

SERVICE MANUAL



MODEL 1400, 1400U TAPE RECORDER

Dimensions: 44.8 (H) x 40.8 (W) x 18.5 (D) cm
(17-5/8" x 16" x 7-1/4")
Weight: 12kg (26.4 lbs.)

1. SPECIFICATIONS

Power supply:	AC 100V ~ 240V; 50Hz, 60Hz (1400U) AC 120V; 60Hz (1400)	Transistor, IC:	Output impedance 8 Ω IC 8 pcs.; Transistor 20 pcs.
Power consumption:	55W	Diode:	6 pcs.; Zener diode 1 piece
Fuse capacity:	2.3A	Frequency response:	19cm/s 20 ~ 25kHz at 19cm/s (30 ~ 10kHz $\pm$ 3dB)
Recording system:	4-track stereo (4-channel)	S/N:	More than 53dB (from peak level)
Bias system:	AC bias 95kHz	Crosstalk:	More than 50dB
Erasing system:	AC erase	Distortion ratio:	Less than 1.2% at specified recording and playback
Tape speed:	19cm/s, 9.5cm/s	Recording playback compensation characteristics:	NAB
Wow & flutter:	0.07WRMS at 19cm/s	Input jack:	MIC jack x 4 0.3mV 600 Ω AUX IN jack x 4 77.5mV 100k Ω
Recording time:	45 min. (19cm/s, 4 channel) with long tape (555m) 90 min. (19cm/s, 2 channel go and return) with long tape (555m) The time doubles at 9.5cm/s.	DIN connector: (REC/PB)	Input level 15mV (Signal source impedance 80k Ω) Standard output 0.5V (0 ~ 0.8V variable) Output impedance 10k Ω
F. Forward time:	Within 160 sec. with standard tape (370m)		
Rewind time:	Within 160 sec. with standard tape (370m)		
Output jack:	Line output jack; 0 ~ 1.2V variable, Output impedance 4.7k Ω Headphone jack; 0 ~ 0.8mW variable,		

2. FEATURES

- 4-channel recording and playback
- 3-head system with tape monitor
- Mechanical automatic stop
- Changeover switch from SH (high performance for low noise) tape to normal tape
- IC used
- Easy tape loading
- Adjustable headphone volume
- Slide adjusting controls
- Level meter with high sensitivity
- Channel selection

3. DESCRIPTION OF PARTS

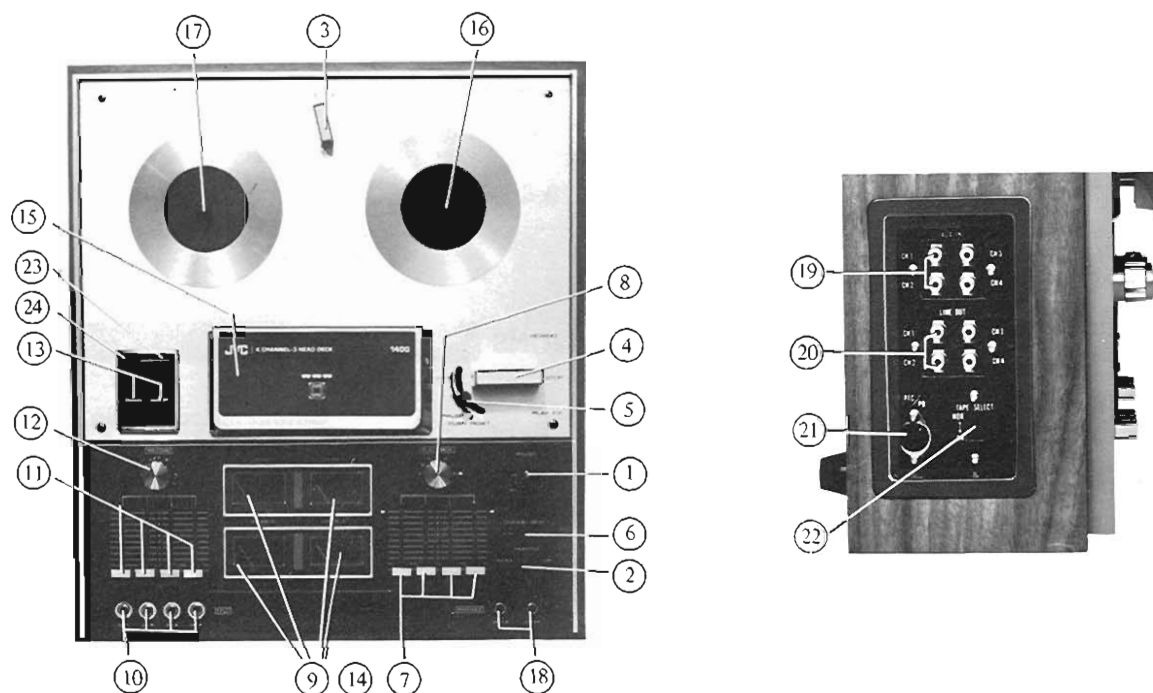


Fig. 1

(1) Power Switch

When turned to ON, power is supplied and the level meter⑨is lit.

(2) Monitor Switch

With this switch, source monitor (monitoring sound before recording) and tape monitor (monitoring sound while recording) are selected.

During playback this is to be set to "tape monitor" and for level adjustment before recording it is to be set to "source monitor".

(3) Tape Speed Change Lever

The tape speed can be changed to two steps, 19 cm/s and 9.5 cm/s. During fast forwarding and rewinding, never change the tape speed.

(4) Operational Control

With this control, tape running is performed.

(REW) Rewind

(STOP) Stop

(PLAY) Playback or recording

(5) F. Forwarding and PAUSE Lever

F. Forwarding: When this lever is turned to (FF) during playback, fast forwarding is performed.

Temporary stop: When this lever is turned to (PAUSE) during recording or playback, the lever is locked and the running tape is temporarily stopped. To release the lever, push the lever to the arrow direction and the tape begins running for recording or playback.

(6) Channel Change Lever

This lever changes from 2-channel playback to 4-channel playback or vice versa.

(7) Channel Playback Volume Adjusting Button (4 buttons)

Playback volume adjustment for each channel is made by the buttons.

(8) Whole Playback Volume Adjusting Control

This control adjusts the whole playback volume.

(9) Level Meter (4 meters for each channel)

This meter indicates recorded input when the monitor switch is at (SOURCE), and playback output when the switch is at (TAPE). When the meter pointer is at 0, playback output is 0.5V at the DIN connector terminal, and 0dBs (0.775V) at the AUX. OUT jack.

(10) MIC Jack (4 jacks)

(11) Channel Recording Volume Adjusting Button (4 buttons)

The buttons adjust recording volume for each channel.

(12) Whole Recording Volume Adjusting Control

The control adjusts the whole recording volume.

(13) Recording Button (2 buttons for 2 channel and 4 channel respectively)

The buttons are used during recording only. The buttons are separately placed for 2 channel and 4 channel.

(14) Recording Indicating Lamp (Inside the level meter)

When the recording button is pulled to the arrow direction, this lamp is lit and indicates that recording is performed.

(15) Automatic Stop Mechanism

The switch is inside the head cover. When the tape is taken up or broken, the operation control is automatically set to (STOP) and the power for the motor is cut off.

(16) Take-up Reel Disc

(17) Supply Reel Disc

(18) Headphone Jack

Recording monitor or stereo playback is done by inserting the 4 channel headphone or 2 channel headphone into this jack.

(19) LINE OUT Jack

(20) AUX. IN Jack

(21) DIN Connector Jack

Recording and playback is done by connecting the set to a stereo amplifier with a DIN connector jack.

(22) Tape Select Switch

For recording on a high performance tape (SH tape), set the switch to (SH), and for recording on other tapes, set the switch to (NORMAL).

This switch does not operate during playback.

(23) Tape Counter

(24) Reset Button

4. REMOVING MAJOR PARTS

1. Removing the Panel

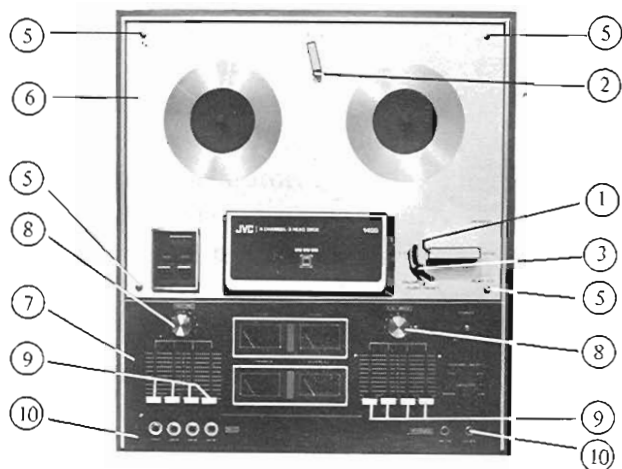


Fig. 2

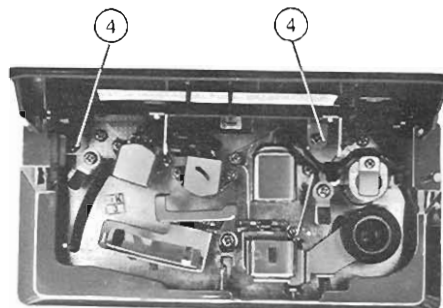


Fig. 3

- (1) Loosen the set screw of the operation control knob (1) and pull out the control knob.
- (2) Loosen the set screw of the tape speed change knob (2) and pull out the knob.
- (3) Remove the F. Forward and PAUSE Lever (3).
- (4) Open the head cover and remove the two panel retaining screws (4).
- (5) Remove the four top panel retaining screws (5) and lift off the top panel (6).
Maintenance and simple repair of the mechanism can be done under this stage.
- (6) To remove the control panel (7), remove the two rotary volume control knobs (8) and eight slide volume control knobs (9).
- (7) Remove the two control panel retaining screws (10) and then remove the control panel (7).

(2) Removing the Cabinet

- (1) To remove the cabinet from the set, remove both panels as described above.
- (2) Remove the two rubber legs at the back of the cabinet (lower part only).
- (3) Remove the three set retaining nuts and washers (11), and take out the set main body.

CAUTION:

In case model 1400U remove the cap of voltage selecting socket first.

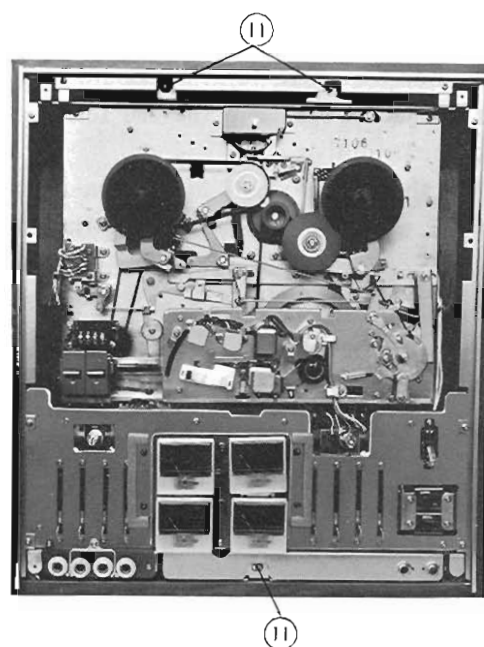


Fig. 4

3. Removing the Amplifier

By removing the set from the cabinet, all circuits can be checked. To replace parts, follow the procedure below.

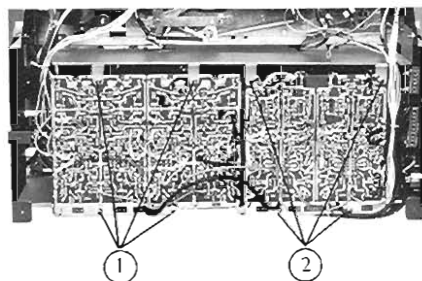


Fig. 5

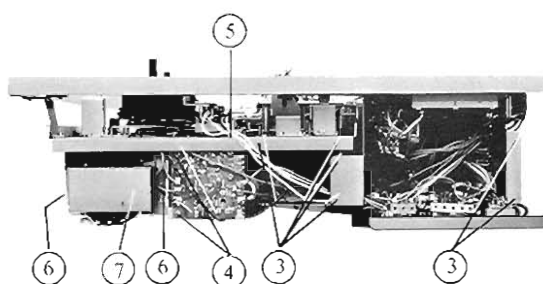


Fig. 6

(1) Playback amplifier circuit board

When the four screws ① are loosened, the circuit board can be removed. To stand up the circuit board, remove the receptacle of the head input and raise the circuit board.

(2) Recording amplifier circuit board

When the four screws ② are loosened, the circuit board can be removed. To raise the circuit board, raise it in the reverse direction of the playback circuit board.

(3) Jack board and AC terminal board

As the jack board and the AC terminal board are placed symmetrically, description is made on the jack board only.

When the six screws ③ are loosened, the jack board can be removed.

NOTE: If the jack board and the AC terminal board are removed at the same time, the amplifier chassis may be weakly held or bent. So remove either of the two which you can easily check.

(4) Removing the power supply circuit board

When the two screws ④ and the screw ⑤ which is on the mechanism chassis are loosened, the circuit board can be removed.

4. Removing the Power Transformer

(1) Referring to "Removing the panel" and "Removing the set main body from the cabinet", remove the set main body.

(2) Remove the two power transformer retaining screws ⑥.

(3) Remove the power transformer terminal wiring and then remove the power transformer ⑦.

5. Removing the Motor

- (1) Remove the soldering of the three motor lead wires.
- (2) Remove the capstan belt ① from the motor pulley ②.
- (3) Loosen the two motor holding screws ③ and remove the motor.

6. Removing the Motor Pulley

- (1) Remove the motor, following the procedure above.
- (2) Loosen the two motor pulley set screws ④ and remove the motor pulley.

CAUTION:

When refitting the motor pulley after removing it for reasons such as change in power cycle, pay attention to the following.

- (1) Fit the motor pulley by means of two set screws ④ so that it may be set 1.5 ~ 2.0 mm above the motor fitting surface as illustrated.
- (2) After fitting the motor to the chassis, try speed change several times, and make sure that the capstan belt ⑤ operates smoothly. Make sure that the capstan belt ⑤ does not get in touch with the change rod ⑥ after speed has been changed. For adjustment of faulty change, belt touch, etc., loosen the screw ⑦ and change the height and position of the change rod ⑥.

7. Removing the Capstan Assembly and Capstan Belt

- (1) Remove the springs ①, ② and ③ and the spring plate ④.
- (2) Remove the E washers ⑤ and ⑥, then remove the PAUSE lever ⑦ and the lever ⑧.
- (3) Remove the E washer ⑩ retaining the mode lock lever ⑨.
- (4) Remove the E washer ⑪ and the screws ⑫ and ⑬, then remove the fast forwarding lever ⑭ and the holder ⑮.
- (5) Remove the two nuts ⑰ retaining the fast forwarding wire ⑱, then take out the wire.
- (6) Remove the two screws ⑲ and the holder bracket ⑲.
- (7) Remove the motor pulley ⑳ and the capstan belt ㉔ from the change rod ㉑.
- (8) Remove the four screws ㉒ retaining the mounting plate ㉓.
- (9) So far, the mounting plate ass'y and, at the same time, the capstan ass'y and the capstan belt are removed.

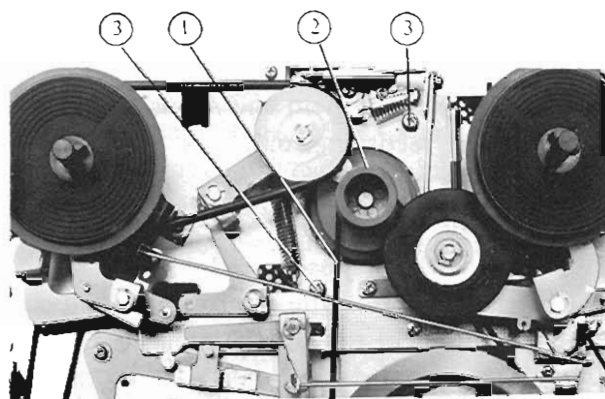


Fig. 7

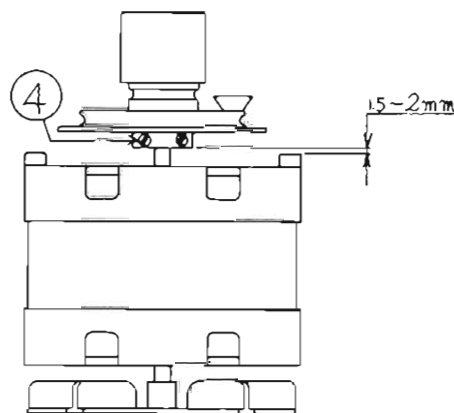


Fig. 8

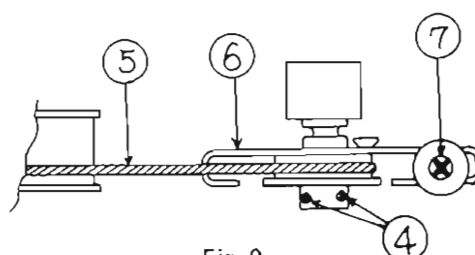


Fig. 9

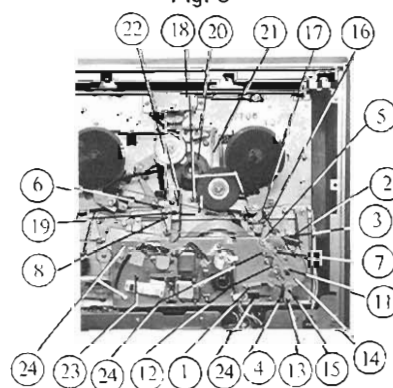


Fig. 10

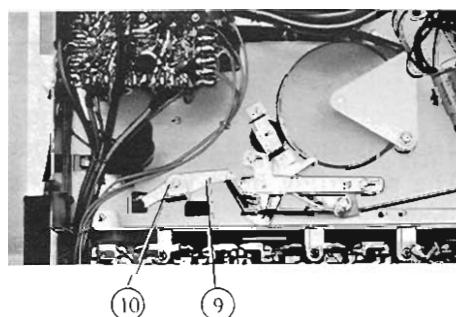


Fig. 11

5. MAJOR SERVICE POINTS

1. Head Replacement and Adjustment

When the recording, playback or erasing head has lost specified performance due to wear, excessive magnetization, broken circuit, etc., replace it.

Replacing the playback head

- (1) Pull out the wire inserted into the circuit board at the side of the amplifier chassis.
- (2) Remove the tape pad ass'y of the playback head from the head plate.
- (3) Remove the two head retaining screws, then remove the playback head.
- (4) To refit the head, follow the reverse order.

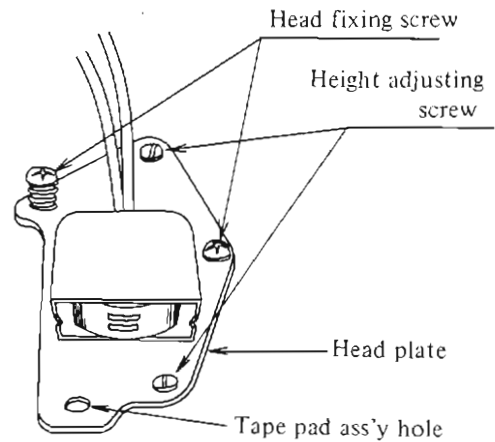
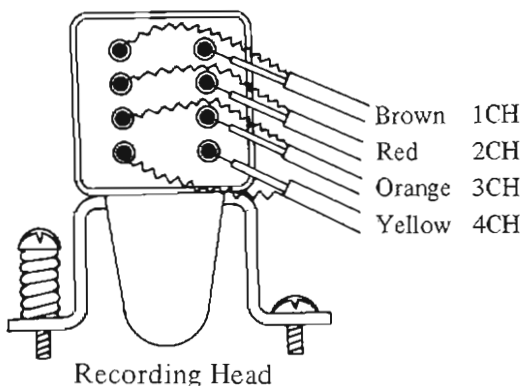
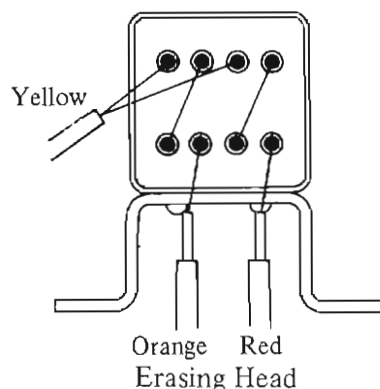


Fig. 12



Recording Head

Fig. 13



Orange Red
Erasing Head

Fig. 14

Replacing the recording head

- (1) Remove the four shield wires located at the recording head terminal.
- (2) When the two head retaining screws are loosened, the recording head can be removed.

Head adjustment

After head replacement, be sure to perform head height adjustment, azimuth adjustment, tape pad angle adjustment and bias adjustment (recording head only).

(1) Height adjustment

Pay particular attention to the head adjustment. If you neglect, recorded sound in the opposite direction comes in and makes the crosstalk get worse. Adjustment is made as in the figures below.

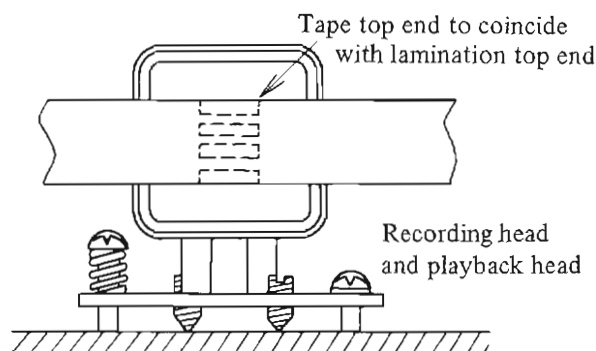


Fig. 15

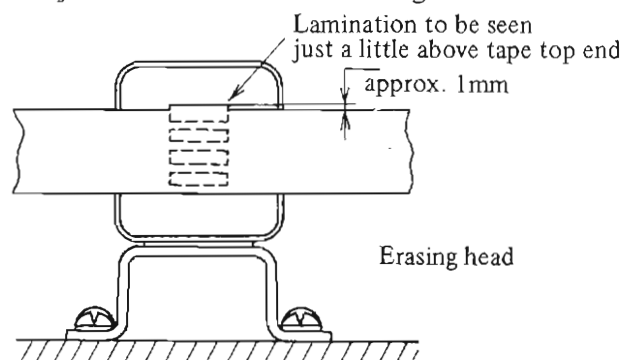


Fig. 16

The playback head height adjustment is made by the two head plate height adjusting screws.

The recording head height adjustment is made by inserting a spacer under the head as illustrated above.

When making the head height adjustment, use a leader tape (red or green one attached to tape end) or an ordinary tape of which magnetic substance is taken off by thinner, etc. so that lamination can be seen.

(2) Azimuth adjustment

Playback head

To make the playback head azimuth adjustment, connect a vacuum tube voltmeter to an output terminal as LINE OUT jack, play back 15kHz for azimuth adjustment of an AMPEX standard tape (01-31321-04 or 01-31321-01) at a tape speed of 19 cm/s, and turn the left head retaining screw so that the playback output may be maximum, then fix the screw. This adjustment is to be made for 1CH, 2CH, 3CH and 4CH, and if there is difference in angle among the channels, set it at a medium point. After adjustment fix by means of screw locks, etc.

Recording head

To make the recording head azimuth adjustment, first make sure of the playback head azimuth. Apply a signal of 15kHz – 20kHz ~ 20VU to MIC or LINE OUT to record, carry out simultaneous playback by means of the tape monitor, and turn the left recording head retaining screw so that the playback output may be maximum. Like the playback head carry out the adjustment in the order of 1CH, 2CH, 3CH and 4CH. In case there is much difference, set it at a medium point and fix by means of screw locks, etc.

(3) Bias adjustment

When the recording head has been replaced or in case the REC/PB frequency response is bad, adjust the bias. This adjustment is made at the tape speed of 19 cm/s. Apply a signal of 1kHz – 10VU ~ 0VU to MIC or LINE OUT to record, carry out simultaneous playback by means of the tape monitor, and turn the bias adjusting control slowly so that the playback output may be set at a drop that the playback output may be set at a drop point from the maximum (playback output biased by -0.5dB). In this case use Scotch No. 150.

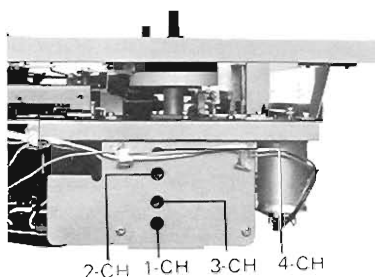


Fig. 17

2. Level Adjustment

Refer to the block diagram on page 15.

2-1 Playback level adjustment

Set the tape speed to 19 cm/s, turn the monitor switch to "TAPE", set the playback output adjusting control knob to $\blacktriangleright 8 \blacktriangleleft$, and connect a vacuum tube voltmeter to the LINE OUT jack. Load a standard tape on which 700 Hz standard level is recorded, and bring the set to "PLAY" condition.

Adjust the semi-fixed control (R_{57}) for playback level adjustment so that the line output may be 0dBs (0.775V). Likewise adjust the semi-fixed control (R_{67}) for level meter adjustment so that the level meter needle may be set to "0".

2-2 Recording level adjustment

(1) Tape monitor level adjustment

Under the same conditions as in (2-1) change the playback standard tape. (Scotch No. 150 tape is most desirable.) Set the tape select switch to NORMAL. Apply a 1kHz signal of -50 to -60dBs to the MIC jack and bring the set to "RECORD" condition. Adjust the recording variable control so that the level meter needle may be set to "0". (At this time the line output is automatically 0dBs.)

(2) Source monitor

Under the conditions in (1) of (2-2) set the monitor switch to "SOURCE", and adjust the semi-fixed control (R_{15}) for source monitor level adjustment so that the level meter indicates "0".

NOTE: During adjustment never touch places other than specified.

Generally adjustment in (2-1) is made when the playback head is replaced, and that in (2-2) when the recording head is replaced.

3. Tape Speed Adjustment

When the power cycle or the motor is changed, the tape speed may vary. The tape speed can be adjusted by replacing the motor pulley.

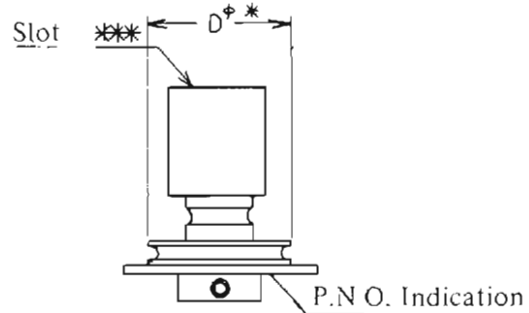


Fig. 18

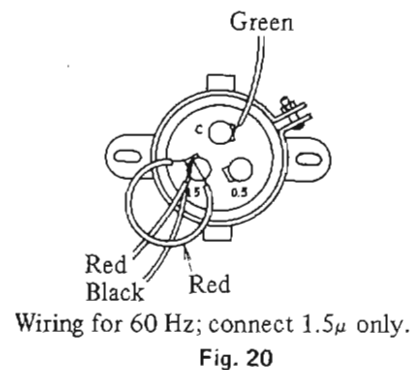
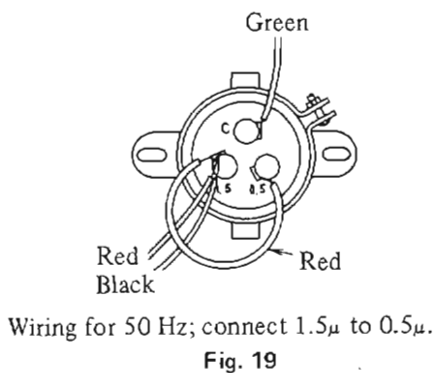
Tape speed	Parts No.	Dφ*	P. No.	Slot ***
For 50Hz	Slow T45430-001	38.06	1	Not exist.
	Standard T45430-002	37.51	2	
	Fast T45430-003	36.96	3	
For 60Hz	Slow T45430-004	31.62	4	Exists.
	Standard T45430-005	31.17	5	
	Fast T45430-006	30.72	6	

6. CHANGE IN POWER CYCLE

Change from 50Hz to 60Hz or vice versa is performed by replacing the motor pulley and changing the wiring of the phase-advancing capacitor (increase or decrease of electrostatic capacity).

For the replacement of the motor pulley, refer to "Removing the motor pulley" and "Tape speed adjustment".

	Motor pulley	Phase-advancing capacitor
Change from 50Hz to 60Hz	Replace 50Hz motor pulley T45430-001 ~ 003 with 60Hz motor pulley T45430-004 ~ 006.	Fig. 20
Change from 60Hz to 50Hz	Replace 60Hz motor pulley T45430-004 ~ 006 with 60Hz motor pulley T45430-001 ~ 003.	Fig. 19



7. MAINTENANCE AND LUBRICATION

1. Playback, Recording and Erasing Heads

As the heads are the important components which determine the tape recorder performances, it is vital to keep them clean. To clean them, lift off the head cover toward you. Under this condition wipe off

dust and dirt attached to the head surface by using a soft cloth moistened with alcohol, benzene, etc. At the same time clean the tape guide, shifter, capstan, pinch roller, etc. Also, as the head is magnetized in a long time of use, demagnetize it with a head eraser.

2. Motor

No lubrication is required for the motor for 2,000 hours of operation. When the motor is overhauled for longer service life, apply 1 or 2 drops of oil to the metal.

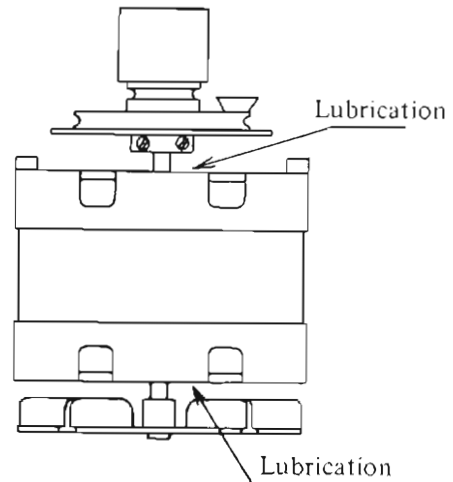


Fig. 21

3. Mechanical Unit

1) Idler, pinch roller, belt, etc.

Wipe the rubber surface of the idler, pinch roller, belt, etc. with alcohol, and wipe the parts which are in contact with the idler, etc. in the same way as above. For lubrication, feed 1 or 2 drops of oil to the metal every 500 hours of operation.

2) Cam roller

Grease the cam roller moving surfaces every 1,000 hours of operation.

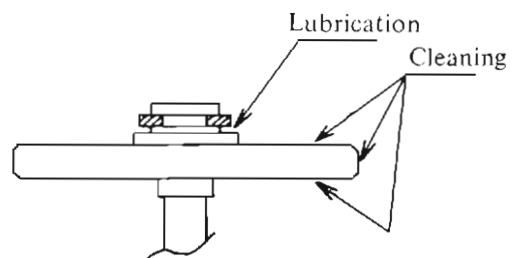


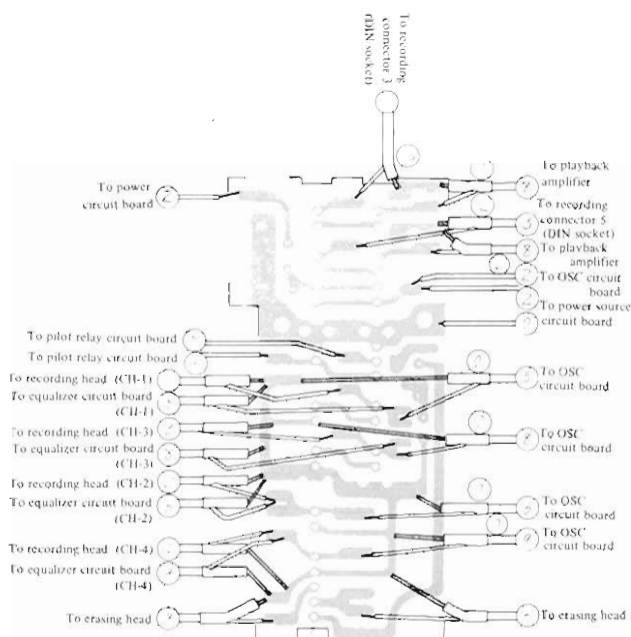
Fig. 22

8. AM BROADCAST AND BEATS

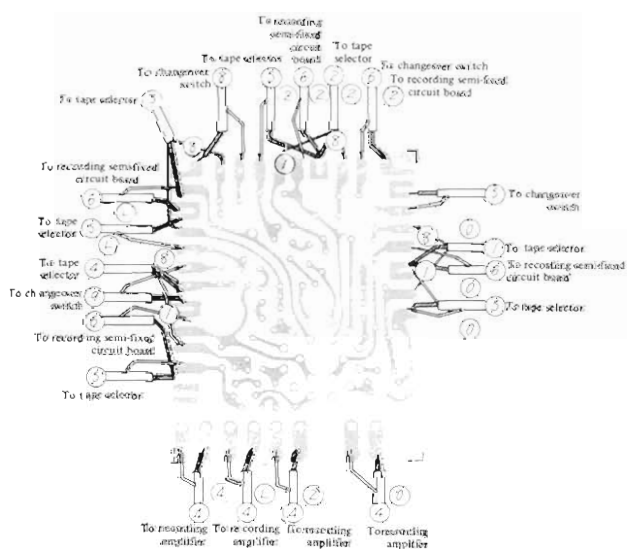
Model 1400, 1400U are so designed that they generate no beat during the recording of AM broadcast. However, beat may generate in some areas where the field strength is low, or due to improper setting of a stereo set. In such a case change the position of the tape recorder.

9. WIRING OF CIRCUIT BOARD

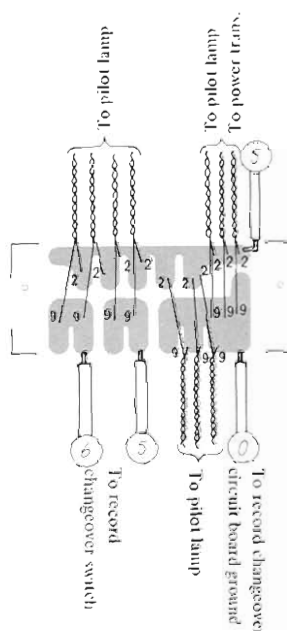
Changing Over Board



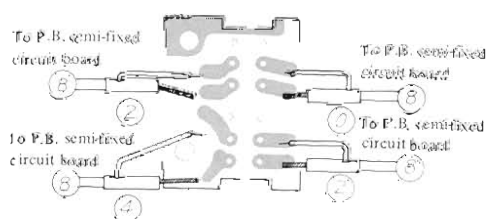
Equalizer Circuit Board



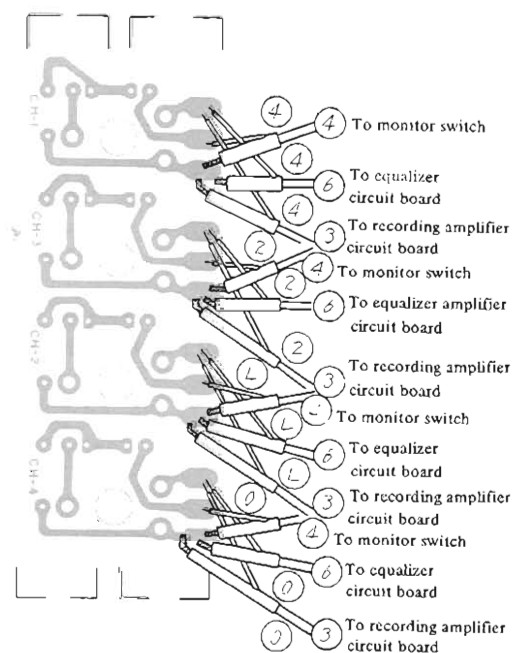
Pilot Lamp Terminal Board



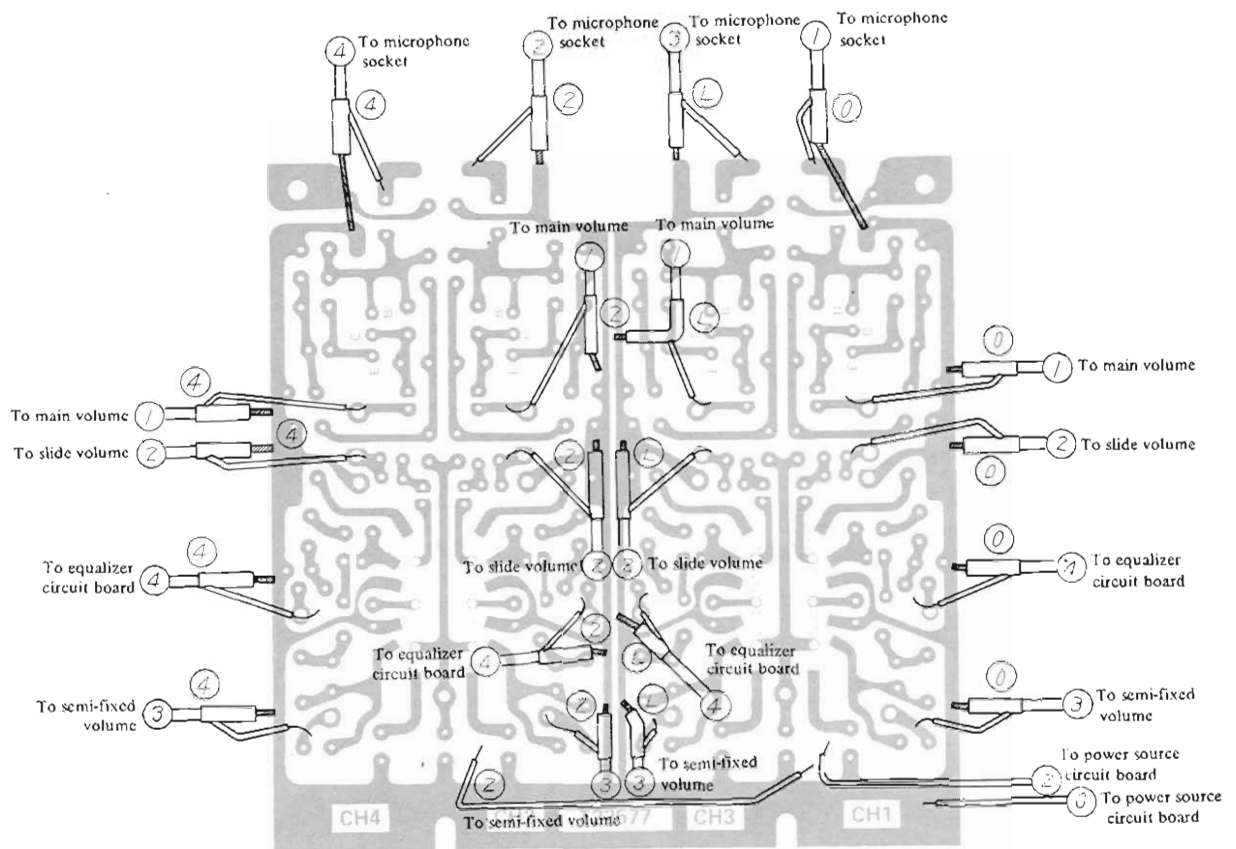
Muting Switch Board



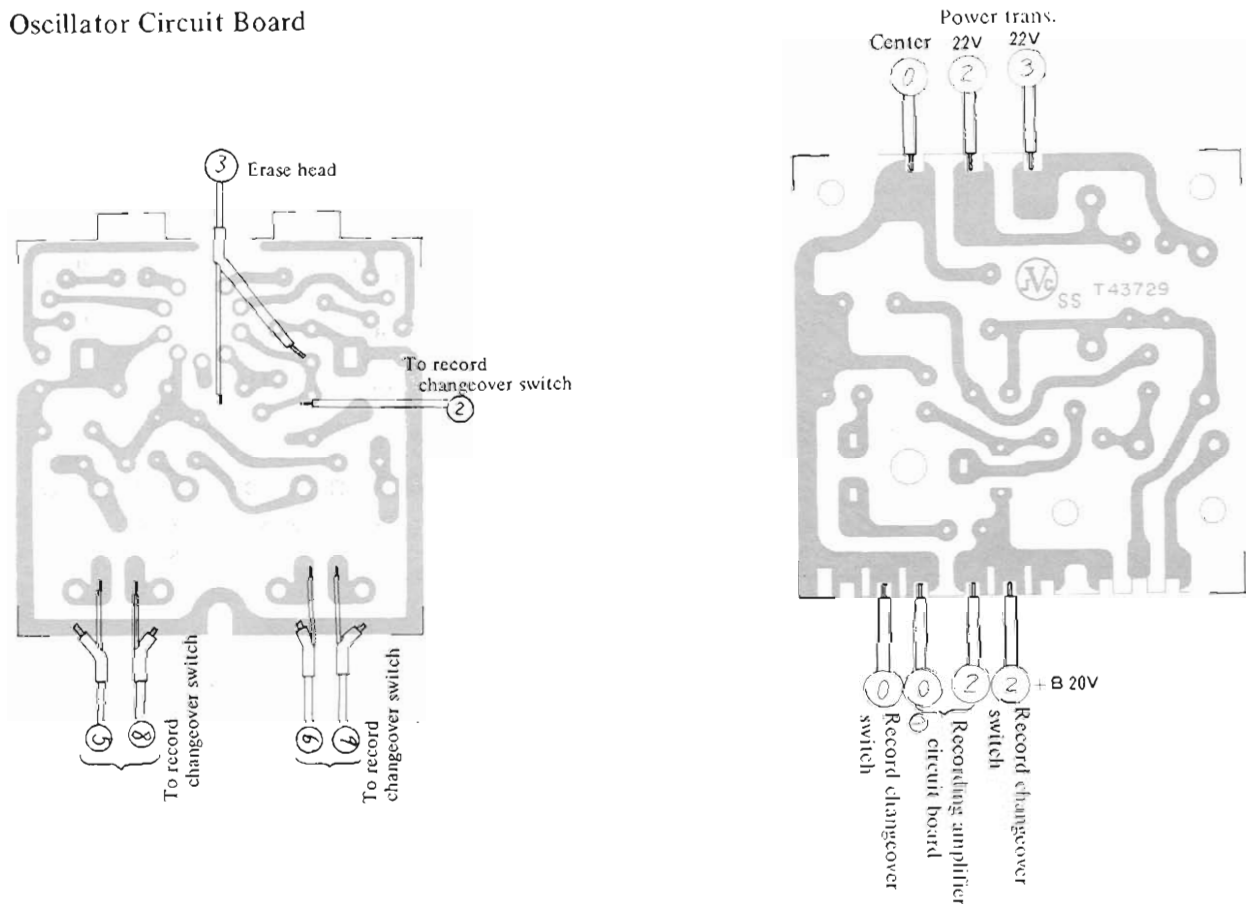
Recording Level Adjusting Circuit Board



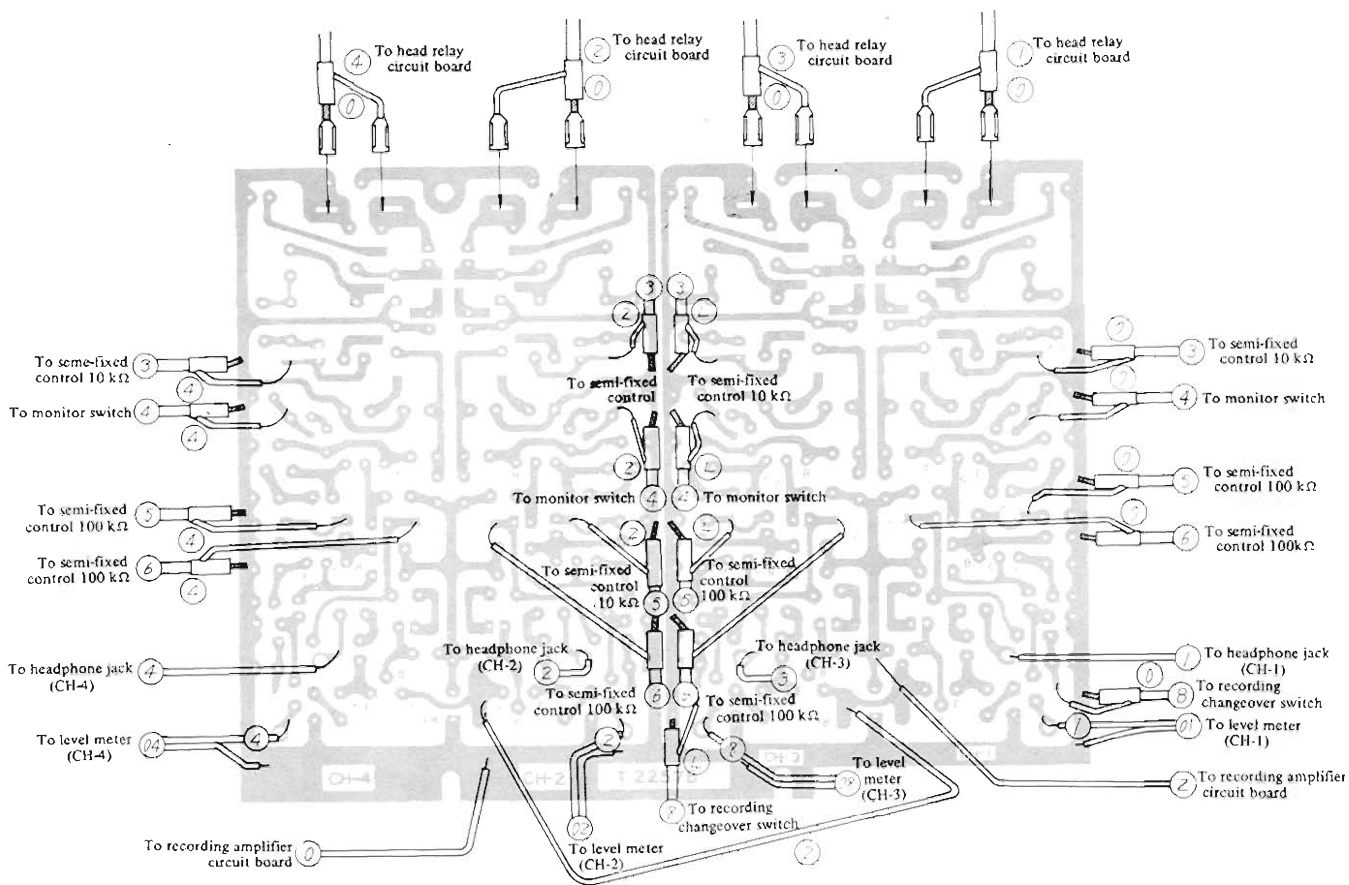
Recording Amplifier Circuit Board



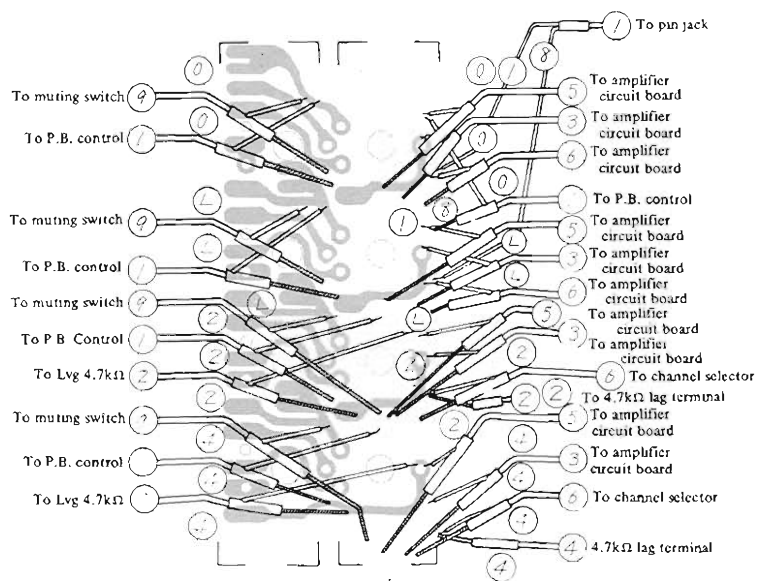
Oscillator Circuit Board



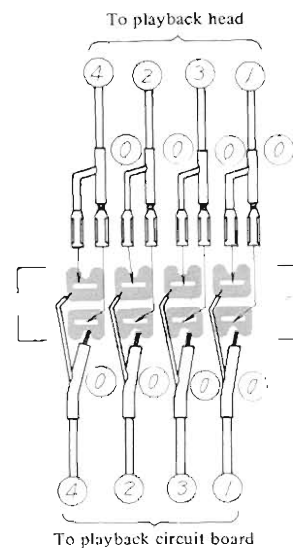
Play-back Amplifier Circuit Board



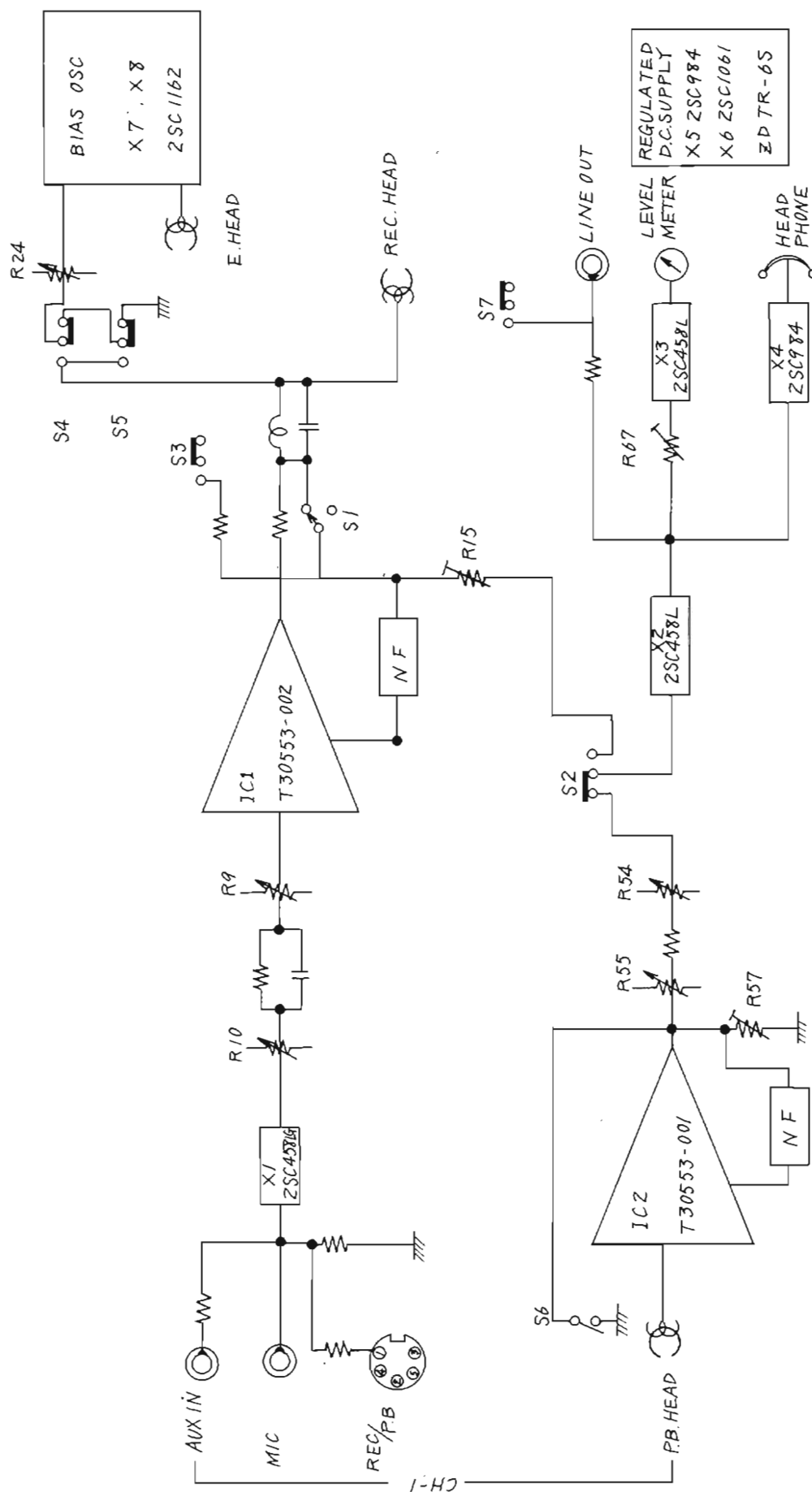
Play-back Adjusting Circuit Board



Head Terminal Board



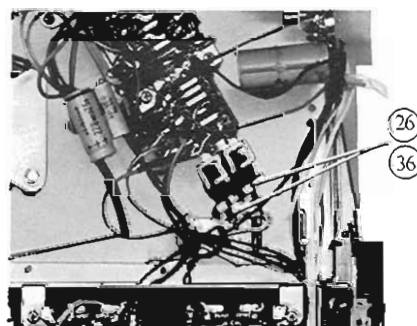
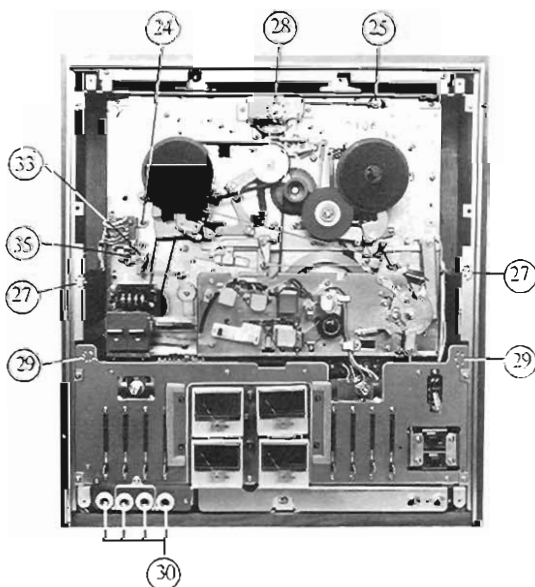
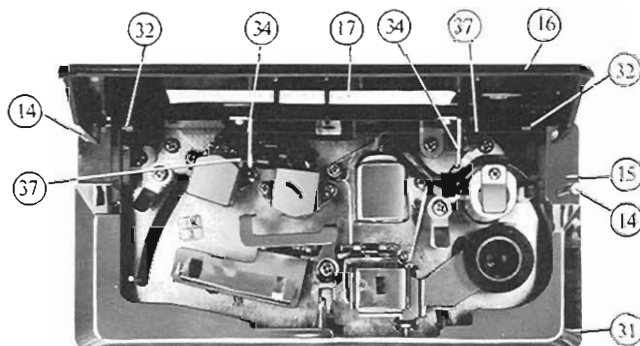
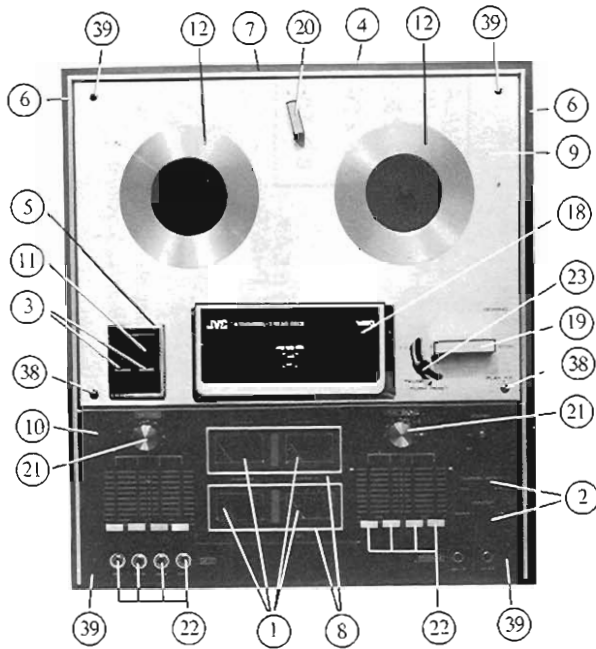
10. BLOCK DIAGRAM



CH-2 ~ CH-4 are omitted as they are same as CH-1.
 R9 Recording level adjusting control
 R10 Recording level adjusting control
 R15 Level adjusting control for source monitor (semi-fixed control)
 R24 Bias current adjusting control (semi-fixed control)
 R54 Playback output adjusting control
 R55 Playback output adjusting control
 R57 Playback level adjusting control (semi-fixed control)

R67 Level meter adjusting control (semi-fixed control)
 S1 Tape speed change equalizer change switch (19cm/s, 9.5cm/s)
 S2 Tape-Speed changeover switch
 S3 Tape select switch (SH - Normal)
 S4 Recording playback changeover switch
 S5 Recording playback changeover switch
 S6 Muting switch
 S7 Channel select switch (2CH ~ 4CH)

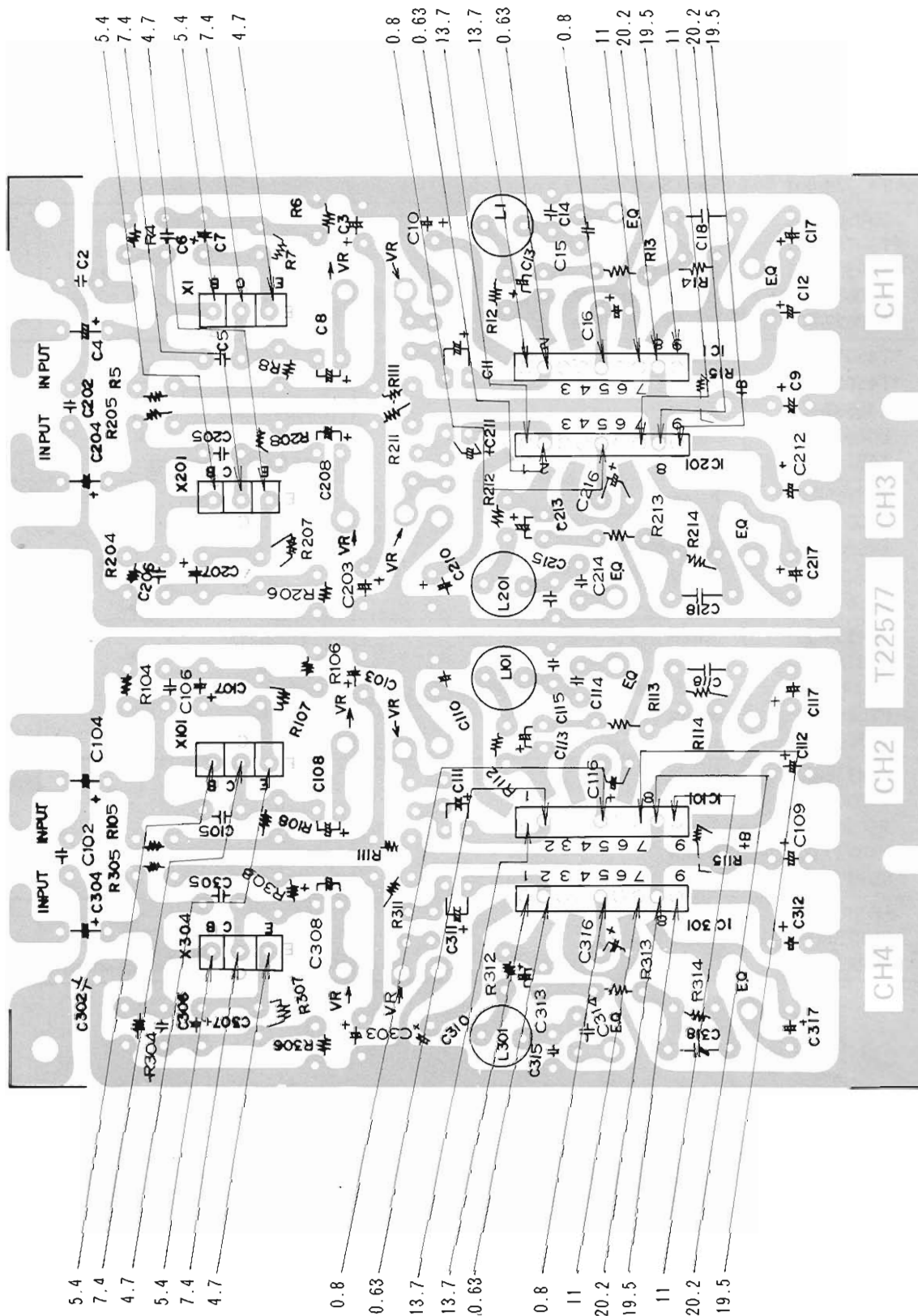
11. APPEARANCE PARTS LIST



No.	Parts No.	Parts Name	Remarks	Q'ty
1	*T30732-001	VU Meter		4
2	Q03752-001	Slide Switch		2
3	T42242-002	Recording Button		2
4	T11316-00A	Cabinet Ass'y		1
5	T43395-001	Escutcheon Cover		1
6	T43749-001	Fitting (B)		2
7	T43748-001	Fitting (C)		1
8	*T30707-001	Meter Escutcheon		2
9	*T22500-00C	Top Panel Ass'y		1
10	*T22602-00B	Control Panel Ass'y		1
11	T43479-00B	Recording Button Escutcheon Ass'y		1
12	*T44343-001	Spin Plate		2
13	T42572-003	Name Plate	(On set side for 1400)	1
13	T44209-003	Name Plate	(for 1400U)	1
14	T43734-001	Tape Stud		2
15	T30563-001	Head Cover (A)		1
16	*T30752-001	Head Cover (B)		1
17	*T44551-001	Caution Label		1
18	*T30657-00C	Head Cover Plate Ass'y	(for 1400)	1
18	T30657-00D	Head Cover Plate Ass'y	(for 1400U)	1
19	*T45055-00A	Control Knob Ass'y		1
20	*T45054-00A	Speed Change Knob Ass'y		1
21	E46607-001	Knob	(Mainly used for varying resist.)	1
22	E46604-001	SEA Knob		8
23	T43733-001	Knob	(for fast forwarding)	1
24	*T43765-001	Bracket		1
25	T30302-011	Collar		1
26	T43465-001	Recording Rod		2
27	T42275-001	Spacer		2
28	T41624-002	Felt		1
29	*T44589-001	Spacer		2
30	*T44585-001	Spacer	(for jack)	4
31	T30566-001	Loading Base		1
32	PSE2012	Spring Pin		2
33	*T43743-001	Lever		1
34	T44338-001	Bracket		2
35	T30300-065	Spring		1
36	T30301-005	Spring		2
37	T44337-001	Spring		2
38	SDBP3016RS	Screw		2
39	SDBP3006RS	Screw		2
40	SDBP3008BS	Screw		2
41	T42575-001	Cap	(for 1400U (PX)) (for voltage select)	1

12. CIRCUIT BOARD PARTS LIST

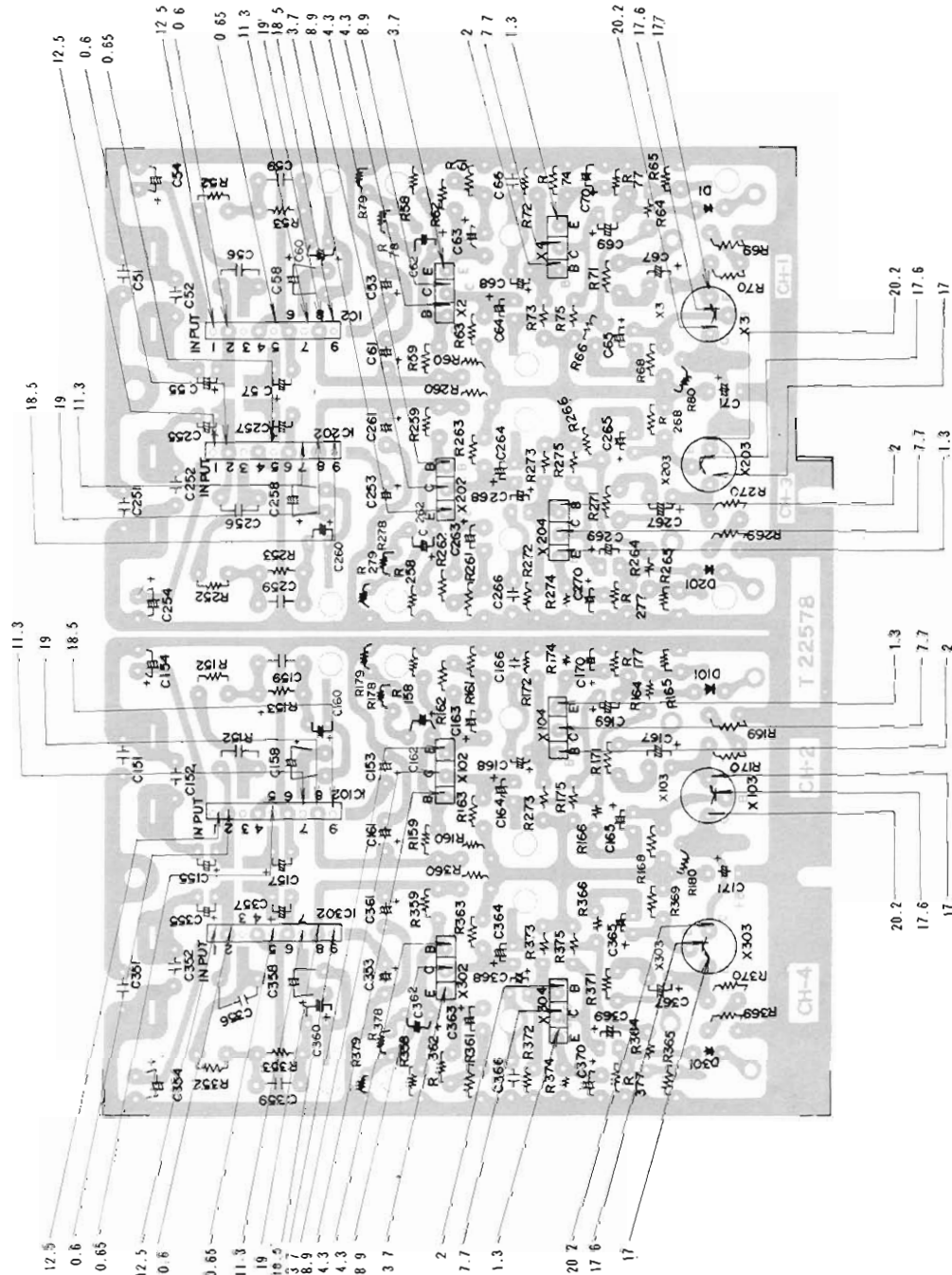
(1) Recording Amplifier



List for Recording Amplifier Circuit Board

Symbol No.	Parts No.	Parts Name	Remarks	Q'ty
	*T22577-001	Recording Amplifier Circuit Board		1
R12,112,212,312	Q04802-100	Carbon Resistor		8
R15,115	Q04802-100	Carbon Resistor		2
R6,106,206,306	Q04802-100	Carbon Resistor		4
R11,111,211,311	Q04802-2.7K	Carbon Resistor		4
R7,107,207,307	Q04802-2.7K	Carbon Resistor		4
R8,108,208,308	Q04802-27K	Carbon Resistor		8
R13,113,213,313	Q04802-39K	Carbon Resistor		4
R4,104,204,304	Q04802-47K	Carbon Resistor		4
R14,114,214,314	Q04802-56K	Carbon Resistor		4
R5,105,205,305 22,122,222,322	Q04802-470K	Carbon Resistor		8
C7,107,207,307	Q03104-30	Electrolytic Capacitor		4
C16,116,216,316	Q03104-100	Electrolytic Capacitor		4
C4,104,204,304 11,111,211,311 13,113,213,313	Q03108-10	Electrolytic Capacitor		12
C10,110,210,310	Q03108-30	Electrolytic Capacitor		4
C8,108,208,308	Q03110-5	Electrolytic Capacitor		4
C17,117,217,317	Q03110-30	Electrolytic Capacitor		4
C3,103,203,303 12,112,212,312 9,109	Q03110-100	Electrolytic Capacitor		10
L1,101,201,301	T40442-008	Inductor		4
C15,115,215,315	Q03244-183	Mylar Capacitor		4
C14,114,214,314	Q03244-393	Mylar Capacitor		4
C18,118,218,318	Q03244-104	Mylar Capacitor		4
C2,102,202,302 6,106,206,306	Q03286-101	FM Capacitor		8
C5,105,205,305	Q04305-68	Fixed Ceramic Capacitor		4
IC10,101,211	T30553-002	IC (Integrated Circuit)	MITSUMI	4
X1,201,301	2SC458LG (C)	Silicon Transistor	(HITACHI)	4

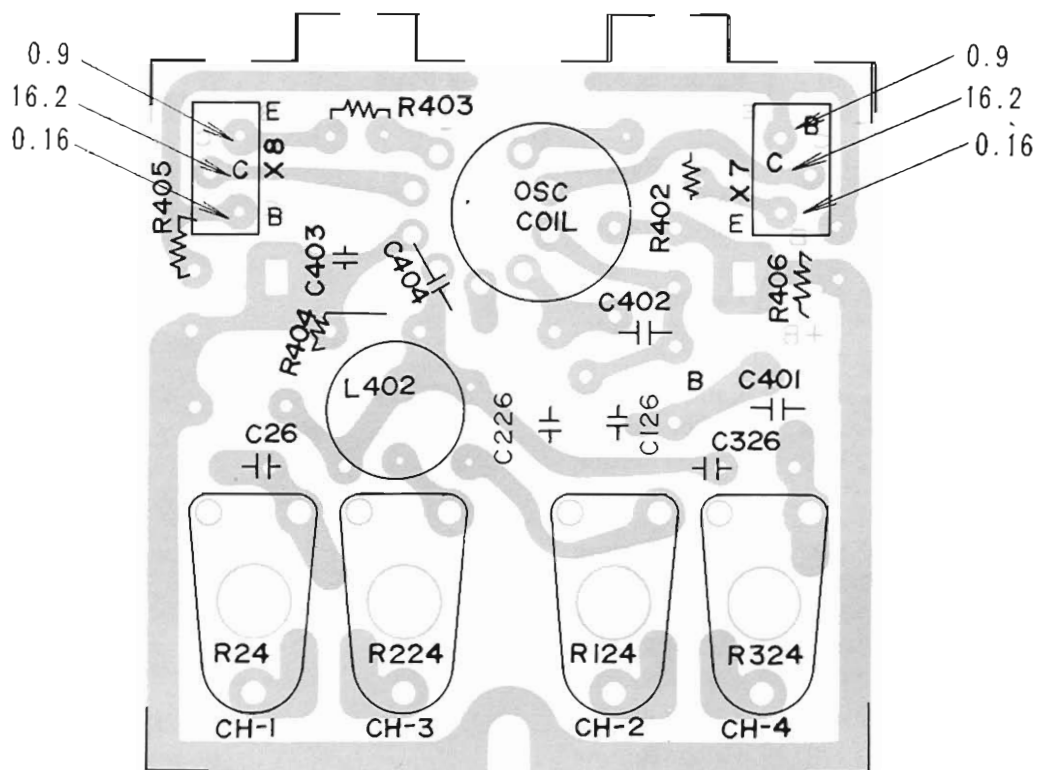
Playback Amplifier Circuit Board



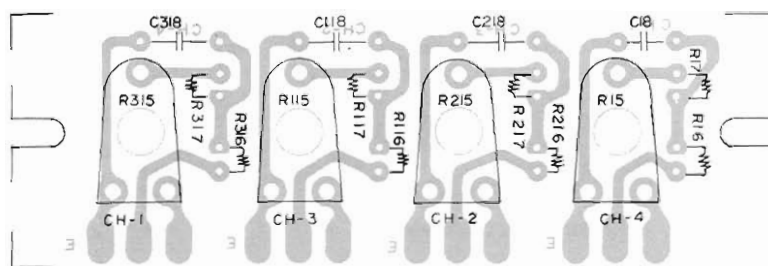
List for Playback Amplifier Circuit Board

Symbol No.	Parts No.	Parts Name	Remarks	Q'ty
	*T22578-001	Recording Amplifier Circuit Board		1
R61,161,261,361 80,180,280,380	Q04802-68	Carbon Resistor		8
R71,171,271,371	Q04802-100	Carbon Resistor		4
R74,174,274,374	Q04802-220	Carbon Resistor		4
R60,160,260,360	Q04802-270	Carbon Resistor		4
R62,162,262,362 80,180,280,380	Q04802-1K	Carbon Resistor		8
R78,178,278,378	Q04802-4.7K	Carbon Resistor		4
R66,166,266,366 75,175,275,375 77,177,277,377	Q04802-2.2K	Carbon Resistor		12
R63,163,263,363	Q04802-3.3K	Carbon Resistor		4
R64,164,264,364	Q04802-5.6K	Carbon Resistor		4
R72,172,272,372 65,165,265,365 52,152,252,352	Q04802-10K	Carbon Resistor		12
R68,168,268,368	Q04802-12K	Carbon Resistor		4
R58,158,258,358	Q04802-33K	Carbon Resistor		4
R73,173,273,373	Q04802-82K	Carbon Resistor		4
R59,159,259,359	Q04802-100K	Carbon Resistor		4
R79,179,279,379	Q04802-680K	Carbon Resistor		4
R53,153,253,353	Q04800-2.2M	Carbon Resistor		4
R69,169,269,369 70,170,270,370	Q04803-270	Carbon Resistor		8
C57,167,257,357 70,170,270,370	Q03104-30	Electrolytic Capacitor		8
C63,163,263,363	Q03104-50	Electrolytic Capacitor		4
C55,155,255,355 60,160,260,360	Q03108-10	Electrolytic Capacitor		8
C54,154,254,354 58,158,258,358	Q03108-30	Electrolytic Capacitor		8
C68,168,268,368	Q03110-1	Electrolytic Capacitor		4
C69,169,269,369	Q03110-5	Electrolytic Capacitor		4
C62,162,262,362 64,164,264,364 65,165,265,365	Q03110-10	Electrolytic Capacitor		12
C67,167,267,367	Q03110-50	Electrolytic Capacitor		4
C53,153,253,353 61,161,261,361 71,171	Q03110-100	Electrolytic Capacitor		10
C66,166,266,366	Q03244-152	Mylar Capacitor		4
C59,159,259,359	Q03244-562	Mylar Capacitor		4
C56,156,256,356	Q04305-47	Ceramic Capacitor		4
C52,152,252,352	Q04305-150	Ceramic Capacitor		4
C51,151,251,351	Q04305-100	Ceramic Capacitor		4
IC2,102,202,302	T30553-001	IC (Integrated Circuit)	MITSUMI	4
X2,102,202,302	2SC458L (C)	Silicon Transistor	} (HITACHI)	4
X4,104,204,304	2SC458L (B)	Silicon Transistor		4
X3,103,203,303	2SC984 (B)	Silicon Transistor		4
D1,101,201,301	1N34A	Diode		4
	FG9010-001	Tab		8

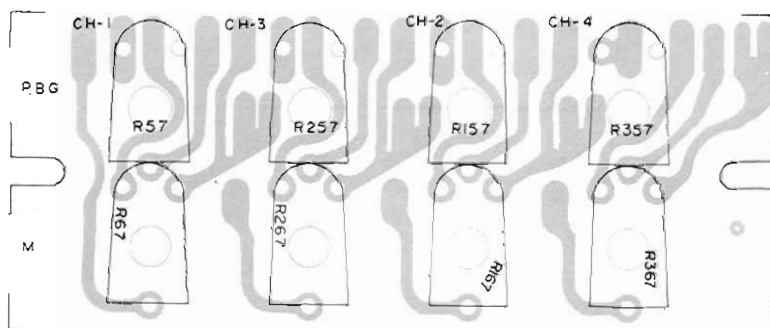
(3) Oscillator Circuit Board



(4) Recording Level Adjusting Circuit Board



(5) Playback Adjusting Circuit Board



List for Oscillator Circuit Board

Symbol No.	Parts No.	Parts Name	Remarks	Q'ty
	*T44446-001	Oscillator Circuit Board		1
R402,403	Q04802-68	Carbon Resistor		2
R404	Q04802-2.2K	Carbon Resistor		1
R405,406	Q04803-10	Carbon Resistor		2
C26,126,226,326	Q03286-510	FM Capacitor		4
C401,402	Q03285-431	FM Capacitor		1
C403	Q46962-01	Ceramic Capacitor		1
C404	Q46962-04	Ceramic Capacitor		1
C402	Q03285-511	O.F.T. Capacitor		1
L402	T30554-001	Oscillator Coil		1
	T30606-002	Inductor	1mH	1
R23,124,224,324	Q04851-005	Variable Resistor		4
X7,8	2SC1061 (B)	Transistor	HITACHI	2

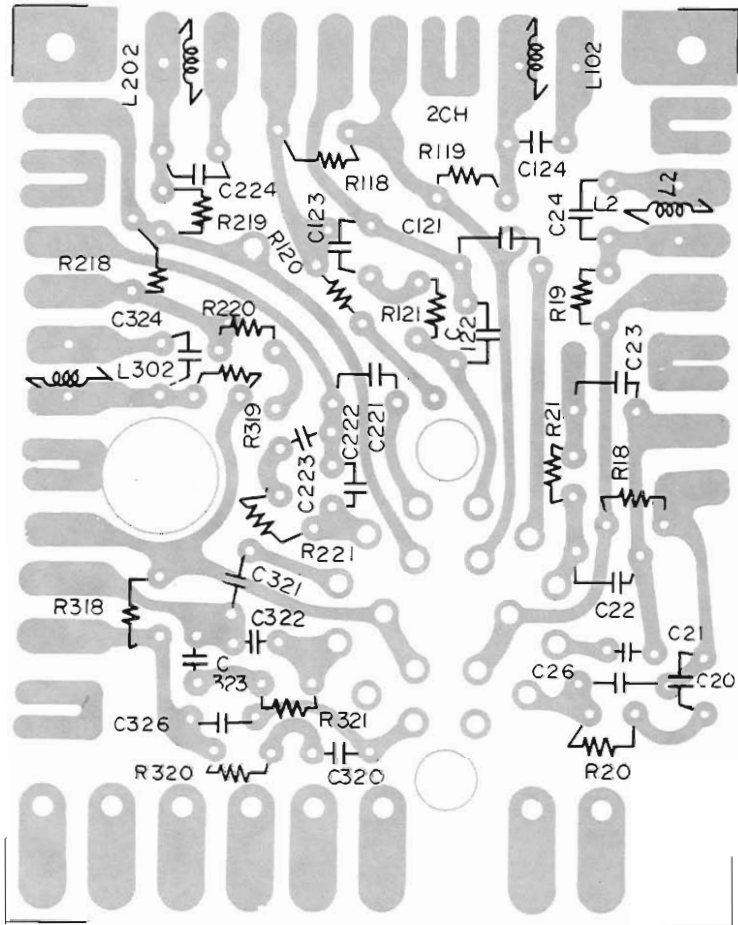
List for Recording Level Adjusting Circuit Board

Symbol No.	Parts No.	Parts Name	Remarks	Q'ty
	*T44556-001	Recording Level Adjusting Circuit Board		1
R15,115,215,315	*Q04846-006	Variable Resistor		4
R16,116,216,316	Q04802-33K	Carbon Resistor		4
R17,117,217,317	Q04802-68K	Carbon Resistor		4
C18,118,218,318	Q03244-102	FM Capacitor		4

List for Playback Adjusting Circuit Board

Symbol No.	Parts No.	Parts Name	Remarks	Q'ty
	*T44555-001	Playback Adjusting Circuit Board		1
R67,167,267,367	Q04850-004	Variable Resistor		4
R57,157,257,357	*Q04846-006	Variable Resistor		4
R56,156,256,356	Q04802-1K	Carbon Resistor		4

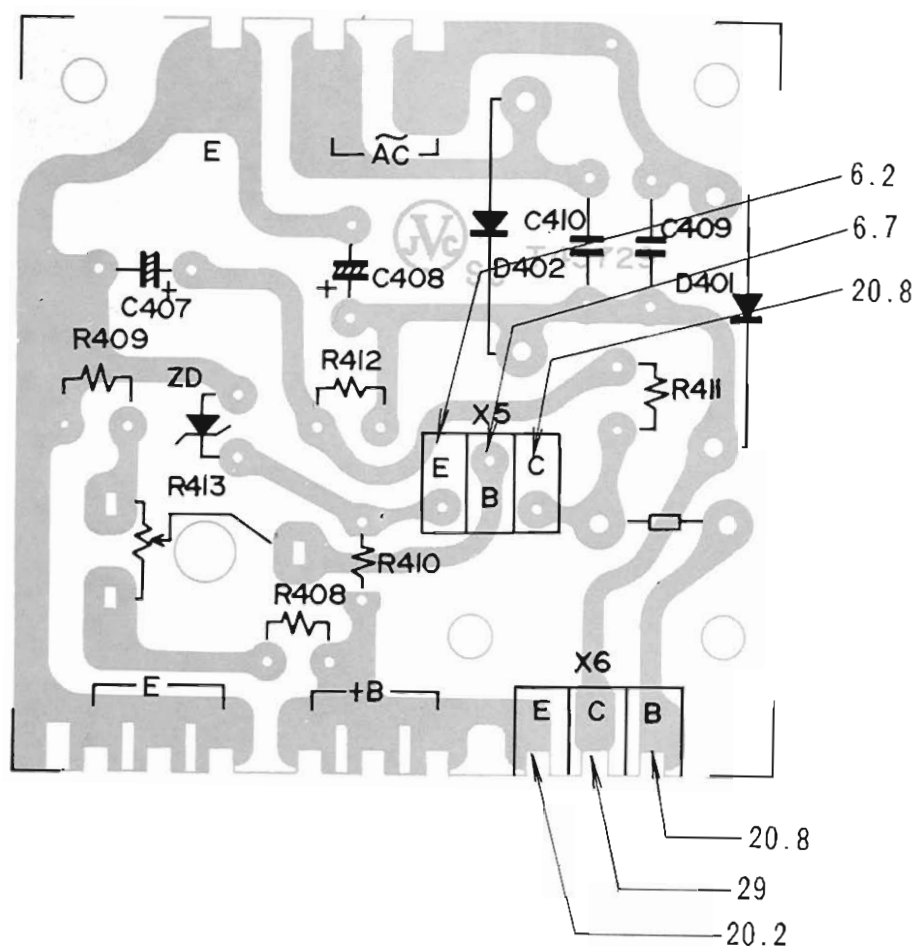
(6) Equalizer Circuit Board



List for Equalizer Circuit Board

Symbol No.	Parts No.	Parts Name	Remarks	Q'ty
	*T44447-001	Equalizer Circuit Board		1
R19,119,219,319	Q04802-12K	Carbon Resistor		4
R18,118,218,318	Q04802-47K	Carbon Resistor		4
R20,120,220,320 21,121,221,321	Q04802-15K	Carbon Resistor		8
C21,121,221,321	Q03244-122	Mylar Capacitor		4
C22,122,222,322 23,123,223,323	Q03244-332	Mylar Capacitor		8
C20,120,220,320	Q44353-472	Ceramic Capacitor		4
C24,124,224,324	Q03286-151	FM Capacitor		4
L2,102,202,302	T40442-001	Inductor		4

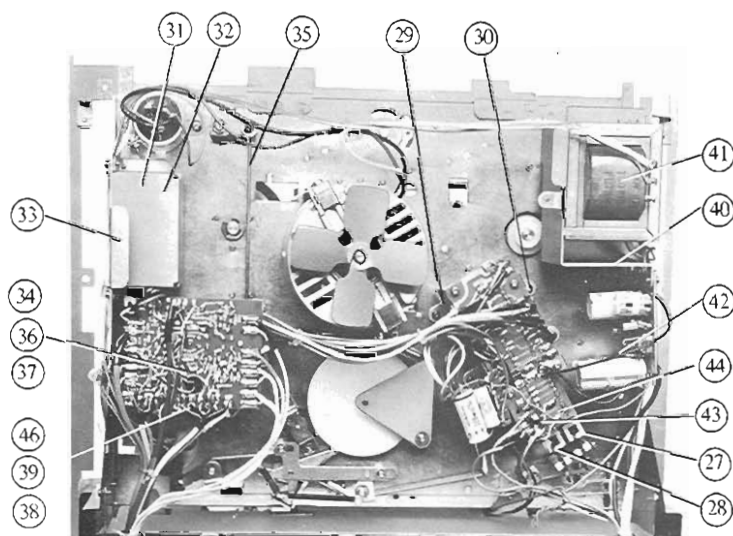
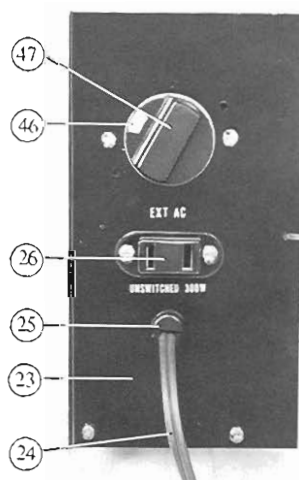
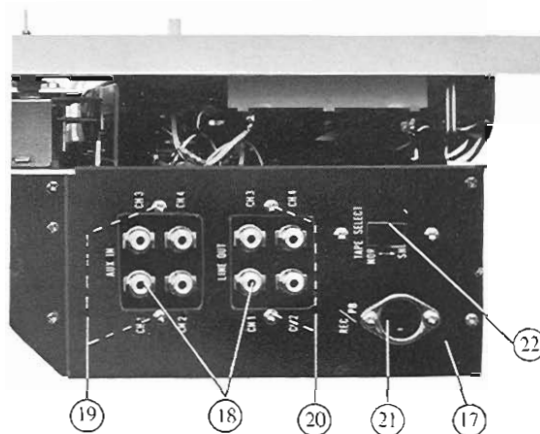
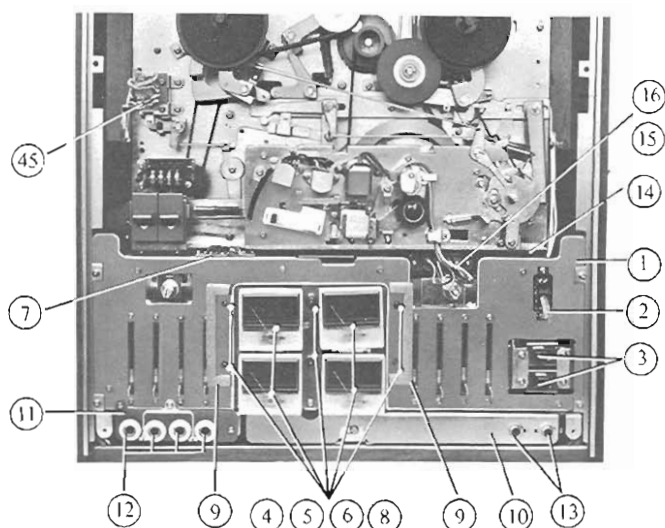
(7) Power Source Circuit Board



Power Source Circuit Board

Symbol No.	Parts No.	Parts Name	Remarks	Q'ty
	T43729-00B	Power Source Circuit Board		1
R412	Q04802-330	Carbon Resistor		1
R411	Q04802-470	Carbon Resistor		1
R410	Q04802-3.3K	Carbon Resistor		1
R409	Q04802-4.7K	Carbon Resistor		1
R408	Q04802-10K	Carbon Resistor		1
C407	Q03110-220	Electrolytic Capacitor		1
C406	Q03581-10Z	Electrolytic Capacitor		1
C408	Q03138-470	Electrolytic Capacitor		1
C409,410	Q42309-02	Ceramic Capacitor		2
C413	Q04845-005	Variable Resistor		1
D401,402	T30155-001	Silicon Diode	Japan international	2
Z. D	TR-6S	Zener Diode	HITACHI	1
X6	2SC1061 (B)	Transistor	HITACHI	1
X5	2SC984 (B)	Transistor	HITACHI	1

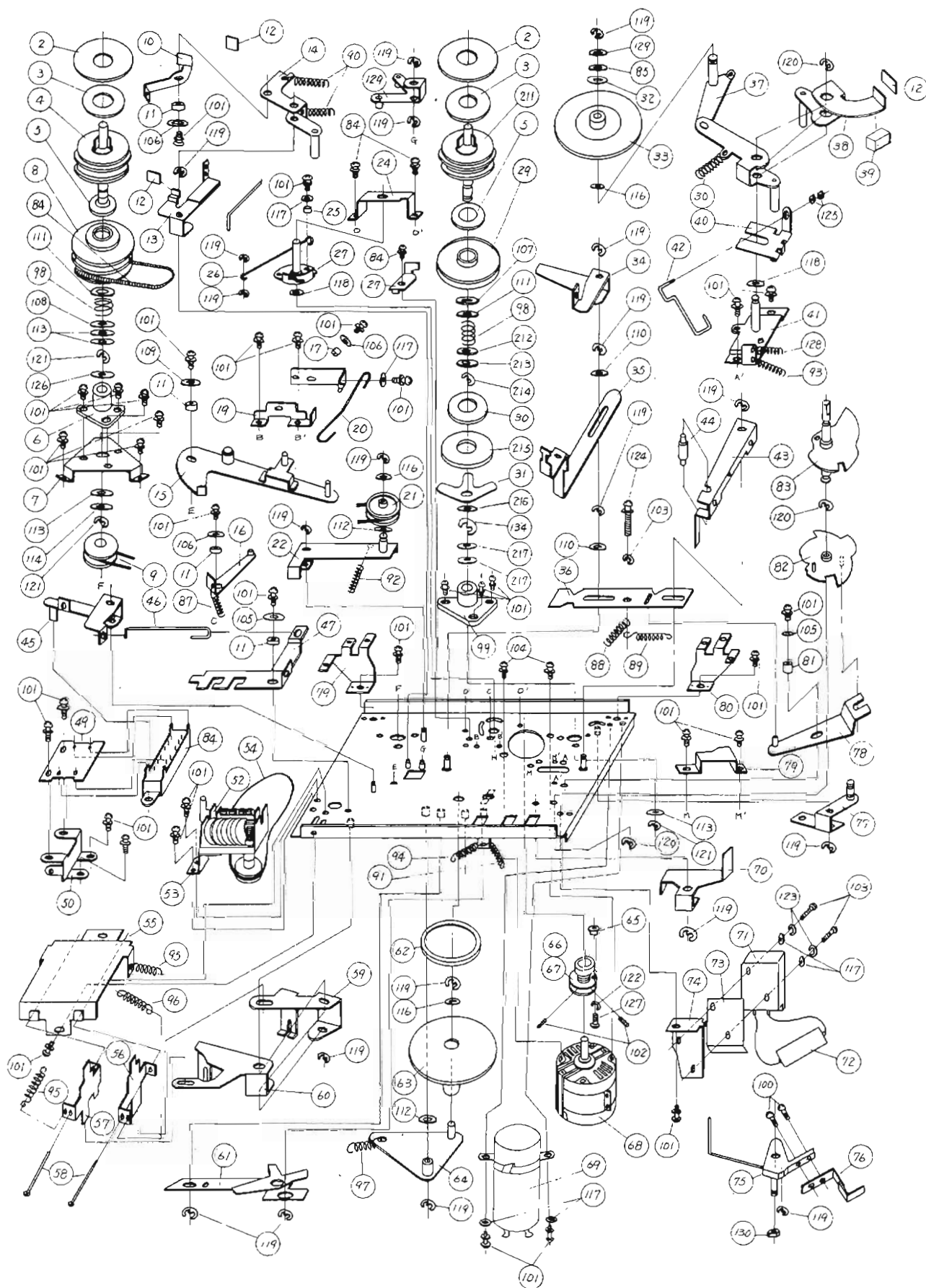
13. ELECTRICAL PARTS LIST EXCEPT CIRCUIT BOARD



Symbol No.	Parts No.	Parts Name	Remarks	Q'ty
1	*T22572-001	Control Plate		1
R55,155,255,355	*Q30329-002	Slide Variable Resistor	10k Ω	4
R10,110,210,310	*Q30341-002	Slide Variable Resistor	10k Ω	4
2	Q03085-004	Lever Switch		1
C412	Q03213-473	OFT Capacitor		1
3	Q03752-001	Slide Switch		2
4	F6040-001	Pilot Lamp	Long wire	5
5	F6040-002	Pilot Lamp	Short wire	5
6	53492-001	Rubber Bushing	For pilot lamp	10
7	*T44441-001	Circuit Board	For pilot lamp	1

Symbol No.	Parts No.	Parts Name	Remarks	Q'ty
R54,154,254,354	*Q30382-002	Variable Resistor	10k Ω	1
R9,109,209,309	*Q30385-003	Variable Resistor	100k Ω	1
8	*T44804-001	Meter Cushion		4
9	*T44894-001	Cushion		2
10	*T22573-00A	Bracket Ass'y	Front	1
11	*T44588-001	Jack Board	Mic	1
12	Q03961-001	Jack Ass'y	For Mic	1
C1,101,201,301	Q04305-47	Ceramic Capacitor		4
R3,103,203,303	Q04800-1.8K	Carbon Resistor		4
13	Q03958-001	Jack Ass'y	For headphone	2
R76,176,276,376	Q04800-10	Carbon Resistor		4
14	*T22576-001	Bracket	For rear	1
15	*T44442-001	Circuit Board	For play back head	1
16	FG9010-001	Tab		8
17	*T30710-001	Jack Board		1
18	T30233-001	Pin Jack Ass'y	Jack board	2
19	Q03007-33	Lug Strip Ass'y	Jack board	2
20	Q03007-53	Lug Strip Ass'y	Jack board	2
R78,178,278,378	Q04800-4.7K	Carbon Resistor	Jack board	4
R1,101,201,301	Q04800-470K	Carbon Resistor	Jack board	4
21	Q03967-001	DIN Socket Ass'y	Jack board	1
R2,102	Q04800-22K	Carbon Resistor	Jack board	2
22	Q04800-001	Slide Switch	Jack board	1
23	*T30559-001	AC Terminal Board	For 1400	1
23	T30720-001	AC Terminal Board	For 1400U	1
24	Q03054-P	Power Cord	Terminal board for 1400U	1
24	Q03056-014	Power Cord	Terminal board for 1400	1
25	T41336-001	Cord Stopper	Terminal board	1
26	Q30121-001	AC Socket Ass'y	Terminal board for 1400U	1
	Q30120-001	AC Socket Ass'y	Terminal board for 1400	1
27	Q03778-002	Slide Switch		1
28	Q03777-002	Slide Switch		1
29	*T44443-001	Switch Holder (A)		1
30	*T44444-001	Switch Holder (B)		1
31	*T44445-001	Radiation Plate		1
32	*T30713-001	Shield Case		1
33	*T30714-001	Bracket		1
34	*T30711-001	Rotary Switch		1
35	*T43529-003	Rod		1
36	*T44599-001	Switch Lever		1
37	T30302-032	Collar		1
38	Q30219-001	Fuse Board Ass'y	For 1400U	1
39	T42547-002	Fuse Seal	For 1400U	1
40	T30721-001	Transformer Bracket	For 1400U	1
40	T30721-002	Transformer Bracket	For 1400	1
41	*T30864-001	Power Transformer	For 1400	1
41	T30922-001	Power Transformer	For 1400U	1
42	T43730-001	Radiation Bracket		1
43	T30300-003	Spring		1
44	T30300-063	Spring		1
45	*T44448-001	Circuit Board		1
46	04112-23	Fuse	For 1400U	1
47	Q30087-001	Socket Ass'y	For 1400U	1
48	Q30052-001	Plug Ass'y	For 1400U	1
R407	Q04782-39T	Coil Resistor		1
C405	Q03109-200	Electrolytic Capacitor		1
C416	Q03581-10Z	Electrolytic Capacitor		1
L	T42489-001	Choke Coil		1

14. MECHANICAL PARTS LIST (I)

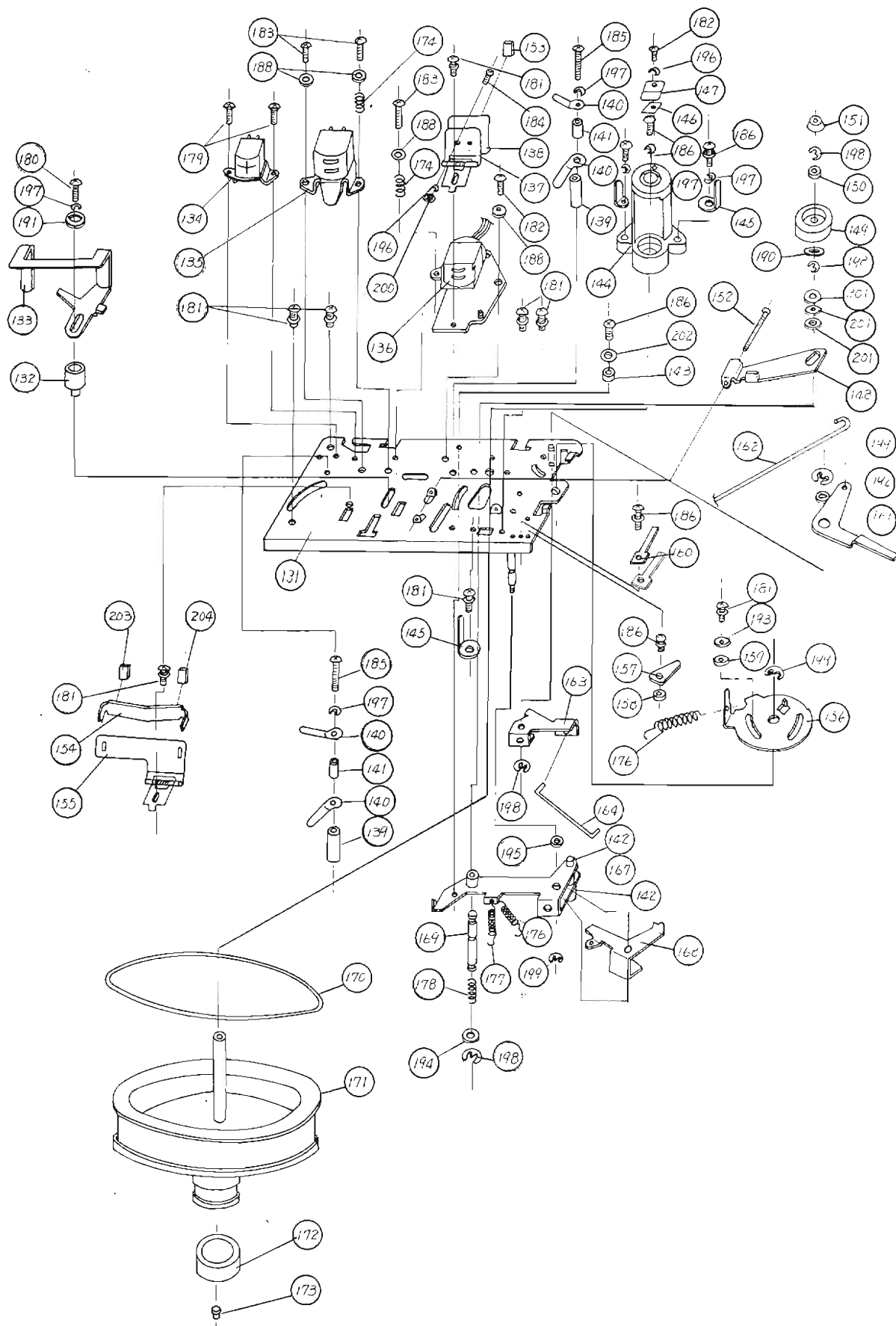


No.	Parts No.	Parts Name	Remarks	Q'ty
1	*T11360-00A	Chassis Base Ass'y		1
2	T41106-002	Reel Disc Decoration		2
3	T41529-001	Cement Seat		2
4	T30502-00A	Reel Disc Ass'y		1
5	T43399-001	Felt		2
6	T6469-001	Reel Disc Bearing		1
7	T43396-001	Supply Disc Holder		1
8	T43402-001	Friction Disc		1
9	T43415-00A	Counter Pulley Ass'y		1
10	T44609-001	Brake Lever		1
11	T30302-005	Collar		4
12	T5090-002	Brake Pad		3
13	T43497-00A	Inst. Brake Ass'y		1
14	T43496-00A	Brake Arm Ass'y		1
15	T43494-00A	Shifter Lever Ass'y		1
16	T43523-00A	Checker Arm Ass'y		1
17	T30302-025	Collar		1
18	T43520-00A	Change Lever Ass'y		1
19	T43518-001	Change Bracket		1
20	T43521-001	Change Rod		1
21	T5519-001	Belt Pulley		1
22	T43492-00A	Rewind Arm Ass'y		1
23	T43493-00A	Rewind Lever Ass'y		1
24	T44608-001	Change Shaft Holder		1
25	T30302-011	Collar		1
26	T43529-001	Rod		1
27	*T44560-00A	Change Cam Ass'y		1
28	T44562-001	Stop Bracket		1
29	T43398-001	Friction Disc		1
30	T43401-001	Felt		1
31	*T45268-001	Spring Plate		1
32	T5903-001	Felt		1
33	*T45266-00A	Idler Ass'y		1
34	T43435-001	Lever		1
35	T43455-001	Shifter Bar		1
36	T30504-001	Control Cam		1
37	T45431-00A	Idler Lever Ass'y		1
38	T43495-00A	Brake Arm Ass'y		1
39	T44534-001	Cushion		2
40	T42754-001	Fast Forwarding Arm		1
41	T43489-00A	Bracket Ass'y		1
42	T43436-001	Fast Forwarding Wire		1
43	T43425-00A	Index Arm Ass'y		1
44	T43426-001	Index Roller		1
45	T43743-001	Lever		2
46	T44605-001	Wire		1
47	*T44604-00A	Lock Cam Ass'y		1
48	T43538-001	Bracket		1
49	T44448-001	Circuit Board		1
50	T43765-001	Bracket		1
51	T30656-001	Slide Switch		1
52	T30569-001	Counter		1
53	T43416-001	Counter Bracket		1
54	T40291-001	Counter Belt		1
55	T43459-001	Recording Bracket		1

No.	Parts No.	Parts Name	Remarks	Q'ty
56	T43460-001	Recording Knob Lever (R)		1
57	T43461-001	Recording Knob Lever (L)		1
58	T43462-001	Guide Rod		1
59	*T44565-001	Recording Arm (R)		1
60	*T44566-001	Recording Arm (L)		1
61	T43498-00A	Stop Slider Ass'y		1
62	T43977-001	Belt		1
63	T43983-00A	Stop Pulley Ass'y		1
64	T43981-001	Plate Ass'y		1
65	T43532-001	Stud		1
66	*T45430-001 ~ 003	Motor Pulley	For 50Hz	1
67	*T45430-004 ~ 006	Motor Pulley	For 60Hz	1
68	m572-00A	Motor		1
69	*T44771-00A	MP Capacitor		1
70	T43429-001	Mode Lock Lever		1
71	T30422-002	Microswitch	For 1400U	1
	T3428-001	Microswitch	For 1400	1
72	Q03212-473	OFT Capacitor		1
73	T42819-001	Insulator		1
74	T43473-001	Microswitch Bracket		1
75	T43471-00A	Actuator Ass'y		1
76	T43533-001	Balance Plate		1
77	*T44563-00A	Connector Ass'y		1
78	T43488-00A	Connector Lever Ass'y		1
79	T43403-001	Holder, Bracket		1
80	T43538-002	Bracket		1
81	T30302-024	Collar		1
82	T43487-00A	Drive Cam Ass'y		1
83	T43486-00A	Control Cam Ass'y		1
84	T6083-001	Rewind Belt		1
85	T5313-001	Oil Container		1
86	T30300-011	Spring		1
87	T30300-033	Spring		1
88	T30300-035	Spring	(R)	1
89	T30300-036	Spring	(L)	1
90	T30300-038	Spring		3
91	T30300-039	Spring		1
92	T30300-003	Spring		2
93	T30300-042	Spring		1
94	T30300-045	Spring		1
95	T30300-047	Spring		1
96	T30300-048	Spring		1
97	T30300-057	Spring		1
98	T30301-057	Spring		2
99	*T45270-001	Reel Disc Bearing		1
100	SPSP2006Z	Screw		1
101	LPSP3006ZS	Screw		37
102	YRS3006BS	Screw		1
103	SPSP3014ZS	Screw		1
104	SPSP4008ZS	Screw		2
105	Q03091-103	Washer		2
106	Q03091-105	Washer		3
107	Q03091-133	Washer		2

No.	Parts No.	Parts Name	Remarks	Q'ty
108	Q03091-135	Washer		5
109	Q03091-138	Washer		2
110	Q03091-146	Washer		4
111	Q03093-433	Washer		2
112	Q03093-505	Washer		3
113	Q03093-509	Washer		1
114	Q03093-510	Washer		2
115	Q03093-514	Washer		2
116	Q03093-605	Washer		3
117	WNS3000N	Washer		3
118	WNS6000N	Washer		2
119	REE4000	"E" Washer		20
120	REE5000	"E" Washer		3
121	REE7000	"E" Washer		5
122	WLS2000	Lock Washer		1
123	WLS3000	Lock Washer		3
124	SPSP3025	Screw		1
125	NTB2000	Nut		2
126	Q03093-604	Washer		1
127	SPSP2008Z	Screw		1
128	T30300-021	Spring		1
129	Q03093-516	Washer		1
130	NTB3000S	Nut		1
211	*T30882-00A	Reel Disc Ass'y		1
212	Q03091-112	Washer		1
213	Q03091-502	Washer		1
214	REE3000	"E" Washer		1
215	*T45267-00A	Take-up Disc Ass'y		1
216	Q03093-405	Washer		1
217	Q03093-102	Washer		1

15. MECHANICAL PARTS LIST (II)



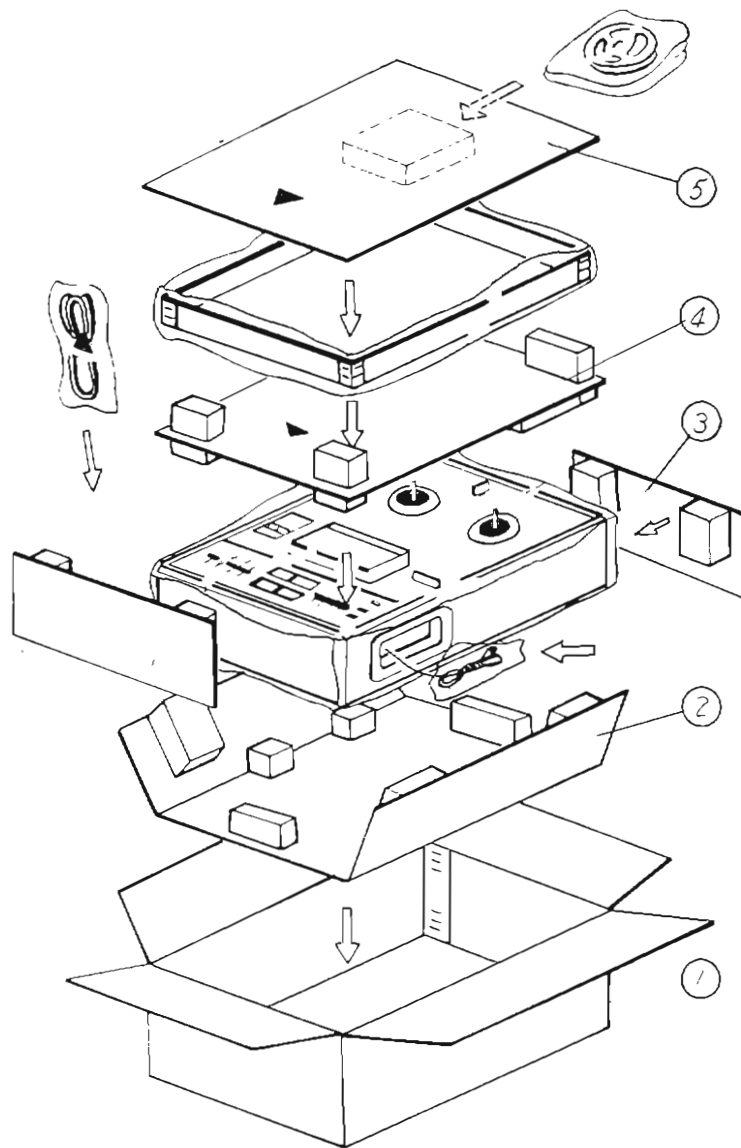
No.	Parts No.	Parts Name	Remarks	Q'ty
131	T30510-00C	Mounting Plate Ass'y		1
132	T43451-001	Spacer		1
133	T45865-001	Tape Shifter		1
134	*T400063-00A	Erasing Head Ass'y		1
135	*T400067-00A	Recording Head Ass'y		1
136	*T400068-00A	Playback Head Ass'y		1
137	T43501-00A	Pad Arm Ass'y		1
138	T43447-001	Shield Plate		1
139	T43452-001	Tape Guide Spacer		2
140	T42805-001	Guide Plate		4
141	T42804-001	Tape Guide		2
142	T30302-023	Collar		1
143	T30302-009	Collar		1
144	T30503-00A	Capstan Metal Ass'y		1
145	S4709-001	Wire Clamp		3
146	T43536-001	Spring Plate		1
147	T44325-001	Protector		1
148	T43444-001	Elevation Arm		1
149	T42832-00A	Pinch Roller Ass'y		1
150	T30302-019	Collar		1
151	T42834-001	Pinch Roller Cap		1
152	T42830-001	Guide Rod		1
153	T45158-003	Pad		2
154	T43449-001	Pad Plate		1
155	T43502-00A	Pad Arm Ass'y		1
156	T43423-001	Fast Forwarding, Temporary Stop Lever		1
157	T44286-001	Fast Forwarding Lever		1
158	T30302-012	Collar		1
159	T30302-012	Collar		1
160	T43424-001	Spring Plate		1
161	T43431-001	Inst. Stop Lever		1
162	T43432-001	Inst. Stop Wire		1
163	T43433-001	Fast Forwarding Lever		1
164	T43434-001	Wire		1
165	T43500-00A	Pinch Roller Arm Ass'y		1
166	T43440-001	Shaft		1
167	T43441-001	Pipe Spacer		1
168	T44208-001	Inst. Reset Lever		1
169	T43443-001	Pinch Roller Shaft		1
170	T43534-001	Capstan Belt		1
171	T43393-00A	Capstan Ass'y		1
172	T43335-001	Tire		1
173	F4614-001	Collar		1
174	T7159-001	Spring		2
175	T30300-042	Spring		1
176	T30300-043	Spring		1
177	T30300-044	Spring		1
178	T30301-019	Spring		1
179	SPSP2610Z	Screw		2
180	SPSP301ZS	Screw		1
181	LPSP3006ZS	Screw		10
182	SPSP2006Z	Screw		3
183	SPSP2614Z	Screw		2
184	SPSP2004N	Screw		1
185	SPSP3030ZS	Screw		2

No.	Parts No.	Parts Name	Remarks	Q'ty
186	SPSP3008ZS	Screw		4
187	WNS3000N	Washer		1
188	WSB2600N	Washer		4
189	Q03091-103	Washer		1
190	Q03093-102	Washer		1
191	WNS3000N	Washer		1
192	Q03091-202	Washer		1
193	Q03091-105	Washer		1
194	Q03093-301	Washer		1
195	Q03093-508	Washer		1
196	WLS2000	Lock Washer		2
197	WLS3000	Lock Washer		3
198	REE3000	"E" Washer		4
199	REE5000	"E" Washer		3
200	NTB2000	Nut		2
201	WNS4000N	Washer		1
202	Q03091-138	Washer		1
203	T45158-001	Pad		1
204	T45158-003	Pad		1

16. ACCESSORIES AND ACCOMPANIMENT

No.	Parts No.	Parts Name	Remarks	Q'ty
	DT-452	Demonstration Tape		1
	T3312-032	Empty Reel		1
	F4705	PIN Cord		4
	T44186-001	Reel Clamp		2
	T44391-00B	Dust Cover Ass'y	(For 1400U)	1
	T44391-00D	Dust Cover Ass'y	(For 1400)	1
	T44522-001	Caution Card	(For dust cover)	1
	T45530-001	Feature Tag	(For 1400)	1
	T22457-001	Service Station List	(For 1400)	1
		Warranty Card	(For 1400)	1

17. PACKING MATERIAL



No.	Parts No.	Parts Name	Remarks	Q'ty
1	T30627-010	Case	(For 1400U)	1
	T30627-009	Case	(For 1400)	1
2	T30627-002	Bottom Pad		1
3	T30627-003	Side Pad	(Both right and left)	2
4	T30627-004	Upper Pad		1
5	T30627-005	Top Pad		1
	*T30627-00F	Packing Case Ass'y	(For 1400U)	1
	T30627-00E	Packing Case Ass'y	(For 1400)	1
	T41703-006	Envelope	(For body)	1
	AP4056-066	Envelope	(Instruction Book)	3
	AP4056-046	Envelope	(For cord)	1
	AP4056-034	Envelope	(For power supply cord)	1
	T43758-001 or 002	Serial Ticket	(For 1400U)	2
	T43758-003	Serial Ticket	(For 1400)	2

THE LIST OF **JVC** NIVICO SERVICE MANUAL

(TELEVISION)

No.	Model	No.	Model	No.	Model	No.	Model
3051	11-7049	3068	7020A, 7023A	3085	3220SC	3100	HB-2001
3052	F-505S	3069	10-7050, 10-7060	3086	122-2002CT	3101	3240
3053	F-597ANC	3070	2810MU, 2820MU	3087	2850AN	3102	HB1201
3054	9T-223FJU		2830MU	3088	2450AB	3103	122-2001
3055	F-507HU	3071	2841HU		2450ABT	3104	122-2010, 122-2009
3056	7026A	3072	F-506AB	3089	3210MU	3105	16-1252A
3057	7062A	3073	2630MU	3090	2450MU, 2460MU	3106	122-2000
3058	2840HU	3074	7055A		2461MU	3107	122-2003
3059	F-597CQC	3075	122-1010CT	3091	2850AB	3108	2453AB
	F-597CQ	3076	P8008U, P8050U	3092	2870CQ, 2870CQC	3109	3240GH
3060	F-442ANC	3077	2841HUB	3093	2640		3240SW
3061	2810AB	3078	3220GM	3094	2861, 2862		3240SC
3062	F-506CQDC	3079	2690CQ	3095	2451, 2462	3110	2900CQD
3063	122-1008CT	3080	3220FL	3096	BTV/1272		2900CQDC
3064	2450, 2460	3081	2690CQC	3097	2850MU, 2860MU		
3065	2850, 2860	3082	3220SW #3		2861MU		
3066	3220SW	3083	3220SW #4	3098	3230		
3067	122-1005CT	3084	122-2008CT	3099	2863AB		

(TAPE RECORDER)

No.	Model	No.	Model	No.	Model	No.	Model
4001	TR-403	4016	TD-684U	4032	CHR-250UPX	4049	505UL
4002	TR-711	4017	STR-25G, H	4033	TR-1035U	4050	1605
4003	STR-20	4018	STR-26E	4034	1624	4051	1340
4004	TR-611	4019	TR-351U (333) (B)	4035	CAR-310E/1310	4052	1710
4005	TR-411	4036		1001	4053	1664U	
4006	TR-111U	4020	TR-551U	4037	TR-1040U	4054	1602U
4007	TR-311U	4021	CHR-100U (H)	4038	TD-694U	4055	1350, 1350E
4008	TR-511	4022	CAR-300E	4039	TR-224U	4056	1400, 1400U
4009	JV-1	4023	CCR-624U	4040	TR-171F	4057	1690, 1690U
4010	MAYFAIR	4024	CCR-600E/1600	4041	TR-171US	4058	1625U, M, UD
	400 & 600	4025	1694	4042	TR-175CAT	4059	1202, 1202UH
4011	NIVICO-500	4026	CCR-620R		14-1974	4060	
4012	TR-541U (505) (B)	4027	TR-545U/1545	4043	1224		
4013		4028	1100	4044	TD-344U		
4014	TR-161U	4029	CCP-630E/1630	4045	CCR-601U		
4015	TR-171U (555) (B)	4030	TR-561U	4046	CCR-660U		
		4031	CCR-620RE/1620	4047	TR-1049U		
				4048	TR-8, CAT14-912		

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