SERVICE MANUAL

A-3340S

4 CHANNEL STEREO TAPE DECK



TEAC®

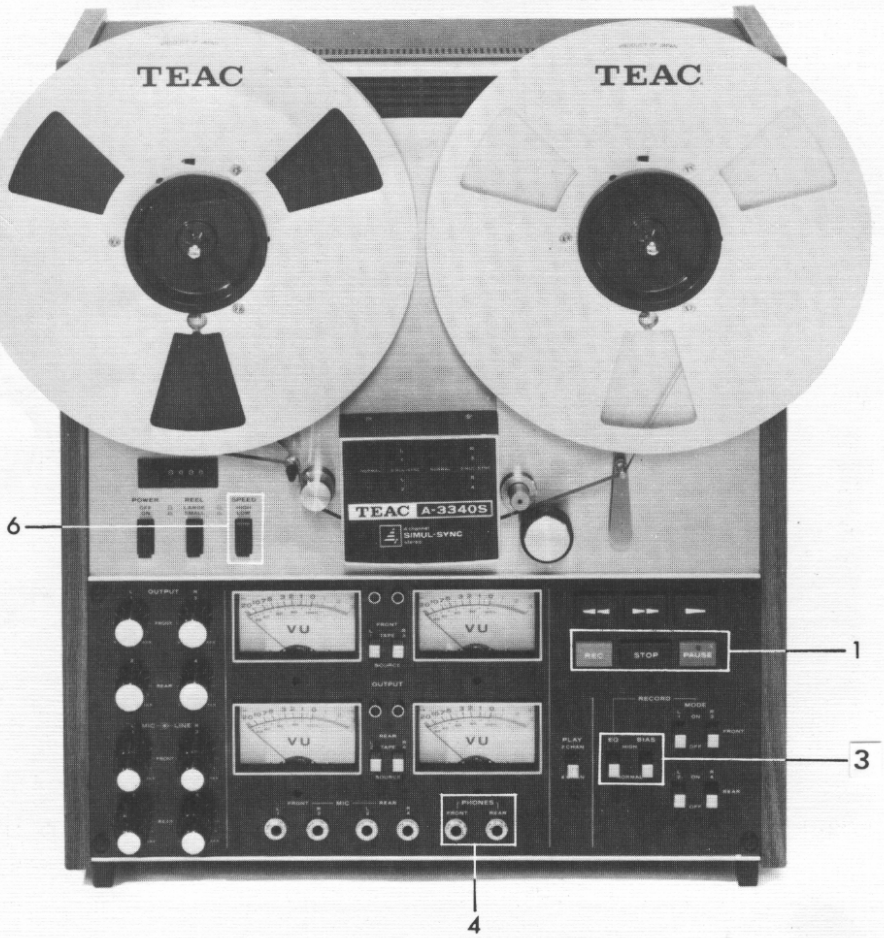
TOKYO, JAPAN

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MANUAL CORD NO. MT334E1(

FEATURE COMPARISON CHART, A-3340::A-3340S

1.	Transport controls	Lever switch and buttons	All pushbuttons incl. PAUSE
2.	Remote/Timer adapt.	Not avail.	RC-120 Remote RC-320 Timer adapt.
3.	Tape Selector	Single	Separate BIAS and EQ
4.	PHONES jacks	Single with F/R/MIX sw.	2 separate, F and R
5.	Output level	0.3V (-8 dB)	0.775V (0 dB)
6.	TAPE SPEED Sw	Rotating	Pushbutton
7.	POWER Sw location	Ampl. sect.	Trans. section



Other minor design changes were also incorporated; for specific differences in parts and circuitry please consult the Parts List and Schematic Diagrams.

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1. GENERAL DESCRIPTION

The TEAC A-3340S is a semi-professional tape deck capable of 4 channel, stereophonic and monophonic recording and playback, with Simul-Sync funct. It offers operating speeds of 15 ips and 7-1/2 ips. The basic design of the A-3340 is highly similar to that of the A-3340S, therefore information in this service manual may be applied to the A-3340.

If adjustments or repair procedures are not sufficiently clear or seem too difficult to accomplish, or for more detailed technical information, please contact your nearest TEAC Distributor, TEAC affiliated subsidiary corporation or the TEAC Corporation. TEAC addresses are printed on the last page of this manual.

When placing an order for parts, please refer to the PARTS LIST and PRICE LIST FOR PARTS which are printed separately from this manual.

1. File the PARTS LIST manual together with this SERVICE MANUAL; future MANUAL CHANGE SHEETS should also be kept with these.
2. Use the PARTS LIST manual and the PRICE LIST FOR PARTS when ordering replacement parts from TEAC Corp.

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2-1. SPECIFICATIONS

MECHANICAL

TYPE:	a) 4 track 4 channel stereophonic b) 4 track 2 channel stereophonic c) 4 track 1 channel monophonic
HEAD:	Erase head × 1, Record head × 1, Playback × 1
REEL SIZE:	10-1/2" maximum NAB reel
TAPE WIDTH:	Standard 1/4 inch tape
TAPE SPEED:	15ips and 7-1/2ips (0.5%)
MOTORS:	6 pole eddy current motors for reel drive × 2 4/8 pole hysteresis synchronous capstan motor × 1
WOW AND FLUTTER:	0.15% at 15ips (RMS) 0.18% at 7-1/2ips (RMS) Wow and flutter measured according to unweighted (RMS) NAB standard using TEAC YTT-2003/2004 flutter free tape. Above value is measured during playback.
FAST WINDING TIME:	Approx. 140 seconds or less with 1800 ft tape
OPERATING POSITION:	Horizontal or vertical
POWER REQUIREMENT:	DM : 100V 50 Hz, 60 Hz TCA: 117V/60 Hz for TEAC CORPORATION OF AMERICA
WEIGHT:	49.5 lbs (22.5kg) net
DIMENSIONS:	

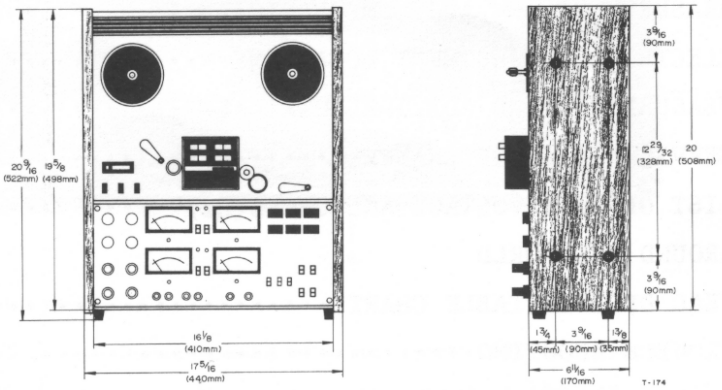


Fig. 2-1 Dimensions A-3340S

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2-2. SPECIFICATIONS

ELECTRICAL

FREQUENCY RESPONSE:	Overall from recording INPUT to playback OUTPUT 15ips ••• 30 Hz∿22 kHz ±3 dB 7-1/2ips ••• 40 Hz∿18 kHz ±3 dB
RESP. at SIMUL-SYNC:	30 Hz∿7.5 kHz ±10 dB with both speed
SIGNAL-TO-NOISE RATIO:	50 dB or higher at Mic input (600Ω load) 55 dB or higher at Line input (Measured during playback unweighted)
INPUT IMPEDANCE:	MIC: 10kΩ (600Ω∿10kΩ) LINE: 50kΩ
OUTPUT LOAD IMPEDANCE:	LINE: approx. 0.3V/10kΩ HEADPHONE: 0.3mW/8Ω
INPUT LEVEL:	MIC: -70 dB $^{+2}_{-0}$ dB (0.25mV) LINE: - 8 dB min. -18 dB $^{+2}_{-0}$ dB (97mV)
OUTPUT LEVEL:	OUTPUT: 0 dB (0.775V) max. +6 dB (1.55V) HEADPHONE: -12 dB/8Ω
BIAS FREQUENCY:	100 kHz (±5 kHz; Push-pull oscillator)
CROSS TALK REJECTION:	27 dB or more, adjacent track at 125 Hz
CHANNEL SEPARATION:	50 dB or more, channel to channel at 1 kHz
ERASE EFFICIENCY:	68 dB or more at 1 kHz signal

GENERAL NOTICE

* As a result of continuing changes and improvements during the production run, minor difference may be found between early and later machines.
  Refer to manual change sheet for information concerning modifications.
* Value of "dB" in the test refer to 0 dB = 0.775V, except where specified. If a Test Set or an AC VTVM calibrated to 0 dB = 1V is to be used, appropriate compensation should be made.

Refer to the TEAC DECIBEL TABLE on page 33 to obtain conversion of millivolts to dB should your meter not have a dB scale.

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3. TOOLS FOR TESTING AND MAINTENANCE

A minimum of the following tools and test instruments are required for measuring and adjusting to obtain optimum performance. Regular maintenance tools will be adequate for those not listed here. If any test instrument listed here is not available, a close equivalent can be used.

SPRING SCALE	0 4∿kg (0∿8 lbs), 0∿300 g (0∿10 ozs)
FLUTTER METER	Meguro Denpa Co., Model MK665B (preferred) or Sentinal Co., Model FL-3D-1
DIGITAL COUNTER	Range - 0∿Hz∿5 kHz
BANDPASS FILTER	TEAC Model M-206A (1 kHz)
VTVM	Hewlett-Packard Co., Model 4302B
OSCILLOSCOPE	General purpose
BLANK TAPE	Scotch 203 and 150, full 7" reels
TEST TAPE	TEAC YTT-1002 (3-3/4ips), YTT-1003 (7-1/2ips), YTT-1004 (15ips) for Playback Alignment test YTT-2002 (3-3/4ips), YTT-2003 (7-1/2ips), YTT-2004 (15ips) for Tape Speed and Flutter test
EMPTY REEL	TEAC RE-702(2" hub) and RE-701(4" hub)
TEST SET*	TEAC M-826A

* Use of the TEAC-M826A Test Set is recommended. This set incorporates an AC VTVM, Audio Oscillator, Channel Selecting switch, Variable Attenuator, Monitor Speaker and Cables.

TEAC M-826A measures the RMS value of the Voltage (0 dB = 0.775V). Characteristics of this Test Set are similar to the standard VU-meter.

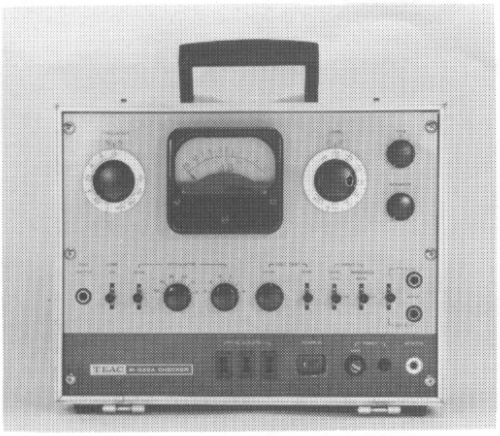


Fig. 3-1 TEAC Test Set

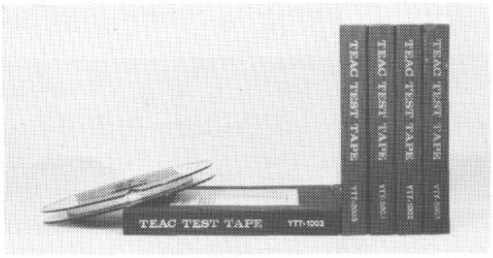


Fig. 3-2 TEAC Test Tape

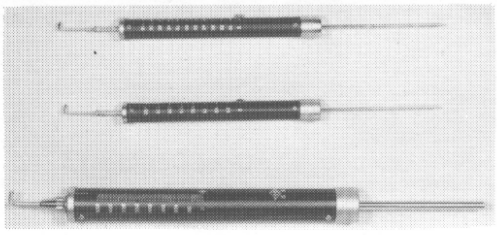


Fig. 3-3 Spring Scale

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4. TEAC TEST TAPE -YTT SERIES-

TEAC-YTT Series Test Tapes are designed for aligning and checking the playback system performance of any tape recorder. They have been manufactured to be within close tolerance to the NAB Standard, and the recorded signal format has been arranged for maximum convenience during test procedures.

YTT-1002/1003/1004 (FOR PLAYBACK ALIGNMENT)

TYPE			YTT-1002	YTT-1003	YTT-1004	REMARKS
TITLE			PLAYBACK ALIGNMENT			
TAPE		WIDTH	1/4 INCH			
		BASE	1 MIL	1 MIL	1-1/2 MIL	
TAPE SPEED(ips)			3-3/4	7-1/2	15	Accuracy: 0.2% Wow and Flutter: 0.1%(WRMS)
RECORD TRACK			FULL TRACK			
RECORDING CHARACTER-ISTICS		STANDARD	NAB			
		TIME CONSTANT (μs)	3180+90	3180+50	3180+50	
	TOLER-ANCE	WITHIN 0.5dB	50-5kHz	40-10kHz	30-15kHz	Azimuth Angle Tolerance: 90°±1.5′
		WITHIN 1 dB	7.5k-10kHz	12k-15kHz	20kHz	

	SECTION	FREQUENCY (Hz) YTT-1002	FREQUENCY (Hz) YTT-1003	FREQUENCY (Hz) YTT-1004	LEVEL	TIME	USE
RECORDED SIGNAL	1	400	400	400	* 0dB	30s	Operating Reference Level Calibration
	2	7,500	15,000	15,000	-10dB	60s	Azimuth Alignment
	3	400	400	400		30s	Frequency Response Check
		10,000	15,000	20,000		15s each	
		7,500	12,000	15,000			
		5,000	10,000	12,000			
		2,500	7,500	10,000			
		1,000	5,000	7,500			
		750	2,500	5,000			
		500	1,000	2,500			
		250	750	1,000			
		100	500	750			
		50	250	500			
			100	250			
			50	100			
			40	50			
				40			
				30			

* 0dB recording level is 6dB below the 3% T.H.D. level

YTT-2002/2003/2004 (FOR TAPE SPEED AND WOW-FLUTTER TESTING)

TYPE		YTT-2002	YTT-2003	YTT-2004	REMARKS
TITLE		TAPE SPEED AND FLUTTER TSET			
TAPE	WIDTH	1/4 INCH			
	BASE	1 MIL	1 MIL	1-1/2 MIL	
TAPE SPEED(ips)		3-3/4	7-1/2	15	
WOW AND FLUTTER		0.07%	0.05%	0.03%	Weighted RMS
RECORDED WIDTH		FULL TRACK			
RECORDED SIGNAL	FREQUENCY	3,000Hz			
	LEVEL	-5dB			0dB: Operating Reference Level
	TIME	7 MINUTES			

Since these tapes will be your own reference standard, care should be exercised, in handling and storage, not to expose them to any magnetic flux which might deteriorate or completely destroy the recorded signals. High temperature and humidity are also harmful to the tape.

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5. TAPE TRANSPORT PARTS LOCATION

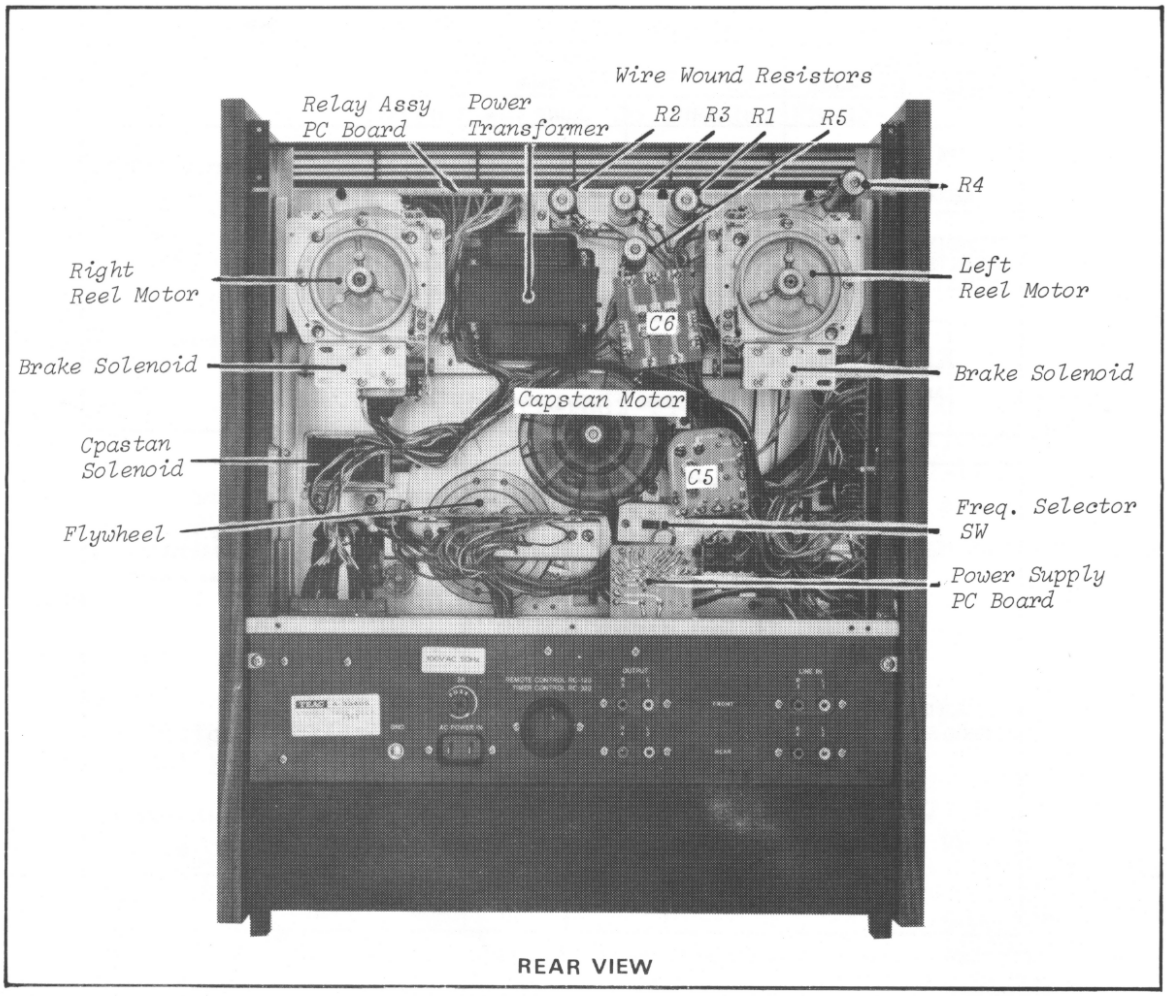


Fig. 5-1 Tape Transport Location

* For ordering parts, refer to the exploded view of the PARTS LIST. An accompanying listing provides the correct part numbers.

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6. PARTIAL DISASSEMBLY

REMOVING WOODEN SIDES AND REAR PANEL

See illustration for complete disassembly instructions.

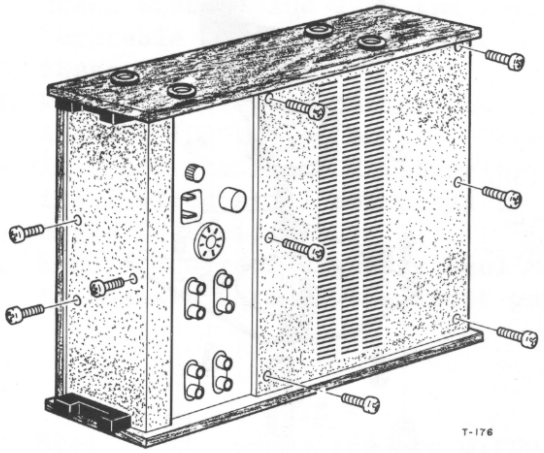


Fig. 6-1 Rear Panel and Bottom Plate

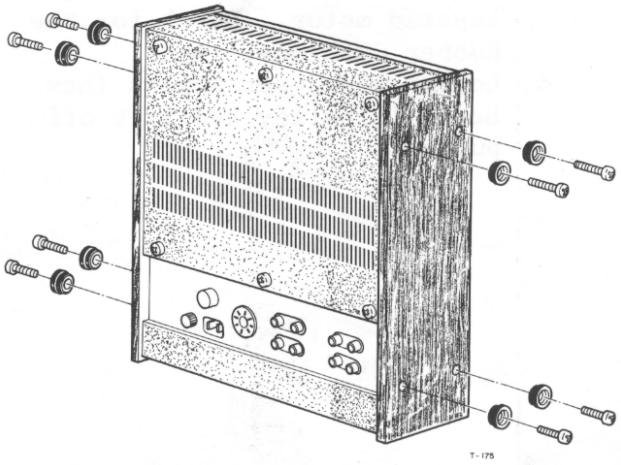


Fig. 6-2 Wood Side

Most amplifier checks and adjustments can be made from the bottom with the plate removed.
These adjustments should be performed by experienced technicians, and then only when going through the complete test and check procedures on the unit which is being tested.

HEAD ASSEMBLY REPLACEMENT

To change the head assembly as a unit, remove the 4 mounting screw.
Note the positions of the wires on the circuit board before unsoldering.
Solder the wires of the new assembly in exactly the same positions.
Refer to the Fig. 8-3 Head Wiring Section.

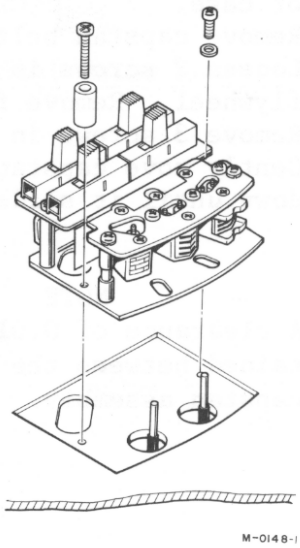


Fig. 6-3 Head Assy Removal

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REMOVAL OF CAPSTAN MOTOR

1. Remove the 3 screw holding the capstan motor.
2. Unsolder the 6 wires connecting the capstan motor.
3. Remove the 4 screws holding the capstan motor. Watch for the Rubber Cushions.
4. Loosen the 2 set screws (hex head) in pulley and lift off pulley.

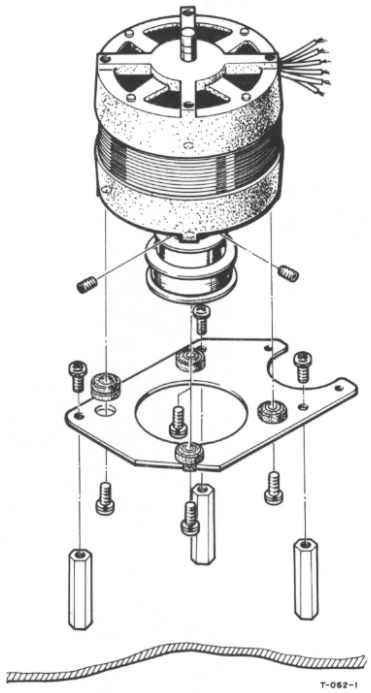


Fig. 6-4 Capstan Motor Removal

REMOVAL OF CAPSTAN ASSEMBLY

1. Unscrew capstan cover (front panel).
2. Remove 2 screws from rear bracket, allow bracket to drop toward floor of case.
3. Remove capstan belt.
4. Loosen 2 screws in capstan assy flywheel. Remove flywheel.
5. Remove 3 screws in capstan assy.
6. Gently move capstan assy up and down until it slides out of panel.

NOTE

A clearance of 0.01" must be maintained between the flywheel and capstan assembly.

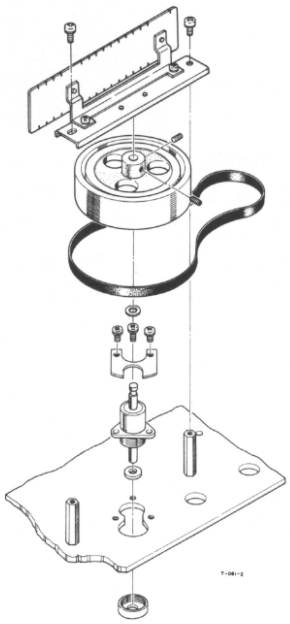


Fig. 6-5 Capstan Assy Removal

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REMOVAL OF REEL MOTOR ASSEMBLY

1. Disconnect the 4 motor wires from terminals and release wire harness straps.
2. Loosen 2 set screws (hex head) in Brake drum(A) and 2 in the Reel Turntable assembly(F). Lift off these parts.
3. Remove 4 screws securing the Brake Assembly(D) to the motor. Carefully lift off the Brake Retainer(B) with its 2 wires still connected to the Brake Solenoid(C).
4. Remove 4 screws securing Reel Motor(E) to chassis through the front panel.

NOTE

Reel motor assemblies are mirror images of each other, these assemblies are not interchangeable.

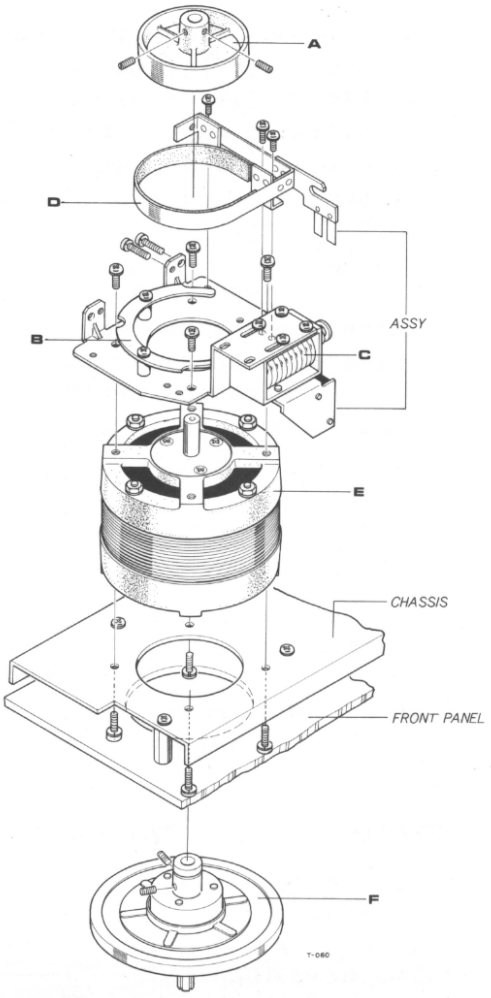
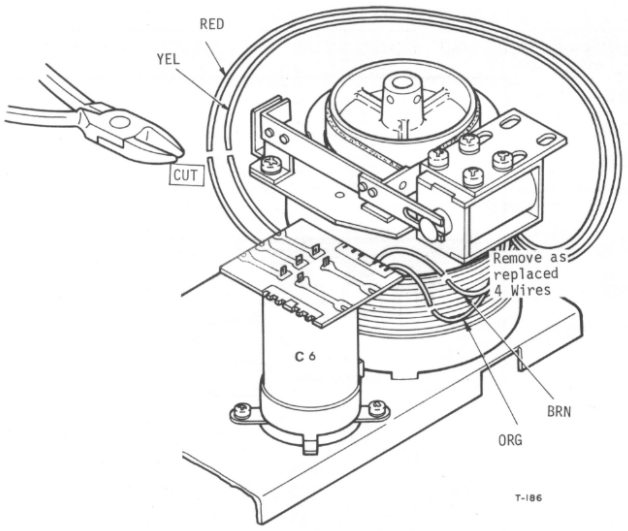


Fig. 6-6 Reel Motor Assy Disassembly



Remove as shown to retain a color key

Reel Motor(LEFT)
Replacement Step 1.

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REMOVAL OF TENSION ARMS LEFT AND RIGHT

See illustration for complete disassembly instructions.

CAUTION

Do not over-tighten screws holding right tension arm. Insulating spacer and micro-switch are easily broken by excess pressure.

IMPORTANT

After reassembly check clearance to ascertain that arm moves freely and is not binding.

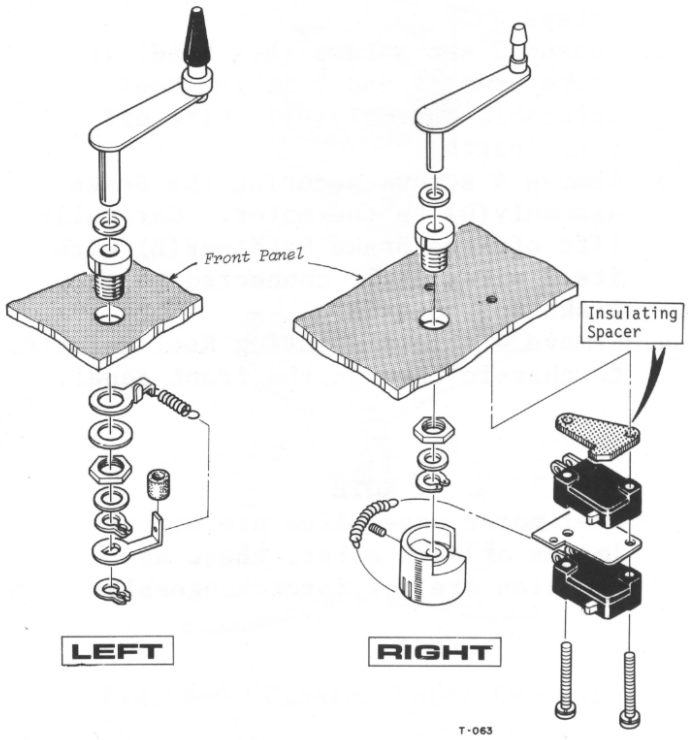


Fig. 6-7 Tension Arms Removal

HEAD REPLACEMENT

To replace a single head, a nut driver is required. Remove the 2 nuts on the defective head through the access hole provided, this releases the head from the mounting plate. Rewire the new heads as shown in Fig. 6-8
Replace the nuts securing the new head to the plate, perform head alignment before operation.

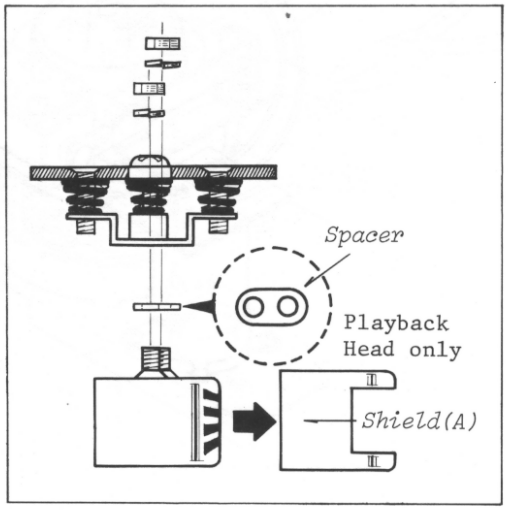


Fig. 6-8 Head Replacement

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7. LINE VOLTAGE AND FREQUENCY CONVERSION

Unit must be set to the power line frequency available. Improper frequency setting will result in a 20% error between the tape speed and reel motors torque.

US model is preset to 117V AC and 60 Hz. No frequency conversion is required.

NOTE: If it should be necessary to convert the A-3340S deck to operate from a power source of different voltage or frequency, it may be easily accomplished as follows:

VOLTAGE CONVERSION:

The A-3340S may be set for 100 or 117 volts only. See illustration Fig. 7-1 (Voltage Conversion) and change wiring as shown.

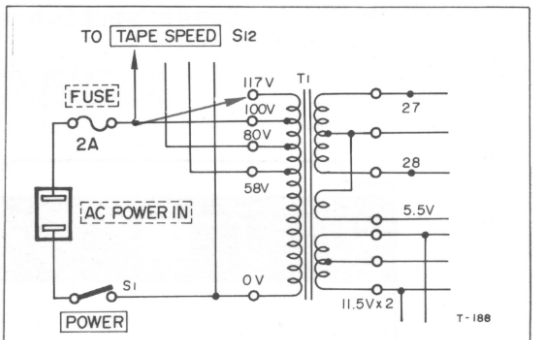
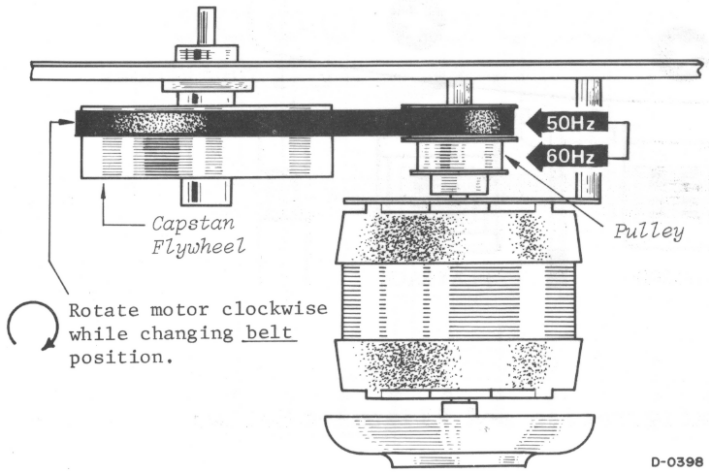


Fig. 7-1 Voltage Conversion

FREQUENCY CONVERSION:

1. Remove the power cord and all connecting cables.
2. Take off tape deck rear cover by removing the 6 screws holding it.
3. To convert the unit from 50 to 60 Hz operation reposition the capstan belt as shown in the illustration below.
4. Frequency selector slide switch inside the rear of the tape deck must be switched to the frequency of the power line.
5. Reinstall rear cover.



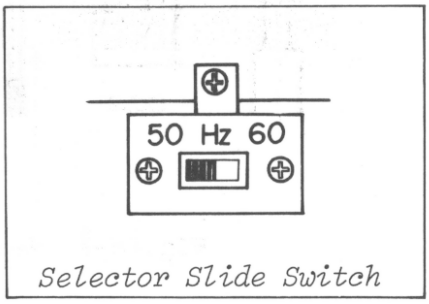


Fig. 7-2 Frequency Conversion

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8. HEAD ALIGNMENT

HEAD ASSEMBLY (head cluster) is adjusted to very close tolerance at the factory and normally requires only minor alignments or adjustments after replacement on the deck. Complete readjustment of the HEAD ASSEMBLY will be necessary when an individual head is replaced.

HEIGHT ADJUSTMENT

RECORD HEAD: The record head pole should be above the edge of a threaded tape by the width of a thin pencil line.

PLAYBACK HEAD: The playback head pole should be even with the top of a threaded tape.

ERASE HEAD: Erase section should be a heavy pencil line above.

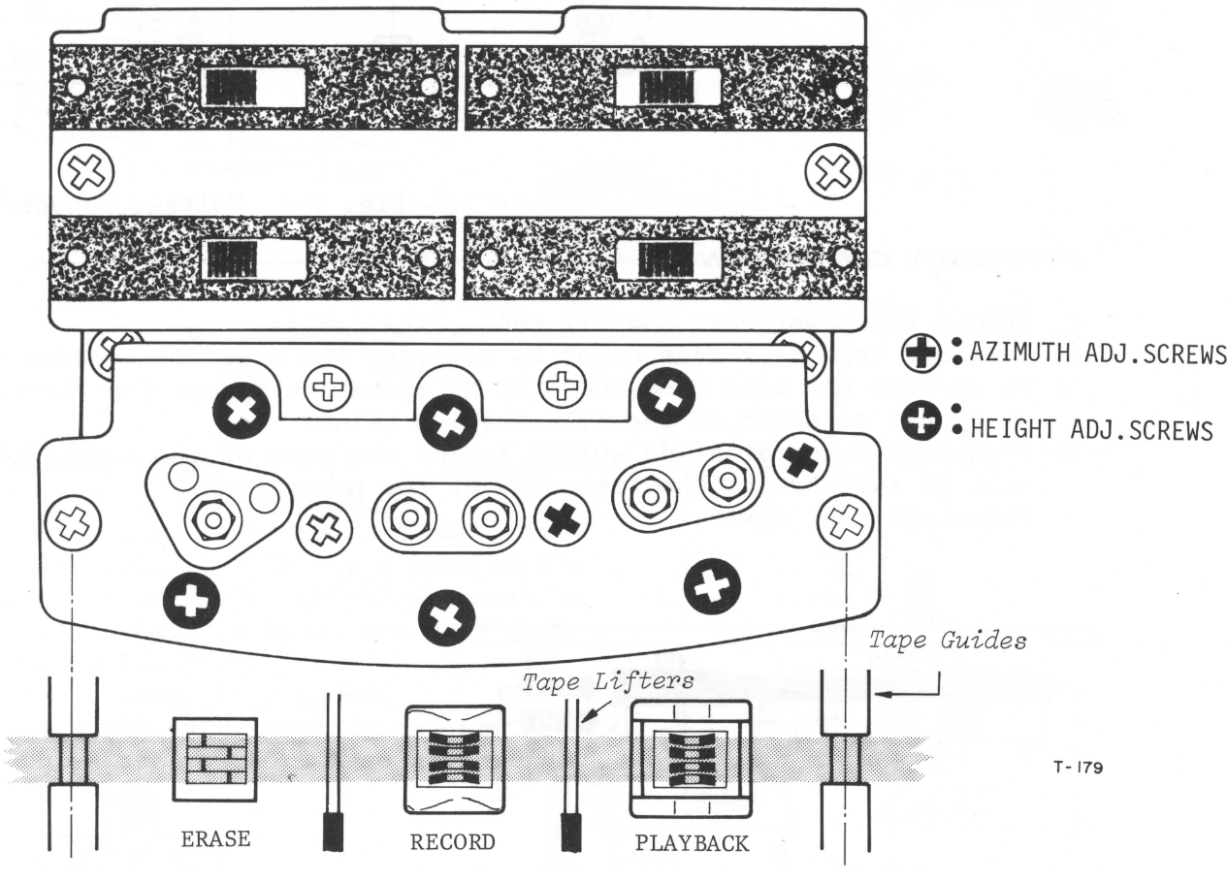


Fig. 8-1 Head Configuration and Alignment Screws

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MIS—ALIGNMENT OF THE HEADS —EXAMPLES—

* ALIGNMENT - The physical positioning of a tape head relative to the tape itself. Alignment in all respects must comform to rigid requirements in order for a unit to function properly.

* AZIMUTH - The angle of a tape head/pole-piece gap relative to the direction of tape travel.

NOTE: In order for a tape unit to work at its best, with its own tapes as well as ones made on other units, its play and record heads must be aligned to correct the 4 possible errors as illustrated below.

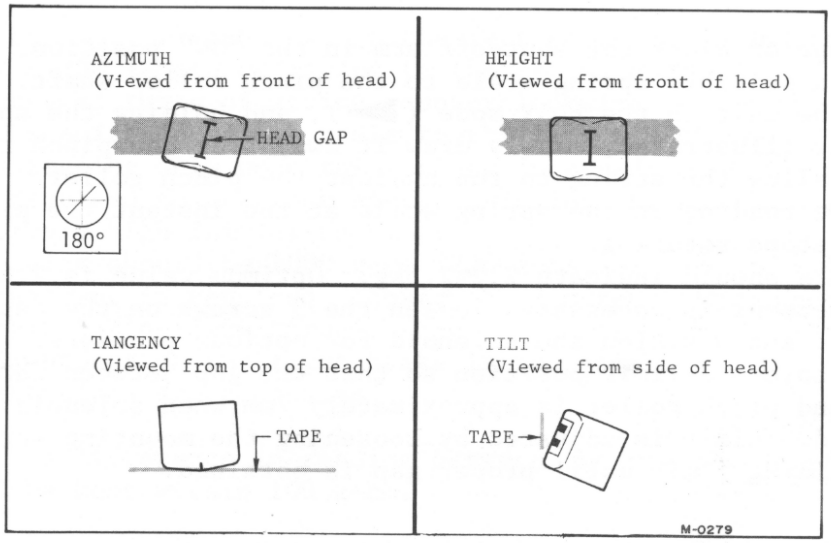


Fig. 8-2 Head Mis-Alignment -Examples-

HEAD WIRING

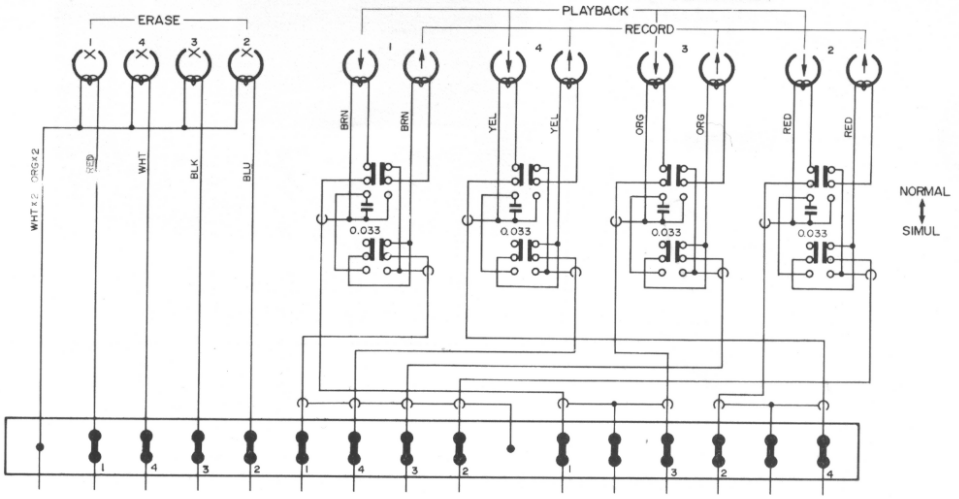


Fig. 8-3 Head Wiring

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9. MEASUREMENT AND ADJUSTMENT
-MECHANICAL-

The TEAC A-3340S uses a highly reliable 3 motor drive system and should require a minimum of mechanical maintenence or adjustment. These adjustments are made at the factory. Readjustment should only be required after long periods of operation or component replacement.

PINCH ROLLER PRESSURE

NOTE: Pinch roller pressure is supplied by the pinch roller spring arm and it is most important that the solenoid plunger be full bottomed before taking pressure measurement.

1. Load tape or block the shut-off arm in the "ON" position.
2. Attach a suitable spring scale to the pinch roller shaft.
3. Place the unit in the PLAY mode (►), and holding the spring scale as illustrated, slowly draw it away from the pinch roller.
4. Do not allow the string to rub against the pinch roller.
5. Note the reading on the spring scale at the instant the pinch roller stops rotating.
6. The scale should indicate 2.2∿2.5kg. Optimum value is 2.4kg ±0.1kg.
7. If adjustment is necessary, loosen the 3 screws on the capstan solenoid and position the solenoid for optimum pressure.
8. Adjust solenoid-limit position so that the gap between capstan shaft and pinch roller is approximately 7mm when solenoid is not actuated. Limit is adjusted by loosening the mounting screw (A), then sliding limit until proper gap is obtained.

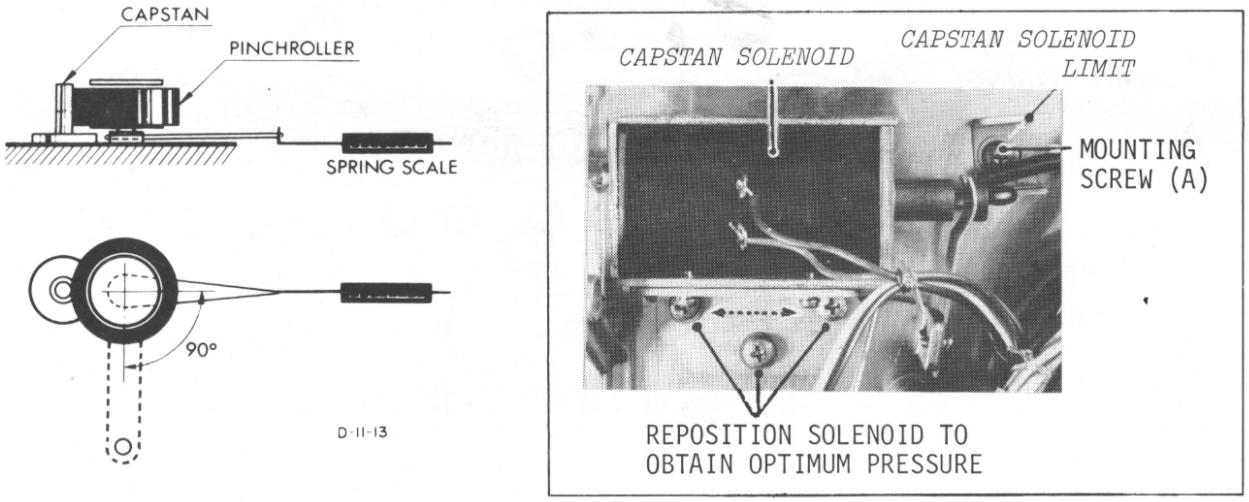


Fig. 9-1 Pressure Measurement and Adjustment Locations

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BRAKE TORQUE

The brake torque is actuated mechanically. Pressure is set by the variable spring force. While making these measurements and adjustments, be careful not to bend the brake bands. As brake torque will change with cleaning, brake drums and brake shoes should be cleaned only when absolutely necessary. If cleaning is required, use TEAC cleaner TZ-261B. After cleaning operate the machine for a month of normal operation before performing the procedures below.

Brake adjustments are made with "NO" power connected to the equipment.

1. Place an empty 2" hub reel on the left reel table, and fasten one end of a 30" length of string to the reel anchor.
2. Wind several turns of string counterclockwise around the hub and attach a suitable spring scale to the free end of the string.
3. Take a reading only when the reel is in steady motion since the force required to overcome static friction will produce a false, excessively high initial reading.
4. The reading should be 1000 g-cm ±200 g-cm.
5. If adjustment is required, loosen the 2 screws shown and position the brake for optimum torque.
6. The adjustment of the right brake is the same, with the exception that rotations are clockwise.

NOTE: The difference in reading between the right and left brakes should be kept within 100 g-cm.

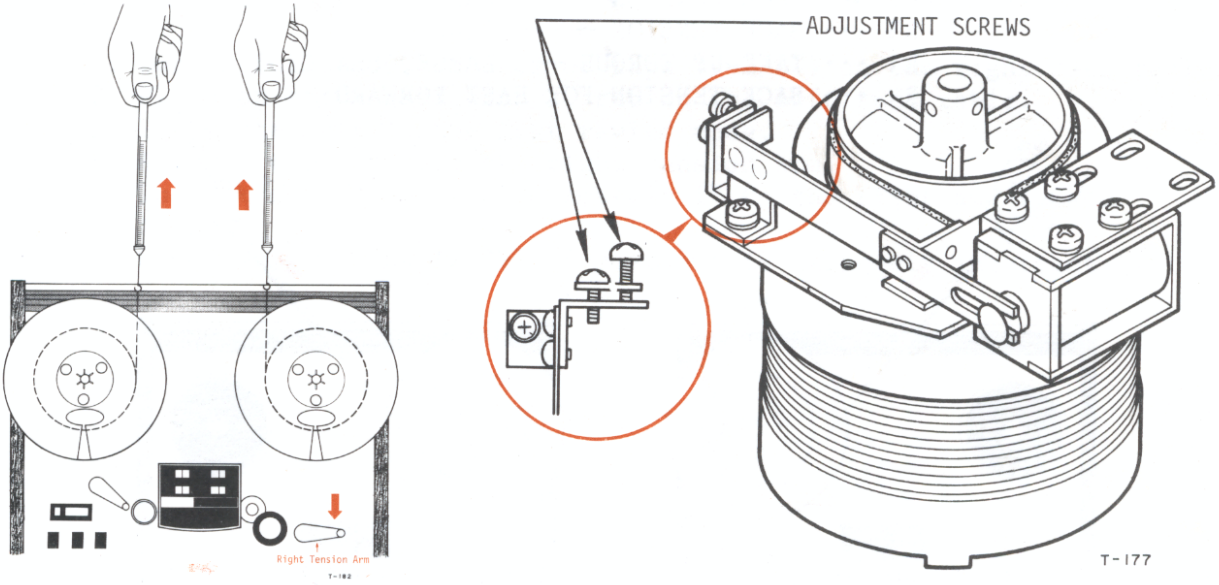


Fig. 9-2 Torque Measurement and Brake Assy Adj. Location

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REEL TORQUE ADJUSTMENT LOCATIONS

Back tension and Take-up Torque should be to exact specified Limits given on the next page (TORQUE MEASUREMENT PROCEDURE). If necessary, adjust slider of the resistors until you have the correct scale reading to get optimum torque.
Refer to ADJUSTMENT LOCATIONS below.

All Torque and Tension Measurements must be made with the automatic shut-off switch (Right Tension Arm) blocked to the "ON" position.

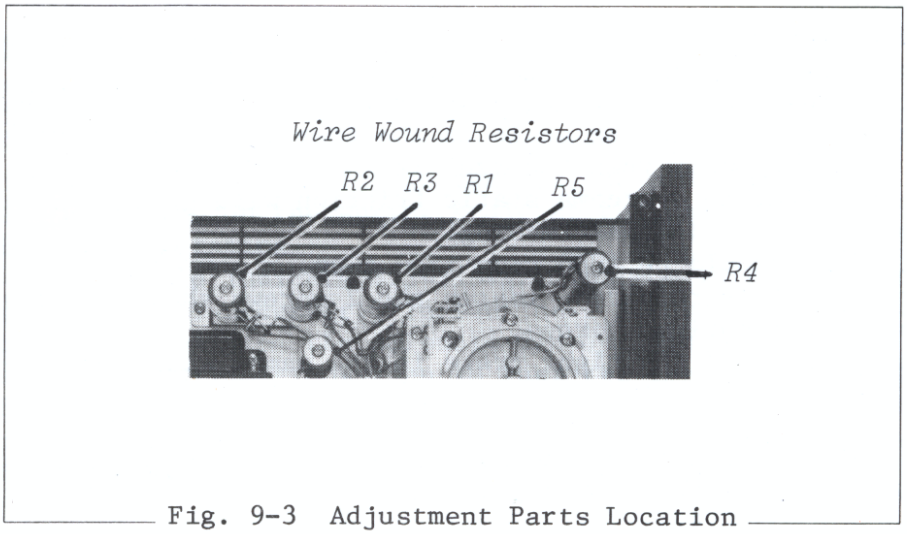


Fig. 9-3 Adjustment Parts Location

ADJUST
- R2 ••• BACK TENSION ——— LARGE
- R3 ••• BACK TENSION ——— SMALL
- R1 ••• TAKE-UP TORQUE —— LARGE, SMALL
- R4 ••• BACK TENSION FOR FAST FORWARD

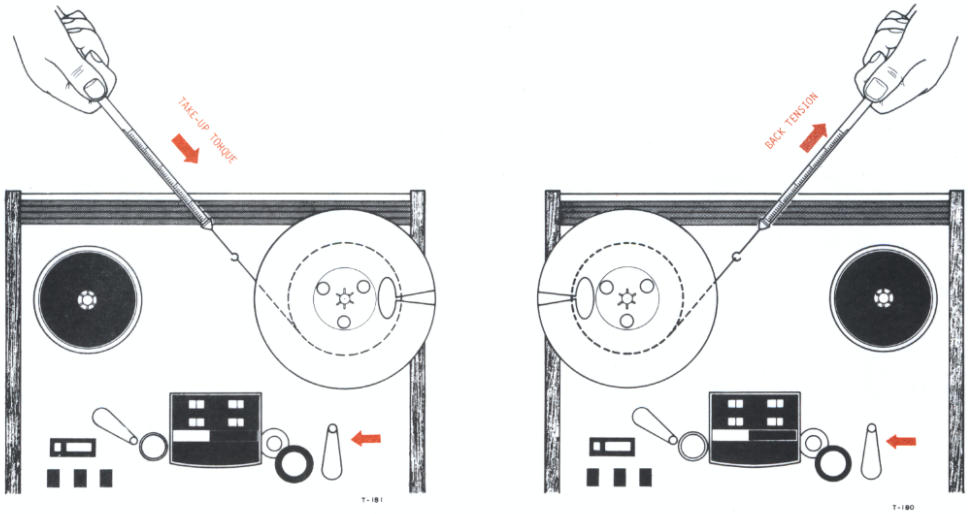


Fig. 9-4 Torque Measurement

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TORQUE MEASUREMENT PROCEDURE

BACK TENSION

1. Load tape or block the shut-off arm in the ON position.
2. Place an empty 7" reel with a 2" diameter hub on the left reel table.
3. Rotate the reel and wind several turns of string around the hub. Attach spring scale to string.
4. Place the unit in the (►) play mode.
5. Pull the scale away from the reel against the motor torque, with a steady smooth motion.
6. Note the scale reading while it is in steady motion.
7. Make sure the string does not rub against the reel flanges.
8. The reading should be approximately:

REEL SW	BACK TENSION
LARGE	300∿320 g-cm
SMALL	180∿210 g-cm

TAKE-UP TORQUE

1. Place the empty reel and attached spring scale on the right reel table.
2. Place the unit in the (►) play mode.
3. Allow the rotation of the reel to slowly draw the scale toward the hub.
4. Hold the spring scale with enough force to allow a steady reading.
5. It should be approximately:

REEL SW	TAKE-UP	TORQUE
LARGE	780∿820	g-cm
SMALL	380∿400	g-cm

REWIND BACK TENSION

1. Load a full 1,800 ft reel of tape (7-1/2") on the right reel table.
2. Place an empty reel with 2" rub on the left reel table.
3. Place the unit in the fast rewind mode.
4. At this time observe the right tension arm.
   The arm should move approximately 1" to the right and remain there.
5. Check value of R4 (1.2k) if movement is extremely incorrect.

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REEL HEIGHT ADJUSTMENT

Reel height adjustment is required only if a motor has been replaced or if tape rubs excessively against the reel flange. Adjustment is accomplished by the set screws as shown in the illustration below. Reel turntable should be adjusted using standard 7" reels. With a tape threaded on the machine, position the reel-height for smooth tape travel.

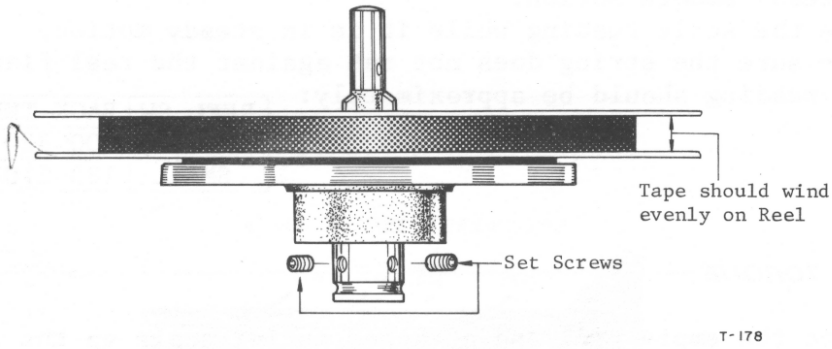


Fig. 9-5 Reel Height Adjustment

FLUTTER

Flutter should be measured in playback mode using a TEAC flutter free tape YTT-2004 (15ips), 2003 (7-1/2ips) and Meguro model MK665B flutter meter. Measurement of flutter should be made in accordance with NAB standards. Values obtained with different standards or equipment cannot be compared.

Flutter should not exceed. 15 ips : 0.15% (RMS)
7-1/2 ips: 0.18% (RMS)

These figures apply to any tape position and direction (such as full take-up reel, full supply reel or about mid point).
If there is excessive wow and flutter, examine the pinch roller, belt, motors, capstan shaft, and reel rest for "grease", "oil". "dirt" and/or "wear". Also examine the tape counter assy for eveness of operation.

TAPE SPEED

The tape speed should be measured using TEAC flutter free tape, Model YTT-2003 (7-1/2ips), YTT-2004 (15 ips). These tapes contain a highly accurate 3 kHz tone. Connect a digital frequency counter to either line OUTPUT jack. The indicated frequency should be 3000 Hz (±30 Hz or less) for both speeds.

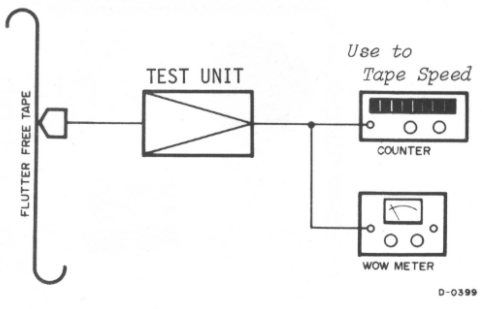


Fig. 9-6 Test Equipment Set-up

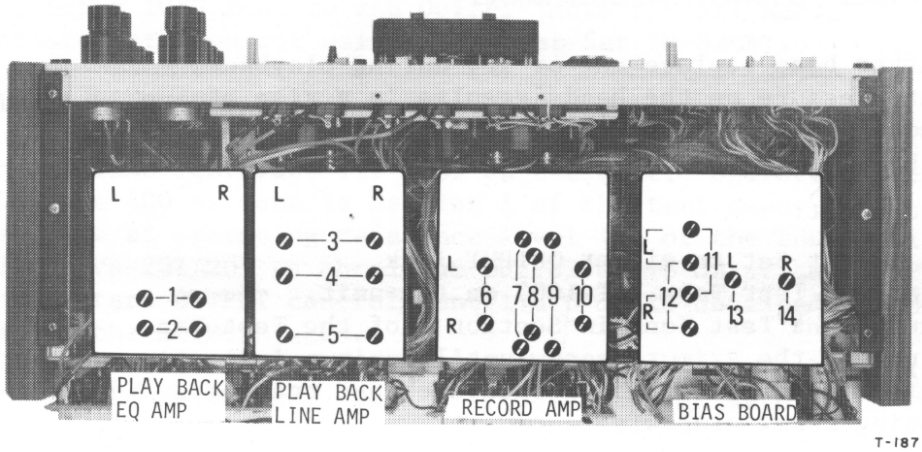
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10. ELECTRICAL ADJUSTMENT

GENERAL NOTICE

* Outlined procedures refer only to FRONT channels, the same procedures also apply to REAR channels.
* Before performing checks set all head function selector switches to NORMAL position.
* Place OUTPUT switches (L1-R3, L2-R4) in TAPE position, place Tape SPEED control at HIGH, place PLAY switch in 4 CHAN position.
* Procedures for checks and adjustments, unless otherwise indicated, are for the left channel at a tape speed of 15 ips. The same procedures are to be applied to the other channels and again for both channels at 7-1/2 ips.
  All controls mentioned in this book will be printed in bold letters and will be exactly as they appear on the unit.
* Double designated symbol numbers refer to left channel/right channel.
* Only FRONT adjustments are illustrated, REAR adjustments are identical.

ADJUSTMENT LOCATIONS



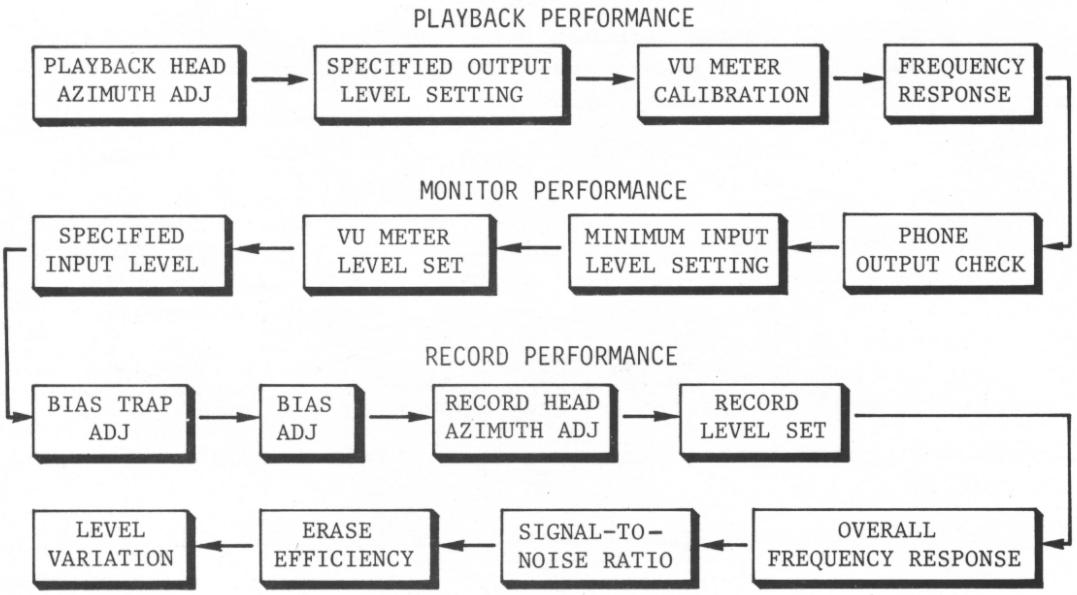
	FOR	ADJUSTMENT			FOR	ADJUSTMENT	
		LEFT	RIGHT			LEFT	RIGHT
1.	P.B EQ HIGH SPEED	VR101	VR103	8.	REC METER LEVEL	VR302	VR305
2.	P.B EQ LOW SPEED	VR102	VR104	9.	RECORD EQ	L301	L303
3.	BIAS TRAP	L201	L202	10.	BIAS TRAP	L302	L304
4.	P.B LEVEL	VR201	VR203	11.	BIAS HIGH ADJ	VC501	VC503
5.	P.B METER LEVEL	VR202	VR204	12.	BIAS NORMAL ADJ	VC502	VC504
6.	RECORD LEVEL	VR303	VR306	13.	DUMMY COIL	L401	
7.	MONITOR LEVEL	VR301	VR304	14.	DUMMY COIL		L402

Fig. 10-1 Adjustment Locations

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11. MEASUREMENT AND ADJUSTMENT
-ELECTRICAL-

ADJUSTMENT SEQUENCE



PLAYBACK HEAD AZIMUTH ADJUSTMENT

NOTE: After head replacement or if, during playback, a slight pressure on the heads results in a rise of the reading of the Test Set (M-826A), head azimuth should be readjusted.

Coarse Adjustment:

1. Connect a Test Set to either OUTPUT jack.
2. Thread a TEAC Test Tape YTT-1003 on the unit.
3. Play the 15 kHz Test Tone in Section 2 of the Test Tape.
4. Slowly rotate the azimuth screw until maximum indication is obtained on the Test Set. Then decrease reading 0.5 dB by rotating screw clockwise.

Fine Adjustment:

NOTE: It is absolutely essential to accomplish the coarse adjustment before performing the fine adjustment to avoid phase errors larger than 45°. After coarse adjustment, do not make large corrections, turn azimuth screw 1/4 turn or less.

5. Connect the test eqipment as shown in Fig. 11-1.
6. Play a 50 Hz∿10 kHz signal and adjust the azimuth screw until the oscilloscope shows that the signals are less than 45° out of phase.
7. Secure the screw with a drop of LOCTITE.

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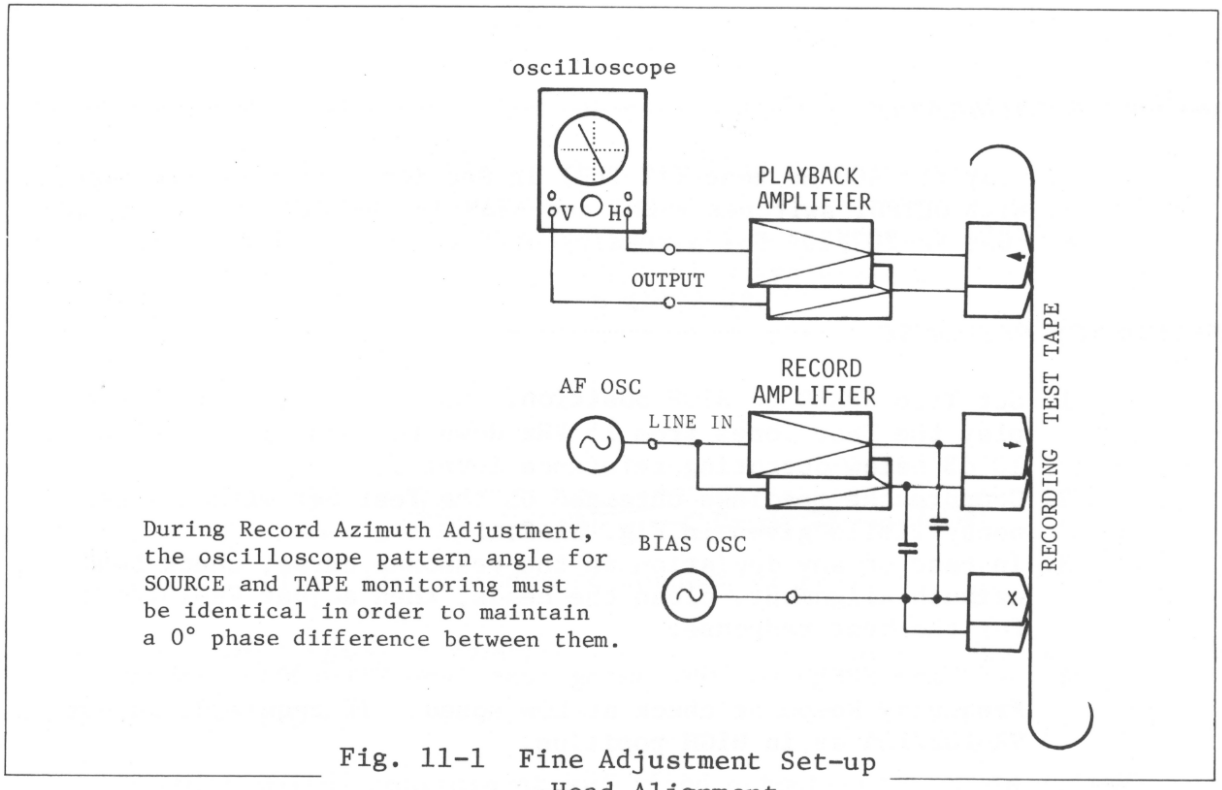


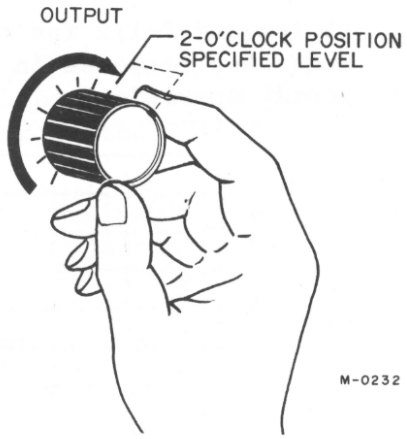
Fig. 11-1 Fine Adjustment Set-up
-Head Alignment-

SPECIFIED OUTPUT LEVEL SETTING

Connect a 10kΩ load to the OUTPUT jacks for all audio measurement when not using TEAC Test Set (M-826A).

1. Place the OUTPUT switch to the TAPE position.
2. Turn the OUTPUT controls fully clockwise.
3. Thread TEAC Test Tape YTT-1003 on the unit. Operate at 7-1/2 ips.
4. Play the 400 Hz tone is Section 1 of the test tape. This tone is recorded at operating reference level (1% of the THD level).
5. Adjust VR-201/203 to obtain an OUTPUT of +6 dB at the OUTPUT jacks.
6. Then retard OUTPUT controls until a 0 dB is obtained on the Test Set at the OUTPUT jacks.
7. Align the reference marks of the 4 OUTPUT controls so that they are positioned alike. This will be at approximately the two o'clock position.

IMPORTANT
This is the specified output level setting. Do not disturb this setting until the remaining adjustments have been completed.



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VU METER CALIBRATION

1. Play the 400 Hz tone (1% THD) in Section 1 of the Test Tape.
2. With OUTPUT switches FRONT and REAR in the TAPE position, adjust VR-202/204 for a reading of 0 VU on the VU meters.

FREQUENCY RESPONSE

1. Set Tape SPEED to HIGH position. Using Test Tape YTT-1004, play the Test Tones from 15 kHz down to 40 Hz (recorded at 10 dB below operating reference level).
2. Compare the readings obtained on the Test Set with the response limits given in Fig. 11-2.
3. In case of any deviation in the response curve, check head azimuth alignment, clean the heads, then adjust VR-101/103 for the best response.
4. Set Tape SPEED to LOW, using Test Tape YTT-1003. Repeat Frequency Response check at LOW speed. If required, adjust VR-102/104 as in HIGH position.

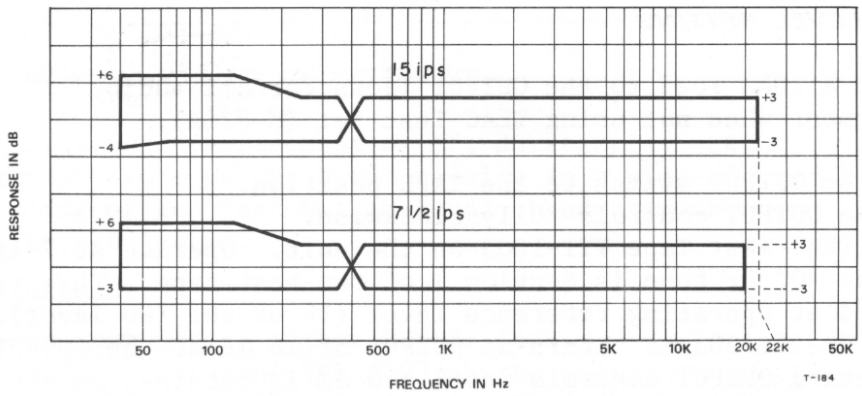
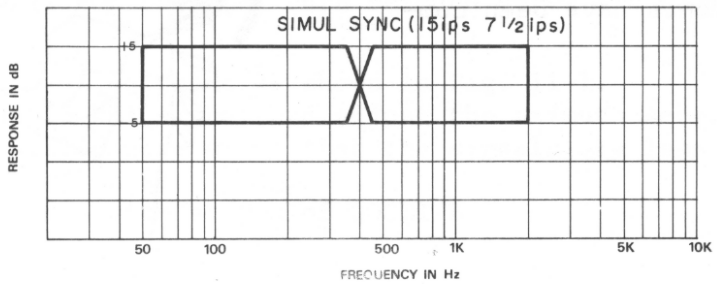


Fig. 11-2 Frequency Response Limits -Playback-

SIMUL SYNC FREQUENCY RESPONSE

15 ips and 7-1/2 ips response should be identical.
Frequency response in SIMUL-SYNC function is measured as in normal operation.



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PHONES OUTPUT CHECK

1. Place OUTPUT controls at the Specified Level Setting (400 Hz signal at 0 dB).
2. Connect an 8Ω non-inductive resistor across the headphone output. Connect Test Set across the resistor.
3. Test Set should indicate -16 dB ±2 dB.

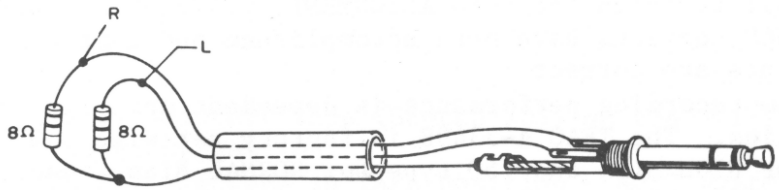


Fig. 11-3 Headphone Connecting Resistor

MINIMUM INPUT LEVEL SETTING

LINE Input:

With OUTPUT controls at specified output level (0 dB 0.775V)

1. Connect an AF oscillator to the LINE IN jacks.
2. Apply a 400 Hz signal at -18 dB.
3. Place the OUTPUT switches FRONT and REAR in the SOURCE position and turn the LINE controls fully clockwise.
4. Adjust VR-301/304 to obtain a specified output level of 0 dB at OUTPUT jacks.

MIC Input:

5. After adjusting VR301/304, apply a 400 Hz signal at -70 dB to the MIC IN jacks.
6. Rotate the MIC controls fully clockwise.
7. The output should be 0 dB (specified output level).

NOTE: Return MIC controls fully clockwise(CCW) to prevent noise insertion during the following steps.

SPECIFIED INPUT LEVEL SET

8. Apply a 400 Hz signal at -18 dB to the LINE IN jacks.
9. Adjust the LINE controls for 0 dB at the OUTPUT jacks.

NOTE

Do not disturb the specified input level position of these controls until the remaining checks and adjustments are completed. The difference between the channels must not exceed ±2 dB as indicated on the Test Set. If they are not within limits, check the amplifier gain and the LINE control settings.

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VU METER CALIBRATION —RECORD—

10. With the same 400 Hz signal at -18 dB applied and the OUTPUT switches FRONT and REAR in SOURCE adjust VR-302/305 for 0 VU on the VU meters.

Before making any adjustments on the record amplifier, be sure that all tests in the HEAD ALIGNMENT, PLAYBACK and MONITOR PERFORMANCE sections have been accomplished and that all level adjustments are correct.
Optimum recording performance is dependent upon tape characteristics. The TEAC A-3340S is factory set with SCOTCH type 203 for HIGH Bias and 150 type for NORMAL Bias tapes.

BIAS TRAP ADJUSTMENT

The bias trap tank circuit keeps the bias signal from reaching the record and monitor amplifier and under normal "no signal" conditions, voltage should not be present at the OUTPUT jacks.

1. Place BIAS/EQ switch in the HIGH position, OUTPUT switch in TAPE position and all RECORD MODE switches ON. Place tape mode lever at PAUSE position. Depress RECORD and (▶) buttons.
2. Connect a VTVM to the junction of L-302/C-312 (Left channel), L-304/C-330 (Right channel).
3. Adjust L-302, L-304 for minimum reading.

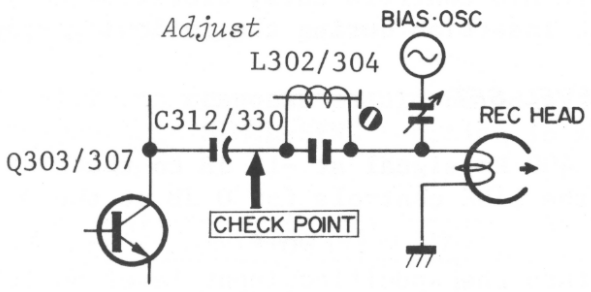


Fig. 11-4 Bias Trap Check Point

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BIAS ADJUSTMENT

Adjust BIAS trap (L-302/304) before adjusting BIAS levels.
These adjustments are only made at 7-1/2 ips tape speed.
The bias oscillator frequency is 100 ±5 kHz.

HIGH Position

1. Thread a record test tape (Scotch 203) on the unit. Place BIAS/EQ switch in HIGH position.
2. Place OUTPUT siwtches in TAPE position, PAUSE switch at PLAY.
3. Apply a 400 Hz signal at -8 dB at the LINE IN jacks.
4. Adjust VC-501/503 for a peak on the Test Set.
5. Turn the capacitors clockwise until a decrease of 0.5 dB is obtained.

NORMAL Position

1. Thread a record test tape (Scotch 150) on the unit. Place BIAS/EQ switch to NORMAL position.
2. Adjust VC-502/504 as in HIGH position.

RECORD HEAD AZIMUTH ADJUSTMENT

Coarse Adjustment:

NOTE: The effect of turning the azimuth screw will not immediately register on the Test Set. A slight delay will be noticed. Therefore, the screw must be rotated slightly with a pause to see the effect.

1. Connect a Test Set to the OUTPUT jack and an AF oscillator to the LINE IN jack, then set the AF oscillator to 10 kHz.
2. Make certain that the LINE controls are at the Specified Input Level positions.
3. Place the MONITOR switch to SOURCE and adjust the AF oscillator to obtain a signal of 20 dB below the Specified Output Level.
4. Thread a record Test Tape on the unit.
5. Place the MONITOR switch in the TAPE position.
6. While recording adjust the azimuth screw for maximum indication on the Test Set.

Proceed to the next page "Fine Adjustment"

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Fine Adjustment:

NOTE: It is absolutely essential to accomplish the coarse adjustment before performing the fine adjustment to avoid phase error larger than 45°.

7. Connect the test equipment as shown in Fig. 11-1.
8. Apply a 7.5 kHz signal at -28 dB to the LINE IN jacks and record this signal.
9. Carefully adjust the azimuth screw until the oscilloscope shows the signal to be in phase.
10. Secure the screw with a drop of LOCTITE.

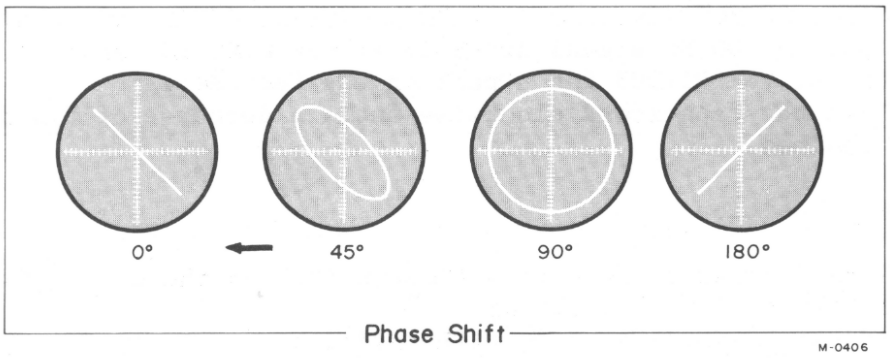


Fig. 11-5 Phase shift

Refer to Fig. 11-1 Fine Adjustment Set-up (playback)

RECORD LEVEL SET

1. Using Scotch 203 tape, BIAS/EQ switch at HIGH position. Apply a 400 Hz signal at -8 dB at the LINE IN jacks.
2. OUTPUT controls must be at specified output level position (0 dB at OUTPUT jacks), and the LINE controls at the Specified Input Level Setting.
3. Place unit in record mode, OUTPUT switches in the TAPE position.
4. Adjust VR-303/306 for a reading of 0 VU on the VU meters. (0 dB at the OUTPUT jacks).

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IMPORTANT

To avoid saturation of the tape these checks should be made at least 20 dB below the specified input level. Any bias signal feeding into the test equipment should be filtered out by adjusting the external bias trap. A broad band VTVM may be used at the output for this adjustment.

HIGH position, BIAS and EQ switches

1. Thread the unit with a record Test Tape (Scotch 203). Set Tape SPEED selector to HIGH position.
2. Adjust the AF oscillator to obtain an output level of -23 dB at OUTPUT jacks.
3. Apply a signal swept from 50 Hz to 18 kHz to the unit while recording on the test tape. With OUTPUT switch at TAPE position monitor the output at the Test Set. See fig. 7-9 for proper response limits.
4. Repeat the above procedures for L (3-3/4 ips), using a signal swept from 50 Hz to 15 kHz.
5. If response is not uniform the heads should be checked for accumulated dirt or tape oxide. If heads are clean, the equalization coils L-301 and L-303 should be adjusted (both speeds).

NORMAL position, BIAS and EQ switches

1. Thread the unit with a record Test Tape (Scotch 150).
2. Repeat the overall response check at both tape speeds. The record equalization should give the proper frequency response.
3. If further adjustment is required, adjust VC-502/504 for best response.

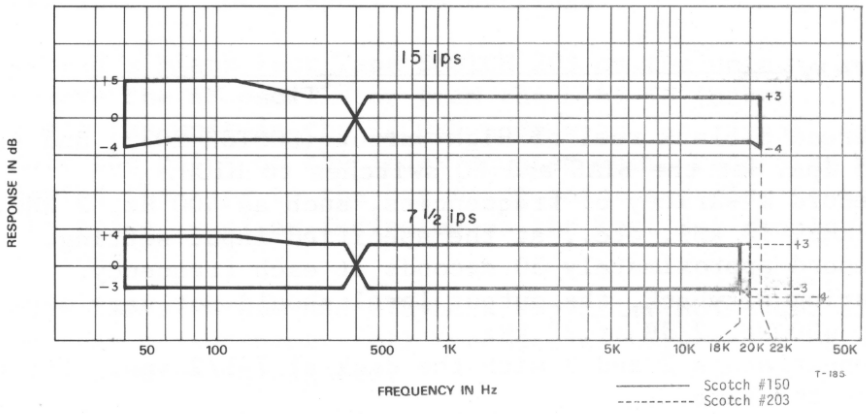


Fig. 11-6 Frequency Response Limits
-Record-

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ERASE EFFICIENCY

NOTE: To measure erase efficiency, a 1 kHz band pass filter (TEAC M-206A filter) must be used.

Due to the high level of this signal, it is recommended that only a short recording be made (approximately 30 seconds) to prevent damage to the VU meter.

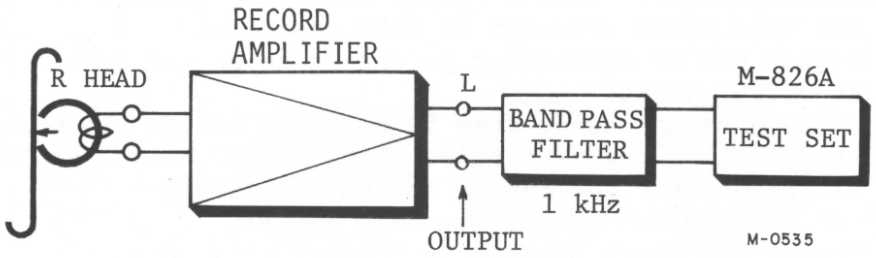


Fig. 11-7 Erase Efficiency Check Set-up

1. Apply a 1 kHz signal at 0 dB to the LINE IN jacks.
2. Place the unit in record mode and record this signal.
3. Rewind the recording to the beginning and remove the AF oscillator from the LINE IN jacks.
4. Place the unit in record mode and record over this portion of tape again.
5. Rewind the tape to the starting point and connect a Test Set (M-826A) to the LINE OUT jack through the 1 kHz band pass filter.
6. Play the erased portion of the tape.
7. The Test Set should indicate -68 dB or less.

LEVEL VARIATION

1. Thread a blank reel of High Output (SCOTCH 203), and select 15 ips. Set the BIAS and EQ switches to HIGH.
2. Record a variety of frequencies, such as 400 Hz, 2 kHz, 5 kHz, 8 kHz, 10 kHz, etc., at the specified input setting. Record approximately 30 seconds at each frequency.
3. During playback, the output level should not vary more than 0.5 dB at 400 Hz, 2 dB at 22 kHz.
4. Repeat steps 2 and 3 with the deck at 7-1/2 ips. The tolerances are the same.

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SIGNAL-TO-NOISE RATIO

PLAYBACK

IMPORTANT

OUTPUT controls should be at the Specified Output Level Settings. The signal-to-noise ratio must meet factory standards. The values given are obtained using an unweighted Test Set (M-826A), with the supply and take-up motors having voltage applied but not rotating. The values are with reference to a 3% THD peak recording level.

1. Thread a blank SCOTCH 203 tape on the unit leaving the tape outside the capstan and pinch roller.
2. Place the unit in the PLAY mode (▶) (the tape will not move using PAUSE).
3. The Test Set connected to the OUTPUT jacks should indicate -50 dB or less. This represents a signal-to-noise ratio of 50 dB (1% THD). Residual tape noise is below this at 54 dB.
4. For a 3% THD signal-to-noise ratio, -6 dB is added (3% THD is 6 dB above 1% THD level), giving 54 dB, or the residual noise level of the tape. (See the chart to the right.)

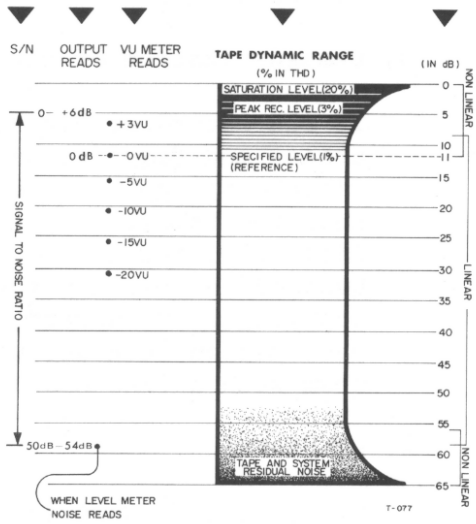


Fig. 11-8 Signal/Noise Computation

OVERALL

IMPORTANT: Clean and demagnetize the heads before proceeding. It is extremely important that all tests described in the preceding paragraphs have been completed and that all controls are left at their specified settings.

1. Thread a blank Test Tape SCOTCH 203 on the unit.
2. Remove the AF oscillator from the LINE IN jacks.
3. Place the unit in the RECORD mode with "no signal" applied. Note the point on the index counter where recording begins.
4. Rewind the tape to the beginning point and play it back.
5. The noise level as indicated on the Test Set should be -55 dB or less.

NOTE: Bias, erase and playback amplifier noise are all included in this measurement. All frequencies between 40 Hz and 15 kHz are measured unweighted.

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12. SERVICING AND MAINTENANCE

1. Power supply:

   Make sure that the power supply is stable at the rated voltage. Fluctuations will result in uneven tape speed, and wow and flutter in the recorded signal.

2. Cleaning:

   TEAC TZ-261A for Head cleaning, TZ-261B for Rubber cleaning should be used.

3. Demagnetization of the head:

   If the record or playback head become magnetized, noise will increase and fidelity will deteriorate. For this reason, it is advisable to use brass or other such non-magnetic tools when working near the heads.
   Similarly, the use of a tester or vacuum tube ohm-meter should be avoided in checking the heads, as these instruments operate by applying a DC current, and will thus induce magnetism. If the heads have had any contact with DC currents or magnetic tools, demagnetize them with a TEAC Model E-1 Head Demagnetizer.

4. Lubrication:

   Under normal operating conditions, lubrication is required only once each year. Before lubricating, clean the drive belt and drive pulleys. Operate the deck for 30 minutes to 1 hour immediately prior to oiling. After oiling, keep the deck in the upright position for 3 to 4 hours to allow thorough absorption of the oil.

   Approximately once each year or after 2000 hours of use, apply TEAC TZ-255 Lubricating Oil to the following places only;

   Pinch roller shaft bearings •••• 1 drop
   Capstan motor shaft bearings ••• 2 drops
   * Remove the dust cap and washer for access to the felt

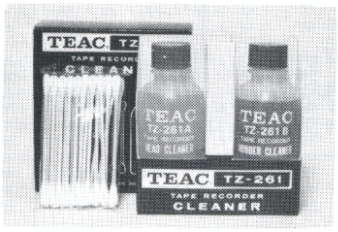
   Both reel motors ••• 0.3 cc maximum to each oiling tube
   Capstan motor •••••• 0.5 cc maximum to each oiling tube

NOTE: Apply 3 or 4 drops at a time through the oiling tubes. The oil level can be seen to drop as the felt material in the motor bearings absorb oil. When the level ceases to drop, no more oil is needed. Do not attempt to force oil into the motors nor exceed the maximum.

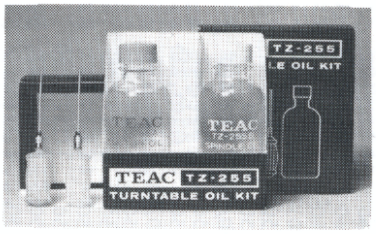
WARNING: Excessive oiling will scatter oil inside the deck. This oil will cause drive belt slippage and other difficulties. Check for slippage and clean all parts inside the deck before operating after lubrication. Check for oil emission after operation before returning deck to the customer.

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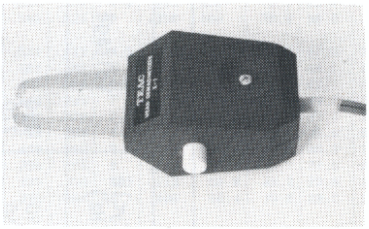
TEAC MAINTENANCE EQUIPMENT



TEAC TZ-261
Cleaner



TEAC TZ-255
Oil Kit



TEAC E-1
Head Demagnetizer

Fig. 12-1 TEAC Maintenance Equipment

LUBRICATION

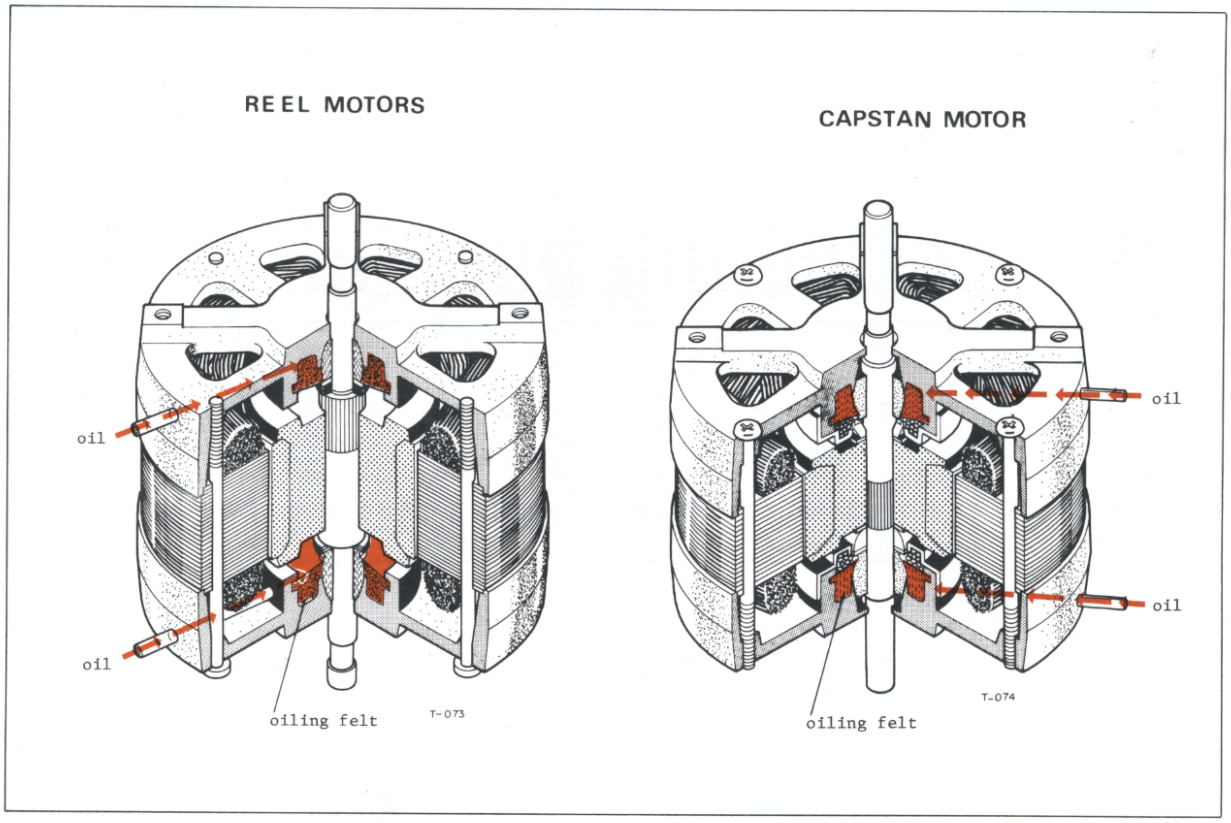


Fig. 12-2 Motor Construction and Oiling points

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13. LIST OF LINE VOLTAGE AND CYCLE (Hz) USED AROUND THE WORLD

Name of the country	Cycle (Hz)	Voltage
Argentina	50	220
Algeria	50	127,220
Austria	50	230,240
Australia	50	220
Brazil	50/60	110,115,125,227, 220
Belgium	50	110,127,220
Burma	50	230
Canada	60	110,115,120
Cuba	60	110
Costa Rica	60	120
Colombia	60	110,(115),(120)
Chile	50/(60)	(110),220
Czechoslovakia	50	220
Denmark	50	220
Dominica	60	110
England	50	(200),(210),(230), 240
Ecuador	60	(110),120,127
El Salvador	60	110
Egypt	50	110,220
Formosa	60	110
Finland	50	220
France	50	110,(115),(120), (127),220
Guatemala	60	120,(220)
Germany	50	110,120,127,220
Hungary	50	220
Honduras	60	110
Haiti	(50)/60	115,(220)
Iran	50	220
Iraq	50	220
India	50	230
Indonesia	50	110,117
Israel	50	230
Italy	50	110,(120),(127) (150),(160),220
Jamaica	50	110
Japan	50/60	100
Korea	60	100
Kenya	50	240
Lebanon	50	110,220
Luxembourg	50	110,220
Malaya	50	230
Mexico	50/60	120,127
Monaco	50	220
Morocco	50	115,127,220
Netherland	50	125,127,150,220
Nigeria	50	230
Nicaragua	60	120
New Zealand	50	230
Norway	50	220
Okinawa	60	100
Pakistan	50	220,230
Panama	60	110,(115),(120)
Philippines	60	110,(220)
Peru	(50)/60	(110),200
Portugal	50	120,220
Poland	50	220
China	50/60	110,220
Rep.of Vietnam	50	120,127
Rumania	50	(110),220
Saudi Arabia	50/60	120,230
Sierra Leone	50	230
Syria	50	115,200
Switzerland	50	220
Sweden	50	(117),220
Spain	50	120,127
Soviet Union	50	127
Thailand	50	220
Tunisia	50	110,115,220
Turkey	50	110,220
U.S.A.	60	115,120
Uruguay	50	220
Venezuela	(50)/60	120
Yugoslavia	50	220

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14. TEAC DECIBEL TABLE

1	.774	0 db	1	.774	0 db	1	.774	0db	1	.774	0 db	1	.774	0 db	1	.774	0 db	1	.774	0 db	1	179.	126.	89.4	63.2
																			600Ω			32Ω	16Ω	8Ω	4Ω
.944	.730	120.5	9.44	7.30	100.5	94.4	73.0	80.5	944	730	60.5	9.44	7.30	40.5	94.4	73.0	20.5	.944	.730	0.5	.891	169	119	83.9	59.6
.891	.690	121	8.91	6.90	101	89.1	69.0	81	891	690	61	8.91	6.90	41	89.1	69.0	21	.891	.690	1	.794	159	112	79.3	56.3
.841	.651	121.5	8.41	6.51	101.5	84.1	65.1	81.5	841	651	61.5	8.41	6.51	41.5	84.1	65.1	21.5	.841	.651	1.5	.708	150	106	74.9	53.1
.794	.615	122	7.94	6.15	102	79.4	61.5	82	794	615	62	7.94	6.15	42	79.4	61.5	22	.794	.615	2	.631	142	100	70.7	50.2
.750	.580	122.5	7.50	5.80	102.5	75.0	58.0	82.5	750	580	62.5	7.50	5.80	42.5	75.0	58.0	22.5	.750	.580	2.5	.562	134	94.5	66.7	47.3
.707	.548	123	7.07	5.48	103	70.7	54.8	83	707	548	63	7.07	5.48	43	70.7	54.8	23	.707	.548	3	.501	126	89.3	63.0	44.7
.668	.517	123.5	6.68	5.17	103.5	66.8	51.7	83.5	668	517	63.5	6.68	5.17	43.5	66.8	51.7	23.5	.668	.517	3.5	.447	119	84.3	59.4	42.2
.630	.488	124	6.30	4.88	104	63.0	48.8	84	630	488	64	6.30	4.88	44	63.0	48.8	24	.530	.488	4	.398	113	79.5	56.1	39.8
.596	.461	124.5	5.96	4.61	104.5	59.6	46.1	84.5	596	461	64.5	5.96	4.61	44.5	59.6	46.1	24.5	.596	.461	4.5	.355	106	75.1	53.0	37.6
.562	.435	125	5.62	4.35	105	56.2	43.5	85	562	435	65	5.62	4.35	45	56.2	43.5	25	.562	.435	5	.316	100	70.9	50.0	35.5
.531	.411	125.5	5.31	4.11	105.5	53.1	41.1	85.5	531	411	65.5	5.31	4.11	45.5	53.1	41.1	25.5	.531	.411	5.5	.282	94.9	67.0	47.3	33.5
.501	.388	126	5.01	3.88	106	50.1	38.8	86	501	388	66	5.01	3.88	46	50.1	38.8	26	.501	.388	6	.251	89.6	63.2	44.6	31.7
.473	.366	126.5	4.73	3.66	106.5	47.3	36.6	86.5	473	366	66.5	4.73	3.66	46.5	47.3	36.6	26.5	.473	.366	6.5	.224	84.5	59.6	42.1	29.9
.446	.345	127	4.46	3.45	107	44.6	34.5	87	446	345	67	4.46	3.45	47	44.6	34.5	27	.446	.345	7	.199	79.7	56.2	39.7	28.1
.422	.326	127.5	4.22	3.26	107.5	42.2	32.6	87.5	422	326	67.5	4.22	3.26	47.5	42.2	32.6	27.5	.422	.326	7.5	.178	75.3	53.1	37.5	26.6
.398	.308	128	3.98	3.08	108	39.8	30.8	88	398	308	68	3.98	3.08	48	39.8	30.8	28	.398	.308	8	.158	71.1	50.2	35.4	25.1
.376	.290	128.5	3.76	2.90	108.5	37.6	29.0	88.5	376	290	68.5	3.76	2.90	48.5	37.6	29.0	28.5	.376	.290	8.5	.141	67.0	47.3	33.3	23.7
.354	.274	129	3.54	2.74	109	35.4	27.4	89	354	274	69	3.54	2.74	49	35.4	27.4	29	.354	.274	9	.125	63.3	44.7	31.5	22.3
.335	.259	129.5	3.35	2.59	109.5	33.5	25.9	89.5	335	259	69.5	3.35	2.59	49.5	33.5	25.9	29.5	.335	.259	9.5	.112	59.8	42.2	29.8	21.1
.316	.244	130	3.16	2.44	110	31.6	24.4	90	316	244	70	3.16	2.44	50	31.6	24.4	30	.316	.244	10	.100	56.4	39.8	28.1	19.9
.298	.232	130.5	2.98	2.32	110.5	29.8	23.2	90.5	298	232	70.5	2.98	2.32	50.5	29.8	23.2	30.5	.298	.232	10.5	.0891	53.6	37.0	26.7	18.9
.281	.218	131	2.81	2.18	111	28.1	21.8	91	281	218	71	2.81	2.18	51	28.1	21.8	31	.281	.218	11	.0794	50.3	35.5	25.1	17.8
.265	.205	131.5	2.65	2.05	111.5	26.5	20.5	91.5	265	205	71.5	2.65	2.05	51.5	26.5	20.5	31.5	.265	.205	11.5	.0708	47.3	33.4	23.6	16.7
.251	.194	132	2.51	1.94	112	25.1	19.4	92	251	194	72	2.51	1.94	52	25.1	19.4	32	.251	.194	12	.0631	44.8	31.6	22.3	15.8
.237	.183	132.5	2.37	1.83	112.5	23.7	18.3	92.5	237	183	72.5	2.37	1.83	52.5	23.7	18.3	32.5	.237	.183	12.5	.0562	42.3	29.8	21.0	14.9
.223	.173	133	2.23	1.73	113	22.3	17.3	93	223	173	73	2.23	1.73	53	22.3	17.3	33	.223	.173	13	.0501	40.0	28.2	19.9	14.1
.211	.163	133.5	2.11	1.63	113.5	21.1	16.3	93.5	211	163	73.5	2.11	1.63	53.5	21.1	16.3	33.5	.211	.163	13.5	.0447	37.6	26.6	18.7	13.3
.199	.154	134	1.99	1.54	114	19.9	15.4	94	199	154	74	1.99	1.54	54	19 9	15.4	34	.199	.154	14	.0398	35.6	25.1	17.7	12.6
.188	.145	134.5	1.88	1.45	114.5	18.8	14.5	94.5	188	145	74.5	1.88	1.45	54.5	18.8	14.5	34.5	.188	.145	14.5	.0355	33.5	23.6	16.7	11.8
.177	.137	135	1.77	1.37	115	17.7	13.7	95	177	137	75	1.77	1.37	55	17.7	13.7	35	.177	.137	15	.0316	31.6	22.3	15.7	11.2
.168	.130	135.5	1.68	1.30	115.5	16.8	13.0	95.5	168	130	75.5	1.68	1.30	55.5	16.8	13.0	35.5	.168	.130	15.5	.0282	30.0	21.2	14.9	10.6
.158	.122	136	1.58	1.22	116	15.8	12.2	96	158	122	76	1.58	1.22	56	15.8	12.2	36	.158	.122	16	.0251	28.2	19.9	14.0	9.55
.150	.116	136.5	1.50	1.16	116.5	15.0	11.6	96.5	150	116	76.5	1.50	1.16	56.5	15.0	11.6	36.5	.150	.116	16.5	.0224	26.8	18.9	13.3	9.46
.141	.109	137	1.41	1.09	117	14.1	10.9	97	141	109	77	1.41	1.09	57	14.1	10.9	37	.141	.109	17	.0199	25.2	17.8	12.5	8.89
.133	.103	137.5	1.33	1.03	117.5	13.3	10.3	97.5	133	103	77.5	1.33	1.03	57.5	13.3	10.3	37.5	.133	.103	17.5	.0178	23.8	16.8	11.8	8.40
.125	.097	138	1.25	.975	118	12.5	9.75	98	125	97.5	78	1.25	975	58	12.5	9.75	38	.125	.097	18	.0158	22.4	15.8	11.1	7.91
.119	.092	138.5	1.19	.921	118.5	11.9	9.21	98.5	119	92.1	78.5	1.19	921	58.5	11.9	9.21	38.5	.119	.092	18.5	.0141	21.2	15.0	10.6	7.51
.112	.086	139	1.12	.869	119	11.2	8.69	99	112	86.9	79	1.12	899	59	11.2	8.69	39	.112	.086	19	.0125	19.9	14.0	9.89	7.02
.106	.082	139.5	1.06	.820	119.5	10.6	8.20	99.5	106	82.0	79.5	1.06	820	59.5	10.6	8.20	39.5	.106	.082	19.5	.0112	18.9	13.4	9.43	6.69
.100	.077	140	1.00	.774	120	10.0	7.74	100	100	77.4	80	1.00	774	60	10.0	7.74	40	.100	.077	20	.0100	17.8	12.5	8.85	6.28
μV	μV	− db	μV	μV	− db	μV	μV	− db	μV	μV	− db	mV	mV	− db	mV	mV	− db	V	V	− db	POWER RATIO	mV	mV	mV	mV

Relationship between decibels, currents, voltage and power ratios.

Decibel (Voltage)	Loss	Gain	Decibel (Power)	Decibel (Voltage)	Loss	Gain	Decibel (Power)	Decibel (Voltage)	Loss	Gain	Decibel (Power)	Decibel (Voltage)	Loss	Gain	Decibel (Power)	Decibel (Voltage)	Loss	Gain	Decibel (Power)
.0	1.0000	1.000	.0	4.0	.6310	1.555	2.00	8.0	.3981	2.512	4.00	12.0	.2512	3.981	6.00	16.0	.1585	6.310	8.00
.1	.9886	1.012	.05	.1	.6237	1.603	.05	.1	.3936	2.541	.05	.1	.2483	4.027	.05	.1	.1567	6.383	.05
.2	.9772	1.023	.10	.2	.6166	1.622	.10	.2	.3890	2.570	.10	.2	.2455	4.074	.10	.2	.1549	6.457	.10
.3	.9661	1.035	.15	.3	.6095	1.641	.15	.3	.3846	2.600	.15	.3	.2427	4.121	.15	.3	.1531	6.531	.15
.4	.9550	1.047	.20	.4	.6026	1.660	.20	.4	.3802	2.630	.20	.4	.2399	4.169	.20	.4	.1514	6.607	.20
.5	.9441	1.059	.25	.5	.5957	1.679	.25	.5	.3758	2.661	.25	.5	.2371	4.217	.25	.5	.1496	6.683	.25
.6	.9333	1.072	.30	.6	.5888	1.698	.30	.6	.3715	2.692	.30	.6	.2344	4.266	.30	.6	.1479	6.761	.30
.7	.9226	1.084	.35	.7	.5821	1.718	.35	.7	.3673	2.723	.35	.7	.2317	4.315	.35	.7	.1462	6.839	.35
.8	.9120	1.096	.40	.8	.5754	1.738	.40	.8	.3631	2.754	.40	.8	.2291	4.365	.40	.8	.1445	6.918	.40
.9	.9016	1.109	.45	.9	.5679	1 758	.45	.9	.3589	2.786	.45	.9	.2265	4.416	.45	.9	.1429	6.998	.45
1.0	.8913	1.122	.50	5.0	.5623	1.778	.50	9.0	.3541	2.817	.50	13.0	.2239	4.467	.50	17.0	.1413	7.070	.50
.1	.8810	1.135	.55	.1	.5559	1.799	.55	.1	.3508	2.851	.55	.1	.2213	4.519	.55	.1	.1396	7.161	.55
.2	.8710	1.148	.60	.2	.5495	1.820	.60	.2	.3467	2.884	.60	.2	.2188	4.571	.60	.2	.1380	7.244	.60
.3	.8610	1.161	.65	.3	.5433	1.841	.65	.3	.3428	2.917	.65	.3	.2163	4.624	.65	.3	.1365	7.328	.65
.4	.8511	1.175	.70	.4	.5370	1.862	.70	.4	.3388	2.951	.70	.4	.2138	4.677	.70	.4	.1349	7.413	.70
.5	.8414	1.189	.75	.5	.5309	1.884	.75	.5	.3350	2.985	.75	.5	.2113	4.732	.75	.5	.1334	7.499	.75
.6	.8318	1.202	.80	.6	.5248	1.905	.80	.6	.3311	3.020	.80	.6	.2089	4.786	.80	.6	.1318	7.586	.80
.7	.8222	1.216	.85	.7	.5188	1.928	.85	.7	.3273	3.055	.85	.7	.2045	4.842	.85	.7	.1303	7.674	.85
.8	.8128	1.230	.90	.8	.5129	1.960	.90	.8	.3236	3.090	.90	.8	.2042	4.898	.90	.8	.1288	7.762	.90
.9	.8035	1.245	.95	.9	.5070	1.972	.95	.9	.3199	3.126	.95	.9	.2018	4.955	.95	.9	.1274	7.852	.95
2.0	.7943	1.259	1.00	6.0	.5012	1.995	3.00	10.0	.3162	3.162	5.00	14.0	.1995	5.012	7.00	18.0	.1259	7.943	9.00
.1	.7852	1.274	.05	.1	.4955	2.018	.05	.1	.3126	3.199	.05	.1	.1972	5.070	.05	.1	.1245	8.035	.05
.2	.7762	1.288	.10	.2	.4898	2.042	.10	.2	.3090	3.236	.10	.2	.1950	5.129	.10	.2	.1230	8.128	.10
.3	.7684	1.303	.15	.3	.4842	2.065	.15	.3	.3055	3.273	.15	.3	.1928	5.188	.15	.3	.1216	8.222	.15
.4	.7586	1.316	.20	.4	.4785	2.089	.20	.4	.3020	3.311	.20	.4	.1905	5.248	.20	.4	.1202	8.318	.20
.5	.7499	1.334	.25	.5	.4732	2.113	.25	.5	.2985	3.350	.25	.5	.1884	5.309	.25	.5	.1189	8.414	.25
.6	.7413	1.349	.30	.6	.4677	2.138	.30	.6	.2951	3.388	.30	.6	.1862	5.370	.30	.6	.1175	8.511	.30
.7	.7328	1.365	.35	.7	.4624	2.163	.35	.7	.2917	3.428	.35	.7	.1841	5.433	.35	.7	.1161	8.610	.35
.8	.7244	1.380	.40	.8	.4571	2.188	.40	.8	.2884	3.467	.40	.8	.1820	5.495	.40	.8	.1148	8.710	.40
.9	.7161	1.396	.45	.9	.4519	2.213	.45	.9	.2851	3.508	.45	.9	.1799	5.559	.45	.9	.1135	8.811	.45
3.0	.7073	1.413	.50	7.0	.4467	2.239	.50	11.0	.2818	3.548	.50	15.0	.1778	5.623	.50	19.0	.1122	8.913	.50
.1	.6998	1.429	.55	.1	.4416	2.265	.55	.1	.2786	3.589	.55	.1	.1758	5.689	.55	.1	.1109	9.016	.55
.2	.6918	1.445	.60	.2	.4365	2.291	.60	.2	.2754	3.631	.60	.2	.1738	5.754	.60	.2	.1096	9.120	.60
.3	.6839	1.462	.65	.3	.4315	2.317	.65	.3	.2723	3.673	.65	.3	.1718	5.821	.65	.3	.1084	9.226	.65
.4	.6761	1.479	.70	.4	.4266	2.344	.70	.4	.2692	3.715	.70	.4	.1698	5.888	.70	.4	.1072	9.333	.70
.5	.6683	1.496	.75	.5	.4217	2.371	.75	.5	.2661	3.756	.75	.5	.1679	5.957	.75	.5	.1059	9.441	.75
.6	.6607	1.514	.80	.6	.4169	2.399	.80	.6	.2630	3.802	.80	.6	.1660	6.026	.80	.6	.1047	9.550	.80
.7	.6531	1.531	.85	.7	.4121	2.427	.85	.7	.2600	3.846	.85	.7	.1641	6.095	.85	.7	.1035	9.661	.85
.8	.6457	1.549	.90	.8	.4074	2.455	.90	.8	.2570	3.890	.90	.8	.1622	6.166	.90	.8	.1023	9.772	.90
.9	.6383	1.567	.95	.9	.4027	2.483	.95	.9	.2541	3.936	.95	.9	.1603	6.237	.95	.9	.1012	9.886	.95

Decibel (Voltage)	Loss	Gain	Decibel (Power)
20.0	.1000	10.00	10.00
	Use the same numbers as 0-20 Db., but ahift point one step to the left. Thus since 10 Db.=.3162 30 Db.=.03162	Use the same numbers as 0-20 Db., but shift point one step to the right. Thus since 10 Db.=3.162 30 Db.=31.62	This column repeats every 10 Db. instead of every 23 Db.

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15-1. TROUBLESHOOTING

NOTE: The following guide lists specific difficulties that could occur in the A-3340S. Possible causes are listed for each malfunction. Visually inspect the unit for any damage such as broken or burned components or wiring, loose connections, etc.

MALFUNCTION	POSSIBLE SOURCE OF TROUBLE	CORRECTIVE PROCEDURE
Capstan fails to turn	Belt off or slipping, line fuse, safety switch(SW-2), speed select switch(SW-12), phase advance capacitor(C-5)	Repair or replace the defective components.
Pinch roller fails to contact capstan in play mode	Operation relay(K-1), Start relay(K-7), Q1, STOP micro-switch(S-4), PLAY (►) micro-switch(S-7), capstan solenoid	Refer to schematic diagram and repair or replace the defective components.
Right reel motor does not rotate in play mode.	Reel motor(right), brake solenoid, operation relay(K-6), resistor(R-1)	Replace the defective components.
Left reel motor does not rotate in play mode.	Reel motor(left), brake solenoid, operation relay(K-6), resistor(R-2)	
Both motors fail to operate.	Safety switch(SW-2), operation relay(K-1,K-6)	
A-3340S does not operate in PLAY (►)	Remote control jumper plug missing or loose, STOP micro switch(S-4), brake solenoid, pause switch(S-9), operation relay(K-1,K-6), phase advance capacitor(C-5),(C-4)	Normal DC resistance of the brake solenoid is 1.3k ohms. Refer to schematic diagram and repair or replace the defective components.
Playback noise or hum	Faulty connections, SIMUL switch (S-701), faulty playback head, faulty amplifier	Repair to replace defective components.
Noise or hum during record	Magnetized head, faulty connections, MIC level set to maximum, faulty record amplifier, record relay (K501,K502,K601,K602)	Demagnetize and clean head, repair or replace defective components, check MIC VR.
Wow and flutter	Defective tape, dirty or defective pinch roller and pressure oily or defective belt, reel motor tension	Clean or replace defective components. Adjust motor tension

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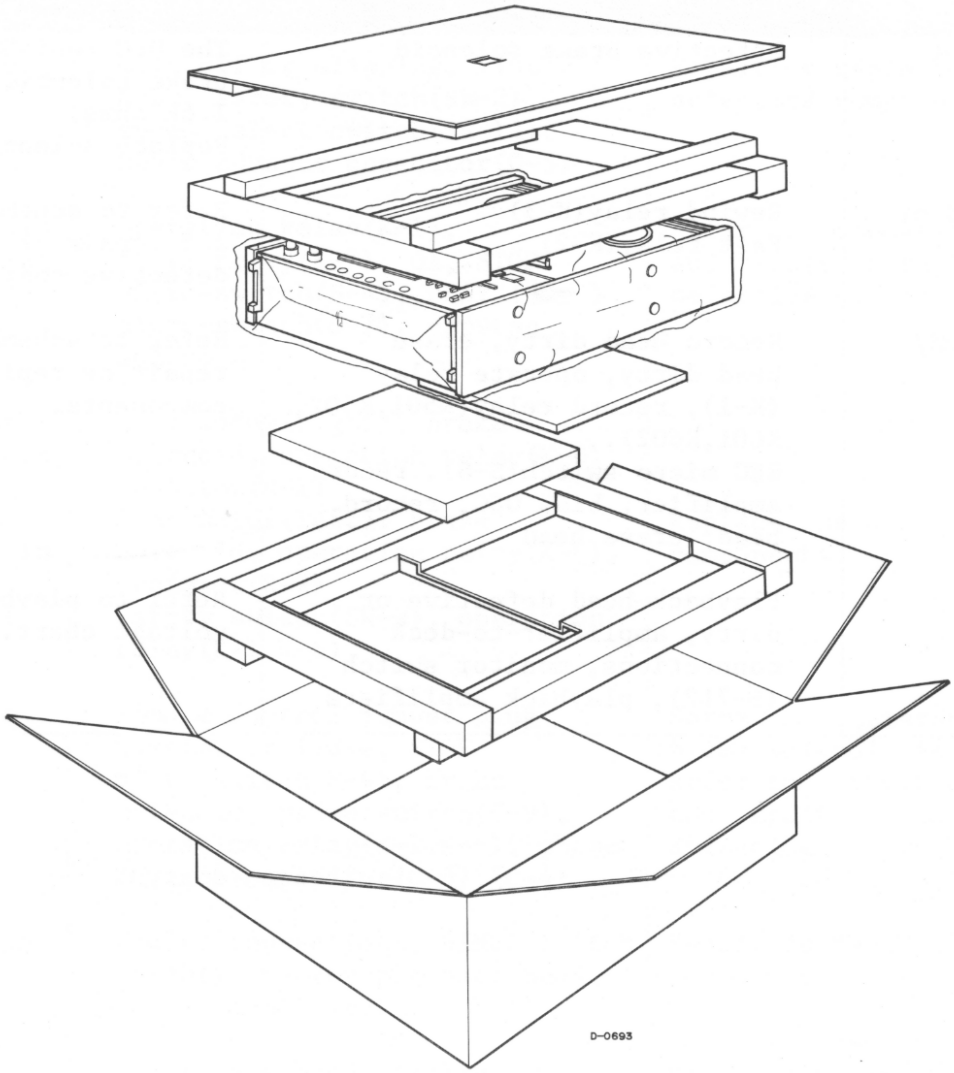
15-2. TROUBLESHOOTING

MALFUNCTION	POSSIBLE SOURCE OF TROUBLE	CORRECTIVE PROCEDURE
Incorrect tape speed	Drive belt in wrong position. Incorrect pinch roller pressure.	Reposition drive belt. Adjust pinch roller pressure.
Brakes do not release	Defective brake solenoid	The D.C resistance of the brake solenoid should be 1.6k ohms. Replace solenoid.
Fast forward or rewind mode inoperative	Rewind relay(K-3) Fast relay(K-2)	Refer to schematic diagram and repair or replace the defective components.
No record and/ or no erase	Record head dirty, erase head dirty, operate relay (K-1), record relay(K501,K502, K601,K602), REC micro switch(S-8), record amplifier, bias OSC, record head, erase head	Refer to schematic diagram and repair or replace the defective components.
No playback	Playback head defective or dirty, amplifier-to-deck connections, monitor switch (S-712), playback amplifiers	Refer to playback amplifier voltage chart.

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16. PACKING FOR SHIPMENT

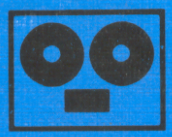
Keep this Carton Box and its packing materials. For shipping, re-pack as shown in the illustration.



WARRANTY

Your TEAC equipment has been manufactured under the strictest quality control and is covered by warranty under normal operation. However, warranty terms may vary with the country (area) in which it was purchased and for different models of equipment.
The warranty terms are fully described on the warranty card. Please read the card for complete details. Include a copy of the warranty in the package when you return the equipment to an Authorized Service Center.

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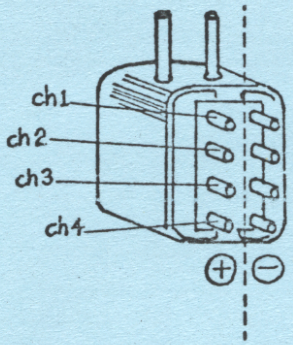
SERVICE INFORMATION FROM TEAC

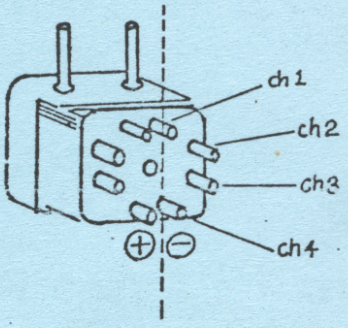
date: January 19, 1976
#36

subj: HEADS FOR TEAC 3340S

Heads for the TEAC 3340S have been changed to a new type as follows:

	OLD	NEW
PLAY:	5066435000	5066457000
RECORD:	5066425000	5066458000





Wiring on new heads is the same as the old head wiring.

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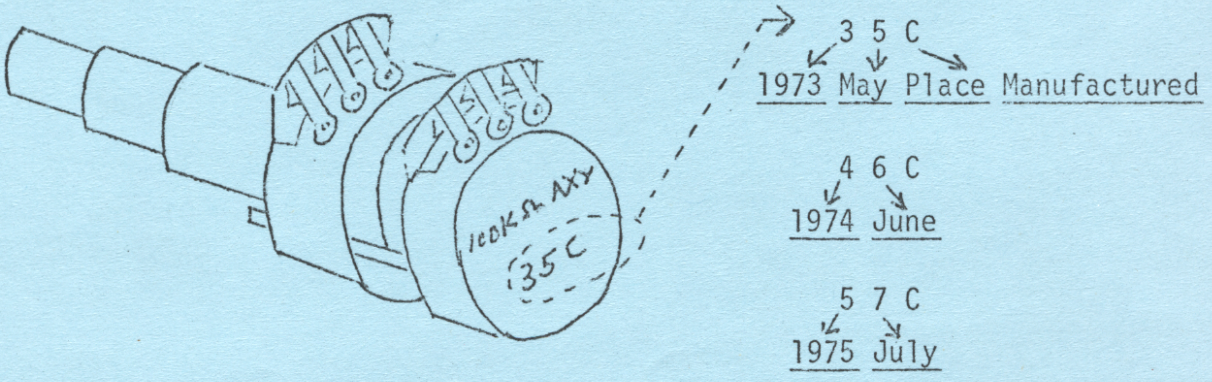
SERVICE INFORMATION FROM TEAC

date: April 5, 1976
SUPPLEMENT 1
#44

subj: A-3340S LEVEL CONTROLS

It has been noticed that, due to manufacture deficiency, some Record Level and Output Level Potentiometers have the tendency to short. These were fabrications of 1973-74.

When such a problem occurs, and to prevent recurrence, you are urged to change Potentiometer to new type 57C as identified below.



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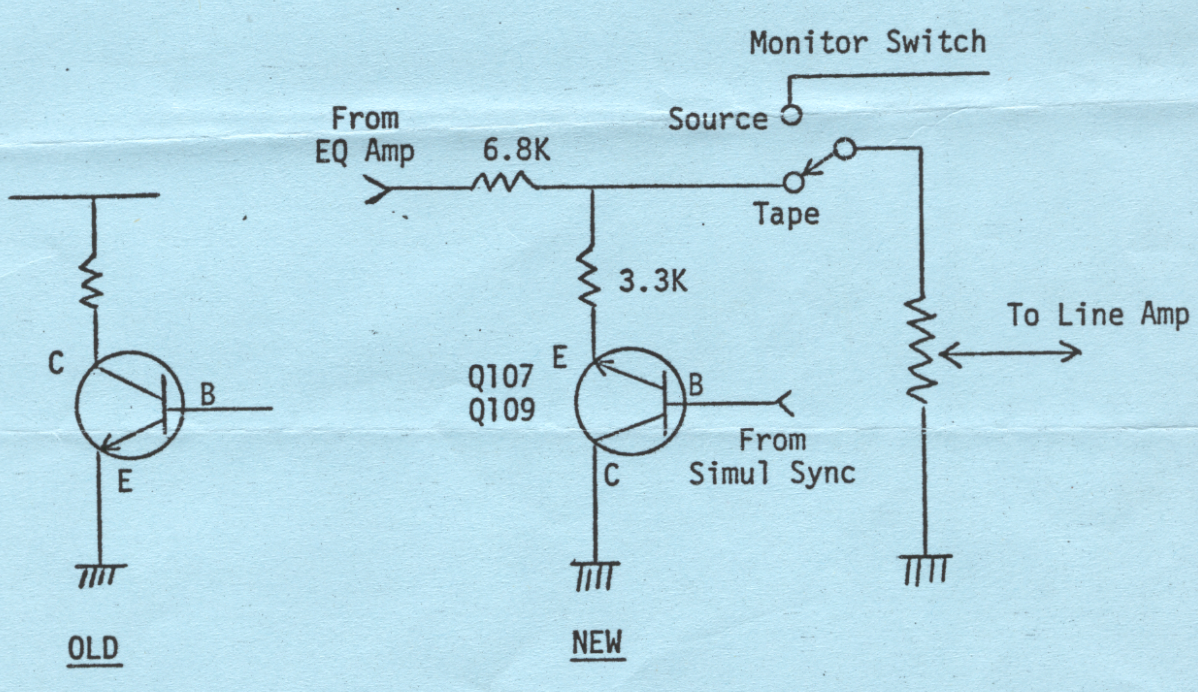
SERVICE INFORMATION FROM TEAC

date: NOVEMBER, 1976
Supplement 2
#75

subj: A-3340S SUPPRESSION OF MONITOR SWITCH CLICK NOISE

To suppress the click noise when using the monitor switch, reverse the connections to the emitter and the collector of transistors Q107 and Q109 on each Mic/Playback EQ Amplifier PCB as shown in sketch below.

The click was caused by DC current flow in the two transistors, whose purpose is to compensate for difference in level between normal playback and Simul Sync.



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