

# TC-105

*E Model*

*USA Model*

*Canada Model*



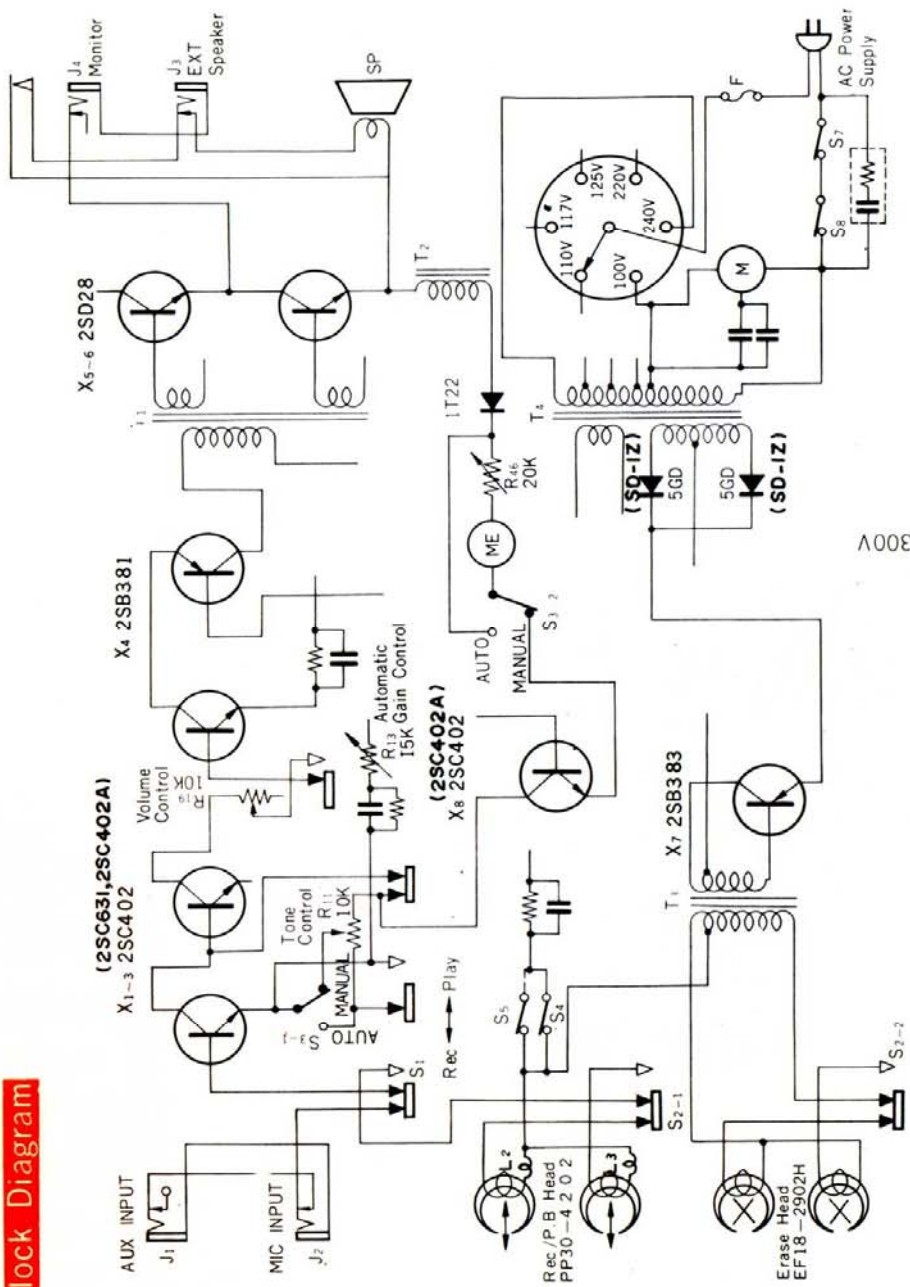
## TAPECORDER

### SPECIFICATIONS

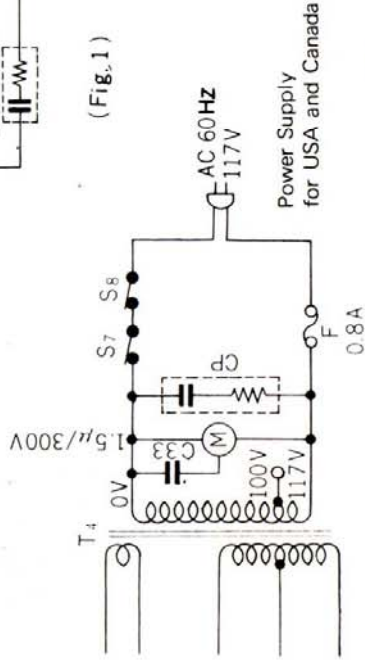
|                                                     |                                                                                                                                                                                            |                          |
|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| <b>Power requirement:</b>                           | AC 50/60 Hz, 100, 110, 117, 125, 220 or 240V, 45W<br>Only AC 60 Hz, 117V for USA<br>Only AC 50/60 Hz, 117V for Canada<br>Instantaneous selection 7½, 3¾ or 1⅞ ips<br>(19, 9.5 or 4.8 cm/s) | (1)<br>(1)<br>(1)<br>(1) |
| <b>Tape speeds:</b>                                 | 4 tracks, monophonic                                                                                                                                                                       |                          |
| <b>Tracks:</b>                                      | 45 minutes per track, 3 hours in total at 7½ ips                                                                                                                                           |                          |
| <b>Recording time:</b><br>(with 1800 ft/550 m tape) | 1 hr. 30 min. per track, 6 hours in total at 3¾ ips<br>3 hours per track, 12 hours in total at 1⅞ ips<br>7" (18 cm) or smaller                                                             |                          |
| <b>Reels:</b>                                       | 40 ~ 18,000 Hz at 7½ ips                                                                                                                                                                   |                          |
| <b>Frequency response:</b>                          | 40 ~ 13,000 Hz at 3¾ ips<br>50 ~ 6,000 Hz at 1⅞ ips<br>Less than 0.17% at 7½ ips<br>Less than 0.3% at 3¾ ips<br>Less than 0.4% at 1⅞ ips                                                   |                          |
| <b>Flutter and wow:</b>                             | In-line quarter track                                                                                                                                                                      |                          |
| <b>Record/Playback head:</b>                        | In-line quarter track                                                                                                                                                                      |                          |
| <b>Erase head:</b>                                  | Low impedance (600Ω) microphone -77 db (0.11 mV)                                                                                                                                           |                          |
| <b>Inputs:</b>                                      | High impedance (100KΩ) auxiliary input -27 db (34 mV)                                                                                                                                      |                          |
| <b>Outputs:</b>                                     | External speaker output 8Ω, 11.2 db (2.83V)                                                                                                                                                |                          |
| <b>Speaker:</b>                                     | High impedance monitor jack 10KΩ, 13 db (3.46V)                                                                                                                                            |                          |
| <b>Power output:</b>                                | 4 x 6" (10 x 15 cm) dynamic                                                                                                                                                                |                          |
| <b>Transistors:</b>                                 | Max. 4W<br>2SC402(4)---(2SC631x2, 2SC402Ax2), 2SB381(1),<br>2SB383(1), 2SD28(2)                                                                                                            |                          |
| <b>Diodes:</b>                                      | 1T22(1), 5G-D(SD-1Z)(2)                                                                                                                                                                    |                          |
| <b>Dimensions:</b>                                  | 14¾ (W) x 7¼ (H) x 13⅝" (D)<br>(37.5 x 18.5 x 34.0 cm)                                                                                                                                     |                          |
| <b>Weight:</b>                                      | 21 lb (9.5 kg)                                                                                                                                                                             |                          |

**SONY®**  
**SERVICE MANUAL**

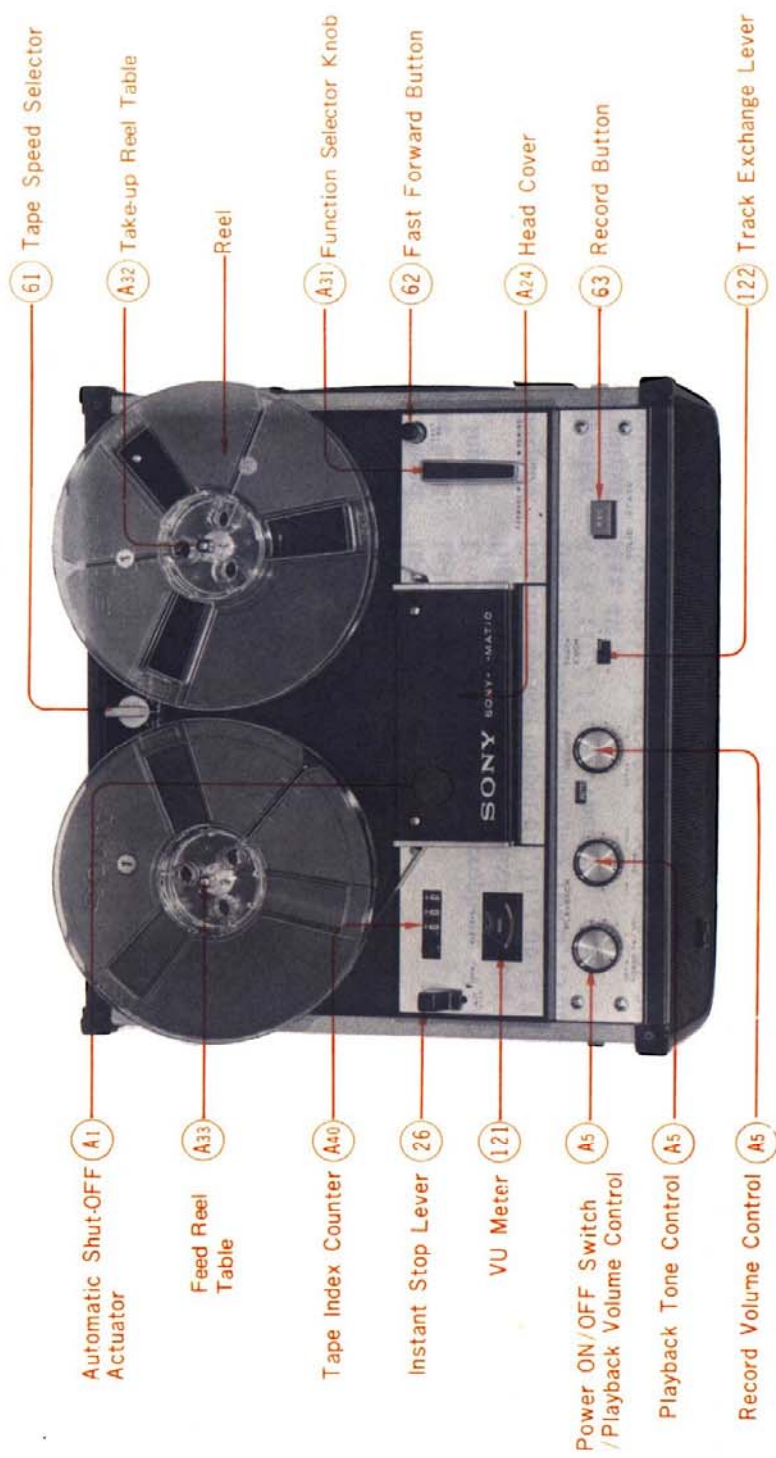
## Block Diagram



## Cabinet Top View

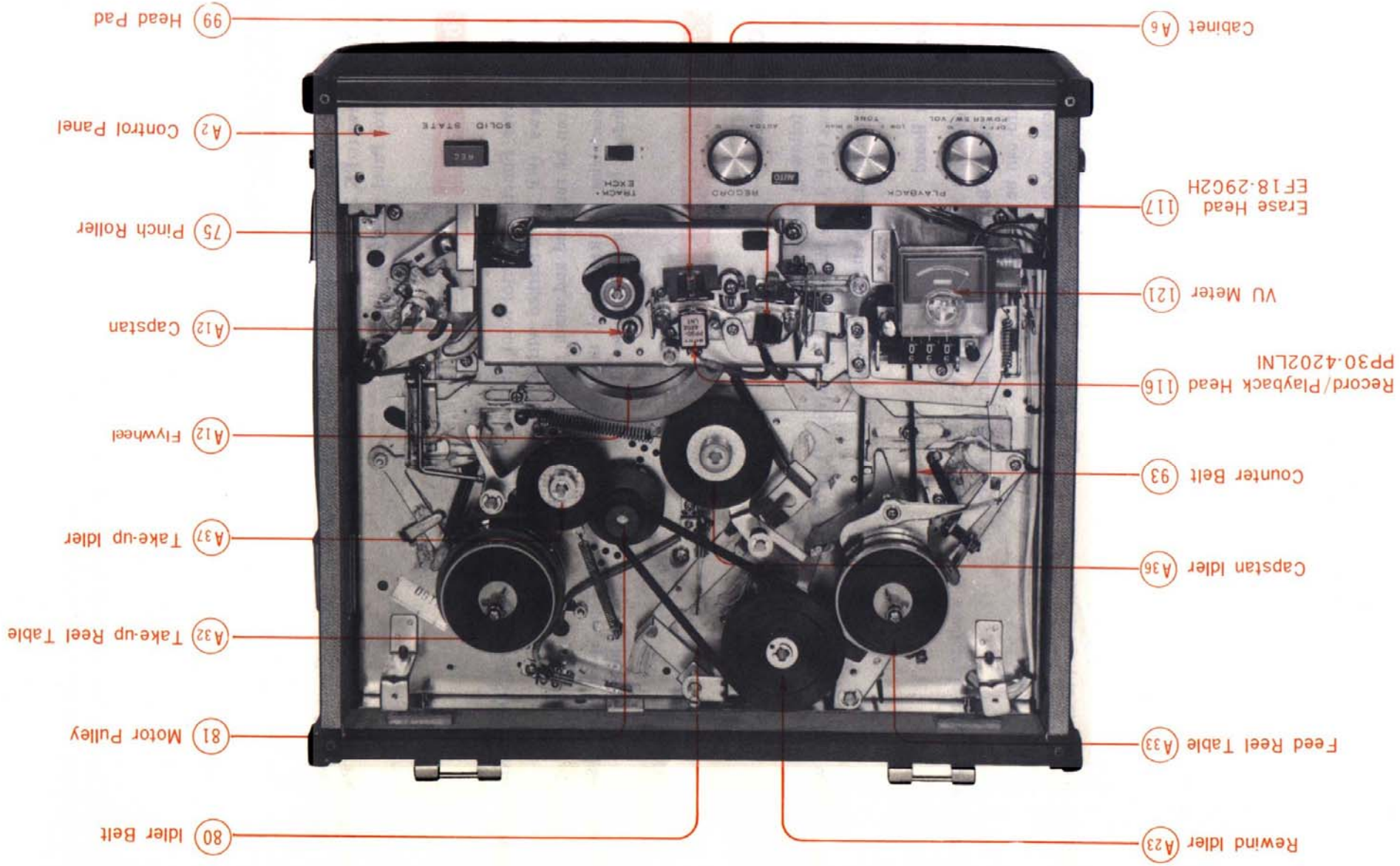


(Fig. 1)



(Fig. 2)

Chassis Top View



(Fig. 3)

## Removal of Cabinet

- (1) Turn up-side down the Recorder on a Soft Pad.
- (2) Remove two Screws ( $\oplus P 4 \times 25$  marked with  $\bullet$  in Fig. 4), two Rubber Feet and two Rubber Stoppers.
- (3) Remove four Screws ( $\oplus RK 4 \times 25$  marked with  $\circ$  in Fig. 4), two Washers  $4\phi$ , two Handle Holders and one Carrying Handle as shown in Fig. 4.
- (4) Lift up the Cabinet gently.

**NOTE:** Take care not to cut the speaker leads.

## Removal of Control Panel

- (1) Remove Volume Control, Tone Control and Power Switch/Playback Volume Control shown in Fig. 2.
- (2) Remove four Screws ( $\oplus RK 2.6 \times 10$  marked with  $\blacktriangle$  in Fig. 5), four Washers  $2.6\phi$  and four Reel Panel Washers  $2.6\phi$ .
- (3) Lift up the Control Panel gently.

## Removal of Reel Panel

- (1) Remove Head Cover, Function Selector Knob, Instant Stop Knob, and Tape Speed Selector Knob shown in Fig. 2.
- (2) Remove two Screws ( $\oplus P 3 \times 8$  marked with  $\triangle$  in Fig. 6).
- (3) Now Reel Panel can be removed and main mechanism can be checked.

**NOTE:** When re-assembling the Reel Panel, the Function Selector Shaft, Tape Speed Selector Shaft and four Holes (in the Circle in Fig. 6) must be located just at the center of the respective holes.

## Removal of Mounted Circuit Board

### Preamplifier Circuit Board

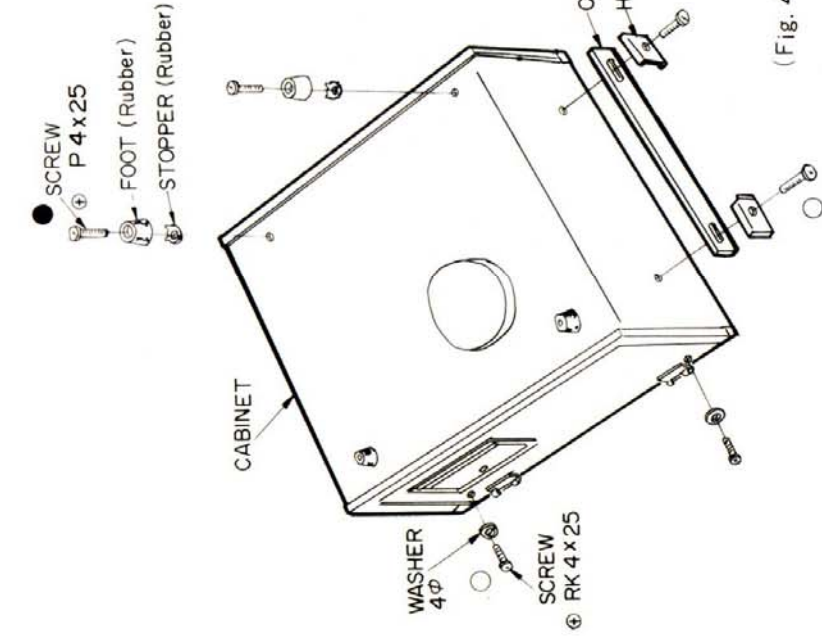
- (1) Remove cabinet following Removal of Cabinet.
- (2) Remove two screws ( $\oplus P 3 \times 6$  marked with  $\bullet$  in Fig. 7), two spring washers  $3\phi$  and two washers  $3\phi$ .

**NOTE:** Take care not to cut the attached leads.

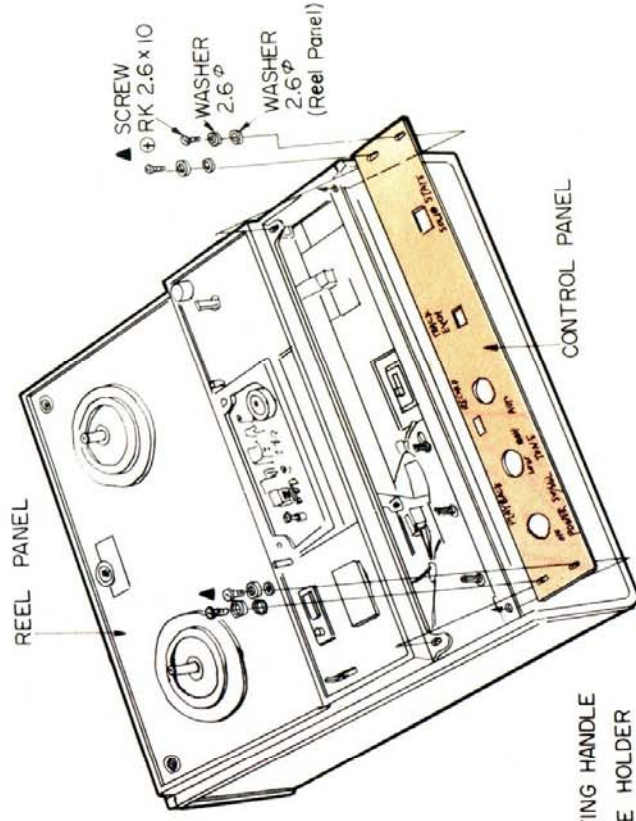
### Main Amplifier Circuit Board

- (1) Remove two Screws ( $\oplus P 3 \times 6$  marked with  $\blacktriangledown$  in Fig. 8), two spring washers  $3\phi$  and two washers  $3\phi$ .
- (2) Twist vertically a part of Bracket at Circuit Board with pliers.
- (3) Now Circuit Board can be removed.

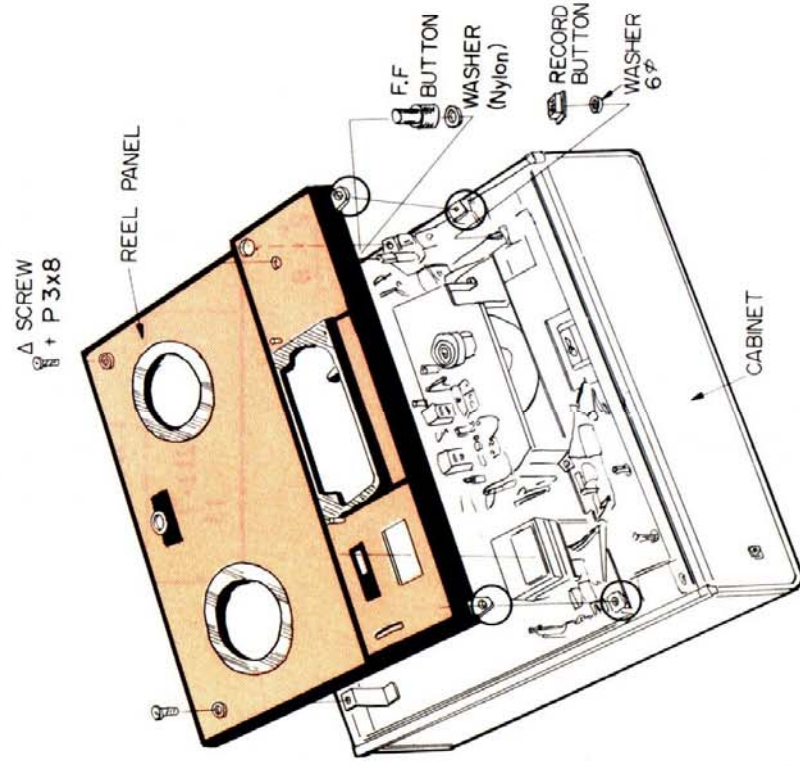
**NOTE:** 1. Take care not to cut the attached leads.  
2. When re-assembling the main amplifier, incline a part of Bracket with care not to break the Circuit Board.



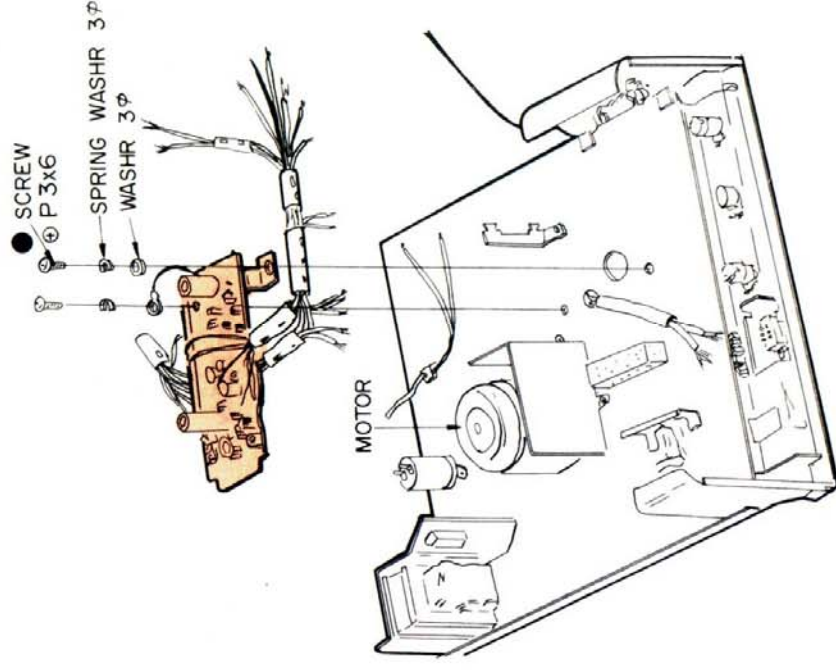
(Fig. 4)



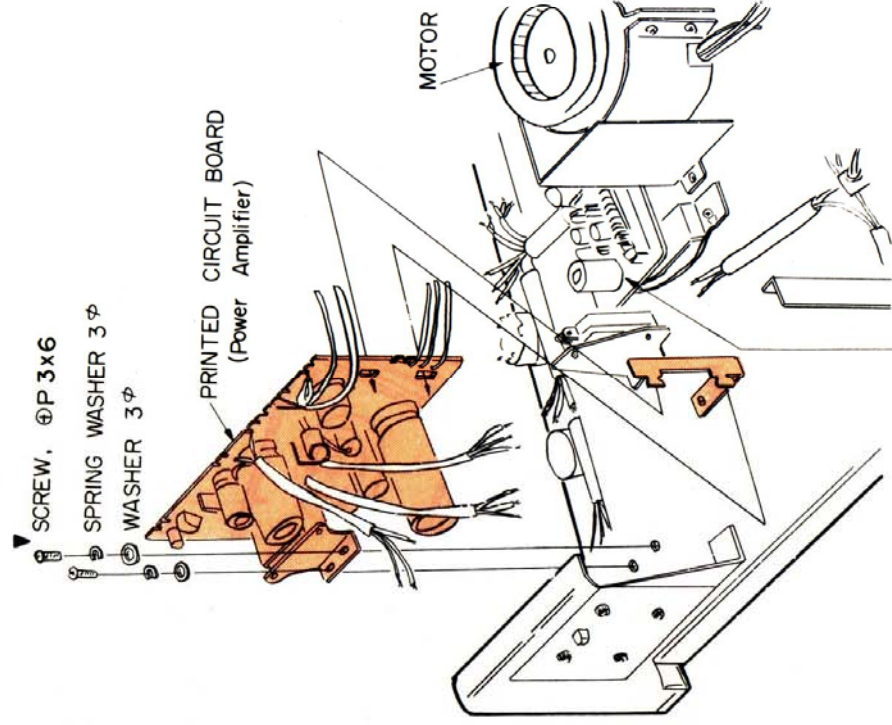
(Fig. 5)



(Fig. 6)



(Fig. 7)



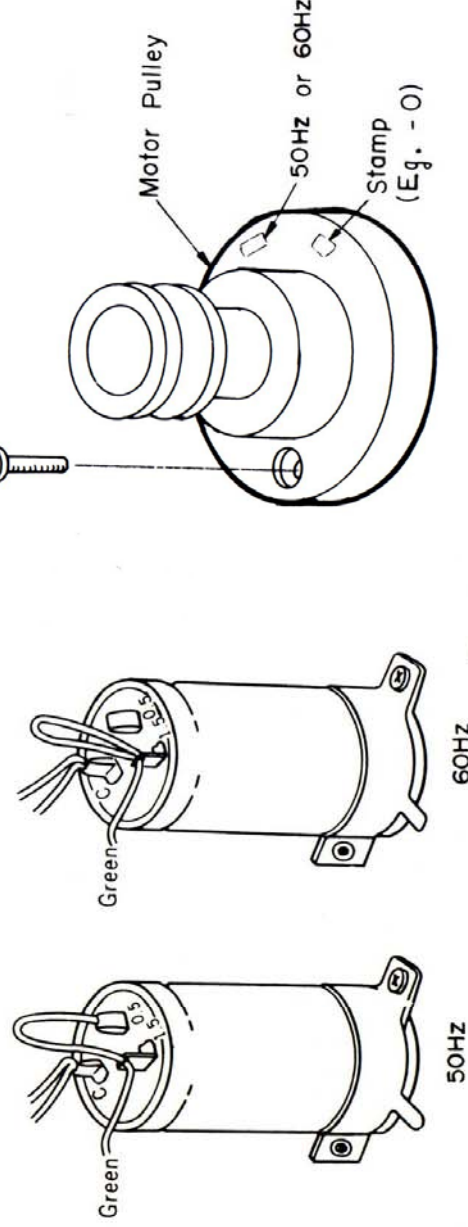
(Fig. 8)

PRINTED CIRCUIT BOARD  
(Preamplifier)

### Modification to different power line frequency

If the power line frequency is different from what the Tape recorder is adjusted for, the motor pulley and tapping of the motor starting capacitor terminals must be altered as follows:

|                                                                    | For 50 Hz                                                   | For 60 Hz                                                   |
|--------------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|
| Connection between terminals of the Metalized Paper (MP) Capacitor | Connected<br>$2 \mu F$                                      | Disconnected<br>$1.5 \mu F$                                 |
| Motor Pulley                                                       | 3-418-210- $\begin{smallmatrix} 01 \\ 13 \end{smallmatrix}$ | 3-418-211- $\begin{smallmatrix} 01 \\ 13 \end{smallmatrix}$ |

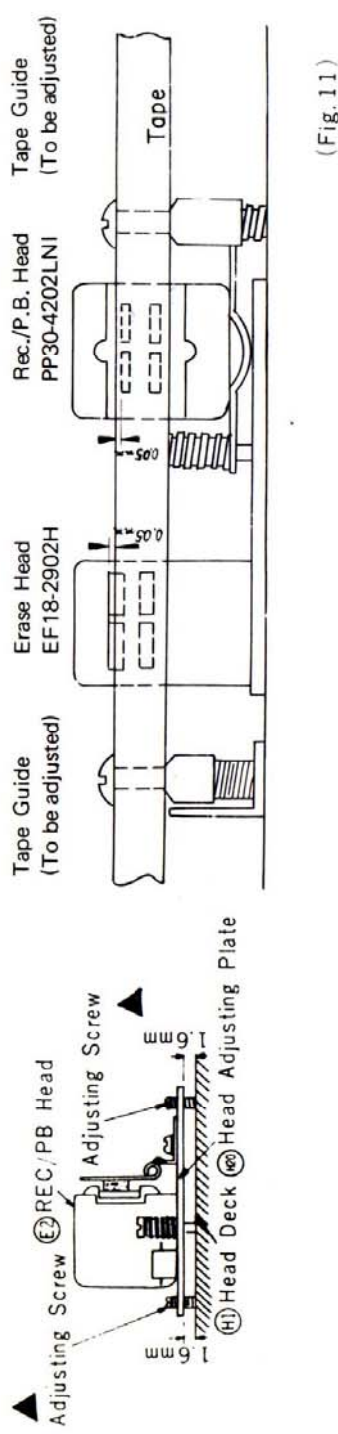


(Fig. 9)

## Elevation Alignment

The exact vertical positioning of Head are adjusted at the factory and should never need readjustment. However, when replacing Head or Tape Guide, height of the replaced part in relation to the tape should be checked as follows:

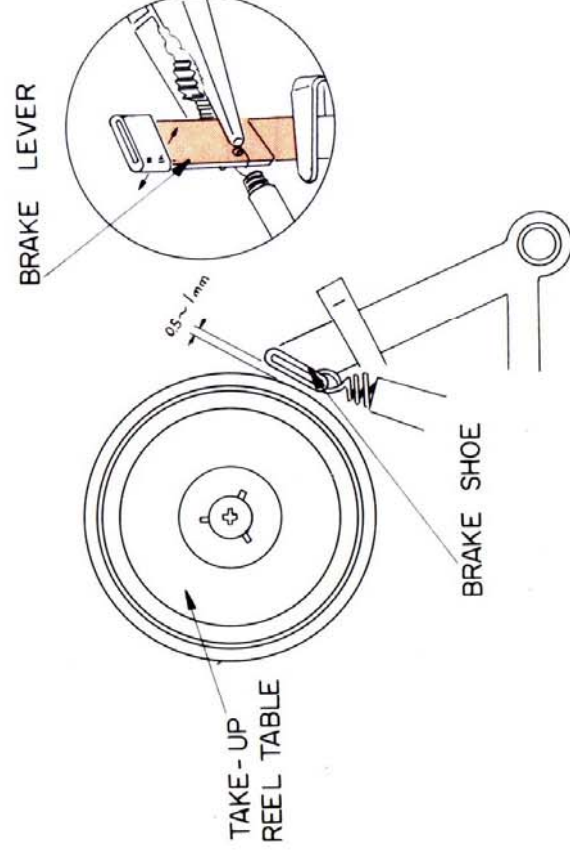
- (1) Thread a tape.
- (2) Align the upper edges of the Head Cores and upper edge of the tape by turning the Tape Guide located on the left side of the Erase Head.
- (3) Turn the Tape Guide clockwise by approximately  $30^\circ$  from the position obtained in the preceding process, so that the upper edge of the tape is approximately 0.05 mm lower than that of the Erase Head Core.
- (4) Align the upper edges of the Head Cores and upper edges of the tape by turning the Tape Guide located on the right side of the Rec./P.B. Head.
- (5) Turn the Tape Guide counterclockwise by approximately  $30^\circ$  from the position obtained in the preceding process, so that the upper edge of the tape is approximately 0.05 mm higher than that of the Rec./P.B. Head Core.



## Brake Adjustment

When the tape slacks at stop mode, adjust the Brake as follows: Refer to Fig. 12.

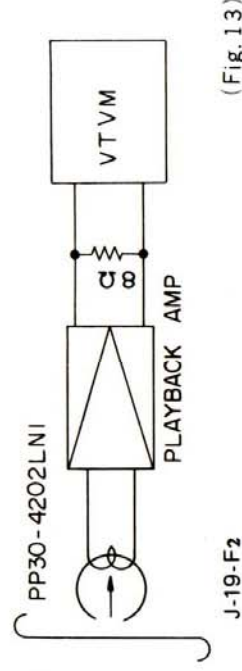
- (1) Set the Function Selector knob to forward position.
- (2) Bend the Brake Levers to right or left with pliers (as shown in the circle), so that the clearance between the Brake Shoe and the Take-up Reel Table must keep between 0.5 ~ 1 mm.



The alignment is to be performed at a tape speed of  $7\frac{1}{2}$  ips unless otherwise specified. Connect an  $8\Omega$  load resistor in parallel with the VTVM terminals and connect the VTVM to the Speaker Output jack. Set the Speaker ON/OFF Switch on.

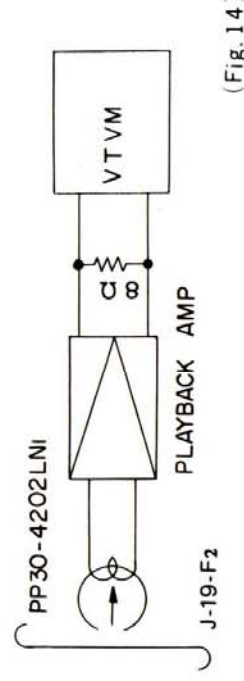
### Playback Azimuth Alignment

- (1) Playback a 10 kHz signal recorded on the first tone of the SONY alignment tape (J-19-F<sub>2</sub>).
- (2) Adjust the Azimuth Alignment Screw located on the right side of the Playback Head to obtain maximum recording on the VTVM.



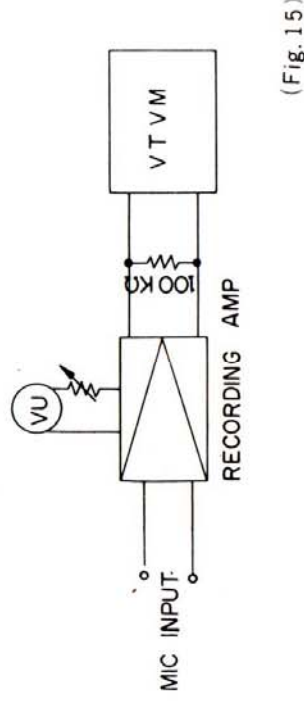
### Playback Output Level Adjustment

- (1) Set the Volume Control and the tone Control to the maximum position.
- (2) Playback a 1 kHz signal of -10 db recorded on the third tone of the SONY alignment tape (J-19-K<sub>1</sub>) and measure the output with the VTVM.



### Recording Level Adjustment

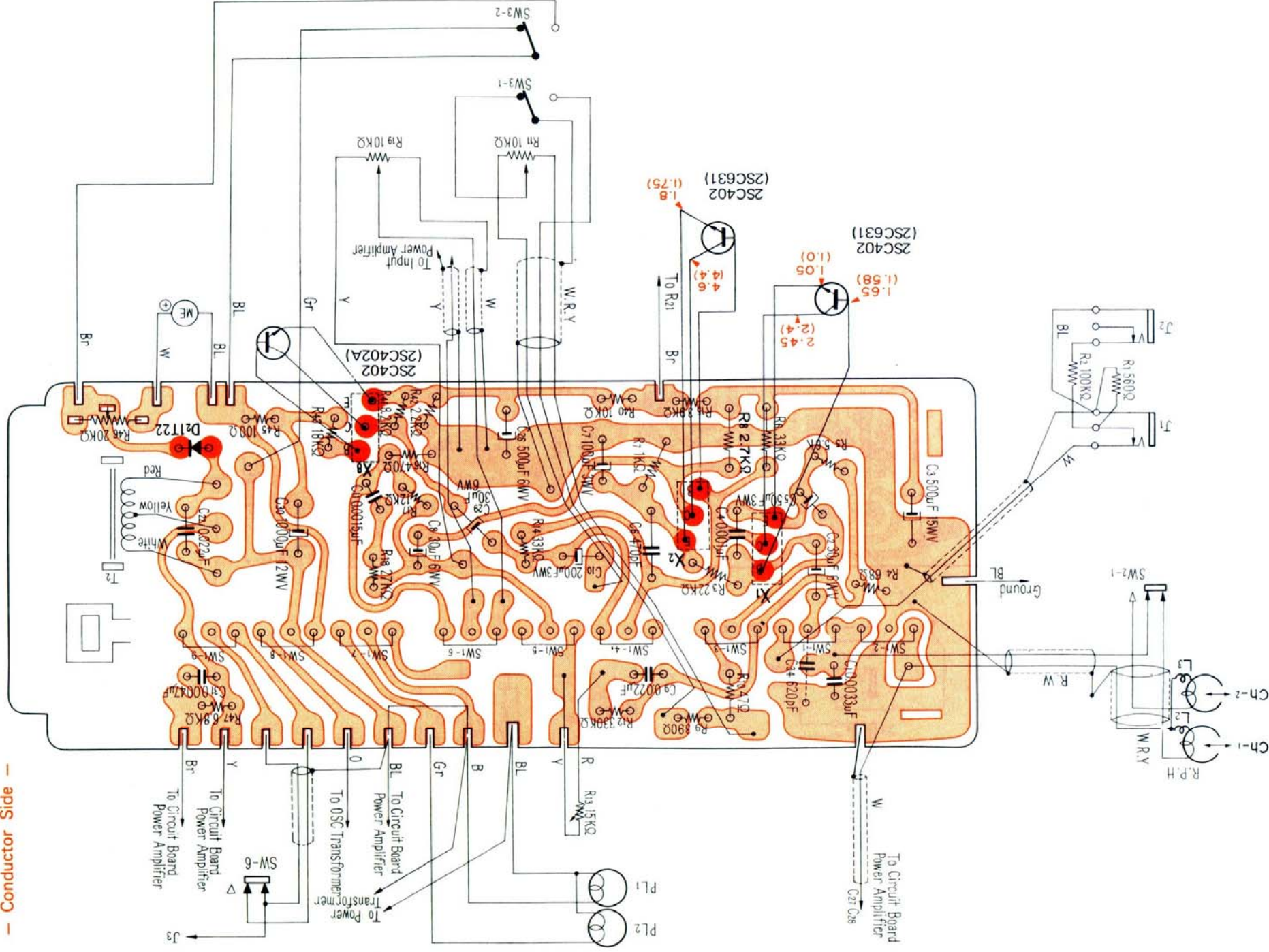
- (1) Set the Speaker ON/OFF Switch to OFF.
- (2) Set the Machine in Record Mode.
- (3) Feed a 1000 Hz signal of -60 db (0.775 mV) into Mic Input jack.
- (4) Turn the Recording Volume Control R<sub>13</sub> so that the VTVM indicates +1.5 db.
- (5) Turn the adjustable Resistor R<sub>46</sub> so that the pointer of the Level Meter is just at the boundary between the red portion and the black portion.



## Mounting Diagram

## Preamplifier Section

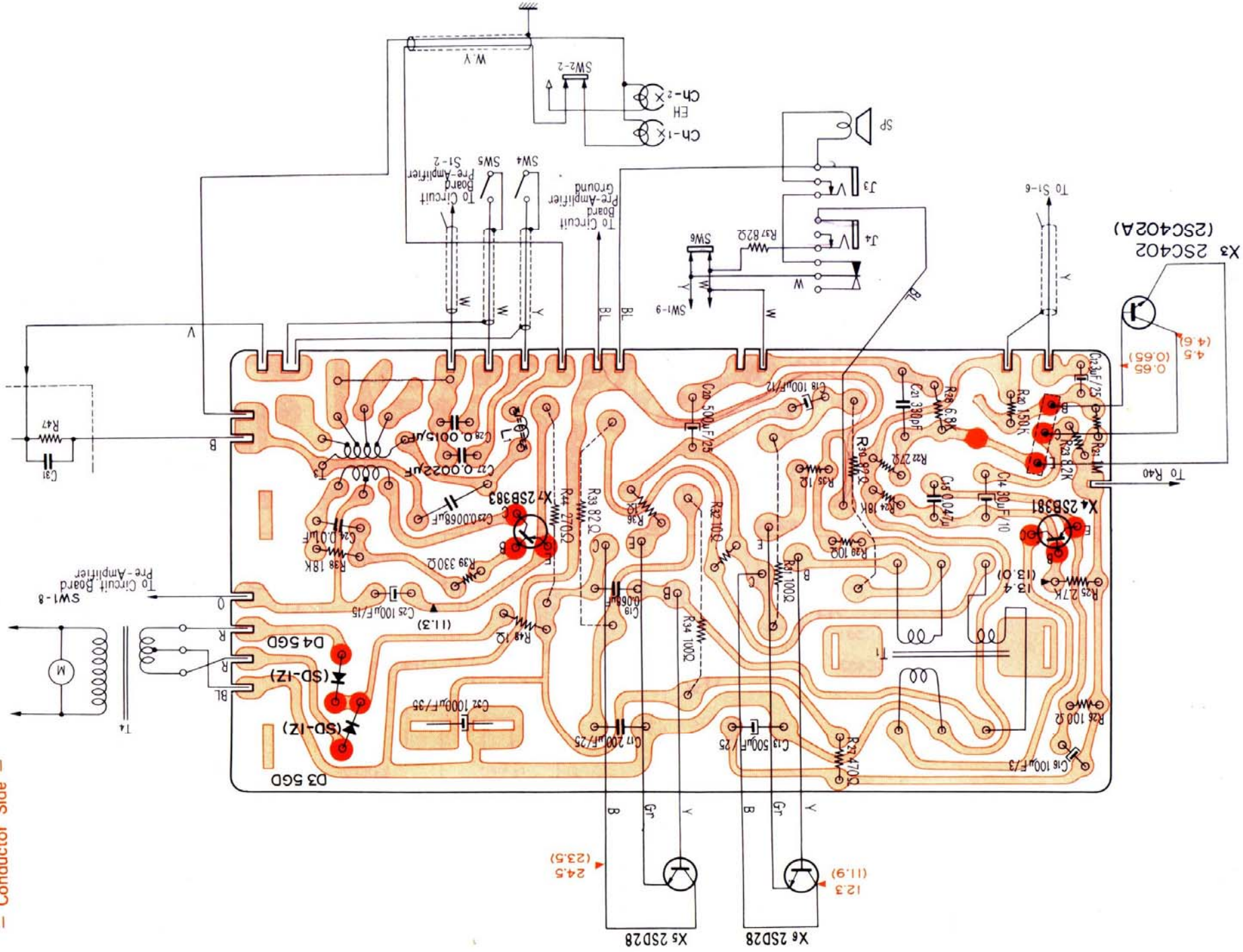
— Conductor Side —

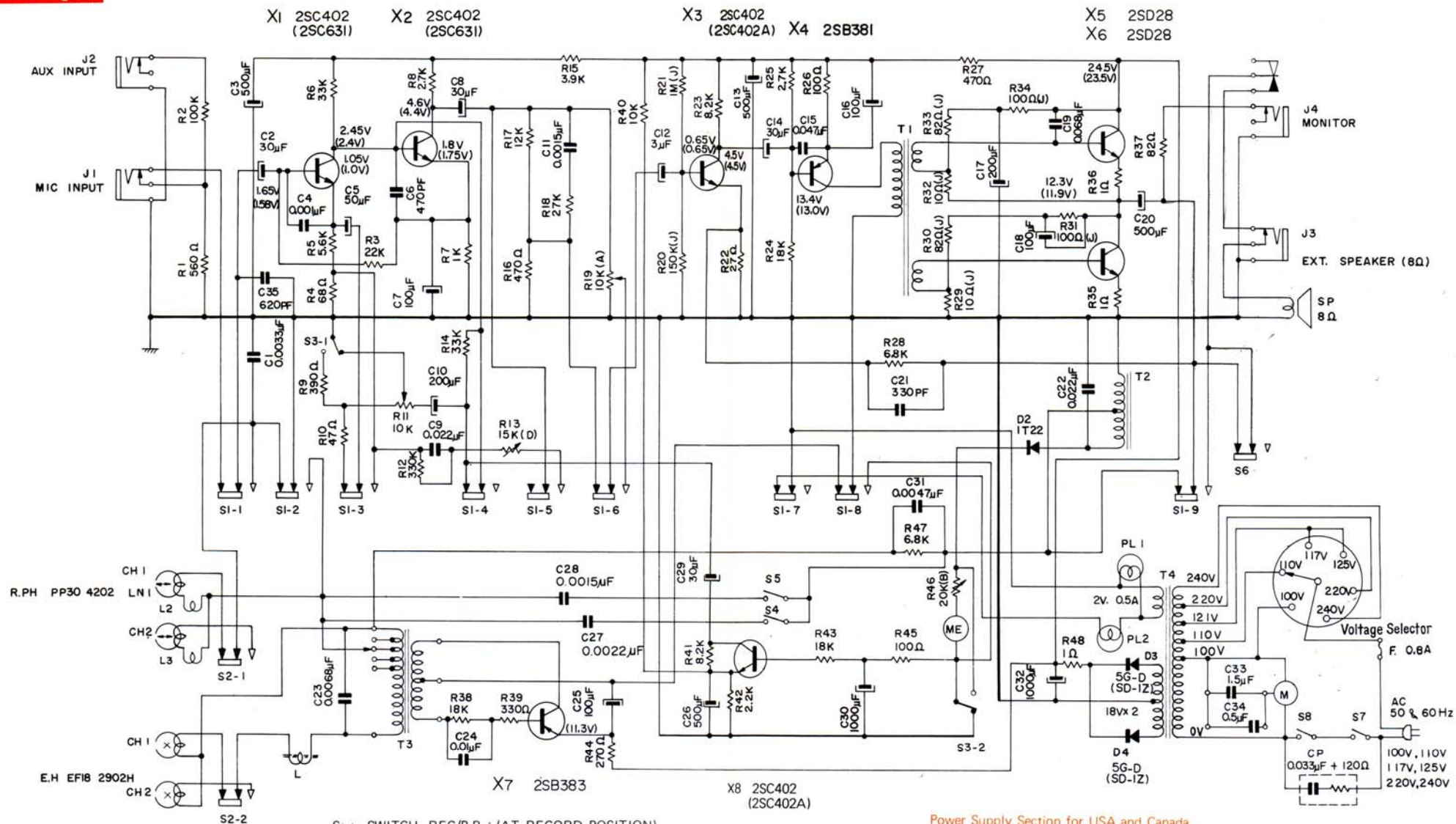


# Mounting Diagram

## Power Amplifier Section

— Conductor Side





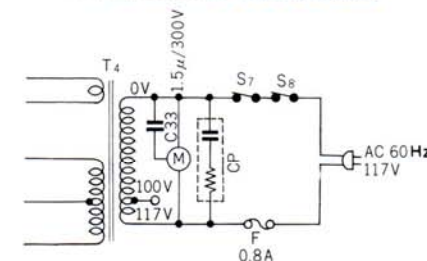
Replacement of Transistors X<sub>1</sub>, X<sub>2</sub>, X<sub>3</sub> & X<sub>8</sub> and Diodes D<sub>3</sub> & D<sub>4</sub>

| Symbol         | New Type                                | Former Type | Symbol         | New Type    | Former Type |
|----------------|-----------------------------------------|-------------|----------------|-------------|-------------|
| X <sub>1</sub> | 2SC631 or 2SC632                        | 2SC402      | D <sub>3</sub> | SD-1Z FR-1P | 5G-D        |
| X <sub>2</sub> | 2SC631 or 2SC632                        | 2SC402      | D <sub>4</sub> | SD-1Z FR-1P | 5G-D        |
| X <sub>3</sub> | 2SC402A or 2SC403A                      | 2SC402      |                |             |             |
| X <sub>8</sub> | 2SC402A, 2SC633, 2SC634, 2SC631, 2SC632 | 2SC402      |                |             |             |

- S<sub>1</sub>: SWITCH, REC/P.B.: (AT RECORD POSITION)  
 S<sub>2</sub>: SWITCH, CHANNEL SELECTOR (CHANNEL-1 POSITION)  
 S<sub>3</sub>: SWITCH, AUTO/MANUAL SELECTOR (MANUAL POSITION)  
 S<sub>4</sub>: SWITCH, EQUALIZER (ON 3/4 & 1% IPS POSITION)  
 S<sub>5</sub>: SWITCH, EQUALIZER (ON 1% IPS POSITION)  
 S<sub>6</sub>: SWITCH, SPEAKER ON/OFF  
 S<sub>7</sub>: SWITCH, POWER ON/OFF  
 S<sub>8</sub>: SWITCH, AUTOMATIC SHUT-OFF

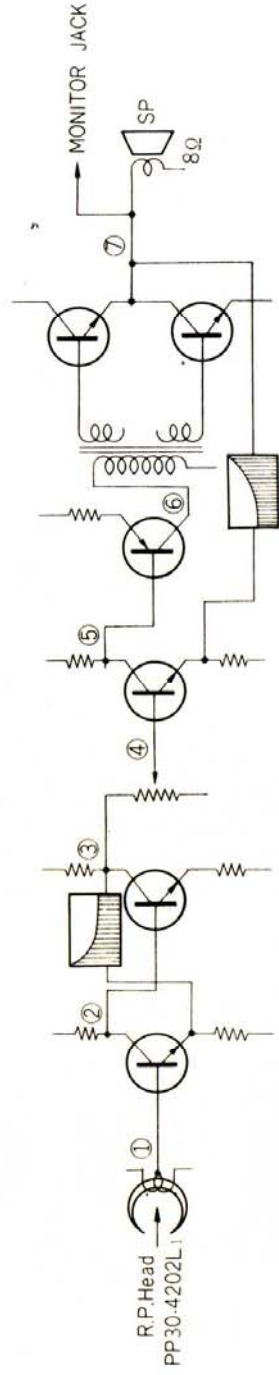
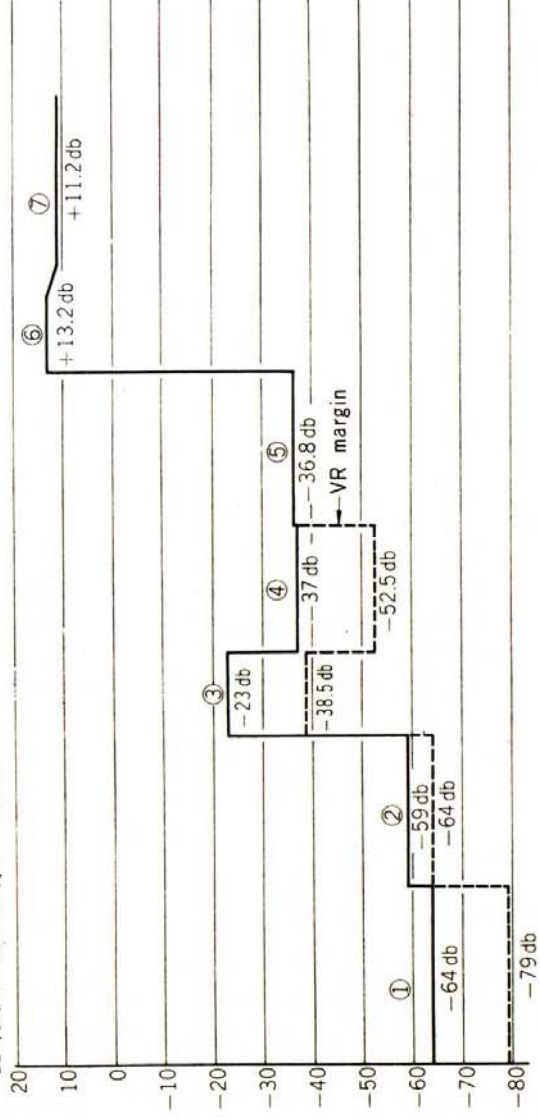
- VALUES IN PARENTHESES ARE MEASURED WITH SIGNAL ON DC.  
 ○ TRANSISTOR AND DIODE TYPE IN PARENTHESES ARE NEW TYPE.

Power Supply Section for USA and Canada

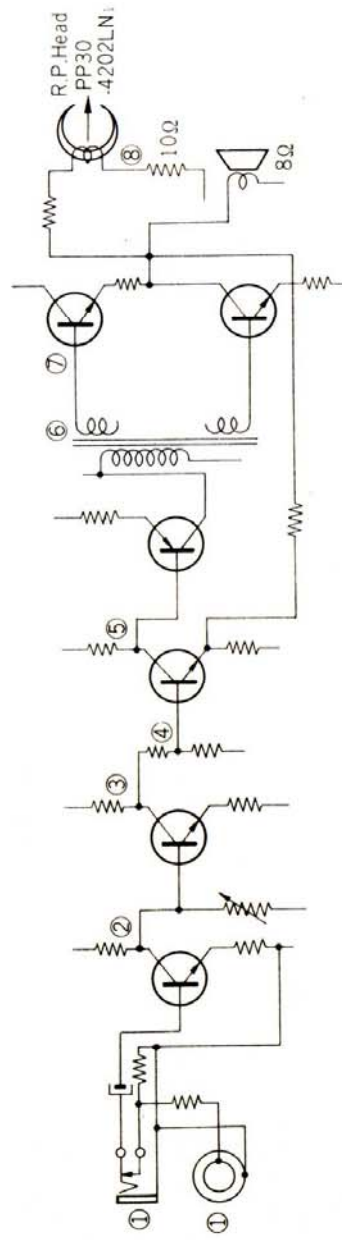
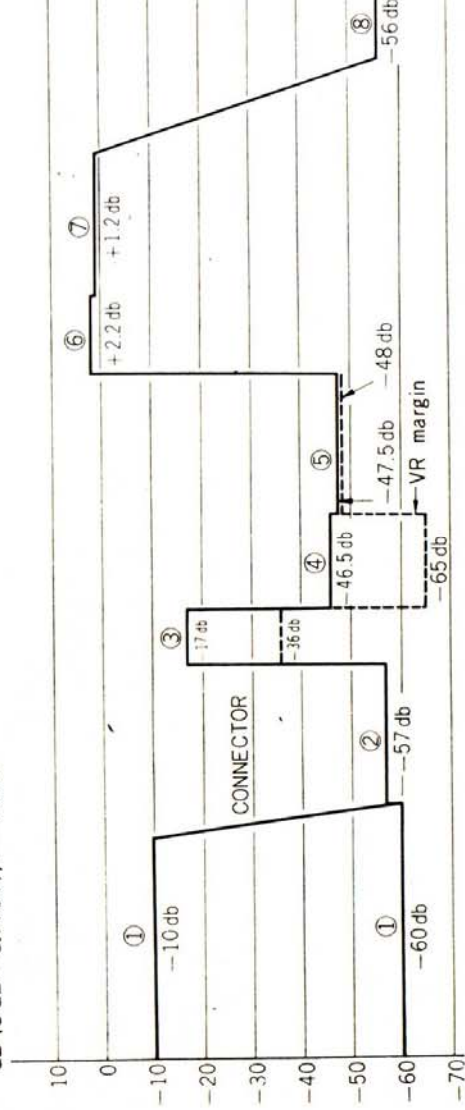


# Level Diagram

dB (0 dB = 0.775V), f = 1 kHz



dB (0 dB = 0.775V), f = 1 kHz



## Parts List

| Ref. No. | Part No.     | Description                                       | Ref. No. | Part No.   | Description                                            |
|----------|--------------|---------------------------------------------------|----------|------------|--------------------------------------------------------|
| A1       | X-34290-01-  | AUTOMATIC SHUT-OFF ACTUATOR ASS'Y                 | 3        | 3-429-103- | BRACKET, power transformer for UL & CSA                |
| A2       | X-34290-02-  | PANEL ASS'Y, control                              | 3        | 3-429-302- | BRACKET, power transformer for E                       |
| A3       | X-34290-03-  | BRACKET ASS'Y, volume control                     | 4        | 3-429-104- | HUMBUCK RING, motor                                    |
| A4       | X-34290-04-  | BRACKET ASS'Y, auto/manual indicating plate       | 5        | 3-429-105- | SUPPORT, humbuck ring                                  |
| A5       | X-34290-05-1 | KNOB ASS'Y, control                               | 6        | 3-429-106- | PLATE, motor noise shield                              |
| A6       | X-34292-01-  | CABINET ASS'Y, main body                          | 7        | 3-429-107- | BRACKET, printed circuit board mounting (preamp)       |
| A7       | X-34292-02-  | CABINET ASS'Y, lid                                | 8        | 3-429-108- | BRACKET, printed circuit board mounting (preamp)       |
| A8       | X-34290-09-  | BASE PLATE ASS'Y (chassis)                        | 9        | 3-429-109- | BRACKET, printed circuit board mounting (main amp)     |
| A9       | X-34240-05-  | CARTON ASS'Y                                      | 10       | 30429-110- | BRACKET, printed circuit board (main amp)              |
| A10      | X-34240-02-  | LOCK SLIDE ASS'Y                                  | 11       | 3-429-111- | LEVER, recording button                                |
| A11      | X-34240-03-  | LEVER ASS'Y, pinch                                | 12       | 3-429-112- | SPRING, auto/manual indicating plate; mounting bracket |
| A12      | X-34240-06-  | CAM ASS'Y, lock plate                             | 13       | 3-429-113- | CAM, auto/manual selector                              |
| A13      | X-34180-04-3 | LOCK SLIDER MECHANISM ASS'Y                       | 14       | 3-429-114- | SPACER, speaker ON/OFF switch                          |
| A14      | X-34180-05-3 | CAPSTAN SHAFT ASS'Y                               | 15       | 3-429-115- | INDICATING PLATE, jack                                 |
| A15      | X-34180-06-  | CAM ASS'Y, function selector                      | 16       | 3-429-116- | HEAT SINK, transistor 2SD28                            |
| A16      | X-34300-27-  | ARM ASS'Y, capstan idler                          | 17       | 3-429-118- | PULL LEVER, rec./p.b. switch                           |
| A17      | X-34290-12-  | ARM ASS'Y, take-up idler                          | 18       | 3-429-119- | PULL ROD, rec./p.b. switch controlling                 |
| A18      | X-34180-09-  | LEVER ASS'Y, rewind idler                         | 19       | 3-429-120- | PLATE (A), terminal protector                          |
| A19      | X-34300-02-  | LEVER ASS'Y, capstan idler release                | 20       | 3-429-121- | SHAFT, function selector                               |
| A20      | X-34180-11-4 | CAM ASS'Y, recording lock plate                   | 21       | 3-429-122- | CUSHION, printed circuit board                         |
| A21      | X-34180-12-  | ARM ASS'Y, brake (take-up reel)                   | 22       | 3-429-123- | BUFFER SPRING, pull rod                                |
| A22      | X-34180-36-  | LEVER ASS'Y, instant stop brake                   | 23       | 3-429-124- | PLATE, insulating for UL & CSA                         |
| A23      | X-34180-14-1 | JOINT LEVER ASS'Y, function selector cam & slider | 24       | 3-429-125- | PLATE (B), terminal protector                          |
| A24      | X-34180-15-  | DRUM ASS'Y, take-up spindle                       | 25       | 3-429-126- | BAG, polyethylene                                      |
| A25      | X-34180-17-3 | REWIND IDLER ASS'Y                                | 26       | 3-429-127- | VIBRATION ABSORBER                                     |
| A26      | X-34180-19-3 | HEAD COVER ASS'Y for E & CSA                      | 27       | 3-429-128- | COVER, protecting for UL                               |
| A27      | X-34180-19-4 | HEAD COVER ASS'Y for UL                           | 28       | 3-429-201- | LABEL, specification for UL                            |
| A28      | X-34180-26-  | DECK ASS'Y, feed reel table                       | 29       | 3-429-801- | LABEL, specification for E                             |
| A29      | X-34180-27-  | LEVER ASS'Y, pinch roller shift                   | 30       | 3-429-901- | LABEL, specification for CSA                           |
| A30      | X-34180-30-1 | ARM ASS'Y, stepper                                | 31       | 3-418-009- | SHAFT, pinch roller shifter                            |
| A31      | X-34180-33-4 | MOUNTING PLATE ASS'Y, motor pulley                | 32       | 3-418-011- | JOINT, pinch lever & shifter                           |
| A32      | X-34180-37-  | KNOB ASS'Y, function selector                     | 33       | 3-418-013- | SHIFTER, tape pad                                      |
| A33      | X-34180-39-  | TABLE ASS'Y, take-up reel                         | 34       | 3-418-018- | SHAFT, take-up reel table                              |
| A34      | X-34180-40-  | TABLE ASS'Y, feed reel                            | 35       | 3-418-019- | SHAFT, feed reel table                                 |
| A35      | X-34180-41-2 | COUNTER ASS'Y, tape index                         | 36       | 3-418-020- | SPACER, feed reel table shaft                          |
| A36      | X-34188-02-2 | HEAD DECK ASS'Y                                   | 37       | 3-418-021- | SPACER, take-up reel table shaft                       |
| A37      | X-34188-03-3 | REEL PANEL ASS'Y                                  | 38       | 3-418-023- | PULLEY, tape counter                                   |
| A38      | X-00270-03-  | CAPSTAN IDLER ASS'Y                               | 39       | 3-418-033- | LEVER, instant stop knob                               |
| A39      | X-34300-25-  | IDLER ASS'Y                                       | 40       | 3-418-035- | ALIGNING PLATE, instant stop knob                      |
| A40      | X-34300-40-  | BRAKE ASS'Y, instant stop                         | 41       | 3-418-044- | LEVER, rewind arm control                              |
| A41      |              |                                                   | 42       | 3-418-051- | LEVER, fast forward lock                               |
| 1        | 3-429-101-   | LEG PLATE, deck                                   | 43       | 3-418-052- | BRACKET, fast forward clank                            |
| 2        | 3-429-102-   | BRACKET, jack                                     |          |            |                                                        |

## Parts List

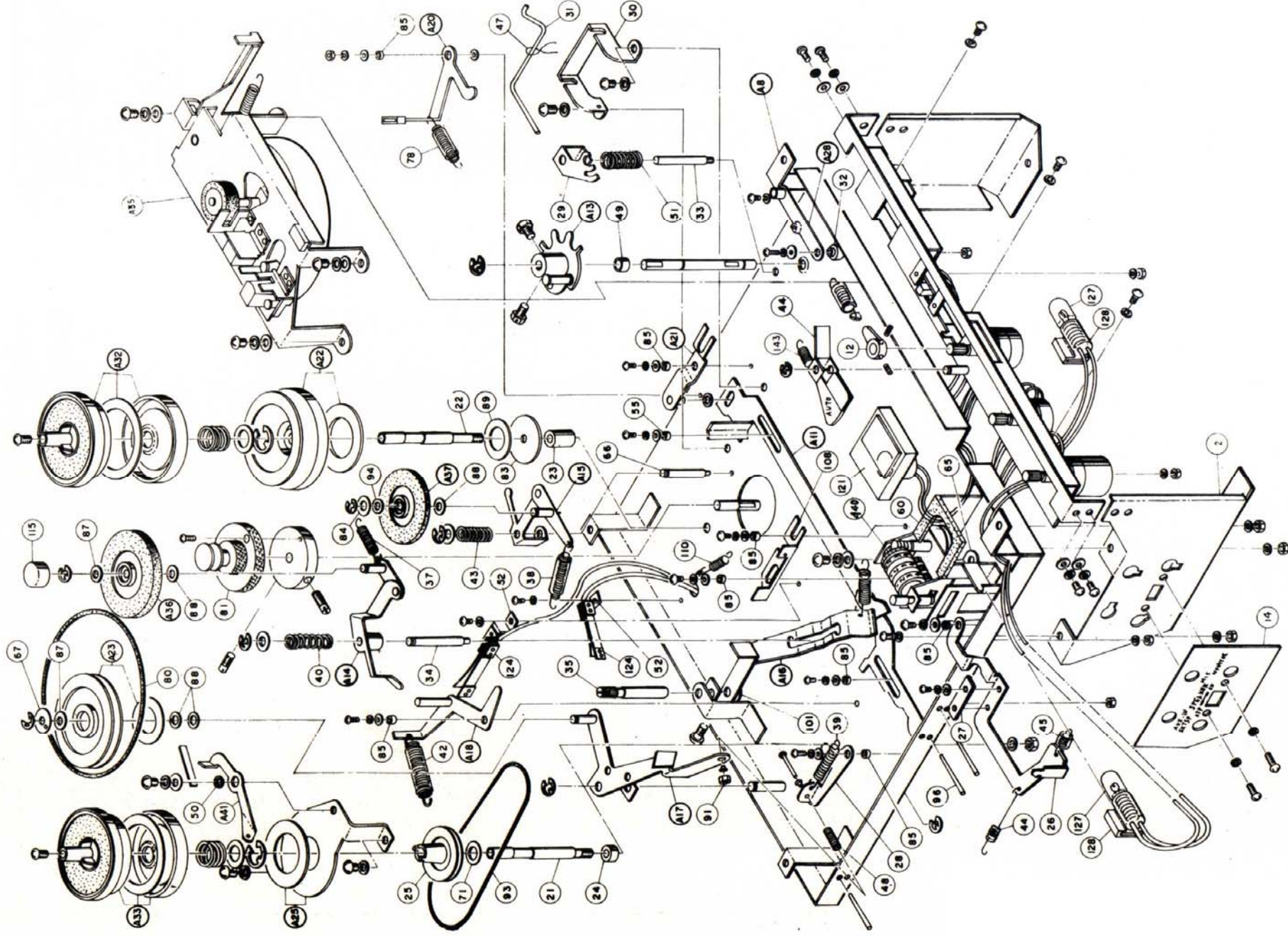
| Ref. No. | Part No.     | Description                           | Ref. No.     | Part No.                                         | Description                          |
|----------|--------------|---------------------------------------|--------------|--------------------------------------------------|--------------------------------------|
| 31       | 3-418-053-   | FAST FORWARD CLANK                    | 80           | 3-418-208-                                       | BELT, idler                          |
| 32       | 3-418-054-   | SPACER, stepper arm                   | 81           | 3-418-210-10                                     | PULLEY 50 Hz, motor except UL & CSA  |
| 33       | 3-418-055-   | SHAFT, fast forward lock lever        | 81           | 3-418-211-10                                     | PULLEY 60 Hz, motor                  |
| 34       | 3-418-060-   | SHAFT, capstan idler arm              | 82           | 0-007-259-                                       | TAPE PAD, rec./p.b. head             |
| 35       | 3-418-061-   | SHAFT, speed selector knob            | 83           | 0-027-022-                                       | SUPPORT, take-up spindle drum        |
| 36       | 3-418-065-   | RECORD LOCK LEVER                     | 85           | 0-027-134-                                       | SPACER, take-up brake arm etc.       |
| 37       | 3-418-069-   | SPRING, capstan idler arm             | 86           | 0-027-193-                                       | SPRING, pinch lever                  |
| 38       | 3-418-070-   | SPRING, fast forward idler arm        | 87           | 0-027-216-                                       | OIL RING, rewind & capstan idler     |
| 39       | 3-418-072-   | SPRING, record lock lever             | 88           | 0-027-220-                                       | PAPER WASHER 5 $\phi$ , rewind idler |
| 40       | 3-418-073-   | SPRING, capstan idler arm shaft       | 89           | 0-027-245-                                       | FELT, oil absorber on support        |
| 41       | 3-418-074-   | SPRING, speed selector lever          | 90           | 0-027-473-                                       | TAPE PAD, erase head                 |
| 42       | 3-418-075-   | SPRING, capstan idler release lever   | 91           | 0-037-249-                                       | SPLIT NUT 2 $\phi$                   |
| 43       | 3-418-077-   | SPRING, fast forward idler arm shaft  | 92           | 0-037-406-                                       | TAPE GUIDE                           |
| 44       | 3-418-078-   | SPRING, instant stop brake lever      | 0-049-142-   | FELT WASHER, fast forward button                 |                                      |
| 45       | 3-418-079-   | SPRING, instant stop lever            | Q-051-220-   | BUFFER SPRING, pull rod                          |                                      |
| 46       | 3-418-082-   | SPRING, pinch roller shaft            | 0-056-247-01 | BELT, tape counter                               |                                      |
| 47       | 3-418-083-   | PIN, fast forward clank holding       | 0-056-322-   | OIL RING, fast forward idler                     |                                      |
| 48       | 3-418-084-   | SPRING, buffer for rewind idler arm   | 3-103-206-02 | WASHER, chassis fixing (special)                 |                                      |
| 49       | 3-418-085-   | SPACER, function selector cam shaft   | 3-103-527-   | RUBBER STAPLE                                    |                                      |
| 50       | 3-418-086-   | SPACER, instant stop brake lever      | 3-401-156-   | WASHER, mini jack insulating                     |                                      |
| 51       | 3-418-091-   | SPRING, fast forward lock lever shaft | 3-402-654-   | TAPE PAD HINGE, rec./p.b. head                   |                                      |
| 53       | 3-418-106-   | HOLDER, capstan shaft                 | 3-402-655-   | TAPE PAD HINGE, erase head                       |                                      |
| 54       | 3-418-107-   | SUPPORT, capstan bearing              | 3-402-764-   | SPACER, speed selector knob shaft                |                                      |
| 56       | 3-418-111-   | RING CAP, capstan bearing             | 3-406-902-   | ESCUTCHEON, AC adaptor for E                     |                                      |
| 57       | 3-418-112-   | OIL RING, capstan bearing             | 3-409-102-   | NYLON WASHER, fast forward button & pinch roller |                                      |
| 58       | 3-418-113-02 | TAPE SUPPORT, right                   | 3-409-108-   | NYLON WASHER, reel panel                         |                                      |
| 59       | 3-418-115-   | NYLON WASHER 8 $\phi$ , pinch roller  | 3-410-032-   | CLAMP, AC power cord except CSA                  |                                      |
| 60       | 3-418-117-   | CUSHION, volume unit meter            | 3-410-044-   | CAP, metalized paper                             |                                      |
| 61       | 3-418-134-   | KNOB, speed selector                  | 3-413-072-   | SPACER, screw RK 2.6                             |                                      |
| 62       | 3-418-137-   | BUTTON, fast forward                  | 3-419-211-   | CAP, capstan idler                               |                                      |
| 63       | 3-418-139-   | BUTTON, record                        | 3-421-074-   | SPRING, rewind release                           |                                      |
| 64       | 3-418-163-   | FIXTURE, carrying handle              | 3-421-126-   | SPACER, microphone jack                          |                                      |
| 66       | 3-418-165-   | SHAFT, fast forward idler arm         | 3-424-015-   | BRACKET, automatic shut-off                      |                                      |
| 67       | 3-418-166-   | SPECIAL WASHER, rewind idler          | 3-424-030-   | actuator lock                                    |                                      |
| 68       | 3-418-167-   | TAPE SUPPORT, left                    | 3-424-032-   | GUIDE, automatic shut-off                        |                                      |
| 70       | 3-418-168-   | SPRING, recording reset               |              | actuator                                         |                                      |
| 71       | 3-418-171-   | SPRING, tape guide height             | 3-424-032-   | SPRING, automatic shut-off                       |                                      |
| 73       | 3-418-179-   | NYLON WASHER, capstan shaft           |              | actuator                                         |                                      |
| 74       | 3-418-191-   | SCREW, rec./p.b. head height lock     | 3-811-032-   | HEAT SINK, transistor 2SB383                     |                                      |
| 76       | 3-418-193-   | KNOB, instant stop                    | 3-005-001-70 | SPRING, rec./p.b. head height adjusting          |                                      |
| 77       | 3-430-234-   | NYLON WASHER 16 $\phi$ , pinch lever  |              | LUG, cord stopping for UL & CSA                  |                                      |
| 78       | 3-430-233-   | PINCH ROLLER                          | 3-401-179-   | LUG, cord stopping for E                         |                                      |
| 79       | 3-430-231-   | OIL RING, pinch roller                | 3-405-407-   | WASHER, thrust; drive wheel                      |                                      |
| 79       | 3-430-235-   | SPACER, pinch roller                  | 3-409-124-   | NYLON WASHER                                     |                                      |
| 79       | 3-418-201-   | SPRING, feed brake arm                | 3-419-098-   | NYLON WASHER 52 for UL                           |                                      |
| 79       | 3-418-204-   | CARRYING HANDLE                       |              |                                                  |                                      |

# Parts List

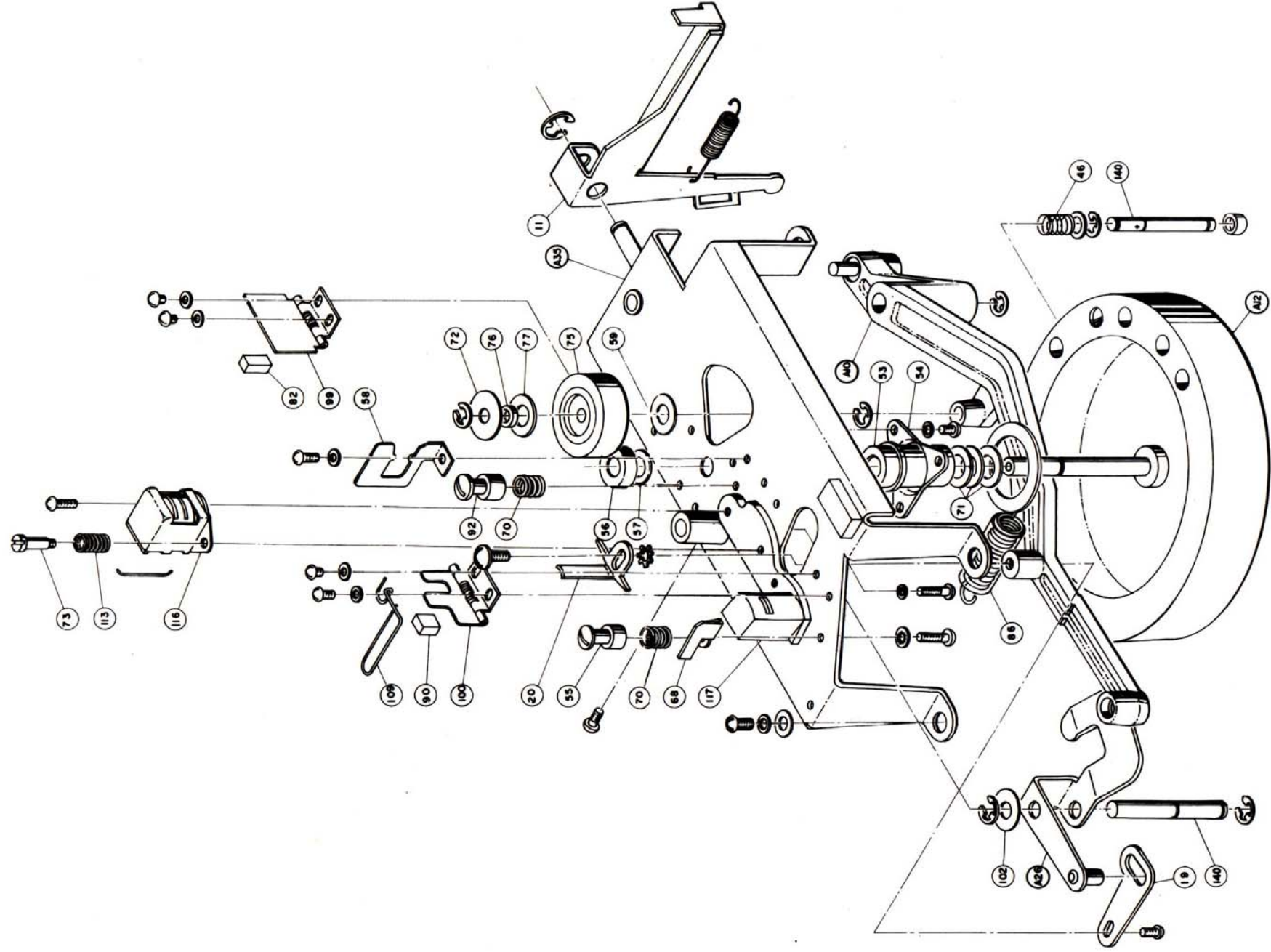
| Ref. No. | Part No.     | Description                               | Ref. No.                                                                      | Part No.     | Description                            |
|----------|--------------|-------------------------------------------|-------------------------------------------------------------------------------|--------------|----------------------------------------|
| 113      | 3-419-438-   | COVER, fuse post                          |                                                                               | 7-621-255-56 | SCREW, machine; ♂ P 2.6×8              |
|          | 3-424-065-   | SPACER, speed selector lever              |                                                                               | 7-621-261-25 | SCREW, machine; ♂ P 3×4                |
|          | 3-430-022-   | CUSHION, panel                            |                                                                               | 7-621-265-32 | SCREW, machine; ♂ P 3×5                |
|          | 3-430-113-   | SHAFT, pinch roller                       |                                                                               | 7-621-261-45 | SCREW, machine; ♂ P 3×6                |
|          | 3-430-159-   | CAP, capstan shaft oil                    |                                                                               | 7-621-261-62 | SCREW, machine; ♂ P 3×10               |
| 140      | 3-430-214    | TAPE GUIDE                                |                                                                               | 7-621-261-65 | SCREW, machine; ♂ P 3×10               |
|          | 3-430-215-   | SHAFT, tape guide                         |                                                                               | 7-621-261-75 | SCREW, machine; ♂ P 3×12               |
|          | 3-430-224-   | SPRING, tension coil                      |                                                                               | 7-621-261-85 | SCREW, machine; ♂ P 3×14               |
|          | 3-430-232-   | CAP, pinch roller                         |                                                                               | 7-621-268-35 | SCREW, machine; ♂ P 4×5                |
|          | 0-041-310-   | MOLD, terminal strips                     |                                                                               | 7-621-268-45 | SCREW, machine; ♂ P 4×6                |
|          |              |                                           |                                                                               | 7-622-268-55 | SCREW, machine; ♂ P 4×8                |
|          | 0-041-127-01 | ACCESSORY BAG for 50 Hz                   |                                                                               | 7-621-659-66 | SCREW, machine; ♂ RK 2.6×8             |
|          | 0-041-127-02 | ACCESSORY BAG for 60 Hz                   |                                                                               | 7-621-269-56 | SCREW, machine; ♂ P 4×25               |
|          | 1-504-034-12 | MAGNETIC EARPHONE ME-20                   |                                                                               | 7-621-461-52 | SCREW, machine; ♂ T 3×8                |
|          | 1-534-033-13 | CONNECTION CORD RK-69                     |                                                                               | 7-621-461-56 | SCREW, machine; ♂ T 3×8                |
|          | 3-401-193-02 | TAPE COTTON                               |                                                                               | 7-621-462-62 | SCREW, machine; ♂ T 3×30               |
|          | 3-403-810-   | BAG, microphone protecting                |                                                                               | 7-621-770-78 | SCREW, machine; ♂ B 3×12               |
|          | 3-407-956-   | LABEL, caution for CSA                    |                                                                               | 7-621-713-35 | SCREW, machine; set 3×5                |
|          | 3-419-752-   | SPECIFICATION, fuse capacitor for E & CSA |                                                                               | 7-621-840-72 | SCREW, machine; wood ♂ R 2.1×6.3 for E |
|          | 3-427-291-   | LABEL, caution for UL                     |                                                                               | 7-623-205-22 | WASHER, spring; 2φ                     |
|          | 3-701-020-   | BAG, check sheet                          |                                                                               | 7-623-207-22 | WASHER, spring; 2.6φ                   |
|          | 3-701-025-01 | SPLICING TAPE SP-2 for E                  |                                                                               | 7-623-208-22 | WASHER, spring; 3φ                     |
|          | 3-701-030-   | LABEL, serial number                      |                                                                               | 7-623-210-22 | WASHER, spring; 4φ                     |
|          | 3-701-031-   | ENVELOPE, IBM card for UL                 |                                                                               | 7-623-212-02 | WASHER, spring; 5φ                     |
|          | 3-701-034-   | CARD, quality control for UL              |                                                                               | 7-623-105-12 | WASHER, plain; 2φ                      |
|          | 3-701-035-   | WARRANTY CARD for UL                      |                                                                               | 7-623-107-12 | WASHER, plain; 2.6φ                    |
|          | 3-701-064-   | BAG, accessory                            |                                                                               | 7-623-108-12 | WASHER, plain; 3φ                      |
|          | 3-790-224-14 | MANUAL, instruction for E                 |                                                                               | 7-623-110-12 | WASHER, plain; 4φ                      |
|          | 3-790-224-22 | MANUAL, instruction for UL                |                                                                               | 7-623-112-12 | WASHER, plain; 5φ                      |
|          | 3-790-224-43 | MANUAL, instruction for CSA               |                                                                               | 7-622-108-02 | NUT 3φ                                 |
|          | 3-793-010-20 | TAPE TALK                                 |                                                                               | 7-622-110-02 | NUT 4φ                                 |
|          | 3-793-044-   | IMPORTANT, carton for UL                  |                                                                               | 7-622-212-01 | WASHER 5φ                              |
|          | 3-793-105-   | WARRANTY CARD for CSA                     |                                                                               | 7-622-408-11 | NUT; speed 3φ                          |
|          | 3-793-106-   | GUARANTEE CARD for CSA                    |                                                                               | 7-623-508-01 | LUG 3φ                                 |
|          | 3-793-183-   | INSPECTION CARD                           |                                                                               | 7-623-624-01 | EYELET 2.5×5                           |
|          | 8-811-960-30 | MICROPHONE F-96 (MTL)                     |                                                                               | 7-623-632-01 | EYELET 3×4                             |
|          | 8-813-651-   | LABEL, color indicating                   |                                                                               | 7-624-105-05 | RETAINING RING E-3                     |
|          | 8-860-105-   | SONY-O-MATIC REEL R-5A                    |                                                                               | 7-624-108-05 | RETAINING RING E-4                     |
|          | 8-918-212-   | TAPE DME-522 except UL                    |                                                                               | 7-624-109-05 | RETAINING RING E-5                     |
|          | X-37010-18-  | HEAD CLEANING RIBBON                      |                                                                               | 7-623-308-05 | WASHER, lock; int. tooth 3φ            |
|          |              | ASS'Y except UL                           |                                                                               | 7-623-408-05 | WASHER, lock; ext. tooth 3φ            |
|          | 7-621-255-22 | SCREW, machine; ♂ P 2×4                   |                                                                               |              |                                        |
|          | 7-612-255-42 | SCREW, machine; ♂ P 2×6                   |                                                                               |              |                                        |
|          | 7-621-255-52 | SCREW, machine; ♂ P 2×8                   |                                                                               |              |                                        |
|          | 7-621-255-72 | SCREW, machine; ♂ P 2×10                  |                                                                               |              |                                        |
|          | 7-621-256-22 | SCREW, machine; ♂ P 2×20                  |                                                                               |              |                                        |
|          | 7-621-259-12 | SCREW, machine; ♂ P 2.6×3                 |                                                                               |              |                                        |
|          | 7-621-259-32 | SCREW, machine; ♂ P 2.6×5                 |                                                                               |              |                                        |
|          | 7-621-255-42 | SCREW, machine; ♂ P 2.6×6                 |                                                                               |              |                                        |
|          | 7-621-255-52 | SCREW, machine; ♂ P 2.6×8                 |                                                                               |              |                                        |
|          |              |                                           | <p><b>NOTE:</b></p> <p>E = STANDARD MODEL<br/>UL = U S A<br/>CSA = CANADA</p> |              |                                        |

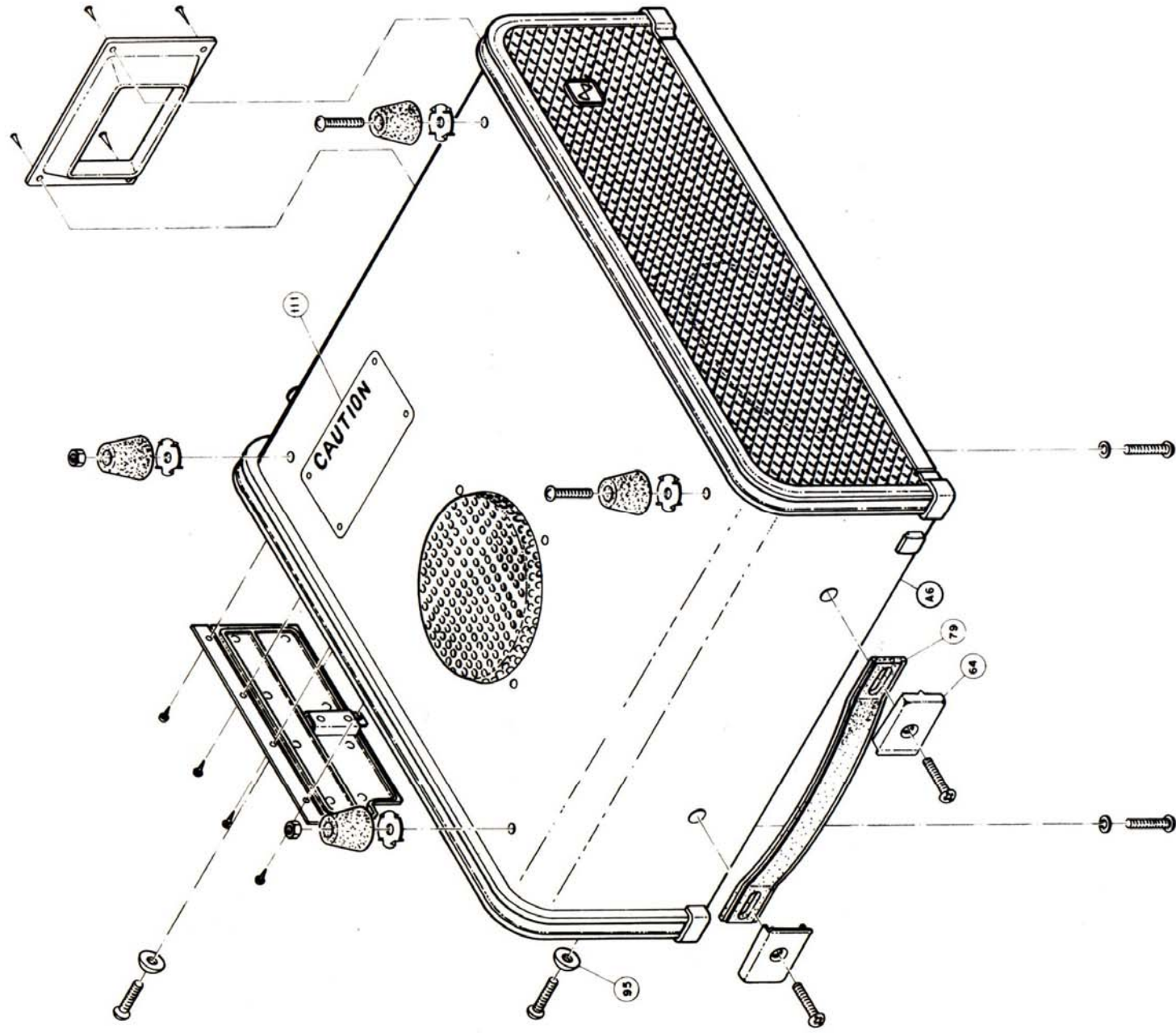
## Parts List

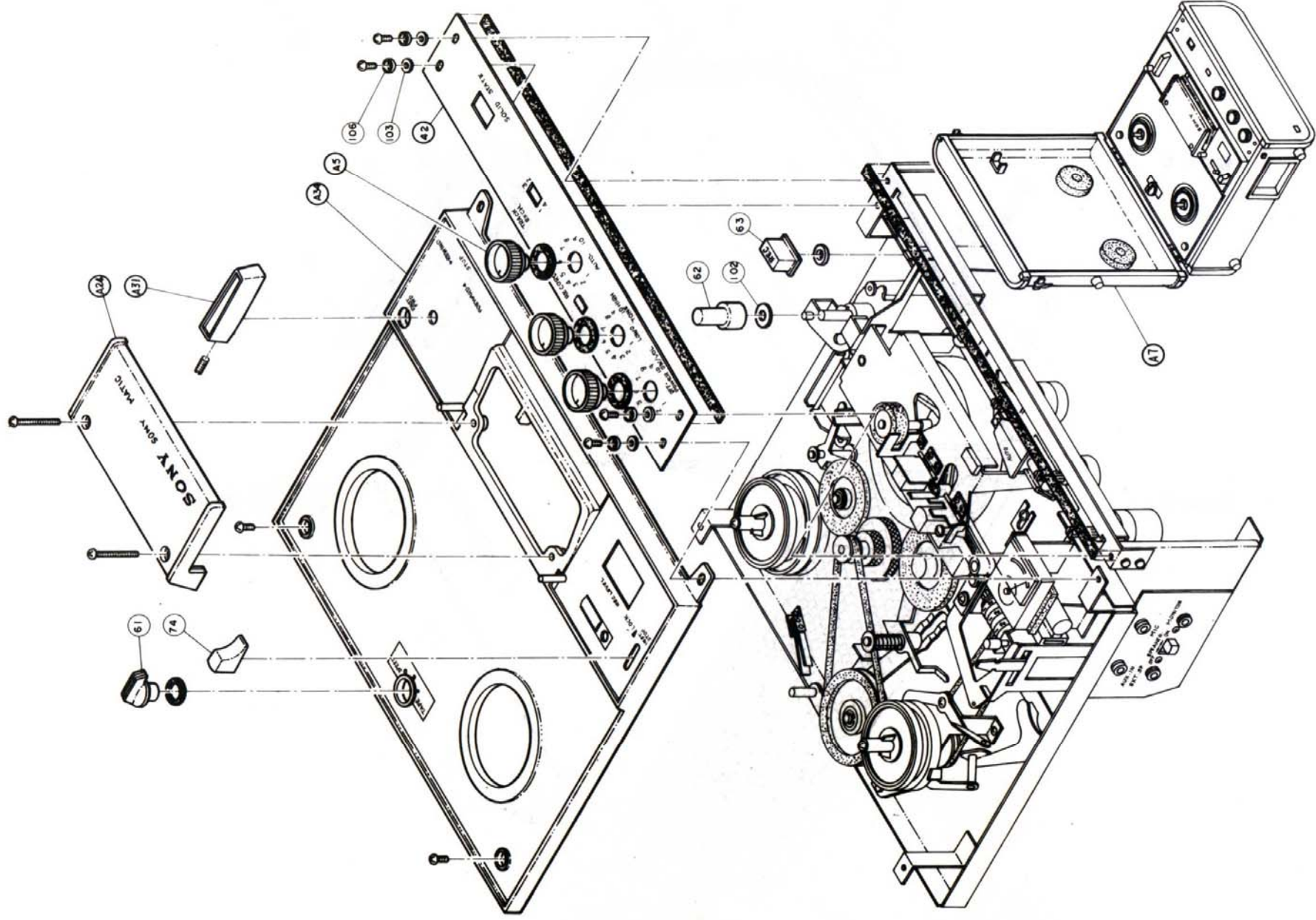
| Ref. No.                        | Part No.                     | Description                                                     | Ref. No. | Part No.                       | Description |                                         |          |        |      |     |
|---------------------------------|------------------------------|-----------------------------------------------------------------|----------|--------------------------------|-------------|-----------------------------------------|----------|--------|------|-----|
| A38                             | X-34290-55-1<br>1-538-416-12 | <b>Preamplifier Block</b>                                       |          | 1-242-649-                     | 100Ω        | ±10%                                    | ¼W       | R26    |      |     |
|                                 |                              | CIRCUIT BOARD, preamplifier; mounted                            |          | 1-242-661-                     | 330Ω        | ±10%                                    | ¼W       | R39    |      |     |
|                                 |                              | CIRCUIT BOARD, preamplifier; printed                            |          | 1-242-665-                     | 470Ω        | ±10%                                    | ¼W       | R27    |      |     |
|                                 |                              | TRANSISTOR 2SC631 X1,2                                          |          | 1-242-683-                     | 2.7kΩ       | ±10%                                    | ¼W       | R25    |      |     |
|                                 |                              | TRANSISTER 2SC402A X8 (Low Noise)                               |          | 1-242-693-                     | 6.8Ω        | ±10%                                    | ¼W       | R28    |      |     |
|                                 |                              | DIODE 1T22 D2                                                   |          | 1-242-695-                     | 8.2kΩ       | ±10%                                    | ¼W       | R23    |      |     |
|                                 |                              | TRANSFORMER, output                                             |          | 1-242-703-                     | 18kΩ        | ±10%                                    | ¼W       | R24,38 |      |     |
|                                 |                              | SWITCH, rec./p.b.; slide S1                                     |          |                                |             |                                         |          |        |      |     |
|                                 |                              | RESISTOR, adjustable, carbon                                    |          |                                |             |                                         |          |        |      |     |
|                                 |                              | 22kΩ (B) R46                                                    |          |                                |             |                                         |          |        |      |     |
|                                 |                              | <b>RESISTOR, carbon</b>                                         |          |                                |             |                                         |          |        |      |     |
|                                 |                              | 1-242-683-                                                      |          | 2.7kΩ                          | ±5%         | ¼W                                      | R8       |        |      |     |
|                                 | 1-242-691-                   | 5.6kΩ                                                           |          | ±5%                            | ¼W          | R5                                      |          |        |      |     |
|                                 | 1-242-709-                   | 33kΩ                                                            |          | ±5%                            | ¼W          | R6                                      |          |        |      |     |
|                                 | 1-242-705-                   | 22kΩ                                                            |          | ±5%                            | ¼W          | R3                                      |          |        |      |     |
|                                 | 1-242-641-                   | 47Ω                                                             |          | ±10%                           | ¼W          | R10                                     |          |        |      |     |
|                                 | 1-242-645-                   | 68Ω                                                             |          | ±10%                           | ¼W          | R4                                      |          |        |      |     |
|                                 | 1-242-649-                   | 100Ω                                                            |          | ±10%                           | ¼W          | R45                                     |          |        |      |     |
|                                 | 1-242-663-                   | 390Ω                                                            |          | ±10%                           | ¼W          | R9                                      |          |        |      |     |
|                                 | 1-242-665-                   | 470Ω                                                            |          | ±10%                           | ¼W          | R16                                     |          |        |      |     |
|                                 | 1-242-673-                   | 1kΩ                                                             |          | ±10%                           | ¼W          | R7                                      |          |        |      |     |
|                                 | 1-242-681-                   | 2.2kΩ                                                           |          | ±10%                           | ¼W          | R42                                     |          |        |      |     |
|                                 | 1-242-687-                   | 3.9kΩ                                                           |          | ±10%                           | ¼W          | R15                                     |          |        |      |     |
|                                 | 1-242-693-                   | 6.8kΩ                                                           |          | ±10%                           | ¼W          | R47                                     |          |        |      |     |
|                                 | 1-242-695-                   | 8.2kΩ                                                           |          | ±10%                           | ¼W          | R40                                     |          |        |      |     |
|                                 | 1-242-697-                   | 10kΩ                                                            |          | ±10%                           | ¼W          | R17                                     |          |        |      |     |
|                                 | 1-242-699-                   | 12kΩ                                                            |          | ±10%                           | ¼W          | R43                                     |          |        |      |     |
|                                 | 1-242-703-                   | 18kΩ                                                            |          | ±10%                           | ¼W          | R18                                     |          |        |      |     |
|                                 | 1-242-707-                   | 27kΩ                                                            |          | ±10%                           | ¼W          | R18                                     |          |        |      |     |
|                                 | 1-242-709-                   | 33kΩ                                                            |          | ±10%                           | ¼W          | R14                                     |          |        |      |     |
|                                 | 1-242-733-                   | 330kΩ                                                           |          | ±10%                           | ¼W          | R12                                     |          |        |      |     |
|                                 | A39                          | X-34290-56-1<br>1-538-417-14                                    |          | <b>CAPACITOR, electrolytic</b> |             | 1-105-745-12                            | 0.0022μF | ±10%   | 200V | C27 |
|                                 |                              |                                                                 |          | 1-121-186-                     |             | 1000μF                                  | 35V      | C32    |      |     |
| 1-121-081-                      |                              |                                                                 | 500μF    | 25V                            |             | C20                                     |          |        |      |     |
| 1-121-359-                      |                              |                                                                 | 500μF    | 15V                            |             | C13                                     |          |        |      |     |
| 1-121-294-                      |                              |                                                                 | 200μF    | 25V                            |             | C17                                     |          |        |      |     |
| 1-121-290-                      |                              |                                                                 | 100μF    | 15V                            |             | C25                                     |          |        |      |     |
| 1-121-287-                      |                              |                                                                 | 100μF    | 12V                            |             | C18                                     |          |        |      |     |
| 1-121-284-                      |                              |                                                                 | 30μF     | 3V                             |             | C16                                     |          |        |      |     |
|                                 |                              |                                                                 | 30μF     | 10V                            |             | C14                                     |          |        |      |     |
|                                 |                              |                                                                 | 3μF      | 25V                            |             | C12                                     |          |        |      |     |
| <b>CAPACITOR, mylar</b>         |                              |                                                                 |          |                                |             |                                         |          |        |      |     |
| 1-105-743-12                    |                              |                                                                 | 0.0015μF | ±10%                           |             | 200V                                    | C28      |        |      |     |
| 1-105-843-12                    |                              | 0.068μF                                                         | ±20%     | 50V                            |             | C19                                     |          |        |      |     |
| 1-105-841-12                    |                              | 0.047μF                                                         | ±20%     | 50V                            |             | C15                                     |          |        |      |     |
| 1-105-833-12                    |                              | 0.01μF                                                          | ±20%     | 50V                            |             | C24                                     |          |        |      |     |
|                                 |                              |                                                                 |          |                                |             |                                         |          |        |      |     |
| <b>CAPACITOR, polyethylene</b>  |                              |                                                                 |          |                                |             |                                         |          |        |      |     |
| 1-129-344-                      |                              | 0.0068μF                                                        | ±10%     | 500V                           |             | C23                                     |          |        |      |     |
|                                 |                              |                                                                 |          |                                |             |                                         |          |        |      |     |
| <b>CAPACITOR, silvered mica</b> |                              |                                                                 |          |                                |             |                                         |          |        |      |     |
| 1-107-006-                      |                              | 330pF                                                           | ±10%     | 500V                           |             | C21                                     |          |        |      |     |
|                                 |                              | GENERAL BLOCK                                                   |          | 82-1242-27-                    |             | TRANSISTOR 2SD28 X5,6                   |          |        |      |     |
|                                 |                              |                                                                 |          | 82-6629-21-                    |             | Rec./P.B. HEAD PP30-4202                | LN1      |        |      |     |
|                                 |                              |                                                                 |          | 83-2624-07-                    |             | ERASE HEAD EF18-2902                    | H        |        |      |     |
|                                 |                              |                                                                 |          | 1-441-241-13S                  |             | MOTOR IC-624S2                          |          |        |      |     |
|                                 |                              |                                                                 |          | 1-441-268-12S                  |             | TRANSFORMER, power for UL & CSA         |          |        |      |     |
|                                 |                              |                                                                 |          | 1-502-147-                     |             | TRANSFORMER, power for E                |          |        |      |     |
|                                 |                              |                                                                 |          | 1-509-064-13S                  |             | SPEAKER                                 |          |        |      |     |
|                                 |                              |                                                                 |          | 1-524-020-                     |             | VOLTAGE SELECTOR for E                  |          |        |      |     |
|                                 |                              |                                                                 |          | 1-513-091-02                   |             | METER, volume unit                      |          |        |      |     |
|                                 |                              |                                                                 |          | 1-514-039-12                   |             | SWITCH, track change; slide S2.6        |          |        |      |     |
|                                 |                              |                                                                 |          | 1-514-041-                     |             | SWITCH, micro S8 -12; UL only           |          |        |      |     |
|                                 |                              |                                                                 |          | 1-507-053-                     |             | SWITCH, tape speed equalizer; leaf S4,5 |          |        |      |     |
|                                 | 1-507-052-                   | JACK, microphone & ext. speaker; mini                           |          |                                |             |                                         |          |        |      |     |
|                                 | 1-518-052-                   | JACK, line-out; mini                                            |          |                                |             |                                         |          |        |      |     |
|                                 | 1-517-003-                   | LAMP, pilot                                                     |          |                                |             |                                         |          |        |      |     |
|                                 | 1-532-163-                   | SOCKET, pilot lamp                                              |          |                                |             |                                         |          |        |      |     |
|                                 | 1-533-006-                   | FUSE 0.8A                                                       |          |                                |             |                                         |          |        |      |     |
|                                 | 1-536-146-                   | FUSE HOLDER                                                     |          |                                |             |                                         |          |        |      |     |
|                                 | 1-536-181-                   | TERMINAL STRIPS; 1-L-1                                          |          |                                |             |                                         |          |        |      |     |
|                                 | 1-536-182-                   | TERMINAL STRIPS; 2-L-1 for UL & CSA                             |          |                                |             |                                         |          |        |      |     |
|                                 | 1-101-534-                   | TERMINAL STRIPS; 2-L-2                                          |          |                                |             |                                         |          |        |      |     |
|                                 |                              | ENCAPSULATED COMPONENT                                          |          |                                |             |                                         |          |        |      |     |
|                                 |                              | 0.1μF+120Ω 500V for UL                                          |          |                                |             |                                         |          |        |      |     |
|                                 | 1-117-035-                   | CAPACITOR, metalized paper C33 1.5μF for UL & CSA               |          |                                |             |                                         |          |        |      |     |
|                                 | 1-534-557-21                 | AC POWER CORD for UL                                            |          |                                |             |                                         |          |        |      |     |
|                                 | 1-534-487-22                 | AC POWER CORD for E                                             |          |                                |             |                                         |          |        |      |     |
|                                 | 1-534-608-                   | POWER CORD for CSA                                              |          |                                |             |                                         |          |        |      |     |
|                                 | 1-431-006-                   | HUMBUCK COIL L2,3                                               |          |                                |             |                                         |          |        |      |     |
|                                 | 1-221-641-12                 | TONE CONTROL 10kΩ R11 with S11                                  |          |                                |             |                                         |          |        |      |     |
|                                 | 1-221-726-13                 | VOLUME CONTROL 10kΩ(A) R19 with S7 -12; for UL -13; for CSA & E |          |                                |             |                                         |          |        |      |     |
|                                 | 1-221-725-                   | AUTOMATIC GAIN CONTROL                                          |          |                                |             |                                         |          |        |      |     |
|                                 |                              | 15kΩ(D) R13                                                     |          |                                |             |                                         |          |        |      |     |
|                                 |                              | <b>RESISTOR, carbon</b>                                         |          |                                |             |                                         |          |        |      |     |
| 1-244-667-                      | 560Ω                         | ±10%                                                            | R1       |                                |             |                                         |          |        |      |     |
| 1-244-721-                      | 100kΩ                        | ±10%                                                            | R2       |                                |             |                                         |          |        |      |     |
| 1-244-647-                      | 82Ω                          | ±10%                                                            | R37      |                                |             |                                         |          |        |      |     |











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