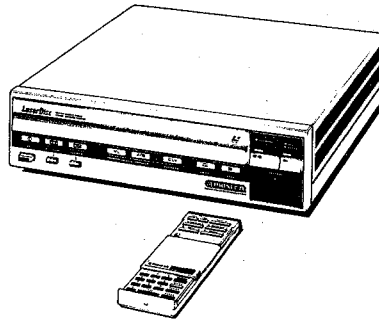


Service Manual

 PIONEER®



VIDEO DISC PLAYER

LD-700 KU

CONTENTS

1. DISASSEMBLY	1-1	4.5 LOLB, IRAB, DINB, KEYA, KEYB, SRVB 1/3 (CONT)	4-13
1.1 REMOVING THE EXTERNAL PARTS AND CIRCUIT BOARDS	1-1	4.6 SRVB 2/3 (FTS)	4-17
1.2 REMOVING THE PICKUP	1-1	4.7 SRVB 3/3 (TBC)	4-21
2. MECHANISM ASSEMBLY AND ADJUSTMENTS	2-1	4.8 DEMB 1/2 (VDEM)	4-25
2.1 PICKUP ASSEMBLY	2-7	4.9 DEMB 2/2 (ADEM)	4-29
2.2 PICKUP AND SLIDER ASSEMBLY	2-8	4.10 REMOTE CONTROL UNIT (CU-700) ..	4-33
2.3 POSITIONING OF POTENTIOMETER PINION GEAR	2-10	4.11 PARTS LIST OF EACH PCBs	4-34
2.4 ADJUSTMENT OF CLAMP SWITCH ...	2-10	4.12 TR & ICs	4-39
3. ELECTRICAL ADJUSTMENTS	3-1	4.13 WAVEFORMS	4-43
4. SCHEMATIC DIAGRAM, PCB PATTERN & PARTS LIST	4-1	5. EXPLODED VIEW	5-1
4.1 OVERALL CONNECTION DIAGRAM	4-1	5.1 EXTERNAL AND TOP VIEW	5-1
4.2 LOCATION OF PCBs	4-3	5.2 BOTTOM VIEW	5-4
4.3 FUSB, SFUB, RECB, DRVB, INTB, CNNB & BLMB	4-5	5.3 MECHANISM	5-7
4.4 PICKUP, PREB	4-9	5.4 CU-700	5-10
		5.5 PACKING MATERIAL	5-13
		6. LABEL CHECK	6-1
		7. SAFETY INFORMATION	7-1
		8. SPECIFICATION	8-1

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS (USA) INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
TEL: (800) 421-1404, (213) 420-5914
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

QUESTIONNAIRE

MODEL _____

One Model per questionnaire

Dear Servicer,

Thank you for your cooperation in the post-sale service of Pioneer products.

This questionnaire is used as a tool to improve the serviceability of our products and service manuals. Please evaluate this model and service manual by answering the following questions. Your ideas may be realized in our future products. Your answers will be appreciated. Thank you.

PIONEER ELECTRONIC CORP.

T. Nakagawa, Manager, Service Section, International Division

1. SERVICING EVALUATION	Circle applicable number:	Good	Fair	Poor		
a. Disassembly/Re-assembly:		1	2	3	*4	*5
b. Circuit Checks:		1	2	3	*4	*5
c. Replacement of Parts:		1	2	3	*4	*5
d. Adjustment (s):		1	2	3	*4	*5

* If (4) or (5) was circled, please be specific.

e. Your advice, opinion or ideas related to servicing this product.

2. SERVICE MANUAL EVALUATION

a. Circuit & Mechanism Description

b. Circuit Diagram

3. OTHER

Please describe other areas of servicing which you may find difficult.

Completed by :

Date :

Company Name :

Address :

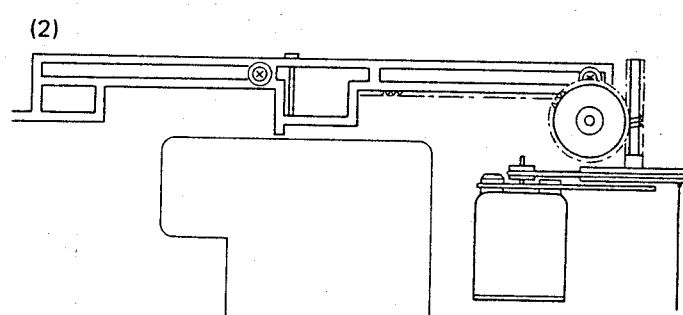
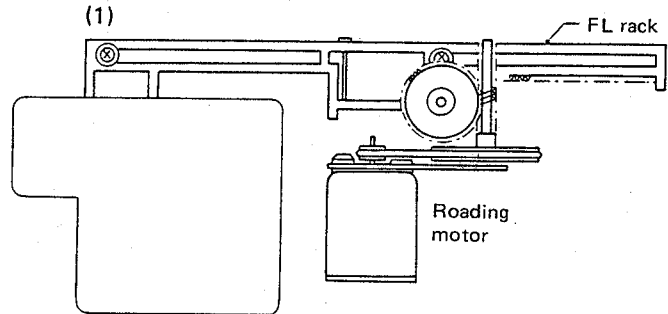
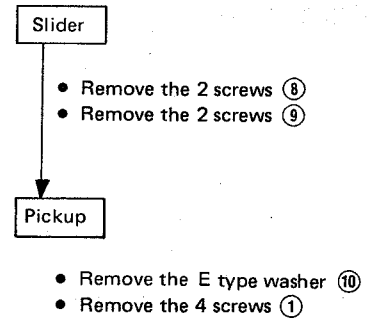
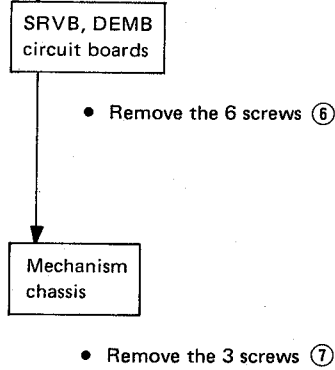
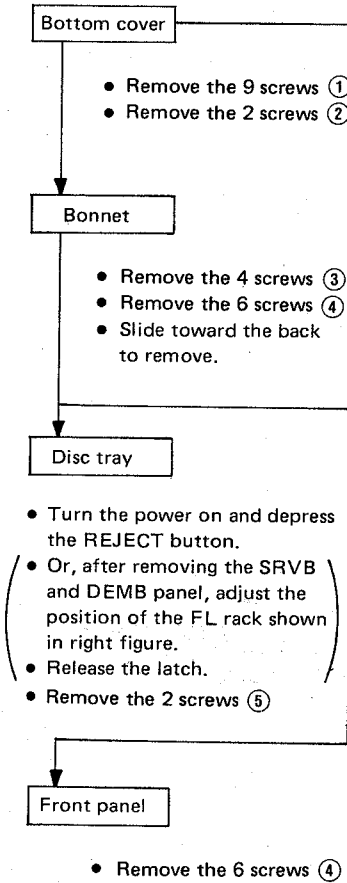
City/State/Zip :

Please send this form filled to the distributor in your country.

1. DISASSEMBLY

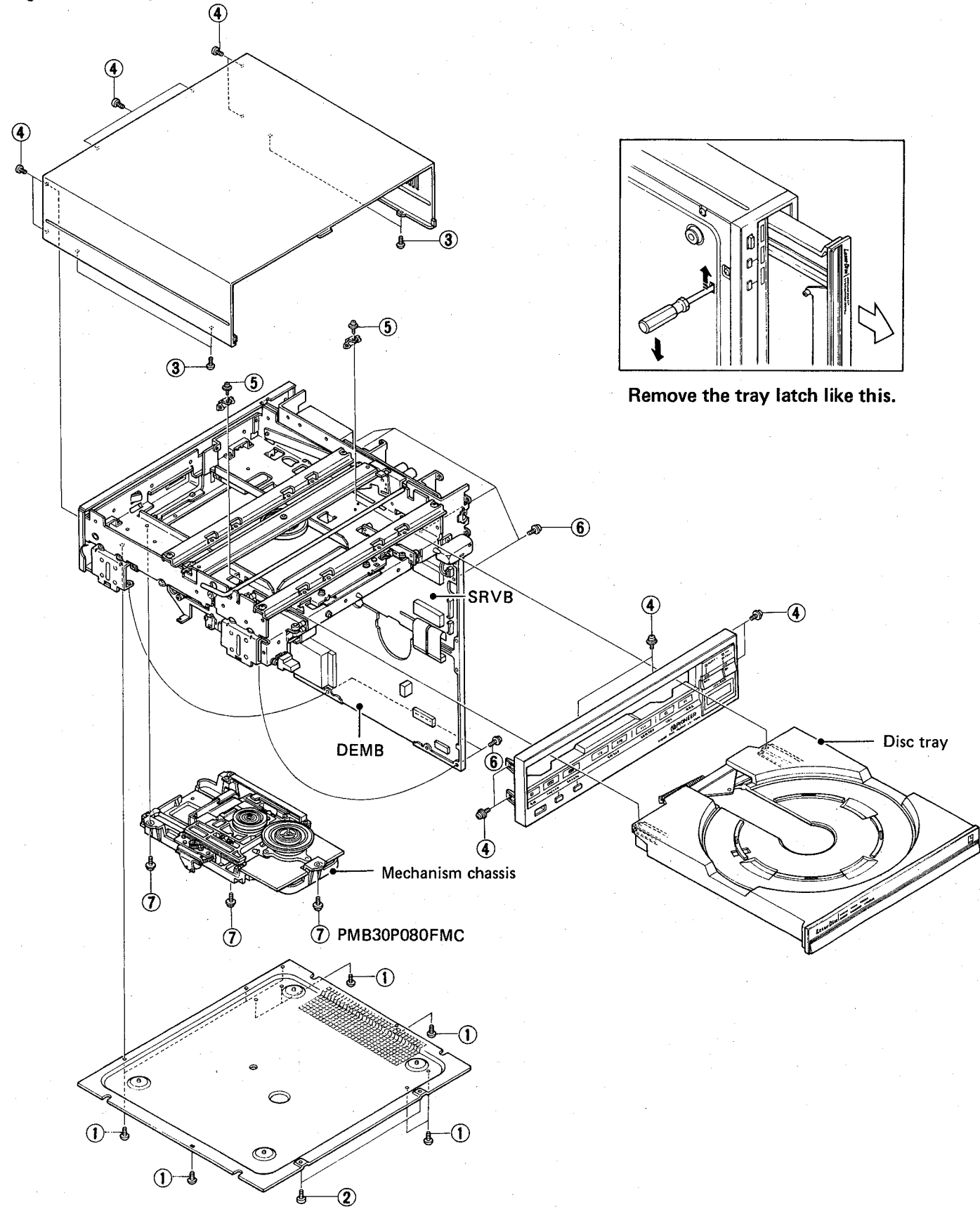
1.1 REMOVING THE EXTERNAL PARTS AND CIRCUIT BOARDS

1.2 REMOVING THE PICKUP

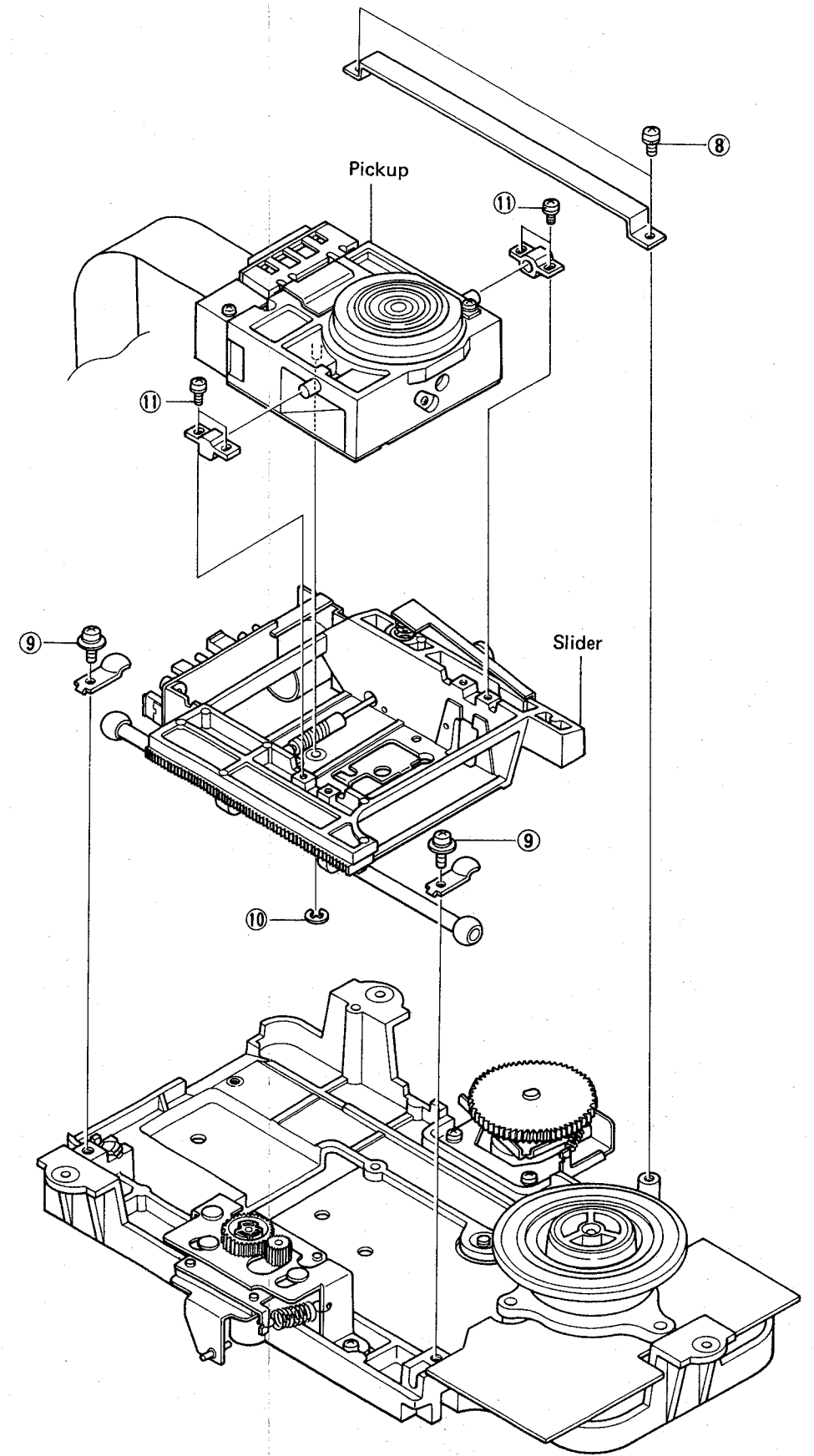


When the FL rack is at the position illustrated in (1), rotate this pulley to locate the FL rack illustrated in (2).

Removing the external parts and circuit boards

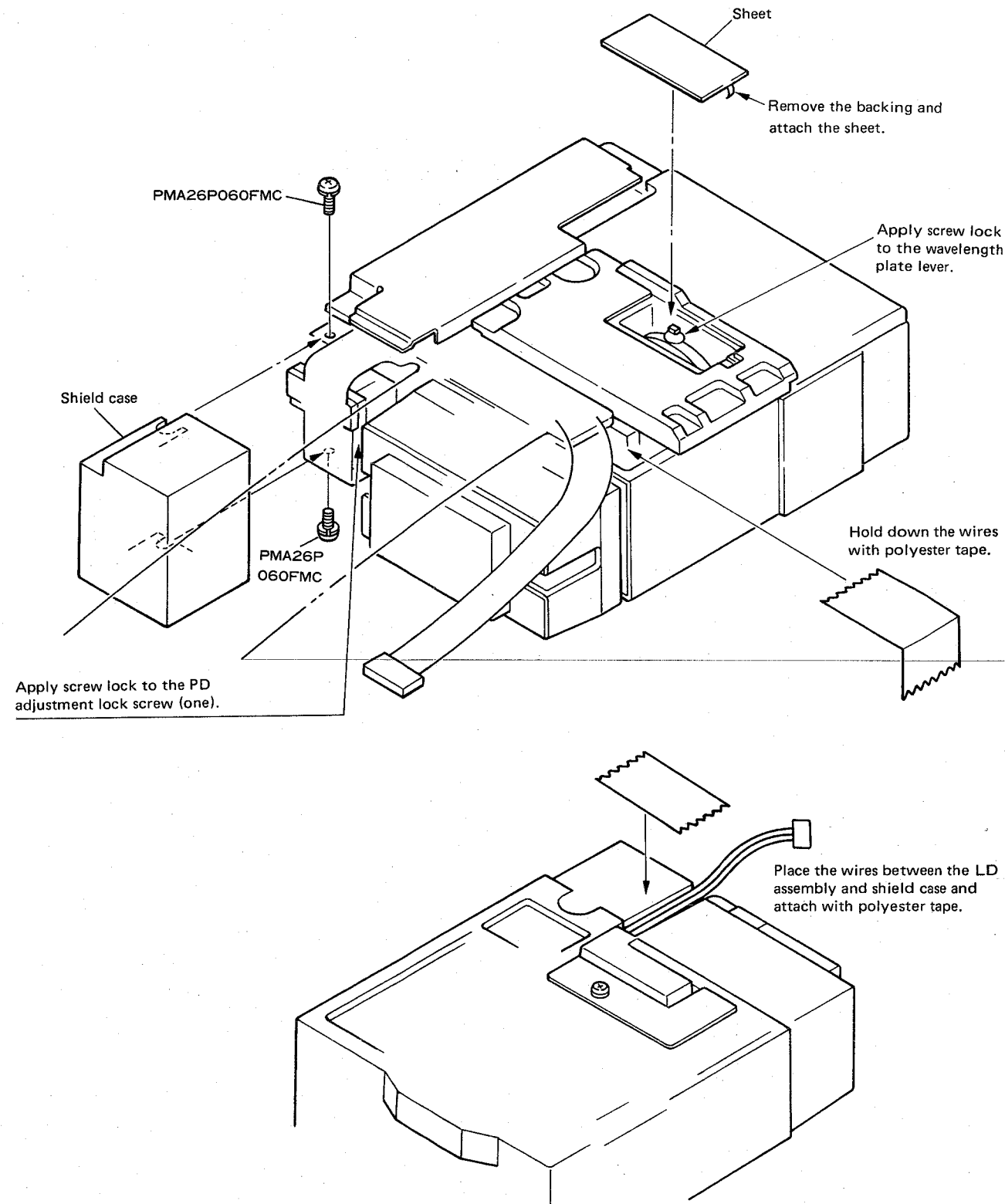


Removing the pickup



2. MECHANISM ASSEMBLY AND ADJUSTMENTS

2.1 PICKUP ASSEMBLY

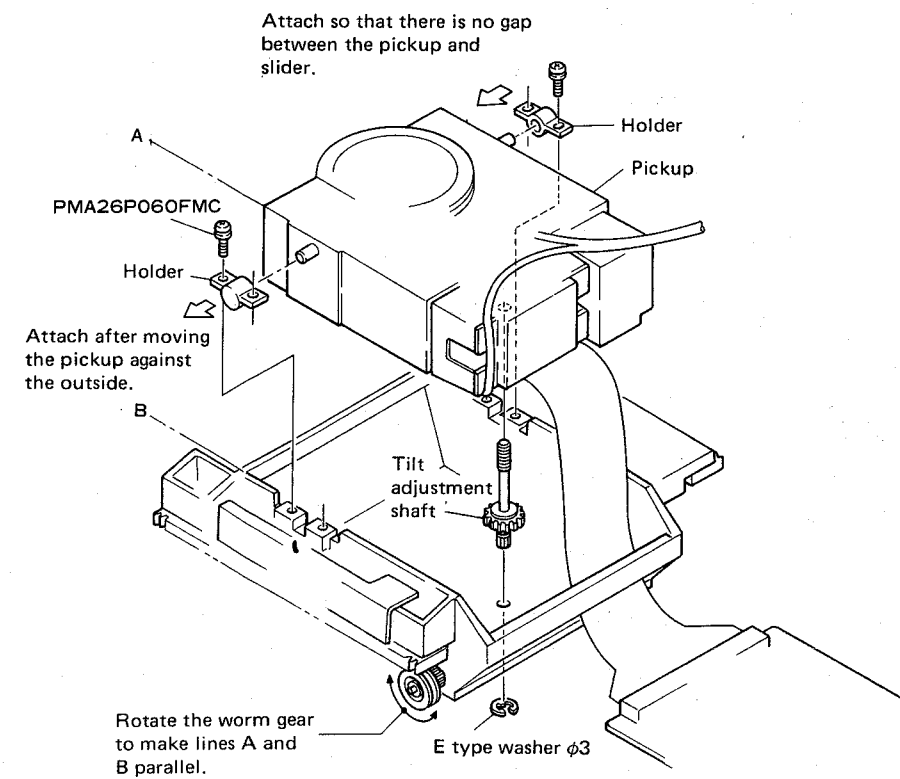
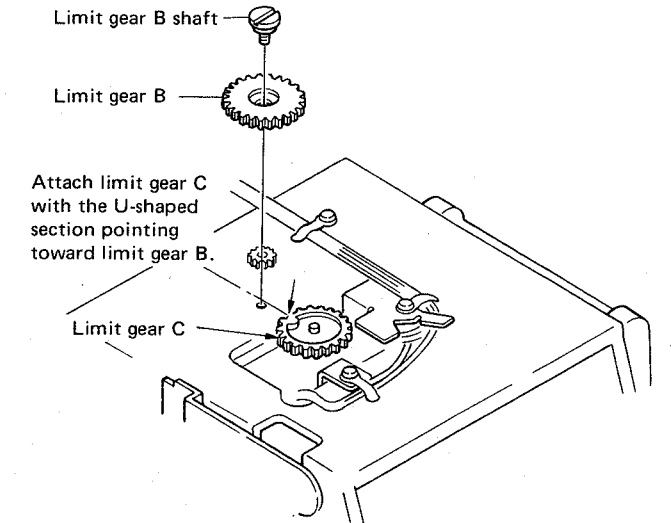


2.2 PICKUP AND SLIDER ASSEMBLY

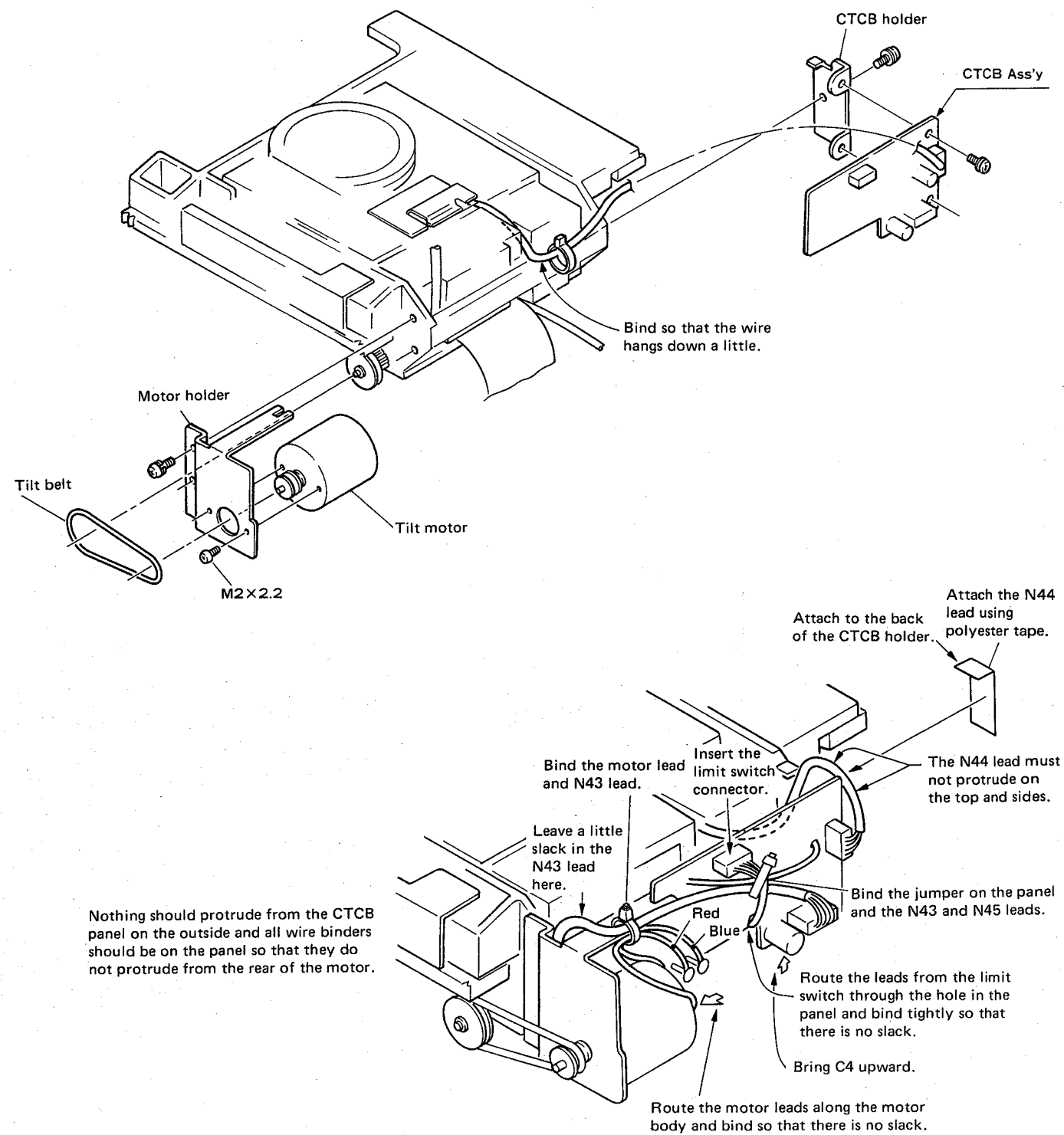
Assembly procedure:

- 1) Screw the tilt adjustment shaft into the pickup.
- 2) Place the pickup in the slider and attach the holder.
Note: Be careful not to apply pressure to the area around the objective lens or magnetic circuitry when doing this.
- 3) Attach the tilt adjustment shaft to the optical body using the E type washer.
- 4) Turn the slider upside down and attach limit gear.
Note: Be careful not to apply pressure to the area around the objective lens or magnetic circuitry when doing this.
- 5) Rotate the worm gear until the pickup and slider are parallel to each other (lines A and B).
- 6) Attach the tilt motor and CTCB panel.
- 7) Properly route the wires around CTCB.

Attachment of limit gear B



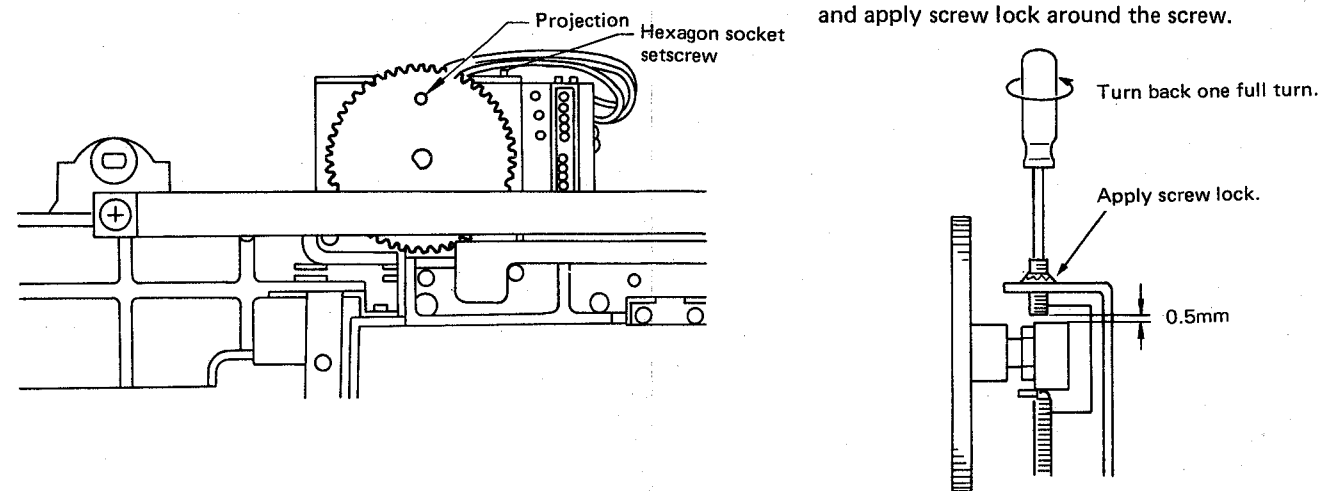
Tilt motor and CTCB panel attachment



2.3 POSITIONING OF POTENTIOMETER PINION GEAR

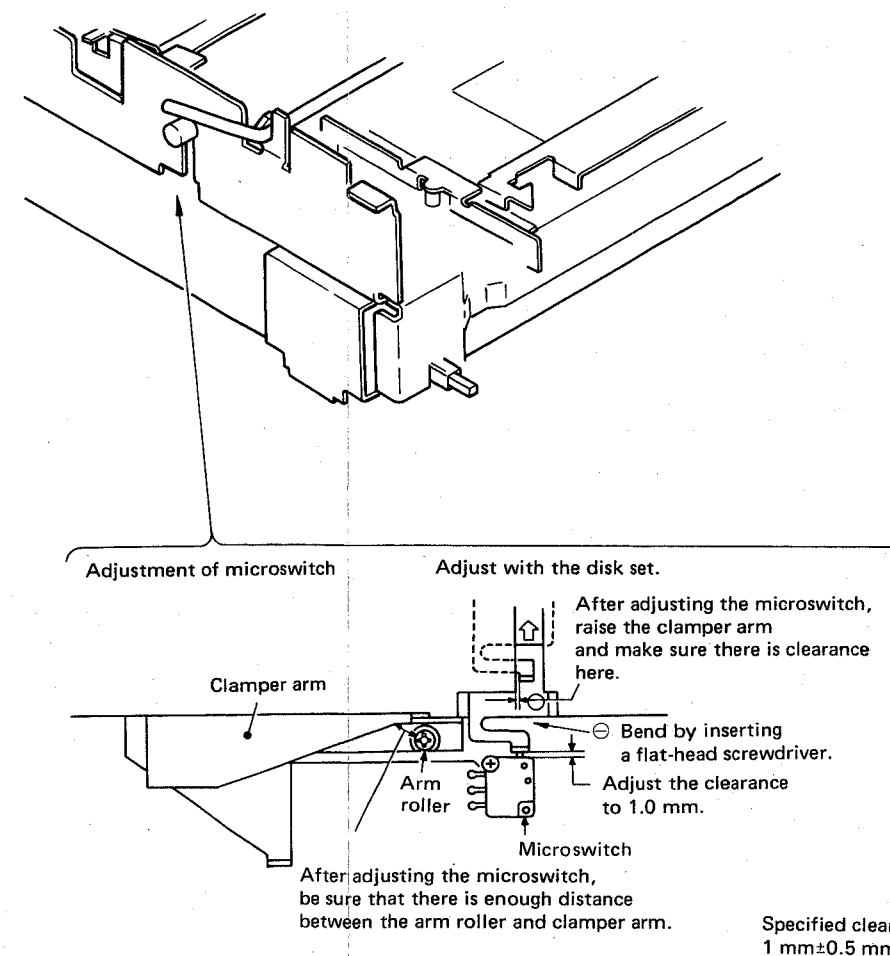
- Adjust the projection of the pinion gear to the upper portion shown in the figure by idling the pinion gear when the pickup is moved to the innermost position.

- After positioning the pinion, turn the hexagon socket setscrew clockwise until the end of the screw lightly touches the potentiometer holder. Then, turn back one full turn and apply screw lock around the screw.



2.4 ADJUSTMENT OF CLAMP SWITCH

Adjustment should always be done after replacing the clamp switch.



3. ELECTRICAL ADJUSTMENTS

Instruments and tools used:

- Color monitor TV
- Stereo system
- Dual trace oscilloscope (with time delay sweep, DC-35MHz)
- Audio SG
- Frequency counter
- Shorting clips
- Test disc B1 (or F1)
- CU-700

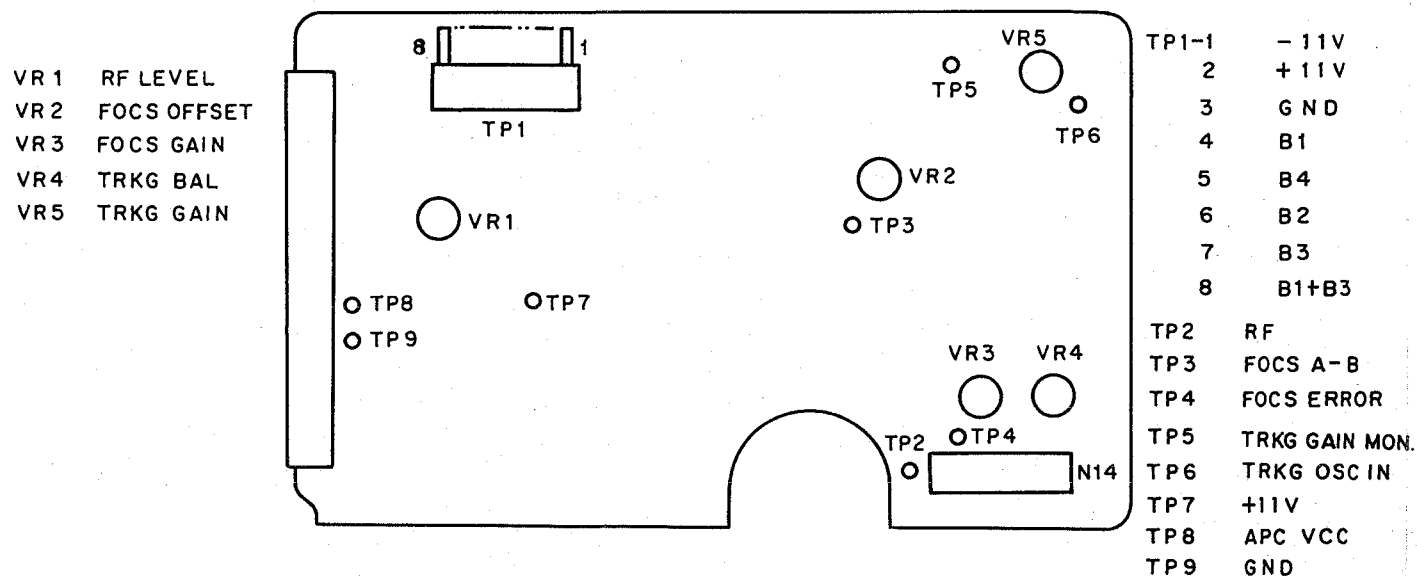
Precautions:

- Confirm that all power supply voltages are correct.
- Confirm that there are no mechanical problems.
- Pinion adjustment of the slider potentiometer must be completed.
- All parts of the pickup except the grating must be correctly adjusted. Use F1 test disc for the grating adjustment.
- The oscilloscope range figures here assume the use of a 1:1 probe.
- Do not insert and remove discs when the player is on its side up. (Do not press the \square/\triangle button on the player.)

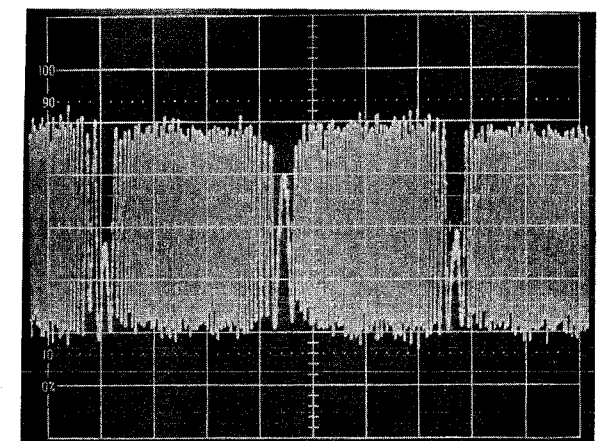
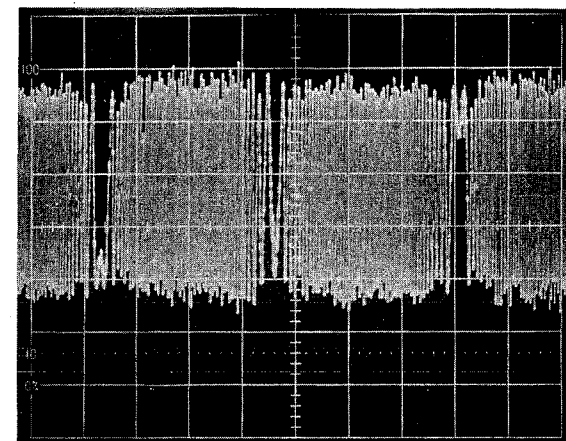
Preparations:

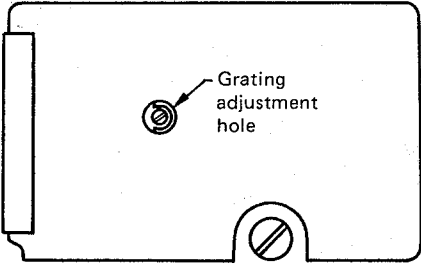
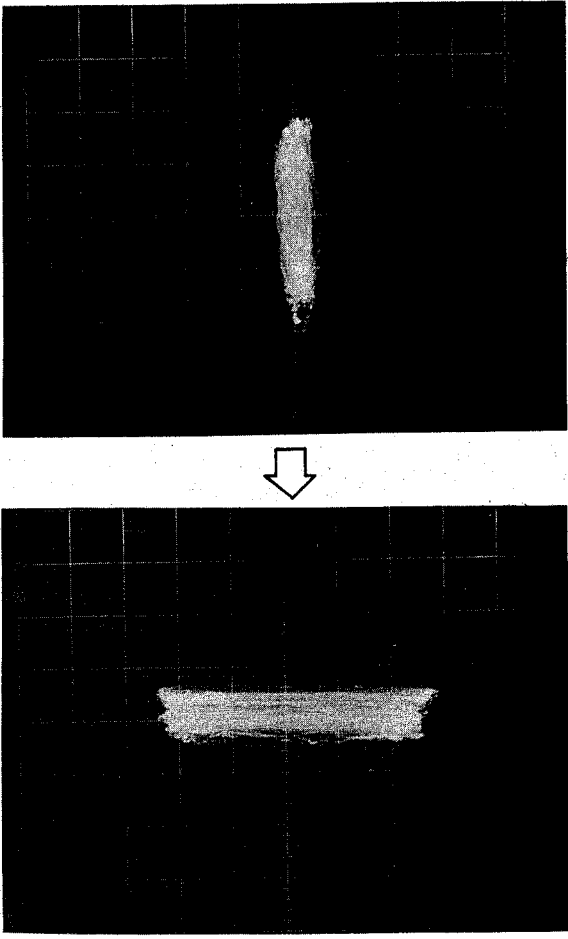
- Connect a monitor TV and stereo amp to the player.
- Remove the top and bottom panels.
- Insert a test disc.
- Perform PREB, SRVB and DEMB adjustments with the player standing on its right side.
- Perform the PREB adjustment with the SRVB and DEMB boards open (remove the SRVB and DEMB board screws).

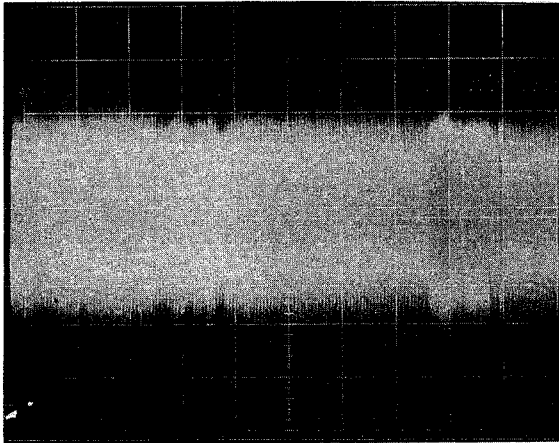
PREB adjustment points



NO.	OSCILLOSCOPE		TEST POINT	ADJUSTMENT POINT	CHECK POINT/ADJUSTMENT STANDARD	ADJUSTMENT PROCEDURE
	V	H				
						<p>PREB ADJUSTMENT</p> <ul style="list-style-type: none"> • Always perform the following adjustments after replacing, repairing or adjusting the pickup or replacing PREB. <p>CONFIRMATION OF THE LD POWER</p> <ul style="list-style-type: none"> • Measure the voltage between TP7 and TP8. • Verify the voltage is in the range of 0.25V to 0.5V. If not, replace the pickup. <p>FOCS OFFSET ADJUSTMENT</p> <ul style="list-style-type: none"> • Adjust the DC voltage of TP3 so that it is 0V±5mV when the player is in the standby mode. <p>TRKG BALANCE ADJUSTMENT</p> <ul style="list-style-type: none"> • Use search to locate frame #20,000. • Open the TRKG loop. (Connect pins 20 and 22 of SRVB Z401 PM4001 using the shorting clips.) • Adjust so that the positive and negative sides of the tracking error wave are equal.
	5mV/div	0.1mS/div.	TP7 TP8		0.25V ~ 0.5V	
			TP3	VR2		
	0.2V/div	5mS/div	TP5	VR4	Positive amplitude = Negative amplitude	



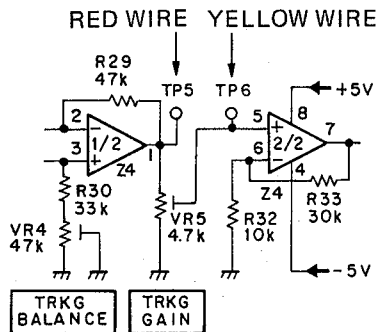
NO.	OSCILLOSCOPE		TEST POINT	ADJUSTMENT POINT	CHECK POINT/ADJUSTMENT STANDARD	ADJUSTMENT PROCEDURE
	V	H				
	X: 0.2V/div Y: 0.2V/div		SRVB TP-11 TP-12	Grating	Min. on X axis Max. on Y axis Max. on X axis MIN. on Y axis	<p>TRKG LEVEL CHECK AND GRATING ADJUSTMENT</p> <ul style="list-style-type: none"> • Use testdisc F₁ for grating adjustment. • Use search to locate frame #15,000. • Open the TRKG loop. • Set the oscilloscope to the X-Y mode and observe the tracking error (TP-11:X) and tracking A+B (TP-12:Y) lissajous waveforms. • Insert a screwdriver in the PREB hole and slowly rotate the grating until the amplitude of the lissajous waveform is at its lowest point on the X axis and its highest point on the Y axis. The waveform should also be smooth. • Now rotate the screwdriver counterclockwise to adjust the grating to the point where the amplitude of the lissajous waveform is at its highest point on the X axis and its lowest point on the Y axis. <p>Note: If the lissajous waveform does not become horizontal but remains slanted, the position of the shaft holder may not be correct.</p>
<p>PREB</p>  <p>The diagram shows a rectangular component with a circular hole labeled 'Grating adjustment hole' and a semi-circular hole labeled 'PREB'.</p>						
 <p>The top image shows a vertical lissajous waveform on a grid. An arrow points down to the bottom image, which shows a horizontal lissajous waveform on the same grid.</p>						

NO.	OSCILLOSCOPE		TEST POINT	ADJUSTMENT POINT	CHECK POINT/ADJUSTMENT STANDARD	ADJUSTMENT PROCEDURE
	V	H				
	0.1V/div	1mS/div	TP2	VR1	400mVp-p	<p>RF LEVEL ADJUSTMENT</p> <ul style="list-style-type: none"> ● Close the TRKG loop. ● At about frame #18,000 adjust so that the TP2 output is 400mV p-p. 

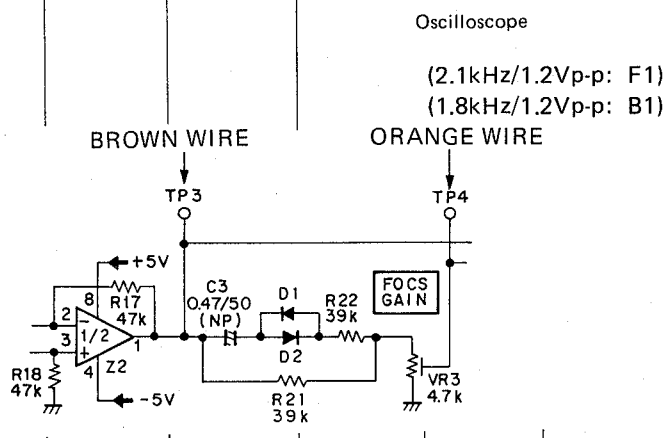
NO.	OSCILLOSCOPE		TEST POINT	ADJUSTMENT POINT	CHECK POINT/ADJUSTMENT STANDARD	ADJUSTMENT PROCEDURE
	V	H				
	X: 0.5V/div Y: 0.2V/div		X: TP6 Y: TP5	VR5	J-LED on	<p>TRKG LOOP GAIN ADJUSTMENT</p> <ul style="list-style-type: none"> ● Set the frequency of the FTG adjuster at 4kHz (B1 disc) with Frequency-VR2. (3.7kHz: F1 disc) ● Set the gain of the FTG adjuster at 4Vp-p with Gain-VR2. Oscillator's output is available from Yellow wire by turning the Switch to 2. ● Connect the Yellow wire of the FTG adjuster as shown in the diagram. ● Connect red wire of the FTG adjuster as shown in the diagram. ● Use search to locate frame #18,000. ● Adjust VR5 to turn J-LED on.

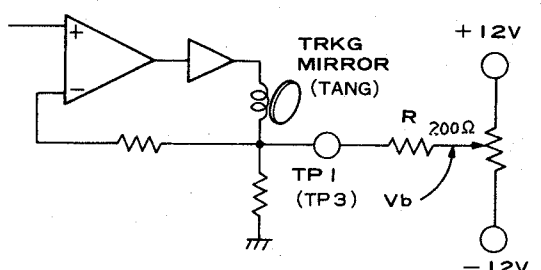
TRKG loop gain

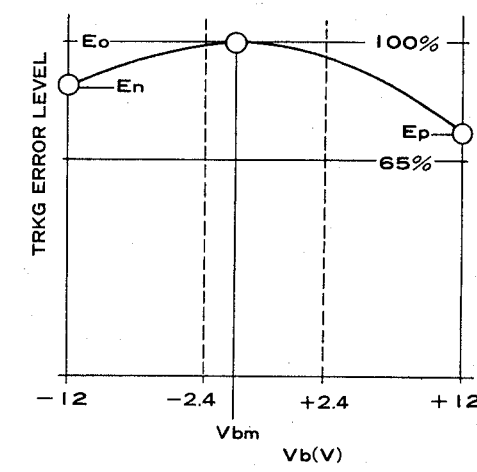
(3.7kHz/4Vp-p: F1)
(4.0kHz/4Vp-p: B1)



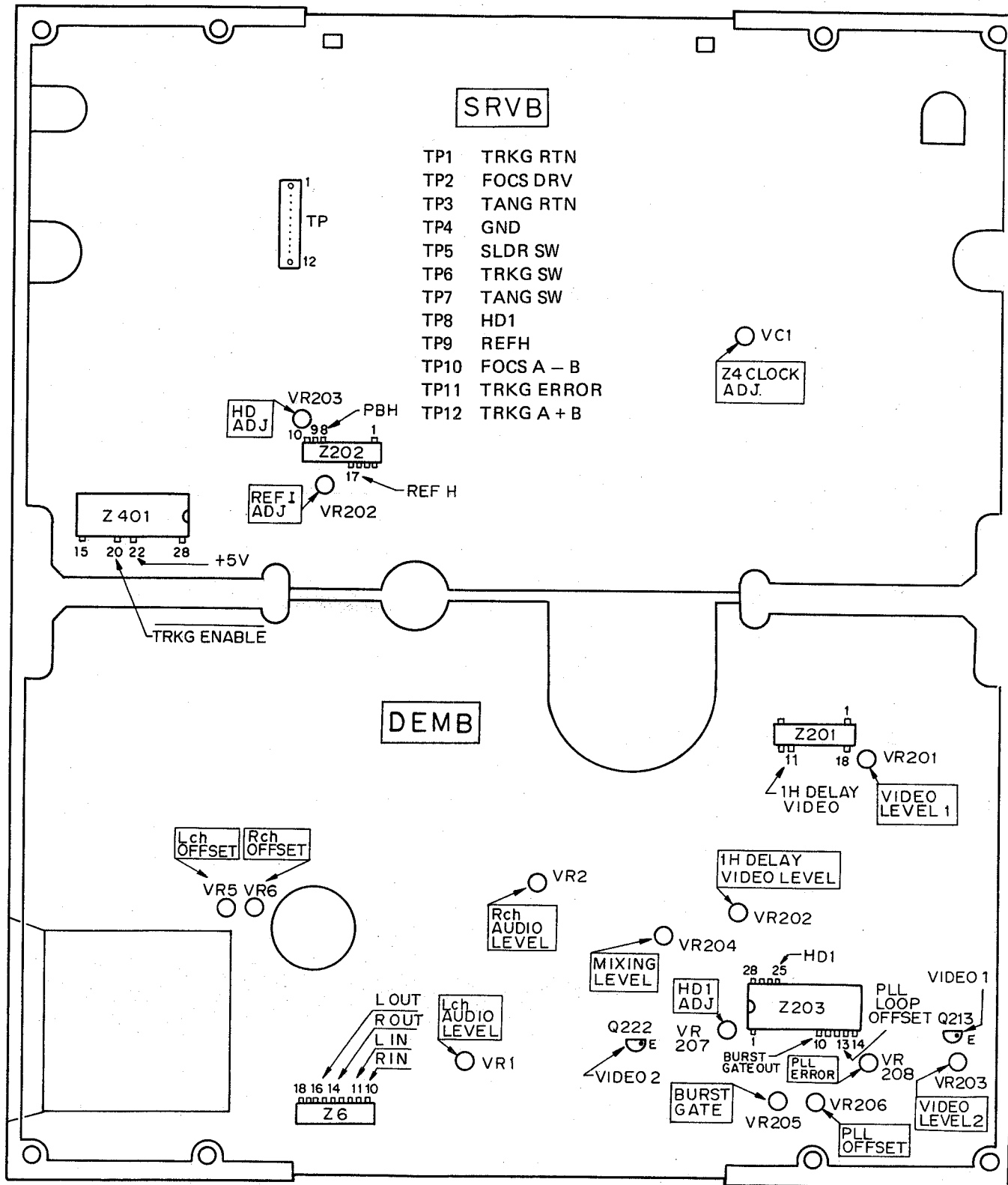
NO.	OSCILLOSCOPE		TEST POINT	ADJUSTMENT POINT	CHECK POINT/ADJUSTMENT STANDARD	ADJUSTMENT PROCEDURE
	V	H				
	X: 0.2V/div Y: 1V/div		X: TP4 Y: TP3	VR3	J-LED on	<p>FOCS LOOP GAIN ADJUSTMENT</p> <ul style="list-style-type: none"> • Set frequency of the FTG adjuster at 1.8kHz (B1 disc) with Frequency-VR1. (2.1kHz: F1 disc) • Set the gain of the FTG adjuster at 1.2Vp-p with Gain-VR1. Oscillator's output is available from Orange wire by turning the Switch to 1. • Connect the Orange wire of the FTG adjuster as shown in the diagram. • Connect the brown wire of the FTG adjuster as shown in the diagram. • Use search to locate frame #20,000. • Adjust VR3 to turn on the green j (JUST) LED. • Disconnect the FTG adjuster.

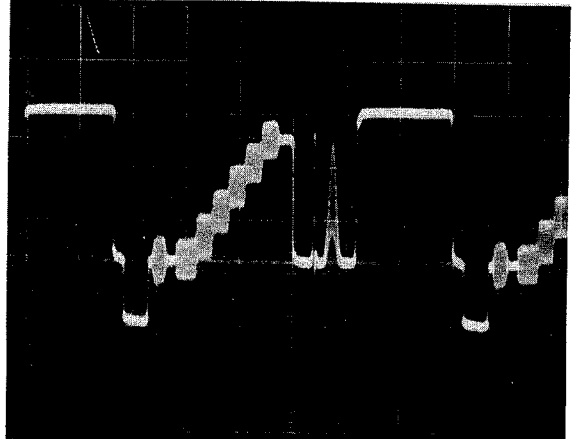



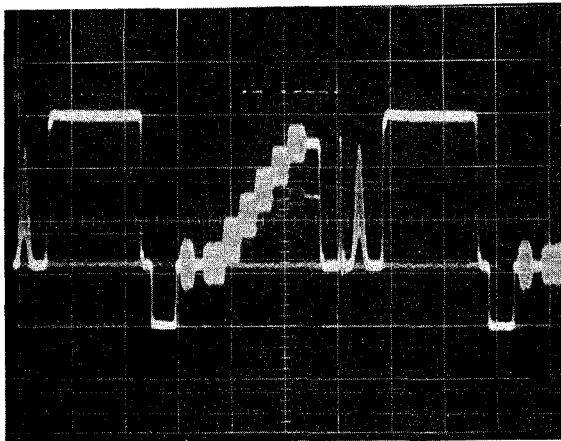
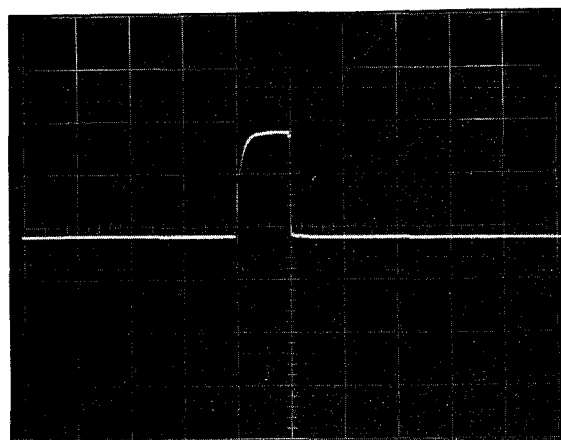
STEP NO.	OSCILLOSCOPE RANGE		TEST POINT	ADJUSTMENT POINT	CHECK ITEM/ADJUSTMENT SPECIFICATION	ADJUSTMENT PROCEDURE
	V	H				
			SRVB TP1 PREB TP5	Jig mirror bias VR Jig mirror bias VR	Max. TRKG error	<p>PICKUP OPTICAL AXIS CHECK</p> <p>Always perform this procedure after replacing the pickup and when it is suspected that the pickup is mal-adjusted.</p> <ul style="list-style-type: none"> Play a disc at about track number 15,000. Open the TRKG loop. (Connect SRVB, Z401, PM4001 pins 20 and 22 with shorting clips.) Open the TANG loop. (Connect SRVB TP7 to ground.) <p>CONFIRMATION OF OPTICAL AXIS IN TRACKING DIRECTION</p> <ul style="list-style-type: none"> Connect the bias voltage output terminal of the optical axis checking jig (the current setting resistor should be set to 200 ohms) to TP1 (TRKG RTN) of SRVB. Measure the TRKG error level at TP5 of PREB. Adjust the mirror bias VR of the jig so that the error level is maximized and then record the peak-to-peak value E_0 and the voltage V_{bm} being applied. Next, rotate the mirror bias VR all the way to the +12V side and record the TRKG error p-p value E_p. Then rotate the mirror bias VR all the way to the -12V side and record the TRKG error p-p value E_n. If V_{bm} is within the range of $\pm 2.4V$: $E_p > 0.63E_0$ and $E_n > 0.63E_0$ If V_{bm} is outside the range of $\pm 2.4V$: $E_p > 0.70E_0$ and $E_n > 0.70E_0$ If the above conditions are not met, replace the pickup. 

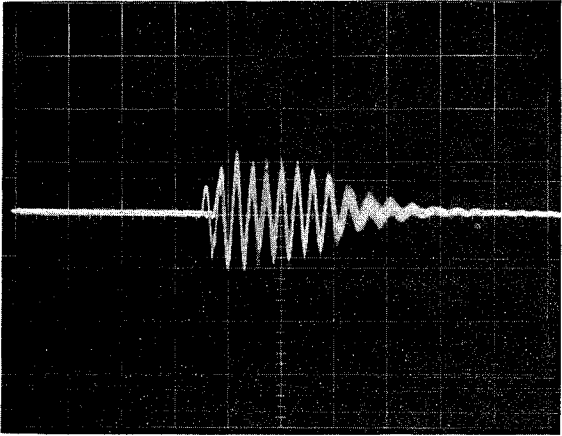
STEP NO.	OSCILLOSCOPE RANGE		TEST POINT	ADJUSTMENT POINT	CHECK ITEM/ADJUSTMENT SPECIFICATION	ADJUSTMENT PROCEDURE
	V	H				
			SRVB TP3 PREB TP5	Jig mirror bias VR Jig mirror bias VR	Max. TRKG error	<p>CONFIRMATION OF OPTICAL AXIS IN TANG DIRECTION</p> <ul style="list-style-type: none"> Connect the bias voltage output terminal of the optical axis checking jig to TP3 (TANG RTN) of SRVB. Measure the TRKG error level at TP5 of PREB. Adjust the mirror bias VR of the jig so that the error level is maximized and then record the peak-to-peak value E_0 and the voltage V_{bm} being applied. Rotate the mirror bias VR all the way to the +12V side and record the TRKG error p-p value E_p. Then rotate the mirror bias VR all the way to the -12V side and record the TRKG error p-p value E_n. If V_{bm} is within the range of $\pm 2.4V$: $E_p > 0.63E_0$ and $E_n > 0.63E_0$ If V_{bm} is outside the range of $\pm 2.4V$: $E_p > 0.70E_0$ and $E_n > 0.70E_0$ If the above conditions are not met, replace the pickup. 

SRVB, DEMB ADJUSTMENT POINTS



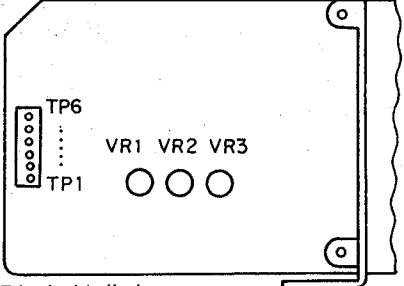
NO.	OSCILLOSCOPE		TEST POINT	ADJUSTMENT POINT	CHECK POINT/ADJUSTMENT STANDARD	ADJUSTMENT PROCEDURE
	V	H				
	0.5V/div	10μs/div	Q213 emitter	VR201	2Vp-p	<p>DEMB</p> <p>MAIN LINE VIDEO LEVEL 1 ADJUSTMENT</p> <ul style="list-style-type: none"> Use search to locate the composite test pattern of chapter 15. Observe the video signal from the Q213 emitter and confirm that the level between the white peak and synch tip is 2V. If the voltage is not correct, adjust VR201. 
	0.5V/div	10μs/div	Z201 (11)	VR202	2Vp-p	<p>1H DELAY VIDEO LEVEL ADJUSTMENT</p> <ul style="list-style-type: none"> Play back the same test pattern in the still mode. Observe the video signal at pin 11 of PA3018 (Z201) and confirm that the level between the white peak and synch tip is 2V. If the voltage is not correct, adjust VR202. 

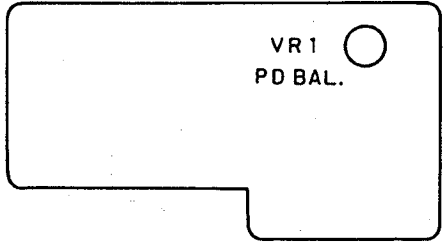
NO.	OSCILLOSCOPE		TEST POINT	ADJUSTMENT POINT	CHECK POINT/ADJUSTMENT STANDARD	ADJUSTMENT PROCEDURE
	V	H				
	0.5V/div	10 μ s/div	Q222 emitter	VR203	2Vp-p	<p>VIDEO LEVEL 2 ADJUSTMENT</p> <ul style="list-style-type: none"> Observe the video signal from the Q222 emitter and confirm that the level between the white peak and synch tip is 2V. If the voltage is not correct, adjust VR203. 
	0.5V/div 0.5V/div	10 μ s/div	Q213(E) Q222(E)	VR204	Same chroma level	<p>MIXING LEVEL ADJUSTMENT</p> <ul style="list-style-type: none"> Use search to locate the magenta pattern of chapter 20. Adjust VR204 so that the Q213 emitter and Q222 chroma levels are the same.
	1V/div	5 μ s/div	Z203 (25)	VR207	5 μ s	<p>HD 1 PULSE WIDTH ADJUSTMENT</p> <ul style="list-style-type: none"> While playing a disc (with SPDL lock on), adjust so that the HD1 signal pulse width at pin 25 of PA9001 is 5μs. 

NO.	OSCILLOSCOPE		TEST POINT	ADJUSTMENT POINT	CHECK POINT/ADJUSTMENT STANDARD	ADJUSTMENT PROCEDURE
	V	H				
	0.1V/div	1 μ s/div	Z203 (10)	VR205		<p>BURST GATE POSITION ADJUSTMENT</p> <ul style="list-style-type: none"> ● Use search to locate the composite test pattern of chapter 15. ● Adjust so that the color burst signal is clearly gated at pin 10 of PA9001. 
	1V/div	1mS/div	Z203(13)	VR206	V1 = V2	<p>PLL LOOP OFFSET ADJUSTMENT</p> <ul style="list-style-type: none"> ● Play the composite test pattern in the still mode. Observe the DC level V1 of pin 13 of PA9001 (Z203). ● Next, connect a capacitor of about 0.047μF between pin 9 of the same IC and ground and observe the DC level V2 of pin 13. <p>V1 should equal V2. If not, adjust VR206.</p>
			Screen	VR208	Min. color unevenness	<p>PLL ERROR LEVEL ADJUSTMENT</p> <ul style="list-style-type: none"> ● Use search to locate the magenta image of chapter 20 and adjust VR208 to the point where color unevenness is minimized.

NO.	OSCILLOSCOPE		TEST POINT	ADJUSTMENT POINT	CHECK POINT/ADJUSTMENT STANDARD	ADJUSTMENT PROCEDURE
	V	H				
	50mV/div	1ms/div	Z6(11)	VR1	B1 65mVrms F1 70mVrms	<p>AUDIO OUTPUT LEVEL ADJUSTMENT</p> <ul style="list-style-type: none"> ● Play chapter 9, the 40% modulated 1kHz signal (only in the left channel). ● Measure the level of the 1kHz signal at pin 11 of Z6 (HA12043) and adjust VR1 so the level is 65mVrms (B1). ● Play chapter 10, the 40% modulated 1kHz signal (only in the right channel). ● Measure the level of the 1kHz signal at pin 10 of Z6 (HA12043) and adjust VR2 so the level is 65mVrms (B1). <p>OFFSET ADJUSTMENT</p> <ul style="list-style-type: none"> ● Play the CX test signal in chapters 11 and 12. ● Observe both audio outputs. ● When playing chapter 11, adjust VR5 so that the level of the waveform appearing in the right channel each time the left channel output changes (at 8 second intervals) is as small as possible. ● When playing chapter 12, adjust VR6 so that the level of the waveform appearing in the left channel each time the right channel output changes (at 8 second intervals) is as small as possible.
	50mV/div	1ms/div	Z6(10)	VR2	B1 65mVrms F1 72mVrms	
	0.5V/div 10mV/div	0.1sec/div	Z6(16) Z6(14)	VR5	Min. 2/R waveform level	
	10mV/div 0.5V/div	0.1sec/div	Z6(16) Z6(14)	VR6	Min. 1/L waveform level	

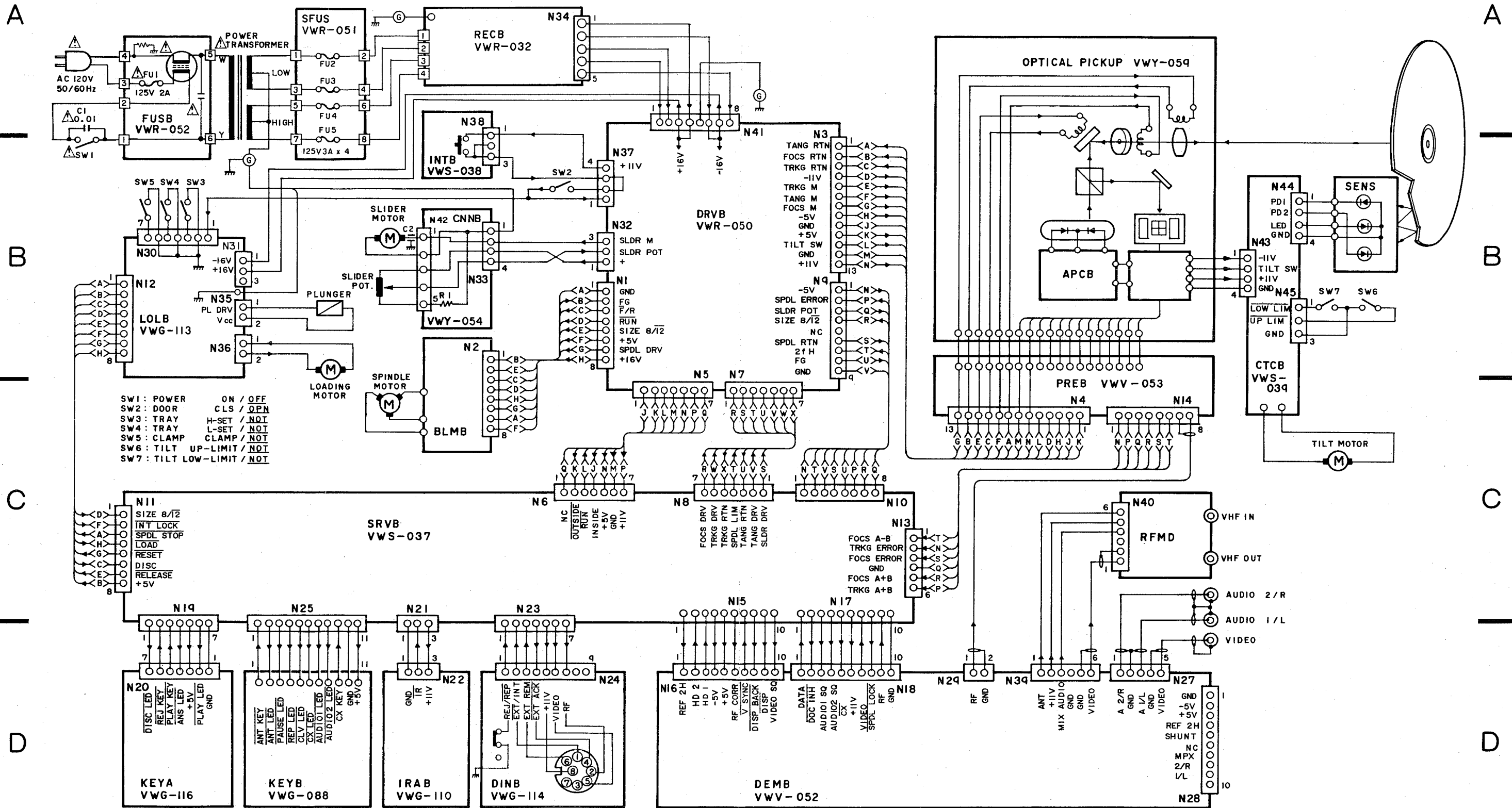
NO.	OSCILLOSCOPE		TEST POINT	ADJUSTMENT POINT	CHECK POINT/ADJUSTMENT STANDARD	ADJUSTMENT PROCEDURE
	V	H				
	5V/div	10μs/div	On SRVB unless otherwise specified.	On SRVB unless otherwise specified.		<div style="border: 1px solid black; padding: 2px; margin-bottom: 10px;">SRVB ADJUSTMENTS</div> <p>REFI, HD 2 ADJUSTMENTS</p> <ul style="list-style-type: none"> ● Insert the disc and begin disc play. ● Verify the falling period of the trapezoid waveform is $10\mu s \pm 1\mu s$. If not, adjust VR202 to satisfy the above. ● Verify the L period of the PBH is $33\mu s \pm 2\mu s$. If not, adjust VR203 to satisfy the above.
	5V/div		Z202 ①	VR202	$10\mu s \pm 1\mu s$	
			Z202 ⑧	VR203	$33\mu s \pm 2\mu s$	
				VC1	CLV search — not more than 12 seconds	<p>Z4 CLOCK FREQUENCY CHECK</p> <ul style="list-style-type: none"> ● Perform 0:10→0:40 and 0:40→0:10 search on the CLV disc and confirm that in both cases search takes no more than 12 seconds. ● If search takes too long or does not function properly, adjust VC1.

NO.	OSCILLOSCOPE		TEST POINT	ADJUSTMENT POINT	CHECK POINT/ADJUSTMENT STANDARD	ADJUSTMENT PROCEDURE
	V	H				
				On DRVB unless otherwise specified. VR1	Lead-ins 19-21	<p>DRVB ADJUSTMENTS</p> <p>INSIDE LIMIT POSITION ADJUSTMENT</p> <ul style="list-style-type: none"> Insert the test disc and begin disc play. Hold down X3 REV when the inside of the disc is being played and confirm that it switches to the inside limit at the lead-in sector 19-21 indication and returns to the outside of the disc. If the player does not function properly, adjust VR1 and, after moving the pickup to within the program territory, check the limit position again in the same way. Repeat this process until the limit position is correct. <p>12-INCH OUTSIDE LIMIT POSITION ADJUSTMENT</p> <ul style="list-style-type: none"> Use search to locate frame #50,400, move the pickup to the outside of the disc using X3 FWD and confirm that it switches to the outside limit and returns to the inside of the disc at the lead-out sector 23-25 indication. If the player does not function properly, adjust VR2 and, after moving the pickup a little bit toward the inside of the disc, check the limit position again in the same way. Repeat this process until the limit position is correct. <p>8-INCH OUTSIDE ADJUSTMENT</p> <ul style="list-style-type: none"> Connect a 15kΩ resistor between TP2 and TP6. Adjust VR3 so that the player returns to frame #23,500 (B₁) when the pickup reaches the outside limit on an 8-inch disc when moved toward the outside of the disc using X3 FWD. <p>Note: The inside limit and 12-inch outside limit are adjusted at the point where the direction first changes, but for 8-inch disc adjustments, the position where the limit position is reached and the pickup returned is adjusted.</p> <p>DRVB ADJUSTMENT POINTS</p>  <p>TP6 INSIDE TP5 OUTSIDE TP4 VR1 center tap TP3 VR2 center tap TP2 Q22 base TP1 SLDR pot</p> <p>VR1: Inside limit VR2: 12-inch outside limit VR3: 8-inch outside</p>
				VR2	Lead-outs 23-25	
				VR3	B1 #23,500 F1 #23,800	

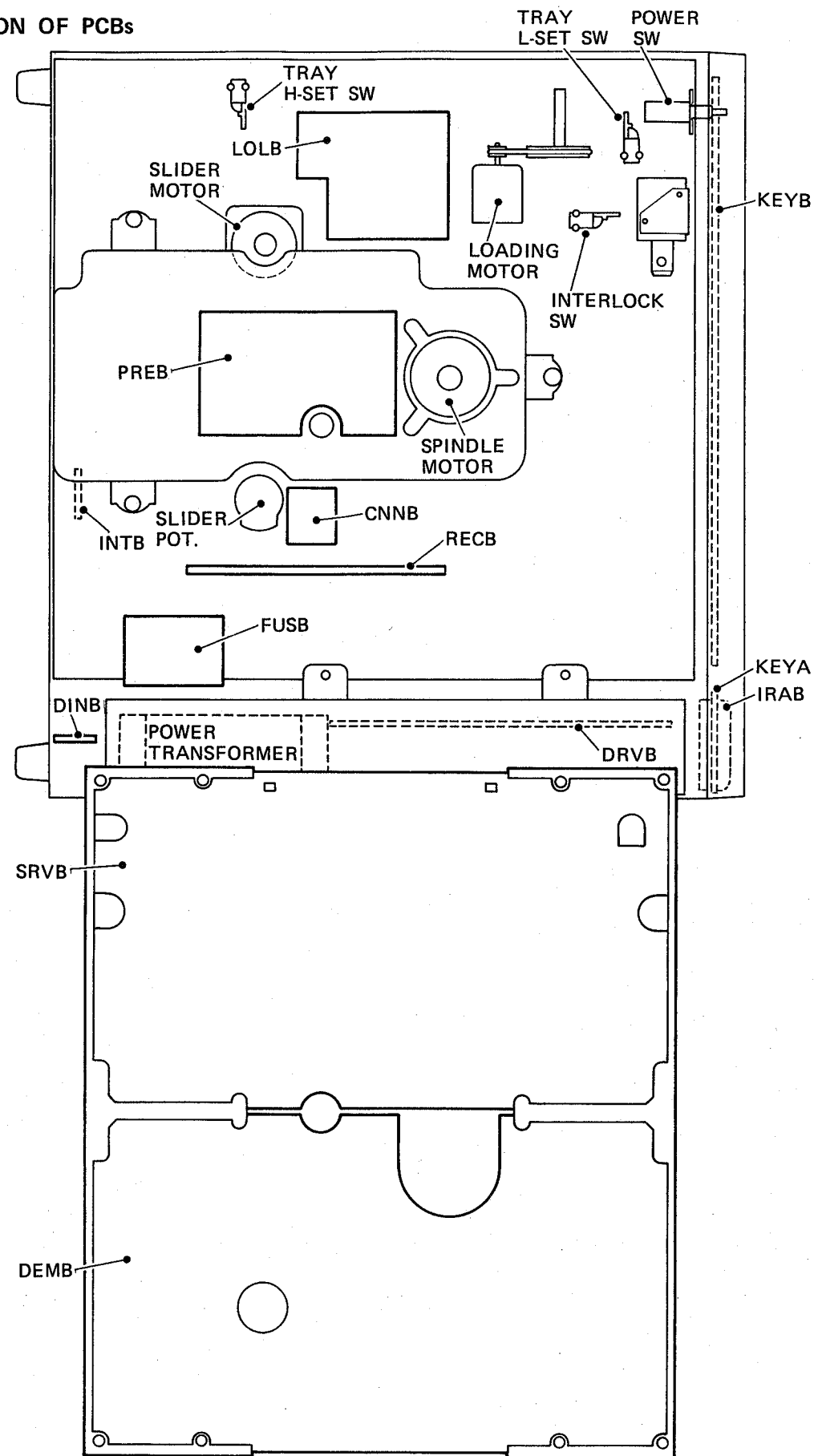
NO.	OSCILLOSCOPE		TEST POINT	ADJUSTMENT POINT	CHECK POINT/ADJUSTMENT STANDARD	ADJUSTMENT PROCEDURE
	V	H				
				VR1	Minimum crosstalk	<p>CTCB</p> <ul style="list-style-type: none"> If crosstalk is prominent with the CLV disc, perform the following adjustment procedure. <p>PD BALANCE ADJUSTMENT</p> <ul style="list-style-type: none"> Insert the test disc. Use search to locate the vertical bar image (frame #18,914) and play it in the still mode. Adjust VR1 so that the darkness of the vertical bars that appear on the left and right sides of the screen due to crosstalk is about the same and so that the bars are as weak as possible. Replace the test disc with the CLV disc and confirm that there is no crosstalk. <p>CTCB ADJUSTMENT POINTS</p> 

4. SCHEMATIC DIAGRAM, PCB PATTERN, & PARTS LIST

4.1 OVERALL CONNECTION DIAGRAM



4.2 LOCATION OF PCBs



NOTES:

- Parts without part number cannot be supplied.
- The Δ 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.

Part List

LD-700/KU Parts list		1
(MK)(Part No.)	(IT)(REF Nos. & DESCRIPTIONS)	
VWR-052	FUSB	
VWR-032	RECB	
VWR-051	SFUS	
VWR-050	DRVB	
VWG-113	LOLB	
VWS-038	INTB	
VWY-054	CNNB	
VWV-053	PREB	
VWS-037	SRVB	
VWG-116	KEYA	
VWG-088	KEYB	
VWG-115	IRAB	
VWG-114	DINB	
VWV-052	DEMB	
VWS-039	CTCB	
VWY-059	Pickup	
VWL-016	RF modulator	
VSA-007	SW1 Power switch	
(VSA-006)		
VDG-016	Power cord	
VCG-018	C1	
VTT-040	Power transformer	
VEK-005	FU1	
VEK-018	FU2- 5	
VXP-009	Plunger	
VXM-028	Loading motor	
VXM-027	Spindle motor	
VXM-020	Slider motor	
VXM-031	Tilt motor	
VCG-005	C2	
VCS-005	Potentiometer	
VSK-004	SW2- 4	
VSF-009	SW5	

Abbreviation List of PCBs

- FUSB : Fuse Board
- RECB : Rectifier Board
- DRVB : Driver Board
- LOLB : Loading Logic Board
- INTB : Interlock Board
- CNNB : Connector Board
- PREB : Pre-processing Board
- SRVB : Servo Board
- CONT : System Control
- FTS : Focus, Tracking, & Slider servo
- TBC : Time Base Correction (Spindle & Tangential servo)
- KEYA : Key Board A
- KEYB : Key Board B
- IRAB : Infrared Amplifier Board
- DINB : DIN Connector Board
- DEMB : Demodulator Board
- VDEM : Video demodulator
- ADEM : Audio demodulator
- SFUS : Sub Fuse Board

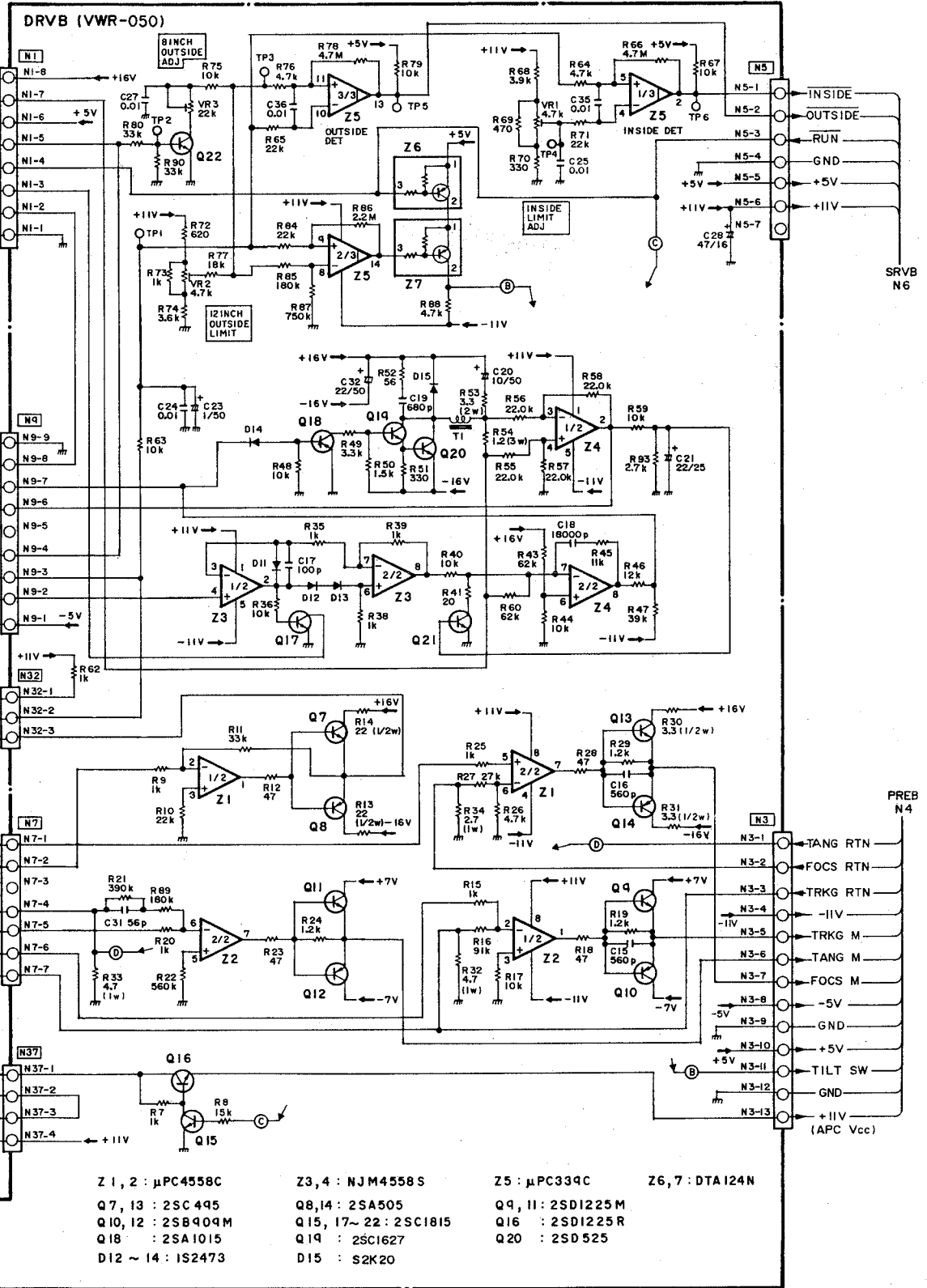
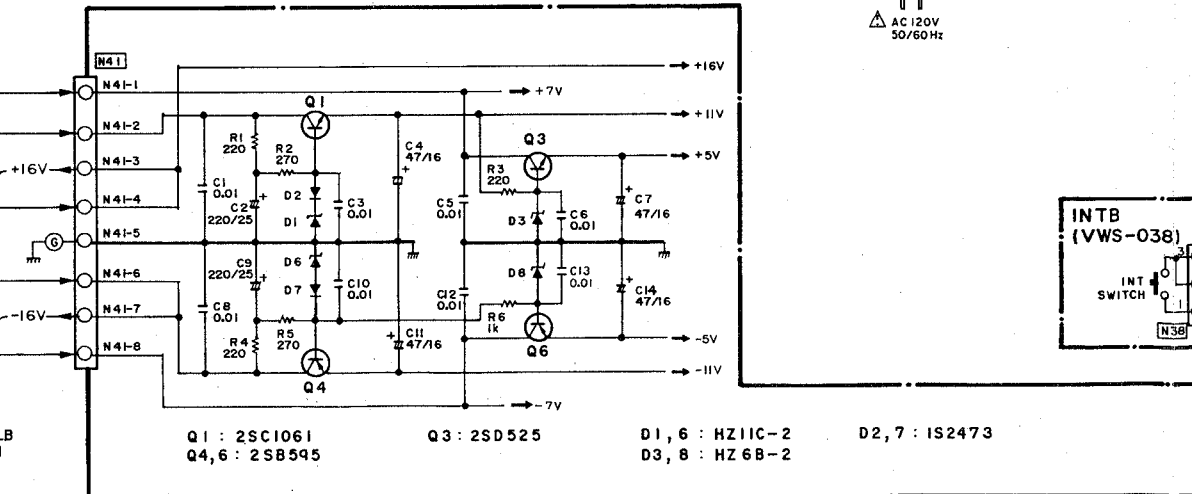
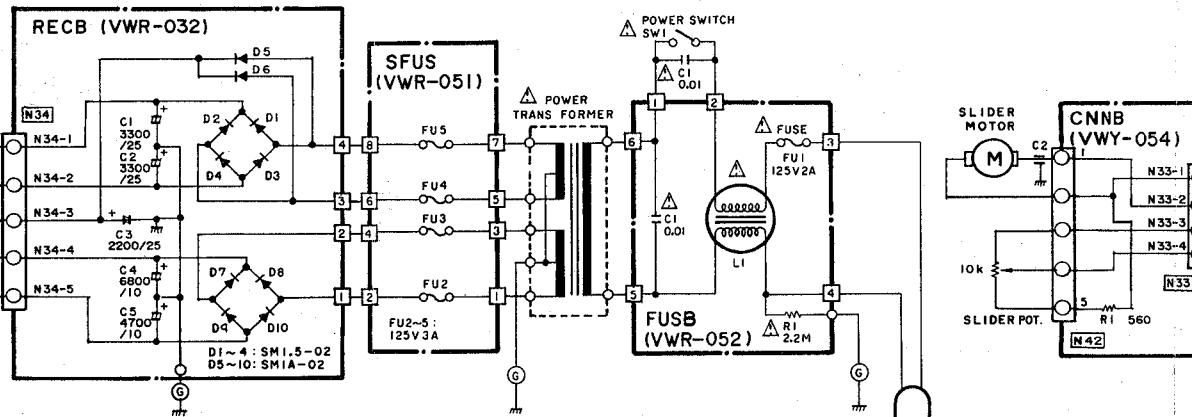
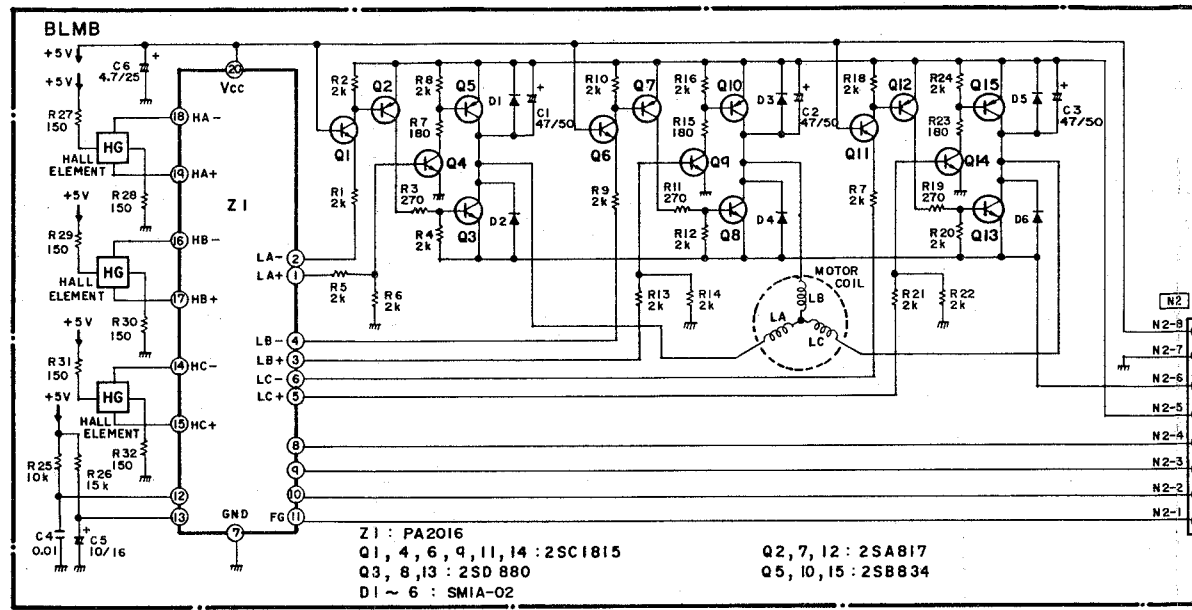
4.3 FUSB, SFUS, RECB, DRVB, INTB, CNNB & BLMB

A

B

C

D



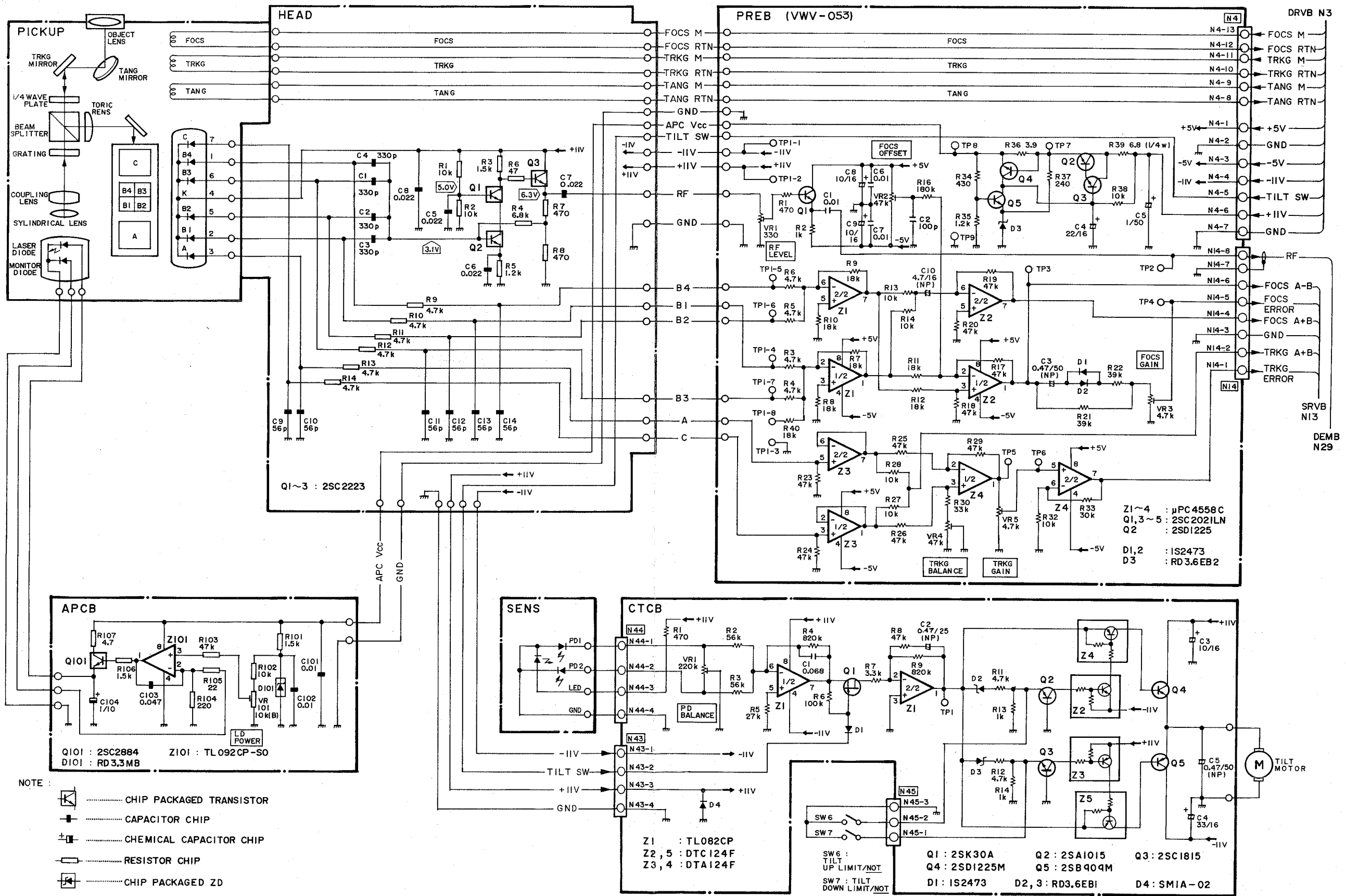
A

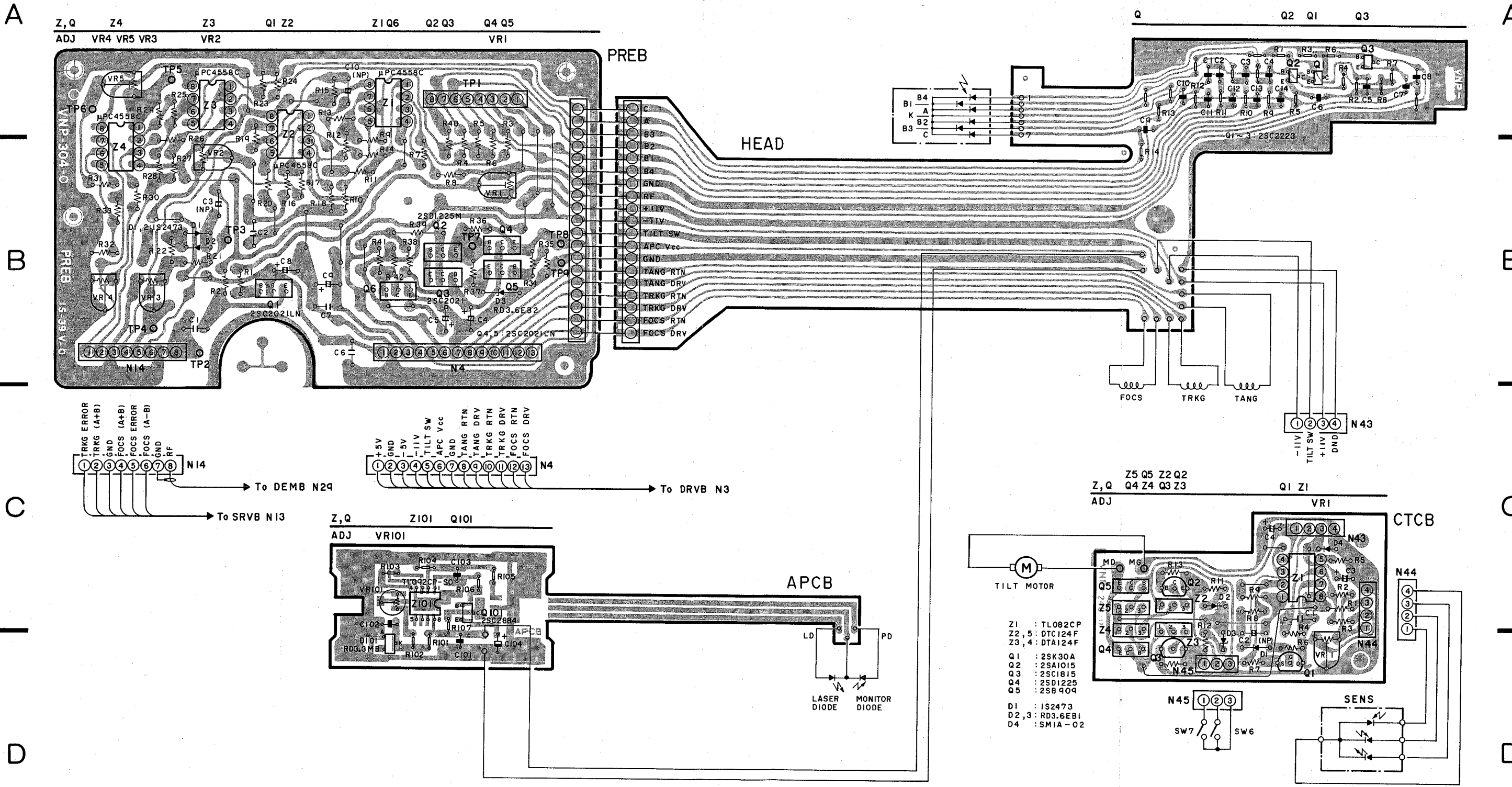
B

C

D

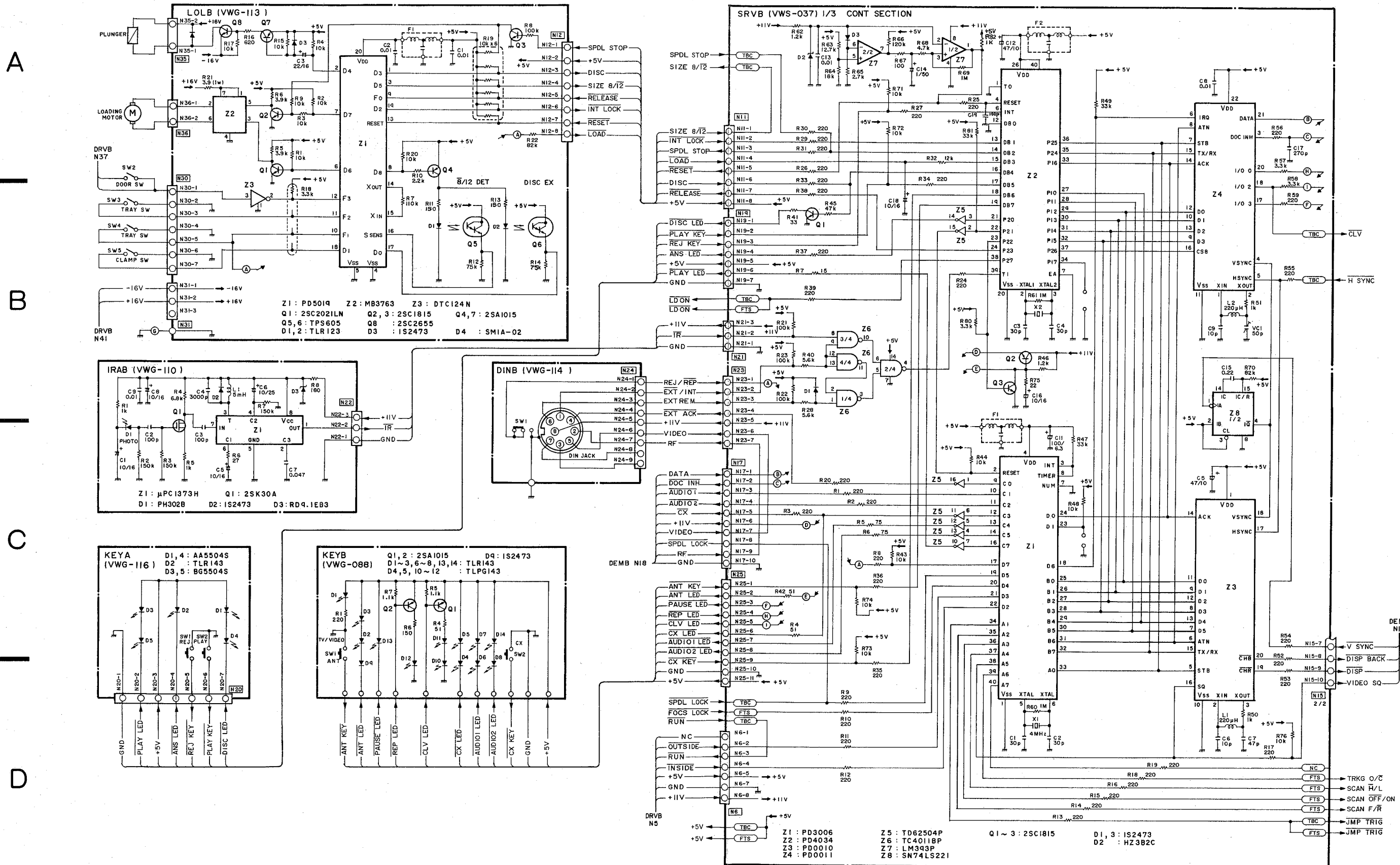
4.4 PICKUP, PREB





- Z1 : TL082CP
- Z2,5 : DT124F
- Z3,4 : DT124F
- Q1 : 2S830A
- Q2 : 2S81015
- Q3 : 2S81815
- Q4 : 2S81225
- Q5 : 2S8909
- D1 : IS2473
- D2,3 : RD3.6EB1
- D4 : SMIA-02

4.5 LOLB, IRAB, DINB, KEYA, KEYB, SRVB 1/3 (CONT)



1

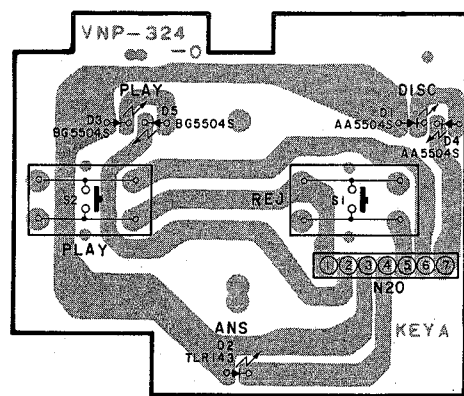
2

3

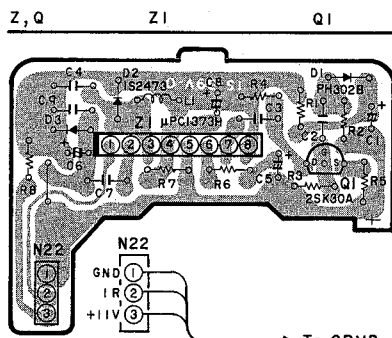
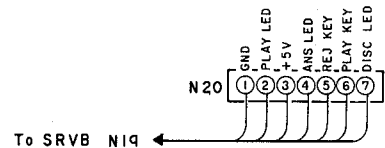
4

5

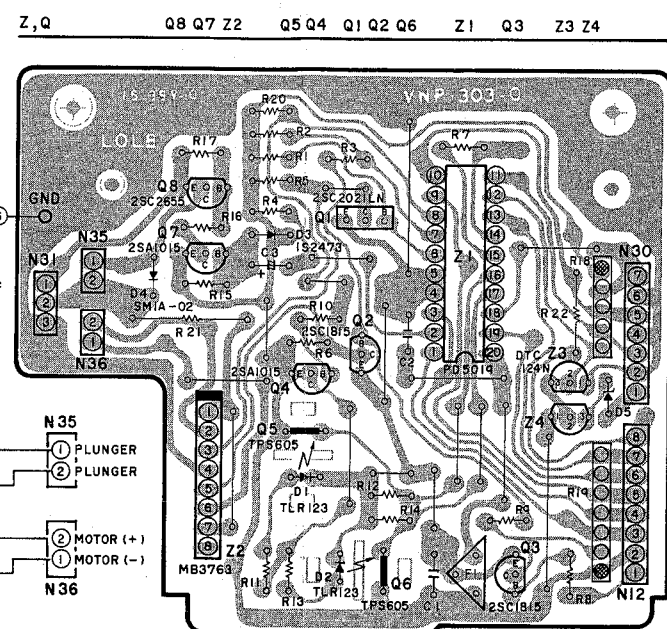
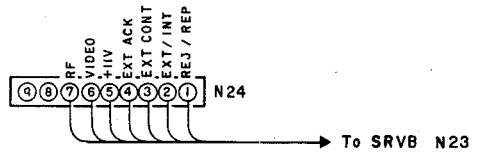
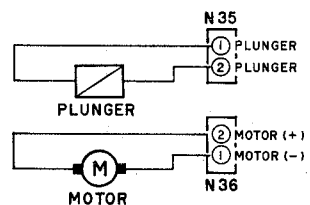
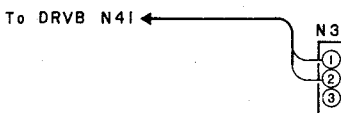
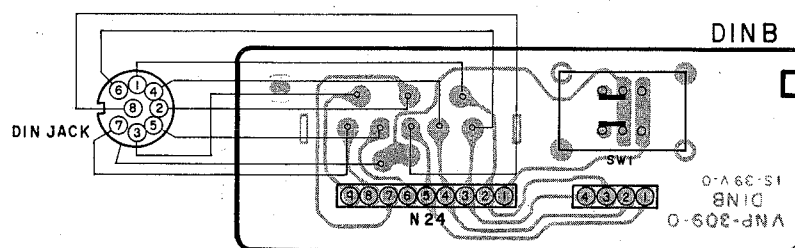
A



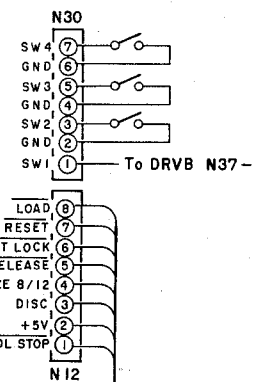
KEYA



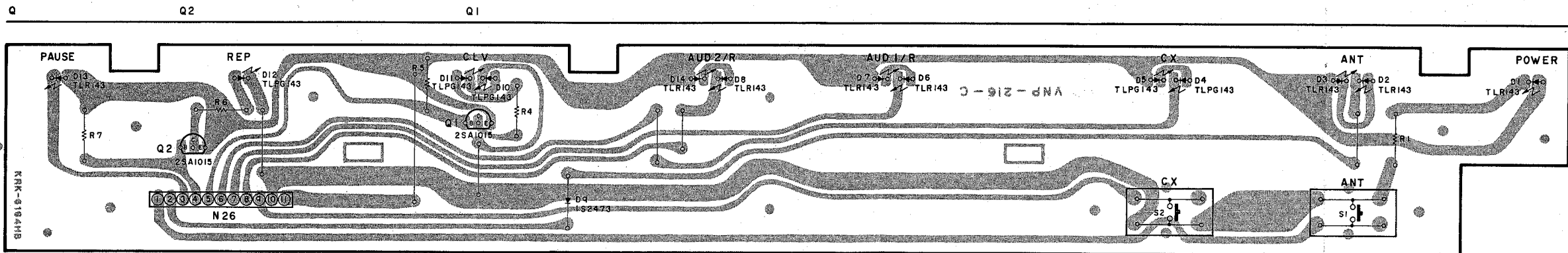
IRAB



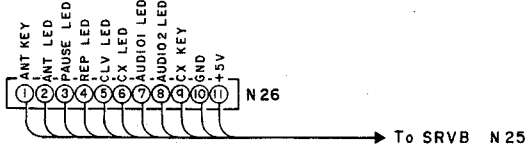
LOLB



B



KEYB



D

1

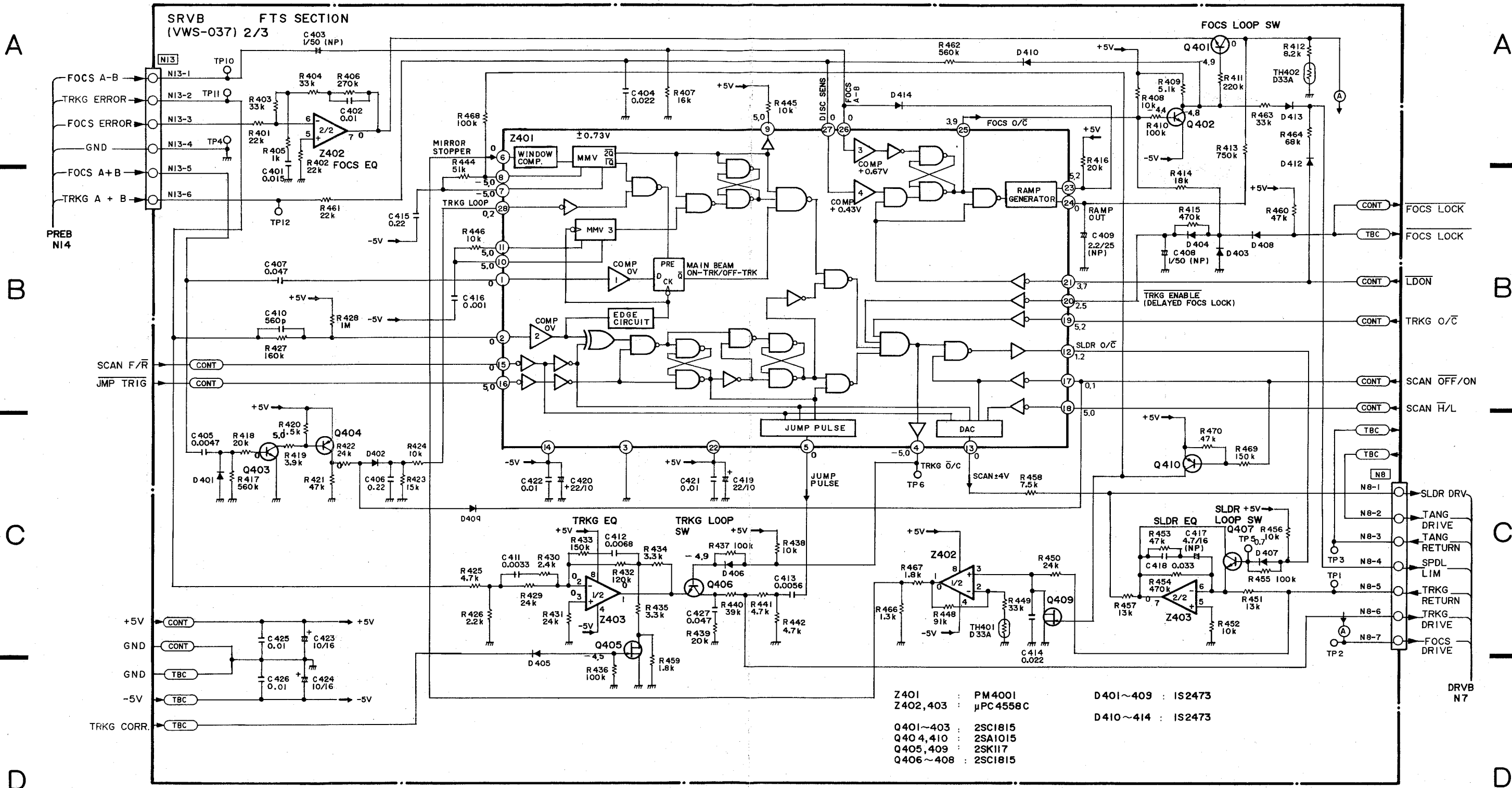
2

3

4

5

6



SRVB (VWS-037) 3/3 TBC SECTION

A

B

C

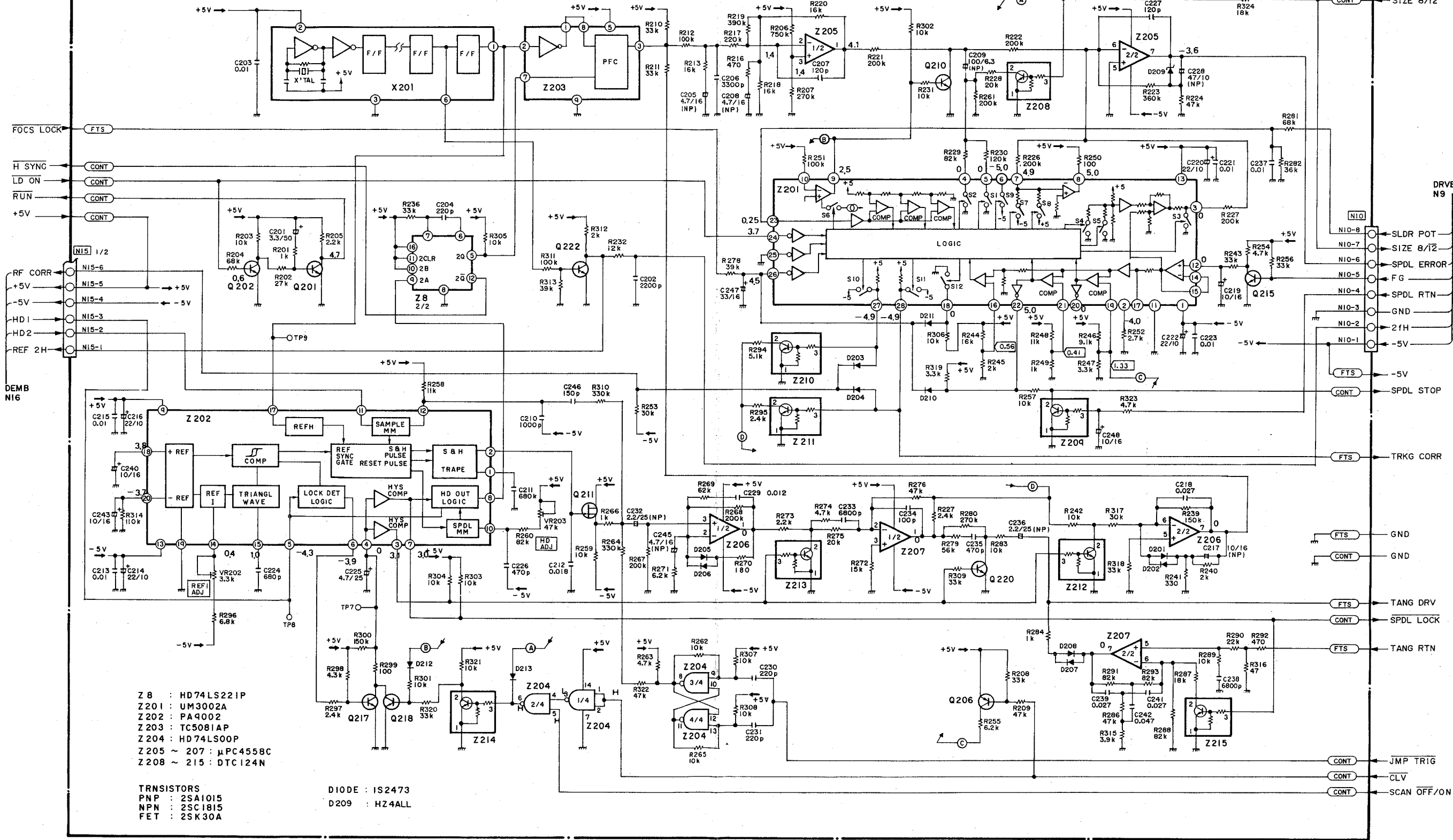
D

A

B

C

D

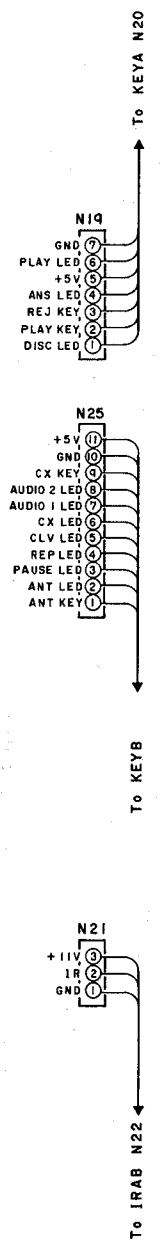
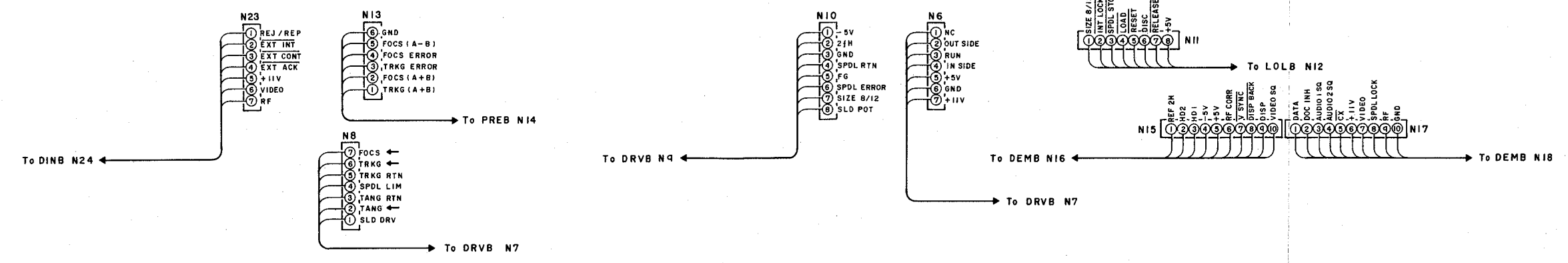
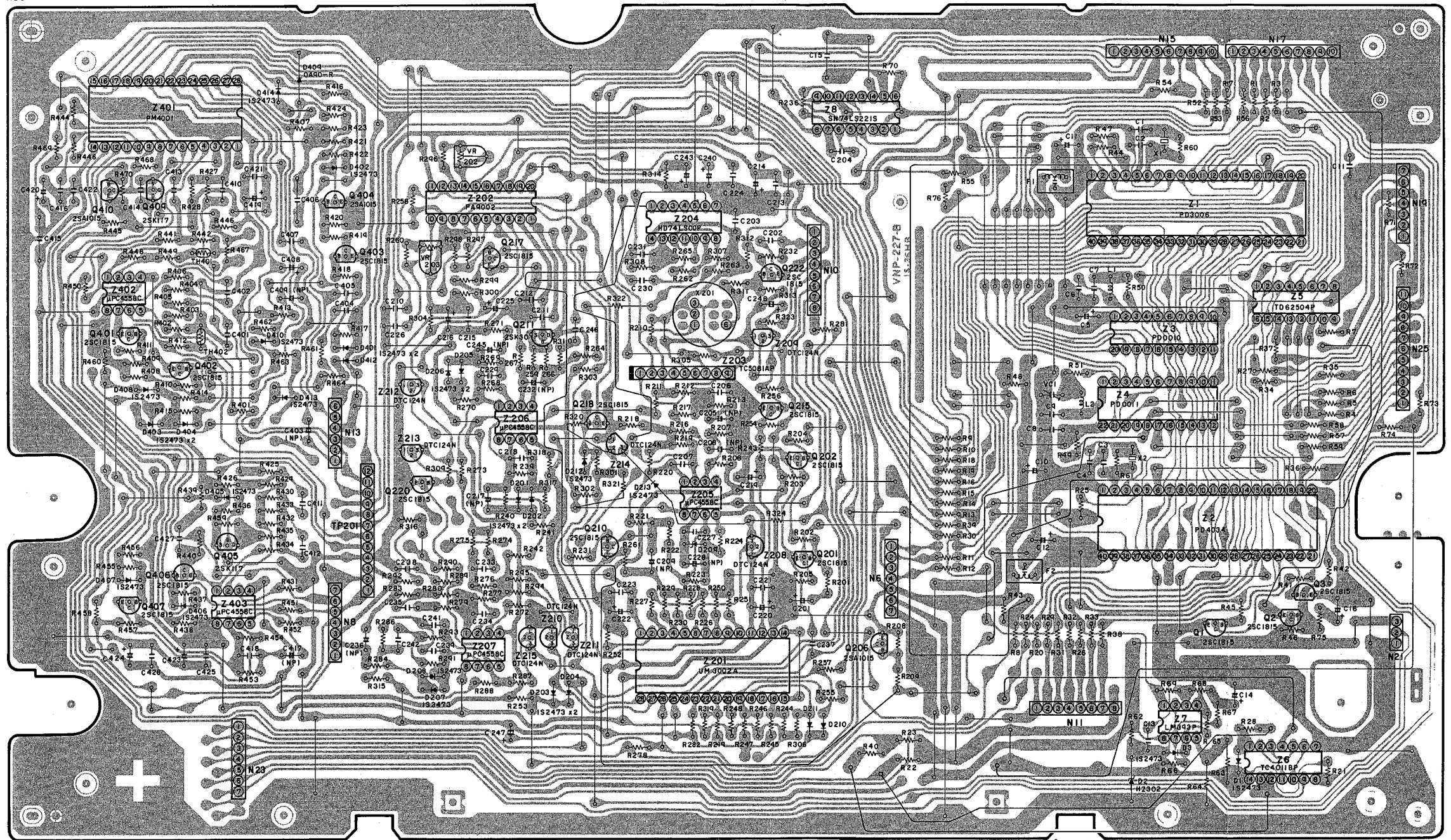


- Z 8 : HD74LS221P
- Z 201 : UM3002A
- Z 202 : PA9002
- Z 203 : TC5081AP
- Z 204 : HD74LS00P
- Z 205 ~ 207 : μ PC4558C
- Z 208 ~ 215 : DTC124N

TRANSISTORS
 PNP : 2SA1015
 NPN : 2SC1815
 FET : 2SK30A

DIODE : IS2473
 D209 : HZ4ALL

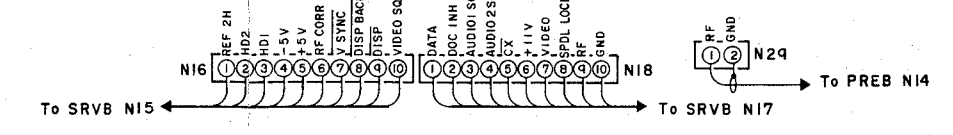
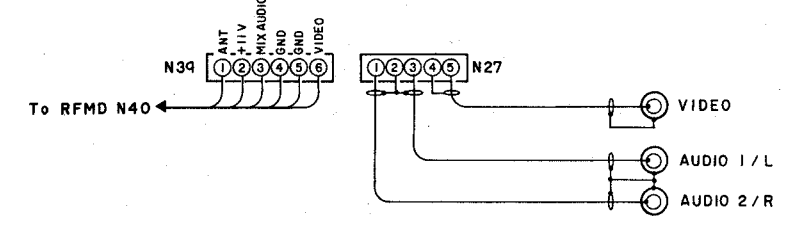
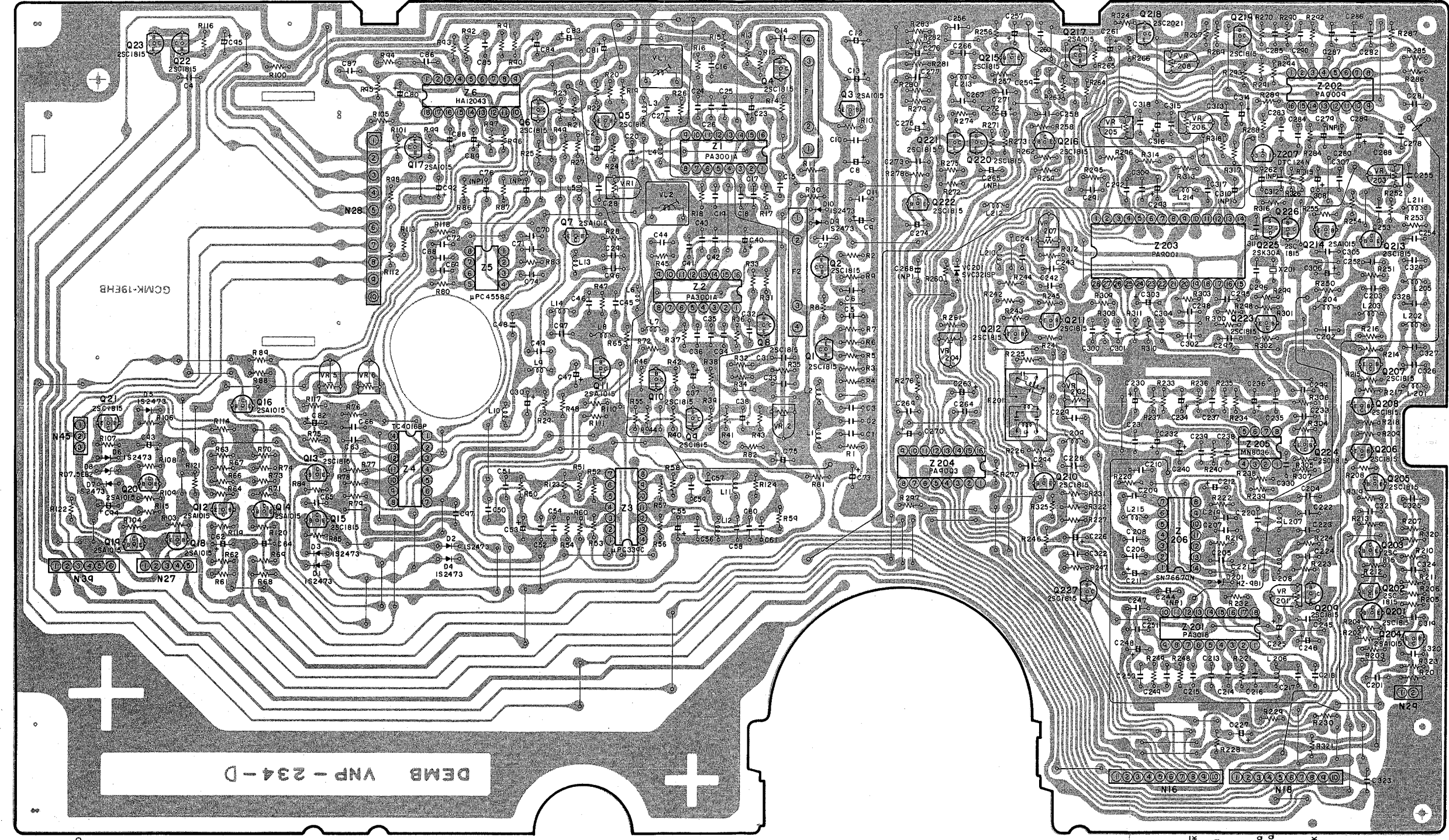
Q410 Q409 Z401 Z213 Z202 Q217 Q211 Z210 Q218 Z214 Z204 Z201 Q222 Z209 Q202 Z7 Q1 Z6
 Z402 Q401 Q402 Z212 Q220 Z207 Z206 Z215 Z211 Q210 Z203 Z201 Z205 Z208 Q215 Q201 Z8 Q206 Z4 Z3 Z2 Z1 Z5 Q2 Q3
 ADJ VR203 VR202



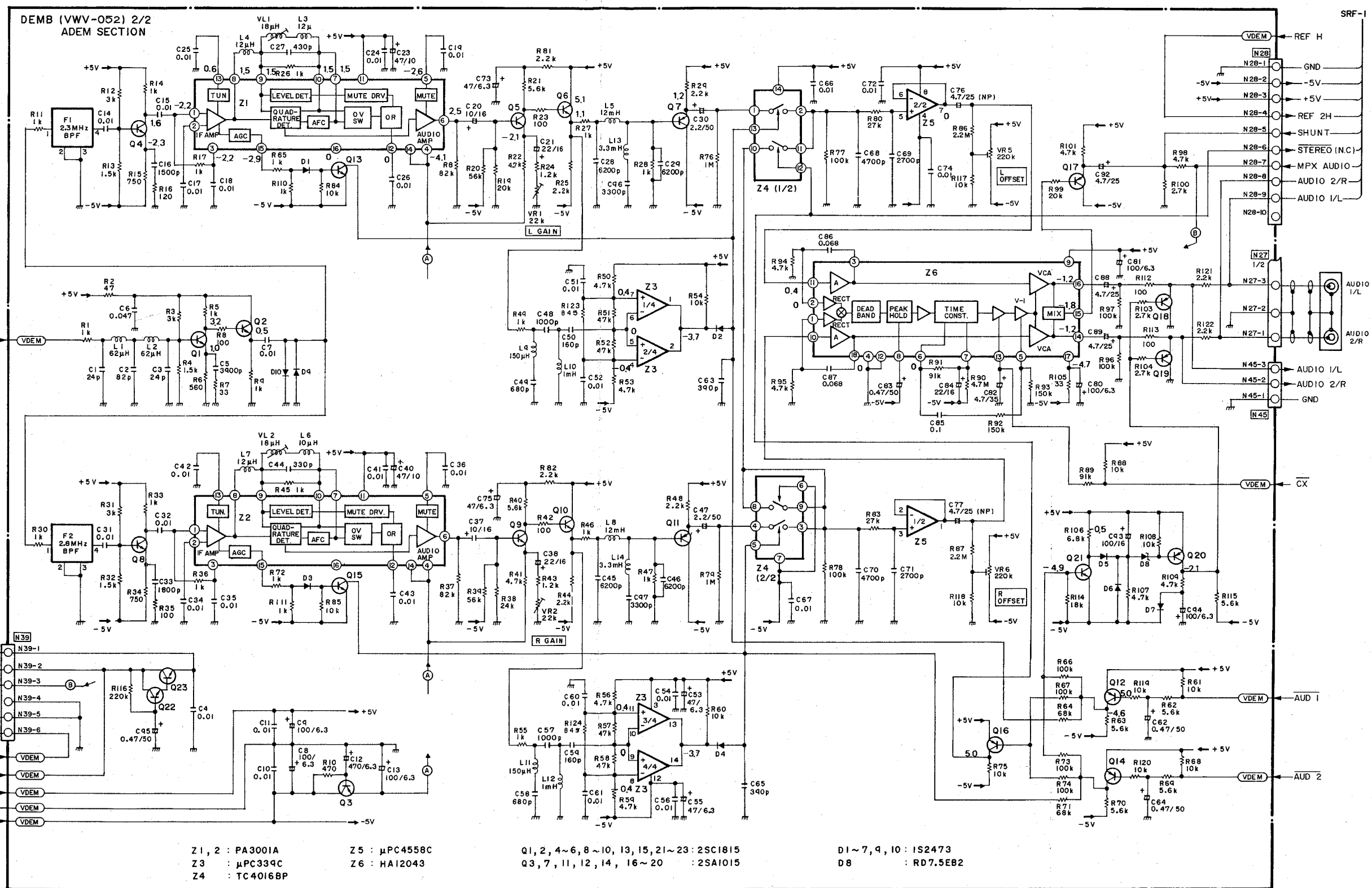
1 2 3 4 5

Q23 Q22 Q12 Q16 Q14 Q13 Q17 Z6 Z5 Q6 Q7 Q11 Q5 Z3 Q10 Q9 Z2 Z1 Q8 Q4 Q2 Q1 Q3 Q221 Q215 Q216 Q217 Q218 Q214 Z207 Z202 Q206 Q208 Q207 Q223 Q225 Q214 Q203 Q205 Z205 Q226 Q224 Q204 Q201 Q202 Q204

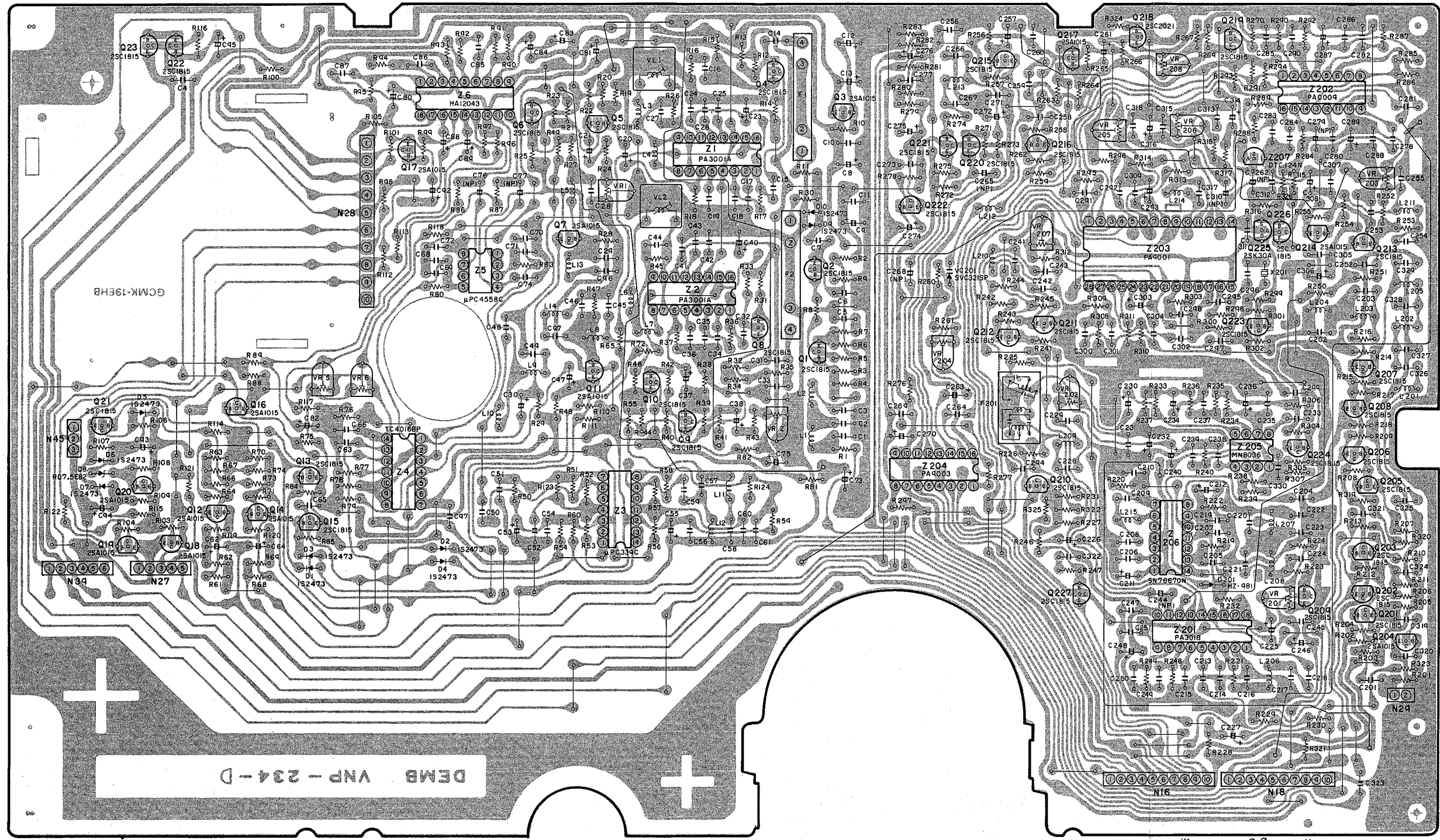
ADJ VR5 VR6 VRI VL1 VL2 VR2 VR204 VR207 VR202 VR205 VR206 VR201 VR203



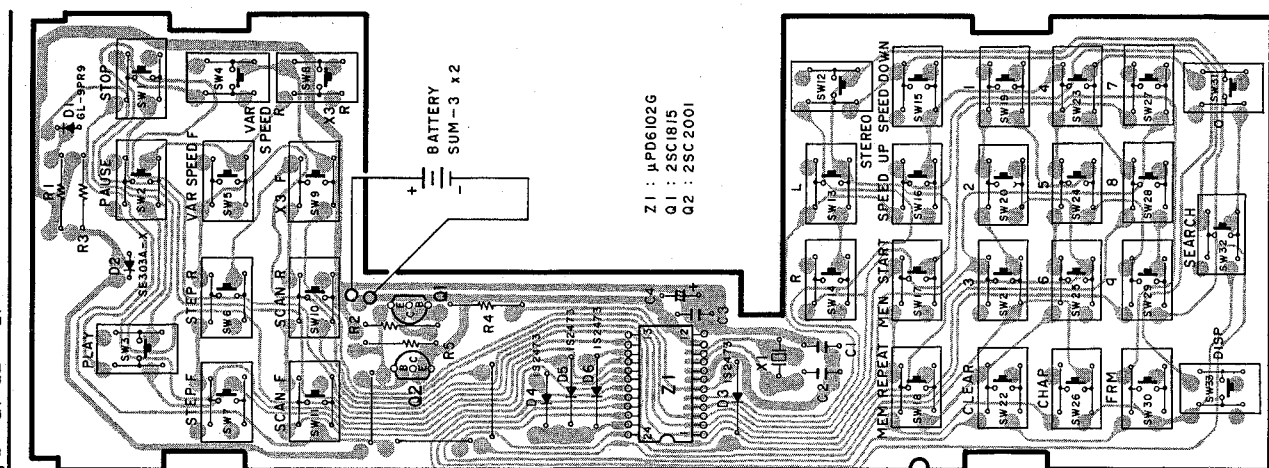
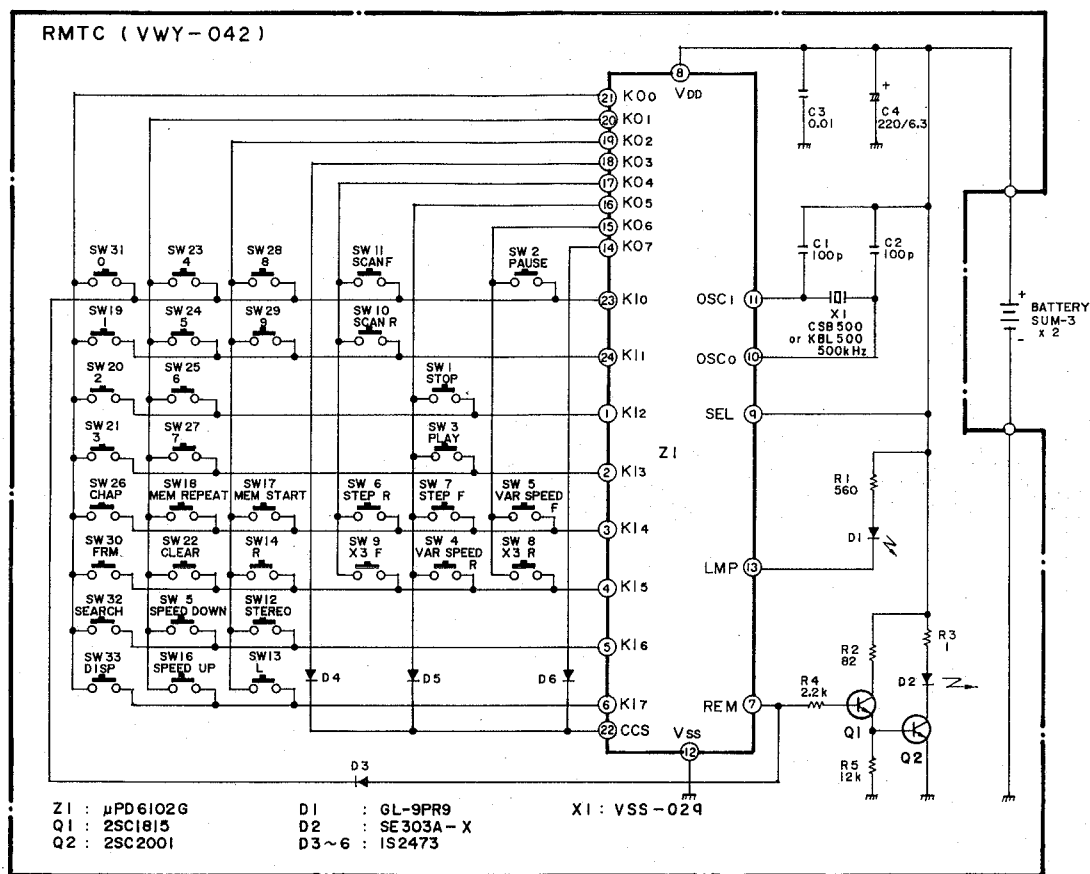
4.9 DEMB 2/2 (ADEM)



Q23 Q22 Q13 Q17 Z6 Z5 Q6 Q7 Q11 Q5 Z3 Q10 Q9 Z2 Z1 Q8 Q4 Q2 Q1 Q3 Q221 Q215 Q216 Q217 Q218 Q219 Z207 Z202 Q206 Q208 Q207
 Q21 Q19 Q20 Q18 Q12 Q16 Q14 Q15 Q13 Q15 Q17 Z4 Z6 Z5 Q6 Q7 Q11 Q5 Z3 Q10 Q9 Z2 Z1 Q8 Q4 Q2 Q1 Q3 Q222 Z204 Q220 Q212 Q210 Q211 Q227 Z203 Z206 Z201 Z205 Q225 Q214 Q206 Q208 Q207
 ADJ VR5 VR6 VRI VLI VL2 VR2 VR204 VR207 VR202 VR205 VR206 VR201 VR203



4.10 REMOTE CONTROL UNIT (CU-700)



4.11 PARTS LIST OF EACH PCB

NOTES:

- Parts without part number cannot be supplied.
- The Δ 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.
- When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

FUSB(VWR-052) Parts list 1

(MK)(Part No.)	(IT)(REF Nos. & DESCRIPTIONS)
Δ RD1/4VS225J	R 1
Δ VCG-018 (VCG-011)	C 1
Δ VTL-003 (VTL-004)	L 1 Line filter
Δ VEK-005	FU 1 125V 2A
Δ VKR-001	Fuse holder

SFUS(VWR-051) Parts list 1

(MK)(Part No.)	(IT)(REF Nos. & DESCRIPTIONS)
VEK-018	FU 2- 5 125V 3A

RECB(VWR-032) Parts list 1

(MK)(Part No.)	(IT)(REF Nos. & DESCRIPTIONS)
SM1.5-02	D 1- 4
SM1A-02	D 5- 10
VCH-009	C 1, 2 3300/25
CEA222M25	C 3
CEA472M10	C 4
CEA682M10	C 5

CNNB(VWY-054) Parts list 1

(MK)(Part No.)	(IT)(REF Nos. & DESCRIPTIONS)
RD1/4PS561J	R 1

BLMB Parts list 1

(MK)(Part No.)	(IT)(REF Nos. & DESCRIPTIONS)
PA2016	Z 1
2SC1815	Q 1, 4, 6, 9, 11, 14
2SA817	Q 2, 7, 12
2SD880	Q 3, 8, 13
2SB834	Q 5, 10, 15
SM1A-02	D 1- 6
RD1/4VM000J	R 1, 2, 4- 6, 8- 10, 12- 14, 16- 18, 20- 22, 24, 26- 32
RD1/2VM000J	R 3, 7, 11, 15, 19, 23
RN1/4PR0000F	R 25
CEA470M50	C 1- 3
CQPA104G100	C 4
CEANL100K16	C 5
CEA4R7M25	C 6

DRVB(VWR-050) Parts list 1

(MK)(Part No.)	(IT)(REF Nos. & DESCRIPTIONS)
JPC4558C	Z 1, 2
NJM4558S	Z 3, 4
JPC339C	Z 5
DTA124N	Z 6, 7
2SC1061	Q 1
2SD525	Q 3, 20
2SB595	Q 4, 6
2SC495	Q 7, 13
2SA505	Q 8, 14
2SD1225M	Q 9, 11, 16
2SB909M	Q 10, 12
2SC1815	Q 15, 17, 21, 22
2SA1015	Q 18
2SC1627	Q 19
HZ11C-2	D 1, 6
1S2473	D 2, 7, 11- 14
HZ6B-2	D 3, 8
S2K20	D 15
RD1/6PS000J	R 1- 12, 15- 29, 35, 36, 38- 41, 43- 52, 54, 59, 60, 62- 65, 67- 77, 79, 80, 84, 85, 87- 90, 93
RD1/2PS220J	R 13, 14
RD1/4PM000J	R 22
RD1/2VS3R3J	R 30, 31
VCN-099	R 32, 33 4.7/1W
VCN-100	R 34 2.7/1W
VCN-093	R 53 3.3/2W
VCN-092	R 54 1.2/3W
RN1/4PR0000F	R 55- 58
RD1/4VM000J	R 66, 78, 86
VCP-074	VR 1, 2 4.7k
VCP-078	VR 3 22k
CKDYF103Z50	C 1, 3, 5, 6, 8, 10, 12, 13, 24, 25, 27, 35, 36
CEA221M25	C 2, 9
CEA470M16	C 4, 11, 28
CEA470M10	C 7, 14
CKDYB561K50	C 15, 16
CKDYB101K50	C 17
CQMA183J50	C 18
CKDYB681K50	C 19
CEA100M50	C 20
CEA220M16LL	C 21
CEA010M50	C 23
CCDSL560J50	C 31
CEA220M50	C 32
VTT-021	L 1 Choke coil
VEC-101	Silicon rubber sp
VEC-102	Insulator
VEC-072	Mica insulator

NOTES:

- Parts without part number cannot be supplied.
- The Δ 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.
- When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

PREB(VWV-053) Parts list 1

(MK)(Part No.)	(IT)(REF Nos. & DESCRIPTIONS)
uPC4558C (NJM4558D)	Z 1- 4
2SC2021LN	Q 1, 3- 5
2SD1225M	Q 2
1S2473	D 1, 2
RD3.6EB2	D 3
RD1/6PS000J	R 1- 38, 40
RD1/4PM000J	R 39
VCP-067	VR 1 330
VCP-080	VR 2, 4 47K
VCP-074	VR 3, 5 4.7K
CKDYF103Z50	C 1, 6, 7
CCDSL101J50	C 2
CEAR47M50NP	C 3
CEA220M16	C 4
CEA010M50	C 5
CEA100M16	C 8, 9
VKN-094	FPC connector

CTCB(VWS-039) Parts list 1

(MK)(Part No.)	(IT)(REF Nos. & DESCRIPTIONS)
TL082CP	Z 1
DTC124F	Z 2, 5
DTA124F	Z 3, 4
2SK30ATM	Q 1
2SA1015	Q 2
2SC1815	Q 3
2SD1225M	Q 4
2SB909M	Q 5
1S2473	D 1
RD3.6EB1	D 2, 3
SM1A-02	D 4
RD1/4VM000J	R 1- 5, 7- 9, 11- 14
RD1/4PM000J	R 6
VCP-084	VR 1 220K
CQMA683J50	C 1
CEAR47M50NP	C 2, 5
CEA100M16LL	C 3
CEA330M16	C 4

DINB(VWG-114) Parts list 1

(MK)(Part No.)	(IT)(REF Nos. & DESCRIPTIONS)
VSH-001	SW 1
VKN-081	8p DIN socket

KEYA(VWG-116) Parts list 1

(MK)(Part No.)	(IT)(REF Nos. & DESCRIPTIONS)
AA5504S	D 1, 4
TLR143	D 2
BG5504S	D 3, 5
VSC-004	SW 1, 2

KEYB(VWG-088) Parts list 1

(MK)(Part No.)	(IT)(REF Nos. & DESCRIPTIONS)
2SA1015	Q 1, 2
TLR143	D 1- 3, 6- 8, 13, 14
TLP6143	D 4, 5, 10- 12
1S2473	D 9
RD1/4PM000J	R 1, 4- 7
VSC-004	SW 1, 2
VKP-223	Flat cable

LOLB(VWG-113) Parts list 1

(MK)(Part No.)	(IT)(REF Nos. & DESCRIPTIONS)
PD5019	Z 1
MB3763	Z 2
DTC124N	Z 3
2SC2021LN	Q 1
2SC1815	Q 2, 3
2SA1015	Q 4, 7
TPS605	Q 5, 6
2SC2655	Q 8
TLR123	D 1, 2
1S2473	D 3
SM1A-02	D 4
RD1/6PS000J	R 1- 17, 20
VCN-094	R 18 4P-3.3k
VCN-095	R 19 6P-10k
VCN-096	R 21 3.9/1W
RD1/4PM823J	R 22
CKDYF103Z50	C 1, 2
CEA220M16LL	C 3
VTH-005	F 1
VNL-179	Sensor cover

IRAB(VWG-110) Parts list 1

(MK)(Part No.)	(IT)(REF Nos. & DESCRIPTIONS)
uPC1373H	Z 1
2SK30ATM	Q 1
PH302B	D 1
1S2473	D 2
RD9.1EB3	D 3
RD1/4VM000J	R 1
RD1/6PS000J	R 2- 8
CEA100M16LL	C 1, 5, 6, 8
CCDSL101J50	C 2, 3
CQMA302J50	C 4
CQMA473J50	C 7
CKDYF103Z50	C 9
VTL-118	L 1 5mH
VNF-061	Shield cap
VNF-062	Shield base

NOTES:

- Parts without part number cannot be supplied.
- The Δ 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.
- When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

SRVB(VWS-037) Parts list 1

(MK)(Part No.) (IT)(REF Nos. & DESCRIPTIONS)

SRVB(VWS-037) Parts list 2

(MK)(Part No.) (IT)(REF Nos. & DESCRIPTIONS)

PD3006	Z	1
PD4034	Z	2
(PD0009)		
PD0010	Z	3
PD0011	Z	4
TD62504P	Z	5
TC4011BP	Z	6
(MB84011BM)		
JPC393C	Z	7
(LM393P)		
SN74LS221N	Z	8
(HD74LS221P)		
UM3002A	Z	201
PA9002	Z	202
TC5081AP	Z	203
SN74LS00N	Z	204
(HD74LS00P)		
JPC4558C	Z	205-207, 402, 403
(NJM4558D)		
DTC124N	Z	208-215
PM4001	Z	401
2SC1815	Q	1- 3, 201, 202, 210, 215, 217, 218, 220, 222, 401-403, 406, 407
2SA1015	Q	206, 404, 410
2SK30ATM	Q	211
2SK117	Q	405, 409
1S2473	D	1, 3, 201-208, 211-213, 401-410, 412-414
HZ3C2	D	2
HZ4ALL	D	209
HZ9B3	D	415
(RD9.1EB2)		
RD1/6PS000J	R	1- 4, 7- 18, 20- 31, 33- 36, 38- 45, 47- 62, 65- 76, 80, 81, 201, 205, 216, 240, 241, 245-247, 249, 250, 252, 254, 255, 263, 266, 270, 271, 273, 274, 277, 284, 292, 294, 295, 295, 297-299, 312, 315, 316, 319, 323
RD1/4VM000J	R	5, 6, 32, 37, 46, 451, 452, 458, 463, 464
RN1/4PR000DF	R	63, 64, 206, 207, 210-212, 217, 219, 314
RD1/4PM000J	R	82
RD1/6PS000J	R	202-204, 207, 208, 213, 218, 220, 224, 228, 229, 231, 232, 236, 242-244, 248, 251, 253, 256-260, 262, 265, 269, 272, 275, 276, 278, 279, 281-283, 286-289, 291, 293, 297, 301-309, 311, 313, 317, 318, 320-322, 324, 401-404, 407, 408, 410, 414, 416, 418, 421-424, 429, 431, 436-440, 444-446, 448-450, 453, 455-457, 460, 461, 468-470
RD1/6PS000J	R	221-223, 226, 227, 230, 239, 261, 264, 267, 268, 280, 300, 310, 405, 406, 409, 411-413, 415, 417, 419, 420, 425-428, 430, 432-435, 441, 442, 454, 459, 462, 466, 467

VCP-080	VR203	47K
CCDSL300J50	C	1- 4
CEA470M10	C	5, 12
CCDCH100D50	C	6, 9
CCDCH470J50	C	7
CKDYF103Z50	C	8, 13, 203, 213, 215, 221, 223, 237, 421, 422, 425, 426
CEA101M6R3	C	10, 11
CEA010M50	C	14
CQMA224J50	C	15, 406, 415
CEA100M16	C	16, 18, 219, 240, 243, 248, 423, 424
CCDSL271J50	C	17
CCDSL101J50	C	19, 234, 430
CEA3R3M50	C	201
CQMA222J50	C	202
CCDSL221J50	C	204, 230, 231
CEA4R7M16NP	C	205, 208, 245, 417
CQMA332J50	C	206, 411
CCDSL121J50	C	207, 227
CEA101M6R3NP	C	209
CQMA102J50	C	210, 416
CQSH681J50	C	211, 224
CQMA183J50	C	212
CEA220M10	C	214, 216, 220, 222, 419, 420
CEA100M16NP	C	217
CQMA273J50	C	218, 239, 241
CEA4R7M25	C	225
CQSH471J50	C	226
CEA470M10NP	C	228
CQMA123J50	C	229
CEA2R2M25NP	C	232, 236, 409
CQMA682J50	C	233, 238, 412
CCDSL471J50	C	235
CQMA473J50	C	242, 407, 427
CCDSL151J50	C	246
CEA330M16	C	247
CQMA153J50	C	401
CQMA103J50	C	402
CEA010M50NP	C	403, 408
CQMA223J50	C	404, 414
CQMA472J50	C	405
CCDSL561J50	C	410
CQMA562J50	C	413
CQMA333J50	C	418
VCM-003	VC	1 50pF
VTL-039	L	1, 2 Coil 220u
VTH-005	F	1, 2 Filter
VSS-018	X	1 4MHz
VSS-021	X	2 4.41M
VSS-020	X	201
(VSS-024)		
D33A	TH401, 402	

VCP-073 VR202 3.3K

NOTES:

- Parts without part number cannot be supplied.
- The Δ 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.
- When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

DEMB(VWV-052) Parts list 1

(MK)(Part No.) (IT)(REF Nos. & DESCRIPTIONS)

PA3001A	Z	1, 2
JPC339C	Z	3
TC4016BP	Z	4
JPC4558C	Z	5
(NJM4558D)		
HA12043	Z	6
PA3018	Z	201
PA0009	Z	202
PA9001	Z	203
PA9003	Z	204
MN8036	Z	205
SN76670N	Z	206
DTC124N	Z	207
2SC1815	Q	1, 2, 4- 6, 8- 10, 13, 15, 21- 23, 201-203, 205-213, 215, 216, 219-224, 226, 227
2SA1015	Q	3, 7, 11, 12, 14, 16- 20, 204, 214, 217
2SC2021	Q	218
2SK30ATM	Q	225
1S2473	D	1- 7, 9, 10
RD7.5EB2	D	8
HZ9B1L	D	201
RD1/6PS000J	R	1- 17, 23- 25, 28- 36, 42- 44, 47- 49, 54, 55, 65, 72, 81, 82, 105, 110-113, 201, 203- 208, 210-214, 216, 217, 219-228, 230-232, 234, 242, 243, 246-248, 250-255, 257-262, 266, 271, 273, 274, 277-281, 287, 294, 298, 301, 303, 307, 314, 316, 322, 325
RD1/6PS000J	R	18- 22, 37- 41, 60- 64, 66- 71, 73- 80, 83- 85, 89, 91- 101, 103, 104, 106-109, 114-122, 202, 209, 215, 218, 229, 233, 238- 241, 244, 245, 249, 256, 263-265, 267, 269, 270, 272, 275, 276, 282, 283, 286, 288, 289, 291-293, 295- 297, 299, 300, 302, 304-306, 308, 310, 311, 313, 315, 317, 319-321, 323, 326
RN1/4PR0000F	R	27, 28, 46, 47, 50- 53, 56- 59, 123, 124, 235-237, 248, 290, 309, 312
RD1/4VM000J	R	86, 87, 90, 324
RD1/6PS000J	R	123, 124, 284, 285, 318
VCP-078	VR	1, 2, 207 22K
VCP-084	VR	5, 6 220K
VCP-070	VR	201-204, 208 1K
VCP-074	VR	205 4.7K
VCP-076	VR	206 10K
CCDCH240J50	C	1, 3
CCDCH820J50	C	2
CKDYF103Z50	C	4, 7, 10, 11, 14, 15, 17- 19, 24- 26, 31, 32, 34- 36, 41- 43, 51, 52, 54, 56, 60, 61, 66, 67, 72, 74, 201, 207, 209, 210, 218, 219, 231, 235, 237- 239, 245, 247, 251, 253, 256, 259, 260, 264, 269, 271, 273, 277, 286, 288, 297, 299, 305, 307, 320, 321, 323, 324

DEMB(VWV-052) Parts list 2

(MK)(Part No.) (IT)(REF Nos. & DESCRIPTIONS)

CKDYB392K50	C	5
CKDYF473Z50	C	6
CEA101M6R3	C	8, 9, 13, 80, 81, 212
CEA471M6R3	C	12
CKDYB152K50	C	16
CEA100M16	C	20, 314
CEA220M16	C	21
CEA470M10	C	23, 40, 225, 230, 234, 236, 240, 246, 261, 270, 272, 287, 289, 306, 308
CCDSL431J50	C	27
CQMA622J50	C	28, 29, 45, 46
CEA2R2M50LL	C	30, 47
CKDYB182K50	C	33
CEA100M16LL	C	37, 93, 211, 316
CEA220M16LL	C	38
CCDSL331J50	C	44, 204, 213, 283, 284
CQMA102J50	C	48, 57, 300, 302
CKDYB681K50	C	49, 58, 282, 290
CCDSL161J50	C	50, 59
CEA470M6R3LL	C	53, 55, 73, 75
CEAR47M50LL	C	62, 64
CCDSL391J50	C	63, 65, 294
CQMA472J50	C	68, 70
CQMA272J50	C	69, 71
CEA4R7M25NP	C	76, 77
CEA4R7M35LL	C	82, 226
CEANLR47K50	C	83
CEANL220K16	C	84
CQMA104J50	C	85
CQMA683J50	C	86, 87
CEA4R7M25	C	88, 89, 92
CQMA103J50	C	91, 313
CEA101M6R3LL	C	94
CEAR47M50	C	95
CQMA332J50	C	96, 97
CCDSL271J50	C	202, 311
CCDSL181J50	C	203, 228, 229, 252, 322
CKDYB102K50	C	205, 206, 214, 215, 258, 312
CCDCH150J50	C	208, 217, 221
CCDCH080D50	C	216, 220, 222, 327, 329
CCDCH330J50	C	223, 224, 296
CEA221M6R3	C	227
CKDYF223Z50	C	233, 330
CCDSL180J50	C	241
CCDCH220J50	C	242, 328
CCDSL121J50	C	243
CEA4R7M16NP	C	244, 279
CCDCH390J50	C	249
CCDSL361J50	C	250
CCDCH470J50	C	254, 266
CCDSL241J50	C	255, 267
CEA470M10NP	C	262
CEA470M10LL	C	263, 276

NOTES:

- Parts without part number cannot be supplied.
- The Δ 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.
- When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

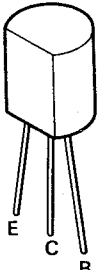
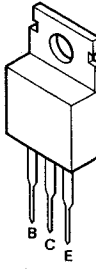
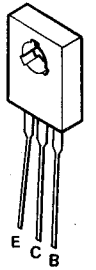
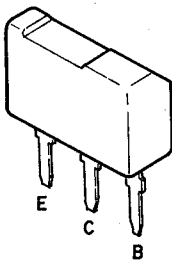
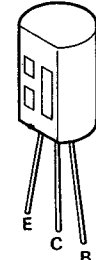
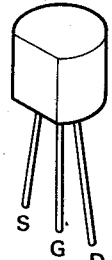

DEMB(VWV-052) Parts list 3

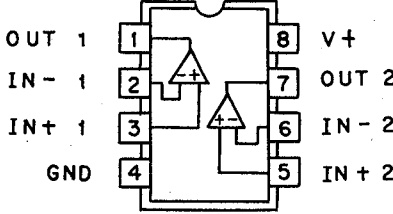
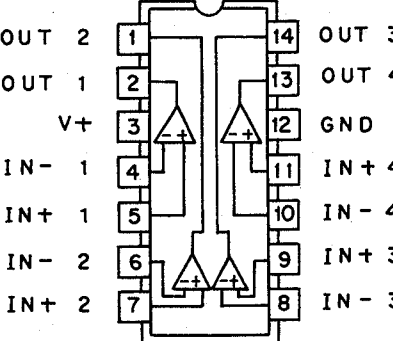
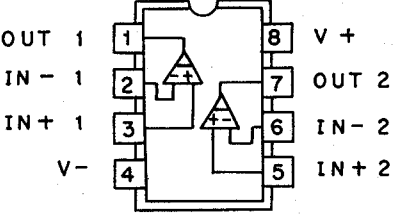
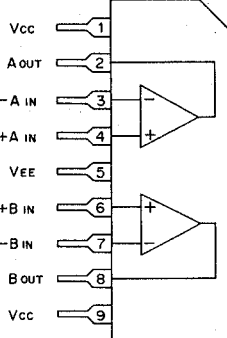
(MK)(Part No.)	(IT)(REF Nos. & DESCRIPTIONS)
CEA010M50NP	C 265
CEAR47M50NP	C 268,310
CEA101M10	C 274
CEA471M10	C 275
CQMA153J50	C 278,280
CCDCH101J50	C 281
CQPA823G100	C 285
CQSH391J50	C 291
CQSH331J50	C 292
CEA220M10	C 293
CCDCH560J50	C 295,325,326
CCDCH680J50	C 298
CQSH102J50	C 301,304
CEA010M50	C 303
CQMA682J50	C 309
CKDYF103Z50	C 315,318
CCDSL820J50	C 319
SVC321SP	VC201
VTL-048 (VTL-068)	L 1, 2 62uH
VTL-024	L 3, 4, 7,214 12uH
VTL-119	L 5, 8 12mH
VTL-023	L 6 10uH
VTL-154	L 9, 11 150uH
VTL-047 (VTL-070)	L 10, 12 1mH
VTL-139	L 13, 14 3.3mH
VTL-028	L 201 27uH
VTL-026	L 202-205 18uH
VTL-027	L 206 22uH
VTL-030	L 207 39uH
VTL-051 (VTL-067)	L 208 43uH
VTL-042	L 209,210 390uH
VTL-036	L 211,213 120uH
VTL-021	L 212,215 6.8uH
VTF-021	VL 1, 2 18uH
VTF-051	F 1 B.P.F 2.3MHz
VTF-052	F 2 B.P.F 2.8MHz
VTF-016	F 201 D.L. 220ns
VSS-019	X 201 3.58MHz
IPZ30P080FMC	

RMTC(VWY-042) Parts list 1

(MK)(Part No.)	(IT)(REF Nos. & DESCRIPTIONS)
uPD6102G	Z 1
2SC1815	Q 1
2SC2001	Q 2
GL-9PR9	D 1
SE303A-X	D 2
1S2473	D 3- 6
RD1/4PM000J	R 1- 5
CCDCH101J50	C 1, 2
CKDYF103Z50	C 3
CEA221M6R3	C 4
VSS-029 (VSS-031)	X 1 500kHz
VSC-006	SW 1- 33

4.12 TR & ICs

<p>2SC1815 2SA1015 2SC1627 2SA817</p>		<p>2SD880 2SB834 2SC1061N 2SD525 2SB595</p>		<p>2SC495 2SA505</p>	
<p>2SD1225M 2SB909M 2SC2021LN</p>		<p>2SC2655</p>		<p>2SK30A 2SK30ATM</p>	
<p>2SK117</p>					

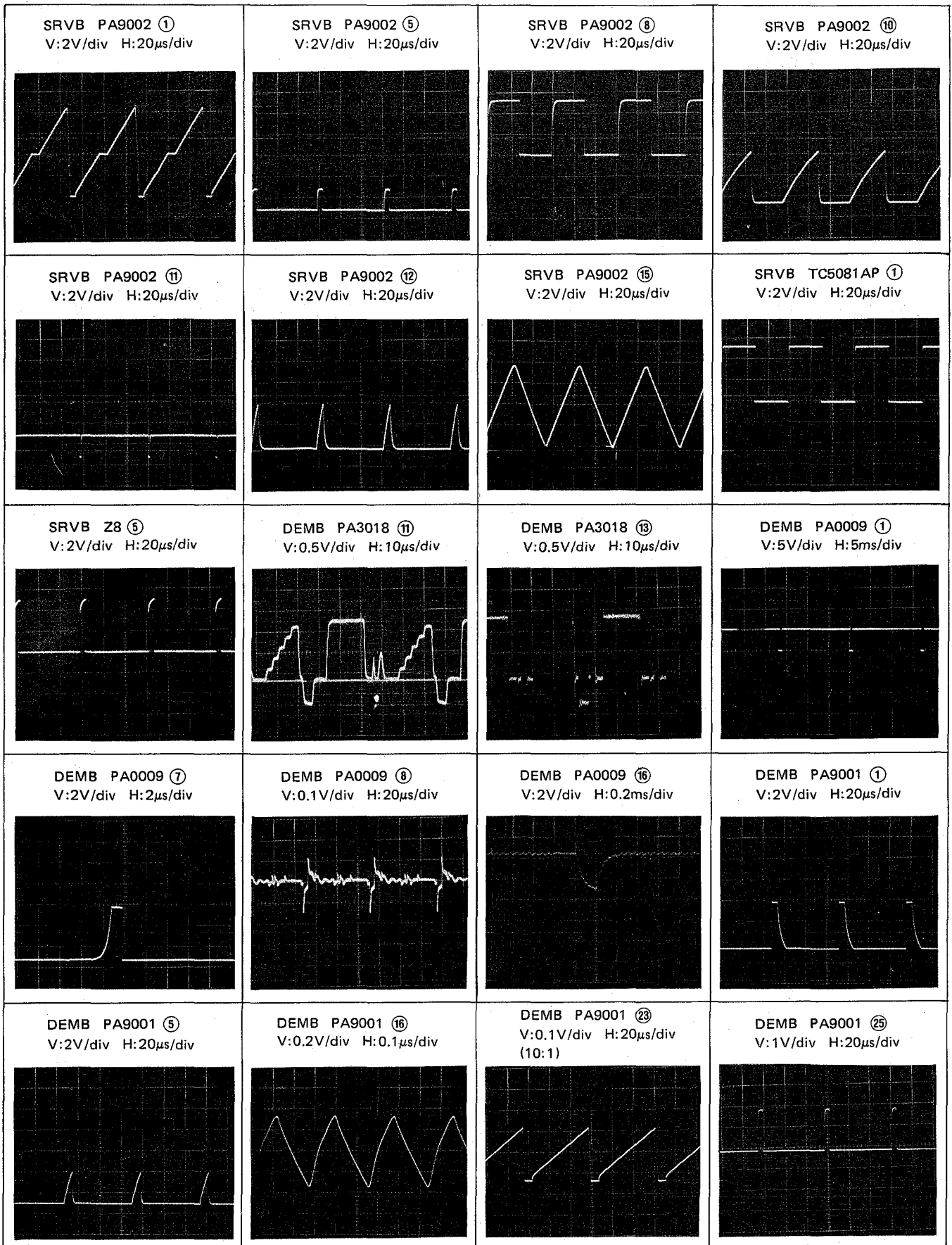
<p>μPC4558C NJM4558D TL082CP</p>		<p>μPC339C</p>	
<p>μPC393C</p>		<p>NJM4558S</p>	

<p>TC5081AP</p>		<p>TC4016BP</p>	
<p>MN8036</p>		<p>μPC1373H</p>	
<p>TPS605</p>		<p>TD62504P</p>	
<p>PA3018</p>		<p>PA9001</p>	
<p>PA9002</p>		<p>PA9003</p>	

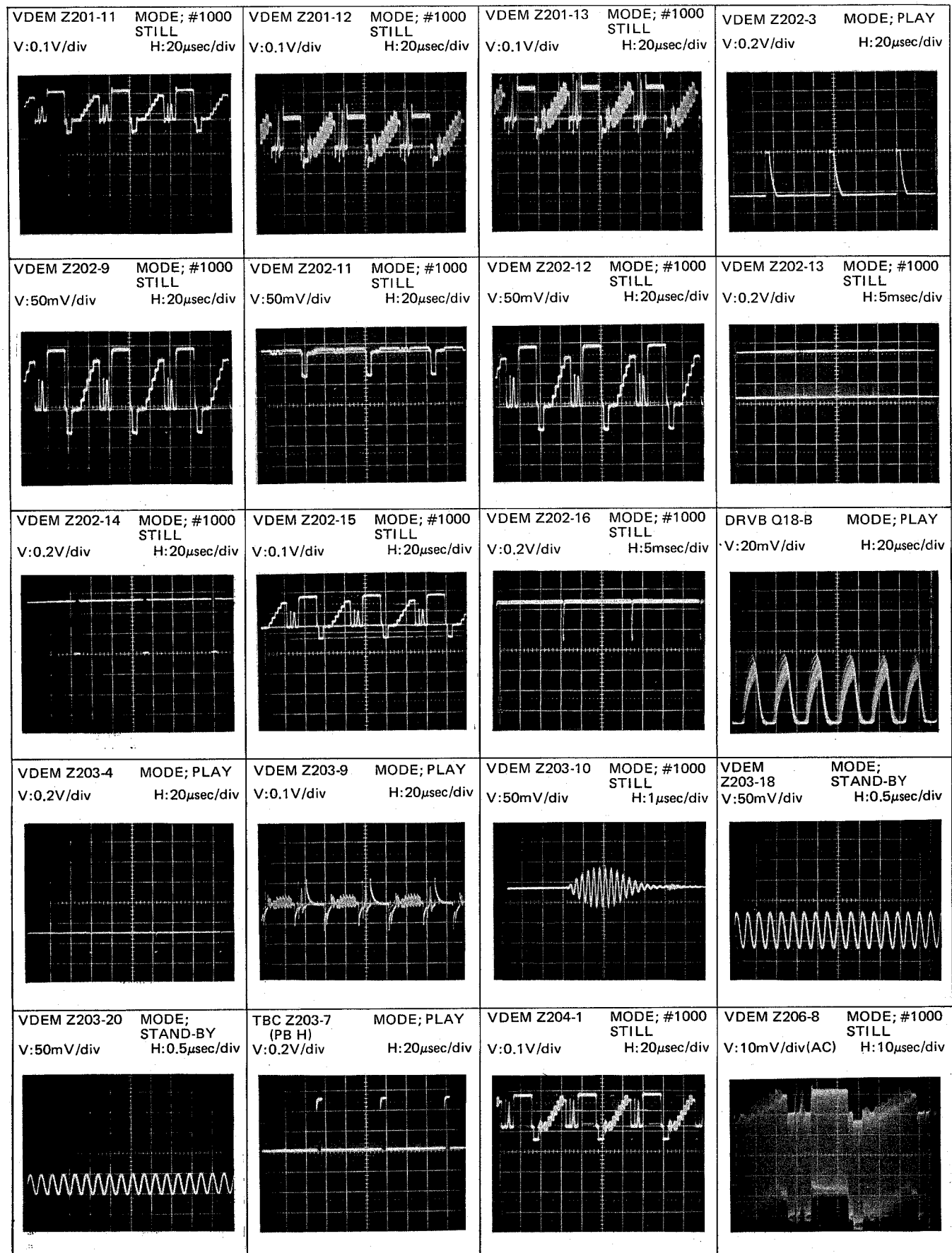
<p>PA0009</p>		<p>PA2016</p>	
<p>PD3006</p>		<p>PD4034</p>	
<p>PD0010</p>		<p>PD0011</p>	
<p>PM4001</p>		<p>PD5019</p>	
<p>UM3002A</p>			

<p>PA3001A</p>		<p>HA12043</p>	
<p>SN74LS00N</p>		<p>SN74LS221N</p>	
<p>DTC124F DTA124F</p>		<p>DTC124N DTA124N</p>	
<p>DTC124F DTC124N</p>		<p>MB3763</p>	
<p>DTA124F DTA124N</p>			
<p>TC4011BP</p>			

4.13 WAVEFORMS



<p>DEMB PA9001 ⑳ V:2V/div H:20μs/div</p>	<p>DEMB PA9001 ㉑ V:2V/div H:20μs/div</p>	<p>DEMB PA9001 ㉒ V:2V/div H:20μs/div</p>	<p>DEMB PA9003 ㉓ V:0.5V/div H:10μs/div</p>
<p>DEMB PA9003 ㉔ V:0.5V/div H:10μs/div</p>	<p>DEMB PA9003 ㉕ V:0.5V/div H:10μs/div</p>	<p>DEMB MN8036 ㉖ V:0.1V/div H:0.1μs/div</p>	<p>DRVB Q18 ㉗ V:0.1V/div H:10μs/div</p>
<p>DRVB N9-7 V:0.5V/div H:10μs/div</p>	<p>DRVB Q20 ㉘ V:0.1V/div H:10μs/div</p>	<p>PREB TP2 (RF) V:5mV/div</p> <p>MODE; #1000 STILL H:2msec/div</p>	<p>LOLB Z1-14 V:0.2V/div</p> <p>MODE; PLAY H:1μsec/div</p>
<p>ADEM Z1-1 V:20mV/div</p> <p>MODE; PLAY H:5msec/div</p>	<p>ADEM Z4-3 V:10mV/div</p> <p>MODE; #3600 PLAY H:0.5msec/div</p>	<p>ADEM Z6-2 V:20mV/div</p> <p>MODE; #3600 PLAY H:0.5msec/div</p>	<p>ADEM Z6-6 V:0.1V/div</p> <p>MODE; #3600 PLAY H:0.5msec/div</p>
<p>ADEM Z6-11 V:10mV/div</p> <p>MODE; #3600 PLAY H:0.5msec/div</p>	<p>VDEM Z201-3 V:50mV/div</p> <p>MODE; #1000 PLAY H:20μsec/div</p>	<p>VDEM Z201-5 V:10mV/div (AC)</p> <p>MODE; #1000 PLAY H:20μsec/div</p>	<p>VDEM Z201-9 V:0.1V/div</p> <p>MODE; #1000 STILL H:2msec/div</p>



5. EXPLODED VIEW

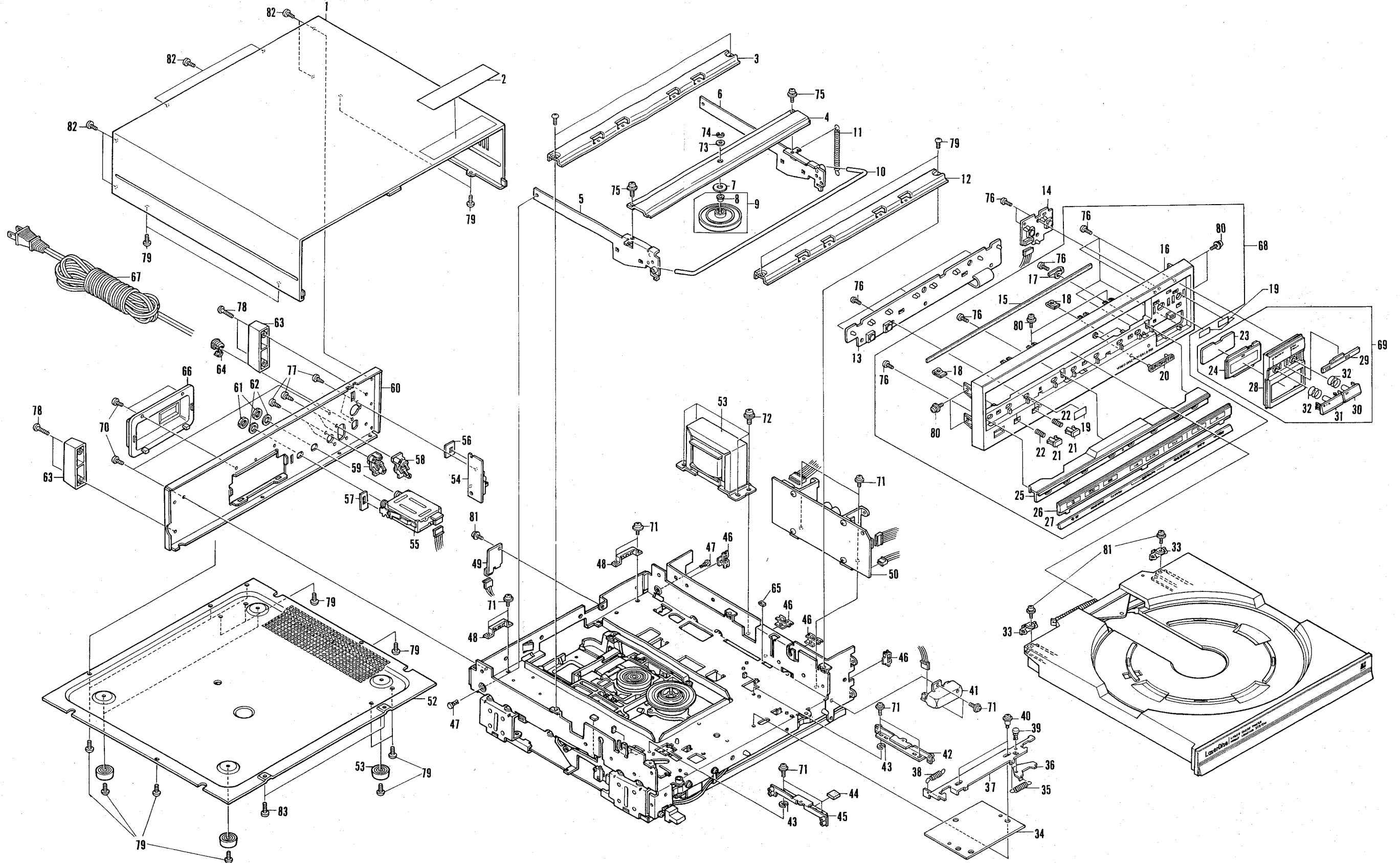
5.1 EXTERNAL AND TOP VIEW

A

B

C

D



A

B

C

D

NOTES:

- Parts without part number cannot be supplied.
- The Δ 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-700/KU(TOP) Parts list

1

(MK) (KY) (Part Number) (DESCRIPTION)

1	VNA-025	Bonnet
2	VRW-253	Caution label
3	VNE-455	Bridge
4	VNE-432	Clamper holder
5	VXA-128	Clamper arm (L)
6	VXA-129	Clamper arm (R)
7	VEB-049	Cushion
8	N.S.P.	DC bearing
9	VXX-249	Clamper
10	VLL-182	Rod
11	VBH-087	Spring
12	VNE-455	Bridge
13	VWG-088	KEYB
14	VWG-116	KEYA
15	VEC-149	Cushion
16	VNK-207	Front panel
17		Wire crimp
18	VCN-012	Speed nut
19	VEC-148	Shield
20	VAM-013	Name plate
21	VAC-156	Button
22	VBH-090	Spring
23	VNK-144	IR filter
24	VNK-143	IR window
25	VNK-138	Panel
26	VNK-208	Display panel
27	VNK-209	Under panel
28	VNK-210	Control panel
29	VNK-142	Acrylic window
30	VXA-138	PLAY button
31	VXA-137	REJECT button
32	VBH-051	Spring
33	VNL-176	Stopper
34	VEC-118	Black sheet
35	VBH-083	Cum Spring
36	VNE-427	Lock sensor board
37	VNE-442	Slide board
38	VBH-086	Spring
39	VEC-179	Plastic rivet
40	VLL-185	Screw
41	VWG-110	IRAB
42	VXA-125	Roller plate
43	VBE-012	Height Adj. washer
44	VEB-056	Slide cushion
45	VXA-125	Roller plate
46	N.S.P.	Wire clip
47	VEC-179	Plastic rivet
48	VNL-177	Caddy guide
49	VWS-038	INTB
50	VWR-050	DRVB
51	VTT-040	Power transformer
52	N.S.P.	Bottom board
53	VEC-119	Foot
54	VWG-114	DINB
55	VWL-016	RFMD

LD-700/KU(TOP) Parts list

2

(MK) (KY) (Part Number) (DESCRIPTION)

56	VEC-122	Blind
57	VEC-105	Blind
58	VKB-003	2P pin-jack
59	VKB-008	1P pin-jack
60		Rear panel
61	VLL-082	Nut
62	VNE-270	Washer
63	VNL-181	Protector
64	VEC-027	Cord stopper
65	VEB-068	Stopper
66	VNK-216	Rear cover
67	VDG-016	Power cord
68	VXX-205	Front panel ass'y
69	VXX-206	Control panel ass'y
70	BCZ30P060FZK	
71	ACZ30P060FMC	
72	PMB40P080FMC	
73	WA32N100C080	
74	YE20FUC	
75	PMB30P050FUC	
76	VPZ30P080FMC	
77	BPZ30P080FZK	
78	VCZ30P200FZK	
79	VCZ30P060FMC	
80	PMB30P060FMC	
81	PMB26P060FMC	
82	PCZ30P060FNi	
83	BBZ30P080FNi	

5.2 BOTTOM VIEW

NOTES:

- Parts without part number cannot be supplied.
- The Δ 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-700/KU(BOTTOM) Parts list 1

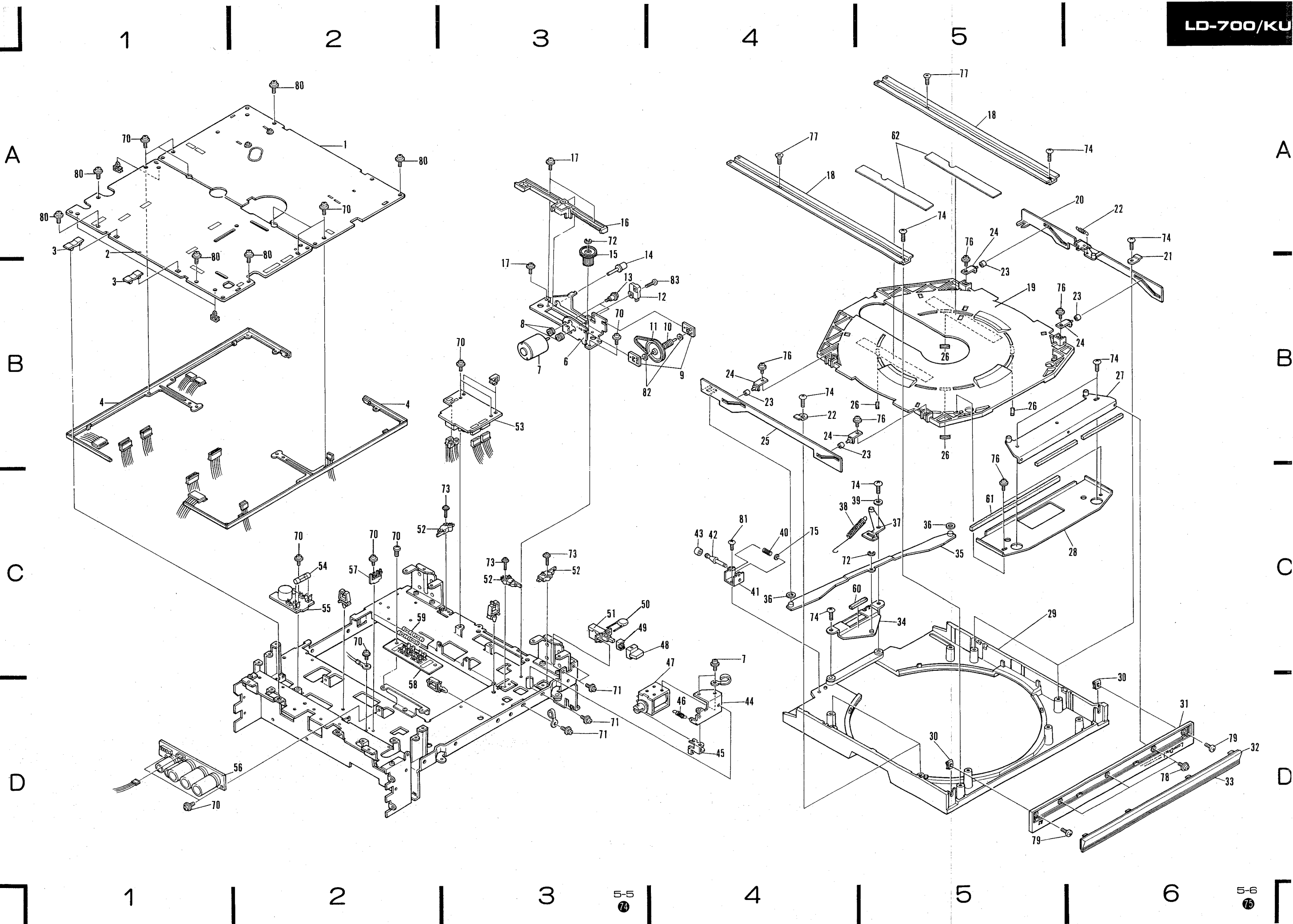
(MK) (KY) (Part Number) (DESCRIPTION)

1	VWV-052	DEMB
2	VWS-037	SRVB
3	VEC-124	Hinge
4	VNE-453	PCB holder
5	VACANT	
6	VXA-126	Motor holder
7	VXM-028	Roading motor
8	VEB-050	Bushing
9	VNL-172	Shaft holder
10	VXA-127	Worm gear ass'y
11	VEB-071	Belt
12	VSF-009	Micro-switch
13	VLL-183	Screw
14	VXA-175	Arm roller
15	VNL-173	Worm wheel
16	VNL-174	FL rack
17	VLL-184	Screw
18	VNG-013	Rail
19	VNK-136	Tray
20	VXA-133	Cum (L)
21	VNE-434	Cum guide
22	VBH-083	Spring
23	VLL-179	Roller
24	VXA-134	Lifter
25	VNE-439	Cum (R)
26	VEB-080	Cushion Rubber
27	VXA-187	Joint
28	VNE-467	Plate
29	VNK-235	Caddy
30	VBN-002	Speed nut
31	VNK-145	Roading panel
32	VAH-040	Aluminum panel
33	VNK-187	Panel escutcheon
34	VXA-131	Rink holder
35	VXA-130	Rink ass'y
36	VEB-069	Rink spacer
37	VXA-135	Ejecter
38	VBH-116	Spring
39	VLL-180	Washer
40	VBH-091	Spring
41	VNE-581	Holder
42	VLL-253	Switch pin
43	VEB-053	Conductive rubber
44	VXA-123	Plunger holder
45	VNE-426	Lever
46	VBH-085	Spring
47	VXP-009	Plunger
48	VAC-155	POWER button
49	VEC-151	Flexible ring
50	VCG-018	Capacitor
51	VSA-007	Power switch
52	VSK-004	SW
53	VWG-113	LOLB
54	VEK-005	Fuse 2A
55	VWR-052	FUSB

LD-700/KU(BOTTOM) Parts list 2

(MK) (KY) (Part Number) (DESCRIPTION)

56	VWR-032	RECB
57	N.S.P.	4P terminal
58	VWR-051	SFUS
59	VEK-018	Fuse 3A
60	VED-042	Cushion
61	VEC-144	Cushion
62	VEB-063	Dumping rubber
63	VACANT	
64	VACANT	
65	VACANT	
66	VACANT	
67	VACANT	
68	VACANT	
69	VACANT	
70	ACZ30P060FMC	
71	PMB30P060FMC	
72	YE30FUC	
73	ACZ20P080FMC	
74	VPZ40P120FMC	
75	YE20FUC	
76	IPZ30P080FMC	
77	CPZ40P120FMC	
78	BMZ30P050FNI	
79	BBZ30P080FNI	
80	ACZ30P060FGN	
81	VPZ30P060FMC	
82	WAZ0P060-010	
83	PMZ26P100FMC	

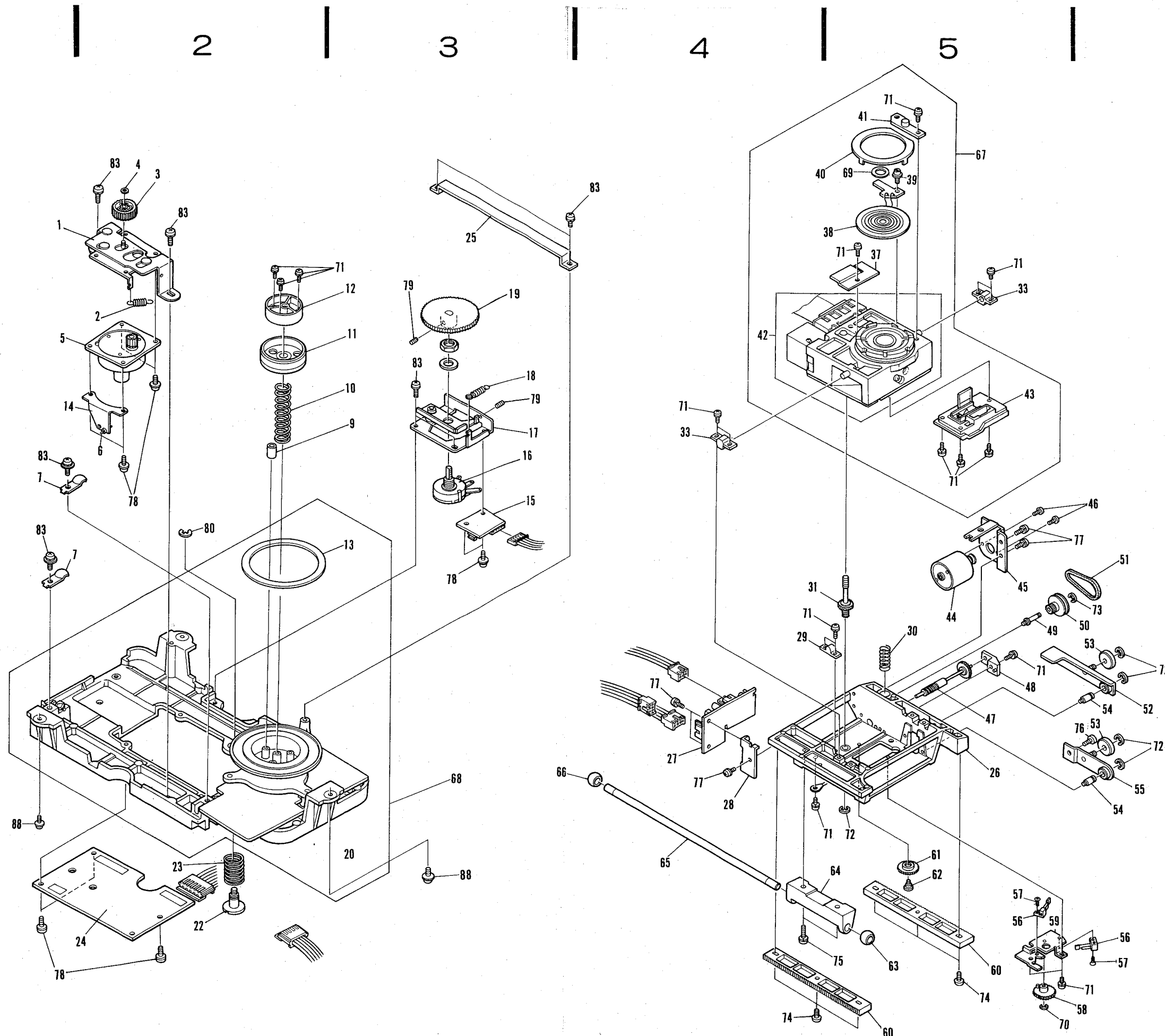


A

B

C

D



A

B

C

D

NOTES:

- Parts without part number cannot be supplied.
- The Δ 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-700/KU(MECH.) Parts list

1

(MK) (KY) (Part Number) (DESCRIPTION)

1	VXA-115	Motor holder
2	VBH-078	Spring
3	VNL-028	Pinion B
4		Polyethylene washer
5	VXM-020	Slider motor
6	VCG-005	Thru type cap.
7	VBK-013	Holder
8	VLA-061	Nut M5
9	VDM-007	Spacer
10	VBH-081	Centering Spring
11	VNV-012	Centering hab
12	VNL-168	Yoke
13	VEB-048	Rubber spacer
14	VNE-248	Filter holder
15	VWY-054	CNNB
16	VCS-005	Potentiometer
17	VXA-116	Gear ass'y
18	VBH-079	Spring
19	VNL-045	Pinion
20	VACANT	
21	VACANT	
22	VLL-161	Shipping screw
23	VBH-082	Spring
24	VWV-053	PREB
25	VNE-424	Bridge
26	VXA-163	Slider
27	VWS-039	CTCB
28	VNE-515	Holder
29	VNL-226	Shaft holder
30	VBH-080	Spring
31	VXA-161	Gear shaft
32	VGX-039	PD ASS'Y
33	VNL-229	Holder
34	VACANT	
35	VACANT	
36	VACANT	
37	VNE-525	Wire holder
38	VGX-037	Objective lens ass'y
39	VLL-238	Screw
40	VNH-046	Stopper
41	VGX-041	Senser ass'y
42	VGX-053	Pickup body
43	VGX-038	Grating ass'y
44	VXM-031	TILT motor
45	VNE-513	Holder
46		M2*2.2
47	VXA-160	Worm shaft
48	VNL-225	Worm shaft holder
49	VLL-224	Shaft
50	VNL-222	Pulley
51	VEB-060	Belt
52	VXA-119	Roller arm
53	VNL-165	Roller
54	VLL-159	Roller shaft
55	VXA-165	Roller holder

LD-700/KU(MECH.) Parts list

2

(MK) (KY) (Part Number) (DESCRIPTION)

56	VSK-003	Leaf switch
57		M1.7 X 2.8
58	VNL-228	Limit gear
59	VXA-162	Holder
60	VNL-166	Rack
61	VNL-227	Limit gear B
62	VLL-228	Gear shaft
63	VNL-167	Holder
64	VNT-024	Shaft holder
65	VLL-219	Shaft
66	VNL-167	Holder
67	VWY-059	Pickup
68	VXX-255	Mech. chasis ass'y
69	VEB-073	Pad
70	YE15FUC	
71	PMA26P060FMC	
72	YE30FUC	
73	YE20FUC	
74	BMZ30P060FMC	
75	PMA30P080FMC	
76	SMZ30H050FBT	
77	PMA26P040FMC	
78	PMA30P060FMC	
79	ZMD30H060FBT	
80	YE40FUC	
81	VACANT	
82	VACANT	
83	PMB30P060FMC	
84	WB26FMC	
85	PMZ26P060FMC	
86	WB261	
87	PMA26P100FMC	
88	PMB30P080FMC	

A

B

C

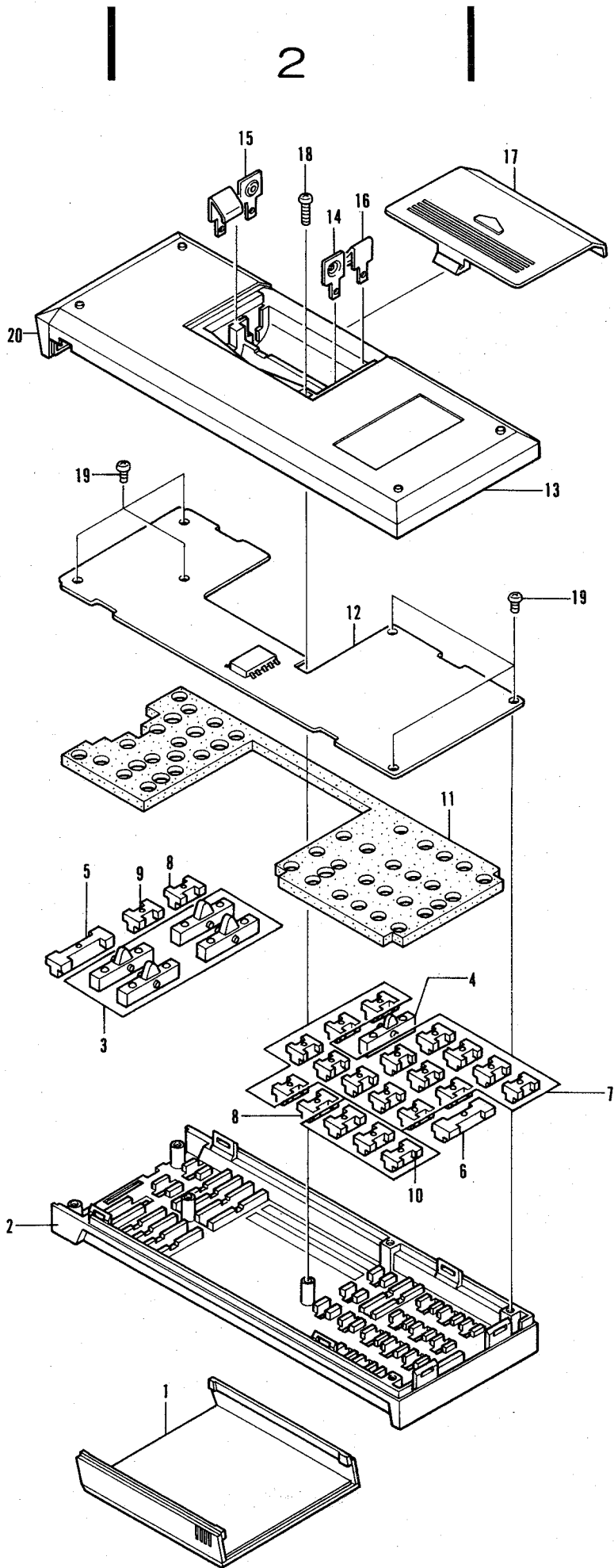
D

A

B

C

D



1

2

3

NOTES:

- Parts without part number cannot be supplied.
- The Δ 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-700(VXX-196) Parts list

1

(MK) (KY) (Part Number) (DESCRIPTION)

1	VNK-159	Slide cover
2	VNK-217	Top cover
3	VNL-193	Button A
4	VNL-194	Button B
5	VNL-195	Button C
6	VNL-196	Button D
7	VNL-197	Button E
8	VNL-198	Button F
9	VNL-199	Button G
10	VNL-200	Button H
11	VEC-142	Spacer
12	VWY-042	RMTC
13	VNK-158	Bottom cover
14	VNE-527	Terminal +
15	VNE-528	Terminal +-
16	VNE-529	Terminal -
17	VNK-160	Battery cover
18	PBZ20P100FMC	
19	PBZ20P050FMC	
20	VAP-020	IR Filter

5.5 PACKING MATERIAL

NOTES:

- *Parts without part number cannot be supplied.*
- *The Δ 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-700/KU(PACKING) Parts list 1

 (MK) (KY) (Part Number) (D E S C R I P T I O N)

1	VHL-014	Polyethylene bag
2	VRB-026	Operating instructions
3	VACANT	
4	VACANT	
5	VDE-009	Antenna cable
6	VDE-010	Audio cable
7		Battery SUM-3
8	VKX-001	Antenna adaptor (A)
9	VKX-002	Antenna adaptor (B)
10	VDE-014	Video cable
11	VHA-043	Bag
12	VXX-196	CU-700
13	VHX-006	Part box
14	VHA-072	Side pad (L)
15	VHA-073	Side pad (R)
16	VHG-073	Packing case

1

2

3

4

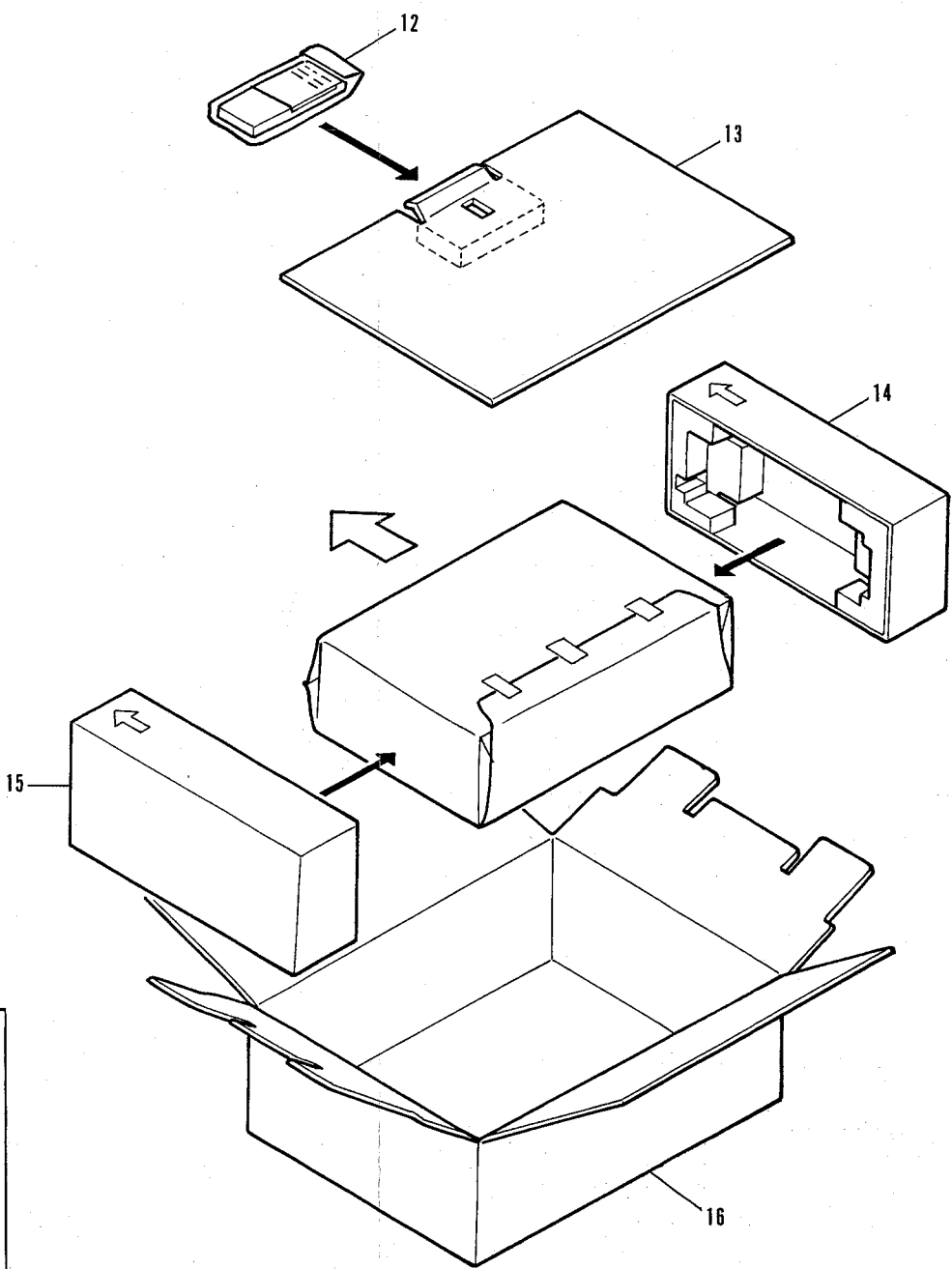
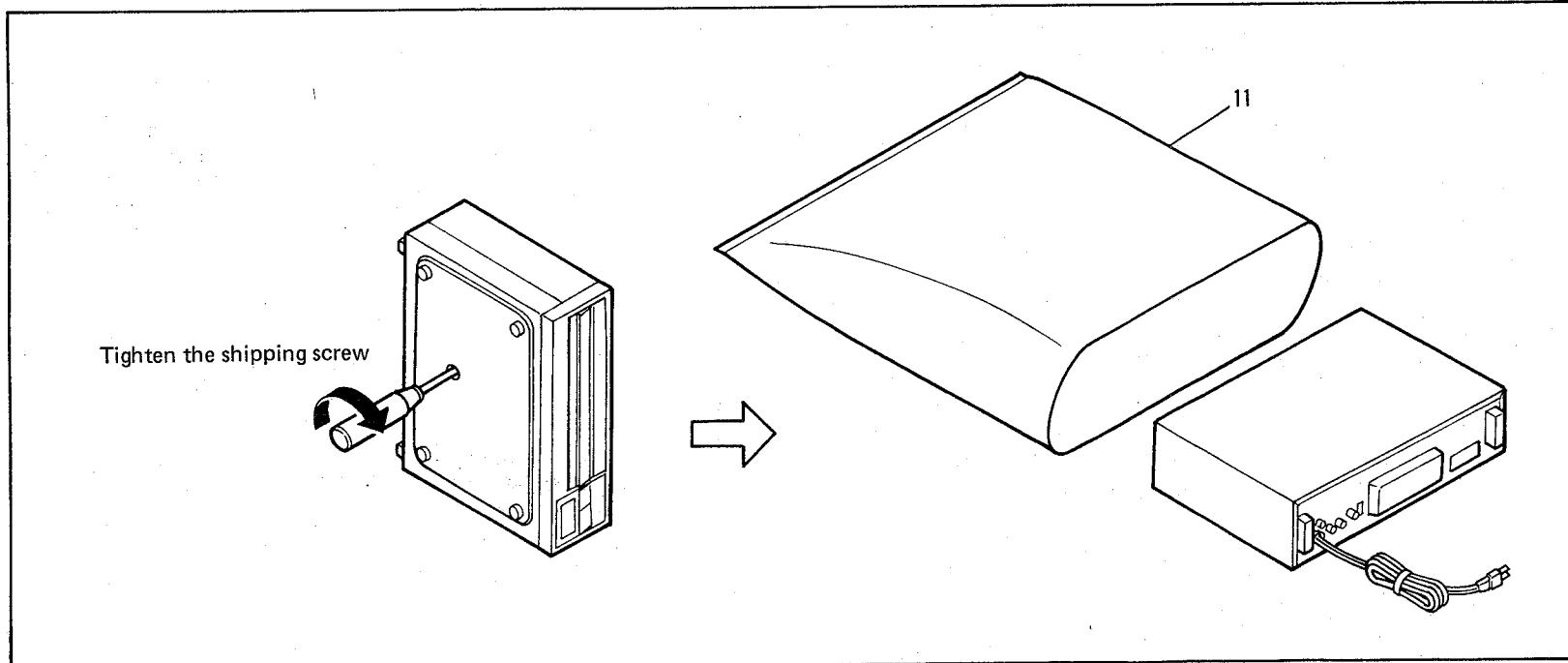
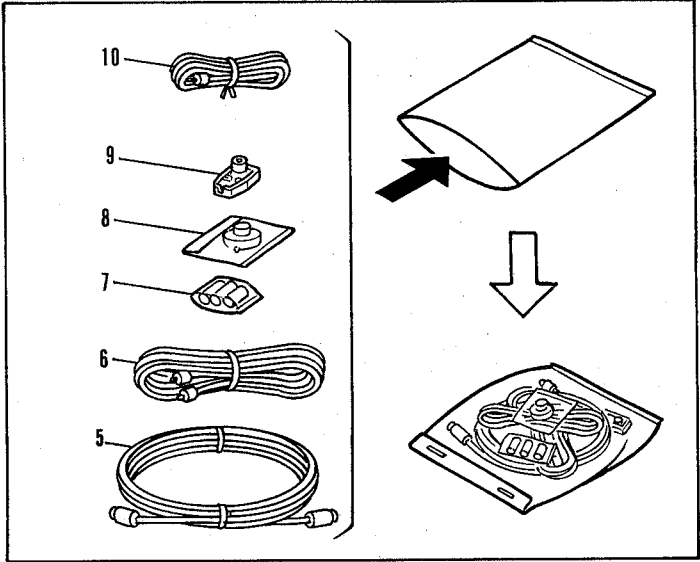
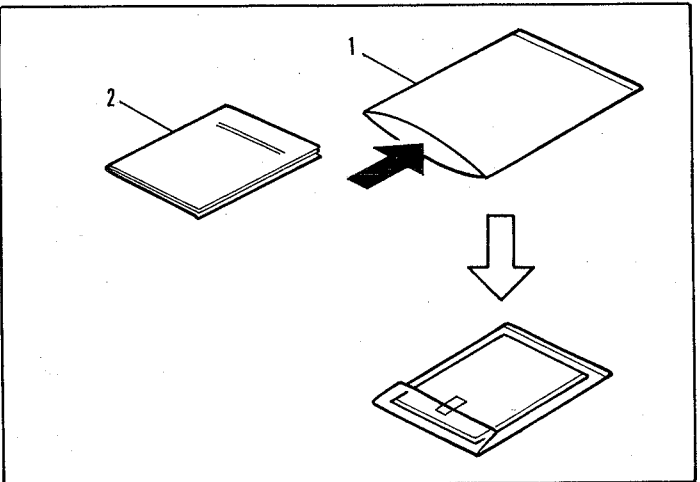
5

A

B

C

D



A

B

C

D

1

2

3

4

5

6

LD-700/KU

6. LABEL CHECK

NOTE:

Before returning this player to the customer, make sure all shields, barriers, covers, and labels are in place, and inter-lock system of the disc table is functioning properly. Attaching places of caution labels are based on the safety regulations.

A

VRW-245 **PIONEER** FILE NO. E70276
VIDEO DISC PLAYER NTSC
MODEL LD-700

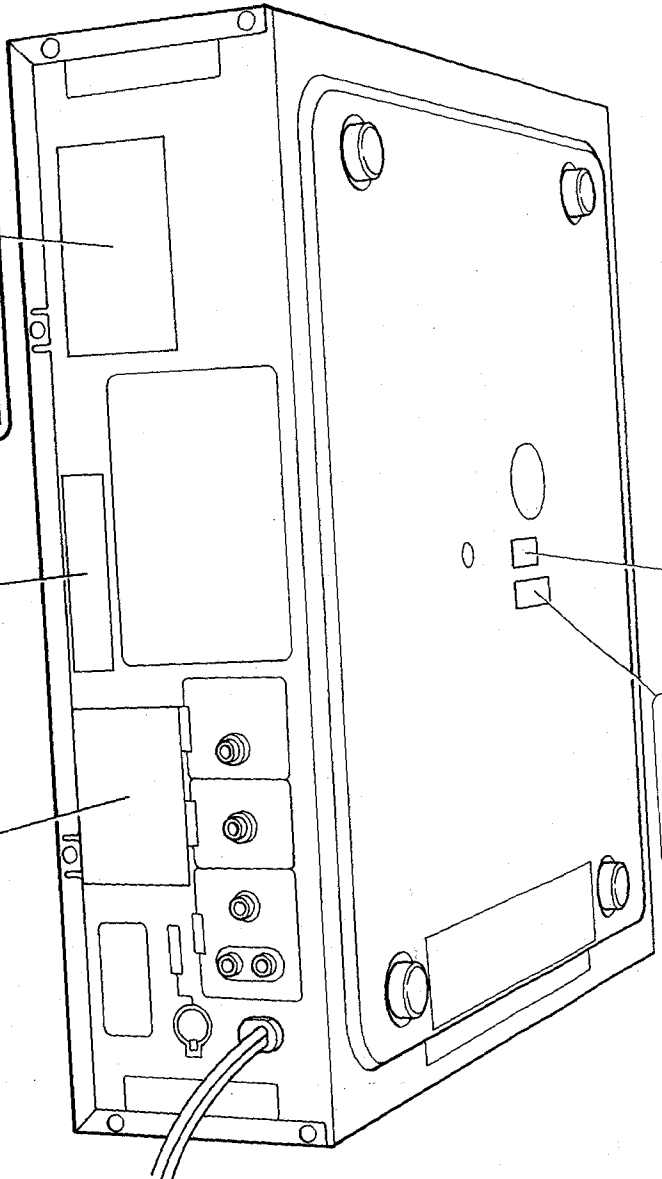
AC 120V 50/60Hz 33W
 PIONEER ELECTRONIC CORP.
 MANUFACTURED BY PIONEER VIDEO CORP.
 2680 NISHIHANAWA, TATOMICHO, NAKAKOMAGUN,
 YAMANASHI-KEN, 409-38, JAPAN
 MANUFACTURED UNDER US PATENT 3,944,727
 AND OTHER PATENTS PENDING.
 MFD [] SER. NO []

CAUTION
 RISK OF ELECTRIC SHOCK
 DO NOT OPEN

FCC ID: AJD77J LD-700
 PIONEER ELECTRONIC CORP.
 MADE IN JAPAN

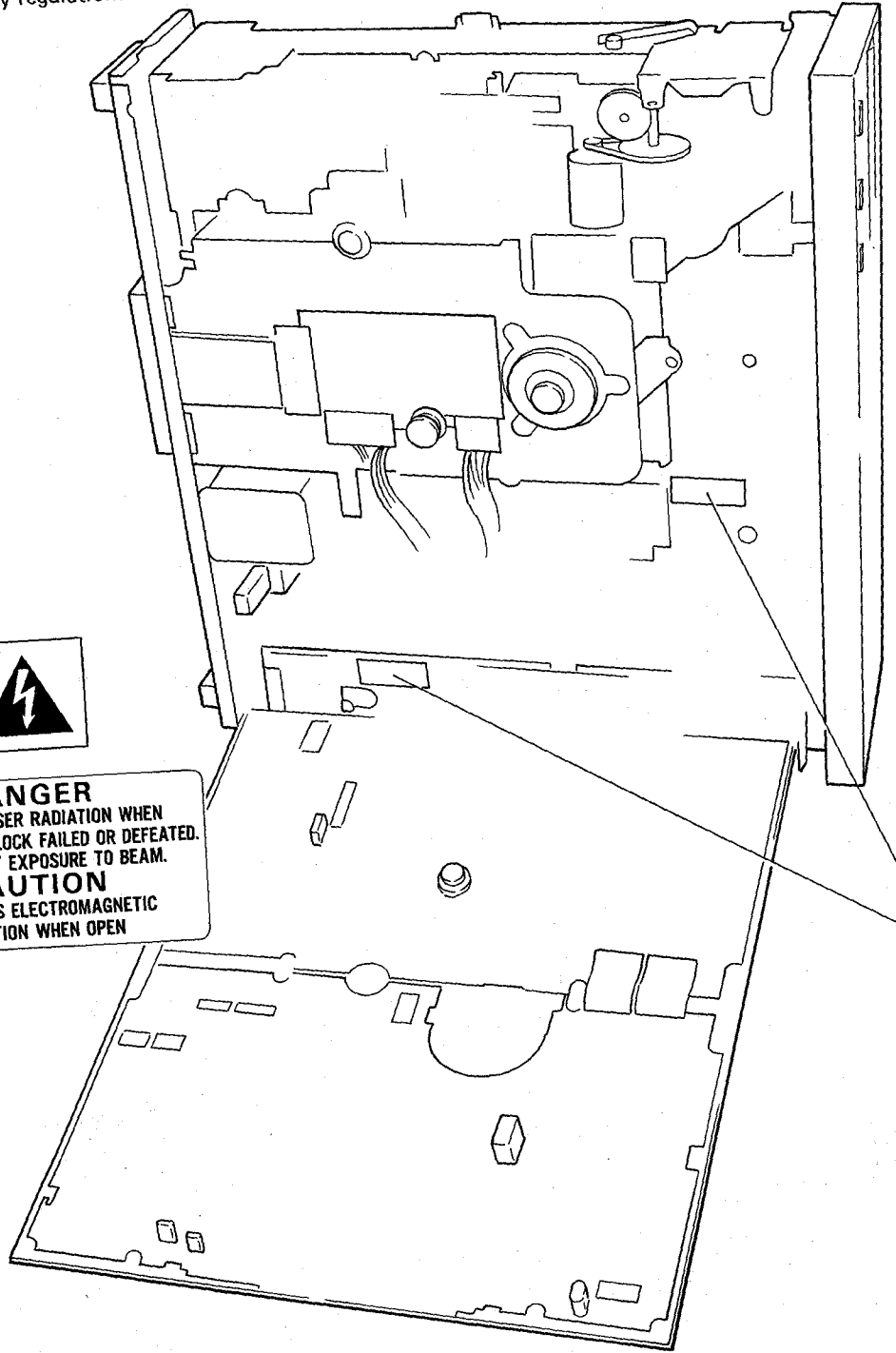
THIS DEVICE COMPLIES WITH FCC RULES PART 15. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION. VRW-244

CERTIFICATION
 THIS PRODUCT COMPLIES WITH DHHS RULES 21 CFR, SUBCHAPTER J, PART 1040 AT DATE OF MANUFACTURE.



DANGER
 INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCK FAILED OR DEFEATED. AVOID DIRECT EXPOSURE TO BEAM.
CAUTION
 HAZARDOUS ELECTROMAGNETIC RADIATION WHEN OPEN

CAUTION
 FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACEMENT FUSES SHOULD BE OF SAME TYPE AND RATINGS ONLY. VRW-021



A

B

C

D

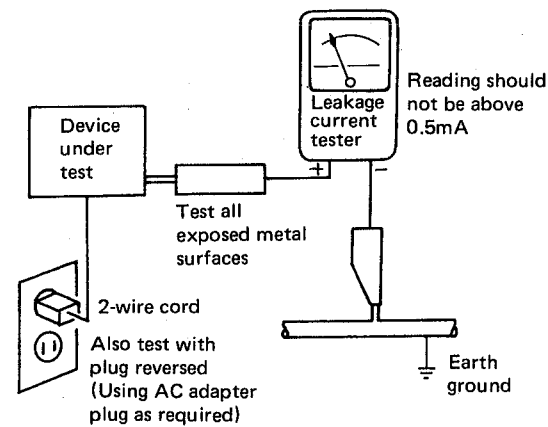
7. SAFETY INFORMATION

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a \square on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

8. SPECIFICATIONS

1. General

System and Disc spec. Complies with MCA, Phillips specifications

* 1 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

Spindle motor revolutions

Standard play disc 1,800 RPM
 Extended play disc 1,800 RPM (inner circumference) to 600 RPM (outer circumference)

2. Video characteristics

Format NTSC specifications

Video output

Level 1Vp-p nominal, sync. negative, terminated
 Impedance 75 ohms unbalanced
 Terminal Pin-jack

VHF output

Channel Channel 3 or 4 (switchable)
 Impedance 75 ohms unbalanced
 Terminal F-type jack

3. Audio characteristics

Audio output Two-channel: stereo or two individual channels

Level 650 mV nominal
 (1 kHz 100% mod. 50 kilohms terminated)

Terminal Stereo pin-jacks

4. Functions

	CAV	CLV
Play (Normal play mode with sound)	YES	YES
Pause (Pause mode without picture and sound)	YES	YES
Scan forward/reverse	YES	YES
Fast forward/reverse (3X normal play)	YES	NO
Multi-speed play	YES	NO
Still/Step forward/reverse	YES	NO
Interval repeat play	YES	YES
Multi-speed display	YES	NO
Frame number display	YES	NO
Elapsed time number display	NO	YES
Chapter number display	* 2	* 2
Frame number search	YES	NO
Chapter number search	* 2	* 2
Elapsed time number search	NO	YES
Chapter stop (with chapter number display) ...	* 2	* 2
Automatic picture stop (special discs only)	* 3	NO
Remote control (infrared wireless control)	YES	YES

5. I/O port

(I/O terminals for external control)

Terminal DIN, 8 pins

6. Others

Power requirements 120V AC, 50/60 Hz

Power consumption 33 watts

Dimensions 420 (W) x 414.8 (D) x 120 (H) mm
 16-17/32 (W) x 16-5/16 (D) x 4-3/4 (H) in.

Net weight (without package) 12.4 kg (27.3 lbs)

Operating temperature +5 to +35 degrees C

Operating humidity 0 to 90%

7. Furnished accessories

Remote control unit (CU-700) 1

Size "AA" dry batteries 2

VHF connecting cable with F-type plugs 1

Audio connecting cords with pin-plugs 1

Video connecting cable with pin-plugs 1

300-ohms to 75-ohms F-type plug 1

75-ohms F-type plug adaptor 1

Operating instructions 1

Warranty card 1

NOTES:

Specifications and the design subject to possible modification without notice, due to improvements.

* 1 Actual playback time differs for each disc.

* 2 Only for discs recorded with chapter codes.

* 3 Only for discs recorded with picture stop codes.