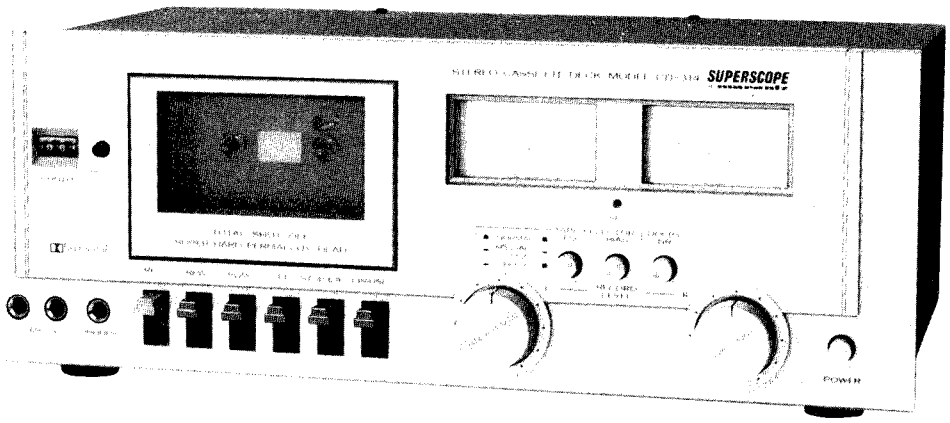
STEREO CASSETTE DECK

MODEL CD-314

SERVICE DATA

MAR./1979



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BY marantz®

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

SUPERSCOPE DESIGN AND SERVICE

Using superior design and selected high grade components, SUPERSCOPE has created the ultimate in stereo sound. Only original SUPERSCOPE parts can insure that your SUPERSCOPE product will continue to perform to the specifications for which it is famous.

Parts for your SUPERSCOPE stereo are generally available within 72 hours throughout the nation via a toll-free line to our National Parts Depot in California. The sales professionals who take your call immediately refer to their own desk top computer terminal and can quickly determine the availability and price information you require. If, for some reason, your order should exceed our available stock, we usually can instantly provide an alternate replacement part or current delivery information. When the order is placed and confirmed, the computer simultaneously generates "hard copy" orders at the distribution center. As hard copies come directly from the computer to the national parts depot, your requested stock is assembled and prepared for shipment and placed on the first available carrier for delivery to you.

ORDERING PARTS

Phone orders will eliminate mail delays, and we encourage the use of this method. If you order by mail, use SUPERSCOPE parts order forms which are available from our National Parts Depot located at the following address:

SUPERSCOPE NATIONAL PARTS DEPARTMENT
20525 Nordhoff Street
Chatsworth, California 91311
Phone: 1-800-423-5108
1-213-998-9333

The following information must be supplied to eliminate delays in processing your order:

1. Complete address.
2. Complete part numbers.
3. Complete description of parts.
4. Model number for which part is required (indicate SUPERSCOPE).
5. Account number (for account customers only).

Direct consumers will be provided with the current retail price quotation on available parts in order to advise them of the cost of the parts and shipping.

OVERSEAS PARTS ORDERING

Parts may also be ordered from the following overseas addresses:

CANADA

Superscope Canada, Ltd.
3710 Nashua Drive
Mississauga
Ontario, Canada L4V1M5

AUSTRALIA

Superscope (Australasia) Pty., Ltd.
32 Cross Street (P.O. Box 604)
Brookvale 2100 N.S.W.
Australia

JAPAN

Marantz Japan, Inc.
3622 Kamitsuruma
Sagamihara Shi
Kanagawa, Japan

EUROPE

Superscope Europe, S.A.
Avenue Leopold III, 2
7120 Peronnes-Lez-Binche
Belgium

Marantz France
Rue Louis Armand 9
92600 Asnieres
Hauts-de-Seine
France

Marantz Audio U.K. Ltd.
London Road, 203
Staines
Middlesex
England

Superscope GmbH
Max-Planck-Strasse 22
D-6072 Dreieich 1
West Germany

All of the above locations are fully equipped to take care of your total service needs. Because various countries have differing configuration requirements, it is necessary that you contact the service facility in your particular country. In the event that there is no service location listed for your country, please contact the nearest facility for the necessary assistance.

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TABLE OF CONTENTS

SUPERSCOPE MODEL CD-314 STEREO CASSETTE DECK

INTRODUCTION

This service manual are prepared for use by Authorized Warranty Station and contains service information for this unit.

Servicing information and voltage data included in this manual 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 of 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.

1. TEST EQUIPMENT REQUIRED FOR SERVICING

For measuring or checking this unit, the following instruments and materials are necessary.

- VTVM
- Audio Oscillator (af OSC)
- Attenuator (600 Ω)
- Oscilloscope
- Bandpass Filter (1 kHz)
- IEC A-Curve Filter
- Wow and Flutter Meter
- Torque Meter (Cassette Type)
- Digital Frequency Counter
- Distortion Meter
- Blank Tapes (Completely erased with bulk eraser)
  TDK AC-211 (Normal)
  TDK AC-511 (Special/CrO_2)
  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) (or MTT-216)
  MTT-116K Frequency Response (for CrO_2, Fe-Cr) (or MTT-316)
  MTT-121 Cross Talk
  MTT-141 Channel Separation

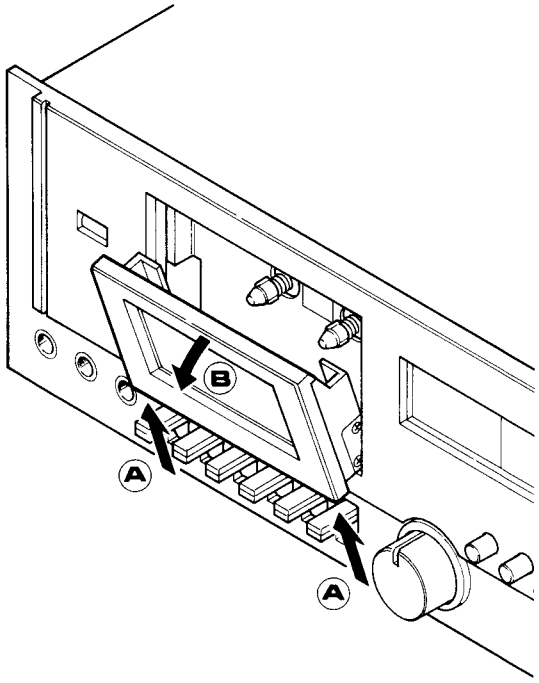
BIAS and EQ switches setting in accordance with tape used are as follows:

Tape	Switch Position	
	EQ Switch	BIAS Switch
AC-211		
AC-511		
CS-30		

2. DISASSEMBLY

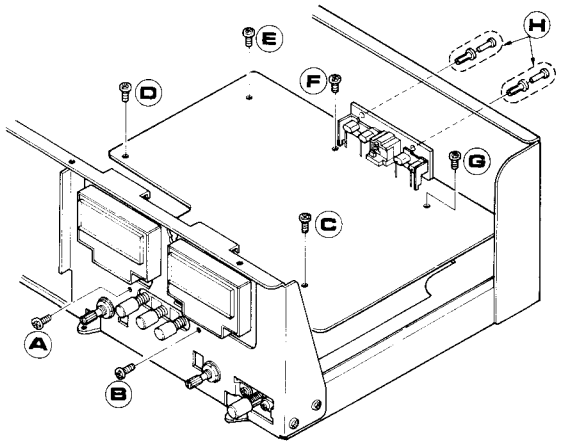
2.1 REMOVING THE CASSETTE CASE ESCUTCHEON

Push the cassette case escutcheon at the two positions upward in the arrow A direction. As it will be detached, take it out in the arrow B direction.



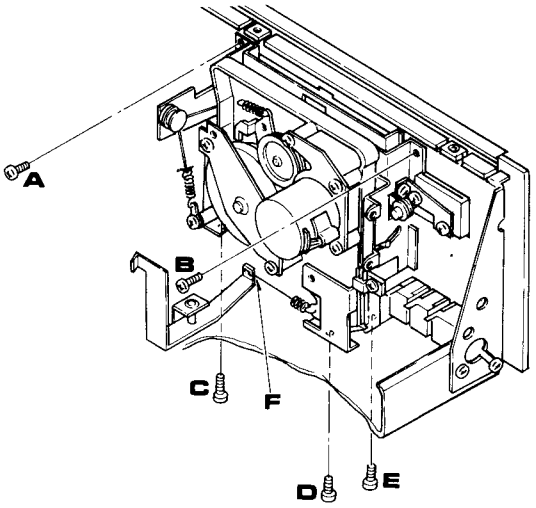
2.2 REMOVING THE MAIN P.W. BOARD

Remove the seven screws A, B, C, D, E, F, G and H holding the Main P.W. board. Then, draw it out with taking care of not applying excessive force to any lead wire.



2.3 REMOVING THE MECHANICAL CHASSIS

Remove the five screws A, B, C, D, and E holding the mechanical chassis. Remove the record lever spring assembly F. Then, draw the chassis out with taking care of the tape counter and operating levers.

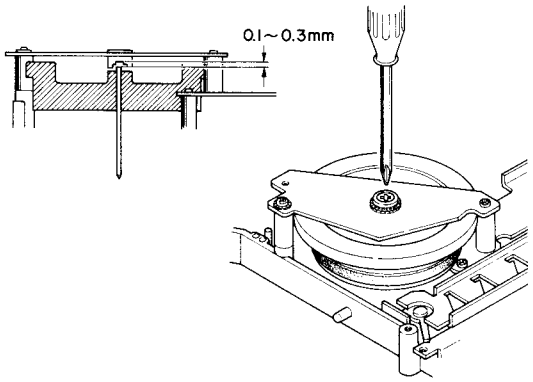


3. ADJUSTMENT PROCEDURES

3.1 MECHANICAL ADJUSTMENTS

3.1.1 Adjusting the Flywheel Thrust

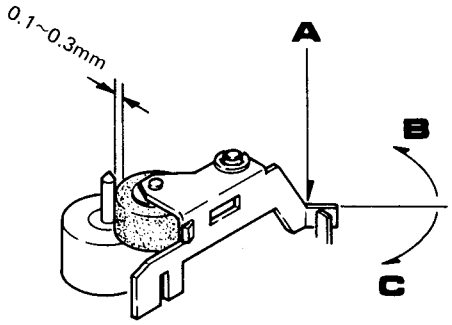
Adjust the thrust screw at the flywheel bracket until the clearance between the capstan tail end and thrust bearing is 0.1 to 0.3 mm as shown, using a phillips screw driver. For adjusting, feel of axial dropping of the flywheel for proper clearance as this cannot been seen through. Then paint the screw to lock.



3.1.2 Adjusting Pause Timing

Set the unit in the play mode of operation. Then, adjust the bend angle of the pinch roller bracket arm (point A in the line drawing) until the clearance between the pinch roller and capstan is 0.1 to 0.3 mm at the time when the take-up reel is stopped by slowly pressing the PAUSE push-button down.

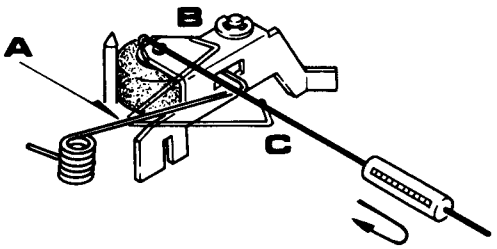
NOTE: To widen the clearance, make the bend angle smaller (in the direction C). To make the clearance narrower, widen the bend angle (in the direction B).



3.1.3 Adjusting the Pinch Roller Pressure

Measure the pressure of the pinch roller using a gauge as shown. For measurement, draw the pinch roller in the arrow direction in which it is detached from the capstan shaft and gradually return it toward the capstan. Read the gauge at the time when the pinch roller starts turning. The standard pressure is 300±50 g. If the pressure is out of the range, bend the pinch roller spring around the point A in the direction B or C.

NOTE: To make the pressure strong, bend in the direction B. To make the pressure weak, bend in the direction C.



3.1.4 Adjusting the Play Timing

It is normal that when the PLAY pushbutton is depressed, the take-up reel table turns first, then the pinch roller is rotated. The reel table and pinch roller must not start turning at the same time.

NOTE: **Make certain that such a subsequent operation is made irrespective of locking state is depressed slowly without loading the tape.**

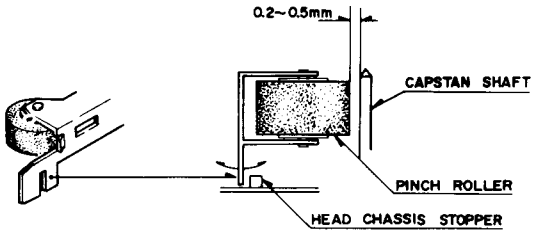
(1) Checking for adjustment

Check whether or not the clearance between the pinch roller and capstan is 0.2 to 0.5 mm when the take-up reel table starts turning with the PLAY pushbutton depressed slowly.

(2) Adjustment

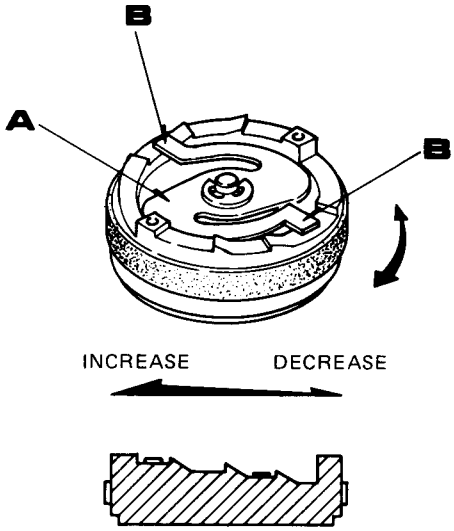
Bend the pinch roller bracket at the point that touches the head chassis stopper. In the line drawing, bending left reduces the clearance between the capstan and pinch roller.

NOTE: **Make certain that the pinch roller bracket does not leave touching the head chassis stopper in the play mode of operation as a result of excessive bending.**



3.1.6 Adjusting the Fast Forward and Rewind Torque

The fast forward and rewind idler has a torque adjust plate spring (part A in the line drawing), which has two pawls (part B) at its ends. Set the pawls in proper one of the three steps. To make the torque high, set the pawls in the shallowest step. For lower torque, set in the deepest step.

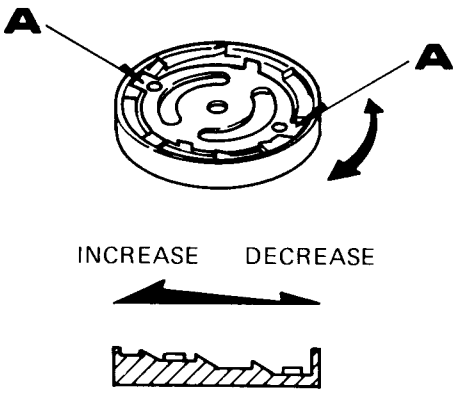


3.1.5 Adjusting the Play Torque

Put the two pawls of the circular plate spring on proper stepped position of the reel rest. The adjustable torque range is 40 to 70 g·cm.

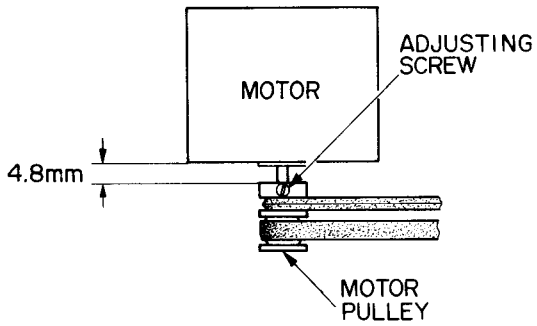
To make the torque high, put the pawls on a shallow step. For lower torque, put them on a deeper step.

- **Checking the take-up clutch for sliding**
  Make certain that the flywheel rotates freely when the reel table is locked. The flywheel that revolves irregularly or stops is not acceptable.



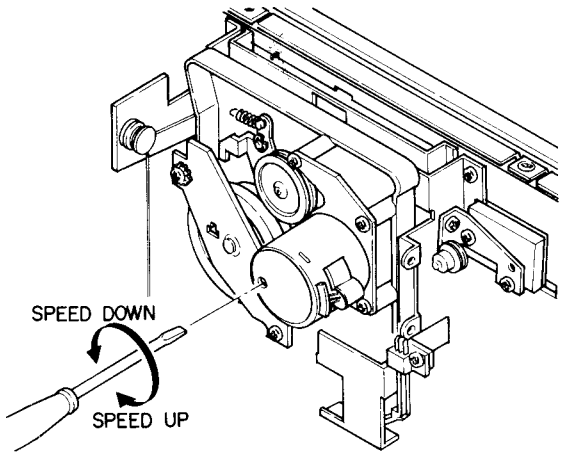
3.1.7 Positioning the Motor Pulley

Loosen the set screw and adjust the motor pulley position until the clearance between the pulley and motor is 4.8 mm as shown. Tighten the set



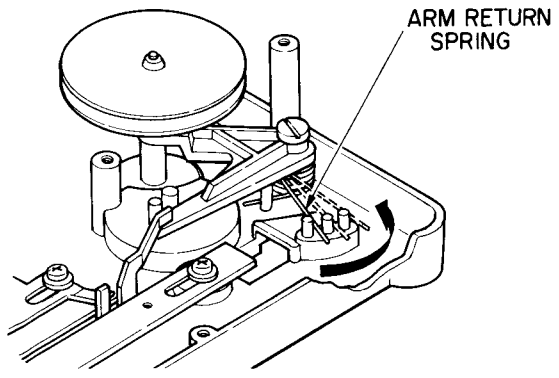
3.1.8 Adjusting the Tape Speed

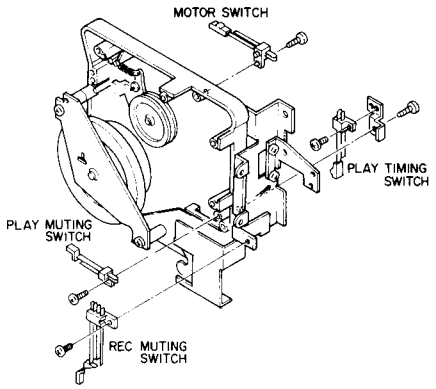
Adjust the semi-fixed resistor inside the motor until the tape speed is 2985±5Hz, using a screw driver or flat blade screw driver.



3.1.9 Adjusting the Rewind Idler Side Pressure

Make certain that in the rewind mode of operation, the rewind idler does not slip on the supply reel table when this is held by hand. If it slips, change the hanging position of the rewind idler arm return spring on the chassis in the arrow direction step by step until it does not slip.

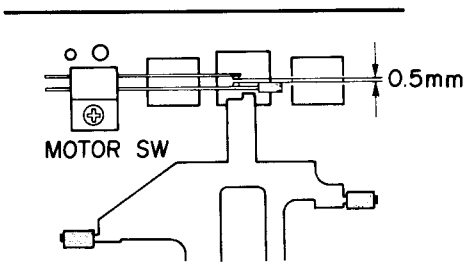




3.1.10 Positioning the Switches

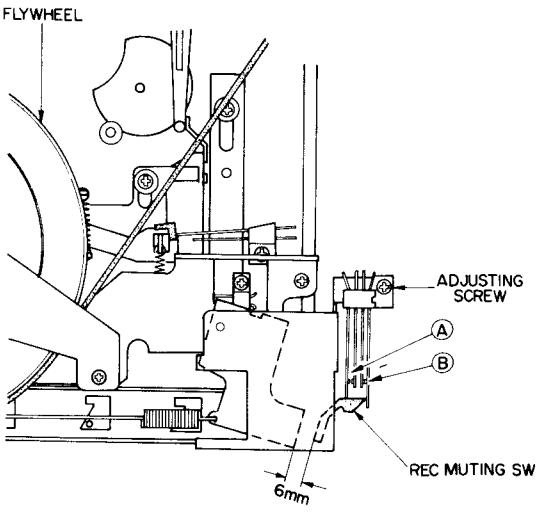
(1) Motor switch

Turn the motor switch in the arrow direction until it is screwed tightly. Make certain that the contact gap is wider than 0.5 mm.

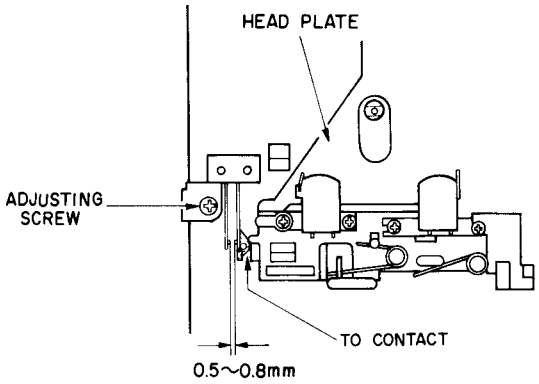


(2) Record muting switch

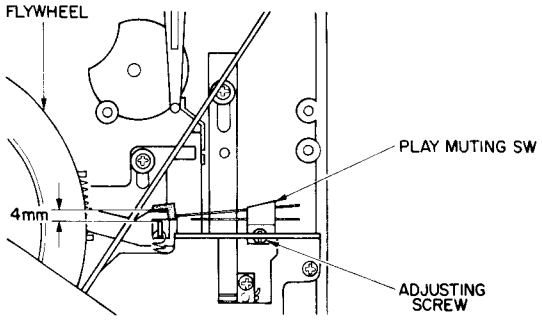
In the stop state, loosen the screw holding the record muting switch and position this so that the clearance between its end mold tip and mounting bracket may be 6 mm. Tighten the screw. Make certain that when the record lever is pressed in, the record muting switch contact A is made close and the contact B is broken out securely.



(3) Start muting switch
In the stop state, loosen the screw holding the start muting switch and position this so that its contact clearance may be 0.5 to 0.8 mm with leaving the contact tip in contact with the head plate. Tighten the screw.

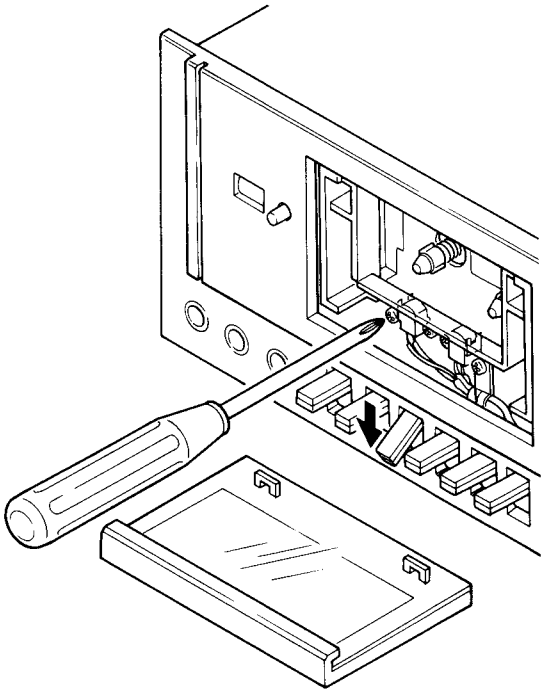


(4) Play muting switch
In the stop state, loosen the screw holding the play muting switch and position this so that the clearance between its end tip and play lever may be 4 mm.



3.1.11 Removing the Head

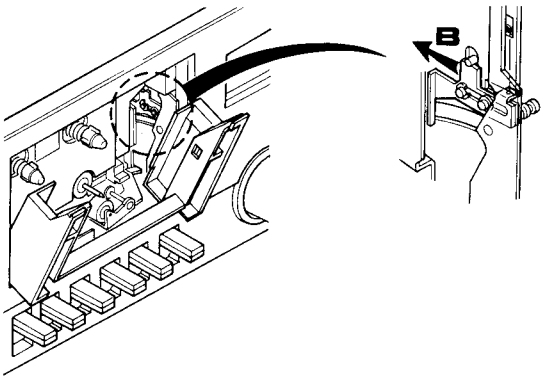
1. Depress the EJECT pushbutton.
2. Remove the escutcheon (A).



4. Depress the PLAY pushbutton to lock.
5. Remove the screws holding each head to make this free.
6. Depress the EJECT pushbutton to open the cassette lid.
7. Remove the head.

NOTES:

1. The PLAY pushbutton cannot be depressed when the cassette lid is open.
2. To lock the PLAY pushbutton with leaving the cassette lid, press the point (B) shown in the line drawing below. The PLAY pushbutton will be locked even when the cassette door is open.



3. In the state (2) above, the cassette lid cannot be locked. To lock it, depress the EJECT pushbutton two times to restore the original state.

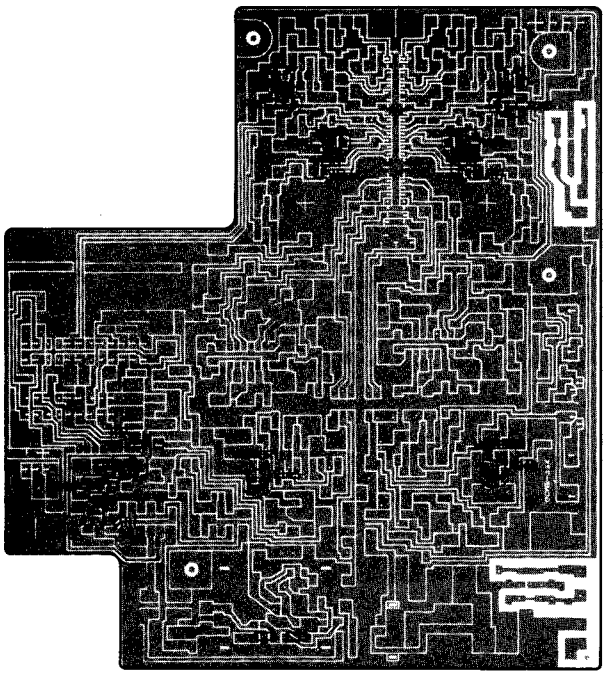
3.2 ELECTRICAL ADJUSTMENTS AND MEASUREMENTS

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 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 580mV output at the MAIN P.W. Board (P100) J113, J213 with the load assuming the measuring instrument input impedance of greater than 100kΩ 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 1kHz signal to a specified recording level for which the recording level control is adjusted with the 1kHz 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 1kHz, 1mV input signal applied.



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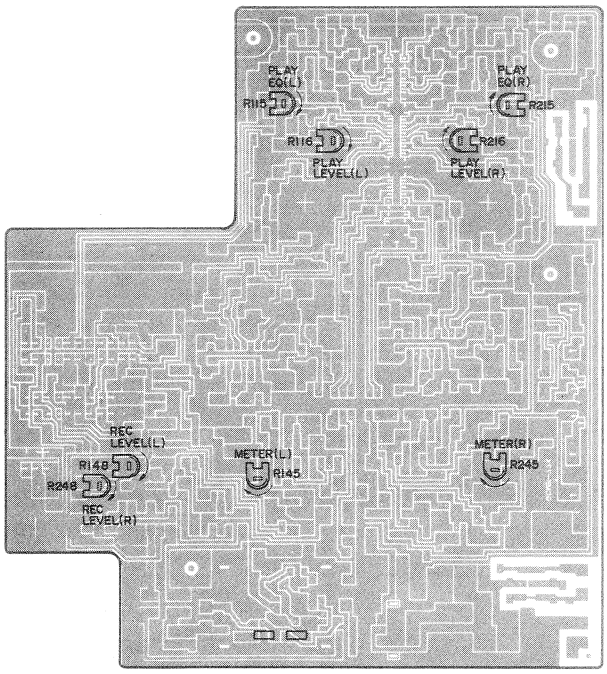
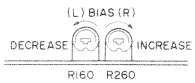




1. Head Azimuth Adjustment

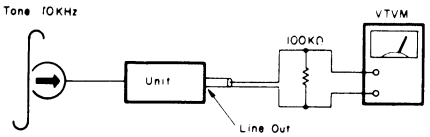
SET UP

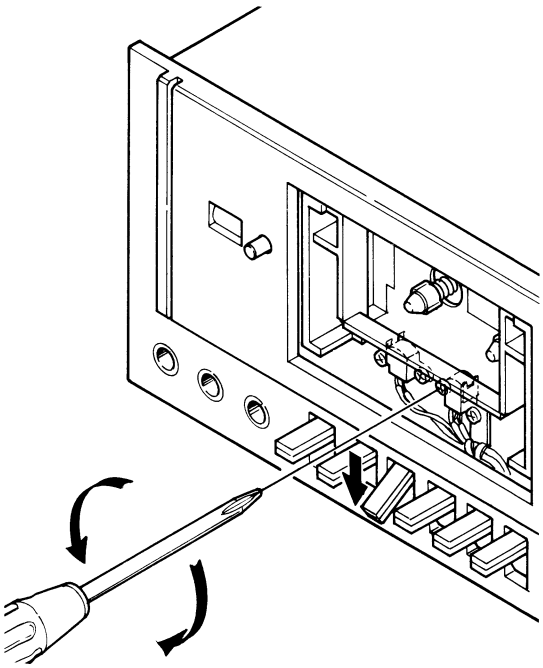
1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. TAPE selector switch position:- NORMAL.
3. Load:- Measuring instrument input impedance.
4. Output terminal used:- LINE OUT.
5. **Test tape used:- MTT-116U (or MTT-216) (31.5Hz to 14kHz).**

PROCEDURES

1. Play the 10kHz portion of the test tape MTT-116U back. Adjust the head azimuth adjusting screw for maximum VTVM read.
2. If the peak output reads of the right and left channels are different, set the screws to obtain the mechanical center between the peaks.
3. After adjustment, lock the screw with bond.

Mode: playback





CAUTION

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

2. Tape Speed Adjustment

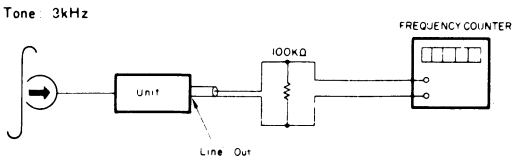
SET UP

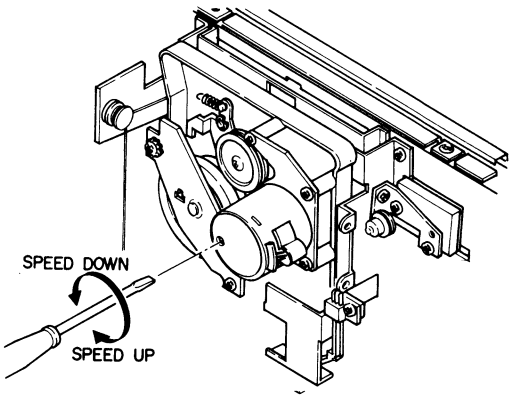
1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. Output terminal:- LINE OUT.
3. Test tape used:- MTT-111.
4. Unit position:- Horizontal.

PROCEDURES

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

Mode: playback





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.
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.

3. Playback Equalizer Adjustment

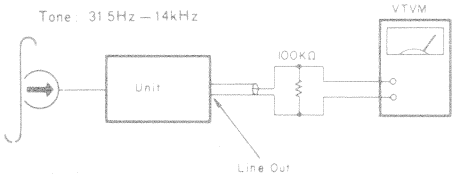
SET UP

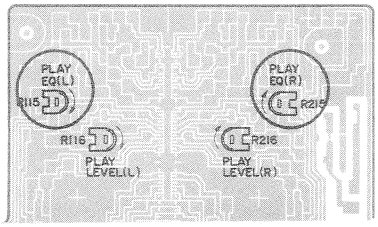
1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. TAPE selector switch position:- NORMAL.
3. Load:- Measuring instrument input impedance.
4. output terminal:- LINE OUT.
5. Test tape used:- MTT-116U (or MTT-216) (31.5Hz to 14kHz).

PROCEDURES

1. Play the test tape MTT-116U. Let the 315Hz signal level be reference as 0dB.
2. Adjust R115 and R215 (2kΩ each) for 10kHz frequency response of 0 to −1dB in reference to the 315Hz signal level (0dB).
3. Proceed both for the right and left channels in the same manner.
4. Note that clockwise turning of R115 and R215 will increase the 10kHz signal output level.

Mode: playback





4. Playback Output Adjustment

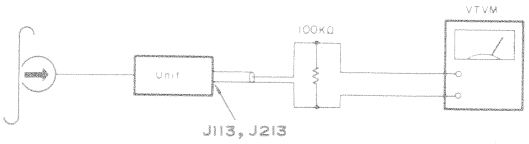
SET UP

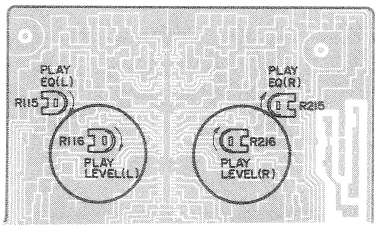
1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. TAPE selector switch position:- NORMAL.
3. Load:- Measuring instrument input impedance.
4. Output terminal:- MAIN P.W. Board (P100) J113 and J213.
5. Test tape used:- MTT-150.

PROCEDURES

1. Play the test tape MTT-150 back. Adjust R116 and R216 (50kΩ each) for 580mV playback output level.
2. Proceed both for the right and left channels in the same manner.

Mode: playback





CAUTION

1. 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.

3. Playback Equalizer Adjustment

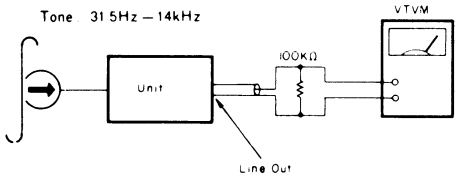
SET UP

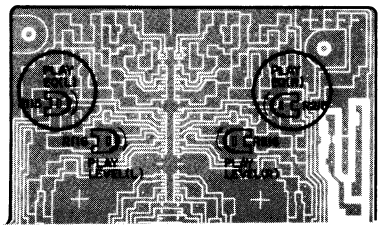
1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. TAPE selector switch position:- NORMAL.
3. Load:- Measuring instrument input impedance.
4. output terminal:- LINE OUT.
5. **Test tape used:- MTT-116U (or MTT-216) (31.5Hz to 14kHz).**

PROCEDURES

1. Play the test tape MTT-116U. Let the 315Hz signal level be reference as 0dB.
2. Adjust R115 and R215 (2kΩ each) for 10kHz frequency response of 0 to −1dB in reference to the 315Hz signal level (0dB).
3. Proceed both for the right and left channels in the same manner.
4. Note that clockwise turning of R115 and R215 will increase the 10kHz signal output level.

Mode: playback





4. Playback Output Adjustment

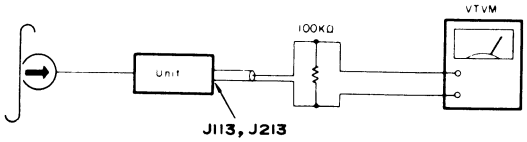
SET UP

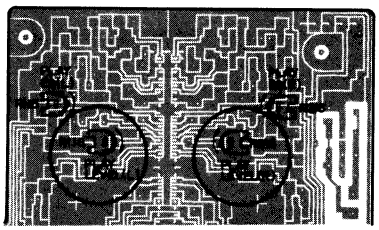
1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. TAPE selector switch position:- NORMAL.
3. Load:- Measuring instrument input impedance.
4. Output terminal:- MAIN P.W. Board (P100) J113 and J213.
5. Test tape used:- MTT-150.

PROCEDURES

1. Play the test tape MTT-150 back. Adjust R116 and R216 (50kΩ each) for 580mV playback output level.
2. Proceed both for the right and left channels in the same manner.

Mode: playback





CAUTION

1. 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.

5. VU Meter Adjustment

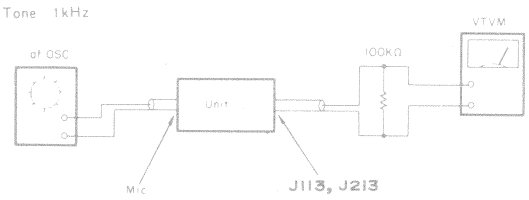
SET UP

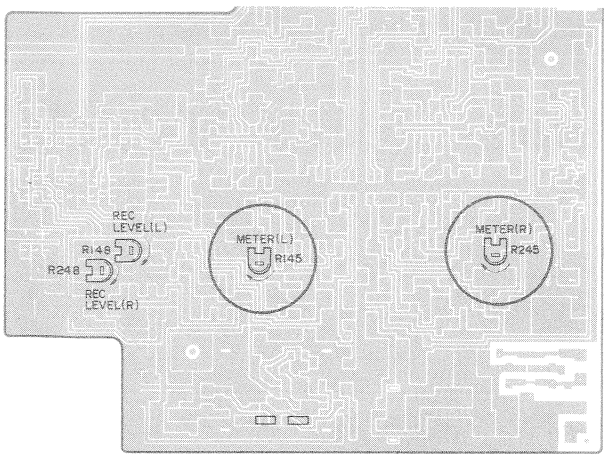
1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. TAPE selector switch position:- NORMAL.
3. Load:- Measuring instrument input impedance.
4. Output terminal used:- MAIN P.W. Board (P100) J113 and J213.
5. Input terminal:- MIC.

PROCEDURES

1. Connect a 1kHz, –60dBV input signal to the MIC terminal. Set up the tape deck for the recording mode of operation.
2. Adjust the REC control for 580mV output level at MONI. OUT of the MAIN P.W. Board (P100) J113 and J213.
3. Adjust R145 and R245 (2kΩ each) until the VU meter pointer deflects to the DOLBY mark (DO) on the VU meter.

Mode: record





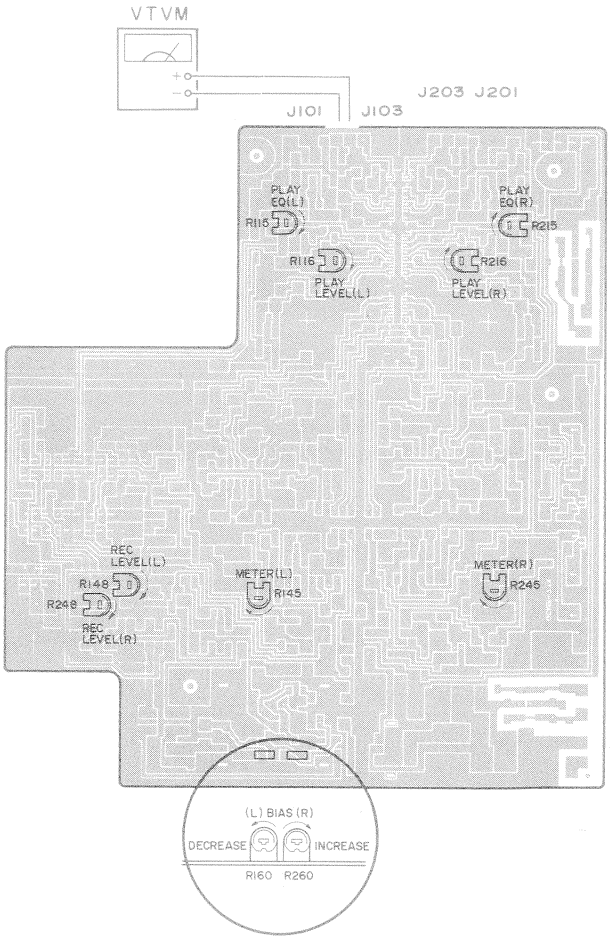
6. Recording Bias Current Adjustment (Temporal)

SET UP

1. Power voltage:- 50 or 60Hz 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 (Lch) and J201, J203 (Rch). Adjust the semifixed resistor R160 and R260 for 3.5mV 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 4.5mV with it set to the CrO_2 position.



5. VU Meter Adjustment

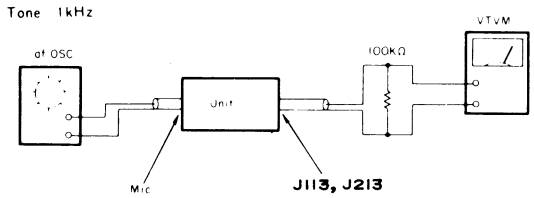
SET UP

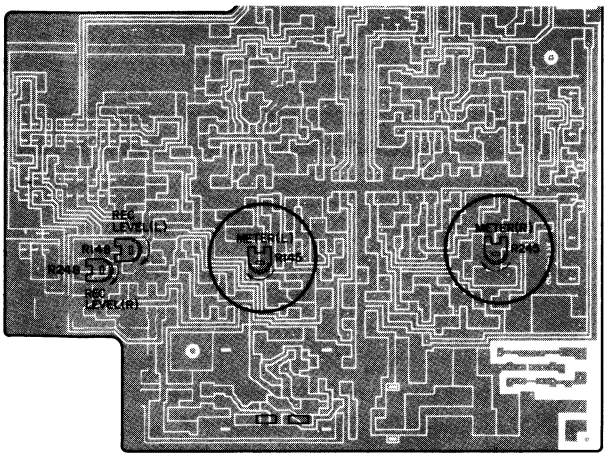
1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. TAPE selector switch position:- NORMAL.
3. Load:- Measuring instrument input impedance.
4. Output terminal used:- MAIN P.W. Board (P100) J113 and J213.
5. Input terminal:- MIC.

PROCEDURES

1. Connect a 1kHz, –60dBV input signal to the MIC terminal. Set up the tape deck for the recording mode of operation.
2. Adjust the REC control for 580mV output level at MONI. OUT of the MAIN P.W. Board (P100) J113 and J213.
3. Adjust R145 and R245 (2kΩ each) until the VU meter pointer deflects to the DOLBY mark (DD) on the VU meter.

Mode: record





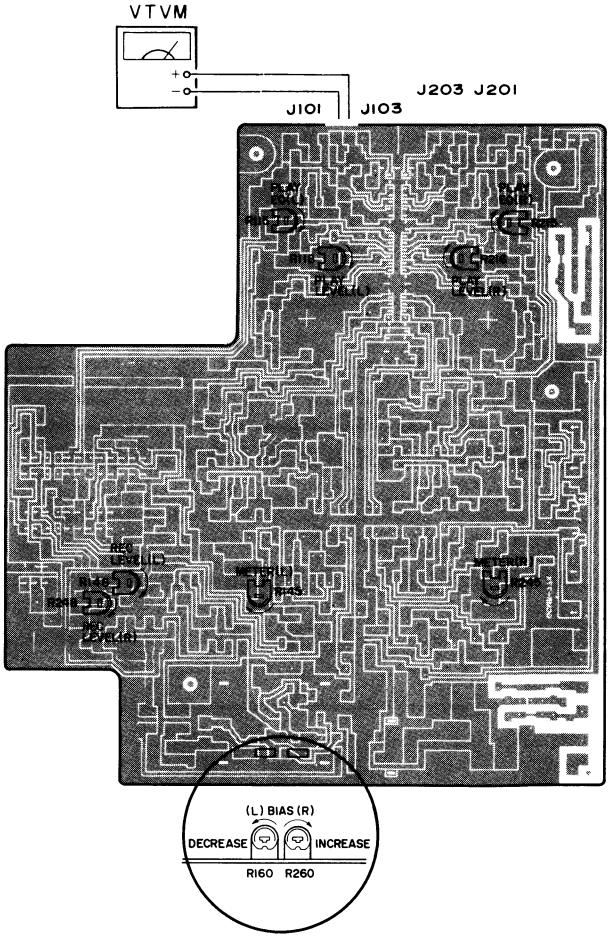
6. Recording Bias Current Adjustment (Temporal)

SET UP

1. Power voltage:- 50 or 60Hz 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 (Lch) and J201, J203 (Rch). Adjust the semifixed resistor R160 and R260 for 3.5mV 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 4.5mV with it set to the CrO_2 position.



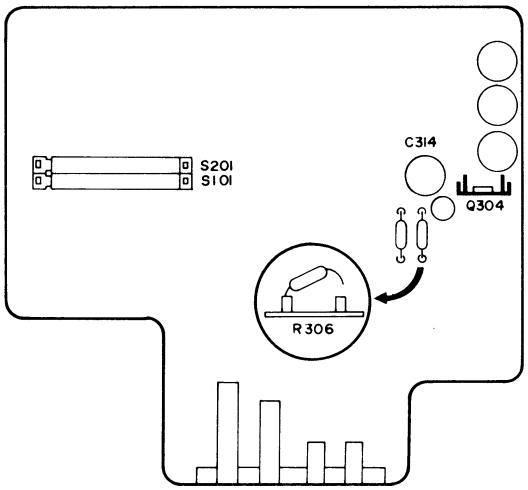
7. Recording Current Adjustment (Temporal)

SET UP

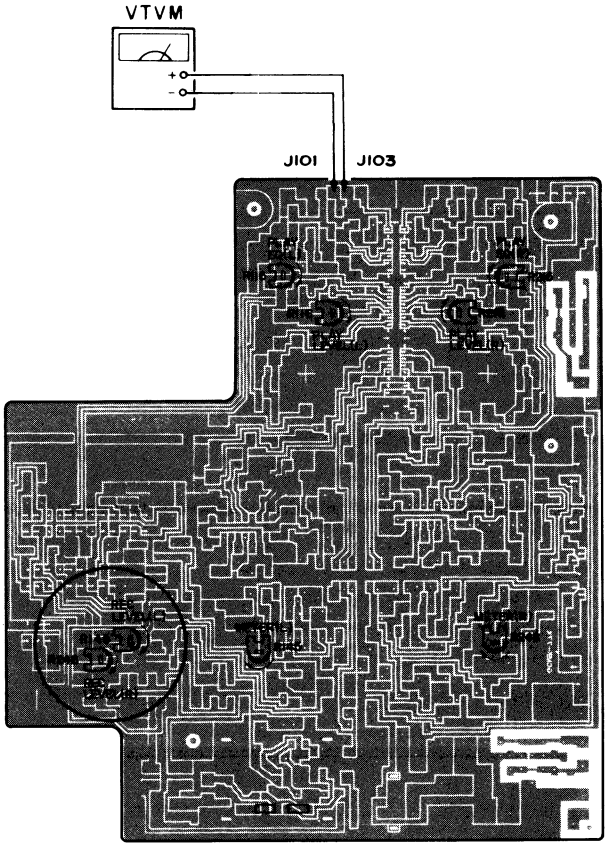
1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. Input signal:- 1kHz, –60dB signal.
3. TAPE selector switch positions:- NORMAL.
4. Load:- Measuring instrument input impedance.

PROCEDURES

1. Stop the recording bias current oscillation by disconnecting the bias circuit +B resistor (R306).



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 R148 and R248 until the VTVM reads 0.5mV, respectively.
3. Proceed both for the right and left channels in the same manner.
4. After adjustment, release the recording bias current.



8. Reocrd-Playback Frequency Response Adjustment

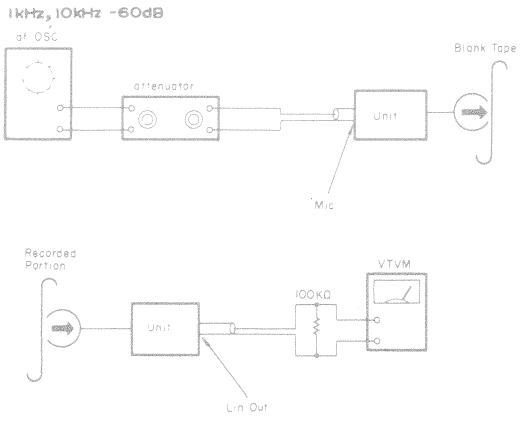
SET UP

1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. Input signal:- 1kHz, –60dB with –20dB referenced as 0VU.
3. TAPE selector switch:- Fe-Cr.
4. Output terminal:- LINE OUT.
5. Load:- Measuring instrument input impedance.
6. Test tape used:- SONY CS-30.

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 20dB with the use of the attenuator. Record the 1 and 10kHz tones.
3. Play the 1kHz, 20dB-down recorded tone back as 0dB. Adjust the recording bias current until the 10kHz response is within ±1dB as referenced to the 1kHz, 0dB 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



9. Record-Playback Output Level Adjustment

SET UP

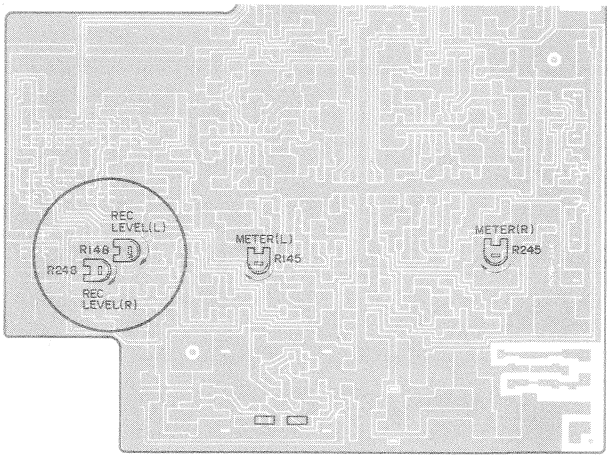
1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. Input:- 1kHz, –60dB signal.
3. TAPE selector switch position:- NORMAL.
4. Output terminal:- MAIN P.W. Board (P100) J113 and J213.
5. Load:- Measuring instrument input impedance.
6. Test tape used:- TDK AC-211.

PROCEDURES

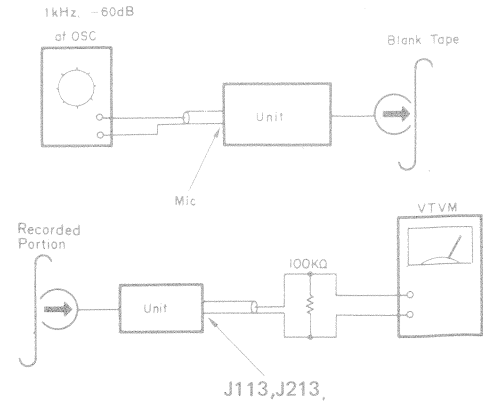
1. Connect the 1kHz, –60dB input signal to the MIC terminal. Set up the tape deck to the normal recording state.
2. Adjust the REC LEVEL semi-fixed resistors R148 and R248 until the recorded signal is reproduced at 460mV ±0.5dB.

CAUTION

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



Mode: record



8. Reocrd-Playback Frequency Response Adjustment

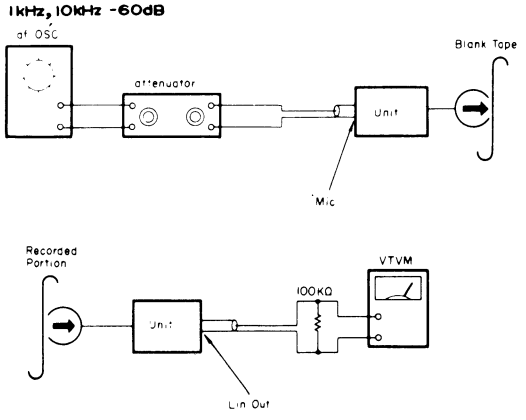
SET UP

1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. Input signal:- 1kHz, −60dB with −20dB referenced as 0VU.
3. TAPE selector switch:- Fe-Cr.
4. Output terminal:- LINE OUT.
5. Load:- Measuring instrument input impedance.
6. Test tape used:- SONY CS-30.

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 20dB with the use of the attenuator. Record the 1 and 10kHz tones.
3. Play the 1kHz, 20dB-down recorded tone back as 0dB. Adjust the recording bias current until the 10kHz response is within ±1dB as referenced to the 1kHz, 0dB 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



9. Record-Playback Output Level Adjustment

SET UP

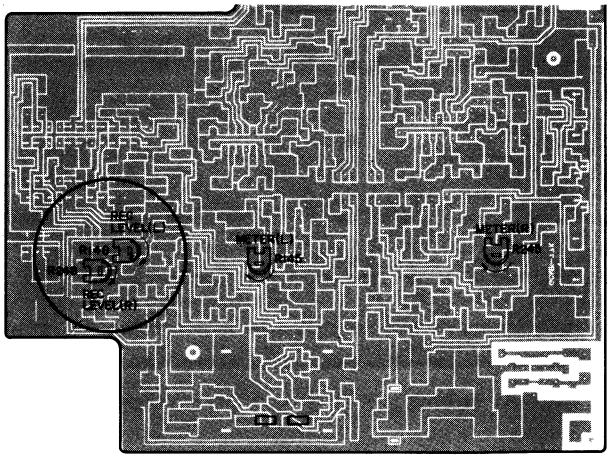
1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. Input:- 1kHz, −60dB signal.
3. TAPE selector switch position:- NORMAL.
4. Output terminal:- MAIN P.W. Board (P100) J113 and J213.
5. Load:- Measuring instrument input impedance.
6. Test tape used:- TDK AC-211.

PROCEDURES

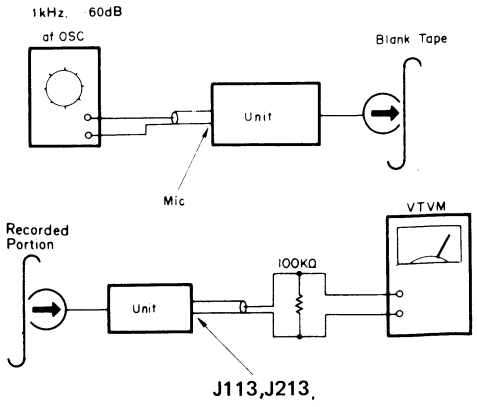
1. Connect the 1kHz, −60dB input signal to the MIC terminal. Set up the tape deck to the normal recording state.
2. Adjust the REC LEVEL semi-fixed resistors R148 and R248 until the recorded signal is reproduced at 460mV ±0.5dB.

CAUTION

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



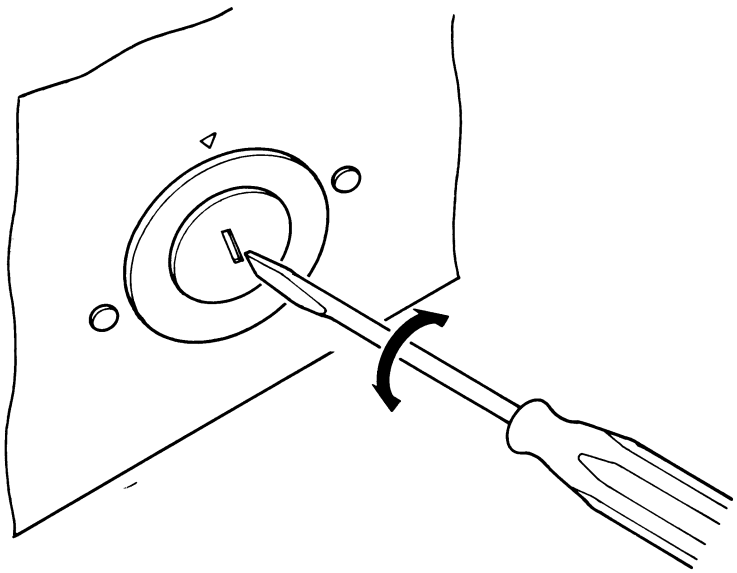
Mode: record

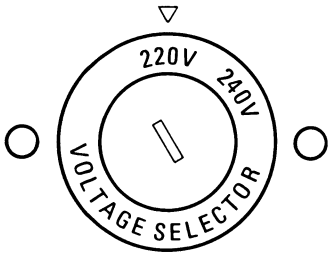


4. VOLTAGE CONVERSION

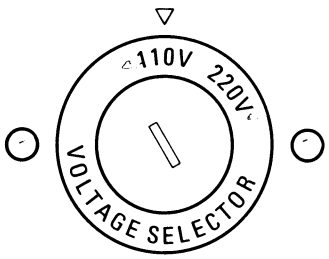
To convert the unit to a different power source voltage, change the position as illustrated in the drawing below.

CAUTION: DISCONNECT POWER SUPPLY CORD FROM AC OUTLET BEFORE CONVERTING VOLTAGE. PLEASE DO NOT DISASSEMBLE THE VOLTAGE SELECTOR ABSOLUTELY.

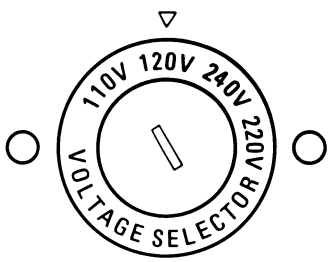




(T) (A) Versions



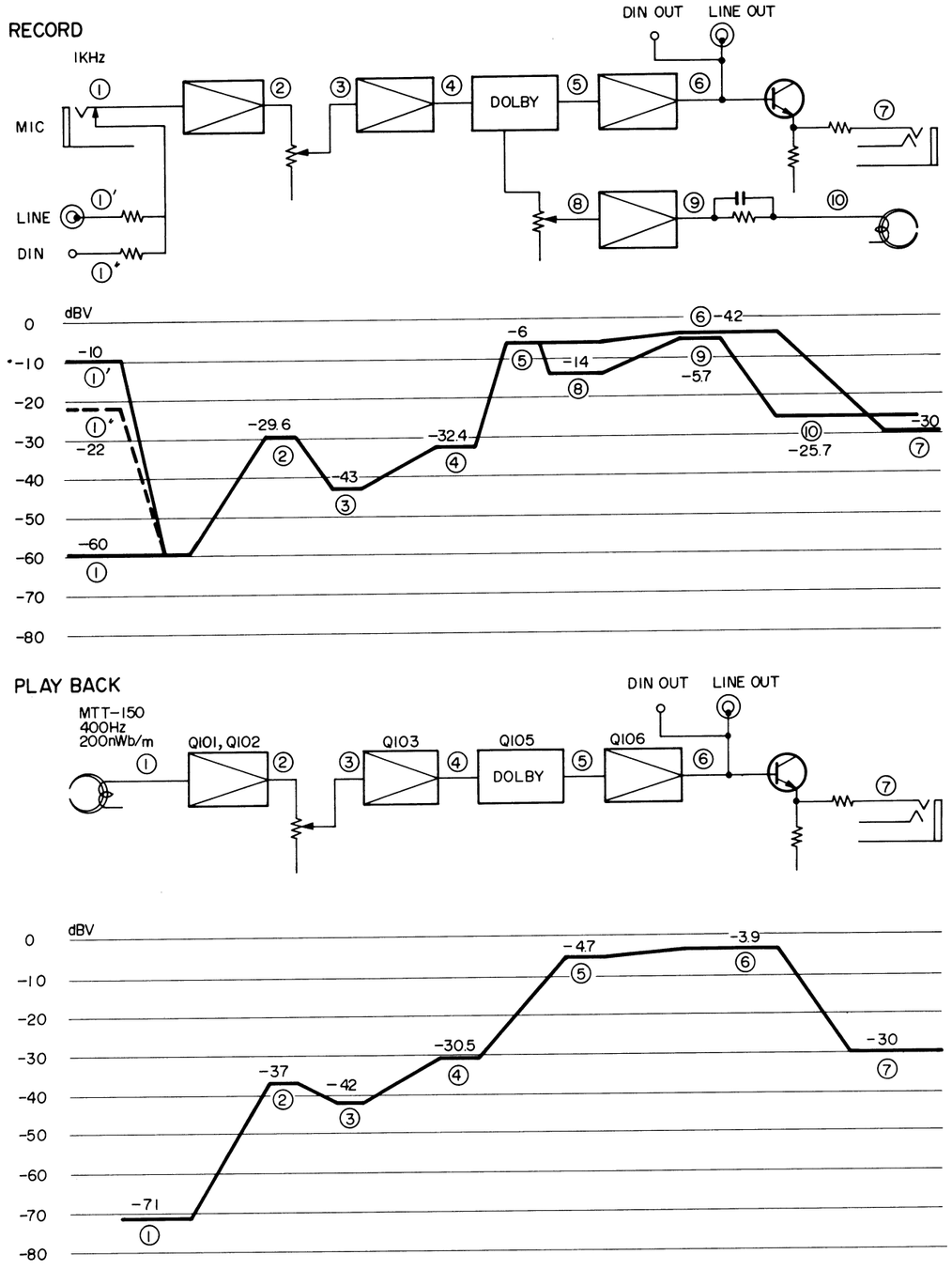
(N) Version



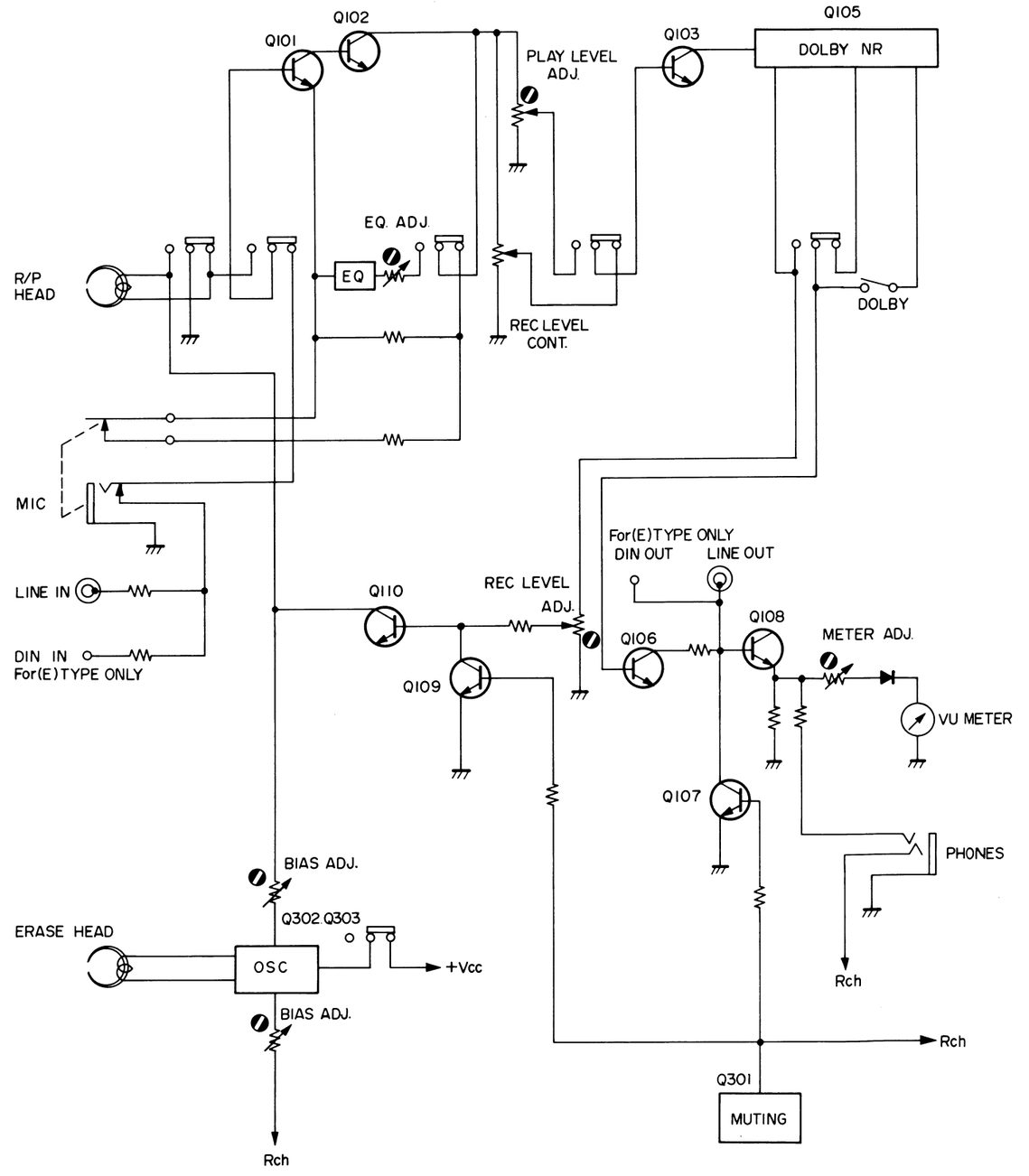
(P) Version

5. DIAGRAMS

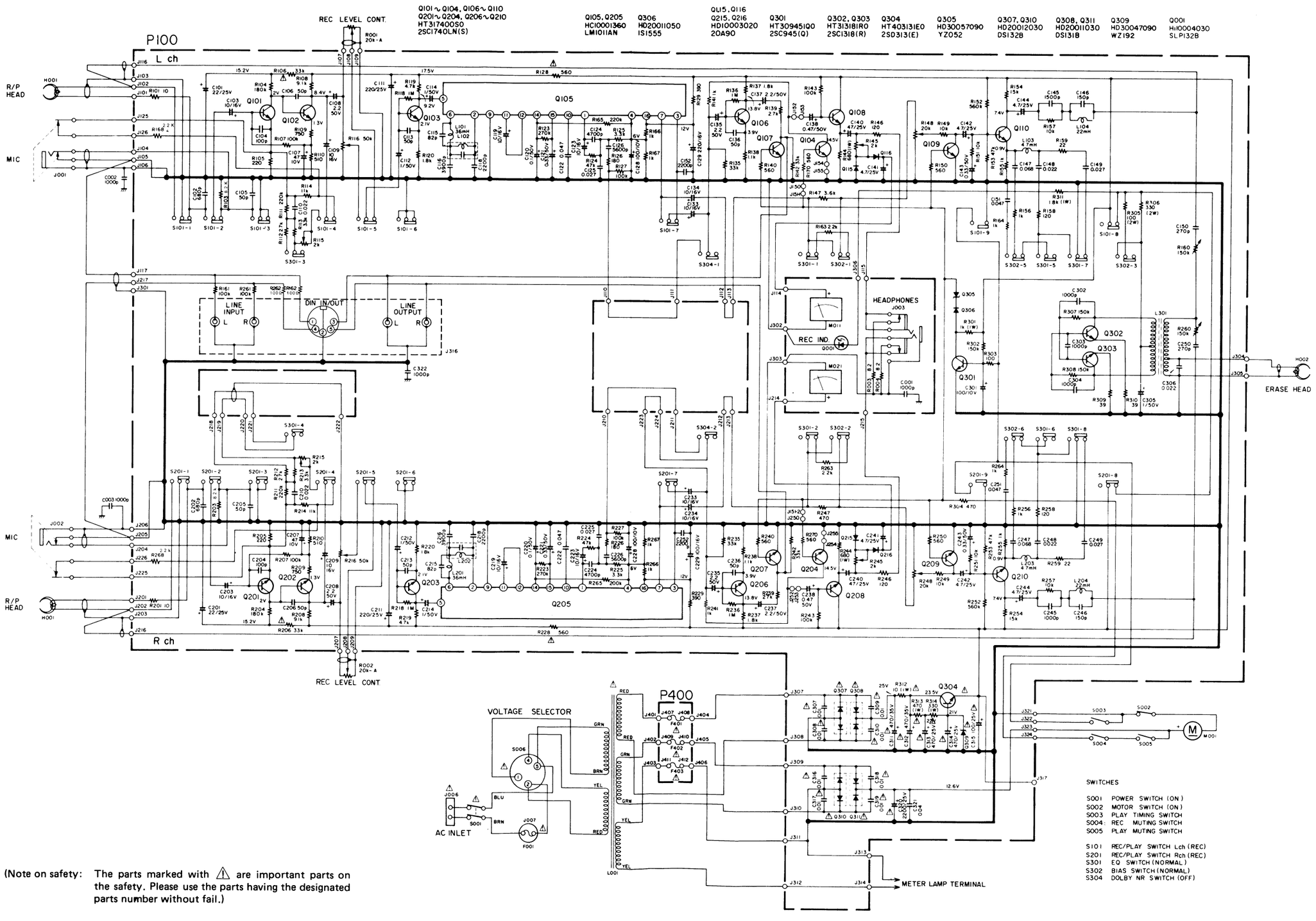
5.1 LEVEL DIAGRAM



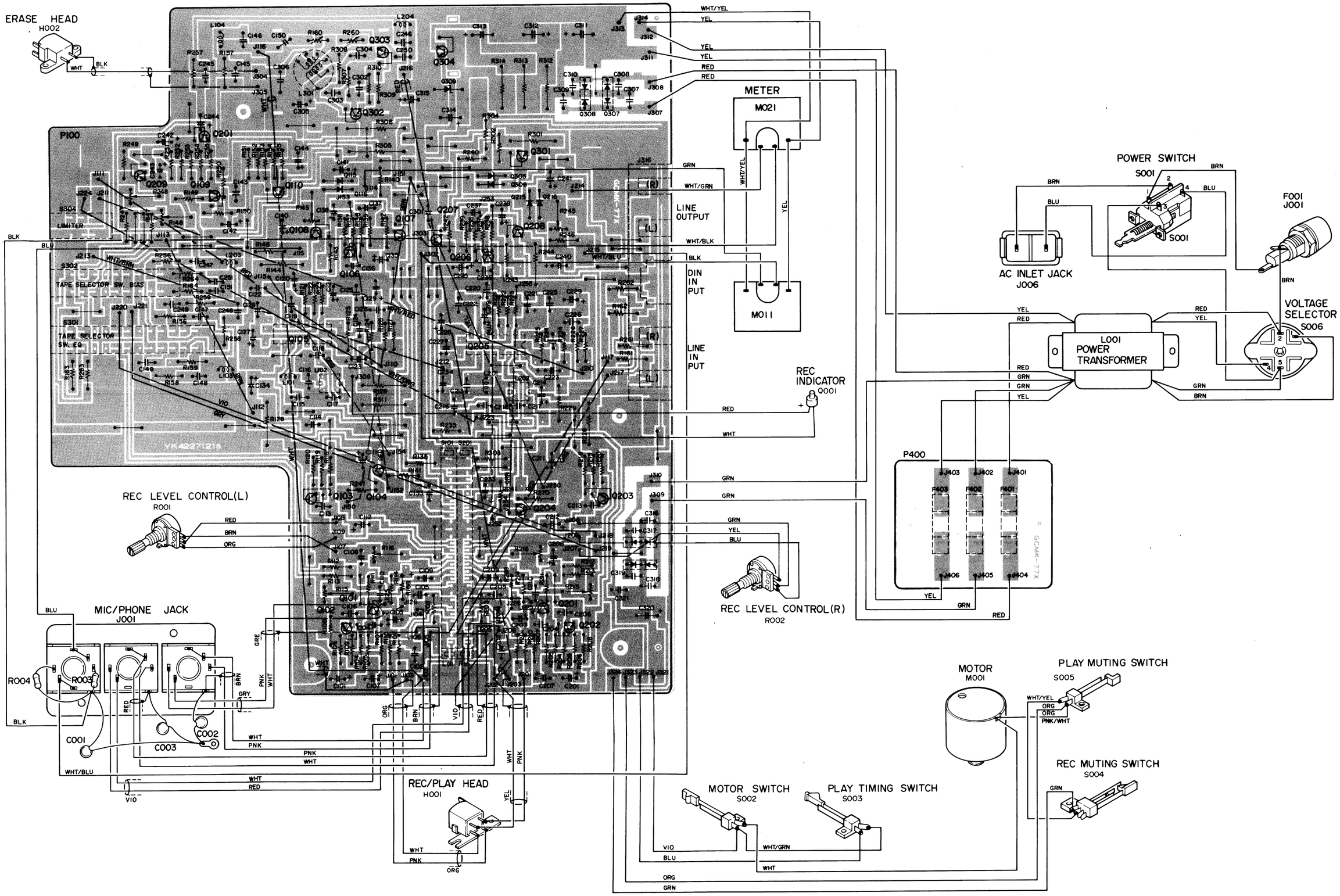
5.2 BLOCK DIAGRAM

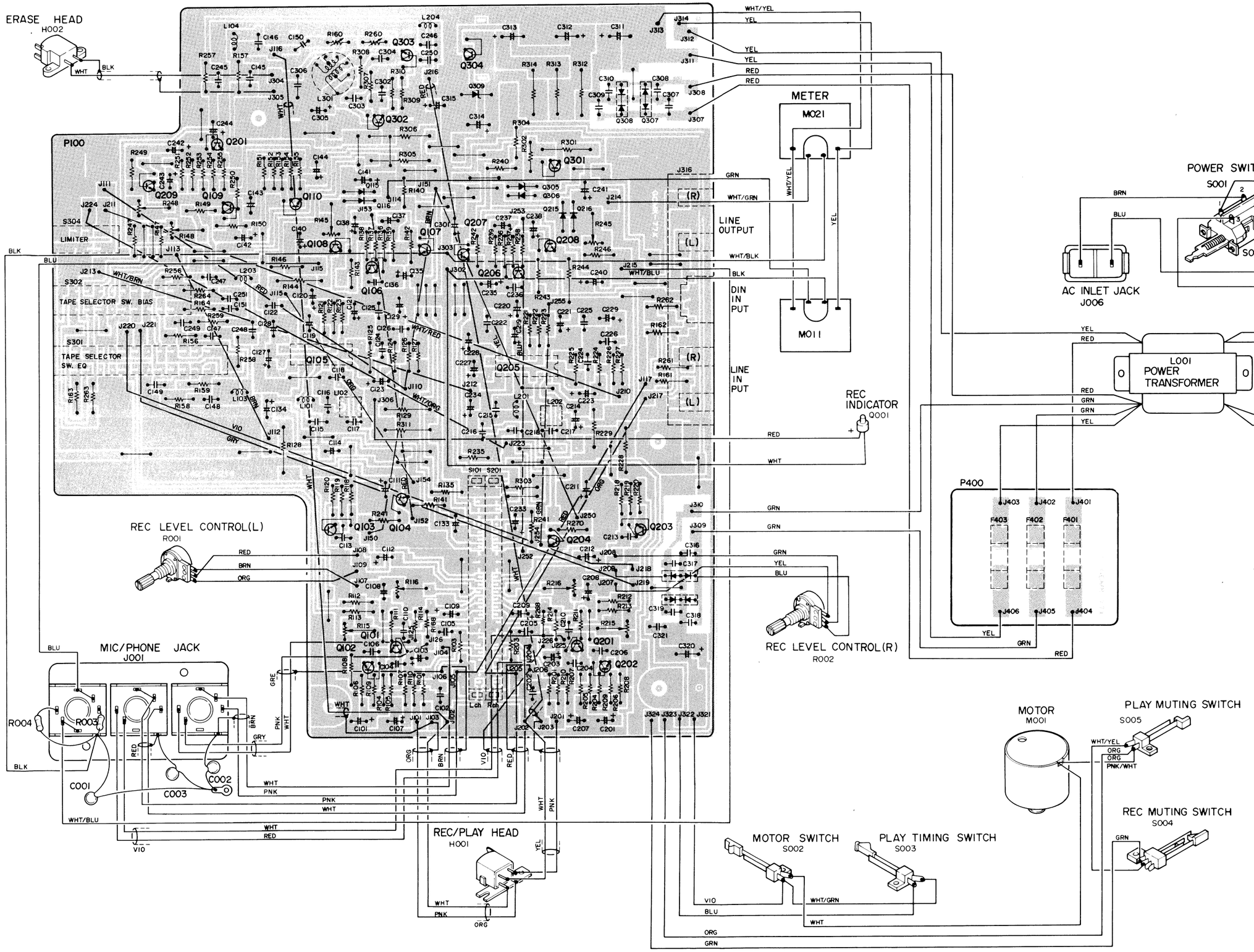


5.3 SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS



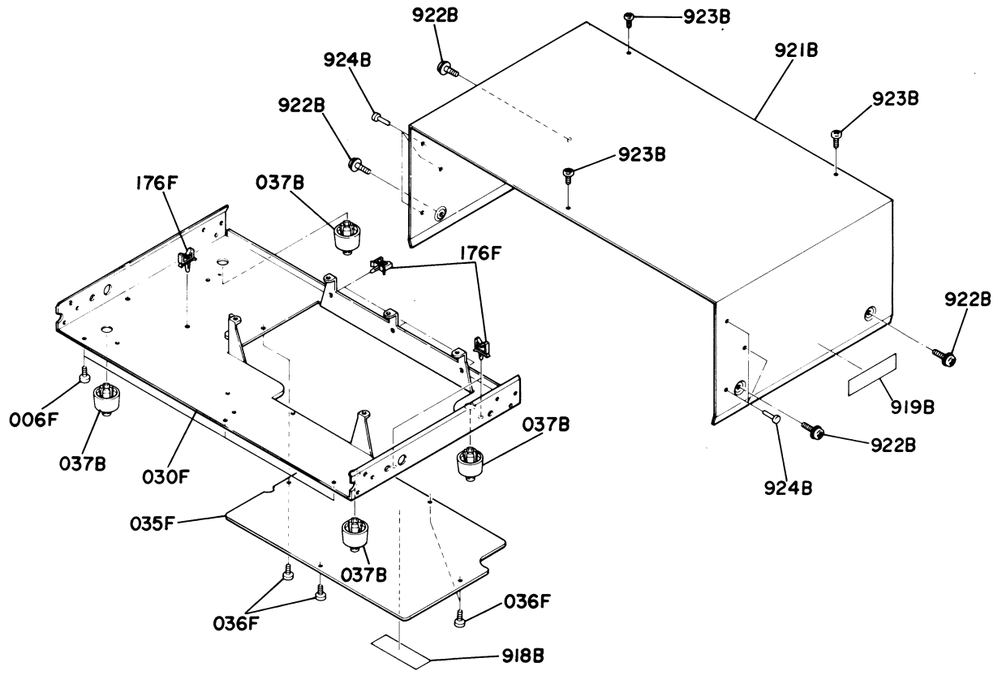
(Note on safety: The parts marked with ⚠ are important parts on the safety. Please use the parts having the designated parts number without fail.)


ERASE HEAD
H002
WHT
BLK
P100
YK4227121A
METER
M021
M011
LINE OUTPUT
DIN IN PUT
LINE IN PUT
REC INDICATOR
Q001
POWER SWITCH
S001
AC INLET JACK
J006
F001
J001
VOLTAGE SELECTOR
S006
L001
POWER TRANSFORMER
P400
J403
J402
J401
F403
F402
F401
J406
J405
J404
REC LEVEL CONTROL(L)
R001
REC LEVEL CONTROL(R)
R002
MIC/PHONE JACK
J001
R004
R003
C001
C002
C003
REC/PLAY HEAD
H001
MOTOR
M001
PLAY MUTING SWITCH
S005
REC MUTING SWITCH
S004
MOTOR SWITCH
S002
PLAY TIMING SWITCH
S003
LIMITER
S304
TAPE SELECTOR SW. BIAS
S302
TAPE SELECTOR SW. EQ
S301
GCMK-77X


ERASE HEAD
H002
P100
METER
M021
M011
LINE OUTPUT
DIN IN PUT
LINE IN PUT
REC INDICATOR
Q001
POWER SWITCH
S001
AC INLET JACK
J006
F001
J001
VOLTAGE SELECTOR
S006
L001
POWER TRANSFORMER
P400
REC LEVEL CONTROL(L)
R001
REC LEVEL CONTROL(R)
R002
MIC/PHONE JACK
J001
REC/PLAY HEAD
H001
MOTOR
M001
MOTOR SWITCH
S002
PLAY TIMING SWITCH
S003
PLAY MUTING SWITCH
S005
REC MUTING SWITCH
S004
LIMITER
TAPE SELECTOR SW. BIAS
TAPE SELECTOR SW. EQ

6. EXPLODED VIEWS AND PARTS LIST

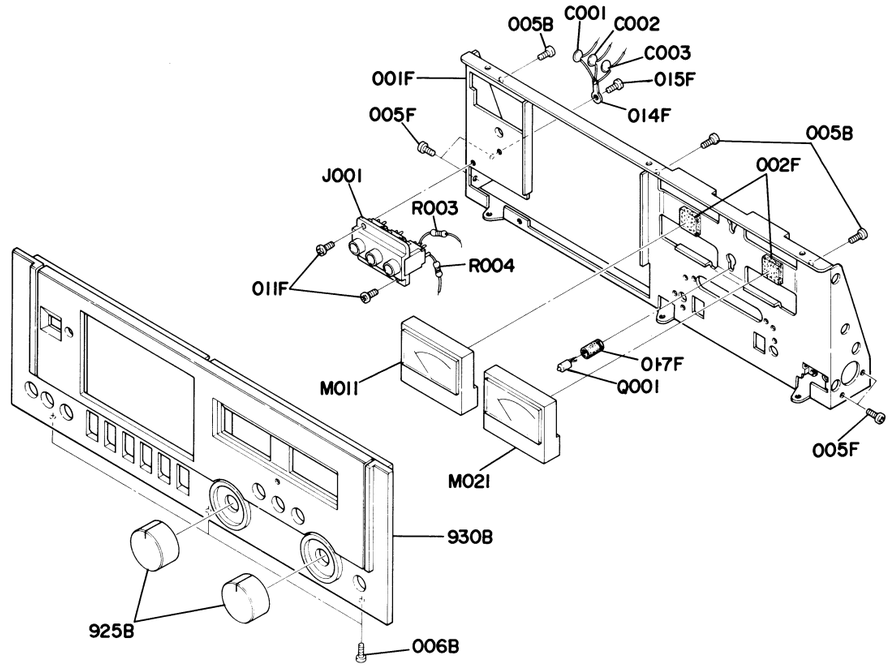
6.1 [P01-00] TOP COVER AND MAIN CHASSIS



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
037B	4	2259057012	Leg
918B	1	3889861010	Label
919B	1	2932861012	Label
921B	1	4214257012	Lid, Top Cover
922B	4	51480406S9	F. Washer Screw F4 x 6
923B	3	51280306U0	B.H. Tapped Screw B3 x 6
924B	6	2991259010	Bushing

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
006F	3	51100306A9	B.H.M. Screw B3 x 6
030F	1	4214105505	Chassis (K)
035F	1	4214257020	Lid
036F	4	51280306B0	B.H. Tapped Screw B3 x 6
176F	6	4214005010	Clamper

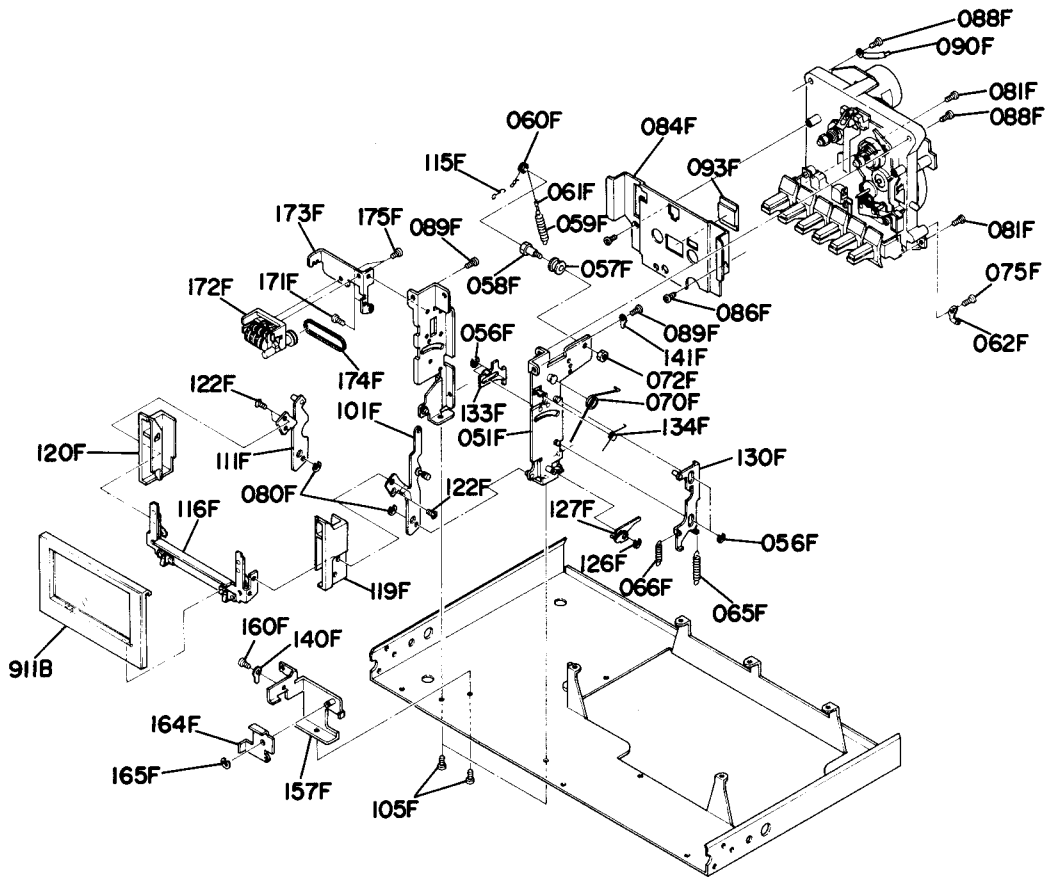
6.2 [P02-99] FRONT PANEL AND BRACKET



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
930B	1	4227063623	Escutcheon
005B	3	51100306A9	B.H.M. Screw B3 x 6
006B	3	51100306A9	B.H.M. Screw B3 x 6
925B	2	4197154032	Knob
001F	1	4214160015	Bracket
002F	2	3397056020	Buffer
005F	4	51280306B0	B.H. Tapped Screw B3 x 6
011F	2	51100306A9	B.H.M. Screw B3 x 6
014F	1	62031650W0	Lug
015F	1	51100306A9	B.H.M. Screw B3 x 6
017F	1	4227271010	Holder

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
J001	1	YJ01001310	Jack, Mic/Phone
M011	1	IM11060030	D.C. Meter
M021	1	IM11060030	D.C. Meter
C001	1	DK18102300	Ceramic Cap 1000pF
C002	1	DK18102300	Ceramic Cap 1000pF
C003	1	DK18102300	Ceramic Cap 1000pF
Q001	1	HI10004030	L.E.D. SLP-132B Rec. IND.
R003	1	GD05082140	Resistor 8.2Ω ±5% ¼W
R004	1	GD05082140	Resistor 8.2Ω ±5% ¼W

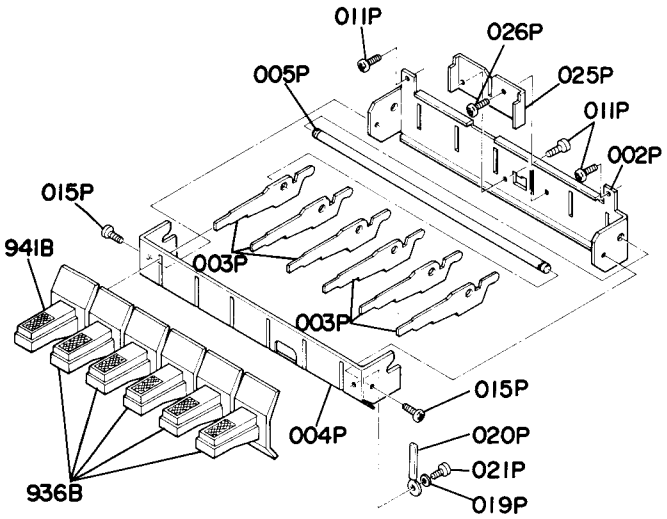
6.3 [P03-99] ASSOCIATED MECHANISM FOR CASSETTE TAPE OPERATION



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION	
911B	1	4227063542	Escutcheon, Cassette Door (K)	
051F	1	4265160502	Bracket, (K)	
056F	4	64000200R0	RG Ring, E Type	
057F	1	4197262010	Pulley	
058F	1	4197112040	Shaft	
059F	1	4197115020	Spring	
060F	1	72081604A0	String, (20)	
061F	1	56382540G0	Eyelet	
062F	1	62031650W0	Lug	
065F	1	4265115030	Spring	
066F	1	5265115042	Spring	
070F	1	4197115030	Spring	
072F	1	53110303A9	Hexagon Nut	
075F	1	51300306B0	P.H. Tapped Screw	P3 x 6
076F	1	4265160512	Bracket, (K)	
080F	2	64000200R0	RG Ring, E Type	
081F	2	51060306A9	P.H.M. Screw	P3 x 6
084F	1	4265053012	Cover	
086F	2	51382606T0	P.H. Tapped Screw	P2.6 x 6
088F	2	51100308A9	B.H.M. Screw	B3 x 8
089F	2	51100306A9	B.H.M. Screw	B3 x 6
090F	1	1382005030	Clamper	
093F	1	4197158010	Window	
101F	1	4265002502	Arm, (K)	
105F	3	51470306A9	L. Washer Screw	L3 x 6
111F	1	4265002510	Arm, (K)	

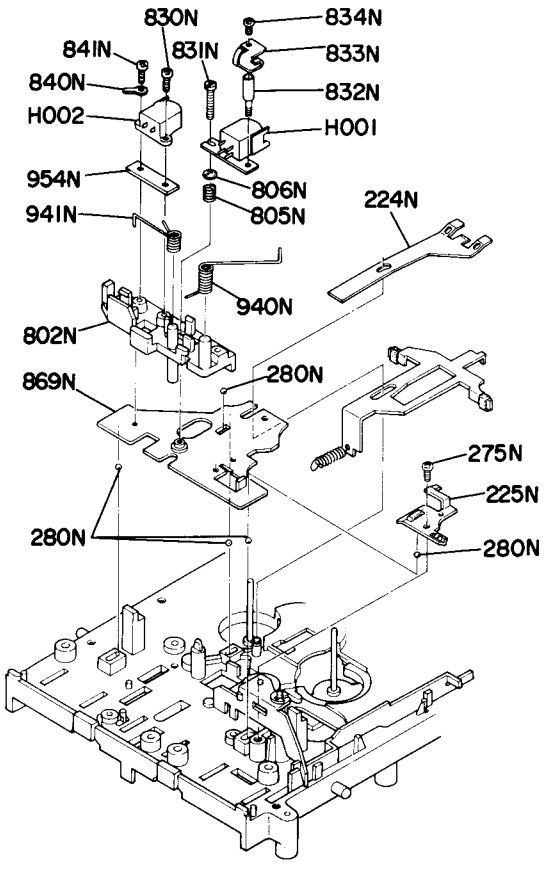
REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION	
115F	1	4197258033	Hook	
116F	1	4265160400	Bracket, (K)	
119F	1	4265271012	Holder, (R)	
120F	1	4265271022	Holder, (L)	
122F	4	5104260550	F.H.M. Screw	F2.6 x 5
126F	1	64002500R0	RG Ring, E Type	
127F	1	4265002520	Arm, (K)	
130F	1	4265258502	Hook, (K)	
133F	1	4265354010	Lever	
134F	1	4265115010	Spring	
140F	1	62031650W0	Lug	
141F	1	62031650W0	Lug	
157F	1	4197104510	Retainer	
160F	1	51100306A9	B.H.M. Screw	B3 x 6
164F	1	4197354050	Lever	
165F	1	64000300R0	RG Ring, E Type	
171F	2	51100306A9	B.H.M. Screw	B3 x 6
172F	1	4214052010	Counter	
173F	1	4263160010	Bracket	
174F	1	4197264012	Belt	
175F	2	51100306A9	B.H.M. Screw	B3 x 6

6.4 [P05-00] BUTTONS FOR TAPE OPERATION



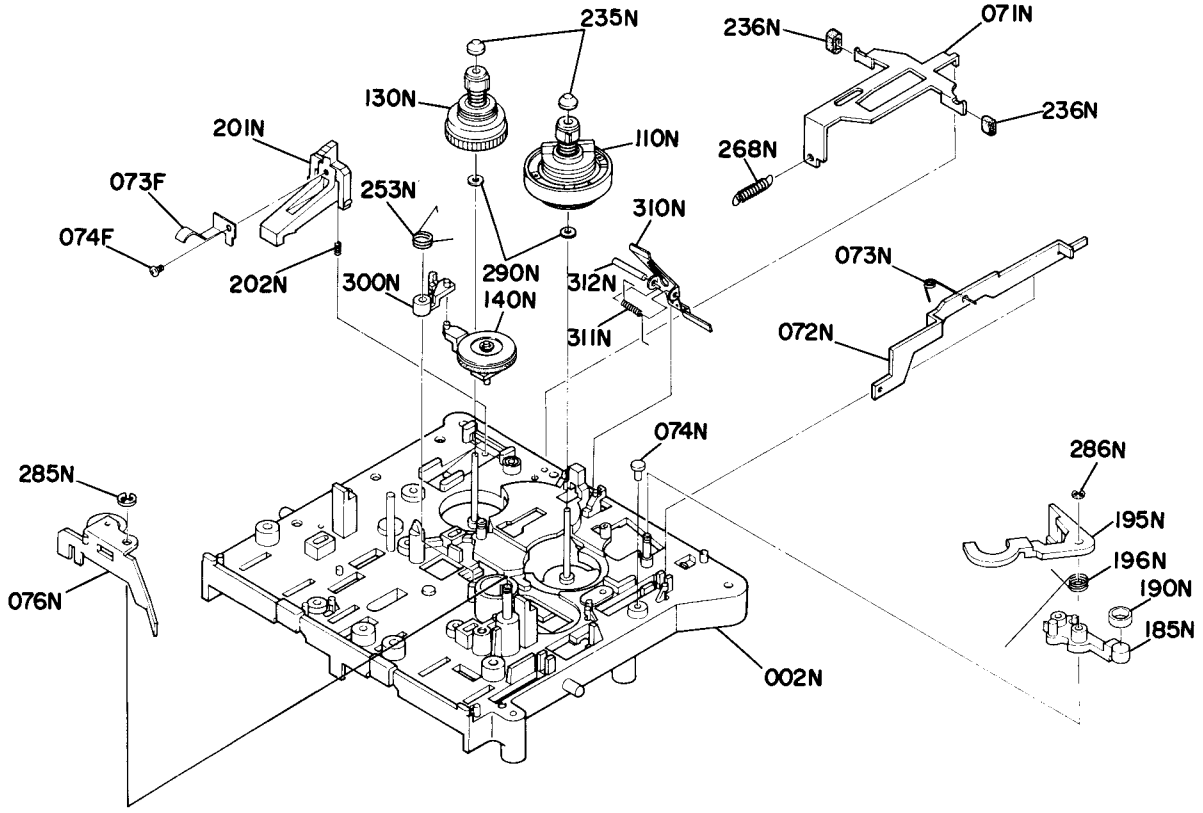
REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION	
A	5	4214270440	Button Assembly	
936B	5	4214270050	Button	
003P	5	4380354070	Lever	
B	1	4214270430	Button Assembly, Rec.	
941B	1	4214270020	Button	
003P	1	4380354070	Lever	
002P	1	4380160014	Bracket	
004P	1	4380051013	Guide	
005P	1	4380112030	Shaft	
011P	3	51300310B0	P.H. Tapped Screw	P3 x 10
015P	2	51062603A0	P.H.M. Screw	P2.6 x 3
019P	1	54052600R0	T.L. Washer OR	
020P	1	1210005010	Clamper	
021P	1	51062604A0	P.H.M. Screw	P2.6 x 4
025P	1	4383104042	Retainer	
026P	1	51062603A0	P.H.M. Screw	P2.6 x 3

6.5 [P06-99] HEAD CHASSIS



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION	
224N	1	4380115130	Spring	
225N	1	4367115172	Spring	
275N	1	51300308B0	P.H. Tapped Screw	P3 x 8
280N	5	61020010T0	Ball	
802N	1	4367160015	Bracket	
805N	1	4383115030	Spring	
806N	1	3444118070	Spacer	
830N	1	51100212A0	B.H.M. Screw	B2 x 12
831N	1	4397254090	Pin	
832N	1	4380101033	Support	
833N	1	4380005010	Clamper	
834N	1	51100203A0	B.H.M. Screw	B2 x 3
840N	1	62021030W0	Lug	
841N	1	51100212A0	B.H.M. Screw	B2 x 12
869N	1	4380105720	Chassis	
940N	1	4367115042	Spring	
941N	1	4367115053	Spring	
954N	1	4367118070	Spacer	
H001	1	LH42851080	Rec/Play Head	
H002	1	LH31000490	Erase Head	

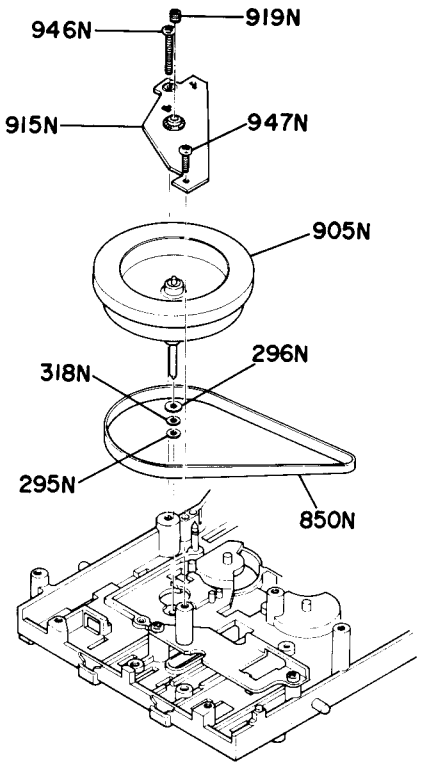
6.6 [P09-99] PARTS ASSEMBLED ON TOP OF CHASSIS



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
002N	1	4380105700	Chassis
071N	1	4367354092	Lever
072N	1	4367354124	Lever
073N	1	4380115120	Spring
074N	1	4367112240	Shaft
076N	1	4367002702	Arm, Pinch Roller S
110N	1	4367004708	Table, Take Up
130N	1	4367004715	Table, Supply
140N	1	4367002730	Arm Assembly
185N	1	4367354773	Lever, TMS
190N	1	4367118030	Spacer
195N	1	4367002055	Arm
196N	1	4367115130	Spring
201N	1	4367354084	Lever
202N	1	4380115060	Spring
235N	2	4367067010	Cap
236N	2	4367263010	Brake
253N	1	4367115310	Spring
268N	1	4367115210	Spring
285N	1	64002500R0	RG Ring, E Type
286N	1	64001500R0	RG Ring, E Type

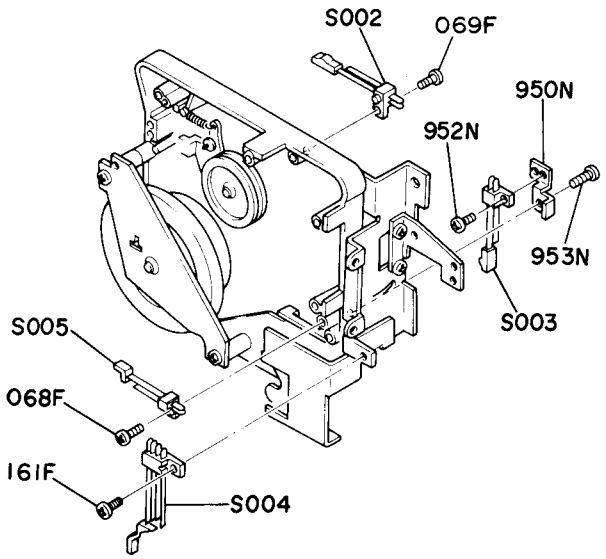
REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
290N	2	59020402G9	Washer
300N	1	4367354110	Lever
310N	1	4383115010	Spring
311N	1	4380115033	Spring
312N	1	4380112010	Shaft
073F	1	4197115062	Spring
074F	1	51382606T0	P.H. Tapped Screw P2.6 x 6

6.7 [P07-99] FLYWHEEL



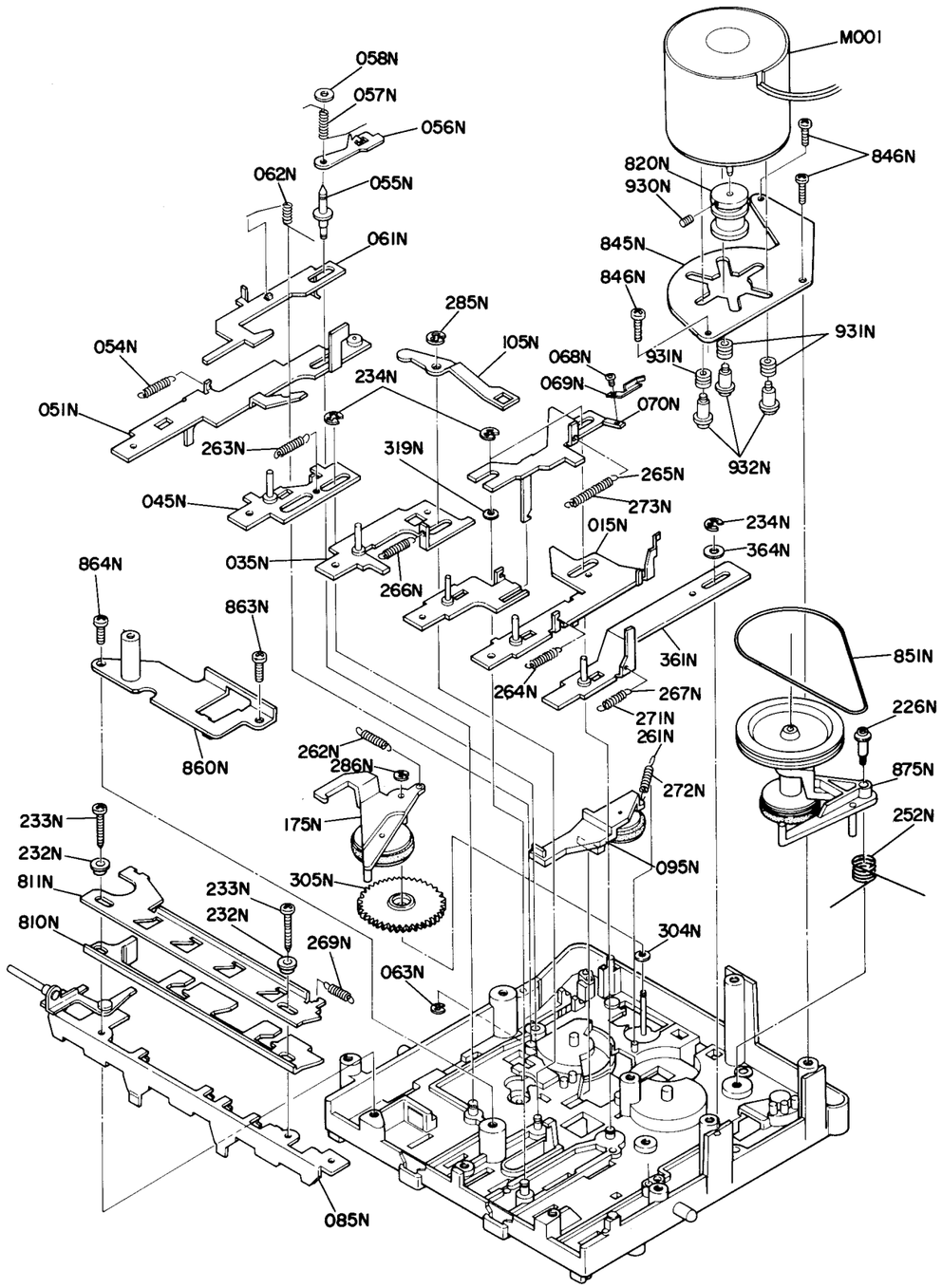
REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
915N	1	4380104704	Retainer, Flywheel
295N	1	59264702G9	Washer
296N	1	59260702G9	Washer
318N	1	59264705G9	Washer
850N	1	4380264032	Belt
905N	1	4380273502	Flywheel
919N	1	3483164020	Adjuster
946N	1	51300325B0	P.H. Tapped Screw P3 x 25
947N	1	51100308A9	B.H.M. Screw B3 x 8

6.8 [08-99] SWITCH LOCATION FOR TAPE OPERATION



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
068F	1	51380206P0	P.H. Tapped Screw P2 x 6
069F	1	51380206P0	P.H. Tapped Screw P2 x 6
161F	1	51100205A0	B.H.M. Screw B3 x 5
950N	1	4383160040	Bracket
952N	2	51060205A0	P.H.M. Screw P3 x 5
953N	1	51300308B0	P.H. Tapped Screw P3 x 8
S002	1	SM01010680	Mini Switch, Motor
S003	1	SM01010580	Mini Switch, Play Timing
S004	1	SM02010080	Mini Switch, Rec. Muting
S005	1	SM01010660	Mini Switch, Play Muting

6.9 [P10-99] PARTS ASSEMBLED ON REVERSE OF CHASSIS

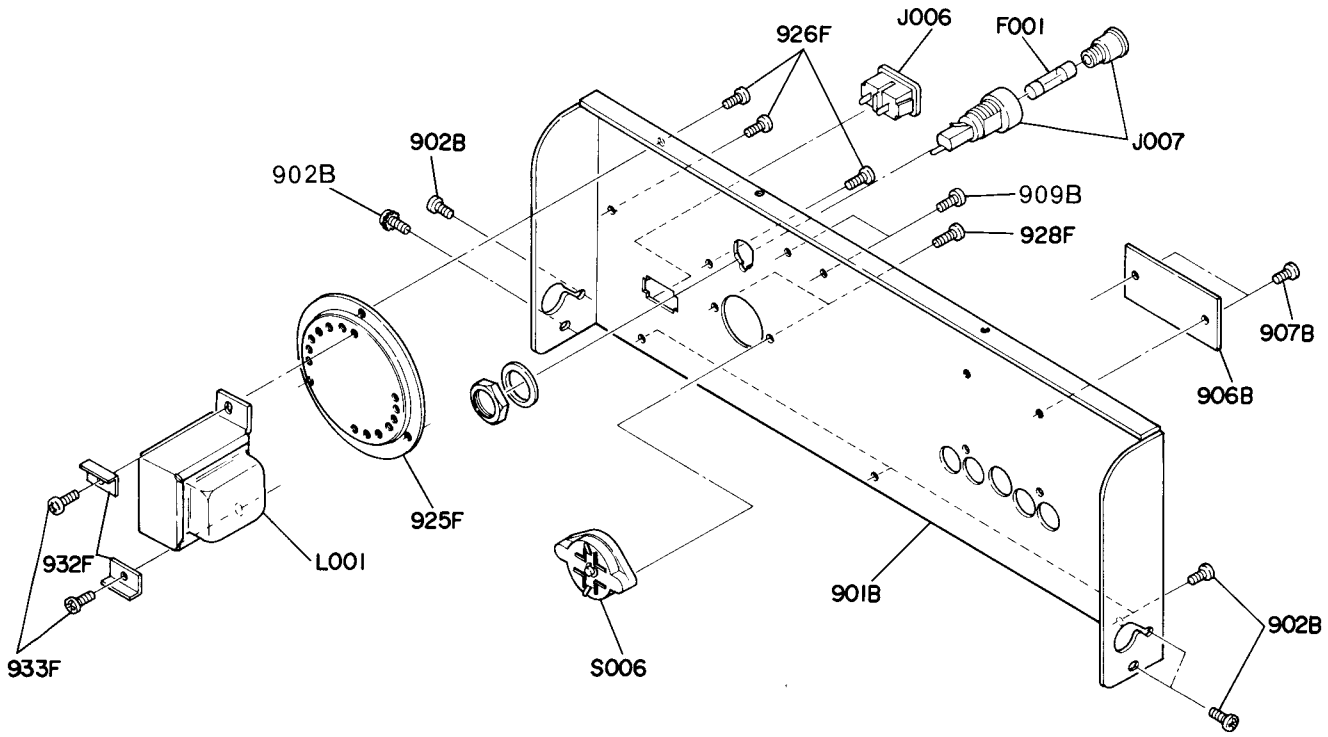


REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
015N	1	4380354704	Lever , Rew
025N	1	4380354723	Lever , Play
035N	1	4380354734	Lever , F.F.
045N	1	4380354743	Lever , Stop
051N	1	4380354754	Lever , Pause
085N	1	4383051704	Guide , Push Lever
361N	1	4380354715	Lever , Rec
860N	1	4380160702	Bracket , Switch
875N	1	4380001704	Idler
054N	1	4367115210	Spring
055N	1	4367112135	Shaft
056N	1	4367054032	Cam Pause Lock
057N	1	4367115142	Spring
058N	1	59020805G9	Washer
061N	1	4367354070	Lever, Eject
062N	1	4380115082	Spring
063N	1	64001500R0	RG Ring, E Type
068N	1	51820202S0	P.H.M. Screw P2 x 2
069N	1	4380354080	Lever

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
070N	1	4367354162	Lever, Head Chassis
095N	1	4367354760	Lever, FF
105N	1	4383002020	Arm, FF Idler Lever Look
175N	1	4367002726	Arm, Tms Idler
226N	1	4367112180	Shaft
232N	2	4380055010	Collar, Lock Cam
233N	2	51300312B0	P.H. Tapped Screw P3 x 12
234N	4	64000300R0	RG Ring, E Type
252N	1	4380115052	Spring
261N	1	4367115090	Spring
262N	1	4367115120	Spring
263N	1	4367115252	Spring
264N	1	4367115340	Spring
265N	1	4367115270	Spring
266N	1	4367115282	Spring
267N	1	4380115070	Spring
269N	1	4380115100	Spring
271N	1	4367056020	Buffer
272N	1	4367056030	Buffer
273N	1	4367056020	Buffer
285N	1	64002500R0	RG Ring, E Type
286N	1	64001500R0	RG Ring, E Type
304N	1	4367118060	Spacer
305N	1	4367058012	Gear
319N	1	59046501G9	Washer
364N	1	54020401E0	Flat Washer, P.
810N	1	4383054030	Cam, Stop/Eject
811N	1	4383054020	Cam, Lock
820N	1	4380262400	Pulley
845N	1	4380160033	Bracket, DC Motor
846N	3	51300308B0	P.H. Tapped Screw P3 x 8
851N	1	4380264052	Belt, TMS
863N	1	51300308B0	P.H. Tapped Screw P3 x 8
864N	1	51300310B0	P.H. Tapped Screw P3 x 10
930N	1	51690305Q9	Socket Screw, HP.
931N	3	4383259010	Bushing
932N	3	4367112150	Shaft
M001	1	MM11200100	D.C. Motor V. Servo 12V 2400 rpm CCW

6.10 [P04-99] REAR PANEL

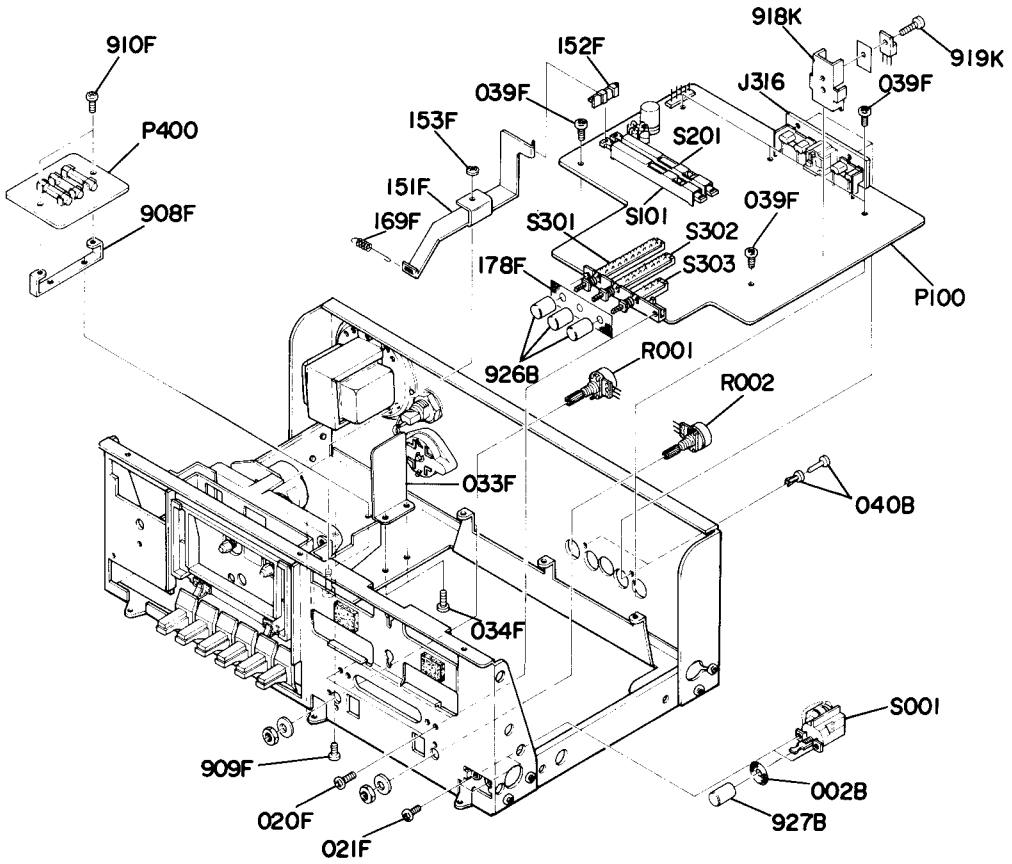
(Note on safety: The parts marked with ⚠ are important parts on the safety. Please use the parts having the designated parts numbers without fail.)



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
901B	1	4265160090	Bracket Rear Panel
902B	7	51280306U0	B.H. Tapped Screw B3 x 6
906B	1	4265265080	Indicator
907B	2	51760306B9	OS Screw
909B	2	51280406U0	Screw 4 x 6
925F	1	4265160062	Bracket
926F	3	51100306S9	B.H.M. Screw B3 x 6
928F	2	51280310U9	B.H. Tapped Screw B3 x 6
932F	2	4265005010	Clamper
933F	2	51570406B0	P. Taptite Screw P4 x 6

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
⚠F001	1	FS10012800	Fuse, 125mAT
⚠J006	1	YP04000580	Plug, AC Inlet
⚠J007	1	YJ08000220	Jack, Fuse Holder
⚠L001	1	TS15406080	Power Transformer
⚠S006	1	SS02020560	Slide Switch

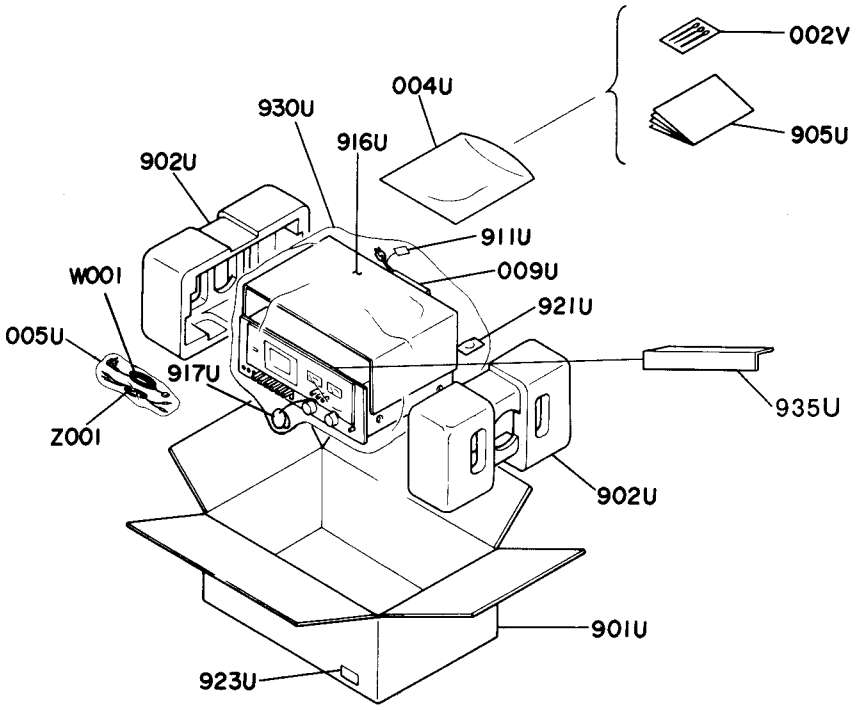
6.11 [M01-99] P.W. BOARD AND GENERAL PARTS



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION	
002B	1	4257107020	Sheet	
040B	2	2965005010	Clamper	
926B	3	2276154120	Knob, Push SW.	
927B	1	2963154022	Knob, Power SW.	
020F	2	51100306A9	B.H.M. Screw	B3 x 6
021F	2	51100306A9	B.H.M. Screw	B3 x 6
033F	1	4214109010	Shield	
034F	2	51100306A9	B.H.M. Screw	B3 x 6
039F	5	51100306A9	B.H.M. Screw	B3 x 6
151F	1	4214002010	Arm	
152F	1	4214354010	Lever	
153F	1	64000300R0	RG Ring, E Type	
169F	1	4214115010	Spring	
178F	1	4257107010	Sheet	
908F	1	3889160110	Bracket	
909F	2	51100306A9	B.H.M. Screw	B3 x 6
910F	2	51100306A9	B.H.M. Screw	B3 x 6

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION	
918K	1	3444267013	Heatsink	
919K	1	5110030659	B.H.M. Screw	B3 x 6
J316	1	BY01050110	Jack, Din	
R001	1	RK02030462	Variable Resist 20KΩ (A)	
R002	1	RK02030462	Variable Resist 20KΩ (A)	
S001	1	SP02010300	Push Switch, Power	
S101	1	SS09020120	Slide Switch, Rec/Play	
S201	1	SS09020120	Slide Switch, Rec/Play	
S301	1	SP08030060	Push Switch, EQ	
S302	1	SP08030060	Push Switch, Bias	
S303	1	SP08030060	Push Switch, Dolby NR	

6.12 [H01-99] PACKING MATERIALS



REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
002V	1	4136071010	Cleaner
004U	1	9013025010	Polythy Bag
005U	1	9011325010	Polythy Bag
009U	1	2864804010	Sleeve
901U	1	4265801030	Packing Case
902U	2	4214809013	Cushion
905U	1	4265851310	Instructions
935U	1	4265807010	Cushion

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
911U	1	9560000043	Hang Tag
916U	1	2918107190	Sheet
917U	1	9560000090	Hang Tag, By Marantz
921U	1	2731821010	Silicagel
923U	3	9526019030	Serial No. Card
930U	1	9014335330	Polyethy Bag
Z001	2	ZD01000150	Connective Cord
W001	1	ZC01805010	A.C. Power Cord

6.13 ELECTRICAL PARTS

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
			P100-PRE-AMP CIRCUIT BOARD
P100	1	YK42271210	P.W. Board, Pre-Amp
	1	ZZ42277210	P.W. Board Assembly
			P100-CAPACITORS
C101	1	EA22603590	Elect 22μF 35V
C102	1	DK16681300	Ceramic 680pF ±10%
C103	1	EE10601640	Elect 10μF 16V
C104	1	DD15101370	Ceramic 100pF ±5%
C105	1	DD15470370	Ceramic 47pF ±10%
C106	1	DD15470370	Ceramic 47pF ±10%
C107	1	EA47601090	Elect 47μF 10V
C108	1	EA22505030	Elect 2.2μF 50V
C109	1	EA10605030	Elect 10μF 50V
C110	1	DF15223300	Film 0.022μF ±5%
C111	1	EA22702590	Elect 220μF 25V
C112	1	EE10505090	Elect 1μF 50V
C113	1	DD15470370	Ceramic 47pF ±5%
C114	1	EE10505090	Elect 1μF 50V
C115	1	DD15820370	Ceramic 82pF ±5%
C116	1	DF15392300	Film 3900pF ±5%
C118	1	DF15222300	Film 2200pF ±5%
C119	1	EA10605030	Elect 10μF 50V
C120	1	EE10405080	Elect 0.1pF 50V
C121	1	EE33405080	Elect 0.33μF 50V
C122	1	DF15473300	Film 0.047μF ±5%
C123	1	EA10605030	Elect 10μF 50V
C124	1	DF15472300	Film 4700pF ±5%
C125	1	DF15273300	Film 0.027μF ±5%
C126	1	DF15562300	Film 5600pF ±5%
C127	1	EA10601690	Elect 10μF 16V
C128	1	EA22701090	Elect 220μF 10V
C129	1	EA10701690	Elect 100μF 16V
C133	1	EA10605030	Elect 10μF 50V
C134	1	EA10605030	Elect 10μF 50V
C135	1	EA22505030	Elect 2.2μF 50V
C136	1	DD15470370	Ceramic 47pF ±5%
C137	1	EA22505030	Elect 2.2μF 50V
C138	1	EA47405090	Elect 0.47μF 50V
C140	1	EA47602590	Elect 47μF 25V
C141	1	EA47505030	Elect 4.7μF 50V
C142	1	EA47505030	Elect 4.7μF 50V
C143	1	EE433405080	Elect 0.33μF 50V
C144	1	EA47505030	Elect 4.7μF 50V
C145	1	DF15152300	Film 1500pF ±5%
C146	1	DF65151010	Film 150pF ±5%
C147	1	DF15683300	Film 0.068μF ±5%
C148	1	DF15223300	Film 0.022μF ±5%
C149	1	DF15273300	Film 0.027μF ±5%
C150	1	DF65271510	Film 270pF ±5%
C151	1	DF15473300	Film 0.047μF ±5%
C201	1	EA22603590	Elect 22μF 35V
C202	1	DK16681300	Ceramic 680pF ±10%
C203	1	EE10601640	Elect 10μF 16V
C204	1	DD15101370	Ceramic 100pF ±5%
C153	1	DD15500030	Ceramic 50pF ±5%

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
C205	1	DD15470370	Ceramic 47pF ±5%
C206	1	DD15470370	Ceramic 47pF ±5%
C207	1	EA47601090	Elect 47μF 10V
C208	1	EA22505030	Elect 2.2μF 50V
C209	1	EA10605030	Elect 10μF 16V
C210	1	DF15223300	Film 0.022pF ±5%
C211	1	EA22702590	Elect 220μF 25V
C212	1	EE10505090	Elect 1μF 50V
C213	1	DD15470370	Ceramic 47pF ±5%
C214	1	EE10505090	Elect 1μF 50V
C215	1	DD15820370	Ceramic 82pF ±5%
C216	1	DF15392300	Film 3900pF ±5%
C218	1	DF15222300	Film 2200pF ±5%
C219	1	EA10605030	Elect 10μF 50V
C220	1	EE10405080	Elect 0.1μF 50V
C221	1	EE33405080	Elect 0.33μF 50V
C222	1	DF15473300	Film 0.047μF ±5%
C223	1	EA10605030	Elect 10μF 50V
C224	1	DF15472300	Film 4700pF ±5%
C225	1	DF15273300	Film 0.027μF ±5%
C226	1	DF15562300	Film 5600pF ±5%
C227	1	EA10605030	Elect 10μF 50V
C228	1	EA22701090	Elect 220μF 10V
C229	1	EA10701690	Elect 100μF 16V
C233	1	EA10605030	Elect 10μF 50V
C234	1	EA10605030	Elect 10μF 50V
C235	1	EA22505030	Elect 2.2μF 50V
C236	1	DD15470370	Ceramic 47pF ±5%
C237	1	EA22505030	Elect 2.2μF 50V
C238	1	EA47405090	Elect 0.47μF 50V
C240	1	EA47602590	Elect 47μF 25V
C241	1	EA47505030	Elect 4.7μF 50V
C242	1	EA47505030	Elect 4.7μF 50V
C243	1	EA33405080	Elect 0.33μF 50V
C244	1	EA47505030	Elect 4.7μF 50V
C245	1	DF15152300	Film 1500pF ±5%
C246	1	DF65151010	Film 150pF ±5%
C247	1	DF15473300	Film 0.047μF ±5%
C248	1	DF15223300	Film 0.022μF ±5%
C249	1	DF15273300	Film 0.027μF ±5%
C250	1	DF65271510	Film 270μF ±5%
C251	1	DF15473300	Film 0.047μF ±5%
C301	1	EA10701030	Elect 100μF 10V
C302	1	DF16102510	Film 1000pF ±10%
C303	1	DF16102350	Film 1000pF ±10%
C304	1	DF16102510	Film 1000pF ±10%
C305	1	EE10505040	Elect 1μF 50V
C306	1	DF16223510	Film 0.022μF ±10%
⚠C307	1	DF17103300	Film 0.01μF ±20%
⚠C308	1	DF17103300	Film 0.01μF ±20%
⚠C309	1	DF17103300	Film 0.01μF ±20%
⚠C310	1	DF17103300	Film 0.01μF ±20%
⚠C311	1	EA47703590	Elect 470μF 35V
⚠C312	1	EA47703590	Elect 470μF 35V
⚠C313	1	EA47702590	Elect 470μF 25V

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
⚠C314	1	EA47702590	Elect 470μF 25V
⚠C315	1	EA10702590	Elect 100μF 25V
⚠C316	1	DK17103300	Ceramic 0.01μF ±20%
⚠C317	1	DK17103300	Ceramic 0.01μF ±20%
⚠C318	1	DK17103300	Ceramic 0.01μF ±20%
⚠C319	1	DK17103300	Ceramic 0.01μF ±20%
⚠C320	1	EA22802590	Elect 2200μF 25V
C321	1	DK18403320	Ceramic 0.04μF
			P100-RESISTOR
			(All resistors are ±5% and ¼W)
R101	1	GD05100140	10Ω
R103	1	GD05822140	8.2KΩ
R104	1	RN05184140	180KΩ
R105	1	GD05221140	220Ω
⚠R106	1	GD05333140	33KΩ
R107	1	GD05104140	100KΩ
R108	1	GD05912140	9.1KΩ
R109	1	GD05751140	750Ω
R110	1	GD05511140	510Ω
R111	1	GD05224140	220KΩ
R112	1	GD05272140	2.7KΩ
R113	1	GD05332140	3.3KΩ
R114	1	GD05113140	11KΩ
R115	1	RA02020180	Trimming, 2KΩ Play Eq. Adj.
R116	1	RA05030090	Trimming, 50KΩ Play Level Adj.
R118	1	GD05105140	1MΩ
R119	1	GD05472140	4.7KΩ
R120	1	GD05182140	1.8KΩ
R121	1	GD05274140	270KΩ
R122	1	GD05564140	560KΩ
R123	1	GD05274140	270KΩ
R124	1	GD05473140	47KΩ
R125	1	GD05332140	3.3KΩ
R126	1	GD05181140	180Ω
R127	1	GD05104140	100KΩ
⚠R128	1	GF05561140	560Ω
R129	1	GF05681140	680Ω
R135	1	GD05333140	33KΩ
R136	1	GD05105140	1MΩ
R137	1	GD05182140	1.8KΩ
R138	1	GD05112140	1.1KΩ
R139	1	GD05272140	2.7KΩ
R140	1	GD05561140	560Ω
R141	1	GD05102140	1KΩ
R142	1	GD05333140	33KΩ
R143	1	GD05104140	100KΩ
R144	1	GD05681010	680Ω 1W
R145	1	RA02020180	Trimming, 2KΩ Meter Adj.
R146	1	GD05121140	120Ω
R147	1	GD05362140	3.6KΩ
R148	1	RA02030060	Trimming, 20KΩ Rec. Level Adj.
R149	1	GD05103140	10KΩ
R150	1	GD05561140	560Ω
R151	1	GD05103140	10KΩ
R152	1	GD05564140	560KΩ

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
R153	1	GD05473140	47KΩ
R154	1	GD05153140	15KΩ
R155	1	GD05102140	1KΩ
R156	1	GD05102140	1KΩ
R157	1	GD05103140	10KΩ
R158	1	GD05101140	100Ω
R159	1	GD05390140	39Ω
R160	1	RA01540010	Trimming, 150KΩ Bias Adj.
R161	1	GD05104140	100KΩ
R162	1	GD05101140	100Ω
R163	1	GD05222140	2.2KΩ
R164	1	GD05102140	1KΩ
R168	1	GD05222140	2.2KΩ
R170	1	GD05561140	560Ω
R201	1	GD05100140	10Ω
R203	1	GD05822140	8.2KΩ
R204	1	RN05184140	180KΩ
R205	1	GD05221140	220Ω
⚠R206	1	GD05333140	33KΩ
R207	1	GD05104140	100KΩ
R208	1	GD05912140	9.1KΩ
R209	1	GD05751140	750Ω
R210	1	GD05511140	510Ω
R211	1	GD05224140	220KΩ
R212	1	GD05272140	2.7KΩ
R213	1	GD05322140	3.3KΩ
R214	1	GD05113140	11KΩ
R215	1	RA02020180	Trimming, 2KΩ Play Eq. Adj.
R216	1	RA05030090	Trimming, 50KΩ Play Level Adj.
R218	1	GD05105140	1MΩ
R219	1	GD05472140	4.7KΩ
R220	1	GD05182140	1.8KΩ
R221	1	GD05274140	270KΩ
R222	1	GD05564140	560KΩ
R223	1	GD05274140	270KΩ
R224	1	GD05473140	47KΩ
R225	1	GD05332140	3.3KΩ
R226	1	GD05181140	180Ω
R227	1	GD05104140	100KΩ
⚠R228	1	GF05561140	560Ω
R229	1	GF05681140	680Ω
R235	1	GD05333140	33KΩ
R236	1	GD05105140	1MΩ
R237	1	GD05182140	1.8KΩ
R238	1	GD05112140	1.1KΩ
R239	1	GD05272140	2.7KΩ
R240	1	GD05561140	560Ω
R241	1	GD05102140	1KΩ
R242	1	GD05333140	33KΩ
R243	1	GD05104140	100KΩ
R244	1	GJ05681010	680Ω 1W
R245	1	RA02020180	Trimming, 2KΩ Meter Adj.
R246	1	GD05121140	120Ω
R247	1	GD05362140	3.6KΩ
R248	1	RA02030060	Trimming, 20KΩ Rec Level Adj.

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
R249	1	GD05103140	10KΩ
R250	1	GD05561140	560Ω
R251	1	GD05103140	10KΩ
R252	1	GD05564140	560KΩ
R253	1	GD05473140	47KΩ
R254	1	GD05153140	15KΩ
R255	1	GD05102140	1KΩ
R256	1	GD05102140	1KΩ
R257	1	GD05103140	10KΩ
R258	1	GD05101140	100Ω
R259	1	GD05390140	39Ω
R260	1	RA01540010	Trimming, 150KΩ Bias Adj.
R261	1	GD05104140	100KΩ
R262	1	GD05101140	100Ω
R263	1	GD05222140	2.2KΩ
R264	1	GD05102140	1KΩ
R268	1	GD05222140	2.2KΩ
R270	1	GD05561140	560Ω
R301	1	GJ05102010	1KΩ 1W
R302	1	GD05154140	150KΩ
R303	1	GD05101140	100Ω
R304	1	GD05471140	470Ω
R305	1	GJ05101020	100Ω 2W
R306	1	GJ05331020	330Ω 2W
R307	1	GD05154140	150KΩ
R308	1	GD05154140	150KΩ
R309	1	GD05390140	39Ω
R310	1	GD05390140	39Ω
R311	1	GJ05182010	1.8KΩ
⚠R312	1	GJ05100010	10Ω 1W
⚠R313	1	GJ05471010	470Ω 1W
⚠R314	1	GJ05331010	330Ω 1W
			P100-SEMICONDUCTORS
Q101	1	HT326341T0	Transistor, 2SC2634(T)
Q102	1	HT326341T0	Transistor, 2SC2634(T)
Q103	1	HT326341T0	Transistor, 2SC2634(S)
Q104	1	HT326341T0	Transistor, 2SC2634(S)
Q105	1	HC10001360	IC, LM1011AN
Q106	1	HT326341S0	Transistor, 2SC2634(S)
Q107	1	HT326341S0	Transistor, 2SC2634(S)
Q108	1	HT326341S0	Transistor, 2SC2634(S)
Q109	1	HT326341S0	Transistor, 2SC2634(S)
Q110	1	HT326341S0	Transistor, 2SC2634(S)
Q115	1	HD10003020	Diode, 2OA90
Q116	1	HD10003020	Diode, 2OA90
Q201	1	HT326341T0	Transistor, 2SC2634(E)
Q202	1	HT326341T0	Transistor, 2SC2634(E)
Q203	1	HT326341T0	Transistor, 2SC2634(S)
Q204	1	HT326341T0	Transistor, 2SC2634(S)
Q205	1	HC10001360	IC, LM1011AN
Q206	1	HT326341S0	Transistor, 2SC2634(S)
Q207	1	HT326341S0	Transistor, 2SC2634(S)
Q208	1	HT326341S0	Transistor, 2SC2634(S)
Q209	1	HT326341S0	Transistor, 2SC2634(S)
Q210	1	HT326341S0	Transistor, 2SC2634(S)
Q215	1	HD10003020	Diode, 2OA90
Q216	1	HD10003020	Diode, 2OA90
Q301	1	HT309451Q0	Transistor, 2SC945(Q)

REF. DESIG.	Q'TY N	PART NO.	DESCRIPTION
Q302	1	HT313181R0	Transistor, 2SC1318(R)
Q303	1	HT313181R0	Transistor, 2SC1318(R)
⚠Q304	1	HT403131E0	Transistor, 2SD313(E)
Q305	1	HD30057090	Zener, YZ-052C
Q306	1	HD20011050	Diode, 1S1555
⚠Q307	1	HD20012030	Diode, DS132B
⚠Q308	1	HD20011030	Diode, DS131B
⚠Q309	1	HD30047090	Zener, WZ192
⚠Q310	1	HD20012030	Diode, DS132B
⚠Q311	1	HD20011030	Diode, DS131B
			P100-SWITCHES
S101	1	SS09020120	Slide Switch, Rec/Play
S201	1	SS09020120	Slide Switch, Rec/Play
S301	1	SP08030060	Push Switch, Eq
S302	1	SP08030060	Push Switch, Bias
S304	1	SP08030060	Push Switch, Dolby Nr
			P100-PLUGS
J316	1	BY01050110	Jack RCA, Din
			P100-COILS
L101	1	LC23660030	Choke Coil, 36mH, Bias Trap
L102	1	LS70305010	M.P.X. Coil, 19kHz, Trap
L103	1	LC24750040	Choke Coil, 4.7mH, Rec Eq.
L104	1	LC22260510	Choke Coil, 22mH, Bias Trap
L201	1	LC23660030	Choke Coil, 36mH, Bias Trap
L202	1	LS70305010	M.P.X. Coil, 19kHz, Trap
L203	1	LC24750040	Choke Coil, 4.7mH, Rec Eq.
L204	1	LC22260510	Choke Coil, 22mH, Bias Trap
L301	1	TC10180072	OSC Transf.
			P400-FUSE CIRCUIT BOARD
P400	1	YK42271220	P.W. Board, Fuse
	1	ZZ42278220	P.W. Board Assembly
⚠F401	1	FS10040800	Fuse, 400MAT Semko
⚠F402	1	FS10040800	Fuse, 400MAT Semko
⚠F403	1	FS10140800	Fuse, 1.4AT Semko
J401 ≀ J406 J407 ≀ J412	6	YP10001130	Plug
	6	YJ08000200	Jack, Fuse Clip

(W01-99)	**Assembly and Wiring**
(T01-99)	**Adjustment**
(X01-00)	**Correction**

7. GENERAL SPECIFICATIONS

Style	Front Load
Tape Drive System	Single Capstan Drive
Cartidge	Philips Type Compact Cassette
Track System	Compatible Stereo 4 Track 2 Channel
Tape Speed	1-7/8 ips (4.8 cm/sec.)
Head	R/P – Super Hard Permalloy, Erase-Ferrite
Motor	DC Servo Controlled Motor x 1
Meters	VU Type x 2
Recording System	AC Bias
Erasing System	AC Erase
Semiconductors	
Transistors	22
IC's	2
Diodes	11
LED's	1
Mic Input Sensitivity	
Level	–72 dBV
Impedance	8.2 kohms
Line Input Sensitivity	
Level	–35 dBV
Impedance	110 kohms
DIN Input Sensitivity (For European Model Only)	
Level	–58 dBV
Impedance	8.3 kohms
Headphone Output	
Level	43 mV
Impedance	160 ohms
Line Output	
Level	620 mV (0 VU)
Impedance	3.3 kohms
DIN Output (For European Model Only)	
Level	620 mV (0 VU)
Impedance	3.3 kohms
Fast Rewind Time	105
Fast Forward Time	105
Power Requirements	N, 220 V AC, 50 Hz T.A 240 V. P 120 V.
Power Consumption	13 Watts
Dimensions (W x H x D)	16-3/8" x 5-3/4" x 9-5/8"
Weight	12 lbs. 8 oz.