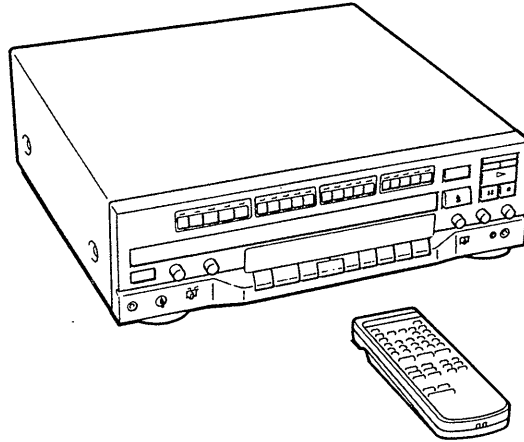


MDP-K15

RMT-M13A

SERVICE MANUAL

E Model



SPECIFICATIONS

Type
Signal readout
Signal format system
Playing time

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

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

Digital audio specifications

Frequency response 4 Hz to 20 kHz
(+0.5 dB/-1.0 dB)
Signal-to-noise ratio 100 dB (EIAJ)*
Total harmonic distortion 0.005% (EIAJ)
Wow and flutter Below measurement limit
(±0.001% W.PEAK) (EIAJ)
Digital key control ±2 notes (17 steps)

Video specifications

Horizontal video resolution 425 lines
Signal-to-noise ratio More than 48 dB

Input/output specifications

MIC jack Standard jack
1 mV (Impedance below 1 kΩ)
MIC control jack Applicable to karaoke
microphone (F-KM1, etc.)
Video output 1, 2 1.0 Vp-p, 75 ohms, unbalanced
Audio output 1, 2 Stereo L, R
Analog: 200 mVrms
(1 kHz, 40% modulation)
Digital: 200 mVrms
(1 kHz, -20 dB)
Infrared sensor input F-type plug
(1, 2, 3, 4)
AUX audio input Input Impedance = 47 kΩ

For the information about the infrared rays sensors supplied with this set as accessories, please refer to AN-IF5 Service Manuals separately issued.

— Continued on next page —

CD VIDEO CD/CDV/LD/PLAYER
SONY®

Headphone output 28 mW (32 ohms)
Impedance = more than 8 ohms
Control S IN Mini jack

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

Power requirements

Power requirements 120/220/240 V AC
adjustable, 50/60 Hz
Power consumption 40 W
Mass 9 kg
Dimensions Approx. 430 × 140 × 420
mm (w/h/d)
Operating temperature +5°C to +35°C
Ambient humidity 5% to 90%

Remote Commander RMT-M13A

Principle of operation Infrared pulse
Power requirements 3 V DC (2 size AA
batteries)
Dimensions Approx. 68 × 29.7 × 200
mm (w/h/d)
Mass Approx. 170 g
including batteries

Supplied accessories

Remote Commander RMT-M13A (1)
Cordless microphone IFM-VJ5R/L (2)
Size AA (R6) batteries for remote commander (2)
Size C (R14) batteries for cordless microphone (4)
Infrared sensors AN-IF5 (2)
Screws (4)
Video cable (phono plug 1 ↔ phono plug 1) (1)
Audio cable (phono plug 2 ↔ phono plug 2) (1)
AC plug adaptor (1)



Design and specifications are subject to change
without notice.

SAFETY CHECK-OUT

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

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING!!

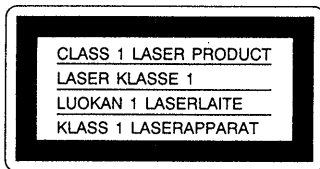
COMPONENTS IDENTIFIED BY MARK  OR DOTTED LINE WITH MARK  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.

To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.



This CD CDV LD player is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT label is located on the rear exterior.

CAUTION

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

As the laser beam used in this videodisc player is harmful to the eyes, do not attempt to disassemble the cabinet. Refer servicing to qualified personnel only.

CLASS 3B LASER

Note

This appliance conforms with EEC Directive 87/308EEC regarding interference suppression.

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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.

The MDP-K15 is a Multi Disc Player with Karaoke features. In this manual, you can read the Karaoke instructions first, then the instructions for each type of disc operation - playing laser discs (LDs), compact discs (CDs), compact disc videos (CDVs, VSDs). The following summarizes what you will find in this manual.

Karaoke Features

Infrared cordless microphones
Supplied two cordless microphones reduce the interference noise by using infrared transmission system*. The microphones do away with cord tripping and give you remote command over Repeat and Key control operations. You can play Karaoke in duet using two microphones at the same time. Built-in Dolby C noise reduction system** gives you a high quality voice sound in your Karaoke entertainment.

Karaoke microphone

The optional Karaoke microphone (F-KM1) enhances Karaoke entertainment with features like Repeat and Key control.

20 Direct select buttons

You can play any given selection quickly and easily by simply pressing the number of that selection.

Digital surround selector

Three digitally enhanced surround effects for Karaoke entertainment (Bar, Enka, Pops) can be used, and three more to produce the acoustics of concert halls or movie theater are available for playing ordinary software (movies, music etc.).

Digital key control

Use this feature to adjust the music to your singing key (or your voice to the music). These controls are located on the player, the Remote Commander and the Cordless Microphone.

Selection reservation

For non-stop Karaoke entertainment, use this feature to reserve the next selection while one is already being played.


Assistant vocal feature

This feature lets you listen to the singer's voice through the headphones while the audience hears only your voice from the speakers. Great for practice or to pick up a new song in a short time.

Vocal balance control

The VOCAL BALANCE control is exclusively for multiplex recorded Karaoke discs. It lets you control the volume of the singer's voice and is useful when you lose the melody or want to practice.

* Since the transmission system uses infrared rays, the further the cordless microphone is placed from the infrared sensors, the more hissing noise the system will tend to pick up. Also if the infrared rays are obscured, the system may pick up some noises or the audio sound may be interrupted. However, this is a characteristic of any infrared transmission system and does not mean that the system is defective. Do not use this system in the open air under direct sunlight as the infrared transmission system will not work properly.

** DOLBY noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY" and the double-D symbol  are trademarks of Dolby Laboratories Licensing Corporation.

About Operating Voltage

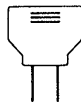
Before operating the Multi Disc Player, make sure that the operating voltage of your unit is identical with that of your local power supply.

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 of the Multi Disc Player to the voltage corresponding to your local power supply (120, 220 or 240 volts AC).
- 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

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



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

What to Do First

Once you have read through previous pages, read the following, "The Principles of Operation", then go ahead and connect up the Multi Disc Player to your television and/or stereo system using the connection diagrams on pages 14 and 15. Set up the cordless microphones (pages 12, 13) and position the infrared sensors (pages 16, 17). After you have done this, you will be ready to play a disc. Begin with the section, "To play Karaoke" or "How to Load and Play an LD (or a CD)".

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.

Karaoke Functions

provide Karaoke entertainment using Karaoke laser discs and compact discs, or by converting regular stereo recorded discs into Karaoke discs. These functions can also be used with auxiliary equipment like tape decks.

Search Functions

allow you to locate scenes or tracks as you watch or listen, and also a certain chapter or selection can be selected directly and played immediately. When playing a CAV disc, the progression of the scene can be advanced or reversed in frame-by-frame action.

Repeatable Functions

allow you to play the entire side of a disc, a chapter or a selection repeatedly.

Auxiliary Functions

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





Primary Functions	Karaoke Functions	Search Functions	Repeatable Functions	Auxiliary Functions
Power Open/Close Play Pause Stop	Next Selection Reserve (RESERVE) Singing Key (KEY CONTROL) Voice Control (MIC KEY CONTROL, DIGITAL ECHO) Karaoke with Regular Discs (KARAOKE FON) Practice Features (ASSISTANT VOCAL, VOCAL BALANCE) Vocal Support Feature (OTASUKE VOCAL) Karaoke with Auxiliary Equipment (INPUT SELECTER) Atmosphere Control Feature (SURROUND)	Speed Scan (SHI/STEP Scan (STILL/STEP) Chapter/Track Search (ACS/AMS) Frame/Time Search (FRAME/TIME)	Repeat Play (REPEAT) Single Play (1/ALL) On-Screen Display (DISPLAY)	Sound Quality Functions (AUDIO MONITOR, ANALOG, CX) On-Screen Display (DISPLAY)

Introduction to Your Player

The MDP-K15 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 25 to 30 functions. Below follows an explanation of the kinds of discs the Multi Disc Player plays.

The MDP-K15 Plays Three Classes of Optical/Digital Discs*

The MDP-K15 Multi Disc Player plays all three types of optical discs (including Karaoke 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 20 min Audio
		VSD	5 in. (12 cm)	Single	Video + Audio 5 min

Multi Audio Discs

digital MULTI AUDIO

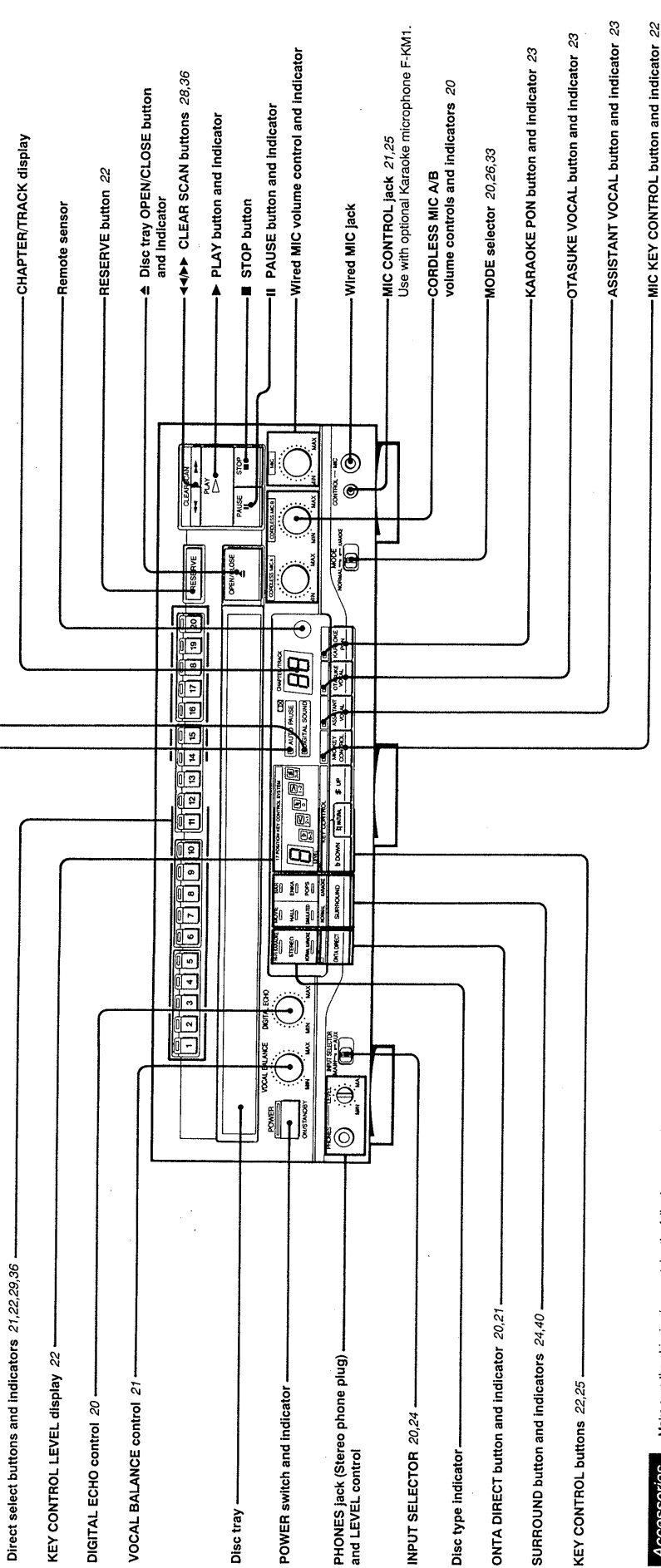
On laser discs bearing this logo, the analog tracks are recorded in multiplex, and the digital tracks are recorded in stereo. This player automatically detects the type of disc loaded in the player. If the disc is a MULTI AUDIO laser disc, the HI-FI KARAOKE indicator will turn on.

* These apply only to those discs recorded in the NTSC standard. The MDP-K15 cannot play CED, VHD discs or PAL video discs, CD-ROM, CD-GRAPHICS and CD-I discs or aluminum-lined discs.

Installation and Connection

Front and Rear Panel Controls and Supplied Accessories

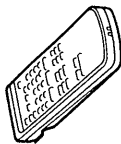
Front Panel



Accessories

Make sure the shipping box contains the following accessories:

Remote commander
RMT-M13A (1)



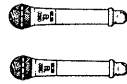
Size AA (R6) batteries (2)
For Remote commander



Size C (R14) batteries (4)
For Cordless microphones



Cordless microphones (2)



Infrared sensors (2)



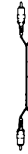
Mounting screws (4)
For Infrared Sensors



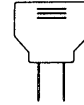
Video connecting cable (1)
(phone plug 1 ↔ phone plug 1 Yellow)



Audio connecting cable (1)
(phone plug 2 ↔ phone plug 2 Red/White)



AC plug adaptor (1)



Front and Rear Panel Controls and Supplied Accessories (continued)

Rear Panel

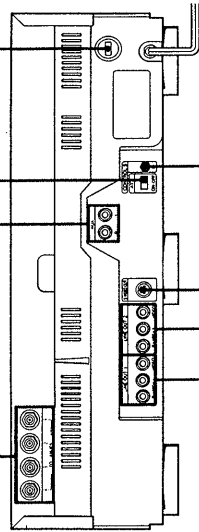
Infrared sensor inputs
Connect the F-type plugs of the Infrared Sensors. (up to 4 sensors)

Note
Never connect any other equipment other than the infrared sensors.

AUX inputs (phono jack)
Connect to audio output jacks on a cassette deck or other auxiliary equipment.

ATT (Attenuator) switch
Distorted singing sounds can be corrected by setting this switch to ON. This will lower the volume.

Voltage selector



CONTROL S IN

Use this jack if your TV etc. has a CONTROL S OUT jack.
- Connecting this jack to the CONTROL S OUT jack on your TV lets you control this player with the Remote Commander pointed at the TV.

- Use only connection cable RIK-G69 (not supplied).

LINE OUT 1 (AUDIO/VIDEO)

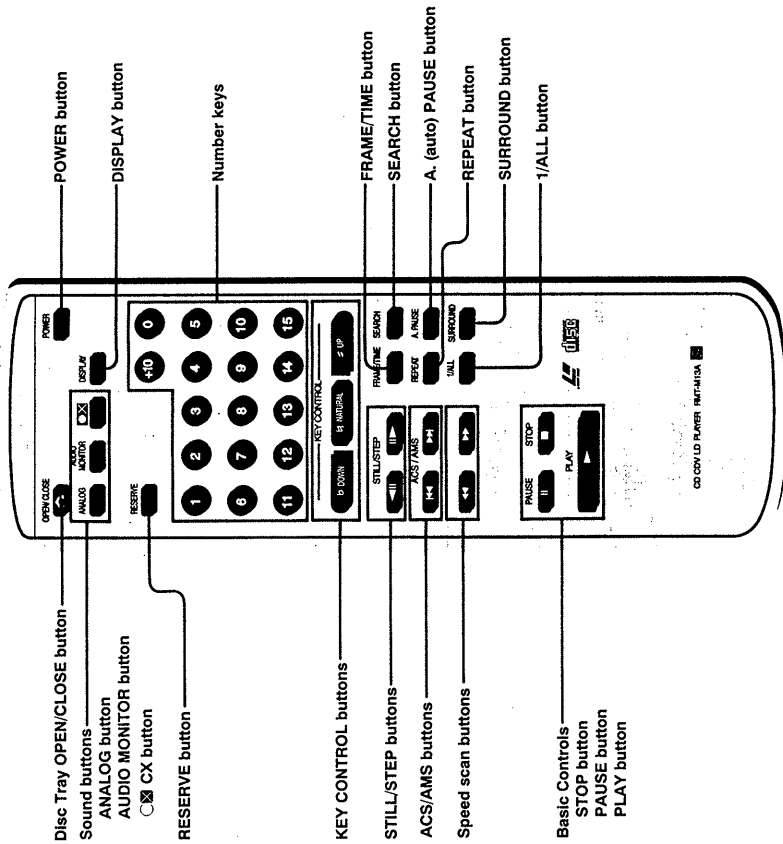
LINE OUT 2 (AUDIO/VIDEO)

S VIDEO OUT

Connect the YC-15V Cable (not supplied)

Controls on the Remote Commander

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

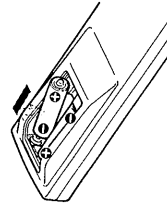


To Activate the Remote Commander

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

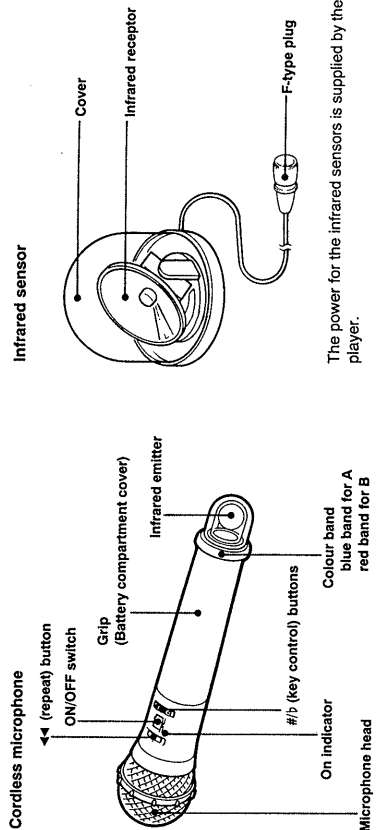
Do not let sunlight or powerful artificial light fall directly on the Remote Commander sensor on the front panel (of the player) as it may interfere with Remote Commander operation or damage the sensor.




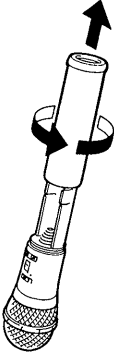
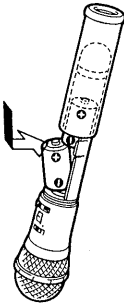
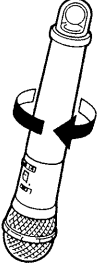
Insert two size AA (R6) batteries.

Cordless Microphone and Infrared Sensor

Two Cordless microphones A/B and two infrared sensors to receive their signals are supplied. About using the microphones, refer to "How to Use the Cordless Microphone" (pages 18 and 19). About the sensors, refer to "How to Connect the Television and Infrared Sensors" and "Positioning the Infrared Sensors" (pages 14, 16 and 17).



Installing batteries

- 1 Switch the microphone to OFF. 
- 2 Unscrew the grip part of the microphone and slide it until it stops. 
- 3 Insert two size C (R14) batteries with the correct polarity. 
- 4 Replace the grip part of the microphone. 

When the batteries become weak

The power indicator light on the microphone becomes dimmer and noise may be heard from the speakers, if this happens, replace both the batteries.

The approximate battery life when the microphone is used continuously will be as follows:

Battery type	Battery life
Sony alkaline battery LR14 / AM2 (N)	approx. 30 hours*
Sony dry cell battery R14P / SUM-2 (NS)	approx. 15 hours

* Equivalent of approximately 600 songs (provided that one song is approx. 3 minutes long).

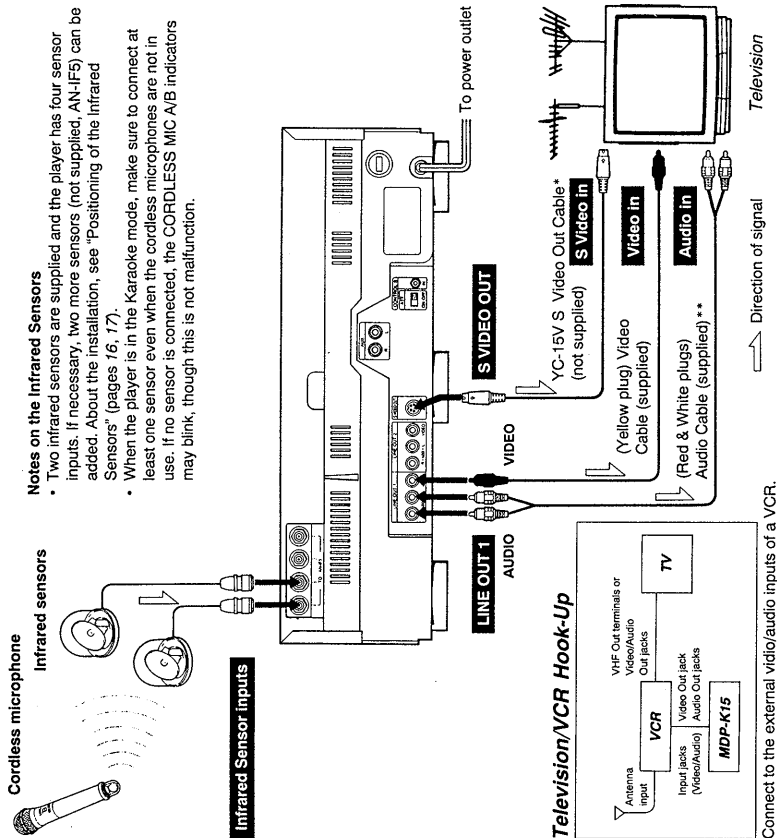
Notes on batteries

- Use two size C (R14) batteries.
- Insert the batteries with the correct polarity.
- Do not mix an old battery with new one or different types of batteries.
- When the batteries are not to be used for a long period of time, remove them from the cordless microphone.
- Should battery leakage occur, wipe the contaminated parts of the battery compartment with a cloth before inserting the new ones.
- You cannot recharge dry batteries.

How to Connect the Television and Infrared Sensors

To play LDs or CDs, hook up a television and infrared sensors to the Multi Disc Player. Take out the supplied yellow video connecting cable and the red, white audio cables. Use these to connect the player to the television.* Once you have hooked-up the television, set the input selector on the TV to "Video". Before connecting or disconnecting any of the cables and infrared sensor, turn off all equipment. Do not disconnect the infrared sensors even when the cordless microphones are not in use.

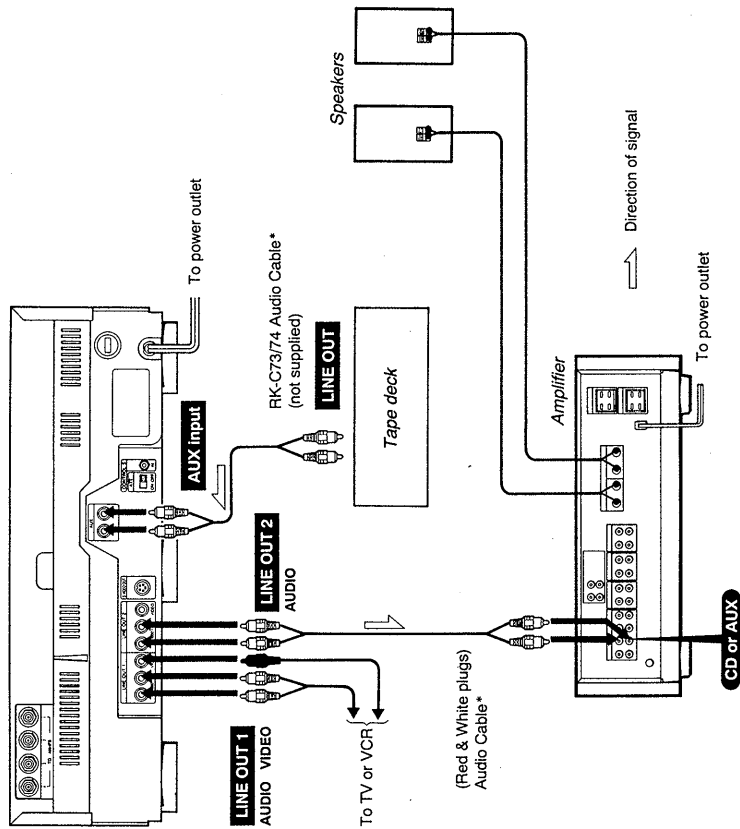
Television and Infrared Sensor Hook-Up



How to Connect Audio Equipment

To achieve full stereo sound from your Multi Disc Player, hook up a stereo system following the diagram below. Connecting a tape cassette deck to the AUX input, you can enjoy Karaoke tapes just like LDs or CDs. 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 cables, turn off all equipment.

Audio Equipment Hook-Up



Positioning the Infrared Sensors

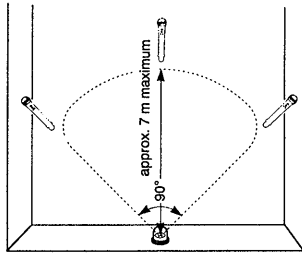
The cordless microphones transmit signals by infrared rays, and the signals may be affected by some interference depending on the positioning of the infrared sensors etc. Try not to put any obstacles between the infrared emitter part of the microphone and the infrared sensors.

Positioning Precaution

Make sure that the infrared sensors are not positioned in the open air or where they may be exposed to sunlight or powerful indoor lights such as spotlights.

Effective Range of the Infrared Rays

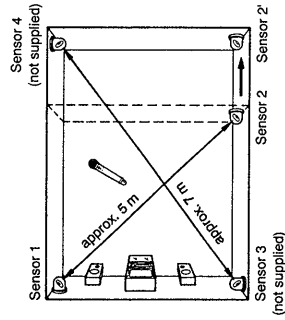
The approximate receivable range of the infrared rays by an infrared sensor when a cordless microphone is held horizontally with the infrared emitter part of it pointing directly towards the sensor is shown right. Use the microphone(s) within the range.



Position of the Infrared Sensors

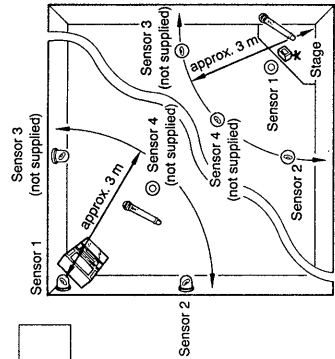
Using in a room with a bright colored ceiling or walls (the infrared rays rebound well)

When using two infrared sensors (Sensor 1 and 2 in the illus.) the approximate effective area in which the infrared rays can be received will be for example a room which measures 3.5 m x 3.5 m with a ceiling height of approx. 2.3 m. You can connect up to four sensors by adding the optional infrared sensor AN-IF5 (comprised of two sensors : Sensor 3 and 4 in the illus.). In this case, the effective range increases to approx. seven meters diagonally.



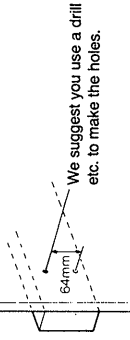
Using in a room with a dark colored ceiling or walls (the infrared rays do not rebound well)

The effective range of the infrared rays is limited. Use the microphones within the range as shown right.

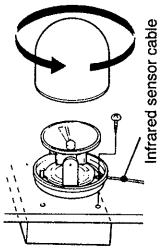


Mounting the Infrared Sensors

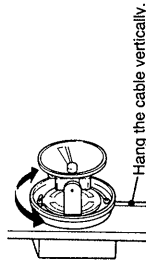
1 Check the mounting location carefully. Make sure that the wall etc. has enough strength to take the weight of the infrared sensor. Then drill two holes 64 mm apart so that the sensor's cable will hang down vertically.



2 Unscrew the cover of the sensor and put a supplied screw through the bottom hole and screw it down lightly.



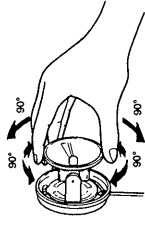
3 Put another screw through the top oblong hole and again screw it down lightly. Adjust the base of the sensor so that the cable hangs down vertically, and tighten up both screws.



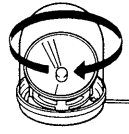
4 Adjust the receptor part of the sensor as illustrated so that it faces towards the microphone.

Note

The receptor part can be moved $\pm 90^\circ$ vertically and $\pm 90^\circ$ horizontally. Do not try to move it further than it is capable of.



5 Attach the cover while making sure that the surface of the receptor and the cover are kept clean. If they become dirty, wipe them with a dry soft cloth.



Notes on mounting

- The infrared rays will not penetrate walls or opaque glass. Therefore the microphones and the sensors must be used within the "in-sight" area from each other.
- The infrared sensors can pick up some infrared rays which rebound off the walls and the ceiling. Experiment by rearranging the sensors to find the best positions for them to be mounted.
- When using infrared sensors together with either the cordless headphone or cordless speaker system, do not put their emitter parts and the sensors face to face at close range.
- Since the infrared transmission system uses infrared rays, the further the cordless microphone is placed from the infrared sensors the more hissing noise the system will tend to pick up. Also if the infrared rays are obscured, the system may pick up some noises or the audio sound may be interrupted. However, this is a characteristic of any infrared transmission system and does not mean that the system is defective.

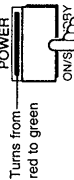
Caution

Choose the mounting location carefully so that they will not fall onto people or furniture in the room. Sony disclaims any responsibility for injury to persons or other accidents caused by not fitting the infrared sensors properly or when the place of the installation is not suitable.

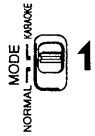
How to Use the Cordless Microphones

Two cordless microphones (A and B) are supplied. The indication A (or B) is located at the side of the battery compartment as shown in the illustration 3. Before using the microphones, peel off the protective sticker on the emitter part of the microphones.

1 Turn on the player

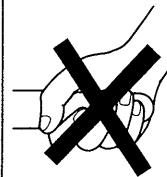
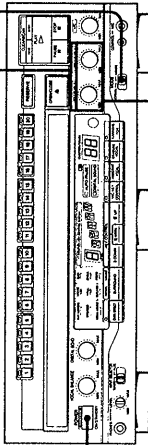


2 Set the MODE selector to KARAOKE



Microphones can be used in the KARAOKE mode only.

CORDLESS MIC A/B indicators



Note

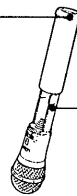
Do not cover the infrared emitter part by your hand as this will obstruct the infrared rays to be transmitted.

3 Turn the microphone ON

The indicator on the microphone and the CORDLESS MIC A/B indicator on the player will light up.



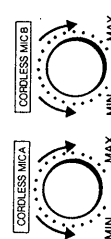
Colour band



The A (or B) indication of the microphone

The indication on the front panel of the player	
A	CORDLESS MIC(A)
B	CORDLESS MIC(B)

4 Adjust the microphone volume

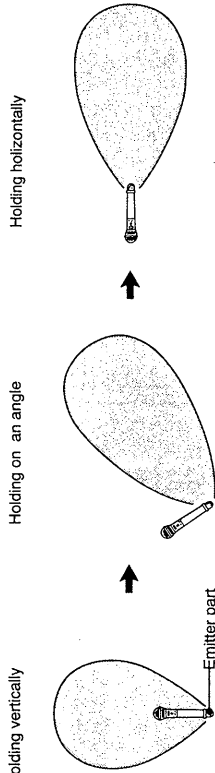


Adjust the volume of the microphone A (with blue band)

Adjust the volume of the microphone B (with red band)

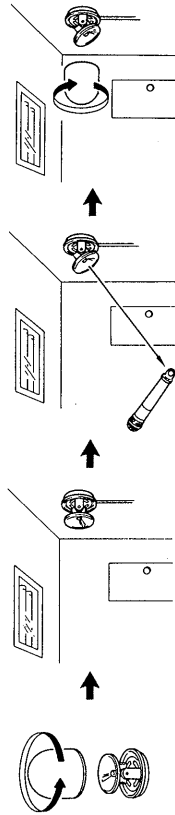
Before using the cordless microphones

The direction of the infrared ray varies according to the microphone's position.



Tear off the label on the cover of the infrared sensor. Take off the cover of the sensor and adjust the reflecting mirror towards the emitter part of microphone.

Take off the cover. Fix the sensor on the wall or ceiling. Direct the reflecting mirror towards the microphone. Put the cover back on the sensor.



For best results

The microphone should be kept about 5 cm to 10 cm away from the mouth. Singing with the head of the microphone too close to the lips can over-emphasize bass levels and result in a muffled sound. The sound of the singer breathing can also enter the microphone and have an annoying effect on the audience.

Notes on using the cordless microphone

- Always switch the microphone to OFF when not in use.
- Cordless microphones are delicate instruments. Avoid dropping, knocking, or applying any other form of strong shock.
- Do not cover or dirty the infrared emitter part of the cordless microphones or the surface of the infrared sensors as this could interfere with the infrared rays transmission.
- Do not use the cordless microphones under direct sunlight.
- The cordless microphone contains a transmitter, therefore should not be used or stored in humid or hot areas.
- Do not use the other cordless microphones than the supplied ones.

To Play Karaoke

To Enjoy Karaoke

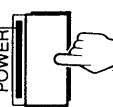
1 Turn on the TV and stereo system

TV: Set to "Video".


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

2 Turn on the player

Turns from red to green




3 Set the INPUT SELECTOR to MAIN



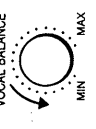
Select AUX when playing from a tape deck or other auxiliary device.

4 Set the MODE selector to KARAOKE



Microphones can be used in the KARAOKE mode only.

5 Adjust the VOCAL BALANCE selector to MIN



This control allows you to listen to the vocals of a selection. This feature is only available on discs having the MULTI AUDIO logo or that are recorded in Multiplex. The volume of the vocal section can be raised by turning the knob toward MAX.

Using VOCAL BALANCE with Karaoke Disc

Karaoke discs can be recorded using one of three formats: multi audio MULTI AUDIO, multiplex and stereo. Multi audio and multiplex discs include vocals. Stereo discs do not. This Multi Disc Player automatically detects the type of disc loaded in the player. If the disc is a multi audio or multiplex disc, you can listen to the vocals by turning the VOCAL BALANCE to the right. However, the Multi Disc Player may not automatically detect certain types of LDs, multiplex CDs, CDVs and VSDs. Therefore, the VOCAL BALANCE control will not have any effect on the vocals. **In this case, press the ONTA DIRECT button***. (The indicator above the button will light up.) Then adjust the VOCAL BALANCE as described above. Use the same procedure when playing Multiplex Karaoke tapes using auxiliary equipment such as tape decks.

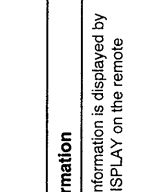
Note

The AUDIO MONITOR and ANALOG buttons on the Remote Commander cannot be used to change recording channels in Karaoke mode due to the automatic disc detection feature.

Display information

The following information is displayed by pressing the DISPLAY on the remote commander.

Current track number
 Current frame number* or time number
 Playing mode
 Sound effects (see table below)



Set mode


* Disc without time data to the second will be indicated as "0:22".

Sound effects

Display	Action
EMER	
ENKA	
KARAOKE	Press SURROUND button
POPS	
SURROUND OFF	
MIC KEY 0	Press MIC KEY CONTROL button
KEY #1	Press KEY CONTROL button
KARAOKE FON	Press KARAOKE FON button
OTASUKE	Press OTASUKE VOCAL button
VOCAL .	Press ASSISTANT VOCAL button

10 Adjust the microphone echo

Adjust the strength of the echo with the digital echo control. This cannot be used while using MIC KEY CONTROL.

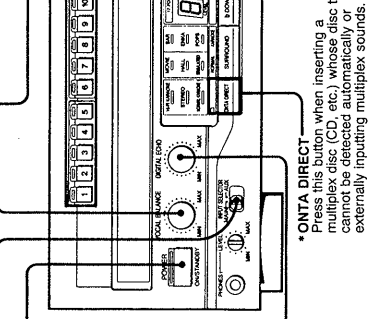


8 Turn the microphone ON

The CORDESS MIC indicator A and/or B will light up when the microphone is turned on (the indicator on the microphone will light up).

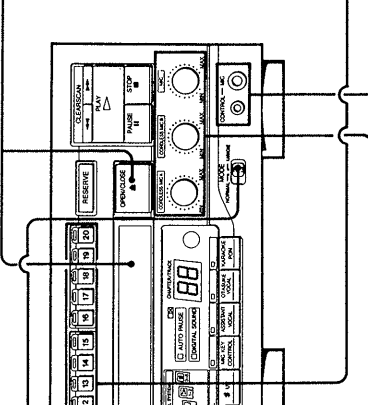
When connecting the wired microphone

Connect the microphone to the MIC jack. When using the Karaoke microphone F-KM1 (not supplied), connect the MIC plug and Control plug to the MIC CONTROL jack.



6 Open the disc tray and place a disc

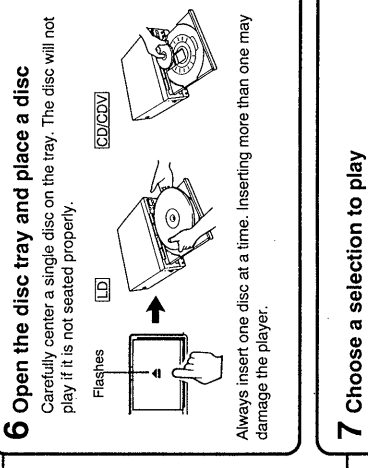
Carefully center a single disc on the tray. The disc will not play if it is not seated properly.



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

7 Choose a selection to play

The disc tray will close automatically and start playing.



Disc type indicator

The type of disc inserted is automatically detected and displayed by one of the following indicators.

- MULTI AUDIO disc with digital audio tracks
- STEREO
- MULTI AUDIO disc with only analog audio tracks

Howling occurs

Correct by doing the following:

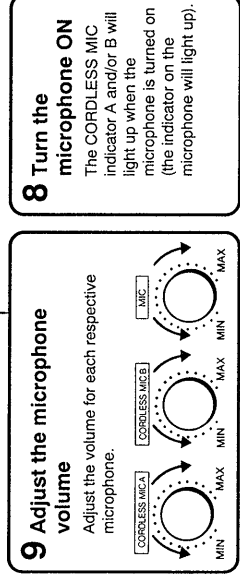
- Move the microphone away from the speakers
- Lower the MIC or DIGITAL ECHO volumes
- Lower the volume of the speakers

When listening through headphones

Once the headphones are connected, the volume must be adjusted with the LEVEL knob next to the PHONES jack.

9 Adjust the microphone volume

Adjust the volume for each respective microphone.



If the output is distorted

The output may sound distorted when listening through your TV speakers. Correct this by setting the ATT (Attenuator) switch on the rear panel of the player to ON. (This will lower the volume which should now be adjusted with the volume control on the TV.)

If the picture on the TV flickers

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

Single stops in Karaoke mode

The player will automatically pause after playing the current selection. (If another selection has been reserved, that selection will be played without pausing.) To play the next selection, press the PLAY (▶) or PAUSE (||) button, or make a direct selection with the direct select buttons on the player (or number buttons on the Remote Commander).

To cancel single stop mode

Press the A PAUSE button on the remote commander. The AUTO PAUSE indicator on the player will go out and selections will be played continuously without interruption.

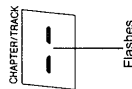
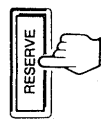
Useful Features for Enjoying Karaoke

These features are available only in the KARAOKE mode.

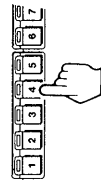
How to Reserve the Next Selection (Single Selection Reserve)

Lets you reserve the next selection while one is currently in play.
Available also with the Remote Commander.

1 Press the RESERVE button.



2 Press the number of the selection you want to reserve.



CHAPTER/TRACK

04

The display will change from "—" to the number of the selection reserved.

- When the selection playing finishes, the reserved selection will start playing from the beginning automatically.
- If you reserved the wrong selection, press the RESERVE button and enter the correct number.

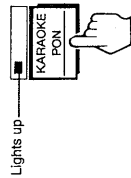
"RESERVE ——" will appear on the TV screen.

How to Enjoy Karaoke with Regular Discs (Karaoke Pon)

Lets you enjoy Karaoke fun with regular non-Karaoke discs having vocals in them. (LD, CD)

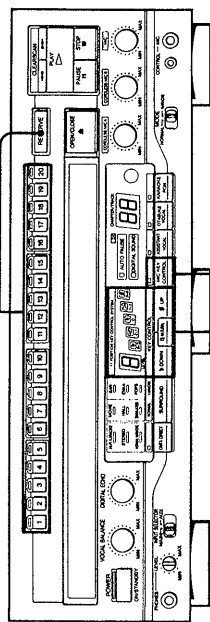
Notes on the usage of KARAOKE PON

- Always use this feature on stereo recorded discs. On monaural discs, the level of the vocal and instrumental portions will both be lowered.
- The vocal portion of the disc may not erase completely for stereo discs with the following characteristics: tracks containing only a few instruments, duet selections, selections with strong echo and chorus emphasis, and selections where the singer's voice deviates from the center.
- When using the KARAOKE PON, the stereo effect reduces.
- The vocal portions may not erase completely on certain discs.



Lights up

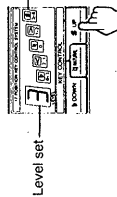
Other auxiliary equipment such as tape decks can be used to playback Karaoke music. You can still use the Key Control and Karaoke Pon functions as you would with discs.



How to Control the Back-up Keys (Key Control)

Available also with the Remote Commander, Cordless Microphone, or the optional Karaoke Microphone.

To lower the back-up key, press the **DOWN** button.
To raise the back-up key, press the **UP** button.



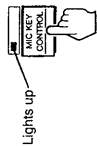
The key level will also appear on the TV screen for five seconds.

- Find the key that suits your singing. Eight lower and eight higher keys can be attained. (total: 17 steps)
- To return to the original key, press the **NATURAL** button.
- The key will return to the original level after the current selection is played unless it is played repeatedly.

How to Change Your Own Voice (Microphone Key Control)

Available also with the Remote Commander, Cordless Microphone, or the optional Karaoke Microphone.

This feature lets you control the key of your own voice. (Digital echo cannot be used with this feature.)
Press the **MIC KEY CONTROL** button on the player.



Lights up

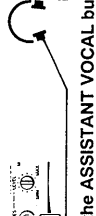
- While this indicator is lit, you can change your own voice by using the **KEY CONTROL** buttons on the player or Remote Commander, or the **#/b** buttons on the microphone.
- Lower the key of your voice with the **DOWN** button, raise it with the **UP** button. The level set will be displayed in the same way as the **KEY CONTROL** level is displayed.
- The key will return to the original level after the current selection is played repeatedly.

How to Listen to the Original Vocals While Performing (Assistant Vocal)

- Only for MULTI AUDIO discs

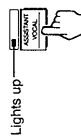
This feature lets you listen to your voice and the original vocals through the headphones, while the audience hears only your voice from the speakers.

1 Connect the headphones and adjust the PHONE volume.



Lights up

2 Press the ASSISTANT VOCAL button.

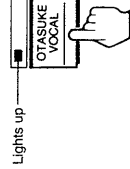


The VOCAL BALANCE cannot be used at the same time to adjust the volume of the original vocals.

How to Sing Along With the Original Vocals (Otasuke Vocal)

- Only for MULTI AUDIO discs

This feature is inactive while you are singing into the microphone, but when you are not, it helps out by outputting the original singer's voice. This feature is also good for singing duets by yourself. You sing the part of the male (or female), and the other half comes in for you.



Lights up

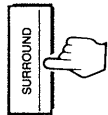
The VOCAL BALANCE cannot be used at the same time to adjust the volume of the original vocals.

Useful Features for Enjoying Karaoke (continued)

How to Use the Surround Effect

Choose from three acoustic effects for enhanced listening quality. Available also with the Remote Commander.

The surround mode changes with each press of the SURROUND button. These three modes are only available for KARAOKE entertainment.



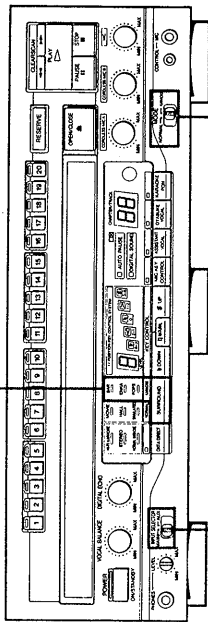
Here is what each surround mode offers:

KARAOKE BAR: Creates the effect of singing in a bar. Gives your song a rich carrying tone.

KARAOKE ENKA: Suitable for singing traditional Japanese songs by placing a strong emphasis on the dynamic mid to low ranges.

KARAOKE POPS: Great for singing pop music. Lets you sing casually with emphasis on the dynamic mid range.

The indicator is lit for the mode selected.



When playing Karaoke music, use the sound modes especially for the Karaoke mode.

How to Enjoy Karaoke with Auxiliary Equipment (AUX audio input)

Other auxiliary equipment such as tape decks can also be used to playback Karaoke music. You can still use the Karaoke functions as you would with discs.

1 Connect the tape deck to the AUX INPUT jacks on the rear panel.



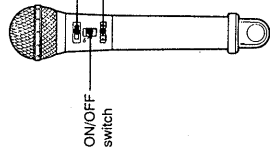
To resume playing discs, select MAIN.

2 Set the INPUT SELECTOR to AUX.



Using the Cordless Microphone

The following features are available on the supplied cordless microphones.



Repeat

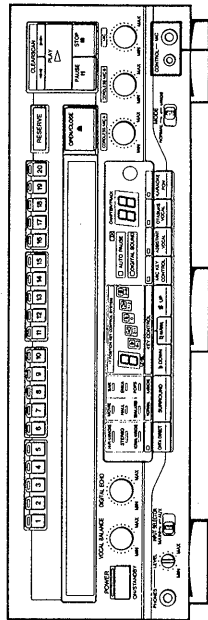
You can go back to any point such as the beginning of a selection, holding down the ◀◀ button and releasing it where you want to start singing.

Key control

You can control the key of back-up or your own voice by the #/b buttons (see page 22). When you press the buttons, the sound is interrupted, though this is not malfunction.

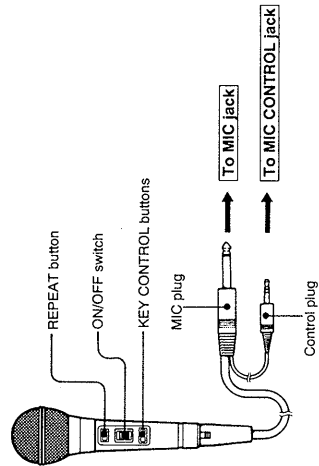
Notes on usage of cordless microphone

- If you press the ◀◀ button or #/b buttons, you will hear a screeching noise.
- Press the #/b buttons slowly.



Using the Karaoke Microphone

The optional Karaoke microphone (F-KM1) has the same features as the supplied cordless microphones.




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)

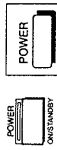
After you have connected the Multi Disc Player to the TV and/or stereo system, you can begin playing a laser disc. Locate the POWER, OPEN/CLOSE, and PLAY buttons on the Remote Commander or the front panel of the player.

- 1 **Set the MODE selector to NORMAL.**

 - 2 **Turn on the TV and/or stereo system.**


TV Set the input selector on the TV to "Video".

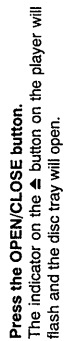
Stereo System Turn on the amplifier or receiver and select CD or AUX for audio output.
 - 3 **Turn on the multi disc player.**

Press the **POWER** button on the player or Remote Commander.

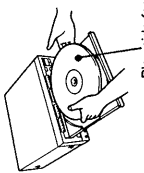

 - 4 **Open the disc tray.**

Press the **OPEN/CLOSE** button.



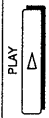
The indicator on the  button on the player will flash and the disc tray will open.
 - 5 **Place a disc on the tray.**






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



Play side faces up.
 - 6 **Start playback.**

Press **PLAY** (▶).



The indicator on the PLAY button of the player will flash.
- To Advance or Reverse** Hold down the ◀▶▶▶ button.
- To Advance or Go Back a Chapter at a Time** Press the ACS/AMS button.
- 
- To Interrupt Play** Press **PAUSE** (⏸).
- 
- The sound mutes and the picture freezes or the blue screen appears. 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**.
- 
- The indicator on the  button of the player will flash and moments later the disc tray will come out. Remove the disc and close the empty tray.

To Have the Player Pause Before Starting

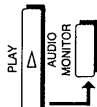


Press the **PAUSE** (⏸) button on the player or the Remote Commander immediately after doing step 5 on page 26. The tray closes and the player waits at the start of the disc until you press **PAUSE** (⏸) or **PLAY** (▶).

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 Play a Stereo LD or a Second Audio Program (SAP) LD—NORMAL mode only



Press **PLAY** (▶), then keep pressing the **AUDIO MONITOR** button on the Remote Commander. 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. The active track will appear on the TV screen for three seconds and then disappear.

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

To Switch from Digital to Analog Sound—NORMAL mode only



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) Label



Discs bearing the (CX) label are recorded with the CX Noise Reduction system, which gives lower noise levels and higher dynamic range. The player is designed to automatically recognize such CX discs. However, some CX discs do not include the coding necessary to automatically activate the player's CX noise reduction system. Press the (CX) button on the Remote Commander to manually activate the system. "CX ON" will appear on the TV screen for three seconds, then disappear.

Understanding Displays and Messages When Playing LDs

You can check the player operating status or disc information by displaying the information on the TV screen. 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
Ⓢ / Ⓣ	Variable speed (Shuttle Ring) scan
SEARCH	Searching

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.

How to Search for a Particular Scene

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

To Advance a Scene Hold down the ▶▶ button.

To Reverse a Scene Hold down the ◀◀ button.

To Resume Normal Play Release the ◀▶▶▶ button.

Notes on Search 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 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 on the Remote Commander or the front panel of the player. The ACS/AMS buttons and +10 button are on the Remote Commander only.

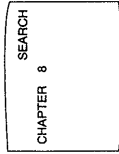
To Locate a Particular Chapter

For example, to locate chapter 8, press "8".



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

The player starts searching for Chapter 8.



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

Press +10 and one of the number keys on the Remote Commander.



Do this to make a numerical sum. For example, to enter 19, press +10 and 9; to enter 30, press +10, +10, +10 and 0.



You can select up to 20 directly by pressing the direct select buttons on the front panel of the player.



If you make a mistake while entering numbers, press +10 repeatedly until "0" 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 CHAPTER/TRACK 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.

Press the ACS/AMS buttons repeatedly for continuous skip search.

To Resume Normal Play**

The player automatically resumes play from the beginning of the selected chapter.

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

** When the last chapter of the disc finished, if the player is in repeat mode ("REPEAT" is displayed on the screen), playback starts from the beginning of the 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 buttons, and number keys on the Remote Commander.

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

To Enter the Elapsed Frame or Time

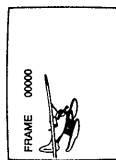
- 1 Press the **FRAME/TIME** button.

FRAME/TIME

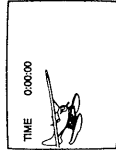


The screen displays the current frame (for CAVs) or current time (for CLVs) as "00000".

CAV
(standard-play) disc



CLV
(extended-play) disc



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

4
.....
1
→
2
→
3
→
4
→
0

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

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, then enter the correct numbers.

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

These numbers appear on screen when you press **DISPLAY**.

To Check the Frame/Time Numbers

To Cancel Frame/Time Search

In addition to play mode, you can conduct Frame/Time Search while in Freeze-Frame, 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. In case the disc does not include seconds-unit time data, enter the time in minutes only.


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.

PAUSE




The frame freezes.
- 2 Press **STILL/STEP** repeatedly.

STILL/STEP




Each press shifts the image one frame backward or forward.

To reverse



To advance




Hold down the button for continuous frame-by-frame action.

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.

PAUSE


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

PLAY



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.

* This function can only be performed on CAV discs.

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.

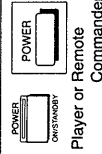
1 Set the MODE selector to NORMAL.



2 Turn on the stereo system.

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

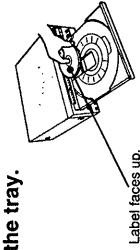
3 Turn on the multi disc player.



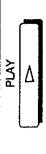
4 Open the disc tray.



5 Place a disc on the tray.



6 Start playback.



To Advance or Reverse Hold down the <<|>> button.



To Advance or Go Back One Track at a Time Press 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.



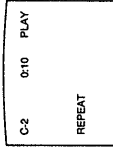
How to Replay the Same LD Selections—Repeat Play

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, locate the REPEAT and 1/ALL on the Remote Commander. To view your current settings on the TV screen, press the DISPLAY button.

To Repeat the Entire Side of the Disc

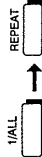


Press REPEAT.
 When the player reaches the end of one side, it returns to the beginning of the disc and starts playing that side again.

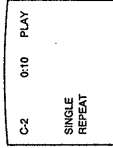


This display appears on the TV screen when DISPLAY is pressed.

To Repeat the Current Chapter



Press 1/ALL, then REPEAT.
 The current chapter repeats continuously.



This display appears on the TV screen when DISPLAY is pressed.

To Cancel REPEAT



Press REPEAT.

To Cancel REPEAT-1/ALL



Press REPEAT and 1/ALL.

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 **PAUSE (II)** or **PLAY (▶)**.



To Listen Directly From the Player

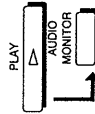
Connect headphones and adjust the volume with the **LEVEL** control.

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—NORMAL mode only

Press **PLAY (▶)**, then keep pressing the **AUDIO MONITOR** button on the Remote Commander.



The procedure below indicates how the output and the display change with each press. The display only appears for three seconds on the TV screen.

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

Understanding Displays and Messages When Playing CDs

You can check the player operating status or CD information by displaying the information on the TV screen. Locate the **DISPLAY** button on the Remote Commander.

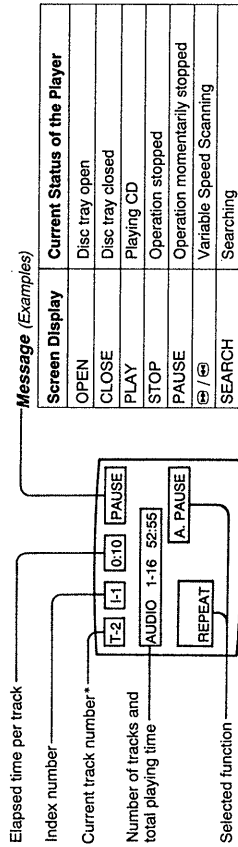


To View On-Screen Information

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



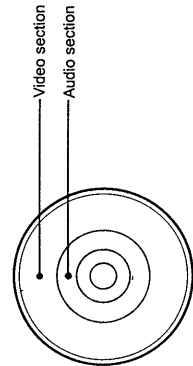
* The current track number also appears on the **CHAPTER/TRACK** display and the indicator above the **Direct select** button lights up.

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. The VSD is a LD on which a selection is recorded.



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



To Stop and Remove the Disc



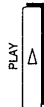
To Advance or Go Back One Track at a Time



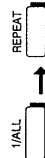
To Interrupt Play



To Find a Certain Audio or Video Track



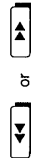
To Play Certain Video Tracks



To Repeat the Current Track



To Repeat All Selections



To Find a Certain Portion with Scanning

Understanding Displays and Messages When Playing CDVs or VSDs

You can determine player operating status or CDV information by displaying the information on the TV screen. Locate the DISPLAY button on the Remote Commander.

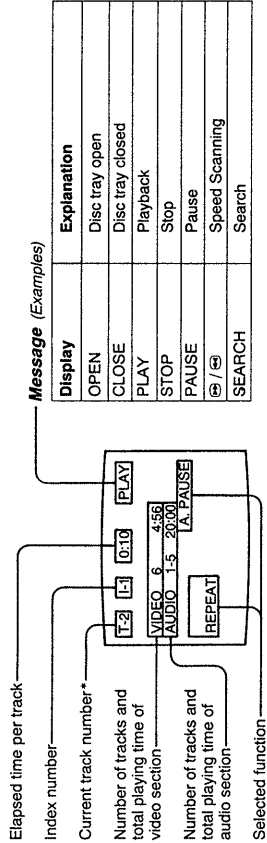


To View On-Screen Information

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.



* The current track number also appears on the CHAPTER/TRACK display and the indicator above the Direct select button lights up.

To Play Any Disc (LD, CD, CDV)

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

How to Use the Surround Effect

Choose from three NORMAL acoustic effects or three KARAOKE acoustic effects for enhanced listening quality. Set the MODE selector NORMAL for normal use. For karaoke use, refer to page 20. Locate the SURROUND button on the Remote Commander or the front panel of the player.

Press the SURROUND button.

The surround mode changes with each press of the SURROUND button. The SURROUND indicator on the player will light up. The SURROUND mode will also appear on the TV screen for three seconds.

Here is what each surround mode offers:

- MOVIE** : Suitable for movie software. Emphasizes the bass and extends the dynamic mid range.
- HALL** : Good for playing music programs. Enhances the echo and dynamic mid range.
- SIMULATED** : Good for playing software recorded in monoaural. Enhances the dynamic range for monaural programs like old movies and news programs.
- SURROUND OFF** : Cancels the surround effect.



How to Make the Player to Pause Automatically

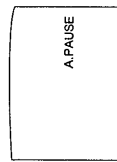
Auto Pause function makes the player stop every time a selection ends. In Karaoke mode, Auto Pause operates automatically. Locate the A (auto), PAUSE button on the Remote Commander.

To Make the Player Stop Momentarily (Auto Pause)

.....



Press A. PAUSE.
The AUTO PAUSE indicator on the player lights up. To play the next selection, press PLAY (▶) or PAUSE (||).



To Resume Normal Playback



Press A. PAUSE again.

Additional Information

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

Troubleshooting

Check the following before requesting service.

Symptom	Point to check
No power	<ul style="list-style-type: none"> • Power cord properly plugged into AC outlet?
PLAY button (▶) does not produce playback.	<ul style="list-style-type: none"> • Disc inserted? • Disc properly seated? • Recorded side facing upward?
Play indicator (▶) is lit, but there is no picture or sound.	<ul style="list-style-type: none"> • TV or monitor switched on? • TV properly connected to player? • The input selector on TV set to "Video"?
Poor picture or sound quality	<ul style="list-style-type: none"> • TV properly connected? • Any source of noise nearby? • Disc dirty or scratched? • Any condensation on player objective lens?
No sound	<ul style="list-style-type: none"> • TV properly connected to player? • The input selector on the player set to "AUX"? • Volume control on TV, monitor, or amplifier high enough? • Playback at normal speed? (The player produces sound only during normal speed playback.)
Playing always stops at the end of each selection without playing the next selection.	<ul style="list-style-type: none"> • AUTO PAUSE indicator on? • Using KARAOKE mode?
No sound from microphone	<ul style="list-style-type: none"> • MIC volume all the way on the left (MIN)? • Using NORMAL mode?
Remote Commander does not operate.	<ul style="list-style-type: none"> • Batteries correctly inserted? • Batteries weak? • Any obstacles between the Remote Commander and the Sensor on the player? • The Remote Commander is pointed at the Sensor on the player?
Cannot show STILL frames	<ul style="list-style-type: none"> • Playing an extended-play disc CLV?
Picture distorted during scan.	<ul style="list-style-type: none"> • Some distortion in the lower part of the picture in normal – even for CAV discs.
Sound from the cordless microphone sporadic, noisy or distorted	<ul style="list-style-type: none"> • Batteries weak? • Microphone too far from sensors? • Any obstacles between microphone and sensors? • Sensors positioned and adjusted appropriately? • Surface of sensors dirty? • Infrared emitter part of the microphone covered by the hand? • Pressing the ◀ (repeat) or #/b buttons, which mute sound?
No sound from cordless microphone	<ul style="list-style-type: none"> • ON/OFF switched ON? • Batteries correctly inserted? • CORDLESS MIC AB volume controls high enough? • Batteries weak? • Using microphone outdoors? • Sensors correctly connected? • Infrared emitter part of the microphone covered by the hand? • Using sensors under the strong light? • Any obstacles between microphone and sensors? • Mode selector on the player set to NORMAL?

Optical Disc Maintenance

Holding CDs or CDVs

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

Holding LDs

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

Light Exposure

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

Cracked or Damaged Discs

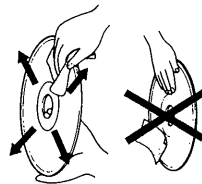
Do not play cracked or damaged discs, or try to play discs that have been repaired with adhesive glues.

Keeping the Disc Surface Clean

Clean the surface of the disc before playing, using a soft, dry cleaning cloth. Wipe the disc from the center out. Do not use solvents such as benzene, paint thinner, commercially available cleaners, or anti-static spray intended for LP record discs.

To prevent marring, after playing, remove the disc and put it back into its jacket.

Putting your fingers on, or adhering anything to the surface of the disc such as sticky note pad paper or adhesive tape will deteriorate the quality of the playing surface, and thus the output quality.



Player Maintenance and Safety

On Electrical Safety

- Should any foreign object or liquid fall into the cabinet of the player, unplug the player and have it checked by qualified personnel before operating it any further.
- Unplug the player from the wall outlet if you are not going to use it for an extended period of time. To disconnect the cord, make sure the player's power indicator is unit, then pull it out by the plug. Never pull the cord itself.
- One blade of the plug is wider than the other for the purpose of safety. If you are unable to insert the plug fully after aligning it with the right sockets, contact your dealer.

On Player Location

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

On Moisture Condensation

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

On Operation

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

On Cleaning

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

On Repacking

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

Glossary

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

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

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

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

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

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

TOC Table of Contents signals are recorded on some LDs. When playing back LDs with TOC signals, additional functions can be enjoyed such as; Shuffle Play and Delete Shuffle Play.

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

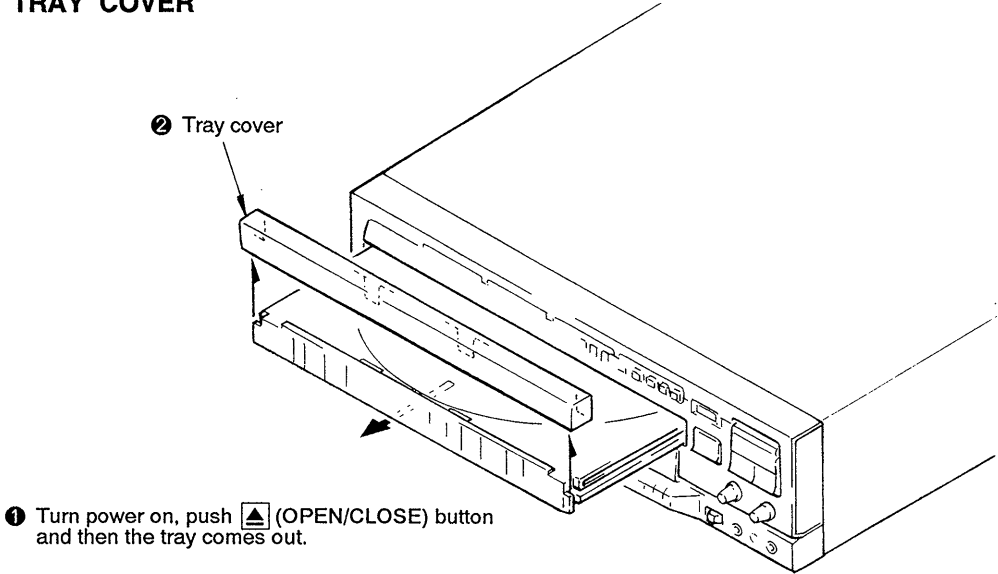
MEMO

A series of horizontal dotted lines for writing.

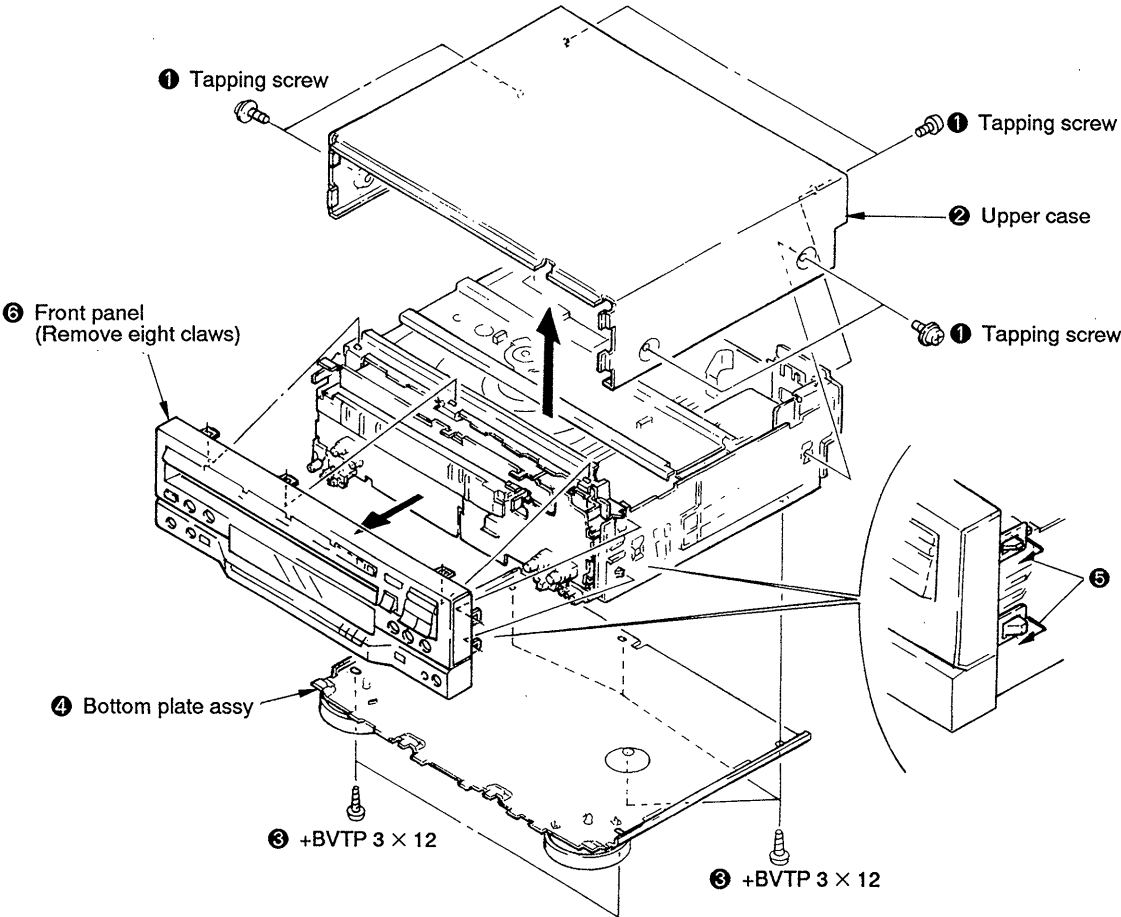
**SECTION 2
DISASSEMBLY**

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

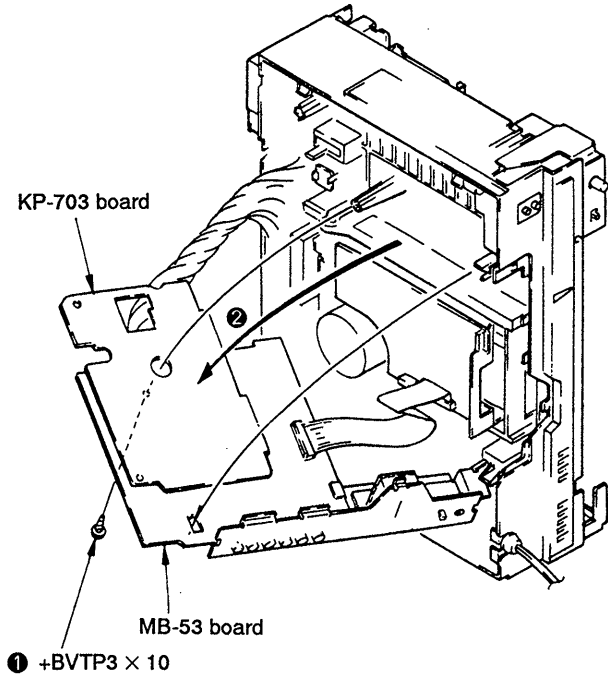
2-1. TRAY COVER



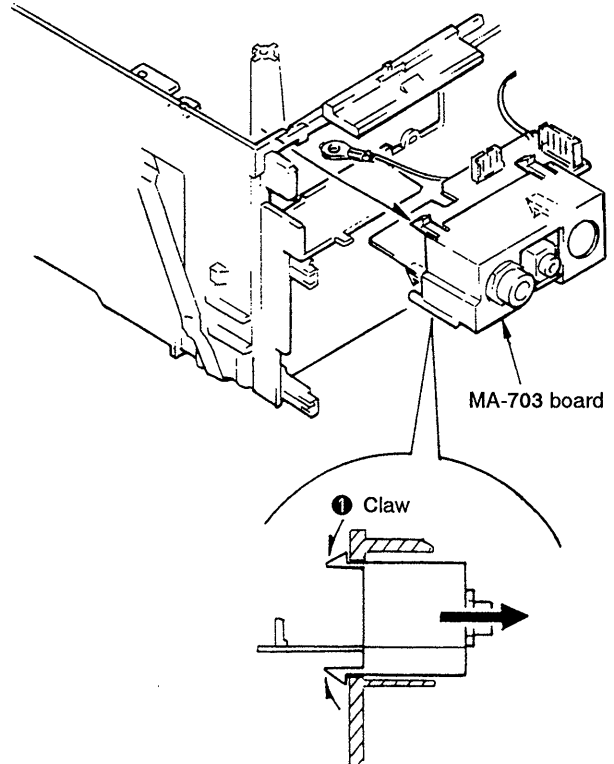
2-2. CASE, FRONT PANEL ASSY, BOTTOM PLATE ASSY



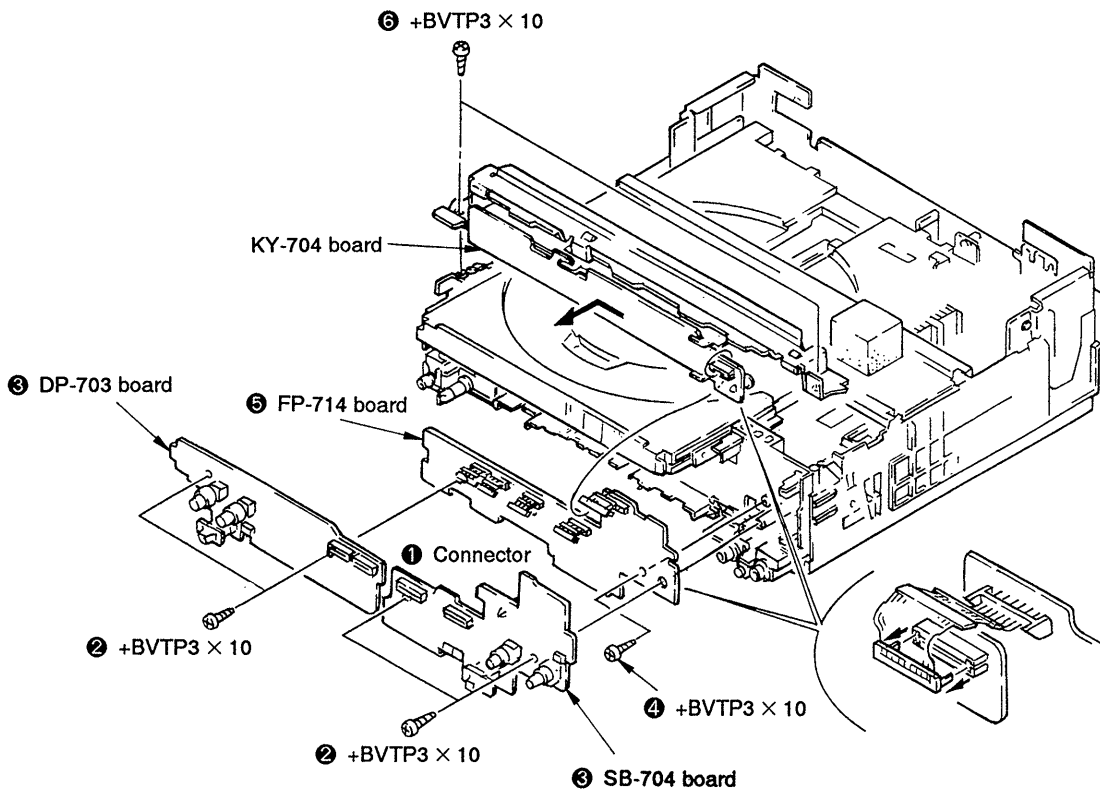
2-3. MB-53, KP-703 BOARDS



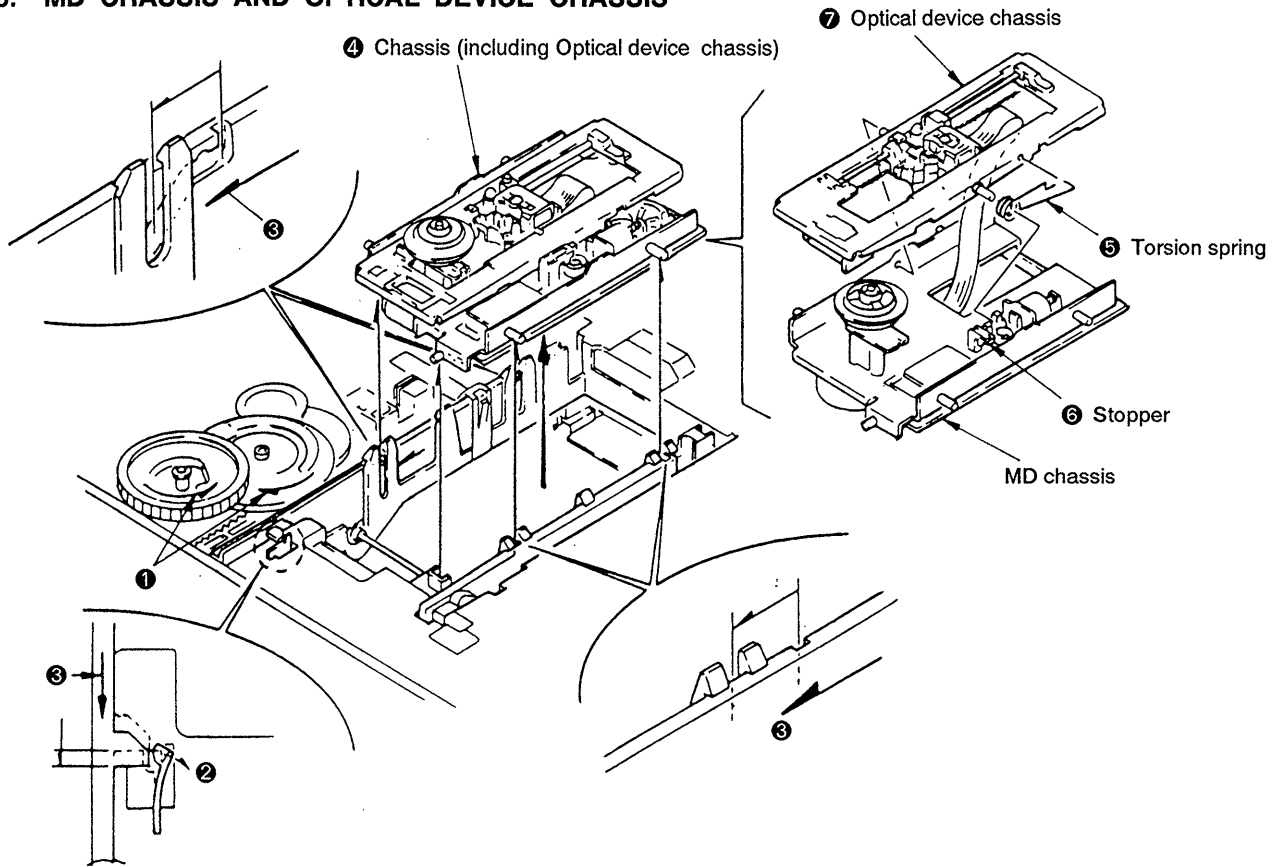
2-5. MA-703 BOARD



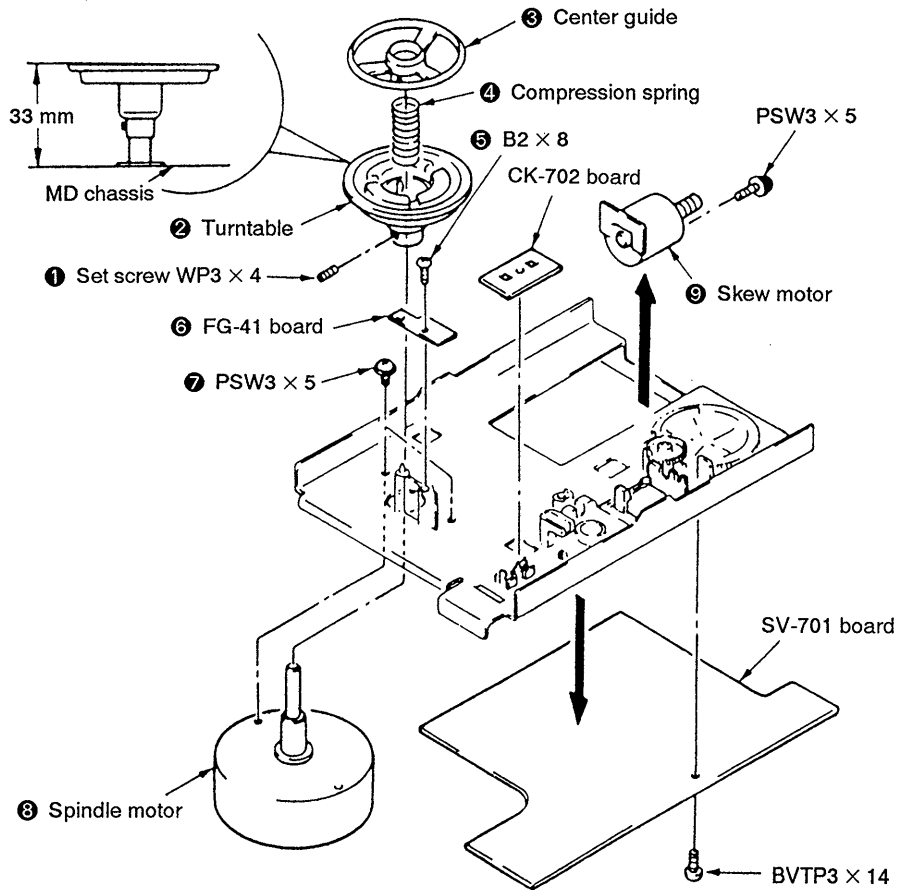
2-4. FP-714, SB-704, DP-703, KY-704 BOARDS



2-6. MD CHASSIS AND OPTICAL DEVICE CHASSIS

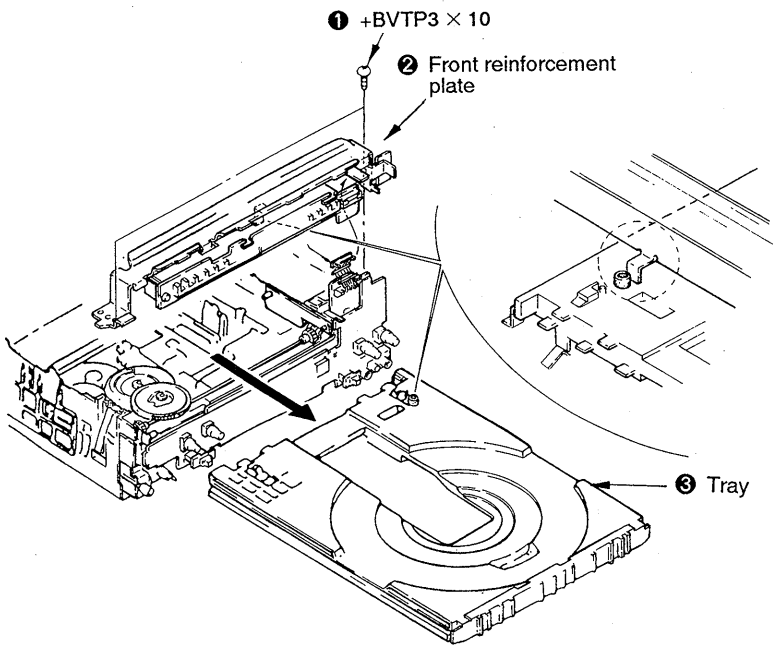


2-7. TURNTABLE, SPINDLE MOTOR, SKEW MOTOR, SV-701, FG-702 BOARDS



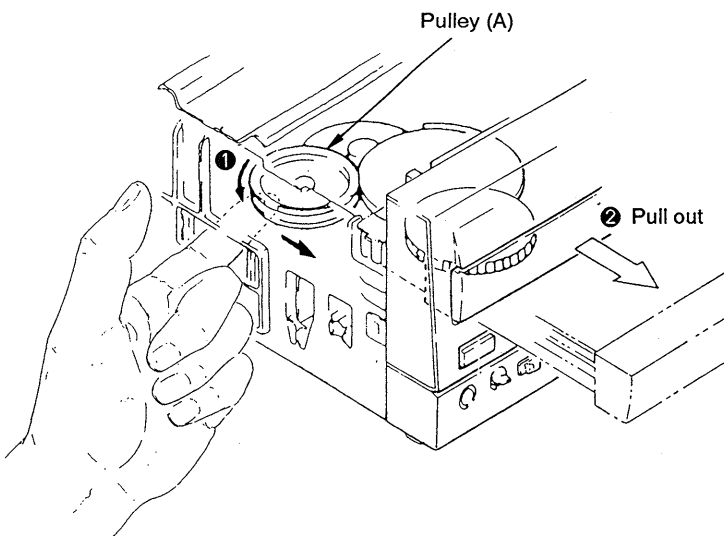
2-8. REMOVAL OF THE TRAY

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



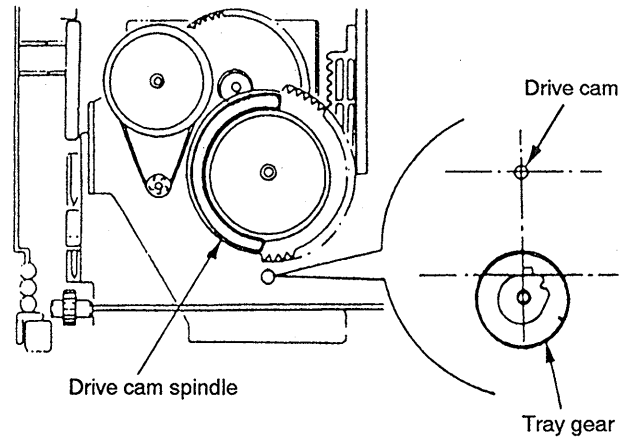
2-9. REMOVAL OF THE DISC WHEN A PROBLEM HAS OCCURRED WITH THE DISC LOADED

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



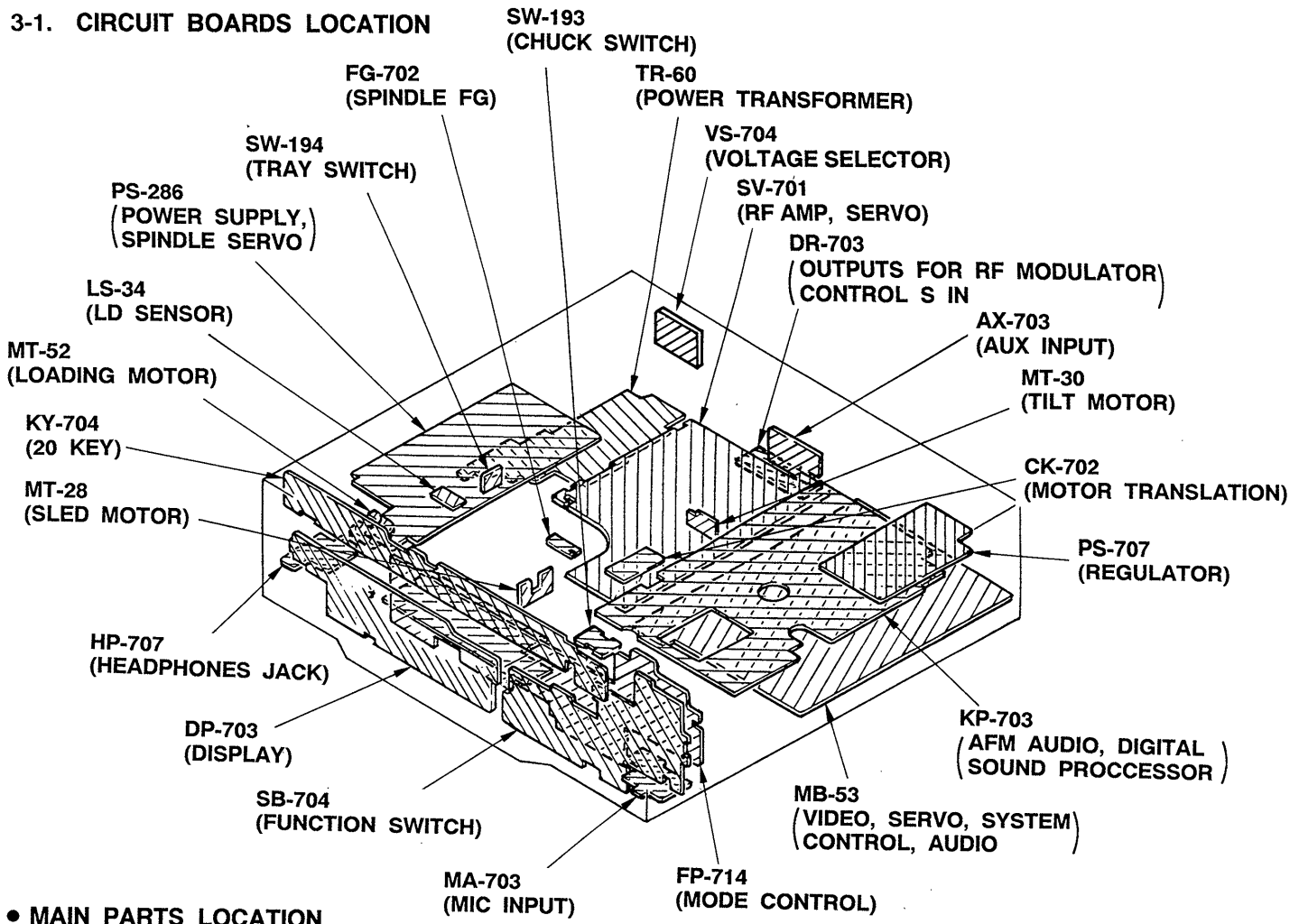
2-10. ALIGNMENT OF THE LOADING GEAR PHASE

- 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.

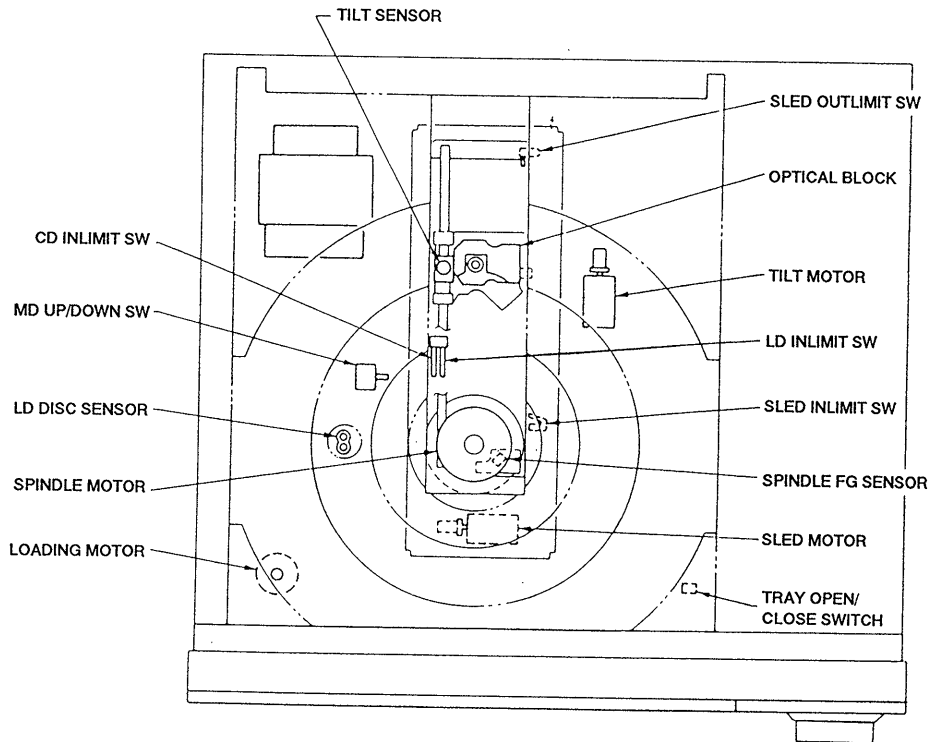


SECTION 3 DIAGRAMS

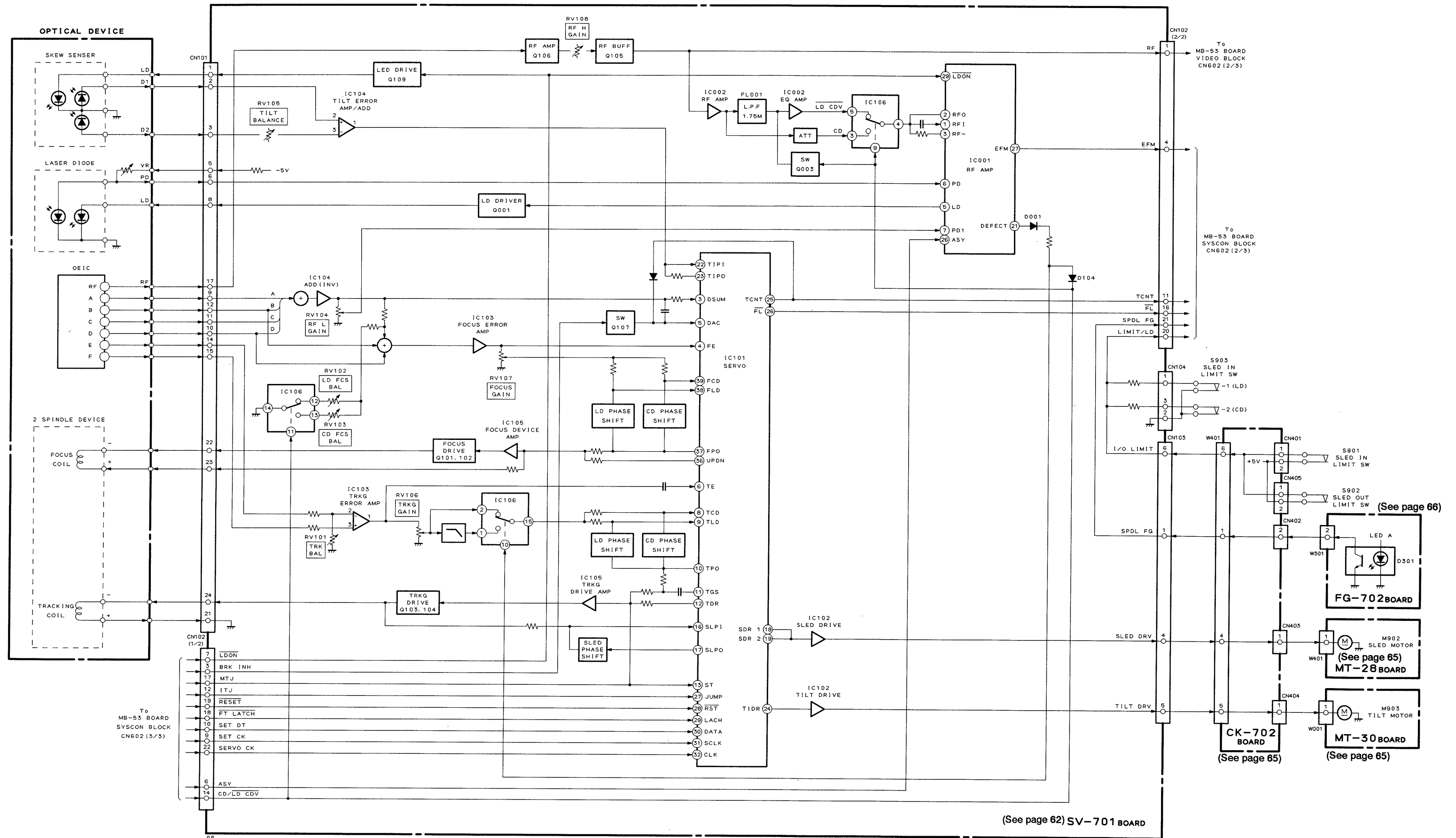
3-1. CIRCUIT BOARDS LOCATION



● MAIN PARTS LOCATION



3-3. SERVO BLOCK DIAGRAM



(See page 62) SV-701 BOARD

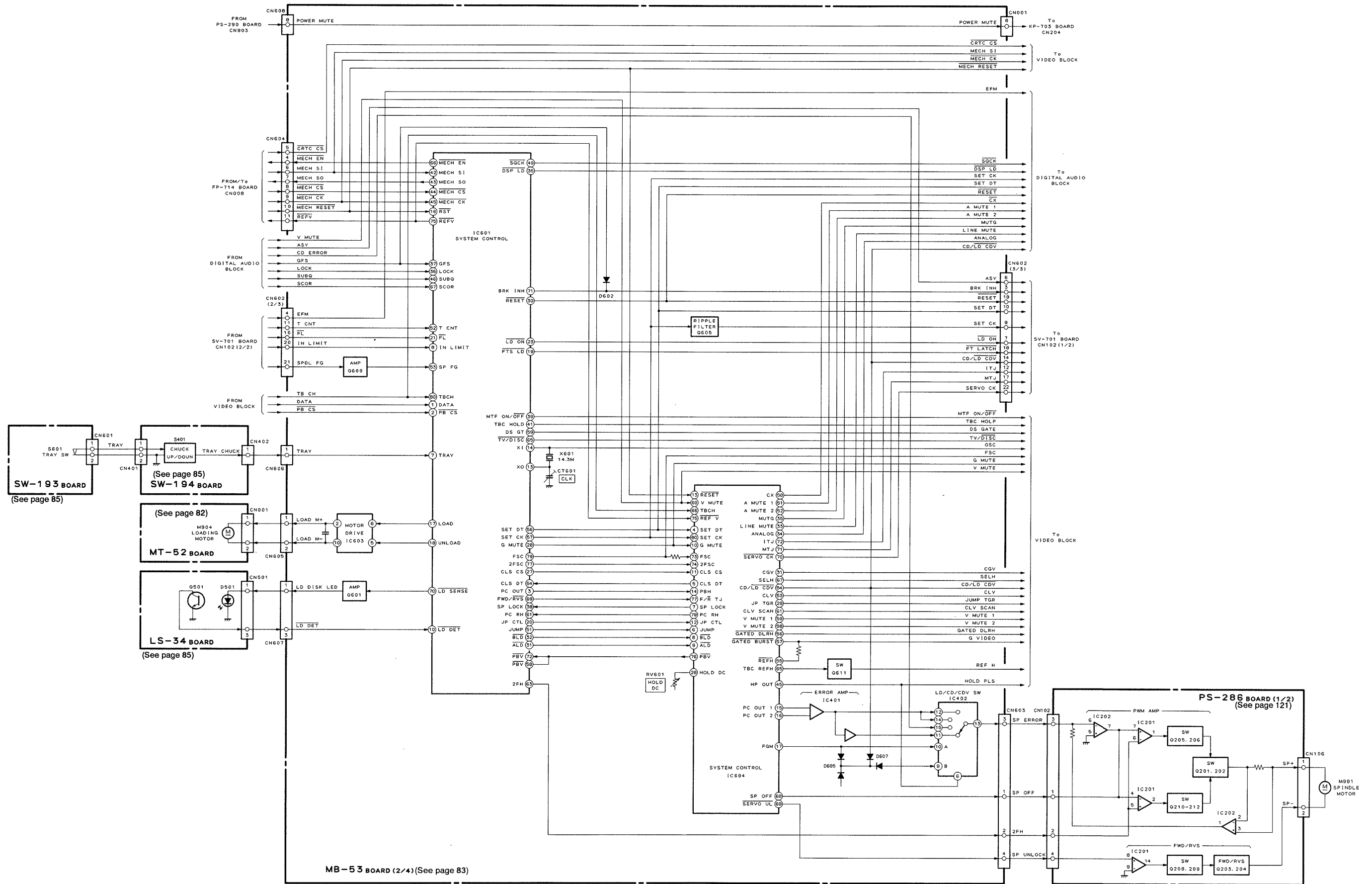
(See page 65) CK-702 BOARD

(See page 65) MT-30 BOARD

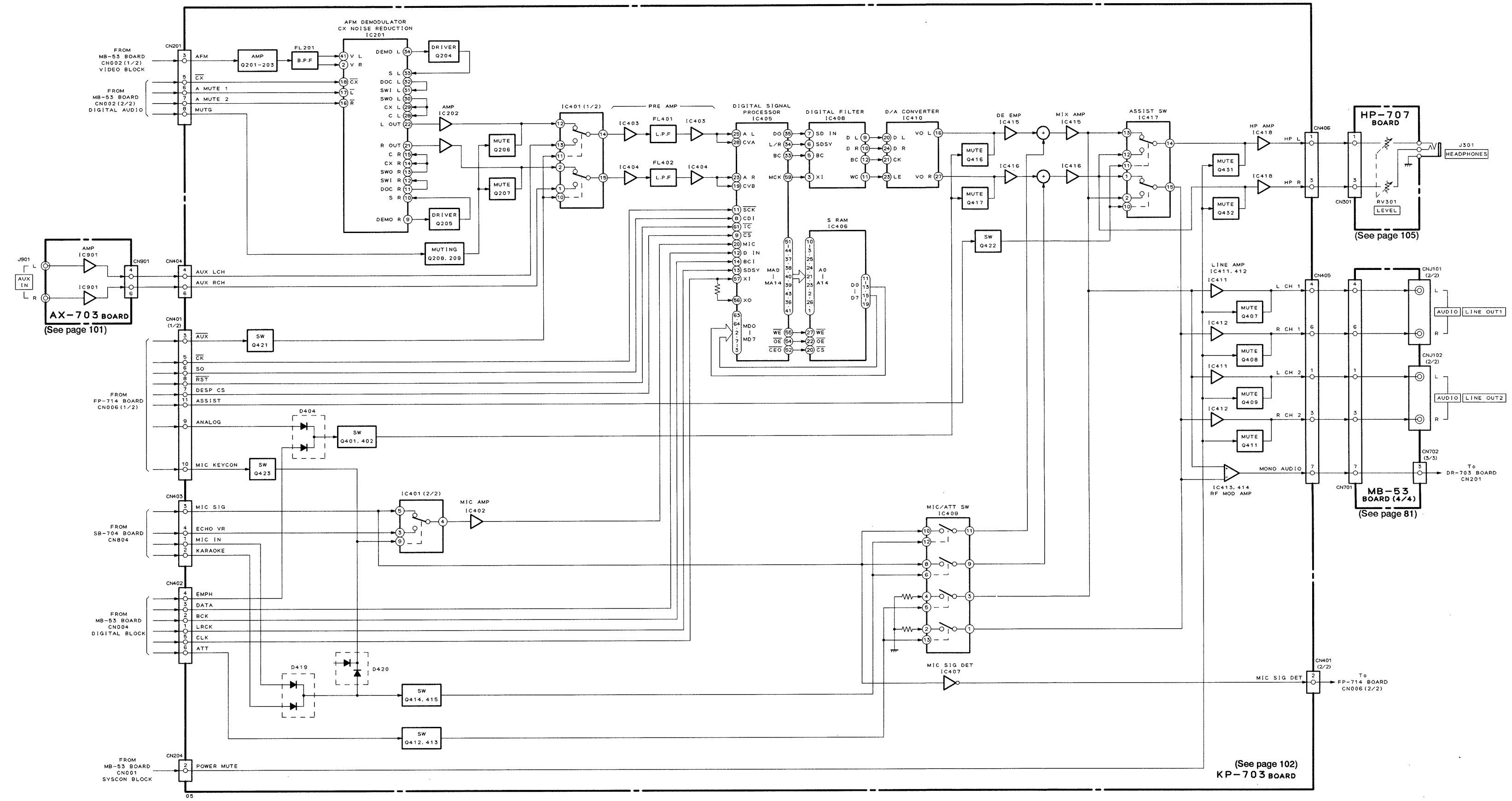
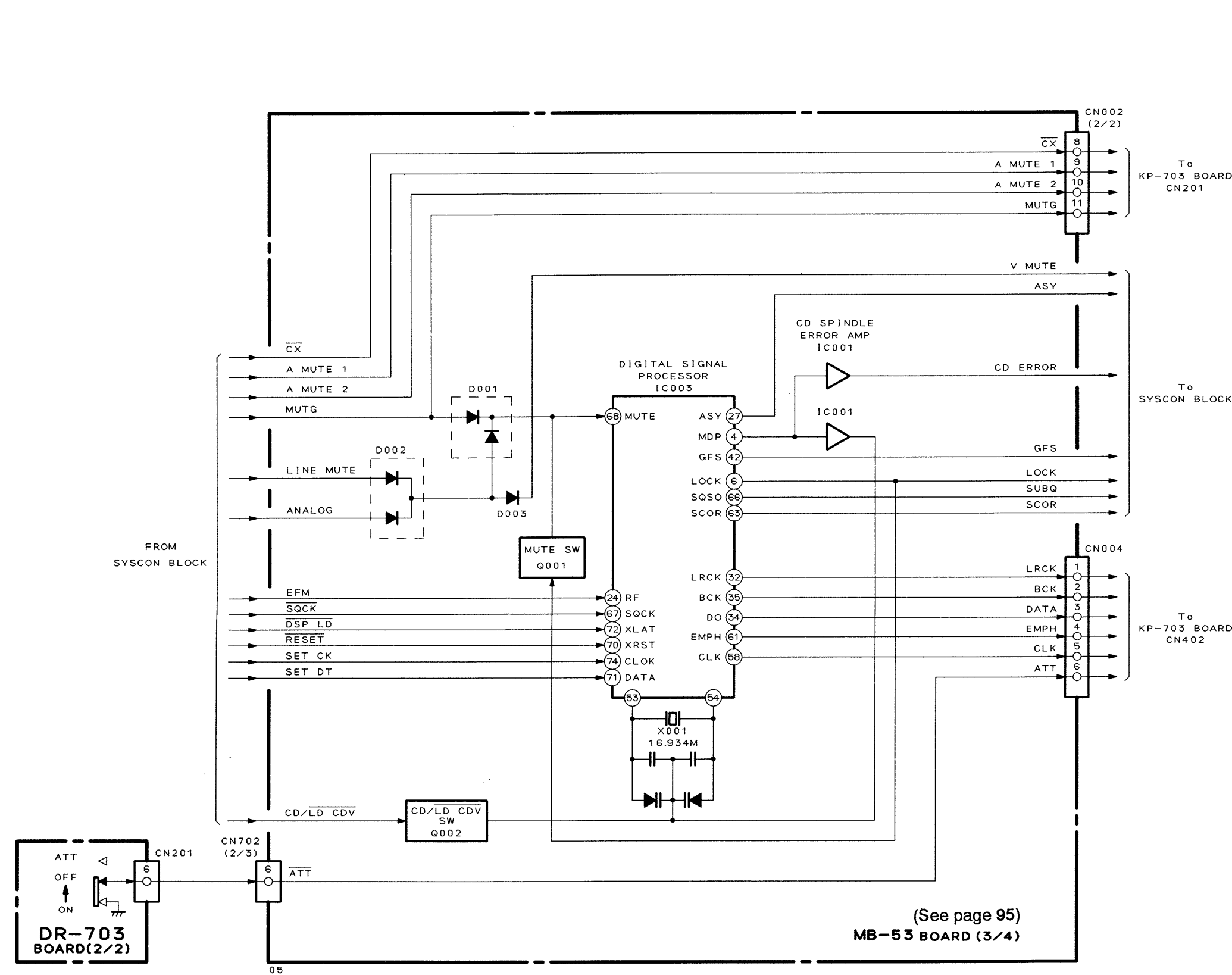
(See page 65) MT-28 BOARD

(See page 66) FG-702 BOARD

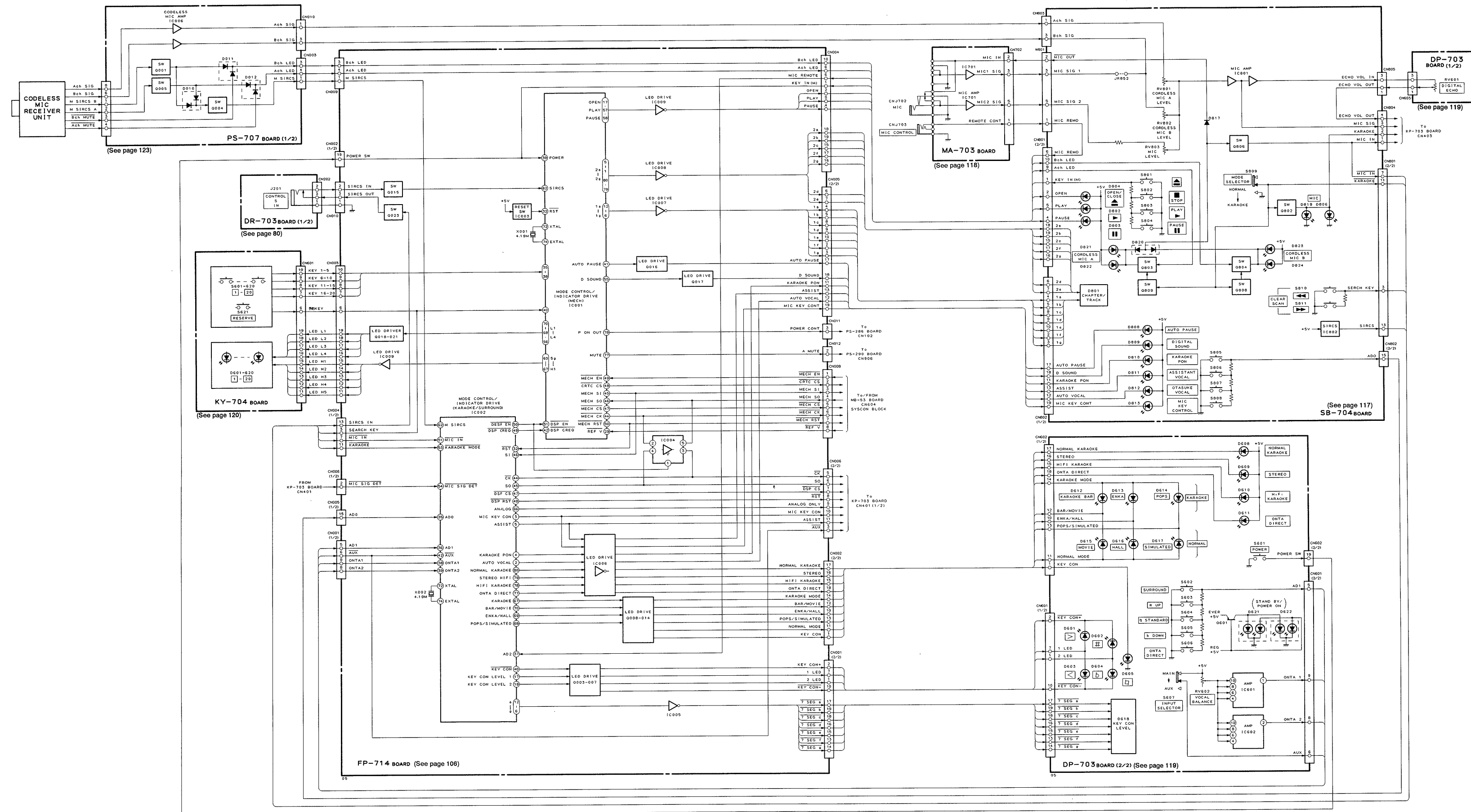
3-4. SYSTEM CONTROL BLOCK DIAGRAM



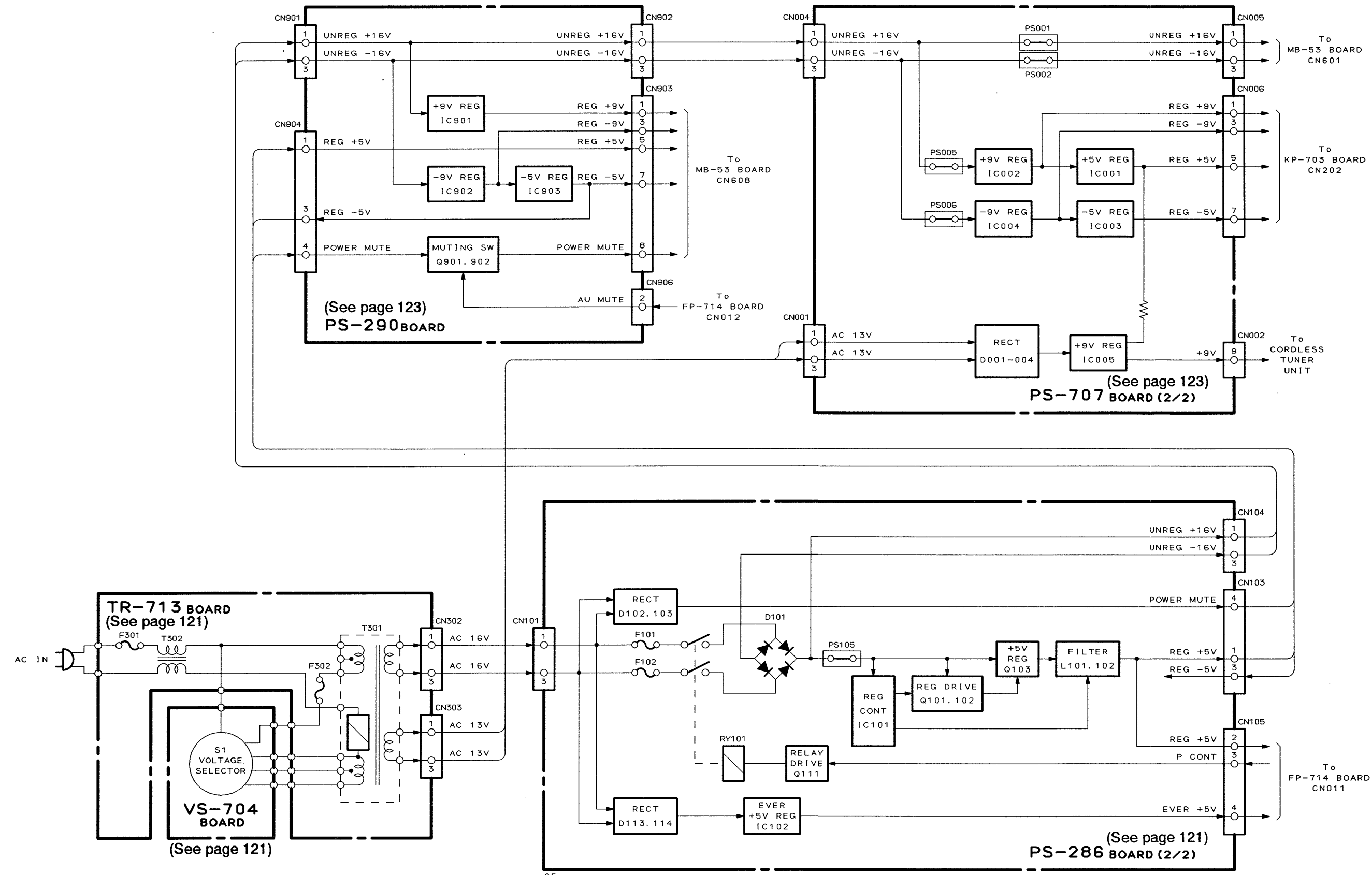
MB-53 BOARD (2/4) (See page 83)



3-8. MODE CONTROL BLOCK DIAGRAM

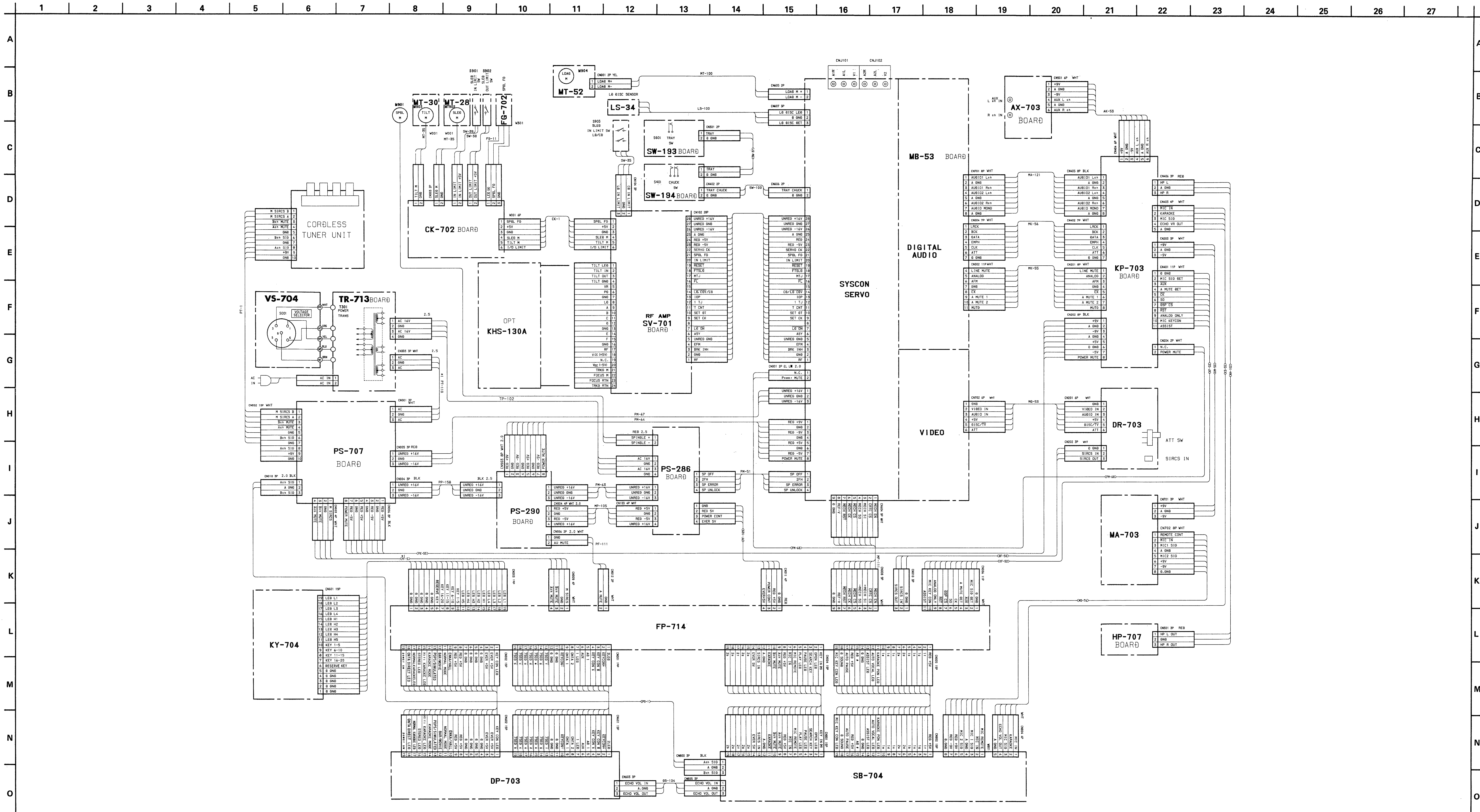


3-9. POWER BLOCK DIAGRAM



SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM



4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

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

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

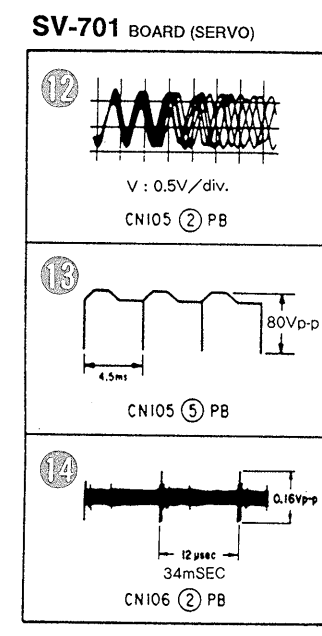
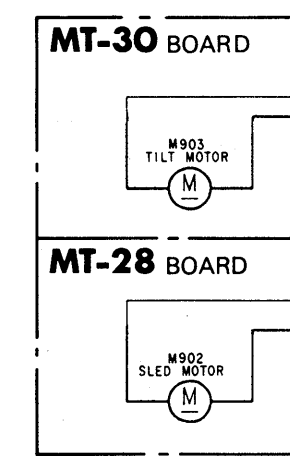
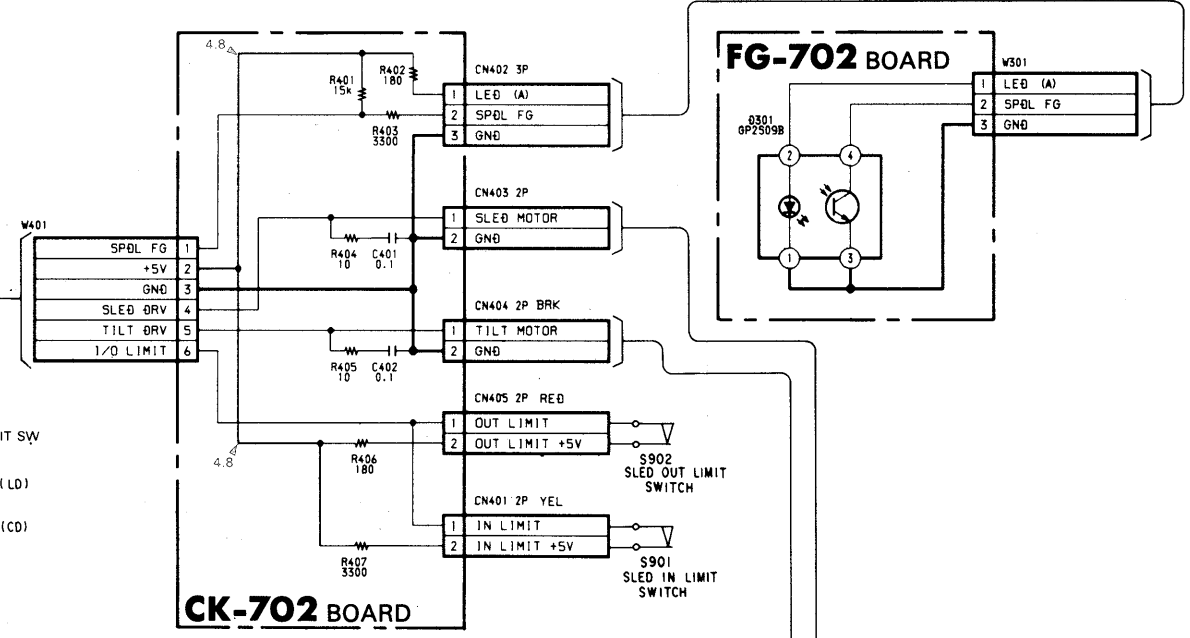
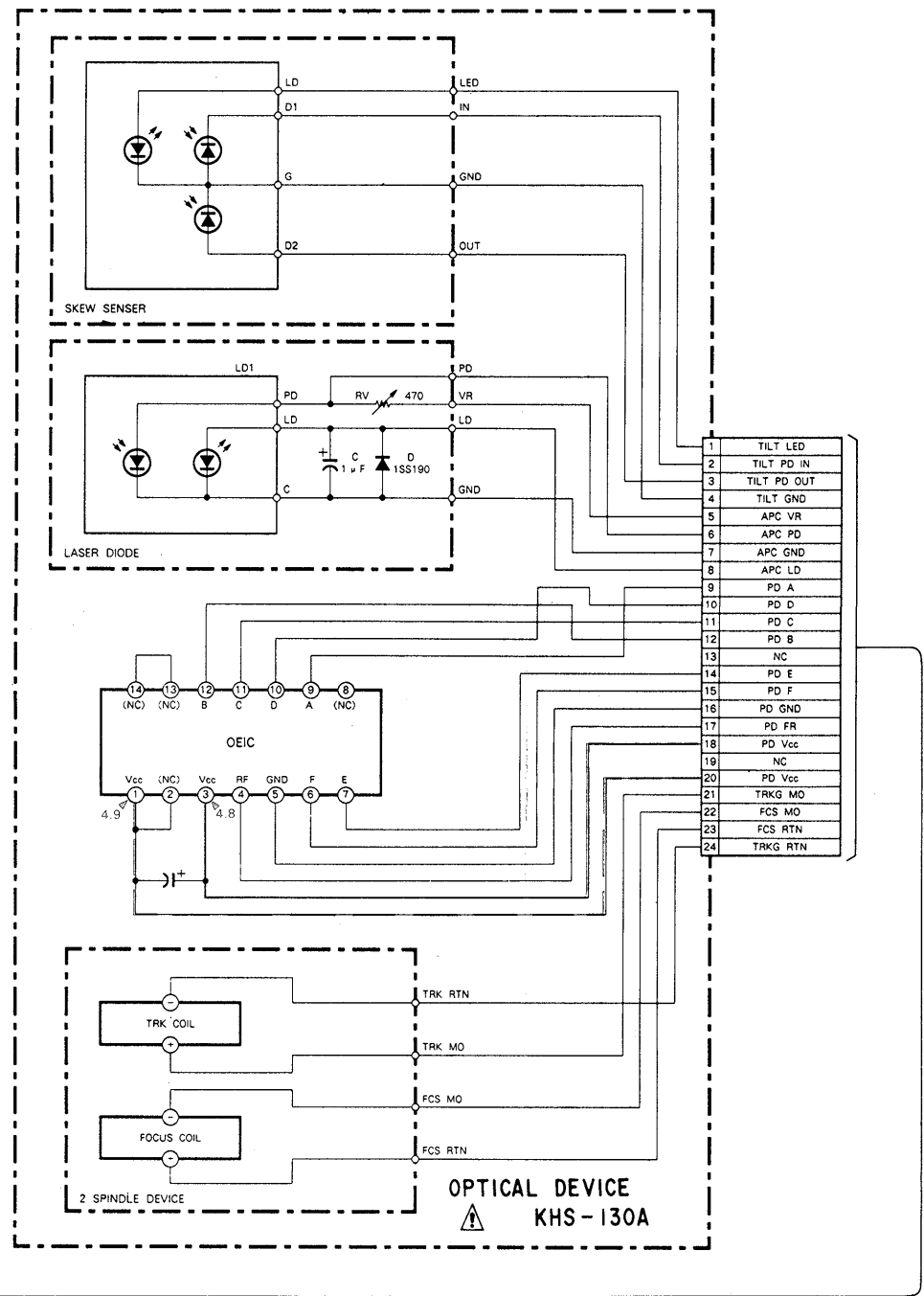
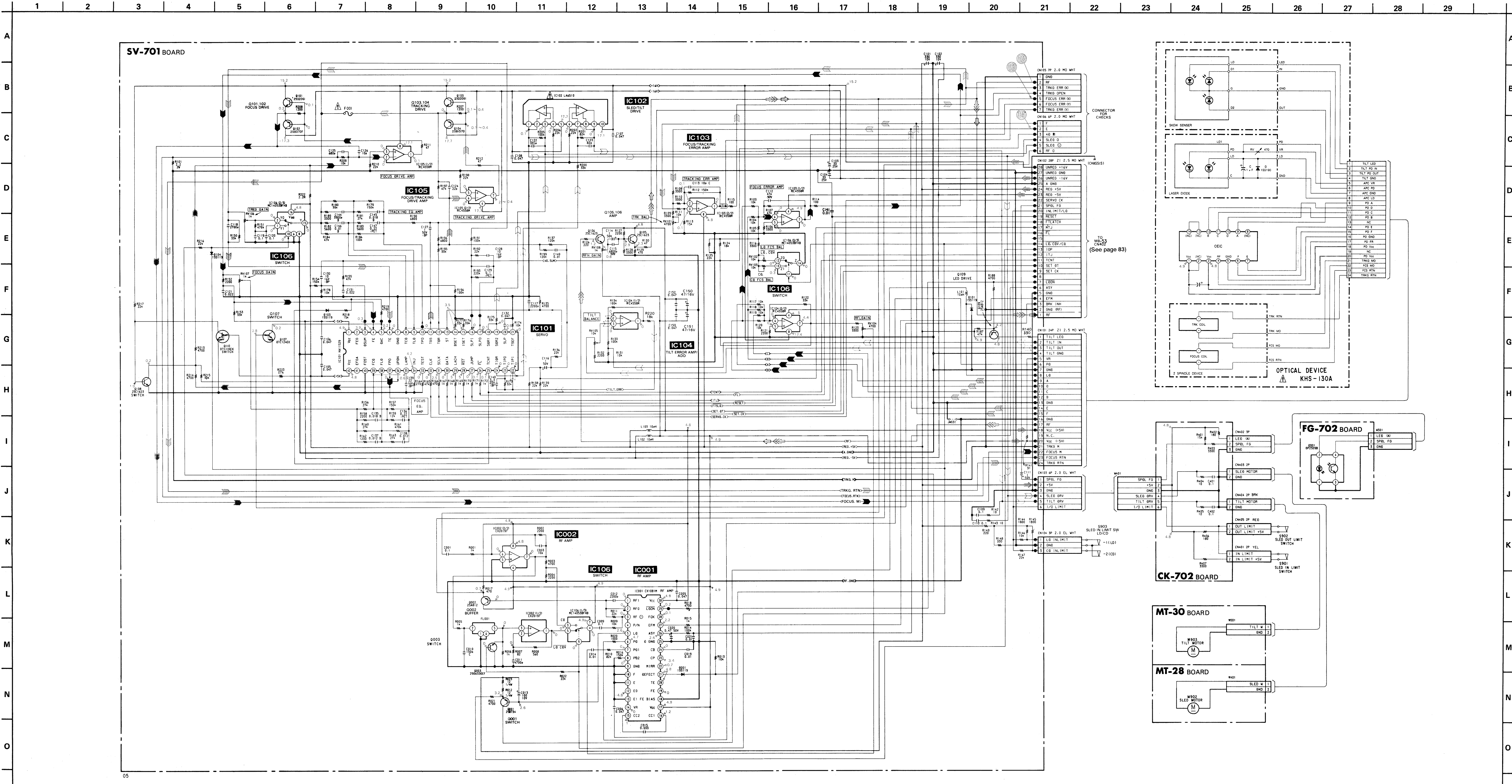
Caution:
Pattern face side: Parts on the pattern face side seen from the (Conductor Side) pattern face are indicated.
Parts face side: Parts on the parts face side seen from the (Component Side) parts face are indicated.

- 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.
 - All capacitors are in μF unless otherwise noted. pF : μF 50V or less are not indicated except for electrolytics and tantalums.
 - All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
 - ⊞: nonflammable resistor.
 - ⊞: fusible resistor.
 - ⊞: panel designation.
 - ⊞: internal component.
 - ⊞: adjustment for repair.*
 - ⊞: B + Line.*
 - ⊞: B - Line.*
 - * Voltages are dc between measurement points and ground unless otherwise noted.*
 - * Readings are taken with a color-bar signal playback.*
 - * Voltage variations may be noted due to normal production tolerances.
 - * IN/OUT direction of B line (+, -).*
 - * Circled numbers refer to waveforms.*

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

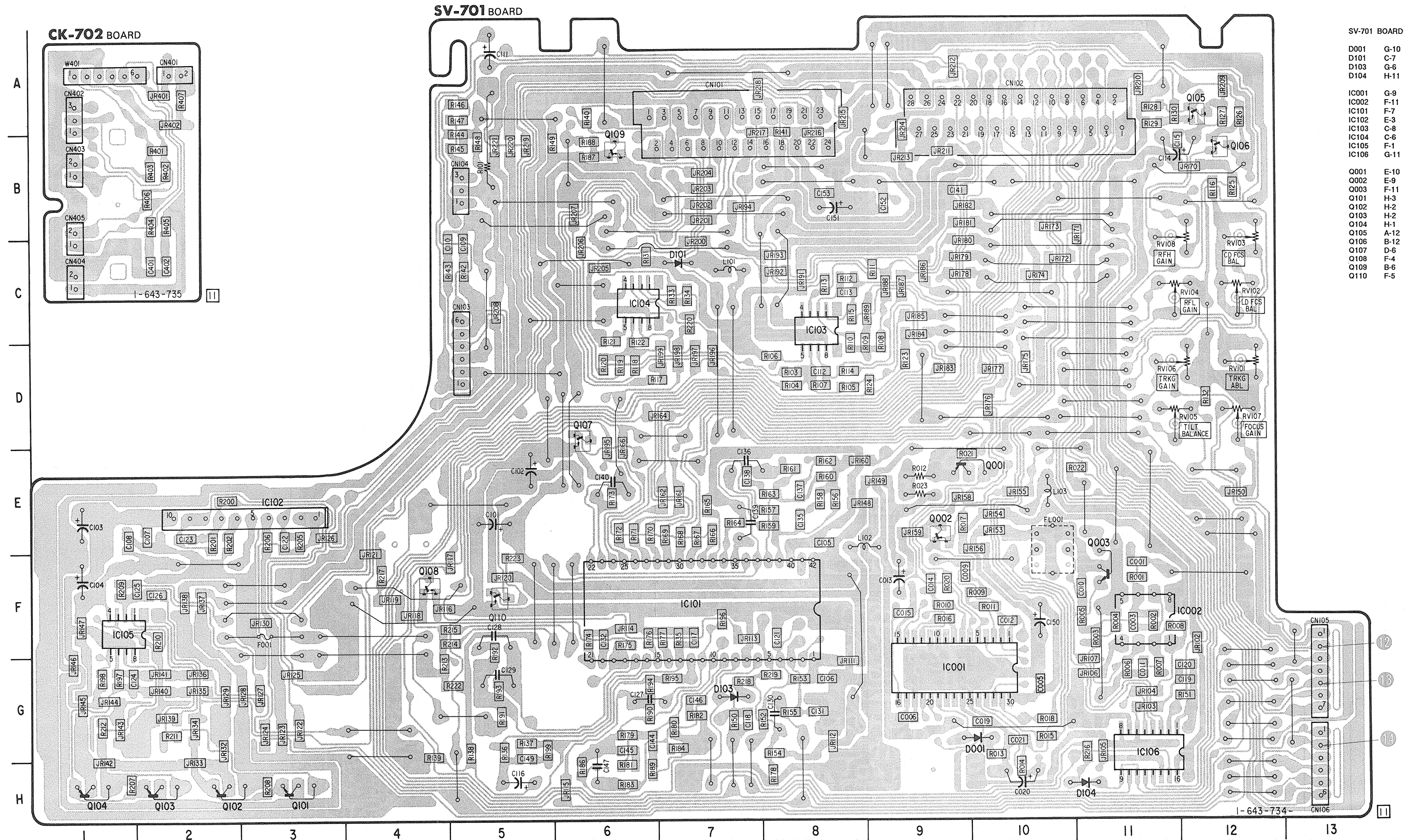
Note: The components identified by mark ⊞ or dotted line with mark ⊞ are critical for safety. Replace only with part number specified.

* : indicated by the color red.

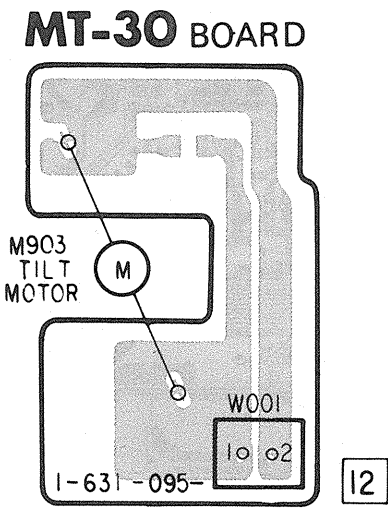
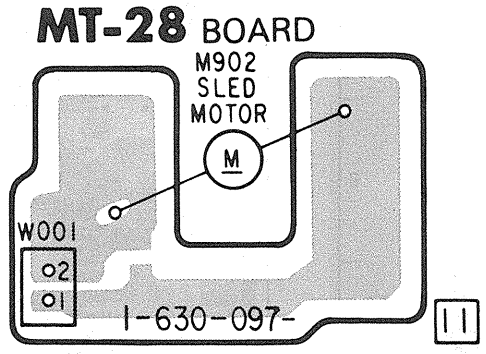
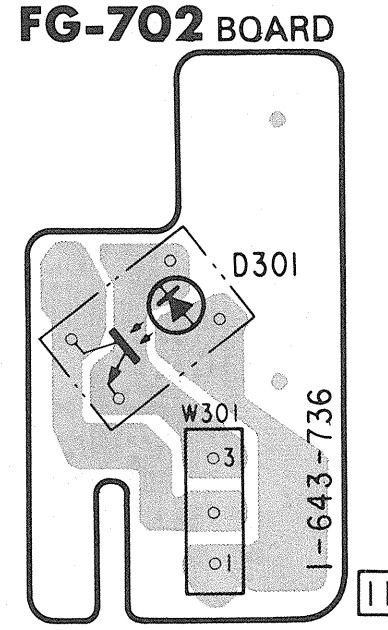
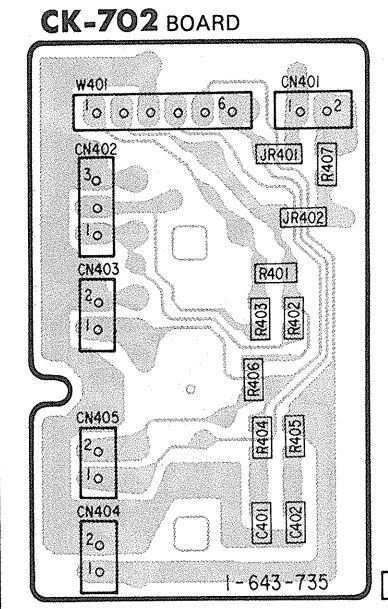


PB	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
	↔	↔	↔	↔

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	↔

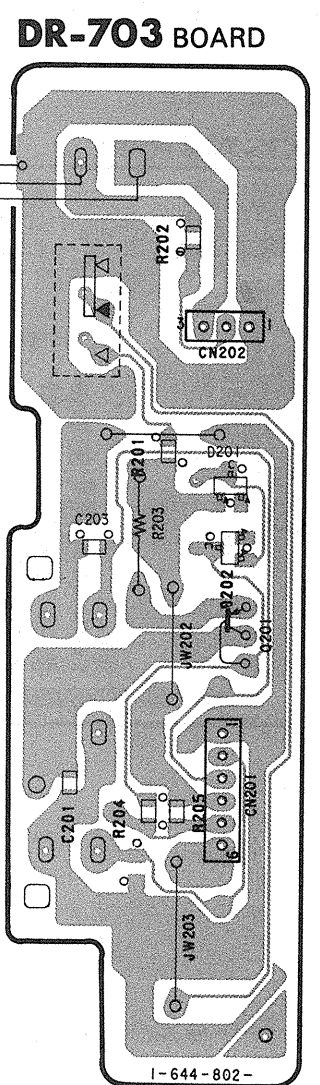
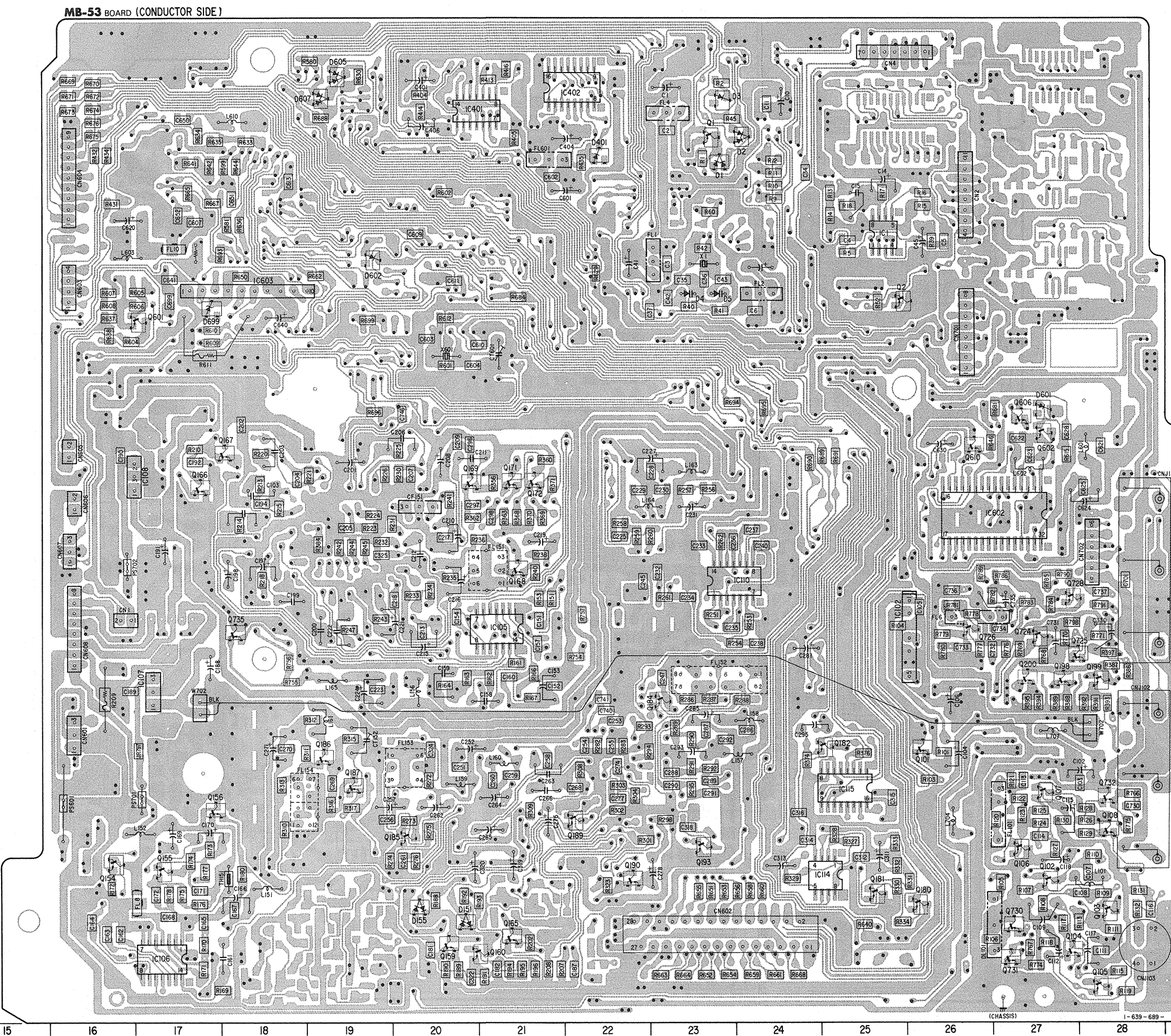
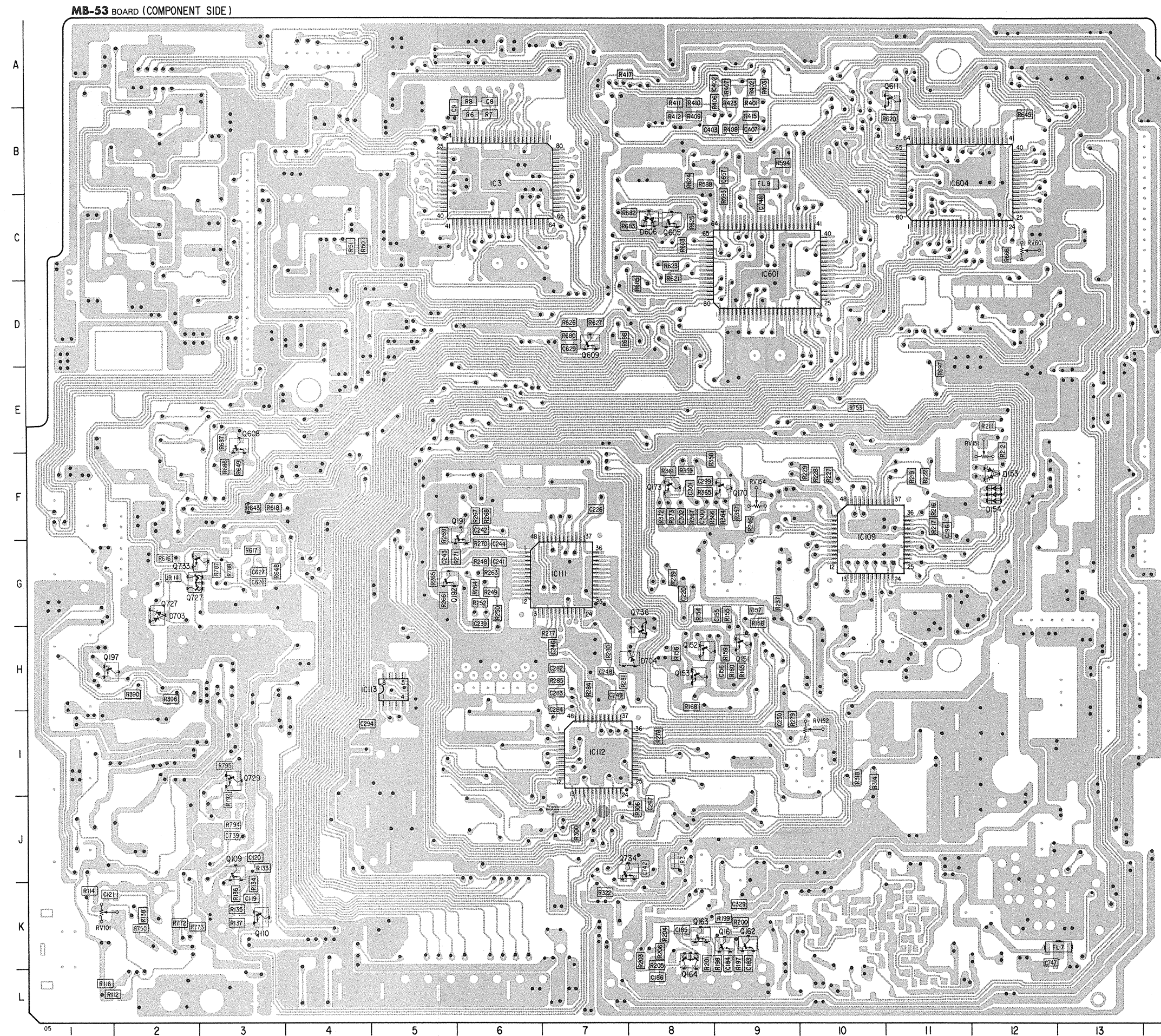


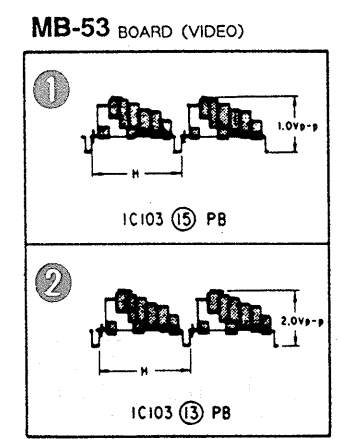
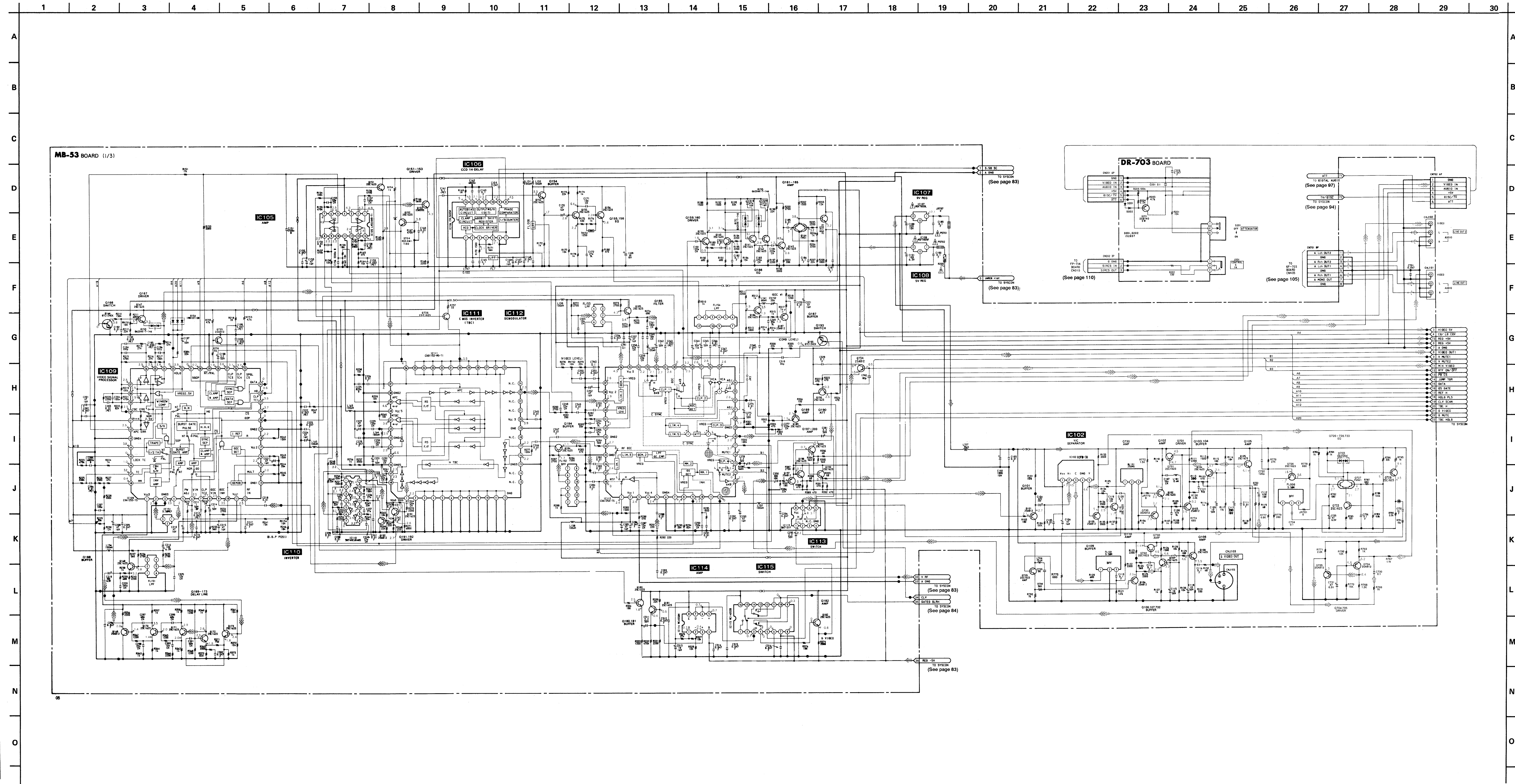
- SV-701 BOARD
- | | |
|-------|------|
| D001 | G-10 |
| D101 | C-7 |
| D103 | G-6 |
| D104 | H-11 |
| IC001 | G-9 |
| IC002 | F-11 |
| IC101 | F-7 |
| IC102 | E-3 |
| IC103 | C-8 |
| IC104 | C-6 |
| IC105 | F-1 |
| IC106 | G-11 |
| Q001 | E-10 |
| Q002 | E-9 |
| Q003 | F-11 |
| Q101 | H-3 |
| Q102 | H-2 |
| Q103 | H-2 |
| Q104 | H-1 |
| Q105 | A-12 |
| Q106 | B-12 |
| Q107 | D-6 |
| Q108 | F-4 |
| Q109 | B-6 |
| Q110 | F-5 |



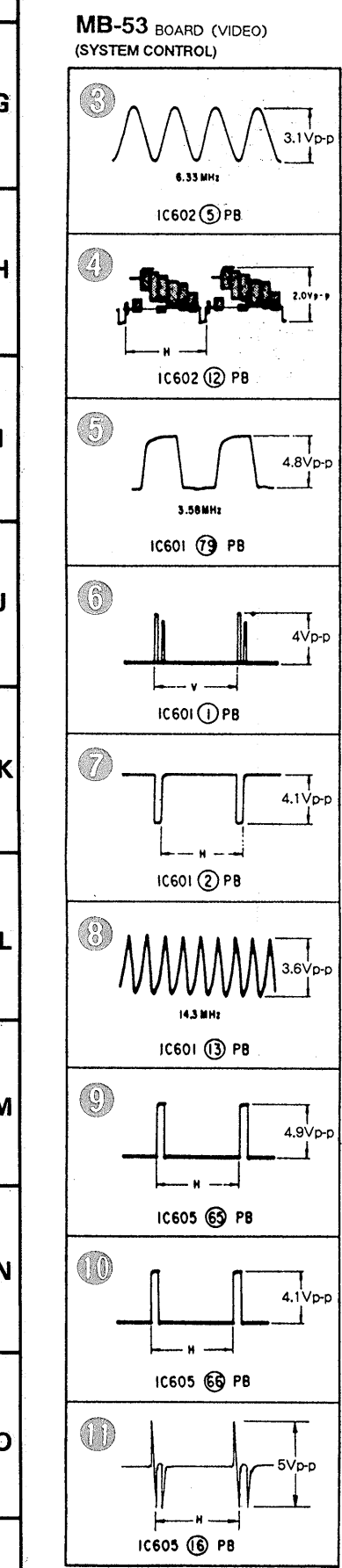
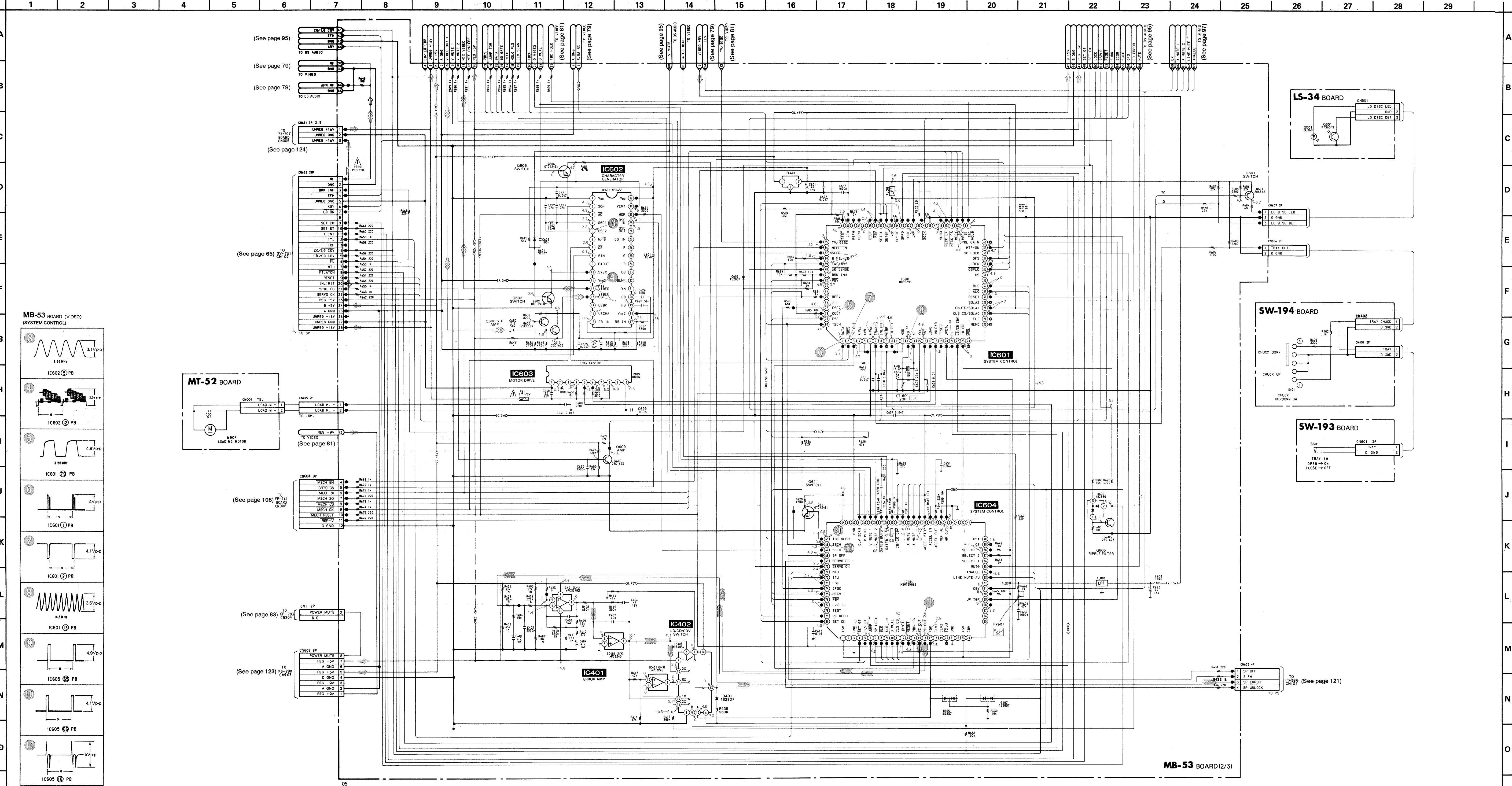
MB-53 BOARD

D001	B-23	Q608	E-3
D002	B-24	Q609	D-7
D003	A-23	Q610	E-26
D004	D-6	Q611	A-11
D005	D-6	Q724	H-27
D151	K-20	Q725	H-27
D153	F-12	Q726	G-28
D154	F-12	Q727	G-2
D155	K-20	Q728	G-27
D401	B-22	Q729	I-3
D601	E-27	Q730	K-27
D602	C-19	Q731	K-27
D605	A-19	Q732	I-28
D606	C-8	Q733	G-2
D607	A-19	Q734	J-8
D699	D-17	Q735	H-18
D703	G-2	Q736	H-8
D704	H-8		
IC001	C-25		
IC003	B-5		
IC102	H-4		
IC105	G-21		
IC106	K-17		
IC107	H-13		
IC108	F-13		
IC109	F-10		
IC110	G-24		
IC111	G-7		
IC112	I-7		
IC113	H-5		
IC114	J-25		
IC115	I-25		
IC401	A-20		
IC402	A-22		
IC601	C-9		
IC602	F-27		
IC603	D-11		
IC604	B-11		
Q001	B-23		
Q002	D-25		
Q101	I-26		
Q102	J-27		
Q103	K-28		
Q104	K-27		
Q105	L-28		
Q106	J-27		
Q107	I-27		
Q108	J-28		
Q109	J-3		
Q110	K-3		
Q151	H-9		
Q152	H-8		
Q153	H-9		
Q154	J-16		
Q155	J-17		
Q156	J-17		
Q159	K-20		
Q160	K-21		
Q161	K-9		
Q162	K-9		
Q163	K-8		
Q164	K-8		
Q165	K-21		
Q166	F-17		
Q167	E-18		
Q168	G-21		
Q169	F-20		
Q170	F-9		
Q171	F-21		
Q172	F-21		
Q173	F-8		
Q180	K-26		
Q181	K-25		
Q182	I-25		
Q184	F-23		
Q185	J-20		
Q186	I-19		
Q187	I-19		
Q189	J-22		
Q190	J-22		
Q191	F-6		
Q192	G-5		
Q193	J-23		
Q197	H-1		
Q198	H-27		
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Q200	H-27		
Q601	D-17		
Q602	E-27		
Q605	C-8		
Q606	E-27		

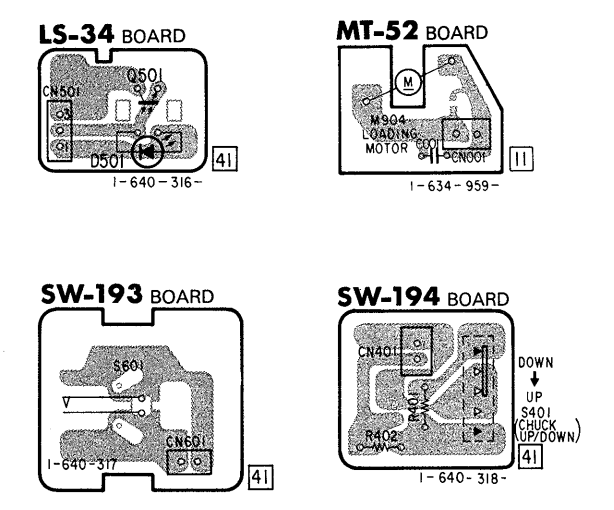




	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
PB	⇨	⇨	⇨	⇨
SPINDLE PHASE SERVO	⇨			⇨
SPINDLE SERVO (SPEED AND PHASE)	⇨			⇨
TRACKING SERVO LD/CD/CDV	⇨			⇨
SLIDE SERVO LD/CD	⇨			⇨
FOCUS SERVO LD/CD	⇨			⇨
SKREW SERVO LD TILT	⇨			⇨



LS-34 (LD SENSOR), MT-52 (LOADING MOTOR), SW-193 (TRAY SWITCH), SW-194 (CHUCK SWITCH) PRINTED WIRING BOARDS
 - Ref. No.: LS-34, MT-52, SW-193, and SW-194 Boards; 3,000 series -



	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
PB	⇐	⇨	⇨⇨	⇨

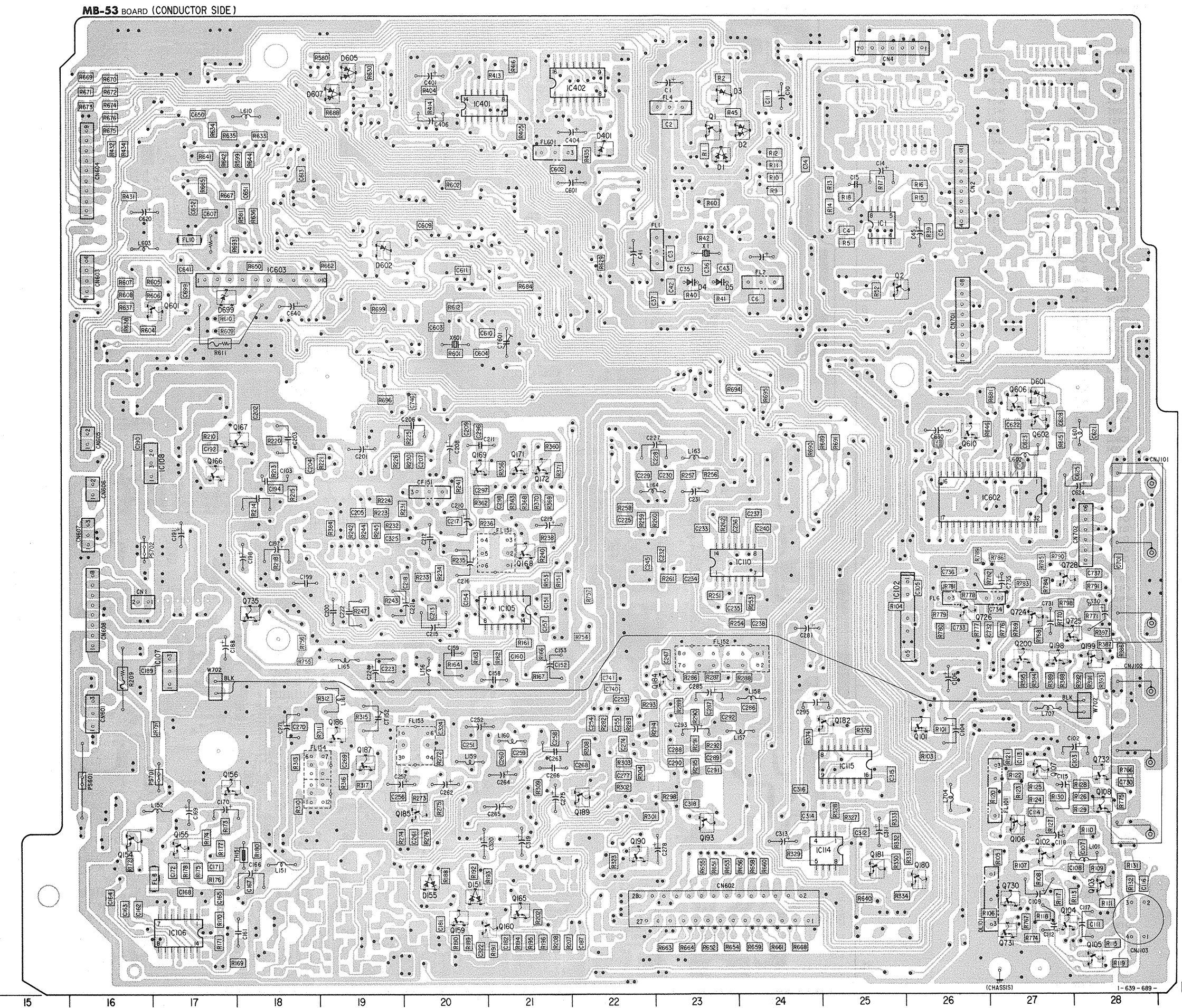
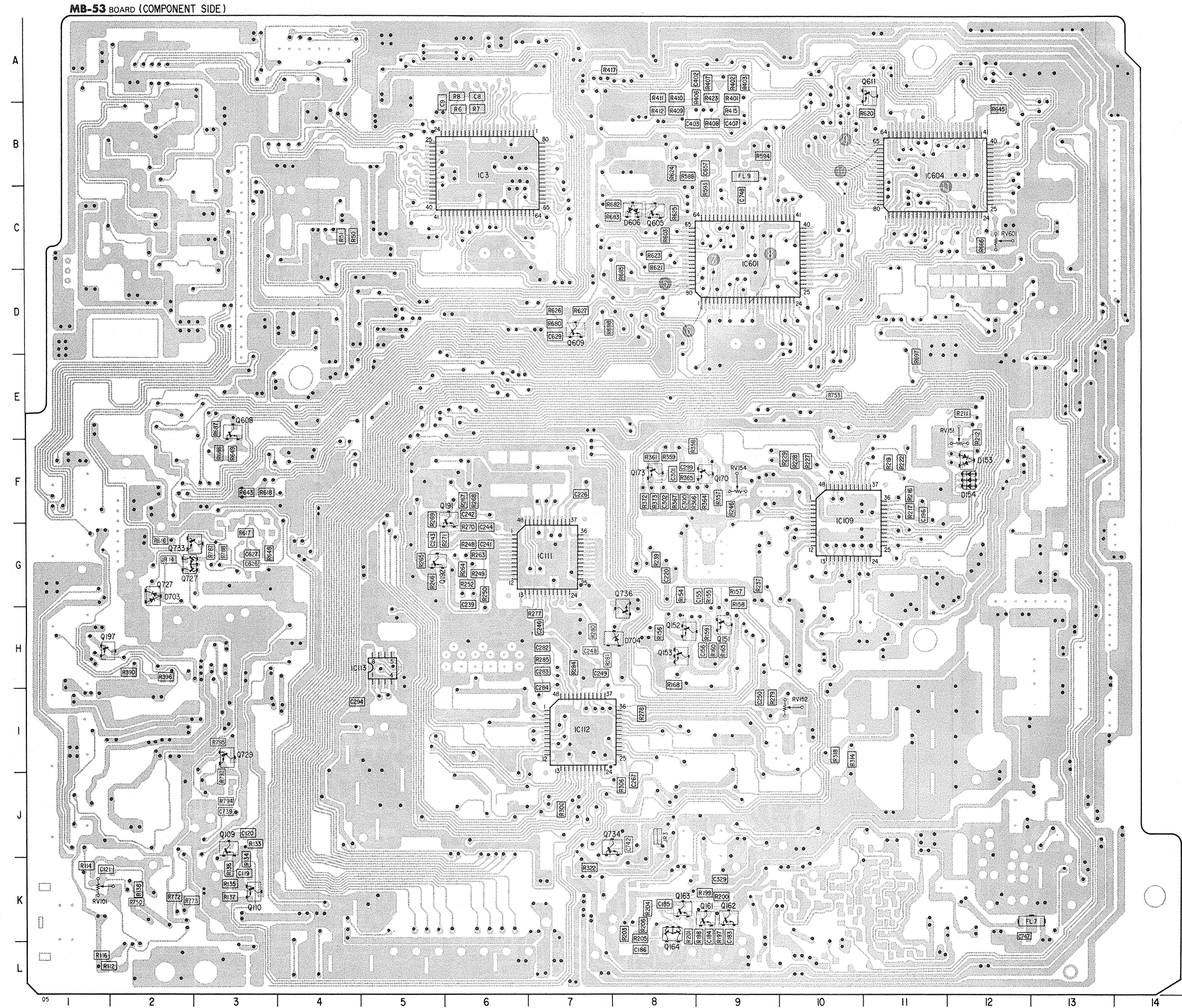
SPINDLE PHASE SERVO	⇨⇨⇨
SPINDLE SERVO (SPEED AND PHASE)	⇨⇨⇨⇨
TRACKING SERVO LD/CD/CDV	⇨⇨⇨⇨⇨
SLIDE SERVO LD/CD	⇨⇨⇨⇨⇨⇨
FOCUS SERVO LD/CD	⇨⇨⇨⇨⇨⇨⇨
SKEW SERVO LD TILT	⇨⇨⇨⇨⇨⇨⇨⇨

MB-53 BOARD

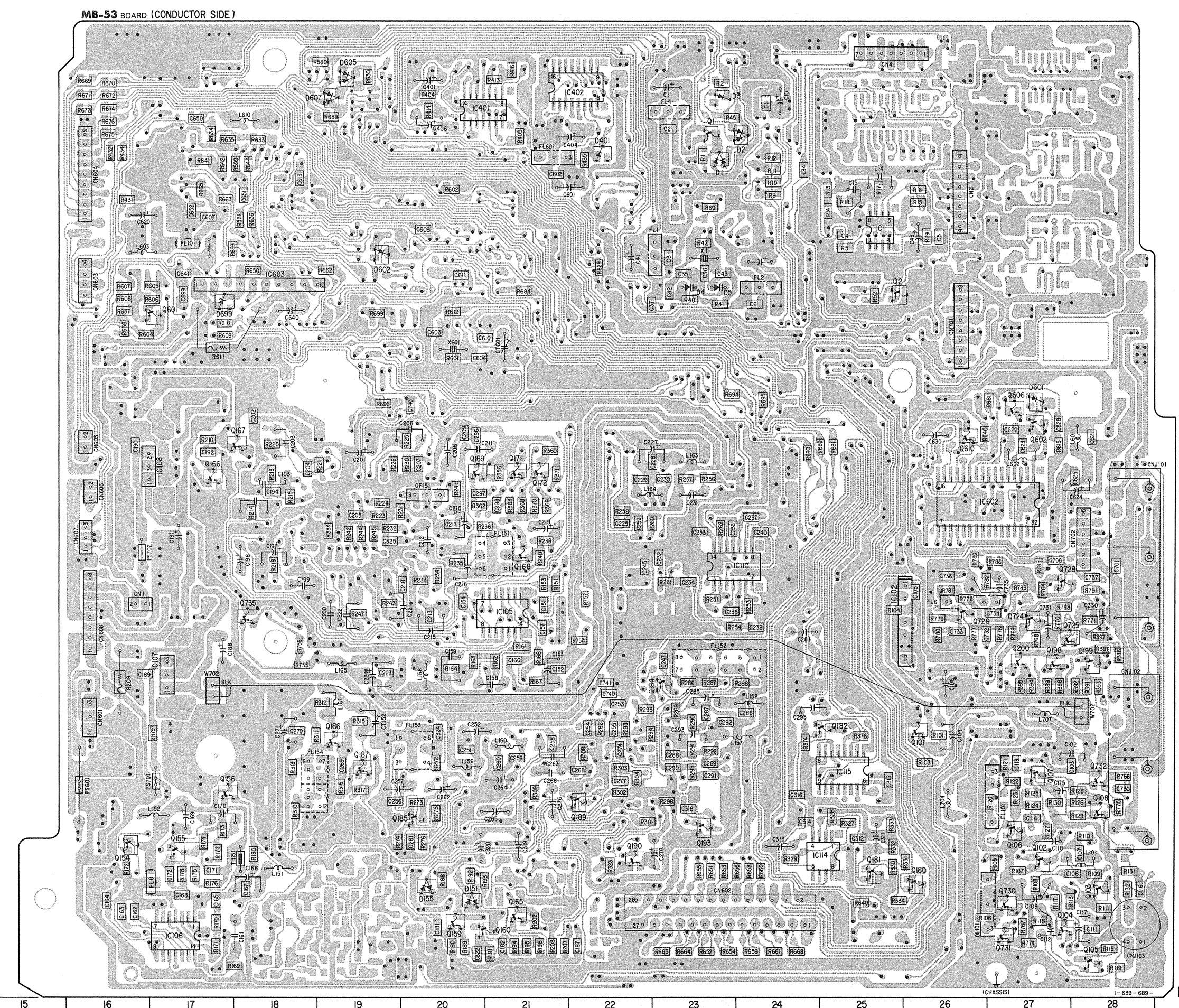
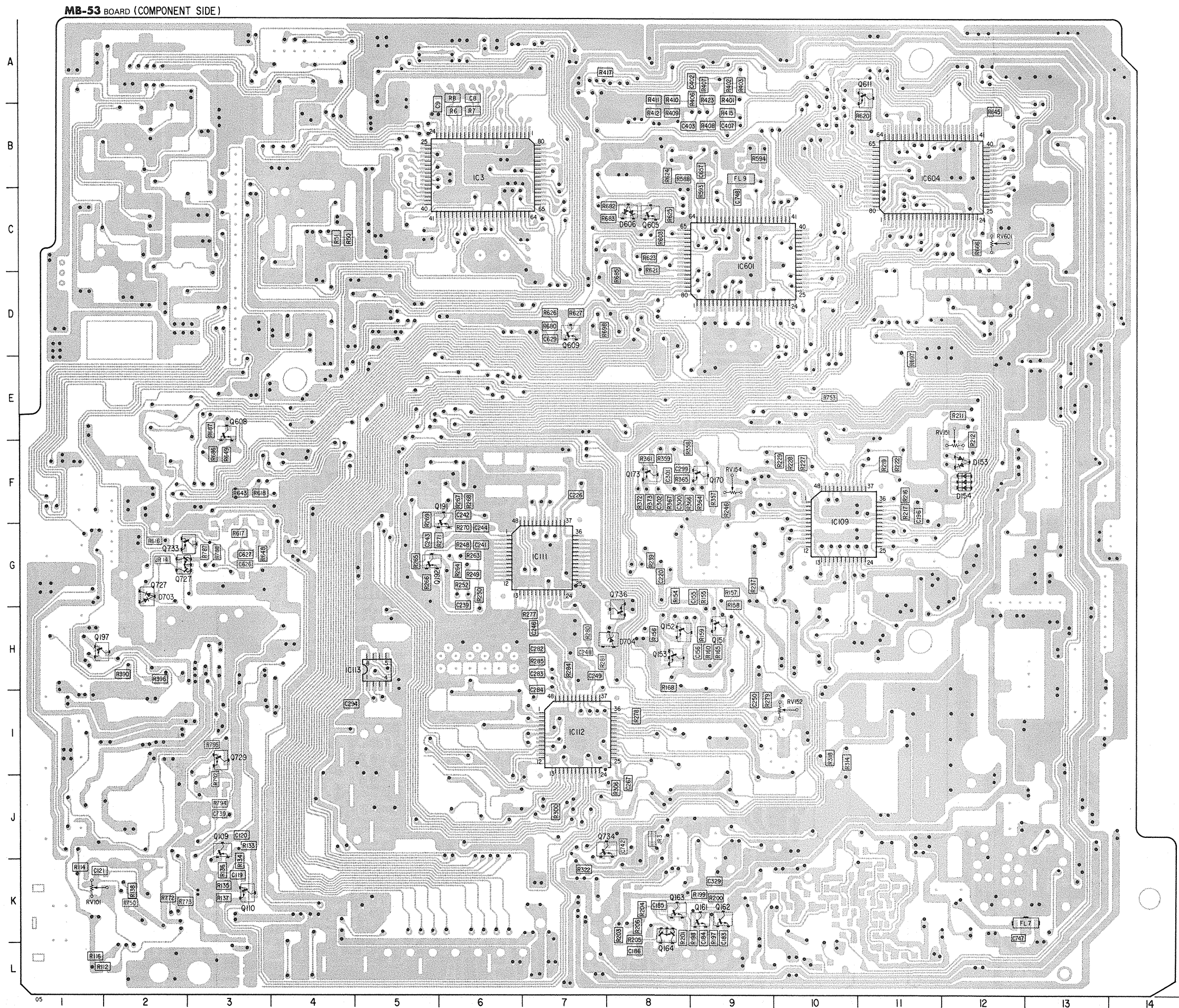
D001	B-23	Q608	E-3
D002	B-24	Q609	D-7
D003	A-23	O610	E-26
D004	D-11	O611	A-11
D005	D-8	Q724	H-27
D151	K-20	O725	H-27
D153	F-12	O726	G-26
D154	F-12	O727	G-2
D155	K-20	O728	G-2
D401	B-22	O729	I-3
D601	E-27	O730	K-27
D602	C-19	O731	K-27
D605	A-19	O732	I-28
D606	C-8	O733	G-2
D607	A-19	O734	J-8
D699	D-17	O735	H-18
D703	G-2	O736	H-8
D704	H-8		

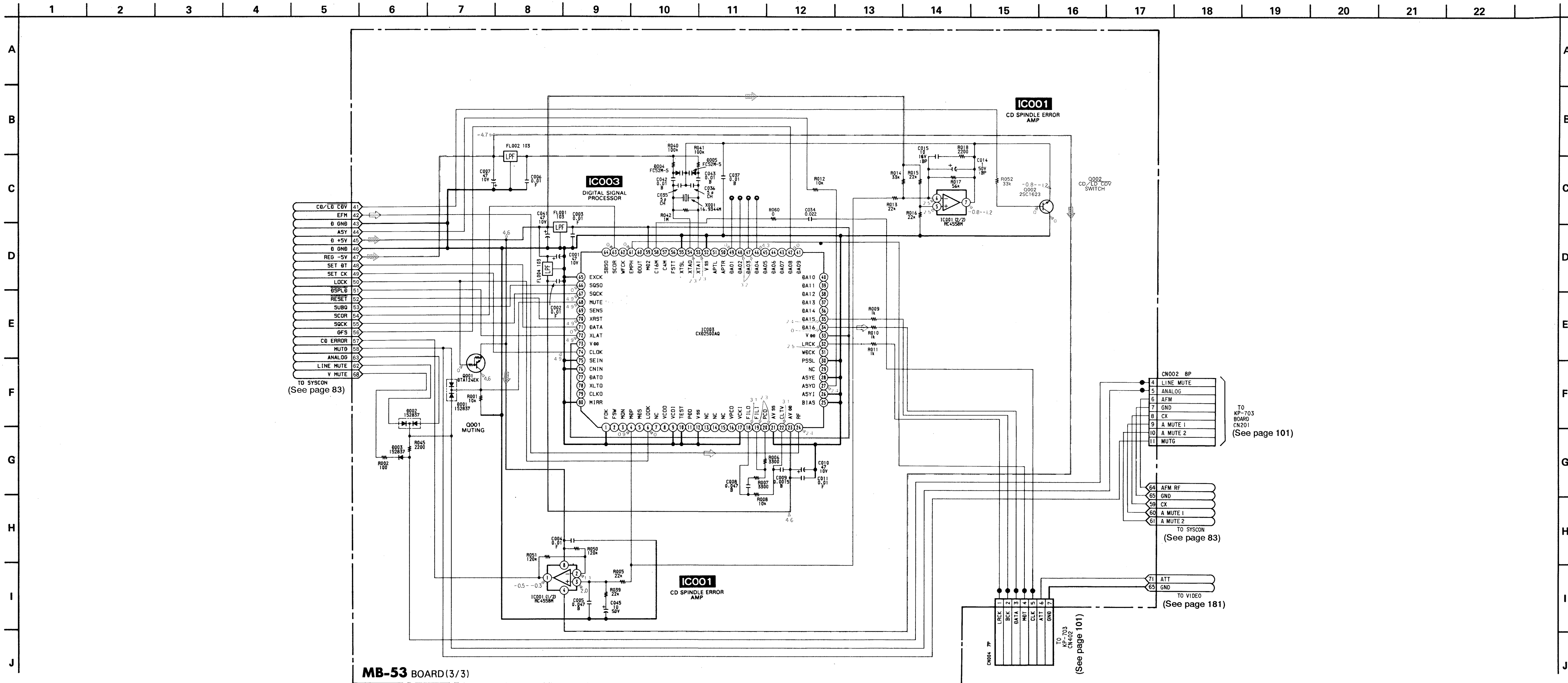
IC001	C-25
IC003	B-5
IC102	H-4
IC105	G-21
IC106	K-17
IC107	H-13
IC108	F-13
IC109	F-10
IC110	G-24
IC111	G-7
IC112	I-7
IC113	H-5
IC114	J-25
IC115	I-25
IC405	A-20
IC402	A-22
IC601	C-9
IC602	F-27
IC603	D-11
IC604	B-11

Q001	B-23
Q002	D-25
Q101	I-26
Q102	J-27
Q103	K-26
Q104	K-27
Q105	L-28
Q106	J-27
Q107	I-27
Q108	J-28
Q109	J-3
Q110	K-3
Q151	H-9
Q152	H-8
Q153	H-8
Q154	J-16
Q155	J-17
Q156	J-17
Q159	K-20
Q160	K-21
Q161	K-9
Q162	K-9
Q163	K-8
Q164	K-8
Q165	K-21
Q166	F-17
Q167	E-16
Q168	G-21
Q169	F-20
Q170	F-9
Q171	F-21
Q172	F-21
Q173	F-8
Q180	K-26
Q181	K-25
Q182	I-25
Q184	F-23
Q185	J-20
Q186	I-19
Q187	I-19
Q189	J-22
Q190	J-22
Q191	F-6
Q192	G-5
Q193	J-23
Q197	H-1
Q198	H-27
Q199	H-28
Q200	H-27
O601	D-17
O602	E-27
O605	C-8
O606	E-27

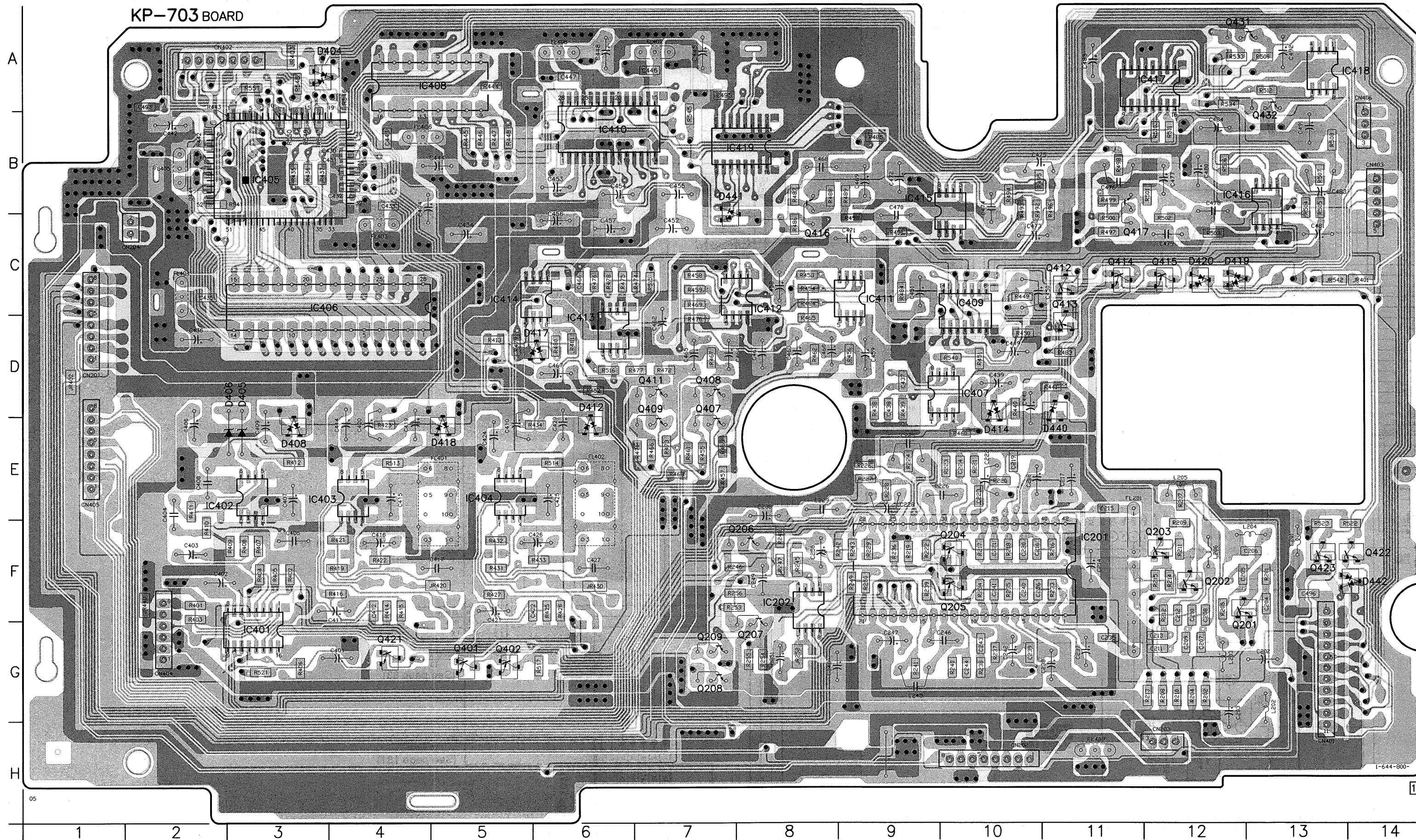


MB-53 BOARD			
D001	B-23	Q608	E-3
D002	B-24	Q609	D-7
D003	A-23	Q610	E-26
D004	D-6	Q611	A-11
D005	D-6	Q724	H-27
D151	K-20	Q725	H-27
D153	F-12	Q726	G-26
D154	F-12	Q727	G-2
D155	K-20	Q728	G-27
D401	B-22	Q729	I-3
D601	E-27	Q730	K-27
D602	C-19	Q731	K-27
D605	A-19	Q732	I-26
D606	C-8	Q733	G-2
D607	A-19	Q734	J-8
D699	D-17	Q735	H-18
D703	G-2	Q736	H-8
D704	H-8		
IC001	C-25		
IC003	B-5		
IC102	H-4		
IC105	G-21		
IC106	K-17		
IC107	H-13		
IC108	F-13		
IC109	F-10		
IC110	G-24		
IC111	G-7		
IC112	I-7		
IC113	H-5		
IC114	J-25		
IC115	I-25		
IC401	A-20		
IC402	A-22		
IC501	C-9		
IC802	F-27		
IC803	D-11		
IC804	B-11		
Q001	B-23		
Q002	D-25		
O101	I-26		
O102	J-27		
O103	K-28		
O104	K-27		
O105	L-28		
O106	J-27		
O107	I-27		
O108	J-28		
O109	J-3		
O110	K-3		
O151	H-8		
O152	H-8		
O153	H-8		
O154	J-16		
O155	J-17		
O156	J-17		
O159	K-20		
O160	K-21		
O161	K-9		
O162	K-9		
O163	K-8		
O164	K-8		
O165	K-21		
O166	F-17		
O167	E-18		
O168	G-21		
O169	F-20		
O170	F-8		
O171	F-21		
O172	F-21		
O173	F-8		
O180	K-26		
O181	K-25		
O182	I-25		
O184	F-23		
O185	J-20		
O186	I-19		
O187	I-19		
O189	J-22		
O190	J-22		
O191	F-8		
O192	G-5		
O193	J-23		
O197	H-1		
O198	H-27		
O199	H-26		
O200	H-27		
O601	D-17		
O602	E-27		
O605	C-8		
O606	E-27		





MB-53 BOARD (3/3)



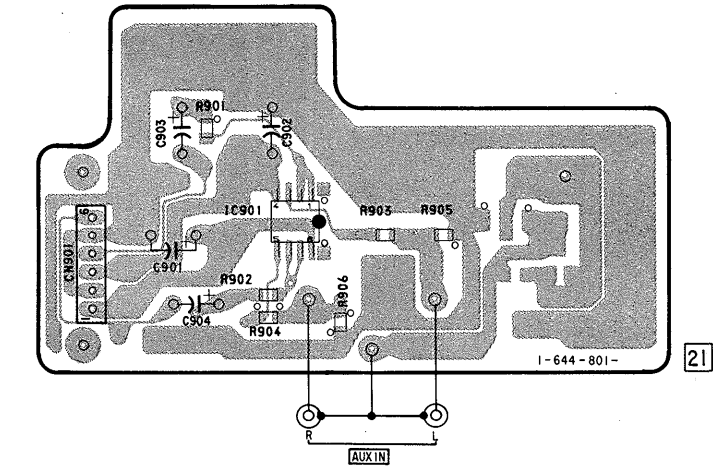
KP-703 BOARD

- D404 A-3
- D405 E-3
- D406 E-3
- D408 E-3
- D412 E-6
- D414 D-10
- D417 D-6
- D418 E-5
- D419 C-12
- D420 C-12
- D440 D-11

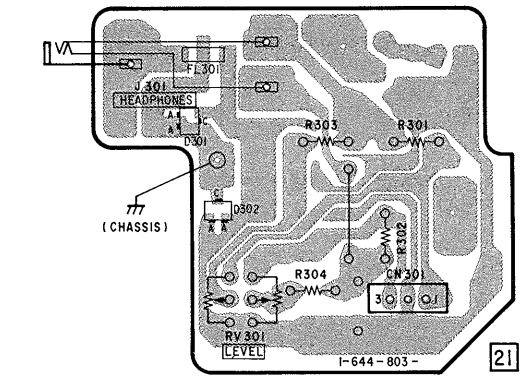
- IC201 F-10
- IC202 F-8
- IC401 G-3
- IC402 E-3
- IC403 E-4
- IC404 E-5
- IC405 B-3
- IC406 C-3
- IC407 D-10
- IC408 A-4
- IC409 C-10
- IC410 B-7
- IC411 C-9
- IC412 C-7
- IC413 D-6
- IC414 C-6
- IC415 C-10
- IC416 B-13
- IC417 A-12
- IC418 A-13

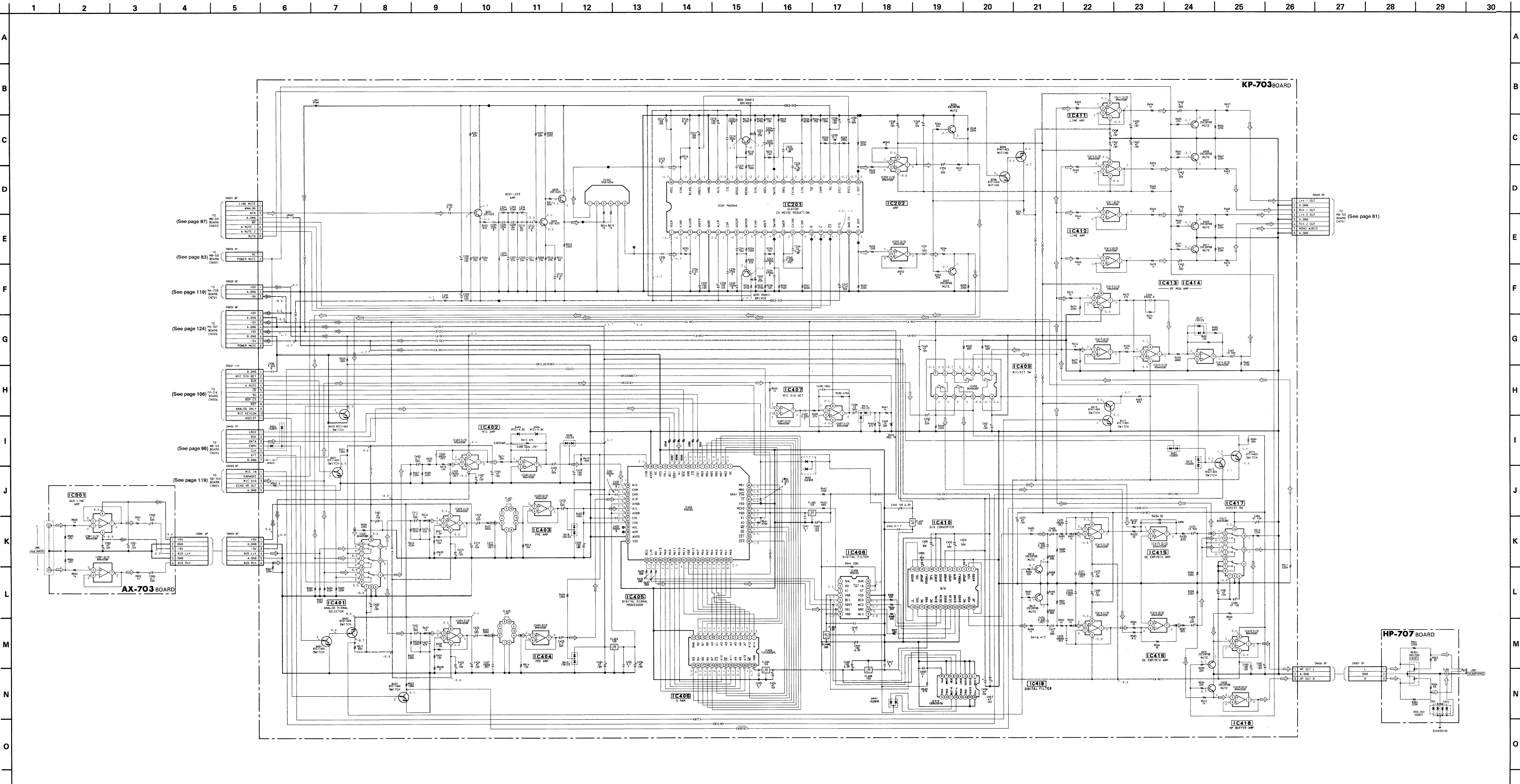
- Q201 F-12
- Q202 F-12
- Q203 F-12
- Q204 F-10
- Q205 F-10
- Q206 F-8
- Q207 G-8
- Q208 G-7
- Q209 G-7
- Q401 G-5
- Q402 G-5
- Q407 E-7
- Q408 D-7
- Q409 E-7
- Q411 D-7
- Q412 C-11
- Q413 D-11
- Q414 C-11
- Q415 C-12
- Q416 B-8
- Q417 B-11
- Q421 G-4
- Q422 F-14
- Q423 F-13
- Q431 A-12
- Q432 A-13

AX-703 BOARD

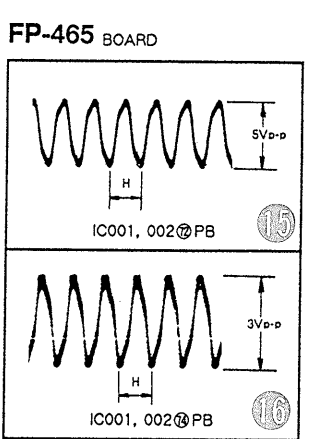
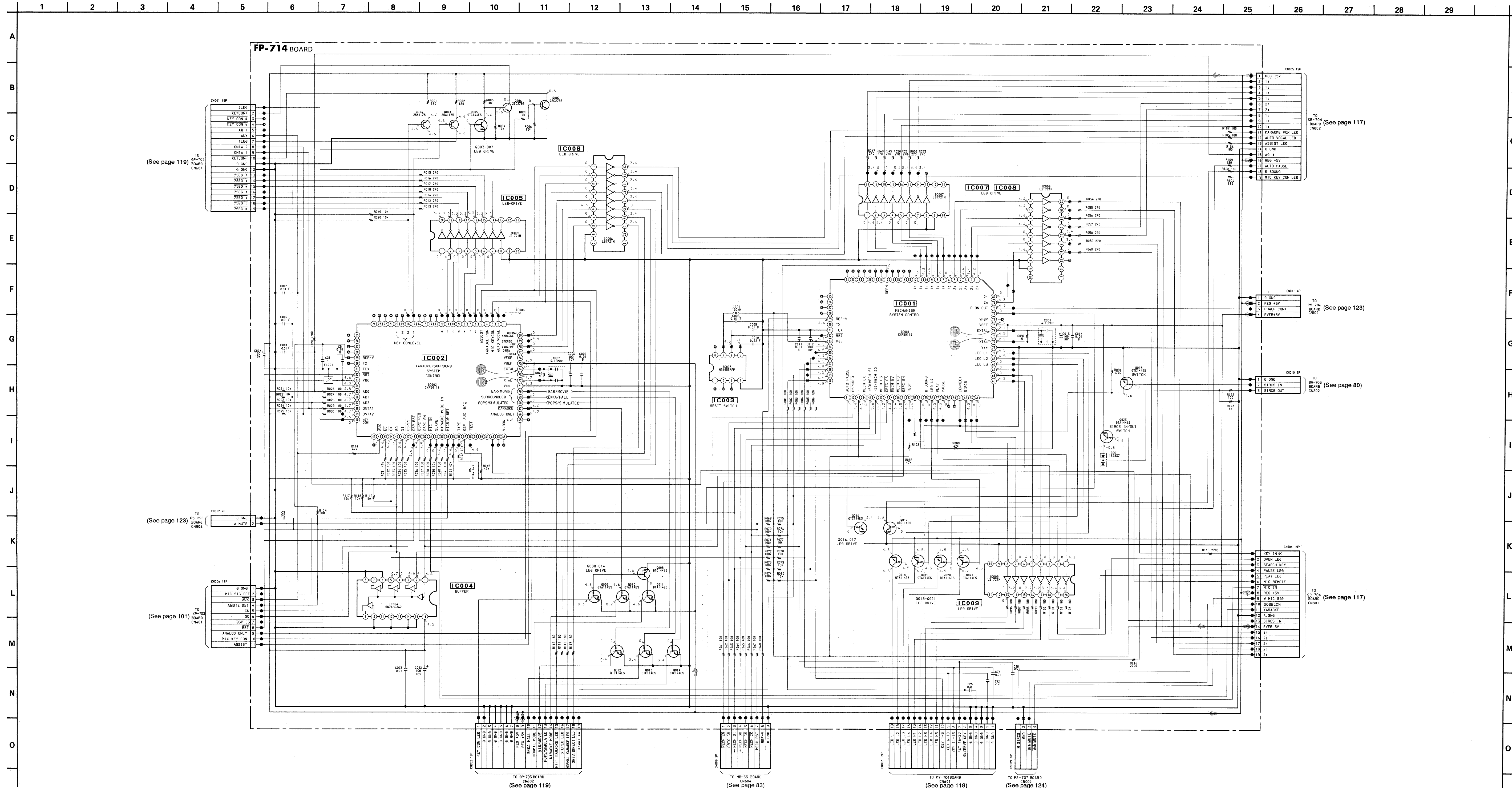


HP-707 BOARD

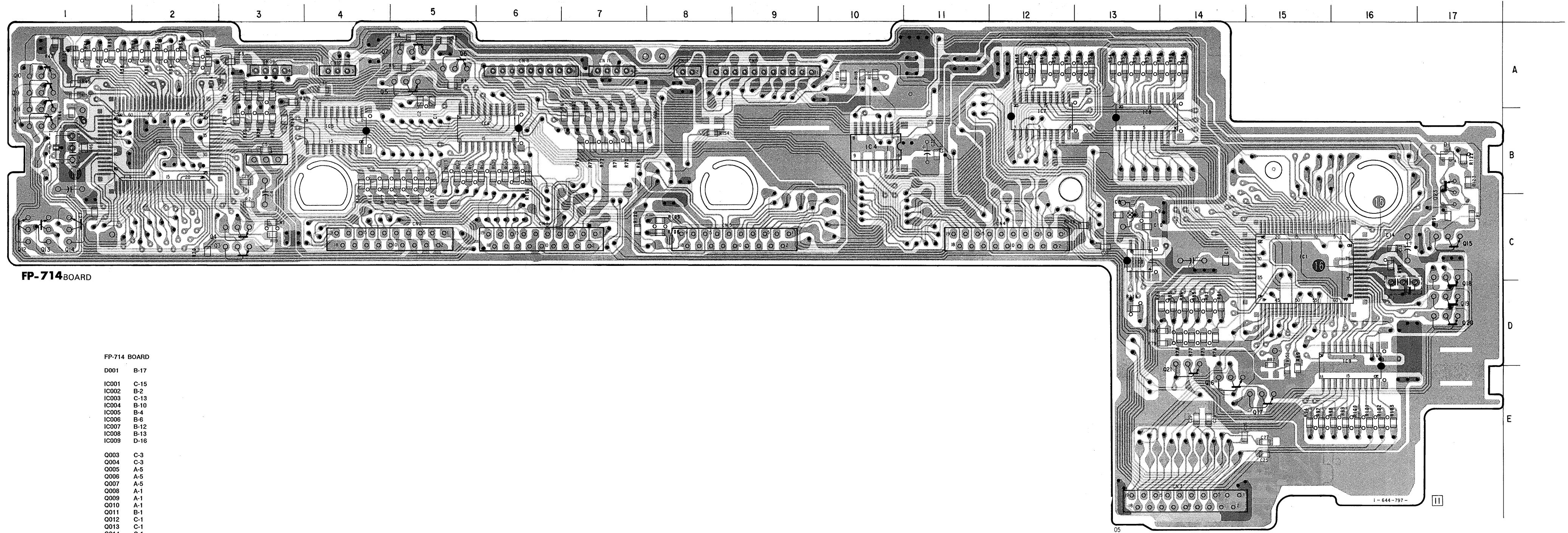




VIDEO SIGNAL			AUDIO SIGNAL
CHROMA	Y	Y/CHROMA	
PB	⇒	⇒	⇒



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



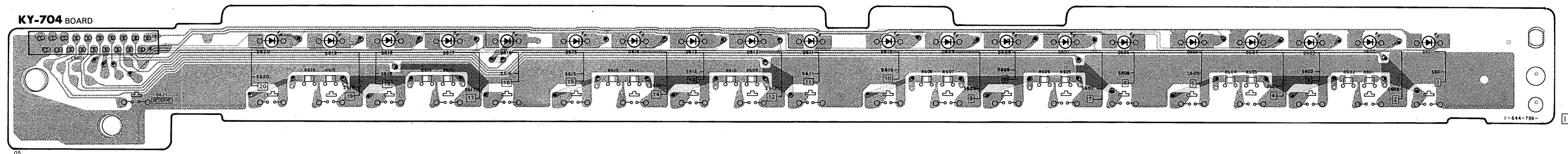
FP-714 BOARD

FP-714 BOARD

D001	B-17
IC001	C-15
IC002	B-2
IC003	C-13
IC004	B-10
IC005	B-4
IC006	B-6
IC007	B-12
IC008	B-13
IC009	D-16
Q003	C-3
Q004	C-3
Q005	A-5
Q006	A-5
Q007	A-5
Q008	A-1
Q009	A-1
Q010	A-1
Q011	B-1
Q012	C-1
Q013	C-1
Q014	C-1
Q015	C-17
Q016	E-14
Q017	E-15
Q018	D-17
Q019	D-17
Q020	D-17
Q021	E-14
Q022	A-9
Q023	B-17

SB-704 (FUNCTION SWITCH), DP-703 (DISPLAY), KY-704 (20 KEY), MA-703 (MIC INPUT) PRINTED WIRING BOARDS

— Ref. No.: SB-704, DP-703, KY-704, and MA-703 Boards; 4,000 series —



SB-704 BOARD

- D801 D-6
- D802 B-2
- D803 C-2
- D804 C-4
- D806 C-1
- D808 D-8
- D809 D-8
- D810 E-5
- D811 E-7
- D812 E-6
- D813 E-7
- D817 E-4
- D819 C-1
- D820 C-3
- D821 C-4
- D822 C-4
- D823 C-3
- D824 C-2

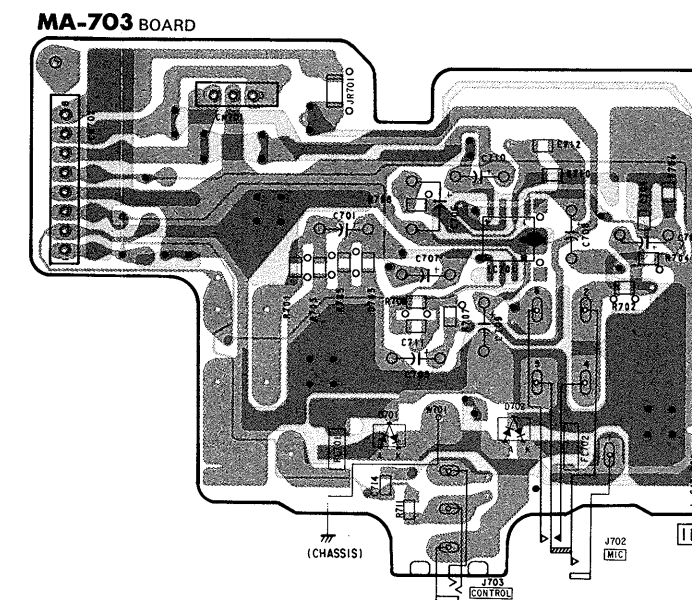
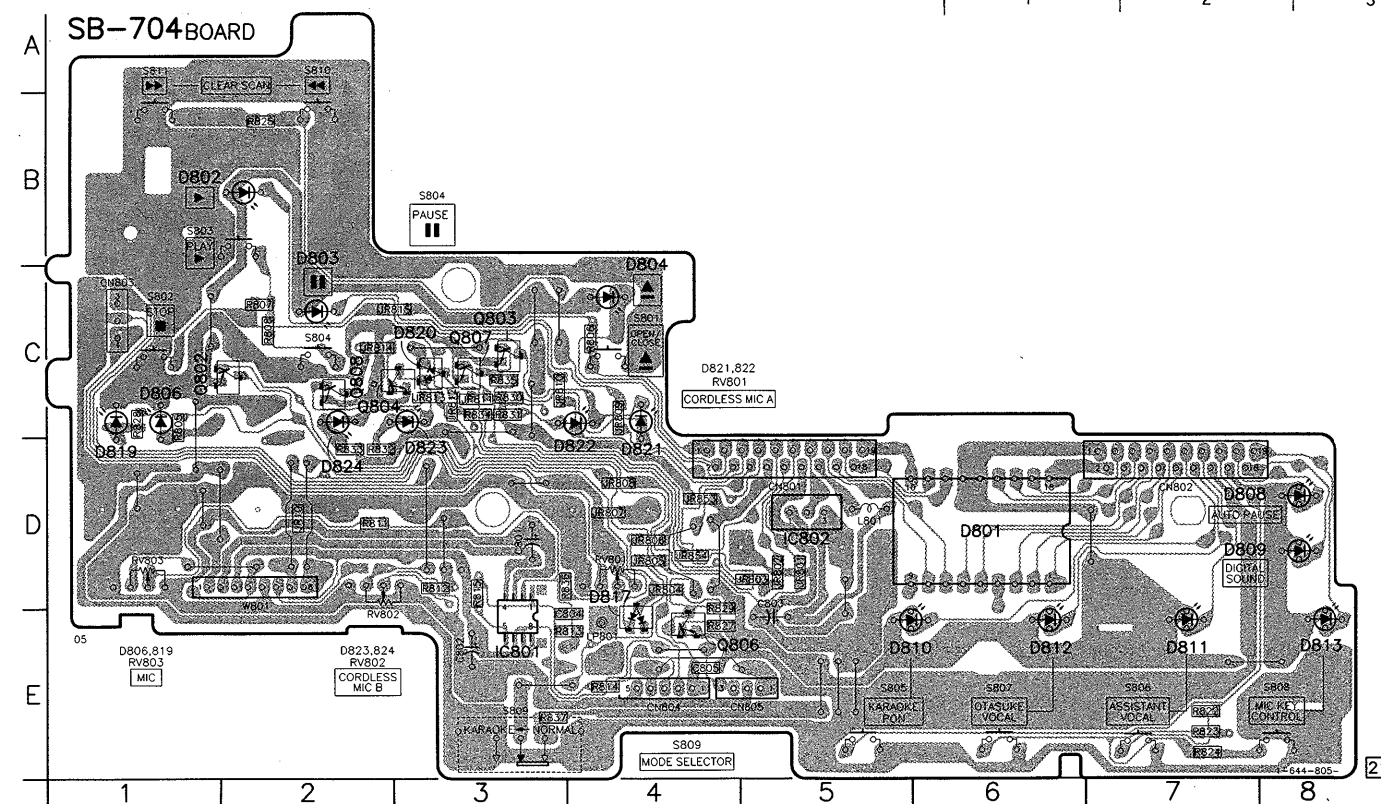
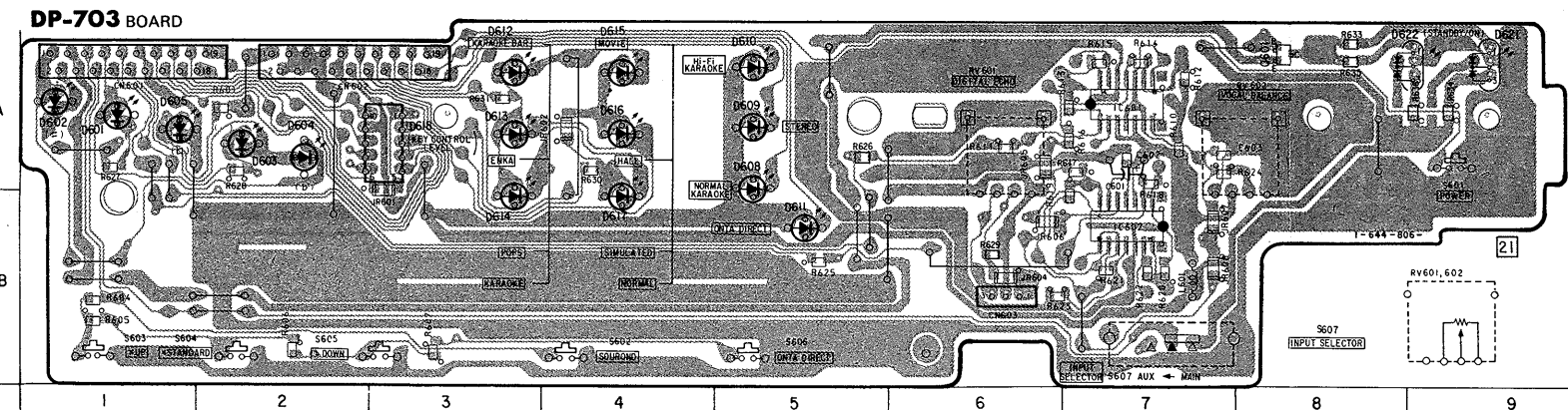
- IC801 E-3
- IC802 D-5

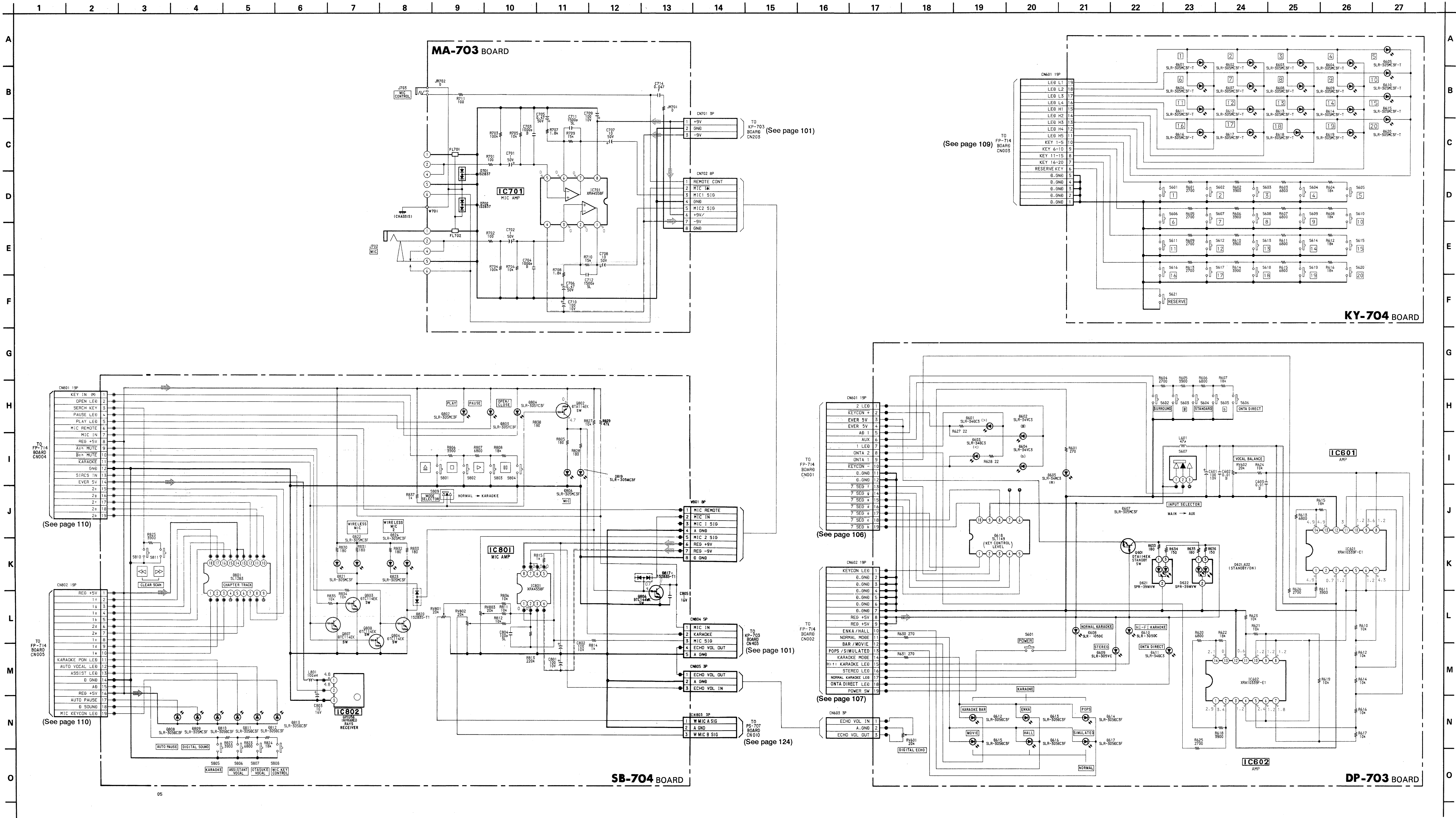
- Q801 C-2
- Q803 C-3
- Q804 C-3
- Q806 E-4
- Q807 C-3
- Q808 C-2

DP-703 BOARD

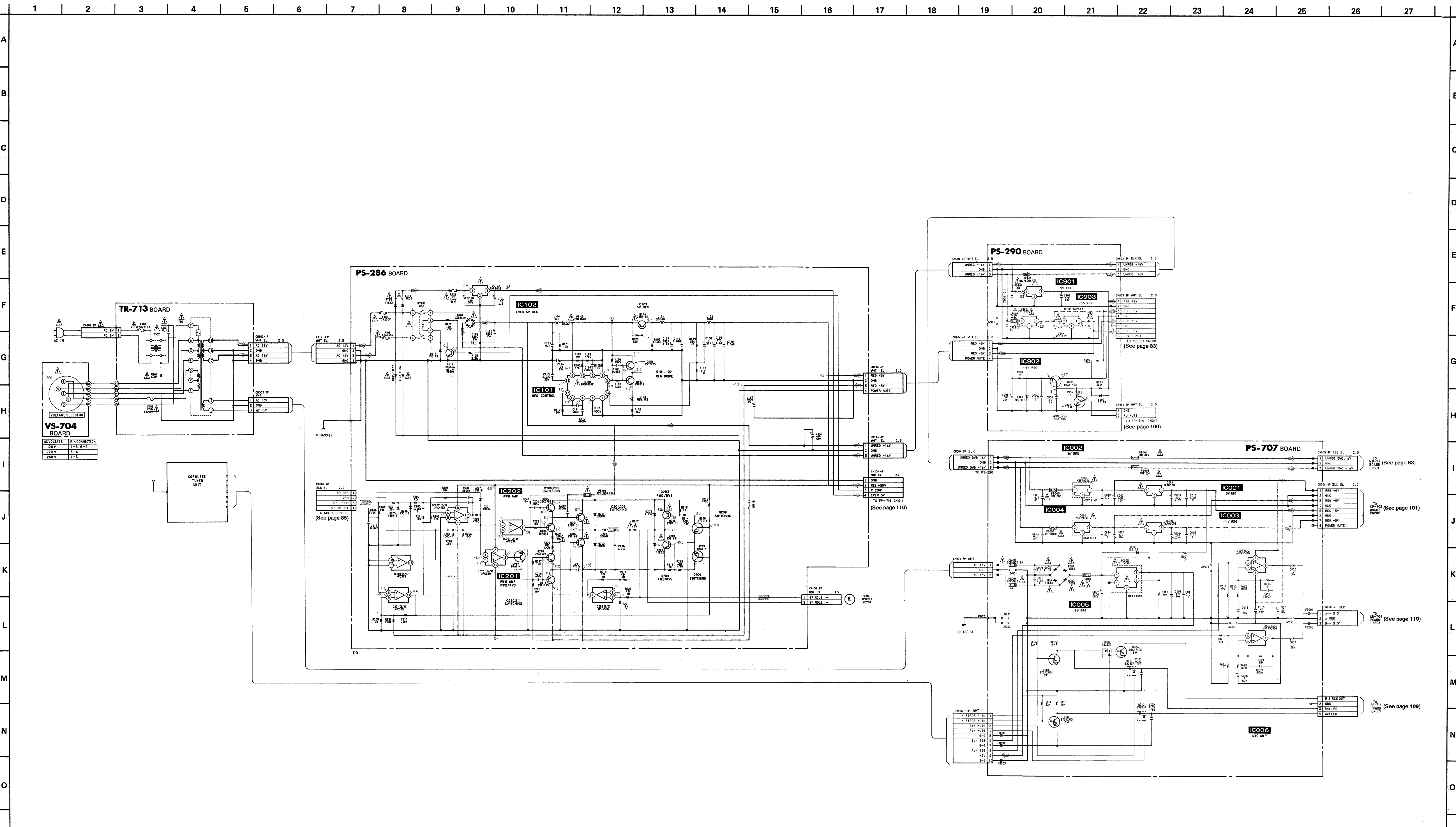
- D801 A-1
- D802 A-1
- D803 A-2
- D804 A-4
- D805 A-1
- D806 A-9
- D807 A-9
- D808 A-5
- D809 A-5
- D810 A-5
- D811 B-5
- D812 A-3
- D813 A-3
- D814 B-3
- D815 A-4
- D816 A-4
- D817 B-4
- D818 A-3

- IC801 A-7
- IC802 B-7





	VIDEO SIGNAL		AUDIO SIGNAL
	CHROMA	Y/CHROMA	
PB	⇐	⇒	⇨



VOLTAGE SELECTOR VS-704 BOARD

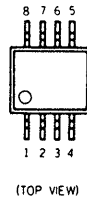
AC VOLTAGE	PIN CONNECTION
115V	1-3, 6-5
120V	5-6
125V	1-5

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

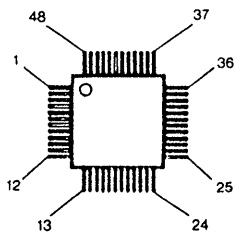
SPINDLE PHASE SERVO	→
SPINDLE SERVO (SPEED AND PHASE)	→
TRACKING SERVO LD/CD/CDV	→
SLIDE SERVO LD/CD	→
FOCUS SERVO LD/CD	→
SKEW SERVO LD TILT	→

4-3. SEMICONDUCTORS

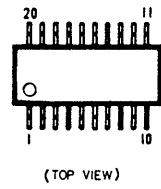
BA7131F
LM324NS
M51953AFP
RC4558PS
PC4558G2



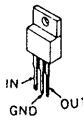
CXA1254Q
CXA1255Q
CXD1152-MS



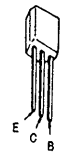
LB1721M



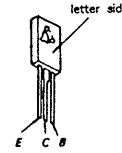
RC7809FA
TA7805S
TA7809FA



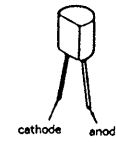
DTA114ES
DTC114ES
DTC144ES



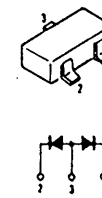
2SB1151-L
2SD1691-K



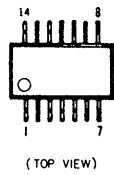
FC52M-5



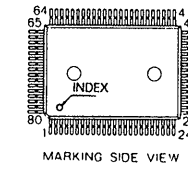
1S2836



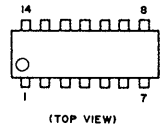
BA9700AF
CXL5005M
SN74HCU04ANS
PC324G2
PC339G2



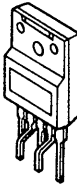
CXD2500AQ
CXP50116-285Q
CXP50116-286Q
MB89795-138



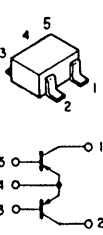
MC14066BF



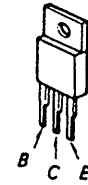
SI3090CA



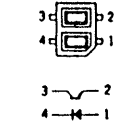
FMS1



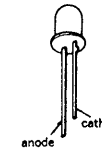
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2SD2012



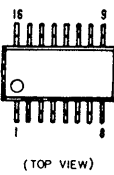
GP-2S09-B



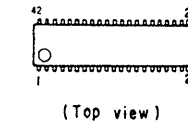
GL-360



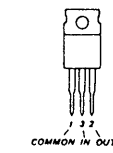
BU4053BF
CXD2557M
MC14052BF
MSM72H032GS-K
HD14053BFP



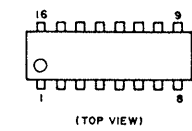
HA11529
PA0034A



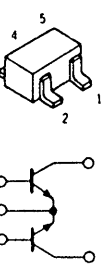
M5F7909L
TA7905S



YM3433



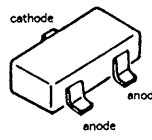
FMW1



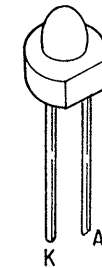
2SB734-34



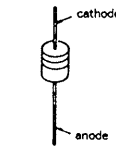
MA152WK



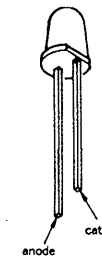
SLR-305DCA47
SLR-305MC3F
SLR-305VCA47
SLR-305YCA47



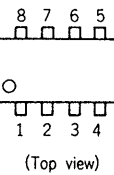
ERA83-006
MTZJ-4.3A
RD2.7ES-B1
RD3.9ES-B2
RD4.3ES-B2
RD9.1ES-B1
1SS119
11ES2



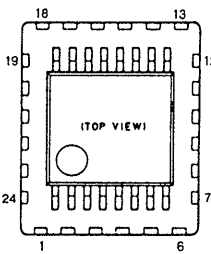
SLR-34DC3
SLR-34MC3
SLR-34VC3



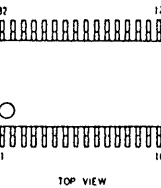
CX20197



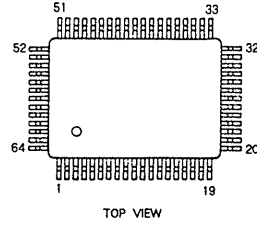
IMN10



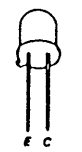
M50455-350FP



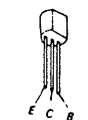
YSS205



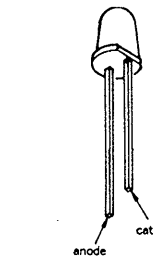
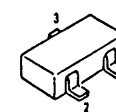
PT360FS



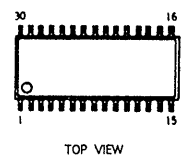
2SB740-3
2SC2878-B
2SD655-E



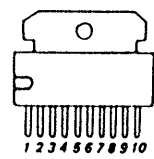
RD12M-B2
RD3.6M-B2
RD5.1M-B2
UZM5.1B



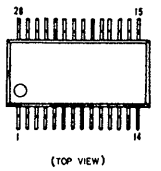
CXA1081M



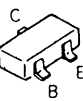
LA6510
TA7291P



PCM1700U



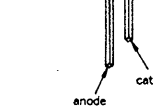
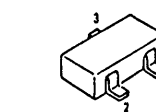
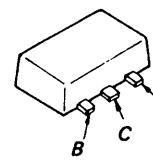
DTA114EK
DTA124EK
DTA144EK
DTC114EK
DTC124EK
DTC144EK
DTC114YK
DTC144WK
2SA1162-G
2SC1623-L6
2SC1623-L7
2SC2412K-QR
2SD596DV345



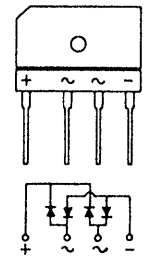
2SA1175-HFE
2SC2785-HFE



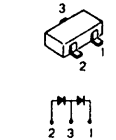
2SD999CLCK



D3BA10



1SS226



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

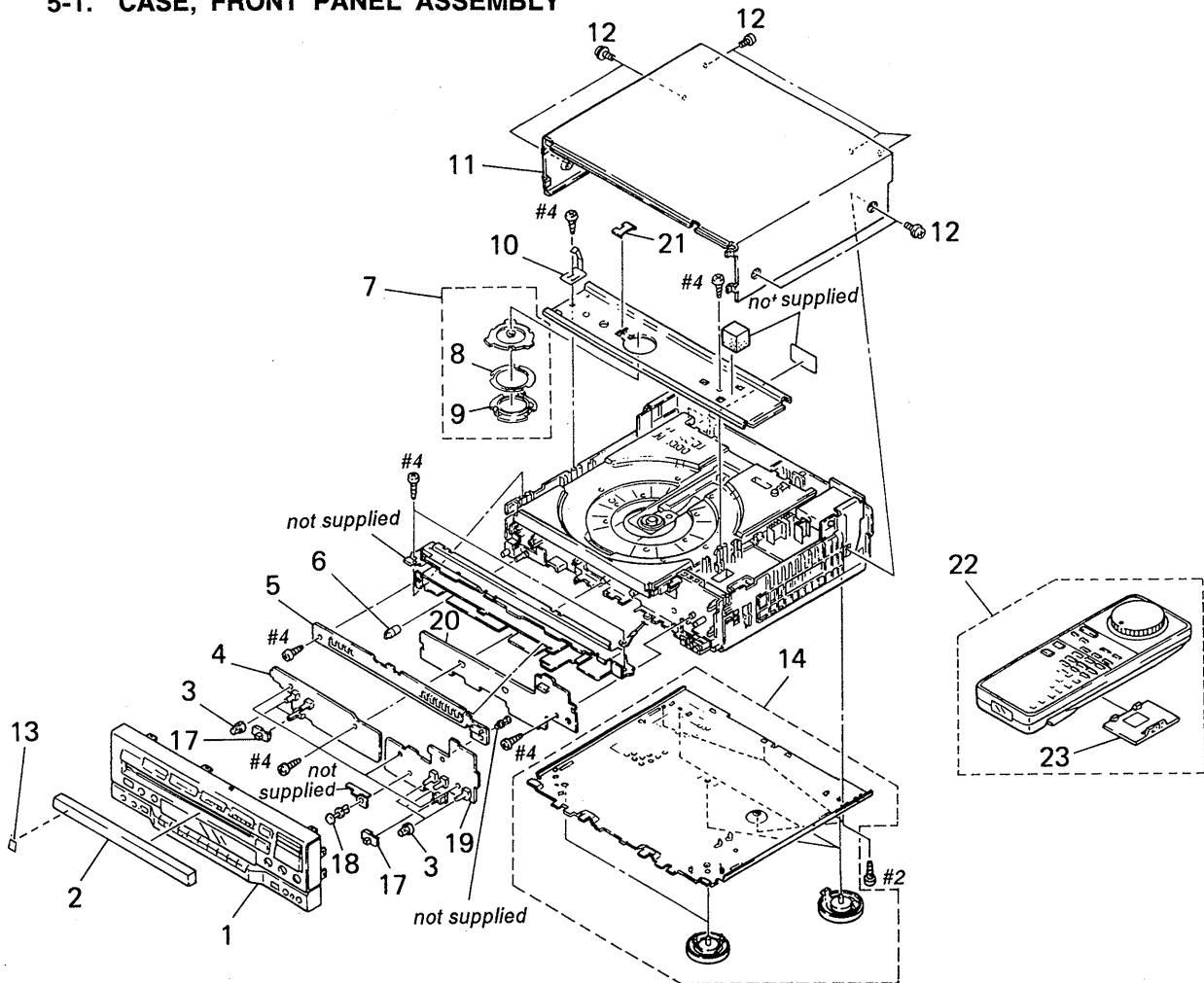
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- 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.

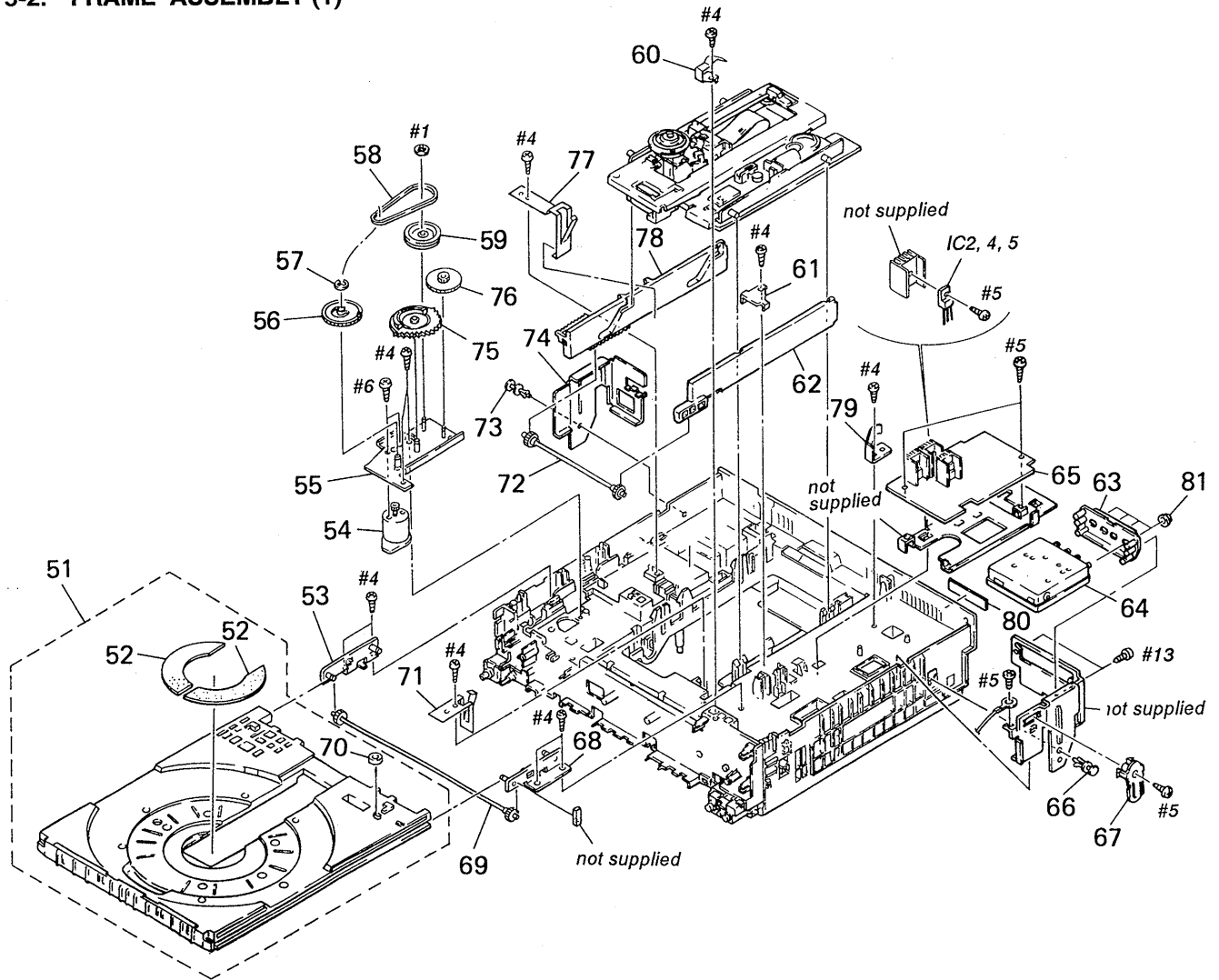
The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

5-1. CASE, FRONT PANEL ASSEMBLY



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
1	X-3941-811-1	PANEL ASSY, FRONT		12	3-710-901-41	SCREW, TAPPING	
2	3-944-582-41	COVER, TRAY		* 13	3-703-713-41	STICKER, SONY SYMBOL (10)	
3	3-945-346-02	KNOB, BALANCE		14	X-3940-505-2	PLATE ASSY, BOTTOM	
* 4	A-6421-828-A	DP-703 (E63) BOARD, COMPLETE		17	3-944-530-01	KNOB, SLIDE	
* 5	1-644-799-21	KY-704 BOARD		18	4-812-134-11	RIVET NYLON, 3.5	
6	A-6415-521-A	KNOB BLOCK ASSY (GR)		* 19	A-6421-906-A	SB-704 (E63) BOARD, COMPLETE	
7	X-3735-006-1	PLATE ASSY, PRESS		* 20	A-6421-826-A	FP-714 (E63) BOARD, COMPLETE	
8	3-735-011-01	SPRING		* 21	3-737-454-01	SHEET, HOLDER	
9	3-735-010-01	PLATE (1), PRESS		22	1-693-174-21	REMOTE COMMANDER (RMT-M13A)	
10	3-740-735-01	SPRING, ELECTROSTATIC		23	3-943-535-01	LID, BATTERY CASE	
11	3-740-723-41	CASE, UPPER					

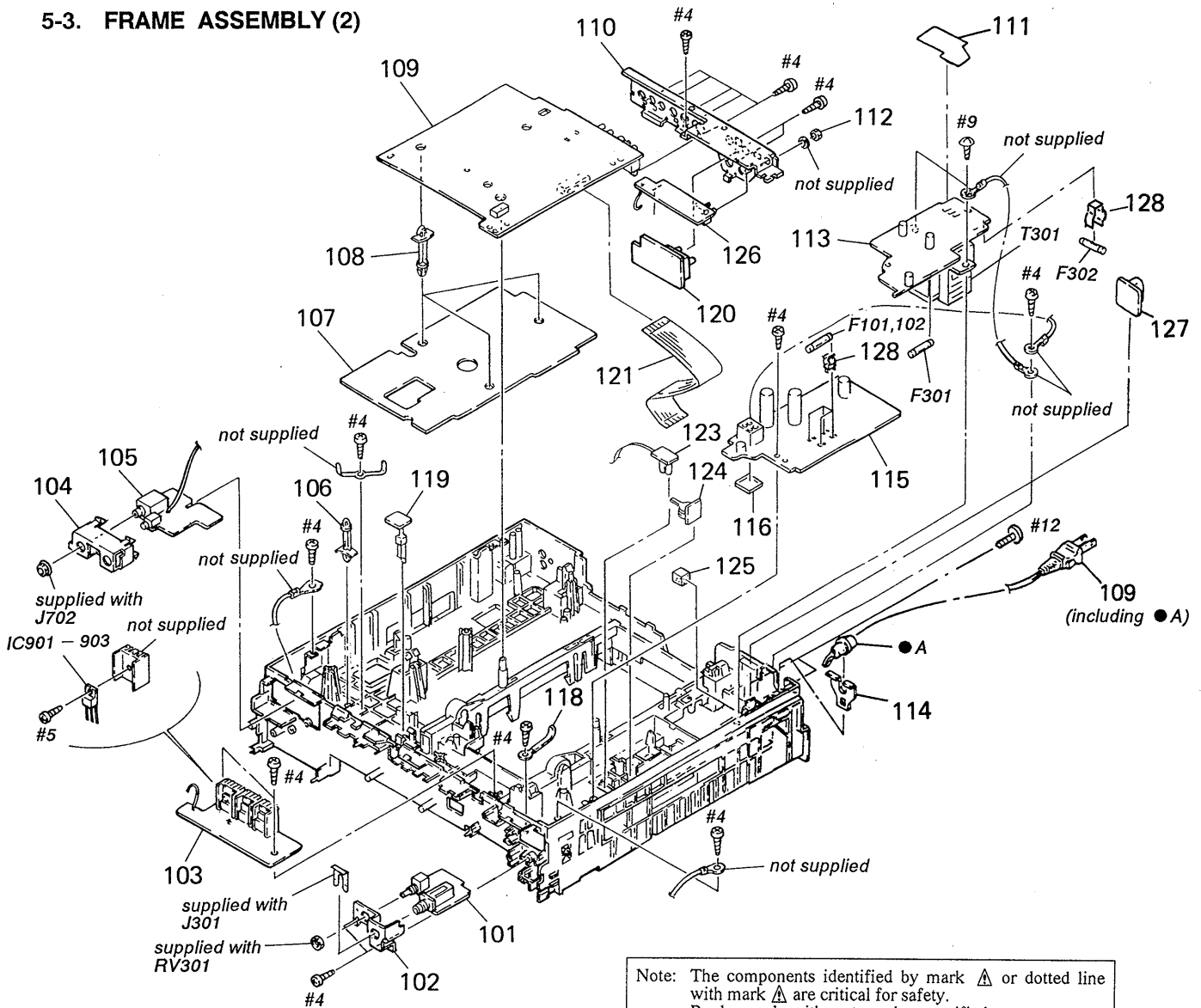
5-2. FRAME ASSEMBLY (1)



Ref. No.	Part No.	Description	Remark
51	X-3735-032-2	TRAY ASSY	
52	3-735-039-03	SHEET, CD	
53	X-3735-071-1	GUIDE ASSY (L), TRAY	
54	A-6415-359-A	MOTOR BLOCK ASSY (X), THREADING (M904)	
* 55	X-3735-002-1	BASE ASSY, THREADING	
56	3-735-035-01	GEAR, TRAY	
57	3-669-595-00	WASHER (2), STOPPER	
58	3-949-030-01	BELT, DRIVING	
59	3-735-036-01	PULLEY (A)	
60	3-737-448-01	SPRING, LEAF	
* 61	3-749-912-01	RETAINER (B), RACK	
62	3-735-052-01	RACK (RIGHT)	
63	3-948-638-02	HOLDER, CL	
64	8-975-462-90	TUNER UNIT, INFRARED IFM-RJ 5	
* 65	A-6421-892-A	PS-707 (E63) BOARD, COMPLETE	
66	3-646-090-11	RIVET, NYLON	

Ref. No.	Part No.	Description	Remark
67	3-948-637-01	HOLDER, CL SIDE	
68	X-3735-070-1	GUIDE ASSY (R), TRAY	
69	X-3735-069-1	GEAR ASSY, PHASE	
* 70	4-914-248-01	STOPPER, RUBBER	
71	3-737-402-01	SPRING (2)	
72	X-3735-008-1	GEAR ASSY, MD PHASE	
73	4-812-134-11	RIVET NYLON, 3.5	
74	3-740-709-01	REINFORCEMENT (LEFT), REAR	
75	3-735-056-01	CAM, DRIVING	
76	3-735-037-01	GEAR, MIDWAY	
77	3-737-401-01	SPRING (1)	
78	3-735-053-01	RACK (LEFT)	
79	3-746-525-01	SPRING, TRAY	
* 80	3-948-740-11	PLATE, ORNAMENTAL, CL	
81	3-682-691-00	NUT, WASHER HEXAGON	

5-3. FRAME ASSEMBLY (2)

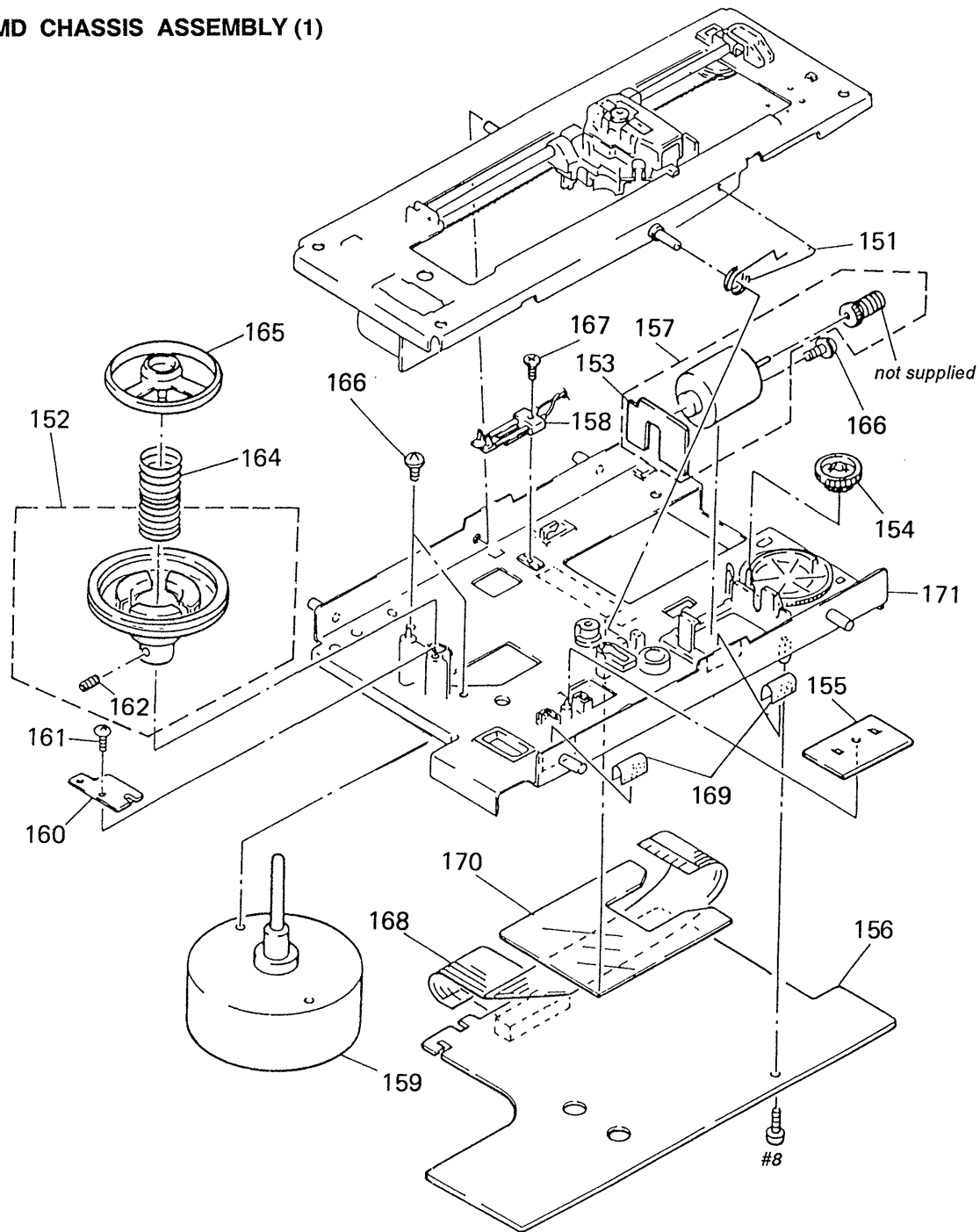


Note: The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
* 101	A-6421-904-A	HP-707 (E63) BOARD, COMPLETE	
* 102	3-944-580-01	HOLDER, HP	
* 103	A-6421-907-A	PS-290 (E63) BOARD, COMPLETE	
* 104	3-944-581-01	HOLDER, MA	
* 105	A-6421-815-A	MA-703 (J63) BOARD, COMPLETE	
* 106	3-703-353-08	SUPPORTER, PC BOARD	
* 107	A-6421-814-A	KP-703 (J63) BOARD, COMPLETE	
* 108	3-703-353-12	SUPPORTER, PC BOARD	
* 109	A-6421-827-A	MB-53 (E63) BOARD, COMPLETE	
* 110	3-942-823-91	PLATE (B), JACK	
111	3-746-543-01	COVER, TRANSFORMER	
112	3-724-182-01	NUT (SMALL JACK), M6	
* 113	A-6421-889-A	TR-713 (E63) BOARD, COMPLETE	
* 114	3-737-438-01	BRACKET, AC CORD	
* 115	A-6421-891-A	PS-286 (E63) BOARD, COMPLETE	

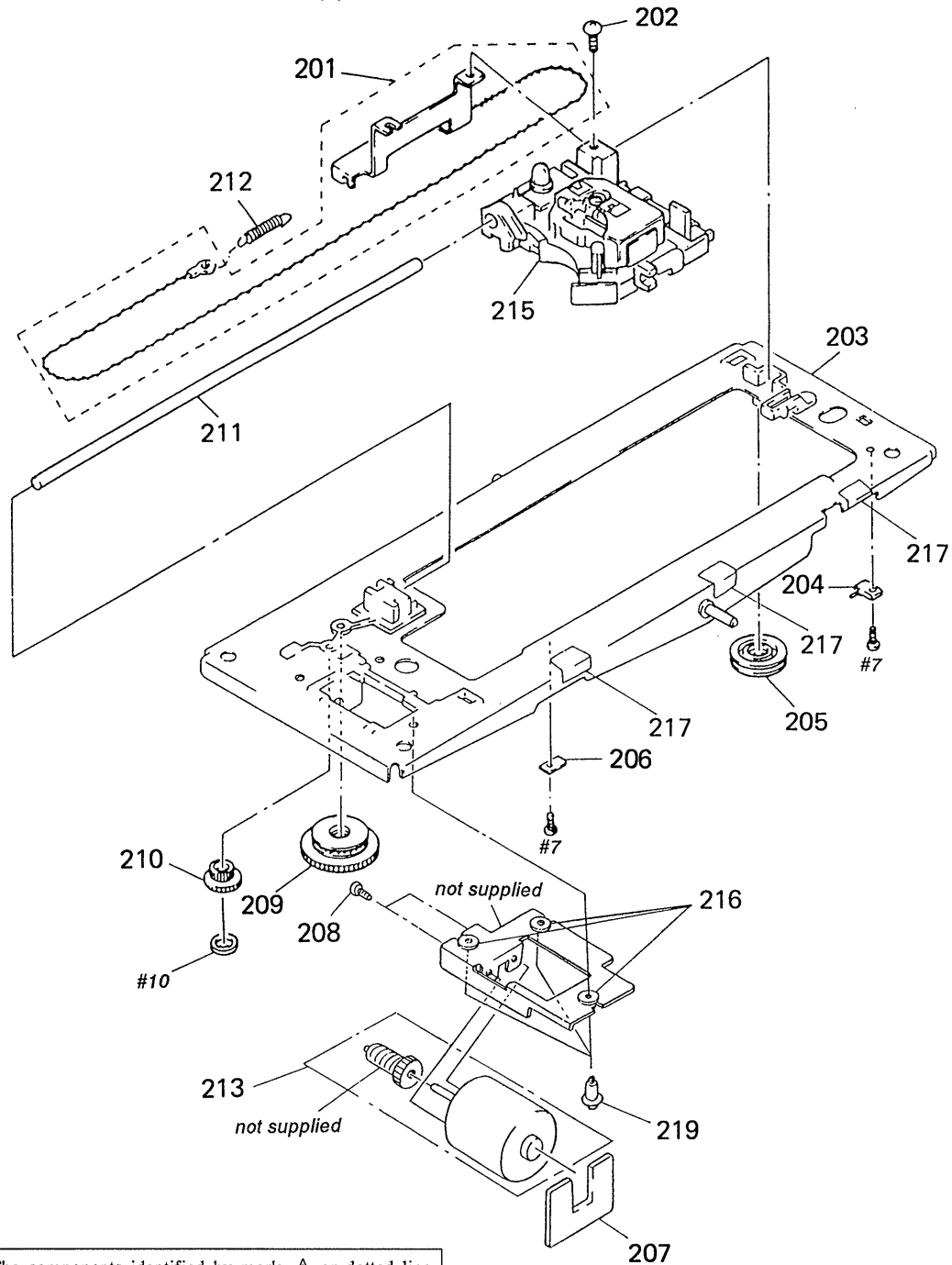
Ref. No.	Part No.	Description	Remark
* 116	X-3940-915-1	SHIELD ASSY (2), PS LID	
* 117	1-575-912-21	CORD, POWER	
118	3-703-150-11	STOPPER, WIRING	
* 119	A-6421-909-A	SW-193 (E63) BOARD, COMPLETE	
* 120	1-644-801-21	AX-703 BOARD	
121	1-575-813-11	CABLE, FLAT (FLEXIBLE) (28CORE)	
* 123	A-6421-908-A	LS-34 (E63) BOARD, COMPLETE	
* 124	A-6421-910-A	SW-194 (E63) BOARD, COMPLETE	
125	3-943-099-01	RUBBER, CORD CLAMP	
* 126	1-644-802-21	DR-703 BOARD	
Δ127	A-6420-890-A	VS-704 (E63) BOARD, COMPLETE	
Δ128	1-533-189-11	HOLDER, FUSE 128	
ΔF101	1-532-299-00	FUSE, TIME-LAG (T5A 250V)	
ΔF102	1-532-299-00	FUSE, TIME-LAG (T5A 250V)	
ΔF301	1-532-259-00	FUSE, TIME-LAG (T1.6A 250V)	
ΔF302	1-532-215-00	FUSE, TIME-LAG (T0.8A 250V)	
ΔT301	1-450-720-11	TRANSFORMER, POWER	

5-4. MD CHASSIS ASSEMBLY (1)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
151	3-735-021-01	SPRING, TORSION		161	3-719-845-11	SCREW (B2X8), TAPPING	
152	X-3735-003-1	TURNTABLE ASSY		162	3-701-506-01	SET SCREW, DOUBLE POINT 3X4	
* 153	1-631-095-11	MT-30 BOARD		* 164	3-735-026-01	SPRING, COMPRESSION	
154	3-735-025-01	GEAR, SKEW		165	X-2625-077-1	GUIDE ASSY, CENTER	
* 155	A-6421-764-A	CK-702 BOARD, COMPLETE		166	4-606-833-01	SCREW (3X5), + PSW	
* 156	A-6421-903-A	SV-701 (E63) BOARD, COMPLETE		167	3-899-248-01	SCREW (M3X6)	
157	A-6415-290-A	MOTOR BLOCK ASSY, SKEW (M903)		* 169	3-737-413-01	SHEET, TEFLON	
158	1-554-468-00	SWITCH, LEAF (SLED IN LIMIT LD/CD) (S903)		* 170	3-735-099-01	SHEET, FLEXIBLE RETAINER	
159	1-541-776-21	MOTOR, LD SPINDLE (M901)		* 171	3-735-068-15	CHASSIS, MD	
* 160	A-6421-765-A	FG-702 BOARD, COMPLETE					

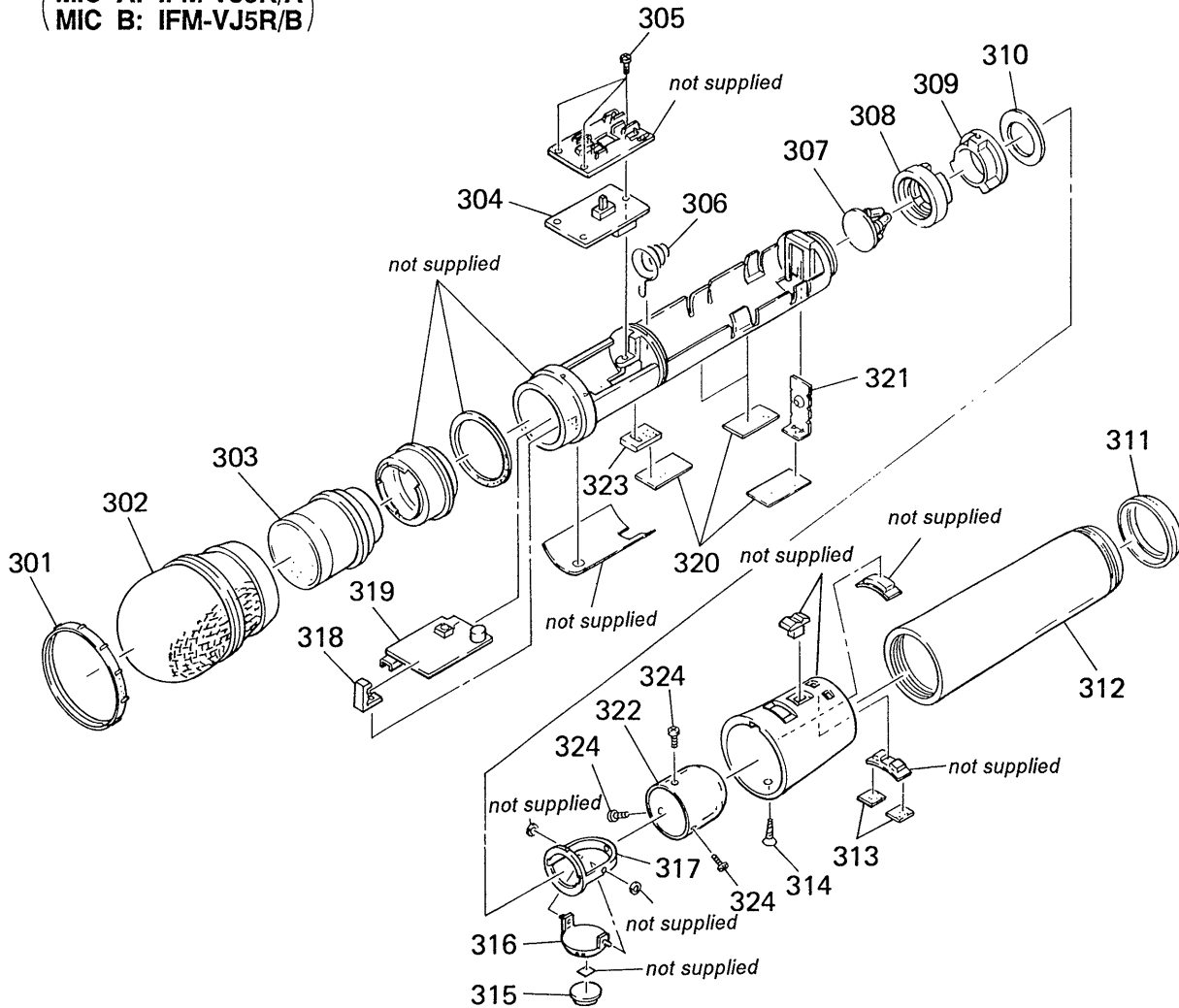
5-5. MD CHASSIS ASSEMBLY (2)



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

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
201	X-3735-001-1	WIRE ASSY		209	3-735-016-01	PULLEY, DRIVING	
202	3-899-248-01	SCREW (M3X6)		210	3-735-015-01	GEAR, CARRIAGE	
* 203	X-3940-657-1	CHASSIS ASSY		* 211	3-735-020-01	SHAFT, CARRIAGE	
204	1-570-771-21	SWITCH (SLED OUT LIMIT) (S902)		212	3-672-430-00	SPRING, TENSION	
205	3-735-017-01	PULLEY, RETURN		213	A-6415-434-A	MOTOR BLOCK ASSY, SLED (M902)	
206	1-571-435-11	SWITCH (SLED IN LIMIT) (S901)		\triangle 215	8-848-138-11	DEVICE, OPTICAL KHS-130A	
* 207	1-630-097-11	MT-28 BOARD		217	3-846-312-00	SPACER	
208	3-949-324-01	SCREW (3X4), +PSW		219	3-570-027-00	SCREW, MOTOR	

5-6. CORDLESS MICROPHONE
 (MIC A: IFM-VJ5R/A)
 (MIC B: IFM-VJ5R/B)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
301	4-947-690-01	RING, RUBBER		313	3-846-312-00	SPACER E	
302	X-4941-958-1	CAGE ASSY		314	7-685-235-19	SCREW, TAPPING +RK 2.6X10	
303	1-542-177-11	DINAMIC MICROPHONE UNIT		* 315	4-947-703-01	WEIGHT	
* 304	A-4542-111-A	SW BOARD, COMPLETE		316	4-947-701-01	MIRROR, REFLECTION	
305	3-893-942-21	SCREW, TAPPING B1.7X5		317	4-947-700-01	RING, SUPPORT	
306	4-947-696-01	MINUS TERMINAL		318	4-947-691-11	RETAINER BOARD	
* 307	1-642 222-11	LED BOARD		* 319	A-4542-110-A	RF BOARD, COMPLETE	
* 308	4-947-698-01	DAMPER		320	4-937-971-01	CUSHION	
* 309	2-542-843-01	RING, STOPPER		321	4-947-697-01	PLUS TERMINAL	
* 310	2-542-919-01	SLIDE SHEET		322	4-947-702-01	COVER	
* 311	4-947-695-11	RING, PROTECTOR (MIC A)		323	9-911-815-01	CUSHION	
* 311	4-947-695-21	RING, PROTECTOR (MIC B)		324	3-318-203-71	SCREW, TAPPING B1.7X5	
312	4-947-706-01	GRIP					

SECTION 6 ELECTRICAL PARTS LIST

AX-703

CK-702

DP-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

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

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

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
*	1-644-801-21	AX-703 BOARD ***** < CAPACITOR >		CN405	1-506-467-11	PIN, CONNECTOR 2P < JUMPER RESISTOR >	
C901	1-124-589-11	ELECT 47uF 20% 16V		JR401	1-216-295-00	METAL CHIP 0 5% 1/10W	
C902	1-124-589-11	ELECT 47uF 20% 16V		JR402	1-216-296-00	METAL CHIP 0 5% 1/8W	
C903	1-126-163-11	ELECT 4.7uF 20% 50V				< RESISTOR >	
C904	1-126-163-11	ELECT 4.7uF 20% 50V		R401	1-216-077-00	METAL CHIP 15K 5% 1/10W	
		< CONNECTOR >		R402	1-216-031-00	METAL CHIP 180 5% 1/10W	
CN901	1-506-485-11	PIN, CONNECTOR 6P		R403	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
		< IC >		R404	1-216-001-00	METAL CHIP 10 5% 1/10W	
IC901	8-759-100-96	IC uPC4558G2		R405	1-216-001-00	METAL CHIP 10 5% 1/10W	
		< JACK >		R406	1-216-031-00	METAL CHIP 180 5% 1/10W	
J901	1-695-495-11	JACK, PIN 2P (AUX)		R407	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
		< RESISTOR >		*****			
R901	1-216-049-00	METAL CHIP 1K 5% 1/10W		*	A-6421-828-A	DP-703 (E63) BOARD, COMPLETE *****	
R902	1-216-049-00	METAL CHIP 1K 5% 1/10W		*	3-669-610-00	SPACER	
R903	1-216-049-00	METAL CHIP 1K 5% 1/10W				< CAPACITOR >	
R904	1-216-049-00	METAL CHIP 1K 5% 1/10W		C601	1-126-177-11	ELECT 100uF 20% 10V	
R905	1-216-089-00	METAL CHIP 47K 5% 1/10W		C602	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
R906	1-216-089-00	METAL CHIP 47K 5% 1/10W		C603	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
*****						< CONNECTOR >	
*	A-6421-764-A	CK-702 BOARD, COMPLETE *****		CN601	1-569-338-11	CONNECTOR, BOARD TO BOARD 19P	
		< CAPACITOR >		CN602	1-569-338-11	CONNECTOR, BOARD TO BOARD 19P	
C401	1-163-038-00	CERAMIC CHIP 0.1uF 25V		CN603	1-506-482-11	PIN, CONNECTOR 3P	
C402	1-163-038-00	CERAMIC CHIP 0.1uF 25V				< DIODE >	
		< CONNECTOR >		D601	8-719-946-30	LED SLR34DC3	
CN401	1-506-467-11	PIN, CONNECTOR 2P		D602	8-719-940-99	LED SLR34VC3	
CN402	1-506-468-11	PIN, CONNECTOR 3P		D603	8-719-946-30	LED SLR34DC3	
CN403	1-506-467-11	PIN, CONNECTOR 2P		D604	8-719-940-99	LED SLR34VC3	
CN404	1-506-467-11	PIN, CONNECTOR 2P		D605	8-719-940-82	LED SLR34MC3	
				D608	8-719-992-26	LED SLR-305DCA47	
				D609	8-719-992-24	LED SLR-305VCA47	
				D610	8-719-992-26	LED SLR-305DCA47	

Ref. No.	Part No.	Description	Remark
D611	8-719-946-30	LED SLR34DC3	
D612	8-719-992-26	LED SLR-305DCA47	
D613	8-719-992-26	LED SLR-305DCA47	
D614	8-719-992-26	LED SLR-305DCA47	
D615	8-719-992-26	LED SLR-305DCA47	
D616	8-719-992-26	LED SLR-305DCA47	
D617	8-719-992-26	LED SLR-305DCA47	
D618	8-719-018-44	DIODE SL1149	
D621	8-719-028-30	DIODE SPR-39MVWF	
D622	8-719-028-30	DIODE SPR-39MVWF	
< IC >			
IC601	8-759-100-97	IC uPC339G2	
IC602	8-759-100-97	IC uPC339G2	
< JUMPER RESISTOR >			
JR601	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR602	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR604	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR605	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR606	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR607	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR608	1-216-296-00	METAL CHIP 0 5% 1/8W	
< COIL >			
L601	1-408-417-00	INDUCTOR 47uH	
< TRANSISTOR >			
Q601	8-729-901-04	TRANSISTOR DTA114EK	
< RESISTOR >			
R601	1-216-035-00	METAL CHIP 270 5% 1/10W	
R602	1-216-031-00	METAL CHIP 180 5% 1/10W	
R603	1-216-031-00	METAL CHIP 180 5% 1/10W	
R604	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R605	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R606	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R607	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R610	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R611	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R612	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R613	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R614	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R615	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R616	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R617	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R618	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R619	1-216-073-00	METAL CHIP 10K 5% 1/10W	

Ref. No.	Part No.	Description	Remark
R620	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R621	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R622	1-216-079-00	METAL CHIP 18K 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	
R625	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R626	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R627	1-216-009-00	METAL CHIP 22 5% 1/10W	
R628	1-216-009-00	METAL CHIP 22 5% 1/10W	
R630	1-216-035-00	METAL CHIP 270 5% 1/10W	
R631	1-216-035-00	METAL CHIP 270 5% 1/10W	
R633	1-216-031-00	METAL CHIP 180 5% 1/10W	
R634	1-216-029-00	METAL CHIP 150 5% 1/10W	
R635	1-216-031-00	METAL CHIP 180 5% 1/10W	
R636	1-216-029-00	METAL CHIP 150 5% 1/10W	
< VARIABLE RESISTOR >			
RV601	1-241-238-21	RES, VAR, CARBON 20K (DIGITAL ECHO)	
RV602	1-241-238-21	RES, VAR, CARBON 20K (VOCAL BALANCE)	
< SWITCH >			
S601	1-572-946-11	SWITCH, TACTIL (POWER)	
S602	1-572-946-11	SWITCH, TACTIL (SURROUND)	
S603	1-572-946-11	SWITCH, TACTIL (UP)	
S604	1-572-946-11	SWITCH, TACTIL (STANDARD)	
S605	1-572-946-11	SWITCH, TACTIL (DOWN)	
S606	1-572-946-11	SWITCH, TACTIL (ONTA DIRECT)	
S607	1-570-157-51	SWITCH, SLIDE (INPUT SELECTOR)	

*	1-644-802-21	DR-703 BOARD	

< CAPACITOR >			
C201	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C203	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
< CONNECTOR >			
CN201	1-506-485-11	PIN, CONNECTOR 6P	
CN202	1-506-468-11	PIN, CONNECTOR 3P	
< DIODE >			
D201	8-719-400-18	DIODE MA152WK	
D202	8-719-400-18	DIODE MA152WK	
< JACK >			
J201	1-507-562-31	JACK (CONTROL S IN)	
J202	1-537-431-11	TERMINAL BOARD (LINE OUT 3)	

Ref. No.	Part No.	Description	Remark
		< TRANSISTOR >	
Q201	8-729-374-02	TRANSISTOR 2SB740	
		< RESISTOR >	
R201	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R202	1-216-025-00	METAL CHIP 100 5% 1/10W	
R203	1-249-389-11	CARBON 4.7 5% 1/4W F	
R204	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R205	1-216-097-00	METAL CHIP 100K 5% 1/10W	
		< SWITCH >	
S201	1-553-725-21	SWITCH, SLIDE (ATT)	

*	A-6421-765-A	FG-702 BOARD, COMPLETE	

		< DIODE >	
D301	8-719-939-11	DIODE GP-2S09-B	

*	A-6421-826-A	FP-714 (E63) BOARD, COMPLETE	

		< CAPACITOR >	
C001	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C002	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C003	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C004	1-126-177-11	ELECT 100uF 20% 10V	
C005	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C006	1-126-177-11	ELECT 100uF 20% 10V	
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	
C010	1-164-222-11	CERAMIC CHIP 0.22uF 25V	
C011	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C012	1-126-177-11	ELECT 100uF 20% 10V	
C013	1-126-177-11	ELECT 100uF 20% 10V	
C014	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C020	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C021	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C022	1-126-177-11	ELECT 100uF 20% 10V	
C023	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C024	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C025	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C026	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C027	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C028	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C029	1-164-232-11	CERAMIC CHIP 0.01uF 50V	

Ref. No.	Part No.	Description	Remark
C030	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
		< CONNECTOR >	
CN001	1-569-341-11	CONNECTOR, BOARD TO BOARD 19P	
CN002	1-569-341-11	CONNECTOR, BOARD TO BOARD 19P	
CN003	1-569-341-11	CONNECTOR, BOARD TO BOARD 19P	
CN004	1-569-341-11	CONNECTOR, BOARD TO BOARD 19P	
CN005	1-569-341-11	CONNECTOR, BOARD TO BOARD 19P	
* CN006	1-568-788-21	PIN, CONNECTOR 11P	
* CN008	1-568-786-11	PIN, CONNECTOR 9P	
CN009	1-506-469-11	PIN, CONNECTOR 4P	
CN010	1-506-468-11	PIN, CONNECTOR 3P	
CN011	1-506-469-11	PIN, CONNECTOR 4P	
* CN012	1-568-779-11	PIN, CONNECTOR 2P	
		< DIODE >	
D001	8-719-400-18	DIODE MA152WK	
		< FILTER >	
F001	1-236-071-11	ENCAPSULATED COMPONENT	
		< IC >	
IC001	8-752-837-00	IC CXP50116-285Q	
IC002	8-752-838-49	IC CXP50116-404Q	
IC003	8-759-605-21	IC M51953AFP	
IC004	8-759-926-64	IC SN74HC367ANS	
IC005	8-759-062-08	IC LB1721M	
IC006	8-759-062-08	IC LB1721M	
IC007	8-759-062-08	IC LB1721M	
IC008	8-759-062-08	IC LB1721M	
IC009	8-759-062-08	IC LB1721M	
		< COIL >	
L001	1-408-421-00	INDUCTOR 100uH	
		< TRANSISTOR >	
Q003	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q004	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q005	8-729-900-89	TRANSISTOR DTC144ES	
Q006	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q007	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q008	8-729-900-89	TRANSISTOR DTC144ES	
Q009	8-729-900-61	TRANSISTOR DTA114ES	
Q010	8-729-900-61	TRANSISTOR DTA114ES	
Q011	8-729-900-61	TRANSISTOR DTA114ES	
Q012	8-729-900-80	TRANSISTOR DTC114ES	
Q013	8-729-900-80	TRANSISTOR DTC114ES	

Ref. No.	Part No.	Description	Remark
Q014	8-729-900-80	TRANSISTOR DTC114ES	
Q015	8-729-900-89	TRANSISTOR DTC144ES	
Q016	8-729-900-80	TRANSISTOR DTC114ES	
Q017	8-729-900-80	TRANSISTOR DTC114ES	
Q018	8-729-900-61	TRANSISTOR DTA114ES	
Q019	8-729-900-61	TRANSISTOR DTA114ES	
Q020	8-729-900-61	TRANSISTOR DTA114ES	
Q021	8-729-900-61	TRANSISTOR DTA114ES	
Q023	8-729-900-65	TRANSISTOR DTA144ES	
< RESISTOR >			
R001	1-216-031-00	METAL CHIP 180 5%	1/10W
R002	1-216-031-00	METAL CHIP 180 5%	1/10W
R003	1-216-073-00	METAL CHIP 10K 5%	1/10W
R004	1-216-073-00	METAL CHIP 10K 5%	1/10W
R005	1-216-073-00	METAL CHIP 10K 5%	1/10W
R006	1-216-073-00	METAL CHIP 10K 5%	1/10W
R012	1-216-035-00	METAL CHIP 270 5%	1/10W
R013	1-216-035-00	METAL CHIP 270 5%	1/10W
R014	1-216-035-00	METAL CHIP 270 5%	1/10W
R015	1-216-035-00	METAL CHIP 270 5%	1/10W
R016	1-216-035-00	METAL CHIP 270 5%	1/10W
R017	1-216-035-00	METAL CHIP 270 5%	1/10W
R018	1-216-035-00	METAL CHIP 270 5%	1/10W
R019	1-216-073-00	METAL CHIP 10K 5%	1/10W
R020	1-216-073-00	METAL CHIP 10K 5%	1/10W
R021	1-216-073-00	METAL CHIP 10K 5%	1/10W
R022	1-216-073-00	METAL CHIP 10K 5%	1/10W
R023	1-216-073-00	METAL CHIP 10K 5%	1/10W
R024	1-216-073-00	METAL CHIP 10K 5%	1/10W
R025	1-216-073-00	METAL CHIP 10K 5%	1/10W
R026	1-216-025-00	METAL CHIP 100 5%	1/10W
R027	1-216-025-00	METAL CHIP 100 5%	1/10W
R028	1-216-025-00	METAL CHIP 100 5%	1/10W
R029	1-216-025-00	METAL CHIP 100 5%	1/10W
R030	1-216-025-00	METAL CHIP 100 5%	1/10W
R031	1-216-089-00	METAL CHIP 47K 5%	1/10W
R032	1-216-025-00	METAL CHIP 100 5%	1/10W
R033	1-216-025-00	METAL CHIP 100 5%	1/10W
R034	1-216-025-00	METAL CHIP 100 5%	1/10W
R035	1-216-025-00	METAL CHIP 100 5%	1/10W
R036	1-216-025-00	METAL CHIP 100 5%	1/10W
R037	1-216-025-00	METAL CHIP 100 5%	1/10W
R038	1-216-025-00	METAL CHIP 100 5%	1/10W
R039	1-216-073-00	METAL CHIP 10K 5%	1/10W
R040	1-216-025-00	METAL CHIP 100 5%	1/10W
R041	1-216-025-00	METAL CHIP 100 5%	1/10W
R042	1-216-073-00	METAL CHIP 10K 5%	1/10W
R044	1-216-089-00	METAL CHIP 47K 5%	1/10W

Ref. No.	Part No.	Description	Remark
R045	1-216-089-00	METAL CHIP 47K 5%	1/10W
R046	1-216-121-00	METAL CHIP 1M 5%	1/10W
R047	1-216-035-00	METAL CHIP 270 5%	1/10W
R048	1-216-035-00	METAL CHIP 270 5%	1/10W
R049	1-216-035-00	METAL CHIP 270 5%	1/10W
R050	1-216-035-00	METAL CHIP 270 5%	1/10W
R051	1-216-035-00	METAL CHIP 270 5%	1/10W
R052	1-216-035-00	METAL CHIP 270 5%	1/10W
R053	1-216-035-00	METAL CHIP 270 5%	1/10W
R054	1-216-035-00	METAL CHIP 270 5%	1/10W
R055	1-216-035-00	METAL CHIP 270 5%	1/10W
R056	1-216-035-00	METAL CHIP 270 5%	1/10W
R057	1-216-035-00	METAL CHIP 270 5%	1/10W
R058	1-216-035-00	METAL CHIP 270 5%	1/10W
R059	1-216-035-00	METAL CHIP 270 5%	1/10W
R060	1-216-035-00	METAL CHIP 270 5%	1/10W
R061	1-216-025-00	METAL CHIP 100 5%	1/10W
R062	1-216-025-00	METAL CHIP 100 5%	1/10W
R063	1-216-025-00	METAL CHIP 100 5%	1/10W
R064	1-216-025-00	METAL CHIP 100 5%	1/10W
R065	1-216-025-00	METAL CHIP 100 5%	1/10W
R066	1-216-025-00	METAL CHIP 100 5%	1/10W
R067	1-216-025-00	METAL CHIP 100 5%	1/10W
R068	1-216-025-00	METAL CHIP 100 5%	1/10W
R069	1-216-097-00	METAL CHIP 100K 5%	1/10W
R070	1-216-097-00	METAL CHIP 100K 5%	1/10W
R071	1-216-097-00	METAL CHIP 100K 5%	1/10W
R072	1-216-097-00	METAL CHIP 100K 5%	1/10W
R073	1-216-097-00	METAL CHIP 100K 5%	1/10W
R074	1-216-097-00	METAL CHIP 100K 5%	1/10W
R075	1-216-073-00	METAL CHIP 10K 5%	1/10W
R076	1-216-073-00	METAL CHIP 10K 5%	1/10W
R077	1-216-073-00	METAL CHIP 10K 5%	1/10W
R078	1-216-073-00	METAL CHIP 10K 5%	1/10W
R079	1-216-073-00	METAL CHIP 10K 5%	1/10W
R080	1-216-073-00	METAL CHIP 10K 5%	1/10W
R081	1-216-025-00	METAL CHIP 100 5%	1/10W
R082	1-216-025-00	METAL CHIP 100 5%	1/10W
R083	1-216-025-00	METAL CHIP 100 5%	1/10W
R084	1-216-025-00	METAL CHIP 100 5%	1/10W
R085	1-216-025-00	METAL CHIP 100 5%	1/10W
R086	1-216-025-00	METAL CHIP 100 5%	1/10W
R087	1-216-089-00	METAL CHIP 47K 5%	1/10W
R089	1-216-089-00	METAL CHIP 47K 5%	1/10W
R090	1-216-121-00	METAL CHIP 1M 5%	1/10W
R091	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R096	1-216-031-00	METAL CHIP 180 5%	1/10W
R097	1-216-031-00	METAL CHIP 180 5%	1/10W

Ref. No.	Part No.	Description	Remark		
R098	1-216-031-00	METAL CHIP	180	5%	1/10W
R099	1-216-031-00	METAL CHIP	180	5%	1/10W
R100	1-216-031-00	METAL CHIP	180	5%	1/10W
R101	1-216-031-00	METAL CHIP	180	5%	1/10W
R102	1-216-031-00	METAL CHIP	180	5%	1/10W
R103	1-216-031-00	METAL CHIP	180	5%	1/10W
R104	1-216-031-00	METAL CHIP	180	5%	1/10W
R105	1-216-031-00	METAL CHIP	180	5%	1/10W
R106	1-216-031-00	METAL CHIP	180	5%	1/10W
R107	1-216-031-00	METAL CHIP	180	5%	1/10W
R108	1-216-031-00	METAL CHIP	180	5%	1/10W
R109	1-216-031-00	METAL CHIP	180	5%	1/10W
R110	1-216-031-00	METAL CHIP	180	5%	1/10W
R111	1-216-031-00	METAL CHIP	180	5%	1/10W
R112	1-216-031-00	METAL CHIP	180	5%	1/10W
R113	1-216-031-00	METAL CHIP	180	5%	1/10W
R114	1-216-089-00	METAL CHIP	47K	5%	1/10W
R115	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R116	1-216-059-00	METAL CHIP	2.7K	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	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R121	1-216-089-00	METAL CHIP	47K	5%	1/10W
R122	1-216-025-00	METAL CHIP	100	5%	1/10W
R123	1-216-049-00	METAL CHIP	1K	5%	1/10W
R150	1-216-073-00	METAL CHIP	10K	5%	1/10W
R151	1-216-089-00	METAL CHIP	47K	5%	1/10W
R154	1-216-025-00	METAL CHIP	100	5%	1/10W
< VIBRATOR >					
X001	1-577-359-21	VIBRATOR, CERAMIC (4.19MHz)			
X002	1-577-359-21	VIBRATOR, CERAMIC (4.19MHz)			

*	A-6421-904-A	HP-707 (E63) BOARD, COMPLETE			

*	3-944-580-01	HOLDER, HP			
< CONNECTOR >					
CN301	1-506-468-11	PIN, CONNECTOR 3P			
< DIODE >					
D301	8-719-400-18	DIODE MA152WK			
D302	8-719-400-18	DIODE MA152WK			
< FILTER >					
FL301	1-236-744-21	FILTER, EMI			

Ref. No.	Part No.	Description	Remark		
< JACK >					
J301	1-507-796-71	JACK (HEADPHONES)			
< RESISTOR >					
R301	1-249-421-11	CARBON	2.2K	5%	1/4W F
R302	1-249-421-11	CARBON	2.2K	5%	1/4W F
R303	1-249-399-11	CARBON	33	5%	1/4W F
R304	1-249-399-11	CARBON	33	5%	1/4W F
< VARIABLE RESISTOR >					
VR301	1-241-139-11	RES, VAR, CARBON 500/500 (LEVEL)			

*	A-6421-814-A	KP-703 (J63) BOARD, COMPLETE			

< CAPACITOR >					
C202	1-124-443-00	ELECT	100uF	20%	10V
C203	1-124-443-00	ELECT	100uF	20%	10V
C204	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C205	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C206	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C207	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C208	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C209	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C210	1-163-091-00	CERAMIC CHIP	8PF		50V
C211	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C212	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C213	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C214	1-124-443-00	ELECT	100uF	20%	10V
C215	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C216	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C217	1-124-443-00	ELECT	100uF	20%	10V
C218	1-124-443-00	ELECT	100uF	20%	10V
C219	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C220	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C221	1-163-111-00	CERAMIC CHIP	56PF	5%	50V
C222	1-126-233-11	ELECT	22uF	20%	50V
C223	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C224	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C225	1-136-160-00	FILM	0.039uF	5%	50V
C226	1-124-288-00	ELECT	22uF	20%	6.3V
C228	1-124-443-00	ELECT	100uF	20%	10V
C229	1-136-165-00	FILM	0.1uF	5%	50V
C230	1-124-907-11	ELECT	10uF	20%	50V
C235	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C236	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C237	1-124-443-00	ELECT	100uF	20%	10V

Ref. No.	Part No.	Description	Remark
C238	1-124-443-00	ELECT 100uF 20%	10V
C239	1-163-002-11	CERAMIC CHIP 270PF 10%	50V
C240	1-163-011-11	CERAMIC CHIP 0.0015uF 10%	50V
C241	1-163-111-00	CERAMIC CHIP 56PF 5%	50V
C242	1-126-233-11	ELECT 22uF 20%	50V
C243	1-163-017-00	CERAMIC CHIP 0.0047uF 5%	50V
C244	1-163-017-00	CERAMIC CHIP 0.0047uF 5%	50V
C245	1-136-160-00	FILM 0.039uF 5%	50V
C246	1-124-288-00	ELECT 22uF 20%	6.3V
C247	1-124-902-00	ELECT 0.47uF 20%	50V
C248	1-124-126-00	ELECT 47uF 20%	10V
C249	1-124-126-00	ELECT 47uF 20%	10V
C250	1-124-903-11	ELECT 1uF 20%	50V
C251	1-124-903-11	ELECT 1uF 20%	50V
C401	1-124-126-00	ELECT 47uF 20%	10V
C402	1-124-126-00	ELECT 47uF 20%	10V
C403	1-124-927-11	ELECT 4.7uF 20%	100V
C404	1-130-481-00	MYLAR 0.0068uF 5%	50V
C405	1-130-474-00	MYLAR 0.0018uF 5%	50V
C406	1-124-126-00	ELECT 47uF 20%	10V
C407	1-124-126-00	ELECT 47uF 20%	10V
C408	1-130-477-00	MYLAR 0.0033uF 5%	50V
C409	1-124-927-11	ELECT 4.7uF 20%	100V
C410	1-124-443-00	ELECT 100uF 20%	10V
C411	1-124-927-11	ELECT 4.7uF 20%	100V
C412	1-163-101-00	CERAMIC CHIP 22PF 5%	50V
C414	1-124-126-00	ELECT 47uF 20%	10V
C415	1-124-126-00	ELECT 47uF 20%	10V
C416	1-124-907-11	ELECT 10uF 20%	50V
C417	1-130-474-00	MYLAR 0.0018uF 5%	50V
C419	1-124-927-11	ELECT 4.7uF 20%	100V
C420	1-124-443-00	ELECT 100uF 20%	10V
C421	1-124-927-11	ELECT 4.7uF 20%	100V
C422	1-163-109-00	CERAMIC CHIP 47PF 5%	50V
C424	1-124-126-00	ELECT 47uF 20%	10V
C425	1-124-126-00	ELECT 47uF 20%	10V
C426	1-124-907-11	ELECT 10uF 20%	50V
C427	1-130-474-00	MYLAR 0.0018uF 5%	50V
C429	1-124-927-11	ELECT 4.7uF 20%	100V
C430	1-164-699-11	CERAMIC CHIP 0.0033uF 5%	50V
C431	1-164-699-11	CERAMIC CHIP 0.0033uF 5%	50V
C432	1-164-699-11	CERAMIC CHIP 0.0033uF 5%	50V
C433	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C434	1-124-126-00	ELECT 47uF 20%	10V
C435	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C436	1-124-126-00	ELECT 47uF 20%	10V
C437	1-163-989-11	CERAMIC CHIP 0.033uF 10%	25V
C438	1-163-123-00	CERAMIC CHIP 180PF 5%	50V
C439	1-124-907-11	ELECT 10uF 20%	50V

Ref. No.	Part No.	Description	Remark
C440	1-124-907-11	ELECT 10uF 20%	50V
C441	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C442	1-124-443-00	ELECT 100uF 20%	10V
C443	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C444	1-124-443-00	ELECT 100uF 20%	10V
C445	1-124-443-00	ELECT 100uF 20%	10V
C446	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C447	1-163-038-00	CERAMIC CHIP 0.1uF	25V
C448	1-124-443-00	ELECT 100uF 20%	10V
C449	1-124-126-00	ELECT 47uF 20%	10V
C450	1-124-927-11	ELECT 4.7uF 20%	100V
C451	1-124-126-00	ELECT 47uF 20%	10V
C452	1-124-903-11	ELECT 1uF 20%	50V
C453	1-124-903-11	ELECT 1uF 20%	50V
C454	1-124-903-11	ELECT 1uF 20%	50V
C455	1-124-903-11	ELECT 1uF 20%	50V
C456	1-124-126-00	ELECT 47uF 20%	10V
C457	1-124-126-00	ELECT 47uF 20%	10V
C458	1-124-126-00	ELECT 47uF 20%	10V
C459	1-124-126-00	ELECT 47uF 20%	10V
C460	1-124-927-11	ELECT 4.7uF 20%	100V
C461	1-124-126-00	ELECT 47uF 20%	10V
C462	1-124-126-00	ELECT 47uF 20%	10V
C463	1-124-927-11	ELECT 4.7uF 20%	100V
C464	1-124-927-11	ELECT 4.7uF 20%	100V
C465	1-124-927-11	ELECT 4.7uF 20%	100V
C466	1-164-699-11	CERAMIC CHIP 0.0033uF 5%	50V
C467	1-124-907-11	ELECT 10uF 20%	50V
C468	1-136-171-00	FILM 0.033uF 5%	50V
C469	1-124-907-11	ELECT 10uF 20%	50V
C470	1-130-481-00	MYLAR 0.0068uF 5%	50V
C471	1-130-475-00	MYLAR 0.0022uF 5%	50V
C472	1-124-126-00	ELECT 47uF 20%	10V
C473	1-124-126-00	ELECT 47uF 20%	10V
C475	1-124-907-11	ELECT 10uF 20%	50V
C476	1-136-171-00	FILM 0.033uF 5%	50V
C477	1-124-907-11	ELECT 10uF 20%	50V
C478	1-130-481-00	MYLAR 0.0068uF 5%	50V
C479	1-130-475-00	MYLAR 0.0022uF 5%	50V
C480	1-124-126-00	ELECT 47uF 20%	10V
C481	1-124-126-00	ELECT 47uF 20%	10V
C483	1-124-907-11	ELECT 10uF 20%	50V
C484	1-124-126-00	ELECT 47uF 20%	10V
C485	1-124-126-00	ELECT 47uF 20%	10V
C491	1-124-443-00	ELECT 100uF 20%	10V
C492	1-124-443-00	ELECT 100uF 20%	10V
C493	1-163-037-11	CERAMIC CHIP 0.022uF 10%	25V
C494	1-124-126-00	ELECT 47uF 20%	10V
C495	1-163-038-00	CERAMIC CHIP 0.1uF	25V

Ref. No.	Part No.	Description	Remark
C496	1-163-037-11	CERAMIC CHIP 0.022uF 10%	25V
< CONNECTOR >			
CN201	1-506-473-11	PIN, CONNECTOR 8P	
CN202	1-506-487-11	PIN, CONNECTOR 8P	
CN203	1-506-468-11	PIN, CONNECTOR 3P	
* CN204	1-568-779-11	PIN, CONNECTOR 2P	
* CN401	1-568-788-21	PIN, CONNECTOR 11P	
CN402	1-506-472-11	PIN, CONNECTOR 7P	
CN403	1-506-470-11	PIN, CONNECTOR 5P	
* CN404	1-568-783-11	PIN, CONNECTOR 6P	
CN405	1-506-473-11	PIN, CONNECTOR 8P	
CN406	1-506-468-11	PIN, CONNECTOR 3P	
< DIODE >			
D404	8-719-400-18	DIODE MA152WK	
D405	8-719-982-10	DIODE MTZJ-4. 3A	
D406	8-719-982-10	DIODE MTZJ-4. 3A	
D408	8-719-800-76	DIODE 1SS226	
D412	8-719-800-76	DIODE 1SS226	
D414	8-719-800-76	DIODE 1SS226	
D417	8-719-800-76	DIODE 1SS226	
D418	8-719-800-76	DIODE 1SS226	
D419	8-719-104-34	DIODE 1S2836	
D420	8-719-400-18	DIODE MA152WK	
D440	8-719-021-31	DIODE RD5. 1M-B	
D441	8-719-104-34	DIODE 1S2836	
D442	8-719-104-34	DIODE 1S2836	
< FILTER >			
FL201	1-236-840-11	FILTER, BAND PASS	
FL401	1-239-201-11	FILTER, LOW PASS	
FL402	1-239-201-11	FILTER, LOW PASS	
FL403	1-236-071-11	ENCAPSULATED COMPONENT	
FL404	1-236-071-11	ENCAPSULATED COMPONENT	
FL405	1-236-071-11	ENCAPSULATED COMPONENT	
FL406	1-236-071-11	ENCAPSULATED COMPONENT	
FL407	1-236-071-11	ENCAPSULATED COMPONENT	
FL408	1-236-071-11	ENCAPSULATED COMPONENT	
< IC >			
IC201	8-759-502-42	IC PA0034A	
IC202	8-759-100-96	IC uPC4558G2	
IC401	8-759-932-67	IC BU4053BF	
IC402	8-759-100-96	IC uPC4558G2	
IC403	8-759-100-96	IC uPC4558G2	
IC404	8-759-100-96	IC uPC4558G2	
IC405	8-759-504-52	IC YSS205	
IC406	8-759-243-37	IC TC51832SPL	

Ref. No.	Part No.	Description	Remark
IC407	8-759-100-96	IC uPC4558G2	
IC408	8-759-045-32	IC YM3433BD	
IC409	8-759-008-67	IC MC14066BF	
IC410	8-759-999-55	IC PCM1700U	
IC411	8-759-100-96	IC uPC4558G2	
IC412	8-759-100-96	IC uPC4558G2	
IC413	8-759-100-96	IC uPC4558G2	
IC414	8-759-100-96	IC uPC4558G2	
IC415	8-759-100-96	IC uPC4558G2	
IC416	8-759-100-96	IC uPC4558G2	
IC417	8-759-932-67	IC BU4053BF	
IC418	8-759-100-96	IC uPC4558G2	
IC419	8-752-339-86	IC CXD2557M	
< JUMPER RESISTOR >			
JR245	1-216-295-00	METAL CHIP	0 5% 1/10W
JR252	1-216-295-00	METAL CHIP	0 5% 1/10W
JR402	1-216-295-00	METAL CHIP	0 5% 1/10W
JR403	1-216-295-00	METAL CHIP	0 5% 1/10W
JR420	1-216-295-00	METAL CHIP	0 5% 1/10W
JR430	1-216-295-00	METAL CHIP	0 5% 1/10W
JR542	1-216-295-00	METAL CHIP	0 5% 1/10W
< COIL >			
L201	1-408-417-00	INDUCTOR 47uH	
L202	1-408-417-00	INDUCTOR 47uH	
L203	1-408-421-00	INDUCTOR 100uH	
L204	1-408-425-00	INDUCTOR 220uH	
L205	1-408-417-00	INDUCTOR 47uH	
L206	1-408-417-00	INDUCTOR 47uH	
< TRANSISTOR >			
Q201	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q202	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q203	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q204	8-729-216-22	TRANSISTOR 2SA1162-G	
Q205	8-729-216-22	TRANSISTOR 2SA1162-G	
Q206	8-729-201-05	TRANSISTOR 2SC2878-B	
Q207	8-729-201-05	TRANSISTOR 2SC2878-B	
Q208	8-729-900-80	TRANSISTOR DTC114ES	
Q209	8-729-900-61	TRANSISTOR DTA114ES	
Q401	8-729-900-53	TRANSISTOR DTC114EK	
Q402	8-729-901-04	TRANSISTOR DTA114EK	
Q407	8-729-201-05	TRANSISTOR 2SC2878-B	
Q408	8-729-201-05	TRANSISTOR 2SC2878-B	
Q409	8-729-201-05	TRANSISTOR 2SC2878-B	
Q411	8-729-201-05	TRANSISTOR 2SC2878-B	
Q412	8-729-900-53	TRANSISTOR DTC114EK	

Ref. No.	Part No.	Description	Remark
Q413	8-729-901-04	TRANSISTOR DTA114EK	
Q414	8-729-901-01	TRANSISTOR DTC144EK	
Q415	8-729-901-06	TRANSISTOR DTA144EK	
Q416	8-729-201-05	TRANSISTOR 2SC2878-B	
Q417	8-729-201-05	TRANSISTOR 2SC2878-B	
Q421	8-729-900-53	TRANSISTOR DTC114EK	
Q422	8-729-900-53	TRANSISTOR DTC114EK	
Q423	8-729-900-53	TRANSISTOR DTC114EK	
Q431	8-729-201-05	TRANSISTOR 2SC2878-B	
Q432	8-729-201-05	TRANSISTOR 2SC2878-B	
< RESISTOR >			
R201	1-216-081-00	METAL CHIP 22K 5%	1/10W
R202	1-216-081-00	METAL CHIP 22K 5%	1/10W
R204	1-216-073-00	METAL CHIP 10K 5%	1/10W
R205	1-216-048-00	METAL CHIP 910 5%	1/10W
R207	1-216-093-00	METAL CHIP 68K 5%	1/10W
R208	1-216-076-00	METAL CHIP 13K 5%	1/10W
R209	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R210	1-216-041-00	METAL CHIP 470 5%	1/10W
R211	1-216-017-00	METAL CHIP 47 5%	1/10W
R212	1-216-023-00	METAL CHIP 82 5%	1/10W
R213	1-216-057-00	METAL CHIP 2.2K 5%	1/10W
R214	1-216-049-00	METAL CHIP 1K 5%	1/10W
R215	1-216-049-00	METAL CHIP 1K 5%	1/10W
R216	1-216-049-00	METAL CHIP 1K 5%	1/10W
R217	1-216-053-00	METAL CHIP 1.5K 5%	1/10W
R218	1-216-033-00	METAL CHIP 220 5%	1/10W
R219	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R220	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R221	1-216-073-00	METAL CHIP 10K 5%	1/10W
R222	1-216-078-00	METAL GLAZE 16K 5%	1/10W
R223	1-216-118-00	METAL GLAZE 750K 5%	1/10W
R224	1-216-071-00	METAL CHIP 8.2K 5%	1/10W
R226	1-216-046-00	METAL CHIP 750 5%	1/10W
R227	1-216-101-00	METAL CHIP 150K 5%	1/10W
R228	1-216-101-00	METAL CHIP 150K 5%	1/10W
R229	1-216-104-00	METAL CHIP 200K 5%	1/10W
R233	1-216-049-00	METAL CHIP 1K 5%	1/10W
R234	1-216-053-00	METAL CHIP 1.5K 5%	1/10W
R235	1-216-033-00	METAL CHIP 220 5%	1/10W
R236	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R237	1-216-065-00	METAL CHIP 4.7K 5%	1/10W
R238	1-216-073-00	METAL CHIP 10K 5%	1/10W
R239	1-216-078-00	METAL GLAZE 16K 5%	1/10W
R240	1-216-118-00	METAL GLAZE 750K 5%	1/10W
R241	1-216-071-00	METAL CHIP 8.2K 5%	1/10W
R242	1-216-105-00	METAL CHIP 220K 5%	1/10W
R243	1-216-051-00	METAL CHIP 1.2K 5%	1/10W

Ref. No.	Part No.	Description	Remark
R246	1-216-081-00	METAL CHIP 22K 5%	1/10W
R247	1-216-049-00	METAL CHIP 1K 5%	1/10W
R248	1-216-105-00	METAL CHIP 220K 5%	1/10W
R249	1-216-105-00	METAL CHIP 220K 5%	1/10W
R250	1-216-051-00	METAL CHIP 1.2K 5%	1/10W
R253	1-216-081-00	METAL CHIP 22K 5%	1/10W
R254	1-216-049-00	METAL CHIP 1K 5%	1/10W
R255	1-216-105-00	METAL CHIP 220K 5%	1/10W
R256	1-216-095-00	METAL CHIP 82K 5%	1/10W
R401	1-216-105-00	METAL CHIP 220K 5%	1/10W
R402	1-216-105-00	METAL CHIP 220K 5%	1/10W
R403	1-216-105-00	METAL CHIP 220K 5%	1/10W
R404	1-216-105-00	METAL CHIP 220K 5%	1/10W
R405	1-216-105-00	METAL CHIP 220K 5%	1/10W
R406	1-216-105-00	METAL CHIP 220K 5%	1/10W
R407	1-216-105-00	METAL CHIP 220K 5%	1/10W
R408	1-216-105-00	METAL CHIP 220K 5%	1/10W
R409	1-216-073-00	METAL CHIP 10K 5%	1/10W
R410	1-216-073-00	METAL CHIP 10K 5%	1/10W
R411	1-216-689-11	METAL CHIP 39K 0.5%	1/10W
R412	1-216-089-00	METAL CHIP 47K 5%	1/10W
R413	1-216-097-00	METAL CHIP 100K 5%	1/10W
R414	1-216-105-00	METAL CHIP 220K 5%	1/10W
R415	1-216-105-00	METAL CHIP 220K 5%	1/10W
R416	1-216-049-00	METAL CHIP 1K 5%	1/10W
R419	1-216-073-00	METAL CHIP 10K 5%	1/10W
R421	1-216-053-00	METAL CHIP 1.5K 5%	1/10W
R422	1-216-063-00	METAL CHIP 3.9K 5%	1/10W
R423	1-216-097-00	METAL CHIP 100K 5%	1/10W
R425	1-216-105-00	METAL CHIP 220K 5%	1/10W
R426	1-216-105-00	METAL CHIP 220K 5%	1/10W
R427	1-216-049-00	METAL CHIP 1K 5%	1/10W
R431	1-216-073-00	METAL CHIP 10K 5%	1/10W
R432	1-216-053-00	METAL CHIP 1.5K 5%	1/10W
R433	1-216-063-00	METAL CHIP 3.9K 5%	1/10W
R434	1-216-097-00	METAL CHIP 100K 5%	1/10W
R435	1-216-037-00	METAL CHIP 330 5%	1/10W
R436	1-216-037-00	METAL CHIP 330 5%	1/10W
R437	1-216-037-00	METAL CHIP 330 5%	1/10W
R438	1-216-083-00	METAL CHIP 27K 5%	1/10W
R439	1-216-113-00	METAL CHIP 470K 5%	1/10W
R440	1-216-089-00	METAL CHIP 47K 5%	1/10W
R441	1-216-049-00	METAL CHIP 1K 5%	1/10W
R442	1-216-097-00	METAL CHIP 100K 5%	1/10W
R443	1-216-037-00	METAL CHIP 330 5%	1/10W
R444	1-216-097-00	METAL CHIP 100K 5%	1/10W
R445	1-216-037-00	METAL CHIP 330 5%	1/10W
R446	1-216-037-00	METAL CHIP 330 5%	1/10W

Ref. No.	Part No.	Description	Remark		
R447	1-216-037-00	METAL CHIP	330	5%	1/10W
R448	1-216-037-00	METAL CHIP	330	5%	1/10W
R449	1-216-105-00	METAL CHIP	220K	5%	1/10W
R450	1-216-045-00	METAL CHIP	680	5%	1/10W
R451	1-216-045-00	METAL CHIP	680	5%	1/10W
R453	1-216-049-00	METAL CHIP	1K	5%	1/10W
R454	1-216-049-00	METAL CHIP	1K	5%	1/10W
R455	1-216-081-00	METAL CHIP	22K	5%	1/10W
R456	1-216-105-00	METAL CHIP	220K	5%	1/10W
R457	1-216-049-00	METAL CHIP	1K	5%	1/10W
R458	1-216-049-00	METAL CHIP	1K	5%	1/10W
R459	1-216-049-00	METAL CHIP	1K	5%	1/10W
R460	1-216-101-00	METAL CHIP	150K	5%	1/10W
R461	1-216-081-00	METAL CHIP	22K	5%	1/10W
R462	1-216-105-00	METAL CHIP	220K	5%	1/10W
R463	1-216-049-00	METAL CHIP	1K	5%	1/10W
R464	1-216-049-00	METAL CHIP	1K	5%	1/10W
R465	1-216-049-00	METAL CHIP	1K	5%	1/10W
R466	1-216-081-00	METAL CHIP	22K	5%	1/10W
R467	1-216-105-00	METAL CHIP	220K	5%	1/10W
R468	1-216-049-00	METAL CHIP	1K	5%	1/10W
R469	1-216-049-00	METAL CHIP	1K	5%	1/10W
R470	1-216-049-00	METAL CHIP	1K	5%	1/10W
R471	1-216-081-00	METAL CHIP	22K	5%	1/10W
R472	1-216-105-00	METAL CHIP	220K	5%	1/10W
R473	1-216-049-00	METAL CHIP	1K	5%	1/10W
R474	1-216-105-00	METAL CHIP	220K	5%	1/10W
R475	1-216-089-00	METAL CHIP	47K	5%	1/10W
R476	1-216-077-00	METAL CHIP	15K	5%	1/10W
R477	1-216-105-00	METAL CHIP	220K	5%	1/10W
R478	1-216-089-00	METAL CHIP	47K	5%	1/10W
R479	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R480	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R481	1-216-073-00	METAL CHIP	10K	5%	1/10W
R482	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R483	1-216-095-00	METAL CHIP	82K	5%	1/10W
R484	1-216-095-00	METAL CHIP	82K	5%	1/10W
R485	1-216-049-00	METAL CHIP	1K	5%	1/10W
R486	1-216-081-00	METAL CHIP	22K	5%	1/10W
R487	1-216-039-00	METAL CHIP	390	5%	1/10W
R488	1-216-121-00	METAL CHIP	1M	5%	1/10W
R489	1-216-105-00	METAL CHIP	220K	5%	1/10W
R490	1-216-049-00	METAL CHIP	1K	5%	1/10W
R491	1-216-049-00	METAL CHIP	1K	5%	1/10W
R492	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R493	1-216-073-00	METAL CHIP	10K	5%	1/10W
R494	1-216-073-00	METAL CHIP	10K	5%	1/10W
R495	1-216-047-00	METAL CHIP	820	5%	1/10W
R496	1-216-105-00	METAL CHIP	220K	5%	1/10W

Ref. No.	Part No.	Description	Remark		
R497	1-216-081-00	METAL CHIP	22K	5%	1/10W
R498	1-216-049-00	METAL CHIP	1K	5%	1/10W
R499	1-216-121-00	METAL CHIP	1M	5%	1/10W
R500	1-216-039-00	METAL CHIP	390	5%	1/10W
R501	1-216-105-00	METAL CHIP	220K	5%	1/10W
R502	1-216-049-00	METAL CHIP	1K	5%	1/10W
R503	1-216-049-00	METAL CHIP	1K	5%	1/10W
R504	1-216-073-00	METAL CHIP	10K	5%	1/10W
R505	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R506	1-216-073-00	METAL CHIP	10K	5%	1/10W
R507	1-216-047-00	METAL CHIP	820	5%	1/10W
R508	1-216-105-00	METAL CHIP	220K	5%	1/10W
R509	1-216-049-00	METAL CHIP	1K	5%	1/10W
R510	1-216-105-00	METAL CHIP	220K	5%	1/10W
R511	1-216-105-00	METAL CHIP	220K	5%	1/10W
R512	1-216-049-00	METAL CHIP	1K	5%	1/10W
R513	1-216-073-00	METAL CHIP	10K	5%	1/10W
R514	1-216-073-00	METAL CHIP	10K	5%	1/10W
R515	1-216-049-00	METAL CHIP	1K	5%	1/10W
R516	1-216-049-00	METAL CHIP	1K	5%	1/10W
R517	1-216-095-00	METAL CHIP	82K	5%	1/10W
R521	1-216-097-00	METAL CHIP	100K	5%	1/10W
R522	1-216-097-00	METAL CHIP	100K	5%	1/10W
R523	1-216-097-00	METAL CHIP	100K	5%	1/10W
R533	1-216-081-00	METAL CHIP	22K	5%	1/10W
R534	1-216-081-00	METAL CHIP	22K	5%	1/10W
R540	1-216-049-00	METAL CHIP	1K	5%	1/10W
R541	1-216-113-00	METAL CHIP	470K	5%	1/10W
R545	1-216-089-00	METAL CHIP	47K	5%	1/10W
R546	1-216-037-00	METAL CHIP	330	5%	1/10W
R547	1-216-037-00	METAL CHIP	330	5%	1/10W
R548	1-216-037-00	METAL CHIP	330	5%	1/10W
R549	1-216-037-00	METAL CHIP	330	5%	1/10W
R550	1-216-037-00	METAL CHIP	330	5%	1/10W
R551	1-216-037-00	METAL CHIP	330	5%	1/10W

* 1-644-799-11 KY-704 BOARD

* 3-669-610-00 SPACER
< CONNECTOR >

CN601 1-569-338-11 CONNECTOR, BOARD TO BOARD 19P

< DIODE >

D601 8-719-992-30 LED SLR305MC3F
D602 8-719-992-30 LED SLR305MC3F
D603 8-719-992-30 LED SLR305MC3F
D604 8-719-992-30 LED SLR305MC3F

Ref. No.	Part No.	Description	Remark
D605	8-719-992-30	LED SLR305MC3F	
D606	8-719-992-30	LED SLR305MC3F	
D607	8-719-992-30	LED SLR305MC3F	
D608	8-719-992-30	LED SLR305MC3F	
D609	8-719-992-30	LED SLR305MC3F	
D610	8-719-992-30	LED SLR305MC3F	
D611	8-719-992-30	LED SLR305MC3F	
D612	8-719-992-30	LED SLR305MC3F	
D613	8-719-992-30	LED SLR305MC3F	
D614	8-719-992-30	LED SLR305MC3F	
D615	8-719-992-30	LED SLR305MC3F	
D616	8-719-992-30	LED SLR305MC3F	
D617	8-719-992-30	LED SLR305MC3F	
D618	8-719-992-30	LED SLR305MC3F	
D619	8-719-992-30	LED SLR305MC3F	
D620	8-719-992-30	LED SLR305MC3F	
		< RESISTOR >	
R601	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R602	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R603	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R604	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R605	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R606	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R607	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R608	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R609	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R610	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R611	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R612	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R613	1-216-059-00	METAL CHIP 2.7K 5% 1/10W	
R614	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R615	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R616	1-216-079-00	METAL CHIP 18K 5% 1/10W	
		< SWITCH >	
S601	1-572-946-11	SWITCH, TACTIL (1)	
S602	1-572-946-11	SWITCH, TACTIL (2)	
S603	1-572-946-11	SWITCH, TACTIL (3)	
S604	1-572-946-11	SWITCH, TACTIL (4)	
S605	1-572-946-11	SWITCH, TACTIL (5)	
S606	1-572-946-11	SWITCH, TACTIL (6)	
S607	1-572-946-11	SWITCH, TACTIL (7)	
S608	1-572-946-11	SWITCH, TACTIL (8)	
S609	1-572-946-11	SWITCH, TACTIL (9)	
S610	1-572-946-11	SWITCH, TACTIL (10)	
S611	1-572-946-11	SWITCH, TACTIL (11)	
S612	1-572-946-11	SWITCH, TACTIL (12)	

Ref. No.	Part No.	Description	Remark
S613	1-572-946-11	SWITCH, TACTIL (13)	
S614	1-572-946-11	SWITCH, TACTIL (14)	
S615	1-572-946-11	SWITCH, TACTIL (15)	
S616	1-572-946-11	SWITCH, TACTIL (16)	
S617	1-572-946-11	SWITCH, TACTIL (17)	
S618	1-572-946-11	SWITCH, TACTIL (18)	
S619	1-572-946-11	SWITCH, TACTIL (19)	
S620	1-572-946-11	SWITCH, TACTIL (20)	
S621	1-572-946-11	SWITCH, TACTIL (RESERVE)	

*	A-6421-908-A	LS-34 (E63) BOARD, COMPLETE	

	3-735-054-01	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	

*	A-6421-815-A	MA-703 (J63) BOARD, COMPLETE	

		< CAPACITOR >	
C701	1-126-301-11	ELECT 1uF 20% 50V	
C702	1-126-301-11	ELECT 1uF 20% 50V	
C703	1-163-009-11	CERAMIC CHIP 0.001uF 10% 50V	
C704	1-163-009-11	CERAMIC CHIP 0.001uF 10% 50V	
C705	1-124-465-00	ELECT 0.47uF 20% 50V	
C706	1-124-465-00	ELECT 0.47uF 20% 50V	
C707	1-126-795-11	ELECT 10uF 20% 50V	
C708	1-126-795-11	ELECT 10uF 20% 50V	
C709	1-126-177-11	ELECT 100uF 20% 10V	
C710	1-126-177-11	ELECT 100uF 20% 10V	
C711	1-163-145-00	CERAMIC CHIP 0.0015uF 5% 50V	
C712	1-163-145-00	CERAMIC CHIP 0.0015uF 5% 50V	
C714	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
		< CONNECTOR >	
CN701	1-506-468-11	PIN, CONNECTOR 3P	
CN702	1-506-473-11	PIN, CONNECTOR 8P	

Ref. No.	Part No.	Description	Remark
< DIODE >			
D701	8-719-400-18	DIODE MA152WK	
D702	8-719-400-18	DIODE MA152WK	
< FILTER >			
FL701	1-236-744-21	FILTER, EMI	
FL702	1-236-744-21	FILTER, EMI	
< IC >			
IC701	8-759-100-96	IC uPC4558G2	
< JACK >			
J702	1-507-805-21	JACK, LARGE TYPE (MIC)	
J703	1-507-678-00	JACK (CONTROL)	
< JUMPER RESISTOR >			
JR701	1-216-296-00	METAL CHIP 0 5% 1/8W	
< RESISTOR >			
R701	1-216-025-00	METAL CHIP 100 5% 1/10W	
R702	1-216-025-00	METAL CHIP 100 5% 1/10W	
R703	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R704	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R705	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R706	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R707	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R708	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R709	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R710	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R711	1-216-025-00	METAL CHIP 100 5% 1/10W	

*	A-6421-827-A	MB-53 (E63) BOARD, COMPLETE	

*	3-746-535-01	HEAT SINK	
	3-945-877-01	PLATE, GROUND, JACK	
	7-682-547-04	SCREW +BVTT 3X6 (S)	
< CAPACITOR >			
C001	1-124-126-00	ELECT 47uF 20% 10V	
C002	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C003	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C004	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C005	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	
C006	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C007	1-124-126-00	ELECT 47uF 20% 10V	
C008	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	

Ref. No.	Part No.	Description	Remark
C009	1-163-011-11	CERAMIC CHIP 0.0015uF 10% 50V	
C010	1-124-126-00	ELECT 47uF 20% 10V	
C011	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C014	1-124-499-11	ELECT, NONPOLAR R 1uF 20% 50V	
C015	1-126-320-11	ELECT, NONPOLAR R 10uF 20% 16V	
C034	1-163-037-11	CERAMIC CHIP 0.022uF 10% 25V	
C035	1-163-222-11	CERAMIC CHIP 5PF 0.25PF 50V	
C036	1-163-222-11	CERAMIC CHIP 5PF 0.25PF 50V	
C037	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C041	1-124-126-00	ELECT 47uF 20% 10V	
C042	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C043	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C045	1-124-907-11	ELECT 10uF 20% 50V	
C102	1-124-473-11	ELECT 1000uF 20% 10V	
C103	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C104	1-126-176-11	ELECT 220uF 20% 10V	
C105	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C106	1-124-477-11	ELECT 47uF 20% 25V	
C107	1-163-245-11	CERAMIC CHIP 56PF 5% 50V	
C108	1-163-109-00	CERAMIC CHIP 47PF 5% 50V	
C109	1-124-907-11	ELECT 10uF 20% 50V	
C111	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C112	1-124-472-11	ELECT 470uF 20% 10V	
C113	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C114	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C115	1-124-907-11	ELECT 10uF 20% 50V	
C116	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C117	1-126-385-11	ELECT 390uF 20% 16V	
C118	1-124-907-11	ELECT 10uF 20% 50V	
C119	1-163-227-11	CERAMIC CHIP 10PF 5% 50V	
C120	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C121	1-163-115-00	CERAMIC CHIP 82PF 5% 50V	
C151	1-163-017-00	CERAMIC CHIP 0.0047uF 5% 50V	
C152	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C153	1-124-477-11	ELECT 47uF 20% 25V	
C154	1-164-232-11	CERAMIC CHIP 0.01uF 50V	
C155	1-163-239-11	CERAMIC CHIP 33PF 5% 50V	
C156	1-164-182-11	CERAMIC CHIP 0.0033uF 10% 50V	
C157	1-163-251-11	CERAMIC CHIP 100PF 5% 50V	
C158	1-130-483-00	MYLAR 0.01uF 5% 50V	
C159	1-130-489-00	MYLAR 0.033uF 5% 50V	
C160	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C161	1-136-165-00	FILM 0.1uF 5% 50V	
C162	1-163-019-00	CERAMIC CHIP 0.0068uF 10% 50V	
C163	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C164	1-163-035-00	CERAMIC CHIP 0.047uF 50V	
C165	1-163-038-00	CERAMIC CHIP 0.1uF 25V	
C166	1-126-157-11	ELECT 10uF 20% 16V	

Ref. No.	Part No.	Description	Remark		
C167	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C168	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C169	1-126-157-11	ELECT	10uF	20%	16V
C170	1-124-589-11	ELECT	47uF	20%	16V
C171	1-163-227-11	CERAMIC CHIP	10PF	5%	50V
C172	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C181	1-163-253-11	CERAMIC CHIP	120PF	5%	50V
C182	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C183	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C184	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C185	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C186	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C187	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C188	1-126-176-11	ELECT	220uF	20%	10V
C189	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C190	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C191	1-124-443-00	ELECT	100uF	20%	10V
C192	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C193	1-130-486-00	MYLAR	0.018uF	10%	50V
C194	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C195	1-130-489-00	MYLAR	0.033uF	5%	50V
C196	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C197	1-124-903-11	ELECT	1uF	20%	50V
C198	1-124-925-11	ELECT	2.2uF	20%	100V
C199	1-130-491-00	MYLAR	0.047uF	5%	50V
C200	1-130-489-00	MYLAR	0.033uF	5%	50V
C201	1-124-589-11	ELECT	47uF	20%	16V
C202	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C203	1-130-483-00	MYLAR	0.01uF	5%	50V
C204	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C205	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C206	1-130-483-00	MYLAR	0.01uF	5%	50V
C207	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C208	1-124-477-11	ELECT	47uF	20%	25V
C209	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C210	1-124-477-11	ELECT	47uF	20%	25V
C211	1-124-499-11	ELECT, NONPOLAR R	1uF	20%	50V
C212	1-130-491-00	MYLAR	0.047uF	5%	50V
C213	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C214	1-124-903-11	ELECT	1uF	20%	50V
C215	1-124-477-11	ELECT	47uF	20%	25V
C216	1-124-443-00	ELECT	100uF	20%	10V
C217	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C218	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C219	1-124-443-00	ELECT	100uF	20%	10V
C220	1-163-126-00	CERAMIC CHIP	240PF	5%	50V
C221	1-124-477-11	ELECT	47uF	20%	25V
C222	1-130-491-00	MYLAR	0.047uF	5%	50V
C223	1-163-035-00	CERAMIC CHIP	0.047uF		50V

Ref. No.	Part No.	Description	Remark		
C224	1-124-477-11	ELECT	47uF	20%	25V
C225	1-163-139-00	CERAMIC CHIP	820PF	5%	50V
C226	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C227	1-124-477-11	ELECT	47uF	20%	25V
C228	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C229	1-163-253-11	CERAMIC CHIP	120PF	5%	50V
C230	1-163-253-11	CERAMIC CHIP	120PF	5%	50V
C231	1-124-903-11	ELECT	1uF	20%	50V
C232	1-163-227-11	CERAMIC CHIP	10PF	5%	50V
C233	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C234	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C235	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C236	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C237	1-163-103-00	CERAMIC CHIP	27PF	5%	50V
C238	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C239	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C240	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C241	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C242	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C243	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C244	1-163-253-11	CERAMIC CHIP	120PF	5%	50V
C245	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C246	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C247	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C248	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C249	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C250	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C251	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C252	1-124-477-11	ELECT	47uF	20%	25V
C253	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C254	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C255	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C256	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C257	1-124-477-11	ELECT	47uF	20%	25V
C258	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C259	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C260	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C261	1-163-257-11	CERAMIC CHIP	180PF	5%	50V
C262	1-126-160-11	ELECT	1uF	20%	50V
C263	1-130-487-00	MYLAR	0.022uF	5%	50V
C264	1-131-347-00	TANTALUM	1uF	10%	35V
C265	1-126-160-11	ELECT	1uF	20%	50V
C266	1-130-483-00	MYLAR	0.01uF	5%	50V
C267	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C268	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C269	1-163-107-00	CERAMIC CHIP	39PF	5%	50V
C270	1-163-031-11	CERAMIC CHIP	0.01uF		50V
C271	1-124-589-11	ELECT	47uF	20%	16V
C274	1-163-031-11	CERAMIC CHIP	0.01uF		50V

Ref. No.	Part No.	Description	Remark
C275	1-124-257-00	ELECT	2. 2uF 20% 50V
C277	1-163-125-00	CERAMIC CHIP	220PF 5% 50V
C278	1-124-257-00	ELECT	2. 2uF 20% 50V
C281	1-124-257-00	ELECT	2. 2uF 20% 50V
C282	1-163-031-11	CERAMIC CHIP	0. 01uF 50V
C283	1-163-031-11	CERAMIC CHIP	0. 01uF 50V
C284	1-163-031-11	CERAMIC CHIP	0. 01uF 50V
C285	1-124-477-11	ELECT	47uF 20% 25V
C286	1-163-035-00	CERAMIC CHIP	0. 047uF 50V
C287	1-163-097-00	CERAMIC CHIP	15PF 5% 50V
C288	1-163-031-11	CERAMIC CHIP	0. 01uF 50V
C289	1-163-035-00	CERAMIC CHIP	0. 047uF 50V
C290	1-163-121-00	CERAMIC CHIP	150PF 5% 50V
C291	1-163-031-11	CERAMIC CHIP	0. 01uF 50V
C292	1-163-035-00	CERAMIC CHIP	0. 047uF 50V
C293	1-124-477-11	ELECT	47uF 20% 25V
C294	1-163-035-00	CERAMIC CHIP	0. 047uF 50V
C295	1-124-257-00	ELECT	2. 2uF 20% 50V
C296	1-163-035-00	CERAMIC CHIP	0. 047uF 50V
C297	1-163-113-00	CERAMIC CHIP	68PF 5% 50V
C298	1-163-235-11	CERAMIC CHIP	22PF 5% 50V
C299	1-163-113-00	CERAMIC CHIP	68PF 5% 50V
C300	1-163-227-11	CERAMIC CHIP	10PF 5% 50V
C301	1-163-113-00	CERAMIC CHIP	68PF 5% 50V
C302	1-163-035-00	CERAMIC CHIP	0. 047uF 50V
C311	1-124-257-00	ELECT	2. 2uF 20% 50V
C312	1-163-035-00	CERAMIC CHIP	0. 047uF 50V
C313	1-126-157-11	ELECT	10uF 20% 16V
C314	1-163-035-00	CERAMIC CHIP	0. 047uF 50V
C315	1-163-035-00	CERAMIC CHIP	0. 047uF 50V
C316	1-163-035-00	CERAMIC CHIP	0. 047uF 50V
C318	1-163-106-00	CERAMIC CHIP	36PF 5% 50V
C319	1-124-589-11	ELECT	47uF 20% 16V
C320	1-124-589-11	ELECT	47uF 20% 16V
C322	1-163-031-11	CERAMIC CHIP	0. 01uF 50V
C324	1-163-227-11	CERAMIC CHIP	10PF 5% 50V
C325	1-163-227-11	CERAMIC CHIP	10PF 5% 50V
C329	1-163-038-00	CERAMIC CHIP	0. 1uF 25V
C330	1-126-176-11	ELECT	220uF 20% 10V
C401	1-126-163-11	ELECT	4. 7uF 20% 50V
C402	1-164-182-11	CERAMIC CHIP	0. 0033uF 10% 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	1-124-589-11	ELECT	47uF 20% 16V
C602	1-163-035-00	CERAMIC CHIP	0. 047uF 50V
C603	1-163-235-11	CERAMIC CHIP	22PF 5% 50V
C604	1-163-222-11	CERAMIC CHIP	5PF 0. 25PF 50V

Ref. No.	Part No.	Description	Remark
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
C620	1-124-589-11	ELECT	47uF 20% 16V
C621	1-163-035-00	CERAMIC CHIP	0. 047uF 50V
C622	1-163-103-00	CERAMIC CHIP	27PF 5% 50V
C623	1-163-103-00	CERAMIC CHIP	27PF 5% 50V
C624	1-124-589-11	ELECT	47uF 20% 16V
C625	1-163-035-00	CERAMIC CHIP	0. 047uF 50V
C626	1-163-117-00	CERAMIC CHIP	100PF 5% 50V
C627	1-163-111-00	CERAMIC CHIP	56PF 5% 50V
C628	1-163-117-00	CERAMIC CHIP	100PF 5% 50V
C629	1-164-182-11	CERAMIC CHIP	0. 0033uF 10% 50V
C630	1-124-257-00	ELECT	2. 2uF 20% 50V
C640	1-124-248-00	ELECT	22uF 20% 35V
C641	1-163-035-00	CERAMIC CHIP	0. 047uF 50V
C650	1-163-257-11	CERAMIC CHIP	180PF 5% 50V
C651	1-163-809-11	CERAMIC CHIP	0. 047uF 10% 25V
C652	1-163-275-11	CERAMIC CHIP	0. 001uF 5% 50V
C657	1-163-009-11	CERAMIC CHIP	0. 001uF 10% 50V
C699	1-163-117-00	CERAMIC CHIP	100PF 5% 50V
C701	1-163-035-00	CERAMIC CHIP	0. 047uF 50V
C718	1-126-154-11	ELECT	47uF 20% 6. 3V
C730	1-163-038-00	CERAMIC CHIP	0. 1uF 25V
C731	1-126-154-11	ELECT	47uF 20% 6. 3V
C732	1-163-253-11	CERAMIC CHIP	120PF 5% 50V
C733	1-163-009-11	CERAMIC CHIP	0. 001uF 10% 50V
C734	1-163-038-00	CERAMIC CHIP	0. 1uF 25V
C735	1-126-154-11	ELECT	47uF 20% 6. 3V
C736	1-163-038-00	CERAMIC CHIP	0. 1uF 25V
C737	1-163-038-00	CERAMIC CHIP	0. 1uF 25V
C739	1-163-245-11	CERAMIC CHIP	56PF 5% 50V
C740	1-163-038-00	CERAMIC CHIP	0. 1uF 25V
C741	1-163-038-00	CERAMIC CHIP	0. 1uF 25V
C742	1-163-115-00	CERAMIC CHIP	82PF 5% 50V
C746	1-163-111-00	CERAMIC CHIP	56PF 5% 50V
C747	1-163-037-11	CERAMIC CHIP	0. 022uF 10% 25V
C748	1-163-037-11	CERAMIC CHIP	0. 022uF 10% 25V
< FILTER >			
CF151	1-527-831-00	FILTER, CERAMIC	
< CONNECTOR >			
* CN601	1-564-028-00	PIN, CONNECTOR 3P	
CN602	1-563-493-11	CONNECTOR, F. P. C 28P	
CN603	1-506-483-21	PIN, CONNECTOR 4P	
CN604	1-506-488-11	PIN, CONNECTOR 9P	

Ref. No.	Part No.	Description	Remark
CN605	1-506-481-11	PIN, CONNECTOR 2P	
CN606	1-506-481-11	PIN, CONNECTOR 2P	
CN607	1-506-482-11	PIN, CONNECTOR 3P	
CN608	1-506-487-11	PIN, CONNECTOR 8P	
* CN702	1-568-783-11	PIN, CONNECTOR 6P	
< JACK >			
CNJ101	1-565-351-41	JACK, PIN 3P (LINE OUT 1)	
CNJ102	1-565-351-41	JACK, PIN 3P (LINE OUT 2)	
CNJ103	1-566-847-31	CONNECTOR, (S) TERMINAL 4P (S VIDEO OUT)	
< TRIMMER >			
CV152	1-141-227-00	CAP, TRIMMER 20PF	
CV601	1-141-227-00	CAP, TRIMMER 20PF	
< DIODE >			
D001	8-719-400-18	DIODE MA152WK	
D002	8-719-400-18	DIODE MA152WK	
D003	8-719-400-18	DIODE MA152WK	
D004	8-719-907-19	DIODE FC52M-5	
D005	8-719-907-19	DIODE FC52M-5	
D151	8-719-800-76	DIODE 1SS226	
D153	8-719-800-76	DIODE 1SS226	
D154	8-719-951-22	IC IMN10	
D155	8-719-800-76	DIODE 1SS226	
D401	8-719-400-18	DIODE MA152WK	
D601	8-719-400-18	DIODE MA152WK	
D602	8-719-400-18	DIODE MA152WK	
D605	8-719-400-18	DIODE MA152WK	
D606	8-719-104-34	DIODE 1S2836	
D607	8-719-400-18	DIODE MA152WK	
D699	8-719-106-71	DIODE RD12M-B2	
D703	8-719-800-76	DIODE 1SS226	
D704	8-719-105-52	DIODE RD3.6M-B2	
< DELAY LINE >			
DL101	1-415-694-11	DELAY LINE, LC	
< FILTER >			
FLO01	1-424-031-11	FILTER, NOISE	
FLO02	1-424-031-11	FILTER, NOISE	
FLO04	1-424-031-11	FILTER, NOISE	
FLO06	1-235-896-11	FILTER, BAND PASS	
FLO07	1-236-744-21	FILTER, EMI	
FLO08	1-236-744-21	FILTER, EMI	
FLO09	1-236-744-21	FILTER, EMI	
FLO10	1-236-744-21	FILTER, EMI	
FL101	1-235-896-11	FILTER, BAND PASS	
FL151	1-236-478-11	FILTER, LOW PASS	

Ref. No.	Part No.	Description	Remark
FL152	1-236-843-11	FILTER, BAND PASS	
FL153	1-236-478-11	FILTER, LOW PASS	
FL154	1-235-901-11	FILTER, LOW PASS	
FL601	1-424-031-11	FILTER, NOISE	
< IC >			
IC001	8-759-700-43	IC NJM4558M	
IC003	8-752-337-26	IC CXD2500AQ	
IC102	1-809-157-11	IC FILTER BLOCK, COM	
IC105	8-759-983-74	IC LM324NS	
IC106	8-752-322-35	IC CXL5005M	
△IC107	8-759-982-10	IC RC7809FA	
△IC108	8-759-231-53	IC MSF7805	
IC109	8-752-036-24	IC CXA1255Q	
IC110	8-759-927-29	IC SN74HCU04ANS	
IC111	8-759-502-69	IC CXD1152-MS	
IC112	8-752-055-36	IC CXA1254Q	
IC113	8-759-941-68	IC BA7131F	
IC114	8-759-700-43	IC NJM4558M	
IC115	8-759-300-71	IC HD14053BFP	
IC401	8-759-100-95	IC uPC324G2	
IC402	8-759-009-06	IC MC14052BF	
IC601	8-759-081-24	IC MB89795-138	
IC602	8-759-634-74	IC M50455-080FP	
IC603	8-759-231-92	IC TA7291P	
IC604	8-759-074-61	IC MSM72H048GS-V1K	
< JUMPER RESISTOR >			
JR003	1-216-295-00	METAL CHIP	0 5% 1/10W
JR008	1-216-295-00	METAL CHIP	0 5% 1/10W
JR014	1-216-295-00	METAL CHIP	0 5% 1/10W
JR773	1-216-295-00	METAL CHIP	0 5% 1/10W
JR781	1-216-295-00	METAL CHIP	0 5% 1/10W
JR797	1-216-295-00	METAL CHIP	0 5% 1/10W
< COIL >			
L101	1-408-411-00	INDUCTOR 15uH	
L151	1-408-421-00	INDUCTOR 100uH	
L152	1-408-421-00	INDUCTOR 100uH	
L156	1-408-421-00	INDUCTOR 100uH	
L157	1-408-421-00	INDUCTOR 100uH	
L158	1-408-421-00	INDUCTOR 100uH	
L159	1-408-421-00	INDUCTOR 100uH	
L160	1-408-422-00	INDUCTOR 120uH	
L161	1-408-419-00	INDUCTOR 68uH	
L163	1-408-421-00	INDUCTOR 100uH	
L164	1-408-424-00	INDUCTOR 180uH	
L165	1-408-421-00	INDUCTOR 100uH	
L601	1-408-421-00	INDUCTOR 100uH	

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

Ref. No.	Part No.	Description	Remark
L602	1-408-411-00	INDUCTOR 15uH	
L603	1-408-409-00	INDUCTOR 10uH	
L610	1-408-409-00	INDUCTOR 10uH	
L704	1-408-411-00	INDUCTOR 15uH	
L707	1-408-609-41	INDUCTOR 33uH	
< IC LINK >			
△PS601	1-532-840-21	LINK, IC	
△PS701	1-532-637-00	LINK, IC 1.0A	
△PS702	1-532-685-00	LINK, IC 0.8A	
< TRANSISTOR >			
Q001	8-729-901-05	TRANSISTOR DTA124EK	
Q002	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q101	8-729-216-22	TRANSISTOR 2SA1162-G	
Q102	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q103	8-729-216-22	TRANSISTOR 2SA1162-G	
Q104	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q105	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q106	8-729-216-22	TRANSISTOR 2SA1162-G	
Q107	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q108	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q109	8-729-216-22	TRANSISTOR 2SA1162-G	
Q110	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q151	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q152	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q153	8-729-140-75	TRANSISTOR 2SD999-CLCK	
Q154	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q155	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q156	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q159	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q160	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q161	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q162	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q163	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q164	8-729-902-96	TRANSISTOR FMS1	
Q165	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q166	8-729-901-00	TRANSISTOR DTC124EK	
Q167	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q168	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q169	8-729-216-22	TRANSISTOR 2SA1162-G	
Q170	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q171	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q172	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q173	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q180	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q181	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q182	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q184	8-729-100-66	TRANSISTOR 2SC1623-L6	

Ref. No.	Part No.	Description	Remark
Q185	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q186	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q187	8-729-216-22	TRANSISTOR 2SA1162-G	
Q189	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q190	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q191	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q192	8-729-216-22	TRANSISTOR 2SA1162-G	
Q193	8-729-901-00	TRANSISTOR DTC124EK	
Q197	8-729-216-22	TRANSISTOR 2SA1162-G	
Q198	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q199	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q200	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q601	8-729-216-22	TRANSISTOR 2SA1162-G	
Q602	8-729-901-00	TRANSISTOR DTC124EK	
Q605	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q606	8-729-901-00	TRANSISTOR DTC124EK	
Q608	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q609	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q610	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q611	8-729-901-00	TRANSISTOR DTC124EK	
Q724	8-729-216-22	TRANSISTOR 2SA1162-G	
Q725	8-729-216-22	TRANSISTOR 2SA1162-G	
Q726	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q727	8-729-903-10	TRANSISTOR FMW1	
Q728	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q729	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q730	8-729-216-22	TRANSISTOR 2SA1162-G	
Q731	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q732	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q733	8-729-100-66	TRANSISTOR 2SC1623-L6	
Q734	8-729-216-22	TRANSISTOR 2SA1162-G	
Q735	8-729-216-22	TRANSISTOR 2SA1162-G	
Q736	8-729-100-66	TRANSISTOR 2SC1623-L6	
< RESISTOR >			
R001	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R002	1-216-025-00	METAL CHIP 100 5% 1/10W	
R005	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R006	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R007	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R008	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R009	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R010	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R011	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R012	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R013	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R014	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R015	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R016	1-216-081-00	METAL CHIP 22K 5% 1/10W	

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

Ref. No.	Part No.	Description	Remark
R017	1-216-091-00	METAL CHIP	56K 5% 1/10W
R018	1-216-057-00	METAL CHIP	2. 2K 5% 1/10W
R039	1-216-081-00	METAL CHIP	22K 5% 1/10W
R040	1-216-097-00	METAL CHIP	100K 5% 1/10W
R041	1-216-097-00	METAL CHIP	100K 5% 1/10W
R042	1-216-121-00	METAL CHIP	1M 5% 1/10W
R045	1-216-057-00	METAL CHIP	2. 2K 5% 1/10W
R050	1-216-099-00	METAL CHIP	120K 5% 1/10W
R051	1-216-099-00	METAL CHIP	120K 5% 1/10W
R052	1-216-085-00	METAL CHIP	33K 5% 1/10W
R060	1-216-025-00	METAL CHIP	100 5% 1/10W
R101	1-216-077-00	METAL CHIP	15K 5% 1/10W
R103	1-216-031-00	METAL CHIP	180 5% 1/10W
R104	1-216-091-00	METAL CHIP	56K 5% 1/10W
R105	1-216-049-00	METAL CHIP	1K 5% 1/10W
R106	1-216-049-00	METAL CHIP	1K 5% 1/10W
R107	1-216-049-00	METAL CHIP	1K 5% 1/10W
R108	1-216-051-00	METAL CHIP	1. 2K 5% 1/10W
R109	1-216-047-00	METAL CHIP	820 5% 1/10W
R110	1-216-049-00	METAL CHIP	1K 5% 1/10W
R111	1-216-057-00	METAL CHIP	2. 2K 5% 1/10W
R112	1-216-053-00	METAL CHIP	1. 5K 5% 1/10W
R113	1-216-039-00	METAL CHIP	390 5% 1/10W
R114	1-216-049-00	METAL CHIP	1K 5% 1/10W
R115	1-216-031-00	METAL CHIP	180 5% 1/10W
R116	1-216-079-00	METAL CHIP	18K 5% 1/10W
R117	1-216-074-00	METAL CHIP	11K 5% 1/10W
R118	1-216-039-00	METAL CHIP	390 5% 1/10W
R119	1-216-021-00	METAL CHIP	68 5% 1/10W
R120	1-216-045-00	METAL CHIP	680 5% 1/10W
R121	1-216-051-00	METAL CHIP	1. 2K 5% 1/10W
R122	1-216-061-00	METAL CHIP	3. 3K 5% 1/10W
R123	1-216-057-00	METAL CHIP	2. 2K 5% 1/10W
R124	1-216-043-00	METAL CHIP	560 5% 1/10W
R125	1-216-061-00	METAL CHIP	3. 3K 5% 1/10W
R126	1-216-053-00	METAL CHIP	1. 5K 5% 1/10W
R127	1-216-049-00	METAL CHIP	1K 5% 1/10W
R128	1-216-079-00	METAL CHIP	18K 5% 1/10W
R129	1-216-031-00	METAL CHIP	180 5% 1/10W
R130	1-216-073-00	METAL CHIP	10K 5% 1/10W
R131	1-216-037-00	METAL CHIP	330 5% 1/10W
R132	1-216-021-00	METAL CHIP	68 5% 1/10W
R133	1-216-061-00	METAL CHIP	3. 3K 5% 1/10W
R134	1-216-073-00	METAL CHIP	10K 5% 1/10W
R135	1-216-063-00	METAL CHIP	3. 9K 5% 1/10W
R136	1-216-063-00	METAL CHIP	3. 9K 5% 1/10W
R137	1-216-049-00	METAL CHIP	1K 5% 1/10W
R138	1-216-057-00	METAL CHIP	2. 2K 5% 1/10W
R151	1-216-077-00	METAL CHIP	15K 5% 1/10W

Ref. No.	Part No.	Description	Remark
R153	1-216-061-00	METAL CHIP	3. 3K 5% 1/10W
R154	1-216-097-00	METAL CHIP	100K 5% 1/10W
R155	1-216-113-00	METAL CHIP	470K 5% 1/10W
R156	1-216-065-00	METAL CHIP	4. 7K 5% 1/10W
R157	1-216-113-00	METAL CHIP	470K 5% 1/10W
R158	1-216-073-00	METAL CHIP	10K 5% 1/10W
R159	1-216-079-00	METAL CHIP	18K 5% 1/10W
R160	1-216-079-00	METAL CHIP	18K 5% 1/10W
R161	1-216-113-00	METAL CHIP	470K 5% 1/10W
R162	1-216-063-00	METAL CHIP	3. 9K 5% 1/10W
R163	1-216-089-00	METAL CHIP	47K 5% 1/10W
R164	1-216-077-00	METAL CHIP	15K 5% 1/10W
R165	1-216-057-00	METAL CHIP	2. 2K 5% 1/10W
R166	1-216-067-00	METAL CHIP	5. 6K 5% 1/10W
R167	1-216-065-00	METAL CHIP	4. 7K 5% 1/10W
R168	1-216-057-00	METAL CHIP	2. 2K 5% 1/10W
R169	1-216-121-00	METAL CHIP	1M 5% 1/10W
R170	1-216-053-00	METAL CHIP	1. 5K 5% 1/10W
R171	1-216-091-00	METAL CHIP	56K 5% 1/10W
R172	1-216-049-00	METAL CHIP	1K 5% 1/10W
R173	1-216-081-00	METAL CHIP	22K 5% 1/10W
R174	1-216-049-00	METAL CHIP	1K 5% 1/10W
R175	1-216-040-00	METAL GLAZE	430 5% 1/10W
R176	1-216-049-00	METAL CHIP	1K 5% 1/10W
R177	1-216-073-00	METAL CHIP	10K 5% 1/10W
R178	1-216-049-00	METAL CHIP	1K 5% 1/10W
R180	1-216-041-00	METAL CHIP	470 5% 1/10W
R188	1-216-053-00	METAL CHIP	1. 5K 5% 1/10W
R189	1-216-025-00	METAL CHIP	100 5% 1/10W
R190	1-216-045-00	METAL CHIP	680 5% 1/10W
R191	1-216-045-00	METAL CHIP	680 5% 1/10W
R192	1-216-053-00	METAL CHIP	1. 5K 5% 1/10W
R193	1-216-085-00	METAL CHIP	33K 5% 1/10W
R194	1-216-057-00	METAL CHIP	2. 2K 5% 1/10W
R195	1-216-057-00	METAL CHIP	2. 2K 5% 1/10W
R196	1-216-077-00	METAL CHIP	15K 5% 1/10W
R197	1-216-057-00	METAL CHIP	2. 2K 5% 1/10W
R198	1-216-061-00	METAL CHIP	3. 3K 5% 1/10W
R199	1-216-081-00	METAL CHIP	22K 5% 1/10W
R200	1-216-059-00	METAL CHIP	2. 7K 5% 1/10W
R201	1-216-039-00	METAL CHIP	390 5% 1/10W
R202	1-216-053-00	METAL CHIP	1. 5K 5% 1/10W
R203	1-216-075-00	METAL CHIP	12K 5% 1/10W
R204	1-216-057-00	METAL CHIP	2. 2K 5% 1/10W
R205	1-216-057-00	METAL CHIP	2. 2K 5% 1/10W
R206	1-216-049-00	METAL CHIP	1K 5% 1/10W
R207	1-216-081-00	METAL CHIP	22K 5% 1/10W
R208	1-216-055-00	METAL CHIP	1. 8K 5% 1/10W

Ref. No.	Part No.	Description			Remark
△R209	1-212-934-00	FUSIBLE	1	5%	1/2W F
R210	1-216-101-00	METAL CHIP	150K	5%	1/10W
R211	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R212	1-216-081-00	METAL CHIP	22K	5%	1/10W
R213	1-216-083-00	METAL CHIP	27K	5%	1/10W
R214	1-216-089-00	METAL CHIP	47K	5%	1/10W
R215	1-216-113-00	METAL CHIP	470K	5%	1/10W
R216	1-216-083-00	METAL CHIP	27K	5%	1/10W
R217	1-216-097-00	METAL CHIP	100K	5%	1/10W
R218	1-216-121-00	METAL CHIP	1M	5%	1/10W
R219	1-216-097-00	METAL CHIP	100K	5%	1/10W
R220	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R221	1-216-113-00	METAL CHIP	470K	5%	1/10W
R222	1-216-095-00	METAL CHIP	82K	5%	1/10W
R223	1-216-113-00	METAL CHIP	470K	5%	1/10W
R224	1-216-049-00	METAL CHIP	1K	5%	1/10W
R225	1-216-109-00	METAL CHIP	330K	5%	1/10W
R226	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R227	1-216-089-00	METAL CHIP	47K	5%	1/10W
R228	1-216-109-00	METAL CHIP	330K	5%	1/10W
R229	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R230	1-216-075-00	METAL CHIP	12K	5%	1/10W
R231	1-216-121-00	METAL CHIP	1M	5%	1/10W
R232	1-216-121-00	METAL CHIP	1M	5%	1/10W
R233	1-216-043-00	METAL CHIP	560	5%	1/10W
R234	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R235	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R236	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R237	1-216-043-00	METAL CHIP	560	5%	1/10W
R238	1-216-049-00	METAL CHIP	1K	5%	1/10W
R239	1-216-045-00	METAL CHIP	680	5%	1/10W
R240	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R241	1-216-077-00	METAL CHIP	15K	5%	1/10W
R242	1-216-097-00	METAL CHIP	100K	5%	1/10W
R243	1-216-097-00	METAL CHIP	100K	5%	1/10W
R244	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R245	1-216-079-00	METAL CHIP	18K	5%	1/10W
R246	1-216-079-00	METAL CHIP	18K	5%	1/10W
R247	1-216-121-00	METAL CHIP	1M	5%	1/10W
R248	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R249	1-216-085-00	METAL CHIP	33K	5%	1/10W
R250	1-216-097-00	METAL CHIP	100K	5%	1/10W
R251	1-216-097-00	METAL CHIP	100K	5%	1/10W
R252	1-216-085-00	METAL CHIP	33K	5%	1/10W
R253	1-216-047-00	METAL CHIP	820	5%	1/10W
R254	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R256	1-216-049-00	METAL CHIP	1K	5%	1/10W
R257	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R258	1-216-073-00	METAL CHIP	10K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R259	1-216-073-00	METAL CHIP	10K	5%	1/10W
R260	1-216-073-00	METAL CHIP	10K	5%	1/10W
R261	1-216-073-00	METAL CHIP	10K	5%	1/10W
R262	1-216-097-00	METAL CHIP	100K	5%	1/10W
R263	1-216-085-00	METAL CHIP	33K	5%	1/10W
R264	1-216-085-00	METAL CHIP	33K	5%	1/10W
R265	1-216-079-00	METAL CHIP	18K	5%	1/10W
R266	1-216-081-00	METAL CHIP	22K	5%	1/10W
R267	1-216-037-00	METAL CHIP	330	5%	1/10W
R268	1-216-033-00	METAL CHIP	220	5%	1/10W
R269	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R270	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R271	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R272	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R273	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R274	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R275	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R276	1-216-045-00	METAL CHIP	680	5%	1/10W
R277	1-216-097-00	METAL CHIP	100K	5%	1/10W
R278	1-216-081-00	METAL CHIP	22K	5%	1/10W
R279	1-216-081-00	METAL CHIP	22K	5%	1/10W
R280	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R281	1-216-039-00	METAL CHIP	390	5%	1/10W
R282	1-216-091-00	METAL CHIP	56K	5%	1/10W
R283	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R284	1-216-043-00	METAL CHIP	560	5%	1/10W
R285	1-216-041-00	METAL CHIP	470	5%	1/10W
R286	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R287	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R288	1-216-049-00	METAL CHIP	1K	5%	1/10W
R289	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R290	1-216-041-00	METAL CHIP	470	5%	1/10W
R291	1-216-033-00	METAL CHIP	220	5%	1/10W
R292	1-216-033-00	METAL CHIP	220	5%	1/10W
R293	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R294	1-216-095-00	METAL CHIP	82K	5%	1/10W
R295	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R298	1-216-115-00	METAL CHIP	560K	5%	1/10W
R300	1-216-097-00	METAL CHIP	100K	5%	1/10W
R301	1-216-117-00	METAL CHIP	680K	5%	1/10W
R302	1-216-049-00	METAL CHIP	1K	5%	1/10W
R303	1-216-041-00	METAL CHIP	470	5%	1/10W
R304	1-216-041-00	METAL CHIP	470	5%	1/10W
R306	1-216-025-00	METAL CHIP	100	5%	1/10W
R308	1-216-081-00	METAL CHIP	22K	5%	1/10W
R309	1-216-081-00	METAL CHIP	22K	5%	1/10W
R310	1-216-049-00	METAL CHIP	1K	5%	1/10W
R311	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R312	1-216-049-00	METAL CHIP	1K	5%	1/10W

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

Ref. No.	Part No.	Description	Remark		
R313	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R314	1-216-049-00	METAL CHIP	1K	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	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R322	1-216-041-00	METAL CHIP	470	5%	1/10W
R323	1-216-041-00	METAL CHIP	470	5%	1/10W
R326	1-216-041-00	METAL CHIP	470	5%	1/10W
R327	1-216-073-00	METAL CHIP	10K	5%	1/10W
R328	1-216-073-00	METAL CHIP	10K	5%	1/10W
R329	1-216-083-00	METAL CHIP	27K	5%	1/10W
R330	1-216-081-00	METAL CHIP	22K	5%	1/10W
R331	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R332	1-216-113-00	METAL CHIP	470K	5%	1/10W
R333	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R334	1-216-031-00	METAL CHIP	180	5%	1/10W
R356	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R357	1-216-049-00	METAL CHIP	1K	5%	1/10W
R358	1-216-049-00	METAL CHIP	1K	5%	1/10W
R359	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R360	1-216-049-00	METAL CHIP	1K	5%	1/10W
R361	1-216-073-00	METAL CHIP	10K	5%	1/10W
R362	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R363	1-216-049-00	METAL CHIP	1K	5%	1/10W
R364	1-216-049-00	METAL CHIP	1K	5%	1/10W
R365	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R366	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R367	1-216-049-00	METAL CHIP	1K	5%	1/10W
R368	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R369	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R370	1-216-047-00	METAL CHIP	820	5%	1/10W
R371	1-216-046-00	METAL CHIP	750	5%	1/10W
R372	1-216-073-00	METAL CHIP	10K	5%	1/10W
R373	1-216-049-00	METAL CHIP	1K	5%	1/10W
R374	1-216-063-00	METAL CHIP	3.9K	5%	1/10W
R376	1-216-025-00	METAL CHIP	100	5%	1/10W
R384	1-216-085-00	METAL CHIP	33K	5%	1/10W
R386	1-216-081-00	METAL CHIP	22K	5%	1/10W
R387	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R388	1-216-041-00	METAL CHIP	470	5%	1/10W
R389	1-216-041-00	METAL CHIP	470	5%	1/10W
R390	1-216-021-00	METAL CHIP	68	5%	1/10W
R391	1-216-041-00	METAL CHIP	470	5%	1/10W
R392	1-216-041-00	METAL CHIP	470	5%	1/10W
R393	1-216-021-00	METAL CHIP	68	5%	1/10W
R394	1-216-043-00	METAL CHIP	560	5%	1/10W
R395	1-216-043-00	METAL CHIP	560	5%	1/10W
R396	1-216-021-00	METAL CHIP	68	5%	1/10W

Ref. No.	Part No.	Description	Remark		
R397	1-216-031-00	METAL CHIP	180	5%	1/10W
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	1-216-117-00	METAL CHIP	680K	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	1-216-111-00	METAL CHIP	390K	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
R580	1-216-049-00	METAL CHIP	1K	5%	1/10W
R581	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
R612	1-216-033-00	METAL CHIP	220	5%	1/10W
R615	1-216-091-00	METAL CHIP	56K	5%	1/10W
R616	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R617	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R618	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R620	1-216-065-00	METAL CHIP	4.7K	5%	1/10W

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

Ref. No.	Part No.	Description	Remark		
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
R625	1-216-065-00	METAL CHIP	4.7K	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
R629	1-216-089-00	METAL CHIP	47K	5%	1/10W
R630	1-216-073-00	METAL CHIP	10K	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
R641	1-216-073-00	METAL CHIP	10K	5%	1/10W
R642	1-216-073-00	METAL CHIP	10K	5%	1/10W
R643	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R644	1-216-105-00	METAL CHIP	220K	5%	1/10W
R645	1-216-073-00	METAL CHIP	10K	5%	1/10W
R646	1-216-049-00	METAL CHIP	1K	5%	1/10W
R648	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R649	1-216-113-00	METAL CHIP	470K	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
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
R665	1-216-073-00	METAL CHIP	10K	5%	1/10W
R666	1-216-049-00	METAL CHIP	1K	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

Ref. No.	Part No.	Description	Remark		
R680	1-216-085-00	METAL CHIP	33K	5%	1/10W
R681	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R682	1-216-073-00	METAL CHIP	10K	5%	1/10W
R683	1-216-073-00	METAL CHIP	10K	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
R686	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R687	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R688	1-216-097-00	METAL CHIP	100K	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
R696	1-216-049-00	METAL CHIP	1K	5%	1/10W
R697	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
R750	1-216-039-00	METAL CHIP	390	5%	1/10W
R753	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R754	1-216-049-00	METAL CHIP	1K	5%	1/10W
R755	1-216-089-00	METAL CHIP	47K	5%	1/10W
R756	1-216-077-00	METAL CHIP	15K	5%	1/10W
R757	1-216-009-00	METAL CHIP	22	5%	1/10W
R766	1-216-049-00	METAL CHIP	1K	5%	1/10W
R767	1-216-652-11	METAL CHIP	1.1K	0.5%	1/10W
R768	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R769	1-216-049-00	METAL CHIP	1K	5%	1/10W
R770	1-216-077-00	METAL CHIP	15K	5%	1/10W
R771	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R772	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R774	1-216-045-00	METAL CHIP	680	5%	1/10W
R775	1-216-045-00	METAL CHIP	680	5%	1/10W
R776	1-216-083-00	METAL CHIP	27K	5%	1/10W
R777	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R778	1-216-045-00	METAL CHIP	680	5%	1/10W
R779	1-216-039-00	METAL CHIP	390	5%	1/10W
R780	1-216-045-00	METAL CHIP	680	5%	1/10W
R782	1-216-045-00	METAL CHIP	680	5%	1/10W
R783	1-216-049-00	METAL CHIP	1K	5%	1/10W
R784	1-216-049-00	METAL CHIP	1K	5%	1/10W
R785	1-216-027-00	METAL CHIP	120	5%	1/10W
R786	1-216-081-00	METAL CHIP	22K	5%	1/10W
R787	1-216-045-00	METAL CHIP	680	5%	1/10W
R788	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R789	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R790	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R791	1-216-077-00	METAL CHIP	15K	5%	1/10W

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

Ref. No.	Part No.	Description	Remark		
R792	1-216-049-00	METAL CHIP	1K	5%	1/10W
R794	1-216-043-00	METAL CHIP	560	5%	1/10W
R795	1-216-049-00	METAL CHIP	1K	5%	1/10W
R798	1-216-075-00	METAL CHIP	12K	5%	1/10W
< VARIABLE RESISTOR >					
RV101	1-230-866-11	RES, ADJ, METAL	470		
RV151	1-230-870-11	RES, ADJ, METAL	10K		
RV152	1-230-870-11	RES, ADJ, METAL	10K		
RV154	1-230-870-11	RES, ADJ, METAL	10K		
RV601	1-230-873-11	RES, ADJ, METAL	47K		
< THERMISTOR >					
TH151	1-800-199-00	THERMISTOR			
< VIBRATOR >					
X001	1-567-515-11	VIBRATOR, VARIABLE CRYSTAL (16.3944MHz)			
X601	1-567-900-11	OSCILLATOR, CRYSTAL (14.31818MHz)			

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-6421-891-A	PS-286 (E63) BOARD, COMPLETE			

△	1-533-189-11	HOLDER, FUSE			
< 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	1-128-132-91	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

Ref. No.	Part No.	Description	Remark		
C116	1-163-833-00	CERAMIC CHIP	0.068uF		25V
C122	1-124-557-11	ELECT	1000uF	20%	25V
C128	1-124-120-11	ELECT	220uF	20%	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
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	1-560-892-00	PIN, CONNECTOR 4P			
CN102	1-506-469-11	PIN, CONNECTOR 4P			
CN103	1-506-469-11	PIN, CONNECTOR 4P			
* CN104	1-560-891-00	PIN, CONNECTOR 3P			
CN105	1-506-469-11	PIN, CONNECTOR 4P			
* 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		
△D113	8-719-200-82	DIODE	11ES2		
△D114	8-719-200-82	DIODE	11ES2		
D115	8-719-911-19	DIODE	1SS119		
D201	8-719-980-78	DIODE	ERA83-006		
D202	8-719-980-78	DIODE	ERA83-006		
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	1-532-299-11	FUSE, TIME-LAG T5A	250V		
△F102	1-532-299-11	FUSE, TIME-LAG T5A	250V		
< IC >					
△IC101	8-759-971-39	IC	BA9700AF		
△IC102	8-759-231-53	IC	M5F7805		
IC201	8-759-100-97	IC	uPC339G2		
IC202	8-759-100-96	IC	uPC4558G2		

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Ref. No.	Part No.	Description	Remark
< JUMPER RESISTOR >			
JR001	1-216-295-00	METAL CHIP 0 5%	1/10W
< COIL >			
L101	1-424-219-11	COIL, CHOKE 300uH	
L102	1-410-339-11	COIL, CHOKE 10uH	
L104	1-410-339-11	COIL, CHOKE 10uH	
L201	1-424-219-11	COIL, CHOKE 300uH	
< IC LINK >			
△PS101	1-532-675-00	LINK, IC 1.5A	
△PS105	1-532-841-41	LINK, IC	
< 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	
Q111	8-729-141-75	TRANSISTOR 2SD596DV345	
△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	
< 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	1-216-687-11	METAL CHIP 33K 0.5%	1/10W
R110	1-216-676-11	METAL CHIP 11K 0.5%	1/10W
R112	1-216-099-00	METAL CHIP 120K 5%	1/10W
R114	1-216-097-00	METAL CHIP 100K 5%	1/10W
R120	1-216-043-00	METAL CHIP 560 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
R127	1-247-742-11	CARBON 180 5%	1/2W
R199	1-216-079-00	METAL CHIP 18K 5%	1/10W

Ref. No.	Part No.	Description	Remark
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
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-6421-907-A	PS-290 (E63) BOARD, COMPLETE	

	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
< CAPACITOR >			
C901	1-130-495-00	MYLAR 0.1uF 5%	50V
C902	1-124-472-11	ELECT 470uF 20%	10V
C903	1-130-495-00	MYLAR 0.1uF 5%	50V
C904	1-124-472-11	ELECT 470uF 20%	10V
C905	1-126-176-11	ELECT 220uF 20%	10V
C906	1-124-557-11	ELECT 1000uF 20%	25V
C907	1-161-055-00	CERAMIC 0.022uF 10%	50V
C908	1-124-443-00	ELECT 100uF 20%	10V

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

Ref. No.	Part No.	Description	Remark
< CONNECTOR >			
* CN901	1-560-891-00	PIN, CONNECTOR 3P	
* CN902	1-560-891-00	PIN, CONNECTOR 3P	
CN903	1-506-473-11	PIN, CONNECTOR 8P	
CN904	1-506-469-11	PIN, CONNECTOR 4P	
CN906	1-506-467-11	PIN, CONNECTOR 2P	
< DIODE >			
D901	8-719-110-12	DIODE RD9. 1ES-B1	
D902	8-719-911-19	DIODE 1SS119	
< IC >			
△IC901	8-759-982-10	IC RC7809FA	
△IC902	8-759-604-49	IC M5F7909	
△IC903	8-759-245-79	IC TA7905S	
< IC LINK >			
△PS901	1-532-637-00	LINK, IC 1.0A	
△PS902	1-532-685-00	LINK, IC 0.8A	
< TRANSISTOR >			
Q901	8-729-900-61	TRANSISTOR DTA114ES	
Q902	8-729-900-80	TRANSISTOR DTC114ES	
< RESISTOR >			
R901	1-249-417-11	CARBON	1K 5% 1/4W F
R902	1-247-891-00	CARBON	330K 5% 1/4W
R903	1-247-891-00	CARBON	330K 5% 1/4W
R904	1-249-417-11	CARBON	1K 5% 1/4W F

*	A-6421-892-A	PS-707 (E63) BOARD, COMPLETE	

	7-685-646-79	SCREW +BVTP 3X8 TYPE2 IT-3	
< CAPACITOR >			
C001	1-130-495-00	MYLAR	0.1uF 5% 50V
C002	1-124-472-11	ELECT	470uF 20% 10V
C003	1-126-176-11	ELECT	220uF 20% 10V
C004	1-130-495-00	MYLAR	0.1uF 5% 50V
C005	1-124-472-11	ELECT	470uF 20% 10V
G006	1-126-176-11	ELECT	220uF 20% 10V
C007	1-124-962-11	ELECT	2200uF 20% 25V
C008	1-124-472-11	ELECT	470uF 20% 10V
C009	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C010	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C011	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C012	1-163-031-11	CERAMIC CHIP	0.01uF 50V

Ref. No.	Part No.	Description	Remark
C013	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C014	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C015	1-163-031-11	CERAMIC CHIP	0.01uF 50V
C016	1-124-126-00	ELECT	47uF 20% 10V
C017	1-124-126-00	ELECT	47uF 20% 10V
C018	1-124-903-11	ELECT	1uF 20% 50V
C020	1-126-795-11	ELECT	10uF 20% 50V
C028	1-124-903-11	ELECT	1uF 20% 50V
C030	1-126-795-11	ELECT	10uF 20% 50V
C031	1-130-499-00	MYLAR	0.22uF 5% 50V
C034	1-130-499-00	MYLAR	0.22uF 5% 50V
< CONNECTOR >			
* CN001	1-560-891-00	PIN, CONNECTOR 3P	
CN003	1-506-469-11	PIN, CONNECTOR 4P	
* CN004	1-560-891-00	PIN, CONNECTOR 3P	
* CN005	1-560-891-00	PIN, CONNECTOR 3P	
CN006	1-506-473-11	PIN, CONNECTOR 8P	
CN010	1-506-468-11	PIN, CONNECTOR 3P	
< DIODE >			
△D001	8-719-200-82	DIODE 11ES2	
△D002	8-719-200-82	DIODE 11ES2	
△D003	8-719-200-82	DIODE 11ES2	
△D004	8-719-200-82	DIODE 11ES2	
D005	8-719-911-19	DIODE 1SS119	
D010	8-719-400-18	DIODE MA152WK	
D011	8-719-400-18	DIODE MA152WK	
D012	8-719-400-18	DIODE MA152WK	
< FERRITE BEAD >			
FB001	1-424-033-21	FILTER, NOISE	
FB002	1-424-033-21	FILTER, NOISE	
FB003	1-424-033-21	FILTER, NOISE	
FB004	1-424-033-21	FILTER, NOISE	
FB005	1-424-033-21	FILTER, NOISE	
< IC >			
△IC001	8-759-231-53	IC M5F7805	
△IC002	8-759-982-10	IC RC7809FA	
△IC003	8-759-245-79	IC M5F7905	
△IC004	8-759-604-49	IC M5F7909	
△IC005	8-749-920-58	IC SI3090CA	
IC006	8-759-924-46	IC BA4560F	
< IC LINK >			
△PS001	1-532-840-21	LINK, IC	
△PS002	1-532-840-21	LINK, IC	

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Ref. No.	Part No.	Description	Remark
△PS003	1-532-984-11	LINK, IC 2A	
△PS004	1-532-984-11	LINK, IC 2A	
△PS005	1-532-839-11	LINK, IC	
△PS006	1-532-839-11	LINK, IC	
< TRANSISTOR >			
Q001	8-729-901-00	TRANSISTOR DTC124EK	
Q004	8-729-901-00	TRANSISTOR DTC124EK	
Q005	8-729-901-00	TRANSISTOR DTC124EK	
< RESISTOR >			
R001	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R002	1-216-073-00	METAL CHIP 10K 5% 1/10W	
△R010	1-217-477-00	FUSIBLE 4.7 5% 1W F	
R011	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R012	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R013	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R014	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R021	1-216-083-00	METAL CHIP 27K 5% 1/10W	
R022	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R023	1-216-055-00	METAL CHIP 1.8K 5% 1/10W	
R024	1-216-077-00	METAL CHIP 15K 5% 1/10W	
R031	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R032	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R034	1-216-081-00	METAL CHIP 22K 5% 1/10W	
R035	1-216-073-00	METAL CHIP 10K 5% 1/10W	

*	A-6421-906-A	SB-704 (E63) BOARD, COMPLETE	

*	3-669-610-00	SPACER	
< CAPACITOR >			
C801	1-124-584-00	ELECT 100uF 20% 10V	
C802	1-124-584-00	ELECT 100uF 20% 10V	
C803	1-126-157-11	ELECT 10uF 20% 16V	
C804	1-163-117-00	CERAMIC CHIP 100PF 5% 50V	
C805	1-162-638-11	CERAMIC CHIP 1uF 16V	
< CONNECTOR >			
CN801	1-569-338-11	CONNECTOR, BOARD TO BOARD 19P	
CN802	1-569-338-11	CONNECTOR, BOARD TO BOARD 19P	
CN803	1-506-482-11	PIN, CONNECTOR 3P	
CN804	1-506-484-11	PIN, CONNECTOR 5P	
CN805	1-506-482-11	PIN, CONNECTOR 3P	
< DIODE >			
D801	8-719-018-45	LED SL1283	
D802	8-719-992-30	LED SLR305MC3F	

Ref. No.	Part No.	Description	Remark
D803	8-719-992-28	LED SLR-305YCA47	
D804	8-719-992-28	LED SLR-305YCA47	
D806	8-719-992-30	LED SLR305MC3F	
D808	8-719-992-26	LED SLR-305DCA47	
D809	8-719-992-30	LED SLR305MC3F	
D810	8-719-992-26	LED SLR-305DCA47	
D811	8-719-992-26	LED SLR-305DCA47	
D812	8-719-992-26	LED SLR-305DCA47	
D813	8-719-992-26	LED SLR-305DCA47	
D817	8-719-104-34	DIODE 1S2836	
D819	8-719-992-30	LED SLR305MC3F	
D820	8-719-104-34	DIODE 1S2836	
D821	8-719-992-30	LED SLR305MC3F	
D822	8-719-992-30	LED SLR305MC3F	
D823	8-719-992-30	LED SLR305MC3F	
D824	8-719-992-30	LED SLR305MC3F	
< IC >			
IC801	8-759-100-96	IC uPC4558G2	
IC802	8-749-921-76	IC GP1U56	
< JUMPER RESISTOR >			
JR801	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR802	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR803	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR804	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR805	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR806	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR807	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR808	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR809	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR810	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR811	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR812	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR813	1-216-295-00	METAL CHIP 0 5% 1/10W	
JR814	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR815	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR853	1-216-296-00	METAL CHIP 0 5% 1/8W	
JR854	1-216-295-00	METAL CHIP 0 5% 1/10W	
< COIL >			
L801	1-408-421-00	INDUCTOR 100uH	
< TRANSISTOR >			
Q802	8-729-901-04	TRANSISTOR DTA114EK	
Q803	8-729-900-53	TRANSISTOR DTC114EK	
Q804	8-729-900-53	TRANSISTOR DTC114EK	
Q806	8-729-901-03	TRANSISTOR DTC144WK	

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Ref. No.	Part No.	Description	Remark
Q807	8-729-900-53	TRANSISTOR DTC114EK	
Q808	8-729-900-53	TRANSISTOR DTC114EK	
< RESISTOR >			
R805	1-216-031-00	METAL CHIP 180 5% 1/10W	
R806	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R807	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R808	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R811	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R812	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R813	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R814	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R815	1-216-049-00	METAL CHIP 1K 5% 1/10W	
R822	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R823	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R824	1-216-079-00	METAL CHIP 18K 5% 1/10W	
R825	1-216-063-00	METAL CHIP 3.9K 5% 1/10W	
R827	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R828	1-216-031-00	METAL CHIP 180 5% 1/10W	
R829	1-216-089-00	METAL CHIP 47K 5% 1/10W	
R830	1-216-031-00	METAL CHIP 180 5% 1/10W	
R831	1-216-031-00	METAL CHIP 180 5% 1/10W	
R832	1-216-031-00	METAL CHIP 180 5% 1/10W	
R833	1-216-031-00	METAL CHIP 180 5% 1/10W	
R834	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R835	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R836	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R837	1-216-049-00	METAL CHIP 1K 5% 1/10W	
< VARIABLE RESISTOR >			
RV801	1-241-238-11	RES, VAR, CARBON 20K (CORDLESS MIC 1)	
RV802	1-241-238-11	RES, VAR, CARBON 20K (CORDLESS MIC 2)	
RV803	1-241-238-11	RES, VAR, CARBON 20K (MIC)	
< SWITCH >			
S801	1-572-946-11	SWITCH, TACTIL (OPEN/CLOSE)	
S802	1-572-946-11	SWITCH, TACTIL (STOP)	
S803	1-572-946-11	SWITCH, TACTIL (PLAY)	
S804	1-572-946-11	SWITCH, TACTIL (PAUSE)	
S805	1-572-946-11	SWITCH, TACTIL (KARAOKE PON)	
S806	1-572-946-11	SWITCH, TACTIL (ASSISTANT VOCAL)	
S807	1-572-946-11	SWITCH, TACTIL (OTASUKE VOCAL)	
S808	1-572-946-11	SWITCH, TACTIL (MIC KEY CONTROL)	
S809	1-570-157-51	SWITCH, SLIDE (MODE)	
S810	1-572-946-11	SWITCH, TACTIL (CLEAR SCAN ►►)	
S811	1-572-946-11	SWITCH, TACTIL (CLEAR SCAN ◄◄)	

Ref. No.	Part No.	Description	Remark
*	A-6421-903-A	SV-701 (E63) BOARD, COMPLETE *****	
*	3-738-015-01	COVER, (DIA. 6) CARBON VR	
< 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	1-124-604-00	ELECT 330uF	20% 10V
C102	1-124-604-00	ELECT 330uF	20% 10V
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
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

Ref. No.	Part No.	Description	Remark
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	1-124-279-11	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	1-124-477-11	ELECT 47uF 20%	25V
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	
D103	8-719-911-19	DIODE 1SS119	
D104	8-719-911-19	DIODE 1SS119	
< FUSE >			
△F001	1-532-775-11	MICRFUSE 0.8A 125V	
< FILTER >			
F001	1-235-922-11	FILTER, LOW PASS (1.7MHz)	
< IC >			
IC001	8-752-050-19	IC CXA1081M	
IC002	8-759-603-24	IC CX20197	
IC101	8-759-321-40	IC HA11529	
△IC102	8-759-822-38	IC LA6510	
IC103	8-759-700-43	IC NJM4558M	
IC104	8-759-700-43	IC NJM4558M	
IC105	8-759-700-43	IC NJM4558M	

Ref. No.	Part No.	Description	Remark
IC106	8-759-300-71	IC TC4053BF	
< JUMPER RESISTOR >			
JR102	1-216-295-00	METAL CHIP 0 5%	1/10W
JR103	1-216-296-00	METAL CHIP 0 5%	1/8W
JR104	1-216-296-00	METAL CHIP 0 5%	1/8W
JR105	1-216-295-00	METAL CHIP 0 5%	1/10W
JR106	1-216-296-00	METAL CHIP 0 5%	1/8W
JR107	1-216-295-00	METAL CHIP 0 5%	1/10W
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	1-216-295-00	METAL CHIP 0 5%	1/10W
JR115	1-216-296-00	METAL CHIP 0 5%	1/8W
JR116	1-216-295-00	METAL CHIP 0 5%	1/10W
JR117	1-216-295-00	METAL CHIP 0 5%	1/10W
JR118	1-216-296-00	METAL CHIP 0 5%	1/8W
JR119	1-216-296-00	METAL CHIP 0 5%	1/8W
JR120	1-216-296-00	METAL CHIP 0 5%	1/8W
JR121	1-216-296-00	METAL CHIP 0 5%	1/8W
JR122	1-216-296-00	METAL CHIP 0 5%	1/8W
JR123	1-216-296-00	METAL CHIP 0 5%	1/8W
JR124	1-216-296-00	METAL CHIP 0 5%	1/8W
JR125	1-216-296-00	METAL CHIP 0 5%	1/8W
JR126	1-216-296-00	METAL CHIP 0 5%	1/8W
JR127	1-216-295-00	METAL CHIP 0 5%	1/10W
JR128	1-216-296-00	METAL CHIP 0 5%	1/8W
JR129	1-216-296-00	METAL CHIP 0 5%	1/8W
JR130	1-216-296-00	METAL CHIP 0 5%	1/8W
JR132	1-216-296-00	METAL CHIP 0 5%	1/8W
JR133	1-216-296-00	METAL CHIP 0 5%	1/8W
JR134	1-216-296-00	METAL CHIP 0 5%	1/8W
JR135	1-216-296-00	METAL CHIP 0 5%	1/8W
JR136	1-216-296-00	METAL CHIP 0 5%	1/8W
JR137	1-216-296-00	METAL CHIP 0 5%	1/8W
JR138	1-216-296-00	METAL CHIP 0 5%	1/8W
JR139	1-216-296-00	METAL CHIP 0 5%	1/8W
JR140	1-216-296-00	METAL CHIP 0 5%	1/8W
JR141	1-216-296-00	METAL CHIP 0 5%	1/8W
JR142	1-216-296-00	METAL CHIP 0 5%	1/8W
JR143	1-216-296-00	METAL CHIP 0 5%	1/8W
JR144	1-216-296-00	METAL CHIP 0 5%	1/8W
JR145	1-216-296-00	METAL CHIP 0 5%	1/8W
JR146	1-216-296-00	METAL CHIP 0 5%	1/8W
JR147	1-216-296-00	METAL CHIP 0 5%	1/8W
JR148	1-216-296-00	METAL CHIP 0 5%	1/8W
JR149	1-216-296-00	METAL CHIP 0 5%	1/8W
JR150	1-216-296-00	METAL CHIP 0 5%	1/8W

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

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
JR153	1-216-296-00	METAL CHIP	0	5%	1/8W	JR209	1-216-295-00	METAL CHIP	0	5%	1/10W
JR154	1-216-296-00	METAL CHIP	0	5%	1/8W	JR210	1-216-295-00	METAL CHIP	0	5%	1/10W
JR155	1-216-296-00	METAL CHIP	0	5%	1/8W	JR211	1-216-296-00	METAL CHIP	0	5%	1/8W
JR156	1-216-296-00	METAL CHIP	0	5%	1/8W	JR212	1-216-296-00	METAL CHIP	0	5%	1/8W
JR158	1-216-295-00	METAL CHIP	0	5%	1/10W	JR213	1-216-296-00	METAL CHIP	0	5%	1/8W
JR159	1-216-296-00	METAL CHIP	0	5%	1/8W	JR214	1-216-296-00	METAL CHIP	0	5%	1/8W
JR160	1-216-296-00	METAL CHIP	0	5%	1/8W	JR215	1-216-295-00	METAL CHIP	0	5%	1/10W
JR161	1-216-296-00	METAL CHIP	0	5%	1/8W	JR216	1-216-295-00	METAL CHIP	0	5%	1/10W
JR162	1-216-296-00	METAL CHIP	0	5%	1/8W	JR217	1-216-295-00	METAL CHIP	0	5%	1/10W
JR164	1-216-296-00	METAL CHIP	0	5%	1/8W	JR218	1-216-296-00	METAL CHIP	0	5%	1/8W
JR166	1-216-295-00	METAL CHIP	0	5%	1/10W	JR219	1-216-295-00	METAL CHIP	0	5%	1/10W
JR170	1-216-296-00	METAL CHIP	0	5%	1/8W	JR220	1-216-296-00	METAL CHIP	0	5%	1/8W
JR171	1-216-295-00	METAL CHIP	0	5%	1/10W	JR221	1-216-296-00	METAL CHIP	0	5%	1/8W
JR172	1-216-296-00	METAL CHIP	0	5%	1/8W						
JR173	1-216-296-00	METAL CHIP	0	5%	1/8W			< COIL >			
JR174	1-216-296-00	METAL CHIP	0	5%	1/8W	L101	1-410-509-11	INDUCTOR 10uH			
JR175	1-216-295-00	METAL CHIP	0	5%	1/10W	L102	1-410-509-11	INDUCTOR 10uH			
JR176	1-216-296-00	METAL CHIP	0	5%	1/8W	L103	1-410-509-11	INDUCTOR 10uH			
JR177	1-216-296-00	METAL CHIP	0	5%	1/8W						
JR178	1-216-296-00	METAL CHIP	0	5%	1/8W			< TRANSISTOR >			
JR179	1-216-296-00	METAL CHIP	0	5%	1/8W	Q001	8-729-140-97	TRANSISTOR 2SB734-34			
JR180	1-216-296-00	METAL CHIP	0	5%	1/8W	Q002	8-729-216-22	TRANSISTOR 2SA1162-G			
JR181	1-216-296-00	METAL CHIP	0	5%	1/8W	Q003	8-729-303-37	TRANSISTOR 2SD655-E			
JR182	1-216-296-00	METAL CHIP	0	5%	1/8W	Q101	8-729-209-15	TRANSISTOR 2SD2012			
JR183	1-216-295-00	METAL CHIP	0	5%	1/10W	Q102	8-729-924-90	TRANSISTOR 2SB1370-EF			
JR184	1-216-296-00	METAL CHIP	0	5%	1/8W	Q103	8-729-209-15	TRANSISTOR 2SD2012			
JR185	1-216-296-00	METAL CHIP	0	5%	1/8W	Q104	8-729-924-90	TRANSISTOR 2SB1370-EF			
JR186	1-216-296-00	METAL CHIP	0	5%	1/8W	Q105	8-729-100-66	TRANSISTOR 2SC1623-L6			
JR187	1-216-296-00	METAL CHIP	0	5%	1/8W	Q106	8-729-100-66	TRANSISTOR 2SC1623-L6			
JR188	1-216-296-00	METAL CHIP	0	5%	1/8W	Q107	8-729-901-00	TRANSISTOR DTC124EK			
JR189	1-216-295-00	METAL CHIP	0	5%	1/10W	Q108	8-729-100-66	TRANSISTOR 2SC1623-L6			
JR191	1-216-296-00	METAL CHIP	0	5%	1/8W	Q109	8-729-216-22	TRANSISTOR 2SA1162-G			
JR192	1-216-296-00	METAL CHIP	0	5%	1/8W	Q110	8-729-900-53	TRANSISTOR DTC114EK			
JR193	1-216-296-00	METAL CHIP	0	5%	1/8W						
JR194	1-216-296-00	METAL CHIP	0	5%	1/8W			< RESISTOR >			
JR195	1-216-295-00	METAL CHIP	0	5%	1/10W	R001	1-216-049-00	METAL CHIP	1K	5%	1/10W
JR196	1-216-296-00	METAL CHIP	0	5%	1/8W	R002	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
JR197	1-216-296-00	METAL CHIP	0	5%	1/8W	R003	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
JR198	1-216-296-00	METAL CHIP	0	5%	1/8W	R004	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
JR199	1-216-296-00	METAL CHIP	0	5%	1/8W	R005	1-216-049-00	METAL CHIP	1K	5%	1/10W
JR200	1-216-296-00	METAL CHIP	0	5%	1/8W	R006	1-216-049-00	METAL CHIP	1K	5%	1/10W
JR201	1-216-296-00	METAL CHIP	0	5%	1/8W	R007	1-216-023-00	METAL CHIP	82	5%	1/10W
JR202	1-216-296-00	METAL CHIP	0	5%	1/8W	R008	1-216-043-00	METAL CHIP	560	5%	1/10W
JR203	1-216-296-00	METAL CHIP	0	5%	1/8W	R009	1-216-073-00	METAL CHIP	10K	5%	1/10W
JR204	1-216-296-00	METAL CHIP	0	5%	1/8W	R010	1-216-095-00	METAL CHIP	82K	5%	1/10W
JR205	1-216-295-00	METAL CHIP	0	5%	1/10W	R011	1-216-081-00	METAL CHIP	22K	5%	1/10W
JR206	1-216-295-00	METAL CHIP	0	5%	1/10W	R012	1-249-394-11	CARBON	12	5%	1/6W F
JR207	1-216-296-00	METAL CHIP	0	5%	1/8W	R013	1-216-073-00	METAL CHIP	10K	5%	1/10W
JR208	1-216-296-00	METAL CHIP	0	5%	1/8W	R014	1-216-097-00	METAL CHIP	100K	5%	1/10W

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
R015	1-216-049-00	METAL CHIP	1K	5%	1/10W	R143	1-216-001-00	METAL CHIP	10	5%	1/10W
R016	1-216-101-00	METAL CHIP	150K	5%	1/10W	R144	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R017	1-216-041-00	METAL CHIP	470	5%	1/10W	R145	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R018	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	R146	1-216-073-00	METAL CHIP	10K	5%	1/10W
R020	1-216-049-00	METAL CHIP	1K	5%	1/10W	R147	1-216-081-00	METAL CHIP	22K	5%	1/10W
R021	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	R148	1-216-037-00	METAL CHIP	330	5%	1/10W
R022	1-216-081-00	METAL CHIP	22K	5%	1/10W	R149	1-216-033-00	METAL CHIP	220	5%	1/10W
R023	1-249-394-11	CARBON	12	5%	1/6W F	R150	1-216-085-00	METAL CHIP	33K	5%	1/10W
R101	1-216-373-11	METAL OXIDE	2.2	5%	2W F	R151	1-216-113-00	METAL CHIP	470K	5%	1/10W
R103	1-216-073-00	METAL CHIP	10K	5%	1/10W	R152	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R104	1-216-073-00	METAL CHIP	10K	5%	1/10W	R153	1-216-085-00	METAL CHIP	33K	5%	1/10W
R105	1-216-073-00	METAL CHIP	10K	5%	1/10W	R154	1-216-101-00	METAL CHIP	150K	5%	1/10W
R106	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	R155	1-216-089-00	METAL CHIP	47K	5%	1/10W
R107	1-216-089-00	METAL CHIP	47K	5%	1/10W	R156	1-216-083-00	METAL CHIP	27K	5%	1/10W
R108	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	R157	1-216-101-00	METAL CHIP	150K	5%	1/10W
R109	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	R158	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R110	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	R159	1-216-075-00	METAL CHIP	12K	5%	1/10W
R111	1-216-073-00	METAL CHIP	10K	5%	1/10W	R160	1-216-083-00	METAL CHIP	27K	5%	1/10W
R112	1-216-101-00	METAL CHIP	150K	5%	1/10W	R161	1-216-113-00	METAL CHIP	470K	5%	1/10W
R113	1-216-077-00	METAL CHIP	15K	5%	1/10W	R162	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R114	1-216-025-00	METAL CHIP	100	5%	1/10W	R163	1-216-083-00	METAL CHIP	27K	5%	1/10W
R115	1-216-025-00	METAL CHIP	100	5%	1/10W	R164	1-216-035-00	METAL CHIP	270	5%	1/10W
R116	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	R165	1-216-089-00	METAL CHIP	47K	5%	1/10W
R117	1-216-073-00	METAL CHIP	10K	5%	1/10W	R166	1-216-041-00	METAL CHIP	470	5%	1/10W
R118	1-216-073-00	METAL CHIP	10K	5%	1/10W	R167	1-216-049-00	METAL CHIP	1K	5%	1/10W
R119	1-216-073-00	METAL CHIP	10K	5%	1/10W	R168	1-216-049-00	METAL CHIP	1K	5%	1/10W
R120	1-216-073-00	METAL CHIP	10K	5%	1/10W	R169	1-216-049-00	METAL CHIP	1K	5%	1/10W
R121	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R170	1-216-049-00	METAL CHIP	1K	5%	1/10W
R122	1-216-085-00	METAL CHIP	33K	5%	1/10W	R171	1-216-049-00	METAL CHIP	1K	5%	1/10W
R123	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	R172	1-216-049-00	METAL CHIP	1K	5%	1/10W
R124	1-216-079-00	METAL CHIP	18K	5%	1/10W	R173	1-216-085-00	METAL CHIP	33K	5%	1/10W
R125	1-216-081-00	METAL CHIP	22K	5%	1/10W	R174	1-216-073-00	METAL CHIP	10K	5%	1/10W
R126	1-216-033-00	METAL CHIP	220	5%	1/10W	R175	1-216-085-00	METAL CHIP	33K	5%	1/10W
R127	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R176	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R128	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	R177	1-216-085-00	METAL CHIP	33K	5%	1/10W
R129	1-216-041-00	METAL CHIP	470	5%	1/10W	R178	1-216-073-00	METAL CHIP	10K	5%	1/10W
R130	1-216-017-00	METAL CHIP	47	5%	1/10W	R179	1-216-101-00	METAL CHIP	150K	5%	1/10W
R131	1-216-073-00	METAL CHIP	10K	5%	1/10W	R180	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R132	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	R181	1-216-083-00	METAL CHIP	27K	5%	1/10W
R133	1-216-097-00	METAL CHIP	100K	5%	1/10W	R182	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R134	1-216-097-00	METAL CHIP	100K	5%	1/10W	R183	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R135	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	R184	1-216-089-00	METAL CHIP	47K	5%	1/10W
R136	1-216-081-00	METAL CHIP	22K	5%	1/10W	R186	1-216-097-00	METAL CHIP	100K	5%	1/10W
R137	1-216-099-00	METAL CHIP	120K	5%	1/10W	R187	1-216-089-00	METAL CHIP	47K	5%	1/10W
R138	1-216-081-00	METAL CHIP	22K	5%	1/10W	R188	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R139	1-216-081-00	METAL CHIP	22K	5%	1/10W	R189	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R140	1-216-037-00	METAL CHIP	330	5%	1/10W	R190	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R141	1-216-024-00	METAL GLAZE	91	5%	1/10W	R191	1-216-097-00	METAL CHIP	100K	5%	1/10W
R142	1-216-001-00	METAL CHIP	10	5%	1/10W						

Ref. No.	Part No.	Description	Remark
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
R223	1-215-455-00	METAL	27K 1% 1/6W
R223	1-216-083-00	METAL CHIP	27K 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

*	A-6421-909-A	SW-193 (E63) BOARD, COMPLETE	*****
< CONNECTOR >			
CN601	1-506-467-11	PIN, CONNECTOR	2P

Ref. No.	Part No.	Description	Remark
< SWITCH >			
S601	1-554-655-00	SWITCH, LEAF (TRAY SW)	

*	A-6421-910-A	SW-194 (E63) BOARD, COMPLETE	*****
< 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 SW)	

*	A-6421-889-A	TR-713 (E63) BOARD, COMPLETE	*****
△	1-533-189-11	HOLDER, FUSE	
< CAPACITOR >			
△C301	1-136-472-11	FILM	0.1uF 20% 250V
< CONNECTOR >			
△CN301	1-564-419-11	HEADER, SPRING (POWER)	2P
* CN302	1-564-029-00	PIN, CONNECTOR	4P
* CN303	1-564-028-00	PIN, CONNECTOR	3P
< FUSE >			
△F301	1-532-259-00	FUSE, TIME-LAG	T1. 6A 250V
△F302	1-532-215-00	FUSE, TIME-LAG	T0. 8A 250V
< RESISTOR >			
△R301	1-202-729-00	SOLID	6.8M 10% 1/2W
< TRANSFORMER >			
△T301	1-450-720-11	TRANSFORMER, POWER	
△T302	1-421-771-11	FILTER, LINE	

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

Ref. No.	Part No.	Description	Remark
△	A-6420-890-A	VS-704 (E63) BOARD, COMPLETE ***** < SWITCH >	
△S001	1-570-615-11	SELECTOR, POWER VOLTAGE (VOLTAGE SELECTOR) *****	
		MISCELLANEOUS *****	
22	1-693-174-21	REMOTE COMMANDER (RMT-M13A)	
64	8-975-462-90	TUNER UNIT, INFRARED IFM-RJ 5	
* 117	1-575-912-21	CORD, POWER	
158	1-554-468-00	SWITCH, LEAF (SLED IN LIMIT LD/CD) (S903)	
159	1-541-776-21	MOTOR, LD SPINDLE (M901)	
204	1-570-771-21	SWITCH (SLED OUT LIMIT) (S902)	
206	1-571-435-11	SWITCH (SLED IN LIMIT) (S901)	
△215	8-848-138-11	DEVICE, OPTICAL KHS-130A	
303	1-542-177-11	DINAMIC MICROPHONE UNIT	
△F101	1-532-299-00	FUSE, TIME-LAG (T5A 250V)	
△F102	1-532-299-00	FUSE, TIME-LAG (T5A 250V) *****	
		ACCESSORIES & PACKING MATERIALS *****	
		1-551-086-31 CORD, CONNECTION	
		1-559-533-11 CORD, CONNECTION	
		1-569-008-11 ADAPTER, CONVERSION 2P	
		3-755-347-11 MANUAL, INSTRUCTION (ENGLISH, CHINESE)	
*		3-949-340-01 CUSHION (UPPER)	
*		3-949-341-01 CUSHION (LOWER)	
*		3-949-343-01 INDIVIDUAL CARTON *****	

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	7-685-133-19	SCREW +BTP 2.6X6 TYPE2 N-S	
#4	7-685-647-79	SCREW +BTP 3X10 TYPE2 N-S	
#5	7-685-646-79	SCREW +BVTP 3X8 TYPE2	
#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	
#10	7-624-190-81	STOP RING 2, TYPE-CS	
#11	7-685-870-01	SCREW +BVTT 3X5 (S)	
#12	7-682-547-04	SCREW +BVTT 3X6 (S)	
#13	7-685-534-19	SCREW +BTP 2.6X8 TYPE2 N-S *****	

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

MEMO

A series of horizontal dotted lines for writing.

SECTION 7

ELECTRICAL ADJUSTMENTS

During these adjustment, see the parts arrangement diagram for adjustments on page from 178.

7-1. LIST OF SERVICING JIGS

- Oscilloscope
- Color monitor TV
- Digital voltmeter
- Audio level meter
- Frequency counter
- Remote commander (RMT-M11)
- LD alignment disc HVL-8 (8-797-008-00)
NTSC Ref. Disc 8*
- CD alignment disc YEDS-18 (3-702-101-01)
- MD adjustment cable (J-6082-059-A)
- Audio oscillator

* : Ref. 7 is also available.

7-2. CAUTIONS ON ADJUSTMENT

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

7-3. MD ADJUSTMENT CABLE (J-6082-059-B)

MD adjustment cable is used to adjust the servo system with connecting to the SV-701 board. Remove it except when adjusting the servo system.

7-4. POWER SUPPLY CHECK

PS-290 Board

Mode	Stop
Measuring Equipment	Digital voltmeter
REG +9 V check	
Measurement Point	Pin ① of CN903 (Pin ②, GND)
Specified Value	9 ± 0.3 V
REG -9 V check	
Measurement Point	Pin ③ of CN903 (Pin ②, GND)
Specified Value	-9 ± 0.3 V
REG +5 V check	
Measurement Point	Pin ⑥ of CN903 (Pin ⑤, GND)
Specified Value	5 ± 0.3 V
REG -5 V check	
Measurement Point	Pin ⑦ of CN903 (Pin ⑤, GND)
Specified Value	-5 ± 0.3 V

PS-707 Board

Mode	Stop
Measuring Equipment	Digital voltmeter
UNREG +16 V check	
Measurement Point	Pin ① of CN005 (Pin ②, GND)
Specified Value	16 ± 0.1 V
UNREG -16 V check	
Measurement Point	Pin ③ of CN005 (Pin ②, GND)
Specified Value	-16 ± 0.1 V
REG +9 V check	
Measurement Point	Pin ① of CN006 (Pin ②, GND)
Specified Value	9 ± 0.3 V
REG -9 V check	
Measurement Point	Pin ③ of CN006 (Pin ⑥, GND)
Specified Value	-9 ± 0.3 V
REG +5 V check	
Measurement Point	Pin ⑤ of CN006 (Pin ⑥, GND)
Specified Value	5 ± 0.3 V
REG -5 V check	
Measurement Point	Pin ⑦ of CN006 (Pin ⑥, GND)
Specified Value	-5 ± 0.3 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-53 Board)

Mode	Stop
Measurement Point	Pin ⑨ of IC601
Measuring Equipment	Frequency counter
Adjusting Element	CV601
Specified Value	$3,579,545 \pm 10$ Hz

Adjustment method :

- 1) Adjust CV601 to $3,579,545 \pm 10$ Hz.

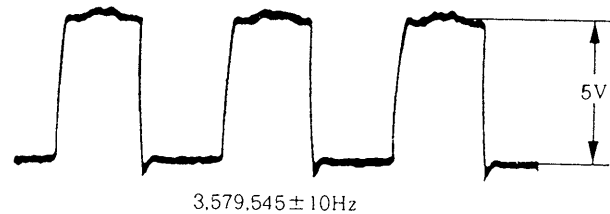


Fig. 7-1.

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-701 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.

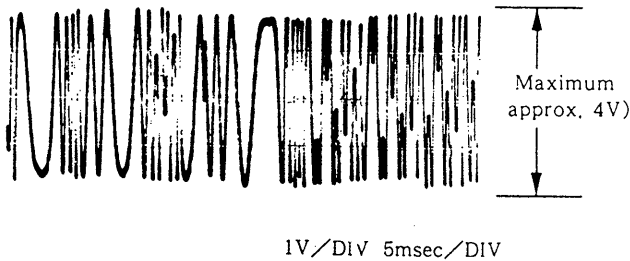


Fig. 7-2.

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.

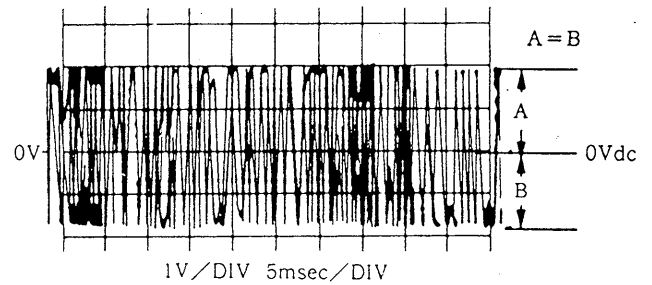
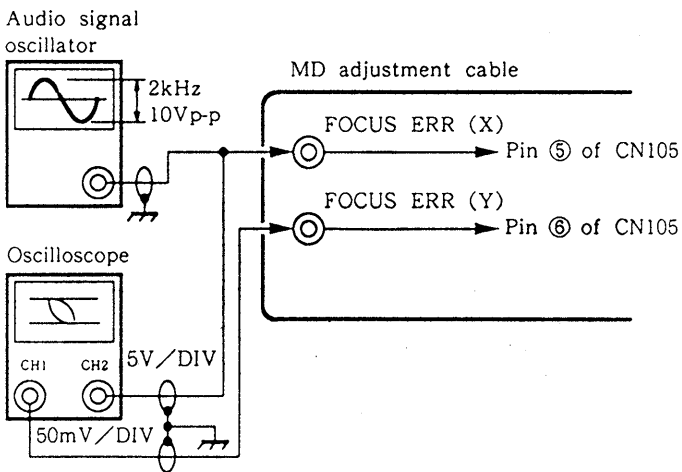


Fig. 7-3.

2. LD Focus Gain Adjustment (SV-701 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.

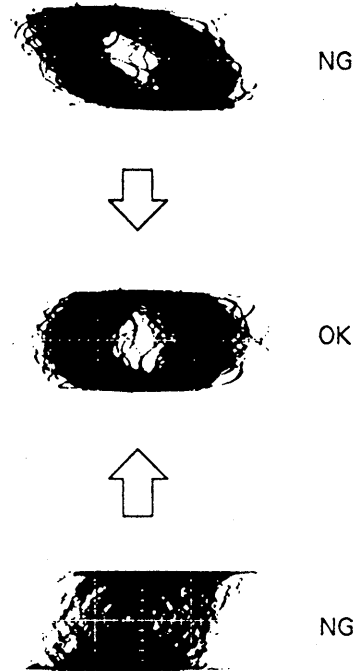


Fig. 7-4.

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. 7-5.) with a hexagonal wrench.

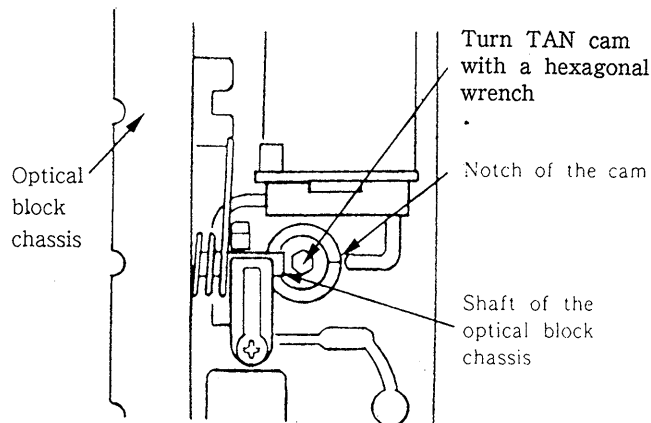


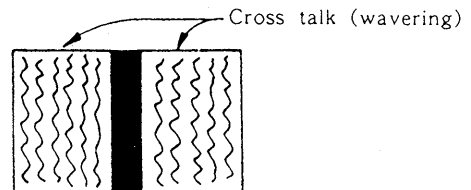
Fig. 7-5.

2) RAD TILT adjustment (SV-701 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. 7-6.

3) Focus balance adjustment (SV-701 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.

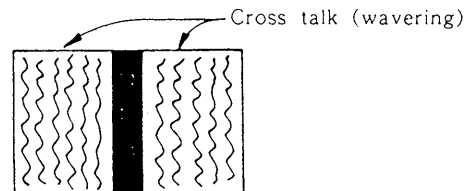
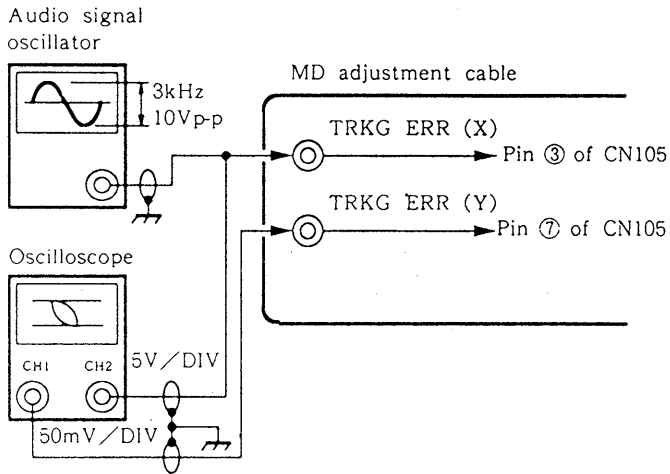


Fig. 7-7.

4. LD Tracing Gain Adjustment (SV-701 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.

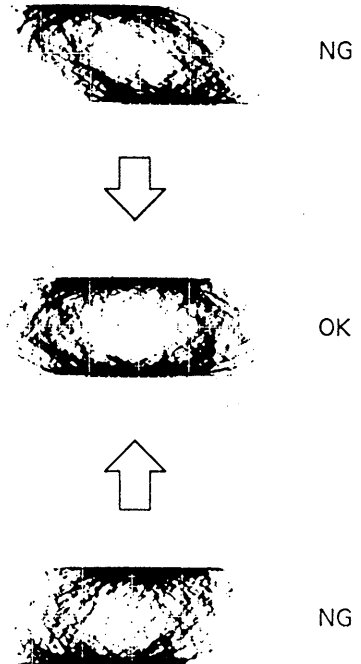


Fig. 7-8.

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.

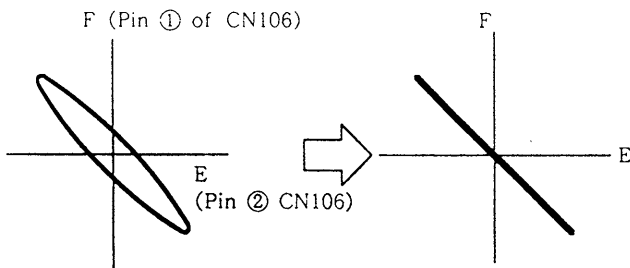


Fig. 7-9.

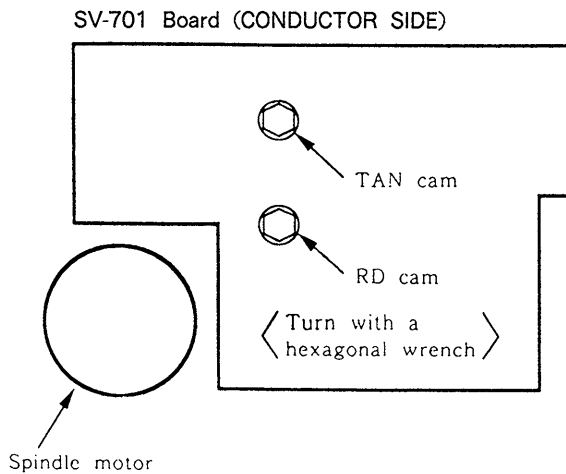


Fig. 7-10.

2. CD Focus Balance Adjustment (SV-701 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.

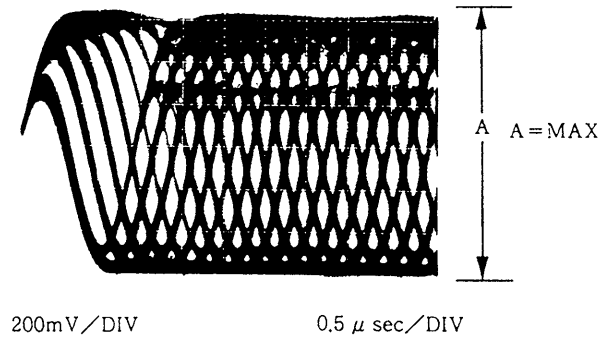


Fig. 7-11.

3. CD RF H Level Adjustment (SV-701 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 $1.2 \pm 0.1V_{p-p}$.

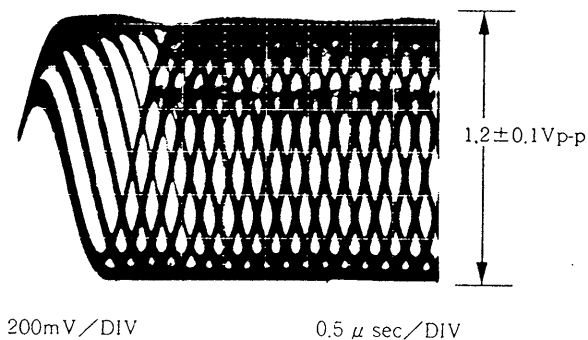


Fig. 7-12.

4. CD RF L Level Adjustment (SV-701 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 disappears from the rising edge portion.

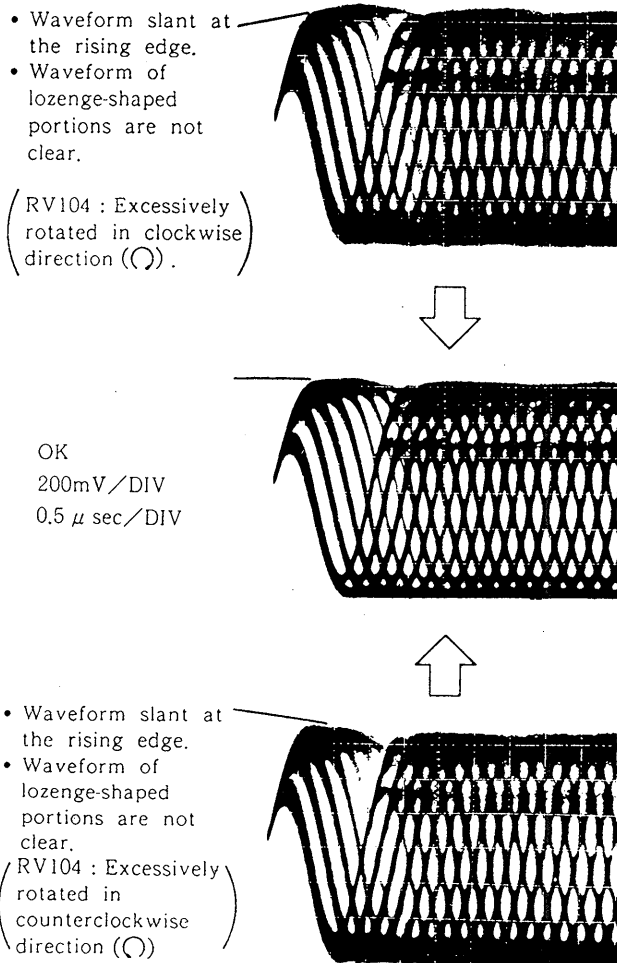


Fig. 7-13.

7-7. VIDEO SYSTEM ADJUSTMENT

7-7-1. Video Output Level Adjustment (MB-53 Board)

Mode	Still
Signal	Frame 4100 (color bar)
Measurement Point	CNJ101 (VIDEO OUT terminal) (Terminated to 75 Ω)
Measuring Equipment	Oscilloscope
Adjusting Element	RV152
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 RV152 for 1.00 ± 0.03 Vp-p.



Fig. 7-14.

7-7-2. Comb Type Filter Y Output Level Adjustment (MB-53 Board)

Mode	Still
Signal	Frame 4100 (Color bar)
Measurement Point	CNJ102 pin ③ (Y OUT) 75 Ω terminated
Measuring Equipment	Oscilloscope
Adjusting Element	RV101
Specified Value	1.00 ± 0.03 Vp-p

Adjustment method :

- 1) Select STILL (▶◀) mode.
- 2) Search the frame 4100.
- 3) Adjust RV101 for 1.00 ± 0.03 Vp-p.

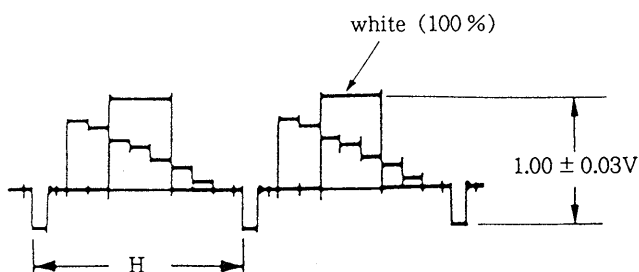


Fig. 7-15.

7-7-3. Burst Gate Position Adjustment (MB-53 Board)

Mode	Still
Signal	Frame 4100 (color bar)
Measurement Point	Pin ② of IC107
Adjusting Element	RV154
Specified Value	8.6 ± 0.3 μsec

Adjustment method :

- 1) Select STILL (▶◀) mode.
- 2) Search the frame 4100.
- 3) Adjust RV154 so that t_w becomes 8.6 ± 0.3 μsec.

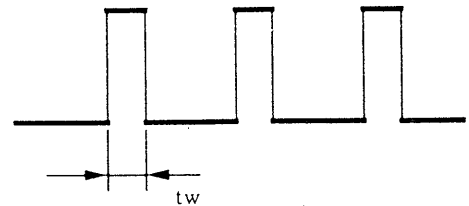


Fig. 7-16.

7-7-4. REF H Adjustment (1) (MB-53 Board)

Mode	Still
Signal	Frame 4100 (Color bar)
Measuring Equipment	Oscilloscope
Adjusting Element	RV601
Measurement Point	Pin ②⑤-②⑥ of IC111.
Specified Value	4.2 ± 0.1 V

Note : Perform 7-7-5 REF H Adjustment (2) Adjustment continuously.

Adjustment method :

- 1) Adjust with RV601 so that the voltage values at Pin ②⑤-②⑥ become 4.2 ± 0.1 V.

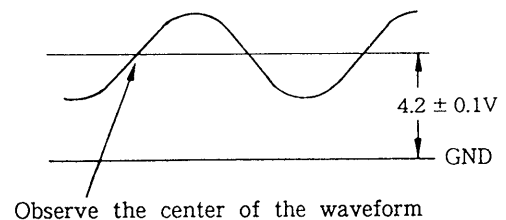


Fig. 7-17.

7-7-5. REF H Adjustment (2) (MB-53 Board)

Mode	Still
Signal	Frame 4100 (Color bar)
Measuring Equipment	Oscilloscope
Adjusting Element	RV601
Measurement Point	CH1 : PIN ⑳ of IC604 CH2 : PIN ㉔ of IC604
Specified Value	Adjust the timing of the falling edges of waveforms.

Adjustment method :

- 1) Adjust timing in the nearest portion between the falling edge of Pin ㉔ of IC604 and the falling edge of Pin ⑳ of IC604.

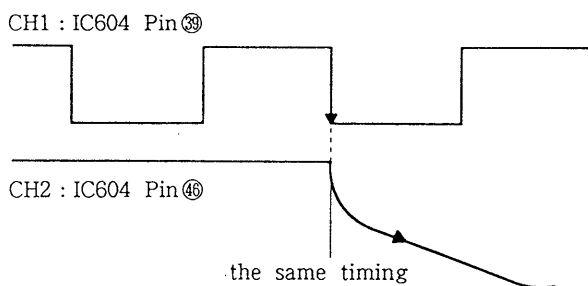


Fig. 7-18.

7-7-6. TBC Range Adjustment (MB-53 Board)

Mode	Still
Signal	Frame 4100 (Color bar)
Measuring Equipment	Oscilloscope
Adjusting Element	RV151
Measurement Point	CH1 : PIN ㉒ of IC109 External trigger : PIN ㉓ of IC109
Specified Value	$22 \pm 1 \mu\text{sec}$

Connection :

- Apply 5.0Vdc to Pin ㉔ of IC109.

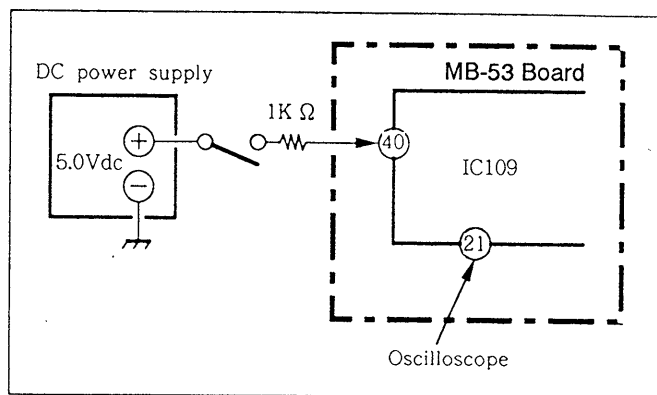


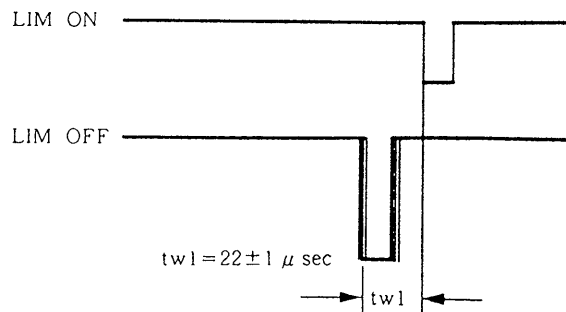
Fig. 7-19.

Adjustment method :

- 1) Select STILL (⏸) mode.
- 2) Search the frame 4100.
- 3) Connect the DC power supply (5.0Vdc) to Pin ㉔ of IC109.
- 4) Adjust so that rising time difference between when the power (5.0Vdc) is on (LIM ON) and when the power off (LIM OFF) is $22 \pm 1 \mu\text{sec}$.

Note : Since the waveform of LIM OFF is wavering, adjust at fits center position.

- Pin ㉒ of IC109 (CH1)



- Pin ㉓ of IC109 (Trigger pulse)



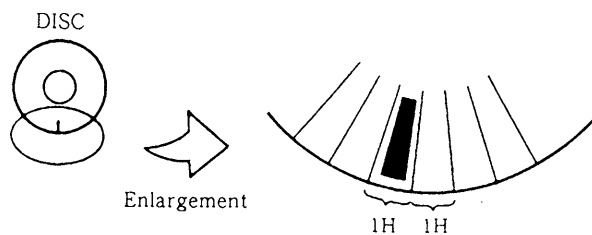
Fig. 7-20.

7-7-7. Color DOC Adjustment (MB-53 Board)

Mode	Still
Signal	Frame 23500 (Yellow Green)
Measurement Point	Monitor display
Adjusting Element	CV152
Specified Value	Drop out portion and its peripherals are the same color

Preparations:

Stick a black adhesive tape (approx. 10 mm length) on the outer track 1H period of the alignment disc (HVL-8 or REF. 7).



Adjustment method :

- 1) Select STILL (⏸) mode.
- 2) Search the frame 23500.
- 3) Adjust CV152 so that the drop out portion and its peripherals on the monitor picture are the same color.

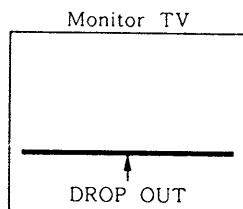
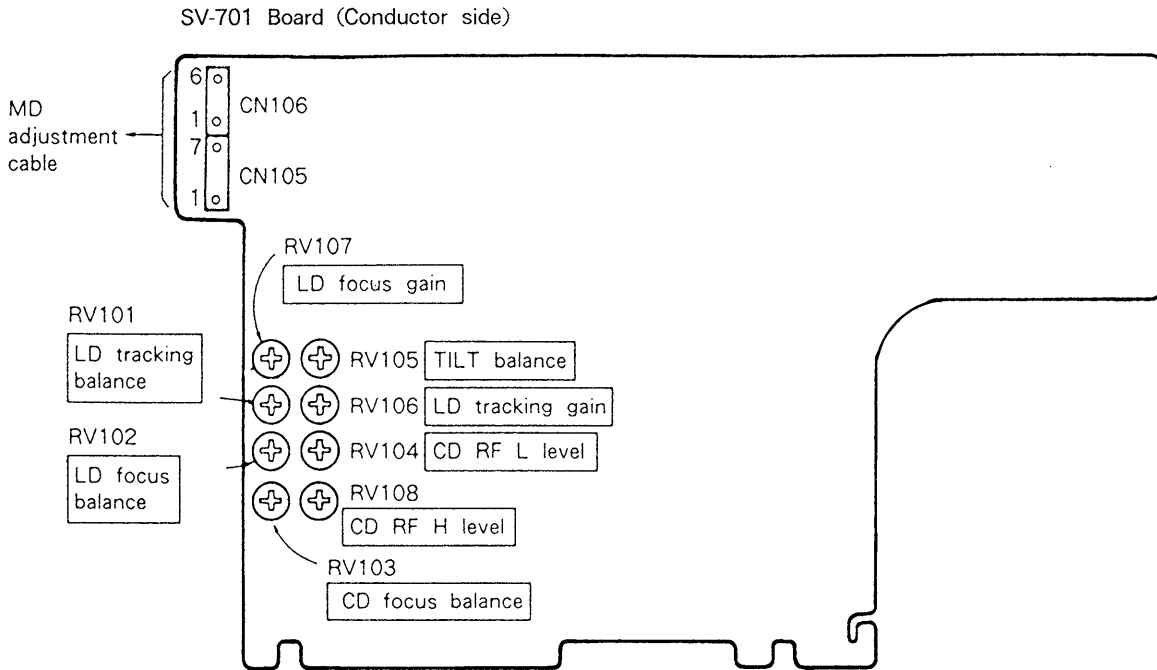
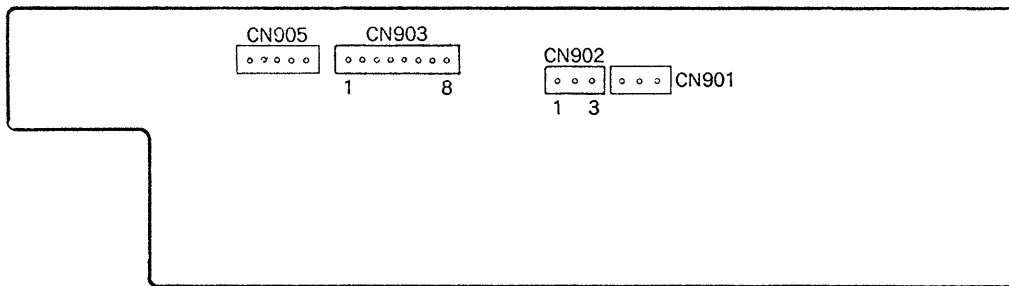


Fig. 7-21.

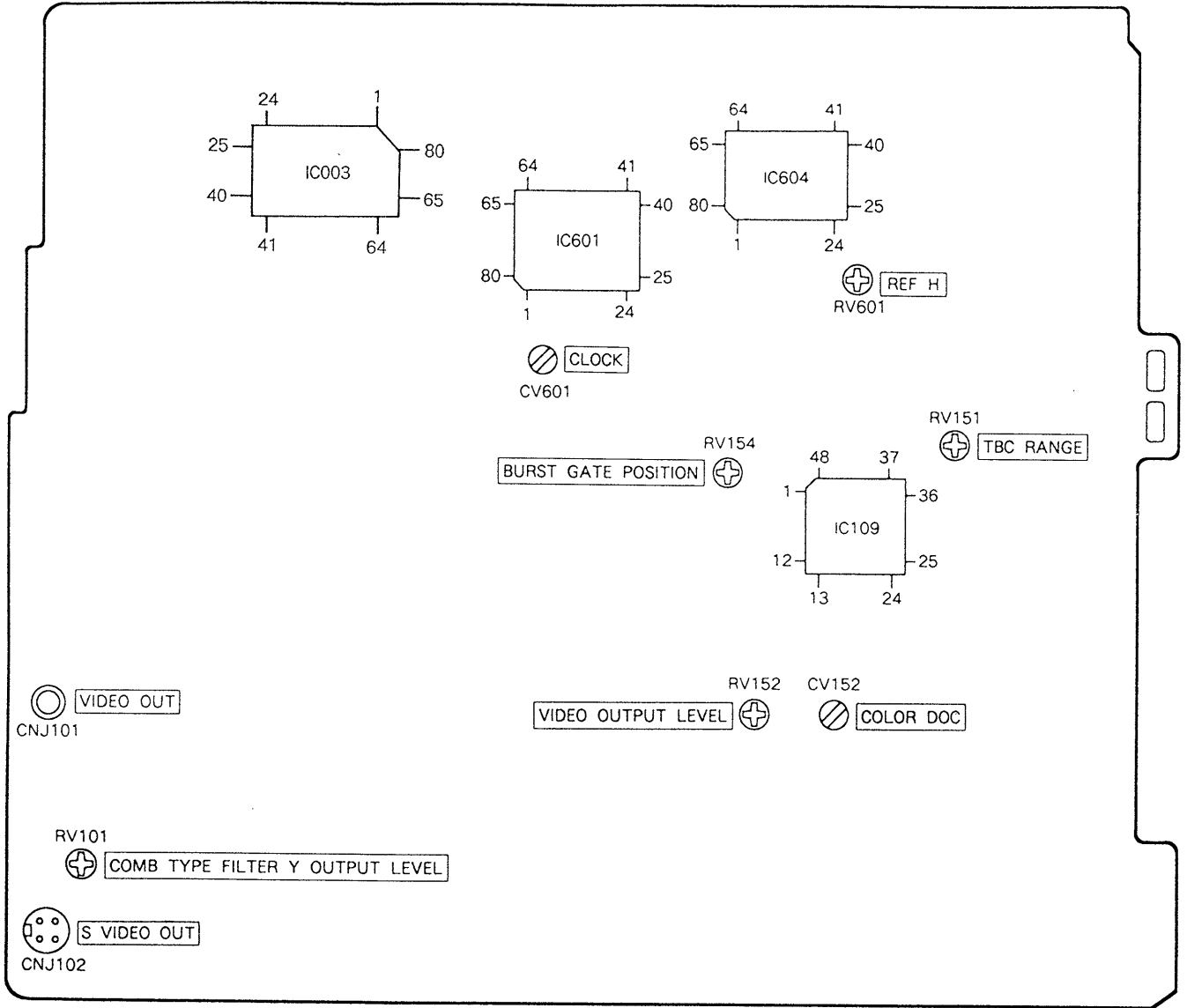
7-8. PARTS ARRANGEMENT DIAGRAM FOR ADJUSTMENTS



PS-290 board (Component Side)



MB-53 board (Component Side)



PS-707 Board (Component Side)

