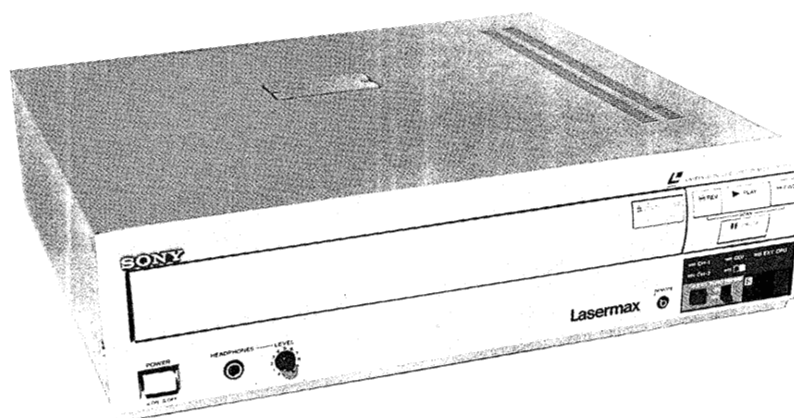


LDP-1500P

SERVICE MANUAL

AEP Model
UK Model



June, 1986

Lasermatrix

This manual contains the SUPPLEMENT1-2.
SPECIFICATIONS

Playback system

Disc format	Laser Vision
Pick-up method	Laser beam (reflective)
Laser	Diode laser ($\lambda = 7800\text{\AA}$)
Videodisc	12" and 8"
Maximum playing time	CAV: 36 min/side CLV: 60 min/side
Spindle revolution	CAV: 1500 r.p.m. CLV: 1500 to 570 r.p.m.
Access time	CAV: 2.5 sec (by frame) 10 sec (by chapter) CLV: 10 sec

Video

Signal	CCIR standards, PAL color
Output	1.0 V p-p, 75 ohms unbalanced, sync negative
Resolution	Color: 450 lines

Audio

Output	Line out: Less than 2 kilohms 0 dB (100% MOD) unbalanced Headphones: 8 ohms -20 dB [V] max
Signal-to-noise ratio	CX ON: 70 dB CX OFF: 56 dB
Frequency response	20 Hz to 20kHz

Video/Audio (TV connector)

Video	1.0 Vp-p
Audio	0 dB [V]
Status	+11 V DC

General

Power requirements	220/240V AC, selectable, 50/60 Hz
Power consumption	35 W
Operating temperature	5°C to 35°C (40°F to 95°F)
Operating humidity	25% to 80%
Storage temperature	-20°C to 60°C (-4°F to 140°F)
Dimensions	Approx. 424 x 116 x 405 mm (w/h/d) (16 ³ / ₄ x 4 ⁵ / ₈ x 16 inches)
Weight	Approx. 10.7 kg (23 lb 9 oz)
Supplied accessory	AC power cord
Optional accessories	Interface Manual LDM-1500 Rack Mount Kit RMM-201B Remote Control Unit RM-2001 External Sync Lock Board DB-1500P

Design and specifications subject to change without notice.

Note

This appliance conforms with EEC Directives 78/889 and 82/499 regarding interference suppression.

L VIDEODISC PLAYER
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.

CAUTION

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

CLASS 1
LASER PRODUCT

This videodisc player is classified as a CLASS 1 LASER PRODUCT.

The CLASS 1 LASER PRODUCT label is located on the rear panel of the player.

DANGER

Invisible laser radiations when open and interlock failed or defeated.
Avoid direct exposure to beam.

FOR THE CUSTOMERS IN THE UNITED KINGDOM

THIS APPARATUS MUST BE EARTHED

IMPORTANT

The wires in this mains lead are coloured in accordance with the following code:

Green-and-yellow	:	Earth
Blue	:	Neutral
Brown	:	Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

The wire which is coloured green-and-yellow must be connected to the terminals in the plug which is marked by the letter E or by the safety earth symbol \perp or coloured green or green-and-yellow. The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black. The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

Use **PAL/SECAM 525 COLOUR** videodiscs

This player is to be used exclusively with the PAL/SECAM colour videodiscs, and is designed to output video signals conformed with the PAL colour system. NTSC videodiscs cannot be used in this player.



CED and VHD type videodiscs cannot be used in this player.

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SUPPLEMENT-1.

SUPPLEMENT-2.

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs a laser. Therefore, be sure to follow carefully the instructions below when servicing.

WARNING !!

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

CAUTION LABEL: Mounting and contents of the caution label is as shown below.

1. Laser Diode Properties

- Material: GaAlAs
- Wavelength: 780 nm
- Emission Duration: continuous
- Laser Output: max. 0.4 mW*

* This output is the value measured at a distance of about 1.6 mm from the objective lens surface on the Optical Pick-up Block.

- Classification: Class IIIb

2. During service, do not take the Optical Pick-up Block apart, and do not adjust the APC circuit. If there is a breakdown in the APC circuit (including laser diode), replace the entire Optical Pick-up Block (including APC board).

BESKYTTELSE AF ØJNE MOD LASERSTRÅLING UNDER SERVICE

I dette apparat anvendes laserlys. Derfor skal nedenstående instruktioner nøje følges under service.

Følg iøvrigt instruktionerne i servicemanualen.

ADVARSEL!!

Under service må øjnene ikke komme nær objektiv-linsen på den optiske pick-up enhed. I tilfælde af at det er nødvendigt at kontrollere udsendelsen af laserlys, skal det ske i en afstand af mere end 25 cm fra den optiske pick-up.

1 Laser-dioden data

- Materiale: GaAlAs
- Bølgelængde: 780 nm
- Udstråling: Kontinuerlig
- Laseroutput: Max. 0,4 mW*

* Målt i 1,6 mm afstand fra overfladen af objektiv-linsen på den optiske pick-up enhed.

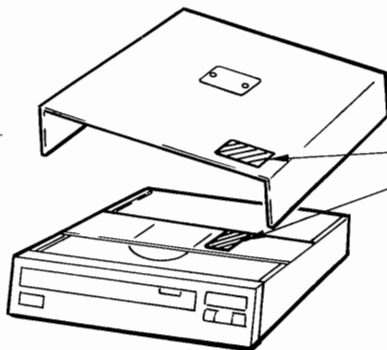
- Klassifikation: Klasse IIIb.

2. Adskil aldrig den optiske pick-up enhed under service, og juster ikke APC kredsløbet (Automatic Power Control). Hvis APC kredsløbet (incl. laserdioden) bryder ned, skal hele den optiske pick-up enhed (incl. APC printkortet) udskiftes.

LASER ADVARSEL MÆRKNING

Følgende mærkning findes indvendig i apparatet:

1. Advarsel Mærkning



CAUTION : INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.
ADVARSEL : USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UDGÅ UDSÆTTELSE FOR STRÅLING.

4 885 843 02

VAROITUS! Laite sisältää laserdiodin joka lähettää (näkyvätöntä) silmille vaarallista lasersäteilyä.

Utsrålningen från den laserkomponent som finns i denna laserprodukt överstiger den strålningsgräns som ställs på Klass 1.

SECTION 1

GENERAL DESCRIPTION

1-1. FEATURES

No physical contact between pick-up and disc

A laser beam acts as the signal pick-up for contact-free playback and no wear on your valuable videodiscs. The audiovisual pit pattern is recorded below the surface of the videodisc for safe handling. There is no more need to be constantly on your guard against fingerprints and dust.

Computer control

The built-in microprocessor controls almost all the functions of this player. Various functions, such as search and repeat, are possible with an external computer through an RS-232C interface connector.

High speed access

Any frame on the disc can be located within 2.5 seconds.

Remote control operation

By using the RM-2001 optional remote control unit, not only the operation of the main buttons on the front panel but also search and repeat operation are remotely controlled. Remote control operations are possible in both wired and wireless modes.

Automatic front loading

Videodiscs are inserted in the front of the LDP-1500P. This represents a great saving of space when compared with top loading models.

Mountable on a 19" rack

The videodisc player can be mounted on an EIA standard 19" rack. An optional RMM-201B rack mount kit is available to install the videodisc player into the 19" rack.

Black burst video out signals in the search mode

The signal output from the computer are superimposed over the videodisc picture so that they can even be seen in the search mode.

Screw-less mechanism for transportation

This new mechanism eliminates the need to tighten special screws to fix the laser pick-up before transporting the videodisc player.

External Sync Lock Board

A sync lock function can be provided by installation of a separate optional board (DB-1500P). This allows various videodisc applications. Contact your authorized Sony representative as adjustment of the unit is necessary.

1-2. TIPS ON VIDEODISCS

TYPES OF VIDEODISCS

CAV (constant angular velocity) disc

The CAV disc always rotates at a constant speed of 1500 r.p.m. and the laser beam moves from the inner part of the disc to the outer. Up to 36 minutes of playback (54,000 frames) is possible on one side of the disc. Each frame of the playback picture is recorded on one track and is reproduced in one rotation. The frame number is recorded on the track. Flexible playback operation such as variable speed playback, repeat play or computer-controlled playback is possible using the frame numbers as reference.

CLV (constant linear velocity) disc

With the CLV disc, the rotational speed varies from 570 r.p.m. to 1500 r.p.m. so that a constant linear velocity is maintained. The laser beam moves from the inner part of the disc to the outer as with CAV discs. Playback of up to one hour is possible on one side of the disc, although only normal play, scan and search operations are possible. The elapsed playback time or the chapter number being played can be displayed on the monitor screen. Searches to the beginning of chapters or specified time codes is possible.

*1) Frames

The CAV discs have up to 54,000 "frames" which are numbered in sequence. One frame is recorded on one track, that is, a frame is played back with one rotation of the disc. You can search for a particular frame quickly or repeat a particular sequence of frames.

*2) Picture stop

When the player detects this code, the playback enters the still mode. This code may be ignored in the scan and search modes.

*3) Chapters

There are CAV and CLV discs on which "chapters," as the chapter of a book, are pre-recorded. If a chapter number is displayed after a frame number has been displayed (on a CAV disc) or after playback time is displayed in minutes (on a CLV disc) when you change the display mode, the data are pre-recorded in chapters. You can easily search for a particular chapter and play it back repeatedly.

*4) Lead-in/Lead-out

When the player detects the lead-out code, it returns to the beginning of a disc, detects the lead-in code and repeats playback or stops at the beginning of the program area according to the AUTO REPEAT switch setting.

When the player detects the lead-in code or lead-out code in SCAN mode, the same result will be obtained.

Comparison of Sony Videodisc Code Types

type	purpose	location on disc	capacity	customer's creation method	encoding method
I. CAV Discs					
Vertical blanking (partial listing)					
—frame number * 1) (picture numbers)	frame access	all vertical blankings	00001 to 54000	not available	added automatically during mastering
—picture stop * 2)	automatic stop on a frame, during "play" and "slow" modes	designated vertical intervals	up to 54000	list of time codes on a master tape to have stops	added during mastering
—chapter number * 3)	divide content into chapters	designated vertical blankings	00 to 79; min chapter = 30 tracks	list of first/last time codes on a master tape of all chapters	added during mastering
II. CLV Discs					
Vertical blanking					
—time code number	time code access	all vertical blankings	00 hr 00 mins 00 sec to 01 hr 00 mins	not available	added automatically during mastering
—chapter number	divide content into chapters	designated vertical blankings	00 to 79; minimum = 30 tracks	list of first/last time codes on a master tape of all chapters	added during mastering
III. CAV/CLV Discs					
Vertical blanking					
—Lead-in * 4)	locate the beginning of the program on a disc	designated vertical blankings	—	not available	added during mastering
—Lead-out * 4)	locate the end of the program on a disc	designated vertical blankings	—	not available	added during mastering

1-3. PRECAUTIONS

On safety

- Operate the unit with 220/240 V AC, 50/60 Hz.
- Should any solid object or liquid fall into the cabinet, unplug the unit and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the wall outlet if it is not to be used for an extended period of time.
- To disconnect a cord, pull it out by the plug. Never pull the cord itself.

On installation

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

On operation

- Do not operate the unit right after having transported it from a cold location directly to a warm location or in a room where the temperature rises suddenly because moisture may condense in the operating section of the unit. Wait for about an hour before turning the power on in the new location or keep the rise in room temperature gradual. If the unit is operated with moisture condensation, the unit and the disc may be damaged. Therefore remove the disc immediately when there is a possibility of moisture condensation and no picture is obtained. To evaporate the moisture rapidly, leave the player turned on without a disc loaded.
- Remove the disc from the compartment after playing it, if the unit will not be used for any length of time. Do not transport the set with a disc in place.
- To open or close the disc compartment, press the OPEN/CLOSE button. Do not pull or push the disc compartment forcibly.
- When the disc compartment is in the open position, do not press down on it strongly, or place heavy objects.

On cleaning

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

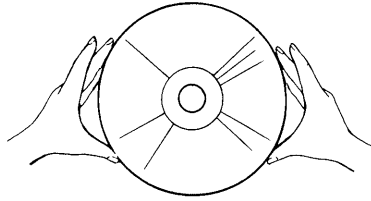
On packing

Do not throw away the carton and packing materials. They make an ideal container in which to transport the unit. When shipping the unit to another location, repack it as illustrated on the carton.

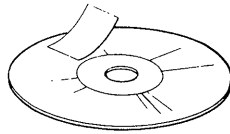
If you have any questions about this unit, contact your authorized Sony service facility.

1-4. NOTES ON HANDLING VIDEODISCS

Handle the disc by its edge, and keep the disc clean.



Do not stick paper or tape on the disc surface.



Not this way

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

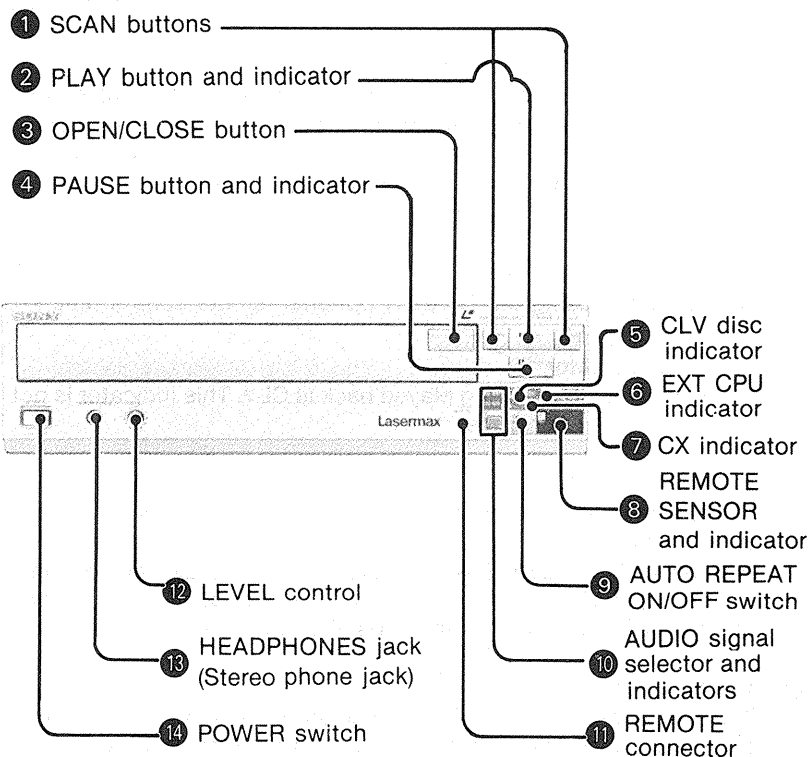
Before playing, clean the disc with a soft cloth.

Do not use solvents (such as benzine or thinner) or commercially available cleaners or anti-static sprays intended for audio discs.





After playing, store the disc in its case.

1-5. PARTS IDENTIFICATION

FRONT PANEL



① SCAN buttons

Keep one of these buttons depressed for high-speed playback (about 100 times normal speed). The  button initiates scanning in the forward direction, and the  button in reverse. When the button is released, normal speed playback will be resumed. With the chapter number displayed on the monitor screen, chapter stop at the beginning of the present chapter (when the  button is pressed) or at the beginning of the next chapter (when the  button is pressed) is possible. The player enters the still mode with a CAV disc, and the normal playback mode with a CLV disc.

② PLAY button and indicator

Press this button for normal playback. The indicator blinks while loading or unloading a videodisc.

- ③ **OPEN/CLOSE button**

Press to open the disc compartment and again to close it. The compartment will also close automatically when it is pushed lightly. Be sure to press the center of the compartment for proper operation.
- ④ **PAUSE button and indicator**

Press this button to set the player to the pause mode. A still picture is displayed for CAV discs. No picture will be displayed on the screen if the disc being played is CLV (muted state). The pause indicator lights up when the videodisc is in the pause mode. The indicator blinks if the disc compartment movement is interrupted while being opened or closed.

The pause indicator also lights up when the player is placed in still or stop mode using the RM-2001 optional remote control unit.
- ⑤ **CLV disc indicator**

Lights when the disc being played back is CLV. This indicator is not illuminated for CAV discs.
- ⑥ **EXT CPU indicator**

Lights when the player is controlled by an external computer through the RS-232C interface connector. In this mode, pressing the function buttons (PLAY, PAUSE, SCAN and AUDIO) on the player and optional remote control unit has no effect. The videodisc player will automatically respond to commands given by the external computer.
- ⑦ **CX indicator**

The indicator will light up when a videodisc containing a special code for activation of the CX Noise Reduction System* is played.
- ⑧ **REMOTE SENSOR and indicator**

The sensor on the right acts as a receptor for infrared control signals from the optional RM-2001 remote control unit. When a button on the RM-2001 is pressed, the red lamp on the left blinks to indicate command detection.
- ⑨ **AUTO REPEAT ON/OFF switch**

When this switch is ON, the videodisc will be automatically played again from the beginning when it reaches the end. The OFF position means that playback of the videodisc will not be repeated. Like the other controls on the front panel, this switch has no effect when the player is controlled by an external computer (indicated by illumination of EXT CPU indicator).

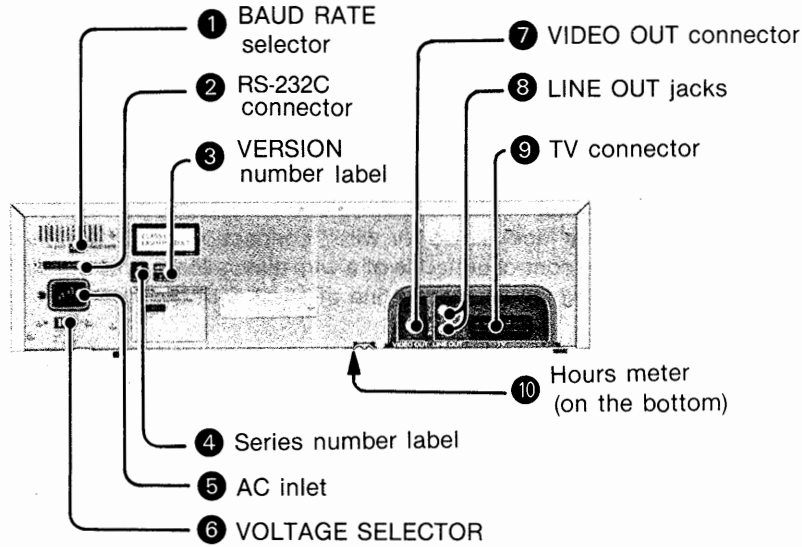
- ⑩ **AUDIO signal selector and indicator**
Each videodisc has two audio channels: channel 1 and channel 2. When the player is turned on, both channels are selected and the CH-1 and CH-2 indicators will light up. Pressing the selector once will select audio channel 1 and pressing it again will select audio channel 2. The original state (both channels selected) can be restored by pressing the selector once more.
- ⑪ **REMOTE connector**
This special mini jack allows for wired connection of the optional RM-2001 remote control unit. Use of a wire allows for remote control from locations which are not in line of sight with the LDP-1500P.
- ⑫ **LEVEL control**
Turn to adjust the volume of the headphones. Rotation to the right increases the volume.
- ⑬ **HEADPHONES jack (Stereo phone jack)**
Headphones for audio monitoring are connected here. The volume is adjusted with the LEVEL control.
- ⑭ **POWER switch**
Press to turn on the power of the player. The CH-1 and CH-2 indicators function as power indicators. Press the button again to turn the power off.

*CX Noise Reduction System

This system is employed to improve the signal-noise ratio and enlarge the dynamic range of audio signals recorded on video discs.

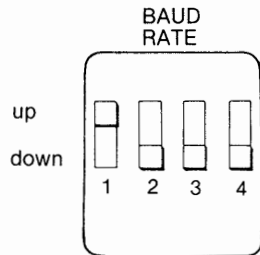
CX is a trademark of CBS.

REAR PANEL



1 BAUD RATE selector

Select the speed at which data is transmitted over the RS-232C line. The baud rate can be set to 9,600, 4,800, 2,400 or 1,200 baud. Be sure that the selector is matched to the baud rate of the external computer. The factory setting is 1,200 baud.



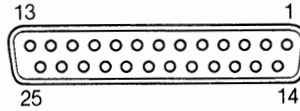
Switch setting				Baud rate
1	2	3	4	
u	d	d	d	1,200
d	u	d	d	2,400
d	d	u	d	4,800
d	d	d	u	9,600

u: up
d: down

2 RS-232C connector

Standard 25-pin RS-232C interface connector for communication with an external computer. Refer to page 1-20 for connection with an external computer.

Pin assignment



Pin No.	Signal
1	FG (Frame ground)
2	TxD (Transmit data)
3	RxD (Receive data)
4	RTS (Request to send)
5	CTS (Clear to send)
6	DSR (Data set ready)
7	GND
20	DTR (Data terminal ready)

Each signal conforms to the RS-232C specifications.
(Output level ON: more than +5V, OFF: less than -5V)

Note: Check the RS-232C pin assignment of the external computer to be connected. There is a modem mode and terminal mode for pin assignment. The RS-232C pin assignment for LDP-1500P is for the terminal mode.

- ③ **VERSION number label**
Shows the ROM version on the player.
- ④ **Series number label**
This number distinguishes if an optional board is installed or not.
- ⑤ **AC inlet**
Grounded three-prong AC power inlet. The power cord is connected here and the other end is inserted into the appropriate AC wall outlet (220V or 240V).
- ⑥ **VOLTAGE SELECTOR**
This selector is set to either the 220V or 240V position according to the power supplied from the wall outlet.
- ⑦ **VIDEO OUT connector**
BNC connector for the output of composite video signals.

8 LINE OUT jacks

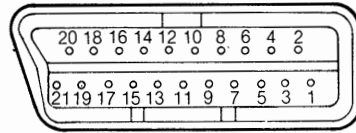
Phone jacks (RCA-type) for audio signal output.
The audio signals of channel 1 (CH-1) are output from the 1/L jack,
and the signals of channel 2 are output from the 2/R jack.

9 TV connector

21-pin (CENELEC standard) connector for video and audio signal outputs.

If your monitor TV has a connector of the same type, connect the cable (with the square 21-pin plugs) to this connector to supply the video and audio signals to the monitor TV with a single cable.

Pin assignment



Pin No.	Signal	Pin No.	Signal	Pin No.	Signal
1	Audio B	8	Status (+ 11V)	15	NC
2	NC	9	NC	16	NC
3	Audio A	10	NC	17	Video (G)
4	Audio (G)	11	NC	18	NC
5	NC	12	NC	19	Video
6	NC	13	NC	20	NC
7	NC	14	NC	21	GND

NC: no connection

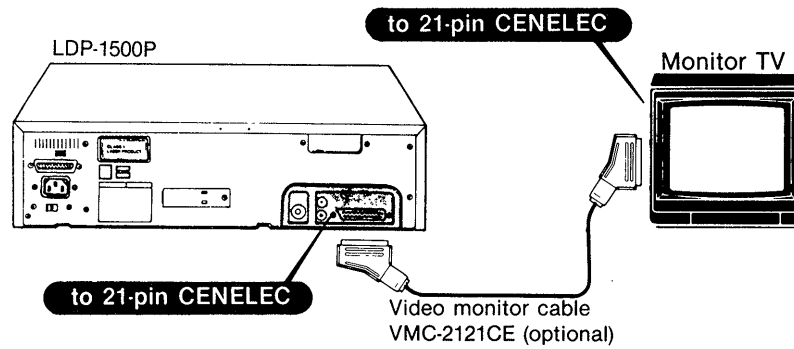
10 Hours meter (on the bottom)

Indicates the accumulated time for which laser diode is on. Each segment shows 1,000 hours, up to a total of 10,000 hours.

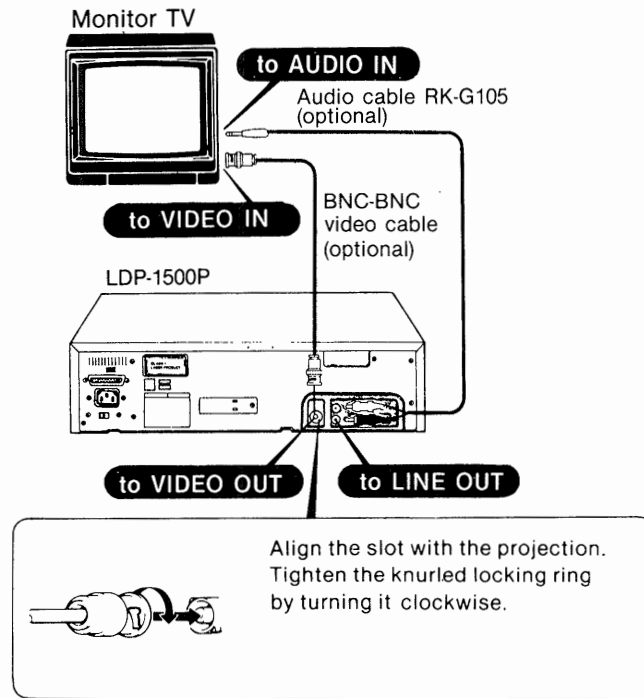
1-6. CONNECTIONS

If your monitor has a 21-pin CENELEC connector, video and audio signals can be connected with a single cable. If the monitor is not equipped with a 21-pin CENELEC connector, use a BNC-BNC coaxial cable for the video signal connection and a cable with phono plugs for the audio signal connection.

When the monitor is equipped with a CENELEC connector.



When the monitor is not equipped with a CENELEC connector



- To play back the audio on a stereo system, connect the LINE OUT connectors to the auxiliary (or tape or tuner) inputs of the amplifier.
- Use the red plug of the audio cable for the right channel (R) connection.

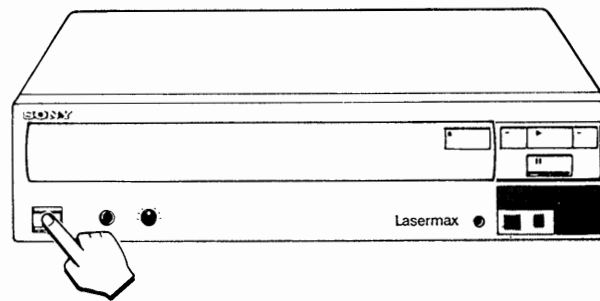
1-7. TO PLAY BACK A VIDEODISC

The procedure outlined below deals with operation of the LDP-1500P when it is used by itself. These operations are only possible when the unit is not connected to an external computer (EXT CPU indicator is not illuminated). The optional RM-2001 remote control unit can be used in this mode to control the player. Refer to the manual of the remote control unit.

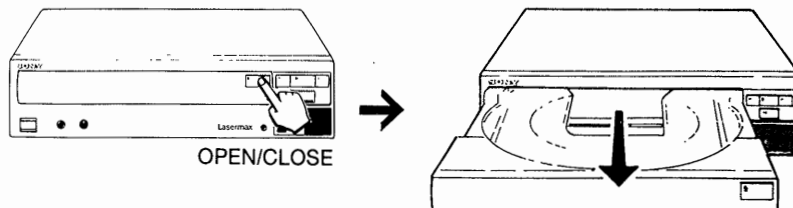
Before starting the operation, keep in mind the following precautions.

- To open and close the disc compartment, press the OPEN/CLOSE button.
- Place a disc in the tray with the side to be played back facing down (with the label of the desired side up). Note that the laser reads from below.
- If a disc is not placed correctly in the tray or the disc has a defect which prevents normal playback, the disc compartment will be ejected as soon as the defect is encountered.

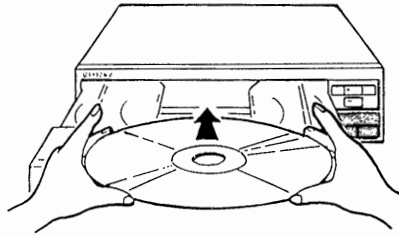
1. Turn on the power of the videodisc player by depressing the POWER switch.



2. Press the OPEN/CLOSE button to open the disc compartment.



3. Place the disc with the desired program label facing up.



Place in the indentation.

4. Press the OPEN/CLOSE button. The disc starts rotating and the lamp on the PLAY button blinks for a few seconds. Playback begins automatically when the lamp lights up.

To stop the playback

Press the PAUSE button. A still picture will be displayed on the monitor screen for CAV discs, and the video picture will be muted for CLV discs. If any function button is pressed, playback will begin in the selected mode from the point at which the PAUSE button was pressed.

To remove the disc

Press the OPEN/CLOSE button to stop the playing of the disc, no matter what mode the player is in.



The disc will stop rotating, and the disc compartment will be ejected.

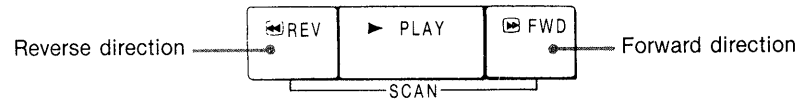
Notes

- At the beginning of the playback, the picture may be distorted. This symptom tends to occur especially when a CLV disc is used.
- To avoid damaging the disc, do not move the videodisc player while it is operating or while it contains a disc.

1-8. VARIOUS PLAYBACK MODES

HIGH SPEED PLAYBACK (CAV and CLV)



Keep one of the SCAN buttons pressed. The  button quickly advances the picture in the forward direction and the  button advances it in reverse. When you release the button, normal playback will be resumed.



Note: The picture of a CLV disc may be distorted in this mode.

CHAPTER STOP (CAV or CLV disc with chapter codes)

Display the chapter number by pressing the INDEX button on the remote control and then press either of the SCAN buttons.

The  button locates the beginning of the next chapter and the  button locates the beginning of the chapter being played back. When the chapter stop activates, the still mode is obtained with a CAV disc and normal playback will be resumed with a CLV disc. If you want to continue the SCAN mode, keep the button again.

Note

Chapter stop code is not provided according to a type of videodisc.

1-9. SEARCH AND REPEAT OPERATIONS

Search and repeat operations are activated by the respective commands from an external computer or by operating the RM-2001 remote control unit. For detailed instructions, refer to the LDM-1500 interface manual or to the RM-2001 operating instruction manual.

The use of these operations differ according to whether a videodisc is CAV or CLV.

With CAV discs, enter the frame number. If the chapter number is pre-recorded, the number can be used to perform a search and a repeat operation of the desired chapter on a disc. In the search operation, when a designated frame or the beginning of the chapter number is located, the player is automatically set to display the still picture. In the repeat operation, the desired playback mode can be obtained.

With CLV discs, enter the time number. If chapter numbers are pre-recorded, these numbers can also be used. When the beginning of a designated time number (chapter) is located, the player is set to the normal playback mode.

Note

If you assign an invalid number to be searched, the search operation may continue about 10 seconds. The player will then enter the still mode with a CAV disc or the play mode with a CLV disc.

The still mode (for CAV videodiscs) or the stop mode (for CLV videodiscs) is entered at the beginning of the program area when the player detects lead-in, and at the end of the program area when the player detects lead-out.

1-10. NOTES ON OPERATION WITH THE RM-2001 REMOTE CONTROL UNIT

The operating instructions of the RM-2001 contain a description of remote control operations common to Sony videodisc players.

The following differences in operation must be noted when the RM-2001 unit is used with the LDP-1500P. Be sure to read the following before use of the RM-2001.

INDEX button

Pressing this button activates the index function and causes to display the operating mode of the player and number mode (frame or chapter number* for CAV and time or chapter number for CLV). This indication disappears if the button is pressed again.

Press the MODE button after pressing the INDEX button to toggle the display between the frame and chapter (or time and chapter) indication.

*This is displayed only when disc being used has pre-recorded chapter numbers.

MODE button

This button is used to toggle the displayed number for search, repeat, and index function.

MENU button

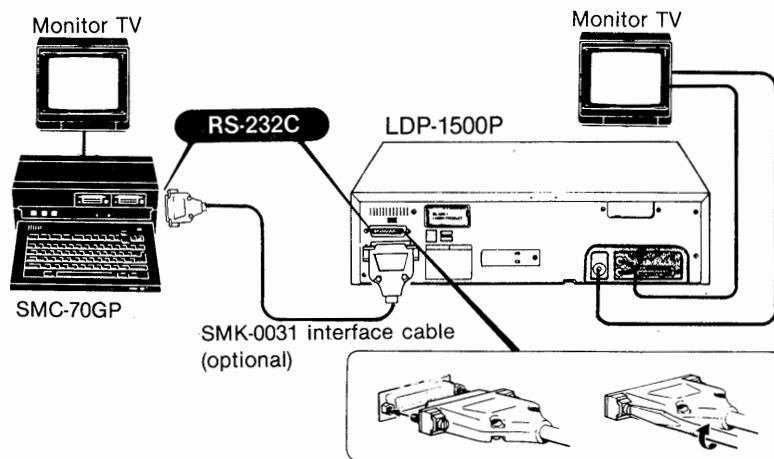
Pressing this button starts playback from the beginning of the program area.

Search/repeat operations with CLV videodiscs

The time number displayed on the screen takes the form: hours, minutes, and seconds (if they are pre-recorded).

1-11. CONNECTION WITH AN EXTERNAL COMPUTER

TO CONTROL THE PLAYER WITH SONY SMC-70GP MICROCOMPUTER



After inserting the cable plug to the receptacle, secure it with these screws.

For details on connecting with an external computer, refer to operating manual of the computer, and for operation, refer to the LDM-1500 interface manual.

TO SYNTHESIZE THE PLAYER'S PICTURE AND THE MICROCOMPUTER'S PICTURE

The Sony HB-G900P personal computer is equipped with a genlock function for superimposing the computer picture over the video picture of the LDP-1500P. The genlock feature "locks" the signals output from the computer to the video signals of the player for RGB superimposing on color monitors equipped with a 21-pin CENELEC connector or a 25-pin RGB connector.

The HBI-G900P Videotizer (optional) can also be used together with the Sony HB-G900P personal computer for display of a synthesized picture on the monitor which has been converted into PAL signals.

This is also possible using the Sony SMC-70GP personal computer and SMI-7074P Superimposer (optional).

For details on connections and use, refer to the operating manual(s) of the personal computer, Videotizer or Superimposer being used.

NOTE ON CONTROLLING LDP-1500P THROUGH HB-G900P VIDEO UTILITY

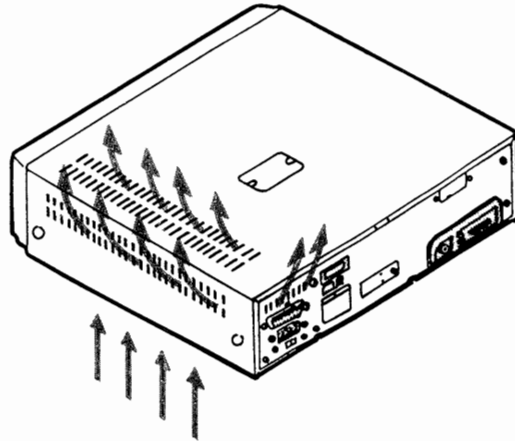
The Sony HB-G900P personal computer is equipped with a video utility program which is based upon that of LDP-180P+ IF-180. The LDP-1500P can be controlled in the same manner as LDP-180P + IF-180 with attention to the differences in status data between the two videodisc players. Refer to the chart below for a comparison of the status data of the LDP-1500P and LDP-180P + IF-180 videodisc players.

LDP-1500P	LDP-180P + IF-180
1st DATA D7 1 D6 SEARCH, REPEAT MODE D5 MOTOR OFF MODE D4 INIT FLAG D3 DISC PROP D2 NO DISC D1 FOCUS OUT D0 ERROR	1st DATA D7 1 D6 SEARCH, REPEAT MODE D5 MOTOR OFF MODE D4 INIT FLAG D3 LID OPEN (= DISC PROP) D2 NO DISC D1 FOCUS OUT D0 ERROR
2nd DATA D7 0 D6 0 D5 0 D4 0 D3 0 D2 0 D1 0 D0 0	2nd DATA D7 0 D6 0 D5 0 D4 0 D3 0 D2 0 D1 0 D0 0
3rd DATA D7 0 D6 EXTENDED CODE YES(1)/NO D5 CLV(1)/CAV(0) (0) D4 12"(1)/8"(0) D3 0 D2 0 D1 0 D0 0	3rd DATA D7 0 D6 NATIVE MODE D5 CLV(1)/CAV(0) D4 0 D3 0 D2 0 D1 0 D0 0
4th DATA D7 STEP NO. INPUT D6 0 D5 REPEAT TIME INPUT D4 0 D3 PICTURE STOP CODE D2 REPEAT MODE D1 SEARCH MODE D0 NUMBER INPUT	4th DATA D7 STEP NO. INPUT D6 0 D5 0 D4 0 D3 0 D2 REPEAT MODE D1 SEARCH MODE D0 NUMBER INPUT
5th DATA D7 REV(1)/FWD(0) D6 STOP D5 STILL D4 SCAN D3 STEP D2 SLOW D1 FAST D0 PLAY	5th DATA D7 REV(1)/FWD(0) D6 STOP D5 STILL D4 0 D3 STEP D2 SLOW D1 FAST D0 PLAY

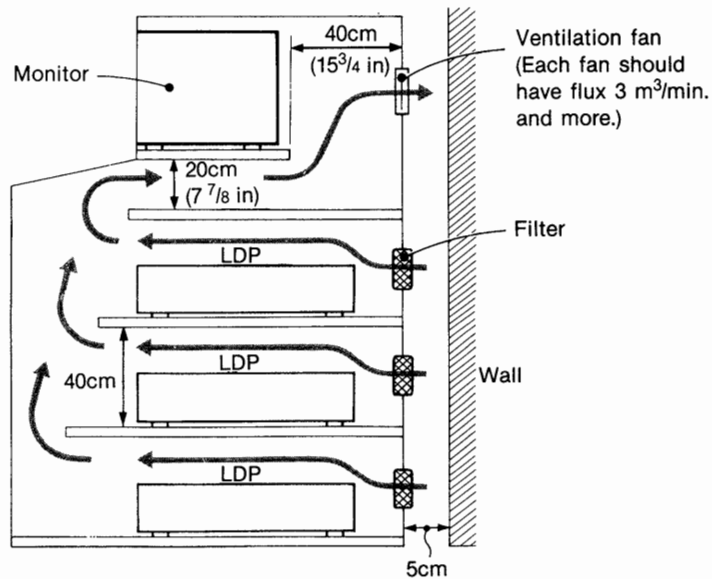
1-12. NOTE ON INSTALLING THE PLAYER IN A RACK

When the videodisc player(s) is(are) installed in a rack, special consideration should be taken to prevent internal heat buildup.

Ventilation holes on the LDP-1500P



Recommended ventilation when installed in a closed rack



- The air in the rack should be circulated from the bottom to the top as indicated.
- The temperature in the rack should not be over 35°C (95°F).
- Allow at least 5 cm(2 inches) behind the rack when installing it against the wall.
- The distance between each shelf should be at least 40 cm (15 3/4 inches).
- The holes located at the back of the rack should have filters to prevent dust from being drawn into the rack.
- At least two ventilation fans should be used and should be installed in the back of the rack as indicated in the figure.
- If a monitor is installed in the same rack, care should be taken to prevent the heat from the monitor affecting the players.

Recommended ventilation when installed in a standard 19" rack

- Use the optional RMM-201B rack mount kit to install the player(s) in a standard 19" rack.
- Three ventilation fans with flux 3 m³/min should be used for five players installed in a standard 19" rack. If you have any question regarding ventilation in a rack, consult your authorized Sony representative.

Note

When the player is used in a dusty place, powdery dust will be drawn in the player and contaminate the objective lens in the optical pick-up system. Ask your nearest Sony service facility for lens cleaning.

1-13. TROUBLESHOOTING

Many apparent malfunctions may be caused by a misoperation or an oversight. If any difficulty arises in operation, check through this list of symptoms and causes. Should the difficulty persist, unplug the unit and contact your authorized Sony service facility.

- The following list includes troubles when the RM-2001 optional remote control unit is used.

Symptom	Cause
The disc compartment is ejected automatically.	<ul style="list-style-type: none">• The videodisc is not placed correctly on the tray.• The videodisc is scratched or has dirt on its surface.• The disc is upside down. The side to be played back should be placed facing down.
The disc compartment does not come out.	<ul style="list-style-type: none">• Power is not turned on.
Pressing the PLAY button has no effect.	<ul style="list-style-type: none">• An external computer is connected to the player.• The indicator on the PLAY button is blinking. Wait until this indicator goes off.• The indicator on the PAUSE button is blinking. Press the OPEN/CLOSE button.• The SEARCH or REPEAT button on the RM-2001 has been pressed when the picture is muted by the STOP button. Clear the search or repeat mode with the CL button or continue the search or repeat operation to the end.
Picture is not displayed, although the PLAY indicator lights.	<ul style="list-style-type: none">• The monitor TV is not turned on.• The connection of the monitor TV is not correct.• The input selector of the monitor TV is not set correctly.• The disc is upside down. The side to be played should be facing down.

Poor picture quality	<ul style="list-style-type: none"> • Connection of the monitor TV is not correct. • An equipment is near the player to transmit noise and affect the picture quality of the videodisc. • The disc to be played back has a scratch or dirt on the surface. • There is moisture condensation in the videodisc player.
No audio	<ul style="list-style-type: none"> • The speaker system or TV monitor is not connected correctly. • The volume setting of the amplifier or TV monitor is too low. • Audio is muted in all modes other than normal playback.
Playback of a certain section of the disc is not possible.	<ul style="list-style-type: none"> • The videodisc is scratched or has dirt on a section of it. Press the FWD button to advance playback past this point.
A certain section of the videodisc cannot be located by searching.	<ul style="list-style-type: none"> • The videodisc is scratched or has dirt on a section of it. Replace the defective disc with another one.
The RM-2001 remote control unit does not operate.	<ul style="list-style-type: none"> • The batteries of the remote control unit are dead when the unit is used in the wireless mode. • Improper connection to REMOTE connector when the remote control unit is used in the wired mode. • When used in the wireless mode (infrared), the remote control unit is not pointed at the REMOTE SENSOR, or something is between the remote control and sensor. • An external computer is connected to the player.

The picture is muted and the PLAY indicator is not lit.

- The PAUSE button has been pressed (with a CLV disc).
- A search operation is taking place. If the specified number is invalid (not on the disc) or if a defective disc prevents the proper section from being found, the player remains in the search mode for about 10 seconds.
- The playback goes to the end of a disc and stops when the AUTO REPEAT switch is set to OFF.

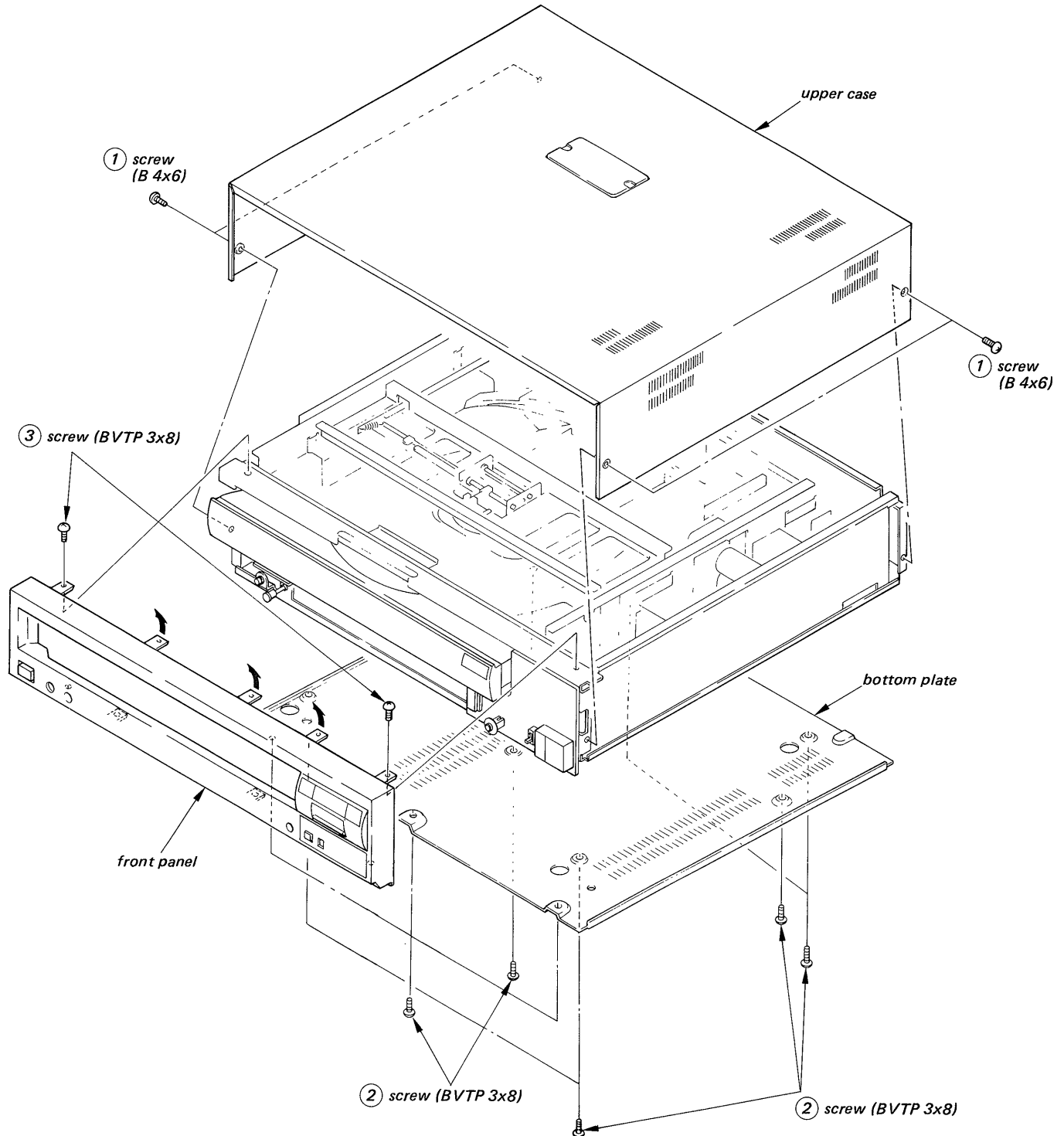
Fast forward or reverse playback is not possible.

- A CLV disc is used.
-

SECTION 2 DISASSEMBLY

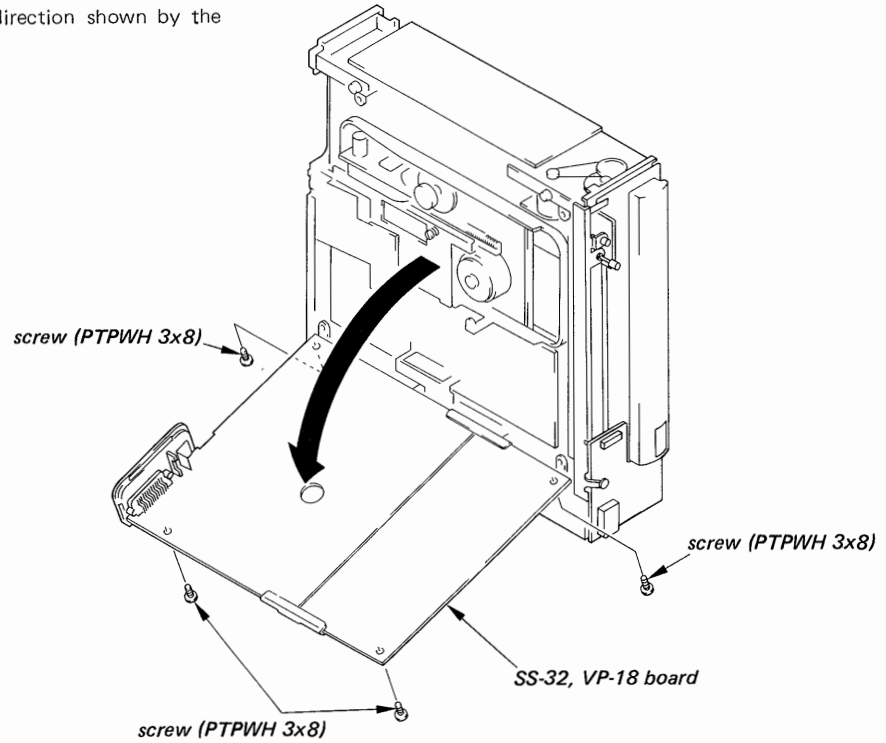
2-1. REMOVAL OF CABINET

- 1) Remove the four (B 4x6) screws of ① and take off the upper case.
- 2) Remove the ten (BVTP 3x8) screws of ② and take off the bottom plate.
- 3) Remove the two (BVTP 3x8) screws of ③ and take off the front panel. (It is easy to remove the front panel when the disc compartment is ejected.)



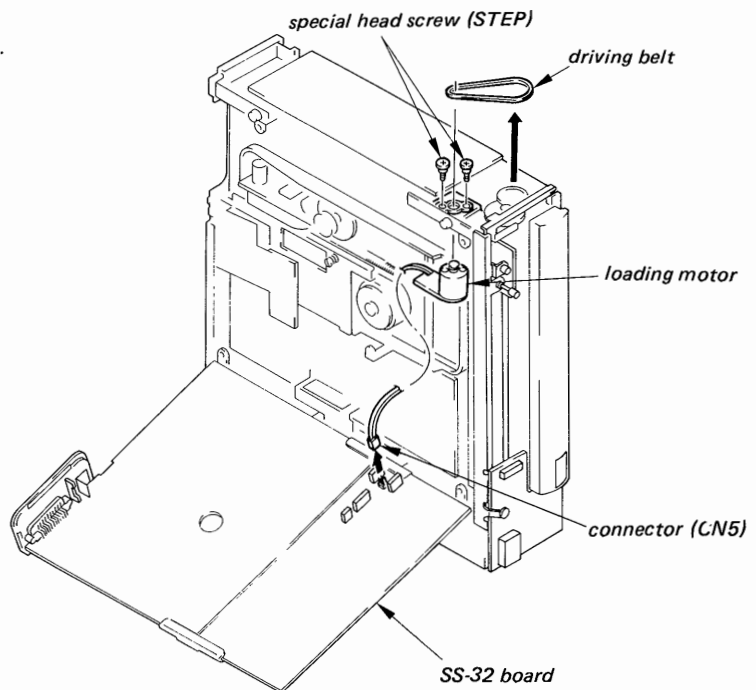
2-2. OPENING OF SS-32 AND VP-18 BOARD

- 1) Stand the unit on its right side.
- 2) Remove the four (PTPWH 3x8) screws and turn the SS-32 board and the VP-18 board in the direction shown by the arrow.



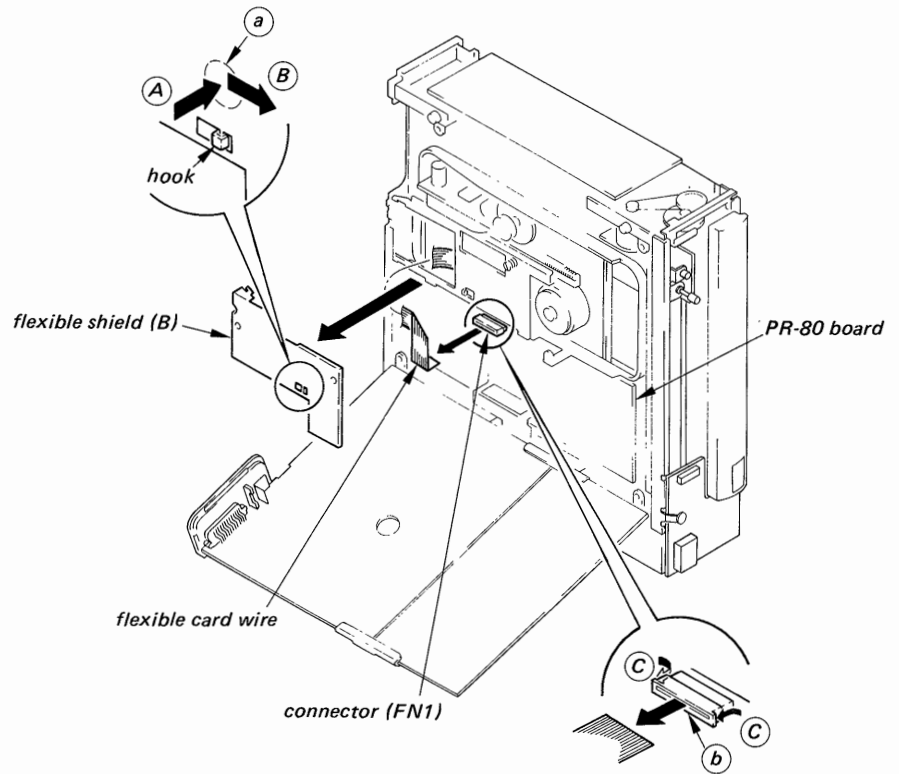
2-3. REMOVAL OF LOADING MOTOR

- 1) Take off the driving belt.
- 2) Remove the two special head screws (STEP) to take off the loading motor.
- 3) Disconnect the CN5 connector on the SS-32 board.



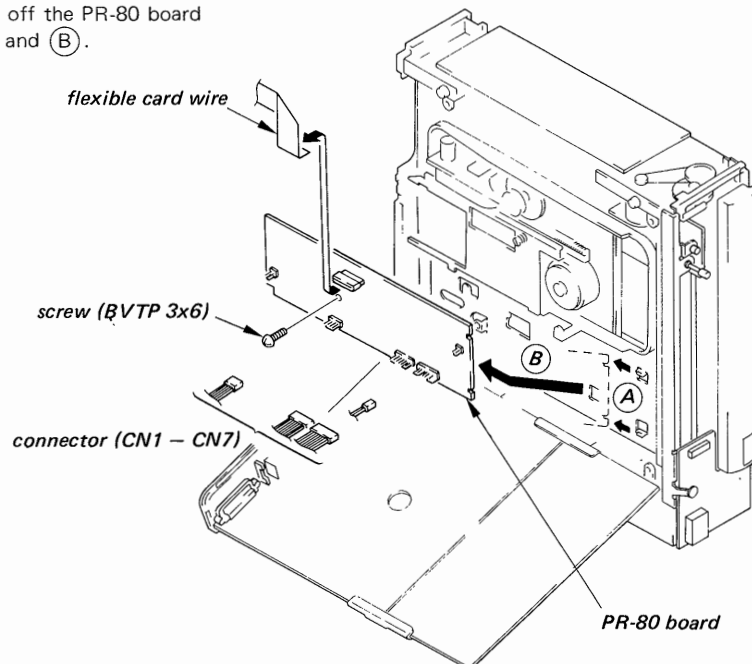
2-4. REMOVAL OF FLEXIBLE CARD WIRE

- 1) Pull the flexible shield (B) in the direction shown by the arrow (B) to remove it with pressing the (a) part of the flexible shield (B) in the direction shown by the arrow (A).
- 2) Remove the flexible shield (B).
- 3) Press the (b) part of the FN1 connector on the PR-80 board in the direction shown by the arrow (C) to pull out the flexible card wire.



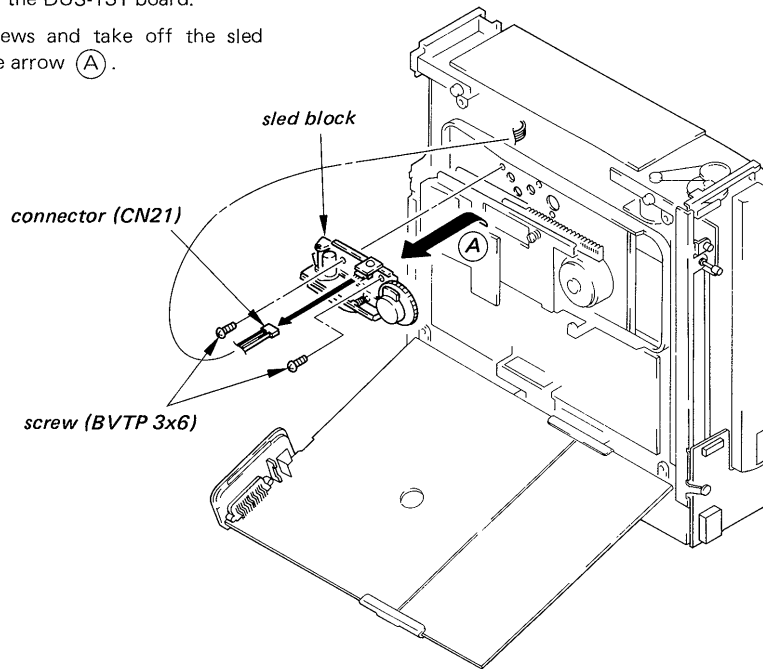
2-5. REMOVAL OF PR-80 BOARD

- 1) Pull out the flexible card wire. (Refer to 2-4.)
- 2) Disconnect the seven (CN1 – CN7) connectors.
- 3) Remove the (BVTP 3x6) screw and take off the PR-80 board in the direction shown by the arrows (A) and (B).



2-6. REMOVAL OF THE SLED BLOCK

- 1) Disconnect the CN21 connector on the DUS-131 board.
- 2) Remove the two (BVTP 3x6) screws and take off the sled block in the direction shown by the arrow (A).



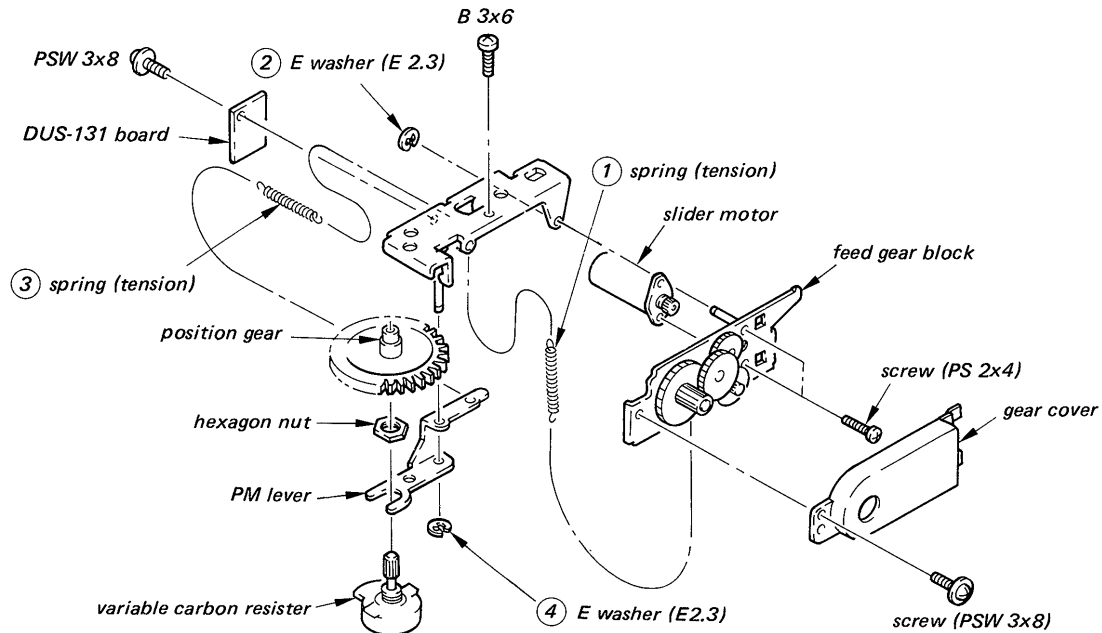
2-7. DISASSEMBLY OF SLED BLOCK

(Feed Gear Block)

- 1) Remove the (PSW 3x8) screw and take off the gear cover.
- 2) Unhook the spring (tension) of (1).
- 3) Take off the (E 2.3) E washer of (2).
- 4) Remove the feed gear block ass'y.
- 5) Remove the two (PS 2x4) screws and take off the slider motor.

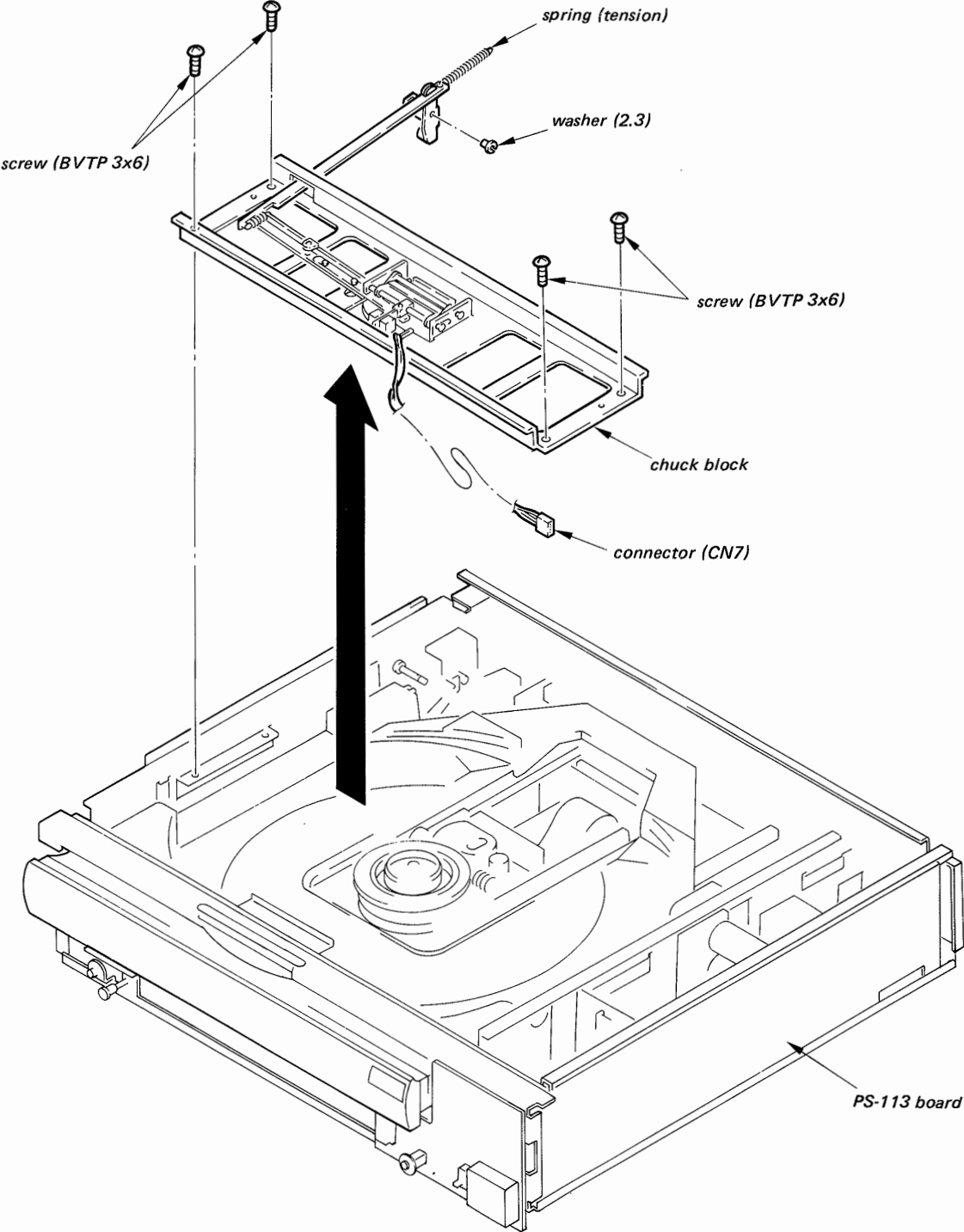
(PM Lever Block Ass'y)

- 6) Unhook the spring (tension) of (3).
- 7) Take off the (E 2.3) E washer of (4).
- 8) Remove the PM lever.
- 9) Remove the position gear.
- 10) Remove the hexagon nut and take off the variable carbon resistor.



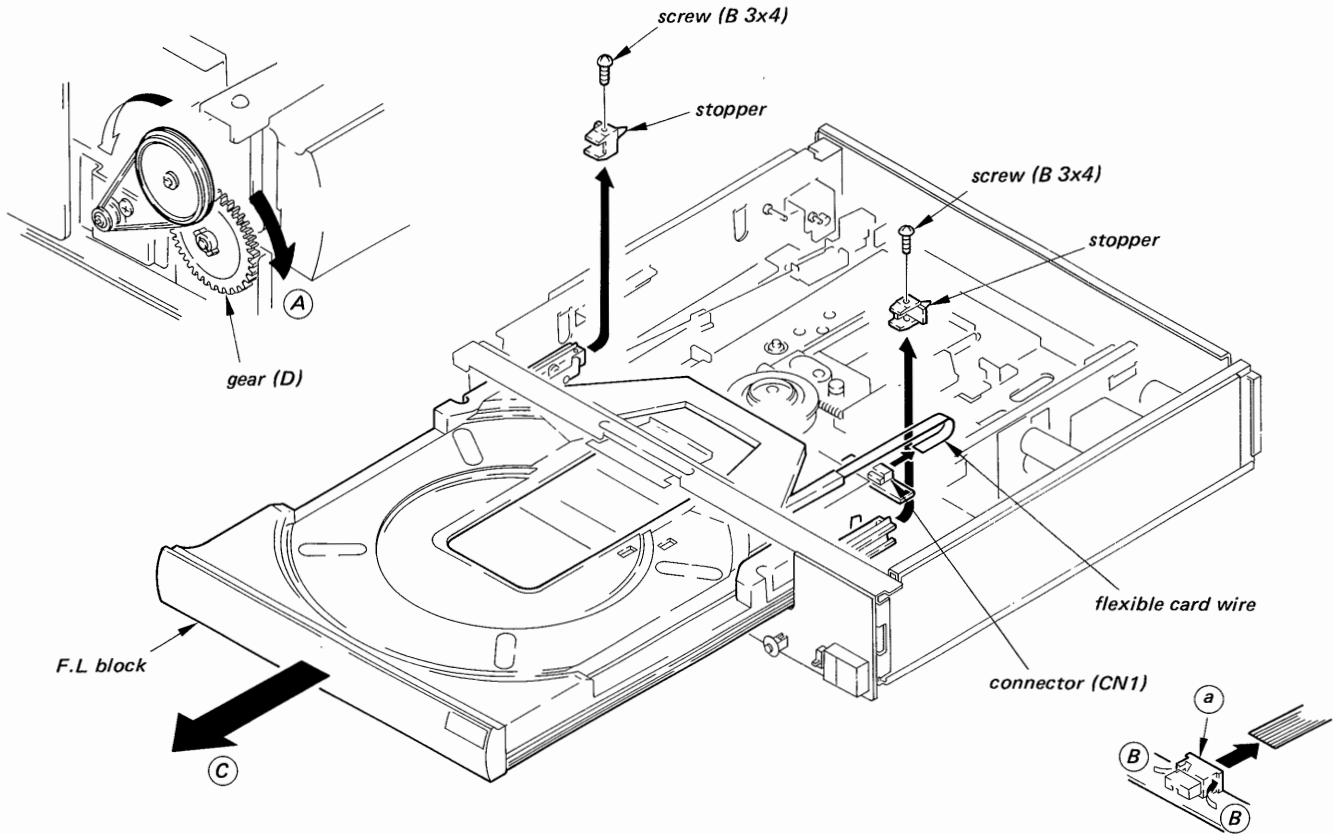
2-8. REMOVAL OF CHUCK BLOCK

- 1) Disconnect the CN7 connector on the PS-113 board.
- 2) Unhook the spring (tension).
- 3) Take off the (2.3) washer.
- 4) Remove the four (BVTP 3x6) screws and take off the chuck block ass'y.



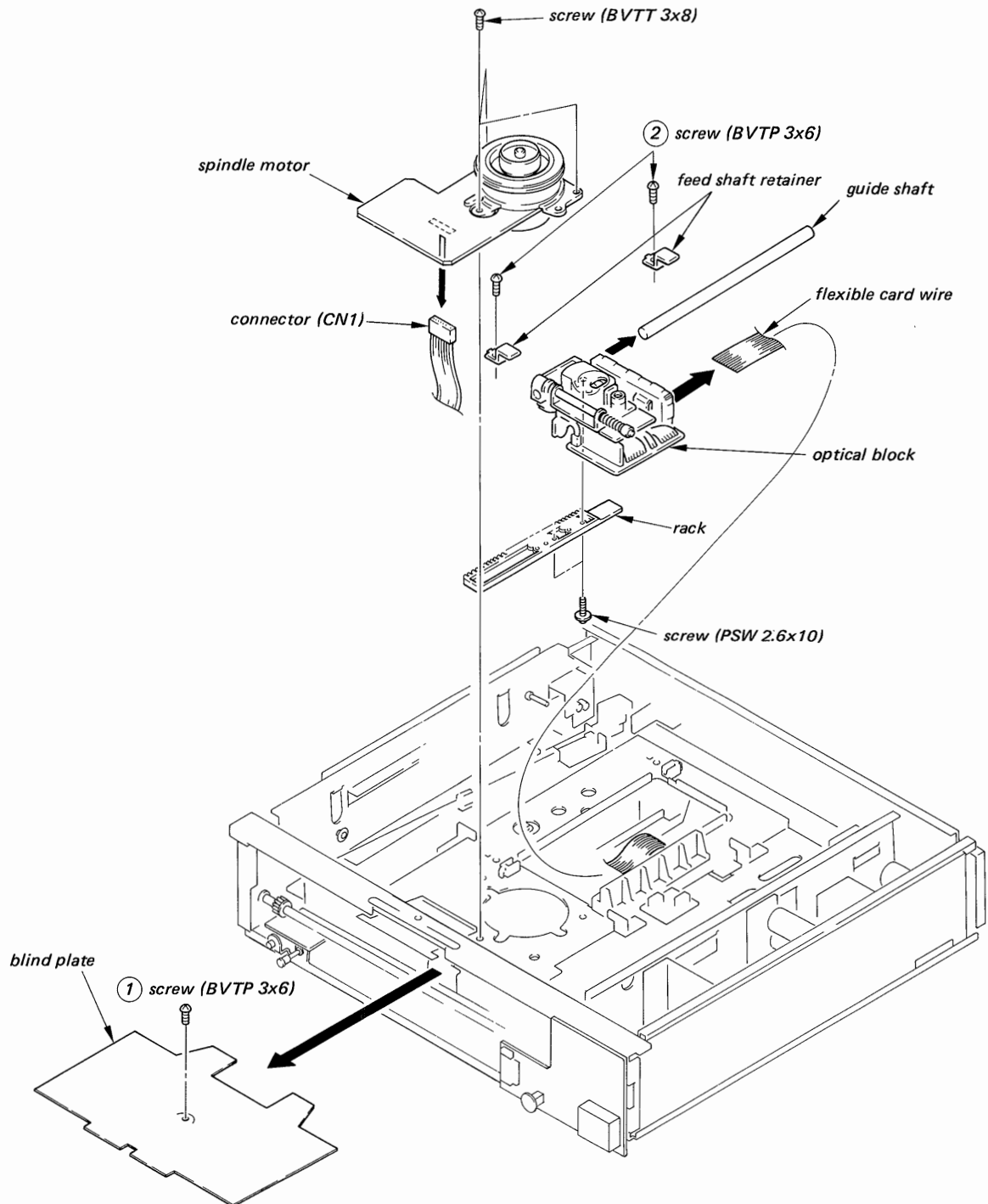
2-9. REMOVAL OF F.L BLOCK

- 1) Press the OPEN/CLOSE button and pull out the F.L block.
(It is possible to pull out the F.L block with turning the (D) gear in the direction shown by the arrow (A).)
- 2) Remove the two (B 3x4) screws and take off the stopper.
- 3) Press the (a) part of the CN1 connector on the DUS-128 board in the direction shown by the arrow (B) and disconnect the flexible card wire.
- 4) Remove the F.L block in the direction shown by the arrow (C).



2-10. REMOVAL OF SPINDLE MOTOR AND OPTICAL BLOCK ASS'Y

- 1) Turn the SS-32 and the VP-18 boards (refer to 2-2) and disconnect the CN1 connector on the spindle motor.
- 2) Remove the (BVTP 3x6) screw of ① and take off the blind plate.
- 3) Remove the three (BVTT 3x8) screws and take off the spindle motor.
- 4) Disconnect the flexible card wire.
- 5) Remove the two (BVTP 3x6) screws of ② and take off the feed shaft retainer.
- 6) Remove the guide shaft and take off the optical block ass'y.
- 7) Remove the two (PSW 2.6x10) screws and take off the rack.



NOTE FOR HANDLING OF OPTICAL BLOCK ASS'Y (KSS-141A)

- Sometimes electrostatic breakdown of the laser diode in the optical block ass'y is caused by potential difference between the electrostatic charge of the block and the one of clothes or a human body.

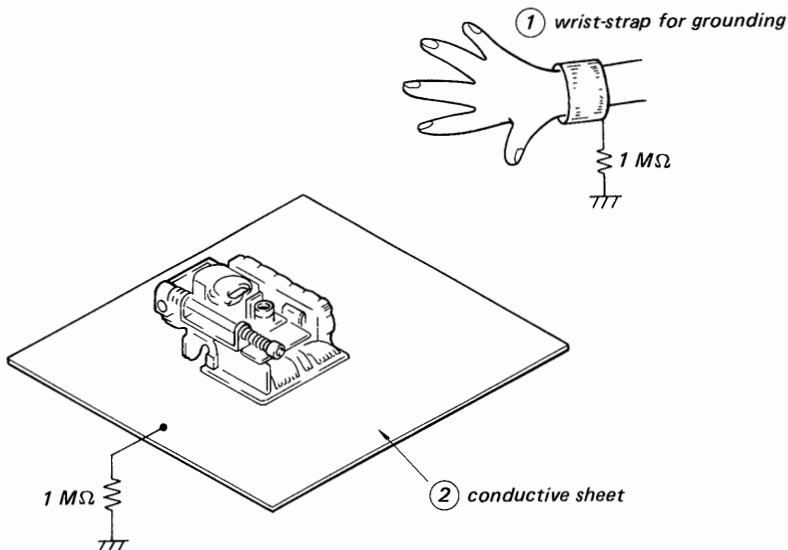
Be careful to the following notes for preventing the diode from the breakdown.

The following manners are recommended as reference.

1. Cover a work table with a conductive sheet (black sheet used for the part package).
2. Place a set on the sheet so that the chassis of the set contacts the sheet (for making the potential of the set equal to the one of the sheet).
3. Put hands on the conductive sheet (for making the potential of a human body equal to the one of the sheet).
4. Take out the optical block ass'y from its bag.
5. Work should be done on the conductive sheet with care that clothes do not touch the optical block ass'y.

Also, these notes are enclosed in repair part package.

1. Grounding for the human body
Be sure to put on a wrist-strap for grounding (with impedance lower than $10^9 \Omega$) whose other end is grounded. The strap works to drain away the static electricity build-up on the human body.
2. Grounding for the work table
Be sure to lay on the table a conductive sheet (with impedance lower than $10^9 \Omega$) such as a sheet of copper, which is grounded.
3. As static electricity build-up on clothes is not drained away, be careful not to let your clothes touch the unit.



- Be careful not to put dust or fingerprints on the object lens and skew lens while handling.

SECTION 3 MECHANICAL ALIGNMENT

Fixture Required

Reference Disc (D1); J-6160-700-A

3-1. PHOTO INTERRUPTOR POSITION ADJUSTMENT

1. Insert the reference disc.
2. Turn on the POWER switch and press the OPEN/CLOSE button and then perform loading.
3. After the chucking, turn off the POWER switch.
4. Adjust the position of DUS-130 board in the direction shown by the arrow in Fig. 3-1 so that the space A meets 1 to 1.5 mm.
5. Tighten the fixing screw.
6. Perform loading with the reference disc, and confirm that there is no worse.

Note: When the disc is not chucking normally, the centering guide on the spindle motor may not be operated. Following check is required.

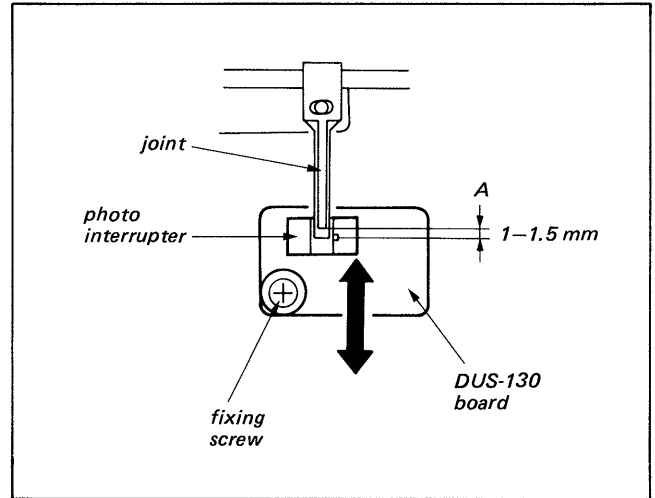


Fig. 3-1

When pressing the centering guide with the finger, confirm that the centering guide is lowered smoothly. If centering guide is not lowered smoothly, lubricate the shaft (A) portion in Fig. 3-2 with an extremely small amount of grease.

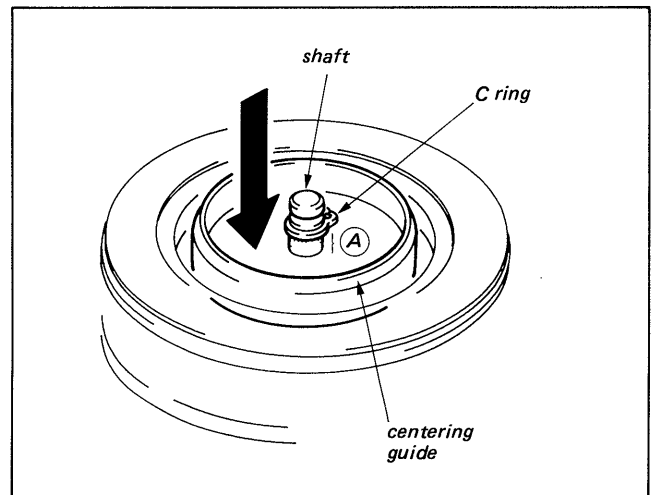


Fig. 3-2

3-2. CHUCK ASS'Y PRESSING ADJUSTMENT

1. Insert the reference disc.
2. Turn on the POWER switch and press the OPEN/CLOSE button and then perform loading.
3. After the chucking, turn off the POWER switch.
4. Adjust the adjustment hole as shown in Fig. 3-3 so that the hole of the C arm ass'y and the space (A) of the link (3) meets 0.6 to 1.5 mm.
5. Tighten the fixing screws.

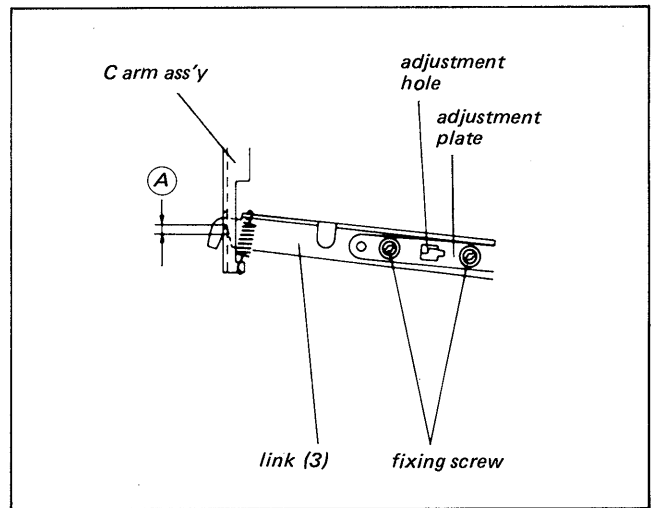


Fig. 3-3

3-3. LOADING SWITCH POSITION ADJUSTMENT

1. Put the 0.3 mm spacer between the S plate and the S retainer as shown in Fig. 3-4.
2. Adjust the position of the switch so that the switch is turned on status.
3. Tighten the fixing screw and apply the screw lock.

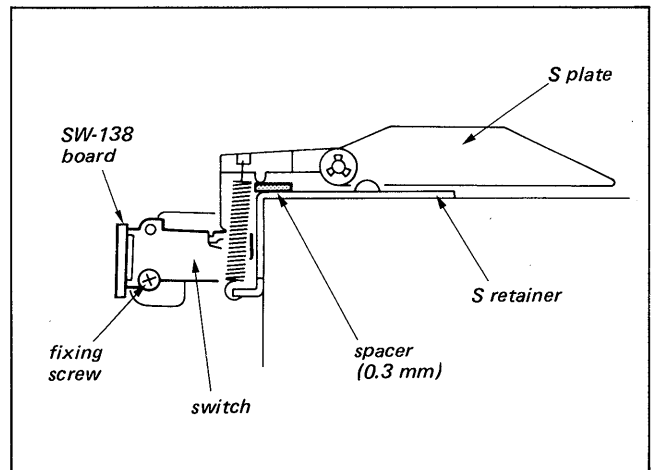


Fig. 3-4

3-4. POSITION GEAR FIXING ADJUSTMENT

1. Turn the variable resistor in the direction shown by the arrow fully.
2. Attach the position gear to the shaft so that the slit in the shaft matches the projection on the gear as shown in Fig. 3-5.

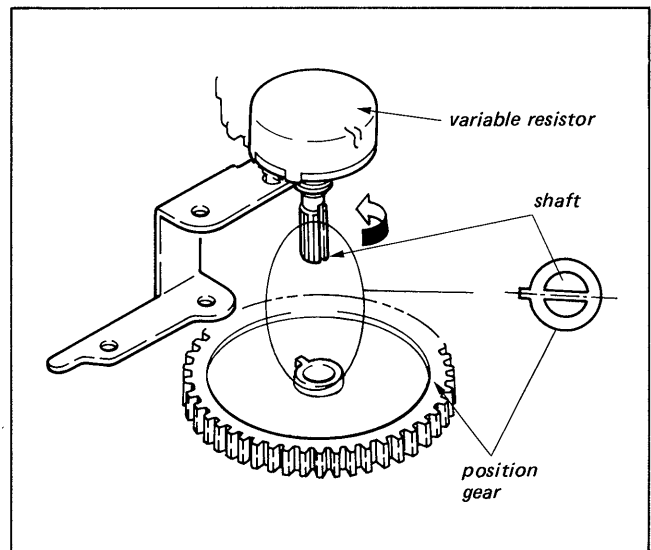


Fig. 3-5

3-5. POSITION GEAR PHASE ADJUSTMENT

After replacing the optical block ass'y, the sled block ass'y (slide gear block, PM lever block), this adjustment is required.

1. Remove the fixing screw.
2. Push the slide gear block in the hole (A) to the direction shown by the arrow (B).
3. Move the optical block ass'y to the direction shown by the arrow (C).
4. Adjust the position of the gear in the direction shown by the arrow (D) so that the projection of the gear fits in the hole of the mark.
5. Tighten the fixing screw.

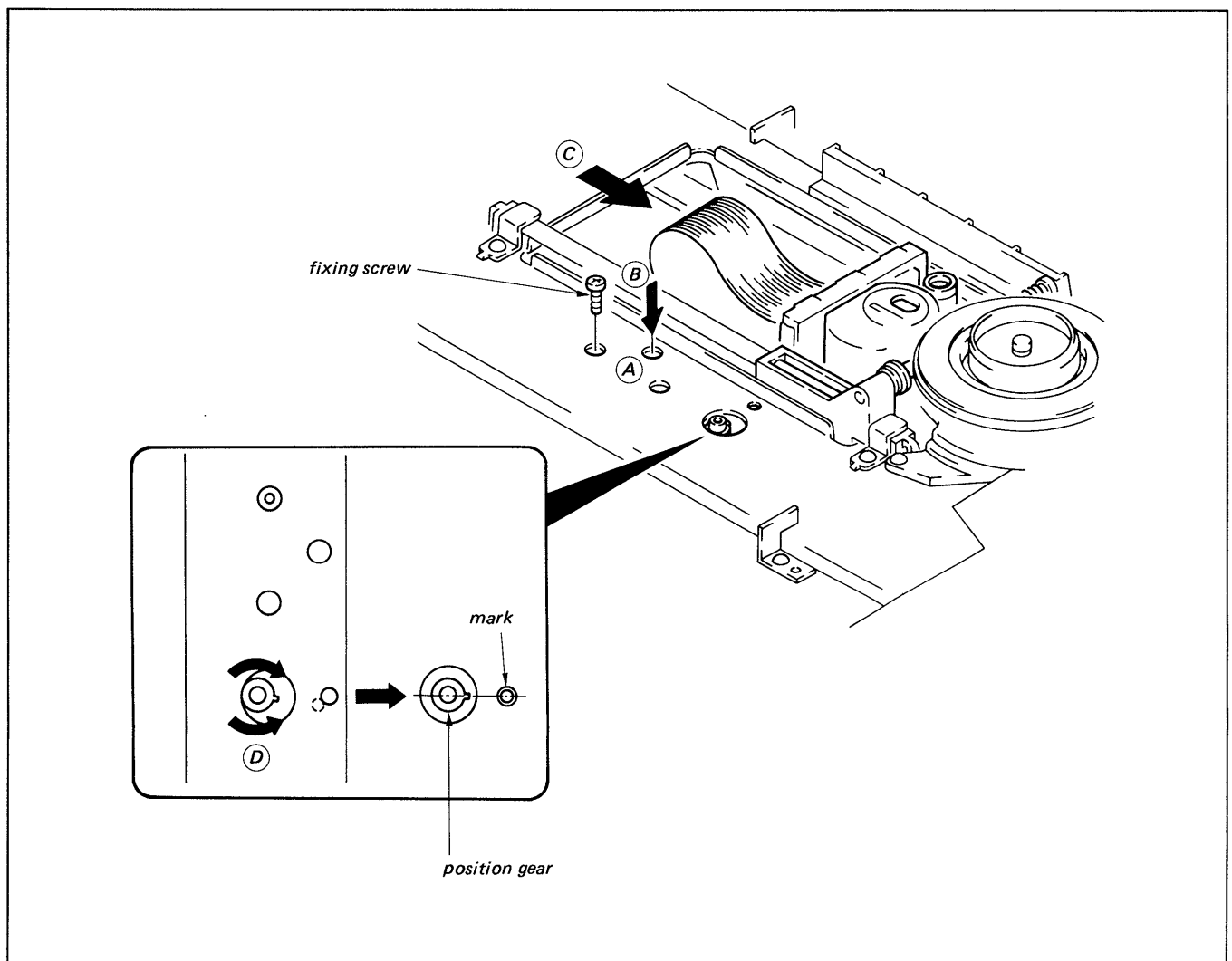


Fig. 3-6

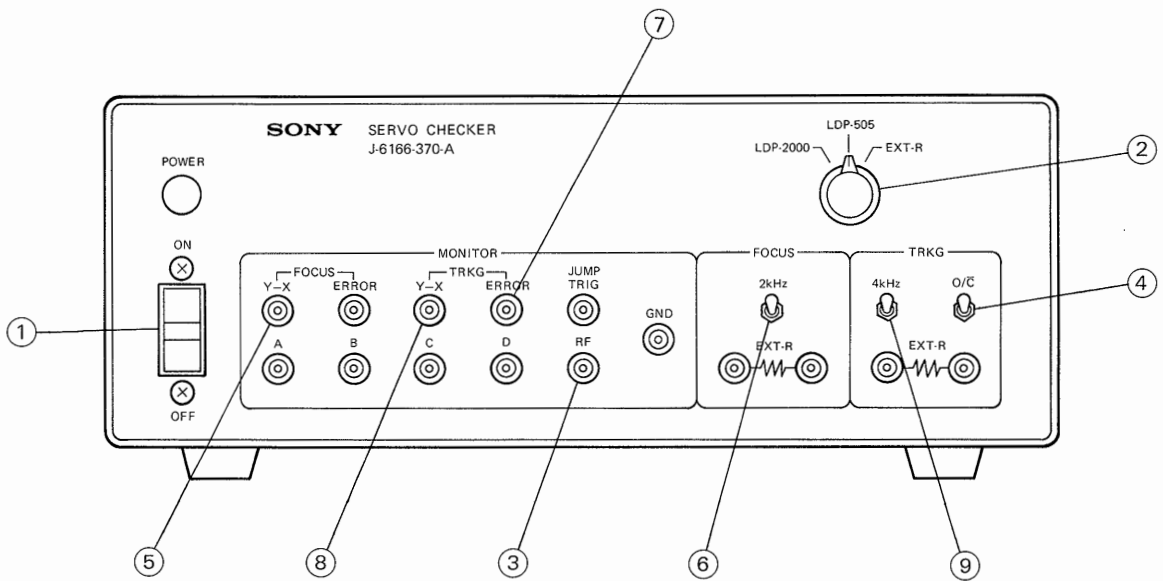
SECTION 4 ELECTRICAL ALIGNMENT

Equipment Required

DC Voltmeter
 Frequency Counter
 Oscilloscope Dual Trace
 Remote Control Unit, RM-2001
 Signal Generator (Sweep Generator) ~ 5.5 MHz
 Vectorscope
 Audio Level Meter
 Wow-flutter Meter
 Picture Monitor

Fixture Required

Reference Disc (D1); J-6160-700-A
 Servo Checker ; J-6166-370-A
 Connecting Cable ; J-6166-380-A



- ① POWER switch
- ② MODE SELECTOR
- ③ RF terminal
- ④ TRKG O/C switch
- ⑤ FOCUS Y-X terminal
- ⑥ FOCUS 2 kHz switch
- ⑦ TRKG ERROR terminal
- ⑧ TRKG Y-X terminal
- ⑨ TRKG 4 kHz switch

4-1. MISCELLANEOUS ADJUSTMENT

4-1-1. DC Power Regulator Adjustment

Conditions	Specifications	Adjustment
<ul style="list-style-type: none"> POWER on state 	TP6/PS-113 $+5.0 \pm 0.05$ V dc	RV1/PS-113

4-1-2. Spindle PWM Ref 2H Adjustment

Conditions	Specifications	Adjustment
<ul style="list-style-type: none"> POWER on state 	Q101- $\text{\textcircled{C}}$ /SV-79 $31,250 \pm 10$ Hz	RV101/SV-79

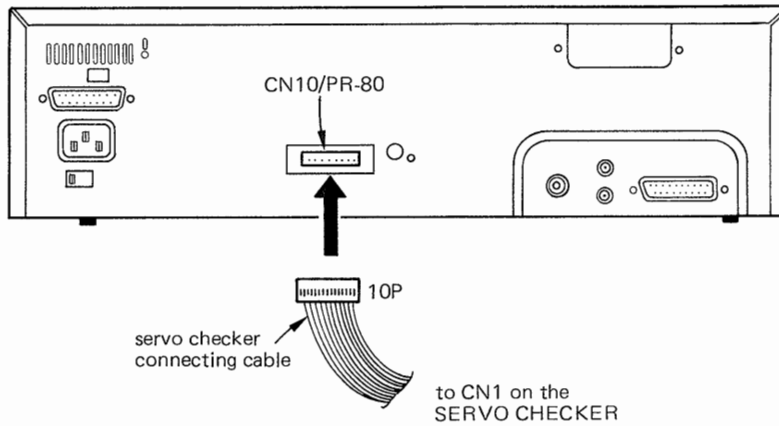
4-1-3. Decoder Clock Adjustment

Conditions	Specifications	Adjustment
<ul style="list-style-type: none"> POWER on state 	TP1/SS-32 3.0 ± 0.03 MHz	CV1/SS-32


4-2. FOCUS SERVO ADJUSTMENT

Remove the blind lid on the rear panel, and connect the SERVO CHECKER to CN10/PR-80 board.

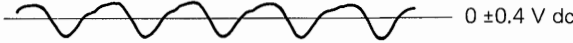
Rear Panel



4-2-1. Focus Bias Adjustment

Conditions	Specifications	Adjustment
<ul style="list-style-type: none"> Search for frame 35,000 of a REF. disc. Set the switches on the SERVO CHECKER as follows. POWER ; <u>ON</u> MODE SELECTOR ; <u>LDP-505</u> FOCUS 2kHz ; <u>OFF</u> TRKG 4kHz ; <u>OFF</u> TRKG O/C ; <u>OFF</u> 	RF terminal on the SERVO CHECKER  Maximize the amplitude.	RV4/PR-80

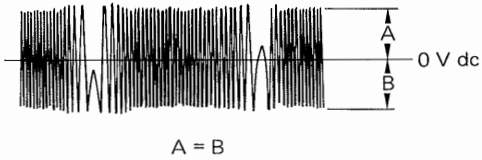
4-2.2. Focus Gain Adjustment

Conditions	Specifications	Adjustment
<ul style="list-style-type: none"> ● Search for frame 35,000 of a REF. disc. ● Set the switches on the SERVO CHECKER as follows. POWER ; <u>ON</u> MODE SELECTOR ; <u>LDP-505</u> FOCUS 2kHz ; <u>ON</u> TRKG 4kHz ; <u>OFF</u> TRKG O/\bar{C} ; <u>OFF</u> 	Focus Y-X terminal on the SERVO CHECKER 	RV5/PR-80


4.3. TRACKING SERVO ADJUSTMENT

Remove the blind lid on the rear panel, and connect the SERVO CHECKER to CN10/PR-80 board.

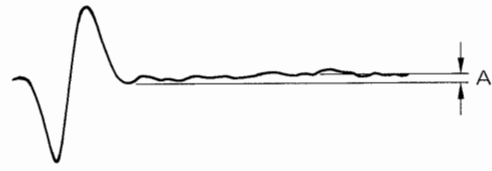
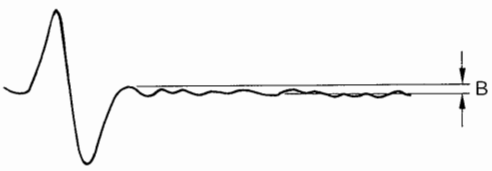
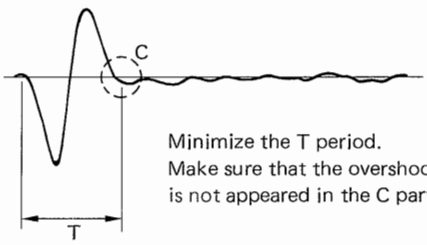
4-3-1. Tracking Bias Adjustment

Conditions	Specifications	Adjustment
<ul style="list-style-type: none"> ● Search for frame 35,000 of a REF. disc. ● Set the switches on the SERVO CHECKER as follows. POWER ; <u>ON</u> MODE SELECTOR ; <u>LDP-505</u> FOCUS 2kHz ; <u>OFF</u> TRKG 4kHz ; <u>OFF</u> TRKG O/\bar{C} ; <u>ON</u> 	TRKG ERROR terminal on the SERVO CHECKER 	RV6/PR-80

4-3-2. Tracking Gain Adjustment

Conditions	Specifications	Adjustment
<ul style="list-style-type: none"> ● Search for frame 35,000 of a REF. disc. ● Set the switches on the SERVO CHECKER as follows. POWER ; <u>ON</u> MODE SELECTOR ; <u>LDP-505</u> FOCUS 2kHz ; <u>OFF</u> TRKG 4kHz ; <u>ON</u> TRKG O/\bar{C} ; <u>OFF</u> 	TRKG Y-X terminal on the SERVO CHECKER 	RV7/PR-80

4-3-3. Track Jump Adjustment

Conditions	Specifications	Adjustment
<ul style="list-style-type: none"> ● Search for frame 35,000 of a REF. disc. (STILL mode) ● Playing back a REF. disc at a FWD x3 speed mode. 	<p>TRKG ERROR terminal on the SERVO CHECKER (STILL)</p>  <p>(FWD x3)</p>  <p>A = B</p>	RV1/SV-79
<ul style="list-style-type: none"> ● Search for frame 35,000 of a REF. disc. (STILL mode) 	<p>TRKG ERROR terminal on the SERVO CHECKER</p>  <p>Minimize the T period. Make sure that the overshoot is not appeared in the C part.</p>	RV2/SV-79

4-4. IN/OUT LIMIT POSITION ADJUSTMENT

4-4-1. IN Limit Adjustment

Conditions	Adjustment
<ul style="list-style-type: none"> • Playing back a REF. disc. • Short TP1 to E1 on the KY-93 board. • Press the S2 (◀◀ REV) button and the S3 (▶▶ PLAY) button on the KY-93 board simultaneously. 	Adjust RV3 on the PR-80 board so that the blinking D5 (CLV) lamp is extinguished. Be careful not to turn the RV3 excessively.
<ul style="list-style-type: none"> • Press the S2 button and the S4 (⏸ PAUSE) button simultaneously at above conditions. 	When the D5 lamp is blinked, make sure that the monitor picture displays following time. <div style="text-align: center;"> 00 : 59 : 40 : 00 to 00 : 59 : 49 : 24 </div>

4-4-2. 12 inch Disc Out Limit Adjustment

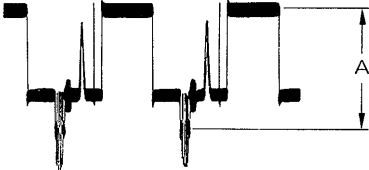
Conditions	Adjustment
<ul style="list-style-type: none"> • Playing back a REF. disc. • Short TP1 to E1 on the KY-93 board. • Turn the S6 (AUTO REPEAT) switch off. • Press the S1 (▶▶ FWD) button and the S3 (▶▶ PLAY) button on the KY-93 board simultaneously. 	Adjust RV1 on the PR-80 board so that the blinking D5 (CLV) lamp is extinguished. Be careful not to turn the RV1 excessively.
<ul style="list-style-type: none"> • Press the S1 button and the S4 (⏸ PAUSE) button simultaneously at above conditions. 	When the D5 lamp is blinked, make sure that the monitor picture displays following time. <div style="text-align: center;"> 1 : 36 : 10 : 00 to 1 : 36 : 19 : 24 </div>

4-4-3. 8 inch Disc Out Limit Adjustment

Conditions	Adjustment
<ul style="list-style-type: none"> • Playing back a REF. disc. • Short TP1 to E1 on the KY-93 board. • Turn the S6 (AUTO REPEAT) switch on. • Press the S1 (▶▶ FWD) button and the S3 (▶▶ PLAY) button on the KY-93 board simultaneously. 	Adjust RV2 on the PR-80 board so that the blinking D5 (CLV) lamp is extinguished. Be careful not to turn the RV2 excessively.
<ul style="list-style-type: none"> • Press the S1 button and the S4 (⏸ PAUSE) button simultaneously at above conditions. 	When the D5 lamp is blinked, make sure that the monitor picture displays following frame number. <div style="text-align: center;"> 24850 to 25099 </div>

4-5. VIDEO SYSTEM ADJUSTMENT

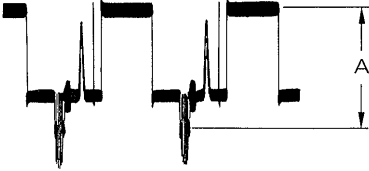
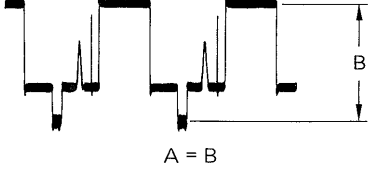
4-5-1. Demodulator Video Level Adjustment

Conditions	Specifications	Adjustment
<ul style="list-style-type: none"> Search for chapter 15 of a REF. disc. 	TP102/PR-80  $A = 2.0 \pm 0.1 \text{ V}$	RV101/PR-80

4-5-2. Dropout Sensitivity Adjustment

Conditions	Specifications	Adjustment						
<ul style="list-style-type: none"> Turn the POWER on without a disc. Disconnect the FN1 on the PR-80 board (refer to 2-4). Connect the 5.5 MHz and/or 5.0 MHz 300 mVp-p signal to the TP101 on the PR-80 board. 	<table border="1"> <thead> <tr> <th>Frequency</th> <th>TP105/PR-80</th> </tr> </thead> <tbody> <tr> <td>5.5 MHz</td> <td>0 V dc (Low level)</td> </tr> <tr> <td>5.0 MHz</td> <td>5 V dc (High level)</td> </tr> </tbody> </table>	Frequency	TP105/PR-80	5.5 MHz	0 V dc (Low level)	5.0 MHz	5 V dc (High level)	RV102/PR-80
Frequency	TP105/PR-80							
5.5 MHz	0 V dc (Low level)							
5.0 MHz	5 V dc (High level)							


4-5-3. DOC Video Level Adjustment

Conditions	Specifications	Adjustment
<ul style="list-style-type: none"> Search for chapter 15 of a REF. disc. 	TP1/VP-18  TP2/VP-18  $A = B$	RV1/VP-18

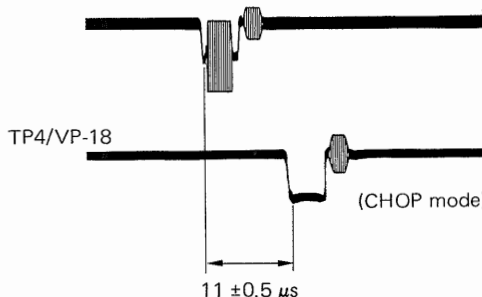
4-5-4. CCD Bias Adjustment

Conditions	Specifications	Adjustment
<ul style="list-style-type: none"> • Turn the POWER on without a disc. • Disconnect the CN2 on the VP-18 board. 	Q21-(E)/VP-18 $2.0 \pm 0.1 \text{ V dc}$	RV2/VP-18

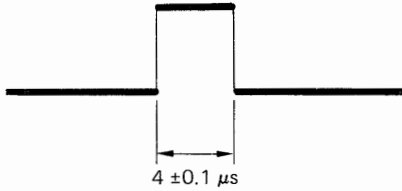
4-5-5. Video Out Level Adjustment

Conditions	Specifications	Adjustment
<ul style="list-style-type: none"> • Search for chapter 15 of a REF. disc. 	VIDEO OUT connector (VIDEO OUT connector should be terminated by 75Ω .)  $A = 1.0 \pm 0.02 \text{ V}$	RV3/VP-18

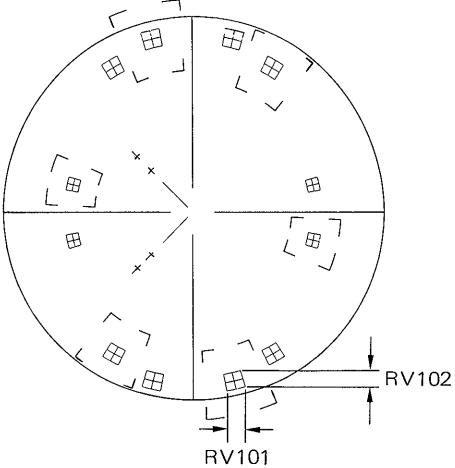
4-5-6. TBC Centering Adjustment

Conditions	Specifications	Adjustment
<ul style="list-style-type: none"> • Search for chapter 16 of a REF. disc. • Short TP202 to TP203 on the VP-18 board. 	TP1/VP-18  $11 \pm 0.5 \mu\text{s}$	RV4/VP-18


4-5-7. TBC 1/2H Rejecter Adjustment

Conditions	Specifications	Adjustment
<ul style="list-style-type: none"> • Playing back a REF. disc. 	TP204/VP-18  $4 \pm 0.1 \mu\text{s}$	RV12/VP-18

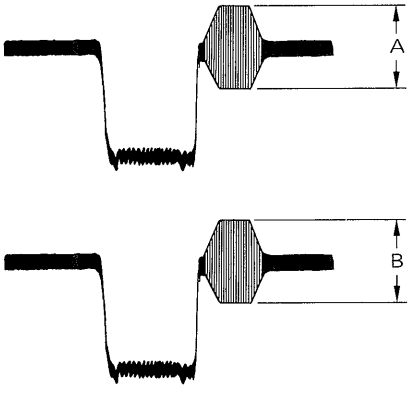
4-5-8. CF U/V Separator Adjustment

Conditions	Specifications	Adjustment
<ul style="list-style-type: none"> Search for chapter 22 of a REF. disc. (STILL mode) Connect a vectorscope to the VIDEO OUT connector. 	<p>VIDEO OUT connector (VIDEO OUT connector should be terminated by 75 Ω.)</p>  <p>Minimize the each bright spot's spread.</p>	<p>RV101/VP-18 RV102/VP-18</p>

4-5-9. CF Video Level Adjustment

Conditions	Specifications	Adjustment
<ul style="list-style-type: none"> Search for chapter 15 of a REF. disc. (STILL mode) 	<p>VIDEO OUT connector (VIDEO OUT connector should be terminated by 75 Ω.)</p>  <p>$A = 1.0 \pm 0.02 \text{ V}$</p>	<p>RV103/VP-18</p>

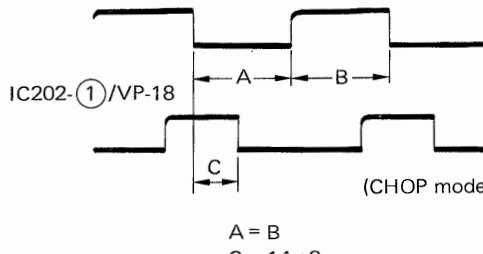
4-5-10. CF Chroma Level Adjustment

Conditions	Specifications	Adjustment
<ul style="list-style-type: none"> Playing back the chapter 15 of a REF. disc at a FWD normal speed mode and/or STILL mode. 	<p>VIDEO OUT connector (VIDEO OUT connector should be terminated by 75 Ω.)</p> <p>NORMAL FWD</p>  <p>STILL</p> <p>$A = B$</p>	<p>RV104/VP-18</p>

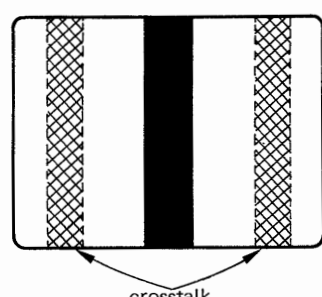
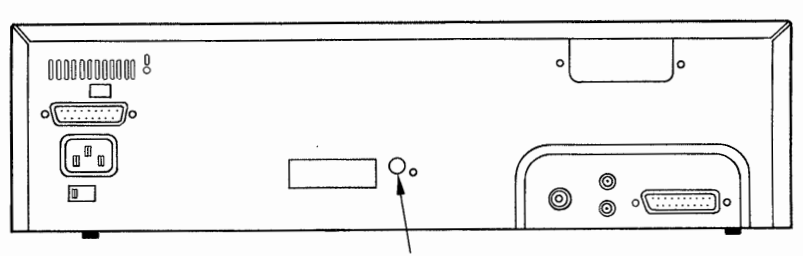
4-5-11. B.B SC Adjustment

Conditions	Specifications	Adjustment
<ul style="list-style-type: none"> POWER on state 	TP401/VP-18 4,433,619 ±5 Hz	CV401/VP-18

4-5-12. B.B H Sync Adjustment

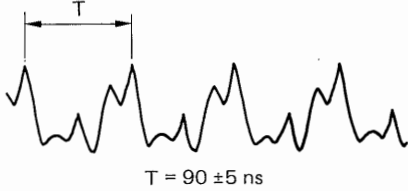
Conditions	Specifications	Adjustment
<ul style="list-style-type: none"> POWER on state 	TP403/VP-18  <p style="text-align: center;">(CHOP mode)</p> <p style="text-align: center;">A = B C = 14 ± 2 μs</p>	Duty Adjustment RV402/VP-18 Phase Adjustment RV401/VP-18

4-5-13. Skew Servo Adjustment

Conditions	Adjustment
<ul style="list-style-type: none"> Search for frame 17.264 of a REF. disc. (STILL mode) 	<p>Remove the blind lid on the rear panel, and adjust a skew VR on the optical block ass'y so that the left and right sides crosstalk is not appeared on the monitor picture.</p>  <p style="text-align: center;">crosstalk</p> <p>Rear Panel</p>  <p style="text-align: center;">skew VR</p>

4-6. AUDIO SYSTEM ADJUSTMENT

4-6-1. TBC Centering Adjustment

Conditions	Specifications	Adjustment
<ul style="list-style-type: none"> Turn the POWER on without a disc. 	TP3/AU-73  $T = 90 \pm 5 \text{ ns}$	RV1/AU-73

4-6-2. TBC Gain Adjustment

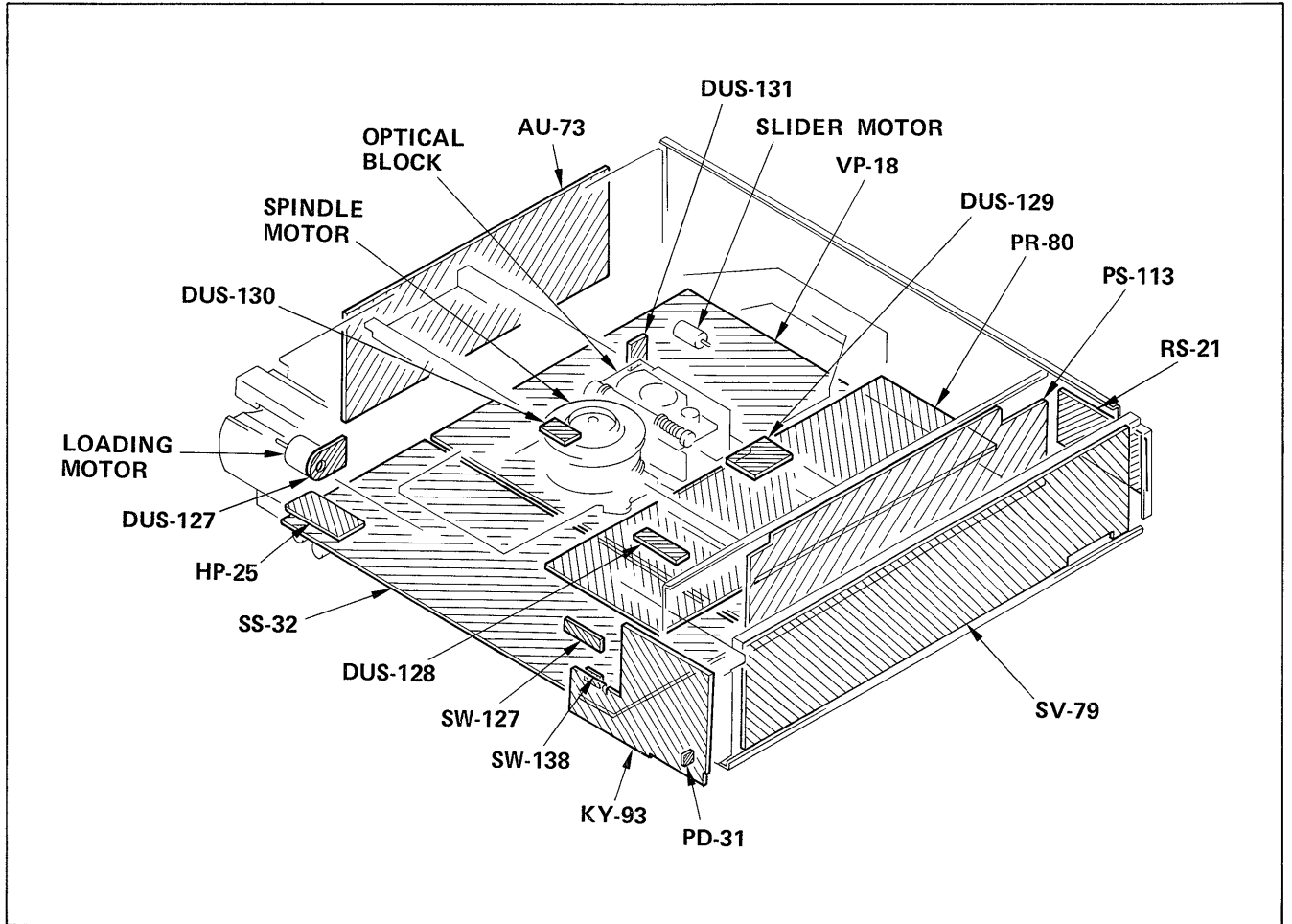
Conditions	Specifications	Adjustment
<ul style="list-style-type: none"> Playing back the chapter 1 of a REF. disc. Connect a wow-flutter meter to the LINE OUT jack. 	LINE OUT jack (CH-1/L or CH-2/R) Minimize the reading of a wow-flutter meter.	RV2/AU-73

4-6-3. LINE OUT Level Adjustment

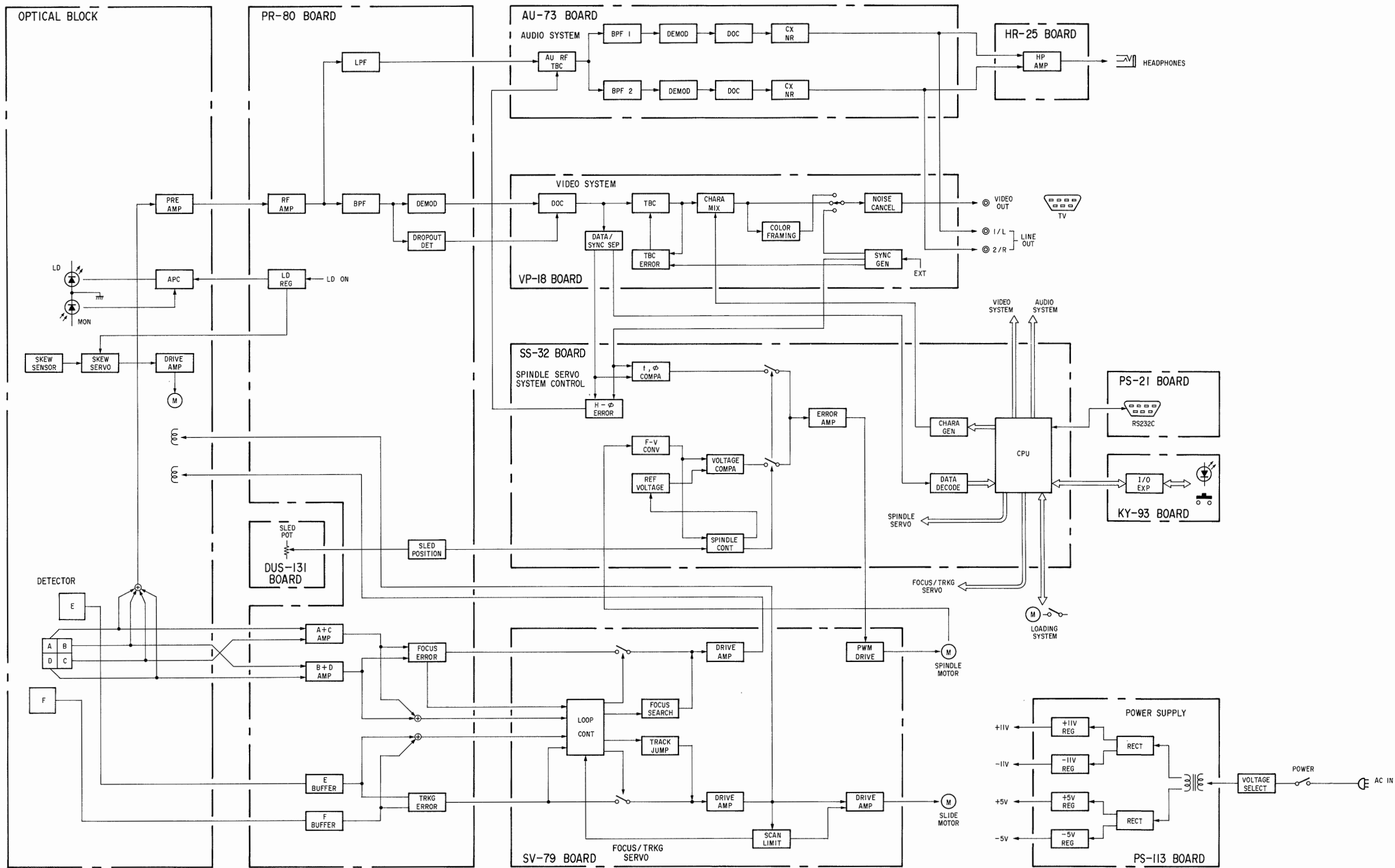
Conditions	Specifications	Adjustment
<ul style="list-style-type: none"> Playing back the chapter 1 of a REF. disc at a FWD normal speed mode. Connect a audio level meter to the LINE OUT jack. 	LINE OUT jack (CH-1/L) $2.2 \pm 0.5 \text{ dBs}$	RV4/AU-73
	LINE OUT jack (CH-2/R) $2.2 \pm 0.5 \text{ dBs}$ Note: LINE OUT connectors should be terminated by $47 \text{ k}\Omega$.	RV3/AU-73

SECTION 5 DIAGRAMS

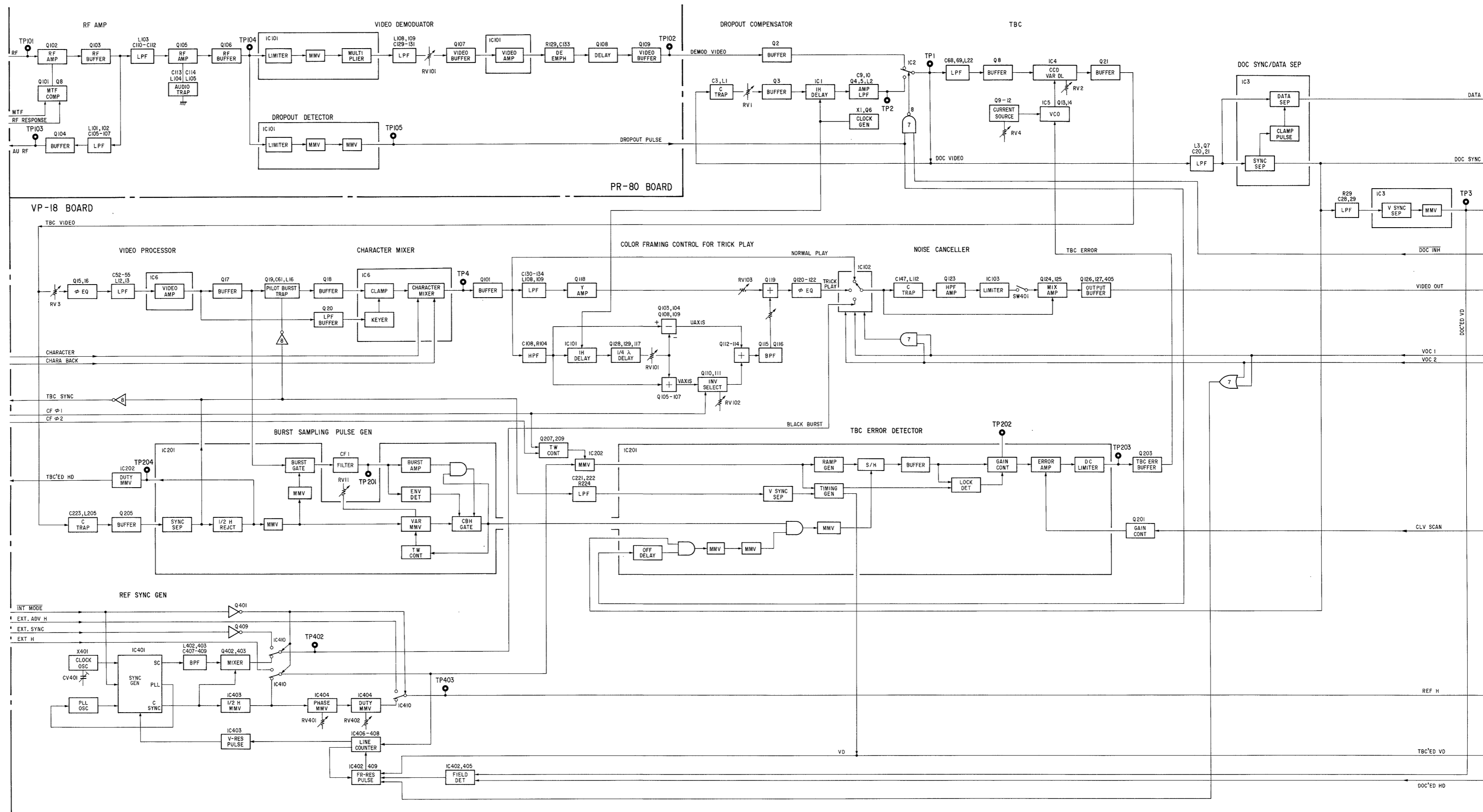
5-1. LOCATION OF THE PRINTED CIRCUIT BOARDS



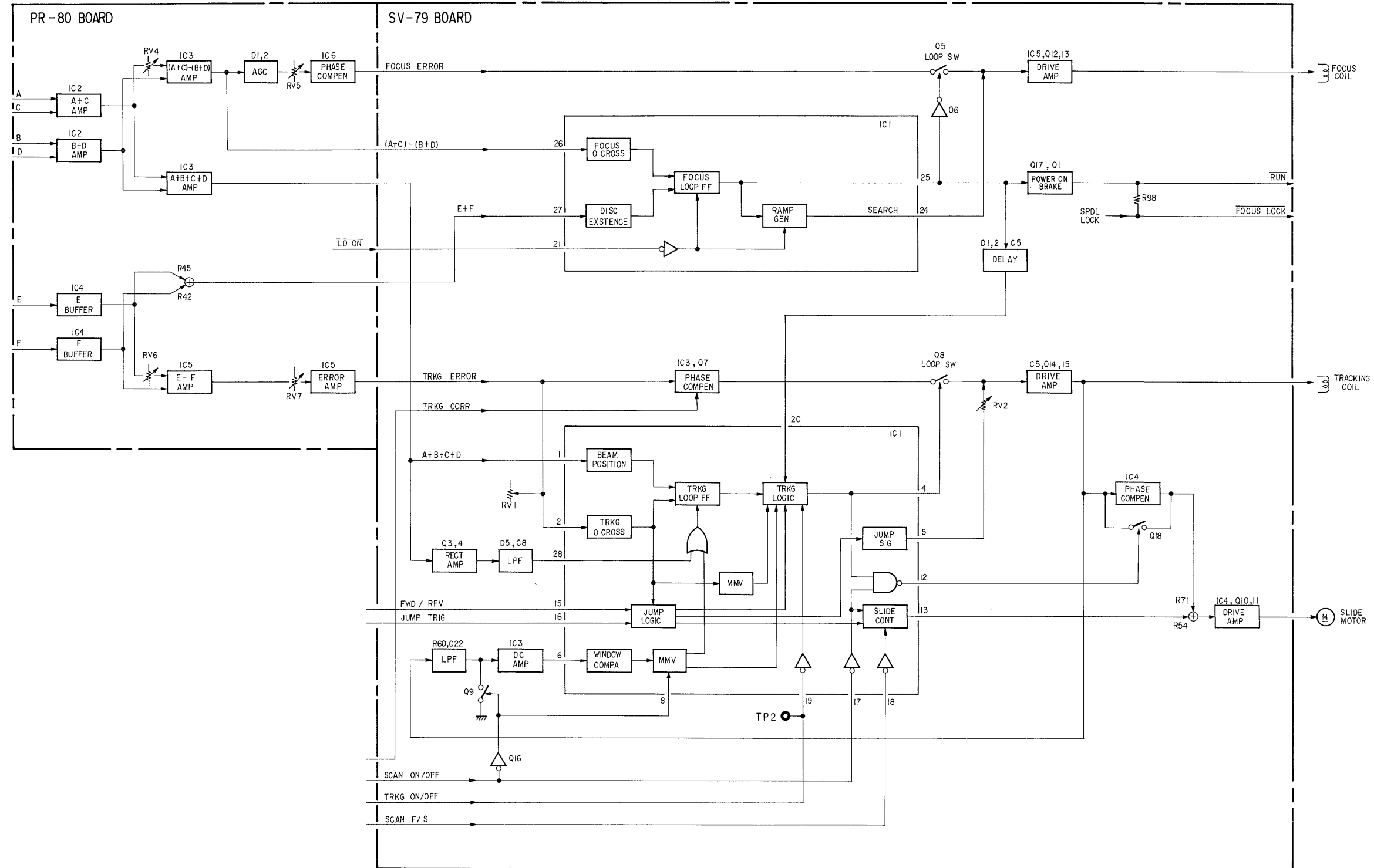
5-2. OVERALL BLOCK DIAGRAM



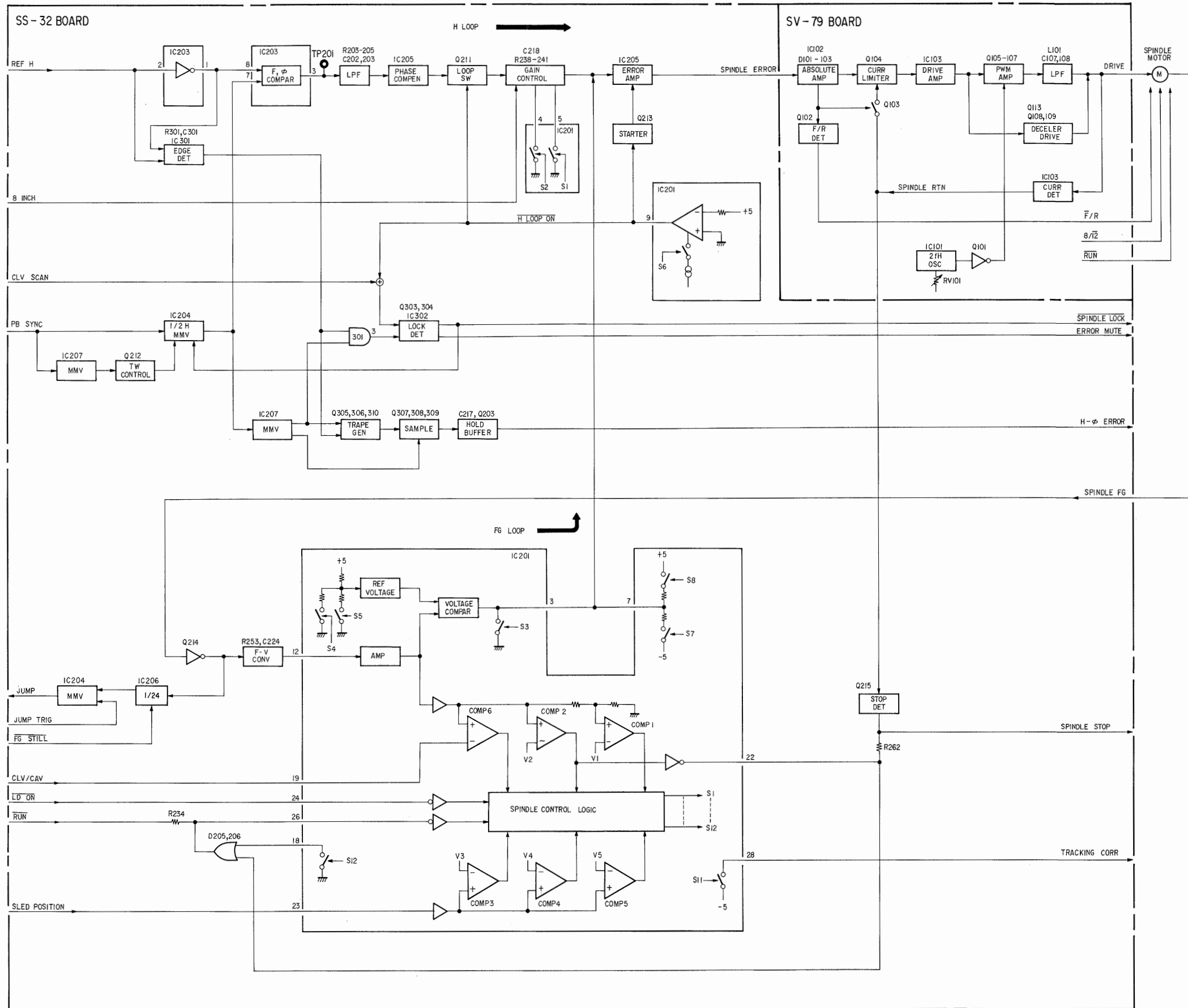
5-3. VIDEO SYSTEM BLOCK DIAGRAM



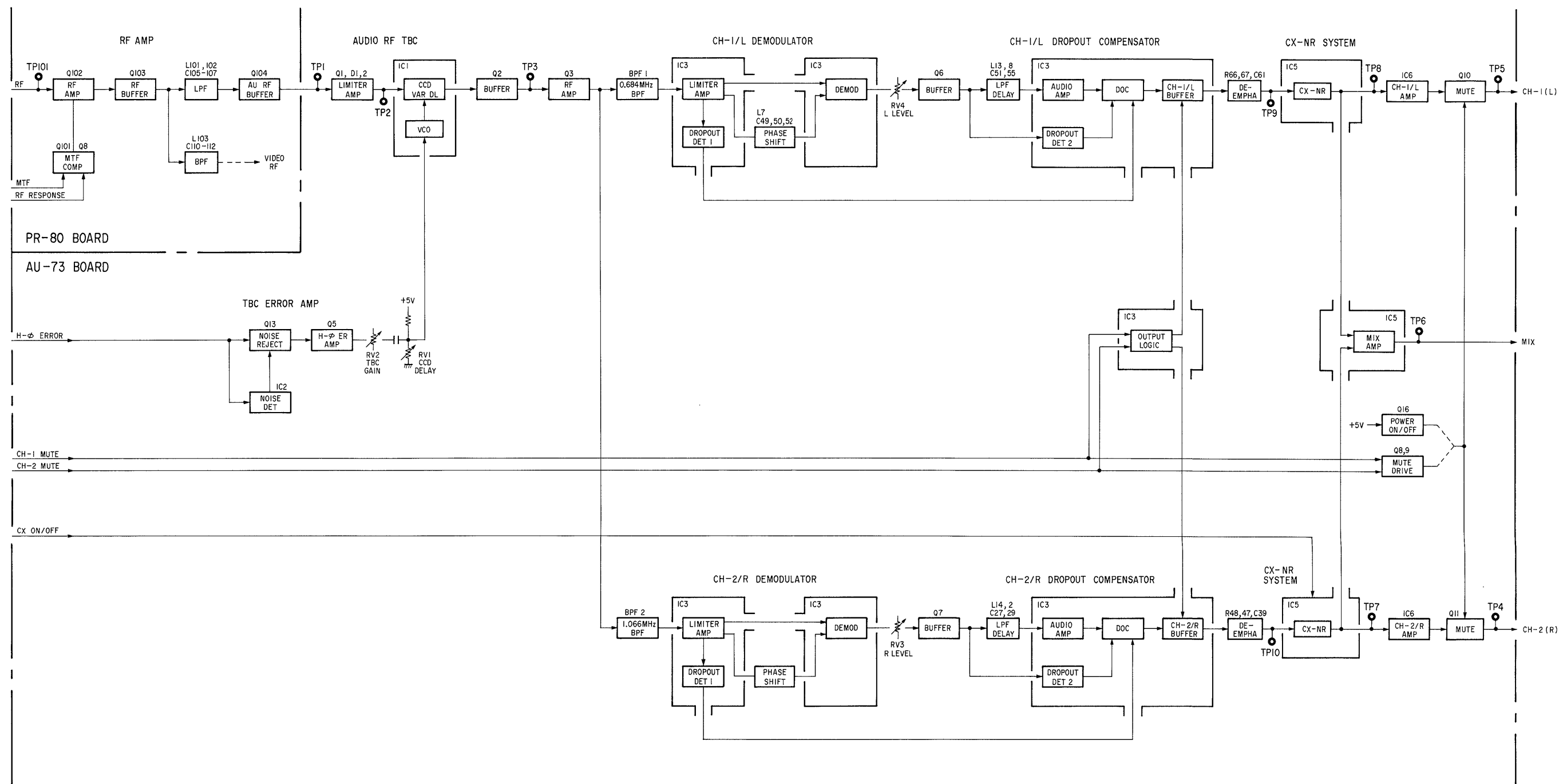
5-4. FOCUS, TRACKING, SLIDE SERVO SYSTEM BLOCK DIAGRAM



5-5. SPINDLE SERVO BLOCK DIAGRAM

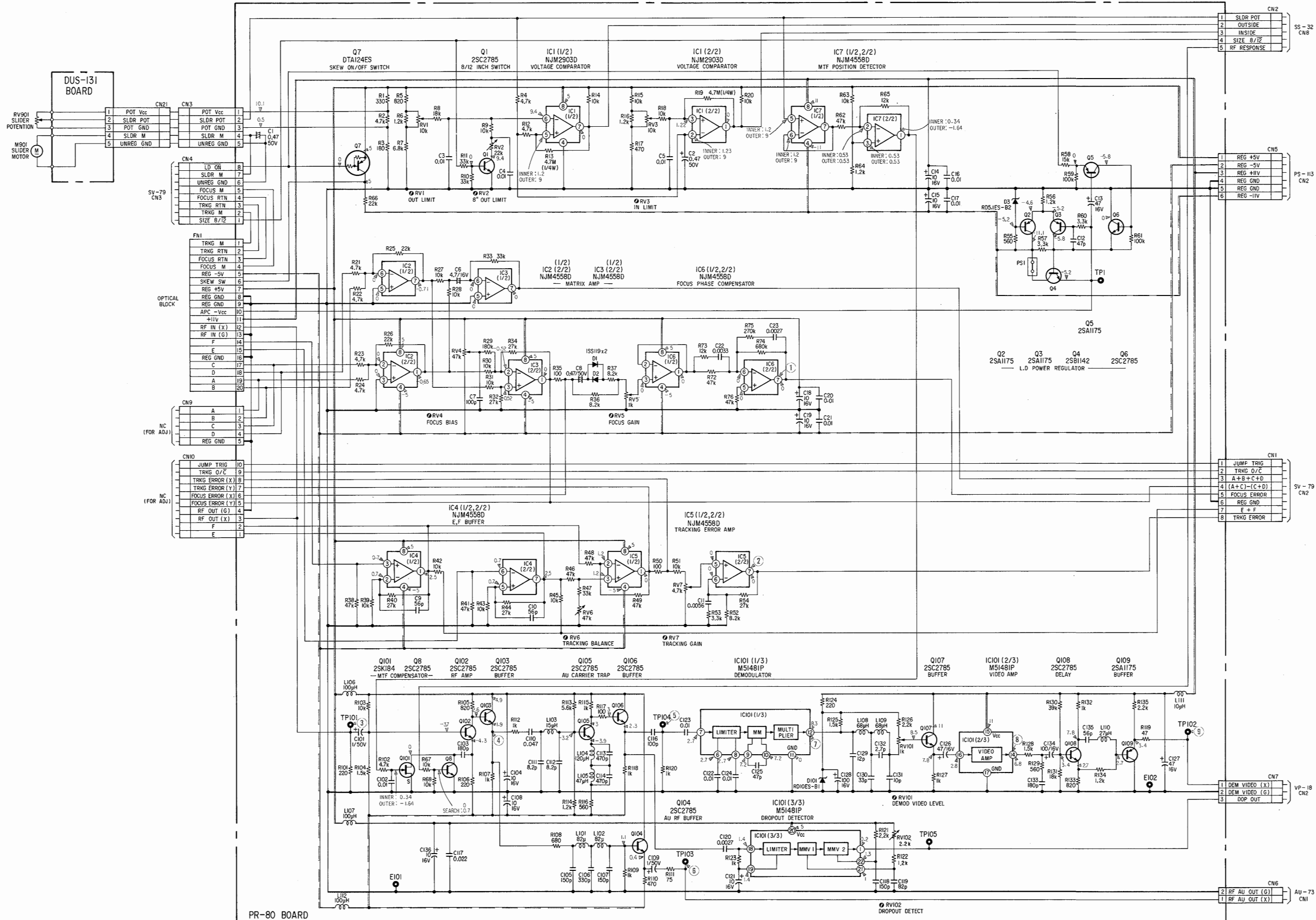


5-6. AUDIO SYSTEM BLOCK DIAGRAM



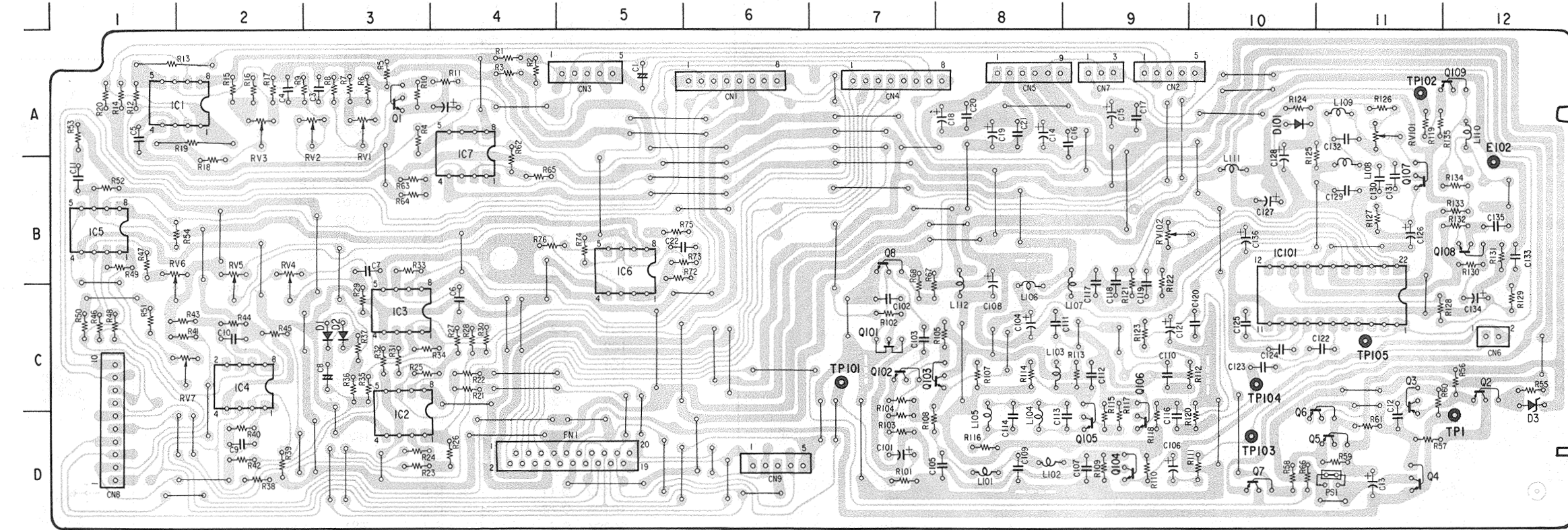
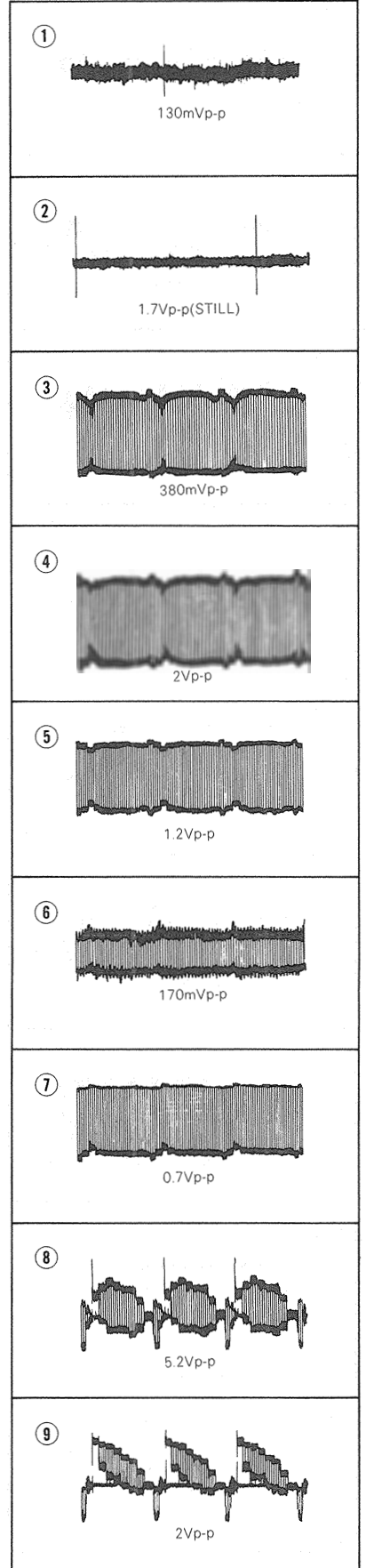
5-7. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

PR-80 (RF AMP, VIDEO DEMODULATOR), DUS-131 (SLIDE MOTOR)

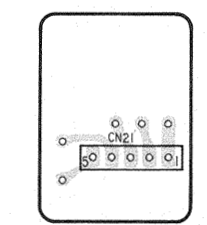


PR-80 (RF AMP, VIDEO DEMODULATOR), DUS-131 (SLIDE MOTOR)

PR-80 BOARD



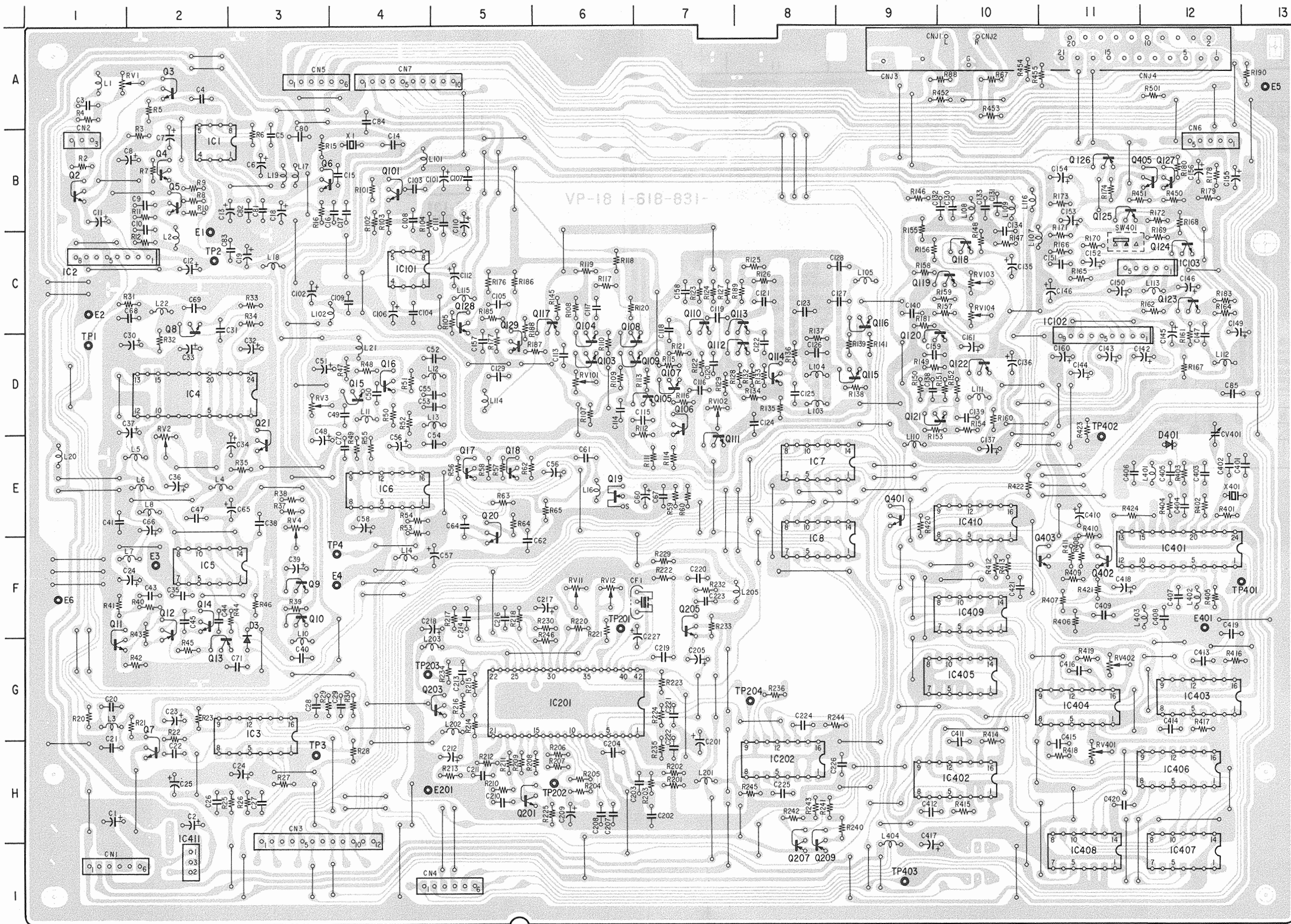
PR-80 - SOLDERING SIDE -
1-618-669-11
LDP-1500P



DUS-131
- SOLDERING SIDE -
1-618-642-11
LDP-1500P

CN2	A-9	IC1	A-2	Q7	D-10	RV4	B-2
CN3	A-5	IC2	D-3	Q8	C-7	RV5	B-2
CN4	A-7	IC3	C-3	Q101	C-7	RV6	B-1
CN5	A-8	IC4	C-2	Q102	C-7	RV7	C-2
CN6	C-12	IC5	B-1	Q103	C-7	RV101	A-11
CN7	A-9	IC6	B-5	Q104	D-9	RV102	B-9
CN8	D-8	IC7	B-4	Q105	D-9		
CN9	D-6	IC101	B-10	Q106	C-9	TP1	D-12
				Q107	B-11	TP101	C-7
D1	C-3	Q1	A-3	Q108	B-12	TP102	A-11
D2	C-3	Q2	C-12	Q109	A-12	TP103	D-10
D3	C-12	Q3	C-11			TP104	C-10
D101	A-10	Q4	D-11	RV1	A-3	TP105	C-11
		Q5	D-11	RV2	A-3		
E102	A-12	Q6	D-11	RV3	A-2		

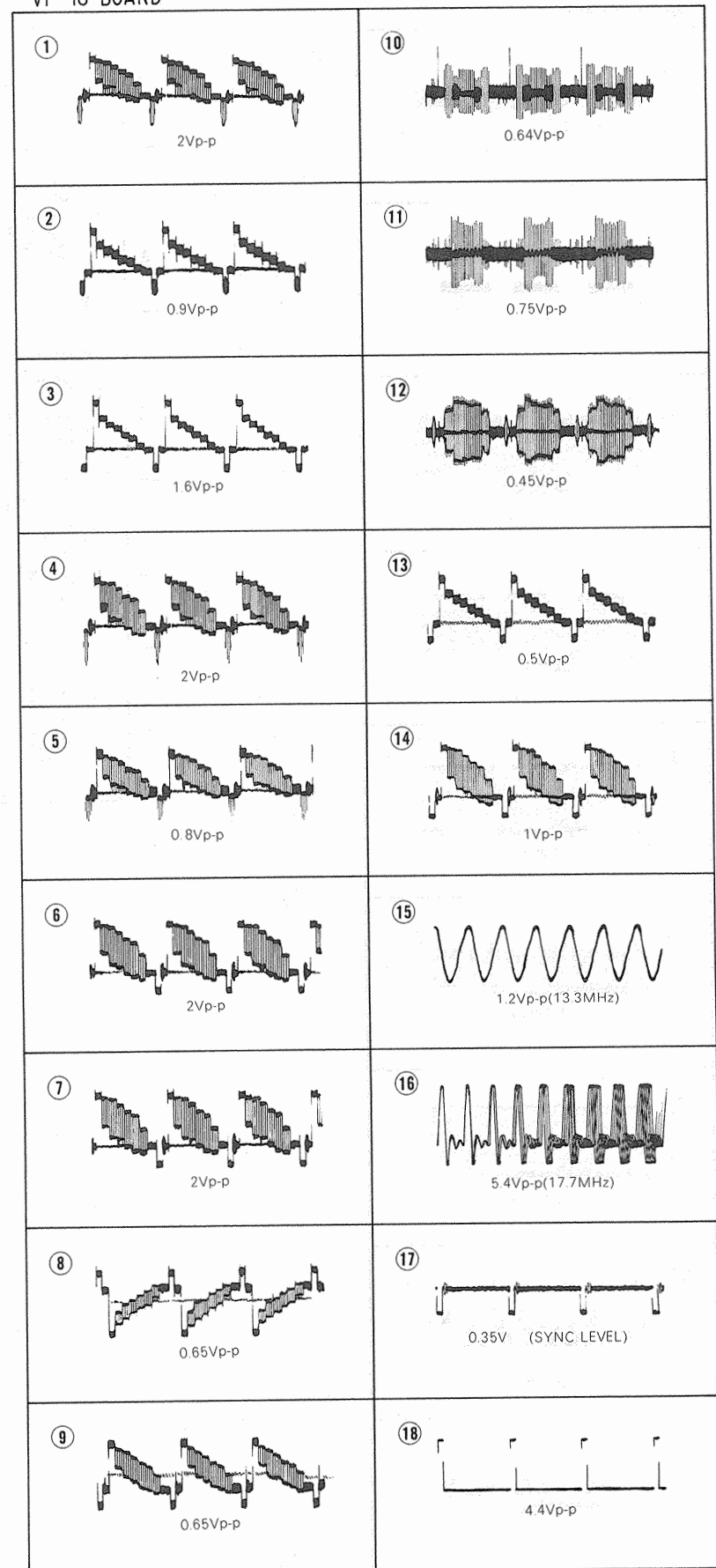
VP-18 (VIDEO SYSTEM)

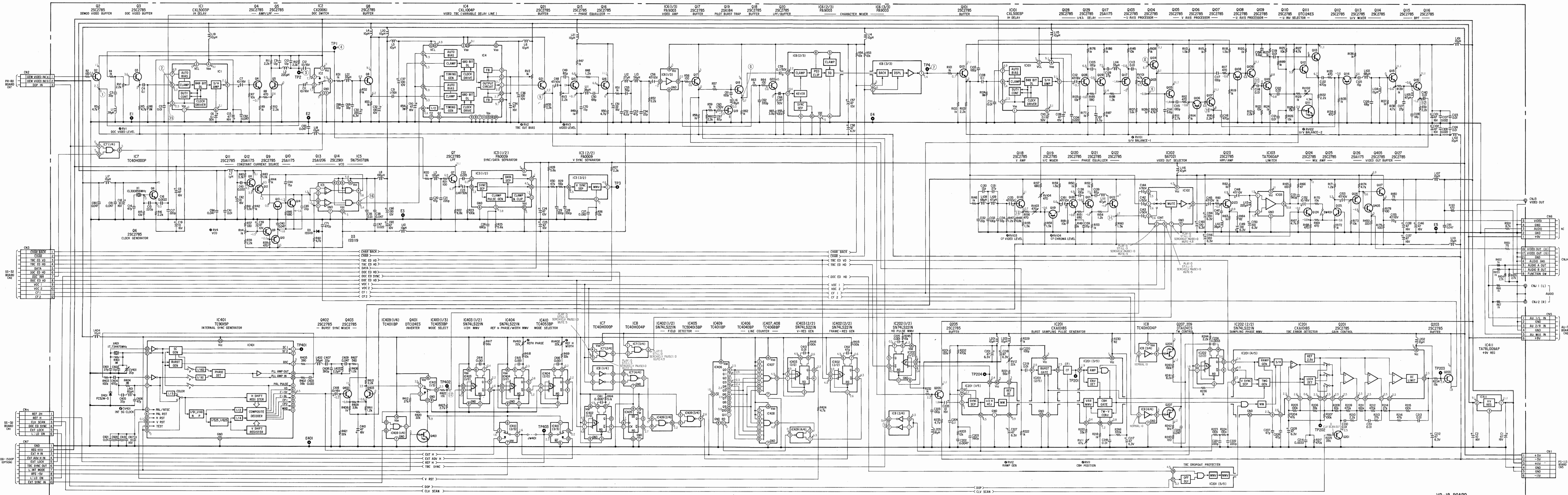


VP-18 - SOLDERING SIDE -
I-618-831-11
LDP-1500P

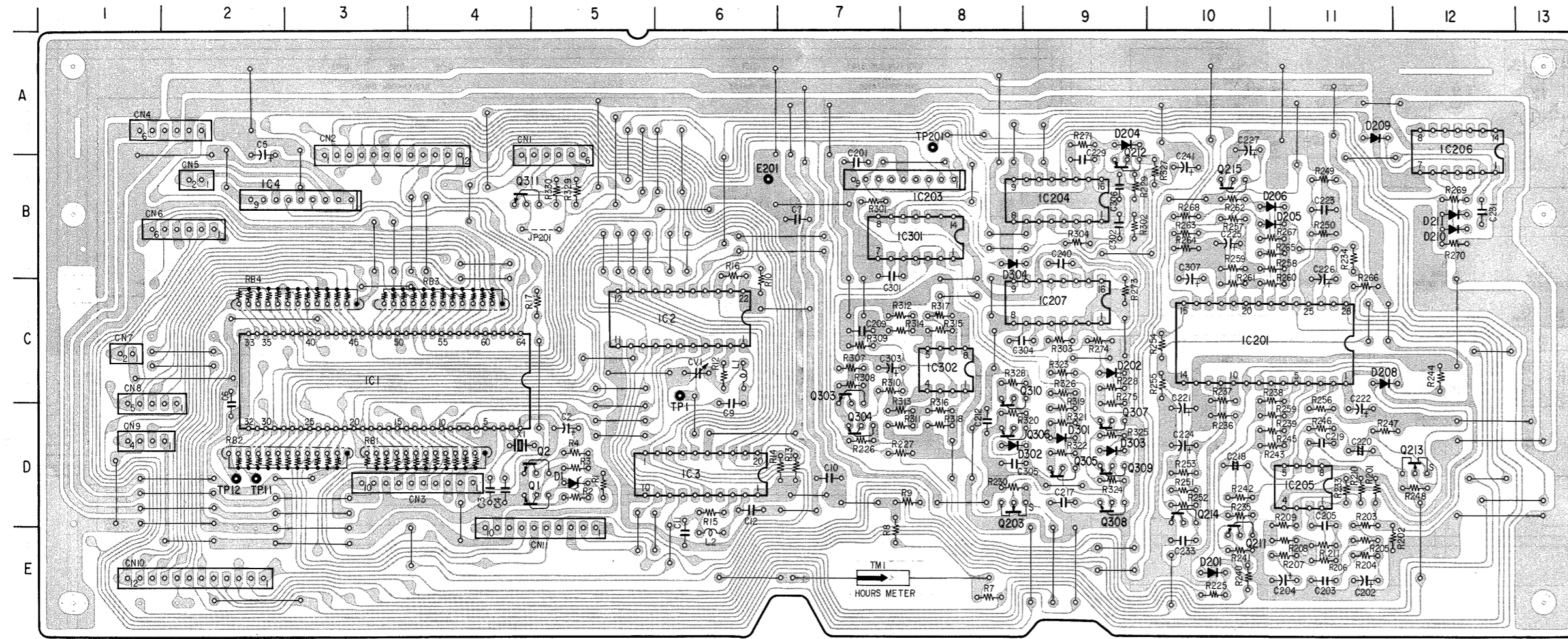
CN1	I-1	Q2	B-1	Q124	C-12
CN2	B-1	Q3	A-2	Q125	B-11
CN3	H-3	Q4	B-2	Q126	B-11
CN5	A-3	Q5	B-2	Q127	B-12
CN7	A-4	Q6	B-3	Q128	C-5
		Q7	H-2	Q129	D-5
D3	G-3	Q8	C-2	Q201	H-5
D401	E-12	Q9	F-3	Q203	G-5
		Q10	F-3	Q205	F-7
E1	C-2	Q11	G-1	Q207	I-8
E2	C-1	Q12	F-2	Q209	I-8
E3	F-2	Q13	G-2	Q401	E-9
E4	F-4	Q14	F-2	Q402	F-11
E5	A-13	Q15	D-4	Q403	F-11
E6	F-1	Q16	D-4	Q405	B-12
E201	H-4	Q17	E-5		
E401	F-12	Q18	E-5	RV1	A-2
		Q19	E-6	RV2	E-2
IC1	B-2	Q20	E-5	RV3	D-3
IC2	C-1	Q21	E-3	RV4	E-3
IC3	G-3	Q101	B-4	RV11	F-6
IC4	D-2	Q103	D-6	RV12	F-6
IC5	F-2	Q104	D-6	RV101	D-6
IC6	E-4	Q105	D-7	RV102	D-7
IC7	E-8	Q106	D-7	RV103	C-10
IC8	F-8	Q107	D-7	RV104	C-10
IC101	C-4	Q108	D-6	RV401	H-11
IC102	D-11	Q109	D-6	RV402	G-11
IC103	C-12	Q110	D-7		
IC201	G-6	Q111	E-7	TP1	D-1
IC202	H-8	Q112	D-7	TP2	C-2
IC401	F-12	Q113	C-8	TP3	H-3
IC402	H-10	Q114	D-9	TP4	F-4
IC403	G-12	Q115	D-9	TP201	F-6
IC404	G-11	Q116	C-9	TP202	H-6
IC405	G-10	Q117	C-6	TP203	G-4
IC406	H-12	Q118	C-10	TP204	G-8
IC407	I-12	Q119	C-10	TP401	F-13
IC408	I-11	Q120	D-9	TP402	E-11
IC409	F-10	Q121	D-9	TP403	I-9
IC410	E-10	Q122	D-10		
IC411	I-2	Q123	C-12		

VP-18 BOARD

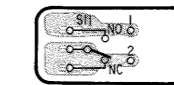




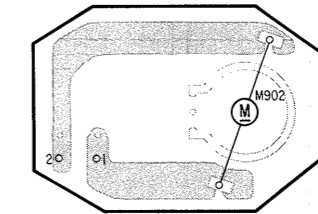
SS-32 (SYSTEM CONTROL, SPINDLE SERVO), SW-138 (TRAY END SWITCH), DUS-127 (LOADING MOTOR), DUS-129 (DISC/SIZE SENSOR)



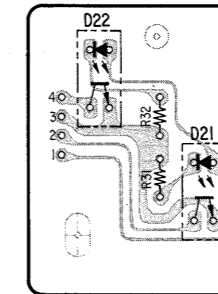
SS-32 - SOLDERING SIDE -
I-618-832-11
LDP-1500P



SW-138 - SOLDERING SIDE -
I-618-844-11
LDP-1500P



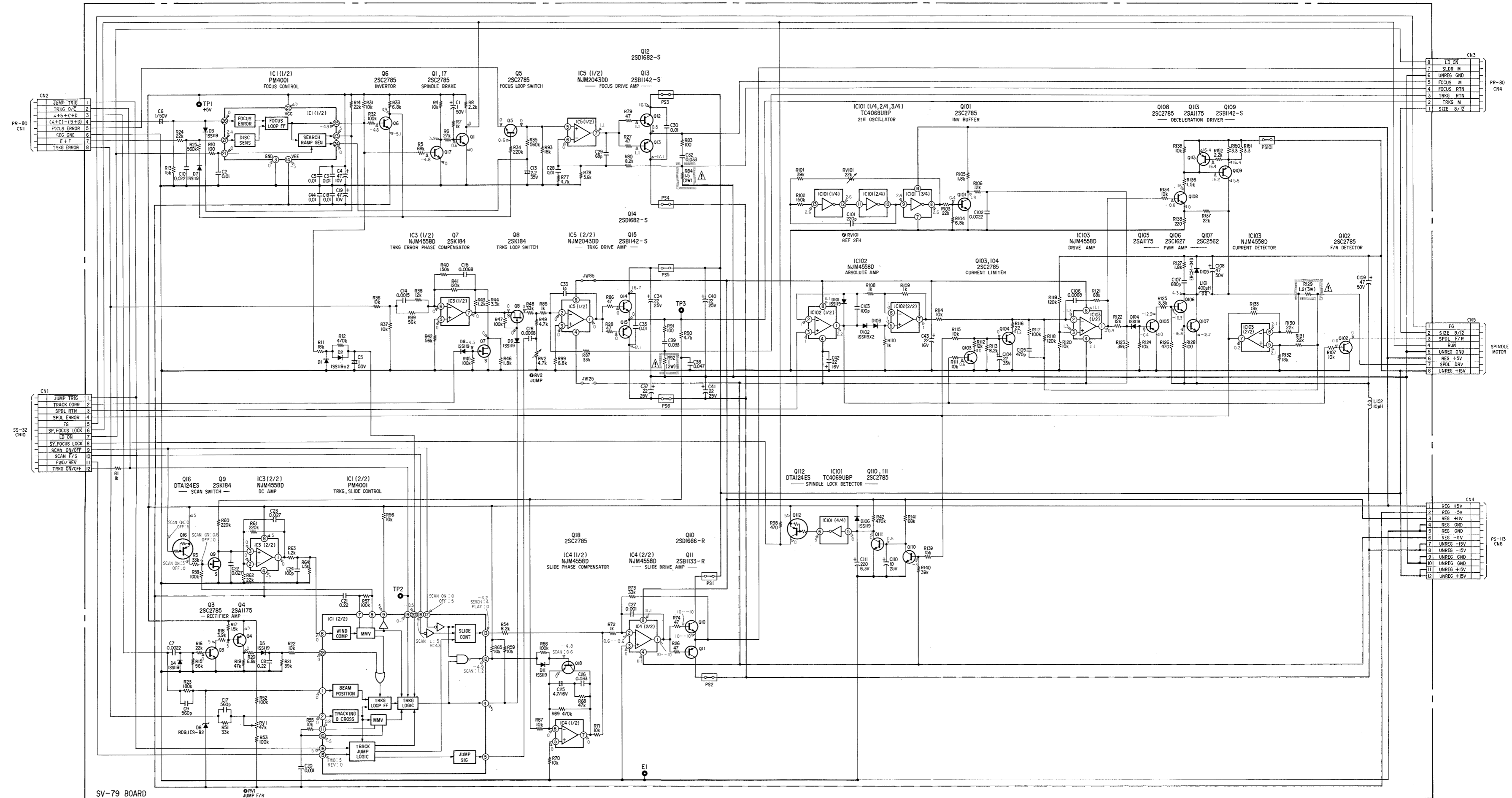
DUS-127 - SOLDERING SIDE -
I-618-838-11
LDP-1500P



DUS-129 - SOLDERING SIDE -
I-618-840-11
LDP-1500P

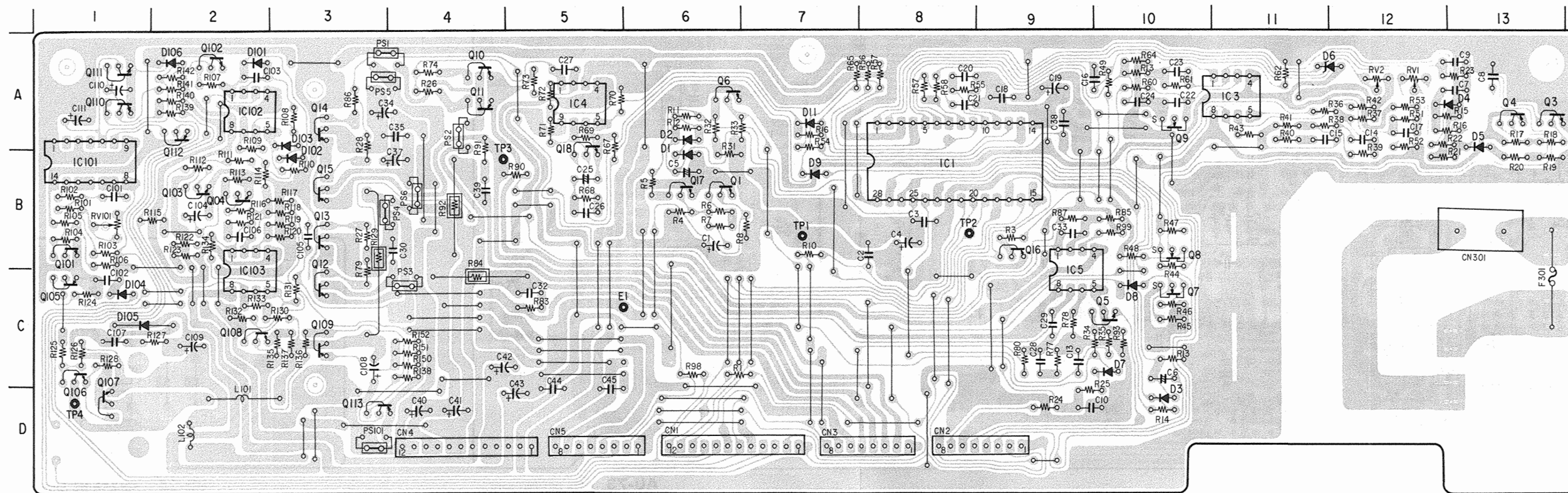
CN1	A-5	D1	D-5	E201	B-6	Q1	D-5	Q309	D-9
CN2	A-3	D201	E-10			Q2	D-5	Q310	C-8
CN3	D-4	D202	C-9	IC1	C-4	Q203	D-8	Q311	B-4
CN4	A-2	D204	A-9	IC2	C-6	Q211	E-10		
CN5	B-2	D205	B-11	IC3	D-6	Q212	B-9	TP1	C-6
CN6	B-2	D206	B-11	IC4	B-3	Q213	D-12	TP11	D-2
CN7	C-1	D208	C-11	IC201	C-11	Q214	D-10	TP12	D-2
CN8	C-1	D209	A-11	IC203	B-8	Q215	B-10	TP201	A-8
CN9	D-1	D210	B-12	IC204	B-9	Q303	C-7		
CN10	E-2	D211	B-12	IC205	D-11	Q304	D-7		
CN11	E-5	D301	D-9	IC206	A-12	Q305	D-9		
		D302	D-8	IC207	C-9	Q306	D-8		
		D303	D-9	IC301	B-8	Q307	D-9		
		D304	B-8	IC302	C-8	Q308	D-9		

SV-79 (FOCUS, TRACKING, SLIDE SERVO)



The shaded and Δ -marked components are critical to safety. Replace only with same components as specified.

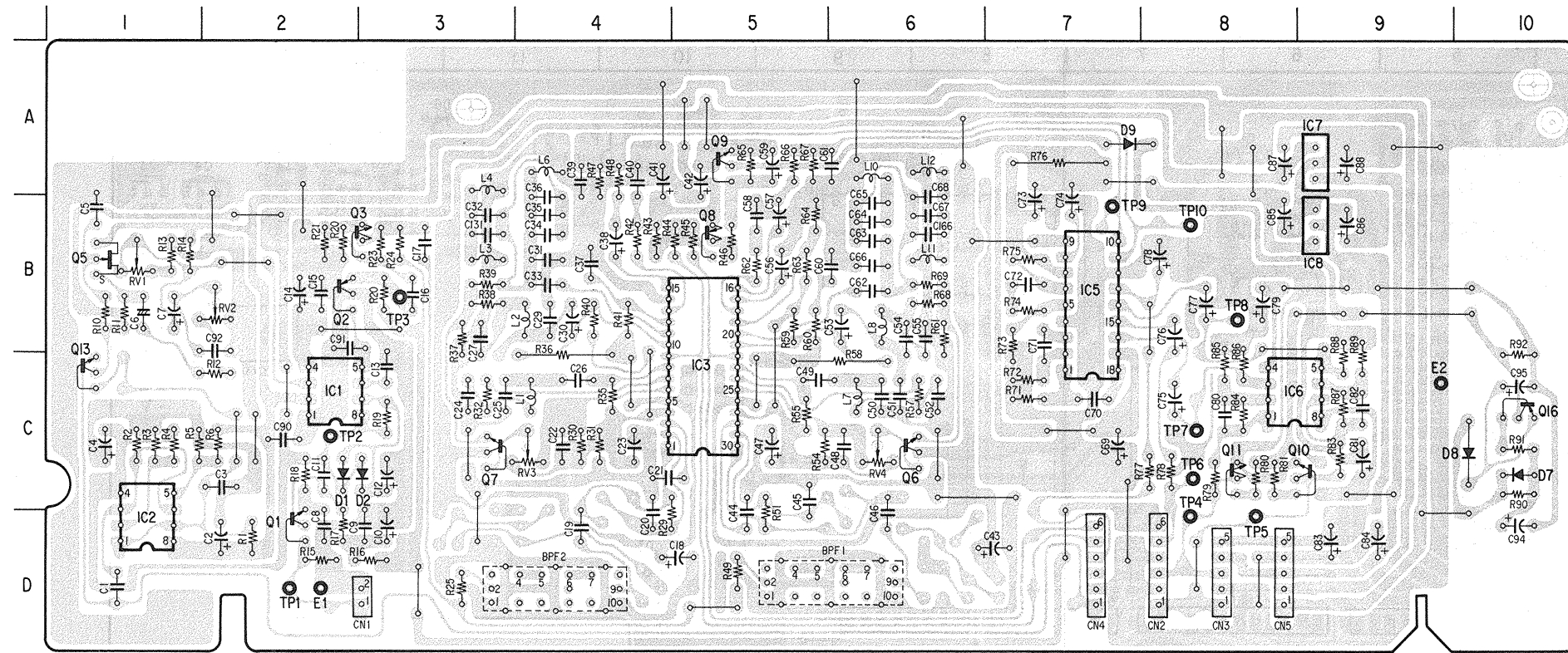
SV-79 (FOCUS, TRACKING, SLIDE SERVO)



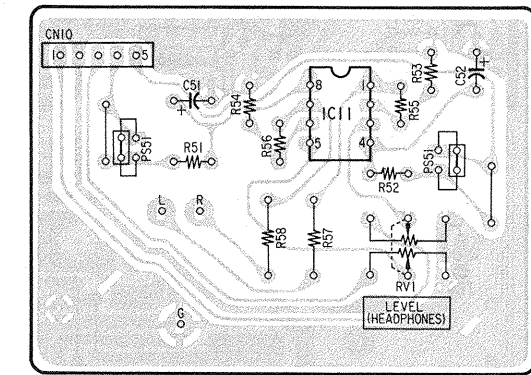
SV-79 —SOLDERING SIDE—
I-618-833-11
LDP-1500P

CN1	D-6	D101	A-2	Q1	B-6	Q18	A-5	RV1	A-12
CN2	D-8	D102	B-3	Q3	A-13	Q101	A-5	RV2	A-12
CN3	D-7	D103	A-3	Q4	A-13	Q102	A-2	RV101	B-1
CN4	D-4	D104	C-1	Q5	C-10	Q103	B-2		
CN5	D-5	D105	C-1	Q6	A-6	Q104	B-2	TP1	B-7
		D106	A-2	Q7	C-10	Q105	C-1	TP2	B-8
D1	B-6	E1	C-5	Q8	B-10	Q106	C-1	TP3	B-4
D2	A-6			Q9	A-10	Q107	D-1	TP4	D-1
D3	D-10			Q10	A-4	Q108	C-2		
D4	A-13	IC1	B-8	Q11	A-4	Q109	C-3		
D5	A-13	IC3	A-11	Q12	C-3	Q110	A-1		
D6	A-12	IC4	A-5	Q13	B-3	Q111	A-1		
D7	C-10	IC5	C-9	Q14	A-3	Q112	A-2		
D8	C-10	IC101	B-1	Q15	B-3	Q113	D-3		
D9	B-7	IC102	A-2	Q16	B-9				
D11	A-7	IC103	C-2	Q17	B-6				

AU-73 (AUDIO SYSTEM), HP-25 (HEADPHONES AMP)



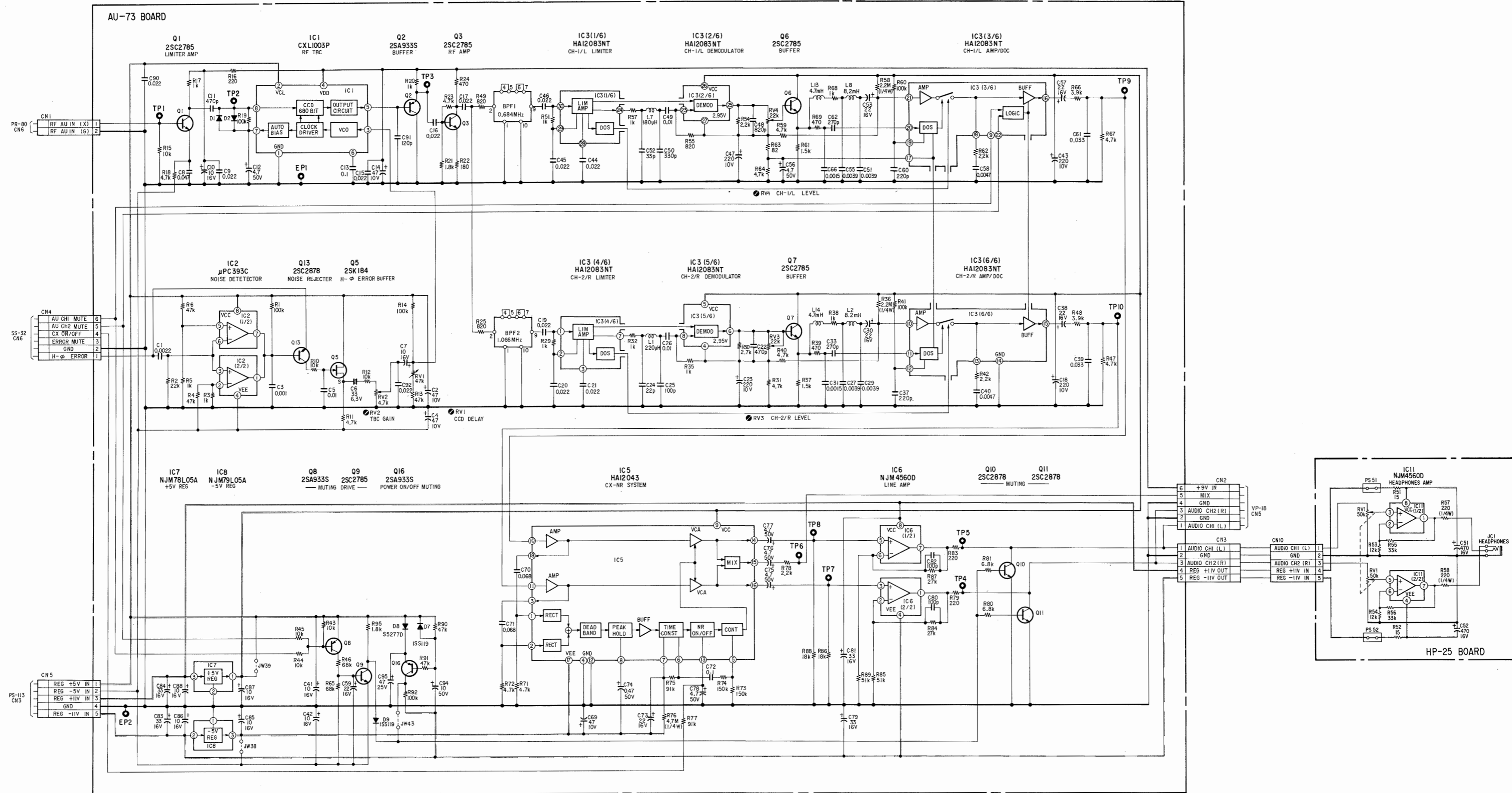
AU-73 — SOLDERING SIDE —
I-618-829-11
LDP-1500P



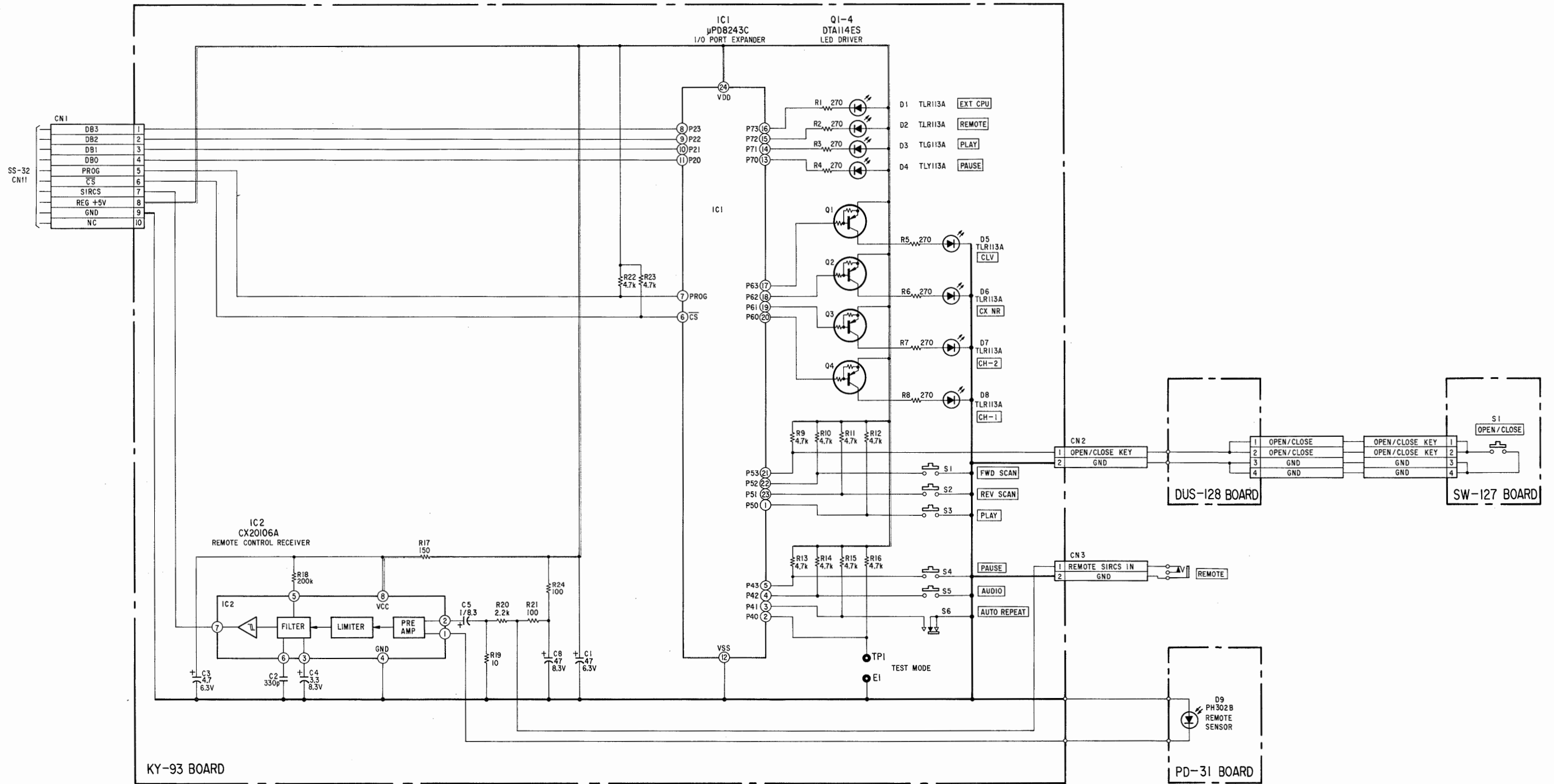
HP-25 — SOLDERING SIDE —
I-618-843-11
LDP-1500P

CN1	D-3	IC1	C-2	Q8	B-5	TP3	B-3
CN2	D-8	IC2	D-1	Q9	A-5	TP4	C-8
CN3	D-8	IC3	C-5	Q10	C-9	TP5	D-8
CN4	D-7	IC6	B-7	Q11	C-8	TP6	C-8
CN5	D-8	IC6	C-8	Q13	C-1	TP7	C-8
		IC7	A-9	Q16	C-10	TP8	B-8
		IC8	B-9			TP9	B-7
D1	C-2			RV1	B-1	TP10	B-8
D2	C-3			RV2	B-2		
D7	C-10	Q1	D-2	RV3	C-4		
D8	C-10	Q2	B-2	RV4	C-6		
D9	A-7	Q3	B-2				
		Q5	B-1				
E1	D-2	Q6	C-6	TP1	D-2		
E2	C-9	Q7	C-3	TP2	C-2		

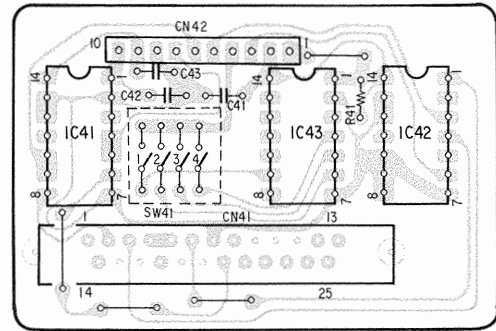
AU-73 (AUDIO SYSTEM), HP-25 (HEADPHONES AMP)



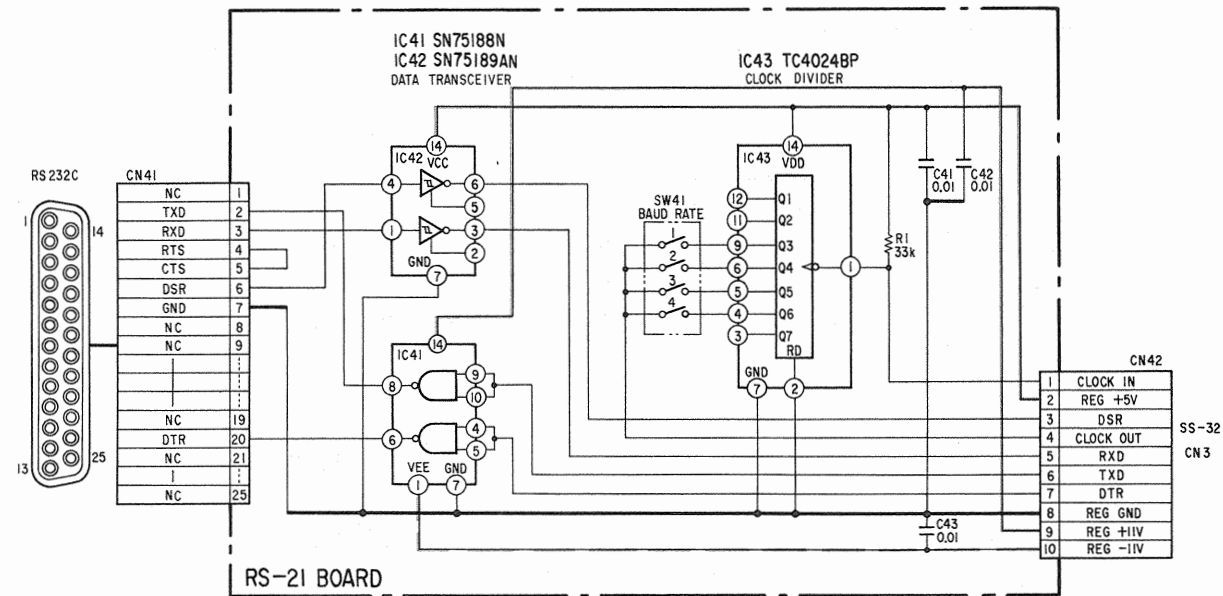
KY-93 (CONTROL PANEL), SW-127 (OPEN/CLOSE BUTTON), DUS-128 (RELAY), PD-31 (REMOTE RECEIVER)



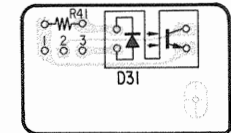
RS-21 (RS-232C INTERFACE)



RS-21 — SOLDERING SIDE —
I-618-835-11
LDP-1500P



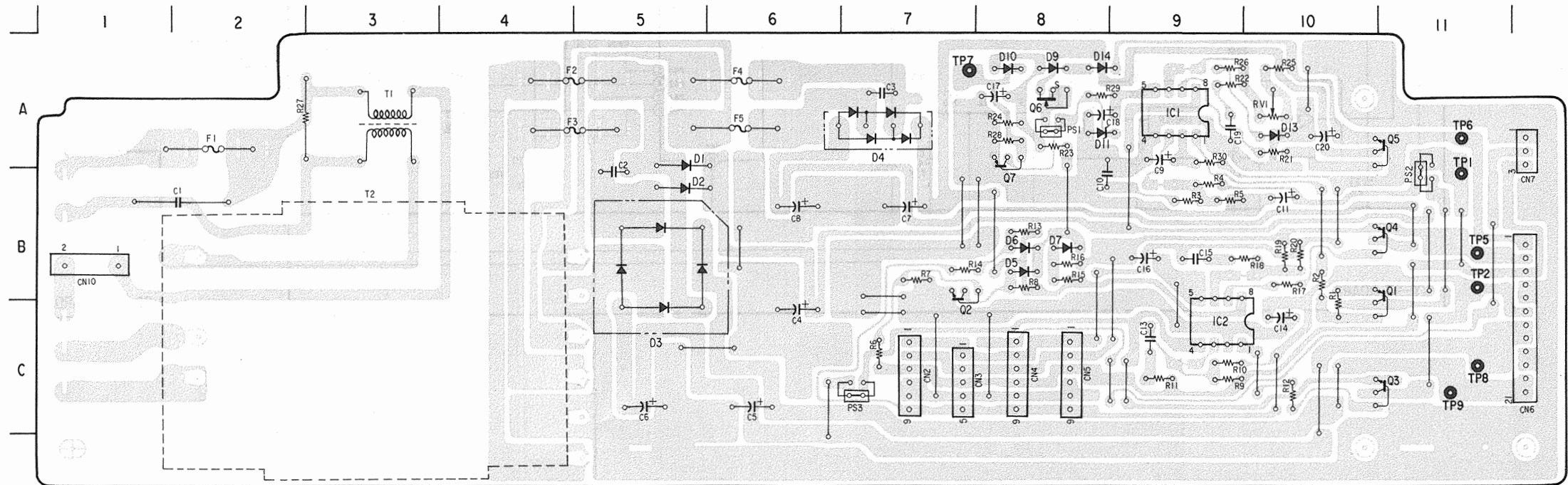
RS-21 BOARD



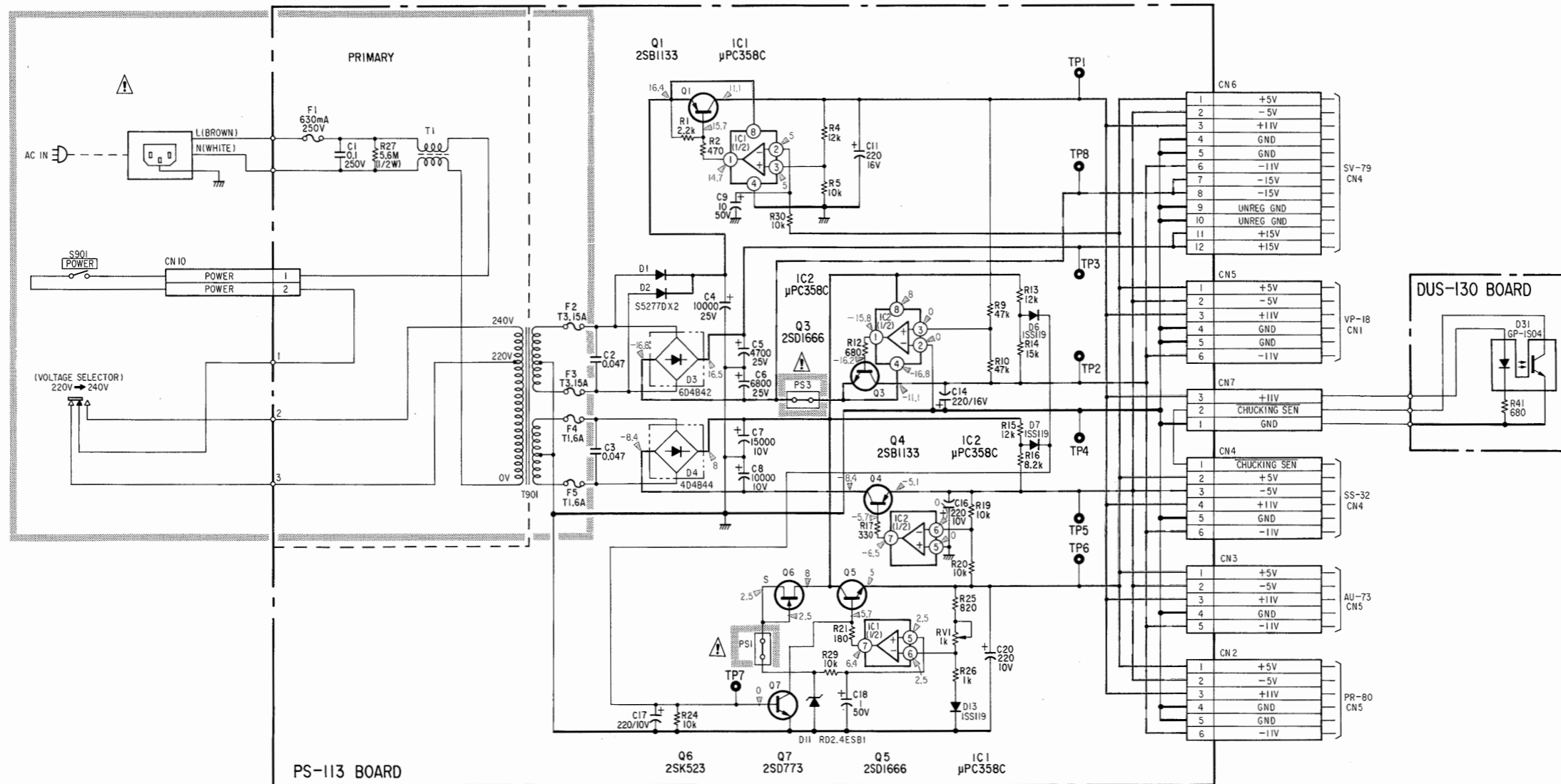
DUS-130
— SOLDERING SIDE —
I-618-841-11
LDP-1500P

PS-113 (POWER SUPPLY), DUS-130 (CHUCK SENSOR)

CN2	C-7	IC1	A-9
CN3	C-7	IC2	B-9
CN4	C-8		
CN5	C-8	Q1	B-11
CN6	C-11	Q2	C-7
CN7	A-11	Q3	C-11
CN10	B-1	Q4	B-11
		Q5	A-11
D1	A-5	Q6	A-8
D2	B-5	Q7	B-8
D3	C-5		
D4	A-7	RV1	A-10
D5	B-8		
D6	B-8	TP1	B-11
D7	B-8	TP2	B-11
D9	A-8	TP5	B-11
D10	A-8	TP6	A-11
D11	A-8	TP7	A-7
D13	A-10	TP8	C-11
D14	A-8	TP9	C-11



PS-113 — SOLDERING SIDE —
I-618-834-11
LDP-1500P



The shaded and \triangle -marked components are critical to safety. Replace only with same components as specified.

SECTION 6

SPARE PARTS

6-1. PARTS INFORMATION

1. Safety Related Component Warning

Components identified by shading marked with \triangle on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose parts numbers appear as shown in this manual or in service bulletins and service manual supplements published by Sony.

2. Replacement Parts supplied from Sony Parts Center will sometimes have different shape and outside view from the parts which actually in use. This is due to "accommodating the improved parts and/or engineering changes" or "standardization of genuine parts."

- This manual's exploded views and electrical spare parts lists are indicating the parts numbers of "the standardized genuine parts at present".
- Regarding engineering parts changes in our engineering department, refer Sony service bulletins and service manual supplements.

3. The parts as shown "S" in SP space on the exploded views and electrical spare parts list are normally stocked for replacement purposes. The parts as shown "O" in SP space are not normally required for routine service work. Orders for parts as shown "O" will be processed, but allow for additional delivery time.

4. Item with no part number and/or no description are not stocked because they are seldom required for routine service.

5. In the electrical spare parts list

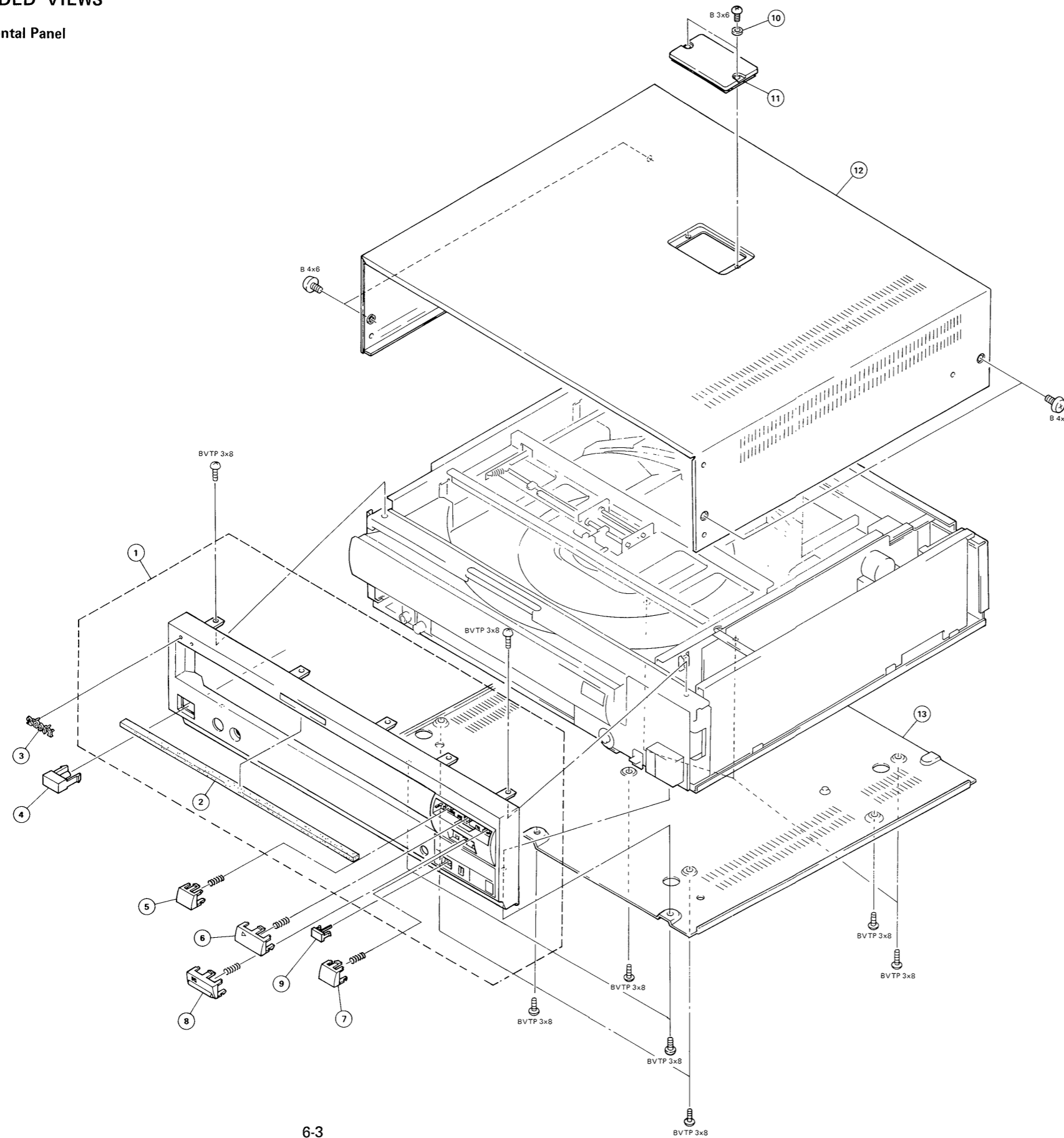
- All resistors are in ohms.
- Capacitors MF: μ F
- Micro inductors MMH: mH, UH: μ H

SCREW, STOP RING, SPRING PIN

No.	Parts No.	SP	Description
SCREW			
	7-621-759-75	s	+PSW 2.6X10
	7-621-772-40	s	+B 2X8
	7-628-253-05	s	+PS 2X4
	7-682-545-09	s	+B 3X4
	7-682-546-09	s	+B 3X5
	7-682-547-04	s	+B 3X6
	7-682-547-09	s	+B 3X6
	7-682-560-04	s	+B 4X6
	7-682-647-01	s	+PS 3X6
	7-682-904-01	s	+PWH 4X6
	7-682-947-01	s	+PSW 3X6
	7-682-948-01	s	+PSW 3X8
	7-685-645-71	s	+BVTP 3X6 TYPE2 IT-3
	7-685-645-81	s	+BVTP 3X6 TYPE2
	7-685-646-71	s	+BVTP 3X8 TYPE2 IT-3
	7-685-646-79	s	+BVTP 3X8 TYPE2 IT-3
	7-685-646-81	s	+BVTP 3X8 TYPE2
	7-685-646-89	s	+BVTP 3X8 TYPE2
	7-685-647-71	s	+BVTP 3X10 TYPE2 IT-3
	7-685-647-81	s	+BVTP 3X10 TYPE2
	7-685-648-71	s	+BVTP 3X12 TYPE2 IT-3
	7-685-648-81	s	+BVTP 3X12 TYPE2
	7-685-752-04	s	+BVTT 3X8 (S)
STOP RING			
	7-624-105-04	s	STOP RING E-2.3
	7-624-109-04	s	STOP RING E-5.0
SPRING PIN			
	7-626-301-31	s	SPRING PIN 2X10

6-2. EXPLODED VIEWS

6-2-1. Ornamental Panel

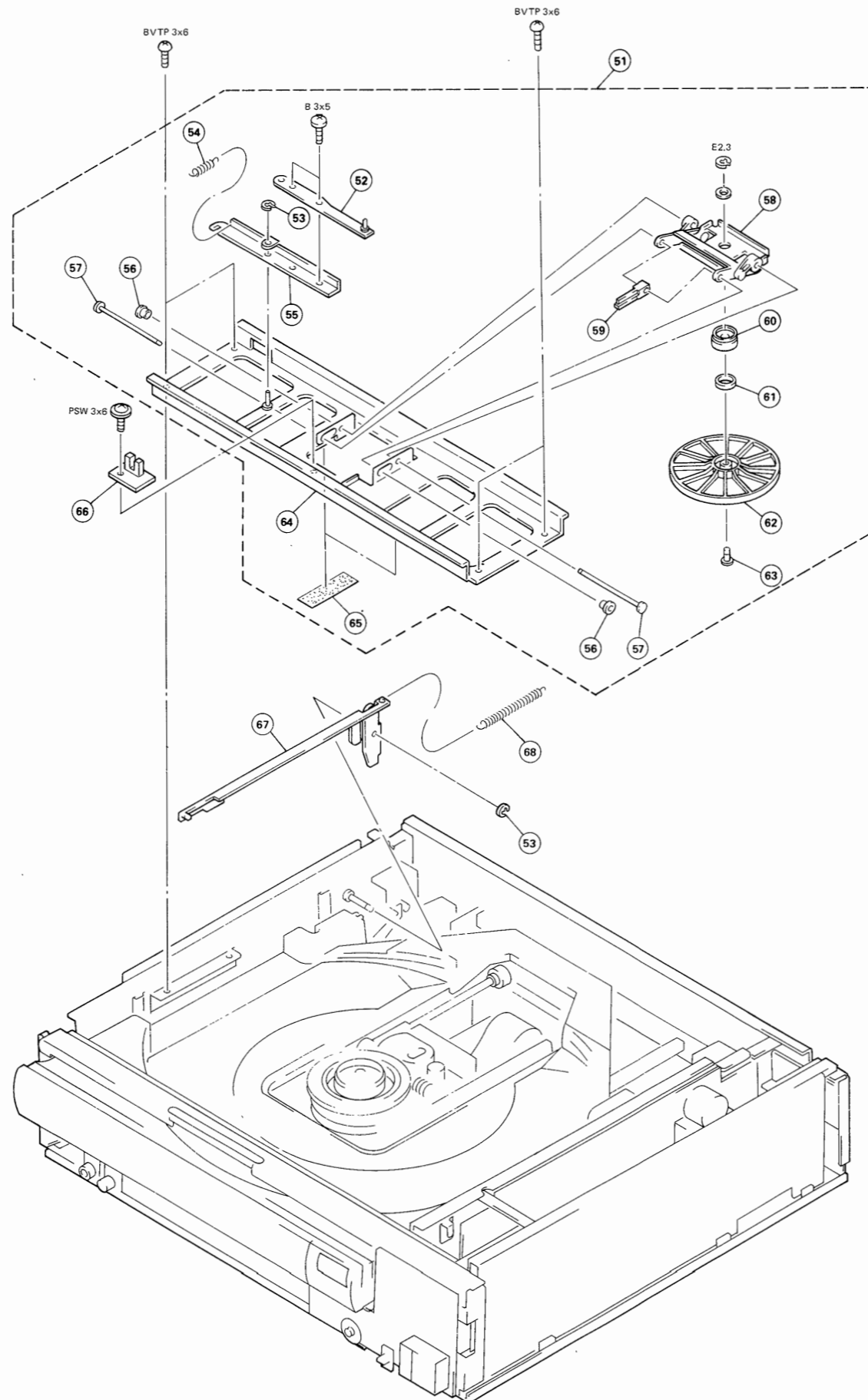


No.	Parts No.	SP	Description
1	X-3694-847-2	s	PANEL ASSY, FRONT
2	9-911-815-01	s	CUSHION
3	3-566-707-21	o	EMBLEM, SONY
4	3-688-293-01	s	BUTTON, POWER
5	3-694-988-12	s	KEY TOP (REV)
6	X-3694-842-2	s	KEY TOP (PLAY) ASSY
7	3-694-990-12	s	KEY TOP (FWD)
8	X-3694-843-2	s	KEY TOP (PAUSE) ASSY
9	3-694-995-01	s	BUTTON, AU
10	3-669-596-00	s	WASHER (2.3), STOPPER
11	3-694-986-02	s	COVER, WINDOW
12	3-710-310-02	s	CASE, UPPER
13	X-3694-849-2	o	PLATE ASSY, BOTTOM

CHUCK ASSY

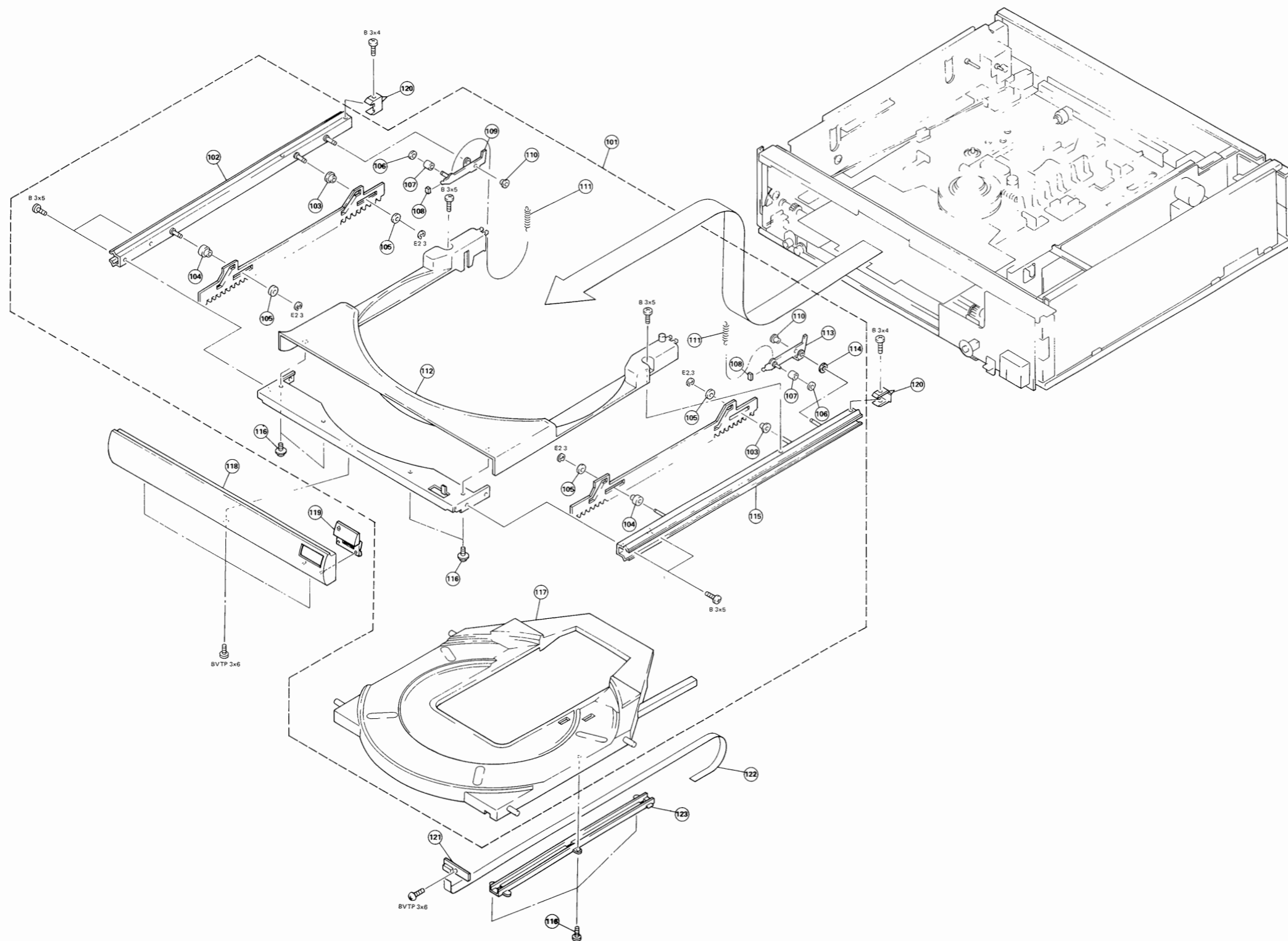
CHUCK ASSY

6-2-2. Chuck Ass'y



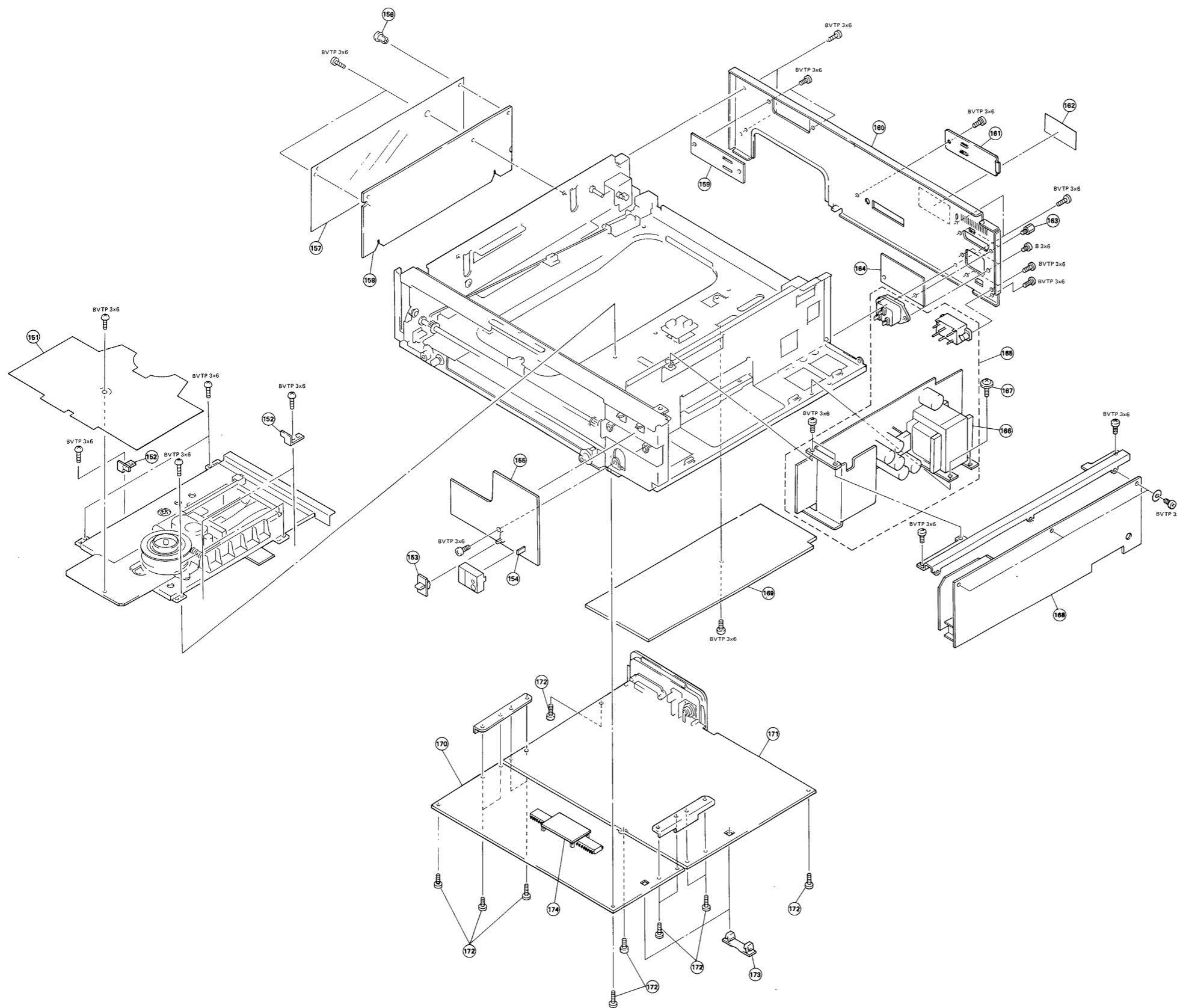
No.	Parts No.	SP	Description
51	A-6415-081-C	o	CHUCK ASSY
52	X-3688-210-3	o	PLATE ASSY, ADJUSTMENT
53	3-669-596-00	s	WASHER (2.3), STOPPER
54	3-639-381-XX	s	SPRING, TENSION
55	3-688-233-01	o	LINK (3)
56	3-703-074-00	s	CAP 3, SHAFT
57	3-694-818-01	o	JOINT
58	X-3688-208-2	o	HOLDER ASSY, C
59	3-694-817-02	s	JOINT
60	3-688-229-02	o	HOLDER, B
61	3-694-820-01	s	BEARING (NO FLANGE), BALL
62	3-688-232-01	s	CHUCK
63	3-694-816-01	o	PIN (S)
64	X-3694-810-3	o	BASE ASSY, CHUCK
65	9-911-844-XX	s	CUSHION (C)
66	1-618-841-11	o	PRINTED CIRCUIT BOARD, DUS-130
67	X-3694-803-3	o	ARM ASSY, C
68	3-542-821-00	s	SPRING, TENSION

6-2.3. Front Loading



No.	Parts No.	SP	Description
101	A-6415-114-B	o	F.L. ASSY
102	X-3694-817-1	o	RAIL (LEFT) ASSY, GUIDE
103	3-694-841-01	s	ROLLER (R1)
104	3-694-843-01	s	ROLLER (S)
105	3-694-842-01	s	ROLLER (R2)
106	3-669-596-00	s	WASHER (2.3), STOPPER
107	3-688-207-01	s	ROLLER, STOPPER
108	3-676-143-00	o	STOPPER, ARM
109	X-3694-806-1	o	ARM (LEFT) ASSY, LOCK
110	3-703-074-00	s	CAP 3, SHAFT
111	3-535-558-00	s	SPRING, TENSION
112	3-694-849-21	o	COVER, UPPER
113	X-3694-807-1	o	ARM (RIGHT) ASSY, LOCK
114	3-694-927-01	s	ROLLER (SW)
115	X-3694-818-1	o	RAIL (RIGHT) ASSY, GUIDE
116	3-703-135-00	s	SCREW, TAPPING
117	X-3694-819-3	o	TRAY ASSY
118	3-710-306-01	s	COVER, FRONT
119	3-694-987-11	s	KEY TOP (OPEN/CLOSE)
120	3-694-844-01	s	STOPPER
121	1-618-830-11	o	PRINTED CIRCUIT BOARD, SW-127
122	1-558-057-11	s	WIRE, FLEXIBLE CARD 4P
123	3-694-845-01	o	GUIDE, HARNESS

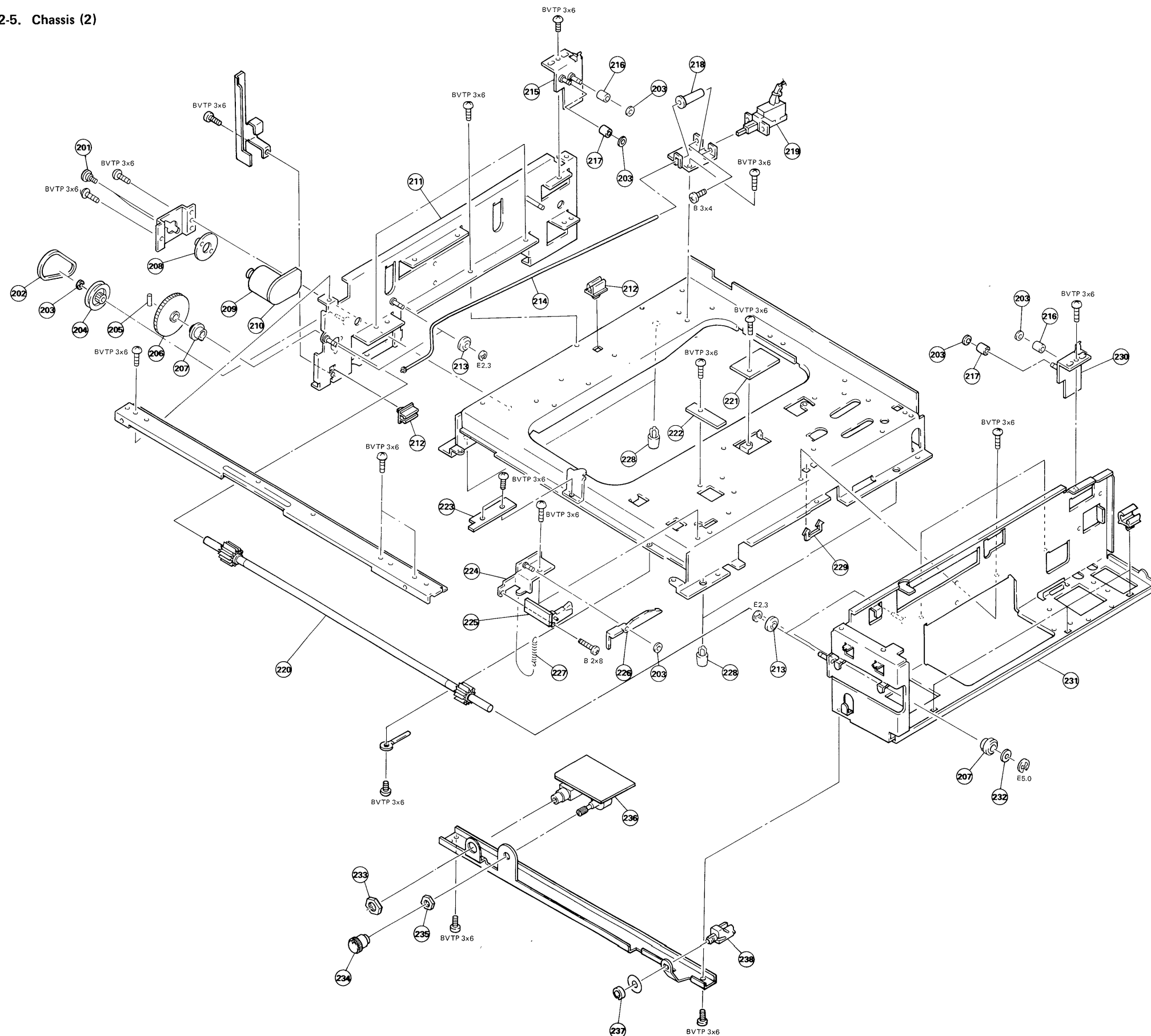
6-2-4. Chassis (1)



No.	Parts No.	SP	Description
151	3-694-885-02	o	PLATE, BLIND
152	3-694-812-01	o	STOPPER, MECHANICAL BASE
153	3-694-996-01	s	COVER, SW
154	1-618-837-11	o	PRINTED CIRCUIT BOARD, PD-31
155	1-618-836-12	o	PRINTED CIRCUIT BOARD, KY-93
156	4-812-134-21	s	RIVET NYLON, 3.5
157	3-694-886-03	o	SHEET, INSULATING, AA
158	A-6421-079-A	o	MOUNTED CIRCUIT BOARD, AU-73
159	3-694-980-01	o	PLATE, BLIND
160	3-710-305-02	o	PANEL (P), REAR
161	3-694-979-01	o	LID, REAR PANEL
162	4-885-838-00	o	LABEL, CLASS 1
163	3-694-981-01	o	SCREW (INCH), D SUB
164	1-618-835-11	o	PRINTED CIRCUIT BOARD, RS-21
165	A-6421-083-A	o	MOUNTED CIRCUIT BOARD, PS-113
166	1-448-443-11	s	TRANSFORMER, POWER
167	3-703-249-01	s	SCREW, S TIGHT, +PTTWH 3X6
168	A-6421-082-A	o	MOUNTED CIRCUIT BOARD, SV-79
169	A-6421-078-A	o	MOUNTED CIRCUIT BOARD, PR-80
170	A-6421-081-A	o	MOUNTED CIRCUIT BOARD, SS-32
171	A-6421-080-A	o	MOUNTED CIRCUIT BOARD, VP-18
172	4-303-483-00	s	HEAD, WASHER, TAPPING SCREW
173	3-694-919-01	o	HINGE, CHASSIS
174	1-619-490-11	o	PRINTED CIRCUIT BOARD, DUS-141

The shaded and Δ -marked components are critical to safety.
 Replace only with same components as specified.

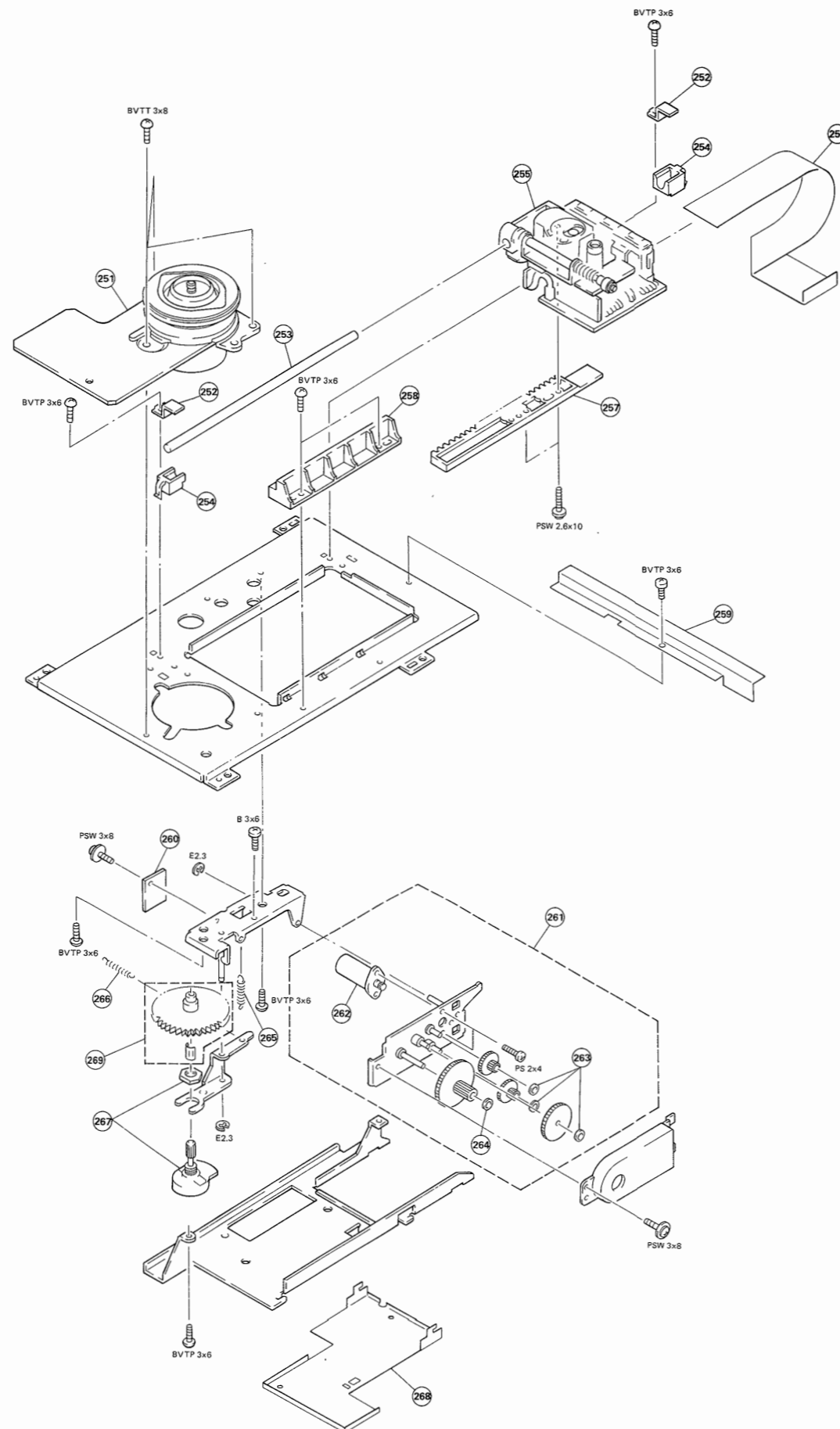
6-2-5. Chassis (2)



No.	Parts No.	SP	Description
201	3-694-825-01	s	SCREW (M3) (STEP),SPECIAL HEAD
202	3-534-779-00	s	BELT, DRIVE
203	3-669-596-00	s	WASHER (2.3), STOPPER
204	3-694-829-02	s	PULLEY (G)
205	3-703-358-03	s	PIN, PARALLEL (DIA. 2X8)
206	3-694-832-01	s	GEAR (D)
207	3-694-830-01	s	BEARING
208	3-694-827-01	s	RUBBER, VIBRATION PROOF
209	8-835-148-01	s	MOTOR, DC (DNR-8300A)
210	1-618-838-11	o	PRINTED CIRCUIT BOARD, DUS-127
211	X-3694-815-4	o	PLATE ASSY, SIDE, LEFT
212	3-304-638-00	o	HOLDER, CHASSIS
213	3-688-256-01	s	ROLLER (A), GUIDE
214	3-694-999-01	o	WIRE, SW
215	X-3694-845-1	o	STOPPER (LEFT) ASSY
216	3-688-207-01	s	ROLLER, STOPPER
217	3-694-928-01	o	COLLAR, CUSHION
218	3-688-205-01	o	HOLDER, W
219	1-553-318-00	s	SWITCH, PUSH (AC POWER) (1 KEY)
220	X-3694-855-1	s	SHAFT ASSY, DRIVE
221	1-618-840-11	o	PRINTED CIRCUIT BOARD, DUS-129
222	1-618-839-11	o	PRINTED CIRCUIT BOARD, DUS-128
223	3-710-313-01	o	PLATE, FRONT
224	X-3694-805-2	o	BRACKET ASSY, S
225	1-618-844-11	o	PRINTED CIRCUIT BOARD, SW-138
226	3-694-824-01	s	PLATE, S
227	3-652-924-01	s	SPRING (2)
228	3-694-479-01	s	FOOT
229	3-667-211-00	o	RETAINER, WIRE, FLUX
230	X-3694-850-1	o	STOPPER (RIGHT) ASSY
231	X-3694-848-1	o	PLATE ASSY, SIDE, RIGHT
232	3-701-444-21	s	WASHER, 6
233	3-684-465-01	s	NUT, HEXAGON
234	4-902-067-41	s	KNOB, CONTROL
235	3-703-078-01	s	NUT
236	1-618-843-11	o	PRINTED CIRCUIT BOARD, HP-25
237	3-667-512-00	o	SPACER, REMOTE JACK
238	1-507-195-21	s	SPECIAL REMOTE CONTROL JACK

The shaded and **A**-marked components are critical to safety.
 Replace only with same components as specified.

6-2-6. Mechanical Base



No.	Parts No.	SP	Description
251	8-835-171-01	s	MOTOR, DC BHF-3401A
252	3-694-811-01	o	RETAINER, SHAFT, FEED
253	3-688-322-02	o	SHAFT, GUIDE
254	3-694-810-01	o	HOLDER, FEED SHAFT
255	8-848-025-01	s	OPTICAL BLOCK ASSY (KSS-141A)
256	1-558-058-11	s	WIRE, FLEXIBLE CARD 20P
257	3-694-911-01	s	RACK
258	3-694-910-01	o	TABLE, ROLLER
259	3-710-304-01	o	GUARD, HARNESS
260	1-618-842-12	o	PRINTED CIRCUIT BOARD, DUS-131
261	A-6491-025-A	s	GEAR BLOCK ASSY, FEED
262	8-835-149-01	s	MOTOR, DC (MNR-8400A)
263	3-669-465-00	s	WASHER (1.5), STOPPER
264	3-669-596-00	s	WASHER (2.3), STOPPER
265	3-579-027-00	s	SPRING, TENSION
266	3-507-111-00	s	SPRING, TENSION
267	1-228-139-21	s	RES, VAR, CARBON 10K
268	3-694-879-02	o	SHIELD (B), FLEXIBLE
269	X-3694-825-1	s	GEAR ASSY, POSITION

6-3. ELECTRICAL PARTS LIST

Ref.No.	Parts No.	SP	Description	Ref.No.	Parts No.	SP	Description			
<u>PR-80 BOARD</u>				C134	1-123-333-00	s	ELECT	100MF	20%	16V
	A-6421-078-A	o	MOUNTED CIRCUIT BOARD, PR-80	C135	1-162-217-31	s	CERAMIC	56PF	5%	50V
				C136	1-123-356-00	s	ELECT	10MF	20%	16V
C1	1-124-270-11	s	ELECT	0.47MF	20%	50V	CN2	1-560-893-00	o	PIN, CONNECTOR 5P
C2	1-123-379-00	s	ELECT	0.47MF	20%	50V	CN3	1-560-893-00	o	PIN, CONNECTOR 5P
C3	1-162-306-31	s	CERAMIC	0.01MF	30%	16V	CN6	1-560-890-00	o	PIN, CONNECTOR 2P
C4	1-162-306-31	s	CERAMIC	0.01MF	30%	16V	CN7	1-560-891-00	o	PIN, CONNECTOR 3P
C5	1-162-306-31	s	CERAMIC	0.01MF	30%	16V	CN8	1-564-035-11	o	PIN, CONNECTOR 10P
							CN9	1-560-893-00	o	PIN, CONNECTOR 5P
C6	1-124-283-00	s	ELECT	4.7MF	20%	16V	D1	8-719-911-19	s	DIODE 1SS119
C7	1-162-282-31	s	CERAMIC	100PF	10%	50V	D2	8-719-911-19	s	DIODE 1SS119
C8	1-124-270-11	s	ELECT	0.47MF	20%	50V	D3	8-719-109-85	s	DIODE RDS.1ESB2
C9	1-162-217-31	s	CERAMIC	56PF	5%	50V	D101	8-719-929-18	s	DIODE HZS10NB1
C10	1-162-217-31	s	CERAMIC	56PF	5%	50V				
C11	1-130-480-00	s	MYLAR	0.0056MF	5%	50V	FN1	1-562-883-11	o	SOCKET, CONNECTOR 20P
C12	1-162-215-31	s	CERAMIC	47PF	5%	50V				
C13	1-123-332-00	s	ELECT	47MF	20%	16V	IC1	8-759-729-03	s	IC NJM2903D
C14	1-123-356-00	s	ELECT	10MF	20%	16V	IC2	8-759-145-58	s	IC UPC4558C
C15	1-123-356-00	s	ELECT	10MF	20%	16V	IC3	8-759-145-58	s	IC UPC4558C
							IC4	8-759-145-58	s	IC UPC4558C
C16	1-162-306-31	s	CERAMIC	0.01MF	30%	16V	IC5	8-759-145-58	s	IC UPC4558C
C17	1-162-306-31	s	CERAMIC	0.01MF	30%	16V				
C18	1-123-356-00	s	ELECT	10MF	20%	16V	IC6	8-759-145-58	s	IC UPC4558C
C19	1-123-356-00	s	ELECT	10MF	20%	16V	IC7	8-759-145-58	s	IC UPC4558C
C20	1-162-306-31	s	CERAMIC	0.01MF	30%	16V	IC101	8-759-600-99	s	IC M51481P
C21	1-162-306-31	s	CERAMIC	0.01MF	30%	16V	L101	1-408-420-00	s	MICRO INDUCTOR 82UH
C22	1-130-477-00	s	MYLAR	0.0033MF	5%	50V	L102	1-408-420-00	s	MICRO INDUCTOR 82UH
C23	1-130-476-00	s	MYLAR	0.0027MF	5%	50V	L103	1-408-411-00	s	MICRO INDUCTOR 15UH
C101	1-123-380-00	s	ELECT	1MF	20%	50V	L104	1-408-422-00	s	MICRO INDUCTOR 120UH
C102	1-162-306-31	s	CERAMIC	0.01MF	30%	16V	L105	1-408-417-00	s	MICRO INDUCTOR 47UH
							L106	1-408-421-00	s	MICRO INDUCTOR 100UH
C103	1-102-976-00	s	CERAMIC	180PF	5%	50V	L107	1-408-421-00	s	MICRO INDUCTOR 100UH
C104	1-123-356-00	s	ELECT	10MF	20%	16V	L108	1-408-419-00	s	MICRO INDUCTOR 68UH
C105	1-162-284-31	s	CERAMIC	150PF	10%	50V	L109	1-408-419-00	s	MICRO INDUCTOR 68UH
C106	1-162-288-31	s	CERAMIC	330PF	10%	50V	L110	1-408-414-00	s	MICRO INDUCTOR 27UH
C107	1-162-284-31	s	CERAMIC	150PF	10%	50V	L111	1-408-409-00	s	MICRO INDUCTOR 10UH
							L112	1-408-421-00	s	MICRO INDUCTOR 100UH
C108	1-123-356-00	s	ELECT	10MF	20%	16V				
C109	1-123-380-00	s	ELECT	1MF	20%	50V	PS1	1-532-727-11	s	LINK, IC
C110	1-130-491-00	s	MYLAR	0.047MF	5%	50V				
C111	1-162-198-31	s	CERAMIC	8.2PF	10%	50V	Q1	8-729-178-54	s	TRANSISTOR 2SC2785
C112	1-162-198-31	s	CERAMIC	8.2PF	10%	50V	Q2	8-729-117-54	s	TRANSISTOR 2SA1175
							Q3	8-729-117-54	s	TRANSISTOR 2SA1175
C113	1-162-290-31	s	CERAMIC	470PF	10%	50V	Q4	8-729-804-86	s	TRANSISTOR 2SB1142-S
C114	1-162-290-31	s	CERAMIC	470PF	10%	50V	Q5	8-729-117-54	s	TRANSISTOR 2SA1175
C116	1-162-282-31	s	CERAMIC	100PF	10%	50V				
C117	1-101-005-00	s	CERAMIC	0.022MF	5%	50V	Q6	8-729-178-54	s	TRANSISTOR 2SC2785
C118	1-162-284-31	s	CERAMIC	150PF	10%	50V	Q7	8-729-900-63	s	TRANSISTOR DTA124ES
							Q8	8-729-178-54	s	TRANSISTOR 2SC2785
C119	1-162-280-31	s	CERAMIC	82PF	10%	50V	Q101	8-729-218-43	s	TRANSISTOR 2SK184-GR
C120	1-130-476-00	s	MYLAR	0.0027MF	5%	50V	Q102	8-729-178-54	s	TRANSISTOR 2SC2785
C121	1-123-356-00	s	ELECT	10MF	20%	16V				
C122	1-162-306-31	s	CERAMIC	0.01MF	30%	16V	Q103	8-729-178-54	s	TRANSISTOR 2SC2785
C123	1-162-306-31	s	CERAMIC	0.01MF	30%	16V	Q104	8-729-178-54	s	TRANSISTOR 2SC2785
							Q105	8-729-178-54	s	TRANSISTOR 2SC2785
C124	1-162-306-31	s	CERAMIC	0.01MF	30%	16V	Q106	8-729-178-54	s	TRANSISTOR 2SC2785
C125	1-162-215-31	s	CERAMIC	47PF	5%	50V	Q107	8-729-178-54	s	TRANSISTOR 2SC2785
C126	1-123-332-00	s	ELECT	47MF	20%	16V				
C127	1-123-332-00	s	ELECT	47MF	20%	16V				
C128	1-123-333-00	s	ELECT	100MF	20%	16V				
C129	1-162-201-31	s	CERAMIC	12PF	5%	50V				
C130	1-162-211-31	s	CERAMIC	33PF	5%	50V				
C131	1-162-205-31	s	CERAMIC	18PF	5%	50V				
C132	1-162-192-31	s	CERAMIC	2.7PF	10%	50V				
C133	1-102-976-00	s	CERAMIC	180PF	5%	50V				

Ref.No.	Parts No.	SP	Description	Ref.No.	Parts No.	SP	Description			
Q108	8-729-178-54	s	TRANSISTOR 2SC2785	R56	1-247-833-00	s	CARBON	1.2K	5%	1/6W
Q109	8-729-117-54	s	TRANSISTOR 2SA1175	R57	1-249-423-11	s	CARBON	3.3K	5%	1/6W
R1	1-247-819-00	s	CARBON	R58	1-247-859-00	s	CARBON	15K	5%	1/6W
R2	1-249-425-11	s	CARBON	R59	1-249-441-11	s	CARBON	100K	5%	1/6W
R3	1-247-813-00	s	CARBON	R60	1-249-423-11	s	CARBON	3.3K	5%	1/6W
R4	1-249-425-11	s	CARBON	R61	1-249-441-11	s	CARBON	100K	5%	1/6W
R5	1-247-829-00	s	CARBON	R62	1-249-437-11	s	CARBON	47K	5%	1/6W
R6	1-247-833-00	s	CARBON	R63	1-249-429-11	s	CARBON	10K	5%	1/6W
R7	1-247-851-00	s	CARBON	R64	1-247-833-00	s	CARBON	1.2K	5%	1/6W
R8	1-249-432-11	s	CARBON	R65	1-247-857-00	s	CARBON	12K	5%	1/6W
R9	1-249-429-11	s	CARBON	R66	1-249-433-11	s	CARBON	22K	5%	1/6W
R10	1-249-435-11	s	CARBON	R67	1-249-429-11	s	CARBON	10K	5%	1/6W
R11	1-249-435-11	s	CARBON	R68	1-249-429-11	s	CARBON	10K	5%	1/6W
R12	1-249-425-11	s	CARBON	R72	1-249-437-11	s	CARBON	47K	5%	1/6W
R13	1-210-828-00	s	CARBON	R73	1-247-857-00	s	CARBON	12K	5%	1/6W
R14	1-249-429-11	s	CARBON	R74	1-247-899-00	s	CARBON	680K	5%	1/6W
R15	1-249-429-11	s	CARBON	R75	1-247-889-00	s	CARBON	270K	5%	1/6W
R16	1-247-833-00	s	CARBON	R76	1-249-437-11	s	CARBON	47K	5%	1/6W
R17	1-247-823-00	s	CARBON	R101	1-247-815-00	s	CARBON	220	5%	1/6W
R18	1-249-429-11	s	CARBON	R102	1-249-425-11	s	CARBON	4.7K	5%	1/6W
R19	1-210-828-00	s	CARBON	R103	1-249-429-11	s	CARBON	10K	5%	1/6W
R20	1-249-429-11	s	CARBON	R104	1-249-419-11	s	CARBON	1.5K	5%	1/6W
R21	1-249-425-11	s	CARBON	R105	1-247-829-00	s	CARBON	820	5%	1/6W
R22	1-249-425-11	s	CARBON	R106	1-247-815-00	s	CARBON	220	5%	1/6W
R23	1-249-425-11	s	CARBON	R107	1-249-417-11	s	CARBON	1K	5%	1/6W
R24	1-249-425-11	s	CARBON	R108	1-249-415-11	s	CARBON	680	5%	1/6W
R25	1-249-433-11	s	CARBON	R109	1-249-417-11	s	CARBON	1K	5%	1/6W
R26	1-249-433-11	s	CARBON	R110	1-247-823-00	s	CARBON	470	5%	1/6W
R27	1-249-429-11	s	CARBON	R111	1-247-804-00	s	CARBON	75	5%	1/6W
R28	1-249-429-11	s	CARBON	R112	1-249-417-11	s	CARBON	1K	5%	1/6W
R29	1-247-885-00	s	CARBON	R113	1-247-849-00	s	CARBON	5.6K	5%	1/6W
R30	1-249-429-11	s	CARBON	R114	1-247-833-00	s	CARBON	1.2K	5%	1/6W
R31	1-249-429-11	s	CARBON	R115	1-249-417-11	s	CARBON	1K	5%	1/6W
R32	1-249-434-11	s	CARBON	R116	1-249-414-11	s	CARBON	560	5%	1/6W
R33	1-249-435-11	s	CARBON	R117	1-249-405-11	s	CARBON	100	5%	1/6W
R34	1-249-434-11	s	CARBON	R118	1-249-417-11	s	CARBON	1K	5%	1/6W
R35	1-249-405-11	s	CARBON	R119	1-247-799-00	s	CARBON	47	5%	1/6W
R36	1-247-853-00	s	CARBON	R120	1-249-417-11	s	CARBON	1K	5%	1/6W
R37	1-247-853-00	s	CARBON	R121	1-249-433-11	s	CARBON	22K	5%	1/6W
R38	1-249-437-11	s	CARBON	R122	1-247-833-00	s	CARBON	1.2K	5%	1/6W
R39	1-249-429-11	s	CARBON	R123	1-249-417-11	s	CARBON	1K	5%	1/6W
R40	1-249-434-11	s	CARBON	R124	1-249-417-11	s	CARBON	1K	5%	1/6W
R41	1-249-437-11	s	CARBON	R125	1-249-419-11	s	CARBON	1.5K	5%	1/6W
R42	1-249-429-11	s	CARBON	R126	1-247-839-00	s	CARBON	2.2K	5%	1/6W
R43	1-249-429-11	s	CARBON	R127	1-249-417-11	s	CARBON	1K	5%	1/6W
R44	1-249-434-11	s	CARBON	R128	1-249-419-11	s	CARBON	1.5K	5%	1/6W
R45	1-249-429-11	s	CARBON	R129	1-249-414-11	s	CARBON	560	5%	1/6W
R46	1-249-437-11	s	CARBON	R130	1-247-869-00	s	CARBON	39K	5%	1/6W
R47	1-249-435-11	s	CARBON	R131	1-249-432-11	s	CARBON	18K	5%	1/6W
R48	1-249-437-11	s	CARBON	R132	1-249-417-11	s	CARBON	1K	5%	1/6W
R49	1-249-437-11	s	CARBON	R133	1-247-829-00	s	CARBON	820	5%	1/6W
R50	1-249-405-11	s	CARBON	R134	1-247-833-00	s	CARBON	1.2K	5%	1/6W
R51	1-249-429-11	s	CARBON	R135	1-247-839-00	s	CARBON	2.2K	5%	1/6W
R52	1-247-853-00	s	CARBON	RV1	1-228-994-00	s	RES, ADJ, CARBON	10K		
R53	1-249-423-11	s	CARBON	RV2	1-228-995-00	s	RES, ADJ, CARBON	22K		
R54	1-249-434-11	s	CARBON	RV3	1-228-994-00	s	RES, ADJ, CARBON	10K		
R55	1-249-414-11	s	CARBON	RV4	1-228-996-00	s	RES, ADJ, CARBON	47K		
				RV5	1-228-990-00	s	RES, ADJ, CARBON	1K		

Ref.No.	Parts No.	SP	Description	Ref.No.	Parts No.	SP	Description						
RV6	1-228-996-00	s	RES, ADJ, CARBON 47K	C51	1-130-478-00	s	MYLAR	0.0039MF	5%	50V			
RV7	1-228-993-00	s	RES, ADJ, CARBON 4.7K	C52	1-162-211-31	s	CERAMIC	33PF	5%	50V			
RV101	1-228-990-00	s	RES, ADJ, CARBON 1K	C53	1-123-330-00	s	ELECT	22MF	20%	16V			
RV102	1-230-628-11	s	RES, ADJ, CARBON 2.2K	C55	1-130-478-00	s	MYLAR	0.0039MF	5%	50V			
				C56	1-123-369-00	s	ELECT	4.7MF	20%	50V			
<u>AU-73 BOARD</u>													
	A-6421-079-A	o	MOUNTED CIRCUIT BOARD, AU-73	C57	1-123-330-00	s	ELECT	22MF	20%	16V			
BPF1	1-235-805-11	s	FILTER, BAND PASS	C58	1-162-298-11	s	CERAMIC	0.0047MF	30%	16V			
BPF2	1-235-806-11	s	FILTER, BAND PASS	C59	1-123-330-00	s	ELECT	22MF	20%	16V			
				C60	1-162-286-31	s	CERAMIC	220PF	10%	50V			
				C61	1-130-489-00	s	MYLAR	0.033MF	5%	50V			
				C62	1-162-287-31	s	CERAMIC	270PF	10%	50V			
C1	1-130-475-00	s	MYLAR	0.0022MF	5%	50V	C66	1-130-473-00	s	MYLAR	0.0015MF	5%	50V
C2	1-123-306-00	s	ELECT	47MF	20%	10V	C69	1-123-306-00	s	ELECT	47MF	20%	10V
C3	1-162-294-31	s	CERAMIC	0.001MF	10%	50V	C70	1-130-493-00	s	MYLAR	0.068MF	5%	50V
C4	1-123-306-00	s	ELECT	47MF	20%	10V	C71	1-130-493-00	s	MYLAR	0.068MF	5%	50V
C5	1-162-306-31	s	CERAMIC	0.01MF	30%	16V	C72	1-130-495-00	s	MYLAR	0.1MF	5%	50V
C6	1-124-292-00	s	ELECT	33MF	20%	6.3V	C73	1-123-330-00	s	ELECT	22MF	20%	16V
C7	1-123-356-00	s	ELECT	10MF	20%	16V	C74	1-123-379-00	s	ELECT	0.47MF	20%	50V
C8	1-161-059-00	s	CERAMIC	0.047MF	10%	25V	C75	1-123-369-00	s	ELECT	4.7MF	20%	50V
C9	1-162-596-00	s	CERAMIC	0.022MF		25V	C76	1-123-369-00	s	ELECT	4.7MF	20%	50V
C10	1-123-356-00	s	ELECT	10MF	20%	16V	C77	1-123-369-00	s	ELECT	4.7MF	20%	50V
C11	1-162-290-31	s	CERAMIC	470PF	10%	50V	C78	1-123-369-00	s	ELECT	4.7MF	20%	50V
C12	1-123-369-00	s	ELECT	4.7MF	20%	50V	C79	1-123-318-00	s	ELECT	33MF	20%	16V
C13	1-130-495-00	s	MYLAR	0.1MF	5%	50V	C80	1-162-282-31	s	CERAMIC	100PF	10%	50V
C14	1-123-306-00	s	ELECT	47MF	20%	10V	C81	1-123-318-00	s	ELECT	33MF	20%	16V
C15	1-162-596-00	s	CERAMIC	0.022MF		25V	C82	1-162-282-31	s	CERAMIC	100PF	10%	50V
C16	1-162-596-00	s	CERAMIC	0.022MF		25V	C83	1-123-318-00	s	ELECT	33MF	20%	16V
C17	1-162-596-00	s	CERAMIC	0.022MF		25V	C84	1-123-318-00	s	ELECT	33MF	20%	16V
C18	1-123-308-00	s	ELECT	220MF	20%	10V	C85	1-123-356-00	s	ELECT	10MF	20%	16V
C19	1-162-596-00	s	CERAMIC	0.022MF		25V	C86	1-123-356-00	s	ELECT	10MF	20%	16V
C20	1-162-596-00	s	CERAMIC	0.022MF		25V	C87	1-123-356-00	s	ELECT	10MF	20%	16V
C21	1-162-596-00	s	CERAMIC	0.022MF		25V	C88	1-123-356-00	s	ELECT	10MF	20%	16V
C22	1-162-290-31	s	CERAMIC	470PF	10%	50V	C89	1-162-596-00	s	CERAMIC	0.022MF		25V
C23	1-123-308-00	s	ELECT	220MF	20%	10V	C90	1-162-596-00	s	CERAMIC	0.022MF		25V
C24	1-162-207-31	s	CERAMIC	22PF	5%	50V	C91	1-162-283-31	s	CERAMIC	120PF	10%	50V
C25	1-162-282-31	s	CERAMIC	100PF	10%	50V	C92	1-162-596-00	s	CERAMIC	0.022MF		25V
C26	1-162-306-31	s	CERAMIC	0.01MF	30%	16V	C94	1-123-356-00	s	ELECT	10MF	20%	50V
C27	1-130-478-00	s	MYLAR	0.0039MF	5%	50V	C95	1-123-332-00	s	ELECT	47MF	20%	25V
C29	1-130-478-00	s	MYLAR	0.0039MF	5%	50V	CN1	1-560-890-00	o	PIN, CONNECTOR	2P		
C30	1-123-330-00	s	ELECT	22MF	20%	16V	CN2	1-560-894-00	o	PIN, CONNECTOR	6P		
C31	1-130-473-00	s	MYLAR	0.0015MF	5%	50V	CN3	1-560-893-00	o	PIN, CONNECTOR	5P		
C33	1-162-287-31	s	CERAMIC	270PF	10%	50V	CN4	1-560-894-00	o	PIN, CONNECTOR	6P		
C37	1-162-286-31	s	CERAMIC	220PF	10%	50V	CN5	1-560-893-00	o	PIN, CONNECTOR	5P		
C38	1-123-330-00	s	ELECT	22MF	20%	16V	D1	8-719-911-19	s	DIODE	1SS119		
C39	1-130-489-00	s	MYLAR	0.033MF	5%	50V	D2	8-719-911-19	s	DIODE	1SS119		
C40	1-162-298-11	s	CERAMIC	0.0047MF	30%	16V	D7	8-719-911-19	s	DIODE	1SS119		
C41	1-123-356-00	s	ELECT	10MF	20%	16V	D8	8-719-801-73	s	DIODE	S5277D-LC7-10		
C42	1-123-356-00	s	ELECT	10MF	20%	16V	D9	8-719-911-19	s	DIODE	1SS119		
C43	1-123-308-00	s	ELECT	220MF	20%	10V	IC1	8-752-320-30	s	IC	CXL1003P		
C44	1-162-596-00	s	CERAMIC	0.022MF		25V	IC2	8-759-103-93	s	IC	UPC393C		
C45	1-162-596-00	s	CERAMIC	0.022MF		25V	IC3	8-759-303-75	s	IC	HA12083NT		
C46	1-162-596-00	s	CERAMIC	0.022MF		25V	IC5	8-759-302-81	s	IC	HA12043		
C47	1-123-308-00	s	ELECT	220MF	20%	10V	IC6	8-759-745-60	s	IC	NJM4560D		
C48	1-162-293-31	s	CERAMIC	820PF	10%	50V	IC7	8-759-708-05	s	IC	NJM78L05A		
C49	1-162-306-31	s	CERAMIC	0.01MF	30%	16V	IC8	8-759-700-65	s	IC	NJM79L05A		
C50	1-162-288-31	s	CERAMIC	330PF	10%	50V							

Ref.No.	Parts No.	SP	Description	Ref.No.	Parts No.	SP	Description						
L1	1-408-425-00	s	MICRO INDUCTOR 220UH	R44	1-249-429-11	s	CARBON	10K	5%	1/6W			
L2	1-407-503-00	s	MICRO INDUCTOR 8.2MMH	R45	1-249-429-11	s	CARBON	10K	5%	1/6W			
L7	1-408-424-00	s	MICRO INDUCTOR 180UH	R46	1-247-875-00	s	CARBON	68K	5%	1/6W			
L8	1-407-503-00	s	MICRO INDUCTOR 8.2MMH	R47	1-249-425-11	s	CARBON	4.7K	5%	1/6W			
L13	1-407-500-00	s	MICRO INDUCTOR 4.7MMH	R48	1-247-845-00	s	CARBON	3.9K	5%	1/6W			
L14	1-407-500-00	s	MICRO INDUCTOR 4.7MMH										
Q1	8-729-178-54	s	TRANSISTOR 2SC2785	R49	1-247-829-00	s	CARBON	820	5%	1/6W			
Q2	8-729-117-54	s	TRANSISTOR 2SA1175	R51	1-249-417-11	s	CARBON	1K	5%	1/6W			
Q3	8-729-178-54	s	TRANSISTOR 2SC2785	R54	1-247-839-00	s	CARBON	2.2K	5%	1/6W			
Q5	8-729-218-43	s	TRANSISTOR 2SK184-GR	R55	1-247-829-00	s	CARBON	820	5%	1/6W			
Q6	8-729-178-54	s	TRANSISTOR 2SC2785	R57	1-249-417-11	s	CARBON	1K	5%	1/6W			
Q7	8-729-178-54	s	TRANSISTOR 2SC2785	R58	1-210-821-00	s	CARBON	2.2M	5%	1/4W			
Q8	8-729-117-54	s	TRANSISTOR 2SA1175	R59	1-249-425-11	s	CARBON	4.7K	5%	1/6W			
Q9	8-729-178-54	s	TRANSISTOR 2SC2785	R60	1-249-441-11	s	CARBON	100K	5%	1/6W			
Q10	8-729-201-04	s	TRANSISTOR 2SC2878	R61	1-249-419-11	s	CARBON	1.5K	5%	1/6W			
Q11	8-729-201-04	s	TRANSISTOR 2SC2878	R62	1-247-839-00	s	CARBON	2.2K	5%	1/6W			
Q13	8-729-201-04	s	TRANSISTOR 2SC2878	R63	1-215-395-00	s	METAL	82	1%	1/6W			
Q16	8-729-117-54	s	TRANSISTOR 2SA1175	R64	1-215-437-00	s	METAL	4.7K	1%	1/6W			
				R65	1-247-875-00	s	CARBON	68K	5%	1/6W			
R1	1-249-441-11	s	CARBON	100K	5%	1/6W	R66	1-247-845-00	s	CARBON	3.9K	5%	1/6W
R2	1-249-433-11	s	CARBON	22K	5%	1/6W	R67	1-249-425-11	s	CARBON	4.7K	5%	1/6W
R3	1-249-417-11	s	CARBON	1K	5%	1/6W	R68	1-249-417-11	s	CARBON	1K	5%	1/6W
R4	1-249-437-11	s	CARBON	47K	5%	1/6W	R69	1-247-823-00	s	CARBON	470	5%	1/6W
R5	1-249-417-11	s	CARBON	1K	5%	1/6W	R71	1-249-425-11	s	CARBON	4.7K	5%	1/6W
R6	1-249-437-11	s	CARBON	47K	5%	1/6W	R72	1-249-425-11	s	CARBON	4.7K	5%	1/6W
R10	1-249-429-11	s	CARBON	10K	5%	1/6W	R73	1-247-883-00	s	CARBON	150K	5%	1/6W
R11	1-249-425-11	s	CARBON	4.7K	5%	1/6W	R74	1-247-883-00	s	CARBON	150K	5%	1/6W
R12	1-249-429-11	s	CARBON	10K	5%	1/6W	R75	1-215-468-00	s	METAL	91K	1%	1/6W
R13	1-249-437-11	s	CARBON	47K	5%	1/6W	R76	1-210-828-00	s	CARBON	4.7M	5%	1/4W
R14	1-249-441-11	s	CARBON	100K	5%	1/6W	R77	1-215-468-00	s	METAL	91K	1%	1/6W
R15	1-249-429-11	s	CARBON	10K	5%	1/6W	R78	1-247-839-00	s	CARBON	2.2K	5%	1/6W
R16	1-247-815-00	s	CARBON	220	5%	1/6W	R79	1-247-815-00	s	CARBON	220	5%	1/6W
R17	1-249-417-11	s	CARBON	1K	5%	1/6W	R80	1-247-851-00	s	CARBON	6.8K	5%	1/6W
R18	1-249-425-11	s	CARBON	4.7K	5%	1/6W	R81	1-247-851-00	s	CARBON	6.8K	5%	1/6W
R19	1-249-441-11	s	CARBON	100K	5%	1/6W	R83	1-247-815-00	s	CARBON	220	5%	1/6W
R20	1-249-417-11	s	CARBON	1K	5%	1/6W	R84	1-249-434-11	s	CARBON	27K	5%	1/6W
R21	1-247-837-00	s	CARBON	1.8K	5%	1/6W	R85	1-215-462-00	s	METAL	51K	1%	1/6W
R22	1-247-813-00	s	CARBON	180	5%	1/6W	R86	1-249-432-11	s	CARBON	18K	5%	1/6W
R23	1-249-425-11	s	CARBON	4.7K	5%	1/6W	R87	1-249-434-11	s	CARBON	27K	5%	1/6W
R24	1-247-823-00	s	CARBON	470	5%	1/6W	R88	1-249-432-11	s	CARBON	18K	5%	1/6W
R25	1-247-829-00	s	CARBON	820	5%	1/6W	R89	1-215-462-00	s	METAL	51K	1%	1/6W
R29	1-249-417-11	s	CARBON	1K	5%	1/6W	R90	1-249-437-11	s	CARBON	47K	5%	1/6W
R30	1-249-422-11	s	CARBON	2.7K	5%	1/6W	R91	1-249-437-11	s	CARBON	47K	5%	1/6W
R31	1-249-425-11	s	CARBON	4.7K	5%	1/6W	R92	1-249-441-11	s	CARBON	100K	5%	1/6W
R32	1-249-417-11	s	CARBON	1K	5%	1/6W	R95	1-247-837-00	s	CARBON	1.8K	5%	1/6W
R35	1-249-417-11	s	CARBON	1K	5%	1/6W	RV1	1-228-996-00	s	RES, ADJ, CARBON	47K		
R36	1-210-821-00	s	CARBON	2.2M	5%	1/4W	RV2	1-228-993-00	s	RES, ADJ, CARBON	4.7K		
R37	1-249-419-11	s	CARBON	1.5K	5%	1/6W	RV3	1-228-995-00	s	RES, ADJ, CARBON	22K		
R38	1-249-417-11	s	CARBON	1K	5%	1/6W	RV4	1-228-995-00	s	RES, ADJ, CARBON	22K		
R39	1-247-823-00	s	CARBON	470	5%	1/6W							
R40	1-249-425-11	s	CARBON	4.7K	5%	1/6W							
R41	1-249-441-11	s	CARBON	100K	5%	1/6W							
R42	1-247-839-00	s	CARBON	2.2K	5%	1/6W							
R43	1-249-429-11	s	CARBON	10K	5%	1/6W							

Ref.No.	Parts No.	SP	Description	Ref.No.	Parts No.	SP	Description						
<u>VP-18 BOARD</u>													
	A-6421-080-A	o	MOUNTED CIRCUIT BOARD, VP-18	C52	1-162-198-31	s	CERAMIC	8.2PF	10%	50V			
	1-561-724-00	o	SOCKET, CONNECTOR 2P	C53	1-162-215-31	s	CERAMIC	47PF	5%	50V			
	1-536-985-11	s	JACK BOARD (P)	C54	1-162-207-31	s	CERAMIC	22PF	5%	50V			
	3-710-317-01	o	PLATE, GROUND	C55	1-162-196-31	s	CERAMIC	5.6PF	10%	50V			
	3-710-318-01	o	CASE (VP), SHIELD	C56	1-124-236-00	s	ELECT	47MF	20%	10V			
C1	1-123-332-00	s	ELECT	47MF	20%	16V	C57	1-123-647-00	s	ELECT	47MF	20%	6.3V
C2	1-123-356-00	s	ELECT	10MF	20%	16V	C58	1-123-306-00	s	ELECT	47MF	20%	10V
C3	1-162-211-31	s	CERAMIC	33PF	5%	50V	C59	1-124-249-00	s	ELECT	0.1MF	20%	50V
C4	1-130-495-00	s	MYLAR	0.1MF	5%	50V	C60	1-124-255-00	s	ELECT	1MF	20%	50V
C5	1-162-306-31	s	CERAMIC	0.01MF	20%	16V	C61	1-162-282-31	s	CERAMIC	100PF	10%	50V
C6	1-123-607-00	s	ELECT	0.1MF	20%	50V	C62	1-162-288-31	s	CERAMIC	330PF	10%	50V
C7	1-123-356-00	s	ELECT	10MF	20%	16V	C64	1-124-270-11	s	ELECT	0.47MF	20%	50V
C8	1-123-332-00	s	ELECT	47MF	20%	16V	C65	1-124-236-00	s	ELECT	47MF	20%	10V
C9	1-162-201-31	s	CERAMIC	12PF	5%	50V	C66	1-123-307-00	s	ELECT	100MF	20%	10V
C10	1-162-201-31	s	CERAMIC	12PF	5%	50V	C67	1-162-280-31	s	CERAMIC	82PF	10%	50V
C11	1-123-617-00	s	ELECT	10MF	20%	16V	C68	1-162-211-31	s	CERAMIC	33PF	5%	50V
C12	1-123-356-00	s	ELECT	10MF	20%	16V	C69	1-162-211-31	s	CERAMIC	33PF	5%	50V
C13	1-123-332-00	s	ELECT	47MF	20%	16V	C70	1-162-203-31	s	CERAMIC	15PF	5%	50V
C14	1-162-215-31	s	CERAMIC	47PF	5%	50V	C71	1-162-290-31	s	CERAMIC	470PF	10%	50V
C15	1-102-978-00	s	CERAMIC	220PF	5%	50V	C80	1-161-059-00	s	CERAMIC	0.047MF	10%	25V
C16	1-162-302-31	s	CERAMIC	0.0022MF	30%	16V	C81	1-161-059-00	s	CERAMIC	0.047MF	10%	25V
C17	1-102-978-00	s	CERAMIC	220PF	5%	50V	C82	1-161-059-00	s	CERAMIC	0.047MF	10%	25V
C18	1-123-617-00	s	ELECT	10MF	20%	16V	C83	1-161-059-00	s	CERAMIC	0.047MF	10%	25V
C19	1-123-356-00	s	ELECT	10MF	20%	16V	C84	1-161-059-00	s	CERAMIC	0.047MF	10%	25V
C20	1-162-215-31	s	CERAMIC	47PF	5%	50V	C85	1-161-059-00	s	CERAMIC	0.047MF	10%	25V
C21	1-162-286-31	s	CERAMIC	220PF	10%	50V	C90	1-123-332-00	s	ELECT	47MF	20%	16V
C22	1-130-485-00	s	MYLAR	0.015MF	5%	50V	C101	1-123-332-00	s	ELECT	47MF	20%	16V
C23	1-123-610-00	s	ELECT	0.47MF	20%	50V	C102	1-123-306-00	s	ELECT	47MF	20%	10V
C24	1-123-306-00	s	ELECT	47MF	20%	10V	C103	1-162-282-31	s	CERAMIC	100PF	10%	50V
C25	1-123-306-00	s	ELECT	47MF	20%	10V	C104	1-101-005-00	s	CERAMIC	0.022MF		50V
C26	1-162-292-31	s	CERAMIC	680PF	10%	50V	C105	1-162-283-31	s	CERAMIC	120PF	10%	50V
C27	1-136-164-00	s	MYLAR	0.082MF	5%	50V	C106	1-123-306-00	s	ELECT	47MF	20%	10V
C28	1-162-288-31	s	CERAMIC	330PF	10%	50V	C107	1-101-005-00	s	CERAMIC	0.022MF		50V
C29	1-162-288-31	s	CERAMIC	330PF	10%	50V	C108	1-130-495-00	s	MYLAR	0.1MF	5%	50V
C30	1-123-308-00	s	ELECT	220MF	20%	6.3V	C109	1-101-005-00	s	CERAMIC	0.022MF		50V
C31	1-124-271-00	s	ELECT	1MF	20%	50V	C110	1-123-607-00	s	ELECT	0.1MF	20%	50V
C32	1-123-307-00	s	ELECT	100MF	20%	10V	C111	1-162-306-31	s	CERAMIC	0.01MF	20%	16V
C33	1-123-332-00	s	ELECT	47MF	20%	16V	C112	1-123-306-00	s	ELECT	47MF	20%	10V
C34	1-123-332-00	s	ELECT	47MF	20%	16V	C113	1-162-306-31	s	CERAMIC	0.01MF	20%	16V
C35	1-162-306-31	s	CERAMIC	0.01MF	20%	16V	C114	1-162-196-31	s	CERAMIC	5.6PF	10%	50V
C36	1-123-307-00	s	ELECT	100MF	20%	10V	C115	1-162-282-31	s	CERAMIC	100PF	10%	50V
C37	1-123-307-00	s	ELECT	100MF	20%	10V	C116	1-162-290-31	s	CERAMIC	470PF	10%	50V
C38	1-161-059-00	s	CERAMIC	0.047MF	10%	25V	C117	1-162-282-31	s	CERAMIC	100PF	10%	50V
C39	1-123-306-00	s	ELECT	47MF	20%	10V	C118	1-162-306-31	s	CERAMIC	0.01MF	20%	16V
C40	1-161-059-00	s	CERAMIC	0.047MF	10%	25V	C119	1-162-306-31	s	CERAMIC	0.01MF	20%	16V
C41	1-101-004-00	s	CERAMIC	0.01MF		50V	C120	1-162-306-31	s	CERAMIC	0.01MF	20%	16V
C42	1-123-356-00	s	ELECT	10MF	20%	16V	C121	1-162-306-31	s	CERAMIC	0.01MF	20%	16V
C43	1-101-005-00	s	CERAMIC	0.022MF		50V	C122	1-162-290-31	s	CERAMIC	470PF	10%	50V
C44	1-107-206-00	s	MICA	15PF	5%	500V	C123	1-162-306-31	s	CERAMIC	0.01MF	20%	16V
C45	1-107-210-00	s	MICA	22PF	5%	500V	C124	1-162-306-31	s	CERAMIC	0.01MF	20%	16V
C47	1-161-055-00	s	CERAMIC	0.022MF	10%	25V	C125	1-162-203-31	s	CERAMIC	15PF	5%	50V
C48	1-123-306-00	s	ELECT	47MF	20%	10V	C126	1-162-219-31	s	CERAMIC	68PF	5%	50V
C49	1-162-280-31	s	CERAMIC	82PF	10%	50V	C127	1-162-209-31	s	CERAMIC	27PF	5%	50V
C50	1-162-219-31	s	CERAMIC	68PF	5%	50V	C128	1-162-219-31	s	CERAMIC	68PF	5%	50V
C51	1-123-330-00	s	ELECT	22MF	20%	16V	C129	1-162-209-31	s	CERAMIC	27PF	5%	50V
							C130	1-162-201-31	s	CERAMIC	12PF	5%	50V
							C131	1-162-209-31	s	CERAMIC	27PF	5%	50V
							C132	1-162-207-31	s	CERAMIC	22PF	5%	50V
							C133	1-162-282-31	s	CERAMIC	100PF	10%	50V
							C134	1-162-211-31	s	CERAMIC	33PF	5%	50V

Ref.No.	Parts No.	SP	Description				Ref.No.	Parts No.	SP	Description			
C135	1-123-306-00	s	ELECT	47MF	20%	10V	C411	1-130-026-00	s	FILM	0.0047MF	5%	50V
C136	1-123-332-00	s	ELECT	47MF	20%	16V	C412	1-162-215-31	s	CERAMIC	47PF	5%	50V
C137	1-123-306-00	s	ELECT	47MF	20%	10V	C413	1-162-306-31	s	CERAMIC	0.01MF	20%	16V
C138	1-162-282-31	s	CERAMIC	100PF	10%	50V	C414	1-130-471-00	s	MYLAR	0.001MF	5%	50V
C139	1-162-280-31	s	CERAMIC	82PF	10%	50V	C415	1-136-141-00	s	FILM	0.001MF	5%	50V
C140	1-162-306-31	s	CERAMIC	0.01MF	20%	16V	C416	1-136-141-00	s	FILM	0.001MF	5%	50V
C142	1-123-380-00	s	ELECT	1MF	20%	50V	C417	1-123-356-00	s	ELECT	10MF	20%	16V
C143	1-123-380-00	s	ELECT	1MF	20%	50V	C418	1-123-356-00	s	ELECT	10MF	20%	16V
C144	1-123-380-00	s	ELECT	1MF	20%	50V	C419	1-162-306-31	s	CERAMIC	0.01MF	20%	16V
C145	1-123-306-00	s	ELECT	47MF	20%	10V	C420	1-162-306-31	s	CERAMIC	0.01MF	20%	16V
C146	1-123-332-00	s	ELECT	47MF	20%	16V	C421	1-162-306-31	s	CERAMIC	0.01MF	20%	16V
C147	1-162-211-31	s	CERAMIC	33PF	5%	50V	C422	1-107-211-00	s	MICA	24PF	5%	500V
C148	1-123-306-00	s	ELECT	47MF	20%	10V	C423	1-107-082-00	s	MICA	75PF	5%	50V
C149	1-124-468-11	s	ELECT	100MF	20%	6.3V							
C150	1-124-468-11	s	ELECT	100MF	20%	6.3V	CF1	1-567-657-11	s	FILTER, CERAMIC (SFS-MA TYPE)			
C151	1-162-291-31	s	CERAMIC	560PF	10%	50V	CN1	1-560-894-00	o	PIN, CONNECTOR 6P			
C152	1-123-356-00	s	ELECT	10MF	20%	16V	CN2	1-560-891-00	o	PIN, CONNECTOR 3P			
C153	1-123-306-00	s	ELECT	47MF	20%	10V	CN5	1-560-894-00	o	PIN, CONNECTOR 6P			
C154	1-124-442-00	s	ELECT	330MF	20%	6.3V	CN7	1-560-898-00	o	PIN, CONNECTOR 10P			
C155	1-124-442-00	s	ELECT	330MF	20%	6.3V							
C157	1-162-193-31	s	CERAMIC	3.3PF	10%	50V	CV401	1-141-227-00	s	CAP, CERAMIC TRIMMER			
C158	1-162-196-31	s	CERAMIC	5.6PF	10%	50V							
C159	1-162-203-31	s	CERAMIC	15PF	5%	50V	D3	8-719-911-19	s	DIODE 1SS119			
C160	1-124-468-11	s	ELECT	100MF	20%	6.3V	D401	8-719-907-19	s	DIODE FC52M-5			
C161	1-123-306-00	s	ELECT	47MF	20%	10V							
C201	1-123-647-00	s	ELECT	47MF	20%	6.3V	IC1	8-752-321-89	s	IC CXL5003P			
C202	1-130-479-00	s	MYLAR	0.0047MF	5%	50V	IC2	8-752-006-10	s	IC CX20061			
C203	1-162-291-31	s	CERAMIC	560PF	10%	50V	IC3	8-759-912-64	s	IC PA0009			
C204	1-130-495-00	s	MYLAR	0.1MF	5%	50V	IC4	8-752-320-31	s	IC CXL1004P			
C205	1-123-617-00	s	ELECT	10MF	20%	16V	IC5	8-759-950-07	s	IC SN75107BN			
C207	1-162-215-31	s	CERAMIC	47PF	5%	50V	IC6	8-759-912-67	s	IC PA9003			
C208	1-162-215-31	s	CERAMIC	47PF	5%	50V	IC7	8-759-220-00	s	IC TC40H000P			
C209	1-123-647-00	s	ELECT	47MF	20%	6.3V	IC8	8-759-220-04	s	IC TC40H004P			
C210	1-130-483-00	s	MYLAR	0.01MF	5%	50V	IC101	8-752-321-89	s	IC CXL5003P			
C211	1-130-483-00	s	MYLAR	0.01MF	5%	50V	IC102	8-759-927-56	s	IC BA7021			
C212	1-123-647-00	s	ELECT	47MF	20%	6.3V	IC103	8-759-200-60	s	IC TA7060AP			
C213	1-130-483-00	s	MYLAR	0.01MF	5%	50V	IC201	8-752-030-44	s	IC CXA1018S			
C214	1-130-477-00	s	MYLAR	0.0033MF	5%	50V	IC202	8-759-902-21	s	IC SN74LS221N			
C216	1-130-483-00	s	MYLAR	0.01MF	5%	50V	IC401	8-759-207-28	s	IC TC9015P			
C217	1-123-647-00	s	ELECT	47MF	20%	6.3V	IC402	8-759-902-21	s	IC SN74LS221N			
C218	1-123-647-00	s	ELECT	47MF	20%	6.3V	IC403	8-759-902-21	s	IC SN74LS221N			
C219	1-101-004-00	s	CERAMIC	0.01MF	50V		IC404	8-759-902-21	s	IC SN74LS221N			
C220	1-162-282-31	s	CERAMIC	100PF	10%	50V	IC405	8-759-205-76	s	IC TC504013BP			
C221	1-162-286-31	s	CERAMIC	220PF	10%	50V	IC406	8-759-240-40	s	IC TC4040BP			
C222	1-162-286-31	s	CERAMIC	220PF	10%	50V	IC407	8-759-240-68	s	IC TC4068BP			
C223	1-162-282-31	s	CERAMIC	100PF	10%	50V	IC408	8-759-240-68	s	IC TC4068BP			
C224	1-130-477-00	s	MYLAR	0.0033MF	5%	50V	IC409	8-759-240-11	s	IC TC4011BP			
C225	1-130-471-00	s	MYLAR	0.001MF	5%	50V	IC410	8-759-240-53	s	IC TC4053BP			
C226	1-161-059-00	s	CERAMIC	0.047MF	10%	25V	IC411	8-759-278-09	s	IC TA78L009AP			
C227	1-131-387-00	s	TANTALUM	47MF	20%	6.3V							
C401	1-107-157-00	s	MICA	27PF	5%	500V	L1	1-410-364-11	s	MICRO INDUCTOR 39UH			
C402	1-107-204-00	s	MICA	12PF	5%	500V	L2	1-410-336-11	s	MICRO INDUCTOR 220UH			
C403	1-130-487-00	s	MYLAR	0.022MF	5%	50V	L3	1-410-367-11	s	MICRO INDUCTOR 120UH			
C404	1-130-467-00	s	MYLAR	470PF	5%	50V	L4	1-410-328-11	s	MICRO INDUCTOR 10UH			
C405	1-107-159-00	s	MICA	33PF	5%	500V	L5	1-410-328-11	s	MICRO INDUCTOR 10UH			
C406	1-107-077-00	s	MICA	47PF	5%	50V	L6	1-410-328-11	s	MICRO INDUCTOR 10UH			
C407	1-162-207-31	s	CERAMIC	22PF	5%	50V	L7	1-410-316-11	s	MICRO INDUCTOR 1UH			
C408	1-162-289-31	s	CERAMIC	390PF	10%	50V	L8	1-410-334-11	s	MICRO INDUCTOR 100UH			
C409	1-130-491-00	s	MYLAR	0.047MF	5%	50V	L10	1-410-328-11	s	MICRO INDUCTOR 10UH			
C410	1-123-332-00	s	ELECT	47MF	20%	16V	L11	1-410-364-11	s	MICRO INDUCTOR 39UH			

Ref.No.	Parts No.	SP	Description	Ref.No.	Parts No.	SP	Description				
L12	1-410-363-11	s	MICRO INDUCTOR 27UH	Q101	8-729-178-54	s	TRANSISTOR 2SC2785				
L13	1-410-365-11	s	MICRO INDUCTOR 56UH	Q103	8-729-178-54	s	TRANSISTOR 2SC2785				
L14	1-410-328-11	s	MICRO INDUCTOR 10UH	Q104	8-729-178-54	s	TRANSISTOR 2SC2785				
L16	1-410-362-11	s	MICRO INDUCTOR 18UH	Q105	8-729-178-54	s	TRANSISTOR 2SC2785				
L17	1-410-328-11	s	MICRO INDUCTOR 10UH	Q106	8-729-178-54	s	TRANSISTOR 2SC2785				
L18	1-410-328-11	s	MICRO INDUCTOR 10UH	Q107	8-729-178-54	s	TRANSISTOR 2SC2785				
L19	1-410-328-11	s	MICRO INDUCTOR 10UH	Q108	8-729-178-54	s	TRANSISTOR 2SC2785				
L20	1-410-328-11	s	MICRO INDUCTOR 10UH	Q109	8-729-178-54	s	TRANSISTOR 2SC2785				
L21	1-410-328-11	s	MICRO INDUCTOR 10UH	Q110	8-729-178-54	s	TRANSISTOR 2SC2785				
L22	1-410-331-11	s	MICRO INDUCTOR 33UH	Q111	8-729-900-36	s	TRANSISTOR DTC124ES				
L101	1-410-328-11	s	MICRO INDUCTOR 10UH	Q112	8-729-178-54	s	TRANSISTOR 2SC2785				
L102	1-410-328-11	s	MICRO INDUCTOR 10UH	Q113	8-729-178-54	s	TRANSISTOR 2SC2785				
L103	1-410-333-11	s	MICRO INDUCTOR 68UH	Q114	8-729-178-54	s	TRANSISTOR 2SC2785				
L104	1-410-329-11	s	MICRO INDUCTOR 15UH	Q115	8-729-178-54	s	TRANSISTOR 2SC2785				
L105	1-410-332-11	s	MICRO INDUCTOR 47UH	Q116	8-729-178-54	s	TRANSISTOR 2SC2785				
L107	1-410-328-11	s	MICRO INDUCTOR 10UH	Q117	8-729-117-54	s	TRANSISTOR 2SA1175				
L108	1-410-333-11	s	MICRO INDUCTOR 68UH	Q118	8-729-178-54	s	TRANSISTOR 2SC2785				
L109	1-410-332-11	s	MICRO INDUCTOR 47UH	Q119	8-729-178-54	s	TRANSISTOR 2SC2785				
L110	1-410-328-11	s	MICRO INDUCTOR 10UH	Q120	8-729-178-54	s	TRANSISTOR 2SC2785				
L111	1-410-332-11	s	MICRO INDUCTOR 47UH	Q121	8-729-178-54	s	TRANSISTOR 2SC2785				
L112	1-410-364-11	s	MICRO INDUCTOR 39UH	Q122	8-729-178-54	s	TRANSISTOR 2SC2785				
L113	1-410-336-11	s	MICRO INDUCTOR 220UH	Q123	8-729-178-54	s	TRANSISTOR 2SC2785				
L114	1-410-331-11	s	MICRO INDUCTOR 33UH	Q124	8-729-178-54	s	TRANSISTOR 2SC2785				
L115	1-410-328-11	s	MICRO INDUCTOR 10UH	Q125	8-729-178-54	s	TRANSISTOR 2SC2785				
L116	1-410-328-11	s	MICRO INDUCTOR 10UH	Q126	8-729-117-54	s	TRANSISTOR 2SA1175				
L201	1-410-328-11	s	MICRO INDUCTOR 10UH	Q127	8-729-178-54	s	TRANSISTOR 2SC2785				
L202	1-410-328-11	s	MICRO INDUCTOR 10UH	Q128	8-729-178-54	s	TRANSISTOR 2SC2785				
L203	1-410-328-11	s	MICRO INDUCTOR 10UH	Q129	8-729-178-54	s	TRANSISTOR 2SC2785				
L205	1-410-362-11	s	MICRO INDUCTOR 18UH	Q201	8-729-178-54	s	TRANSISTOR 2SC2785				
L401	1-408-420-00	s	MICRO INDUCTOR 82UH	Q203	8-729-178-54	s	TRANSISTOR 2SC2785				
L402	1-408-418-00	s	MICRO INDUCTOR 56UH	Q205	8-729-178-54	s	TRANSISTOR 2SC2785				
L403	1-408-401-00	s	MICRO INDUCTOR 2.2UH	Q207	8-729-900-63	s	TRANSISTOR DTA124ES				
L404	1-410-328-11	s	MICRO INDUCTOR 10UH	Q209	8-729-900-63	s	TRANSISTOR DTA124ES				
LP1	4-352-844-01	o	PIN, LEAD, COATING	Q401	8-729-900-36	s	TRANSISTOR DTC124ES				
Q2	8-729-178-54	s	TRANSISTOR 2SC2785	Q402	8-729-178-54	s	TRANSISTOR 2SC2785				
Q3	8-729-178-54	s	TRANSISTOR 2SC2785	Q403	8-729-178-54	s	TRANSISTOR 2SC2785				
Q4	8-729-178-54	s	TRANSISTOR 2SC2785	Q405	8-729-178-54	s	TRANSISTOR 2SC2785				
Q5	8-729-178-54	s	TRANSISTOR 2SC2785	R1	1-249-405-11	s	CARBON	100	5%	1/6W	
Q6	8-729-178-54	s	TRANSISTOR 2SC2785	R2	1-249-405-11	s	CARBON	100	5%	1/6W	
Q7	8-729-178-54	s	TRANSISTOR 2SC2785	R3	1-249-425-11	s	CARBON	4.7K	5%	1/6W	
Q8	8-729-178-54	s	TRANSISTOR 2SC2785	R4	1-249-417-11	s	CARBON	1K	5%	1/6W	
Q9	8-729-178-54	s	TRANSISTOR 2SC2785	R5	1-249-425-11	s	CARBON	4.7K	5%	1/6W	
Q10	8-729-117-54	s	TRANSISTOR 2SA1175	R6	1-247-903-00	s	CARBON	1M	5%	1/6W	
Q11	8-729-178-54	s	TRANSISTOR 2SC2785	R7	1-249-429-11	s	CARBON	10K	5%	1/6W	
Q12	8-729-117-54	s	TRANSISTOR 2SA1175	R8	1-247-823-00	s	CARBON	470	5%	1/6W	
Q13	8-729-112-06	s	TRANSISTOR 2SA1206	R9	1-249-417-11	s	CARBON	1K	5%	1/6W	
Q14	8-729-190-12	s	TRANSISTOR 2SC2901	R10	1-247-839-00	s	CARBON	2.2K	5%	1/6W	
Q15	8-729-178-54	s	TRANSISTOR 2SC2785	R11	1-247-839-00	s	CARBON	2.2K	5%	1/6W	
Q16	8-729-178-54	s	TRANSISTOR 2SC2785	R12	1-247-839-00	s	CARBON	2.2K	5%	1/6W	
Q17	8-729-178-54	s	TRANSISTOR 2SC2785	R15	1-249-429-11	s	CARBON	10K	5%	1/6W	
Q18	8-729-178-54	s	TRANSISTOR 2SC2785	R16	1-247-839-00	s	CARBON	2.2K	5%	1/6W	
Q19	8-729-218-43	s	TRANSISTOR 2SK184-GR	R20	1-249-417-11	s	CARBON	1K	5%	1/6W	
Q20	8-729-178-54	s	TRANSISTOR 2SC2785	R21	1-249-405-11	s	CARBON	100	5%	1/6W	
Q21	8-729-178-54	s	TRANSISTOR 2SC2785	R22	1-247-851-00	s	CARBON	6.8K	5%	1/6W	
				R23	1-249-441-11	s	CARBON	100K	5%	1/6W	
				R25	1-247-849-00	s	CARBON	5.6K	5%	1/6W	
				R26	1-247-857-00	s	CARBON	12K	5%	1/6W	

Ref.No.	Parts No.	SP	Description				Ref.No.	Parts No.	SP	Description			
R27	1-247-839-00	s	CARBON	2.2K	5%	1/6W	R123	1-249-417-11	s	CARBON	1K	5%	1/6W
R28	1-247-849-00	s	CARBON	5.6K	5%	1/6W	R124	1-249-417-11	s	CARBON	1K	5%	1/6W
R29	1-247-873-00	s	CARBON	56K	5%	1/6W	R125	1-249-429-11	s	CARBON	10K	5%	1/6W
R30	1-249-437-11	s	CARBON	47K	5%	1/6W	R126	1-247-857-00	s	CARBON	12K	5%	1/6W
R31	1-249-417-11	s	CARBON	1K	5%	1/6W	R127	1-249-425-11	s	CARBON	4.7K	5%	1/6W
R32	1-249-417-11	s	CARBON	1K	5%	1/6W	R128	1-247-859-00	s	CARBON	15K	5%	1/6W
R33	1-249-417-11	s	CARBON	1K	5%	1/6W	R129	1-249-417-11	s	CARBON	1K	5%	1/6W
R34	1-247-903-00	s	CARBON	1M	5%	1/6W	R132	1-247-839-00	s	CARBON	2.2K	5%	1/6W
R35	1-247-839-00	s	CARBON	2.2K	5%	1/6W	R133	1-247-823-00	s	CARBON	470	5%	1/6W
R37	1-247-819-00	s	CARBON	330	5%	1/6W	R134	1-247-823-00	s	CARBON	470	5%	1/6W
R38	1-247-839-00	s	CARBON	2.2K	5%	1/6W	R135	1-249-417-11	s	CARBON	1K	5%	1/6W
R39	1-247-823-00	s	CARBON	470	5%	1/6W	R136	1-249-417-11	s	CARBON	1K	5%	1/6W
R40	1-249-423-11	s	CARBON	3.3K	5%	1/6W	R137	1-249-417-11	s	CARBON	1K	5%	1/6W
R41	1-249-423-11	s	CARBON	3.3K	5%	1/6W	R138	1-249-425-11	s	CARBON	4.7K	5%	1/6W
R42	1-249-417-11	s	CARBON	1K	5%	1/6W	R139	1-249-417-11	s	CARBON	1K	5%	1/6W
R43	1-249-419-11	s	CARBON	1.5K	5%	1/6W	R141	1-247-839-00	s	CARBON	2.2K	5%	1/6W
R44	1-249-417-11	s	CARBON	1K	5%	1/6W	R145	1-249-429-11	s	CARBON	10K	5%	1/6W
R45	1-249-415-11	s	CARBON	680	5%	1/6W	R146	1-249-417-11	s	CARBON	1K	5%	1/6W
R46	1-249-425-11	s	CARBON	4.7K	5%	1/6W	R147	1-247-833-00	s	CARBON	1.2K	5%	1/6W
R47	1-249-417-11	s	CARBON	1K	5%	1/6W	R148	1-247-851-00	s	CARBON	6.8K	5%	1/6W
R48	1-247-833-00	s	CARBON	1.2K	5%	1/6W	R149	1-249-417-11	s	CARBON	1K	5%	1/6W
R49	1-249-417-11	s	CARBON	1K	5%	1/6W	R150	1-249-417-11	s	CARBON	1K	5%	1/6W
R50	1-249-425-11	s	CARBON	4.7K	5%	1/6W	R151	1-249-415-11	s	CARBON	680	5%	1/6W
R51	1-249-417-11	s	CARBON	1K	5%	1/6W	R152	1-249-417-11	s	CARBON	1K	5%	1/6W
R52	1-247-839-00	s	CARBON	2.2K	5%	1/6W	R153	1-249-417-11	s	CARBON	1K	5%	1/6W
R53	1-249-429-11	s	CARBON	10K	5%	1/6W	R154	1-247-833-00	s	CARBON	1.2K	5%	1/6W
R54	1-249-429-11	s	CARBON	10K	5%	1/6W	R155	1-249-419-11	s	CARBON	1.5K	5%	1/6W
R55	1-249-441-11	s	CARBON	100K	5%	1/6W	R156	1-247-823-00	s	CARBON	470	5%	1/6W
R56	1-249-405-11	s	CARBON	100	5%	1/6W	R157	1-249-415-11	s	CARBON	680	5%	1/6W
R57	1-249-417-11	s	CARBON	1K	5%	1/6W	R158	1-249-419-11	s	CARBON	1.5K	5%	1/6W
R58	1-249-417-11	s	CARBON	1K	5%	1/6W	R159	1-249-419-11	s	CARBON	1.5K	5%	1/6W
R59	1-249-417-11	s	CARBON	1K	5%	1/6W	R160	1-249-419-11	s	CARBON	1.5K	5%	1/6W
R60	1-247-839-00	s	CARBON	2.2K	5%	1/6W	R161	1-249-417-11	s	CARBON	1K	5%	1/6W
R62	1-249-417-11	s	CARBON	1K	5%	1/6W	R162	1-249-417-11	s	CARBON	1K	5%	1/6W
R63	1-249-417-11	s	CARBON	1K	5%	1/6W	R163	1-249-417-11	s	CARBON	1K	5%	1/6W
R64	1-249-405-11	s	CARBON	100	5%	1/6W	R164	1-247-805-00	s	CARBON	82	5%	1/6W
R65	1-247-845-00	s	CARBON	3.9K	5%	1/6W	R165	1-249-405-11	s	CARBON	100	5%	1/6W
R66	1-249-417-11	s	CARBON	1K	5%	1/6W	R166	1-247-799-00	s	CARBON	47	5%	1/6W
R67	1-249-417-11	s	CARBON	1K	5%	1/6W	R167	1-249-425-11	s	CARBON	4.7K	5%	1/6W
R101	1-249-417-11	s	CARBON	1K	5%	1/6W	R168	1-247-823-00	s	CARBON	470	5%	1/6W
R102	1-249-417-11	s	CARBON	1K	5%	1/6W	R169	1-247-823-00	s	CARBON	470	5%	1/6W
R103	1-247-839-00	s	CARBON	2.2K	5%	1/6W	R170	1-249-429-11	s	CARBON	10K	5%	1/6W
R104	1-247-903-00	s	CARBON	1M	5%	1/6W	R171	1-247-833-00	s	CARBON	1.2K	5%	1/6W
R105	1-249-429-11	s	CARBON	10K	5%	1/6W	R172	1-249-417-11	s	CARBON	1K	5%	1/6W
R107	1-247-849-00	s	CARBON	5.6K	5%	1/6W	R173	1-249-429-11	s	CARBON	10K	5%	1/6W
R108	1-249-417-11	s	CARBON	1K	5%	1/6W	R174	1-249-425-11	s	CARBON	4.7K	5%	1/6W
R109	1-249-417-11	s	CARBON	1K	5%	1/6W	R176	1-249-417-11	s	CARBON	1K	5%	1/6W
R110	1-249-425-11	s	CARBON	4.7K	5%	1/6W	R177	1-249-417-11	s	CARBON	1K	5%	1/6W
R111	1-249-422-11	s	CARBON	2.7K	5%	1/6W	R178	1-249-405-11	s	CARBON	100	5%	1/6W
R112	1-247-823-00	s	CARBON	470	5%	1/6W	R179	1-249-405-11	s	CARBON	100	5%	1/6W
R113	1-249-419-11	s	CARBON	1.5K	5%	1/6W	R180	1-247-804-00	s	CARBON	75	5%	1/6W
R114	1-249-417-11	s	CARBON	1K	5%	1/6W	R181	1-249-429-11	s	CARBON	10K	5%	1/6W
R115	1-249-417-11	s	CARBON	1K	5%	1/6W	R185	1-249-414-11	s	CARBON	560	5%	1/6W
R116	1-247-839-00	s	CARBON	2.2K	5%	1/6W	R186	1-249-417-11	s	CARBON	1K	5%	1/6W
R117	1-247-823-00	s	CARBON	470	5%	1/6W	R187	1-249-417-11	s	CARBON	1K	5%	1/6W
R118	1-249-419-11	s	CARBON	1.5K	5%	1/6W	R188	1-247-833-00	s	CARBON	1.2K	5%	1/6W
R119	1-249-417-11	s	CARBON	1K	5%	1/6W	R189	1-249-417-11	s	CARBON	1K	5%	1/6W
R120	1-249-417-11	s	CARBON	1K	5%	1/6W	R190	1-247-823-00	s	CARBON	470	5%	1/6W
R121	1-247-839-00	s	CARBON	2.2K	5%	1/6W	R201	1-247-881-00	s	CARBON	120K	5%	1/6W
R122	1-249-429-11	s	CARBON	10K	5%	1/6W	R202	1-247-895-00	s	CARBON	470K	5%	1/6W

Ref.No.	Parts No.	SP	Description	Ref.No.	Parts No.	SP	Description
R203	1-247-857-00	s	CARBON	R452	1-249-417-11	s	CARBON
R204	1-249-437-11	s	CARBON	R453	1-249-417-11	s	CARBON
R205	1-249-441-11	s	CARBON	R454	1-249-422-11	s	CARBON
R206	1-247-869-00	s	CARBON	R455	1-249-422-11	s	CARBON
R207	1-249-441-11	s	CARBON				
R208	1-249-440-11	s	CARBON	RV1	1-228-991-00	s	RES, ADJ, CARBON
R209	1-247-895-00	s	CARBON	RV2	1-228-990-00	s	RES, ADJ, CARBON
R210	1-247-839-00	s	CARBON	RV3	1-228-991-00	s	RES, ADJ, CARBON
R211	1-249-441-11	s	CARBON	RV4	1-228-990-00	s	RES, ADJ, CARBON
R212	1-247-895-00	s	CARBON	RV11	1-228-996-00	s	RES, ADJ, CARBON
R213	1-249-434-11	s	CARBON	RV12	1-228-995-00	s	RES, ADJ, CARBON
R214	1-249-434-11	s	CARBON	RV101	1-228-993-00	s	RES, ADJ, CARBON
R215	1-249-441-11	s	CARBON	RV102	1-228-990-00	s	RES, ADJ, CARBON
R216	1-249-437-11	s	CARBON	RV103	1-228-989-00	s	RES, ADJ, CARBON
R217	1-247-895-00	s	CARBON	RV104	1-228-989-00	s	RES, ADJ, CARBON
R218	1-249-417-11	s	CARBON	RV401	1-228-995-00	s	RES, ADJ, METAL GLAZE
R220	1-249-435-11	s	CARBON	RV402	1-228-995-00	s	RES, ADJ, METAL GLAZE
R221	1-247-873-00	s	CARBON	SW401	1-560-914-00	s	POST, CONNECTOR
R222	1-249-417-11	s	CARBON				
R223	1-249-441-11	s	CARBON	X1	1-567-652-11	s	VIBRATOR, CRYSTAL
R224	1-249-441-11	s	CARBON	X401	1-567-344-11	s	VIBRATOR, CRYSTAL (VCO)
R225	1-247-869-00	s	CARBON				
R229	1-249-417-11	s	CARBON				
R230	1-247-805-00	s	CARBON				
R232	1-249-417-11	s	CARBON				
R233	1-249-425-11	s	CARBON				
R234	1-247-859-00	s	CARBON				
R236	1-249-417-11	s	CARBON				
R240	1-215-473-00	s	METAL				
R241	1-247-853-00	s	CARBON				
R242	1-215-468-00	s	METAL				
R243	1-249-405-11	s	CARBON				
R244	1-215-429-00	s	METAL				
R245	1-247-859-00	s	CARBON				
R246	1-247-891-00	s	CARBON				
R401	1-247-903-00	s	CARBON				
R402	1-247-873-00	s	CARBON				
R403	1-249-441-11	s	CARBON				
R404	1-247-903-00	s	CARBON				
R405	1-247-821-00	s	CARBON				
R406	1-247-833-00	s	CARBON				
R407	1-249-414-11	s	CARBON				
R408	1-249-417-11	s	CARBON				
R409	1-247-845-00	s	CARBON				
R410	1-247-839-00	s	CARBON				
R411	1-247-833-00	s	CARBON				
R412	1-249-434-11	s	CARBON				
R414	1-215-438-00	s	METAL				
R415	1-249-441-11	s	CARBON				
R416	1-249-441-11	s	CARBON				
R417	1-247-873-00	s	CARBON				
R418	1-215-445-00	s	METAL				
R419	1-215-457-00	s	METAL				
R420	1-249-433-11	s	CARBON				
R421	1-249-433-11	s	CARBON				
R422	1-247-857-00	s	CARBON				
R423	1-249-422-11	s	CARBON				
R424	1-249-425-11	s	CARBON				
R450	1-247-815-00	s	CARBON				
R451	1-247-804-00	s	CARBON				

SS-32 BOARD

A-6421-081-A o MOUNTED CIRCUIT BOARD, SS-32

C2	1-123-612-00	s	ELECT	2.2MF	20%	50V
C3	1-162-215-31	s	CERAMIC	47PF	5%	50V
C4	1-162-215-31	s	CERAMIC	47PF	5%	50V
C5	1-123-333-00	s	ELECT	100MF	20%	16V
C6	1-161-059-00	s	CERAMIC	0.047MF	10%	25V
C7	1-162-306-31	s	CERAMIC	0.01MF	30%	16V
C9	1-162-199-31	s	CERAMIC	10PF	5%	50V
C10	1-162-306-31	s	CERAMIC	0.01MF	30%	16V
C11	1-162-215-31	s	CERAMIC	47PF	5%	50V
C12	1-162-199-31	s	CERAMIC	10PF	5%	50V
C201	1-162-306-31	s	CERAMIC	0.01MF	30%	16V
C202	1-123-369-00	s	ELECT	4.7MF	20%	25V
C203	1-130-477-00	s	MYLAR	0.0033MF	5%	50V
C204	1-123-369-00	s	ELECT	4.7MF	20%	25V
C205	1-162-282-31	s	CERAMIC	100PF	10%	50V
C209	1-162-306-31	s	CERAMIC	0.01MF	30%	16V
C212	1-162-306-31	s	CERAMIC	0.01MF	30%	16V
C217	1-130-471-00	s	MYLAR	0.001MF	5%	50V
C218	1-124-010-00	s	ELECT	100MF	20%	25V
C219	1-162-282-31	s	CERAMIC	100PF	10%	50V
C220	1-124-293-00	s	ELECT	47MF	20%	6.3V
C221	1-123-332-00	s	ELECT	47MF	20%	16V
C222	1-123-332-00	s	ELECT	47MF	20%	16V
C223	1-130-483-00	s	MYLAR	0.01MF	5%	50V
C224	1-123-369-00	s	ELECT	4.7MF	20%	25V
C225	1-123-380-00	s	ELECT	1MF	20%	50V
C226	1-123-356-00	s	ELECT	10MF	20%	16V
C227	1-123-356-00	s	ELECT	10MF	20%	16V
C229	1-130-471-00	s	MYLAR	0.001MF	5%	50V
C231	1-162-290-31	s	CERAMIC	470PF	10%	50V

Ref.No.	Parts No.	SP	Description	Ref.No.	Parts No.	SP	Description
C233	1-162-294-31	s	CERAMIC 0.001MF 10% 50V	Q1	8-729-178-54	s	TRANSISTOR 2SC2785
C240	1-130-471-00	s	MYLAR 0.001MF 5% 50V	Q2	8-729-178-54	s	TRANSISTOR 2SC2785
C241	1-123-308-00	s	ELECT 220MF 20% 6.3V	Q203	8-729-218-42	s	TRANSISTOR 2SK184
C301	1-162-286-31	s	CERAMIC 220PF 10% 50V	Q211	8-729-178-54	s	TRANSISTOR 2SC2785
C302	1-130-471-00	s	MYLAR 0.001MF 5% 50V	Q212	8-729-117-54	s	TRANSISTOR 2SA1175
C303	1-123-369-00	s	ELECT 4.7MF 20% 25V	Q213	8-729-218-42	s	TRANSISTOR 2SK184
C304	1-162-286-31	s	CERAMIC 220PF 10% 50V	Q214	8-729-178-54	s	TRANSISTOR 2SC2785
C305	1-130-483-00	s	MYLAR 0.01MF 5% 50V	Q215	8-729-900-83	s	TRANSISTOR DTC124XS
C306	1-162-306-31	s	CERAMIC 0.01MF 30% 16V	Q303	8-729-178-54	s	TRANSISTOR 2SC2785
C307	1-123-379-00	s	ELECT 0.47MF 20% 50V	Q304	8-729-178-54	s	TRANSISTOR 2SC2785
CN1	1-560-894-00	o	PIN, CONNECTOR 6P	Q305	8-729-117-54	s	TRANSISTOR 2SA1175
CN2	1-560-900-00	o	PIN, CONNECTOR 12P	Q306	8-729-178-54	s	TRANSISTOR 2SC2785
CN3	1-560-898-00	o	PIN, CONNECTOR 10P	Q307	8-729-117-54	s	TRANSISTOR 2SA1175
CN4	1-560-894-00	o	PIN, CONNECTOR 6P	Q308	8-729-201-04	s	TRANSISTOR 2SC2878
CN5	1-560-890-00	o	PIN, CONNECTOR 2P	Q309	8-729-178-54	s	TRANSISTOR 2SC2785
CN6	1-560-894-00	o	PIN, CONNECTOR 6P	Q310	8-729-117-54	s	TRANSISTOR 2SA1175
CN7	1-560-890-00	o	PIN, CONNECTOR 2P	Q311	8-729-178-54	s	TRANSISTOR 2SC2785
CN9	1-560-892-00	o	PIN, CONNECTOR 4P				
CV1	1-141-260-00	s	TRIMAR, CERAMIC	R1	1-247-817-00	s	CARBON 270 5% 1/6W
D1	8-719-109-	s	DIODE RD4.3ESB1	R2	1-247-823-00	s	CARBON 470 5% 1/6W
D201	8-719-911-19	s	DIODE 1SS119	R3	1-249-441-11	s	CARBON 100K 5% 1/6W
D202	8-719-911-19	s	DIODE 1SS119	R4	1-249-441-11	s	CARBON 100K 5% 1/6W
D204	8-719-911-19	s	DIODE 1SS119	R8	1-247-823-00	s	CARBON 470 5% 1/6W
D205	8-719-911-19	s	DIODE 1SS119	R9	1-247-903-00	s	CARBON 1M 5% 1/6W
D206	8-719-911-19	s	DIODE 1SS119	R10	1-249-441-11	s	CARBON 100K 5% 1/6W
D208	8-719-911-19	s	DIODE 1SS119	R12	1-249-417-11	s	CARBON 1K 5% 1/6W
D209	8-719-911-19	s	DIODE 1SS119	R13	1-249-435-11	s	CARBON 33K 5% 1/6W
D210	8-719-911-19	s	DIODE 1SS119	R14	1-249-435-11	s	CARBON 33K 5% 1/6W
D211	8-719-911-19	s	DIODE 1SS119	R15	1-249-417-11	s	CARBON 1K 5% 1/6W
D301	8-719-911-19	s	DIODE 1SS119	R16	1-249-435-11	s	CARBON 33K 5% 1/6W
D302	8-719-911-19	s	DIODE 1SS119	R17	1-247-839-00	s	CARBON 2.2K 5% 1/6W
D303	8-719-911-19	s	DIODE 1SS119	R201	1-249-435-11	s	CARBON 33K 5% 1/6W
D304	8-719-911-19	s	DIODE 1SS119	R202	1-249-435-11	s	CARBON 33K 5% 1/6W
IC1	8-759-303-89	s	IC HD63A01Y0A86P	R203	1-249-441-11	s	CARBON 100K 5% 1/6W
IC2	8-759-912-72	s	IC PD0011	R204	1-247-859-00	s	CARBON 15K 5% 1/6W
IC3	8-759-912-69	s	IC PD0010	R205	1-247-887-00	s	CARBON 220K 5% 1/6W
IC4	8-759-600-24	s	IC M54543L	R206	1-247-893-00	s	CARBON 390K 5% 1/6W
IC201	8-759-912-59	s	IC UM3002A	R207	1-247-823-00	s	CARBON 470 5% 1/6W
IC203	8-759-250-81	s	IC TC5081AP	R208	1-247-859-00	s	CARBON 15K 5% 1/6W
IC204	8-759-345-38	s	IC HD14538BP	R209	1-247-887-00	s	CARBON 220K 5% 1/6W
IC205	8-759-145-58	s	IC UPC4558C	R210	1-247-897-00	s	CARBON 560K 5% 1/6W
IC206	8-759-240-24	s	IC TC4024BP	R211	1-247-859-00	s	CARBON 15K 5% 1/6W
IC207	8-759-901-23	s	IC SN74LS123N	R225	1-249-435-11	s	CARBON 33K 5% 1/6W
IC301	8-759-240-81	s	IC TC4081BP	R226	1-249-435-11	s	CARBON 33K 5% 1/6W
IC302	8-759-729-03	s	IC NJM2903D	R227	1-249-429-11	s	CARBON 10K 5% 1/6W
L1	1-408-425-00	s	MICRO INDUCTOR 220UH	R228	1-247-839-00	s	CARBON 2.2K 5% 1/6W
L2	1-408-425-00	s	MICRO INDUCTOR 220UH	R229	1-247-869-00	s	CARBON 39K 5% 1/6W
LP1	4-352-844-01	o	PIN, LEAD, COATING	R230	1-249-425-11	s	CARBON 4.7K 5% 1/6W
LP2	4-352-844-01	o	PIN, LEAD, COATING	R233	1-247-887-00	s	CARBON 220K 5% 1/6W
				R234	1-247-869-00	s	CARBON 39K 5% 1/6W
				R235	1-249-433-11	s	CARBON 22K 5% 1/6W
				R236	1-249-429-11	s	CARBON 10K 5% 1/6W
				R237	1-249-441-11	s	CARBON 100K 5% 1/6W
				R238	1-247-881-00	s	CARBON 120K 5% 1/6W
				R239	1-249-440-11	s	CARBON 82K 5% 1/6W
				R240	1-249-437-11	s	CARBON 47K 5% 1/6W
				R241	1-247-887-00	s	CARBON 220K 5% 1/6W
				R242	1-247-887-00	s	CARBON 220K 5% 1/6W

Ref.No.	Parts No.	SP	Description					Ref.No.	Parts No.	SP	Description						
C34	1-123-330-00	s	ELECT	22MF	20%	25V		PS1	1-532-605-21	s	LINK, IC						
C35	1-161-051-00	s	CERAMIC	0.01MF	10%	50V		PS2	1-532-605-21	s	LINK, IC						
C37	1-123-330-00	s	ELECT	22MF	20%	25V		PS3	1-532-637-21	s	LINK, IC						
C38	1-130-491-00	s	MYLAR	0.047MF	5%	50V		PS4	1-532-637-21	s	LINK, IC						
C39	1-130-489-00	s	MYLAR	0.033MF	5%	50V		PS5	1-532-637-21	s	LINK, IC						
C40	1-123-330-00	s	ELECT	22MF	20%	25V		PS6	1-532-637-21	s	LINK, IC						
C41	1-123-330-00	s	ELECT	22MF	20%	25V		PS101	1-532-679-21	s	LINK, IC						
C42	1-123-330-00	s	ELECT	22MF	20%	16V											
C43	1-123-330-00	s	ELECT	22MF	20%	16V											
C44	1-162-306-31	s	CERAMIC	0.01MF	30%	16V		Q1	8-729-178-54	s	TRANSISTOR	2SC2785					
C45	1-162-306-31	s	CERAMIC	0.01MF	30%	16V		Q3	8-729-178-54	s	TRANSISTOR	2SC2785					
C101	1-107-093-00	s	MICA	220PF	5%	50V		Q4	8-729-117-54	s	TRANSISTOR	2SA1175					
C102	1-130-475-00	s	MYLAR	0.0022MF	5%	50V		Q5	8-729-178-54	s	TRANSISTOR	2SC2785					
C103	1-162-282-31	s	CERAMIC	100PF	10%	50V		Q6	8-729-178-54	s	TRANSISTOR	2SC2785					
C104	1-123-357-00	s	ELECT	22MF	20%	35V		Q7	8-729-218-42	s	TRANSISTOR	2SK184					
C105	1-130-467-00	s	MYLAR	470PF	5%	50V		Q8	8-729-218-42	s	TRANSISTOR	2SK184					
C106	1-130-481-00	s	MYLAR	0.0068MF	5%	50V		Q9	8-729-218-42	s	TRANSISTOR	2SK184					
C107	1-130-469-00	s	MYLAR	680PF	5%	50V		Q10	8-729-804-17	s	TRANSISTOR	2SD1666-R					
C108	1-123-359-00	s	ELECT	47MF	20%	50V		Q11	8-729-804-67	s	TRANSISTOR	2SB1133-R					
C109	1-123-359-00	s	ELECT	47MF	20%	50V		Q12	8-729-804-91	s	TRANSISTOR	2SD1682-S					
C110	1-123-356-00	s	ELECT	10MF	20%	25V		Q13	8-729-804-86	s	TRANSISTOR	2SB1142-S					
C111	1-123-308-00	s	ELECT	220MF	20%	6.3V		Q14	8-729-804-91	s	TRANSISTOR	2SD1682-S					
CN2	1-560-896-00	o	PIN, CONNECTOR	8P				Q15	8-729-804-86	s	TRANSISTOR	2SB1142-S					
CN3	1-560-896-00	o	PIN, CONNECTOR	8P				Q16	8-729-900-63	s	TRANSISTOR	DTA124ES					
CN5	1-560-896-00	o	PIN, CONNECTOR	8P				Q17	8-729-178-54	s	TRANSISTOR	2SC2785					
D1	8-719-911-19	s	DIODE	1SS119				Q18	8-729-178-54	s	TRANSISTOR	2SC2785					
D2	8-719-911-19	s	DIODE	1SS119				Q101	8-729-178-54	s	TRANSISTOR	2SC2785					
D3	8-719-911-19	s	DIODE	1SS119				Q102	8-729-178-54	s	TRANSISTOR	2SC2785					
D4	8-719-911-19	s	DIODE	1SS119				Q103	8-729-178-54	s	TRANSISTOR	2SC2785					
D5	8-719-911-19	s	DIODE	1SS119				Q104	8-729-178-54	s	TRANSISTOR	2SC2785					
D6	8-719-929-15	s	DIODE	HZS9.1NB2				Q105	8-729-117-54	s	TRANSISTOR	2SA1175					
D7	8-719-911-19	s	DIODE	1SS119				Q106	8-729-177-43	s	TRANSISTOR	2SD774					
D8	8-719-911-19	s	DIODE	1SS119				Q107	8-729-201-54	s	TRANSISTOR	2SC2562-0					
D9	8-719-911-19	s	DIODE	1SS119				Q108	8-729-178-54	s	TRANSISTOR	2SC2785					
D11	8-719-911-19	s	DIODE	1SS119				Q109	8-729-804-86	s	TRANSISTOR	2SB1142-S					
D101	8-719-911-19	s	DIODE	1SS119				Q110	8-729-178-54	s	TRANSISTOR	2SC2785					
D102	8-719-911-19	s	DIODE	1SS119				Q111	8-729-178-54	s	TRANSISTOR	2SC2785					
D103	8-719-911-19	s	DIODE	1SS119				Q112	8-729-900-63	s	TRANSISTOR	DTA124ES					
D104	8-719-911-19	s	DIODE	1SS119				Q113	8-729-117-54	s	TRANSISTOR	2SA1175-F					
D105	8-719-924-06	s	DIODE	ERC24-06S				R1	1-249-417-11	s	CARBON	1K	5%	1/6W			
D106	8-719-911-19	s	DIODE	1SS119				R3	1-249-435-11	s	CARBON	33K	5%	1/6W			
IC1	8-759-912-76	s	IC	PM4001				R4	1-249-429-11	s	CARBON	10K	5%	1/6W			
IC3	8-759-145-58	s	IC	UPC4558C				R5	1-247-875-00	s	CARBON	68K	5%	1/6W			
IC4	8-759-145-58	s	IC	UPC4558C				R6	1-249-434-11	s	CARBON	27K	5%	1/6W			
IC5	8-759-700-04	s	IC	NJM2043D-D				R7	1-249-417-11	s	CARBON	1K	5%	1/6W			
IC101	8-759-240-69	s	IC	TC4069UBP				R8	1-247-839-00	s	CARBON	2.2K	5%	1/6W			
IC102	8-759-145-58	s	IC	UPC4558C				R10	1-249-405-11	s	CARBON	100	5%	1/6W			
IC103	8-759-145-58	s	IC	UPC4558C				R11	1-249-432-11	s	CARBON	18K	5%	1/6W			
L101	1-410-305-12	s	COIL, CHOKE	400UH				R12	1-247-895-00	s	CARBON	470K	5%	1/6W			
L102	1-410-339-11	s	COIL, CHOKE	10UH				R13	1-247-859-00	s	CARBON	15K	5%	1/6W			
								R14	1-249-433-11	s	CARBON	22K	5%	1/6W			
								R15	1-247-873-00	s	CARBON	56K	5%	1/6W			
								R16	1-249-433-11	s	CARBON	22K	5%	1/6W			
								R17	1-249-419-11	s	CARBON	1.5K	5%	1/6W			
								R18	1-247-845-00	s	CARBON	3.9K	5%	1/6W			
								R19	1-249-437-11	s	CARBON	47K	5%	1/6W			
								R20	1-247-851-00	s	CARBON	6.8K	5%	1/6W			
								R21	1-247-869-00	s	CARBON	39K	5%	1/6W			
								R22	1-249-429-11	s	CARBON	10K	5%	1/6W			

Ref.No.	Parts No.	SP	Description	Ref.No.	Parts No.	SP	Description
R23	1-247-885-00	s	CARBON				
R24	1-249-433-11	s	CARBON				
R25	1-247-897-00	s	CARBON				
R26	1-247-799-00	s	CARBON				
R27	1-247-799-00	s	CARBON				
R28	1-247-799-00	s	CARBON				
R31	1-249-429-11	s	CARBON				
R32	1-249-441-11	s	CARBON				
R33	1-247-851-00	s	CARBON				
R34	1-247-887-00	s	CARBON				
R35	1-247-897-00	s	CARBON				
R36	1-249-429-11	s	CARBON				
R37	1-249-429-11	s	CARBON				
R38	1-247-857-00	s	CARBON				
R39	1-247-873-00	s	CARBON				
R40	1-247-883-00	s	CARBON				
R41	1-247-881-00	s	CARBON				
R42	1-247-873-00	s	CARBON				
R43	1-247-833-00	s	CARBON				
R44	1-249-423-11	s	CARBON				
R45	1-249-441-11	s	CARBON				
R46	1-247-837-00	s	CARBON				
R47	1-249-441-11	s	CARBON				
R48	1-249-435-11	s	CARBON				
R49	1-249-425-11	s	CARBON				
R51	1-249-435-11	s	CARBON				
R52	1-249-441-11	s	CARBON				
R53	1-249-441-11	s	CARBON				
R54	1-247-853-00	s	CARBON				
R55	1-249-429-11	s	CARBON				
R56	1-249-429-11	s	CARBON				
R57	1-249-441-11	s	CARBON				
R58	1-249-441-11	s	CARBON				
R59	1-249-429-11	s	CARBON				
R60	1-247-887-00	s	CARBON				
R61	1-247-887-00	s	CARBON				
R62	1-249-433-11	s	CARBON				
R63	1-247-833-00	s	CARBON				
R64	1-249-419-11	s	CARBON				
R65	1-249-429-11	s	CARBON				
R66	1-249-441-11	s	CARBON				
R67	1-249-429-11	s	CARBON				
R68	1-249-437-11	s	CARBON				
R69	1-247-895-00	s	CARBON				
R70	1-249-429-11	s	CARBON				
R71	1-249-429-11	s	CARBON				
R72	1-249-417-11	s	CARBON				
R73	1-249-435-11	s	CARBON				
R74	1-247-799-00	s	CARBON				
R77	1-249-425-11	s	CARBON				
R78	1-247-849-00	s	CARBON				
R79	1-247-799-00	s	CARBON				
R80	1-247-853-00	s	CARBON				
R83	1-249-405-11	s	CARBON				
△R84	1-206-443-00	s	METAL OXIDE				
R85	1-249-417-11	s	CARBON				
R86	1-247-799-00	s	CARBON				
R87	1-249-435-11	s	CARBON				
R90	1-249-425-11	s	CARBON				
R91	1-249-405-11	s	CARBON				
△R92	1-206-439-00	s	METAL OXIDE				
R93	1-249-432-11	s	CARBON				
R98	1-247-823-00	s	CARBON				
R99	1-247-851-00	s	CARBON				
R101	1-247-869-00	s	CARBON				
R102	1-247-883-00	s	CARBON				
R103	1-249-433-11	s	CARBON				
R104	1-247-851-00	s	CARBON				
R105	1-247-837-00	s	CARBON				
R106	1-247-857-00	s	CARBON				
R107	1-249-429-11	s	CARBON				
R108	1-249-417-11	s	CARBON				
R109	1-249-417-11	s	CARBON				
R110	1-249-417-11	s	CARBON				
R111	1-249-429-11	s	CARBON				
R112	1-247-857-00	s	CARBON				
R113	1-247-853-00	s	CARBON				
R114	1-249-429-11	s	CARBON				
R115	1-249-429-11	s	CARBON				
R116	1-247-791-00	s	CARBON				
R117	1-249-441-11	s	CARBON				
R118	1-247-881-00	s	CARBON				
R119	1-247-881-00	s	CARBON				
R120	1-249-429-11	s	CARBON				
R121	1-247-875-00	s	CARBON				
R122	1-247-857-00	s	CARBON				
R123	1-247-869-00	s	CARBON				
R124	1-249-429-11	s	CARBON				
R125	1-249-423-11	s	CARBON				
R126	1-247-823-00	s	CARBON				
R127	1-247-837-00	s	CARBON				
R128	1-249-405-11	s	CARBON				
△R129	1-206-489-00	s	METAL OXIDE				
R130	1-215-453-00	s	METAL				
R131	1-215-453-00	s	METAL				
R132	1-215-451-00	s	METAL				
R133	1-215-451-00	s	METAL				
R134	1-249-429-11	s	CARBON				
R135	1-247-815-00	s	CARBON				
R136	1-249-419-11	s	CARBON				
R137	1-249-433-11	s	CARBON				
R138	1-249-429-11	s	CARBON				
R139	1-247-859-00	s	CARBON				
R140	1-247-869-00	s	CARBON				
R141	1-247-875-00	s	CARBON				
R142	1-247-895-00	s	CARBON				
R150	1-247-771-00	s	CARBON				
R151	1-247-771-00	s	CARBON				
R152	1-247-839-00	s	CARBON				
RV1	1-230-723-11	s	RES, ADJ, CARBON				
RV2	1-230-720-11	s	RES, ADJ, CARBON				
RV101	1-228-995-00	s	RES, ADJ, CARBON				

The shaded and △-marked components are critical to safety.
Replace only with same components as specified.

PS-113, RS-21

Ref.No.	Parts No.	SP	Description
<u>PS-113 BOARD</u>			
	A-6421-083-A	o	MOUNTED CIRCUIT BOARD, PS-113

Ref.No.	Parts No.	SP	Description
IC1	8-759-135-80	s	IC UPC358C
IC2	8-759-135-80	s	IC UPC358C
LP1	4-352-844-01	o	PIN, LEAD, COATING

Δ	1-509-546-00	s	3P INLET
	1-533-162-00	s	HOLDER, FUSE
Δ	1-570-173-11	s	SWITCH, VOLTAGE CHANGE
	7-685-645-71	s	SCREW +BVTP 3X6 TYPE2 IT-3
	7-685-645-81	s	SCREW +BVTP 3X6 TYPE2
	7-685-648-71	s	SCREW +BVTP 3X12 TYPE2 IT-3
	7-685-648-81	s	SCREW +BVTP 3X12 TYPE2

Δ	PS1	1-532-605-00	s	LINK, IC
	PS3	1-532-605-00	s	LINK, IC

Q1	8-729-804-67	s	TRANSISTOR 2SB1133-R
Q3	8-729-804-17	s	TRANSISTOR 2SD1666-R
Q4	8-729-804-67	s	TRANSISTOR 2SB1133-R
Q5	8-729-804-17	s	TRANSISTOR 2SD1666-R
Q6	8-729-105-73	s	TRANSISTOR 2SK523-L2
Q7	8-729-177-33	s	TRANSISTOR 2SD773-4

Δ	C1	1-130-710-00	s	FILM	0.1MF	20%	250V
	C2	1-101-006-21	s	CERAMIC	0.047MF		50V
	C3	1-101-006-21	s	CERAMIC	0.047MF		50V
	C5	1-124-564-11	s	ELECT	4700MF	20%	25V
	C6	1-124-564-11	s	ELECT	4700MF	20%	25V
	C7	1-124-895-11	s	ELECT	12000MF	20%	10V
	C8	1-124-894-11	s	ELECT	6800MF	20%	10V
	C9	1-123-356-00	s	ELECT	10MF	20%	50V
	C11	1-123-321-00	s	ELECT	220MF	20%	16V
	C14	1-123-321-00	s	ELECT	220MF	20%	16V
	C16	1-124-444-00	s	ELECT	220MF	20%	10V
	C17	1-124-444-00	s	ELECT	220MF	20%	10V
	C18	1-123-380-00	s	ELECT	1MF	20%	50V
	C20	1-124-444-00	s	ELECT	220MF	20%	10V

R1	1-247-839-00	s	CARBON	2.2K	5%	1/6W
R2	1-247-823-00	s	CARBON	470	5%	1/6W
R4	1-215-447-00	s	METAL	12K	1%	1/6W
R5	1-215-445-00	s	METAL	10K	1%	1/6W
R9	1-215-461-00	s	METAL	47K	1%	1/6W
R10	1-215-461-00	s	METAL	47K	1%	1/6W
R12	1-249-415-11	s	CARBON	680	5%	1/6W
R13	1-247-857-00	s	CARBON	12K	5%	1/6W
R14	1-247-859-00	s	CARBON	15K	5%	1/6W
R15	1-247-857-00	s	CARBON	12K	5%	1/6W
R16	1-247-853-00	s	CARBON	8.2K	5%	1/6W
R17	1-247-819-00	s	CARBON	330	5%	1/6W
R19	1-215-445-00	s	METAL	10K	1%	1/6W
R20	1-215-445-00	s	METAL	10K	1%	1/6W
R21	1-247-813-00	s	CARBON	180	5%	1/6W
R24	1-249-429-11	s	CARBON	10K	5%	1/6W
R25	1-247-829-00	s	CARBON	820	5%	1/6W
R26	1-249-417-11	s	CARBON	1K	5%	1/6W
R27	1-202-663-51	s	SOLID	5.6M	20%	1/2W
R29	1-249-429-11	s	CARBON	10K	5%	1/6W
R30	1-249-429-11	s	CARBON	10K	5%	1/6W

CN2	1-560-894-00	o	PIN, CONNECTOR 6P
CN3	1-560-893-00	o	PIN, CONNECTOR 5P
CN4	1-560-894-00	o	PIN, CONNECTOR 6P
CN5	1-560-894-00	o	PIN, CONNECTOR 6P
CN6	1-560-900-00	o	PIN, CONNECTOR 12P
CN7	1-560-891-00	o	PIN, CONNECTOR 3P

RV1	1-228-990-00	s	RES, ADJ, CARBON 1K
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Δ	CN10	1-506-371-00	o	2P PLUG (L)
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Δ	T1	1-421-771-11	s	FILTER, LINE
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RS-21 BOARD

	1-618-835-11	o	PRINTED CIRCUIT BOARD, RS-21
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C41	1-162-306-31	s	CERAMIC	0.01MF	30%	16V
C42	1-162-306-31	s	CERAMIC	0.01MF	30%	16V
C43	1-162-306-31	s	CERAMIC	0.01MF	30%	16V

CN41	1-563-228-11	s	CONNECTOR, D-SUB 25P
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Δ	F1	1-532-284-00	s	FUSE, TIME-LAG
	F2	1-532-237-00	s	FUSE, TIME-LAG
	F3	1-532-237-00	s	FUSE, TIME-LAG
	F4	1-532-259-00	s	FUSE, TIME-LAG
	F5	1-532-259-00	s	FUSE, TIME-LAG

The shaded and Δ -marked components are critical to safety.
Replace only with same components as specified.

Ref.No.	Parts No.	SP	Description	Ref.No.	Parts No.	SP	Description			
IC41	8-759-951-88	s	IC SN75188N	R11	1-249-425-11	s	CARBON	4.7K	5%	1/6W
IC42	8-759-951-89	s	IC SN75189AN	R12	1-249-425-11	s	CARBON	4.7K	5%	1/6W
IC43	8-759-240-24	s	IC TC4024BP	R13	1-249-425-11	s	CARBON	4.7K	5%	1/6W
R41	1-249-435-11	s	CARBON	R14	1-249-425-11	s	CARBON	4.7K	5%	1/6W
			33K 5% 1/6W	R15	1-249-425-11	s	CARBON	4.7K	5%	1/6W
SW41	1-570-598-11	s	SWITCH, DIP	R16	1-249-425-11	s	CARBON	4.7K	5%	1/6W
<u>KY-93 BOARD</u>				R17	1-247-811-00	s	CARBON	150	5%	1/6W
	1-618-836-12	o	PRINTED CIRCUIT BOARD, KY-93	R18	1-215-476-00	s	METAL	200K	1%	1/6W
	3-694-850-02	o	CASE, SHIELD, FP-18	R19	1-247-783-00	s	CARBON	10	5%	1/6W
	3-694-997-01	s	BLIND, RAY CATCHER	R20	1-247-839-00	s	CARBON	2.2K	5%	1/6W
C1	1-123-647-00	s	ELECT 47MF	20%	6.3V	R21	1-249-405-11	s	CARBON	100 5% 1/6W
C2	1-162-288-31	s	CERAMIC 330PF	10%	50V	R22	1-249-425-11	s	CARBON	4.7K 5% 1/6W
C3	1-123-647-00	s	ELECT 47MF	20%	6.3V	R23	1-249-425-11	s	CARBON	4.7K 5% 1/6W
C4	1-123-613-00	s	ELECT 3.3MF	20%	50V	R24	1-249-405-11	s	CARBON	100 5% 1/6W
C5	1-123-611-00	s	ELECT 1MF	20%	50V	S1	1-554-174-00	s	SWITCH, KEY BOARD	
C6	1-123-647-00	s	ELECT 47MF	20%	6.3V	S2	1-554-174-00	s	SWITCH, KEY BOARD	
						S3	1-554-174-00	s	SWITCH, KEY BOARD	
						S4	1-554-174-00	s	SWITCH, KEY BOARD	
						S5	1-554-174-00	s	SWITCH, KEY BOARD	
						S6	1-554-377-51	s	SWITCH, SLIDE	
						<u>PD-31 BOARD</u>				
CN1	1-564-035-11	o	PIN, CONNECTOR 10P		1-618-837-11	o	PRINTED CIRCUIT BOARD, PD-31			
CN2	1-564-027-00	o	PIN, CONNECTOR 2P							
CN3	1-564-027-00	o	PIN, CONNECTOR 2P	D11	8-719-110-32	s	DIODE PH302B			
D1	8-719-821-14	s	DIODE TLR114A	<u>DUS-128 BOARD</u>						
D2	8-719-821-14	s	DIODE TLR114A		1-618-839-11	o	PRINTED CIRCUIT BOARD, DUS-128			
D3	8-719-906-57	s	DIODE GL-5NG24	CN11	1-562-884-11	o	CONNECTOR, F.P.C 4P			
D4	8-719-801-30	s	DIODE TLY113A	<u>DUS-129 BOARD</u>						
D5	8-719-821-14	s	DIODE TLR114A		1-618-840-11	o	PRINTED CIRUCIT BOARD, DUS-129			
D6	8-719-821-14	s	DIODE TLR114A	D21	8-719-920-74	s	EE-SF5-B			
D7	8-719-821-14	s	DIODE TLR114A	D22	8-719-920-74	s	EE-SF5-B			
D8	8-719-821-14	s	DIODE TLR114A	R31	1-247-813-00	s	CARBON	180	5%	1/6W
IC1	8-759-182-43	s	IC UPD8243C(M)	R32	1-247-813-00	s	CARBON	180	5%	1/6W
IC2	8-759-602-54	s	IC CX20106A	<u>DUS-130 BOARD</u>						
Q1	8-729-900-61	s	TRANSISTOR DTA114ES		1-618-841-11	o	PRINTED CIRCUIT BOARD, DUS-130			
Q2	8-729-900-61	s	TRANSISTOR DTA114ES	D31	8-719-918-74	s	DIODE GP-1S04			
Q3	8-729-900-61	s	TRANSISTOR DTA114ES	R41	1-249-415-11	s	CARBON	680	5%	1/6W
Q4	8-729-900-61	s	TRANSISTOR DTA114ES							
R1	1-247-817-00	s	CARBON							
R2	1-247-817-00	s	CARBON							
R3	1-247-817-00	s	CARBON							
R4	1-247-817-00	s	CARBON							
R5	1-247-817-00	s	CARBON							
R6	1-247-817-00	s	CARBON							
R7	1-247-817-00	s	CARBON							
R8	1-247-817-00	s	CARBON							
R9	1-249-425-11	s	CARBON							
R10	1-249-425-11	s	CARBON							

DUS-131, SW-127, SW-138, DUS-127, HP-25, DUS-141, FRAME, PACKING

Ref.No. Parts No. SP Description

DUS-131 BOARD

1-618-842-12 o PRINTED CIRCUIT BOARD, DUS-131
 CN21 1-564-030-00 o PIN, CONNECTOR 5P

SW-127 BOARD

1-618-830-11 o PRINTED CIRCUIT BOARD, SW-127
 CN1 1-562-884-11 o CONNECTOR, F.P.C 4P
 S1 1-554-174-00 s SWITCH, KEY BOARD

SW-138 BOARD

1-618-844-11 o PRINTED CIRCUIT BOARD, SW-138
 S11 1-554-241-00 s SWITCH, LEVER

DUS-127 BOARD

1-618-838-11 o PRINTED CIRCUIT BOARD, DUS-127
 C11 1-101-006-00 s CERAMIC 0.047MF 50V

HP-25 BOARD

1-618-843-11 o PRINTED CIRCUIT BOARD, HP-25
 C51 1-124-475-11 s ELECT 470MF 20% 16V
 C52 1-124-475-11 s ELECT 470MF 20% 16V
 IC11 8-759-745-60 s IC NJM4560D
 JC1 1-507-659-00 s JACK, LAREG TYPE
 PS51 1-532-727-11 s LINK, IC
 PS52 1-532-727-11 s LINK, IC
 R51 1-247-787-00 s CARBON 15 5% 1/6W
 R52 1-247-787-00 s CARBON 15 5% 1/6W
 R53 1-247-857-00 s CARBON 12K 5% 1/6W
 R54 1-247-857-00 s CARBON 12K 5% 1/6W
 R55 1-249-435-11 s CARBON 33K 5% 1/6W
 R56 1-249-435-11 s CARBON 33K 5% 1/6W
 R57 1-247-704-11 s CARBON 220 5% 1/4W
 R58 1-247-704-11 s CARBON 220 5% 1/4W
 RV1 1-237-199-21 s RES, VAR, CARBON 50K/50K

Ref.No. Parts No. SP Description

DUS-141 BOARD

1-619-490-11 o PRINTED CIRCUIT BOARD, DUS-141
 C1 1-162-286-31 s CERAMIC 220PF 10% 50V
 C2 1-123-820-00 s ELECT 33MF 20% 16V
 C3 1-162-306-31 s CERAMIC 0.01MF 30% 16V
 IC1 8-759-345-38 s IC HD14538BP
 R1 1-249-433-11 s CARBON 22K 5% 1/6W
 R2 1-249-433-11 s CARBON 22K 5% 1/6W
 R3 1-249-419-11 s CARBON 1.5K 5% 1/6W
 R5 1-249-433-11 s CARBON 22K 5% 1/6W
 R6 1-249-433-11 s CARBON 22K 5% 1/6W
 R7 1-249-423-11 s CARBON 3.3K 5% 1/6W
 Q1 8-729-900-63 s TRANSISTOR DTA124ES
 Q2 8-729-178-54 s TRANSISTOR 2SC2785

FRAME

△ 1-509-898-00 s RECEPTACLE
 1-509-910-00 s HOUSING, CONNECTOR (2P)
 1-558-057-11 s WIRE, FLEXIBLE CARD 4P
 1-558-058-11 s WIRE, FLEXIBLE CARD 20P
 8-835-171-01 s MOTOR, DC (BHF-3401A) (SPINDLE)
 8-848-025-01 s OPTICAL BLOCK ASSY (KSS-141A)
 J901 1-507-195-21 s SPECIAL REMOTE CONTROL JACK
 M901 8-835-149-01 s MOTOR, DC (MNR-8400A) (SLIDER)
 M902 8-835-148-01 s MOTOR, DC (DNR-8300A) (LOADING)
 RV901 1-228-139-21 s RES, VAR, CARBON 10K (POTENTIO METER)
 △ S901 1-553-318-00 s SWITCH, PUSH (AC POWER) (1 KEY)
 T901 1-448-443-11 s TRANSFORMER, POWER

PACKING MATERIAL AND ACCESSORY

△ 1-556-760-11 s CORD, POWER (3 CORE)
 3-694-922-01 o SHEET, PROTECTION
 3-694-950-01 o CUSHION (UPPER)
 3-694-951-01 o CUSHION (LOWER)
 3-694-973-01 o INDIVIDUAL CARTON
 △ 3-675-298-11 s MANUAL, INSTRUCTION

The shaded and △-marked components are critical to safety.
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LDP-1500P

SONY[®] SERVICE MANUAL

AEP Model
UK Model
September, 1986

SUPPLEMENT-1

Subject: Periodic checks and maintenance for LDP-1500P

File this supplement with the service manual.

For full display of the functions and performance of the set and for the longest service life of the machine, execution of the following maintenance and periodic checks is recommended.

1. PERIODIC CHECK ITEMS

Carry out periodic checks on the items in separate paragraphs according to the length of time used.

2. MAINTENANCE AFTER PERIODIC CHECKS OR REPAIRING OF THE SET

Execute cleaning of the following positions after periodic checks or set-repairing irrespective of the length of the time of use.

(1) Object Lens/Skew Lens

Remove video disc and blow off the dust on the object lens and SKEW lens with the blower-brush or sweep them with soft cloth.

(2) Disc Tray Section

Remove video disc and sweep the tray of the disc with soft cloth.

(3) Sweeping Clean the Disc Surface

When there seems dust on the disc, sweep the disc surface with soft cloth, no alcohol or no other chemicals should be used.

3. MAINTENANCE TIME FOR KEY PARTS (SAMPLE)

	5,000H	10,000H
OPTICAL BLOCK	—	◆
SPINDLE MOTOR	◆	◆
SLIDE MOTOR	◆	◆
LOADING MOTOR	◇	◇

◆: replace

◇: check

LDP-1500P

SONY® SERVICE MANUAL

AEP Model
UK Model

July, 1987

REVISED

SUPPLEMENT-2

Discard LDP-1500P Supplement-2 (Part No. 9-972-474-82) previously issued.

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs a laser. Therefore, be sure to follow carefully the instructions below when servicing.

WARNING !!

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

1. Laser Diode Properties

- Material: GaAlAs
- Wavelength: 780 nm
- Emission Duration: continuous

2. During service, do not take the Optical Pick-up Block apart, and do not adjust the APC circuit. If there is a breakdown in the APC circuit (including laser diode), replace the entire Optical Pick-up Block (including APC board).

DANGER

Invisible laser radiations when open and interlock failed or defeated.
Avoid direct exposure to beam.

CLASS I LASER PRODUCT

ADVARSEL:

USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UD AF FUNCTION UNDGÅ. UDSAETTELSE FOR STRÅLING.

CLASS 3A LASER

VAROITUS!

SUOJAKOTELOA EI SAA AVATA. LAITE SISÄLTÄÄ LASERDIODIN, JOKA LÄHETTÄÄ (NÄKYMÄTÖNTÄ) SILMILLE VAARALLISTA LASERSÄTEILYÄ.

LASER COMPONENT IN PRODUCT IS CAPABLE OF EMITTING RADIATION EXCEEDING THE LIMIT FOR CLASS I.

