

TEAC®

SERVICE MANUAL

A-420

Stereo Cassette Deck with Dolby® System



GENERAL INTRODUCTION

The TEAC A-420 is a front loading cassette deck with independent rotary transport controls. It incorporates an advanced motor and drive system, built-in Dolby noise reduction system, peak level indicators, MIC/LINE mixing capability, L/MONO microphone monaural recording function, TIMER control and selectable (three position) bias and EQ as well as many of the standard TEAC features.

Simplicity of operation are combined with electronic and mechanical dependability to make the A-420 a deck that is not only reliable, but beautiful as well.

NOTE: When ordering replacement parts, please refer to the PARTS LIST which is printed separately from this manual.

* Noise reduction circuit made under license from Dolby Laboratories Inc. The word "Dolby" and the Double-D symbol are trademarks of Dolby Laboratories Inc.

TEAC CORPORATION

51031800

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1. TEST EQUIPMENT REQUIRED

1. **Cassette Torque Meter:** For take-up torque check: 0 ~ 100 g·cm (0 ~ 1.4 oz·inch)
 For fast forward & rewind torque checks: 0 ~ 160 g·cm (0 ~ 2.2 oz·inch)
 * When ordering Cassette Torque Meter, allow for longer delivery time that is required for it.
2. **Spring scale:** For Pinch Roller pressure check: 0 ~ 1 kg (2.2 lbs)
3. **Wow/flutter meter:** MEGURO DENPA SOKKI K.K., Model MK-668A or D & R Co., Model FL-4B.
4. **Frequency counter:** Digital type, capable of 10 Hz to 100 kHz indication.
5. **AF oscillator:** 10 Hz ~ 100 kHz
6. **AC VTVM:** 0.1 mV ~ 300 V
7. **Attenuator:** General Purpose
8. **Distortion analyzer:** Basic frequency 400 Hz/1 kHz
9. **Oscilloscope:** General Purpose
10. **Band-pass filter:** 1 kHz narrow band-pass type
11. **Test load resistor:** Non inductive type 8 ohm/1 W
12. **Plastic alignment tool:**
13. **Head demagnetizer:** TEAC E-3 or equivalent
14. **Cleaner:** TEAC TZ-261 Tape Recorder Cleaner kit or pure alcohol
15. **Oil:** TEAC TZ-255 Oil kit or equivalent

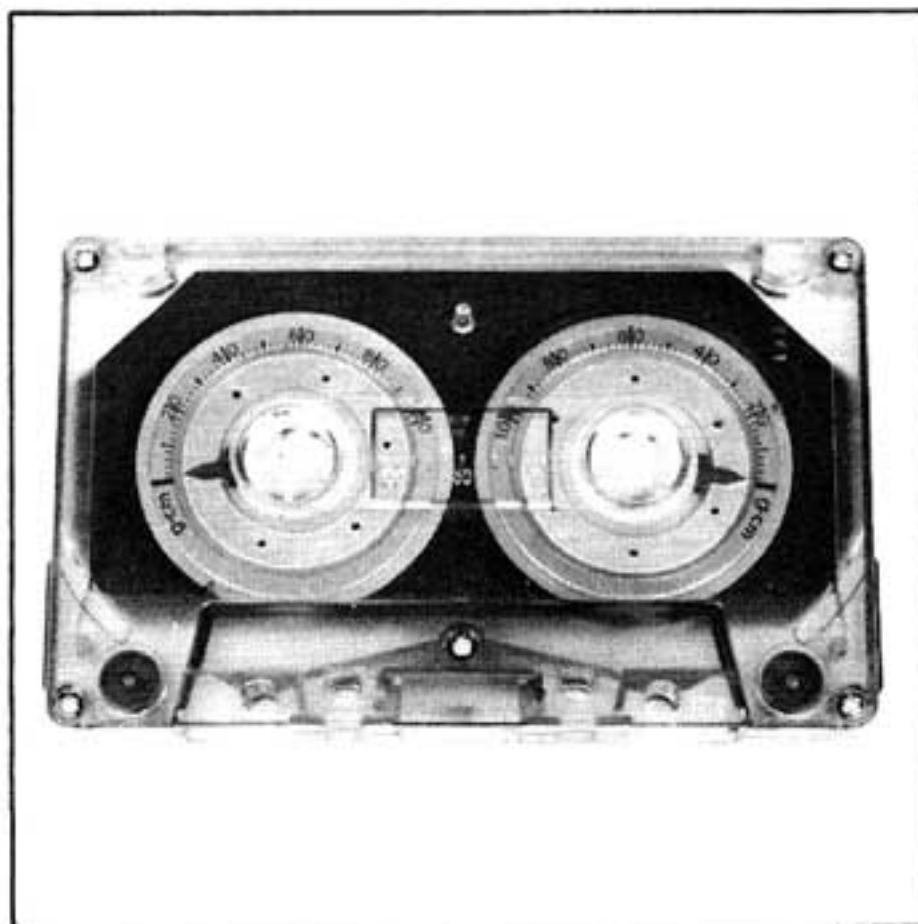


Fig. 1-1 Cassette Torque Meter



Fig. 1-2 Spring Scale

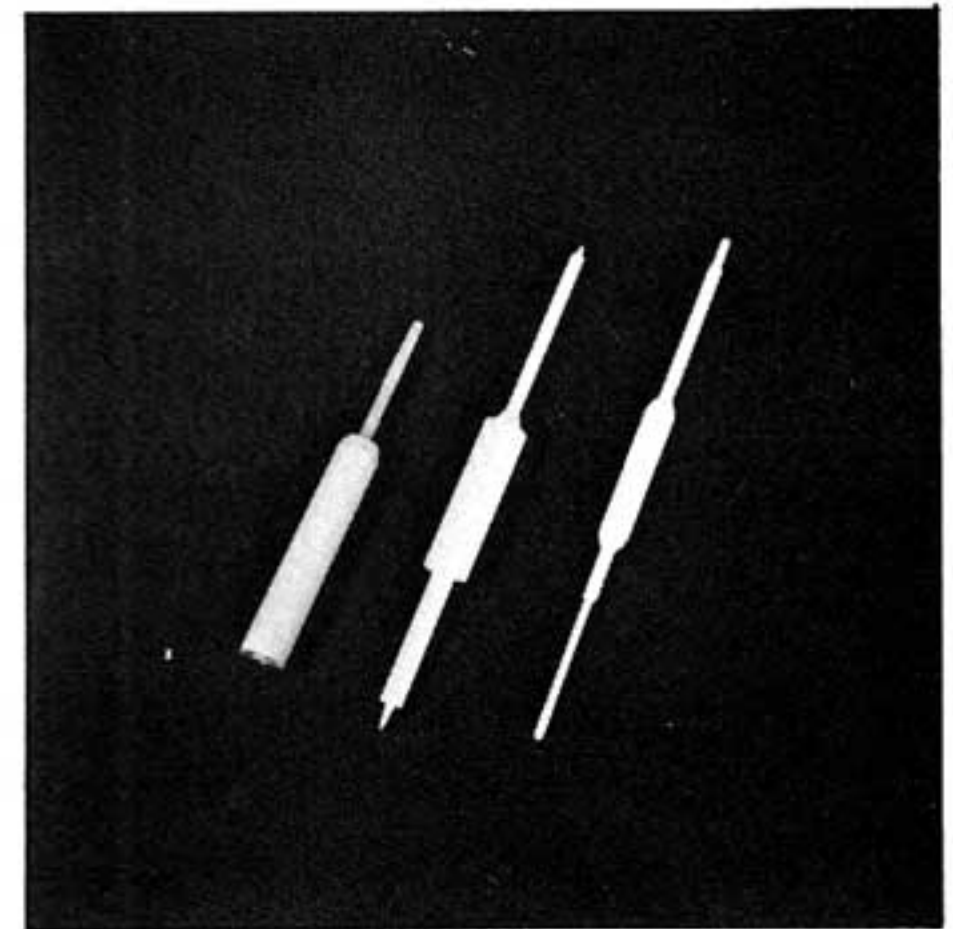


Fig. 1-3 Plastic Alignment Tool



Fig. 1-4 E-3 Head Demagnetizer



Fig. 1-5 TZ-261 Tape Recorder Cleaner Kit



Fig. 1-6 TZ-255 Oil Kit

2. SPECIFICATIONS & SERVICE DATA

SPECIFICATIONS

Track System	4-track, 2-channel stereo
Heads	Two: Erase and Record/Playback
Type of Tape	Cassette tape, C-60 and C-90 (Philips type)
Tape Speed	4.8 cm/s (1-7/8 ips)
Inputs	Microphones: Min. input level: -67 dB or 345 μ V (10 kohms or more)
(level and impedance)	Line: Specified input level: -9 dB or 274 mV (50 kohms) Min. input level: -19 dB or 86 mV
Outputs	DIN*: Min. input level: -35 dB or 13.7 mV
(level and impedance)	Line out: Max. output level: +9 dB or 2.18 V (50 kohms) Specified output level: +3 dB or 1.09 V
Equalization	Headphones: Specified output level: -21 dB or 69.0 mV (8 ohms) EQ 1: 3180 μ s + 70 μ s (for CrO ₂ tape) EQ 2: 3180 μ s + 70 μ s (for Fe-Cr tape) EQ 3: 3180 μ s + 120 μ s (for regular Hi-Fi tape)
Head Configuration	1/2-track, 1-channel Erase Head 1/4-track, 2-channel Record/Playback Head
Motor	DC Servo Motor
Bias Frequency	100 kHz
Operating Position	Horizontal
Power Requirement	100/117/220/240 V AC, 50/60 Hz (General Export Models) 117 V AC, 60 Hz (USA/Canada Models) 220 V AC, 50 Hz (Europe Model) 240 V AC, 50 Hz (Australia Model)
Power Consumption	10 W
Weight	8 kg (17.6 lbs) net

* Pursuant to DIN Standards

TEAC TEST TAPE

For tape speed & wow/flutter test

MTT-111: • For Playback method
• 3,000 Hz/-10 dB

MTT-501: • For Record/Playback method (blank tape)

For Playback performance alignment

MTT-150: • For Dolby level calibration
• Dolby B-type tone (400 Hz tone),
200 nWb/m

MTT-116K: • For frequency response test for EQ 1 &
2 (CrO₂ & Fe-Cr)
• 3180 μ s + 70 μ s
• 315 Hz/-4 dB, 31.5 Hz ~ 14 kHz/-24 dB

MTT-116U: • For frequency response test for EQ 3
(Hi-Fi tape)
• 3180 μ s + 120 μ s
• 315 Hz/-4 dB, 31.5 Hz ~ 14 kHz/-24 dB

REMARKS: 0 dB = DIN Reference level (333 Hz)

For record performance alignment (blank tape)

MTT-505B or equivalent: For BIAS 1/EQ 1 (CrO₂)

MTT-501 or equivalent: For BIAS 2/EQ 2 (Fe-Cr) and
BIAS 3/EQ 3 (Hi-Fi tape)

NOTE: The TEAC test tapes require longer delivery time than normal parts.



Fig. 2-1 TEAC Test Tape

SERVICE DATA

Mechanical

Tape Speed Deviation	3,000 Hz \pm 45 Hz
Tape Speed Drift	45 Hz
Wow and Flutter	Playback: 0.10% (WRMS) 0.18% (RMS) Record/Playback: 0.25% (RMS)
Pinch Roller Pressure	400 g \pm 20 g (13.5 ~ 15.0 oz)
Reel Torque	Take Up: 40 ~ 60 g·cm (0.6 ~ 0.8 oz·inch) Fast Forward: 80 g·cm (1.1 oz·inch) or more Rewind: 100 g·cm (1.4 oz·inch) or more
Fast Winding Time	100 seconds for C-60
End-stop Activate Time	3 seconds \pm 2 seconds
TIMER Activate Time	0.5 to 3 seconds

Electrical

Frequency Response	Refer to frequency response limits charts on page 18 and 23
Signal to Noise Ratio	Playback method: 47 dB minimum Record/Playback method: BIAS/EQ 1, 2: 45 dB minimum BIAS/EQ 3: 44 dB minimum With Dolby Noise Reduction used for recording and playback, S/N ratio is improved by 5 dB at 1 kHz and 10 dB at frequencies over 5 kHz.
Erase Efficiency	65 dB minimum
Channel Separation	30 dB minimum (at 1 kHz)
Crosstalk between Adjacent Tracks	40 dB minimum (at 125 Hz)
Total Harmonic Distortion	BIAS/EQ 1: 3.0% (maximum) BIAS/EQ 2: 2.5% (maximum) BIAS/EQ 3: 2.5% (maximum)

- NOTE: ● Improvements may result in Specifications and Service Data changes.
● Value of "dB" in the Data refer to 0 dB = 0.775V, except where specified. If a Test Set or VTVM calibrated to 0 dB = 1V is to be used, appropriate compensation should be made.

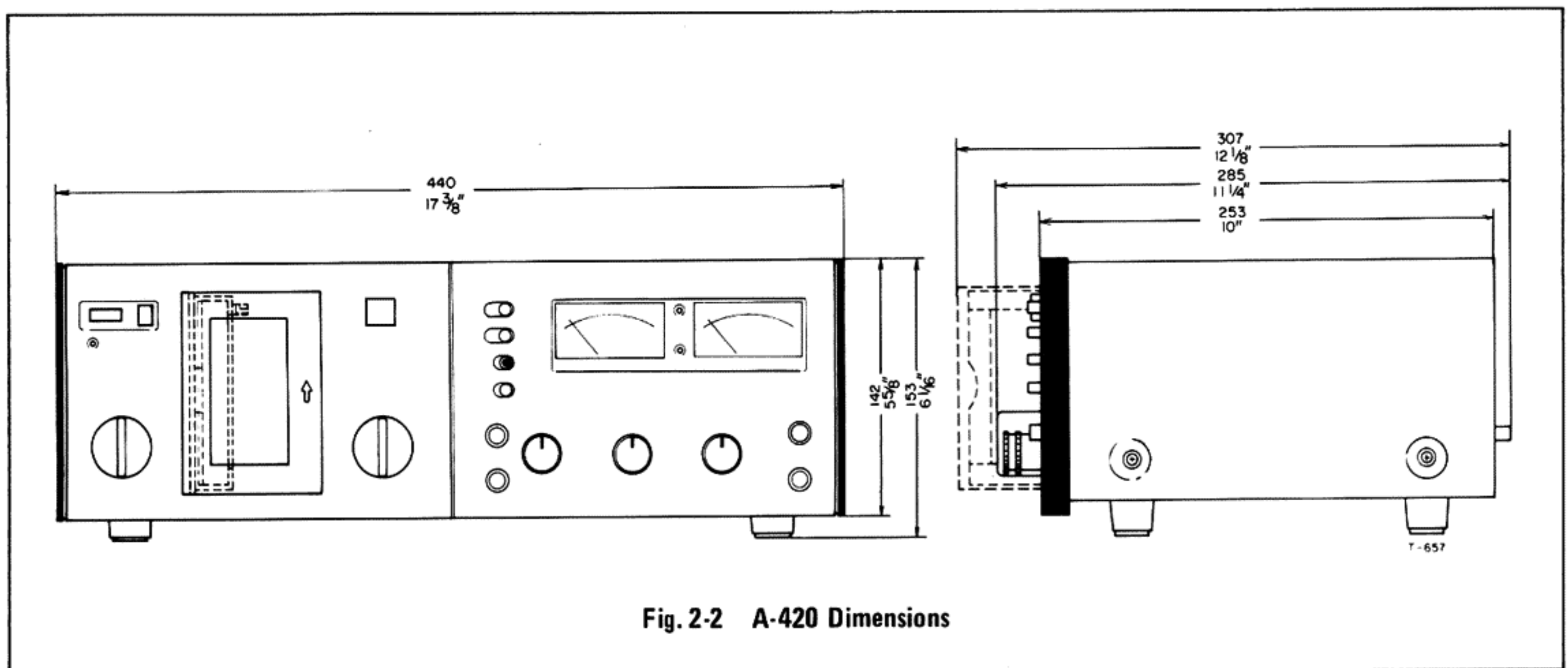


Fig. 2-2 A-420 Dimensions

4. PARTIAL DIS-ASSEMBLY OF MAIN PARTS

- NOTE: 1. Use the proper tools. Demagnetize the tools before use.
2. When mounting or removing a spring, pay heed to the position (direction) of the anchor or hook. The wrong position may result in a change in the tension.

3. When reassembling, don't forget to reinstall all hardware such as springs and washers, etc.
4. For assembling hardware shape identification, see ASSEMBLING HARDWARE CODING LIST in the Parts List.

4-1. CASE/FRONT PANEL

Remove the parts in the following sequence.

1. Cabinet (A) – U.S.A./Canada models only.
2. Top Cover (B) – All models except U.S.A./Canada models.
3. Rotary levers (D)
4. Knobs (E)
5. Front Panel (C)
6. Bottom Cover (F) – U.S.A./Canada models only. Remove this, if necessary, for the following sections.

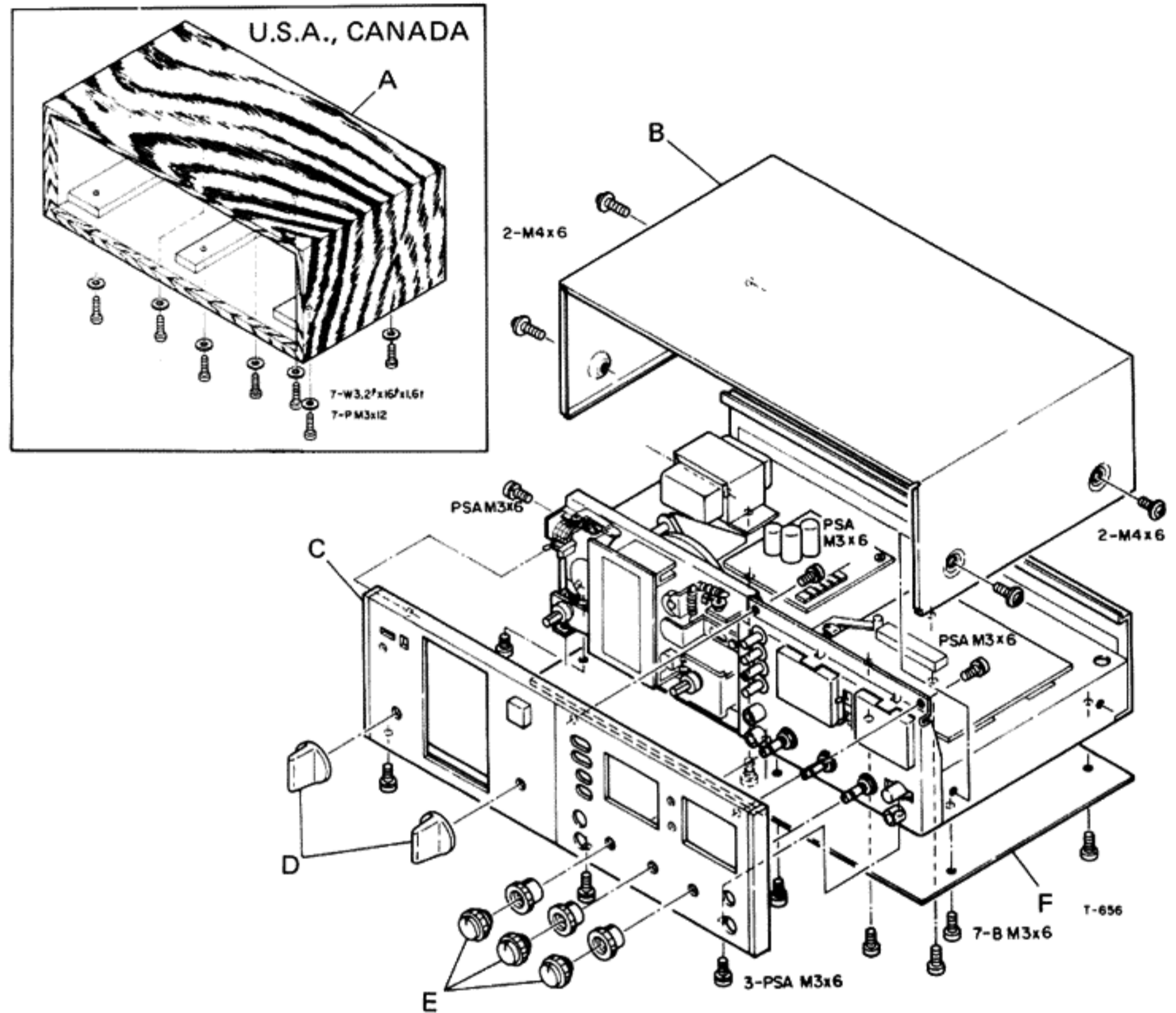


Fig. 4-1 Case/Front Panel Removal

4-2. CASSETTE HOLDER

First do procedure in section 4-1.

1. Loosen the 2 screws (A) and the 2 screws (C). At this time, the work is made easier by expanding the Springs (B) and (D) in the direction of the arrows.
2. Remove the Cassette Holder (E).

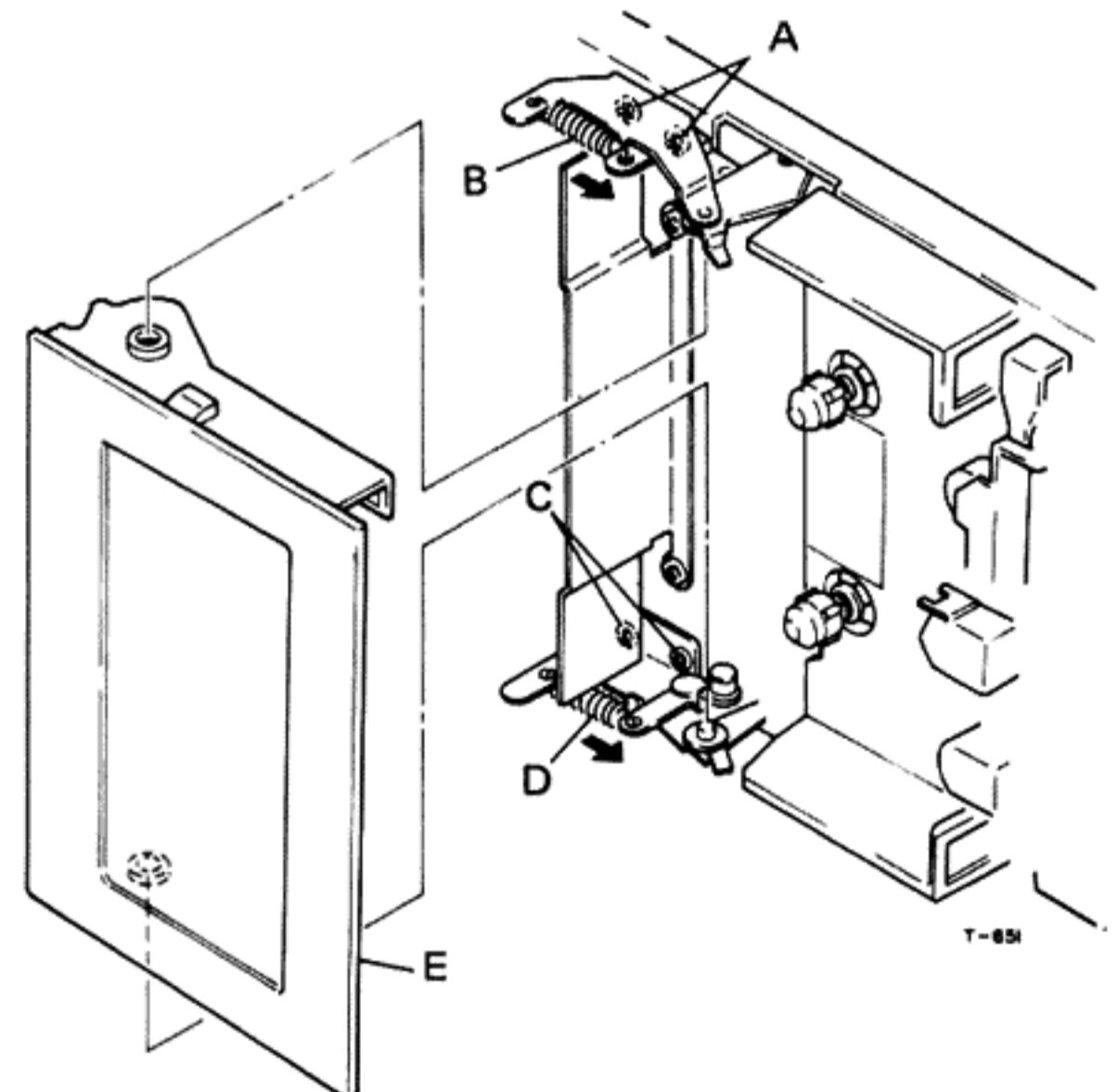


Fig. 4-2 Cassette Holder Removal

4-3. HEAD

First do procedure in section 4-1.

1. Open fully the Cassette Holder door.
2. Unsolder each lead wire from the terminal pins of the heads to facilitate replacement. To re-solder each head wire to the newly replaced head, refer to the Head Wiring Diagram.
3. Remove the Head Protector (G) by taking off the 2 screws mounting it (only for dismantling the Record/Playback Head).
4. Place the right Rotary Lever in the PLAY mode (for removal of the Erase Head only).
5. Lift up the heads after taking off the hardware mounting them.

- NOTE:
1. After replacing the head, always adjust the head alignment, especially the Record/Playback Head's azimuth, and then secure the screws and/or the nut with a drop of locking paint.
 2. Connect the wires to the head terminal pins quickly to prevent breaking of internal wires of the head due to overheating.

4-4. PINCH ROLLER

First do procedure in section 4-1.

1. Open fully the Cassette Holder door.
2. Remove the Spring (F) from the Pinch Roller (D) with the other end of this spring remaining attached to the Head Base Plate (B).
3. Slowly remove the E-ring (E).
4. Remove the Pinch Roller Ass'y (D).

- NOTE:
1. When reinstalling the Pinch Roller make sure that the arm (A) fits properly into the guide (C) in the Pinch Roller Ass'y.
 2. After replacement, always clean the driving surfaces of the Pinch Roller with the TEAC TZ-261B Rubber Cleaner or with pure alcohol, then proceed directly to the PINCH ROLLER PRESSURE adjustment section.

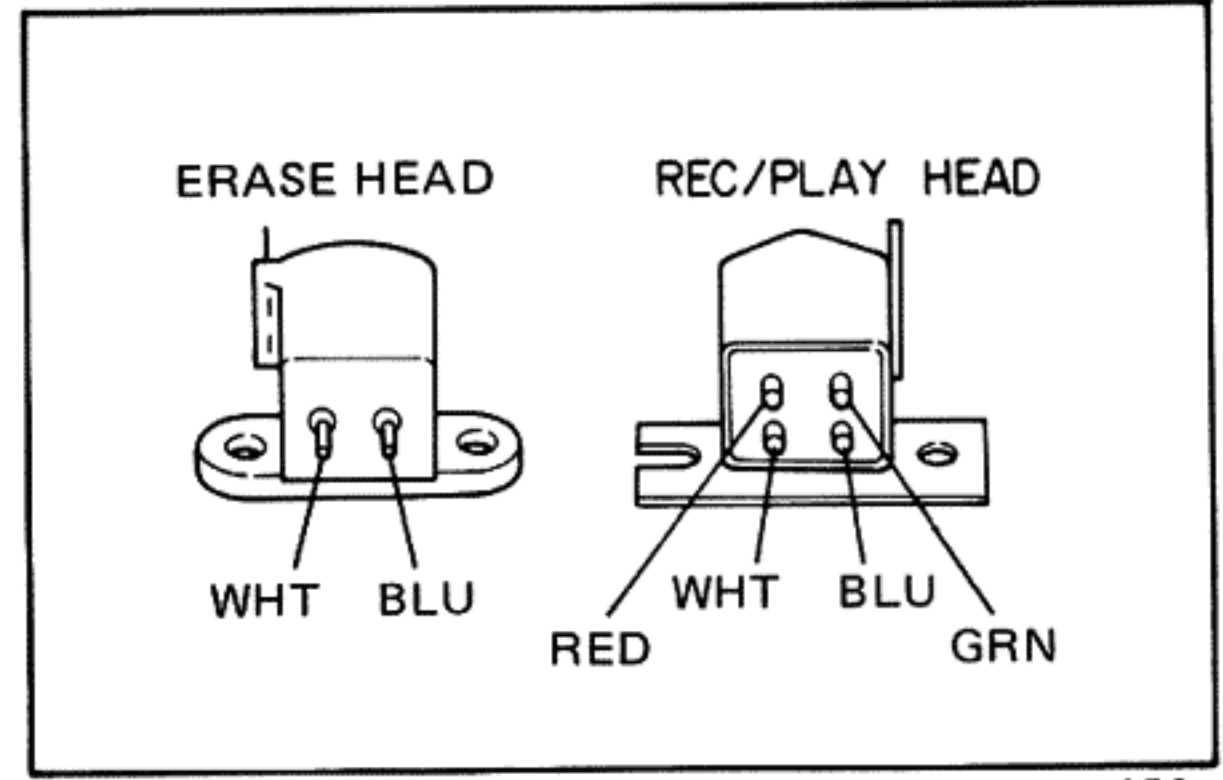


Fig. 4-3 Head Wiring Diagram

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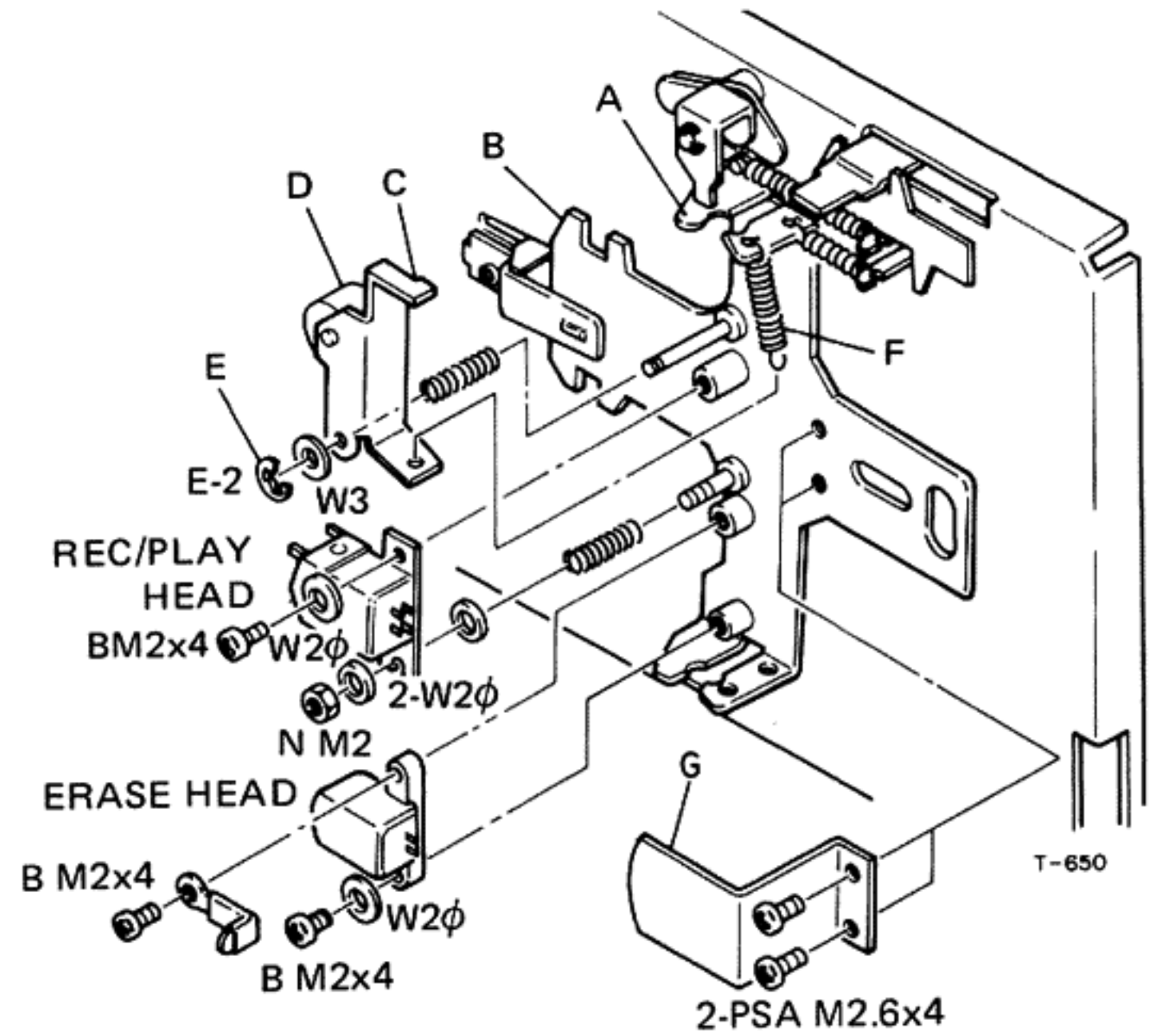


Fig. 4-4 Heads/Pinch Roller Replacement

T-650

4-5. TAPE TRANSPORT CHASSIS

First do procedure in section 4-1.

1. Remove the 4 screws (E, F, H, I).
2. Extract the Insulator Plate (C) from the Main Chassis.
3. Remove the Reinforcing Angle (G) by taking off the 2 screws (D) and loosening the screw (A).
4. Retighten temporarily the screw (A).
5. Remove the Transport Chassis (B) from the Main Chassis.
6. To adequately remove the tape transport chassis, disconnect the wires marked with asterisks (*).

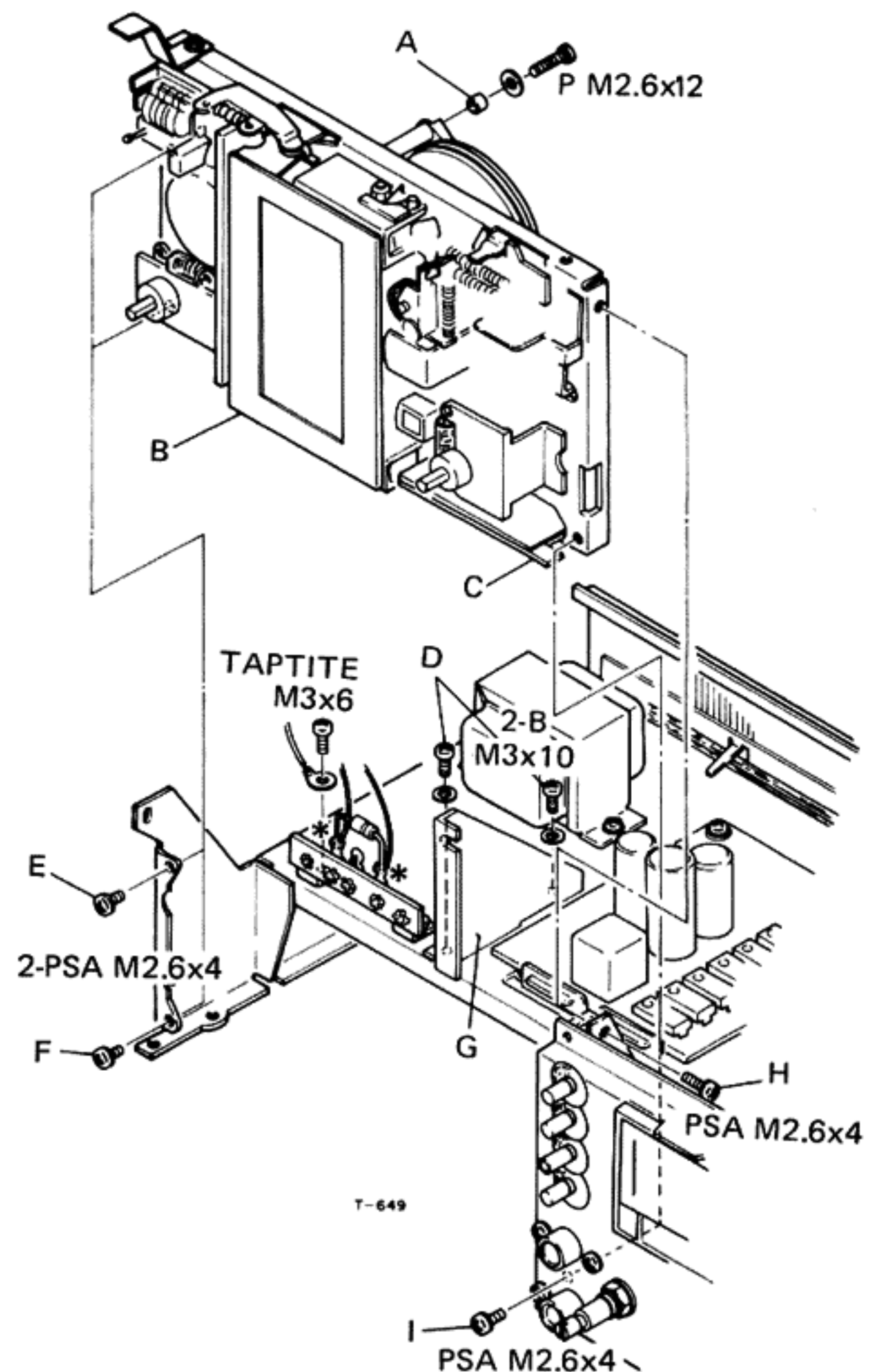


Fig. 4-5 Tape Transport Chassis Removal

4-6. MOTOR

First do procedures in section 4-1 and 4-5.

1. Release the Drive Belt (A) from the Motor Pulley.
2. Unsolder the wires marked with asterisks (*) from the Terminal Strip. Note the color code and the position of each wire prior to unsoldering the leads.
3. Bend open the Wire Clamp (C) to loosen the wires.
4. Remove the complete Motor Ass'y (B) by taking off the 3 nuts (G).
5. Further disassemble the Motor Ass'y (F) from the Motor Mounting Plate (E) by taking off the 3 screws (D).

- NOTE:
1. When re-assembling, clean the pulley and the Belt with TEAC TZ-261 Cleaner kit ("A" for the Pulley, "B" for the Belt) or with pure alcohol.
 2. Take off or remount the Motor Ass'y taking care not to scratch or otherwise damage the Motor Pulley.
 3. When re-attaching the Drive Belt to the Pulley do not twist or stretch the belt.

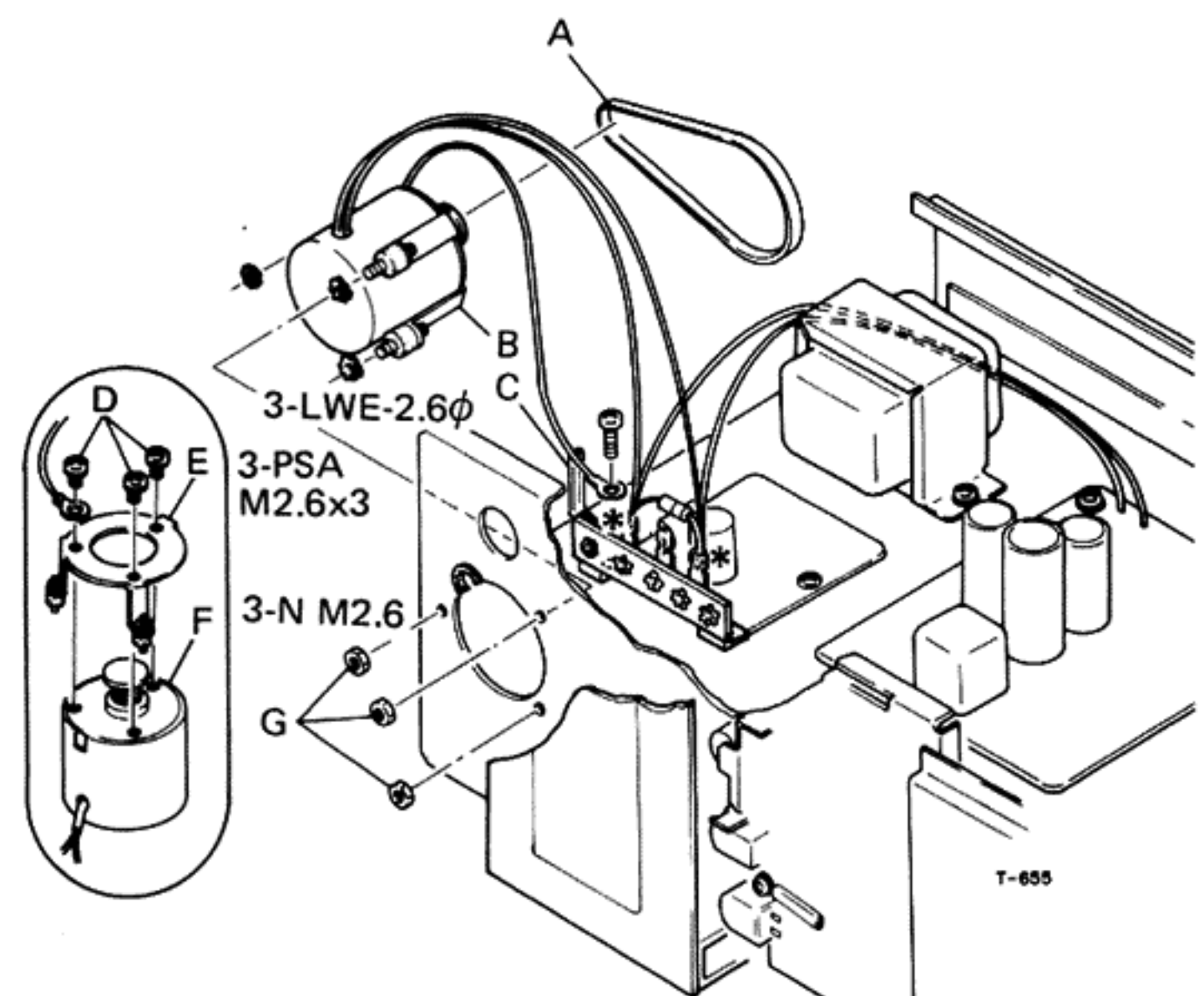


Fig. 4-6 Motor Replacement

4-7. CAPSTAN DRIVE ASS'Y/DRIVE BELT

First do procedures in section 4-1 and 4-5.

1. Remove the Flywheel Bearing Plate (E) by taking off the 2 screws holding it.
2. Remove the Drive Belt (D) from the Flywheel Ass'y (C) and the Motor Pulley.
3. Remove the Oil Retaining Washer (A) from the shaft of the Flywheel.
4. Carefully lift out the Flywheel Ass'y.
5. Remove the Capstan Housing Ass'y by unscrewing the 3 screws installing it.

- NOTE:
1. Since the Capstan Drive Ass'y is a precision part, TEAC specially distributes the Flywheel and the Capstan Housing Ass'y as a whole assembly. Hence, always replace the Flywheel together with the Capstan Housing Ass'y.
 2. Clean all driving surfaces of the Flywheel and the Drive Belt with TEAC TZ-261 Cleaner kit ("A" for Flywheel. "B" for Belt) or with pure alcohol.
 3. Do not bend the Capstan Shaft as this will increase wow/flutter or speed deviation.
 4. During re-assembly, re-attach the Drive Belt without twisting or stretching it.

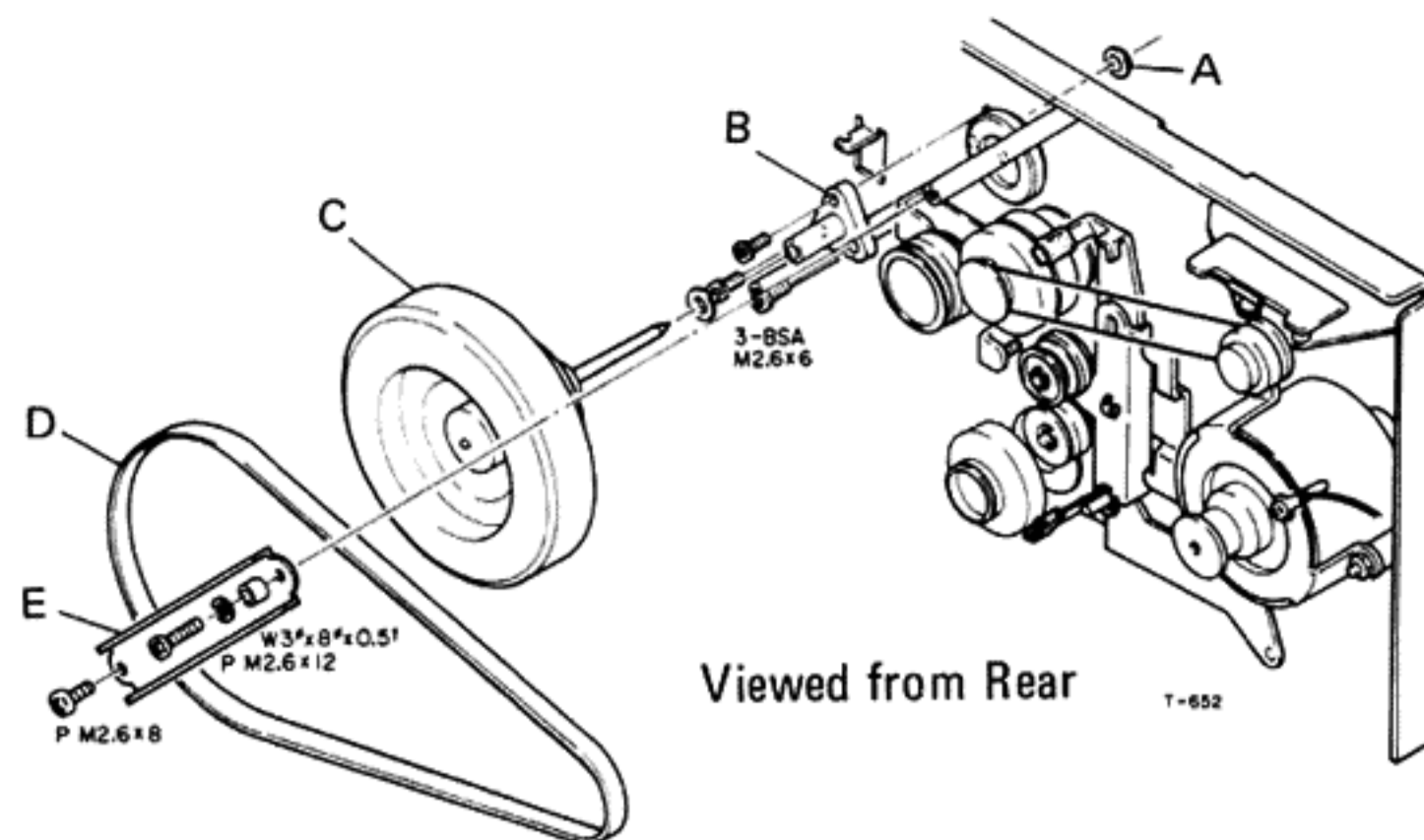


Fig. 4-7 Flywheel/Drive Belt Replacement

LUBRICATION:

For lubrication of the newly replaced Capstan Drive Ass'y, the following should be observed.

1. Apply a drop of a light machine oil of good quality (e.g.: TEAC TZ-255) with an oil applicator to the shaft of the Flywheel and spread oil evenly over the shaft with a flannel cloth. After installing the Flywheel, be sure to clean the tape moving portion of shaft with TEAC TZ-261A Head Cleaner or with pure alcohol.
2. Apply a drop of the proper oil in the same way as above to the innermost area of capstan shaft (next to the Flywheel).
3. Apply a film of light grease to the well of the Flywheel Bearing Plate.

4-8. REEL TABLES

First do procedure in section 4-1; Further, only when replacing the Take-up Reel Table, do section 4-5 then remove the Flywheel Ass'y referring to section 4-7.

1. Open fully the Cassette Holder door.
2. Remove the Cassette Guide Plate (G) by taking off the 4 screws (F).
3. For only detaching the Take-up Reel Table (A), first take out the Index Counter Belt (B) from the Take-up Reel Table and the Index Counter Pulley.
4. Remove the Reel Table which requires replacement (A and/or C) by taking off the screws (D and/or E).

NOTE: Always replace the complete Reel Table Ass'y as an entire assembly, "Take-up" or "Supply".

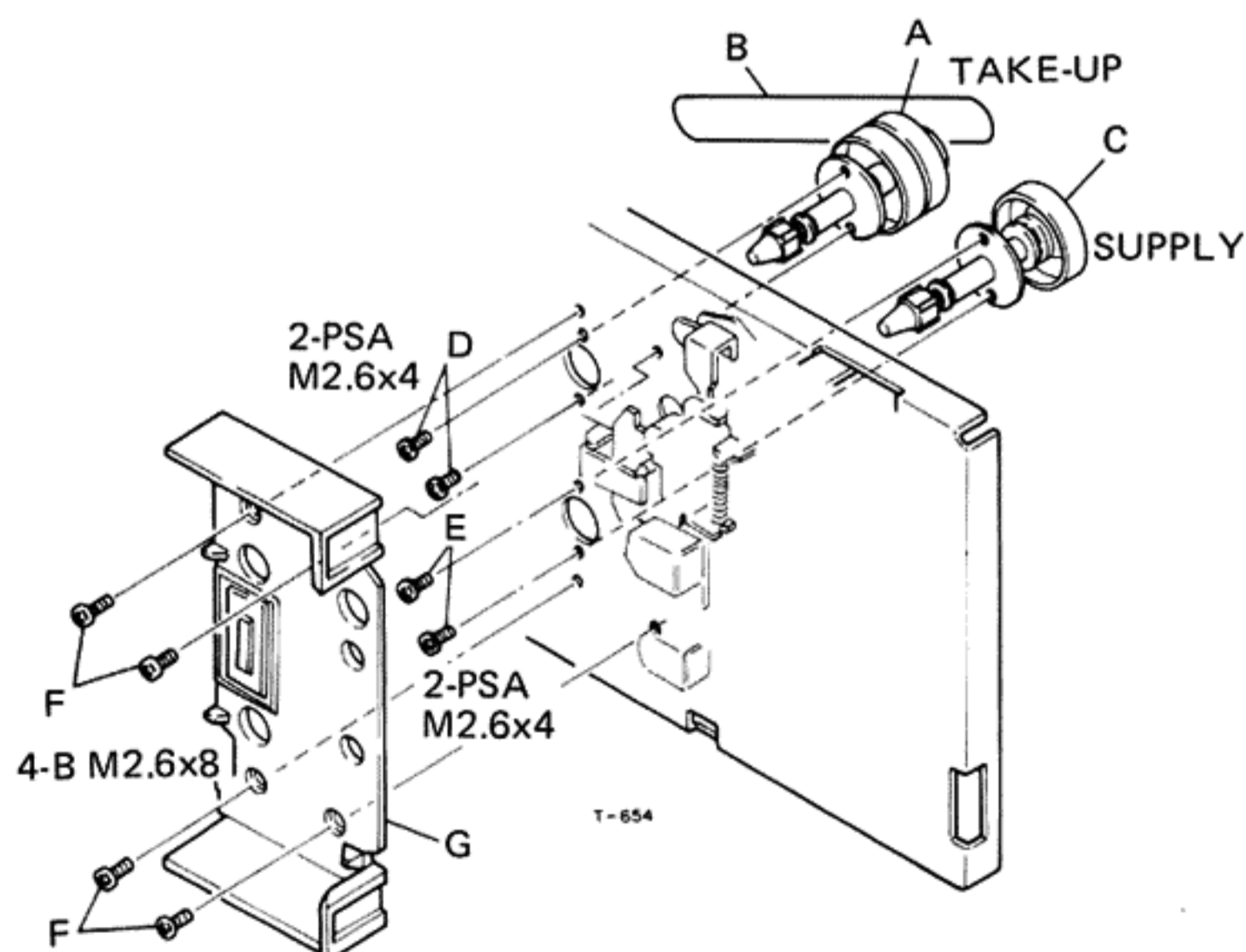


Fig. 4-8 Reel Table Replacement

4-9. PLAY IDLER ASS'Y

First do procedures in section 4-1 (except Front Panel removal), 4-5 and 4-7.

1. Lift off the Play Idler Ass'y (A) with the Spring (C) unhooked from the hook (D) and the E-ring (B) taken off.
2. For further disassembly of the Play Idler Ass'y, refer to the DETAIL of "A".

NOTE: When remounting clean the driving surface of the Idler with the TEAC TZ-261B Rubber Cleaner or with pure alcohol.

4-10. FAST WIND IDLER ASS'Y

First do procedures in section 4-1 and 4-5, then remove the Flywheel Ass'y (refer to 4-7) and the Take-up Reel Table (refer to 4-8).

1. Remove the Spring (H) from the Fast Wind Idler Ass'y (E) and the Fast Wind Plate (F).
2. Remove the E-ring (G).
3. Lift out the Fast Wind Idler Ass'y (E).
4. If it is necessary to further disassemble the Fast Wind Idler Ass'y, refer to the DETAIL of "E" in Figure.

NOTE: Before re-assembling the Idler Ass'y, do the following:

1. Turn the left Rotary Lever to the FF position to simplify remounting.
2. Clean the driving surface of the Idler with the TEAC TZ-261B Rubber Cleaner or with pure alcohol.

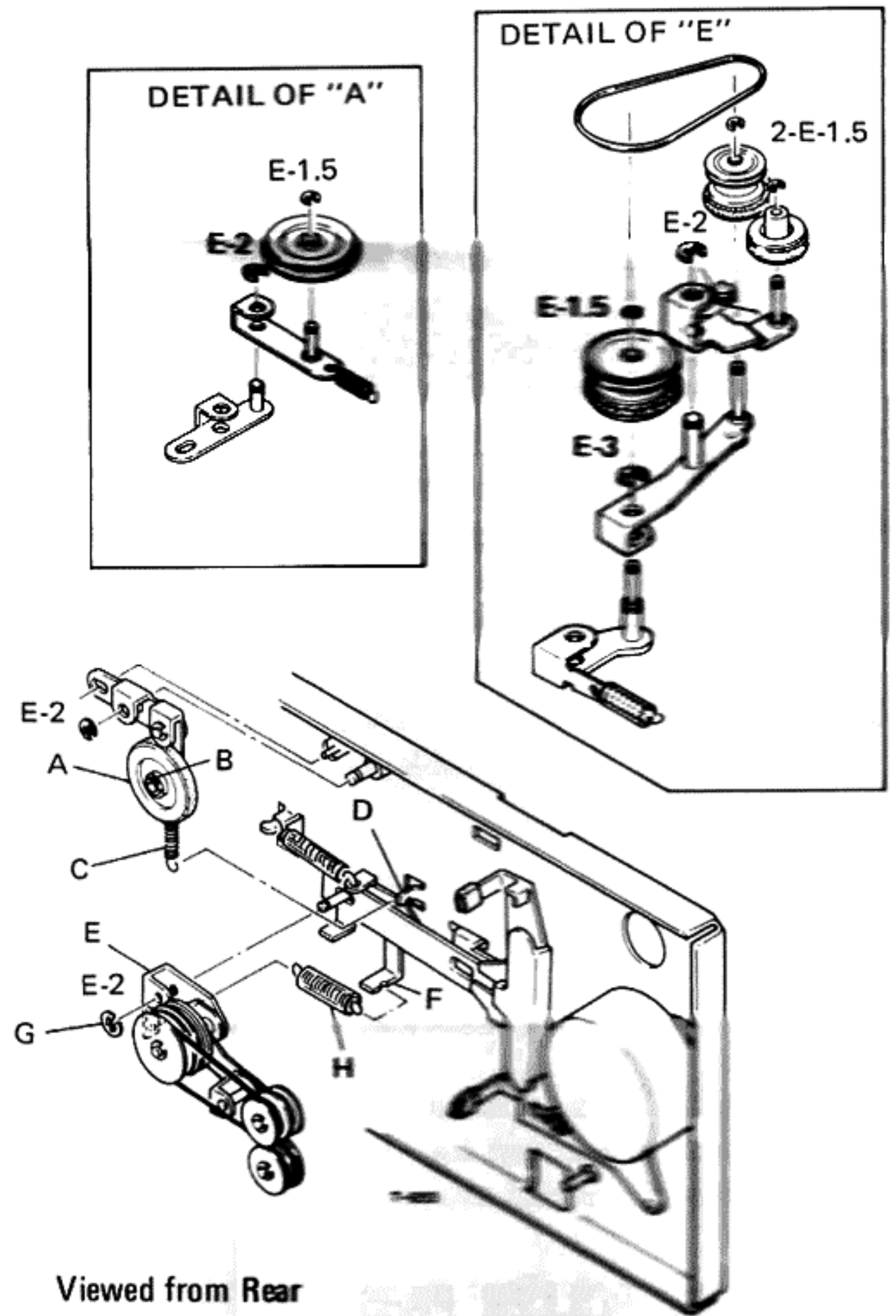


Fig. 4-9 Idler Replacement

5. MECHANICAL CHECKS AND ADJUSTMENTS

NOTE: All the mechanical checks and adjustments should be done with the Cabinet and the Front Panel removed.

5-1. TAKE-UP TORQUE

Specification: 40 ~ 60 g·cm (0.6 ~ 0.8 oz·inch)

1. Switch on POWER.
2. Load the Cassette Torque Meter (for take-up torque: 0 to 100 g·cm or 1.4 oz·inch).
3. Place the deck in the PLAY mode and read the pointer indication on the dial scale.
4. The Meter should indicate a torque of 40 to 60 g·cm (0.6 to 0.8 oz·inch).
5. If the reading is out of specified range, clean the driving surfaces of the Reel Table Assy, the Play Idler and the Flywheel with the TEAC TZ-261B Rubber Cleaner or with pure alcohol.
6. If the above cleaning is ineffective for torque correction, replace the Reel Table Assy.

5-2. FAST FORWARD & REWIND TORQUE

Specification:

Fast Forward Torque: 80 g·cm (1.1 oz·inch) or more
Rewind Torque: 100 g·cm (1.4 oz·inch) or more

1. Switch on POWER.
2. Load the Cassette Torque Meter (for fast forward and rewind torque: 0 to 160 g·cm or 0 to 2.2 oz·inch).
3. Place the deck in the FF or REW mode and read the pointer indication on the dial scale.
4. The Meter should indicate a torque of 80 g·cm (1.1 oz·inch) or more as Fast Forward Torque and 100 g·cm (1.4 oz·inch) or more as Rewind Torque.
5. If the indication is out of specified range, clean the driving surfaces of the Reel Table Assy, the Fast Wind Idler Assy and the Flywheel with the TEAC TZ-261B Rubber Cleaner or with pure alcohol.
6. If the above cleaning is ineffective for the torque correction, replace the Fast Wind Idler Assy.

5-3. PINCH ROLLER PRESSURE

Specification: 400 g ± 20 g (13.5 ~ 15.0 oz.)

1. Open fully the Cassette Holder door to the left.
2. Switch on POWER.
3. Place the deck in the PLAY mode with no tape loaded.
4. Attach the spring scale to the hole in the Pinch Roller Ass'y as shown.
5. Gently draw the Pinch Roller away from the Capstan shaft (in a direction parallel to a line that intersects the centers of the capstan shaft and the Pinch Roller) until the Capstan shaft and the Pinch Roller are completely separated.
6. Gradually return the scale back until the Pinch Roller just begins to rotate. The scale should then be reading approximately 400 ± 20 g (13.5 ~ 15.0 oz.).
7. If the reading is out of specified range, adjust the tension of the Pressure Spring by bending the tab of the Pinch Roller Ass'y slightly.

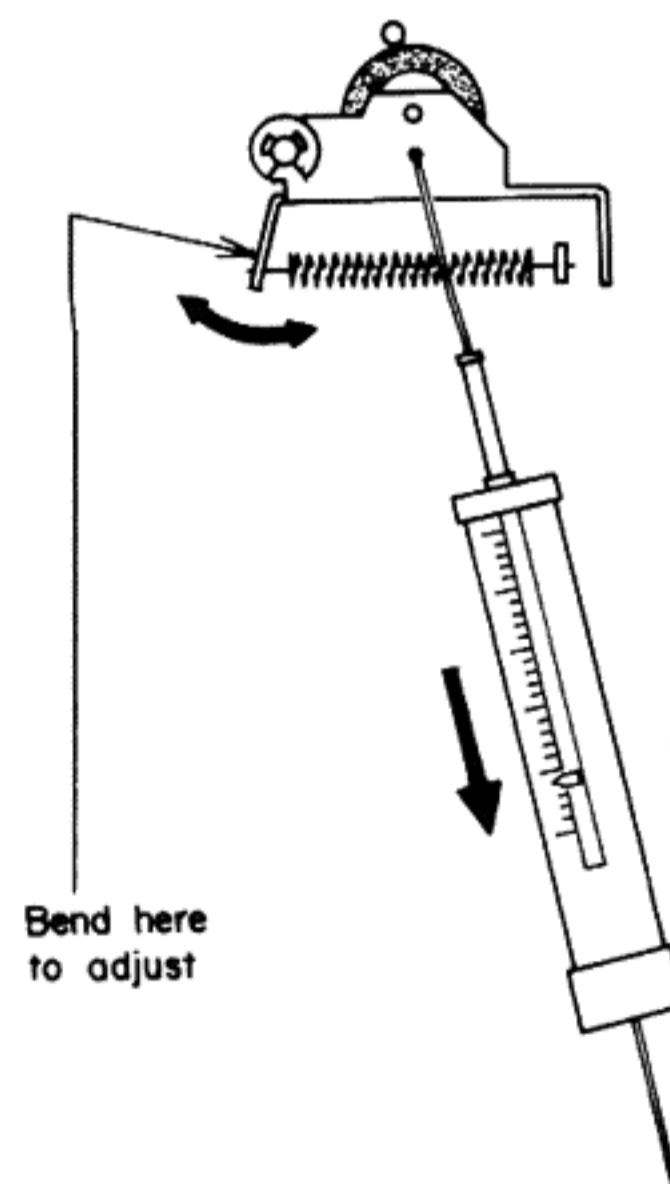


Fig. 5-1 Pinch Roller Pressure Measurement

5-4. TAPE SPEED/WOW AND FLUTTER

Specification:

Tape Speed Deviation:	3,000 Hz \pm 45 Hz
Tape Speed Drift:	45 Hz
Wow and Flutter:	Playback: 0.10% (WRMS) 0.18% (RMS)
	Record/Playback: 0.25% (RMS)

- NOTE: 1. Before performing this adjustment, clean all parts in the tape path, particularly the Capstan, the Pinch Roller and the Heads with the appropriate liquid from the TEAC TZ-261 Cleaner Kit or with pure alcohol.
2. Wow and flutter should be checked in two ways; Playback only and Record/Playback methods. First correct tape speed and wow and flutter using the playback only method. Then measure wow and flutter using record and playback method.
3. As the measured results may vary with respect to location on tape at which it was taken, three points – at beginning, middle and near the end of the tape – should be measured.

5-4-1. TAPE SPEED

1. Connect test equipment to the deck, except the AF oscillator, as shown in Fig. 5-2.
2. Set the OUTPUT control on the deck to any convenient setting.
3. Set the EQ switch to the "3" position, and then load and play a TEAC MTT-111 test tape (3,000 Hz signal is recorded).
4. Adjust the control located at the center of the Motor for reading of 3,000 Hz \pm 5 Hz on the frequency counter.
(NOTE: This tape speed setting should be done after approx. 30 seconds of operating time of the deck).
5. Then, verify the reading on the frequency counter as within the specified range of 3,000 Hz \pm 45 Hz, and the tape speed drift is within 45 Hz at any portion of the tape run.
6. If the tape speed is extremely out of the specification, check the Pinch Roller pressure and the tape driving function for correction, and make sure the tape path is clean.

5-4-2. WOW AND FLUTTER

After making the tape speed measurement, perform the wow and flutter test using the Playback Method and the Record/Playback Method successively.

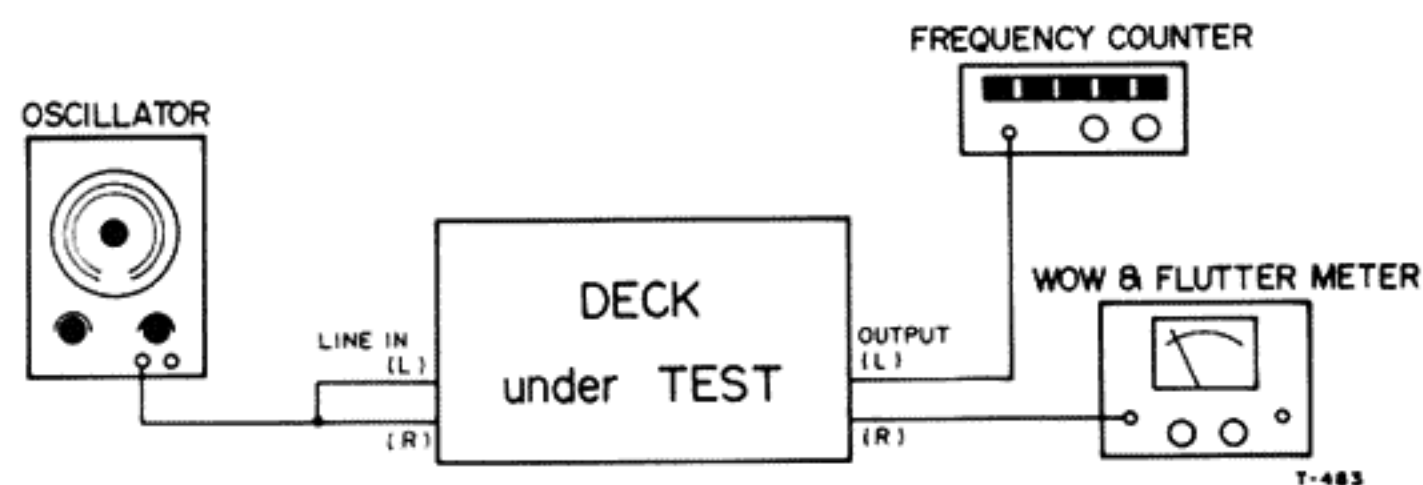


Fig. 5-2 Tape Speed/Wow & Flutter Measurement Setup

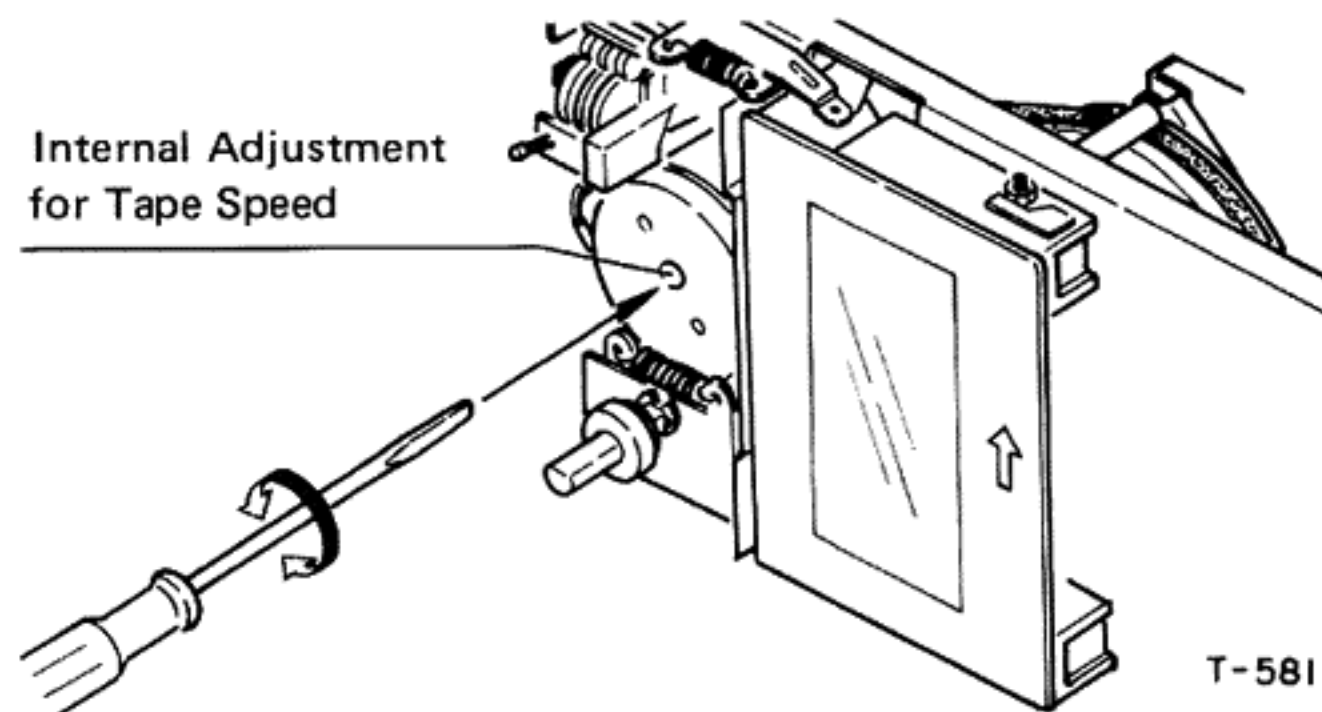


Fig. 5-3 Tape Speed Adjustment Location

PLAYBACK METHOD

1. Play the MTT-111 test tape.
2. Read the indication on the wow and flutter meter.
3. The wow and flutter value should be 0.10% WRMS, max or 0.18% RMS max.
4. If the wow and flutter is out of specification, check the Pinch Roller pressure and the take-up torque, see that the tape path is clean, and that the Capstan Belt is not stretched or oily.
5. If the above checks are ineffective for excessive wow and flutter correction, repair or replace the Pinch Roller, the Capstan Belt and/or any other defective parts.

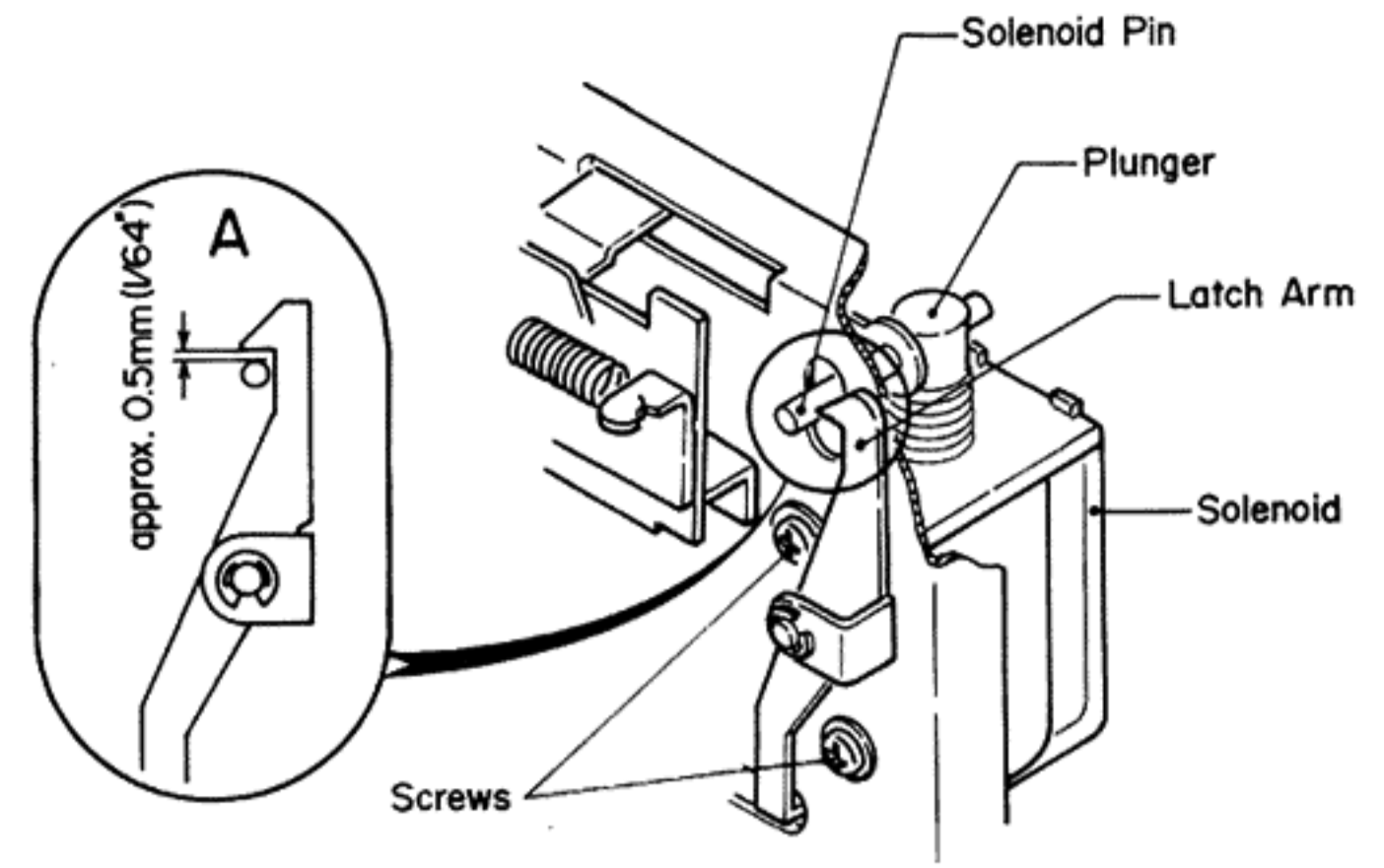
RECORD/PLAYBACK METHOD

NOTE: When using this method, adopt the maximum wow and flutter value obtained by repeated play and stop modes of operation. This operation is necessary to make sure wow and flutter content between record and playback will not be in phase to create a false reading.

1. Connect test equipment to the deck as shown in Fig. 5-2.
2. Set RECORD and OUTPUT controls on the deck to obtain convenient input and output levels.
3. Load a TEAC MTT-501 test tape (blank) and set the BIAS/EQ switches in the "3" positions.
4. Apply and record a 3,000 Hz signal.
5. Rewind and play this recorded section.
6. Read the indication on the wow and flutter meter.
7. The wow and flutter value should be 0.25% RMS max.
8. If the measured value is out of specification, repair using the same methods as stated in steps 4 – 5 in the Playback Method procedure.

5-5. SOLENOID POSITION ADJUSTMENT

1. Place the deck in the PLAY mode with no power applied.
2. Depress the plunger by hand until the plunger is fully bottomed, and the Latch Arm latches the solenoid pin.
3. Adjust the Solenoid position by loosening the 2 screws so that the clearance between the Latch Arm and the solenoid pin is approximately 0.5 mm (1/64") as shown in A of Figure.
4. After adjusting, retighten the 2 screws and secure them with a drop of locking paint.



Upper right hand corner of Transport Chassis T-411
(Viewed from front)

Fig. 5-5 Solenoid Position Adjustment

5-6. MUTING SWITCH POSITION ADJUSTMENT

1. Before adjusting this, be sure that no power is applied to the deck.
2. Loosen the 2 screws as shown in Figure.
3. Turn the right Rotary Lever to the PLAY position.
4. Lightly force the Muting switch PC Board to the right (toward the arrow) as far as possible by hand, and retighten the 2 screws.
5. After adjusting, secure the 2 screws with a drop of locking paint.

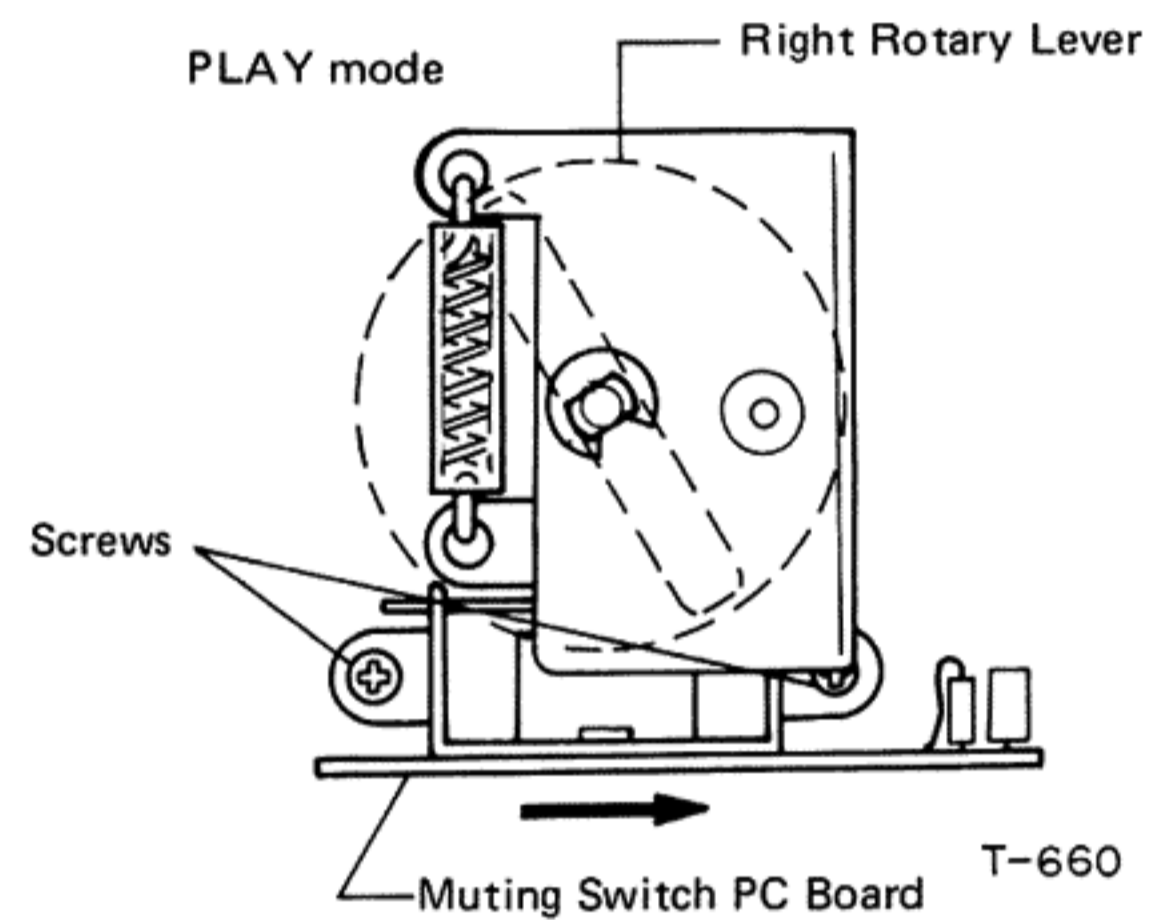


Fig. 5-6 Muting Switch Position Adjustment

LUBRICATION

- NOTE:
1. Lubrication should generally be done at about every 1,000 hours of operating time of the tape deck. Use high quality oil for this purpose.
 2. For efficient oiling, it is recommended that lubrication be done after nearly 1 hour of idling of the deck.
 3. Normally, it is necessary to lubricate only the following two areas:

a. FLYWHEEL ASS'Y

See Section 4-7 for lubrication of the newly replaced Flywheel Assy.

b. CAPSTAN ASS'Y

Apply 1 or 2 drops (approx. 0.2 cc) of a light machine oil with an oil applicator to the shaft bearing portion of the Capstan Assy.

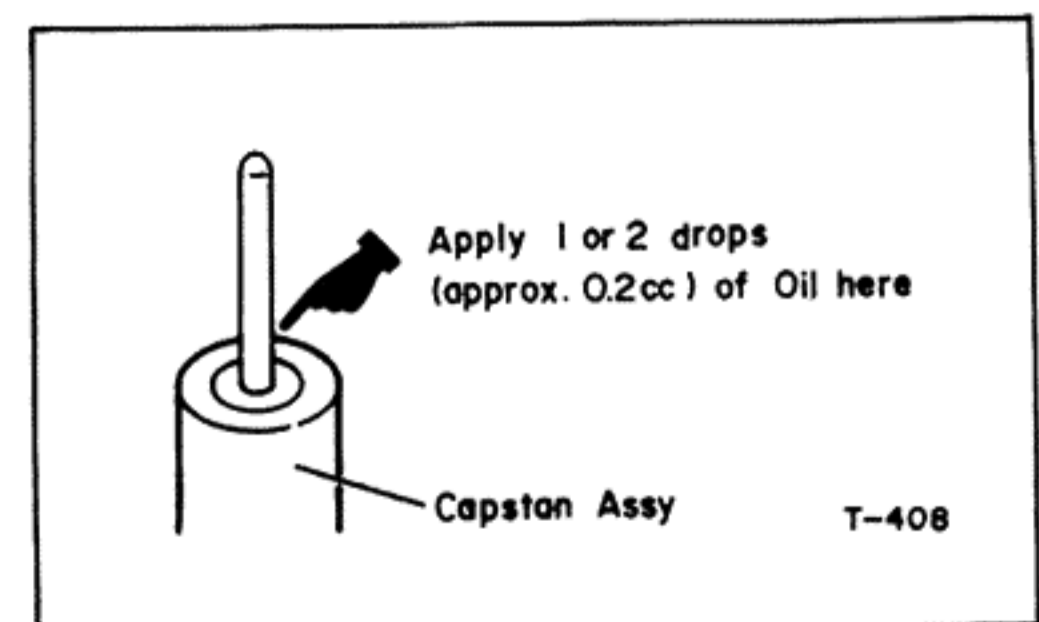


Fig. 5-7 Lubrication of Capstan Ass'y

VOLTAGE AND FREQUENCY SETTING

a. VOLTAGE SELECTOR SETTING PROCEDURE (FOR GENERAL EXPORT MODELS)

1. Disconnect the power cord of the deck from the source.
2. Turn the deck around and locate the voltage selector on the rear of the deck.
3. Loosen the screw on the right end of the metal bar covering the voltage selector and then rotate the bar so the slotted center post of the voltage selector can be adjusted.
4. To increase the selected voltage, turn the slotted center post clockwise.
5. To decrease the selected voltage, turn the slotted center post counter-clockwise.
6. The numerals that appear in the cut-out window of the voltage selector indicate the selected voltage.

b. AC POWER LINE FREQUENCY ADAPTATION

Since the A-420 employs a DC Servo Motor, 50 Hz or 60 Hz operation is permitted without power line frequency adaptation.

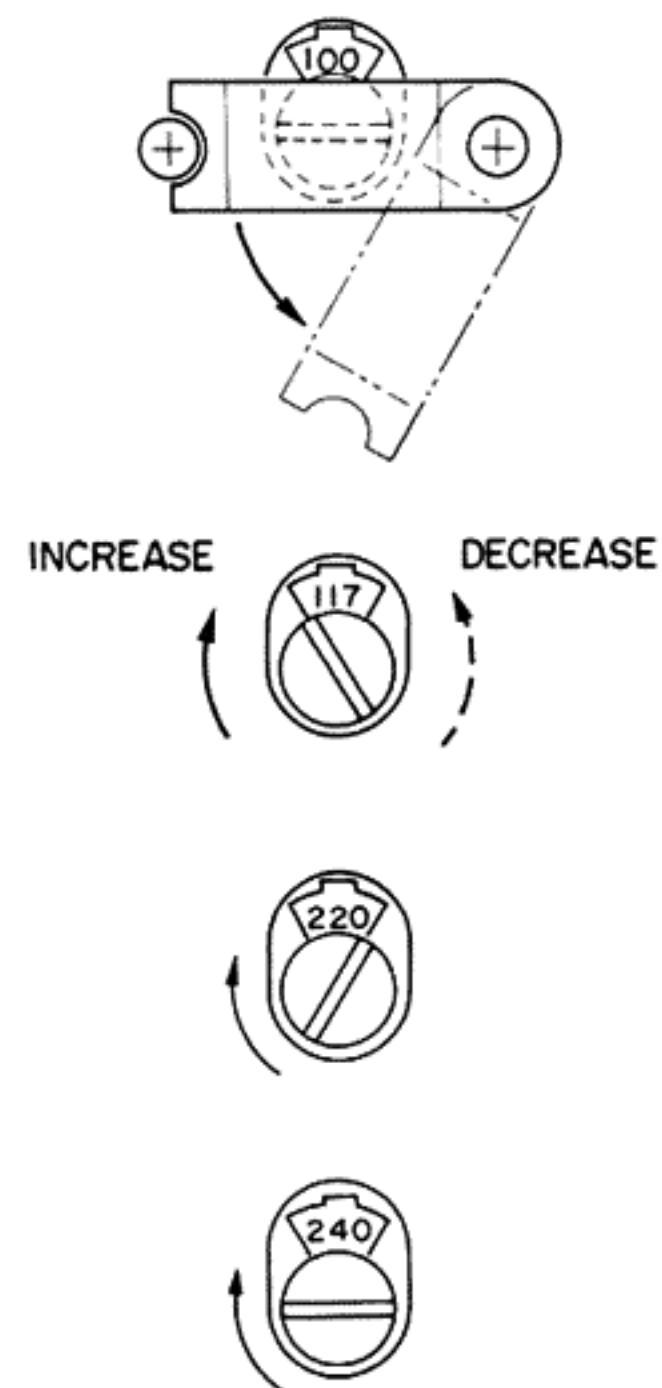


Fig. 5-8 Voltage Selector Setting

6. ELECTRICAL CHECKS AND ADJUSTMENTS

GENERAL NOTES

1. Before performing adjustments on the amplifier section of this deck, thoroughly clean and demagnetize the entire tape path, particularly erase head, record/playback head, capstan shaft and pinch roller.
 2. Make sure the deck is set for the proper voltage and frequency for your locality.
 3. In general, checks and adjustments for other than specified items, are done in the sequence of left channel then right channel. Double designated REF. NO. indicates left channel/right channel (example: VR 101/201).
 4. Value of "dB" in the text refer to 0 dB = 0.775 V, except where specified. If a VTVM calibrated to 0 dB = 1 V is to be used, appropriate compensation should be made.
 5. The VTVM used in the procedures, including the measurement at Dolby test points, must have load impedance of 1M ohm or more.
 6. To correctly complete these performance checks, keep the order as explained in this chapter.
 7. All checks and adjustments should be made with the Cabinet and the Front Panel removed.
- * For each procedure, make the initial equipment test set up, connections and switch/control settings as shown in the associated illustrations.
- * Each of the switch settings marked with hyphen (—) in the Switch Setting chart have no effect on the procedures.

6-1. MONITOR PERFORMANCE

6-1-1. SPECIFIED LINE CONTROL SETTING

Specification:

Specified input level: -9 dB (274 mV)

1. Load any recordable tape.
2. Place the deck in the REC PAUSE mode.
3. Apply a 400 Hz signal at -9 dB (274 mV) to the LINE IN jacks.
4. Set the LINE controls to obtain the reading of -25 dB (43.5 mV) on the VTVM. At this time, the physical position of the LINE controls indicates the Specified LINE Control Setting referred to in subsequent procedures.
5. Connect the VTVM between the Dolby T.P. (test points) and the ground on the REC/PB amplifier PC board.
6. Adjust VR102/VR202 to obtain 580 mV (-2.5 dB).

6-1-2. MINIMUM INPUT LEVEL CHECKS

Specification:

LINE: -19 dB \pm 3 dB (61.5 mV \sim 122 mV)

MIC: -67 dB \pm 3 dB (244 μ V \sim 488 μ V)

DIN: -35 dB \pm 3 dB (9.75 mV \sim 19.4 mV)

NOTE: To prevent mis-measurements for the following procedures, any connection cords other than these for the respective input check must be removed.
For example: Do not connect the Microphone and the DIN cords to respective input jacks when checking for the LINE inputs.

7. Set the MIC controls to maximum.
8. Apply a 400 Hz signal at -67 dB \pm 3 dB (244 μ V \sim 488 μ V) to the MIC jacks and check for 580 mV (-2.5 dB) on the VTVM connected to the Dolby test points. (Minimum Input Level checks for the MIC jack).
9. Apply a 400 Hz signal at -35 dB \pm 3 dB (9.75 mV \sim 19.4 mV) to the input terminals of the DIN connector and check for 580 mV. (Minimum Input Level checks for the DIN inputs).
10. After checking, reduce the MIC controls to minimum to prevent noise insertion during subsequent procedures.
11. Set the LINE controls to maximum.
12. Apply a 400 Hz signal at -19 dB \pm 3 dB (61.5 mV \sim 122 mV) to the LINE IN jacks and check for 580 mV. (Minimum Input Level checks for the LINE inputs).

Preparations:

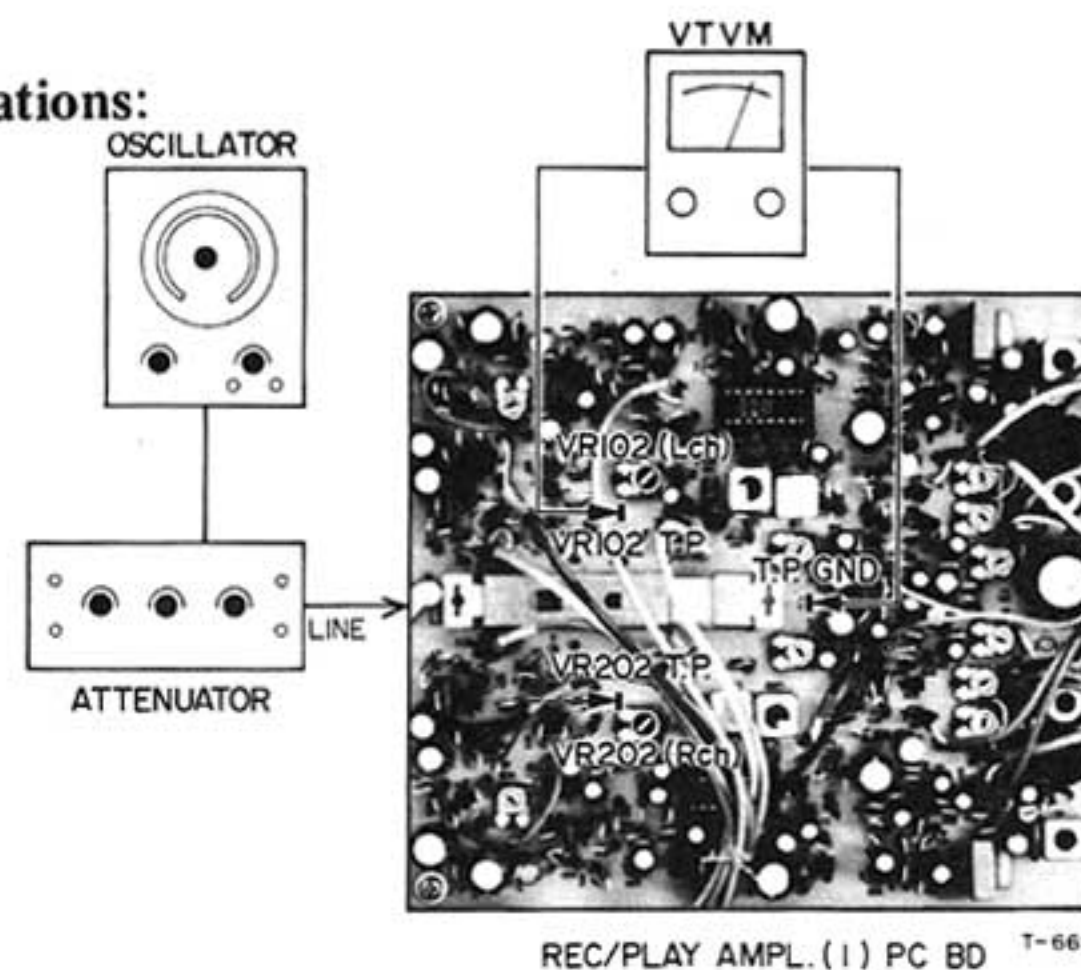


Fig. 6-1 Connection

Switch Setting:

BIAS	EQ	DOLBY NR	TIMER
—	—	OUT	OUT

Control Setting:

LINE: Minimum Setting

MIC: Minimum Setting

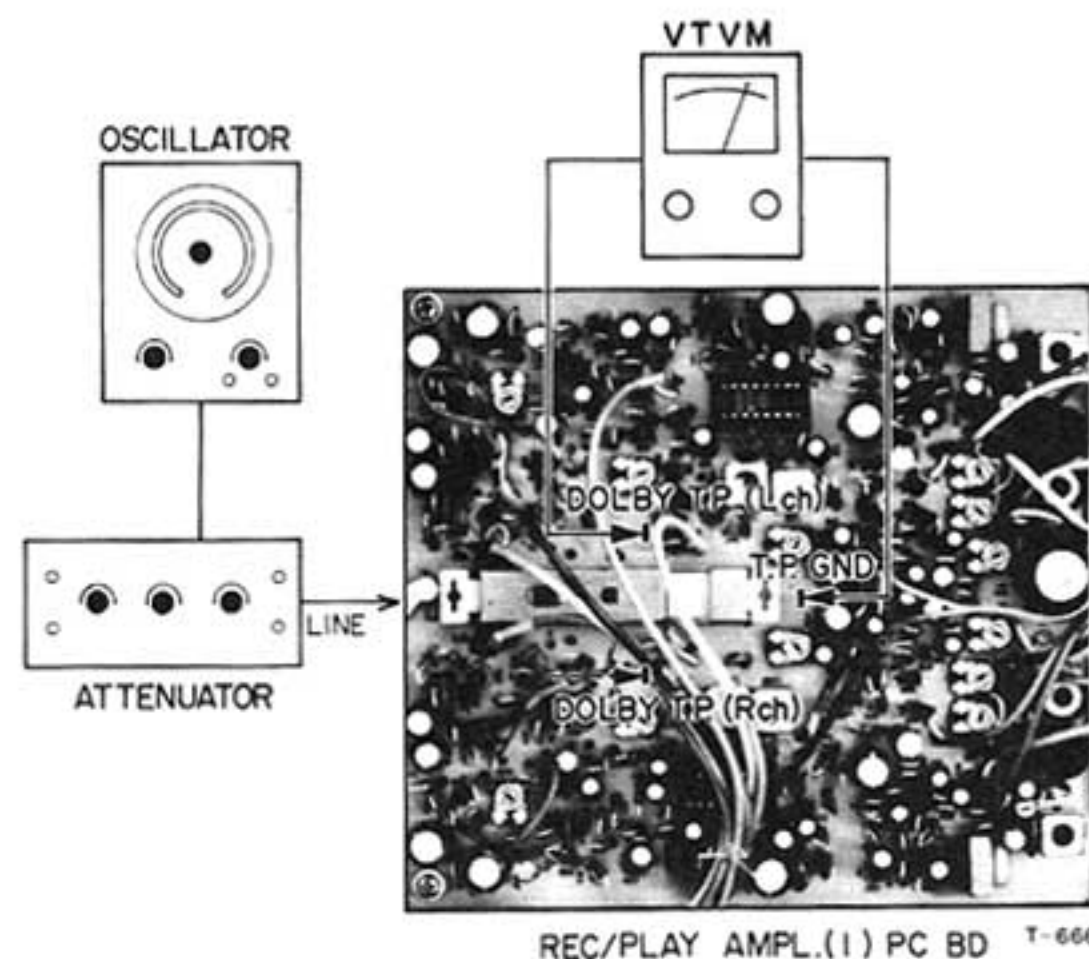
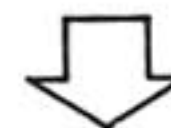


Fig. 6-2 Connection

6-1-3. VU METER CALIBRATION

Specification: +3 VU (\square)

13. Set the AF oscillator for 400 Hz at -9 dB (274 mV) and set LINE controls to specified level. (same as 6-1-1). After this setting is done, do not disturb the Specified Control Setting of the LINE controls until the remaining checks and adjustments are completed.
14. Adjust VR103/203 for +3 VU (\square) on the VU meter.

6-1-4. LED PEAK LEVEL INDICATOR CALIBRATION

15. Adjust VR106 so that the PEAK level indicator lights as shown in Fig. 6-3, when a 400 Hz signal is applied at required level to the left channel LINE IN jack. Keep the right channel LINE IN jack disconnected from an AF oscillator.
16. For the right channel, repeat the above procedure except adjust VR206. Keep the left channel LINE IN jack disconnected from the AF oscillator.
17. After setting both channels, make sure the indicator reacts the same as above when required signal is simultaneously applied to both channels.

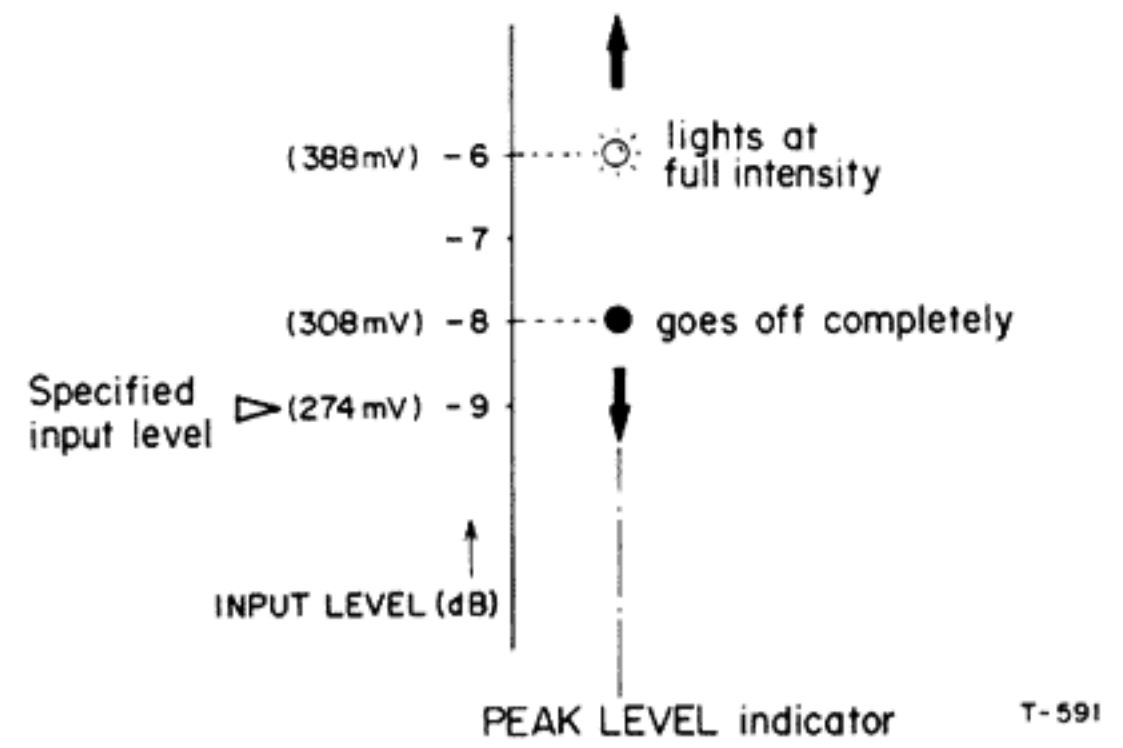


Fig. 6-3 LED Peak Level Indicator Setting

6-2. PLAYBACK PERFORMANCE

NOTE: Except for the Playback Frequency Response checks, all alignments in the PLAYBACK PERFORMANCE only have to be done with the EQ switch set to position 3 unless there is a special reason which requires that other positions also be checked.

6-2-1. RECORD/PLAYBACK HEAD AZIMUTH ADJUSTMENTS

1. Load and play a TEAC MTT-150 test tape.
2. Make sure the phase relationship between the 2 signals (left channel and right channel) is within 45° on the oscilloscope.
3. Load a TEAC MTT-116U test tape.
4. Play the 10 kHz signal section of the tape.
5. Slowly adjust the azimuth adjusting nut for the maximum indication on the VTVM.
6. Secure the nut with a drop of locking paint.

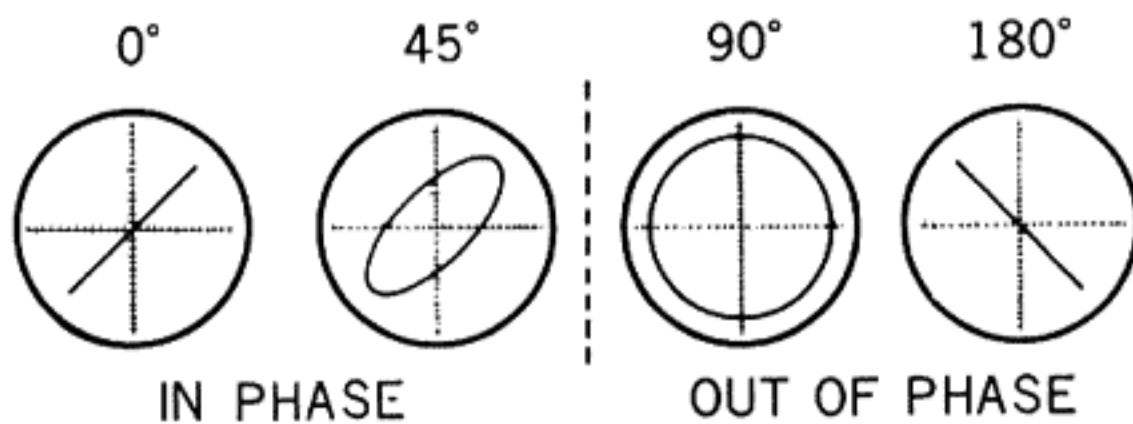


Fig. 6-5 Confirming Phase Relationship

Preparations:

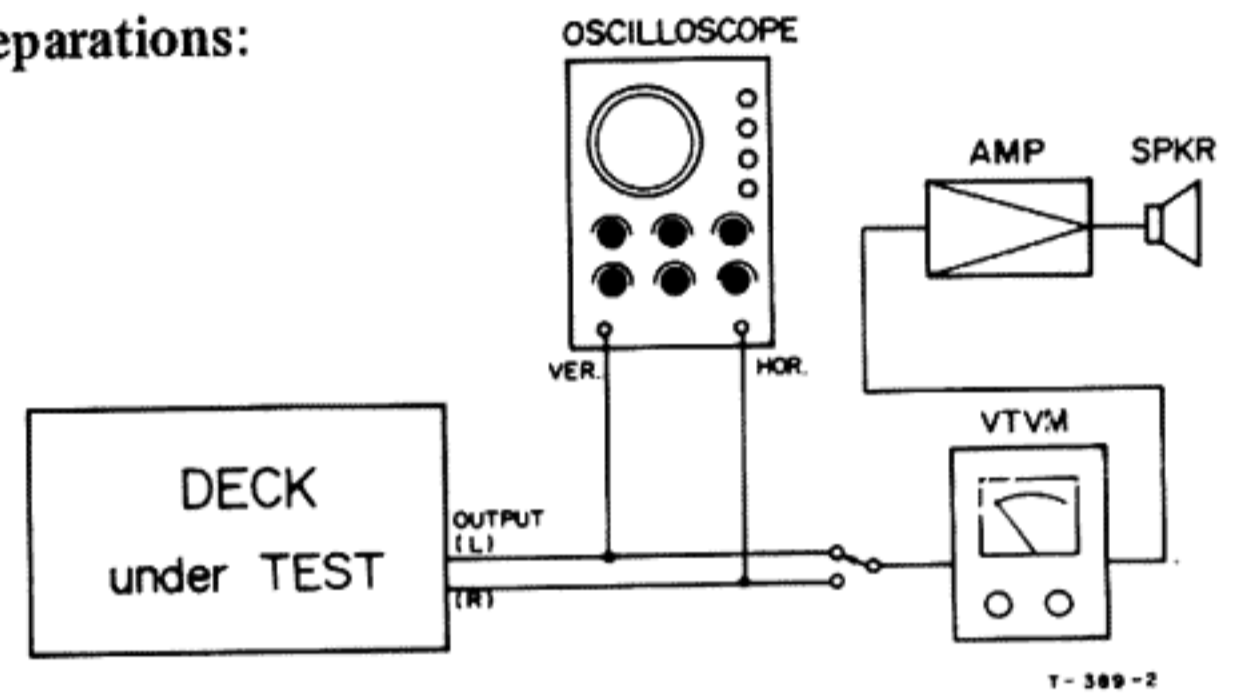


Fig. 6-4 Connection

Switch Setting:

BIAS	EQ	DOLBY NR	TIMER
-	3	OUT	OUT

Control Setting:

OUTPUT: Set for convenient output level.

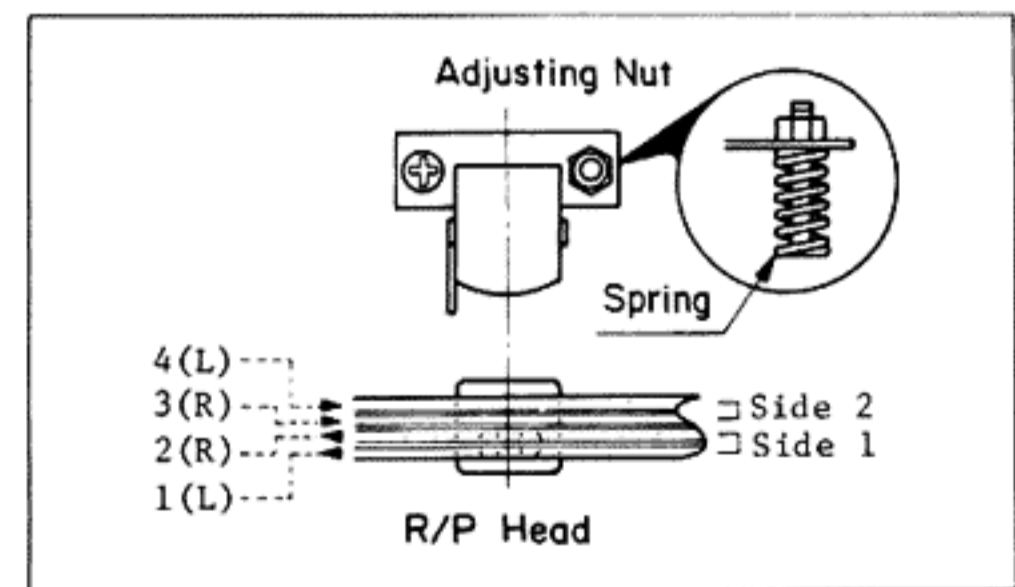


Fig. 6-6 Head Azimuth Adjustments Location

6-2-2. SPECIFIED OUTPUT LEVEL SETTING

Specifications:

Specified output level: +3 dB (1.09 V)

Maximum output level: +9 dB \pm 2 dB (1.73 V ~ 2.74 V)

1. Load and play a TEAC MTT-150 test tape.
2. Adjust VR101/201 for 580 mV (-2.5 dB) on VTVM connected to the Dolby test points.
3. Change the VTVM connection to the OUTPUT jacks as shown in (B) of Diagram.
4. Set the OUTPUT controls fully clockwise.
5. Confirm that the output level is +9 dB \pm 2 dB (1.73 V ~ 2.74 V).
6. Set the OUTPUT controls for a reading of +3 dB (1.09 V). This is the specified output level. At this time, the physical position of the OUTPUT controls indicates the Specified Control Settings referred to in subsequent procedures.

IMPORTANT: After this setting is done, do not disturb the Specified Control Setting of the OUTPUT controls until the remaining checks and adjustments are completed.

6-2-3. VU METER INDICATION CHECKS

Specification: +3 VU (\square)

7. Make certain that the indications on the VU meters are +3 VU (\square) \pm 1.5 VU.

6-2-4. FREQUENCY RESPONSE -PLAYBACK-

Hi-Fi TAPE

8. Load a TEAC MTT-116U test tape and play the required test signals for comparison with the playback Frequency Response Limits chart.
9. Check that the readings obtained on the VTVM are within the response limits.

CrO₂ & Fe-Cr TAPES

10. Repeat the above procedure, with the following exceptions.

Test tape: MTT-116K

EQ switch: Both "1" & "2" positions

NOTE: If the response does not meet the specified response limits, the head should be checked for accumulated oxide or dirt. Then, if no dirt is found the head azimuth should be readjusted.

Preparations:

(A)

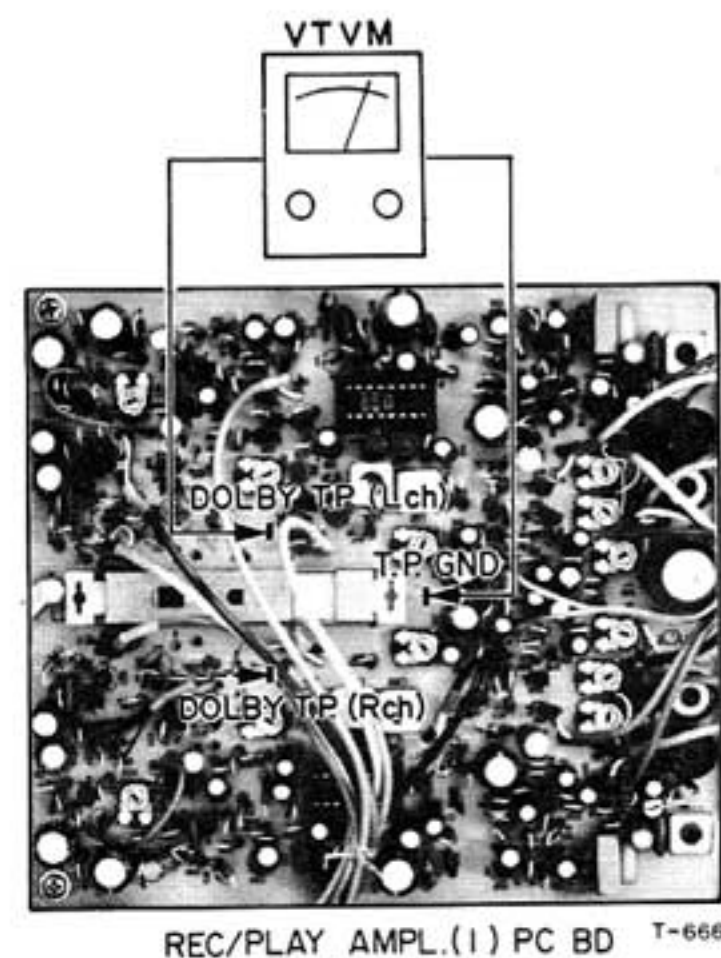


Fig. 6-7 Connection

Switch Setting:

BIAS	EQ	DOLBY NR	TIMER
-	3	OUT	OUT

Control Setting:

OUTPUT: Set for convenient output level.

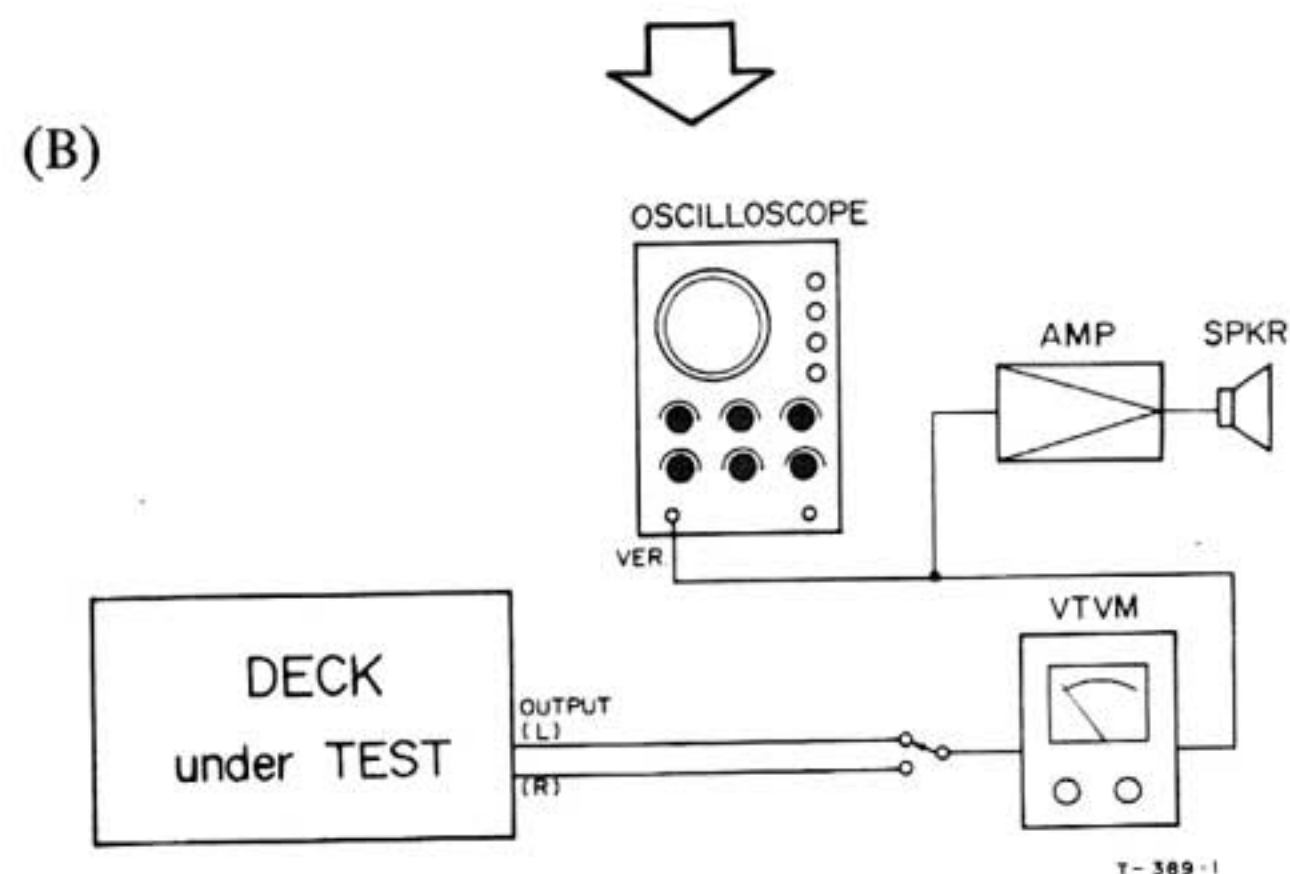


Fig. 6-8 Connection

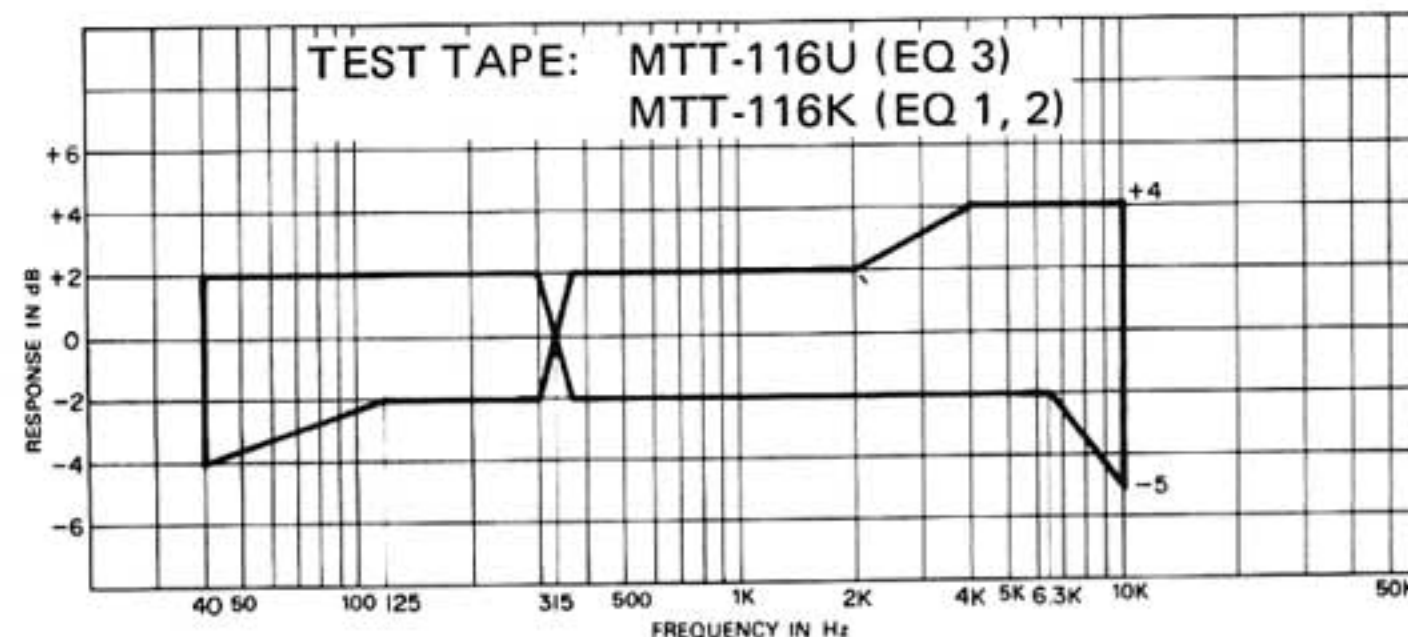


Fig. 6-9 Playback Frequency Response Limits

6-2-5. SIGNAL TO NOISE RATIO –PLAYBACK–

Specification: 47 dB (minimum)

1. Place the deck in the PLAY mode with no tape loaded.
2. Read the indication on the VTVM.
3. The VTVM should indicate -44 dB minimum (4.88 mV maximum).
4. This corresponds to a signal-to-noise ratio of 47 dB (minimum): difference between residual noise -44 dB and the specified output level $+3$ dB (1.09 V).

NOTE: Since the polarity of the AC plug has some effect on the signal-to-noise ratio, the plug can be reversed in the wall socket when checking the signal-to-noise ratio. The worse case value should satisfy the indicated value above.

Preparations:

Connection: See Fig. 6-8 (B) on page 18.

Switch Setting:

BIAS	EQ	DOLBY NR	TIMER
–	3	OUT	OUT

Control Setting:

OUTPUT: Specified Setting (See 6-2-2)

6-2-6. HEADPHONE OUTPUT LEVEL CHECKS

Specification: -21 dB \pm 2 dB (54.8 mV \sim 86 mV)

NOTE: An 8 ohm non-inductive resistor should be used as the test load resistor.

1. Load and play a TEAC MTT-150 test tape.
2. Measure the level across the test load resistor.

Preparations:

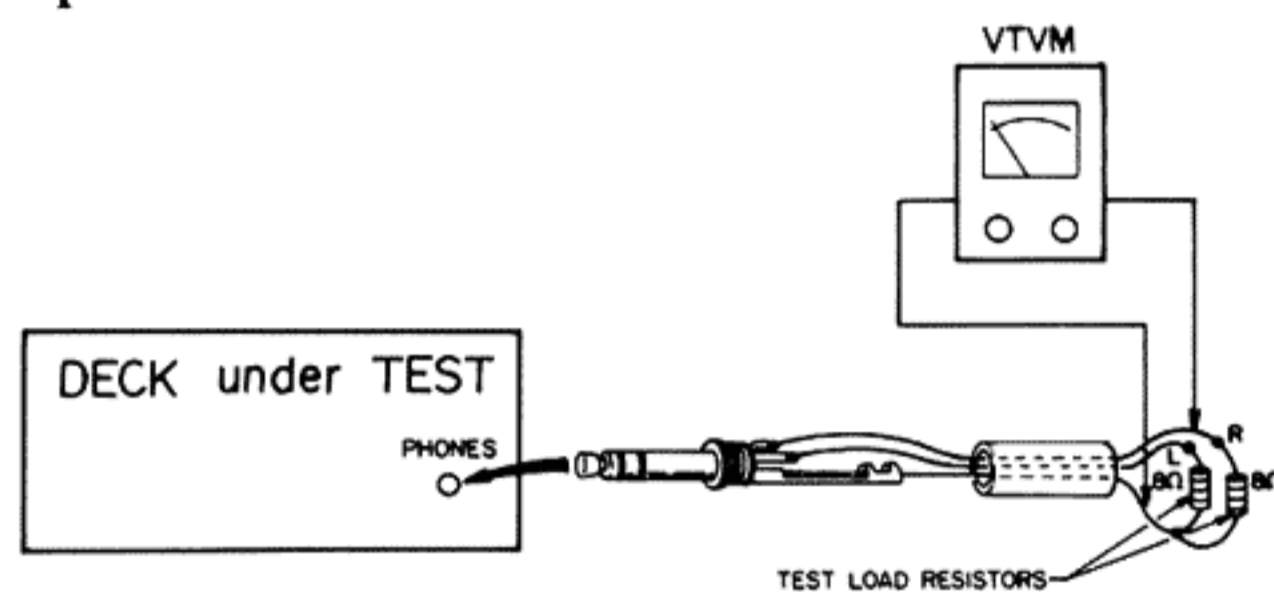


Fig. 6-10 Connection

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Switch Setting.

BIAS	EQ	DOLBY NR	TIMER
–	3	OUT	OUT

Control Setting:

OUTPUT: Specified Setting (See 6-2-2)

Hi-Fi TAPE

10. Load a TEAC MTT-501 test tape with the BIAS/EQ switches set to the "3" position and with the DOLBY NR switch set to IN.
11. Apply and record 2 tone signals, in turn; a 400 Hz tone at -42 dB (6.15 mV) and a 6.3 kHz tone at -42 dB.
12. Rewind and play this recorded section.
13. Compare the differences between the output level of the 400 Hz signal and that of the 6.3 kHz signal.
14. The output level of the 6.3 kHz signal must be 4 dB above the 400 Hz signal level.
15. Adjust VC303/301 to achieve this, continuing the process of the recording-rewinding-playing-adjusting.

6-3-3. RECORD LEVEL SETTING

CrO₂ TAPE

16. Load a TEAC MTT-505B test tape and set the BIAS/EQ switches to the "1" position.
17. Apply and record a 400 Hz test signal at -12 dB (194 mV).
18. Rewind and play this recorded section.
19. Adjust VR105/205 to obtain 0 dB (0.775 V).
20. Continue the process of the recording-rewinding-playing-adjusting until this 0 dB is obtained.

Fe-Cr TAPE

21. Repeat the above procedure, with the following exceptions.

BIAS/EQ switches:	"2" position
Test tape:	MTT-501
Adjustments:	VR107/207
VTVM reading:	-1 dB
(OUTPUT level)	

Hi-Fi TAPE

22. Repeat the above "CrO₂ TAPE" procedure, with the following exceptions.

BIAS/EQ switches:	"3" position
Test tape:	MTT-501
Adjustments:	VR104/204

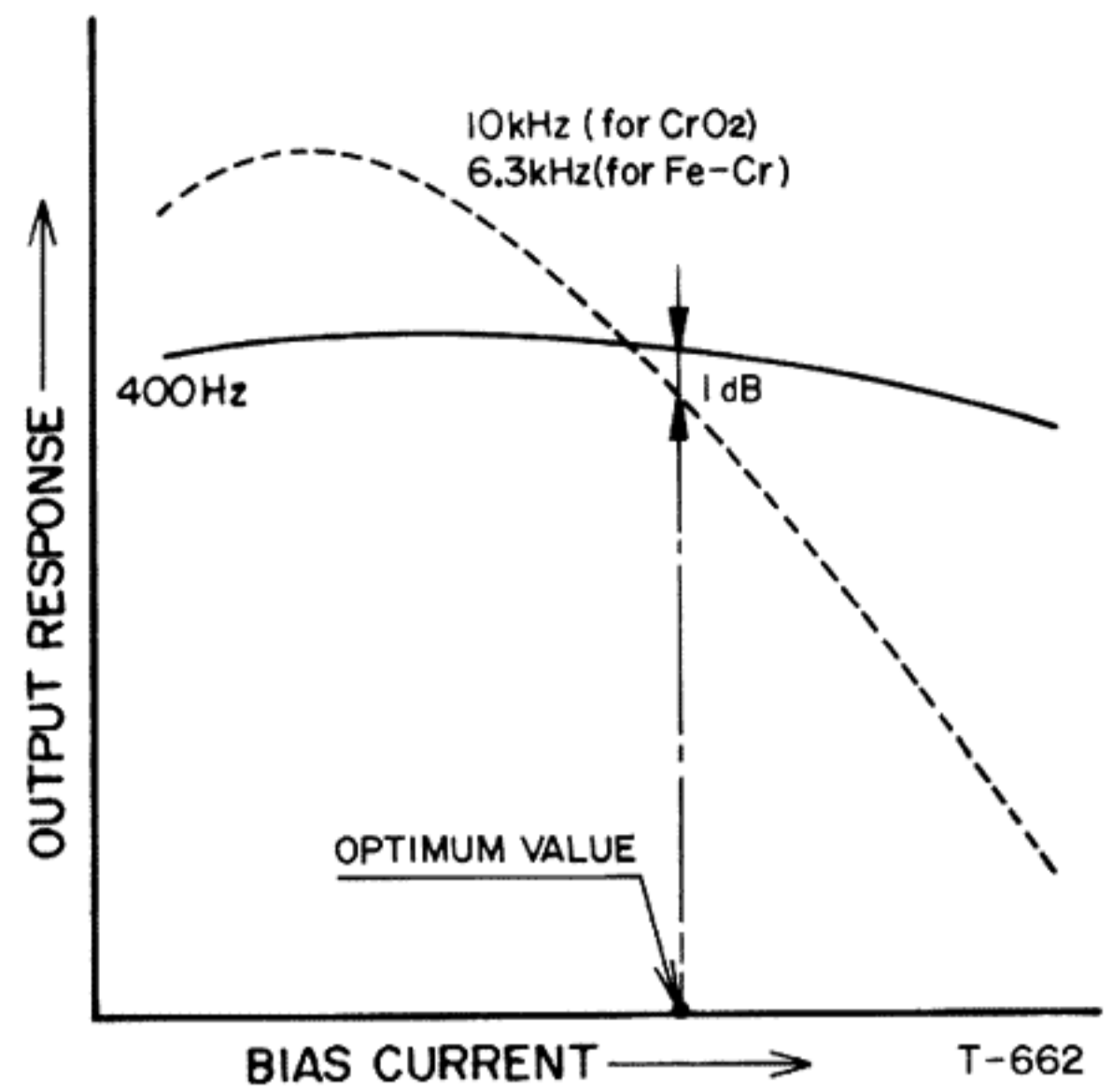


Fig. 6-13 Bias Adjustments (CrO₂ & Fe-Cr tapes)

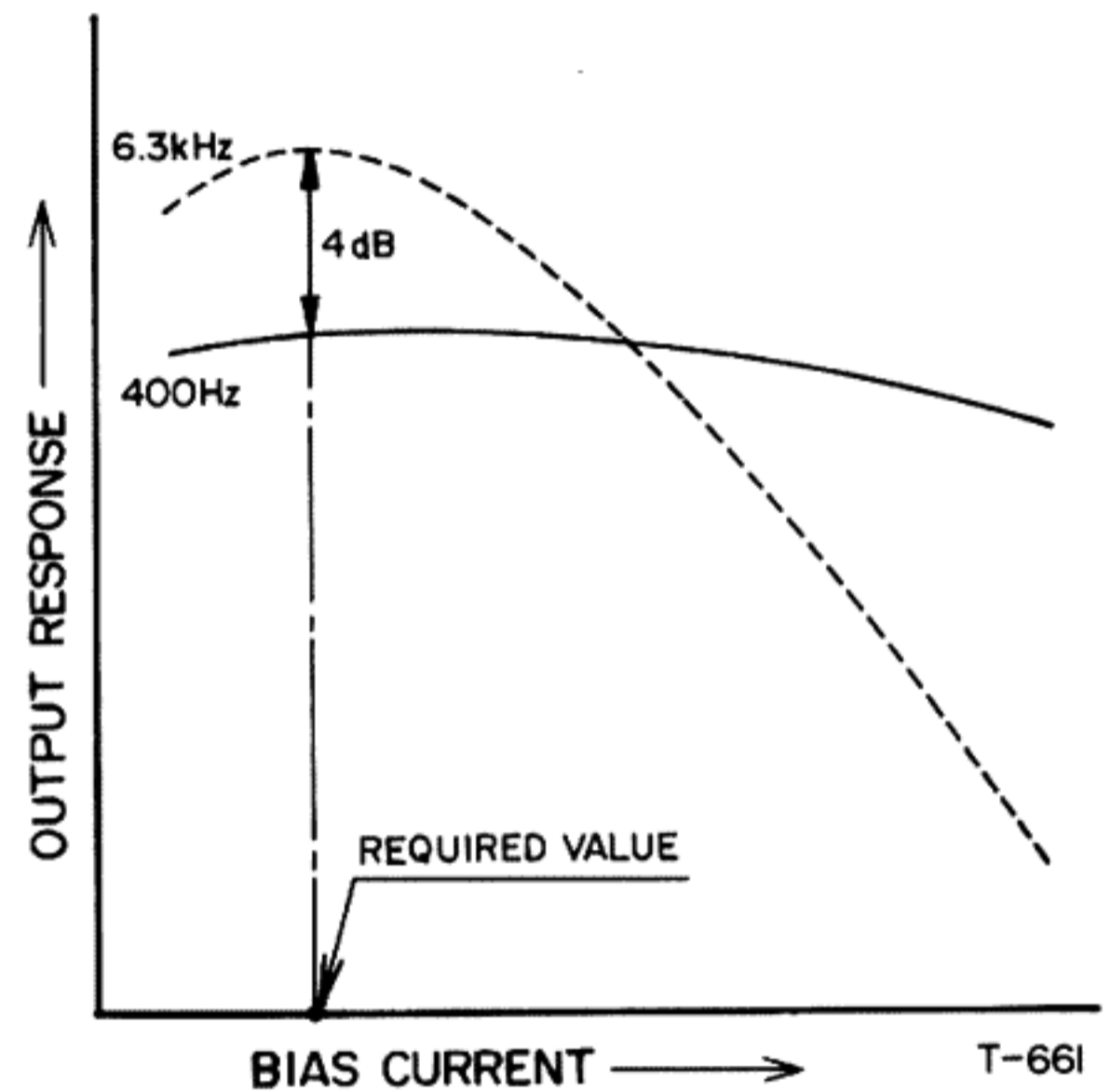


Fig. 6-14 Bias Adjustments (Hi-Fi tape)

6-3-4. DISTORTION CHECKS

Specifications:

- CrO₂ tape: 3.0% or less
- Fe-Cr tape: 2.5% or less
- Hi-Fi tape: 2.5% or less

CrO₂ TAPE

1. Load a TEAC MTT-505B test tape.
2. Apply and record a 400 Hz test tone at -12 dB (194 mV).
3. Rewind and play this recorded section.
4. Read the indicated value on the distortion analyzer.

Fe-Cr TAPE

5. Repeat the above procedure, with the following exceptions.

BIAS/EQ switches:

"2" position

Test tape: MTT-501

Hi-Fi TAPE

6. Repeat the above "CrO₂ TAPE" procedure, with the following exceptions.

BIAS/EQ switches:

"3" position

Test tape: MTT-501

Preparations:

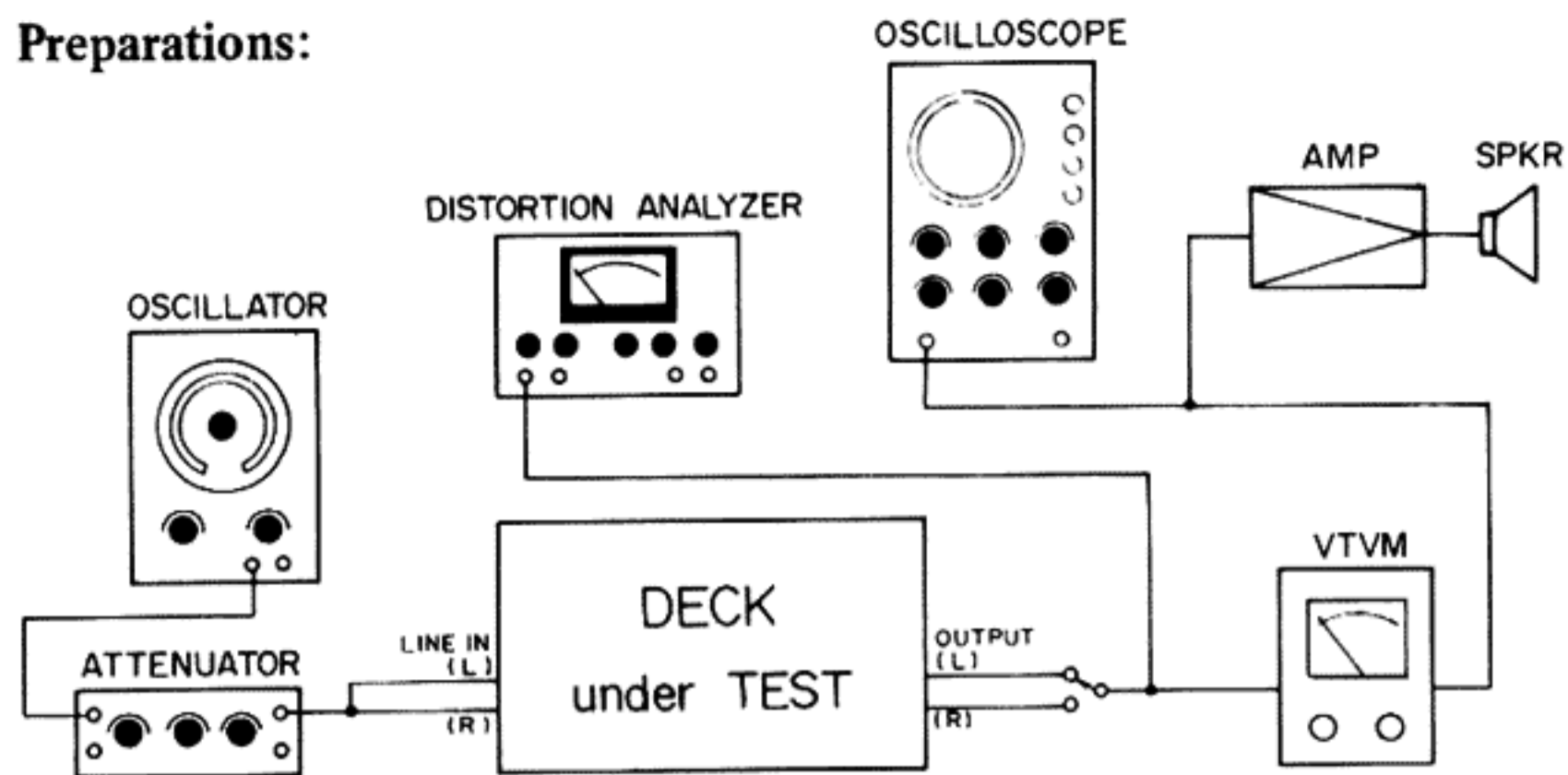


Fig. 6-15 Connection

Switch Setting:

BIAS	EQ	DOLBY NR	TIMER
1	1	OUT	OUT

Control Setting:

OUTPUT: Specified Setting (See 6-2-2)

LINE: Specified Setting (See 6-1-1)

MIC: Minimum Setting

6-3-5. FREQUENCY RESPONSE -OVERALL-

CrO₂ TAPE

1. Load a TEAC MTT-505B test tape.
2. Apply and record a test signal, containing the necessary frequencies for comparison with applicable overall Frequency Response Limits chart, at -42 dB (6.15 mV).
3. Rewind and play this recorded section.
4. Make sure the readings on the VTVM are within the response limits.
5. In case of any deviation in the high frequency range of the response limits, clean the heads and if this cleaning is ineffective adjust L105/205.

Fe-Cr TAPE

6. Repeat the above procedure, with the following exceptions.

BIAS/EQ switches: "2" position

Test tape: MTT-501

Adjustments: L106/206

Preparations:

Connection: See Fig. 6-12 on page 20.

Switch Setting:

BIAS	EQ	DOLBY NR	TIMER
1	1	OUT	OUT

Control Setting:

OUTPUT: Specified Setting (See 6-2-2)

LINE: Specified Setting (See 6-1-1)

MIC: Minimum Setting

Hi-Fi TAPE

7. Repeat the above "CrO₂ TAPE" procedure, with the following exceptions.

BIAS/EQ switches: "3" position

Test tape: MTT-501

Adjustments: L104/204

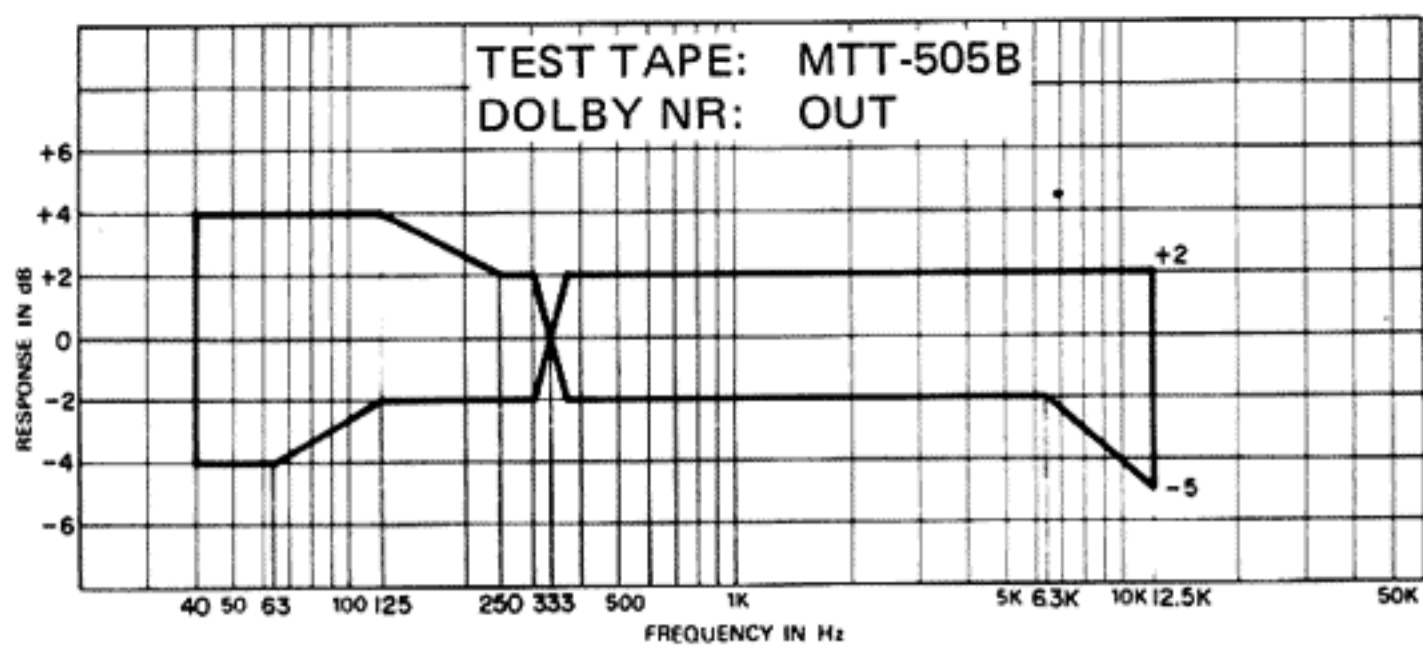


Fig. 6-16 Overall Frequency Response Limits (for BIAS/EQ 1)

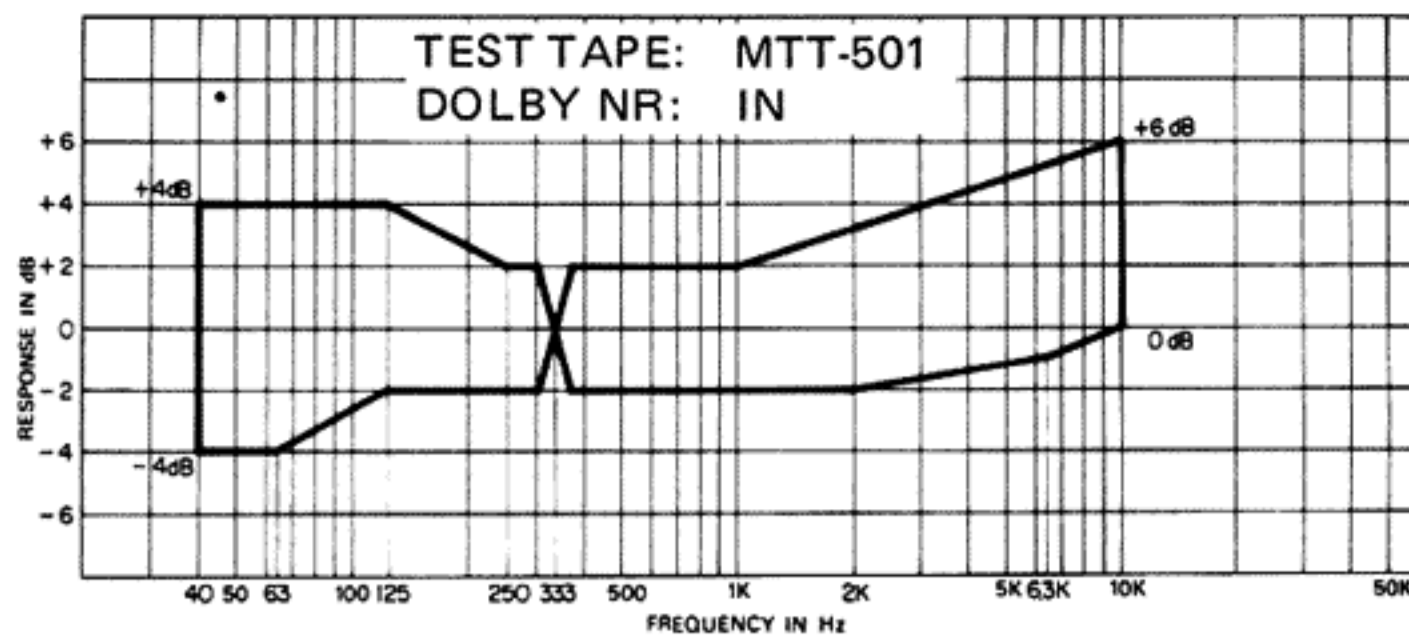


Fig. 6-18 Overall Frequency Response Limits (for BIAS/EQ 3)

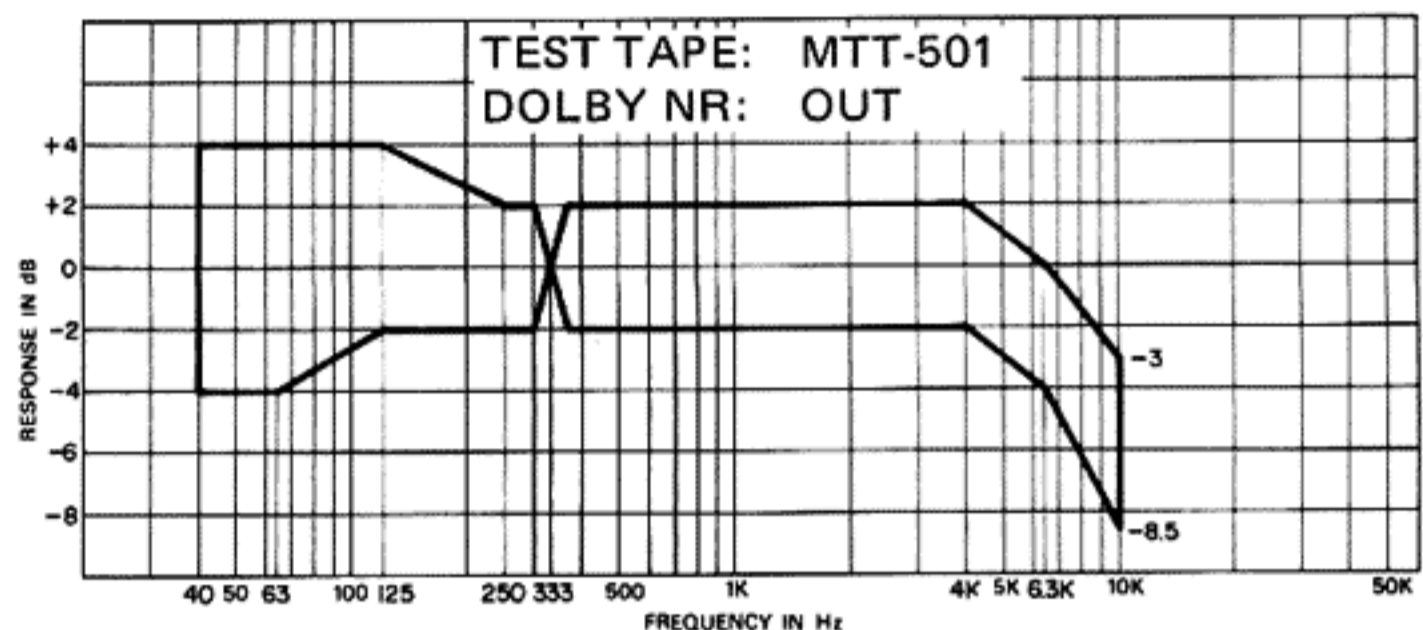


Fig. 6-17 Overall Frequency Response Limits (for BIAS/EQ 2)

6-3-6. SIGNAL TO NOISE RATIO –OVERALL–

Specifications:

- CrO₂ tape: 45 dB (minimum)
- Fe-Cr tape: 45 dB (minimum)
- Hi-Fi tape: 44 dB (minimum)

CrO₂ TAPE

1. Load a TEAC MTT-505B test tape.
2. Place the deck in the record mode for a few seconds with no signal applied.
3. Rewind and play this recorded (erased) section.
4. Read the indication on the VTVM.
5. The VTVM should indicate -42 dB minimum (6.15 mV maximum).
6. This -42 dB corresponds to the specified signal-to-noise ratio of 45 dB (minimum): the difference between the residual noise of -42 dB and the specified output level +3 dB (1.09 V).

Fe-Cr TAPE

NOTE: If MTT-504 Tape is not available, omit this test.

7. Repeat the preceding procedure, except use the TEAC MTT-504 test tape and set BIAS/EQ switches to "2" position.
8. The VTVM should indicate -42 dB minimum (6.15 mV maximum).
9. This -42 dB corresponds to the specified signal-to-noise ratio of 45 dB (minimum): the difference between the residual noise of -42 dB and the specified output level +3 dB.

Preparations:

Connection: See Fig. 6-12 on page 20.

Switch Setting:

BIAS	EQ	DOLBY NR	TIMER
1	1	OUT	OUT

Control Setting:

- OUTPUT: Specified Setting (See 6-2-2)
- LINE: Specified Setting (See 6-1-1)
- MIC: Minimum Setting

Hi-Fi TAPE

10. Repeat the preceding "CrO₂ TAPE" procedure, except use the TEAC MTT-501 test tape and set BIAS/EQ switches to "3" position.
11. The VTVM should indicate -41 dB minimum (6.90 mV maximum).
12. This -41 dB corresponds to the specified signal-to-noise ratio of 44 dB (minimum): the difference between the residual noise of -41 dB and the specified output level +3 dB.

6-3-7. ERASE EFFICIENCY

Specification: 65 dB (minimum)

NOTE: To measure erase efficiency, a 1 kHz narrow bandpass filter should be used. The test signal delivered from the AF oscillator should be tuned to the filter used.

Numbers in parentheses correspond to steps in Fig. 6-20.

1. Load a TEAC MTT-505B test tape.
2. Apply and record a 1 kHz signal at +1 dB (0.869 V) for several seconds. (1)
3. Rewind the tape to the mid-point of the recording and remove the signal from the LINE IN jacks. (2)
4. Place the deck in the record mode and record through this previously recorded portion with no input signal applied. (3)
5. Rewind the tape to the starting point of the 1 kHz signal recorded portion. (4)
6. Play the tape and read the indication on the VTVM to obtain the output level of both the unerased portion and the erased portion of the recorded section. (5)
7. Measure the output level differences between the 2 portions.

Preparations:

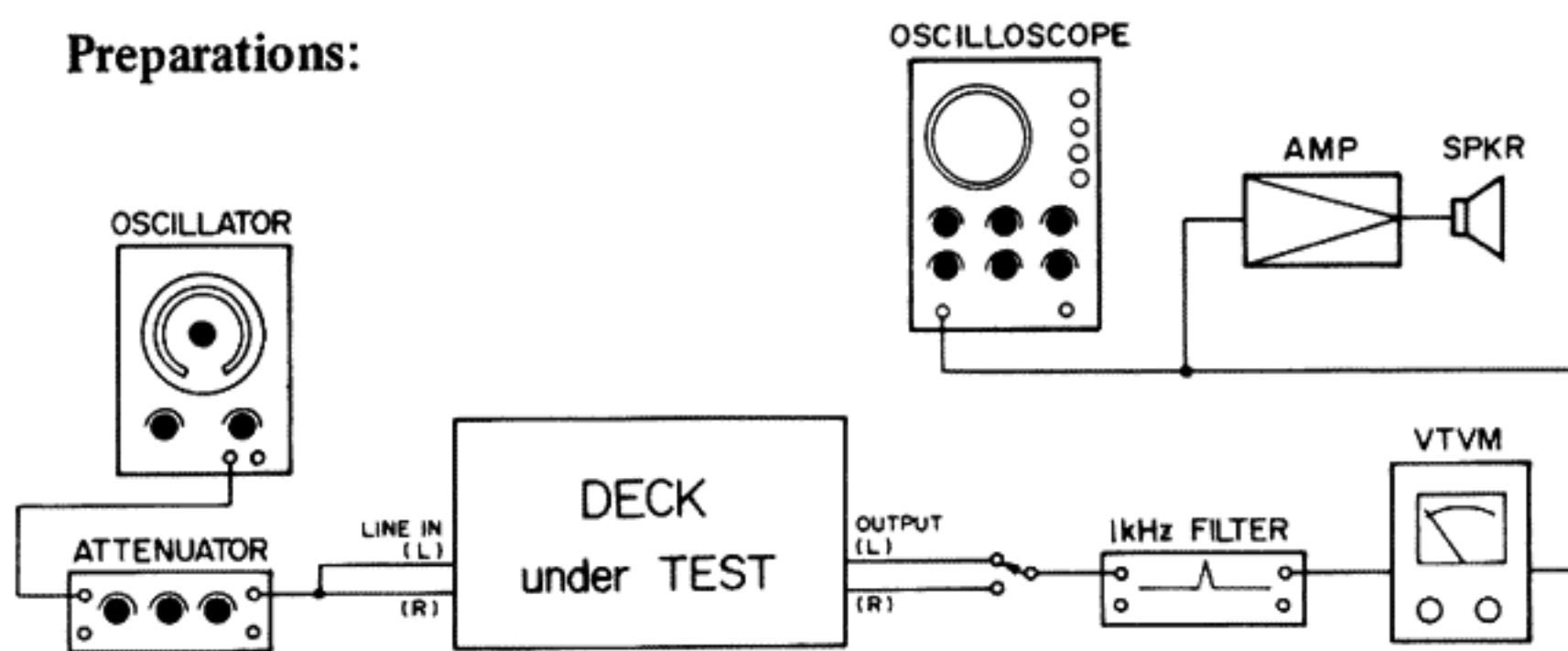


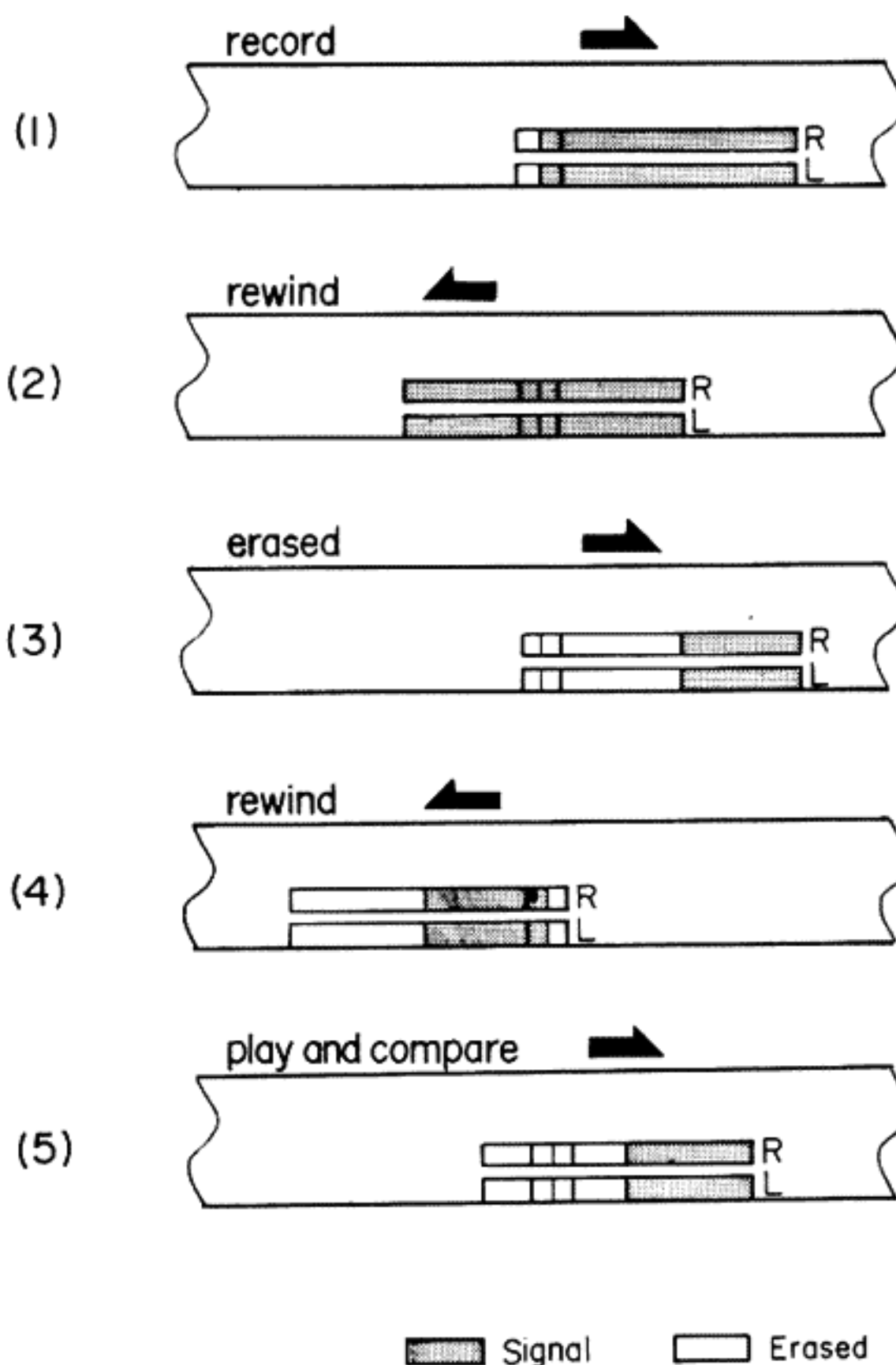
Fig. 6-19 Connection

Switch Setting:

BIAS	EQ	DOLBY NR	TIMER
1	1	OUT	OUT

Control Setting:

OUTPUT: Specified Setting (See 6-2-2)
 LINE: Specified Setting (See 6-1-1)
 MIC: Minimum Setting



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Fig. 6-20 Erase Efficiency Check Procedure

6-3-8. CHANNEL SEPARATION

Specification: 30 dB (minimum)

NOTE: To check channel separation (cross talk between channels), a 1 kHz narrow bandpass filter should be used. The test signal delivered from an AF oscillator should be tuned to the filter used.

Numbers in parentheses correspond to steps in Fig. 6-22.

1. Load a TEAC MTT-505B test tape.
2. Apply a 1 kHz test tone at -9 dB (274 mV) into the left channel.
3. Place the deck in the record mode for about 30 seconds. (1)
4. Rewind the tape to the starting point of recording. (2)
5. Play the tape and measure the output level differences between the left and right channels. . . (3)

Preparations:

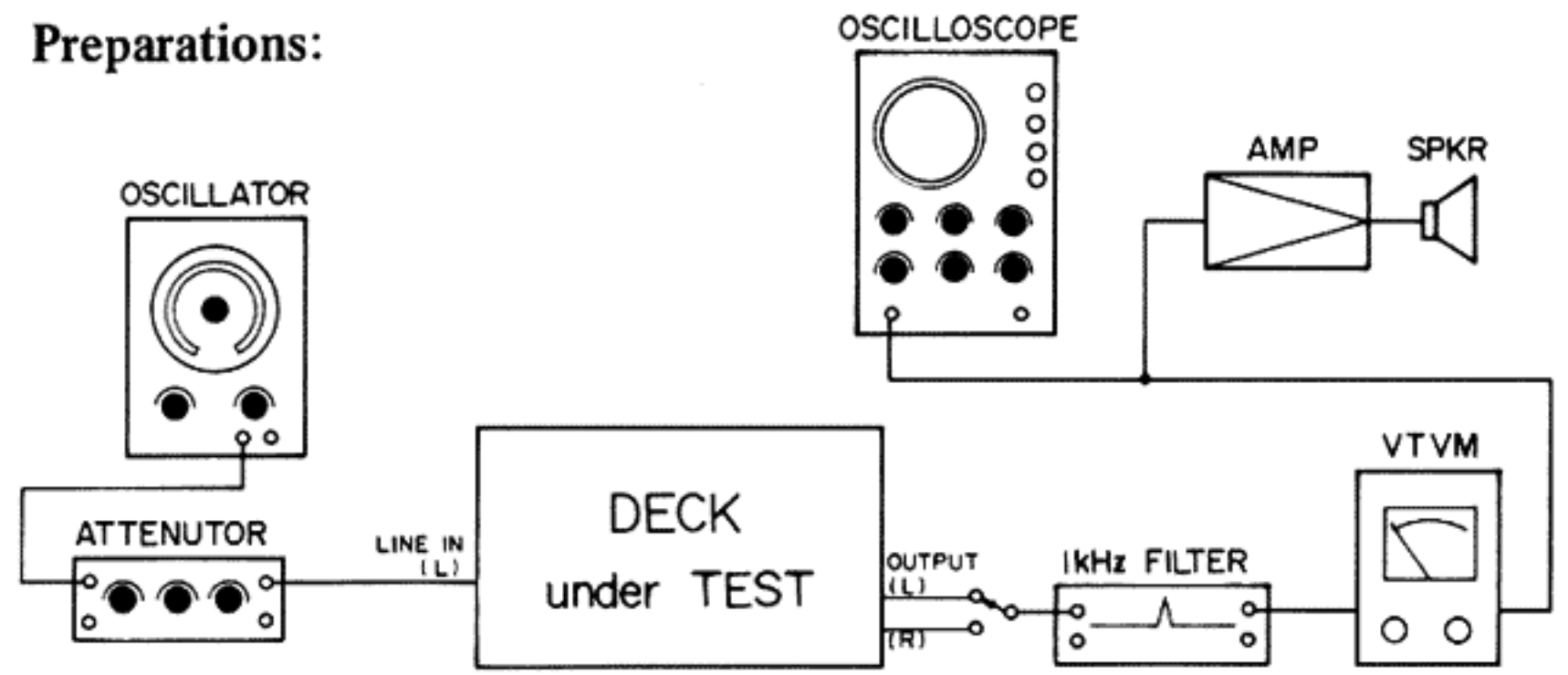


Fig. 6-21 Connection

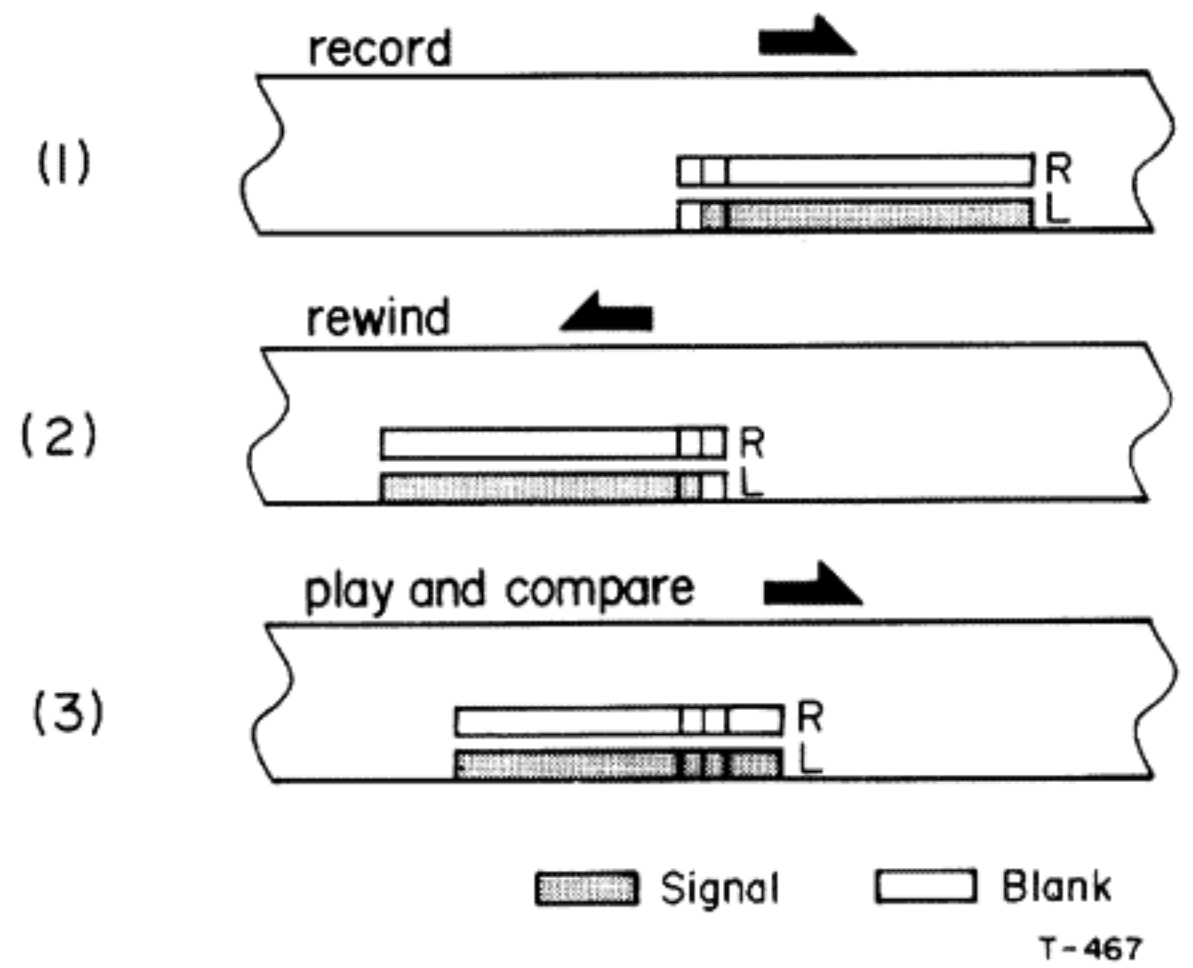
T-392-1

Switch Setting:

BIAS	EQ	DOLBY NR	TIMER
1	1	OUT	OUT

Control Setting:

OUTPUT: Specified Setting (See 6-2-2)
LINE: Specified Setting (See 6-1-1)
MIC: Minimum Setting



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Fig. 6-22 Channel Separation Check Procedure

6-3-9. DOLBY NR EFFECT MEASUREMENT

Specifications:

Variation from reference at 1 kHz: 5.5 dB ± 2.5 dB

Variation from reference at 10 kHz: 10 dB ± 2 dB

1. Load a TEAC MTT-505B test tape.
2. Apply and record a 1 kHz signal at -29 dB (27.4 mV).
3. Rewind and play this recorded section.
4. During playback, read the indication on the VTVM and note it for temporary reference level for the following measurement.
5. Set the DOLBY NR switch to IN.
6. Ensure that the reading reduces 5.5 dB ± 2.5 dB from the reference level.
7. Apply and record a 10 kHz signal at -39 dB (8.69 mV) with DOLBY NR to OUT.
8. In the same manner as step 3 to 6, ensure that the reading reduces 10 dB ± 2 dB.

Preparations:

Connection: See Fig. 6-12 on page 20.

Switch Setting:

BIAS	EQ	DOLBY NR	TIMER
1	1	OUT	OUT

Control Setting:

OUTPUT: Specified Setting (See 6-2-2)
LINE: Specified Setting (See 6-1-1)
MIC: Minimum Setting

6-3-10. ADJACENT TRACK CROSSTALK MEASUREMENT

Specification: 40 dB (minimum)

NOTE: The tape must be completely erased or demagnetized prior to this procedure.

Numbers in parentheses correspond to steps in Fig. 6-24.

1. Load a TEAC MTT-505B test tape.
2. Apply a 125 Hz test signal at -9 dB (274 mV).
3. Place the deck in the record mode for about 30 seconds. (1)
4. Rewind the tape to the starting point of recording. (2)
5. Play the tape and measure the output level of the recorded portion. Note this reading for temporary reference level for the following measurements. (3)
6. Remove the test tape, turn it over and replace it in the deck. (4)
7. Play the tape back and read the output level. (5)
8. Get the differences between this reading and the reading previously measured of the 125 Hz signal.

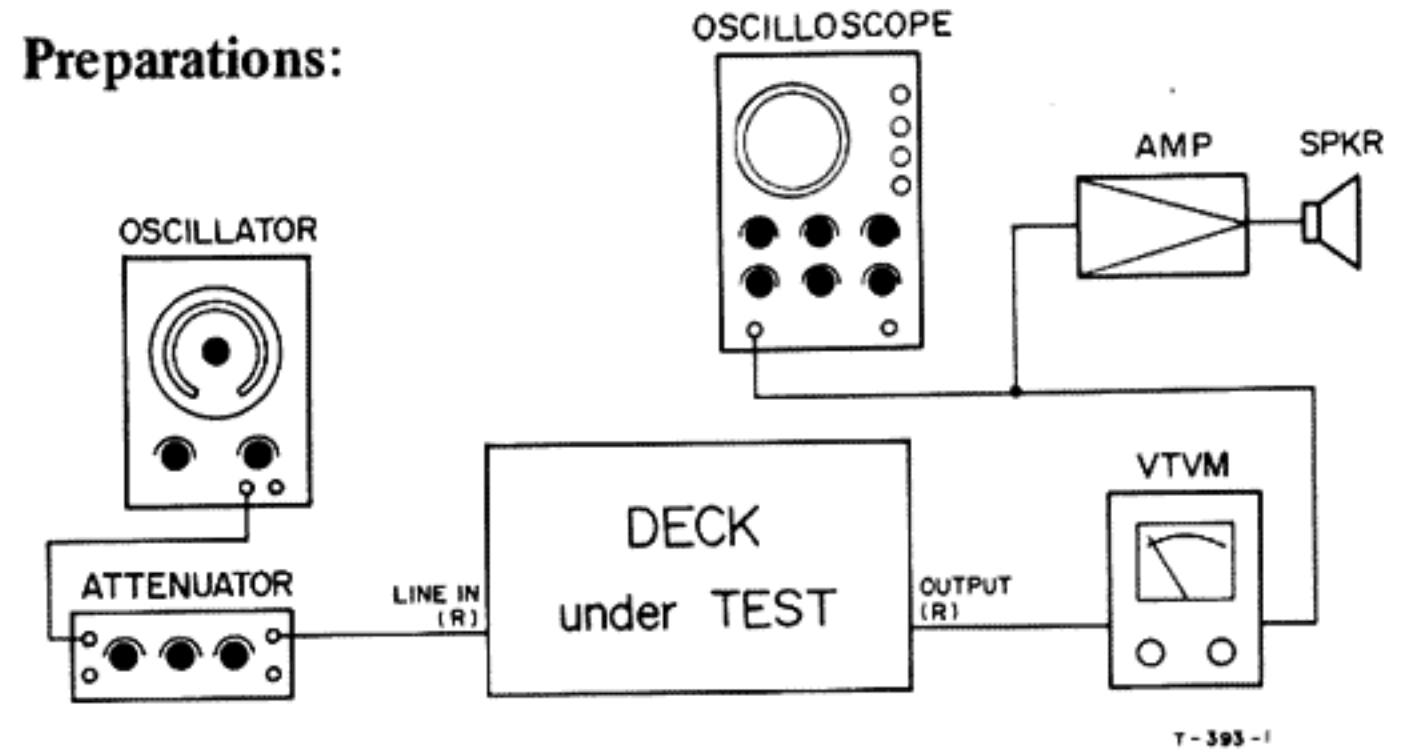


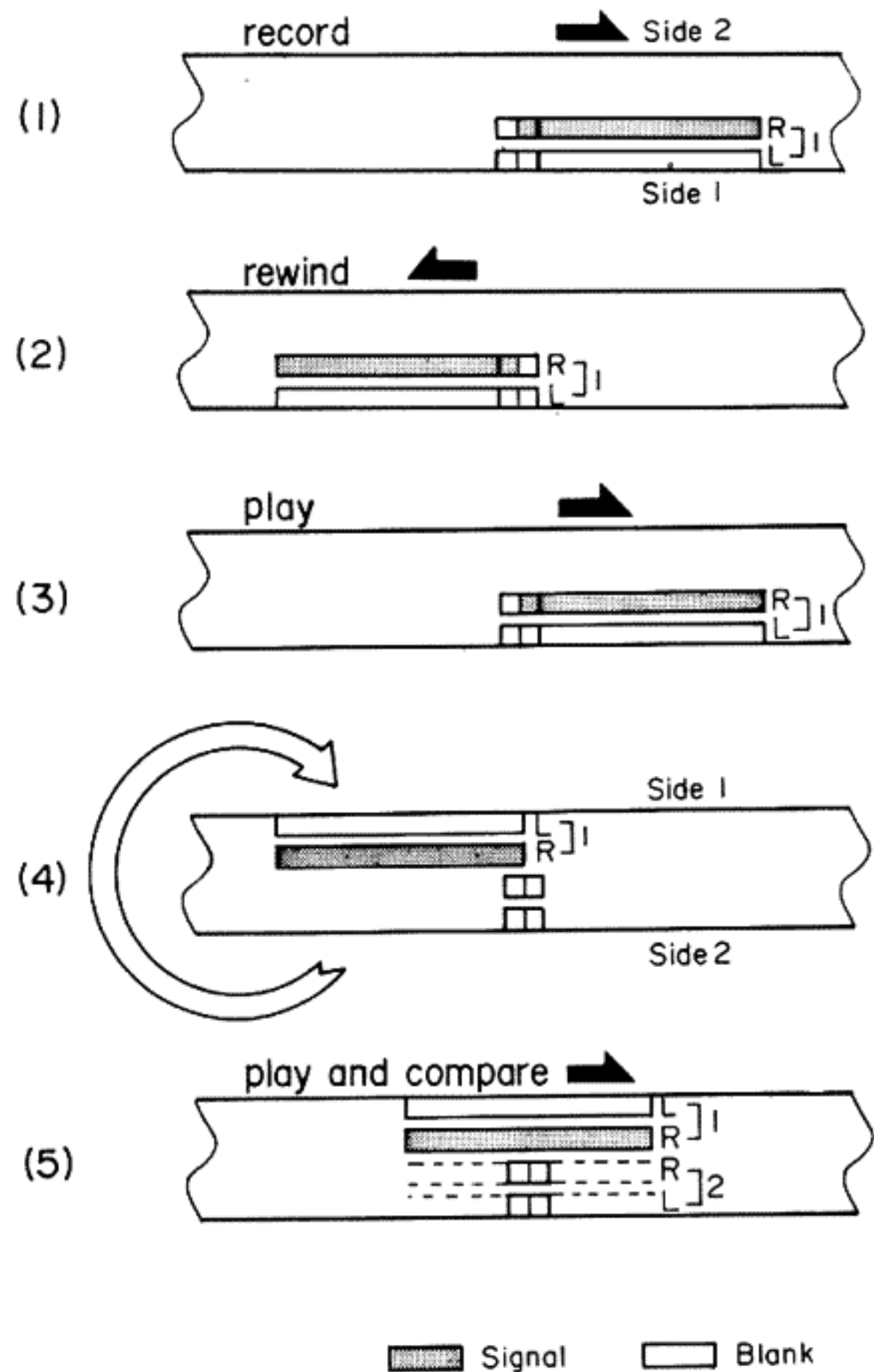
Fig. 6-23 Connection

Switch Setting:

BIAS	EQ	DOLBY NR	TIMER
1	1	OUT	OUT

Control Setting:

- OUTPUT:** Specified Setting (See 6-2-2)
- LINE:** Specified Setting (See 6-1-1)
- MIC:** Minimum Setting



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Fig. 6-24 Adjacent Track Crosstalk Measurement Procedure

6-4. ADJUSTMENT LOCATION

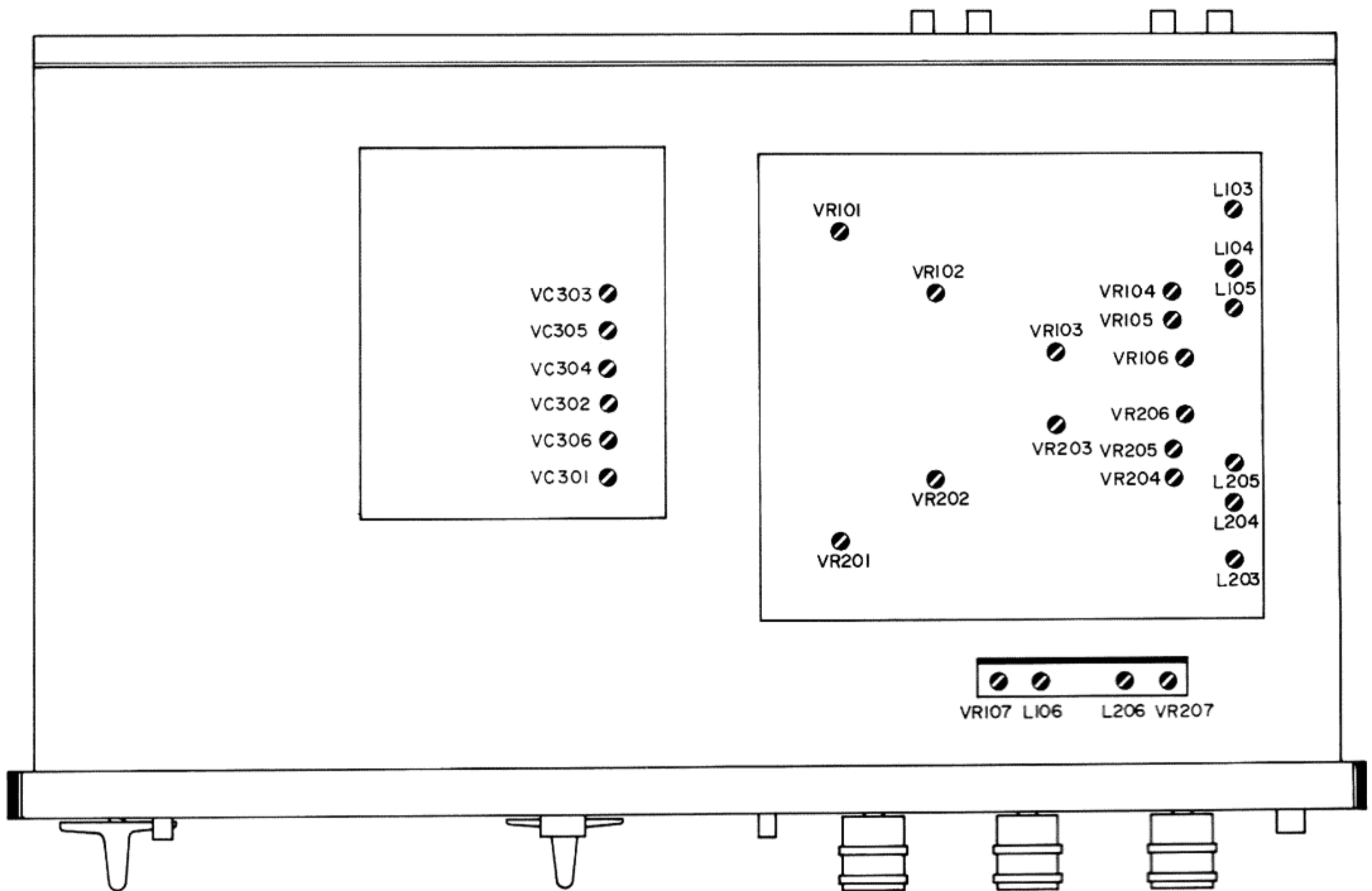
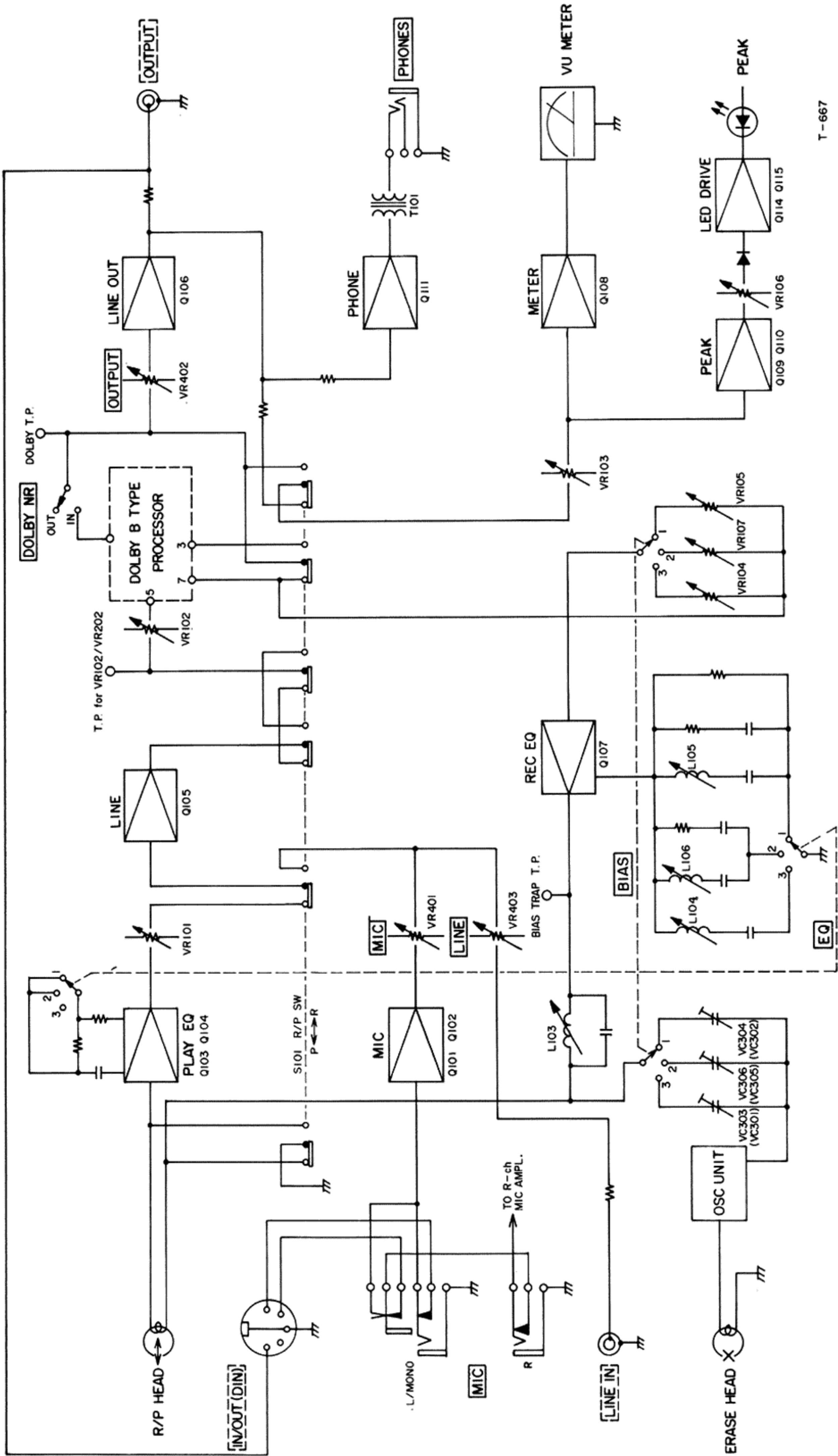


Fig. 6-25 Adjustment Location

VC303/301	Record bias (3)
VC304/302	Record bias (1)
VC306/305	Record bias (2)
VR101/201	Playback level
VR102/202	Input level (Dolby calibration)
VR103/203	VU meter calibration
VR104/204	Record level (3)
VR105/205	Record level (1)

VR106/206	Peak level indicator adjustment
VR107/207	Record level (2)
L102/202	MPX filter
L103/203	Bias trap
L104/204	Record EQ (3)
L105/205	Record EQ (1)
L106/206	Record EQ (2)

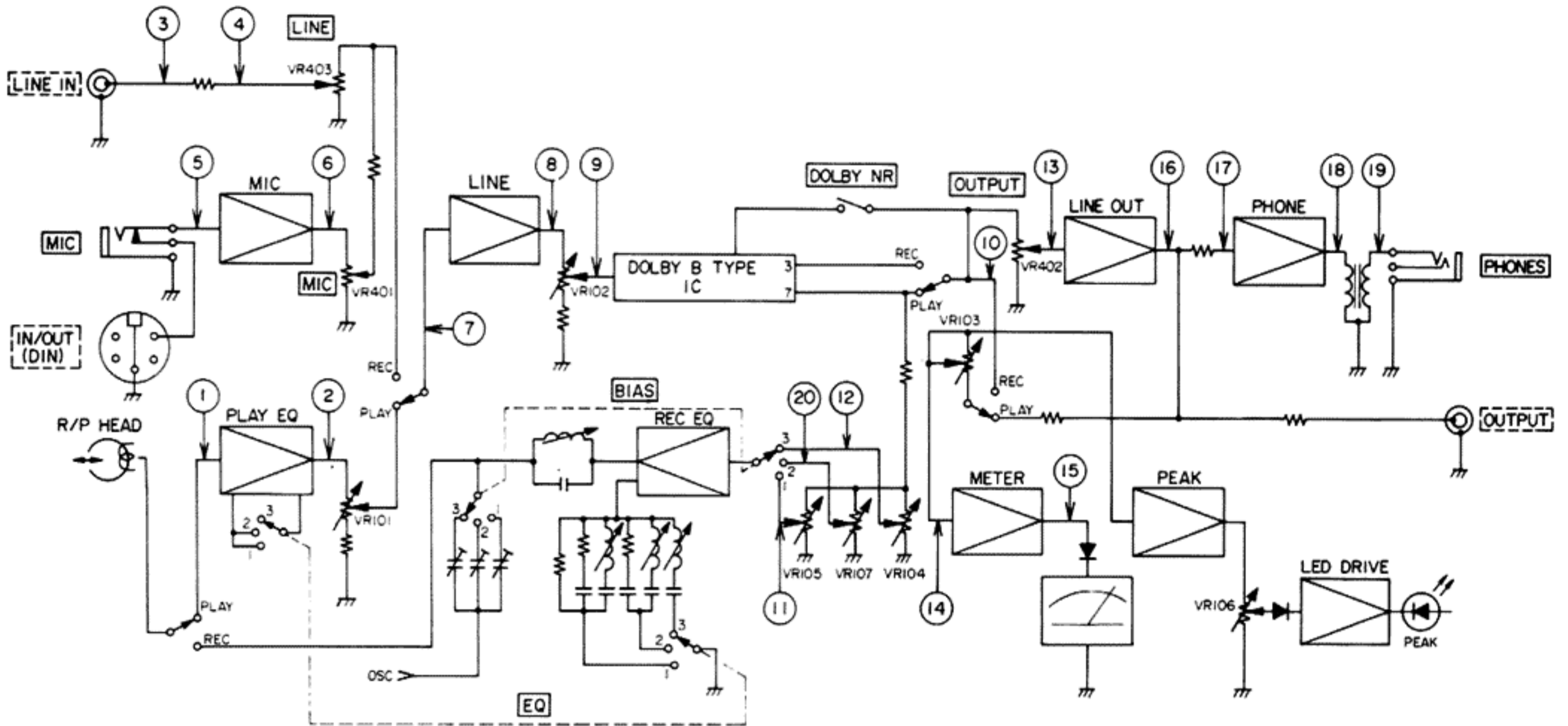
7. BLOCK DIAGRAM



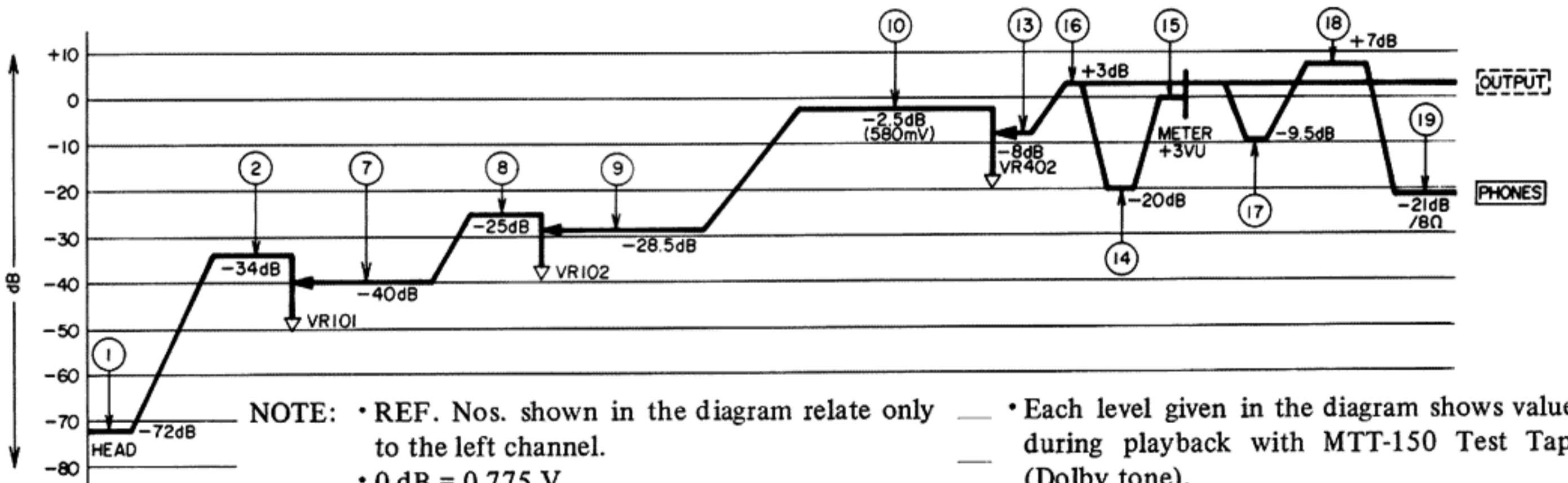
T-667

NOTE: REF. Nos. shown in the diagram relate only to the left channel.

8. LEVEL DIAGRAM

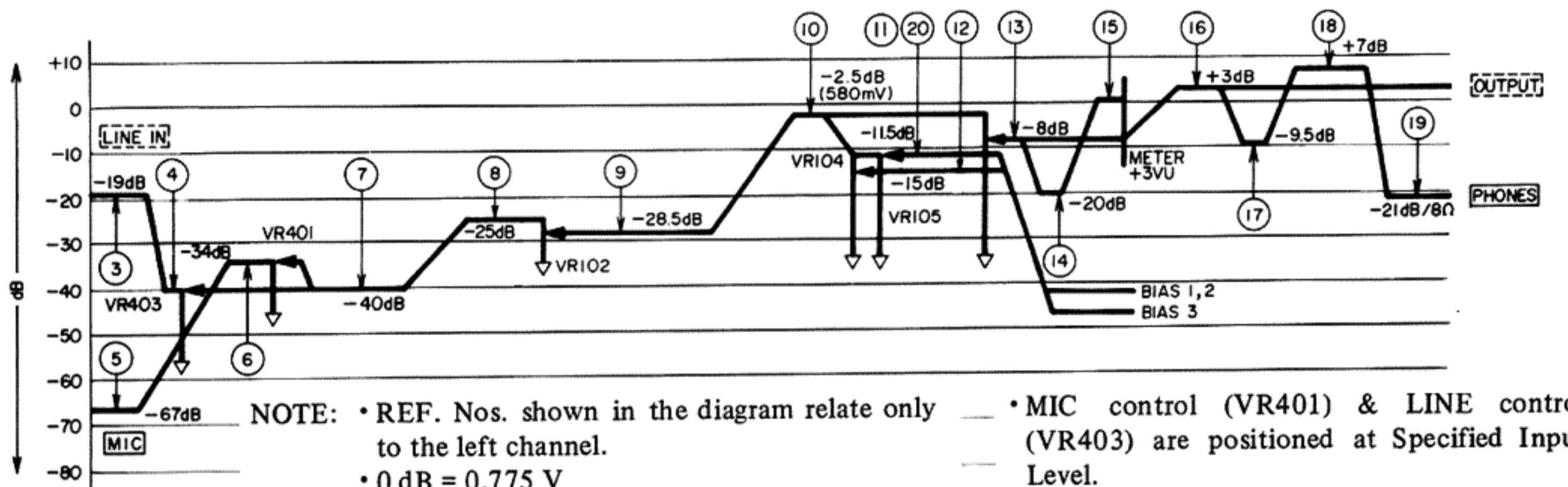


PLAYBACK SECTION



NOTE: • REF. Nos. shown in the diagram relate only to the left channel. • Each level given in the diagram shows values during playback with MTT-150 Test Tape (Dolby tone).
 • 0 dB = 0.775 V
 • OUTPUT control (VR402) is positioned at Specified Output Level.

RECORDING SECTION



NOTE: • REF. Nos. shown in the diagram relate only to the left channel. • MIC control (VR401) & LINE control (VR403) are positioned at Specified Input Level. • Each level given in the diagram shows values when a 400 Hz Specified Input Level is applied.
 • 0 dB = 0.775 V
 • OUTPUT control (VR402) is positioned at Specified Output Level.

9. TROUBLE-SHOOTING

NOTE: REF. No's indicated in the following table refer to the left channel. For the right channel REF. No. identification, see schematic Diagram.

TAPE TRANSPORT SECTION

1. Fuse blows when POWER is switched ON.
 - Defective Power Transformer
2. Auto End-stop will not work in Play and/or Fast Wind.
+B voltage not present between terminal A of SCR and GND.
 - Defective Resistor R313
 - Defective Diode D310Solenoid will not energize when SCR terminals A and K are switched ON.
 - Defective Switch S408
 - Defective SolenoidSolenoid will not work when SCR terminals A and G are shorted together.
 - Defective SCR
3. Tape winds onto Capstan Shaft.
 - Defective Pinch Roller
 - Defective Take-up Reel Table Assy
 - Idler slipping
 - Tape path wrong (improper Tape Guide position, bad Head mounting)
4. Excessive Wow and Flutter
 - Defective Pinch Roller, Pinch Roller pressure incorrect
 - Capstan Belt stretched or oily
5. Capstan does not rotate
 - Capstan Belt off
 - Defective Motor
6. Index Counter will not count
 - Counter reset button not fully depressed
 - Counter Belt off

AMPLIFIER SECTION

1. No sound in playback mode
Noise (hum or clicking noise) appear when touching head wires.
 - Poor soldering of head terminations
 - Defective HeadNoise (hum or clicking noise) appear when touching head wires.
 - Defective Transistor Q401, Q402
 - Defective associated circuitry of Q401, Q402Sound can be heard during recording
 - Defective Switch S101
 - Defective Transistor Q103, Q104
 - Defective Parts associated with parts indicated above
2. VU Meter will not indicate in playback mode.
 - Defective VU Meter
 - Defective Transistor Q108
 - Defective Semi-fixed Resistor VR103
 - Defective Parts associated with parts indicated above
3. Loss of high frequencies in playback mode.
High frequencies too low
 - Defective Transistor Q103, Q104
 - Playback equalizer circuit improperly adjustedHigh frequencies are several dB below specified response limits
 - Head dirty or defectiveLoss of high frequencies including level variation
 - Improper head-to-tape contact
 - Unstable functioning of tape transport mechanism
4. Poor playback signal-to-noise ratio.
Excessive hum – gets better when Capacitor C108 is removed.
 - Defective HeadExcessive hum – reduced when changing Record/Playback PC Board's location.
 - Defective Power TransformerExcessive white noise (hiss and circuit noise)
 - Defective Head
 - Defective Transistor Q103, Q104
 - Associated circuitry of Transistor Q103, Q104Wave form varies continuously
 - Defective Transistor Q103, Q104
 - Defective Capacitor C109, C113
 - Defective Parts associated with parts indicated above
5. Does not record.
Can record when changing Bias Switch setting
 - Defective Bias Switch
 - Defective Semi-fixed Resistor VR104, VR105, VR107
 - Defective Parts associated with parts indicated aboveCannot erase, also
 - Bias Oscillator Assy faultyCan erase – sound from record monitor mode is normal
 - Head dirty
 - Defective Transistor Q107
 - Defective Switch S101
 - Defective Circuitry of Q107, S101

A-420

Stereo Cassette Deck with Dolby System

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PARTS LIST



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PARTS ORDERING INFORMATION

Spare parts are available through your nearest TEAC Authorized Service Center or directly from the TEAC office, the address of which is written on the back cover. When ordering parts, always include the following information:

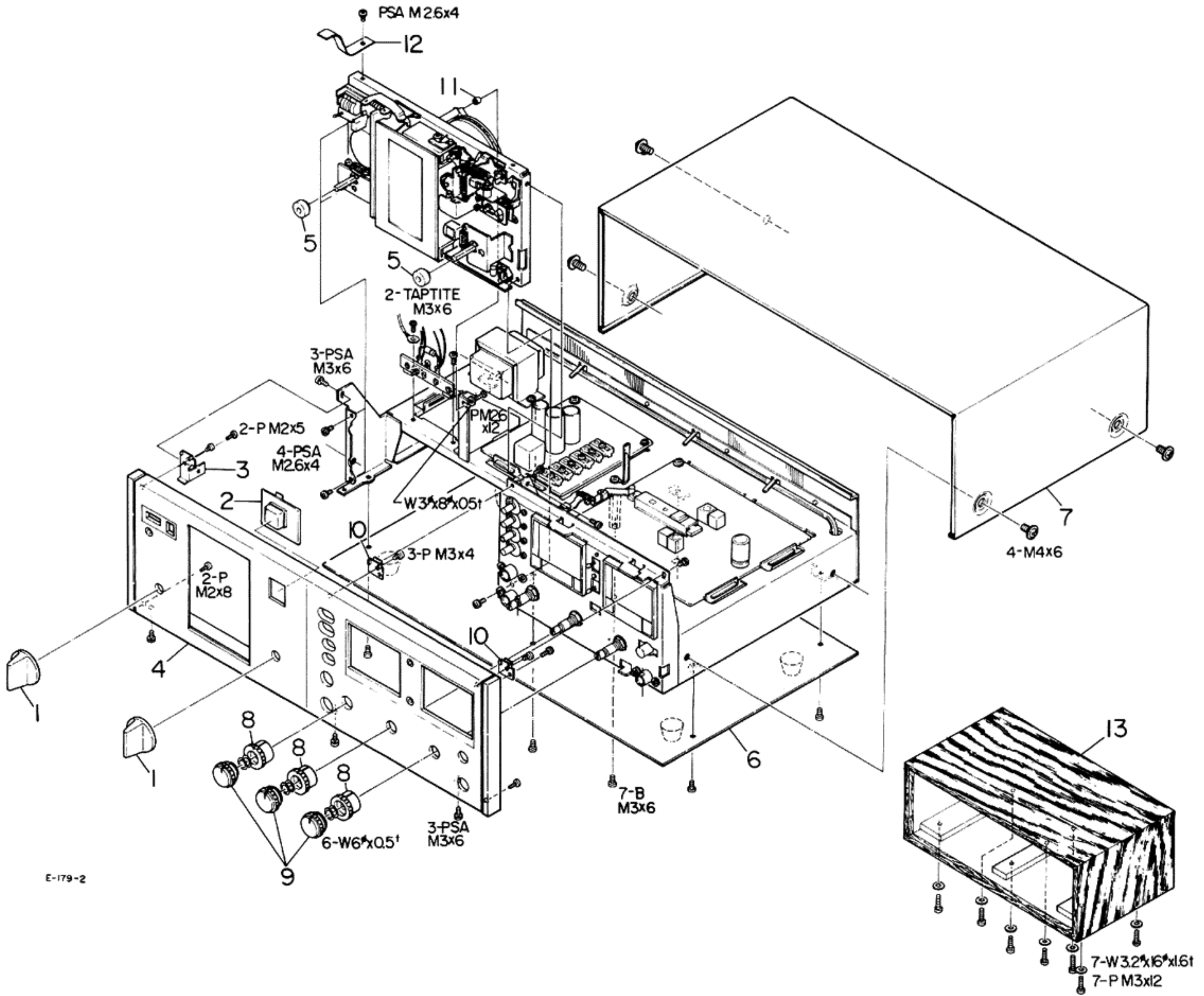
- | | |
|--------------|--------------------|
| 1. MODEL | 4. DESCRIPTION |
| 2. REF. NO. | 5. UNIT SERIAL NO. |
| 3. PARTS NO. | 6. MANUAL CODE NO. |

NOTICE REGARDING PARTS ORDERS

1. Do not order by only REF. NO.
2. In some instances, individual minor parts are not available. In such a case, the entire assembly including the part requested will be sent to you.
3. Parts are identical between the different models with the exceptions as coded by the designations in the REMARKS column.
4. PC Boards shown viewed from foil side.
5. Parts marked with *require longer delivery time than regular parts.

1. EXPLODED VIEWS AND PARTS LIST

EXPLODED VIEW-1



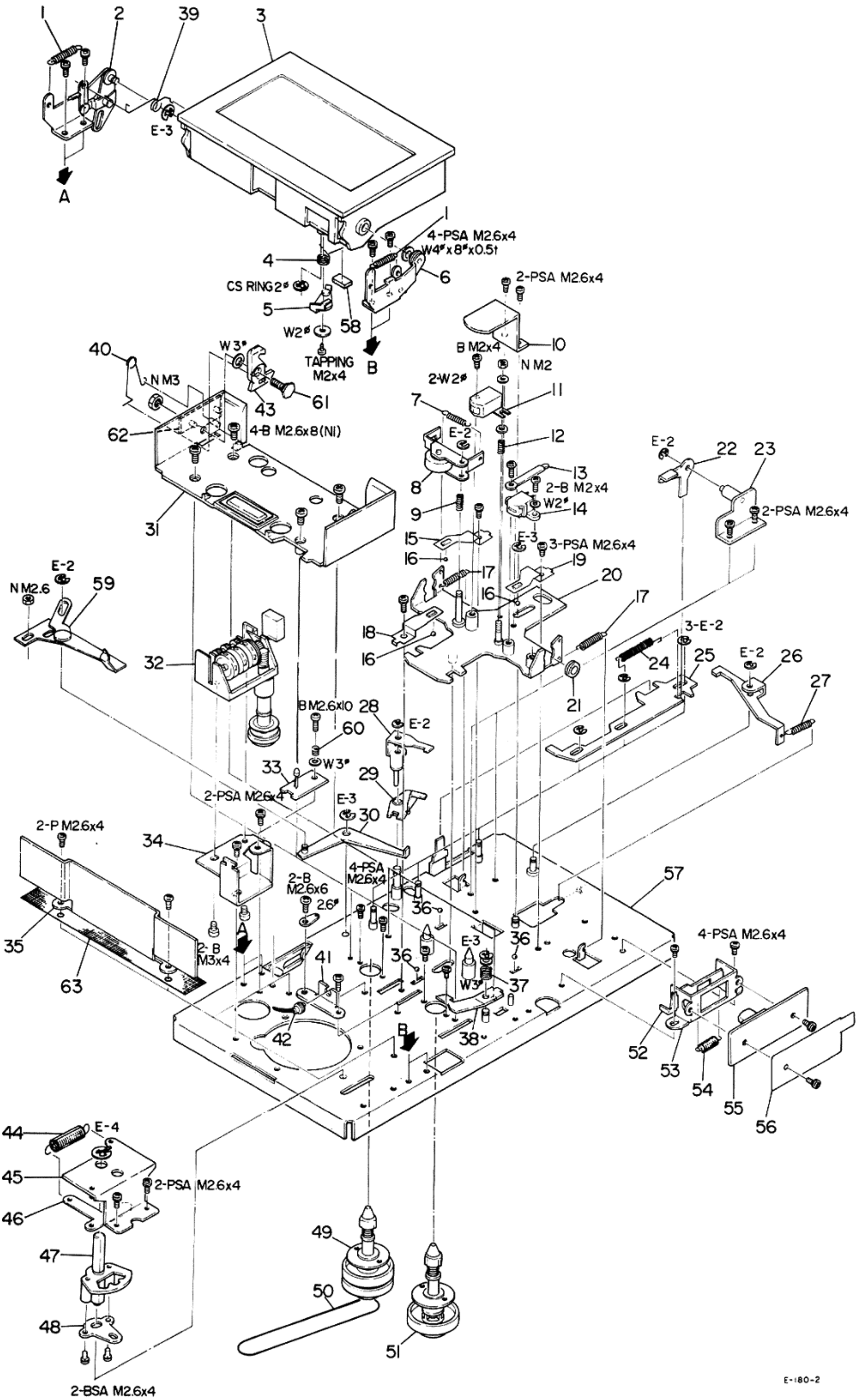
PARTS LIST-1

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
1 - 1	55330490	Lever, Rotary; A	
1 - 2	55926070	Button Assy, Eject	Part of 1-4
1 - 3	* 55544281	Bracket, Trim Panel; Left	Part of 1-4
1 - 4	* 55010171	Panel, Trim	
1 - 5	* 55444090	Spacer, Rotary Lever	
1 - 6	* 55021050	Cover Assy, Bottom	All except U.S.A., CANADA
1 - 7	* 55510141	Cover, Top	All except U.S.A., CANADA
1 - 8	55341941	Knob, A	
1 - 9	55341951	Knob, B	
1 - 10	* 55544291	Bracket, Trim Panel; Right	Part of 1-4
1 - 11	* 55442000	Spacer, Angle	
1 - 12	* 55547350	Grounding Spring, Plate; C	U.S.A., CANADA
1 - 13	* 55021301	Cabinet Assy	U.S.A., CANADA

INCLUDED ACCESSORIES

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
	* 51280010	Cords, Input-output Connection, 2 used	
	* 57100300	Cleaning Stick (TZ-275)	
	* 50291350	Silicone Cloth	
	* 50411130	Fuse, 0.5A	GENERAL EXPORT
	* 51013690	Information Supplement, Cassette	JAPAN
	* 51014130	Information Supplement, Cassette	GENERAL EXPORT, EUROPE
	* 51013450	Information Supplement, Cassette	U.S.A., CANADA
	* 51013860	A-420 Owner's Manual	JAPAN
	* 51013870	A-420 Owner's Manual	GENERAL EXPORT, EUROPE
	* 51013880	A-420 Owner's Manual	U.S.A., CANADA

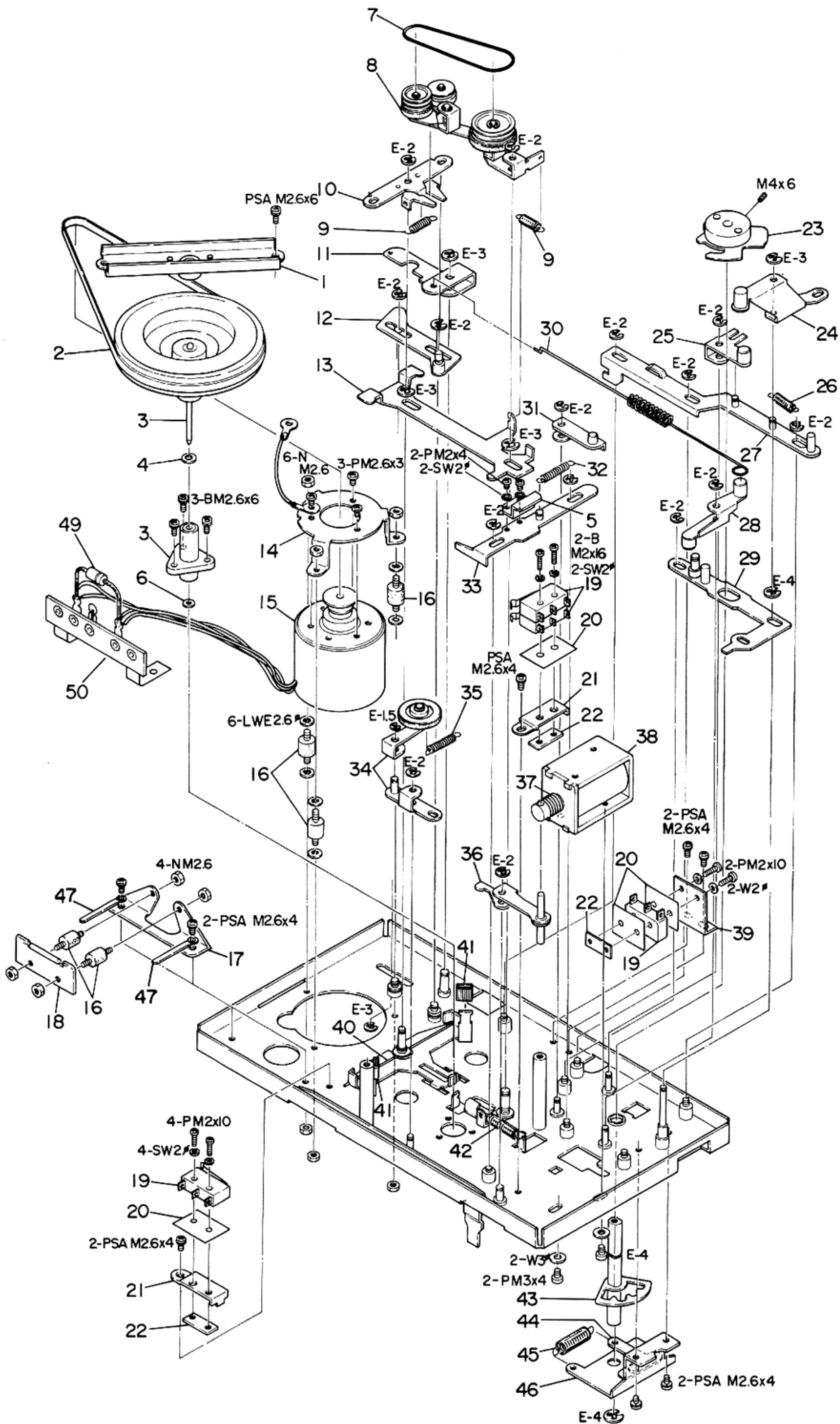
EXPLODED VIEW-2



PARTS LIST-2

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
2 - 1	* 55202490	Spring, Cassette Holder Bracket Assy	
2 - 2	* 55043240	Bracket Assy, Cassette Holder; C	
2 - 3	55030852	Holder Assy, Cassette; A	
2 - 4	55202503	Spring, Record Mode Lock Out	
2 - 5	* 55042250	Lever Assy, Record Mode Lock Out; A	
2 - 6	* 55042161	Bracket Assy, Cassette Holder; B	
2 - 7	55202310	Spring, Pinch Roller Pressure	
2 - 8	55041853	Pinch Roller Assy	
2 - 9	55202300	Spring, Pinch Roller	
2 - 10	* 55544380	Protector, Head	
2 - 11	50660210	Head, Record/Playback	
2 - 12	55202291	Spring, Head	
2 - 13	* 50831921	Retainer, Head Leads	
2 - 14	50660470	Head, Erase	
2 - 15	* 55202530	Plate Spring, B	
2 - 16	* 55400550	Steel Bearing, 2 ϕ	
2 - 17	55202320	Spring, Head Base	
2 - 18	* 55202540	Plate Spring, C	
2 - 19	* 55202520	Plate Spring, A	
2 - 20	* 55041843	Plate Assy, Head Base	
2 - 21	* 55340980	Strain Relief	
2 - 22	* 55547170	Lever, Eject	
2 - 23	* 55043230	Holder Assy, Eject Lever	
2 - 24	* 55547160	Spring, Eject Lock Lever	
2 - 25	* 55547160	Lever, Eject Lock	
2 - 26	* 55543951	Arm, Latch	
2 - 27	55202360	Spring, Lock Lever	
2 - 28	* 55040970	Lever Assy, Pause; A	
2 - 29	* 55040980	Lever Assy, Pause; B	
2 - 30	* 55042780	Lever Assy, Eject Preventing	
2 - 31	55043271	Guide Plate Assy, Cassette; C	
2 - 32	* 55042190	Counter Assy, Index	
2 - 33	51681940	PC Board Assy, LED; E	
	* 51430470	Diode, Light Emiting (Red)	Part of above ass'y
2 - 34	* 55544011	Bracket, Counter Assy	
2 - 35	* 55542920	Plate, Shielding	
2 - 36	* 55400560	Steel Bearing, 3 ϕ	
2 - 37	55202420	Spring, Record Mode Lock Out	
2 - 38	* 55544071	Lever, Record Mode Lock Out	
2 - 39	55203120	Spring, Holder	
2 - 40	55203060	Spring, Stopper	
2 - 41	* 55545800	Holder, Lamp	
2 - 42	51420890	Lamp	
2 - 43	* 55342721	Stopper, Holder	
2 - 44	55202280	Spring, Lock	
2 - 45	* 55041790	Holder Assy, Switch	
2 - 46	* 55041801	Plate Assy, Lock	
2 - 47	* 55043210	Cam Assy, Lock; L	
2 - 48	* 55544360	Plate, Lock Actuator	
2 - 49	55041933	Reel Table Assy, T	
2 - 50	55341100	Belt, Index Counter	
2 - 51	55041953	Reel Table Assy, S	
2 - 52	* 55543870	Plate, Switch Actuator	
2 - 53	* 55543860	Plate, Switch Mounting; A	
2 - 54	55202330	Spring, Switch Return	
2 - 55	* 51681931	PC Board Assy, Muting Switch	
	50444141	Switch, Slide	Part of above ass'y
2 - 56	* 55544341	Insulator Plate, A	
2 - 57	* 55021062	Chassis Assy	
2 - 58	* 55341371	Stopper	
2 - 59	* 55043280	Retaining Spring Assy, Cassette	
2 - 60	* 55203090	Spring, LED; S	
2 - 61	* 55444191	Shaft, Stopper	
2 - 62	* 55547220	Plate, Stopper Spring	
2 - 63	55549280	Mask, Mechanism	

EXPLODED VIEW-3



PARTS LIST-3

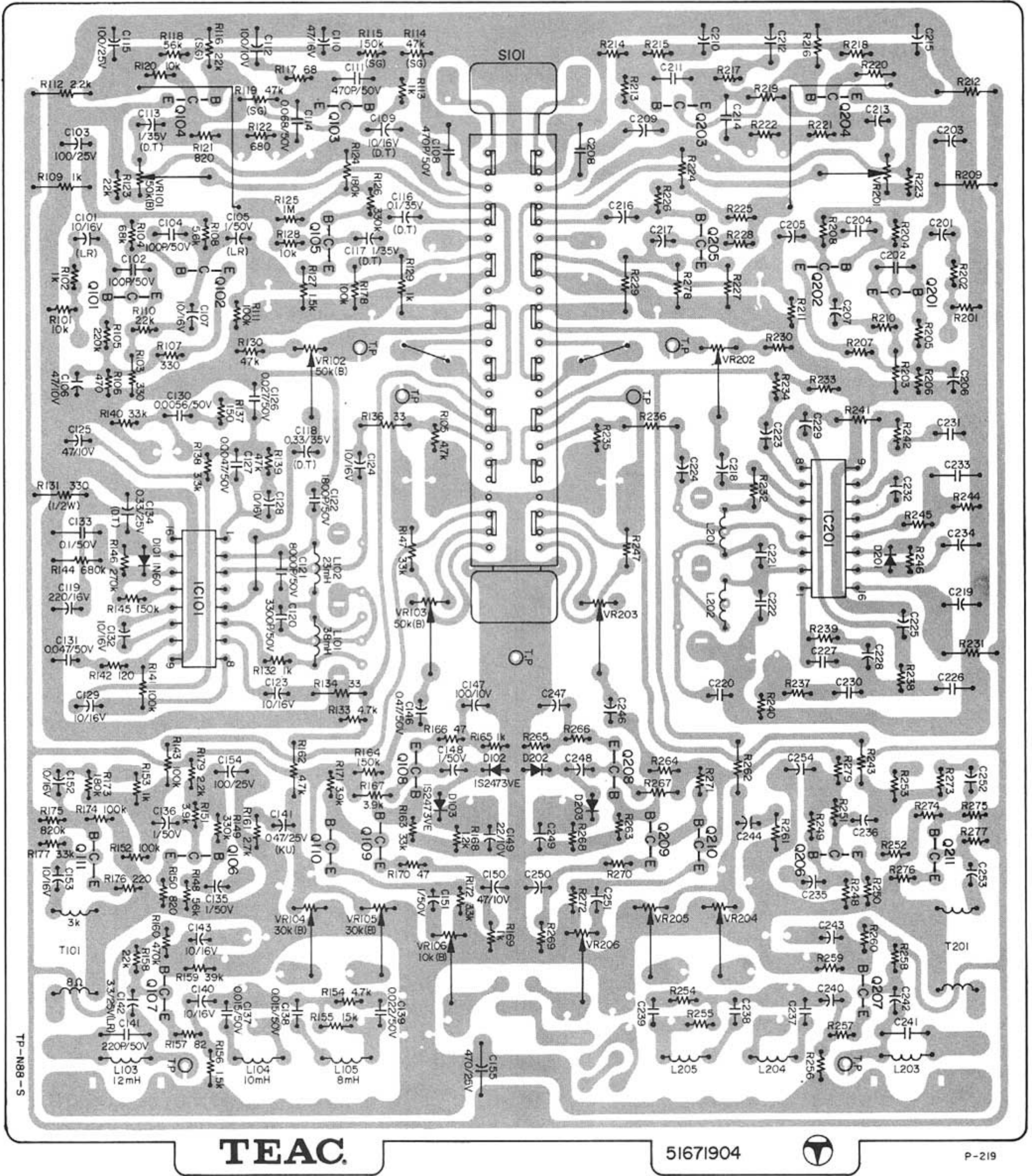
REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
3 - 1	* 55043370	Plate Assy, Flywheel Bearing	
3 - 2	55340990	Belt, Capstan	
3 - 3	* 55042262	Capstan Drive Assy	
3 - 4	55544320	Washer, Thrust	
3 - 5	* 55547240	Bracket, Switch	
3 - 6	* 55341300	Washer, Oil Retaining	
3 - 7	55341350	Belt, Fast Wind	
3 - 8	* 55042243	Idler Lever Assy, Fast Wind	
3 - 9	55202450	Spring, Fast Wind Actuator	
3 - 10	* 55042070	Arm Assy, Fast Wind Actuator	
3 - 11	* 55544440	Arm, Safety	
3 - 12	* 55042060	Plate Assy, Fast Wind Actuator	
3 - 13	* 55544100	Plate, Fast Wind	
3 - 14	* 55544001	Plate, Mount.; DC Motor	
3 - 15	71051071	DC Motor Assy	
3 - 16	71111900	Cushion, Rubber	
3 - 17	* 55544020	Plate, Reed Switch	
3 - 18	* 51681890	PC Board Assy, Reed Switch	
	50447350	Switch, Reed	Part of above ass'y
3 - 19	50446540	Switch, Micro	
3 - 20	* 55544350	Insulator Plate, B	
3 - 21	* 55543921	Plate, Micro Switch; B	
3 - 22	* 55544470	Plate, Micro Switch	
3 - 23	* 55043980	Cam Assy, Rotary Lever	
3 - 24	* 55042040	Lever Assy, Record Actuator; B	
3 - 25	* 55042031	Lever Assy, Record Actuator; A	
3 - 26	55202410	Spring, Record Lever	
3 - 27	* 55042020	Plate Assy, Record	
3 - 28	* 55041831	Lever Assy, Head Base Actuator	
3 - 29	* 55043250	Plate Assy, Pause Release	
3 - 30	* 55203130	Wire Linkage, A	
3 - 31	* 55041891	Lever Assy, Pause	
3 - 32	55202340	Spring, Pause Plate Assy	
3 - 33	* 55043220	Plate Assy, Pause; A	
3 - 34	* 55041960	Idler Assy, Play	
3 - 35	55202400	Spring, Idler	
3 - 36	* 55041900	Lever Assy, Pause Plate Actuator	
3 - 37	55202350	Spring, Solenoid	
3 - 38	51630060	Solenoid	
3 - 39	* 55544041	Plate, Micro Switch; C	
3 - 40	55202470	Spring, Brake	
3 - 41	55341160	Brake Shoe	
3 - 42	55202441	Spring, Fast Wind Plate	
3 - 43	* 55043200	Cam Assy, Lock; R	
3 - 44	* 55041801	Plate Assy, Lock	
3 - 45	55202280	Spring, Lock	
3 - 46	* 55041790	Holder Assy, Switch	
3 - 47	* 55810380	Retainer, Leads	
3 - 48	55202560	Spring, Idler; B	
3 - 49	* 50422560	Diode, S1B01-02	
3 - 50	* 51260211	Terminal Strip (2L-3P)	

PARTS LIST-4

REF. NO.	PARTS NO.	DESCRIPTION	REMARKS
4 - 1	51683220	PC Board Assy, Power Supply	All except EUROPE
	51683240	PC Board Assy, Power Supply	EUROPE
4 - 2	* 51520390	Transformer, Power	JAPAN, U.S.A.
	* 51520840	Transformer, Power	CANADA
	* 51520400	Transformer, Power	GENERAL EXPORT
	* 51520760	Transformer, Power	EUROPE
4 - 3	* 51420880	Fuse, Miniature 250mA 250V	EUROPE
4 - 4	* 51681950	PC Board Assy, Fuse	EUROPE
4 - 5	51683300	PC Board Assy, Component Mounting	
4 - 6	* 55203090	Spring, LED; S	
4 - 7	* 50438350	Terminal Strip, 2P	
4 - 8	51683230	PC Board Assy, Record/Playback Ampl.	
4 - 9	55202510	Spring R/P Mode Selector	
4 - 10	* 55341190	Bushing, Rubber	All except EUROPE
4 - 11	* 55544260	Lever, Record; B	
4 - 12	* 55042180	Lever Assy, Record; C	
4 - 13	* 55300470	Strain Relief, AC Cord	All except EUROPE
4 - 14	* 50090240	Strap, Binding	
4 - 15	* 51280270	Cord, AC Power	JAPAN, GENERAL EXPORT
	* 50471661	Cord, AC Power	U.S.A., CANADA
	* 51280170	Cord, AC Power or (51280180)	EUROPE
4 - 16	* 55541690	Plate, Voltage Selector	GENERAL EXPORT
4 - 17	51310360	Switch, Slide	
4 - 18	51310370	Switch, Slide	
4 - 19	* 55341180	Push Rivet	
4 - 20	* 50451330	Terminal Assy	All except EUROPE
	* 50451340	Terminal Assy	EUROPE
4 - 21	* 50332580	Clamp, Wire; E	
4 - 22	* 55810380	Retainer, Leads	
4 - 23	* 51683250	PC Board Assy, LED; D	
	51430470	Diode, Light Emitting (Red)	Part of above ass'y
	51430480	Diode, Light Emitting (Orange)	Part of above ass'y
4 - 24	51683260	PC Board Assy, Switch; A	
	* 51310380	Switch, Slide	Part of above ass'y
4 - 25	* 51310070	Voltage Selector	GENERAL EXPORT
4 - 26	* 55545240	Mask, Slide Switch	
4 - 27	51650240	VU Meter	
4 - 28	51240280	Jack, Phone; Single	
4 - 29	51240220	Jack, Phone; 3 cond	
4 - 30	51240230	Jack, Phone; Single	
4 - 31	51500980	Var. Res., 10k ohm A x 2	
4 - 32	51500990	Var. Res., 20k ohm A x 2	
4 - 33	* 50452531	Terminal Strip (2L-3P)	
4 - 34	51340090	Switch, Push	All except EUROPE
	51340110	Switch, Push	EUROPE
4 - 35	50529050	Spark Killer, 0.1 mfd + 120 ohm 400 VAC	JAPAN
	50529070	Spark Killer, 0.01 mfd + 300 ohm 400 VAC	GENERAL EXPORT
	50529060	Spark Killer, 0.033 mfd + 120 ohm 1500 VAC	U.S.A., CANADA
	51890010	Spark Killer, 4700 pfd	EUROPE
4 - 36	* 50333100	Clamp, Wire; G	
4 - 37	* 55441890	Stud	
4 - 38	* 55010150	Chassis Assy, Main	All except GENERAL EXPORT
	* 55010160	Chassis Assy, Main	GENERAL EXPORT
4 - 39	* 55544550	Angle, Reinforcing	
4 - 40	51683270	PC Board Assy, Switch; B	
	* 51310380	Switch, Slide	Part of above ass'y
4 - 41	51683280	PC Board Assy, Timer; A	All except GENERAL EXPORT
	51683290	PC Board Assy, Timer; B	GENERAL EXPORT
4 - 42	55043180	Solenoid Assy, Pause Release	

2. PC BOARD SECTION (Diagram)

1. RECORD / PLAYBACK AMPL. - 1



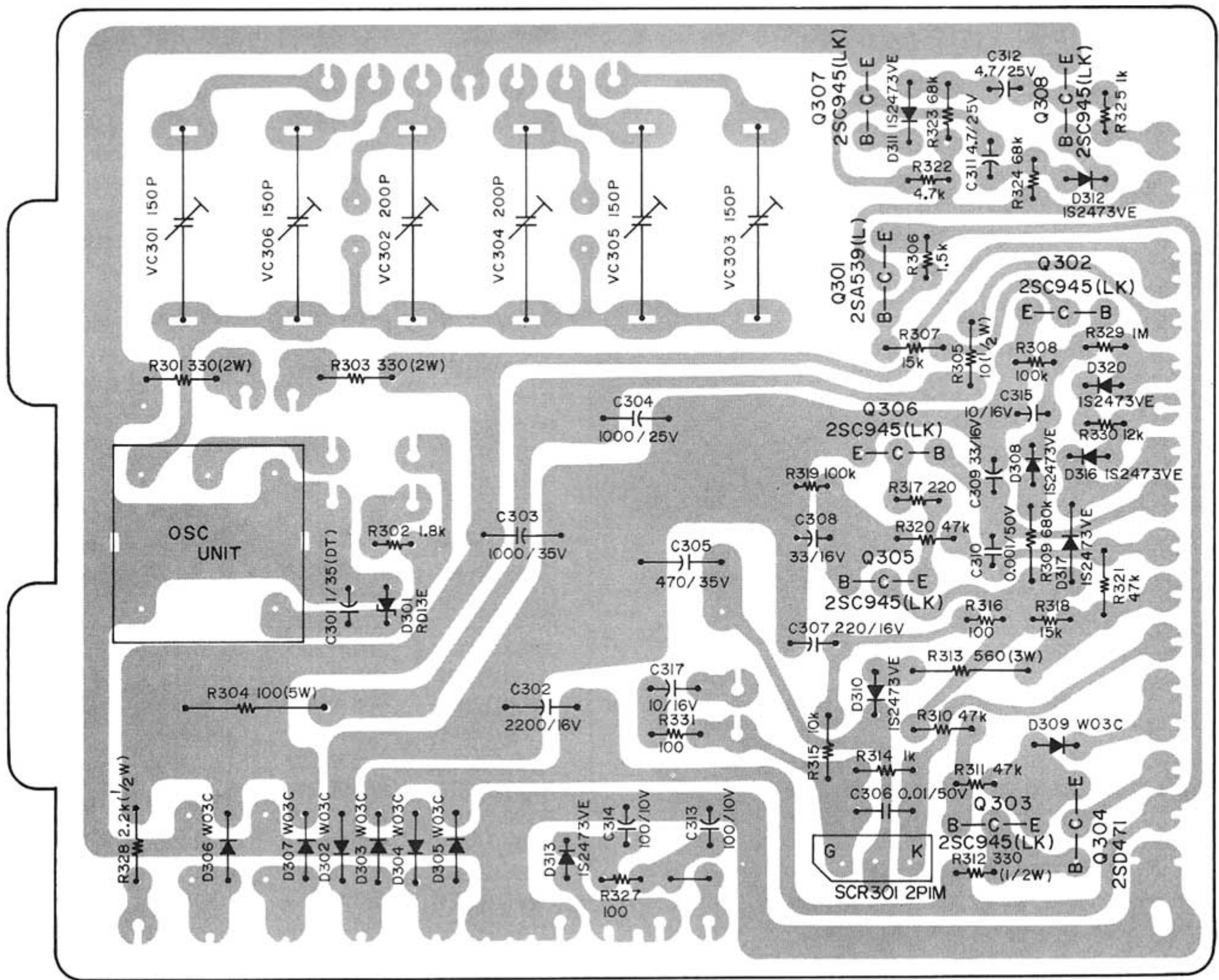
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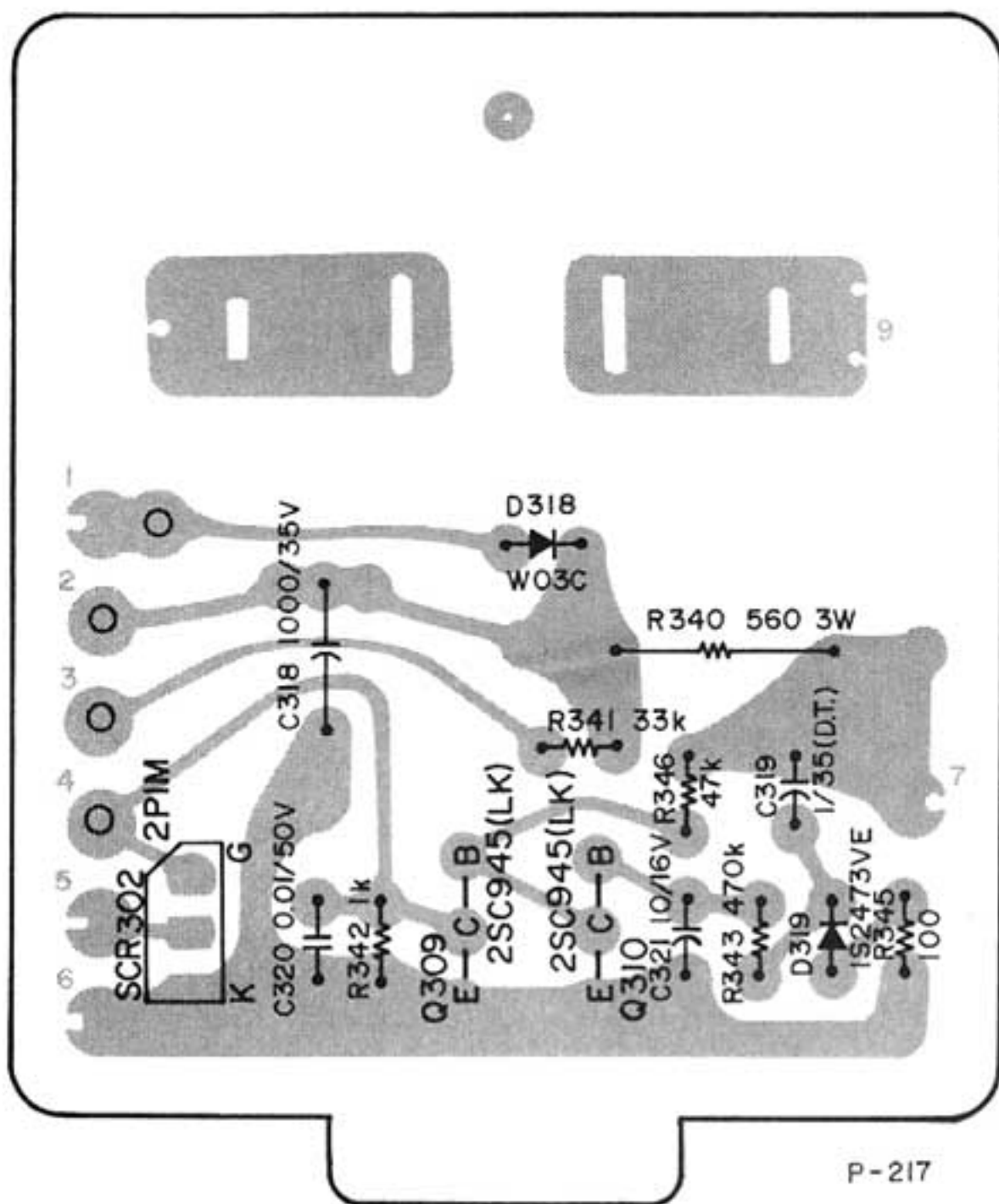
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2. POWER SUPPLY PC BOARD



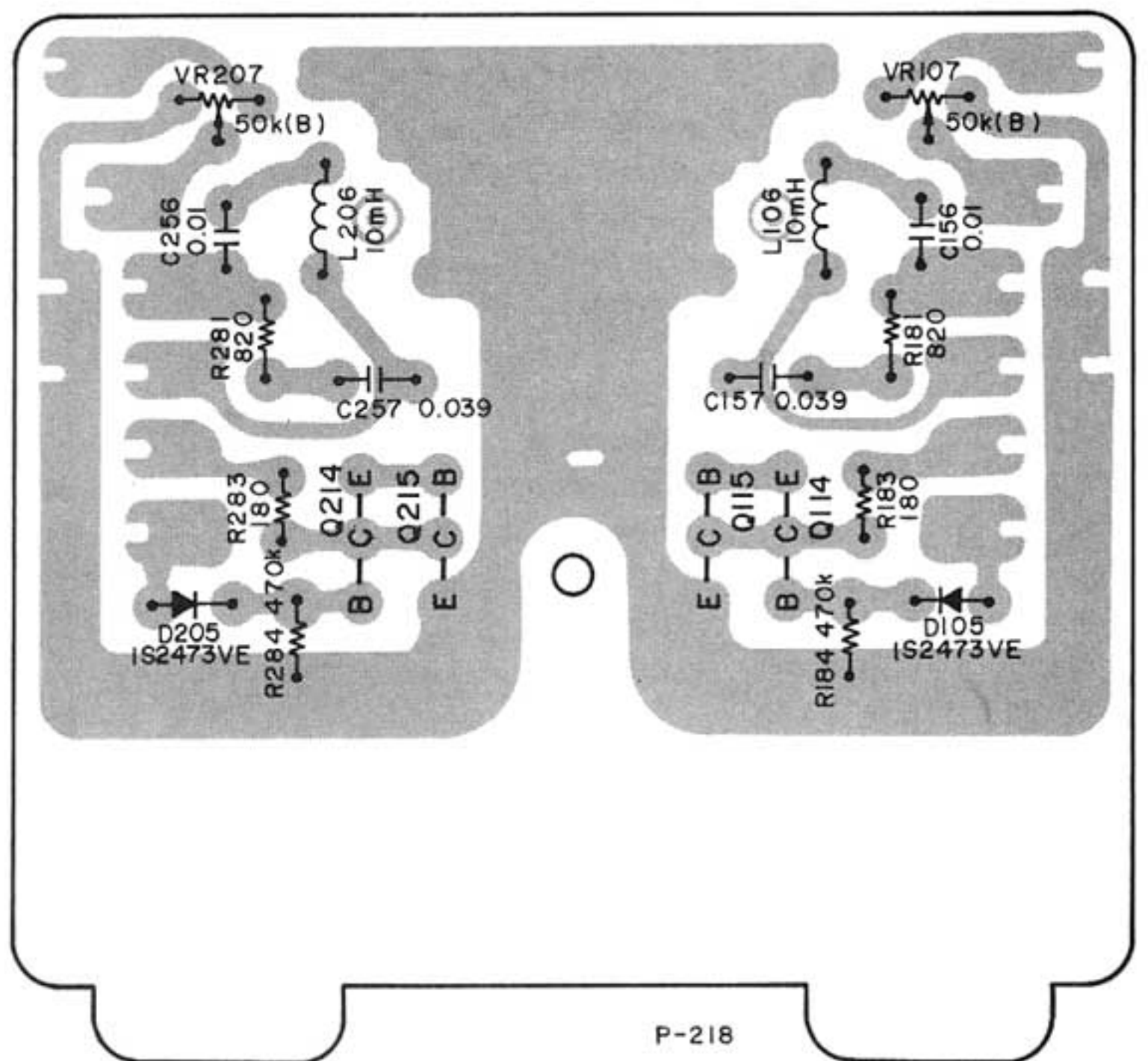
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3. TIMER PC BOARD



P-217

4. RECORD/PLAYBACK AMPL. -2



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2. PC BOARD SECTION (Parts List)

1. RECORD / PLAYBACK AMPL. -1

REF. NO.	PARTS NO.	DESCRIPTION
	51683230	PC Board Assy
	51671904	PC Board
	DOLBY IC's	
IC101/IC201	50427280	NE545B
	TRANSISTORS	
Q101/Q201	51450340	2SC900 (UA)
Q102/Q202	51450340	2SC900 (UA)
Q103/Q203	51450380	2SA750 (E)
Q104/Q204	50424610	2SC1327 (T)
Q105/Q205	50424610	2SC1327 (T)
Q106/Q206	51450360	2SC945 (LK)
Q107/Q207	51450360	2SC945 (LK)
Q108/Q208	51450360	2SC945 (LK)
Q109/Q209	51450360	2SC945 (LK)
Q110/Q210	51450360	2SC945 (LK)
Q111/Q211	51450360	2SC945 (LK)
	DIODES	
D101/D201	50422130	Germanium, 1N60
D102/D202	50425170	Silicon, 1S2473VE
D103/D203	50425170	Silicon, 1S2473VE
	CARBON RESISTORS	
All resistors are rated $\pm 5\%$ tolerance and 1/4 watt unless otherwise noted.		
R101/R201	50571060	10k ohm
R102/R202	50570820	1k ohm
R103/R203	50570700	330 ohm
R104/R204	50571260	68k ohm
R105/R205	50571380	220k ohm
R106/R206	50570740	470 ohm
R107/R207	50570700	330 ohm
R108/R208	50571000	5.6k ohm
R109/R209	50570820	1k ohm
R110/R210	50571140	22k ohm
R111/R211	50571300	100k ohm
R112/R212	50570900	2.2k ohm
R113/R213	50570820	1k ohm
R114/R214	50571221	47k ohm (SG)
R115/R215	50571341	150k ohm (SG)
R116/R216	50571140	22k ohm (SG)
R117/R217	50570540	68k ohm
R118/R218	50571240	56k ohm
R119/R219	50571221	47k ohm (SG)
R120/R220	50571060	10k ohm
R121/R221	50570800	820 ohm
R122/R222	50570780	680 ohm
R123/R223	50571140	22k ohm
R124/R224	50571360	180k ohm
R125/R225	50571540	1M ohm
R126/R226	50571420	330k ohm
R127/R227	50570860	1.5k ohm
R128/R228	50571060	10k ohm
R129/R229	50570820	1k ohm
R130/R230	50571220	47k ohm
R131/R231	50574700	330 ohm 1/2W

REF. NO.	PARTS NO.	DESCRIPTION
R132/R232	50570820	1k ohm
R133/R233	50570980	4.7k ohm
R134/R234	50570460	33 ohm
R135/R235	50570980	4.7k ohm
R136/R236	50570460	33 ohm
R137/R237	50570620	150 ohm
R138/R238	50570940	3.3k ohm
R139/R239	50571220	47k ohm
R140/R240	50571180	33k ohm
R141/R241	50571300	100k ohm
R142/R242	50570600	120 ohm
R143/R243	50571300	100k ohm
R144/R244	50571500	680k ohm
R145/R245	50571340	150k ohm
R146/R246	50571400	270k ohm
R147/R247	50571180	33k ohm
R148/R248	50571240	56k ohm
R149/R249	50571420	330k ohm
R150/R250	50570800	820 ohm
R151/R251	50570960	3.9k ohm
R152/R252	50571300	100k ohm
R153/R253	50570820	1k ohm
R154/R254	50570980	4.7k ohm
R155/R255	50571100	15k ohm
R156/R256	50570860	1.5k ohm
R157/R257	50570560	82 ohm
R158/R258	50571140	22k ohm
R159/R259	50571200	39k ohm
R160/R260	50571460	470k ohm
R161/R261	50570920	2.7k ohm
R162/R262	50570980	4.7k ohm
R163/R263	50571180	33k ohm
R164/R264	50571340	150k ohm
R165/R265	50570820	1k ohm
R166/R266	50570500	47 ohm
R167/R267	50570960	3.9k ohm
R168/R268	50570840	1.2k ohm
R169/R269	50570820	1k ohm
R170/R270	50570500	47 ohm
R171/R271	50570960	3.9k ohm
R172/R272	50570940	3.3k ohm
R173/R273	50571360	180k ohm
R174/R274	50571300	100k ohm
R175/R275	50571520	820k ohm
R176/R276	50570660	220 ohm
R177/R277	50570940	3.3k ohm
R178/R278	50571300	100k ohm
R179/R279	50570900	2.2k ohm
	CAPACITORS	
C101/C201	51700770	Elec. 10 mfd 16V LR
C102/C202	50547440	Dip. Mica 100 pfd 50V
C103/C203	50554170	Elec. 100 mfd 25V
C104/C204	50547440	Dip. Mica 100 pfd 50V
C105/C205	51700860	Elec. 1 mfd 50V LR
C106/C206	50555540	Elec. 47 mfd 10V
C107/C207	50554050	Elec. 10 mfd 16V
C108/C208	50547560	Dip. Mica 470 pfd 50V
C109/C209	50546561	Dip. Tant. 10 mfd 16V
C110/C210	50554010	Elec. 47 mfd 16V
C111/C211	50547560	Dip. Mica 470 pfd 50V
C112/C212	50554570	Elec. 100 mfd 10V

REF. NO.	PARTS NO.	DESCRIPTION
C113/C213	50546701	Dip. Tant. 1 mfd 35V
C114/C214	50549260	Mylar 0.068 mfd 50V 5%
C115/C215	50554170	Elec. 100 mfd 25V
C116/C216	50546641	Dip. Tant. 0.1 mfd 35V
C117/C217	50546701	Dip. Tant. 1 mfd 35V
C118/C218	51703001	Dip. Tant. 0.33 mfd 35V 10%
C119/C219	50554390	Elec. 220 mfd 16V
C120/C220	50596800	Polyst. 3300 pfd 50V 5%
C121/C221	50596810	Polyst. 300 pfd 50V 5%
C122/C222	50543990	Polyst. 1800 pfd 50V 5%
C123/C223	50554050	Elec. 10 mfd 16V
C124/C224	50554050	Elec. 10 mfd 16V
C125/C225	50555540	Elec. 47 mfd 10V
C126/C226	50548990	Mylar 0.027 mfd 50V 5%
C127/C227	50548910	Mylar 0.0047 mfd 50V 5%
C128/C228	50554050	Elec. 10 mfd 16V
C129/C229	50554050	Elec. 10 mfd 16V
C130/C230	50548920	Mylar 0.0056 mfd 50V 5%
C131/C231	50547380	Mylar 0.047 mfd 50V 5%
C132/C232	50554050	Elec. 10 mfd 16V
C133/C233	50548040	Mylar 0.1 mfd 50V 10%
C134/C234	51703001	Dip. Tant. 0.33 mfd 35V 10%
C135/C235	50554540	Elec. 1 mfd 50V
C136/C236	50554540	Elec. 1 mfd 50V
C137/C237	50548870	Mylar 0.015 mfd 50V 5%
C138/C238	50548870	Mylar 0.015 mfd 50V 5%
C139/C239	50548980	Mylar 0.022 mfd 50V 5%
C140/C240	50554050	Elec. 10 mfd 16V
C141/C241	50547450	Dip. Mica 220 pfd 50V
C142/C242	51700800	Elec. 3.3 mfd 25V LR
C143/C243	50554050	Elec. 10 mfd 16V
C144/C244	50549650	Elec. 0.47 mfd 25V KU
C146/C246	50554970	Elec. 0.47 mfd 50V
C147/C247	50554570	Elec. 100 mfd 10V
C148/C248	50554540	Elec. 1 mfd 50V
C149/C249	50554720	Elec. 22 mfd 10V
C150/C250	50555540	Elec. 47 mfd 10V
C151/C251	50554540	Elec. 1 mfd 50V
C152/C252	50554050	Elec. 10 mfd 16V
C153/C253	50554050	Elec. 10 mfd 16V
C154/C254	50554170	Elec. 100 mfd 25V
C155/C255	50554420	Elec. 470 mfd 25V

VIRIABLE RESISTORS

VR101/VR201	51500940	Semi-fixed, 50k ohm - B or
	51500570	Semi-fixed, 50k ohm - B
VR102/VR202	51500940	Semi-fixed, 50k ohm - B or
	51500570	Semi-fixed, 50k ohm - B
VR103/VR203	51500940	Semi-fixed, 50k ohm - B or
	51500570	Semi-fixed, 50k ohm - B
VR104/VR204	51500930	Semi-fixed, 30k ohm - B or
	51500570	Semi-fixed, 30k ohm - B
VR105/VR205	51500930	Semi-fixed, 30k ohm - B or
	51500590	Semi-fixed, 30k ohm - B
VR106/VR206	51500920	Semi-fixed, 10k ohm - B or
	51500560	Semi-fixed, 10k ohm - B

COILS/TRANSFORMERS

L101/L201	50566660	Coil, Choke 38mH
L102/L202	50566650	Coil, Choke; Semi-fixed 23mH
L103/L203	50566550	Coil, Trap 12mH

REF. NO.	PARTS NO.	DESCRIPTION
L104/L204	50562630	Coil, Record EQ 10mH
L105/L205	50566350	Coil, Record EQ 8mH
T101/T201	50562260	Transformer, Output 3k ohm:8 ohm
	or 51520740	Transformer, Output 3k ohm:8 ohm

MISCELLANEOUS

S101	51310290	Switch, Slide; 16PDT
	57240420	Pin, F3 type (7 used)
	51470160	Socket, IC; 16P

2. POWER SUPPLY PC BOARD

REF. NO.	PARTS NO.	DESCRIPTION
	51683220	PC Board Assy (All except EUROPE)
	51683240	PC Board Assy (EUROPE)
	51673220	PC Board
THYRISTOR		
SCR301	51430900	2P1M
TRANSISTORS		
Q301	51450390	2SA539 (L)
Q302, Q303	51450360	2SC945 (LK)
Q304	51450400	2SD471 (L)
Q305~Q308	51450360	2SC945 (LK)
DIODES		
D301	51430860	Zener, RD13E
D302~D307	51430890	Silicon, W03C
D308	50425170	Silicon, 1S2473VE
D309	51430890	Silicon, W03C
D310~D313	50425170	Silicon, 1S2473VE
D314, D315	51430890	Silicon, W03C (EUROPE)
D316, D317	50425170	Silicon, 1S2473VE
D320	50425170	Silicon, 1S2473VE

CARBON RESISTORS

All resistors are rated $\pm 5\%$ tolerance, 1/4 watt and of carbon type unless otherwise noted.

R301	51806700	330 ohm 2W 5% Wire Wound
R302	50570880	1.8k ohm
R303	51806700	330 ohm 2W 5% Wire Wound
R304	51807810	100 ohm 5W Wire Wound
R305	50517891	10 ohm 1/2W 5%
R306	50570860	1.5k ohm
R307	50571100	15k ohm
R308	50571300	100k ohm
R309	50571500	680k ohm
R310, R311	50571220	47k ohm
R312	50517900	330 ohm 1/2W
R313	51807760	560 ohm 3W Wire Wound
R314	50570820	1k ohm

REF. NO.	PARTS NO.	DESCRIPTION
R315	50571060	10k ohm
R316	50570580	100 ohm
R317	50570660	220 ohm
R318	50571100	15k ohm
R319	50571300	100k ohm
R320, R321	50571220	47k ohm
R322	50570980	4.7k ohm
R323, R324	50571260	68k ohm
R325	50570820	1k ohm
R326	50570640	180 ohm
R327	50570580	100 ohm
R328	50517860	2.2k ohm 1/2W
R329	50571540	1M ohm
R330	50571080	12k ohm
R331	50570580	100 ohm

CAPACITORS

C301	50546709	Dip. Tant.	1 mfd	25V
C302	51703020	Elec.	2200 mfd	16V
C303	51700110	Elec.	1000 mfd	35V
C304	50555580	Elec.	1000 mfd	25V
C305	50554620	Elec.	470 mfd	35V
C306	50548020	Mylar	0.01 mfd	50V 10%
C307	50554390	Elec.	220 mfd	16V
C308, C309	50554260	Elec.	33 mfd	16V
C310	50548320	Mylar	0.001 mfd	50V 10%
C311, C312	50554530	Elec.	4.7 mfd	25V
C313, C314	50554570	Elec.	100 mfd	10V
C315, C317	50554050	Elec.	10 mfd	16V

TRIMMER CAPACITORS

VC301, VC303	51700170	150 pfd	Max.
VC302, VC304	50547050	200 pfd	Max.
VC306, VC308	51700170	150 pfd	Max.

MISCELLANEOUS

IC301	50400810	Oscillator Unit, 100k Hz
	55544370	Pin, T4 type

3. TIMER PC BOARD

REF. NO.	PARTS NO.	DESCRIPTION
	51683280	PC Board Assy, A (All except GENERAL EXPORT)
	51683290	PC Board Assy, B (GENERAL EXPORT)
	51673280	PC Board, A (All except GENERAL EXPORT)
	51673290	PC Board, B (GENERAL EXPORT)
TRANSISTORS		
Q309, Q310	51450360	2SC945 (LK)

REF. NO.	PARTS NO.	DESCRIPTION
THYRISTOR		
SCR302	51430900	2P1M
DIODES		
D318	51430890	W03C
D319	50425170	1S2473VE
CARBON RESISTORS		
All resistors are rated $\pm 5\%$, 1/4 watt and of carbon type unless otherwise noted.		
R340	51807760	560 ohm 3W Wire Wound
R341	50571180	33k ohm
R342	50570820	1k ohm
R343, R344	50571460	470k ohm
R345	50570580	100 ohm
R346	50571220	47k ohm
CAPACITORS		
C318	51700110	Elec. 1000 mfd 35V
C319	50546701	Dip. Tant. 1 mfd 35V
C320	50548020	Mylar 0.01 mfd 50V
C321	50554050	Elec. 10 mfd 16V
MISCELLANEOUS		
	50412370	Fuse Holder (GENERAL EXPORT)
	50411130	Fuse, 0.5A (GENERAL EXPORT)
	55544370	Pin, T4 type

4. RECORD/PLAYBACK AMPL. -2

REF. NO.	PARTS NO.	DESCRIPTION
	51683300	PC Board Assy
	51673300	PC Board
Q114/Q214	51450340	Transistor, 2SC900 (UA)
Q115/Q215	51450340	Transistor, 2SC900 (UA)
D105/D205	50425170	Diode, 1S2473VE
R181/R281	50570800	Carbon, 820 ohm 1/4W
R183/R283	50570640	Carbon, 180 ohm 1/4W
R184/R284	50571460	Carbon, 470k ohm 1/4W
C156/C256	50548770	Mylar 0.01 mfd 50V 5%
C157/C257	50549240	Mylar 0.039 mfd 50V 5%
VR107/VR207	51501560	Var. Res., Semi-fixed 50k ohm - B
L106/L206	50562630	Coil, Record EQ 10mH

ASSEMBLING HARDWARE CODING LIST

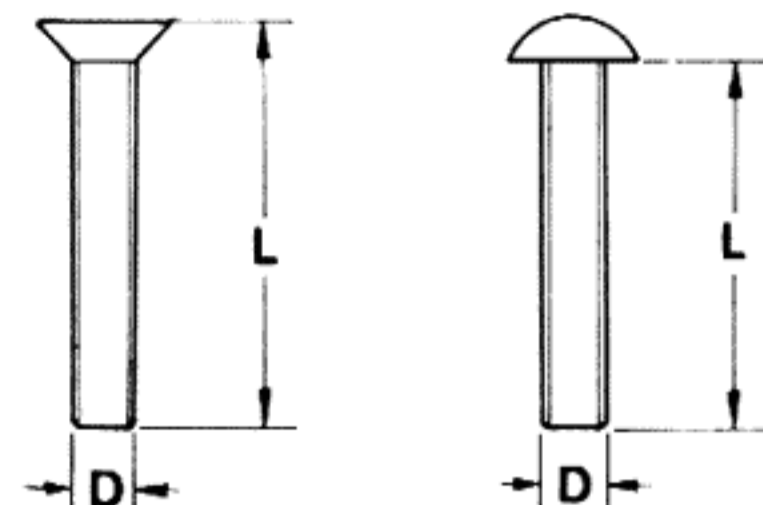
All screws conform to ISO standards, and have crossrecessed heads, unless otherwise noted. ISO screws have the head inscribed with a point as in the figure to the right.



FOR EXAMPLE:

B M 3 x 6

----- Length in mm (L)
 ----- Diameter in mm (D) *
 ----- Metric System
 ----- Nomenclature



* Inner dia. for washers and nuts

	Code	Name	Type		Code	Name	Type
MACHINE SCREW	R	Round Head Screw		TAPPING SCREW	BTA	Binding Head Tapping Screw(A Type)	
	P	Pan Head Screw			BTB	Binding Head Tapping Screw(B Type)	
	T	Stove Head Screw (Truss)			RTA	Round Head Tapping Screw(A Type)	
	B	Binding Head Screw			RTB	Round Head Tapping Screw(B Type)	
	F	Flat Countersunk Head Screw		SETSCREW	SF	Hex Socket Setscrew(Flat Point)	
	O	Oval Countersunk Head Screw			SC	Hex Socket Setscrew(Cup Point)	
WOOD SCREW	RW	Round Head Wood Screw			SS	Slotted Socket Setscrew(Flat Point)	
	FW	Flat Countersunk Wood Screw		WASHER	E	E-Ring (Retaining Washer)	
	OW	Oval Countersunk Wood Screw			W	Flat Washer (Plain)	
SEMS SCREW	BSA	Binding Head SEMS Screw(A Type)			SW	Lock Washer (Spring)	
	BSB	Binding Head SEMS Screw(B Type)			LWI	Lock Washer (Internal Teeth)	
	BSF	Binding Head SEMS Screw(F Type)			LWE	Lock Washer (External Teeth)	
	PSA	Pan Head SEMS Screw(A Type)			TW	Trim Washer (Countersunk)	
	PSB	Pan Head SEMS Screw(B Type)		NUT	N	Hex Nut	

A-420

Stereo Cassette Deck with Dolby System

TEAC®

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SERVICE INFORMATION FROM TEAC

date: NOVEMBER, 1976
Supplement 1
#69

subj: A-420 PLAY IDLER MODIFICATION

A "knocking" noise, eventually leading to Wow & Flutter, in this model is caused sometimes by the lack of tension of the spring in the play idler resulting in inadequate pressure on the reel table specially as the rubber idler wheel wears out.

Solution is to change the idler spring from the old Part No. 552024000 which had a tension of only 30 gms. to the Model A-450 spring, Part No. 5520011000 which has a tension of 100 gms. See sketch below for location of parts.

