



SERVICE MANUAL

BASF-CC-RECORDER

9202 CrO₂ V, EE, H, C, UK

December 1974

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I. DISASSEMBLY INSTRUCTIONS

1. To remove Back Cover (refer to Fig. A)

- 1) Remove the battery room lid.
- 2) Remove the four screws ((1) through (4))
securing the back cover in place.

2. To remove Printed Circuit Board (refer to Fig. B)

- 1) Remove the five screws ((A) through (E))
securing the printed circuit board in place.

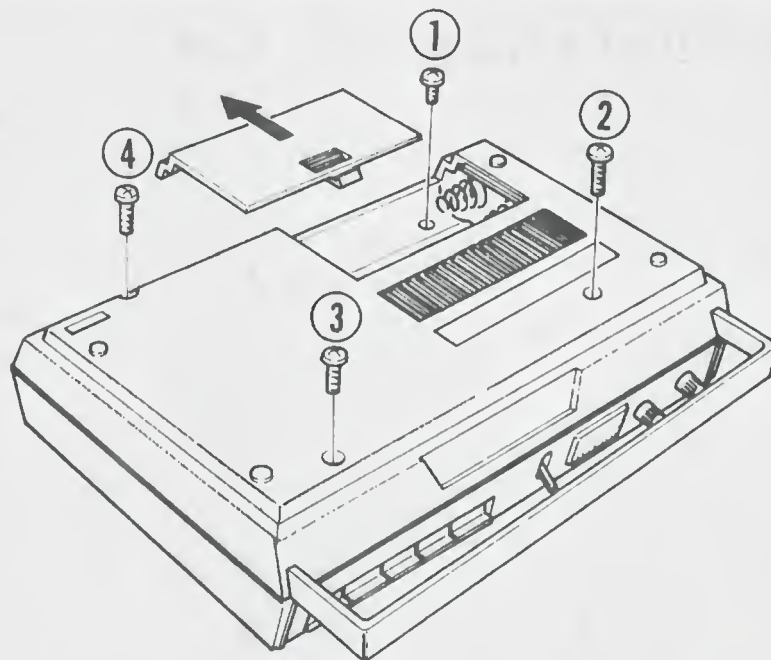
3. To remove Chassis (refer to Fig. B)

- 1) First, remove the carrying handle.

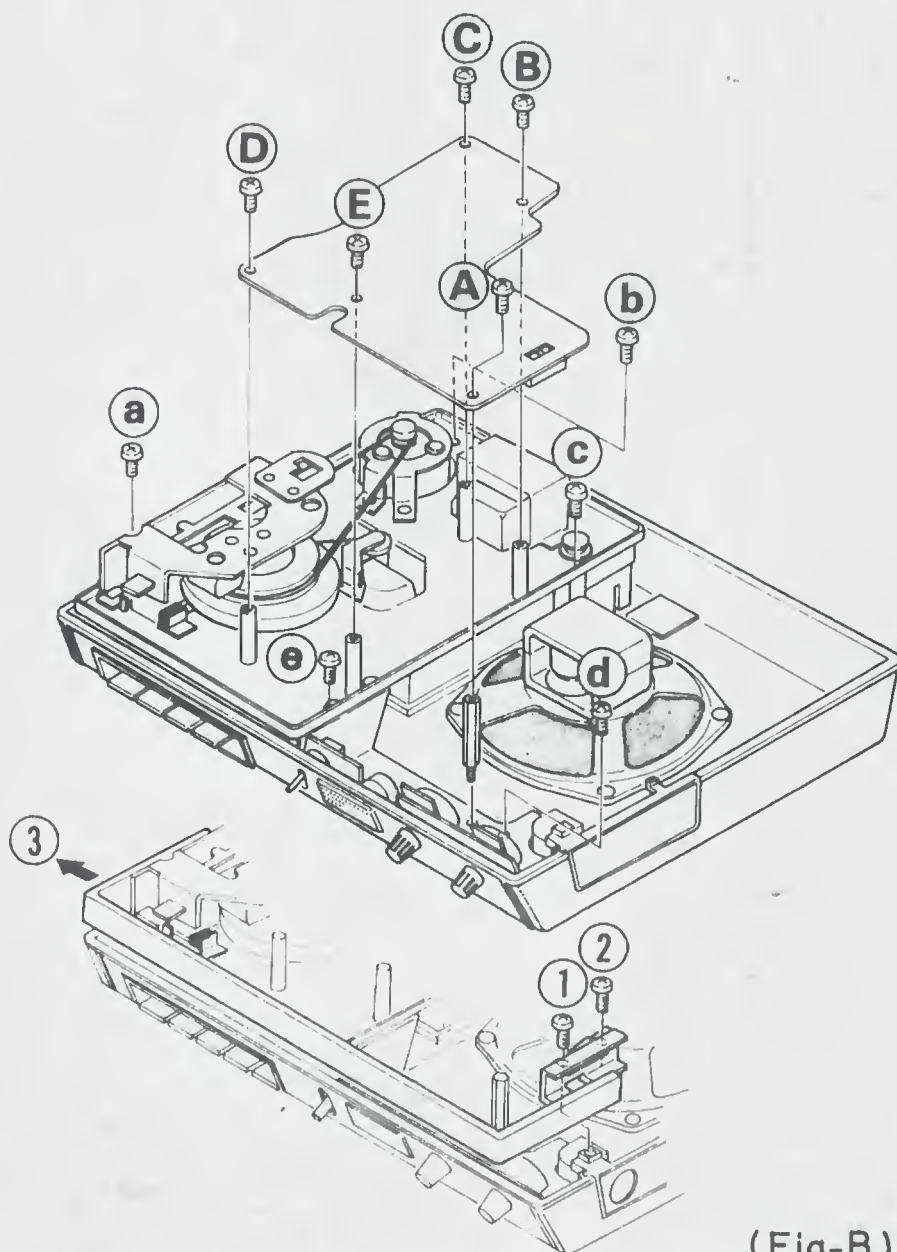
How to remove the carrying handle?

Remove the two screws, (1) and (2), and then remove the handle guide. Now, move the carrying handle in the direction indicated by the arrow (3) and it will be removed easily.

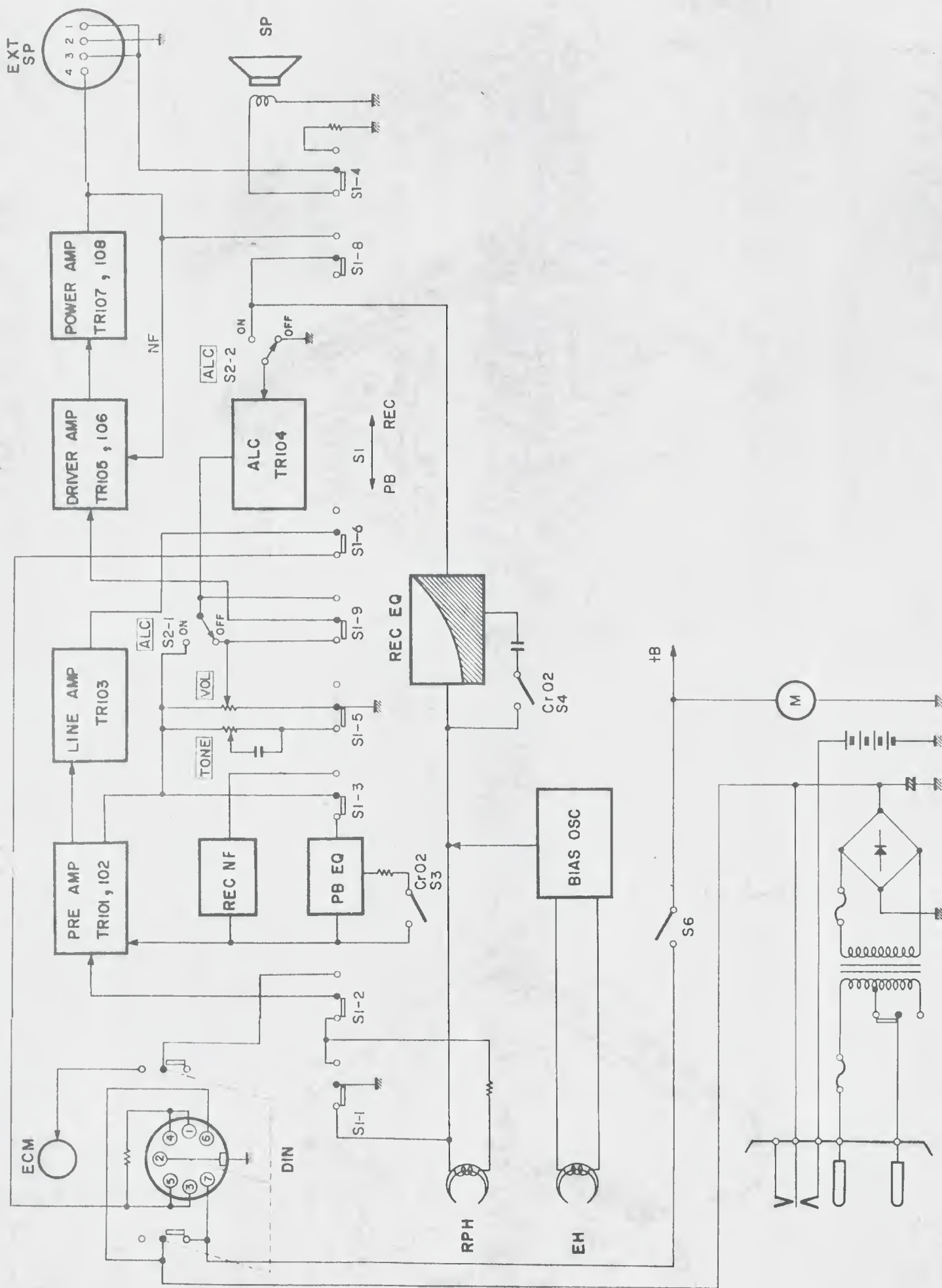
- 2) Next, remove the five screws ((a) through (e))
securing the chassis in place.

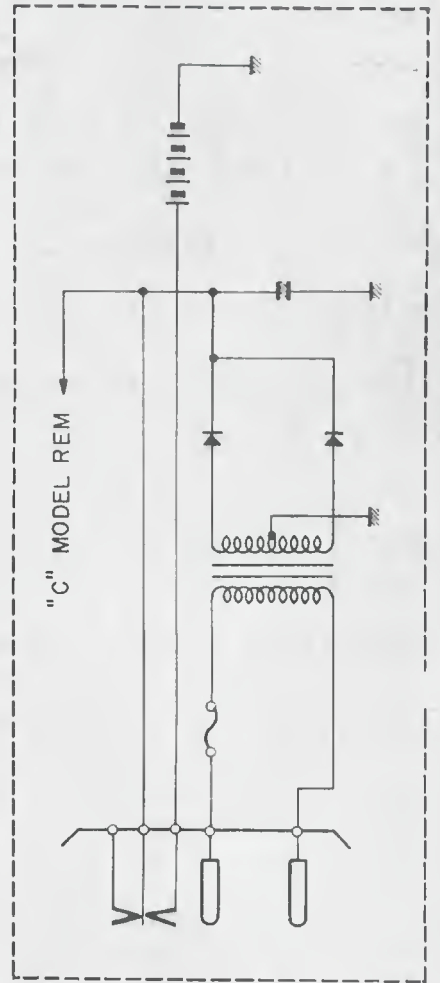
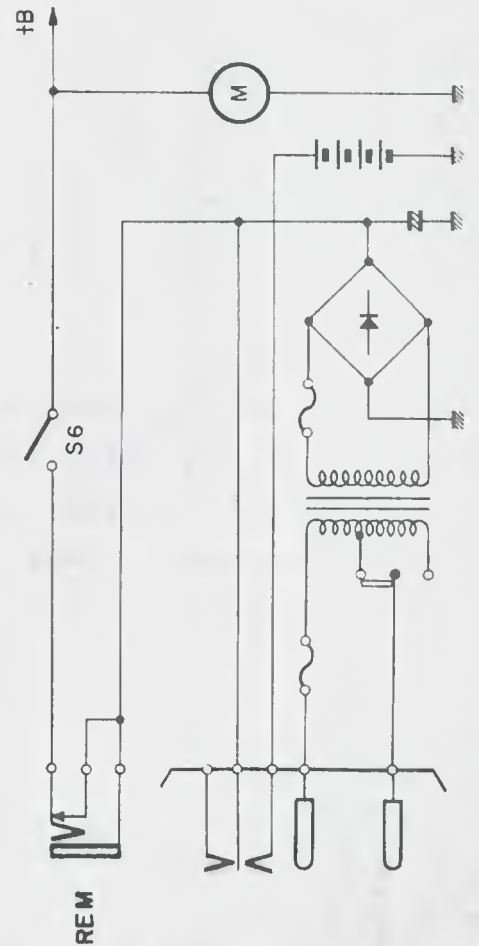
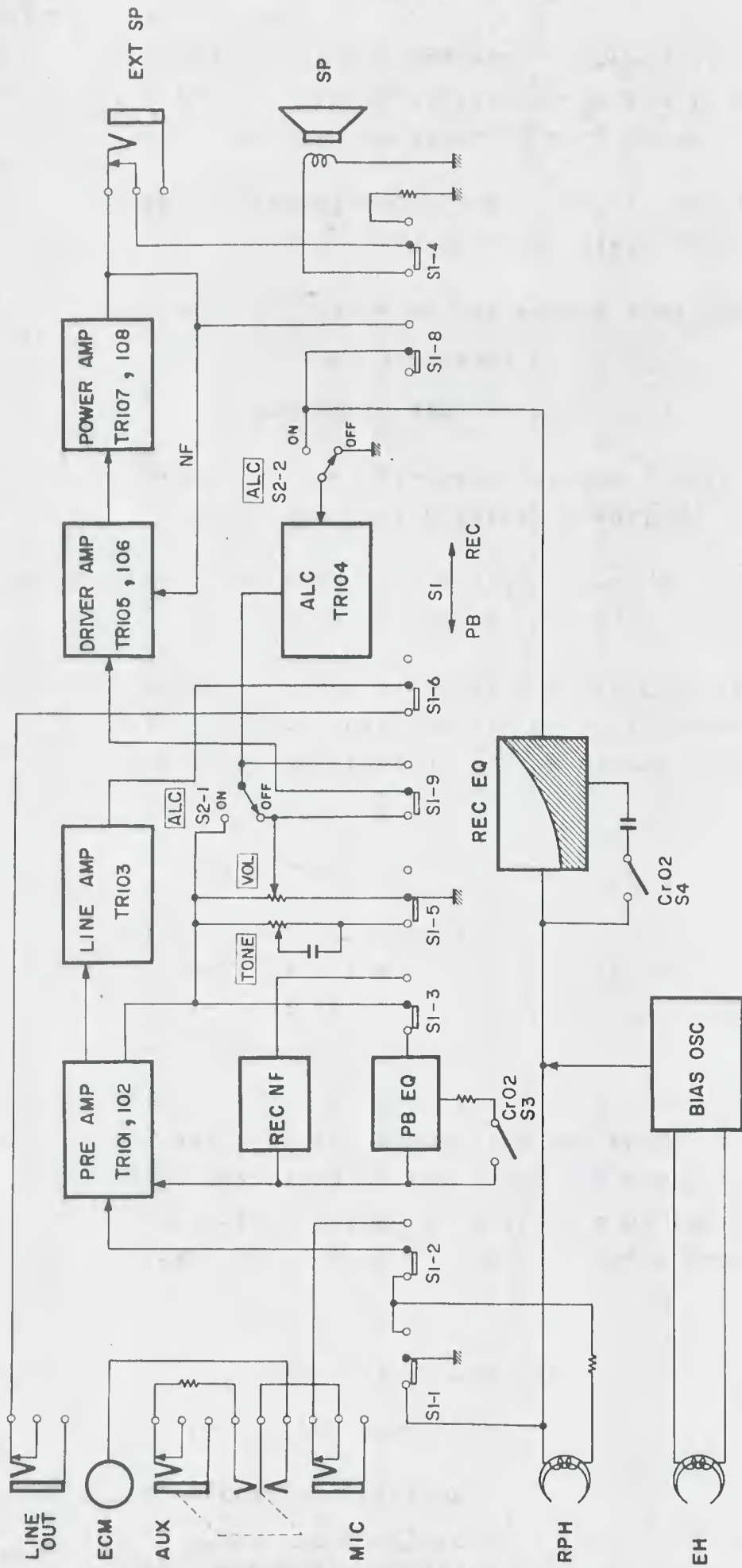


(Fig-A)



(Fig-B)





III. ALIGNMENT PROCEDURES

A. MECHANICAL SECTION

1. Mechanical Checkpoints

1-1 Pinch roller pressure:

240 - 300 g

Operate the recorder in FWD (without tape), apply a tension gauge to the pinch roller as indicated by the illustration, and press it to the pinch roller until the pinch roller comes to halt. Read the value on the gauge when the pinch roller came to stop as above. (Refer to Fig. 1).

How to adjust:

As indicated in Fig. 1, move the lower end of the spring into the next hole in either (1) or (2) direction to adjust the pinch roller pressure properly.

1-2 Take-up torque:

35 - 70 g-cm

Measure on the take-up reel platform operating in PLAY. When less than 35 g-cm, check to see if it is caused by possible slipping between the reel platform and the PLAY idler.

a. If found slipping, clean the flywheel, PLAY idler and reel platform, using a soft piece of cloth moistened with alcohol.

b. If the reel platform itself is the cause for the slipping, replace the reel platform. (Refer to Fig. 2).

1-3 Rewind torque:

70 g-cm or higher

Measure the torque on the supply reel platform operating in REW.

a. If less than 70 g-cm, clean the reel platform or FR idler with an alcohol-moistened piece of cloth. (Refer to Fig. 3).

b. If the insufficient slip torque of the flywheel itself is the cause, replace either one of the flywheel spring, slip felt or the whole flywheel assembly. (Refer to Fig. 4).

1-4 F.F. torque:

70 g-cm or higher

Measure the torque on the take-up reel platform operating in F. FWD. Check and correct it in the similar manners as instructed in 1-2 above.

2. Mechanical Adjustments

2-1 Wow and flutter:

0.37 % (WP-P) or less.

The value is to be measured with a 3 kHz test tape.

2-2 Tape speed:

4.76 cm/s $\pm$ 2 %.

Use a 3 kHz test tape for the measurement.

If found deviating for more than $\pm$ 2 %, replace either the adjuster motor pulley or the motor itself.

2-3 Flywheel thrust gap:

0.1 - 0.3 mm

If too loose, re-adjust the gap to 0.1 - 0.3 mm by turning the thrust adjuster screw by means of a (-) screw-driver. (Refer to Fig. 5).

2-4 F.F. or REW time:

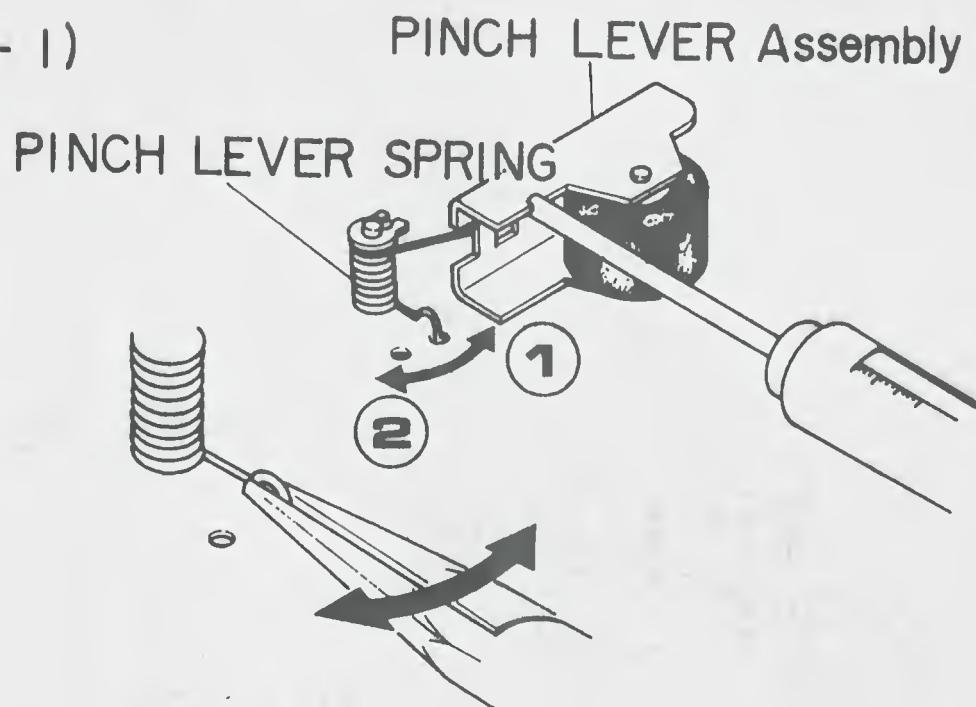
Within 120 seconds with C 60 cassette.

If found slower in the take-up speed, adjust it, referring to the mechanical checkpoints listed in 1-3 and 1-4 above.

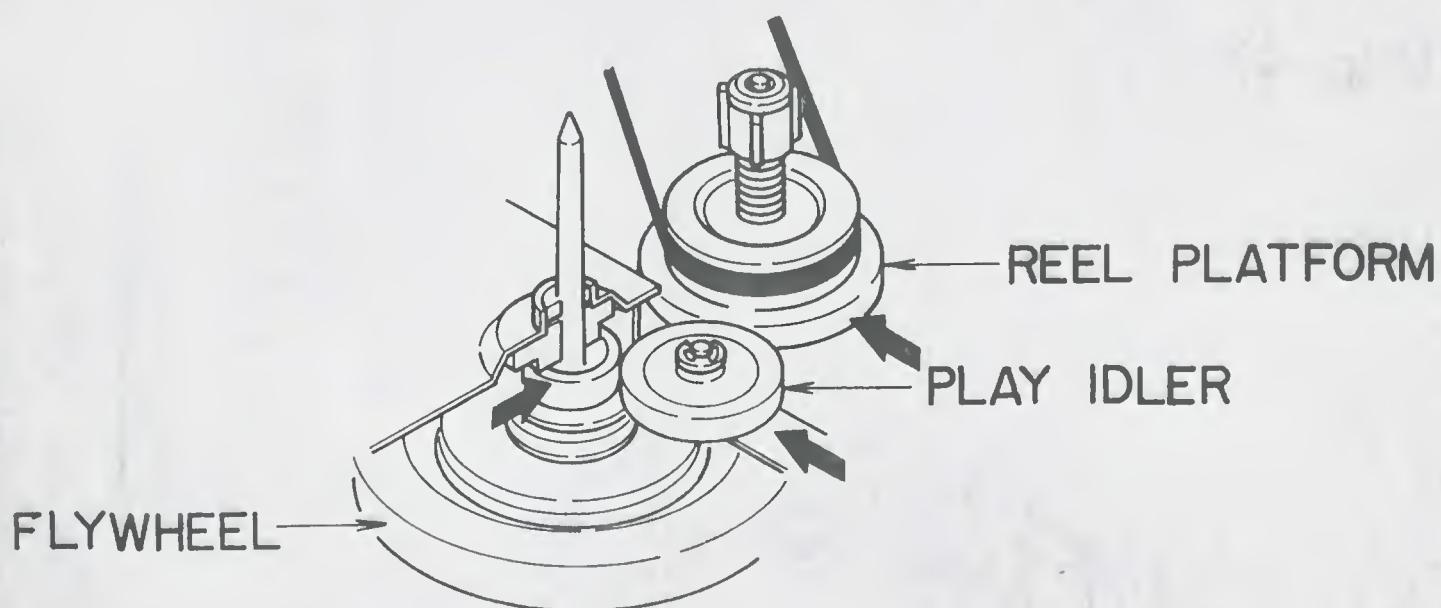
3. Lubrication

Ordinary use of this recorder requires no lubrication. With 1000 hours or more of the continuous use, however, its shaft bearing will be lubricated with turbine oil. (Refer to Fig. 6).

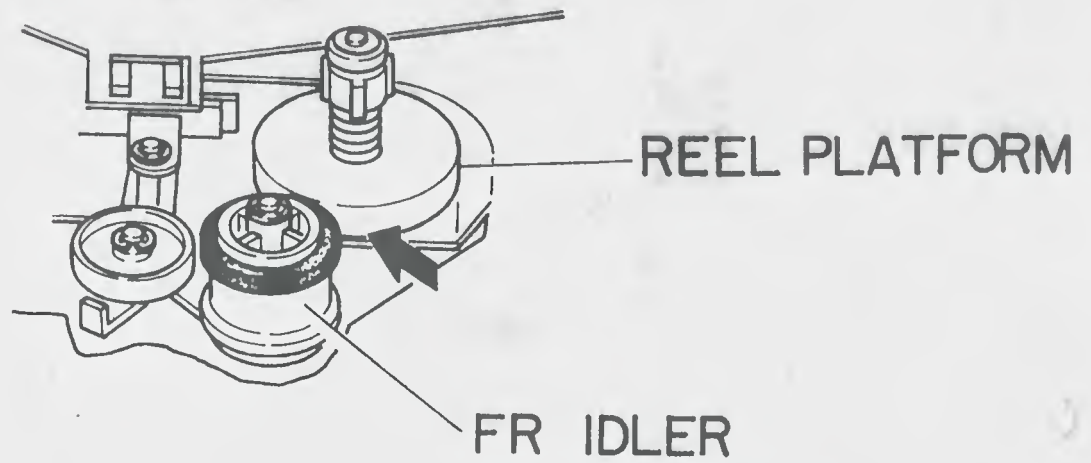
(Fig - 1)



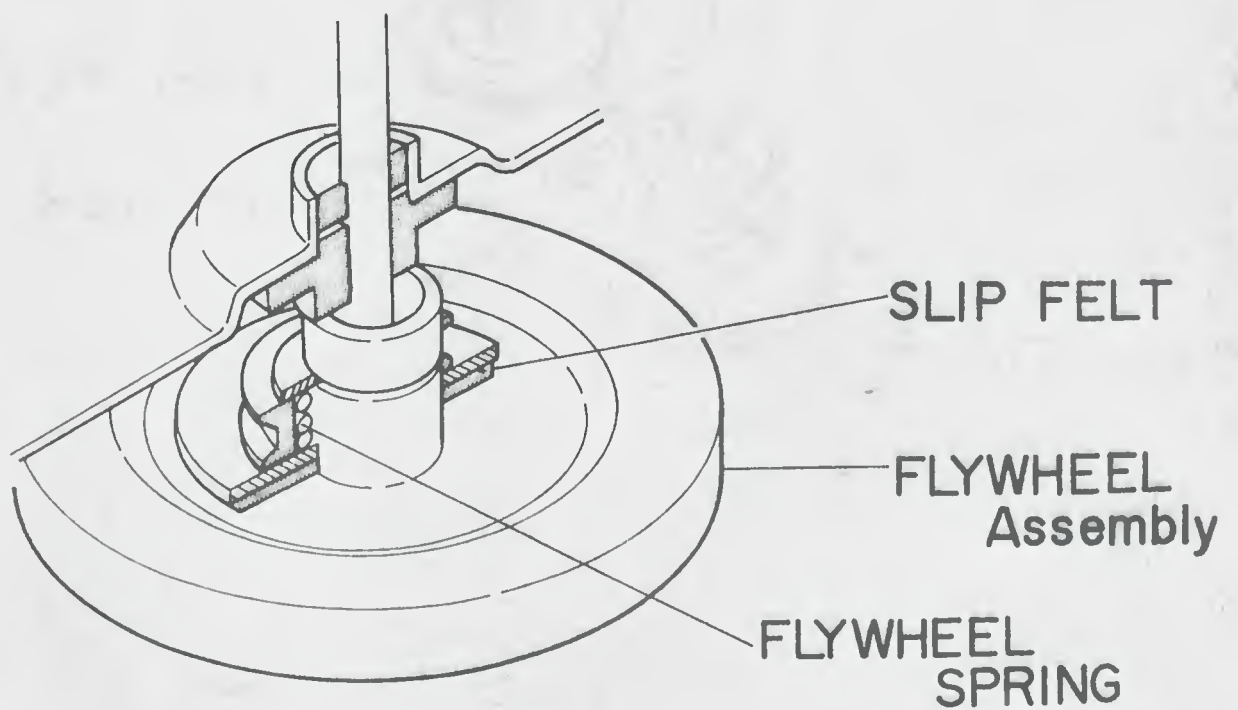
(Fig- 2)



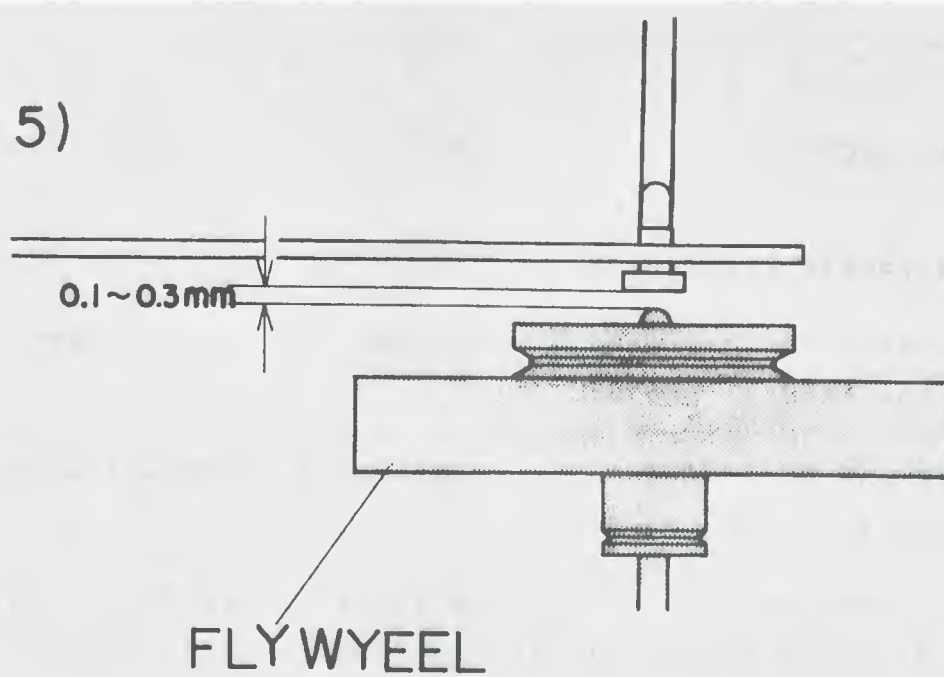
(Fig-3)



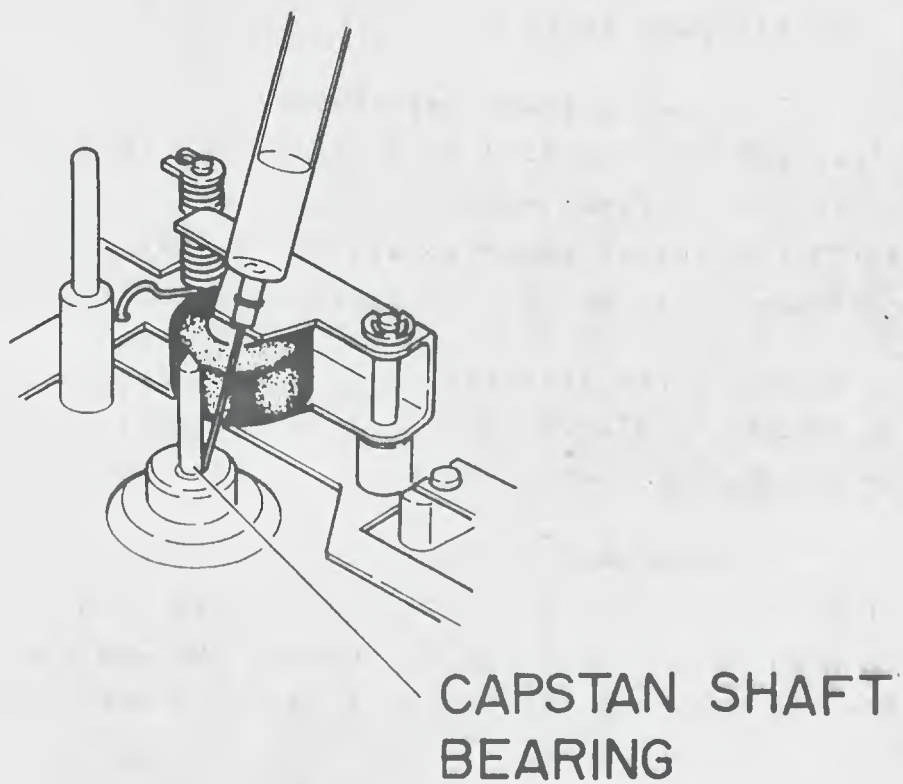
(Fig-4)



(Fig- 5)



(Fig- 6)



B. ELECTRICAL SECTION

1. Pre-alignment Procedures

1-1 Be sure to demagnetize and clean head before proceeding for the head alignment.

1-2 For the head alignment, never use a screw-driver or the like that has become magnetized.

1-3 For the test recording, use the standard Fe_2O_3 test tape 4.75/3.81 according to DIN 45 513, page 6, or the standard CrO_2 test tape 4.75/3.81 according to DIN 45 513, page 7.

1-4 Unless otherwise specified, use DC constant-voltage power source (whose capacity is 1 A or higher).

1-5 For H and C models, use LINE IN Jack for the input connection and LINE OUT Jack for the output connection. For EE, V, and UK models, use MIC-REC/PB Jack for both the input and output connection.

1-6 Unless otherwise instructed, ALC Switch should be set to OFF position.

2. Playback System

2-1 Head azimuth adjustment:

Play back the standard Fe_2O_3 test tape (DIN Calibrations) and observe the playback output by means of an oscilloscope. Turn the azimuth adjuster screw to adjust the head azimuth so that the maximum output may be indicated on the oscilloscope.

2-2 When the standard test tape's reference level (333 Hz, 25 mV/mm) is played back, the output level from the EXT. SP Jack should be 1.8 W or more at the 10 % total harmonic distortion point.

2-3 Playback frequency characteristic:

Play back the standard Fe_2O_3 test tape (DIN Calibrations). Check to see that the difference between the maximum and minimum in the 80-Hz-8-kHz-range is within 8 dB. If found dipping at 8 kHz, it

is likely that the head is dirty or damaged or the head azimuth maladjusted. For the chromium tape (CrO_2), use the standard CrO_2 test tape.

2-4 Playback S/N ratio, I:

Output indicated when the standard test tape's reference level (333 Hz, 25 mV/mm) is played back is compared with that indicated when a cassette without tape is played back through a filter (DIN 45 405). This comparison gives the S/N ratio. However, note that the playback output level of the signal-recorded portion should be read in RMS value and that of no-signal portion read on a peak value meter. The standard S/N ratio should be 50 dB or higher.

2-5 Playback S/N ratio, II:

Compare the playback output level of the standard test tape's reference level (333 Hz, 25 mV/mm) with that indicated when 1 mV/k Ω input recorded with the same input shorted with 470 k Ω //250 pF at 0 VU volume level is played back through a filter (DIN 45 405). This comparison gives the S/N ratio. However, note that the playback output level of the signal-recorded portion should be read in RMS value and that of no-signal portion read on a peak value meter. The standard S/N ratio here should be 45 dB or higher.

3. Record/Playback System

3-1 Bias current adjustment:

Connect a V.T.V.M. to both ends of the resistor R_{119} (100 Ω) connected in series to the head and turn the recorder to Record position. Now, turn the core of the trap coil L_{101} until the maximum current output is indicated by the V.T.V.M. When the maximum current adjustment above is completed, turn SFR_1 by means of a screwdriver until the V.T.V.M. comes to indicate 70 mV level. This completes the adjustment.

3-2 MOL (Maximum Output Level):

Record 400 Hz signal while gradually changing its input level. Then, play back the recording, starting from the recorded portion of the highest input level signal and ending with that of the lowest input level signal. The output level indicated at the 5 % total harmonic distortion in this playback is taken as MOL.

3-3 Record/Playback frequency characteristic:

Record input signals of 120 Hz - 8 kHz at input volume level at 20 dB below 0 VU-level. Then, play back the recordings to check if the level differences of the playback outputs fall within the standards indicated below.

120 Hz - 2 kHz	6 dB
4 kHz - 8 kHz	8 dB

3-4 Record-Plaback S/N ratio:

Measure the output indicated when the standard tape's reference level (333 Hz, 25 mM/mm) is played back. Now, feed 0.1 mV input and record it while shorting the same input with 470 kOhm//250 pF at 0 VU volume level. Measure the output indicated when this recording is played back through a filter (DIN 45 405). Compare the above two outputs with each other to determine the S/N ratio. Note here that the playback output level of the signal-recorded portion should be read in RMS value and that of the no-signal portion read on a peak value meter. The standard S/N ratios are:

Fe ₂ O ₃	42 dB or higher
CrO ₂	45 dB or higher

3-5 Hum ratio:

Measure the output indicated when the standard tape's reference level (333 Hz, 25 mM/mm) is played back. Now, feed 0.1 mV/kOhm input and record it while shorting the same input with 470 kOhm//250 pF at 0 VU volume level. Measure the output indicated when this recording is played back. Compare these two outputs with each other to obtain the hum ratio. Read both in RMS value and use no filter. The standard hum ratios are:

AC	42 dB or higher
DC	45 dB or higher

3-6 Erase factor:

First record 1000 Hz input signal at MRL. Next, rewind the tape for about half the recorded portion and erase the half. Play back this tape through a band pass filter and compare input levels of the two portions, one erased and the other recorded. For this measurement, the operating power source voltage should be 4.5 V

or 75 % of the rated voltage for the Fe_2O_3 tape, and the rated voltage for the CrO_2 tape. The standard values are:

Fe_2O_3	60 dB or higher
CrO_2	55 dB or higher

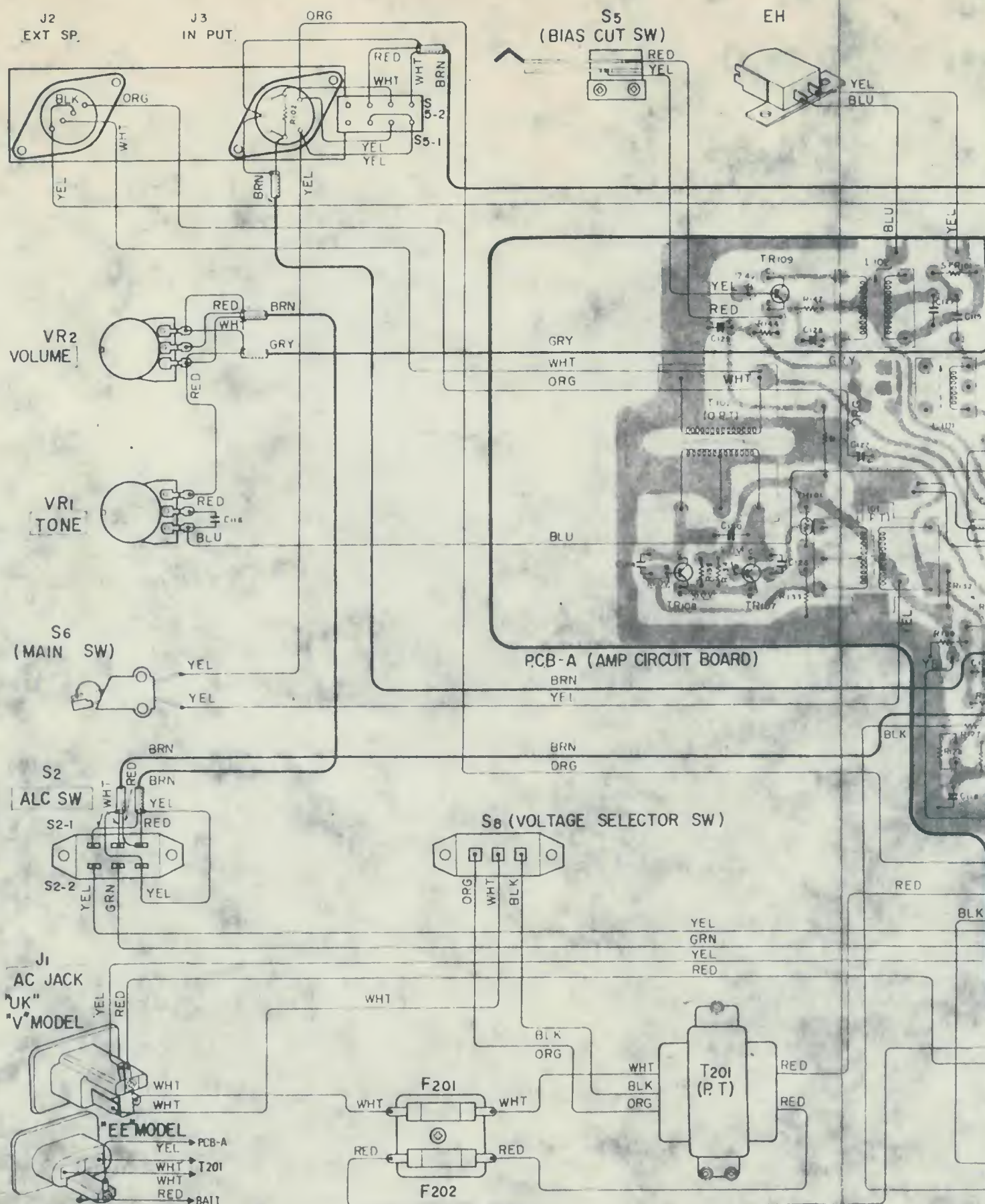
3-7 Confirmation of ALC operation:

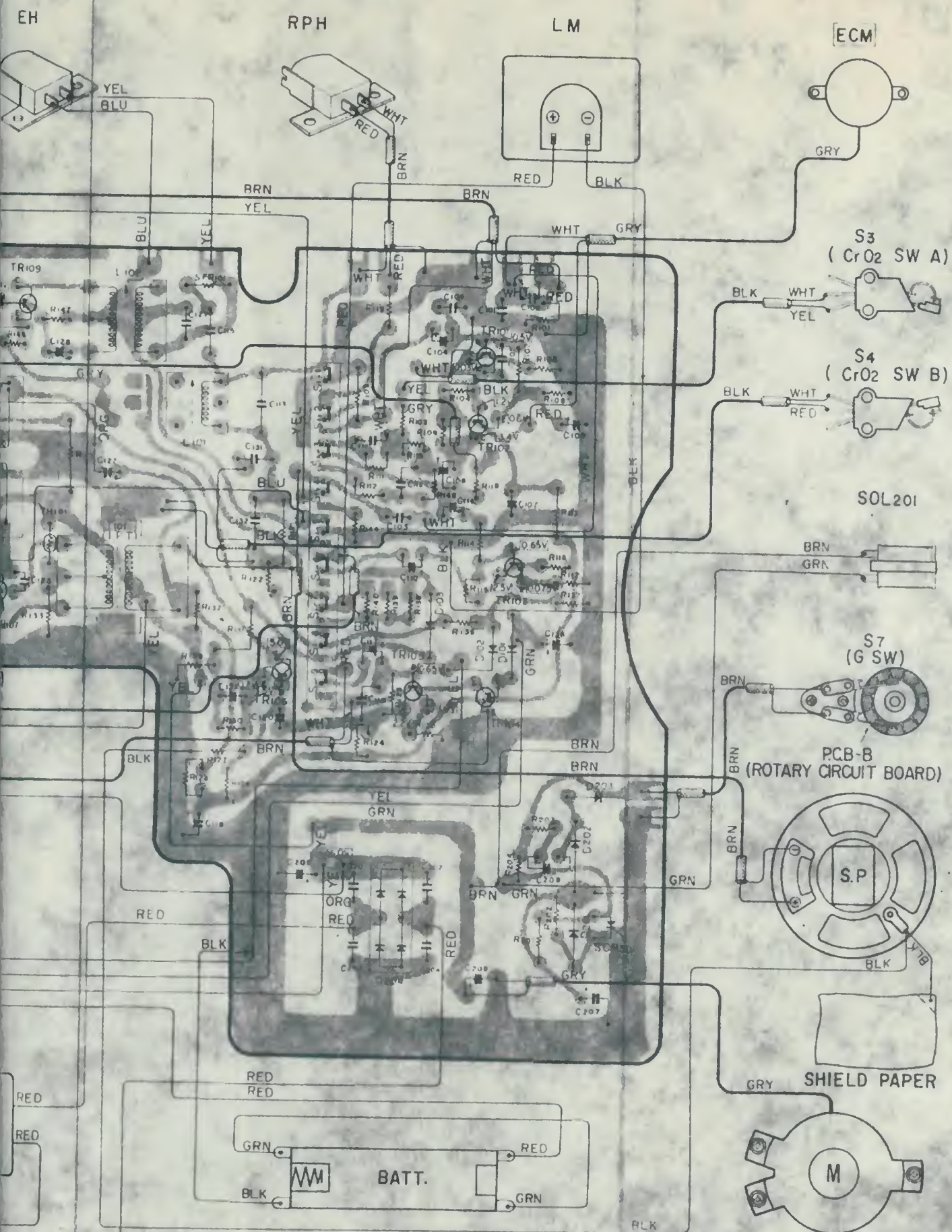
Turn the set to record position and set Volume Control to maximum. Increase the input signal level until the VU-meter indicates 0 VU with the ALC switch set to OFF. The input level in this case should be minus 70 dB or more. Set the ALC switch to ON and record the same input signal at an input level of minus 26 dB as compared with the first-mentioned input level. Now, check to confirm that the distortion factor is 5 % or lower.



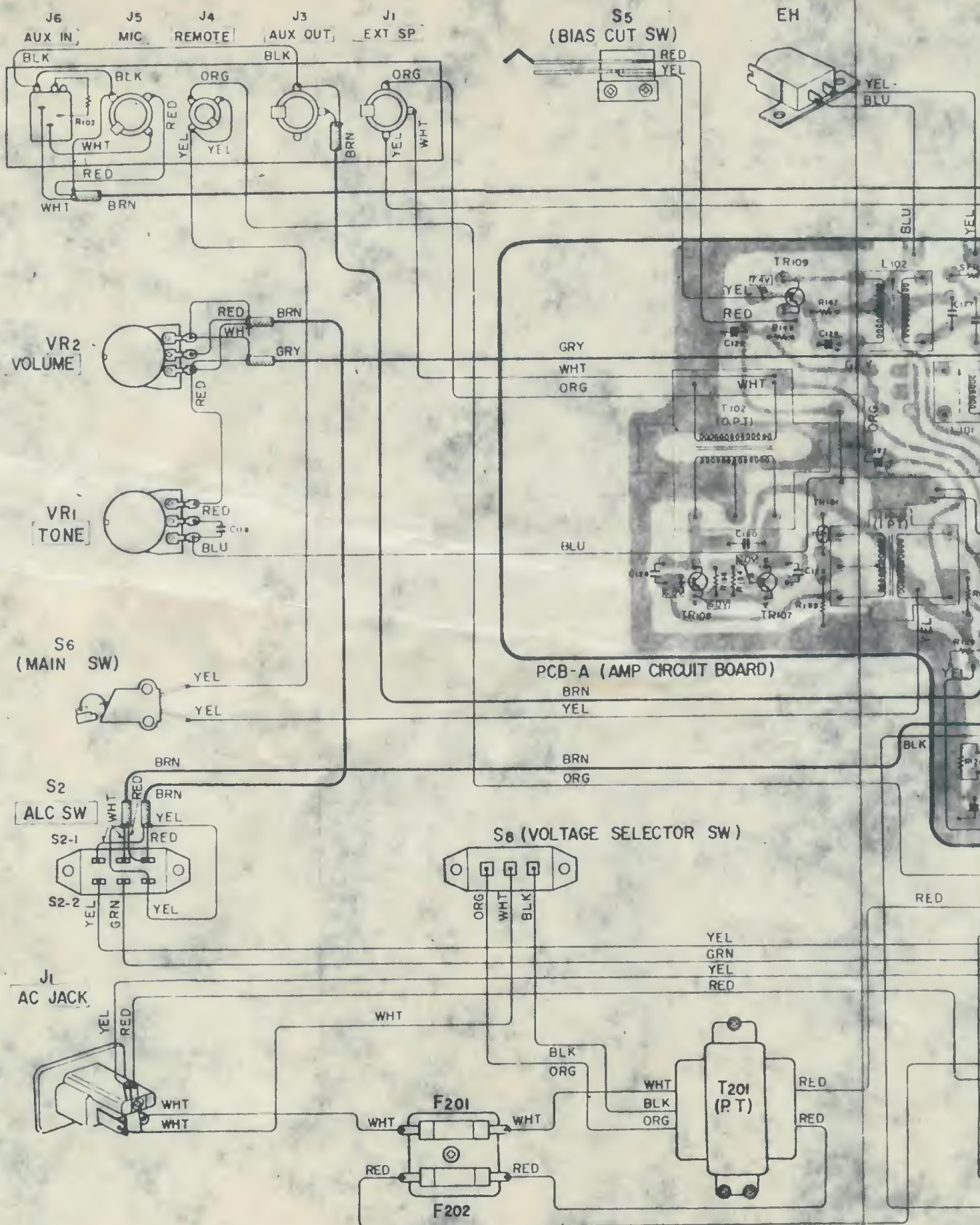


5-1 PRINTED CIRCUIT BOARD for V, EE, UK

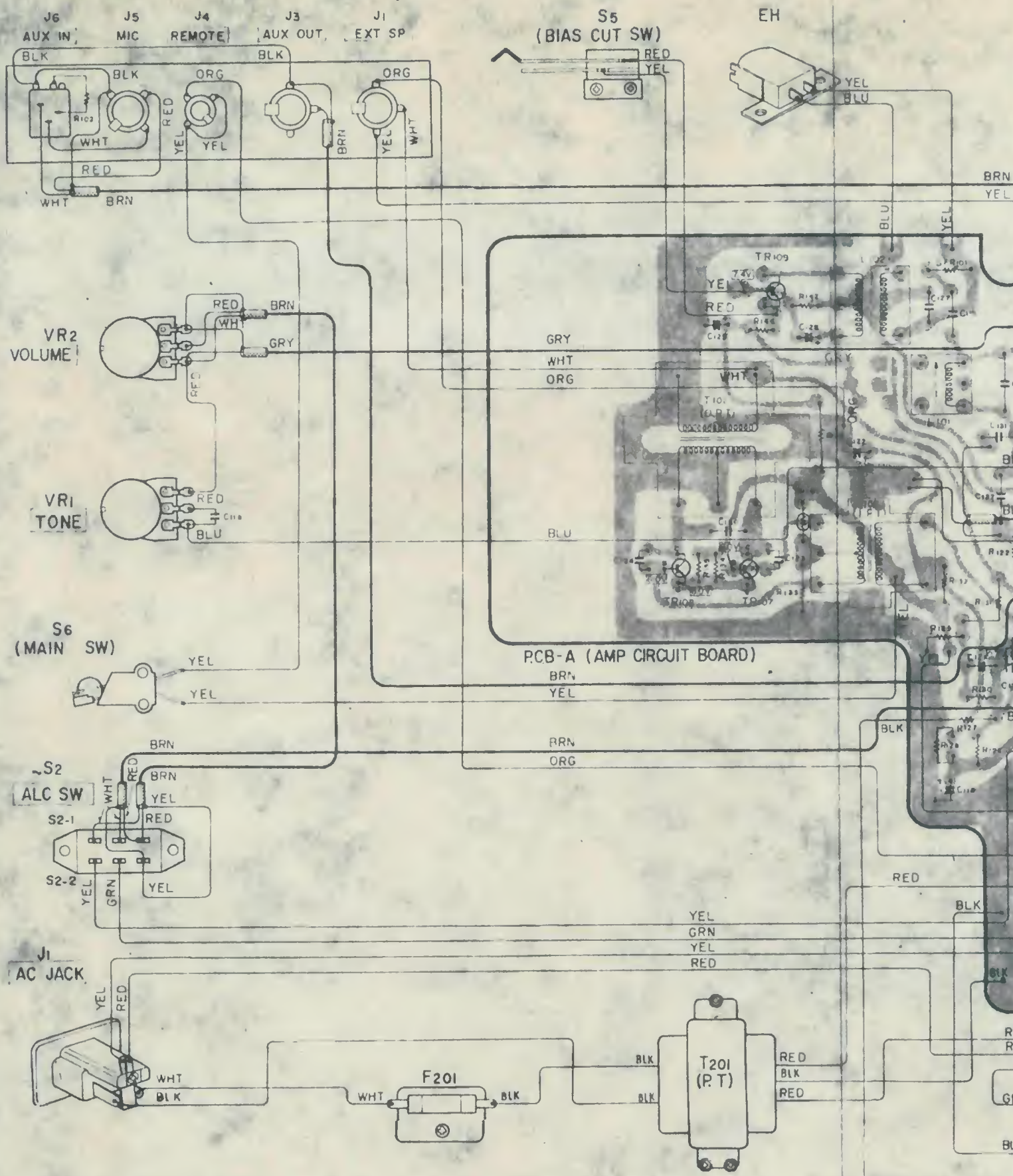




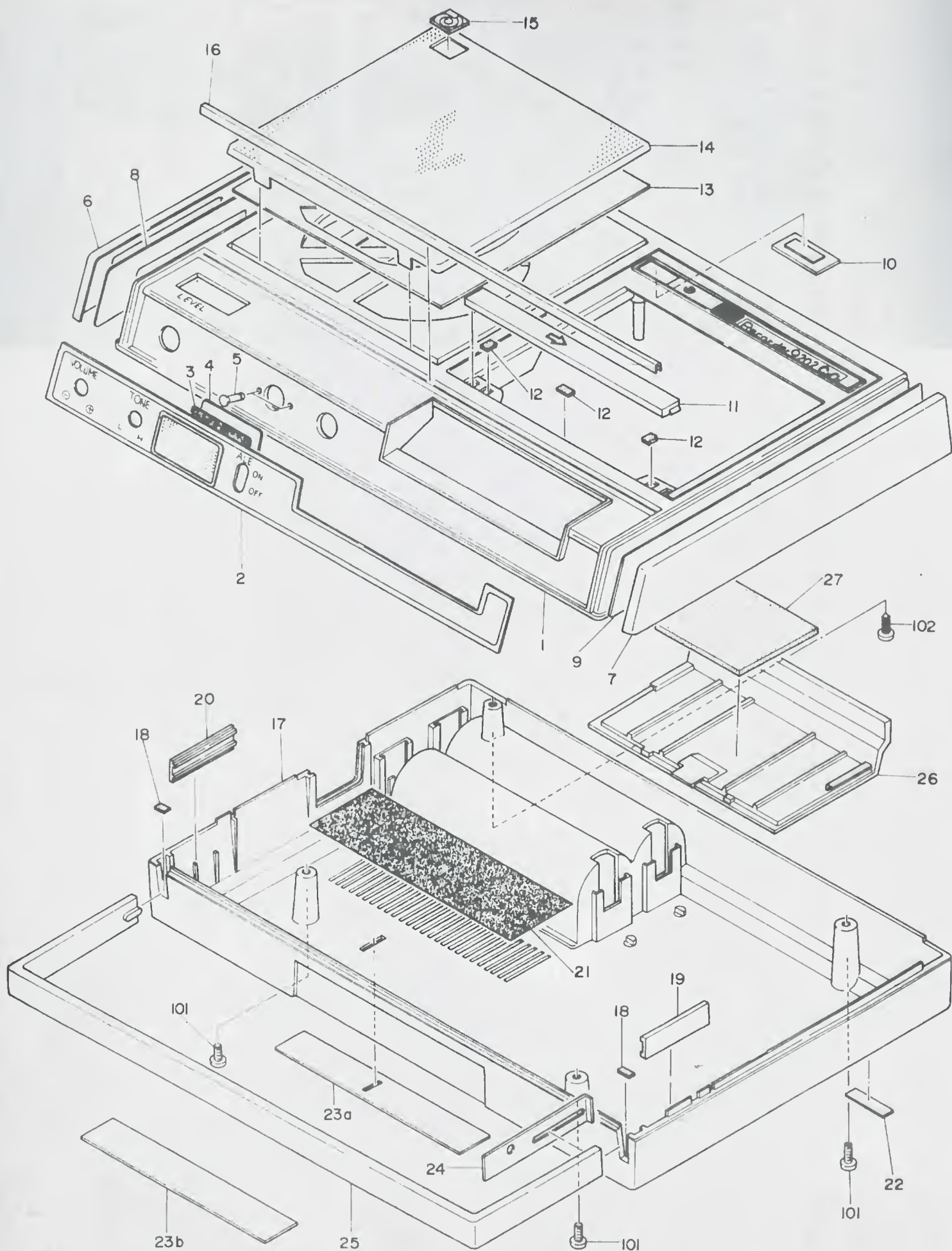
5-2 PRINTED CIRCUIT BOARD for H

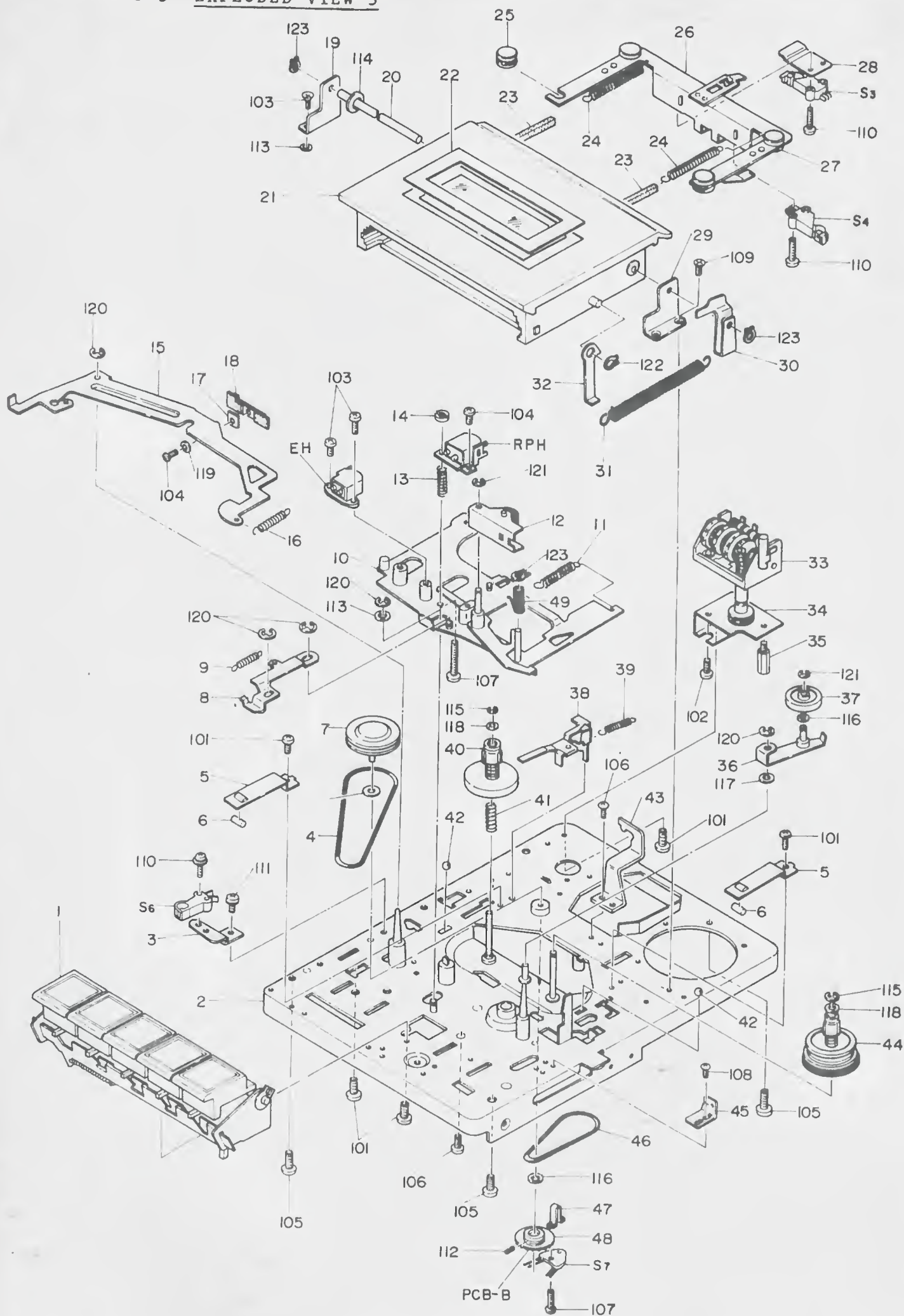


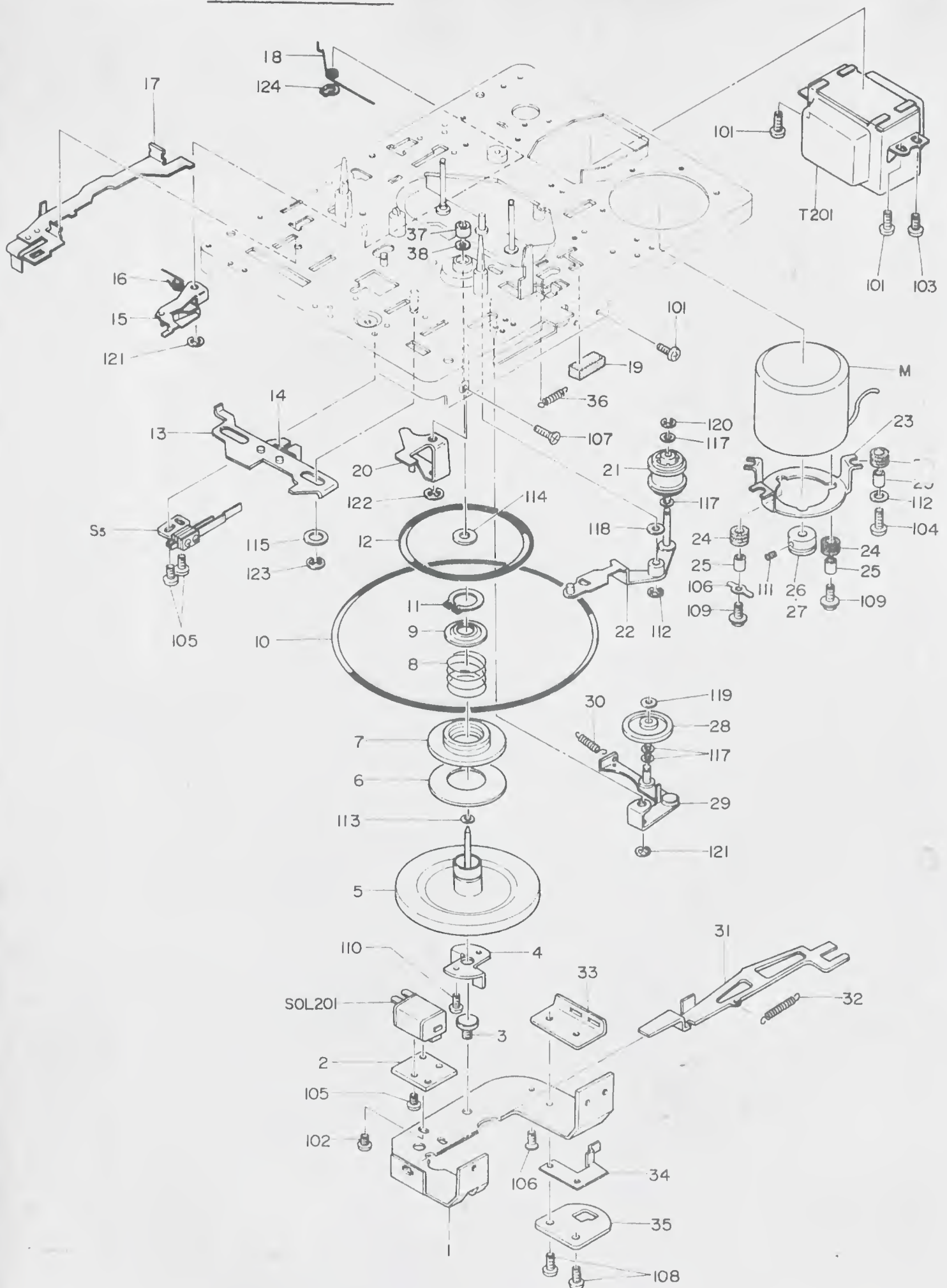
5-3 PRINTED CIRCUIT BOARD for C



6-1 EXPLODED VIEW 1







VII PARTS LIST

7-1 MECHANICAL PARTS

Ref. No.	Part No.	Description	Quantity by Model				
			V	EE	H	C	UK
1-25	80-012-890-81	Cabinet assembly (Main case ass'y + Back cover ass'y + Battery room lid ass'y) - V Model					
1-25	80-012-890-41	Cabinet assembly (Main case ass'y + Back cover ass'y + Battery room lid ass'y) - EE model					
1-25	80-012-890-51	Cabinet assembly (Main case ass'y + Back cover ass'y + Battery room lid ass'y) - H model					
1-25	80-012-890-11	Cabinet assembly (Main case ass'y + Back cover ass'y + Battery room lid ass'y) - C model					
1-25	80-012-890-01	Cabinet assembly (Main case ass'y + Back cover ass'y + Battery room lid ass'y) - UK model					
1-16	80-012-891-11	Main case ass'y - V model					
1-16	80-012-891-41	Main case ass'y - EE model					
1-16	80-012-891-51	Main case ass'y - H model					
1-16	80-012-891-11	Main case ass'y - C model					
1-16	80-012-891-01	Main case ass'y - UK model					
1- 1	82-289-001-01	Case proper	1	1	1	1	1
1- 2	82-289-002-01	Decorative plate B	1	1	1	1	1
1- 3	82-272-461-01	Dust screen cloth, ECM	1	1	1	1	1
1- 4	82-272-462-01	ECM cover	1	1	1	1	1
1- 5	82-272-460-01	ECM fixing pin	2	2	2	2	2
1- 6	82-272-057-01	Decorative plate D, Right	1	1	1	1	1

MECHANICAL PARTS (Cont'd)

Ref. No.	Part. No.	Description	Quantity by Model				
			V	EE	H	C	UK
1- 7	82-272-058-01	Decorative plate D, Left	1	1	1	1	1
1- 8	82-272-405-01	Adhesive paper, Left	1	1	1	1	1
1- 9	82-272-404-01	Adhesive paper, Right	1	1	1	1	1
1- 10	82-272-048-01	Tape counter window	1	1	1	1	1
1- 11	82-272-067-01	Head cover	1	1	1	1	1
1- 12	82-272-388-01	Cushion, Head cover	3	3	3	3	3
1- 13	82-272-412-01	Punching adhesive paper	1	1	1	1	1
1- 14	82-272-053-01	Punching	1	1	1	1	1
1- 15	82-272-066-01	Brand name plate	1	1	1	1	1
1- 16	82-272-056-01	Decorative plate C	1	1	1	1	1
17-25	80-012-892-81	Back cover ass'y - V model					
17-25	80-012-892-41	Back cover ass'y - EE model					
17-25	80-012-892-51	Back cover ass'y - H model					
17-25	80-012-892-11	Back cover ass'y- C model					
17-25	80-012-892-01	Back cover ass'y - UK model					
1- 17	82-272-002-01	Back cover	1	1	1	1	1
1- 18	82-272-388-01	Cushion, Carrying handle	1	1	1	1	1
1- 19	82-272-445-01	Guide plate A	1	1	1	1	1
1- 20	82-272-347-01	Guide plate	1	1	1	1	1
1- 21	82-272-340-01	Dust screen cloth, Back cover	1	1	1	1	1
1- 22	82-289-004-01	Back cover name plate	1	1	1	-	1
1-23a	82-289-010-01	SPEC, name plate	1	-	-	-	1

MECHANICAL PARTS (Cont'd)

Ref. No.	Part No.	Description	Quantity by Model				
			V	EE	H	C	UK
1- 23b	82-289-012-01	SPEC. name plate	-	1	-	-	-
1- 23c	82-289-011-01	SPEC. name plate	-	-	1	-	-
1- 23d	82-289-013-01	SPEC. name plate	-	-	-	1	-
24-25	80-012-893-81	Battery room lid ass'y - V model					
24-25	80-012-893-41	Battery room lid ass'y - EE model					
24-25	80-012-893-51	Battery room lid ass'y - H model					
24-25	80-012-893-11	Battery room lid ass'y - C model					
24-25	80-012-893-01	Battery room lid ass'y - UK model					
1- 24	82-272-003-01	Battery room lid	1	1	1	1	1
1- 25	82-272-345-01	Cushion, Battery room lid	1	1	1	1	1
1- 26	82-272-362-01	Carrying handle cover	1	1	1	1	1
1- 27	82-272-059-01	Carrying handle	1	1	1	1	1
1- 101	87-253-094-11	U + 3 - 6	3	3	3	3	3
1- 102	87-341-096-01	UT ₁ + 3 - 10	1	1	1	1	1

MECHANICAL PARTS (Cont'd)

Ref. No.	Part No.	Description	Quantity by Model				
			V	EE	H	C	UK
2- 1a	87-054-048-01	AC indicator plate	1	1	-	-	1
2- 1b	87-054-013-01	AC indicator plate	-	-	1	-	-
2- 1c	87-054-005-01	Voltage indicator	-	-	-	1	-
2- 2	87-053-010-01	AC socket cover	1	-	1	-	1
2- 3	82-289-204-01	Brass post, Amplifier B	1	1	1	1	1
2- 4	82-346-339-01	Wire holder	2	2	2	2	2
2- 5	82-283-034-01	Himeron switch	1	1	1	1	1
2- 6	82-272-458-01	Volume bracket	1	1	1	1	1
2- 7	82-272-318-01	Cushion Level meter	1	1	1	1	1
2- 8	82-272-076-01	Cloth, Knob	2	2	2	2	2
2- 9	82-272-080-01	Volume knob	2	2	2	2	2
2- 10	82-272-361-01	Carrying handle guide	1	1	1	1	1
2- 11a	82-272-023-01	Jack plate	1	1	-	-	1
2- 11b	82-272-086-01	Jack plate	-	-	1	1	-
2- 12a	82-289-003-01	Jack cover	1	1	-	-	1
2- 12b	82-272-087-01	Jack cover	-	-	1	1	-
2- 13	82-277-406-01	Microphone holder	1	1	1	1	1
1- 14	82-272-407-01	Cushion, Microphone	1	1	1	1	1
2- 15	87-038-007-01	Metal binder, Lead wire	1	1	1	1	1
2- 16	82-272-387-01	Cushion, Printed Circuit Board	1	1	1	1	1
2- 17	82-289-207-01	Collar, Amp.	1	1	1	1	1
2- 18	82-272-315-01	Terminal plate	2	2	2	2	2
2- 19	82-222-036-01	Battery contact spring	2	2	2	2	2
2- 20	87-038-018-01	Battery terminal plate	2	2	2	2	2

MECHANICAL PARTS (Cont'd)

Ref. No.	Part No.	Description	Quantity by Model				
			V	EE	H	C	UK
2- 21	82-461-623-01	Shield paper	1	1	1	1	1
2- 22	82-272-455-01	Insulation board	-	1	-	-	-
2- 23	82-272-454-01	Collar, Insulation	-	2	-	-	-
2- 24a	87-032-259-01	Fuse holder	1	1	1	-	1
2- 24b	87-064-025-01	Fuse holder	-	-	-	1	-
2-101	87-253-073-01	U + 2.6 - 6	3	3	3	3	3
2- 102	87-253-071-01	U + 2.6 - 4	2	2	2	2	2
2- 103	87-253-093-11	U + 2.6 - 10	1	1	1	1	1
2- 104	87-233-036-01	Q + 2 - 8	4	4	-	-	4
2- 105	87-263-093-11	V + 3 - 5	2	2	2	-	2
2- 106	87-351-095-01	VT ₁ + 3 - 8	2	2	2	2	2
2- 107	87-352-094-01	VT ₂ + 3 - 6	4	4	4	4	4
2- 108	87-480-072-01	VS + 2.6 - 5	2	2	2	2	2
2- 109	87-490-074-01	VWS + 2.6 - 8	1	1	1	1	1
2- 110	87-410-315-01	W - 3mmφ diam	2	2	2	2	2
2- 111	87-422-306-01	SW - 3mmφ diam	1	1	1	1	1
2- 112	87-441-003-01	STE - 1.5 mmφ diam	2	2	2	2	2
2- 113	87-391-006-01	N - 2mm diam	4	4	-	-	4
2- 114	87-450-414-01	LB - 4mmφ diam	1	1	1	1	1
2- 115	87-351-096-01	VT ₁ + 3-10	2	2	2	2	2

MECHANICAL PARTS (Cont'd)

Ref. No.	Part No.	Description	Quantity by Model				
			V	EE	H	C	UK
3- 1	82-289-203-01	Push switch ass'y	1	1	1	1	1
3- 2	82-289-201- 01	Chassis ass'y	1	1	1	1	1
3- 3	82-272-432-01	Leaf switch bracket	1	1	1	1	1
3- 4	82-272-312-01	Relay belt	1	1	1	1	1
3- 5	82-272-350-01	plate spring, Head base holder	2	2	2	2	2
3- 6	82-603-305-01	Roller, 2.5mmφ.	2	2	2	2	2
3- 7	82-938-289-01	Relay pulley shaft ass'y	1	1	1	1	1
3- 8	82-272-302-01	Actuating lever	1	1	1	1	1
3- 9	82-284-205-01	Spring, Actuating	1	1	1	1	1
3- 10	82-272-418-01	Actuating chassis ass'y	1	1	1	1	1
3- 11	82-272-331-01	Spring, Return	2	2	2	2	2
3- 12	82-272-375-01	Pinch roller ass'y	1	1	1	1	1
3- 13	82-261-275-01	Spring, Head adjuster	1	1	1	1	1
3- 14	82-250-097-01	head adjuster screw	1	1	1	1	1
3- 15	82-272-421-01	Brake arm	1	1	1	1	1
3- 16	82-272-424-01	Spring, Brake	1	1	1	1	1
3- 17	82-272-438-01	Spacer	1	1	1	1	1
3- 18	82-272-422-01	Brake	1	1	1	1	1
3- 19	82-938-279-01	Cassette box shaft bearing, left	1	1	1	1	1
3- 20	82-254-069-01	Cassette box spindle	1	1	1	1	1
3- 21	82-272-077-01	Cassette box ass'y	1	1	1	1	1
3- 22	82-272-064-01	Cassette window name plate	1	1	1	1	1
3- 23	82-601-206-01	Spring cushion B	2	2	2	2	2
3- 24	82-254-090-01	Spring Cassette slide	2	2	2	2	2

MECHANICAL PARTS (Cont'd)

Ref. No.	Part No.	Description	Quantity by Model				
			V	EE	H	C	UK
3- 25	82-272-453-01	Cassette slide plate roller B	2	2	2	2	2
3- 26	82-272-456-01	Cassette slide plate ass'y	1	1	1	1	1
3- 27	82-254-070-01	Cassette slide plate roller A	2	2	2	2	2
3- 28	82-272-464-01	Switch holder	1	1	1	1	1
3- 29	82-272-308-01	Cassette box shaft bearing, right	1	1	1	1	1
3- 30	82-254-059-01	Cassette-up metal A	1	1	1	1	1
3- 31	82-284-201-01	Spring, Cassette-up	1	1	1	1	1
3- 32	82-272-348-01	Stopper	1	1	1	1	1
3- 33	87-040-060-01	Tape counter	1	1	1	1	1
3- 34	82-272-411-01	Tape counter bracket	1	1	1	1	1
3- 35	82-272-459-01	Tape counter bracket supporter	1	1	1	1	1
3- 36	82-272-291-01	Rewind lever ass'y	1	1	1	1	1
3- 37	82-272-270-01	FF idler	1	1	1	1	1
3- 38	82-2938-272-01	No-record interlock lever ass'y	1	1	1	1	1
3- 39	82-272-326-01	Spring, FR	1	1	1	1	1
3- 40	82-272-255-01	Reel platform B ass'y	1	1	1	1	1
3- 41	82-272-431-01	Spring Back tension	1	1	1	1	1
3- 42	82-215-341-01	Steel ball	2	2	2	2	2
3- 43	82-272-385-01	Lock-out plate	1	1	1	1	1
3- 44	82-272-249-01	Reel platform A ass'y	1	1	1	1	1
3- 45	82-272-417-01	Spring rest	1	1	1	1	1
3- 46	82-272-314 01	Tape counter belt	1	1	1	1	1
3- 47	82-272-315-01	G. switch holder	1	1	1	1	1
3- 48	82-272-272-01	Relay pulley B	1	1	1	1	1

MECHANICAL PARTS (Cont'd)

Ref. No.	Part No.	Description	Quantity by Model				
			V	EE	H	C	UK
3- 49	82-272-393-01	Spring, Pinch roller lever	1	1	1	1	1
3- 101	87-253-071-01	U + 2.6 -4	6	6	6	6	6
3- 102	87-253-093-11	U + 3 - 5	1	1	1	1	1
3- 103	87-253-035-01	U + 2 - 6	2	2	2	2	2
3- 104	87-253-033-01	U + 2 - 4	2	2	2	2	2
3- 105	87-263-093-11	V + 3 - 5	4	4	4	4	4
3- 106	87-263-071-01	V + 2.6 - 4	3	3	3	3	3
3- 107	87-263-040-01	V + 2 - 15	3	3	3	3	3
3- 108	87-263-032-01	V + 2 - 3	2	2	2	2	2
3- 109	87-233-071-01	Q + 2.6 - 4	4	4	4	4	4
3- 110	87-480- 036-01	VS + 2 - 8	4	4	4	4	4
3- 111	87-480-033-01	VS + 2 - 4	1	1	1	1	1
3- 112	87-374-022-01	SS + 1.7 - 3	1	1	1	1	1
3- 113	87-410-314-01	W - 3mmφ diam.	2	2	2	2	2
3- 114	87-081-163-01	FW - 3mmφ diam.	1	1	1	1	1
3- 115	87-082-001-01	STE -0.95mmφ diam.	2	2	2	2	2
3- 116	87-081-036-01	TW - 2mmφ diam.	2	2	2	2	2
3- 117	87-081-195-01	TW - 2.6mmφ diam.	1	1	1	1	1
3- 118	82-215-207-01	TW - 1.6mmφ diam.	2	2	2	2	2
3- 119	87-422-303-01	SW - 2mmφ diam.	1	1	1	1	1
3- 120	87-441-005-01	STE - 2mmφ diam.	5	5	5	5	5
3- 121	87-441-003-01	STE- 1.5mmφ diam.	2	2	2	2	2
3- 122	87-442-004-01	STP - 4mmφ diam.	1	1	1	1	1
3- 123	87-442-003-01	STP - 3mmφ diam.	3	3	3	3	3

MECHANICAL PARTS (Cont'd)

Ref. No.	Part No.	Description	Quantity by Model				
			V	EE	H	C	UK
4- 1	82-272-448-01	Lower shaft bearing plate	1	1	1	1	1
4- 2	82-272-305-01	Fixing plate	1	1	1	1	1
4- 3	82-272-335-01	Screw for thrust	1	1	1	1	1
4- 4	82-272-381-01	Flywheel fixing metal	1	1	1	1	1
4- 5	82-272-366-01	Flywheel ass'y	1	1	1	1	1
4- 6	82-272- 370-01	Flywheel felt	1	1	1	1	1
4- 7	82-272-368-01	Flywheel pulley	1	1	1	1	1
4- 8	82-272-391-01	Spring, Flywheel	1	1	1	1	1
4- 9	82-272-440-01	FW washer	1	1	1	1	1
4- 10	82-272-379-01	Main belt	1	1	1	1	1
4- 11	87-082-004-01	C ring	1	1	1	1	1
4- 12	82-272-311-01	FR belt	1	1	1	1	1
4- 13	82-272-285-01	Main drive lever ass'y	1	1	1	1	1
4- 14	82-272-327-01	Spring, Shift	1	1	1	1	1
4- 15	82-272-436-01	Record lock lever ass'y	1	1	1	1	1
4- 16	82-272-341-01	Spring, Record lock lever	1	1	1	1	1
4- 17	82-289-205-01	Record lever ass'y	1	1	1	1	1
4- 18	82-272-327-01	Spring, shift	1	1	1	1	1
4-19	82-272-349-01	Cushion, Cassette-up	1	1	1	1	1
4- 20	82-272-307-01	Stop lever	1	1	1	1	1
4- 21	82-938-276-01	FR pulley ass'y	1	1	1	1	1
4- 22	82-272-273-01	FR lever ass'y	1	1	1	1	1
4- 23	82-272-428-01	Motor holder	1	1	1	1	1
4- 24	87-087-027-01	Rubber cushion A	6	6	6	6	6

MECHANICAL PARTS (Cont'd)

Ref. No.	Part No.	Description	Quantity by Model				
			V	EE	H	C	UK
4- 25	82-284-202-01	Cushion collar A.	3	3	3	3	3
4- 26	82-272-446-01	Motor pulley	1/20	1/20	1/20	1/20	1/20
4- 27	82-272-447-01	Motor pulley	1/20	1/20	1/20	1/20	1/20
4- 28	82-272-372-01	Play idler ass'y	1	1	1	1	1
4- 29	82-272-280-01	Idler lever A ass'y	1	1	1	1	1
4- 30	82-272-324-01	Spring, No-record interlock	2	2	2	2	2
4- 31	82-272-304-01	Stop arm	1	1	1	1	1
4- 32	82-272-332-01	Spring, Stop arm	1	1	1	1	1
4-33	82-272-336-01	Stop arm guide	1	1	1	1	1
4- 34	82-272-364-01	Plate spring, Stop arm	1	1	1	1	1
4- 35	82-272-389-01	Protection plate, Stop arm spring	1	1	1	1	1
4- 36	82-272-328-01	Spring, Cassette-up lever	1	1	1	1	1
4- 37	82-271-297-01	Brass ring, Shaft bearing	1	1	1	1	1
4- 38	82-341-350-01	Washer, Shaft bearing	1	1	1	1	1
4- 101	87-253-071-01	U + 2.6 - 4	4	4	4	4	4
4- 102	87-253-033-01	U + 2 - 4	2	2	2	2	2
4- 103	87-263-071-01	V + 2.6 - 4	1	1	1	1	1
4- 104	87-263-074-01	V + 2.6 - 8	3	3	3	3	3
4- 105	87-263-032-01	V + 2 - 3	4	4	4	4	4
4- 106	87-233-093-11	Q + 3 - 5	1	1	1	1	1
4- 107	87-233-071-01	Q + 2.6 - 4	2	2	2	2	2
4- 109	87-233-034-01	Q + 2 - 5	2	2	2	2	2
4- 109	87-49P-074-01	VWS + 2.6 - 8	3	3	3	3	3

MECHANICAL PARTS (Cont'd)

Ref. No.	Part No.	Description	Quantity by Model				
			V	EE	H	C	UK
4- 110	87-351-073-01	VT ₁ + 2.6 - 6	2	2	2	2	2
4- 111	87-374-024-01	SS + 1.7 - 5	1	1	1	1	1
4- 112	87-410-311-01	W - 2.6mm ϕ diam.	2	2	2	2	2
4- 113	87-081-292-01	TW - 2mm ϕ diam.	1	1	1	1	1
4- 114	87-081-285-01	W- 2mm ϕ diam.	1	1	1	1	1
4- 115	87-081-286-01	W - 4mm ϕ diam.	2	2	2	2	2
4- 116	87-410-317-01	W-3mm ϕ diam.	1	1	1	1	1
4- 117	87-081-036-01	TW - 2mm ϕ diam.	4	4	4	4	4
4- 118	87-081-195-01	TW - 2.6mm ϕ diam.	1	1	1	1	1
4- 119	87-081-209-01	TW - 2mm ϕ diam.	1	1	1	1	1
4- 120	87-441-003-01	STE - 1.5mm ϕ diam.	1	1	1	1	1
4- 121	87-441-005-01	STE - 2mm ϕ diam.	3	3	3	3	3
4- 122	87-441-006-01	STE - 2.3mm ϕ diam.	1	1	1	1	1
4- 123	87-441-010-01	STE- 3.2mm ϕ diam.	2	2	2	2	2
4- 124	87-442-003-01	STP - 3mm ϕ diam.	1	1	1	1	1

7-2. ELECTRICAL PARTS

Symbol No.	Part No.	Description	Quantity by Model				
			V	EE	H	C	UK
(AMP CIRCUIT BOARD SECTION)							
PCB-A	82-289-601-01	Amp circuit board	1	1	1	1	1
(REC/PB SECTION)							
TR 101	89-307-326-01	Transistor, 2SC-732(BL)	1	1	1	1	1
TR102,103	89-303-724-01	Transistor, 2SC-372(Y)	2	2	2	2	2
TR104	89-402-275-01	Transistor 2SD-227(V)	1	1	1	1	1
TR105	89-307-334-01	Transistor, 2SC-733(Y)	1	1	1	1	1
TR106	89-303-730-01	Transistor, 2SC-373	1	1	1	1	1
TR107,108	89-204-152-31	Transistor, 2SB-415(2-3)	2	2	2	2	2
TR109	89-200-560-01	Transistor, 2SB-56	1	1	1	1	1
D10.,102	87-027-039-01	Diode, 10D - 1	2	2	2	2	2
D103	88-051-060-01	Diode, 1N - 60	1	1	1	1	1
TH101	87-027-099-01	Thermistor, 45Ω	1	1	1	1	1
L101	87-005-061-01	Trap coil	1	1	1	1	1
L102	87-007-055-01	OSC coil	1	1	1	1	1
T101	82-409-654-01	Input transformer	1	1	1	1	1
T102	82-289-602-01	Output transformer	1	1	1	1	1
S1	87-031-192-01	Slid switch (REC/PB)	1	1	1	1	1
SFR101	87-021-299-01	Semi-fixed resistor, 20KΩ-B	1	1	1	1	1
(Resistors)							
R134,135	88-182-189-01	1.8Ω 1/4W ±10% ELR	2	2	2	2	2
R146	88-182-479-01	4.7Ω 1/4W ±10% ELR	1	1	1	1	1
R130,145	88-182-100-01	10Ω 1/4W ±10% ELR	2	2	2	2	2
R136	88-182-330-01	33Ω 1/4W ±10% ELR	1	1	1	1	1
R137	88-182-560-01	56Ω 1/4W ±10% ELR	1	1	1	1	1

ELECTRICAL PARTS (Cont'd)

Symbol No.	Part No.	Description	Quantity by Model				
			V	EE	H	C	UK
R132	88-182-680-01	68 Ω 1/4W $\pm$ 10% ELR	1	—	1	1	1
R125,129	88-182-101-01	100 Ω 1/4W $\pm$ 10% ELR	2	2	2	2	2
R117,128	88-182-121-01	120 Ω 1/4W $\pm$ 10% ELR	2	2	2	2	2
R105,131	88-182-151-01	150 Ω 1/4W $\pm$ 10% ELR	2	2	2	2	2
R113	88-182-471-01	470 Ω 1/4W $\pm$ 10% ELR	1	1	1	1	1
R101,108	88-182-102-01	1k Ω 1/4W $\pm$ 10% ELR	2	2	2	2	2
R122,133	88-182-182-01	1.8k Ω 1/4W $\pm$ 10% ELR	2	2	2	2	2
R106,118	88-182-222-01	2.2k Ω 1/4W $\pm$ 10% ELR	2	2	2	2	2
R124	88-182-272-01	2.7k Ω 1/4W $\pm$ 10% ELR	1	1	1	1	1
R116	88-182-392-01	3.9k Ω 1/4W $\pm$ 10% ELR	1	1	1	1	1
R103	88-182-472-01	4.7k Ω 1/4W $\pm$ 10% ELR	1	1	1	1	1
R110,148	88-182-562-01	5.6k Ω 1/4W $\pm$ 10% ELR	2	2	2	2	2
R138	88-182-682-01	6.8k Ω 1/4W $\pm$ 10% ELR	1	1	1	1	1
R109,112,147	88-182-822-01	8.2k Ω 1/4W $\pm$ 10% ELR	3	3	3	3	3
R114	88-182-153-01	15k Ω 1/4W $\pm$ 10% ELR	1	1	1	1	1
R104	88-182-183-01	18k Ω 1/4W $\pm$ 10% ELR	1	1	1	1	1
R121,127	88-182-223-01	22k Ω 1/4W $\pm$ 10% ELR	2	2	2	2	2
R139	88-182-273-01	27k Ω 1/4W $\pm$ 10% ELR	1	1	1	1	1
R141	88-182-303-01	30k Ω 1/4W $\pm$ 10% ELR	1	1	1	1	1
R126	88-182-333-01	33k Ω 1/4W $\pm$ 10% ELR	1	1	1	1	1
R140	88-182-393-01	39k Ω 1/4W $\pm$ 10% ELR	1	1	1	1	1
R107	88-182-683-01	68k Ω 1/4W $\pm$ 10% ELR	1	1	1	1	1
R111	88-182-124-01	120k Ω 1/4W $\pm$ 10% ELR	1	1	1	1	1
R142	88-182-224-01	220k Ω 1/4W $\pm$ 10% ELR	1	1	1	1	1
R123,143	88-182-274-01	270k Ω 1/4W $\pm$ 10% ELR	2	2	2	2	2

ELECTRICAL PARTS (Cont'd)

Symbol No.	Part No.	Description	Quantity by Model				
			V	EE	H	C	UK
R115	88-182-334-01	330k Ω 1/4W $\pm$ 10% ELR	1	1	1	1	1
R119	88-132-101-01	100 Ω 1/4W $\pm$ 10%	1	1	1	1	1
R144	88-144-829-01	8.2 Ω 1/2W $\pm$ 10%	1	1	1	1	1
R132	88-144-680-01	68 Ω 1/2W $\pm$ 10%	-	1	-	-	-
(Capacitors)							
C104	88-336-300-01	3.3 μ F 25V Electrolytic	1	1	1	1	1
C108,110,117	88-335-500-01	4.7 μ F 16V Electrolytic	3	3	3	3	3
C120	88-335-110-01	10 μ F 16V Electrolytic	1	1	1	1	1
C109	88-332-510-01	47 μ F 6.3V Electrolytic	1	1	1	1	1
C121,129	88-332-120-01	100 μ F 6.3V Electrolytic	2	2	2	2	2
C126	88-332-220-01	220 μ F 6.3V Electrolytic	1	1	1	1	1
C107	88-332-229-01	220 μ F 6.3V Electrolytic	1	1	1	1	1
C118,122	88-332-520-01	470 μ F 6.3V Electrolytic	2	2	2	2	2
C112	87-015-093-01	0.22 μ F 6.3V Aluminum solid	1	1	1	1	1
C128	87-015-095-01	0.47 μ F 6.3V Aluminum solid	1	1	1	1	1
C131,132	88-617-630-01	1500pF Styrol	2	2	2	2	2
C113	88-617-640-01	1800pF Styrol	1	1	1	1	1
C111	88-717-880-01	0.018 μ F Mylar	1	1	1	1	1
C102,130	88-717-850-01	0.047 μ F Mylar	2	2	2	2	2
C101	88-717-860-01	0.068 μ F Mylar	1	1	1	1	1
C106	88-717-610-01	0.002 μ F Mylar	1	1	1	1	1
C127	88-718-832-01	0.022 μ F Mylar	1	1	1	1	1

ELECTRICAL PARTS (Cont'd)

Symbol No.	Part No.	Description	Quantity by Model				
			V	EE	H	C	UK
C115	88-238-480-01	220pF Ceramic	1	1	1	1	1
C119	88-121-480-01	220pF Ceramic	1	1	1	1	1
C105	88-212-510-01	300pF Ceramic	1	1	1	1	1
C123,124	88-214-810-01	0.01μF Ceramic	2	2	2	2	2
C103	88-205-610-01	0.001μF Ceramic	1	1	1	1	1
(AUTOMATIC STOP SECTION)							
D201,202,203	87-027-039-01	Diode, 10D-1	3	3	3	3	3
D204	87-027-121-01	Diode, 1SRB-10	1	1	1	-	1
D204,205	87-027-039-01	Diode, 10D-1	-	2	-	-	-
SCR201	87-027-088-01	SCR, CR2-AM1	1	1	1	1	1
(Resistors)							
R203	88-182-391-01	390Ω 1/4W ±10% ELR	1	1	1	1	1
R204	88-182-102-01	1kΩ 1/4W ±10% ELR	1	1	1	1	1
R202	88-182-103-01	10kΩ 1/4W ±10% ELR	1	1	1	1	1
R201	88-182-333-01	33kΩ 1/4W ±10% ELR	1	1	1	1	1
(Capacitors)							
C208	88-335-110-01	10μF 16V Electrolytic	1	1	1	1	1
C206	88-333-130-01	1000μF 10V Electrolytic	1	1	1	1	1
C205	88-333-230-01	2200μF 10V Electrolytic	1	1	1	1	1
C207	88-332-220-01	220μF 6.3V Electrolytic	1	1	1	1	1
C201,202,203,204	88-215-810-01	0.01μF Ceramic	4	4	4	-	4
C201,202	88-215-810-01	0.01μF Ceramic	-	-	-	2	-

ELECTRICAL PARTS (Cont'd)

Symbol No.	Part No.	Description	Quantity by Model				
			V	EE	H	C	UK
(MISCELLANEOUS)							
T201	82-272-627-01	Power transformer	1	-	1	-	1
T201	82-272-630-01	Power transformer	-	-	1	1	-
T201	82-289-603-01	Power transformer	-	1	-	-	-
SOL201	82-272-640-01	Solenoid	1	1	1	1	1
VR1	87-021-286-01	VR, 10kΩ-B (VOL)	1	1	1	1	1
VR2	87-021-287-01	VR, 10kΩ-A (TONE)	1	1	1	1	1
RPH	87-046-107-01	REC/PB head	1	1	1	1	1
EH	87-046-089-01	Erase head	1	1	1	1	1
LM	82-272-626-01	Level meter	1	1	1	1	1
M	82-289-606-01	Motor	1	1	1	1	1
SP	87-048-105-01	Speaker	1	1	1	1	1
ECM	87-041-002-01	Condenser microphone	1	1	1	1	1
S2	82-284-605-01	Lever switch (ALC)	1	1	1	1	1
S3	82-272-631-01	Micro switch (CrO ₂ -A)	1	1	1	1	1
S4	82-272-632-01	Micro switch (CrO ₂ -B)	1	1	1	1	1
S5	87-031-263-01	Leaf switch (Bias cut)	1	1	1	1	1
S6	87-031-261-01	Micro switch (MAIN)	1	1	1	1	1
S7	82-358-603-01	G switch ass'y	1	1	1	1	1
PCB-B	82-346-603-01	Rotary circuit board	1	1	1	1	1
S8	87-031-279-01	Slide switch (voltage selec.)	1	1	-	-	1
S8	87-031-313-01	Slide switch (volt. selector)	-	-	1	-	-
J1	87-032-416-01	AC jack	1	-	1	1	1
J2	87-032-434-01	AC jack	-	1	-	-	-
J2	87-032-268-01	2P DIN socket (w/switch)	1	1	-	-	1

ELECTRICAL PARTS (Cont'd)

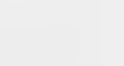
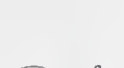
Symbol No.	Part No.	Description	Quantity by Model				
			V	EE	H	C	UK
J3	87-032-475-01	7P DIN socket (w/switch)	1	1	-	-	1
J2,3,5	87-032-276-01	Jack 3.5Ø	-	-	3	3	-
J4	87-032-403-01	Jack 2.5Ø	-	-	1	1	-
J6	87-032-451-01	Jack M-7D	-	-	1	1	-
F201	87-035-067-01	Fuse 100mA "T"	1	1	1	1	1
	87-057-766-01	Fuse label 100mA "T"	1	1	1	1	1
F202	87-035-064-01	Fuse 1A "T"	-	1	-	-	-
	87-057-770-01	Fuse label 1A "T"	-	1	-	-	-
F202	87-035-104-01	Fuse 1.5A	1	-	1	-	1
	87-057-793-01	Fuse label 1.5A	1	-	1	-	1
	87-057-779-01	Fuse label	-	-	-	1	-
	87-032-259-01	Fuse holder	1	1	1	-	1
	87-064-025-01	Fuse holder	-	-	-	1	-
		(Resistors)					
R102	88-182-334-01	330kΩ 1/4W ±10% ELR	-	-	1	1	1
R102	88-182-105-01	1MΩ 1/4W ±10% ELR	1	1	-	-	1
		(Capacitor)					
C116	88-717-860-01	0.068μF Mylar	1	1	1	1	1

7-3. ACCESSORIES/PACKAGE LIST

Ref. No.	Part No.	Part No. changed to	Description	Quantity by Model				
				V	EE	H	C	UK
	87-034-064-01		AC power cord	1	-	-	-	1
	87-034-038-01		AC power cord	-	-	-	1	-
	87-034-070-01		AC power cord	-	1	-	-	-
	87-034-034-01		AC power cord	-	-	1	-	-
	80-693-581-01		Cord, CW-127	1	1	-	-	1
	80-291-631-01		Tape cassette, DMC-126	1	1	1	1	1
	87-032-448-01		Siemens plug	-	-	1	-	-
	82-289-901-01		Instructions booklet	1	1	1	1	1
	87-057-885-01		Guarantee card	1	1	1	1	1
	82-409-906-01		Guarantee card	-	-	-	-	1
	82-289-902-01		POP label	1	1	1	1	1
	82-289-903-01		Quality tag	1	-	-	-	-
	82-289-904-01		Quality tag	-	1	-	-	-
	82-289-905-01		Quality tag	-	-	1	1	-
	87-051-084-01		Poy-vinyl sack	1	1	1	1	1
	87-051-131-01		Poly-vinyl sack (for AC power cord)	1	1	1	1	1
	87-051-141-01		Poly-vinyl sack (for case)	1	1	1	1	1
	87-051-132-01		Poly-vinyl sack (for siemens plug)	-	-	1	-	-
	82-289-851-01		Printed indiv. packing	1	1	1	1	1
	82-289-852-01		Cushion L, Printed indiv.	1	1	1	1	1
	82-289-853-01		Cushion R, Printed indiv.	1	1	1	1	1
	82-289-854-01		External carton box	1/5	1/5	1/5	1/5	1/5

VIII. Hardware Nomenclature

V:	Pan head screw	
U:	Binding head screw	
Q:	Flat countersunk head screw	
VT ₁ :	Pan head tapping screw	
VT ₂ :	Pan head tapping screw	
UT ₁ :	Binding head tapping screw	
VS:	Pan head screw with spring washer	
VWS:	Pan head screw w/ spring washer and washer	

SS:	Setscrew	
STE:	E ring (washer)	
STP:	Powerful stop ring	
W:	Washer	
TW:	Tefron washer	
FW:	Fibre washer	
WS:	Spring washer	
N:	Nut	
LB:	Lug terminal plate	

Example:

