

Portable digital compact cassette player DCC130

/00/05/10 /BK01

Service
Service
Service



Service

DIGITAL
ccc
COMPACT CASSETTE

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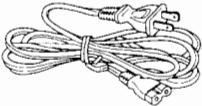
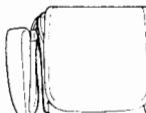
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PHILIPS

■ ACCESSORIES

Stereo headphones with remote controller (SBC3327) Only USA/CANADA	1 pc.	Special rechargeable battery (SBC6430)	1 pack	Battery charger/AC adaptor • Main unit (SBC6630)	1 pc.
					
	1 pc.	• DC cord	1 pc.	Carrying case	1 pc.
	1 pc.	Line cable	1 pc.		
					

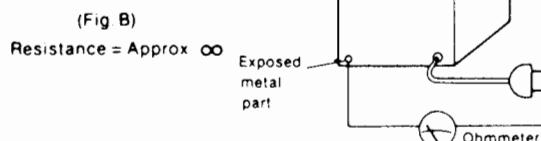
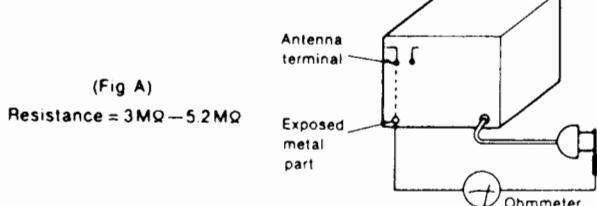
■ SAFETY PRECAUTION (This "safety precaution" is applied only in U.S.A.)

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

• INSULATION RESISTANCE TEST

1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads, antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between $3\text{M}\Omega$ and $5.2\text{M}\Omega$ to all exposed parts. (Fig. A) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. B)

Note: Some exposed parts may be isolated from the chassis by design. These will read infinity.



4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.

SPECIFICATIONS

Digital format

Tape recording system	Digital compact cassette
Sampling frequencies	
For playback	48 kHz, 44.1 kHz, 32 kHz (automatically)
No. of quantizing bits	16-bit, linear
Data processing system	PASC
No. of channels	2-channel, stereo

DCC playback

Frequency response	
fs: 44.1 kHz	20 Hz–20 kHz+0.5 dB, -1.5 dB
fs: 48 kHz	20 Hz–22 kHz+0.5 dB, -1.5 dB
fs: 32 kHz	20 Hz–14.5 kHz+0.5 dB, -1.5 dB
Dynamic range	90 dB or more (A-weighted)
S/N	90 dB or more (A-weighted)
Wow and flutter	Below measurable limit

ACC playback

Deck system	Stereo cassette player
Track system	4-track, 2-channel, stereo
Frequency response (Dolby NR off)	
Normal	20 Hz–18 kHz
CrO ₂	20 Hz–18 kHz
Metal	20 Hz–18 kHz

Terminals

Analog output (fixed)	
Output level	1.0 V (50 kΩ load)
Headphones output	
Output level (max.)	15 mW+15 mW (16 Ω load) φ3.5
Digital output	Optical (only when AC adaptor is used)

Mechanism

Head	18 channel thin-film head × 1
Motor	Brushless motor × 1
Tape speed	4.76 cm/sec (17/8 ips.)

General

Dimensions	120.0 × 35.5 × 118.0 mm (43/4" × 13/8" × 45/8")
Weight (with battery)	490 g (1 lb. 1.3 oz.)

Power supply (Using AC adaptor/charger)

Input: For Canada: AC 60 Hz 120 V 25W
 For U.S.A.: AC 60 Hz 120 V 25 W
 For Foreign: AC 50/60 Hz
 100–240 V 25 W
 Output: Adaptor: DC 5.5 V 1.9 A
 Charger: DC 4.8 V 1.4 A
 Power consumption: 4.1 W

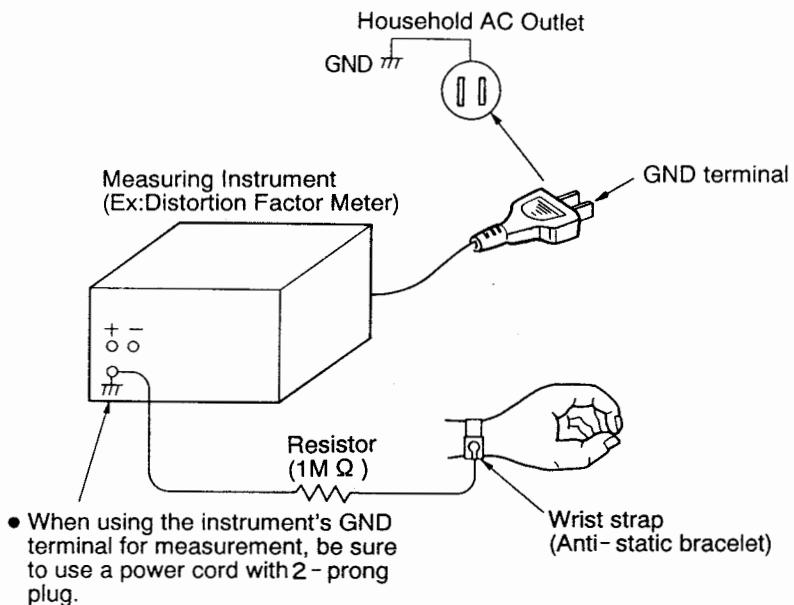
Note:

Design and specifications are subject to change without notice.
Weight and dimensions are approximate.

■ PRECAUTIONS FOR MECHANISM AND HEAD ASSEMBLY HANDLING

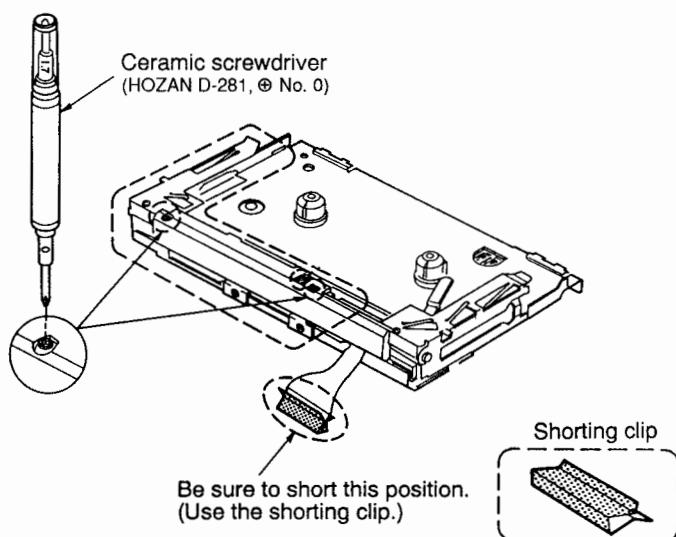
(1) Connect your wrist strap to the unit's GND or to the grounding post of a measuring instrument you are using.

To protect the head assembly from magnetic or electrostatic damage, be sure to wear the wrist strap whenever replacing the head assembly or handling the PC boards.



(2) When disconnecting the head FPC from the RF/Servo P.C.B., install a shorting clip on the FPC to protect it from magnetic or electrostatic damage.

- (3)
- Use a ceramic screwdriver for all head replacement and adjustment.
 - Keep magnetized metallic screwdrivers away from the head assembly, as they may damage the head's magnetic properties.



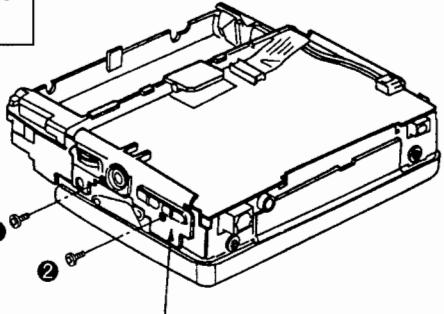
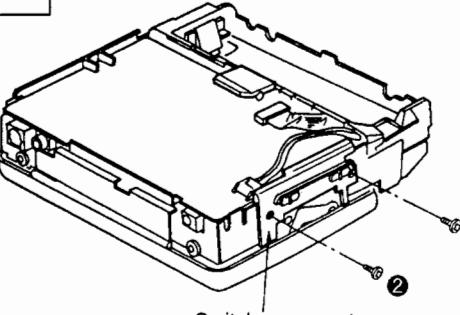
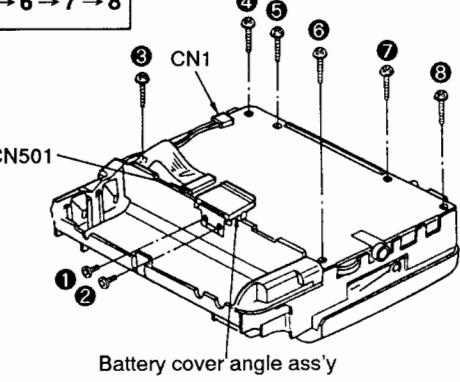
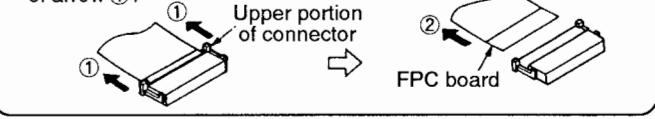
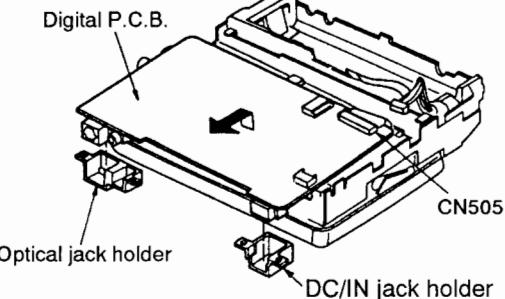
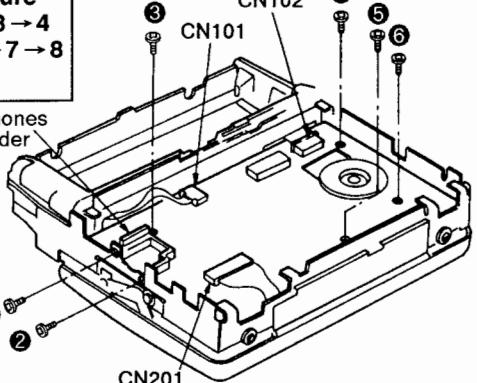
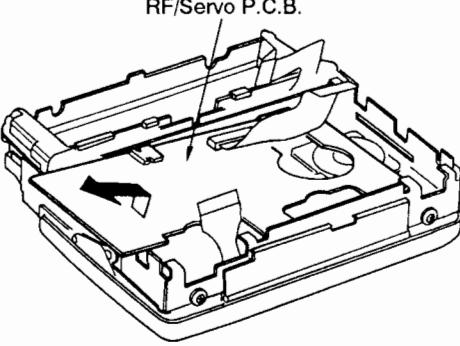
■ DISASSEMBLY INSTRUCTIONS

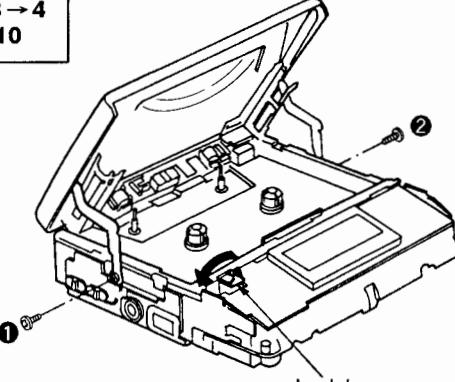
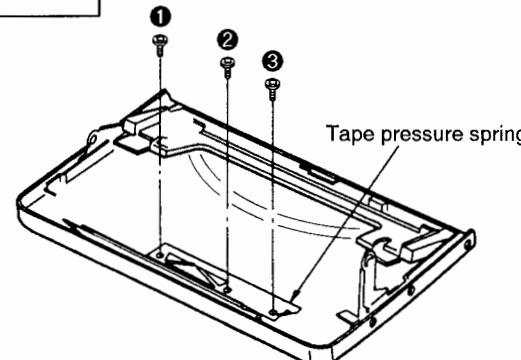
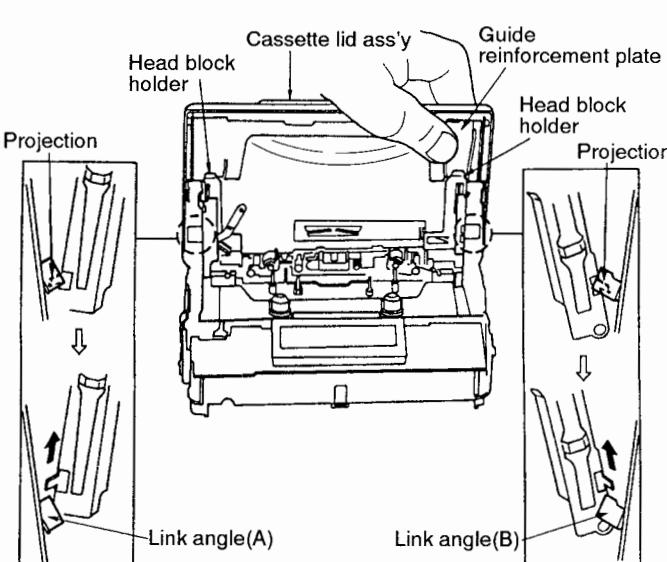
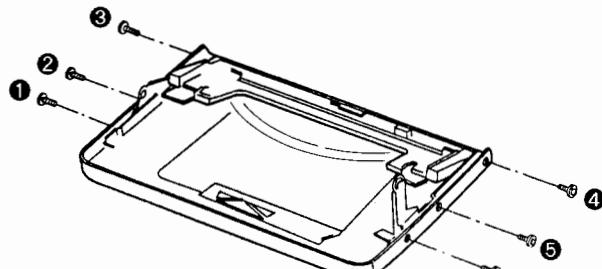
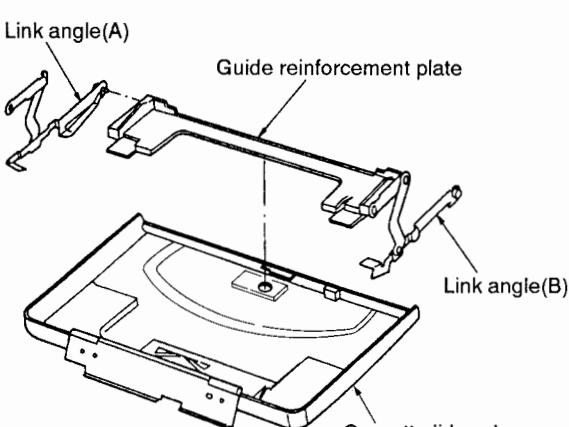
* This unit is equipped with FPC boards, so handle them with care during disassembly and reassembly.

Ref.No. 1	Removal of the battery cover ass'y	Ref.No. 2	Removal of the bottom cabinet ass'y
Procedure 1		Procedure 2	
Ref.No. 3	Removal of the front cabinet ass'y	Ref.No. 4	Removal of the rear panel ornament
Procedure 3		Procedure 2 → 4	
Ref.No. 5	Removal of the intermediate cabinet		
Procedure 1 → 2 → 3 → 4 → 5			
	<p>• Push the battery cover angle ass'y in the direction of arrow ①, and then remove the battery cover ass'y in the direction of arrow ②.</p>		<p>• Remove the 4 screws(① ~ ④).</p> <p>(4pcs.) M1.4 × 1.8</p>
	<p>• Remove the 4 screws(① ~ ④).</p>		<p>1. Remove the 2 screws(①, ②). 2. Remove the rear panel ornament in the direction of arrow.</p> <p>(2pcs.) M1.4 × 5.5</p>

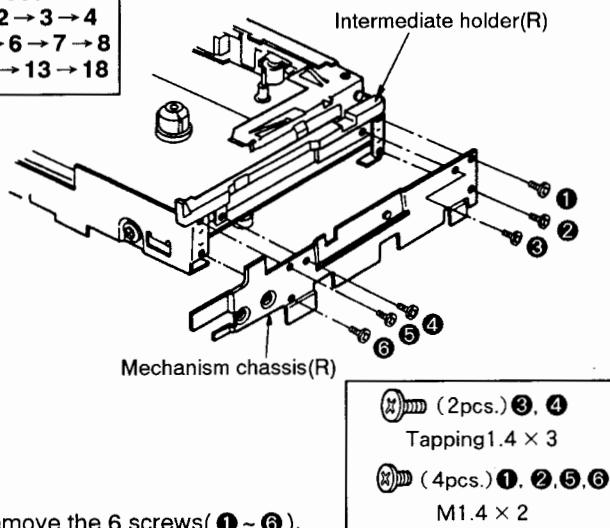
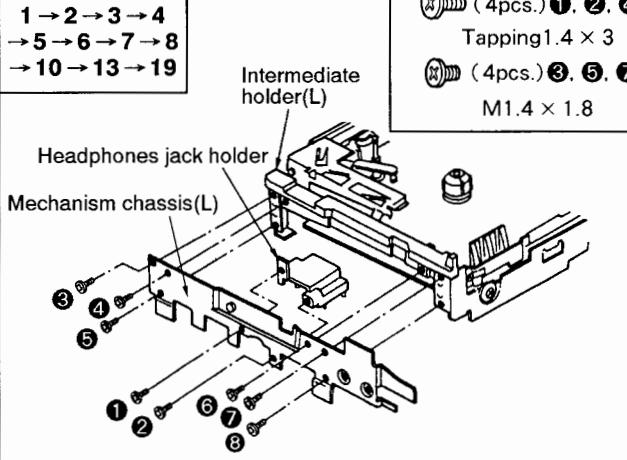
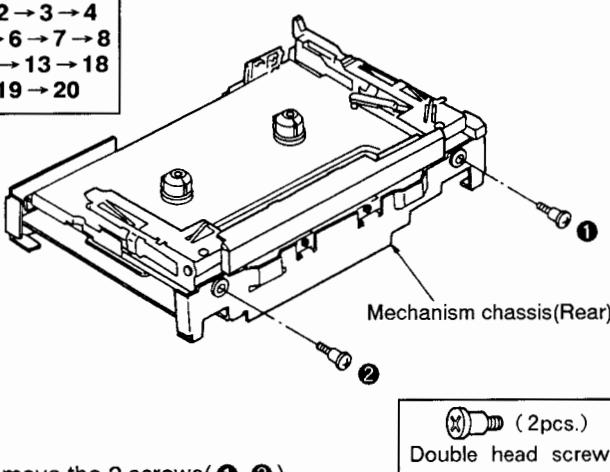
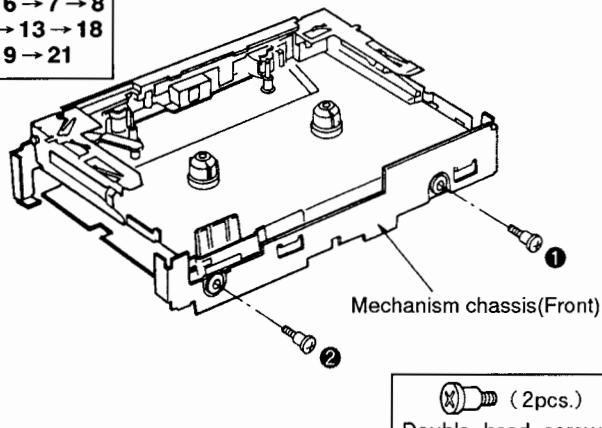
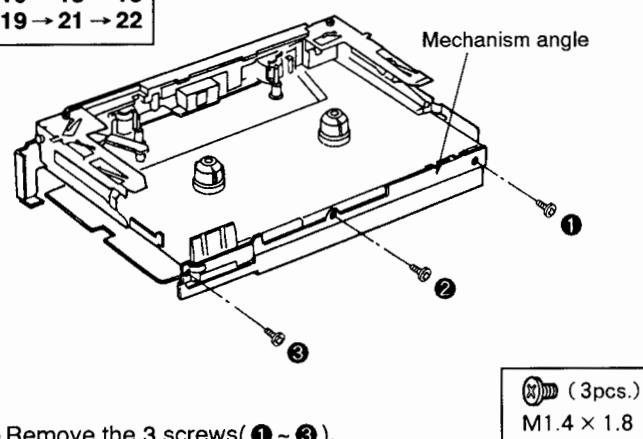
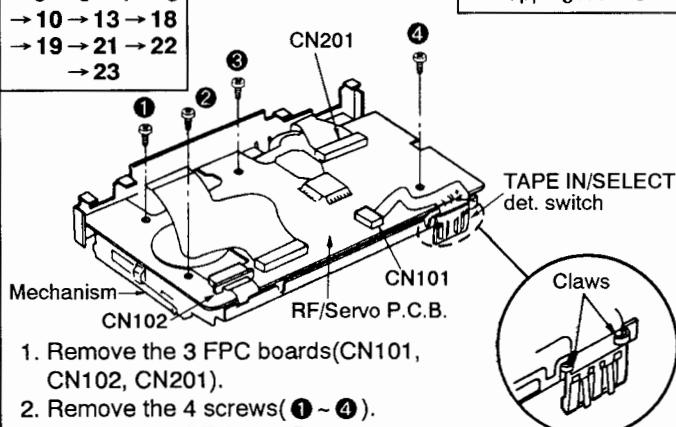
- Push the lock lever in the direction of arrow ①, and then open the cassette lid ass'y.
- Remove the 2 screws(①, ②), and then disengage the cassette lid ass'y in the direction of arrow ②.

- Lift up the intermediate cabinet to release the 4 hooks, and stretch the intermediate cabinet in the direction of arrow ③.
- While stretching the intermediate cabinet, remove it in the direction of arrow ④.

Ref.No. 6	Removal of the jack ornament	Ref.No. 7	Removal of the switch ornament
Procedure 1 → 2 → 3 → 4 → 5 → 6	 <p>• Remove the 2 screws(①, ②).</p>	Procedure 1 → 2 → 3 → 4 → 5 → 7	 <p>• Remove the 2 screws(①, ②).</p>
Ref.No. 8	Removal of the digital P.C.B.	■ Removal of the FPC board	
Procedure 1 → 2 → 3 → 4 → 5 → 6 → 7 → 8	 <p>• Remove the 2 screws(①, ②), and then remove the battery cover angle ass'y.</p> <p>• Remove the 1 connector(CN1).</p> <p>• Remove the 1 FPC board(CN501).</p> <p>• Remove the 6 screws(③ ~ ⑧).</p>	<p>1. Push the upper portion of connector in the direction of arrow ①.</p> <p>2. Pull the FPC board in the direction of arrow ②.</p> 	
<p>1. Remove the 2 screws(①, ②), and then remove the battery cover angle ass'y.</p> <p>2. Remove the 1 connector(CN1).</p> <p>3. Remove the 1 FPC board(CN501).</p> <p>4. Remove the 6 screws(③ ~ ⑧).</p>		<p>5. Lift up the digital P.C.B. in the direction of arrow, and then remove the 1 FPC board(CN505).</p> <p>Note: When the digital P.C.B. is removed, the jack holders (Optical, DC/IN) will also removed.</p> 	
Ref.No. 9	Removal of the RF/Servo P.C.B.	 <p>• Remove the 2 screws(①, ②), and then remove the headphones jack holder.</p> <p>• Remove the 3 FPC boards(CN101, CN102, CN201).</p> <p>• Remove the 4 screws(③ ~ ⑥).</p>	
<p>1. Remove the 2 screws(①, ②), and then remove the headphones jack holder.</p> <p>2. Remove the 3 FPC boards(CN101, CN102, CN201).</p> <p>3. Remove the 4 screws(③ ~ ⑥).</p>		<p>4. Remove the RF/Servo P.C.B. in the direction of arrow.</p> 	

<p>Ref.No. 10</p> <p>Procedure 1 → 2 → 3 → 4 → 5 → 10 → 10</p>	<p>Removal of the cassette lid ass'y</p> 	<p>((2pcs.) ①, ② M1.4 × 1.8</p> <p>((2pcs.) ③, ④ M1.4 × 1.8</p>
<p>Procedure 1 → 2 → 3 → 4 → 5 → 10 → 11</p>	<p>Removal of the tape pressure spring</p> 	<p>1. Push the lock lever in the direction of arrow and open the cassette lid ass'y. 2. Remove the 2 screws(①, ②).</p> <p>3. Remove the 2 screws(③, ④).</p> 
<p>Procedure 1 → 2 → 3 → 4 → 5 → 10 → 12</p>	<p>Removal of the guide reinforcement plate, link angle(A) and link angle(B)</p> 	<p>• Remove the 3 screws(① ~ ③).</p> <p>((3pcs.) Tapping1.4 × 2</p> <p>4. Holding the guide reinforcement plate, remove the projections of head block holder from link angles(A, B) in the direction of arrow.</p> 
	<p>1. Remove the 6 screws(① ~ ⑥).</p> <p>((6pcs.) M1.4 × 1.8</p>	<p>2. Remove the guide reinforcement plate, link angle(A) and link angle(B).</p>

Ref.No. 13	Removal of the battery case ass'y	
Procedure 1 → 2 → 3 → 4 → 5 → 13	<p>1. Remove the 6 screws(①~⑥). ① ~ ⑥ (6pcs.) Tapping1.4 × 3 ⑦, ⑧ (2pcs.) M1.4 × 1.8</p>	<p>CN1 CN501 Battery case ass'y ⑦, ⑧</p>
Ref.No. 14	Removal of the lock plate cover	Ref.No. 15
Procedure 1 → 2 → 3 → 4 → 5 → 13 → 14	<p>• Remove the 2 screws(①, ②). ①, ② (2pcs.) Tapping1.4 × 4.5</p>	Procedure 1 → 2 → 3 → 4 → 5 → 13 → 14 → 15
Ref.No. 16	Removal of the LCD P.C.B.	Ref.No. 17
Procedure 1 → 2 → 3 → 4 → 5 → 13 → 14 → 16	<p>• Remove the 4 screws(①~④). ① ~ ④ (4pcs.) Tapping1.4 × 2</p> <p>Note: When removing the FPC board, take care not to bend it because it is fixed with duplex adhesive tape between FPC board and battery case ass'y.</p>	<p>• Remove the 1 screw(①). ① (1pc.) Tapping1.4 × 3</p>

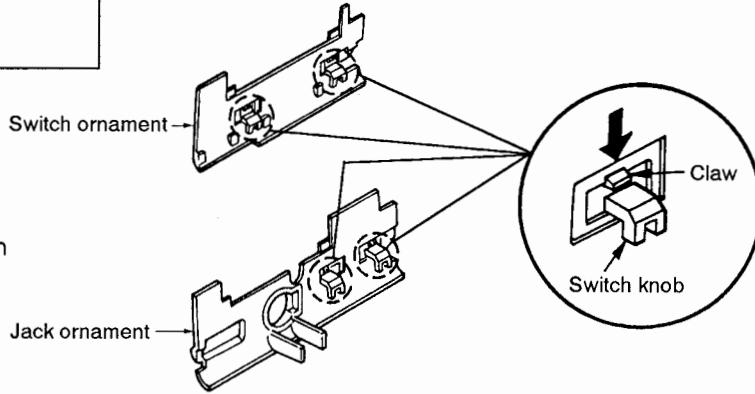
Ref.No. 18	Removal of the mechanism chassis(R) and intermediate holder(R)	Ref.No. 19	Removal of the mechanism chassis(L) and intermediate holder(L)
Procedure 1 → 2 → 3 → 4 → 5 → 6 → 7 → 8 → 10 → 13 → 18	 <ul style="list-style-type: none"> Remove the 6 screws (① ~ ⑥). 	Procedure 1 → 2 → 3 → 4 → 5 → 6 → 7 → 8 → 10 → 13 → 19	 <ul style="list-style-type: none"> Remove the 2 screws (①, ②), and headphones jack holder. Remove the 6 screws (③ ~ ⑧).
Ref.No. 20	Removal of the mechanism chassis (Rear)	Ref.No. 21	Removal of the mechanism chassis (Front)
Procedure 1 → 2 → 3 → 4 → 5 → 6 → 7 → 8 → 10 → 13 → 18 → 19 → 20	 <ul style="list-style-type: none"> Remove the 2 screws (①, ②). 	Procedure 1 → 2 → 3 → 4 → 5 → 6 → 7 → 8 → 10 → 13 → 18 → 19 → 21	 <ul style="list-style-type: none"> Remove the 2 screws (①, ②).
Ref.No. 22	Removal of the mechanism angle	Ref.No. 23	Removal of the mechanism and TAPE IN/SELECT det. switch
Procedure 1 → 2 → 3 → 4 → 5 → 6 → 7 → 8 → 10 → 13 → 18 → 19 → 21 → 22	 <ul style="list-style-type: none"> Remove the 3 screws (① ~ ③). 	Procedure 1 → 2 → 3 → 4 → 5 → 6 → 7 → 8 → 10 → 13 → 18 → 19 → 21 → 22 → 23	 <ul style="list-style-type: none"> Remove the 3 FPC boards (CN101, CN102, CN201). Remove the 4 screws (① ~ ④). Remove the RF/Servo P.C.B. Release the 2 claws of TAPE IN/SELECT det. switch.

Ref.No.
24

Removal of the switch knob

Procedure
1 → 2 → 3 → 4
→ 5 → 6 → 7
→ 24

- Release the 1 claw in the direction of arrow, and then remove the switch knobs.



● How to replace the mechanism block

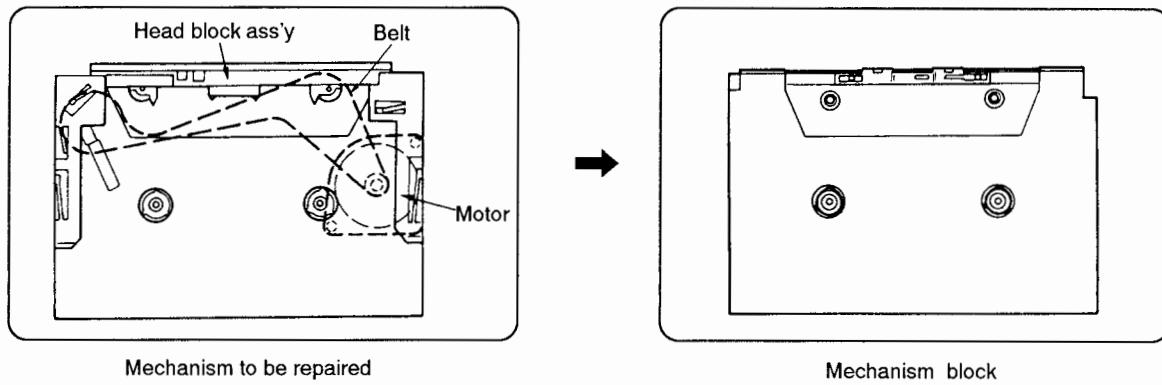
The mechanism block is supplied without other parts as a semi-assembly. The head block ass'y, motor and belt are supplied separately from the mechanism block.

If the mechanism block is exchanged as a replacement assembly, follow the preparation procedure below.

Preparation procedure

Remove the head block ass'y, motor and belt from the mechanism to be replaced and replace those parts to the new mechanism block. (Refer to Fig. 1 and 2.)

(Refer to the "PROCEDURES 23 FOR DISASSEMBLY OF THE MAIN PARTS ON THE MECHANISM AND TAPE IN/SELECT DET. SWITCH".



Mechanism to be repaired
Fig. 1

Mechanism block
Fig. 2

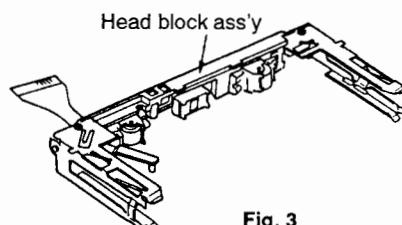


Fig. 3

● How to replace the head block ass'y

The head block is supplied as a head block ass'y. (Refer to Fig 3.)
The head and pinch roller arm(L)•(R) are supplied together in the head block ass'y.

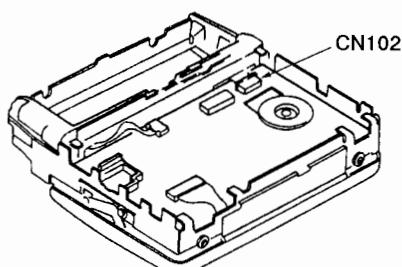
The pinch roller arm(L)•(R) is also supplied separately.

● How to replace cam gear and solenoid

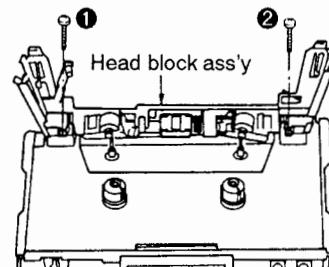
The cam gear and solenoid are included in the mechanism block. They are also supplied separately.

● How to remove the head block ass'y and pinch roller arm(L)•(R)

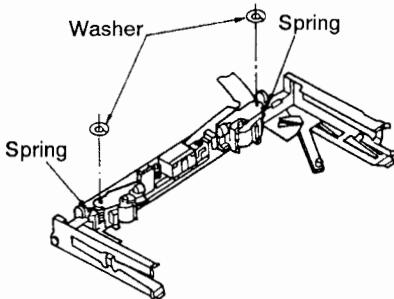
1. Follow the procedures in Ref. No. 1-8 in the Disassembly instructions. (Refer to pages 3 and 4.)



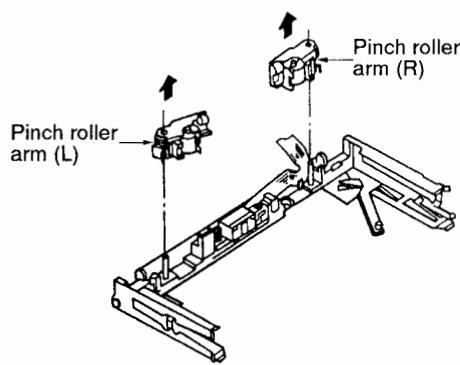
2. Remove the 1 connector(CN102).



3. Remove the 2 screws(① , ②) to remove the head block ass'y.



4. Remove the 2 washers.
5. Remove the springs from the hook.



6. Lift up the pinch roller arm(L)•(R) in the direction of arrow.

● Removal of the motor and belt

1. Follow the procedures in Ref. No. 1~10 in the Disassembly instructions. (Refer to pages 3 and 5.)
2. Remove the 2 screws (①, ②). (Refer to Fig. 1.)
3. Remove the 2 screws (③, ④) and the fixing plate. (Refer to Fig. 2.)
4. Unsolder the motor FPC (6 points). (Refer to Fig. 2.)
5. Remove the motor in the direction of arrow. (Refer to Fig. 2.)
6. Remove the belt from the motor. (Refer to Fig. 3.)

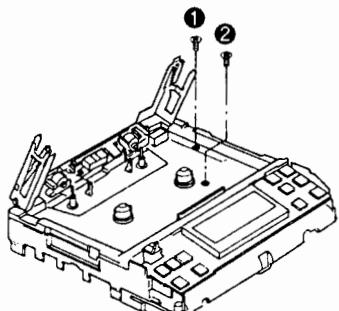


Fig. 1

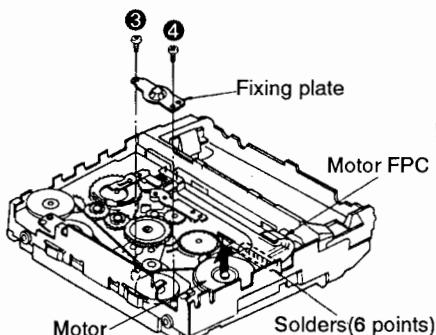


Fig. 2

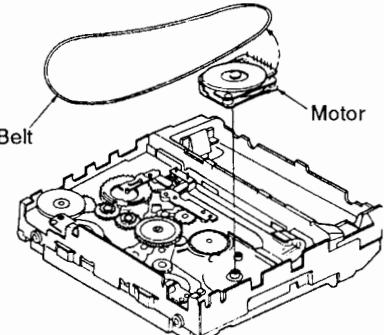


Fig. 3

• Before installing the belt to the motor, insert the unmagnetized sheet to the clearance between chassis and lower portion of motor, and then push the upper portion of motor in the direction of arrow.

Put the belt into the clearance between upper portion of motor and coil P.C.B. (Refer to Fig. 4 and 5.)

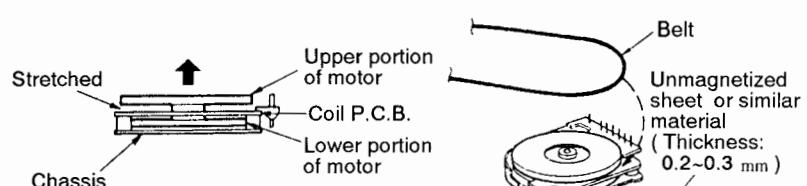


Fig. 4

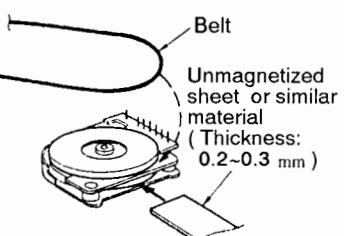
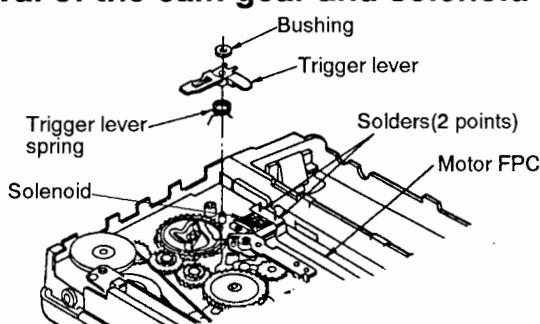


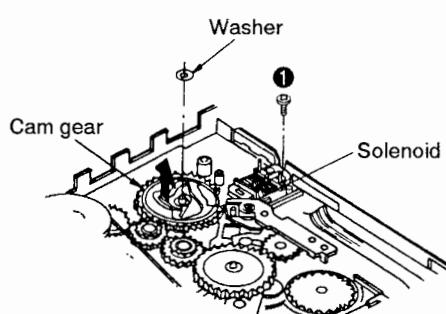
Fig. 5

● Removal of the cam gear and solenoid



1. Unsolder the motor FPC (2 points), and then remove the motor FPC from the solenoid.
2. Pull out the bushing.
3. Remove the trigger lever.

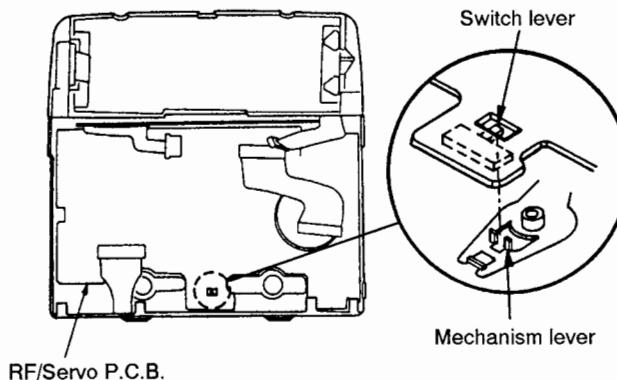
Note: Avoid missing the trigger lever spring when removing the trigger lever.



4. Remove the 1 screw (①) and the solenoid.
5. Remove the washer.
6. Remove the cam gear in the direction of arrow.

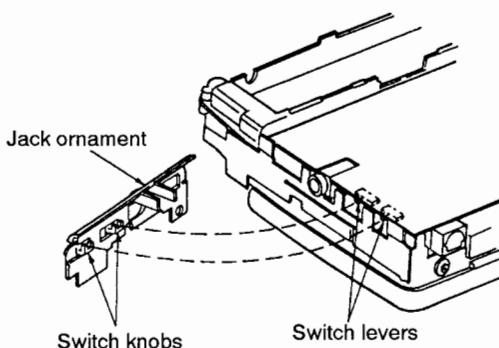
NOTE FOR ASSEMBLY

● Notice for assembling the RF/Servo P.C.B.



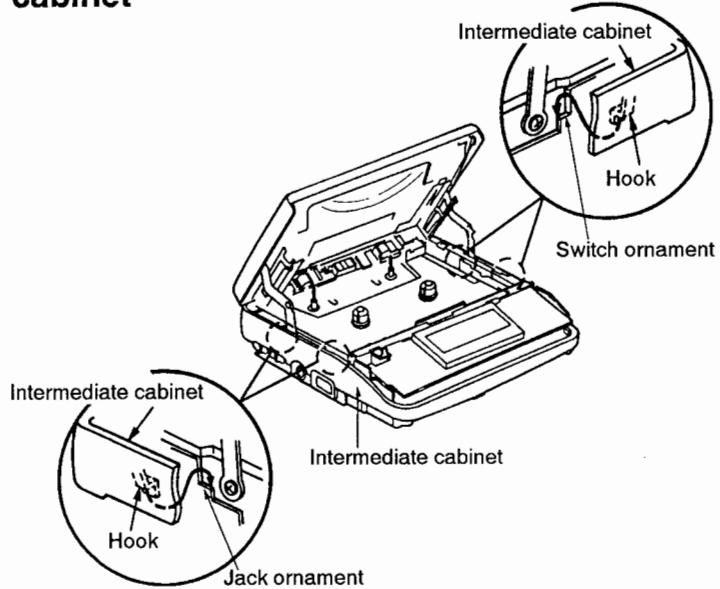
- Align the switch lever with mechanism lever when installing the RF/Servo P.C.B.

● Notice for assembling the jack ornament and switch ornament

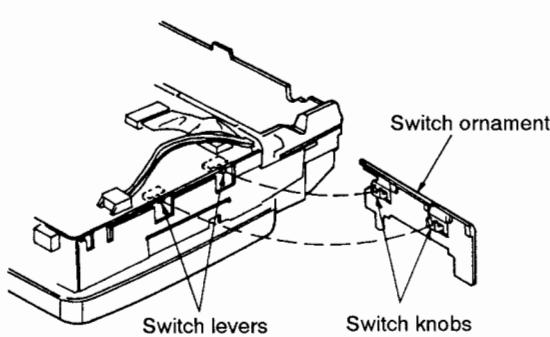


- Align the switch levers with switch knobs when installing the jack ornament.

● Notice for assembling the intermediate cabinet



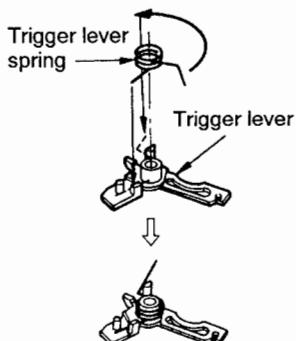
- Make sure the hooks inside the intermediate cabinet are joined to the jack ornament(Side L) and switch ornament(Side R) when installing the intermediate cabinet to unit.



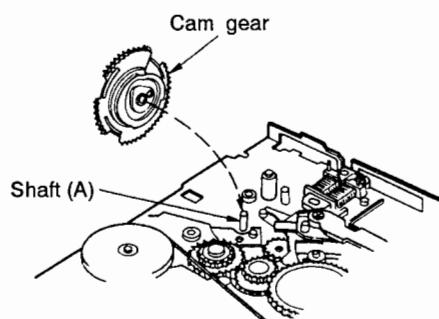
- Align the switch levers with switch knobs when installing the switch ornament.

Note: Before installing the switch knob, be sure to check the claws for defects that would render the claws unserviceable.
(If a white line like white wax on a claw is found, the claw may be broken when installing the switch knob.)

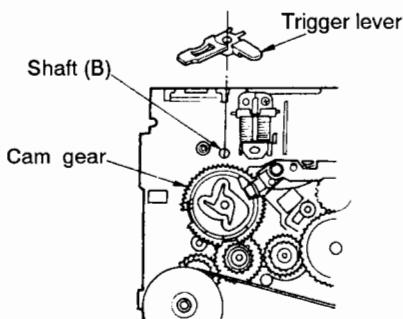
● Notice for assembling the cam gear



1. Temporarily install the trigger lever spring on trigger lever.

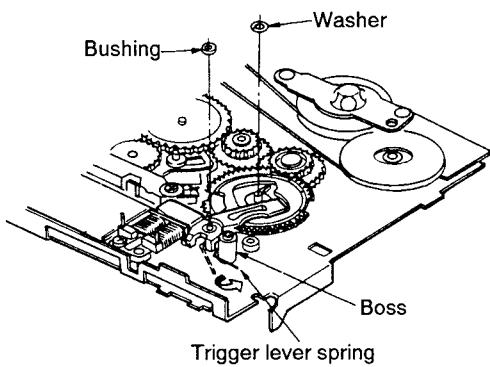


2. Install the cam gear to the shaft (A).

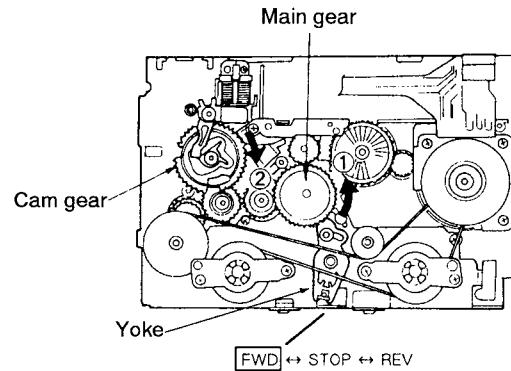


3. Rotate the cam gear toward the position as shown above.
4. Install the trigger lever to the shaft (B).

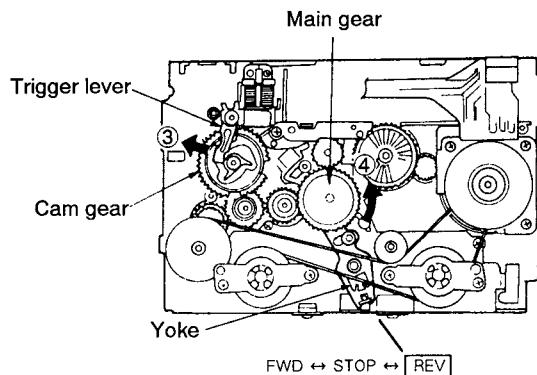
• Confirmation of cam gear operation



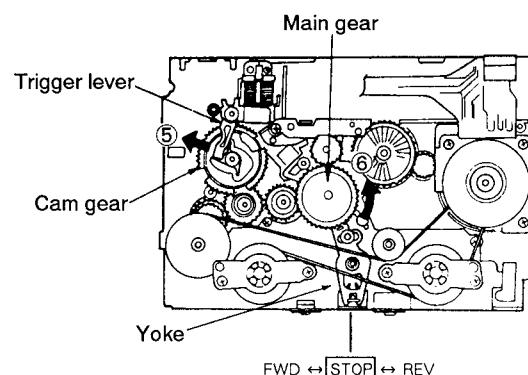
5. Latch the temporary attached trigger lever spring to the boss.
6. Install the bushing and washer.



7. Rotate the main gear in the direction of arrow ①, and then the cam gear associates in the direction of arrow ②.
8. Make sure the yoke is located at the position "FWD" when the cam gear is ceased rotating.



9. Pull the trigger lever one time in the direction of arrow ③, and then rotate the main gear in the direction of arrow ④.
10. Make sure the yoke is located at the position "REV" when the cam gear is ceased rotating.



11. Further, pull the trigger lever one time in the direction of arrow ⑤, and then rotate the main gear in the direction of arrow ⑥.
12. Make sure the yoke is located at the position "STOP" when the cam gear is ceased rotating.

■ HOW TO CHECK OPERATIONS DURING DISASSEMBLY AND SERVICING

The following describes post-disassembly checking procedures for board and unit functions:

• Checking Digital P.C.B.

Operations

1. Complete disassembly steps 1, "Removal of the battery cover ass'y" through 8, "Removal of the digital P.C.B." In step 8, remove the 8 screws (①~⑧) retaining the Digital P.C.B.
2. Set the HOLD switch (S502) to the OFF position (See Fig. 1).

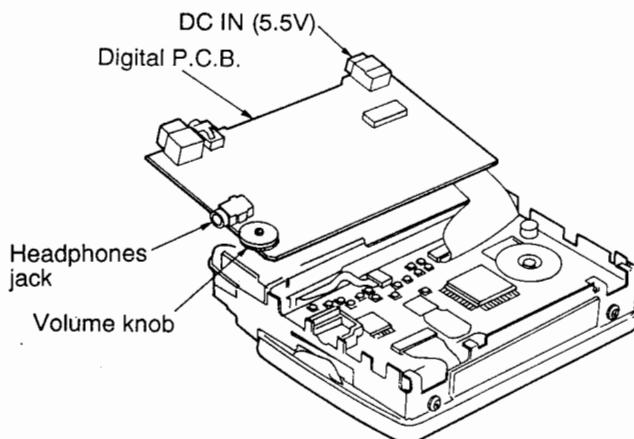


Fig. 1

• Checking RF/Servo P.C.B. Operations

1. Complete disassembly steps 1, "Removal of the battery cover ass'y" through 9, "Removal of the RF/Servo P.C.B."
2. Remove the battery holder by following disassembly step 13, "Removal of the battery case ass'y."
3. Remove the LCD P.C.B. by completing step 16, "Removal of the LCD P.C.B." and step 17, "Removal of the switch P.C.B." then install the battery case ass'y.
4. Interconnect the LCD, Digital, and RF/Servo P.C.B.
5. Connect the RF/Servo P.C.B.'s connector (CN102) to the capstan motor FPC with the interconnection cable (RFKZ0043). (See Fig. 2).
6. Set the HOLD switch (S502) to the OFF position.
7. Condition in setting the Factory Mode

Set the three switches as follows:

Sw No.	Sw Name	Condition	Setting Procedure
S503	Cassette Compartment Lid OPEN/CLOSE Detection Switch	CLOSE	Disconnect 3-pin connector lead wires (blue and white) between S503 and LCD P.C.B.
S101	ACC/DCC Tape Detection Switch	DCC tape loading: OFF	Demount RF/SERVO P.C.B. from Mechanism. (See Fig. 2)
		ACC tape loading: ON	Hold S101 by taping.
S102	TAPE IN Detection Switch	ACC/DCC tape loading: ON	Short by soldering Pins ② and ③ of Connector (CN101).

8. How to set the Factory Mode

(Follow the procedure of steps 1~4 below. Power source: AC)

- Step 1** From the ALL-OFF status, press the PLAY key while pressing the COUNTER RESET key. (Power source turns ON and the unit is then in the STOP <WAKE-UP> status.)

LCD Indication for WAKE-UP status	
DCC tape loading	ACC tape loading
<p>dcc A</p> <p>ABS TRACK NO</p> <p>— : — : — — —</p>	<p>FWD</p> <p>0 0 0 . S T O P</p>

- Step 2** Press the FF key twice while pressing the COUNTER RESET key.

LCD Indication
ACC tape or DCC tape loading
<p>FACTORY MODE</p> <p>↓ (1sec. later, all LCD's light up.)</p> <p>dcc REV B A FWD TPS [■■■] PLAY</p> <p>ABS TRACK TOTAL TRACK NO</p> <p>A : L L : * I N D I C A T E</p>
(All LCD's light up.)

(NOTE) If the unit is left in the mode for 4 minutes or longer, all LCD's are turned OFF.

- Step 3** Press the COUNTER RESET key twice.

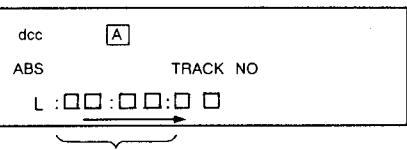
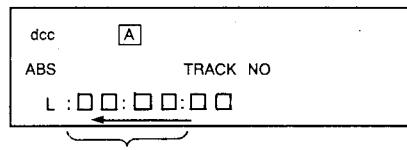
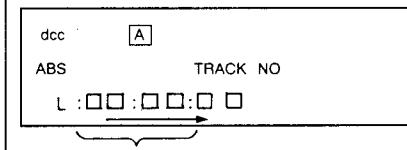
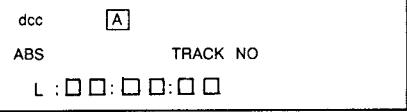
LCD Indication	
DCC tape loading	ACC tape loading
<p>dcc A</p> <p>ABS TRACK NO</p> <p>L : — : — — —</p>	<p>FWD</p> <p>L 0 0 0 . S T O P</p>

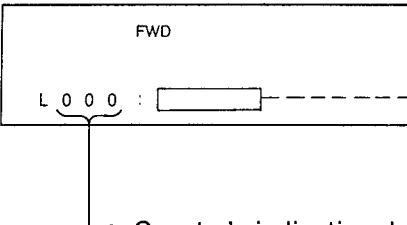
L means that the Factory Mode has been set.

Step 4

Press the desired key out of the PLAY, FF, and REW keys.

(Indication at the tape leader part differs from indication at the music recording part.)

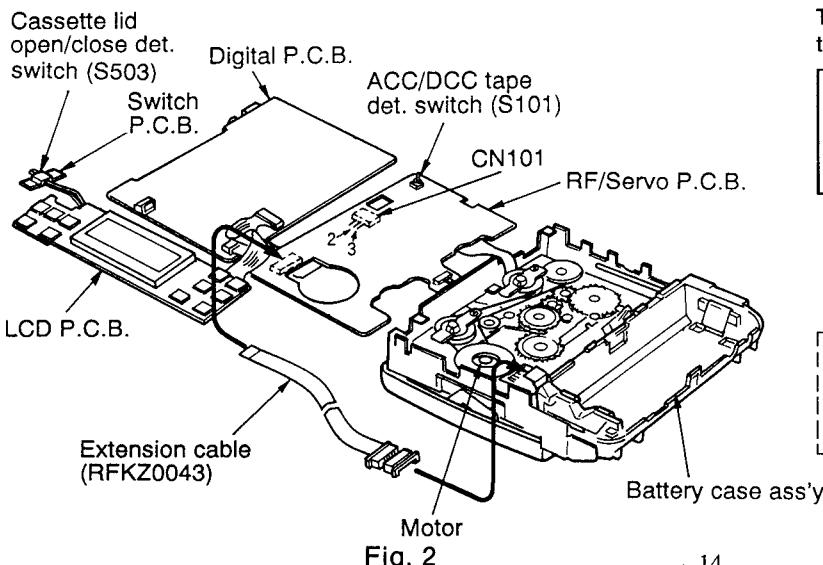
LCD Indication when DCC tape is loaded		
PLAY key is pressed	FF key is pressed	REW key is pressed
• Indication at the tape leader part during play  4 segments light up one by one sequentially.	 4 segments light up one by one sequentially, and tape runs faster than in PLAY.	 Segment lighting direction differs but lighting speed does not differ from the case of FF.
• Indication at the music recording part during play 		
Time and track No. indicated are ordinarily the same as during PLAY, FF or REW.		

LCD Indication when ACC tape is loaded		
	PLAY is indicated when PLAY key is pressed.	
	FF is indicated when FF key is pressed.	
	REW is indicated when REW key is pressed.	
	Counter's indication does not move.	

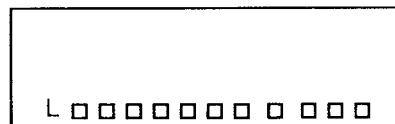
Step 5

To cancel the Factory Mode, press the STOP key for the ALL-OFF status.

(To cancel it from the OPERATION status, press the STOP key twice, and to cancel it from the STOP status, press the STOP key once.)



The unit indicates "L" after entering the No Mechanism Signal mode.



Normal mode
"L" indicating No Mechanism Signal mode.

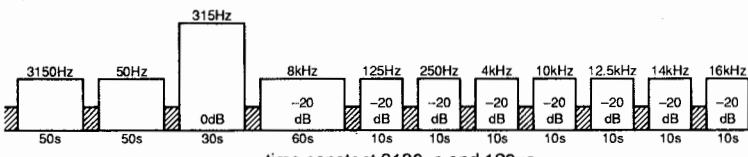
This mode is used to check boards with a Mechanism mode SW or boards with reel pulse mode. It senses the Mechanism mode, then controls the audio control signal.

Fig. 3

■ MEASUREMENTS AND ADJUSTMENTS

Required Jigs, Test Tapes, and Measuring Instruments

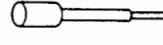
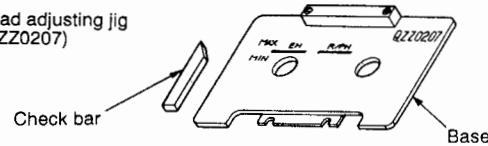
• Test tape

Part No.	Contents	Use
SBC420	315Hz: 0dB, 3150Hz: -10dB 125Hz~16kHz: -20dB 4.76cm/s 250nWb/m 	Tape speed adjustment Distortion adjustment NF adjustment Frequency response adjustment
SBC438	Mirror tape	Tape transport adjustment

• Measuring instrument

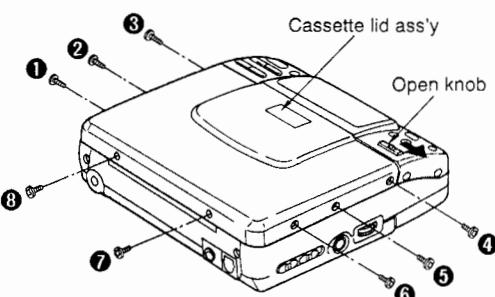
Oscilloscope Distortion factor meter Frequency counter Electronic voltmeter (E.V.M.) (AC/DC)

• Jigs and Tools

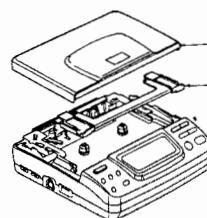
(A) MECHANISM ADJUSTMENT	Head alignment adjusting screwdriver (RZZ0296)  Ceramic screwdriver (Head alignment) (HOZAN D-281, # No. 0) 	Head adjusting jig (QZZ0207) 
(B) ELECTRICAL ADJUSTMENT	Ceramic screwdriver (HOZAN D-281, # No. 1.7) 	

(A) MECHANISM ADJUSTMENT (HEAD POSITION ADJUSTMENT)

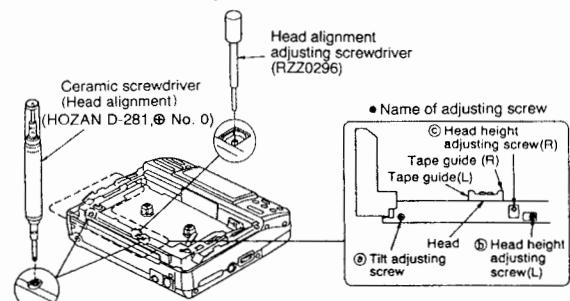
• Disassembly



- Push the OPEN knob in the direction of the arrow to open the cassette lid ass'y.
- Remove the 8 screws (①~⑧).
- Perform head position adjustment after disassembling the unit to the point shown on the right.

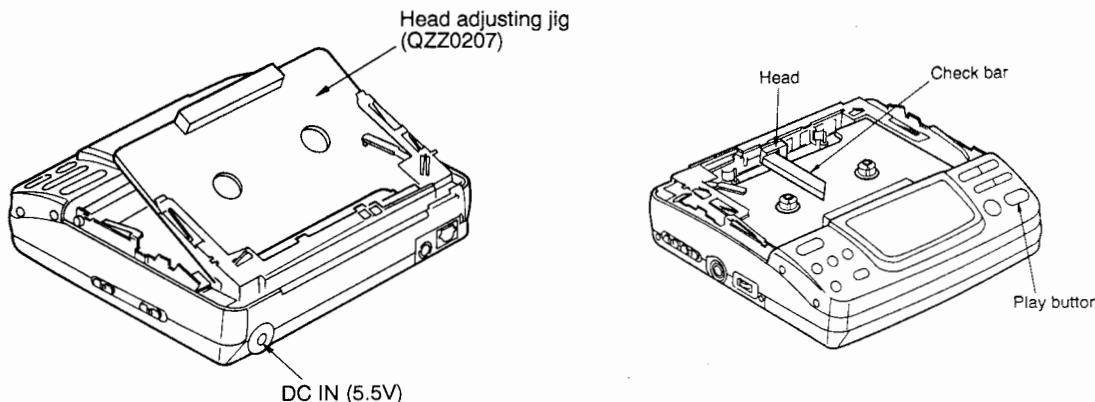


- Remove the cassette lid ass'y and guide reinforcement plate.



• Loading Head Adjusting Jig (QZZ0207)

1. Load the head adjusting jig (QZZ0207) into the unit.

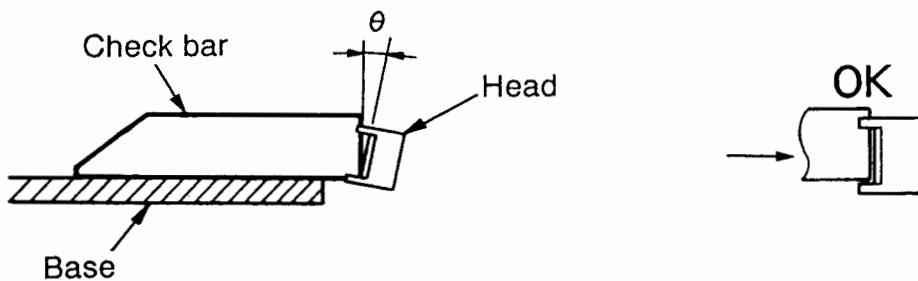


• Power Connection

1. Plug the accessory AC Adaptor (or other 5.5V DC power supply) into the unit's DC IN jack.
2. Press the PLAY button to enter PLAY mode.

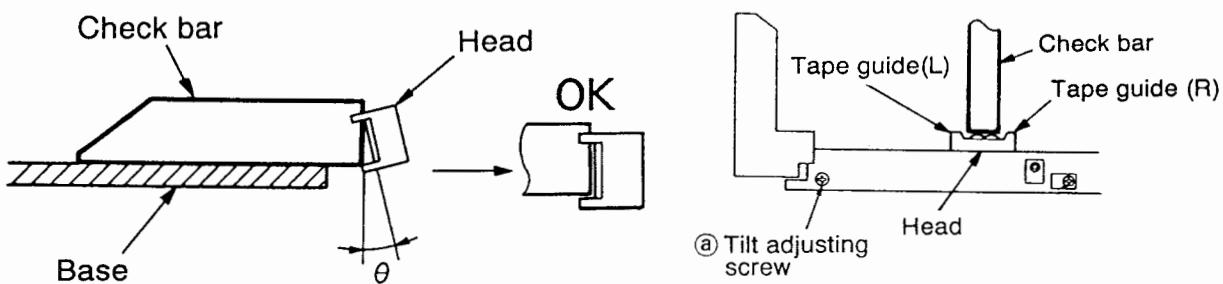
(1) Tilt Adjustment

• If the head tilts backward:



Turn the ② tilt adjusting screw clockwise until the head surface is parallel with the end of the check bar (θ =within $\pm 30'$).

• If the head tilts forward:

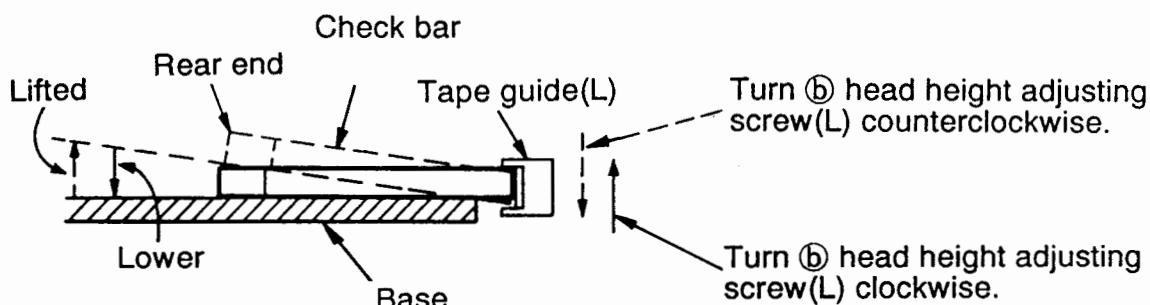
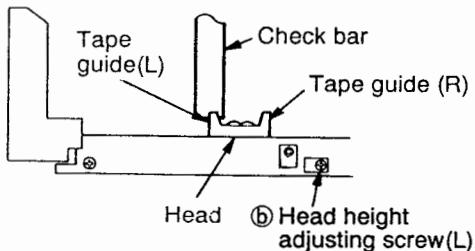


Turn ② tilt adjusting screw counterclockwise until the head surface is parallel with the end of the check bar (θ =within $\pm 30'$).

(2) Guide Heights Adjustment

• Adjusting Guide (L)

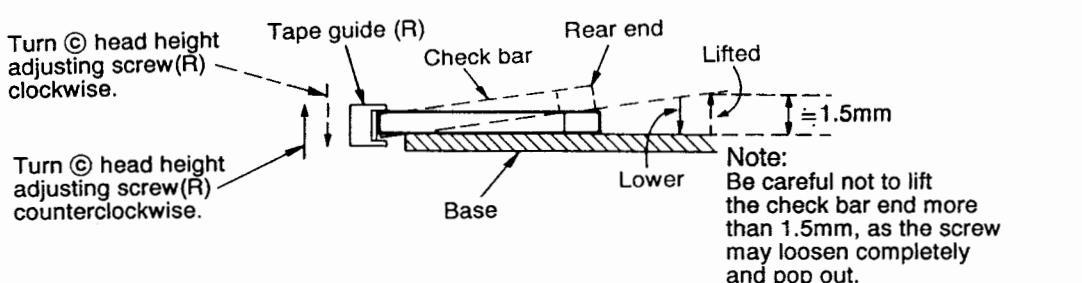
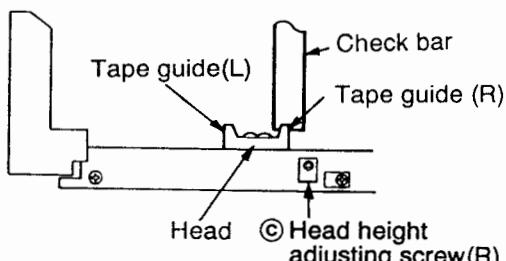
Insert the check bar into tape guide (L) as shown below.



Turn ⑥ head height adjusting screw (L) counterclockwise to lift the rear end of the check bar off the base, then slowly turn the screw clockwise to lower the rear end until it is parallel and rests on the base.

• Adjusting Guide (R)

Insert the check bar into tape guide (R) as shown below.



Turn ⑦ head height adjusting screw (R) clockwise to lift the rear end of the check bar off the base, then slowly turn the screw counterclockwise to lower the rear end until it is parallel and rests on the base.

Note: The head arm has a slight amount of play. Make sure that the rear end of the check bar completely rests on the base after the screwdriver is removed.

(3) Tape Trimming

- Load the tape forward through the step

Tape

A curled
along a s
Check fo

- If a curl
Turn ⑧



- If a curl
Turn ⑨



- When th

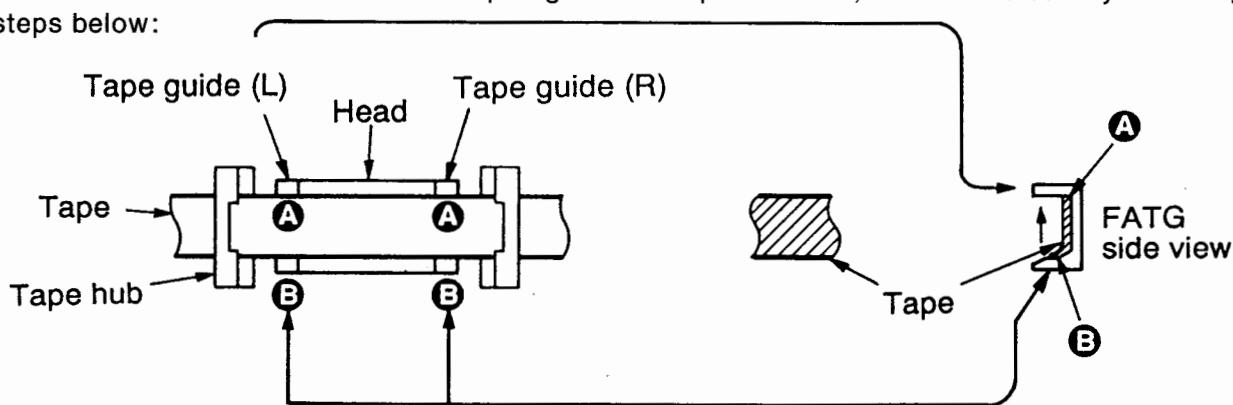


After comple
tape edge. I

- Note:** Since
differ
mar

(3) Tape Transport Adjustment

- Load the mirror tape (SBC438) into the unit and check tape transport in PLAY mode. Check both forward and reverse directions. If the top edge of the tape is curled, remove the curl by following the steps below:

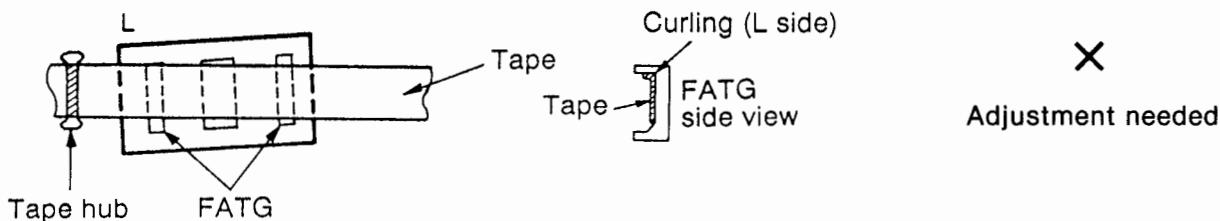


A curled tape edge will not occur at the bottom ④ of the tape guide, as the tape is pushed up along a slope.

Check for a curled tape edge at the top ③ of the tape guide.

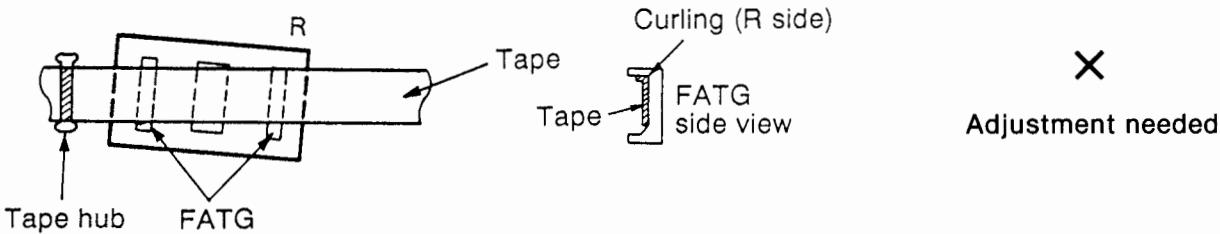
- If a curled tape edge occurs on FATG (L):

Turn ③ head height adjusting screw (R) clockwise until the curl is removed.

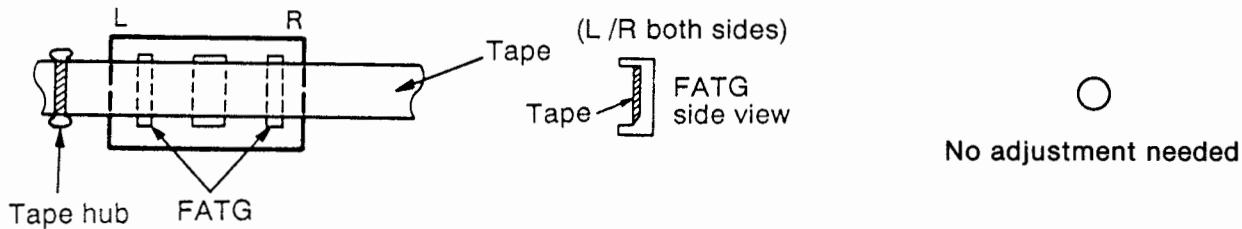


- If a curled tape edge occurs on FATG (R):

Turn ③ head height adjusting screw (R) counterclockwise until the curl is removed.



- When the relative positioning of the tape hub and tape head (tape guides) is correct:



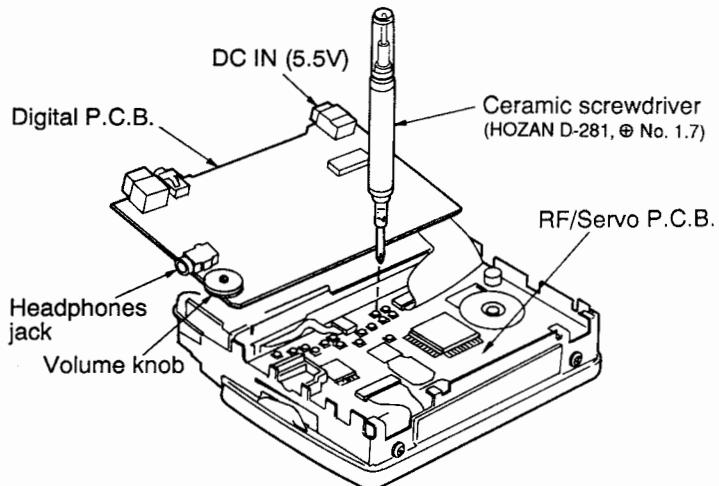
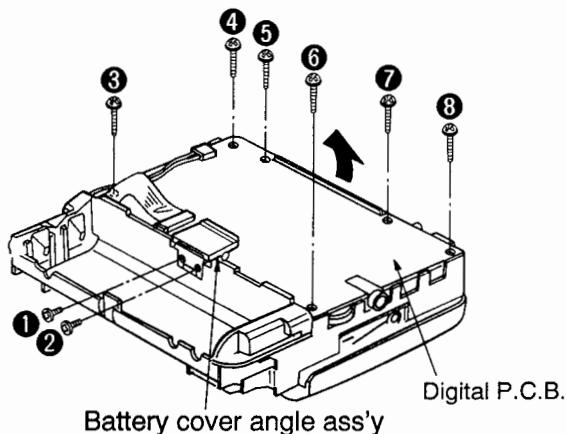
After completing the above adjustment, run the tape both forward and backward to check for a curled tape edge. If it still occurs, repeat step ① or ②.

Note: Since the head arm has a slight amount of play, the degree to which the tape edge curls will differ before and after the adjustment screwdriver is removed. (Allow a sufficient adjustment margin.)

(B) ELECTRICAL ADJUSTMENT

- Disassembly

1. Complete disassembly steps 1, "Removal of the battery case ass'y" (page 3) through 7, "Removal of the switch ornament" (page 4).



2. Remove the two screws (①, ②) and remove the battery cover angle ass'y.
3. Remove the 6 screws (③~⑧).
4. Swing open the Digital P.C.B. in the direction of the arrow.

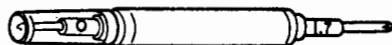
5. With the unit disassembled as shown above, plug the accessory AC Adaptor (or other 5.5V DC power supply) into the unit's DC IN jack.
6. Connect a measuring instrument to the LINE OUT jack with the accessory line cable (4822 321 62146).

Note: Use the inside censor for audio monitoring.

- List of Adjustment VR

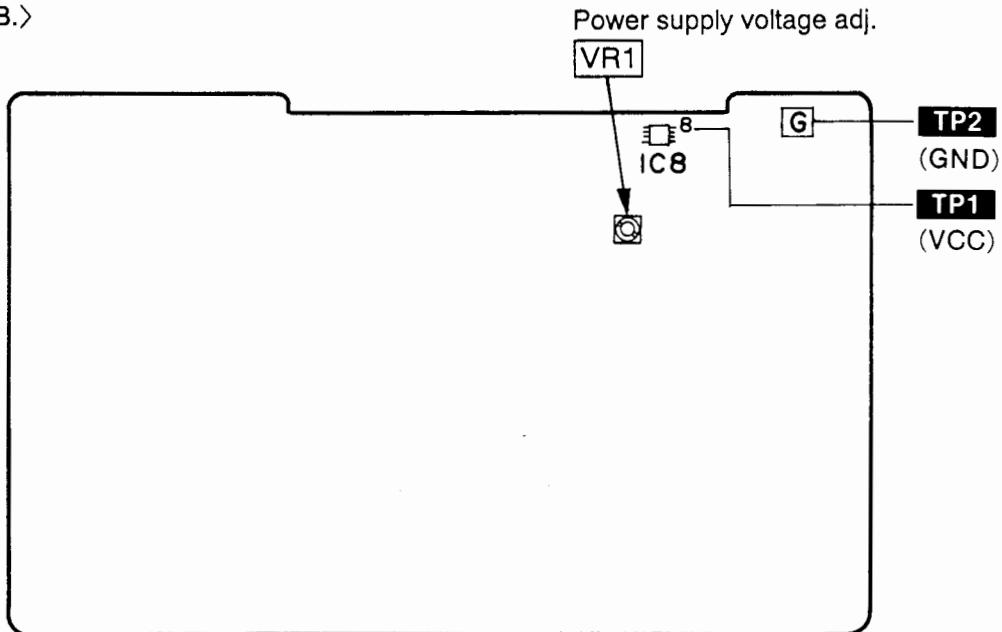
Adjustment Item	Adjustment VR				Test Tape	Measuring instrument		
	FWD		REV					
	LCH	RCH	LCH	RCH				
Power supply voltage adjustment	VR1				—	E.V.M		
Distortion adjustment	VR209	VR210	VR207	VR208	SBC420	Oscilloscope or Distortion factor meter		
N.F adjustment	VR205	VR206	VR203	VR204	SBC420	E.V.M		
High frequency response adjustment	VR213	VR214	VR211	VR212	SBC420	E.V.M		
Playback sensitivity adjustment	VR221	VR222	VR219	VR220	SBC420	E.V.M		
Tape speed adjustment	VR102		VR101		SBC420	Frequency counter		

Caution: Use a ceramic screwdriver (HOZAN D-281 Φ No. 1.7) for all trimmer adjustments.

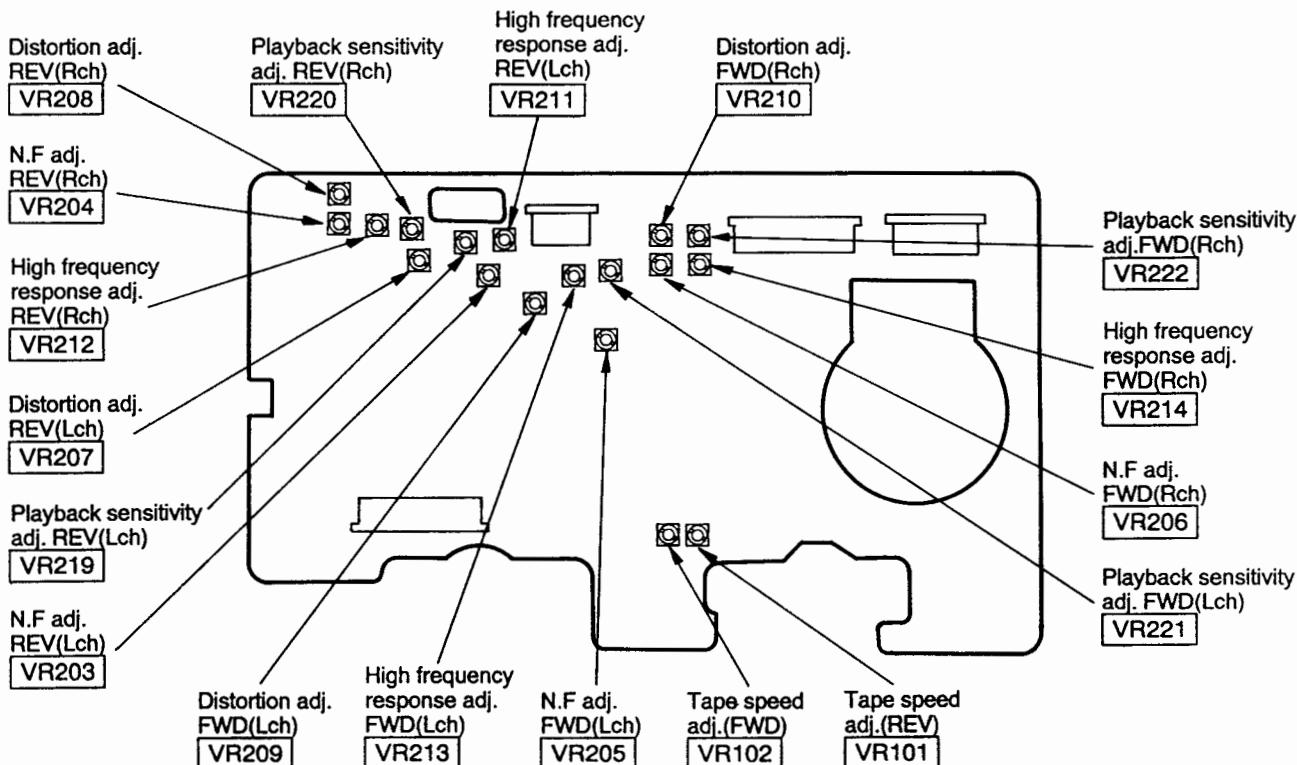


• Adjustment VR Layout

⟨Digital P.C.B.⟩



⟨RF/Servo P.C.B.⟩



• Adjustment Procedures

(1) Power Supply Voltage Adjustment

1. Connect the DC voltmeter's positive lead to **TP1** (VCC) and the negative lead to **TP2** (GND) on the Digital P.C.B.
2. Plug the AC Adaptor into the unit's DC IN jack, then power up the unit by pressing the PLAY button. (When using a rechargeable battery instead of the AC Adaptor, make sure that the battery is fully charged.)
3. Adjust **VR1** on the Digital P.C.B. until the voltmeter reads **$5.3 \pm 0.05V$** .

(2) Distortion Adjustment

Preparation		Setup
Test tape and tool required	Measuring instruments required	
1. ACC test tape (SBC420) 2. Ceramic screwdriver (HOZAN D-281, \oplus No. 1.7)	1. Oscilloscope 2. Distortion factor meter	<p>Lch : OUT (LINE OUT) Rch : OUT (LINE OUT)</p>

• Adjustment Procedure

Distortion Adjustment (I) (Preliminary Alignment)

- Play back the ACC Test Tape (SBC420: 315Hz, 0dB) forward.
- Adjust **VR205** (L-ch.) and **VR206** (R-ch.) until the LINE OUT levels on both channels are maximized.
- Reverse the direction of tape transport and perform the same adjustment with **VR203** and **VR204**.

FWD LCH: **VR205** REV LCH: **VR203**
 RCH: **VR206** RCH: **VR204**

Distortion Adjustment (II)

- Play back the ACC Test Tape (SBC420: 315Hz, 0dB) forward.
- Adjust **VR209** (L-ch.) and **VR210** (R-ch.) until distortion on both channels is minimized.

Adjustment Target: Less than 1.5% THD

- Reverse the direction of tape transport and perform the same adjustment with **VR207** and **VR208**.

FWD LCH: **VR209** REV LCH: **VR207**
 RCH: **VR210** RCH: **VR208**

(3) N.F. Adjustment

Note: This adjustment is not needed if the frequency response (described in the following item 4) falls within the specified limits after the head assembly is replaced.

Preparation		Setup
Test tape and tool required	Measuring instruments required	
1. ACC test tape (SBC420) 2. Ceramic screwdriver (HOZAN D-281, \oplus NO. 1.7)	1. Oscilloscope 2. Electron voltmeter (EVM) (AC range)	<p>Lch : OUT (LINE OUT) Rch : OUT (LINE OUT)</p>

• Adjustment Procedure

- Play back the ACC Test Tape (SBC420: 315Hz, 0dB) forward.
- Adjust **VR205** (L-ch.) and **VR206** (R-ch.) until the LINE OUT levels on both channels are maximized. Use these levels as standards.

Note: This adjustment is not needed if distortion adjustment (I) has already been completed.

- Adjust **VR205** (L-ch.) and **VR206** (R-ch.) until the LINE OUT levels on both channels are 10dB below the standard levels mentioned in step 2 above.

Adjustment Target: $-10 \pm 0.5 \text{ dB}$

- Reverse the direction of tape transport and perform the same adjustment with **VR203** (L-ch.) and **VR204** (R-ch.).

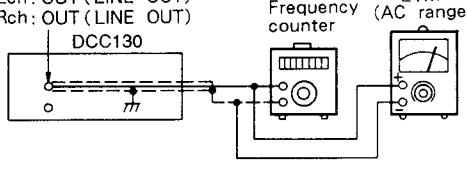
FWD LCH: **VR205** REV LCH: **VR203**
 RCH: **VR206** RCH: **VR204**

(4) High Frequency Response Check and Adjustment

- Cautions:**
- Be sure to check the frequency response after the head assembly is replaced.
 - If the frequency response does not fall within the limits, perform the following adjustment.
 - If it is still outside the limits after realignment, do the N.F. adjustment described in item (3).

Frequency Response Check

1. Play back 250Hz, -20dB and 12.5KHz, -20dB of the ACC Test Tape (SBC420) forward, and verify that the level difference between the two bands is within $0 \pm 1\text{dB}$.
2. Reverse the direction of tape transport and perform the same check.

Preparation		Setup
Test tape and tool required	Measuring instruments required	
1. ACC test tape (SBC420) 2. Ceramic screwdriver (HOZAN D-281, \oplus No. 1.7)	1. Frequency counter 2. Electron voltmeter (EVM) (AC range)	Lch : OUT (LINE OUT) Rch : OUT (LINE OUT) DCC130 

• Adjustment Procedure

1. While playing back 250Hz, -20dB of ACC Test Tape (SBC420) forward, measure the LINE OUT levels on both channels. Use these levels as standards.
2. Play back 12.5kHz, -20dB of the same test tape forward, and adjust **VR213** (L-ch.) and **VR214** (R-ch.) until the LINE OUT levels are identical to the standard levels obtained above.

Adjustment Target: $0 \pm 0.5\text{dB}$

3. Reverse the direction of tape transport and perform the same adjustment with **VR211** (L-ch. 12.5kHz) and **VR212** (R-ch. 12.5kHz).

FWD LCH: **VR213** (12.5kHz) REV LCH: **VR211** (12.5kHz)
 RCH: **VR214** (12.5kHz) RCH: **VR212** (12.5kHz)

(5) Playback Sensitivity Adjustment

Preparation		Setup
Test tape and tool required	Measuring instruments required	
1. ACC test tape (SBC420) 2. Ceramic screwdriver (HOZAN D-281, \oplus No. 1.7)	1. Oscilloscope 2. Electron voltmeter (EVM) (AC range)	Lch : OUT (LINE OUT) Rch : OUT (LINE OUT) (AC range) DCC130 EVM Oscilloscope $\leq 50\text{k}\Omega$

• Adjustment Procedure

- Load the line outputs with $50\text{k}\Omega$ resistors.
- Play back the ACC Test Tape (SBC420: 315Hz, 0dB) forward.
- Adjust **VR221** (L-ch.) and **VR222** (R-ch.) until the line output levels on both channels fall within the following limits:

Adjustment Target: $360\text{mV} \pm 0.5 \text{ dB}$ Load line outputs with $50\text{k}\Omega$ resistors.

- Reverse the direction of tape transport and perform the same adjustment with **VR219** (L-ch.) and **VR220** (R-ch.).

FWD LCH: VR221 REV LCH: VR219
 RCH: VR222 RCH: VR220

(6) Tape Speed Adjustment

Preparation		Setup
Test tape and tool required	Measuring instruments required	
1. ACC test tape (SBC420) 2. Ceramic screwdriver (HOZAN D-281, \oplus No. 1.7)	1. Frequency counter	DCC130 OUT (LINE OUT) Frequency counter Connect either L-ch or R-ch.

- Press the STOP button twice to turn the unit OFF.
- Short pins $\textcircled{74}$ and $\textcircled{75}$ of IC102. (Fig. 1)
- Play back the ACC Test Tape (SBC420: 3150Hz, -10dB) forward.
- Adjust **VR102** until the frequency counter reads 3150Hz

Adjustment Target: $3150 \pm 15 \text{ Hz}$

- Reverse the direction of tape transport and perform the same adjustment with **VR101**.

FWD: VR102

REV: VR101

Note: After completing the adjustment, be sure to remove the shorting jumper from pins $\textcircled{74}$ and $\textcircled{75}$ of IC102.

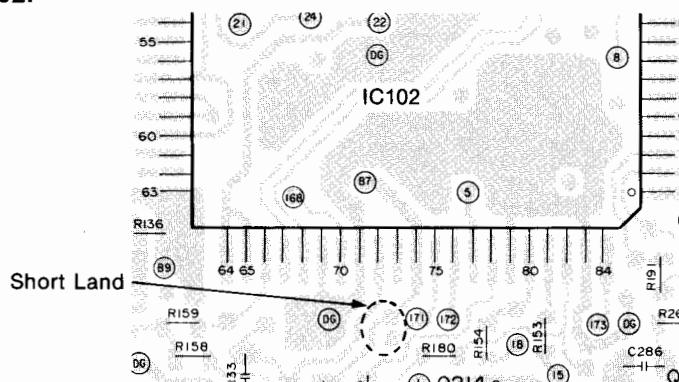


Fig. 1

■ TECHNICAL NOTE

Wake-Up (Power-On) Sequence

The unit has a Wake-Up feature which controls power on/off operations with CPU (system control) commands (IC500). To turn the unit power ON, the system microprocessor must be activated first. The unit will remain OFF unless the system microprocessor is active.

The CPU (system control) becomes active only if:

- (1) A. VDD is supplied to pin 50 and VDD to pins 7 and 49.
- (2) Pin 16 (WAKE UP) goes Low (negative edge).

Setting pin 16 to Low

Pin 16 of the CPU (system control) goes Low if any of the following three conditions is fulfilled:

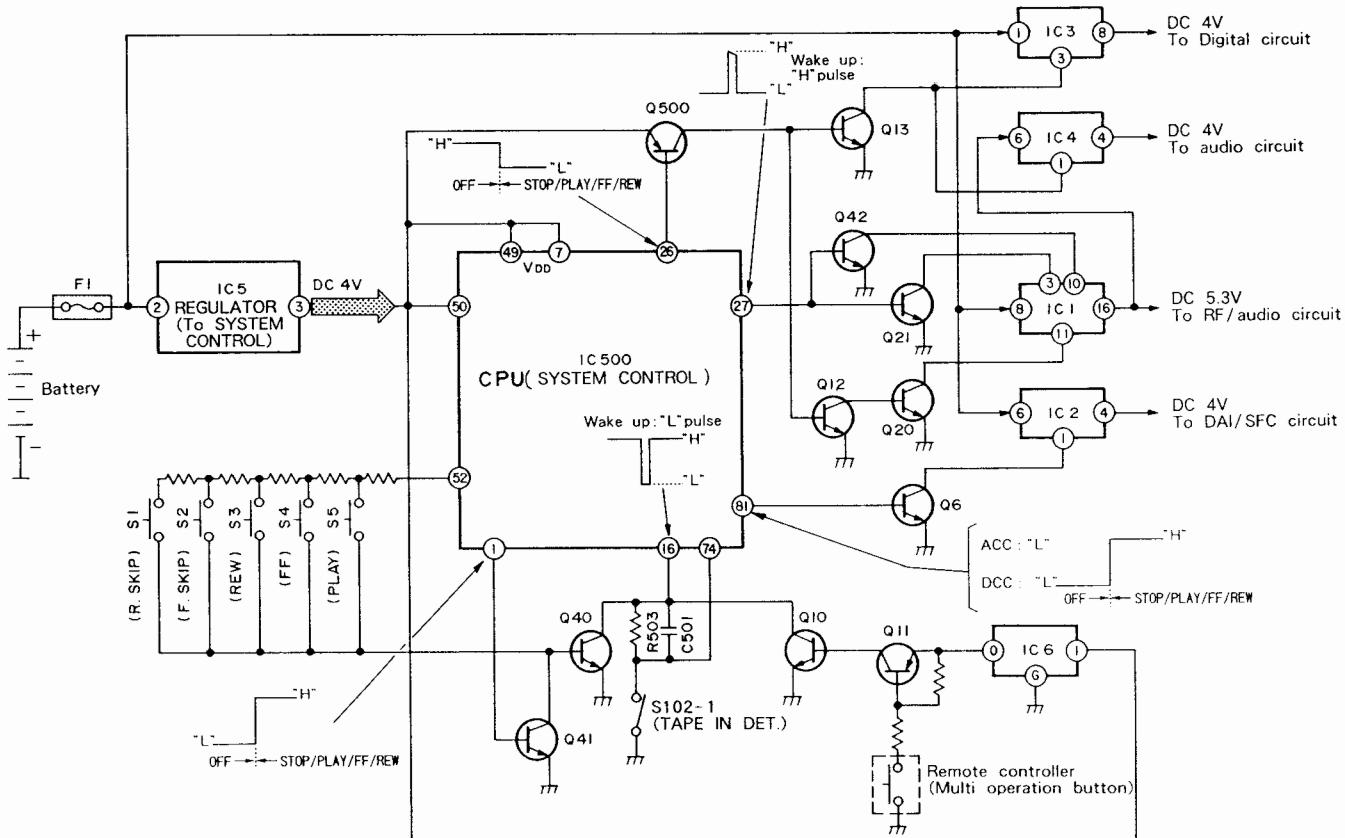
- a) Any one of the PLAY, FF, REW, F. SKIP, or R. SKIP buttons is pressed.
- b) "TAPE IN" is detected (S102-1).
- c) Button "1" (multi-function button) on the wired remote control is pressed.

Case a): Q40 is turned ON, which switches processor pin 16 (IC500) from High to Low.

Case b): S102-1 is turned ON, which brings processor pin 16 Low via C501.

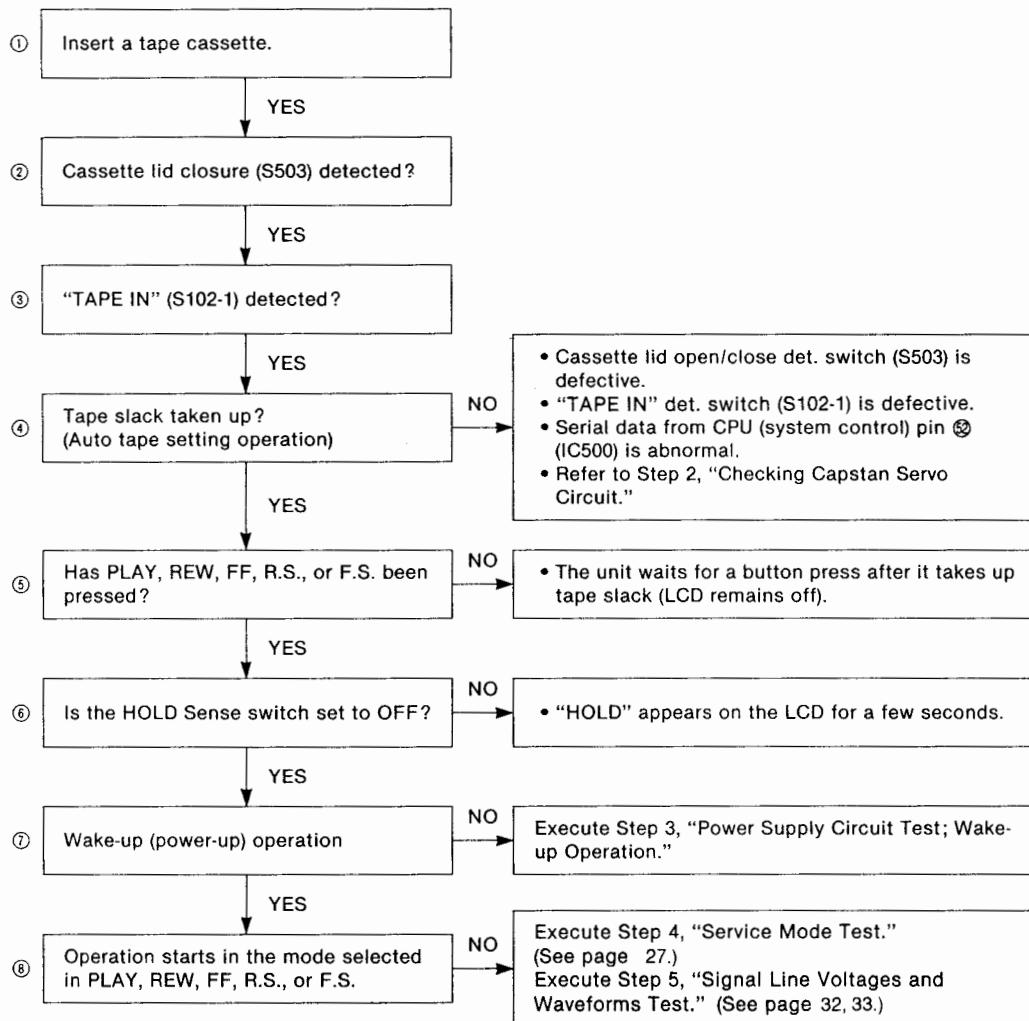
Case c): Q10 and Q11 are turned ON, which switches processor pin 16 from High to Low.

Once the unit wakes up, Q41 is turned ON, which pulls Q40's base to ground to allow the unit to read subsequent button entries correctly. CPU (system control) pins 26, 27, and 81 then control Q6, Q12, Q13, Q21, Q42, and Q500 to activate the outputs of voltage regulators IC1 through IC4 to supply DC power to the other circuits.



■ TROUBLESHOOTING

Step 1. Checking Operations from Tape Insertion through Operation Start



Step 2. Checking Capstan Servo Circuit

• DCC Playback

1. Connect an oscilloscope to IC503 pin ⑩ on the digital P.C.B.
2. Load a **DCC music tape** into the unit under test and put the unit in **PLAY mode**. When the capstan servo is locked, a **square wave with a duty ratio fluctuation of less than 0.5μs** will be observed on the scope (see Fig. 1). Unlock the servo and verify that the muting function is active.

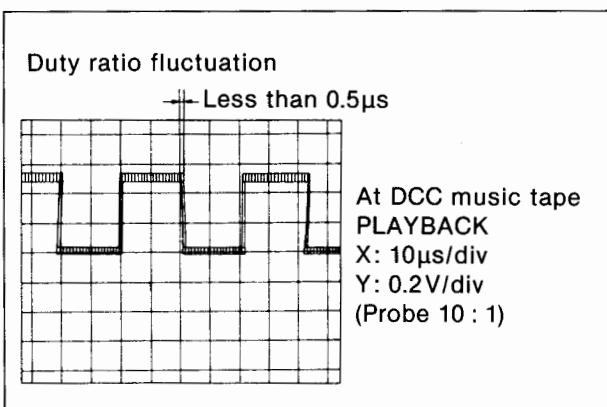


Fig. 1

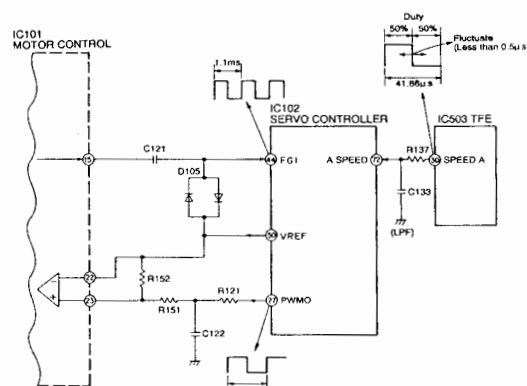
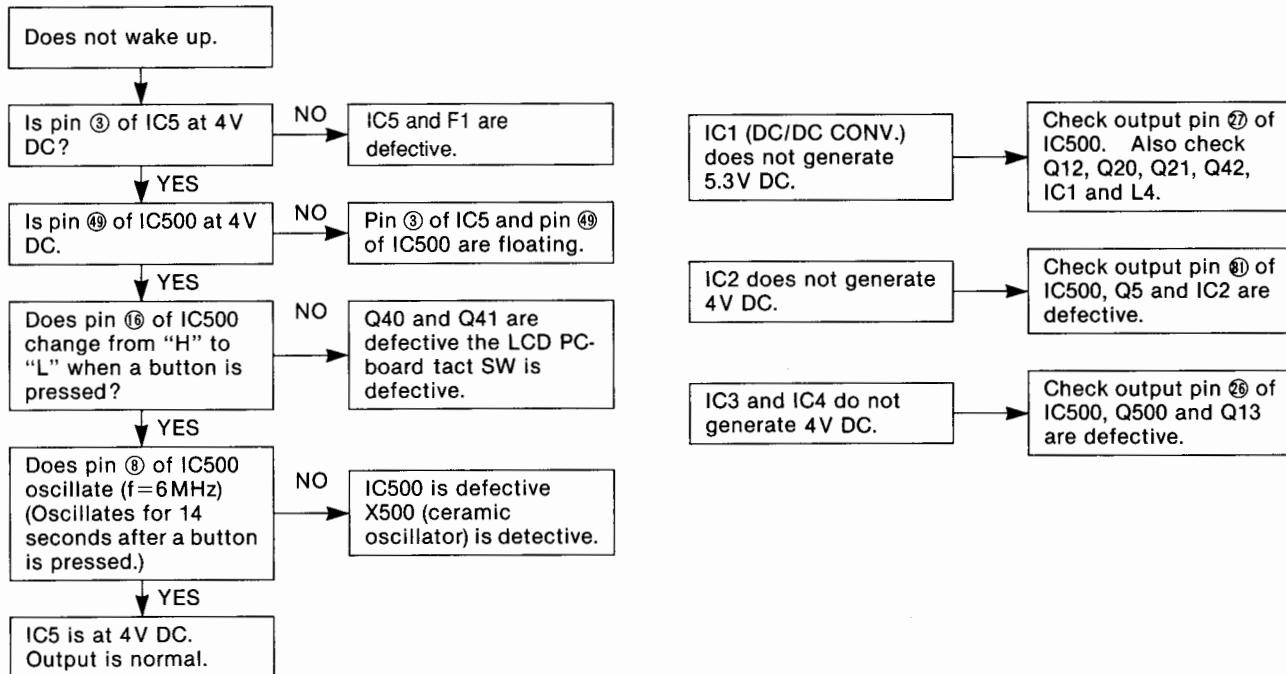
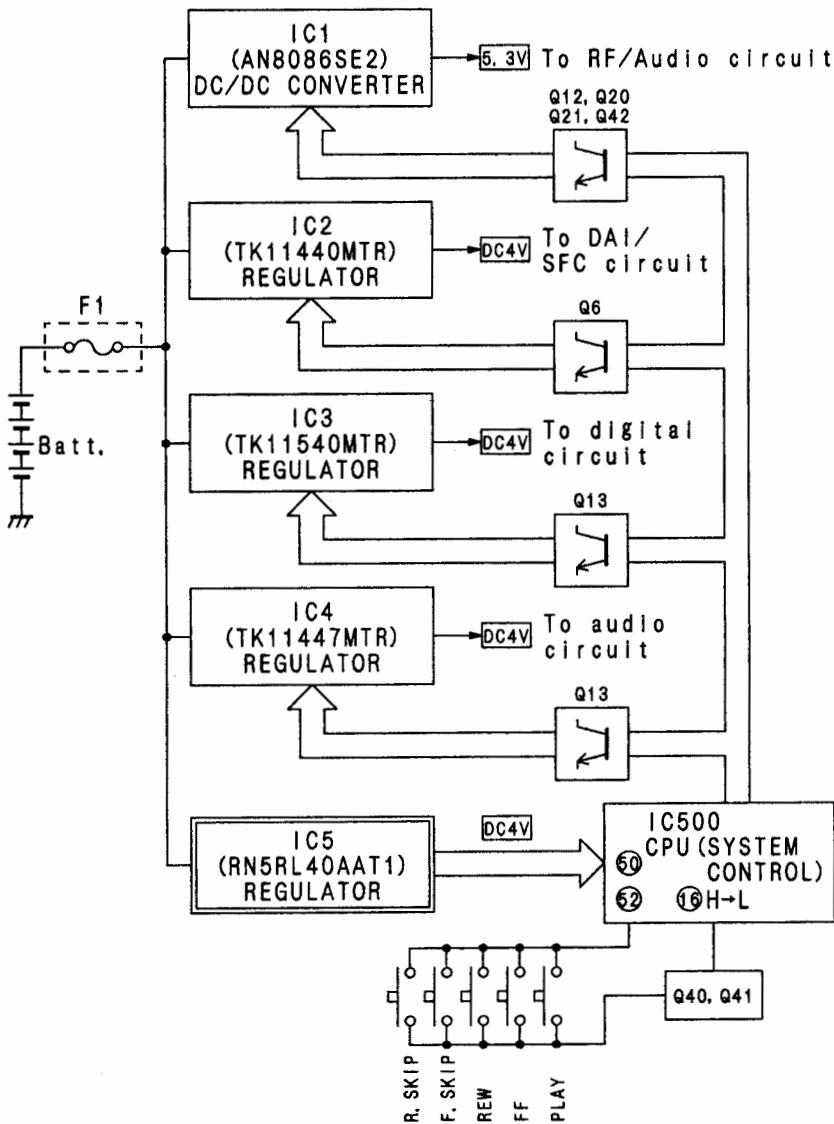
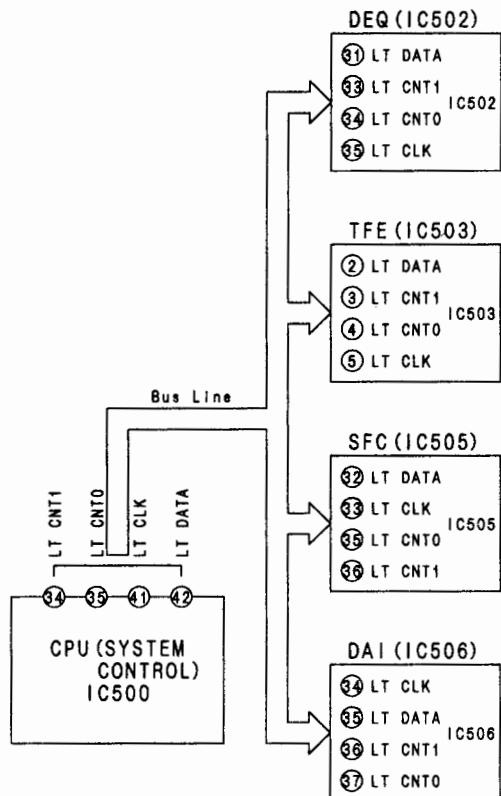


Fig. 2

Step 3. Power Supply Circuit Test; Wake-Up Operation (See the Technical Note on page 34.)



Step 4. CPU ↔ IC's Communication (Bus Line) test [Self Diagnostic (Service Mode)]



In Service mode, the CPU (system control) checks for circuit integrity and displays the test results on the LCD. Use this mode for quick fault isolation.

How To Enter Service Mode

- With the unit in STOP mode, press the PLAY button twice while holding down the COUNTER RESET button. "SERVICE MODE" appears on the LCD.
- The following test modes are sequentially selected each time the COUNTER RESET button is pressed:

• Digital Error Rate Display

0 0 0 0 0 0 0 0	Indicates main data error.
0 0 0 0 0 0 0 1	Indicates AUX data error.
0 0 0 0 0 0 0 0	Indicates SYS INFO data
• Meaning of LCD data error codes	
0 0 0 0 0 0 0 0	EX: 0 0 0 0 1 0 0 0 0 OK
0 1 0 0 0 0 0 0 0	(AUX data error)
1 0 0 0 0 0 0 0 0	(SYS INFO data error)
0 0 0 1 1 0 1 0 0 0	EX: 1 1 1 1 1 1 1 1 1 NG
9 9 9 9 9 9 9 9 9	
A A A A A A A A A A	
F F F F F F F F F F	Main data error

If the data error code is "NG", check test points step 5. ⑧-1, ⑧-2 and the waveform at ⑨.

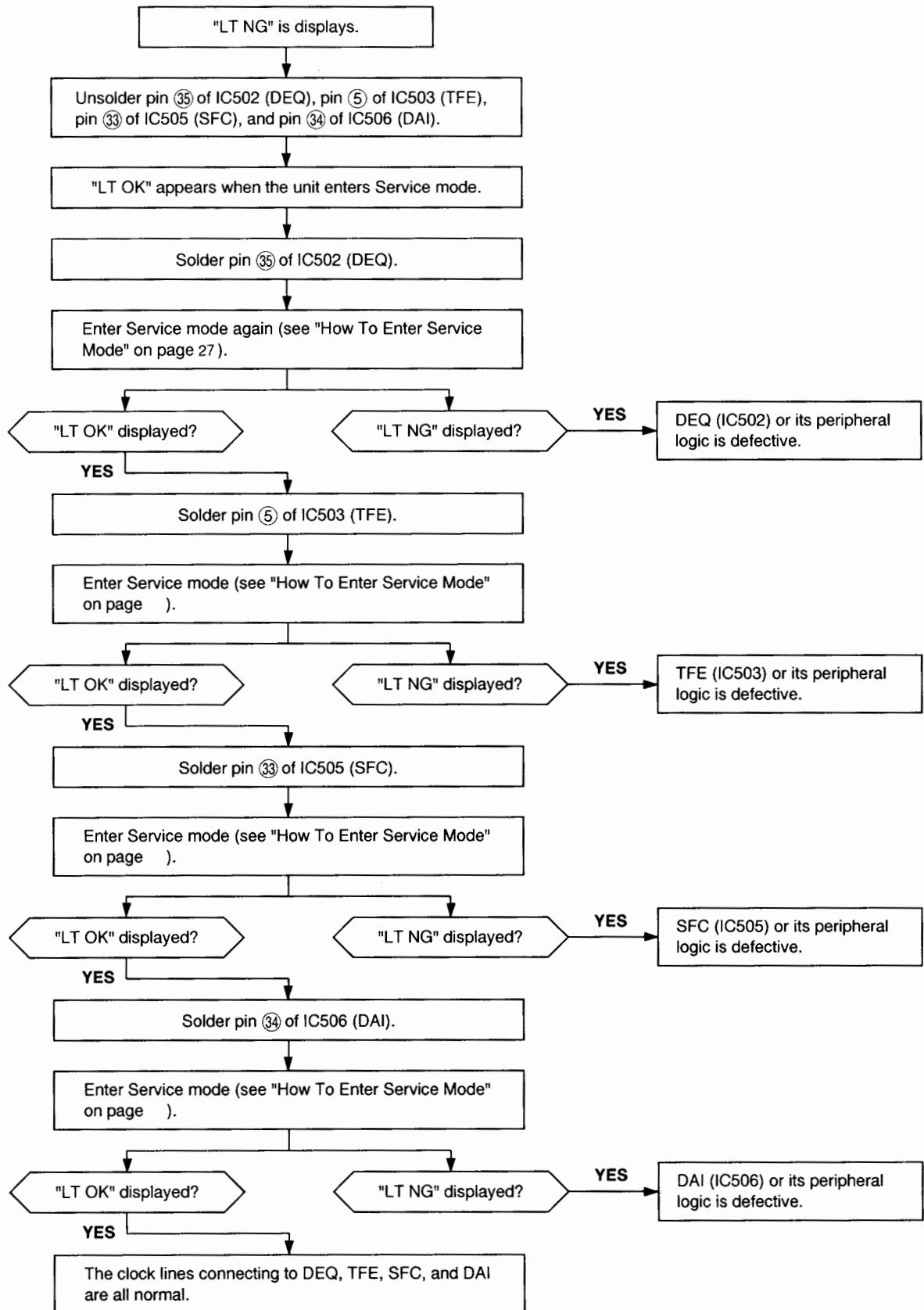
	COUNTER RESET button operation count	Test item	LCD message	Remarks
LSI Communication test	1	LSI communication test	LT OK or LT NG	See communication Test on pages 28 ~ 29.
	2	DEQ communication test	DEQ OK or DEQ NG	
	3	TFE communication test	TFE OK or TFE NG	
	4	SFC communication test	SFC OK or SFC NG	
Data error test	5	SYS INFO data error	ERR SYS 000	
	6	AUX data error	ERR AUX 000	
	7	MAIN data error	ERR MAIN 0CH 000	
	8 (Overall error test for items 5, 6 and 7 above.)	Total error rate	Displays the number of occurrences in which any one of SYSFLC, AUXFL0, and STRGL is set to "1" in four seconds, 100 segments.	See Digital Error Rate Display.

• LSI, DEQ, TFE and SFC Communication Test

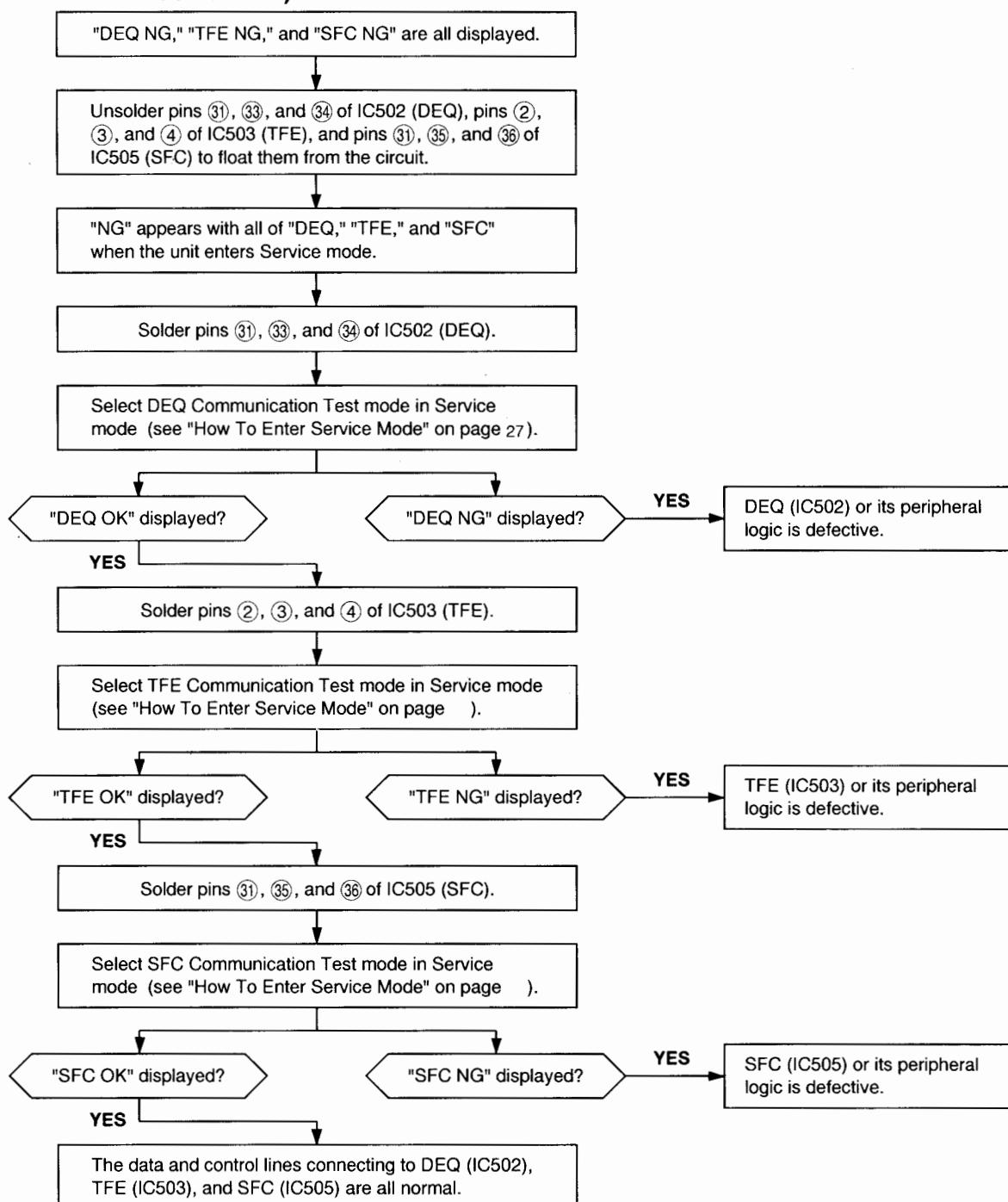
The CPU (system control) is connected to its peripheral ICs (DEQ, TFE, SFC, DAI) via a parallel bus consisting of clock, data, and control lines. If an "NG" message is displayed on the LCD as a result of self diagnostics in Service mode, it is necessary to

determine which IC out of DEQ, TFE, SFC, and DAI (including their peripheral components) is defective. The flowcharts on the following pages provide a quick troubleshooting guide to locate the defective IC(s).

(1) Locating the defective division of LSI communication test (Clock Line: "LT NG")



(2) Locating the defective division of DEQ, TFE and SFC communication (Data and Control Line: "DEQ/TFE/SFC NG")



Notes:

- If an IC or its peripheral component is found to be defective, leave its pin(s) unsoldered or replace it with a functioning component.
- If a defective IC or peripheral is left soldered, an "NG" message will reappear when another IC is tested.
- ICs or peripherals found to be normal may be resoldered.
- More than one IC or peripheral may be defective at a time. Carry out all the troubleshooting steps even if a defective IC or component is discovered before you complete all the steps.
- The data and control lines connecting to the DAI are not testable.
- The unit turns off if no button is operated for 4 minutes after entering Service mode.
- The unit will not be stopped automatically with the Service mode.
- Use a normal (new) tape for troubleshooting.
- To exit Service mode, press the STOP button.

FACTORY MODE

The following shows the entire contents of the LCD, the state of the switching mechanism, etc. Refer to these when servicing the cassette recorder.

Factory Mode ON/OFF

ON: While holding down the COUNTER RESET button, press the PLAY button once, Factory mode wakes up in the same way as the regular STOP mode. Then, while holding down the COUNTER RESET button, press the FF button twice.

OFF: Press the STOP/POWER OFF button.

3. No
"L

Notes:

- (1) The power turns OFF unless a button is pressed within 4 minutes while in the Factory mode (the same as for normal operation).
- (2) When Factory mode is OFF, operation is the same as that of Power-OFF mode.
- (3) Both the ACC and DCC switch contacts must be closed to enter this mode. (Closing only the DCC switch contacts accesses the Service mode.)

Items: In Factory mode, use the COUNTER RESET button to sequentially select modes.

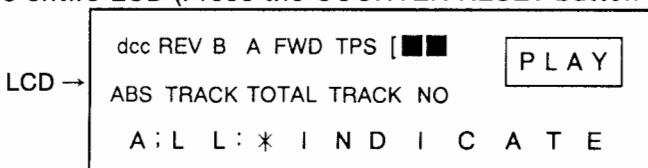
When the factory mode is entered, "FACTORY MODE" is displayed for 1 second before entering mode 1.

In Factory mode, set the 4 minute Power-OFF timer to 5 second.



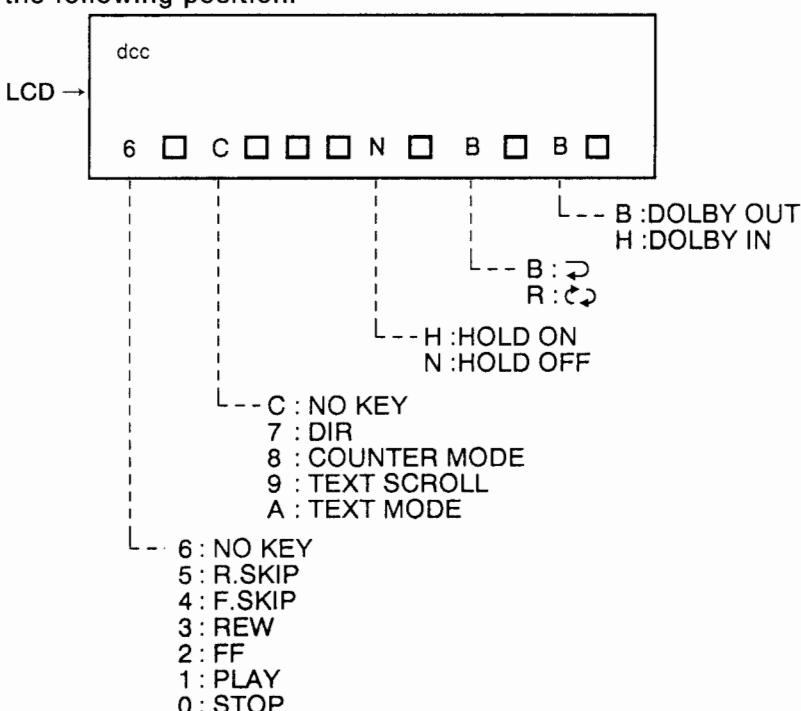
4. Ag
"Agr

1. Activate the entire LCD (Press the COUNTER RESET button to enter mode 2.)



2. Check each switch input (Press the COUNTER RESET button to enter mode 3.)

Deactivate the entire LCD and read the status of each switch on the display. Display the reading results in the following position.

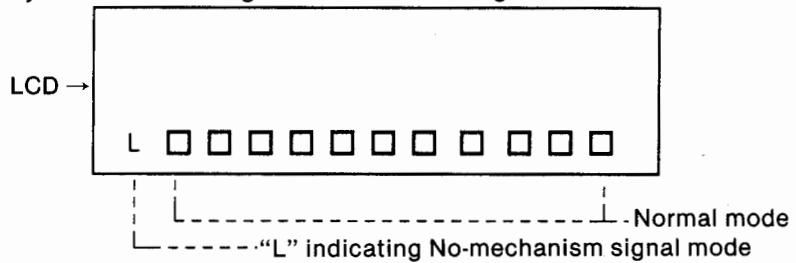


After checking all the above switch positions, activate the entire LCD again.

Notes:

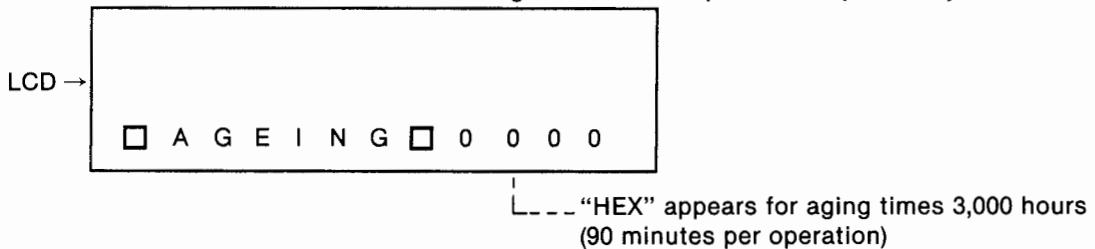
- (1) Regarding the DCC/ACC switches and REW mode switch, the entire LCD is activated on the condition that both modes are checked.
- (2) Check the HOLD switch with the Factory mode OFF. (Special care must be taken when this check is made.)
- (3) In modes other than the Switch check mode, normal operation is possible, but the Factory mode is given priority on the display.

mechanism signal mode (Press the COUNTER RESET button to enter mode 4.)
is displayed after entering No-mechanism signal mode.



This mode is used to check boards with a Mechanism mode SW or a reel pulse mode. It senses the Mechanism mode and then activates the audio control signal. (The internal timer is active for mode switches.)

ng mode (Press the COUNTER RESET button to enter mode 4.)
; 0" appears on the LCD and then the following modes are repeated sequentially.



- i. FF (Up to the end of side A)
- ii. REW (Rewinding from the end of side A to the beginning of side A)

i. +10 skip operations

Repeat the + SKIP operation 10 times per song from the beginning of side A.

Each time a piece of music is skipped, it is entered in the replay mode, and then skipped to the next piece for a play operation again. This cycle is repeated 10 times.

i. -10 skip operations

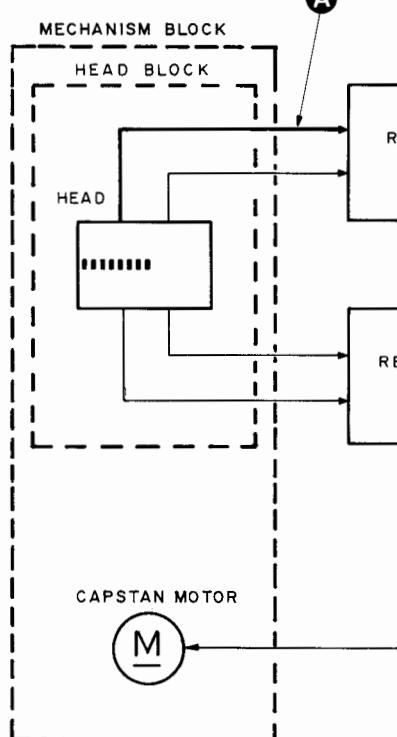
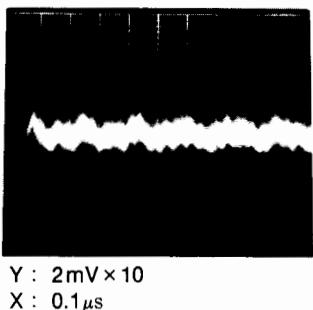
When the repeat + skip operations on side A are completed, - skip operations can be performed.

Repeat the - skip operation 10 times per song to return to the first piece.

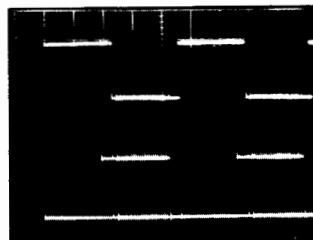
- i. Side A replay (Played up to the end of side A and reversed.)
- ii. Side B replay (Played up to the end of side B and reversed.)

Step 5. Signal line voltages

A IC201, 202 Pin ⑫~⑩
EYE MONITOR



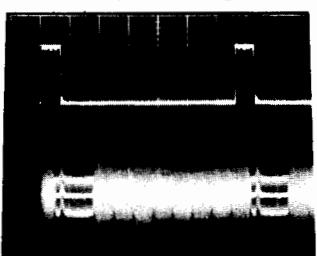
B-2 IC505 Pin ⑪ SWS (CH1)
IC505 Pin ⑫ SDA (CH2)



Final line voltages and waveforms test, and motor driving voltage test

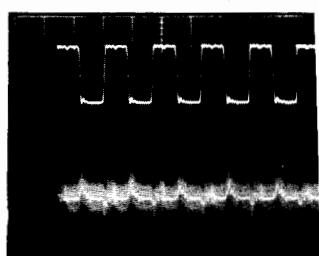
in ⑫~⑬
R

B-1 IC201、202 Pin ④ RDSYNC (CH1)
IC201、202 Pin ① RDMUX (CH2)



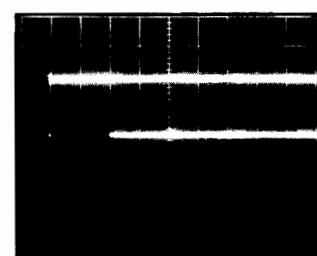
CH1 Y : 0.2V × 10
X : 0.5μs
CH2 Y : 50mV × 10
X : 0.5μs

B-2 IC201、202 Pin ⑤ RDCLK (CH1)
IC201、202 Pin ① RDMUX (CH2)



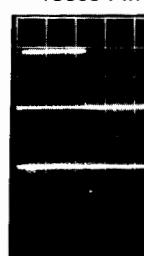
CH1 Y : 0.2V × 10
X : 0.2μs
CH2 Y : 50mV × 10
X : 0.2μs

C IC502 Pin ⑩~⑯ (TCH1~7)

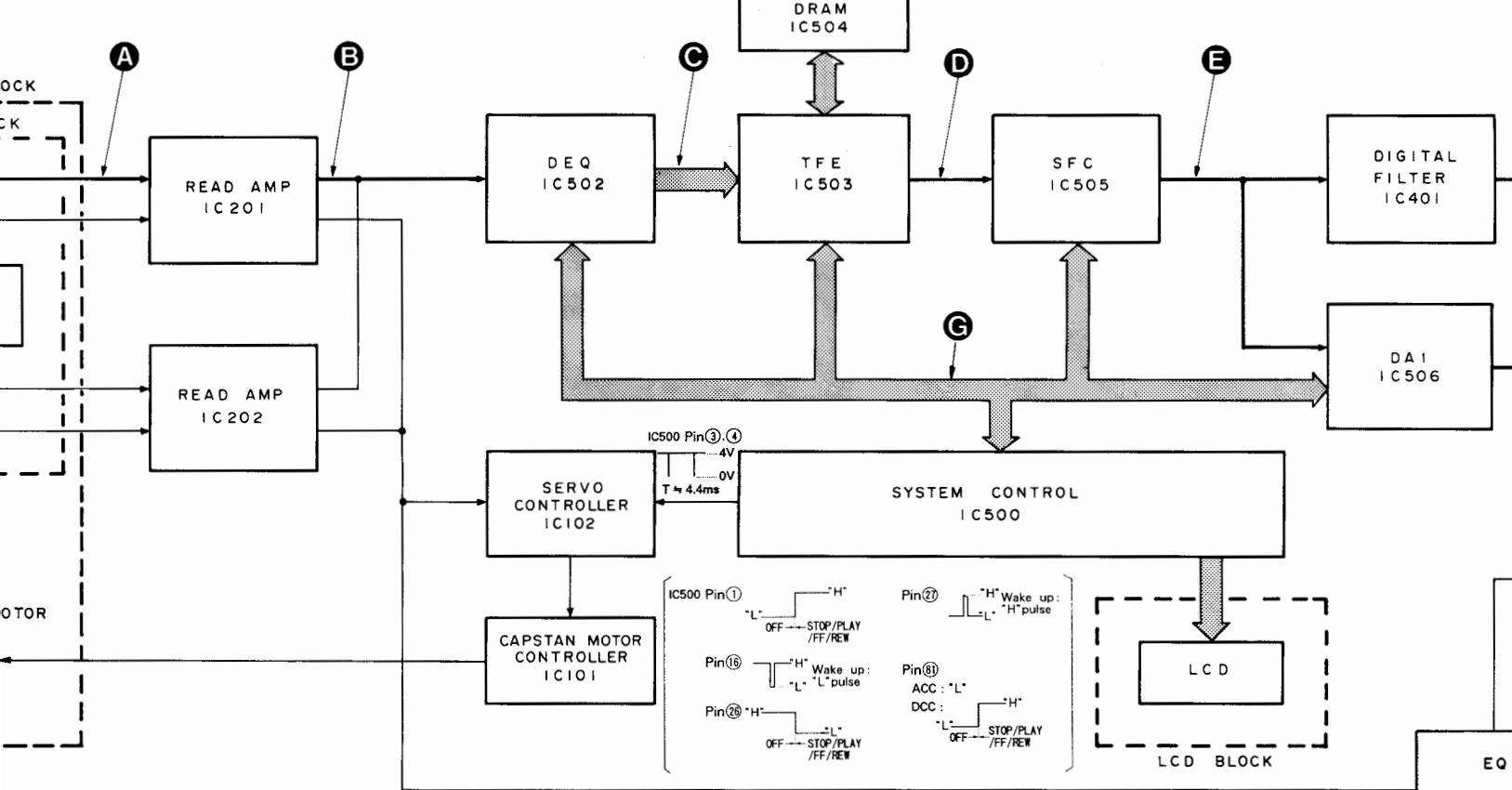


Y : 0.2V × 10
X : 5μs

D IC503 Pin ⑩
IC503 Pin ⑯

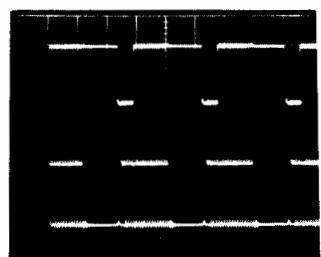


CH1 Y : 0.2V
X : 10μs
CH2 Y : 0.2V
X : 10μs



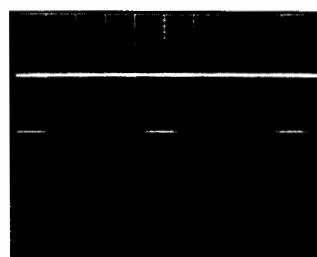
SWS (CH1)
SDA (CH2)

F IC401 Pin ⑩ WCKO (CH1)
IC401 Pin ⑪ DOR (CH2)



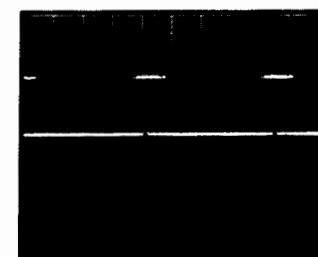
CH1 Y : 0.2V × 10
X : 1μs
CH2 Y : 0.2V × 10
X : 1μs

G-1 IC502 Pin ⑩/IC503 Pin ⑤/
IC505 Pin ⑩/IC506 Pin ⑩ (LTCLK)



Y : 0.2V × 10
X : 10ms

G-2 IC502 Pin ⑪/IC503 Pin ②/
IC505 Pin ⑪ (LTDATA)



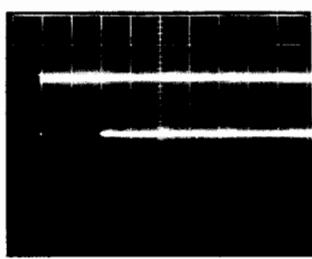
Y : 0.2V × 10
X : 10ms

G-3 IC502 Pin ⑩/
IC505 Pin ⑩



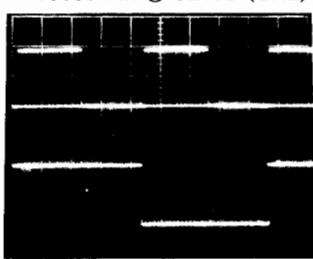
Y : 0.2V × 10
X : 10ms

RDCLK (CH1) C IC502 Pin ⑪~⑯ (TCH1~7)
RDMUX (CH2)



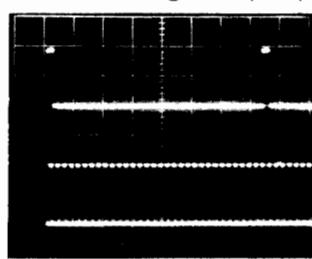
Y : 0.2V × 10
X : 5μs

D IC503 Pin ⑫ SBDA (CH1)
IC503 Pin ⑬ SBWS (CH2)

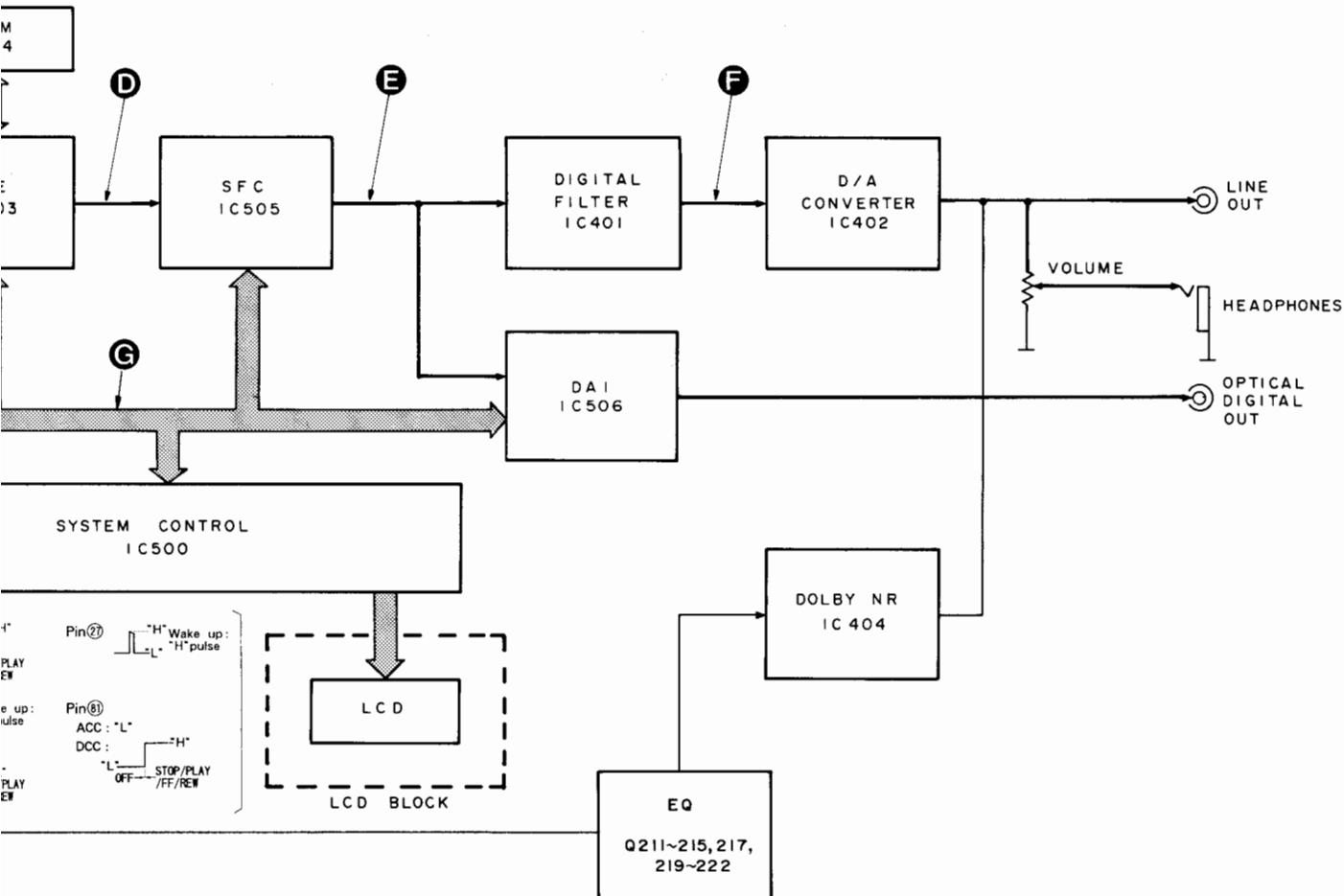


CH1 Y : 0.2V × 10
X : 10μs
CH2 Y : 0.2V × 10
X : 10μs

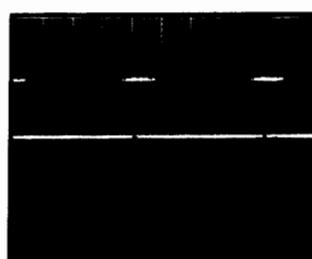
E-1 IC505 Pin ⑯ FSYNC (CH1)
IC505 Pin ⑰ SDA (CH2)



CH1 Y : 0.2V × 10
X : 0.1ms
CH2 Y : 0.2V × 10
X : 0.1ms



Pin ⑤/
Pin ⑯ (LTCLK)



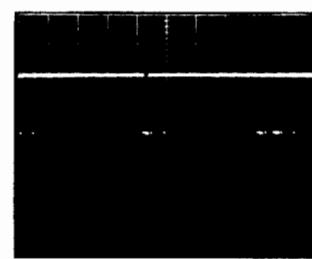
Y : 0.2V × 10
X : 10ms

G-2 IC502 Pin ⑩/IC503 Pin ②/
IC505 Pin ⑭ (LTDATA)



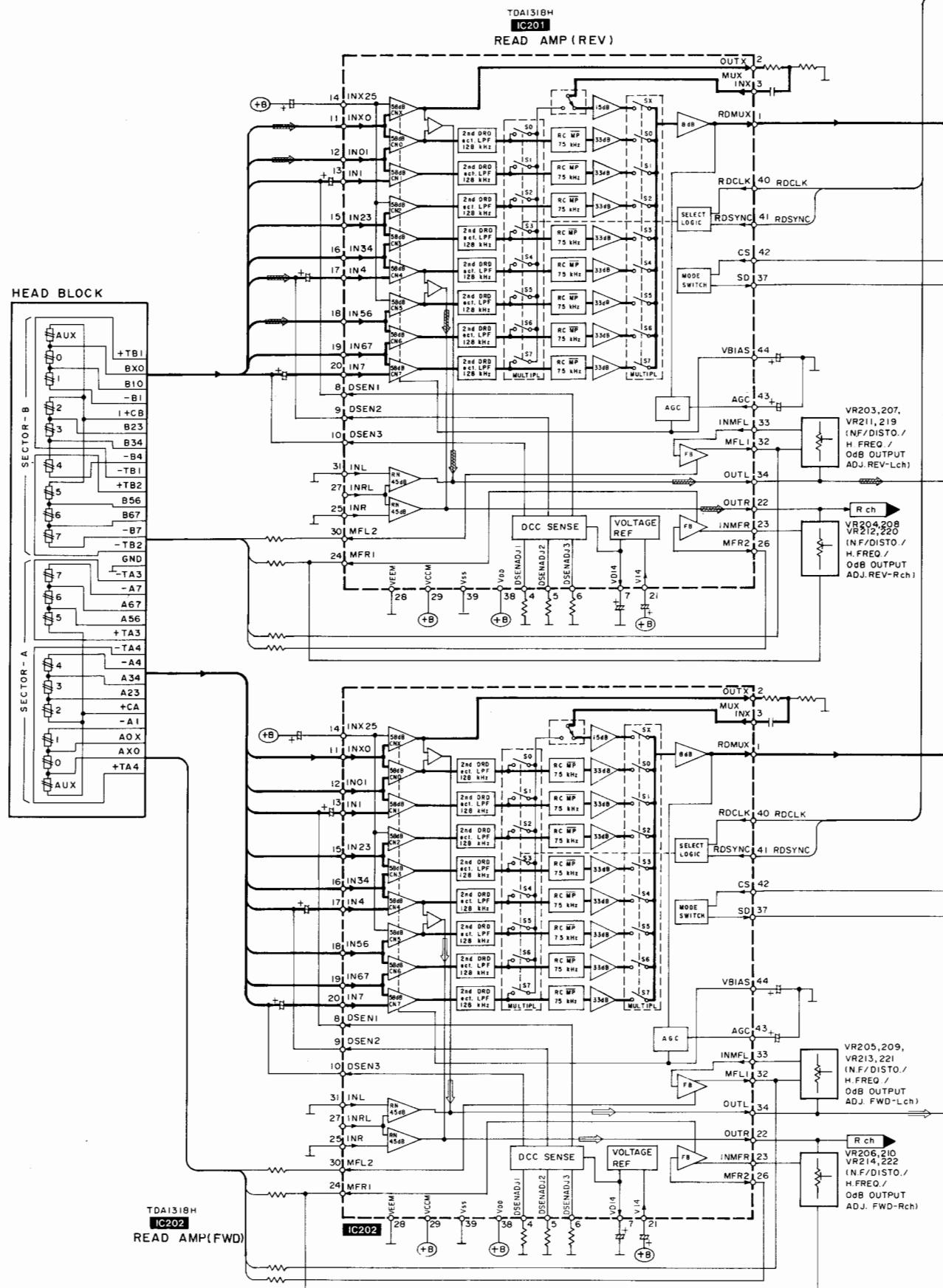
Y : 0.2V × 10
X : 10ms

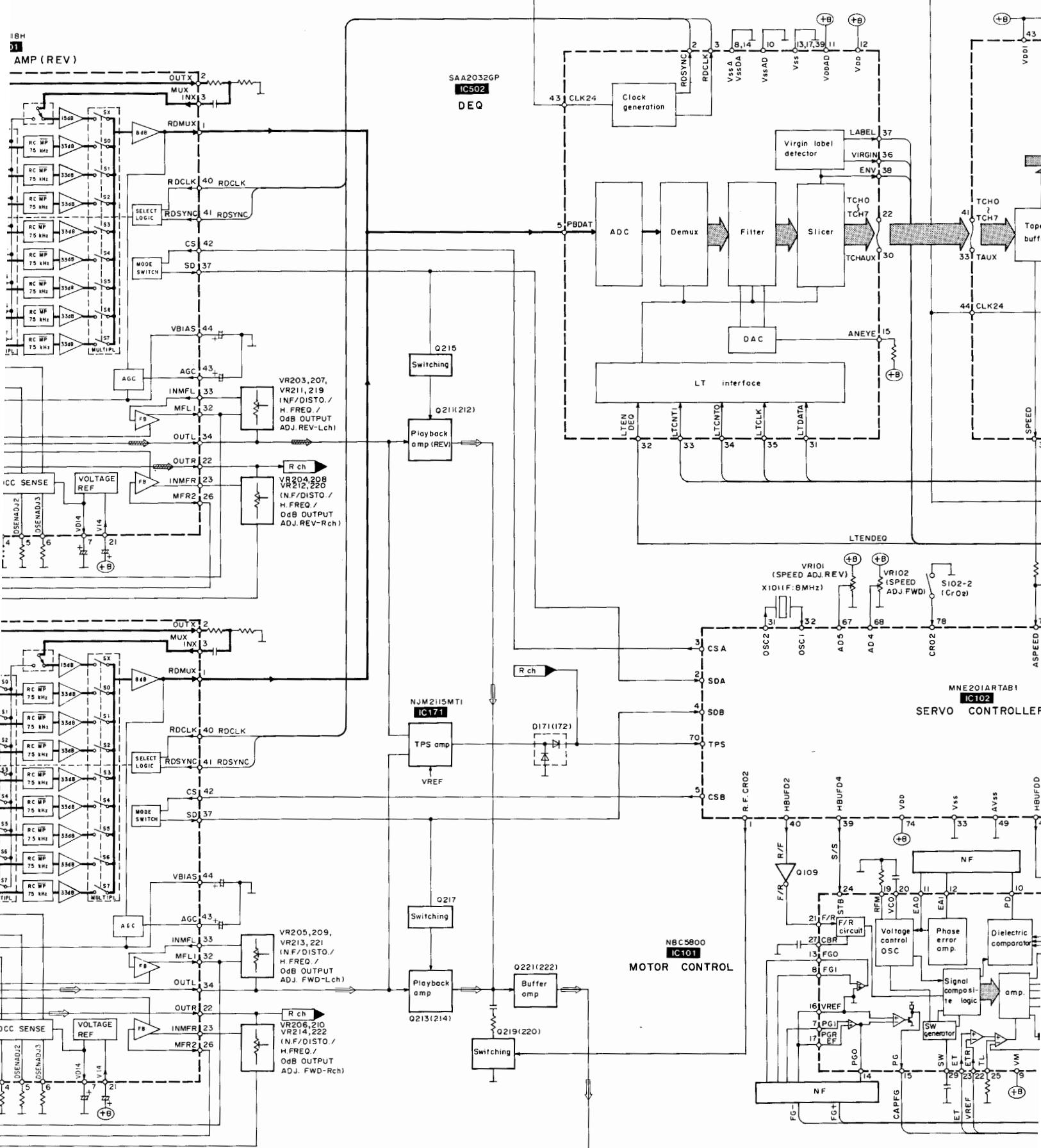
G-3 IC502 Pin ⑪/IC503 Pin ③/
IC505 Pin ⑮ (LTCNT1)

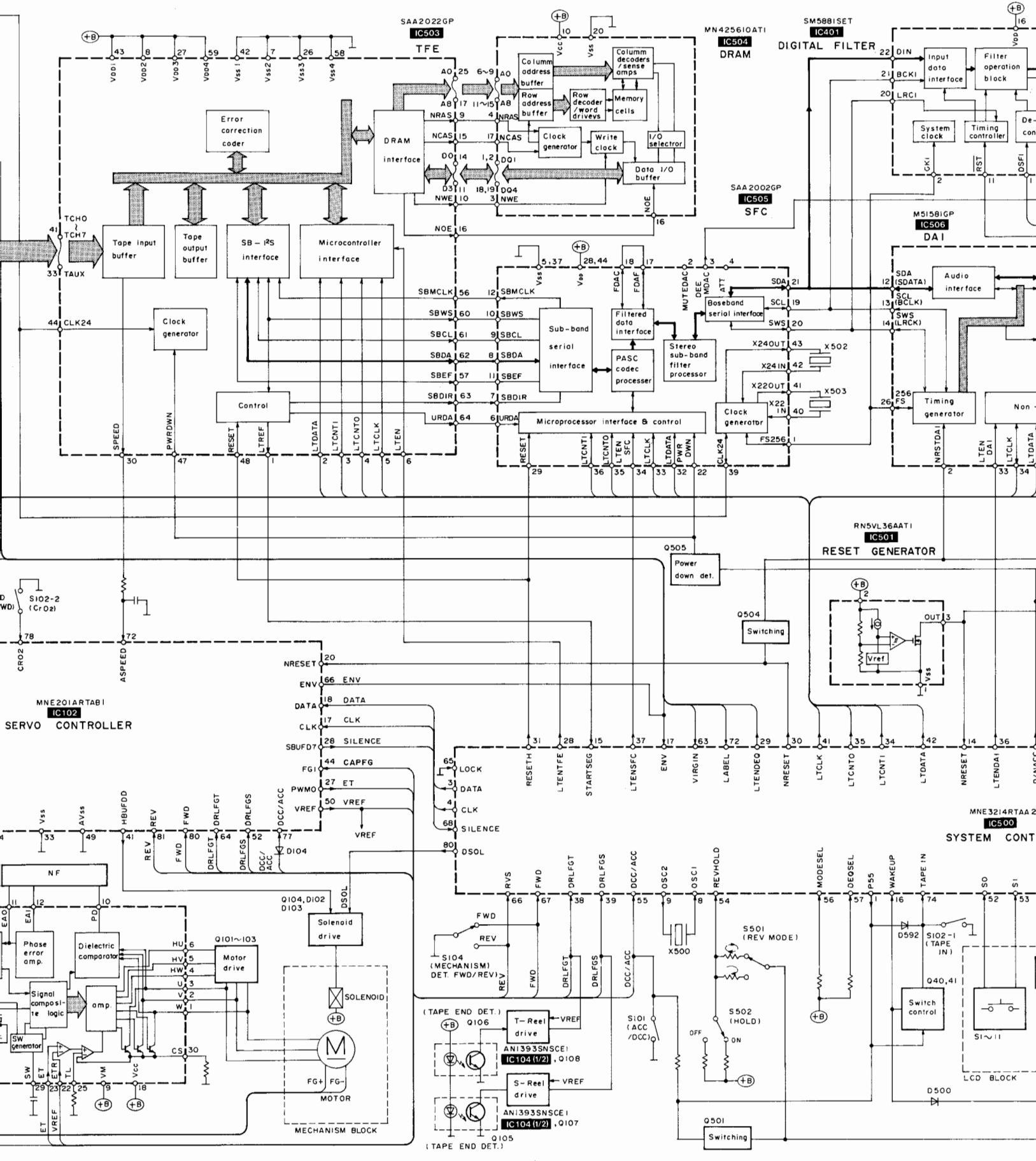


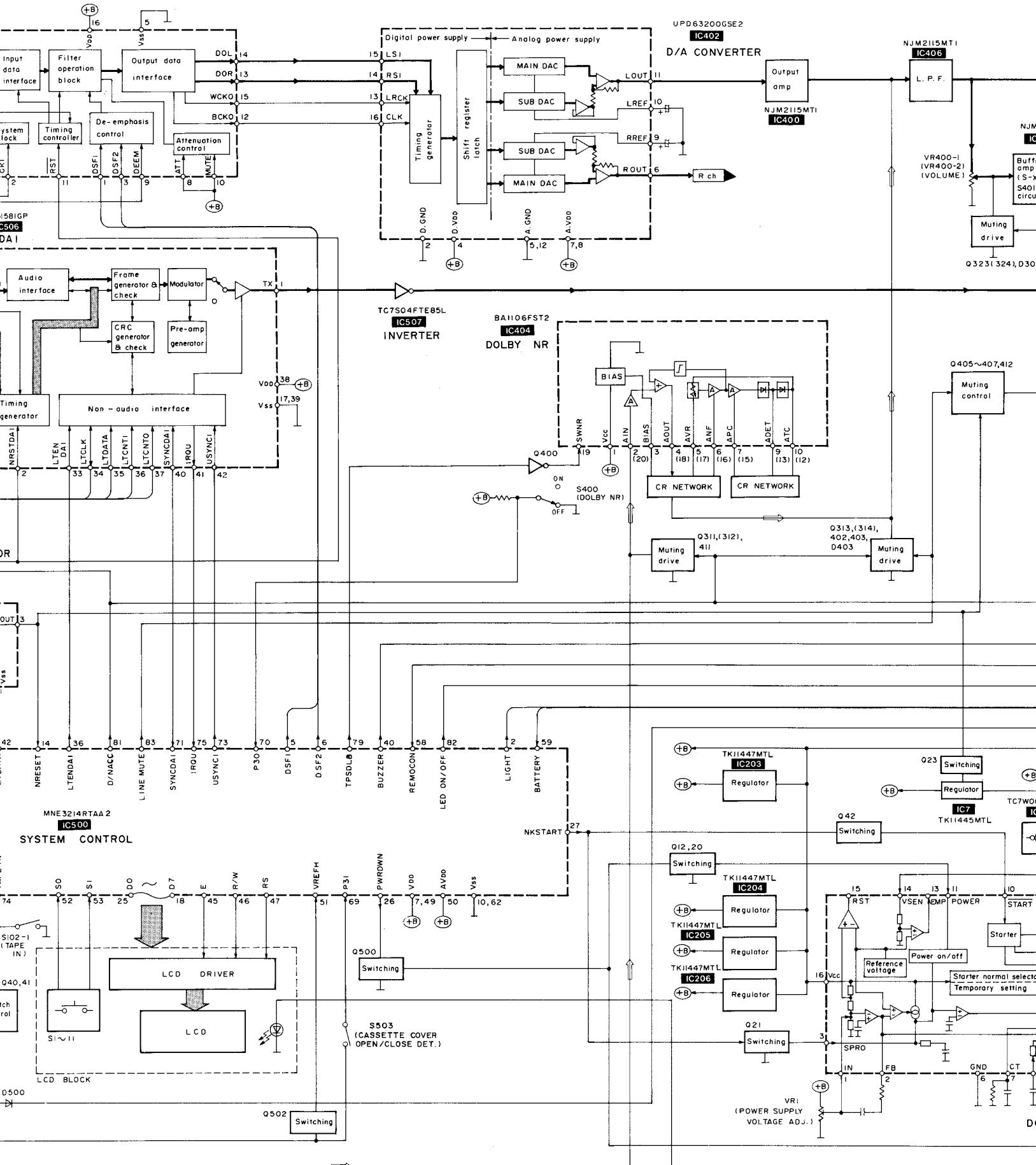
Y : 0.2V × 10
X : 10ms

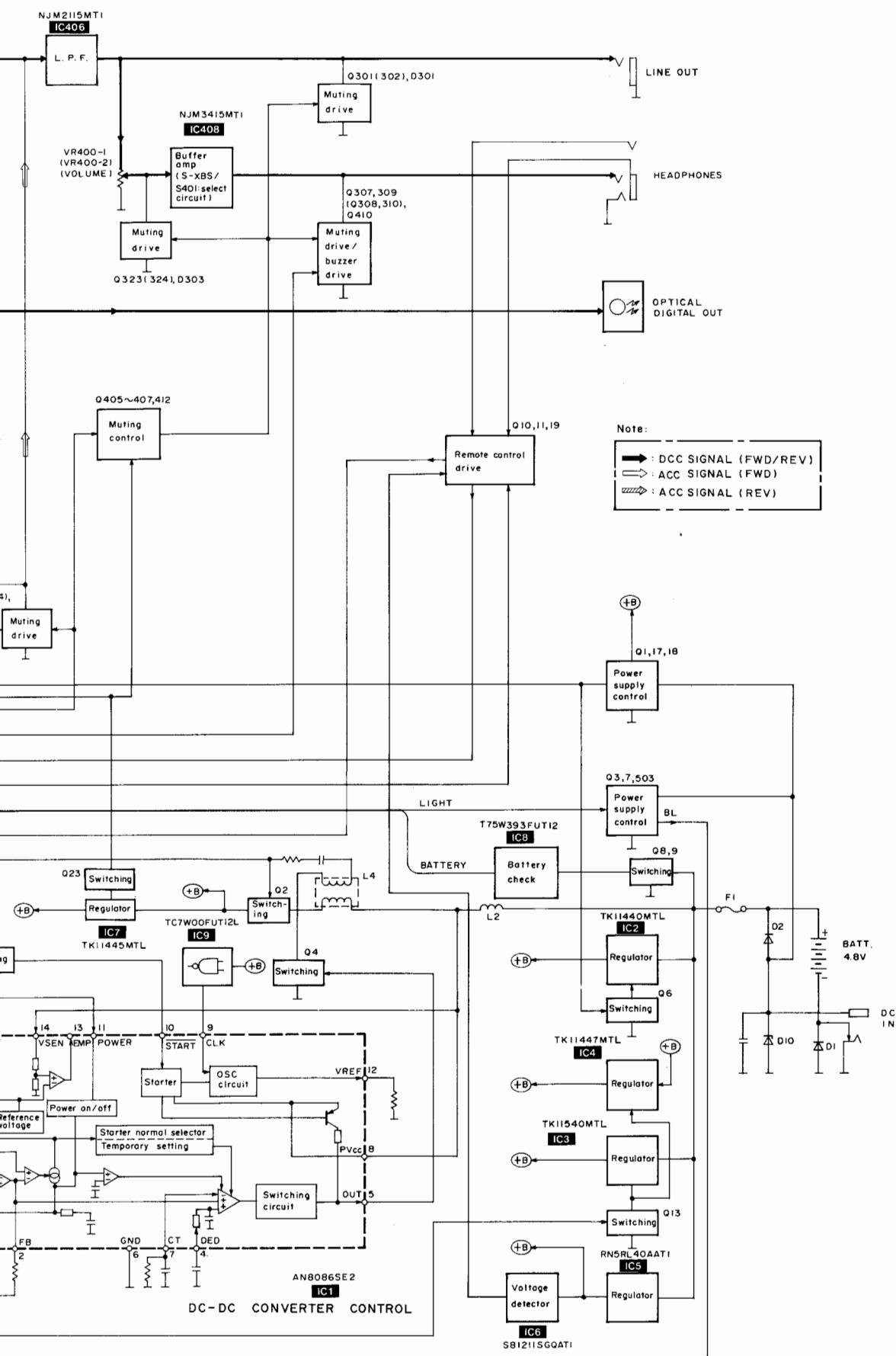
■ BLOCK DIAGRAM











■ SCHEMATIC DIAGRAM

(This schematic diagram may be modified at any time with development of new technology.)

Note 1:

- S1 : Tape side selector (DIRECTION) switch.
- S2 : Counter display selector (COUNTER MODE) switch.
- S3 : Text scroll (TEXT SCROLL) switch.
- S4 : Text display selector (TEXT MODE) switch.
- S5 : Counter reset (COUNTER RESET) switch.
- S6 : Stop/Power off (STOP/POWER OFF) switch.
- S7 : Play (PLAY) switch.
- S8, 9 : Rewind/Fast forward (REW/FF) switches.
(S8: FF, S9: REW)
- S10, 11: Skip (SKIP/[TPS]) switches.
(S10: F. SKIP — [TPS] — F. SKIP)
(R. SKIP — [TPS] — R. SKIP)
- S101 : ACC/DCC tape detection switch.
- S102-1 : TAPE IN detection switch.
- S102-2 : TAPE SELECT (CrO_2) switch.
- S104 : Mechanism detection (FWD/REV) switch in "FWD" position.
- S400 : Dolby noise reduction knob (DOLBY NR) switch in "OFF" position.
- S401 : Deep-bass control (S-XBS) switch in "OFF" position.
(OFF-MID-MAX)
- S501 : Reverse mode selector (REV MODE) switch in "↔" position.
- S502 : Hold (HOLD) switch in "ON" position.
- S503 : Open/close detection switch.
- The voltage value and waveforms are the reference voltage of this measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of GND terminal (DC IN Jack). Accordingly, there may arise some errors in the voltage values and waveforms depending upon the internal impedance of the tester or measuring unit.

No mark: STOP

- : ACC tape
- () : PLAY (side A) [DCC tape]
PLAY (REV) [ACC tape]
- (()) : PLAY (side B) [DCC tape]
PLAY (FWD) [ACC tape]
- [] : FF/REW
- Γ : REW

• Signal line

- ~~~~~ : DCC signal (FWD)
- : ACC signal (FWD)
- ~~~~~ → : ACC signal (REV)
- ~~~~~ ← : DCC signal (REV)
- : Positive voltage lines

• Important safety notice:

Components identified by \triangle mark have special characteristics important for safety. Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

- "— \textcircled{N} —" and "— \textcircled{N} —" appearing on the schematic diagrams correspond to through-hole numbers on the 4-layer PC board diagrams.
- "— \textcircled{N} —" indicates through-hole numbers on the 1st layer of the printed circuit board diagrams.
- "— \textcircled{N} —" indicates through-hole numbers on the 4th layer of the printed circuit board diagrams.
- (Examples) "— $\textcircled{10}$ — $\textcircled{50}$ —" indicates that through-hole " $\textcircled{10}$ " on the 1st layer is connected to " $\textcircled{50}$ " on the 4th layer.
- "— $\textcircled{80}$ — $\textcircled{120}$ — $\textcircled{20}$ — $\textcircled{60}$ —" indicates that through-hole " $\textcircled{80}$ " and " $\textcircled{20}$ " on the 1st layer are connected to " $\textcircled{120}$ " and " $\textcircled{60}$ " on the 4th layer.

Note: Lines without numbers indicate connections only on one side of the P.C.B.

1

2

A

B

C

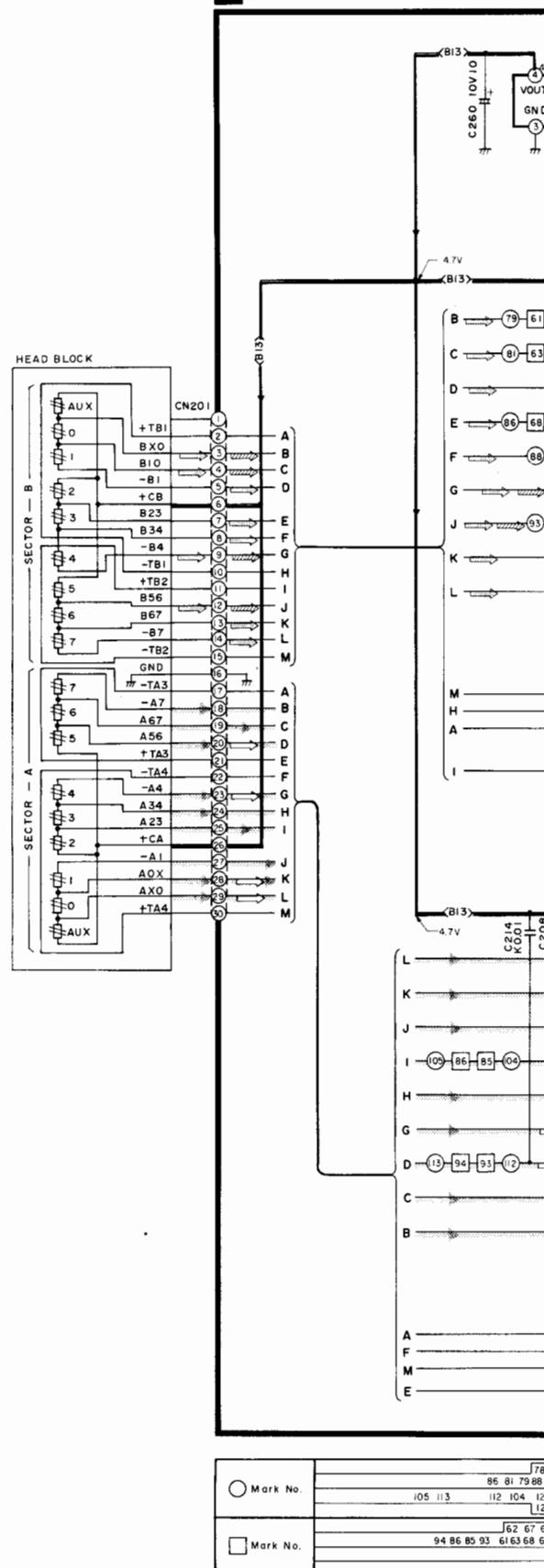
D

E

F

G

A RF/SERVO CIRCUIT (READ A)



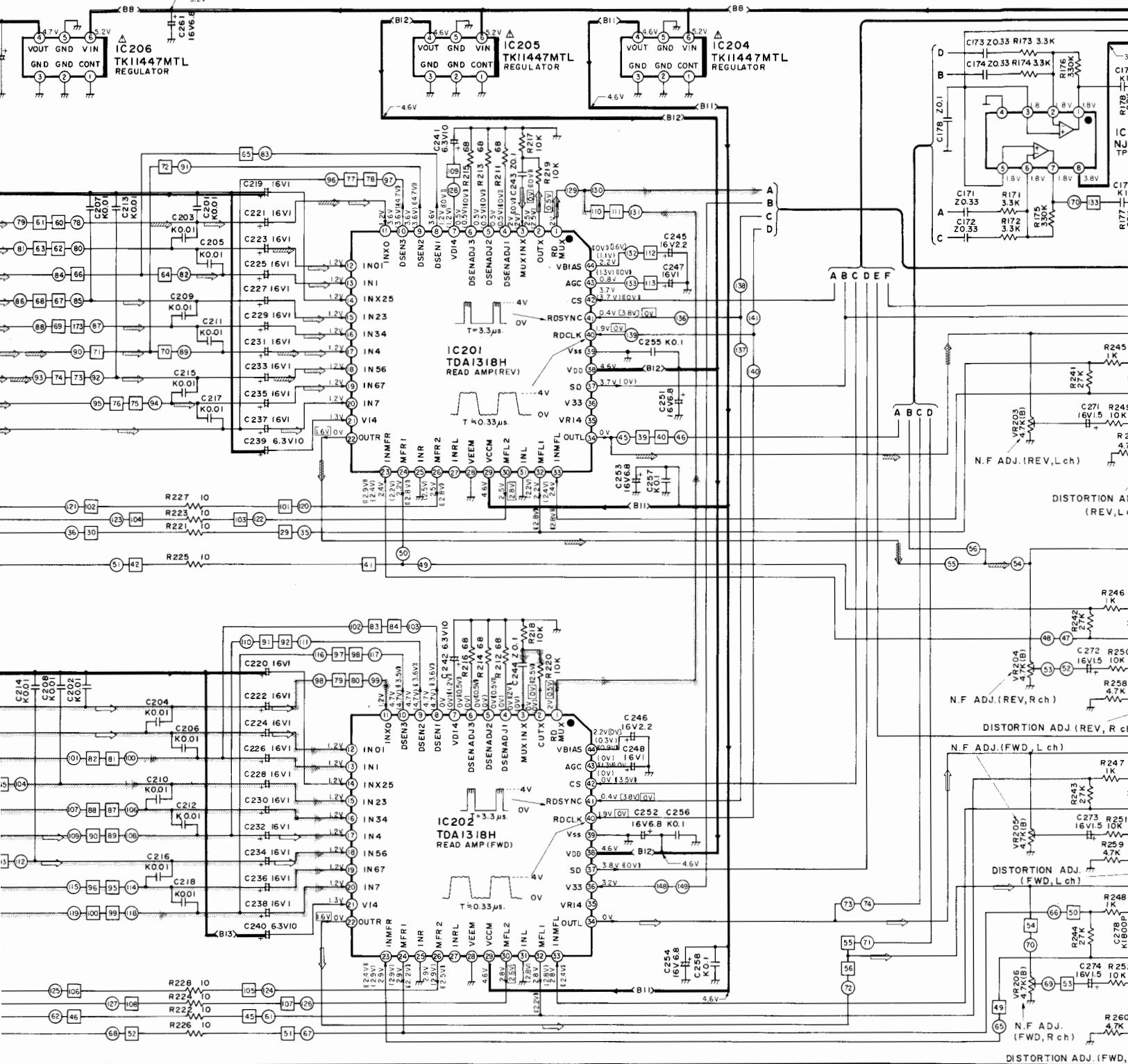
Caution!

IC and LSI are sensitive to static electricity.

Secondary trouble can be prevented by taking care during repair.

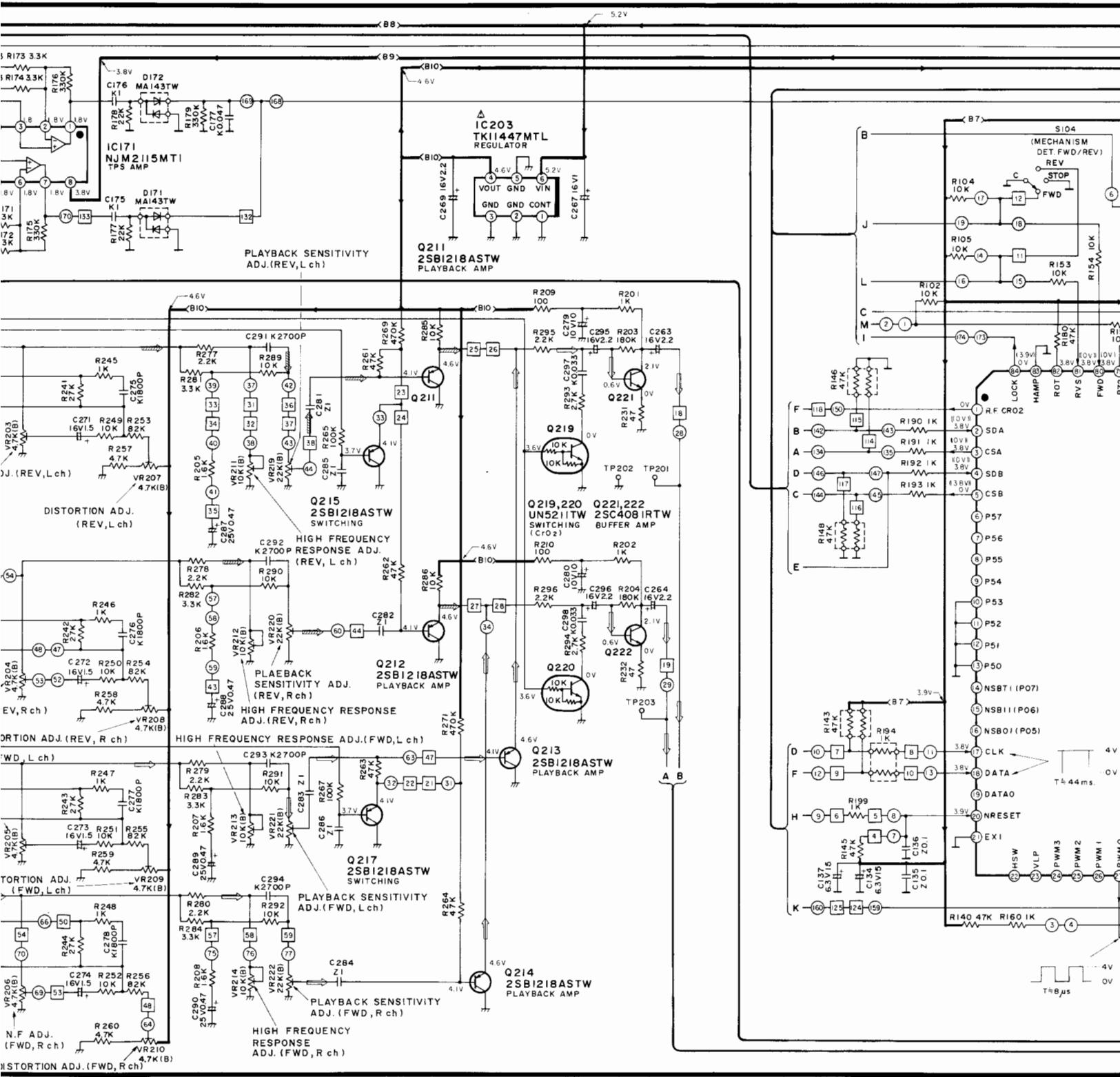
- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the pins of IC or LSI with fingers directly.

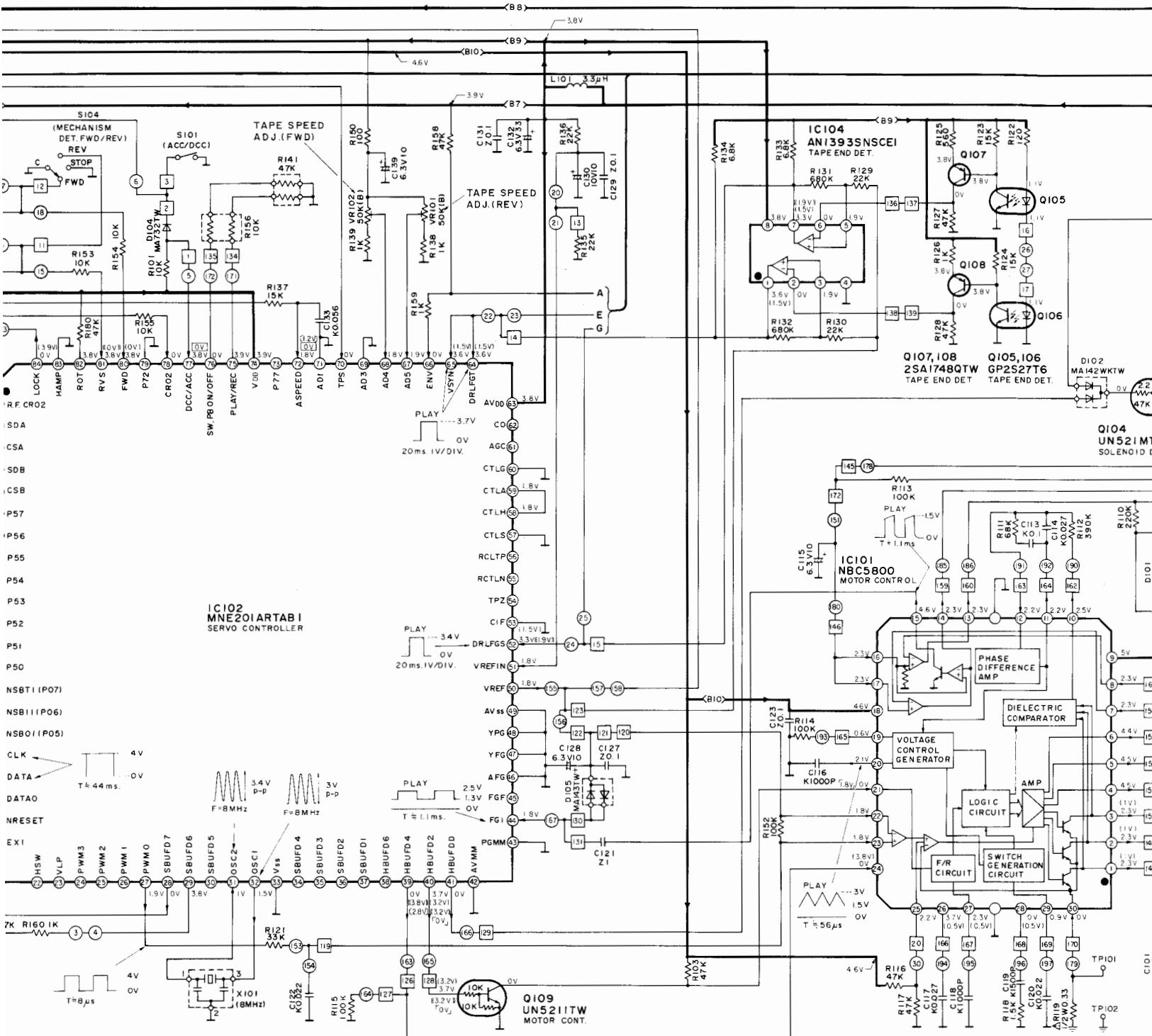
HEAD AMP/SERVO CONTROL/MOTOR DRIVE/TPS AMP/REGULATOR)

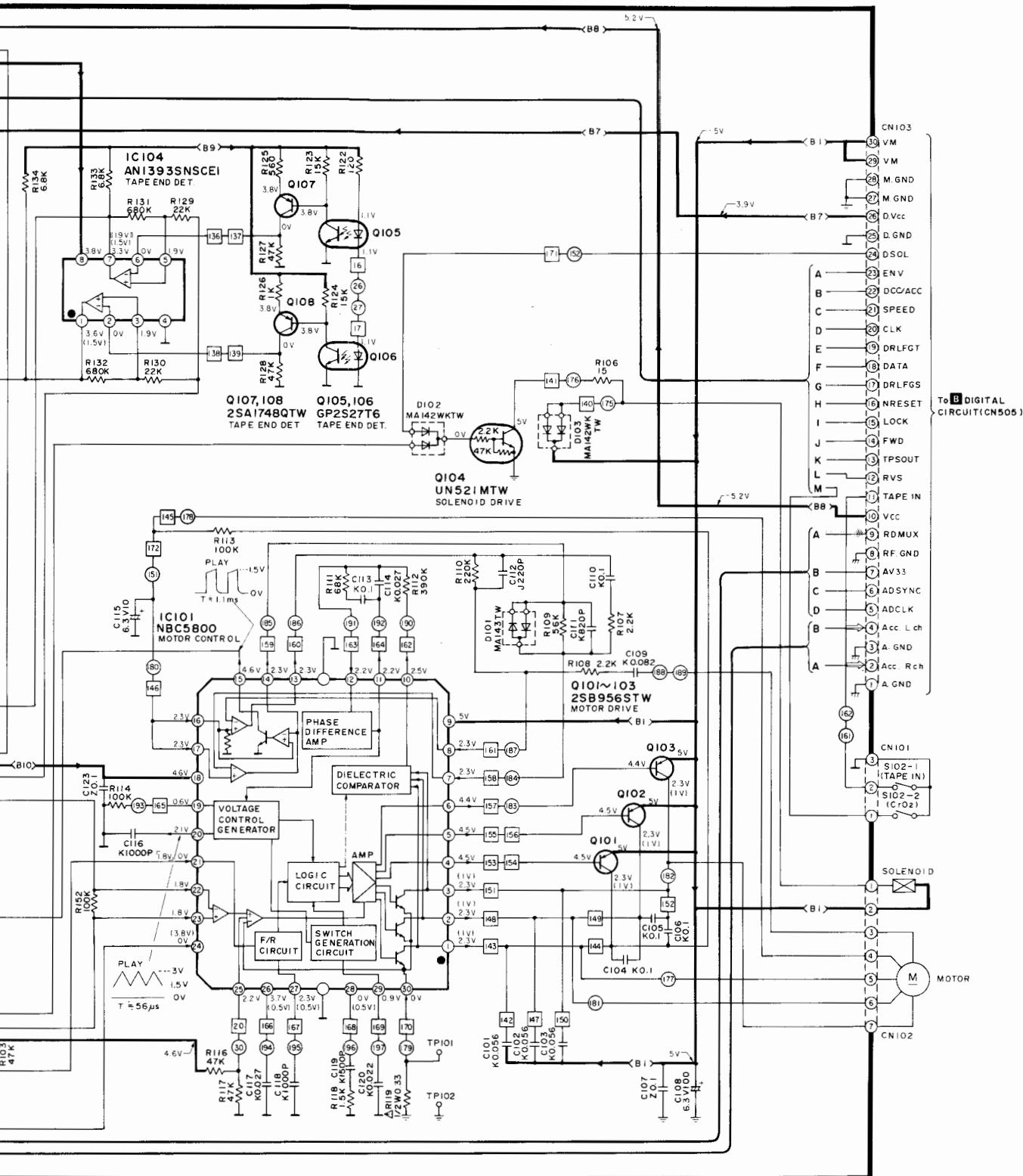


78 80 85 90	36	35	50 49	45	46	72 73 74 71	55 56	65 54	48 47
86 81 79 88 93 62 84 87 92 95 51 68 100 94 91 82 89		83 61	67 98 96 99 97						
I12 104 125 101 107 109 123 106 108		I10 122	I24 120 126 III 116 102 117	I03	I28	I29 130 131 132	I33 139 148 149 136 137 138 140 141		
I21 119 115 127 118 114						39 40			
62 67 69 146 30 42 88 87 52 72		45 29	77 78 41						I70
5 61 63 68 60 74 66 73 71 62 81 90 89 76 75 64 70		65 91 92 51	97 79 80 98 83 84	I09		I10 III I11 I12 I13		55 56	49 50
106 102 100 99 95 96 108 104		I03 I05	101 107					54 53	I33

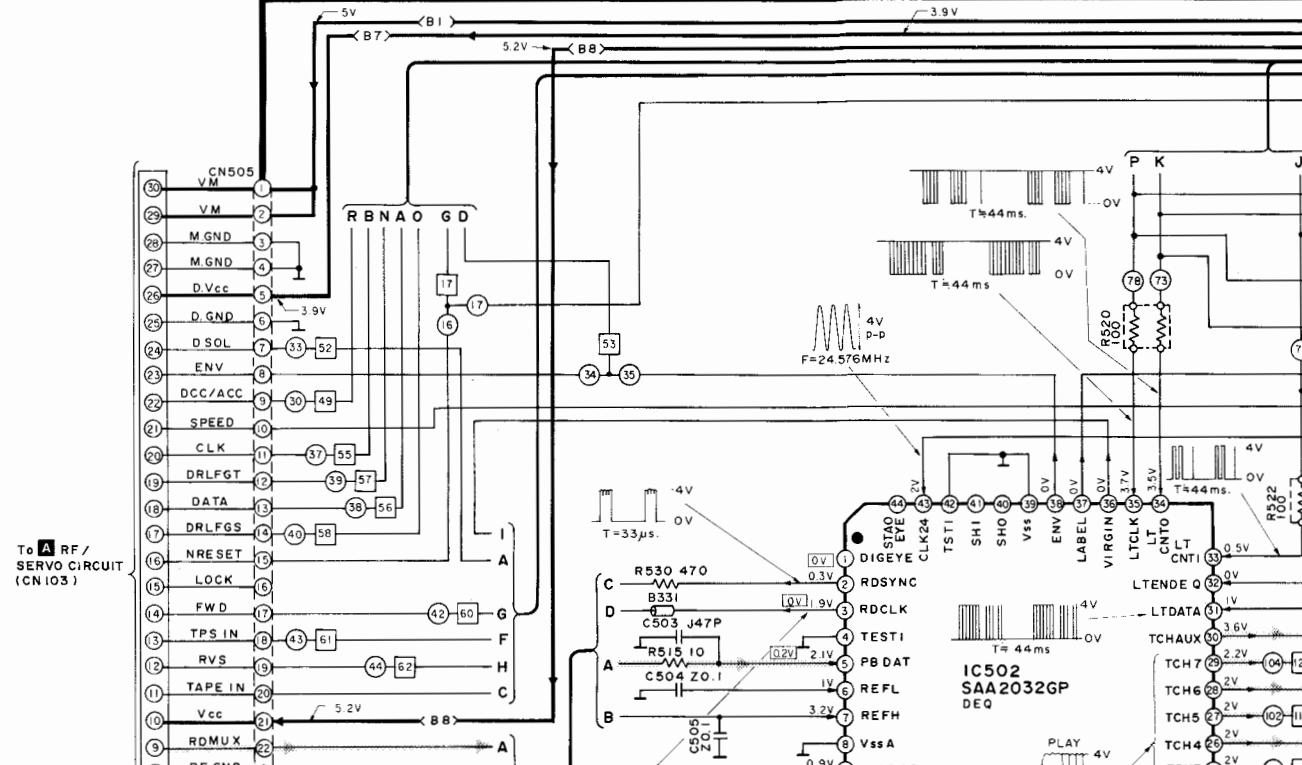
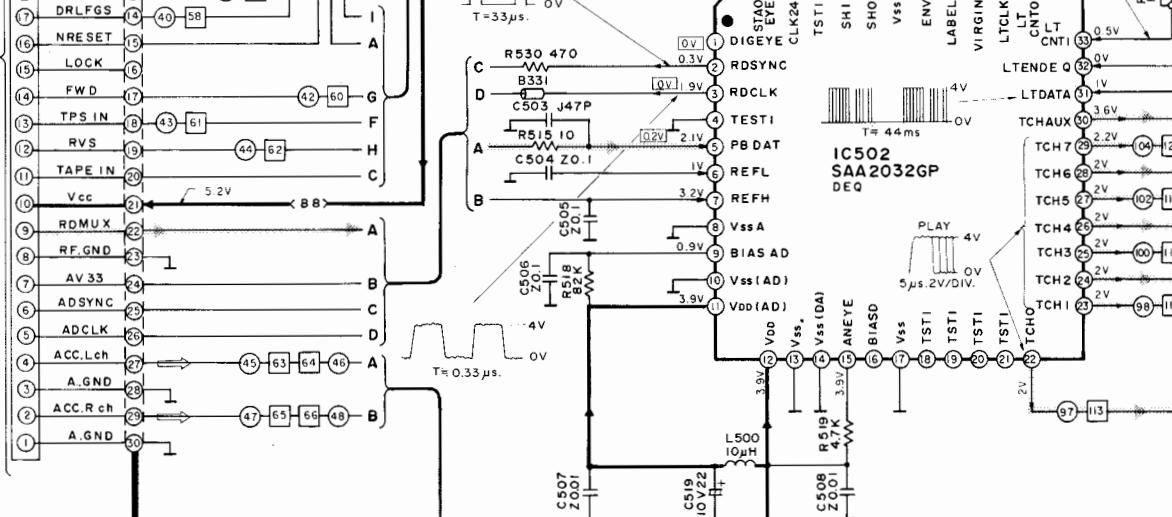
repair.
oil.





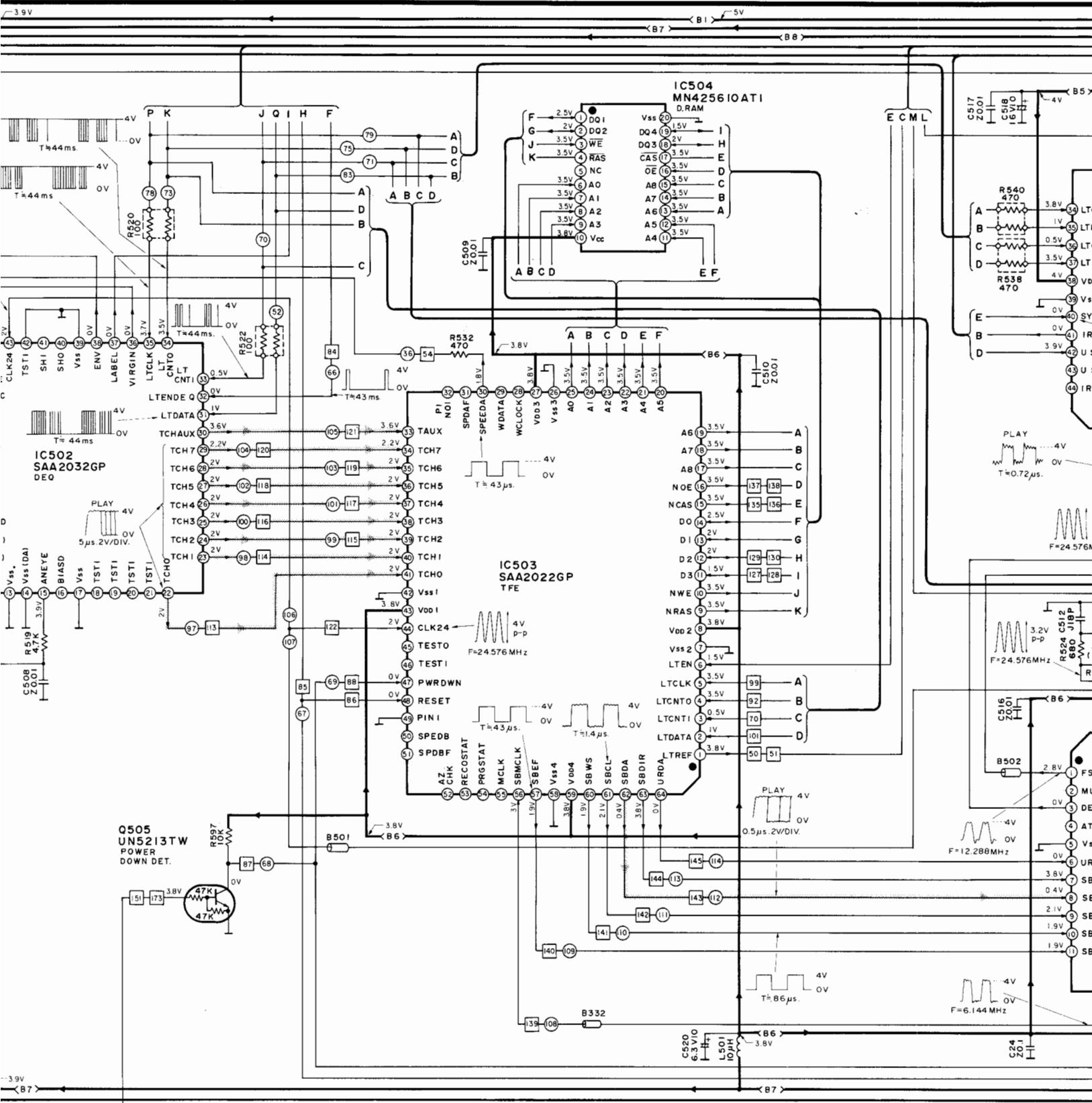


30	26	27	1~50
193	151	180	178
185	194	195	186
20	16	17	51~100
196	197	179	101~150
187	184	183	151~197
152	176	175	1~50
188	189	177	51~100
182			101~150
			151~173
146	145	136	138
137	139	163	164
172	165	159	166
167	160	168	169
170		158	155
		153	151
		154	156
		171	150
			140
			149
			144
			152

B DIGITAL CIRCUIT (DIGITAL/DIGITAL FILTER/D/A CONVERTER/SYSTEM CONTROL/**A****C****D****E****F****G**

Mark No.	33 40 37 38 45 42 16 17 30 43 39 44 47 46 48	34 35	78 73 97 98 100 104 102
Mark No.	49 17 52 55 57 56 62 64 60 58 61 63 65 66	53	87 113 151 173

CONVERTER/SYSTEM CONTROL/FILTER AMP/DOLBY NR/BUFFER AMP/RESET/DC-DC CONVERTER/REGULATOR)



78	73	97	52	99	75	79	36	
98	100	68	70	67	66	69	83	71
104	102	106	107	101	103	105		

108	109	110	111	113	112	114
-----	-----	-----	-----	-----	-----	-----

87	85	84	86	88	54	99	92	70	51									
113	120	118	122	121	119	139	140	141	142	144	143	145	137	135	136	138	101	
151	173		116	114		117	115							129	127	130	128	

9

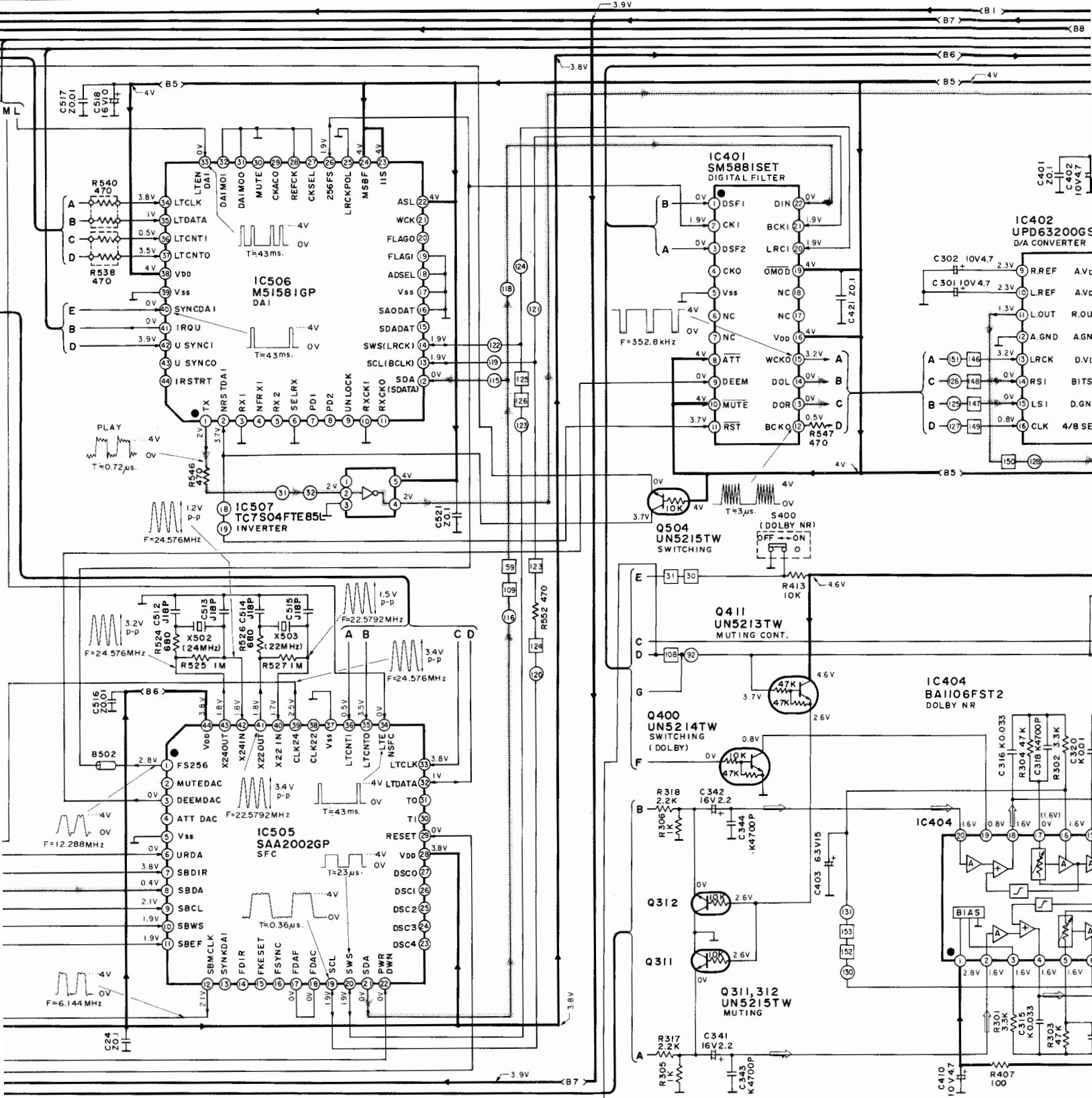
10

11

12

13

TOR)



18 19 31 32

122
19 118 124 121
115 116 123 120

92

130 131

151 126 125 127 128

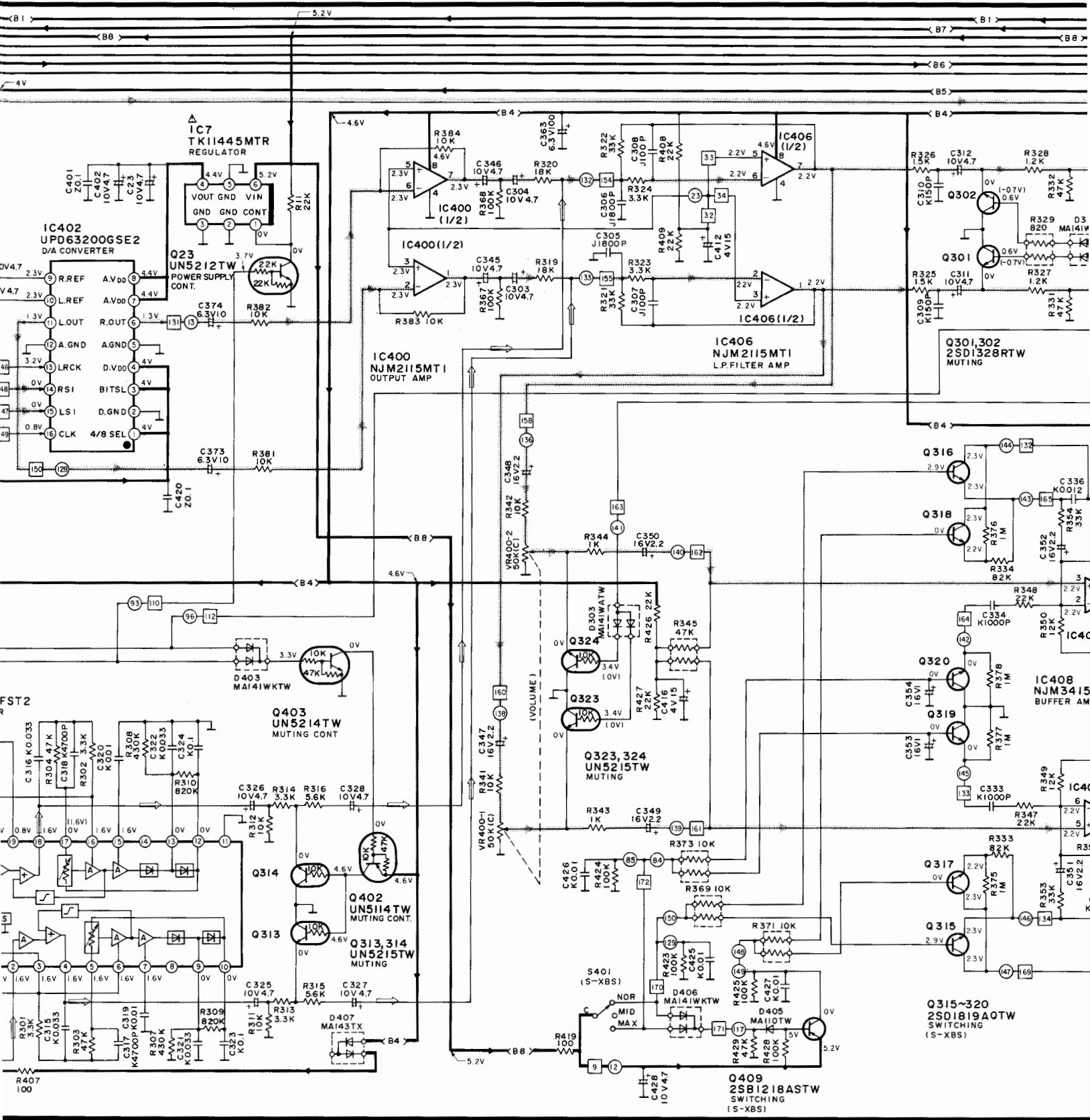
59
109 125 123
126 124

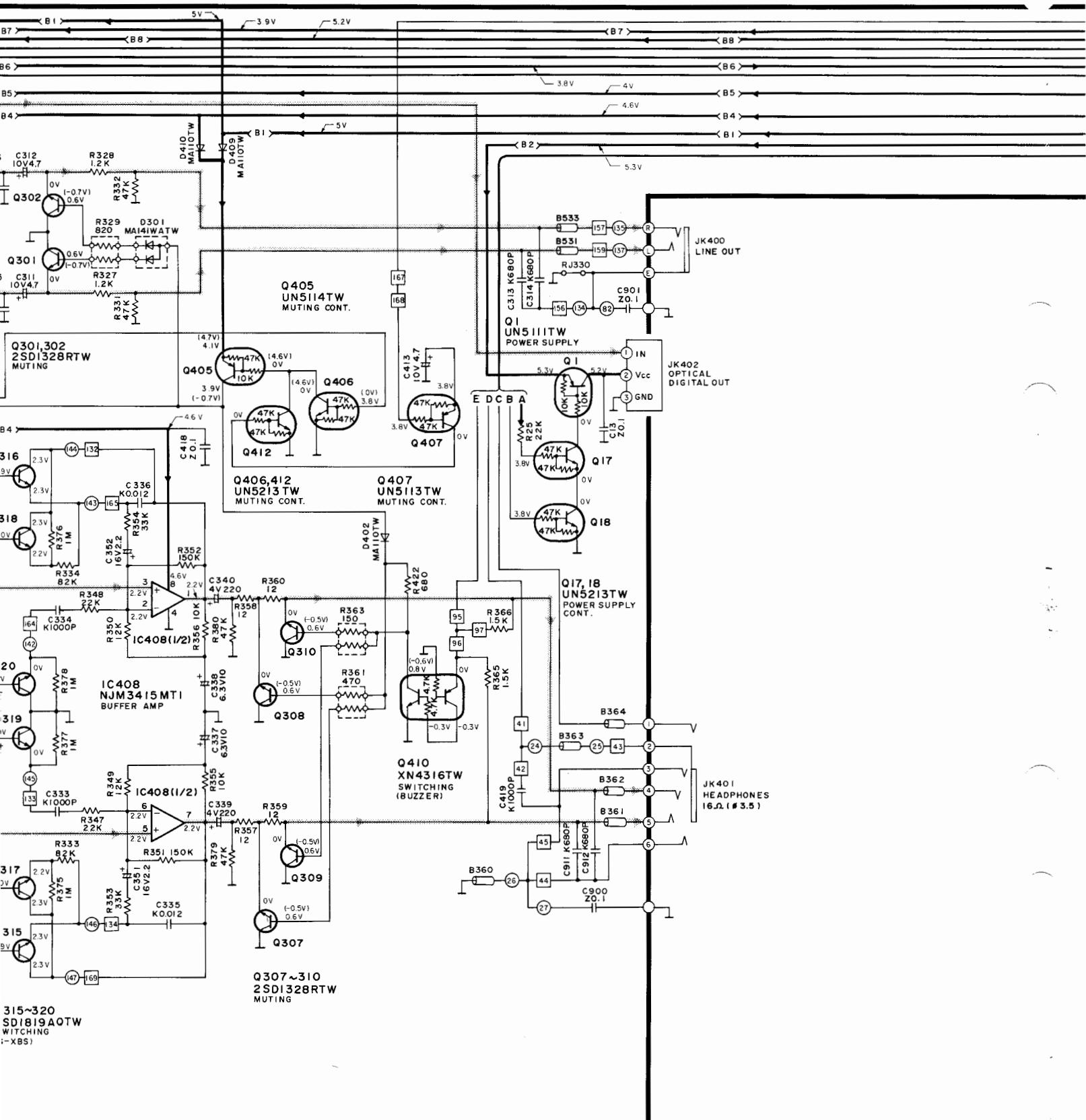
31 30

108

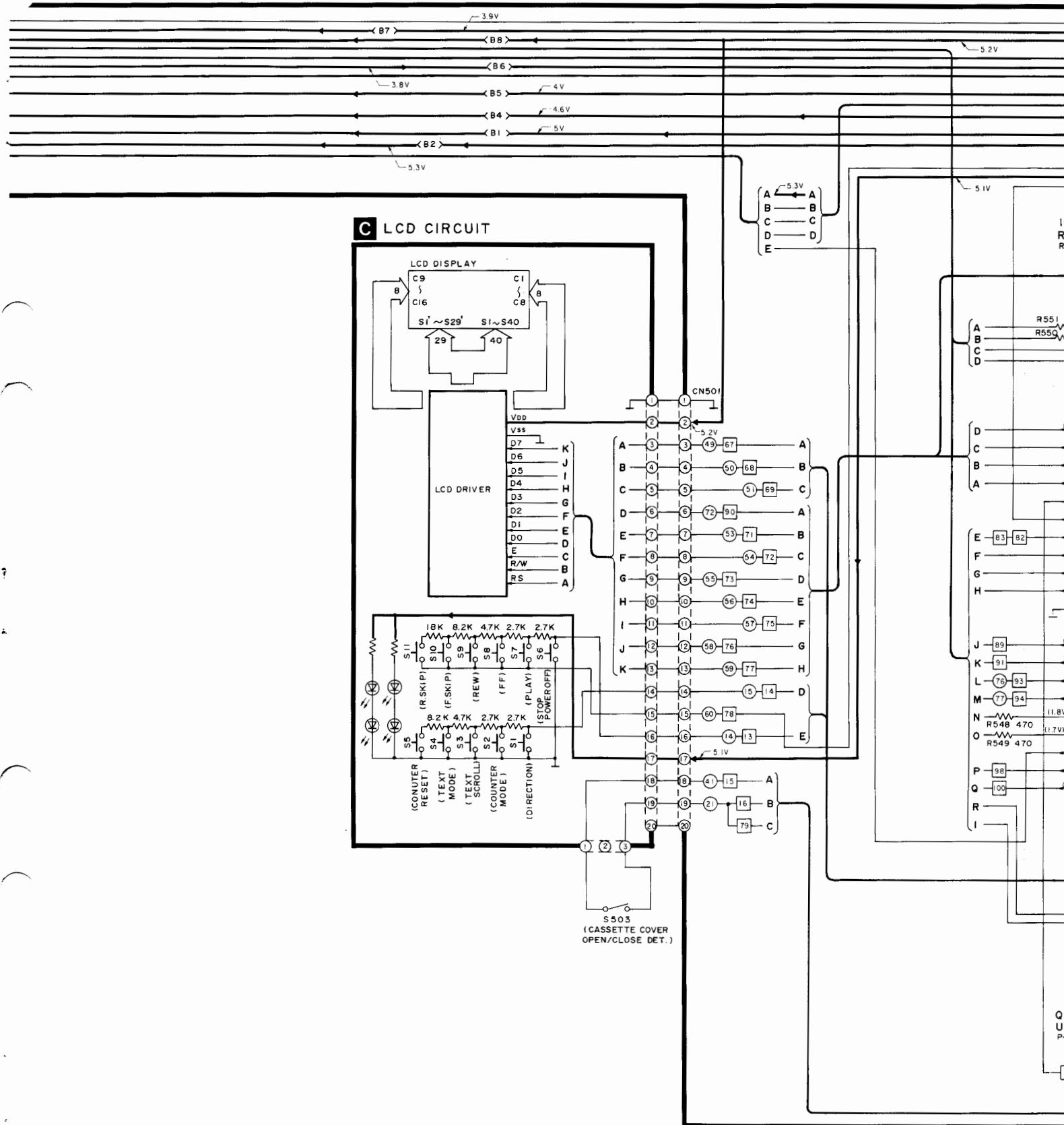
152 153

146 148 147 149 150

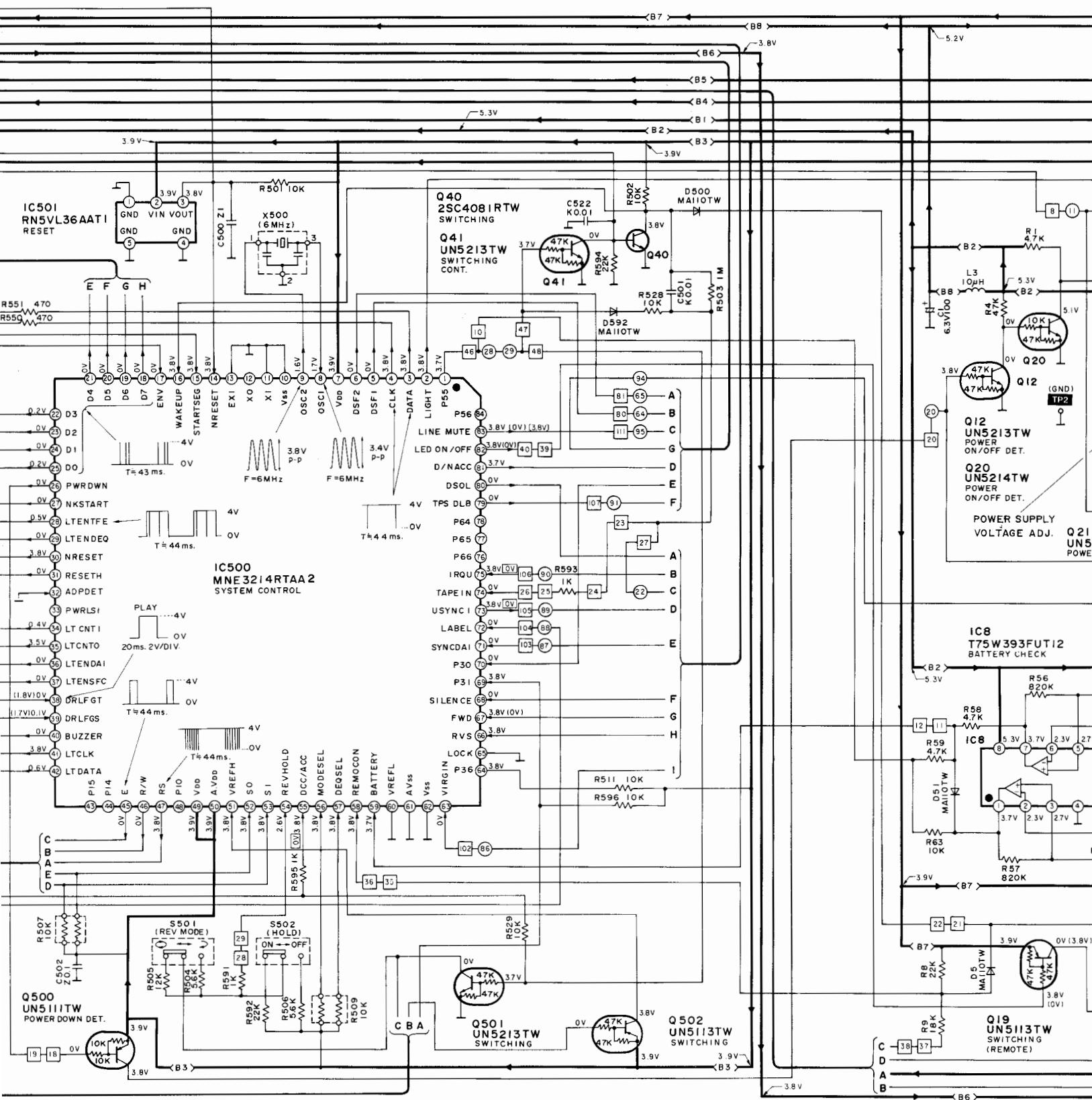


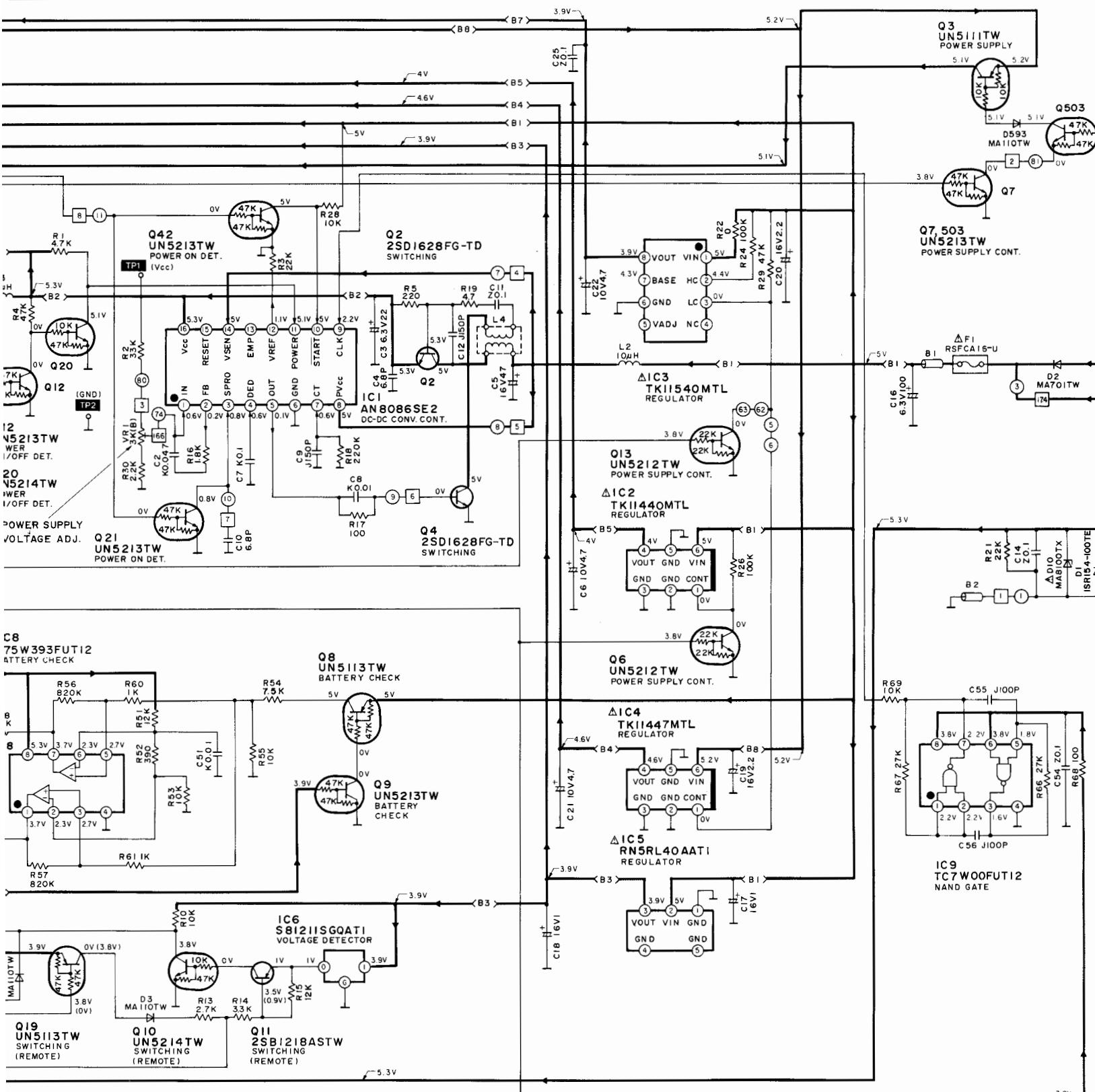


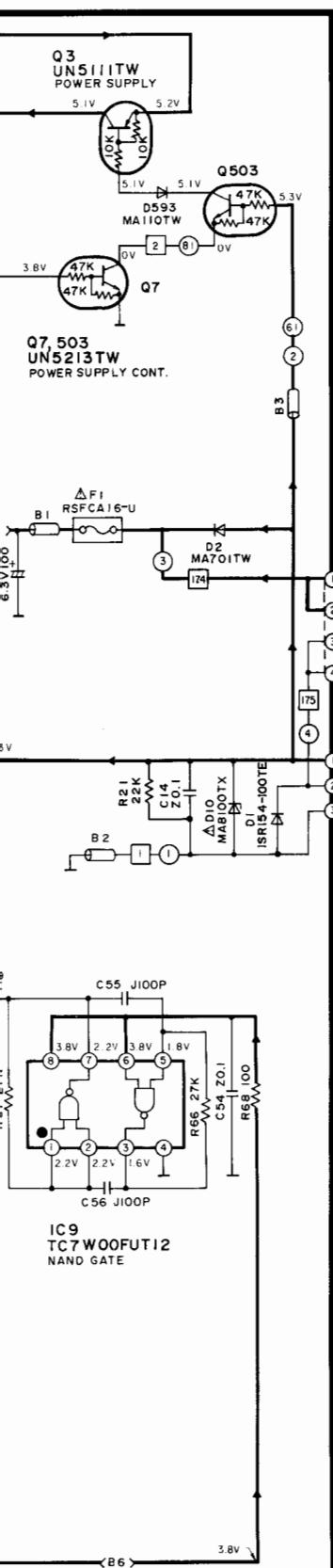
142 145 147 144 143 146	26 24 27 25 82	Mark No.
	134 135 137	
133 132 134	41 42 44 45 43	Mark No.
164 169 165	167 168 156 157 159	



<input type="radio"/> Mark No.	41 49 50 21 14 15 7255 58 60 53 51 57 59 56 54	76 77
<input type="checkbox"/> Mark No.	15 16 13 14 67 90 73 68 71 69 72 76 78 79 74 77 75	83 82 89 91 98 100 93 94





**Note 2:**

The supply part number is described alone in the replacement parts.

Part No.	Production Part No.	Supply part No.
IC408	NJM3415MT1	NJM3415M

Note 3:

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE 1.6A 60V FUSE.



RISK OF FIRE-REPLACE FUSE AS MARKED.

FUSE CAUTION

This symbol located near the fuse indicates that the fuse used is fast operating type. For continued protection against fire hazard, replace with same type fuse. For fuse rating, refer to the marking adjacent to the symbol.

Ce symbole indique que le fusible utilisé est à rapide. Pour une protection permanente, n'utiliser que des fusibles de même type. Ce dernier est indiqué là où le présent symbole est apposé.

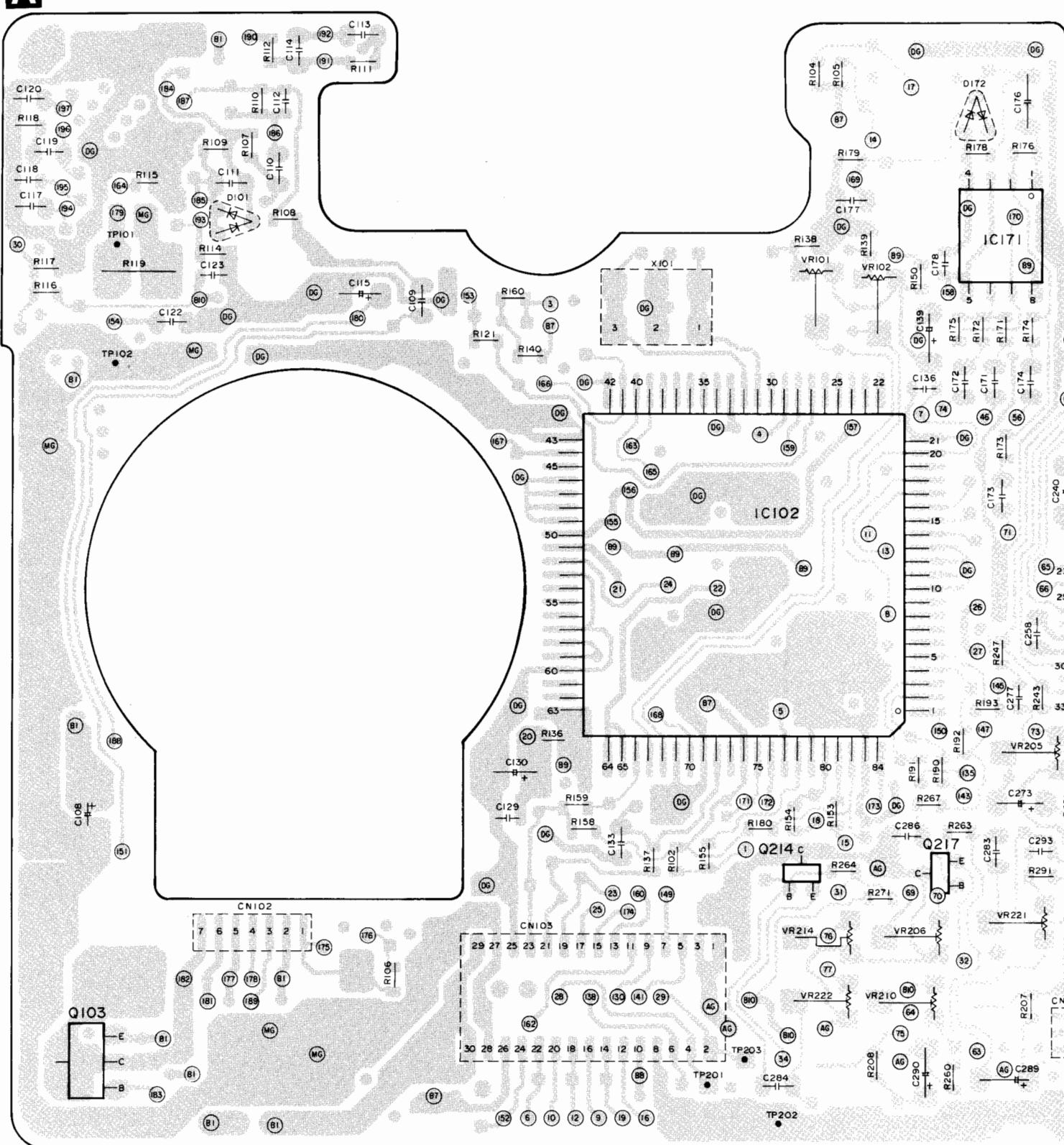
3 1 81	2 4 61	1 ~50 51 ~00 101 ~151
1 2 174	1 2 175	1 ~50 51 ~100 101 ~150 151 ~175

1 2 3 4 5

■ PRINTED CIRCUIT BOARDS DIAGRAM

- Layer 1 pattern diagram

A RF/SERVO P.C.B. (REPI666A)



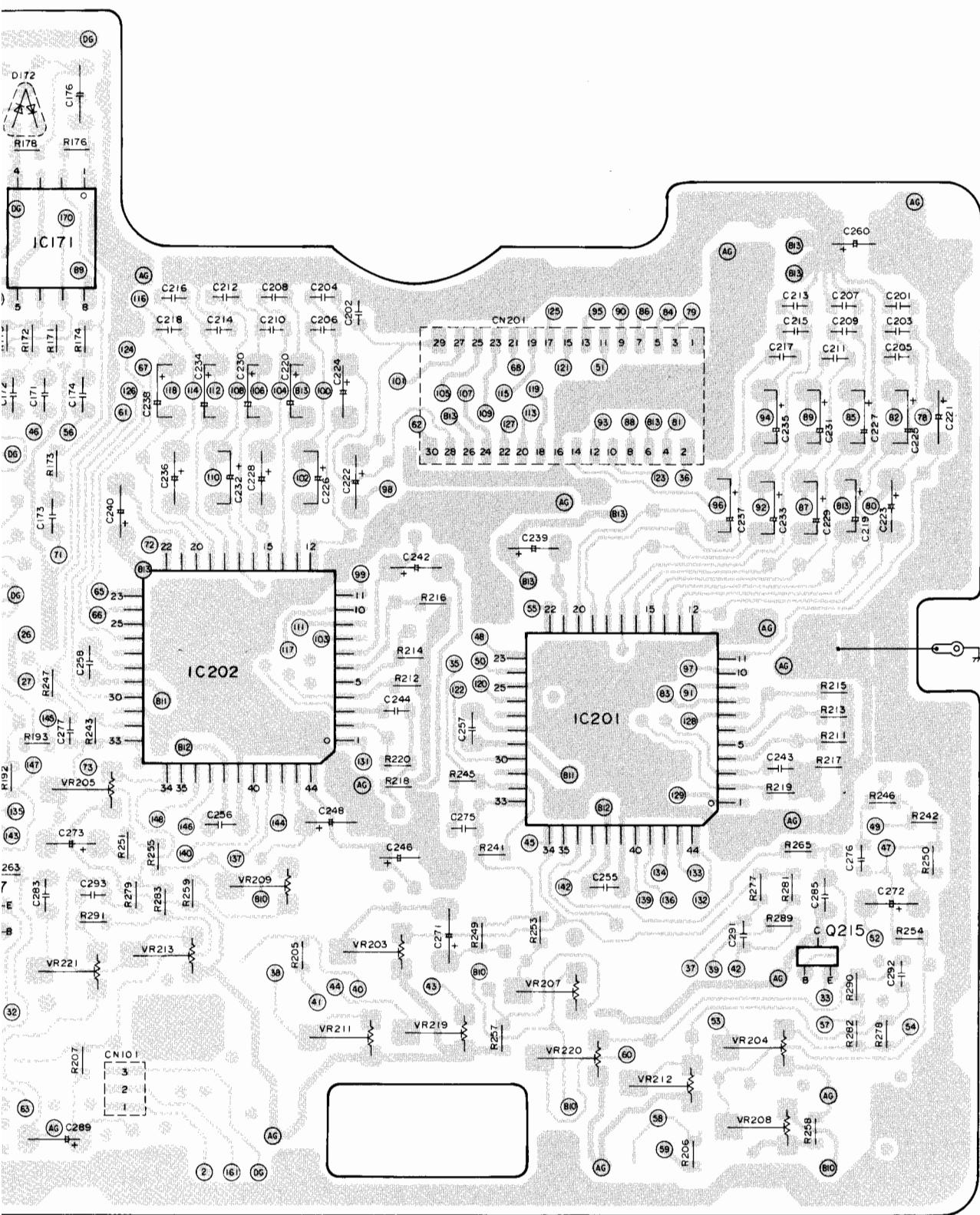
30	6	20	3	10	28	12	25	9	23	21	19	16	29	24	22	1	4	5	34	18	31	15	11	14	13	8	17	7	32	26	27	46
195	194	196	197	179	188	154	151	164	163	164	182	187	193	185	181	177	190	189	178	186	191	175	192	180	176	153	167	152	162	166		
138	130	141	149																													

- Notes:**
- The printed circuit board diagram used for the RF/Servo and Digital P.C.B. consist of 4 layers.
 - Printed circuit board diagrams only show the foil patterns on the 1st and 4th layers. They do not include the patterns on the 2nd and 3rd layers.

- "(No)" appearing on the printed circuit board diagrams indicate a through-hole connection between the 1st and another layer.
- "(No)" appearing on the printed circuit board diagrams indicate a through-hole connection between the 4th and another layer.

• Layer 4

A RF



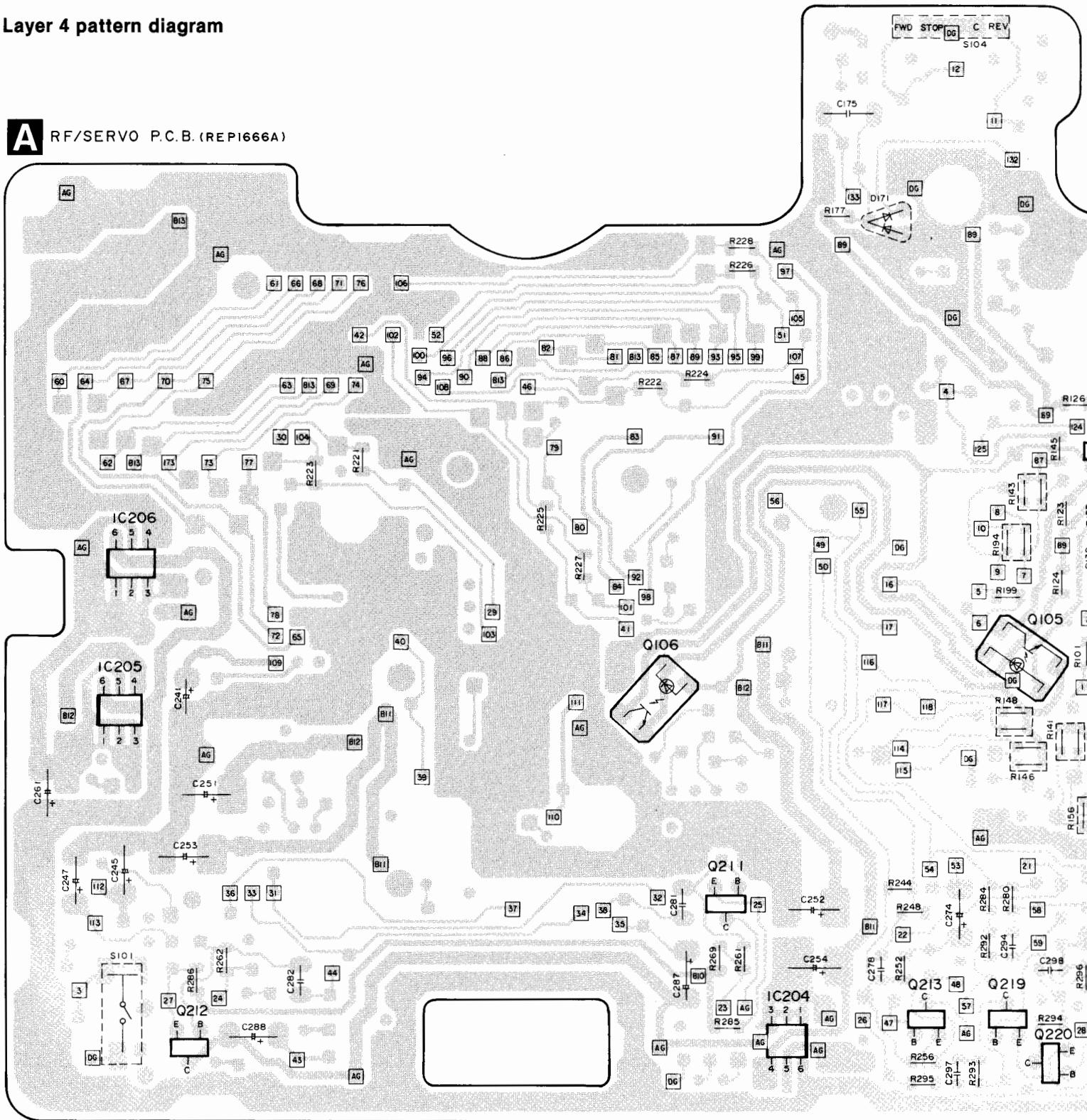
32	26	27	46	2	38	41	44	40	43	35	48	50	45	36	37	39	42	33	49	47	1 ~ 50																								
63	71	56	73	66	65	61	67	72	100	99	98	62	68	55	95	51	93	90	60	88	86	83	58	84	99	81	97	79	91	53	96	92	94	87	89	57	85	80	52	54	82	78	51 ~ 100		
43	135	147	145	124	126	116	148	118	146	140	114	110	112	137	108	106	104	144	117	111	102	103	131	101	105	122	107	120	109	115	127	113	119	125	121	142	139	134	123	136	128	129	133	132	101 ~ 150
																																											151 ~ 197		

3	60
	113

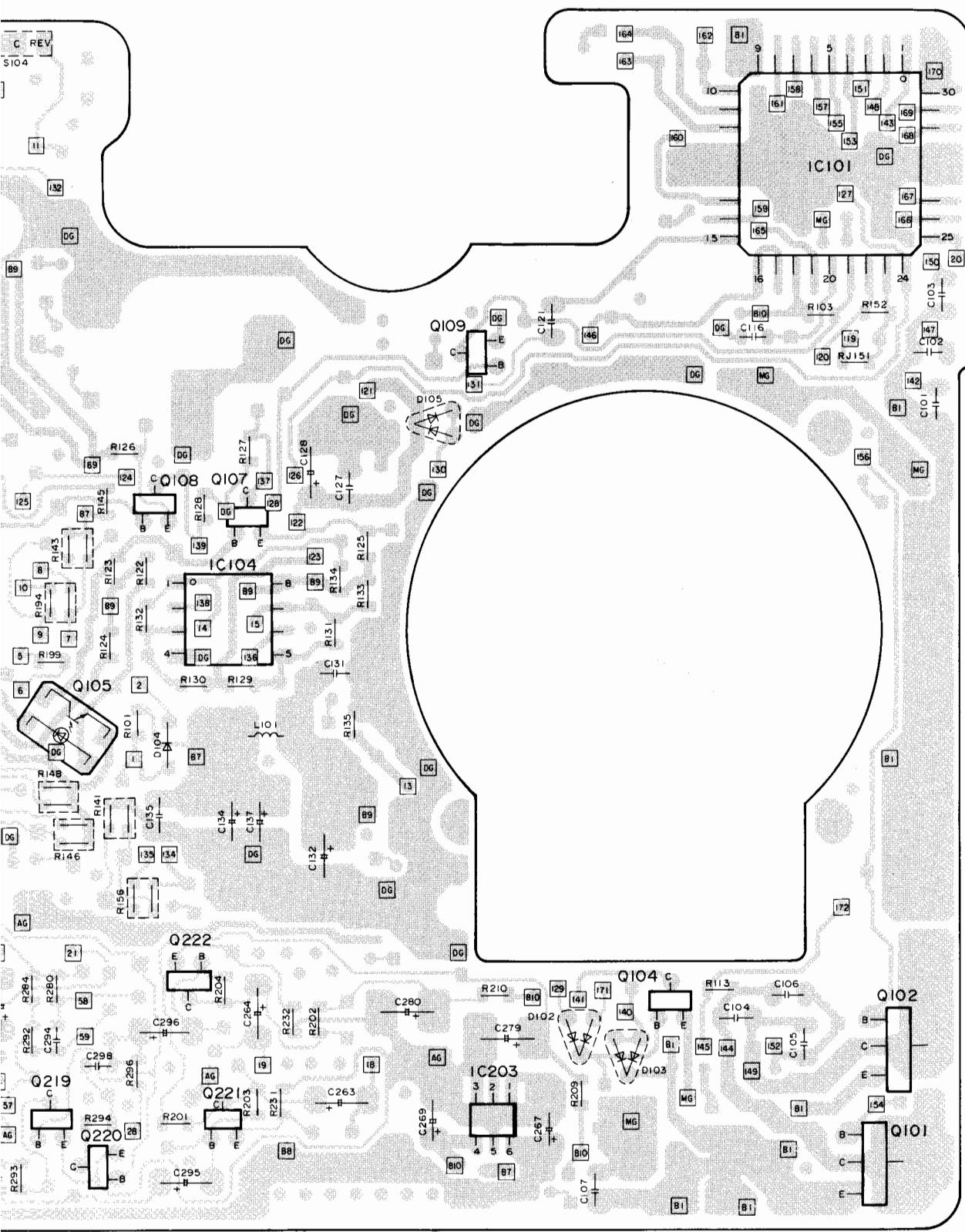
d diagrams indicates
t and another layer.
d diagrams indicates
n and another layer.

- Numbers appearing on signal lines on schematic diagram correspond to through-hole numbers given on the printed circuit board diagrams.
- These printed circuit boards diagram may be modified at any time with the development of new technology.

• Layer 4 pattern diagram

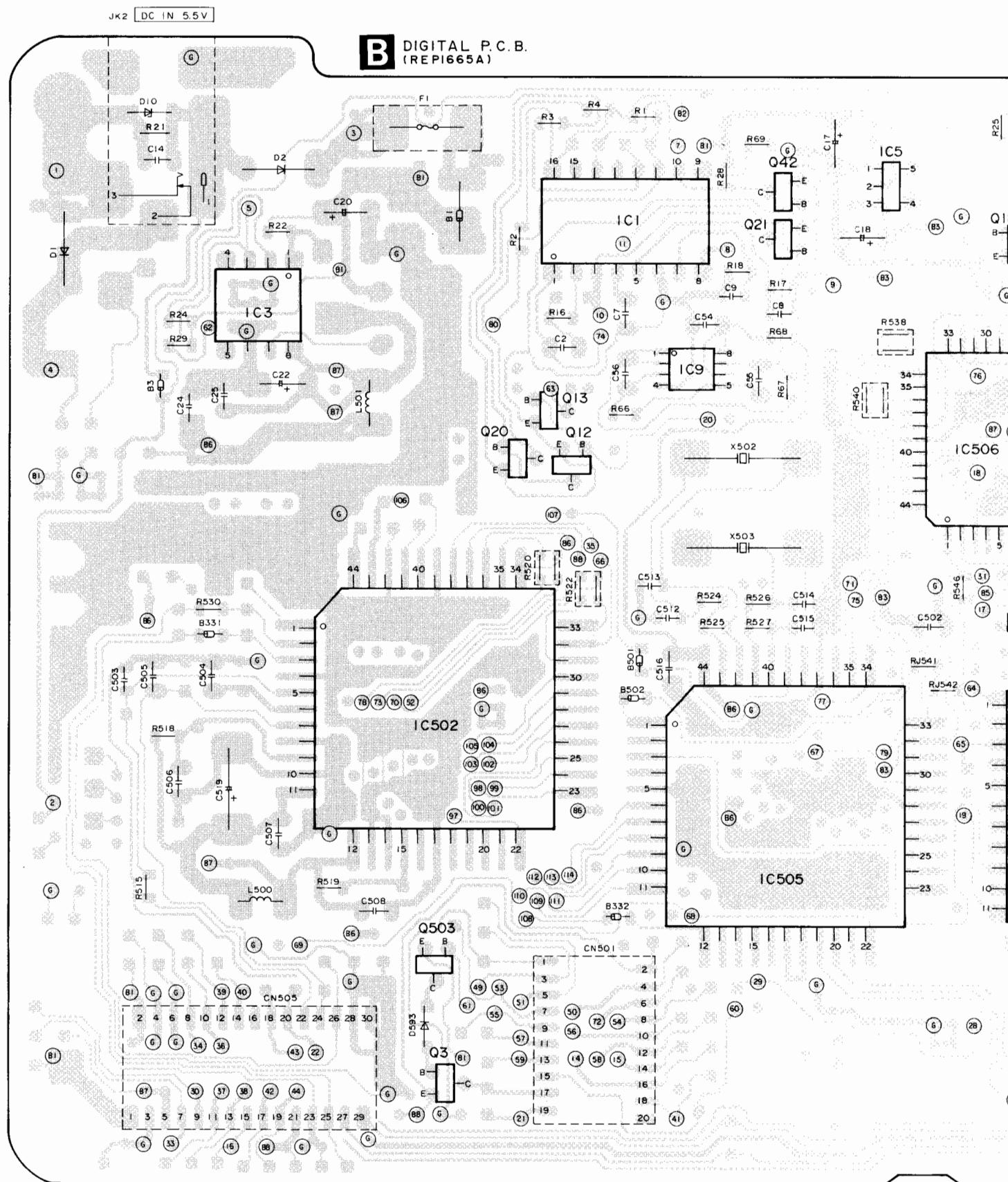


3	27	24	36	33	31	30	43	44	42	40	39	29	37	46	34	38	35	41	32	23	25	45	49	50	26	47	17	22	16	12	4	48	6	10	5	8	9	11	7	21																																											
60	64	62	67	70	75	73	77	78	72	61	63	65	66	68	69	71	74	76	100	94	52	96	90	88	86	82	79	80	84	81	92	83	98	85	87	89	91	93	95	99	56	51	97	55																																							
113	112				109	104	102	106	108	103	110	111	110	111	110	111	110	111	101	101	101	107	105	107	105	103	116	117	114	115	118	125	132	124	131	128	126	127	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173

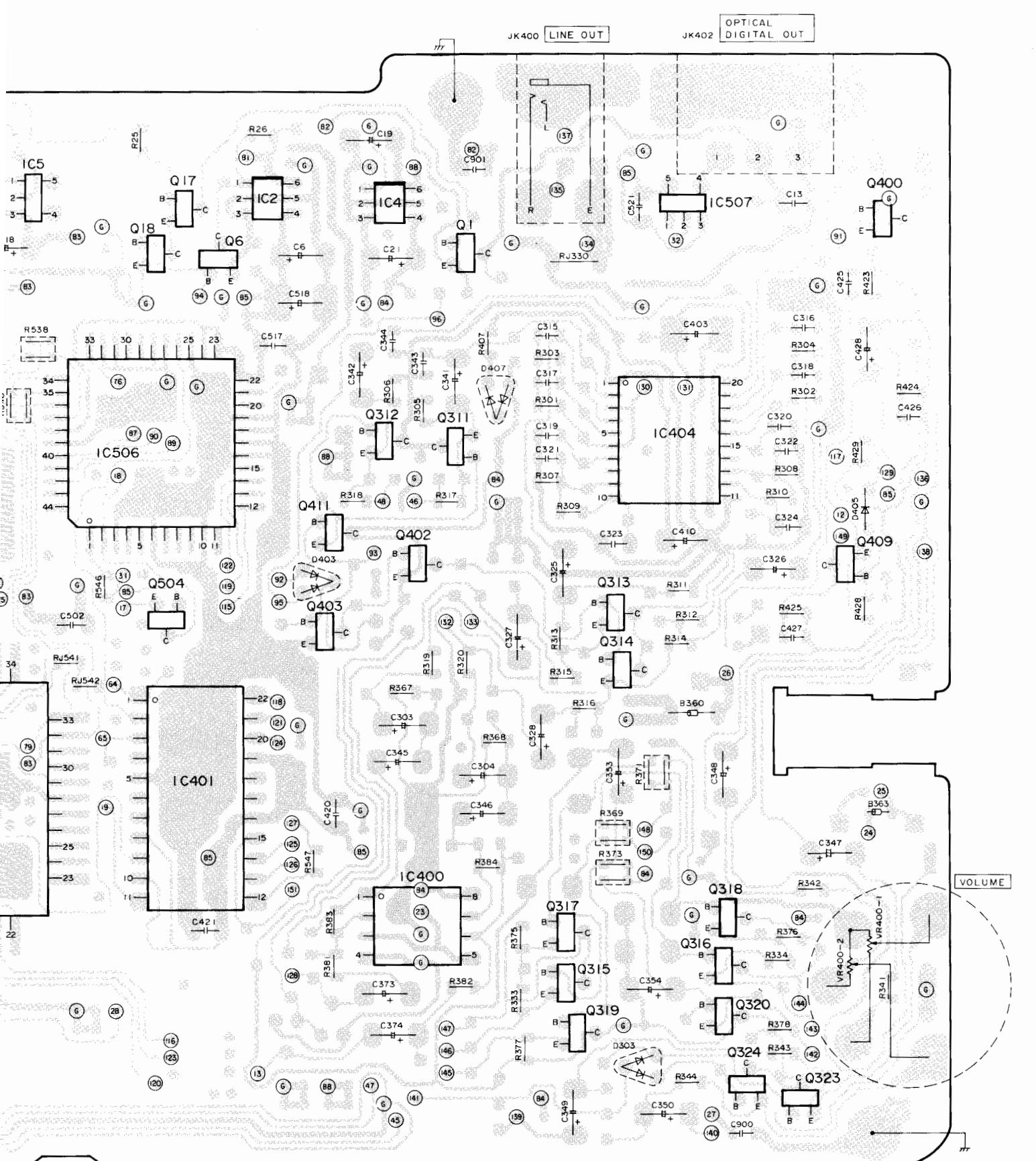


3	6	10	5	8	9	11	7	21	28	1	2	14	15	19	18	13	20	1	~ 50																				
57	58	59																51 ~ 100																					
125	132		124	135	134	139	138	136	137	128	126	122	123	121	130	131	129	14	146	140	145	144	149	120	119	127	148	143	142	147	150	101 ~ 150							
																	171	163	164	160	162	165	159	152	161	158	157	155	172	153	151	156	166	154	167	168	169	170	151 ~ 173

• Layer 1 pattern diagram

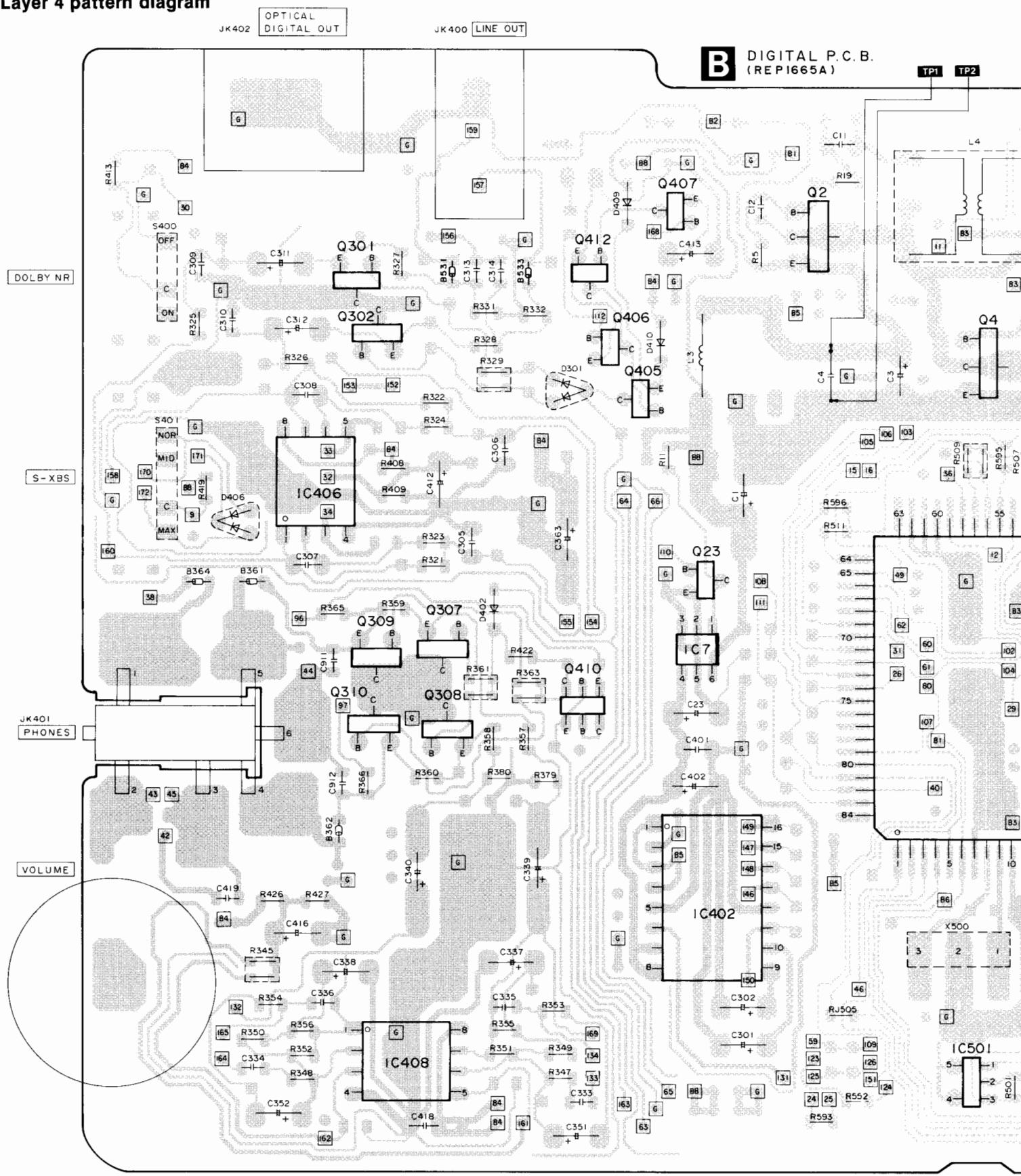


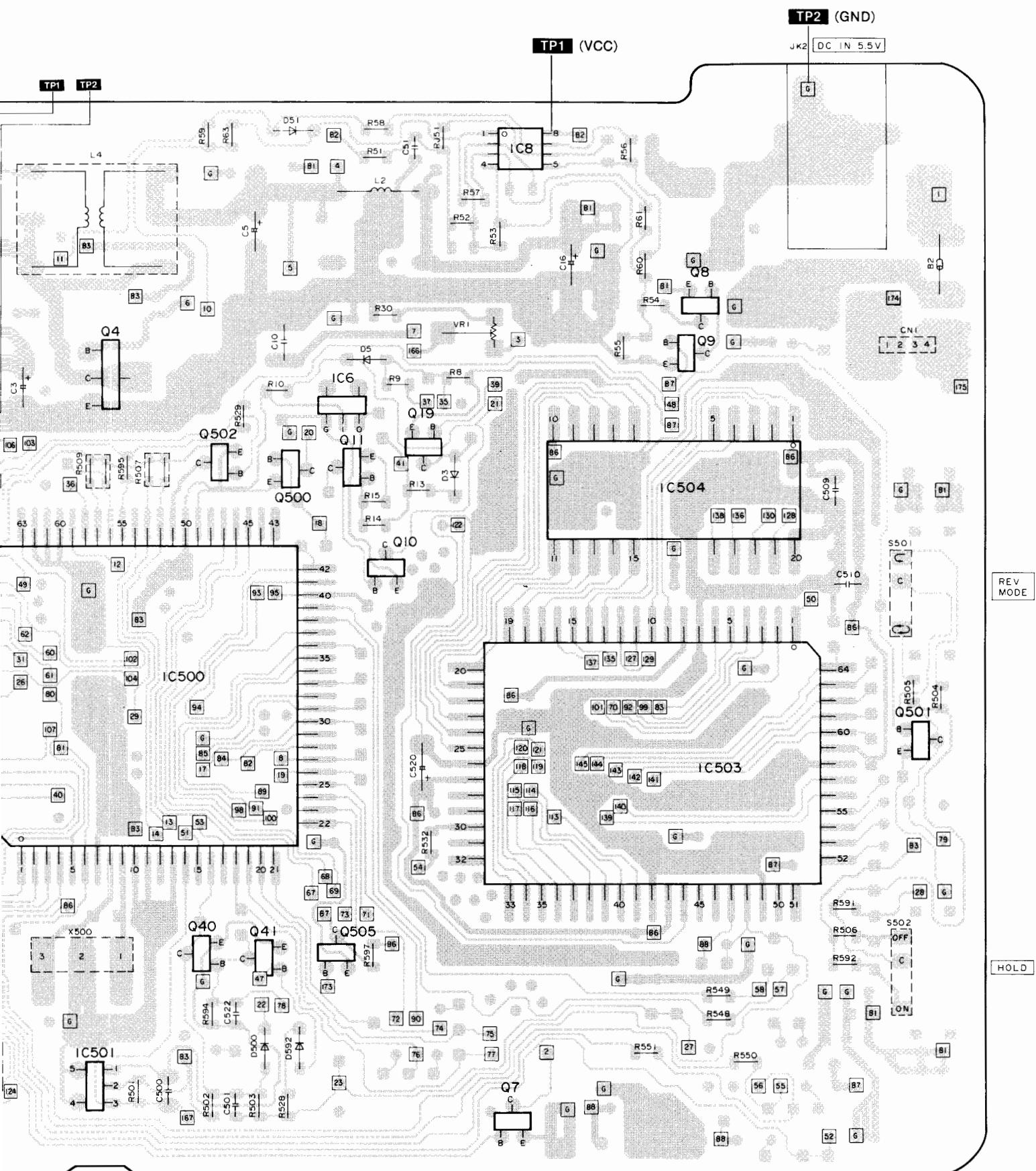
2	1	4	33	30	34	39	37	36	16	40	5	38	42	43	44	22	3	49	21	50	14	35	10	15	11	7	41	20	8	29	9	19	28	18	17	31					
			62	69	78	73	70	52	97	81	61	98	100	55	80	53	99	59	57	51	63	86	56	88	74	58	66	72	54	68	60	67	77	71	75	79	83	65	64	76	87



19 28 18 17 51	13	47 6 48 45 46 23	32 27 26	12 24 25	1 ~ 50
75 79 83		93 96 82	84	91 85	51 ~ 100
65 64 76 87	90 89 94	92 95	130 148 150	149 144 143 142 117	129 136 138 101 ~ 151

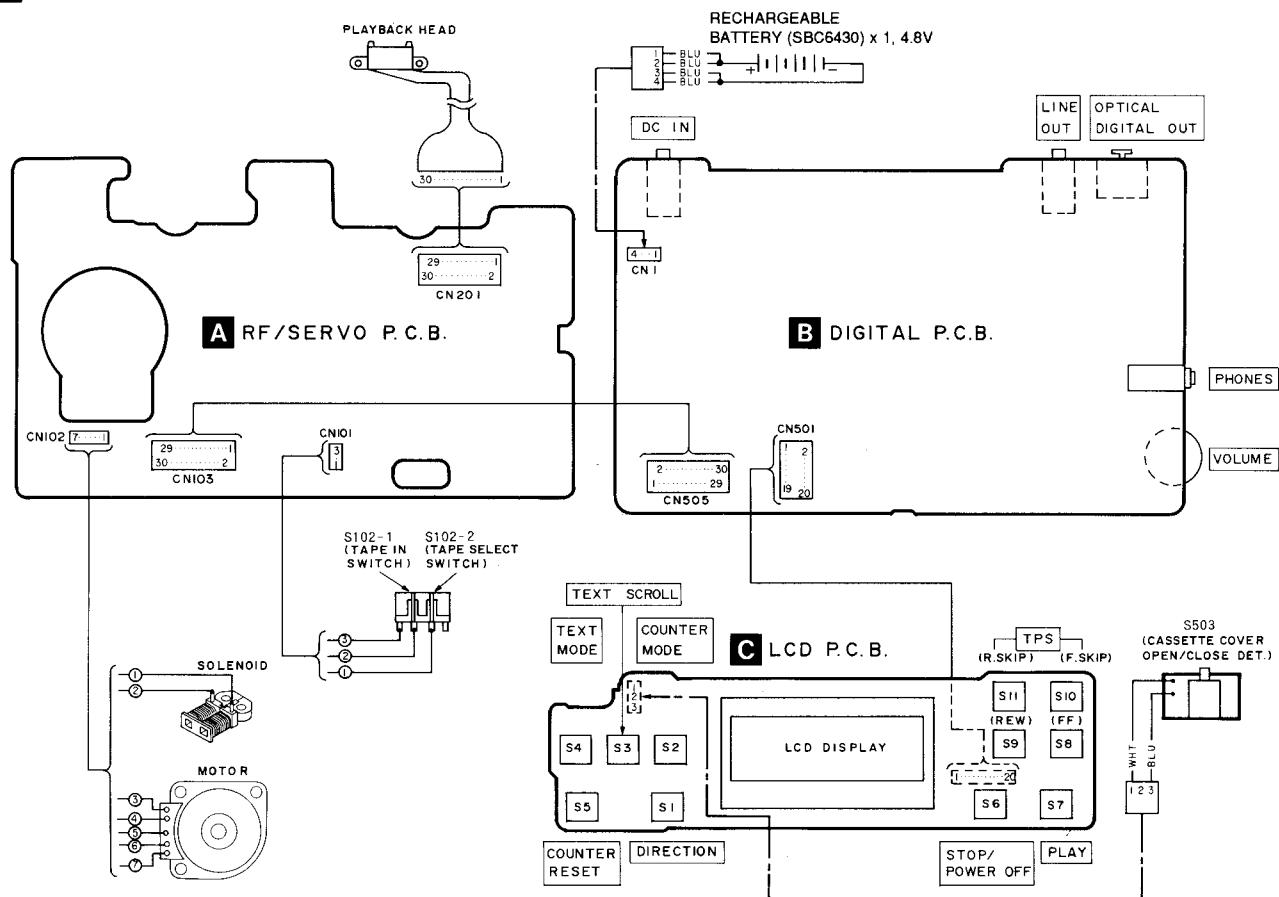
• Layer 4 pattern diagram





26	49	31	40	11	36	2	29	14	13	6	10	17	47	22	19	5	8	20	18	4	23	41	7	37	35	21	39	3	2	48	27	50	28	1	1~50			
62	60	61	80	81	86	51	85	94	84	53	96	82	91	93	95	89	100	69	78	67	87	68	73	71	72	54	76	90	74	75	77	88	58	56	55	57	52	51~100
106	124	103	107	102	104	122	115	117	118	120	114	116	119	121	113	145	144	137	101	135	139	143	140	127	142	141	138	136	130	128	129	174	175	151~150	151~175			
1	167	173	166																																			

■ WIRING CONNECTION DIAGRAM



• Terminal guide of IC's, transistors and diodes

No. 1	<table border="1"> <tr><td>AN1393SNSCE1</td><td>8 Pin</td><td>AN8086SE2</td><td>16 Pin</td></tr> <tr><td>NJM2115MT1</td><td>8 Pin</td><td>UPD63200GSE2</td><td>16 Pin</td></tr> <tr><td>NJM3415MT1</td><td>8 Pin</td><td>BA1106FST2</td><td>20 Pin</td></tr> <tr><td>T75W393FUT12</td><td>8 Pin</td><td>SM5881SET</td><td>22 Pin</td></tr> <tr><td>TC7W00FUT12L</td><td>8 Pin</td><td></td><td></td></tr> </table>	AN1393SNSCE1	8 Pin	AN8086SE2	16 Pin	NJM2115MT1	8 Pin	UPD63200GSE2	16 Pin	NJM3415MT1	8 Pin	BA1106FST2	20 Pin	T75W393FUT12	8 Pin	SM5881SET	22 Pin	TC7W00FUT12L	8 Pin				RN5VL36AAT1 RN5RL40AAT1 TC7S04FTE85L	
AN1393SNSCE1	8 Pin	AN8086SE2	16 Pin																					
NJM2115MT1	8 Pin	UPD63200GSE2	16 Pin																					
NJM3415MT1	8 Pin	BA1106FST2	20 Pin																					
T75W393FUT12	8 Pin	SM5881SET	22 Pin																					
TC7W00FUT12L	8 Pin																							
TK11440MTL TK11445MTL TK11447MTL		MN425610AT1																						
NBC5800		UN5111TW UN5113TW UN5114TW UN521MTW UN5211TW UN5212TW UN5213TW UN5214TW																						
2SB956STW 2SD1628FG-TD		GP2S27T6																						
		MA141WKTW MA142WKTW																						
		MA141WATW																						
		MA143TW MA143TX																						

SCHMATIC DIAGRAM

1 2 3

Note 1:

- The voltage value and waveforms are the reference voltage of this (connect the AC adaptor and portable DC player) measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of GND terminal (DC IN Jack).

Accordingly, there may arise some errors in the voltage values and waveforms depending upon the internal impedance of the tester or measuring unit.

• Important safety notice:

Components identified by Δ mark have special characteristics important for safety. Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used. When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

Note 2:

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE 2.0A 250V FUSE.



RISK OF FIRE-REPLACE FUSE AS MARKED.

FUSE CAUTION

This symbol located near the fuse indicates that the fuse used is fast operating type. For continued protection against fire hazard, replace with same type fuse. For fuse rating, refer to the marking adjacent to the symbol.

Ce symbole indique que le fusible utilisé est à rapide. Pour une protection permanente, n'utiliser que des fusibles de même type. Ce dernier est indiqué là où le présent symbole est apposé.

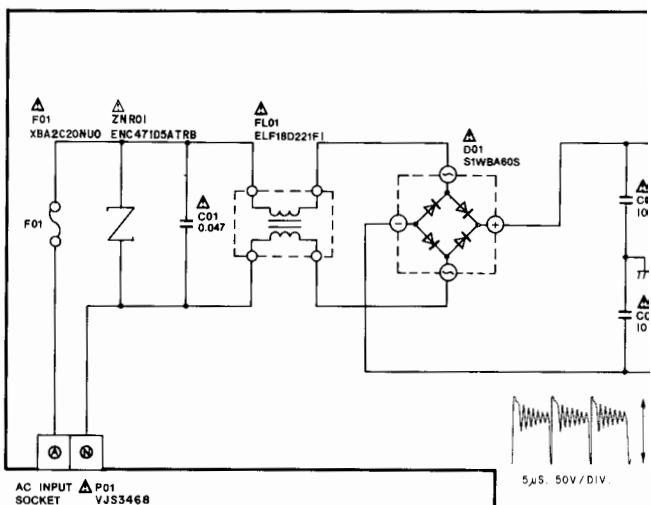
Caution!

IC and LSI are sensitive to static electricity. Secondary trouble can be prevented by taking care during repair.

- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the pins of IC or LSI with fingers directly.

• For AC adaptor

A



B

C

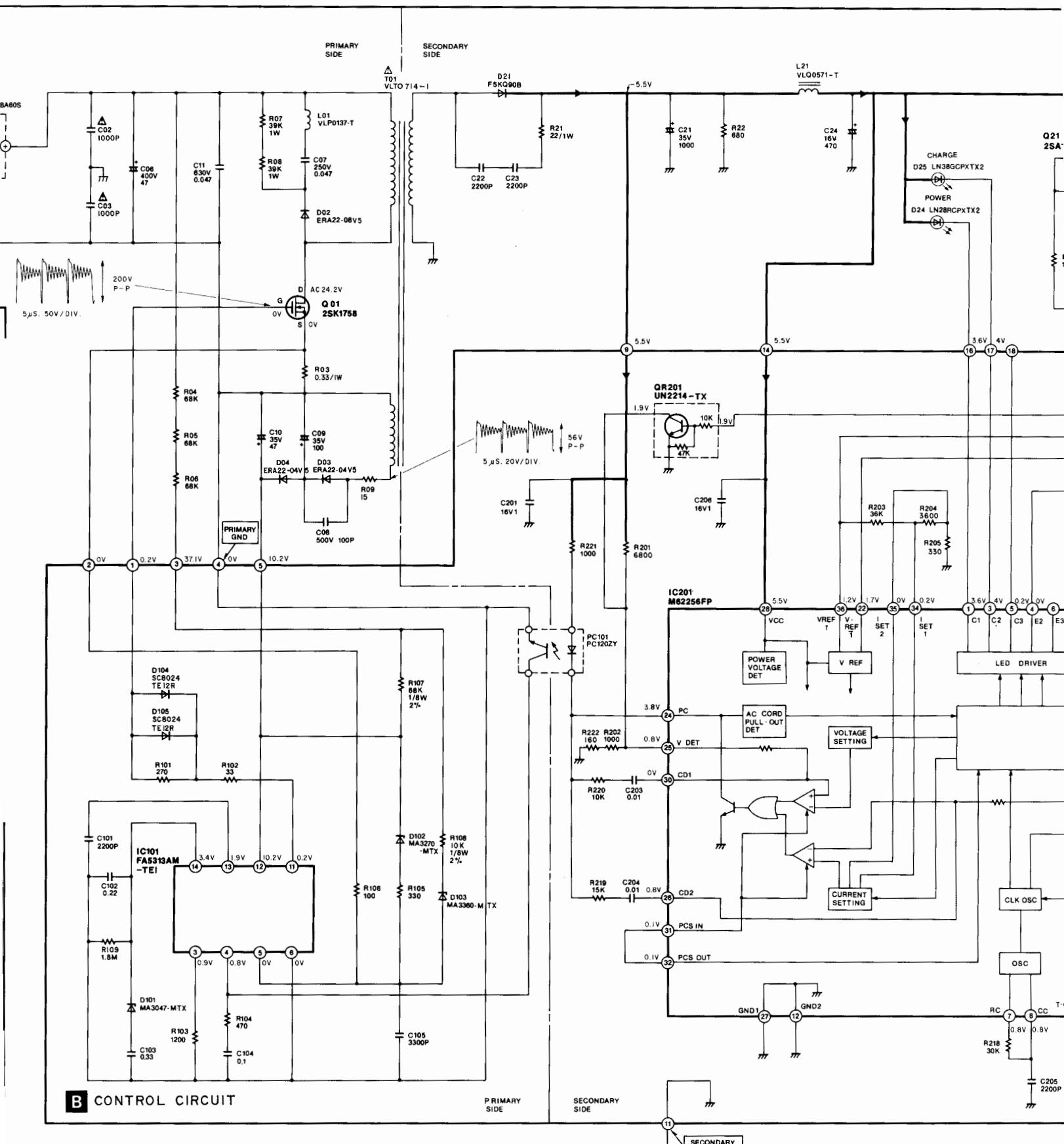
D

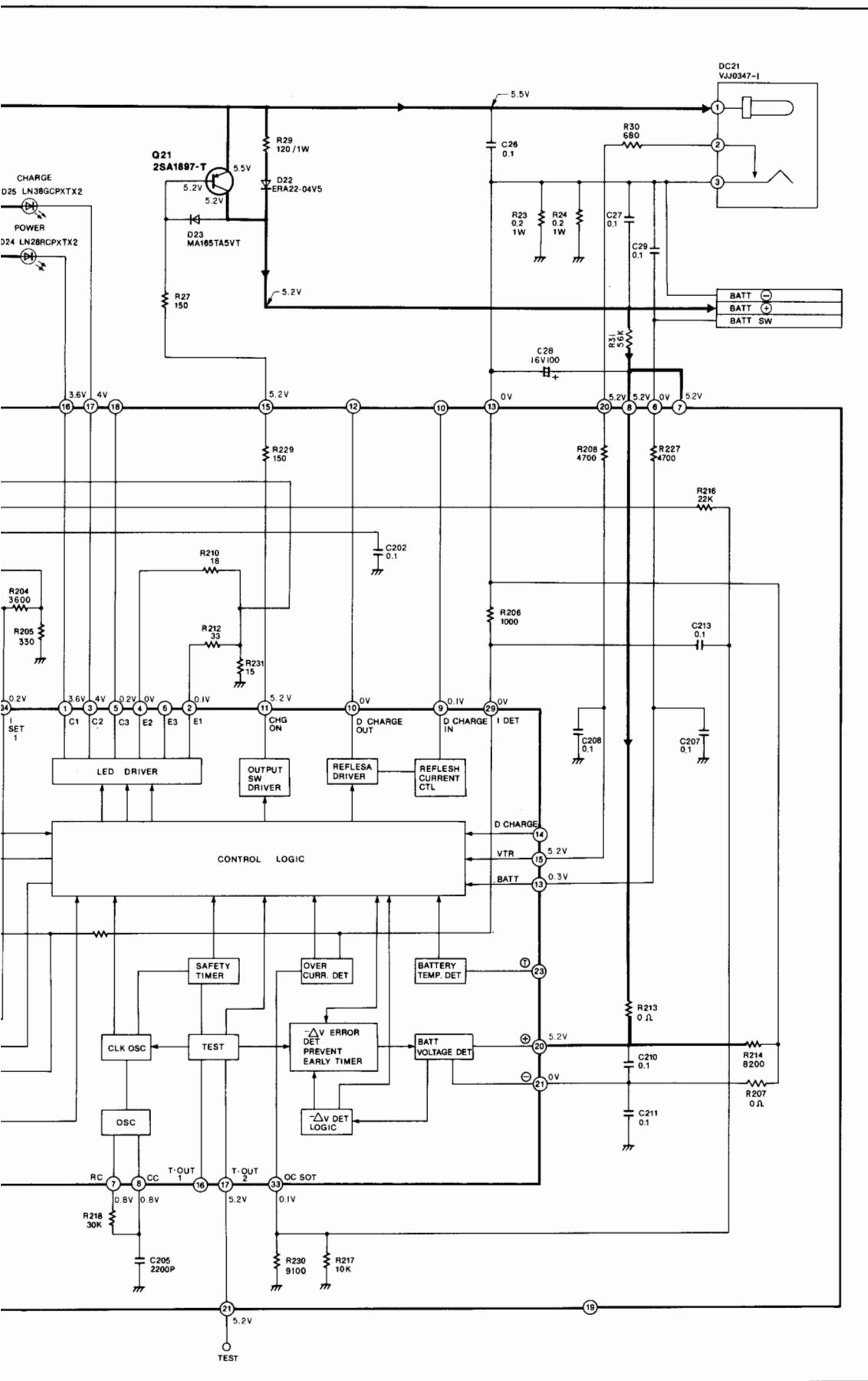
E

F

B CO

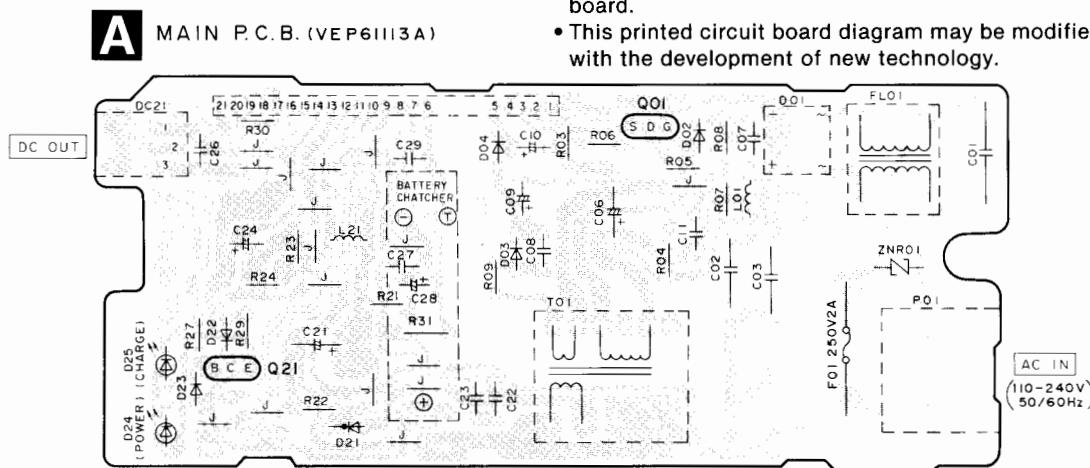
A M



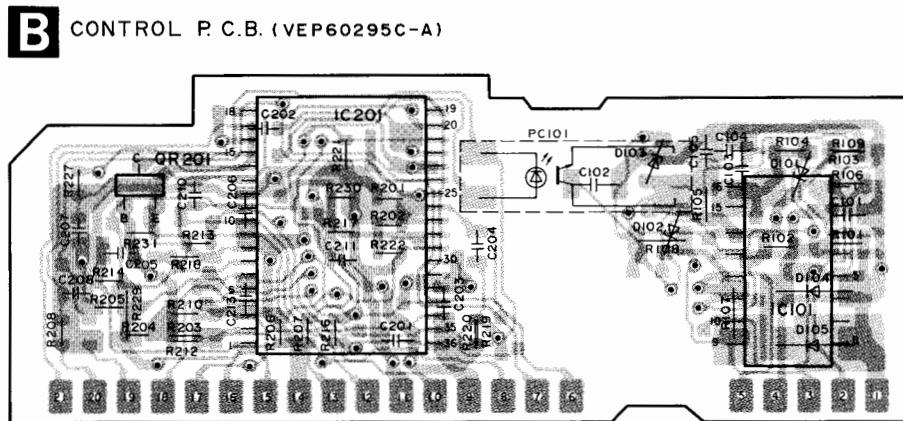


■ PRINTED CIRCUIT BOARDS

A



B



C

D

E

F

G

Notes:

- In this printed circuit board diagram, the parts and foil patterns on the board facing toward you are printed in black. The opposite side is printed in Red.
- The "●" mark denotes the connection points of double-faced foil patterns (through holes) on both sides of the printed circuit board.
- This printed circuit board diagram may be modified at any time with the development of new technology.

• Terminal guide of IC's, transistors and diodes

No.1	FA5313AM-TE1 16 Pin M62256FP 36 Pin	PC120ZY	2SK1758	2SA1897-T
UN2214TX	MA165	ERA22-04V5 ERA22-08V5	F5KQ90B	SC8024TE12R
MA3047-MTX MA3270-MTX MA3360-MTX	S1WBA60S	LN28RCPTX2 LN38GCPPTX2		

■ TERMINAL FUNCTION OF IC'S

- IC1 (AN8086SE2): DC-DC converter control

Pin No.	Mark	I/O Division	Function
1	IN	I	Error amp input
2	FB	O	Error amp output
3	SPRO	I	Short protect input
4	DED	I	Dead time input
5	OUT	O	Switching output
6	GND	—	Ground terminal
7	CT	I	Triangular wave oscillator capacitor input
8	PVCC	I	Power supply terminal

Pin No.	Mark	I/O Division	Function
9	CLK	I	Clock signal input ($f=88.2\text{kHz}$)
10	START	I	Start detection input
11	POWER	I	Power ON/OFF detection terminal
12	VREF	O	Reference voltage output
13	EMP	O	Empty detection output
14	VSEN	I	Empty detection input
15	RESET	O	Reset signal output
16	VCC	I	Power supply terminal

- IC101 (NBC5800): Capstan motor control

Pin No.	Mark	I/O Division	Function
1	W	O	W phase output terminal
2	V	O	V phase output terminal
3	U	O	U phase output terminal
4	HW	O	W phase pre-drive output
5	HV	O	V phase pre-drive output
6	HU	O	U phase pre-drive output
7	PGI	I	PG amp input
8	FGI	I	FG amp input
9	VM	I	Motor power supply terminal
10	PD	O	Phase det. terminal
11	EAO	O	Error amp output
12	EAI	I	Error amp input
13	FGOUT	O	FG amp output
14	PGOUT	O	PG amp output
15	PG	O	PG comparator output
16	VREF	I	Reference voltage terminal

Pin No.	Mark	I/O Division	Function
17	PGREF	I	PG amp non-inversion input
18	VCC	I	Power supply terminal
19	RFM	—	Low frequency setting terminal
20	VCO	O	Voltage control OSC terminal
21	F/R	I	FWD/REV select terminal
22	ETR	I	Torque command voltage input
23	ET	I	Torque command input
24	STB	I	Standby input terminal
25	TL	I	Torque limit terminal
26	PCI	—	Phase compensating of current feedback terminal
27	CBR	—	Condition det. terminal
28	PCV	—	Phase compensating of voltage feedback terminal
29	SW	—	Slope OSC terminal
30	CS	I	Current det. input

• IC102 (MNE201ARTAB1): Servo controller

Pin No.	Mark	I/O Division	Function
1	R64 (RFCR02)	O	Tape select output terminal
2	P63 (SDA)	I	DCC part select input
3	P62 (CSA)	O	Chip select input
4	P61 (SDB)	I	DCC part select output
5	P60 (CSB)	O	Chip Select
6	P57	—	Not connection
7	P56	—	Not connection
8	P55	—	Not connection
9	P54	—	Not connection
10	P53	—	Not used, connected to GND
11	P52	—	Not used, connected to GND
12	P51	—	Not used, connected to GND
13	P50	—	Not used, connected to GND
14	NSBT1 (P07)	—	Test terminal
15	NSBI1 (P06)	—	Test terminal
16	NSBO1 (P05)	—	Test terminal
17	NSBT0 (CLK)	I	Serial clock input
18	NSBI0 (DATA)	I	Serial data input
19	NSBO0 (DATAO)	—	Not connection
20	NRST (NRESET)	I	Reset signal input
21	EXI	—	Not used, connected to GND
22	HSW	—	Not connection
23	VLP	—	Not connection
24	PWM3	—	Not connection
25	PWM2	—	Not connection
26	PWM1	—	Not connection
27	PWM0	O	Torque command output
28	SBUFD7 (TPS OUT)	O	TPS signal output
29	SBUFD6 (SYS/MECA)	—	Connected to resistor and capacitor
30	SBFUD5	—	Not connection
31	OSC2	I	Crystal OSC terminal (f=6MHz)
32	OSC1	O	
33	VSS	—	GND terminal

Pin No.	Mark	I/O Division	Function
34	SBFD4	—	Not connection
35	SBFD3	—	Not connection
36	SBFD2	—	Not connection
37	SBFD1	—	Not connection
38	HBF6	—	Not connection
39	HBF4 (S/S)	O	Standby output
40	HBF2 (R/F)	O	REV/FWD select terminal
41	HBFDD (S06)	O	Plunger control terminal
42	AVMM	—	Not connection
43	PGMM	—	Not used, connected to GND
44	FGI (CAPFG)	I	Motor FG signal input
45	FGF	—	Not connection
46	AFG	—	Not used, connected to GND
47	YFG	—	Not connection
48	YPG	—	Not used, connected to GND
49	AVSS	—	GND terminal
50	VRO (VREF)	O	Servo reference voltage output
51	VRI (VREF IN)	I	Servo reference voltage input
52	CIR (DRLFGS)	I	Supply reel FG input
53	CIF	—	Not connection
54	TPZ	—	Not connection
55	RCTLN	—	Not connection
56	RCLTP	—	Not connection
57	CTLS	—	Not connection
58	CTLH	—	Connected to IC102 ⑩ pin
59	CTLA	—	Connected to IC102 ⑪ pin
60	CTLG	—	Not connection
61	AGC	—	Not connection
62	CO	—	Not connection
63	AVDD	I	Power supply terminal
64	VSYNC (DRLFGT)	I	Take-up reel FG input
65	AD7 (VSYN)	I	Take-up reel FG input
66	AD6 (ENV)	I	Auxiliary search mode det. input
67	AF5 (RSPEED)	I	RVS speed adjustment terminal

Pin No.	Mark	I/O Division	Function
68	AD4 (FSPEED)	I	FWD speed adjustmetn terminal
69	AD3	—	Not used, connected to GND
70	AD2 (TPS)	I	Analog TPS signal input
71	AD1	—	Not used, connected to GND
72	AD0 (ASPEED)	I	Capstan phase information input
73	P77	—	Not connection
74	VDD	I	Power supply terminal
75	P76 (PLAY/REC)	—	Test terminal
76	P75 (SW.PBON/OFF)	—	Test terminal

Pin No.	Mark	I/O Division	Function
77	P74 (DCC/ACC)	I	DCC/ACC tape det. terminal
78	P73 (CRO2)	I	Tape det. (CrO_2) input
79	P72	—	Not used, connected to GND
80	P71 (FWD)	I	Mechanism mode (FWD) det. terminal
81	P70 (RVS)	I	Mechanism mode (RVS) det. terminal
82	ROT	—	Not used, connected to GND
83	HAMP	—	Not used, connected to GND
84	DEW (LOCK)	O	Lock signal output

• IC201, 202 (TDA1318H): Read amp

Pin No.	Mark	I/O Division	Function
1	RDMUX	O	Output of sampled and multiplexed auxillary and data signals
2	OUTX	O	Auxiliary channel preamplifier output
3	MUXINX	I	Auxiliary channel multiplexer input
4	DSENADJ1	—	Adjust pin for DCC sense current 1
5	DSENADJ2	—	Adjust pin for DCC sense current 2
6	DSENADJ3	—	Adjust pin for DCC sense current 3
7	VD14	O	Reference voltage output DCC sense
8	DSEN1	O	DCC sense current output 1
9	DSEN2	O	DCC sense current output 2
10	DSEN3	O	DCC sense current output 3
11	INX0	I	Auxiliary channel input/channel 0 input
12	IN01	I	Channel 0/1 input
13	IN1	I	Channel 1 input
14	INX25	I	Channel Aux/2/5 input
15	IN23	I	Channel 2/3 input
16	IN34	I	Channel 3/4 input
17	IN4	I	Channel 4 input
18	IN56	I	Channel 5/6 input
19	IN67	I	Channel 6/7 input
20	IN7	I	Channel 7 input
21	V14	O	Reference voltage output for DCC/analog inputs
22	OUTR	O	Right channel analog output
23	INMFR	I	Right channel feedback amplifier input

Pin No.	Mark	I/O Division	Function
24	MFR1	O	Right channel feedback amplifier output 1
25	INR	I	Right channel analog input
26	MFR2	O	Right channel feedback amplifier output 2
27	INRL	I	Right/left channel analog input
28	VEEM	—	Ground for feedback amplifiers
29	VCCM	I	Positive supply for feedback amplifiers
30	MFL2	O	Left channel feedback amplifier output 2
31	INL	I	Left channel analog input
32	MFL/	O	Left channel feedback amplifier output 1
33	INMFL	I	Left channel feedback amplifier input
34	OUTL	I	Left channel analog output
35	VR14	O	Reference voltage output CC sense
36	V33	O	ADC Reference voltage output
37	SD	I	Select DCC-part input
38	VDD	I	General positive supply
39	VSS	—	General ground
40	RDCLK	I	Read Clock input
41	RDSYNC	I	Read Sync pulse input
42	CS	I	Chip select input
43	AGC	I	AGC time constant
44	VBIAS	—	DCC preamplifier control voltage

• IC401 (SM5881SET): Digital filter

Pin No.	Mark	I/O Division	Function																																							
1	DSF1	I	de-emphasis input terminal																																							
			<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <th colspan="3">Pin Setting</th> <th colspan="2">DEEM</th> <th>Etc.</th> </tr> <tr> <td>DSF1</td> <td>DSF2</td> <td>fs(Hz)</td> <td>H</td> <td>L</td> <td>Noise Shaper</td> </tr> <tr> <td>L</td> <td>L</td> <td>44.1K</td> <td>ON</td> <td>OFF</td> <td>ON</td> </tr> <tr> <td>L</td> <td>H</td> <td>48.0K</td> <td>ON</td> <td>OFF</td> <td>ON</td> </tr> <tr> <td>H</td> <td>H</td> <td>32.0K</td> <td>ON</td> <td>OFF</td> <td>ON</td> </tr> <tr> <td colspan="3">H L</td><td colspan="2">OFF (test mode)</td><td>OFF</td> </tr> </table>				Pin Setting			DEEM		Etc.	DSF1	DSF2	fs(Hz)	H	L	Noise Shaper	L	L	44.1K	ON	OFF	ON	L	H	48.0K	ON	OFF	ON	H	H	32.0K	ON	OFF	ON	H L			OFF (test mode)		OFF
Pin Setting			DEEM		Etc.																																					
DSF1	DSF2	fs(Hz)	H	L	Noise Shaper																																					
L	L	44.1K	ON	OFF	ON																																					
L	H	48.0K	ON	OFF	ON																																					
H	H	32.0K	ON	OFF	ON																																					
H L			OFF (test mode)		OFF																																					
2	CKI	I	System clock input terminal																																							
3	DSF2	I	De-emphasis select terminal																																							
4	CKO	O	System clock output terminal																																							
5	VSS	—	GND terminal																																							
6	NC	—	Not connection																																							
7	NC	—	Not connection																																							
8	ATT	I	Attenuation signal input ("H": OFF (-12dB), "L": ON (-12dB))																																							
9	DEEM	I	De-emphasis ON/OFF control terminal ("L": OFF, "H": ON)																																							
10	MUTE	I	Muting signal input ("H": Soft mute OFF, "L": Soft mute ON)																																							

Pin No.	Mark	I/O Division	Function	
11	RST	I	System reset (initialize)	
12	BCKO	O	Bit clock output	
13	DOR	O	Rch data output with "OMOD: "H"	
			LR clock output with "OMOD: "L"	
14	DOL	O	Lch data output with "OMOD: "H"	
			L/Rch data output with "OMOD: "L"	
15	WCKO	O	Word clock (8fs) output	
16	VDD	I	Power supply terminal	
17	NC	—	Not connection	
18	NC	—	Not connection	
19	OMOD	I	Output mode select terminal ("H": 18 bit, "L": 16 bit)	
20	LRCI	I	Data sample rate (fs) clock input	
21	BCKI	I	Bit clock (64fs) input	
22	DIN	I	Data (fs×18 bit) input	

• IC402 (UPD63200GSE2): D/A converter

Pin No.	Mark	I/O Division	Function	
1	4/8 SEL	I	L/Rch data input from "LSI" with "L" or open. Lch data input from "LSI" and Rch data input from "RSI" with "H"	
2	DGND	—	Digital GND terminal	
3	BITSL	I	16 bit data mode with "L" or open. 18 bit data mode with "H"	
4	DVDD	I	Power supply terminal	
5	AGND	—	Analog GND terminal	
6	ROUT	O	Rch analog signal output	
7	AVDD	I	Analog power supply terminal	
8	AVDD	I		
9	RREF	—	Reference voltage terminal (Connected to GND by capacitor)	
10	LREF	—		
11	LOUT	O	Lch analog signal output	

Pin No.	Mark	I/O Division	Function	
12	AGND	—	Analog GND terminal	
13	LRCK	I	L/Rch discrimination signal when "4/8 SEL" is "L" or open word discrimination signal when "4/8 SEL" is "H".	
14	RSI	I	L/Rch polarity select signal when "4/8 SEL" is "L" or open Lch data input (LRCK: "H" and RSI: "L"/LRCH: "L" and RSI: "H") Rch serial data input (4/8 SEL: "H")	
15	LSI	I	Serial data input of alternate Lch and Rch when "4/8 SEL" is "L" or open Serial data input of Lch when "4/8 SEL" is "H"	
16	CLK	I	Read clock signal of serial input data	

• IC500 (MNE3214RTAA2): System Control

Pin No.	Port	I/O	Port Name	HPS Use	OFF	STOP	PLAY	FF/REW	SKIP	Remarks			
1	P55	O	ADON	: "H" with AD input	L	H	H	H					
2	P54	O	LIGHT	: LCD back light ON/OFF (H=ON)	L	H	H	H					
3	P53	O	DATA	: SDA, SCA, SDB, SCB, FWD/RVS	L	"H" or "L" with data							
4	P52	O	CLOCK	: MSPEED, MOTORON, REC/PL	L	Transfer clock							
5	P51	O	DSF1	: Frequency select output (1) of digital filter	L	de-emphasis OFF (ACC)	de-emphasis ON						
6	P50	O	DSF2	: Frequency select output (2) of digital filter	L		L	H	L	L			
7	VDD	I	Power supply terminal: 3.5~5.5V		OFF	STOP	PLAY	FF/REW	SKIP				
					4V	4V	4V	4V	4V				
8	OSC1	I	Crystal OSC terminal (f=6MHz)		L	OSC	OSC	OSC	OSC				
9	OSC2	O			L	OSC	OSC	OSC	OSC				
10	VSS	—	GND terminal		GND								
11	XI (P23)	I	System OSC input terminal (Not used)		L	L	L	L	L				
12	XO	I	System OSC input terminal (Not used)		L	L	L	L	L				
13	EX2	I	Operation mode select terminal		L	L	L	L	L				
14	NRESET	I	Reset input terminal		H	H	H	H	H				
15	P26 (IRQ2)	I	STARTSEG :		L	Pulse input							
16	P25 (IRQ1)	I	WAKEUP	: Starting (H→L) from power OFF	H	H	H	H	H				
17	P24 (IRQ0)	I	AENV	: AUX envelope input from DEQ	L	L	L	Envelope waveform					
18	P77	O	D7	Parallel transfer data of LCD		"H" or "L" with transfer data							
19	P76	O	D6										
20	P75	O	D5										
21	P74	O	D4										
22	P73	O	D3										
23	P72	O	D2										
24	P71	O	D1										
25	P70	O	D0										
26	P47	O	PWRDWN	: DC/DC converter operation stop output	H	L	L	L	L				
27	P46 (SIFIN)	O	NKSTART	: DC/DC converter start indication output	L	L	L	L	L	Stand up "H" pulse			
28	P45 (PWM2-)	O	LTenTFE	: LT bus enable line of TFE	L	"H" or "L" signal with LT line data							
29	P44 (PWM2+)	O	LTenDEQ	: LT bus enable line of DEQ	L								
30	P97	O	NRESET0	: Reset output of SERVO/DAI/DF	L	H	H	H	H				
31	P96	O	RESETH	: SFC, TFE reset output	L	L	L	L	L	"H" with reset			
32	P95 (KEY5)	I	ADPDET	: AC adaptor det. input	L	L	L	L	L				
33	P94 (KEY4)	O	PWRLSI	: Power down output of TFE/SFC	L	*	*	*	*	*: "H" with ACC			
34	P43 (PWM1-)	O	LTCNT1	: LT bus control line (1)		"H" or "L" signal with LT bus control							
35	P42 (PWM1+)	O	LTCNT0	: LT bus control line (2)									
36	P41 (PWM0-)	O	LTenDAI	: LT bus enable line of DAI									
37	P40 (PWM0+)	O	LTenSFC	: LT bus enable line of SFC									
38	P22 (TCI04)	I	DRLFGT	: Take-up reel pulse input	L	L	Reel pulse waveform input						
39	P21 (TCI02)	I	DRLFGS	: Supply reel pulse input	L	L							
40	P20 (TCI01)	O	BUZZER	: Buzzer output of remote control	L	Pulse output with remote control operation							
41	P17 (SBT2)	O	LTCLK	: LT bus clock line	L	"H" or "L" singal with LT bus control							
42	P16 (SBD2)	I/O	LTDATA	: LT bus data line	L								

Pin No.	Port	I/O	Port Name	HPS Use	OFF	STOP	PLAY	FF/REW	SKIP	Remarks
43	P15 (TRXC)	*		: (Not used)	L	L	L	L	L	
44	P14 (RXD)	*		: (Not used)	L	L	L	L	L	
45	P13 (TXD)	O	E	: LCD driver data R/W starting output	L	"H" or "L" signal with indication data transfer				
46	P12 (/SBT1)	O	R/W	: LCD driver data R/W select output	L	"L" with read				
47	P11 (/SBI1)	O	RS	: LCD driver IR/DR select output	L					
48	P10 (/SB01)	*		: (Not used)	L	L	L	L	L	
49	VDD	I		: Power supply terminal	4V	4V	4V	4V	4V	
50	AVDD	I		: Power supply terminal	4V	4V	4V	4V	4V	
51	VREFH	I		: Power supply terminal	4V	4V	4V	4V	4V	
52	P87 (AD7)	I	S0	: Mechanism key input (1)	4V	Voltage change with key input (Normal: 4V)				
53	P86 (AD6)	I	S1	: Mechanism key input (2)	4V					
54	P85 (AD5)	I	REVHOLD	: Reverse mode/HOLD SW input	4V	Voltage change with SW position				
55	P84 (AD4)	I	DCC/ACC	: ACC/DCC det. input	L	*	*	*	*	*: "H" with DCC
56	P83 (AD3)	I	MODESEL	:	H	H	H	H	H	
57	P82 (AD2)	I	DEQSEL	:	H	H	H	H	H	
58	P81 (AD1)	I	REMCOR	: Remote control input	L	Voltage output with key input				
59	P80 (AD0)	I	BATTERY	: Battery voltage check input	L	Voltage output with battery det.				
60	VREFL	—		: GND terminal	GND					
61	AVSS	—		: GND terminal	GND					
62	VSS			: GND terminal	GND					
63	P37 (SD7)	I	VIRGIN	: Virgin det. terminal	L	L	L	L	*	(DCC) "H" with virgin det.
64	P36 (SD6)	I	RSTSEL	: Reset start select input	H	H	H	H	H	
65	P35 (SD5)	I	LOCK	: Not used	L	L	L	L	L	
66	P34 (SD4)	I	RVS	: Mechanism mode (RVS) det. SW input	STOP			A side Play		B side Play
67	P33 (SD3)	I	FWD	: Mechanism mode (FWD) det. SW input				H	H	L
68	P32 (SD2)	I	SILENCE	: Schedule of analog music det. signal	L	"H" with play signal				
69	P31 (SD1)	I	OPENDET	: Cassette lid open/close det. input	H	"H" with cassette lid close				
70	P30 (SD0)	I	DLBIN	: Dolby NR det. terminal	L	"H" with dolby in				
71	P67	O	SYNCDAI	: DAI mode setting timing output	L	Pulse output				
72	P93 (KEY3)	I	LABEL	: Label input	L	L	L	L	*	(DDC) *: "H" with label det.
73	P92 (KEY2)	O	USYNC1	: U bit output with DAI	L	H	H	H	H	DCC only
74	P91 (KEY1)	I	TAPEIN	: Wake-up and tape det. terminal	"H" with no tape					
75	P90 (KEYO)	I	IRQU	: Buffer workflow det. input of DAI	L	H	H	H	H	DCC only
76	P66	*								
77	P65	*		Not used						
78	P64	*								
79	P63 (TPS DLB)	O	DLBOUT	: Dolby ON/OFF select with TPS	L	Dolby in: "H"				ACC only
80	P62	O	DSOL	: Mode select solenoid suction output	L	"H" with plunger suction				
81	P61	O	D/nACC	: Digital/analog select output	L	"L" with ACC, "H" with DCC				
82	P60	O	LEDON/OFF	: LED ON/OFF control output	L	H	L	"H" or "L" signal		
83	P57	O	LINEMUTE	: Line out mute output	L	H	L	H	H	
84	P56	*	Not used							

• IC502 (SAA2032GP): DEQ

Pin No.	Mark	I/O Division	Function
1	DIGEYE	O	Serial data output for eye pattern
2	RDSYMC	O	SYNC data for Read Amplifier (push-pull output)
3	RDCLK	O	Data Clock for Read Amplifier (push-pull output)
4	TESTI	—	Connect to V _{SS}
5	PBDAT	I	Analog time multiplexed input from Read Amplifier
6	REFL	I	Lower reference voltage (+1V) for ADC
7	REFH	I	Upper reference voltage (+3.1V) for ADC
8	VSSA	—	Analog substrate (0V)
9	BIASAD	—	Bias current for A-D converter (sinks current from VDD via 12kΩ)
10	VSS (AD)	—	Supply ground (0V) for ADC
11	VDD (AD)	I	Positive supply (+5V) for ADC
12	VDD	I	Positive supply (+5V)
13	VSS	—	Supply ground (0V)
14	VSS (DA)	—	Supply ground (0V)
15	ANEYE	O	Analog eye voltage output
16	BIASD	—	Do not connect
17	VSS	—	Supply ground (0V)
18	TSTI	—	Do not connect
19	TSTI	—	Do not connect
20	TSTI	—	Do not connect
21	TSTI	—	Do not connect
22	TCH0	O	Channel 0 output for SAA2022 (DCC Drive Signal Processing) (push-pull output)
23	TCH1	O	Channel 1 output for SAA2022 (push-pull output)
24	TCH2	O	Channel 2 output for SAA2022 (push-pull output)

Pin No.	Mark	I/O Division	Function
25	TCH3	O	Channel 3 output for SAA2022 (push-pull output)
26	TCH4	O	Channel 4 output for SAA2022 (push-pull output)
27	TCH5	O	Channel 5 output for SAA2022 (push-pull output)
28	TCH6	O	Channel 6 output for SAA2022 (push-pull output)
29	TCH7	O	Channel 7 output for SAA2022 (push-pull output)
30	TCHAUX	O	Aux channel output for SAA2022 (push-pull output)
31	LTDATA	I/O	Microcontroller I/O data interface (3 state push-pull output and input: CMOS levels)
32	LTEMDEQ	I	Microcontroller interface enabling (CMOS input levels)
33	LTCNT1	I	Microcontroller interface; mode control 1 (CMOS input levels)
34	LTCNT0	I	Microcontroller interface; mode control 0 (CMOS input levels)
35	LTCLK	I	Microcontroller bit-clock interface (CMOS input levels)
36	VIRGIN	O	Search mode virgin detection output
37	LABEL	O	Search mode label detection output
38	ENV	O	Search mode auxiliary detection output
39	VSS	—	Supply ground (0V)
40	SH0	I	Test input connected to VSS
41	SH1	I	Test input connected to VSS
42	TST1	I	Test input to be connected to VSS
43	CLK24	I	Clock input; typical frequency 24.576MHz (CMOS input)
44	STAOEYE	O	Synchronization output for DIGEYE

• IC504 (MN425610AT1): DRAM

Pin No.	Mark	I/O Division	Function
1	DQ1	I/O	Data input/output terminal
2	DQ2	I/O	Data input/output terminal
3	WE	I	Write enable input
4	RAS	I	Low address strobe terminal
5	NC	—	Not connection
6 9	A0 A3	I	Address input terminal
10	VCC	I	Power supply terminal

Pin No.	Mark	I/O Division	Function
11 15	A4 A8	I	Address input terminal
16	OE	I	Output enable input
17	CAS	I	Column address strobe terminal
18	DQ3	I/O	Data input/output terminal
19	DQ4	I/O	Data input/output terminal
20	VSS	—	GND terminal

• IC503 (SAA2022GP): TFE

Pin No.	Mark	I/O Division	Function
1	LTREF	O	Timing reference terminal of microcomputer interface
2	LTDATA	I	Data input terminal of microcomputer interface
3	LTCNT1	I	Control input terminal of microcomputer interface
4	LTCNT0	I	Control input terminal of microcomputer interface
5	LTCLK	I	Bit clock input of microcomputer interface
6	LTEN	I	Enable terminal of microcomputer interface
7	VSS2	—	GND terminal
8	VDD2	—	Power supply terminal
9	NRAS	O	Low address strobe terminal of DRAM
10	NWE	O	Write enable terminal of DRAM
11 14	D3 D0	I/O	Data input/output terminal of DRAM
15	NCAS	O	Column address strobe terminal of DRAM
16	NOE	O	Output enable terminal of DRAM
17 25	A8 A0	O	Address terminal of DRAM
26	VSS3	—	GND terminal
27	VDD3	I	Power supply terminal
28	WCLOK	O	Clock output of write amp. transfer
29	WDATA	O	Serial data output of write amp.
30	SPEEDA	O	Capstan phase information output
31	SPDAF	O	Capstan frequency information output
32	PINO1	O	Output-terminal of expander
33	TAUX	I	Aux channel input
34	TCH7	I	Main data channel (7) input
35	TCH6	I	Main data channel (6) input
36	TCH5	I	Main data channel (5) input

Pin No.	Mark	I/O Division	Function
37	TCH4	I	Main data channel (4) input
38	TCH3	I	Main data channel (3) input
39	TCH2	I	Main data channel (2) input
40	TCH1	I	Main data channel (1) input
41	TCH0	I	Main data channel (0) input
42	VSS1	—	GND terminal
43	VDD1	I	Power supply terminal
44	CLK24	I	Clock ($f=24.576\text{MHz}$) input
45	TEST0	—	Test terminal
46	TEST1	—	Test terminal
47	PWRDWN	I	Standby mode select terminal
48	RESET	I	Reset input terminal
49	PINI	I	Input terminal of expander
50	SPEEDB	O	Output terminal of expander
51	SPDBF	O	Output terminal of expander
52	AZCHK	O	Azimuth check (ch0, 7) terminal
53	ERCOSTAT	O	Not connection
54	PRCSTAT	O	Not connection
55	MCLK	O	Master clock ($f=6.144\text{MHz}$) output
56	SBMCLK	I	Sub-band I ² S master clock input
57	SBEF	O	Sub-band I ² S byte error output
58	VSS4	—	GND terminal
59	VDD4	I	Power supply terminal
60	SBWS	I/O	Sub-band I ² S word select input/output terminal
61	SBCL	I/O	Sub-band I ² S bit clock input/output terminal
62	SBDA	I/O	Sub-band I ² S data input/output terminal
63	SBDIR	O	Sub-band I ² S command output
64	URDA	O	Sub-band I ² S needless data treatment terminal

• IC505 (SAA2002GP): SFC

Pin No.	Mark	I/O Division	Function
1	FS256	O	(Filtered)-I ² S clock; 256 × sample frequency. 12mA, 3-state output + CMOS input with pull-down
2	MUTEDAC	O	DAC control/output expander
3	DEEMDAC	O	DAC control/output expander
4	ATTDAC	O	DAC control/output expander
5	VSS	—	Supply ground (0V)
6	URDA	I	Unreliable drive processing data; CMOS level
7	SBDIR	I	Sub-band I ² S direction (SWBS, SBCL); CMOS level
8	SBDA	I	Sub-band I ² S data; 4mA, 3-state output + CMOS input with pull-down
9	SBCL	I	Sub-band I ² S bit clock; 4mA, 3-state output + CMOS input with pull-down
10	SBWS	I	Sub-band I ² S word select; 4mA, 3-state output + CMOS input with pull-down
11	SBEF	I	Sub-band I ² S byte error flag; CMOS level
12	SBMCLK	O	Sub-band I ² S clock, 6.144MHz locked to FS256; 8mA, 3-state output + CMOS input with pull-down
13	SYNCDAI	O	DAI synchronization pulse
14	FDIR	O	(Filtered)-I ² S direction: (FDAC, FDAF, SDA);
15	FKESET	O	Reset signal for SAA2012
16	FSYNC	O	Filtered-I ² S sync signal for SAA2012
17	FDAF	I/O	Filtered-I ² S sub-band filter data; 4mA, 3-state output + CMOS input with pull-down
18	FDAC	I/O	Filtered-I ² S sub-band codac data; 4mA, 3-state output + CMOS input with pull-down
19	SCL	I/O	I ² S bit clock; 4mA, 3-state output + CMOS input with pull-down

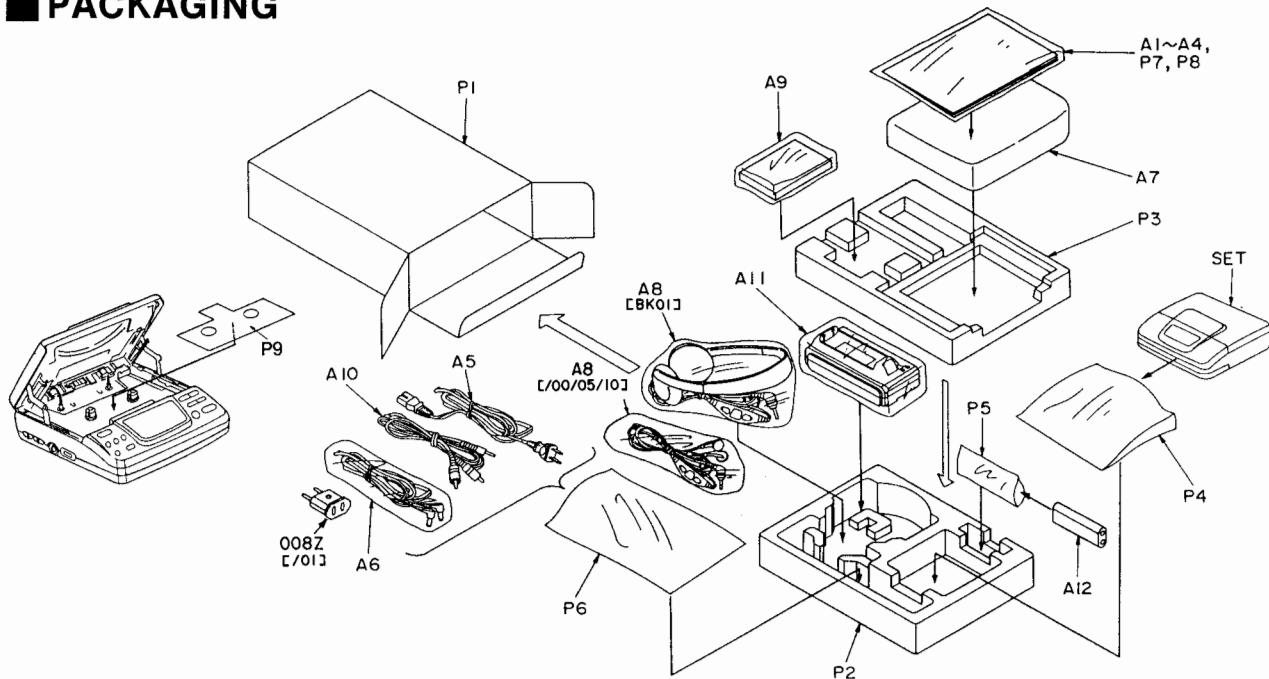
Pin No.	Mark	I/O Division	Function
20	SWS	I/O	I ² S-word select; 4mA, 3-state output + CMOS input with pull-down
21	SDA	I/O	I ² S baseband data filter; 4mA, 3-state output + CMOS input with pull-down
22	PWRDWN	I	Power-down mode; CMOS level
23	DSC4	—	Test pin
24	DSC3	—	Test pin
25	DSC2	—	Test pin
26	DSC1	—	Test pin
27	DSC0	—	Test pin
28	VDD	I	Positive supply voltage (+5V)
29	RESET	I	System reset; CMOS level with pull-down and hysteresis
30	T1	—	Test pin; do not connect
31	T0	—	Test pin; do not connect
32	LTDATA	I/O	LT interface data; 4mA, 3-state output + CMOS input with pull-down
33	LTCLK	I	LT interface bit clock; CMOS level
34	LTENSFC	I	LT interface enable; CMOS level
35	LTCNT0	I	LT interface control; CMOS level
36	LTCNT1		
37	VSS	—	Supply ground (0V)
38	CLK22	O	22.5792MHz buffered output
39	CLK24	O	24.576MHz buffered output
40	X22IN	I	22.5792MHz crystal input
41	X22OUT	O	22.5792MHz crystal output
42	X24IN	I	24.576MHz crystal input
43	X24OUT	O	24.576MHz crystal output
44	VDD	I	Positive supply voltage (+5V)

• IC506 (M51581GP): DAI

Pin No.	Mark	I/O Division	Function
1	TX	O	Digital audio interface format output
2	NRSTDAL	I	Rest terminal: "0" reset (Microcomputer mode: transmission mode, $f_s = 48\text{kHz}$, TX disable)
3	RX1	I	EIAJ format digital audio data input (1): coaxial cable
4	NFRX1	O	RX1 level converter output
5	RX2	I	EIAJ format digital audio data input (2): optical cable
6	SELRX	I	RX input select ("1": RX1, "0" RX2) Microcomputer mode: SELRX polarity select
7	PD1	O	Phase comparator output of charge pump VCO
8	PD2	O	
9	UNLOCK	O	Unlock det. output ("1": unlock)
10	RXCKI	I	VCO clock input (256fs)
11	RXCKO	O	VCO clock output (RXCKI)
12	SDA (SDATA)	I	Serial audio data input terminal (Input exclusive except I ² S format)
13	SCL (BCLK)	I/O	Audio data bit clock input/output terminal
14	SWS (LRCK)	I/O	Audio data word select input/output terminal
15	SDADAT	I	Serial audio data output
16	SAODAT	I	AD converter serial audio input
17	VSS	—	GND terminal
18	ADSEL	I	Serial audio data source select terminal ["1": analog (AD converter), "0": digital (RX), microcomputer mode: ADSEL polarity select]
19	FLAGI	I	Error flag input
20	FLAGO	O	Error flag output
21	WCK	O	Word clock output (Received: 2fs)
22	ASL	I	Audio data sample length select terminal ("1": 24 bit, "0": 1 bit)
23	IIS	I	Audio data format select terminal ("1": I ² S, "0": except I ² S)
24	MSBF	I	MSB select terminal ("1": MSB first, "0": LSB first)

Pin No.	Mark	I/O Division	Function															
25	LRCKPOL	I	LRCK polarity select terminal ("1": Lch→1, "0": Lch→0)															
26	256FS	I/O	Master clock input/output terminal															
27	CKSEL	I	Master clock frequency select terminal ("0": 256fs, "1": 128fs)															
28	REFCK	I	Reference clock input to check sampling frequency accuracy															
29	CKACO	O	Checking terminal of sampling frequency accuracy															
30	MUTE	I	Muting control terminal ("1": mute, microcomputer mode: muting control polarity select)															
31	DAIM00	I	Mode select terminal															
			<table border="1"> <tr> <th>M00</th> <th>M01</th> <th>Mode</th> </tr> <tr> <td>0</td> <td>0</td> <td>Microcomputer</td> </tr> <tr> <td>0</td> <td>1</td> <td>Easy</td> </tr> <tr> <td>1</td> <td>0</td> <td>Full transparent</td> </tr> <tr> <td>1</td> <td>1</td> <td>Test</td> </tr> </table>	M00	M01	Mode	0	0	Microcomputer	0	1	Easy	1	0	Full transparent	1	1	Test
M00	M01	Mode																
0	0	Microcomputer																
0	1	Easy																
1	0	Full transparent																
1	1	Test																
32	DAIM01	I																
33	LTENDAI	I	LT interface enable terminal ("1": enable)															
34	LTCLK	I	LT interface data bit clock input															
35	LTDATA	I	LT interface data input															
36	LTCNT1	I	LT interface control terminal															
			<table border="1"> <tr> <th>CNT1</th> <th>CNT0</th> <th>Mode</th> </tr> <tr> <td>0</td> <td>0</td> <td>C bit data</td> </tr> <tr> <td>0</td> <td>1</td> <td>U bit data</td> </tr> <tr> <td>1</td> <td>0</td> <td>Setting</td> </tr> <tr> <td>1</td> <td>1</td> <td>Status</td> </tr> </table>	CNT1	CNT0	Mode	0	0	C bit data	0	1	U bit data	1	0	Setting	1	1	Status
CNT1	CNT0	Mode																
0	0	C bit data																
0	1	U bit data																
1	0	Setting																
1	1	Status																
37	LTCNT0	I																
38	VDD	I	Power supply terminal															
39	VSS	—	GND terminal															
40	SYNCDAI	I	Setting latch clock input															
41	IRQU	O	U bit data information indicator output															
42	USYNCI	I	U bit data unit indicator input (transmission)															
43	USYNCO	O	U bit data unit indicator output (reception)															
44	IRSTRT	O	U bit data message start indicator output															

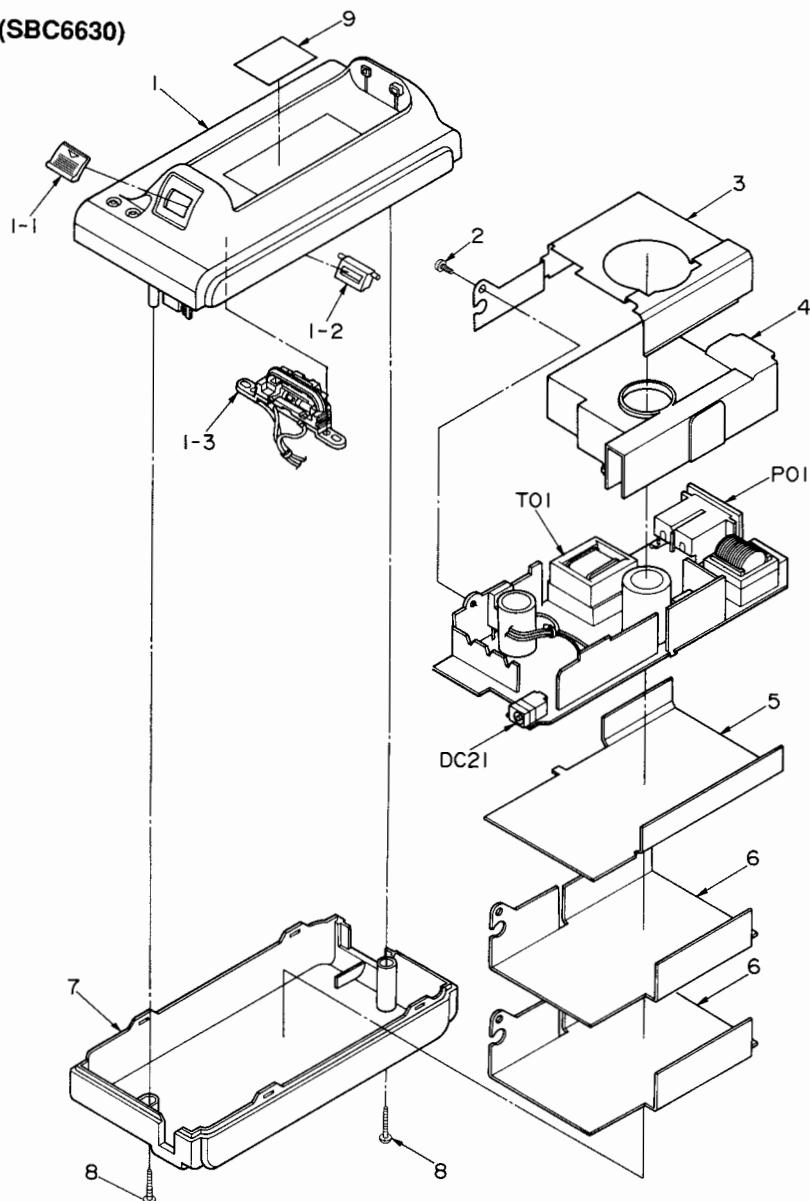
■ PACKAGING



REF. DESIG.	PART NO.	DESCRIPTION
		PACKING
A1	4822 736 21833	USER'S MANUAL [/00/01/05/10]
A1	4822 736 21832	USER'S MANUAL [BK01]
A5	4822 321 11016	AC CORD [/10]
A5	4822 321 11015	AC CORD [/00/01]
A5	4822 321 11014	AC CORD [/05]
A5	4822 321 11013	AC CORD [BK01]
A6	4822 321 11017	DC CORD
A7	4822 600 70731	CARRYING CASE
A8	4822 242 50079	HEAD PHONE, IN EAR [/00/01/05/10] SBC3311
A8	4822 242 50081	HEAD PHONE, BAND [BK01] SBC3327
A10	4822 321 62146	PIN PLUG, LINE CORD
A11	4822 272 10359	AC ADAPTOR [/10] SBC6630
A11	4822 272 10357	AC ADAPTOR [/05] SBC6630
A11	4822 272 10358	AC ADAPTOR [/00] SBC6630
A11	4822 272 10356	AC ADAPTOR [BK01] SBC6630
A12	4822 138 10537	BATTERY PACK, Ni-Cd DC4.8V 1300mA SBC6430
008Z	4822 267 31133	AC PLUG ADAPTOR [/01]

■ CABINET PARTS LOCATION

- For AC adaptor (SBC6630)

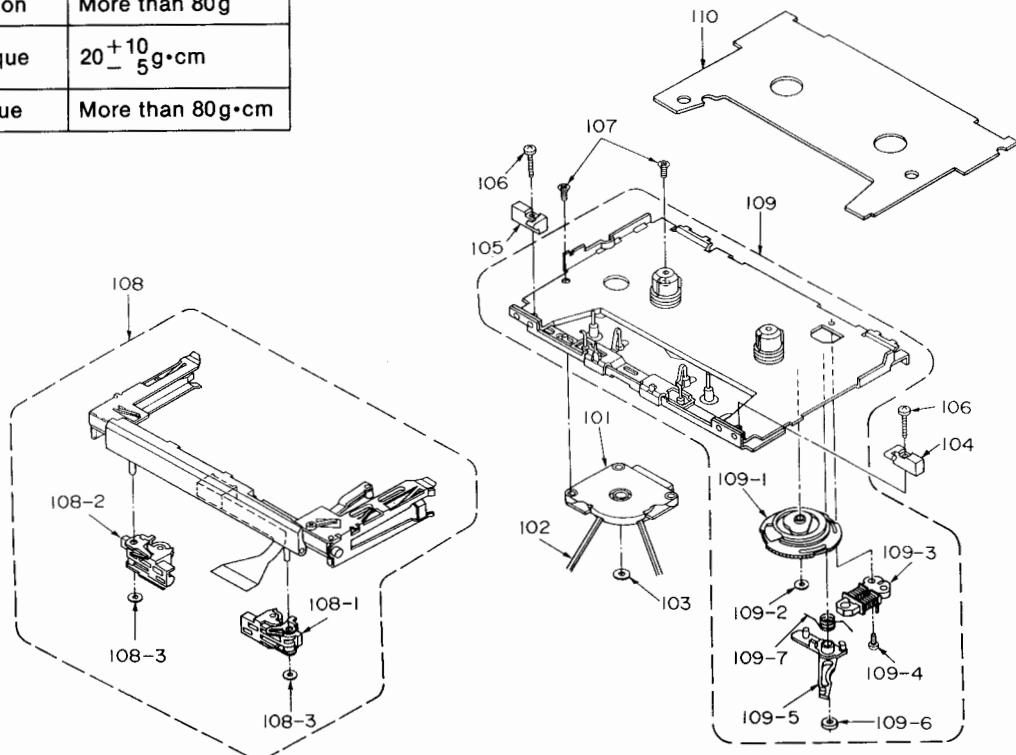


REF. DESIG.	PART NO.	DESCRIPTION
1		CASE, TOP
1-1		KNOB, LOCK
1-2		CONTROL BOARD, SLIDE PIECE
1-3		LOCK, BATTERY CATCHER
2		SCREW
3		SHIELD
4		INSULATOR
5		INSULATOR
6		SHIELD
7		CASE, BOTTOM
8		SCREW

MECHANISM PARTS LOCATION

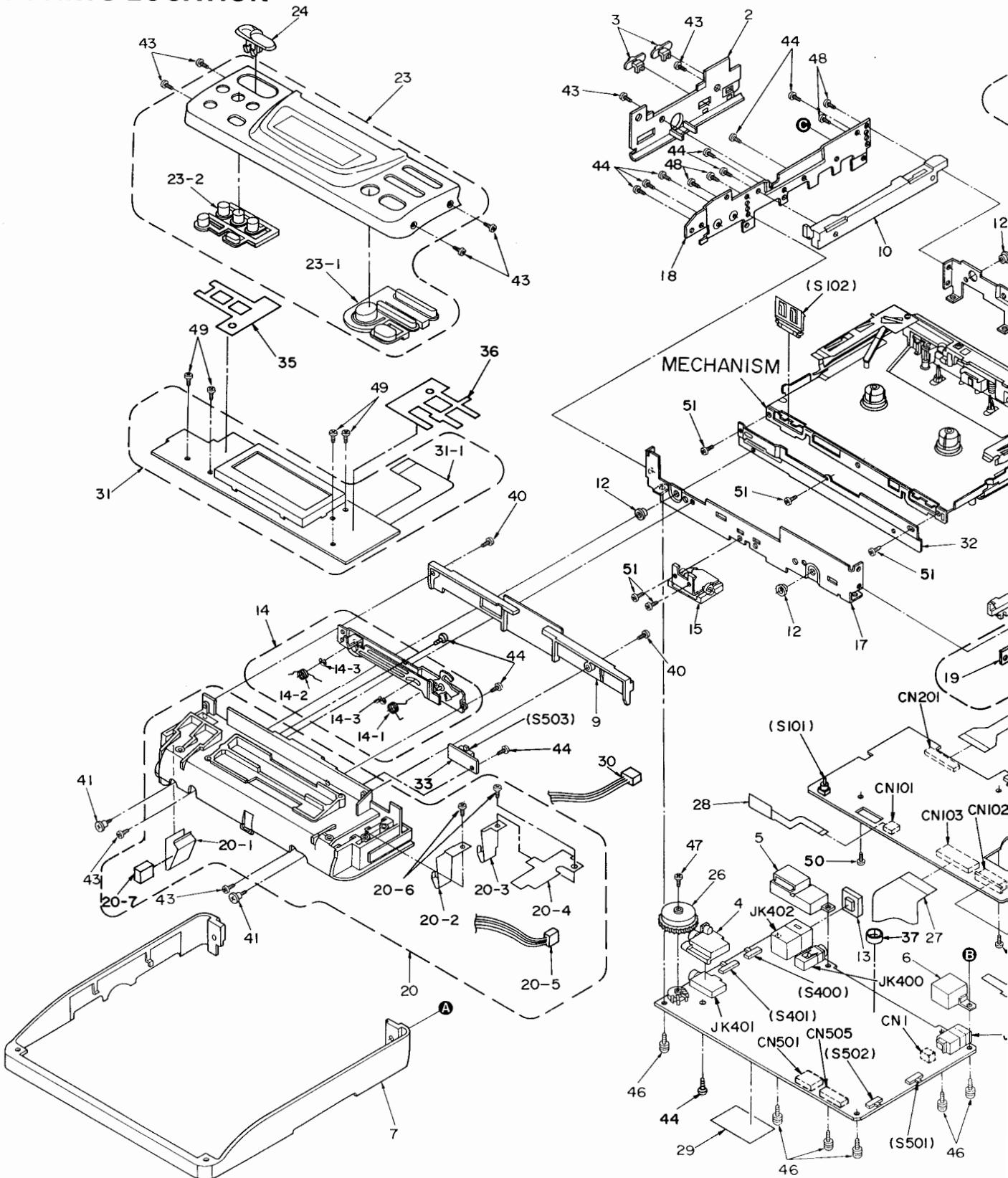
	FWD & REV mode
Wow and flutter	0.3% (WRMS) with ACC
Pressure of pinch roller	250±20g
Take-up tension	More than 80g
Playback torque	20^{+10}_{-5} g·cm
FF/REW torque	More than 80g·cm

The parts enclosed in the dotted boxes are supplied as a block assembly. Therefore, they are not supplied separately except parts indicated with Ref. No.



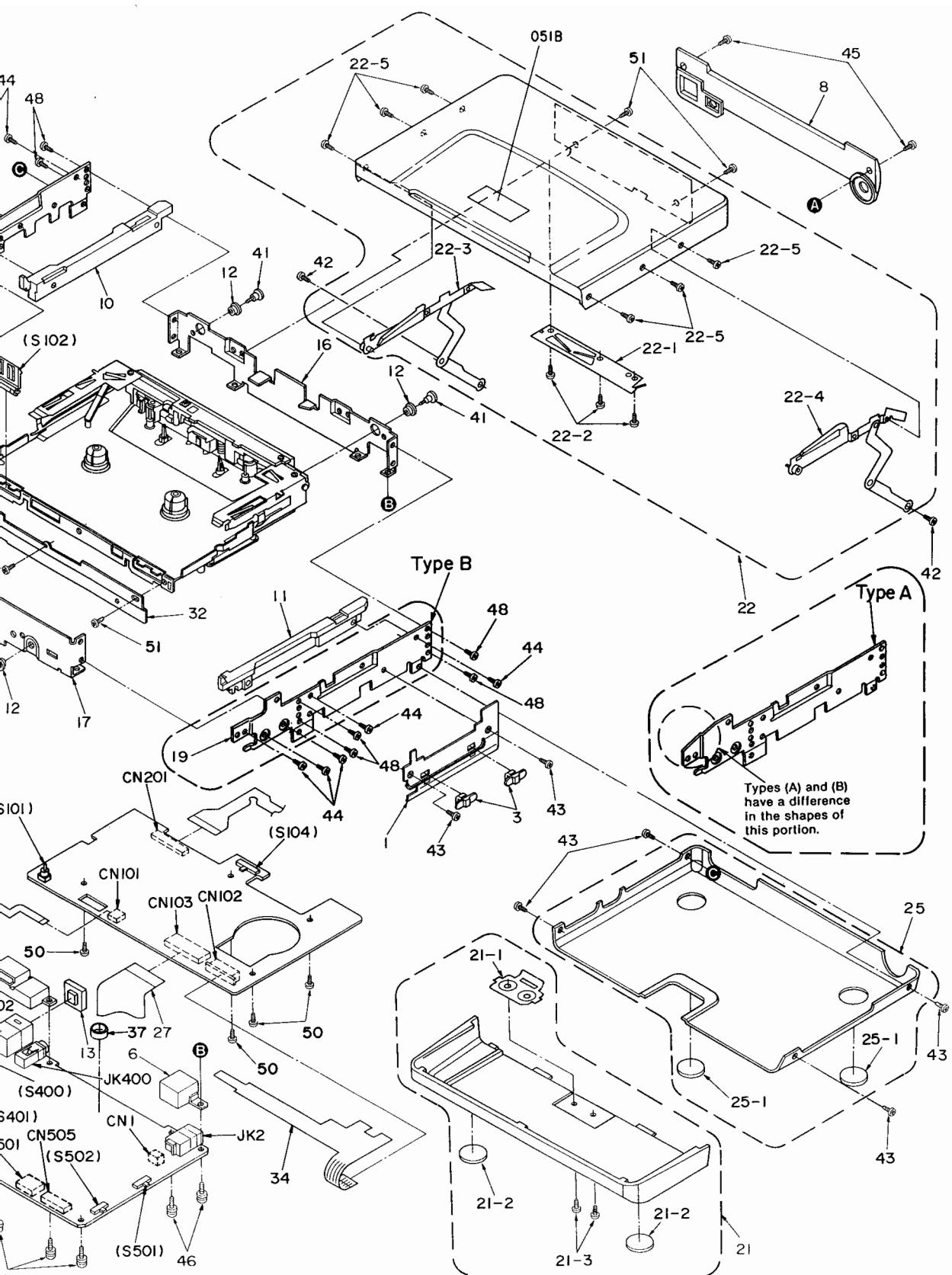
REF. DESIG.	PART NO.	DESCRIPTION
101	4822 361 21654	D.C.MOTOR HPX26NB5AT
102	4822 358 31272	BELT, CP
103		WASHER
104		SUPPORT, HOLD PIECE R
105		SUPPORT, HOLD PIECE L
106		SCREW
107		SCREW
108	4822 403 70978	MECHANISM, HEAD BLOCK UNIT
108-1	4822 528 70833	ROLLER, ARM R UNIT
108-2	4822 528 70834	ROLLER, ARM L UNIT
108-3		WASHER, NYLON
109	4822 464 50984	CHASSIS, BLOCK UNIT
109-1		GEAR, CAM
109-2		WASHER
109-3	4822 281 50183	SOLENOID COIL
109-4		SCREW
109-5		LEVER, TRIGGER
109-6		WASHER
109-7		SPRING
110		ESCUTCHEON, MECHA

CABINET PARTS LOCATION



There are two types of mechanism chassis (R), namely Type A and Type B. These two types are not interchangeable with each other. For replacement, take the following procedure:

- When replacing the front cabinet ass'y, make sure to replace the mechanism chassis (R). (See illustration)
- If the mechanism chassis (R) is type A, then the front cabinet ass'y which is encased with the front cabinet ass'y must be replaced together.
- If the mechanism chassis (R) is type E, then the front cabinet ass'y (R) encased with the front cabinet ass'y must be replaced. Disuse it.



For the front cabinet ass'y, make sure of the shape of the mechanism chassis (R). (See illustration.)

If the mechanism chassis (R) is type A, the mechanism chassis (R), which is assembled with the front cabinet ass'y, is joined together.

If the mechanism chassis (R) is type B, the mechanism chassis (R), which is assembled with the front cabinet ass'y, need not be joined together.

Do not disassemble it.

When replacing the mechanism chassis (R).

- The front cabinet ass'y need not be replaced.
- Replace the mechanism chassis (R)

only.

REF. DESIG.	PART NO.	DESCRIPTION	REF. DESIG.	PART NO.	DESCRIPTION
1	4822 454 21093	ESCUTCHEON, SWITCH	S102	4822 276 13446	PUSH SWITCH
2	4822 454 21094	ESCUTCHEON, JACK	S503	4822 277 21713	SLIDE SWITCH
3	4822 411 61938	KNOB, SLIDE			
4	4822 256 92092	HOLDER, HP JACK			
5	4822 256 92091	HOLDER, OPT JACK			
6		HOLDER, DC IN JACK			
7	4822 464 50985	FRAME, CENTER CABINET			
8	4822 464 50979	FRAME, INNER CABINET A			
9	4822 443 64007	COVER, LOCK			
10		INNER HOLDER (L)			
11		INNER HOLDER (R)			
12		DAMPER			
13		CAP, OPT CONNECTOR			
14	4822 466 83029	LOCK, PLATE UNIT			
14-1		SPRING, LOCK			
14-2		SPRING, RETURN			
14-3		WASHER			
15		LOCK, BATTERY			
16	4822 464 50975	CHASSIS, INNER A REAR			
17	4822 464 50978	CHASSIS, FRONT			
18	4822 464 50976	CHASSIS, INNER B L			
19	4822 464 50977	CHASSIS, INNER C R			
20	4822 443 64008	CASE, BATTERY			
20-1		LEAF SPRING			
20-2		CONTACTOR (+)			
20-3		CONTACTOR (-)			
20-4		SHEET			
20-5		CONNECTIVE CORD			
20-6		SCREW			
21	4822 443 64027	LID, BATTERY			
21-1		LOCK, PIECE			
21-2		LEG			
21-3		SCREW			
22	4822 443 41287	CASE, TOP			
22-1	4822 492 71395	LEAF SPRING, CASSETTE			
22-2		SCREW			
22-3		LINK, ANGLE (A) L			
22-4		LINK, ANGLE (B) R			
22-5		SCREW			
23	4822 443 64032	CASE, FRONT			
23-1	4822 410 62774	BUTTON, OPERATING A PLAY ETC			
23-2	4822 410 62775	BUTTON, OPERATING B			
24	4822 413 31767	KNOB, OPEN			
25	4822 443 51247	CASE, BOTTOM [/10]			
	4822 443 51246	CASE, BOTTOM [/01]			
	4822 443 51245	CASE, BOTTOM [/00]			
	4822 443 51244	CASE, BOTTOM [/05]			
	4822 443 51243	CASE, BOTTOM [BK01]			
25-1	4822 462 42047	LEG			
26		KNOB, VR			
27		FLEXIBLE P.W.B.			
28		FLEXIBLE P.W.B.			
29		INSULATOR			
30		CONNECTIVE CORD 3P			
31	4822 130 91268	LCD KIT			
31-1		FLEXIBLE P.W.B.			
32	4822 403 70974	BRACKET, MECHA			
34		FLEXIBLE P.W.B.			
40		SCREW			
41		SCREW			
42		SCREW			
43		SCREW			
44		SCREW			
45		SCREW			
46		SCREW			
47		SCREW			
48		SCREW			
49		SCREW			
051B	4822 459 11151	BADGE, DCC			

ELECTRICAL PARTS LIST

REF. DESIG.	PART NO.	DESCRIPTION	REF. DESIG.	PART NO.	DESCRIPTION
C101 ~	4822 126 12844	P101-RF/SERVO CIRCUIT BOARD P101-CAPACITORS(ALL CHIP) CERAMIC 0.056μF ± 10%	C267	4822 124 11382	TANTALUM 1μF 16V
C103	4822 126 12061	CERAMIC 0.1μF ± 10%	C269	4822 124 11389	TANTALUM 2.2μF 16V
C104 ~	4822 126 12061	CERAMIC 0.1μF ± 10%	C271 ~	4822 124 11386	TANTALUM 1.5μF 16V
C106	4822 126 12838	CERAMIC 0.1μF +80%-20%	C274	4822 126 12501	CERAMIC 1800PF ± 10%
C107	4822 124 10772	TANTALUM 100μF 6V	C275 ~	4822 124 11384	TANTALUM 10μF 10V
C108	4822 126 12843	CERAMIC 0.082μF ± 10%	C280	4822 124 11384	TANTALUM 10μF 10V
C109	4822 126 12061	CERAMIC 0.1μF ± 10%	C281 ~	4822 126 11678	CERAMIC 1μF +80%-20%
C110	4822 126 12061	CERAMIC 820PF ± 10%	C286	4822 124 11384	TANTALUM 0.47μF 25V
C111	4822 126 11668	CERAMIC 220PF ± 5%	C287 ~	4822 124 11393	TANTALUM 2.2μF 16V
C112	4822 126 12061	CERAMIC 0.1μF ± 10%	C290	4822 126 12847	CERAMIC 2700PF ± 10%
C113	4822 126 12841	CERAMIC 0.027μF ± 10%	C291 ~	4822 124 11389	TANTALUM 2.2μF 16V
C114	4822 124 11383	TANTALUM 10μF 6.3V	C294	4822 124 11389	TANTALUM 2.2μF 16V
C115	4822 126 11681	CERAMIC 1000PF ± 10%	C295	4822 124 11389	CERAMIC 0.033μF ± 10%
C116	4822 126 11681	CERAMIC 1000PF ± 10%	C296	4822 124 11389	CERAMIC 0.033μF ± 10%
C117	4822 126 12841	CERAMIC 0.027μF ± 10%	C297	4822 126 12848	TANTALUM 2.2μF 16V
C118	4822 126 11681	CERAMIC 1000PF ± 10%	C298	4822 126 12848	TANTALUM 2.2μF 16V
C119	4822 122 32922	CERAMIC 1500PF ± 10%			P101-RESISTORS (ALL CHIP)
C120	4822 126 12839	CERAMIC 0.022μF ± 10%	R101	4822 051 30103	10KΩ ± 5% 1/16W
C121	4822 126 11678	CERAMIC 1μF +80%-20%	R102	4822 051 30103	10KΩ ± 5% 1/16W
C122	4822 126 12839	CERAMIC 0.022μF ± 10%	R103	4822 051 30473	47KΩ ± 5% 1/16W
C123	4822 126 11687	CERAMIC 0.1μF +80%-20%	R104	4822 051 30103	10KΩ ± 5% 1/16W
C127	4822 126 12838	CERAMIC 0.1μF +80%-20%	R105	4822 051 30103	10KΩ ± 5% 1/16W
C128	4822 124 11383	TANTALUM 10μF 6.3V	R106	4822 051 30159	15Ω ± 5% 1/16W
C129	4822 126 11687	CERAMIC 0.1μF +80%-20%	R107	4822 051 30222	2.2KΩ ± 5% 1/16W
C130	4822 124 11384	TANTALUM 10μF 10V	R108	4822 051 30222	2.2KΩ ± 5% 1/16W
C131	4822 126 12838	CERAMIC 0.1μF +80%-20%	R109	4822 116 83216	56KΩ ± 5% 1/16W
C132	4822 124 11392	TANTALUM 33μF 6.3V	R110	4822 051 30224	220KΩ ± 5% 1/16W
C133	4822 126 12844	CERAMIC 0.056μF ± 10%	R111	4822 051 30683	68KΩ ± 5% 1/16W
C134	4822 124 11392	TANTALUM 33μF 6.3V	R112	4822 051 30394	390KΩ ± 2% 1/16W
C135	4822 126 12838	CERAMIC 0.1μF +80%-20%	R113	4822 051 30104	100KΩ ± 5% 1/16W
C136	4822 126 12838	CERAMIC 0.1μF +80%-20%	R114	4822 051 30104	100KΩ ± 5% 1/16W
C137	4822 124 11405	TANTALUM 15μF 6.3V	R115	4822 051 30104	100KΩ ± 5% 1/16W
C139	4822 124 11383	TANTALUM 10μF 6.3V	R116	4822 051 30473	47KΩ ± 5% 1/16W
C171 ~	4822 126 12842	CERAMIC 0.33μF +80%-20%	R117	4822 051 30473	47KΩ ± 5% 1/16W
C174	4822 126 12836	CERAMIC 1μF ± 10%	R118	4822 051 30152	1.5KΩ ± 5% 1/16W
C175	4822 126 12836	CERAMIC 1μF ± 10%	R119	4822 117 10472	0.33Ω ± 5% 1/2W
C176	4822 126 12836		R121	4822 051 30333	33KΩ ± 5% 1/16W
C177	4822 126 12076	CERAMIC 0.047μF ± 10%	R122	4822 116 83206	120Ω ± 5% 1/16W
C178	4822 126 11687	CERAMIC 0.1μF +80%-20%	R123	4822 051 30153	15KΩ ± 5% 1/16W
C201 ~	4822 126 11565	CERAMIC 0.01μF ± 10%	R124	4822 051 30153	15KΩ ± 5% 1/16W
C218	4822 124 11382	TANTALUM 1μF 16V	R125	4822 051 30561	560Ω ± 5% 1/16W
C219 ~	4822 124 11382	TANTALUM 1μF 16V	R126	4822 051 30102	1KΩ ± 5% 1/16W
C238	4822 124 11383	TANTALUM 10μF 6.3V	R127	4822 051 30473	47KΩ ± 5% 1/16W
C239 ~	4822 124 11383	TANTALUM 10μF 6.3V	R128	4822 051 30473	47KΩ ± 5% 1/16W
C242			R129	4822 051 30223	22KΩ ± 5% 1/16W
C243	4822 126 11687	CERAMIC 0.1μF +80%-20%	R130	4822 051 30223	22KΩ ± 5% 1/16W
C244	4822 126 11687	CERAMIC 0.1μF +80%-20%	R131	4822 051 30684	680KΩ ± 5% 1/16W
C245	4822 124 11389	TANTALUM 2.2μF 16V	R132	4822 051 30684	680KΩ ± 5% 1/16W
C246	4822 124 11389	TANTALUM 2.2μF 16V	R133	4822 051 30682	6.8KΩ ± 5% 1/16W
C247	4822 124 11382	TANTALUM 1μF 16V	R134	4822 051 30682	6.8KΩ ± 5% 1/16W
C248	4822 124 11382	TANTALUM 1μF 16V	R135	4822 051 30223	22KΩ ± 5% 1/16W
C251 ~	4822 124 11395	TANTALUM 1μF 16V	R136	4822 051 30153	15KΩ ± 5% 1/16W
C254	4822 124 11395	TANTALUM 6.8μF 16V	R137	4822 117 10459	15KΩ ± 0.5% 1/16W
C255 ~	4822 126 12061	CERAMIC 0.1μF ± 10%	R138	4822 051 30102	1KΩ ± 5% 1/16W
C258	4822 124 11384	TANTALUM 10μF 10V	R139	4822 051 30102	1KΩ ± 5% 1/16W
C260	4822 124 11384	TANTALUM 10μF 10V	R140	4822 051 30473	47KΩ ± 5% 1/16W
C261	4822 124 11395	TANTALUM 6.8μF 16V	R141	4822 111 92162	COMPO. 47KΩ x 2 ± 5% 1/32W
C263	4822 124 11389	TANTALUM 2.2μF 16V	R143	4822 111 92162	COMPO. 47KΩ x 2 ± 5% 1/32W
C264	4822 124 11389	TANTALUM 2.2μF 16V	R145	4822 051 30473	47KΩ ± 5% 1/16W
			R146	4822 111 92162	COMPO. 47KΩ x 2 ± 5% 1/32W
			R148	4822 111 92162	COMPO. 47KΩ x 2 ± 5% 1/32W
			R150	4822 051 30101	100Ω ± 5% 1/16W

REF. DESIG.	PART NO.	DESCRIPTION	REF. DESIG.	PART NO.	DESCRIPTION
R151	4822 051 30223	22KΩ ± 5% 1/16W	R281	4822 117 10466	3.3KΩ ± 0.5% 1/16W
R152	4822 051 30104	100KΩ ± 5% 1/16W	R284	4822 051 30103	10KΩ ± 5% 1/16W
R153	4822 051 30103	10KΩ ± 5% 1/16W	R285	4822 051 30103	10KΩ ± 5% 1/16W
R155		COMPO. 10KΩ x 2 ± 5% 1/32W	R286	4822 051 30103	10KΩ ± 5% 1/16W
R156	4822 111 92159	47KΩ ± 5% 1/16W	R289	4822 117 10457	10KΩ ± 0.5% 1/16W
R158	4822 051 30473	1KΩ ± 5% 1/16W	R292	4822 117 10464	2.7KΩ ± 0.5% 1/16W
R159	4822 051 30102	1KΩ ± 5% 1/16W	R293	4822 117 10464	2.7KΩ ± 0.5% 1/16W
R160	4822 051 30102	1KΩ ± 5% 1/16W	R294	4822 117 10464	2.7KΩ ± 0.5% 1/16W
R171	4822 051 30332	3.3KΩ ± 5% 1/16W	R295	4822 117 10462	2.2KΩ ± 0.5% 1/16W
R174		330KΩ ± 5% 1/16W	R296	4822 117 10462	2.2KΩ ± 0.5% 1/16W
R175	4822 051 30334	330KΩ ± 5% 1/16W	VR101	4822 100 12058	68KΩ (B) ± 25% 0.15W TRIMM.
R176	4822 051 30334	330KΩ ± 5% 1/16W	VR102	4822 100 12058	68KΩ (B) ± 25% 0.15W TRIMM.
R177	4822 051 30223	22KΩ ± 5% 1/16W	VR203	4822 100 12057	4.7KΩ (B) ± 25% 0.15W TRIMM.
R178	4822 051 30223	22KΩ ± 5% 1/16W	VR210	4822 100 12054	10KΩ (B) ± 25% 0.15W TRIMM.
R179	4822 051 30334	330KΩ ± 5% 1/16W	VR211	4822 100 12056	22KΩ (B) ± 25% 0.15W TRIMM.
R180	4822 051 30473	47KΩ ± 5% 1/16W			P101-SEMICONDUCTORS
R190	4822 051 30102	1KΩ ± 5% 1/16W	D101	4822 130 83444	DIODE MA143TW
R193		COMPO. 1KΩ x 2 ± 5% 1/32W	D102	4822 130 83446	DIODE MA142WKTW
R194	4822 111 92158	1KΩ ± 5% 1/16W	D103	4822 130 83446	DIODE MA142WKTW
R199	4822 051 30102	1KΩ ± 5% 1/16W	D104	4822 130 83452	DIODE MA732TW
R201	4822 051 30102	1KΩ ± 5% 1/16W	D171	4822 130 83444	DIODE MA143TW
R202	4822 051 30102	1KΩ ± 5% 1/16W	D172	4822 130 83444	DIODE MA143TW
R203	4822 051 30184	180KΩ ± 5% 1/16W	IC101	4822 209 32621	IC, MOTOR CONTROL,NBC5800
R204	4822 051 30184	180KΩ ± 5% 1/16W	IC102	4822 209 32614	MICROPROCESSOR, SERVO µ-COM MNE201ARTAB
R205	4822 117 10478	1.6KΩ ± 5% 1/16W	IC104	4822 209 32596	IC AN1393SNSC1
R208		100Ω ± 5% 1/16W	IC171	4822 209 32607	IC NJM2115MT1
R209	4822 051 30101	100Ω ± 5% 1/16W	IC201	4822 209 32618	IC, READ TDA1318H
R210	4822 051 30101	100Ω ± 5% 1/16W	IC202	4822 209 32618	IC, READ TDA1318H
R211	4822 117 10469	68Ω ± 0.5% 1/16W	IC203	4822 209 32611	IC TK11447MTR
R216			IC206	4822 130 63403	TRANSISTOR 2SB956STW
R217	4822 051 30103	10KΩ ± 5% 1/16W	Q101	4822 130 63403	TRANSISTOR 2SB956STW
R220			Q103	4822 130 63403	TRANSISTOR 2SB956STW
R221	4822 051 30109	10Ω ± 5% 1/16W	Q104	4822 130 63394	DIGITAL TRANSISTOR, UN521MTW
R228			Q105	4822 130 63399	PHOTO UNIT, GP2S27T6
R231	4822 051 30479	47Ω ± 5% 1/16W	Q106	4822 130 63399	PHOTO UNIT, GP2S27T6
R232	4822 051 30479	47Ω ± 5% 1/16W	Q107	4822 130 63401	TRANSISTOR 2SA1748QTW
R241	4822 117 10465	27KΩ ± 0.5% 1/16W	Q108	4822 130 63401	TRANSISTOR 2SA1748QTW
R244			Q109	4822 130 63395	DEGITAL TRANSISTOR, UN5211TW
R245	4822 117 10456	1KΩ ± 0.5% 1/16W	Q211	4822 130 63404	TRANSISTOR 2SB1218ASTW
R248			Q215	4822 130 63404	TRANSISTOR 2SB1218ASTW
R249	4822 117 10457	10KΩ ± 0.5% 1/16W	Q217	4822 130 63404	DIGITAL TRANSISTOR, UN5211TW
R252			Q219	4822 130 63395	DIGITAL TRANSISTOR, UN5211TW
R253	4822 116 83222	82KΩ ± 5% 1/16W	Q220	4822 130 63395	TRANSISTOR 2SC4081RTW
R256			Q221	4822 130 63405	TRANSISTOR 2SC4081RTW
R257	4822 051 30472	4.7KΩ ± 5% 1/16W	Q222	4822 130 63405	TRANSISTOR 2SC4081RTW
R260			L101	4822 157 70767	P101-COIL CHOKE COIL, 33µF ± 10%
R261	4822 051 30473	47KΩ ± 5% 1/16W	CN101	4822 265 31119	P101-MISCELLANEOUS
R264			CN102	4822 265 31121	JACK, TO FPC
R265	4822 051 30104	100KΩ ± 5% 1/16W	CN103	4822 265 31117	JACK, TO FPC
R267	4822 051 30104	100KΩ ± 5% 1/16W	CN201	4822 265 31118	JACK, TO FPC
R269	4822 051 30474	470KΩ ± 5% 1/16W	S101	4822 276 13438	PUSH SWITCH, ACC/DCC
R271	4822 051 30474	470KΩ ± 5% 1/16W	S104	4822 277 21707	SLIDE SWITCH
R277	4822 117 10462	2.2KΩ ± 0.5% 1/16W	X101	4822 242 81551	CERAMIC VIBRATOR. 8.00MHZ
R280					

REF. DESIG.	PART NO.	DESCRIPTION	REF. DESIG.	PART NO.	DESCRIPTION
		P401-DIGITAL CIRCUIT BOARD	C346	4822 124 11394	TANTALUM 4.7 μ F 10V
C1	4822 124 10772	P401-CAPACITORS	C347	4822 124 11389	TANTALUM 2.2 μ F 16V
C2	4822 126 12076	TANTALUM 100 μ F 6V	C352	4822 124 11382	TANTALUM 1 μ F 16V
C3	4822 124 11226	CERAMIC 0.047 μ F \pm 10%	C353	4822 124 11382	TANTALUM 1 μ F 16V
C4	4822 126 12837	TANTALUM 22 μ F 6V	C354	4822 124 11382	TANTALUM 1 μ F 16V
C5	4822 124 41842	CERAMIC 6.8 μ F +80% -20%	C363	4822 124 10772	TANTALUM 100 μ F 6V
C6	4822 124 11394	TANTALUM 47 μ F 16V	C373	4822 124 11383	TANTALUM 10 μ F 6.3V
C7	4822 126 12061	TANTALUM 4.7 μ F 10V	C374	4822 124 11383	TANTALUM 10 μ F 6.3V
C8	4822 126 11565	CERAMIC 0.1 μ F \pm 10%	C401	4822 126 12838	CERAMIC 0.1 μ F +80% -20%
C9	4822 122 33753	CERAMIC 150PF \pm 5%	C402	4822 124 11394	TANTALUM 4.7 μ F 10V
C10	4822 126 12837	CERAMIC 6.8 μ F +80% -20%	C403	4822 124 11388	TANTALUM 15 μ F 6.3V
C11	4822 126 12838	CERAMIC 0.1 μ F +80% -20%	C410	4822 124 11394	TANTALUM 4.7 μ F 10V
C12	4822 122 33753	CERAMIC 150PF \pm 5%	C412	4822 124 11387	TANTALUM 15 μ F 4V
C13	4822 126 12838	CERAMIC 0.1 μ F +80% -20%	C413	4822 124 11394	TANTALUM 4.7 μ F 10V
C14	4822 126 12838	CERAMIC 0.1 μ F +80% -20%	C416	4822 124 11387	TANTALUM 15 μ F 4V
C16	4822 124 10772	TANTALUM 100 μ F 6V	C418	4822 126 12838	CERAMIC 0.1 μ F +80% -20%
C17	4822 124 11382	TANTALUM 1 μ F 16V	C419	4822 126 11681	CERAMIC 1000PF \pm 10%
C18	4822 124 11382	TANTALUM 1 μ F 16V	C420	4822 126 12838	CERAMIC 0.1 μ F +80% -20%
C19	4822 124 11389	TANTALUM 2.2 μ F 16V	C421	4822 126 12838	CERAMIC 0.1 μ F +80% -20%
C20	4822 124 11389	TANTALUM 2.2 μ F 16V	C425	4822 126 11565	CERAMIC 0.01 μ F \pm 10%
C21	4822 124 11394	TANTALUM 4.7 μ F 10V	C427	4822 124 11394	TANTALUM 4.7 μ F 10V
C23			C500	4822 126 11678	CERAMIC 1 μ F +80% -20%
C24	4822 126 12838	CERAMIC 0.1 μ F +80% -20%	C501	4822 126 11565	CERAMIC 0.01 μ F \pm 10%
C25	4822 126 12838	CERAMIC 0.1 μ F +80% -20%	C502	4822 126 12838	CERAMIC 0.1 μ F +80% -20%
C51	4822 126 11565	CERAMIC 0.01 μ F \pm 10%	C503	4822 122 33777	CERAMIC 47PF \pm 5%
C54	4822 126 12838	CERAMIC 0.1 μ F +80% -20%	C504	4822 126 12838	CERAMIC 0.1 μ F +80% -20%
C55	4822 123 30388	MICA 100PF \pm 5%	C506		
C56	4822 123 30388	MICA 100PF \pm 5%	C507	4822 122 32667	CERAMIC 0.01 μ F +80% -20%
C301	4822 124 11394	TANTALUM 4.7 μ F 10V	C510		
C304			C512	4822 126 11671	CERAMIC 33PF \pm 5%
C305	4822 123 30389	MICA 1800PF \pm 5%	C515		
C306	4822 123 30389	MICA 1800PF \pm 5%	C516	4822 122 32667	CERAMIC 0.01 μ F +80% -20%
C307	4822 123 30388	MICA 100PF \pm 5%	C517	4822 122 32667	CERAMIC 0.01 μ F +80% -20%
C308	4822 123 30388	MICA 100PF \pm 5%	C518	4822 124 11385	TANTALUM 10 μ F 16V
C309	4822 126 11566	CERAMIC 2200PF \pm 10%	C519	4822 124 11391	TANTALUM 22 μ F 10V
C310	4822 126 11566	CERAMIC 2200PF \pm 10%	C520	4822 124 11383	TANTALUM 10 μ F 6.3V
C311	4822 124 11394	TANTALUM 4.7 μ F 10V	C521	4822 126 12838	CERAMIC 0.1 μ F +80% -20%
C312	4822 124 11394	TANTALUM 4.7 μ F 10V	C522	4822 126 11565	CERAMIC 0.01 μ F \pm 10%
C313	4822 126 11702	CERAMIC 680PF \pm 10%	C900	4822 126 11702	CERAMIC 680PF \pm 10%
C314	4822 126 11702	CERAMIC 680PF \pm 10%	C901	4822 126 11702	CERAMIC 680PF \pm 10%
C315	4822 126 12848	CERAMIC 0.033 μ F \pm 10%	C911	4822 126 11702	CERAMIC 680PF \pm 10%
C316	4822 126 12848	CERAMIC 0.033 μ F \pm 10%	C912	4822 126 11702	CERAMIC 680PF \pm 10%
C317	4822 126 11685	CERAMIC 4700PF \pm 10%			
C318	4822 126 11685	CERAMIC 4700PF \pm 10%			
C319	4822 126 11565	CERAMIC 0.01 μ F \pm 10%			
C320	4822 126 11565	CERAMIC 0.01 μ F \pm 10%			
C321	4822 126 12848	CERAMIC 0.033 μ F \pm 10%			
C322	4822 126 12848	CERAMIC 0.033 μ F \pm 10%	R1	4822 051 30472	4.7K Ω \pm 5% 1/16W
C323	4822 126 12061	CERAMIC 0.1 μ F \pm 10%	R2	4822 117 10467	33K Ω \pm 0.5% 1/16W
C324	4822 126 12061	CERAMIC 0.1 μ F \pm 10%	R3	4822 117 10463	22K Ω \pm 0.5% 1/16W
C325	4822 124 11394	TANTALUM 4.7 μ F 10V	R4	4822 051 30473	47K Ω \pm 5% 1/16W
C328			R5	4822 051 30221	220 Ω \pm 5% 1/16W
C333	4822 126 11681	CERAMIC 1000PF \pm 10%	R8	4822 051 30223	22K Ω \pm 5% 1/16W
C334	4822 126 11681	CERAMIC 1000PF \pm 10%	R9	4822 116 83212	18K Ω \pm 5% 1/16W
C335	4822 126 12846	CERAMIC 0.012 μ F \pm 10%	R10	4822 051 30103	10K Ω \pm 5% 1/16W
C336	4822 126 12846	CERAMIC 0.012 μ F \pm 10%	R11	4822 051 30223	22K Ω \pm 5% 1/16W
C337	4822 124 11383	TANTALUM 10 μ F 6.3V	R13	4822 051 30272	2.7K Ω \pm 5% 1/16W
C338	4822 124 11383	TANTALUM 10 μ F 6.3V	R14	4822 051 30333	33K Ω \pm 5% 1/16W
C339	4822 124 11396	TANTALUM 220 μ F 4V	R15	4822 051 30154	150K Ω \pm 5% 1/16W
C340	4822 124 11396	TANTALUM 220 μ F 4V	R16	4822 116 83211	1.8K Ω \pm 5% 1/16W
C341	4822 124 11389	TANTALUM 2.2 μ F 16V	R17	4822 051 30101	100 Ω \pm 5% 1/16W
C342	4822 123 11389	TANTALUM 2.2 μ F 16V	R18	4822 051 30224	220K Ω \pm 5% 1/16W
C343	4822 126 11685	CERAMIC 4700PF \pm 10%	R19	4822 051 30478	4.7 Ω \pm 5% 1/16W
C344	4822 126 11685	CERAMIC 4700PF \pm 10%	R22	4822 116 82487	0 Ω \pm 5% 1/16W
C345	4822 124 11394	TANTALUM 4.7 μ F 10V	R24	4822 051 30104	100K Ω \pm 5% 1/16W
			R25	4822 051 30223	22K Ω \pm 5% 1/16W

REF. DESIG.	PART NO.	DESCRIPTION	REF. DESIG.	PART NO.	DESCRIPTION
R26	4822 051 30104	100KΩ ± 5% 1/16W	R359	4822 116 81046	12Ω ± 5% 1/16W
R28	4822 051 30103	10KΩ ± 5% 1/16W	R360	4822 116 81046	12Ω ± 5% 1/16W
R29	4822 051 30473	47KΩ ± 5% 1/16W	R361	4822 111 92164	COMPO. 470Ω x 2 ± 5% 1/32W
R30	4822 117 10462	2.2KΩ ± 0.5% 1/16W	R363	4822 111 92161	COMPO. 150Ω x 2 ± 5% 1/32W
R51	4822 117 10458	12KΩ ± 0.5% 1/16W	R365	4822 051 30152	1.5KΩ ± 5% 1/16W
R52	4822 117 10468	390Ω ± 0.5% 1/16W	R366	4822 051 30152	1.5KΩ ± 5% 1/16W
R53	4822 117 10457	10KΩ ± 0.5% 1/16W	R367	4822 051 30104	100KΩ ± 5% 1/16W
R54	4822 117 10471	8.2KΩ ± 0.5% 1/16W	R368	4822 051 30104	100KΩ ± 5% 1/16W
R55	4822 117 10457	10KΩ ± 0.5% 1/16W	R369	4822 111 92159	COMPO. 10KΩ x 2 ± 5% 1/32W
R56	4822 051 30824	820KΩ ± 5% 1/16W	R371	4822 111 92159	COMPO. 10KΩ x 2 ± 5% 1/32W
R57	4822 051 30824	820KΩ ± 5% 1/16W	R373	4822 111 92159	COMPO. 10KΩ x 2 ± 5% 1/32W
R58	4822 051 30472	4.7KΩ ± 5% 1/16W	R375	~ 4822 051 30105	1MΩ ± 5% 1/16W
R59	4822 051 30472	4.7KΩ ± 5% 1/16W	R378	4822 051 30473	47KΩ ± 5% 1/16W
R60	4822 051 30102	1KΩ ± 5% 1/16W	R379	4822 051 30473	47KΩ ± 5% 1/16W
R61	4822 051 30102	1KΩ ± 5% 1/16W	R380	4822 051 30473	47KΩ ± 5% 1/16W
R63	4822 051 30103	10KΩ ± 5% 1/16W	R381	~ 4822 051 30103	10KΩ ± 5% 1/16W
R66	4822 051 30273	27KΩ ± 5% 1/16W	R384	4822 051 30101	100Ω ± 5% 1/16W
R67	4822 051 30273	27KΩ ± 5% 1/16W			
R68	4822 051 30101	100Ω ± 5% 1/16W			
R69	4822 051 30103	10KΩ ± 5% 1/16W	R407	4822 051 30101	100Ω ± 5% 1/16W
R301	4822 051 30332	3.3KΩ ± 5% 1/16W	R408	4822 051 30223	22KΩ ± 5% 1/16W
R302	4822 051 30332	3.3KΩ ± 5% 1/16W	R409	4822 051 30223	22KΩ ± 5% 1/16W
R303	4822 051 30473	47KΩ ± 5% 1/16W	R413	4822 051 30103	10KΩ ± 5% 1/16W
R304	4822 051 30473	47KΩ ± 5% 1/16W	R419	4822 051 30101	100Ω ± 5% 1/16W
R305	4822 051 30102	1KΩ ± 5% 1/16W	R422	4822 051 30684	680Ω ± 5% 1/16W
R306	4822 051 30102	1KΩ ± 5% 1/16W	R423	~ 4822 051 30104	100KΩ ± 5% 1/16W
R307	4822 361 30322	430KΩ ± 5% 1/16W	R425	4822 051 30223	22KΩ ± 5% 1/16W
R308	4822 361 30322	430KΩ ± 5% 1/16W			
R309	4822 051 30824	820KΩ ± 5% 1/16W			
R310	4822 051 30824	820KΩ ± 5% 1/16W	R427	4822 051 30223	22KΩ ± 5% 1/16W
R311	4822 051 30103	10KΩ ± 5% 1/16W	R428	4822 051 30104	100KΩ ± 5% 1/16W
R312	4822 051 30103	10KΩ ± 5% 1/16W	R429	4822 051 30473	47KΩ ± 5% 1/16W
R313	4822 051 30332	3.3KΩ ± 5% 1/16W	R501	4822 051 30103	10KΩ ± 5% 1/16W
R314	4822 051 30332	3.3KΩ ± 5% 1/16W	R502	4822 051 30103	10KΩ ± 5% 1/16W
R315	4822 116 83215	5.6KΩ ± 5% 1/16W	R503	4822 051 30105	1MΩ ± 5% 1/16W
R316	4822 116 83215	5.6KΩ ± 5% 1/16W	R504	4822 116 83215	5.6KΩ ± 5% 1/16W
R317	4822 051 30222	2.2KΩ ± 5% 1/16W	R505	4822 116 83208	12KΩ ± 5% 1/16W
R318	4822 051 30222	2.2KΩ ± 5% 1/16W	R506	4822 116 83215	5.6KΩ ± 5% 1/16W
R319	4822 117 10461	18KΩ ± 0.5% 1/16W	R507	4822 111 92159	COMPO. 10KΩ x 2 ± 5% 1/32W
R320	4822 117 10461	18KΩ ± 0.5% 1/16W	R509	4822 111 92159	COMPO. 10KΩ x 2 ± 5% 1/32W
R321	4822 117 10467	33KΩ ± 0.5% 1/16W	R511	4822 051 30103	10KΩ ± 5% 1/16W
R322	4822 117 10467	33KΩ ± 0.5% 1/16W	R515	4822 051 30109	10Ω ± 5% 1/16W
R323	4822 117 10466	3.3KΩ ± 0.5% 1/16W	R518	4822 116 83222	82KΩ ± 5% 1/16W
R324	4822 117 10466	3.3KΩ ± 0.5% 1/16W	R519	4822 051 30472	4.7KΩ ± 5% 1/16W
R325	4822 051 30152	1.5KΩ ± 5% 1/16W	R520	4822 111 92157	COMPO. 100Ω x 2 ± 5% 1/32W
R326	4822 051 30152	1.5KΩ ± 5% 1/16W	R522	4822 111 92157	COMPO. 100Ω x 2 ± 5% 1/32W
R327	4822 116 83207	1.2KΩ ± 5% 1/16W	R524	4822 051 30102	1KΩ ± 5% 1/16W
R328	4822 116 83207	1.2KΩ ± 5% 1/16W	R525	4822 051 30105	1MΩ ± 5% 1/16W
R329	4822 111 92163	COMPO. 820Ω x 2 ± 5% 1/32W	R526	4822 051 30102	1KΩ ± 5% 1/16W
R331	4822 051 30473	47KΩ ± 5% 1/16W	R527	4822 051 30105	1MΩ ± 5% 1/16W
R332	4822 051 30473	47KΩ ± 5% 1/16W	R528	4822 051 30103	10KΩ ± 5% 1/16W
R333	4822 116 83222	82KΩ ± 5% 1/16W	R529	4822 051 30103	10KΩ ± 5% 1/16W
R334	4822 116 83222	82KΩ ± 5% 1/16W	R530	~ 4822 051 30471	470Ω ± 5% 1/16W
R341	4822 051 30103	10KΩ ± 5% 1/16W	R533	4822 111 92164	COMPO. 470Ω x 2 ± 5% 1/32W
R342	4822 051 30103	10KΩ ± 5% 1/16W	R540	4822 111 92164	COMPO. 470Ω x 2 ± 5% 1/32W
R343	4822 051 30102	1KΩ ± 5% 1/16W	R546	~ 4822 051 30471	470Ω ± 5% 1/16W
R344	4822 051 30102	1KΩ ± 5% 1/16W	R552		
R345	4822 111 92162	COMPO. 47KΩ x 2 ± 5% 1/32W			
R347	4822 051 30223	22KΩ ± 5% 1/16W			
R348	4822 051 30223	22KΩ ± 5% 1/16W	R591	4822 051 30102	1KΩ ± 5% 1/16W
R349	4822 116 83208	12KΩ ± 5% 1/16W	R592	4822 051 30223	22KΩ ± 5% 1/16W
R350	4822 116 83208	12KΩ ± 5% 1/16W	R593	4822 051 30102	1KΩ ± 5% 1/16W
R351	4822 051 30154	150KΩ ± 5% 1/16W	R594	4822 051 30223	22KΩ ± 5% 1/16W
R352	4822 051 30154	150KΩ ± 5% 1/16W	R595	4822 051 30102	1KΩ ± 5% 1/16W
R353	4822 051 30333	33KΩ ± 5% 1/16W	R596	4822 051 30103	10KΩ ± 5% 1/16W
R354	4822 051 30333	33KΩ ± 5% 1/16W	R597	4822 051 30103	10KΩ ± 5% 1/16W
R355	4822 051 30103	10KΩ ± 5% 1/16W			
R356	4822 051 30103	10KΩ ± 5% 1/16W			
R357	4822 116 81046	12Ω ± 5% 1/16W	U51	4822 116 82487	0Ω 1/16W
R358	4822 116 81046	12Ω ± 5% 1/16W			

REF. DESIG.	PART NO.	DESCRIPTION	REF. DESIG.	PART NO.	DESCRIPTION
U330 U505 U541 U542	4822 116 82487 4822 116 82487 4822 116 82487 4822 116 82487	0Ω 1/8W 0Ω 1/16W 0Ω 1/16W 0Ω 1/16W	Q40 Q41 Q42 Q301 Q302 Q307 Q310	4822 130 63405 4822 130 61059 4822 130 61059 4822 130 63406 4822 130 63406 4822 130 63406	TRANSISTOR 2SC4081RTW DIGITAL TRANSISTOR, NPN UN5213 DIGITAL TRANSISTOR, NPN UN5213 TRANSISTOR 2SD1328RTW TRANSISTOR 2SD1328RTW
VR1 VR400	4822 100 12059 4822 101 30833	3KΩ (B) ± 25% 0.15W TRIMM. 50KΩ (C) x 2 VARIABLE VOLUME	Q311 Q314 Q315	4822 130 61061	TRANSISTOR 2SD1328RTW
D1 D2 D3 D5 D10 D51 D105 D301 D303 D402 D403	4822 130 83471 4822 130 83451 4822 130 83449 4822 130 83449 4822 130 83453 4822 130 83449 4822 130 83444 4822 130 83447 4822 130 83447 4822 130 83449 4822 130 83448	DIODE 1SR154-100TE DIODE MA701TX DIODE MA110TW DIODE MA110TW ZENER DIODE MA8100TX 8.1V DIODE MA110TW DIODE MA143TW DIODE MA141WATW DIODE MA141WATW DIODE MA110TW DIODE MA141WKTW	Q320 Q323 Q324 Q400	4822 130 61061 4822 130 61061 4822 130 61061	DIGITAL TRANSISTOR, UN5215
D405 D406 D407 D409 D410 D500 D592 D593	4822 130 83449 4822 130 83448 4822 130 83445 4822 130 83449 4822 130 83449 4822 130 83449 4822 130 83449 4822 130 83449	DIODE MA110TW DIODE MA141WKTW DIODE MA143TX DIODE MA110TW DIODE MA110TW DIODE MA110TW DIODE MA110TW DIODE MA110TW	Q402 Q403 Q405 Q406 Q407 Q409 Q410 Q411 Q412 Q500	4822 130 63392 4822 130 63397 4822 130 63392 4822 130 61059 4822 130 61057 4822 130 63404 4822 130 63398 4822 130 61059 4822 130 61059 4822 130 63391	DIGITAL TRANSISTOR, UN5114TW DIGITAL TRANSISTOR, UN5214TW DIGITAL TRANSISTOR, UN5114TW DIGITAL TRANSISTOR, NPN UN5213 DIGITAL TRANSISTOR, UN5113 TRANSISTOR 2SB1218ASTW DIGITAL TRANSISTOR, X4316TW DIGITAL TRANSISTOR, NPN UN5213 DIGITAL TRANSISTOR, NPN UN5213 DIGITAL TRANSISTOR, NPN UN5111TW
IC1 IC2 IC3 IC4 IC5 IC6 IC7 IC8 IC9 IC400	4822 209 32599 4822 209 32609 4822 209 32612 4822 209 32611 4822 209 32608 4822 209 32604 4822 209 32613 4822 209 32605 4822 209 32595 4822 209 32607	IC, SUPPLY AN8086SE2 IC TK11440MTR IC TK11540MTR IC TK11447MTR IC RN5RL40AAT1 IC, RESET S8121SGQAT1 IC TK11445MTR IC, OP AMP T75W393FUT12 IC TC7W00FUT12L IC NJM2115MT1	Q501 Q502 Q503 Q504 Q505	4822 130 61059 4822 130 61057 4822 130 61059 4822 130 61061 4822 130 61059	DIGITAL TRANSISTOR, NPN UN5213 DIGITAL TRANSISTOR, UN5113 DIGITAL TRANSISTOR, NPN UN5213 DIGITAL TRANSISTOR, UN5215 DIGITAL TRANSISTOR, NPN UN5213
IC401 IC402 IC404 IC406 IC408 IC500	4822 209 32602 4822 209 32606 4822 209 32622 4822 209 32607 4822 209 32598 4822 209 32615	IC, D. FILTER SM5881S-ET IC, DAC μPD63200GSE2 IC, DOLBY BA1106FST2 IC, L.P.F NJM2115MT1 IC NJM3415MT1 MICROPROCESSOR, μ-COM, MNE3214RTAA1	B1 B2 B3 B331 B332 B360 B361 B364 B501	4822 158 10889 4822 158 10889 4822 158 10891 4822 158 10891 4822 158 10891 4822 158 10888 4822 158 10891 4822 158 10891	FERRITE CORE FERRITE CORE FERRITE CORE FERRITE CORE FERRITE CORE FERRITE CORE FERRITE CORE FERRITE CORE
IC501 IC502 IC503 IC504	4822 209 32603 4822 209 32619 4822 209 32617 4822 209 32597	IC, DEQ SAA2032GP IC, TFE SAA2022GP IC, DRAM MN425610AT1	B502 L2 L3 L4 L500 L501	4822 158 10891 4822 157 70262 4822 157 70262 4822 157 70765 4822 157 70766 4822 157 70766	FERRITE CORE CHOKE COIL, 10μH CHOKE COIL, 10μH CHOKE COIL CHOKE COIL, 10μH ± 10% CHOKE COIL, 10μH ± 10%
IC505 IC506 IC507	4822 209 32616 4822 209 32601 4822 209 32594	IC, SFC SAA2002GP IC, DAI M51581GP IC, INVERTER TC7S04FTE85L	F1	4822 523 30439	P401-MISCELLANEOUS FUSE, RSFCA16-U
Q1 Q2 Q3 Q4 Q6 Q7 Q8 Q9 Q10 Q11	4822 130 63391 4822 130 63407 4822 130 63391 4822 130 63407 4822 130 63396 4822 130 61059 4822 130 61057 4822 130 61057 4822 130 63397 4822 130 63404	DIGITAL TRANSISTOR, UN5111TW TRANSISTOR 2SD1628FG-TC DIGITAL TRANSISTOR, UN5111TW TRANSISTOR 2SD1628FG-TC DIGITAL TRANSISTOR, UN5212TW DIGITAL TRANSISTOR, NPN UN5213 DIGITAL TRANSISTOR, UN5113 DIGITAL TRANSISTOR, NPN UN5213 DIGITAL TRANSISTOR, UN5214TW TRANSISTOR 2SB1218ASTW	CN1 CN501 CN505 JK2 JK400 JK401 JK402 S400 S401 S501 S502 X500 X502 X503	4822 265 31126 4822 265 31122 4822 265 31117 4822 265 31125 4822 265 31123 4822 265 31124 4822 265 31127 4822 277 21708 4822 277 21709 4822 277 21708 4822 277 21708 4822 242 81552 4822 242 81554 4822 242 81553	JACK, P=1.25 JACK, TO FPC JACK, TO FPC JACK, DC IN JACK JACK, H.P JACK, OPT. GP1F31T SLIDE SWITCH, 1-2 CLICK SLIDE SWITCH, 1-3 CLICK SLIDE SWITCH, 1-2 CLICK SLIDE SWITCH, 1-2 CLICK CERAMIC VIBRATOR. 6.00MHz X-TAL, RSXC24M5S02T X-TAL, RSXC22M5S03T
Q12 Q13 Q17 Q18 Q19 Q20 Q21 Q23	4822 130 61059 4822 130 63396 4822 130 61059 4822 130 61059 4822 130 61059 4822 130 63397 4822 130 61059 4822 130 63396	DIGITAL TRANSISTOR, NPN UN5213 DIGITAL TRANSISTOR, UN5212TW DIGITAL TRANSISTOR, NPN UN5213 DIGITAL TRANSISTOR, NPN UN5213 DIGITAL TRANSISTOR, UN5113 DIGITAL TRANSISTOR, UN5214TW DIGITAL TRANSISTOR, NPN UN5213 DIGITAL TRANSISTOR, UN5212TW			

REF. DESIG.	PART NO.	DESCRIPTION
31	4822 130 91268	K001-LCD CIRCUIT BOARD K001-MISCELLANEOUS LCD KIT
S1 S11	4822 276 13447	PUSH SWITCH

NOTE ON SAFETY

Symbol **▲** Fire or electrical shock hazard. Only original parts should be used to replace any part marked with symbol **▲**. Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.