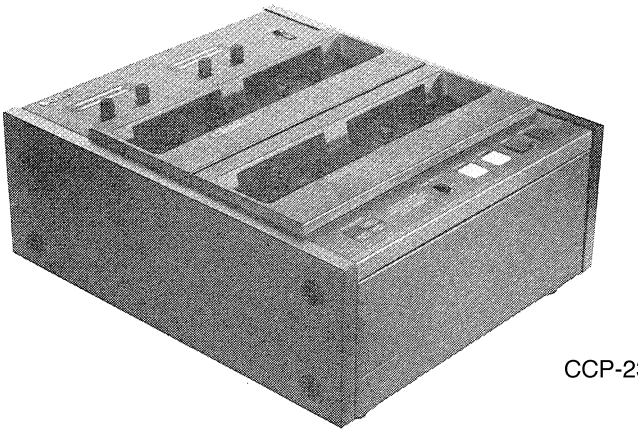
SONY

AUDIO CASSETTE DUPLICATOR

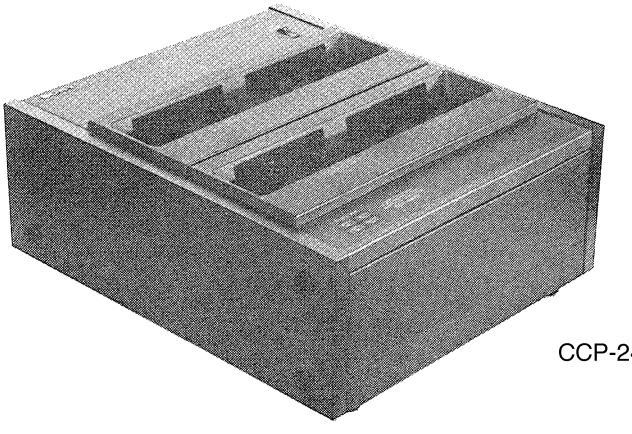
CCP-2310F
CCP-2410F

SERVICE MANUAL

1st Edition (Revised 1)



CCP-2310F



CCP-2410F

このマニュアルは，既存の印刷物を電子データに変換したものです。その際，印刷上必要であった空白ページをすべて削除しました。これにより，ページナンバーが抜けているところがありますが，情報の欠落ではありません。あらかじめご了承ください。

This manual used to be printed on paper but is now in electronic form. All blank pages in the printed version have been eliminated in the electronic version to facilitate printing at service stations. Hence, although some pages may appear to be missing, no service information has been omitted.

目次/Table of Contents

Section 1
General

1-1. SPECIFICATIONS

Power requirments	U model	: 120 V AC 60Hz
	EK model	: 220/240 V AC 50/60 Hz
Power consumption	U model	: 0.67 A
	EK model	: 67 W
Recording system	4-track 4-channel/4-track 2-channel	
Tape cassette	Normal TYPE Ⅰ cassette	
	(C-30, C-46, C-60, C-90)	
	(TYPE Ⅱ and TYPEⅣ tapes not usable)	
Tape speed	76 cm/s (30 ips)	
Copy time	Approx. 2 min.	
	(with C-60 cassette) (per run)	
Rewind time	Approx. 45 sec. (with C-60 cassette)	
Frequency response	40-10,000 Hz	
Recording bias frequency	Approx. 550 kHz	
Signal to noise ratio	49 dB, peak level recording	
	(JIS-A, WRMS)	
Total harmonic distortion	Within 3 %	
Wow and flutter	Less than 0.23 % (WRMS)	
Crosstalk	Better than 53 dB	
	(between track 2 and 3, at 1 kHz)	
Drive control connector	CCP-2310F :	Output (13-pin DIN)
	CCP-2410F :	Input (13-pin DIN),
		Output (13-pin DIN)
Dimensions	Approx. 328 × 160 × 382mm (w/h/d)	
	(Approx.13 × 63/8 × 15 1/8 inches)	
	not including projecting parts and controls	
Mass	Approx. 10.2 kg (22 lb 8 oz)	
Accessories supplied	AC power cord (1)	
	Head cleaning tip (1 set)	
	Dust cover (1)	
	Control cable with 13-pin DIN connectors	
	(1, supplied with the CCP-2410F only)	
	Operation Manual	

1-2. FEATURES

CCP-2310F Audio Cassette Duplicator

- High speed cassette duplication at 16 times normal speed.
- Side selector to select one-side duplication or both-side duplication.
- Auto-copy function to activate a series of tape operation automatically at the press of a button.
- Short tape indicator to show that duplication may be uncompleted due to a short copy tape and that a check is required.
- Control output terminal for connecting an additional audio cassette duplicator with copy section only.
- Playback volume controls with level meters for each channel of the original tape.
- Two-reel motor direct drive system per each positon.
- End beep when duplication is finished.
- The static suppression brush for preventing electrostatic noise.
- Up to 10 CCP-2410Fs can be connected to CCP-2310F.
- Long-life ferrite head.

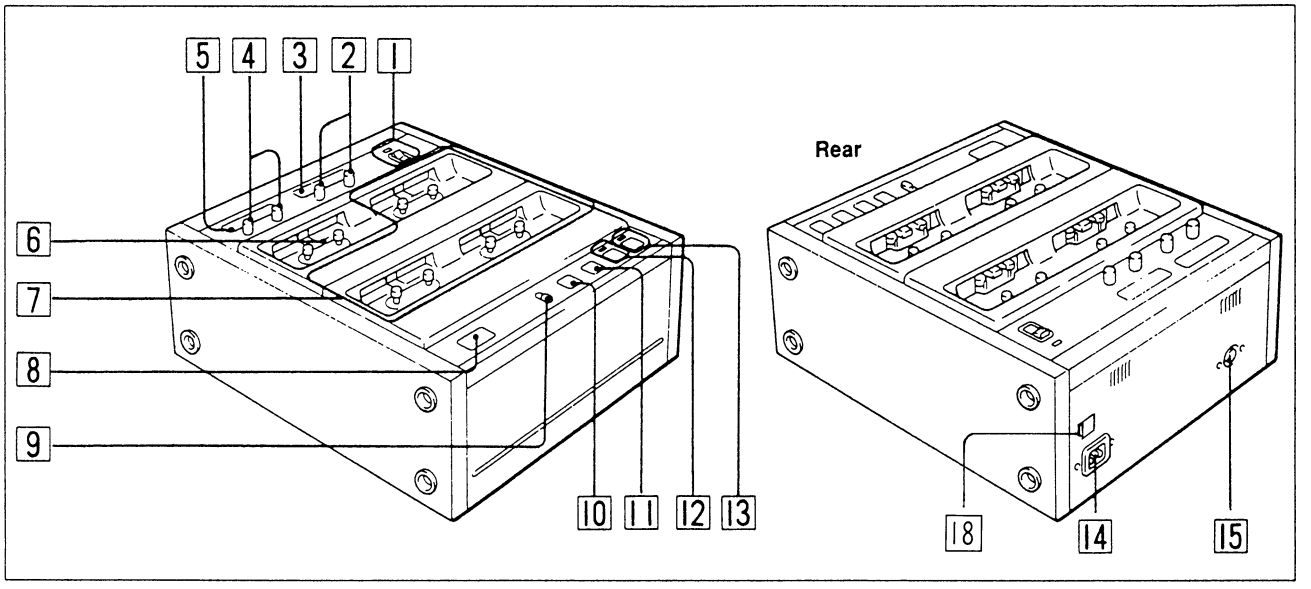
CCP-2410F Audio Cassette Duplicator

When connected to CCP-2310F:

- High speed duplication onto 4 copy cassettes at 16 times normal speed.
- Tape operation fully controlled by the connected CCP-2310F.
- Long-life ferrite head.

1-3. LOCATION AND FUNCTION OF CONTROLS

CCP-2310F



1 Power switch and indicator
Turn the switch ON and the indicator lights up. The SHORT TAPE indicators also light up. After four seconds of warming up, the SHORT TAPE indicators will go off and the unit will be ready to operate.

2 Side B playback level controls
The knobs L and R control the left and right output levels of the playback sound respectively.

3 Side B level meters
The meters L and R indicate the left and right output levels of the playback sound respectively.

4 Side A playback level controls
The knobs L and R control the left and right output levels of the playback sound respectively.

5 Side A level meters
The meters L and R indicate the left and right output levels of the playback sound respectively.

6 ORIGINAL cassette compartment

7 COPY cassette compartments 1, 2 and 3

8 SHORT TAPE indicators
Lights when the corresponding copy tape reaches the end before the original tape is completely duplicated. (Refer to "SHORT TAPE Indicator" on page 1-6 (E)).
Also lights when there is no tape in the corresponding cassette compartment. The indicators go off when any button but STOP is pressed.

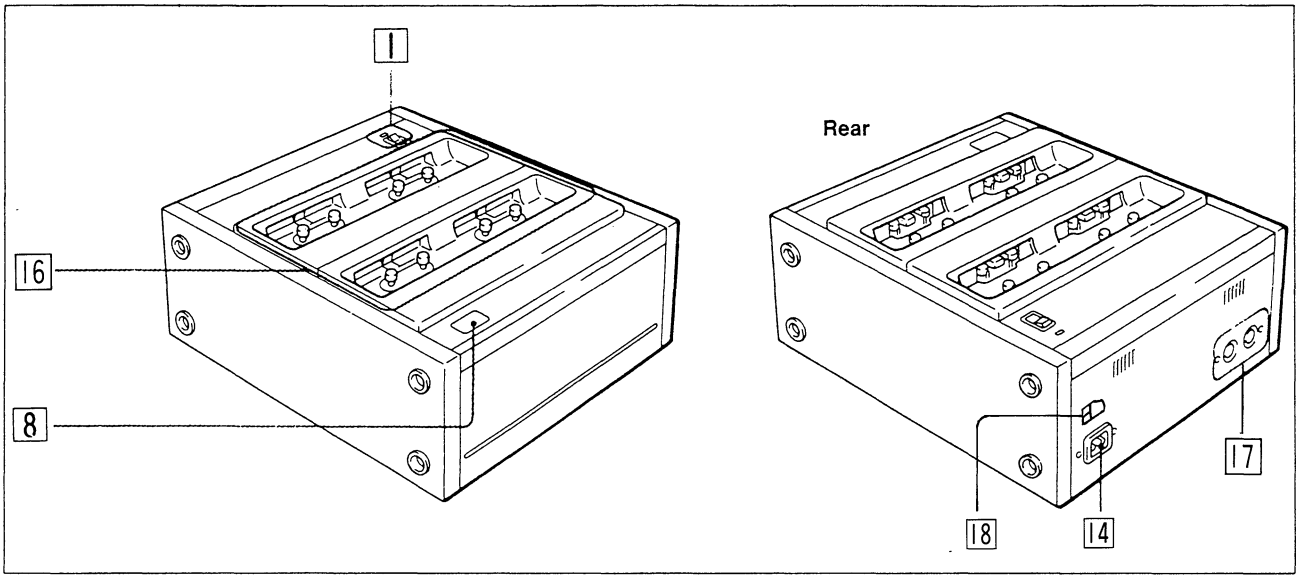
9 SIDE SELECT switch
Selects one side or both sides of the cassette per duplication run.
A : for one side duplication.
A + B : for both sides duplication.

10 REWIND button
Press to rewind the tape(s). Each tape stops automatically at the beginning. The tapes in all connected CCP-2410F duplicators will also be rewound.

11 STOP button
Press to stop the tape(s). The tapes in all connected CCP-2410F duplicators will also stop.

CCP-2410F

[1], [8], [15] and [18] controls have the same function as the ones on the CCP-2310F.



[12] COPY button and indicator

Press to duplicate the tapes. The indicator lights and playback of the original tape and recording on the copy tape start immediately. Recording also starts in all connected CCP-2410F duplicators. When duplication is finished, all the tapes stop. The indicator goes off and the end beep sounds.

[13] AUTO COPY button and indicator

Press to rewind and then duplicate the tapes. The indicator lights and all the tapes are rewound to the beginning. When all the tapes have been rewound, the AUTO COPY and COPY indicators light and then playback of the original tape and recording on the copy tapes start. Recording also starts in the connected CCP-2410F duplicators. When duplication is finished and all the tapes come to the end, the COPY indicator goes off. With the AUTO COPY indicator still lit, all the tapes, except the tape with its SHORT TAPE indicator lit, start to rewind. When all the tapes are rewound to the beginning, the AUTO COPY indicator will go off and the end beep will sound.

[14] AC IN socket

Connect the supplied AC power cord.

[15] LINE/CONTROL OUTPUT connector (13-pin DIN)

Supplies the track signal of the original tape and the driving signal to additional duplicators. Connect to the LINE/CONTROL INPUT connector of CCP-2410F.

[16] COPY cassette compartments 1, 2, 3 and 4

[17] LINE/CONTROL connectors (13-pin DIN)

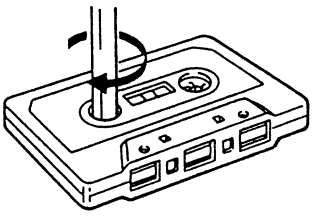
INPUT: Accepts the track signal of the original tape and the driving signal from CCP-2310F. Connect to the LINE/CONTROL OUTPUT connector of CCP-2310F.

OUTPUT: Supplies the track signal of the original tape and the driving signal to an additional duplicator. Connect to the LINE/CONTROL INPUT connector of the additional CCP-2410F.

[18] Voltage selector (for EK model only)

Cassette Insertion

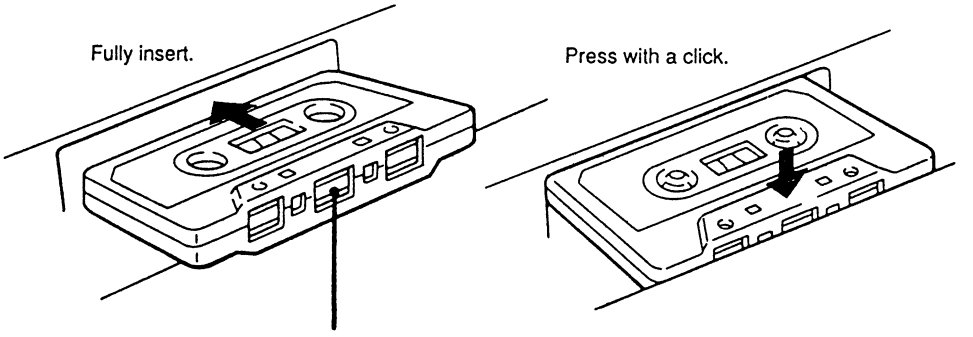
1 Before inserting a cassette, take up any slack in the tape.



2 Check the cassette sides.
For both-side duplication: To duplicate the content of the original cassette side A onto the side A of the copy cassette, install the cassettes with the same side up.
For one-side duplication: Insert the original and copy cassettes with the required side up.

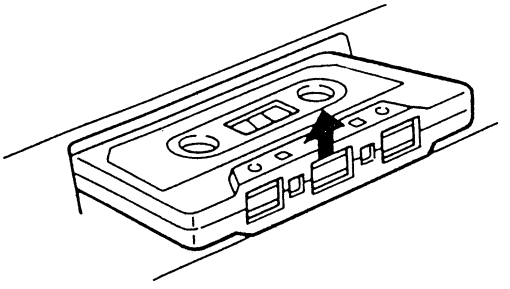
Notes on cassettes

- Use normal TYPE I cassettes.
- It is advisable to use cassettes of the same brand, as, even if the cassettes have the same rated duration, they may differ a little in length, depending on the manufacturers. This prevents incomplete duplication.
- Use of a 120-minute cassette tape is not recommended. Frequent switching of the tape operation mode can result in the tape becoming tangled because the tape is very thin and can easily be stretched.
- Remember that duplication can be made, even though the copy cassette has had the safety tabs for preventing accidental erasure removed.
- The recording of an original cassette will deteriorate by several decibels at 10 kHz after it has been duplicated 100 times. If it should be duplicated more than 100 times, prepare extra original cassettes.



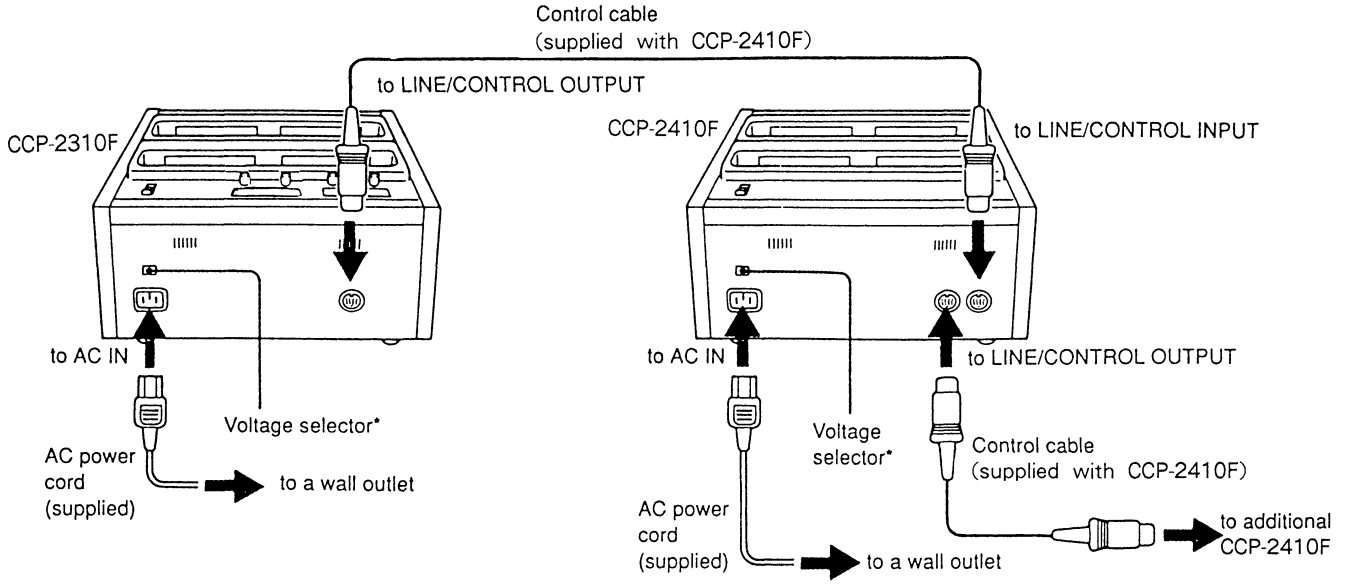
To remove

First lift off the tape-path side and then remove the cassette.



Connection

Connect the LINE/CONTROL OUTPUT connector and the LINE/CONTROL INPUT connector.

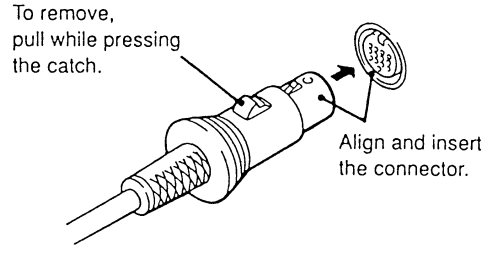


Notes

- You can connect up 10 CCP-2410Fs in series.
- Before making connections, be sure to turn off the power.

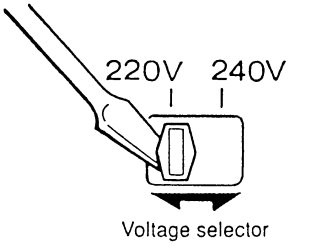
Control cable

Connect the LINE/CONTROL OUTPUT connector and the LINE/CONTROL INPUT connector.



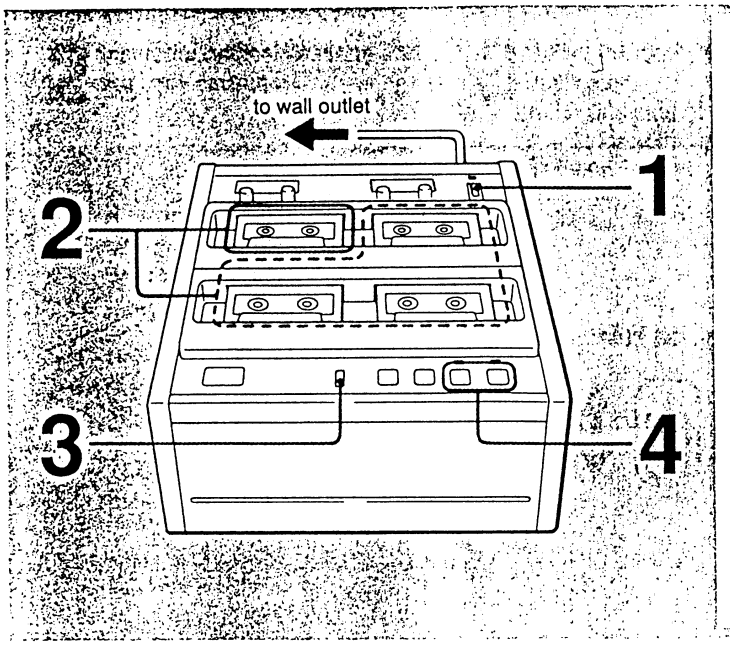
*For the EK model

If your unit is equipped with the voltage selector on the rear panel, be sure to set it to your local power supply before connecting the AC power cord.

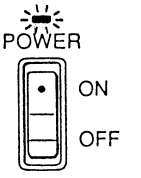


1-5. DUPLICATION

Five-minute warming up is recommended before starting the unit .
During warming up, you can clean the heads



1 Set the POWER switch to ON.
The indicator lights up.
Allow 4 seconds for warming up.



To rewind the tape(s) independently, insert only the cassette(s) to be rewound and then press the REWIND button. Each tape will be rewound to the beginning and will stop.

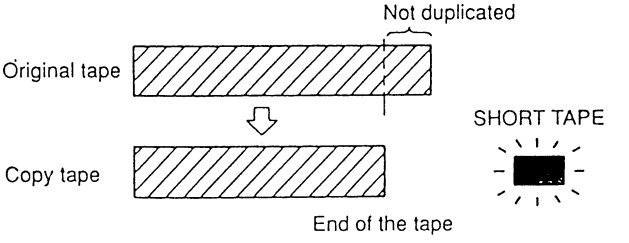
To stop the tapes, press the STOP button.

Adjust the playback level controls by watching the level meters.
Normally set them to the center position.

To use the additional CCP-2410F duplicator
Turn ON the POWER switch of the CCP-2410F and insert copy cassettes. By operating the master duplicator, duplication will begin on the additional duplicator simultaneously.

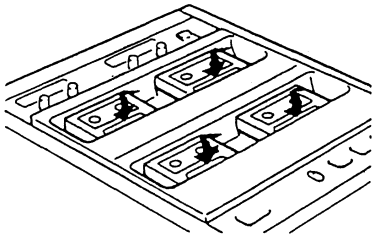
SHORT TAPE Indicator

The SHORT TAPE indicator lights to show that a copy tape was so short that the duplication may not have been made completely and that a check is required. When a copy tape reaches the end before the end of the original tape, it stops but the original tape continues running. The corresponding SHORT TAPE indicator will light. The SHORT TAPE indicator will go off by pressing any button but STOP.

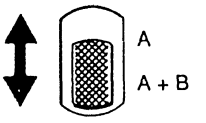


Note
When a copy tape reached the end just a moment after the end of the original tape, the SHORT TAPE indicator may light even if duplication is complete. To confirm duplication use a cassette recorder to play back near the end of the copy tape. The indicator also lights when there is no tape in the cassette compartment.

2 Insert the original cassette and the copy cassette(s).

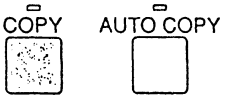


3 Select the cassette side to be duplicated.
A: for one side of the cassette.
A + B: for both sides of the cassette.



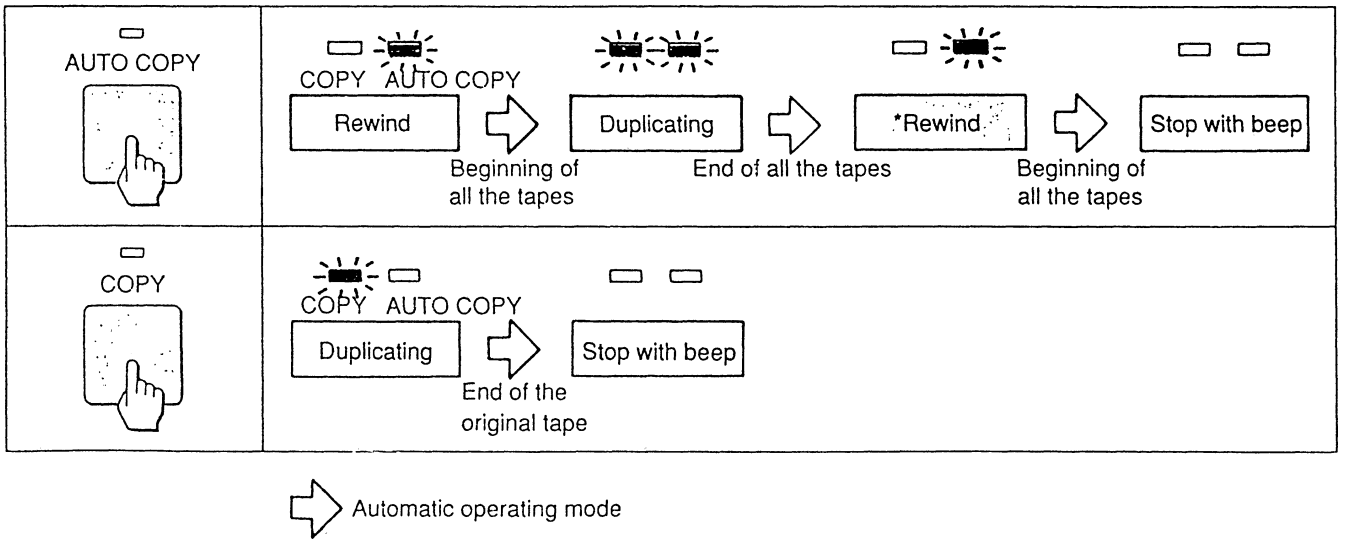
4 Press the AUTO COPY button or COPY button.
AUTO COPY: To rewind each tape, start duplicating and rewind to the beginning again.

COPY: To start duplicating immediately without rewinding.



See the table below.

When the AUTO COPY or COPY button is pressed, the operation of the original and copy tapes is controlled as in the following table.

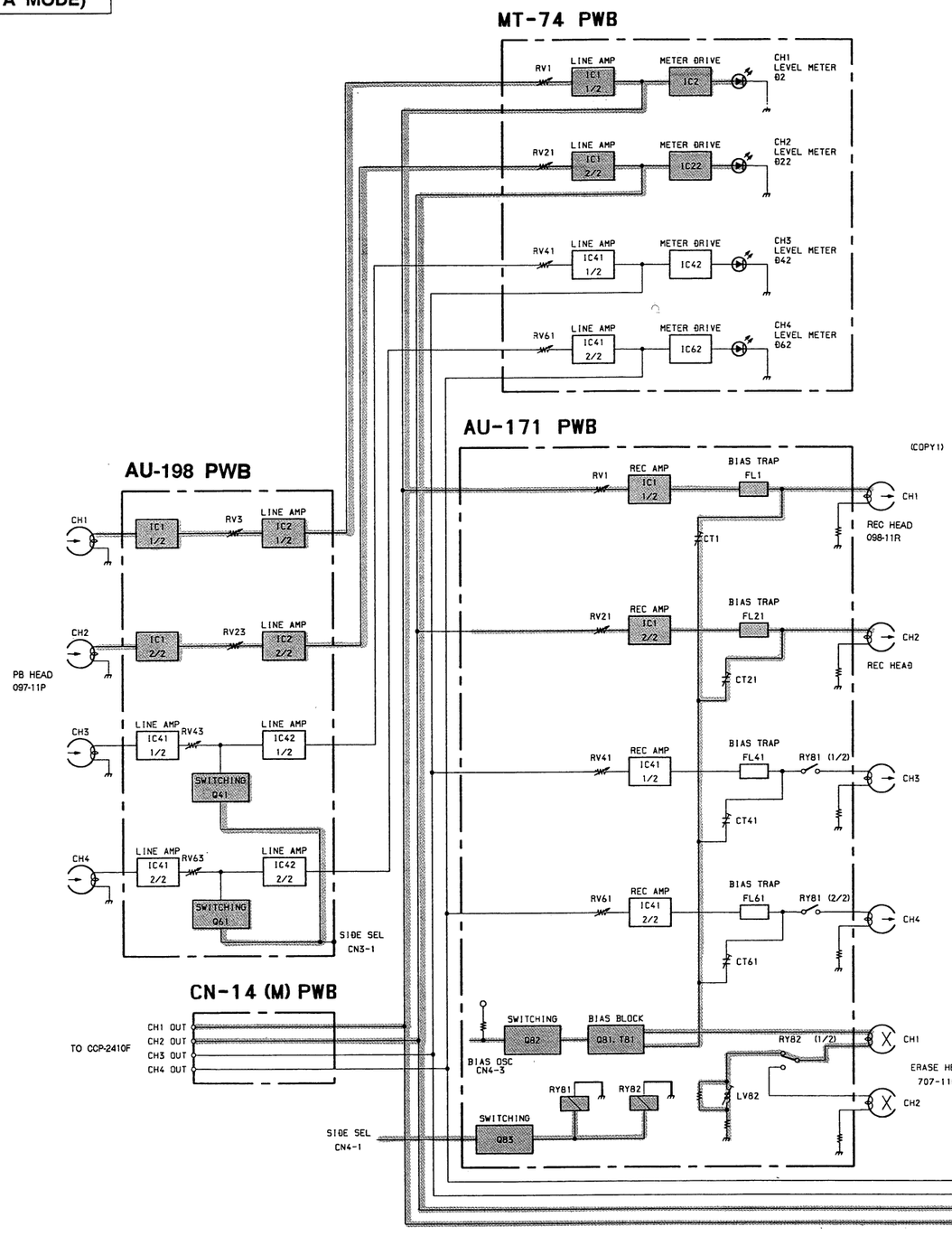


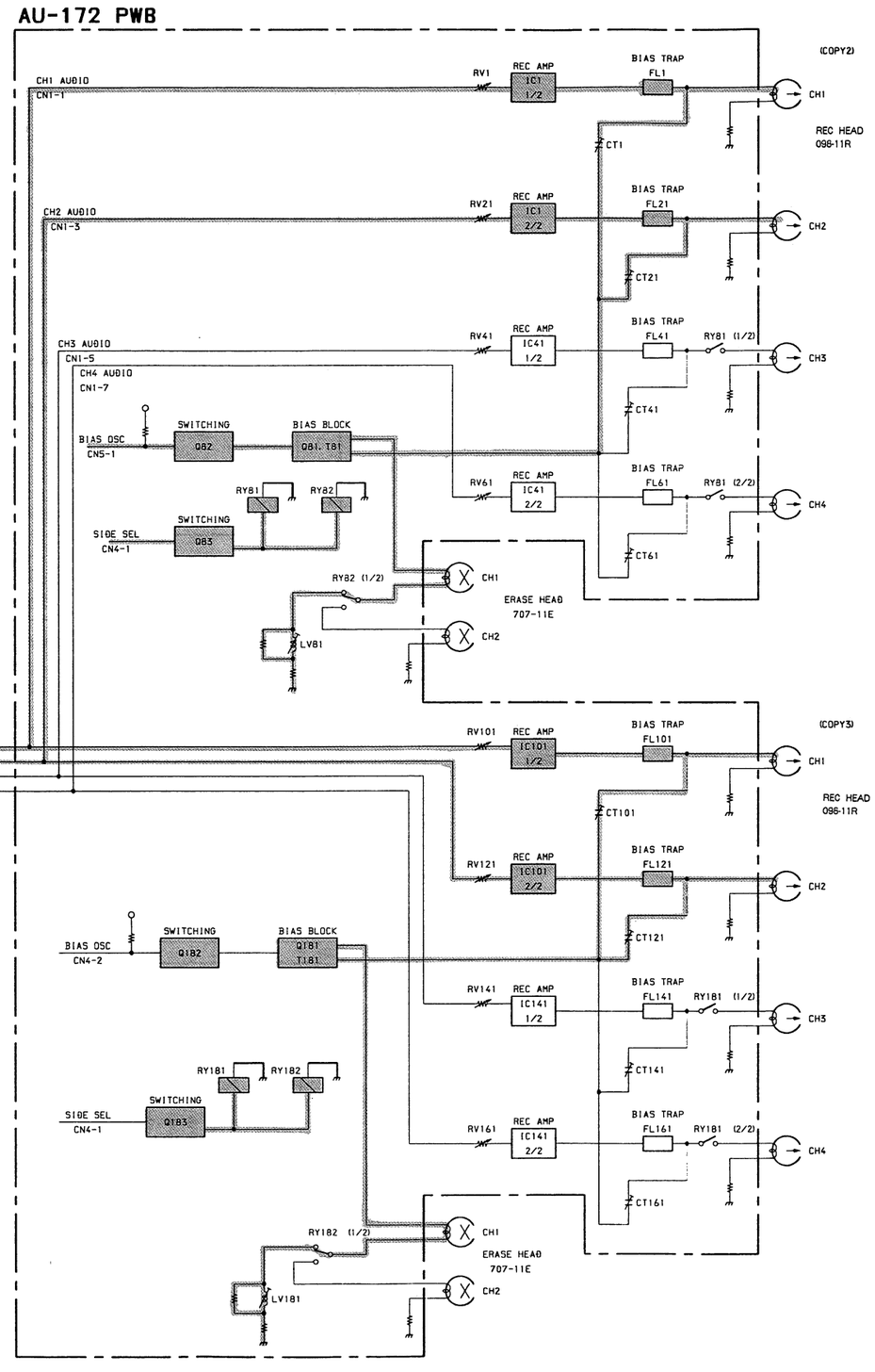
* If the SHORT TAPE indicator is lit, the corresponding tape is not rewound.

Section 2
Circuit Description

2-1. OPERATION STATE

CCP-2310F AUDIO (COPY A MODE)

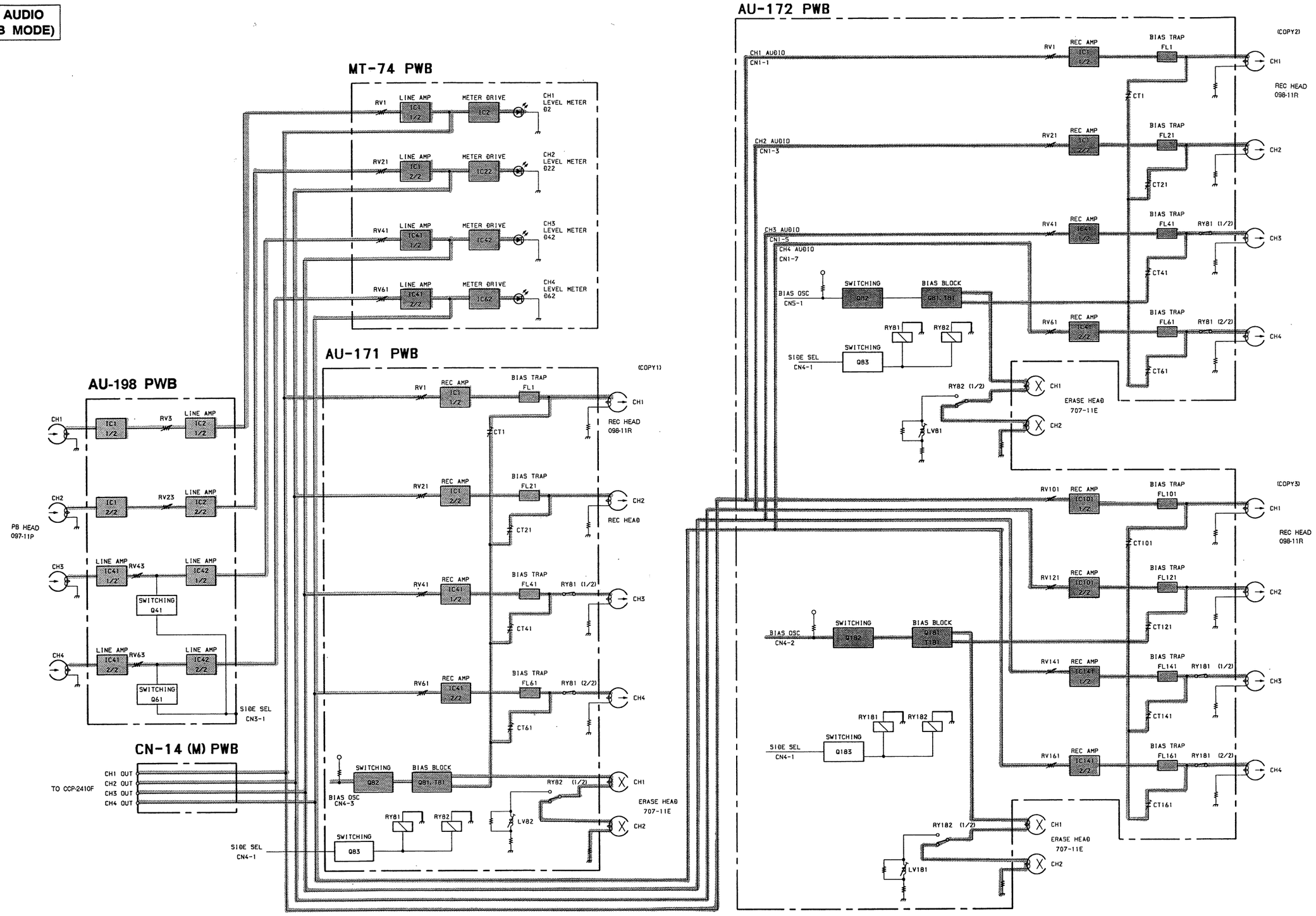




2-1 (1) (E)

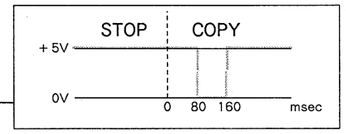
2-1 (1) (E)

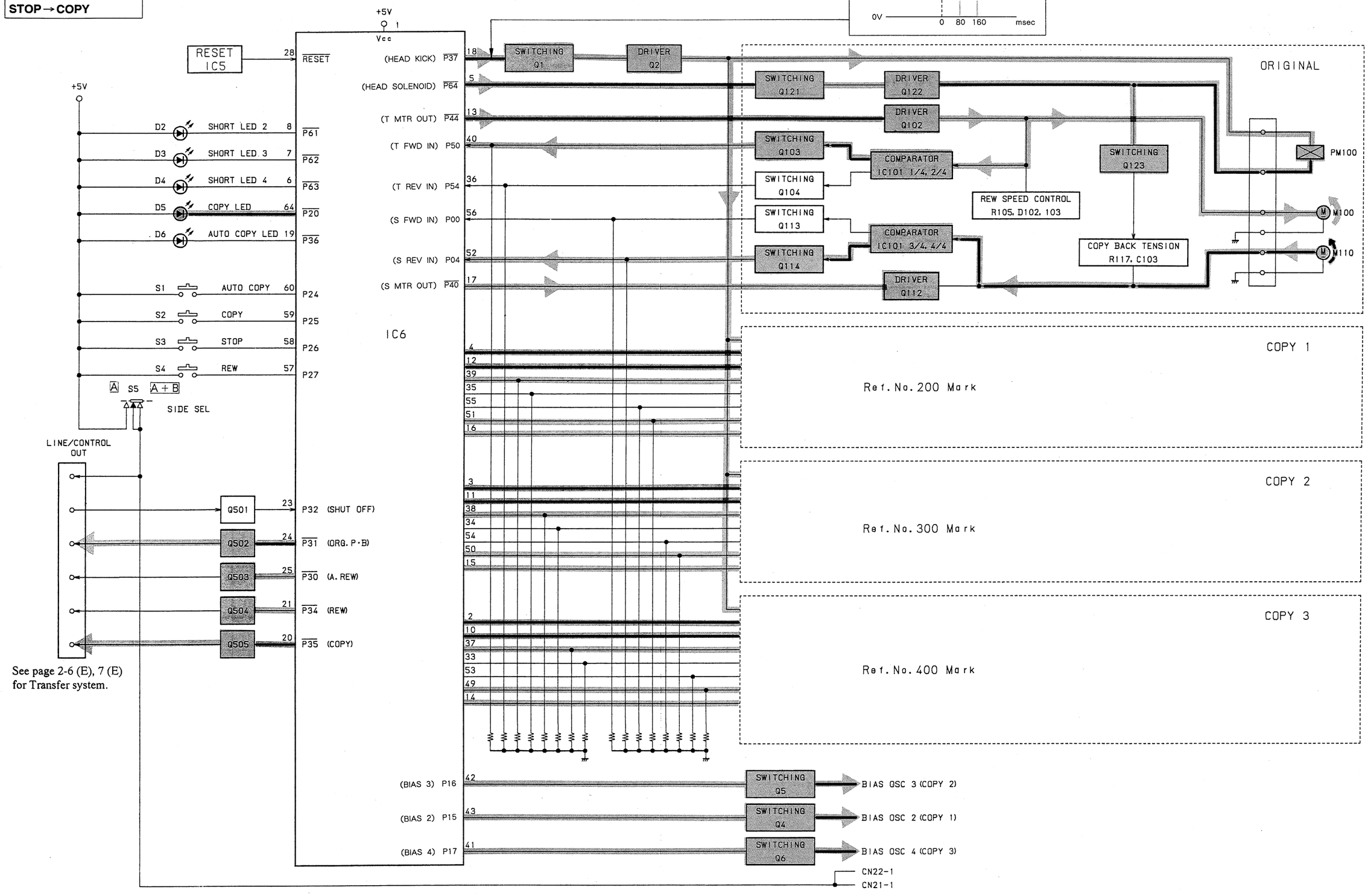
CCP-2310F AUDIO (COPY A+B MODE)



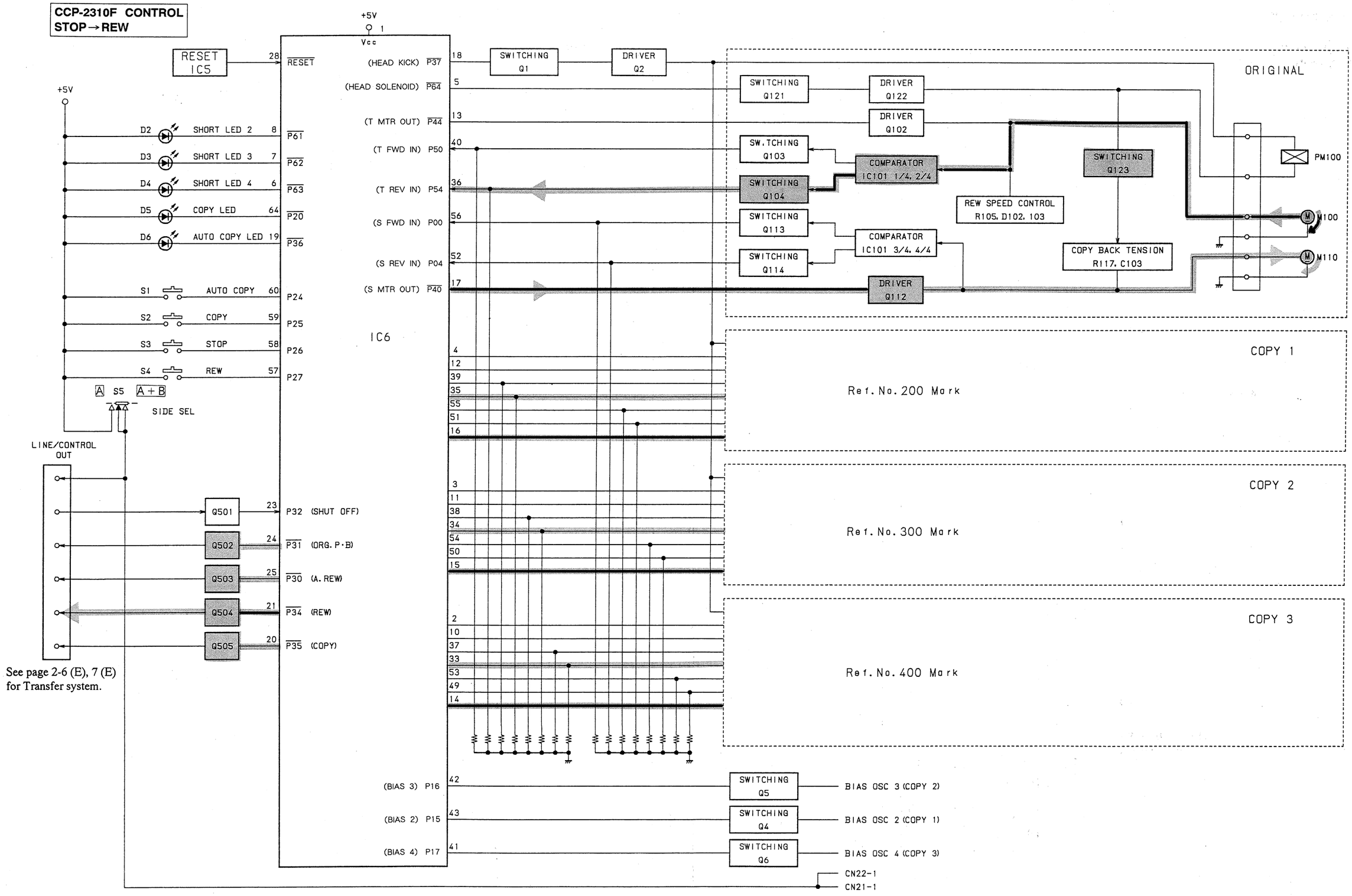
CCP-2310F CONTROL
STOP→COPY

; Operating or high portion
; Operating or low portion

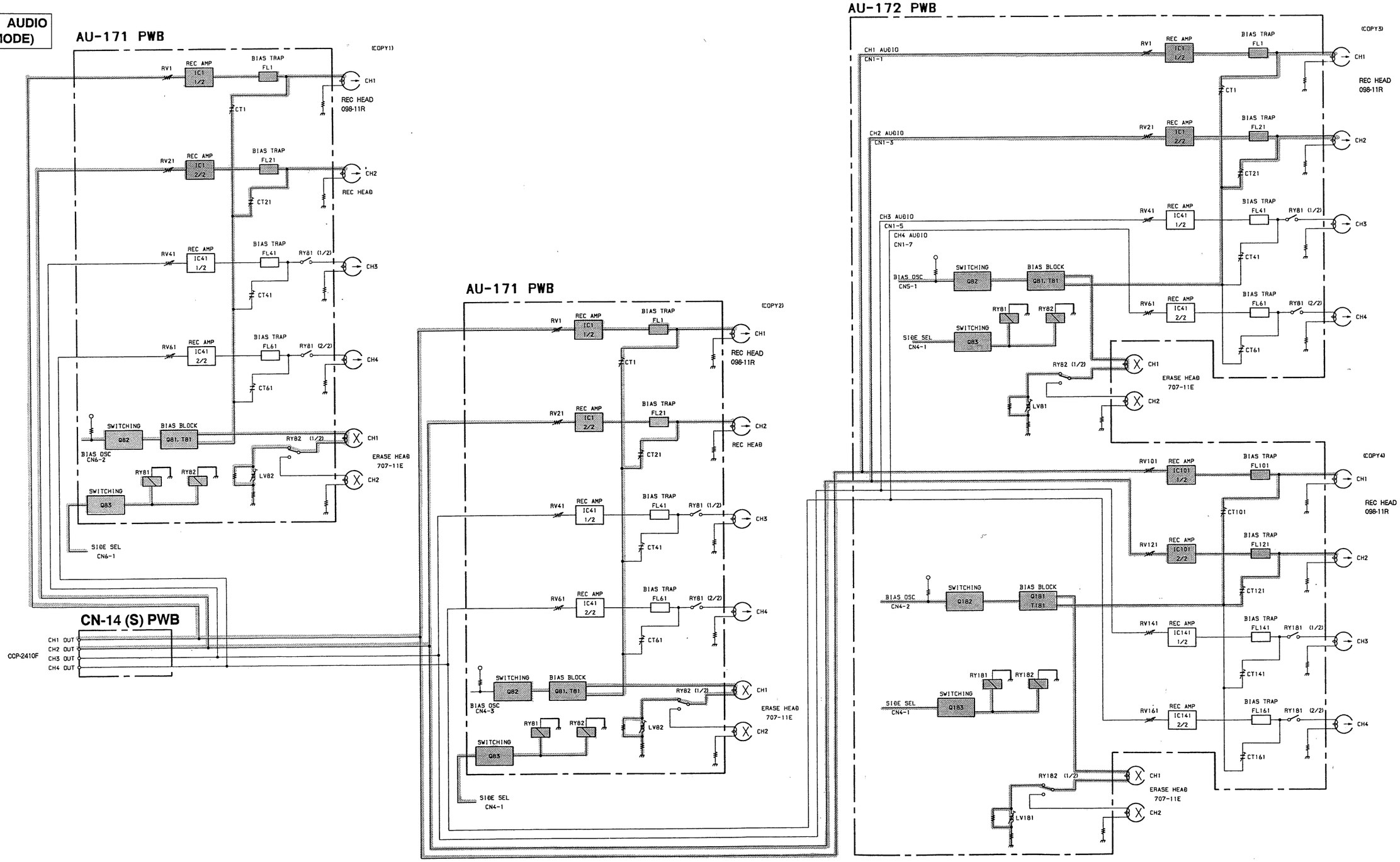




See page 2-6 (E), 7 (E) for Transfer system.


CCP-2310F CONTROL
STOP→REW
+5V
Vcc
RESET IC5
28 RESET
(HEAD KICK) P37
(HEAD SOLENOID) P64
(T MTR OUT) P44
(T FWD IN) P50
(T REV IN) P54
(S FWD IN) P00
(S REV IN) P04
(S MTR OUT) P40
IC6
D2 SHORT LED 2 8 P61
D3 SHORT LED 3 7 P62
D4 SHORT LED 4 6 P63
D5 COPY LED 64 P20
D6 AUTO COPY LED 19 P36
S1 AUTO COPY 60 P24
S2 COPY 59 P25
S3 STOP 58 P26
S4 REW 57 P27
A S5 A+B
SIDE SEL
LINE/CONTROL OUT
Q501 23 P32 (SHUT OFF)
Q502 24 P31 (ORG. P·B)
Q503 25 P30 (A. REW)
Q504 21 P34 (REW)
Q505 20 P35 (COPY)
See page 2-6 (E), 7 (E) for Transfer system.
18 SWITCHING Q1 DRIVER Q2
5 SWITCHING Q121 DRIVER Q122
13 DRIVER Q102
40 SW.TCHING Q103
36 SWITCHING Q104
56 SWITCHING Q113
52 SWITCHING Q114
17 DRIVER Q112
COMPARATOR IC101 1/4, 2/4
COMPARATOR IC101 3/4, 4/4
REW SPEED CONTROL R105, D102, 103
SWITCHING Q123
COPY BACK TENSION R117, C103
ORIGINAL
PM100
M100
M110
4 12 39 35 55 51 16
3 11 38 34 54 50 15
2 10 37 33 53 49 14
COPY 1
Ref. No. 200 Mark
COPY 2
Ref. No. 300 Mark
COPY 3
Ref. No. 400 Mark
(BIAS 3) P16 42 SWITCHING Q5 BIAS OSC 3 (COPY 2)
(BIAS 2) P15 43 SWITCHING Q4 BIAS OSC 2 (COPY 1)
(BIAS 4) P17 41 SWITCHING Q6 BIAS OSC 4 (COPY 3)
CN22-1
CN21-1

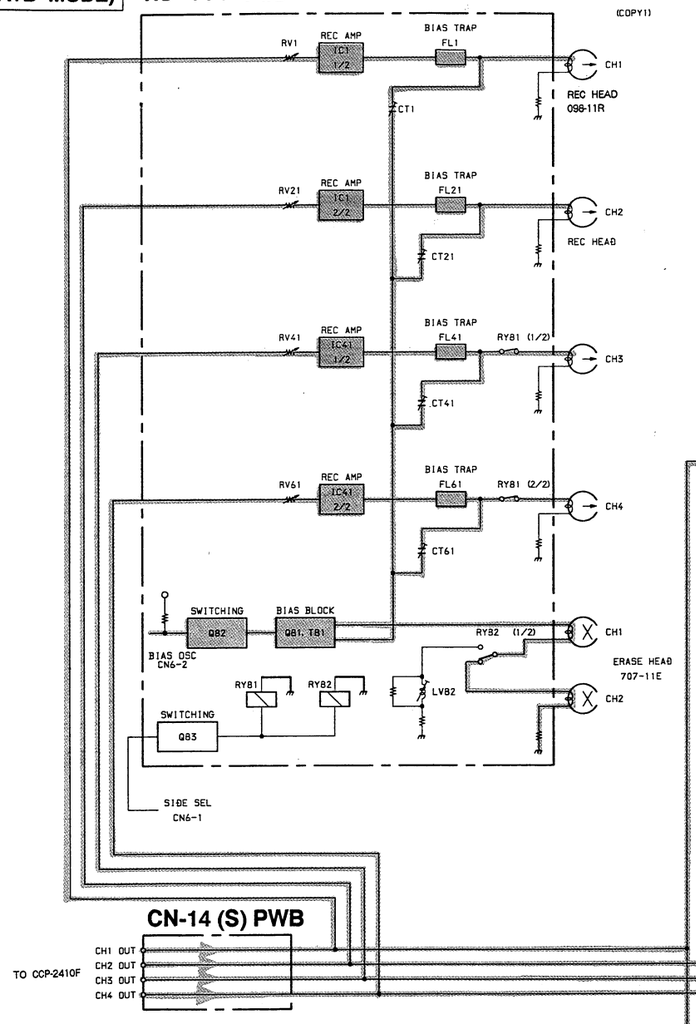
CCP-2410F AUDIO (COPY A MODE)



CCP-2410F AUDIO (COPY A+B MODE)

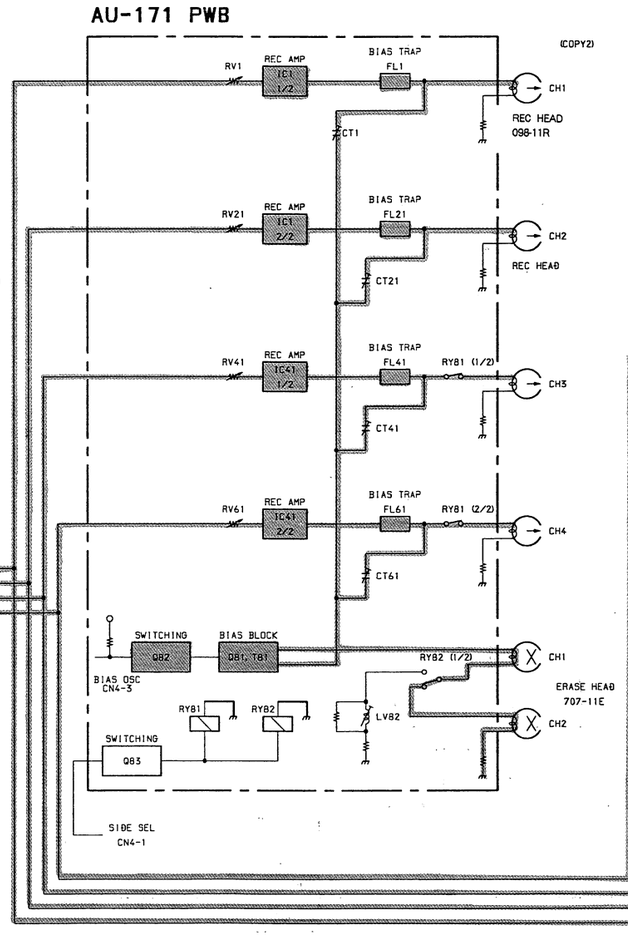
AU-171 PWB

(COPY1)



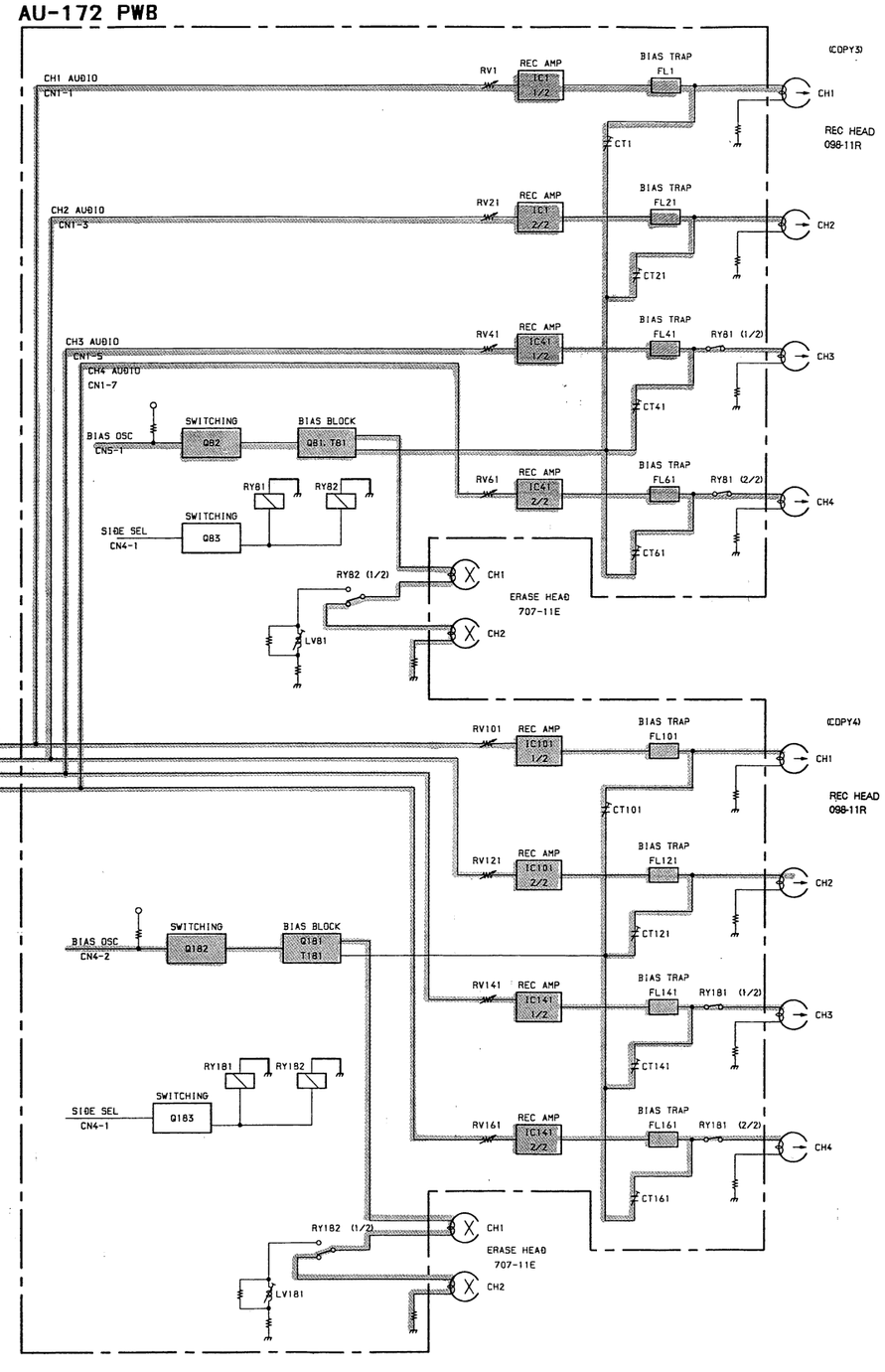
AU-171 PWB

(COPY2)



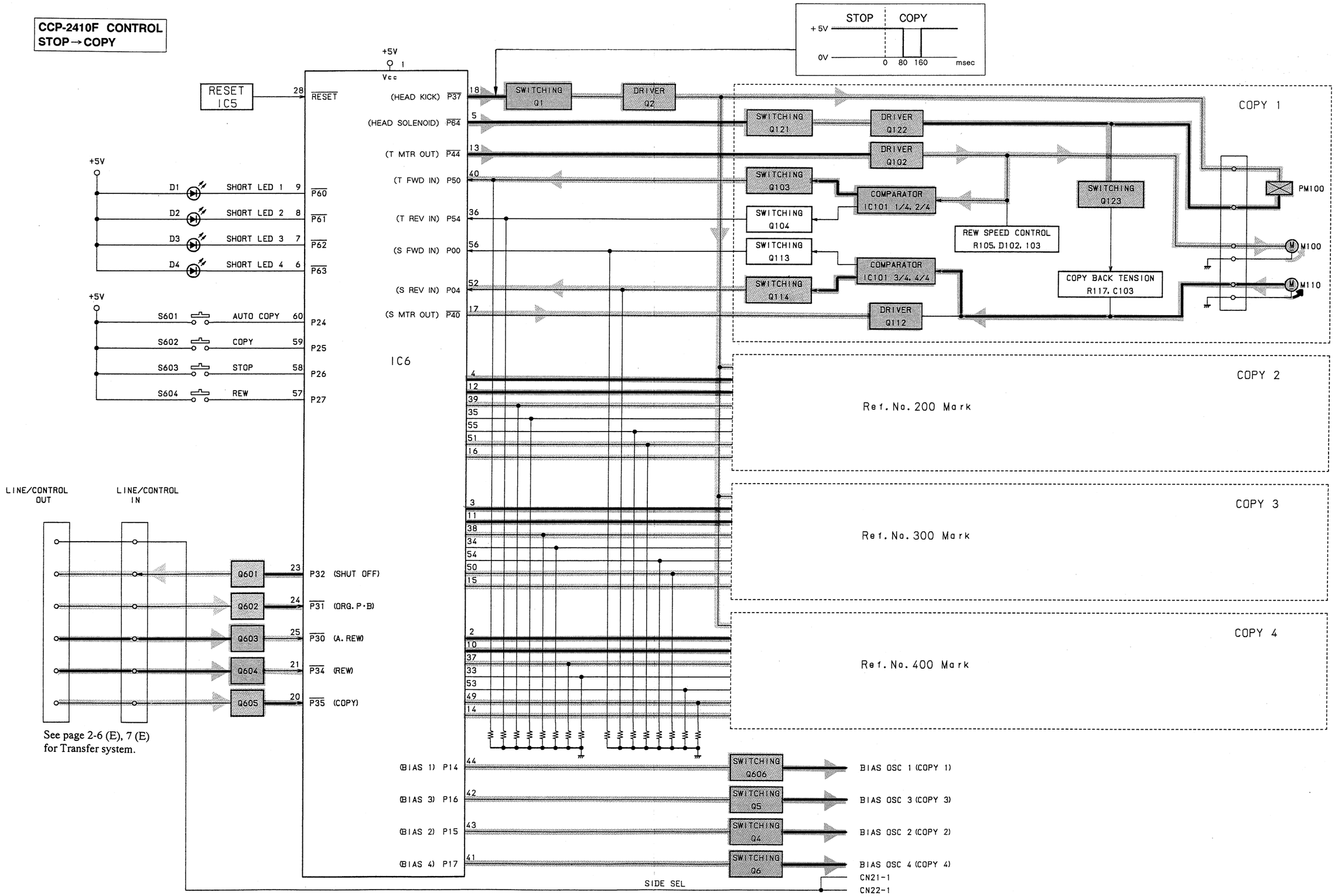
AU-172 PWB

(COPY3)



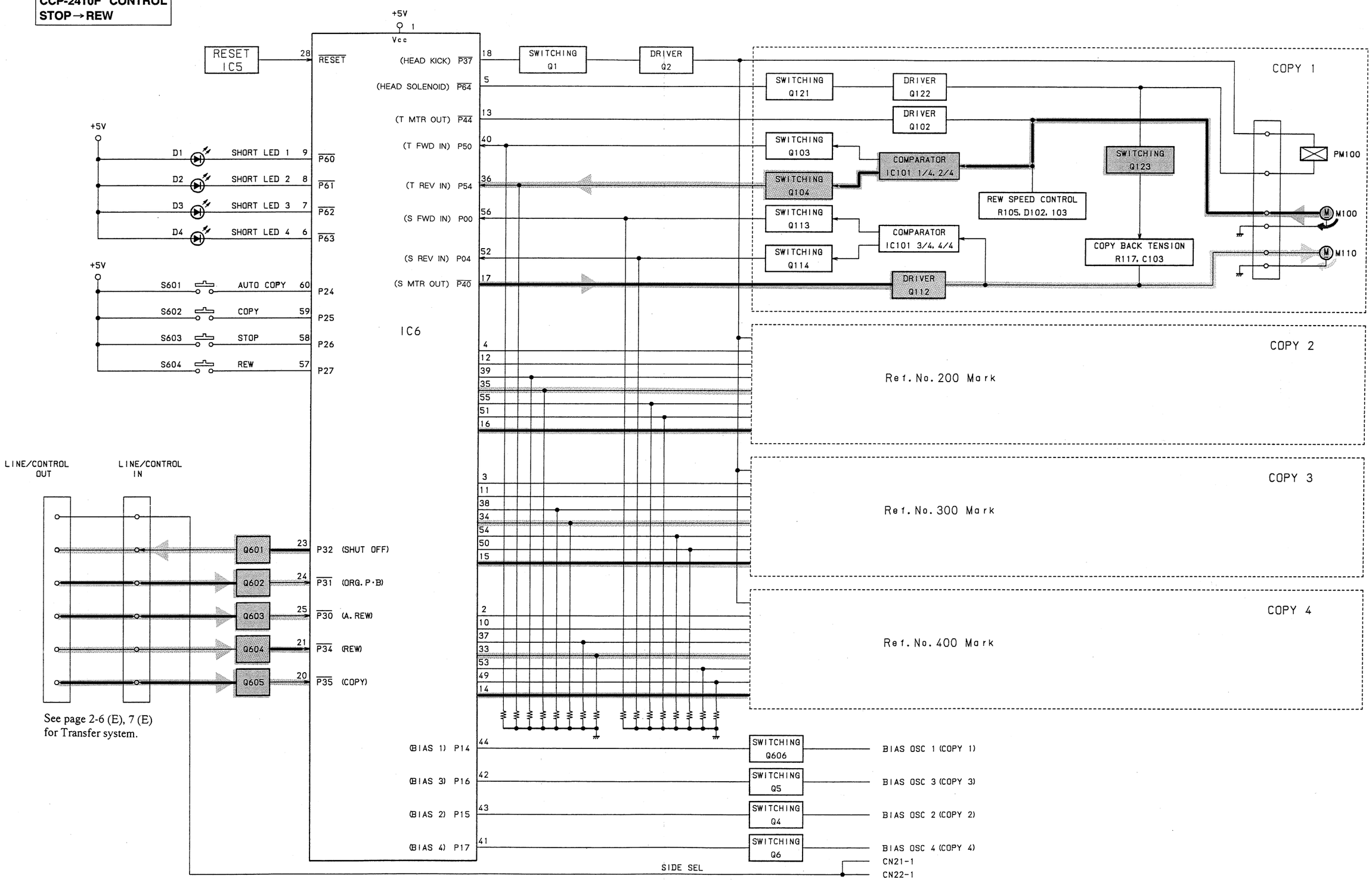
(COPY4)

CCP-2410F CONTROL
STOP→COPY



See page 2-6 (E), 7 (E) for Transfer system.

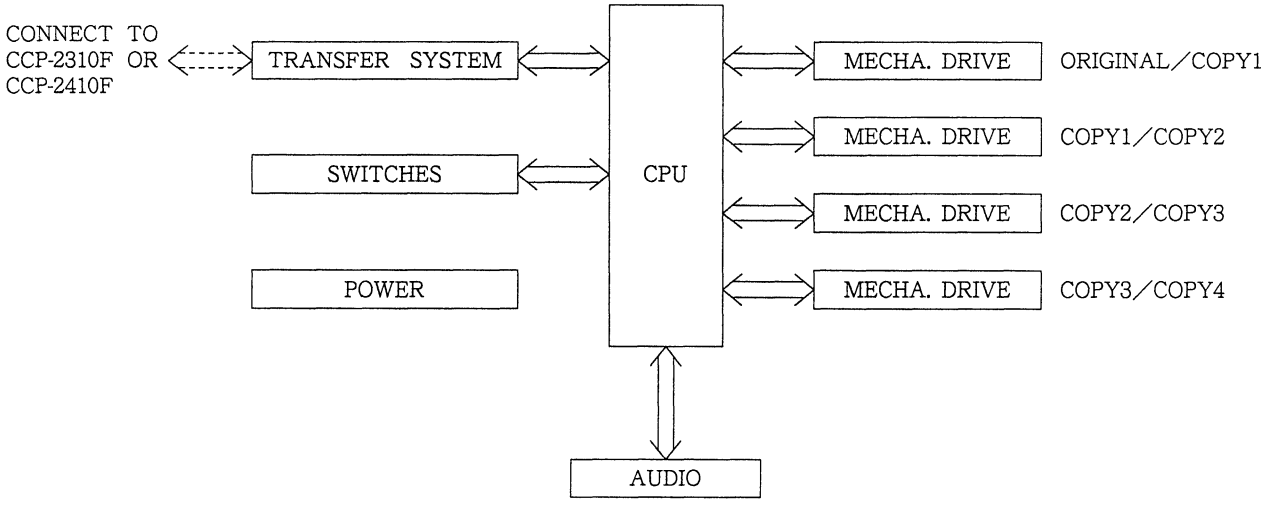
CCP-2410F CONTROL
STOP→REW



See page 2-6 (E), 7 (E) for Transfer system.

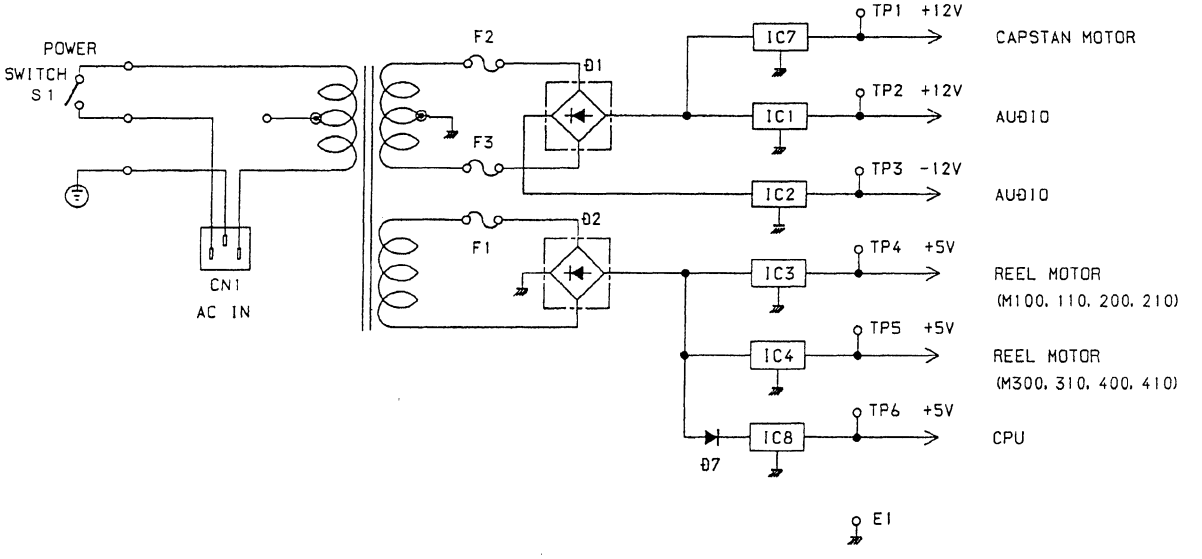
2-2. SYSTEM BLOCK

The circuits of the CCP-2310F/2410F consist of each block as shown below.



2-3. POWER SUPPLY

Six 3-pin regulators are used, as shown below.



2-4. MECHA. DRIVE

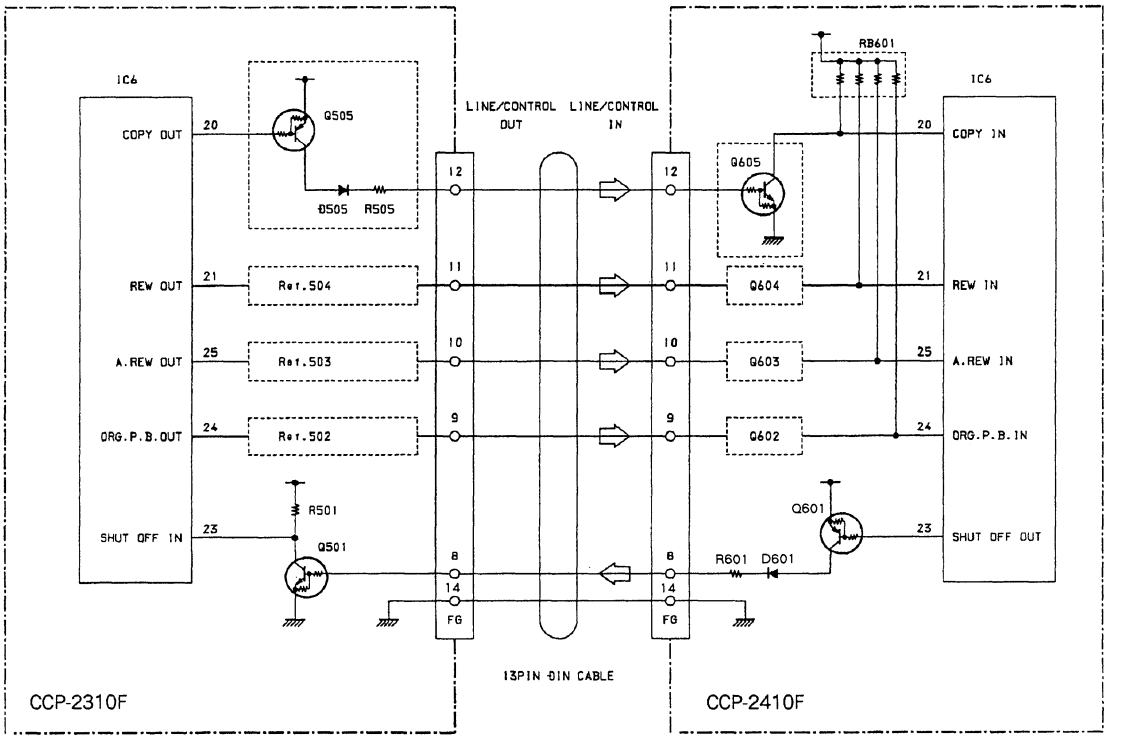
Each reel motor is linked to the CPU with two input signals (FWD IN, REW IN) and one output signal (MTR OUT).
With the input signals, the CPU judges the motor status (run or stop)

With the output signal, the CPU controls the motor rotation.
The control ports for reel motor are as listed below.
IC6 (CPU)

CPU PORT		IC6 (CPU) Pin No.				Operation		
		MD1	MD2	MD3	MD4	STOP	COPY	REW
OUT PUT	T MTR OUT	13	12	11	10	H	L	H
	S MTR OUT	17	16	15	14	H	H	L
INPUT	T FWD IN	40	39	38	37	L	H	L
	T REV IN	36	35	34	33	L	L	H
	S FWD IN	56	55	54	53	L	L	H
	S REV IN	52	51	50	49	L	H	L

2-5. TRANSFER SYSTEM

The digital signal system in the CCP-2310F/2410F consists of three operation signal lines and two status signal lines. If plural units of CCP-2410F are connected, they are connected in parallel as viewed from the CCP-2310F side.



Operation signals.

13PIN CONNECTOR	STOP	COPY	REW	*A.REW
12	L	H	L	L
11	L	L	H	L
10	L	L	L	H

L : If CCP-2410F is not connected,"L" is "OPEN".

* A. REW : Only the tape for which the SHORT TAPE indicator does not illuminate is rewound.
In the AUTO COPY mode, REW→ COPY→A. REW are output.

Status signal (from CCP-2310F to CCP-2410F)

13PIN CONNECTOR	Playback of original tape	others
9	H	L

Status signal (from CCP-2410F to CCP-2310F)

13PIN CONNECTOR	Even one MD in CCP-2410F is running	All MDs in CCP-2410F stop
8	H	L

2-6. SWITCHES

Four switches (A.COPY, COPY, STOP, REW) are provided each for CCP-2310F and 2410F. (For the CCP-2410F, S601 – S604 on the right side of SY-3 board in the set.) The SIDE SELECT switch signal is not input to the CPU but it operates directly the relays on the audio board.
The set provides two special modes for service (cleaning mode and service mode), and these modes can be activated by the switch operation.

Section 3
Service Overview

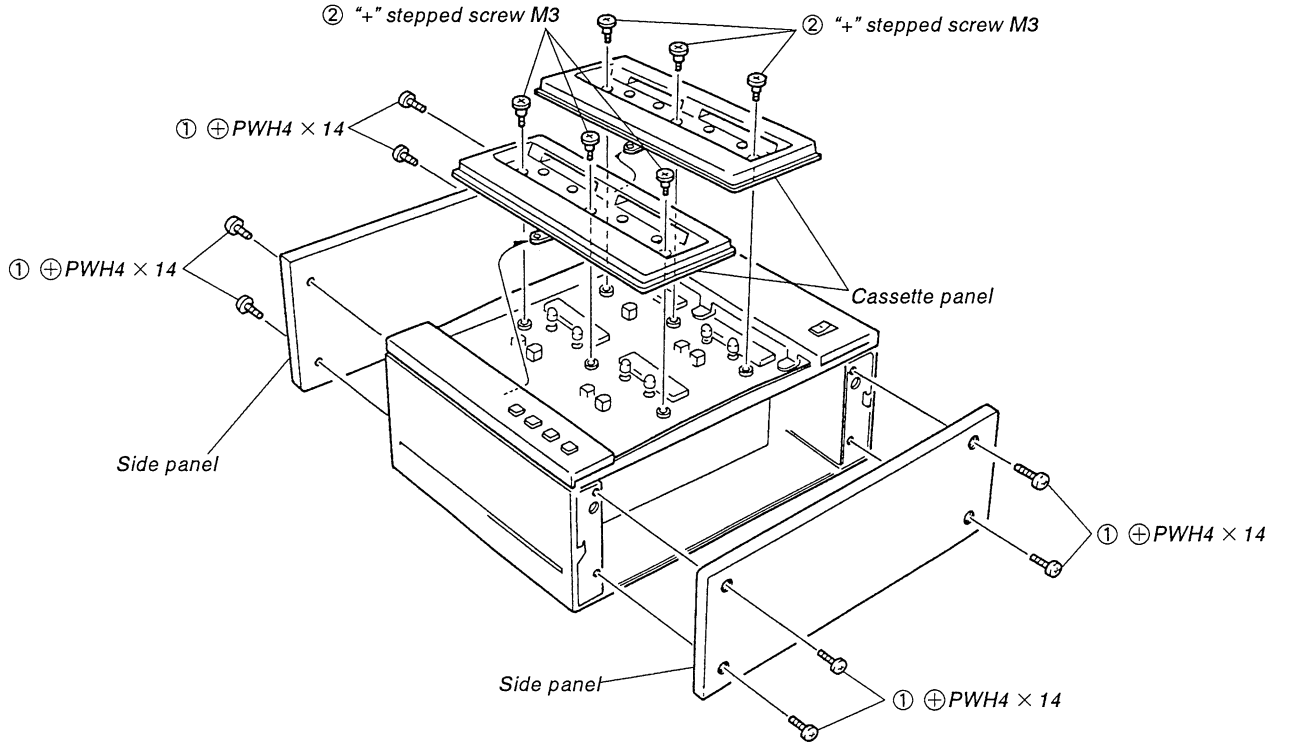
3-1. DISASSEMBLY

[Side panel]

① Remove screws (4 pcs each).

[Cassette panel]

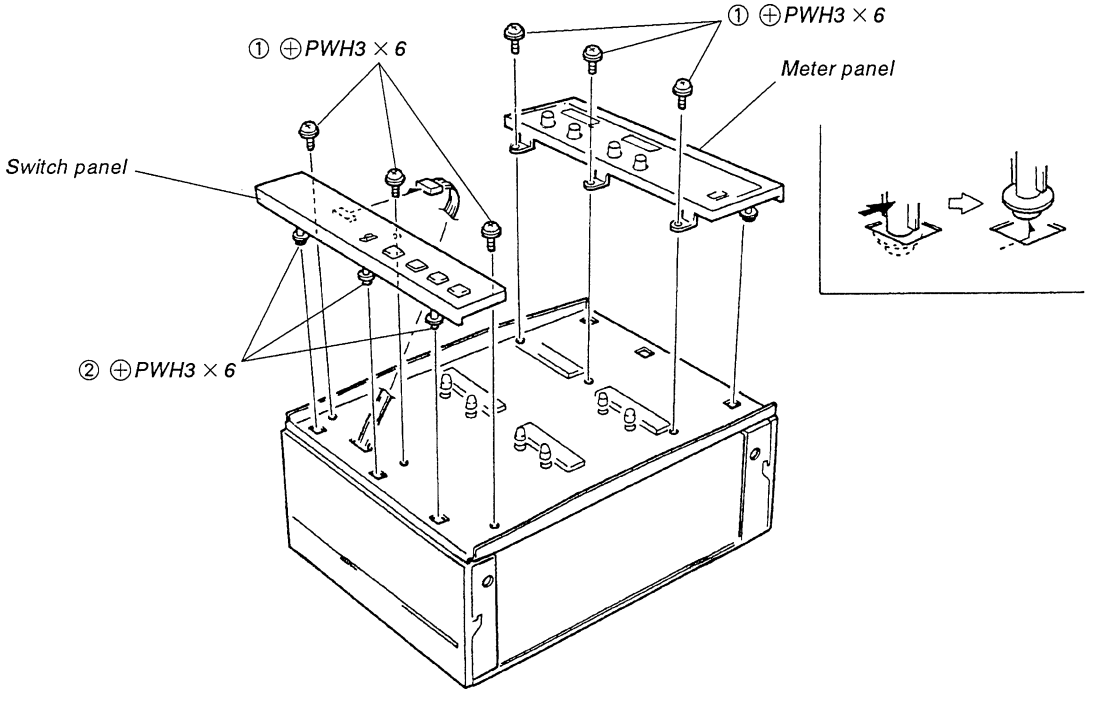
② Remove screws (3 pcs each). Note that a protruded hook is attached to each panel.



[Meter panel] [Switch panel]

① Remove screws (3 pcs each).

② Disengage hooks (3 places each) of chassis.

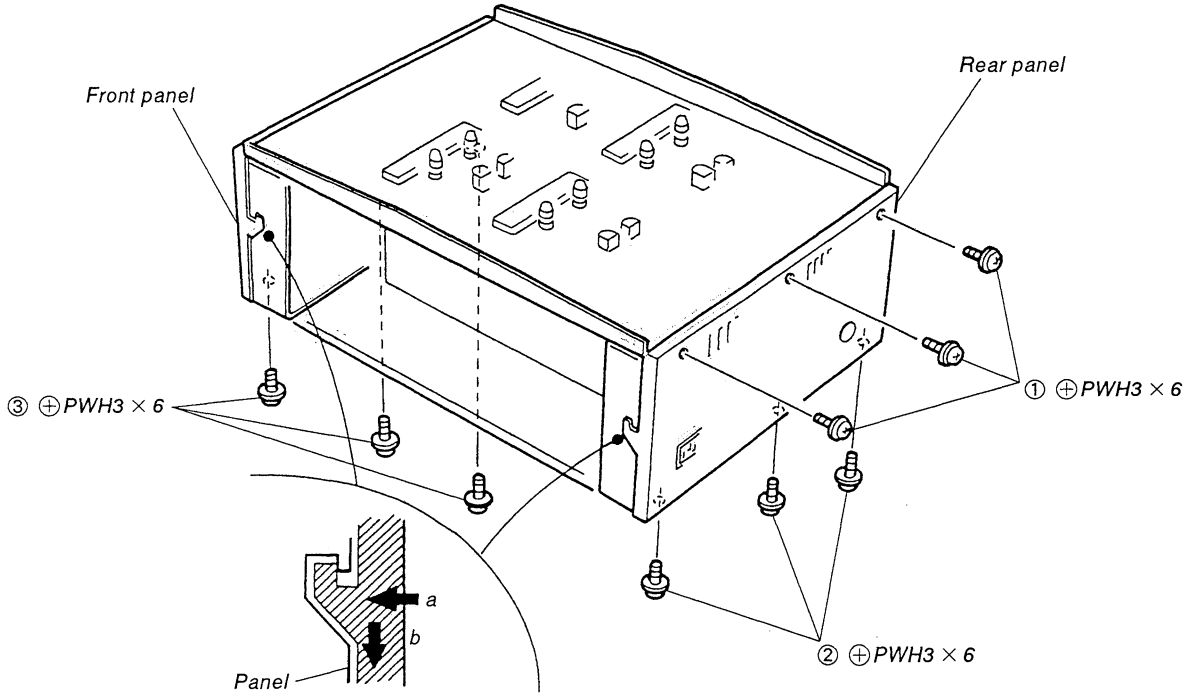


[Rear panel]

①, ② Remove screws (total 6 pcs).
Pushing the panel in direction "a", disengage the hook toward the direction "b".

[Front panel]

③ Remove screws (total 3 pcs).
Pushing the panel in direction "a", disengage the hook toward the direction "b".

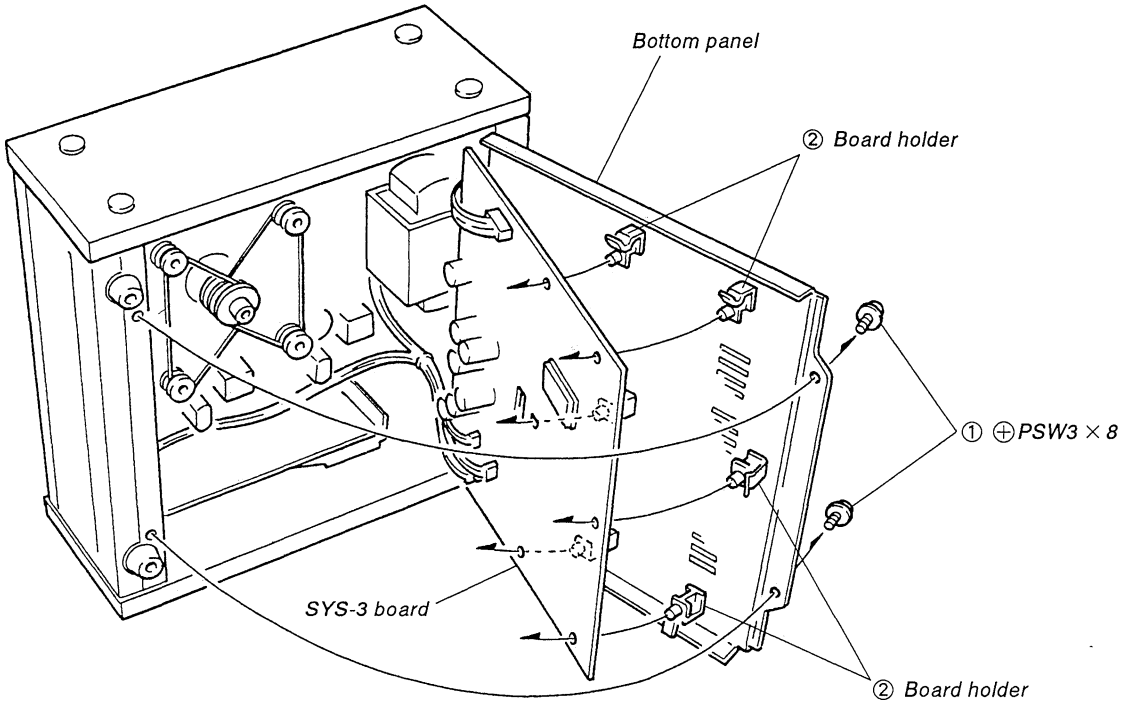


[Bottom panel]

① Remove screws (2 pcs), and the bottom plate will open together with the SY-3 board.

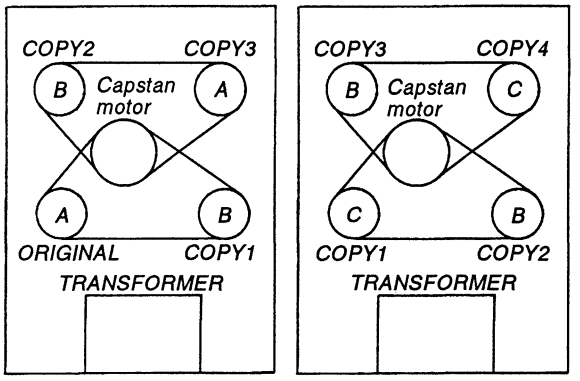
[SY-3 board]

② Remove the board holders (6 places), and the SY-3 board will open.



3-2. CAPSTAN ASSEMBLY

The unit employs 4 sets of capstan assemblies to drive a capstan motor using 2 capstan belts.
Figure 1 shows a layout of capstan assemblies and capstan motor as viewed from rear side of chassis with the bottom plate removed.



CCP-2310F CCP-2410F

Figure 1

3-2-1. Speed Lag between Original MD and Copy MD

In the CCP-2310F/2410F, the speed in the copy MD is slower by 1% than that in the original MD in order to prevent an unrecorded portion that will otherwise be present due to the fact that the copy tape is rewounded faster than original tape.
This speed lag is done with difference in diameter of flywheels.

3-2-2. Kind and Arrangement of Capstan Assemblies

The kind and combination of capstan assemblies are as shown in Figure 1 and Table 1 ; a total of three kinds are available in the CCP-2310F/2410F.

MD CCP-2310F /CCP-2410F	CCP-2310F	CCP-2410F
ORIGINAL /COPY1	A-2109-010-A Capstan (A) Assy	A-2109-011-A Capstan (C) Assy
COPY1 /COPY2	A-2109-009-A Capstan (B) Assy	A-2109-009-A Capstan (B) Assy
COPY2 /COPY3	A-2109-009-A Capstan (B) Assy	A-2109-009-A Capstan (B) Assy
COPY3 /COPY4	A-2109-010-A Capstan (A) Assy	A-2109-011-A Capstan (C) Assy

Table 1

3-2-3. Identification and Dimension of Capstan Assemblies

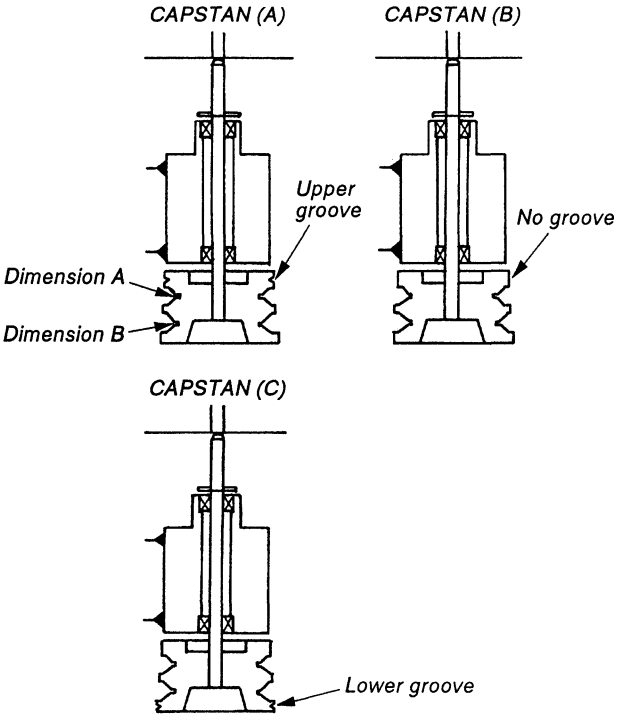


Figure 2

Identification of capstan assemblies :
1. Capstan (A) assembly···Upper groove in flywheel
2. Capstan (B) assembly···No groove
3. Capstan (C) assembly···Lower groove in flywheel

Flywheel inner diameter :

	Capstan (A) Assy	Capstan (B) Assy	Capstan (C) Assy
Dimension A	19.87	20.0	20.07
Dimension B	20.07	20.0	20.07

Note : Replace the capstan assembly with the same kind of capstan assembly when replacement is necessary.
Also, engage the belt at the same position, otherwise the speed will change.

3-2-4. When Eliminating Speed Lag between Original and Copy

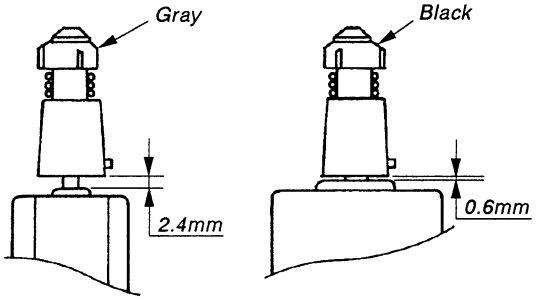
To make a tape without speed lag, the CCP-2310F must be modified since there is a 1 % speed lag between original MD and copy MD in the CCP-2310F /2410F.

Modification is made by replacing the capstan (A) Assy used for original MD in the CCP-2310F with capstan (C) Assy.

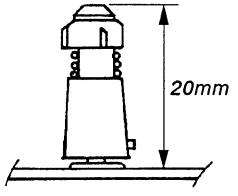
3-3. REEL HEAD ASSEMBLY POSITION

There are two methods available for replacing the reel head.

1) When reel head assembly is mounted on the stand alone motor (in case of motor change, etc.)
   Relative position between reel head and stand alone motor is A and B in Figure 3.



A : Reel head (L) Assy B : Reel head (R) Assy



C : Height from chassis

Figure 3

2) Positioning from chassis (if motor is attached to chassis)
   The distance from chassis to real head top is 20mm as shown Figure 3C.

Notes : 1. After replacement, confirm that the motor does not contact the reel head assembly.
2. Tighten the reel head assembly fixing screws (hex. socket head setscrew 2 × 3) with a hex. key wrench.
3. The left motor shaft is locally planed, and one of two setscrews should be positioned here.

3-4. ASSEMBLY OF CAPSTAN MOTOR AND MOTOR PULLEY

Insert slowly the motor pulley into the capstan motor shaft, and tighten hexagonal socket head screw where the pully is stopped.

Relative position between capstan motor and pulley is as shown in Figure 4.

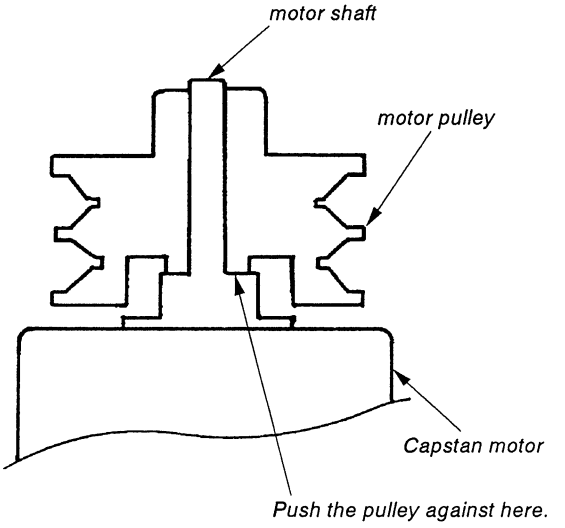
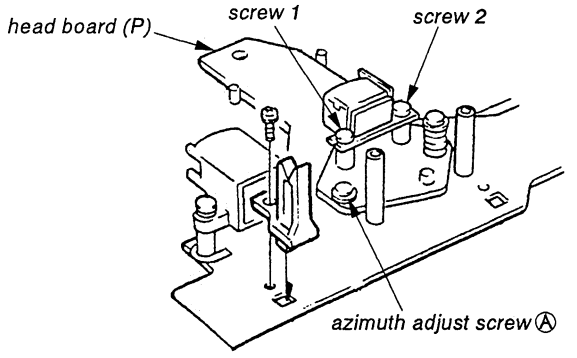


Figure 4

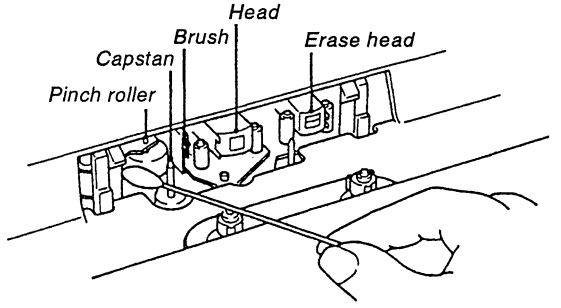
3-5. HEAD REPLACEMENT

1. Disconnect the lead wires of head at the solder part.
2. Remove the head fixing screws. (For screw 1, only loosen it.)
3. Install a new head with screws 1 and 2.
4. After installation, adjust height and azimuth of the head.



The set provides a cleaning mode and a service mode to facilitate the maintenance. Operate it in the procedure below.

3-6. CLEANING MODE



The head block will come out so that the head and pinch roller can easily be cleaned.

Operating method

CCP-2310F

Take out the cassette. Turn on the POWER switch while pressing the COPY button, and the head block will come out in about 4 seconds. The head block returns automatically after 5 munits, however, the cleaning mode cannot be reset unless other than COPY button is pressed.

CCP-2410F

Connect the CCP-2410F to the CCP-2310F, turn on the POWER switch with the CCP-2310F in the cleaning mode, and the cleaning mode is then activated.

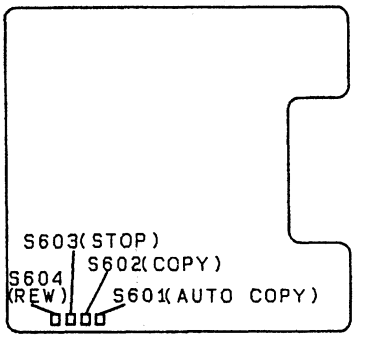
If the CCP-2410F alone is operated, turn on the POWER switch while pressing the COPY button (S602) inside the set, and the cleaning mode will be activated in about 4 seconds.(At this time, NEVER connect the CONTROL CABLE.)

After that, if the cleaning mode is reset by pressing other than COPY button, the CCP-2410F can be operated in the same manner as CCP-2310F by using the S601 – 604 switches.

However, the CCP-2410F cannot output signals to the transfer system.

For normal operation (linking with CCP-2310F), turn off the POWER switch once.

SY-3 BOARD COMPONENT SIDE



3-7. SERVICE MODE

This mode facilitates adjustment of reel motor speed and head azimuth.

Operating method

The CCP-2310F and CCP-2410F can be operated in the same method.

1) Turn on the POWER switch while pressing the REW and AUTO COPY buttons.
2) Keep pressing both buttons, and when the SHORT TAPE indicator goes off after about 4 seconds, release the AUTO COPY button. (At this time, do not release the REW button.)
3) Further after 2 seconds, make sure that the SHORT TAPE indicator comes on again and the service mode is activated, then release the REW button.

The following operation is available.

AUTO COPY : Same status as the COPY, with exception that the bias does not rise up. Accodingly, the azimuth can easily be checked when the record head is connected directly to the playback amplifier.

COPY : The COPY status is maintained, so that the take up reel and plunger circuits can be checked.

REW : The REWIND status is maintained, so that the supply reel circuit can be checked.

Note : In the COPY and REWIND modes, the shutoff and brake circuits do not function. Therefore, never insert a cassette. If a cassette is inserted, the real motor can be damaged at the end of tape.

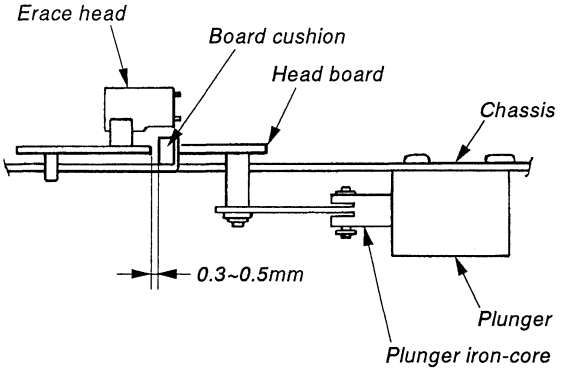
[Test tape]

Type	Part No.	Signal	
		Frequency (Hz)	Level (dB)
P-4-L300	7-819-011-11	315	0
P-4-A063	7-819-014-11	6.3 k	– 10
P-4-A100	7-819-016-11	10 k	– 10
WS-48A	7-819-032-11	3 k	0
CQ-012C	8-909-708-02	Mirror, 12 μ base	
CQ-201B	8-909-708-41	Torque	

Section 4
Alignment

4-1. ADJUSTMENT OF PLUNGER STROKE

The plunger stroke must be adjusted to determine the head advance amount, when the plunger is replaced.



Replacement and Adjustment :

1. Removing the cassette retainer (3-164-259-01) on the front side of chassis will expose the plunger fixing screws (PSW 3 × 6).
2. Replace the plunger, fix it temporarily to the chassis, and link it to the head board.
3. Push in the plunger iron-core until it contacts closely the plunger main body, so that the head board advances.
4. Fix the plunger at the position where a clearance between head board and board cushion (3-164-245-01) bonded to the notch in the chassis is 0.3 to 0.5 mm.

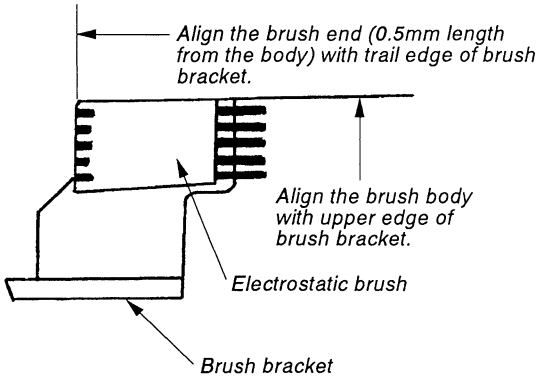
Note : After replacement, confirm in the copy satatus (service mode or cleaning mode) that the clearance of 0.3~0.5mm is ensured.

4-2. REPLACEMENT OF ELECTROSTATIC BRUSH

An electrostatic brush is attached to the head board to eliminate static discharge. It comes in contact with the tape when the head board advances. Therefore, it wears.

Follow the procedure provided below when replacing the brush.

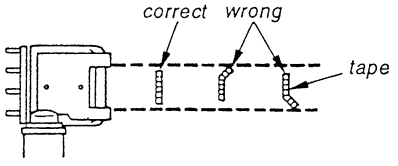
1) Remove the electrostatic brush assembly (PS 2 × 4) on the head board, then peel the brush off the brush bracket (3-164-234-02).
2) Clean the brush bracket with alcohol, and bond a new brush.
3) The electrostatic brush position is as shown in Figure.



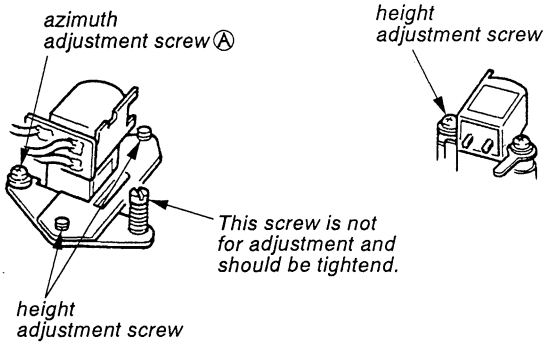
Note : The brushes are made of thin stainless wires. Take care not to bend them during replacement.

4-3. HEAD HEIGHT ADJUSTMENT

1. Install a mirror tape cassette (CQ-012C) and depress COPY button and STOP button alternately and watch the tape at tape guide.
2. In COPY mode, if tape is curled along tape guide, adjust the respective adjustment parts shown below.



Record and Playback Head : Guide Head :



Note : Also pay attention to head azimuth and zenith, and execute visual confirmation.
For this, turn the front and back height adjustment screws and the vertical adjustment screw each for about the same amount.

4-4. HEAD AZIMUTH ADJUSTMENT

Select either of the following three methods.

A. When the playback amplifier (AU-198) in CCP-2310F is used.

B. There is no CCP-2310F.

C. When the level meter on the CCP-2310F is used.

Note : Don't press the COPY, REWIND button in service mode when insert the cassette tape. Using the Head demagnetizer, demagnetize the head and clean the pinch roller and head.

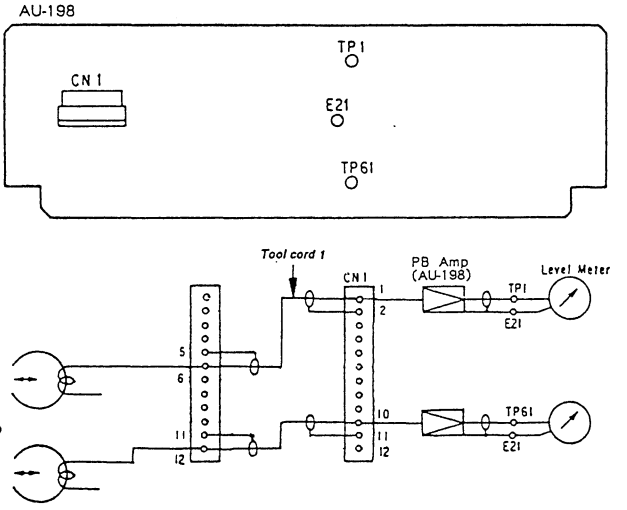
A. When the playback amplifier (AU-198) in CCP-2310F is used.

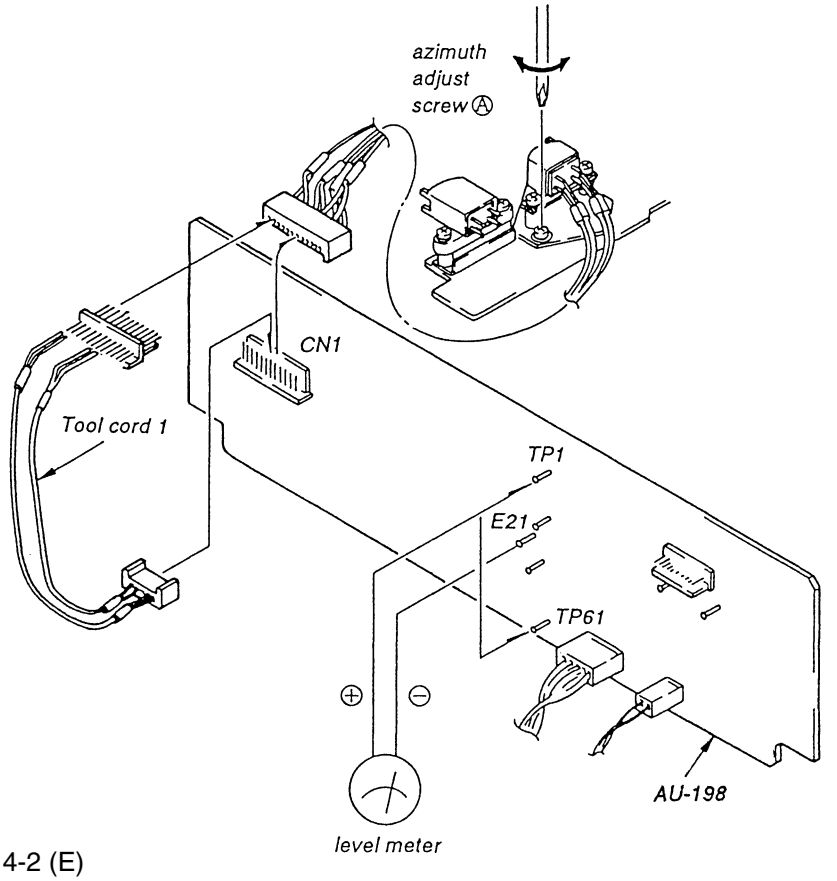
Test Equipment : Tool Cord 1
Test Tape (P-4-A100)
Level Meter
CCP-2310F

Procedure:

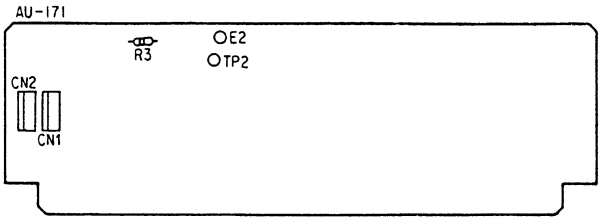
* 1. Disconnect the connector CN1 from the original head (playback) on the AU-198.
* 2. Connect the connector on the head to be adjusted to the tool cord 1, then connect another end to the connector CN1 on the AU-198 board.
3. Connect a "+" terminal of level meter to TP1 or TP61 on the AU-198 board, and "−" terminal of level meter to E21 on the AU-198 board.
4. Insert the test tape (P-4-A100) into the deck to be adjusted.
5. Activate the service mode, press the AUTO COPY button to activate the playback status. Refer to "3-7. SERVICE MODE" on page 3-5 (E).
6. Adjust the azimuth adjust screw Ⓐ so that reading of both level meters output level (TP1 and TP61) become the maximum.

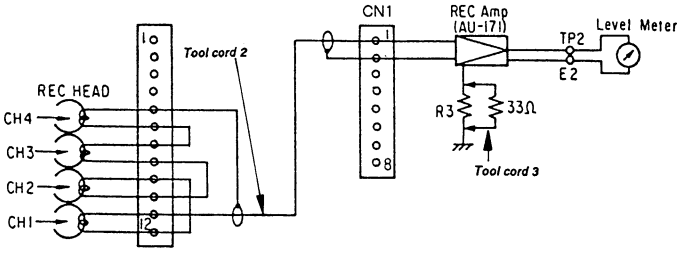
Note : The items marked * are not necessary for P. B. head adjustment.





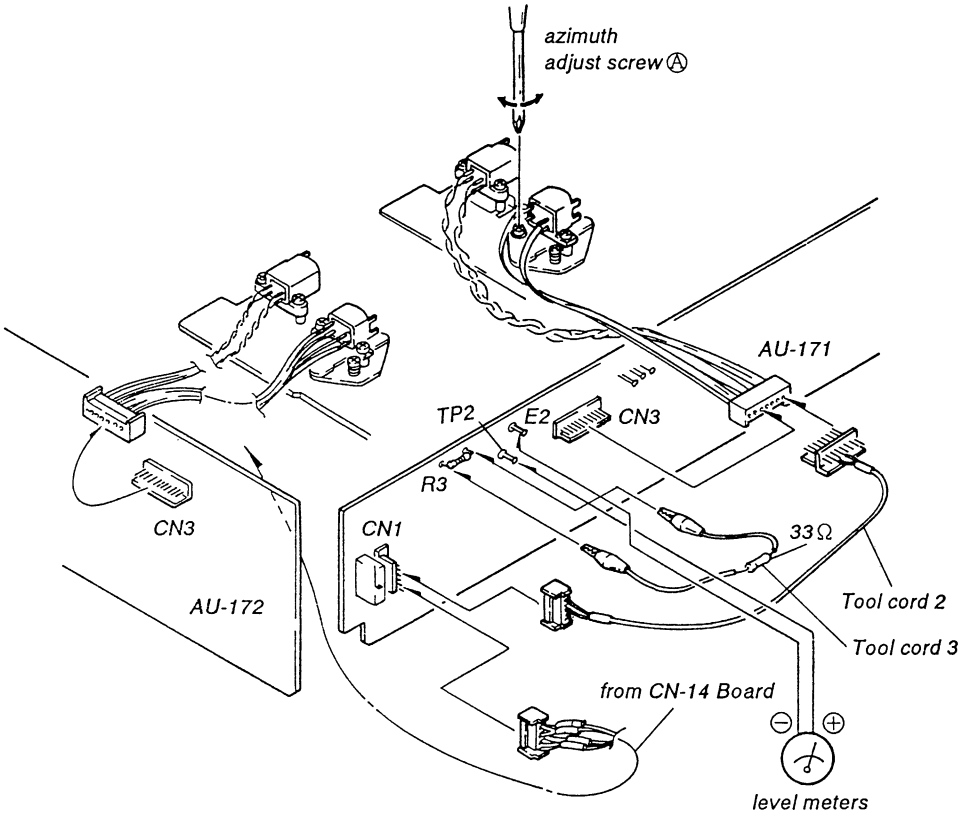
B. There is no CCP-2310F.
Test Equipment : Tool Cord 2
Tool Cord 3
Test Tape (P-4-A100)
Level Meter





Procedure:

1. Disconnect connectors on each head the AU-171 and AU-172 board.
2. Disconnect the connecting cable to CN1 on the AU-171 board from CN-14 board.
3. Connect the connector on the head to be adjusted to the tool cord 2, and connect another end to CN1 on the AU-171 board.
4. Connect each side of the tool cord 3 (resistance 33 Ω) to R3 in parallel.
5. Insert the test tape (P-4-A100) into the deck to be adjusted.
6. Connect a "+" terminal of level meter to TP2 on the AU-171 board, and "−" terminal of level meter to E21 on the AU-171 board.
7. Activate the service mode, press the AUTO COPY button to activate the playback status.
   Refer to "3-7. SERVICE MODE" on page 3-5 (E).
8. Adjust the azimuth adjust screw Ⓐ so that reading of level meters become the maximum.

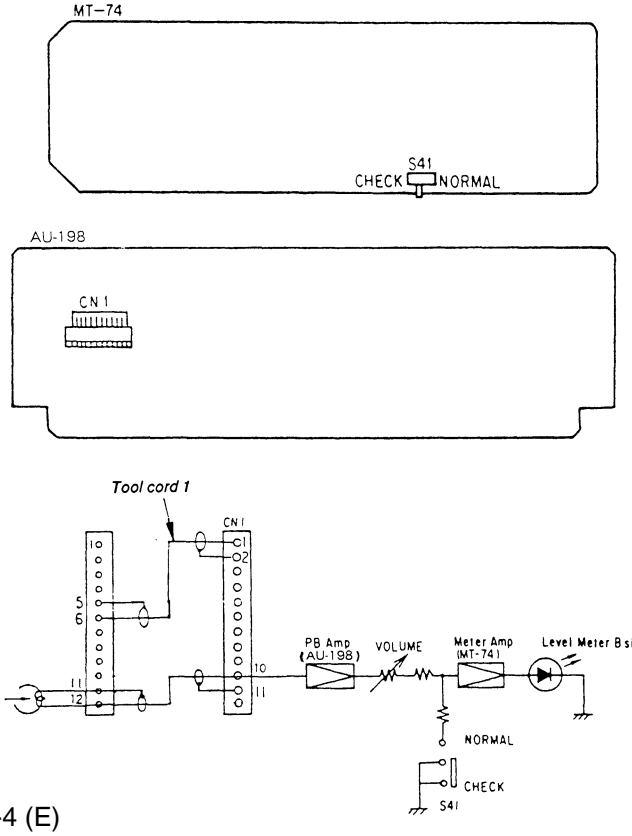


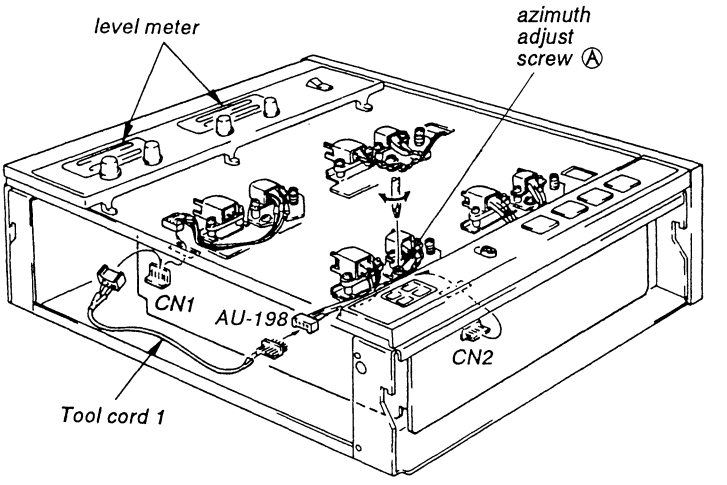
C. When the level meter on the CCP-2310F is used.
Test Equipment : Tool Cord 1
Test Tape (P-4-A100)
CCP-2310F (at record head of CCP-2410F adjustment)

Procedure:

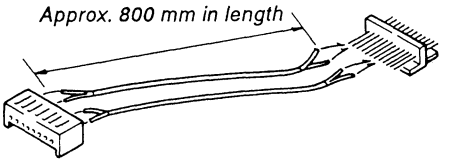
1. Change over the S41 on the meter board (MT-74) to CHECK side.
* 2. Disconnect the connector CN1 from the original head (playback) on the AU-198.
* 3. Connect the connector on the head to be adjusted to the tool cord 1, then connect another end to the connector CN1 on the AU-198 board.
4. Insert the test tape (P-4-A100) into the deck to be adjusted.
5. Activate the service mode, press the AUTO COPY button to activate the playback status. Refer to "3-7. SERVICE MODE" on page 3-5 (E).
6. Adjust the azimuth adjust screw Ⓐ so that reading of left level meters at B side become the maximum.
   (Since fine adjustment is posible where the level meter is around 0dB, rotate to azimuth adjust screw Ⓐ while adjusting the VOLUME so that the playback level of 10kHz is about 0dB.)
7. After adjustment, return the S41 on the meter board (MT-74) from CHECK side to NORMAL side with the S41 in CHECK position, the level is raised by about 20dB so that a weak signal from the head can be indicated on the meter.

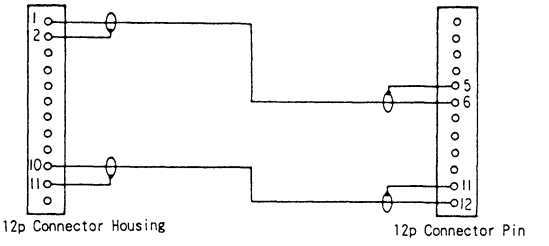
Note : The items marked * are not necessary for P. B. head adjustment.



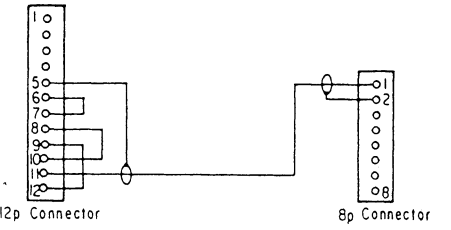


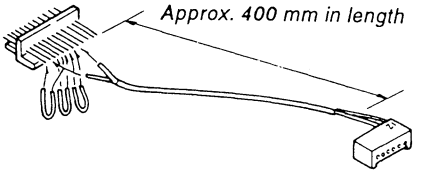
How to making tool cord 1



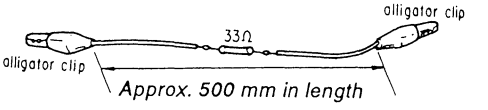


How to making tool cord 2





How to making tool cord 3



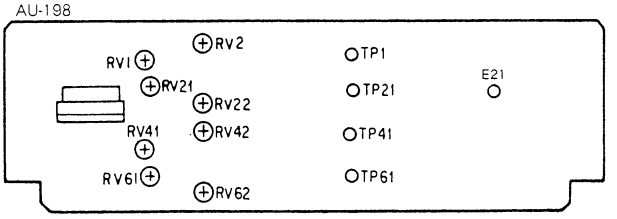
4-5. ADJUSTMENT OF PLAYBACK LEVEL (CCP-2310F ONLY)

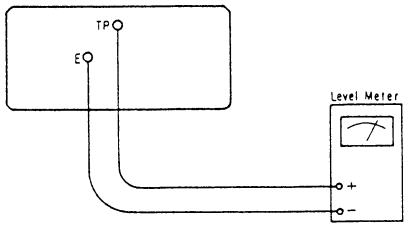
Test Equipment : Demagnetizer
Level Meter
Test Tape (P-4-L300)

Procedure:

1. Using the head demagnetizer, demagnetize the head and clean the pinch roller and head.
2. Set the playback level controls (RV1, RV21, RV41 and RV61 on the MT-74 board) to the center.
3. Turn the power switch ON.
4. Set the SIDE selector to "A + B".
5. Insert the test tape (P-4-L300) on the original side.
6. Press the COPY button, then connect the terminal of level meter to following each test point on the AU-198 board. Adjust the RV associated with each test point so that the output become 0dB ±0.5dB.

Board	CH	Level Meter Connection		Adjust
		+ Terminal	− Terminal	
AU-198	CH1	TP1	E21	RV1
	CH2	TP21	E21	RV21
	CH3	TP41	E21	RV41
	CH4	TP61	E21	RV61





4-6. ADJUSTMENT OF FREQUENCY CHARACTERISTICS (CCP-2310F ONLY)

Test Equipment Level Meter
Test Tape P-4-L300
P-4-A063
P-4-A100

Note: Before this adjustment, adjustment of playback level must has been finished.

Procedure:

(315Hz)

1. Insert the test tape (P-4-L300) on the original side, then press the COPY button and measure the playback output level.

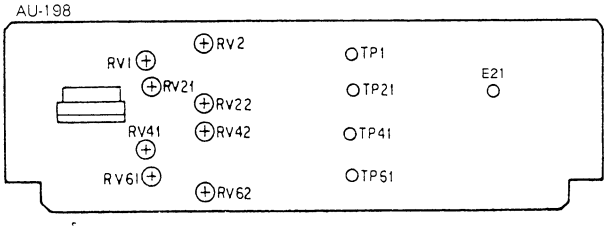
(6.3kHz)

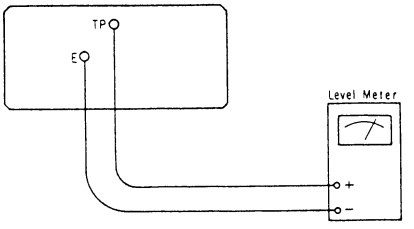
2. Insert the test tape (P-4-A063) on the original side, then press the COPY button and measure the playback output level.

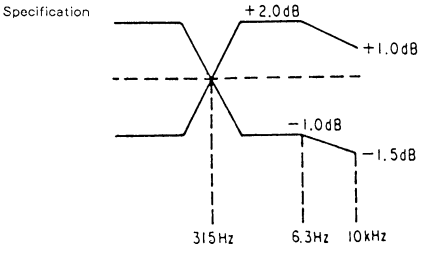
(10kHz)

3. Insert the test tape (P-4-A100) on the original side, then press the COPY button and measure the playback output level.
4. If the playback output level is out of specification, and adjust the RV (on the AU-198 board) associated with each test point.

Board	CH	Level Meter Connection		Adjust	
		+ Terminal	− Terminal	6.3kHz	10kHz
AU-198	CH1	TP1	E21	RV2	RV1
	CH2	TP21	E21	RV22	RV21
	CH3	TP41	E21	RV42	RV41
	CH4	TP61	E21	RV62	RV61







4-7. BIAS FREQUENCY ADJUSTMENT (CCP-2310F/2410F)

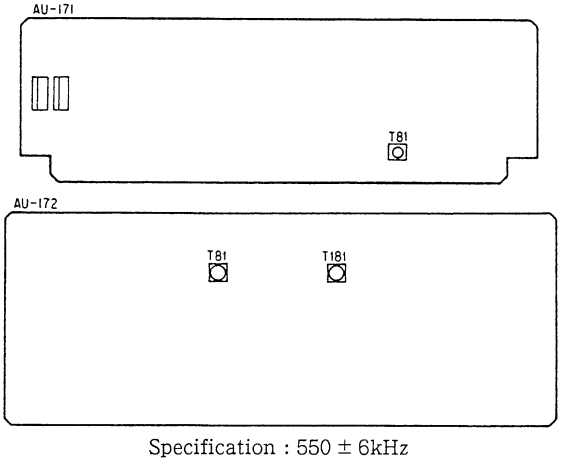
Test Equipment : Level Meter
Frequency Counter
Coil 10mH

Adjustment Point : T81 : AU-171 board
T81, T181 : AU-172 board

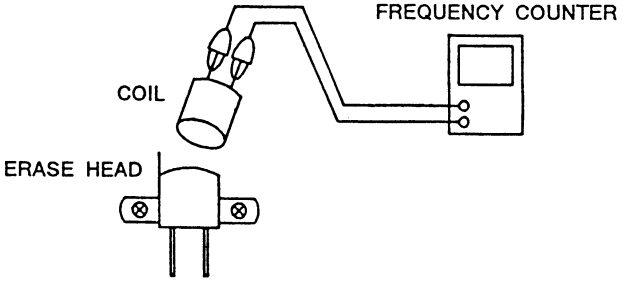
1. Connect the coil to the frequency counter.
2. Set the SIDE selector on the CCP-2310F to "A + B". In the case of CCP-2410F adjustment, the SIDE selector has already been in "A + B" status.
3. Activate the service mode, in the case of CCP-2410F adjustment, the service mode is activated by operating the switch on the SY-3 board indside the set.
(DO NOT INSERT A CASSETTE. ⇨P3-5 (E))
4. Press the COPY button, and after 30 seconds, bring the coil closely to the erase head, then adjust the following bias transformers (on the AU-171 and AU-172 board) so that the bias frequency is in specification.

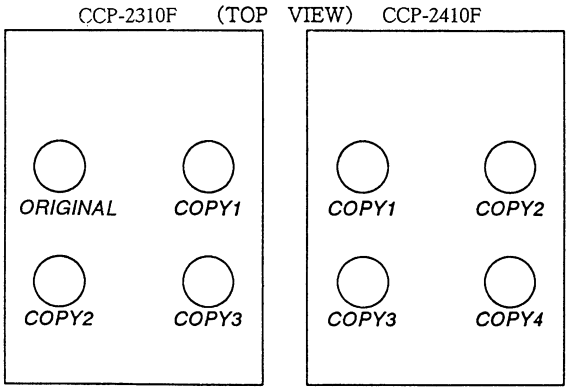
Note : Adjust the bias frequency equally on the AU-172 board. (There is a possibility that the difference of the bias frequency generates the beat noise.)

MODEL	BOARD	BIAS TRANSFER	COPY
CCP-2310F	AU-171	T81	COPY 1
	AU-172	T81	COPY 2
		T181	COPY 3
CCP-2410F	AU-171 (LEFT)	T81	COPY 1
	AU-171 (RIGHT)	T81	COPY 2
	AU-172	T81	COPY 3
		T181	COPY 4



Specification : 550 ± 6kHz





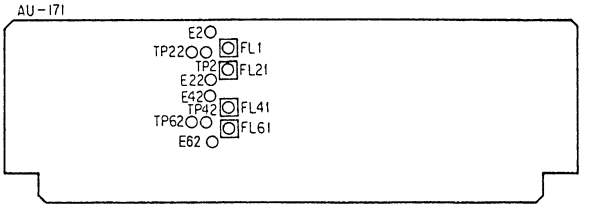
4-8. BIAS TRAP ADJUSTMENT (CCP-2310F/2410F)

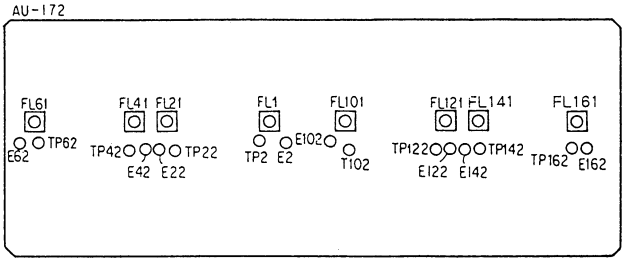
Test Equipment : Level Meter

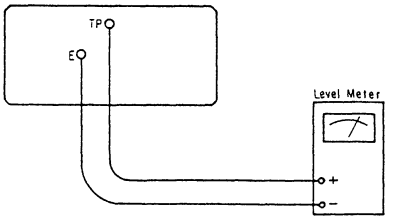
Procedure:

1. Set the SIDE selector on the CCP-2310F to "A + B". In the case of CCP-2410F adjustment, the SIDE selector has already been in "A + B" status.
2. Activate servcie mode is activated by operating to switch on the SY-3 board inside the set.
(DO NOT INSERT A CASSETTE. ⇨P3-5 (E))
3. Press the COPY button, then connect the terminal of level meter to following each test point on the AU-171 and AU-172 board. And adjust the bias trap associated with the test point so that the output become the minimum.

Board	CCP-2310F	CCP-2410F	CH	Level Meter Connection		Adjust
				+Terminal	-Terminal	
AU-171	COPY 1	COPY 1, 2	CH1	TP2	E2	FL1
			CH2	TP22	E22	FL21
			CH3	TP42	E42	FL41
			CH4	TP62	E62	FL61
AU-172	COPY 2	COPY 3	CH1	TP2	E2	FL1
			CH2	TP22	E22	FL21
			CH3	TP42	E42	FL41
			CH4	TP62	E62	FL61
	COPY 3	COPY 4	CH1	TP102	E102	FL101
			CH2	TP122	E122	FL121
			CH3	TP142	E142	FL141
			CH4	TP162	E162	FL161







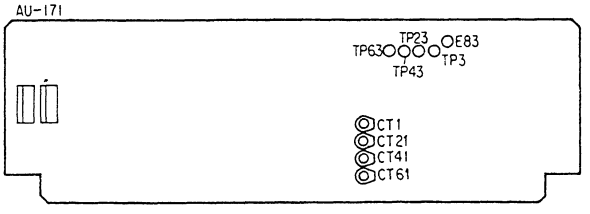
4-9. BIAS CURRENT PRE-ADJUSTMENT (CCP-2310F/2410F)

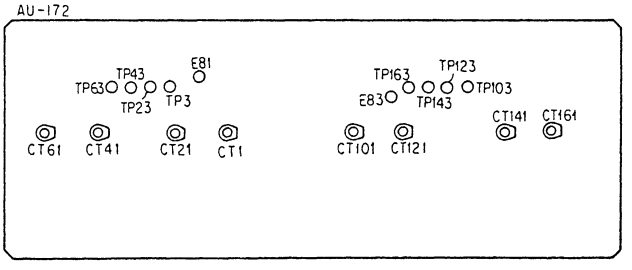
Test Equipment : Voltmeter

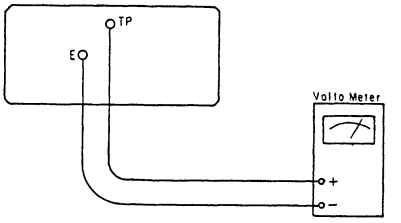
Procedure:

1. Active the service mode. In the case of CCP-2410F adjustment, the service mode is activated by operating the switch on the SY-3 board inside the set.
   (DO NOT INSERT A CASSETTE. ⇨P3-5 (E))
2. Press the COPY button, connect the voltmeter to the following test points on the AU-171 and AU-172 board, and adjust the trimmer capacitor associated with the test point so that the output become 20 ± 3mV.

Board	CCP-2310F	CCP-2410F	CH	Level Meter Connection		Adjust
				+Terminal	-Terminal	
AU-171	COPY 1	COPY 1, 2	CH1	TP3	E83	CT1
			CH2	TP23	E83	CT21
			CH3	TP43	E83	CT41
			CH4	TP63	E83	CT61
AU-172	COPY 2	COPY 3	CH1	TP3	E81	CT1
			CH2	TP23	E81	CT21
			CH3	TP43	E81	CT41
			CH4	TP63	E81	CT61
	COPY 3	COPY 4	CH1	TP103	E83	CT101
			CH2	TP123	E83	CT121
			CH3	TP143	E83	CT141
			CH4	TP163	E83	CT161







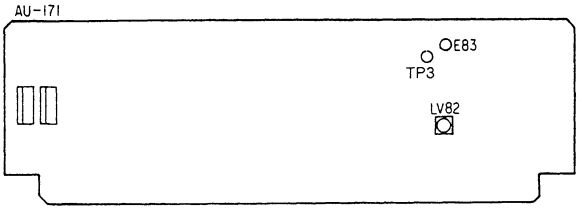
4-10. ADJUSTMENT OF ERASE HEAD DUMMY COIL (CCP-2310F/2410F)

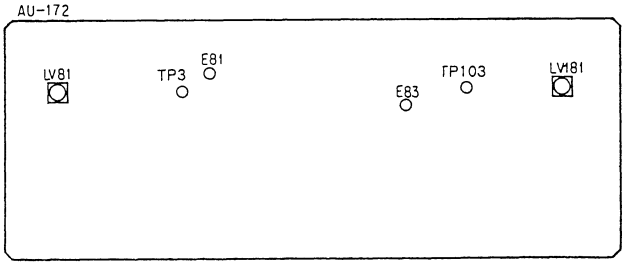
Test Equipment : Voltmeter

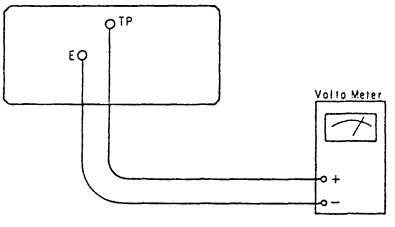
Procedure:

1. Set the SIDE selector on the CCP-2310F to "A + B". In the case of CCP-2410F adjustment, the SIDE selector has already in "A + B" status.
2. Activate the service mode is activated by operating the switch on the SY-3 board inside the set.
   (DO NOT INSERT A CASSETTE. ⇨P3-5 (E))
3. Press the COPY button, Connect the terminal of voltmeter to each test point on the AU-171 and AU-172 board the measure voltage.
4. Next, set the SIDE selector to "A", and measure voltage at following test points associated with each COPY. Then, adjust the dummy coil so that difference between the measure voltage and the when the SIDE selector was in "A + B" status is within 3mV in the range.
   In the case of CCP-2410F adjustment, grounding the test point E83 on AU-172 board place the SIDE selector in the status "A". (Or status "A + B" if not grounding.)

Board	CCP-2310F	CCP-2410F	Level Meter Connection		Adjust
			+ Terminal	- Terminal	
AU-171	COPY 1	COPY 1, 2	TP3	E83	LV82
AU-172	COPY 2	COPY 3	TP3	E81	LV81
	COPY 3	COPY 4	TP103	E83	LV181







4-11. ADJUSTMENT OF RECORD LEVEL AND FREQUENCY CHARACTERISTICS (CCP-2310F/2410F)

Before this adjustment, the bias current pre-adjustment must has been finished.

Test Equipment : Oscillator
Level Meter
Standard Cassette Player
Blank tape (60-minute)

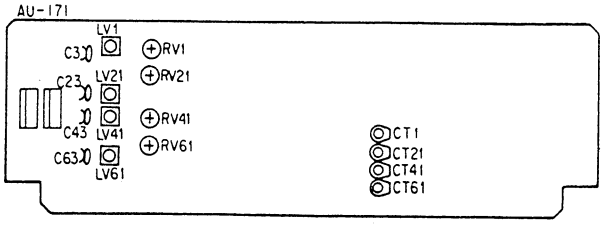
Procedure:

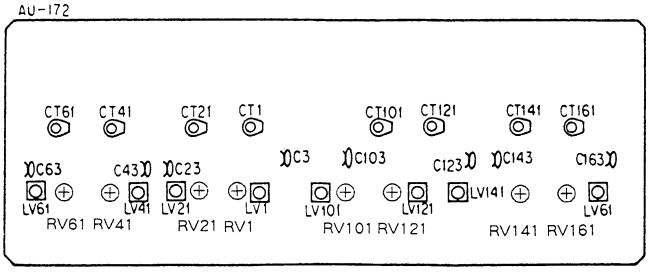
(Record level)

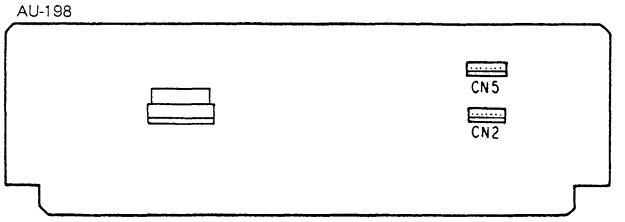
1. Disconnect the connector CN2 on the AU-198 board in the CCP-2310F and connect the CN5 instead.
2. Set the SIDE selector on the CCP-2310F to the "A + B".
3. Turn the POWER switch ON.
4. Insert a 60-minute tape to the ORIGINAL side of CCP-2310F and, blank tape for measurement to each COPY side.
5. Connect a "+" terminal of oscillator to TP2 on the AU-198 board and a "−" terminal of oscillator to E2 on the AU-198 board.
   Then press the COPY button while entering the 0dB 5kHz signal.
6. After copy, playback the copied tape with a standard cassette player and adjust each RV (on the AU-171 and AU-172 board) for record level adjustment so that the level is 0dB ± 1dB at 315Hz.
7. Next, SIDE selector to "A" and repeat step 5, 6. (Record frequency characteristics)
8. With the oscillator connection maintainned, press the COPY button while entering the following signals.
   − 20dB 5kHz
   − 20dB 100.8kHz
   − 20dB 160kHz
9. Then, playback the copied tape with a standard cassette player, and repeat adjustment and replacement of adjust capacitor, coil and trimmer capacitor (on the AU-171 and AU-172 board) so that the level is each frequency satisfies the specification.

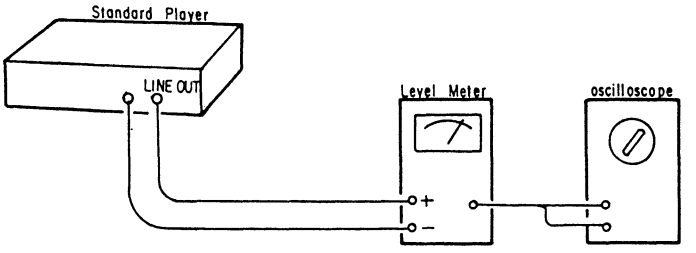
Note : Standard cassette player
High quality and finished adjustment cassette player.

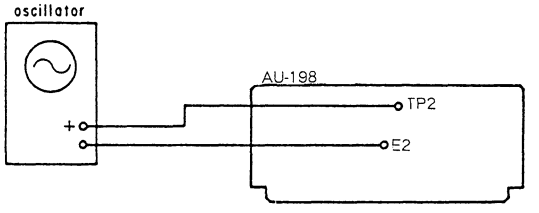
Board	CCP-2310F	CCP-2410F	CH	ADJUST POINT			
				LEVEL	FREQUENCY		
					6.3kHz	10kHz	10kHz to 6.3kHz
AU-171	COPY 1	COPY 1 COPY 2	CH1	RV1	C3	LV1	CT1
			CH2	RV21	C23	LV21	CT21
			CH3	RV41	C43	LV41	CT41
			CH4	RV61	C63	LV61	CT61
AU-172	COPY 2	COPY 3	CH1	RV1	C3	LV1	CT1
			CH2	RV21	C23	LV21	CT21
			CH3	RV41	C43	LV41	CT41
			CH4	RV61	C63	LV61	CT61
	COPY 3	COPY 4	CH1	RV101	C103	LV101	CT101
			CH2	RV121	C123	LV121	CT121
			CH3	RV141	C143	LV141	CT141
			CH4	RV161	C163	LV161	CT161



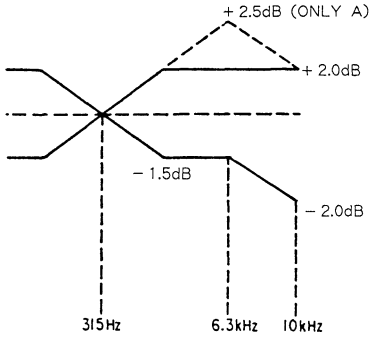








Specification



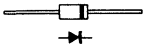
Section 5
Semiconductor Pin Assignments

ここに記載されているIC, トランジスタ, ダイオードは, それぞれの機能を等価的に表わしたものです。したがって互換性を表わすものではありません。(互換性のない型名が併記されている事もあります。) 部品の交換をする時は, ELECTRICAL PARTS LISTの章を参照して下さい。

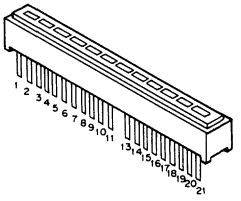
ICs, transistors and diodes whoses functions are equivalent are described here, Threfore, incompatible device names may be described together. For parts replacement, refer to the Electrical Parts List section in this manual.

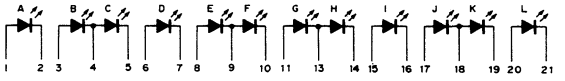
Diode, Transistor

10E-2
11ES1
1SS119

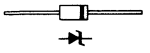


GL112F9 ; YELLOW GREEN (AtoG), RED (HtoL)

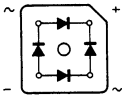




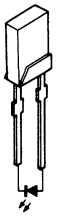
RD6.2EL1
RD6.2EL2



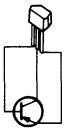
S5VB20
S5VB60



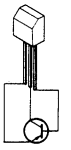
SEL1121R ; RED
SEL1321G ; GREEN



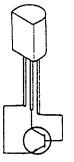
2SA1317



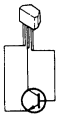
2SB733



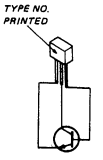
2SC1384



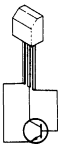
2SC2603



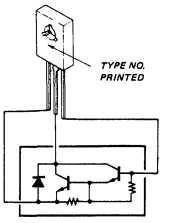
2SC2785



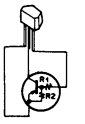
2SD774



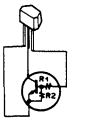
2SD998



DTA114ES (R1 = 10K, R2 = 10K)

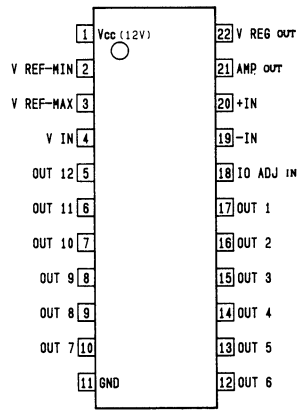


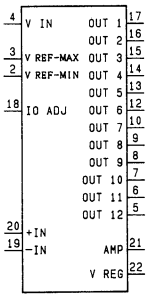
DTC114ES (R1 = 10K, R2 = 10K)

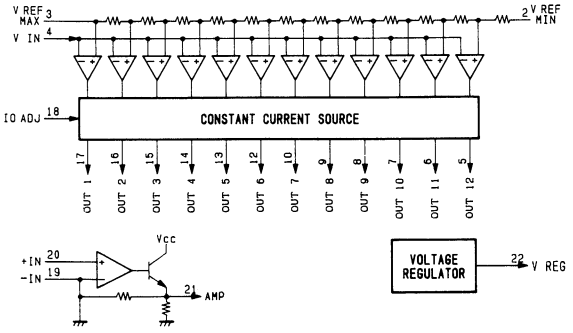


IR2E30 (SHARP)

12-DOT LED DISPLAY DRIVER
– TOP VIEW –

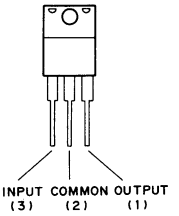


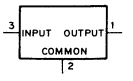




NJM7805FA (JRC) + 5V

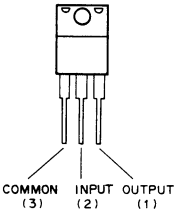
POSITIVE VOLTAGE REGULATOR (500mA)
– FRONT VIEW –

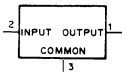




NJM7912FA (JRC) – 12V

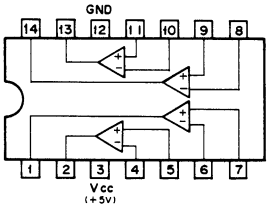
NEGATIVE VOLTAGE REGULATOR (500mA)
– FRONT VIEW –





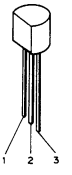
LM339N (TI)

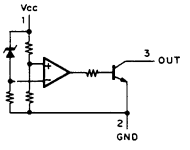
QUAD COMPARATORS
– TOP VIEW –



PST520C (MITSUMI) 4.5V

SYSTEM RESETTING DEVICE

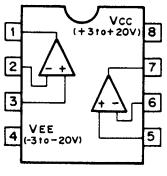




REF.; REFERENCE VOLTAGE

NE5532P (TI)

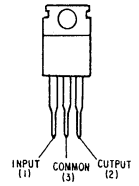
LOW NOISE OPERATIONAL AMPLIFIER
– TOP VIEW –

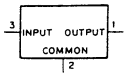


TA7812S (TOSHIBA) + 12V

POSITIVE VOLTAGE REGULATOR (0.5A)

– SIDE VIEW –



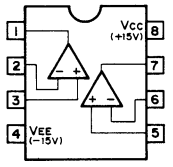


UPC4556C (NEC)

OPERATIONAL AMPLIFIER

(WIDE BAND, DECOMPENSATED)

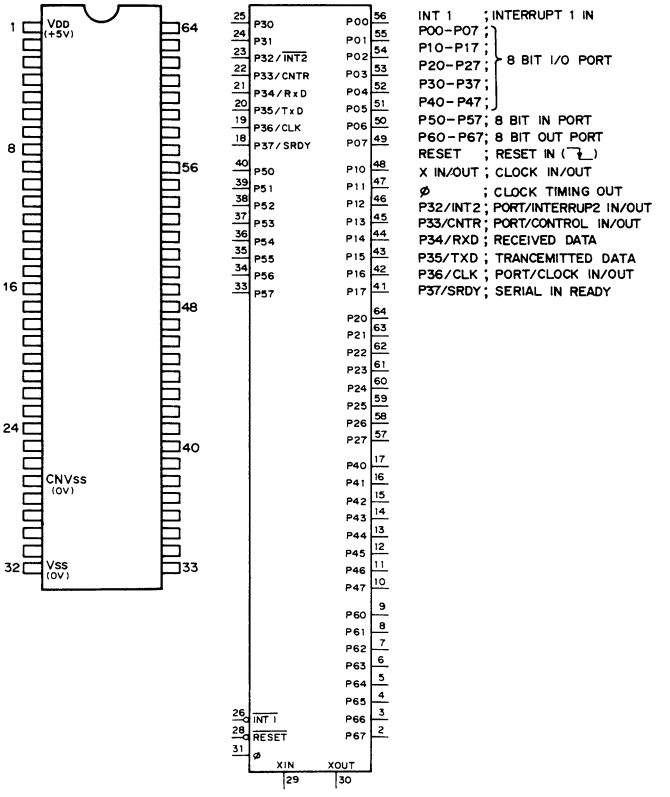
– TOP VIEW –



M5074SP-C42SP (FUJITSU)

C-MOS PROCESS 8-BIT ONE CHIP MICROCOMPUTER

– TOP VIEW –



INT 1 ; INTERRUPT 1 IN

P00–P07 ; } 8 BIT I/O PORT

P10–P17 ;

P20–P27 ;

P30–P37 ;

P40–P47 ;

P50–P57; 8 BIT IN PORT

P60–P67; 8 BIT OUT PORT

RESET ; RESET IN ( )

X IN/OUT ; CLOCK IN/OUT

ø ; CLOCK TIMING OUT

P32/INT2 ; PORT/INTERRUP2 IN/OUT

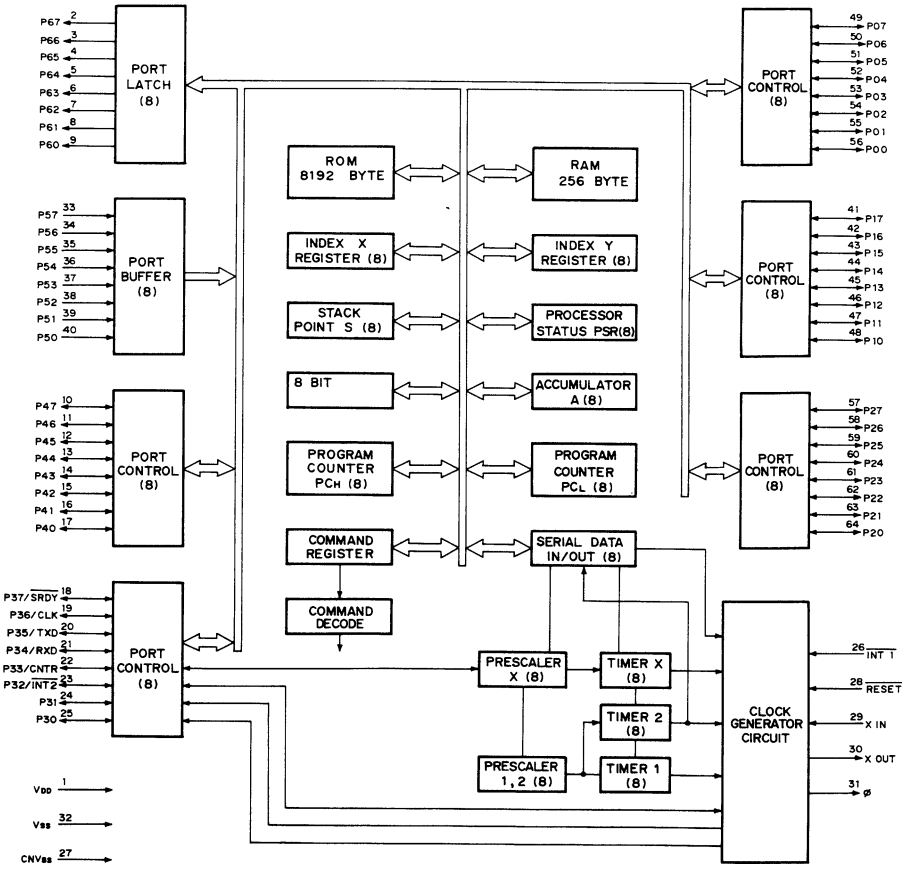
P33/CNTR ; PORT/CONTROL IN/OUT

P34/RXD ; RECEIVED DATA

P35/TXD ; TRANCEMITTED DATA

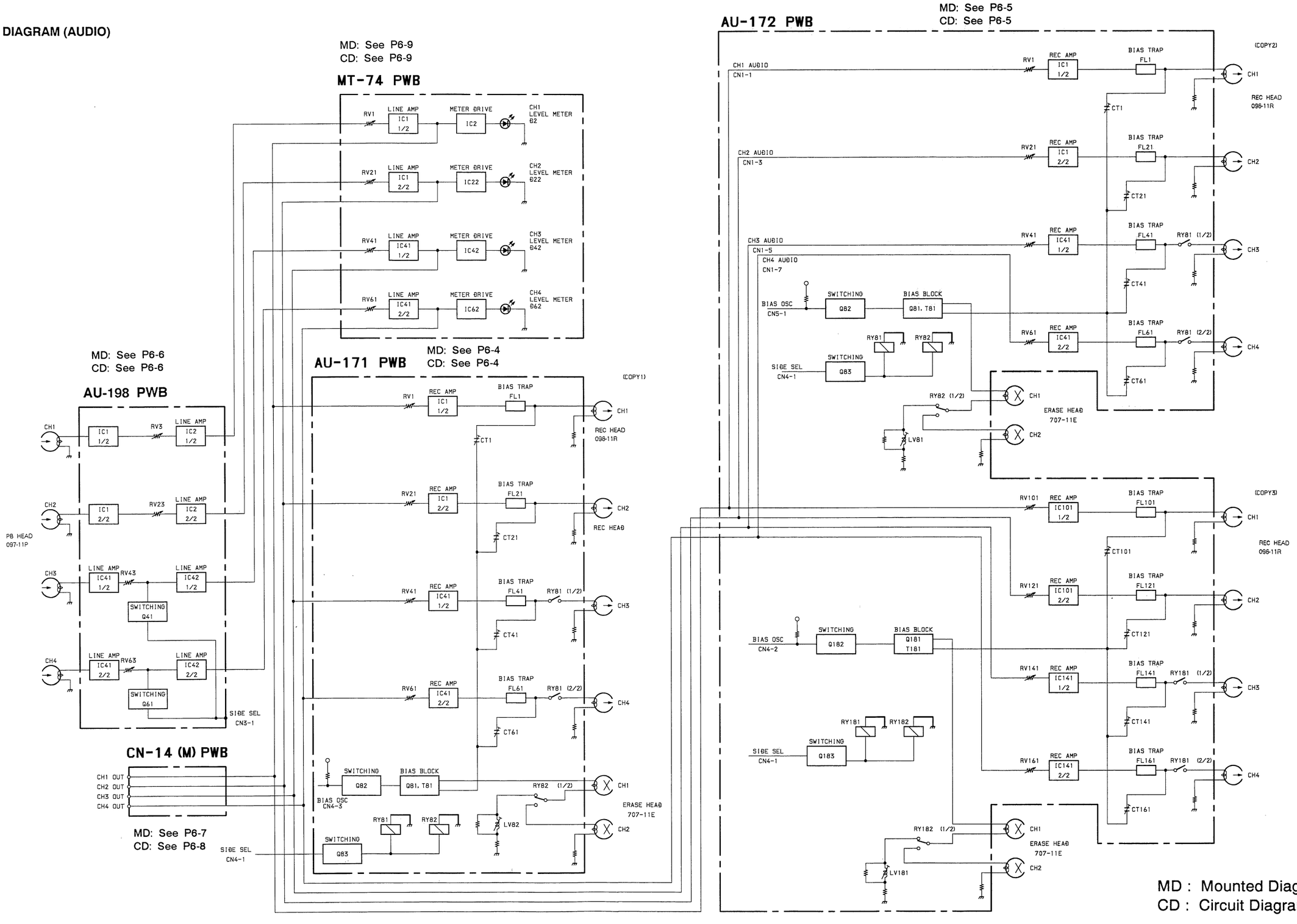
P36/CLK ; PORT/CLOCK IN/OUT

P37/SRDY ; SERIAL IN READY



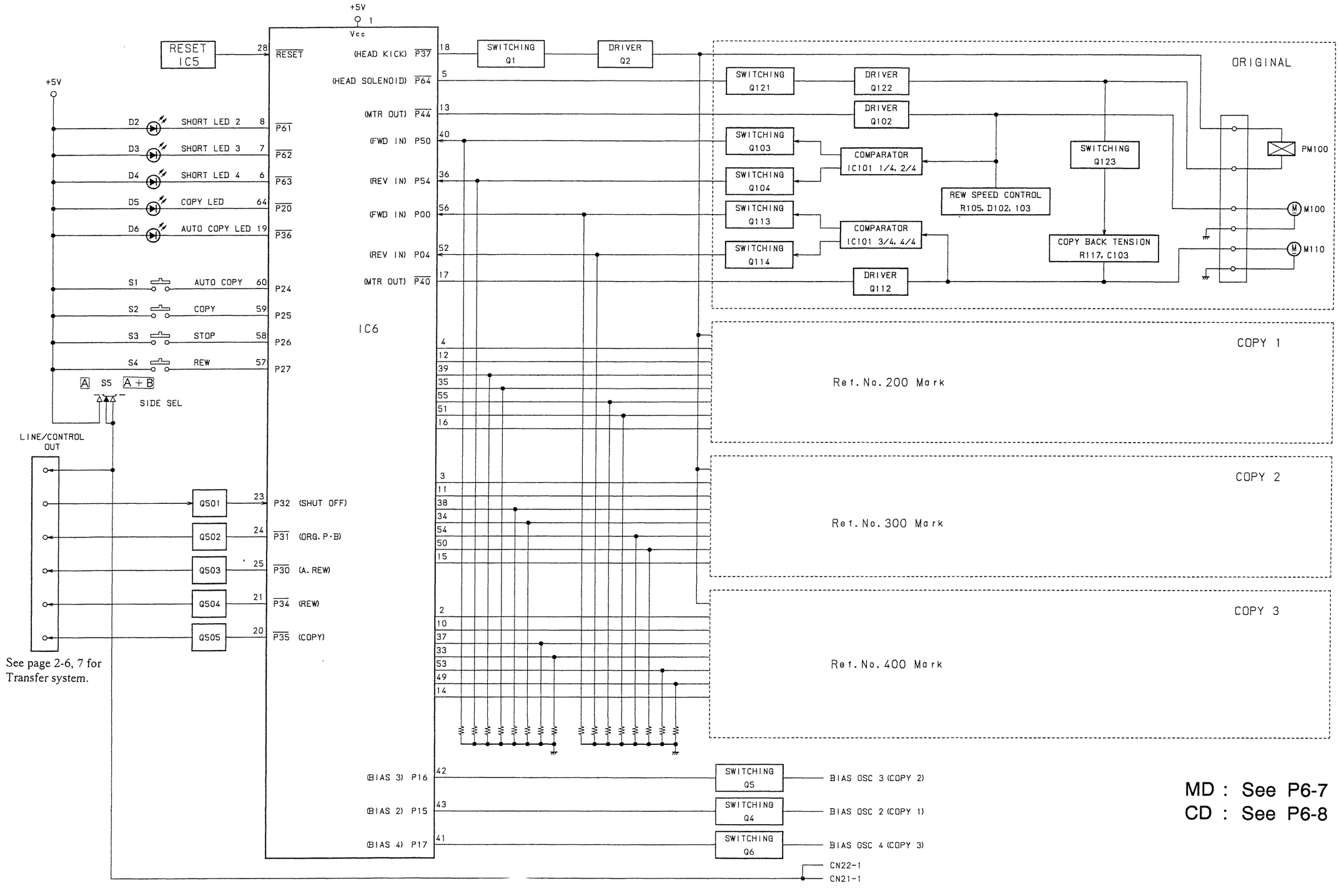
Section 6
CCP-2310F Diagrams

6-1. BLOCK DIAGRAM (AUDIO)



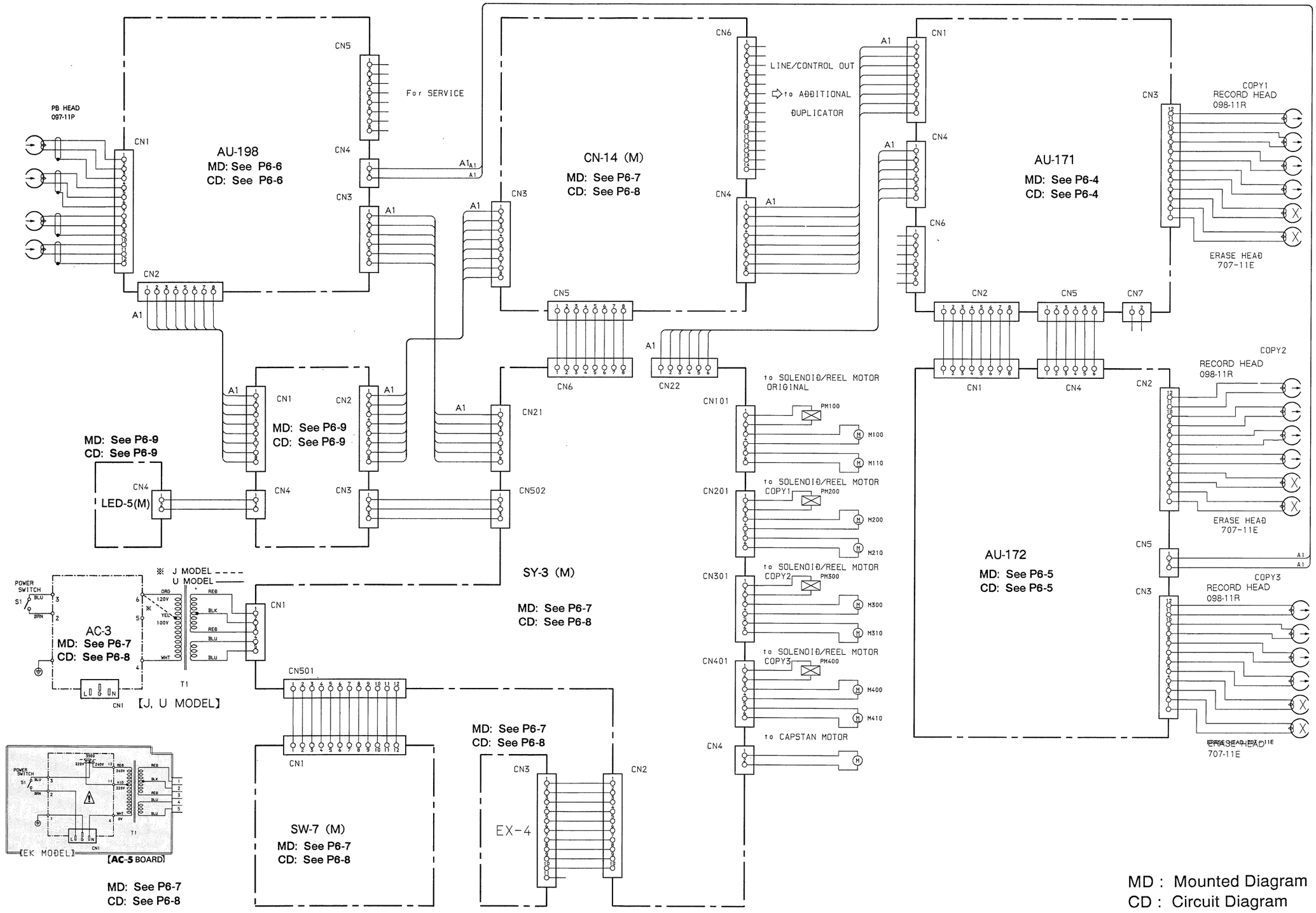
MD : Mounted Diagram
CD : Circuit Diagram

6-2. BLOCK DIAGRAM (SYSTEM)

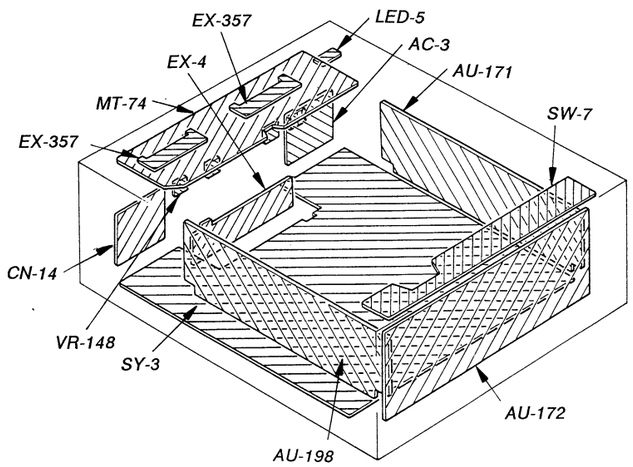


MD : See P6-7
CD : See P6-8

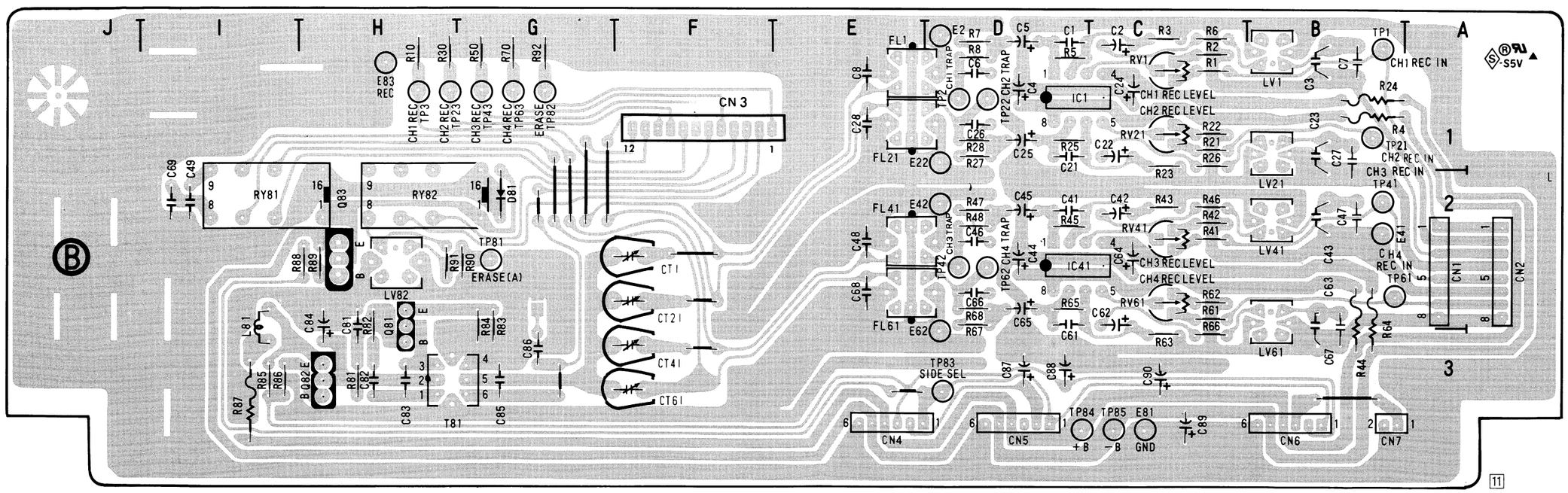
6-3. FRAME WIRING



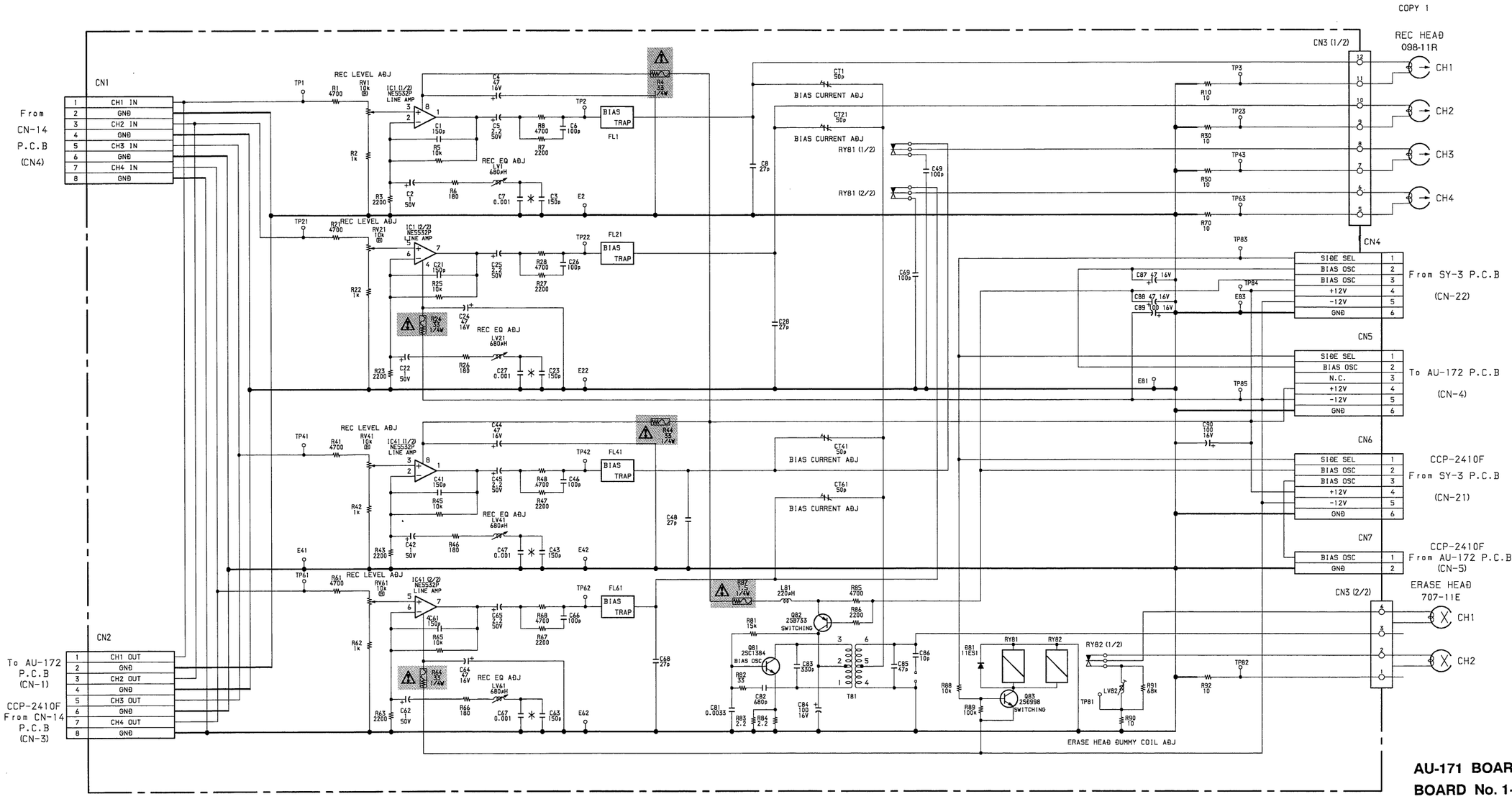
6-4. LOCATION OF THE PRINTED WIRING BOARD



6-5. AU-171 BOARD – *Soldering Side* –



AU-171 BOARD
BOARD No. 1-643-616-11



AU-171 BOARD
BOARD No. 1-643-616-11

注意

- ケミコン，タンタルを除くコンデンサで，耐圧50V以下のものは，その耐圧を省略。単位はすべてμF（pはpF）。
- 抵抗で指示のないものは¼W。単位はすべてΩ。
- ⎓はヒューズ抵抗。
- ＊印部品は可変の調整部品です。

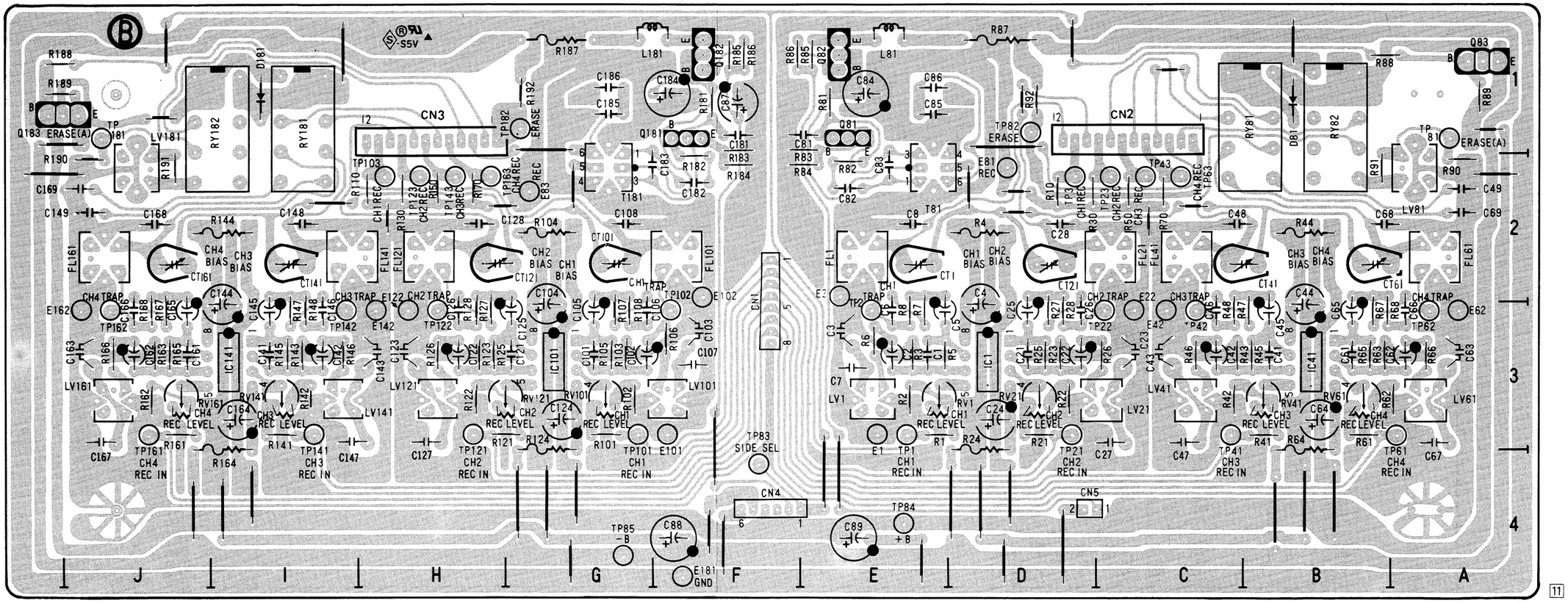
⚠および▨印の部品は，安全性を維持するために，重要な部品です。従って交換時は，必ず指定の部品を使用してください。

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- ⎓ : fusible resistor.
- " ＊ " mark parts are adjustment parts they have varied value.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

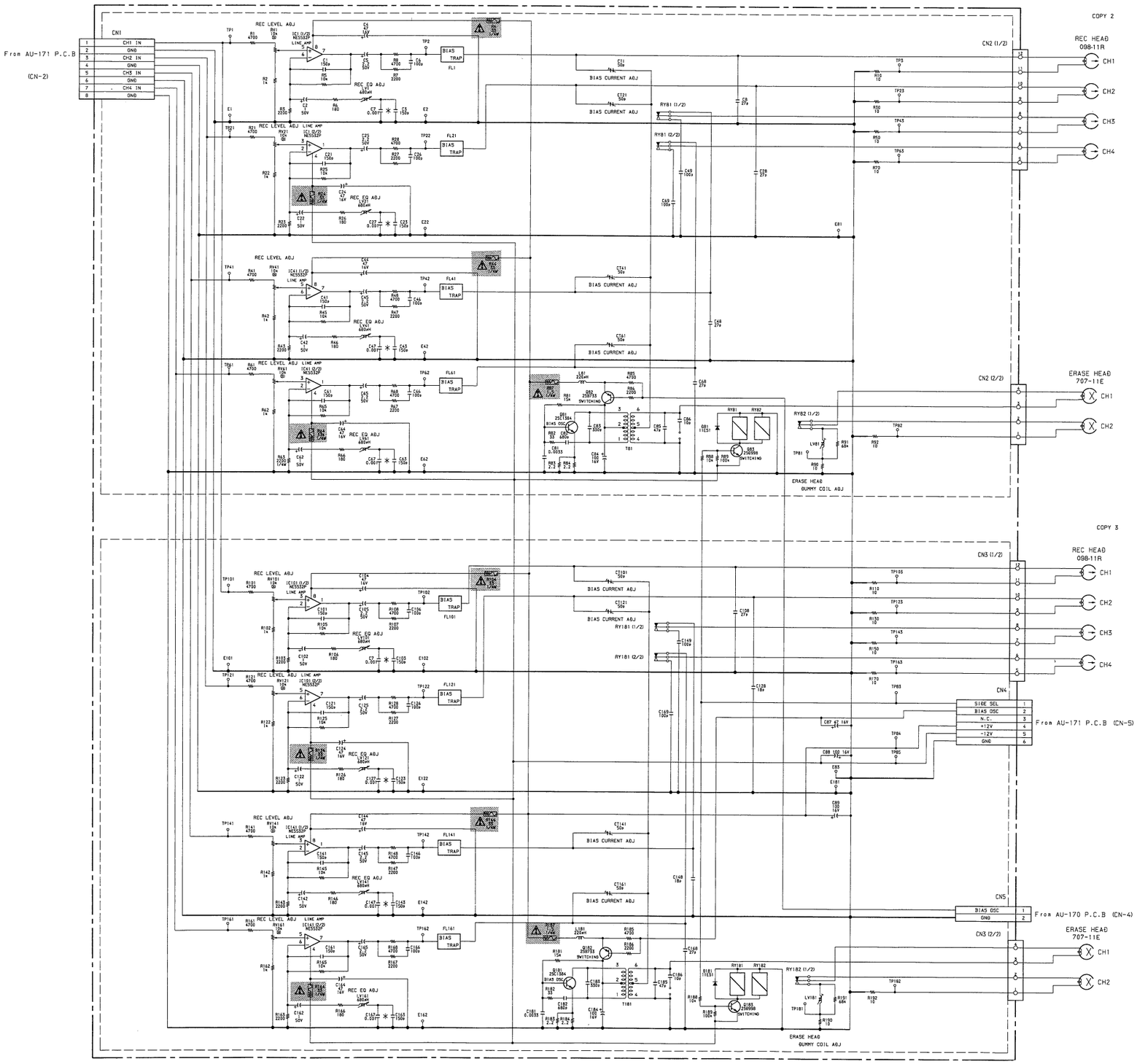
6-6. AU-172 BOARD – *Soldering Side* –



AU-172 BOARD
BOARD No. 1-643-617-11

AU-172

CN1	F-3	E81	D-2	LV1	E-3	R104	G-2	TP43	C-2
CN2	C-1	E83	G-2	LV21	C-3	R124	G-3	TP61	A-3
CN3	H-1	E101	F-3	LV41	C-3	R144	I-2	TP62	A-3
CN4	F-4	E102	F-3	LV61	A-3	R164	I-4	TP63	C-2
CN5	D-4	E122	H-3	LV81	A-2	R187	G-1	TP81	A-1
		E142	H-3	LV101	F-3			TP82	D-1
CT1	E-2	E162	J-3	LV121	H-3	RV1	D-3	TP83	F-4
CT21	D-2	E181	F-4	LV141	H-3	RV21	D-3	TP84	E-4
CT41	B-2			LV161	J-3	RV41	B-3	TP85	G-4
CT61	B-2	FL1	E-2	LV181	J-1	RV61	B-3	TP101	G-3
CT101	G-2	FL21	C-2			RV101	G-3	TP102	F-3
CT121	G-2	FL41	C-2	Q81	E-1	RV121	G-3	TP103	H-2
CT141	I-2	FL61	A-2	Q82	E-1	RV141	I-3	TP121	H-3
CT161	J-2	FL101	F-2	Q83	A-1	RV161	J-3	TP122	H-3
		FL121	H-2	Q181	F-1			TP123	H-2
D81	B-1	FL141	H-2	Q182	F-1	TP1	E-3	TP141	I-3
D181	I-1	FL161	J-2	Q183	J-1	TP2	E-3	TP142	I-3
						TP3	D-2	TP143	H-2
E1	E-3	IC1	D-3	R4	D-2	TP21	D-3	TP161	J-3
E2	E-2	IC41	B-3	R24	D-3	TP22	C-3	TP162	J-3
E22	C-3	IC101	G-3	R44	B-2	TP23	C-2	TP163	H-2
E42	C-3	IC141	I-3	R64	B-3	TP41	C-3	TP181	J-1
E62	A-3			R87	D-1	TP42	C-3	TP182	G-1



AU-172 BOARD
BOARD No. 1-643-617-11

注意

- ケミコン，タンタルを除くコンデンサで，耐圧50V以下のものは，その耐圧を省略。単位はすべてμF（pはpF）。
- 抵抗で指示のないものは¼W。単位はすべてΩ。
- ▭はヒューズ抵抗。
- C1, 21, 41, 61はノーマウント。
- ＊印部品は可変の調整部品です。

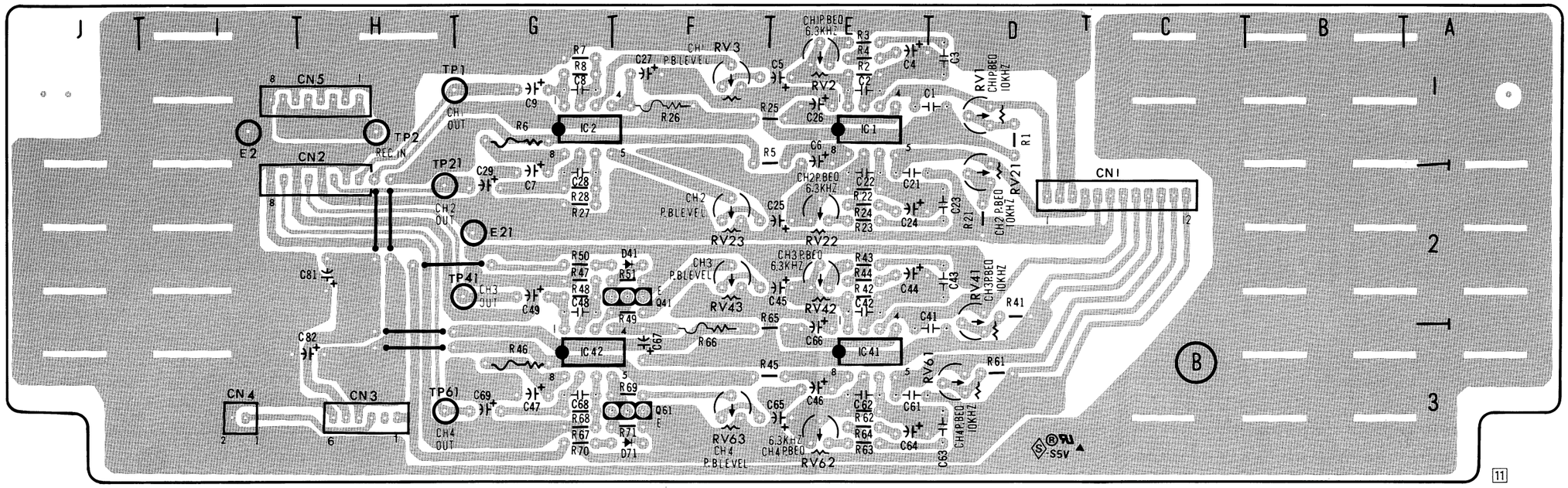
⚠および▨印の部品は，安全性を維持するために，重要な部品です。従って交換時は，必ず指定の部品を使用してください。

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- ▭ : fusible resistor.
- " ＊ " mark parts are adjustment parts they have varied value.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

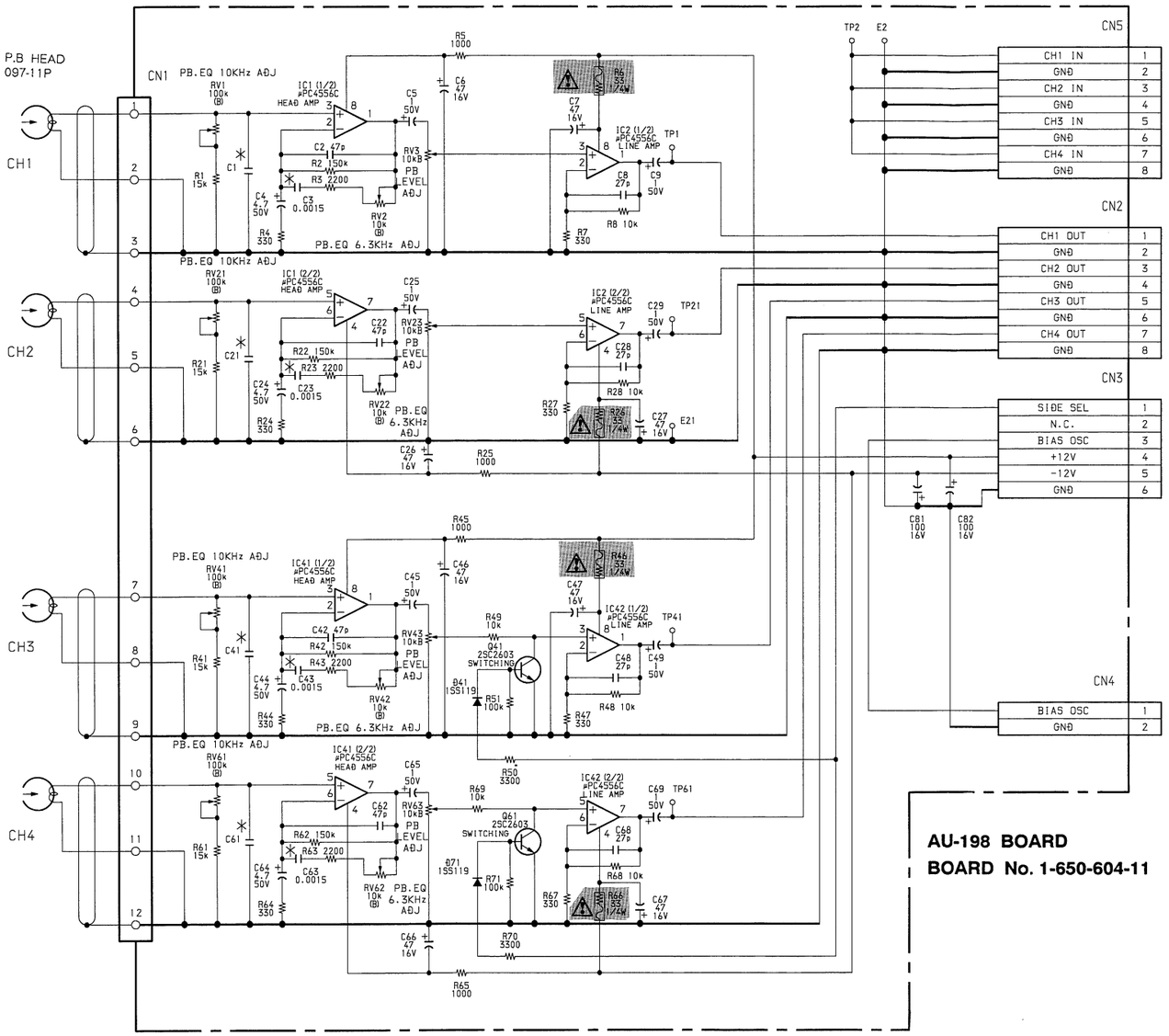
6-7. AU-198 BOARD – *Soldering Side* –



AU-198 BOARD
BOARD No. 1-650-604-11

AU-198

CN1	C-2	IC1	E-1	R66	F-3	RV61	D-3
CN2	H-2	IC2	G-1			RV62	E-3
CN3	H-3	IC41	E-3	RV1	D-1	RV63	F-3
CN4	I-3	IC42	G-3	RV2	E-1		
CN5	H-1			RV3	F-1	TP1	H-1
		Q41	F-2	RV21	D-2	TP2	H-1
D41	F-2	Q61	F-3	RV22	E-2	TP21	H-2
D71	F-3			RV23	F-2	TP41	G-2
		R6	G-1	RV41	D-2	TP61	H-3
E2	I-1	R26	F-1	RV42	E-2		
E21	G-2	R46	G-3	RV43	F-2		



For SERVICE

To MT-74 P.C.B (CN1)

From SY-3 P. C. B (CN21)

To AU-172 P.C.B (CN5)

AU-198 BOARD
BOARD No. 1-650-604-11

注意

- ケミコン，タンタルを除くコンデンサで，耐圧50V以下のものは，その耐圧を省略。単位はすべてμF（pはpF）。
- 抵抗で指示のないものは¼W。単位はすべてΩ。
- ⚠はヒューズ抵抗。
- ＊印部品は可変の調整部品です。

⚠および▒印の部品は，安全性を維持するために，重要な部品です。従って交換時は，必ず指定の部品を使用してください。

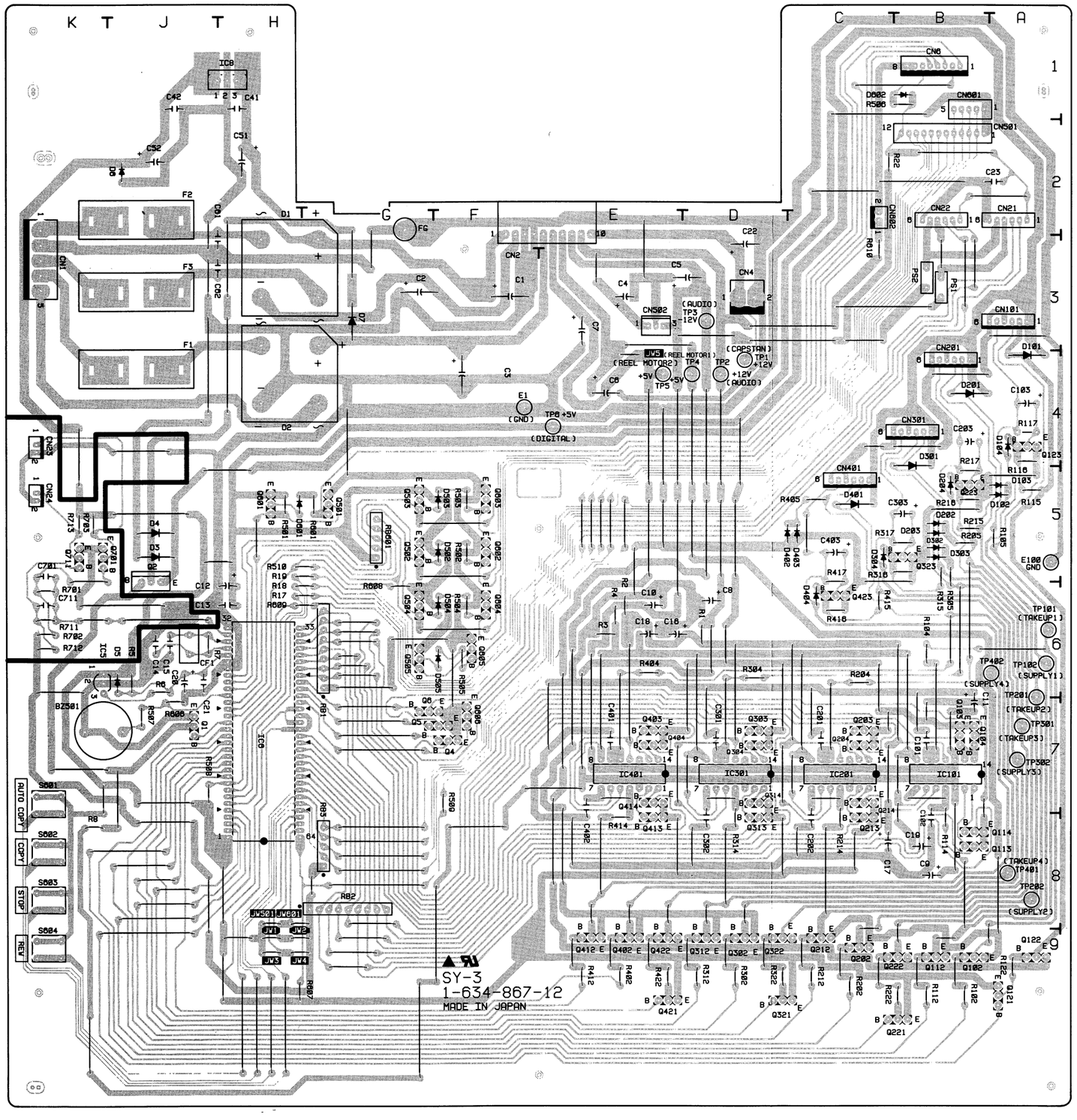
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- ⚠ : fusible resistor.
- C1, 21, 41, 61 No mount.
- " ＊ " mark parts are adjustment parts they have varied value.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

6-8. SY-3 (M), EX-4, SW-7 (M), CN-14 (M), AC-3, AC-5 BOARDS – *Soldering Side* –

SY-3 (M) BOARD



SY-3(M)

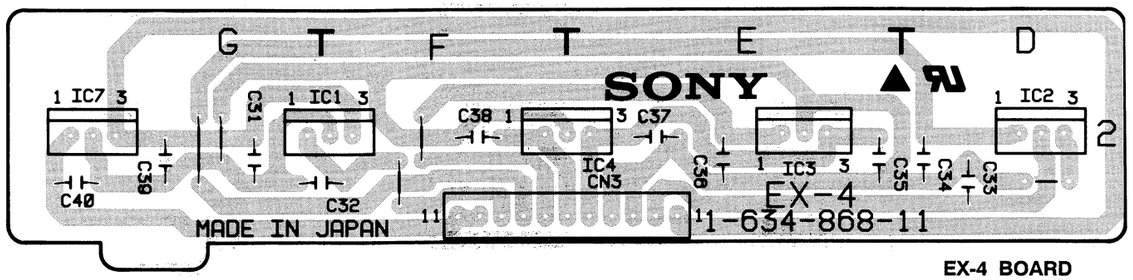
CN1	K-3	D201	B-4	IC5	K-6	Q123	A-4	Q414	E-7
CN2	F-2	D202	B-5	IC6	H-7	Q202	C-9	Q421	E-9
CN4	D-3	D203	B-5	IC8	H-1	Q203	C-7	Q422	E-9
CN6	B-1	D204	B-5	IC101	B-7	Q204	C-7	Q423	C-6
CN21	A-2	D301	B-4	IC201	C-7	Q212	C-9	Q501	G-5
CN22	B-2	D302	B-5	IC301	D-7	Q213	C-8	Q502	G-5
CN101	A-3	D303	B-5	IC401	E-7	Q214	C-7	Q503	G-5
CN201	B-4	D304	C-5			Q221	B-9	Q504	G-6
CN301	B-4	D401	C-5	PS1	B-3	Q222	C-9	Q505	G-6
CN401	C-5	D402	D-5	PS2	B-3	Q223	B-5		
CN501	B-2	D403	C-5			Q302	D-9	TP1	D-4
CN502	E-3	D404	C-6	Q1	J-7	Q303	D-7	TP2	D-4
		D502	F-5	Q2	J-6	Q304	D-7	TP3	D-3
D1	H-3	D503	F-5	Q4	F-7	Q312	D-9	TP4	D-4
D2	H-4	D504	F-6	Q5	F-7	Q313	D-8	TP5	E-4
D3	J-5	D505	F-6	Q6	F-7	Q314	D-7	TP6	E-4
D4	J-5			Q102	B-9	Q321	D-9	TP101	A-6
D5	J-6	E1	F-4	Q103	B-7	Q322	D-9	TP102	A-6
D6	J-2	E100	A-5	Q104	A-7	Q323	B-5	TP201	A-6
D7	G-3			Q112	B-9	Q402	E-9	TP202	A-8
D101	A-4	F1	J-4	Q113	B-8	Q403	E-7	TP301	A-7
D102	A-5	F2	J-2	Q114	B-8	Q404	E-7	TP302	A-7
D103	A-5	F3	J-3	Q121	A-9	Q412	E-9	TP401	A-8
D104	A-4			Q122	A-9	Q413	E-8	TP402	A-6

12

SY-3 (M) BOARD

BOARD No. 1-634-867-12

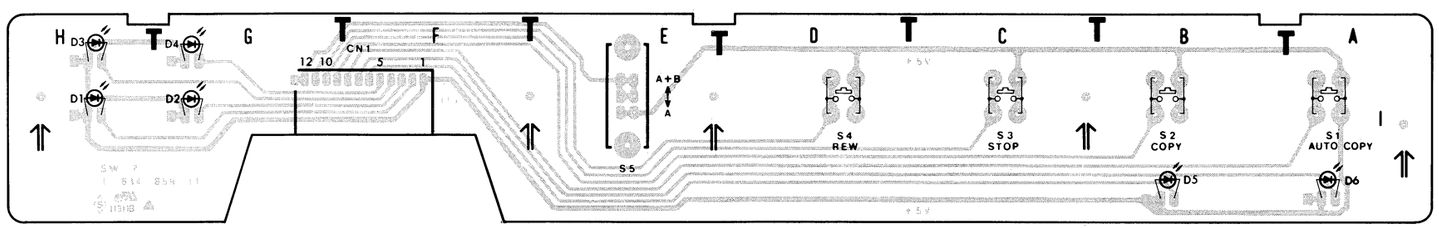
EX-4 BOARD



11

EX-4 BOARD
BOARD No. 1-634-868-11

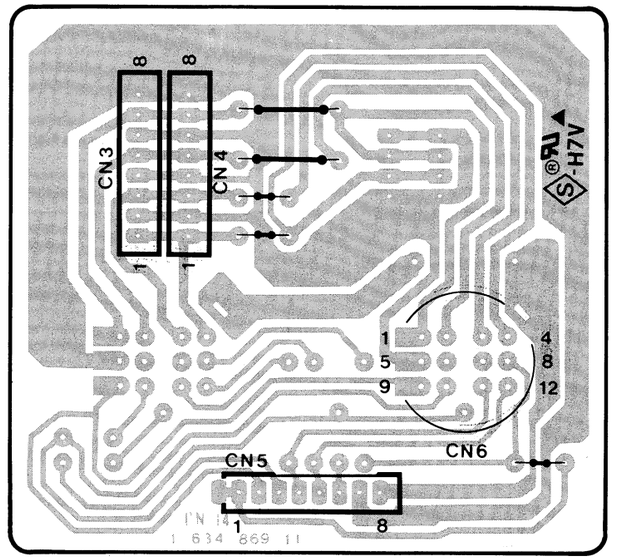
SW-7 (M) BOARD



11

SW-7 (M) BOARD
BOARD No. 1-634-859-11

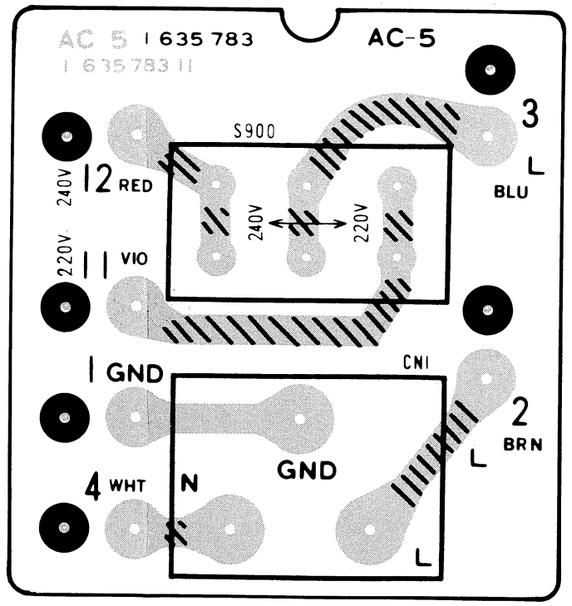
CN-14 (M) BOARD



11

CN-14 (M) BOARD
BOARD No. 1-634-869-11

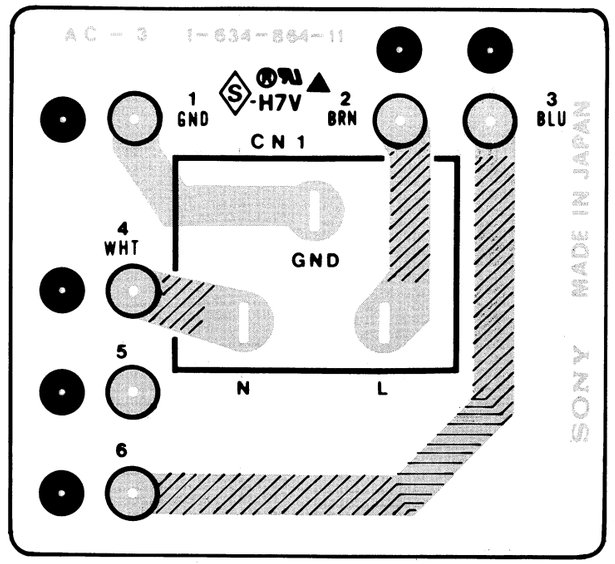
AC-5 BOARD (EK MODEL)



11

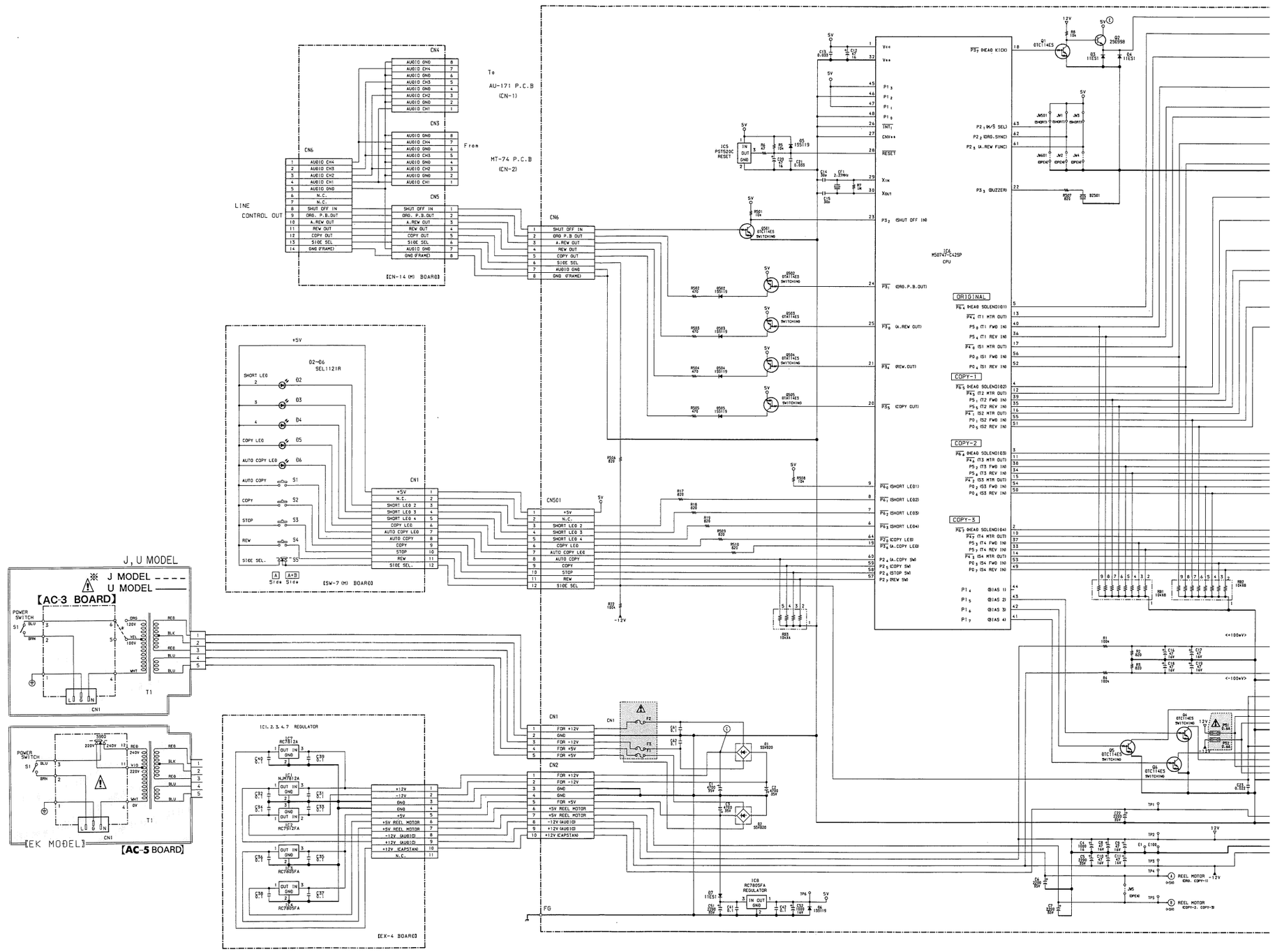
AC-5 BOARD
BOARD No. 1-635-783-11

AC-3 BOARD (J, U MODEL)



11

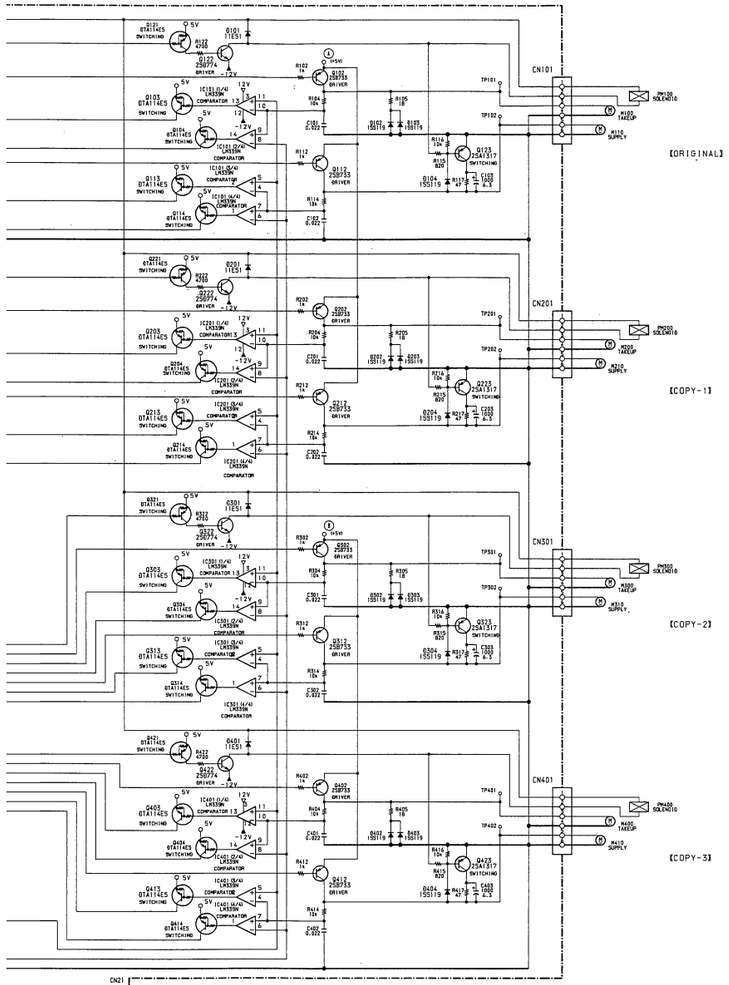
AC-3 BOARD
BOARD No. 1-634-864-11



6-8 (1) 6-8 (1)

CCP-2310F/2410F

A	B	C	D	E	F	G	H



AC-3 BOARD
BOARD No. 1-634-864-11

AC-5 BOARD
BOARD No. 1-635-783-11

CN-14 (M) BOARD
BOARD No. 1-634-869-11

EX-4 BOARD
BOARD No. 1-634-868-11

SY-3 (M) BOARD
BOARD No. 1-634-867-12

SW-7 (M) BOARD
BOARD No. 1-634-859-11

注意

- ケミコン，タンタルを除くコンデンサで，耐圧50V以下のものは，その耐圧を省略。単位はすべてμF（pはpF）。
- 抵抗で指示のないものは¼W。単位はすべてΩ。
- ⏦はヒューズ抵抗。

⚠および▨印の部品は，安全性を維持するために，重要な部品です。従って交換時は，必ず指定の部品を使用してください。

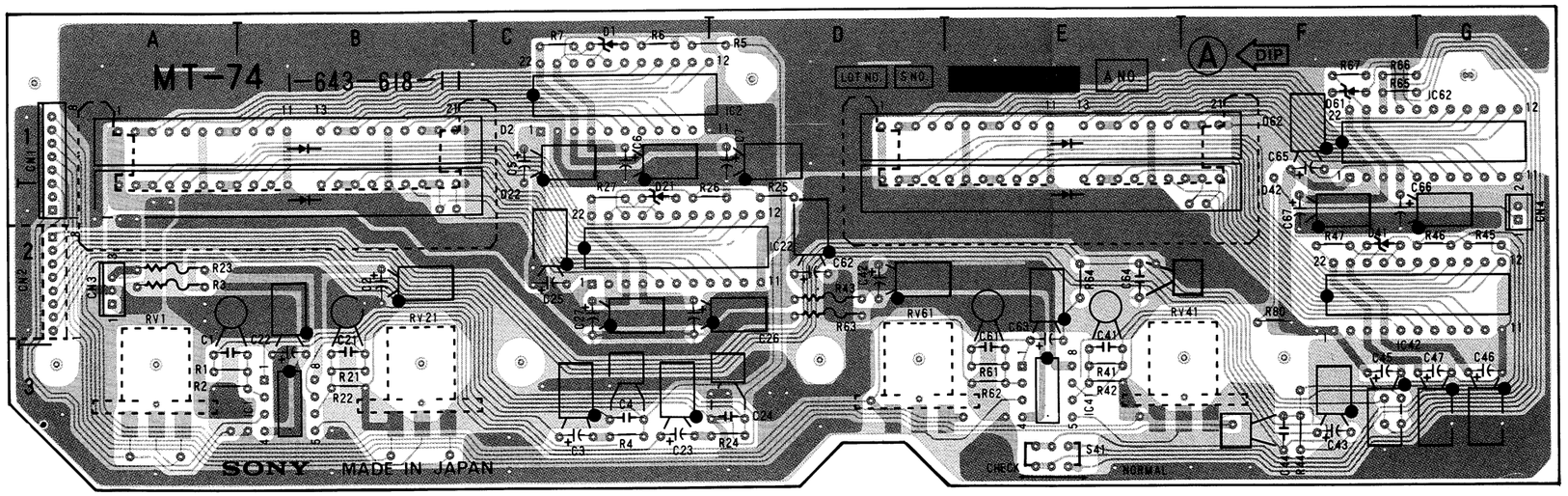
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- ⏦ : fusible resistor.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

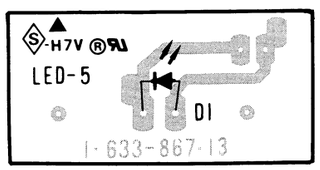
6-9. MT-74, LED-5 (M), VR-148 BOARDS – *Soldering Side* –

MT-74 BOARD



MT-74 BOARD
BOARD No. 1-643-618-11 11

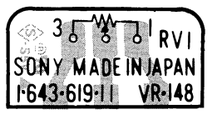
LED-5 (M) BOARD



13

LED-5 (M) BOARD
BOARD No. 1-633-867-13

VR-148 BOARD

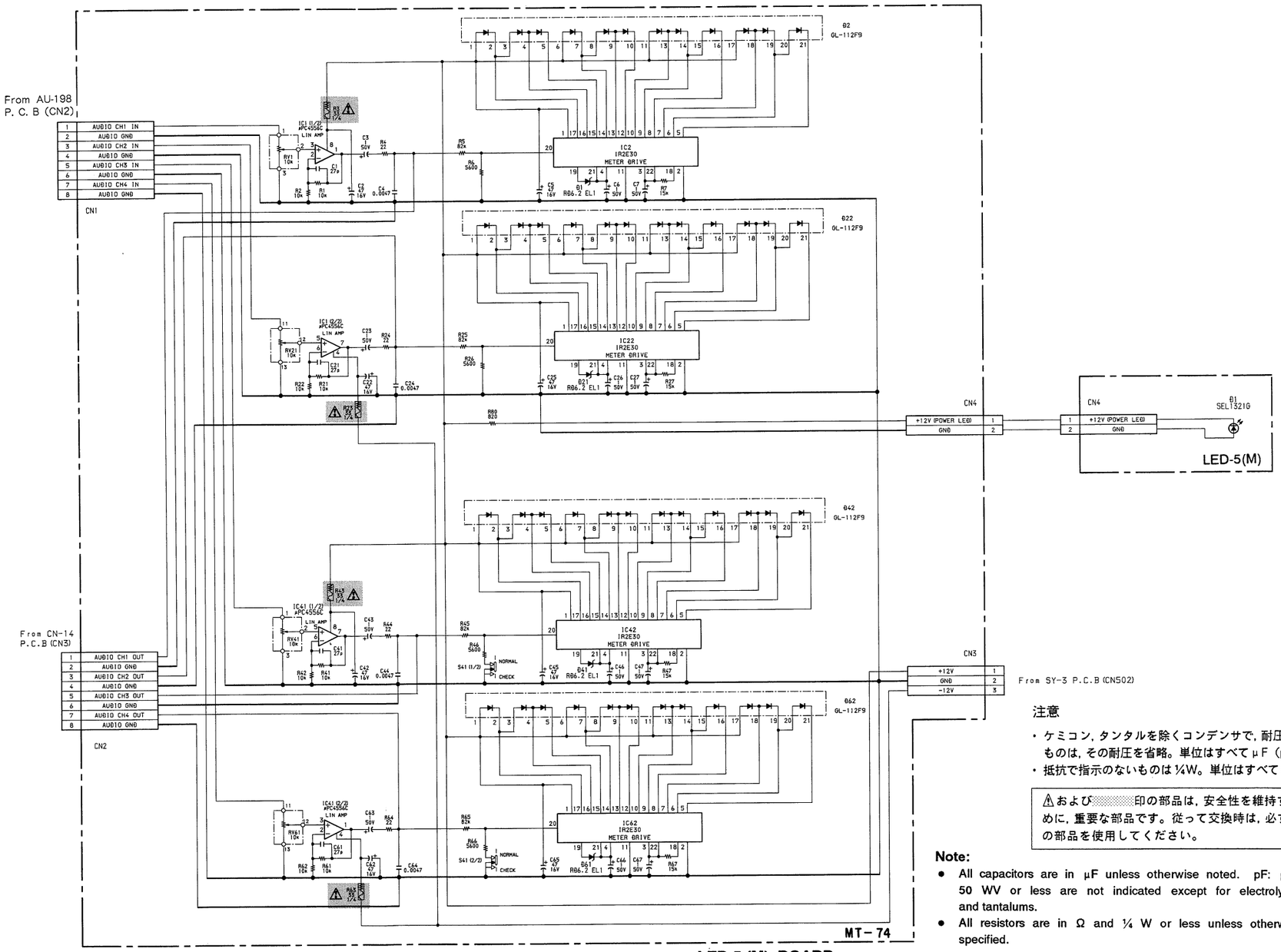


11

VR-148 BOARD
BOARD No. 1-643-619-11

MT-74

CN1	A-1	IC1	B-3
CN2	A-2	IC2	C-1
CN3	A-2	IC22	D-2
CN4	G-2	IC41	E-3
		IC42	G-2
D1	C-1	IC62	G-1
D2	B-1		
D21	C-2	R3	A-2
D22	B-2	R23	A-2
D41	F-2	R43	D-2
D42	E-2	R63	D-2
D61	F-1		
D62	E-1	S41	E-3



LED-5 (M) BOARD
BOARD No. 1-633-867-13

MT-74 BOARD
BOARD No. 1-643-618-11

VR-148 BOARD
BOARD No. 1-643-619-11

注意

- ケミコン，タンタルを除くコンデンサで，耐圧50V以下のものは，その耐圧を省略。単位はすべてμF（pはpF）。
- 抵抗で指示のないものは¼W。単位はすべてΩ。

⚠および　　印の部品は，安全性を維持するために，重要な部品です。従って交換時は，必ず指定の部品を使用してください。

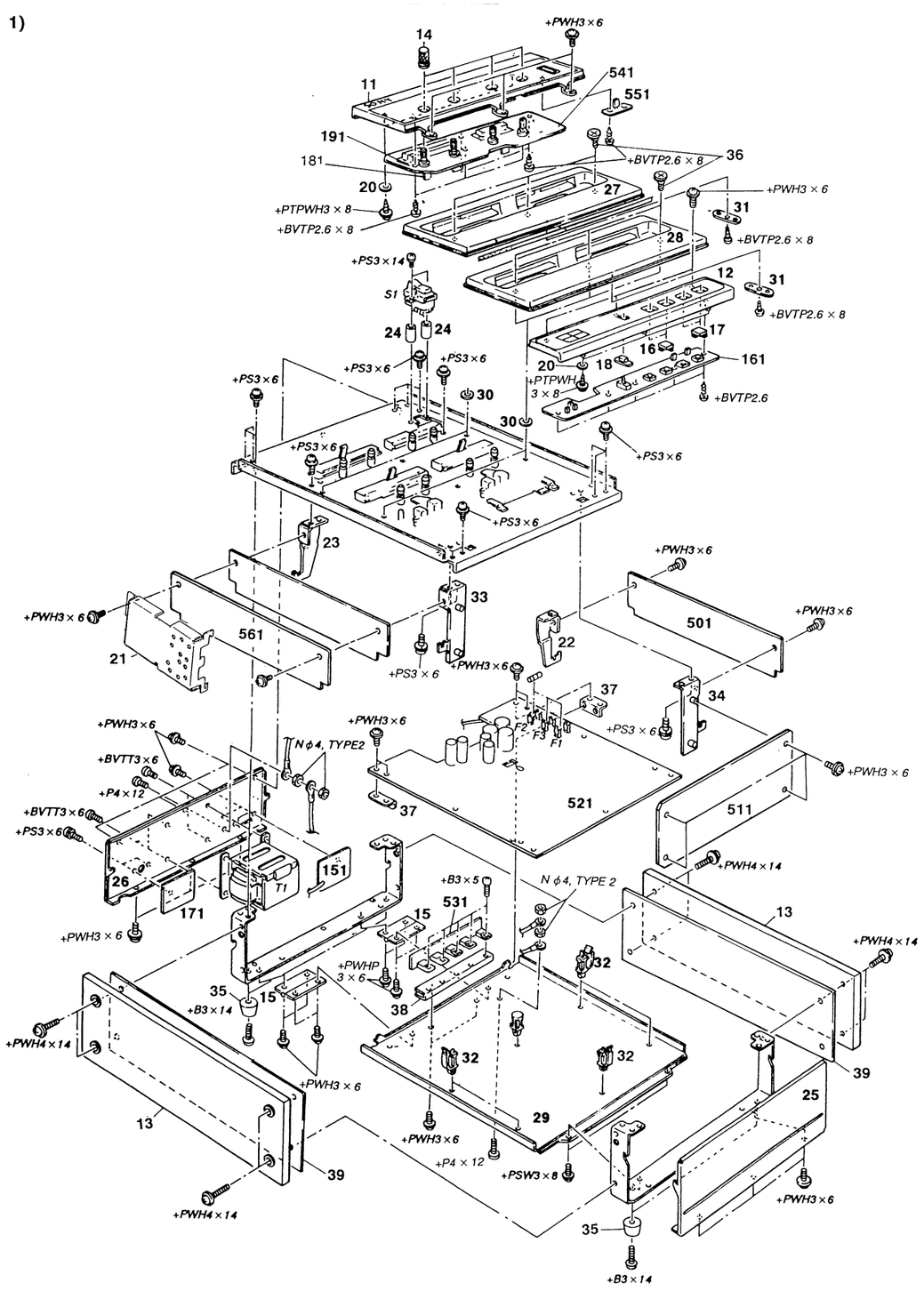
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.

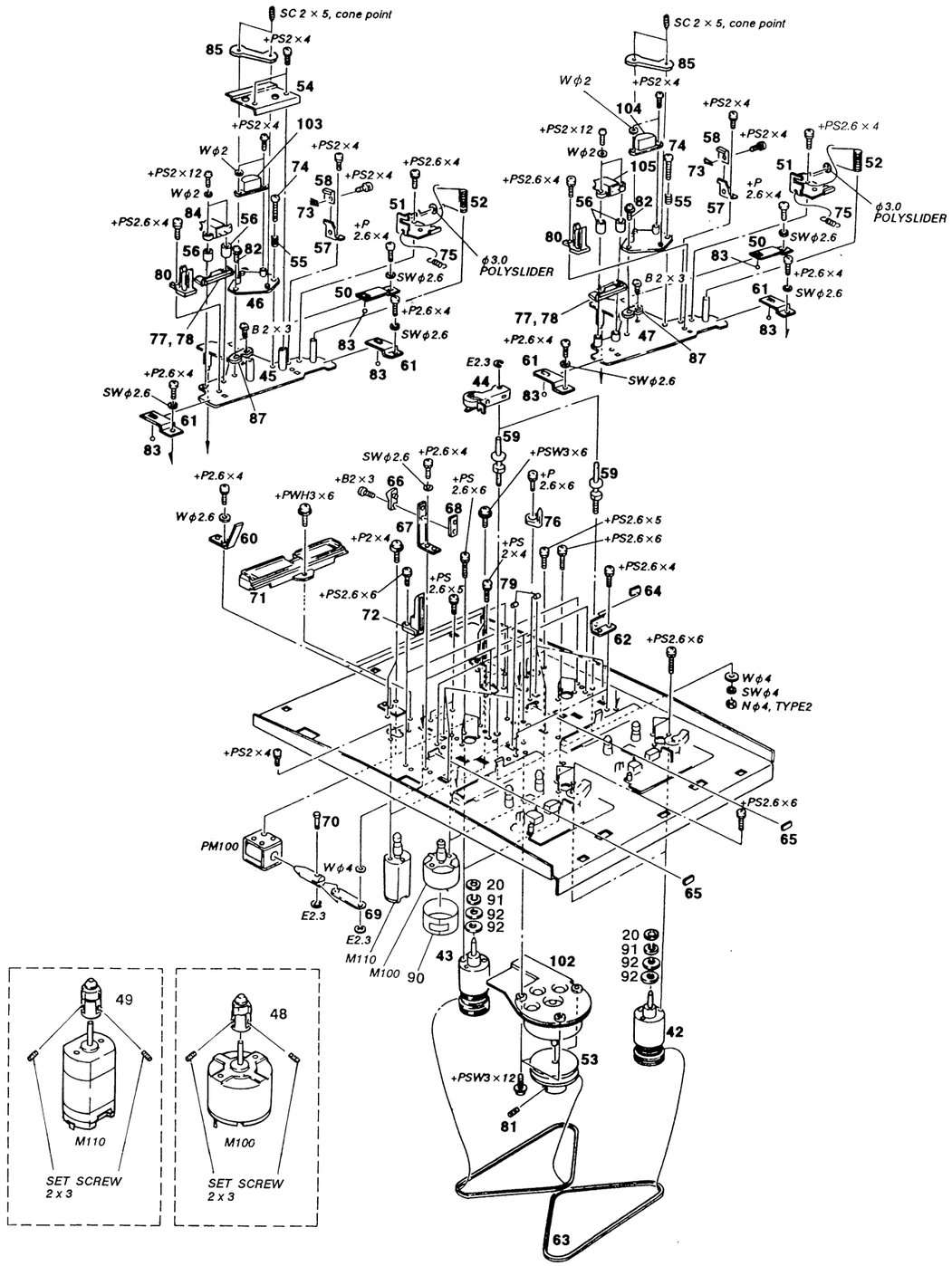
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Section 7
Exploded Views

1)

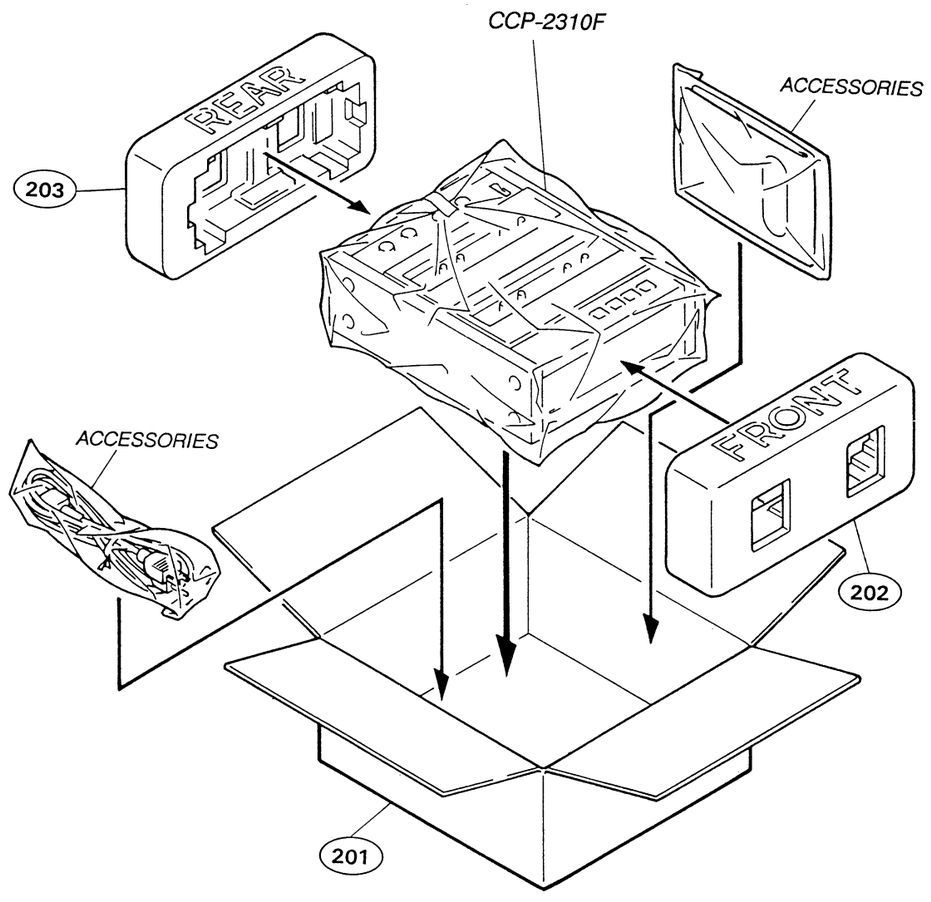


2)



7-1 (1)

3)



(1)

Ref. No. or Q'ty	Part No.	SP	Description
11	X-3167-337-1	o	PANEL ASSY,METER
12	X-3167-338-1	o	PANEL ASSY,SWITCH
13	X-3162-347-2	o	PANEL ASSY,SIDE
14	X-3668-075-0	s	KNOB ASSY,CONTROL
15	3-151-905-12	o	HINGE,DOOR
16	3-162-327-01	s	BUTTON
17	3-162-327-21	s	BUTTON
18	3-162-328-01	s	KNOB
20	3-162-415-01	s	WASHER,THRUST
21	3-176-202-01	o	PLATE,SHIELD
22	3-164-239-01	o	BRACKET(RIGHT),PC BOARD
23	3-164-240-01	o	BRACKET(LEFT),PC BOARD
24	3-164-242-01	o	SPACER,SWITCH
25	3-164-261-11	o	PANEL,FRONT
26	3-164-262-02	o	PANEL,REAR
27	3-164-265-41	o	PANEL,CASSETTE
28	3-164-265-51	o	PANEL,CASSETTE
29	3-164-266-01	o	PLATE,BOTTOM
30	3-564-027-01	o	FELT,LIMITER
31	3-668-743-00	o	NUT,PLATE,ROLLER,PRECEDING
32	3-682-047-01	o	HOLDER(A),PC BOARD
33	3-176-199-01	o	BRACKET(LEFT),PC BOARD
34	3-176-200-01	o	BRACKET(RIGHT),PC BOARD
35	3-164-260-01	s	FOOT,RUBBER
36	3-694-825-11	s	SCREW(M3)(STEP),SPECIAL HEAD
37	3-164-251-01	o	SUPORT,PC BOARD
38	3-164-252-01	o	HEAT SINK
39	3-170-051-01	o	PLATE,SHIELD

(2)

Ref. No. or Q'ty	Part No.	SP	Description
20	3-162-415-01	s	WASHER,THRUST
42	A-2109-009-A	o	CAPSTAN(B) ASSY(COPY2)
	A-2109-010-A	o	CAPSTAN(A) ASSY(COPY3)
43	A-2109-010-A	o	CAPSTAN(A) ASSY(ORIGINAL)
	A-2109-009-A	o	CAPSTAN(B) ASSY(COPY1)
44	X-3162-306-1	s	PINCH ROLLER ASSY
45	X-3162-342-2	o	CHASSIS(P) ASSY,HEAD(ORIGINAL)
46	X-3162-343-1	o	PLATE ASSY,ADJUSTMENT,HEAD
47	X-3162-344-2	o	CHASSIS(R) ASSY,HEAD(COPY1-3)
48	X-3162-348-1	o	TABLE(RIGHT) ASSY,REEL
49	X-3162-349-1	o	TABLE(LEFT) ASSY,REEL
50	3-162-312-01	o	SPRING
51	3-162-345-02	o	HOOK,SPRING
52	3-162-399-01	s	SPRING
53	3-164-221-01	s	PULLEY,MOTOR
54	3-164-231-01	o	PLATE,SHIELD,HEAD
55	3-164-232-01	s	SPRING,COMPRESSION
56	3-164-233-01	o	SPACER,ERASE HEAD
57	3-164-234-02	o	BRACKET,BRUSH
58	3-164-235-01	o	RETAINER,BRUSH
59	3-164-236-01	o	SHAFT,PINCH ROLLER
60	3-164-237-01	o	SPRING,CASSETTE RETAINER
61	3-164-238-01	o	RETAINER(B),HEAD CHASSIS
62	3-164-241-01	o	BRACKET,BRUSH
63	3-164-243-01	s	BELT,CAPSTAN
64	3-164-244-01	s	STOPPER,HEAD CHASSIS
65	3-164-245-01	s	CUSHION,CHASSIS
66	3-164-246-01	o	RETAINER,CASSETTE
67	3-164-247-01	s	SPRING,CASSETTE RETAINER
68	3-164-248-01	o	RETAINER,CASSETTE
69	3-164-249-01	o	PLATE SOLENOID
70	3-164-250-01	o	SHAFT,JOINT
71	3-164-259-01	o	CASSETTE,RETAINER
72	3-164-271-01	s	GUIDE,CASSETTE
73	3-164-272-02	s	BRUSH,ELECTROSTATIC PREVENTION
74	3-418-191-00	s	SCREW
75	3-165-191-01	s	SPRING,TENSION
76	3-491-131-00	s	PIN,CASSETTE GUIDE
77	3-166-369-01	s	SPACER,HEAD
78	3-166-369-11	s	SPACER,HEAD
79	3-558-448-00	s	ROLLER,HEAD CHASSIS
80	3-576-837-00	s	CLAMP,LEAD
81	3-701-509-00	s	SET SCREW,DOUBLE CUP 3x8
82	7-621-770-67	s	SCREW(M2.6x6),(+)SPECIAL HEAD
83	7-671-112-01	o	STEEL,BALL
84	8-825-724-00	s	HEAD,ERASE EF-201-36
85	3-165-188-01	s	SPACER(1),ADJUSTMENT PLATE
87	3-165-189-02	s	SPACER(2),ADJUSTMENT PLATE
90	3-162-496-01	o	CORE,SHIELD
91	3-162-416-01	o	RING(SHAFT),RETAINING C
92	3-701-439-21	s	WASHER

(3)

PACKING MATERIALS

Ref. No. or Q'ty	Part No.	SP	Description
201	3-176-137-21	o	INDIVIDUAL CARTON
202	3-164-215-01	o	CUSHION(FRONT)
203	3-164-216-01	o	CUSHION(REAR)

SUPPLIED ACCESSORIES

Ref. No. or Q'ty	Part No.	SP	Description
1set	X-3701-105-0	s	ROD ASSY,CLEANING,HEAD
1pc	⚠1-534-754-00	s	POWER CORD(FOR J MODEL ONLY)
1pc	⚠1-551-812-11	s	POWER CORD(FOR U MODEL ONLY)
1set	⚠1-590-910-11	s	POWER CORD,SET(FOR EK MODEL ONLY)
1pc	3-164-273-01	s	DUST COVER
1pc	3-758-025-01	s	MANUAL,INSTRUCTION(LARGE) (FOR J MODEL ONLY)
1pc	3-758-025-11	s	MANUAL,INSTRUCTION(LARGE) (FOR U MODEL ONLY)
1pc	3-758-025-21	s	MANUAL,INSTRUCTION(LARGE) (FOR EK MODEL ONLY)

Section 8
Electrical Parts List

PARTS INFORMATION

(1) Safety Related Components Warning
Components marked with ⚠ on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose part numbers appear in this manual or in service bulletins and service manual supplements published by Sony.

(2) Standardization of Parts
Repair parts supplied from Sony Parts Center may not be always identical with the parts witch actually in use due to "accommodating the improved parts and /or engineering changes" or "standardization of genuine parts".
This manual's exploded views and electrical spare parts list are indicating the part numbers of "the standardized genuine parts at present".

(3) Stock of Parts
Parts marked with "o" SP (Supply Code) column of the spare parts list are not normally required for routine service work. Orders for parts marked with "o" will be processed, but allow for additional delivery time.

(4) Units for Capacitors and Resistors
The following units may be assumed in schematic diagrams, electrical parts list and exploded views unless otherwise specified.
Capacitors : μF
Resistors : Ω

補修用部品注意事項

(1) 安全重要部品
回路図, 分解図, 電気部品表中で⚠印付きの部品は, 安全性を維持するために重要な部品である。従ってこれらの部品を交換する時には, 必ず指定の部品を交換すること。

(2) 部品の共通化
ソニーから供給される部品はセットに実装されているものと異なることがある。
これは部品の共通化, 改良等によるものである。
分解図や電気部品表には現時点での共通化された部品が記載されている。

(3) 部品の在庫
部品表のSP (Supply code) 欄のoで示される部品は交換頻度が低い部品で, 在庫していないことがあり, 納期は長くなることがある。

(4) コンデンサ, 抵抗の単位
回路図, 分解図, 電気部品表中, 特に明記したものを除き, 下記の単位は省略されていることがある。
コンデンサ : μF
抵抗 : Ω

ELECTRICAL PARTS LIST

AC-3 BOARD (FOR J,U MODEL ONLY)

Ref. No. or Q'ty	Part No.	SP	Description
151	1-634-864-11	o	PRINTED CIRCUIT BOARD,AC-3
CN1	⚠1-560-222-11	s	INLET 3P

AC-5 BOARD (FOR EK MODEL ONLY)

Ref. No. or Q'ty	Part No.	SP	Description
151	1-635-783-11	o	PRINTED CIRCUIT BOARD,AC-5
CN1	⚠1-560-222-11	s	INLET 3P
S900	⚠1-570-046-11	s	SWITCH,VOLTAGE CHANGE

AU-171 BOARD

Ref. No. or Q'ty	Part No.	SP	Description		
501	A-8276-822-A	o	MOUNTED CIRCUIT BOARD,AU-171		
4pcs	1-540-122-11	o	SOCKET,SIL 2P		
C1	1-102-108-00	s	CERAMIC	150pF	10% 50V
C2	1-126-301-11	s	ELECT	1uF	20% 50V
C3	1-102-108-00	s	CERAMIC	150pF	10% 50V
C4	1-124-589-11	s	ELECT	47uF	20% 16V
C5	1-124-257-00	s	ELECT	2.2uF	20% 50V
C6	1-102-973-00	s	CERAMIC	100pF	5% 50V
C7	1-130-471-00	s	MYLAR	0.001uF	5% 50V
C8	1-107-157-00	s	MICA	27pF	10% 500V
C21	1-102-108-00	s	CERAMIC	150pF	10% 50V
C22	1-126-301-11	s	ELECT	1uF	20% 50V
C23	1-102-108-00	s	CERAMIC	150pF	10% 50V
C24	1-124-589-11	s	ELECT	47uF	20% 16V
C25	1-124-257-00	s	ELECT	2.2uF	20% 50V
C26	1-102-973-00	s	CERAMIC	100pF	5% 50V
C27	1-130-471-00	s	MYLAR	0.001uF	5% 50V
C28	1-107-157-00	s	MICA	27pF	10% 500V
C41	1-102-108-00	s	CERAMIC	150pF	10% 50V
C42	1-126-301-11	s	ELECT	1uF	20% 50V
C43	1-102-108-00	s	CERAMIC	150pF	10% 50V
C44	1-124-589-11	s	ELECT	47uF	20% 16V
C45	1-124-257-00	s	ELECT	2.2uF	20% 50V
C46	1-102-973-00	s	CERAMIC	100pF	5% 50V
C47	1-130-471-00	s	MYLAR	0.001uF	5% 50V
C48	1-107-157-00	s	MICA	27pF	10% 500V
C49	1-107-169-00	s	MICA	100pF	5% 500V
C61	1-102-108-00	s	CERAMIC	150pF	10% 50V
C62	1-126-301-11	s	ELECT	1uF	20% 50V
C63	1-102-108-00	s	CERAMIC	150pF	10% 50V
C64	1-124-589-11	s	ELECT	47uF	20% 16V
C65	1-124-257-00	s	ELECT	2.2uF	20% 50V
C66	1-102-973-00	s	CERAMIC	100pF	5% 50V
C67	1-130-471-00	s	MYLAR	0.001uF	5% 50V

(AU-171 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description		
C68	1-107-157-00	s	MICA	27pF	10% 500V
C69	1-107-169-00	s	MICA	100pF	5% 500V
C81	1-130-477-00	s	MYLAR	0.0033uF	5% 50V
C82	1-130-469-00	s	MYLAR	680pF	5% 50V
C83	1-130-012-00	s	FILM	330pF	5% 50V
C84	1-124-122-11	s	ELECT	100uF	20% 50V
C85	1-136-270-11	s	FILM	47pF	5% 630V
C86	1-107-202-11	s	MICA	10pF	10% 500V
C87	1-124-589-11	s	ELECT	47uF	20% 16V
C88	1-124-589-11	s	ELECT	47uF	20% 16V
C89	1-124-122-11	s	ELECT	100uF	20% 50V
C90	1-124-122-11	s	ELECT	100uF	20% 50V
CN1	1-560-470-00	o	PIN,CONNECTOR 8P		
CN2	1-560-470-00	o	PIN,CONNECTOR 8P		
CN3	1-560-472-00	o	PIN,CONNECTOR 12P		
CN4	1-560-469-00	o	PIN,CONNECTOR 6P		
CN5	1-560-469-00	o	PIN,CONNECTOR 6P		
CN6	1-560-469-00	o	PIN,CONNECTOR 6P		
CN7	1-560-456-00	o	PIN,CONNECTOR 2P		
CT1	1-141-297-11	s	TRIMMER,CERAMIC 90pF		
CT21	1-141-297-11	s	TRIMMER,CERAMIC 90pF		
CT41	1-141-297-11	s	TRIMMER,CERAMIC 90pF		
CT61	1-141-297-11	s	TRIMMER,CERAMIC 90pF		
D81	8-719-200-02	s	DIODE 10E-2		
FL1	1-409-407-11	s	COIL,BIAS TRAP 600.0KHz		
FL21	1-409-407-11	s	COIL,BIAS TRAP 600.0KHz		
FL41	1-409-407-11	s	COIL,BIAS TRAP 600.0KHz		
FL61	1-409-407-11	s	COIL,BIAS TRAP 600.0KHz		
IC1	8-759-900-72	s	IC NE5532P		
IC41	8-759-900-72	s	IC NE5532P		
L81	1-410-311-11	s	COIL(SHIELD TYPE)		
LV1	1-403-608-11	s	COIL,VARIABLE		
LV21	1-403-608-11	s	COIL,VARIABLE		
LV41	1-403-608-11	s	COIL,VARIABLE		
LV61	1-403-608-11	s	COIL,VARIABLE		
LV81	1-424-371-11	s	COIL		
Q81	8-729-140-96	s	TRANSISTOR 2SD774-34		
Q82	8-729-140-93	s	TRANSISTOR 2SB733-34		
Q83	8-729-199-82	s	TRANSISTOR 2SD998		
R1	1-249-425-11	s	CARBON	4.7K 5% 1/4W	
R2	1-249-417-11	s	CARBON	1K 5% 1/4W	
R3	1-249-421-11	s	CARBON	2.2K 5% 1/4W	
R4	⚠1-212-869-00	s	FUSIBLE	33 5% 1/4W	
R5	1-249-429-11	s	CARBON	10K 5% 1/4W	
R6	1-249-408-11	s	CARBON	180 5% 1/4W	
R7	1-249-421-11	s	CARBON	2.2K 5% 1/4W	
R8	1-249-425-11	s	CARBON	4.7K 5% 1/4W	
R10	1-249-393-11	s	CARBON	10 5% 1/4W	
R21	1-249-425-11	s	CARBON	4.7K 5% 1/4W	
R22	1-249-417-11	s	CARBON	1K 5% 1/4W	
R23	1-249-421-11	s	CARBON	2.2K 5% 1/4W	
R24	⚠1-212-869-00	s	FUSIBLE	33 5% 1/4W	
R25	1-249-429-11	s	CARBON	10K 5% 1/4W	
R26	1-249-408-11	s	CARBON	180 5% 1/4W	

(AU-171 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description			
R27	1-249-421-11	s	CARBON	2.2K	5%	1/4W
R28	1-249-425-11	s	CARBON	4.7K	5%	1/4W
R30	1-249-393-11	s	CARBON	10	5%	1/4W
R41	1-249-425-11	s	CARBON	4.7K	5%	1/4W
R42	1-249-417-11	s	CARBON	1K	5%	1/4W
R43	1-249-421-11	s	CARBON	2.2K	5%	1/4W
R44	⚠1-212-869-00	s	FUSIBLE	33	5%	1/4W
R45	1-249-429-11	s	CARBON	10K	5%	1/4W
R46	1-249-408-11	s	CARBON	180	5%	1/4W
R47	1-249-421-11	s	CARBON	2.2K	5%	1/4W
R48	1-249-425-11	s	CARBON	4.7K	5%	1/4W
R50	1-249-393-11	s	CARBON	10	5%	1/4W
R61	1-249-425-11	s	CARBON	4.7K	5%	1/4W
R62	1-249-417-11	s	CARBON	1K	5%	1/4W
R63	1-249-421-11	s	CARBON	2.2K	5%	1/4W
R64	⚠1-212-869-00	s	FUSIBLE	33	5%	1/4W
R65	1-249-429-11	s	CARBON	10K	5%	1/4W
R66	1-249-408-11	s	CARBON	180	5%	1/4W
R67	1-249-421-11	s	CARBON	2.2K	5%	1/4W
R68	1-249-425-11	s	CARBON	4.7K	5%	1/4W
R70	1-249-393-11	s	CARBON	10	5%	1/4W
R81	1-249-431-11	s	CARBON	15K	5%	1/4W
R82	1-249-399-11	s	CARBON	33	5%	1/4W
R83	1-249-385-11	s	CARBON	2.2	5%	1/4W
R84	1-249-385-11	s	CARBON	2.2	5%	1/4W
R85	1-249-425-11	s	CARBON	4.7K	5%	1/4W
R86	1-249-421-11	s	CARBON	2.2K	5%	1/4W
R87	⚠1-217-638-21	s	FUSIBLE	1.5	5%	1/4W
R88	1-249-429-11	s	CARBON	10K	5%	1/4W
R89	1-249-441-11	s	CARBON	100K	5%	1/4W
R90	1-249-393-11	s	CARBON	10	5%	1/4W
R91	1-249-439-11	s	CARBON	68K	5%	1/4W
R92	1-249-393-11	s	CARBON	10	5%	1/4W
RV1	1-230-523-11	s	RES,ADJ,METAL,GLAZE	10K		
RV21	1-230-523-11	s	RES,ADJ,METAL,GLAZE	10K		
RV41	1-230-523-11	s	RES,ADJ,METAL,GLAZE	10K		
RV61	1-230-523-11	s	RES,ADJ,METAL,GLAZE	10K		
RY81	1-515-683-11	s	RELAY			
RY82	1-515-683-11	s	RELAY			
T81	1-423-952-11	s	TRANSFORMER,BIAS OSCILLATION			

AU-172 BOARD

Ref. No. or Q'ty	Part No.	SP	Description			
511	A-8276-823-A	o	MOUNTED CIRCUIT BOARD,AU-172			
8pcs	1-540-122-11	o	SOCKET,SIL 2P			
C1	1-102-108-00	s	CERAMIC	150pF	10%	50V
C2	1-126-301-11	s	ELECT	1uF	20%	50V
C3	1-102-108-00	s	CERAMIC	150pF	10%	50V
C4	1-124-589-11	s	ELECT	47uF	20%	50V
C5	1-124-257-00	s	ELECT	2.2uF	20%	50V
C6	1-102-973-00	s	CERAMIC	100pF	5%	50V
C7	1-130-471-00	s	MYLAR	0.001uF	5%	50V
C8	1-107-157-00	s	MICA	27pF	10%	500V
C21	1-102-108-00	s	CERAMIC	150pF	10%	50V
C22	1-126-301-11	s	ELECT	1uF	20%	50V
C23	1-102-108-00	s	CERAMIC	150pF	10%	50V
C24	1-124-589-11	s	ELECT	47uF	20%	50V
C25	1-124-257-00	s	ELECT	2.2uF	20%	50V
C26	1-102-973-00	s	CERAMIC	100pF	5%	50V
C27	1-130-471-00	s	MYLAR	0.001uF	5%	50V
C28	1-107-157-00	s	MICA	27pF	10%	500V
C41	1-102-108-00	s	CERAMIC	150pF	10%	50V
C42	1-126-301-11	s	ELECT	1uF	20%	50V
C43	1-102-108-00	s	CERAMIC	150pF	10%	50V
C44	1-124-589-11	s	ELECT	47uF	20%	50V
C45	1-124-257-00	s	ELECT	2.2uF	20%	50V
C46	1-102-973-00	s	CERAMIC	100pF	5%	50V
C47	1-130-471-00	s	MYLAR	0.001uF	5%	50V
C48	1-107-157-00	s	MICA	27pF	10%	500V
C49	1-107-169-00	s	MICA	100pF	5%	500V
C61	1-102-108-00	s	CERAMIC	150pF	10%	50V
C62	1-126-301-11	s	ELECT	1uF	20%	50V
C63	1-102-108-00	s	CERAMIC	150pF	10%	50V
C64	1-124-589-11	s	ELECT	47uF	20%	50V
C65	1-124-257-00	s	ELECT	2.2uF	20%	50V
C66	1-102-973-00	s	CERAMIC	100pF	5%	50V
C67	1-130-471-00	s	MYLAR	0.001uF	5%	50V
C68	1-107-157-00	s	MICA	27pF	10%	500V
C69	1-107-169-00	s	MICA	100pF	5%	500V
C81	1-130-477-00	s	MYLAR	0.0033uF	5%	50V
C82	1-130-469-00	s	MYLAR	680pF	5%	50V
C83	1-130-012-00	s	FILM	330pF	5%	50V
C84	1-124-122-11	s	ELECT	100uF	20%	50V
C85	1-130-270-11	s	FILM	47pF	5%	630V
C86	1-107-202-00	s	MICA	10pF	5%	500V
C87	1-124-589-11	s	ELECT	47uF	20%	16V
C88	1-124-122-11	s	ELECT	100uF	20%	50V
C89	1-124-122-11	s	ELECT	100uF	20%	50V
C101	1-102-108-00	s	CERAMIC	150pF	10%	50V
C102	1-126-301-11	s	ELECT	1uF	20%	50V
C103	1-102-108-00	s	CERAMIC	150pF	10%	50V
C104	1-124-589-11	s	ELECT	47uF	20%	50V
C105	1-124-257-00	s	ELECT	2.2uF	20%	50V
C106	1-102-973-00	s	CERAMIC	100pF	5%	50V
C107	1-130-471-00	s	MYLAR	0.001uF	5%	50V
C108	1-107-157-00	s	MICA	27pF	10%	500V
C121	1-102-108-00	s	CERAMIC	150pF	10%	50V
C122	1-126-301-11	s	ELECT	1uF	20%	50V
C123	1-102-108-00	s	CERAMIC	150pF	10%	50V
C124	1-124-589-11	s	ELECT	47uF	20%	50V
C125	1-124-257-00	s	ELECT	2.2uF	20%	50V
C126	1-102-973-00	s	CERAMIC	100pF	5%	50V
C127	1-130-471-00	s	MYLAR	0.001uF	5%	50V
C128	1-107-157-00	s	MICA	27pF	10%	500V
C141	1-102-108-00	s	CERAMIC	150pF	10%	50V
C142	1-126-301-11	s	ELECT	1uF	20%	50V
C143	1-102-108-00	s	CERAMIC	150pF	10%	50V
C144	1-124-589-11	s	ELECT	47uF	20%	50V
C145	1-124-257-00	s	ELECT	2.2uF	20%	50V
C146	1-102-973-00	s	CERAMIC	100pF	5%	50V
C147	1-130-471-00	s	MYLAR	0.001uF	5%	50V
C148	1-107-157-00	s	MICA	27pF	10%	500V
C149	1-107-169-00	s	MICA	100pF	5%	500V
C161	1-102-108-00	s	CERAMIC	150pF	10%	50V

(AU-172 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description			
C162	1-126-301-11	s	ELECT	1uF	20%	50V
C163	1-102-108-00	s	CERAMIC	150pF	10%	50V
C164	1-124-589-11	s	ELECT	47uF	20%	50V
C165	1-124-257-00	s	ELECT	2.2uF	20%	50V
C166	1-102-973-00	s	CERAMIC	100pF	5%	50V
C167	1-130-471-00	s	MYLAR	0.001uF	5%	50V
C168	1-107-157-00	s	MICA	27pF	10%	500V
C169	1-107-169-00	s	MICA	100pF	5%	500V
C181	1-130-477-00	s	MYLAR	0.0033uF	5%	50V
C182	1-130-469-00	s	MYLAR	680pF	5%	50V
C183	1-130-012-00	s	FILM	330pF	5%	50V
C184	1-124-122-11	s	ELECT	100uF	20%	50V
C185	1-136-270-11	s	FILM	47pF	5%	630V
C186	1-107-202-00	s	MICA	10pF	5%	500V
CN1	1-560-470-00	o	PIN,CONNECTOR	8P		
CN2	1-560-472-00	o	PIN,CONNECTOR	12P		
CN3	1-560-472-00	o	PIN,CONNECTOR	12P		
CN4	1-560-469-00	o	PIN,CONNECTOR	6P		
CN5	1-560-456-00	o	PIN,CONNECTOR	2P		
CT1	1-141-297-11	s	TRIMMER,CERAMIC	90pF		
CT21	1-141-297-11	s	TRIMMER,CERAMIC	90pF		
CT41	1-141-297-11	s	TRIMMER,CERAMIC	90pF		
CT61	1-141-297-11	s	TRIMMER,CERAMIC	90pF		
CT101	1-141-297-11	s	TRIMMER,CERAMIC	90pF		
CT121	1-141-297-11	s	TRIMMER,CERAMIC	90pF		
CT141	1-141-297-11	s	TRIMMER,CERAMIC	90pF		
CT161	1-141-297-11	s	TRIMMER,CERAMIC	90pF		
D81	8-719-200-02	s	DIODE 10E-2			
D181	8-719-200-02	s	DIODE 10E-2			
FL1	1-409-407-11	s	COIL,BIAS TRAP	600.0KHz		
FL21	1-409-407-11	s	COIL,BIAS TRAP	600.0KHz		
FL41	1-409-407-11	s	COIL,BIAS TRAP	600.0KHz		
FL61	1-409-407-11	s	COIL,BIAS TRAP	600.0KHz		
FL101	1-409-407-11	s	COIL,BIAS TRAP	600.0KHz		
FL121	1-409-407-11	s	COIL,BIAS TRAP	600.0KHz		
FL141	1-409-407-11	s	COIL,BIAS TRAP	600.0KHz		
FL161	1-409-407-11	s	COIL,BIAS TRAP	600.0KHz		
IC1	8-759-900-72	s	IC NE5532P			
IC41	8-759-900-72	s	IC NE5532P			
IC101	8-759-900-72	s	IC NE5532P			
IC141	8-759-900-72	s	IC NE5532P			
L81	1-410-311-11	s	COIL(SHIELD TYPE)			
L181	1-410-311-11	s	COIL(SHIELD TYPE)			
LV1	1-403-608-11	s	COIL,VARIABLE			
LV21	1-403-608-11	s	COIL,VARIABLE			
LV41	1-403-608-11	s	COIL,VARIABLE			
LV61	1-403-608-11	s	COIL,VARIABLE			
LV81	1-424-371-11	s	COIL			
LV101	1-403-608-11	s	COIL,VARIABLE			
LV121	1-403-608-11	s	COIL,VARIABLE			
LV141	1-403-608-11	s	COIL,VARIABLE			
LV161	1-403-608-11	s	COIL,VARIABLE			
LV181	1-424-371-11	s	COIL			
Q81	8-729-140-96	s	TRANSISTOR	2SD774-34		
Q82	8-729-140-93	s	TRANSISTOR	2SB733-34		
Q83	8-729-199-82	s	TRANSISTOR	2SD998		
Q181	8-729-140-96	s	TRANSISTOR	2SD774-34		
Q182	8-729-140-93	s	TRANSISTOR	2SB733-34		
Q183	8-729-199-82	s	TRANSISTOR	2SD998		
R1	1-249-425-11	s	CARBON	4.7K	5%	1/4W
R2	1-249-417-11	s	CARBON	1K	5%	1/4W
R3	1-249-421-11	s	CARBON	2.2K	5%	1/4W
R4	⚠1-212-869-00	s	FUSIBLE	33	5%	1/4W
R5	1-249-429-11	s	CARBON	10K	5%	1/4W
R6	1-249-408-11	s	CARBON	180	5%	1/4W
R7	1-249-421-11	s	CARBON	2.2K	5%	1/4W
R8	1-249-425-11	s	CARBON	4.7K	5%	1/4W
R10	1-249-393-11	s	CARBON	10	5%	1/4W
R21	1-249-425-11	s	CARBON	4.7K	5%	1/4W
R22	1-249-417-11	s	CARBON	1K	5%	1/4W
R23	1-249-421-11	s	CARBON	2.2K	5%	1/4W
R24	⚠1-212-869-00	s	FUSIBLE	33	5%	1/4W
R25	1-249-429-11	s	CARBON	10K	5%	1/4W
R26	1-249-408-11	s	CARBON	180	5%	1/4W
R27	1-249-421-11	s	CARBON	2.2K	5%	1/4W
R28	1-249-425-11	s	CARBON	4.7K	5%	1/4W
R30	1-249-393-11	s	CARBON	10	5%	1/4W
R41	1-249-425-11	s	CARBON	4.7K	5%	1/4W
R42	1-249-417-11	s	CARBON	1K	5%	1/4W
R43	1-249-421-11	s	CARBON	2.2K	5%	1/4W
R44	⚠1-212-869-00	s	FUSIBLE	33	5%	1/4W
R45	1-249-429-11	s	CARBON	10K	5%	1/4W
R46	1-249-408-11	s	CARBON	180	5%	1/4W
R47	1-249-421-11	s	CARBON	2.2K	5%	1/4W
R48	1-249-425-11	s	CARBON	4.7K	5%	1/4W
R50	1-249-393-11	s	CARBON	10	5%	1/4W
R61	1-249-425-11	s	CARBON	4.7K	5%	1/4W
R62	1-249-417-11	s	CARBON	1K	5%	1/4W
R63	1-249-421-11	s	CARBON	2.2K	5%	1/4W
R64	⚠1-212-869-00	s	FUSIBLE	33	5%	1/4W
R65	1-249-429-11	s	CARBON	10K	5%	1/4W
R66	1-249-408-11	s	CARBON	180	5%	1/4W
R67	1-249-421-11	s	CARBON	2.2K	5%	1/4W
R68	1-249-425-11	s	CARBON	4.7K	5%	1/4W
R70	1-249-393-11	s	CARBON	10	5%	1/4W
R81	1-249-431-11	s	CARBON	15K	5%	1/4W
R82	1-249-399-11	s	CARBON	33	5%	1/4W
R83	1-249-385-11	s	CARBON	2.2	5%	1/4W
R84	1-249-385-11	s	CARBON	2.2	5%	1/4W
R85	1-249-425-11	s	CARBON	4.7K	5%	1/4W
R86	1-249-421-11	s	CARBON	2.2K	5%	1/4W
R87	⚠1-217-638-21	s	FUSIBLE	1.5	5%	1/4W
R88	1-249-429-11	s	CARBON	10K	5%	1/4W
R89	1-249-441-11	s	CARBON	100K	5%	1/4W
R90	1-249-393-11	s	CARBON	10	5%	1/4W
R91	1-249-439-11	s	CARBON	68K	5%	1/4W
R92	1-249-393-11	s	CARBON	10	5%	1/4W
R101	1-249-425-11	s	CARBON	4.7K	5%	1/4W
R102	1-249-417-11	s	CARBON	1K	5%	1/4W
R103	1-249-421-11	s	CARBON	2.2K	5%	1/4W
R104	⚠1-212-869-00	s	FUSIBLE	33	5%	1/4W
R105	1-249-429-11	s	CARBON	10K	5%	1/4W
R106	1-249-408-11	s	CARBON	180	5%	1/4W
R107	1-249-421-11	s	CARBON	2.2K	5%	1/4W
R108	1-249-425-11	s	CARBON	4.7K	5%	1/4W
R110	1-249-393-11	s	CARBON	10	5%	1/4W
R121	1-249-425-11	s	CARBON	4.7K	5%	1/4W

(AU-172 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description			
R122	1-249-417-11	s	CARBON	1K	5%	1/4W
R123	1-249-421-11	s	CARBON	2.2K	5%	1/4W
R124	⚠ 1-212-869-00	s	FUSIBLE	33	5%	1/4W
R125	1-249-429-11	s	CARBON	10K	5%	1/4W
R126	1-249-408-11	s	CARBON	180	5%	1/4W
R127	1-249-421-11	s	CARBON	2.2K	5%	1/4W
R128	1-249-425-11	s	CARBON	4.7K	5%	1/4W
R130	1-249-393-11	s	CARBON	10	5%	1/4W
R141	1-249-425-11	s	CARBON	4.7K	5%	1/4W
R142	1-249-417-11	s	CARBON	1K	5%	1/4W
R143	1-249-421-11	s	CARBON	2.2K	5%	1/4W
R144	⚠ 1-212-869-00	s	FUSIBLE	33	5%	1/4W
R145	1-249-429-11	s	CARBON	10K	5%	1/4W
R146	1-249-408-11	s	CARBON	180	5%	1/4W
R147	1-249-421-11	s	CARBON	2.2K	5%	1/4W
R148	1-249-425-11	s	CARBON	4.7K	5%	1/4W
R150	1-249-393-11	s	CARBON	10	5%	1/4W
R161	1-249-425-11	s	CARBON	4.7K	5%	1/4W
R162	1-249-417-11	s	CARBON	1K	5%	1/4W
R163	1-249-421-11	s	CARBON	2.2K	5%	1/4W
R164	⚠ 1-212-869-00	s	FUSIBLE	33	5%	1/4W
R165	1-249-429-11	s	CARBON	10K	5%	1/4W
R166	1-249-408-11	s	CARBON	180	5%	1/4W
R167	1-249-421-11	s	CARBON	2.2K	5%	1/4W
R168	1-249-425-11	s	CARBON	4.7K	5%	1/4W
R170	1-249-393-11	s	CARBON	10	5%	1/4W
R181	1-249-431-11	s	CARBON	15K	5%	1/4W
R182	1-249-399-11	s	CARBON	33	5%	1/4W
R183	1-249-385-11	s	CARBON	2.2	5%	1/4W
R184	1-249-385-11	s	CARBON	2.2	5%	1/4W
R185	1-249-425-11	s	CARBON	4.7K	5%	1/4W
R186	1-249-421-11	s	CARBON	2.2K	5%	1/4W
R187	⚠ 1-217-638-21	s	FUSIBLE	1.5	5%	1/4W
R188	1-249-429-11	s	CARBON	10K	5%	1/4W
R189	1-249-441-11	s	CARBON	100K	5%	1/4W
R190	1-249-393-11	s	CARBON	10	5%	1/4W
R191	1-249-439-11	s	CARBON	68K	5%	1/4W
R192	1-249-393-11	s	CARBON	10	5%	1/4W
RV1	1-230-523-11	s	RES,ADJ,METAL GLAZE	10K		
RV21	1-230-523-11	s	RES,ADJ,METAL GLAZE	10K		
RV41	1-230-523-11	s	RES,ADJ,METAL GLAZE	10K		
RV61	1-230-523-11	s	RES,ADJ,METAL GLAZE	10K		
RV101	1-230-523-11	s	RES,ADJ,METAL GLAZE	10K		
RV121	1-230-523-11	s	RES,ADJ,METAL GLAZE	10K		
RV141	1-230-523-11	s	RES,ADJ,METAL GLAZE	10K		
RV161	1-230-523-11	s	RES,ADJ,METAL GLAZE	10K		
RY81	1-515-683-11	s	RELAY			
RY82	1-515-683-11	s	RELAY			
RY181	1-515-683-11	s	RELAY			
RY182	1-515-683-11	s	RELAY			
T81	1-423-952-11	s	TRANSFORMER,BIAS OSCILLATION			
T181	1-423-952-11	s	TRANSFORMER,BIAS OSCILLATION			

AU-198 BOARD

Ref. No. or Q'ty	Part No.	SP	Description			
561	A-8276-824-A	o	MOUNTED CIRCUIT BOARD,AU-198			
C2	1-101-880-00	s	CERAMIC	47pF	5%	50V
C3	1-130-473-00	s	MYLAR	0.0015uF	5%	50V
C4	1-126-163-11	s	ELECT	4.7uF	20%	50V
C5	1-126-301-11	s	ELECT	1uF	20%	50V
C6	1-124-589-11	s	ELECT	47uF	20%	16V
C7	1-124-589-11	s	ELECT	47uF	20%	16V
C8	1-102-961-00	s	CERAMIC	27pF	5%	50V
C9	1-126-301-11	s	ELECT	1uF	20%	50V
C22	1-101-880-00	s	CERAMIC	47pF	5%	50V
C23	1-130-473-00	s	MYLAR	0.0015uF	5%	50V
C24	1-126-163-11	s	ELECT	4.7uF	20%	50V
C25	1-126-301-11	s	ELECT	1uF	20%	50V
C26	1-124-589-11	s	ELECT	47uF	20%	16V
C27	1-124-589-11	s	ELECT	47uF	20%	16V
C28	1-102-961-00	s	CERAMIC	27pF	5%	50V
C29	1-126-301-11	s	ELECT	1uF	20%	50V
C42	1-101-880-00	s	CERAMIC	47pF	5%	50V
C43	1-130-473-00	s	MYLAR	0.0015uF	5%	50V
C44	1-126-163-11	s	ELECT	4.7uF	20%	50V
C45	1-126-301-11	s	ELECT	1uF	20%	50V
C46	1-124-589-11	s	ELECT	47uF	20%	16V
C47	1-124-589-11	s	ELECT	47uF	20%	16V
C48	1-102-961-00	s	CERAMIC	27pF	5%	50V
C49	1-126-301-11	s	ELECT	1uF	20%	50V
C62	1-101-880-00	s	CERAMIC	47pF	5%	50V
C63	1-130-473-00	s	MYLAR	0.0015uF	5%	50V
C64	1-126-163-11	s	ELECT	4.7uF	20%	50V
C65	1-126-301-11	s	ELECT	1uF	20%	50V
C66	1-124-589-11	s	ELECT	47uF	20%	16V
C67	1-124-589-11	s	ELECT	47uF	20%	16V
C68	1-102-961-00	s	CERAMIC	27pF	5%	50V
C69	1-126-301-11	s	ELECT	1uF	20%	50V
C81	1-124-122-11	s	ELECT	100uF	20%	16V
C82	1-124-122-11	s	ELECT	100uF	20%	16V
CN1	1-560-465-00	o	PIN,CONNECTOR	12P		
CN2	1-560-470-00	o	PIN,CONNECTOR	8P		
CN3	1-560-469-00	o	PIN,CONNECTOR	6P		
CN4	1-560-456-00	o	PIN,CONNECTOR	2P		
CN5	1-560-470-00	o	PIN,CONNECTOR	8P		
D41	8-719-911-11	s	DIODE	1SS119		
D71	8-719-911-11	s	DIODE	1SS119		
IC1	8-759-100-06	s	IC	UPC4556C		
IC2	8-759-100-06	s	IC	UPC4556C		
IC41	8-759-100-06	s	IC	UPC4556C		
IC42	8-759-100-06	s	IC	UPC4556C		
Q41	8-729-119-78	s	TRANSISTOR	2SC2785-HFE*(28)		
Q61	8-729-119-78	s	TRANSISTOR	2SC2785-HFE*(28)		
R1	1-249-431-11	s	CARBON	15K	5%	1/4W
R2	1-247-883-00	s	CARBON	150K	5%	1/4W
R3	1-249-421-11	s	CARBON	2.2K	5%	1/4W
R4	1-249-411-11	s	CARBON	330	5%	1/4W
R5	1-249-417-11	s	CARBON	1K	5%	1/4W
R6	⚠ 1-212-869-00	s	FUSIBLE	33	5%	1/4W
R7	1-249-411-11	s	CARBON	330	5%	1/4W
R8	1-249-429-11	s	CARBON	10K	5%	1/4W
R21	1-249-431-11	s	CARBON	15K	5%	1/4W
R22	1-247-883-00	s	CARBON	150K	5%	1/4W

(AU-198 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description			
R23	1-249-421-11	s	CARBON	2.2K	5%	1/4W
R24	1-249-411-11	s	CARBON	330	5%	1/4W
R25	1-249-417-11	s	CARBON	1K	5%	1/4W
R26	⚠ 1-212-869-00	s	FUSIBLE	33	5%	1/4W
R27	1-249-411-11	s	CARBON	330	5%	1/4W
R28	1-249-429-11	s	CARBON	10K	5%	1/4W
R41	1-249-431-11	s	CARBON	15K	5%	1/4W
R42	1-247-883-00	s	CARBON	150K	5%	1/4W
R43	1-249-421-11	s	CARBON	2.2K	5%	1/4W
R44	1-249-411-11	s	CARBON	330	5%	1/4W
R45	1-249-417-11	s	CARBON	1K	5%	1/4W
R46	⚠ 1-212-869-00	s	FUSIBLE	33	5%	1/4W
R47	1-249-411-11	s	CARBON	330	5%	1/4W
R48	1-249-429-11	s	CARBON	10K	5%	1/4W
R49	1-249-429-11	s	CARBON	10K	5%	1/4W
R50	1-249-423-11	s	CARBON	3.3K	5%	1/4W
R51	1-249-441-11	s	CARBON	100K	5%	1/4W
R61	1-249-431-11	s	CARBON	15K	5%	1/4W
R62	1-247-883-00	s	CARBON	150K	5%	1/4W
R63	1-249-421-11	s	CARBON	2.2K	5%	1/4W
R64	1-249-411-11	s	CARBON	330	5%	1/4W
R65	1-249-417-11	s	CARBON	1K	5%	1/4W
R66	⚠ 1-212-869-00	s	FUSIBLE	33	5%	1/4W
R67	1-249-411-11	s	CARBON	330	5%	1/4W
R68	1-249-429-11	s	CARBON	10K	5%	1/4W
R69	1-249-429-11	s	CARBON	10K	5%	1/4W
R70	1-249-423-11	s	CARBON	3.3K	5%	1/4W
R71	1-249-441-11	s	CARBON	100K	5%	1/4W
RV1	1-230-527-11	s	RES,ADJ,METAL GLAZE	100K		
RV2	1-230-523-11	s	RES,ADJ,METAL GLAZE	10K		
RV3	1-230-523-11	s	RES,ADJ,METAL GLAZE	10K		
RV21	1-230-527-11	s	RES,ADJ,METAL GLAZE	100K		
RV22	1-230-523-11	s	RES,ADJ,METAL GLAZE	10K		
RV23	1-230-523-11	s	RES,ADJ,METAL GLAZE	10K		
RV41	1-230-527-11	s	RES,ADJ,METAL GLAZE	100K		
RV42	1-230-523-11	s	RES,ADJ,METAL GLAZE	10K		
RV43	1-230-523-11	s	RES,ADJ,METAL GLAZE	10K		
RV61	1-230-527-11	s	RES,ADJ,METAL GLAZE	100K		
RV62	1-230-523-11	s	RES,ADJ,METAL GLAZE	10K		
RV63	1-230-523-11	s	RES,ADJ,METAL GLAZE	10K		

CN-14(M) BOARD

Ref. No. or Q'ty	Part No.	SP	Description
171	1-634-869-11	o	PRINTED CIRCUIT BOARD,CN-14
CN6	1-562-090-00	s	JACK 13P

EX-357 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
191	1-643-620-11	o	PRINTED CIRCUIT BOARD,EX-357

EX-4 BOARD

Ref. No. or Q'ty	Part No.	SP	Description			
531	**A-2019-222-A**	o	**MOUNTED CIRCUIT BOARD, EX-4**			
C31	1-130-495-00	s	MYLAR	0.1uF	5%	50V
C32	1-130-495-00	s	MYLAR	0.1uF	5%	50V
C33	1-130-495-00	s	MYLAR	0.1uF	5%	50V
C34	1-130-495-00	s	MYLAR	0.1uF	5%	50V
C35	1-130-495-00	s	MYLAR	0.1uF	5%	50V
C36	1-130-495-00	s	MYLAR	0.1uF	5%	50V
C37	1-130-495-00	s	MYLAR	0.1uF	5%	50V
C38	1-130-495-00	s	MYLAR	0.1uF	5%	50V
C39	1-130-495-00	s	MYLAR	0.1uF	5%	50V
C40	1-130-495-00	s	MYLAR	0.1uF	5%	50V
IC1	8-759-231-58	s	IC	TA7812S		
IC2	8-759-701-88	s	IC	NJM7912FA		
IC3	8-759-701-75	s	IC	NJM7805FA		
IC4	8-759-701-75	s	IC	NJM7805FA		
IC7	8-759-231-58	s	IC	TA7812S		

LED-5(M) BOARD

Ref. No. or Q'ty	Part No.	SP	Description
551	1-633-867-13	o	PRINTED CIRCUIT BOARD,LED-5
D1	8-719-313-21	s	LED SEL1321G,GRN

MT-74 BOARD

Ref. No. or Q'ty	Part No.	SP	Description			
541	A-2029-101-A	o	MOUNTED CIRCUIT BOARD,MT-74			
C1	1-102-961-00	s	CERAMIC	27pF	5%	50V
C2	1-124-589-11	s	ELECT	47uF	20%	16V
C3	1-126-301-11	s	ELECT	1uF	20%	50V
C4	1-130-479-00	s	MYLAR	0.0047uF	5%	50V
C5	1-124-589-11	s	ELECT	47uF	20%	16V
C6	1-126-301-11	s	ELECT	1uF	20%	50V
C7	1-126-301-11	s	ELECT	1uF	20%	50V
C21	1-102-961-00	s	CERAMIC	27pF	5%	50V
C22	1-124-589-11	s	ELECT	47uF	20%	16V
C23	1-126-301-11	s	ELECT	1uF	20%	50V
C24	1-130-479-00	s	MYLAR	0.0047uF	5%	50V
C25	1-124-589-11	s	ELECT	47uF	20%	16V
C26	1-126-301-11	s	ELECT	1uF	20%	50V
C27	1-126-301-11	s	ELECT	1uF	20%	50V
C41	1-102-961-00	s	CERAMIC	27pF	5%	50V
C42	1-124-589-11	s	ELECT	47uF	20%	16V
C43	1-126-301-11	s	ELECT	1uF	20%	50V
C44	1-130-479-00	s	MYLAR	0.0047uF	5%	50V
C45	1-124-589-11	s	ELECT	47uF	20%	16V
C46	1-126-301-11	s	ELECT	1uF	20%	50V
C47	1-126-301-11	s	ELECT	1uF	20%	50V
C61	1-102-961-00	s	CERAMIC	27pF	5%	50V
C62	1-124-589-11	s	ELECT	47uF	20%	16V

(MT-74 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description			
C63	1-126-301-11	s	ELECT	1uF	20%	50V
C64	1-130-479-00	s	MYLAR	0.0047uF	5%	50V
C65	1-124-589-11	s	ELECT	47uF	20%	16V
C66	1-126-301-11	s	ELECT	1uF	20%	50V
C67	1-126-301-11	s	ELECT	1uF	20%	50V
CN2	1-560-463-00	o	PIN,CONNECTOR 8P			
D1	8-719-101-61	s	DIODE RD6.2EL2			
D2	8-719-946-39	s	DIODE GL112F9			
D21	8-719-101-61	s	DIODE RD6.2EL2			
D22	8-719-946-39	s	DIODE GL112F9			
D41	8-719-101-61	s	DIODE RD6.2EL2			
D42	8-719-946-39	s	DIODE GL112F9			
D61	8-719-101-61	s	DIODE RD6.2EL2			
D62	8-719-946-39	s	DIODE GL112F9			
IC1	8-759-100-06	s	IC UPC4556C			
IC2	8-759-945-01	s	IC IR2E30			
IC22	8-759-945-01	s	IC IR2E30			
IC41	8-759-100-06	s	IC UPC4556C			
IC42	8-759-945-01	s	IC IR2E30			
IC62	8-759-945-01	s	IC IR2E30			
R1	1-249-429-11	s	CARBON	10K	5%	1/4W
R2	1-249-429-11	s	CARBON	10K	5%	1/4W
R3	⚠ 1-212-869-00	s	FUSIBLE	33	5%	1/4W
R4	1-249-397-11	s	CARBON	22	5%	1/4W
R5	1-249-440-11	s	CARBON	82K	5%	1/4W
R6	1-249-426-11	s	CARBON	5.6K	5%	1/4W
R7	1-249-431-11	s	CARBON	15K	5%	1/4W
R21	1-249-429-11	s	CARBON	10K	5%	1/4W
R22	1-249-429-11	s	CARBON	10K	5%	1/4W
R23	⚠ 1-212-869-00	s	FUSIBLE	33	5%	1/4W
R24	1-249-397-11	s	CARBON	22	5%	1/4W
R25	1-249-440-11	s	CARBON	82K	5%	1/4W
R26	1-249-426-11	s	CARBON	5.6K	5%	1/4W
R27	1-249-431-11	s	CARBON	15K	5%	1/4W
R41	1-249-429-11	s	CARBON	10K	5%	1/4W
R42	1-249-429-11	s	CARBON	10K	5%	1/4W
R43	⚠ 1-212-869-00	s	FUSIBLE	33	5%	1/4W
R44	1-249-397-11	s	CARBON	22	5%	1/4W
R45	1-249-440-11	s	CARBON	82K	5%	1/4W
R46	1-249-426-11	s	CARBON	5.6K	5%	1/4W
R47	1-249-431-11	s	CARBON	15K	5%	1/4W
R61	1-249-429-11	s	CARBON	10K	5%	1/4W
R62	1-249-429-11	s	CARBON	10K	5%	1/4W
R63	⚠ 1-212-869-00	s	FUSIBLE	33	5%	1/4W
R64	1-249-397-11	s	CARBON	22	5%	1/4W
R65	1-249-440-11	s	CARBON	82K	5%	1/4W
R66	1-249-426-11	s	CARBON	5.6K	5%	1/4W
R67	1-249-431-11	s	CARBON	15K	5%	1/4W
R80	1-249-416-11	s	CARBON	820	5%	1/4W
S41	1-554-667-31	s	SWITCH,SLIDE			

SW-7(M) BOARD

Ref. No. or Q'ty	Part No.	SP	Description
161	1-634-859-11	o	PRINTED CIRCUIT BOARD,SW-7
CN1	1-560-465-00	o	PIN,CONNECTOR 12P
D2	8-719-311-21	s	DIODE SEL1121R,RED
D3	8-719-311-21	s	DIODE SEL1121R,RED
D4	8-719-311-21	s	DIODE SEL1121R,RED
D5	8-719-311-21	s	DIODE SEL1121R,RED
D6	8-719-311-21	s	DIODE SEL1121R,RED
S1	1-554-937-11	s	SWITCH,PUSH
S2	1-554-937-11	s	SWITCH,PUSH
S3	1-554-937-11	s	SWITCH,PUSH
S4	1-554-937-11	s	SWITCH,PUSH
S5	1-554-481-00	s	SWITCH,SLIDE

SY-3(M) BOARD

Ref. No. or Q'ty	Part No.	SP	Description			
521	A-2019-223-A	o	MOUNTED CIRCUIT BOARD,SY-3(M)			
6pcs	⚠ 1-533-189-11	s	HOLDER,FUSE			
BZ501	1-529-069-11	s	BUZZER,PIEZOELECTRICAL			
C1	1-126-256-11	s	ELECT	4700uF	20%	35V
C2	1-126-256-11	s	ELECT	4700uF	20%	35V
C3	1-126-256-11	s	ELECT	4700uF	20%	35V
C4	1-124-360-00	s	ELECT	1000uF	20%	16V
C5	1-124-618-11	s	ELECT	2200uF	20%	35V
C6	1-124-618-11	s	ELECT	2200uF	20%	35V
C7	1-124-618-11	s	ELECT	2200uF	20%	35V
C8	1-124-477-11	s	ELECT	47uF	20%	25V
C9	1-124-477-11	s	ELECT	47uF	20%	25V
C10	1-124-477-11	s	ELECT	47uF	20%	25V
C11	1-124-477-11	s	ELECT	47uF	20%	25V
C12	1-124-477-11	s	ELECT	47uF	20%	25V
C13	1-161-057-00	s	CERAMIC	0.033uF	10%	50V
C14	1-102-962-00	s	CERAMIC	30pF	5%	50V
C15	1-102-962-00	s	CERAMIC	30pF	5%	50V
C16	1-124-477-11	s	ELECT	47uF	20%	25V
C17	1-124-477-11	s	ELECT	47uF	20%	25V
C18	1-124-477-11	s	ELECT	47uF	20%	25V
C19	1-124-477-11	s	ELECT	47uF	20%	25V
C20	1-124-477-11	s	ELECT	47uF	20%	25V
C21	1-161-057-00	s	CERAMIC	0.033uF	10%	50V
C22	1-124-618-11	s	ELECT	2200uF	20%	35V
C23	1-130-487-00	s	MYLAR	0.022uF	5%	50V
C41	1-130-495-00	s	MYLAR	0.1uF	5%	50V
C42	1-130-495-00	s	MYLAR	0.1uF	5%	50V
C51	1-124-618-11	s	ELECT	2200uF	20%	35V
C52	1-124-360-00	s	ELECT	1000uF	20%	16V
C61	1-130-495-00	s	MYLAR	0.1uF	5%	50V
C62	1-130-495-00	s	MYLAR	0.1uF	5%	50V
C101	1-130-487-00	s	MYLAR	0.022uF	5%	50V
C102	1-130-487-00	s	MYLAR	0.022uF	5%	50V
C103	1-124-360-00	s	ELECT	1000uF	20%	16V
C201	1-130-487-00	s	MYLAR	0.022uF	5%	50V
C202	1-130-487-00	s	MYLAR	0.022uF	5%	50V
C203	1-124-360-00	s	ELECT	1000uF	20%	16V

(SY-3(M) BOARD)

Ref. No. or Q'ty	Part No.	SP	Description			
C301	1-130-487-00	s	MYLAR	0.022uF	5%	50V
C302	1-130-487-00	s	MYLAR	0.022uF	5%	50V
C303	1-124-360-00	s	ELECT	1000uF	20%	16V
C401	1-130-487-00	s	MYLAR	0.022uF	5%	50V
C402	1-130-487-00	s	MYLAR	0.022uF	5%	50V
C403	1-124-360-00	s	ELECT	1000uF	20%	16V
CF1	1-567-875-11	s	VIBRATOR,CERAMIC 2.27MHz			
CN1	1-564-242-00	o	PIN,CONNECTOR 5P			
CN2	1-508-736-00	o	PIN,CONNECTOR 10P			
CN4	1-564-320-00	o	PIN,CONNECTOR(B2P-VH) 2P			
CN6	1-560-470-00	o	PIN,CONNECTOR 8P			
CN101	1-560-469-00	o	PIN,CONNECTOR 6P			
CN201	1-560-469-00	o	PIN,CONNECTOR 6P			
CN301	1-560-469-00	o	PIN,CONNECTOR 6P			
CN401	1-560-469-00	o	PIN,CONNECTOR 6P			
CN502	1-560-466-00	o	PIN,CONNECTOR 3P			
D1	8-719-505-60	s	DIODE S5VB60			
D2	8-719-505-60	s	DIODE S5VB60			
D3	8-719-200-02	s	DIODE 10E-2			
D4	8-719-200-02	s	DIODE 10E-2			
D5	8-719-911-19	s	DIODE 1SS119			
D6	8-719-911-19	s	DIODE 1SS119			
D7	8-719-200-02	s	DIODE 10E-2			
D101	8-719-200-02	s	DIODE 10E-2			
D102	8-719-911-19	s	DIODE 1SS119			
D103	8-719-911-19	s	DIODE 1SS119			
D104	8-719-911-19	s	DIODE 1SS119			
D201	8-719-200-02	s	DIODE 10E-2			
D202	8-719-911-19	s	DIODE 1SS119			
D203	8-719-911-19	s	DIODE 1SS119			
D204	8-719-911-19	s	DIODE 1SS119			
D301	8-719-200-02	s	DIODE 10E-2			
D302	8-719-911-19	s	DIODE 1SS119			
D303	8-719-911-19	s	DIODE 1SS119			
D304	8-719-911-19	s	DIODE 1SS119			
D401	8-719-200-02	s	DIODE 10E-2			
D402	8-719-911-19	s	DIODE 1SS119			
D403	8-719-911-19	s	DIODE 1SS119			
D404	8-719-911-19	s	DIODE 1SS119			
D502	8-719-911-19	s	DIODE 1SS119			
D503	8-719-911-19	s	DIODE 1SS119			
D504	8-719-911-19	s	DIODE 1SS119			
D505	8-719-911-19	s	DIODE 1SS119			
IC5	8-759-913-42	s	IC PST520C-2			
IC6	8-759-635-02	s	IC M50747SP-C42SP			
IC8	8-759-701-75	s	IC NJM7805FA			
IC101	8-759-984-03	s	IC LM339N			
IC201	8-759-984-03	s	IC LM339N			
IC301	8-759-984-03	s	IC LM339N			
IC401	8-759-984-03	s	IC LM339N			
PS1	⚠ 1-532-637-11	s	LINK,IC 1.0A			
PS2	⚠ 1-532-679-21	s	LINK,IC 0.6A			
Q1	8-729-900-80	s	TRANSISTOR DTC114ES			
Q2	8-729-199-82	s	TRANSISTOR 2SD998			
Q4	8-729-900-80	s	TRANSISTOR DTC114ES			
Q5	8-729-900-80	s	TRANSISTOR DTC114ES			
Q6	8-729-900-80	s	TRANSISTOR DTC114ES			

Ref. No. or Q'ty	Part No.	SP	Description			
Q102	8-729-140-93	s	TRANSISTOR 2SB733-34			
Q103	8-729-900-61	s	TRANSISTOR DTA114ES			
Q104	8-729-900-61	s	TRANSISTOR DTA114ES			
Q112	8-729-140-93	s	TRANSISTOR 2SB733-34			
Q113	8-729-900-61	s	TRANSISTOR DTA114ES			
Q114	8-729-140-93	s	TRANSISTOR 2SB733-34			
Q121	8-729-900-61	s	TRANSISTOR DTA114ES			
Q122	8-729-140-96	s	TRANSISTOR 2SD774-34			
Q123	8-729-821-04	s	TRANSISTOR 2SA1317-STU			
Q202	8-729-140-93	s	TRANSISTOR 2SB733-34			
Q203	8-729-900-61	s	TRANSISTOR DTA114ES			
Q204	8-729-900-61	s	TRANSISTOR DTA114ES			
Q212	8-729-140-93	s	TRANSISTOR 2SB733-34			
Q213	8-729-900-61	s	TRANSISTOR DTA114ES			
Q214	8-729-900-61	s	TRANSISTOR DTA114ES			
Q221	8-729-900-61	s	TRANSISTOR DTA114ES			
Q222	8-729-140-96	s	TRANSISTOR 2SD774-34			
Q223	8-729-821-04	s	TRANSISTOR 2SA1317-STU			
Q302	8-729-140-93	s	TRANSISTOR 2SB733-34			
Q303	8-729-900-61	s	TRANSISTOR DTA114ES			
Q304	8-729-900-61	s	TRANSISTOR DTA114ES			
Q312	8-729-140-93	s	TRANSISTOR 2SB733-34			
Q313	8-729-900-61	s	TRANSISTOR DTA114ES			
Q314	8-729-900-61	s	TRANSISTOR DTA114ES			
Q321	8-729-900-61	s	TRANSISTOR DTA114ES			
Q322	8-729-140-96	s	TRANSISTOR 2SD774-34			
Q323	8-729-821-04	s	TRANSISTOR 2SA1317-STU			
Q402	8-729-140-93	s	TRANSISTOR 2SB733-34			
Q403	8-729-900-61	s	TRANSISTOR DTA114ES			
Q404	8-729-900-61	s	TRANSISTOR DTA114ES			
Q412	8-729-140-93	s	TRANSISTOR 2SB733-34			
Q413	8-729-900-61	s	TRANSISTOR DTA114ES			
Q414	8-729-900-61	s	TRANSISTOR DTA114ES			
Q421	8-729-900-61	s	TRANSISTOR DTA114ES			
Q422	8-729-140-96	s	TRANSISTOR 2SD774-34			
Q423	8-729-821-04	s	TRANSISTOR 2SA1317-STU			
Q501	8-729-900-80	s	TRANSISTOR DTC114ES			
Q502	8-729-900-61	s	TRANSISTOR DTA114ES			
Q503	8-729-900-61	s	TRANSISTOR DTA114ES			
Q504	8-729-900-61	s	TRANSISTOR DTA114ES			
Q505	8-729-900-61	s	TRANSISTOR DTA114ES			
R1	1-249-441-11	s	CARBON	100K	5%	1/4W
R2	1-249-416-11	s	CARBON	820	5%	1/4W
R3	1-249-416-11	s	CARBON	820	5%	1/4W
R4	1-249-441-11	s	CARBON	100K	5%	1/4W
R5	1-249-429-11	s	CARBON	10K	5%	1/4W
R6	1-249-401-11	s	CARBON	47	5%	1/4W
R7	1-247-903-00	s	CARBON	1M	5%	1/4W
R8	1-249-429-11	s	CARBON	10K	5%	1/4W
R17	1-249-416-11	s	CARBON	820	5%	1/4W
R18	1-249-416-11	s	CARBON	820	5%	1/4W
R19	1-249-416-11	s	CARBON	820	5%	1/4W
R22	1-249-441-11	s	CARBON	100K	5%	1/4W
R102	1-249-417-11	s	CARBON	1K	5%	1/4W
R104	1-249-429-11	s	CARBON	10K	5%	1/4W
R105	1-249-396-11	s	CARBON	18	5%	1/4w
R112	1-249-417-11	s	CARBON	1K	5%	1/4W
R114	1-249-429-11	s	CARBON	10K	5%	1/4W
R115	1-249-416-11	s	CARBON	820	5%	1/4W

(SY-3(M) BOARD)

Ref. No. or Q'ty	Part No.	SP	Description			
R116	1-249-429-11	s	CARBON	10K	5%	1/4W
R117	1-249-401-11	s	CARBON	47	5%	1/4W
R122	1-249-425-11	s	CARBON	4.7K	5%	1/4W
R202	1-249-417-11	s	CARBON	1K	5%	1/4W
R204	1-249-429-11	s	CARBON	10K	5%	1/4W
R205	1-249-396-11	s	CARBON	18	5%	1/4w
R212	1-249-417-11	s	CARBON	1K	5%	1/4W
R214	1-249-429-11	s	CARBON	10K	5%	1/4W
R215	1-249-416-11	s	CARBON	820	5%	1/4W
R216	1-249-429-11	s	CARBON	10K	5%	1/4W
R217	1-249-401-11	s	CARBON	47	5%	1/4W
R222	1-249-425-11	s	CARBON	4.7K	5%	1/4W
R302	1-249-417-11	s	CARBON	1K	5%	1/4W
R304	1-249-429-11	s	CARBON	10K	5%	1/4W
R305	1-249-396-11	s	CARBON	18	5%	1/4w
R312	1-249-417-11	s	CARBON	1K	5%	1/4W
R314	1-249-429-11	s	CARBON	10K	5%	1/4W
R315	1-249-416-11	s	CARBON	820	5%	1/4W
R316	1-249-429-11	s	CARBON	10K	5%	1/4W
R317	1-249-401-11	s	CARBON	47	5%	1/4W
R322	1-249-425-11	s	CARBON	4.7K	5%	1/4W
R402	1-249-417-11	s	CARBON	1K	5%	1/4W
R404	1-249-429-11	s	CARBON	10K	5%	1/4W
R405	1-249-396-11	s	CARBON	18	5%	1/4w
R412	1-249-417-11	s	CARBON	1K	5%	1/4W
R414	1-249-429-11	s	CARBON	10K	5%	1/4W
R415	1-249-416-11	s	CARBON	820	5%	1/4W
R416	1-249-429-11	s	CARBON	10K	5%	1/4W
R417	1-249-401-11	s	CARBON	47	5%	1/4W
R422	1-249-425-11	s	CARBON	4.7K	5%	1/4W
R501	1-249-249-11	s	CARBON	10K	5%	1/4W
R502	1-249-413-11	s	CARBON	470	5%	1/4W
R503	1-249-413-11	s	CARBON	470	5%	1/4w
R504	1-249-413-11	s	CARBON	470	5%	1/4W
R505	1-249-413-11	s	CARBON	470	5%	1/4W
R506	1-249-416-11	s	CARBON	820	5%	1/4W
R507	1-249-416-11	s	CARBON	820	5%	1/4W
R508	1-249-249-11	s	CARBON	10K	5%	1/4W
R509	1-249-416-11	s	CARBON	820	5%	1/4W
R510	1-249-416-11	s	CARBON	820	5%	1/4W
RB1	1-235-195-00	s	RES BLOCK	10Kx8		
RB2	1-235-195-00	s	RES BLOCK	10Kx8		
RB3	1-231-533-00	s	RESISTOR BLOCK	10Kx4		

VR-148 BOARD

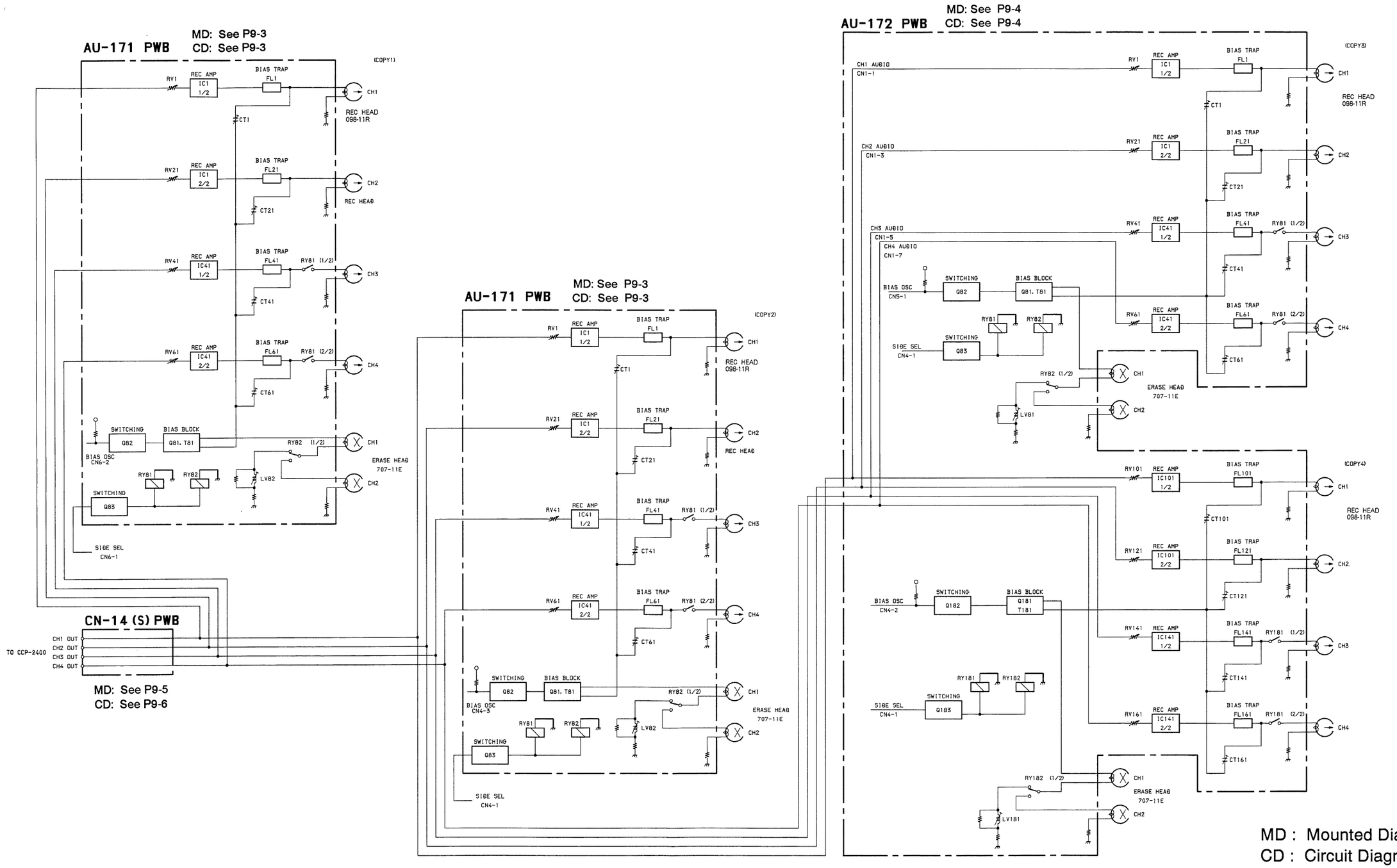
Ref. No. or Q'ty	Part No.	SP	Description
181	1-643-619-11	o	PRINTED CIRCUIT BOARD,VR-148
RV1	1-241-059-11	s	RES,VAR,CARBON 10K

FRAME

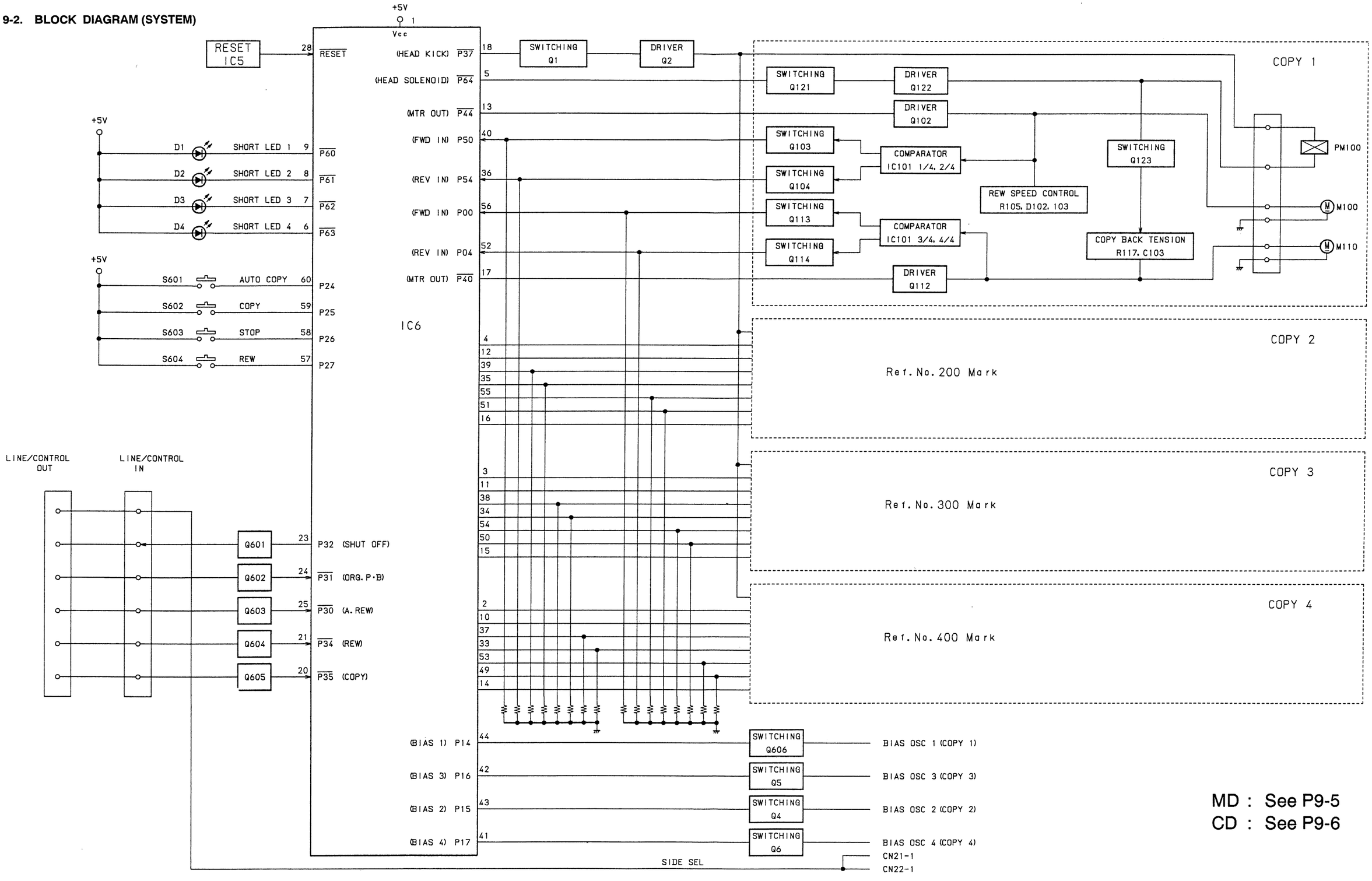
Ref. No. or Q'ty	Part No.	SP	Description
102	1-541-747-**12**	s	MOTOR,CAPSTAN
103	1-500-097-11	s	HEAD,MAGNETIC(PLAYBACK) 097-11P
104	1-500-098-11	s	HEAD,MAGNETIC(RECORD) 098-11R
105	1-543-707-11	s	ERASE HEAD 707-11E
F1	⚠1-532-745-11	s	FUSE,GLASS TUBE 3.15A 125V (FOR J,U MODEL ONLY)
	⚠1-532-237-00	s	FUSE,TIME-LAG(BET) 3.15A 250V (FOR EK MODEL ONLY)
F2	⚠1-532-744-11	s	FUSE,GLASS TUBE 2.5A 125V (FOR J,U MODEL ONLY)
	⚠1-532-286-00	s	FUSE,TIME-LAG(BET) 2.5A 250V (FOR EK MODEL ONLY)
F3	⚠1-532-744-11	s	FUSE,GLASS TUBE 2.5A 125V (FOR J,U MODEL ONLY)
	⚠1-532-286-00	s	FUSE,TIME-LAG(BET) 2.5A 250V (FOR EK MODEL ONLY)
M100	1-541-163-51	s	MOTOR 163-51(RF-510T)
M200	1-541-163-51	s	MOTOR 163-51(RF-510T)
M300	1-541-163-51	s	MOTOR 163-51(RF-510T)
M400	1-541-163-51	s	MOTOR 163-51(RF-510T)
M110	1-541-766-12	s	MOTOR,DC 766-12(EN22-R12NIB)
M210	1-541-766-12	s	MOTOR,DC 766-12(EN22-R12NIB)
M310	1-541-766-12	s	MOTOR,DC 766-12(EN22-R12NIB)
M410	1-541-766-12	s	MOTOR,DC 766-12(EN22-R12NIB)
PM100	1-454-495-11	s	SOLENOID,PLUNGER
PM200	1-454-495-11	s	SOLENOID,PLUNGER
PM300	1-454-495-11	s	SOLENOID,PLUNGER
PM400	1-454-495-11	s	SOLENOID,PLUNGER
S1	⚠1-570-744-21	s	SWITCH,AC POWER
T1	⚠1-449-928-11	s	TRANSFORMER,POWER (FOR J,U MODEL ONLY)
	⚠1-450-145-11	s	TRANSFORMER,POWER (FOR EK MODEL ONLY)
	1-751-808-11	o	CABLE, CONNECTION 12P(FOR PLAYBACK HEAD)
	1-690-979-11	o	CABLE, CONNECTION 12P(FOR RECORD HEAD)

Section 9
CCP-2410F Diagrams

9-1. BLOCK DIAGRAM (AUDIO)

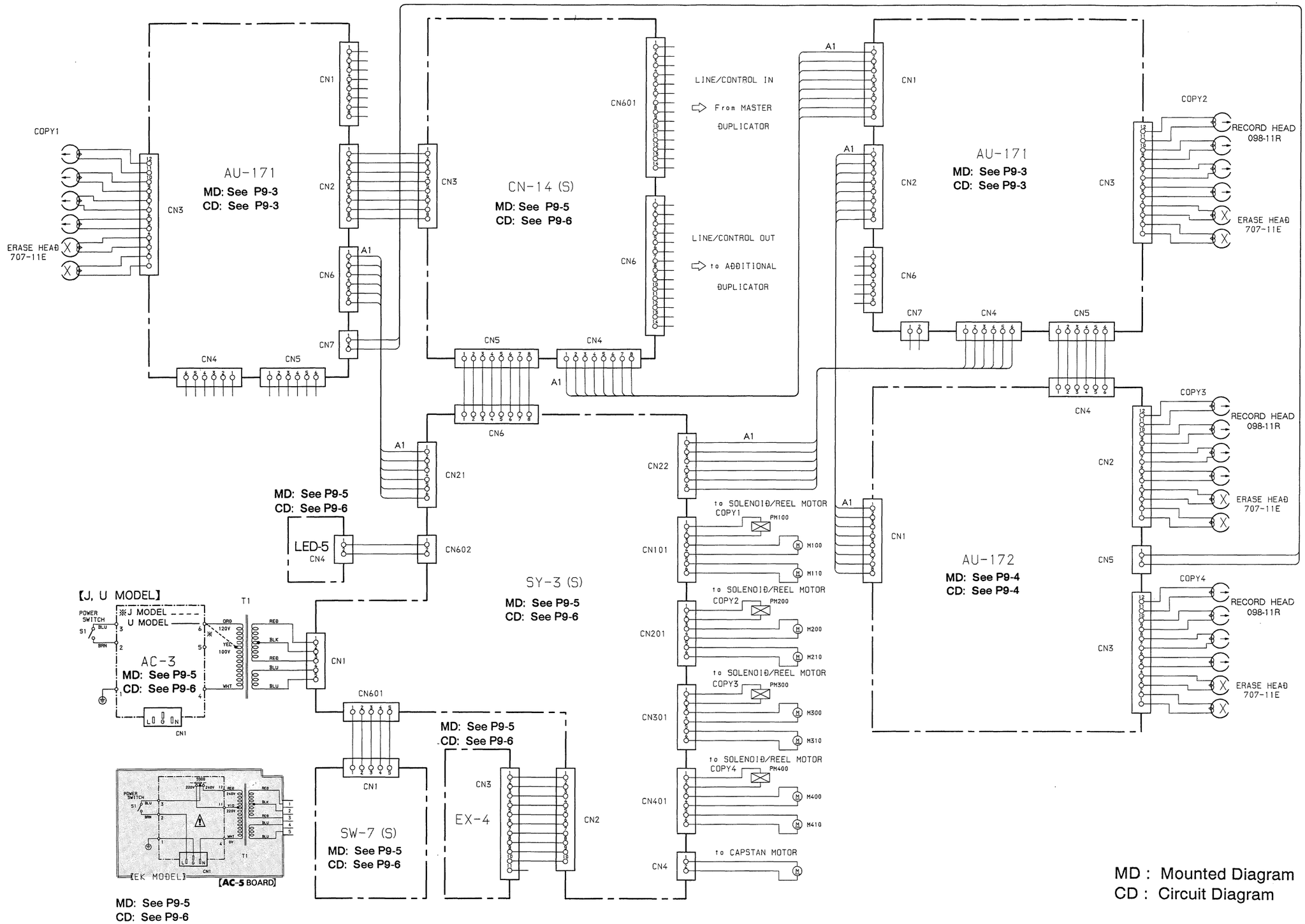


9-2. BLOCK DIAGRAM (SYSTEM)

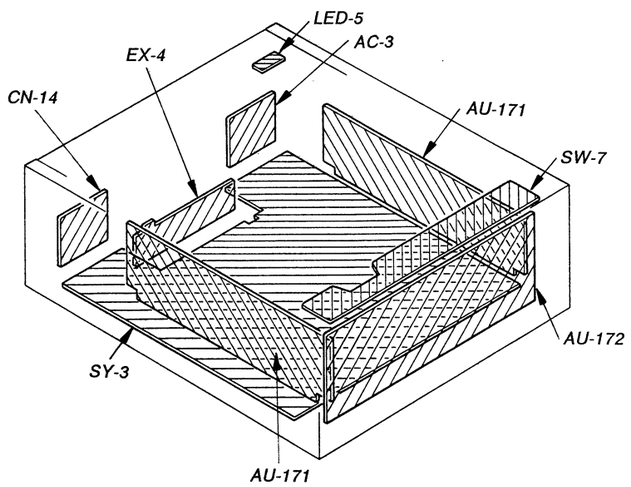


MD : See P9-5
CD : See P9-6

9-3. FRAME WIRING



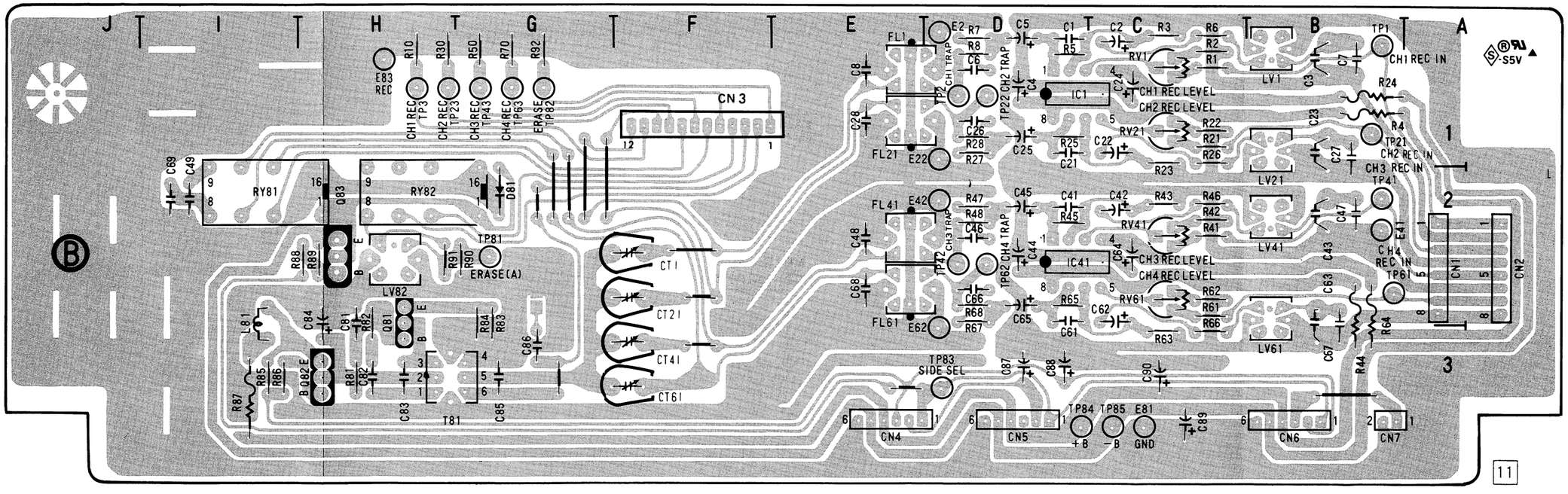
9-4. LOCATION OF THE PRINTED WIRING BOARD



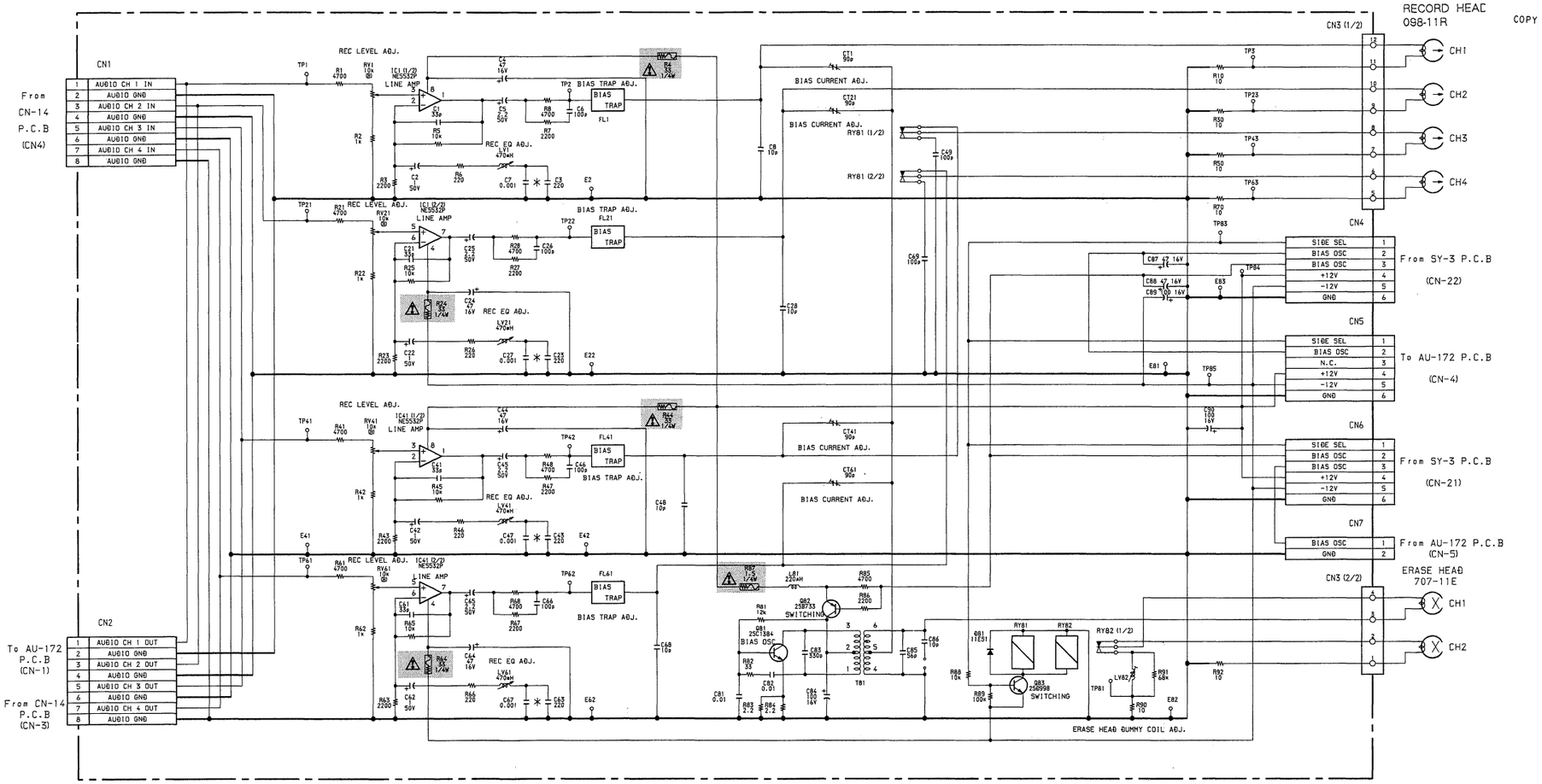
9-5. AU-171 BOARD – *Soldering Side* –

AU-171

CN1	A-2	E2	D-1	LV61	B-3	RV21	C-1	TP62	D-2
CN2	A-2	E22	E-1	LV82	H-2	RV41	C-2	TP63	G-1
CN3	F-1	E41	B-2			RV61	C-2	TP81	G-2
CN4	E-3	E42	E-2	Q81	H-3			TP82	G-1
CN5	D-3	E62	E-3	Q82	H-3	TP1	B-1	TP83	D-3
CN6	B-3	E81	C-3	Q83	H-2	TP2	D-1	TP84	C-3
CN7	B-3	E83	H-1			TP3	H-1	TP85	C-3
				R4	B-1	TP21	B-1		
CT1	F-2	IC1	D-1	R24	B-1	TP22	D-1	FL1	E-1
CT21	F-2	IC41	D-2	R44	B-3	TP23	H-1	FL21	E-1
CT41	F-3			R64	B-3	TP41	B-2	FL41	E-2
CT61	F-3	LV1	B-1	R87	I-3	TP42	D-2	FL61	E-2
		LV21	B-1			TP43	G-1		
D81	G-2	LV41	B-2	RV1	C-1	TP61	B-2		



AU-171 BOARD
BOARD No. 1-643-616-11



注意

- ケミコン，タンタルを除くコンデンサで，耐圧50V以下のものは，その耐圧を省略。単位はすべてμF（pはpF）。
- 抵抗で指示のないものは¼W。単位はすべてΩ。
- ⏦はヒューズ抵抗。
- ＊印部品は可変の調整部品です。

⚠および▒印の部品は，安全性を維持するために，重要な部品です。従って交換時は，必ず指定の部品を使用してください。

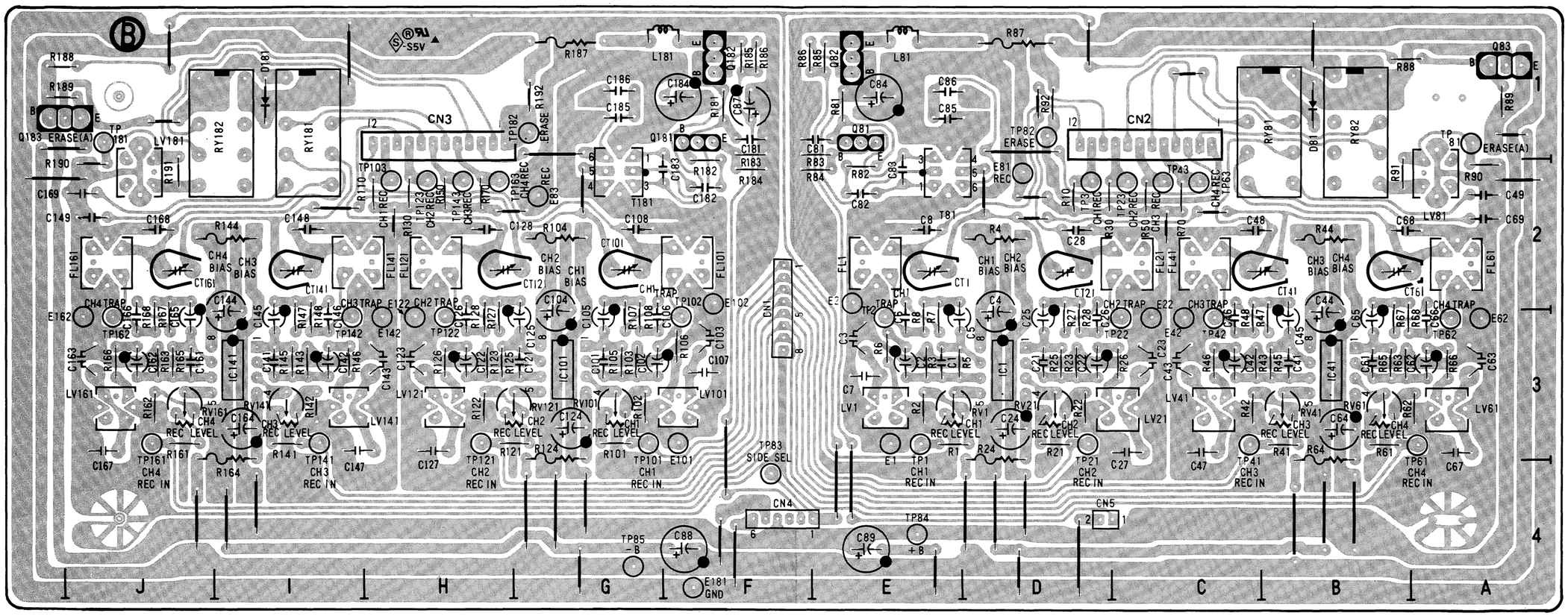
AU-171 BOARD
BOARD No. 1-643-616-11

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- ⏦ : fusible resistor.
- "＊" mark parts are adjustment parts they have varied value.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

9-6. AU-172 BOARD – *Soldering Side* –

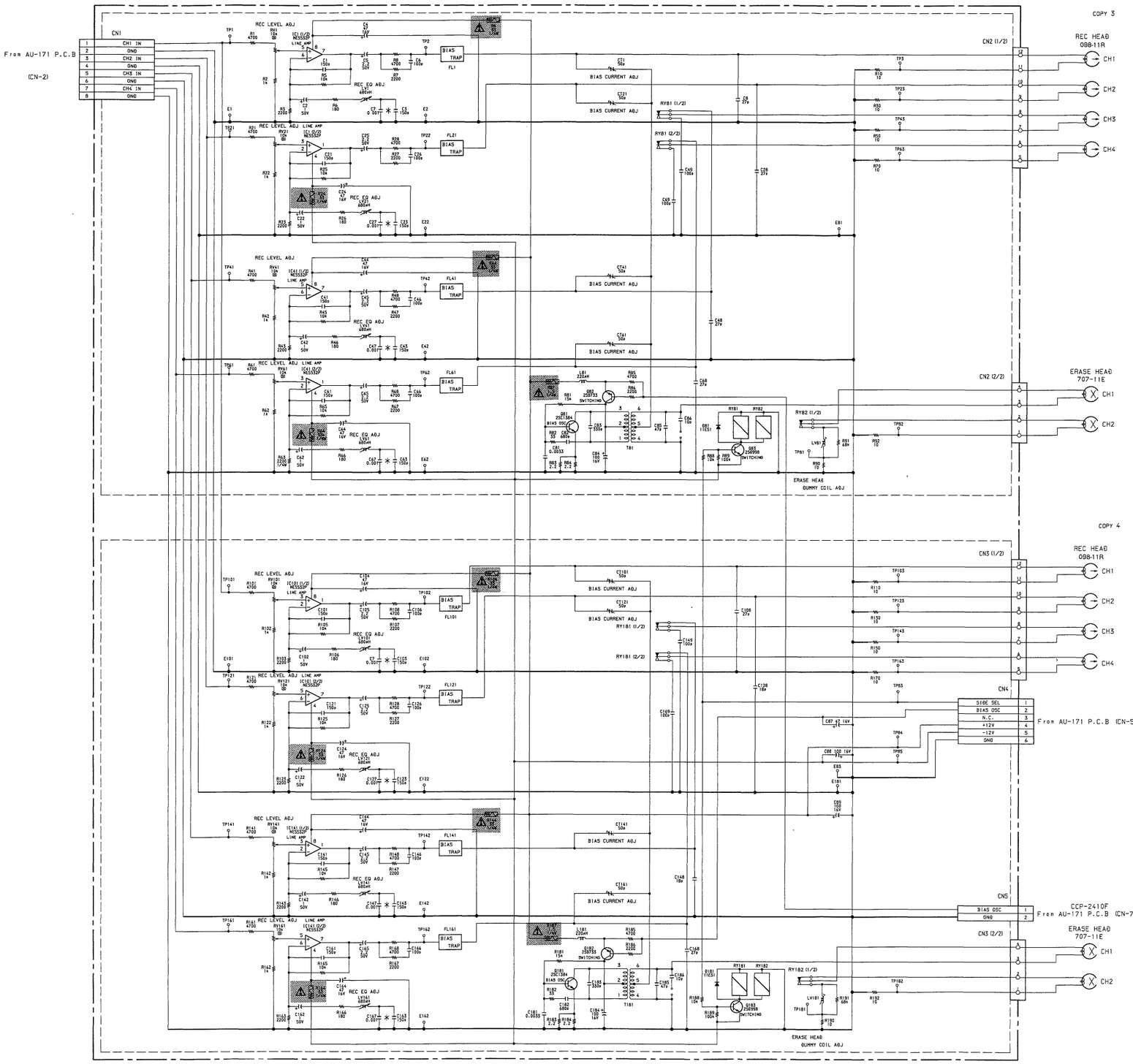


11

AU-172 BOARD
BOARD No. 1-643-617-11

AU-172

CN1	F-3	E81	D-2	LV1	E-3	R104	G-2	TP43	C-2
CN2	C-1	E83	G-2	LV21	C-3	R124	G-3	TP61	A-3
CN3	H-1	E101	F-3	LV41	C-3	R144	I-2	TP62	A-3
CN4	F-4	E102	F-3	LV61	A-3	R164	I-4	TP63	C-2
CN5	D-4	E122	H-3	LV81	A-2	R187	G-1	TP81	A-1
		E142	H-3	LV101	F-3			TP82	D-1
CT1	E-2	E162	J-3	LV121	H-3	RV1	D-3	TP83	F-4
CT21	D-2	E181	F-4	LV141	H-3	RV21	D-3	TP84	E-4
CT41	B-2			LV161	J-3	RV41	B-3	TP85	G-4
CT61	B-2	FL1	E-2	LV181	J-1	RV61	B-3	TP101	G-3
CT101	G-2	FL21	C-2			RV101	G-3	TP102	F-3
CT121	G-2	FL41	C-2	Q81	E-1	RV121	G-3	TP103	H-2
CT141	I-2	FL61	A-2	Q82	E-1	RV141	I-3	TP121	H-3
CT161	J-2	FL101	F-2	Q83	A-1	RV161	J-3	TP122	H-3
		FL121	H-2	Q181	F-1			TP123	H-2
D81	B-1	FL141	H-2	Q182	F-1	TP1	E-3	TP141	I-3
D181	I-1	FL161	J-2	Q183	J-1	TP2	E-3	TP142	I-3
						TP3	D-2	TP143	H-2
E1	E-3	IC1	D-3	R4	D-2	TP21	D-3	TP161	J-3
E2	E-2	IC41	B-3	R24	D-3	TP22	C-3	TP162	J-3
E22	C-3	IC101	G-3	R44	B-2	TP23	C-2	TP163	H-2
E42	C-3	IC141	I-3	R64	B-3	TP41	C-3	TP181	J-1
E62	A-3			R87	D-1	TP42	C-3	TP182	G-1



AU-172 BOARD
BOARD No. 1-643-617-11

注意

- ケミコン，タンタルを除くコンデンサで，耐圧50V以下のものは，その耐圧を省略。単位はすべてμF（pはpF）。
- 抵抗で指示のないものは¼W。単位はすべてΩ。
- ⏦はヒューズ抵抗。
- ＊印部品は可変の調整部品です。

⚠および▒印の部品は，安全性を維持するために，重要な部品です。従って交換時は，必ず指定の部品を使用してください。

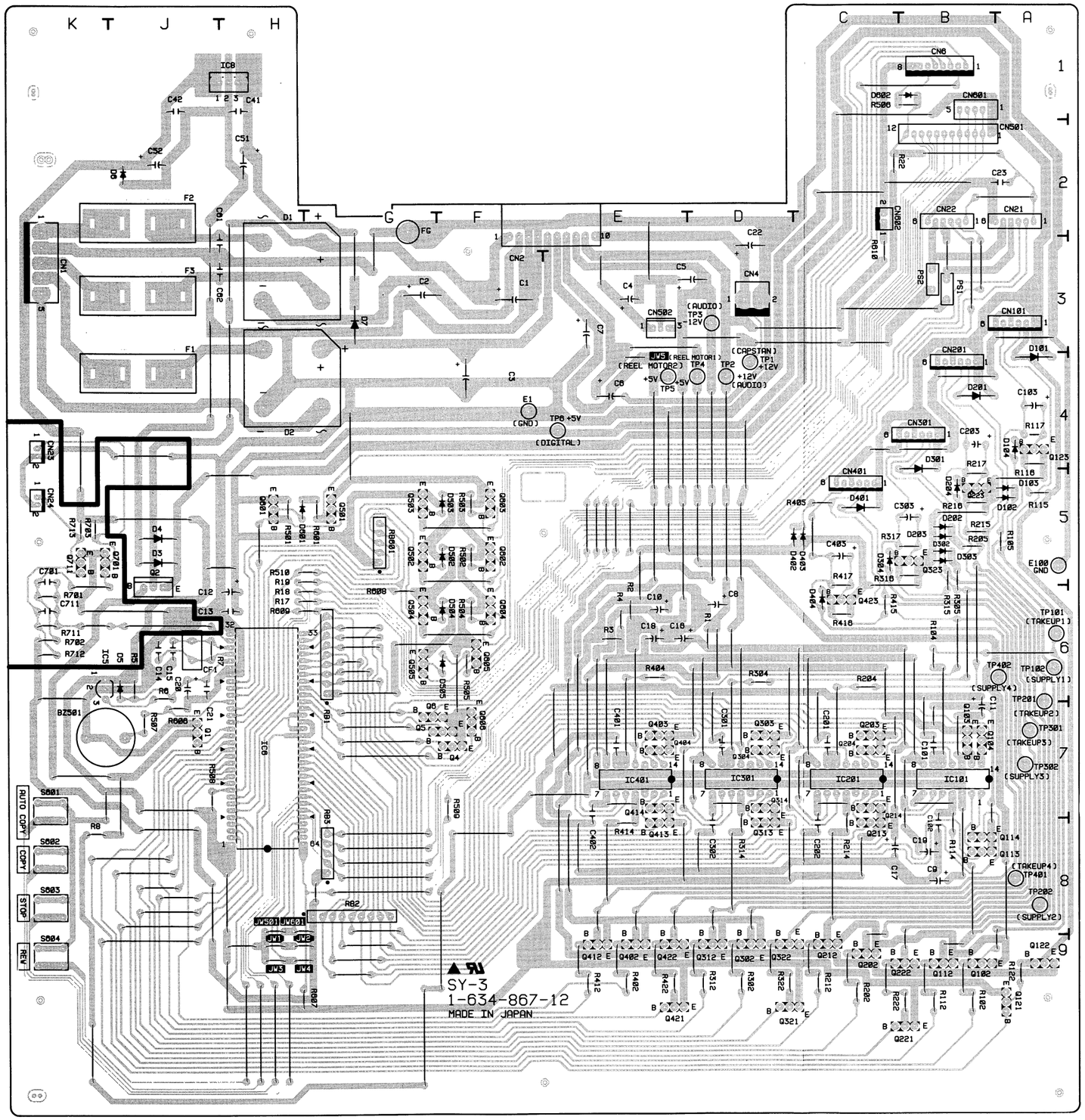
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- ⏦ : fusible resistor.
- "＊" mark parts are adjustment parts they have varied value.

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

9-7. SY-3 (S), EX-4, CN-14 (S), AC-3, AC-5 SW-7 (S), LED-5 BOARDS – *Soldering Side* -

SY-3 (S) BOARD



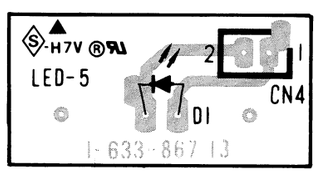
SY-3(S)

CN1	K-3	IC8	H-1	Q422	E-9
CN2	F-2	IC101	B-7	Q423	C-6
CN4	D-3	IC201	C-7	Q601	H-5
CN6	B-1	IC301	D-7	Q602	F-5
CN21	A-2	IC401	E-7	Q603	F-5
CN22	B-2			Q604	F-6
CN101	A-3	PS1	B-3	Q605	F-6
CN201	B-4	PS2	B-3	Q606	F-7
CN301	B-4				
CN401	C-5	Q1	J-7	S601	K-7
CN601	B-1	Q2	J-6	S602	K-8
CN602	C-2	Q4	F-7	S603	K-8
		Q5	F-7	S604	K-9
D1	H-3	Q6	F-7		
D2	H-4	Q102	B-9	TP1	D-4
D3	J-5	Q103	B-7	TP2	D-4
D4	J-5	Q104	A-7	TP3	D-3
D5	J-6	Q112	B-9	TP4	D-4
D6	J-2	Q113	B-8	TP5	E-4
D7	G-3	Q114	B-8	TP6	E-4
D101	A-4	Q121	A-9	TP101	A-6
D102	A-5	Q122	A-9	TP102	A-6
D103	A-5	Q123	A-4	TP201	A-6
D104	A-4	Q202	C-9	TP202	A-8
D201	B-4	Q203	C-7	TP301	A-7
D202	B-5	Q204	C-7	TP302	A-7
D203	B-5	Q212	C-9	TP401	A-8
D204	B-5	Q213	C-8	TP402	A-6
D301	B-4	Q214	C-7		
D302	B-5	Q221	B-9		
D303	B-5	Q222	C-9		
D304	C-5	Q223	B-5		
D401	C-5	Q302	D-9		
D402	D-5	Q303	D-7		
D403	C-5	Q304	D-7		
D404	C-6	Q312	D-9		
D601	H-5	Q313	D-8		
D602	B-1	Q314	D-7		
		Q321	D-9		
E1	F-4	Q322	D-9		
E100	A-5	Q323	B-5		
		Q402	E-9		
F1	J-4	Q403	E-7		
F2	J-2	Q404	E-7		
F3	J-3	Q412	E-9		
		Q413	E-8		
IC5	K-6	Q414	E-7		
IC6	H-7	Q421	E-9		

12

SY-3 (S) BOARD
BOARD No. 1-634-867-12

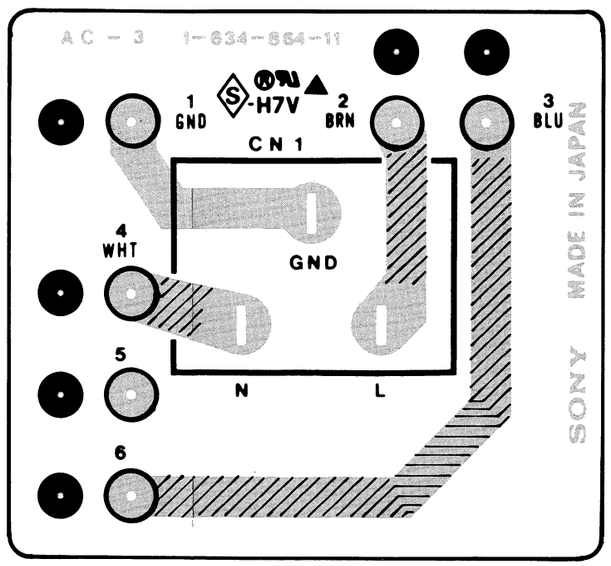
LED-5 BOARD



13

LED-5 BOARD
BOARD No. 1-633-867-13

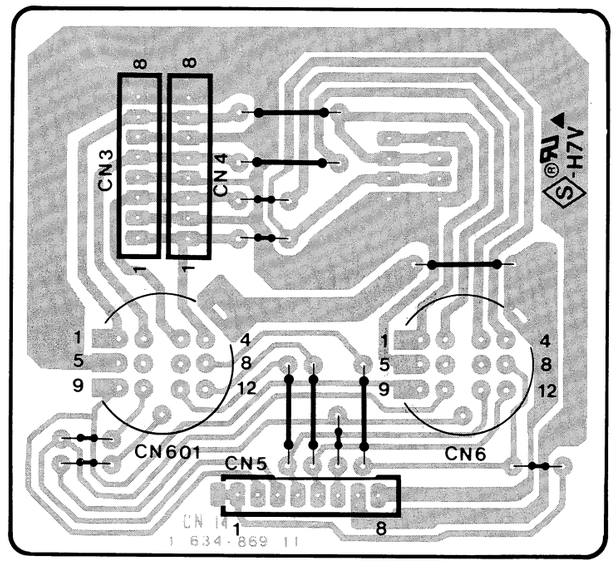
AC-3 BOARD



11

AC-3 BOARD
BOARD No. 1-634-864-11

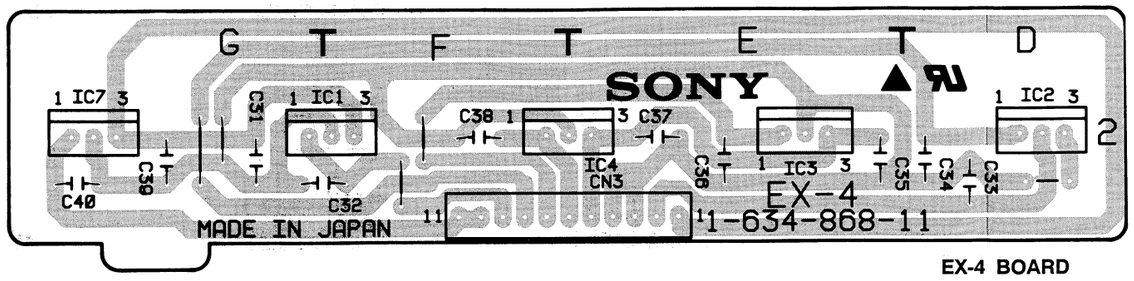
CN-14 (S) BOARD



11

CN-14 (S) BOARD
BOARD No. 1-634-869-11

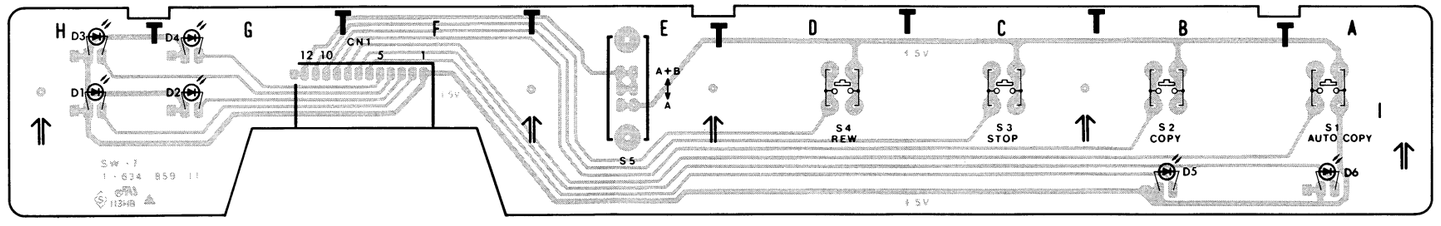
EX-4 BOARD



11

EX-4 BOARD
BOARD No. 1-634-868-11

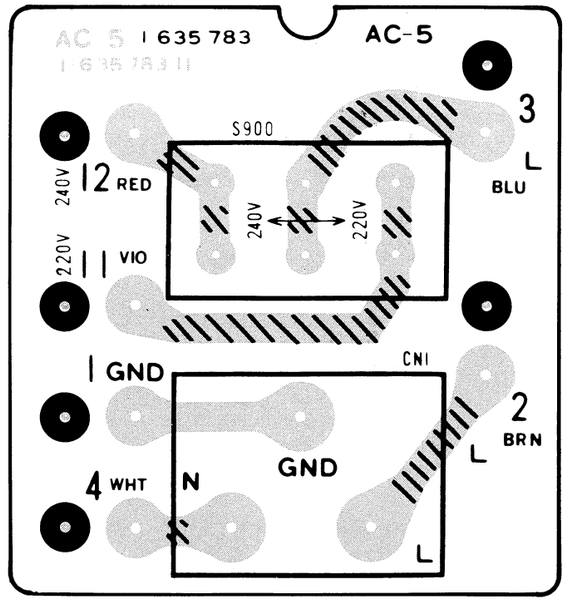
SW-7 (S) BOARD



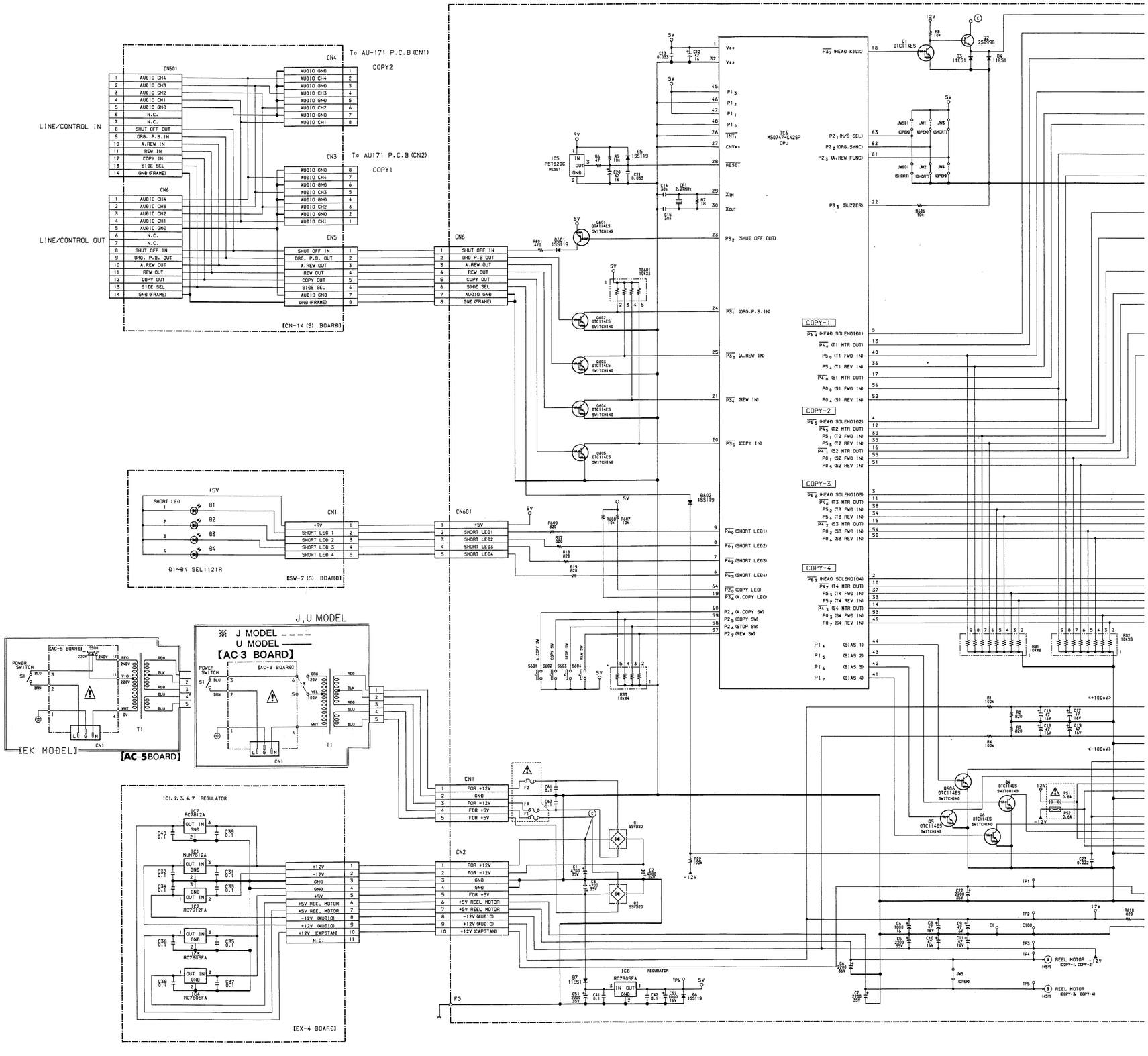
11

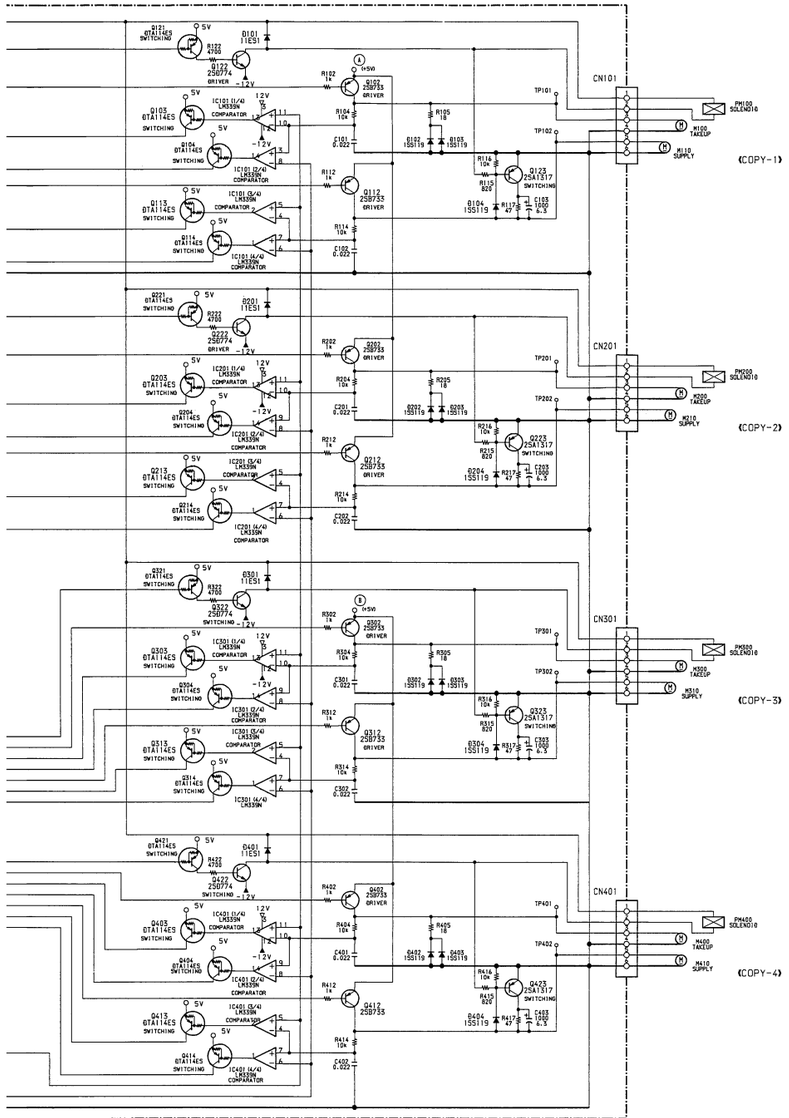
SW-7 (S) BOARD
BOARD No. 1-634-859-11

AC-5 BOARD (EK MODEL)



AC-5 BOARD
BOARD No. 1-635-783-11


CN4
To AU-171 P.C.B (CN1)
COPY2
CN3
To AU171 P.C.B (CN2)
COPY1
CN5
CN6
LINE/CONTROL IN
LINE/CONTROL OUT
【CN-14 (S) BOARD】
CN601
AUDIO GND
AUDIO CH4
AUDIO CH3
AUDIO CH2
AUDIO CH1
N.C.
SHUT OFF OUT
ORG. P.B.IN
A.REW IN
REW IN
COPY IN
S16E SEL
GND (FRAME)
SHUT OFF IN
ORG. P.B. OUT
A.REW OUT
REW OUT
COPY OUT
S16E SEL
AUDIO GND
GND (FRAME)
IC6
M50747-560SP
CPU
RESET
IC5
PST520C
RESET
X IN
X OUT
INT1
CNVss
Vcc
Vss
P3 7 (HEAD KICK)
P2 1 (M/S SEL)
P2 2 (ORG.SYNC)
P2 3 (A.REW FUNC)
P3 3 (BUZZER)
P3 2 (SHUT OFF OUT)
P3 1 (ORG.P.B.IN)
P3 0 (A.REW IN)
P3 4 (REW IN)
P3 5 (COPY IN)
P6 0 (SHORT LED1)
P6 1 (SHORT LED2)
P6 2 (SHORT LED3)
P6 3 (SHORT LED4)
P2 6 (COPY LED)
P3 6 (A.COPY LED)
P2 4 (A.COPY SW)
P2 5 (COPY SW)
P2 6 (STOP SW)
P2 7 (REW SW)
P1 4 (BIAS 1)
P1 5 (BIAS 2)
P1 6 (BIAS 3)
P1 7 (BIAS 4)
COPY-1
COPY-2
COPY-3
COPY-4
P6 4 (HEAD SOLENOID1)
P4 4 (T1 MTR OUT)
P5 0 (T1 FWD IN)
P5 4 (T1 REV IN)
P4 6 (S1 MTR OUT)
P0 0 (S1 FWD IN)
P0 4 (S1 REV IN)
P6 5 (HEAD SOLENOID2)
P4 5 (T2 MTR OUT)
P5 1 (T2 FWD IN)
P5 5 (T2 REV IN)
P4 1 (S2 MTR OUT)
P0 1 (S2 FWD IN)
P0 5 (S2 REV IN)
P6 6 (HEAD SOLENOID3)
P4 3 (T3 MTR OUT)
P5 2 (T3 FWD IN)
P5 6 (T3 REV IN)
P4 2 (S3 MTR OUT)
P0 2 (S3 FWD IN)
P0 6 (S3 REV IN)
P6 7 (HEAD SOLENOID4)
P4 7 (T4 MTR OUT)
P5 3 (T4 FWD IN)
P5 7 (T4 REV IN)
P4 3 (S4 MTR OUT)
P0 3 (S4 FWD IN)
P0 7 (S4 REV IN)
REEL MOTOR (COPY-1, COPY-2)
REEL MOTOR (COPY-3, COPY-4)
【SW-7 (S) BOARD】
SHORT LED
B1~B4 SEL1121R
【EX-4 BOARD】
IC1, 2, 3, 4, 7 REGULATOR
IC8 RC7805FA REGULATOR
J, U MODEL
※ J MODEL - - - -
U MODEL ——
【AC-3 BOARD】
【AC-5 BOARD】
【EK MODEL】
POWER SWITCH
T1
CN1
FG
-12V
+12V
+5V



AC-3 BOARD
BOARD No. 1-634-864-11

AC-5 BOARD
BOARD No. 1-635-783-11

CN-14 (S) BOARD
BOARD No. 1-634-869-11

EX-4 BOARD
BOARD No. 1-634-868-11

LED-5 BOARD
BOARD No. 1-633-867-13

SY-3 (S) BOARD
BOARD No. 1-634-864-11

注意

- ケミコン，タンタルを除くコンデンサで，耐圧50V以下のものは，その耐圧を省略。単位はすべてμF（pはpF）。
- 抵抗で指示のないものは¼W。単位はすべてΩ。
- ⊣W⊢はヒューズ抵抗。

⚠および▒▒印の部品は，安全性を維持するために，重要な部品です。従って交換時は，必ず指定の部品を使用してください。

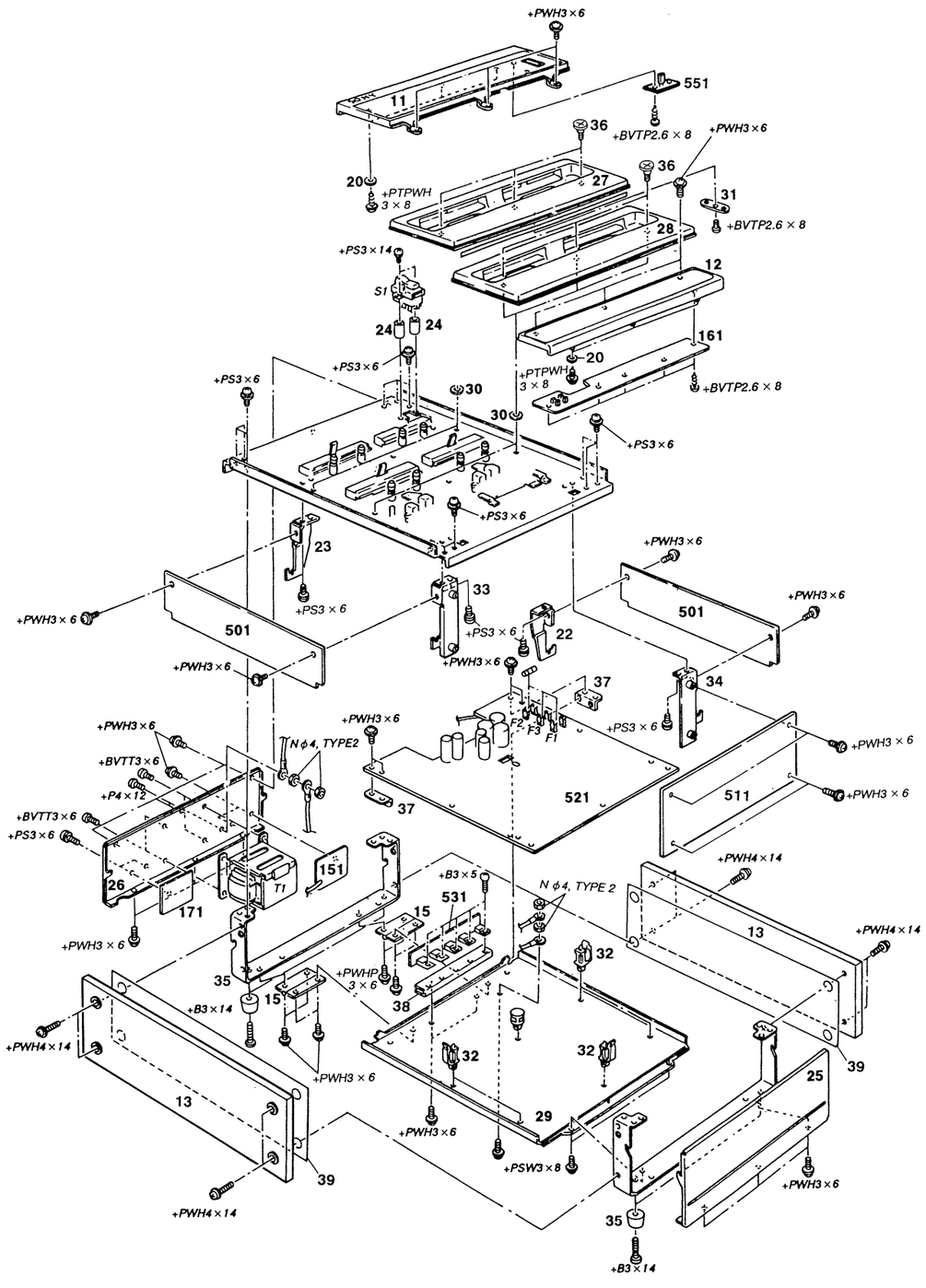
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- ⊣W⊢ : fusible resistor.

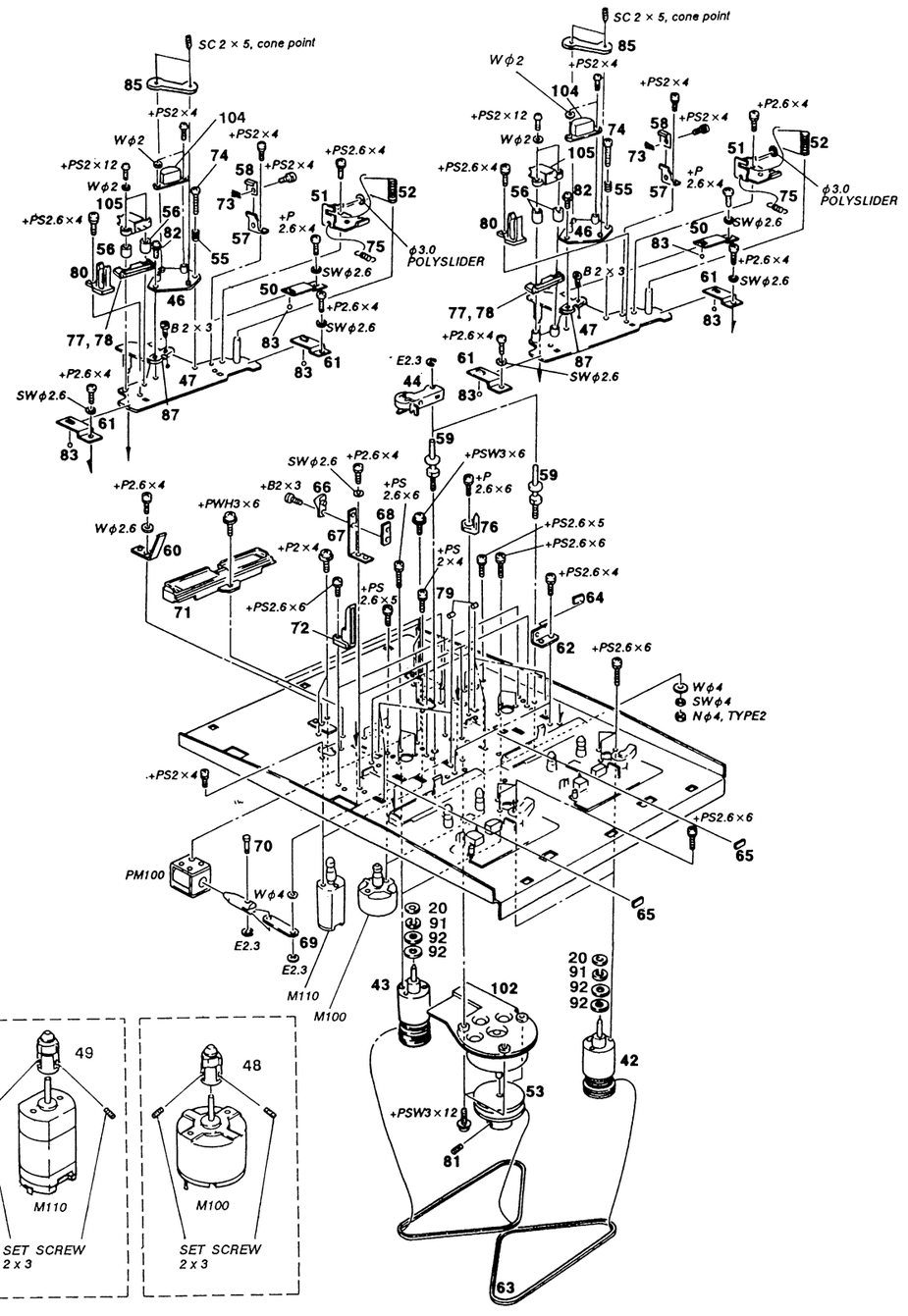
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Section 10
Exploded Views

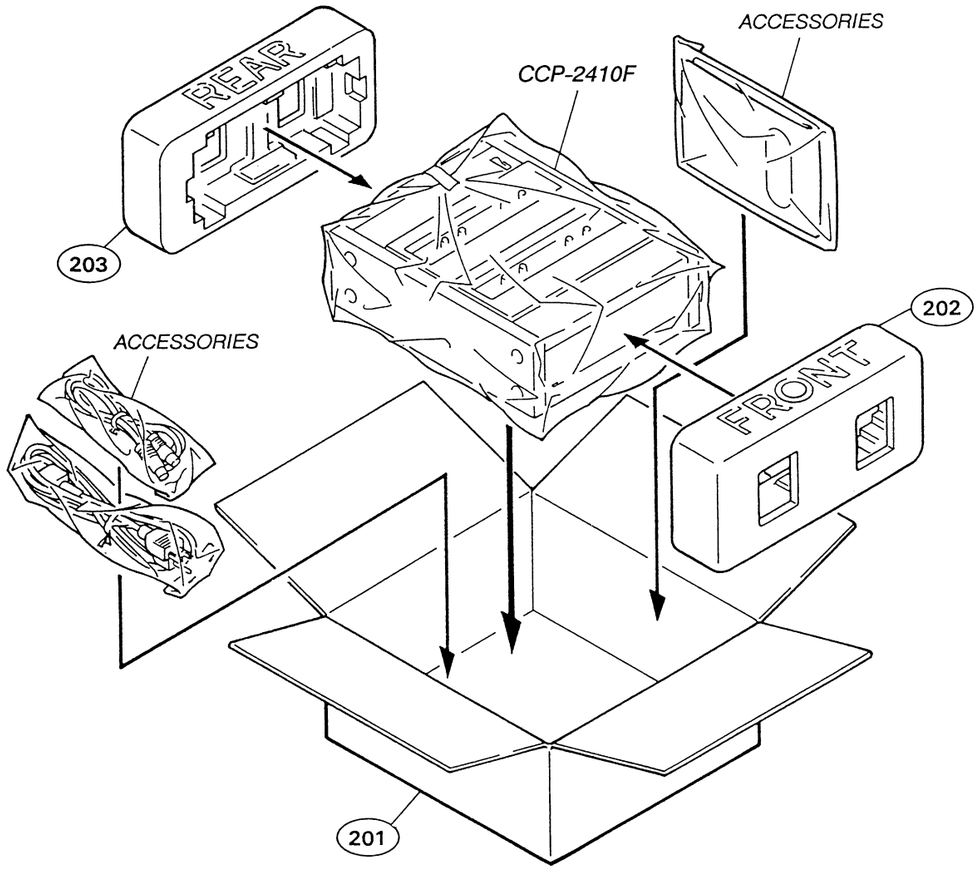
1)



2)



3)



(1)

Ref. No. or Q'ty	Part No.	SP	Description
11	X-3167-339-1	o	PANEL ASSY,METER
12	X-3167-340-1	o	PANEL ASSY,SWITCH
13	X-3162-347-2	o	PANEL ASSY,SIDE
15	3-151-905-12	o	HINGE,DOOR
20	3-162-415-01	s	WASHER,THRUST
22	3-164-239-01	o	BRACKET(RIGHT),PC BOARD
23	3-164-240-01	o	BRACKET(LEFT),PC BOARD
24	3-164-242-01	o	SPACER,SWITCH
25	3-164-261-11	o	PANEL,FRONT
26	3-164-262-12	o	PANEL,REAR
27	3-164-265-61	o	PANEL,CASSETTE
28	3-164-265-71	o	PANEL,CASSETTE
29	3-164-266-01	o	PLATE,BOTTOM
30	3-564-027-01	o	FELT,LIMITER
31	3-668-743-00	o	NUT,PLATE,ROLLER,PRECEDING
32	3-682-047-01	o	HOLDER(A),PC BOARD
33	3-176-199-01	o	BRACKET(LEFT),PC BOARD
34	3-176-200-01	o	BRACKET(RIGHT),PC BOARD
35	3-164-260-01	s	FOOT,RUBBER
36	3-694-825-11	s	SCREW(M3)(STEP),SPECIAL HEAD
37	3-164-251-01	o	SUPORT,PC BOARD
38	3-164-252-01	o	HEAT SINK
39	3-170-051-01	o	PLATE,SHIELD

(2)

Ref. No. or Q'ty	Part No.	SP	Description
20	3-162-415-01	s	WASHER,THRUST
42	A-2109-009-A	o	CAPSTAN(B) ASSY(COPY3)
	A-2109-011-A	o	CAPSTAN(C) ASSY(COPY4)
43	A-2109-011-A	o	CAPSTAN(C) ASSY(COPY1)
	A-2109-009-A	o	CAPSTAN(B) ASSY(COPY2)
44	X-3162-306-1	s	PINCH ROLLER ASSY
46	X-3162-343-1	o	PLATE ASSY,ADJUSTMENT,HEAD
47	X-3162-344-2	o	CHASSIS(R) ASSY,HEAD(COPY1-4)
48	X-3162-348-1	o	TABLE(RIGHT) ASSY,REEL
49	X-3162-349-1	o	TABLE(LEFT) ASSY,REEL
50	3-162-312-01	o	SPRING
51	3-162-345-02	o	HOOK,SPRING
52	3-162-399-01	s	SPRING
53	3-164-221-01	s	PULLEY,MOTOR
55	3-164-232-01	s	SPRING,COMPRESSION
56	3-164-233-01	o	SPACER,ERASE HEAD
57	3-164-234-02	o	BRACKET,BRUSH
58	3-164-235-01	o	RETAINER,BRUSH
59	3-164-236-01	o	SHAFT,PINCH ROLLER
60	3-164-237-01	o	SPRING,CASSETTE RETAINER
61	3-164-238-01	o	RETAINER(B),HEAD CHASSIS
62	3-164-241-01	o	BRACKET,BRUSH
63	3-164-243-01	s	BELT,CAPSTAN
64	3-164-244-01	s	STOPPER,HEAD CHASSIS
65	3-164-245-01	s	CUSHION,CHASSIS
66	3-164-246-01	o	RETAINER,CASSETTE
67	3-164-247-01	s	SPRING,CASSETTE RETAINER
68	3-164-248-01	o	RETAINER,CASSETTE
69	3-164-249-01	o	PLATE SOLENOID
70	3-164-250-01	o	SHAFT,JOINT
71	3-164-259-01	o	CASSETTE,RETAINER
72	3-164-271-01	s	GUIDE,CASSETTE
73	3-164-272-02	s	BRUSH,ELECTROSTATIC PREVENTION
74	3-418-191-00	s	SCREW
75	3-165-191-01	s	SPRING,TENSION
76	3-491-131-00	s	PIN,CASSETTE GUIDE
77	3-166-369-01	s	SPACER,HEAD
78	3-166-369-11	s	SPACER,HEAD
79	3-558-448-00	s	ROLLER,HEAD CHASSIS
80	3-576-837-00	s	CLAMP,LEAD
81	3-701-509-00	s	SET SCREW,DOUBLE CUP 3x8
82	7-621-770-67	s	SCREW(M2.6x6),(+)SPECIAL HEAD
83	7-671-112-01	o	STEEL,BALL
85	3-165-188-01	s	SPACER(1),ADJUSTMENT PLATE
87	3-165-189-02	s	SPACER(2),ADJUSTMENT PLATE
91	3-162-416-01	o	RING(SHAFT),RETAINING C
92	3-701-439-21	s	WASHER

(3)

PACKING MATERIALS

Ref. No. or Q'ty	Part No.	SP	Description
201	3-176-137-31	o	INDIVIDUAL CARTON
202	3-164-215-01	o	CUSHION(FRONT)
203	3-164-216-01	o	CUSHION(REAR)

SUPPLIED ACCESSORIES

Ref. No. or Q'ty	Part No.	SP	Description
1set	X-3701-105-0	s	ROD ASSY,CLEANING,HEAD
1pc	⚠ 1-534-754-00	s	POWER CORD(FOR J MODEL ONLY)
1pc	⚠ 1-551-812-11	s	POWER CORD(FOR U MODEL ONLY)
1set	⚠ 1-590-910-11	s	POWER CORD,SET(FOR EK MODEL ONLY)
1pc	1-558-196-11	s	CORD,CONNECTION 13P
1pc	3-164-273-01	s	COVER,DUST
1pc	3-758-025-01	s	MANUAL,INSTRUCTION(LARGE) (FOR J MODEL ONLY)
1pc	3-758-025-11	s	MANUAL,INSTRUCTION(LARGE) (FOR U MODEL ONLY)
1pc	3-758-025-21	s	MANUAL,INSTRUCTION(LARGE) (FOR EK MODEL ONLY)

Section 11
Electrical Parts List

PARTS INFORMATION

(1) Safety Related Components Warning
Components marked with ⚠ on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony parts whose part numbers appear in this manual or in service bulletins and service manual supplements published by Sony.

(2) Standardization of Parts
Repair parts supplied from Sony Parts Center may not be always identical with the parts witch actually in use due to "accommodating the improved parts and /or engineering changes" or "standardization of genuine parts".
This manual's exploded views and electrical spare parts list are indicating the part numbers of "the standardized genuine parts at present".

(3) Stock of Parts
Parts marked with "o" SP (Supply Code) column of the spare parts list are not normally required for routine service work. Orders for parts marked with "o" will be processed, but allow for additional delivery time.

(4) Units for Capacitors and Resistors
The following units may be assumed in schematic diagrams, electrical parts list and exploded views unless otherwise specified.
Capacitors : μF
Resistors : Ω

補修用部品注意事項

(1) 安全重要部品
回路図, 分解図, 電気部品表中で⚠印付きの部品は, 安全性を維持するために重要な部品である。従ってこれらの部品を交換する時には, 必ず指定の部品を交換すること。

(2) 部品の共通化
ソニーから供給される部品はセットに実装されているものと異なることがある。
これは部品の共通化, 改良等によるものである。
分解図や電気部品表には現時点での共通化された部品が記載されている。

(3) 部品の在庫
部品表のSP (Supply code) 欄のoで示される部品は交換頻度が低い部品で, 在庫していないことがあり, 納期は長くなることがある。

(4) コンデンサ, 抵抗の単位
回路図, 分解図, 電気部品表中, 特に明記したものを除き, 下記の単位は省略されていることがある。
コンデンサ : μF
抵抗 : Ω

ELECTRICAL PARTS LIST

CN-14(S) BOARD

Ref. No. or Q'ty	Part No.	SP	Description
171	1-634-869-11	o	PRINTED CIRCUIT BOARD,CN-14(S)
CN6	1-562-090-00	s	JACK 13P
CN601	1-562-090-00	s	JACK 13P

LED-5 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
551	1-633-867-13	o	PRINTED CIRCUIT BOARD,LED-5
D1	8-719-313-21	s	LED SEL1321G,GRN

SW-7(S) BOARD

Ref. No. or Q'ty	Part No.	SP	Description
161	1-634-859-11	o	PRINTED CIRCUIT BOARD,SW-7(S)
CN1	1-560-461-00	o	PIN,CONNECTOR 5P
D1	8-719-311-21	s	DIODE SEL1121R,RED
D2	8-719-311-21	s	DIODE SEL1121R,RED
D3	8-719-311-21	s	DIODE SEL1121R,RED
D4	8-719-311-21	s	DIODE SEL1121R,RED

SY-3(S) BOARD

Ref. No. or Q'ty	Part No.	SP	Description			
521	A-2019-227-A	o	MOUNTED CIRCUIT BOARD,SY-3(S)			
6pc	⚠1-533-189-11	S	HOLDER,FUSE			
C1	1-126-256-11	s	ELECT	4700uF	20%	35V
C2	1-126-256-11	s	ELECT	4700uF	20%	35V
C3	1-126-256-11	s	ELECT	4700uF	20%	35V
C4	1-124-360-00	s	ELECT	1000uF	20%	16V
C5	1-124-618-11	s	ELECT	2200uF	20%	35V
C6	1-124-618-11	s	ELECT	2200uF	20%	35V
C7	1-124-618-11	s	ELECT	2200uF	20%	35V
C8	1-124-477-11	s	ELECT	47uF	20%	25V
C9	1-124-477-11	s	ELECT	47uF	20%	25V
C10	1-124-477-11	s	ELECT	47uF	20%	25V
C11	1-124-477-11	s	ELECT	47uF	20%	25V
C12	1-124-477-11	s	ELECT	47uF	20%	25V
C13	1-161-057-00	s	CERAMIC	0.033uF	10%	50V
C14	1-102-962-00	s	CERAMIC	30pF	5%	50V
C15	1-102-962-00	s	CERAMIC	30pF	5%	50V
C16	1-124-477-11	s	ELECT	47uF	20%	25V
C17	1-124-477-11	s	ELECT	47uF	20%	25V

(SY-3(S) BOARD)

Ref. No. or Q'ty	Part No.	SP	Description			
C18	1-124-477-11	s	ELECT	47uF	20%	25V
C19	1-124-477-11	s	ELECT	47uF	20%	25V
C20	1-124-477-11	s	ELECT	47uF	20%	25V
C21	1-161-057-00	s	CERAMIC	0.033uF	10%	50V
C22	1-124-618-11	s	ELECT	2200uF	20%	35V
C23	1-130-487-00	s	MYLAR	0.022uF	5%	50V
C41	1-130-495-00	s	MYLAR	0.1uF	5%	50V
C42	1-130-495-00	s	MYLAR	0.1uF	5%	50V
C51	1-124-618-11	s	ELECT	2200uF	20%	35V
C52	1-124-360-00	s	ELECT	1000uF	20%	16V
C61	1-130-495-00	s	MYLAR	0.1uF	5%	50V
C62	1-130-495-00	s	MYLAR	0.1uF	5%	50V
C101	1-130-487-00	s	MYLAR	0.022uF	5%	50V
C102	1-130-487-00	s	MYLAR	0.022uF	5%	50V
C103	1-124-471-00	s	ELECT	1000uF	20%	6.3V
C201	1-130-487-00	s	MYLAR	0.022uF	5%	50V
C202	1-130-487-00	s	MYLAR	0.022uF	5%	50V
C203	1-124-471-00	s	ELECT	1000uF	20%	6.3V
C301	1-130-487-00	s	MYLAR	0.022uF	5%	50V
C302	1-130-487-00	s	MYLAR	0.022uF	5%	50V
C303	1-124-471-00	s	ELECT	1000uF	20%	6.3V
C401	1-130-487-00	s	MYLAR	0.022uF	5%	50V
C402	1-130-487-00	s	MYLAR	0.022uF	5%	50V
C403	1-124-471-00	s	ELECT	1000uF	20%	6.3V
CF1	1-567-875-11	s	VIBRATOR,CERAMIC 2.27MHz			
CN1	1-564-242-00	o	PIN,CONNECTOR 5P			
CN2	1-508-736-00	o	PIN,CONNECTOR 10P			
CN4	1-564-320-00	o	PIN,CONNECTOR(B2P-VH) 2P			
CN6	1-560-470-00	o	PIN,CONNECTOR 8P			
CN101	1-560-469-00	o	PIN,CONNECTOR 6P			
CN201	1-560-469-00	o	PIN,CONNECTOR 6P			
CN301	1-560-469-00	o	PIN,CONNECTOR 6P			
CN401	1-560-469-00	o	PIN,CONNECTOR 6P			
CN602	1-560-456-00	o	PIN,CONNECTOR 2P			
D1	8-719-505-60	s	DIODE S5VB60			
D2	8-719-505-60	s	DIODE S5VB60			
D3	8-719-200-02	s	DIODE 10E-2			
D4	8-719-200-02	s	DIODE 10E-2			
D5	8-719-911-19	s	DIODE 1SS119			
D6	8-719-911-19	s	DIODE 1SS119			
D7	8-719-200-02	s	DIODE 10E-2			
D101	8-719-200-02	s	DIODE 10E-2			
D102	8-719-911-19	s	DIODE 1SS119			
D103	8-719-911-19	s	DIODE 1SS119			
D104	8-719-911-19	s	DIODE 1SS119			
D201	8-719-200-02	s	DIODE 10E-2			
D202	8-719-911-19	s	DIODE 1SS119			
D203	8-719-911-19	s	DIODE 1SS119			
D204	8-719-911-19	s	DIODE 1SS119			
D301	8-719-200-02	s	DIODE 10E-2			
D302	8-719-911-19	s	DIODE 1SS119			
D303	8-719-911-19	s	DIODE 1SS119			
D304	8-719-911-19	s	DIODE 1SS119			
D401	8-719-200-02	s	DIODE 10E-2			
D402	8-719-911-19	s	DIODE 1SS119			
D403	8-719-911-19	s	DIODE 1SS119			

(SY-3(S) BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D404	8-719-911-19	s	DIODE 1SS119
D601	8-719-911-19	s	DIODE 1SS119
D602	8-719-911-19	s	DIODE 1SS119
IC5	8-759-913-42	s	IC PST520C-2
IC6	8-759-635-02	s	IC M50747SP-C42SP
IC8	8-759-701-75	s	IC NJM7805FA
IC101	8-759-984-03	s	IC LM339N
IC201	8-759-984-03	s	IC LM339N
IC301	8-759-984-03	s	IC LM339N
IC401	8-759-984-03	s	IC LM339N
PS1	⚠ 1-532-637-11	s	LINK,IC 1.0A
PS2	⚠ 1-532-679-21	s	LINK,IC 0.6A
Q1	8-729-900-80	s	TRANSISTOR DTC114ES
Q2	8-729-199-82	s	TRANSISTOR 2SD998
Q4	8-729-900-80	s	TRANSISTOR DTC114ES
Q5	8-729-900-80	s	TRANSISTOR DTC114ES
Q6	8-729-900-80	s	TRANSISTOR DTC114ES
Q102	8-729-140-93	s	TRANSISTOR 2SB733-34
Q103	8-729-900-61	s	TRANSISTOR DTA114ES
Q104	8-729-900-61	s	TRANSISTOR DTA114ES
Q112	8-729-140-93	s	TRANSISTOR 2SB733-34
Q113	8-729-900-61	s	TRANSISTOR DTA114ES
Q114	8-729-900-61	s	TRANSISTOR DTA114ES
Q121	8-729-900-61	s	TRANSISTOR DTA114ES
Q122	8-729-140-96	s	TRANSISTOR 2SD774-34
Q123	8-729-821-04	s	TRANSISTOR 2SA1317-STU
Q202	8-729-140-93	s	TRANSISTOR 2SB733-34
Q203	8-729-900-61	s	TRANSISTOR DTA114ES
Q204	8-729-900-61	s	TRANSISTOR DTA114ES
Q212	8-729-140-93	s	TRANSISTOR 2SB733-34
Q213	8-729-900-61	s	TRANSISTOR DTA114ES
Q214	8-729-900-61	s	TRANSISTOR DTA114ES
Q221	8-729-900-61	s	TRANSISTOR DTA114ES
Q222	8-729-140-96	s	TRANSISTOR 2SD774-34
Q223	8-729-821-04	s	TRANSISTOR 2SA1317-STU
Q302	8-729-140-93	s	TRANSISTOR 2SB733-34
Q303	8-729-900-61	s	TRANSISTOR DTA114ES
Q304	8-729-900-61	s	TRANSISTOR DTA114ES
Q312	8-729-140-93	s	TRANSISTOR 2SB733-34
Q313	8-729-900-61	s	TRANSISTOR DTA114ES
Q314	8-729-900-61	s	TRANSISTOR DTA114ES
Q321	8-729-900-61	s	TRANSISTOR DTA114ES
Q322	8-729-140-96	s	TRANSISTOR 2SD774-34
Q323	8-729-821-04	s	TRANSISTOR 2SA1317-STU
Q402	8-729-140-93	s	TRANSISTOR 2SB733-34
Q403	8-729-900-61	s	TRANSISTOR DTA114ES
Q404	8-729-900-61	s	TRANSISTOR DTA114ES
Q412	8-729-140-93	s	TRANSISTOR 2SB733-34
Q413	8-729-900-61	s	TRANSISTOR DTA114ES
Q414	8-729-900-61	s	TRANSISTOR DTA114ES
Q421	8-729-900-61	s	TRANSISTOR DTA114ES
Q422	8-729-140-96	s	TRANSISTOR 2SD774-34
Q423	8-729-821-04	s	TRANSISTOR 2SA1317-STU
Q601	8-729-900-61	s	TRANSISTOR DTA114ES
Q602	8-729-900-80	s	TRANSISTOR DTC114ES
Q603	8-729-900-80	s	TRANSISTOR DTC114ES
Q604	8-729-900-80	s	TRANSISTOR DTC114ES
Q605	8-729-900-80	s	TRANSISTOR DTC114ES
Q606	8-729-900-80	s	TRANSISTOR DTC114ES

Ref. No. or Q'ty	Part No.	SP	Description
R1	1-249-441-11	s	CARBON 100K 5% 1/4W
R2	1-249-416-11	s	CARBON 820 5% 1/4W
R3	1-249-416-11	s	CARBON 820 5% 1/4W
R4	1-249-441-11	s	CARBON 100K 5% 1/4W
R5	1-249-429-11	s	CARBON 10K 5% 1/4W
R6	1-249-401-11	s	CARBON 47 5% 1/4W
R7	1-247-903-00	s	CARBON 1M 5% 1/4W
R8	1-249-429-11	s	CARBON 10K 5% 1/4W
R17	1-249-416-11	s	CARBON 820 5% 1/4W
R18	1-249-416-11	s	CARBON 820 5% 1/4W
R19	1-249-416-11	s	CARBON 820 5% 1/4W
R22	1-249-441-11	s	CARBON 100K 5% 1/4W
R102	1-249-417-11	s	CARBON 1K 5% 1/4W
R104	1-249-429-11	s	CARBON 10K 5% 1/4W
R105	1-249-396-11	s	CARBON 18 5% 1/4W
R112	1-249-417-11	s	CARBON 1K 5% 1/4W
R114	1-249-429-11	s	CARBON 10K 5% 1/4W
R115	1-249-416-11	s	CARBON 820 5% 1/4W
R116	1-249-429-11	s	CARBON 10K 5% 1/4W
R117	1-249-401-11	s	CARBON 47 5% 1/4W
R122	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R202	1-249-417-11	s	CARBON 1K 5% 1/4W
R204	1-249-429-11	s	CARBON 10K 5% 1/4W
R205	1-249-396-11	s	CARBON 18 5% 1/4W
R212	1-249-417-11	s	CARBON 1K 5% 1/4W
R214	1-249-429-11	s	CARBON 10K 5% 1/4W
R215	1-249-416-11	s	CARBON 820 5% 1/4W
R216	1-249-429-11	s	CARBON 10K 5% 1/4W
R217	1-249-401-11	s	CARBON 47 5% 1/4W
R222	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R302	1-249-417-11	s	CARBON 1K 5% 1/4W
R304	1-249-429-11	s	CARBON 10K 5% 1/4W
R305	1-249-396-11	s	CARBON 18 5% 1/4W
R312	1-249-417-11	s	CARBON 1K 5% 1/4W
R314	1-249-429-11	s	CARBON 10K 5% 1/4W
R315	1-249-416-11	s	CARBON 820 5% 1/4W
R316	1-249-429-11	s	CARBON 10K 5% 1/4W
R317	1-249-401-11	s	CARBON 47 5% 1/4W
R322	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R402	1-249-417-11	s	CARBON 1K 5% 1/4W
R404	1-249-429-11	s	CARBON 10K 5% 1/4W
R405	1-249-396-11	s	CARBON 18 5% 1/4W
R412	1-249-417-11	s	CARBON 1K 5% 1/4W
R414	1-249-429-11	s	CARBON 10K 5% 1/4W
R415	1-249-416-11	s	CARBON 820 5% 1/4W
R416	1-249-429-11	s	CARBON 10K 5% 1/4W
R417	1-249-401-11	s	CARBON 47 5% 1/4W
R422	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R601	1-249-413-11	s	CARBON 470 5% 1/4W
R606	1-249-429-11	s	CARBON 10K 5% 1/4W
R607	1-249-429-11	s	CARBON 10K 5% 1/4W
R608	1-249-429-11	s	CARBON 10K 5% 1/4W
R609	1-249-416-11	s	CARBON 820 5% 1/4W
R610	1-249-416-11	s	CARBON 820 5% 1/4W
RB1	1-235-195-00	s	RES BLOCK 10Kx8
RB2	1-235-195-00	s	RES BLOCK 10Kx8
RB3	1-231-533-00	s	RESISTOR BLOCK 10Kx4
RB601	1-231-533-00	s	RESISTOR BLOCK 10Kx4
S601	1-554-931-11	s	SWITCH,PUSH
S602	1-554-931-11	s	SWITCH,PUSH
S603	1-554-931-11	s	SWITCH,PUSH
S604	1-554-931-11	s	SWITCH,PUSH

FRAME

Ref. No. or Q'ty	Part No.	SP	Description
102	1-541-747-12	S	MOTOR,CAPSTAN
104	1-500-098-11	s	HEAD,MAGNETIC(RECORD) 098-11R
105	1-543-707-11	s	ERASE HEAD 707-11E
F1	⚠1-532-745-11	s	FUSE,GLASS TUBE 3.15A 125V (FOR J,U MODEL ONLY)
	⚠1-532-237-00	s	FUSE,TIME-LAG(BET) 3.15A 250V (FOR EK MODEL ONLY)
F2	⚠1-532-744-11	s	FUSE,GLASS TUBE 2.5A 125V (FOR J,U MODEL ONLY)
	⚠1-532-286-00	s	FUSE,TIME-LAG(BET) 2.5A 250V (FOR EK MODEL ONLY)
F3	⚠1-532-744-11	s	FUSE,GLASS TUBE 2.5A 125V (FOR J,U MODEL ONLY)
	⚠1-532-286-00	s	FUSE,TIME-LAG(BET) 2.5A 250V (FOR EK MODEL ONLY)
M100	1-543-163-51	s	MOTOR 163-51(RF-510T)
M200	1-543-163-51	s	MOTOR 163-51(RF-510T)
M300	1-543-163-51	s	MOTOR 163-51(RF-510T)
M400	1-543-163-51	s	MOTOR 163-51(RF-510T)
M110	1-541-766-12	s	MOTOR,DC 766-12(EN22-R12NIB)
M210	1-541-766-12	s	MOTOR,DC 766-12(EN22-R12NIB)
M310	1-541-766-12	s	MOTOR,DC 766-12(EN22-R12NIB)
M410	1-541-766-12	s	MOTOR,DC 766-12(EN22-R12NIB)
PM100	1-454-495-11	s	SOLENOID,PLUNGER
PM200	1-454-495-11	s	SOLENOID,PLUNGER
PM300	1-454-495-11	s	SOLENOID,PLUNGER
PM400	1-454-495-11	s	SOLENOID,PLUNGER
S1	⚠1-570-744-21	s	SWITCH,AC POWER
T1	⚠1-449-928-11	s	TRANSFORMER,POWER (FOR J,U MODEL ONLY)
	⚠1-450-145-11	s	TRANSFORMER,POWER (FOR EK MODEL ONLY)
	1-690-979-11	o	CABLE, CONNECTION 12P (FOR RECORD HEAD)

(151)	AC-3 BOARD (FOR J,U MODEL ONLY)	
	(SAME AS CCP-2310F)	
(151)	AC-5 BOARD (FOR EK MODEL ONLY)	
	(SAME AS CCP-2310F)	
(501)	AU-171 BOARD	
	(SAME AS CCP-2310F)	
(511)	AU-172 BOARD	
	(SAME AS CCP-2310F)	
(531)	EX-4 BOARD	
	(SAME AS CCP-2310F)	

CCP-2310F (J, UC, EK) J, E
CCP-2410F (J, UC, EK) J, E
9-977-563-02

Sony Corporation
B&P Company

Printed in Japan
2001. 12 16