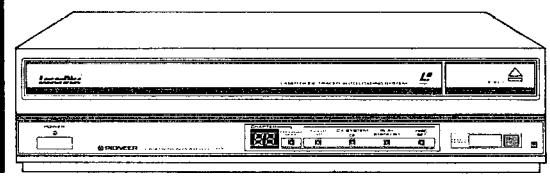
PIONEER®

Service Manual



ORDER NO.
ARP1217-A

CIRCUIT & MECHANISM DESCRIPTIONS
REPAIR & ADJUSTMENTS

LASERVISION PLAYER

LD-717

LaserVision

NTSC

- This service manual is applicable to the S/G type (U.S. Military model).
- As to the circuit descriptions, please refer to the LD-707 (BK)/S/G service manual.

CONTENTS

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PIONEER ELECTRONIC (EUROPE) N.V. Keetberglaan 1. 2740 Beveren, Belgium TEL: 03/775·28·08
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TEL: (03) 580-9911

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1. SPECIFICATIONS

1. General

System .....LaserVision VideoDisc player
Spindle motor speed
Standard play disc.....1,800 RPM
Extended play disc .....1,800 RPM
(inner circumference)
to 600 RPM (outer circumference)
(when using 12-inch disc)
Power requirements .....AC 110/120/220/240 V
(switchable), 50/60 Hz
Power consumption .....35 W
Dimensions.....420(W) x 387(D) x 100(H) mm.
16-9/16(W) x 15-3/16(D) x 3-15/16(H) in.
Net weight (without package) .....8.8 kg
(19 lb 6 oz.)
Operating temperature .....+5°C to +35°C
Operating humidity.....5% to 90%
(There should be no moisture condensation)

2. Disc

LaserVision Videodisc
*Maximum playing time
12-inch standard play disc.....30 min/side
12-inch extended play disc.....60 min/side
8-inch standard play disc.....14 min/side
8-inch extended play disc.....20 min/side
**Actual playback time differs for each disc.*

3. Video characteristics

Format.....NTSC specifications
Video output
Level.....1 Vp-p nominal, sync. negative, terminated
Impedance .....75 Ω unbalanced
Terminal.....Pin jack
VHF output
Channel.....Channel 3 or 4 (switchable)
Impedance .....75 Ω unbalanced
Terminal.....F-type jack

4. Audio characteristics

Audio output....Two channels: Stereo, 1/L, 2/R
Level.....650 mV nominal
(1kHz 100% mod. 50 kΩ terminated)
Terminal .....Stereo pin jacks

NOTE:
Specifications and design subject to possible modifications without notice, due to improvements.

5. Functions

Remote control unit functions

Functions	Standard Play (CAV) Disc	Extended Play (CLV)
PLAY	YES	YES
EJECT	YES	YES
TV/LVP SELECTION	YES	YES
CX SYSTEM SELECTION	YES*(1)	YES*(1)
AUDIO CHANNEL SELECTION (Stereo, 1/L, 2/R)	YES	YES
PAUSE	YES	YES
SCAN (Forward, Reverse)	YES	YES
STILL/STEP (Forward, Reverse)	YES	NO
CHAPTER SKIP (Forward, Reverse)	YES*(2)	YES*(2)
A-B REPEAT	YES	YES
MEMORY REPEAT	YES	YES
CHAPTER REPEAT	YES*(2)	YES*(2)
SIDE REPEAT	YES	YES
MULTI-SPEED PLAY (Forward, Reverse)	YES	NO
MULTI-SPEED DISPLAY	YES	NO
FRAME NUMBER DISPLAY	YES	NO
CHAPTER NUMBER DISPLAY	YES*(2)	YES*(2)
TIME NUMBER DISPLAY	NO	YES
FRAME NUMBER SEARCH	YES	NO
CHAPTER NUMBER SEARCH	YES*(2)	YES*(2)
TIME NUMBER SEARCH	NO	YES
CHAPTER PROGRAM PLAY	YES*(2)	YES*(2)

NOTE:
1. Effective when using LaserVision discs with the CX mark.
2. Only for discs recorded with chapter codes.

Other Functions

AUTOMATIC PICTURE STOP .....Only for discs recorded with picture stop code.
DIGITAL SOUND PLAYBACK.....Possible when combined with the separately purchased LaserVision Digital Sound Processor (DA-1), and LaserVision with Digital Sound Discs.

6. Other Terminals

DIGITAL OUT .....5-pin, DIN
I/O PORT.....U-shape 8-pin, DIN

7. Furnished Accessories

Remote control unit (CU-LD002).....1
Size "AAA" (IEC R03) dry batteries 2
RF cord.....1
Audio cord.....1
Video cord 1
Antenna adaptor.....1
F-type jack-IEC plug adaptor 1
Operating instructions.....1
Warranty card 1

2. PANEL FACILITIES

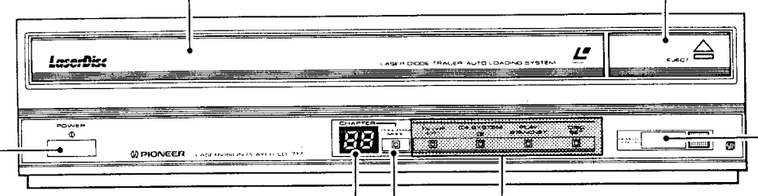
FRONT PANEL

POWER button
Press this button to turn power to the player ON or OFF.

EJECT button
Press to stop playback and eject the disc.

DOOR
When power is switched ON and the EJECT button is pressed, the door opens, and the disc table comes out slightly. Pull the disc table fully out and put a disc on it.

REMOTE SENSOR



CHAPTER display
Displays the number of the chapter presently being played.
When playing a disc on which chapter numbers are not recorded, this display does not appear.

PROGRAM MODE indicator
Lights during chapter program play.

TV/LVP indicator
This indicates whether the pictures on the TV connected to the VHF OUT terminal on the rear panel, are being played back from the videodisc, or received from a TV broadcast.

CX SYSTEM indicator
Lights when the internal CX noise reduction system is operating.

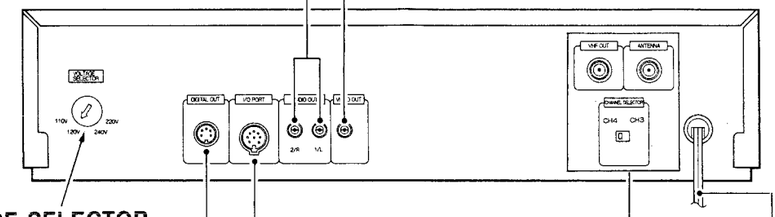
PLAY/STANDBY indicator
- Lights during playback in the play mode (PLAY).
- At the beginning of playback or during a search operation, the PLAY indicator flashes until the picture appears (STANDBY).

DISC SET indicator
This indicates that a disc has been loaded in the player.

REAR PANEL

AUDIO OUT terminals (Stereo pin jacks)
Connect these jacks to the AUX, TUNER or other input terminals of your stereo amplifier. (Do not connect them to the PHONO input terminals.)

VIDEO OUT terminal (Pin jack)
Connect this jack to a TV monitor or a TV set which is provided with a video input terminal.



DIGITAL OUT terminal (5-pin DIN connector)
Connect to an optional LaserVision digital sound processor.

I/O PORT (U-shaped 8-pin DIN connector)
This is the input/output port used when performing external control of the player.

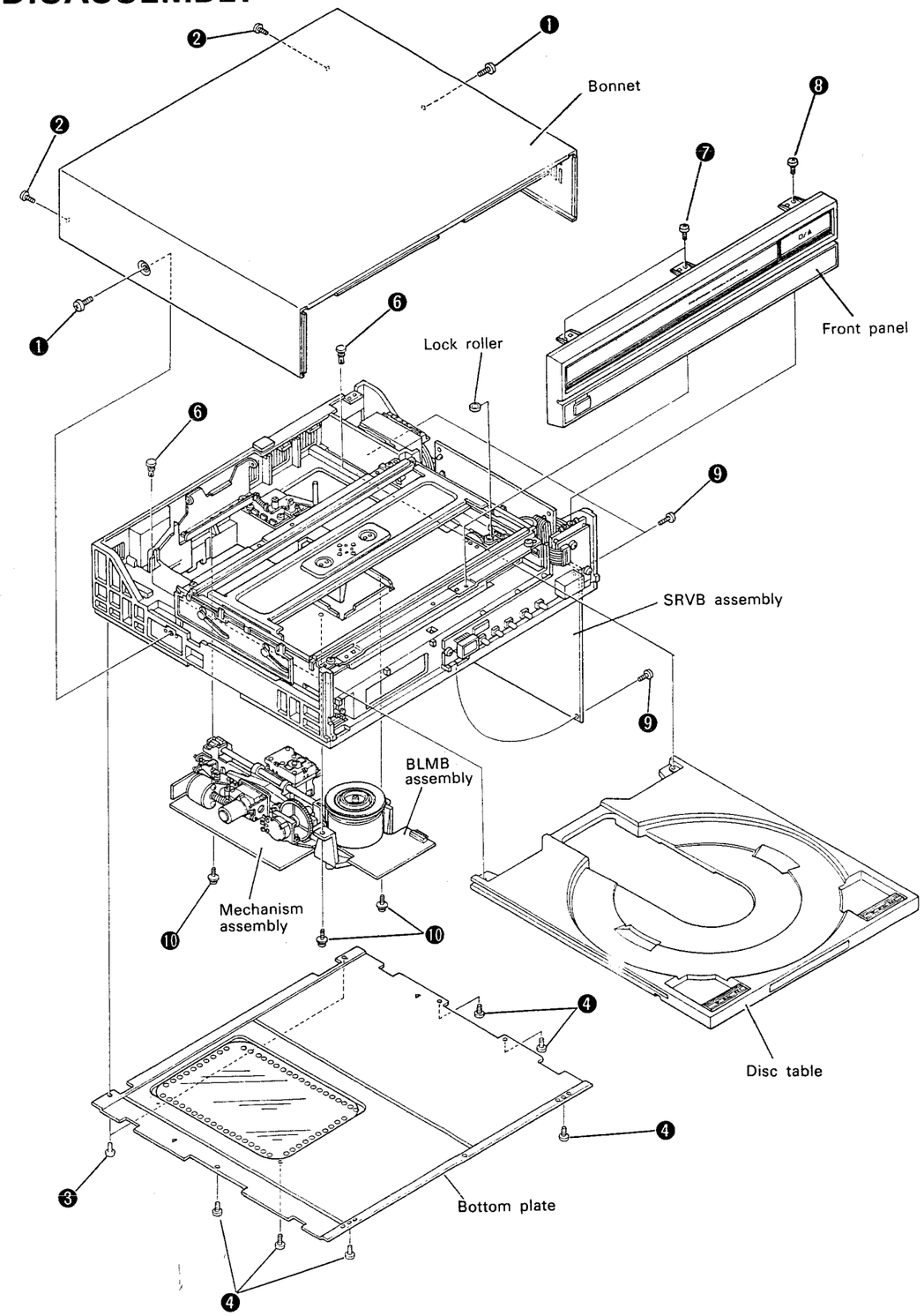
Power cord
Connect this to a power outlet.

VHF OUT terminal (75 Ω, F-type jack)
Connect this terminal to your TV set's VHF antenna terminal.

CHANNEL SELECTOR switch (CH3/CH4)
This switch is for switching the internal VHF converter. Set to the channel which is not used for TV broadcasts in your area.
If you set your TV set to this channel when using the player, the picture from the disc will appear on the screen.

ANTENNA terminal (75 Ω, F-type jack)
Connect the coaxial cable (75 Ω) from your VHF TV antenna to this terminal. When using a VCR, connect this terminal to the VHF output terminal of the VCR.

3. DISASSEMBLY



Bonnet

1. Remove the two screws ① (BMZ40P100FZK) in the sides of the bonnet.
2. And remove the two screws ② (BBZ30P050FZK) in the rear.

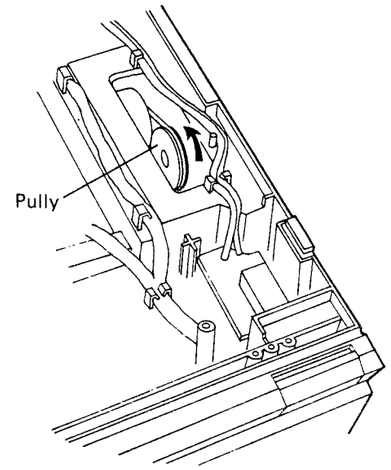
Bottom plate

1. Remove the two screws ③ (BBZ30P050FZK) at the rear of the bottom plate.
2. And remove the other six screws ④ (BBZ30P080FZK).

Disc table

1. Remove the bonnet.
2. Switch the power on, and press the disc eject key to eject the disc table.
3. Remove the two rivets ⑥.

Note 1. Do not misplace the lock roller.
Note 2. To eject the disc table without pressing the eject key, remove the bottom plate and manually turn the pulley coupled (by belt) to the LOAD motor about 20 times.



Front panel

1. Remove the bonnet.
2. Remove the two screws ⑦ (BBZ30P050FZK) and the one screw ⑧ (BPZ30P080FZK).
3. Disconnect the DSKY (IRAB) assembly's connector, and the connector connecting the DOOR switch to the DRVB assembly.

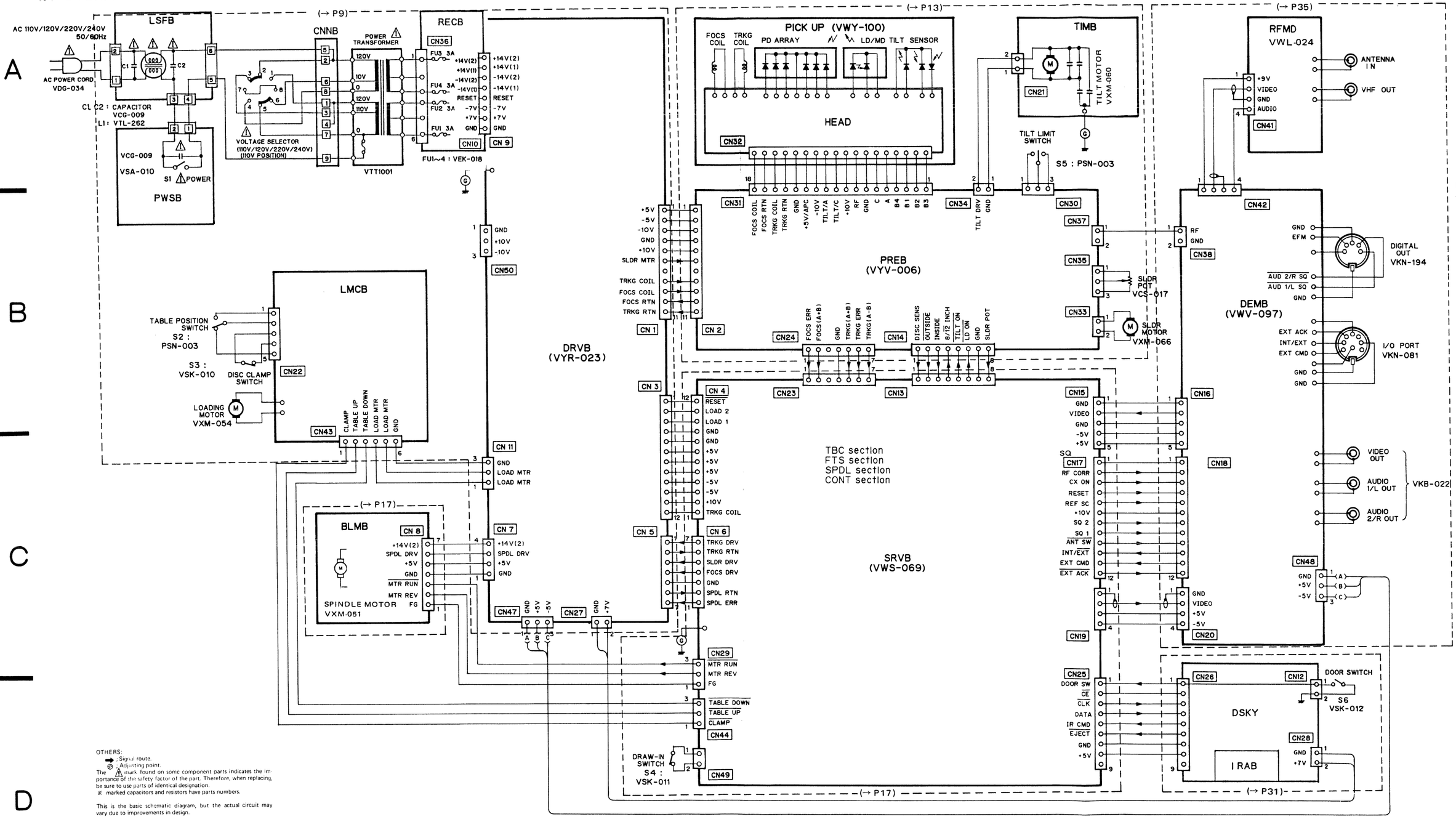
Mechanical parts

1. Remove the bottom plate.
2. Remove the two SRVB assembly securing screws ⑨, and disengage the three catches supporting the assembly.
3. Disconnect all connectors connecting assembly to the main frame (four connecting the PREB assembly and one connecting the BLMB assembly).
4. Remove the three screws ⑩ (BPZ30P080ZK).

Note: See pickup replacement on page 46.

4. SCHEMATIC DIAGRAM AND P.C. BOARD PATTERNS

4.1 OVERALL SCHEMATIC DIAGRAM

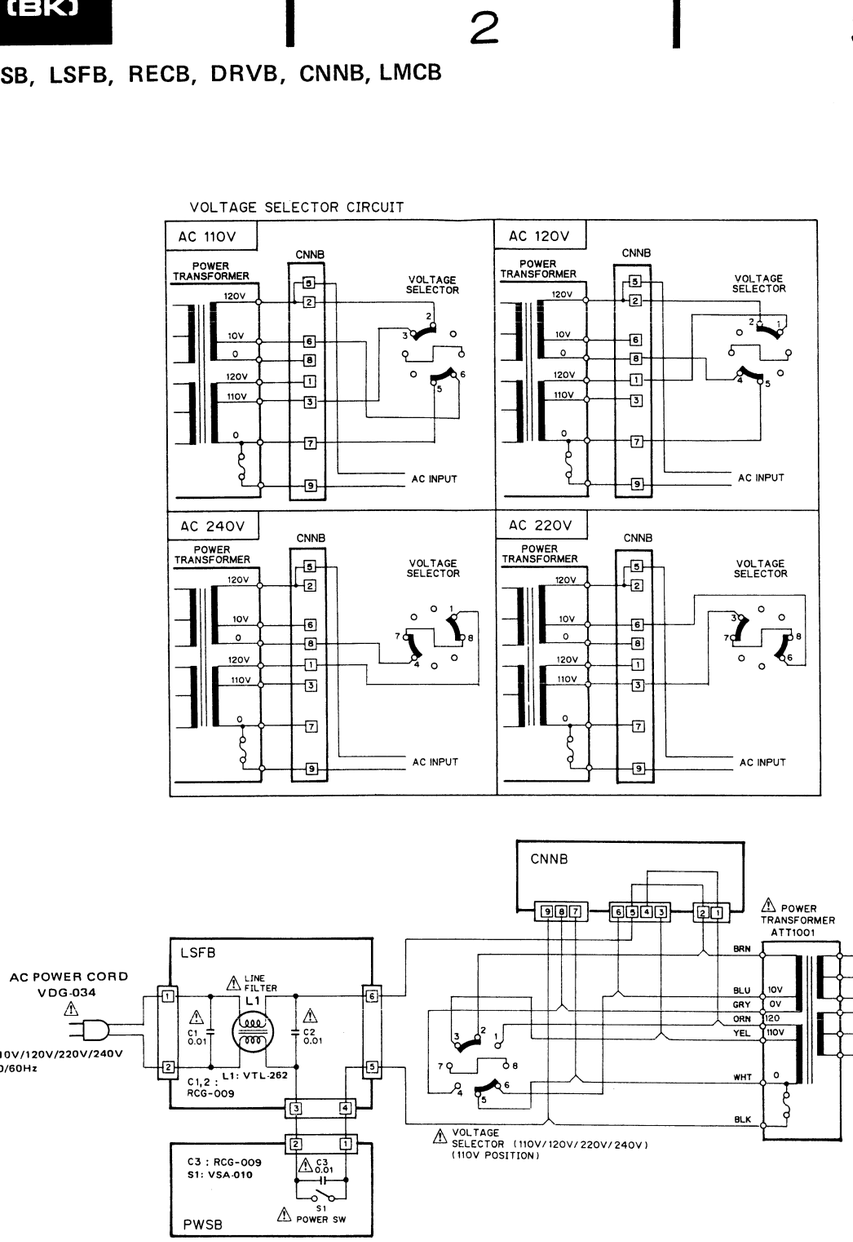


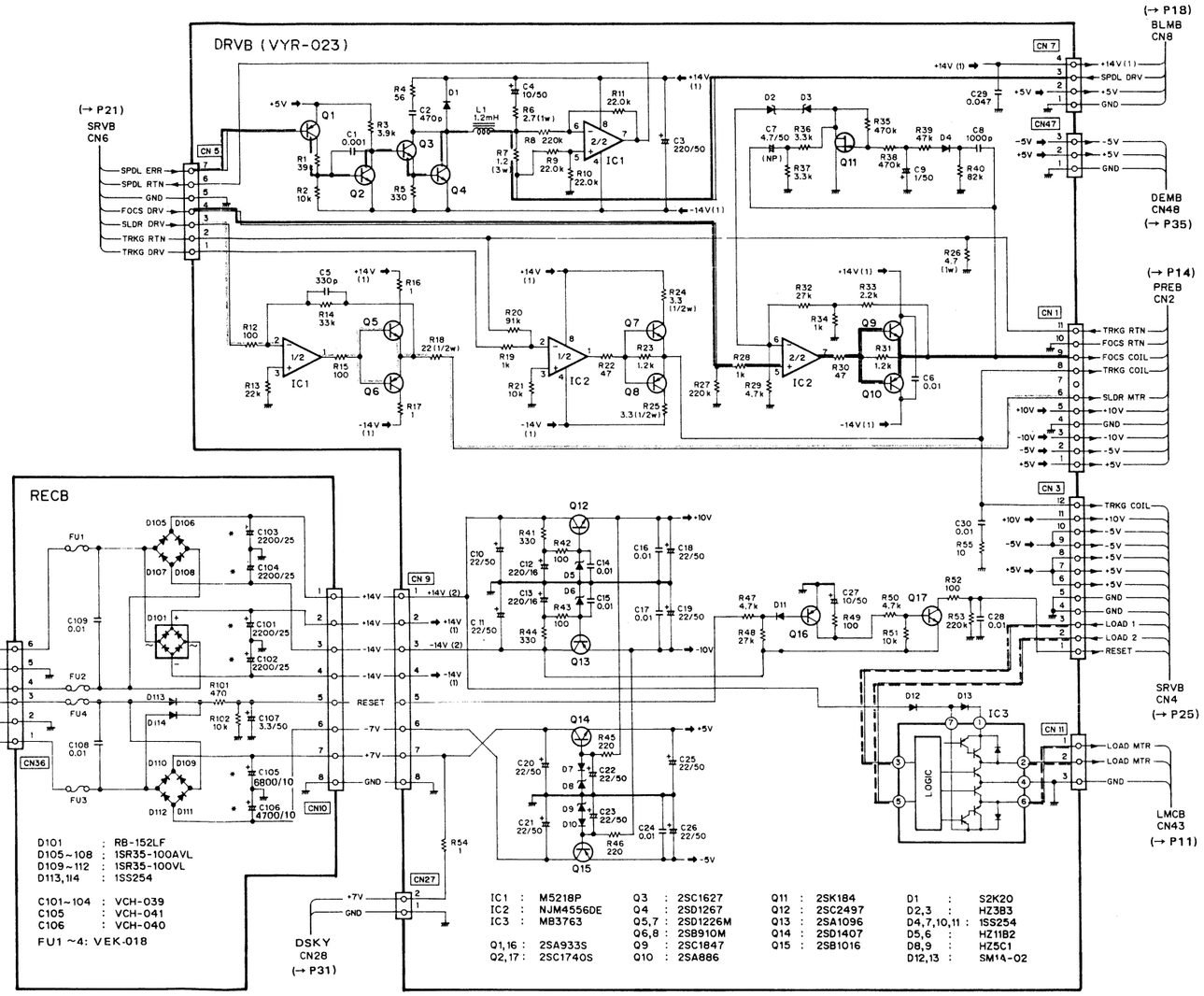
OTHERS:
➡ : Signal route.
⊘ : Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
✳ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

4.2 PWSB, LSFB, RECB, DRVB, CNNB, LMCB

VOLTAGE SELECTOR CIRCUIT





1. RESISTORS.
   Indicated in Ω, ¼W, ⅛ W, ±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F); ±1%, (G); ±2%, (K), ±10%, (M); ±20% tolerance

2. CAPACITORS:
   Indicated in capacity (μF)/voltage (V) unless otherwise noted p; pF. Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE CURRENT.
   □: DC voltage (V) at no input signal
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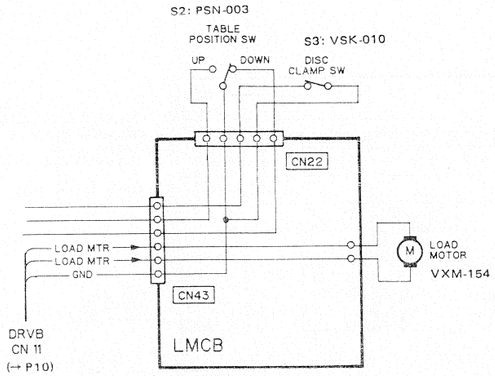
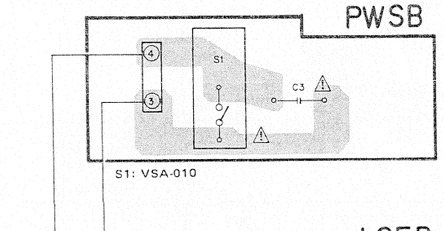
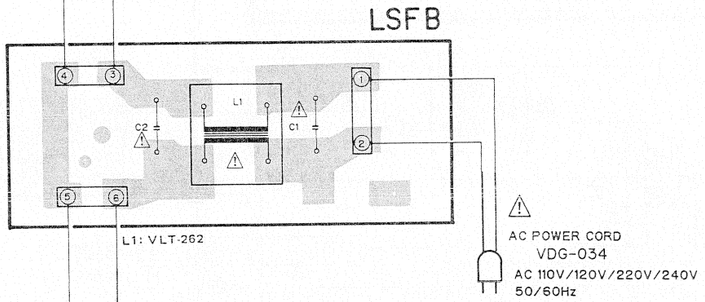
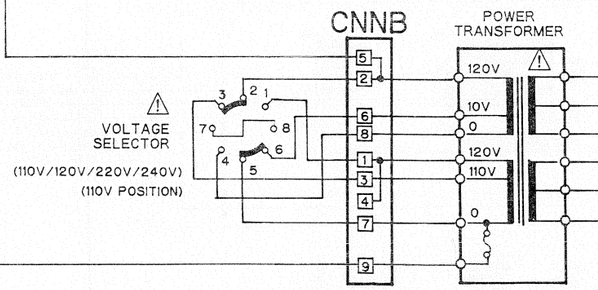
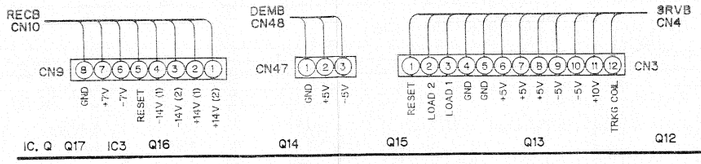
SLDR SERVO LOOP LINE
LOAD MOTOR ROUTE
SPDL MOTOR ROUTE
TRKG SERVO LOOP LINE
FOCS SERVO LOOP LINE

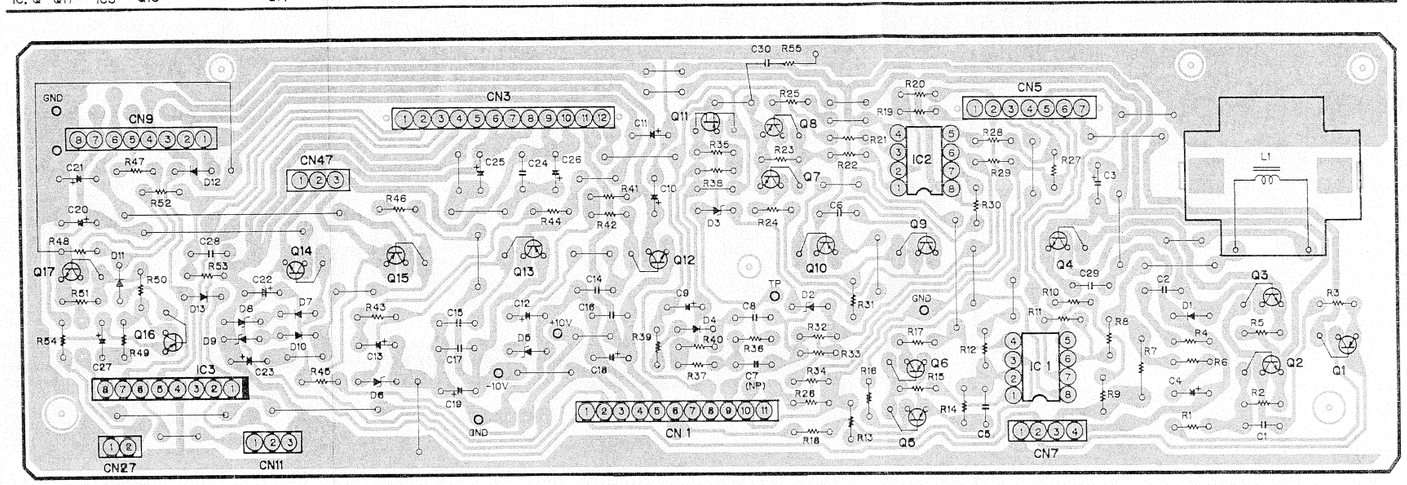


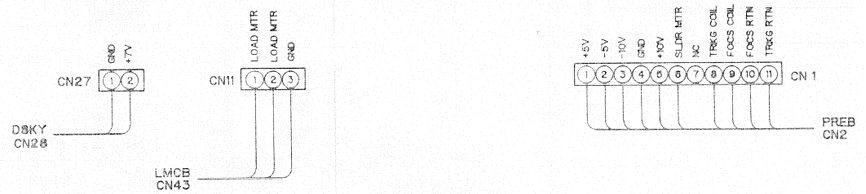




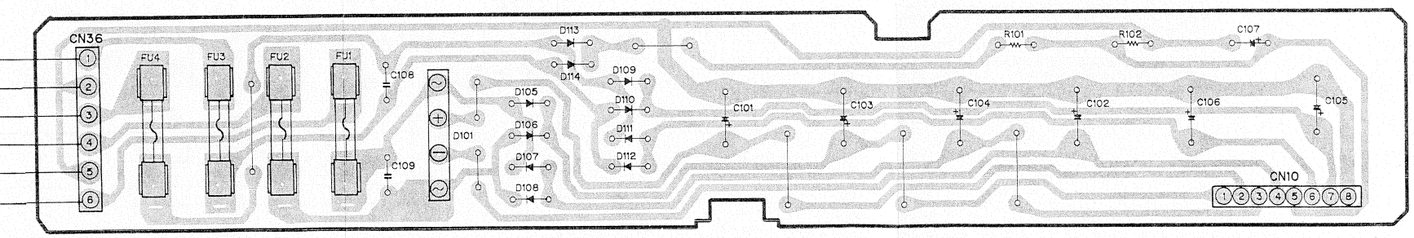




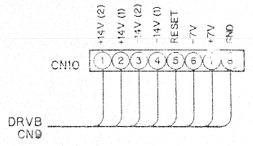




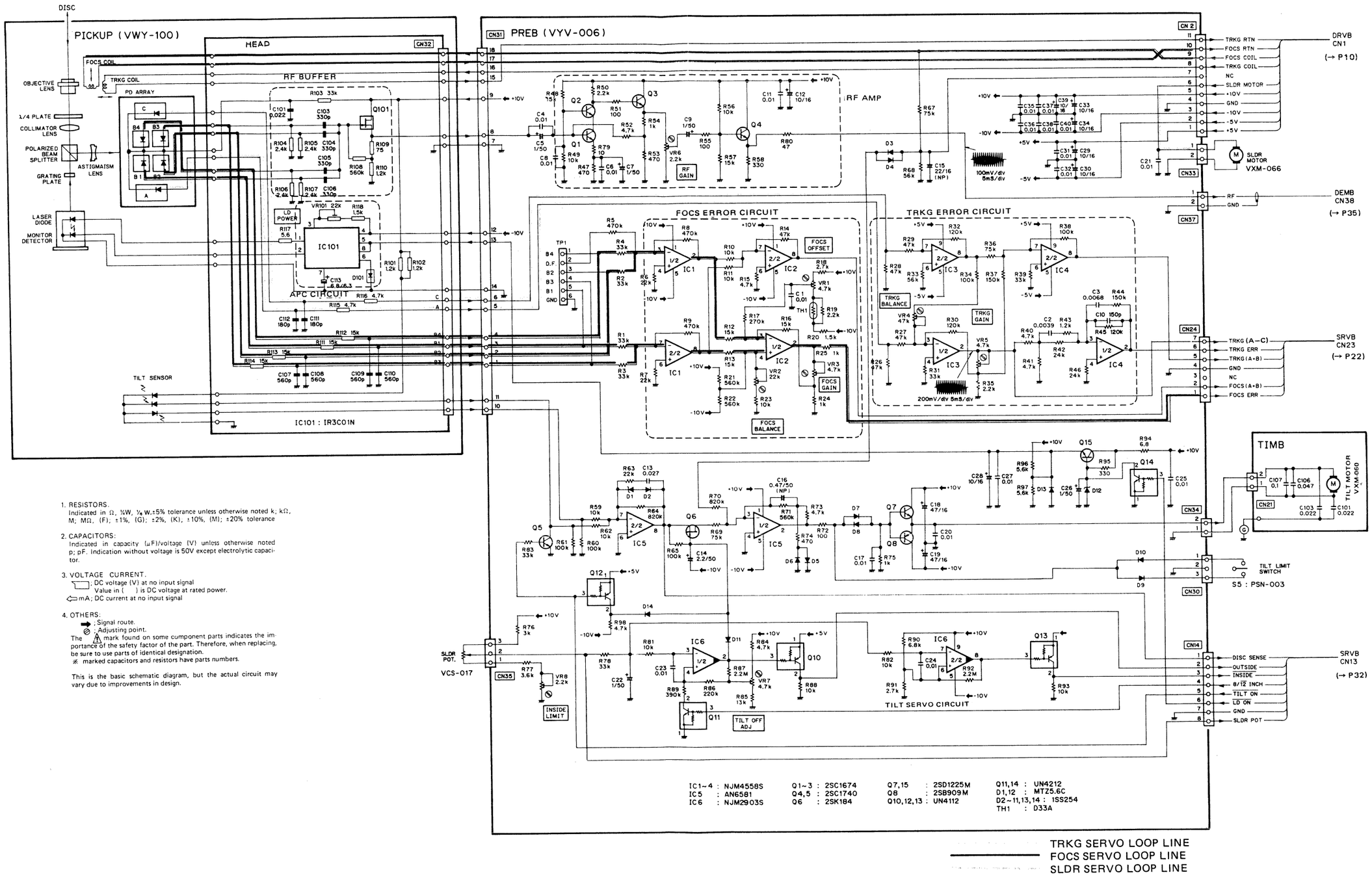
IC1 : M5218P IC2 : NJM4556DE IC3 : MB3763 Q1, 16 : 2SA933S Q2, 17 : 2SC1740S Q3 : 2SC1627 Q4 : 2SD1267 Q5, 7 : 2SD1226M Q6, 8 : 2SB910M Q9 : 2SC1847
Q10 : 2SA886 Q11 : 2SK184 Q12 : 2SC2497 Q13 : 2SA1096 Q14 : 2SD1407 Q15 : 2SB1016
D1 : S2K20 D2, 3 : HZ3B3 D4, 7, 10, 11 : 1SS254 D5, 6 : HZ11B2 D8, 9 : HZ5C1 D12, 13 : SM1A-02



D101 : RB-152LF D105~108 : 1SR35-100AVL D109~112 : 1SR35-100VL D113, 114 : 1SS254
FU1~4: VEK-018



4.3 PICK UP, PREB, TIMB



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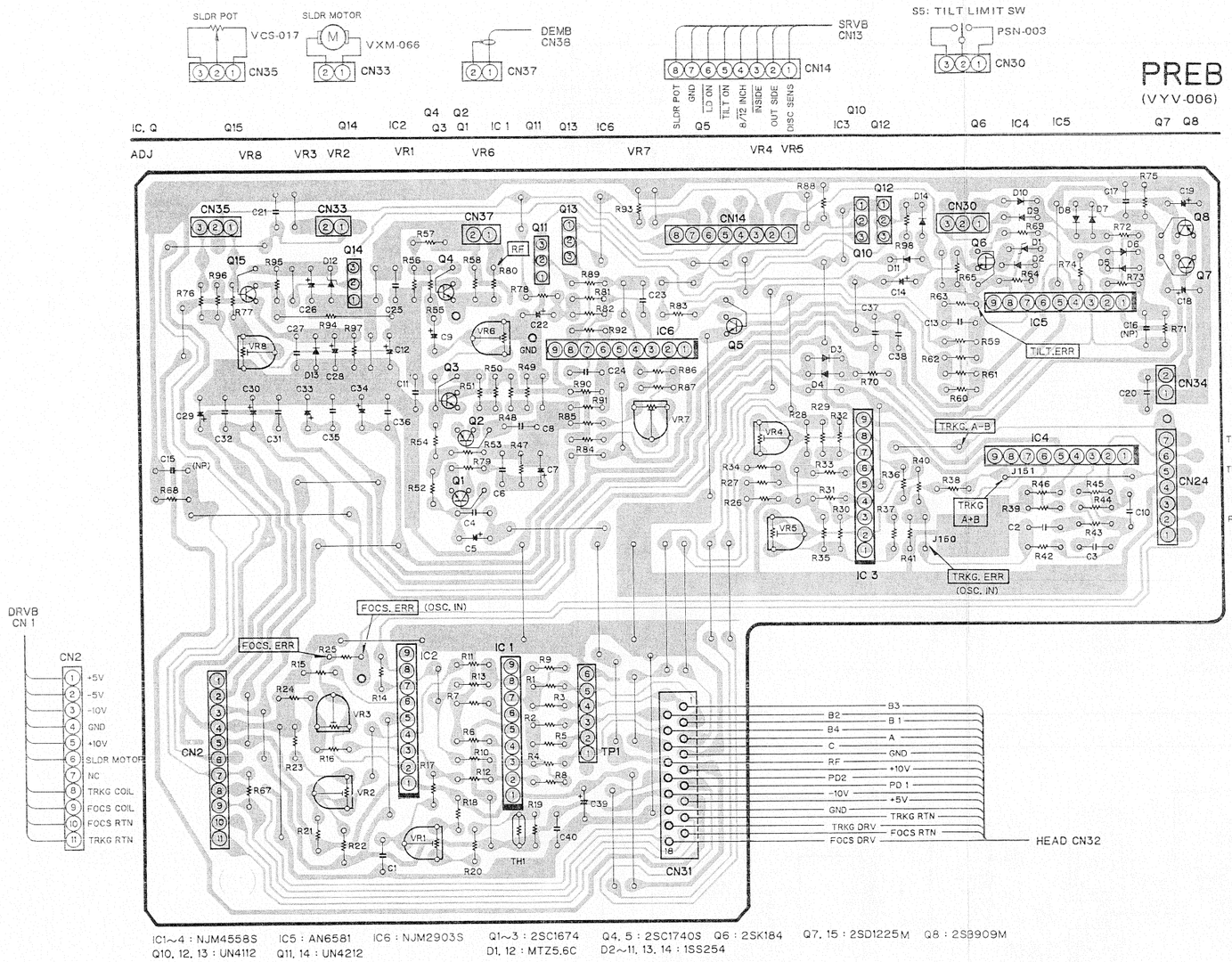
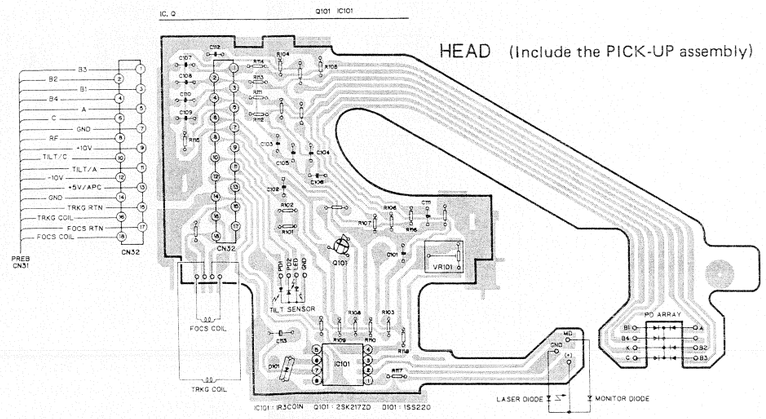
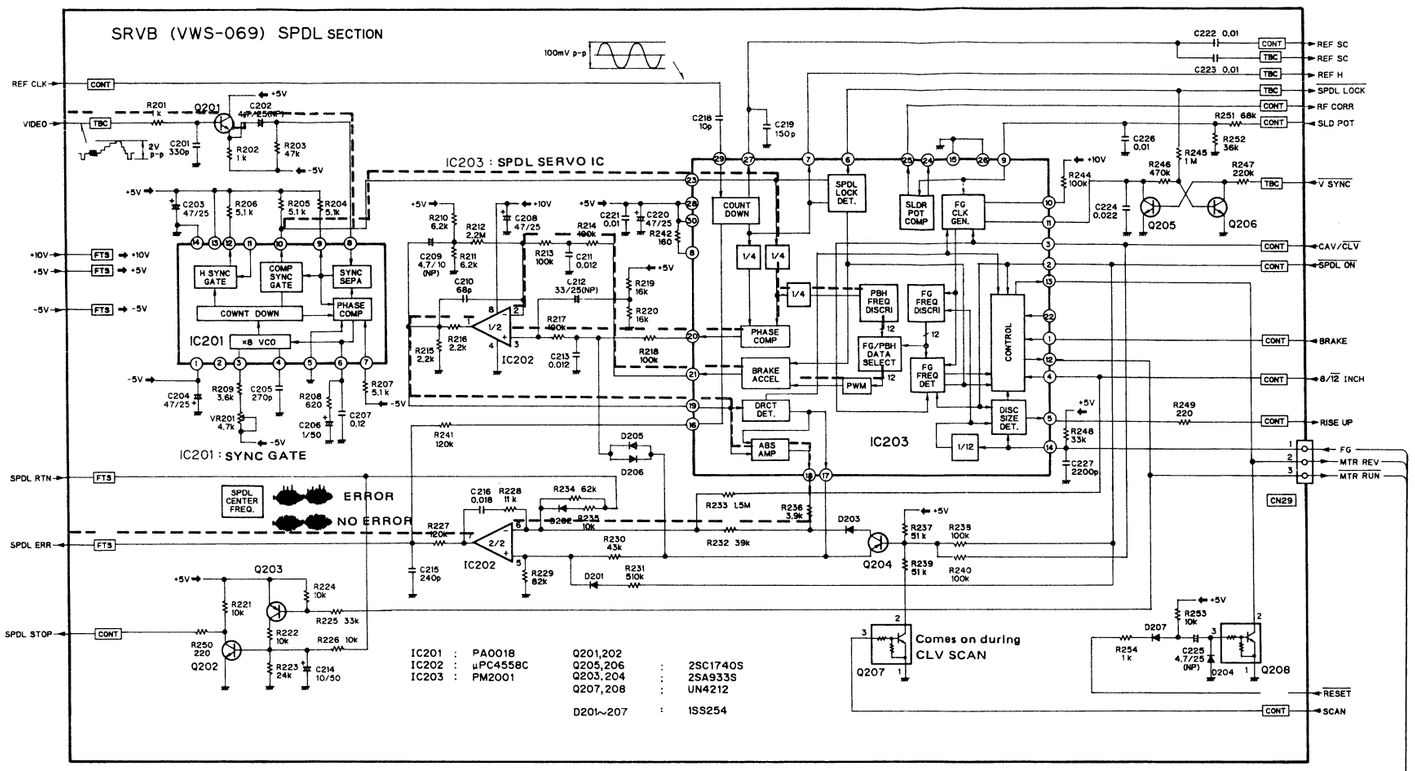
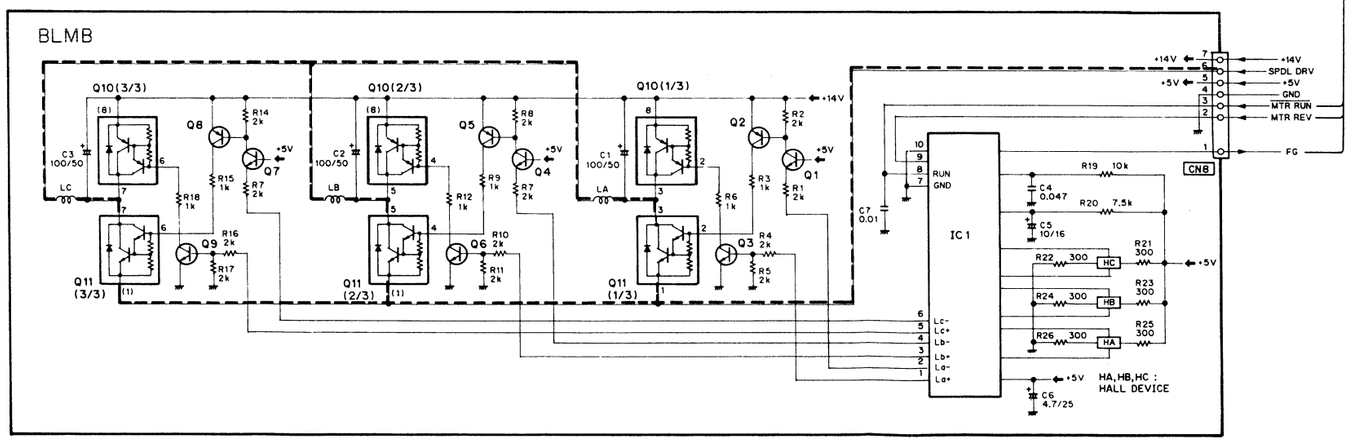


IC1~4 : NJM4558S IC5 : AN6581 IC6 : NJM2903S Q1~3 : 2SC1674 Q4, 5 : 2SC1740S Q6 : 2SK184 Q7, 15 : 2SD1225M Q8 : 2SB909M
Q10, 12, 13 : UN4112 Q11, 14 : UN4212 D1, 12 : MTZ5.6C D2~11, 13, 14 : 1SS254



4.4 SRVB (SPDL), BLMB





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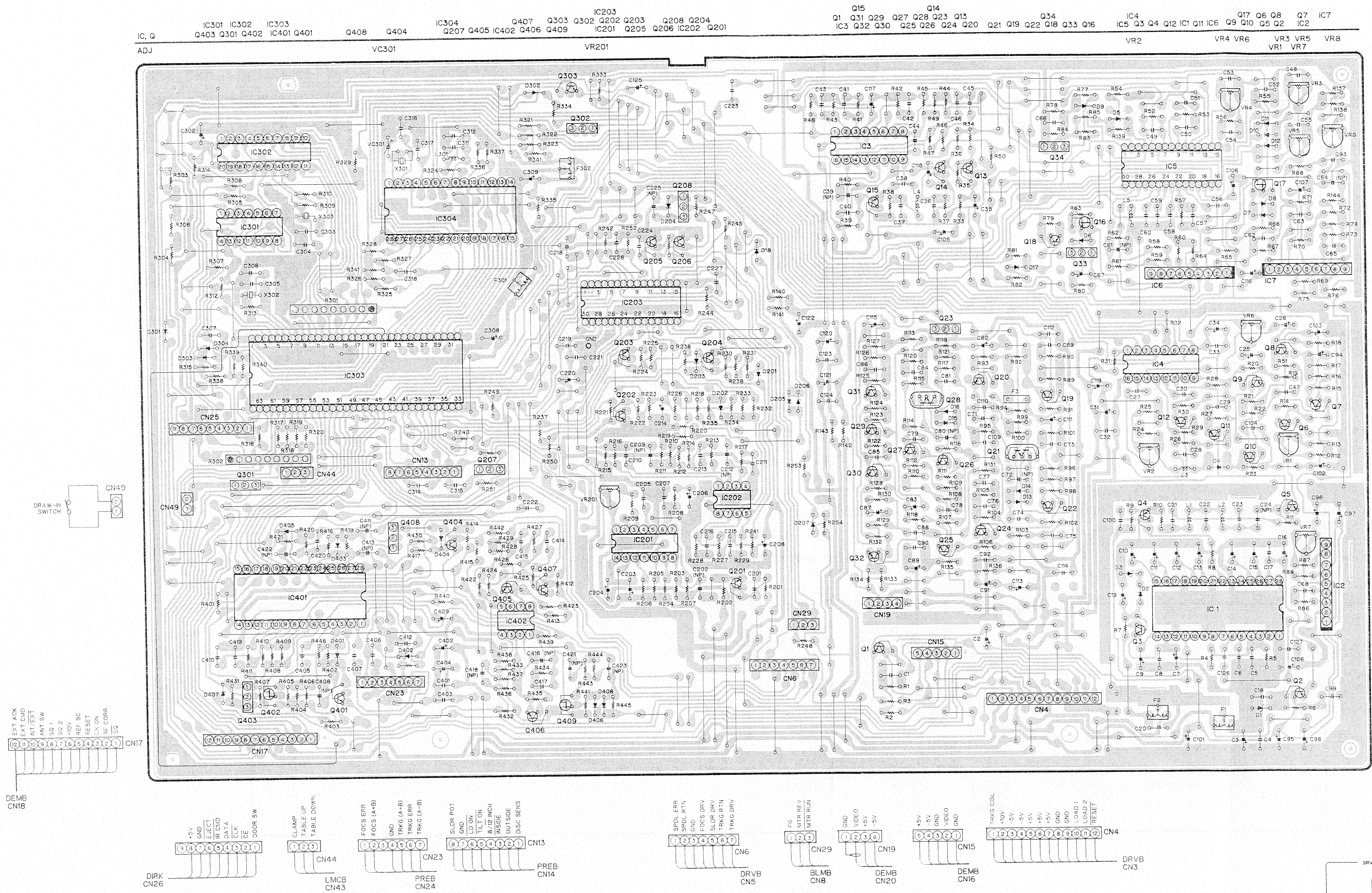
1 2 3 4 5

A



SRVB
(VWS-069)

IC1 : TL8614P
IC2 : PA0017
IC3 : PA0009
IC4 : PA9003
IC5 : PA5009

IC6, 7 : NJM4558S
IC201 : PA0018
IC202 : μPC4558C
IC203 : PM2001
IC301 : TC4011BP

IC302 : PD5029
IC303 : PD3067
IC304 : PD0024
IC401 : PM4001
IC402 : NJM4558D

Q1, 2, 5~8, 10~15, 19, 20, 22, 24~27, 29~32, 201, 202, 205, 206, 303, 401, 404~407 : 2SC1740S
Q3 : 2SC1627
Q4, 9, 18, 203, 204 : 2SA933S
Q16, 17, 402, 409 : 2SK184
Q21, 28 : 2SC1583
Q403 : UN4112

Q23, 33, 34, 207, 208, 301, 302, 408 : UN4212

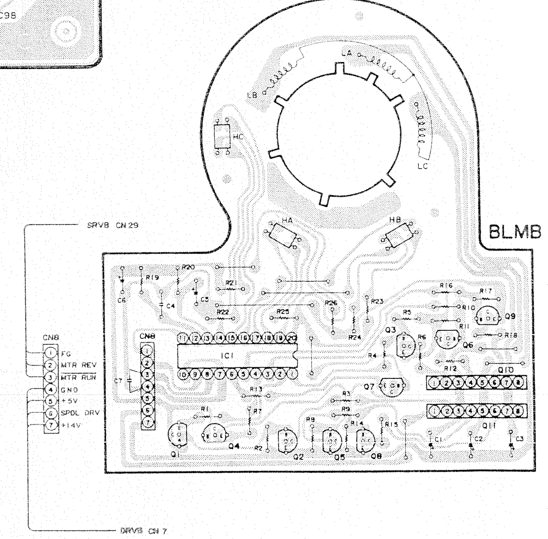
D1 : HZ9B1
D2, 5~17, 201~207, 301~304, 401, 403~408 : 1SS254

D3 : HZ12A3
D4 : SVC321SP

D402 : MTZ7.5B

B

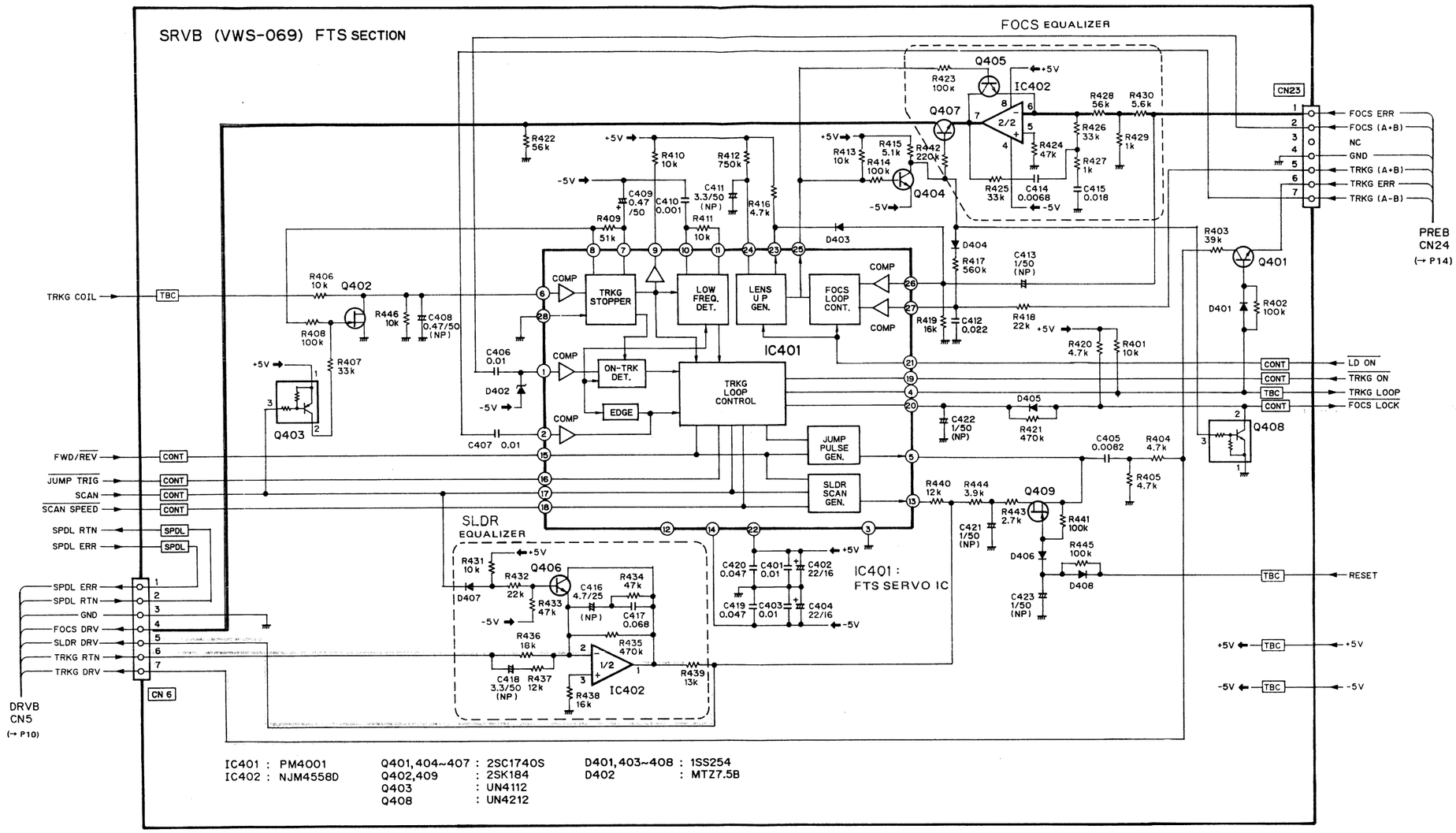
C



D

1 2 3 4 5 6

4.5 SRVB (FTS)



FOCS SERVO LOOP LINE
TRKG SERVO LOOP LINE
SLDR SERVO LOOP LINE

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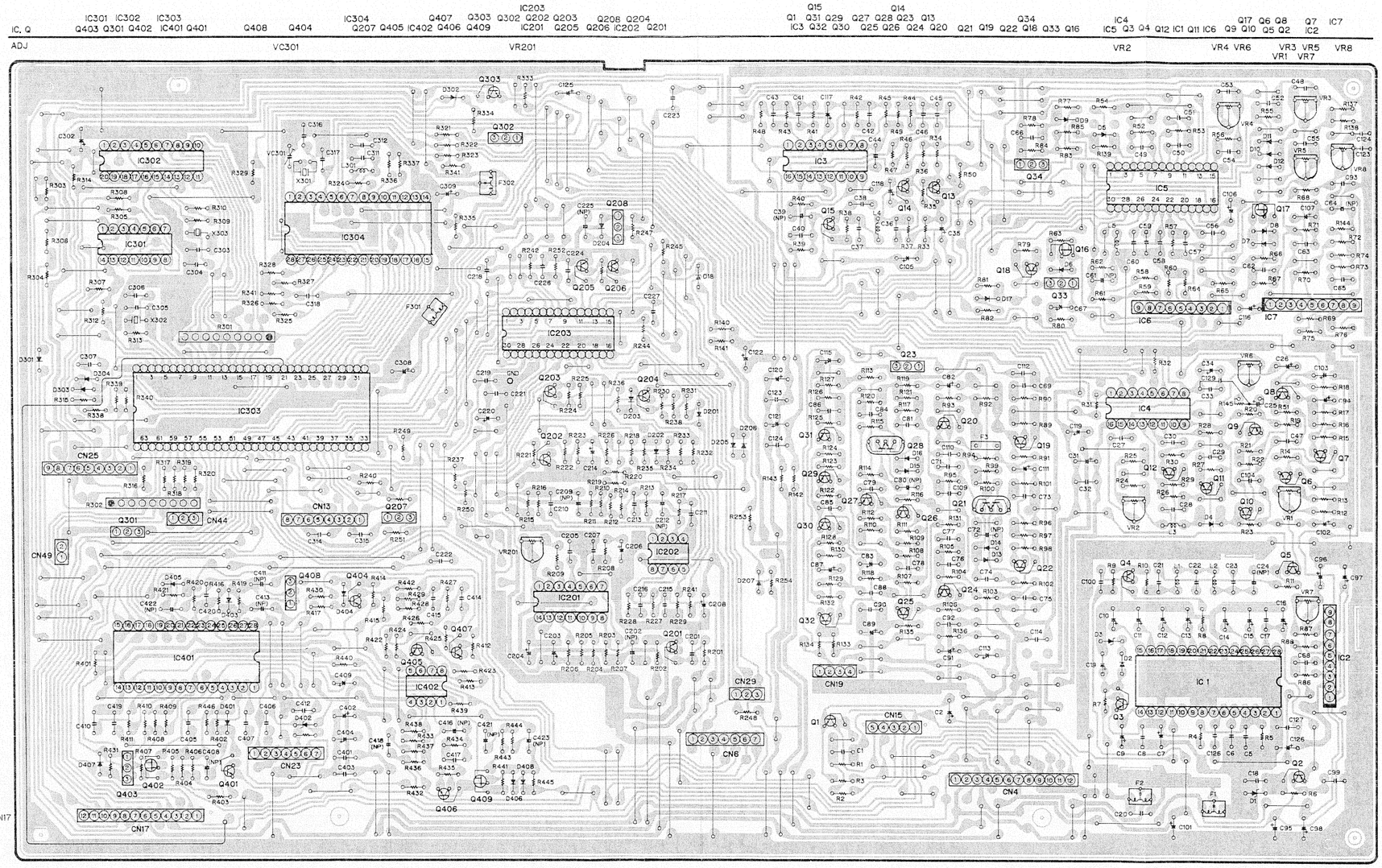

SRVB

(VWS-069)

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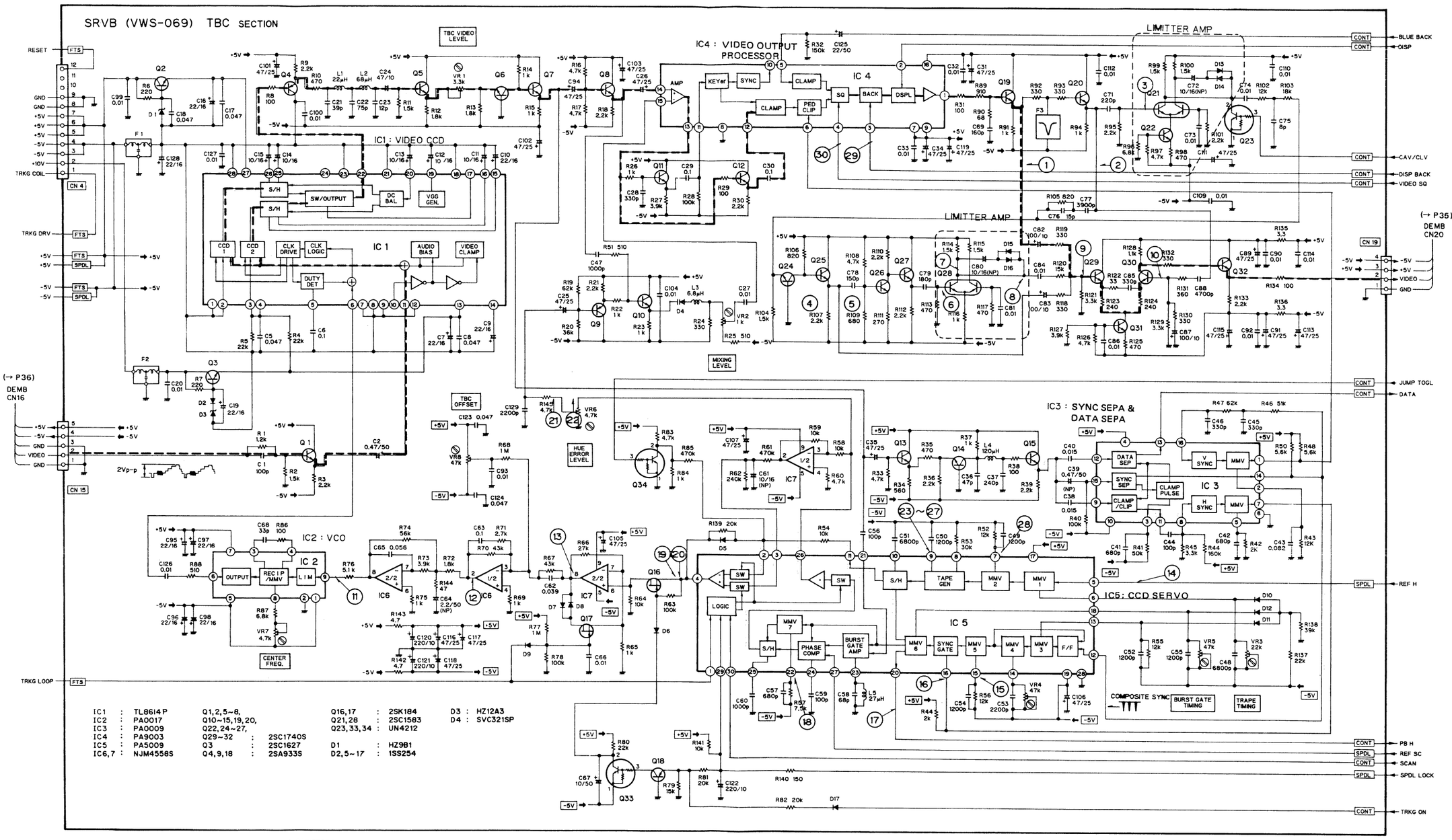
IC3 : PA0009
IC4 : PA9003
IC5 : PA5009
IC6, 7 : NJM4558S
IC201 : PA0018
IC202 : μPC4558C
IC203 : PM2001
IC301 : TC4011BP
IC302 : PD5029
IC303 : PD3067
IC304 : PD0024
IC401 : PM4001
IC402 : NJM4558D

Q1, 2, 5~8, 10~15, 19, 20, 22, 24~27, 29~32, 201, 202, 205, 206, 303, 401, 404~407 : 2SC1740S
Q3 : 2SC1627
Q4, 9, 18, 203, 204 : 2SA933S
Q16, 17, 402, 409 : 2SK184
Q21, 28 : 2SC1583
Q403 : UN4112
Q23, 33, 34, 207, 208, 301, 302, 408 : UN4212

D1 : HZ9B1
D2, 5~17, 201~207, 301~304, 401, 403~408 : 1SS254
D3 : HZ12A3
D4 : SVC321SP
D402 : MTZ7.5B

4.6 SRVB (TBC)



1. RESISTORS.
Indicated in Ω, ¼W, ⅛ W, ±5% tolerance unless otherwise noted k, kΩ, M, MΩ, (F); ±1%, (G); ±2%, (K); ±10%, (M); ±20% tolerance

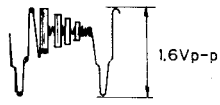
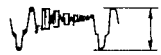
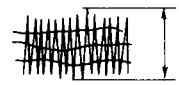
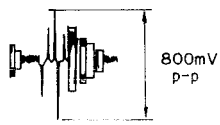
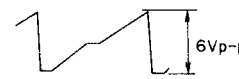
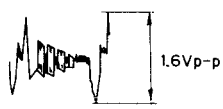
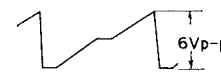
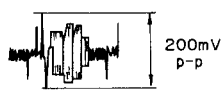
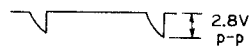
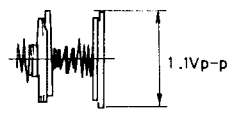
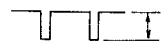
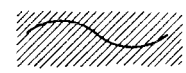
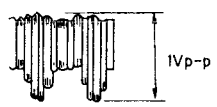
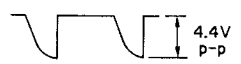
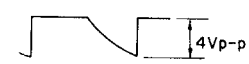
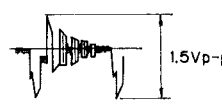
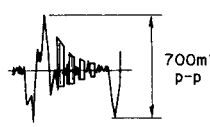
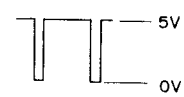
2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p; pF. Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE CURRENT.
: DC voltage (V) at no input signal
Value in ( ) is DC voltage at rated power.
⇦mA; DC current at no input signal

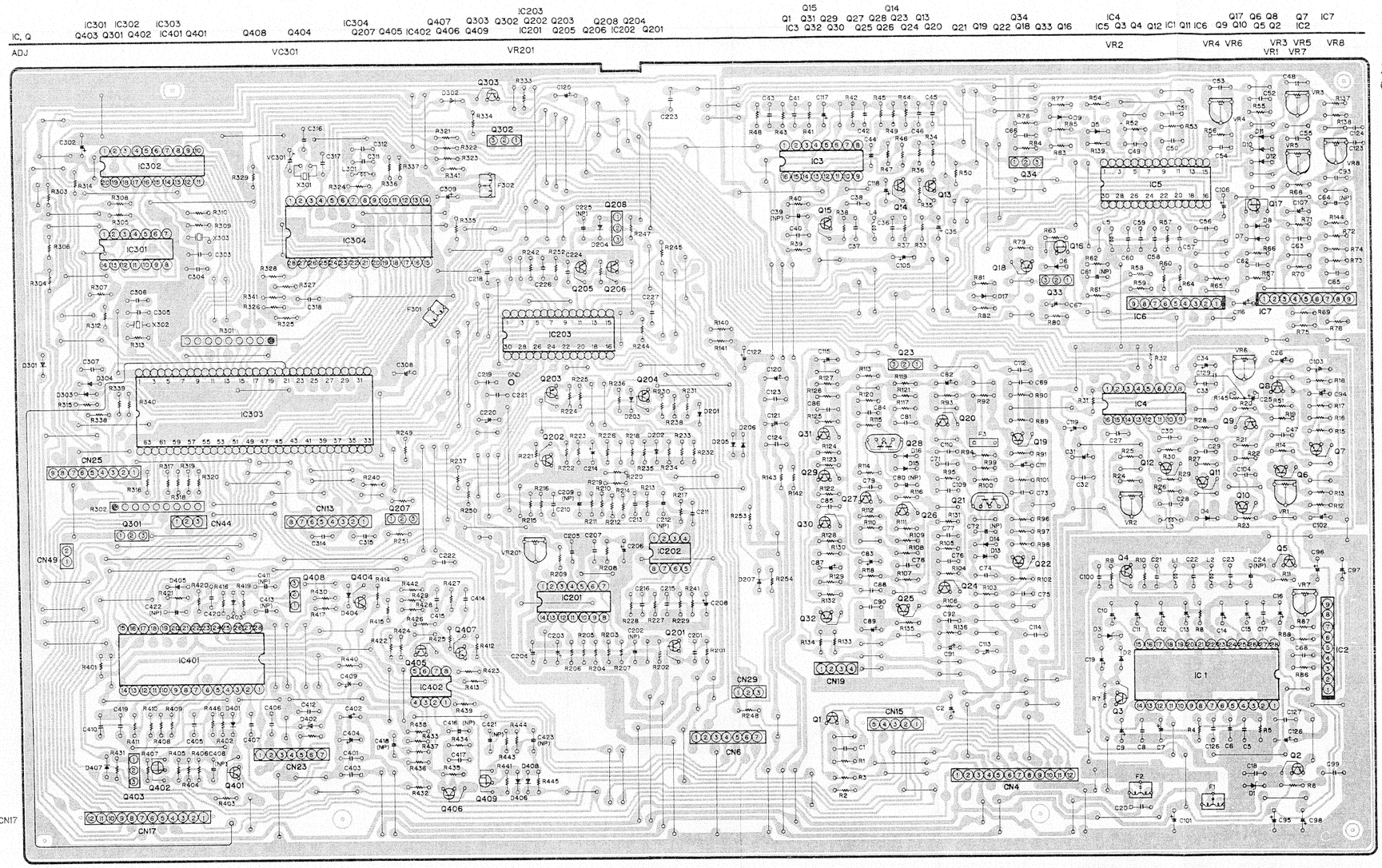
4. OTHERS:
➡ ; Signal route.
⊘ ; Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

STBC WAVEFORM

①		⑪	TBC ERROR 	㉑	B PHASE ERROR  OPEN
②		⑫	CCD SRV EQ AMP 	㉒	CCD SRV CLOSE 
③		⑬	CCD SRV EQ AMP 	㉓	TRAPE CLOSE 
④		⑭	REF H 	㉔	CCD SRV CLOSE 
⑤		⑮	SYNC GATE 	㉕	CCD SRV OPEN  H RATE
⑥		⑯	H SYNC 	㉖	CCD SRV OPEN  V RATE
⑦		⑰	HD 	㉗	CCD SRV CLOSE 
⑧		⑱	SAMPLE GATE 	㉘	TRAPE RESET 
⑨		⑲	CCD SRV CLOSE 	㉙	DISP EXIST 
⑩		⑳	CCD SRV OPEN	㉚	DISP EXIST 

MEMO



SRVB
(VWS-069)

IC1 : TL8614P
IC2 : PA0017
IC3 : PA0009
IC4 : PA9003
IC5 : PA5009

IC6, 7 : NJM4558S
IC201 : PA0018
IC202 : μPC4558C
IC203 : PM2001
IC301 : TC4011BP

IC302 : PD5029
IC303 : PD3067
IC304 : PD0024
IC401 : PM4001
IC402 : NJM4558D

Q1, 2, 5~8, 10~15, 19, 20, 22, 24~27, 29~32, 201, 202, 205, 206, 303, 401, 404~407 : 2SC1740S

Q3 : 2SC1627

Q4, 9, 18, 203, 204 : 2SA933S

Q16, 17, 402, 409 : 2SK184

Q21, 28 : 2SC1583

Q403 : UN4112

Q23, 33, 34, 207, 208, 301, 302, 408 : UN4212

D1 : HZ9B1

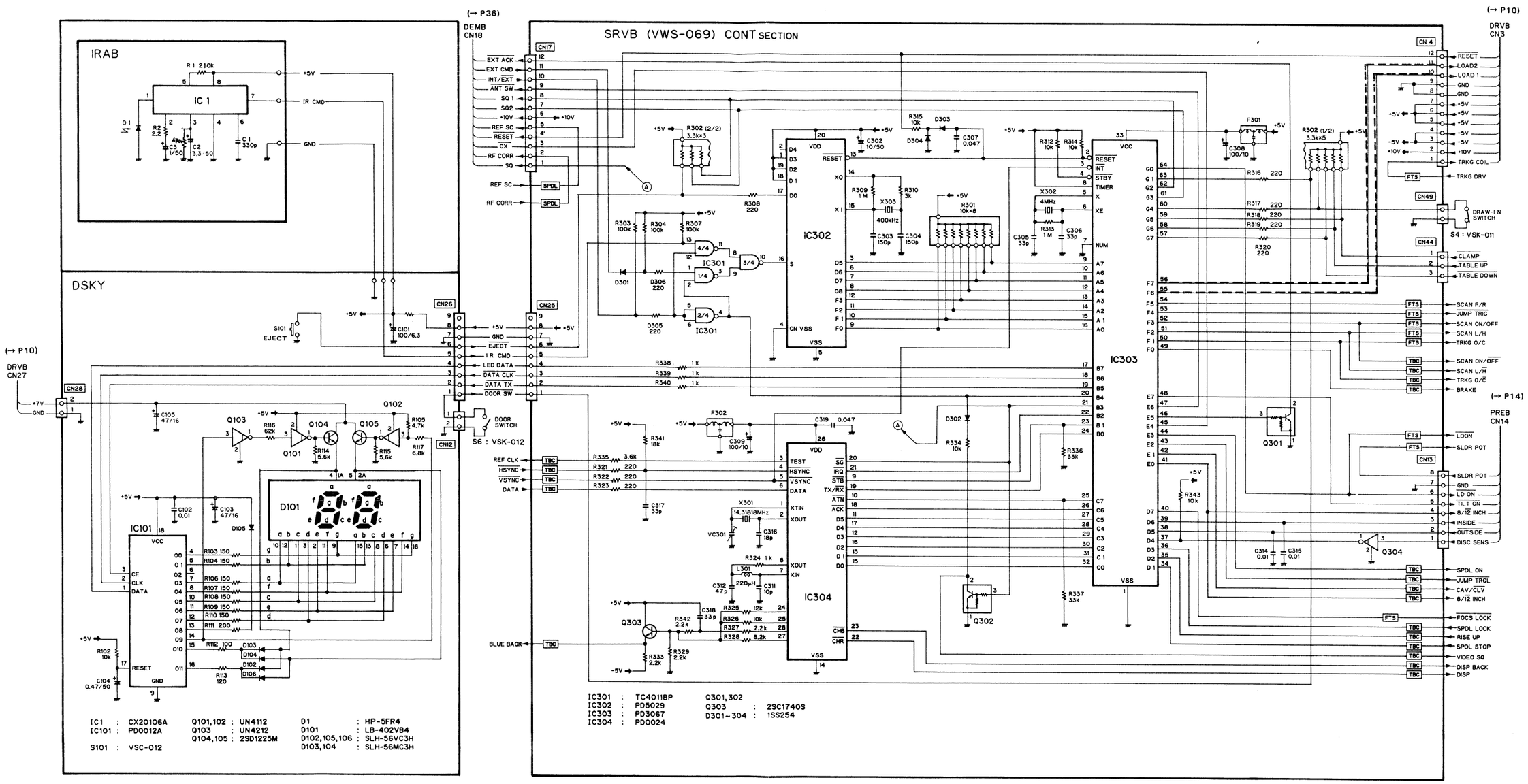
D2, 5~17, 201~207, 301~304, 401, 403~408 : 1SS254

D3 : HZ12A3

D4 : SVC321SP

D402 : MTZ7.5B

4.7 IRAB, DSKY, SRVB (CONT)



1. RESISTORS.
Indicated in Ω, ¼W, ⅛W, ±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F); ±1%, (G); ±2%, (K), ±10%, (M); ±20% tolerance

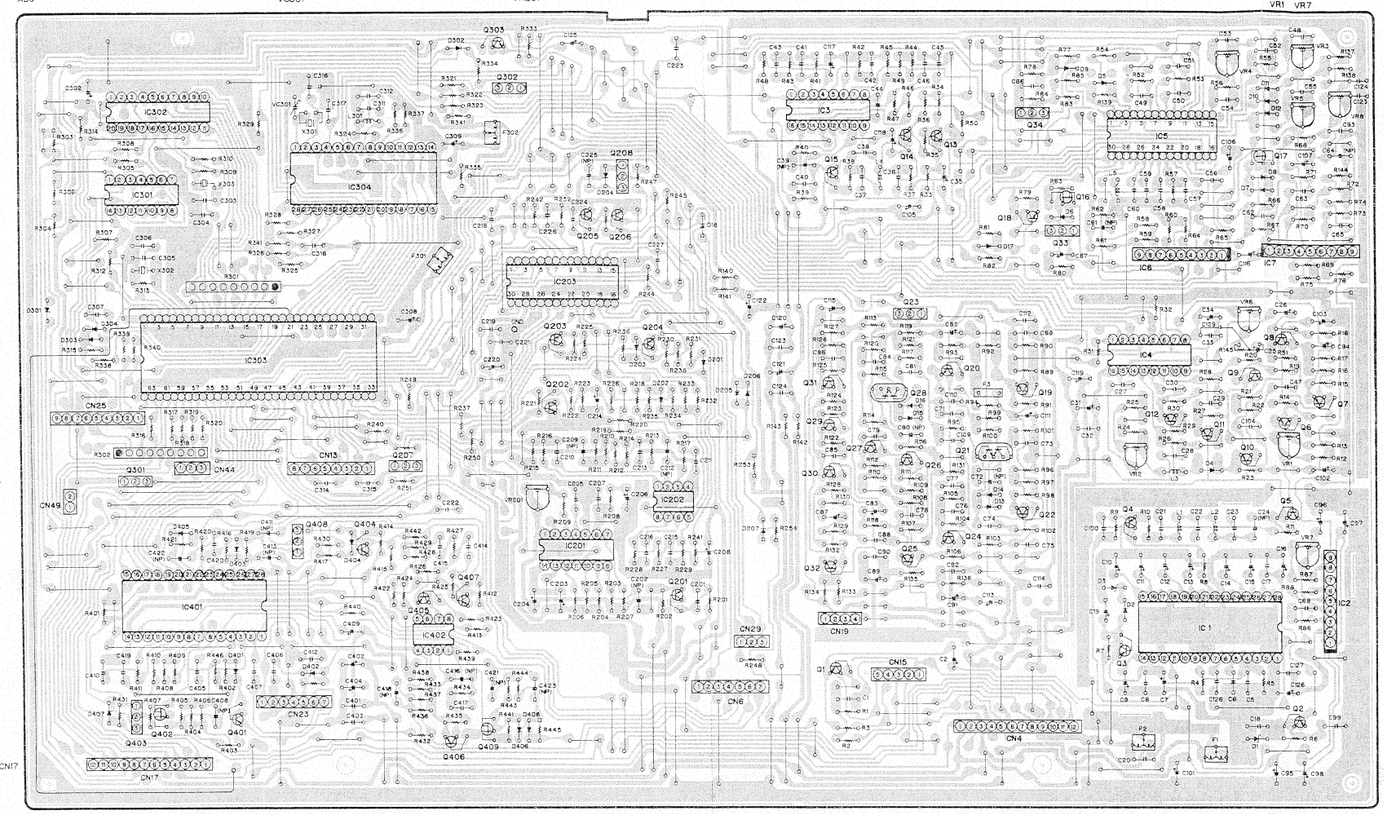
2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p; pF. Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE CURRENT.
▭; DC voltage (V) at no input signal
Value in ( ) is DC voltage at rated power.
⇦mA; DC current at no input signal

4. OTHERS:
➡ ; Signal route.
⊘ ; Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

---------LOAD MOTOR ROUTE



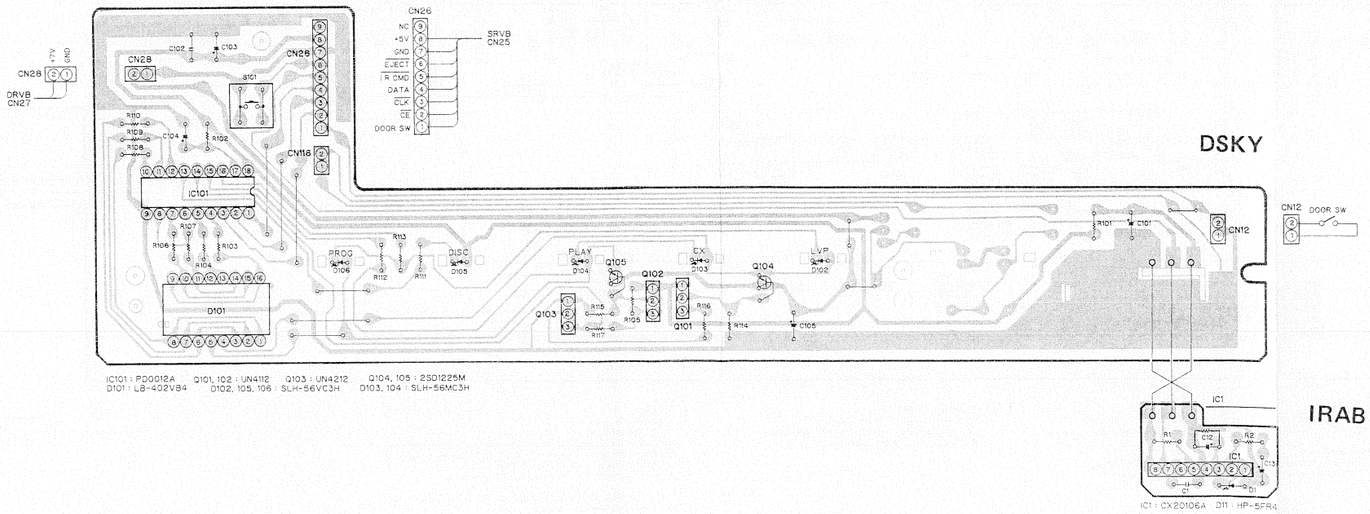
SRVB
(VWS-069)

IC1 : TL8614P
IC2 : PA0017
IC3 : PA0009
IC4 : PA9003
IC5 : PA5009
IC6, 7 : NJM4558S
IC201 : PA0018
IC202 : μPC4558C
IC203 : PM2001
IC301 : TC4018P

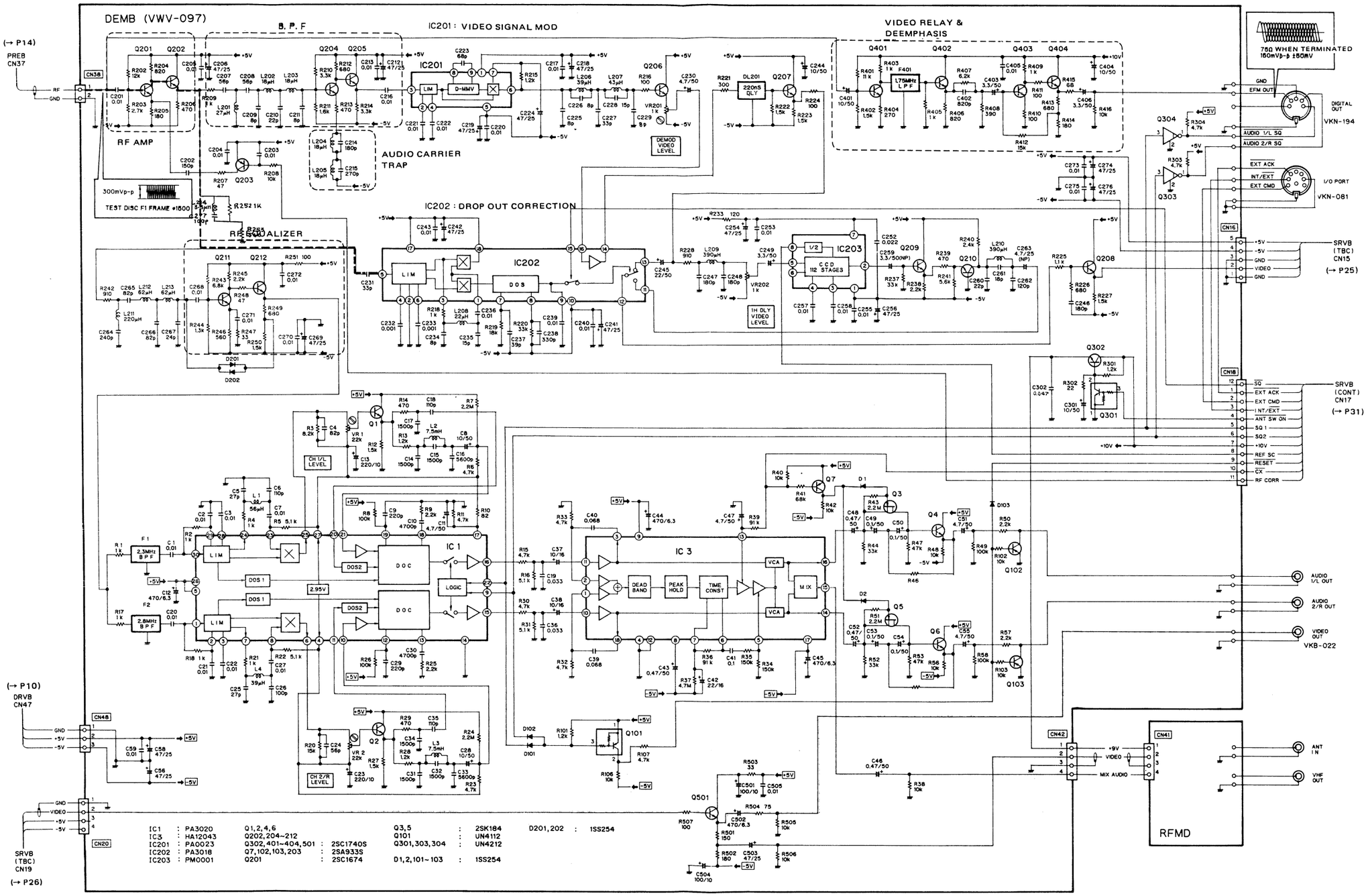
IC302 : PD5029
IC303 : PD3067
IC304 : PD0024
IC401 : PA4001
IC402 : NJM4558D

Q1, 2, 5~8, 10~15, 19, 20, 22, 24~27, 29~32, 201, 202, 205, 206, 303, 401, 404~407 : 2SC1740S
Q3 : 2SC1627
Q4, 9, 18, 203, 204 : 2SA933S
Q16, 17, 402, 409 : 2SK184
Q21, 28 : 2SC1583
Q403 : UN4112
Q23, 33, 34, 207, 208, 301, 302, 408 : UN4212

D1 : HZ9B1
D2, 5~17, 201~207, 301~304, 401, 403~408 : 1SS254
D3 : HZ12A3
D4 : SVC321SP
D402 : MTZ7.5B



4.8 DEMB



IC1	: PA3020	Q1,2,4,6		Q3,5	: 2SK184	D201,202	: 1SS254	
IC3	: HA12043	Q202,204~212		Q101	: UN4112			
IC201	: PA0023	Q302,401~404,501	: 2SC1740S	Q301,303,304	: UN4212			
IC202	: PA3018	Q7,102,103,203	: 2SA933S					
IC203	: PM0001	Q201	: 2SC1674	D1,2,101~103	: 1SS254			

1. RESISTORS:
Indicated in Ω, ¼W, ⅛ W, ±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F); ±1%, (G); ±2%, (K); ±10%, (M); ±20% tolerance

2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p; pF. Indication without voltage is 50V except electrolytic capacitor.

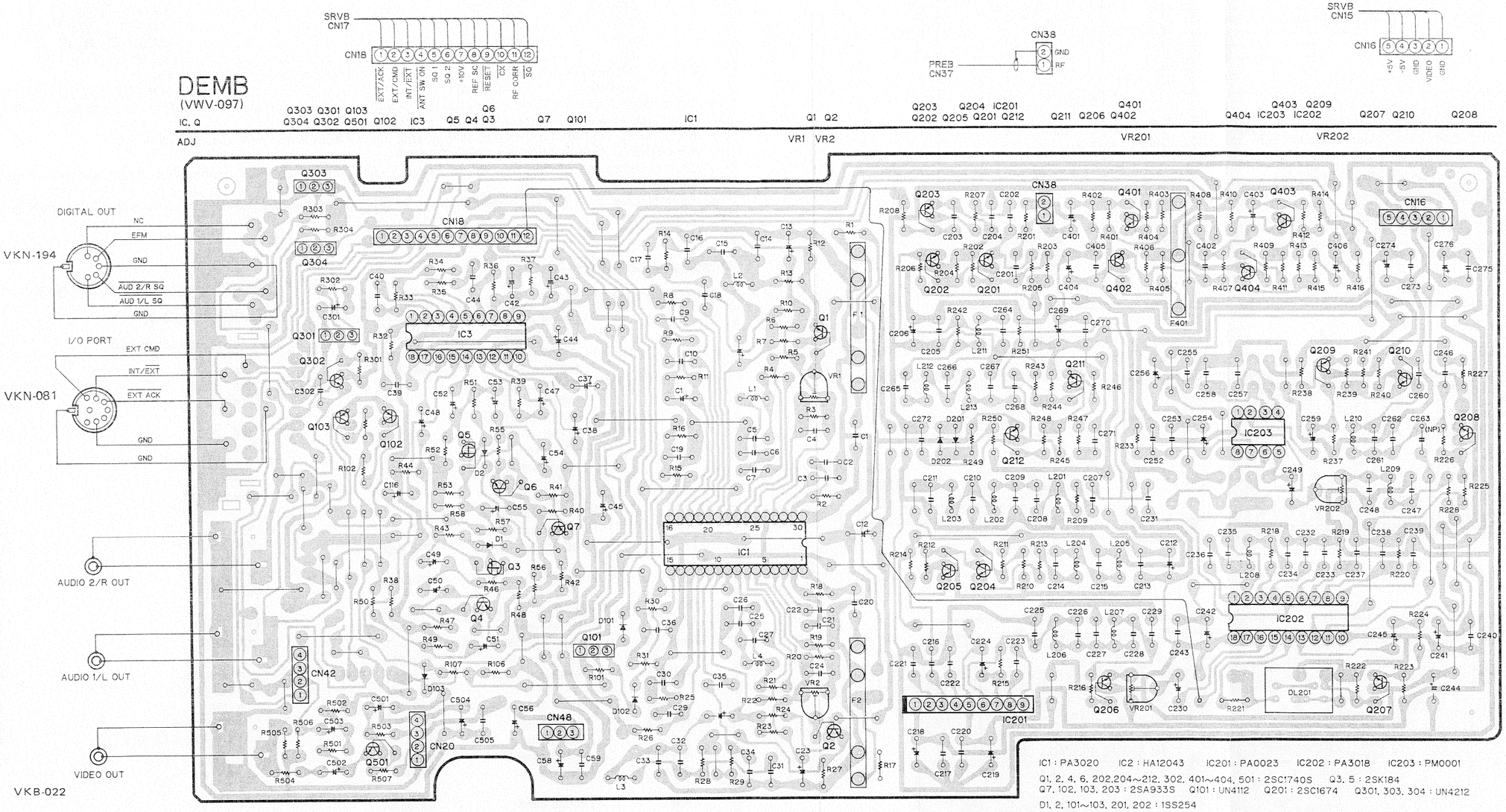
3. VOLTAGE CURRENT.
: DC voltage (V) at no input signal
Value in ( ) is DC voltage at rated power.
⇦mA; DC current at no input signal

4. OTHERS:
➡ : Signal route.
⊘ : Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

MAIN VIDEO LINE
1H DELAY VIDEO LINE

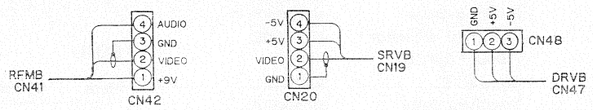
DEMB
(VWV-097)



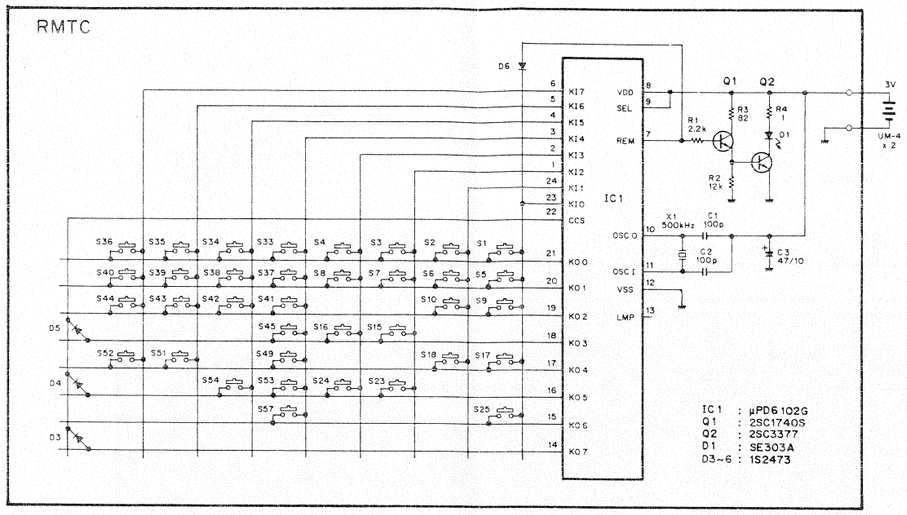
IC1 : PA3020 IC2 : HA12043 IC201 : PA0023 IC202 : PA3018 IC203 : PM0001

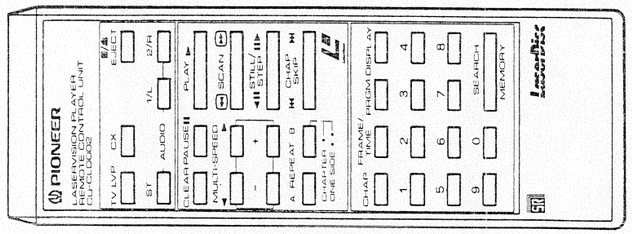
Q1, 2, 4, 6, 202,204~212, 302, 401~404, 501 : 2SC1740S Q3, 5 : 2SK184
Q7, 102, 103, 203 : 2SA933S Q101 : UN4112 Q201 : 2SC1674 Q301, 303, 304 : UN4212

D1, 2, 101~103, 201, 202 : 1SS254



4.9 REMOTE CONTROL CIRCUIT DIAGRAM (RMTC)





1. RESISTORS.
Indicated in Ω, ¼W, ⅛ W, ±5% tolerance unless otherwise noted k; kΩ, M; MΩ, (F); ±1%, (G); ±2%, (K); ±10%, (M); ±20% tolerance

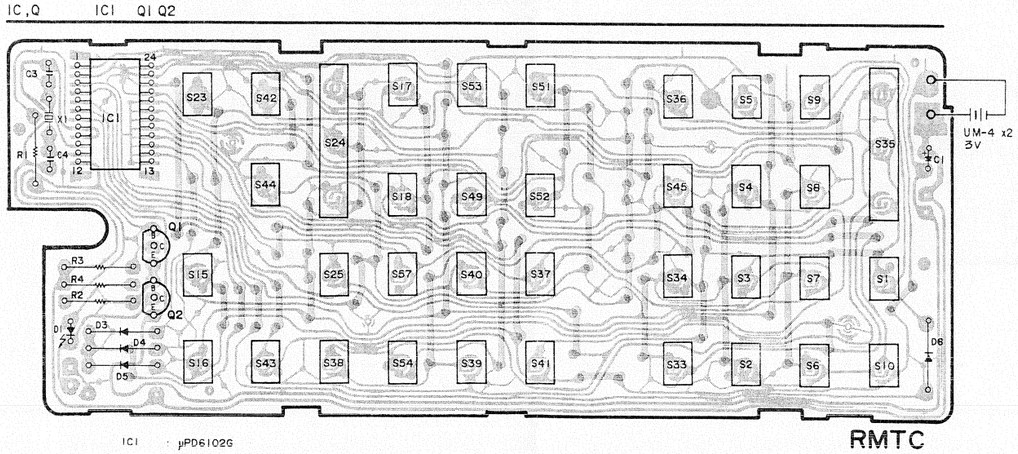
2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted p; pF. Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE CURRENT.
: DC voltage (V) at no input signal
Value in ( ) is DC voltage at rated power.
⇦mA; DC current at no input signal

4. OTHERS:
➡ : Signal route.
⊘ : Adjusting point.
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
※ marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

IC, Q IC1 Q1 Q2



5. ELECTRICAL PARTS LIST

NOTES:

- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*
  Ex. 1 *When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).*

560Ω	*56×10^1*	*561*	*RD¼PS 5 6 1 J*
47kΩ	*47×10^3*	*473*	*RD¼PS 4 7 3 J*
0.5Ω	*0R5*		*RN2H 0 R 5 K*
1Ω	*010*		*RS1P 0 1 0 K*

  Ex. 2 *When there are 3 effective digits (such as in high precision metal film resistors).*

5.62kΩ	*562×10^1*	*5621*	*RN¼SR 5 6 2 1 F*

- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★ GENERALLY MOVES FASTER THAN ★
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts marked by " ⊙ " are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

Miscellaneous Parts List

Mark	Symbol & Description	Part No.
	DRVB assembly	VYR-023
	PREB assembly	VYV-006
	DEMB assembly	VWV-097
	SRVB assembly	VWS-069
	TIMB assembly	
	CNNB assembly	
	LMCB assembly	
	(P.C.B. only)	
	DSKY assembly	
	IRAB assembly	
	LSFB assembly	
	BLMB assembly	
	PWSB assembly	
	RECB assembly	
	RFMD assembly	VWL-024
	Pick up assembly	VWY-100
⚠	AC Power cord	VDG-034
⚠ ★	Power transformer	VTT1001
★★ S2	Table position switch	PSN-003
★★ S3	Disc clamp switch	VSK-010
★★ S4	Draw-in switch	VSK-011
★★ S5	Tilt limit switch	PSN-003
★★ S6	Door switch	VSK-012
★★	LOAD motor	VXM-054
★★	SLDR motor	VXM-066
★★	TILT motor	VXM-060
★★	SPDL motor	VXM-051
★	Potentio meter	VCS-017
	Thru type capacitor (1000PF/50V)	VCG-005
	Control IC	PA2016
★★	Transistor array	STA302A
★★	Transistor array	STA303A
⚠ ★★ FU1—FU4	Fuse (3A)	VEK-018
★★	Line voltage selector (AC110V/120V/220V/240V)	VSB-003
	Strain relief	CM-22
	Remote control unit (CU-LD002)	VXX1010

DRVB ASSEMBLY (VYR-023)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC3	MB3763
★★	IC1	M5218P
★★	IC2	NJM4556DE
★★	Q13	2SA1096
★★	Q10	2SA886
★★	Q1, Q,16	2SA933S
★★	Q15	2SB1016
★★	Q6, Q8	2SB910M
★★	Q3	2SC1627
★★	Q2, Q17	2SC1740S
★★	Q9	2SC1847
★★	Q12	2SC2497
★★	Q5, Q7	2SD1226M
★★	Q4	2SD1267
★★	Q14	2SD1407
★	D2, D3	HZ3B3
★	D8, D9	HZ5C1
★	D1	S2K20
★	D12, D13	SM1A-02
★	D4, D7, D10, D11	1SS254

COIL

Mark	Symbol & Description	Part No.
	L1 Choke coil (1.2 mH)	VTT-070

CAPACITORS

Mark	Symbol & Description	Part No.
	C5	CCDSL331J50
	C2	CCDSL471J50
	C7	CEANP4R7M35
	C9	CEAS010M50
	C27	CEAS100M16
	C4	CEAS100M50
	C18–C21, C25, C26	CEAS220M16
	C10, C11	CEAS220M25
	C12, C13	CEAS221M16
	C3	CEAS221M50
	C1	CKDYB102K50
	C6, C14–C17, C22–C24, C28	CKDYF103Z50
	C8	CQMA102J50

RESISTORS

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Symbol & Description		Part No.
	R18, R23, R25		RD1/2PMF□□□J
	R8–R11		RN1/6PQ□□□□F
	R26	(4.7Ω/1W)	VCN-099
	R6	(2.7Ω/1W)	VCN-100
	R7	Wire wound resistor (1.2Ω/3W)	VCN-131
		Other resistors	RD1/6PM□□□J

PREB ASSEMBLY (VYV-006)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC5	AN6581
★★	IC6	NJM2903S
★★	IC1–IC4	NJM4558S
★★	Q10, Q12, Q13	UN4112
★★	Q11, Q14	UN4212
★★	Q8	2SB909M
★★	Q1–Q3	2SC1674
★★	Q4, Q5	2SC1740S
★★	Q7, Q15	2SD1225M
★★	Q6	2SK184
★	D1, D12	MTZ5.6C
★	D2–D11, D13, D14	1SS254
★	TH1	D33A

CAPACITORS

Mark	Symbol & Description	Part No.
	C10	CCDSL151J50
	C16	CEALNPR47M50
	C15	CEALNP220M16
	C5, C7, C9, C22, C26	CEAL010M50
	C12, C28–C30, C33, C34	CEAL100M16
	C14	CEAL2R2M50
	C18, C19	CEAL470M16
	C1, C4, C6, C8, C11, C17, C20, C23–C25, C27, C31, C32, C35–C40	CKDYF103Z50
	C13	CQMA273J50
	C2	CQMA392J50
	C3	CQMA682J50

RESISTORS

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Symbol & Description		Part No.
★	VR1–VR8	Semi-fixed resistor	VRTB6VS□□□
	R94		RD1/4PM6R8J
	R86, R89–R91		RN1/6PQ□□□□F
		Other resistors	RD1/6PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	Connector (18P)	VKN-162

DEMB ASSEMBLY (VWV-097)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC3	HA12043
★★	IC201	PA0023
★★	IC202	PA3018
★★	IC1	PA3020
★★	IC203	PM0001
★★	Q101	UN41112
★★	Q301, Q303, Q304	UN4212
★★	Q7, Q102, Q103, Q203	2SA933S
★★	Q201	2SC1674
★★	Q1, Q2, Q4, Q6, Q202, Q204–Q212, Q302, Q401–Q404, Q501	2SC1740S
★★	Q3, Q5	2SK184
★	D1, D2, D101–D103, D201, D202	1SS254

COILS AND FILTERS

Mark	Symbol & Description		Part No.
	L202–L205	Inductor	LAU180J
	L201	Inductor	LAU270J
	L4	Inductor	LAU390J
	L1	Inductor	LAU560J
	L212, L213	(62μH)	VTL-048
		Inductor	
	L207	(43μH)	VTL-051
	L208	(22μH)	VTL-096
	L206	(39μH)	VTL-099
	L211	(220μH)	VTL-108
	L209, L210	(390μH)	VTL-111
	L2, L3	(7.5MH)	VTL-177
	F1	B.P.F (2.3 MHz)	VTF-051
	F2	B.P.F (2.8 MHz)	VTF-052
	F401	Low-pass filter	VTF-060

CAPACITORS

Mark	Symbol & Description	Part No.
	C209, C211, C225, C226, C234	CCDCH080D50
	C26	CCDCH101J50
	C6, C18, C35	CCDCH111J50
	C228, C235	CCDCH150J50
	C229, C261	CCDCH180J50
	C210, C260	CCDCH220J50
	C267	CCDCH240J50
	C5, C25	CCDCH270J50
	C227, C231	CCDCH330J50
	C237	CCDCH390J50
	C24, C207, C208	CCDCH560J50
	C223	CCDCH680J50
	C4, C265, C266	CCDCH820J50
	C262	CCDSL121J50
	C202	CCDSL151J50
	C214, C246–C248	CCDSL181J50
	C9, C29	CCDSL221J50
	C264	CCDSL241J50
	C215	CCDSL271J50
	C238	CCDSL361J50
	C43	CEANLR47K50
	C42	CEANL220K16
	C259	CEANP3R3M50
	C263	CEANP4R7M25
	C46, C49, C50, C53, C54	CEASR47M50
	C48, C52	CEAS010M50
	C8, C28, C244, C301, C401, C404	CEAS100M16
	C501, C504	SEAS101M10
	C245	CEAS220M10
	C13, C23	CEAS221M10
	C249, C403, C406	CEAS3R3M50
	C11, C47, C51, C55, C230	CEAS4R7M50
	C56, C58, C206, C212, C218, C219, C241, C242, C254, C256, C269, C274, C276, C503	CEAS470M10
	C224	CEAS470M25
	C502	CEAS471M6R3
	C41	CFTA104J50
	C39, C40	CFTA683J50
	C232, C233	CKDYB102K50
	C10, C30	CKDYB472K50
	C1–C3, C7, C20–C22, C27, C59, C201, C203–C205, C213, C216, C217, C220–C222, C236, C239, C240, C243, C253, C255, C257, C258, C268, C270–C273, C275, C302, C405, C505	CKDYF103Z50
	C252	CKDYF223Z50
	C601	CKDYF473Z50
	C14, C15, C17, C31, C32, C34	CQMA152J50
	C19, C36	CQMA333J50
	C16, C33	CQMA562J50
	C402	CQSA821J50
	C12, C44, C45 Electrolytic capacitor (470μF/6.3 V)	VCH-036
	C37, C38 Electrolytic capacitor (10μF/16 V)	VCH-037

RESISTORS

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Symbol & Description	Part No.
★	VR1, VR2, VR201, VR202 Semi-fixed resistor	VRTB6VS□□□
	R37	RD1/4VM475J
	R4, R10, R11, R21	RN1/6PQ□□□□F
	Other resistors	RD1/6PM□□□J

OTHERS

Mark	Symbol & Dexcription	Part No.
	3P terminal (AUDIO OUT, VIDEO OUT)	VKB-022
	8P DIN socket (I/O PORT)	VKN-081
	5P DIN socket (DIGITAL OUT)	VKN-194
	DL201 Delay line (220 n sec)	VTF-063

SRVB ASSEMBLY (VWS-069)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC402	NJM4558D
★★	IC6, IC7	NJM4558S
★★	IC3	PA0009
★★	IC2	PA0017
★★	IC201	PA0018
★★	IC5	PA5009
★★	IC4	PA9003
★★	IC304	PD0024
★★	IC303	PD3067
★★	IC302	PD5029
★★	IC203	PM2001
★★	IC401	PM4001
★★	IC301	TC4011BP
★★	IC1	TL8614P
★★	IC202	UPC4558C
★★	Q403	UN4112
★★	Q23, Q33, A34, Q207,Q208 Q301, Q302, Q408	UN4212
★★	Q4, Q9, Q18, Q203, Q204	2SA933S
★★	Q21, Q28	2SC1583
★★	Q3	2SC1627
★★	Q1, Q2, Q5–Q8, Q10–Q15, Q19, Q20, Q22, Q24–Q27, Q29–Q32, Q201, Q202, Q205, Q206, Q303, Q401, Q404–Q407	2SC1740S
★★	Q16, Q17, Q402, Q409	2SK184
★	D3	HZ12A3
★	D1	HZ9B1
★	D402	MTZ7.5B
★	D4	SVC321SP
★	D2, D5–D17, D201–D207, D301–D304, D401, D403–D408	1SS254

COILS AND FILTERS

Mark	Symbol & Description		Part No.
	L301	Inductor	LAU221J
	L6	Inductor (12μH)	VTL-093
	L1	Inductor (22μH)	VTL-096
	L5	Inductor (27μH)	VTL-097
	L2	Inductor (68μH)	VTL-102
	L4	Inductor (120μH)	VTL-105
	L3	Inductor (6.8μH)	VTL-194
	F3	3.58 MHz Trap	VTF-062
	F1, F2, F301, F302	3 terminals filter	VTH-005

CAPACITORS

Mark	Symbol & Description		Part No.
	VC301	Ceramic trimmer	VCM-003
	C75		CCDCH080D50
	C218, C311		CCDCH100D50
	C76		CCDCH150J50
	C229, C312		CCDCH180J50
	C305, C306, C316, C317		CCDCH300J50
	C68		CCDCH330J50
	C44, C56, C59		CCDSL101J50
	C23		CCDSL120J50
	C78, C219, C303, C304		CCDSL151J50
	C69		CCDSL161J50
	C79		CCDSL181J50
	C71		CCDSL221J50
	C37, C215		CCDSL241J50
	C28, C45, C46, C85, C201		CCDSL331J50
	C1, C21		CCDSL390J50
	C36		CCDSL470J50
	C58, C210		CCDSL680J50
	C22		CCDSL750J50
	C61, C72, C80		CEANP100M16
	C64		CEANP2R2M50
	C212		CEANP330M25
	C209		CEANP470M10
	C206		CEAS010M50
	C67, C214, C302		CEAS100M16
	C82, C83, C87, C308, C309		CEAS101M10
	C98, C125		CEAS220M16
	C120–C122		CEAS221M10
	C25, C26, C31, C34, C35, C89, C91 C94, C101–C103, C105–C108, C115–C119, C203, C204, C208, C220		CEAS470M10
	C111, C113		CEAS470M16
	C413, C421–C423		CEJANP010M50
	C24		CEJANP470M10
	C2, C409		CEJAR47M50
	C11–C15, C128		CEJA100M16
	C3, C7, C9, C10, C16, C19 C95–C97, C402, C404		CEJA220M16
	C6, C29, C30, C63		CFTA104J50
	C20		CFTA124J50
	C65		CFTA563J50
	C417		CFTA683J50
	C43		CFTA823J50
	C227		CKDYB222K50
	C77		CKDYB392K50
	C88		CKDYB472K50

Mark	Symbol & Description	Part No.
	C41, C42, C57	CKDYB681K50
	C20, C27, C32, C33, C73, C74, C81 C84, C86, C90, C92, C93, C99, C100, C104, C109, C110, C112, C114, C126 C127, C221–C223, C226, C314, C315, C401, C403, C406, C407	CKDYF103Z50
	C4, C5, C8, C17, C18, C123, C124 C307, C419, C420	CKDYX473M25
	C47, C60, C410	CQMA102J50
	C66	CQMA103J50
	C49, C52, C54, C55	CQMA122J50
	C211, C213	CQMA123J50
	C38, C40	CQMA153J50
	C216. C415	CQMA183J50
	C53	CQMA222J50
	C224, C412	CQMA223J50
	C62	CQMA393J50
	C48, C51, C414	CQMA682J50
	C405	CQMA822J50
	C50	CQMA122J50
	C205	CQSA271J50

RESISTORS

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Symbol & Description	Part No.
★	VR1–VR8, VR201 Semi-fixed resistor	VRTB6VS□□□
	R301, R302	RA8S□□□J
	R251, R252	RN1/6PQ□□□□F
	Other resistors	RD1/6PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	IC socket	VKH-029
★	X302 Ceramic oscillator (4.00 MHz)	VSS-018
★	X303 Ceramic oscillator (400 KHz)	VSS-041
★	X301 Crystal resonator	VSS-043

CNNB ASSEMBLY

There are no component parts in the CNNB Assembly.

TIMB ASSEMBLY

CAPACITORS

Mark	Symbol & Description	Part No.
	C106	CKDYF473Z50
	C101, C103	CKPUYF223Z25
	C107	CQMA104J50

DSKY ASSEMBLY

SEMICONDUCTORS

Mark	Symbol & Description		Part No.
★★	IC101		PD0012A
★★	Q101, Q102		UN4112
★★	Q103		UN4212
★★	Q104, Q105		2SD1225M
★	D101	LED (CHAPTER)	LB-402VB4
★	D103, D104	LED (CX, PLAY)	SLH-56MC3H
★	D102, D105, D106	LED (LVP, DISC, PROG)	SLH-56VC3H

SWITCH

Mark	Symbol & Description		Part No.
★★	S101	Tack switch (EJECT)	VSC-012

CAPACITORS

Mark	Symbol & Description	Part No.
	C104	CEJAR47M50
	C101	CEJA101M6R3
	C103, C105	CEJA470M10
	C102	CKDYF103Z50

RESISTORS

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Symbol & Description	Part No.
	R101–R117	RD1/6PM□□□J

BLMB ASSEMBLY

There are no service parts in the BLMB Assembly. When it becomes necessary to replace the BLMB Assembly use the spindle motor part number to place the order.

IRAB ASSEMBLY

SEMICONDUCTORS

Mark	Symbol & Description		Part No.
★★	IC1		CX20106A
★	D1	LED (REMOTE SENSOR)	HP-5FR4

CAPACITORS

Mark	Symbol & Description	Part No.
	C1	CCDSL331J50
	C3	CEJA010M50
	C2	CEJA3R3M50

RESISTORS

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Symbol & Description	Part No.
	R2	RD1/6PM2R2J
	R1	RN1/6PQ2003F

LSFB ASSEMBLY

FILTER

Mark	Symbol & Description		Part No.
⚠		Line filter	VTL-262 (VTL-263) (VTL-264)

CAPACITORS

Mark	Symbol & Description		Part No.
⚠	C1, C2	Capacitor (0.01μF)	RCG-009 (VCG-044)

PWSB ASSEMBLY

SWITCH

Mark	Symbol & Description		Part No.
⚠ ★★	S1	Power switch (POWER)	VSA-010

CAPACITOR

Mark	Symbol & Description		Part No.
⚠	C3	Capacitor (0.01μF)	RCG-009 (VCG-044)

RECB ASSEMBLY

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★	D101	RB-152LF
★	D105–D108	ISR35-100AVL
★	D109–D112	ISR35-100VL
★	D113, D114	ISS254

CAPACITORS

Mark	Symbol & Description		Part No.
	C107		CEAS3R3M50
	C108, C109		CKDYF103Z50
	C101–104	Electrolytic capacitor (2200μF/25V)	VCH-039
	C106	Electrolytic capacitor (4700μF/10V)	VCH-040
	C105	Electrolytic capacitor (6800μF/10V)	VCH-041

RESISTORS

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

RESISTORS

Mark	Symbol & Description	Part No.
	R101, R102	RD1/6PM□□□J

RMTC ASSEMBLY

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	IC1	UPD6102G
★★	Q1	2SC1740S
★★	Q2	2SC3377
★	D1	SE303A

CAPACITOR

Mark	Symbol & Description	Part No.
	C3	CEA470M10
	C1, C2	CCDSL101J50

OTHERS

Mark	Symbol & Description		Part No.
		Battery terminal	AZK-005
		Battery spring	AZK-006
★	X1	Ceramic oscillator	VSS-031 (VSS-029)

6. PICK-UP ASSEMBLY REPLACEMENT PROCEDURE

Removing the pick-up assembly

1. Disconnect the four PREB assembly connectors and the one BLMB assembly connector.

   PREB CN2, CN14, CN24, CN37
   BLMB CN8

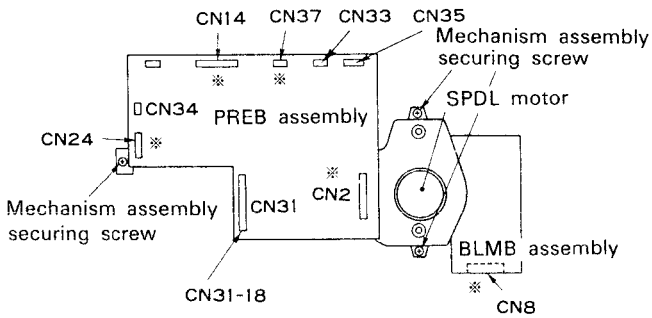


Fig.6-1 PREB and BLMB assembly connectors.

2. Undo the three mechanism assembly securing screws, the earth of PREB assembly and remove the assembly from the main frame. Check that the pick-up assembly related parts are as indicated in the following diagram (Fig.6-2).

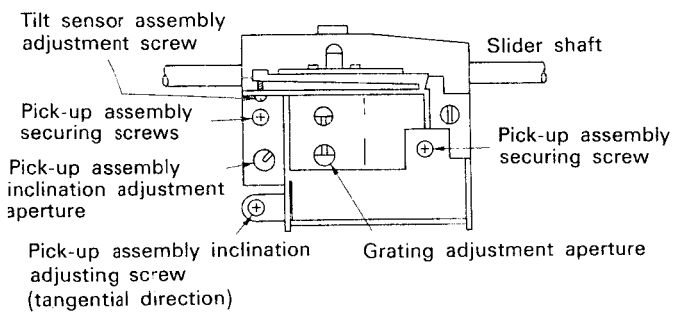


Fig.6-2 Pick-up assembly peripherals.

3. Move the pick-up assembly to the center of the slider shaft, and undo the two pick-up assembly securing screws.
4. Disconnect the flexible cable (pick-up assembly connection) from CN31 on the PREB assembly.

Note 1. Do not damage the connector part of the flexible cable. Also take adequate precautions against static electricity.
In order to prevent damage to the laser diode by static electricity don't touch the connector part of the flexible cable or any soldered portions of the pick-up assembly.

Pick-up assembly installation.

5. Connect the new pick-up assembly flexible cable to CN31 on the PREB assembly, and mount the pick-up assembly on the slider. After checking that the pick-up assembly is parallel with the slider shaft and adjusting the angle of the pick-up assembly, tighten the securing screws temporarily. This completes the pick-up assembly replacement procedure.

Note 1. Tightening the screws too tightly at this stage will hinder the later pick-up assembly inclination adjustment. Temporarily tighten the screws so that the spring washers are not fully compressed.

Note 2. After the pick-up assembly is replaced, mechanical and electrical adjustments need to be made.

7. MECHANISM ADJUSTMENTS

7.1 Measuring equipment required for mechanical adjustments

- Dual image oscilloscope
- Audio frequency oscillator
- TV monitor and connecting cables
- Remote control unit
- LD test disc
- Eccentric screwdriver I (for grating, pick-up assembly angle adjustment) (GGV-129)

7.2 Preliminary preparations

1. Remove the mechanism assembly together with the PREB assembly.
2. Loosen the two pick-up assembly securing screws by hand to allow a small degree of pick-up assembly movement. Make sure the pick-up assembly is parallel with the shaft. Leave the two securing screws loose enough so that they don't compress the spring washers.
3. Adjust the tilt sensor assembly inclination adjustment screw (rough adjustment) to make the tilt sensor assembly more or less parallel with the installation platform. (See Fig.7-1).

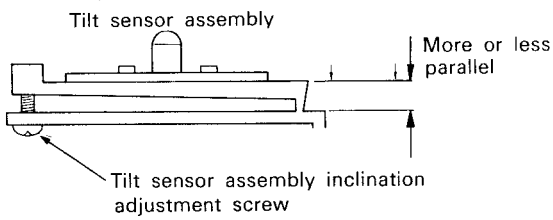


Fig. 7-1 Tilt sensor assembly inclination adjustment

4. Remove CN34 on the PREB assembly.
5. Align the height of the tilt match to the base aperture as shown in Fig.7-2 by manually turning the end of the tilt sensor assembly motor worm gear.

Note: When making this adjusting the mechanical assembly should be positioned horizontally

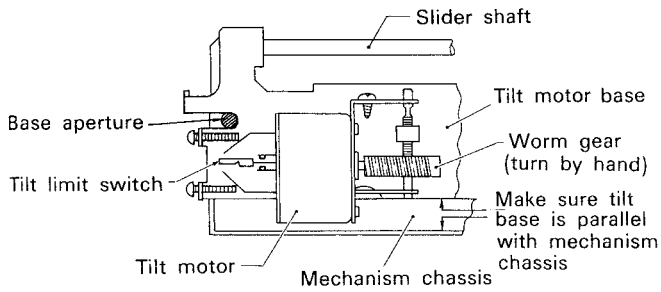


Fig.7-2 Parallel alignment of the lower surface of the tilt motor base and rib section of the mechanism chassis

6. Remount the mechanism assembly into the player and connect the PREB and BLMB assembly connectors, leaving however connector CN34 unconnected (see Fig.6-1).

Note: **CN34 is disconnected to avoid difficulties in carrying out the pick-up assembly inclination adjustment later on.**

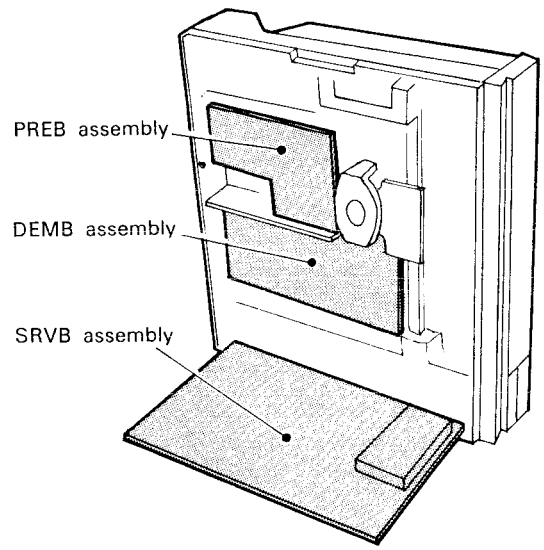


Fig.7-3 Player set up ready for mechanical adjustments.

Precautions when making adjustments

1. Test disc loading and unloading

- Always return the player to a horizontal position before loading and unloading discs.
  The LD-717 is designed to switch automatically to playback mode when the disc table is pressed in by about 4 cm. Therefore, always press the remote control EJECT key to put the player into stop mode before being stood in a vertical position.
- The front panel disc EJECT key must not be pressed while the player is standing in a vertical position. The remote control EJECT key must be used to stop the disc.

2. Procedure for opening the TRKG and SLDR servo loop controls

- Connect pin 20 of IC401 (PM4001) on the SRVB assembly to pin 22 (+5V) to open the TRKG servo. If the pick-up assembly starts to move when the TRKG servo is opened, disconnect CN33 on the PREB assembly and detach the slider motor from the circuit.

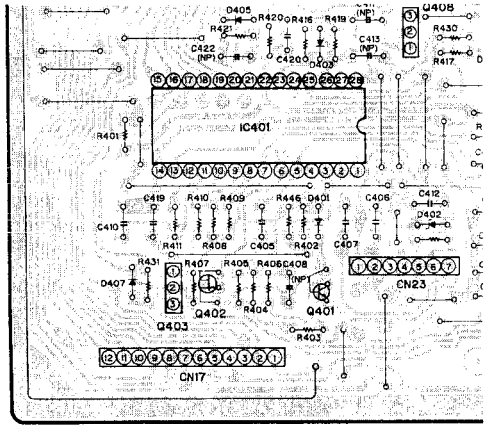


Fig.7-4 PM4001 and peripheral circuits on SRVB assembly

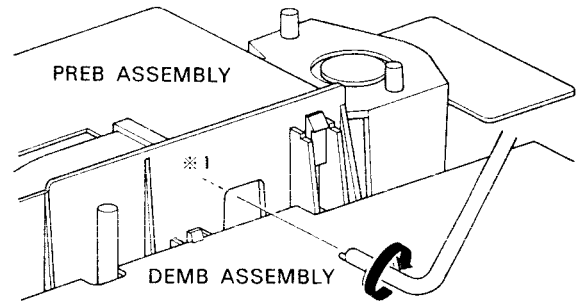
- If a search operation is attempted when the TRKG servo fails to close for some reason, the pick-up assembly moves to the target position but stays in the search mode so that no picture will appear on screen. In this case, press the CLEAR key to terminate the search operation. A picture will then appear. When playback is started while the tracking servo is opened, the disc will rotate at its normal speed (1800 rpm) but the clear key must be pressed before a picture will appear on screen.

7.3 FOCS offset adjustment (VR1)

1. Switch the power on without a disc on the table.
2. Adjust VR1 to obtain a voltage of 0V at R25 (FOCS error signal).

7.4 Grating Adjustment (Rough)

1. Undo the three screws securing the PREB assembly.
2. Load and play the test disc.
   If grating is seriously out of alignment, the front panel PLAY lamp will flash on and off, and playback will not start. In this case, adjust the grating (rough adjustment) by the following procedure.
3. Press the PLAY key.
4. When the spindle speed increases sufficiently, open the TRKG servo.
5. Press the remote control CLEAR key.
6. Press the remote control display selector key to display frame numbers on the TV screen.
7. Press the remote control fast forward key to move the pick-up assembly to around frame #15000.
8. Set eccentric screwdriver I in the grating adjustment hole as indicated in Fig.7-5.



(*1) Interior shown in Fig. 7-7.

Fig.7-5 Grating adjustment.

9. Connect an oscilloscope to J150 on the PREB assembly and measure the tracking error signal. Using eccentric screwdriver I adjust the grating to obtain minimum amplitude and a smooth waveform envelope (see Photo 7-1.)

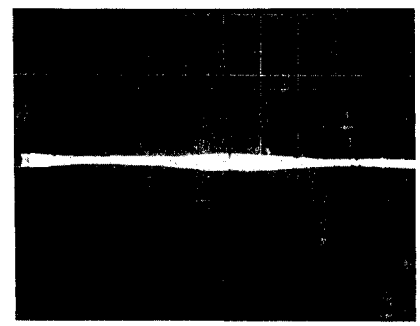


Photo 7-1 TRKG error waveform (loop OPEN, minimum amplitude)

Then slowly turn the screwdriver in the direction of the arrow from that position, and adjust the grating to obtain maximum error signal amplitude (see Photo 7-2).

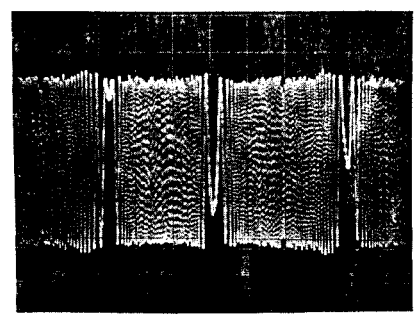


Photo 7-2 TRKG error waveform (loop OPEN, maximum amplitude)

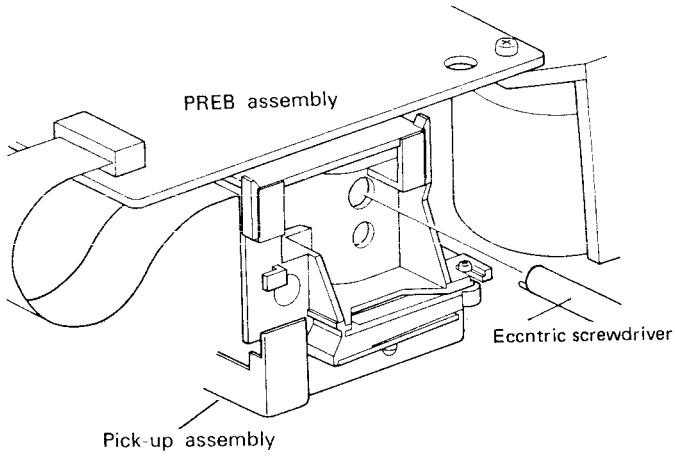


Fig.7-6 Grating adjusting hole positions.

Note: **Inserting eccentric screwdriver !**
Since the pick-up assembly grating adjustment aperture cannot be seen directly during adjustment operations, it is not always easy to find when inserting the screwdriver. And since it is also possible to short circuit the APC assembly with the screwdriver during this operation (thereby damaging the laser diode), it is recommended that the following procedure be used to guide the screwdriver into the grating adjustment ape* rture.

Procedure

1. Position eccentric screwdriver I as indicated in Fig.7-7 (a).
2. Move the screwdriver upwards parallel with the right hand side wall until it meets the upper plate (see Fig.7-7 (b)).
3. Then move the screwdriver about 5 mm to the left parallel with the upper plate. The screwdriver should then slip into the grating adjustment aperture (see Fig.7-7 (c)).

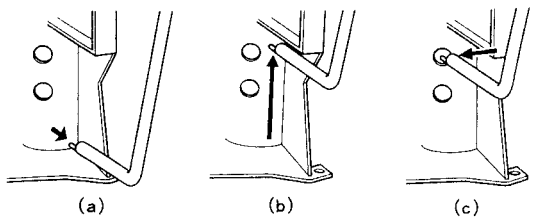


Fig.7-7 Eccentric screwdriver I insertion procedure.

7.5 TRKG error balance adjustment (VR4)

1. With the TRKG servo opened, move to frame #15000 and measure J150 TRKG (A-C) signal (TRKG error signal). Adjust VR4 until the center of the waveform amplitude is 0V DC. (See Photo 7-3.)
2. Remove the connection used to open the TRKG servo.

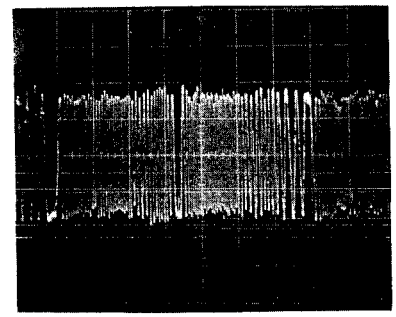


Photo 7-3 TRKG error waveform (when loop is open)

7.6 SLDR shaft horizontal position adjustment

1. Connect an oscilloscope (via LPF) to pin 18 (FOCS coil) of connector CN31 on the PREB assembly and observe the voltage flowing into the focus coil (See Fig.7-8).

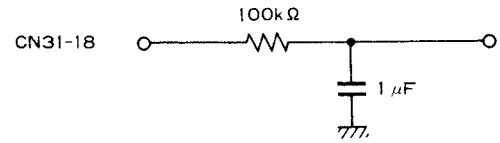


Fig.7-8 LPF

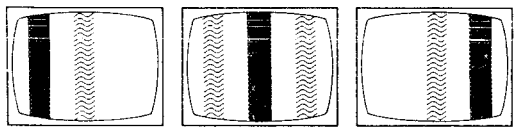
2. Search to frame #17000, and measure the DC voltage supplied to the focus coil.
3. Search to frame #100 and check that the DC voltage difference from that measured in step 2 above is not greater than 90mV.
4. If the specifications are not met, turn the tilt motor by hand until the same DC voltage is obtained at frames #100 and #17000.

7.7 Pick-up assembly inclination adjustment

1. Close the TRKG servo.
2. Search to frame #18914.
3. Raise the PREB assembly slightly and insert eccentric screwdriver I into the pick-up assembly inclination adjustment aperture. Slowly turn the screwdriver towards the rear panel to obtain minimum crosstalk.
4. Search to frames #104 and #18914 and make sure there's a minimum of crosstalk in both frames. If transient crosstalk appears on screen after adjusting the pick-up assembly inclination, make fine adjustments with the pick-up assembly tangential direction adjustment screw (See Fig.6-2) to minimize crosstalk.

7.8 FOCS error balance adjustment (VR2)

1. Search to frame #104.
2. Adjust VR2 until no more crosstalk stripe patterns can be seen on either side of the screen. (See Fig.7-9.)



#103 #104 #105

Fig.7-9 Crosstalk effects

7.9 Tilt sensor assembly inclination adjustment

1. Search to frame #104.
2. Adjust the tilt sensor assembly inclination adjustment screw to obtain a reading of 0±50 mV at the foot of R63 on the PREB assembly (on the side where "TILT ERR" is written).
   In doing so, be careful not to let external light enter the sensor (Refer to Fig.7-1).
   When doing this, be careful not to let external light enter the sensor.
3. Remove the mechanism assembly from the player again and firmly tighten the pick-up assembly securing screws.
4. Remount the assembly into the player and connect Connector CN34 which had been temporarily removed (7.2, item 6)
5. Check that there is a minimum of crosstalk at frames #104 and #18914. If there is crosstalk, perform the inclination adjustment from the beginning.

7.10 Grating adjustment (fine adjustment)

The PREB assembly CN34 connector is connected to the TIMB assembly.

1. Open the TRKG servo.
2. Put the oscilloscope into X-Y mode and adjust the X and Y zero points. (Align the oscilloscope beam spot with the center of the CRT scale.)
   Connect J150 (TRKG error) to the X input and J151 (TRKG. A+B signal) to the Y input.
3. Press the remote control fast forward key to move to about frame #15000.
   - Adjust grating to obtain a horizontal Lissajous figure.
   - Adjust VR4 so that the center of the horizontal amplitude is at the center of CRT screen.

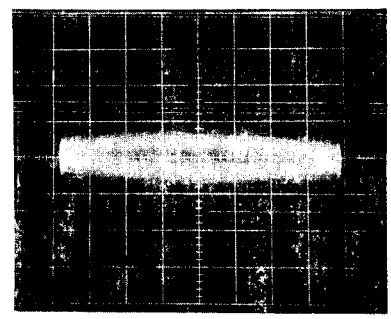
7.11 TRKG loop gain adjustment (VR5)

1. Connect an oscilloscope and oscillator to J150 and J149 as indicated in Fig.7-10(a). Put the oscilloscope into X-Y mode.
2. Search to about frame #15000.
3. Set the oscillator output to the value given in the following table.
4. Adjust VR5 to obtain a horizontal Lissajous figure. (See Photo 7-4.)

TEST DISC	F1	F2	F3	F4	F5
Frequency (kHz)	3.0	3.7	3.3	3.3	3.3
Output (Vp-p)	2.0	2.0	2.0	2.0	2.0

*When using FTG adjuster

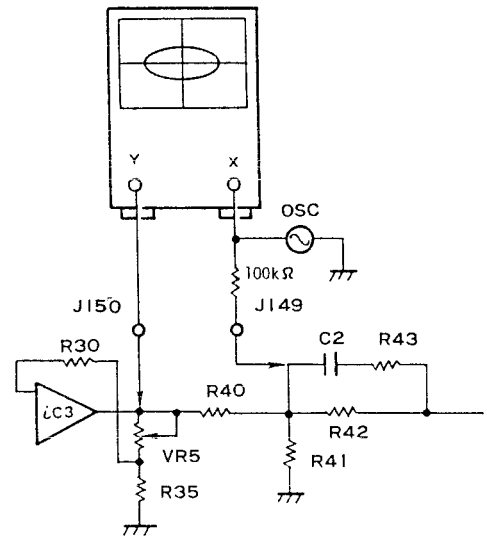
- Set the frequency of the FTG adjuster with Frequency-VR2 following Table.
- Set the gain of the FTG adjuster at 2.0 Vp-p with Gain-VR2. Oscillator's output is available from Yellow wire by turning the Switch to 2.
- Connect the Black wire of the FTG adjuster to GND.
- Use serach to locate frame #15,000.
- Adjust VR5 to turn J-LED on.



X: Extraneous input signal (500mV/div)
Y: TRKG error signal (PREB assembly J150)

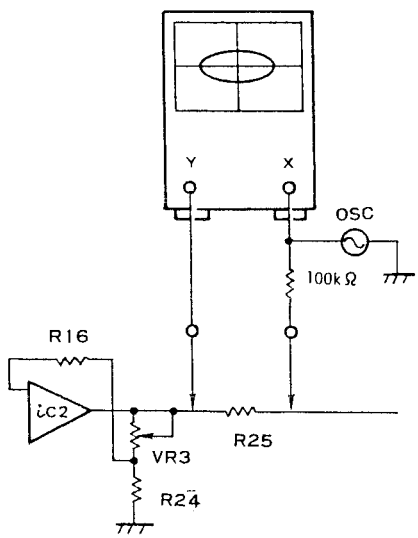
Photo 7-4 Lissajous figure (TRKG loop gain adjustment).

(a) TRKG loop



OSC 3.0kHz(2.0Vp-p)

(b) FOCS loop



OSC 2.1kHz(4Vp-p)

Fig.7-10 TRKG and FOCS servo loop gain adjustments

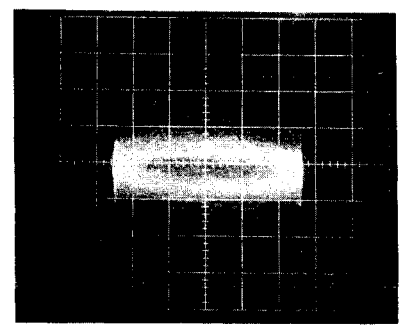
7.12 FOCS loop gain adjustment (VR3)

1. Connect an oscilloscope and oscillator as indicated in Fig.7-10(b).
2. Connect the DRVB assembly Q11 gate to ground.
3. Search to about frame #15000.
4. Set the oscillator output to the value given in the following table.
5. Adjust VR3 to obtain a horizontal Lissajous figure (See Photo 7-5).

TEST DISC	F1	F2	F3	F4	F5
Frequency (kHz)	2.1	1.7	1.7	2.0	1.7
Output (Vp-p)	4.0	4.0	4.0	4.0	4.0

*When using FTG adjuster

- Set the frequency of the FTG adjuster with Frequency-VR1 following Table.
- Set the gain of the FTG adjuster at 4.0 Vp-p with Gain-VR1. Oscillator's output is available from Brown wire by turning the Switch to 1.
- Connect the Brown wire and Orange wire of FTG adjuster as below.
- Use serach to locate frame #15,000.
- Adjust VR3 to turn J-LED on.

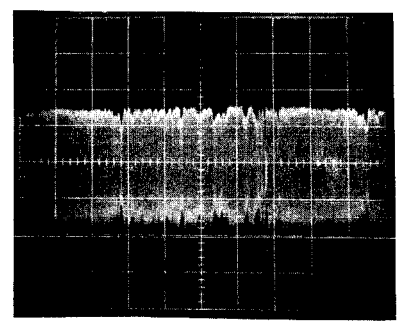


X: Oscillator output 500mV/div
Y: FOCS error signal (PREB)

Photo 7-5 Lissajous figure (FOCS loop gain adjustment)

7.13 RF level adjustment (VR6)

1. Search to about frame #15000.
2. Measure R80 (RF signal), and adjust VR6 to obtain an amplitude of 300mVp-p. (See Photo7-6.)



100mV/div
5 ms/div

Photo 7-6 Signal waveform

Test mode

- The LD-717 uses a special test mode to adjust the inside and outside position detectors. First switch the power off with the disc table pushed in. Then open the front panel door and switch the power on again to activate test mode. (The door may be closed again after the power has been switched on.) Once the player is in test mode, "P" or "L" appears in the top right hand corner of the monitor. "P" is displayed when the pickup is within the playback range, and L" is displayed when the inside or outside position is exceeded.

7.14 Inside position detector adjustment (VR8)

1. Turn VR8 fully clockwise.
2. After putting the player into test mode, play the disc.
3. Press the remote control display selector key to display frame numbers on the screen. Check that "P" appears in the top right hand corner of the screen.
4. Put the player into still mode at frame #500.
5. Slowly turn VR8 counter clockwise until the "P" display changes to "L".
6. Then with the player in playback mode, switch to still mode at the moment the "L" display changes to "P". Check that the frame number at that point lies between #500 and #1200.

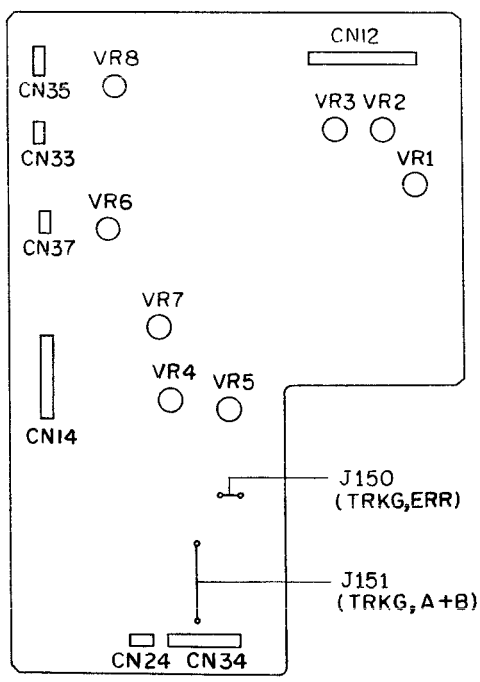


Fig.7-11 PREB assembly adjustment points

7.15 8- and 12-inch outside position detector adjustment (VR-7)

Note: Proceed only after the VR8 adjustment has been completed.

7.15.1 12-inch discs

1. With the player in test mode, search to frame #44500 and then switch to still mode.
2. Adjust VR7 at the point where the screen display changes from "P" to "L".

7.15.2 8-inch discs

1. Load an 8-inch disc.
2. Set test mode as described on page 52.
3. Play the disc between frames #16000 and #20000 with the display being changed from P to L.

Note: Repeat these two procedures until conditions for both 12- and 8-inch discs are met.

7.16 Other adjustments

DISC CLAMP Switch Position Adjustment

→ If the disc clamp switch is not pressed when a disc is clamped, the disc table is ejected immediately without the front panel DISC SET indicator lighting up. Adjust the position of the switch with the following procedure. The disc clamp switch is located on the left hand side (when viewed from the front of the player).

1. Remove the bonnet.
2. Raise the switch position by slightly turning the adjustment slit with a screwdriver. (See Fig.7-12.)
3. Load a disc and check that the disc is rotated normally.

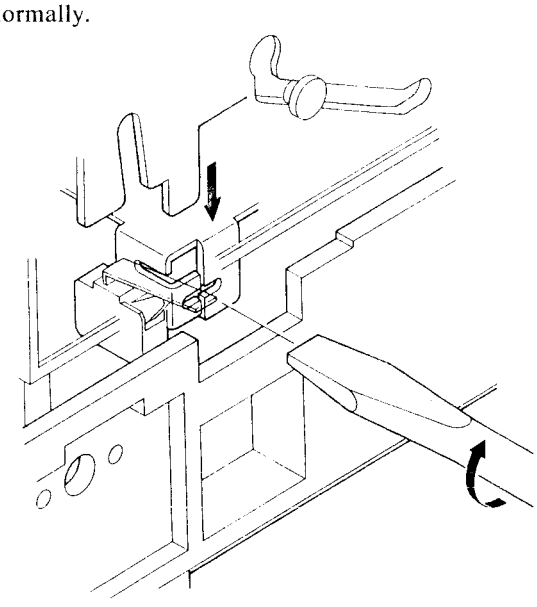


Fig.7-12 Disk clamp switch position adjustment

8. ELECTRICAL ADJUSTMENTS

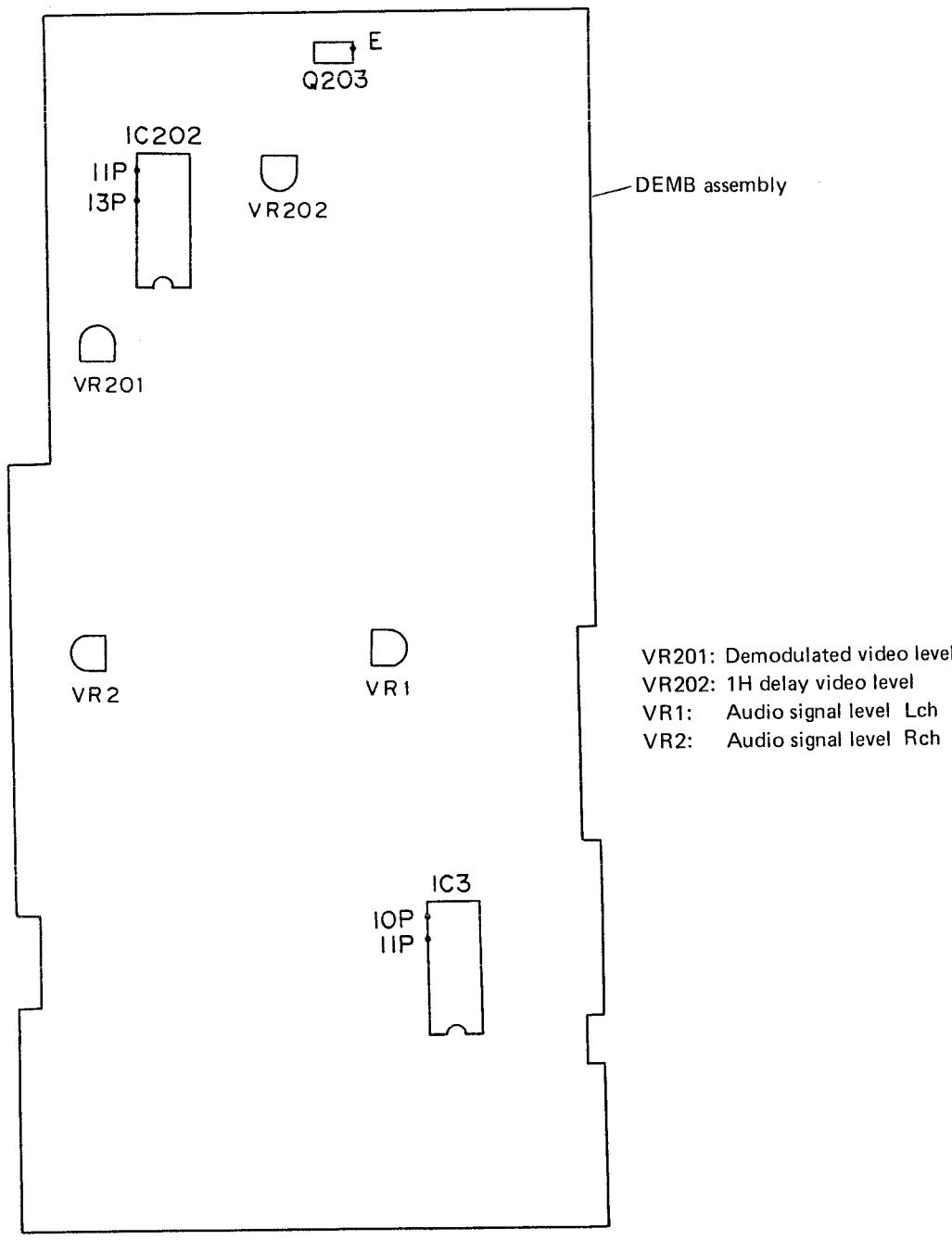


Fig. 8-1 DEMB assembly adjustment points

No.	Oscilloscope range V	Oscilloscope range H	Test point	Adjustment point	Check item/ adjustment specification	Adjustment procedure
						8.1 DEMB Assembly adjustment
			Q208 emitter	VR201	1.6 Vp-p	**1) Demodulated video level adjustment** • Search to frame #19801. • Adjust VR201 to obtain a value of 1.6 Vp-p for the Q208 emitter video signal (from sync chip up to white peak).
			IC202 pin 11	VR202	Same amplitude at pin 13	**2) 1H delay video level adjustment** • Adjust VR202 to make the video signal amplitude at pin 11 of IC202 equal to that at pin 13.
	200mV/ div	10μS/ div	IC3 pin 11 (HA12043)	VR1	Note: 70mV rms	**3) Audio signal level adjustment** • Search to frame #7201 (1/L channel 1kHz, 40% modulation) and switch to playback mode. • Adjust VR1 to obtain a level of 70mV rms (note) at pin 11 of IC3 (HA12043). • Adjust VR2 to obtain a level of 72mV rms (note) at pin 10 of IC3.
			IC3 (HA12043) pin 10	VR2	Note: 72mV rms	

Note:

Test disc	Pin 11	Pin 10
F1	70mV rms	72mV rms
F2 etc.	65mV rms	65mV rms

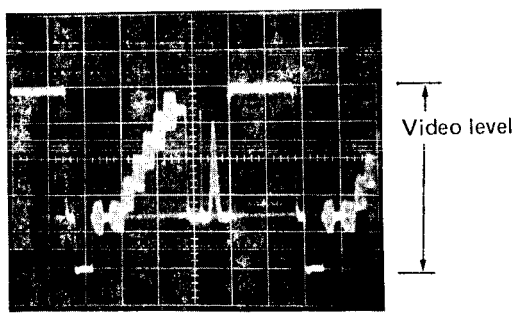
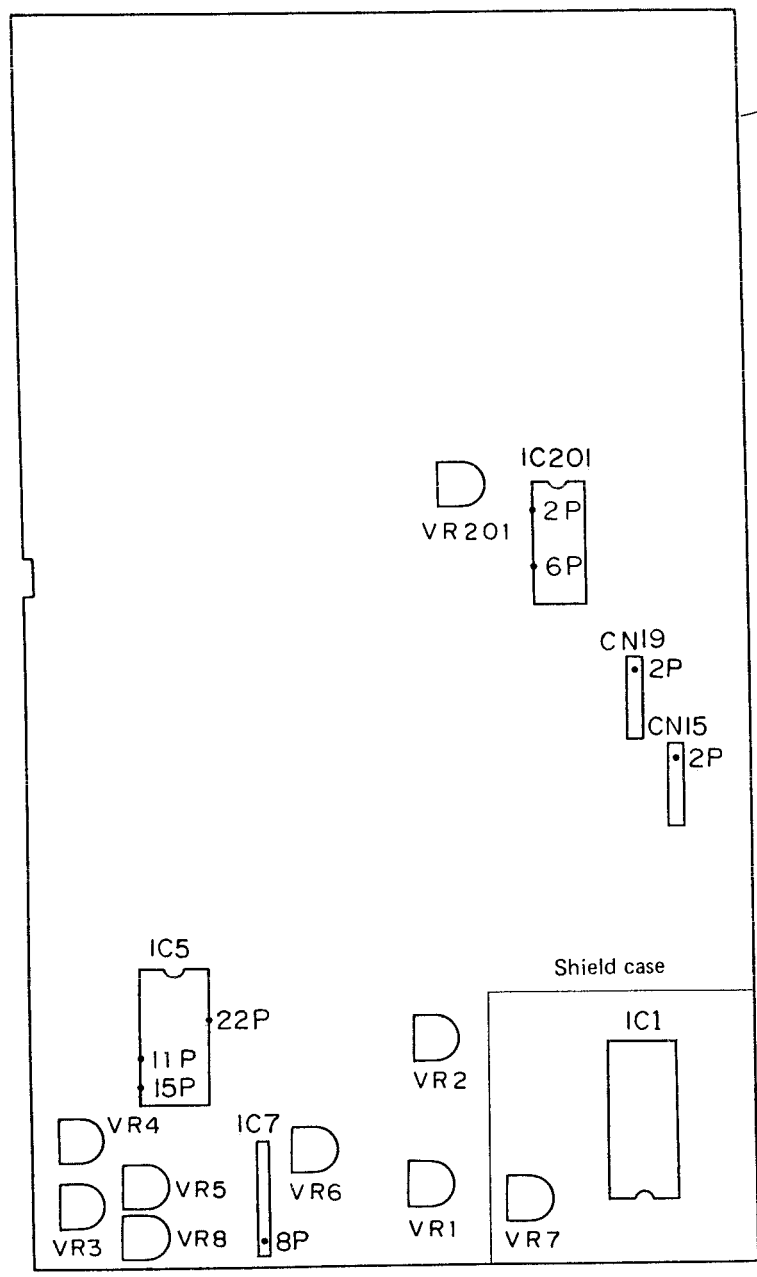
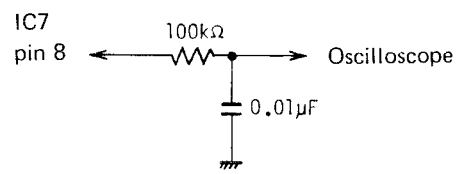


Photo 8-1 Composite test signal waveform



VR1: TBC video level
VR2: Waveform stability
VR3: Time axis error detection
VR4: Sync gate timing
VR5: Burst gate timing
VR6: Minimum color aberration
VR7: VCO center frequency
VR8: TBC offset
VR201: VCO circuit center frequency

Fig. 8-2 SRVB assembly adjustment points

No.	Oscilloscope range V	Oscilloscope range H	Test point	Adjustment point	Check item/ adjustment specification	Adjustment procedure
			IC7 pin 8	VR8	DC 0V	**8.2 SRVB Assembly adjustment** Note: The SRVB assembly adjustments can be completed without removing the shield case. **1) TBC offset adjustment** ● Switch the power on but do not commence disc play. Adjust VR8 to obtain a value of 0V DC at pin 8 of IC7 (NJM4558S). Note: If the DC voltage cannot be checked because of noise, connect a LPF as indicated in Fig. 8-3.  Fig. 8-3 Noise eliminator LPF

No.	Oscilloscope range		Test point	Adjust-ment point	Check item/ adjustment specification	Adjustment procedure
	V	H				
			CN19-2	VR1	2.0Vp-p	**2) TBC video level adjustment** Note: The demodulated video level must be adjusted on the DEMB assembly before proceeding with this adjustment. ● Put the player into still mode during the composite test signal interval starting from frame #19801. Search to frame #19801. ● Adjust VR1 to obtain a value of 1.6Vp-p for the CN19-2 video signal amplitude (from sync chip up to white peak). ● Check that the video signal level is 1Vp-p at the rear panel video output terminal. (Terminate with 75 ohms when connecting a TV monitor.) Make adjustments with the DEMB assembly VR201.
			Video output terminal	DEMB assembly VR201	1Vp-p	

No.	Oscilloscope range V	Oscilloscope range H	Test point	Adjustment point	Check item/ adjustment specification	Adjustment procedure
	1V/div	10μs/div	CN19-2 CN15-2	VR7	70.7 μsec delay Top: CN19-2 1V/div. Bottom: CN15-2 1V/div. 10 μsec/ div.	**3) VCO center frequency adjustment** • Connect pin 9 of IC2 (PA0017) to ground. Time axis error is fixed to 0. This connection can be made on the outer side of R76. • Adjust VR7 to delay the CN19-2 video signal by 70.7 μsec (1H + 7.1 μsec) in respect to the CN15-2 video signal. The input video signal from CN15-2 is delayed by the CCD circuit before appearing at the CN19-2 output. The 70.7 μsec interval represents the delay when the time axis error is zero.

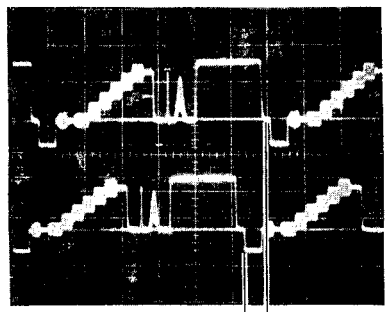


Photo 8-2 VCO center frequency adjustment

200mV/ div	0.1 S/ div	IC5 (PA5009) pin 11	Amplitude center of 0V SRVB IC5 pin 11	**4) Time axis error detector adjustment** Note) The VCO circuit center frequency adjustment (VR7) has been completed. • Measure the waveform at pin 11 of IC5 (PA5009) (time axis error signal detected in sync signal), and adjust VR3 to obtain 0V DC at the amplitude center. • Disconnect the connection between pins 2 and 9 of IC2.

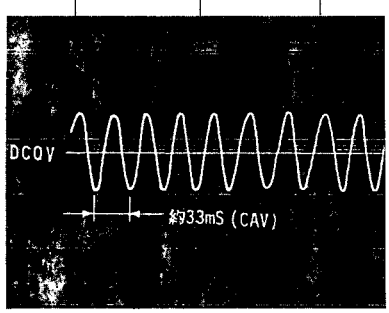


Photo 8-3 Time axis error detector adjustment

No.	Oscilloscope range V	Oscilloscope range H	Test point	Adjustment point	Check item/ adjustment specification	Adjustment procedure
		IC201 pins (2) and (6)		VR201	Pin 6 voltage 100mV	**5) VCO circuit center frequency adjustment** ● With the PLL locked (SPDL locked when in playback mode), adjust VR201 to obtain a voltage +100mV higher at pin 6 than at pin 2 of IC201 (PA0018).
	1V/div	2μs/div	CN19-2 IC5, pin 15	VR4	Timing of two waveforms	**6) Sync gate timing adjustment** ● Adjust VR4 so that the timing for the CN19-2 video signal and the waveform at pin 15 of IC5 (PA5009) is as shown in Photo 8-4.
					Top: CN19-2 1V/div Bottom: IC5 pin 15 1V/div 2μsec/div	
			CN19-2 IC5 pin 22	VR5	Timing of waveforms	**7) Burst gate timing adjustment** ● Adjust VR5 so that the timing for the CN19-2 video signal and the waveform at pin 22 of IC5 (PA5009) is as shown in Photo 8-5.
					Top: CN19-2 500mV/div Bottom: IC5 pin 22 1V/div 0.5 μsec/div	
			CN19-2 video signal	VR2	Waveform stability	**8) Hue compensation circuit adjustment** ● Put the player into still mode during the magenta signal interval starting from frame #26101. Search to frame #26101. ● Turn VR6 fully around clockwise. ● Measure the CN19-2 video signal, and adjust VR2 to obtain a steady waveform free of any disturbances. Note: Two positions can be used to stabilize the waveform. If optimum waveform stability cannot be obtained with the following adjustment, readjust at the other stable position.
			Monitor screen	VR6	Minimum color aberration	● Adjust VR6 to minimize color aberration in the magenta image on the screen.

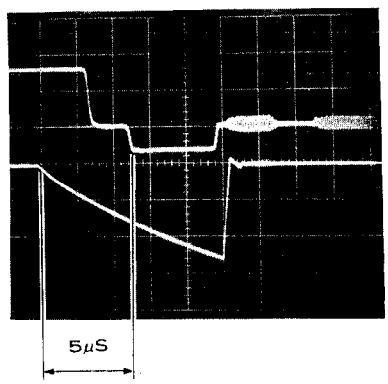


Photo 8-4 Sync gate timing adjustment

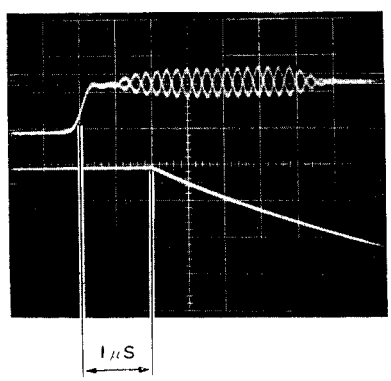
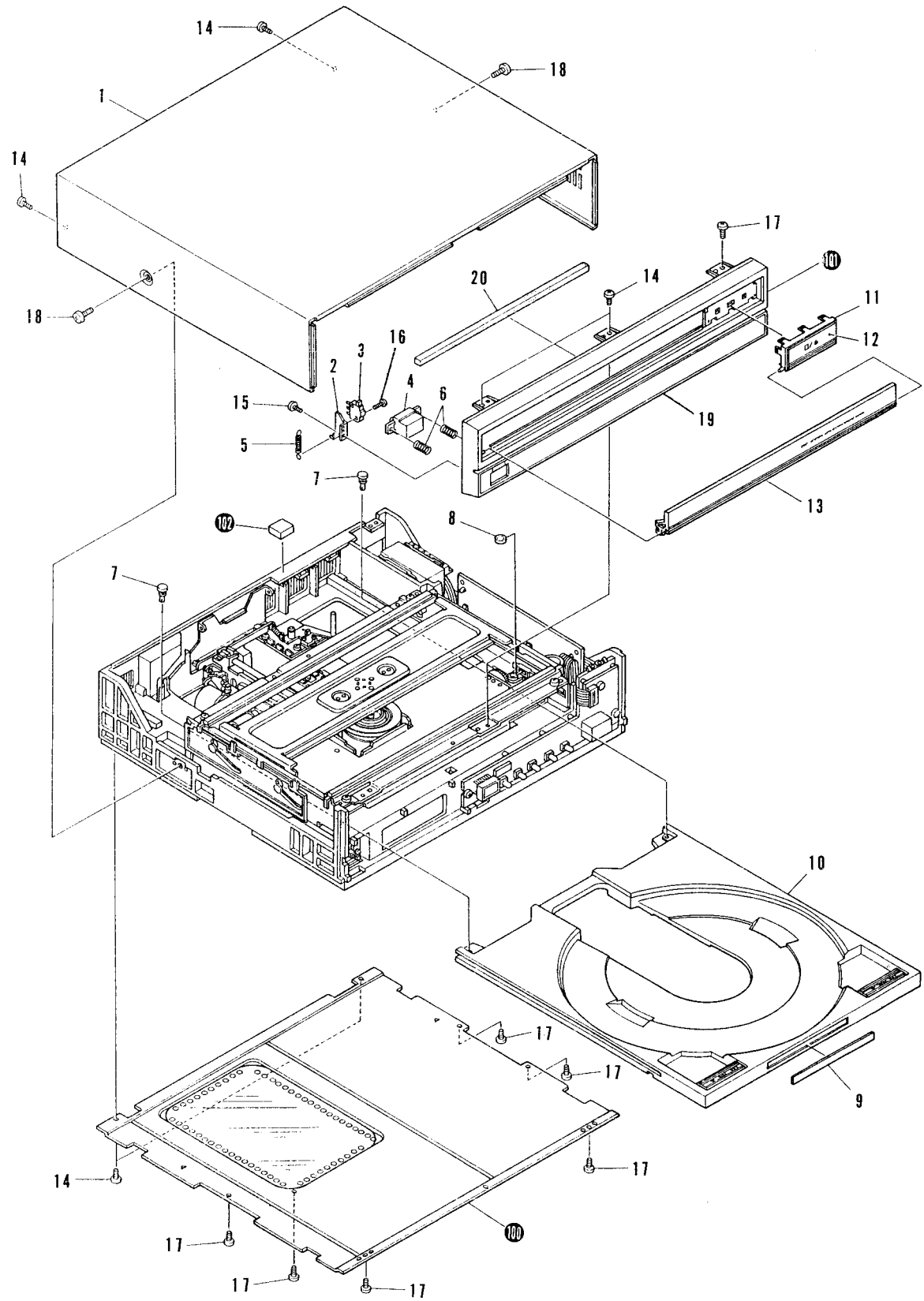


Photo 8-5 Burst gate timing adjustment

9. EXPLODED VIEWS

9.1 EXTERNAL TOP VIEW



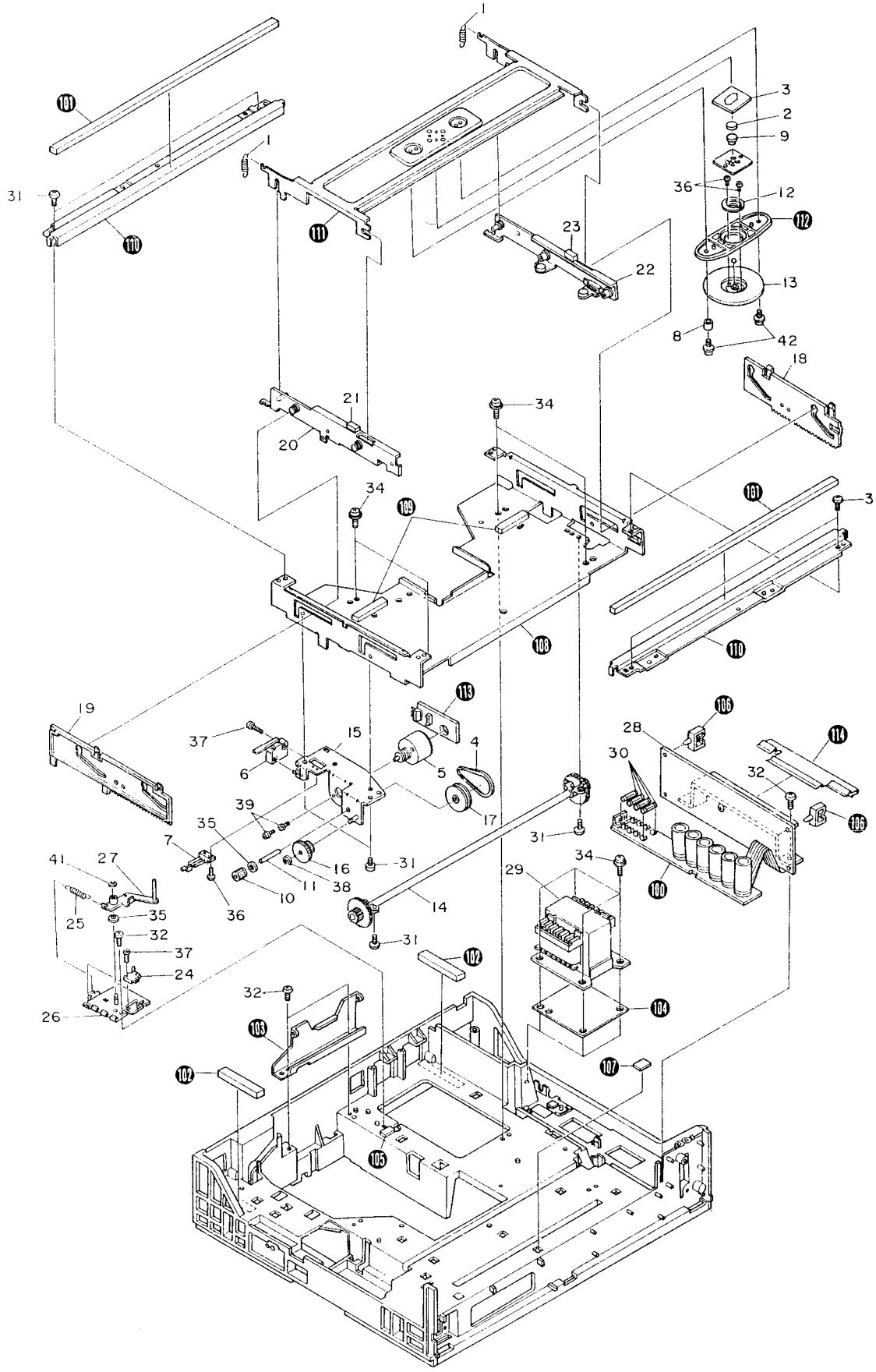
NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★ GENERALLY MOVES FASTER THAN ★
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts marked by " ⊙ " are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

Parts List

Mark	No.	Part No.	Description
	1.	VXA-480	Bonnet assembly
	2.	VNE-825	Door switch base
	3.	VSK-012	Door switch (S6)
	4.	VAC-315	Button (POWER)
	5.	VBH-145	Door spring
	6.	VBH-150	Button spring (POWER)
	7.	VEC-219	Plastic rivet
	8.	VNL-493	Lock roller
	9.	VRW-499	Caddy label
	10.	VXA-397	Caddy assembly
	11.	VNK-705	Controll panel
	12.	VAC-318	Eject cap
	13.	VXX-577	Front door assembly
	14.	BBZ30P050FZK	Screw
	15.	BPZ30P060FUC	Screw
	16.	BMZ20P080FMC	Screw
	17.	BPZ30P080FZK	Screw
	18.	BMZ40P100FZK	Screw
	19.	VXX1011	Front panel assembly
	20.	VEC-226	Cushion
	100.		Bottom board assembly
	101.		Front panel
	102.		Rubber cushion

9.2 TOP VIEW


1
3
2
9
36
12
112
23
22
13
8
42
18
21
20
34
34
109
101
31
108
110
113
19
37
15
4
5
6
17
106
28
30
114
32
116
39
35
7
16
31
11
38
10
36
14
31
41
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35
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37
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100
102
32
104
103
107
102
105

NOTES:

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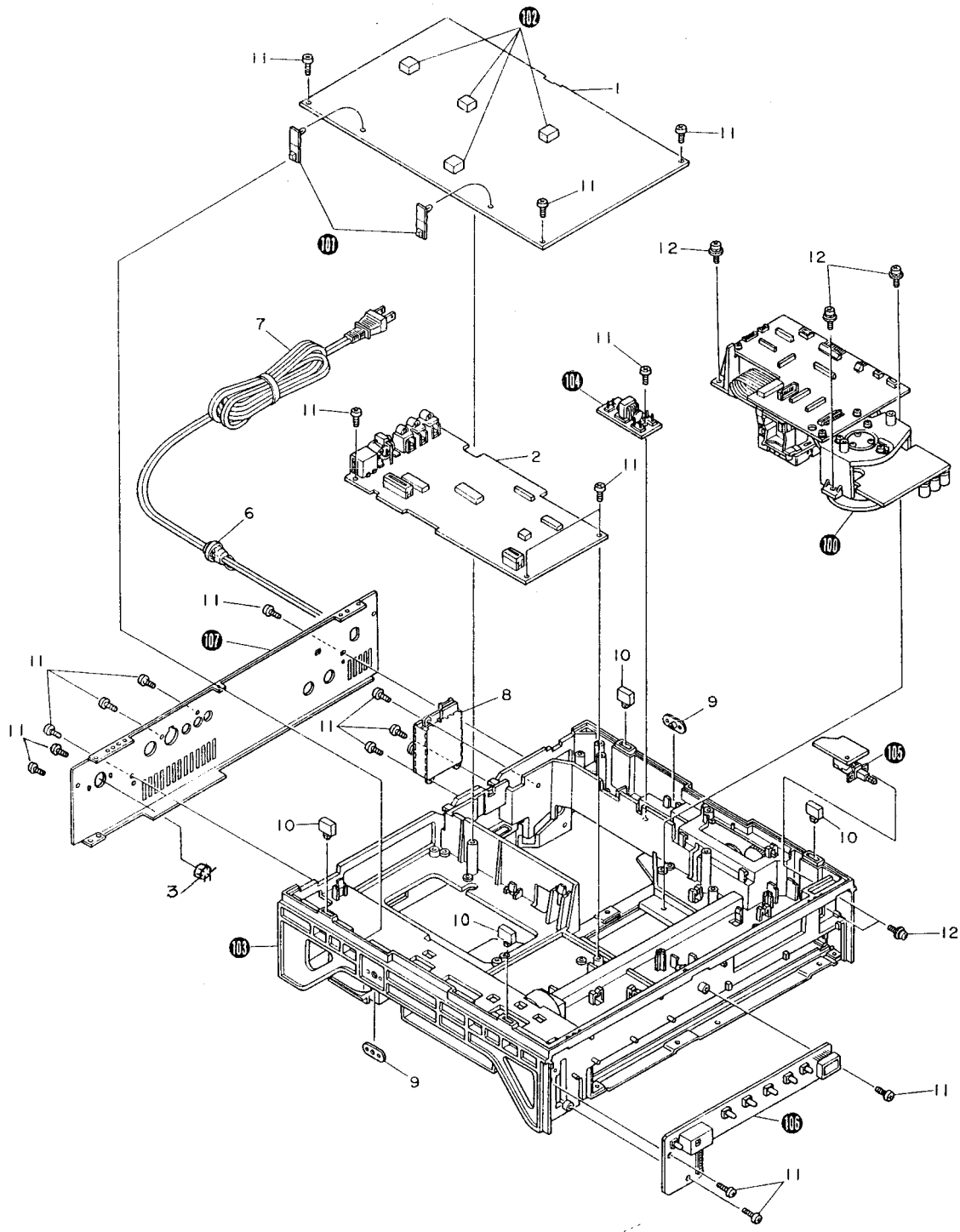
  ★★ GENERALLY MOVES FASTER THAN ★
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts marked by " ⊙ " are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

Parts List

Mark	No.	Part No.	Description
	1.	VBH-186	Clamper spring
	2.	VEB-129	Rubber mat
	3.	VEC-262	Holder securing tape
	4.	VEB-112	Belt
★★	5.	VXM-054	Loading motor
★★	6.	VSK-010	Disc clamp switch (S3)
★★	7.	PSN-003	Table position switch (S2)
	8.	VLL-345	Spacer
	9.	VLL-282	Holder
	10.	VNL-149	Gear (A)
	11.	VLL-303	Gear (A) shaft
	12.	VNL-500	Clamper head
	13.	VNL-626	Disc clamper
	14.	VXA-327	Synchro gear assembly
	15.	VXA-427	M holder assembly
	16.	VNL-496	Gear (B)
	17.	VNL-494	Pulley
	18.	VNL-490	Rack gear (R)
	19.	VNL-489	Rack gear (L)
	20.	VXA-487	Roller board (L) assembly
	21.	VEC-279	Cushion
	22.	VXA-488	Roller board (R) assembly
	23.	VEC-279	Cushion
★★	24.	VSK-011	Draw-in switch (S4) (Loading switch)
	25.	VBH-148	SW lever spring
	26.	VXA-342	SW base assembly
	27.	VXA-343	SW lever assembly
	28.	VYR-023	DRVB assembly
⚠ ★	29.	VTT1001	Power transformer
⚠ ★★	30.	VEK-018	Fuse (3A) (FUI–FU4)
	31.	BBZ30P060FMC	Screw
	32.	BPZ30P080FZK	Screw
	33		. . . . .
	34.	APZ30P080FMC	Screw
	35.	WA32D060D25	Washer
	36.	PMZ20P050FMC	Screw
	37.	BMZ20P800FMC	Screw
	38.	YE30FUC	Washer
	39.	PMA26P040FMC	Screw
	40.		. . . . .
	41.	WT26D060D025	Washer
	42.	PMB30P050FUC	Screw
	100.		RECB assembly
	101.		Rubber cushion
	102.		Caddy cushion
	103.		Chassis holder
	104.		Sheet
	105.		Caddy cushion (B)
	106.		Wire clip
	107.		Harness blind
	108.		Sub chassis
	109.		Cushion (B)
	110.		Bridge
	111.		Clamper holder
	112.		Clamper base
	113.		LMCB assembly
	114.		Heat sink

9.3 BOTTOM VIEW



NOTES:

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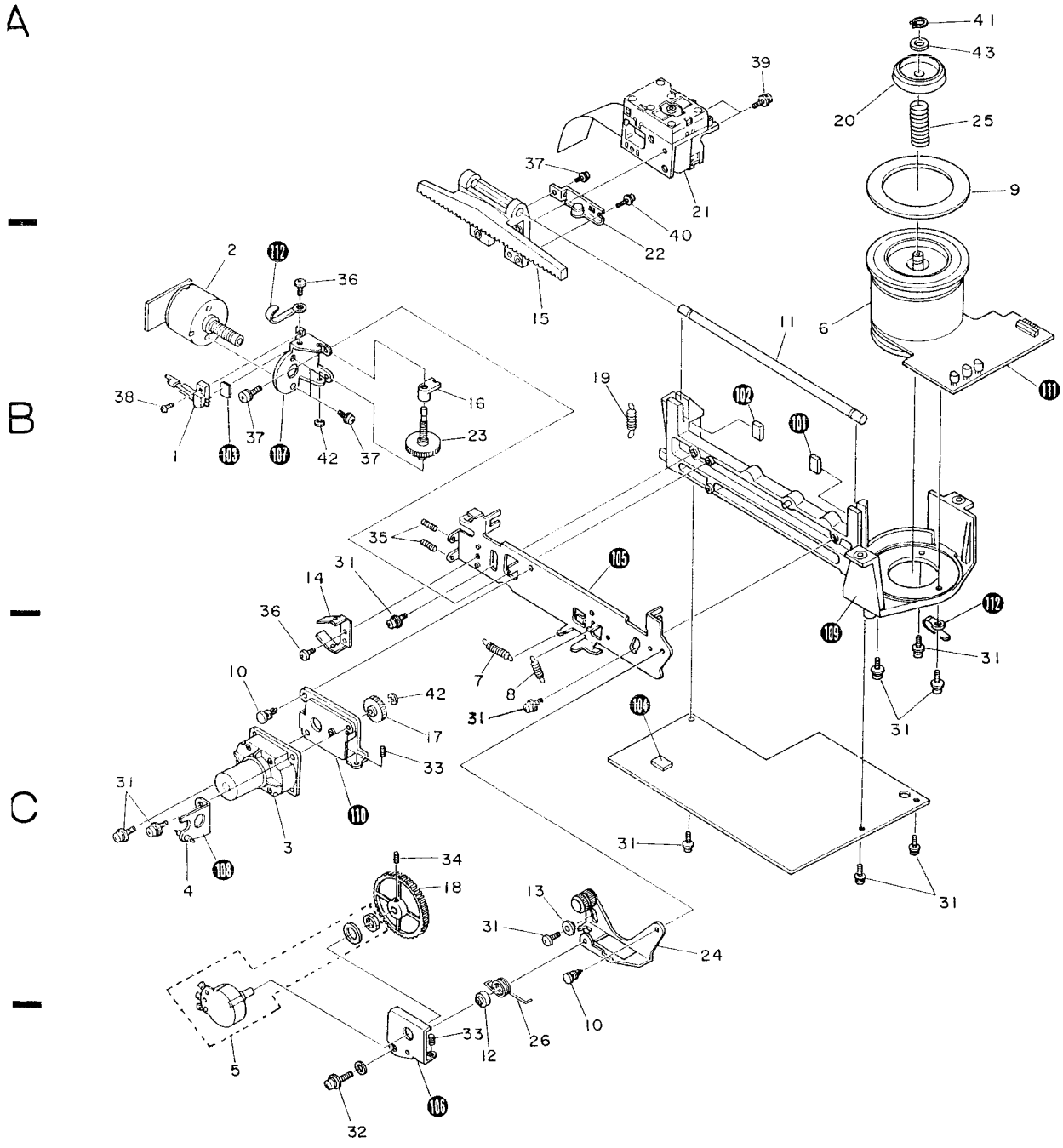
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *For your Parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.*
  ★★ GENERALLY MOVES FASTER THAN ★
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts marked by " ⊙ " are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

Parts List

Mark	No.	Part No.	Description
	1.	VWS-069	SRVB assembly
	2.	VWV-097	DEMB assembly
★★	3.	VSB-003	Line voltage selector (AC110V/120V/220V/240V)
	4.		.....
	5.		.....
	6.	CM-22	Strain relief
⚠	7.	VDG-034	AC Power cord
	8.	VWL-024	RFMD assembly
	9.	VBN-005	Welding nut
	10.	VEB-108	Cap
	11.	BPZ30P080FZK	Screw
	12.	PMB30P080FMC	Screw

Mark	No.	Part No.	Description
	100.		Mechanism assembly
	101.		PCB hinge
	102.		Spacer cushion
	103.		Base
	104.		LSFB assembly
	105.		PWSB assembly
	106.		DSKY assembly
	107.		Rear panel

9.4 MECHANISM



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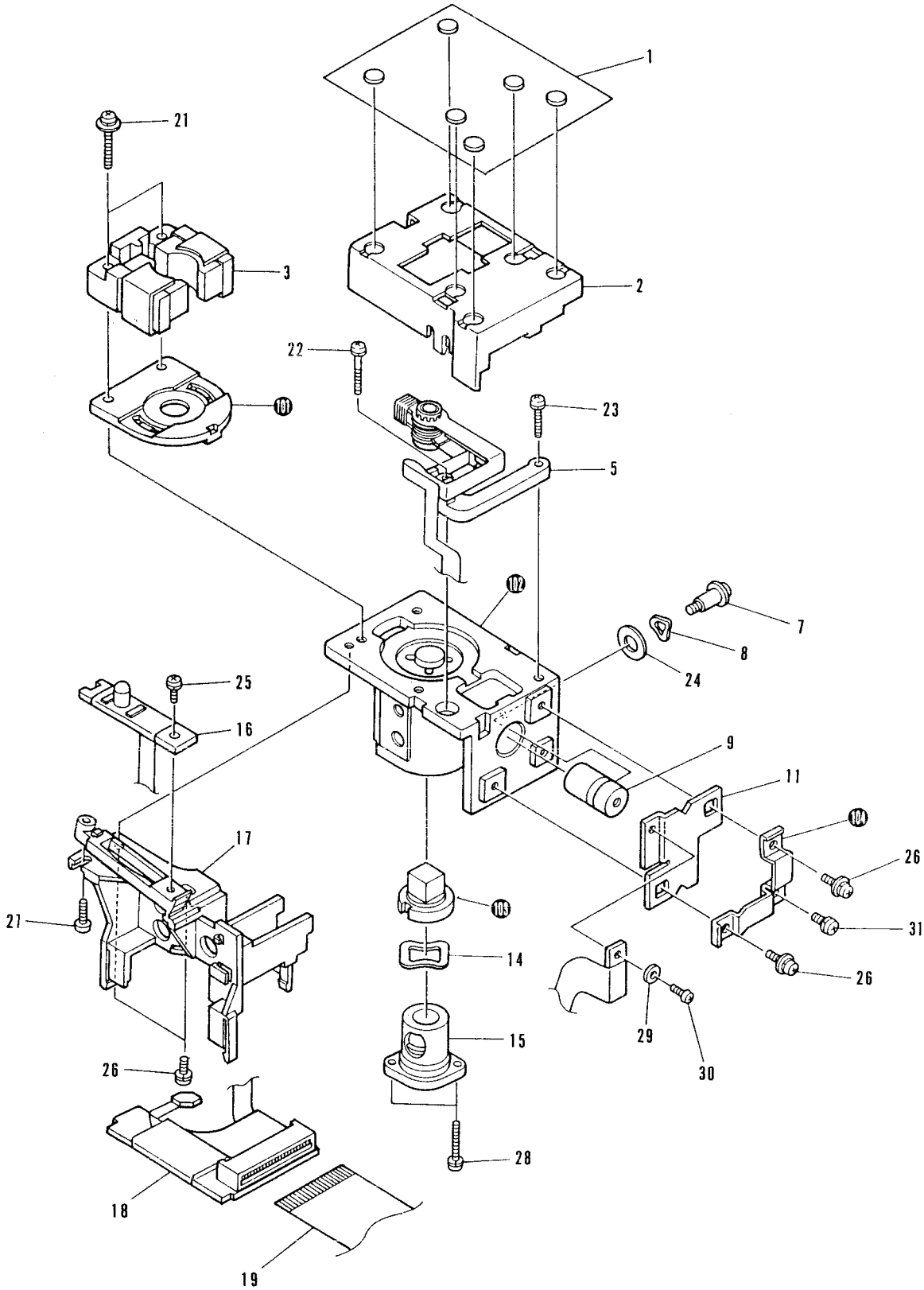
Parts List

Mark	No.	Part No.	Description
★★	1.	PSN-003	Tilt limit switch (S5)
★★	2.	VXM-060	Tilt motor
★★	3.	VXM-066	Slider motor
	4.	VCG-005	Thru type capacitor (1000PF/50V)
★	5.	VCS-017	Potentio meter
★★	6.	VXM-051	Spindle motor
	7.	VBH-138	Spring
	8.	VBH-175	Potentio meter spring
	9.	VEB-111	Rubber spacer
	10.	VEC-143	Plastic rivet
	11.	VLL-308	Shaft
	12.	VLL-310	PM holder
	13.	VLL-311	Holder
	14.	VNL-701	Switch adjustment plate
	15.	VNL-627	Slider
	16.	VNV-036	Tilt nut
	17.	VNL-623	Slider pinion
	18.	VNL-508	Potentio pinion
	19.	VBH-142	Tilt spring
	20.	VNV-037	Centering hub
	21.	VWY-100	Pick up assembly
	22.	VXA-394	Roller arm assembly
	23.	VXA-387	Tilt shaft assembly
	24.	VXA-439	PM holder assembly
	25.	VBH-140	Centering spring
	26.	VBH-141	Torsion spring
	27.		.....
	28.		.....
	29.		.....
	30.		.....

Mark	No.	Part No.	Description
	31.	PMB30P080FMC	Screw
	32.	PMB30P100FMC	Screw
	33.	ZMD30H080FBT	Screw
	34.	ZMD30H060FBT	Screw
	35.	ZMD30H120FBT	Screw
	36.	BBZ30P060FMC	Screw
	37.	PMA26P040FMC	Screw
	38.	PMZ20P050FMC	Screw
	39.	PMB26P060FMC	Screw
	40.	AMZ26P070FMC	Screw
	41.	YC60FBT	Washer
	42.	YE20FUC	Washer
	43.	WT34D060D050	Washer
	101.		Cushion (A)
	102.		Cushion (B)
	103.		Insulator
	104.		Insulator
	105.		Tilt base
	106.		PM support
	107.		Tilt holder
	108.		Filter holder
	109.		Chassis assembly
	110.		Motor holder assembly
	111.		BLMB assembly
	112.		Binder

9.5 PICK UP



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- *Parts marked by " ⊙ " are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

Parts List

Mark	No.	Part No.	Description
	1.	VED-034	Protection pad
	2.	VNH-057	Actuator cover
	3.	VGX-071	Magnetic circuit assembly
	4.		.....
	5.	VGX-069	Objective lens assembly
	6.		.....
	7.	VLL-292	Screw 5
	8.	PBE-020	Washer (A)
	9.	VGX-064	Multi-lens assembly
	10.		.....
	11.	VGX-065	PD-HEAD Assembly
	12.		.....
	13.		.....
	14.	PBE-022	Washer (B)
	15.	VGX-066	LD Assembly
	16.	VEX-022	Sensor Assembly
	17.	VNH-056	Sensor stay
	18.	VWV-079	Head
	19.	VDA-108	FUJI card
	20.		.....
	21.	PMB20P120FMC	Screw
	22.	PMA20P140FMC	Screw
	23.	PMA20P080FMC	Screw
	24.	WA40F100M050	Washer
	25.	PPZ20P050FMC	Screw
	26.	PMB20P050FMC	Screw
	27.	PBZ20P080FMC	Screw
	28.	PMA26P080FMC	Screw
	29.	WA20W050R050	Washer
	30.	PMA20P040FMC	Screw
	31.	PMA26P060FMC	Screw
	101.		Wavelength plate holder
	102.		Optical body
	103.		Prism assembly
	104.		PD spring N

HEAD Board Mounting Procedure

Since the HEAD board is supported without bending the flexible section, mount the board as described in the following procedure.

1 Bend the board as indicated by the arrow in Fig. 1, and affix using dual-sided adhesive tape or adhesive.
2 Mount the HEAD into the pick-up with the flexible section bent back as shown in Fig. 1.
3 Solder the disc inclination detector board and the flexible board (connected to TRKG and FOCS coils) to the HEAD board as shown in Fig. 2.

Note: Since the copper foil on the flexible board is very susceptible to heat, soldering should be completed in the shortest time possible. And apply the soldering iron to the HEAD board instead of the flexible board.

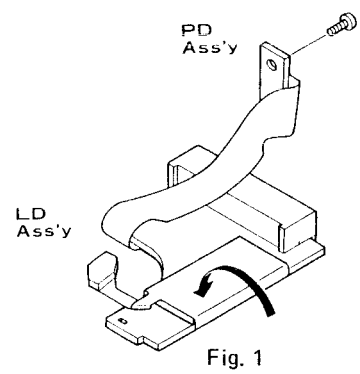


Fig. 1

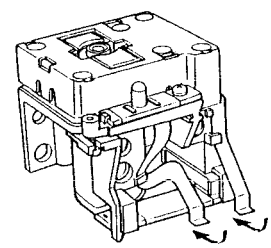
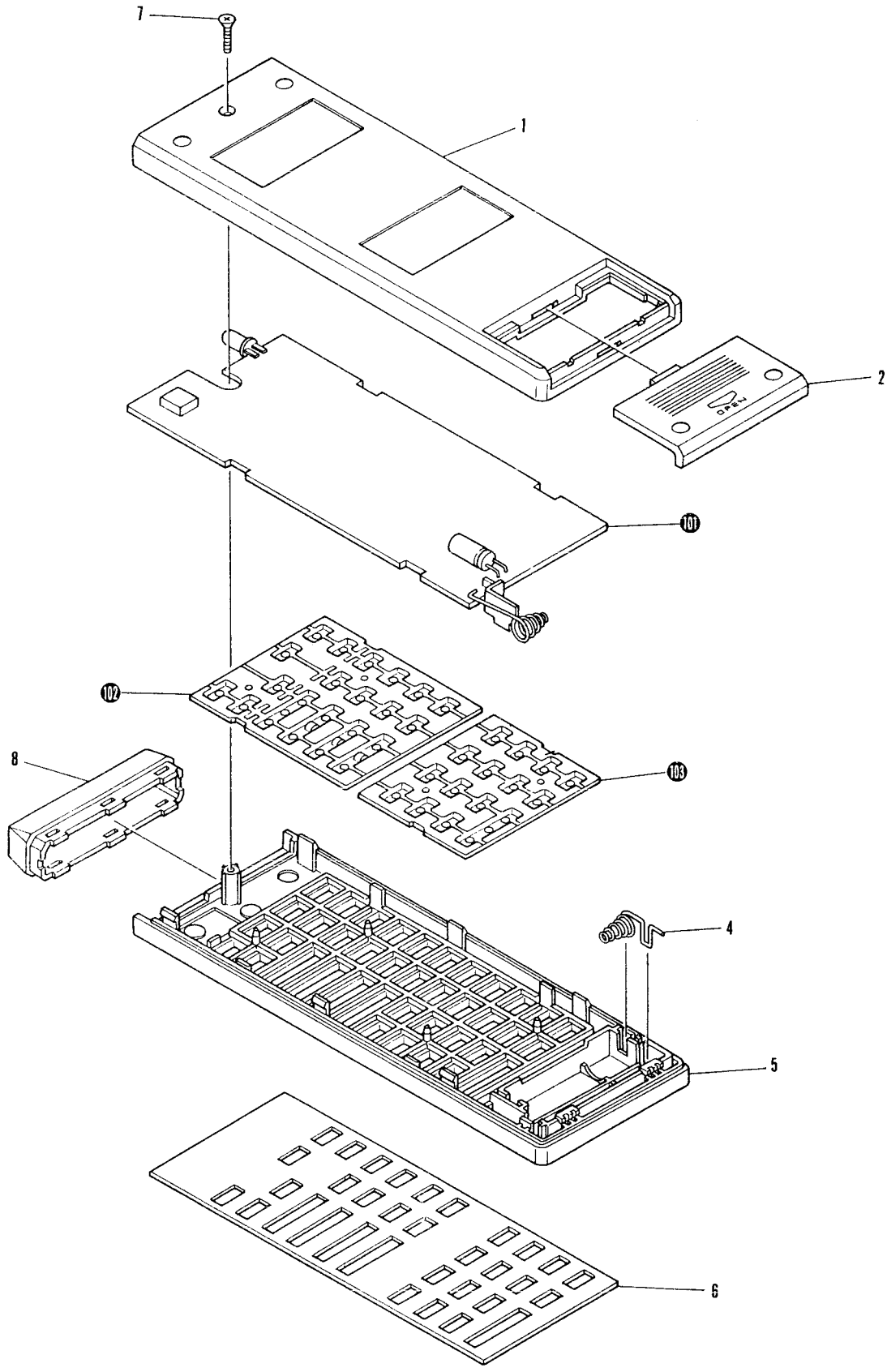


Fig. 2

9.6 REMOTE CONTROL



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Parts List

Mark	No.	Part No.	Description
	1.	PNY-435	Case (B)
	2.	VNK-548	Cover
	3.		.....
	4.	AZK-007	Battery spring
	5.	UNK-549	Case (A)
	6.	VAH1007	Aluminum plate
	7.	CRZ20P080FZK	Screw
	8.	PNY-436	Filter

Mark	No.	Part No.	Description
	101.		RMTC assembly
	102.		Rubber contact (B)
	103.		Rubber contact (A)

10. PACKING

NOTES:
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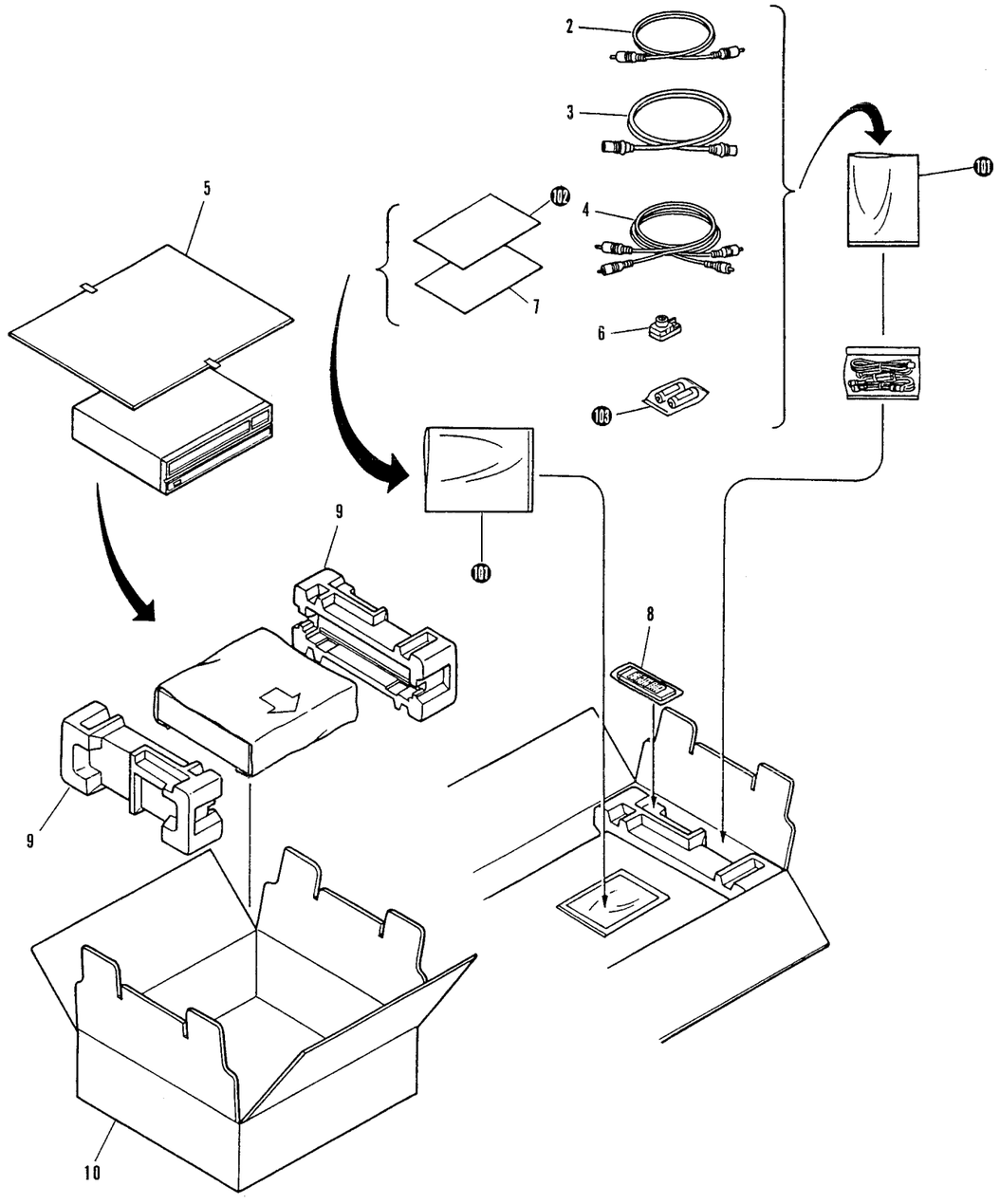
  This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- *Parts marked by " ⊙ " are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.*

Parts List

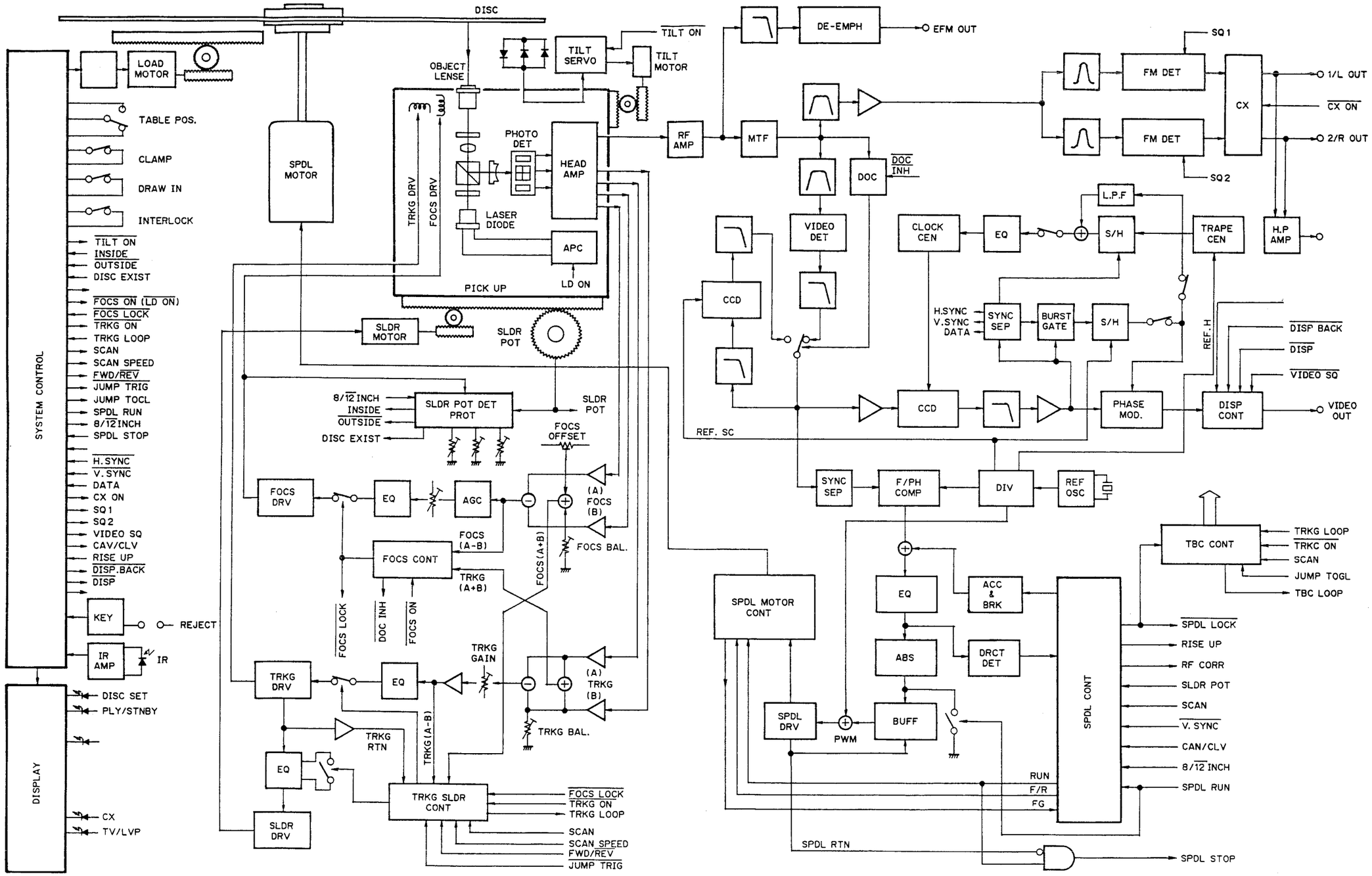
Mark	No.	Part No.	Description
	1.	VKX-020	Antenna adaptor
	2.	VDE-056	Video cable
	3.	VDE-057 (VDE-054)	RF antenna cable
	4.	VDE-055	Connection cord
	5.	Z23-014	Mirror mat sheet

Mark	No.	Part No.	Description
	6.	VKX-017	F-IEC connection plug
	7.	VRB-081	Instruction manual (English)
	8.	VXX1010	Remote control unit-LD002) (CU-LD002)
	9.	VHA1001	Pad
	10.	VHG-206	Packing case
	101.		Vinyl bag
	102.		Caution card
	103.		Battery (SUM-4)

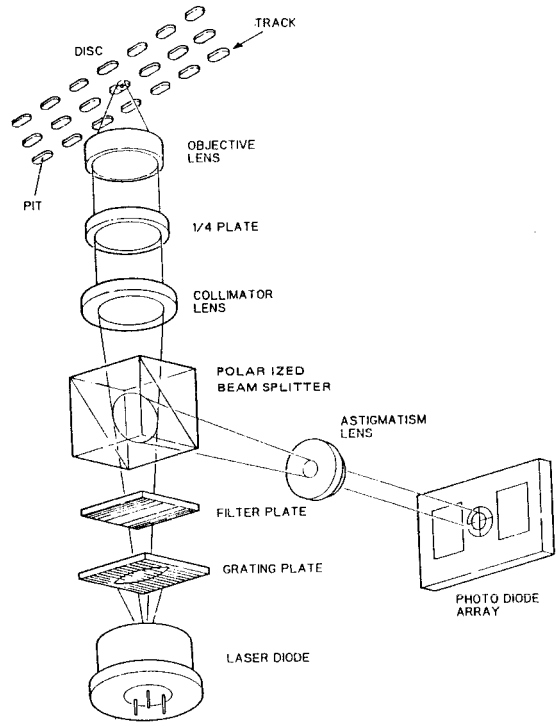


11. BLOCK DIAGRAM

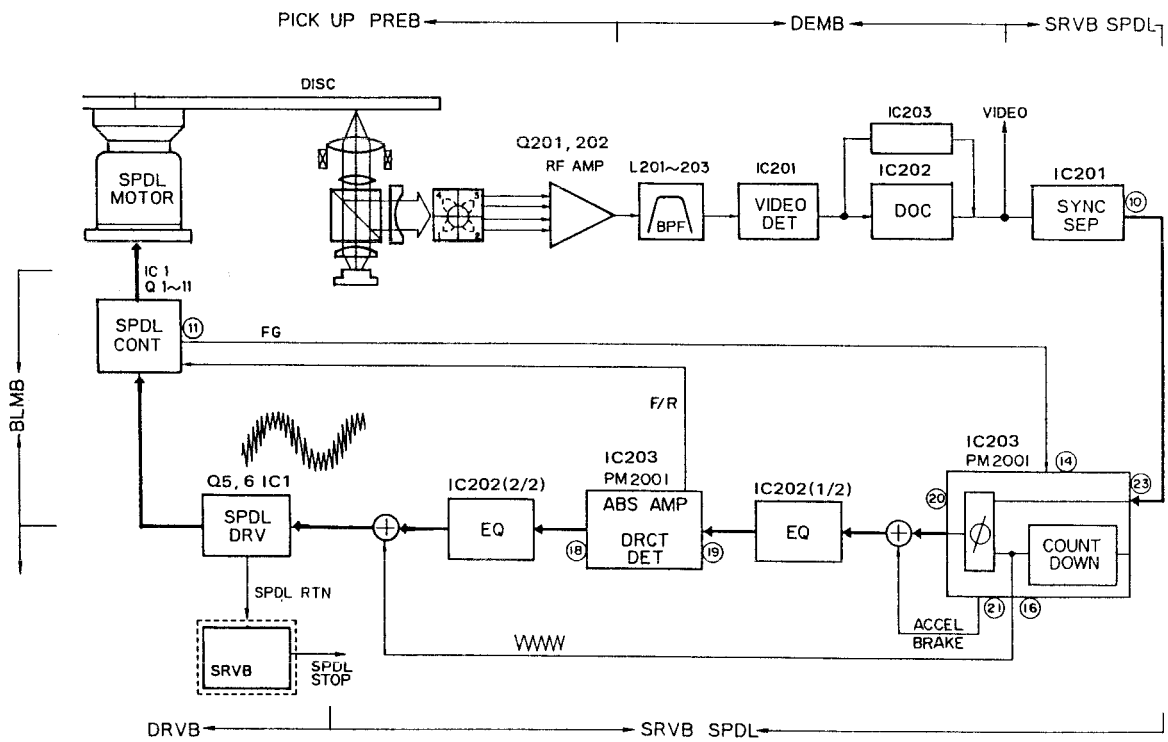
11.1 OVERALL CIRCUIT BLOCK DIAGRAM



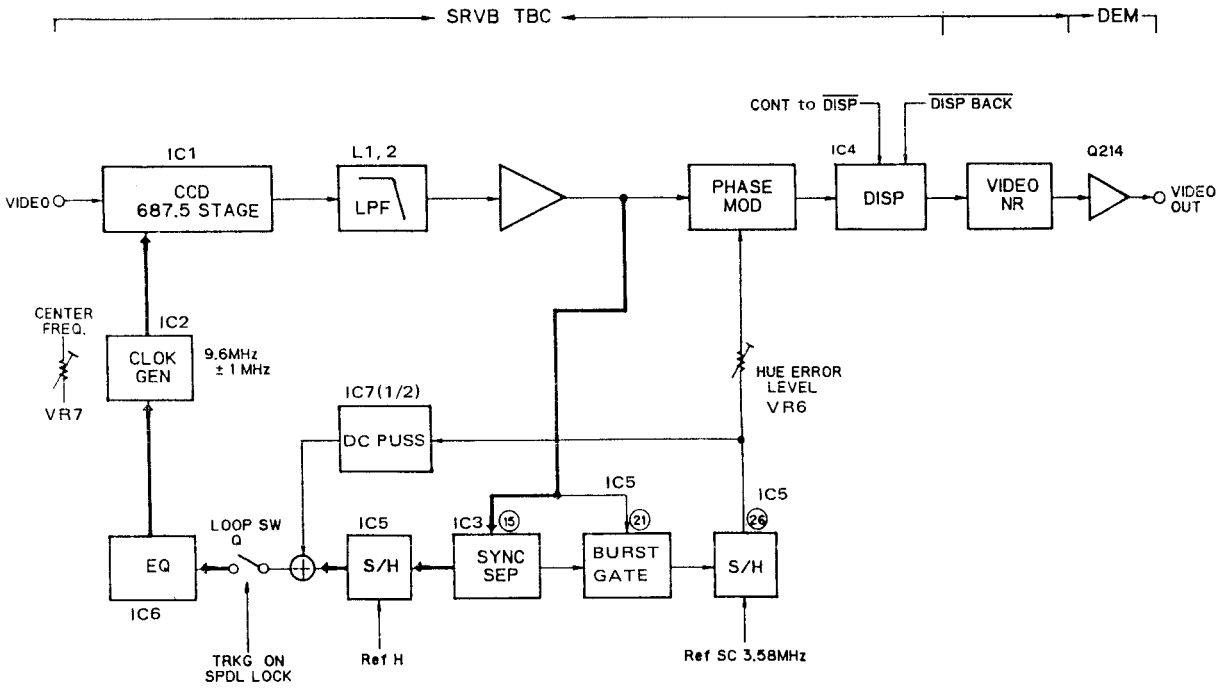
11.2 PICK-UP



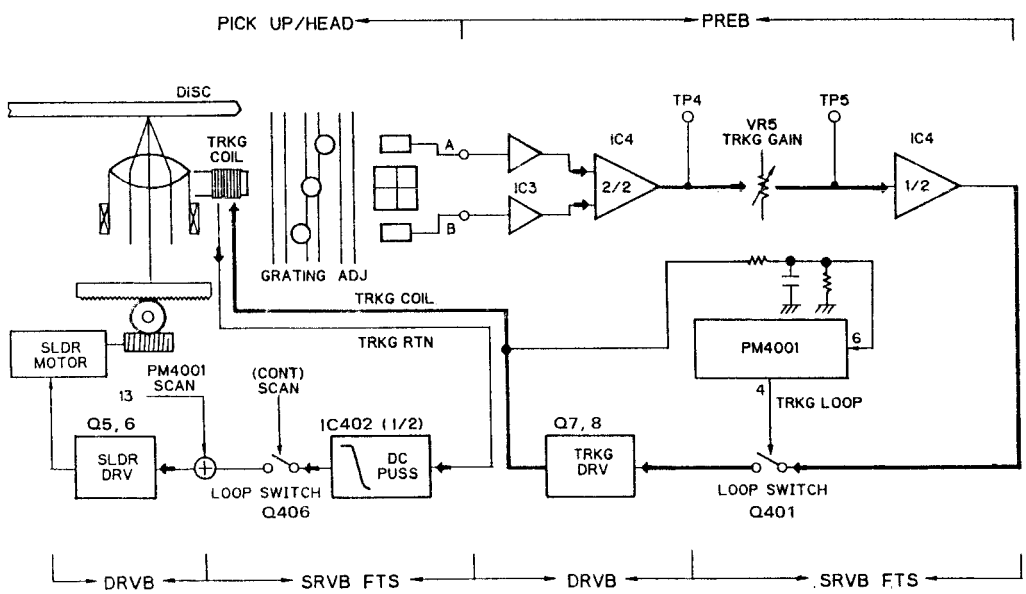
11.3 SPDL SERVO BLOCK DIAGRAM



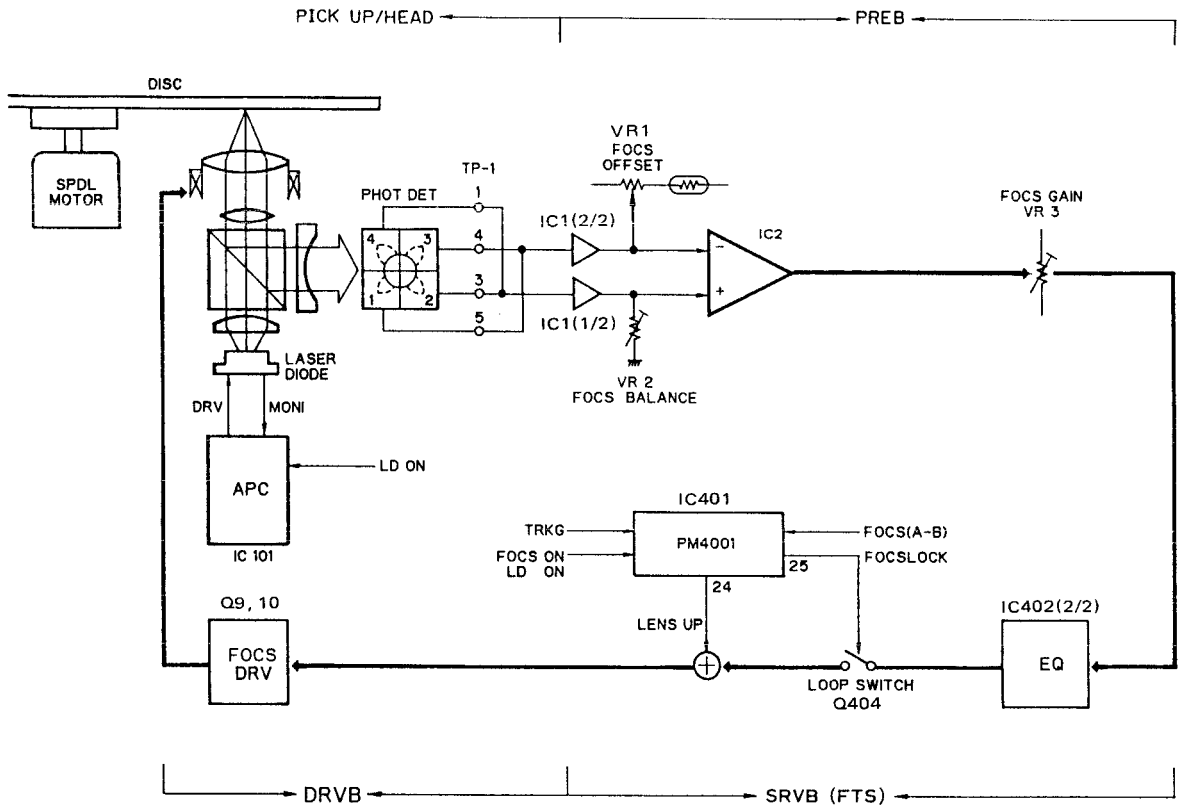
11.4 CCD SERVO BLOCK DIAGRAM



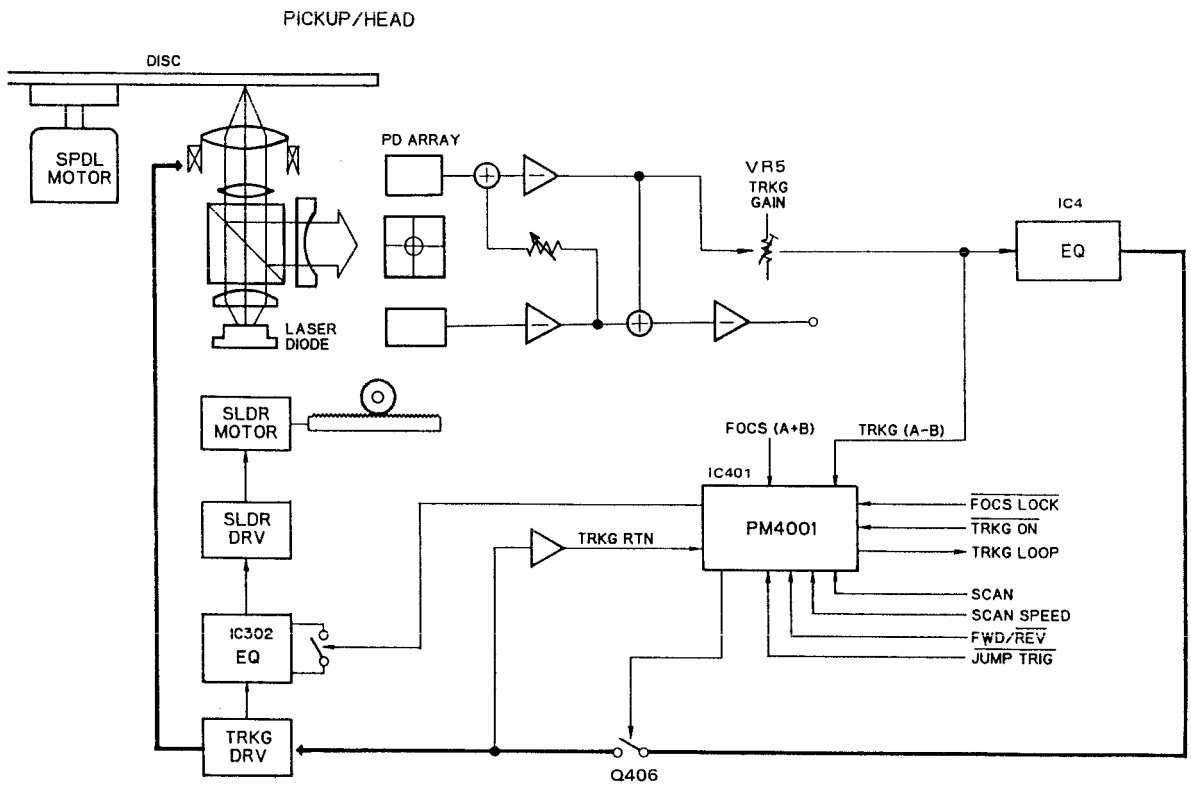
11.5 TRKG/SLDR SERVO BLOCK DIAGRAM



11.6 FOCS SERVO BLOCK DIAGRAM



11.7 TRKG SERVO BLOCK DIAGRAM



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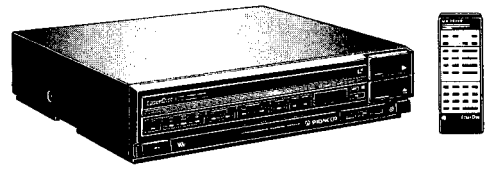
Service Manual



ORDER NO.
VRT-057-0

LaserVision

NTSC

LASERVISION PLAYER

LD-707 (BK) S/G

CONTENTS

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TEL: (800) 421-1404
PIONEER ELECTRONIC (EUROPE) N.V. Keetberglaan 1, 2740 Beveren, Belgium TEL: 03/775·28·08
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia
TEL: (03) 580-9911

3278

1. DISASSEMBLY

[BONNET]

- Remove 2 side screws
  Ⓐ (BMZ40P100FZK).
- Remove 2 rear screws
  Ⓑ (BBZ30P060FZK).

[BOTTOM BOARD]

- Remove 2 screws
  Ⓒ (BBZ30P050FMC).
- Remove 4 screws
  Ⓓ (BPZ30P080FZK).

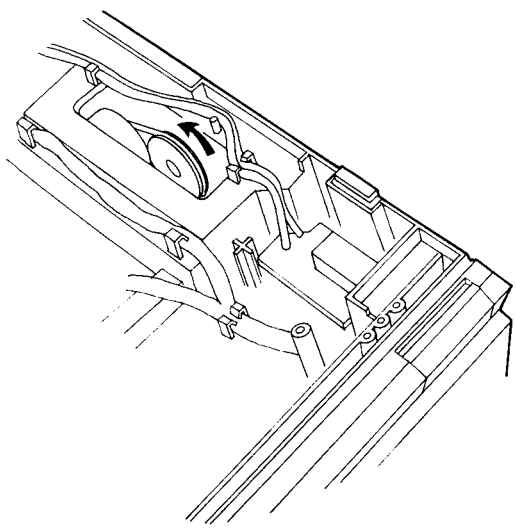
[DISC TABLE]

- Remove the bonnet.
- Turn the POWER switch ON, press the EJECT key, and the disc table is ejected.
- Remove 2 rivets Ⓔ (VEC-219).
- Draw out the disc table.
- Remove a lock roller.

→ When the main power cannot be turned ON or the disc table cannot be drawn out by the pressing EJECT key due to a fault, operate as follows.

- Remove the bottom board.
- Turn the pulley of the loading mechanism in the direction shown by the arrow.

Note: When the disc is set, handle carefully while lightly pressing the disc.

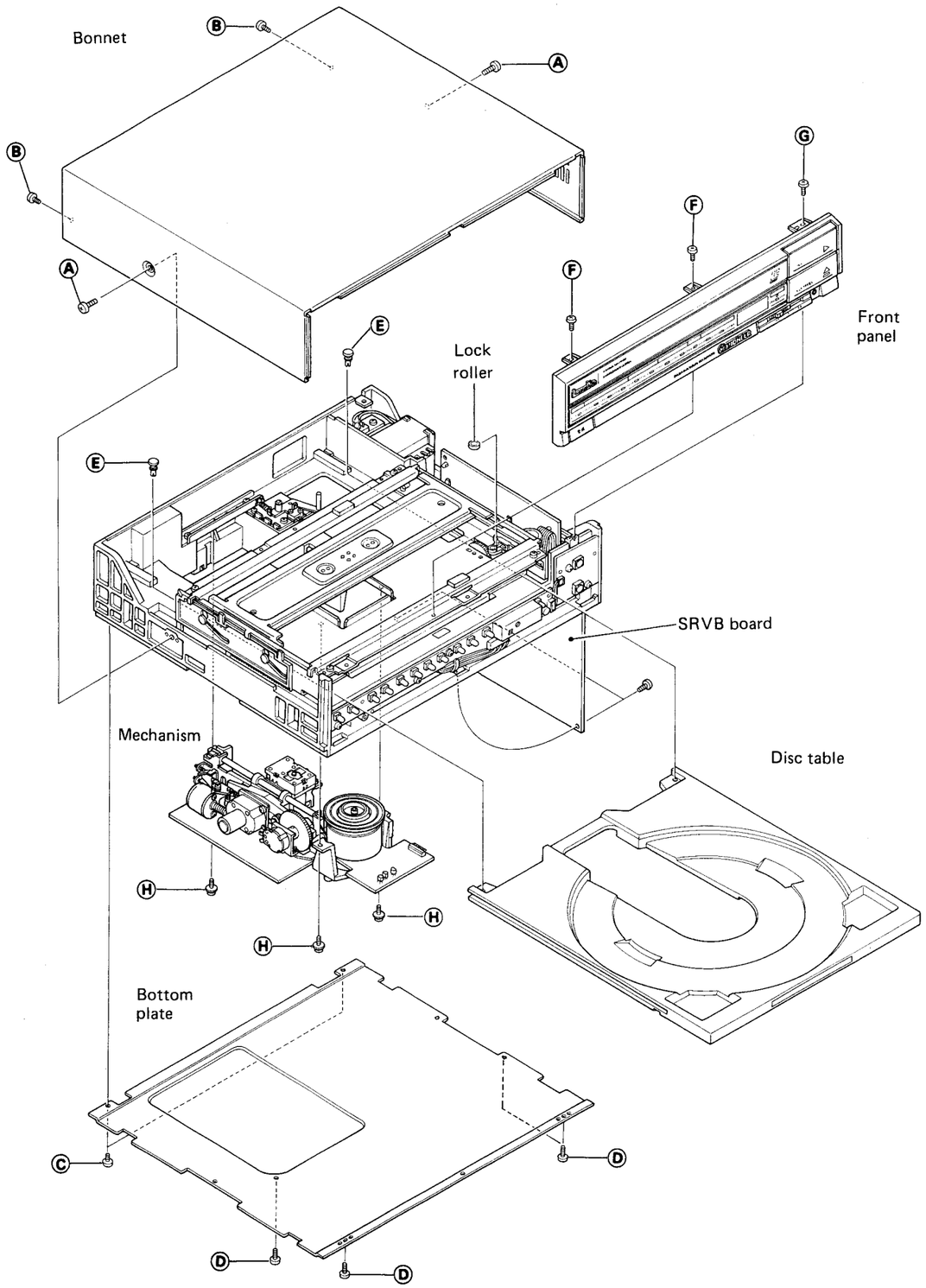


[FRONT PANEL]

- Remove the bonnet and the bottom board.
- Remove 2 screws
  Ⓕ (BBZ30P050FMC).
- Remove a screw
  Ⓖ (BPZ30P080FZK).
- Disconnect the connector on the HEPB board, and the connector on the DRVB board connected to the DOOR switch.

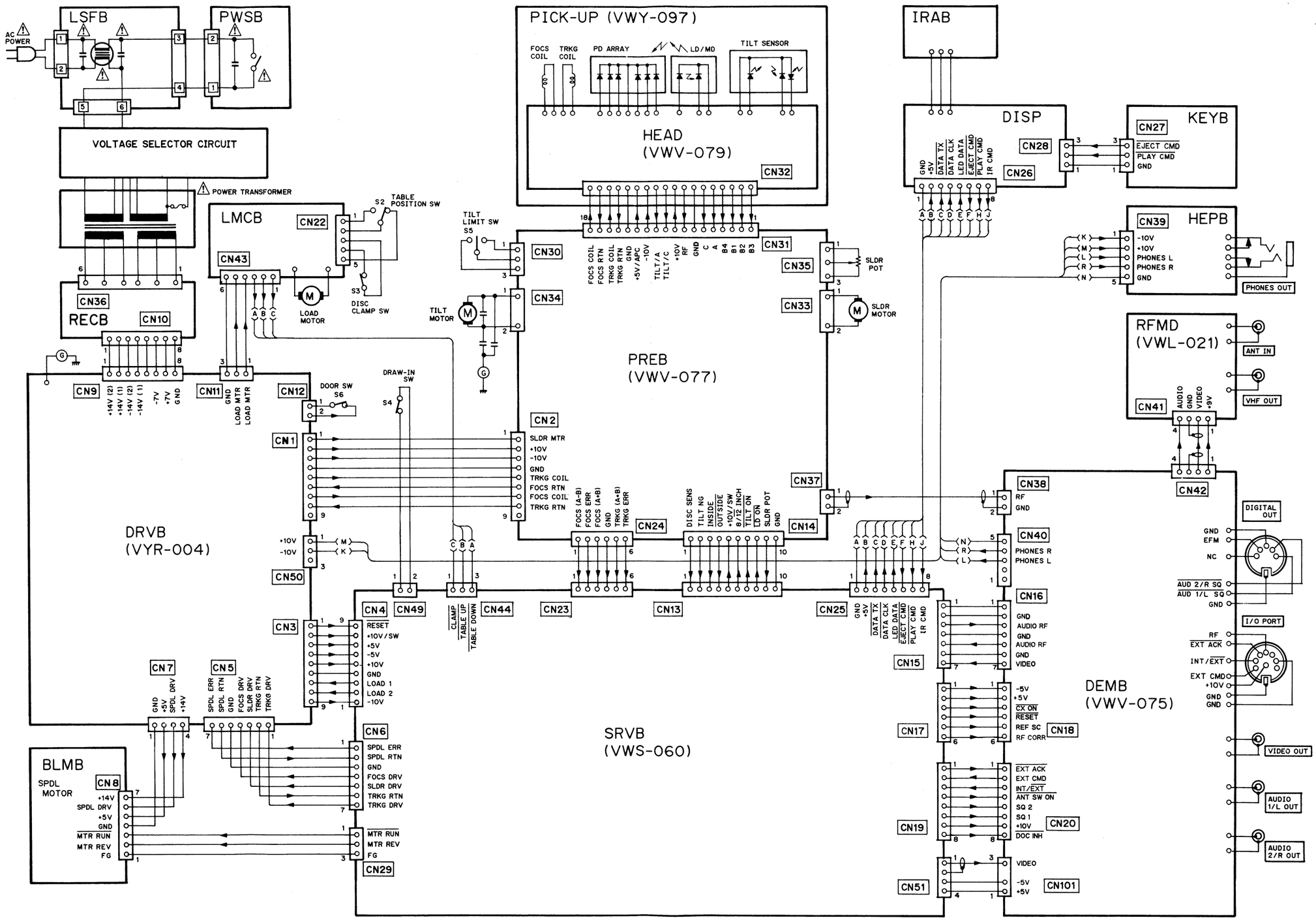
[MECHANISM]

- Remove the bottom board.
- Remove 2 screws which install SRVB board.
- Detach SRVB board and open it.
- Disconnect the connectors.
  4 connectors on PREB board and 1 on BLMB board.
- Remove 3 screws
  Ⓗ (BPZ30P080FZK).

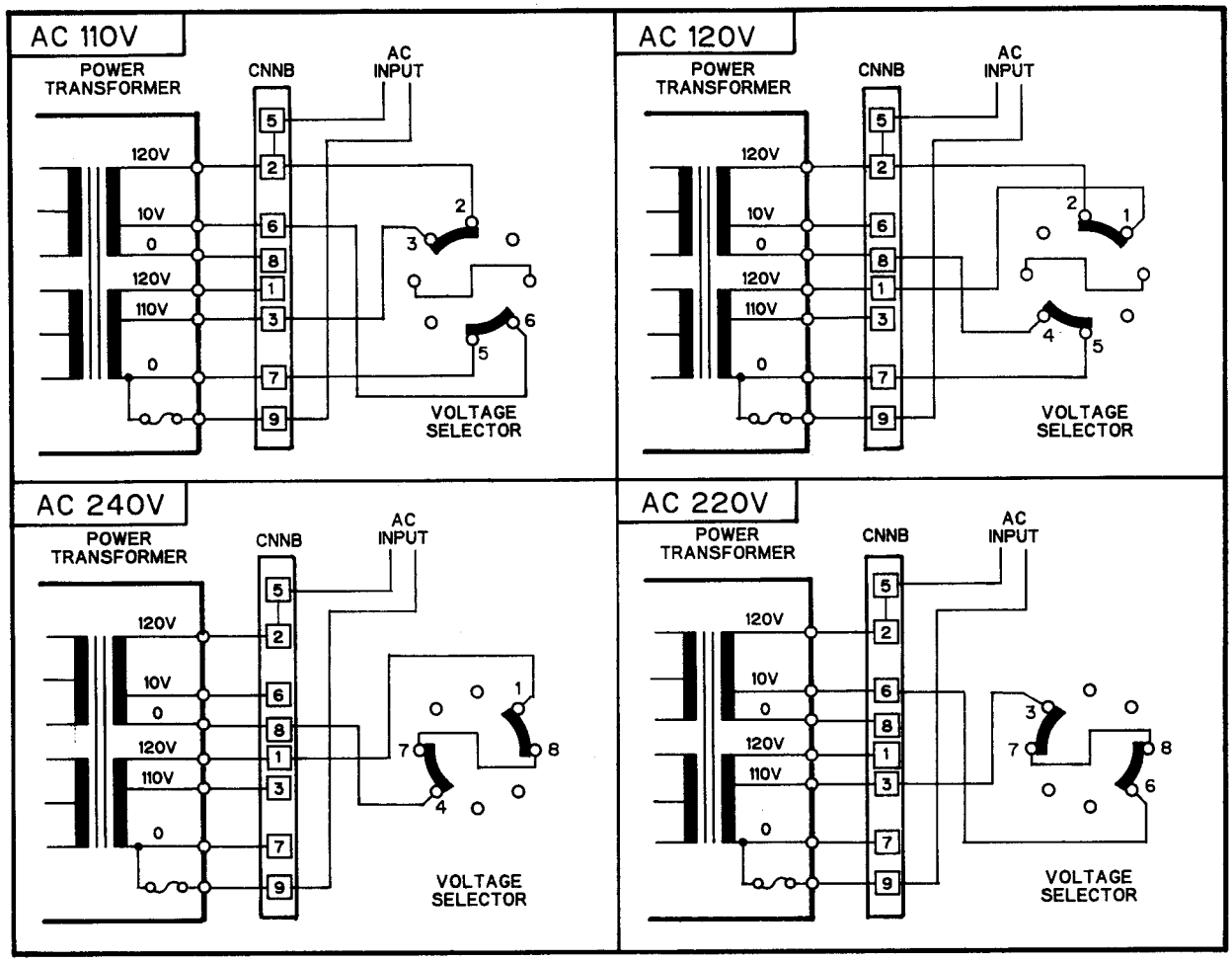

Bonnet
B
A
G
F
Front
panel
Lock
roller
E
SRVB board
Mechanism
Disc table
H
Bottom
plate
C
D

2. SHEMATIC DIAGRAMS, PCB PATTERNS & PARTS LISTS

2-1. OVERALL CONNECTIONS



VOLTAGE SELECTOR CIRCUIT



ELECTRICAL PARTS LIST

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LD-707(BK)/S/G (elec) Parts list 1

(MK)	(KEY)	PART NUMBER	DESCRIPTION
	1	VYR-004	DRVB
	2	VWV-079	HEAD
	3	VWV-077	PREB
	4	VWS-060	SRVB
	5	VWV-075	DEMB
	6	VWL-021	RFMD
	7	VWY-097	Pickup ass'y
⚠	8	VDG-034	Power cord
⚠	9	VTT-063	Power transformer
⚠	10	VSA-010	Power switch
⚠	11	VSB-003	Voltage selector
	12	PSN-003	S2, S5
	13	VSK-010	S3
	14	VSK-011	S4
	15	VSK-012	S6
	16	VXM-054	LOAD motor
	17	VXM-060	TILT motor
	18	VXM-051	SPDL motor
	19	VXM-050	SLDR motor
	20	VCS-017	SLDR POT
	21	CKDYF473Z50	Capacitor (TILT M)
	22	VEK-018	3A/125V

ABBR. & CONTENTS OF BOARDS

LSFB ; Line Surge Filter Board
: Line filter

PWSB ; PoWer Switch Board
: Power switch

CNNB ; CoNNecting Board
: Wrapping posts

RECB ; RECtifing Board
: Rectifing circuits

DRVB ; DRiVers Board
: Servo unit drivers (TRKG, FOCS, SLDR), SPDL motor driver, Voltage regulators, Reset signal generator, LOAD motor driver

HEAD ; HEAD amplifier board
: Pick-up signals amplifier, Power controller of Laser-diode emittion

PREB ; PRE-processing Board
: RF signal and servo error signals processors and amplifiers, TILT servo circuit, Pickup position detectors

SRVB ; SeRVo circuit Board
CONT section ; CONTroller
: System controlling microcomputer, Data decoder, Character generator, Serial command signal decoder
FTS section ; FOCS, TRKG and SLDR servo circuits
: Focus servo (FOCS), Tracking servo (TRKG), Slider servo (SLDR) circuits
SPDL section ; SPDL servo circuit
: Spindle motor servo (SPDL) circuit
TBC section ; Time Base error Correcting circuit
: Time base error detector, CCD (Charge Coupled Device) circuit, Sync signal separator, Video processor

LMCB ; Loading Motor Connecting Board
: Connectors between DRVB board and LOAD motor, and, SRVB board and switches

BLMB ; BrushLess Motor driver Board
: 3-phase switchers, rotation speed detector

DEMB ; DEModulators Board
: Video and audio demodulators, Drop-out compensators, EFM signal processor, "VIDEO OUT" and "AUDIO OUT" terminals, "DIGITAL OUT" and "I/O PORT" terminals

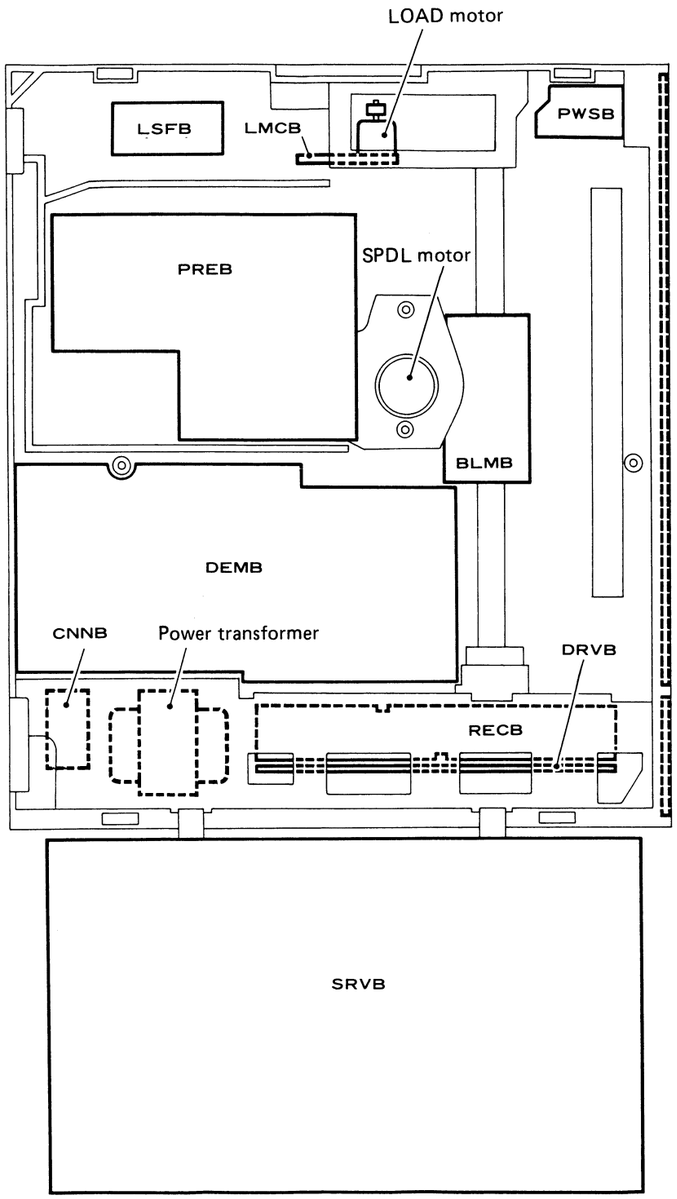
HEPB ; HEad Phones output Board
: Audio signal amplifier for PHONES output, PHONES output terminal, PHONES LEVEL volume

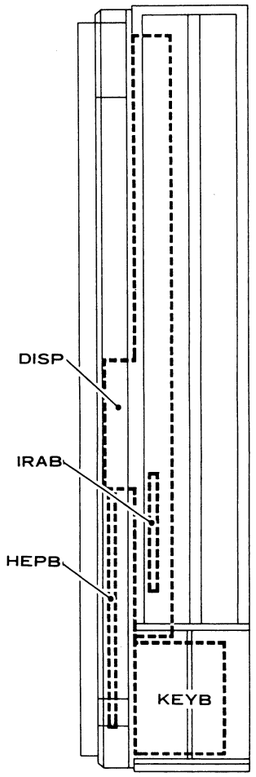
DISP ; DISPlay control board
: Indicators data decoder and driver

IRAB ; InfraRed command receiver and Amplifier Board
: Infrared receiver and amplifier

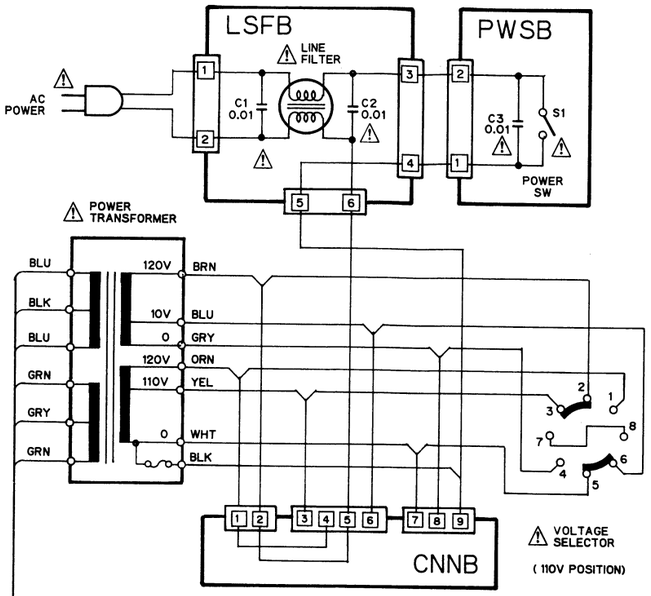
KEYB ; KEY Board
: PLAY and EJECT keys

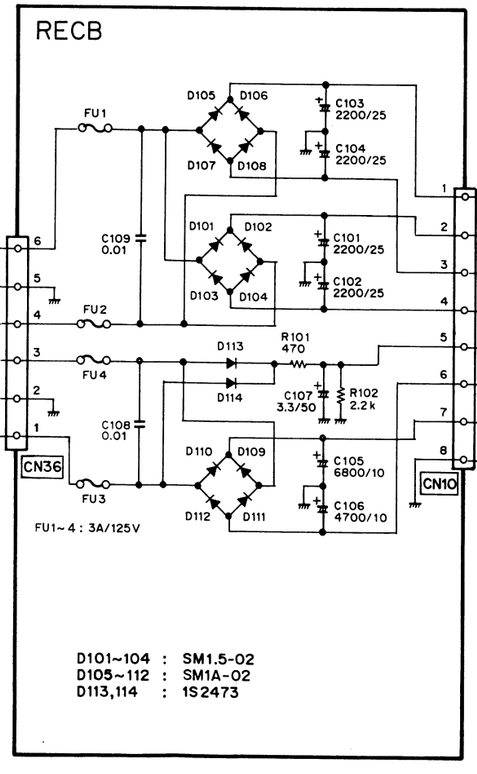
BOARDS LOCATION

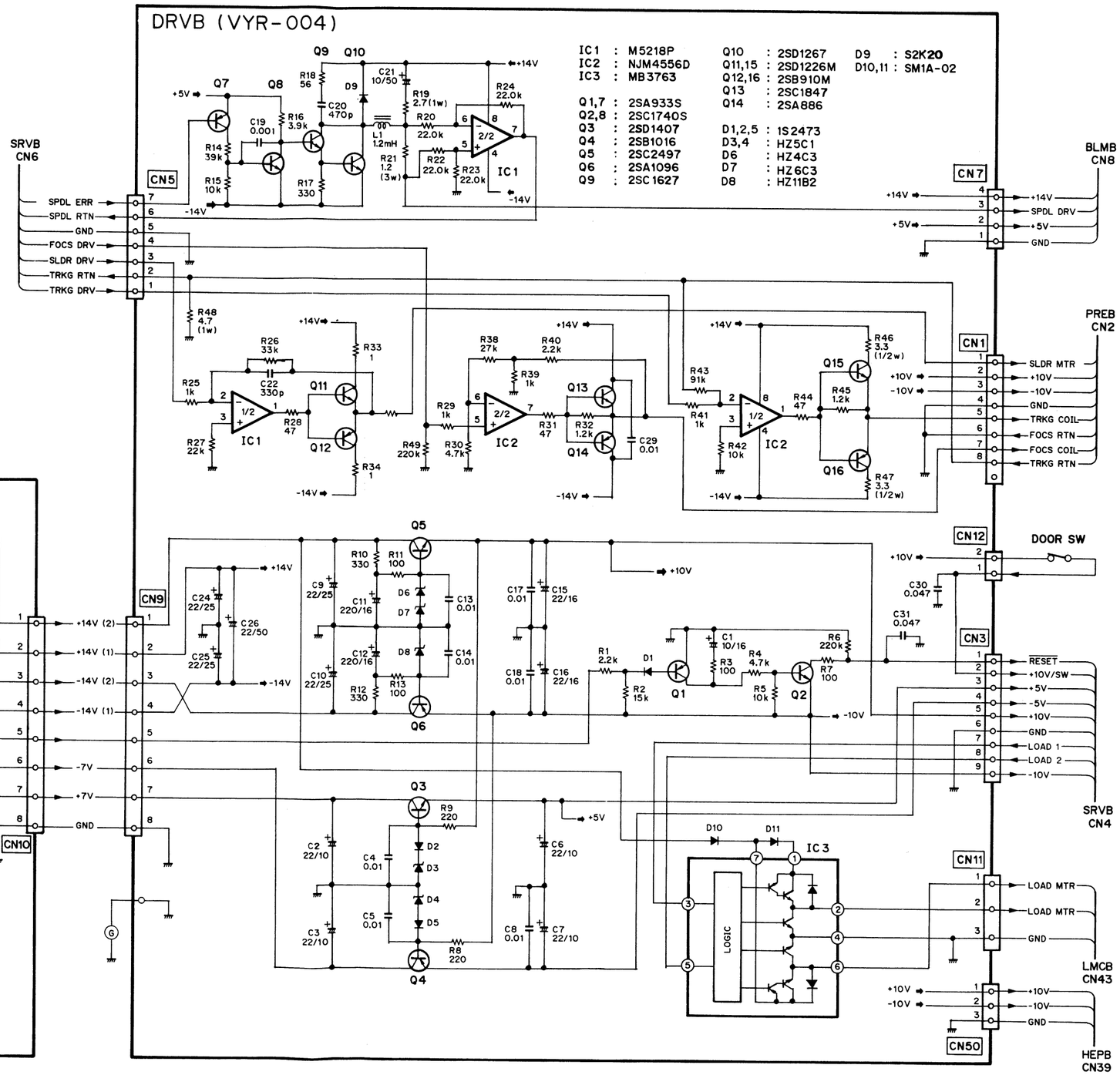


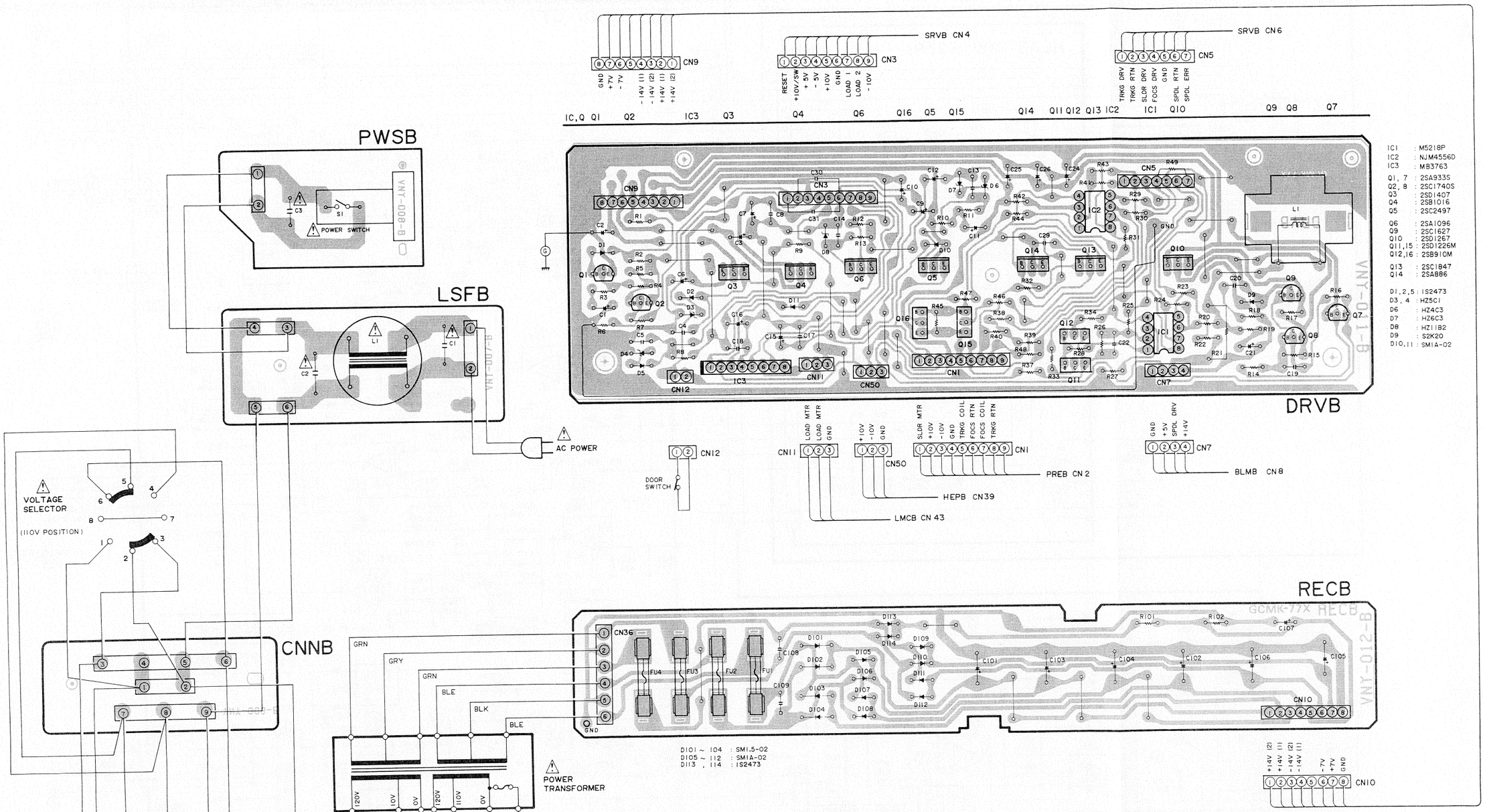


2-2. POWER SUPPLY & SERVO UNIT DRIVERS CIRCUIT (LSFB, PWSB, CNNB, RECB & DRVB boards)

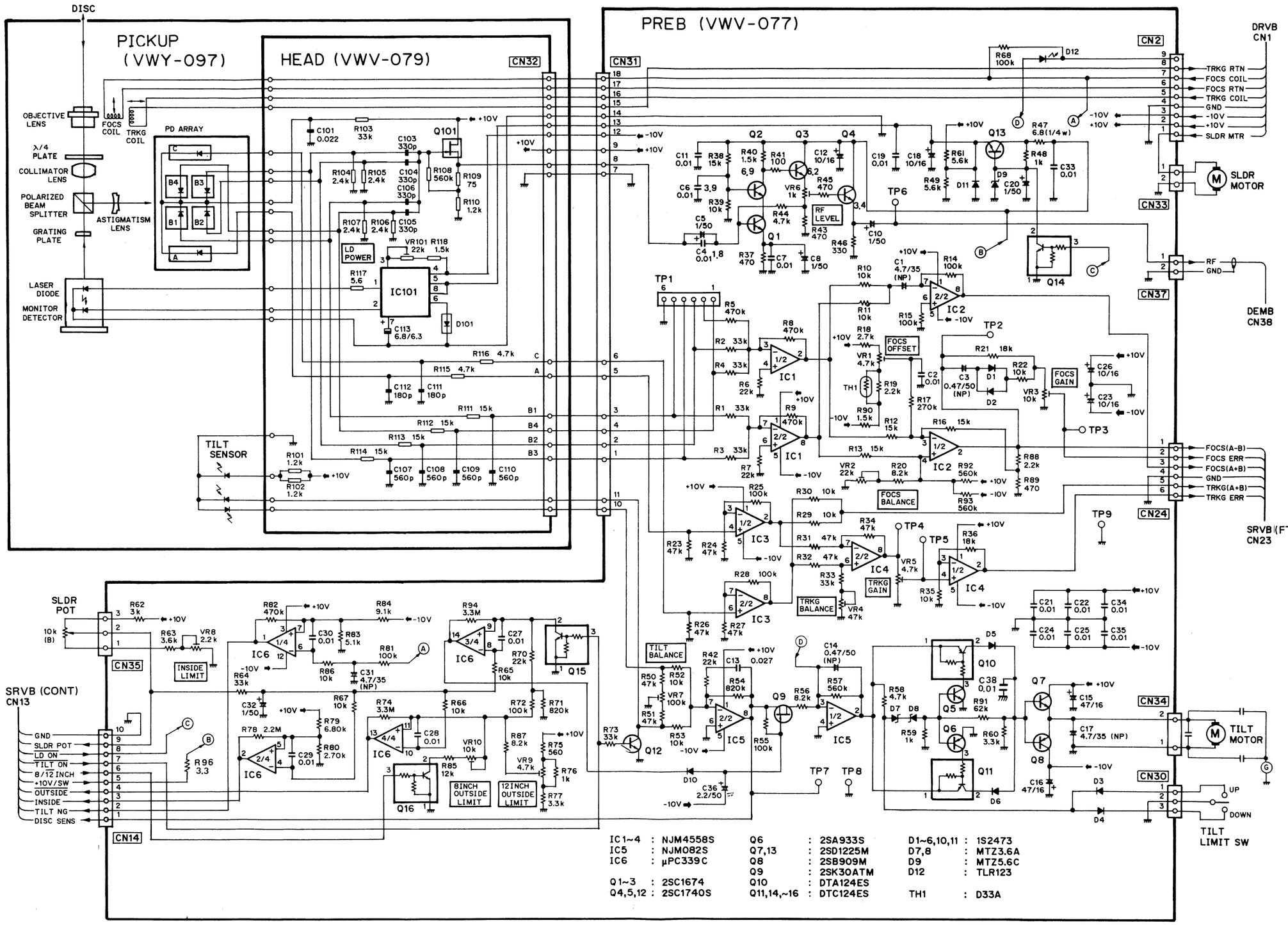







PWSB
VNT-008-B
C3
S1
POWER SWITCH
LSFB
VNT-007-B
L1
C2
C1
AC POWER
VOLTAGE SELECTOR
(110V POSITION)
CNNB
BRN
BLE
GRY
ORN
YEL
WHT
BLK
GRN
GRY
GRN
BLE
BLK
BLE
120V
10V
0V
120V
110V
0V
POWER TRANSFORMER
CN12
DOOR SWITCH
CN11
LOAD MTR
LOAD MTR
GND
CN50
+10V
-10V
GND
HEPB CN39
LMCB CN 43
CN1
SLDR MTR
+10V
-10V
GND
TRKG COIL
FOCS RTN
FOCS COIL
TRKG RTN
PREB CN 2
CN7
GND
+5V
SPDL DRV
+14V
BLMB CN 8
SRVB CN4
CN9
GND
+7V
-7V
-14V (1)
-14V (2)
+14V (1)
+14V (2)
CN3
RESET
+10V/SW
+5V
-5V
+10V
GND
LOAD 1
LOAD 2
-10V
SRVB CN6
CN5
TRKG DRV
TRKG RTN
SLDR DRV
FOCS DRV
GND
SPDL RTN
SPDL ERR
IC,Q Q1 Q2 IC3 Q3 Q4 Q6 Q16 Q5 Q15 Q14 Q11 Q12 Q13 IC2 IC1 Q10 Q9 Q8 Q7
DRVB
VNT-012-B
IC1 : M52118P
IC2 : NJM4556D
IC3 : MB3763
Q1, 7 : 2SA933S
Q2, 8 : 2SC1740S
Q3 : 2SD1407
Q4 : 2SB1016
Q5 : 2SC2497
Q6 : 2SA1096
Q9 : 2SC1627
Q10 : 2SD1267
Q11,15 : 2SD1226M
Q12,16 : 2SB910M
Q13 : 2SC1847
Q14 : 2SA886
D1,2,5 : 1S2473
D3, 4 : HZ5C1
D6 : HZ4C3
D7 : HZ6C3
D8 : HZ11B2
D9 : S2K20
D10,11 : SM1A-02
RECB
GCMK-77X RECB
VNT-012-B
CN36
GND
FU4
FU3
FU2
FU1
CN10
D101 ~ 104 : SM1.5-02
D105 ~ 112 : SM1A-02
D113 , 114 : 1S2473
(2) +14V
(1) +14V
(2) -14V
(1) -14V
-7V
+7V
GND
CN10

2-3. PICKUP CIRCUIT (HEAD & PREB boards)



IC1~4	: NJM4558S	Q6	: 2SA933S	D1~6,10,11	: 1S2473
IC5	: NJM082S	Q7,13	: 2SD1225M	D7,8	: MTZ3.6A
IC6	: μPC339C	Q8	: 2SB909M	D9	: MTZ5.6C
		Q9	: 2SK30ATM	D12	: TLR123
Q1~3	: 2SC1674	Q10	: DTA124ES		
Q4,5,12	: 2SC1740S	Q11,14,~16	: DTC124ES	TH1	: D33A

SLDR POT — CN35 (3 2 1)

SLDR MOTOR — M — CN33 (2 1)

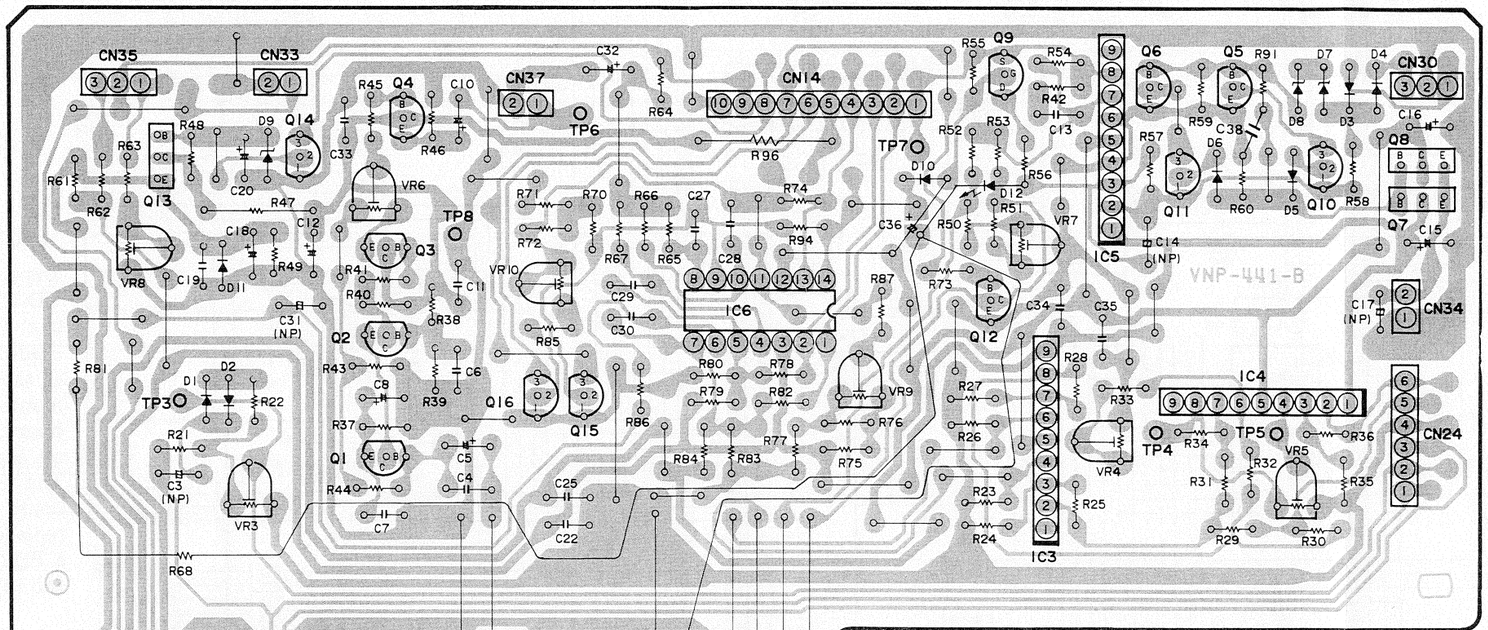
DEMB CN38 — CN37 (2 1) — GND, RF

SRVB CN13 — CN14 (10 9 8 7 6 5 4 3 2 1) — GND, SLDR POT, LD ON, TILT ON, 8/12 INCH, +10V/SW, OUTSIDE, INSIDE, TILT NG, DISC SENS

SS TILT LIMIT SW — CN30 (3 2 1)

IC,Q																	
	Q13		Q14	Q2 Q3 IC2 Q1 Q4		IC1 Q16 Q15		IC6						IC3 Q12 Q9		IC5 Q6 Q11	Q5	Q10	Q8 Q7
ADJ	VR8	VR2	VR3	VR6	VR1	VR10				VR9				VR7		VR4		VR5	

PREB



CN34 — M — G — TILT MOTOR

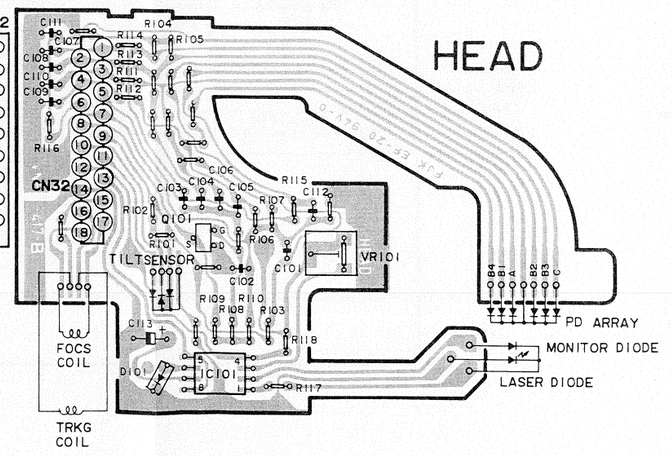
CN24: TRKG ERR, TRKG (A+B), GND, FOCS (A+B), FOCS ERR, FOCS (A-B) → SRVB CN23

DRVB CN1 — CN2: SLDR MTR, +10V, -10V, GND, TRKG COIL, FOCS RTN, FOCS COIL, TRKG RTN, NC

CN31 ↔ CN32: B3–B2, B1–B4, A–C, GND–RF, +10V–TILT/C, TILT/A–-10V, +5V/APC–GND, TRKG RTN–TRKG COIL, FOCS RTN–FOCS COIL

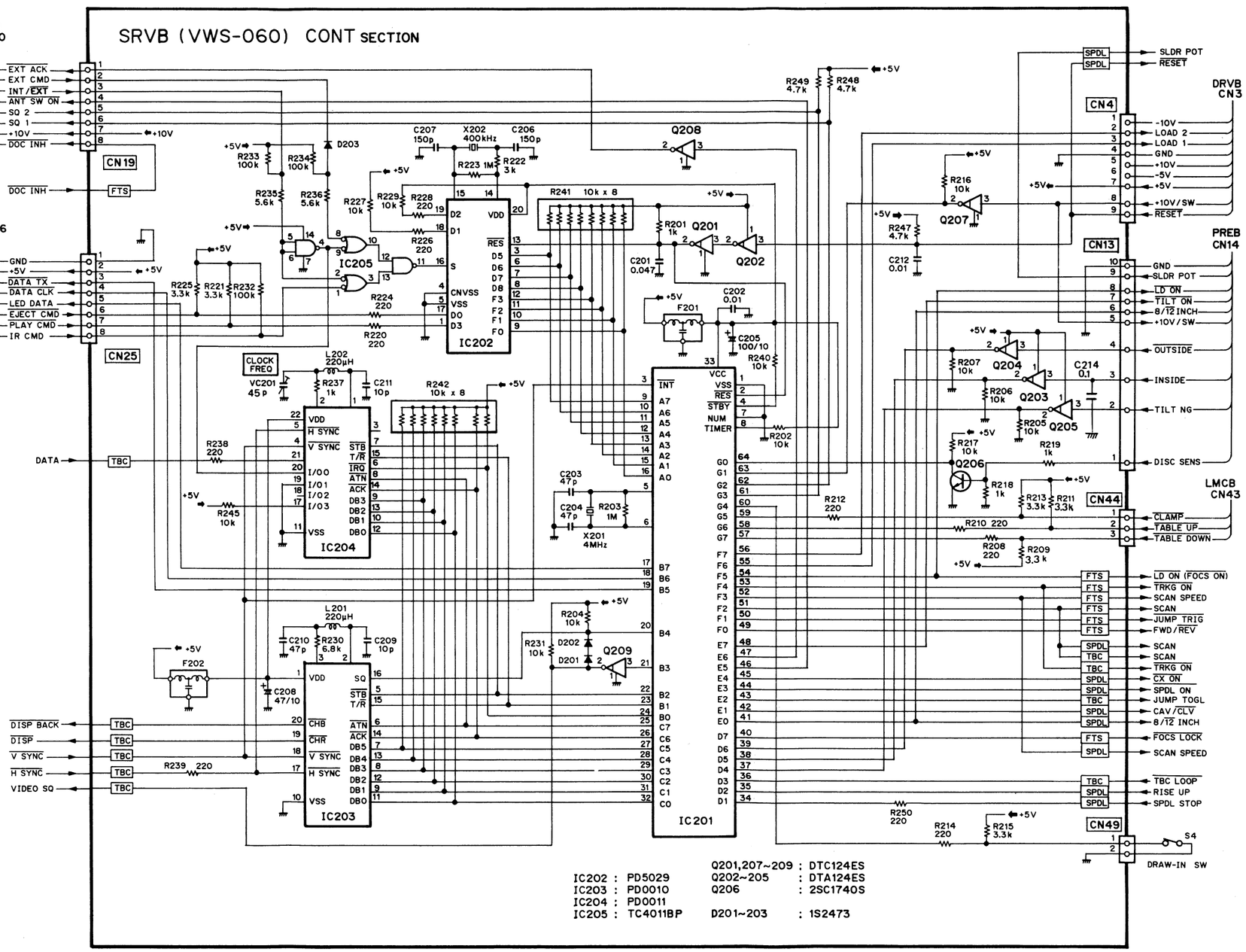
IC,Q: Q101 IC101 — ADJ: VR101

HEAD



IC1 ~ 4 : NJM4558S IC5 : NJM082S IC6 : uPC339C
Q1 ~ 3 : 2SC1674 Q4, 5, 12 : 2SC1740S Q6 : 2SA933S Q7, 13 : 2SD1225M Q8 : 2SB909M Q9 : 2SK30ATM
Q10 : DTA124ES Q11, 14 ~ 16 : DTC124ES
D1 ~ 6, 10, 11 : IS2473 D7, 8 : MTZ3.6A D9 : MTZ5.6C D12 : TLR123

2-4. CONTROL CIRCUIT
(CONT section of SRVB boards & LMCB boards)

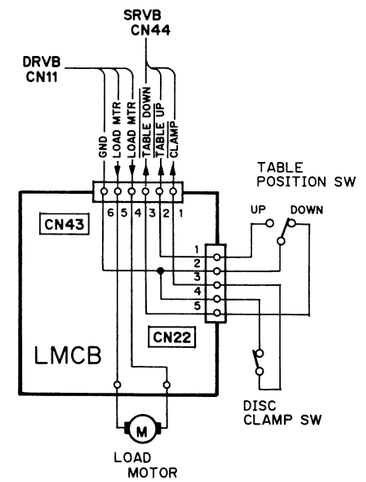


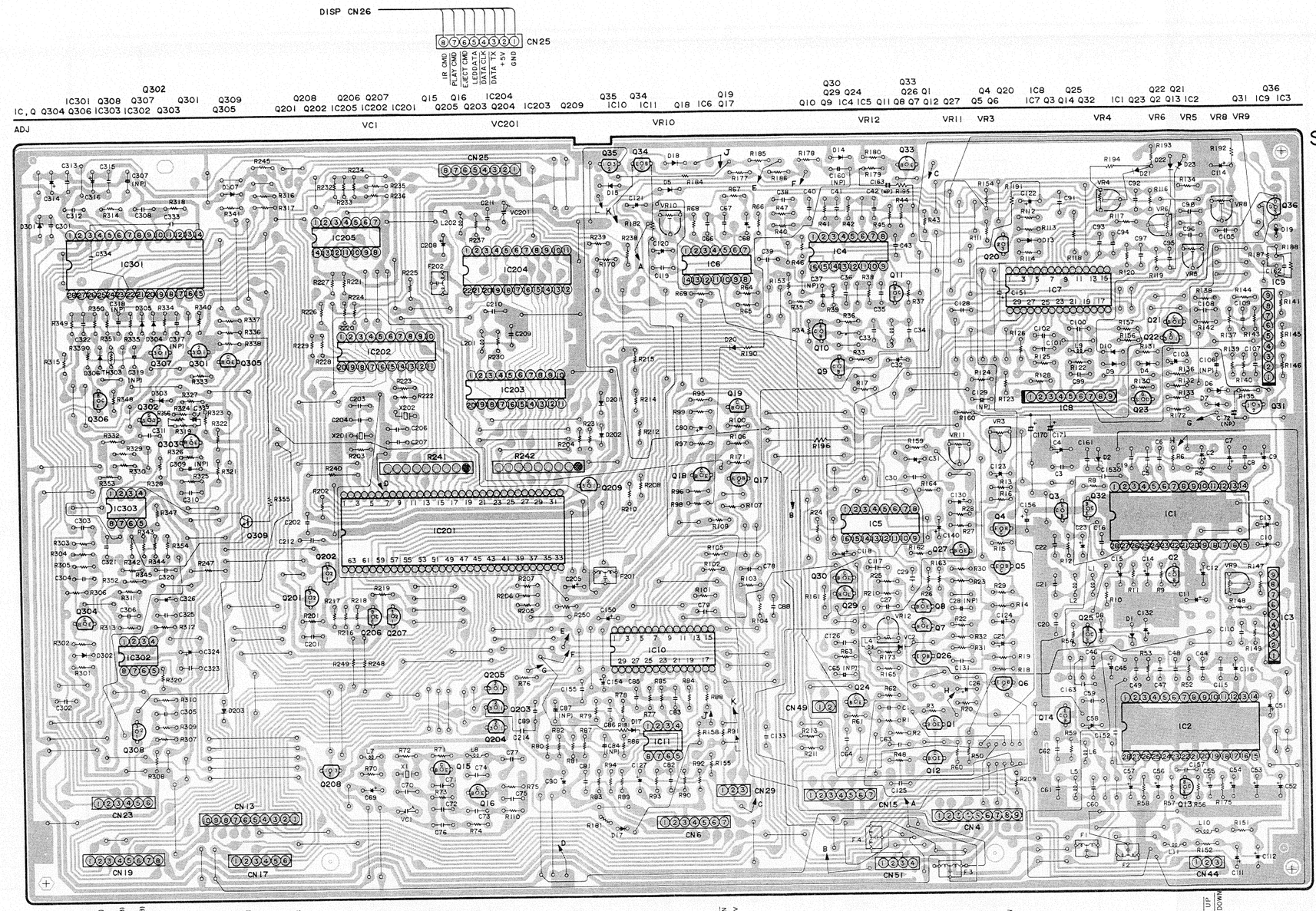
IC201, MAIN CPU

Depending on the time of manufacture of the LD-707, the IC used for the main CPU (IC201 on the SRVB board) may be either a PD3049, PD3054 or PD3060.

If the CPU is a PD3049, its functions are supplemented by the installation of an additional CDCR board, and if the CPU is a PD3054, its functions are supplemented by an INIB board.

The PD3049, PD3054, CDCR board and INIB board are not supplied as service parts, so when replacement is required, replace the main CPU with a PD3060, and remove the CDCR or INIB board, and the cables connecting it to the SRVB board.





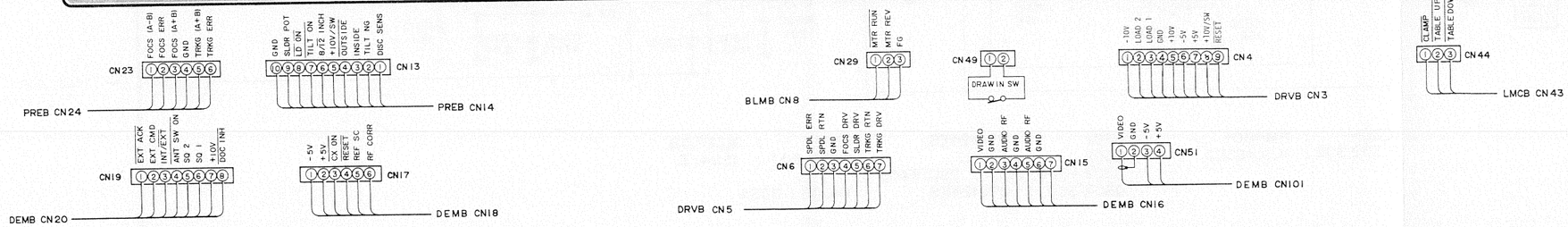
SRVB

IC1, 2 : TL8614P
IC3 : PA0017
IC4 : PA0009
IC5 : PA9003
IC6 : PA0018
IC7 : PA5009
IC8, 9, 302, 303 : NJM4558S
IC10 : PM2001
IC11 : μPC4558C

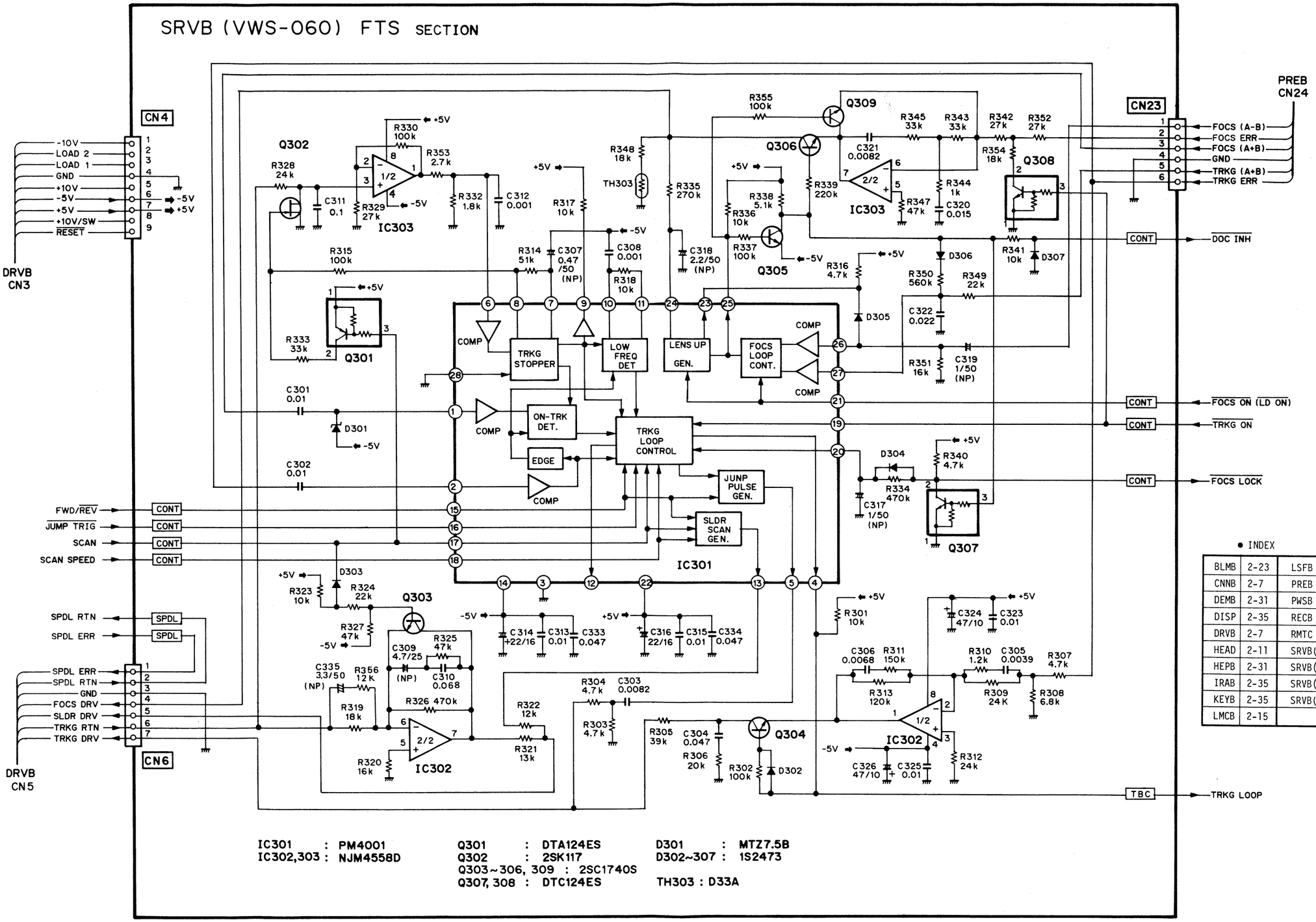
IC202 : PD5029
IC203 : PD0010
IC204 : PD0011
IC205 : TC4011BP
IC301 : PM4001

Q1, 3 ~ 16, 19, 24, 26, 29, 30, 32, 33,
Q206, 303 ~ 306, 309 : 2SC1740S
Q2, 17, 18, 21, 27, 34 : 2SA933S
Q20, 22, 31, 35, 201,
Q207 ~ 209, 307, 308 : DTC124ES
Q23, 36, 302 : 2SK117
Q25 : 2SC1627
Q202 ~ 205, 301 : DTA124ES

D1 : HZ12A3
D2 : HZ9B1
D4, 5, 7 ~ 10, 13 ~ 15, 17 ~ 23,
D201 ~ 203, 302 ~ 307 : 1S2473
D6 : HZ3B3
D301 : MTZ7.5B



2-5. SERVO CIRCUIT 1
(FTS section of SEVB board)



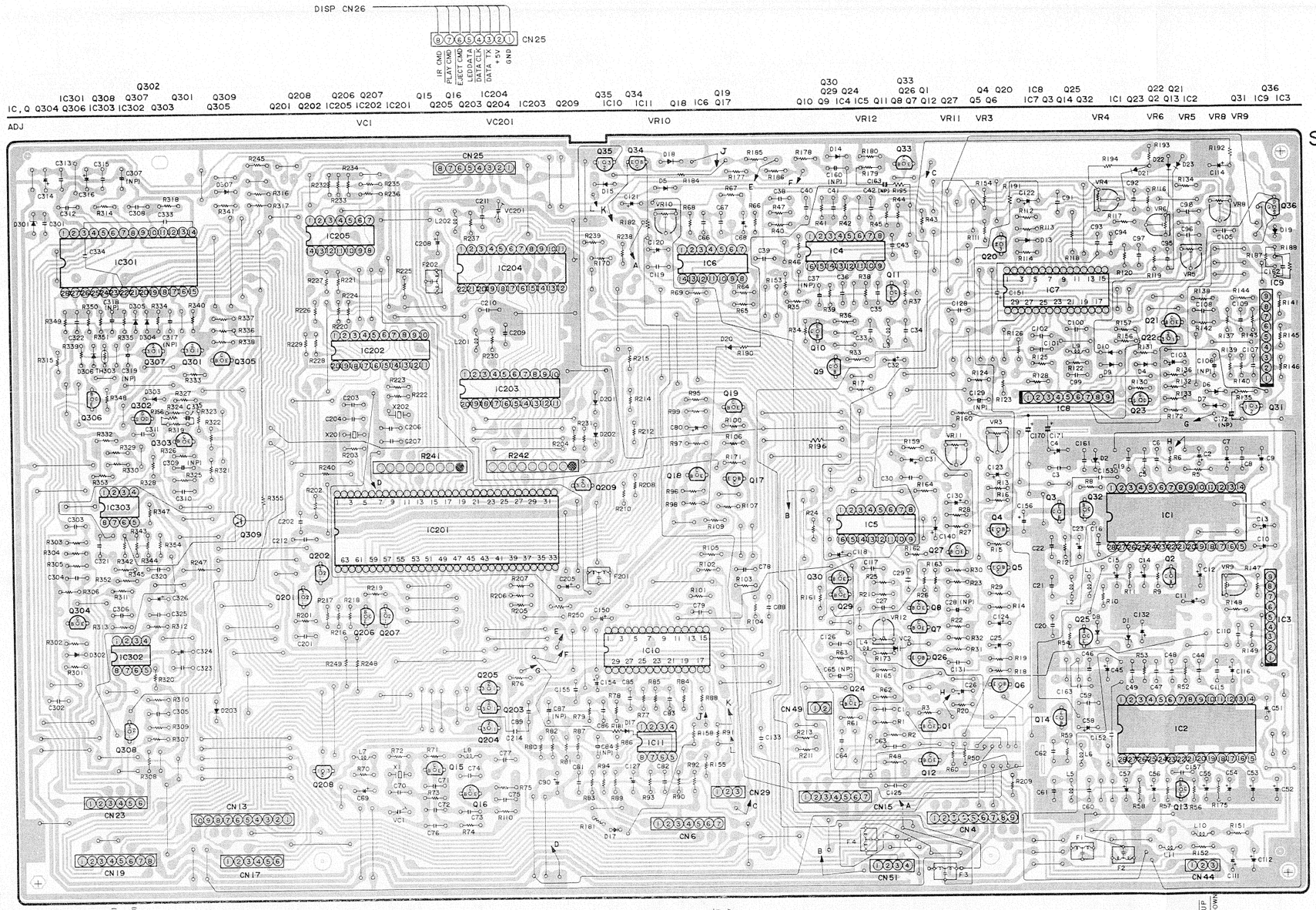
IC301 : PM4001
IC302,303 : NJM4558D

Q301 : DTA124ES
Q302 : 2SK117
Q303~306, 309 : 2SC1740S
Q307, 308 : DTC124ES

D301 : MTZ7.5B
D302~307 : 1S2473

TH303 : D33A

● INDEX



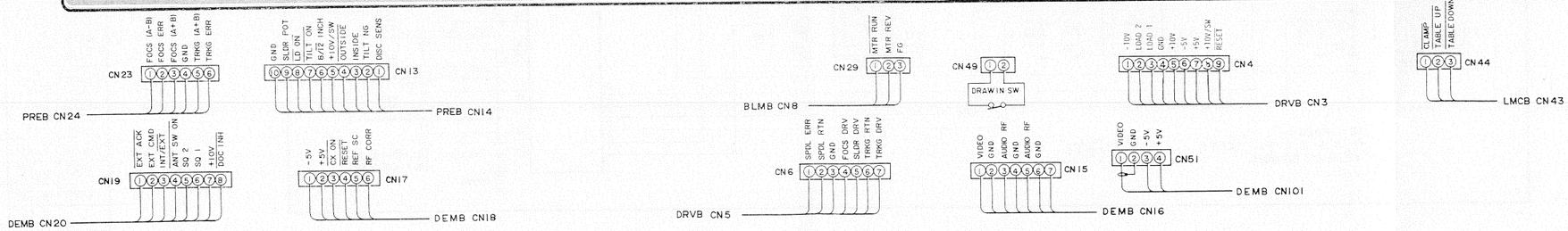
SRVB

IC1, 2 : TL8614P
IC3 : PA0017
IC4 : PA0009
IC5 : PA9003
IC6 : PA0018
IC7 : PA5009
IC8, 9, 302, 303 : NJM4558S
IC10 : PM2001
IC11 : μPC4558C

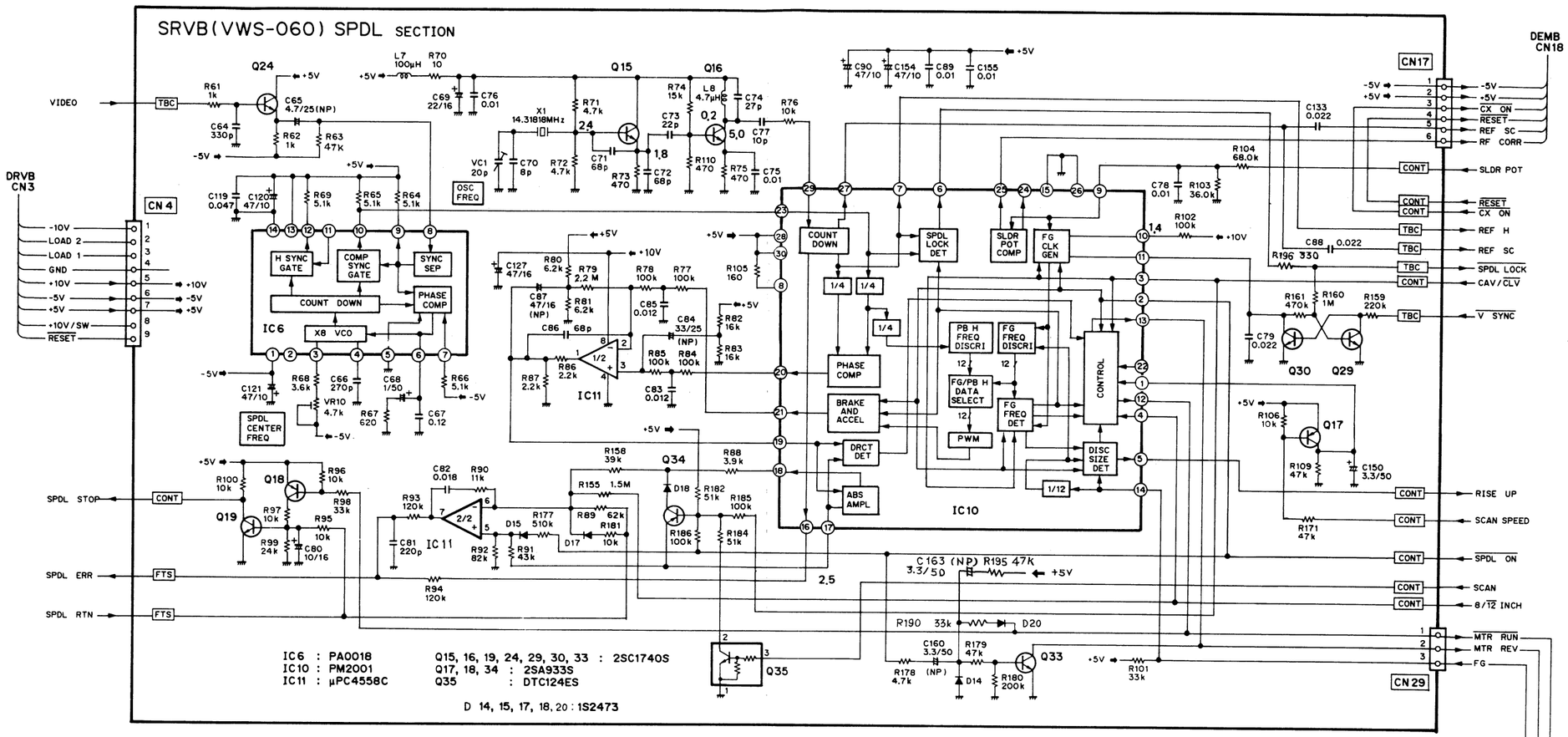
IC202 : PD5029
IC203 : PD0010
IC204 : PD0011
IC205 : TC4011BP
IC301 : PM4001

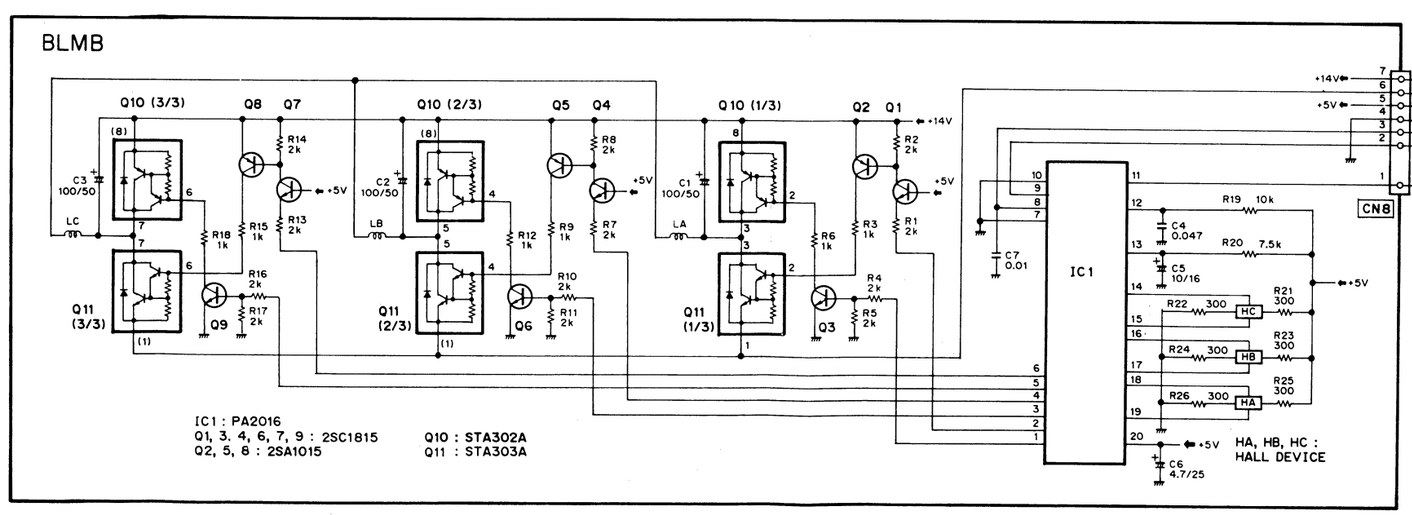
Q1, 3 ~ 16, 19, 24, 26, 29, 30, 32, 33,
Q206, 303 ~ 306, 309 : 2SC1740S
Q2, 17, 18, 21, 27, 34 : 2SA933S
Q20, 22, 31, 35, 201,
Q207 ~ 209, 307, 308 : DTC124ES
Q23, 36, 302 : 2SK117
Q25 : 2SC1627
Q202 ~ 205, 301 : DTA124ES

D1 : HZ12A3
D2 : HZ9B1
D4, 5, 7 ~ 10, 13 ~ 15, 17 ~ 23,
D201 ~ 203, 302 ~ 307 : 1S2473
D6 : HZ3B3
D301 : MTZ7.5B

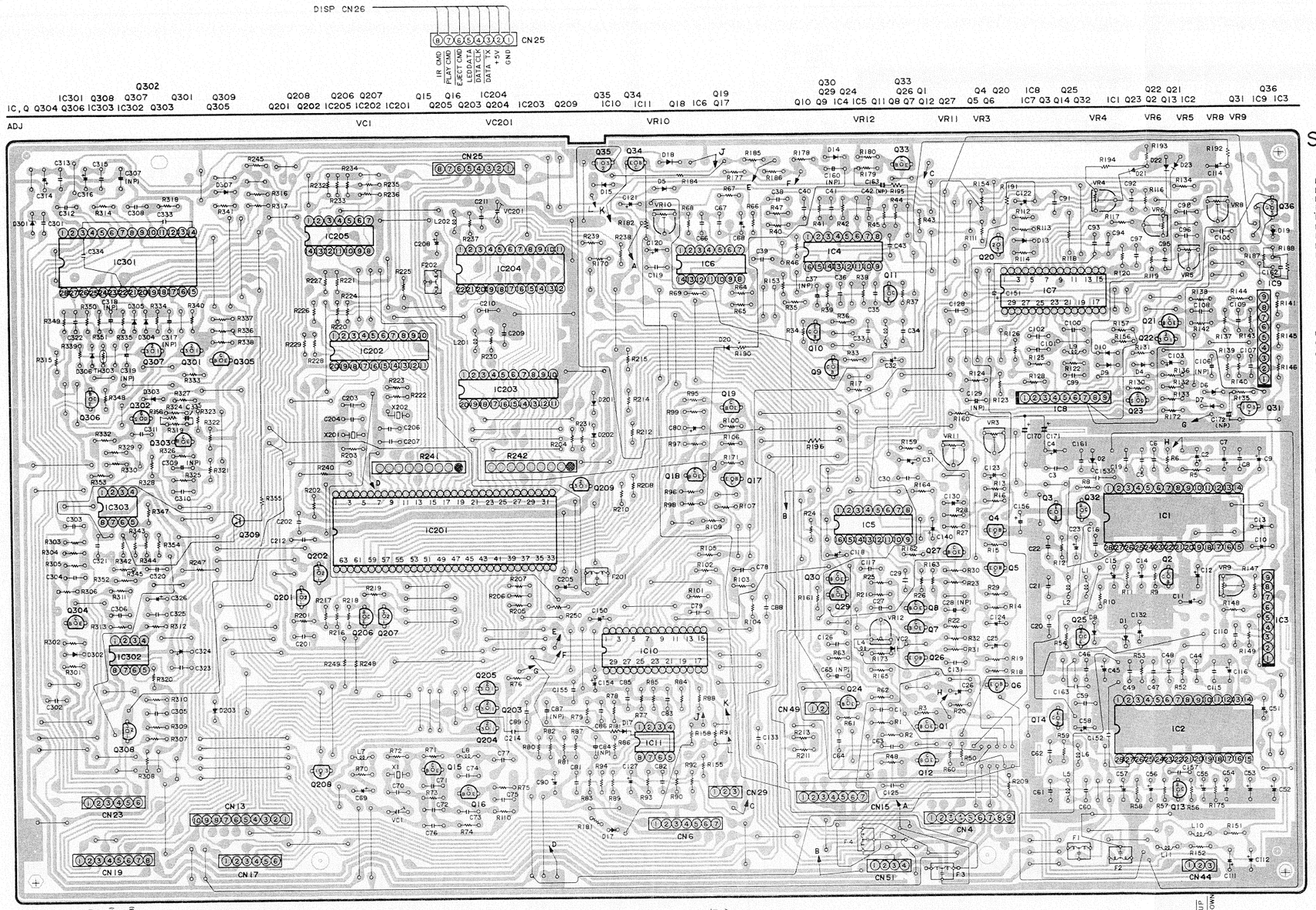


2-6. SERVO CIRCUIT 2
(SPDL section of SRVB board & BLMB board)





• INDEX



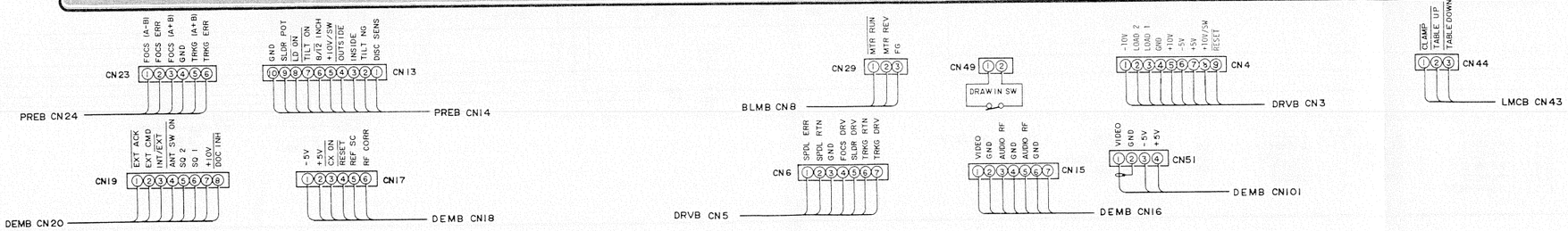
SRVB

IC1, 2 : TL8614P
IC3 : PA0017
IC4 : PA0009
IC5 : PA9003
IC6 : PA0018
IC7 : PA5009
IC8, 9, 302, 303 : NJM4558S
IC10 : PM2001
IC11 : μPC4558C

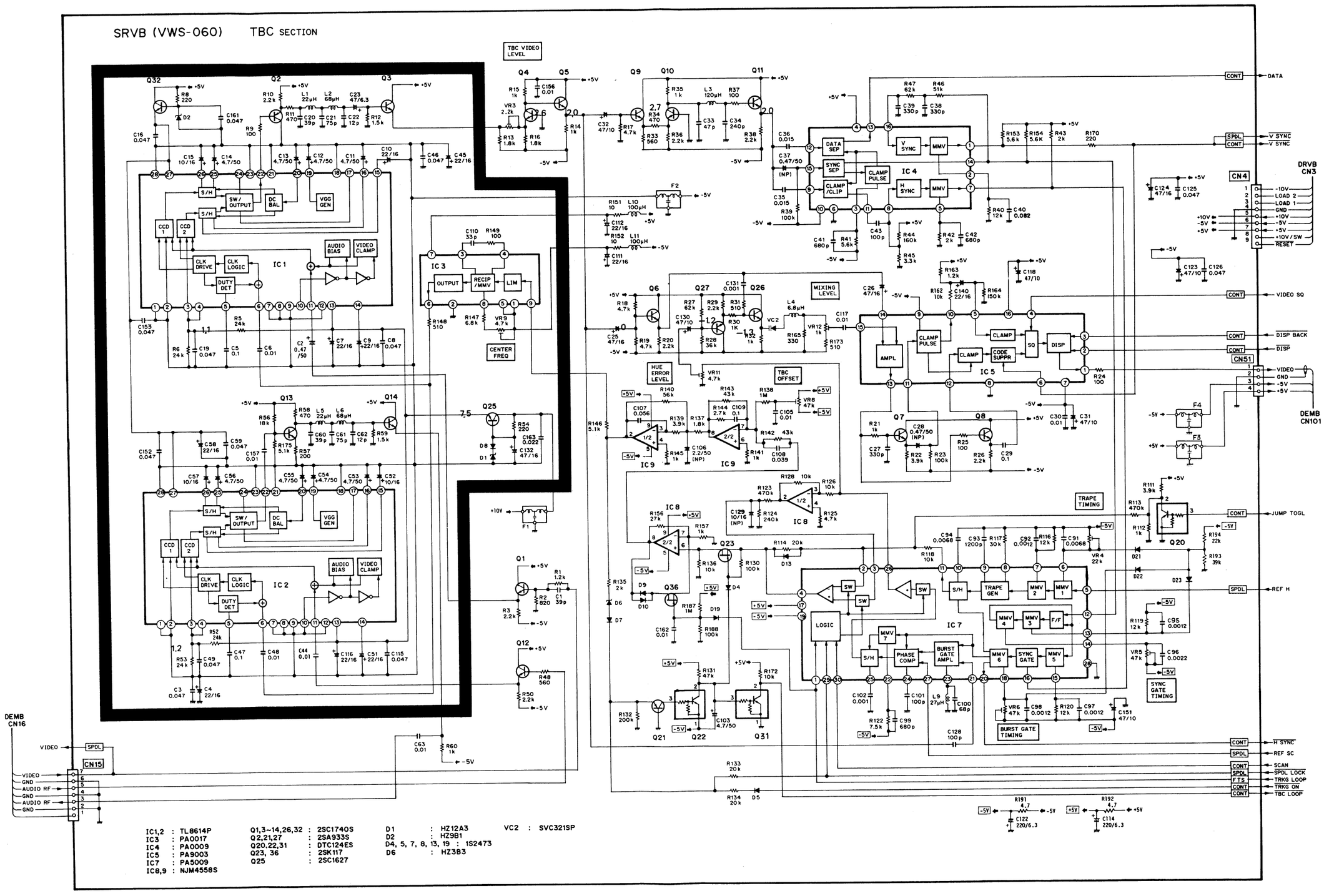
IC202 : PD5029
IC203 : PD0010
IC204 : PD0011
IC205 : TC4011BP
IC301 : PM4001

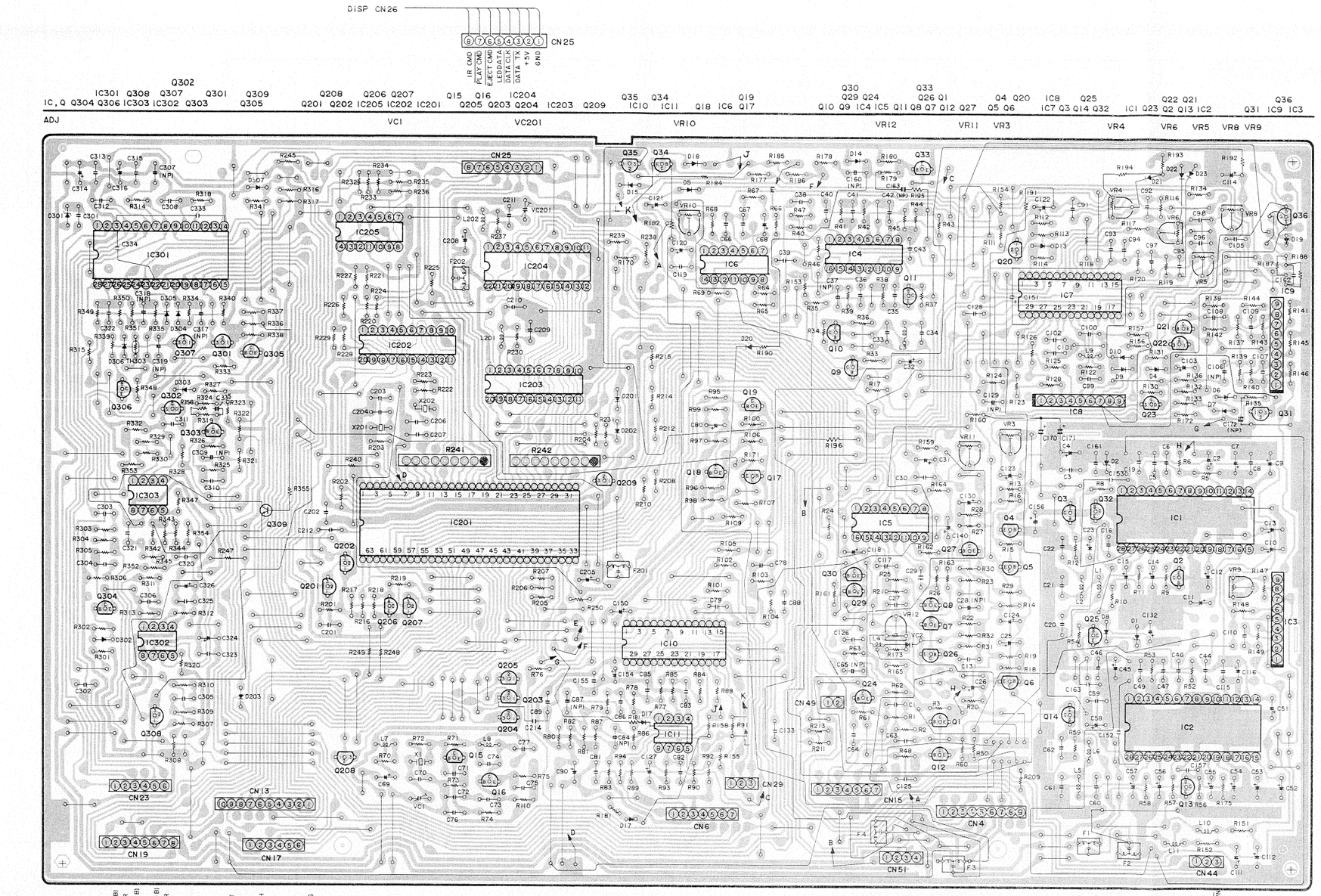
Q1, 3 ~ 16, 19, 24, 26, 29, 30, 32, 33,
Q206, 303 ~ 306, 309 : 2SC1740S
Q2, 17, 18, 21, 27, 34 : 2SA933S
Q20, 22, 31, 35, 201,
Q207 ~ 209, 307, 308 : DTC124ES
Q23, 36, 302 : 2SK117
Q25 : 2SC1627
Q202 ~ 205, 301 : DTA124ES

D1 : HZ12A3
D2 : HZ9B1
D4, 5, 7 ~ 10, 13 ~ 15, 17 ~ 23,
D201 ~ 203, 302 ~ 307 : 1S2473
D6 : HZ3B3
D301 : MTZ7.5B



2-7. TIME BASE ERRROR CORRECTION CIRCUIT (TBC section of SRVB board)





SRVB

IC1, 2 : TL8614P
IC3 : PA0017
IC4 : PA0009
IC5 : PA9003
IC6 : PA0018
IC7 : PA5009
IC8, 9, 302, 303 : NJM4558S
IC10 : PM200I
IC11 : μPC4558C

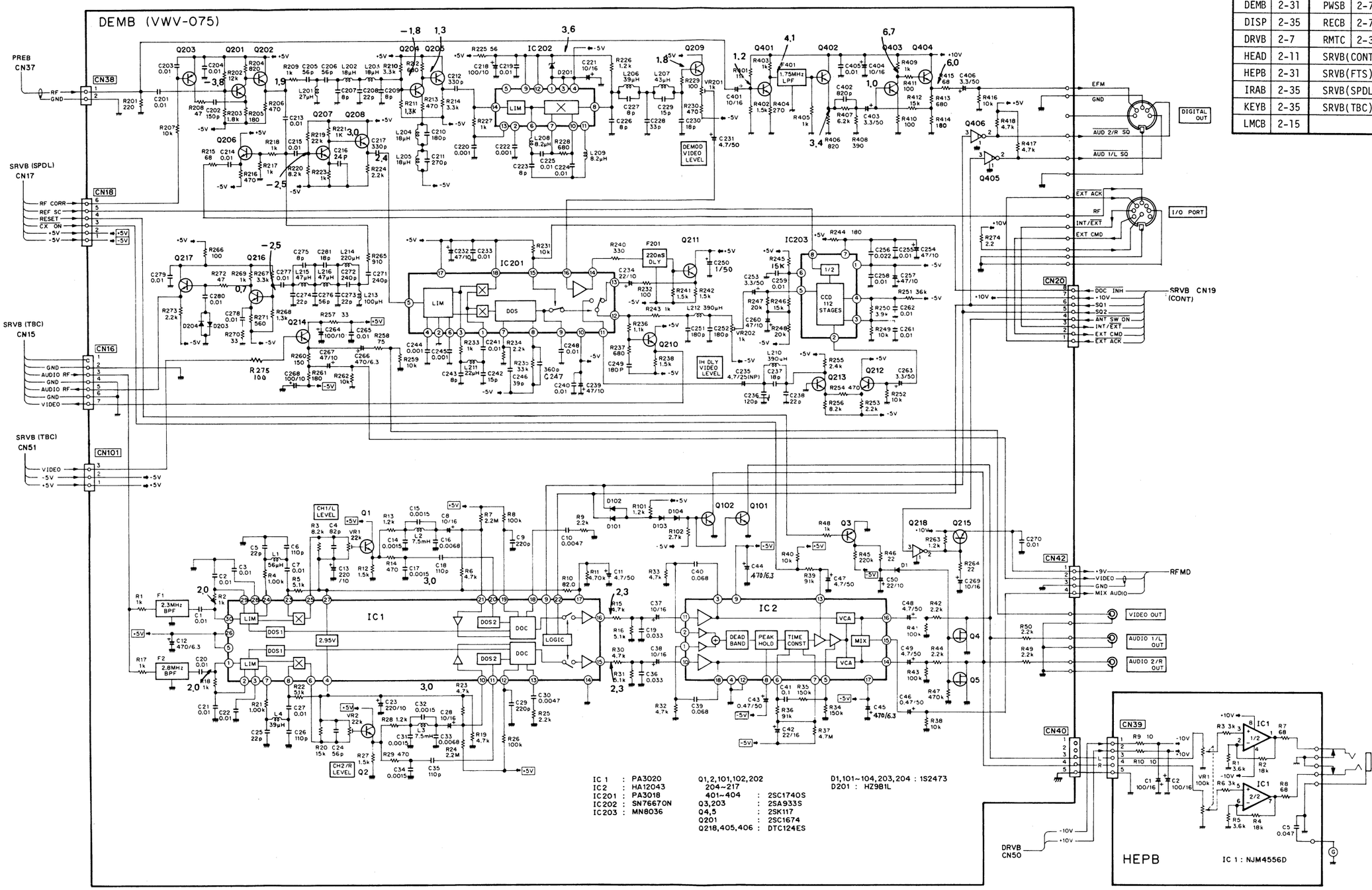
IC202 : PD5029
IC203 : PD0010
IC204 : PD0011
IC205 : TC4011BP
IC301 : PM400I

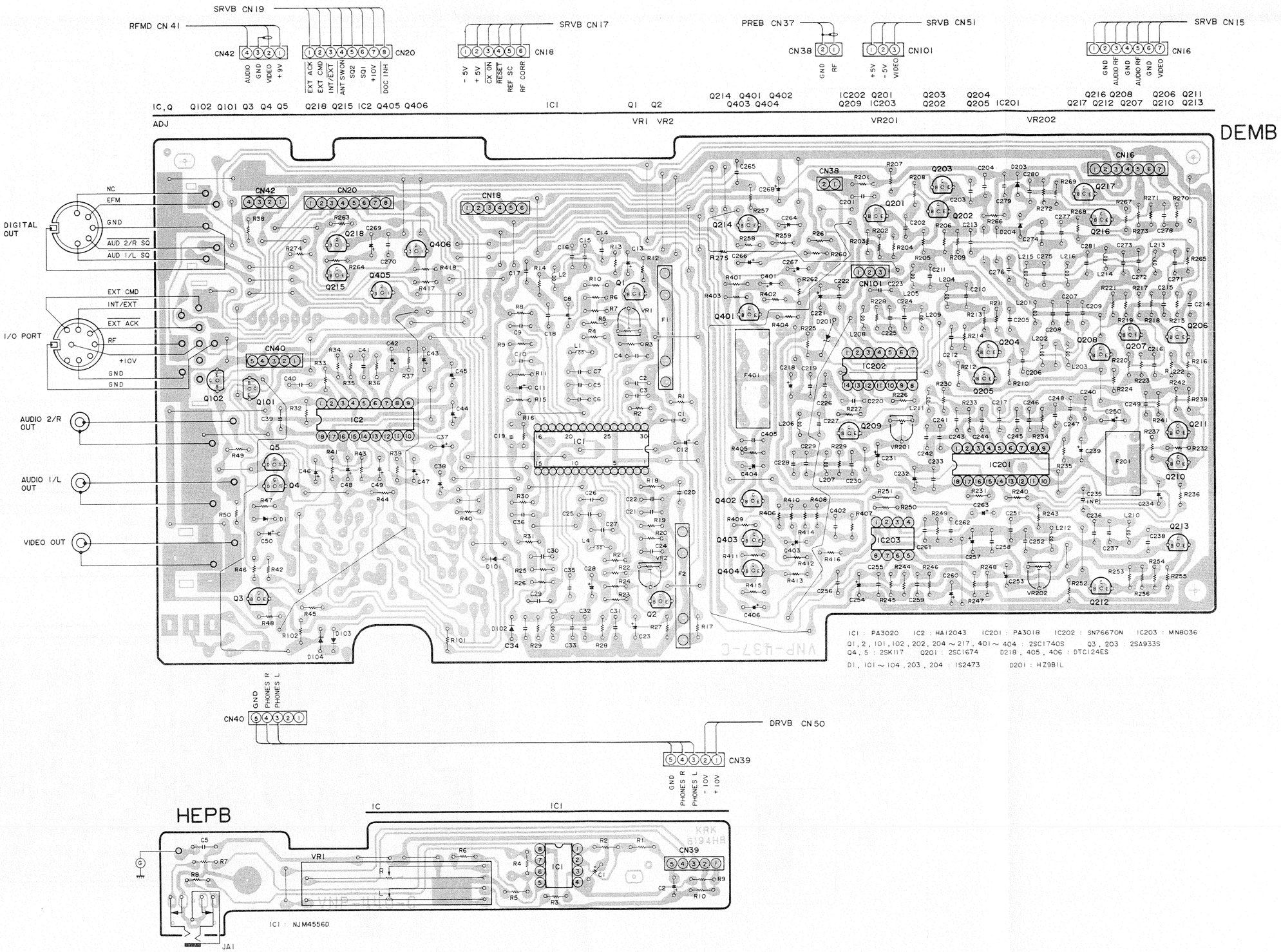
Q1, 3 ~ 16, 19, 24, 26, 29, 30, 32, 33,
Q206, 303 ~ 306, 309 : 2SC1740S
Q2, 17, 18, 21, 27, 34 : 2SA933S
Q20, 22, 31, 35, 201,
Q207 ~ 209, 307, 308 : DTC124ES
Q23, 36, 302 : 2SK117
Q25 : 2SC1627
Q202 ~ 205, 301 : DTA124ES

D1 : HZ12A3
D2 : HZ9B1
D4, 5, 7 ~ 10, 13 ~ 15, 17 ~ 23,
D201 ~ 203, 302 ~ 307 : 1S2473
D6 : HZ3B3
D301 : MTZ7.5B

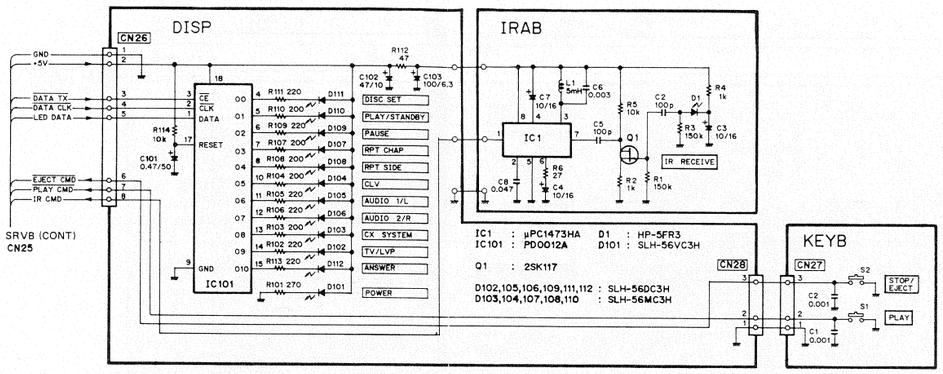
2-8. VIDEO & AUDIO DEMODUATION CIRCUIT (DEMB, HEPB board)

• INDEX

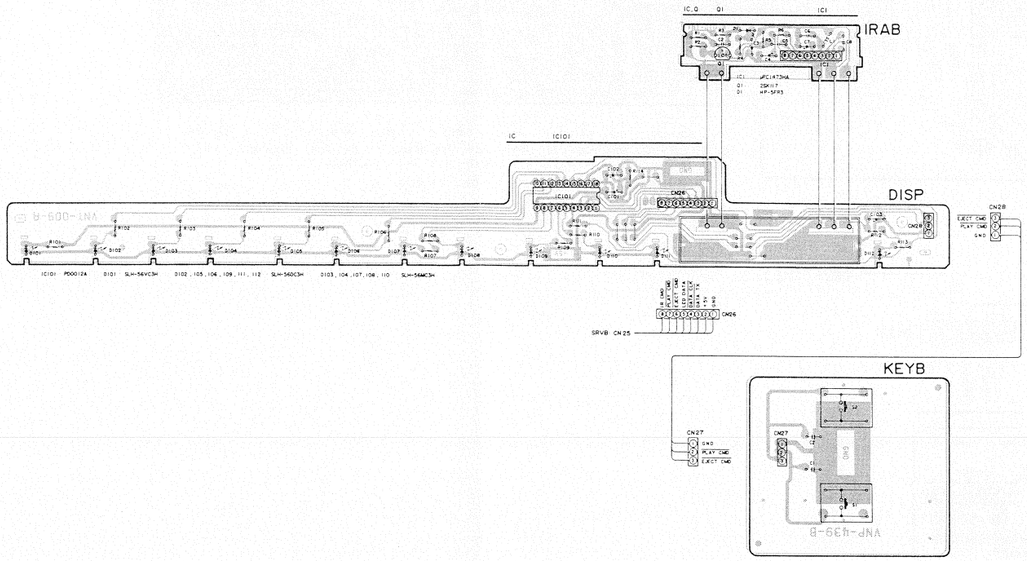



SRVB CN19
RFMD CN41
CN42
AUDIO
GND
VIDEO
+9V
CN20
EXT ACK
EXT CMD
INT/EXT
ANT SWON
SQ2
SQ1
+10V
DOC INH
SRVB CN17
CN18
-5V
+5V
CX ON
RESET
REF SC
RF CORR
PREB CN37
CN38
GND
RF
SRVB CN51
CN101
+5V
-5V
VIDEO
SRVB CN15
CN16
GND
AUDIO RF
GND
AUDIO RF
GND
VIDEO
IC,Q Q102 Q101 Q3 Q4 Q5 Q218 Q215 IC2 Q405 Q406
ADJ
IC1
Q1 Q2
VR1 VR2
Q214 Q401 Q402 Q403 Q404
IC202 Q201 Q209 IC203
Q203 Q202
Q204 Q205 IC201
VR201
VR202
Q216 Q208 Q217 Q212
Q206 Q211 Q207 Q210 Q213
DEMB
DIGITAL OUT
NC
EFM
GND
AUD 2/R SQ
AUD 1/L SQ
I/O PORT
EXT CMD
INT/EXT
EXT ACK
RF
+10V
GND
GND
AUDIO 2/R OUT
AUDIO 1/L OUT
VIDEO OUT
IC1 : PA3020 IC2 : HA12043 IC201 : PA3018 IC202 : SN76670N IC203 : MN8036
Q1, 2, 101, 102, 202, 204 ~ 217, 401 ~ 404 : 2SC1740S Q3, 203 : 2SA933S
Q4, 5 : 2SK117 Q201 : 2SC1674 D218, 405, 406 : DTC124ES
D1, 101 ~ 104, 203, 204 : 1S2473 D201 : HZ9B1L
CN40
GND
PHONES R
PHONES L
DRVB CN50
CN39
GND
PHONES R
PHONES L
-10V
+10V
HEPB
IC1 : NJM4556D
JA1

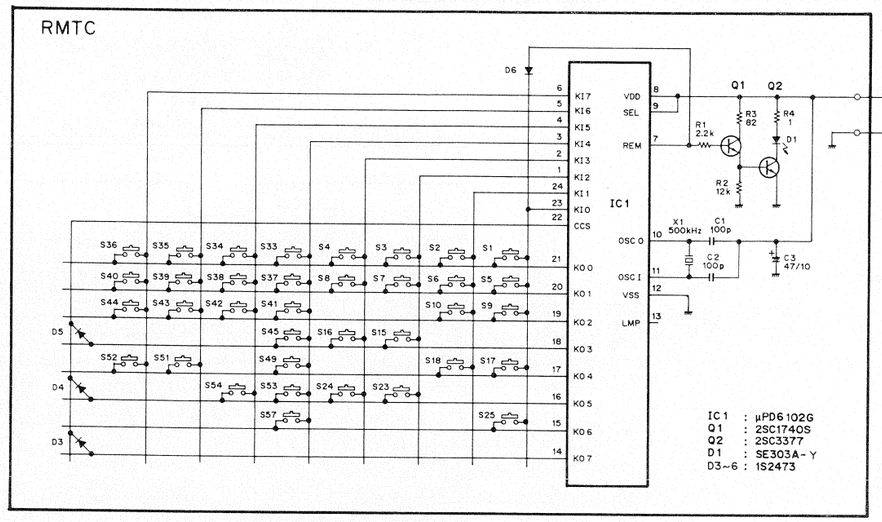
2-9. OPERATION & DISPLAY CIRCUIT (DISP, IRAB & KEYB boards)



D101	POWER	D106	AUDIO 2/R	D111	DISC SET
D102	TV/LVP	D107	REPEAT CHAPTER	D112	ANSWER
D103	CX SYSTEM	D108	REPEAT SIDE		
D104	CLV	D109	PAUSE	S1	PLAY
D105	AUDIO 1/L	D110	PLAY/STANDBY	S2	EJECT

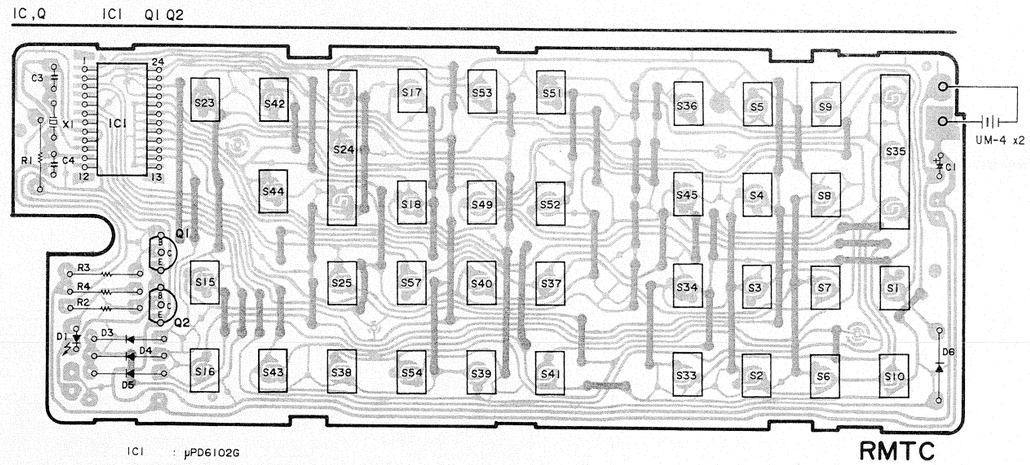


2-10. REMOTE CONTROL UNIT CIRCUIT (RMTC board)



S1	0	S6	5	S15	CX	S24	PLAY ▶	S36	DISPLAY
S2	1	S7	6	S16	TV/LVP	S25	PAUSE ❚❚	S37	REPEAT B
S3	2	S8	7	S17	SCAN ▶▶	S33	CHAPTER	S38	CLEAR
S4	3	S9	8	S18	SCAN ◀◀	S34	FRAME/TIME	S39	SPEED -
S5	4	S10	9	S23	EJECT	S35	SEARCH	S40	SPEED +

S41	REPEAT A	S49	STILL/STEP ◀❚❚	S57	MULTISPEED ▶
S42	AUDIO 2/R	S51	CHAPTER SKIP ▶▶❚		
S43	STEREO	S52	CHAPTER SKIP ❚◀◀		
S44	AUDIO 1/L	S53	STILL/STEP ❚❚▶		
S45	PROGRAM	S54	MULTISPEED ◀		



IC1 : µPD6102G
Q1 : 2SC1740S
Q2 : 2SC3377
D1 : SE303A-Y
D3 ~ 6 : 1S2473

PARTS LISTS OF BOARDS

NOTES:
- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

LSFB Parts list 1

(MK)	PART No.	(IT)	REF Nos. & DESCRIPTION
⚠	VCG-018	C	1, 2
⚠	(VCG-033)		
⚠	VTL-262		Line filter
⚠	(VTL-263)		
⚠	(VTL-264)		

PWSB Parts list 1

(MK)	PART No.	(IT)	REF Nos. & DESCRIPTION
⚠	VCG-018	C	3
⚠	(VCG-033)		
⚠	VSA-010		Power switch

RECB Parts list 1

(MK)	PART No.	(IT)	REF Nos. & DESCRIPTION
	SM1.5-02	D	101-104
	SM1A-02	D	105-112
	1S2473	D	113,114
	RD1/6PS□□□J	R	101,102
	CEA222M25	C	101-104
	CEA682M10	C	105
	CEA472M10	C	106
	CEA3R3M50	C	107
	CKDYF103Z50	C	108,109
	VKR-002		Fuse holder

DRVB (VYR-004) Parts list 1

(MK)	PART No.	(IT)	REF Nos. & DESCRIPTION
	M5218P	IC	1
	NJM4556D	IC	2
	MB3763	IC	3
	2SA933S (2SA1015)	Q	1, 7
	2SC1740S (2SC1815)	Q	2, 8
	2SD1407	Q	3
	2SB1016	Q	4
	2SC2497	Q	5
	2SA1096	Q	6
	2SC1627	Q	9
	2SD1267	Q	10
	2SD1226M	Q	11, 15
	2SB910M	Q	12, 16
	2SC1847	Q	13
	2SA886	Q	14
	1S2473	D	1, 2, 5
	HZ5C1	D	3, 4
	HZ4C3	D	6
	HZ6C3	D	7
	HZ11B2	D	8
	S2K20	D	9
	SM1A-02	D	10, 11
	RD1/6PS□□□J	R	1- 18, 25- 34, 38- 45, 49
	VCN-100	R	19 2.7/1W
	RN1/6PQ2202F	R	20, 22- 24
	VCN-092	R	21 1.2/3W
	RD1/2PMF220J	R	37
	RD1/2VM3R3J	R	46, 47
	VCN-099	R	48 4.7/1W
	CEA100M16	C	1
	CEA220M10	C	2, 3, 6, 7
	CKDYF103Z50	C	4, 5, 8, 13, 14, 17, 18, 29
	CEA220M25	C	9, 10, 24, 25
	CEA221M16	C	11, 12
	CEA220M16	C	15, 16
	CKDYB102K50	C	19
	CCDSL471J50	C	20
	CEA100M50	C	21
	CCDSL331J50	C	22
	CEA220M50	C	26
	CKDYX473M25	C	30, 31
	CEA470M50	C	32
	VTT-070	L	1 Choking coil
	VNE-704		Heat sink

NOTES:
- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

PREB (VWV-077) Parts list 1

(MK)	PART No.	(IT)	REF Nos. & DESCRIPTION
	NJM4558S	IC	1- 4
	NJM082S	IC	5
	uPC339C	IC	6
	2SC1674	Q	1- 3
	2SC1740S (2SC1815)	Q	4, 5, 12
	2SA933S (2SA1015)	Q	6
	2SD1225M	Q	7, 13
	2SB909M	Q	8
	2SK30ATM	Q	9
	DTA124ES	Q	10
	DTC124ES	Q	11, 14- 16
	1S2473	D	1- 6, 10, 11, 13
	MTZ3.6A	D	7, 8
	MTZ5.6C	D	9
	TLR123	D	12
	HZ5C2	D	14
	RD1/6PS□□□J	R	1- 46, 48- 68, 70- 78, 81- 95
	RD1/4PM□□□J	R	47, 96
	RN1/6PQ□□□□F	R	79, 80
	VRTB6VS472	VR	1, 5, 9
	VRTB6VS223	VR	2
	VRTB6VS103	VR	3, 10
	VRTB6VS473	VR	4
	VRTB6VS102	VR	6
	VRTB6VS104	VR	7
	VRTB6VS222	VR	8
	CEANP4R7M35	C	1, 17, 31
	CKDYF103Z50	C	2, 4, 6, 7, 11, 19, 21, 22, 24, 25, 27- 30, 33- 35, 38
	CEANPR47M50	C	3, 14
	CELA010M50	C	5, 8, 10, 20, 32
	CELA100M16	C	12, 18, 23, 26
	CQMA273J50	C	13
	CELA470M16	C	15, 16
	CEA2R2M50	C	36
	CKDYX473M25	C	37
	D33A	TH	1
	VKN-162		18P connector

NOTES:
- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

SRVB (VWS-060) Parts list 1

(MK)	PART No.	(IT)	REF Nos. & DESCRIPTION
	TL8614P	IC	1, 2
	PA0017	IC	3
	PA0009	IC	4
	PA9003	IC	5
	PA0018	IC	6
	PA5009	IC	7
	NJM4558S	IC	8, 9
	PM2001	IC	10
	uPC4558C	IC	11
	See note.	IC	201
	PD5029	IC	202
	PD0010	IC	203
	PD0011	IC	204
	TC4011BP	IC	205
	PM4001	IC	301
	NJM4558D	IC	302,303
	2SC1740S	Q	1, 3- 16, 19, 24, 26, 29,
	(2SC1815)		30, 32, 33,206,303-306,309
	2SA933S	Q	2, 17, 18, 21, 27, 34
	(2SA1015)		
	DTC124ES	Q	20, 22, 31, 35,201,207-209, 307,308
	2SK117	Q	23, 36,302
	2SC1627	Q	25
	DTA124ES	Q	202-205,301
	HZ12A3	D	1
	1S2473	D	4, 5, 7- 10, 13- 15, 17- 23,201-203,302-307
	HZ3B3	D	6
	MTZ7.5B	D	301
	RD1/6PS□□□J	R	1- 3, 6, 8- 48, 50, 52- 54, 56-101,104-106,109,110
	RD1/4VM□□□J	R	5,153,160,161,173,187
	RN1/6PQ□□□□F	R	102,103
	RD1/6PS□□□J	R	111-114,116,117,119,120,122-126,128,130-149,151,152,154-159,162-165,170-172,175,177-182,184-188,201-239
	RD1/4PM□□□J	R	118,190-194,196,243,247-250, 354
	VCN-125	R	241,242 10k x8
	RD1/6PS□□□J	R	245,301-330,332-345,347-353, 356
	VRTB6VS222	VR	3
	VRTB6VS223	VR	4
	VRTB6VS473	VR	5, 6, 8
	VRTB6VS472	VR	9- 11
	VRTB6VS102	VR	12
	CCDSL390J50	C	1, 20, 60
	CEJAR47M50	C	2
	CKDYX473M25	C	3, 8, 16, 19, 46, 49, 59, 115,119,125,126,152,153,161, 201,333,334
	CEJA220M16	C	4, 7, 9, 10, 45, 51, 58, 69,111,112,116,140,314,316

SRVB (VWS-060) Parts list 2

(MK)	PART No.	(IT)	REF Nos. & DESCRIPTION
	CQMA104K50	C	5, 29, 47,109,311
	CKDYF103Z50	C	6, 30, 44, 48, 63, 75, 76, 78, 89,105,117,155,157,202, 212,301,302,313,315,323,325
	CEJA4R7M50	C	11- 14, 53- 56,103
	CEJA100M16	C	15, 52, 57, 80,156
	CCDSL750J50	C	21, 61
	CCDSL120J50	C	22, 62
	CEJANP470M6R3	C	23
	CEJA470M16	C	25,132,165
	CEJA470M10	C	26,124
	CCDSL331J50	C	27, 38, 39, 64
	CEANPR47M50	C	28, 37,307
	CEA470M10	C	31, 32, 90,118,120,121,123, 130,166,167,208,324,326
	CCDSL470J50	C	33,203,204,210
	CCDSL241J50	C	34
	CQMA153J50	C	35, 36,320
	CQMA823J50	C	40
	CKDYB681K50	C	41, 42, 99
	CCDSL101J50	C	43,101,128
	CEANP4R7M25	C	65,309
	CQSA271J50	C	66
	CQMA124K50	C	67
	CEA010M50	C	68
	CCDCH080D50	C	70
	CCDCH680J50	C	71, 72
	CCDCH220J50	C	73
	CCDCH270J50	C	74
	CCDCH100D50	C	77,209,211
	CQMA223J50	C	79,322
	CCDSL221J50	C	81
	CQMA183J50	C	82
	CQMA123J50	C	83, 85
	CEANP330M16	C	84
	CCDSL680J50	C	86,100
	CEANP470M16	C	87
	CKDYF223Z50	C	88,133,163
	CQMA682J50	C	91, 94,306
	CQMA122J50	C	92, 95, 97, 98
	CQSA122J50	C	93
	CQMA222J50	C	96
	CQMA102J50	C	102,308
	CEANP2R2M50	C	106,318
	CQMA563J50	C	107
	CQMA393J50	C	108
	CCDCH330J50	C	110
	CEA221M6R3	C	114,122
	CEA470M16	C	127
	CEANP100M16	C	129
	CKDYB102K50	C	131,312
	CEA3R3M50	C	150
	CEA470M10	C	151,154
	CEANP3R3M25	C	160
	CQMA103J50	C	162

NOTES:
- *Parts without part number cannot be supplied.*
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SRVB (VWS-060) Parts list 3

(MK)	PART No.	(IT)	REF Nos. & DESCRIPTION
	CEANP3R3M50	C	163,168
	CEJA470M16	C	165
	CEA101M6R3	C	170
	CEJA220M16	C	171
	CEANP100M16	C	172
	CEA101M10	C	205
	CCDSL151J50	C	206,207
	CQMA104J50	C	214
	CQMA822J50	C	303,321
	CQMA473J50	C	304
	CQMA392J50	C	305
	CQMA683J50	C	310
	CEANP010M50	C	317,319
	VCM-008	VC	1 20pF
	SVC321SP	VC	2
	(SVC321SPZ)		
	VCM-003	VC	201 45pF
	VTL-027	L	1, 5 22uH
	VTL-033	L	2, 6 68uH
	VTL-036	L	3 120uH
	VTL-021	L	4 6.8uH
	VTL-035	L	7, 10, 11 100uH
	VTL-019	L	8 4.7uH
	VTL-028	L	9 27uH
	VTL-039	L	201,202 220uH
	VTH-005	F	1- 4,201,202
	VSS-043	X	1 14.3MHz
	VSS-018	X	201 4MHz
	(VSS-035)		
	VSS-041	X	202 400kHz
	D33A	TH	303
	VKH-029		IC socket 64P

BLMB Parts list 1

(MK)	PART No.	(IT)	REF Nos. & DESCRIPTION
	PA2016	IC	1
	STA302A	Q	10
	STA303A	Q	11

NOTES:

- *Parts without part number cannot be supplied.*
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DEMB (VWV-075) Parts list 1

(MK)	PART No.	(IT)	REF Nos. & DESCRIPTION
	PA3020	IC	1
	HA12043	IC	2
	PA3018	IC	201
	SN76670N	IC	202
	MN8036	IC	203
	2SC1740S (2SC1815)	Q	1, 2,101,102,202,204-217, 401-404
	2SA933S (2SA1015)	Q	3,203
	2SK117	Q	4, 5
	2SC1674	Q	201
	DTC124ES	Q	218,405,406
	1S2473	D	1,101-104,203,204,301,302
	HZ9B1L	D	201
	RD1/6PM□□□J	R	1- 3, 5- 9, 12- 20, 22- 36, 38- 40, 45- 48,101,102, 201-221,223-238,240-253
	RN1/6PQ□□□□F	R	4, 10, 11, 21
	RD1/4VM□□□J	R	37,301
	RDR1/4PM□□□J	R	41- 44, 49, 50
	RD1/6PM□□□J	R	254-275,401-418
	VRTB6VS223	VR	1, 2
	VRTB6VS102	VR	201,202
	CKDYF103Z50	C	1- 3, 7, 20- 22, 27,201, 203,204,213-215,219,224,225, 233,240,241,248,255,258,259, 261,262,265,270,277-280,301, 405
	CCDCH820J50	C	4
	CCDCH220J50	C	5, 25,208,238,273,274
	CCDCH111J50	C	6, 18, 26, 35
	CEA100M16	C	8, 28,221,250,269,401,404
	CCDCH221J50	C	9, 29
	CKDYB472K50	C	10, 30
	CEA4R7M50	C	11, 47,231
	VCH-036	C	12, 44, 45 470/6.3
	CEAS221M10	C	13, 23
	CQMA152J50	C	14, 15, 17, 31, 32, 34
	CQMA682J50	C	16, 33
	CQMA333J50	C	19, 36
	CCDCH560J50	C	24,205,206,276
	VCH-037	C	37, 38 10/16
	CQMA683J50	C	39, 40
	CQMA104J50	C	41
	CEANL220K16	C	42
	CEANLR47K50	C	43
	CEAR47M50	C	46
	VCH-038	C	48, 49 4.7/50
	CEA220M10	C	50,234
	CCDSL151J50	C	202
	CCDCH080D50	C	207,209,223,226,227,243,275
	CCDSL181J50	C	210,249,251,252
	CCDSL271J50	C	211
	CCDSL331J50	C	212,217
	CCDCH240J50	C	216

DEMB (VWV-075) Parts list 2

(MK)	PART No.	(IT)	REF Nos. & DESCRIPTION
	CEAS101M10	C	218,264,268
	CKDYB102K50	C	220,222,244,245
	CCDCH330J50	C	228,230
	CCDCH150J50	C	229,242
	CEA470M10	C	232,239,254,257,260,267
	CEANP4R7M25	C	235
	CCDSL121J50	C	236
	CCDSL180J50	C	237
	CCDCH390J50	C	246
	CCDSL361J50	C	247
	CEA3R3M50	C	253,263,403,406
	CKDYF223Z50	C	256
	CEAS471M6R3	C	266
	CCDSL241J50	C	271,272
	CCDCH180J50	C	281
	CQSA821J50	C	402
	VTL-183	L	1 56uH
	VTL-268	L	2, 3 7.5mH
	VTL-182	L	4 39uH
	VTL-028	L	201 27uH
	VTL-026	L	202-205 18uH
	VTL-030	L	206 39uH
	VTL-051	L	207 43uH
	VTL-022	L	208,209 8.2uH
	VTL-042	L	210,212 390uH
	VTL-027	L	211 22uH
	VTL-245	L	213 100uH
	VTL-249	L	214 220uH
	VTL-242	L	215,216 47uH
	VTF-051	F	1 2.3MHz B.P.F.
	VTF-052	F	2 2.8MHz B.P.F.
	VTF-016	F	201 220nS DLY
	VTF-057	F	401 1.75MHz L.P.F
	VKN-149		8P DIN socket
	VKN-165		5P DIN socket

HEPB Parts list 1

(MK)	PART No.	(IT)	REF Nos. & DESCRIPTION
	NJM4556D	IC	1
	RD1/6PM□□□J	R	1- 10
	VCS-038	VR	1 100k
	CEJA101M16	C	1, 2
	CKDYX473M25	C	5
	VKN-174		Phones jack

NOTES:

- *Parts without part number cannot be supplied.*
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DISP Parts list 1

(MK)	PART No.	(IT)	REF Nos. & DESCRIPTION
	PD0012A	IC	101
	SLH-56VC3H	D	101
	SLH-56DC3H	D	102,105,106,109,111,112
	SLH-56MC3H	D	103,104,107,108,110
	RD1/6PS□□□J	R	101-114
	CEJAR47M50	C	101
	CEJA470M10	C	102
	CEJA101M6R3	C	103

IRAB Parts list 1

(MK)	PART No.	(IT)	REF Nos. & DESCRIPTION	
	uPC1473HA	IC	1	
	2SK117	Q	1	
	HP-5FR3	D	1	
	RD1/6PS□□□J	R	1- 6	
	CCDSL101J50	C	2, 5	
	CEJA100M16	C	3, 4, 7	
	CQMA302J50	C	6	
	CQMA473J50	C	8	
	VTL-118	L	1	5mH

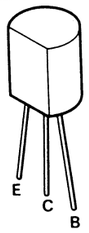
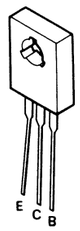
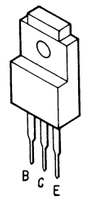
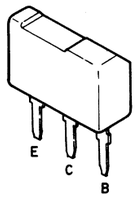
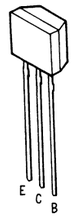
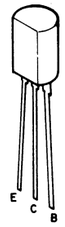
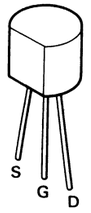
KEYB Parts list 1

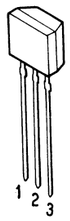
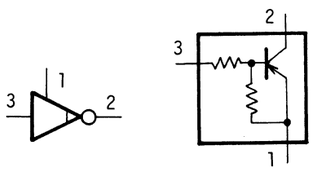
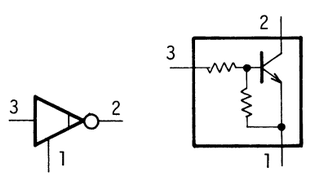
(MK)	PART No.	(IT)	REF Nos. & DESCRIPTION	
	CKDYB102K50	C	1, 2	
	VSC-011	S	1, 2	Switch

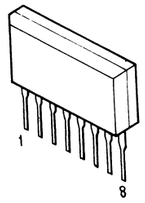
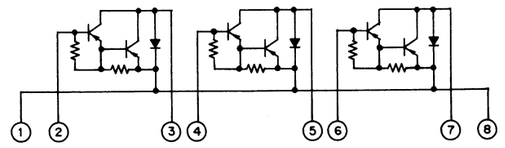
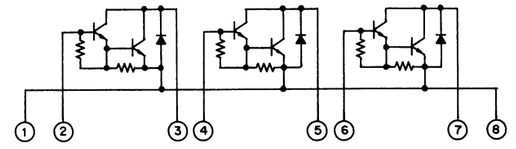
RMTC Parts list 1

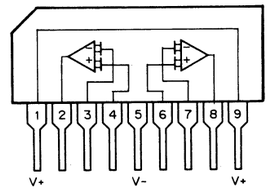
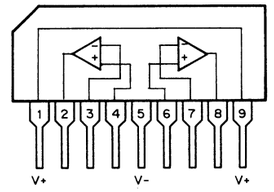
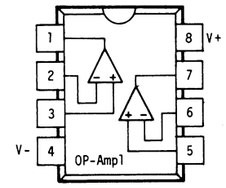
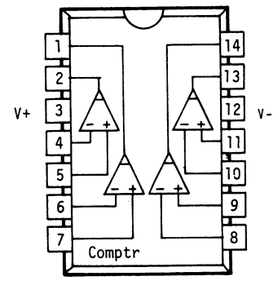
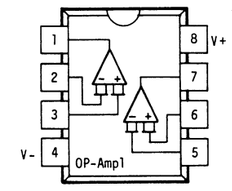
(MK)	PART No.	(IT)	REF Nos. & DESCRIPTION	
	uPD6102G	IC	1	
	2SC1740S (2SC2021LN)	Q	1	
	2SC3377 (2SC2673)	Q	2	
	SE303A-Y	D	1	
	1S2473	D	3- 6	
	RD1/4PM□□□J	R	1- 4	
	CEA470M10	C	1	
	CCDSL101J50	C	3, 4	
	VSS-031 (VSS-029)	X	1	500kHz
	AZK-005		Battery terminal	
	AZK-006		Battery spring	

3. IC & TRANSISTORS

2SA1015 2SC1627 2SC1674 2SC1815		2SA886 2SA1096 2SC1847 2SC2497		2SB1016 2SD1267 2SD1407	
2SB909M 2SB910M 2SD1225M 2SD1226M		2SA933S 2SC1740S		2SA1283 2SC3243	
2SK117		2SK30ATM			

DTA124ES DTC124ES		DTA124ES  DTC124ES 

STA302A STA303A	
STA302A	
STA303A	

NJM082S		NJM4558S	
M5218P NJM4556D NJM4558D μPC4558C		μPC339C	
NJM072DE NJM082D			

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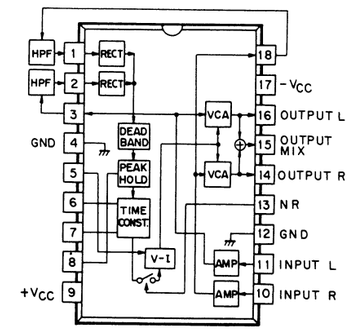

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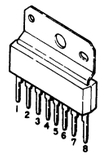

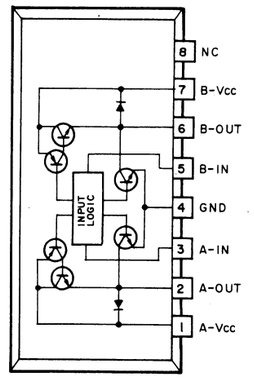

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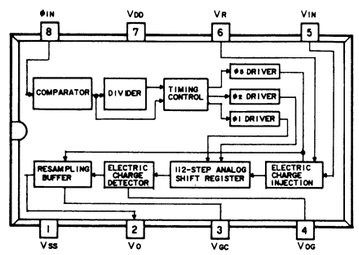

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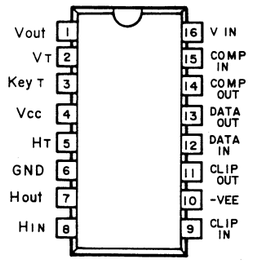

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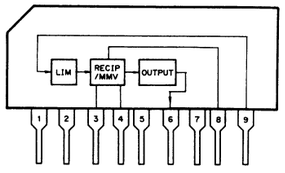

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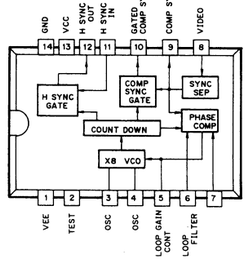

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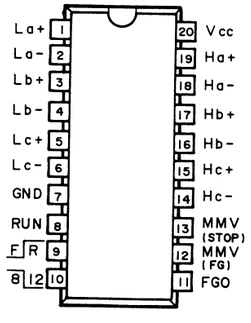

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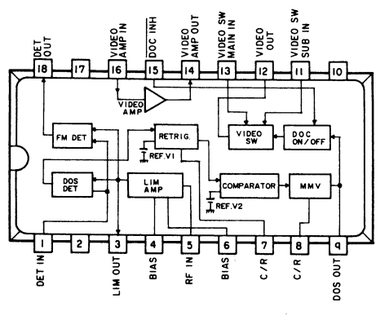

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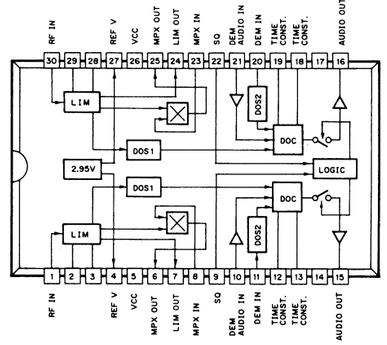

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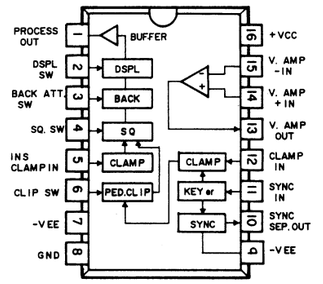

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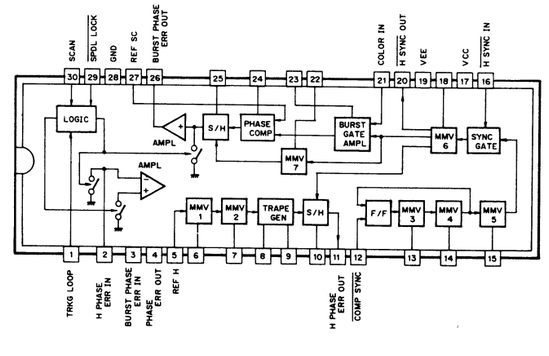

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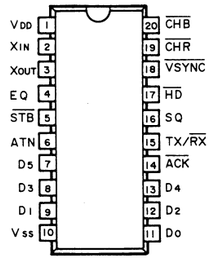

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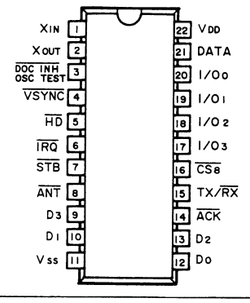

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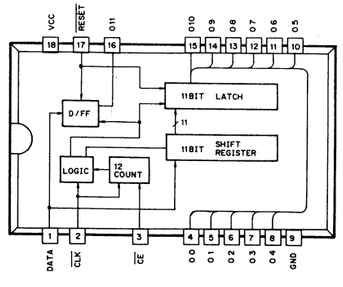

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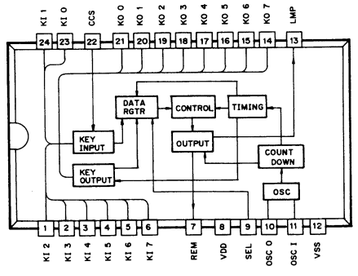

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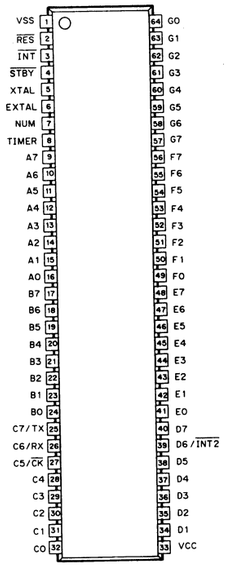
PD3054
PD3060



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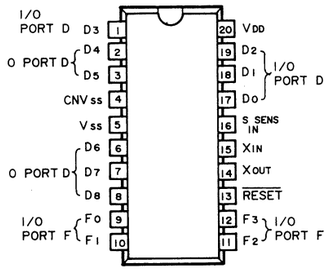

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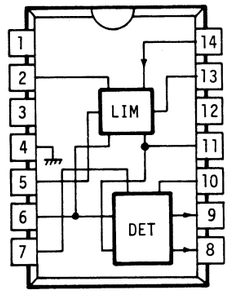

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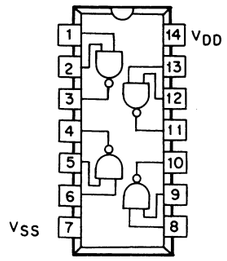

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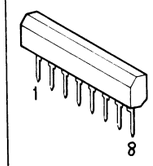

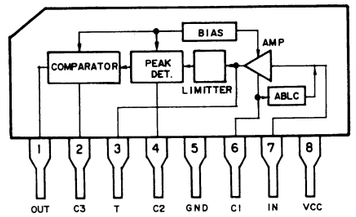

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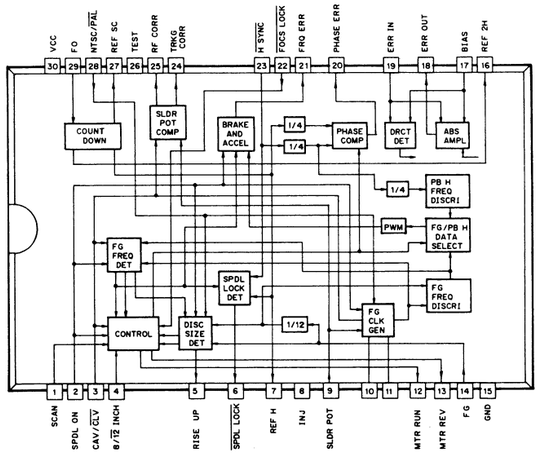

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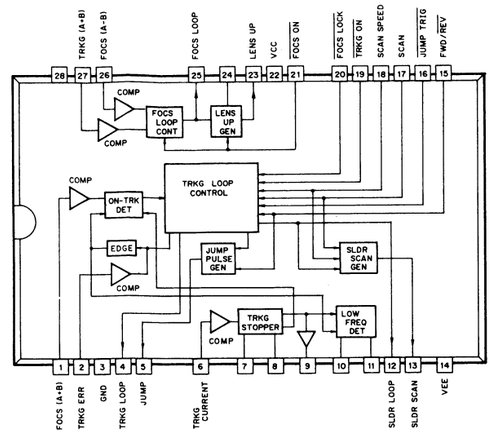
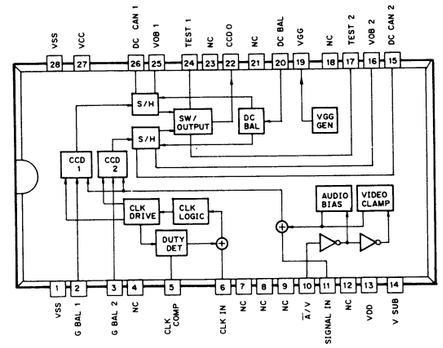
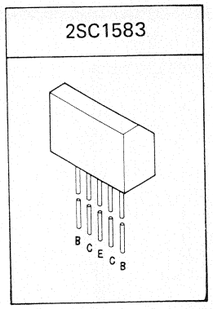


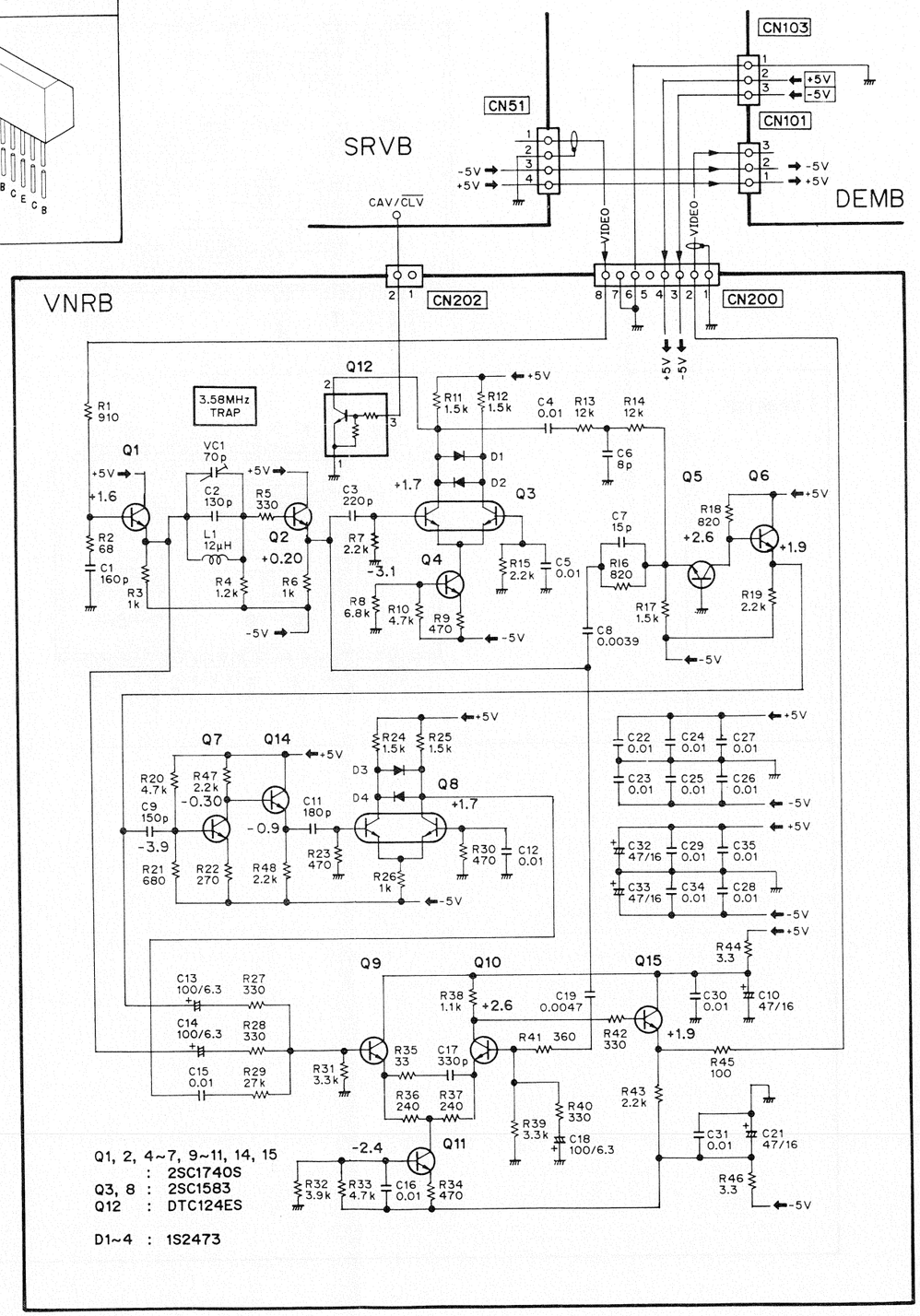
TL8614P

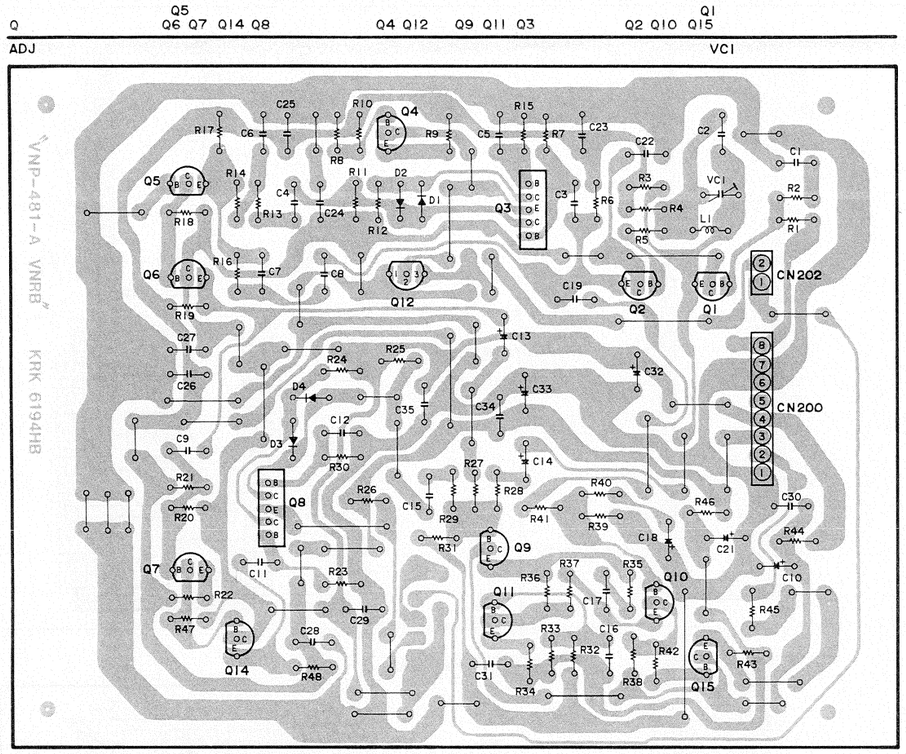


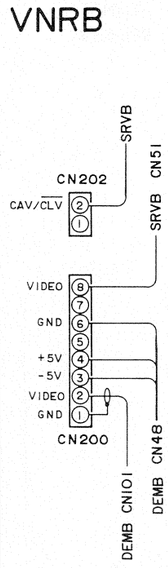
4. VNRB, FMPB, INIB & CDCR BOARD

4.1 VNRB BOARD







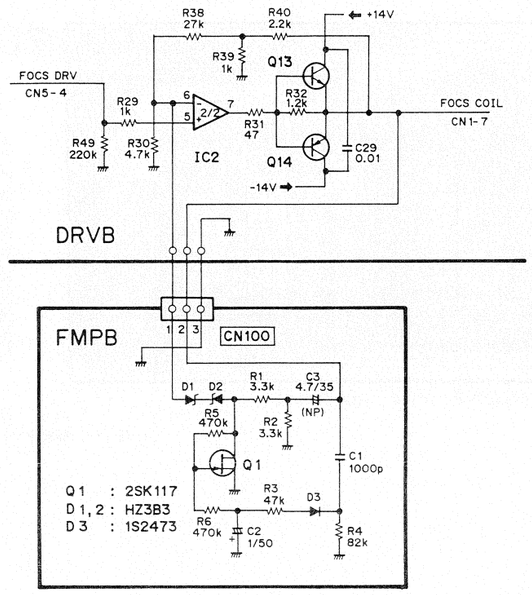


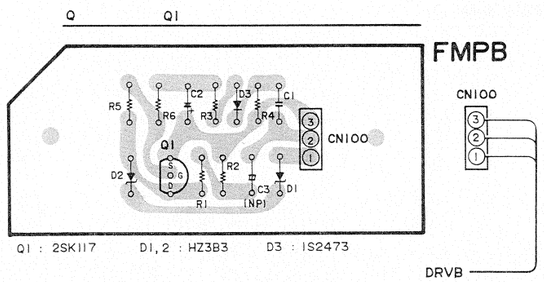
Q1, 2, 4~7, 9~11, 14, 15 : 2SC1740S Q3, 8 : 2SC1583 Q12 : DTC124ES
D1~ 4 : 1S2473

VNRB Parts list 1

(MK)	PART No.	(IT)	REF Nos. & DESCRIPTION
	2SC1740S	Q	1, 2, 4- 7, 9- 11, 14, 15
	2SC1583	Q	3, 8
	DTC124ES	Q	12
	1S2473	D	1- 4
	RD1/6PS000J	R	1- 48
	CCDSL161J50	C	1
	CQSA131J50	C	2
	CCDSL221J50	C	3
	CKDYF103Z50	C	4, 5, 12, 15, 16, 22- 31, 34, 35
	CCDCH080D50	C	6
	CCDCH150J50	C	7
	CKDYB392K50	C	8
	CCDSL151J50	C	9
	CELA470M16	C	10, 21, 32, 33
	CCDSL181J50	C	11
	CELA101M6R3	C	13, 14, 18
	CCDSL331J50	C	17
	CKDYB472K50	C	19
	VCM-009	VC	1 70pF

4.2 FMPB BOARD





FMPB Parts list 1

(MK)	PART No.	(IT)	REF Nos. & DESCRIPTION
	2SK117	Q	1
	HZ3B3	D	1, 2
	1S2473	D	3
	RD1/4VM□□□J	R	1- 6
	CQMA102J50	C	1
	CEA010M50	C	2
	CEANP4R7M35	C	3

4.3 INIB BOARD

INIB Parts list 1

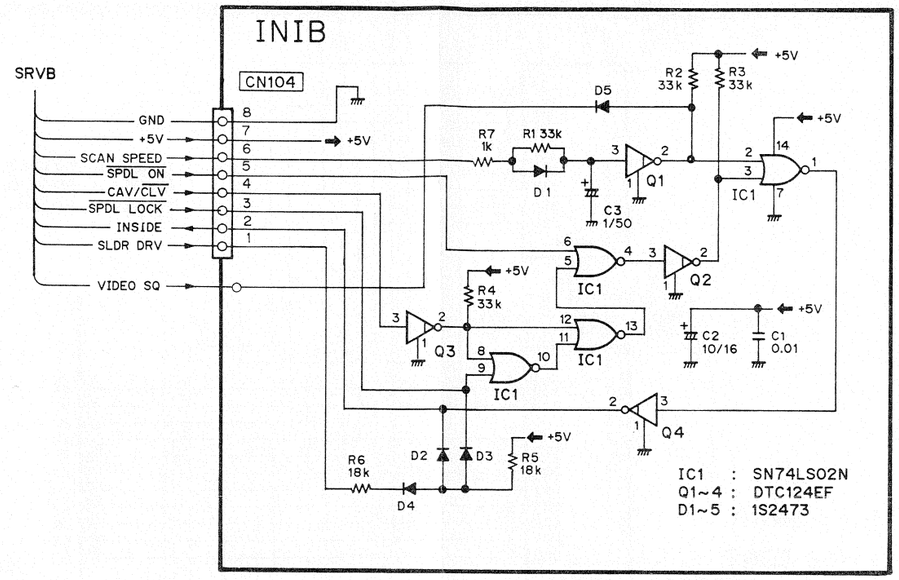
(MK)	PART No.	(IT)	REF Nos. & DESCRIPTION
	SN74LS02N	IC	1
	DTC124EF	Q	1- 4
	1S2473	D	1- 5
	RD1/6PM□□□J	R	1- 7
	CKDYF103Z50	C	1
	CEA100M16	C	2
	CEA010M50	C	3
	VEC-244		Spacer

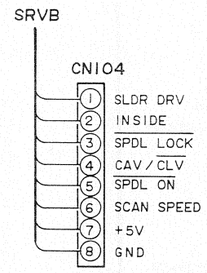
INIB & CDCR BOARDS

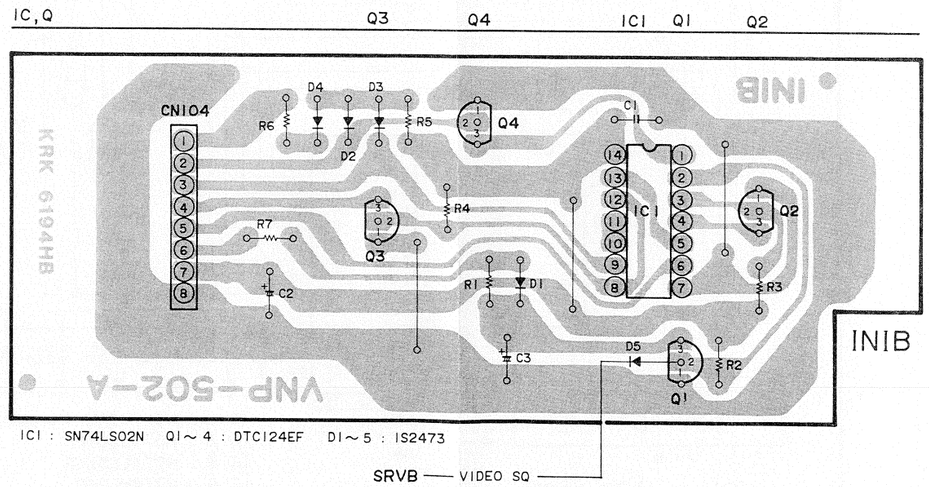
Depending on the time of manufacture of the LD-707, the IC used for the main CPU (IC201 on the SRVB board) may be either a PD3049, PD3054 or PD3060.

If the CPU is a PD3049, its functions are supplemented by the installation of an additional CDCR board, and if the CPU is a PD3054, its functions are supplemented by an INIB board.

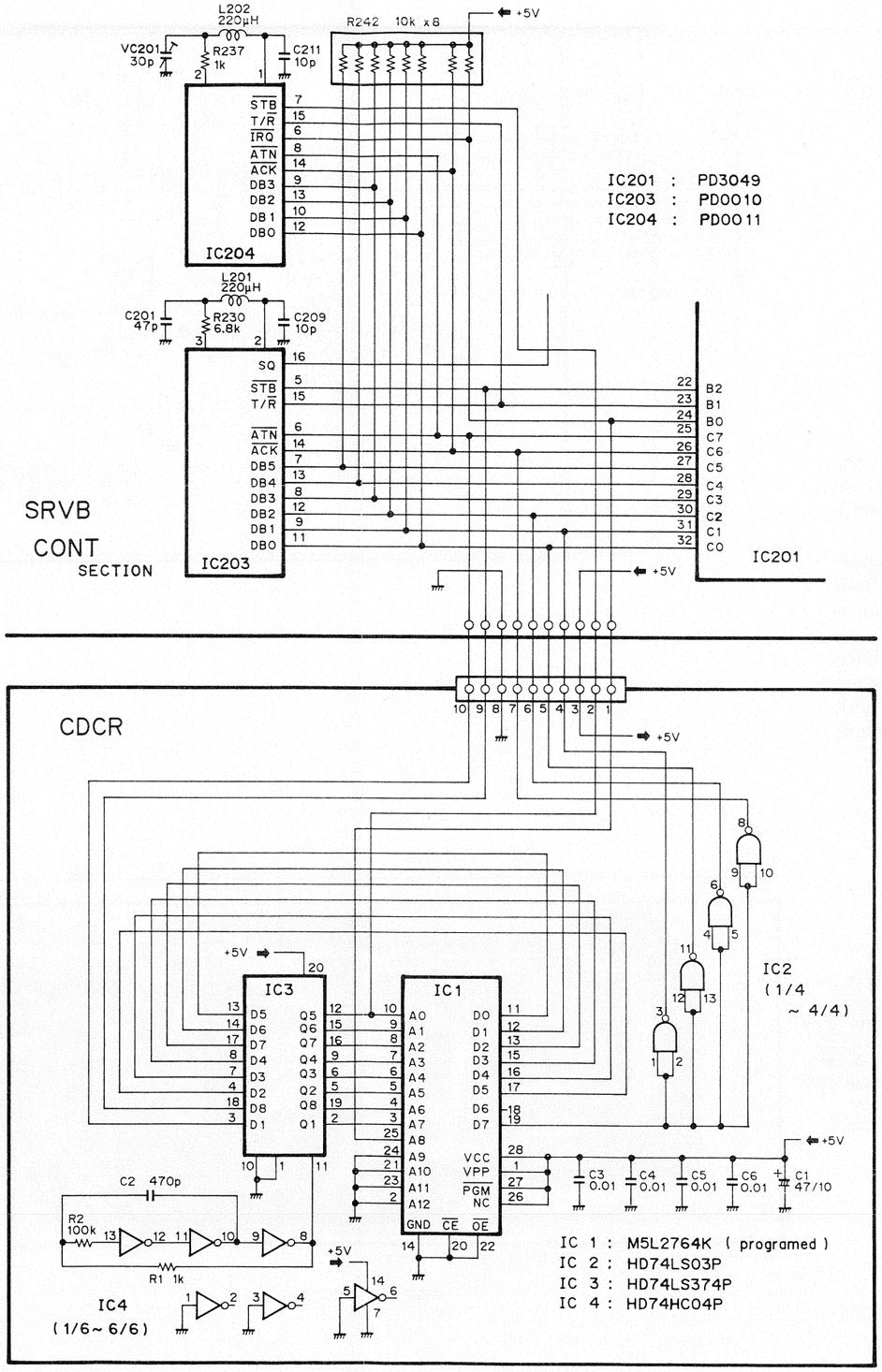
The PD3049, PD3054, CDCR board and INIB board are not supplied as service parts, so when replacement is required, replace the main CPU with a PD3060, and remove the CDCR or INIB board, and the cables connecting it to the SRVB board.

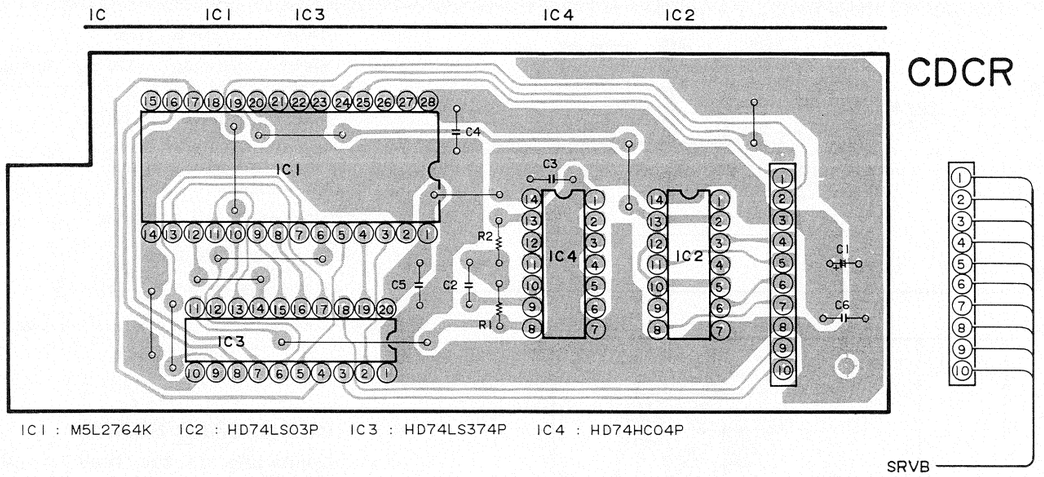






4.4 CDCR BOARD

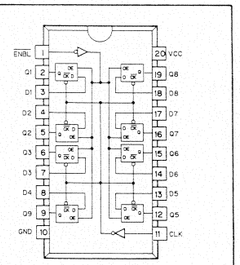




CDCR Parts list 1

(MK)	PART No.	(IT)	REF Nos. & DESCRIPTION
	HD74LS03P	IC	2
	HD74LS374P	IC	3
	HD74HC04P	IC	4
	RD1/4VM000J	R	1, 2
	CEA470M10	C	1
	CCDSL471J50	C	2
	CKDYF103Z50	C	3- 6

HD74LS374P



5. ADJUSTMENTS

5.1 ADJUSTMENT PREPARATIONS

The measuring instruments and jigs which are listed below are required for the adjustments:

- Dual-trace oscilloscope (0 — 35MHz)
- Oscillator
- Frequency counter (6 or more digits)
- TV monitor and connecting cord
- Remote control unit, CU-707
- Test disc (F1 — F4)
- L-type eccentric driver (GGV-129)
- Low-pass filter (LPF)

Note: Test disc in good condition and without warpage, scratches and other marks should be used.

For carrying out the adjustments, follow the sequence below to position the player as shown in the figure.

(1) Remove the bottom plate (6 screws).
Do not remove the bonnet. This is to safeguard the TILT circuit from the effects of extraneous light.

(2) Stand the player in the erect position as in the figure.

(3) Remove the screws securing the SRVB board and disengage the three pawls supporting the board.

(4) Remove the CDCR board and INIB board if they are provided on the player.

(5) Connect the TV monitor to the video output connector on the rear panel.

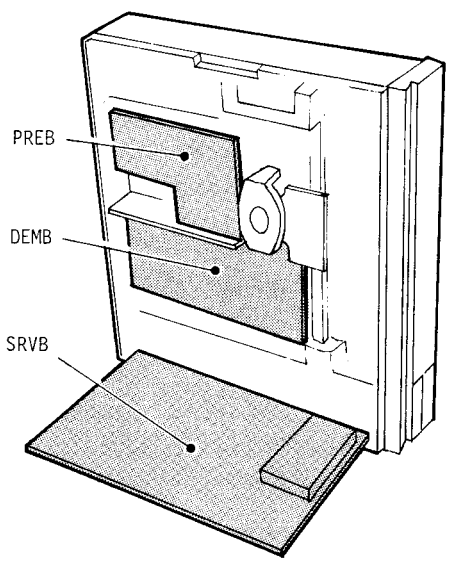


Fig. 5.1 Player before adjustments

5.2 CAUTIONS FOR ADJUSTMENT

- Discs must be installed in and removed from the player with the player placed either horizontally or at an angle of less than 45 degrees. When a disc is installed in the LD-707, the player is automatically set to the play mode and so when it is positioned perpendicularly, press the EJECT key on the remote control unit once to set the player to the stop mode and then proceed with the adjustments.
- Do not press the disc EJECT (⏏) key on the front panel with the player in the perpendicular position. When this key is pressed, the spindle motor will stop and the disc will be ejected. The disc will drop down inside the player when the disc clamper is raised by placing the player in the perpendicular position.
- In order to open the TRKG servo, connect pin ⑳ of IC301 (PM4001) on the SRVB board to pin ㉒ (+5V). If the pick-up moves by opening this servo, disconnect the slider motor connector (CN33).

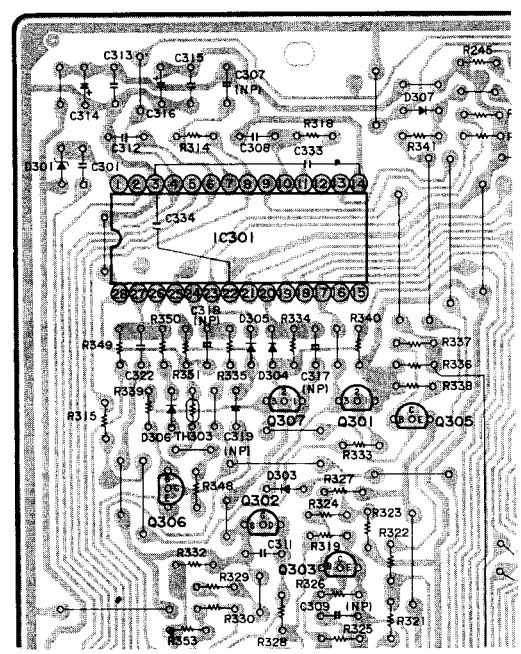


Fig. 5.2 IC301 on the SRVB board

- When a search operation is conducted with the TRKG servo open, the pick-up will travel as far as the vicinity of the target position but since this servo is open, it will not be possible to locate the target frame or chapter, and the search will not be completed. In a case like this, the search operation can be completed and the desired picture can be located by pressing the

CLEAR key on the remote control unit.
- If the adjustment is insufficient and the search still cannot be conducted, use the SCAN key to move the pick-up as far as the target frame.

5.3 PREB, GRATING and TILT mechanism adjustments

Notes: The PREB board is connected by a flexible cable to the HEAD board inside the pick-up. When disconnecting this cable, disconnect it from the PREB board and, in order to prevent electrostatic damage, short-circuit the end of the cable with the shorting connector or aluminum foil.
: Do not touch VR7 on the PREB board when it need not be adjusted.

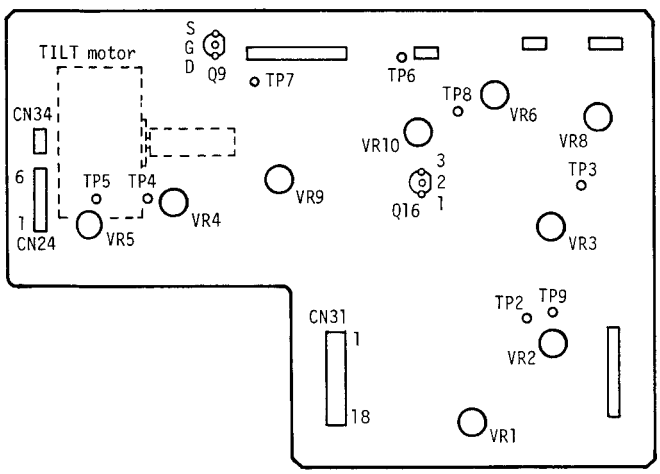


Fig. 5.3 Adjustment points of PREB board

1. FOCUS OFFSET adjustment (VR1)

- Set the power switch to ON and place the player in the standby mode.
- Adjust VR1 so that the TP2 (FOCUS ERROR) voltage is made 0V.

2. Inside position detection adjustment (VR8)

Notes: If VR8 is adjusted too far toward the inner circumference, it will no longer be possible to play discs. In cases like this, therefore, proceed with the adjustment after having set VR8 to its mechanical center.
If it is hard to obtain a picture when a disc is being played, press the clear key, obtain the picture and then proceed with the adjustment.
: If the adjustment point of VR8 has been moved, VR9 and VR10 must also be adjusted.

- The adjustments for detecting the inside and outside positions differ according to whether a player is or is not provided with the INIB board. Therefore, proceed as follows:

a) Procedure for player with INIB board

- Disconnect the INIB board connector (CN104).
- Play the test disc.
- Press the DISPLAY key on the remote control unit to indicate the frame number on the screen.
- Rotate VR8 clockwise as far as it will go.
- Search frame #500 and set the player to the STILL mode.
- Gradually rotate VR8 counterclockwise and stop rotating it at the point where the frame number disappears from the screen.
- The player is automatically set to the play mode and then shortly afterwards, it is transferred to the STILL mode. Check that the point at which the player is set to the STILL mode is between frame #500 and frame #1200.

b) Procedure for player without INIB board

- Play the test disc.
- Observe the screen, and adjust VR8 so that a return is made to between Nos. ⑲ and ⑳ of the lead-in area when the SCAN REV (⏪) key is kept depressed in the vicinity of the disc's innermost circumference.

Note: When the inside adjustment shifts toward the external circumference, the frame number will not appear during the SCAN REV operation toward the inner circumference from the inside setting position.

3. 12-inch outside position detection adjustment (VR9)

Notes: Make sure that the inside position detection adjustment has been performed before proceeding with this adjustment.
: VR10 must also be adjusted if the adjustment point of VR9 has been moved.

a) Procedure for player with INIB board

- Disconnect the INIB board connector (CN104).
- Search frame #45050 and set the player to the still-picture mode.
- Observe the voltage of the D10 anode on the PREB board and adjust VR9 to the point (low) at which its level switches from high (0V) to low (—10V).
- Use the SCAN REV (⏪) key to return to the point where the D10 anode voltage is set high, play the disc from that point, and at the point where the voltage is set low again, press the STILL/STEP key to set the player to the STILL mode.

Now check that this point is between frame #44332 and 45050.

b) Procedure for player without INIB board

- Search frame #50000 and keep the SCAN FWD key (⏩) depressed.
  Now adjust VR9 so that a return is made between 1:30:20 and 1:30:25 of the lead-out area.

4. 8-inch outside position detection adjustment (VR10)

Note: Make sure that the detection of the 12-inch outside position has been adjusted under 3 before proceeding with this adjustment.

a) Procedure for player with INIB board

- Proceed with the adjustment once the INIB board connector (CN104) has been disconnected.
- Search frame #19220 and set the player to the STILL mode.
- Connect pin ② of Q16 (DTC124ES) on the PREB board to pin ① (GND) and activate the 8-inch outside detection circuit.
- Observe the voltage of the D10 anode on the PREB board and adjust VR10 to the point (low) at which its level switches from high (0V) to low (−10V).
- Use the SCAN REV (⏪) key to return to the point where the D10 anode voltage is set high, play the disc from that point, and at the point where the voltage is set low again, press the STILL/STEP key to set the player to the STILL mode.
  Now check that this point is between frame #18580 and 19220.
- Connect the INIB board connector (CN104).
- Disconnect Q16 pin ② and pin ①.

b) Procedure for player without INIB board

- Connect pin ② of Q16 on the PREB board to pin ① (GND) and activate the 8-inch outside detection circuit.
- Search frame #20000.
- Adjust VR10 so that a return is made between frame #24200 to 24600 when the SCAN FWD key (⏩) is kept depressed.
- Disconnect Q16 pin ② and pin ①.

5. Coarse adjustment of GRATING

- Search frame #15000.
- Connect pin ⑳ of IC301 (PM4001) to pin ㉒ and set the TRKG servo to open.
- Mount the L-type eccentric driver onto the grating, as shown in the figure.
- Observe the TRKG error signal at TP4 of PREB board and adjust the grating to a position where its amplitude is at the minimum and the waveform envelope becomes smooth. (See Photo 1)
- Now gradually rotate the driver in the arrowed direction from this position and adjust the grating to the position where the error signal amplitude is first brought to its maximum. (See Photo 2)
- Adjust VR4 on the PREB board so that the center of the waveform amplitude is made 0V.
- Disconnect IC301 (PM4001) pin ⑳ and pin ㉒ and close the TRKG servo.

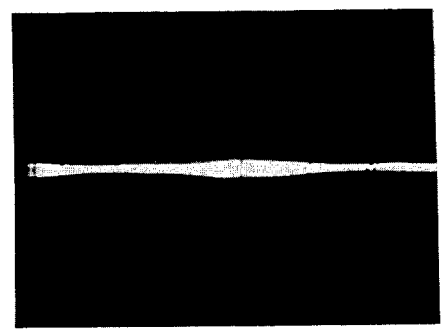


Photo 1. TRKG error waveform
(at the minimum, with OPEN loop)

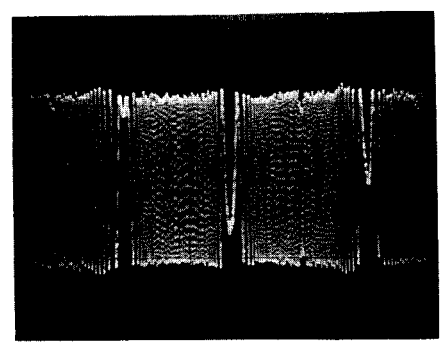


Photo 2. TRKG error waveform
(at the maximum, with OPEN loop)

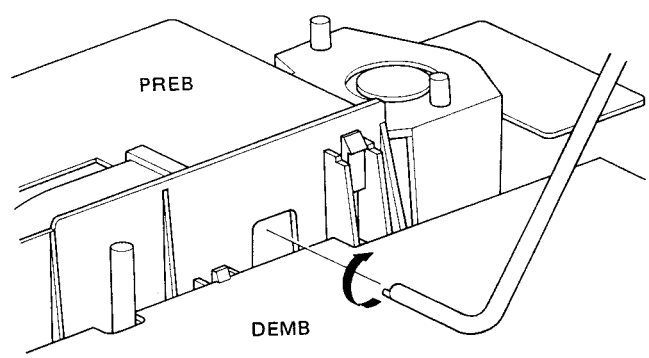


Fig. 5.4 GRATING adjustment

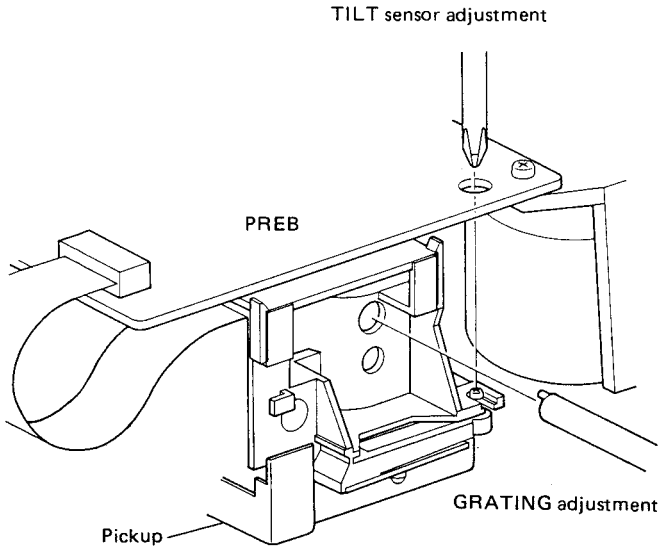
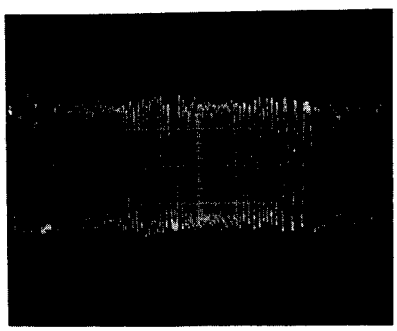


Fig. 5.5 Adjustment points of Pickup

6. TRKG error balance adjustment (VR4)

- Search frame #20000 and set the TRKG servo to open.
- Observe TP4 (TRKG error signal) and adjust VR4 so that the center of the waveform amplitude is made 0V.
- Close the TRKG servo.



PREB, TP4

200mV div
5mS div

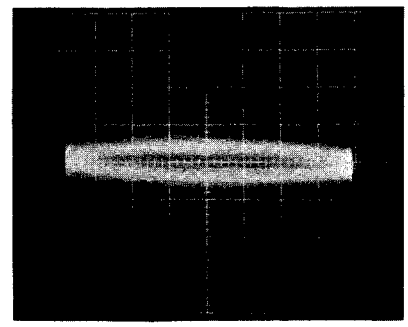
Photo 3. TRKG error waveform (with OPEN loop)

7. TRKG loop gain adjustment (VR5)

- Connect the oscillator and oscilloscope to TP4 and TP5, as shown in the figure.
  Set the oscilloscope to the X-Y mode. Set the oscillator output to the minimum.
- Search frame #15000.
- Set the oscillator output to the values below, depending on the test disc used:

F1: 3.0kHz, 1.5Vp-p
F2: 3.7kHz, 1.5Vp-p
F4: 4.1kHz, 1.5Vp-p

- Adjust VR5 so that the Lissajous waveform is made horizontal.



X : 200mV/div
Y : 100mV/div

X : Oscillator output signal
Y : TRKG error signal (PREB, TP4)

Photo 4. Lissajous waveform

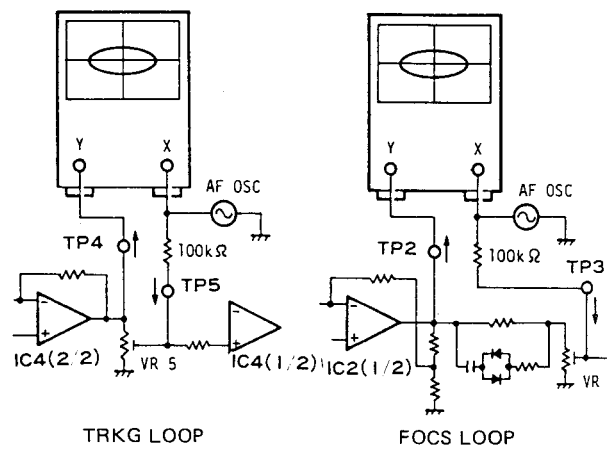


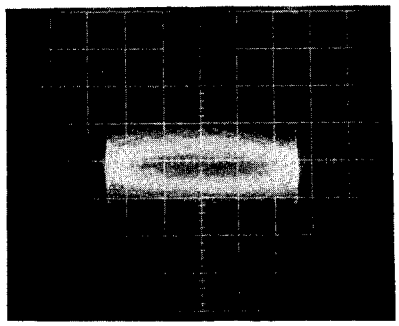
Fig. 5.6 Servo loop gain adjustments

8. FOCS loop gain adjustment (VR3)

- Connect the oscillator and oscilloscope to TP2 and TP3 as shown in the figure. Set the oscilloscope output to its minimum.
- Search frame #15000.
- Set the oscillator output to the values below, depending on the test disc used.

F1: 2.1kHz, 500mVp-p
F2: 1.6kHz, 500mVp-p
F4: 2.0kHz, 500mVp-p

- Adjust VR3 so that the Lissajous waveform is made horizontal.



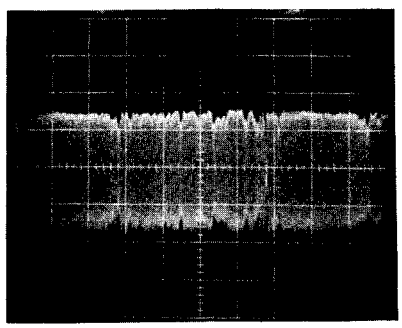
X : 100mV/div
Y : 200mV/div

X : Oscillator output signal
Y : FOCS error signal (PREB, TP2)

Photo 5. Lissajous waveform

9. RF level adjustment (VR6)

- Search frame #15000.
- Observe the TP6 RF signal and adjust VR6 so that its amplitude is made 300mVp-p.



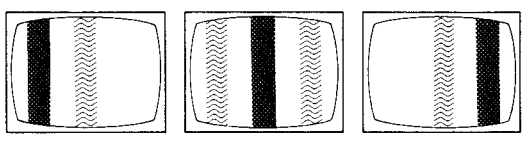
PREB, TP6

100mV/div
5mS/div

Photo 6. RF signal waveform

10. FOCS error balance adjustment (VR2)

- Search frame #104.
- Adjust VR2 so that the striped pattern, caused by the effects of crosstalk on the screen left and right, is reduced to the minimum.



#103 #104 #105

Fig. 5.7 Influence of Crosstalk

Note: In the figure, the influence of crosstalk is exaggerated.

11. Fine adjustment of GRATING

- Connect TP4 to the oscilloscope X input and CN24-5 [TRKG (A+B)] to the Y input.
  Set the oscilloscope to the X-Y mode.
- On condition that the input mode of the oscilloscope is in "GND", and adjust X and Y beam position volume of the oscilloscope, so that the beam is in the center of CRT.
- Search frame #15000 and set the TRKG servo to open.
- Use the L-type eccentric driver to finely adjust the grating so that the Lissajous waveform becomes a single horizontal line.
- Make sure that the positive amplitude is equal to the negative, if not, adjust VR4.
- Close theTRKG servo.

5.4 DEMB BOARD ADJUSTMENTS

1. Demodulated video level adjustment (VR201)

- Search chapter 15 (composite test pattern).
- Adjust VR201 so that the amplitude from the sync tip of the video signal at IC201 (PA3018) pin ⑬ to the white level is made 2Vp-p.

2. 1H-delayed video level adjustment (VR202)

- Search chapter 15 (composite test pattern).
- Adjust VR202 so that the amplitude from the sync tip of the video signal at IC 201 (PA3018) pin ⑪ to the white level is made 2Vp-p.

3. Audio signal level adjustment (VR1, VR2)

- Search chapter 9 (frame #7201) (1/L channel: 1kHz, 40% modulation), and set the player to the PLAY mode.
- Connect a vacuum-tube voltmeter to pin ⑪ of IC2 (HA12043) and adjust the audio output level to the value below.
- Search chapter 10 (frame #8101) (2/R channel: 1kHz, 40% modulation), and set the player to the PLAY mode.
- Connect the vacuum-tube voltmeter to pin ⑩ of IC2 (HA12043) and adjust so that the audio output level is set to the following values:

	L channel	R channel
F1	70mVrms (198mVp-p)	72mVrms (204mVp-p)
F2	65mVrms (184mVp-p)	65mVrms (184mVp-p)
F4	65mVrms (184mVp-p)	65mVrms (184mVp-p)

Figures in parentheses apply when the oscilloscope is used.

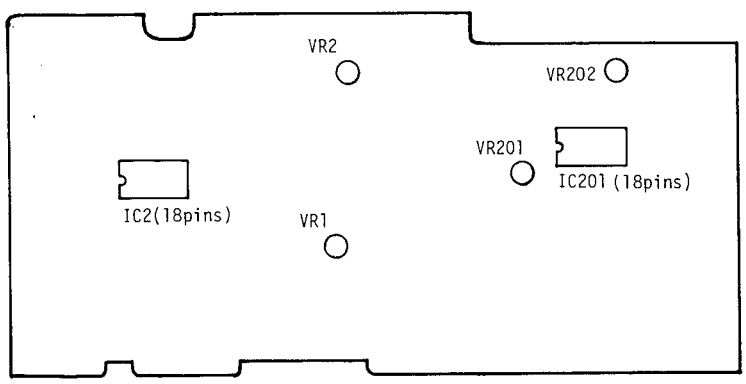


Fig. 5.8 Adjustment points of DEMB board

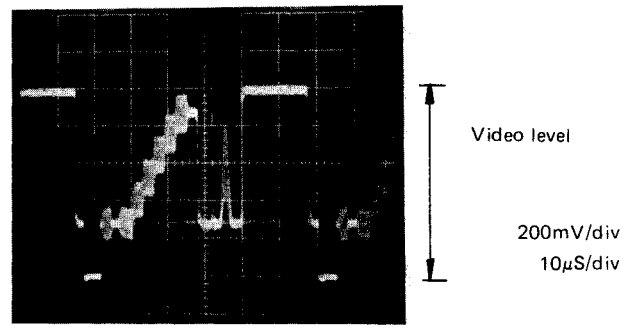


Photo 7. Composite test signal waveform (at "VIDEO OUT" terminal)

5.5 SRVB BOARD ADJUSTMENTS

Note: The SRVB board adjustments can be made without having to remove the shielding case.

1. Time base corrector (TBC) offset adjustment (VR8)

- Set the power switch to ON and, with the player in the standby mode, adjust VR8 so that the voltage of IC9 (NJM4558S) pin ② is set to DC 0V.
  If noise makes it impossible to check the DC voltage, connect a low-pass filter between pin ② and the oscilloscope, as shown in the figure.

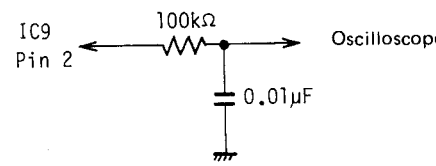


Fig. 5.9 Low-pass filter

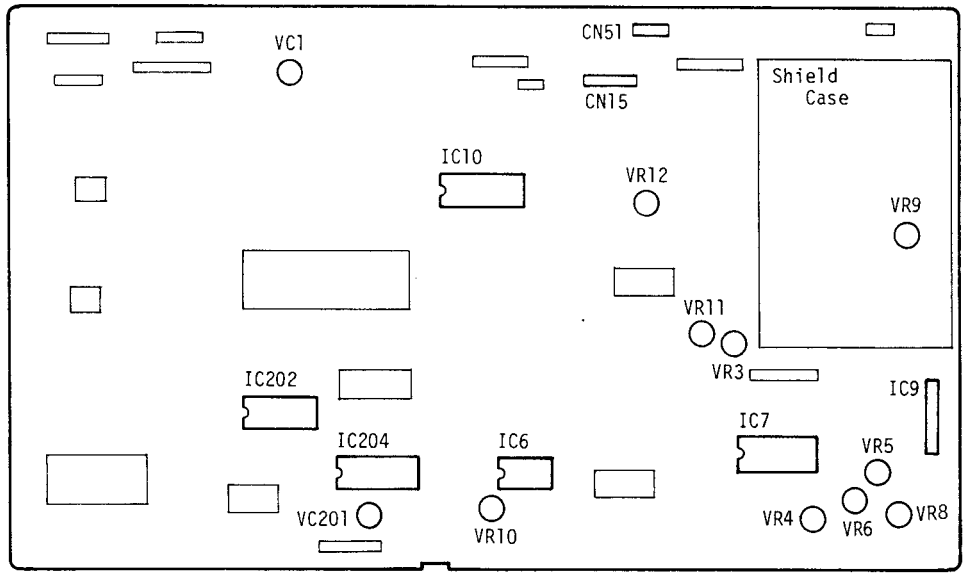


Fig. 5.10 Adjustment points of SRVB board

2. TBC video level adjustment (VR3)

Note: Make sure that the 1. Demodulated Video Level Adjustment under the DEMB board has been completed before proceeding with this adjustment.

- Search chapter 15 (composite test pattern).
- Adjust VR3 so that the amplitude from the sync tip of the CN51-1 video signal to the white level is set to 2Vp-p.

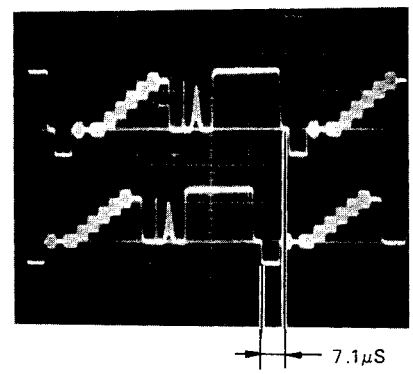
3. VCO center frequency adjustment (VR9)

- Connect IC201 (PD3049) pin ㊱ to GND.
- Connect IC3 (PA0017) pin ⑨ (R146 connected) to GND.

⇒ Forcibly set the time base error signal to 0 with an input to the CCD circuit.

- Adjust VR9 so that the CN51-1 video signal is delayed 7.1 μsec from the CN15-7 video signal.

⇒ The video signal which is input from CN15-7 is delayed by the CCD circuit and output to CN51-1.
When the time base error is 0, the delay time will be 70.7 μsec (1H + 7.1 μsec).



Upper:
CN51-1
IV/div
Lower:
CN15-7
1V:div
10μS/div

Photo 8. VCO center frequency adjustment

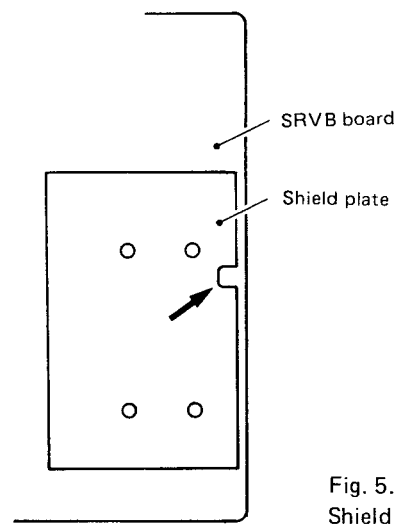
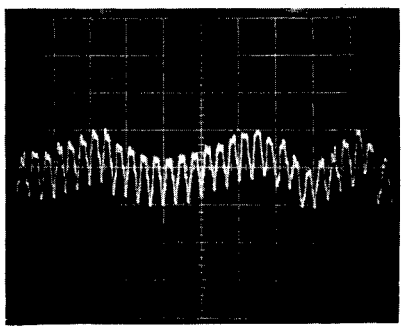


Fig. 5.11
Shield plate on SRVB board

4. Time base error detection adjustment (VR4)

- Proceed with the adjustments using the connections for 3. VCO Center Frequency Adjustment.
- Observe the time base error signal which is detected from the sync signal of IC7 (PA5009) pin ⑪ and adjust VR4 so that the waveform amplitude center is set to DC 0V.
- Disconnect the connections made between IC3 (PA0017) pin ⑨ and GND and between IC201 pin ㊱ and GND.



SRVB
IC7, ⑪

200mV/div
0.1 S/div

Photo 9. Time base error detection adjustment

5. VCO circuit center frequency adjustment (VR10)

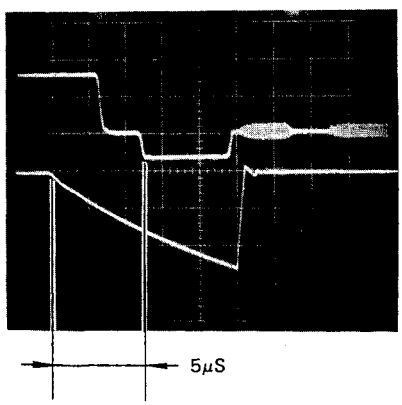
- Adjust VR10 so that the IC6 (PA0018) pin ⑥ voltage is set to the same value as that of pin ②.

6. Master oscillator frequency adjustment (VC1)

- Connect the frequency counter to IC10 (PM2001) pin ㉗ and adjust VC1 so that the frequency is made 3579545 ± 5Hz.

7. Sync gate timing adjustment (VR5)

- Adjust VR5 so that the CN51-1 video signal and IC7 (PA5009) pin ⑮ waveform have the timing as shown in the figure.

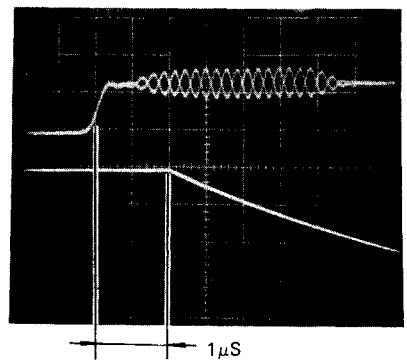


Upper:
CN51-1
1V/div
Lower:
IC7, ⑮
1V/div
2μS/div

Photo 10. Sync gate timing adjustment

8. Burst gate timing adjustment (VR6)

- Adjust VR6 so that the CN51-1 video signal and IC7 (PA5009) pin ㉒ waveform have the timing as shown in the figure.



Upper:
CN51-1
500mV/div
Lower:
IC7, ㉒
1V/div
0.5μS/div

Photo 11. Burst gate timing adjustment

9. Hue compensation circuit adjustment (VR12, VR11)

- Search chapter 20 (magenta pattern).
- Rotate VR11 clockwise as far as it will go.
- Observe the CN51-1 video signal and adjust VR12 to bring the waveform to a position where it stabilizes.
- Adjust VR11 so that the magenta color shading on the TV screen is reduced to its minimum.

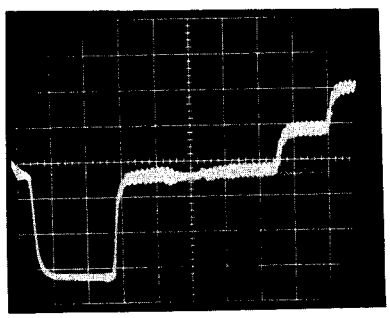
10. PD0011 clock frequency check (VC201)

- Install a 12-inch CLV disc and play it.
- Search time #0:40 from the time #0:10 play mode and measure the time required to do this.
- Conversely, measure the search time from time #0:40 to time #0:10.
- Check that the search is completed in either case within 12 seconds.
- If the search takes far too long or if it is not completed successfully (play starts at a number other than the target number), adjust VC201 a little at a time and set it so that the above search time rating is satisfied.

5.6 VNRB BOARD ADJUSTMENT

Note: Refer to 4. VNRB, FMPB and INIB boards.

- Return the SRVB, CDCR and PREB boards to their original positions and re-attach the bottom plate.
- Remove the bonnet and install the player horizontally.
- Remove the screws securing the VNRB board and stand the board perpendicularly.
- Play a test disc and search chapter 15 (composite test pattern).
- Observe the Q2 emitter waveform.
  A video signal with the color signal removed is output to the Q2 emitter.
- Adjust VC1 so that the residual color burst signal component is brought to its minimum.



200mV/div
2μS/div

Photo 12.

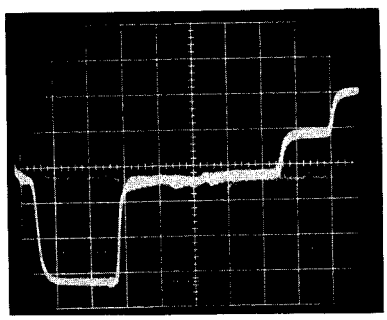


Photo 13.
3.58 MHz suppression

5.7 OTHER ADJUSTMENTS

Disc clamp switch position adjustment

⇒ When the DISC CLAMP switch is not pressed even though the disc is clamped, the DISC SET indicator on the front panel does not light and the disc table which was pulled back in is now immediately advanced. In cases like this, try adjusting the position of the switch as follows.
Incidentally, the DISC CLAMP switch is located on the left side as seen from the front panel of the player.

- Remove the bonnet.
- Place an ordinary screwdriver in the adjustment slot and raise the switch position by a slight rotation in the clockwise direction.
- Send in the disc table with the disc installed on it and check that the disc starts to rotate normally.

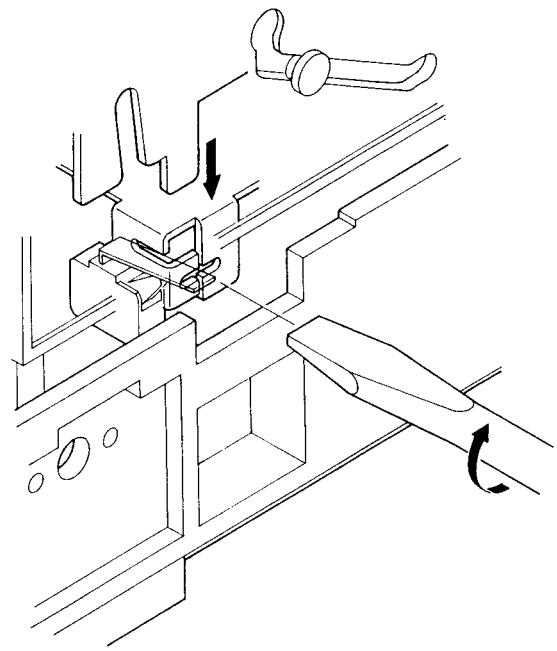
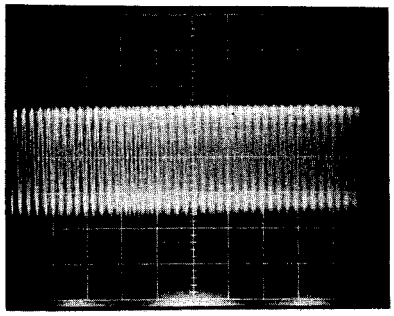


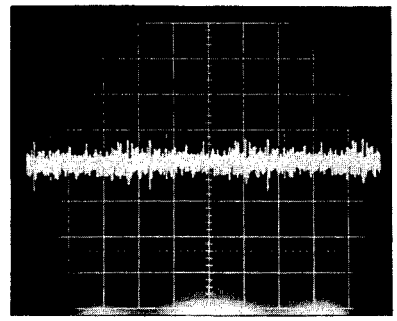
Fig. 5.12 Disc clamp switch position adjustment

WAVEFORMS

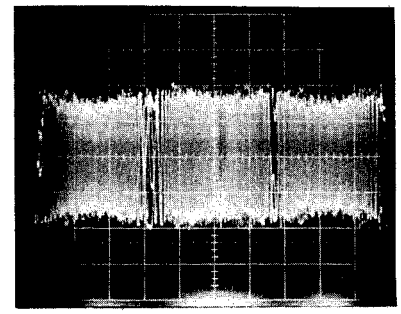
PREB TP6 (Frame#15000)
100mV/div, 0.5μS/div



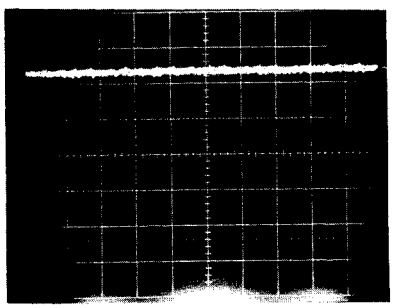
PREB TP2
500mV/div, 10mS/div



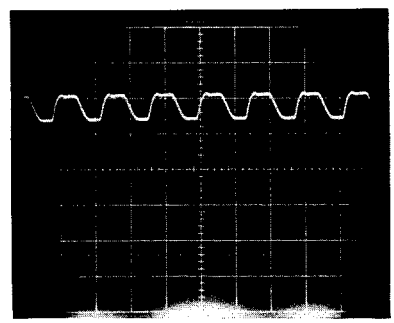
PREB TP4 (TRKG Loop open)
500mV/div, 5mS/div



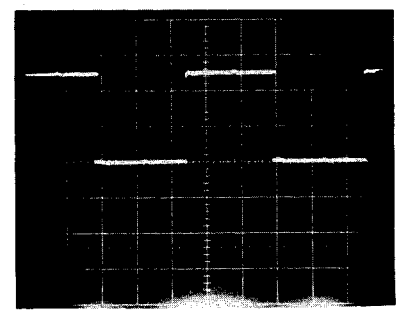
PREB CN24-5
1V/div, 5mS/div



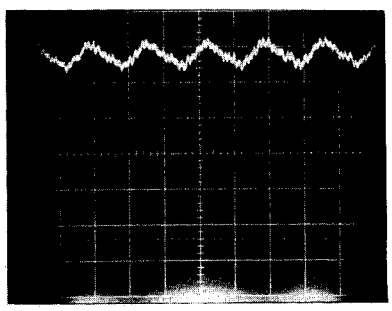
SRVB IC10 ㉗
2V/div, 0.2μS/div



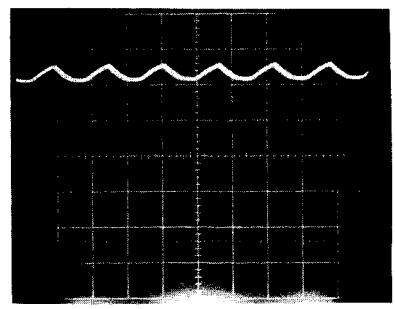
SRVB IC10 ⑳
2V/div, 50μS/div



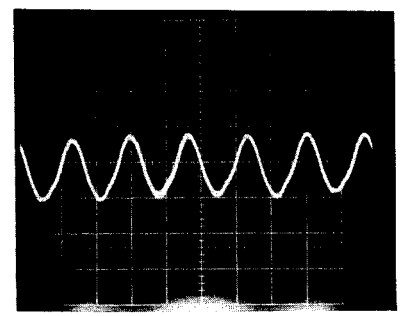
SRVB IC10 ⑲
1V/div, 20mS/div



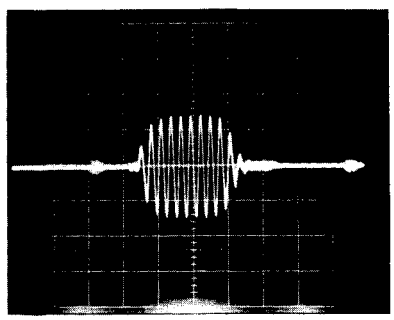
SRVB CN6-1
2V/div, 20μS/div



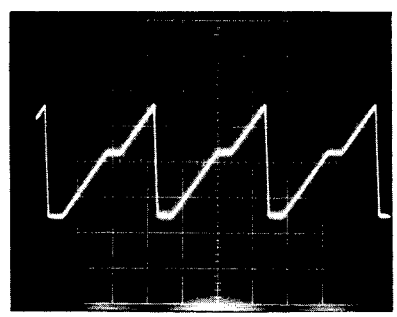
SRVB IC9 ②
500mV/div, 20mS/div



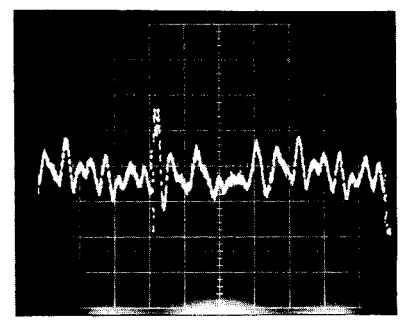
SRVB IC7 ㉓
200mV/div, 1μS/div



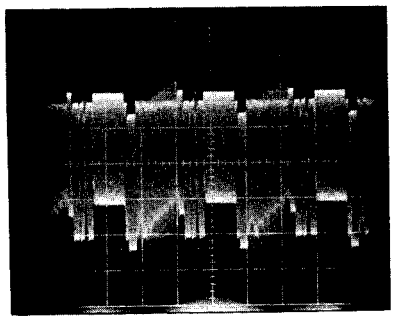
SRVB IC7 ⑨
2V/div, 20μS/div



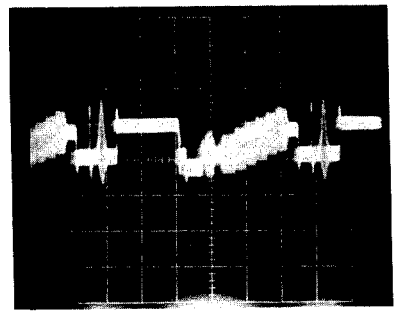
SRVB IC7 ㉖
2V/div, 5mS/div



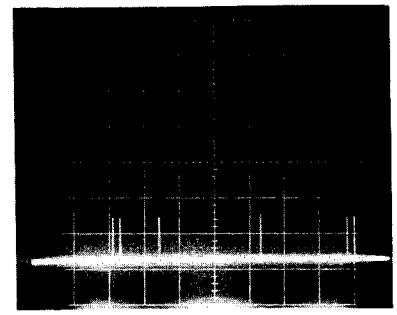
DLMB IC202 ⑧
200mV/div, 20μS/div



DEMB IC201 ⑯
100mV/div, 10mS/div

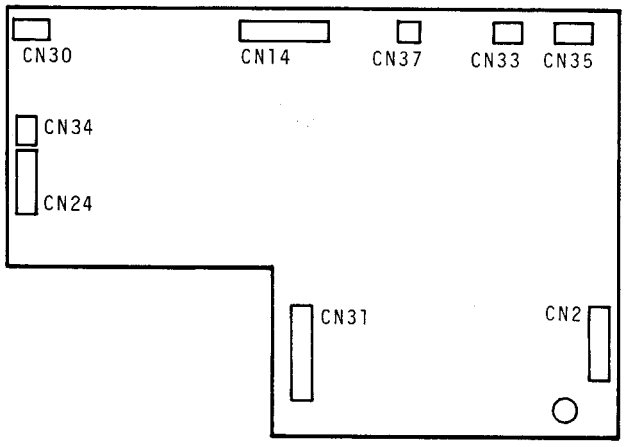


DEMB IC201 ⑨
1V/div, 5mS/div

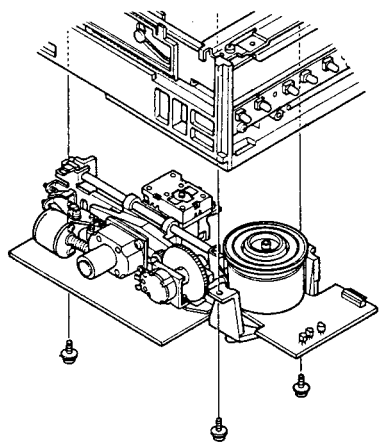


HOW TO REPLACE THE PICK-UP

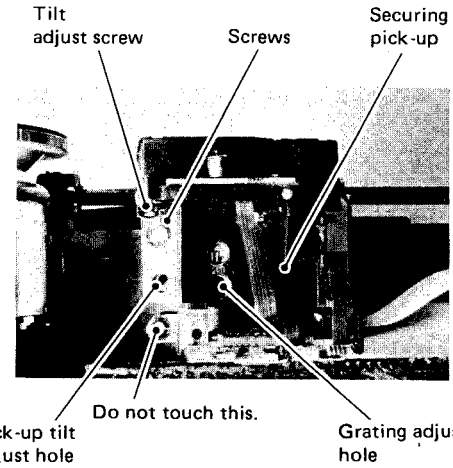
(1) Remove the bottom plate.
(2) Disconnect the four PREB board connectors and the BLMB board connector.
PREB: CN2, CN14, CN24, CN37;
BLMB: CN8



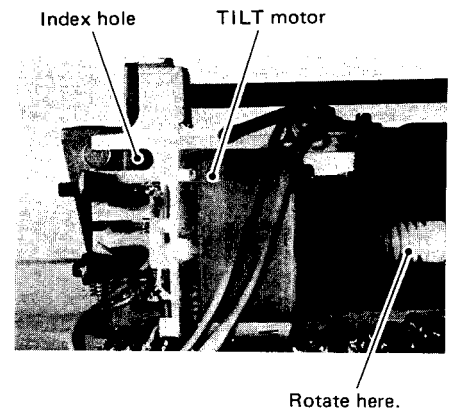
(3) Take out the mechanical chassis assembly (hereafter called the mech. ass'y) from the player (by unscrewing the 3 screws).



(4) Take out the pick-up from the mech. ass'y (by unscrewing the 2 screws).
Note: Since the pick-up cannot be removed when it is inside, it must therefore be moved to the outer circumference for removal.
(5) Disconnect at the PREB board side the flexible cable which connects the pick-up with the PREB board.
In order to prevent electrostatic damage, short-circuit the end of the flexible cable with a shorting connector or with aluminum foil.
(6) Connect the flexible cable of the new pick-up to the PREB board and mount it onto the slider base. Rotate the pick-up clockwise as far as it will go and tighten the screws securing the pick-up moderately.



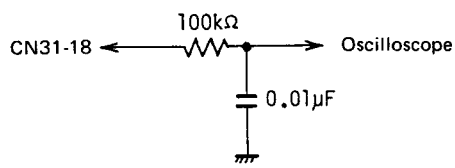
(7) Disconnect the CN34 connector linking the tilt motor with the PREB board.
(8) Rotate the tilt motor gear with your fingers and adjust it so that the index hole is positioned at the center of the cutout.



(9) Mount the mech. ass'y onto the player and connect the connectors (four for PREB board and one for BLMB board). Keep the tilt motor connector CN34 disconnected.
(10) Remove the 3 screws securing the PREB board.
(11) Load the test disc, and press the PLAY key. In the event the front panel STAND BY lamp merely flashes without playback starting due to excessive misadjustment of the grating, perform coarse adjustment of the grating according to the following procedures:
1. Press the PLAY key.
2. When the spindle has begun accelerating, set the TRKG servo loop to open.
3. Press the remote control unit's CLEAR key.

4. Press the remote control unit's DISPLAY key to display the frame number on the TV screen.
5. Using the remote control unit's SCAN FWD key, move the pick-up to the vicinity of frame #15000.
6. Perform coarse adjustment of the grating. For coarse adjustment of the grating, refer to the adjustment procedures "5. Coarse Adjustment of GRATING".
7. Set the TRKG servo loop to close.

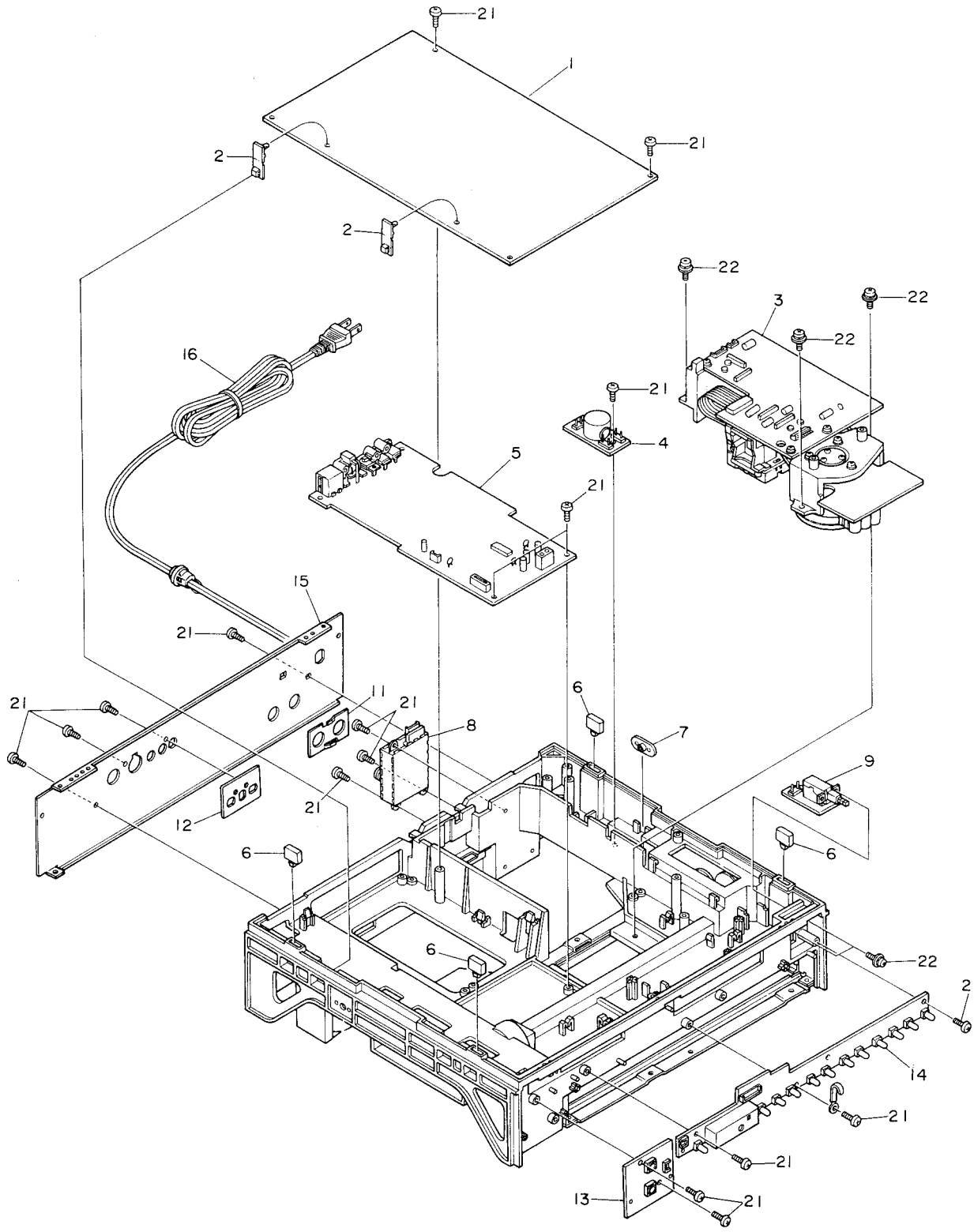
(12) Search frame #18914.
(13) Hold up the PREB board and insert the L-type eccentric driver (GGV-129) into the pick-up tilt adjust hole.
(14) Adjust the angle of the pick-up using the L-type eccentric driver so that the crosstalk is minimized.
(15) Connect the oscilloscope through a low-pass filter to pin 18 of connector CN31 on the PREB board.
Set the oscilloscope to the DC mode.



(16) Search frame #17000 and make a note of the DC level on the oscilloscope.
(17) Search frame #100 and check that the DC level on the oscilloscope is within ± 90mV of the value noted above.
(18) If the value does not meet the rating, observe the DC level on the oscilloscope at frame #100, rotate the tilt motor with your fingers and adjust so that the DC level is made identical to the DC level at frame #17000.
(19) Check that there is no crosstalk at frame #104 and #18914. If necessary, search frame #18914 and adjust the pick-up tilt using the L-type eccentric driver (GGV-129).
(20) Bring VR7 on the PREB board to its mechanical center point.
(21) Search frame #104.
(22) Adjust the tilt sensor adjust screw so that the voltage at TP7 on the PREB board is set to 0 ± 50mV.
(23) Remove the mech. ass'y again and tighten up the 2 screws securing the pick-up.
(24) Mount the mech. ass'y onto the player.
Keep connector CN34 still disconnected.
(25) Play the test disc and check that there is no crosstalk at frame #104 and 18914.
(26) Check that the voltage at TP7 on the PREB board is 0 ± 50mV at frame #104. If necessary, adjust it using the tilt adjust screw.
(27) Adjust VR7 finely so that the voltage at TP7 on the PREB board is set to 0V.
(28) Connect connector CN34.
(29) Check that there is no crosstalk at frame #104 and 42314.
(30) Tighten the 3 screws securing the PREB board.
(31) Perform the electrical adjustments for the PREB board.

6. EXPLODED VIEWS & PARTS LISTS

6.1 ENCLODURES



NOTES:
- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

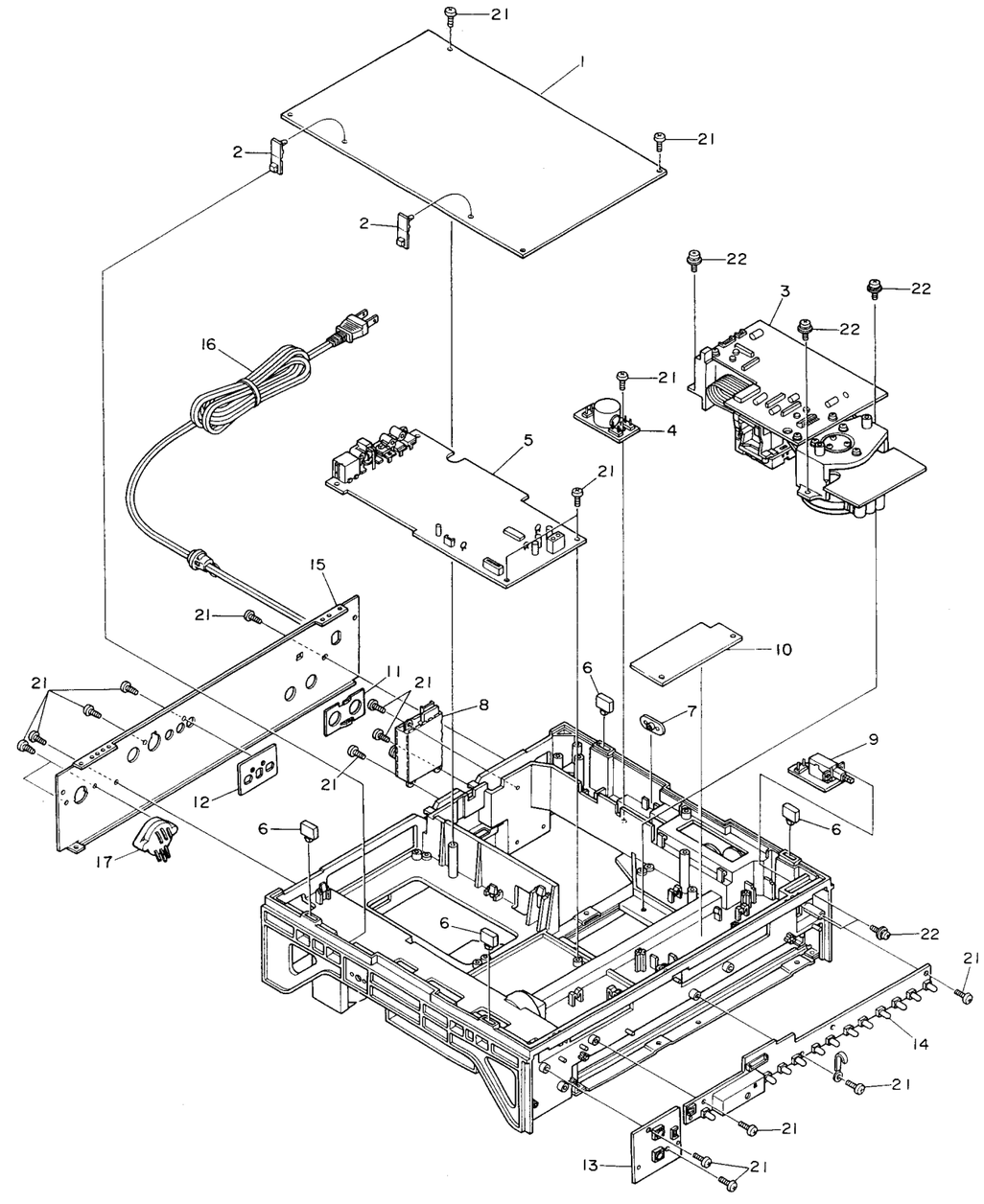
LD-707(BK)/S/G (encl) Parts list 1

(MK)	(KEY)	PART NUMBER	DESCRIPTION
	1	VNA-070	Bonnet
	2	VNK-496	Knob blind
	3	VNK-495	Volume knob
	4	N.S.P.	HEPB
	5	VSK-012	Switch
	6	VNE-718	Switch holder
	7	VBH-145	Door spring
	8	VXX-425	Front panel ass´y
	9	VXA-361	Button ass´y
	10	vacant	
	11	VBH-146	Spring
	12	VAC-294	Power button
	13	VXX-426	Front door ass´y
	14	VEC-219	Plastic rivet
	15	VNL-493	Lock roller
	16	VXA-397	Carry ass´y
	17	VRW-499	Carry label
	18	N.S.P.	Bottom plate ass´y
	19	vacant	
	20	vacant	
	21	BBZ30P050FMC	
	22	BPZ30P060FUC	
	23	BMZ20P080FMC	
	24	BPZ30P080FZK	
	25	BMZ40P100FZK	
	26	APZ30P080FZK	

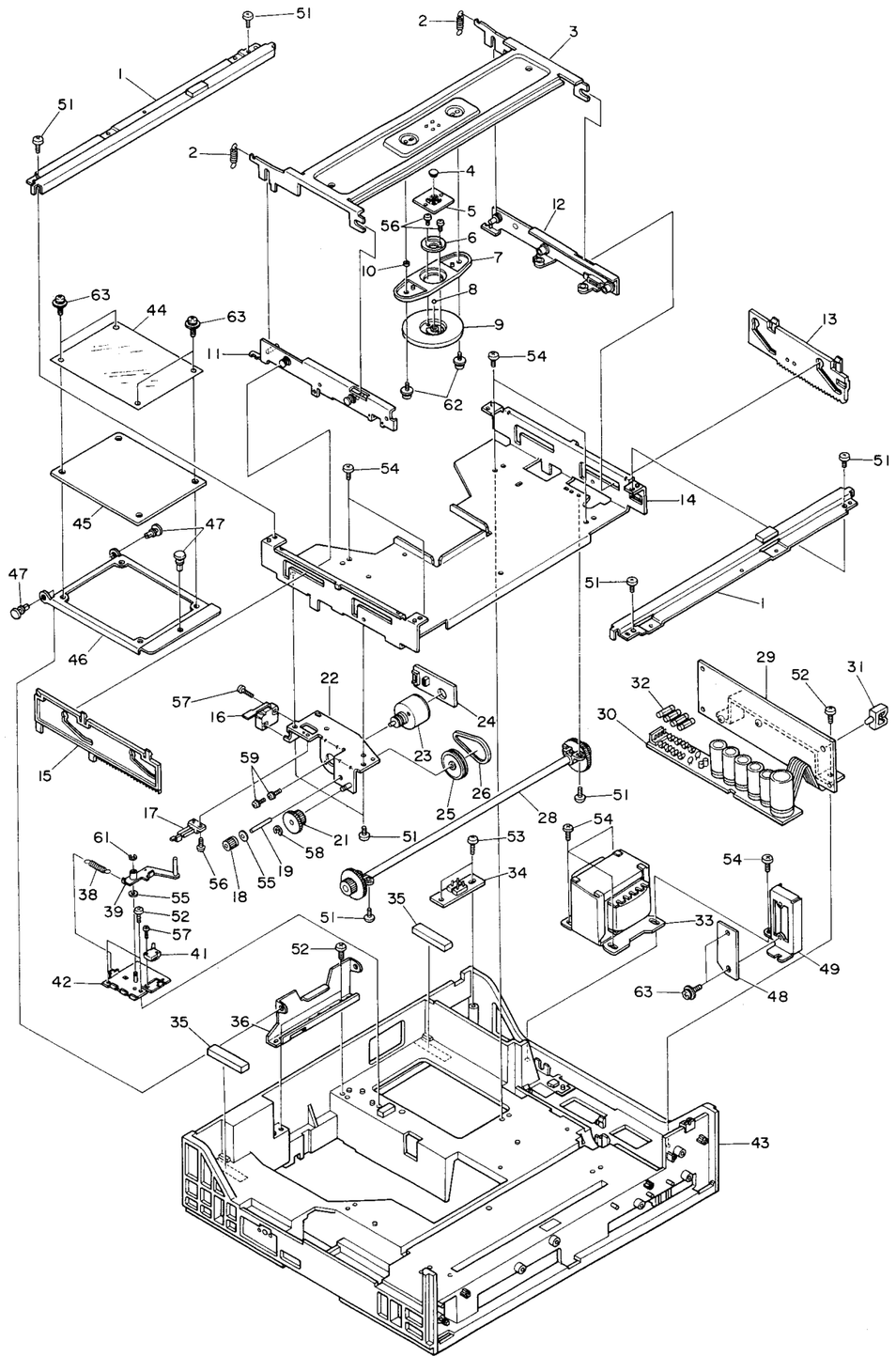
LD-707(BK)/S/G (bott) Parts list 1

(MK)	(KEY)	PART NUMBER	DESCRIPTION
	1	VWS-060	SRVB
	2	N.S.P.	PCB hinge
	3	vacant	
	4	N.S.P.	LSFB
	5	VWV-075	DEMB
	6	VEB-108	Foot
	7	VBN-005	Nut
	8	VWL-024	RFMD
	9	N.S.P.	PWSB
	10	N.S.P.	INIB
	11	VNE-748	RF plate
	12	VNE-749	AV plate
	13	N.S.P.	KEYB
	14	N.S.P.	DISP,IRAB
	15	N.S.P.	Rear panel
⚠	16	VDG-034	Power cord
⚠	17	VSB-003	Voltage selector
	18	vacant	
	19	vacant	
	20	vacant	
	21	BPZ30P080FZK	
	22	PMB30P080FMC	

6.2 BOTTOM VIEW



6.3 TOP VIEW



NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

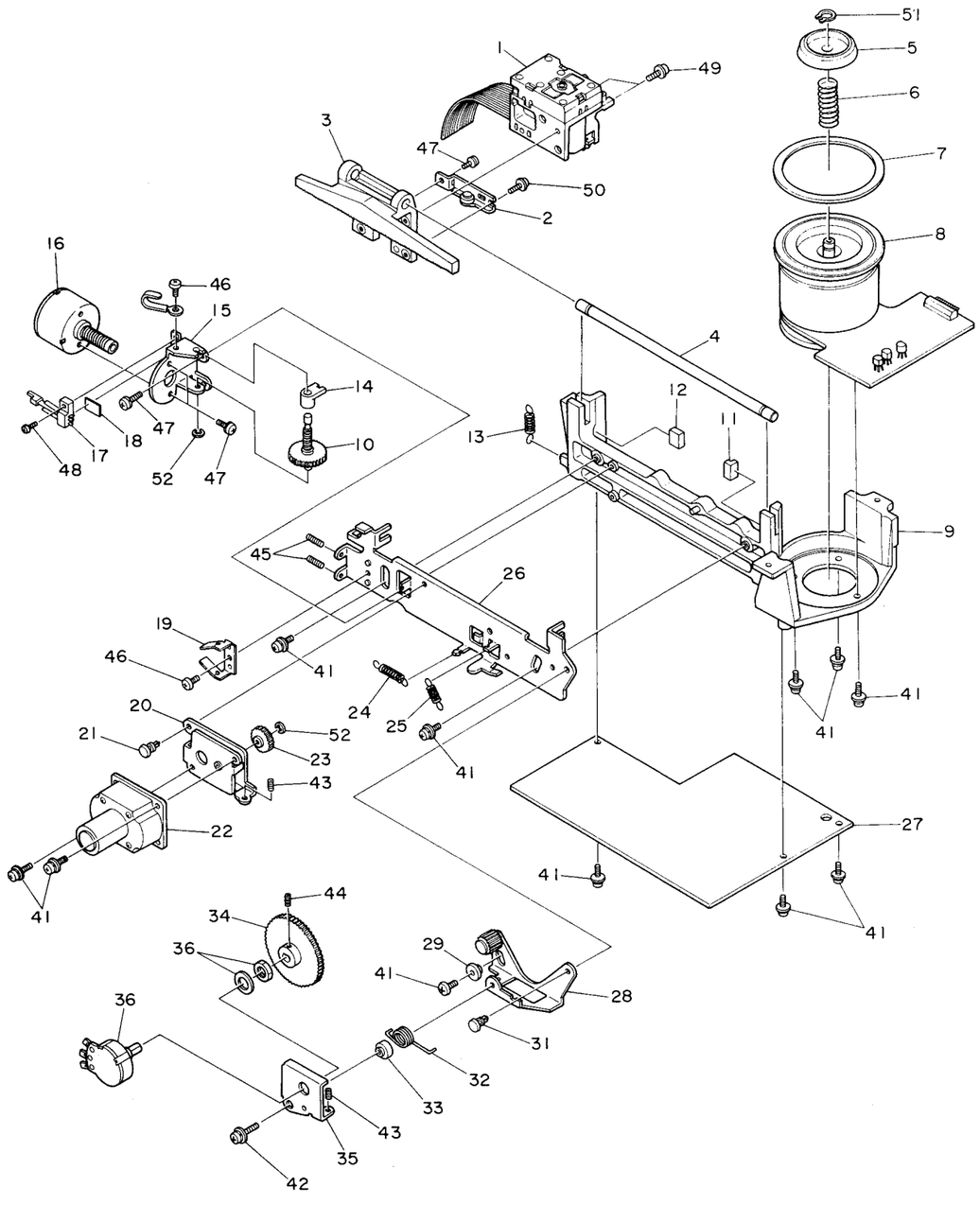
LD-707(BK)/S/G (top) Parts list 1

(MK)	(KEY)	PART NUMBER	DESCRIPTION
	1	N.S.P.	Bridge
	2	VBH-143	Clamper spring
	3	N.S.P.	Clamper holder
	4	VLL-282	Ball holder
	5	VNE-689	Holder plate
	6	VNL-500	Clamper head
	7	VNL-612	Clamper base
	8	**vacant**	
	9	VNL-499	Disc clamper
	10	N.S.P.	Spacer
	11	VXA-385	Roll plate L ass´y
	12	VXA-325	Roll plate R ass´y
	13	VNL-490	Rack gear R
	14	N.S.P.	Sub-chassis
	15	VNL-489	Rack gear L
	16	VSK-010	Switch
	17	PSN-003	Switch
	18	VNL-149	Gear A
	19	VLL-303	Gaer A shaft
	20	vacant	
	21	VNL-496	Gear B
	22	VXA-326	Motor holder ass´y
	23	VXM-054	LOAD motor
	24	N.S.P.	LMCB
	25	VNL-494	Pulley
	26	VEB-112	Belt
	27	vacant	
	28	VXA-327	Synchronized gear
	29	VYR-004	DRVB
	30	N.S.P.	RECB
	31	N.S.P.	Wire clip
⚠	32	VEK-018	Fuse 3A/125V
⚠	33	VTT-063	Power transformer
	34	N.S.P.	CNNB
	35	N.S.P.	Carry cushion A
	36	N.S.P.	Chassis holder
	37	vacant	
	38	VBH-148	SW lever spring
	39	VXA-343	SW lever ass´y
	40	vacant	
	41	VSK-011	Switch
	42	VXA-342	SW base ass´y
	43	N.S.P.	Base
	44	N.S.P.	Sheet
	45	N.S.P.	VNRB
	46	N.S.P.	VNRB holder
	47	VEC-143	Plastic rivet
	48	N.S.P.	FMPB
	49	N.S.P.	FMPB holder
	50	vacant	
	51	BBZ30P060FMC	
	52	BPZ30P080FZK	
	53	BPZ30P080FZK	
	54	APZ30P080FMC	
	55	WA32D060D025	

LD-707(BK)/S/G (top) Parts list 2

(MK)	(KEY)	PART NUMBER	DESCRIPTION
	56	PMZ20P050FMC	
	57	BMZ20P080FMC	
	58	YE30FUC	
	59	PMA26P040FMC	
	60	vacant	
	61	WT26D060D025	
	62	PMB30P050FUC	
	63	PMB30P060FMC	

6.4 MECHANISM



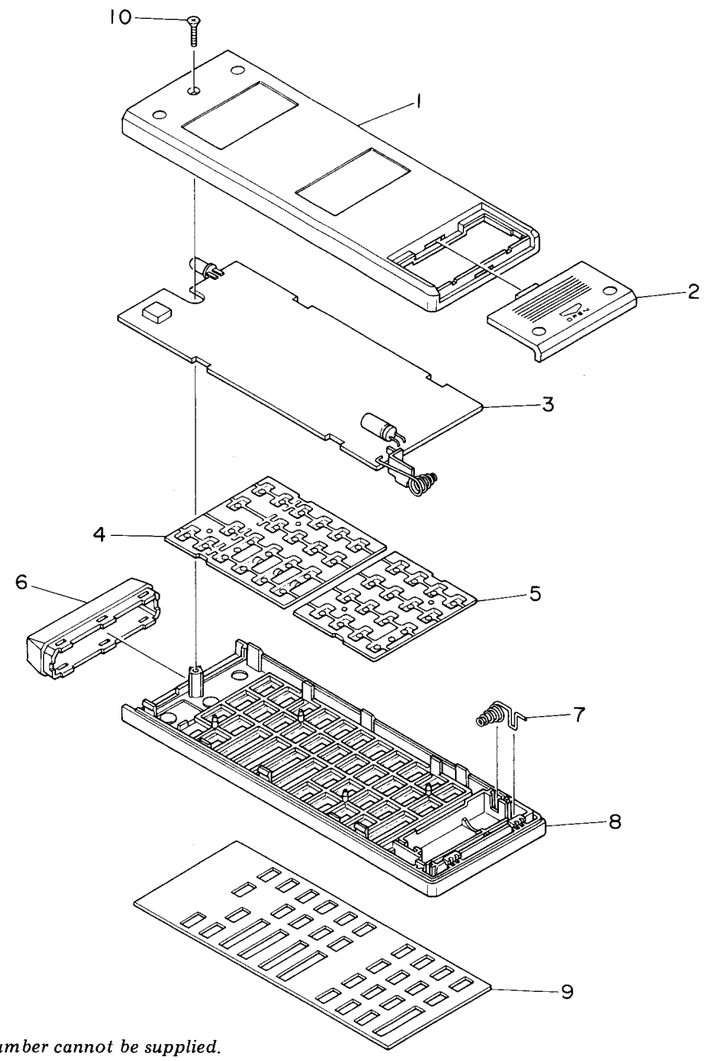
NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

LD-707(BK)/S/G (mech) Parts list 1

(MK)	(KEY)	PART NUMBER	DESCRIPTION
	1	VWY-097	Pick up ass´y
	2	VXA-394	Roller arm ass´y
	3	VNL-486	Slider
	4	VLL-308	Shaft
	5	VNV-037	Centering hab
	6	VBH-141	Centering spring
	7	VEB-111	Rubber spacer
	8	VXM-051	SPDL motor
	9	N.S.P.	Mech. chassis
	10	VXA-387	Tilt shaft ass´y
	11	N.S.P.	Cushion rubber A
	12	N.S.P.	Cushion rubber B
	13	VBH-142	Tilt spring
	14	VNV-036	Tilt nut
	15	N.S.P.	Tilt holder
	16	VXM-060	TILT motor
	17	PSN-003	Switch
	18	N.S.P.	Spacer
	19	VNE-701	Switch actuater
	20	N.S.P.	Motor holder ass´y
	21	VEC-143	Plastic rivet
	22	VXM-050	SLDR motor
	23	VNL-505	Slider pinion
	24	VBH-138	SLDR motor spring
	25	VBH-139	SLDR POT spring
	26	N.S.P.	Tilt base
	27	VWV-077	PREB
	28	VXA-321	SLDR POT holder
	29	VLL-311	Washer
	30	vacant	
	31	VEC-143	Plastic rivet
	32	VBH-140	Torsion spring
	33	VLL-310	Washer
	34	VNL-508	SLDR POT pinion B
	35	N.S.P.	SLDR POT support
	36	VCS-017	SLDR POT
	37	vacant	
	38	vacant	
	39	vacant	
	40	vacant	
	41	PMB30P080FMC	
	42	PMB30P100FMC	
	43	ZMD30H080FBT	
	44	ZMD30H060FBT	
	45	ZMD30H120FBT	
	46	BBZ30P060FMC	
	47	PMA26P040FMC	
	48	PMZ20P050FMC	
	49	PMB26P060FMC	
	50	AMZ26P070FMC	
	51	YC60FBT	
	52	YE20FUC	

6.5 REMOTE CONTROL UNIT



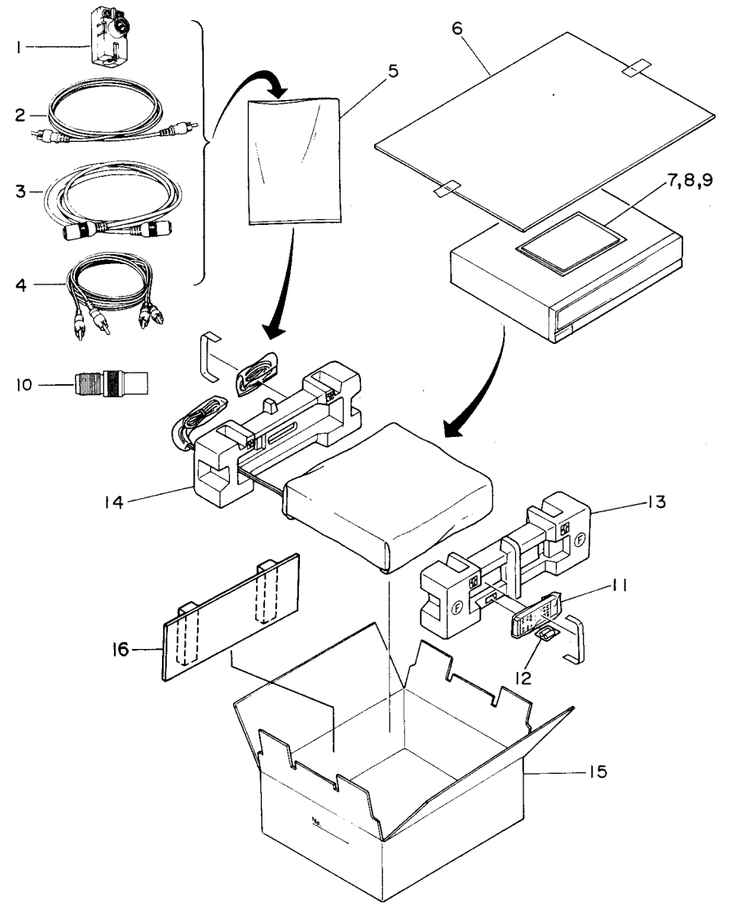
NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

CU-707(BK) (expl) Parts list 1

(MK)	(KEY)	PART NUMBER	DESCRIPTION
	1	PNY-435	Case B
	2	VNK-548	Cover
	3	N.S.P.	RMTC
	4	N.S.P.	Rubber sheet B
	5	N.S.P.	Rubber sheet A
	6	PNY-436	Filter
	7	AZK-007	Battery spring
	8	VNK-630	Case A
	9	VAH-151	Al plate
	10	CRZ20P080FZK	

7. PACKING



NOTES:

- *Parts without part number cannot be supplied.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*

LD-707(BK)/S/G (pack) Parts list 1

(MK)	(KEY)	PART NUMBER	DESCRIPTION
	1	VKX-019	Antenna adapter
	2	VDE-014	Video cable
	3	VDE-039	Antenna cable
	4	VDE-010	Connection cord
	5	N.S.P.	Bag
	6	VHL-032	Bag
	7	VRB-046	Op. instructions
	8	vacant	
	9	N.S.P.	Caution card
	10	VKX-017	F-IEC plug
	11	VXX-415	CU-707
	12	N.S.P.	Battery AAA
	13	VHA-110	Pad F
	14	VHA-131	Pad R
	15	VHG-148	Packing case
	16	VHA-129	Sub pad

Pad R and Sub-pad

Among the LD-707-(BK)/S/G units manufactured in the intial period, there are some which make use of VHA-III for Pad R.

In such cases, use can not be made of the Sub-pad currently supplied as a service part. When replacement of the Sub-pad is necessary, simultaneously replace Pad R with VHA-130, or when Pad R needs to be replaced, simultaneously also replace the Sub-pad (VHA-129).