1-124-261-00	ELECT 10uF	20% 50V
C022	1-124-261-00	ELECT 10uF	20% 50V
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
C029	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C030	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C031	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C032	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C033	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	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C038	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C039	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C040	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C041	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C042	1-124-584-00	ELECT 100uF	20% 10V
C043	1-126-160-11	ELECT 1uF	20% 50V
C044	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C045	1-126-160-11	ELECT 1uF	20% 50V

Ref.No.	Part No.	Description	Remark
C046	1-124-584-00	ELECT 100uF	20% 10V
C047	1-216-295-00	METAL CHIP 0	5% 1/10W
C048	1-163-096-00	CERAMIC CHIP 13PF	5% 50V
C049	1-124-584-00	ELECT 100uF	20% 10V
C050	1-163-093-00	CERAMIC CHIP 10PF	5% 50V
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	1-163-103-00	CERAMIC CHIP 27PF	5% 50V
C055	1-163-109-00	CERAMIC CHIP 47PF	5% 50V
C056	1-163-234-11	CERAMIC CHIP 20PF	5% 50V
C057	1-126-154-11	ELECT 47uF	20% 6.3V
C058	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C059	1-124-261-00	ELECT 10uF	20% 50V
C060	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C061	1-124-584-00	ELECT 100uF	20% 10V
C062	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C064	1-124-584-00	ELECT 100uF	20% 10V
C065	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C066	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C068	1-163-099-00	CERAMIC CHIP 18PF	5% 50V
C069	1-124-443-00	ELECT 100uF	20% 10V
C071	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C072	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C073	1-124-584-00	ELECT 100uF	20% 10V
C074	1-124-443-00	ELECT 100uF	20% 10V
C075	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C076	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C077	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C078	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C079	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C080	1-124-443-00	ELECT 100uF	20% 10V
C081	1-124-443-00	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	1-124-443-00	ELECT 100uF	20% 10V
C085	1-163-103-00	CERAMIC CHIP 27PF	5% 50V
C086	1-163-103-00	CERAMIC CHIP 27PF	5% 50V
C087	1-163-099-00	CERAMIC CHIP 18PF	5% 50V
C088	1-164-346-11	CERAMIC CHIP 1uF	16V
C089	1-163-112-00	CERAMIC CHIP 62PF	5% 50V
C090	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C091	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C092	1-124-584-00	ELECT 100uF	20% 10V
C093	1-163-038-00	CERAMIC CHIP 0.1uF	25V
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

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C099	1-126-154-11	ELECT	47uF 20% 6.3V	C202	1-124-499-11	ELECT, NONPOLAR R 1uF	20% 50V
C100	1-163-235-11	CERAMIC CHIP	22PF 5% 50V	C203	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C101	1-163-038-00	CERAMIC CHIP	0.1uF 25V	C204	1-124-126-00	ELECT	47uF 20% 10V
C102	1-126-154-11	ELECT	47uF 20% 6.3V	C205	1-124-927-11	ELECT	4.7uF 20% 100V
C105	1-126-154-11	ELECT	47uF 20% 6.3V	C206	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C106	1-126-154-11	ELECT	47uF 20% 6.3V	C207	1-126-154-11	ELECT	47uF 20% 6.3V
C107	1-126-154-11	ELECT	47uF 20% 6.3V	C208	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C109	1-163-031-11	CERAMIC CHIP	0.01uF 50V	C209	1-164-232-11	CERAMIC CHIP	0.01uF 50V
C111	1-163-031-11	CERAMIC CHIP	0.01uF 50V	C210	1-126-154-11	ELECT	47uF 20% 6.3V
C112	1-163-038-00	CERAMIC CHIP	0.1uF 25V	C211	1-163-113-00	CERAMIC CHIP	68PF 5% 50V
C113	1-163-038-00	CERAMIC CHIP	0.1uF 25V	C212	1-163-113-00	CERAMIC CHIP	68PF 5% 50V
C114	1-163-031-11	CERAMIC CHIP	0.01uF 50V	C213	1-124-927-11	ELECT	4.7uF 20% 100V
C115	1-164-005-11	CERAMIC CHIP	0.47uF 25V	C214	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C116	1-163-038-00	CERAMIC CHIP	0.1uF 25V	C215	1-124-443-00	ELECT	100uF 20% 10V
C117	1-163-038-00	CERAMIC CHIP	0.1uF 25V	C217	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C118	1-124-443-00	ELECT	100uF 20% 10V	C218	1-124-126-00	ELECT	47uF 20% 10V
C121	1-163-038-00	CERAMIC CHIP	0.1uF 25V	C219	1-124-126-00	ELECT	47uF 20% 10V
C122	1-163-038-00	CERAMIC CHIP	0.1uF 25V	C221	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C133	1-163-038-00	CERAMIC CHIP	0.1uF 25V	C223	1-124-126-00	ELECT	47uF 20% 10V
C134	1-163-038-00	CERAMIC CHIP	0.1uF 25V	C225	1-124-927-11	ELECT	4.7uF 20% 100V
C135	1-163-038-00	CERAMIC CHIP	0.1uF 25V	C226	1-163-107-00	CERAMIC CHIP	39PF 5% 50V
C136	1-163-101-00	CERAMIC CHIP	22PF 5% 50V	C227	1-124-927-11	ELECT	4.7uF 20% 100V
C137	1-163-103-00	CERAMIC CHIP	27PF 5% 50V	C228	1-163-017-00	CERAMIC CHIP	0.0047uF 5% 50V
C138	1-163-095-00	CERAMIC CHIP	12PF 5% 50V	C229	1-124-927-11	ELECT	4.7uF 20% 100V
C139	1-163-038-00	CERAMIC CHIP	0.1uF 25V	C230	1-163-143-00	CERAMIC CHIP	0.0012uF 5% 50V
C140	1-163-038-00	CERAMIC CHIP	0.1uF 25V	C232	1-163-115-00	CERAMIC CHIP	82PF 5% 50V
C141	1-163-038-00	CERAMIC CHIP	0.1uF 25V	C235	1-124-927-11	ELECT	4.7uF 20% 100V
C142	1-163-038-00	CERAMIC CHIP	0.1uF 25V	C236	1-163-107-00	CERAMIC CHIP	39PF 5% 50V
C143	1-163-038-00	CERAMIC CHIP	0.1uF 25V	C237	1-124-126-00	ELECT	47uF 20% 10V
C144	1-163-038-00	CERAMIC CHIP	0.1uF 25V	C238	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C151	1-163-038-00	CERAMIC CHIP	0.1uF 25V	C240	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C152	1-124-257-00	ELECT	2.2uF 20% 50V	C241	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C153	1-124-261-00	ELECT	10uF 20% 50V	C243	1-163-107-00	CERAMIC CHIP	39PF 5% 50V
C155	1-163-097-00	CERAMIC CHIP	15PF 5% 50V	C245	1-124-126-00	ELECT	47uF 20% 10V
C156	1-163-097-00	CERAMIC CHIP	15PF 5% 50V	C246	1-124-126-00	ELECT	47uF 20% 10V
C157	1-164-005-11	CERAMIC CHIP	0.47uF 25V	C247	1-163-019-00	CERAMIC CHIP	0.0068uF 10% 50V
C158	1-164-232-11	CERAMIC CHIP	0.01uF 50V	C248	1-164-699-11	CERAMIC CHIP	0.0033uF 5% 50V
C159	1-163-115-00	CERAMIC CHIP	82PF 5% 50V	C249	1-163-011-11	CERAMIC CHIP	0.0015uF 10% 50V
C160	1-163-038-00	CERAMIC CHIP	0.1uF 25V	C251	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C161	1-164-232-11	CERAMIC CHIP	0.01uF 50V	C252	1-163-809-11	CERAMIC CHIP	0.047uF 10% 25V
C162	1-163-111-00	CERAMIC CHIP	56PF 5% 50V	C253	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C163	1-163-101-00	CERAMIC CHIP	22PF 5% 50V	C254	1-124-927-11	ELECT	4.7uF 20% 100V
C165	1-163-101-00	CERAMIC CHIP	22PF 5% 50V	C255	1-163-115-00	CERAMIC CHIP	82PF 5% 50V
C166	1-163-088-00	CERAMIC CHIP	5PF 50V	C256	1-163-017-00	CERAMIC CHIP	0.0047uF 5% 50V
C167	1-163-106-00	CERAMIC CHIP	36PF 5% 50V	C257	1-163-143-00	CERAMIC CHIP	0.0012uF 5% 50V
C168	1-163-121-00	CERAMIC CHIP	150PF 5% 50V	C258	1-163-038-00	CERAMIC CHIP	0.1uF 25V
C169	1-163-033-00	CERAMIC CHIP	0.022uF 50V	C259	1-163-107-00	CERAMIC CHIP	39PF 5% 50V
C170	1-163-033-00	CERAMIC CHIP	0.022uF 50V	C261	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C201	1-126-320-11	ELECT, NONPOLAR R	10uF 20% 16V	C262	1-124-443-00	ELECT	100uF 20% 10V

Ref. No.	Part No.	Description	Remark
C263	1-124-126-00	ELECT 47uF 20%	10V
C264	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C265	1-163-809-11	CERAMIC CHIP 0.047uF 10%	25V
C266	1-124-261-00	ELECT 10uF 20%	50V
C268	1-163-033-00	CERAMIC CHIP 0.022uF	50V
C269	1-124-443-00	ELECT 100uF 20%	10V
C270	1-124-584-00	ELECT 100uF 20%	10V
C271	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C272	1-163-011-11	CERAMIC CHIP 0.0015uF 10%	50V
C273	1-124-584-00	ELECT 100uF 20%	10V
C274	1-124-261-00	ELECT 10uF 20%	50V
C275	1-124-584-00	ELECT 100uF 20%	10V
C276	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V
C277	1-163-003-11	CERAMIC CHIP 330PF 10%	50V
C278	1-124-248-00	ELECT 22uF 20%	35V
C279	1-163-017-00	CERAMIC CHIP 0.0047uF 5%	50V
C280	1-124-584-00	ELECT 100uF 20%	10V
C281	1-136-165-00	FILM 0.1uF 5%	50V
C282	1-136-160-00	FILM 0.039uF 5%	50V
C283	1-124-927-11	ELECT 4.7uF 20%	100V
C284	1-163-111-00	CERAMIC CHIP 56PF 5%	50V
C285	1-124-288-00	ELECT 22uF 20%	6.3V
C286	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C287	1-163-241-11	CERAMIC CHIP 39PF 5%	50V
C288	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C289	1-163-111-00	CERAMIC CHIP 56PF 5%	50V
C290	1-124-288-00	ELECT 22uF 20%	6.3V
C291	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C292	1-124-927-11	ELECT 4.7uF 20%	100V
C293	1-136-160-00	FILM 0.039uF 5%	50V
C294	1-163-253-11	CERAMIC CHIP 120PF 5%	50V
C295	1-163-017-00	CERAMIC CHIP 0.0047uF 5%	50V
C296	1-124-465-00	ELECT 0.47uF 20%	50V
C297	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V
C298	1-163-031-11	CERAMIC CHIP 0.01uF	50V
C299	1-124-584-00	ELECT 100uF 20%	10V
C300	1-163-127-00	CERAMIC CHIP 270PF 5%	50V
C301	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C302	1-124-248-00	ELECT 22uF 20%	35V
C303	1-163-017-00	CERAMIC CHIP 0.0047uF 5%	50V
C304	1-124-584-00	ELECT 100uF 20%	10V
C305	1-163-011-11	CERAMIC CHIP 0.0015uF 10%	50V
C306	1-124-584-00	ELECT 100uF 20%	10V
C309	1-163-017-00	CERAMIC CHIP 0.0047uF 5%	50V
C311	1-163-019-00	CERAMIC CHIP 0.0068uF 10%	50V
C312	1-163-016-00	CERAMIC CHIP 0.0039uF 10%	50V
C313	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C314	1-163-038-00	CERAMIC CHIP 0.1uF	25V

Ref. No.	Part No.	Description	Remark
C315	1-124-443-00	ELECT 100uF 20%	10V
C316	1-163-102-00	CERAMIC CHIP 24PF 5%	50V
C317	1-124-927-11	ELECT 4.7uF 20%	100V
C318	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C319	1-163-141-00	CERAMIC CHIP 0.001uF 5%	50V
C320	1-163-141-00	CERAMIC CHIP 0.001uF 5%	50V
C321	1-163-141-00	CERAMIC CHIP 0.001uF 5%	50V
C322	1-163-141-00	CERAMIC CHIP 0.001uF 5%	50V
C324	1-163-033-00	CERAMIC CHIP 0.022uF	50V
C325	1-163-033-00	CERAMIC CHIP 0.022uF	50V
C326	1-163-033-00	CERAMIC CHIP 0.022uF	50V
C327	1-163-033-00	CERAMIC CHIP 0.022uF	50V
C401	1-126-163-11	ELECT 4.7uF 20%	50V
C402	1-164-699-11	CERAMIC CHIP 0.0033uF 5%	50V
C403	1-163-111-00	CERAMIC CHIP 56PF 5%	50V
C404	1-126-163-11	ELECT 4.7uF 20%	50V
C406	1-124-589-11	ELECT 47uF 20%	16V
C407	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C601	1-126-154-11	ELECT 47uF 20%	6.3V
C602	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C607	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C609	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C610	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C611	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C613	1-164-232-11	CERAMIC CHIP 0.01uF	50V
C614	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C615	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C629	1-164-699-11	CERAMIC CHIP 0.0033uF 5%	50V
C640	1-124-248-00	ELECT 22uF 20%	35V
C641	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C650	1-163-123-00	CERAMIC CHIP 180PF 5%	50V
C652	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C657	1-163-141-00	CERAMIC CHIP 0.001uF 5%	50V
C699	1-163-117-00	CERAMIC CHIP 100PF 5%	50V
C701	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C702	1-124-471-00	ELECT 1000uF 20%	6.3V
C703	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C704	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C705	1-124-604-00	ELECT 330uF 20%	10V
C706	1-124-604-00	ELECT 330uF 20%	10V
C708	1-124-583-11	ELECT 22uF 20%	25V
C801	1-163-038-00	CERAMIC CHIP 0.1uF	25V
< CONNECTOR >			
CN103	1-164-505-11	CERAMIC CHIP 2.2uF	16V
CN201	1-506-482-11	PIN, CONNECTOR 3P	
* CN601	1-564-029-00	PIN, CONNECTOR 4P	
CN602	1-563-493-11	CONNECTOR, F. P. C 28P	
CN603	1-506-483-21	PIN, CONNECTOR 4P	

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
CN605	1-506-481-11	PIN, CONNECTOR 2P		FB610	1-543-813-21	FILTER, EMI	
CN606	1-506-481-11	PIN, CONNECTOR 2P		FB611	1-543-813-21	FILTER, EMI	
CN607	1-506-482-11	PIN, CONNECTOR 3P		FB612	1-543-813-21	FILTER, EMI	
CN608	1-506-484-11	PIN, CONNECTOR 5P		FB801	1-543-813-21	FILTER, EMI	
CN609	1-506-491-11	PIN, CONNECTOR 12P		FB802	1-543-813-21	FILTER, EMI	
		< TRIMMER >		FB803	1-543-813-21	FILTER, EMI	
CT001	1-141-227-00	CAP, TRIMMER 20PF				< FILTER >	
		< DIODE >		FLO01	1-239-319-11	FILTER, LOW PASS	
D001	8-719-400-18	DIODE MA152WK		FLO02	1-236-843-11	FILTER, BAND PASS	
D002	8-719-400-18	DIODE MA152WK		FLO05	1-239-317-11	FILTER, LOW PASS	
D003	8-719-800-76	DIODE 1SS226		FLO06	1-236-071-11	ENCAPSULATED COMPONENT	
D004	8-719-400-18	DIODE MA152WK		FLO07	1-577-543-21	FILTER, CERAMIC	
D201	8-719-907-19	DIODE FC52M-5		FLO08	1-577-543-11	FILTER, CERAMIC	
D202	8-719-907-19	DIODE FC52M-5		FLO09	1-577-543-11	FILTER, CERAMIC	
D203	8-719-400-18	DIODE MA152WK		FLO10	1-236-071-11	ENCAPSULATED COMPONENT	
D204	8-719-104-34	DIODE 1S2836		FLO11	1-236-071-11	ENCAPSULATED COMPONENT	
D205	8-719-400-18	DIODE MA152WK		FLO12	1-236-071-11	ENCAPSULATED COMPONENT	
D207	8-719-106-35	DIODE RD8. 2M-B2		FL013	1-236-071-11	ENCAPSULATED COMPONENT	
D208	8-719-400-18	DIODE MA152WK		FL014	1-236-744-21	FILTER, EMI	
D212	8-719-400-18	DIODE MA152WK		FL201	1-236-071-11	ENCAPSULATED COMPONENT	
D401	8-719-400-18	DIODE MA152WK		FL202	1-236-071-11	ENCAPSULATED COMPONENT	
D602	8-719-400-18	DIODE MA152WK		FL203	1-236-071-11	ENCAPSULATED COMPONENT	
D699	8-719-106-71	DIODE RD12M-B2		FL204	1-236-071-11	ENCAPSULATED COMPONENT	
D701	8-719-106-71	DIODE RD12M-B2		FL206	1-236-840-21	FILTER, BAND PASS	
D801	8-719-800-76	DIODE 1SS226		FL207	1-236-744-21	FILTER, EMI	
		< FUSE >		FL208	1-236-744-21	FILTER, EMI	
△F701	1-532-777-21	FUSE, MICRO (SECONDARY)		FL209	1-236-744-21	FILTER, EMI	
△F702	1-532-777-21	FUSE, MICRO (SECONDARY)		FL210	1-236-744-21	FILTER, EMI	
△F703	1-532-773-21	FUSE, MICRO (SECONDARY)		FL211	1-236-744-21	FILTER, EMI	
		< FERRITE BEAD >		FL601	1-236-071-11	ENCAPSULATED COMPONENT	
FB201	1-543-813-21	FILTER, EMI		FL602	1-236-071-11	ENCAPSULATED COMPONENT	
FB202	1-543-813-21	FILTER, EMI		FL603	1-236-744-21	FILTER, EMI	
FB203	1-543-813-21	FILTER, EMI				< IC >	
FB205	1-216-296-00	METAL CHIP	0 5% 1/8W	IC001	8-759-063-25	IC CXA8020Q	
FB210	1-543-813-21	FILTER, EMI		IC003	8-759-063-26	IC CXD8405Q	
FB211	1-216-296-00	METAL CHIP	0 5% 1/8W	IC004	8-759-634-74	IC M50455-080FP	
FB601	1-543-813-21	FILTER, EMI		IC005	8-759-063-27	IC CXD8404Q	
FB602	1-543-813-21	FILTER, EMI		IC007	8-759-243-19	IC TC7SU04F	
FB603	1-543-813-21	FILTER, EMI		IC201	8-749-921-12	IC GP1F32T (DIGITAL OUT (OPTICAL))	
FB604	1-543-813-21	FILTER, EMI		IC202	8-759-996-43	IC RC4558PS	
FB605	1-543-813-21	FILTER, EMI		IC203	8-759-008-67	IC MC14066BF	
FB606	1-543-813-21	FILTER, EMI		IC204	8-752-342-65	IC CXD2560M	
FB607	1-543-813-21	FILTER, EMI		IC205	8-759-996-43	IC RC4558PS	
FB608	1-543-813-21	FILTER, EMI		IC207	8-759-996-43	IC RC4558PS	
FB609	1-543-813-21	FILTER, EMI		IC208	8-752-337-26	IC CXD2500AQ	
				IC209	8-759-996-43	IC RC4558PS	
				IC210	8-759-996-43	IC RC4558PS	

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MB-701

Ref. No.	Part No.	Description	Remark
IC211	8-759-996-43	IC RC4558PS	
IC212	8-759-502-42	IC PA0034A	
IC214	8-752-351-19	IC CXD2561BM	
IC401	8-759-983-74	IC LM324NS	
IC402	8-759-009-06	IC MC14052BF	
IC601	8-759-063-88	IC 1C MB89795-137	
IC603	8-759-231-92	IC TA7291P	
IC604	8-759-063-89	IC MSM72H051GS-V1K	
△IC701	8-759-245-79	IC TA7905S	
△IC702	8-759-708-08	IC NJM78L08A	
△IC703	8-759-982-46	IC RC79L08A	
< JACK >			
J001	1-691-964-12	CONNECTOR (ROUND TYPE) (S VIDEO OUT 1/2)	
J002	1-537-431-11	TERMINAL BOARD (RFU DC OUT/VIDEO OUT/AUDIO (MONO) OUT)	
J201	1-565-351-41	JACK, PIN 3P (LINE OUT 2)	
J202	1-565-351-41	JACK, PIN 3P (LINE OUT 1)	
J203	1-507-678-00	JACK (CONTROL S IN)	
< JUMPER RESISTOR >			
JR001	1-216-296-00	METAL CHIP	0 5% 1/8W
JR002	1-216-296-00	METAL CHIP	0 5% 1/8W
JR003	1-543-813-21	FILTER, EMI	
JR004	1-216-296-00	METAL CHIP	0 5% 1/8W
JR010	1-216-295-00	METAL CHIP	0 5% 1/10W
JR011	1-216-295-00	METAL CHIP	0 5% 1/10W
JR012	1-216-295-00	METAL CHIP	0 5% 1/10W
JR013	1-216-295-00	METAL CHIP	0 5% 1/10W
JR014	1-216-295-00	METAL CHIP	0 5% 1/10W
JR015	1-216-295-00	METAL CHIP	0 5% 1/10W
JR016	1-216-295-00	METAL CHIP	0 5% 1/10W
JR017	1-216-295-00	METAL CHIP	0 5% 1/10W
JR018	1-216-296-00	METAL CHIP	0 5% 1/8W
JR019	1-216-296-00	METAL CHIP	0 5% 1/8W
JR020	1-216-296-00	METAL CHIP	0 5% 1/8W
JR021	1-216-295-00	METAL CHIP	0 5% 1/10W
JR022	1-216-295-00	METAL CHIP	0 5% 1/10W
JR201	1-216-296-00	METAL CHIP	0 5% 1/8W
JR202	1-216-296-00	METAL CHIP	0 5% 1/8W
JR206	1-216-295-00	METAL CHIP	0 5% 1/10W
JR208	1-216-295-00	METAL CHIP	0 5% 1/10W
JR211	1-216-295-00	METAL CHIP	0 5% 1/10W
JR212	1-216-295-00	METAL CHIP	0 5% 1/10W
JR213	1-216-295-00	METAL CHIP	0 5% 1/10W
JR214	1-216-295-00	METAL CHIP	0 5% 1/10W
JR215	1-216-295-00	METAL CHIP	0 5% 1/10W
JR216	1-216-296-00	METAL CHIP	0 5% 1/8W
JR219	1-216-295-00	METAL CHIP	0 5% 1/10W

Ref. No.	Part No.	Description	Remark
JR220	1-216-295-00	METAL CHIP	0 5% 1/10W
JR221	1-216-296-00	METAL CHIP	0 5% 1/8W
< COIL >			
L001	1-408-609-41	INDUCTOR 33uH	
L002	1-408-407-00	INDUCTOR 6.8uH	
L003	1-408-411-00	INDUCTOR 15uH	
L005	1-408-609-41	INDUCTOR 33uH	
L006	1-408-609-41	INDUCTOR 33uH	
L007	1-408-411-00	INDUCTOR 15uH	
L011	1-408-609-41	INDUCTOR 33uH	
L013	1-408-609-41	INDUCTOR 33uH	
L016	1-408-414-00	INDUCTOR 27uH	
L017	1-408-412-00	INDUCTOR 18uH	
L020	1-408-413-00	INDUCTOR 22uH	
L201	1-408-421-00	INDUCTOR 100uH	
L202	1-408-418-00	INDUCTOR 56uH	
L203	1-408-417-00	INDUCTOR 47uH	
L204	1-408-403-00	INDUCTOR 3.3uH	
L610	1-408-409-00	INDUCTOR 10uH	
< TRANSISTOR >			
Q001	8-729-216-22	TRANSISTOR 2SA1162-G	
Q002	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q003	8-729-216-22	TRANSISTOR 2SA1162-G	
Q004	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q005	8-729-900-53	TRANSISTOR DTC114EK	
Q008	8-729-162-13	TRANSISTOR 2SC1621-B3	
Q010	8-729-216-22	TRANSISTOR 2SA1162-G	
Q012	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q013	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q014	8-729-216-22	TRANSISTOR 2SA1162-G	
Q015	8-729-216-22	TRANSISTOR 2SA1162-G	
Q016	8-729-216-22	TRANSISTOR 2SA1162-G	
Q017	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q018	8-729-216-22	TRANSISTOR 2SA1162-G	
Q019	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q020	8-729-900-53	TRANSISTOR DTC114EK	
Q023	8-729-216-22	TRANSISTOR 2SA1162-G	
Q024	8-729-216-22	TRANSISTOR 2SA1162-G	
Q025	8-729-216-22	TRANSISTOR 2SA1162-G	
Q026	8-729-216-22	TRANSISTOR 2SA1162-G	
Q027	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q028	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q029	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q030	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q031	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q032	8-729-100-66	TRANSISTOR 2SC1623-L6	

<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>
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Ref. No.	Part No.	Description	Remark
Q033	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q034	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q035	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q037	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q039	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q040	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q041	8-729-901-06	TRANSISTOR DTA144EK	
Q201	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q202	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q203	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q204	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q206	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q207	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q208	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q210	8-729-901-04	TRANSISTOR DTA114EK	
Q211	8-729-900-53	TRANSISTOR DTC114EK	
Q212	8-729-900-53	TRANSISTOR DTC114EK	
Q213	8-729-901-04	TRANSISTOR DTA114EK	
Q214	8-729-900-53	TRANSISTOR DTC114EK	
Q215	8-729-901-04	TRANSISTOR DTA114EK	
Q216	8-729-900-53	TRANSISTOR DTC114EK	
Q217	8-729-216-22	TRANSISTOR 2SA1162-G	
Q218	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q219	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q220	8-729-216-22	TRANSISTOR 2SA1162-G	
Q221	8-729-216-22	TRANSISTOR 2SA1162-G	
Q222	8-729-901-04	TRANSISTOR DTA114EK	
Q225	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q226	8-729-202-38	TRANSISTOR 2SC3326N-A	
Q229	8-729-901-04	TRANSISTOR DTA114EK	
Q230	8-729-900-53	TRANSISTOR DTC114EK	
Q601	8-729-216-22	TRANSISTOR 2SA1162-G	
Q609	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q701	8-729-159-65	TRANSISTOR 2SD596-DV5	
Q801	8-729-374-02	TRANSISTOR 2SB740	
< RESISTOR >			
R001	1-216-081-00	METAL CHIP 22K 5%	1/10W
R002	1-216-051-00	METAL CHIP 1.2K 5%	1/10W
R003	1-216-047-00	METAL CHIP 820 5%	1/10W
R004	1-216-043-00	METAL CHIP 560 5%	1/10W
R005	1-216-073-00	METAL CHIP 10K 5%	1/10W
R006	1-216-051-00	METAL CHIP 1.2K 5%	1/10W
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

Ref. No.	Part No.	Description	Remark
R013	1-216-053-00	METAL CHIP 1.5K 5%	1/10W
R014	1-216-689-11	METAL CHIP 39K 0.5%	1/10W
R015	1-216-041-00	METAL CHIP 470 5%	1/10W
R016	1-216-085-00	METAL CHIP 33K 5%	1/10W
R017	1-216-081-00	METAL CHIP 22K 5%	1/10W
R018	1-216-079-00	METAL CHIP 18K 5%	1/10W
R019	1-216-081-00	METAL CHIP 22K 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	1-216-073-00	METAL CHIP 10K 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	1-216-037-00	METAL CHIP 330 5%	1/10W
R033	1-216-079-00	METAL CHIP 18K 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
R039	1-216-051-00	METAL CHIP 1.2K 5%	1/10W
R040	1-216-055-00	METAL CHIP 1.8K 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	1-216-041-00	METAL CHIP 470 5%	1/10W
R045	1-216-057-00	METAL CHIP 2.2K 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
R056	1-216-073-00	METAL CHIP 10K 5%	1/10W
R057	1-216-025-00	METAL CHIP 100 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	1-216-072-00	METAL CHIP 9.1K 5%	1/10W
R067	1-216-063-00	METAL CHIP 3.9K 5%	1/10W
R068	1-216-065-00	METAL CHIP 4.7K 5%	1/10W

MB-701

Ref. No.	Part No.	Description	Remark
R069	1-216-113-00	METAL CHIP	470K 5% 1/10W
R070	1-216-113-00	METAL CHIP	470K 5% 1/10W
R075	1-216-041-00	METAL CHIP	470 5% 1/10W
R076	1-216-049-00	METAL CHIP	1K 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	1-216-045-00	METAL CHIP	680 5% 1/10W
R080	1-216-047-00	METAL CHIP	820 5% 1/10W
R081	1-216-041-00	METAL CHIP	470 5% 1/10W
R082	1-216-085-00	METAL CHIP	33K 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
R086	1-216-049-00	METAL CHIP	1K 5% 1/10W
R087	1-216-041-00	METAL CHIP	470 5% 1/10W
R088	1-216-049-00	METAL CHIP	1K 5% 1/10W
R089	1-216-049-00	METAL CHIP	1K 5% 1/10W
R092	1-216-047-00	METAL CHIP	820 5% 1/10W
R093	1-216-119-00	METAL CHIP	820K 5% 1/10W
R094	1-216-295-00	METAL CHIP	0 5% 1/10W
R096	1-216-049-00	METAL CHIP	1K 5% 1/10W
R097	1-216-049-00	METAL CHIP	1K 5% 1/10W
R098	1-216-057-00	METAL CHIP	2. 2K 5% 1/10W
R099	1-216-061-00	METAL CHIP	3. 3K 5% 1/10W
R100	1-216-029-00	METAL CHIP	150 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
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	1-216-037-00	METAL CHIP	330 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	1-216-065-00	METAL CHIP	4. 7K 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

Ref. No.	Part No.	Description	Remark
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
R130	1-216-059-00	METAL CHIP	2. 7K 5% 1/10W
R132	1-216-059-00	METAL CHIP	2. 7K 5% 1/10W
R134	1-216-043-00	METAL CHIP	560 5% 1/10W
R135	1-216-053-00	METAL CHIP	1. 5K 5% 1/10W
R136	1-216-041-00	METAL CHIP	470 5% 1/10W
R137	1-216-043-00	METAL CHIP	560 5% 1/10W
R138	1-216-062-00	METAL CHIP	3. 6K 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	1-216-073-00	METAL CHIP	10K 5% 1/10W
R143	1-216-043-00	METAL CHIP	560 5% 1/10W
R145	1-216-295-00	METAL CHIP	0 5% 1/10W
R146	1-216-049-00	METAL CHIP	1K 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	1-216-041-00	METAL CHIP	470 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
R158	1-216-021-00	METAL CHIP	68 5% 1/10W
R159	1-216-041-00	METAL CHIP	470 5% 1/10W
R161	1-216-021-00	METAL CHIP	68 5% 1/10W
R162	1-216-021-00	METAL CHIP	68 5% 1/10W
R163	1-216-067-00	METAL CHIP	5. 6K 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	1-216-041-00	METAL CHIP	470 5% 1/10W
R170	1-216-041-00	METAL CHIP	470 5% 1/10W
R171	1-216-021-00	METAL CHIP	68 5% 1/10W
R183	1-216-083-00	METAL CHIP	27K 5% 1/10W
R184	1-216-071-00	METAL CHIP	8. 2K 5% 1/10W
R185	1-216-113-00	METAL CHIP	470K 5% 1/10W
R186	1-216-059-00	METAL CHIP	2. 7K 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

Ref. No.	Part No.	Description	Remark		
R191	1-216-049-00	METAL CHIP	1K	5%	1/10W
R194	1-216-067-00	METAL CHIP	5.6K	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	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R202	1-216-693-11	METAL CHIP	56K	0.5%	1/10W
R203	1-216-693-11	METAL CHIP	56K	0.5%	1/10W
R204	1-216-693-11	METAL CHIP	56K	0.5%	1/10W
R205	1-216-073-00	METAL CHIP	10K	5%	1/10W
R206	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R207	1-216-073-00	METAL CHIP	10K	5%	1/10W
R208	1-216-049-00	METAL CHIP	1K	5%	1/10W
R209	1-216-033-00	METAL CHIP	220	5%	1/10W
R210	1-216-295-00	METAL CHIP	0	5%	1/10W
R211	1-216-049-00	METAL CHIP	1K	5%	1/10W
R212	1-216-693-11	METAL CHIP	56K	0.5%	1/10W
R214	1-216-105-00	METAL CHIP	220K	5%	1/10W
R215	1-216-073-00	METAL CHIP	10K	5%	1/10W
R216	1-216-097-00	METAL CHIP	100K	5%	1/10W
R217	1-216-097-00	METAL CHIP	100K	5%	1/10W
R218	1-216-049-00	METAL CHIP	1K	5%	1/10W
R219	1-216-033-00	METAL CHIP	220	5%	1/10W
R220	1-216-295-00	METAL CHIP	0	5%	1/10W
R221	1-216-105-00	METAL CHIP	220K	5%	1/10W
R222	1-216-073-00	METAL CHIP	10K	5%	1/10W
R223	1-216-105-00	METAL CHIP	220K	5%	1/10W
R224	1-216-073-00	METAL CHIP	10K	5%	1/10W
R226	1-216-121-00	METAL CHIP	1M	5%	1/10W
R227	1-216-025-00	METAL CHIP	100	5%	1/10W
R228	1-216-025-00	METAL CHIP	100	5%	1/10W
R229	1-216-049-00	METAL CHIP	1K	5%	1/10W
R230	1-216-295-00	METAL CHIP	0	5%	1/10W
R231	1-216-295-00	METAL CHIP	0	5%	1/10W
R232	1-216-105-00	METAL CHIP	220K	5%	1/10W
R233	1-216-049-00	METAL CHIP	1K	5%	1/10W
R234	1-216-025-00	METAL CHIP	100	5%	1/10W
R235	1-216-033-00	METAL CHIP	220	5%	1/10W
R236	1-216-295-00	METAL CHIP	0	5%	1/10W
R237	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R238	1-216-077-00	METAL CHIP	15K	5%	1/10W
R239	1-216-693-11	METAL CHIP	56K	0.5%	1/10W
R240	1-216-295-00	METAL CHIP	0	5%	1/10W
R241	1-216-105-00	METAL CHIP	220K	5%	1/10W
R242	1-216-105-00	METAL CHIP	220K	5%	1/10W
R243	1-216-105-00	METAL CHIP	220K	5%	1/10W
R244	1-216-049-00	METAL CHIP	1K	5%	1/10W

Ref. No.	Part No.	Description	Remark		
R245	1-216-655-11	METAL CHIP	1.5K	0.5%	1/10W
R246	1-216-655-11	METAL CHIP	1.5K	0.5%	1/10W
R247	1-216-073-00	METAL CHIP	10K	5%	1/10W
R248	1-216-295-00	METAL CHIP	0	5%	1/10W
R250	1-216-295-00	METAL CHIP	0	5%	1/10W
R251	1-216-105-00	METAL CHIP	220K	5%	1/10W
R252	1-216-073-00	METAL CHIP	10K	5%	1/10W
R253	1-216-049-00	METAL CHIP	1K	5%	1/10W
R254	1-216-105-00	METAL CHIP	220K	5%	1/10W
R255	1-216-105-00	METAL CHIP	220K	5%	1/10W
R256	1-216-033-00	METAL CHIP	220	5%	1/10W
R257	1-216-295-00	METAL CHIP	0	5%	1/10W
R258	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R259	1-216-077-00	METAL CHIP	15K	5%	1/10W
R260	1-216-693-11	METAL CHIP	56K	0.5%	1/10W
R261	1-216-105-00	METAL CHIP	220K	5%	1/10W
R262	1-216-295-00	METAL CHIP	0	5%	1/10W
R263	1-216-105-00	METAL CHIP	220K	5%	1/10W
R264	1-216-105-00	METAL CHIP	220K	5%	1/10W
R265	1-216-073-00	METAL CHIP	10K	5%	1/10W
R266	1-216-105-00	METAL CHIP	220K	5%	1/10W
R268	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R269	1-216-077-00	METAL CHIP	15K	5%	1/10W
R270	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R271	1-216-693-11	METAL CHIP	56K	0.5%	1/10W
R272	1-216-095-00	METAL CHIP	82K	5%	1/10W
R273	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R274	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R275	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R276	1-216-295-00	METAL CHIP	0	5%	1/10W
R277	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R278	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R279	1-216-073-00	METAL CHIP	10K	5%	1/10W
R280	1-216-655-11	METAL CHIP	1.5K	0.5%	1/10W
R281	1-216-655-11	METAL CHIP	1.5K	0.5%	1/10W
R282	1-216-295-00	METAL CHIP	0	5%	1/10W
R283	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R284	1-216-077-00	METAL CHIP	15K	5%	1/10W
R285	1-216-049-00	METAL CHIP	1K	5%	1/10W
R286	1-216-693-11	METAL CHIP	56K	0.5%	1/10W
R287	1-216-099-00	METAL CHIP	120K	5%	1/10W
R288	1-216-099-00	METAL CHIP	120K	5%	1/10W
R289	1-216-095-00	METAL CHIP	82K	5%	1/10W
R290	1-216-081-00	METAL CHIP	22K	5%	1/10W
R291	1-216-081-00	METAL CHIP	22K	5%	1/10W
R292	1-216-049-00	METAL CHIP	1K	5%	1/10W
R293	1-216-109-00	METAL CHIP	330K	5%	1/10W
R294	1-216-049-00	METAL CHIP	1K	5%	1/10W
R295	1-216-109-00	METAL CHIP	330K	5%	1/10W

MB-701

Ref. No.	Part No.	Description	Remark		
R296	1-216-049-00	METAL CHIP	1K	5%	1/10W
R297	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R298	1-216-073-00	METAL CHIP	10K	5%	1/10W
R299	1-216-118-00	METAL GLAZE	750K	5%	1/10W
R300	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R301	1-216-097-00	METAL CHIP	100K	5%	1/10W
R302	1-216-101-00	METAL CHIP	150K	5%	1/10W
R303	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R305	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R306	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R307	1-216-101-00	METAL CHIP	150K	5%	1/10W
R308	1-216-104-00	METAL CHIP	200K	5%	1/10W
R309	1-216-033-00	METAL CHIP	220	5%	1/10W
R310	1-216-049-00	METAL CHIP	1K	5%	1/10W
R311	1-216-078-00	METAL GLAZE	16K	5%	1/10W
R312	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R313	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R314	1-216-017-00	METAL CHIP	47	5%	1/10W
R315	1-216-049-00	METAL CHIP	1K	5%	1/10W
R316	1-216-049-00	METAL CHIP	1K	5%	1/10W
R317	1-216-049-00	METAL CHIP	1K	5%	1/10W
R318	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R319	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R320	1-216-049-00	METAL CHIP	1K	5%	1/10W
R321	1-216-078-00	METAL GLAZE	16K	5%	1/10W
R322	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R323	1-216-033-00	METAL CHIP	220	5%	1/10W
R324	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R325	1-216-041-00	METAL CHIP	470	5%	1/10W
R326	1-216-023-00	METAL CHIP	82	5%	1/10W
R327	1-216-118-00	METAL GLAZE	750K	5%	1/10W
R328	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R329	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R330	1-216-073-00	METAL CHIP	10K	5%	1/10W
R331	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R332	1-216-295-00	METAL CHIP	0	5%	1/10W
R335	1-216-295-00	METAL CHIP	0	5%	1/10W
R336	1-216-295-00	METAL CHIP	0	5%	1/10W
R337	1-216-295-00	METAL CHIP	0	5%	1/10W
R338	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R339	1-216-089-00	METAL CHIP	47K	5%	1/10W
R340	1-216-089-00	METAL CHIP	47K	5%	1/10W
R341	1-216-049-00	METAL CHIP	1K	5%	1/10W
R342	1-216-073-00	METAL CHIP	10K	5%	1/10W
R343	1-216-049-00	METAL CHIP	1K	5%	1/10W
R344	1-216-073-00	METAL CHIP	10K	5%	1/10W
R345	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R346	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R347	1-216-067-00	METAL CHIP	5.6K	5%	1/10W

Ref. No.	Part No.	Description	Remark		
R348	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R349	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R350	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R351	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R352	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R353	1-216-295-00	METAL CHIP	0	5%	1/10W
R354	1-216-295-00	METAL CHIP	0	5%	1/10W
R355	1-216-035-00	METAL CHIP	270	5%	1/10W
R356	1-216-049-00	METAL CHIP	1K	5%	1/10W
R357	1-216-049-00	METAL CHIP	1K	5%	1/10W
R358	1-216-073-00	METAL CHIP	10K	5%	1/10W
R359	1-216-049-00	METAL CHIP	1K	5%	1/10W
R360	1-216-049-00	METAL CHIP	1K	5%	1/10W
R361	1-216-049-00	METAL CHIP	1K	5%	1/10W
R362	1-216-049-00	METAL CHIP	1K	5%	1/10W
R363	1-216-025-00	METAL CHIP	100	5%	1/10W
R366	1-216-097-00	METAL CHIP	100K	5%	1/10W
R367	1-216-049-00	METAL CHIP	1K	5%	1/10W
R368	1-216-049-00	METAL CHIP	1K	5%	1/10W
R369	1-216-049-00	METAL CHIP	1K	5%	1/10W
R372	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R373	1-216-073-00	METAL CHIP	10K	5%	1/10W
R387	1-216-295-00	METAL CHIP	0	5%	1/10W
R388	1-216-196-00	METAL GLAZE	820	5%	1/8W
R390	1-216-196-00	METAL GLAZE	820	5%	1/8W
R391	1-216-196-00	METAL GLAZE	820	5%	1/8W
R399	1-216-196-00	METAL GLAZE	820	5%	1/8W
R401	1-216-687-11	METAL CHIP	33K	0.5%	1/10W
R402	1-216-687-11	METAL CHIP	33K	0.5%	1/10W
R403	1-216-699-11	METAL CHIP	100K	0.5%	1/10W
R404	1-216-077-00	METAL CHIP	15K	5%	1/10W
R405	1-216-685-11	METAL CHIP	27K	0.5%	1/10W
R406	1-218-165-11	METAL GLAZE	220K	1%	1/10W
R407	1-216-675-11	METAL CHIP	10K	0.5%	1/10W
R408	1-216-113-00	METAL CHIP	470K	5%	1/10W
R409	1-216-677-11	METAL CHIP	12K	0.5%	1/10W
R410	1-216-530-00	METAL GLAZE	390K	1%	1/10W
R411	1-216-679-11	METAL CHIP	15K	0.5%	1/10W
R412	1-216-035-00	METAL CHIP	270	5%	1/10W
R413	1-216-089-00	METAL CHIP	47K	5%	1/10W
R414	1-216-089-00	METAL CHIP	47K	5%	1/10W
R415	1-216-111-00	METAL CHIP	390K	5%	1/10W
R416	1-216-089-00	METAL CHIP	47K	5%	1/10W
R417	1-216-105-00	METAL CHIP	220K	5%	1/10W
R423	1-216-049-00	METAL CHIP	1K	5%	1/10W
R431	1-216-033-00	METAL CHIP	220	5%	1/10W
R432	1-216-049-00	METAL CHIP	1K	5%	1/10W
R434	1-216-033-00	METAL CHIP	220	5%	1/10W
R435	1-216-115-00	METAL CHIP	560K	5%	1/10W

Ref. No.	Part No.	Description	Remark		
R502	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R503	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R504	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R505	1-216-047-00	METAL CHIP	820	5%	1/10W
R506	1-216-085-00	METAL CHIP	33K	5%	1/10W
R507	1-216-085-00	METAL CHIP	33K	5%	1/10W
R508	1-216-101-00	METAL CHIP	150K	5%	1/10W
R509	1-216-047-00	METAL CHIP	820	5%	1/10W
R511	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R513	1-216-049-00	METAL CHIP	1K	5%	1/10W
R514	1-216-097-00	METAL CHIP	100K	5%	1/10W
R515	1-216-121-00	METAL CHIP	1M	5%	1/10W
R516	1-216-072-00	METAL CHIP	9.1K	5%	1/10W
R517	1-216-198-00	METAL CHIP	1K	5%	1/8W
R518	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R580	1-216-049-00	METAL CHIP	1K	5%	1/10W
R588	1-216-073-00	METAL CHIP	10K	5%	1/10W
R593	1-216-073-00	METAL CHIP	10K	5%	1/10W
R594	1-216-037-00	METAL CHIP	330	5%	1/10W
R595	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R596	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R599	1-216-073-00	METAL CHIP	10K	5%	1/10W
R601	1-216-121-00	METAL CHIP	1M	5%	1/10W
R602	1-216-081-00	METAL CHIP	22K	5%	1/10W
R603	1-216-073-00	METAL CHIP	10K	5%	1/10W
R604	1-216-021-00	METAL CHIP	68	5%	1/10W
R605	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R606	1-216-081-00	METAL CHIP	22K	5%	1/10W
R607	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R608	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R609	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R610	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
△R611	1-212-950-00	FUSIBLE	4.7	5%	1/2W F
R621	1-216-049-00	METAL CHIP	1K	5%	1/10W
R623	1-216-073-00	METAL CHIP	10K	5%	1/10W
R624	1-216-073-00	METAL CHIP	10K	5%	1/10W
R626	1-216-099-00	METAL CHIP	120K	5%	1/10W
R627	1-216-075-00	METAL CHIP	12K	5%	1/10W
R633	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R634	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R635	1-216-035-00	METAL CHIP	270	5%	1/10W
R636	1-216-049-00	METAL CHIP	1K	5%	1/10W
R637	1-216-081-00	METAL CHIP	22K	5%	1/10W
R638	1-216-081-00	METAL CHIP	22K	5%	1/10W
R640	1-216-025-00	METAL CHIP	100	5%	1/10W
R650	1-216-049-00	METAL CHIP	1K	5%	1/10W
R651	1-216-033-00	METAL CHIP	220	5%	1/10W
R652	1-216-033-00	METAL CHIP	220	5%	1/10W

Ref. No.	Part No.	Description	Remark		
R653	1-216-049-00	METAL CHIP	1K	5%	1/10W
R654	1-216-033-00	METAL CHIP	220	5%	1/10W
R655	1-216-049-00	METAL CHIP	1K	5%	1/10W
R656	1-216-033-00	METAL CHIP	220	5%	1/10W
R658	1-216-033-00	METAL CHIP	220	5%	1/10W
R659	1-216-049-00	METAL CHIP	1K	5%	1/10W
R660	1-216-033-00	METAL CHIP	220	5%	1/10W
R661	1-216-033-00	METAL CHIP	220	5%	1/10W
R662	1-216-033-00	METAL CHIP	220	5%	1/10W
R663	1-216-049-00	METAL CHIP	1K	5%	1/10W
R664	1-216-033-00	METAL CHIP	220	5%	1/10W
R667	1-216-033-00	METAL CHIP	220	5%	1/10W
R668	1-216-033-00	METAL CHIP	220	5%	1/10W
R669	1-216-049-00	METAL CHIP	1K	5%	1/10W
R670	1-216-049-00	METAL CHIP	1K	5%	1/10W
R671	1-216-049-00	METAL CHIP	1K	5%	1/10W
R672	1-216-033-00	METAL CHIP	220	5%	1/10W
R673	1-216-049-00	METAL CHIP	1K	5%	1/10W
R674	1-216-049-00	METAL CHIP	1K	5%	1/10W
R675	1-216-033-00	METAL CHIP	220	5%	1/10W
R676	1-216-033-00	METAL CHIP	220	5%	1/10W
R680	1-216-085-00	METAL CHIP	33K	5%	1/10W
R684	1-216-073-00	METAL CHIP	10K	5%	1/10W
R685	1-216-073-00	METAL CHIP	10K	5%	1/10W
R689	1-216-049-00	METAL CHIP	1K	5%	1/10W
R690	1-216-049-00	METAL CHIP	1K	5%	1/10W
R691	1-216-049-00	METAL CHIP	1K	5%	1/10W
R693	1-216-049-00	METAL CHIP	1K	5%	1/10W
R694	1-216-049-00	METAL CHIP	1K	5%	1/10W
R695	1-216-049-00	METAL CHIP	1K	5%	1/10W
R698	1-216-049-00	METAL CHIP	1K	5%	1/10W
R699	1-216-049-00	METAL CHIP	1K	5%	1/10W
R700	1-216-013-00	METAL CHIP	33	5%	1/10W
R701	1-215-905-11	METAL OXIDE	10	5%	3W F
R702	1-216-073-00	METAL CHIP	10K	5%	1/10W
R703	1-216-041-00	METAL CHIP	470	5%	1/10W
R704	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R801	1-216-001-00	METAL CHIP	10	5%	1/10W
R802	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R803	1-216-001-00	METAL CHIP	10	5%	1/10W
< VARIABLE RESISTOR >					
RV002	1-230-871-11	RES, ADJ, METAL	22K		
< VIBRATOR >					
X001	1-579-617-11	VIBRATOR, CRYSTAL	(28.1958MHz)		
X201	1-579-618-11	VIBRATOR, CRYSTAL	(22.5792MHz)		

<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>
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Ref. No.	Part No.	Description	Remark
		MT-52 BOARD *****	
		< CAPACITOR >	
C001	1-161-063-00	CERAMIC CHIP 0.01uF 10%	50V
		< CONNECTOR >	
CN001	1-506-481-11	PIN, CONNECTOR 2P, MALE	

*	A-6421-787-A	PS-701 (J58) BOARD, COMPLETE (US, CND)	

*	A-6421-794-A	PS-701 (E58) BOARD, COMPLETE (PX)	

△	1-533-189-11	HOLDER, FUSE	
	9-910-999-33	SHEET (F), ADHESIVE	
		< CAPACITOR >	
C101	1-126-946-11	ELECT 6800uF 20%	25V
C102	1-126-946-11	ELECT 6800uF 20%	25V
C103	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C104	1-164-161-11	CERAMIC CHIP 0.0022uF 10%	100V
C105	1-163-989-11	CERAMIC CHIP 0.033uF 10%	25V
C106	1-126-101-11	ELECT 100uF 20%	16V
C107	1-124-471-00	ELECT 1000uF 20%	6.3V
C108	1-124-903-11	ELECT 1uF 20%	50V
C109	1-124-472-11	ELECT 470uF 20%	10V
C110	1-163-833-00	CERAMIC CHIP 0.068uF	25V
C111	1-163-007-11	CERAMIC CHIP 680PF 10%	50V
C112	1-163-019-00	CERAMIC CHIP 0.0068uF 10%	50V
C114	1-124-478-11	ELECT 100uF 20%	25V
C115	1-163-037-11	CERAMIC CHIP 0.022uF 10%	25V
C116	1-163-833-00	CERAMIC CHIP 0.068uF	25V
C122	1-124-557-11	ELECT 1000uF 20%	25V
C125	1-124-920-11	ELECT 330uF 20%	63V
C126	1-124-910-11	ELECT 47uF 20%	50V
C127	1-124-122-11	ELECT 100uF 20%	50V
C128	1-124-120-11	ELECT 220uF 20%	25V
C131	1-124-479-11	ELECT 330uF 20%	25V
C132	1-124-122-11	ELECT 100uF 20%	50V
C133	1-124-477-11	ELECT 47uF 20%	25V
C134	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C201	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V
C202	1-163-019-00	CERAMIC CHIP 0.0068uF 10%	50V
C204	1-163-009-11	CERAMIC CHIP 0.001uF 10%	50V
C205	1-163-017-00	CERAMIC CHIP 0.0047uF 5%	50V
C206	1-163-007-11	CERAMIC CHIP 680PF 10%	50V
C208	1-163-035-00	CERAMIC CHIP 0.047uF	50V

Ref. No.	Part No.	Description	Remark
C209	1-163-017-00	CERAMIC CHIP 0.0047uF 5%	50V
C210	1-163-007-11	CERAMIC CHIP 680PF 10%	50V
C211	1-163-017-00	CERAMIC CHIP 0.0047uF 5%	50V
C212	1-163-035-00	CERAMIC CHIP 0.047uF	50V
C213	1-124-913-11	ELECT 470uF 20%	50V
		< CONNECTOR >	
* CN101	1-560-894-00	PIN, CONNECTOR 6P	
CN105	1-506-473-11	PIN, CONNECTOR 8P	
* CN106	1-560-890-00	PIN, CONNECTOR 2P	
		< DIODE >	
D101	8-719-500-55	DIODE D3SBA10	
△D102	8-719-200-82	DIODE 11ES2	
△D103	8-719-200-82	DIODE 11ES2	
D105	8-719-980-78	DIODE ERA81-006	
D108	8-719-105-82	DIODE RD5.1M-B2	
△D109	8-719-200-82	DIODE 11ES2	
D110	8-719-110-83	DIODE RD36ES-B2	
D111	8-719-110-88	DIODE RD39ES-B2	
D112	8-719-110-06	DIODE RD8.2ES-B1	
D113	8-719-200-82	DIODE 11ES2	
D114	8-719-200-82	DIODE 11ES2	
D115	8-719-911-19	DIODE 1SS119	
D116	8-719-200-82	DIODE 11ES2	
D117	8-719-200-82	DIODE 11ES2	
D118	8-719-911-19	DIODE 1SS119	
D119	8-719-110-22	DIODE RD11ES-B2	
D120	8-719-911-19	DIODE 1SS119	
D201	8-719-980-78	DIODE ERA81-006	
D202	8-719-980-78	DIODE ERA81-006	
D203	8-719-200-82	DIODE 11ES2	
D204	8-719-200-82	DIODE 11ES2	
D205	8-719-911-19	DIODE 1SS119	
D206	8-719-911-19	DIODE 1SS119	
D207	8-719-911-19	DIODE 1SS119	
		< FUSE >	
△F101	1-532-299-00	FUSE, TIME-LAG (5A 250V) (PX)	
△F101	1-532-747-11	FUSE, GLASS TUBE (5A 125V) (US, CND)	
△F102	1-532-299-00	FUSE, TIME-LAG (5A 250V) (PX)	
△F102	1-532-747-11	FUSE, GLASS TUBE (5A 125V) (US, CND)	
△F103	1-532-766-21	FUSE, MICRO (SECONDARY) (0.1A 125V) (US, CND)	
△F105	1-532-778-21	FUSE, MICRO (1.6A 125V) (US, CND)	
		< IC >	
IC101	8-759-971-39	IC BA9700AF	
IC102	8-759-231-53	IC M5F7805	

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Ref. No.	Part No.	Description	Remark
IC201	8-759-085-67	IC LM339NS-T1	
IC202	8-759-100-96	IC uPC4558G2	
< JUMPER RESISTOR >			
JR101	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR102	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR103	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR104	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR105	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR106	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR107	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR108	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR109	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR110	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR111	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR112	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR113	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR114	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR115	1-216-296-00	METAL CHIP 0 5% 1/8W	
< COIL >			
L101	1-424-219-11	COIL, CHOKE 300uH	
L102	1-412-012-11	INDUCTOR 100uH	
L104	1-410-339-11	COIL, CHOKE 10uH	
L201	1-424-219-11	COIL, CHOKE 300uH	
< IC LINK >			
△PS103	1-532-829-11	LINK, IC 0.1A (PX)	
△PS105	1-532-841-21	LINK, IC 1.6A (PX)	
△PS201	1-532-675-00	LINK, IC 1.5A	
< TRANSISTOR >			
Q101	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q102	8-729-216-22	TRANSISTOR 2SA1162-G	
Q103	8-729-117-11	TRANSISTOR 2SB1151-L	
Q108	8-729-140-97	TRANSISTOR 2SB734-34	
Q111	8-729-141-75	TRANSISTOR 2SD596DV345	
Q112	8-729-142-46	TRANSISTOR 2SC2001-LK	
△Q201	8-729-117-11	TRANSISTOR 2SB1151-L	
△Q202	8-729-143-30	TRANSISTOR 2SD1691K	
△Q203	8-729-117-11	TRANSISTOR 2SB1151-L	
△Q204	8-729-143-30	TRANSISTOR 2SD1691K	
Q205	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q206	8-729-216-22	TRANSISTOR 2SA1162-G	
Q208	8-729-900-53	TRANSISTOR DTC114EK	
Q209	8-729-901-04	TRANSISTOR DTA114EK	
Q210	8-729-100-67	TRANSISTOR 2SC1623-L6-L7	
Q211	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q212	8-729-901-04	TRANSISTOR DTA114EK	

Ref. No.	Part No.	Description	Remark
< RESISTOR >			
R101	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R102	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R103	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R104	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R105	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R106	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R107	1-216-067-00	METAL CHIP 5.6K 5% 1/10W	
R108	1-216-043-00	METAL CHIP 560 5% 1/10W	
R109	1-216-691-11	METAL CHIP 47K 0.5% 1/10W	
R110	1-216-679-11	METAL CHIP 15K 0.5% 1/10W	
R112	1-216-099-00	METAL CHIP 120K 5% 1/10W	
R114	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R120	1-216-043-00	METAL CHIP 560 5% 1/10W	
R122	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R124	1-216-025-00	METAL CHIP 100 5% 1/10W	
R125	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
△R126	1-212-867-00	FUSIBLE 27 5% 1/4W F	
R128	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R129	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R199	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R201	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R202	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R203	1-216-093-00	METAL CHIP 68K 5% 1/10W	
R204	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R205	1-216-075-00	METAL CHIP 12K 5% 1/10W	
R206	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R207	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R208	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R209	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R210	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R211	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R212	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R213	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R214	1-247-750-11	CARBON 680 5% 1/2W	
R215	1-247-750-11	CARBON 680 5% 1/2W	
R216	1-216-049-00	METAL CHIP 1K 5% 1/10W	
△R217	1-216-369-00	METAL OXIDE 1 5% 2W F	
R218	1-216-690-11	METAL CHIP 43K 0.5% 1/10W	
R219	1-216-675-11	METAL CHIP 10K 0.5% 1/10W	
R220	1-216-690-11	METAL CHIP 43K 0.5% 1/10W	
R221	1-216-675-11	METAL CHIP 10K 0.5% 1/10W	
R222	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R223	1-216-073-00	METAL CHIP 10K 5% 1/10W	
△R224	1-215-866-11	METAL OXIDE 330 5% 1W F	
R225	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R226	1-247-750-11	CARBON 680 5% 1/2W	
R227	1-216-073-00	METAL CHIP 10K 5% 1/10W	

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Ref. No.	Part No.	Description	Remark		
R228	1-216-093-00	METAL CHIP	68K	5%	1/10W
R230	1-216-105-00	METAL CHIP	220K	5%	1/10W
< RELAY >					
△RY101	1-515-833-11	RELAY			

*	A-6421-465-A	SV-63 BOARD, COMPLETE	*****		
< CAPACITOR >					
C001	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C003	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C005	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C006	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C009	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C010	1-163-121-00	CERAMIC CHIP	150PF	5%	50V
C011	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C012	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C013	1-124-584-00	ELECT	100uF	20%	10V
C014	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C015	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C019	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C020	1-124-465-00	ELECT	0.47uF	20%	50V
C021	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C101	1-128-057-11	ELECT	330uF	20%	6.3V
C102	1-128-057-11	ELECT	330uF	20%	6.3V
C103	1-124-242-00	ELECT	33uF	20%	25V
C104	1-124-242-00	ELECT	33uF	20%	25V
C105	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C106	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C107	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C108	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C109	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C110	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C111	1-126-160-11	ELECT	1uF	20%	50V
C112	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C113	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C114	1-126-160-11	ELECT	1uF	20%	50V
C115	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C116	1-126-160-11	ELECT	1uF	20%	50V
C117	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C118	1-163-014-00	CERAMIC CHIP	0.0027uF	10%	50V
C119	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C120	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C121	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C122	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C123	1-163-115-00	CERAMIC CHIP	82PF	5%	50V
C124	1-163-101-00	CERAMIC CHIP	22PF	5%	50V

Ref. No.	Part No.	Description	Remark		
C125	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C126	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C127	1-124-499-11	ELECT, NONPOLAR R	1uF	20%	50V
C128	1-126-320-11	ELECT, NONPOLAR R	10uF	20%	16V
C129	1-136-165-00	FILM	0.1uF	5%	50V
C130	1-126-320-11	ELECT, NONPOLAR R	10uF	20%	16V
C131	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C132	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C135	1-163-024-00	CERAMIC CHIP	0.018uF	10%	50V
C136	1-136-169-00	FILM	0.22uF	5%	50V
C137	1-163-022-00	CERAMIC CHIP	0.012uF	10%	50V
C138	1-163-022-00	CERAMIC CHIP	0.012uF	10%	50V
C139	1-124-282-00	ELECT	22uF	20%	16V
C140	1-104-485-11	ELECT	3.3uF	20%	25V
C141	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C144	1-163-016-00	CERAMIC CHIP	0.0039uF	10%	50V
C145	1-163-024-00	CERAMIC CHIP	0.018uF	10%	50V
C146	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C147	1-136-169-00	FILM	0.22uF	5%	50V
C149	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C150	1-124-589-11	ELECT	47uF	20%	16V
C151	1-124-589-11	ELECT	47uF	20%	16V
C152	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C153	1-163-035-00	CERAMIC CHIP	0.047uF		50V
< CONNECTOR >					
CN101	1-566-939-11	CONNECTOR, F. P. C	24P		
CN102	1-563-493-11	CONNECTOR, F. P. C	28P		
CN103	1-506-485-11	PIN, CONNECTOR	6P		
CN104	1-506-482-11	PIN, CONNECTOR	3P		
* CN105	1-566-969-11	HOUSING, CONNECTOR	(PC BOARD)	7P	
* CN106	1-566-968-11	HOUSING, CONNECTOR	(PC BOARD)	6P	
< DIODE >					
D001	8-719-911-19	DIODE	1SS119		
D101	8-719-911-19	DIODE	1SS119		
D102	8-719-109-72	DIODE	RD3.9ES-B2		
D103	8-719-911-19	DIODE	1SS119		
D104	8-719-911-19	DIODE	1SS119		
< FUSE >					
F001	1-532-775-11	FUSE, MICRO	(SECONDARY)		
< FILTER >					
FL001	1-235-922-11	FILTER, LOW PASS	(1.7MHz)		
< IC >					
IC001	8-752-050-19	IC	CXA1081M		

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Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
IC002	8-759-603-24	IC CX20197		JR147	1-216-296-00	METAL CHIP	0 5% 1/8W
IC101	8-759-321-40	IC HA11529		JR148	1-216-296-00	METAL CHIP	0 5% 1/8W
IC102	8-759-822-38	IC LA6510		JR149	1-216-296-00	METAL CHIP	0 5% 1/8W
IC103	8-759-996-43	IC RC4558PS		JR150	1-216-296-00	METAL CHIP	0 5% 1/8W
IC104	8-759-996-43	IC RC4558PS		JR153	1-216-296-00	METAL CHIP	0 5% 1/8W
IC105	8-759-996-43	IC RC4558PS		JR154	1-216-296-00	METAL CHIP	0 5% 1/8W
IC106	8-759-300-71	IC HD14053BFP		JR155	1-216-296-00	METAL CHIP	0 5% 1/8W
< JUMPER RESISTOR >				JR156	1-216-296-00	METAL CHIP	0 5% 1/8W
JR102	1-216-295-00	METAL CHIP	0 5% 1/10W	JR158	1-216-295-00	METAL CHIP	0 5% 1/10W
JR103	1-216-296-00	METAL CHIP	0 5% 1/8W	JR159	1-216-296-00	METAL CHIP	0 5% 1/8W
JR104	1-216-296-00	METAL CHIP	0 5% 1/8W	JR160	1-216-296-00	METAL CHIP	0 5% 1/8W
JR105	1-216-295-00	METAL CHIP	0 5% 1/10W	JR161	1-216-296-00	METAL CHIP	0 5% 1/8W
JR106	1-216-296-00	METAL CHIP	0 5% 1/8W	JR162	1-216-296-00	METAL CHIP	0 5% 1/8W
JR107	1-216-295-00	METAL CHIP	0 5% 1/10W	JR164	1-216-296-00	METAL CHIP	0 5% 1/8W
JR111	1-216-296-00	METAL CHIP	0 5% 1/8W	JR166	1-216-295-00	METAL CHIP	0 5% 1/10W
JR112	1-216-296-00	METAL CHIP	0 5% 1/8W	JR170	1-216-296-00	METAL CHIP	0 5% 1/8W
JR113	1-216-296-00	METAL CHIP	0 5% 1/8W	JR171	1-216-295-00	METAL CHIP	0 5% 1/10W
JR114	1-216-295-00	METAL CHIP	0 5% 1/10W	JR172	1-216-296-00	METAL CHIP	0 5% 1/8W
JR115	1-216-296-00	METAL CHIP	0 5% 1/8W	JR173	1-216-296-00	METAL CHIP	0 5% 1/8W
JR116	1-216-295-00	METAL CHIP	0 5% 1/10W	JR174	1-216-296-00	METAL CHIP	0 5% 1/8W
JR117	1-216-295-00	METAL CHIP	0 5% 1/10W	JR175	1-216-295-00	METAL CHIP	0 5% 1/10W
JR118	1-216-296-00	METAL CHIP	0 5% 1/8W	JR176	1-216-296-00	METAL CHIP	0 5% 1/8W
JR119	1-216-296-00	METAL CHIP	0 5% 1/8W	JR177	1-216-296-00	METAL CHIP	0 5% 1/8W
JR121	1-216-296-00	METAL CHIP	0 5% 1/8W	JR178	1-216-296-00	METAL CHIP	0 5% 1/8W
JR122	1-216-296-00	METAL CHIP	0 5% 1/8W	JR179	1-216-296-00	METAL CHIP	0 5% 1/8W
JR123	1-216-296-00	METAL CHIP	0 5% 1/8W	JR180	1-216-296-00	METAL CHIP	0 5% 1/8W
JR124	1-216-296-00	METAL CHIP	0 5% 1/8W	JR181	1-216-296-00	METAL CHIP	0 5% 1/8W
JR125	1-216-296-00	METAL CHIP	0 5% 1/8W	JR182	1-216-296-00	METAL CHIP	0 5% 1/8W
JR126	1-216-296-00	METAL CHIP	0 5% 1/8W	JR183	1-216-295-00	METAL CHIP	0 5% 1/10W
JR127	1-216-295-00	METAL CHIP	0 5% 1/10W	JR184	1-216-296-00	METAL CHIP	0 5% 1/8W
JR128	1-216-296-00	METAL CHIP	0 5% 1/8W	JR185	1-216-296-00	METAL CHIP	0 5% 1/8W
JR129	1-216-296-00	METAL CHIP	0 5% 1/8W	JR186	1-216-296-00	METAL CHIP	0 5% 1/8W
JR130	1-216-296-00	METAL CHIP	0 5% 1/8W	JR187	1-216-296-00	METAL CHIP	0 5% 1/8W
JR132	1-216-296-00	METAL CHIP	0 5% 1/8W	JR188	1-216-296-00	METAL CHIP	0 5% 1/8W
JR133	1-216-296-00	METAL CHIP	0 5% 1/8W	JR189	1-216-295-00	METAL CHIP	0 5% 1/10W
JR134	1-216-296-00	METAL CHIP	0 5% 1/8W	JR191	1-216-296-00	METAL CHIP	0 5% 1/8W
JR135	1-216-296-00	METAL CHIP	0 5% 1/8W	JR192	1-216-296-00	METAL CHIP	0 5% 1/8W
JR136	1-216-296-00	METAL CHIP	0 5% 1/8W	JR193	1-216-296-00	METAL CHIP	0 5% 1/8W
JR137	1-216-296-00	METAL CHIP	0 5% 1/8W	JR194	1-216-296-00	METAL CHIP	0 5% 1/8W
JR138	1-216-296-00	METAL CHIP	0 5% 1/8W	JR195	1-216-295-00	METAL CHIP	0 5% 1/10W
JR139	1-216-296-00	METAL CHIP	0 5% 1/8W	JR196	1-216-296-00	METAL CHIP	0 5% 1/8W
JR140	1-216-296-00	METAL CHIP	0 5% 1/8W	JR197	1-216-296-00	METAL CHIP	0 5% 1/8W
JR141	1-216-296-00	METAL CHIP	0 5% 1/8W	JR198	1-216-296-00	METAL CHIP	0 5% 1/8W
JR142	1-216-296-00	METAL CHIP	0 5% 1/8W	JR199	1-216-296-00	METAL CHIP	0 5% 1/8W
JR143	1-216-296-00	METAL CHIP	0 5% 1/8W	JR200	1-216-296-00	METAL CHIP	0 5% 1/8W
JR144	1-216-296-00	METAL CHIP	0 5% 1/8W	JR201	1-216-296-00	METAL CHIP	0 5% 1/8W
JR145	1-216-296-00	METAL CHIP	0 5% 1/8W	JR202	1-216-296-00	METAL CHIP	0 5% 1/8W
JR146	1-216-296-00	METAL CHIP	0 5% 1/8W	JR203	1-216-296-00	METAL CHIP	0 5% 1/8W
				JR204	1-216-296-00	METAL CHIP	0 5% 1/8W

Ref. No.	Part No.	Description			Remark
JR205	1-216-295-00	METAL CHIP	0	5%	1/10W
JR206	1-216-295-00	METAL CHIP	0	5%	1/10W
JR207	1-216-296-00	METAL CHIP	0	5%	1/8W
JR208	1-216-296-00	METAL CHIP	0	5%	1/8W
JR209	1-216-295-00	METAL CHIP	0	5%	1/10W
JR210	1-216-295-00	METAL CHIP	0	5%	1/10W
JR211	1-216-296-00	METAL CHIP	0	5%	1/8W
JR212	1-216-296-00	METAL CHIP	0	5%	1/8W
JR213	1-216-296-00	METAL CHIP	0	5%	1/8W
JR214	1-216-296-00	METAL CHIP	0	5%	1/8W
JR215	1-216-295-00	METAL CHIP	0	5%	1/10W
JR216	1-216-295-00	METAL CHIP	0	5%	1/10W
JR217	1-216-295-00	METAL CHIP	0	5%	1/10W
JR218	1-216-296-00	METAL CHIP	0	5%	1/8W
JR219	1-216-295-00	METAL CHIP	0	5%	1/10W
JR220	1-216-296-00	METAL CHIP	0	5%	1/8W
JR221	1-216-296-00	METAL CHIP	0	5%	1/8W
< COIL >					
L101	1-410-509-11	INDUCTOR 10uH			
L102	1-410-509-11	INDUCTOR 10uH			
L103	1-410-509-11	INDUCTOR 10uH			
< TRANSISTOR >					
Q001	8-729-140-97	TRANSISTOR 2SB734-34			
Q002	8-729-216-22	TRANSISTOR 2SA1162-G			
Q003	8-729-303-37	TRANSISTOR 2SD655-E			
Q101	8-729-209-15	TRANSISTOR 2SD2012			
Q102	8-729-924-90	TRANSISTOR 2SB1370-EF			
Q103	8-729-209-15	TRANSISTOR 2SD2012			
Q104	8-729-924-90	TRANSISTOR 2SB1370-EF			
Q105	8-729-100-66	TRANSISTOR 2SC1623-L6			
Q106	8-729-100-66	TRANSISTOR 2SC1623-L6			
Q107	8-729-901-00	TRANSISTOR DTC124EK			
Q108	8-729-100-66	TRANSISTOR 2SC1623-L6			
Q109	8-729-216-22	TRANSISTOR 2SA1162-G			
< RESISTOR >					
RO01	1-216-049-00	METAL CHIP	1K	5%	1/10W
RO02	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
RO03	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
RO04	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
RO05	1-216-049-00	METAL CHIP	1K	5%	1/10W
RO06	1-216-049-00	METAL CHIP	1K	5%	1/10W
RO07	1-216-023-00	METAL CHIP	82	5%	1/10W
RO08	1-216-043-00	METAL CHIP	560	5%	1/10W
RO09	1-216-073-00	METAL CHIP	10K	5%	1/10W
RO10	1-216-095-00	METAL CHIP	82K	5%	1/10W

Ref. No.	Part No.	Description			Remark
RO11	1-216-081-00	METAL CHIP	22K	5%	1/10W
RO12	1-249-394-11	CARBON	12	5%	1/6W F
RO13	1-216-073-00	METAL CHIP	10K	5%	1/10W
RO14	1-216-097-00	METAL CHIP	100K	5%	1/10W
RO15	1-216-049-00	METAL CHIP	1K	5%	1/10W
RO16	1-216-101-00	METAL CHIP	150K	5%	1/10W
RO17	1-216-041-00	METAL CHIP	470	5%	1/10W
RO18	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
RO20	1-216-049-00	METAL CHIP	1K	5%	1/10W
RO21	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
RO22	1-216-081-00	METAL CHIP	22K	5%	1/10W
RO23	1-249-394-11	CARBON	12	5%	1/6W F
R101	1-216-373-11	METAL OXIDE	2.2	5%	2W F
R103	1-216-073-00	METAL CHIP	10K	5%	1/10W
R104	1-216-073-00	METAL CHIP	10K	5%	1/10W
R105	1-216-073-00	METAL CHIP	10K	5%	1/10W
R106	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R107	1-216-089-00	METAL CHIP	47K	5%	1/10W
R108	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R109	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R110	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R111	1-216-073-00	METAL CHIP	10K	5%	1/10W
R112	1-216-101-00	METAL CHIP	150K	5%	1/10W
R113	1-216-077-00	METAL CHIP	15K	5%	1/10W
R114	1-216-025-00	METAL CHIP	100	5%	1/10W
R115	1-216-025-00	METAL CHIP	100	5%	1/10W
R116	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R117	1-216-073-00	METAL CHIP	10K	5%	1/10W
R118	1-216-073-00	METAL CHIP	10K	5%	1/10W
R119	1-216-073-00	METAL CHIP	10K	5%	1/10W
R120	1-216-073-00	METAL CHIP	10K	5%	1/10W
R121	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R122	1-216-085-00	METAL CHIP	33K	5%	1/10W
R123	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R124	1-216-079-00	METAL CHIP	18K	5%	1/10W
R125	1-216-081-00	METAL CHIP	22K	5%	1/10W
R126	1-216-033-00	METAL CHIP	220	5%	1/10W
R127	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R128	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R129	1-216-041-00	METAL CHIP	470	5%	1/10W
R130	1-216-017-00	METAL CHIP	47	5%	1/10W
R131	1-216-073-00	METAL CHIP	10K	5%	1/10W
R132	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R133	1-216-097-00	METAL CHIP	100K	5%	1/10W
R134	1-216-097-00	METAL CHIP	100K	5%	1/10W
R135	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R136	1-216-081-00	METAL CHIP	22K	5%	1/10W
R137	1-216-099-00	METAL CHIP	120K	5%	1/10W
R138	1-216-081-00	METAL CHIP	22K	5%	1/10W

Ref. No.	Part No.	Description	Remark		
R139	1-216-081-00	METAL CHIP	22K	5%	1/10W
R140	1-216-037-00	METAL CHIP	330	5%	1/10W
R141	1-216-024-00	METAL GLAZE	91	5%	1/10W
R142	1-216-001-00	METAL CHIP	10	5%	1/10W
R143	1-216-001-00	METAL CHIP	10	5%	1/10W
R144	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R145	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R146	1-216-073-00	METAL CHIP	10K	5%	1/10W
R147	1-216-081-00	METAL CHIP	22K	5%	1/10W
R148	1-216-037-00	METAL CHIP	330	5%	1/10W
R149	1-216-033-00	METAL CHIP	220	5%	1/10W
R150	1-216-085-00	METAL CHIP	33K	5%	1/10W
R151	1-216-113-00	METAL CHIP	470K	5%	1/10W
R152	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R153	1-216-085-00	METAL CHIP	33K	5%	1/10W
R154	1-216-101-00	METAL CHIP	150K	5%	1/10W
R155	1-216-089-00	METAL CHIP	47K	5%	1/10W
R156	1-216-083-00	METAL CHIP	27K	5%	1/10W
R157	1-216-101-00	METAL CHIP	150K	5%	1/10W
R158	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R159	1-216-075-00	METAL CHIP	12K	5%	1/10W
R160	1-216-083-00	METAL CHIP	27K	5%	1/10W
R161	1-216-113-00	METAL CHIP	470K	5%	1/10W
R162	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R163	1-216-083-00	METAL CHIP	27K	5%	1/10W
R164	1-216-035-00	METAL CHIP	270	5%	1/10W
R165	1-216-089-00	METAL CHIP	47K	5%	1/10W
R166	1-216-041-00	METAL CHIP	470	5%	1/10W
R167	1-216-049-00	METAL CHIP	1K	5%	1/10W
R168	1-216-049-00	METAL CHIP	1K	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	1-216-049-00	METAL CHIP	1K	5%	1/10W
R172	1-216-049-00	METAL CHIP	1K	5%	1/10W
R173	1-216-085-00	METAL CHIP	33K	5%	1/10W
R174	1-216-073-00	METAL CHIP	10K	5%	1/10W
R175	1-216-085-00	METAL CHIP	33K	5%	1/10W
R176	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R177	1-216-085-00	METAL CHIP	33K	5%	1/10W
R178	1-216-073-00	METAL CHIP	10K	5%	1/10W
R179	1-216-101-00	METAL CHIP	150K	5%	1/10W
R180	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R181	1-216-083-00	METAL CHIP	27K	5%	1/10W
R182	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R183	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R184	1-216-089-00	METAL CHIP	47K	5%	1/10W
R186	1-216-097-00	METAL CHIP	100K	5%	1/10W
R187	1-216-089-00	METAL CHIP	47K	5%	1/10W
R188	1-216-065-00	METAL CHIP	4.7K	5%	1/10W

Ref. No.	Part No.	Description	Remark		
R189	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R190	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R191	1-216-097-00	METAL CHIP	100K	5%	1/10W
R192	1-216-081-00	METAL CHIP	22K	5%	1/10W
R193	1-216-105-00	METAL CHIP	220K	5%	1/10W
R194	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R195	1-216-085-00	METAL CHIP	33K	5%	1/10W
R196	1-216-097-00	METAL CHIP	100K	5%	1/10W
R197	1-216-089-00	METAL CHIP	47K	5%	1/10W
R198	1-216-081-00	METAL CHIP	22K	5%	1/10W
R199	1-216-099-00	METAL CHIP	120K	5%	1/10W
R200	1-216-085-00	METAL CHIP	33K	5%	1/10W
R201	1-216-095-00	METAL CHIP	82K	5%	1/10W
R202	1-216-081-00	METAL CHIP	22K	5%	1/10W
R205	1-216-097-00	METAL CHIP	100K	5%	1/10W
R206	1-216-081-00	METAL CHIP	22K	5%	1/10W
R207	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R208	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R209	1-216-073-00	METAL CHIP	10K	5%	1/10W
R210	1-216-081-00	METAL CHIP	22K	5%	1/10W
R211	1-216-017-00	METAL CHIP	47	5%	1/10W
R212	1-216-017-00	METAL CHIP	47	5%	1/10W
R213	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R214	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R215	1-216-073-00	METAL CHIP	10K	5%	1/10W
R216	1-216-081-00	METAL CHIP	22K	5%	1/10W
R217	1-216-081-00	METAL CHIP	22K	5%	1/10W
R218	1-216-077-00	METAL CHIP	15K	5%	1/10W
R219	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R220	1-216-079-00	METAL CHIP	18K	5%	1/10W
R222	1-216-129-00	METAL CHIP	2.2M	5%	1/10W
< VARIABLE RESISTOR >					
RV101	1-228-993-00	RES, ADJ, METAL	4.7K		
RV102	1-228-994-00	RES, ADJ, METAL	10K		
RV103	1-228-994-00	RES, ADJ, METAL	10K		
RV104	1-228-993-00	RES, ADJ, METAL	4.7K		
RV105	1-228-994-00	RES, ADJ, METAL	10K		
RV106	1-228-990-00	RES, ADJ, METAL	1K		
RV107	1-228-990-00	RES, ADJ, METAL	1K		
RV108	1-228-990-00	RES, ADJ, METAL	1K		

SW-704

SW-706

SW-707

TR-702

Ref. No.	Part No.	Description	Remark
*	A-6426-525-A	SW-704 (J58) BOARD, COMPLETE (US, CND) *****	
*	1-643-903-22	SW-704 BOARD (PX) ***** < CAPACITOR >	
C701	1-126-157-11	ELECT 10uF 20% 16V	
C702	1-163-031-11	CERAMIC CHIP 0.01uF 50V < CONNECTOR >	
CN701	1-569-339-11	CONNECTOR, BOARD TO BOARD 7P < DIODE >	
D701	8-719-940-82	LED SLR34MC3	
D702	8-719-940-82	LED SLR34MC3	
D703	8-719-940-99	LED SLR34VC3 (PX) < IC >	
IC701	8-741-100-48	IC SBX1610-59 < COIL >	
L701	1-408-421-00	INDUCTOR 100uH < TRANSISTOR >	
Q701	8-729-901-46	TRANSISTOR DTA114YK (PX) < RESISTOR >	
R701	1-216-029-00	METAL CHIP 150 5% 1/10W	
R702	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R703	1-216-031-00	METAL CHIP 180 5% 1/10W (PX)	
R704	1-216-029-00	METAL CHIP 150 5% 1/10W < SWITCH >	
S701	1-572-946-11	SWITCH, TACTIL (POWER) *****	
*	1-643-907-12	SW-706 BOARD (US, CND) *****	
*	1-643-907-22	SW-706 BOARD (PX) ***** < CONNECTOR >	
CN601	1-506-467-11	PIN, CONNECTOR 2P < SWITCH >	
S601	1-554-655-00	SWITCH, LEAF (TRAY OPEN/CLOSE) *****	

Ref. No.	Part No.	Description	Remark
*	1-643-908-12	SW-707 BOARD (US, CND) *****	
*	1-643-908-22	SW-707 BOARD (PX) ***** < CONNECTOR >	
CN401	1-506-481-11	PIN, CONNECTOR 2P	
CN402	1-506-481-11	PIN, CONNECTOR 2P < RESISTOR >	
R401	1-249-423-11	CARBON 3.3K 5% 1/4W F	
R402	1-249-417-11	CARBON 1K 5% 1/4W F < SWITCH >	
S401	1-571-300-21	SWITCH, ROTARY (CHUCK UP/DOWN) *****	
*	1-643-906-12	TR-702 BOARD (US, CND) *****	
*	1-643-906-22	TR-702 BOARD (PX) *****	
△	1-533-189-11	HOLDER, FUSE	
*	3-354-631-01	CUSHION (RF) (PX) < CAPACITOR >	
△C301	1-136-472-11	FILM 0.1uF 20% 250V	
C302	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C303	1-163-077-00	CERAMIC CHIP 0.1uF 10% 25V < CONNECTOR >	
△CN301	1-564-419-11	HEADER, SPRING (POWER) 2P (PX)	
△CN301	1-580-230-31	PIN, CONNECTOR (PC BOARD) 3P (US, CND)	
* CN302	1-564-031-00	PIN, CONNECTOR 6P < FUSE >	
△F301	1-532-285-00	FUSE, TIME-LAG (1.25A 250V) (PX)	
△F301	1-532-742-11	FUSE, GLASS TUBE (1.6A 125V) (US, CND)	
△F302	1-532-284-00	FUSE, TIME-LAG (0.63A 250V) (PX) < TRANSFORMER >	
△T301	1-450-972-11	TRANSFORMER, POWER (PX)	
△T301	1-450-973-11	TRANSFORMER, POWER (US, CND) < RESISTOR >	
△R301	1-202-729-00	SOLID 6.8M 10% 1/2W (US, CND) < TRANSFORMER >	
△T302	1-424-656-11	FILTER, LINE	

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.
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Ref. No.	Part No.	Description	Remark

*△	1-644-141-22	VS-701 BOARD (PX)	

		< SWITCH >	
△S901	1-554-933-11	SELECTOR, VOLTAGE (VOLTAGE SELECTOR) (PX)	

		MISCELLANEOUS	

23	1-693-095-21	REMOTE COMMANDER (RMT-M12A)	
55	A-6415-359-A	MOTOR BLOCK ASSY (X), THREADING (M904)	
△109	1-559-129-71	CORD, POWER (US, CND)	
△109	1-575-912-21	CORD, POWER (PX)	
* 112	1-696-664-11	WIRE, FLAT (28 CORE)	
157	A-6415-290-A	MOTOR BLOCK ASSY, SKEW (M903)	
158	1-554-468-00	SWITCH, LEAF (SLED IN LIMIT LD/CD) (S903)	
159	1-541-776-21	MOTOR, LD SPINDLE (M901)	
168	1-574-648-11	CABLE, FLEXIBLE FLAT (24 CORE)	
204	1-570-771-21	SWITCH (SLED OUT LIMIT) (S902)	
206	1-571-435-11	SWITCH (SLED IN LIMIT) (S901)	
213	A-6415-434-A	MOTOR BLOCK ASSY, SLED (M902)	
△215	8-848-138-11	DEVICE, OPTICAL KHS-130A	

		ACCESSORIES & PACKING MATERIALS	

	1-551-086-31	CORD, CONNECTION	
	1-559-533-11	CORD, CONNECTION	
	1-569-007-11	ADAPTER, CONVERSION 2P (PX)	
	3-754-785-21	MANUAL, INSTRUCTION (ENGLISH)	
	3-754-785-31	MANUAL, INSTRUCTION (FRENCH) (CND)	
*	3-795-581-21	SAFEGUARD (SONY), IMPORTANT (US)	
*	3-948-404-01	CUSHION (LOWER)	
*	3-948-405-01	CUSHION (UPPER)	
*	3-949-708-01	INDIVIDUAL CARTON (US, CND)	
*	3-949-708-11	INDIVIDUAL CARTON (PX)	

Ref. No.	Part No.	Description	Remark

HARDWARE LIST			

#1	7-624-108-04	STOP RING 4.0, TYPE -E	
#2	7-685-648-79	SCREW +BVTP 3X12 TYPE2 IT-3	
#3	7-624-190-81	STOP RING 2, TYPE-CS	
#4	7-685-647-79	SCREW +BTP 3X10 TYPE2 N-S	
#5	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
#6	7-682-645-01	SCREW +PS 3X4	
#7	7-621-255-55	SCREW +P 2X8	
#8	7-685-649-79	SCREW +BVTP 3X14 TYPE2 IT-3	
#9	7-685-661-79	SCREW +BVTP 4X12 TYPE2 SLIT	
#11	7-682-545-04	SCREW (3X4) (G), TAPPING, (+) P	
#12	7-628-254-20	+PSW 2.6X8	

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.
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SECTION 7 ELECTRICAL ADJUSTMENTS

During these adjustment, see the parts arrangement diagram for adjustments on page from 136.

7-1. LIST OF SERVICING JIGS

- Oscilloscope
- Color monitor TV
- Digital voltmeter
- Audio level meter
- Frequency counter
- Remote commander (RMT-M12A)
- LD alignment disc REF7C-8AL (8-597-901-03)
- CD alignment disc YEDS-18 (3-702-101-01)
- MD adjustment cable (J-6082-059-B)
- Audio oscillator

7-2. CAUTIONS ON ADJUSTMENT

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

7-3. MD ADJUSTMENT CABLE (J-6087-059-B)

MD adjustment cable is used to adjust the servo system with connecting to the SV-63 board. Remove it except when adjusting the servo system.

7-4. POWER SUPPLY CHECK (PS-701 BOARD)

Mode	Stop
Measuring Equipment	Digital Voltmeter
UNREG + 16 V check	
Measurement Point	Pin ① of CN104 (Pin ②, GND)
Specified Value	16.2 ± 1.0 V
UNREG - 16 V check	
Measurement Point	Pin ④ of CN104 (Pin ③, GND)
Specified Value	- 16.2 ± 1.0 V
REG + 5 V check	
Measurement Point	Pin ① of CN103 (Pin ②, GND)
Specified Value	5.1 ± 0.3 V
REG - 5 V check	
Measurement Point	Pin ③ of CN103 (Pin ②, GND)
Specified Value	- 5.0 ± 0.2 V
AC 3.1 V check	
Measurement Point	Pin ①, ② of CN105
Specified Value	3.2 ± 1.0 V AC
DC - 30 V check	
Measurement Point	Pin ④ of CN105 (Pin ③, GND)
Specified Value	- 33.0 ± 2.0 V
EVER 5V Check	
Measurement Point	Pin ⑥ of CN105 (Pin ⑦, GND)
Specified Value	5.0 ± 0.2 V

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

7-5. SYSTEM CONTROL SYSTEM ADJUSTMENT

7-5-1. Microprocessor Clock Adjustment (MB-701 Board)

Mode	Stop
Measurement Point	Pin ⑬ of IC107
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.

7-6. SERVO SYSTEM ADJUSTMENT

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

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

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

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

7-6-1. LD Servo System Adjustment

1. LD Tracking Balance Adjustment (SV-63 Board)

1) Focus balance adjustment

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

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

Adjustment method :

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

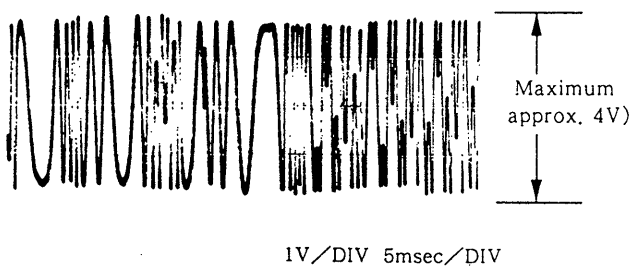


Fig. 7-1.

2) Tracking balance adjustment

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

Adjustment method :

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

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

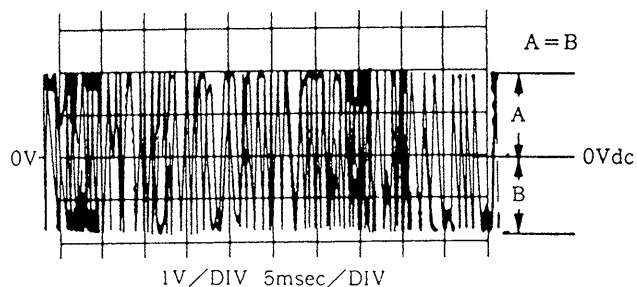
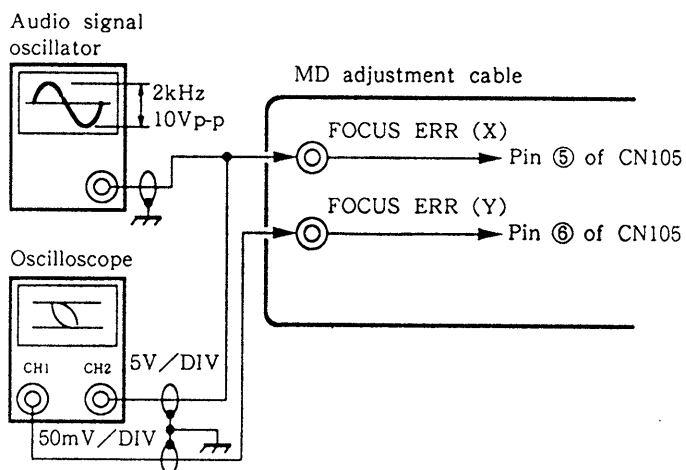


Fig. 7-2.

2. LD Focus Gain Adjustment (SV-63 Board)

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

Connections :



Adjustment method :

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

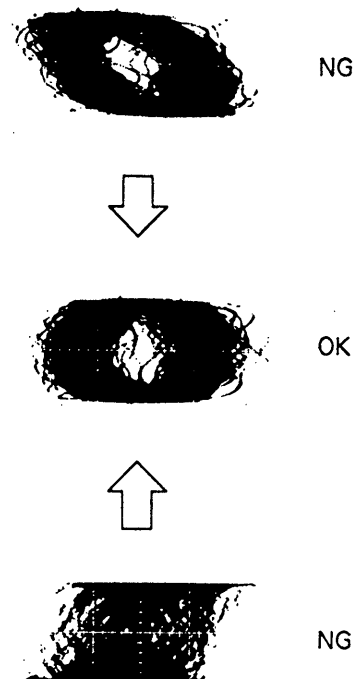


Fig. 7-3.

3. LD Cross Talk Balance Adjustment

1) TAN cam adjustment (MD)

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

*Mechanical center :

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

Adjustment method :

- 1) Turn the TAN cam on the bottom (See Fig. 7-9.) with a hexagonal wrench.

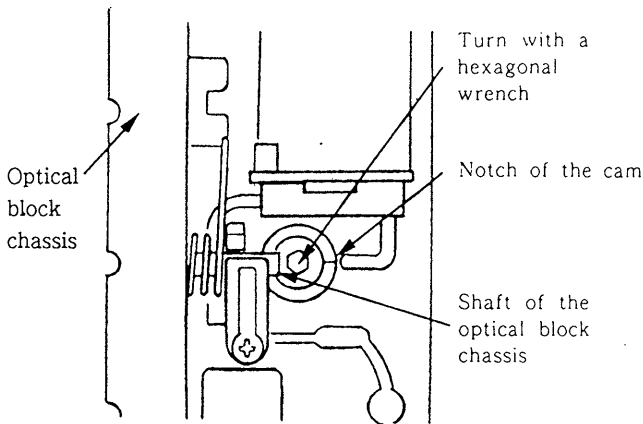


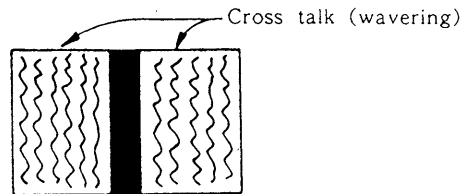
Fig. 7-4.

2) RAD TILT adjustment (SV-63 board)

Mode	Still
Signal	Frame 770 (V BAR)
Measurement Point	Monitor TV
Measuring Equipment	Monitor TV
Adjusting Element	RV105
Specified Value	Cross talk (wavering) with minimum as well as the same level.

Adjustment method :

- 1) Select STILL (M) mode.
- 2) Search the frame 770 and apply a vertical bar signal.
- 3) Adjust RV105 so that the right and left cross talks (wavering) become minimum as well as the same level.



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

Fig. 7-5.

3) Focus balance adjustment (SV-63 board)

Mode	Still
Signal	Frame 770 (V BAR)
Measurement Point	Monitor TV
Measuring Equipment	Monitor TV
Adjusting Element	RV102
Specified Value	Cross talk (wavering) with minimum as well as the same level.

Adjustment method :

- 1) Select STILL (M) mode.
- 2) Search the frame 770 and apply a vertical bar signal.
- 3) Adjust RV102 to minimize the right and left cross talks (wavering) level.

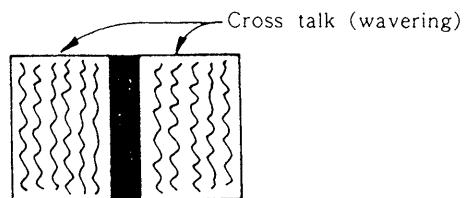
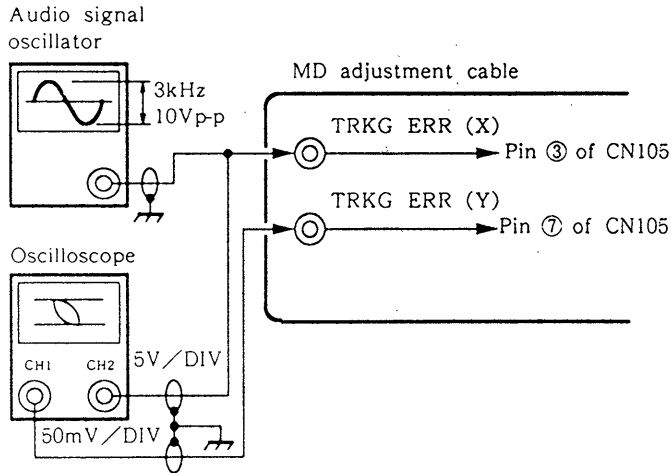


Fig. 7-6.

4. LD Tracing Gain Adjustment (SV-63 board)

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

Connections :



Adjustment method :

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

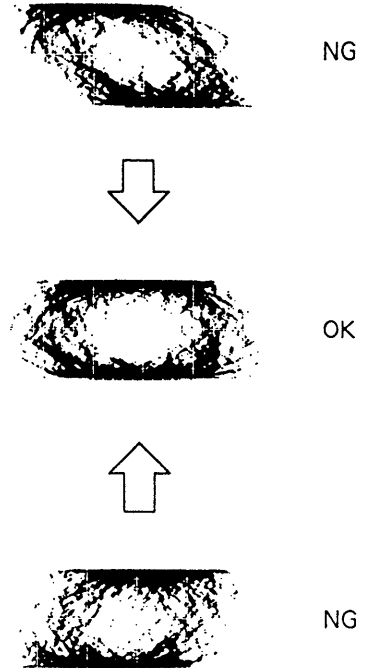


Fig. 7-7.

7-6-2. CD Servo System Adjustment

1. RD Adjustment

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

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

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

Adjustment method :

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

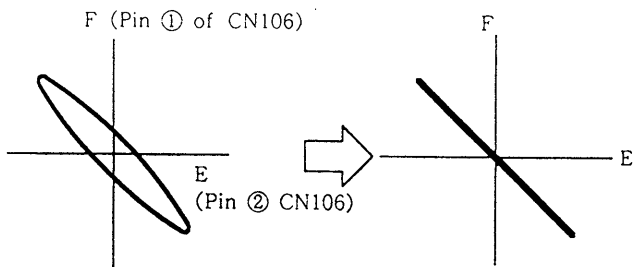


Fig. 7-8.

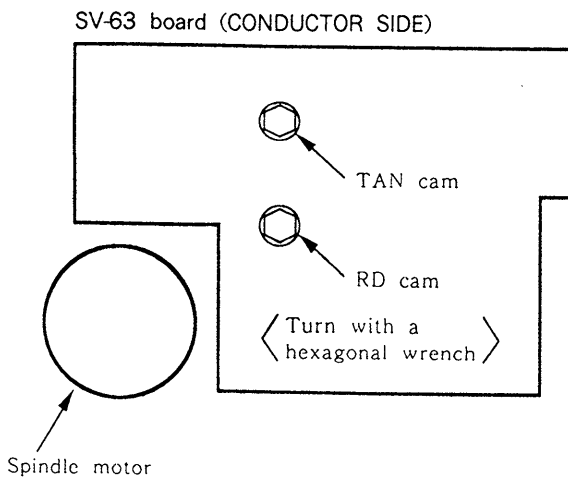


Fig. 7-9.

2. CD Focus Balance Adjustment (SV-63 Board)

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

Adjustment method :

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

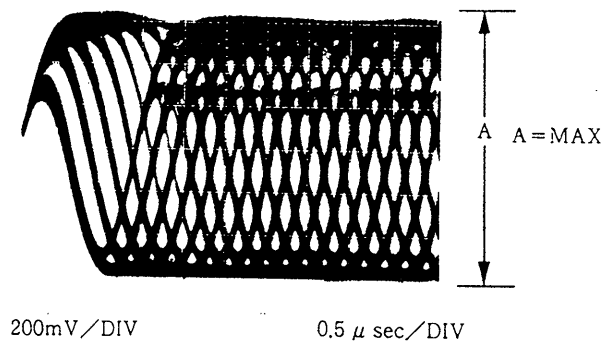


Fig. 7-10.

3. CD RF H Level Adjustment (SV-63 Board)

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

Adjustment method :

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

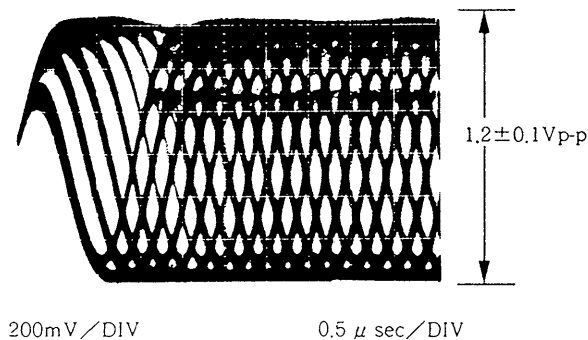


Fig. 7-11.

4. CD RF L Level Adjustment (SV-63 Board)

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

Adjustment method :

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

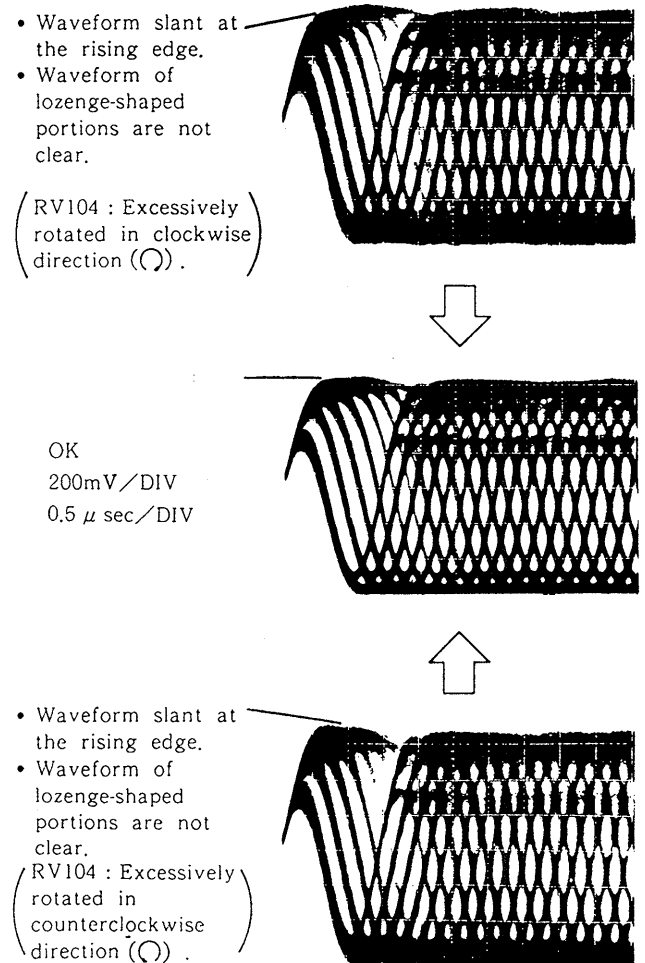


Fig. 7-12.

7-7. VIDEO SYSTEM ADJUSTMENT

7-7-1. Video Output Level Adjustment (MB-701 Board)

Mode	Still
Signal	Frame 4100 (Color bar)
Measurement Point	CNJ101 (VIDEO OUT terminal) (Terminated to 75 Ω)
Measuring Equipment	Oscilloscope
Adjusting Element	RV002
Specified Value	1.00 ± 0.03 Vp-p

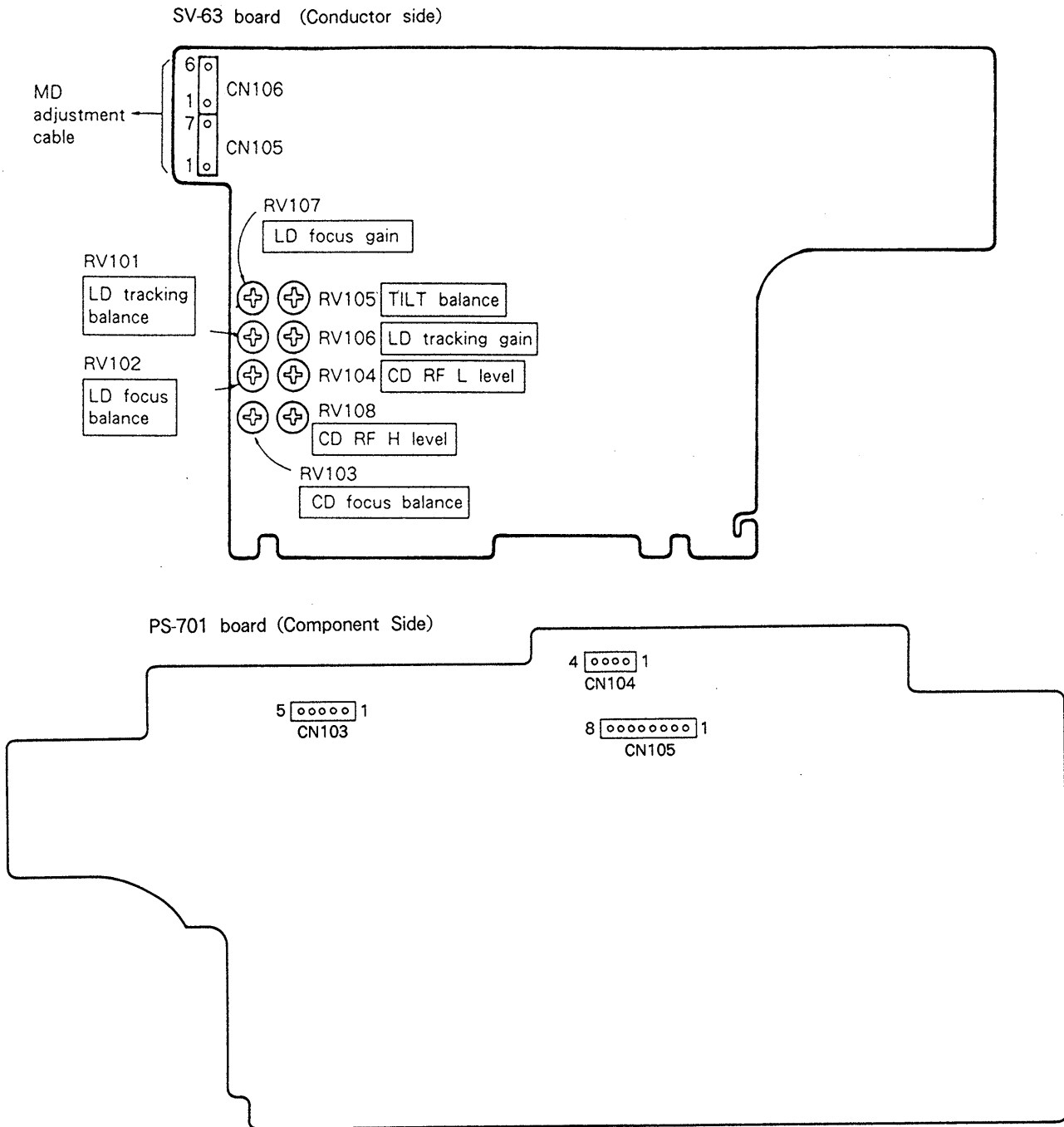
Adjustment method :

- 1) Select STILL (▶◀) mode.
- 2) Search the frame 4100 and apply a color bar signal.
- 3) Adjust RV002 for 1.00 ± 0.03 Vp-p.



Fig. 7-13.

7-8. PARTS ARRANGEMENT DIAGRAM FOR ADJUSTMENTS



MB-701 board (Component Side)

