SHARP SERVICE MANUAL

OUTSTANDING RECEPTION THE WORLD OVER

ATSM680052DCK

STEREO CASSETTE DECK

MODEL RT-10 (Silver Panel) RT-10BK (Black Panel)

(PHOTO : RT-10)

DOLBY SYSTEM ®

Noise reduction system manufactured under license from Dolby Laboratories.
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U.S. Subsidiary of Sharp Corporation, Osaka, Japan

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SPECIFICATIONS

Type:	4-track 2-channel stereo cassette tape recorder/player deck with built-in Dolby noise reduction system
Power source:	AC 120V, 60Hz
Power consumption:	10 Watts
Semi-conductors:	4-IC (Integrated circuit) 13-Transistor 8-Diode (1 Zener Diode) 11-LED (Light Emitting Diode)
Dimensions:	Width: 390 mm (15-3/8") Height: 125 mm (5") Depth: 226 mm (8-7/8")
Weight:	3.2 kg (7.1 lbs.)
Input circuitry:	Microphone jacks, 6.8K ohms Line input sockets, 50K ohms
Output circuitry:	Headphones jack, 8 ohms Line output sockets
Tape:	Philips standard compact cassette tape
Tape speed:	4.75 cm/sec. (1-7/8 ips.)
Recording system:	AC bias system (105 kHz)
Erasing system:	AC erasing
Fast forward & rewind time:	100 seconds (C-60)
Wow and flutter:	0.09% W.R.M.S.
Frequency response:	
Use of normal tape;	30 ~ 14,000 Hz (40 ~ 12,000 Hz ± 3dB)
Use of MAXELL UDXL II tape;	30 ~ 15,000 Hz (40 ~ 13,000 Hz ± 3dB)
Use of TDK Metal tape;	30 ~ 16,000 Hz (40 ~ 14,000 Hz ± 3dB)
Signal to noise ratio (Use of MAXELL UDXL II tape):	
Dolby NR off;	52dB
Dolby NR on;	62dB (at over 5 kHz)
Distortion:	1.5% (–3dB of level meter)
Channel separation:	45 dB
Erase ratio:	70 dB
Input sensitivity and input impedance:	Microphones: 0.2 mV, 6.8K ohms Line in: 50 mV, 50K ohms
Output level and loaded impedance:	Headphones: 40 mV ("0" dB), 8 ohms Line out: 580 mV ("0" dB), 50K ohms

Specifications are subject to change without prior notice.

FEATURES

DOLBY NR SYSTEM

This circuitry assures low noise level recording and improves the signal/noise ratio.

TAPE SELECTOR

Tapes selector switches instantly provide the correct bias and equalization for all popular types of tapes.
High quality reproduction metal tapes can be used after operation of METAL switch.

SHARP-SCAN PEAK LEVEL METER

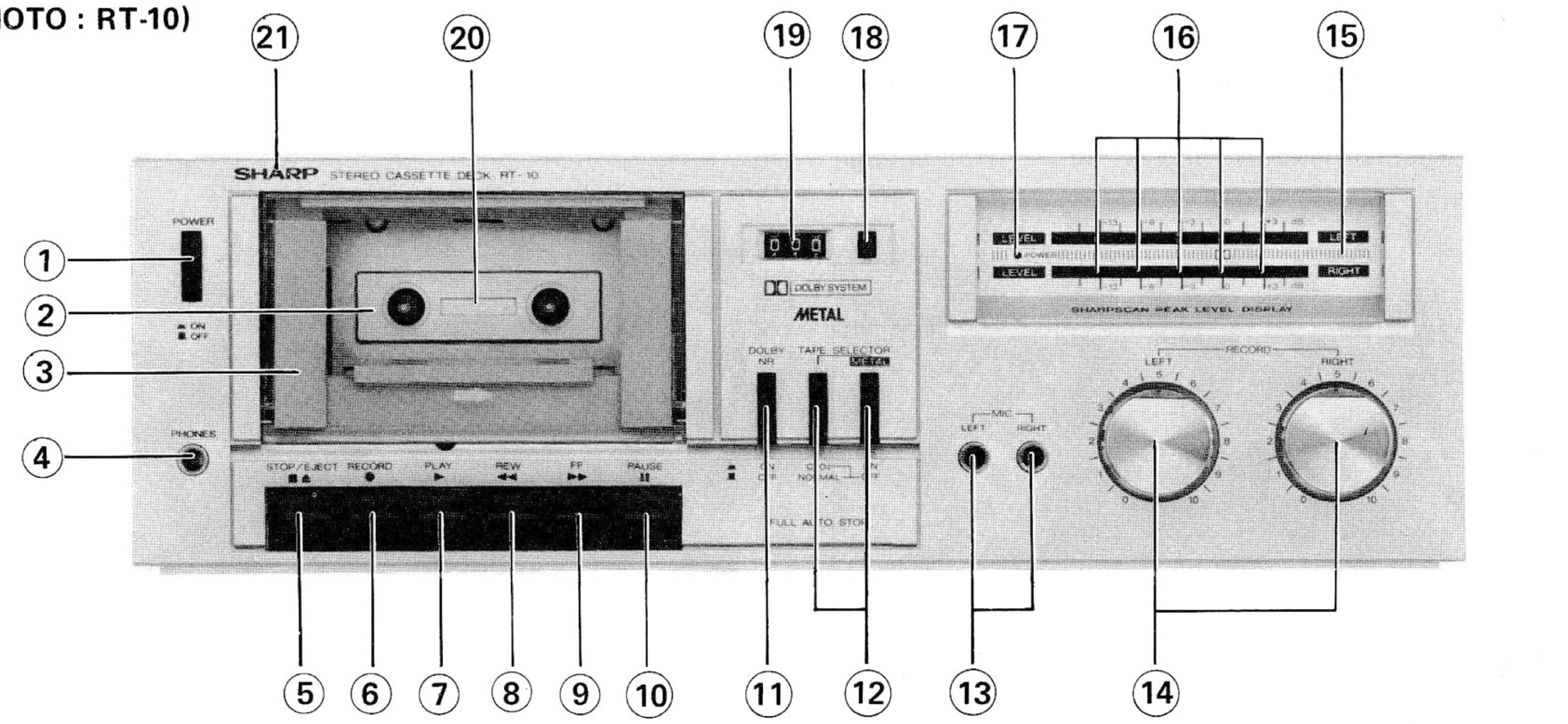
Highly responsive peak level meters are provided to indicate signal pulses. Even the slightest and momentary variation in signal level is indicated, (VU meter only indicates average signal level). Recording level can be set using these displays.

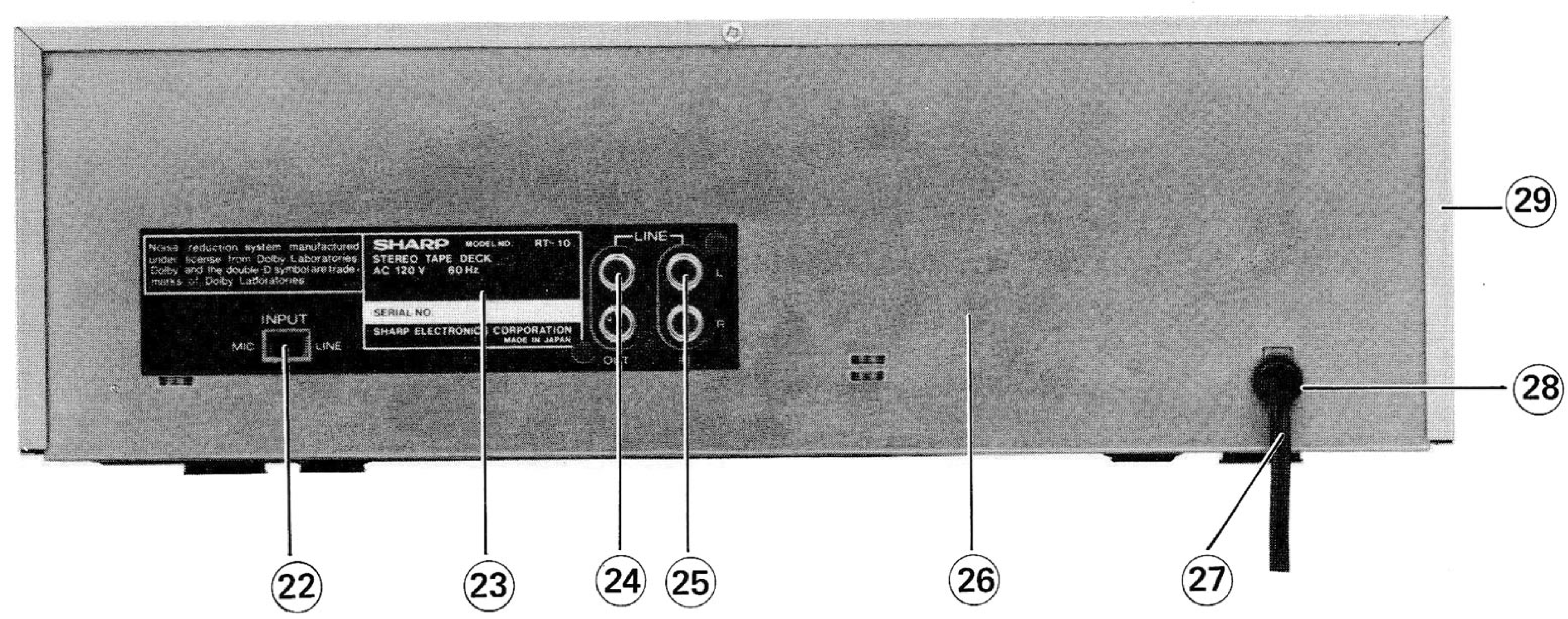
FULL AUTO STOP

Motors, drive components and the tape are all protected from damage by a fully automatic end-of-tape stop mechanism. It automatically disengages the drive mechanism from any mode thus allowing unattended operation.

LAYOUT OF FRONT AND REAR PARTS

(PHOTO : RT-10)





① Power Switch Knob (JKNBM0341AFSA)
② Window, Cassette Compartment, Transparent (GCOVA1186AFSA)
③ Cassette Holder (RT-10 GFTAC1120AFSA, RT-10BK GFTAC1120AFSC)
④ Headphones Jack (QJAKJ0059AFZZ)
⑤ Stop/Eject Key (JKNBR0157AFSA)
⑥ Record Key (JKNBR0157AFSB)
⑦ Play Key (JKNBR0157AFSA)
⑧ Rewind Key (JKNBR0157AFSA)
⑨ Fast-Forward Key (JKNBR0157AFSA)
⑩ Pause Key (JKNBR0157AFSA)
⑪ Dolby NR Switch Knob (JKNBM0341AFSA)
⑫ Tape Selector Switches Knob (JKNBM0341AFSA)
⑬ Microphone Jacks (QJAKZ0066AFZZ)
⑭ Record Level Controls Knob (RT-10 JKNBN0448AFSA, RT-10BK JKNBN0448AFSB)
⑮ Indication Metal, Peak Level Display Meter (RT-10 HDECA0400AFSA, RT-10BK HDECA0400AFSC)
⑯ Peak Level Display Meter, LED (VHPGL-9PR9/-1)
⑰ Power Indicator, LED (VHPGL2PR1//-1)
⑱ Tape Counter Reset } KCOUB0092AFZZ
⑲ Digital Tape Counter } KCOUB0092AFZZ
⑳ Mirror Sheet, Cassette Compartment (HDECZ0063AFSA)
㉑ Front Panel Assembly (RT-10 CPNLC1284AF01, RT-10BK CPNLC1312AF01)
㉒ Input (MIC./LINE) Selector Switch (QSW-S0268AFZZ)
㉓ Specification Panel (RT-10 TSPC-0612AFZZ, RT-10BK TSPC-0622AFZZ)
㉔ Line Outputs Socket } QSOCJ0471AFZZ
㉕ Line Inputs Socket } QSOCJ0471AFZZ
㉖ Main Chassis (Rear Panel) (LCHSM0328AFZZ)
㉗ AC Supply Cord (QACCD0055AF00)
㉘ Bushing, AC Supply Cord (LBSHC0007AFZZ)
㉙ Cabinet (RT-10 GCAB-3093AFSA, RT-10BK GCAB-3093AFSB)

DISASSEMBLY

CABINET REMOVAL

1. From the cabinet, remove the four (4) screws two each at its right and left sides, and the one (1) screw at its rear surface. (Refer to Figure 4–1.)
2. Detach the cabinet while lifting it up – with enough force applied to its lower part.

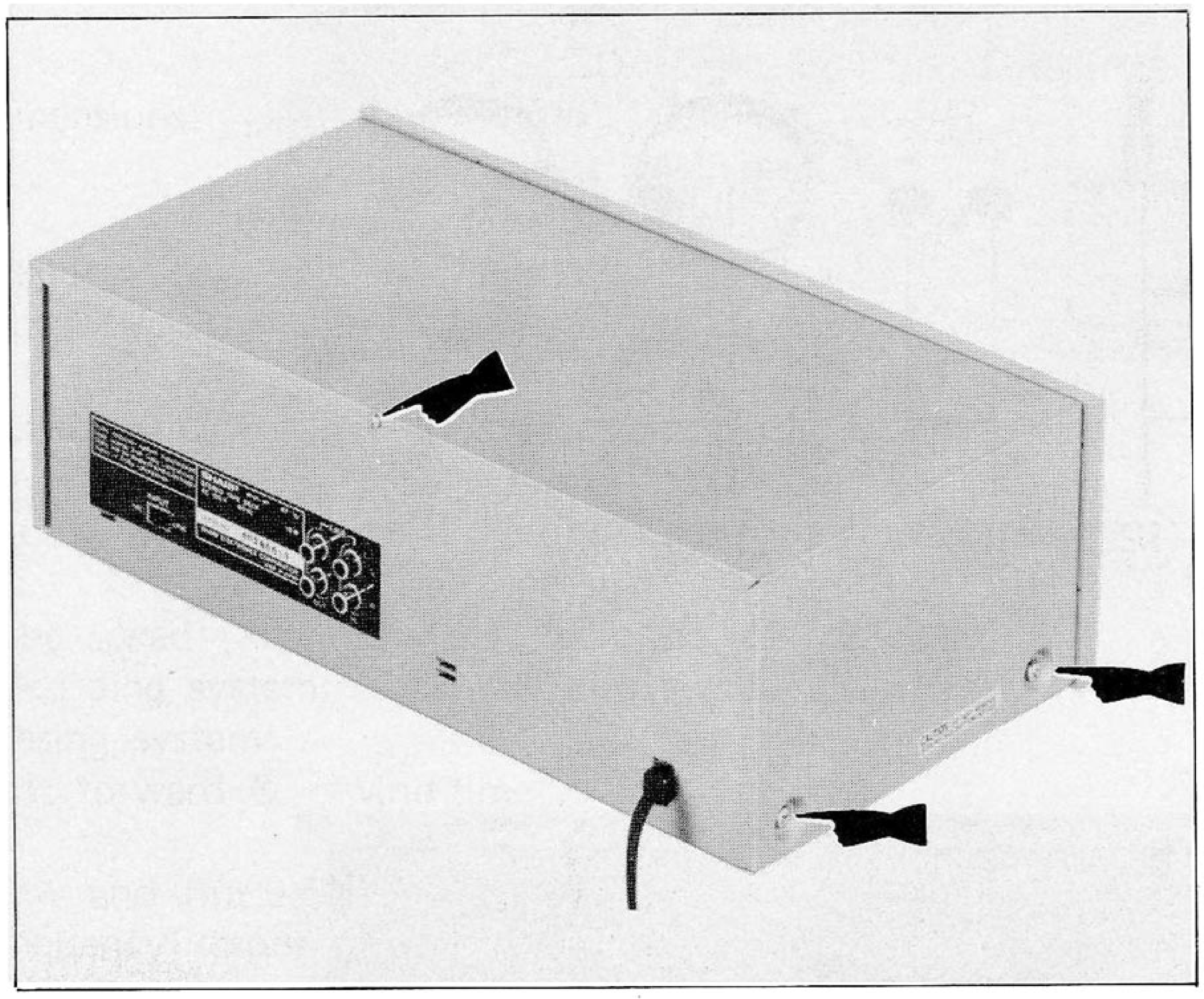


Figure 4–1

REMOVAL OF MAIN CHASSIS AND MECHANISM BLOCK

1. Separate the cabinet following the instructions in "Cabinet Removal".
2. Turn the unit over, and remove the five (5) screws from its bottom – out of them the two are to retain the mechanism block. (Refer to Figure 4–2.)

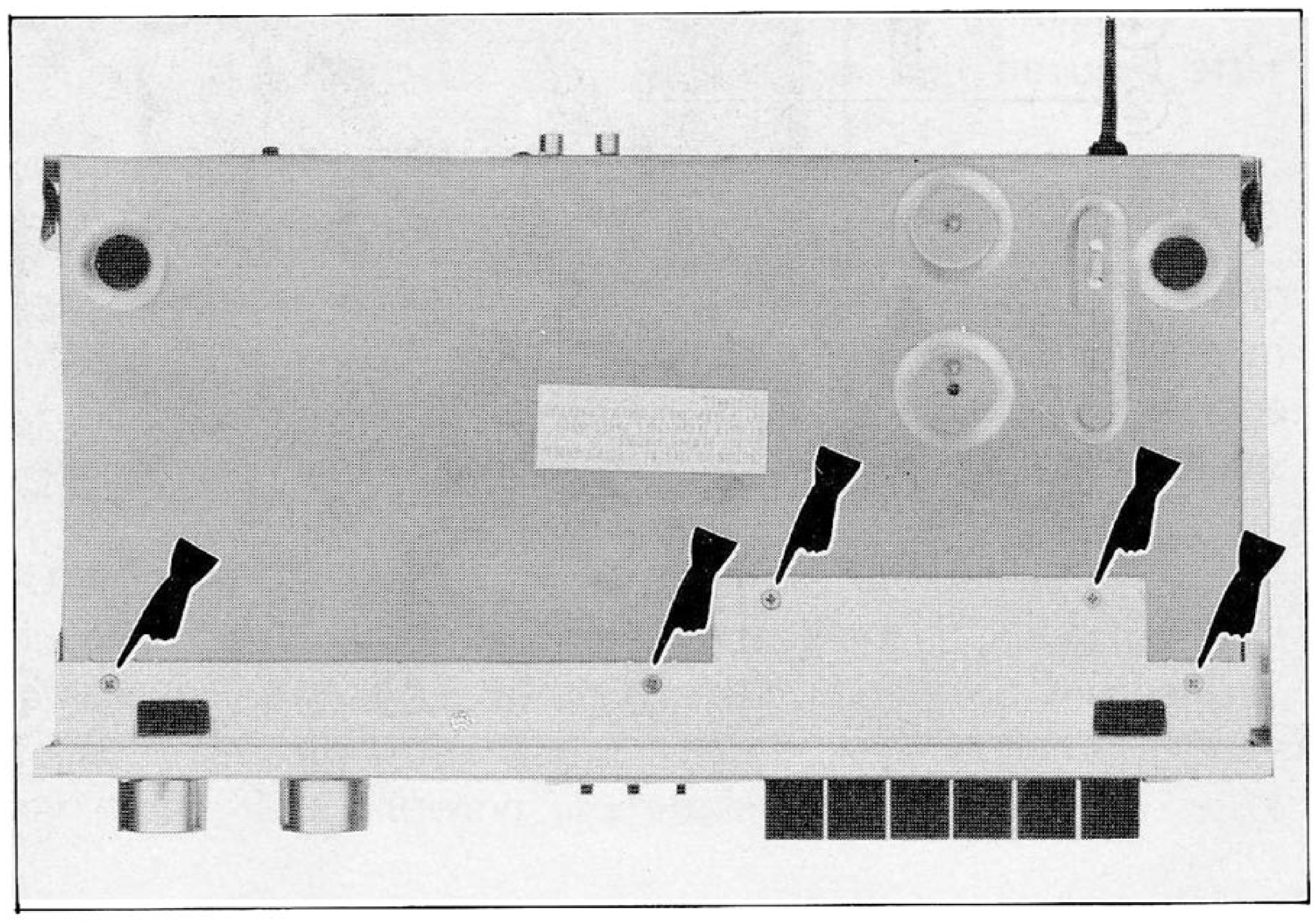


Figure 4–2

3. Remove the two (2) screws from the line input/output socket (SO1) at the rear of the unit. (Refer to Figure 4–3.)

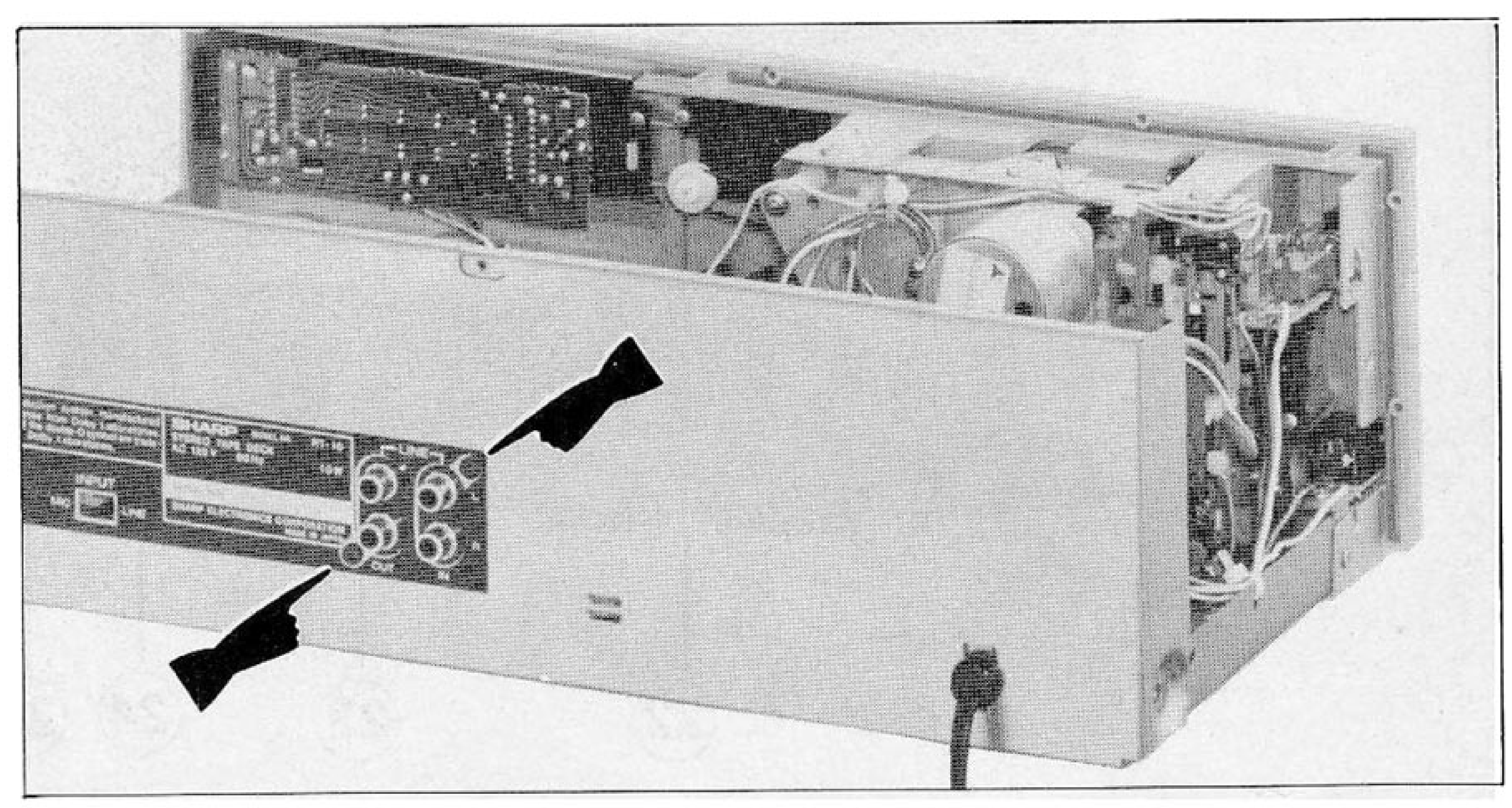


Figure 4–3

4. Remove the two (2) screws one each at the right and left sides of the front panel. (Refer to Figure 4–4 and Figure 5–1.)
5. Remove the one (1) screw from the headphones jack PWB. (Refer to Figure 4–4.)
6. Remove the three (3) nylon bands holding the leads. (Refer to Figure 4–4.)

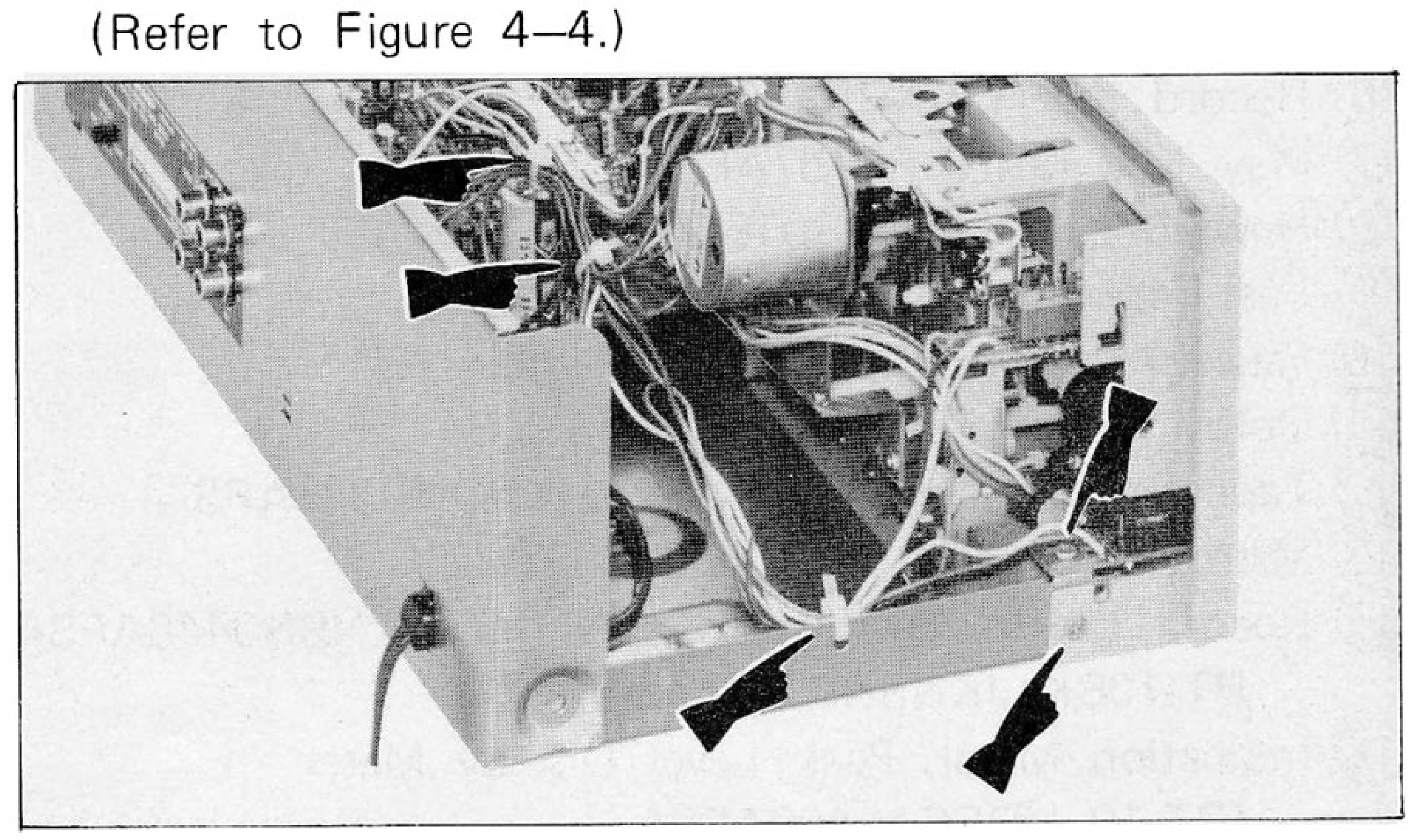


Figure 4–4

7. Remove the one (1) screw from the main PWB. (Refer to Figure 5–1.)

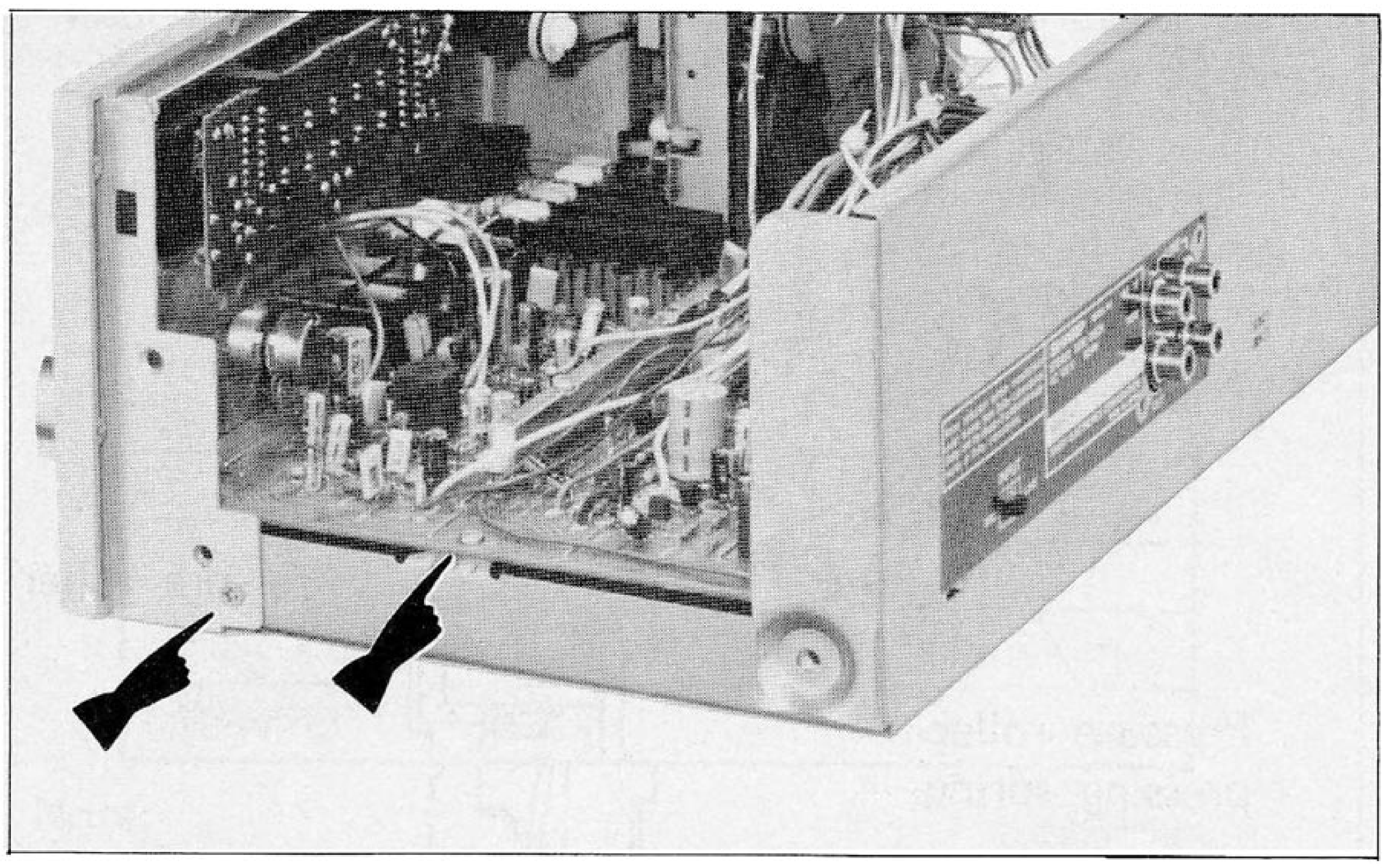


Figure 5–1

8. Pull the three (3) leads – from the secondary of the power transformer – out of the lug terminal on the main PWB. (Refer to Figure 5–2.) Then the main chassis can be removed from the front panel. You are now allowed to take services on the PWB, and when you still want to remove the mechanism block, proceed with the following steps.

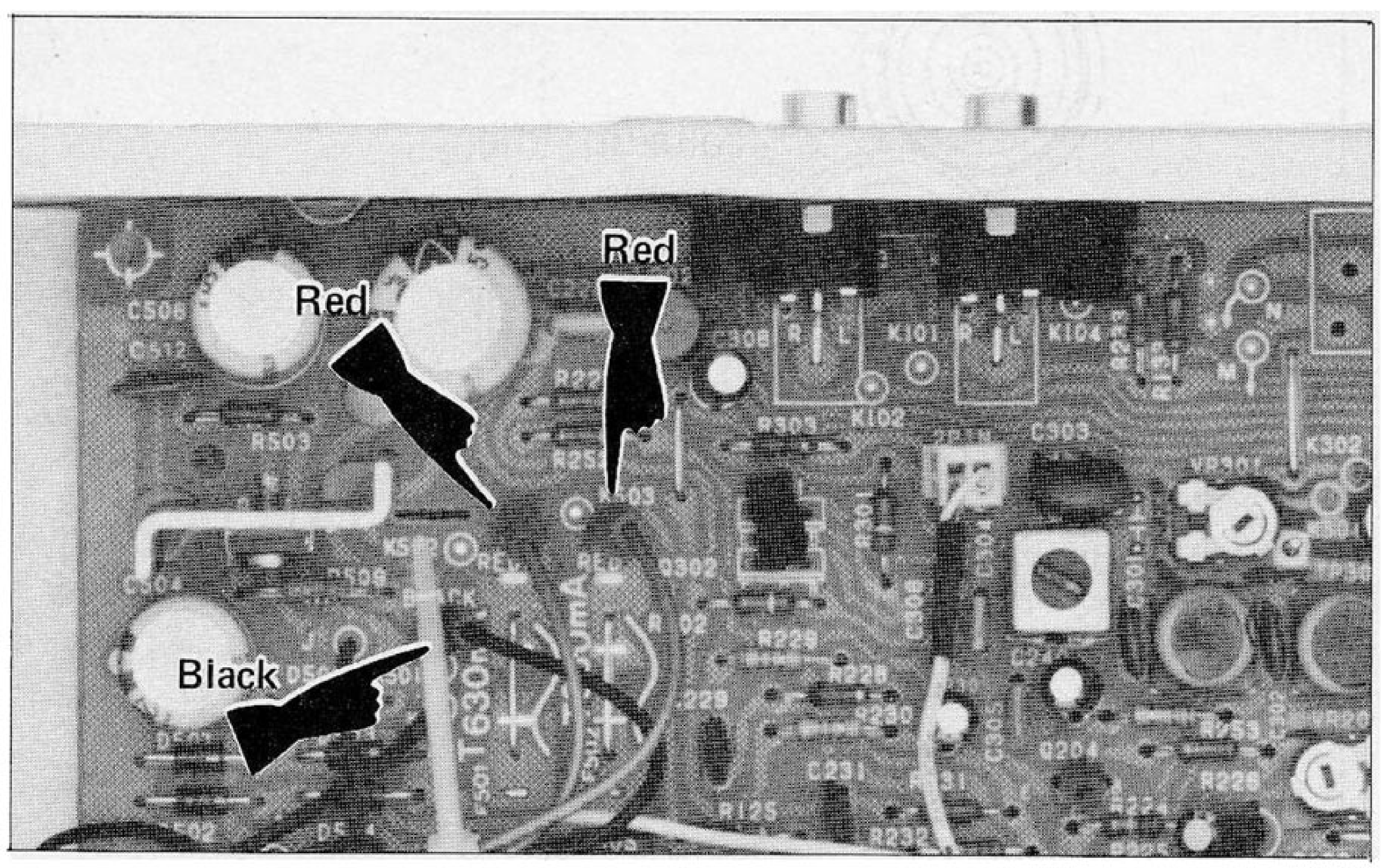


Figure 5–2

9. Remove the tape counter drive belt from the tape counter pulley. (Refer to Figure 5–3.)
10. Remove the spring which is between the record/playback selector switch (SW1) and the record/playback selector switch coupling lever. (Refer to Figure 5–3.)
11. Remove the two (2) screws from the mechanism block. (Refer to Figure 5–3.).

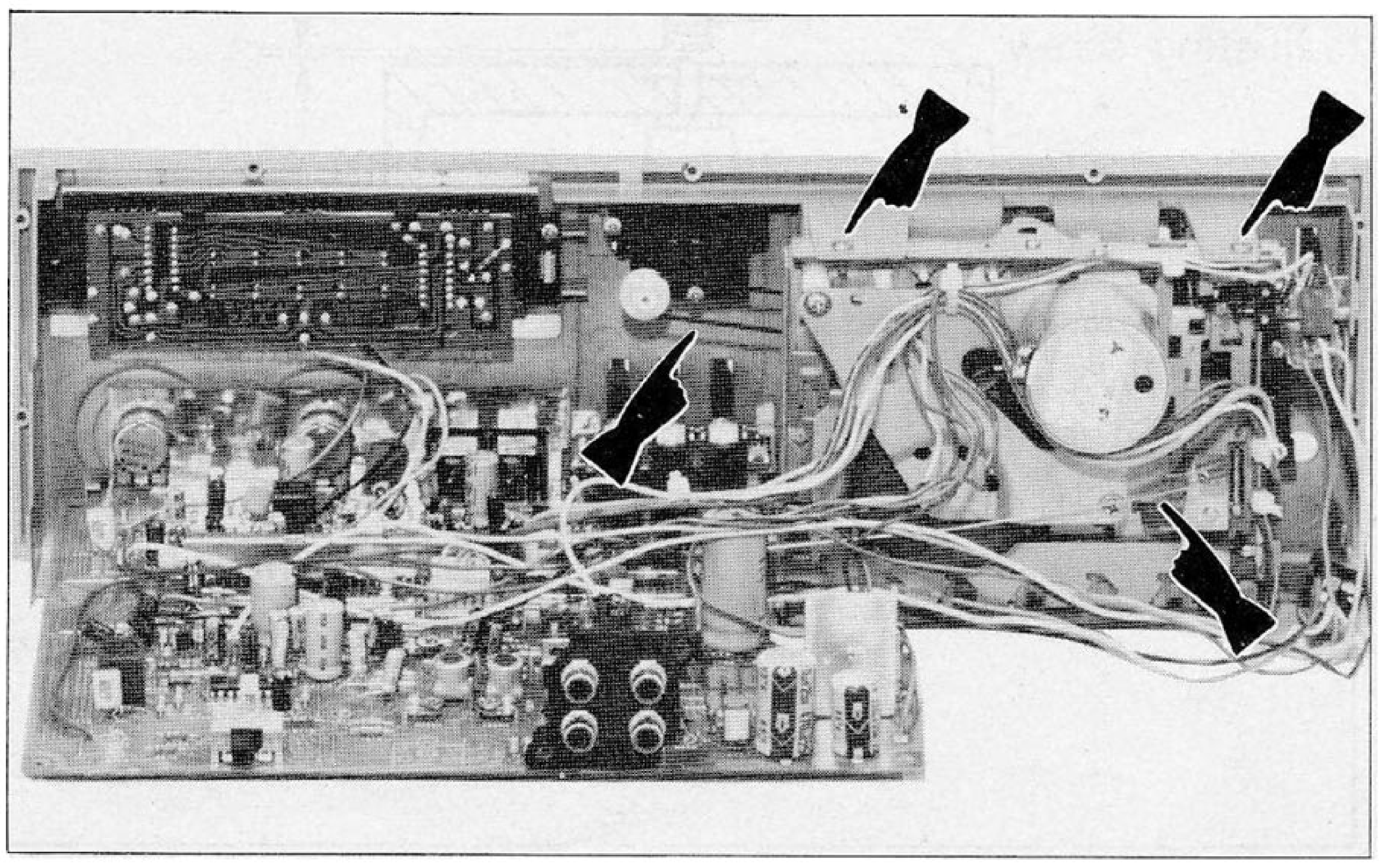


Figure 5–3

12. Finally, push the stop/eject key to open the cassette holder, and remove the mechanism block. (Refer to Figure 5–4.)

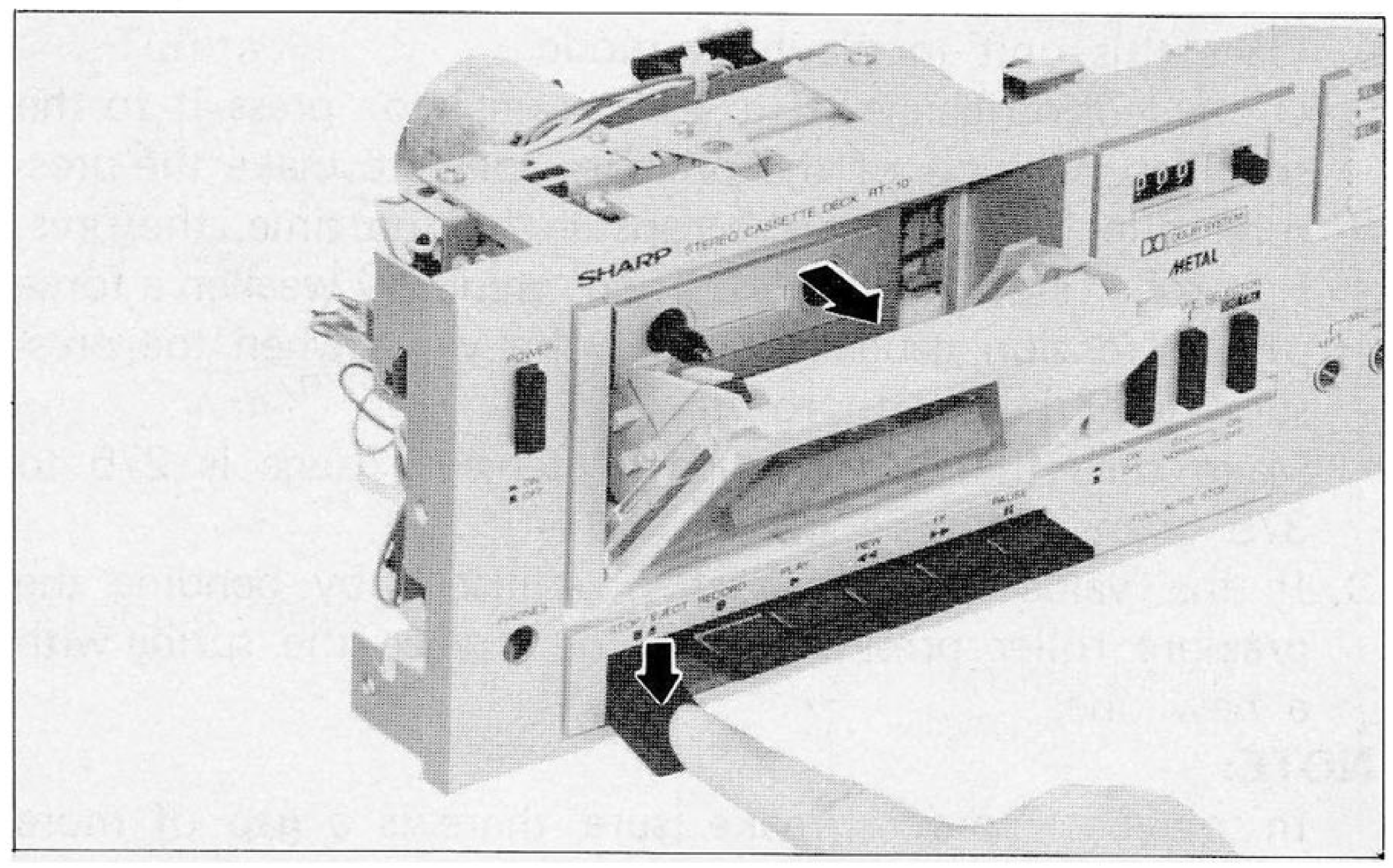


Figure 5–4

3. REMOVAL OF METER PWB

Force the tabs of the meter P.W.B. holder to make them direct outwards, and remove the peak level display meter P.W.B. from its holder. (Refer to Figure 5–5.)

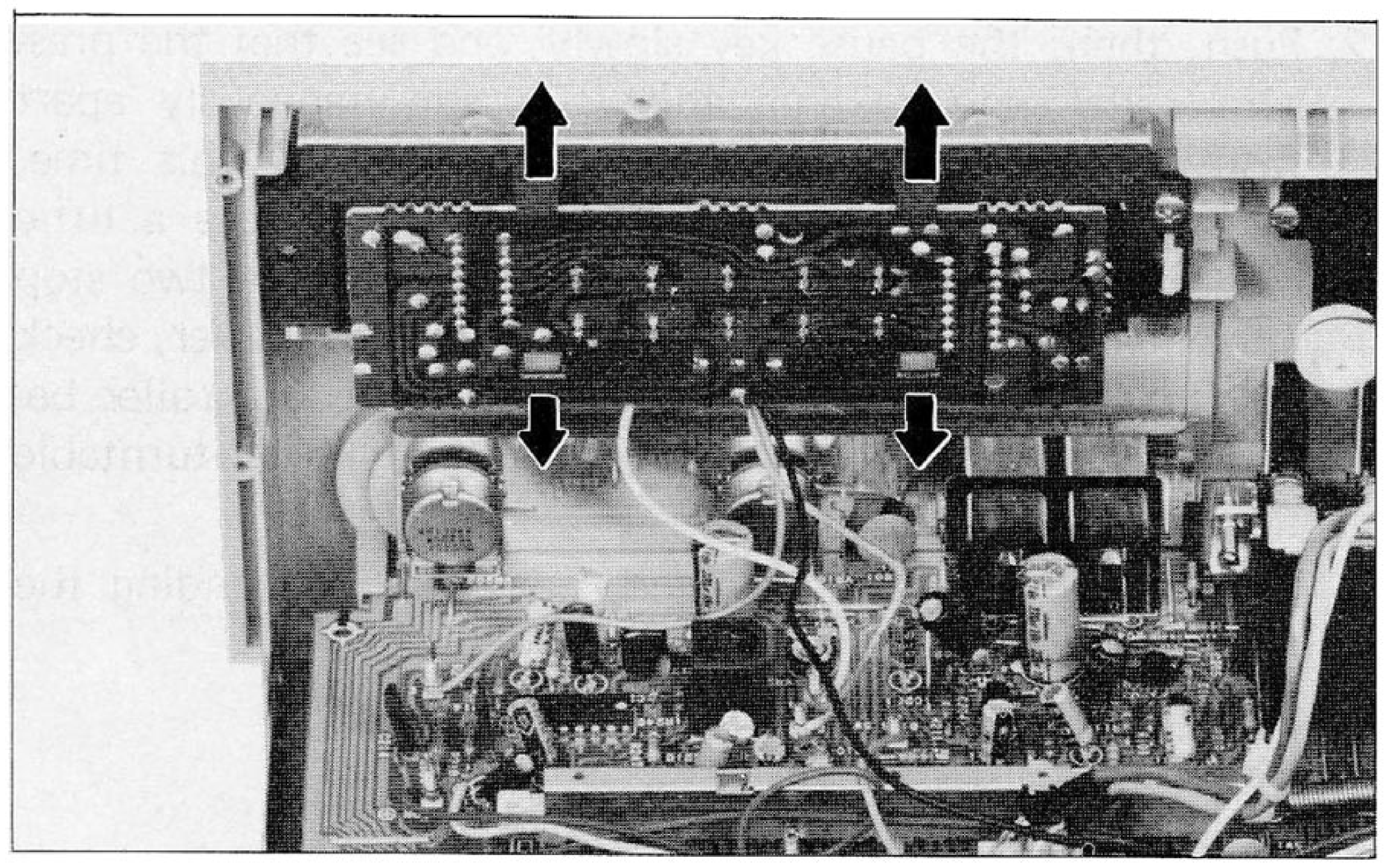


Figure 5–5

PRESSURE ROLLER PRESSURE ADJUSTMENT
(Refer to Figure 6–1)

1. Place this unit in playback mode.
2. Use a tension gauge (0 to 500 grams) to press it to the specified position of the pressure roller to make the pressure roller apart from the capstan (at the time, the pressure roller stops to rotate). Then, gradually weaken a force of the tension gauge and read the value when the pressure roller begins to rotate.
   Make sure that the reading of tension gauge is 275 to 375 grams (9-45/64 oz to 13-15/64 oz).
3. If the value is not satisfied, adjust it by bending the pressure roller pressing spring or replace the spring with a new one.

NOTE:
In playback mode, make sure there is a gap of more than 0.15mm between the pressure roller lever and the sub-chassis.

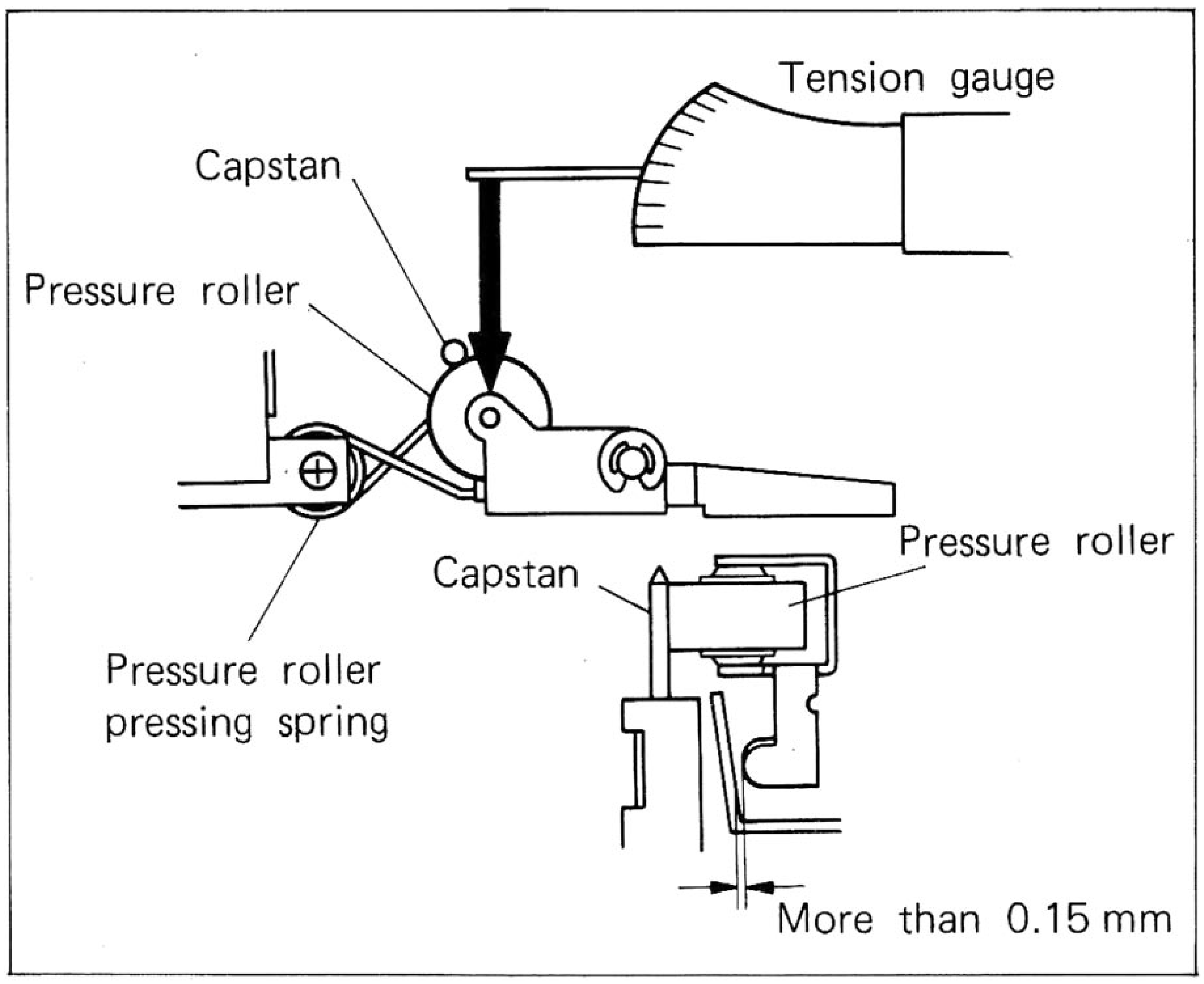


Figure 6–1

PAUSE TIMING ADJUSTMENT (Refer to Figure 6–2)

1. Place the unit in playback mode, and see that the gap between the pin on the pause lever and pause lock lever is more than 0.2 mm.
2. Push, then, the pause key slowly, and see that the pressure roller and take-up idler are simultaneously apart from the capstan and take-up turntable. At this time, also see that the pressure roller ends to ratate a little earlier than the take-up turntable does, or the two stop almost at a time. If the pressure roller stops earlier, check that the gap between the capstan and pressure roller becomes 0.3 mm or less just when the take-up turntable next stops.
3. If the step 2 is not satisfied, adjust it by bending the part Ⓐ of the psuse lever.

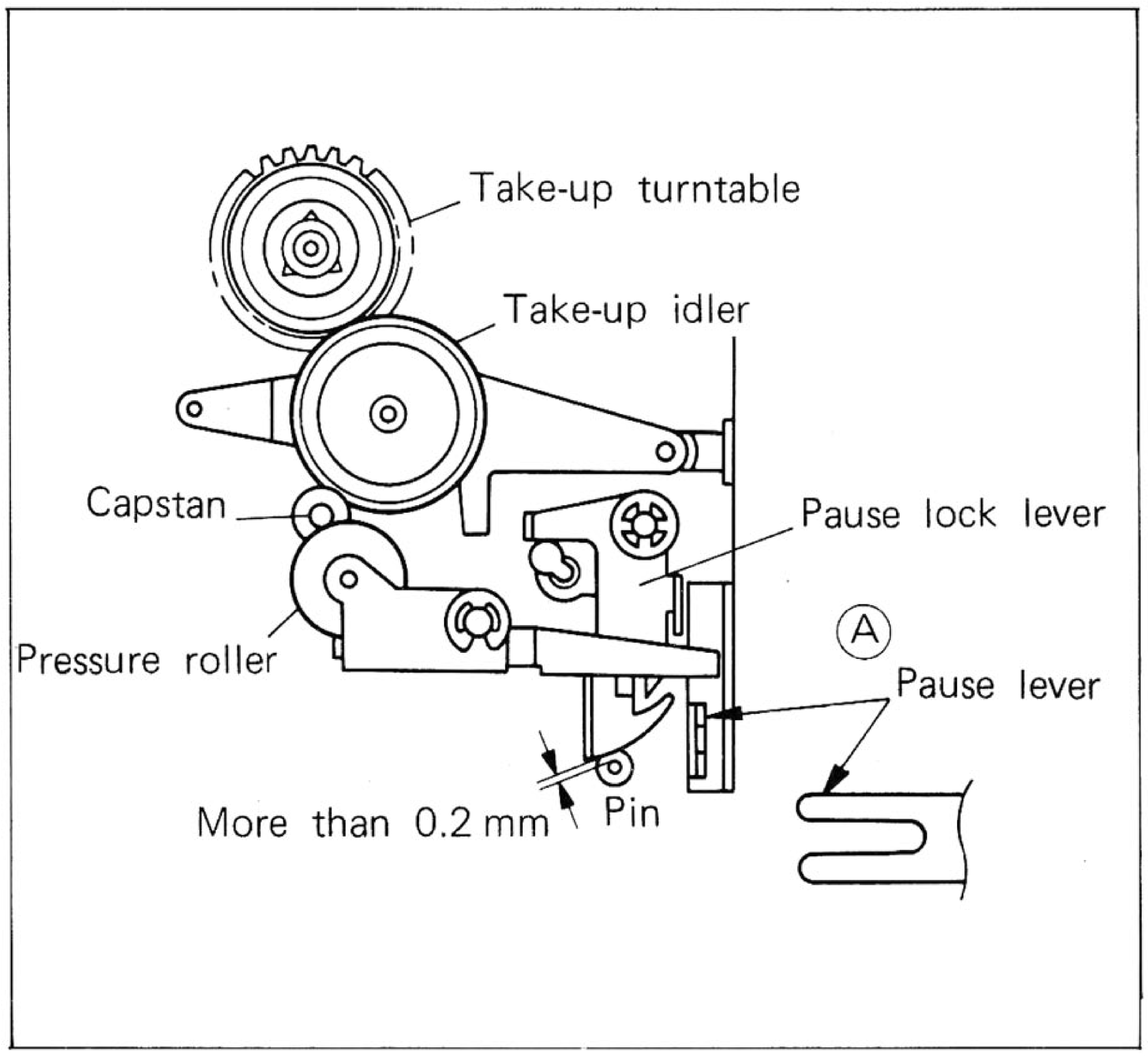


Figure 6–2

FLYWHEEL SHAFT (CAPSTAN) THRUST CLEARANCE ADJUSTMENT (Refer to Figure 6–3)

1. Slowly turn the screw for adjusting the flywheel shaft thrust clearance clockwise until there will be no thrust clearance.
2. Then, turn the screw for adjusting the flywheel shaft thrust clearance by 1/8 to 3/8 turn counter-clockwise. (Since screw's pitch is 0.8 mm, thrust clearance of about 0.1 mm to 0.3 mm is then produced.)

TAKE-UP PULLEY POSITIONAL ADJUSTMENT
(Refer to Figure 6–3)
Adjust clearance between the take-up pulley and flywheel bearing so as to obtain 0.5 mm.

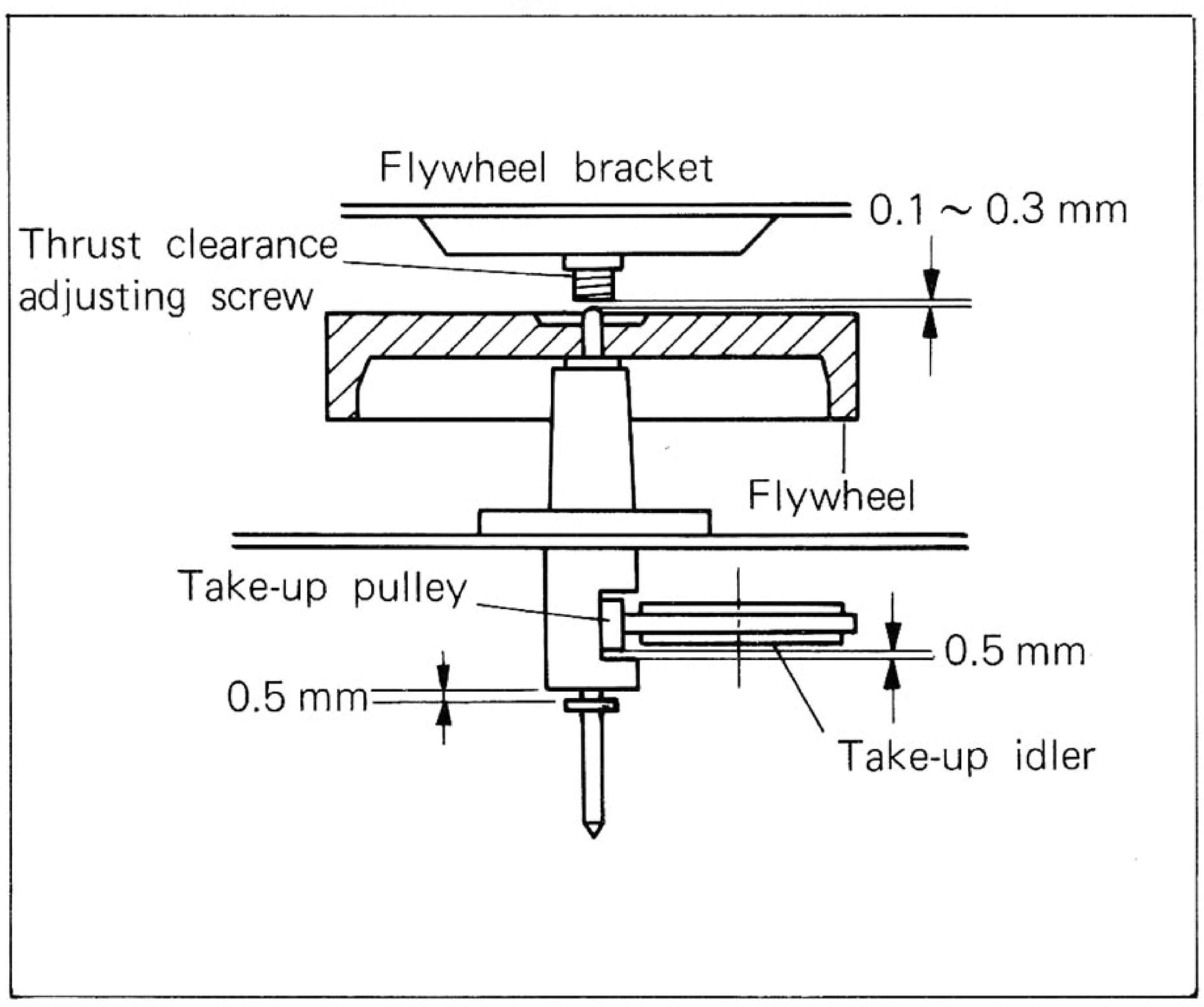


Figure 6–3

TORQUE CHECK AT PLAY, FAST FORWARD AND REWIND MODES (Refer to Figure 7–1)

1. Mount a torque measuring reel on the turntable (on its take-up side at play or fast forward mode, and on its supply side at rewind mode).
2. Reduce, then, a force of the tension gauge gradually, and read the torque value when the rotational speed of the turntable becomes almost constant.
3. The torque values in each mode are as specified below.

MODE	TORQUE VALUE
Play	35 ~ 60 gram · cm
Fast Forward	70 ~ 110 gram · cm
Rewind	70 ~ 110 gram · cm

Note:
When the take-up turntable comes into a stop during play. mode, see that the slip roller is still rotating. At the time, there shall be no slip between the drive belt and motor pulley or flywheel, or between the slip roller and take-up idler.

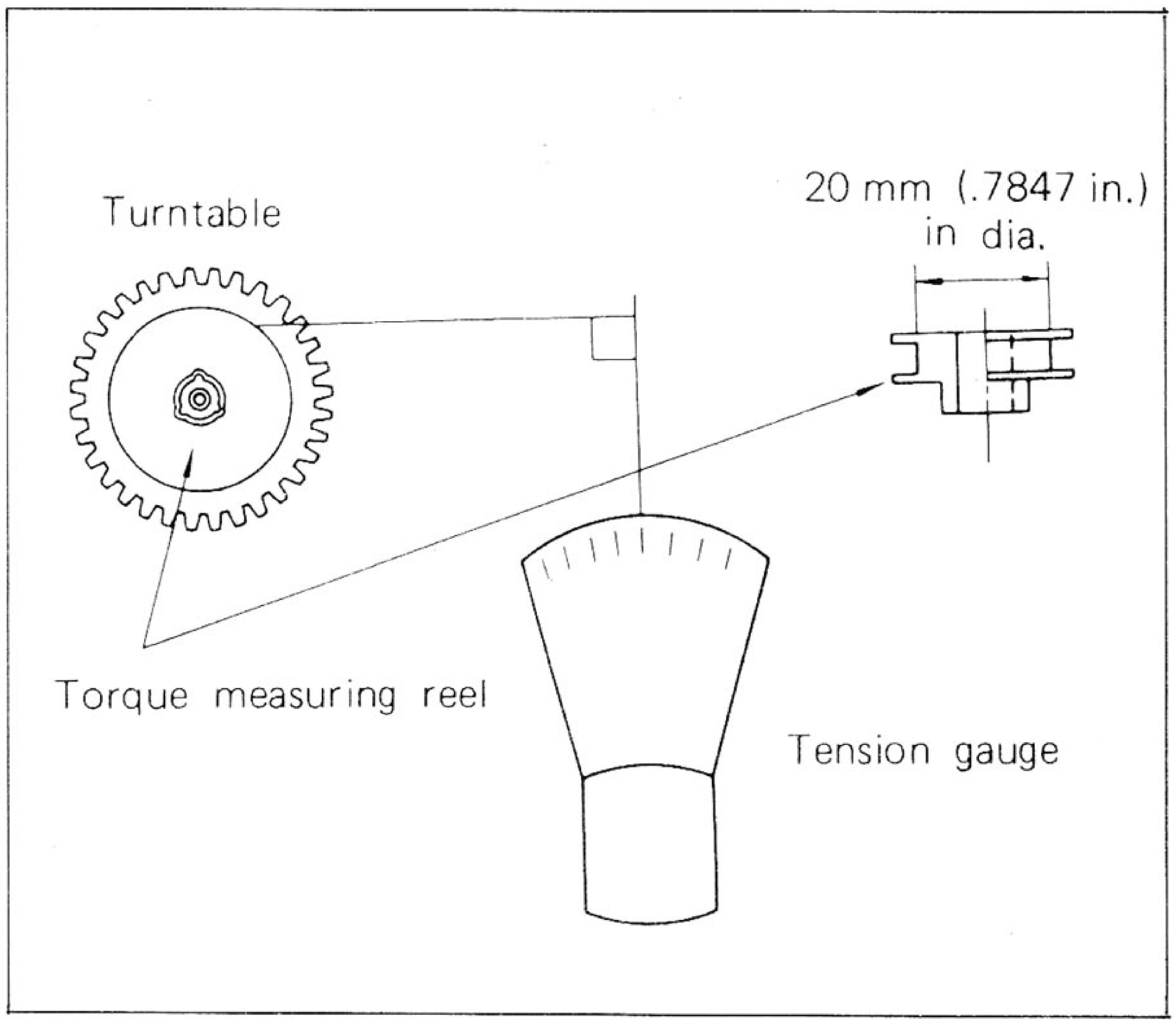


Figure 7–1

TAPE SPEED ADJUSTMENT (Refer to Figure 7–2)

1. Use a test tape (TEAC MTT-111, 3kHz recorded) to be played back (at the midpoint but not at the running start or end point.)
2. Connect a resistor of 50K ohms to the line output socket (SO1-2-A or B) and further a wow/flutter meter and frequency counter to the both ends.
3. Use a bladed screwdriver to adjust, through the adjusting hole at the bottom of motor, the semi-variable resistor so that the reproduced frequency becomes 2970 to 3030 Hz.

Note:
Before the adjustment, check that there is no stain nor other impurities on the motor pulley, drive belt, flywheel, take-up pulley, take-up idler and take-up turntable.

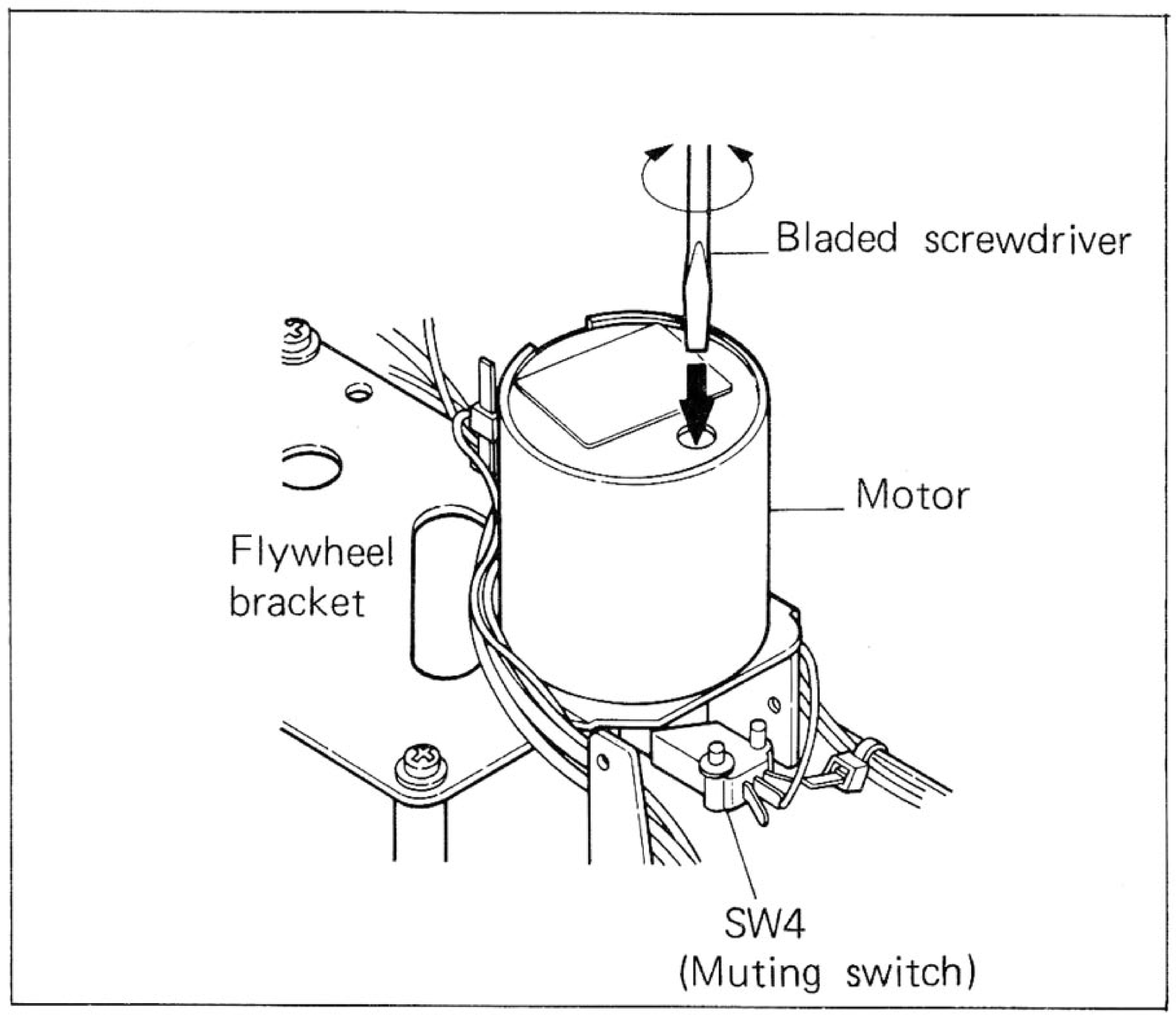


Figure 7–2

BIAS CURRENT AND BIAS OSCILLATION FREQUENCY ADJUSTMENT OF RECORD AMPLIFIER (Refer to Figure 8–1)

1. Connect V.T.V.M., across a resistor (R102 or R202), between the test point (TP101 or TP 201) and ground.
2. Connect an oscilloscope and a frequency counter to the output terminals of V.T.V.M.
3. There are two tape selector switches: one is the SW3–2 named a normal/CrO_2 tape selector switch, and another is the SW3–3 named a metal tape ON/OFF switch. To allow the unit to play a normal tape, set the SW3–2 at "NORMAL (■)" position and the SW3–3 at "OFF (■)" position, respectively.
4. Place the unit in record mode.
5. Adjust the bias oscillation coil (L303) so that the bias oscillation frequency becomes 105 kHz.
6. Set the metal tape ON/OFF switch (SW3–3) to "ON (▬)" position.
7. Adjust the semi-variable resistors (VR301 and VR302) so that the V.T.V.M. reads 90 mV.
8. Then, change the metal tape ON/OFF switch (SW3–3) to "OFF (■)" position.
9. See that the V.T.V.M. reading varies as tabulated below, as the normal/CrO_2 tape selector switch (SW3–2) changes its position ["NORMAL (■)" or "CrO_2 (▬)"].

Tape in use	SW3–3	SW3–2	V.T.V.M. reading
NORMAL	"OFF (■)"	"NORMAL ( )"	39mV to 47mV
CrO_2	"OFF (■)"	"CrO_2 (▬)"	55mV to 65mV

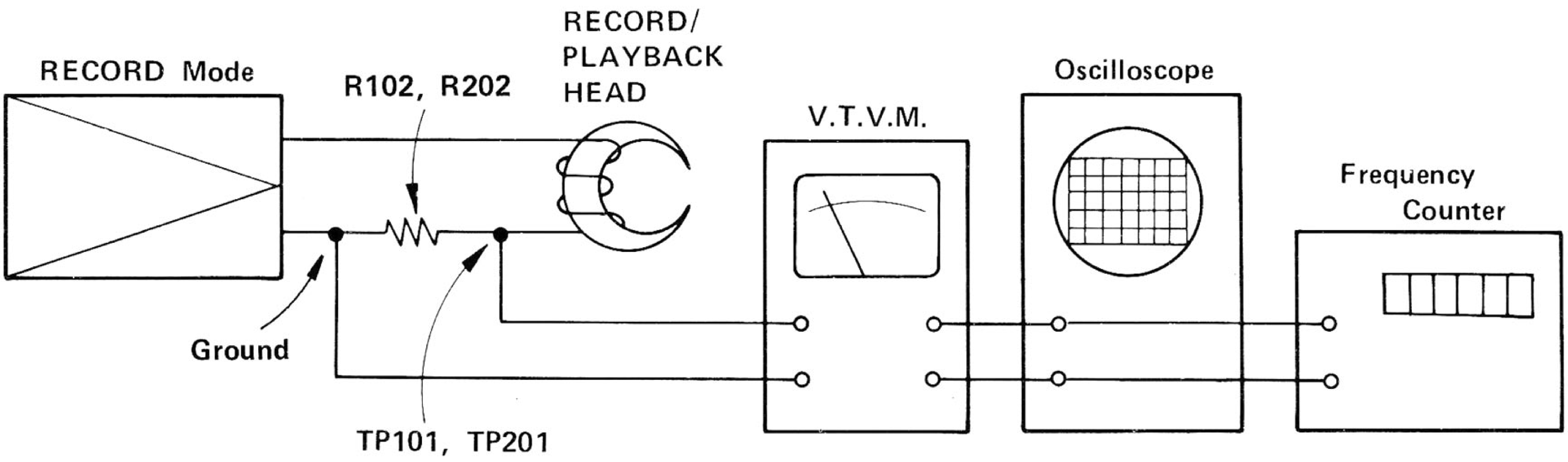


Figure 8–1

RECORD AMPLIFIER ERASE VOLTAGE CHECK

(Refer to Figure 8–2)

1. Connect V.T.V.M. between the test point (TP301) and ground, via both ends of the erase head.
2. Set the metal tape ON/OFF switch (SW3–3) to "ON (▬)" position.

Note:
If this switch (SW3–3) is set "ON" once, it overcomes the function of the NORMAL/CrO_2 tape selector switch (SW3–2) whichever position it may be set at.

3. Place the unit in record mode, and see that the V.T.V.M. is reading as follows.

Tape	SW3–2	SW3–3	V.T.V.M. reading
METAL	–	"ON (▬)"	42.0V to 50.0V

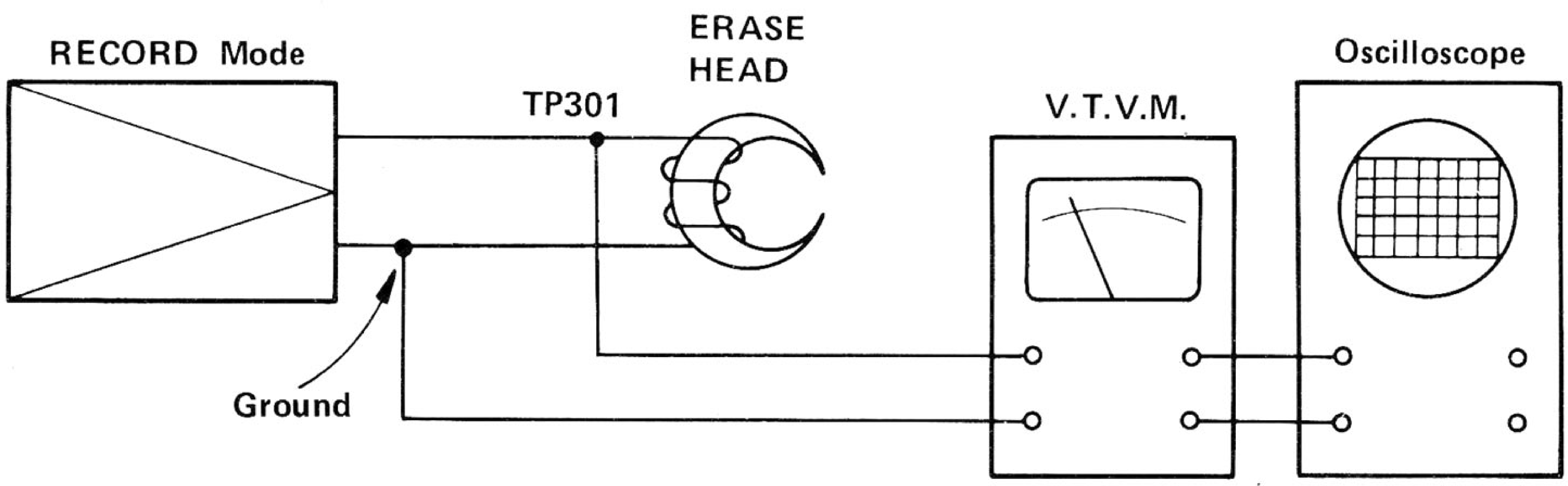
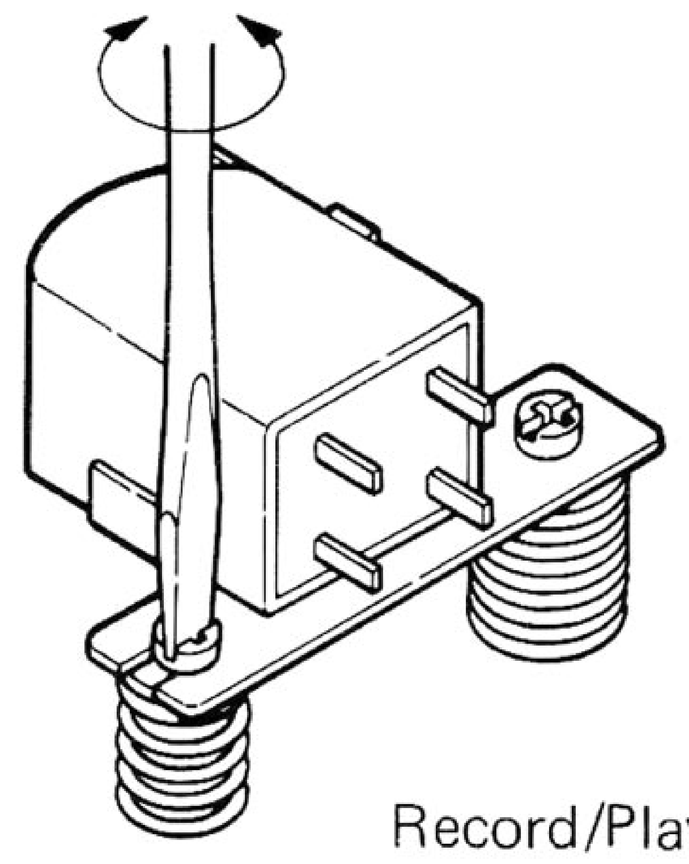


Figure 8–2

RECORD/PLAYBACK HEAD AZIMUTH ADJUSTMENT
(Refer to Figure 9–1)

1. Connect V.T.V.M. between the test point (TP103 or TP203) and ground.
2. To allow the unit to play a normal tape, set the NORMAL/ CrO_2 tape selector switch (SW3–2) at "NORMAL (▀)" position and the metal tape ON/OFF switch (SW3–3) at "OFF (▀)" position.
   Also set the Dolby NR switch (SW3–1) at "OFF (▀)" position.
3. Put a test tape (TEAC, MTT–114, 10 kHz, 250pWb/mm, –10dB recorded) into the unit and play it back.
4. Adjust the head azimuth adjusting screw so that the V.T.V.M. reaches its maximum reading, with no phase difference between the channels.

Note:
It is now recommendable to use an oscilloscope to check that there will be the same phase for the right and left channels.



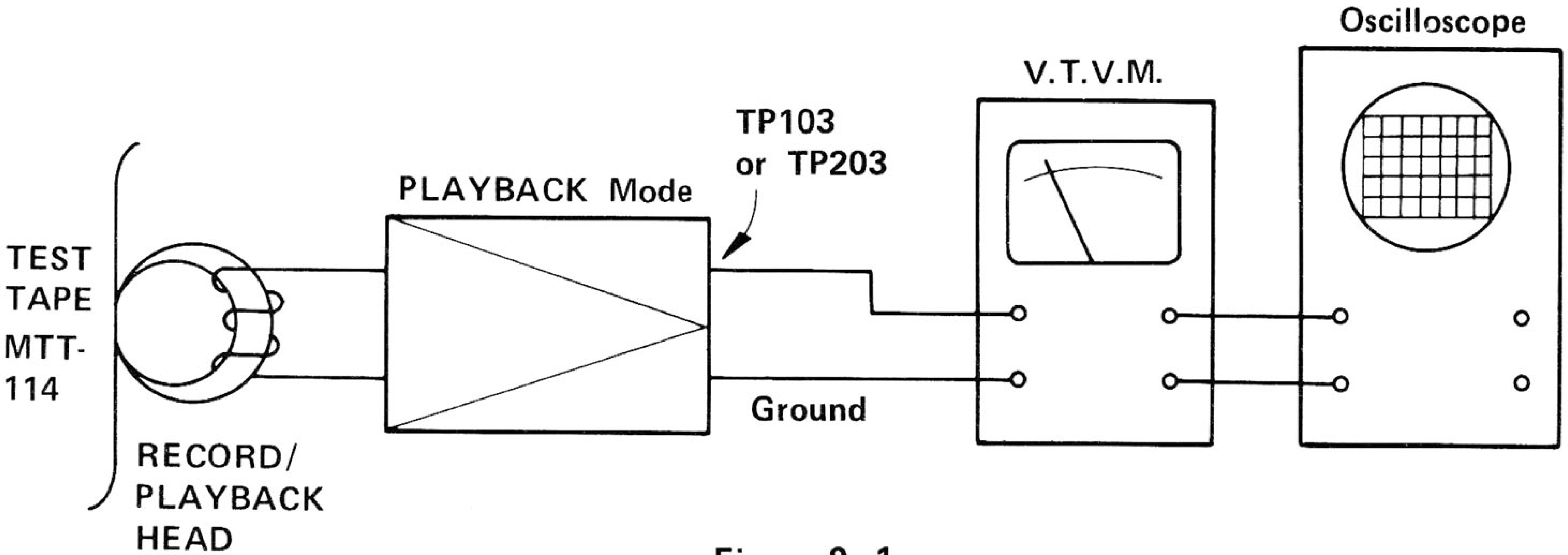


Figure 9–1

PLAYBACK FREQUENCY CHARACTERISTIC CHECK
(Refer to Figure 9–2)

1. Connect V.T.V.M. to the line output socket (SO1–2–A or SO1–2–B).
2. To allow the unit to play a normal tape, set the NORMAL/ CrO_2 tape selector switch (SW3–2) at "NORMAL (▀)" position and the metal tape ON/OFF switch (SW3–3) at "OFF (▀)" position.
   Also set the Dolby NR switch (SW3–1) at "OFF (▀)" position.
3. Put a test tape (TEAC, MTT–217G, 12.5 kHz/1 kHz/ 40 Hz, 250pWB/mm, –10dB, recorded) – useful for the check of playback frequency characteristic – into the unit, and play it back.
4. See that the V.T.V.M. is showing the deviation of two different input signals (40 Hz and 12.5 kHz) against the 1 kHz input, as tabulated below.

	Deviation against 1 kHz input shown by V.T.V.M.
With 40 Hz input	–1 dB to +7 dB
With 12.5 kHz input	–4 dB to +4 dB

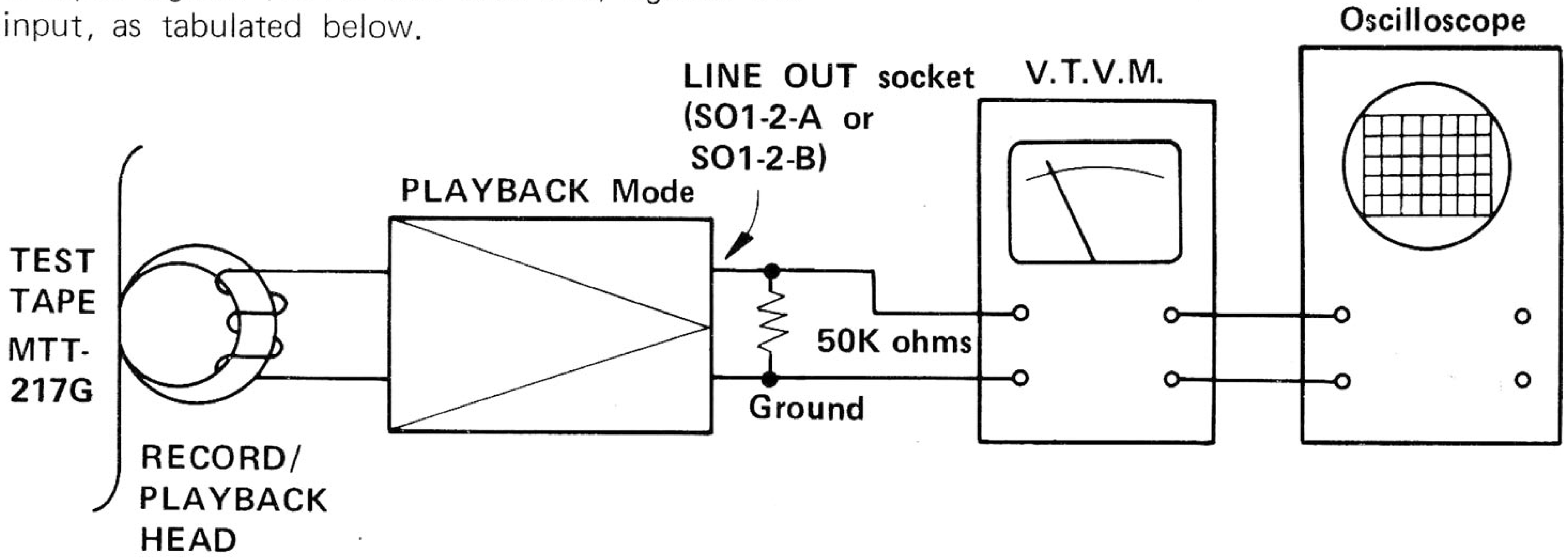


Figure 9–2

PLAYBACK SENSITIVITY ADJUSTMENT

(Refer to Figure 10–1)

1. Connect V.T.V.M. between the test point (TP103 or TP203) and ground.
2. To allow the unit to play a normal tape, set the NORMAL/CrO_2 tape selector switch (SW3–2) at "NORMAL (■)" position and the metal tape ON/OFF switch (SW3–3) at "OFF (■)" position.
   Also set the Dolby NR switch (SW3–1) at "OFF (■)" position.
3. Put a test tape (TEAC, MTT–150, 400Hz 200pWb/mm recorded) into the unit and play it back.
4. At this time, Adjust the semi-variable resistors (VR101 and VR201) so that the V.T.V.M. reading will be 580 mV.

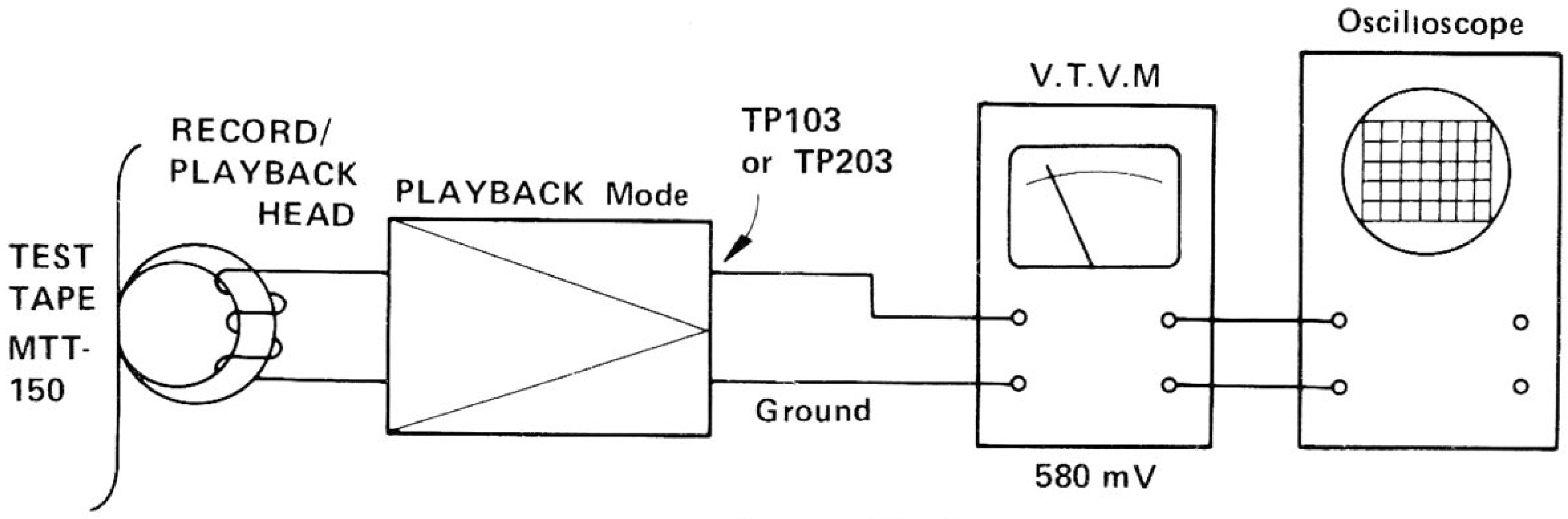


Figure 10–1

RECORD/PLAYBACK SENSITIVITY ADJUSTMENT

(Refer to Figure 10–2)

1. Connect V.T.V.M. between the test point (TP103 or TP203) and ground.
2. Connect CR oscillator to the line input socket (SO1–1–A or SO1–1–B), and apply a signal of oscillation frequency 1 kHz, output level –10 dB (316 mV) to the unit. Set the input selector switch (SW2) at "LINE" position.
3. To allow the unit to play a normal tape, set the NORMAL/CrO_2 tape selector switch (SW3–2) at "NORMAL (■)" position and the metal tape ON/OFF switch (SW3–3) at "OFF (■)" position.
   Also set the Dolby NR switch (SW3–1) at "OFF (■)" position.
4. Put a normal tape (TEAC, MTT–502) into the unit, and place it in record mode. Adjust then the record level controls (VR102 and VR202) so that the V.T.V.M. reading will be almost 410 mV.
5. Play back the normal tape which has been recorded in the step 4, and adjust the semi-variable resistors (VR103 and VR203) so that the V.T.V.M. reading will be almost 410 mV.
6. Repeat the steps 4 and 5 until the V.T.V.M. reading will stay in the range of 410 mV ± 50 mV.
7. Now change the normal tape to a CrO_2 tape (MAXELL, C60, UDXL II) and put it into the unit. To allow the unit to play a CrO_2 tape, set the NORMAL/CrO_2 tape selector switch at "CrO_2 (■)" position and the metal tape ON/OFF switch at "OFF (■)" position. Place the unit in record mode.
8. Play back the CrO_2 tape which has been recorded in the step 7, and see that the V.T.V.M. is reading from 326 mV to 487 mV.
9. Again change the CrO_2 tape to a metal tape (TDK, AC–711), and put it into the unit. Set the metal tape ON/OFF switch (SW3–3) at "ON (■)" position, and place the unit in record mode.
10. Play back the metal tape which has been recorded in the step 9, and see that the V.T.V.M. is reading from 326 mV to 487 mV.

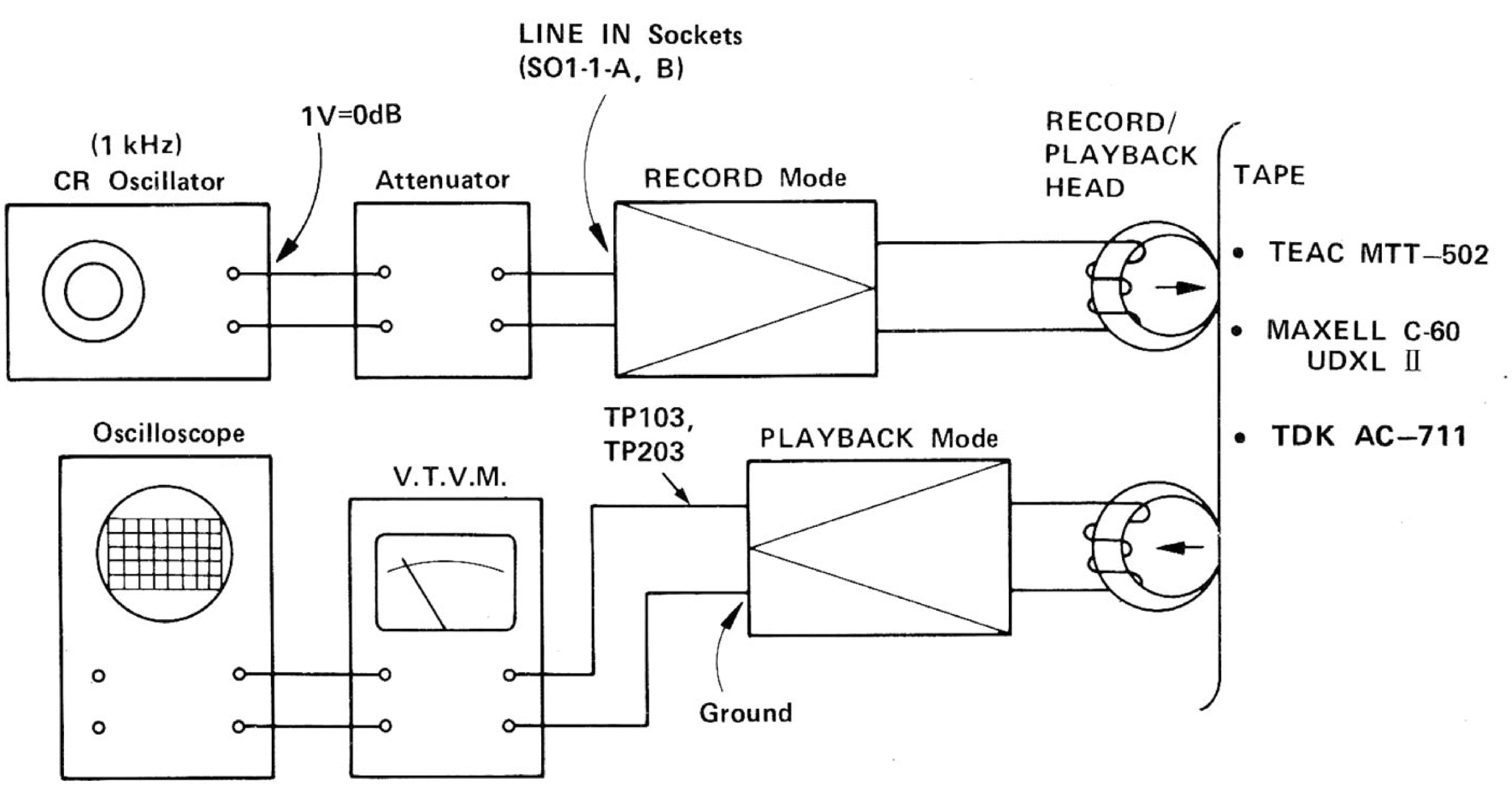


Figure 10–2

DOLBY NOISE REDUCTION CIRCUIT CHECK
(Refer to Figure 11–1)

1. Connect V.T.V.M. between the test point (TP103 or TP203) and ground.
2. Set the Dolby NR switch (SW3–1) at "ON (▄)" position and the input selector switch (SW2-A, B) at "LINE" position.
3. To allow the unit to play a normal tape, set the NORMAL/ CrO_2 tape selector switch (SW3–2) at "NORMAL (▄)" position and the metal tape ON/OFF switch (SW3–3) at "OFF (▄)" position.
4. Insert the normal tape.
5. With the set at record mode, give it signal of –35 dB (17.8 mV) 100Hz from line input socket (SO1-1-A or SO1-1-B) and adjust the record level controls (VR102 and VR202) so that the V.T.V.M. reads 32.6 mV.
6. Give the unit 1 kHz signal, 10 kHz signal and 12.5 kHz signal in the order and if the V.T.V.M. reads as tabulated below with each input signal, it is normal. (See table 11–1).

Frequency	1 kHz	10 kHz	12.5 kHz
V.T.V.M. reads	45.7 ~ 81 mV	44.5 ~ 70 mV	42.6 ~ 68.2 mV

Table 11–1

7. Give the unit signal of –50 dB (3.16 mV), 100Hz and adjust the record level controls (VR102 and VR202) so that the V.T.V.M. reads 5.8 mV.
8. In the same manner as in the step 6 above, give the unit 1 kHz signal, 10 kHz signal and 12.5 kHz signal in the order and if the V.T.V.M. reads as tabulated below with each input signal, it is normal. (See Table 11–2)

Frequency	1 kHz	10 kHz	12.5 kHz
V.T.V.M. reads	8.2 ~ 16.4 mV	13.7 ~ 24.9 mV	13.5 ~ 23.4 mV

Table 11–2

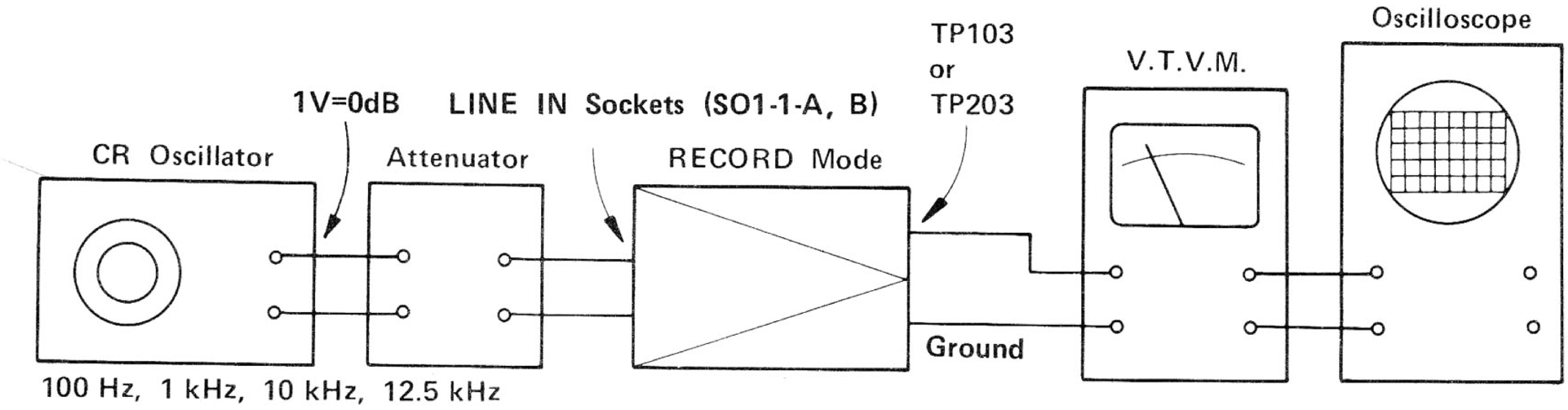


Figure 11–1

SHARPSCAN PEAK LEVEL DISPLAY METER SENSITIVITY ADJUSTMENT (Refer to Figure 11–2)

1. Connect V.T.V.M. between the test point (TP103 or TP203) and ground.
2. Set the Dolby NR switch (SW3–1) at "OFF (▄)" position and the input selector switch (SW2–A or SW2–B) at "LINE" position.
3. Connect CR oscillator to the line input socket (SO1–1–A or SO1–1–B), and apply the signal of oscillator frequency 1 kHz, 316 mV (–10 dBV) to the unit placing it in record mode.
4. Adjust the record level controls (VR102 and VR202) so that the V.T.V.M. will read 580 mV (–4.7 dBV).
5. Change the output level of CR oscillator from 316 mV (–10 dBV) to 305 mV (–10.3 dBV), and adjust, then, the semi-variable resistors (VR104 and VR204) so that the segments (LEDs) up to "0 dB" of the peak level display meter will light up.
6. Again change the output level of CR oscillator from 305 mV (–10.3 dBV) to 295 mV (–10.6 dBV), and see, then, that the segment (LED) indicative of "0 dB" of the peak level display meter is going off. (The segments up to "–3 dB" must remain lit.)

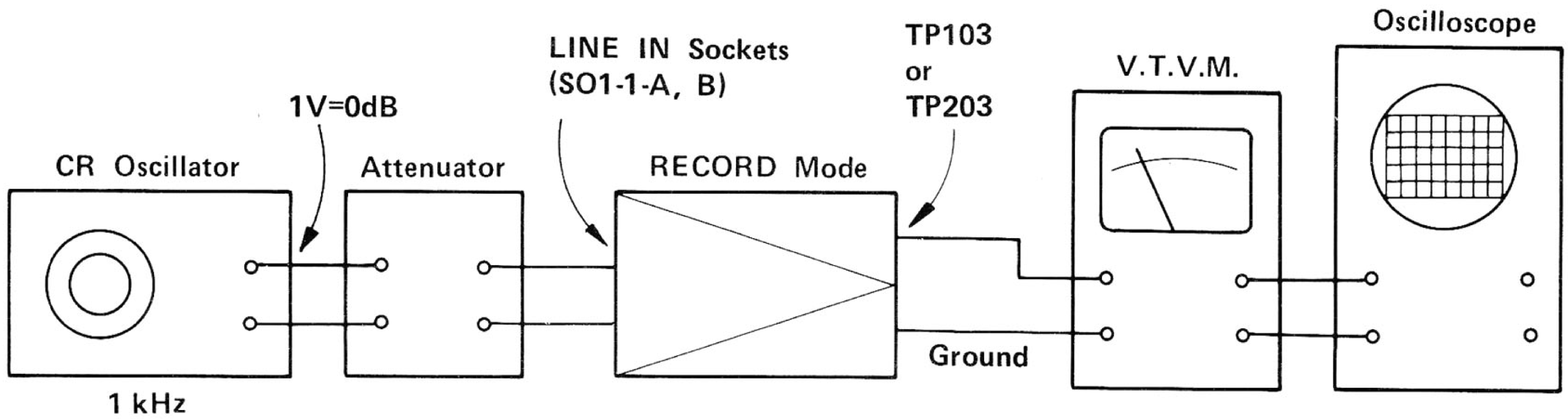


Figure 11–2

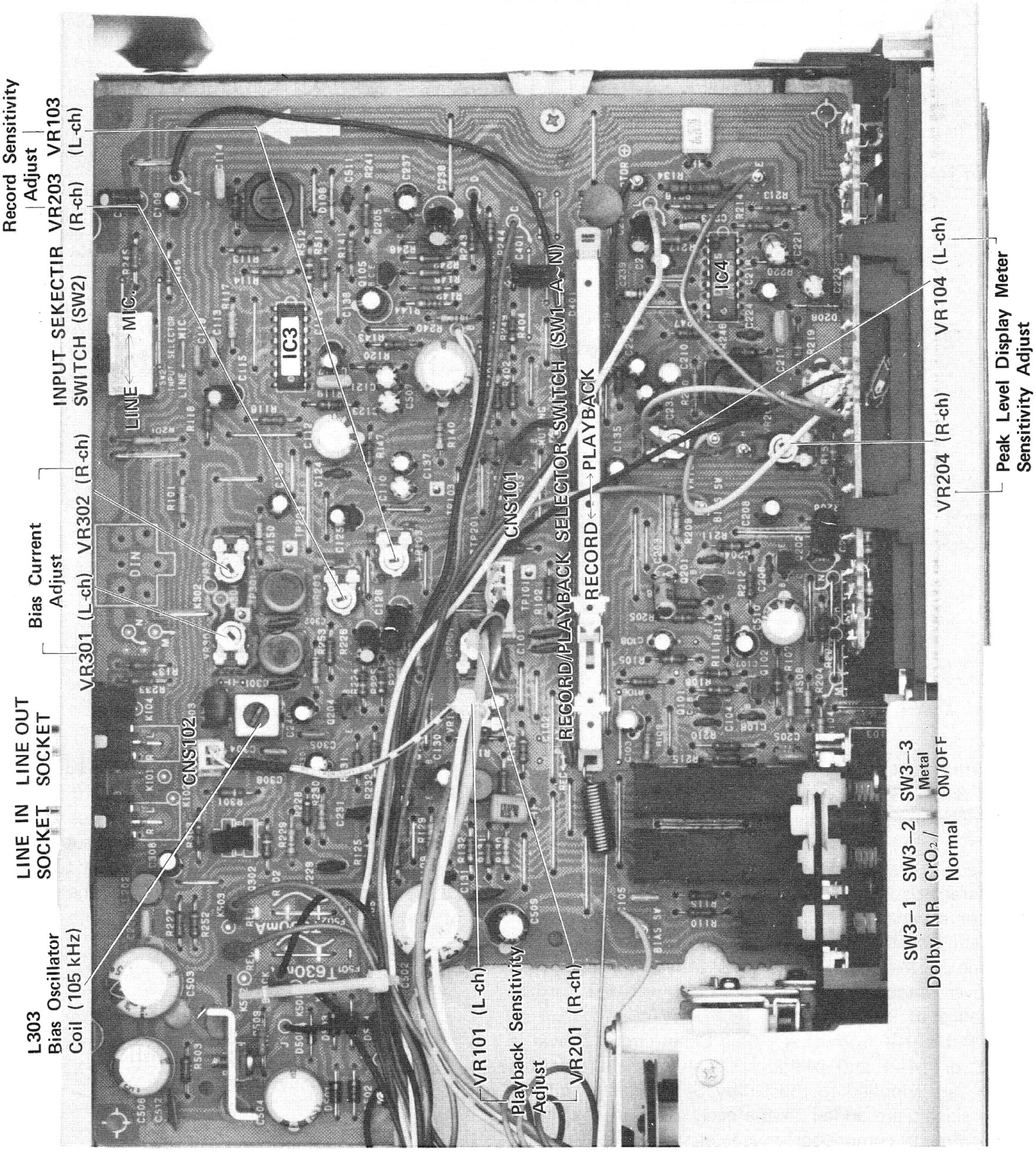


Figure 12–1 ADJUSTMENT POINTS

DOLBY NOISE REDUCTION SYSTEM

The construction of Dolby NR circuit is as shown below.

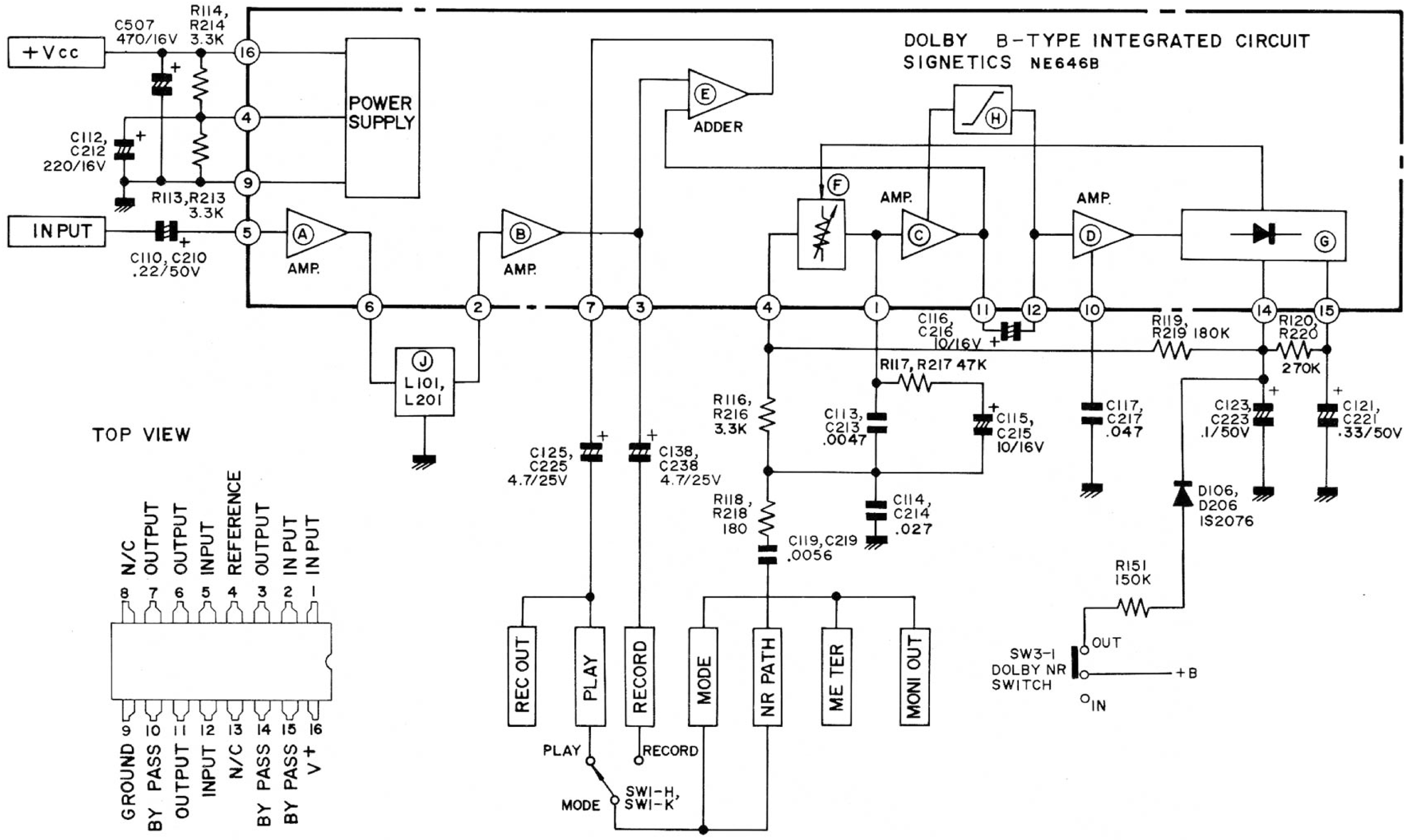


Figure 13–1

The amplifier circuits Ⓐ and Ⓑ are ordinary type. But the Dolby Summing Ⓔ is an amplifier circuit that inverses only the polarity, having the gain of 1. Dolby Side Chain (Ⓕ, Ⓒ, Ⓓ, Ⓖ) is high speed limiter that operate on high or medium frequency. The Fig. 13–2 shows the input/output characteristic curve of the Dolby Side Chain circuit and the curve varies according to the change of frequency. The frequency characteristic is as shown in Fig. 14–1 and it is the same as that of the high-pass filter of 6 dB/octave. The turnover frequency of the curve also varies according to the change of input level.

If the output signal from Dolby Side Chain circuit shown in Fig. 13–2 or 14–1 and ordinary signal from the amplifier circuit Ⓑ are supplied to the Dolby Summing Ⓔ circuit, these two signals are added to the each other in the record mode showing a compressor characteristic while they are subtracted from the each other in play mode showing an expander characteristic — the input/output characteristic shown in Fig. 14–2 is obtained at Rec. Amp. terminal.

Dolby Side Chain Circuit

The characteristic of the high-pass filter of 6 dB/octave shown in Fig. 14–1 is obtained by that the composite impedances with C113 (C213), C114 (C214), C119 (C219), R116 (R216), R117 (R217) and R118 (R218), and the filter impedance are added to the each other to form an attenuator.

The input/output characteristic in Fig. 13–2 is obtained by that DC voltage in proportion to the input is fed back to the attenuator Ⓕ. The circuit Ⓒ increases the output of the attenuator to the specified voltage to supply the output to the Dolby Summing Circuit. The circuit (Ⓓ, Ⓖ) generates DC voltage and it also controls attack time and recovery time of the limiter.

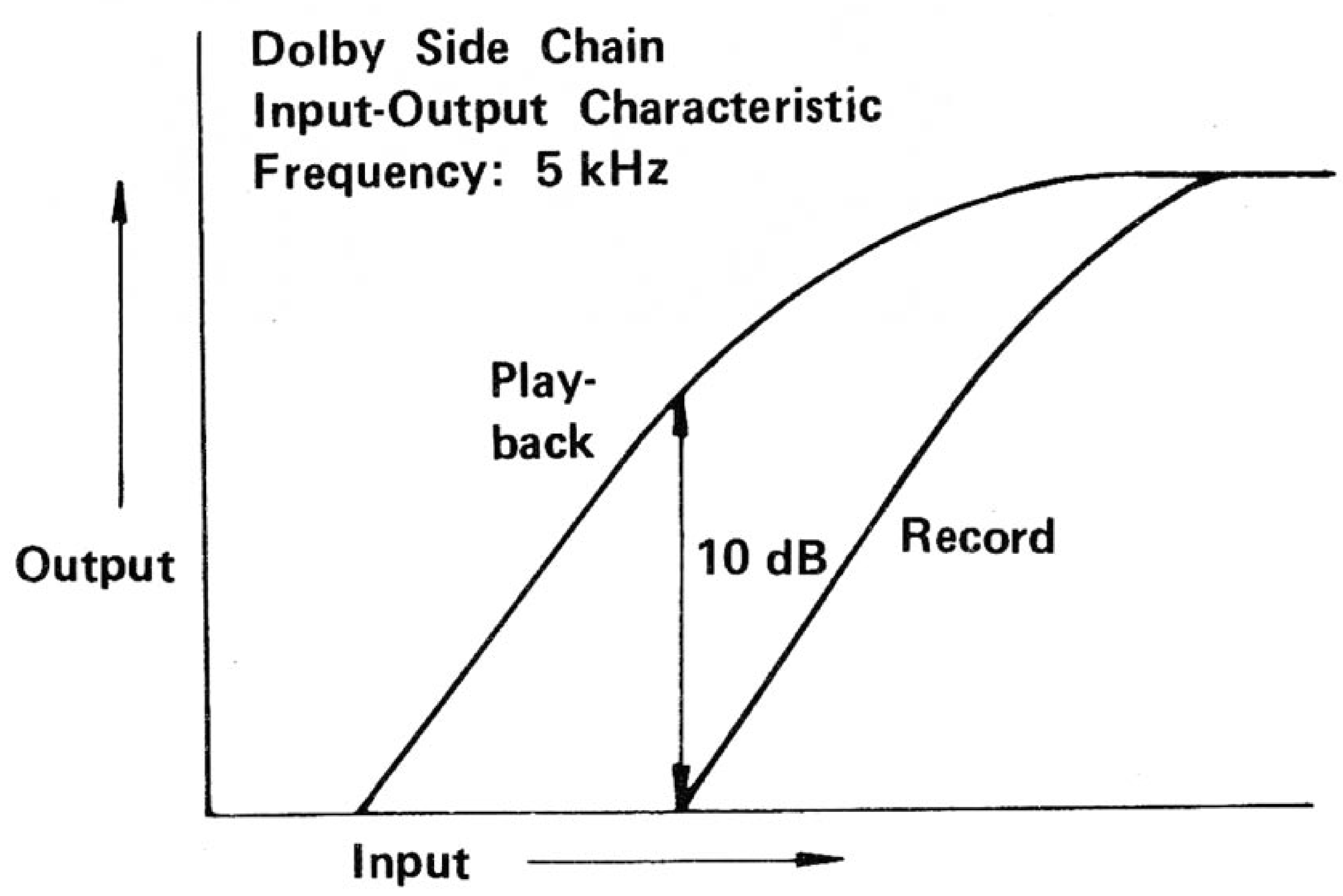


Figure 13–2

Simultaneously, AC signal is applied to DC voltage to become NF signal being fed to the circuit Ⓕ, in order to reduce the distortion. The Fig. 14–3 represents all the blocks composing of the Dolby Side Chain circuit and shows how they are operating.
Described as above, the Dolby NR circuit compounds linear signal and non-linear signal to produce compressor characteristic in record mode and expander characteristic in playback mode — if these two characteristics are mixed, an original linear characteristic is restored. Thus, noise is reduced because high-frequency signal is attenuated when it passes through the expander circuit.

Cautions on Repairing

1) The following parts out of those which are used for Dolby NR circuit should be at less than the error of ± 5%.
   R116, R216, R117, R217, R119, R219, C119, C219, C114, C214, C113, C213, C117, C217
2) The following parts should be those with the error of within ± 10%.
   C121, C221, C123, C223

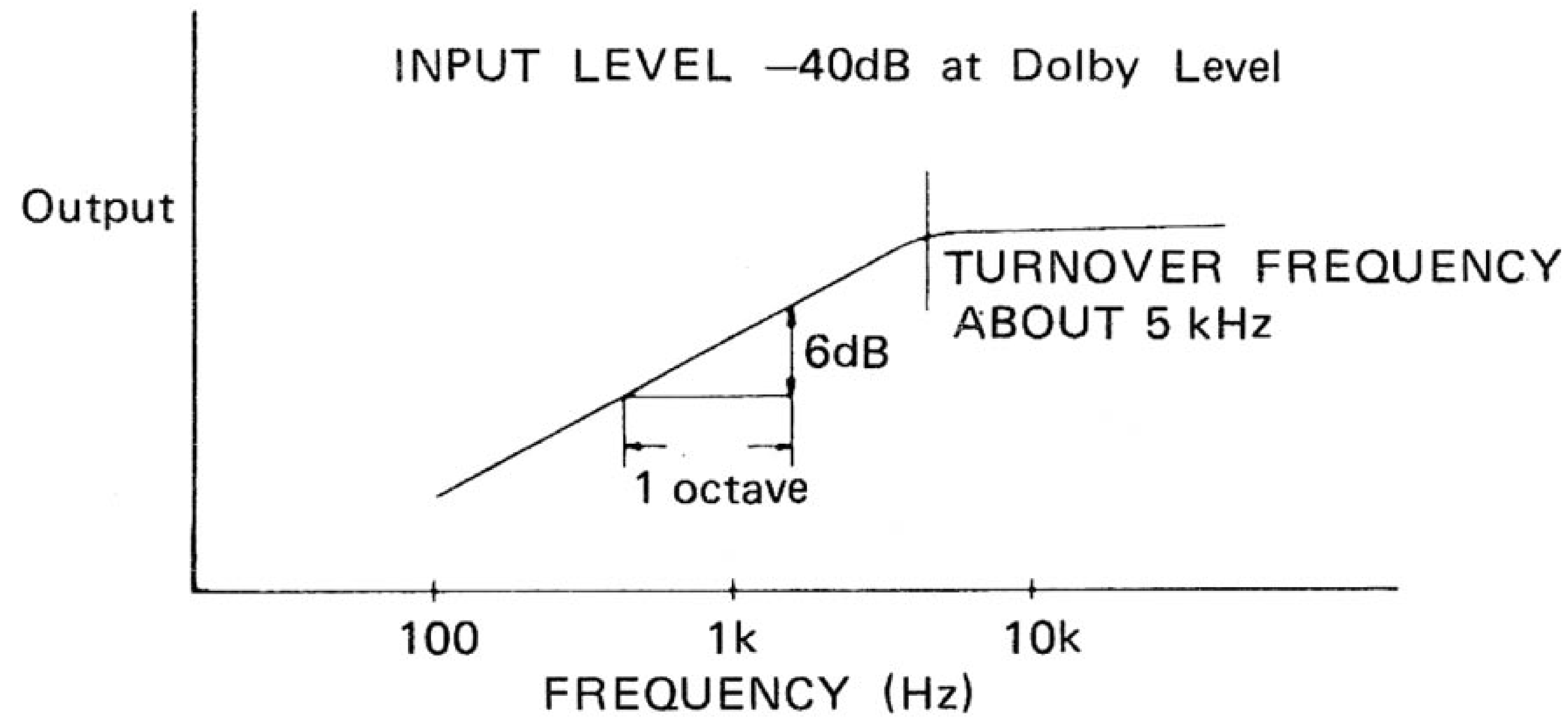


Figure 14–1

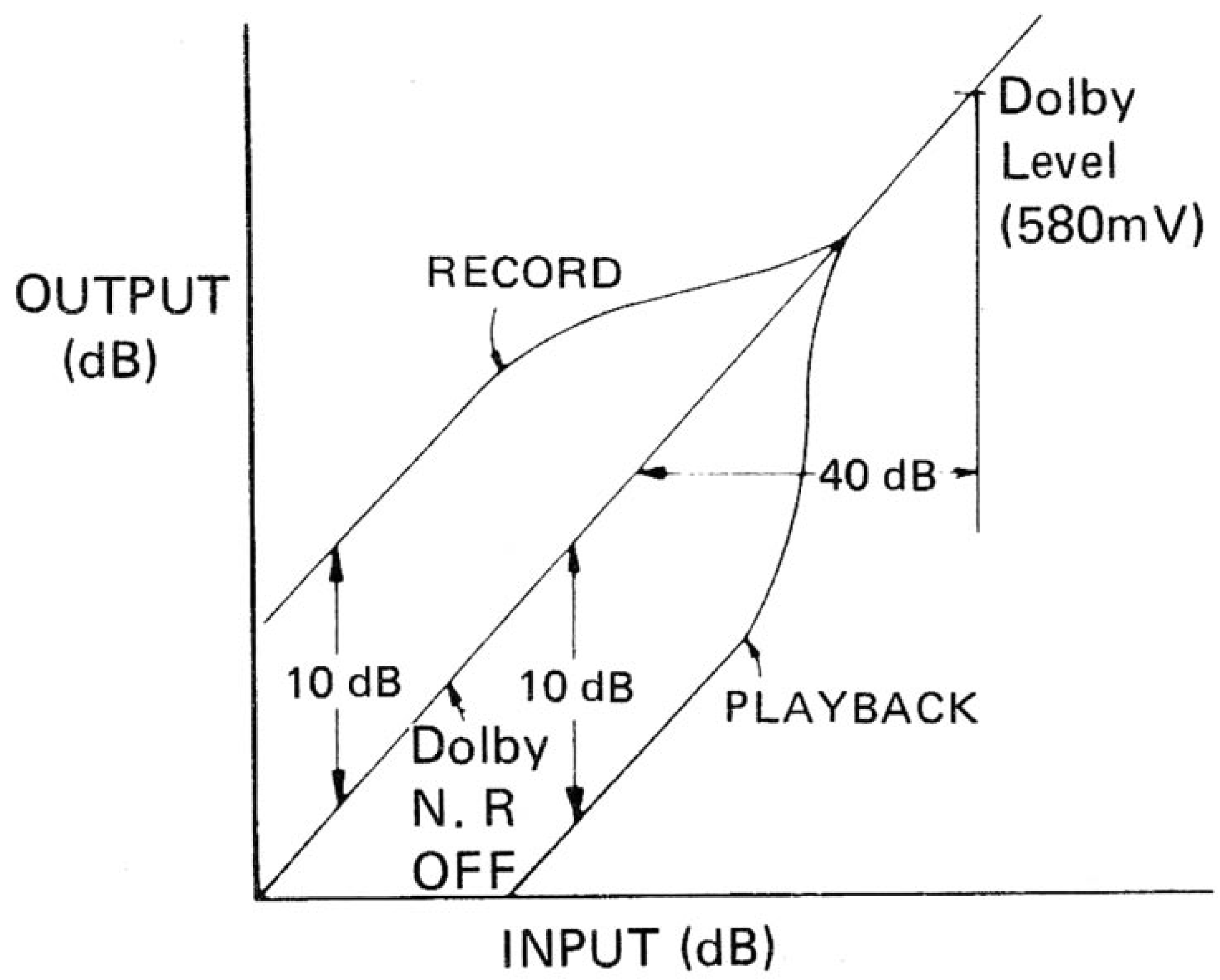


Figure 14–2

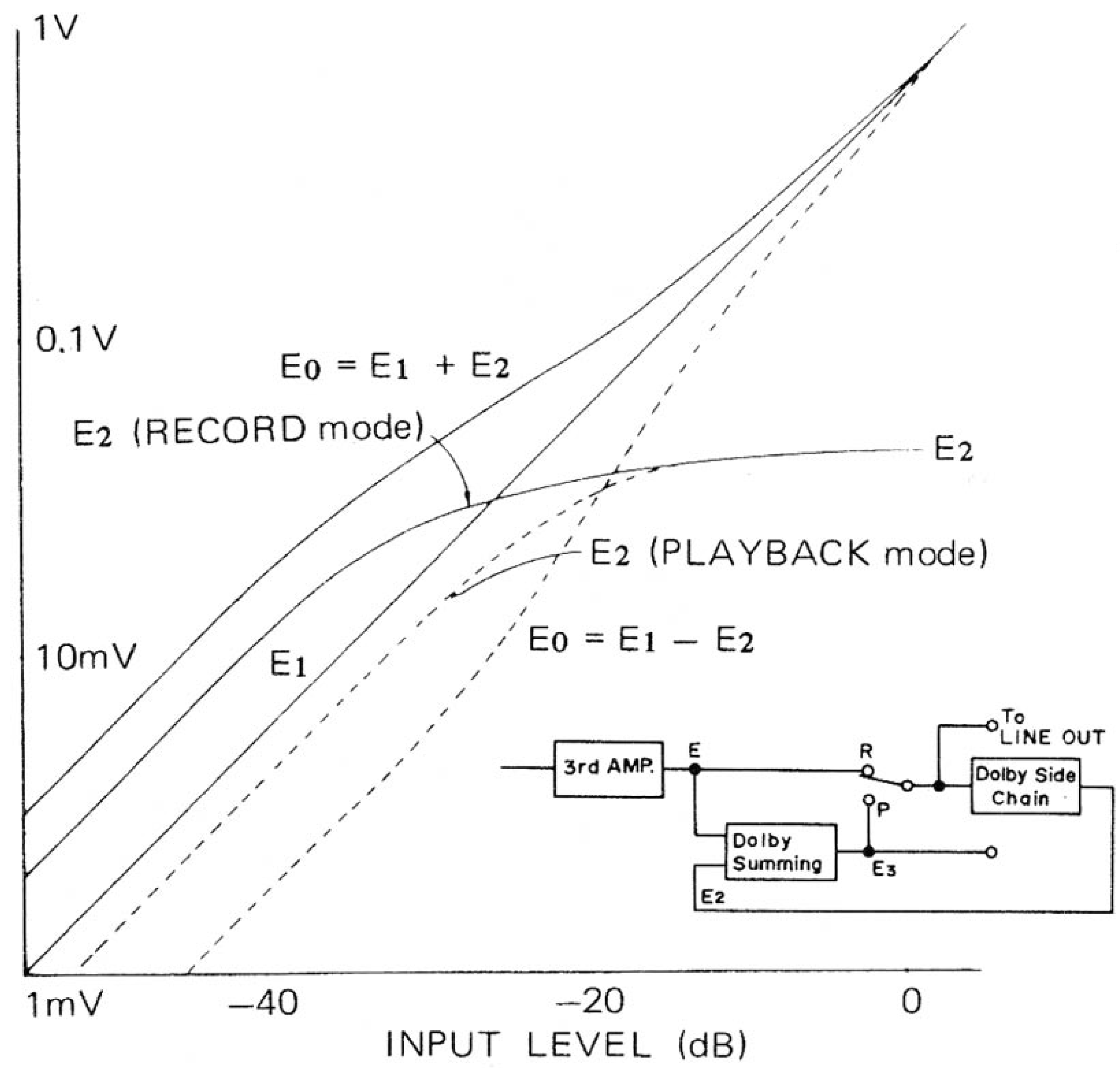


Figure 14–3

Figure 15 MECHANISM EXPLODED TOP VIEW

Figure 16 MECHANISM EXPLODED BOTTOM VIEW

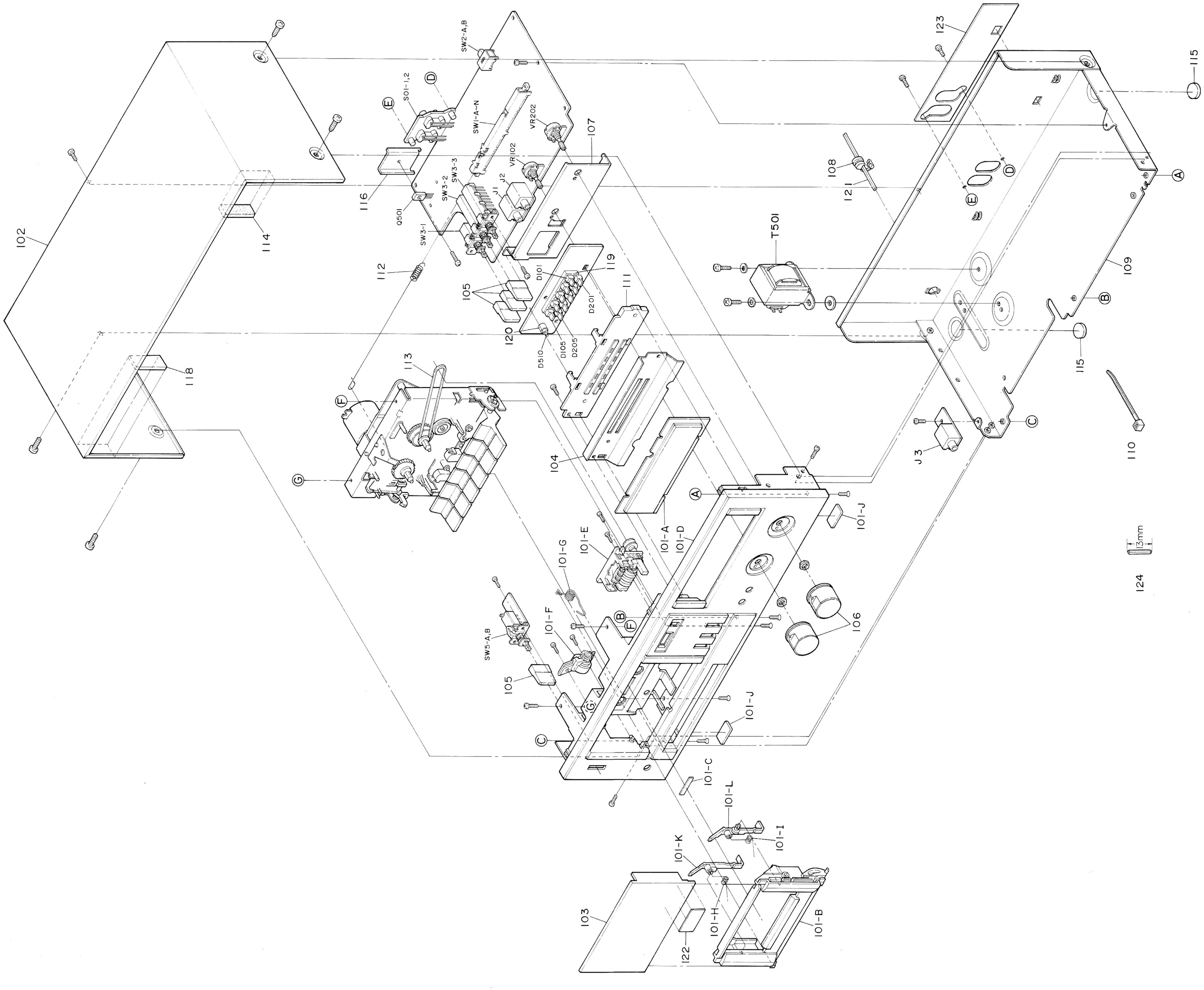


Figure 18 CABINET EXPLODED VIEW

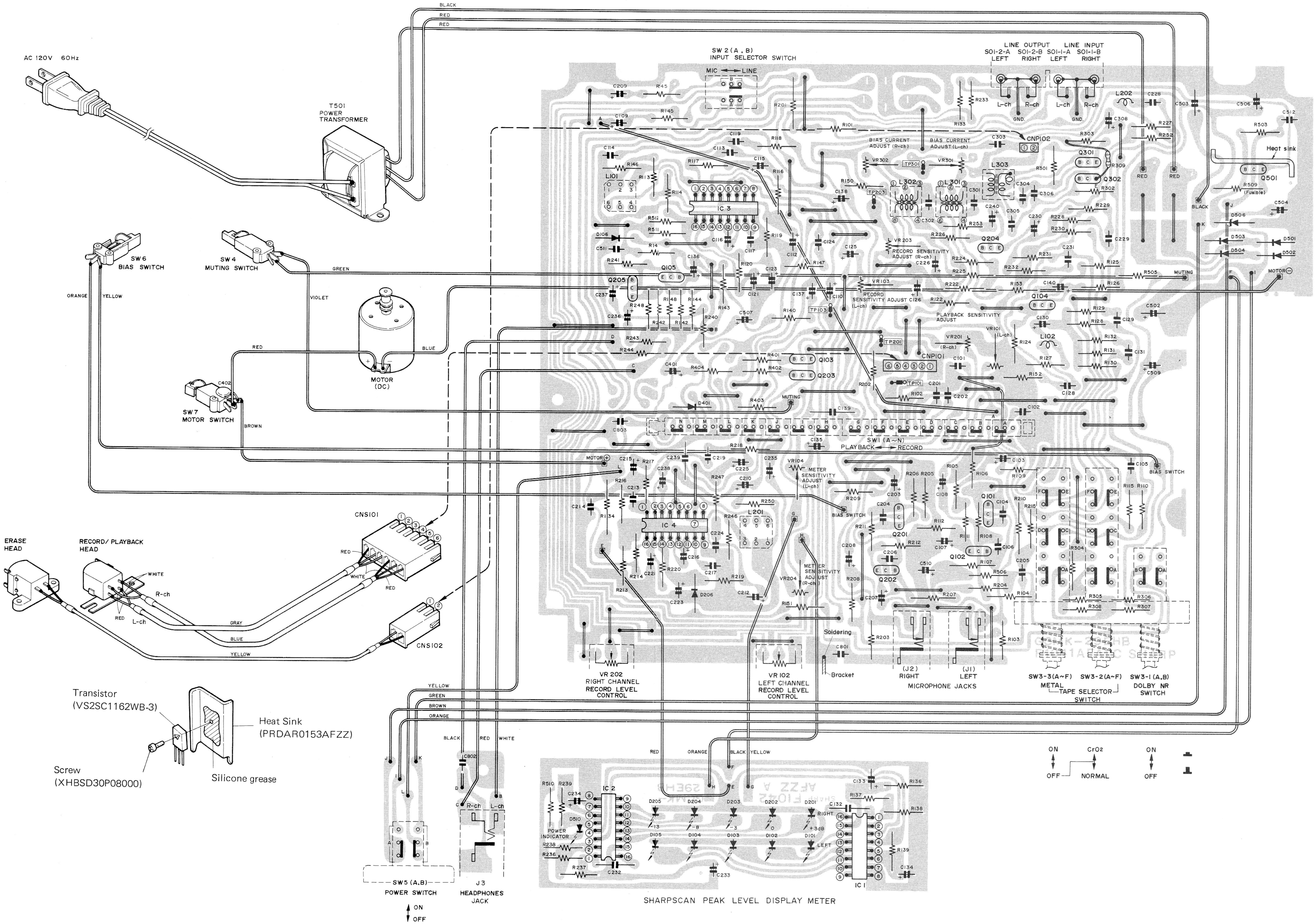
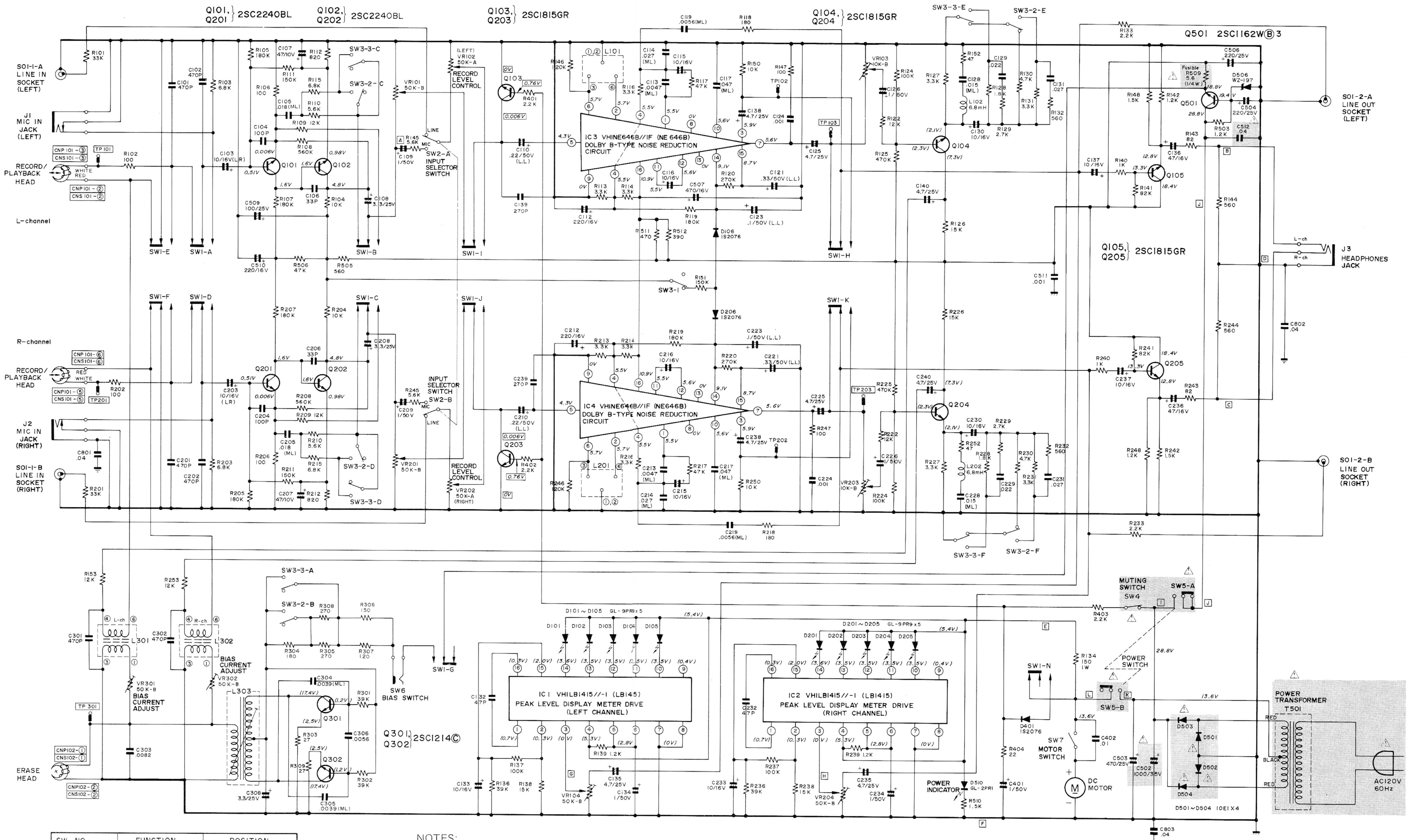
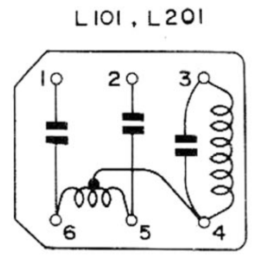


Figure 19 WIRING SIDE OF PRINTED WIRING BOARD



SW. NO	FUNCTION	POSITION
SW1 (A~N)	RECORD/PLAYBACK	PLAYBACK — RECORD
SW2 (A, B)	INPUT SELECTOR	MIC — LINE
SW3-1	DOLBY NR	ON — OFF
SW3-2 (A~E)	TAPE SELECTOR	NOR — CrO2
SW3-3 (A~E)	METAL SWITCH	ON — OFF
SW4	MUTING SWITCH	PLAY/REC — STOP
SW5 (A, B)	POWER SWITCH	ON — OFF
SW6	BIAS SWITCH	ON — OFF
SW7	MOTOR SWITCH	ON — OFF



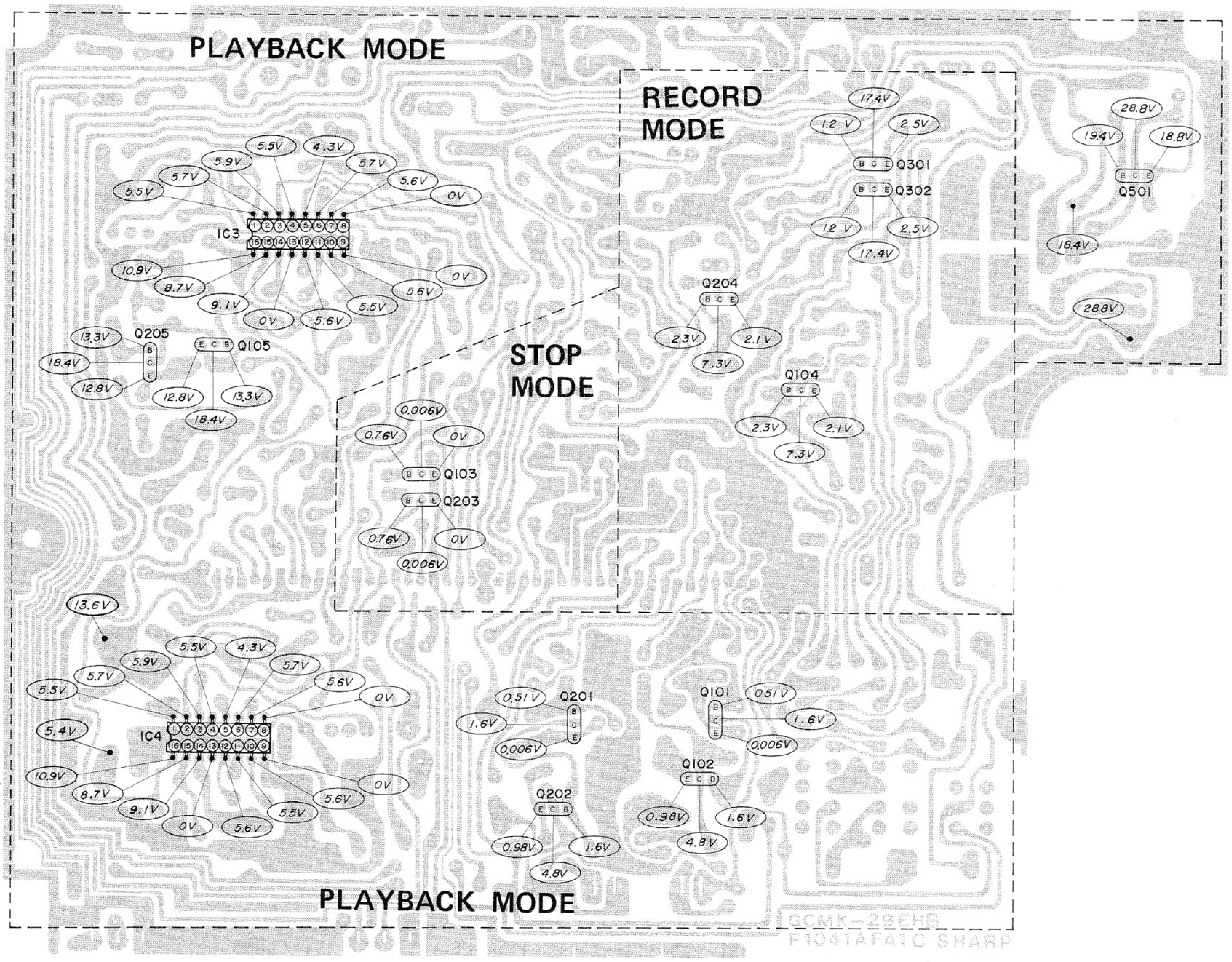
NOTES:
Be sure to use regular parts for securing the safety and reliability of the set. Parts marked with "⚠" and parts crosshatched (in black) are especially important for maintaining the safety and protecting ability of the set. Be sure to replace them with parts of specified part number.

Notes:

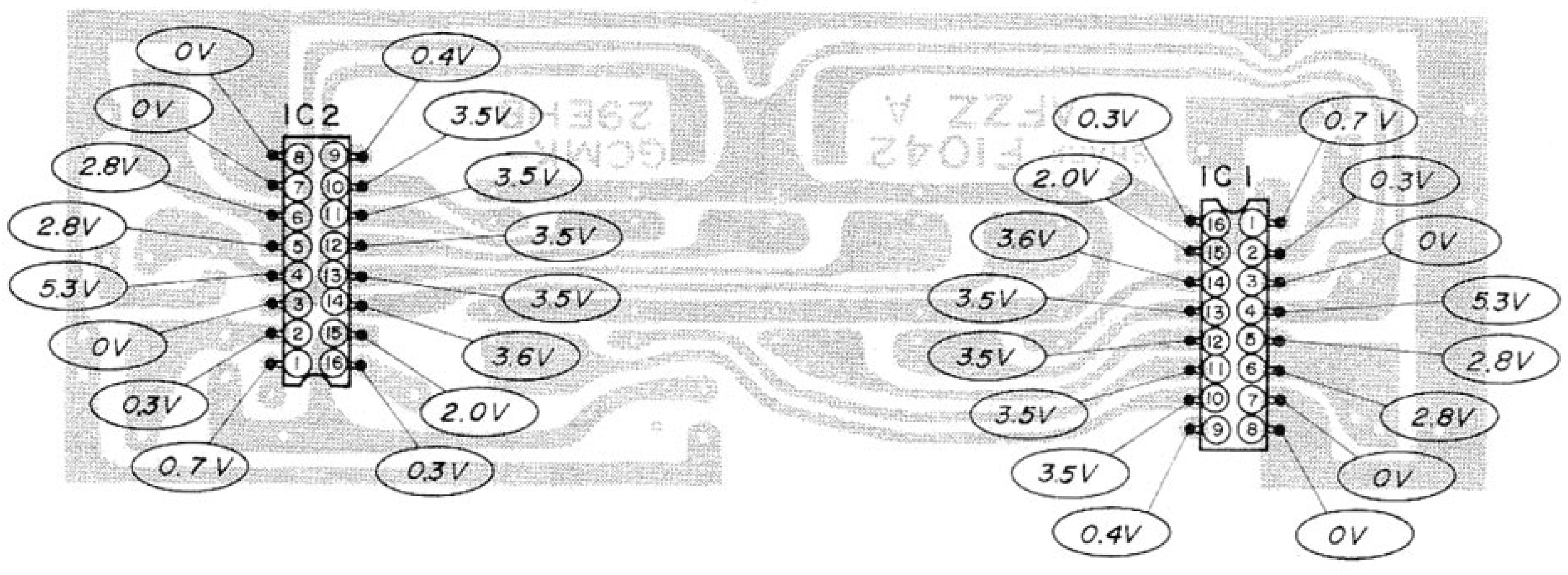
1. Resistor:
   To differentiate the units of resistors, such symbols as K and M are used: the symbol K means 1000 ohm and the symbol M means 1000K ohm and the resistor without any symbol is ohm-type resistor. Besides, the one with "Fusible" is a fuse type.
2. Capacitor:
   To indicate the unit of capacitor, a symbol P is used; this symbol P means micro-microfarad and the unit of the capacitor without such symbol is microfarad. As to electrolytic capacitor, the expression "capacitance/withstand voltage" is used.
3. Voltage values:
   The voltages of all the parts are the ones each measured through a VTVM with respect to the chassis.
   (1) The voltage in parentheses are measured in record mode under the conditions that: enough input signal is applied to cause the segments up to "0dB" of the peak level display meter to light up, the metal tape ON/OFF switch (SW3–3) is at "OFF", Dolby NR switch (SW3–1) is at "OFF", no tape is loaded in the unit.
   (2) The voltage in a square ▭ are measured in stop mode.
   (3) The voltages without parentheses nor a square are measured in play mode under the conditions that both the metal tape ON/OFF switch and Dolby NR switch are at "OFF", no tape is loaded and no input signal is applied.

(Specifications or wiring diagrams of this model are subject to change for the improvement without prior notice)

Figure 21 SCHEMATIC DIAGRAM



RECORD MODE



Notes:

1. The voltages of all the parts are the ones each measured through a VTVM with respect to the chassis.
   (1) The voltages without a special note are the ones available in stop mode.
   (2) The voltages in record mode are measured at the conditions that: enough input signal is applied to cause the segments up to "0dB" of the peak level display meter to light up, the metal tape ON/OFF switch is at "OFF", the Dolby NR switch is also at "OFF", and no tape is loaded in the unit.
   (3) The voltages in play mode are measured at the conditions that: the metal tape ON/OFF switch is at "OFF", the Dolby NR switch is at "OFF", and with no tape loaded and no input signal applied.

Figure 23 VOLTAGES ON PRINTED WIRING BOARD

VHILB1415//–1(LB1415)

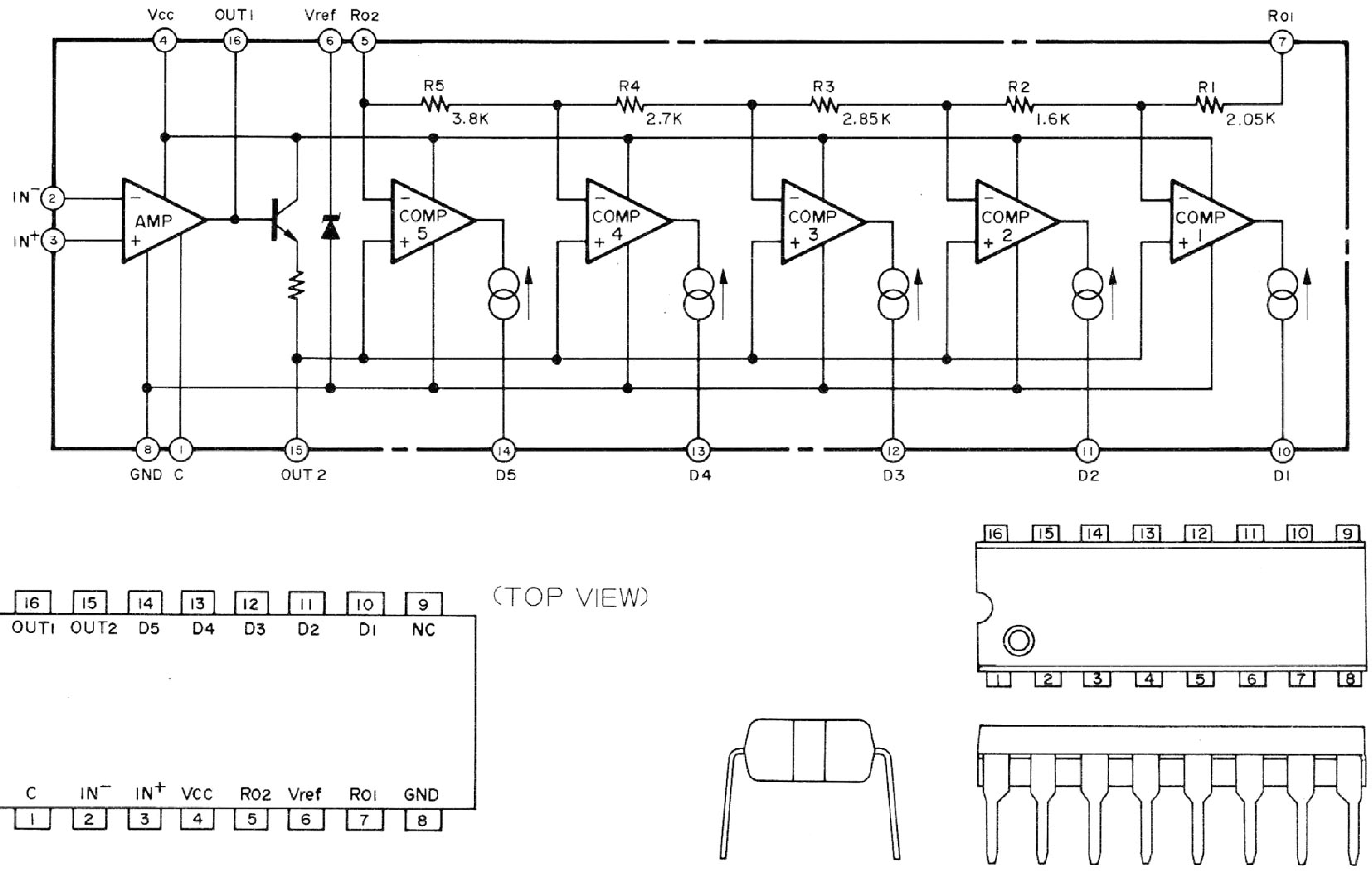


Figure 24–1 BLOCK DIAGRAM OF INTEGRATED CIRCUIT (IC1 and IC2)

VHINE646B//1F(NE646B)

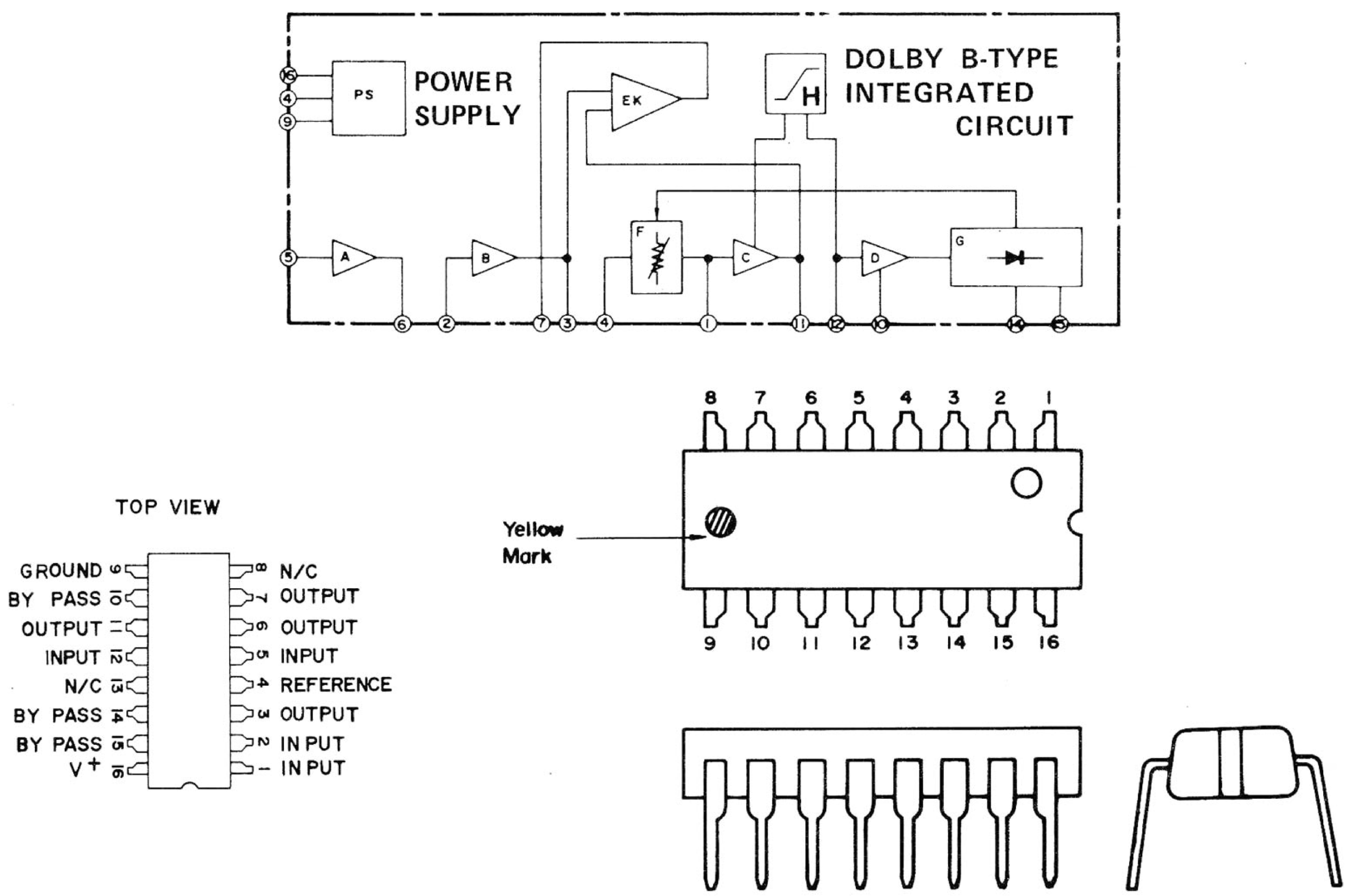
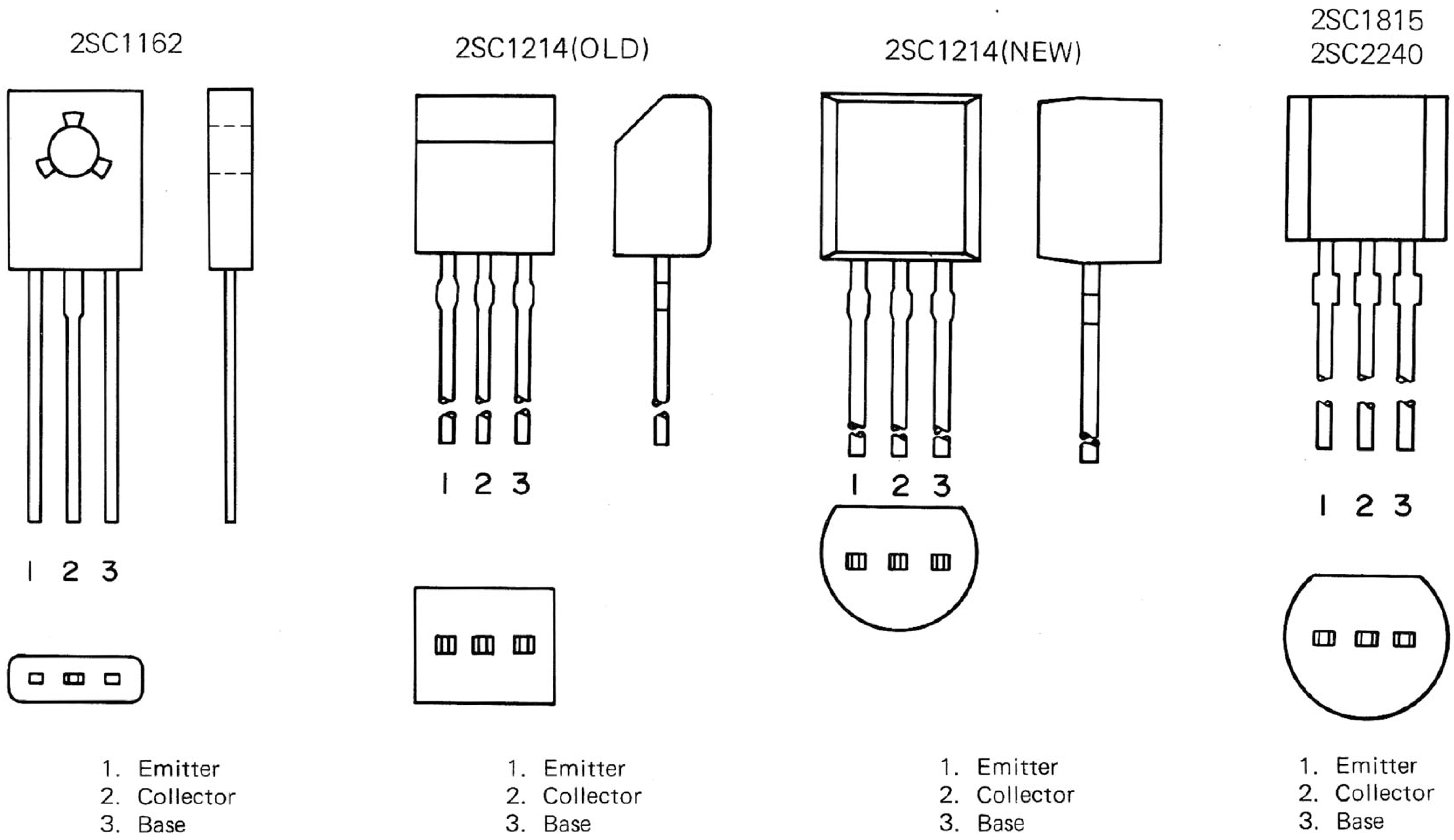


Figure 24–2 BLOCK DIAGRAM OF INTEGRATED CIRCUIT (IC3 and IC4)

TRANSISTORS :



DIODES/LEDS :

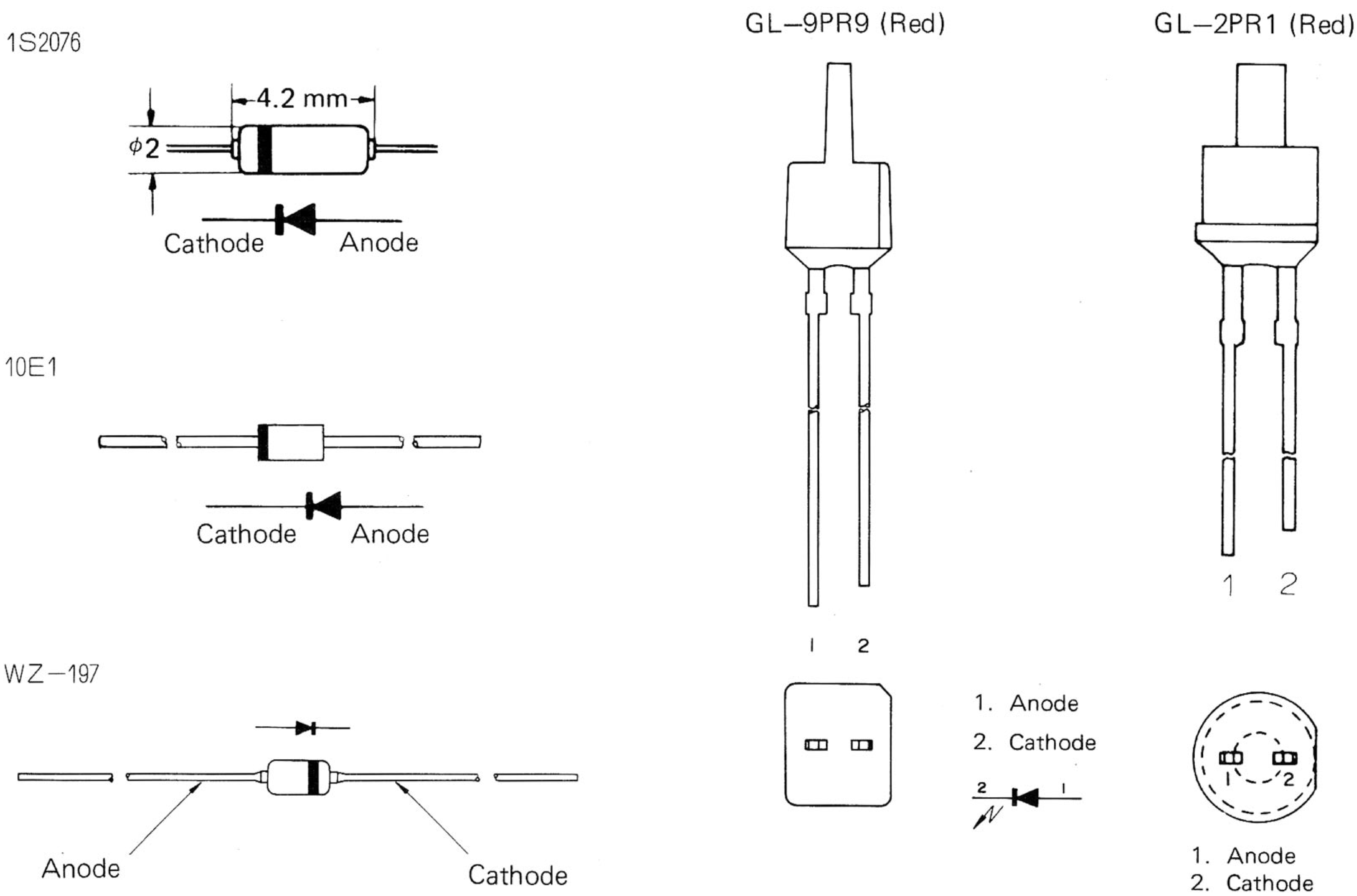


Figure 25 TRANSISTORS, DIODES AND LEDS TYPE

REPLACEMENT PARTS LIST

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informtaion.

1. MODEL NUMBER 2. REF. NO.
3. PART NO. 4. DESCRIPTION

Order to : Parts Center
P.O. Box 664 Paramus, New Jersey 07652 (201) 262-9000
P.O. Box 20394 Long Beach, Calif. 90801 (213) 830-4470

NOTES:
Be sure to use regular parts for securing the safety and reliability of the set. Parts marked with " ⚠ " and parts cross-hatched (in black) are especially important for maintaining the safety and protecting ability of the set.
Be sure to replace them with parts of specified part number.

REF. NO.	PART NO.	DESCRIPTION	CODE
		INTEGRATED CIRCUITS	
IC1, IC2	VHILB1415//-1	Peak Level Display Meter Drive (LB1415)	AH
IC3, IC4	VHINE646B//1F	Dolby B-Type Noise Reduction Circuit (NE646B)	AM
		TRANSISTORS	
Q101, Q201	2SC2240-BL	Pre-Amplifier (Record/Playback) (VS2SC2240BL-1)	AC
Q102, Q202	2SC2240-BL	Pre-Amplifier (Record/Playback) (VS2SC2240BL-1)	AC
Q103, Q203	2SC1815-GR	Muting (VS2SC1815GR-1)	AB
Q104, Q204	2SC1815-GR	Record Equalizer Amplifier (VS2SC1815GR-1)	AB
Q105, Q205	2SC1815-GR	Audio Amplifier (Headphones) (VS2SC1815GR-1)	AB
Q301, Q302	2SC1214Ⓒ	Bias Oscillator (VS2SC1214-C-1)	AC
Q501	2SC1162WⒷ3	Constant Voltage Circuit (VS2SC1162WB-3)	AF
		DIODES AND LED	
D101, D102, D103, D104, D105	GL-9PR9	LED, Peak Level Indicator, Red (VHPGL-9PR9/-1)	AC
D106, D206	1S2076	Diode, Dolby Switching (VHD1S2076//-1)	AB
D201, D202, D203, D204, D205	GL-9PR9	LED, Peak Level Indicator, Red (VHPGL-9PR9/-1)	AC
D401	1S2076	Diode, Muting (VHD1S2076//-1)	AB
⚠D501, ⚠D502, ⚠D503, ⚠D504	10E1	Diode, Power Rectifier (VHD10E1////-1)	AC
D506	WZ-197	Zener Diode, Voltage Regulator (18.9～20.6V) (VHEWZ-197//-1)	AB
D510	GL-2PR1	LED, Power Indicator (VHPGL2PR1//-1)	AC
		COILS	
L101, L201	RCILL0065AFZZ	Dolby Filter (Low Pass Filter), 19kHz and 105kHz Trap	AG
L102, L202	RCILZ0086AFZZ	6.8mH, Record Equalizer	AC
L301, L302	RCILB0476AFZZ	Bias Step-up	AD
L303	RCILB0459AFZZ	Bias Oscillator	AD
		TRANSFORMER	
⚠T501	RTRNP0674AFZZ	Power	AR
		CONTROLS	
VR101, VR201	RVR-M0249AFZZ	50K (B) ohm, Playback Sensitivity Adjust	AB
VR102, VR202	RVR-A0132AFZZ	50K (A) ohm, Record Level Control	AE
VR103, VR203	RVR-M0248AFZZ	10K (B) ohm, Record Sensitivity Adjust	AB
VR104, VR204	RVR-M0249AFZZ	50K (B) ohm, Peak Level Display Meter Sensitivity Adjust	AB
VR301, VR302	RVR-M0249AFZZ	50K (B) ohm, Bias Current Adjust	AB
		ELECTROLYTIC CAPACITORS	
C103, C203	VCEALA1CC106M	10MFD, 16V, ±20%, Orange	AB
C107, C207	RC-EZA476AF1A	47MFD, 10V, ±20%	AB
C108, C208	RC-EZA335AF1E	3.3MFD, 25V, ±20%	AB
C109, C209	RC-EZA105AF1H	1MFD, 50V, ±20%	AB
C110, C210	VCEALA1HW224M	0.22MFD, 50V, ±20%, Yellow	AB
C112, C212	VCEAAV1CW227Y	220MFD, 16V, +50 −10%	AC
C115, C215	RC-EZA106AF1C	10MFD, 16V, ±20%	AB
C116, C216	RC-EZA106AF1C	10MFD, 16V, ±20%	AB
C121, C221	VCEALA1HW334K	0.33MFD, 50V, ±10%, Yellow	AB
C123, C223	VCEALA1HW104K	0.1MFD, 50V, ±10%, Yellow	AB
C125, C225	RC-EZA475AF1E	4.7MFD, 25V, ±20%	AB
C126, C226	RC-EZA105AF1H	1MFD, 50V, ±20%	AB
C130, C230	RC-EZA106AF1C	10MFD, 16V, ±20%	AB
C133, C233	VCEAAA1CW106Y	10MFD, 16V, +50 −10%	AB

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
C134, C234	VCEAAA1HW105A	1MFD, 50V, +75 –10%	AB
C135, C235	RC-EZA475AF1E	4.7MFD, 25V, ±20%	AB
C136, C236	RC-EZA476AF1C	47MFD, 16V, ±20%	AB
C137, C237	RC-EZA106AF1C	10MFD, 16V, ±20%	AB
C138, C238	RC-EZA475AF1E	4.7MFD, 25V, ±20%	AB
C140, C240	RC-EZA475AF1E	4.7MFD, 25V, ±20%	AB
C308	RC-EZA335AF1E	3.3MFD, 25V, ±20%	AB
C401	RC-EZA105AF1H	1MFD, 50V, ±20%	AB
⚠C502	VCEAAV1VW108Y	1000MFD, 35V, +50 –10%	AF
C503	VCEAAV1EW477Y	470MFD, 25V, +50 –10%	AD
C504	VCEAAV1EW227Y	220MFD, 25V, +50 –10%	AC
C506	VCEAAV1EW227Y	220MFD, 25V, +50 –10%	AC
C507	VCEAAV1CW477Y	470MFD, 16V, +50 –10%	AC
C509	RC-EZA107AF1E	100MFD, 25V, ±20%	AC
C510	VCEAAV1CW227Y	220MFD, 16V, +50 –10%	AC

CAPACITORS

REF. NO.	PART NO.	DESCRIPTION	CODE
C101, C201	VCCSPA1HL471J	470PF, 50V, ±5%, Ceramic	AA
C102, C202	VCCSPA1HL471J	470PF, 50V, ±5%, Ceramic	AA
C104, C204	VCCSPA1HL101K	100PF, 50V, ±10%, Ceramic	AA
C105, C205	VCQYKA1HM183J	0.018MFD, 50V, ±5%, Mylar	AB
C106, C206	VCCSPA1HL330J	33PF, 50V, ±5%, Ceramic	AA
C113, C213	VCQYKA1HM472J	0.0047MFD, 50V, ±5%, Mylar	AB
C114, C214	VCQYKA1HM273J	0.027MFD, 50V, ±5%, Mylar	AB
C117, C217	VCQYKA1HM473J	0.047MFD, 50V, ±5%, Mylar	AB
C119, C219	VCQYKA1HM562J	0.0056MFD, 50V, ±5%, Mylar	AB
C124, C224	VCKYPA1HB102K	0.001MFD, 50V, ±10%, Ceramic	AA
C128, C228	VCQYKA1HM153J	0.015MFD, 50V, ±5%, Mylar	AB
C129, C229	VCTYPA1EX223K	0.022MFD, 25V, ±10%, Semiconductor	AA
C131, C231	VCTYPA1EX273K	0.027MFD, 25V, ±10%, Semiconductor	AA
C132, C232	VCCSAT1HL470J	47PF, 50V, ±5%, Ceramic	AA
C139, C239	VCKYAT1HB271K	270PF, 50V, ±10%, Ceramic	AA
C301, C302	VCCSPA1HL471J	470PF, 50V, ±5%, Ceramic	AA
C303	VCQPSU2AA822J	0.0082MFD, 100V, ±5%, Film	AC
C304	VCQYKA1HM392K	0.0039MFD, 50V, ±10%, Mylar	AA
C305	VCQYKA1HM392K	0.0039MFD, 50V, ±10%, Mylar	AA
C306	VCTYPA1EX562K	0.0056MFD, 25V, ±10%, Semiconductor	AA
C402	VCKZPU1HF103Z	0.01MFD, 50V, +80 –20%, Ceramic	AA
C511	VCTYPA1EX102M	0.001MFD, 25V, ±20%, Semiconductor	AA
⚠C512	VCKZPV1HF403Z	0.04MFD, 50V, +80 –20%, Ceramic	AA
C801	VCKZPA1HF403Z	0.04MFD, 50V, +80 –20%, Ceramic	AA
C802	VCKZPV1HF403Z	0.04MFD, 50V, +80 –20%, Ceramic	AA
C803	VCKZPA1HF403Z	0.04MFD, 50V, +80 –20%, Ceramic	AA

RESISTORS

(Unless otherwise specified resistors are 1/4W, ±5%, Carbon Type.)

REF. NO.	PART NO.	DESCRIPTION	CODE
R101, R201	VRD-ST2EE333J	33K ohm	
R102, R202	VRD-ST2EE101J	100 ohm	
R103, R203	VRD-ST2EE682J	6.8K ohm	
R104, R204	VRD-ST2EE103J	10K ohm	
R105, R205	VRD-ST2EE184J	180K ohm	
R106, R206	VRD-ST2EE101J	100 ohm	
R107, R207	VRD-ST2EE184J	180K ohm	
R108, R208	VRD-ST2EE564J	560K ohm	
R109, R209	VRD-ST2EE123J	12K ohm	
R110, R210	VRD-ST2EE562J	5.6K ohm	
R111, R211	VRD-ST2EE154J	150K ohm	
R112, R212	VRD-ST2EE821J	820 ohm	
R113, R213	VRD-ST2EE332J	3.3K ohm	
R114, R214	VRD-ST2EE332J	3.3K ohm	
R115, R215	VRD-ST2EE682J	6.8K ohm	
R116, R216	VRD-ST2EE332J	3.3K ohm	
R117, R217	VRD-ST2EE473J	47K ohm	
R118, R218	VRD-ST2EE181J	180 ohm	
R119, R219	VRD-ST2EE184J	180K ohm	
R120, R220	VRD-ST2EE274J	270K ohm	
R122, R222	VRD-ST2EE123J	12K ohm	
R124, R224	VRD-ST2EE104J	100K ohm	
R125, R225	VRD-ST2EE474J	470K ohm	
R126, R226	VRD-ST2EE153J	15K ohm	
R127, R227	VRD-ST2EE332J	3.3K ohm	
R128, R228	VRD-ST2EE182J	1.8K ohm	

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
R129, R229	VRD-ST2EE272J	2.7K ohm	
R130, R230	VRD-ST2EE472J	4.7K ohm	
R131, R231	VRD-ST2EE332J	3.3K ohm	
R132, R232	VRD-ST2EE561J	560 ohm	
R133, R233	VRD-ST2EE222J	2.2K ohm	
R134	VRS-PT3AB151K	150 ohm, 1W, ±10%, Oxide Film	
R136, R236	VRD-ST2EE393J	39K ohm	
R137, R237	VRD-ST2EE104J	100K ohm	
R138, R238	VRD-ST2EE153J	15K ohm	
R139, R239	VRD-ST2EE122J	1.2K ohm	
R140, R240	VRD-ST2EE102J	1K ohm	
R141, R241	VRD-ST2EE823J	82K ohm	
R142	VRD-ST2EE122J	1.2K ohm	
R143, R243	VRD-ST2EE820J	82 ohm	
R144, R244	VRD-ST2EE561J	560 ohm	
R145, R245	VRD-ST2EE562J	5.6K ohm	
R146, R246	VRD-ST2EE124J	120K ohm	
R147, R247	VRD-ST2EE101J	100 ohm	
R148	VRD-ST2EE152J	1.5K ohm	
R150, R250	VRD-ST2EE103J	10K ohm	
R151	VRD-ST2EE154J	150K ohm	
R152, R252	VRD-ST2EE470J	47 ohm	
R153, R253	VRD-ST2EE123J	12K ohm	
R242	VRD-ST2EE152J	1.5K ohm	
R248	VRD-ST2EE122J	1.2K ohm	
R301	VRD-ST2EE393J	39K ohm	
R302	VRD-ST2EE393J	39K ohm	
R303	VRD-ST2EE270J	27 ohm	
R304	VRD-ST2EE181J	180 ohm	
R305	VRD-ST2EE271J	270 ohm	
R306	VRD-ST2EE151J	150 ohm	
R307	VRD-ST2EE121J	120 ohm	
R308	VRD-ST2EE271J	270 ohm	
R309	VRD-SU2EE270J	27 ohm	
R401	VRD-ST2EE222J	2.2K ohm	
R402	VRD-ST2EE222J	2.2K ohm	
R403	VRD-ST2EE222J	2.2K ohm	
R404	VRD-ST2EE220J	22 ohm	
R503	VRD-ST2EE122J	1.2K ohm	
R505	VRD-ST2EE561J	560 ohm	
R506	VRD-ST2EE473J	47K ohm	
⚠R509	RR-XZ1028AFZZ	5.6 ohm, 1/4W, ±5%, Fusible	AB
R510	VRD-ST2EE152J	1.5K ohm	
R511	VRD-ST2EE471J	470 ohm	
R512	VRD-ST2EE391J	390 ohm	

MECHANICAL PARTS (KMECB0077AF00)

REF. NO.	PART NO.	DESCRIPTION	CODE
01	JKNBR0157AFSA	Key, Stop/Eject, Play, Rewind, Fast Forward, Pause	AC
02	JKNBR0157AFSB	Key, Record	AC
03	LANGF0545AFZZ	Bracket, Flywheel	AD
04	LANGF0546AFFW	Bracket, Function Key Shaft, Right Side	AB
05	LANGF0547AFFW	Bracket, Function Key Shaft, Left Side	AB
06	LBSHZ0054AFZZ	Spacer, Auto-Stop Sensor Lever	AA
07	LCHSM0329AFZZ	Mechanism Chassis	–
08	LCHSS0149AFZZ	Mechanism Sub-chassis	–
09	LHLDW3007AGFD	Wire Holder	AA
10	LSTPF0052AFFW	Stopper, Function Key Shaft	AB
11	LSTWC2001AFZZ	Stop Ring, 2mm Dia.	AA
12	LSTWC2403AFZZ	Stop Ring, 2.4mm Dia.	AA
13	LSTWC3002AFZZ	Stop Ring, 3mm Dia.	AA
14	LSTWC4004AFZZ	Stop Ring, 4mm Dia.	AA
15	LX-BZ0107AGZZ	Screw, Flywheel Thrust Adjust	AB
16	LX-BZ0282AFFD	Screw, Sub-chassis Retaining Plate Spring	AA
17	LX-HZ0056AFFD	Screw with Flange, Flywheel Bracket Retaining, ϕ3 x 10mm	AA
18	LX-WZ5018AGZZ	Washer, 2.1mm Dia. x 4mm Dia. x 0.25mm	AA
19	LX-WZ5037AGZZ	Washer, 2.6mm Dia. x 4.7mm Dia. x 0.25mm	AA
20	LX-WZ9053AFZZ	Washer, Oil Cut	AA
21	LX-WZ9063AFZZ	Washer, 1.2mm Dia.	AA
22	LX-WZ9064AFZZ	Washer, 1.5mm Dia.	AA
23	LX-WZ9065AFZZ	Washer, 2mm Dia.	AA
24	MLEVF1004AFZZ	Lever, Play	AC
25	MLEVF1005AFZZ	Lever, Rewind	AB
26	MLEVF1006AFZZ	Lever, Fast-Forward	AC
27	MLEVF1007AFZZ	Lever, Stop/Eject	AB
28	MLEVF1008AFZZ	Lever, Record	AC
29	MLEVF1009AFZZ	Lever, Pause	AD
30	MLEVF1010AFZZ	Lever, Lock (Function Lever Lock Lever) Release	AC
31	MLEVF1011AFZZ	Lever, Brake	AC
32	MLEVF1012AFZZ	Lever, Function Lever Lock	AC
33	MLEVF1013AFZZ	Lever, Auto-Stop Killer	AB
34	MLEVF1014AFZZ	Lever, Record/Playback Selector Switch Interlocking	AB
35	MLEVF1036AFZZ	Lever, Pause Lock	AA
36	MLEVP0112AFZZ	Lever, Cassette Holder Lock	AC
37	MLEVP0168AFZZ	Lever, Auto-Stop Sensor	AB
38	MLEVP0169AFZZ	Lever, Record Safety (Fool-Proof)	AB
39	MLEVP0170AFZZ	Lever, Rewind/Fast-Forward Shift	AB
40	MLEVP0192AFZZ	Lever, Supply Turntable Brake	AC
41	MLEVP0195AFZZ	Lever, Pause Brake	AE
42	MSPRC0031AGMN	Spring, Record/Playback Head Azimuth Adjust	AA
43	MSPRC0195AFFJ	Spring, Function Lever Lock Lever	AA
44	MSPRC0197AFFJ	Spring, Play Lever	AA

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
45	MSPRC0198AFFJ	Spring, Pause Lever	AA
46	MSPRC0199AFFJ	Spring, Lock (Function Lever Lock Lever) Release Lever	AA
47	MSPRC0201AFFJ	Spring, Auto-Stop Sensor Lever Spacer	AA
48	MSPRD0241AFFJ	Spring, Cassette Holder Lock Lever	AA
49	MSPRD0242AFFJ	Spring, Over Stroke Absorbing	AA
50	MSPRD0243AFFJ	Spring, Pressure Roller	AA
51	MSPRD0244AFFJ	Spring, Pause Lock Lever	AA
52	MSPRD0245AFFJ	Spring, Brake Lever	AA
53	MSPRD0246AFFJ	Spring, Supply Turntable Brake Lever	AA
54	MSPRD0247AFFJ	Spring, Auto -Stop Killer Lever	AA
55	MSPRD0248AFFJ	Spring, Fast-Forward/Rewind Roller	AA
56	MSPRD0249AFFJ	Spring, Fast-Forward/Rewind Shift Lever, Left Side	AA
57	MSPRD0250AFFJ	Spring, Fast-Forward/Rewind Shift Lever, Right Side	AA
58	MSPRD0274AFFJ	Spring, Pause Brake	
59	MSPRD0275AFFJ	Spring, Pause Brake Lever	AA
60	MSPRP0231AFFW	Plate Spring, Sub-chassis Retaining	AB
61	MSPRP0232AFFW	Plate Spring, Cassette Retaining	AC
62	MSPRT0623AFFJ	Spring, Record Safety (Fool-Proof) Lever	AA
63	MSPRT0624AFFJ	Spring, Take-up Idler	AA
64	MSPRT0625AFFJ	Spring, Fast-Forward Lever	AA
65	MSPRT0626AFFJ	Spring, Rewind Lever	AA
66	MSPRT0627AFFJ	Spring, Stop/Eject Lever	AA
67	NBALS0053AFZZ	Steel Ball, 3.5mm Dia.	AA
68	NBLTH0071AFZZ	Belt, Mechanism Drive	AC
69	NBLTK0153AFZZ	Belt, Auto-Stop Mechanism	AB
70	NBRGC0061AFZZ	Bearing, Capstan	AE
71	NDAIR0138AFSA	Turntable, Take-up	AF
72	NDAIR0139AFSA	Turntable, Supply	AD
73	NDRM-0161AFZZ	Worm Wheel, Auto-Stop Mechanism	AE
74	NFLYC0082AFZZ	Flywheel	AH
75	NIDR-0061AFZZ	Idler, Take-up	AF
76	NPLYR0050AFZZ	Pulley, Take-up, Rubber	AB
77	NPLYR0068AFZZ	Worm Pulley, Auto-Stop Mechanism	AD
78	NROLW0012AFZZ	Roller, Fast-Forward/Rewind Operating	AG
79	NROLX0013AFZZ	Gear, Rewind	AB
80	NROLY0030AFZZ	Pressure Roller Assembly	AE
81	NSFTN0004AFFW	Shaft, Auto-Stop Worm Wheel	AC
82	NSFTT0140AFFP	Shaft, Function Key	AD
83	PCUSG0026AG00	Rubber, Supply Turntable Brake Lever	AA
84	PCUSG0112AF00	Cushion, Rubber, Function Lever Shock Absorb	AA
85	PGIDM0074AFZZ	Guide, Auto-Stop Sensor Lever	AC
86	PGUMM0111AF00	Rubber Holder, Pause Brake Lever	
87	RHEDA0075AFZZ	Head, Erase	AL
88	RHEDH0085AFZZ	Head, Record/Playback	AS
89	RMOTV0081AFZZ	Motor (DC)	AU

MISCELLANEOUS

REF. NO.	PART NO.	DESCRIPTION	CODE
101	CPNLC1284AF01	Front Panel Assembly (RT-10)	AY
101-A	GCOVA1187AFSA	Window (Transparent), Peak Level Display Meter	AH
101-B	GFTAC1120AFSA	Cassette Holder	AF
101-C	HDECZ0063AFSA	Mirror Sheet, Cassette Compartment	AA
101-D	HPNLC1284AFSA	Front Panel	AT
101-E	KCOUB0092AFZZ	Digital Tape Counter	AK
101-F	MLIFP0008AFZZ	Damper, Cassette Holder	
101-G	MSPRD0251AFFJ	Spring, Damper	AB
101-H	MSPRD0271AFFJ	Spring, Cassette Tape Guide, Left Side	AA
101-I	MSPRD0272AFFJ	Spring, Cassette Tape Guide, Right Side	AA
101-J	PFLT-0404AFZZ	Felt, Front Leg (Front Panel)	AA
101-K	PGIDM0075AFSA	Guide, Cassette Tape, Left Side	AB
•101-L	PGIDM0076AFSA	Guide, Cassette Tape, Right Side	AB
101	CPNLC1312AF01	Front Panel Assembly (RT-10BK)	
101-A	GCOVA1187AFSA	Window (Transparent), Peak Level Display Meter	AH
101-B	GFTAC1120AFSC	Cassette Holder	AF
101-C	HDECZ0063AFSA	Mirror Sheet, Cassette Compartment	AA
101-D	HPNLC1312AFSA	Front Panel	
101-E	KCOUB0092AFZZ	Digital Tape Counter	AK
101-F	MLIFP0008AFZZ	Damper, Cassette Holder	
101-G	MSPRD0251AFFJ	Spring, Damper	AB
101-H	MSPRD0271AFFJ	Spring, Cassette Tape Guide, Left Side	AA
101-I	MSPRD0272AFFJ	Spring, Cassette Tape Guide, Right Side	AA
101-J	PFLT-0404AFZZ	Felt, Front Leg (Front Panel)	AA
101-K	PGIDM0075AFSC	Guide, Cassette Tape, Left Side	AB
•101-L	PGIDM0076AFSC	Guide, Cassette Tape, Right Side	AB
102	GCAB-3093AFSA	Cabinet (RT-10)	AN
	GCAB-3093AFSB	Cabinet (RT-10BK)	AN
103	GCOVA1186AFSA	Window, Cassette Compartment (Transparent)	AF
104	HDECA0400AFSA	Indication Metal, Peak Level Display Meter (RT-10)	AX
	HDECA0400AFSC	Indication Metal, Peak Level Display Meter (RT-10BK)	AE
105	JKNBM0341AFSA	Knob, Power Switch, Dolby NR Switch, Tape Selector Switches	AB
106	JKNBN0448AFSA	Knob, Record Level Controls (RT-10)	AE
	JKNBN0448AFSB	Knob, Record Level Controls (RT-10BK)	AE
107	LANGQ0744AFZZ	Bracket, Record Level Control Retaining	AD
△108	LBSHC0007AFZZ	Bushing, AC Supply Cord	AB
109	LCHSM0328AFZZ	Main Chassis (Rear Panel)	
110	LHLDW1075AFZZ	Wire Holder, 60mm	AA
111	LHLDZ1105AFSA	Holder, Peak Level Display Meter P.W. Board (RT-10)	AE
	LHLDZ1105AFSB	Holder, Peak Level Display Meter P.W. Board (RT-10BK)	AE
112	MSPRT0662AFFJ	Spring, Record/Playback Selector Switch Interlocking	AA
113	NBLTK0154AFZZ	Belt, Tape Counter Drive	AC
114	PCUSG0117AF00	Cushion, Cabinet (30 x 10 x t4mm)	AA
115	PFLT-0405AFZZ	Felt, Rear Leg (Main Chassis)	AA

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
116	PRDAR0153AFZZ	Heat Sink	AC
118	PSPAI0159AFZZ	Hardboard, Cabinet (40 x 13 x t 3.5mm)	AA
119	PSPAS0106AFSA	LED Spacer, Peak Level Indicators	AC
120	PSPAS0108AFSA	LED Spacer, Power Indicator	AC
⚠121	QACCD0055AF00	AC Supply Cord	AF
124	QLUGP0111CEFW	Lug Terminal, Printed Wiring Board	AA
CNP101	QCNCM175FAFZZ	Connecting Plug (6-Pin)	AC
CNP102	QCNCM171BAFZZ	Connecting Plug (2-Pin)	AB
CNS101	QCNW-0687AFZZ	Connecting Socket (6-Pin) Assembly	AH
CNS102	QCNW-0713AFZZ	Connecting Socket (2-Pin) Assembly	AE
J1	QJAKZ0066AFZZ	Jack, Microphone, Left Channel	AE
J2	QJAKZ0066AFZZ	Jack, Microphone, Right Channel	AE
J3	QJAKJ0059AFZZ	Jack, Headphones	AE
SO1-1, 2-(A, B)	QSOCJ0471AFZZ	Socket, Line Inputs/Outputs (SO1-1-A, B; Line Inputs / SO1-2-A, B; Line Outputs)	AG
SW1-A ∼ N	QSW-S0253AFZZ	Switch, Record/Playback Selector	AH
SW2-A, B	QSW-S0268AFZZ	Switch, Input Selector (Microphone/Line)	AD
SW3-1 ∼3	QSW-P0254AFZZ	Switches (SW3-1-A, B; Dolby NR / SW3-2-A∼F; Tape Selector (CrO2/Normal) / SW3-3-A∼F; Tape Selector (Metal ON/OFF))	AM
⚠SW4	QSW-F0136AFZZ	Switch, Muting	AD
⚠SW5-A, B	QSW-P0253AFZZ	Switch, Power ON/OFF	AE
SW6	QSW-F0136AFZZ	Switch, Bias	AD
SW7	QSW-F0049AGZZ	Switch, Motor	AE
	QCNW-0718AFZZ	Connecting Cord (RCA Pin Type) x 2	AH
	SPAKA0622AFZZ	Cushion, Packing Case	AD
	SPAKC1434AFZZ	Packing Case (RT-10)	AH
	SPAKC1463AFZZ	Packing Case (RT-10BK)	AH
	SSAKA0024AFZZ	Polyethylene Bag, Operation Manual	AA
	SSAKH0075AGZZ	Polyethylene Bag, Set	AB
	TCAUS0012AFZZ	Caution Label, Main Chassis (Bottom)	
	TCAUS0083AFZZ	Caution Label, Cabinet (RT-10BK)	
	TCAUS0093AFZZ	Caution Label, Cabinet (RT-10)	
122	TLABZ0142AFZZ	Label, METAL	
	TINSE0651AFZZ	Operation Manual	AE
123	TSPC-0612AFZZ	Specification Panel (RT-10)	AB
	TSPC-0622AFZZ	Specification Panel (RT-10BK)	AB
	TMAPC0648AFZZ	Schematic Diagram	

P.W.B. ASSEMBLY (Not Replacement Item)

PART NO.	DESCRIPTION	CODE
DUNTU0046AF03 (Combined Assembly)	Record/Playback Amp. Circiut, Power Switch, Headphones	–