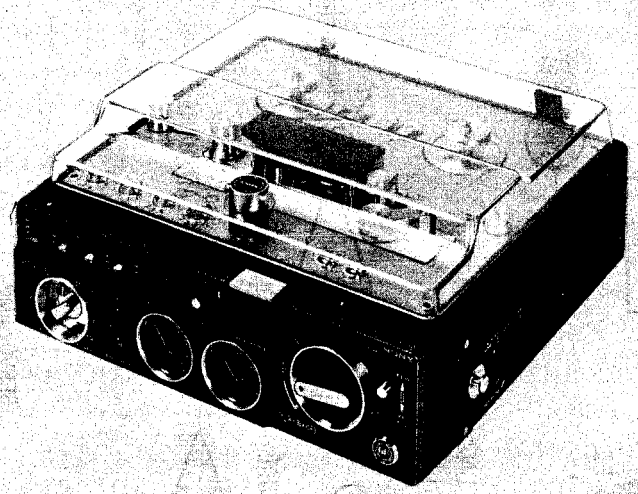
TC-510-2

AEP Model



PORTABLE STEREO TAPE DECK

SPECIFICATIONS

Power Requirements: 220 or 240 V ac 50/60 Hz with the Sony AC Power Adaptor AC-26 (optional)
12 V dc
8 batteries size D
Sony Rechargeable Battery Pack BP-55 (optional)
12 V car or boat battery with the Sony Car Battery Cord DCC-129 (optional)

Tape Speed: 19 cm/s (7½ ips) 9.5 cm/s (3¾ ips)

Recording Time: 45 mins total at 9.5 cm/s, stereo with 275 m tape

Fast Winding Time: Approx. 2 mins. with 275 m tape

Reel: Up to 5 inches

Track System: 2-track 2-channel stereo

Motor: DC servo-controlled motor 1

Bias Frequency: 160 kHz

Equalization: NAB standard

Signal-to-noise Ratio: 64 dB with Sony Ferri-Chrome Tape

Total Harmonic Distortion: 0.8 %

Speaker: 44 x 94 mm, 1 9/16 x 3¼ inches

Power Output: 500 mW

Frequency Response: With Sony Ferri-Chrome Tape
30 ~ 27,000 Hz at 19 cm/s
30 ~ 18,000 Hz at 9.5 cm/s
With SLH tape
30 ~ 25,000 Hz at 19 cm/s
30 ~ 16,000 Hz at 9.5 cm/s
With regular tape
30 ~ 20,000 Hz at 19 cm/s
30 ~ 13,000 Hz at 9.5 cm/s

Wow and Flutter: ±0.8 % at 19 cm/s
±0.12 % at 9.5 cm/s

Inputs: MIC 2
sensitivity 0.2 mV (−72 dB)
for low impedance microphone
LINE IN 2
sensitivity 0.06 V (−22 dB)
input impedance 100 k ohms

Outputs: LINE OUT 2
output level 0.435 V (−5 dB)
at load impedance 100 k ohms
suitable load impedance more than 10 k ohms
HEADPHONES 1
suitable load impedance 8 ohms

Dimensions: Approx. 333 (w) x 136 (h) x 296 (d) mm
13 (w) x 5⅜ (h) x 11⅝ (d) inches
including projecting parts and controls

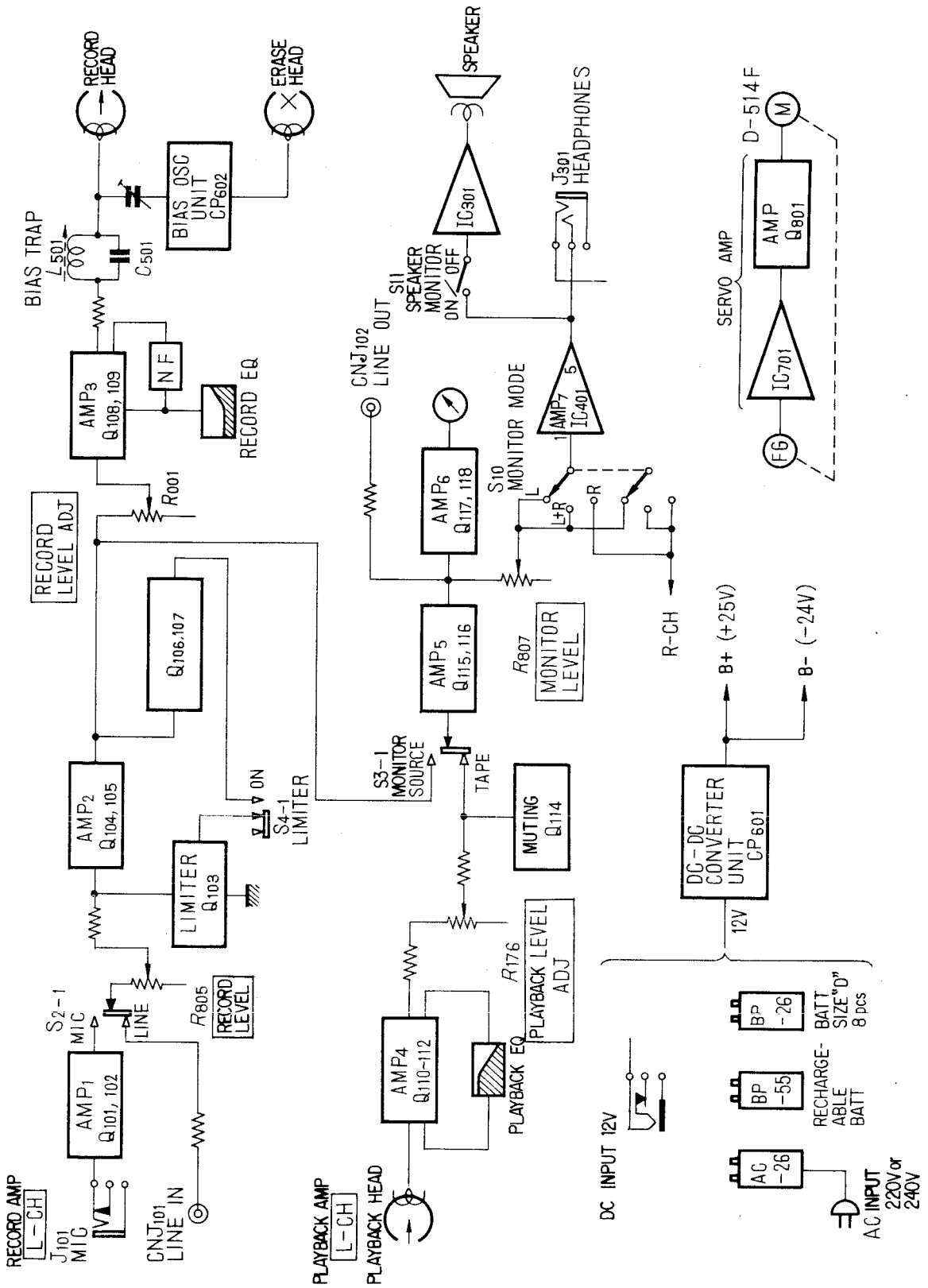
Weight: Approx. 6.8 kg, 15 lb (with batteries)

SONY®

SERVICE MANUAL

SECTION 1
OUTLINE

1-1. BLOCK DIAGRAM



1-2. EXPLANATION OF TC-510-2

1. TC-510-2 uses two-track system.
   Do not change the track system to four track in principle.
2. When leaving the tape stopped for a long time, place the set to stop mode otherwise the set consumes electric power.
3. TAPE SELECT switches

Tapes	BIAS	EQ
SONY PR other regular tapes	LOW	NORMAL
SONY SLH MAXELL LNE 35 BASF 35 LH SCOTCH 212, CLASSIC TDK SD 150, AUDUA AGFA PE other Low-noise High-output tapes	NORMAL	SPECIAL
Sony Ferri-Chrome Tape	NORMAL	Fe-Cr
SCOTCH 296, 219	HIGH	NORMAL

1-3. CAUTION FOR REPAIRS

1. Chassis of TC-510-2 uses aluminum. Tightening screws too hardly, tapped holes may be damaged.
2. When removing the front panel and right-side cabinet, take care not to cut the lead wires of the level meters and speaker.
3. Lead wires are thin and cut easily.
4. Right channel level meter has a battery check function.
5. Record level control knobs can easily be pulled off with fingers. Pull off other large knobs using a string such as dial cord.
6. Use L-shaped hexagonal wrenches (0.89, 1.27, 1.5, 2 and 2.5 mm) to repair TC-510-2.
7. The screw above the shaft of the pinch roller is used only for ornamental purpose, and the pinch roller cannot be removed by removing this ornamental screw.
8. The tension rollers slip down to the panel when the tension roller caps are removed. However this is normal.
9. When placing the set upside down, put it on a rubber mat to protect the small-diameter reel shafts and the tension arms.
10. Do not use screws longer than 6 mm in length for the top cover hinges and the rear cabinet.
11. When the set is in forward mode with no tape loaded, the take-up reel turns fast as in fast forward mode. The turning torque weakens by placing the tension arm to inside position, because the right tension arm controls the crutch of the take-up reel.

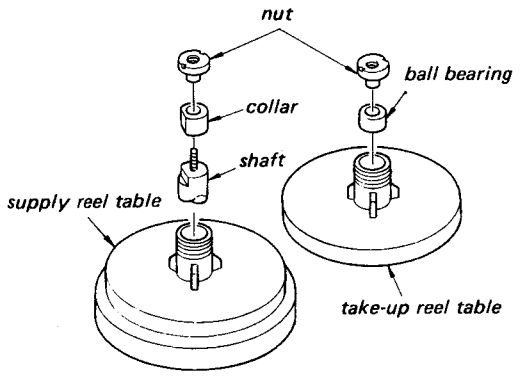
1-4. DISASSEMBLY

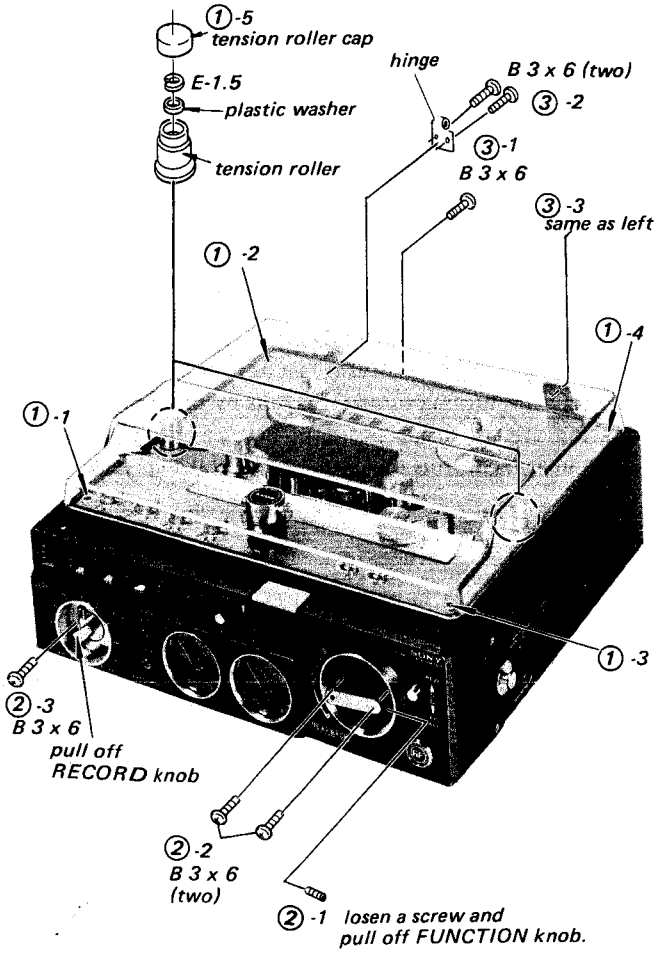
Take-up and Supply Reel Table Removal

Remove nuts from the shafts.

Take care not to miss the ball-bearing and collar.

When reattaching the supply reel table, flat surfaces of the collar and supply reel table shaft place the same face.





Reel Panel Removal

Remove four hex-socket screws (①-1 ~ ①-4) using an L-wrench (2 mm) and remove the tension roller cap (①-5).

Front Panel Removal

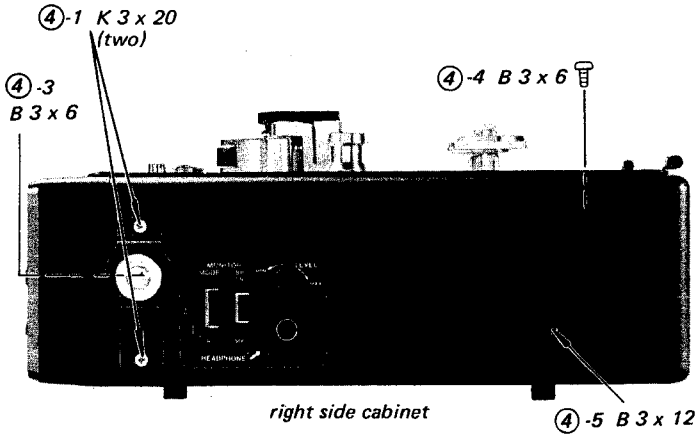
1. Loosen a hex-socket screw (②-1) using an L-wrench (2 mm).
2. Pull off the FUNCTION and RECORD level knobs.
3. Remove three screws (②-2 ~ ②-3).

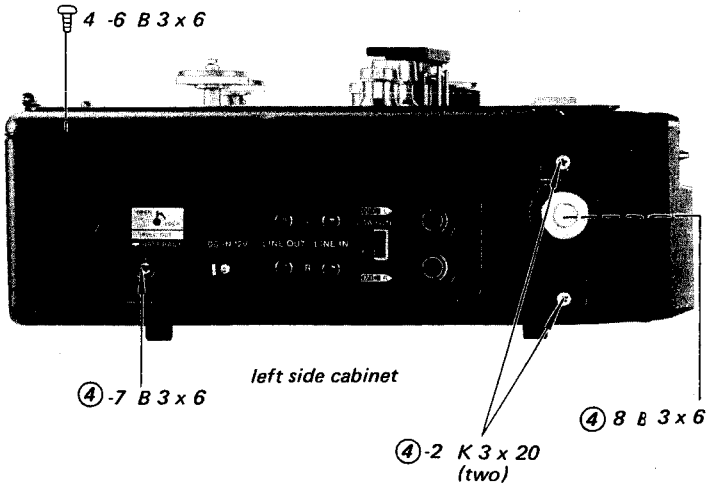
Rear Cabinet Removal

Remove six screws (③-1 ~ ③-3).

Right- and Left-Side Cabinet Removal

1. Remove four screws (④-1, ④-2) and strap retainers.
2. Remove three screws (④-3 ~ ④-8) at each side cabinet.





SECTION 2
ADJUSTMENTS

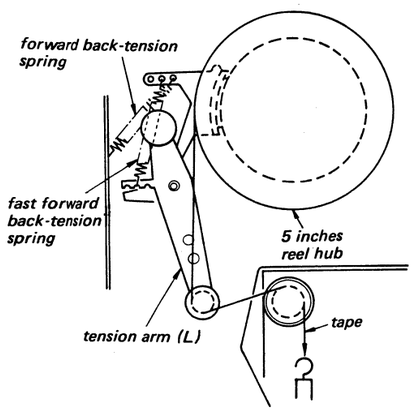
2-1. MECHANICAL ADJUSTMENTS

Forward and Fast Forward Back-Tension Adjustment
— Forward and Fast Forward Mode —

Wind the tape up twice or third on a five inches reel hub and pull the tape out as shown below. Change each spring hooking position to obtain the specifications.

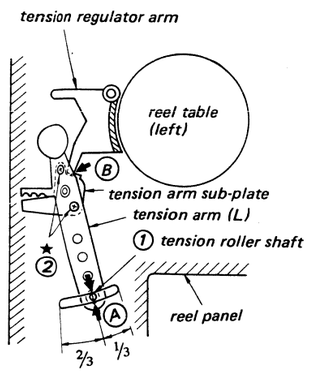
Specification:

Forward Mode: 24 ~ 28 g (7/8 ~ 1 oz)
Fast Forward Mode: 6.4 ~ 9.6 g (7/32 ~ 11/32 oz)



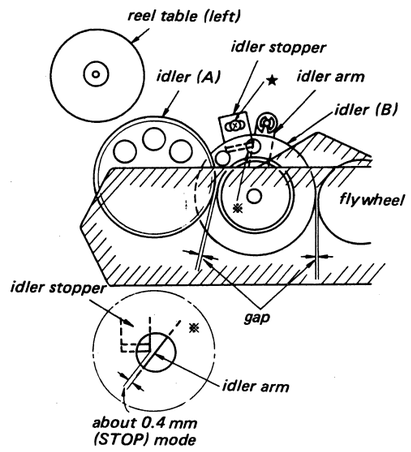
Tension Regulator Arm Position Adjustment

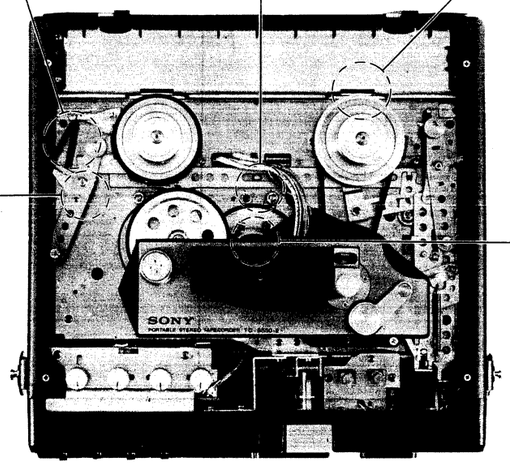
1. Place the tension roller shaft Ⓐ position as shown below.
2. Adjust two screws (marked ★) so that the tension arm sub-plate just contacts the tension regulator arm (Ⓑ position).



Rewind Idler Stopper Position Adjustment
— Stop Mode —

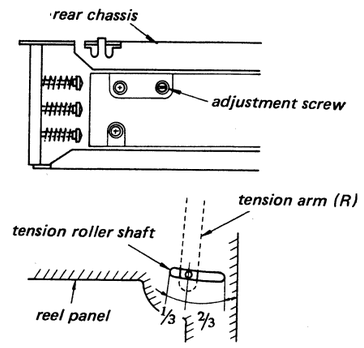
Push the idler (B) to contact with the flywheel.
Adjust the screw (marked ★) to obtain the position of the idler arm and the idler stopper as shown below.





Tension Arm (R) Position Adjustment
— Forward Mode —

Adjust the screw to obtain the position of the tension arm (R) as shown below.

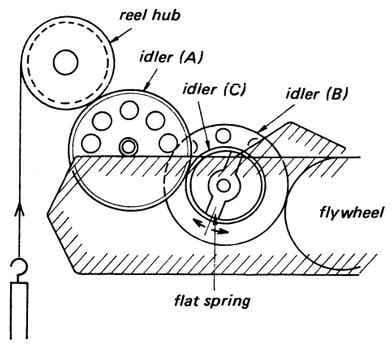


Rewind Torque Adjustment
— Rewind Mode —

Adjust the flat spring to obtain the specifications.

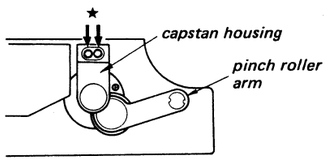
Reel	Rewind torque
Measuring reel	300 ~ 450 g·cm (4.1 ~ 6.1 oz·inch)
5 inches reel	150 ~ 270 g·cm (2.0 ~ 3.7 oz·inch)

Note: When measuring torque, move spring scale in arrow direction at about 10 cm/s (4 ips).



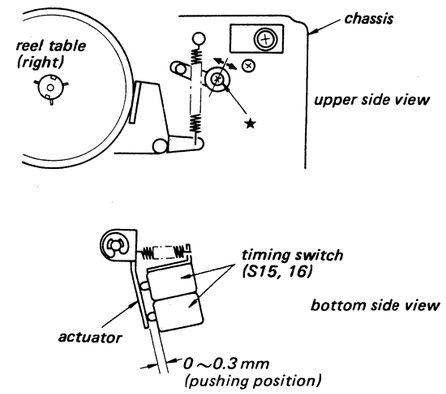
Capstan Housing Position Adjustment
– Forward and Pause Mode –

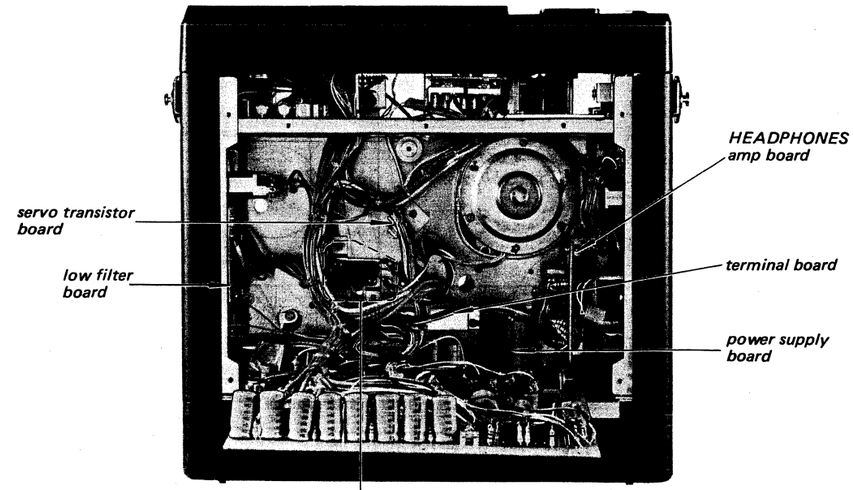
1. Loosen two hex-socket screws (marked ★).
2. Adjust the capstan housing position to obtain the maximum dc voltage at the corrector of Q801 (servo transistor circuit board).

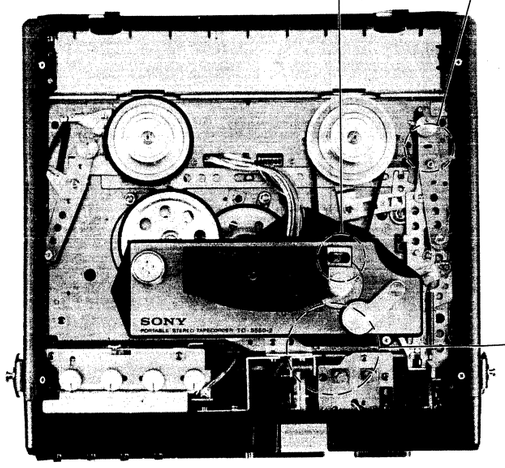


Playback Timing Switches (S15, 16) Adjustment
– Stop Mode –

1. Loosen a screw (marked ★) and adjust the switch position as shown below.
2. The actuator does not contact with these switches in forward mode.





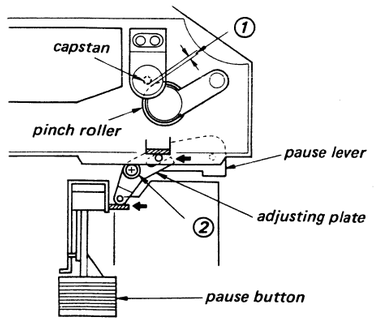


Pause Lever Adjustment

1. Put a 1.5 mm spacer into the gap ① and forward mode.
2. Setting in pause mode, adjust the screw ② so that the adjusting plate contacts the shifter lever.

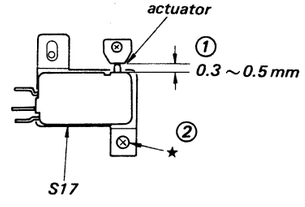
Specification:

The gap of the capstan and the pinch roller in pause mode: 0.5 ~ 1.5 mm (6/32 ~ 9/32 inches).



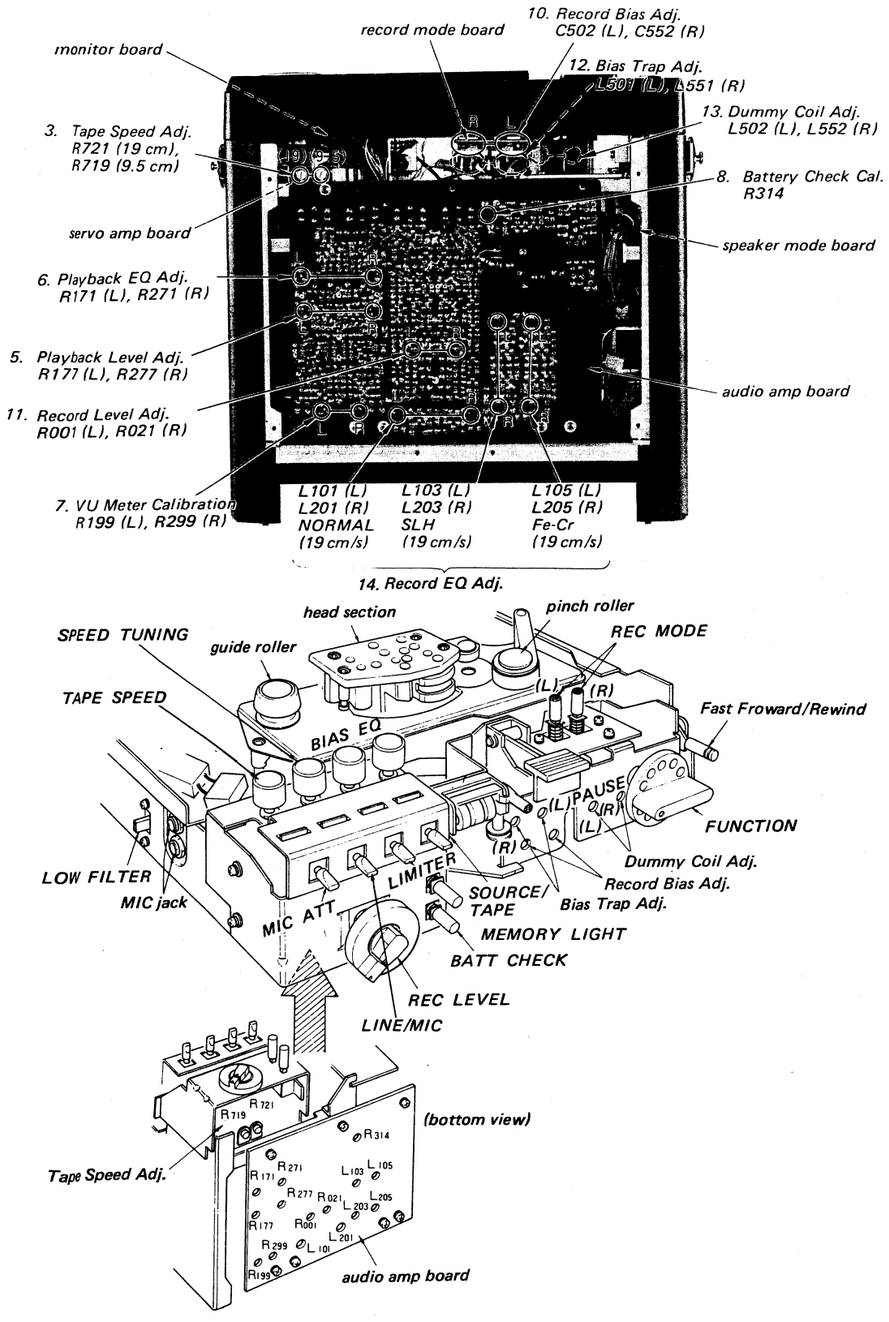
Fast Forward and Rewind Switch (S17) Position Adjustment
– Stop Mode –

Place the switch as shown below.



2-2. ELECTRICAL ADJUSTMENTS AND MEASUREMENTS

Adjustment Locations



PRECAUTION

1. Clean the following parts with an alcohol moistened swab:
   * record head
   * erase head
   * capstans
   * idlers
   * playback head
   * pinch rollers
   * rubber belts
2. Demagnetize record and playback head with a head demagnetizer.
3. Do not use magnetized screwdriver for adjustments.
4. After the adjustments, apply a small amount of a locking compound to the parts adjusted.
5. The adjustments should be performed in the order arranged in this service manual.
6. The adjustments and the measurements should be performed for both L-CH and R-CH with rated power supply voltage unless otherwise specified.
7. The record and playback level adjustments should be carefully performed.
8. The adjustment tape is only wound on 7-inches reel hub. When adjusting, wind and use the adjustment tape on 5-inches reel hub.
9. The switches and the controls should be set as follows unless otherwise specified.

switches	playback	record mode
TAPE SPEED	19 cm/s	19 cm/s
TAPE SELECT EQ*	NORMAL	SLH
TAPE SELECT BIAS*	-------	NORMAL
REC MODE	-------	REC
SOURCE/TAPE	TAPE	TAPE (SOURCE)
LIMITER	-------	OFF
MIC ATT	-------	OFF
LINE/MIC	-------	LINE
LOW FILTER	-------	OFF

* see page 3.

Normal Input Level

	MIC	LINE IN
source impedance	300 Ω	10 kΩ
input level	−60 dB (0.77 mV)	−10 dB (0.25 V)

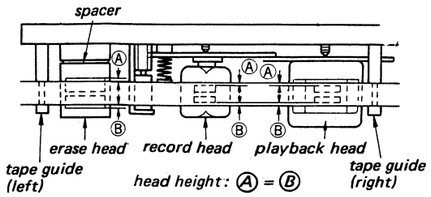
Normal Output Level

	LINE OUT
load impedance	100 kΩ
output level	−5 dB (0.435 V)

1. Record and Playback Head Preadjustment

(Rough adjustment for playback Head Lateral Adjustment and Playback Head Azimuth Adjustment)

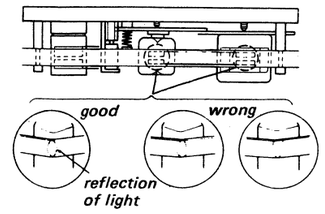
Note: This adjustment and the following (Playback Head Lateral Adjustment and Playback Head Azimuth Adjustment) should be repeated alternately several times.

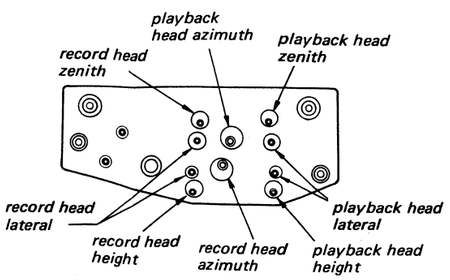


Procedure:

1. Turn record and playback head height adjusting screws as shown the figuer.
2. Turn zenith adjusting screws by the same angle of turns to the same direction of record and playback head height adjusting screws.
3. Thread SONY tape super 150 or PY and place unit in playback mode at 19 cm/s (7½ ips).
4. Make the tape loose a little by pushing the tension regulator arm pin in the direction shown by arrow and then adjust playback head and record head zenith adjusting screws to obtain the reflection of light as shown.

Adjustment Location:

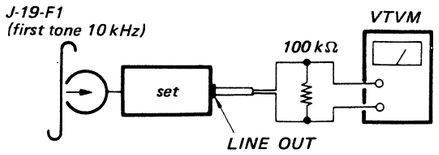




2. Playback Head Lateral Adjustment

Procedure:

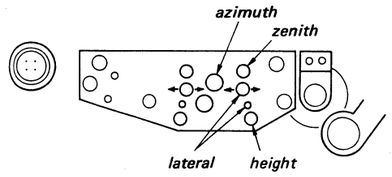
1. Mode: playback



2. Adjust lateral-adjusting screws for maximum VTVM reading.
3. Apply back-tension by holding lightly the supply reel table, reproducing the alignment tape, and then adjust the angle of the head by loosening two lateral-adjusting screws so that VTVM reading on both L-CH and R-CH does not rise.

Note: Unless playback head is installed at correct angle, VTVM reading will rise.

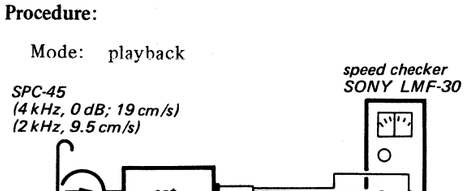
Adjustment screw positions:



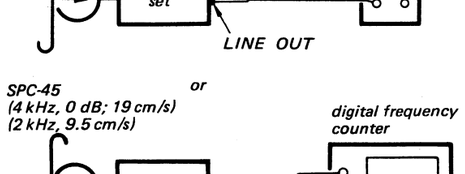
3. Tape Speed Adjustment

Procedure:

Mode: playback



or

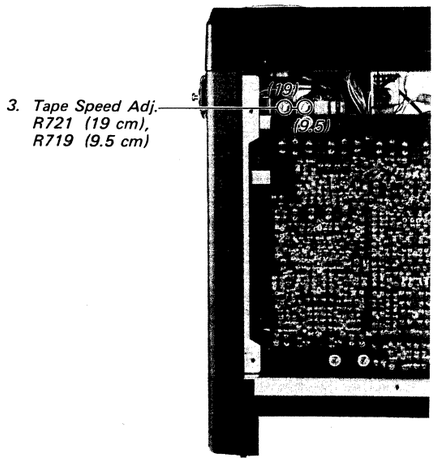


Adjust R721 (19 cm/s) and R719 (9.5 cm/s) to obtain specified checker or counter reading.

Specification:

speed checker	digital frequency counter
−0.5 ~ +0.5 %	3,980 ~ 4,020 Hz (19 cm/s) 1,990 ~ 2,010 Hz (9.5 cm/s)

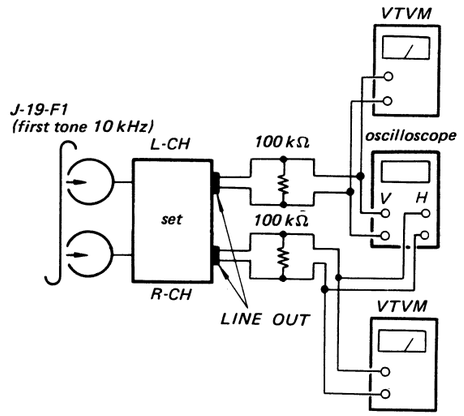
Adjustment Locations:



4. Playback Head Azimuth Adjustment

Procedure:

1. Mode: playback

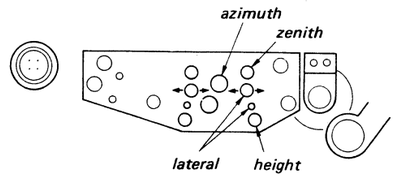


2.

Adjust	Oscilloscope patterns
azimuth adjustment screw to obtain the in-phase pattern around the highest VTVM readings.	[Allowance] in-phase ~ 90° out-of-phase (L) (R) (L) (R) Level drop should be within 0.5 dB.

3. Assure that LINE OUT level difference does not change when the mode is changed from playback to stop several times.
4. After adjustment, apply locking compound to the screw.

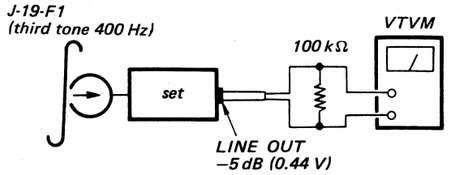
Adjustment screw positions:



5. Playback Level Adjustment

Procedure:

1. Mode: playback



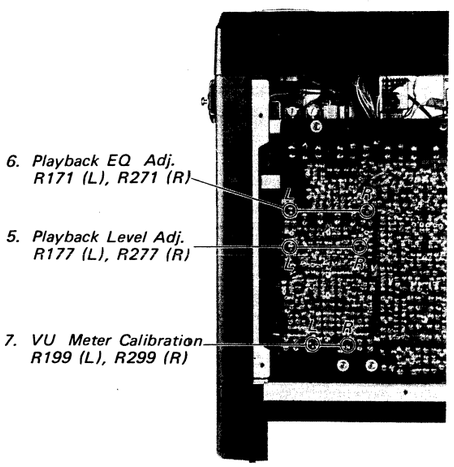
Adjust R177 (L-CH) and R277 (R-CH) to obtain −5 dB (0.44 V) VTVM reading.

2. Assure that the LINE OUT level does not change when the mode is changed from playback to stop several times.

Specification:

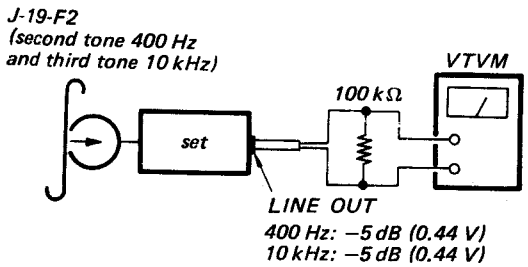
LINE OUT level: −5 dB (0.44 V)
Level difference
between channels: less than 1 dB

Adjustment Locations:



6. Playback Equalizer Adjustment

Procedure:

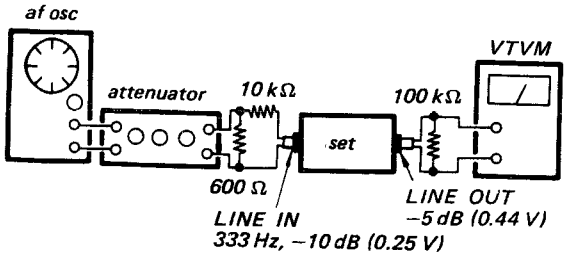


Adjust R171 (L-CH) and R271 (R-CH) to obtain −5 dB (0.44 V) at 10 kHz tone.

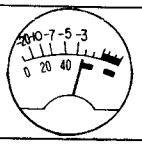
7. VU Meter Calibration

Procedure:

1. Mode: Standard record (See page 10.)



2.

Adjust	VU meter reading: 0 VU
Ri99 (L-CH) R299 (R-CH)	

8. Battery Check Meter Calibration

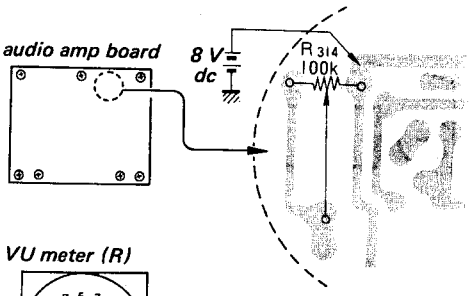
Settings:

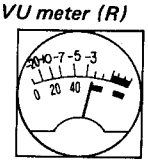
Power source 8 V dc

Procedure:

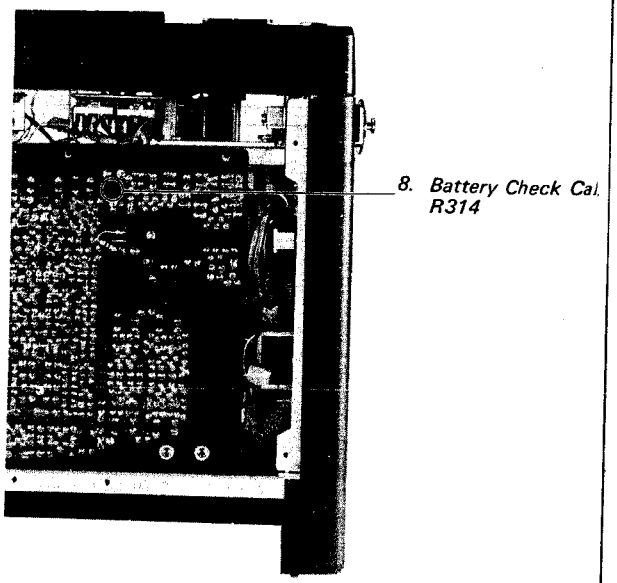
Adjust R314 to place the pointer as shown below.

Note: Do not use battery pack and AC adapter.





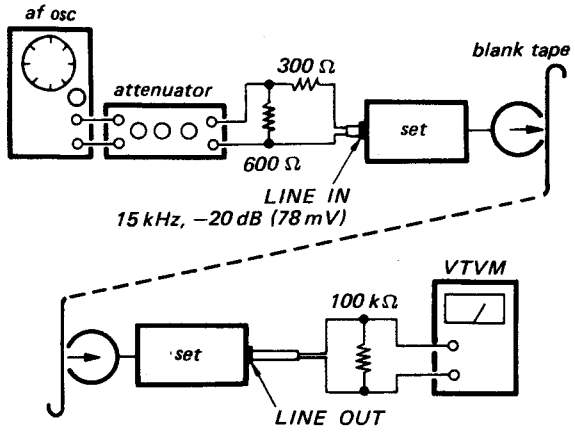
Adjustment Location:



9. Record Head Azimuth Adjustment

Procedure:

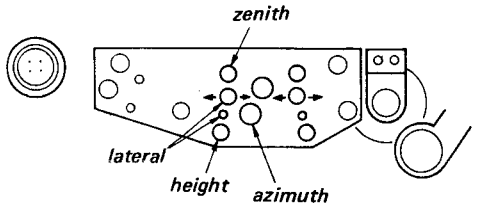
1. Mode: record



2. Adjust azimuth adjusting screw for maximum VTVM reading.

Note: If the maximum value of L-CH and R-CH outputs can not be obtained at the same angle, adjust the screw midway between two screw positions. (That value should not be fallen more than 1 dB from the maximum value.)

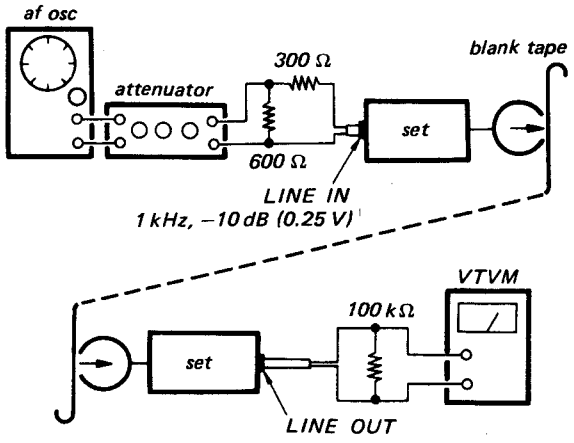
Adjustment Screw Positions:



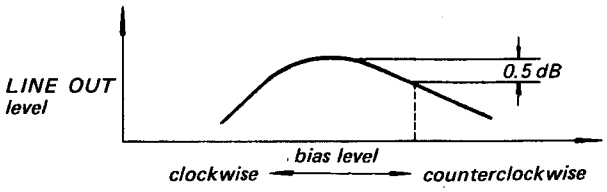
10. Record Bias Adjustment

Procedure:

1. Be sure that trap coil adjustment has been made.
2. Mode: record



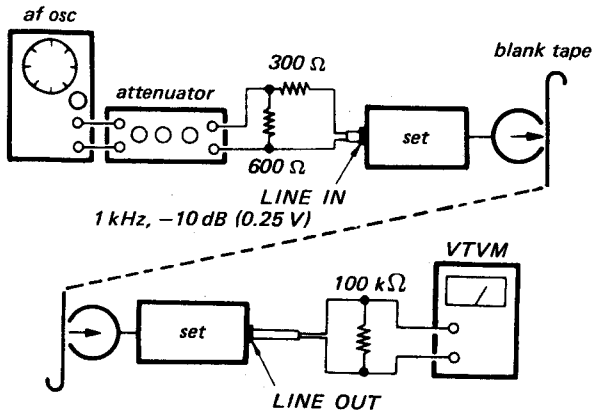
3. Turn the bias adjusting trimmer capacitors C502, C552 counterclockwise for maximum VTVM reading and then turn the capacitor counterclockwise so that VTVM reading drops 0.5 dB from the maximum value.



11. Record Level Adjustment

Procedure:

1. Mode: record

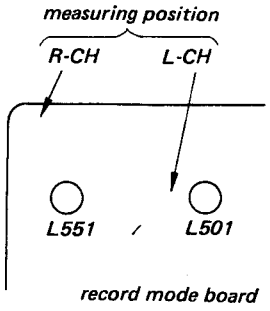


2. Adjust R001 (L-CH) and R021 (R-CH) for −5 dB (0.44 V) VTVM reading.

12. BIAS Trap Adjustment

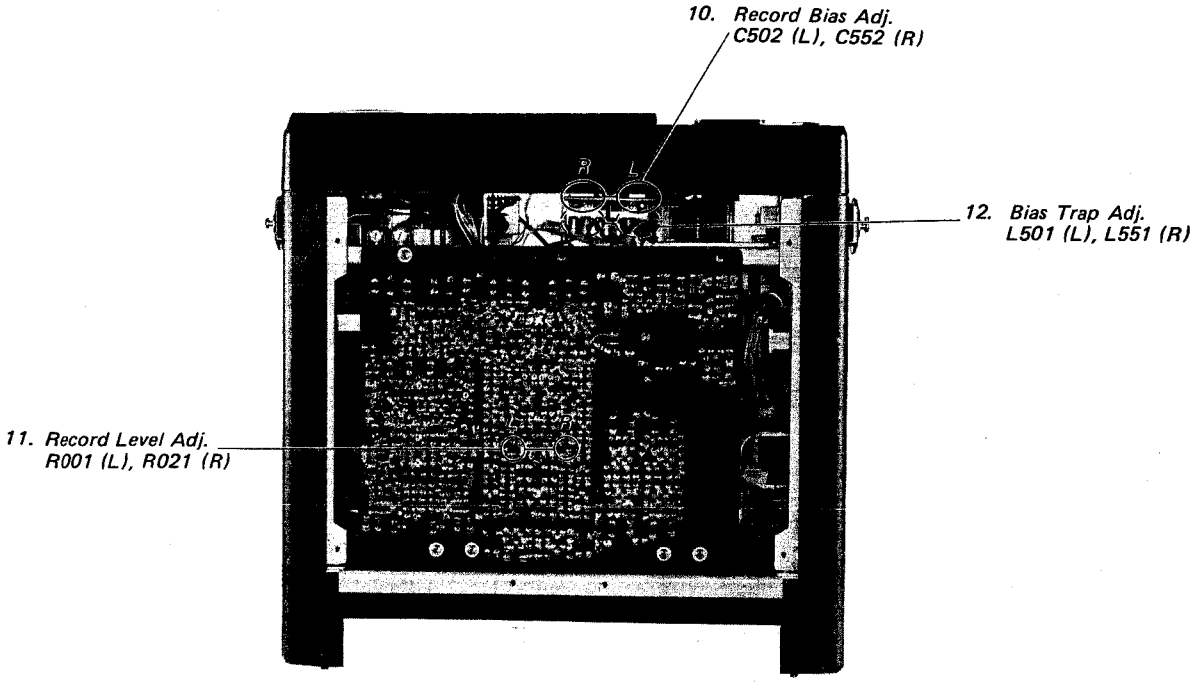
Procedure:

1. Connect a VTVM across the check point and ground as shown.



2. Place the set in record mode without tape.
3. Adjust L501, L551 to obtain the minimum VTVM reading (less than −7 dB, 0.35 V).

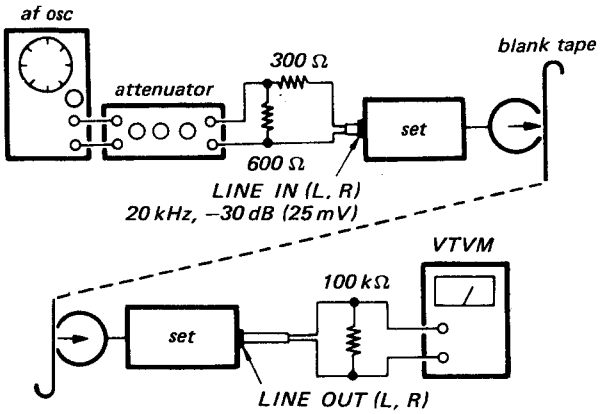
Adjustment Location:



13. Dummy Coil Adjustment

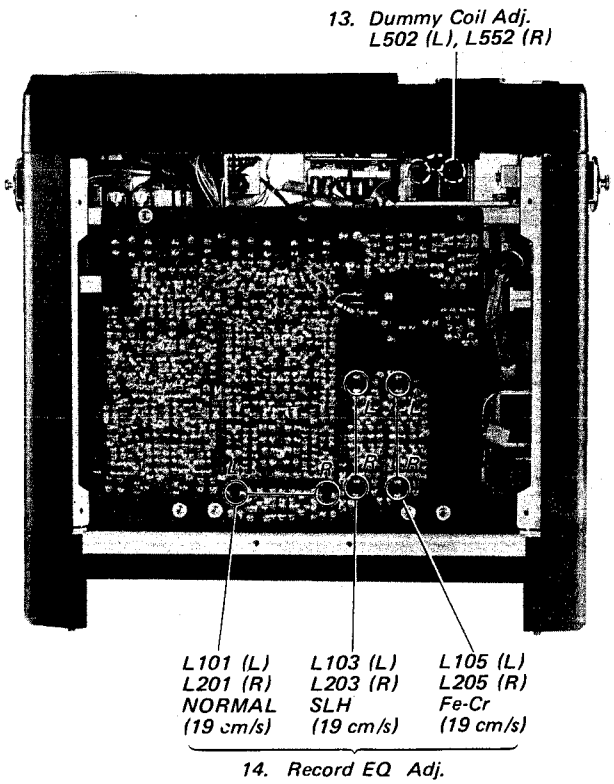
Procedure:

1. Mode: stereo record



2. Memorize VTVM reading.
3. Set L-channel (R-channel) only in record mode.
4. Adjust L502 (L-CH) and L552 (R-CH) with non-magnetic screwdriver, taking care not to break the core so that VTVM reading is the same as that obtained in step 2.

Adjustment Location:

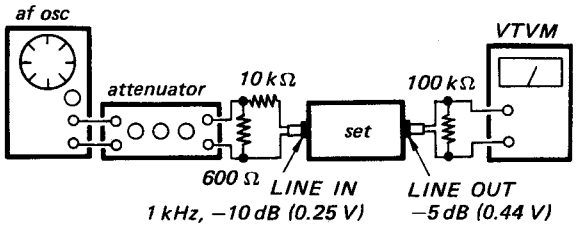


14. Record Equalizer Adjustment

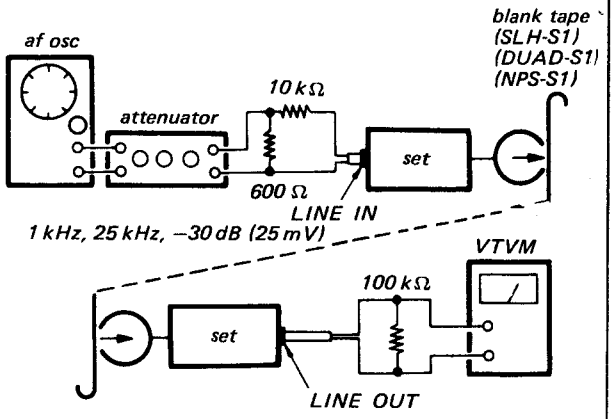
Procedure:

1. SOURCE/TAPE select switch: SOURCE position

   Adjust RECORD level control to obtain −5 dB (0.44 V) VTVM reading.



2. SOURCE/TAPE select switch: TAPE position



   Adjust trimmers so that 25 kHz level to obtain the 25 kHz level for the same level as the 1 kHz output level.

SLH-S1: Adjust L103 (L-CH) and L203 (R-CH)

BIAS switch	HIGH position
EQ switch	SLH position

DUAD-S1: Adjust L105 (L-CH) and L205 (R-CH)

BIAS switch	HIGH position
EQ switch	Fe-Cr position

NPS-S1: Adjust L101 (L-CH) and L201 (R-CH)

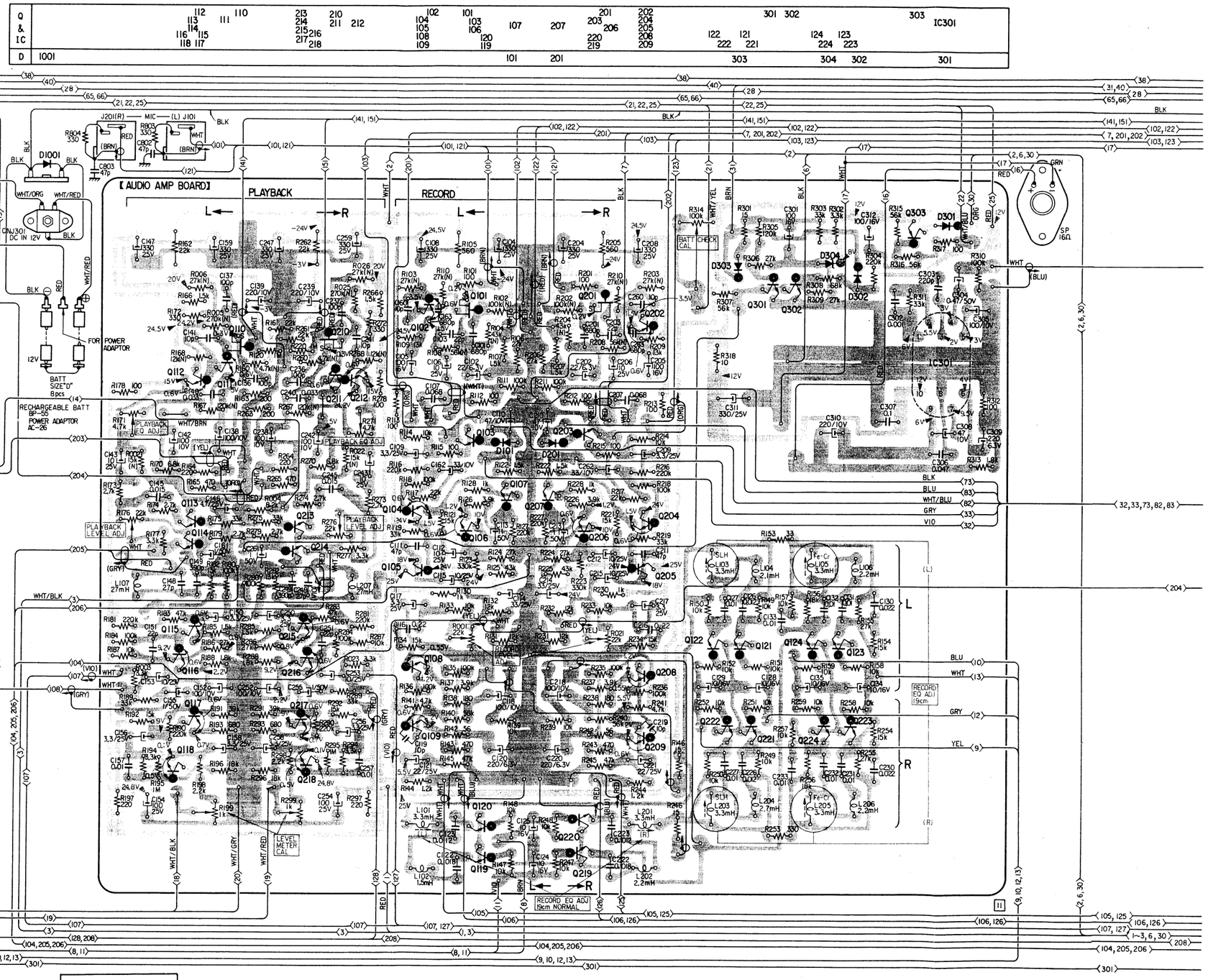
BIAS switch	LOW position
EQ switch	NORMAL position

SECTION 3

DIAGRAMS

3-1. MOUNTING DIAGRAM (1)

– Conductor Side –



1, 201
0, 210 : 2SK43

, 105 : 2SA705
, 205 : 2SA677
: 2SA677

, 106, 107, 109
, 206, 207, 209
, 114, 116 ～ 124 : 2SC1363
, 214, 216 ～ 224
, 302

, 108, 204, 208
, 112, 115 : 2SC1361
, 212, 215

: HA1306

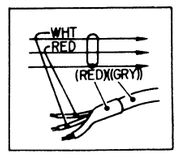
201 : V06C

SIB01-02

D304 : MZ08

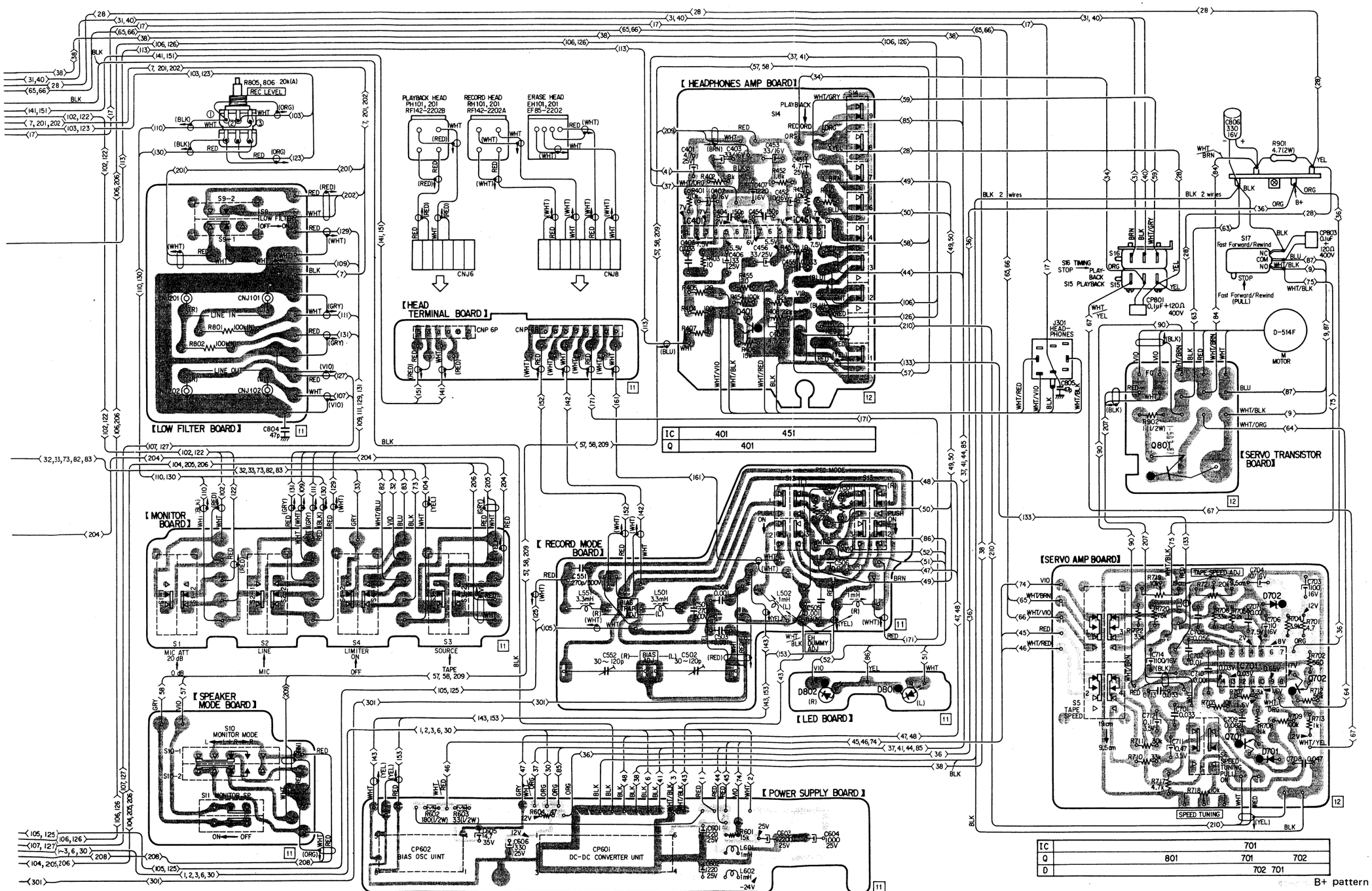
03, : 1T40

D1001 : U05E

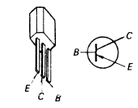


3-2. MOUNTING DIAGRAM (2)

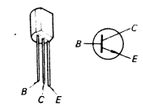
– Conductor Side –



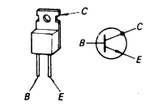
Q702: 2SA677



Q401, 701: 2SC1363

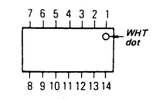


Q801: 2SC1060

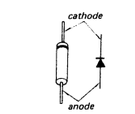


IC401, 451: TA7066P

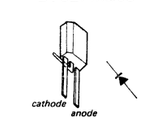
IC701: CX032B



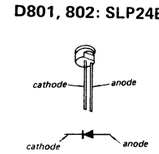
D701: 1T40

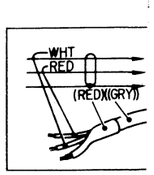


D702: MZ08

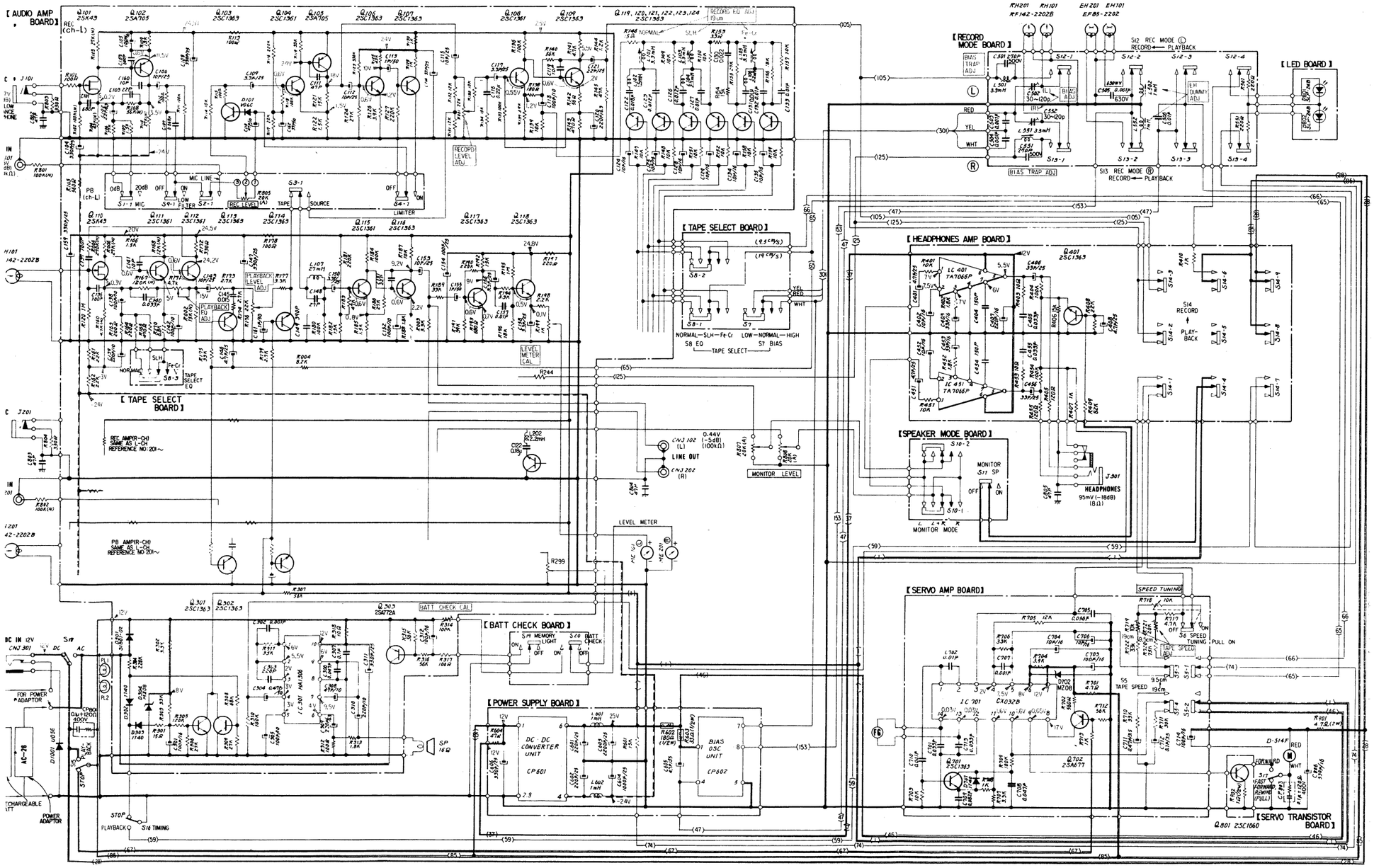


D801, 802: SLP24B





3-3. SCHEMATIC DIAGRAM



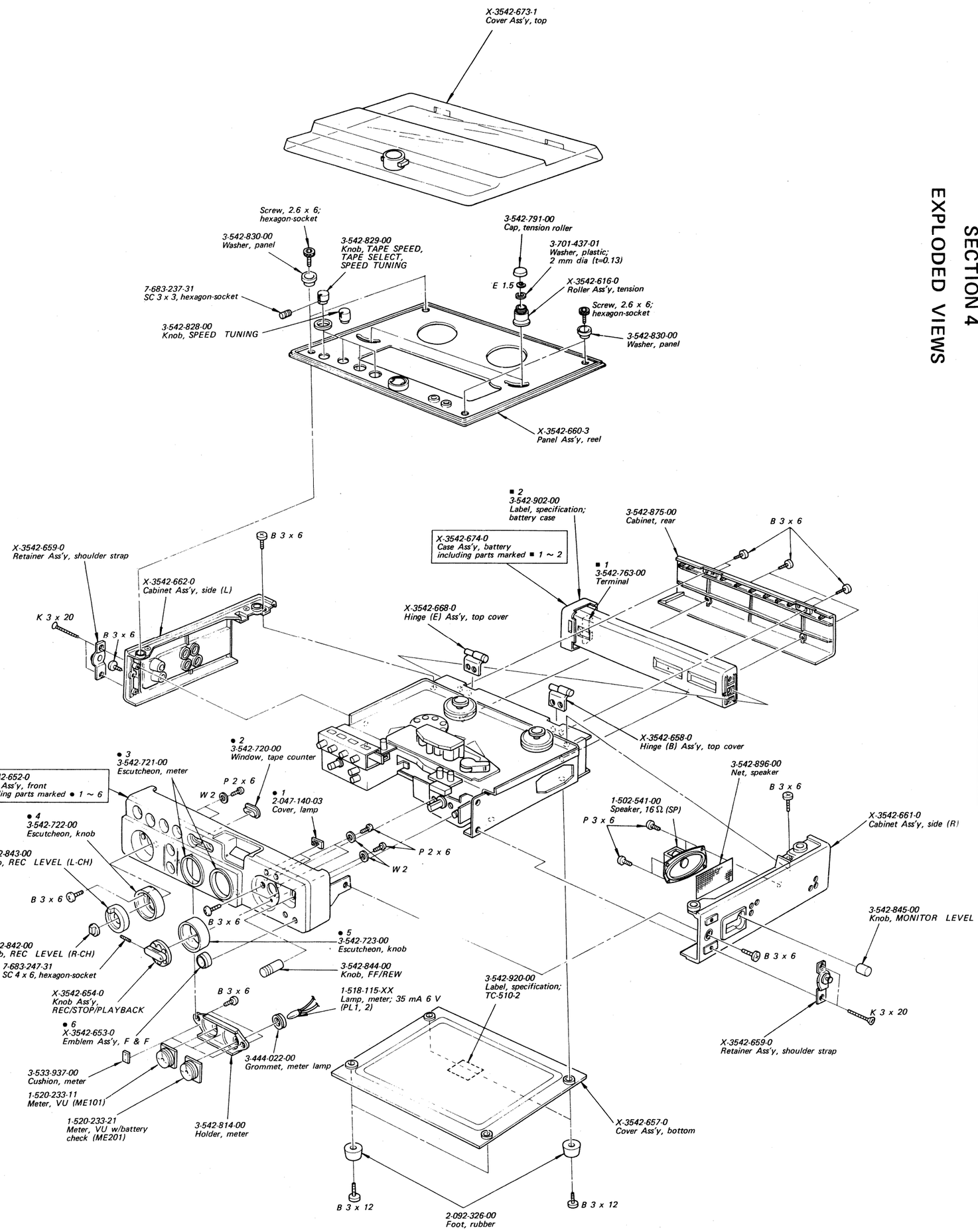
Note:

- 50 or less working volts are omitted except for electrolytic type.
  p = μμF. oo μ/oo = oo μF oo V
- All resistors are in Ω, ¼W, unless otherwise noted. k = 1,000 M = 1,000 k
- ⏚ indicates chassis ground.
- (N) indicates a low-noise resistor.
- ▬ indicates B+ circuit.
- ▬ ▬ indicates B− circuit.
- Voltages are DC with respect to gound unless otherwise noted. Readings are taken under no-signal conditions with a VOM (20 kΩ/v).
- Voltage variations may be noted due to normal production tolerances.
- Voltage between base and emitter are measured with 2.5 V range.
- Switch Mode:

Ref. No.	Switch	Position
S1	MIC ATT	0 dB
S2	MIC/LINE	MIC
S3	TAPE/SOURCE	TAPE
S4	LIMITER	OFF
S5	TAPE SPEED	19 cm/s
S6	SPEED TUNING	OFF
S7	TAPE SELECT BIAS	LOW
S8	TAPE SELECT EQ	NORMAL
S9	LOW FILTER	OFF
S10	MONITOR MODE	L-ch
S11	MONITOR SP	OFF
S12	RECORD MODE (L)	playback
S13	RECORD MODE (R)	playback
S14	record/palyback	playback
S15	playback	stop
S16	Timing	stop
S17	Fast Forward/Rewind	stop
S18	ac/dc	dc
S19	MEMORY light	OFF
S20	BATT CHECK	OFF

SECTION 4
EXPLODED VIEWS

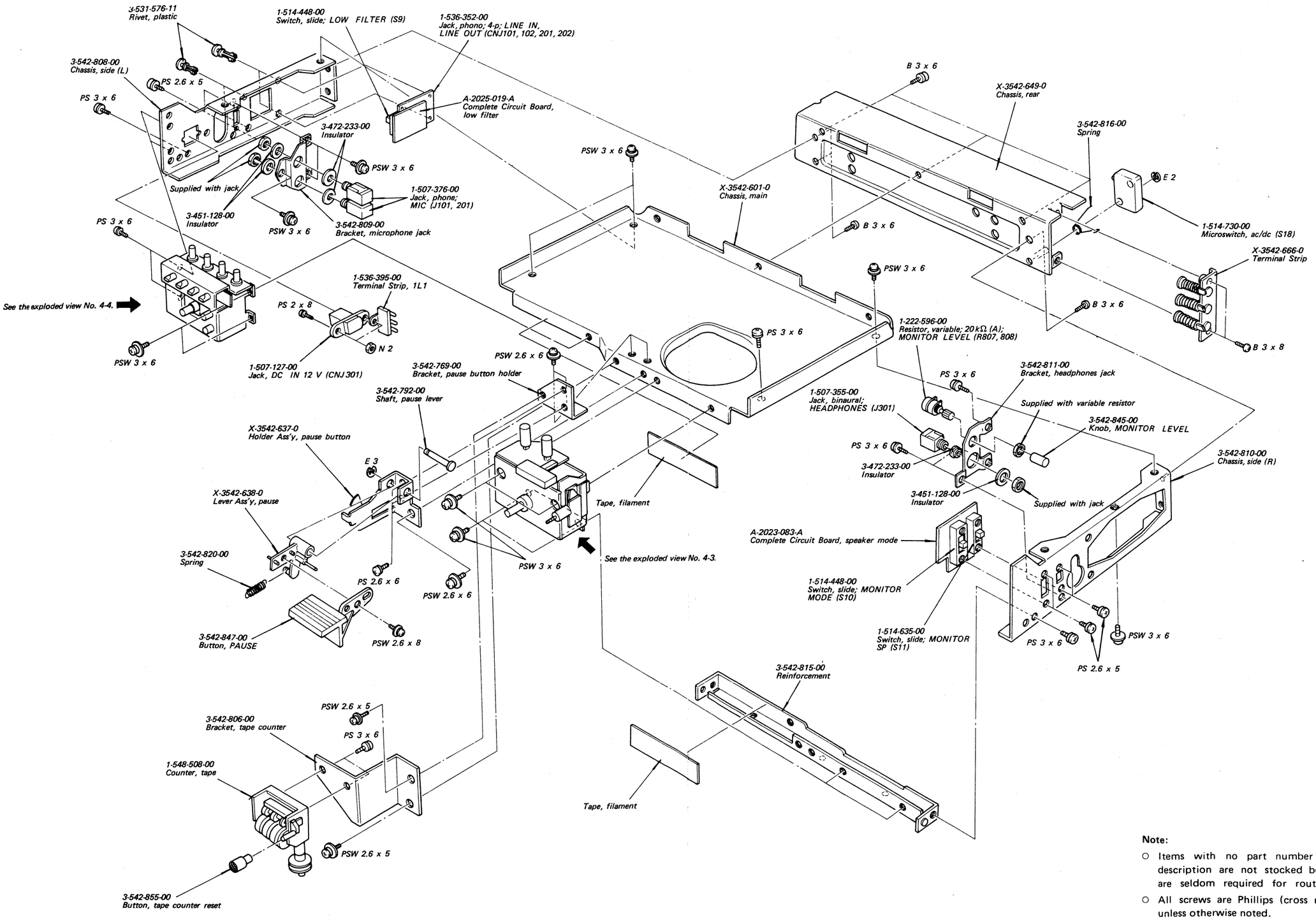
4-1.



Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head

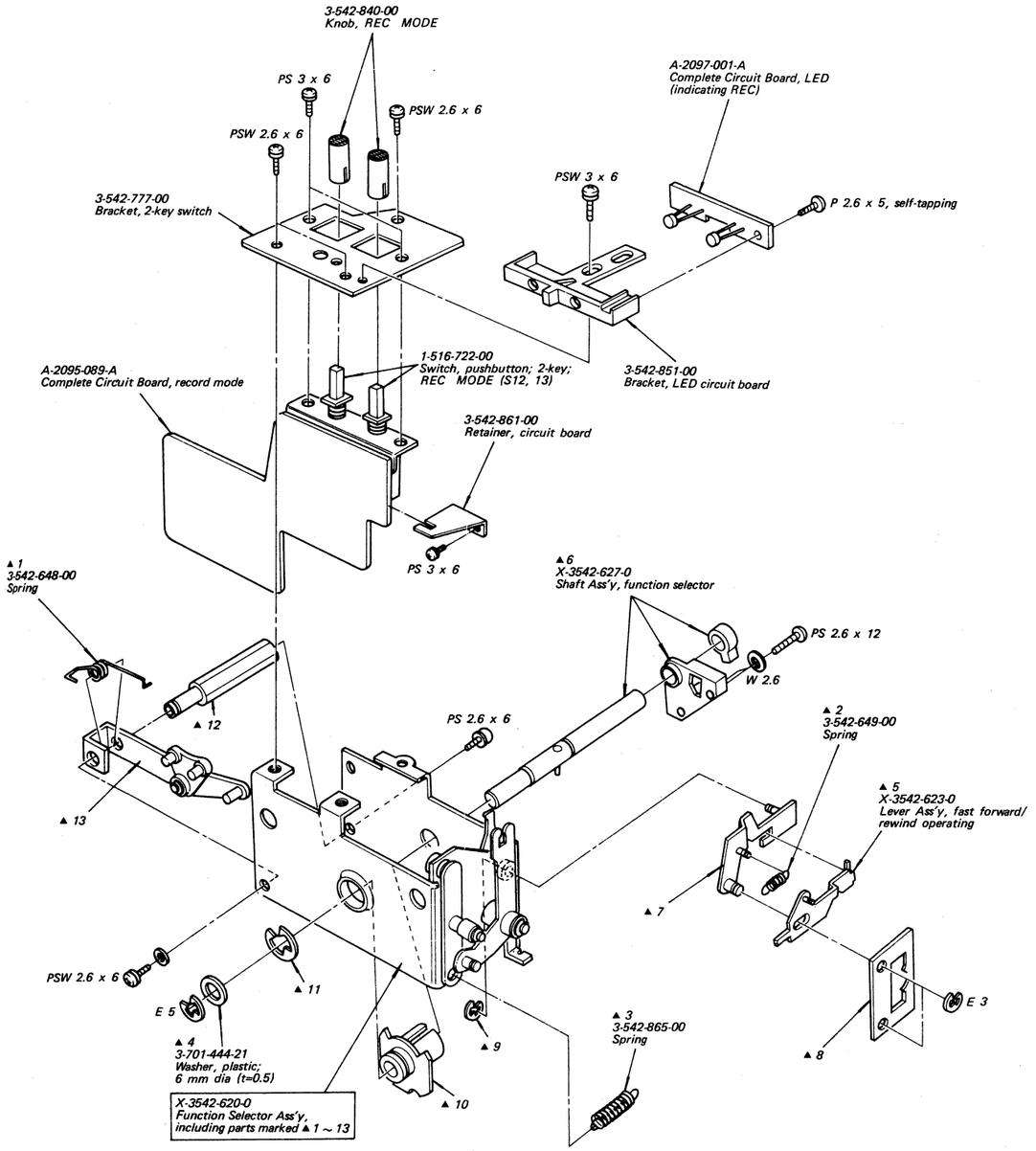
4-2.



Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head
- (□□T) shows the number of coils in spring.

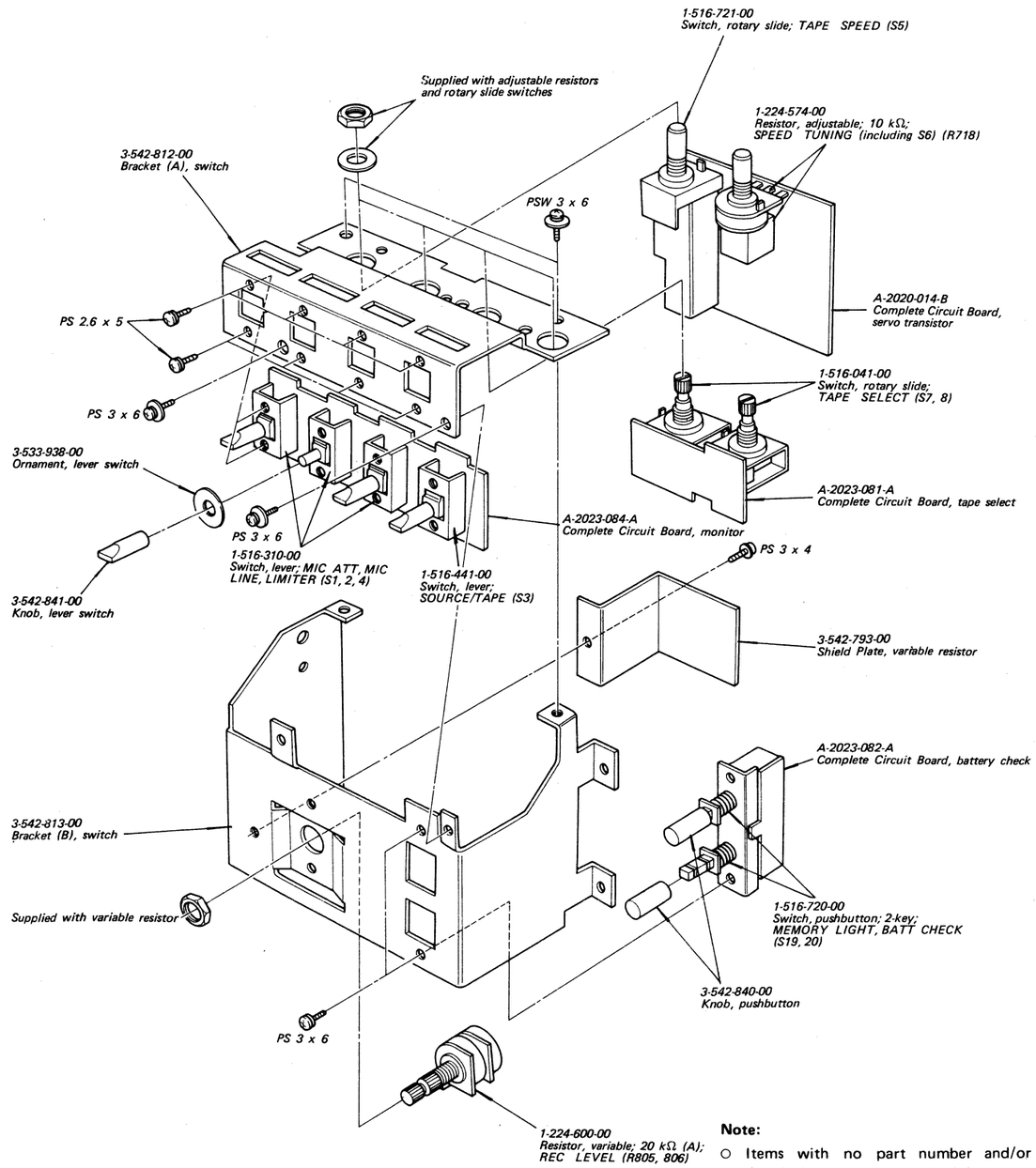
4-3.



Note:

- ○ Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- ○ All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head

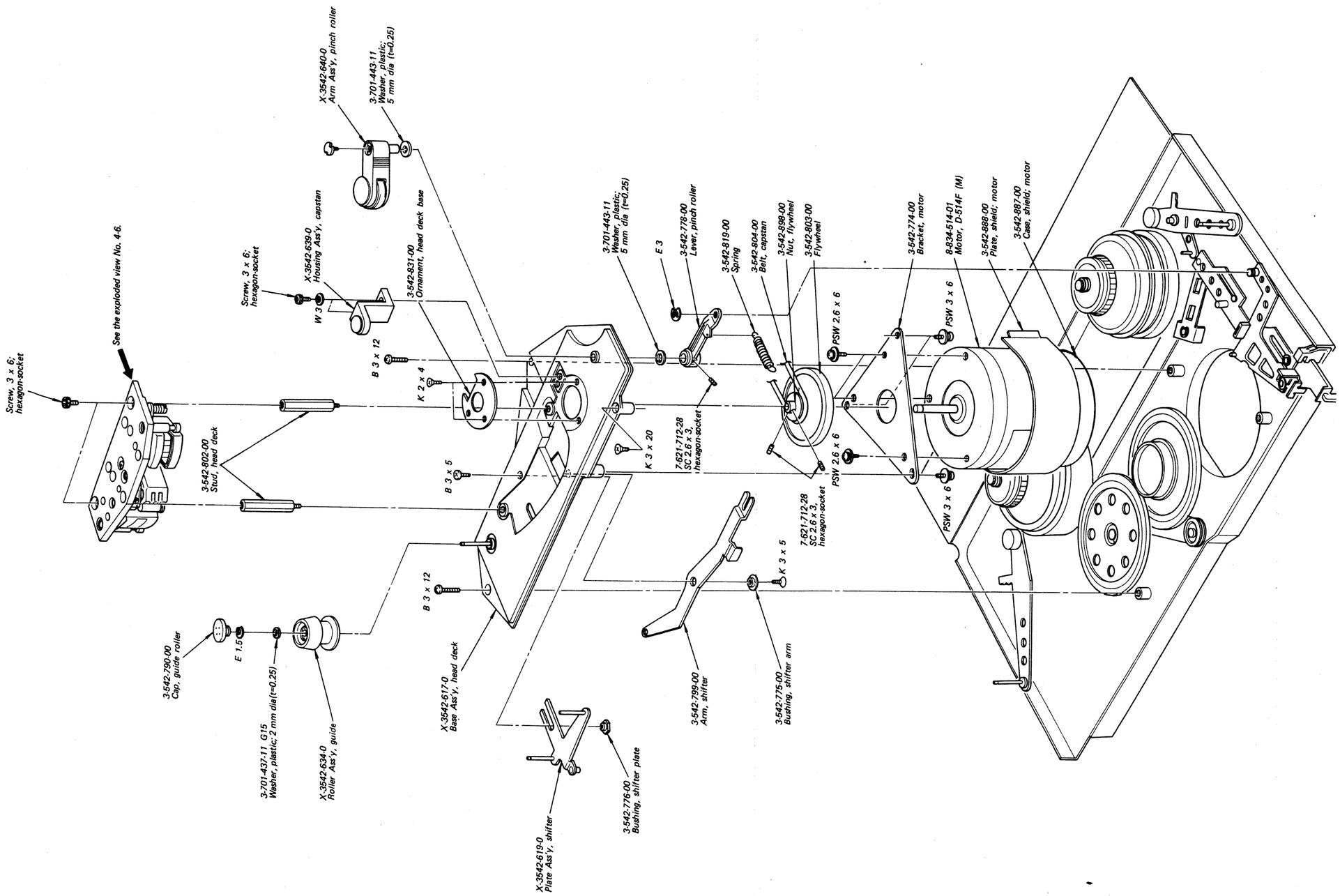
4-4.



Note:

- ○ Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- ○ All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head

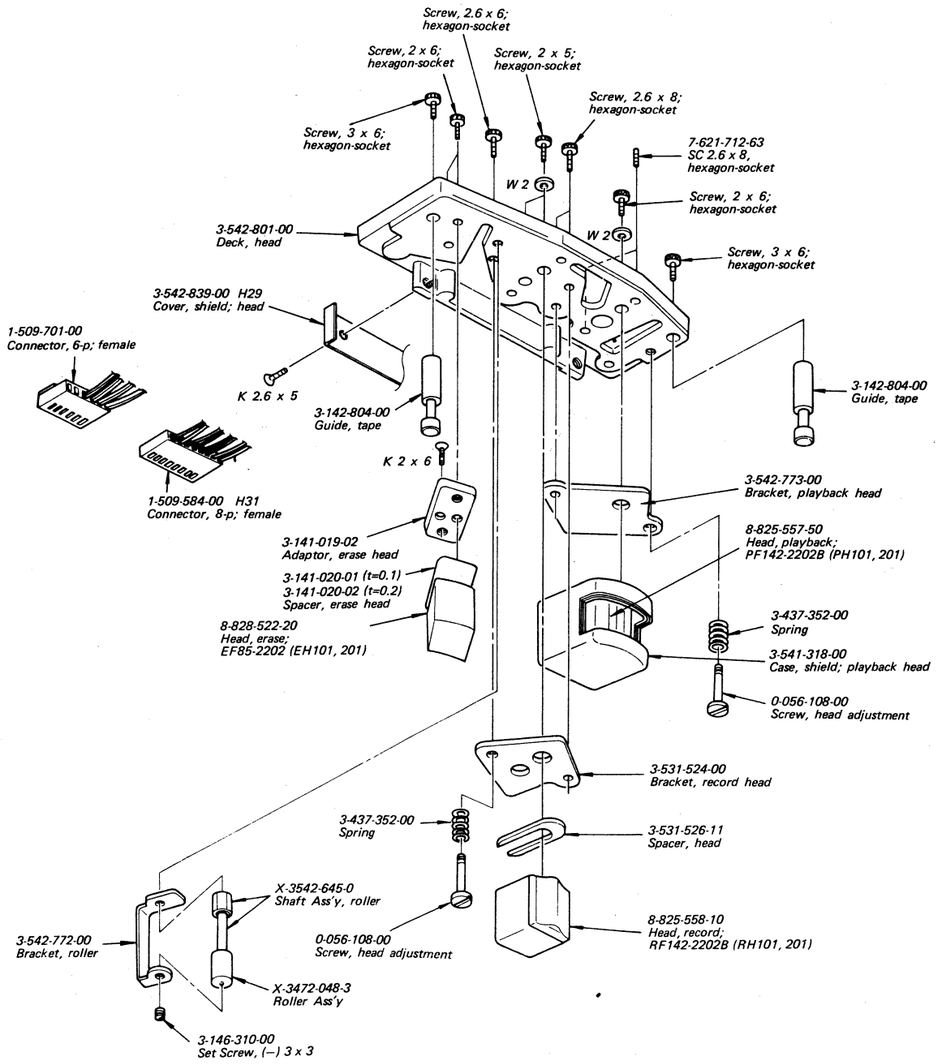
4-5.



Note:

- ○ Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- ○ All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head

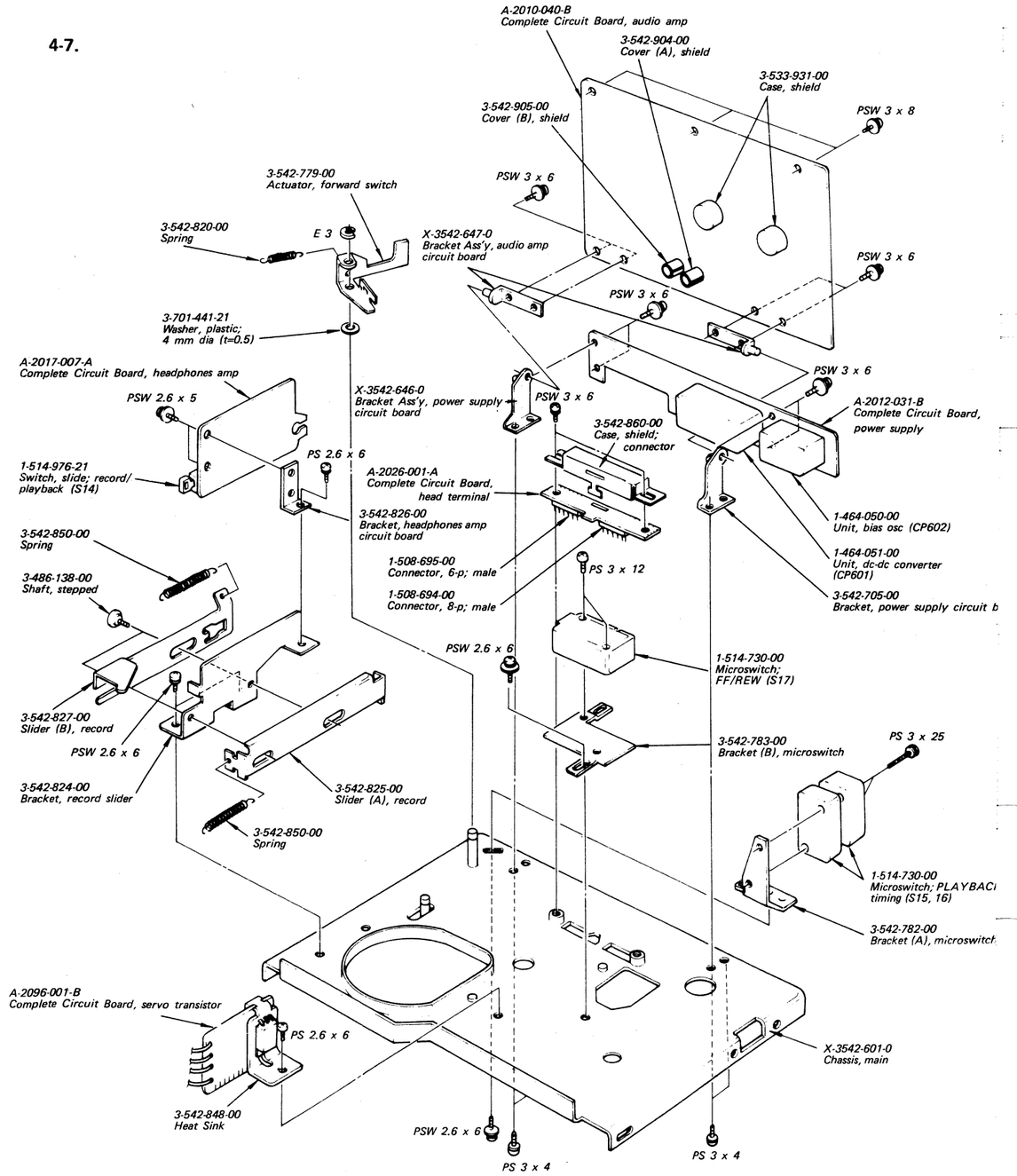
4-6.



Note:

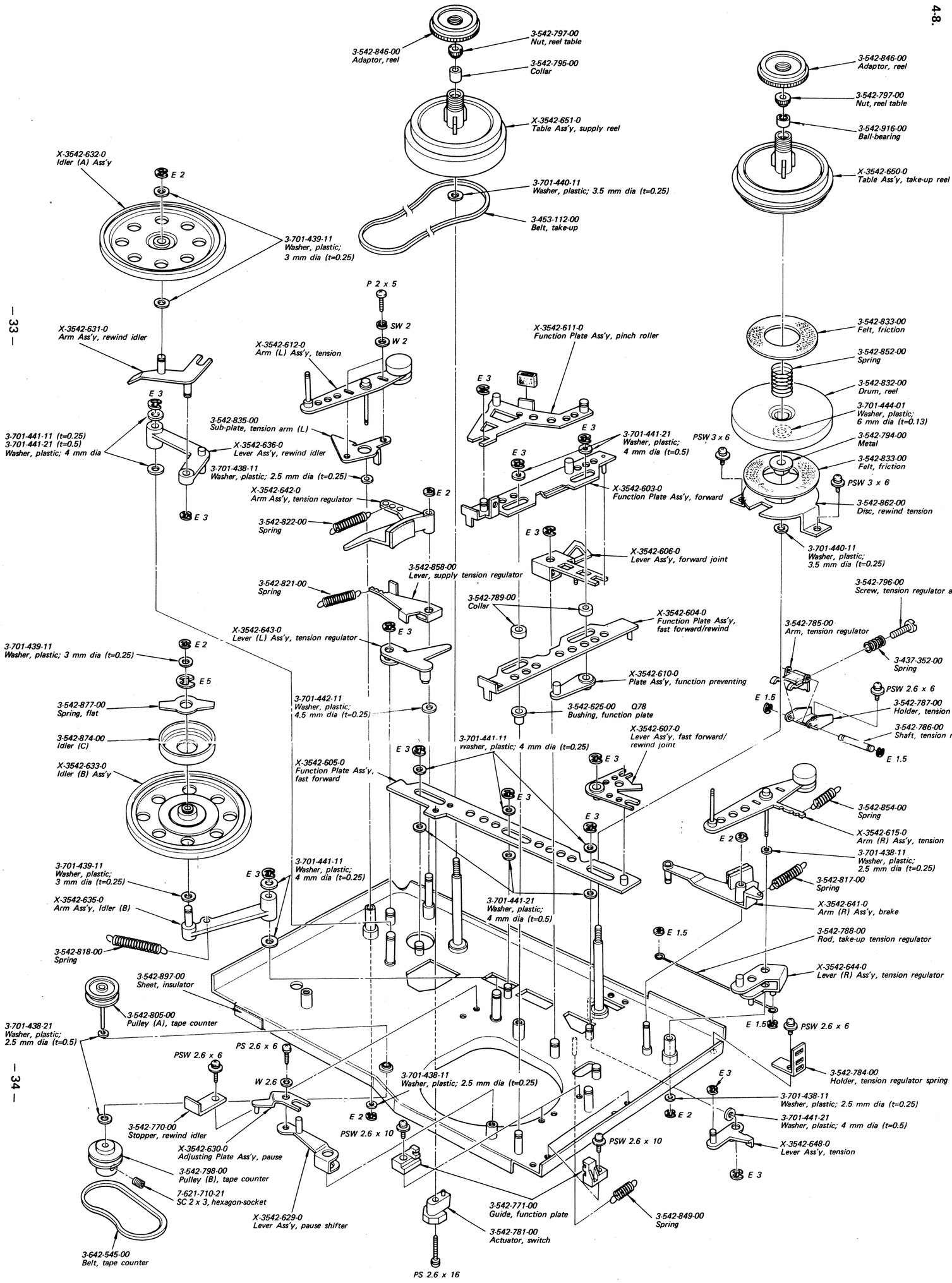
- ○ Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- ○ All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head

4-7.



Note:

- ○ Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- ○ All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head



Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head

SECTION 5

ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description
		COMPLETE CIRCUIT BOARDS
	A-2010-040-B	Audio Amp
	A-2012-031-B	Power Supply
	A-2017-007-A	Headphones Amp
	A-2020-014-B	Servo
	A-2023-081-A	Tape Select
	A-2023-082-A	Battery Check
	A-2023-083-A	Speaker Mode
	A-2023-084-A	Monitor
	A-2025-019-A	Low Filter
	A-2026-001-A	Head Terminal
	A-2095-089-A	Record Mode
	A-2096-001-B	Servo Transistor
	A-2097-001-A	LED
		SEMICONDUCTORS
		Transistors
Q101, 201		2SK43 (FET)
Q102, 202		2SA705
Q103, 203		2SC1363
Q104, 204		2SC1361
Q105, 205		2SA705
Q106, 206 Q107, 207)		2SC1363
Q108, 208		2SC1361
Q109, 209		2SC1363
Q110, 210		2SK43 (FET)
Q111, 211 Q112, 212)		2SC1361
Q113, 213 Q114, 214)		2SC1363
Q115, 215		2SC1361
Q116 ~ 124 Q216 ~ 224)		2SC1363
Q301, 302		2SC1363
Q303		2SA772
Q401		2SC1363
Q701		2SC1363
Q702		2SA677
Q801		2SC1060
		ICs
IC301		HA1306
IC401, 451		TA7066P
IC701		CX032B
		Diodes
D101, 201		VO6C
D301		SIB01-02
D302, 303		IT40
D304		MZ08
D701		IT40
D702		MZ08
D801, 802		SLP24B
D1001		U05E
		COILS
L101, 201	1-407-270-00	3.3 mH, variable inductor
L102	1-407-494-21	1.5 mH, microinductor
L202	1-407-198-XX	2.2 mH, microinductor
L103, 203	1-407-270-00	3.3 mH, variable inductor
L104, 204	1-407-199-XX	2.7 mH, microinductor
L105, 205	1-407-270-00	3.3 mH, variable inductor
L106, 206	1-407-198-XX	2.2 mH, microinductor
L107, 207	1-407-593-00	27 mH, microinductor
L501, 551	1-407-270-00	3.3 mH, variable inductor
L502, 552	1-407-284-00	1 mH, variable inductor
L601, 602	1-407-195-XX	1 mH, microinductor
		CAPACITORS

All capacitors are in μF and of electrolytic unless otherwise noted. (p=μμF) 50 or less working volts are omitted except for electrolytic type.

Ref. No.	Part No.	Description		
C101, 201	1-102-116-11	680 p		ceramic
C102, 202	1-131-190-11	22	6.3 V	tantalum
C103, 203	1-107-115-11	22 p		silvered mica
C104, 204	1-121-654-11	330	25 V	
C105, 205	1-121-415-11	100	16 V	
C106, 206	1-131-238-11	10	25 V	tantalum
C107, 207	1-106-102-12	0.068		mylar
C108, 208	1-121-654-11	330	25 V	
C109, 209	1-131-206-11	3.3	25 V	tantalum
C110, 210	1-121-352-11	47	10 V	
C111, 211	1-107-123-11	47 p		silvered mica
C112, 212	1-121-398-11	10	25 V	
C113, 213	1-121-391-11	1	50 V	
C114, 214	1-121-404-11	33	25 V	
C115, 215	1-131-238-11	10	25 V	tantalum
C116, 216	1-106-114-12	0.22		mylar
C117, 217	1-121-392-11	3.3	25 V	
C118, 218	1-121-414-11	100	10 V	
C119, 219	1-107-107-11	10 p		silvered mica
C120, 220	1-121-419-11	220	6.3 V	
C121, 221	1-121-408-11	22	25 V	
C122,222	1-106-031-12	0.018		mylar
C123, 223	1-106-027-12	0.012		mylar
C124 C125)	1-121-651-11	10	16 V	
C126, 226	1-106-027-12	0.012		mylar
C127, 227	1-106-025-12	0.01		mylar
C128 C129)	1-121-651-11	10	16 V	
C130, 230	1-106-033-12	0.022		mylar
C131, 231	1-106-025-12	0.01		mylar
C132, 232 C133, 233)	1-106-025-12	0.01		mylar
C134 C135)	1-121-651-11	10	16 V	
C136, 236 C137, 237)	1-107-131-11	100 p		silvered mica
C138, 238	1-121-414-11	100	10 V	
C139, 239	1-121-420-11	220	10 V	
C140, 240	1-106-094-12	0.033		mylar
C141, 241	1-107-107-11	10 p		silvered mica
C142, 242	1-121-414-11	100	10 V	
C143, 243	1-131-238-11	10	25 V	tantalum
C145, 245	1-106-086-12	0.015		mylar
C146	1-121-395-11	4.7	25 V	
C147, 247	1-121-654-11	330	25 V	
C148, 248	1-107-071-11	27 p		silvered mica
C149, 249	1-102-113-11	390 p		ceramic
C150, 250	1-131-206-11	3.3	25 V	tantalum
C151, 251	1-107-115-11	22 p		silvered mica
C152, 252	1-121-414-11	100	10 V	
C153, 253	1-131-238-11	10	25 V	tantalum
C154, 254	1-121-416-11	100	25 V	
C155, 255	1-121-391-11	1	50 V	
C156, 256	1-121-392-11	3.3	25 V	
C157, 257	1-106-082-12	0.01		mylar
C158, 258	1-121-392-11	3.3	25 V	
C159, 259	1-121-654-11	330	25 V	
C160, 260	1-107-107-11	10 p		silvered mica
C161, 261	1-121-391-11	1	50 V	
C162, 262	1-121-402-11	33	10 V	
C163, 263	1-102-116-11	680 p		ceramic
C301	1-121-971-11	100	16 V	
C302	1-106-058-12	0.001		mylar
C303	1-107-139-11	220 p		silvered mica
C304	1-121-726-11	0.47	50 V	
C305	1-121-414-11	100	10 V	
C306	1-106-098-12	0.047		mylar
C307	1-106-106-12	0.1		mylar
C308	1-121-352-11	47	10 V	
C309	1-121-419-11	220	6.3 V	
C310	1-121-420-11	220	10 V	
C311	1-121-654-11	330	25 V	
C312	1-121-971-11	100	16 V	
C401, 451	1-121-395-11	4.7	25 V	
C402, 452	1-121-651-11	10	16 V	
C403, 453	1-121-404-11	33	25 V	
C404, 454	1-107-135-11	150 p		silvered mica

Ref. No.	Part No.	Descriprion	
C405, 455	1-105-679-12	0.033	mylar
C406, 456	1-121-404-11	33 25 V	
C407	1-121-421-11	220 16 V	
C408	1-121-395-11	4.7 25 V	
C501, 551	1-107-179-11	270 p 500 V	silvered mica
C502,552	1-141-034-00	30 ~ 120 p	trimmer
C503, 504	1-105-501-12	0.001	mylar
C505	1-129-702-11	0.001 630 V	plastic
C506	1-105-673-12	0.01	mylar
C601, 602	1-121-422-11	220 25 V	
C603	1-123-047-11	2200 25 V	
C604	1-121-657-11	1000 25 V	
C605	1-131-219-11	4.7 35 V	tantalum
C606	1-121-654-11	330 25 V	
C701	1-105-679-12	0.033	mylar
C702	1-105-673-12	0.01	mylar
C703	1-121-415-11	100 16 V	
C704	1-121-561-11	10 16 V	
C705	1-108-908-12	0.056	mylar
C706	1-121-651-11	10 16 V	
C707	1-105-661-12	0.001	mylar
C708	1-106-098-12	0.047	mylar
C709	1-106-104-12	0.082	mylar
C710	1-105-661-12	0.001	mylar
C711	1-131-213-11	0.47 3.5 V	tantalum
C712	1-131-209-11	0.1 3.5 V	tantalum
C713	1-105-679-12	0.033	mylar
C714	1-121-415-11	100 16 V	
C802 ~ 805	1-107-123-11	47 p	silvered mica
C806	1-121-521-11	330 16 V	

RESISTORS

All resistors are in ohms. Regular-type ¼W carbon resistors are omitted. Check schematic diagram for resistance values.
k = 1000, M = 1000 k

R001, 021	1-224-253-00	22 k	adjustable
R171, 271	1-224-251-00	4.7 k	adjustable
R176, 276	1-224-253-00	22 k	adjustable
R199, 299	1-224-249-00	1 k	adjustable
R314	1-222-777-00	100 k	adjustable
R602	1-217-449-11	180 ½W	fuse
R603	1-217-440-11	33 k ½W	fuse
R718	1-224-574-00	10 k	adjustable; SPEED TUNING (including S6)
R719	1-224-574-00	10 k	adjustable
R721	1-221-630-00	20 k	adjustable
R805, 806	1-224-600-00	20 k (A)	variable, REC LEVEL
R807, 808	1-222-596-00	20 k (A)	variable, MONITOR LEVEL
R901	1-206-455-11	4.7 2W	metal-oxide
R902	1-244-801-11	1 ½W	carbon

SWITCHES

S1, 2	1-516-310-00	Lever, MIC ATT, MIC LINE
S3	1-516-441-00	Lever, SOURCE, TAPE
S4	1-516-310-00	Lever, LIMITER
S5	1-516-721-00	Rotary Slide, TAPE SPEED
S6		included in R718 (SPEED TUNING)
S7,8	1-516-041-00	Rotary Slide, TAPE SELECT
S9, 10	1-514-448-00	Slide, LOW FILTER/MONITOR MODE
S11	1-514-635-00	Slide, MONITOR SP
S12, 13	1-516-722-00	Pushbutton, 2-key; REC MODE
S14	1-514-976-21	Slide, RECORD/PLAYBACK
S15 ~ 18	1-514-730-00	Microswitch, PLAYBACK/timing/ FF/REW/ac/dc
S19, 20	1-516-720-00	Pushbutton, 2-key; MEMORY LGHT/ BATT CHECK

JACKS

CNJ101,201 CNJ102,202	1-536-352-00	Phono, 4-p; LINE IN/LINE OUT

Ref. No.	*Part No.*	*Description*
CNJ301	1-507-127-00	DC IN 12 V
J101, 201	1-507-376-00	Phone, MIC
J301	1-507-355-00	Binaural, HEADPHONES
	CONNECTORS	
	1-508-694-00	8-p, male
	1-508-695-00	6-p, male
	1-509-584-00	8-p, female
	1-509-701-00	6-p, female
	HEADS	
EH101, 201	8-828-522-20	Erase, EF85-2202
PH101, 201	8-825-557-50	Playback, PF142-2202B
RH101, 201	8-825-558-10	Record, RF142-2202B

Ref. No.	*Part No.*	*Description*
	MISCELLANEOUS	
CP601	1-464-051-00	Unit, dc-dc converter
CP602	1-464-050-00	Unit, bias osc
CP801, 803	1-101-534-31	Encapsulated Component
M	8-834-514-01	Motor, D-514F
ME101	1-520-233-11	Meter, VU
ME201	1-520-233-21	Meter, VU w/battery check
PL1,2	1-518-115-XX	Lamp, meter; 35 mA 6 V
SP	1-502-541-00	Speaker, 16 Ω
	1-535-056-00	Pin, terminal
	1-536-395-00	Terminal Strip, 1L1
	1-536-398-00	Terminal Strip, 2L2

ACCESSORIES

Part No.	*Description*
X-3701-018-1	Cleaning Tips
1-528-022-00	Battery, "D" type
1-534-049-31	Cord, connection; RK-74
3-533-950-00	Strap, shoulder
3-780-859-11	Manual, instruction

Part No.	*Description*
3-793-010-20	Booklet, tape talk
3-793-711-01	Card, caution
3-793-827-01	Card, caution; function knob
8-860-105-00	Reel, R-5A

9-954-371-01

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