

# SUPERSCOPE®

STEREO CASSETTE DECK

Model CD-310

## SERVICE DATA

—MAY, 1977—

SUPERSCOPE INC.

20525 NORDHOFF STREET  
CHATSWORTH, CALIFORNIA · 91311 · U.S.A.



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**SPECIFICATIONS**

Tape Speed . . . . .	4.8 cm/sec. (1-7/8 I.P.S.)	Impedance . . . . .	5 kΩ
Tape Size . . . . .	PHILIPS Type Cassette or Equivalent	Output Level . . . . .	630 mV (0VU)
Recording System . . . . .	Quarter-Track Stereo	One Stereo Headphone	
Rewind and Fast Forward Time . . . . .	85 sec. (C-60 cassette)	Plug Type . . . . .	1/4"
Number and Type of Motor . . . . .	One DC Servo	Impedance . . . . .	8 Ω
Number of Semi-Conductors . . . . .	Transistors: 34	Output Level . . . . .	20 mV (0VU)
	FET: 2	One DIN (REC/PLAY)	
	Diodes: 29	*FOR EUROPEAN MODEL ONLY	
	LED: 2	Input Impedance . . . . .	47 kΩ
Inputs . . . . .	Two Line Inputs: (one for each channel)	Input Sensitivity . . . . .	80 mV (-22 dB V)
	Plug Type . . . . .	Output Impedance . . . . .	5 kΩ
	Phono	Output Level . . . . .	630 mV (0VU)
	Impedance . . . . .	Power Requirement . . . . .	240/220/120/110V AC 11W
	180 kΩ		50/60 Hz (for Europe)
	Input Sensitivity . . . . .		120V AC 11W 50/60 Hz
	32 mV (-10 dB V)		(for USA & Canada)
	Two Microphones: (one for each channel)	Dimensions . . . . .	Width . . . . .
	Plug Type . . . . .		350 mm (13-7/8 inches)
	1/4"		Height . . . . .
	Impedance . . . . .		122 mm (4-7/8 inches)
	10 kΩ		Depth . . . . .
	Input Sensitivity . . . . .		289.5 mm (11-1/2 inches)
	0.22 mV (-73 dB V)	Unit Weight . . . . .	5 kg (11 lbs.)
Outputs . . . . .	Two Line Outputs: (one for each channel)		
	Plug Type . . . . .		
	Phono		

**1. INTRODUCTION**

The Service Data was prepared for use by Authorized Warranty Stations and contains service information for the SUPERSCOPE Model CD-310 Stereo Cassette Deck. Servicing information and voltage data included in this Data are intended for use by the knowledgeable and experienced technician only. All instructions should be read carefully. No attempt should be made to proceed without a good understanding of the operation in the Cassette Deck.

The parts list furnishes information by which replacement parts may be ordered from the SUPERSCOPE INC. A simple description is included for parts which can be usually obtained through local suppliers.

**2. SERVICE NOTE**

As can be seen from the circuit diagram, the chassis of Model CD-310 consists of following units. Each unit mounted on a printed circuit board is described within the square enclosed by a bold dotted line on the circuit diagram.

1. Pre-Amp. . . . . mounted on P.W. Board, P100
2. Power Supply . . . . . mounted on P.W. Board, P400
3. Mechanism Connector . . . . . mounted on P.W. Board, P550
4. Switch . . . . . mounted on P.W. Board, P600
5. Terminals . . . . . mounted on P.W. Board, P700
6. Dolby . . . . . mounted on P.W. Board, P800

### 3. TEST EQUIPMENT REQUIRED FOR SERVICING REPLACEMENT

For measuring or checking the Model CD-310, the following instruments and materials are necessary.

- VTVM
- Audio Oscillator (af OSC)
- Attenuator (600  $\Omega$ )
- Oscilloscope
- Bandpass Filter (1 kHz, 500 Hz)
- Wow and Flutter Meter
- Torque Meter (Cassette Type)
- Digital Frequency Counter
- Distortion Meter
- Blank Tapes (Completely erased with bulk eraser)
  - TDK DC-60 (Normal)
  - TDK KR-C60 (CrO<sub>2</sub>)
  - SONY CS-30 (Fe-Cr)

Note: If any doubt is noted in a measured value, use new tape.

● Test Tapes

(New Tape)

- MTT-111 Wow and Flutter Tape Speed
- MTT-112 Measurement of Output Level Signal-to-Noise Ratio
- MTT-150 Adjustment of Output Level
- MTT-116U Frequency Response (for Normal)
- MTT-116K Frequency Response (for CrO<sub>2</sub>, Fe-Cr)
- MTT-121 Cross Talk
- MTT-141 Channel Separation

Bias and EQ. switch setting in accordance with tape used are as follows:

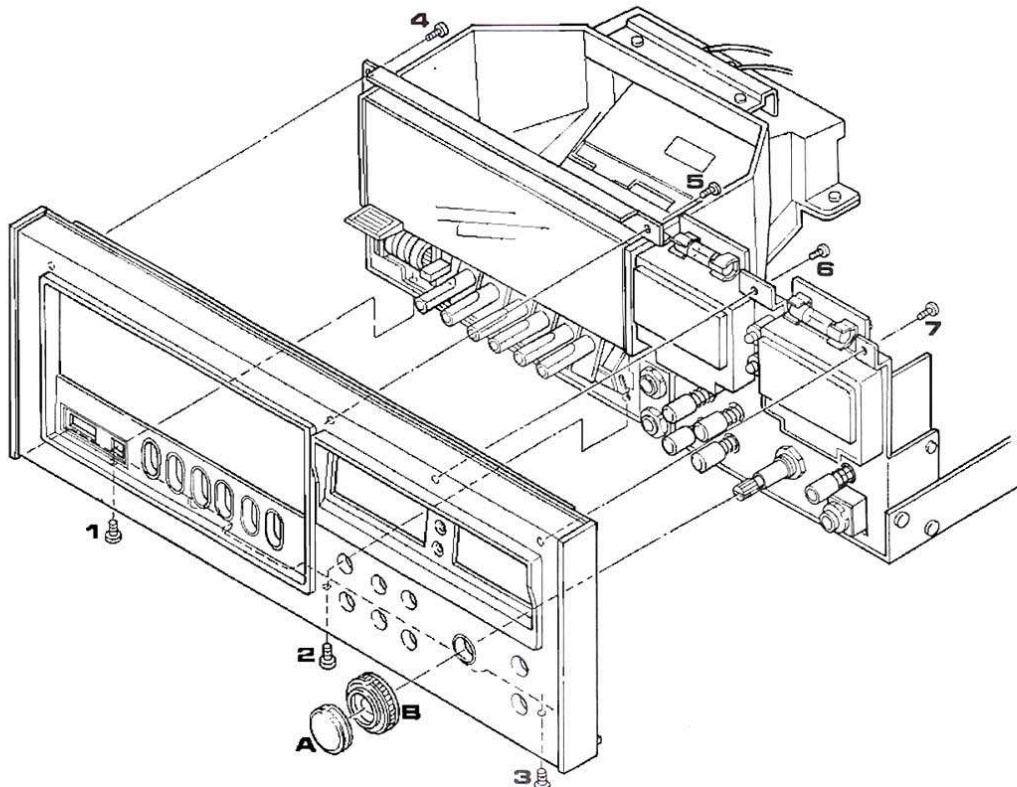
Tape	Switch Position	
	Bias Switch	EQ. Switch
DC-60	■	■
KR-C60	▬	▬
CS-30	■	▬

### 4. DISASSEMBLING INSTRUCTIONS FOR MODEL CD-310

#### 4-1 Removal of Front Panel

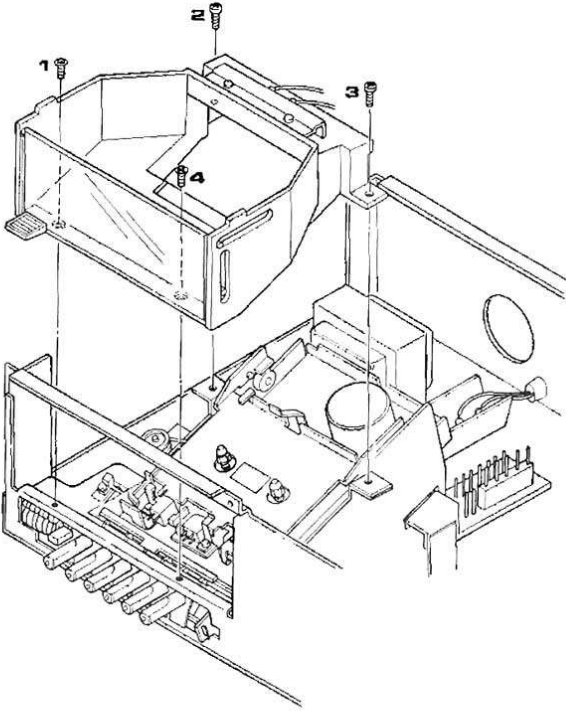
Pull out the knobs A and B for REC LEVEL. Remove

seven screws 1 through 7. Now the front panel can be pulled off.



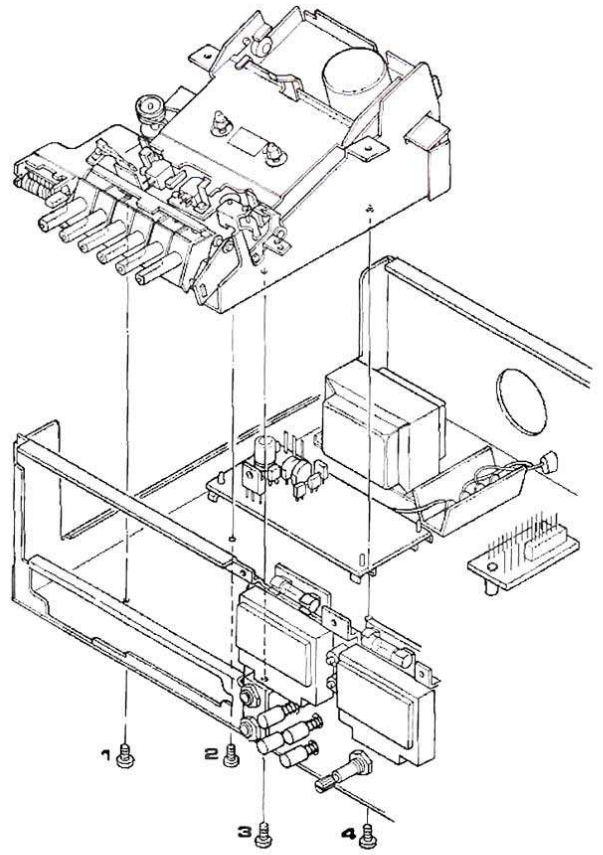
#### 4-2 Removal of Cassette Cover

Remove four screws 1 through 4. The cassette cover can be pulled off upward. When it is removed, caution should be paid to the cable connected to the cassette cable.



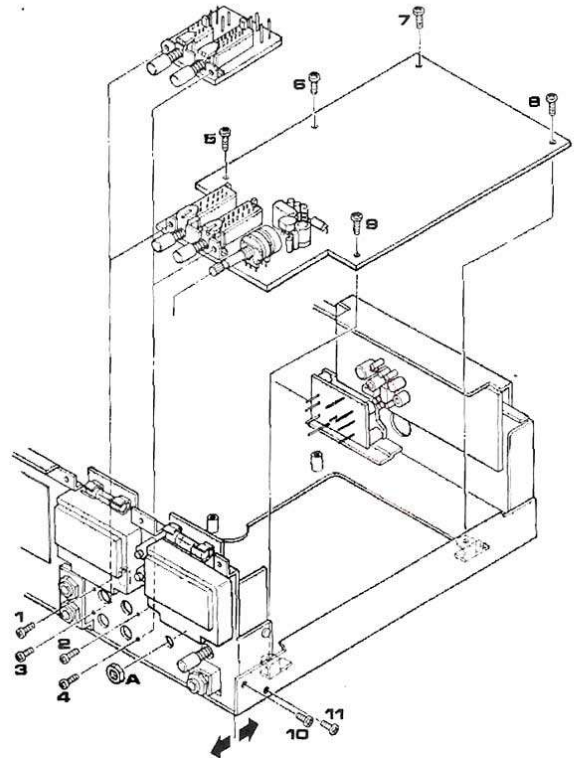
#### 4-3 Removal of Mechanism Chassis

Remove four screws 1 through 4 from the back of the main assembly. Then, remove the mechanism chassis paying attention to the operational levers.



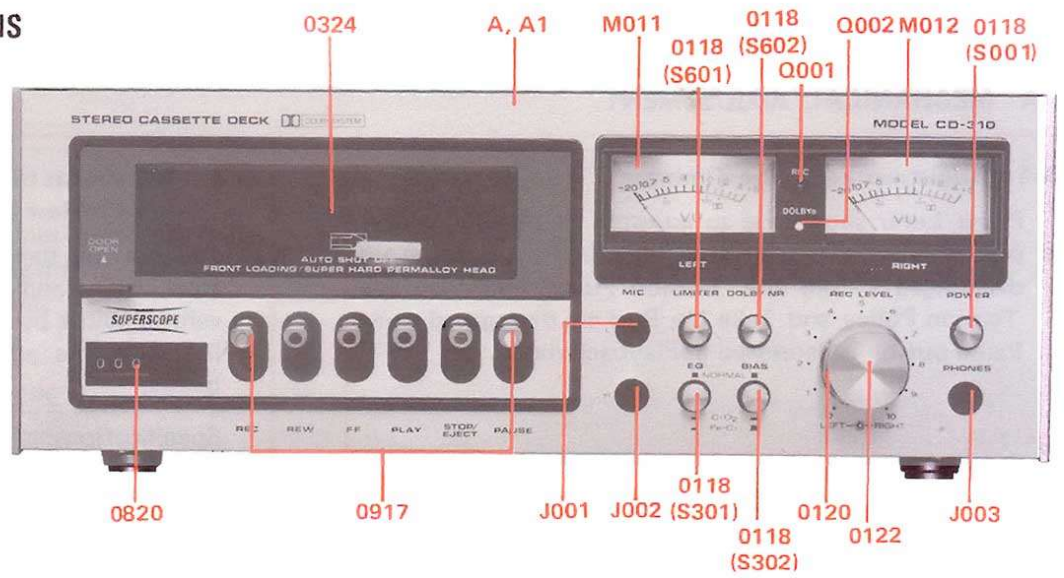
#### 4-4 Removal of Main Board

Remove two screws 1 and 2. The switch board can be removed. Remove the nut A for REC LEVEL and seven screws 3 through 9. Since it is not possible yet to remove the main board, remove four screws 10 and 11 at left and right side and move the front chassis and the main chassis in the direction shown by arrow to remove the main board.

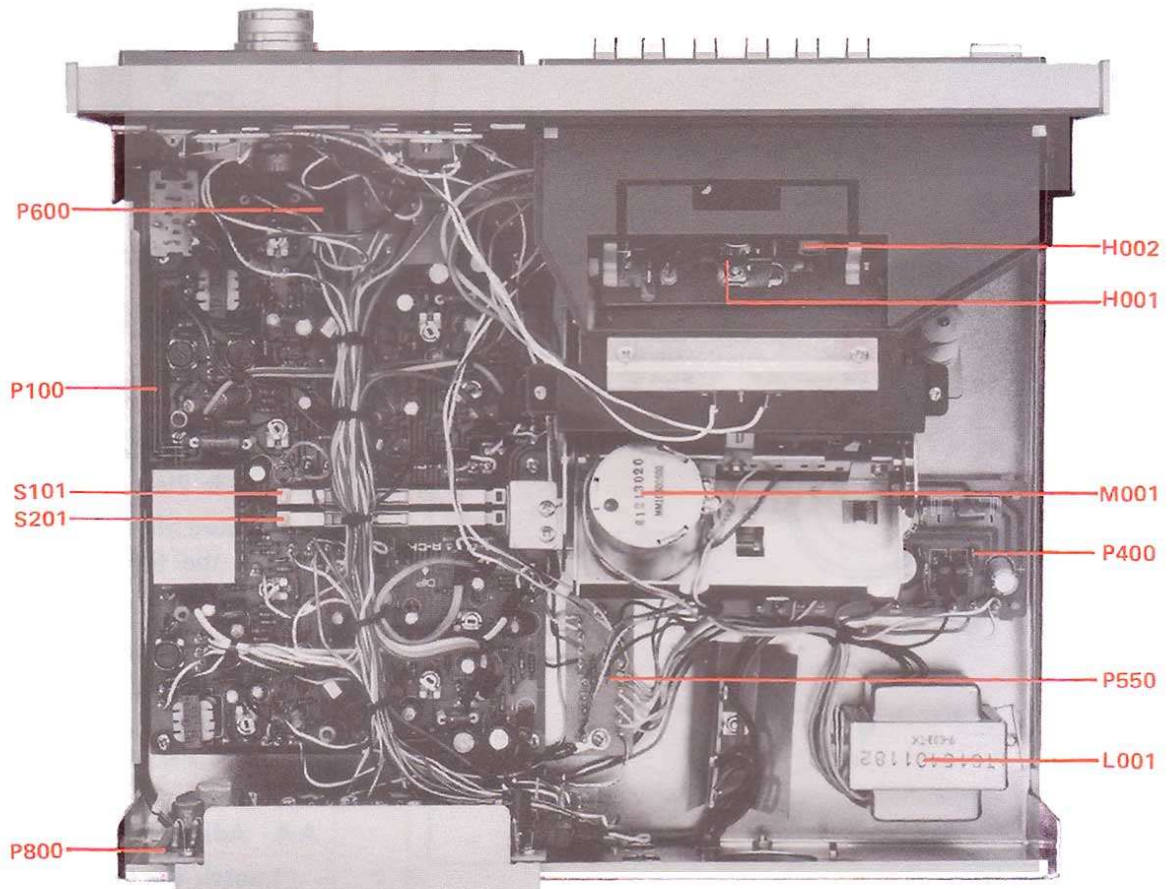


## 5. MAJOR PARTS LOCATIONS

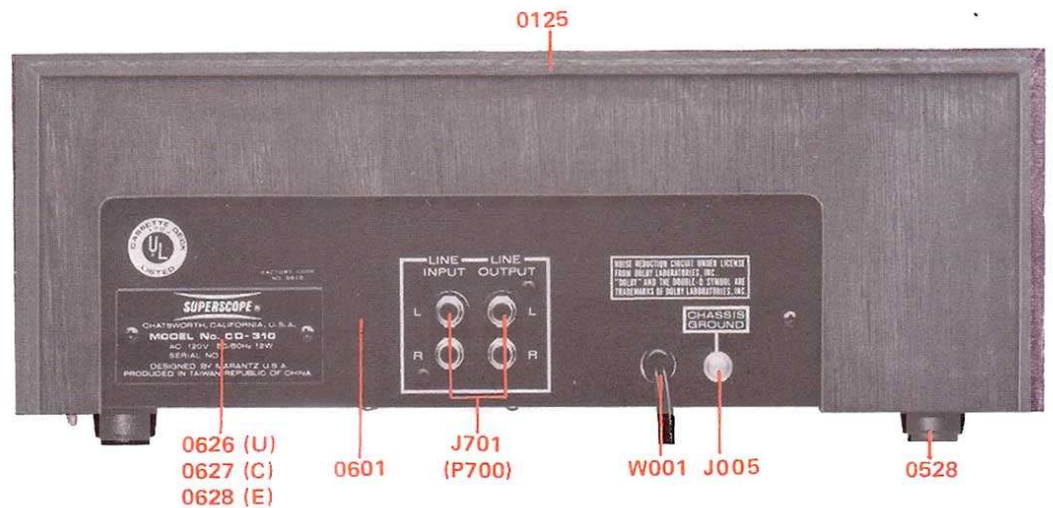
5-1 Front Panel View



5-2 Chassis Top View



5-3 Rear Panel View

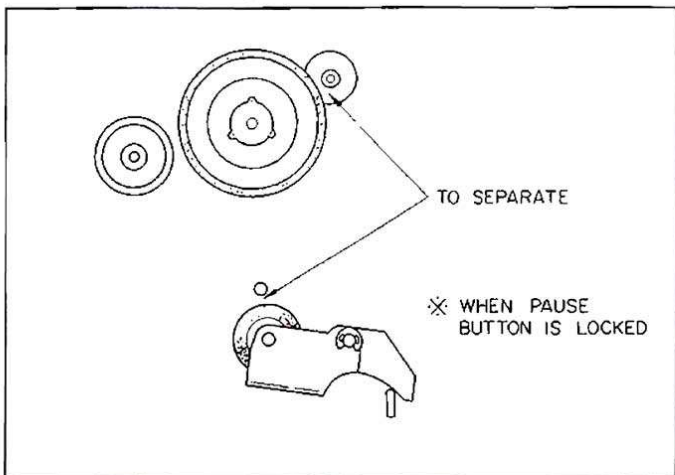
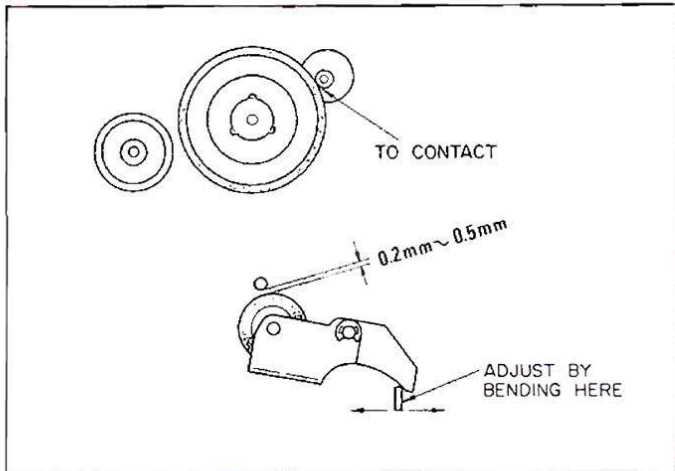
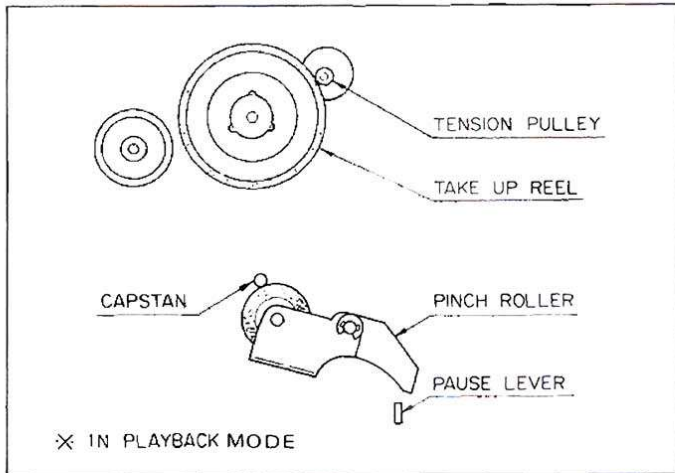


## 6. ADJUSTMENT PROCEDURES

### 6-A MECHANICAL ADJUSTMENT

#### A-1 Adjustment of Pause Timing

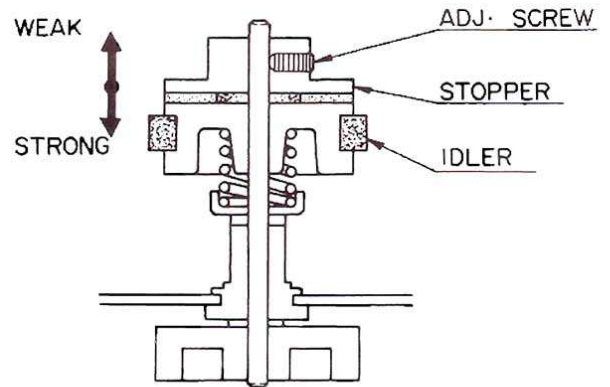
Pause Lever should be so adjusted by bending with a pair of pliers that the Pinch Roller and the Capstan are disengaged before the Tension Pulley and then the Tension Pulley and Take Up Reel are disengaged when Pause button is depressed in Playback mode.



#### A-2 Adjustment of FF/Rew Torque — in FF/Rew Mode —

Measure the torque while the unit is placed in FF or Rew mode and if it does not satisfy the specified values, adjust by raising and lowering the Stopper after loosening the adjustment screw shown in the figure below.

Specifications: Rew 60 ~ 110 g.cm  
FF 60 ~ 110 g.cm



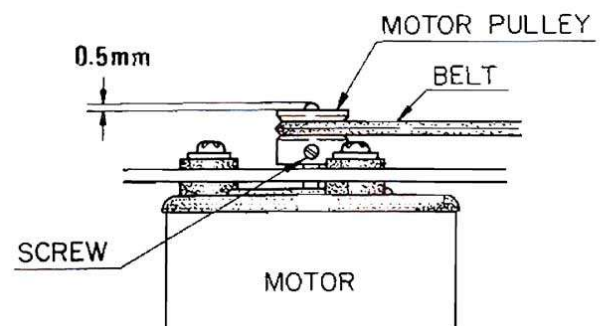
#### A-3 Measurement of Play, FF and Rewind Torques — in Play/FF/Rew Mode —

Measure the torques with a torque meter to confirm that the torque satisfies the specified value in each mode.

Specifications: Play 40 ~ 70 g.cm  
FF 60 ~ 110 g.cm  
Rew 60 ~ 110 g.cm

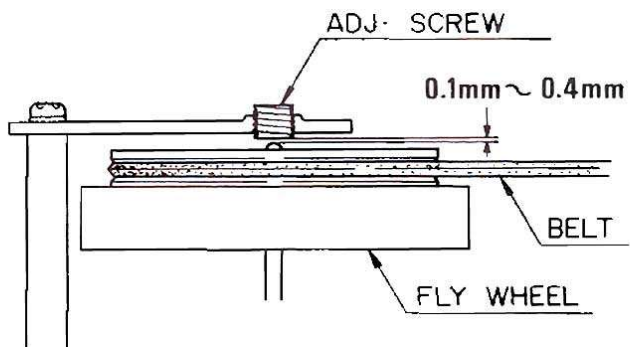
#### A-4 Adjustment of Motor Pulley Mounting Position

Loosen the set screw and adjust the position to obtain the distance of 0.5 mm between the edge of Motor Shaft and the upper surface of Motor Pulley.

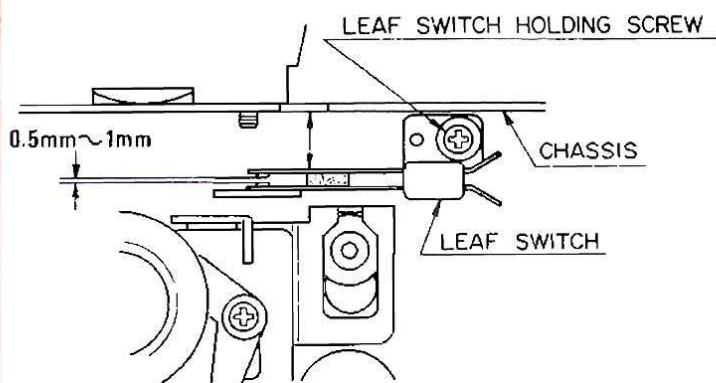


### A-5 Adjustment of Flywheel Thrust

Adjust the thrust to 0.1 ~ 0.4 mm by rotating the adjustment screw. After the adjustment, be sure to lock the adjustment screw with paint.

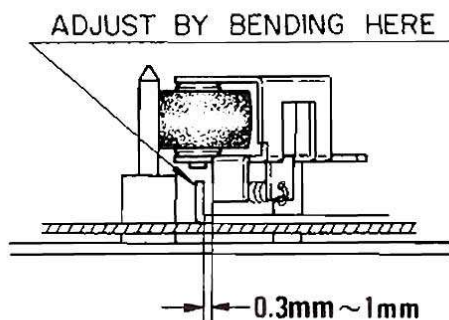


### A-6 Adjustment of Leaf Switch Position – in Stop Mode –



Leaf Switch should be positioned parallel with the chassis.

### A-7 Adjustment of Pinch Roller Position – in Playback Mode –



## 6-B ELECTRICAL ADJUSTMENTS AND MEASUREMENTS

### Precautions before Adjustment and Measurement

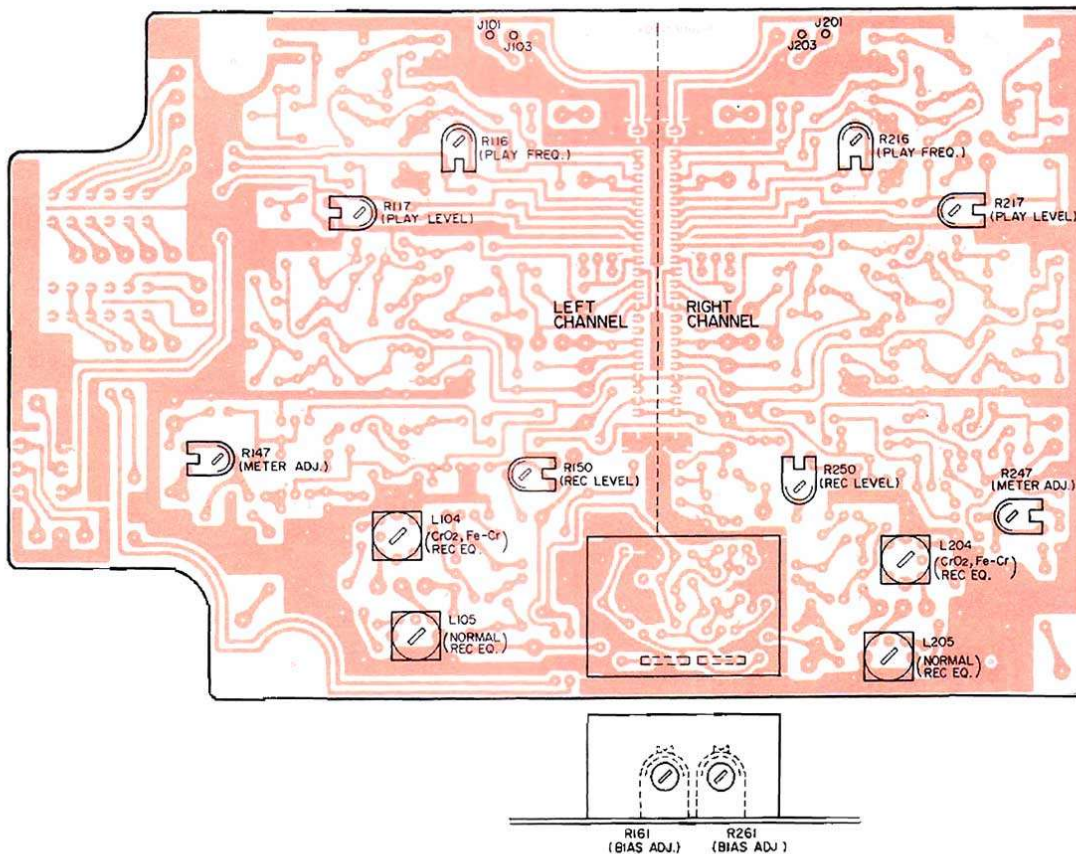
1. Before playing the test tape back, thoroughly demagnetize the heads, capstan and similar metal parts using an eraser as the test tape-recorded tone is easily erased.
2. Do not place the test tape on any measuring instrument.
3. Do not put the test tape near a place where the eraser is used.
4. Method of Demagnetization:— Turn the eraser power switch on at a remote position far away from the heads. Bring the eraser close to the heads, capstan and other parts to be demagnetized, and move it up and down four or five times to demagnetize. Slowly separate the eraser far away from the parts, and turn the power switch off.
5. Do not use any magnetized adjusting tool. When using it, demagnetize it from time to time in the course of each adjustment.
6. Do not turn semi-fixed resistor, capacitor, and inductor

adjusting screws more than needed.

7. If measuring the tape speed wow and flutter, operate the tape deck in the normal operating condition.
8. Do not apply locking bond excessively.

### Definitions

1. The "normal playback state" is an operating state of the tape deck which plays back the MTT-150 test tape and is adjusted so as to produce a 580 mV output at the MAIN P.W. Board (P100) J115, J215 with the load assuming the measuring instrument input impedance of greater than 100 k $\Omega$  and with the TAPE selector switch set at the NORMAL position.
2. The "normal recording state" is an operating state of the tape deck which records a 1 kHz signal to a specified recording level for which the recording level control is adjusted with the 1 kHz signal applied at a specified input level to the MIC input terminal. In the normal recording state, therefore, this tape deck is set up with the level control to the state that the level meter pointer may deflect to the 100% mark as 0VU with a 1 kHz, 1 mV input signal applied.





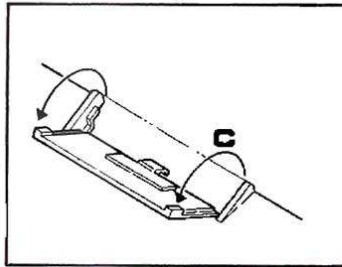
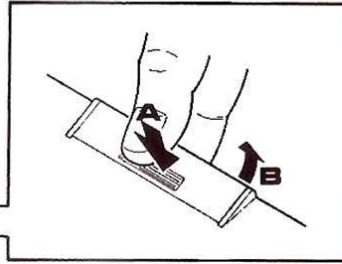
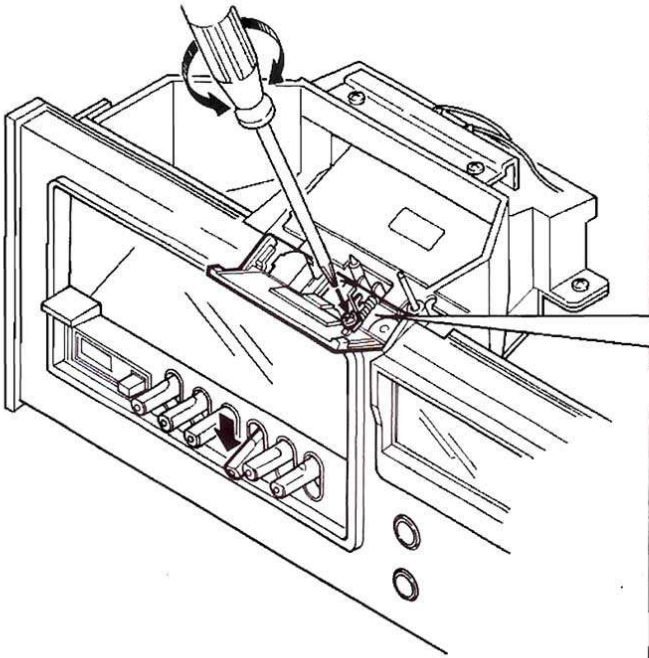
## B-1 Head Azimuth Adjustment

### SET UP

1. Power voltage: 50 or 60 Hz AC voltage rated for the unit to be used in a market country.
2. TAPE selector switch position: NORMAL.
3. Load: Measuring instrument input impedance.
4. Output terminal used: LINE OUT.
5. Test tape used: MTT-116U (31.5 Hz to 14 kHz).

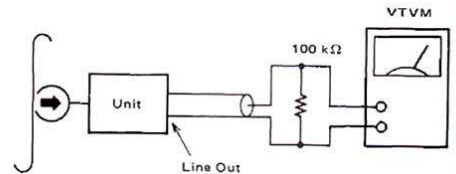
### PROCESURES

1. Pressing the head cover in the direction shown by arrow A, pull it out in the direction shown by arrow B. Open the cover as shown by arrow C. The head should be adjusted in the PLAY mode of operation.
2. Play the 10 kHz portion of the test tape MTT-116U back. Adjust the head azimuth adjusting screw for maximum VTVM read.
3. If the peak output reads of the right and left channels are different, set the screws to obtain the mechanical center between the peaks.
4. After adjustment, lock the screw with bond.



Mode: playback

Tone: 10 kHz



### CAUTION

After adjustment, repeat the playback and stop setting a few times to make certain of no head azimuth deviation.

## B-2 Tape Speed Adjustment

### SET UP

1. Power voltage: 50 or 60 Hz AC voltage rated for the unit to be used in a market country.
2. Output terminal: LINE OUT.
3. Test tape used: MTT-111.
4. Unit position: Horizontal.

### PROCEDURES

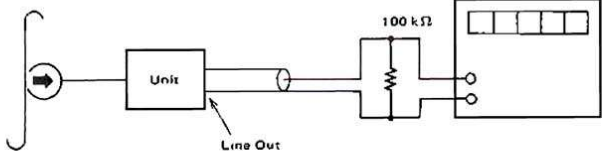
Play the mid portion of the test tape MTT-111 back. Adjust the tape speed adjusting semi-fixed resistor for 2990 to 3010 Hz counter indication.

4. If a strong shock or similar vibration is applied to the tape deck after adjustment, make certain that the measured tape speed had not changed.
5. If the tape speed deviation occurs, perform the adjustment again.
6. Be careful that the counter may indicate a wrong value because of too low counter input level.
7. Before adjustment, allow for 30 seconds or more after depressing of the PLAY push-button.

Mode: playback

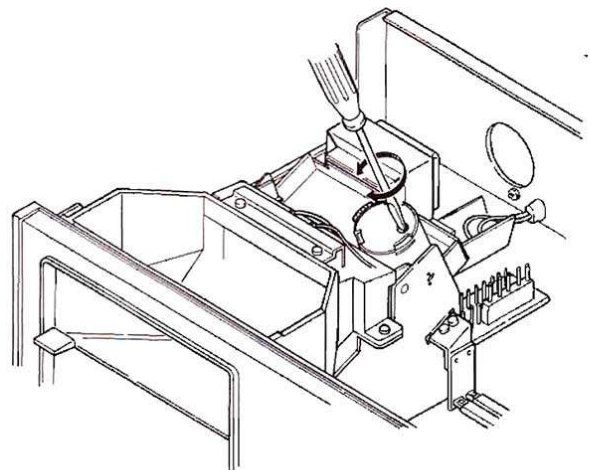
Tone 3 kHz

FREQUENCY COUNTER



### CAUTIONS

1. For adjustment, the tape deck should be set up in the normal operating condition.
2. Do not adjust the semi-fixed resistor more turns than needed.
3. Do not proceed with adjustment after the tape deck temperature has changed.



### B-3 Playback Equalizer Adjustment

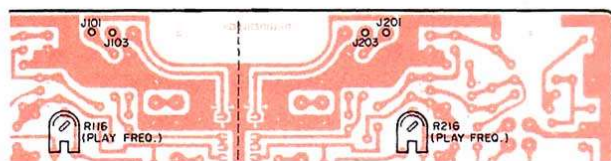
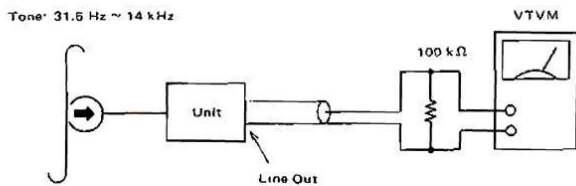
#### SET UP

1. Power voltage: 50 or 60 Hz AC voltage rated for the unit to be used in a market country.
2. TAPE selector switch position: NORMAL.
3. Load: Measuring instrument input impedance.
4. Output terminal: LINE OUT.
5. Test tape used: MTT-116U (31.5 Hz to 14 kHz).  
(New Test Tape)

#### PROCEDURES

1. Play the test tape MTT-116U. Let the 315 Hz signal level be reference as 0 dB.
2. Adjust R116 and R216 (3 k $\Omega$  each) for 10 kHz frequency response of 0 to -1 dB in reference to the 315 Hz signal level (0 dB).
3. Proceed both for the right and left channels in the same manner.
4. Note that clockwise turning of R116 and R216 will increase the 10 kHz signal output level.

Mode: playback



### B-4 Playback Output Adjustment

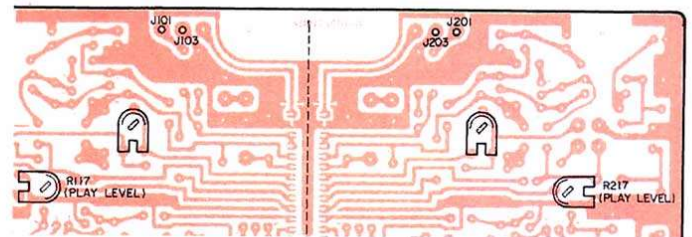
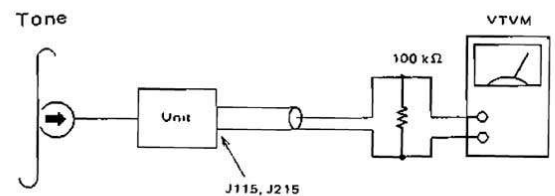
#### SET UP

1. Power voltage: 50 or 60 Hz AC voltage rated for the unit to be used in a market country.
2. TAPE selector switch position: NORMAL.
3. Load: Measuring instrument input impedance.
4. Output terminal: MAIN P.W. Board (P100) J115 and J215.
5. Test tape used: MTT-150.

#### PROCEDURES

1. Play the test tape MTT-150 back. Adjust R117 and R217 (20 k $\Omega$  each) for 580 mV playback output level.
2. Proceed both for the right and left channels in the same manner.

Mode: playback



#### CAUTION

This adjustment should be performed after the one for the playback equalizer. If the playback equalizer is adjusted after the playback output adjustment, the playback output should be readjusted.

## B-5 VU Meter Adjustment

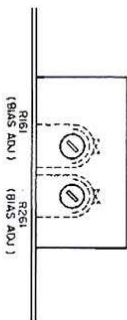
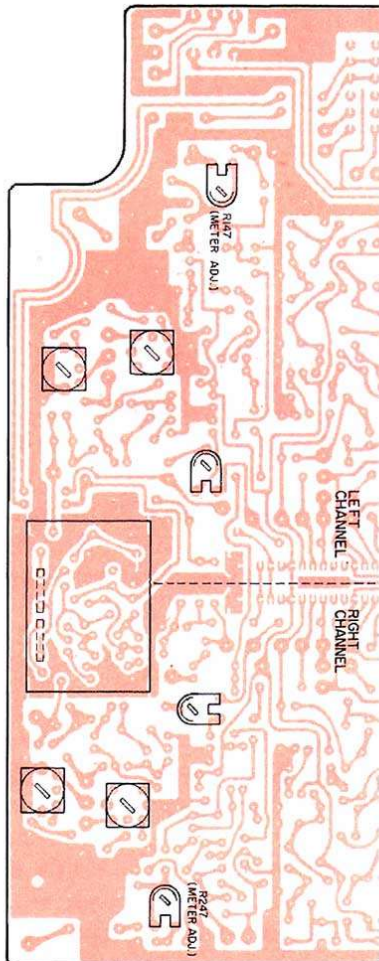
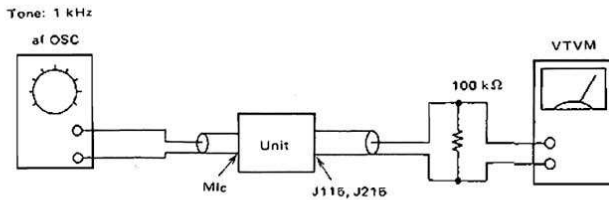
### SET UP

1. Power voltage: 50 or 60 Hz AC voltage rated for the unit to be used in a market country.
2. FUNCTION selector switch position: NORMAL.
3. Load: Measuring instrument input impedance.
4. Output terminal used: MAIN P.W. Board (P100) J115 and J215.
5. Input terminal: MIC.

### PROCEDURES

1. Connect a 1 kHz, -60 dBV input signal to the MIC terminal. Set up the tape deck for the recording mode of operation.
2. Adjust the REC control for 580 mV output level at MONI. Out of the MAIN P.W. Board (P100) J115 and J215.
3. Adjust R147 and R247 (3 k $\Omega$  each) until the VU meter pointer deflects to the DOLBY mark (DQ) on the VU meter.

Mode: record



## B-6 Recording Bias Current Adjustment (Temporal)

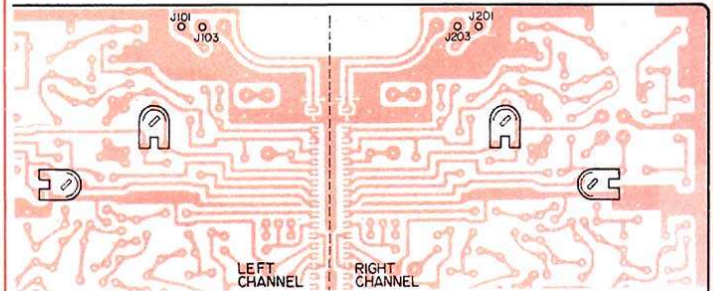
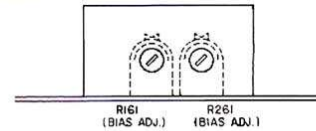
### SET UP

1. Power voltage: 50 or 60 Hz AC voltage rated for the unit to be used in a market country.
2. TAPE selector switch: NORMAL.

### PROCEDURES

1. Set up the tape deck in the recording mode of operation. Connect the VTVM to J101, J103 (L ch) and J201, J203 (R ch). Adjust the semifixed resistor R161 and R261 for 5 mV VTVM read.
2. Proceed both for the right and left channels in the same manner.
3. For the tape deck equipped with the TAPE selector switch, make certain that the VTVM reads approximately 7 mV with it set to the CrO<sub>2</sub> position.

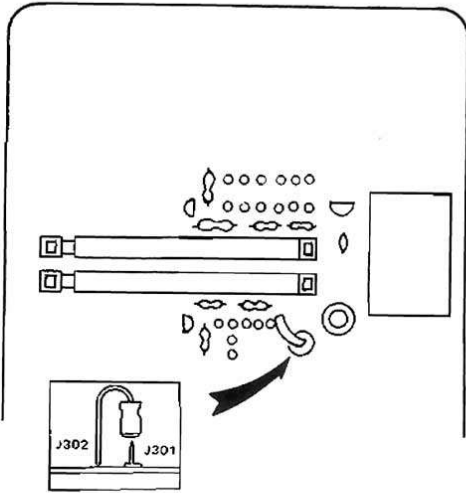
Mode: record



## B-7 Recording Equalizer Adjustment

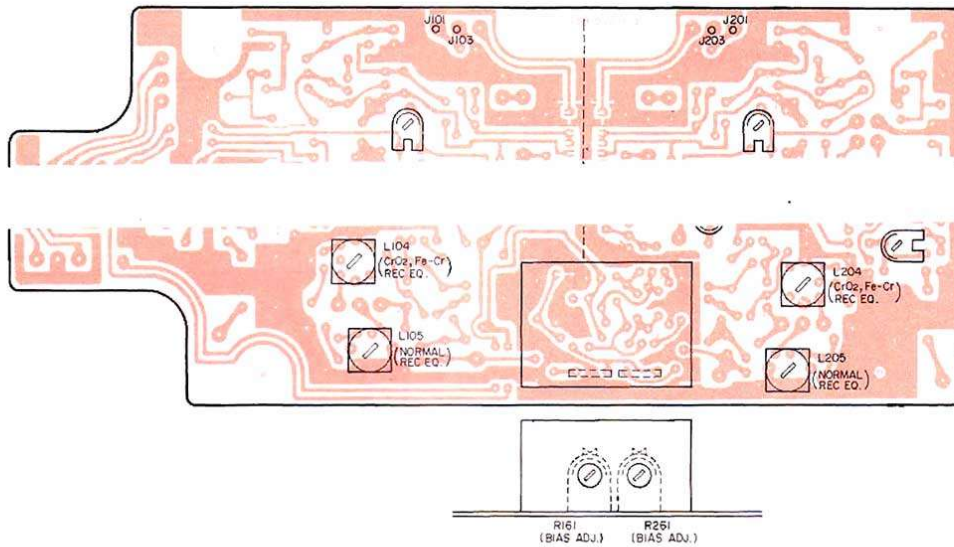
### SET UP

1. Power voltage: 50 or 60 Hz AC voltage rated for the unit to be used in a market country.
2. Input level: 20 dB lower than -60 dB.

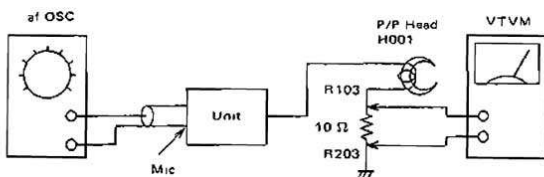


### PROCEDURES

1. Stop the recording bias current oscillation by plugging out connector J302 from J301.
2. Set up the tape deck to the normal recording state. Reduce the input level by 20 dB.
3. Set the TAPE selector switch to the NORMAL position. Set the audio-frequency oscillator to 14 kHz. Connect the VTVM to J101, J103 (L ch) and J201, J203 (R ch). Adjust L105 and L205 for maximum VTVM read.
4. In turn, set the TAPE selector switch to the CrO<sub>2</sub> position. Set the low-frequency oscillator to 16 kHz. Connect the VTVM to J101, J103 (L ch) and J201, J203 (R ch). Adjust L104 and L204 for maximum VTVM read.
5. Proceed both for the right and left channels in the same manner.
6. After adjustment, release the recording bias current.



14 kHz ~ 16 kHz



### CAUTION

The adjusting rod should be non-metallic.

## B-8 Recording Current Adjustment (Temporal)

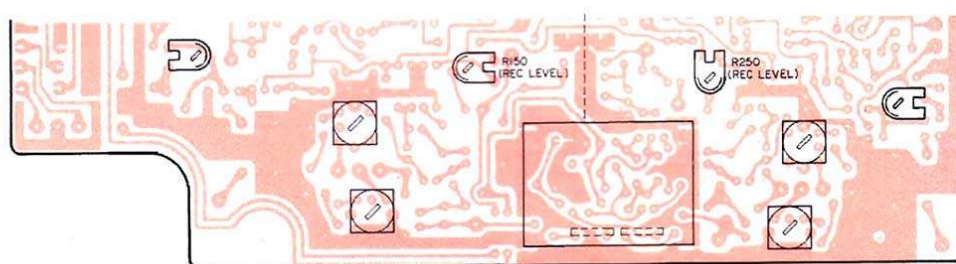
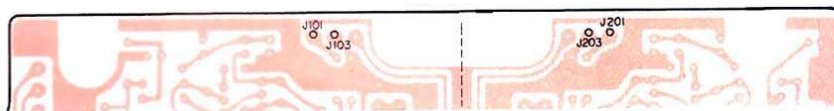
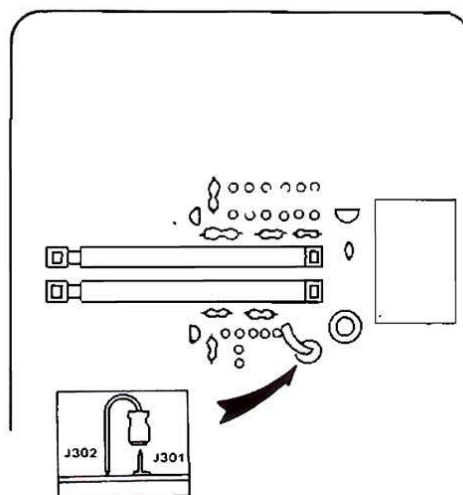
Mode: record

### SET UP

1. Power voltage: 50 or 60 Hz AC voltage rated for the unit to be used in a market country.
2. Input signal: 1 kHz, -60 dB signal.
3. TAPE selector switch positions: NORMAL.
4. Load: Measuring instrument input impedance.

### PROCEDURES

1. Stop the recording bias current oscillation by plugging out connector J302 from J301.
2. Set up the tape deck to the normal recording state. Connect the VTVM to J101, J103 (L ch) and J201, J203 (R ch). Adjust the semifixed resistors R150 (L ch) and R250 (R ch) until the VTVM reads 0.5 mV, respectively.
3. After adjustment, release the recording bias current.



## B-9 Record-Playback Frequency Response Adjustment

### SET UP

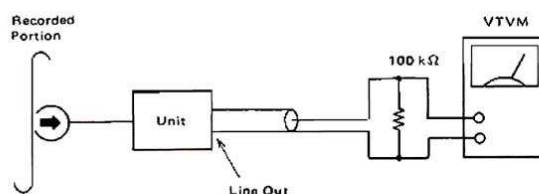
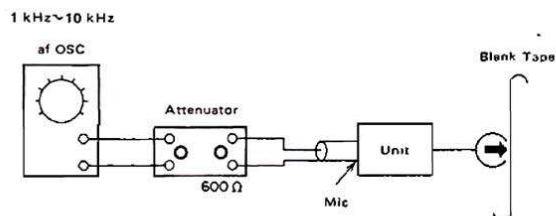
1. Power Voltage: 50 or 60 Hz AC voltage rated for the unit to be used in a market country.
2. Input signal: 1 kHz, -60 dB with -20 dB referenced as 0VU.
3. TAPE selector switch: NORMAL.
4. Output terminal: LINE OUT.
5. Load: Measuring instrument input impedance.
6. Test tape used: TDK DC-60.

### PROCEDURES

1. Connect the input signal to the MIC terminal. Set up the tape deck to the normal recording state.
2. In turn, reduce the input level by 20 dB with the use of the attenuator. Record the 1 kHz and 10 kHz tones.
3. Play the 1 kHz, 20 dB-down recorded tone back as 0 dB. Adjust the recording bias current until the 10 kHz response is within  $\pm 1.5$  dB as referenced to the 1 kHz, 0 dB response.

4. Proceed both for the right and left channels in the same manner.
5. If the recording bias current is reduced in the above adjustment, be sure to measure the distortion.

Mode: record



## B-10 Record-Playback Output Level Adjustment

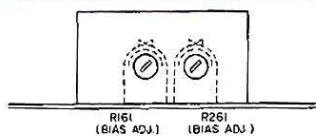
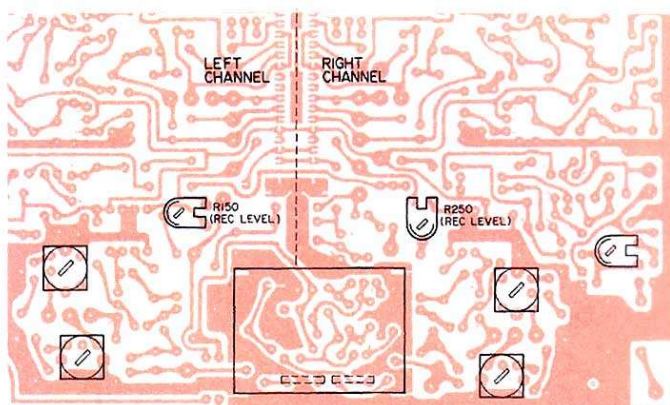
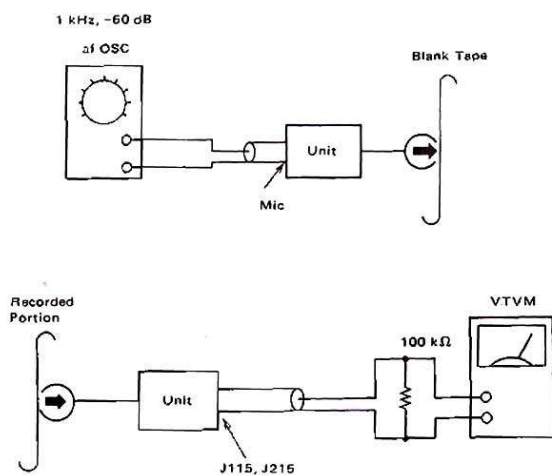
### SET UP

1. Power voltage: 50 or 60 Hz AC voltage rated for the unit to be used in a market country.
2. Input: 1 kHz, -60 dB signal.
3. TAPE selector switch position: NORMAL.
4. Output terminal: MAIN P.W. Board (P100) J115 and J215.
5. Load: Measuring instrument input impedance.
6. Test tape used: TDK DC-60.

### PROCEDURES

1. Connect the 1 kHz, -60 dB input signal to the MIC terminal. Set up the tape deck to the normal recording state.
2. Adjust the REC LEVEL semi-fixed resistor R150 (L ch) and R250 (R ch) until the recorded signal is reproduced at 460 mV  $\pm$ 0.5 dB.

Mode: record



### CAUTION

If the bias current is changed, be sure to perform the above adjustment.

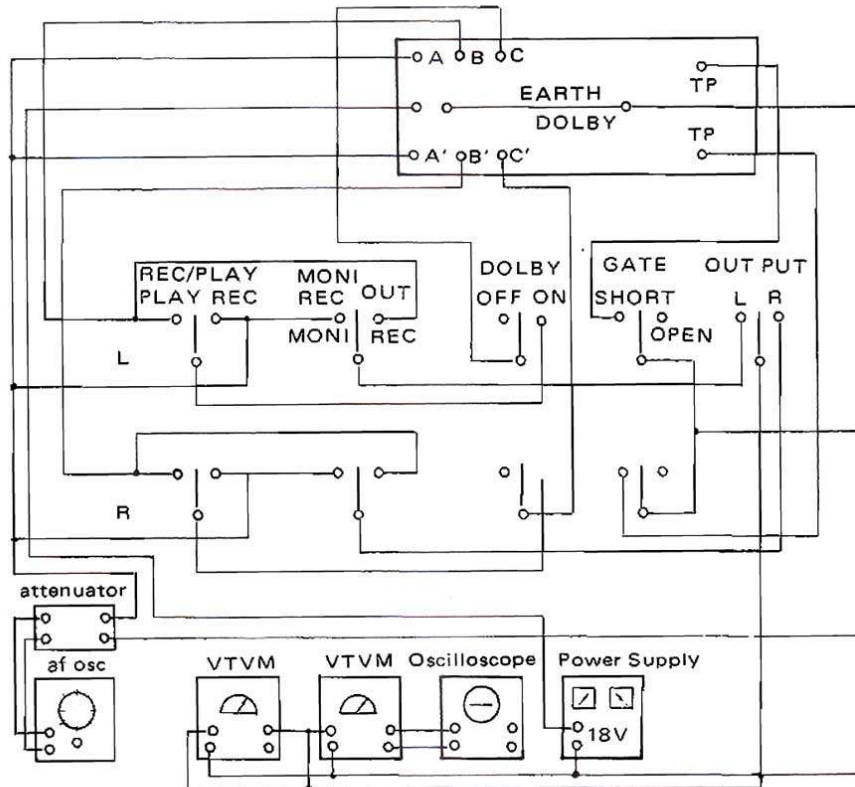
## B-11 Dolby Circuit Adjustment

### A) Encoder Circuit

1. Set the selector switch to the ENCODER (recording) position.
2. Adjust the LAW control for maximum positive potential applied to the source of the FET.
3. Turn the NOISE REDUCTION switch to the OFF position. Ground the gate of the FET.
4. Connect and adjust a 5 kHz input signal for 17.5 mV level at the MON. OUT terminal.
5. Note the output level at the REC. OUT terminal. Let the output level be 0 dB as reference level.
6. Turn the NOISE REDUCTION switch to the ON position. Adjust the GAIN control until the output level at the REC. OUT terminal increases by  $10 \pm 0.25$  dB as compared with the one measured in Step (5) above (0 dB).
7. Open the gate of the FET. Adjust the LAW control until the output level at the REC. OUT terminal decreases by  $2 \pm 0.25$  dB as compared with the 0 dB reference level.

### B) Decoder Circuit

1. Set the selector switch to the DECODER (playback) position.
2. Turn the NOISE REDUCTION switch to the OFF position. Ground the gate of the FET.
3. Connect and adjust the 5 kHz input signal for 4.4 mV level at the MON. OUT terminal.
4. Make certain that the output level at the MON. OUT terminal is reduced by  $10 \text{ dB} \pm 0.5 \text{ dB}$  when the NOISE REDUCTION switch is turned to the ON position.
5. Open the gate of the FET. Make certain that the signal level at the MON. OUT terminal is 17.5 mV  $\pm 0.5$  dB.
6. If the signal level is out of the above permissible range, repeat the adjustment beginning with the encoder circuit, not from the decoder circuit at all.



## B-12 Tape Speed Measurement

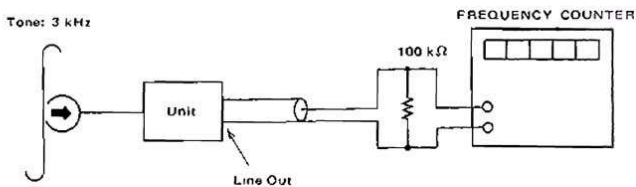
### SET UP

1. Power voltage: 50 or 60 Hz AC voltage rated for the unit to be used in a market country.
2. Output terminal: LINE OUT.
3. Test tape used: MTT-111.
4. Set position: Horizontal.

### PROCEDURE

Play the wound-up end of the test tape MTT-111 back. Read the frequency counter indication.

Mode: playback.



### STANDARD

Tape speed: 4.8 cm/sec. +2, -2%.  
Frequency: 2940 to 3060 Hz.

### CAUTION

The tape deck should be leveled as specified for this measurement.

## B-14 Playback Output Level Measurement (at LINE OUT)

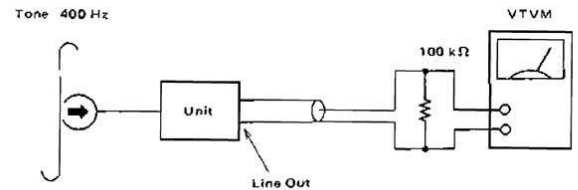
### SET UP

1. Power voltage: 50 or 60 Hz AC voltage rated for the unit to be used in a market country.
2. TAPE selector switch position: NORMAL.
3. Load: Measuring instrument input impedance.
4. Output terminal: LINE OUT.
5. Test tape used: MTT-112.

### PROCEDURES

1. Play the test tape back in the normal playback state. Read the VTVM indication.
2. Proceed both for the right and left channels in the same manner.

Mode: playback



### STANDARD

Within 1000 mV  $\pm 3$  dB.

## B-13 Wow and Flutter Measurement

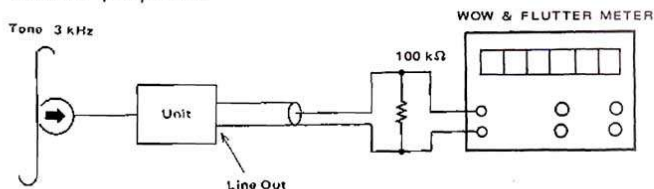
### SET UP

1. Power voltage: 50 or 60 Hz AC voltage rated for the unit to be used in a market country.
2. Output terminal: LINE OUT.
3. Load: Measuring instrument input impedance.
4. Test tape used: MTT-111. (New Tape)
5. Set position: Horizontal.
6. Wow and flutter meter function switch:  
NAB WTD . . . . . for U, C  
DIN WTD . . . . . for N

### PROCEDURE

Play the test tape MTT-111 back. Read the wow and flutter meter indication.

Mode: playback



### STANDARD

for U,C 0.21% NAB WTD  
for N 0.25% DIN45511

### CAUTION

The measurement should be performed at least 30 seconds after placing the unit in playback mode. Use the beginning and the last portions of the test tape.



## B-15 Playback Signal-to-Noise Ratio Measurement

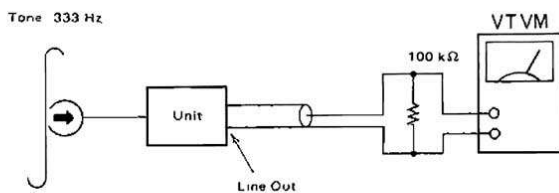
### SET UP

1. Power voltage: 50 or 60 Hz AC voltage rated for the unit to be used in a market country.
2. Load: Measuring instrument input impedance.
3. Measuring output terminal: LINE OUT.
4. Test tape used: MTT-112 (333 Hz tone).
5. TAPE selector switch position: NORMAL, CrO<sub>2</sub> and Fe-Cr.

### PROCEDURES

1. Load the test tape MTT-112. Set up the tape deck to the normal playback state.
2. Read playback output as a 0 dB reference. Then playback blank tape and note the output level drop in dB.
3. Proceed both for the right and left channels in the same manner.
4. Repeat the above measurement for each TAPE selector switch position.

Mode: playback.



### STANDARD

Greater than 45 dB.

### CAUTIONS

1. Arrange the tape deck power cord for minimum hum component.
2. Effect by induction noises should be minimized for the measurement.
3. When playing the standard reference level tape MTT-112 back, the VU meter indication is close to +2.5 VU and is used as the reference level for the signal-to-noise ratio measurement.

## B-16 Playback Frequency Response Measurement

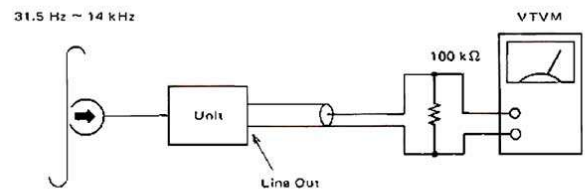
### SET UP

1. Power voltage: 50 or 60 Hz AC voltage rated for the unit to be used in a market country.
2. TAPE selector switch position: NORMAL and CrO<sub>2</sub> or Fe-Cr.
3. Load: Measuring instrument input impedance.
4. Measuring output terminal: LINE OUT.
5. Test tape used: MTT-116U (for NORMAL),  
(New Tape)  
MTT-116K (for CrO<sub>2</sub> or Fe-Cr).  
(New Tape)

### PROCEDURES

1. Play the test tape MTT-116U and -116K back. Let the 315 Hz output level be 0 dB as reference level.
2. Read the 40 Hz and 10 kHz output level differences from the 315 Hz, 0 dB reference level.
3. Proceed both for the right and left channels in the same manner.
4. For the above measurement, use the test tape MTT-116U for the NORMAL position and MTT-116K for the CrO<sub>2</sub> or Fe-Cr.

Mode: playback.



### STANDARD

In reference to the 315 Hz, 0 dB signal output level,  
+3 dB to -5 dB at 40 Hz.  
+3 dB to -6 dB at 10 kHz.

### CAUTION

Since the test tapes used may involve some head azimuth difference, the head azimuth should be corrected at the highest frequency of each test tape before measurement.

## B-17 Record-Playback Output Level Measurement (at LINE OUT)

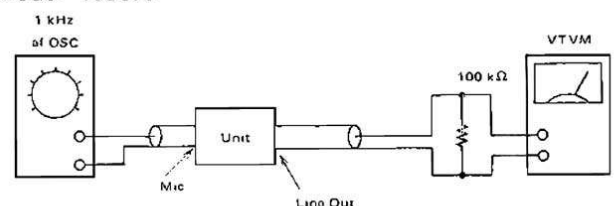
### SET UP

1. Power voltage: 50 or 60 Hz AC voltage rated for the unit to be used in a market country.
2. Input: 1 kHz, -60 dB signal.
3. Load: Measuring instrument input impedance.
4. Level control position: SRL for recording operation.
5. TAPE selector switch position: NORMAL.
6. Measuring output terminal: LINE OUT.
7. Cassette tape used: TDK DC-60.

### PROCEDURES

1. Record the 1 kHz, -60 dB signal in the normal recording state.
2. Play the recorded signal back. Read the VU meter indication.
3. Proceed both for the right and left channels in the same manner.

Mode: record



### STANDARD

630 mV ±3 dB.

## B-18 Record-Playback, Harmonic Distortion Measurement

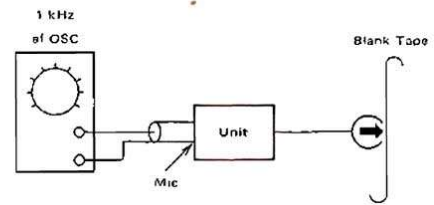
### SET UP

1. Power voltage: 50 or 60 Hz AC voltage rated for the unit to be used in a market country.
2. Input: 1 kHz, -60 dB signal.
3. Playback output level: Same as the recorded signal level.
4. Load: Measuring instrument input impedance.
5. Measuring output terminal: LINE OUT.
6. Cassette tape used: TDK DC-60, KRC-60 and SONY Fe-Cr (CS-30).

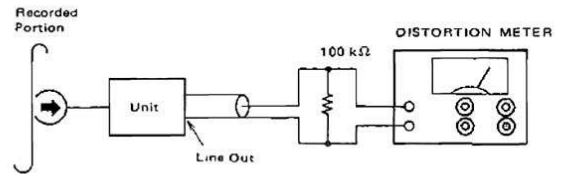
### PROCEDURES

1. Record the 1 kHz signal in the normal recording state.
2. Play the recorded signal back in the normal playback state. Calibrate the harmonic distortion meter to 100% at the INPUT CONT. Adjust the adjusting knob for minimum meter pointer deflection, and read the harmonic distortion.
3. Proceed both for the right and left channels in the same manner.
4. Proceed for the NORMAL, CrO<sub>2</sub> and Fe-Cr positions each in the same manner.

Mode: record



Mode: playback



### STANDARDS

1. Less than 4% for the NORMAL and Fe-Cr positions.
2. Less than 4.5% for the CrO<sub>2</sub> position.

### CAUTIONS

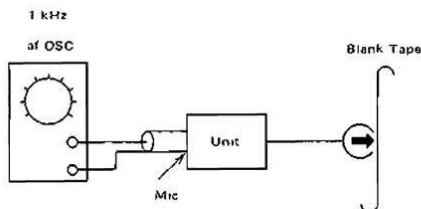
1. Be sure to demagnetize the heads as the measured values may deviate from the accurate values.
2. Note that excessive wow and flutter also causes deviation of the measured values.

## B-19 Record-Playback Signal-to-Noise Ratio Measurement

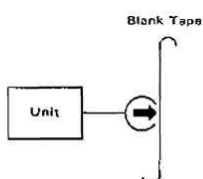
### SET UP

1. Power voltage: 50 or 60 Hz AC voltage rated for the unit to be used in a market country.
2. Input: 1 kHz, -60 dB signal.
3. Playback output level: Same as the recorded signal level.
4. Load: Measuring instrument input impedance.
5. Measuring output terminal: LINE OUT.
6. Cassette tape used: TDK DC-60, KRC-60 and SONY Fe-Cr CS-30.

Mode: record



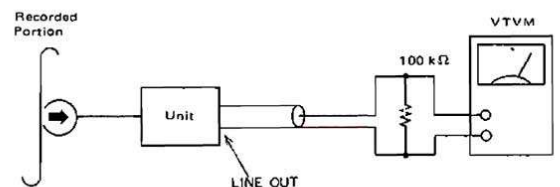
Mode: record



### PROCEDURES

1. Record the 1 kHz signal in the normal recording state.
2. Disconnect the input signal from the microphone jack. In this state, record no signal.
3. Play the 1 kHz signal back in the normal playback state. Let the output level be 0 dB as reference level.
4. Read difference between the recorded 0 dB reference output and no-signal output levels.
5. Proceed both for the right and left channels in the same manner.
6. Set the DOLBY switch to the ON position, and proceed with similar measurement with the use of the high-pass filter.

Mode: playback



### STANDARDS

1. Greater than 52 dB for the ON position of the DOLBY switch.
2. Greater than 43 dB for the OFF position of the DOLBY switch.

### CAUTION

Arrange the tape deck power cord for minimum hum component.

## B-20 Record-Playback Frequency Response Measurement

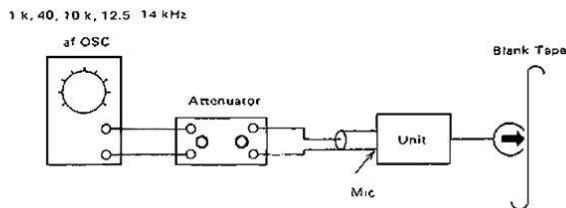
### SET UP

1. Power voltage: 50 or 60 Hz AC voltage rated for the unit to be used in a market country.
2. Input: 1 kHz, -60 dB signal with -20 dB as 0VU.
3. Playback output level: Same as the recorded signal level.
4. Load: Measuring instrument input impedance.
5. Measuring output terminal: LINE OUT.
6. Cassette tape used: TDK DC-60, KRC-60 and SONY Fe-Cr CS-30.

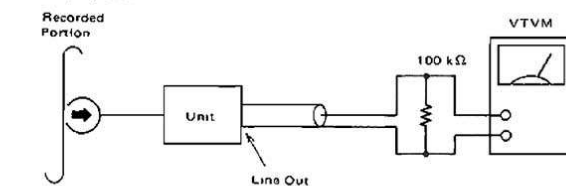
### PROCEDURES

1. Record the 1 kHz signal in the normal recording state. In turn, reduce the input level by 20 dB with an attenuator. Then, record the 1 kHz, 40 Hz, 12.5 kHz, and 14 kHz signals.
2. Play the recorded 1 kHz signal back in the normal playback state.
3. Let the 1 kHz, -20 dB-down signal level be 0 dB as reference level. Read difference of the 40 Hz, 10 kHz, 12.5 kHz and 14 kHz signal output levels from the 1 kHz signal 0 dB reference level.
4. Proceed for the NORMAL, CrO<sub>2</sub> and Fe-Cr positions each in the same manner.
5. Proceed both for the right and left channels in the same manner.

Mode: record



Mode: playback



### STANDARDS

1. NORMAL position:
  - +3 dB to -6 dB at 40 Hz
  - +3 dB to -6 dB at 10 kHz
  - with DOLBY switch at OFF.
2. CrO<sub>2</sub> position:
  - +3 dB to -6 dB at 40 Hz
  - +3 dB to -7 dB at 12.5 kHz
  - with DOLBY switch at OFF.
3. Fe-Cr position:
  - +3 dB to -6 dB at 40 Hz
  - +3 dB to -7 dB at 14 kHz
  - with DOLBY switch at OFF.
4. NORMAL, CrO<sub>2</sub> and Fe-Cr positions:
  - +3 dB to -6 dB at 40 Hz
  - +6 dB to -8 dB at 10 kHz
  - with DOLBY switch at ON.

## B-21 Erasing Effect Measurement

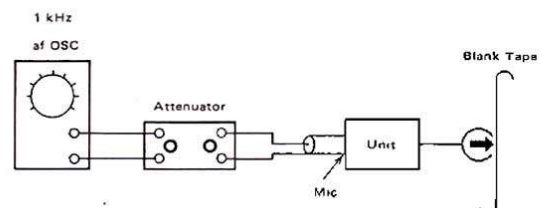
### SET UP

1. Power voltage: 50 or 60 Hz AC voltage rated for the unit to be used in a market country.
2. Input: 1 kHz, -60 dB signal with +10 dB as 0VU.
3. Playback output level: Same as the recorded signal level.
4. Load: Measuring instrument input impedance.
5. TAPE selector switch position: NORMAL, CrO<sub>2</sub> and Fe-Cr.
6. Cassette tape used: TDK DC-60, KRC-60 and SONY Fe-Cr CS-30.
7. Filter used: 1 kHz band-pass filter.

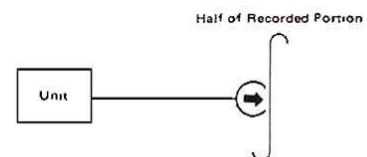
### PROCEDURES

1. Record the 1 kHz input signal in the normal recording state.
2. In turn, increase the input level by 10 dB with the attenuator, and record it.
3. Rewind a half portion of the 10 dB-up tape and record in no-signal state, or erase, on the portion with the input signal disconnected from the microphone jack.
4. Play back in the normal playback state the input signal recorded in the normal recording state.
5. In turn, let the 10 dB-up recorded signal level be 0 dB as reference level. Read difference of the level at the erased portion from the 0 dB reference level.

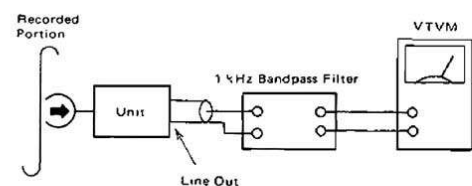
Mode: record



Mode: record



Mode: playback



### STANDARD

Greater than 55 dB.

## B-22 Leak Bias Measurement

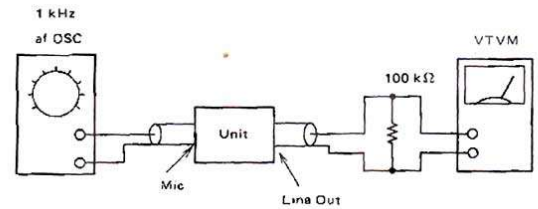
### SET UP

1. Power voltage: 50 or 60 Hz AC voltage rated for the unit to be used in a market country.
2. Input: 1 kHz, -60 dB signal.
3. Load: Measuring instrument input impedance.
4. Level control position: SRL.
5. TAPE selector switch position: NORMAL, CrO<sub>2</sub> and Fe-Cr.

### PROCEDURES

1. Record the 1 kHz input signal in the normal recording state. Let the monitor output level at the LINE OUT terminal be 0 dB as reference level. Read difference of the output level having the input signal disconnected from the 0 dB reference level.
2. Proceed both for the right and left channels in the same manner.

Mode: record



**STANDARD**

Lower than -45 dB.

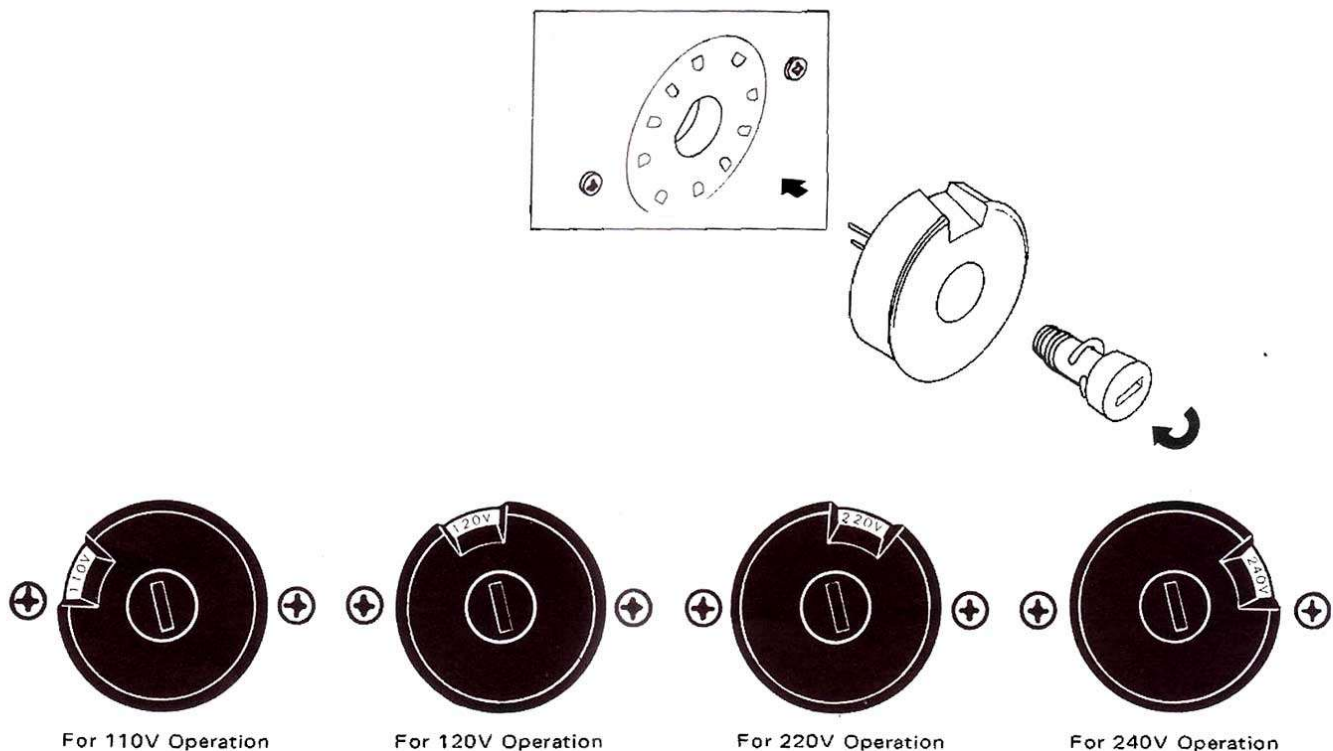
## 7. VOLTAGE CONVERSION (For European Model Only)

This Model is equipped with a universal power transformer to permit operation at either power source of 110, 120, 220 or 240 V AC, 50/60 Hz.

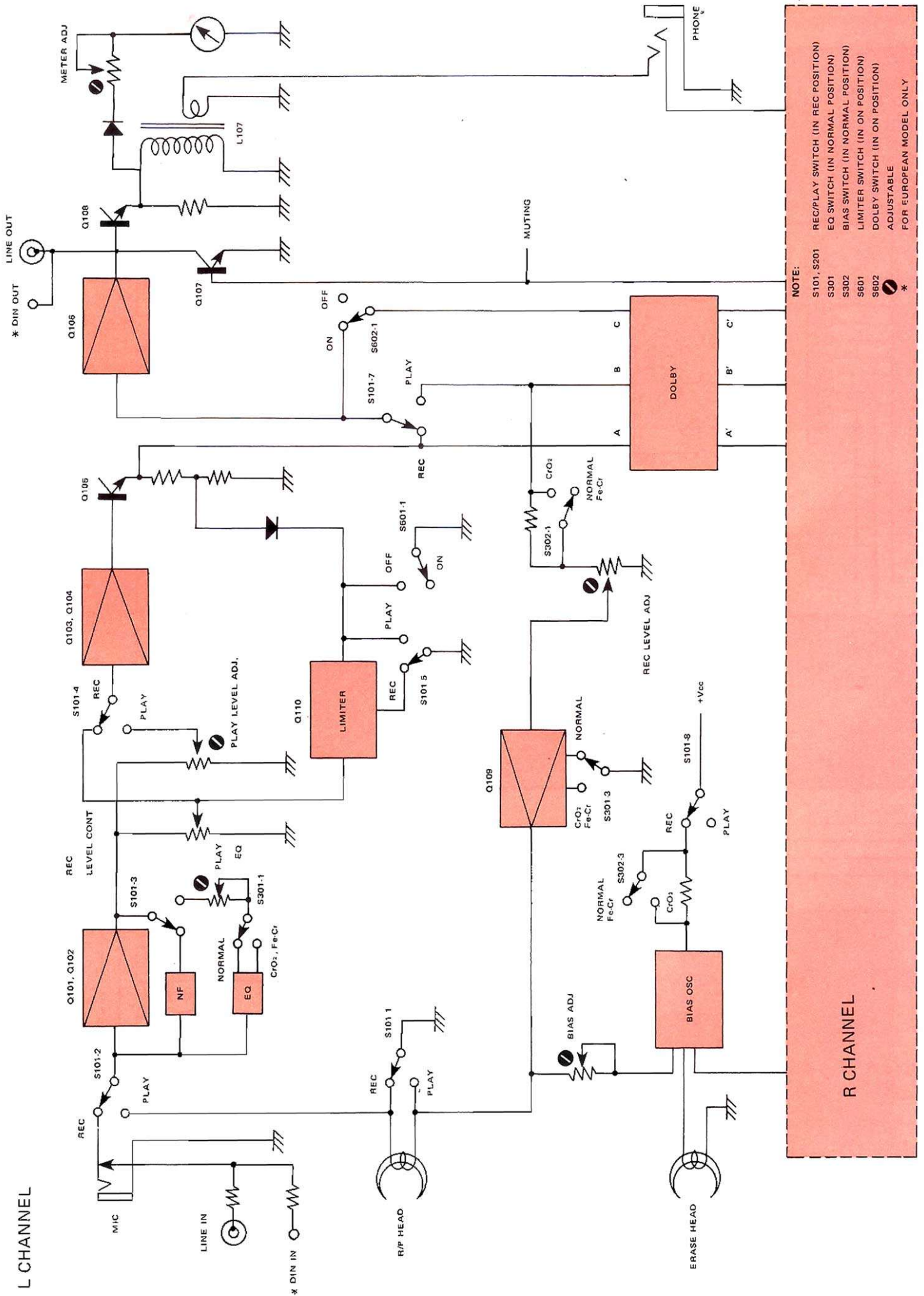
To convert the unit to a different power source voltage, change the plug as illustrated in the drawing below.

### CAUTION

DISCONNECT POWER SUPPLY CORD FROM AC OUTLET BEFORE CONVERTING VOLTAGE.

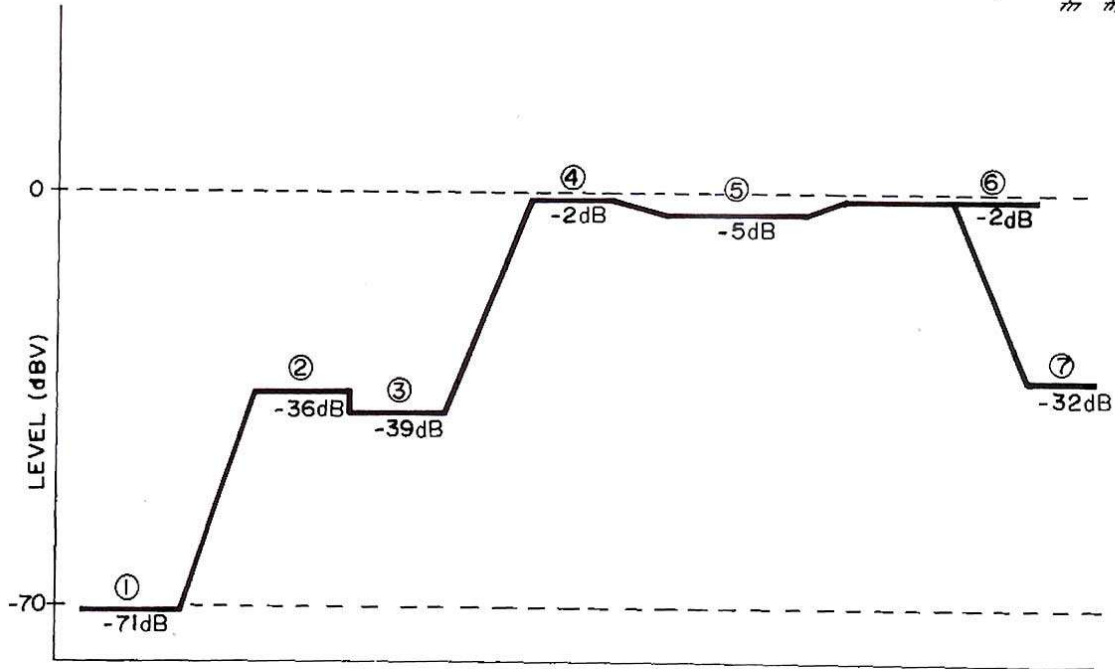
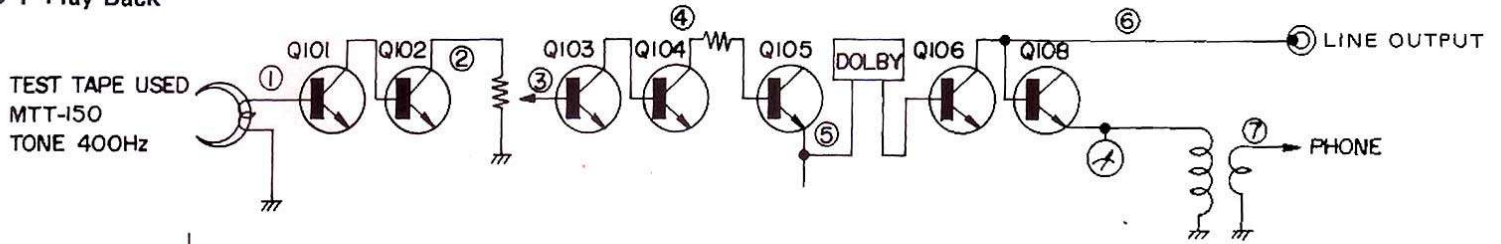


# 8. BLOCK DIAGRAM

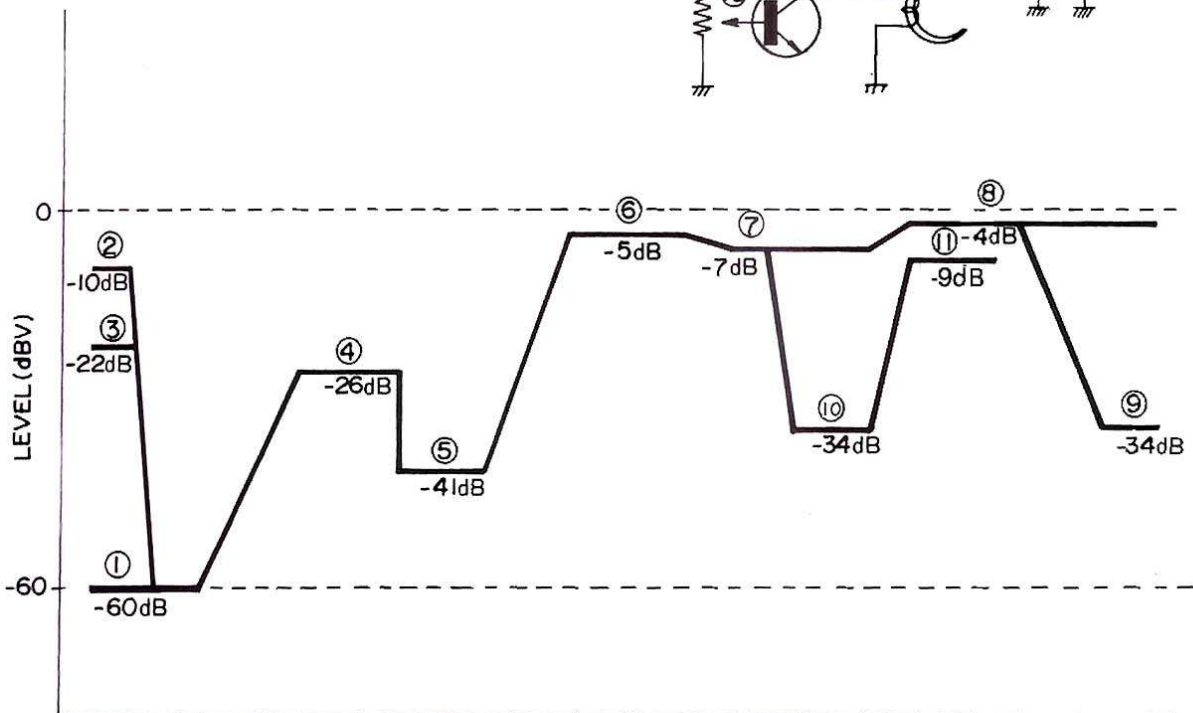
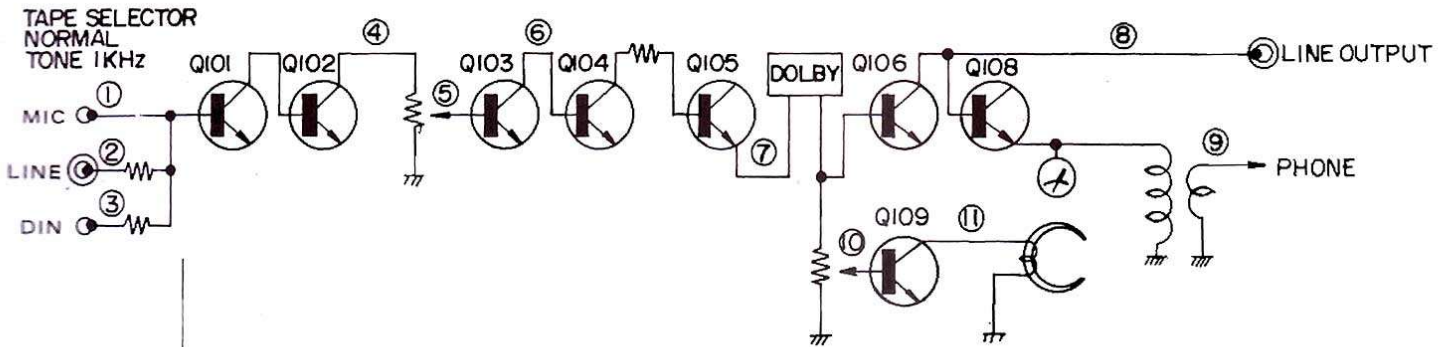


## 9. LEVEL DIAGRAM

### 9-1 Play Back



### 9-2 Record



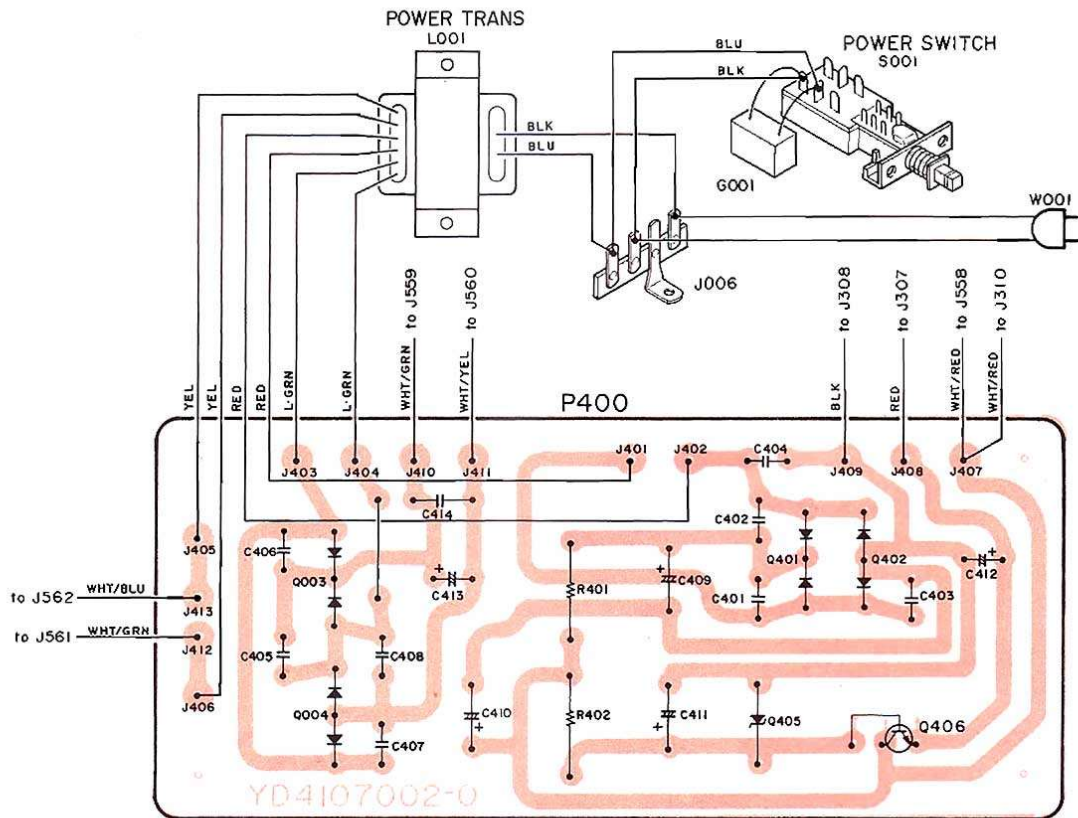
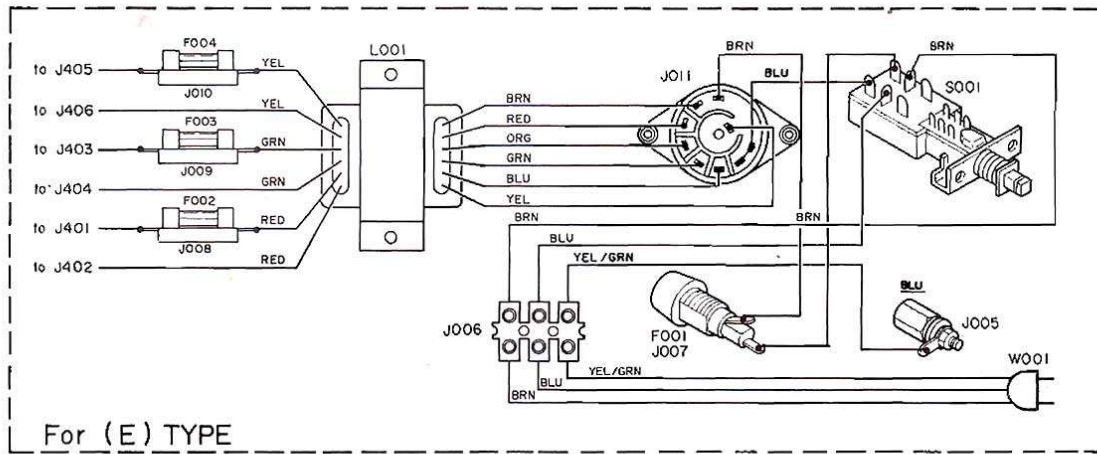




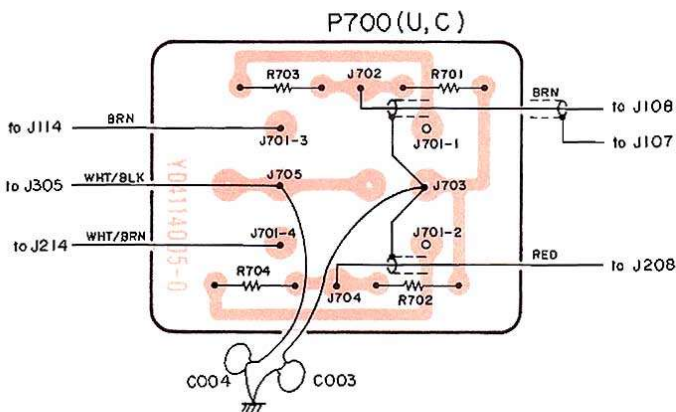




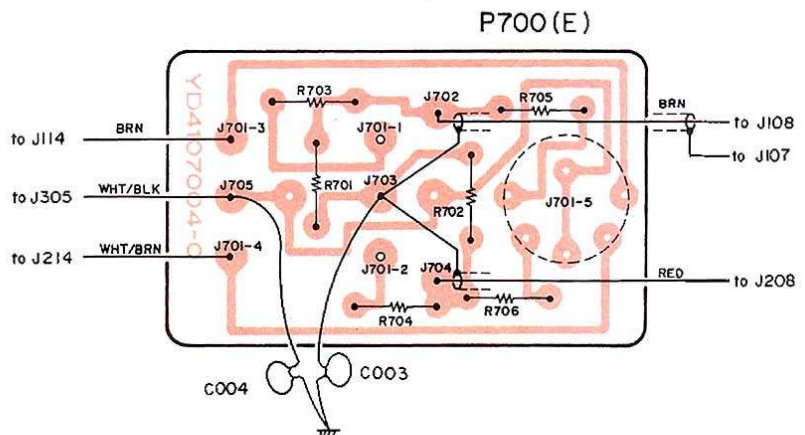
### 12-2 Power Supply Assembly (P400) Component Location



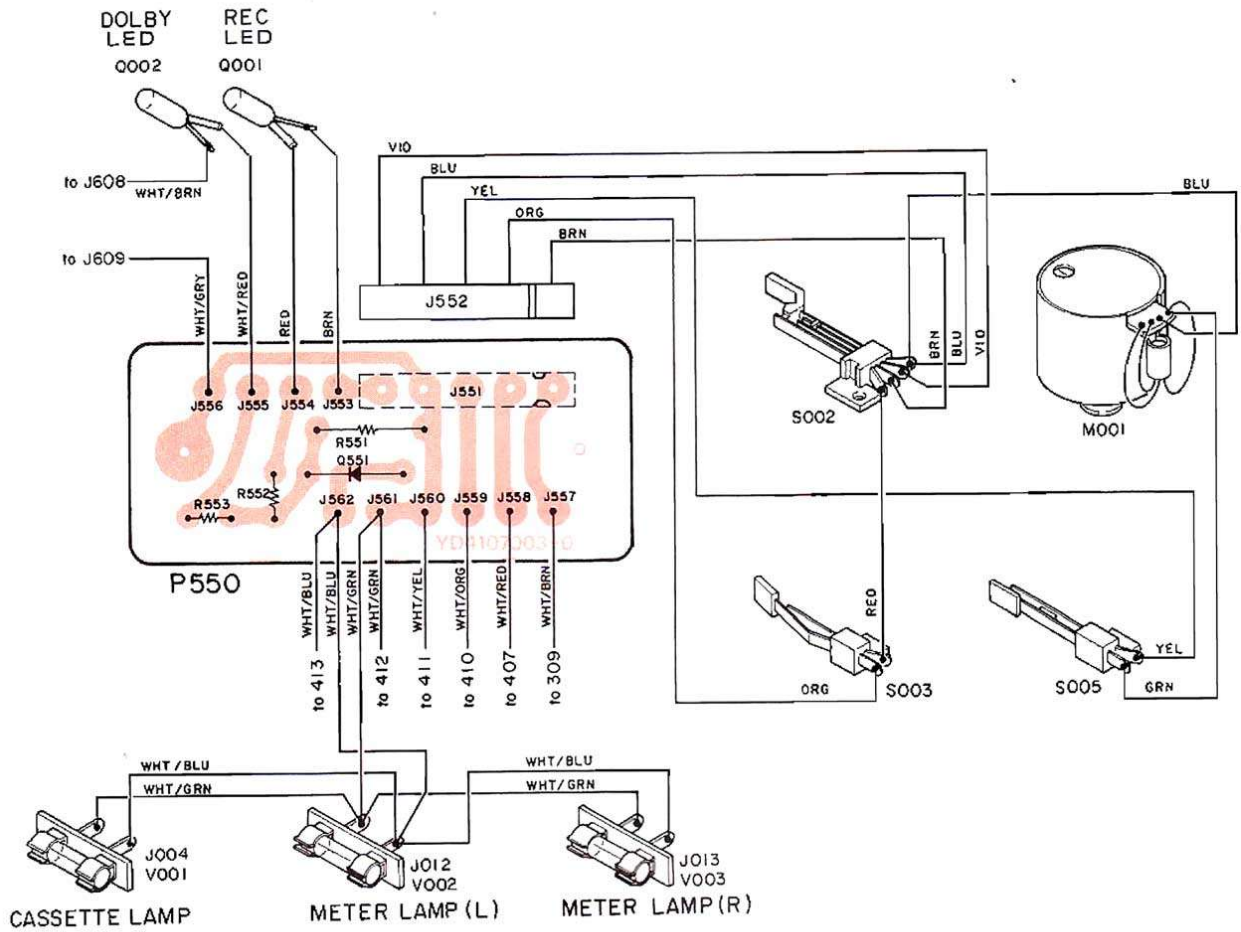
### 12-3 Rear Panel Terminal Assembly (P700) Component Location for U.S.A. & Canadian Model



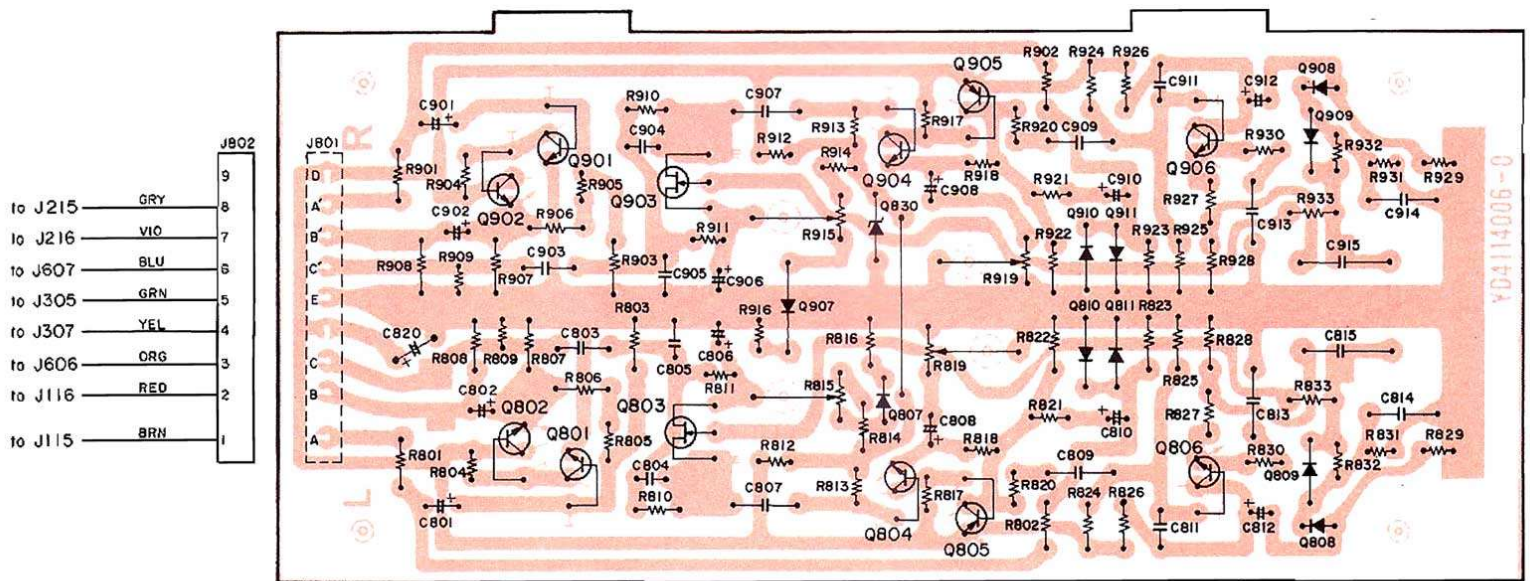
### 12-4 Rear Panel Terminal Assembly (P700) Component Location for European Model



## 12.5 Wire Connection Assembly (P550) Component Location



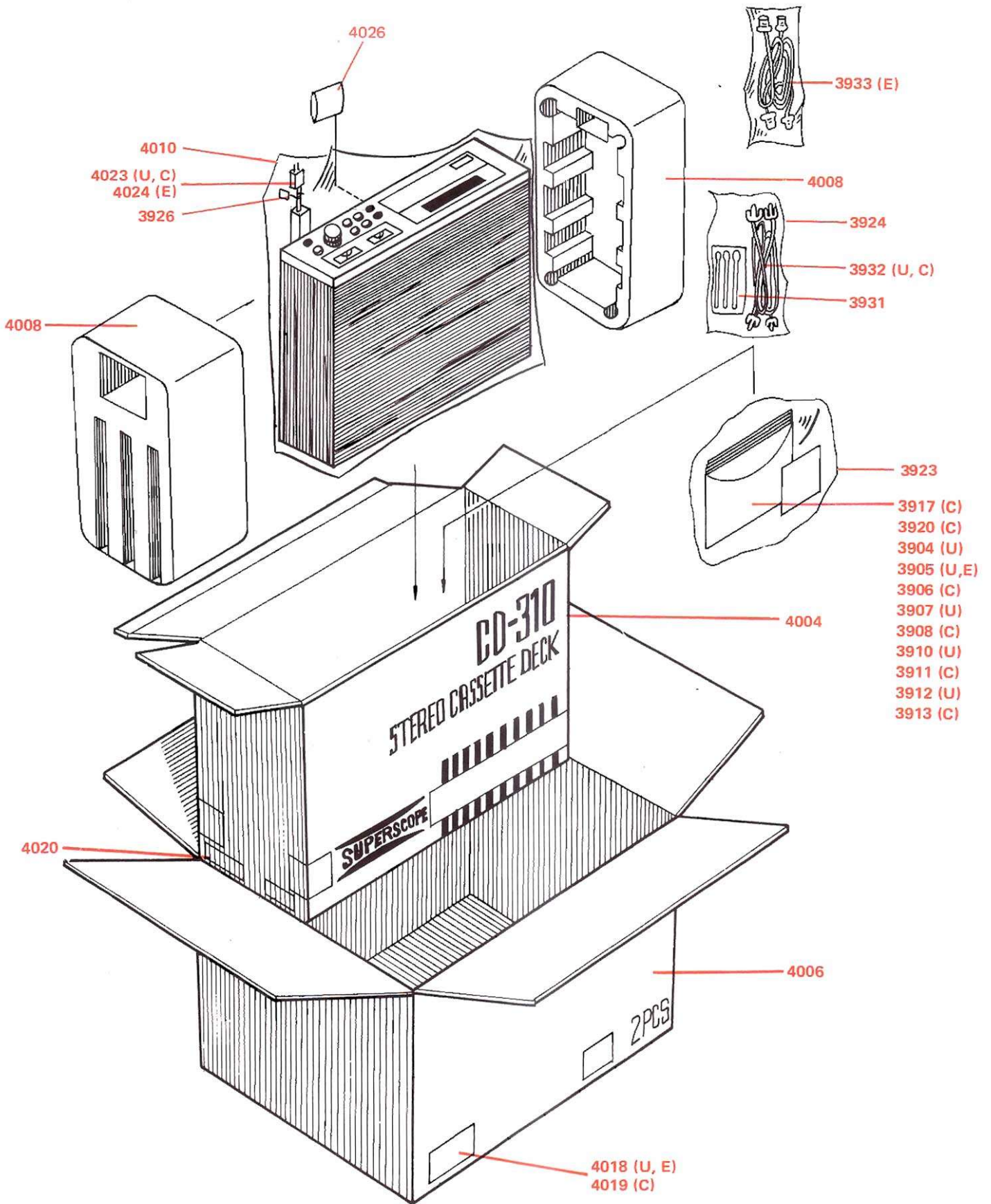
## 12-6 Dolby Assembly (P800) Component Location







# 14. PACKING MATERIAL EXPLODED VIEWS



- (U) for U.S.A.
- (C) for Canada
- (E) for Europe

## 15. PARTS LIST

- (U) for U.S.A.
- (C) for Canada
- (E) for Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
A	1	1	1	4107063400	Front Panel Assembly, Black
A1	1	1	1	4107063410	Front Panel Assembly, Gold
0104	1	1	1	4107063014	Escutcheon, Black
0105	1	1	1	4107063024	Escutcheon, Gold
0106	5	5	5	4114259012	Bushing
0109	1	1	1	4107401013	Frame
0111	2	2	2	4107056020	Buffer
0117	4	4	4	51280306B0	B.H. Tapped Screw, B3 x 6
0113	1	1	1	4107063030	Escutcheon, Black
0114	1	1	1	4107063040	Escutcheon, Gold
0115	2	2	2	4107063050	Escutcheon
0116	2	2	2	4107063060	Escutcheon
0117	4	4	4	51280306B0	B.H. Tapped Screw, B3 x 6
0118	5	5	5	4114154010	Knob, Push Switch
0120	1	1	1	4114154052	Knob, Rec.
0122	1	1	1	4114154062	Knob, Rec.
0125			1	4107064032	Case, Black
0126	1	1	1	4107064022	Case
0127	4	4	4	3906259010	Bushing
0128	4	4	4	51100410S9	B.H.M. Screw, B4 x 10
0132	3	3	3	51100306A9	B.H.M. Screw, B3 x 6
0133	4	4	4	51280308B0	B.H. Tapped Screw, B3 x 8
<b>FRONT PANEL ASSOCIATED HARDWARE</b>					
0203	1	1	1	4107160550	Bracket, K
0206	2	2	2	4114271010	Holder
0207	1	1	1	51100306A9	B.H.M. Screw, B3 x 6
0210	2	2	2	51100306A9	B.H.M. Screw, B3 x 6
0223	1	1	1	4107160052	Bracket
0224	2	2	2	51060306A9	P.H.M. Screw, P3 x 6
0227	2	2	2	51100306A9	B.H.M. Screw, B3 x 6
0228	2	2	2	51100306A9	B.H.M. Screw, B3 x 6
0229	2	2	2	51100306A9	B.H.M. Screw, B3 x 6
0301	1	1	1	62030039W0	Lug
0302	1	1	1	51100306A9	B.H.M. Screw, B3 x 6
0304	1	1	1	62030039W0	Lug
0305	1	1	1	51100306A9	B.H.M. Screw, B3 x 6
0311	2	2	2	51100304A9	B.H.M. Screw, B3 x 4
0313	4	4	4	51100406A9	B.H.M. Screw, B4 x 6
0316	2	2	2	4107056010	Buffer
0318	1	1	1	4107064014	Case, (Cassette)
0320	1	1	1	4107257022	Lid
0322	2	2	2	51040306S9	F.H.M. Screw, F3 x 6
0323	2	2	2	51100306A9	B.H.M. Screw, B3 x 6
0324	1	1	1	4107257010	Lid
0326	1	1	1	3904115010	Spring
0327	1	1	1	64022400Q0	RG Ring, CS
0328	1	1	1	64020300Q0	RG Ring, CS

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
0329	2	2	2	3904056010	Buffer
0330	1	1	1	4107160080	Bracket
0331	2	2	2	51280308B0	B.H. Tapped Screw, B3 x 8
0332	1	1	1	51100306A9	B.H.M. Screw, B3 x 6
0334	1	1	1	4107158020	Window
<b>CHASSIS AND ASSOCIATED PART</b>					
0404	1	1	1	4107105012	Chassis
0405	2	2	2	4107160100	Bracket
0406	2	2	2	51100306A9	B.H.M. Screw, B3 x 6
0407	5	5	5	51100306A9	B.H.M. Screw, B3 x 6
0408	1	1	1	3322109060	Shield
0409	1	1	1	59030810P0	Washer
0411	1	1	1	4114257010	Lid
0412	4	4	4	51100306A9	B.H.M. Screw, B3 x 6
0415	2	2	2	51100306A9	B.H.M. Screw, B3 x 6
0416	1	1	1	62031650W0	Lug
0417	1	1	1	54050300R0	T.L. Washer, OR
0421	1	1		4114120010	Insulator
0422	1	1		51100306A9	B.H.M. Screw, B3 x 6
0423	1	1		53110303A9	Hexagon Nut
0424	1	1		54050300A0	T.L. Washer, OR
0426			2	51100314A9	B.H.M. Screw, B3 x 14
0427			2	53110303A9	Hexagon Nut
0428			1	4113120010	Insulator
0429			1	2882861020	Label
0430	4	4	4	2912101050	Support
0434	1	1	1	4107109010	Shield
0435	2	2	2	51100306A9	B.H.M. Screw, B3 x 6
0501			1	4107160090	Bracket
0502			2	51100306A9	B.H.M. Screw, B3 x 6
0503			3	51062608A0	P.H.M. Screw, P2.6 x 8
0504			1	4107120010	Insulator
0508			2	54080400A0	T.L. Washer, RR
0509	2	2	2	51100408A9	B.H.M. Screw, B4 x 8
0513	2	2	2	2922005010	Clamper
0517	1	1	1	4114160060	Bracket
0518	2	2	2	51100306A9	B.H.M. Screw, B3 x 6
0519	2	2	2	51100306A9	B.H.M. Screw, B3 x 6
0523	1	1	1	2886005060	Clamper
0525	1	1	1	1210005010	Clamper
0526	1	1	1	51100306A9	B.H.M. Screw, B3 x 6
0527	1	1	1	53110303A9	Hexagon Nut
0528	4	4	4	3889057012	Leg
0529	4	4	4	51060412A9	P.H.M. Screw, P4 x 12
0532	3	3		74030019G0	Hole Plug
0534	2	2	2	74420019G0	Hole Plug
0601	1	1		4114265010	Indicator
0602			1	4107265010	Indicator
0605	2	2	4	51280308U0	B.H. Tapped Screw, B3 x 8
0608	1	1		1455259010	Bushing
0609			1	1455259050	Bushing
0613			2	51100306S9	B.H.M. Screw, B3 x 6
0616	1	1	1	54020401E0	Flat Washer, P
0617	1	1	1	53110403A9	Hexagon Nut
0618	1	1	1	54050400R0	T.L. Washer, OR
0619			1	62041760W0	Lug
0622	1	1		51100306S9	B.H.M. Screw, B3 x 6
0626	1			4107265020	Indicator

- (U) for U.S.A.
- (C) for Canada
- (E) for Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
0627	1			4107265030	Indicator
0628		1		4107265040	Indicator
0630	2	2	2	51100306S9	B.H.M. Screw, B3 x 6
					<b>TAPE MECHANISM MOUNTING HARDWARE</b>
0704	1	1	1	4107160502	Bracket, K
0709	1	1	1	3904056032	Buffer
0710	2	2	2	51570310B0	P.H. Tapped Screw, P3 x 10
0711	1	1	1	4107160510	Bracket, K
0715	2	2	2	51570310B0	P.H. Tapped Screw, P3 x 10
0718	1	1	1	3904163015	Tray
0719	1	1	1	3347274010	Reflector
0720	1	1	1	3904258010	Hook
0721	1	1	1	3904160032	Bracket
0722	1	1	1	51102604A0	B.H.M. Screw, B2.6 x 4
0725	1	1	1	3904115023	Spring
0729	1	1	1	3904354093	Lever
0730	1	1	1	3904259030	Bushing
0731	1	1	1	51570305B0	P.H. Tapped Screw, P3 x 5
0732	1	1	1	1861115104	Spring
0735	4	4	4	51100306A9	B.H.M. Screw, B3 x 6
0801	1	1	1	4107160520	Bracket, K
0804	2	2	2	51100304A9	B.H.M. Screw, B3 x 4
0806	1	1	1	4113262500	Pulley, K
0809	1	1	1	64001500R0	RG Ring, E
0812	2	2	2	4113262020	Pulley
0813	1	1	1	64001500R0	RG Ring, E
0816	1	1	1	4107264010	Belt
0817	1	1	1	4107264020	Belt
0820	1	1	1	4107052010	Counter
0822	2	2	2	51100305A9	B.H.M. Screw, B3 x 5
0824	1	1	1	51100205A9	B.H.M. Screw, B2 x 5
0901	1	1	1	4107354020	Lever
0902	2	2	2	64000300R0	RG Ring, E
0904	1	1	1	4107115020	Spring
0907	1	1	1	4107160530	Bracket, K
0910	2	2	2	51100306A9	B.H.M. Screw, B3 x 6
0913	1	1	1	51100205A9	B.H.M. Screw, B2 x 5
0915	6	6	6	3904107013	Sheet
0917	6	6	6	3904270012	Button, Stop/Eject, Rec, Play/FF/Rew
0918	1	1	1	3904108010	Seal, Pause
0919	1	1	1	3904108020	Seal, Stop/Eject
0920	1	1	1	3904108030	Seal, Rec.
0921	3	3	3	3904108040	Seal, Play/FF/Rew.
0924		1		2911861140	Label, Do not .... See Mark ....
0925		1		4113861020	Label, Caution
0926	1			9511201070	Label, UL
0927	1			9510911020	Label, UL Factory
0929		1		9510911010	Label, LL No.
0930	1			2818861010	Label, Imitation
0931		1		9510911050	Label, Produced in Taiwan
0932	1		1	2932861010	Label, Do not .... See Mark ....
0933	1		1	3889861010	Label, Caution
0934			1	9510911040	Label, Prod. in Taiwan, Rep. of China

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
					<b>TAPE MECHANISM BLOCK</b>
1003	1	1	1	4107304013	Mechanism Assembly
1006	1	1	1	3435105700	Chassis, S
1008	1	1	1	3435105710	Chassis, S
1009	2	2	2	64002500R0	RG Ring, E
1012	1	1	1	3435354200	Lever
1013	1	1	1	3435115360	Spring
1014	1	1	1	3435115212	Spring
1015	2	2	2	64002500R0	RG Ring, E
1018	1	1	1	3435002110	Arm
1019	1	1	1	3435123010	Contacto
1020	1	1	1	3435115220	Spring
1021	1	1	1	64000300R0	RG Ring, E
1022	1	1	1	3435115230	Spring
1026	1	1	1	3435115200	Spring
1027	1	1	1	3444118070	Spacer
1028	1	1	1	51440204A0	L. Washer Screw
1029	1	1	1	51100205A0	B.H.M. Screw, B2 x 5
1030	1	1	1	3435005060	Clamper
1031	1	1	1	3904115040	Spring
1102	1	1	1	4113160132	Bracket
1103	2	2	2	3435101200	Support
1104	1	1	1	3435005060	Clamper
1105	1	1	1	51100205A0	B.H.M. Screw, B2 x 5
1106	1	1	1	51100210A0	B.H.M. Screw, B2 x 10
1107	1	1	1	51100212A0	B.H.M. Screw, B2 x 12
1108	1	1	1	4113114010	Stopper
1111	1	1	1	3435115260	Spring
1112	1	1	1	3435115270	Spring
1113	2	2	2	61020010T0	Ball
1114	1	1	1	51062603A0	P.H.M. Screw, P2.6 x 3
1116	2	2	2	3435271100	Holder
1117	2	2	2	51062605A0	P.H.M. Screw, P2.6 x 5
1120	1	1	1	3435255500	Pinch Roller, K
1121	1	1	1	3435115242	Spring
1122	1	1	1	64000200R0	RG Ring, E
1127	1	1	1	3435106040	Bearing
1128	3	3	3	51060205A0	P.H.M. Screw, P2 x 5
1202	1	1	1	3435352020	Reel
1203	2	2	2	3435067100	Cap
1205	1	1	1	3435352012	Reel
1213	1	1	1	3435002120	Arm
1214	1	1	1	3435115290	Spring
1215	1	1	1	3435055020	Collar
1216	1	1	1	3435259020	Bushing
1217	1	1	1	51442608A0	L. Washer Screw
1223	1	1	1	3435354260	Lever
1224	1	1	1	3435115600	Spring
1228	1	1	1	3904115070	Spring
1229	1	1	1	51570305A0	P.H. Tapped Screw, P3 x 5
1302	1	1	1	3435354230	Lever
1303	1	1	1	3435115340	Spring
1307	1	1	1	3435002720	Arm, S
1308	1	1	1	3435115370	Spring
1312	1	1	1	3435354240	Lever
1313	1	1	1	3435115380	Spring
1317	1	1	1	3435002710	Arm, S



- (U) for U.S.A.
- (C) for Canada
- (E) for Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
1318	1	1	1	3435115330	Spring
1319	1	1	1	3435001050	Idler
1320	1	1	1	64001500R0	RG Ring, E
1324	1	1	1	3435001710	Idler, K
1325	1	1	1	3435002130	Arm
1326	1	1	1	3435115320	Spring
1327	1	1	1	51442606A0	L. Washer Screw
1328	1	1	1	54022605E0	Flat Washer, P
1329	1	1	1	3435115350	Spring
1330	1	1	1	3435055030	Collar
1402	1	1	1	3904354060	Lever
1403	1	1	1	3904101010	Support
1404	1	1	1	64000200R0	RG Ring, E
1405	1	1	1	3904354072	Lever
1406	1	1	1	3904258022	Hook
1407	2	2	2	3435259010	Bushing
1408	1	1	1	3435115280	Spring
1409	1	1	1	3904115052	Spring
1410	2	2	2	51442606A0	L. Washer Screw
1411	1	1	1	62261240W0	Lug
1414	1	1	1	3904125010	Joint
1415	1	1	1	3435354270	Lever
1416	1	1	1	3435115640	Spring
1417	1	1	1	3435160700	Bracket
1418	1	1	1	3435054100	Cam
1419	1	1	1	3435115630	Spring
1420	1	1	1	64002500R0	RG Ring, E
1421	2	2	2	51062603A0	P.H.M. Screw, P2.6 x 3
1422	1	1	1	51440203A0	L. Washer Screw
1425	1	1	1	3435354250	Lever
1426	1	1	1	3435056020	Buffer
1427	1	1	1	3435115390	Spring
1428	1	1	1	4107112020	Shaft
1429	1	1	1	4107354010	Lever
1430	1	1	1	4107002010	Arm
1431	1	1	1	64002500R0	RG Ring, E
1432	1	1	1	64000300R0	RG Ring, E
1502	1	1	1	3435273500	Flywheel, K
1503	1	1	1	59254602G9	Washer
1504	1	1	1	3435264010	Belt
1505	1	1	1	3435104100	Retainer
1506	1	1	1	3435106010	Bearing
1507	3	3	3	51442605A0	L. Washer Screw
1511	1	1	1	3435001700	Idler, K
1512	1	1	1	3435115620	Spring
1513	1	1	1	64002500R0	RG Ring, E
1518	1	1	1	3435002700	Arm, S
1519	1	1	1	3435001030	Idler
1520	2	2	2	64002500R0	RG Ring, E
1523	1	1	1	3435002100	Arm
1524	1	1	1	64000400R0	RG Ring, E
S005	1	1	1	SM01010530	Switch, Motor
1531	1	1	1	51570206A0	P.H.Tapped Screw, P2 x 6
1532	1	1	1	54022605E0	Flat Washer, P
1602	1	1	1	4107354500	Lever, K

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
1603	2	2	2	51442604A0	L. Washer Screw
1604	5	5	5	51442604A0	L. Washer Screw
1605	1	1	1	3904002500	Arm, S
1606	1	1	1	51442604A0	L. Washer Screw
1607	1	1	1	3904104010	Retainer
1608	1	1	1	3904104020	Retainer
1609	1	1	1	3435005070	Clamper
1610	1	1	1	4107160542	Bracket, K
1614	3	3	3	51570305A0	P.H. Tapped Screw, P3 x 5
1616	1	1	1	3435262010	Pulley
1617	3	3	3	3435056010	Buffer
1618	3	3	3	3435055010	Collar
1619	3	3	3	51442608A0	L. Washer Screw
1620	3	3	3	54022605E0	Flat Washer, P
1621	1	1	1	51651702Q0	Set Screw
<b>PRE-AMP. BOARD</b>					
P100	1	1	1	YD41070010	P.W. Board
	1	1	1	ZZ41070010	P.W. Board Assembly
P105	8	8	8	2933118020	Spacer
S101	1	1	1	SS09020070	Slide Switch, Rec.
S201	1	1	1	SS09020070	Slide Switch, Rec.
S301	1	1	1	SP04020170	Pushswitch, with S302, EQ.
L102	1	1	1	LC22260040	Choke Coil, 22mH Bias Trap
L202	1	1	1	LC22260040	Choke Coil, 22mH Bias Trap
L103	1	1	1	LC23960020	Choke Coil, 39mH 19kHz Trap
L203	1	1	1	LC23960020	Choke Coil, 39mH 19kHz Trap
L104	1	1	1	LC24750010	Choke Coil, 4.7mH CrO <sub>2</sub> EQ
L204	1	1	1	LC24750010	Choke Coil, 4.7mH CrO <sub>2</sub> EQ
L105	1	1	1	LC24750010	Choke Coil, 4.7mH Normal EQ
L205	1	1	1	LC24750010	Choke Coil, 4.7mH Normal EQ
L106	1	1	1	LC22260010	Choke Coil, 22mH Bias Trap
L206	1	1	1	LC22260010	Choke Coil, 22mH Bias Trap
L107	1	1	1	TO11905040	Output Transformer
L207	1	1	1	TO11905040	Output Transformer
L301	1	1	1	TC10180072	Osc. Transformer
R162	1	1	1	RD02030040	Variable Resistor, with R262
J101	74	74	74	YP10001130	Plug
J301	1	1	1	YP10001090	Plug
J302	1	1	1	YB00100130	Connective Cord
Q101	1	1	1	HT309001U0	Transistor, 2SC900 (U)
Q201	1	1	1	HT309001U0	Transistor, 2SC900 (U)
Q102	1	1	1	HT309001E0	Transistor, 2SC900 (E)
Q202	1	1	1	HT309001E0	Transistor, 2SC900 (E)
Q103	1	1	1	HT309001U0	Transistor, 2SC900 (U)
Q203	1	1	1	HT309001U0	Transistor, 2SC900 (U)
Q104	1	1	1	HT309001E0	Transistor, 2SC900 (E)
Q204	1	1	1	HT309001E0	Transistor, 2SC900 (E)
Q105	1	1	1	HT309451P0	Transistor, 2SC945 (P)
Q205	1	1	1	HT309451P0	Transistor, 2SC945 (P)
Q106	1	1	1	HT309451Q0	Transistor, 2SC945 (Q)
Q206	1	1	1	HT309451Q0	Transistor, 2SC945 (Q)
Q107	1	1	1	HT309451Q0	Transistor, 2SC945 (Q)
Q207	1	1	1	HT309451Q0	Transistor, 2SC945 (Q)
Q108	1	1	1	HT309451Q0	Transistor, 2SC945 (Q)
Q208	1	1	1	HT309451Q0	Transistor, 2SC945 (Q)
Q109	1	1	1	HT309451P0	Transistor, 2SC945 (P)
Q209	1	1	1	HT309451P0	Transistor, 2SC945 (P)

- (U) for U.S.A.
- (C) for Canada
- (E) for Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
Q110	1	1	1	HT402272A0	Transistor, 2SD227 (Q, V)
Q210	1	1	1	HT402272A0	Transistor, 2SD227 (Q, V)
Q111	1	1	1	HD20011050	Diode, 1S1555
Q211	1	1	1	HD20011050	Diode, 1S1555
Q112	1	1	1	HD20011050	Diode, 1S1555
Q212	1	1	1	HD20011050	Diode, 1S1555
Q113	1	1	1	HD10003020	Diode, 20A90
Q213	1	1	1	HD10003020	Diode, 20A90
Q114	1	1	1	HD10003020	Diode, 20A90
Q214	1	1	1	HD10003020	Diode, 20A90
Q115	1	1	1	HD10003020	Diode, 20A90
Q215	1	1	1	HD10003020	Diode, 20A90
Q301	1	1	1	HT313181R0	Transistor, 2SC1318(R)
Q302	1	1	1	HT313181R0	Transistor, 2SC1318(R)
Q303	1	1	1	HT309451P0	Transistor, 2SC 945(P)
Q304	1	1	1	HD20011050	Diode, 1S1555
Q305	1	1	1	HD30023090	Diode, WZ071
R101	1	1	1	GD05100140	Resistor, 10Ω ±5% ¼W
R201	1	1	1	GD05100140	Resistor, 10Ω ±5% ¼W
R102	1	1	1	GD05153140	Resistor, 15kΩ ±5% ¼W
R202	1	1	1	GD05153140	Resistor, 15kΩ ±5% ¼W
R103	1	1	1	GD05123140	Resistor, 12kΩ ±5% ¼W
R203	1	1	1	GD05123140	Resistor, 12kΩ ±5% ¼W
R104	1	1	1	GD05124140	Resistor, 120kΩ ±5% ¼W
R204	1	1	1	GD05124140	Resistor, 120kΩ ±5% ¼W
R105	1	1	1	GD05184140	Resistor, 180kΩ ±5% ¼W
R205	1	1	1	GD05184140	Resistor, 180kΩ ±5% ¼W
R106	1	1	1	GD05331140	Resistor, 330Ω ±5% ¼W
R206	1	1	1	GD05331140	Resistor, 330Ω ±5% ¼W
R107	1	1	1	GD05333140	Resistor, 33kΩ ±5% ¼W
R207	1	1	1	GD05333140	Resistor, 33kΩ ±5% ¼W
R108	1	1	1	GD05104140	Resistor, 100kΩ ±5% ¼W
R208	1	1	1	GD05104140	Resistor, 100kΩ ±5% ¼W
R109	1	1	1	GD05332140	Resistor, 3.3kΩ ±5% ¼W
R209	1	1	1	GD05332140	Resistor, 3.3kΩ ±5% ¼W
R110	1	1	1	GD05271140	Resistor, 270Ω ±5% ¼W
R210	1	1	1	GD05271140	Resistor, 270Ω ±5% ¼W
R111	1	1	1	GD05221140	Resistor, 220Ω ±5% ¼W
R211	1	1	1	GD05221140	Resistor, 220Ω ±5% ¼W
R112	1	1	1	GD05183140	Resistor, 18kΩ ±5% ¼W
R212	1	1	1	GD05183140	Resistor, 18kΩ ±5% ¼W
R113	1	1	1	GD05182140	Resistor, 1.8kΩ ±5% ¼W
R213	1	1	1	GD05182140	Resistor, 1.8kΩ ±5% ¼W
R114	1	1	1	GD05332140	Resistor, 3.3kΩ ±5% ¼W
R214	1	1	1	GD05332140	Resistor, 3.3kΩ ±5% ¼W
R115	1	1	1	GD05154140	Resistor, 150kΩ ±5% ¼W
R215	1	1	1	GD05154140	Resistor, 150kΩ ±5% ¼W
R116	1	1	1	RA03020030	Trimming Resistor, 3kΩ Play Fre.
R216	1	1	1	RA03020030	Trimming Resistor, 3kΩ Play Fre.
R117	1	1	1	RA02030060	Trimming Resistor, 20kΩ Play Level
R217	1	1	1	RA02030060	Trimming Resistor, 20kΩ Play Level
R118	1	1	1	GF05561140	Resistor, 560Ω ±5% ¼W
R218	1	1	1	GF05561140	Resistor, 560Ω ±5% ¼W
R119	1	1	1	GD05103140	Resistor, 10kΩ ±5% ¼W
R219	1	1	1	GD05103140	Resistor, 10kΩ ±5% ¼W
R120	1	1	1	GD05124140	Resistor, 120kΩ ±5% ¼W
R220	1	1	1	GD05124140	Resistor, 120kΩ ±5% ¼W

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
R121	1	1	1	GD05331140	Resistor, 330Ω ±5% ¼W
R221	1	1	1	GD05331140	Resistor, 330Ω ±5% ¼W
R122	1	1	1	GD05151140	Resistor, 150Ω ±5% ¼W
R222	1	1	1	GD05151140	Resistor, 150Ω ±5% ¼W
R123	1	1	1	GD05154140	Resistor, 150kΩ ±5% ¼W
R223	1	1	1	GD05154140	Resistor, 150kΩ ±5% ¼W
R124	1	1	1	GD05223140	Resistor, 22kΩ ±5% ¼W
R224	1	1	1	GD05223140	Resistor, 22kΩ ±5% ¼W
R125	1	1	1	GD05332140	Resistor, 3.3kΩ ±5% ¼W
R225	1	1	1	GD05332140	Resistor, 3.3kΩ ±5% ¼W
R126	1	1	1	GD05271140	Resistor, 270Ω ±5% ¼W
R226	1	1	1	GD05271140	Resistor, 270Ω ±5% ¼W
R127	1	1	1	GD05102140	Resistor, 1kΩ ±5% ¼W
R227	1	1	1	GD05102140	Resistor, 1kΩ ±5% ¼W
R128	1	1	1	GD05822140	Resistor, 8.2kΩ ±5% ¼W
R228	1	1	1	GD05822140	Resistor, 8.2kΩ ±5% ¼W
R129	1	1	1	GD05333140	Resistor, 33kΩ ±5% ¼W
R229	1	1	1	GD05333140	Resistor, 33kΩ ±5% ¼W
R130	1	1	1	GD05105140	Resistor, 1MΩ ±5% ¼W
R230	1	1	1	GD05105140	Resistor, 1MΩ ±5% ¼W
R131	1	1	1	GD05184140	Resistor, 180kΩ ±5% ¼W
R231	1	1	1	GD05184140	Resistor, 180kΩ ±5% ¼W
R132	1	1	1	GD05821140	Resistor, 820Ω ±5% ¼W
R232	1	1	1	GD05821140	Resistor, 820Ω ±5% ¼W
R133	1	1	1	GD05272140	Resistor, 2.7kΩ ±5% ¼W
R233	1	1	1	GD05272140	Resistor, 2.7kΩ ±5% ¼W
R134	1	1	1	GD05153140	Resistor, 15kΩ ±5% ¼W
R234	1	1	1	GD05153140	Resistor, 15kΩ ±5% ¼W
R135	1	1	1	GD05243140	Resistor, 24kΩ ±5% ¼W
R235	1	1	1	GD05243140	Resistor, 24kΩ ±5% ¼W
R136	1	1	1	GD05224140	Resistor, 220kΩ ±5% ¼W
R236	1	1	1	GD05224140	Resistor, 220kΩ ±5% ¼W
R137	1	1	1	GD05473140	Resistor, 47kΩ ±5% ¼W
R237	1	1	1	GD05473140	Resistor, 47kΩ ±5% ¼W
R138	1	1	1	GD05332140	Resistor, 3.3kΩ ±5% ¼W
R238	1	1	1	GD05332140	Resistor, 3.3kΩ ±5% ¼W
R139	1	1	1	GD05102140	Resistor, 1kΩ ±5% ¼W
R239	1	1	1	GD05102140	Resistor, 1kΩ ±5% ¼W
R140	1	1	1	GD05272140	Resistor, 2.7kΩ ±5% ¼W
R240	1	1	1	GD05272140	Resistor, 2.7kΩ ±5% ¼W
R141	1	1	1	GD05333140	Resistor, 33kΩ ±5% ¼W
R241	1	1	1	GD05333140	Resistor, 33kΩ ±5% ¼W
R142	1	1	1	GD05123140	Resistor, 12kΩ ±5% ¼W
R242	1	1	1	GD05123140	Resistor, 12kΩ ±5% ¼W
R143	1	1	1	GD05153140	Resistor, 15kΩ ±5% ¼W
R243	1	1	1	GD05153140	Resistor, 15kΩ ±5% ¼W
R144	1	1	1	GD05124140	Resistor, 120kΩ ±5% ¼W
R244	1	1	1	GD05124140	Resistor, 120kΩ ±5% ¼W
R145	1	1	1	GD05224140	Resistor, 220kΩ ±5% ¼W
R245	1	1	1	GD05224140	Resistor, 220kΩ ±5% ¼W
R146	1	1	1	GD05332140	Resistor, 3.3kΩ ±5% ¼W
R246	1	1	1	GD05332140	Resistor, 3.3kΩ ±5% ¼W
R147	1	1	1	RA03020030	Trimming Resistor, 3kΩ Meter
R247	1	1	1	RA03020030	Trimming Resistor, 3kΩ Meter
R148	1	1	1	GD05102140	Resistor, 1kΩ ±5% ¼W
R248	1	1	1	GD05102140	Resistor, 1kΩ ±5% ¼W
R149	1	1	1	GD05682140	Resistor, 6.8kΩ ±5% ¼W

- (U) for U.S.A.
- (C) for Canada
- (E) for Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
R249	1	1	1	GD05682140	Resistor, 6.8kΩ ±5% ¼W
R150	1	1	1	RA01030260	Trimming Resistor, 10kΩ
R250	1	1	1	RA01030260	Trimming Resistor, 10kΩ
R151	1	1	1	GD05103140	Resistor, 10kΩ ±5% ¼W
R251	1	1	1	GD05103140	Resistor, 10kΩ ±5% ¼W
R152	1	1	1	GD05103140	Resistor, 10kΩ ±5% ¼W
R252	1	1	1	GD05103140	Resistor, 10kΩ ±5% ¼W
R153	1	1	1	GD05183140	Resistor, 18kΩ ±5% ¼W
R253	1	1	1	GD05183140	Resistor, 18kΩ ±5% ¼W
R154	1	1	1	GD05274140	Resistor, 270kΩ ±5% ¼W
R254	1	1	1	GD05274140	Resistor, 270kΩ ±5% ¼W
R155	1	1	1	GD05473140	Resistor, 47kΩ ±5% ¼W
R255	1	1	1	GD05473140	Resistor, 47kΩ ±5% ¼W
R156	1	1	1	GD05472140	Resistor, 4.7kΩ ±5% ¼W
R256	1	1	1	GD05472140	Resistor, 4.7kΩ ±5% ¼W
R157	1	1	1	GD05102140	Resistor, 1kΩ ±5% ¼W
R257	1	1	1	GD05102140	Resistor, 1kΩ ±5% ¼W
R158	1	1	1	GD05560140	Resistor, 56Ω ±5% ¼W
R258	1	1	1	GD05560140	Resistor, 56Ω ±5% ¼W
R159	1	1	1	GD05330140	Resistor, 33Ω ±5% ¼W
R259	1	1	1	GD05330140	Resistor, 33Ω ±5% ¼W
R160	1	1	1	GD05103140	Resistor, 10kΩ ±5% ¼W
R260	1	1	1	GD05103140	Resistor, 10kΩ ±5% ¼W
R161	1	1	1	RA01540030	Trimming Resistor, 150kΩ Bias
R261	1	1	1	RA01540030	Trimming Resistor, 150kΩ Bias
R301	1	1	1	GD05390140	Resistor, 39Ω ±5% ¼W
R302	1	1	1	GD05390140	Resistor, 39Ω ±5% ¼W
R303	1	1	1	GD05154140	Resistor, 150kΩ ±5% ¼W
R304	1	1	1	GD05154140	Resistor, 150kΩ ±5% ¼W
R305	1	1	1	GJ05181020	Resistor, 180Ω ±5% 2W
R306	1	1	1	GF05100140	Resistor, 10Ω ¼W
R307	1	1	1	GD05154140	Resistor, 150kΩ ±5% ¼W
R308	1	1	1	GD05223140	Resistor, 22kΩ ±5% ¼W
R309	1	1	1	GD05563140	Resistor, 56kΩ ±5% ¼W
R310	1	1	1	GD05332140	Resistor, 3.3kΩ ±5% ¼W
R311	1	1	1	GD05390140	Resistor, 39Ω ±5% ¼W
C101	1	1	1	EA33601690	Electrolytic Cap., 33μF 16V
C201	1	1	1	EA33601690	Electrolytic Cap., 33μF 16V
C102	1	1	1	DF15102010	Film Cap., 0.001μF ±5% 50V
C202	1	1	1	DF15102010	Film Cap., 0.001μF ±5% 50V
C103	1	1	1	EE10601650	Electrolytic Cap., 10μF 16V EE
C203	1	1	1	EE10601650	Electrolytic Cap., 10μF 16V EE
C104	1	1	1	DD16101010	Ceramic Cap., 100pF ±10% 50V
C204	1	1	1	DD16101010	Ceramic Cap., 100pF ±10% 50V
C105	1	1	1	DD16500010	Ceramic Cap., 50pF ±10% 50V
C205	1	1	1	DD16500010	Ceramic Cap., 50pF ±10% 50V
C106	1	1	1	EA22601690	Electrolytic Cap., 22μF 16V
C206	1	1	1	EA22601690	Electrolytic Cap., 22μF 16V
C107	1	1	1	EA10701090	Electrolytic Cap., 100μF 10V
C207	1	1	1	EA10701090	Electrolytic Cap., 100μF 10V
C108	1	1	1	EA10601690	Electrolytic Cap., 10μF 16V
C208	1	1	1	EA10601690	Electrolytic Cap., 10μF 16V
C109	1	1	1	DF15223010	Film Cap., 0.022μF
C209	1	1	1	DF15223010	Film Cap., 0.022μF
C111	1	1	1	EA10702590	Electrolytic Cap., 100μF 25V
C211	1	1	1	EA10702590	Electrolytic Cap., 100μF 25V
C112	1	1	1	EA10702590	Electrolytic Cap., 100μF 25V

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
C212	1	1	1	EA10702590	Electrolytic Cap., 100μF 25V
C113	1	1	1	EE10505050	Electrolytic Cap., 1μF 50V
C213	1	1	1	EE10505050	Electrolytic Cap., 1μF 50V
C114	1	1	1	DD15820010	Ceramic Cap., 82pF ±5% 50V
C214	1	1	1	DD15820010	Ceramic Cap., 82pF ±5% 50V
C115	1	1	1	DD16500010	Ceramic Cap., 50pF ±10% 50V
C215	1	1	1	DD16500010	Ceramic Cap., 50pF ±10% 50V
C116	1	1	1	EA10601690	Electrolytic Cap., 10μF 16V
C216	1	1	1	EA10601690	Electrolytic Cap., 10μF 16V
C117	1	1	1	EA10701090	Electrolytic Cap., 100μF 10V
C217	1	1	1	EA10701090	Electrolytic Cap., 100μF 10V
C118	1	1	1	DF65151510	Film Cap., 150pF
C218	1	1	1	DF65151510	Film Cap., 150pF
C119	1	1	1	DF65151010	Film Cap., 150pF
C219	1	1	1	DF65151010	Film Cap., 150pF
C120	1	1	1	DF65501010	Film Cap., 500pF
C220	1	1	1	DF65501010	Film Cap., 500pF
C121	1	1	1	DF15182010	Film Cap., 0.0018μF
C221	1	1	1	DF15182010	Film Cap., 0.0018μF
C122	1	1	1	DF65501010	Film Cap., 500pF
C222	1	1	1	DF65501010	Film Cap., 500pF
C123	1	1	1	EA47601090	Electrolytic Cap., 47μF 10V
C223	1	1	1	EA47601090	Electrolytic Cap., 47μF 10V
C124	1	1	1	EA10601690	Electrolytic Cap., 10μF 16V
C224	1	1	1	EA10601690	Electrolytic Cap., 10μF 16V
C125	1	1	1	EA10505090	Electrolytic Cap., 1μF 50V
C225	1	1	1	EA10505090	Electrolytic Cap., 1μF 50V
C126	1	1	1	EA22505090	Electrolytic Cap., 2.2μF 50V
C226	1	1	1	EA22505090	Electrolytic Cap., 2.2μF 50V
C127	1	1	1	EA33505090	Electrolytic Cap., 3.3μF 50V
C227	1	1	1	EA33505090	Electrolytic Cap., 3.3μF 50V
C128	1	1	1	EA47405090	Electrolytic Cap., 0.47μF 50V
C228	1	1	1	EA47405090	Electrolytic Cap., 0.47μF 50V
C130	1	1	1	EA10601690	Electrolytic Cap., 10μF 16V
C230	1	1	1	EA10601690	Electrolytic Cap., 10μF 16V
C131	1	1	1	EA10505090	Electrolytic Cap., 1μF 50V
C231	1	1	1	EA10505090	Electrolytic Cap., 1μF 50V
C132	1	1	1	DF17104010	Film Cap., 0.1μF
C232	1	1	1	DF17104010	Film Cap., 0.1μF
C133	1	1	1	EA47503590	Electrolytic Cap., 4.7μF 35V
C233	1	1	1	EA47503590	Electrolytic Cap., 4.7μF 35V
C134	1	1	1	DF15223010	Film Cap., 0.022μF
C234	1	1	1	DF15223010	Film Cap., 0.022μF
C135	1	1	1	DF15273010	Film Cap., 0.027μF
C235	1	1	1	DF15273010	Film Cap., 0.027μF
C136	1	1	1	EA47503590	Electrolytic Cap., 4.7μF 35V
C236	1	1	1	EA47503590	Electrolytic Cap., 4.7μF 35V
C137	1	1	1	DF15152010	Film Cap., 0.0015μF ±5% 50V
C237	1	1	1	DF15152010	Film Cap., 0.0015μF ±5% 50V
C138	1	1	1	DF65151510	Film Cap., 150pF
C238	1	1	1	DF65151510	Film Cap., 150pF
C139	1	1	1	DF65271510	Film Cap., 270pF
C239	1	1	1	DF65271510	Film Cap., 270pF
C301	1	1	1	DF16223510	Film Cap., 0.022μF 100V
C302	1	1	1	EE10505050	Electrolytic Cap., 1μF 50V EE
C303	1	1	1	DF16102510	Film Cap., 0.001μF
C304	1	1	1	DF16102510	Film Cap., 0.001μF

- (U) for U.S.A.
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REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
C305	1	1	1	DF16102510	Film Cap., 0.001 $\mu$ F
C306	1	1	1	EA10701090	Electrolytic Cap., 100 $\mu$ F 10V
C308	1	1	1	DK17102010	Ceramic Cap., 0.001 $\mu$ F 50V
<b>P400 POWER BOARD</b>					
P400	1	1	1	YD41070020	P.W. Board
	1	1	1	ZZ41070020	P.W. Board Assembly
P405	4	4	4	2933118020	Spacer
Q401	1	1	1	HD20016100	Diode, 10DC1 +
Q402	1	1	1	HD20017100	Diode, 10DC1 -
Q403	1	1	1	HD20016100	Diode, 10DC1 +
Q404	1	1	1	HD20017100	Diode, 10DC1 -
Q405	1	1	1	HD30030090	Diode, WZ177
Q406	1	1	1	HT403131E0	Transistor, 2SD313(E)
R401	1	1	1	GF05100140	Resistor, 10 $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
R402	1	1	1	GF05821140	Resistor, 820 $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
C401	1	1	1	DF16103500	Film Cap., 0.01 $\mu$ F 200V
C402	1	1	1	DF16103500	Film Cap., 0.01 $\mu$ F 200V
C403	1	1	1	DF16103500	Film Cap., 0.01 $\mu$ F 200V
C404	1	1	1	DF16103500	Film Cap., 0.01 $\mu$ F 200V
C405	1	1	1	DF16103500	Film Cap., 0.01 $\mu$ F 200V
C406	1	1	1	DF16103500	Film Cap., 0.01 $\mu$ F 200V
C407	1	1	1	DF16103500	Film Cap., 0.01 $\mu$ F 200V
C408	1	1	1	DF16103500	Film Cap., 0.01 $\mu$ F 200V
C409	1	1	1	EA47703590	Electrolytic Cap., 470 $\mu$ F 35V
C410	1	1	1	EA33703590	Electrolytic Cap., 330 $\mu$ F 35V
C411	1	1	1	EA47702590	Electrolytic Cap., 470 $\mu$ F 25V
C412	1	1	1	EA10702590	Electrolytic Cap., 100 $\mu$ F 25V
C413	1	1	1	EA10801090	Electrolytic Cap., 1000 $\mu$ F 10V
C414	1	1	1	DK18403020	Ceramic Cap., 0.04 $\mu$ F 25V
J401	13	13	13	YP10001130	Plug
<b>P550 WIRE CONNECTION BOARD</b>					
P550	1	1	1	YD41070030	P.W. Board
	1	1	1	ZZ41070030	P.W. Board Assembly
J551	1	1	1	YP06001050	Plug, 5P
J552	1	1	1	YJ06001050	Jack, 5P
J553	10	10	10	YP10001130	Plug
Q551	1	1	1	HD20013100	Diode, 10D-1
R551	1	1	1	RT05103140	Resistor, 10k $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
R552	1	1	1	RC10121120	Resistor, 120 $\Omega$ $\pm$ 10% $\frac{1}{4}$ W
R553	1	1	1	RC10121120	Resistor, 120 $\Omega$ $\pm$ 10% $\frac{1}{4}$ W
<b>P600 SWITCH BOARD</b>					
P600	1	1	1	YD41070050	P.W. Board
	1	1	1	ZZ41070050	P.W. Board Assembly
S601	1	1	1	SP04020160	Pushswitch, with S602
J601	9	9	9	YP10001130	Plug
<b>P700 REAR PANEL TERMINAL BOARD</b>					
P700	1	1		YD41140050	P.W. Board
	1	1		ZZ41071050	P.W. Board Assembly
P700			1	YD41070040	P.W. Board
			1	ZZ41078040	P.W. Board Assembly
R701	1	1	1	GD05561140	Resistor, 560 $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
R702	1	1	1	GD05561140	Resistor, 560 $\Omega$ $\pm$ 5% $\frac{1}{4}$ W

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
R703	1	1	1	GD05184140	Resistor, 180k $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
R704	1	1	1	GD05184140	Resistor, 180k $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
R705			1	GD05473140	Resistor, 47k $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
R706			1	GD05473140	Resistor, 47k $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
J701	1	1		YT02040150	Terminal, 4P, RCA Jack
J701			1	BY01050060	Terminal, 4P, RCA, DIN Jack
J702	4	4	4	YP10001130	Plug
<b>P800 DOLBY BOARD</b>					
P800	1	1	1	YD41140060	P.W. Board
	1	1	1	ZZ41140060	P.W. Board Assembly
Q801	1	1	1	HT306441B0	Transistor, 2SC644 (S)
Q901	1	1	1	HT306441B0	Transistor, 2SC644 (S)
Q802	1	1	1	HT306441B0	Transistor, 2SC644 (S)
Q902	1	1	1	HT306441B0	Transistor, 2SC644 (S)
Q803	1	1	1	HF200301E0	Transistor, 2SK30A (D)
Q903	1	1	1	HF200301E0	Transistor, 2SK30A (D)
Q804	1	1	1	HT306441B0	Transistor, 2SC644 (S)
Q904	1	1	1	HT306441B0	Transistor, 2SC644 (S)
Q805	1	1	1	HT107211T0	Transistor, 2SA721 (T)
Q905	1	1	1	HT107211T0	Transistor, 2SA721 (T)
Q806	1	1	1	HT306441B0	Transistor, 2SC644 (S)
Q906	1	1	1	HT306441B0	Transistor, 2SC644 (S)
Q807	1	1	1	HD10003020	Diode, 20A90
Q907	1	1	1	HD10003020	Diode, 20A90
Q808	1	1	1	HD10003020	Diode, 20A90
Q908	1	1	1	HD10003020	Diode, 20A90
Q809	1	1	1	HD20011050	Diode, 1S1555
Q909	1	1	1	HD20011050	Diode, 1S1555
Q810	1	1	1	HD20011050	Diode, 1S1555
Q910	1	1	1	HD20011050	Diode, 1S1555
Q811	1	1	1	HD20011050	Diode, 1S1555
Q911	1	1	1	HD20011050	Diode, 1S1555
Q830	1	1	1	HD30031090	Diode, WZ081
R801	1	1	1	RT05154140	Resistor, 150k $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
R901	1	1	1	RT05154140	Resistor, 150k $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
R802	1	1	1	RT05184140	Resistor, 180k $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
R902	1	1	1	RT05184140	Resistor, 180k $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
R803	1	1	1	RT05273140	Resistor, 27k $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
R903	1	1	1	RT05273140	Resistor, 27k $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
R804	1	1	1	RT05223140	Resistor, 22k $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
R904	1	1	1	RT05223140	Resistor, 22k $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
R805	1	1	1	RT05822140	Resistor, 8.2k $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
R905	1	1	1	RT05822140	Resistor, 8.2k $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
R806	1	1	1	RT05154140	Resistor, 150k $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
R906	1	1	1	RT05154140	Resistor, 150k $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
R807	1	1	1	RT05272140	Resistor, 2.7k $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
R907	1	1	1	RT05272140	Resistor, 2.7k $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
R808	1	1	1	RT05333140	Resistor, 33k $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
R908	1	1	1	RT05333140	Resistor, 33k $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
R809	1	1	1	RT05274140	Resistor, 270k $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
R909	1	1	1	RT05274140	Resistor, 270k $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
R810	1	1	1	RT05473140	Resistor, 47k $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
R910	1	1	1	RT05473140	Resistor, 47k $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
R811	1	1	1	RT05332140	Resistor, 3.3k $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
R911	1	1	1	RT05332140	Resistor, 3.3k $\Omega$ $\pm$ 5% $\frac{1}{4}$ W
R812	1	1	1	RT05222140	Resistor, 2.2k $\Omega$ $\pm$ 5% $\frac{1}{4}$ W

- (U) for U.S.A.
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REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
R912	1	1	1	RT05222140	Resistor, 2.2kΩ ±5% ¼W
R813	1	1	1	RT05684140	Resistor, 680kΩ ±5% ¼W
R913	1	1	1	RT05684140	Resistor, 680kΩ ±5% ¼W
R814	1	1	1	RT05183140	Resistor, 18kΩ ±5% ¼W
R914	1	1	1	RT05183140	Resistor, 18kΩ ±5% ¼W
R815	1	1	1	RA01030260	Trimming Resistor, 10kΩ
R915	1	1	1	RA01030260	Trimming Resistor, 10kΩ
R816	1	1	1	RT05272140	Resistor, 2.7kΩ ±5% ¼W
R916	1	1	1	RT05272140	Resistor, 2.7kΩ ±5% ¼W
R817	1	1	1	RT05153140	Resistor, 15kΩ ±5% ¼W
R917	1	1	1	RT05153140	Resistor, 15kΩ ±5% ¼W
R818	1	1	1	RT05822140	Resistor, 8.2kΩ ±5% ¼W
R918	1	1	1	RT05822140	Resistor, 8.2kΩ ±5% ¼W
R819	1	1	1	RA01020110	Trimming Resistor, 1kΩ
R919	1	1	1	RA01020110	Trimming Resistor, 1kΩ
R820	1	1	1	RT05822140	Resistor, 8.2kΩ ±5% ¼W
R920	1	1	1	RT05822140	Resistor, 8.2kΩ ±5% ¼W
R821	1	1	1	RT05822140	Resistor, 8.2kΩ ±5% ¼W
R921	1	1	1	RT05822140	Resistor, 8.2kΩ ±5% ¼W
R822	1	1	1	RT05103140	Resistor, 10kΩ ±5% ¼W
R922	1	1	1	RT05103140	Resistor, 10kΩ ±5% ¼W
R823	1	1	1	RT05333140	Resistor, 33kΩ ±5% ¼W
R923	1	1	1	RT05333140	Resistor, 33kΩ ±5% ¼W
R824	1	1	1	RT05124140	Resistor, 120kΩ ±5% ¼W
R924	1	1	1	RT05124140	Resistor, 120kΩ ±5% ¼W
R825	1	1	1	RT05473140	Resistor, 47kΩ ±5% ¼W
R925	1	1	1	RT05473140	Resistor, 47kΩ ±5% ¼W
R826	1	1	1	RT05272140	Resistor, 2.7kΩ ±5% ¼W
R926	1	1	1	RT05272140	Resistor, 2.7kΩ ±5% ¼W
R827	1	1	1	RT05102140	Resistor, 1kΩ ±5% ¼W
R927	1	1	1	RT05102140	Resistor, 1kΩ ±5% ¼W
R828	1	1	1	RT05330140	Resistor, 33Ω ±5% ¼W
R928	1	1	1	RT05330140	Resistor, 33Ω ±5% ¼W
R829	1	1	1	RT05153140	Resistor, 15kΩ ±5% ¼W
R929	1	1	1	RT05153140	Resistor, 15kΩ ±5% ¼W
R830	1	1	1	RT05470140	Resistor, 47Ω ±5% ¼W
R930	1	1	1	RT05470140	Resistor, 47Ω ±5% ¼W
R831	1	1	1	RT05274140	Resistor, 270kΩ ±5% ¼W
R931	1	1	1	RT05274140	Resistor, 270kΩ ±5% ¼W
R832	1	1	1	RT05274140	Resistor, 270kΩ ±5% ¼W
R932	1	1	1	RT05274140	Resistor, 270kΩ ±5% ¼W
R833	1	1	1	RT05224140	Resistor, 220kΩ ±5% ¼W
R933	1	1	1	RT05224140	Resistor, 220kΩ ±5% ¼W
R800	1	1	1	RC00000120	Resistor, 0Ω ½W
C801	1	1	1	EA10601690	Electrolytic Cap., 10μF 16V
C901	1	1	1	EA10601690	Electrolytic Cap., 10μF 16V
C802	1	1	1	EA10601690	Electrolytic Cap., 10μF 16V
C902	1	1	1	EA10601690	Electrolytic Cap., 10μF 16V
C803	1	1	1	DF15562010	Film Cap., 0.0056μF
C903	1	1	1	DF15562010	Film Cap., 0.0056μF
C804	1	1	1	DF15472010	Film Cap., 0.0047μF
C904	1	1	1	DF15472010	Film Cap., 0.0047μF
C805	1	1	1	DF15273010	Film Cap., 0.027μF
C905	1	1	1	DF15273010	Film Cap., 0.027μF
C806	1	1	1	EA10601690	Electrolytic Cap., 10μF 16V
C906	1	1	1	EA10601690	Electrolytic Cap., 10μF 16V
C807	1	1	1	DF17104010	Film Cap., 0.1μF

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
C907	1	1	1	DF17104010	Film Cap., 0.1μF
C808	1	1	1	EA47601090	Electrolytic Cap., 47μF 10V
C908	1	1	1	EA47601090	Electrolytic Cap., 47μF 10V
C809	1	1	1	DF17104010	Film Cap., 0.1μF
C909	1	1	1	DF17104010	Film Cap., 0.1μF
C810	1	1	1	EA10601690	Electrolytic Cap., 10μF 16V
C910	1	1	1	EA10601690	Electrolytic Cap., 10μF 16V
C811	1	1	1	DD15200010	Ceramic Cap., 20pF
C911	1	1	1	DD15200010	Ceramic Cap., 20pF
C812	1	1	1	EA10601690	Electrolytic Cap., 10μF 16V
C912	1	1	1	EA10601690	Electrolytic Cap., 10μF 16V
C813	1	1	1	DF17104010	Film Cap., 0.1μF
C913	1	1	1	DF17104010	Film Cap., 0.1μF
C814	1	1	1	DF17104010	Film Cap., 0.1μF
C914	1	1	1	DF17104010	Film Cap., 0.1μF
C815	1	1	1	DF17334010	Film Cap., 0.33μF
C915	1	1	1	DF17334010	Film Cap., 0.33μF
C820	1	1	1	EA10702590	Electrolytic Cap., 100μF 25V
J801	1	1	1	YPO6000820	Plug, 9P
J802	1	1	1	YJ06000270	Jack, 9P
S001	1	1		SP04010230	Pushswitch
S001	1		1	SP04010250	Pushswitch
L001	1	1		TS15401182	Power Transformer
L001	1		1	TS16017042	Power Transformer
G001	1			BF10400040	CR Composition, 0.1μF +120Ω
G001	1	1		DF17473590	Film Cap., 0.047μF AC125V
J001	1	1	1	YJ01000820	Jack, Mic Jack (L)
J002	1	1	1	YJ01000820	Jack, Mic Jack (R)
J003	1	1	1	YJ01000810	Jack, Headphone
J004	1	1	1	YJ08000190	Jack, Lamp Holder
J005	1	1	1	YL03010210	Terminal
J006	1	1		YL01040160	Terminal
J006	1		1	YL09030010	Terminal
J007	1		1	YJ08000220	Jack, Fuse Holder
J008	1		1	YJ08000090	Jack, Fuse Holder
J009	1		1	YJ08000090	Jack, Fuse Holder
J010	1		1	YJ08000090	Jack, Fuse Holder
J011	1		1	BY03110010	Jack
F001	1		1	FS10012800	Fuse, 125mAT
F002	1		1	FS10031800	Fuse, 315mAT
F003	1		1	FS10100800	Fuse, 1 AT
F004	1		1	FS10140800	Fuse, 1.4 AT
J012	1	1	1	YJ08000190	Jack, Lamp Holder
J013	1	1	1	YJ08000190	Jack, Lamp Holder
S002	1	1	1	SM02010080	Mini Switch, Rec. Muting
S003	1	1	1	SM01010520	Mini Switch, Play Muting
M001	1	1	1	MM10600500	DC Motor
M011	1	1	1	IM11055033	Level Meter
M012	1	1	1	IM11055033	Level Meter
H001	1	1	1	LH42851020	Rec./Play Head
H002	1	1	1	LH31000400	Erase Head
R001	1	1	1	GD05082140	Resistor, 8.2Ω ±5% ¼W
R002	1	1	1	GD05082140	Resistor, 8.2Ω ±5% ¼W
C001	1	1	1	DK17102010	Ceramic Cap., 0.001μF 50V
C002	1	1	1	DK17102010	Ceramic Cap., 0.001μF 50V
C003	1	1	1	DK17102010	Ceramic Cap., 0.001μF 50V
C004	1	1	1	DK17102010	Ceramic Cap., 0.001μF 50V

- (U) for U.S.A.
- (C) for Canada
- (E) for Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
C005	1	1	1	DK17102010	Ceramic Cap., 0.001 $\mu$ F 50V
V001	1	1	1	IN10080070	Lamp
W001	1	1		YC02400260	Power Cord
W001			1	YC01900030	Power Cord
V002	1	1	1	IN10080070	Lamp
V003	1	1	1	IN10080070	Lamp
Q001	1	1	1	H110003020	LED, LN-21
Q002	1	1	1	H110003020	LED, LN-21
<b>PRINTED MATTER &amp; ACCESSORIES</b>					
3904	1			4107851010	Instructions
3905		1	1	4107851310	Instructions
3906		1		3369851320	Instructions
3907	1			2876851030	Instructions, Important
3908		1		3917851020	Instructions, Important
3910	1			9630000170	Guarantee Card
3911		1		9630000152	Guarantee Card
3912	1			3906854023	Guarantee Card
3913		1		3917854012	Guarantee Card
3917		1		9650000050	S. Station Card
3920		1		2918813012	Paper Bag
3923	1	1	1	9011525010	Polyethylene Bag
3924	1	1	1	9011325010	Polyethylene Bag
3925		1		9560000070	Hang Tag
3926		1		9560000042	Hang Tag
3931	1	1	1	4136071010	Cleaner
3932	2	2		ZD01500170	Connective Cord (RCA Type)
3933			1	ZD02000070	Connective Cord (DIN Type)
<b>PACKING MATERIALS</b>					
4004	1	1	1	4107801010	Packing Case
4006	1	1	1	4107805010	Master Carton
4008	2	2	2	4114803012	Cushion
4010	1	1	1	9013835300	Polyethylene Bag
4015	2	2	2	9522815010	Serial No. Card
4018	1		1	9510911040	Label
4019		1		9510911050	Label
4020		2		9510901020	Label
4023	1	1		1029804010	Sleeve
4024			1	2864804010	Sleeve
4026			1	2731821010	Silicagel