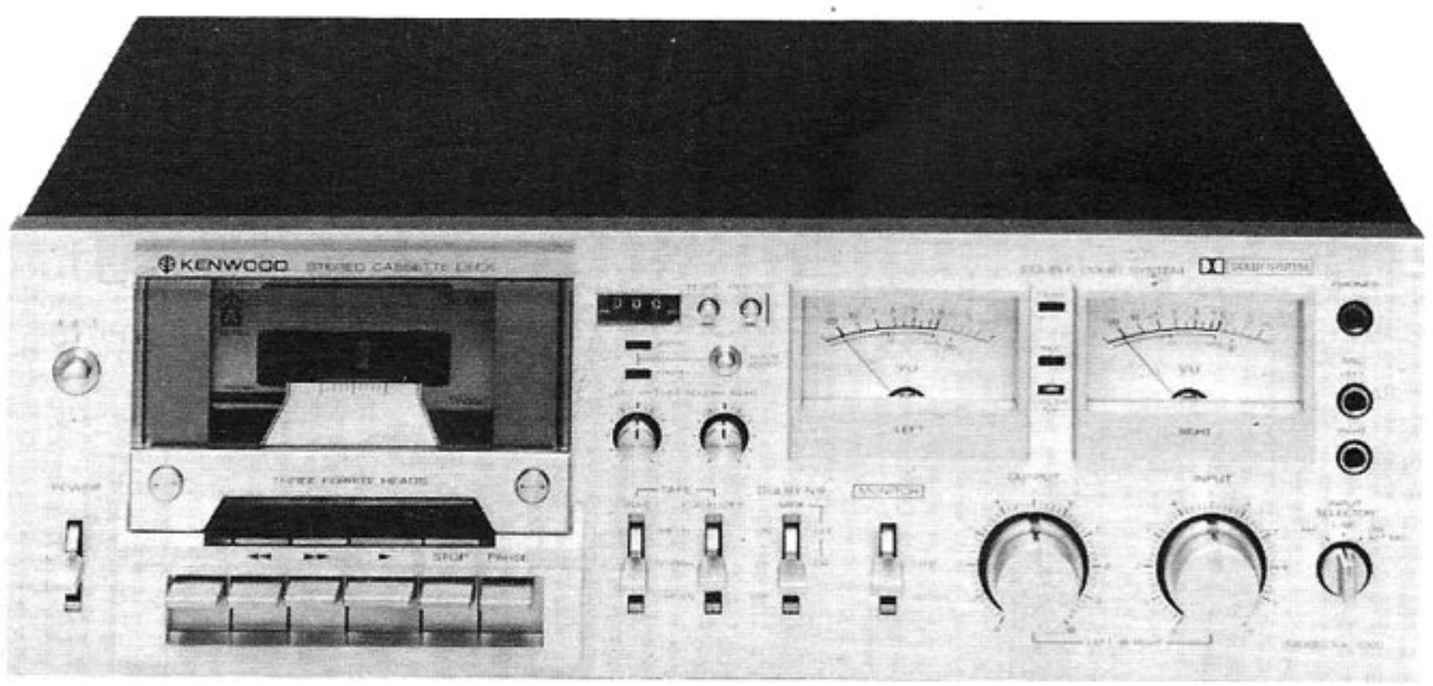
KENWOOD

HI/FI STEREO COMPONENTS

SERVICE MANUAL

KX-1060
(KX-1006)



STEREO CASSETTE DECK

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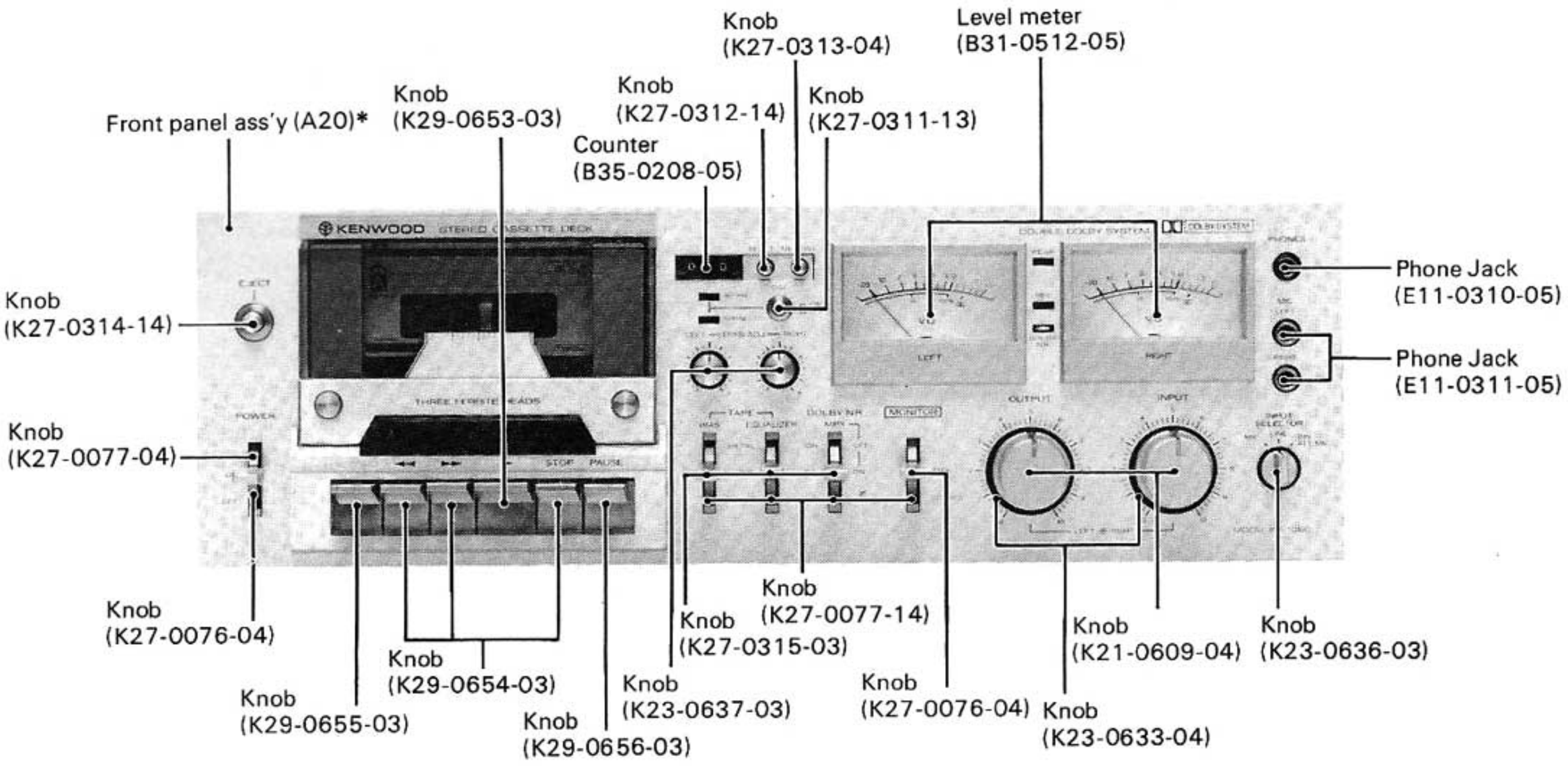
Note:

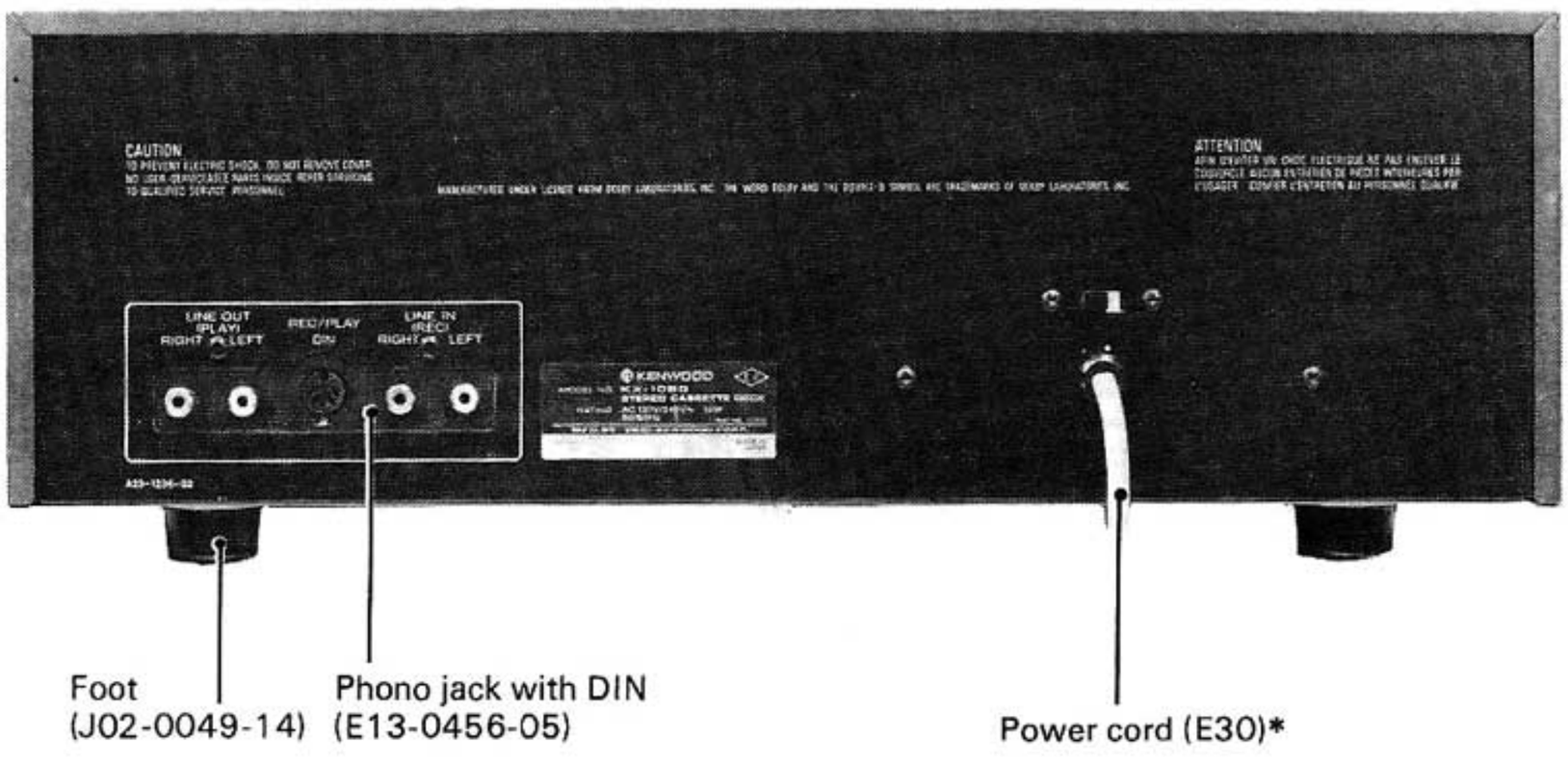
Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, the U.S. (K) standard, and provides information on regional circuit modification through use of afternate schematic diagrams, and information on regional component variations through use of parts list.

Region	Code
U.S.A.	K
Canada	P
PX	U
Australia	X
Europe	W
England	T
South Africa	S
Other Areas	M
Audio Club (KX-1006)	H

Dolby is a Trade Mark of Dolby Laboratories Inc.

EXTERNAL VIEW





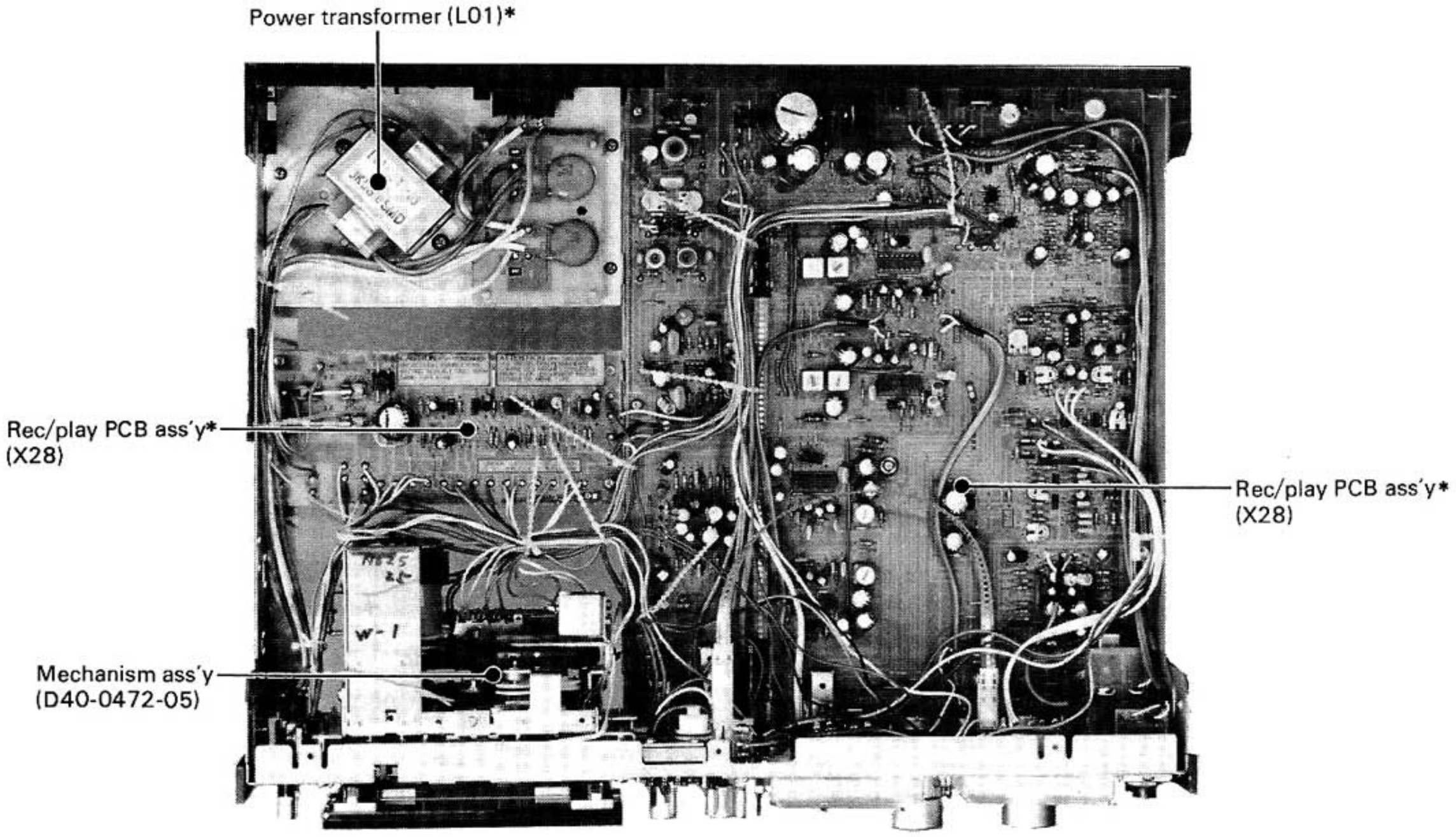
Foot (J02-0049-14)

Phono jack with DIN (E13-0456-05)

Power cord (E30)*

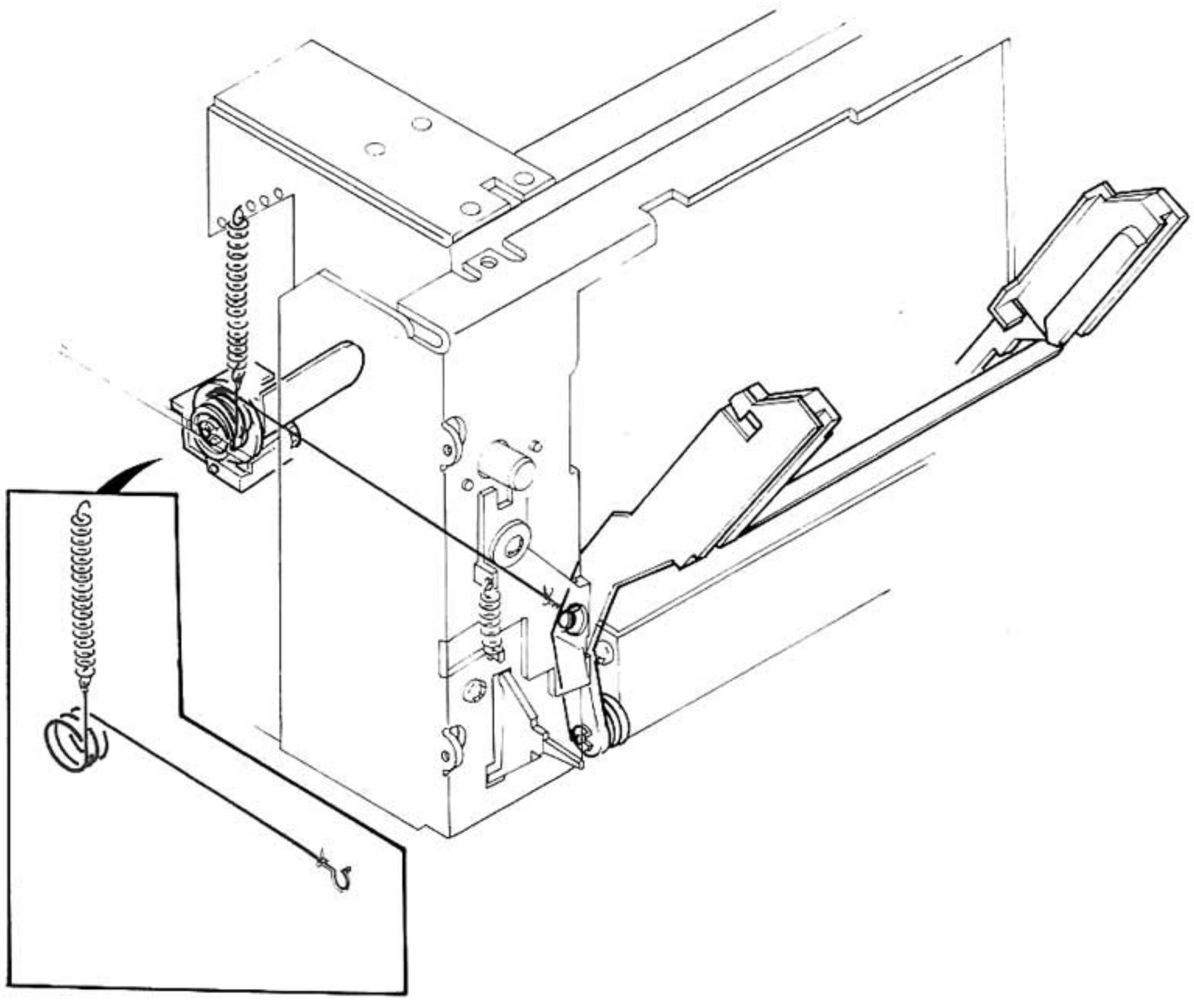
* Refer to Parts List.

INTERNAL VIEW/CORD STRINGING FOR EJECT MECHANISM

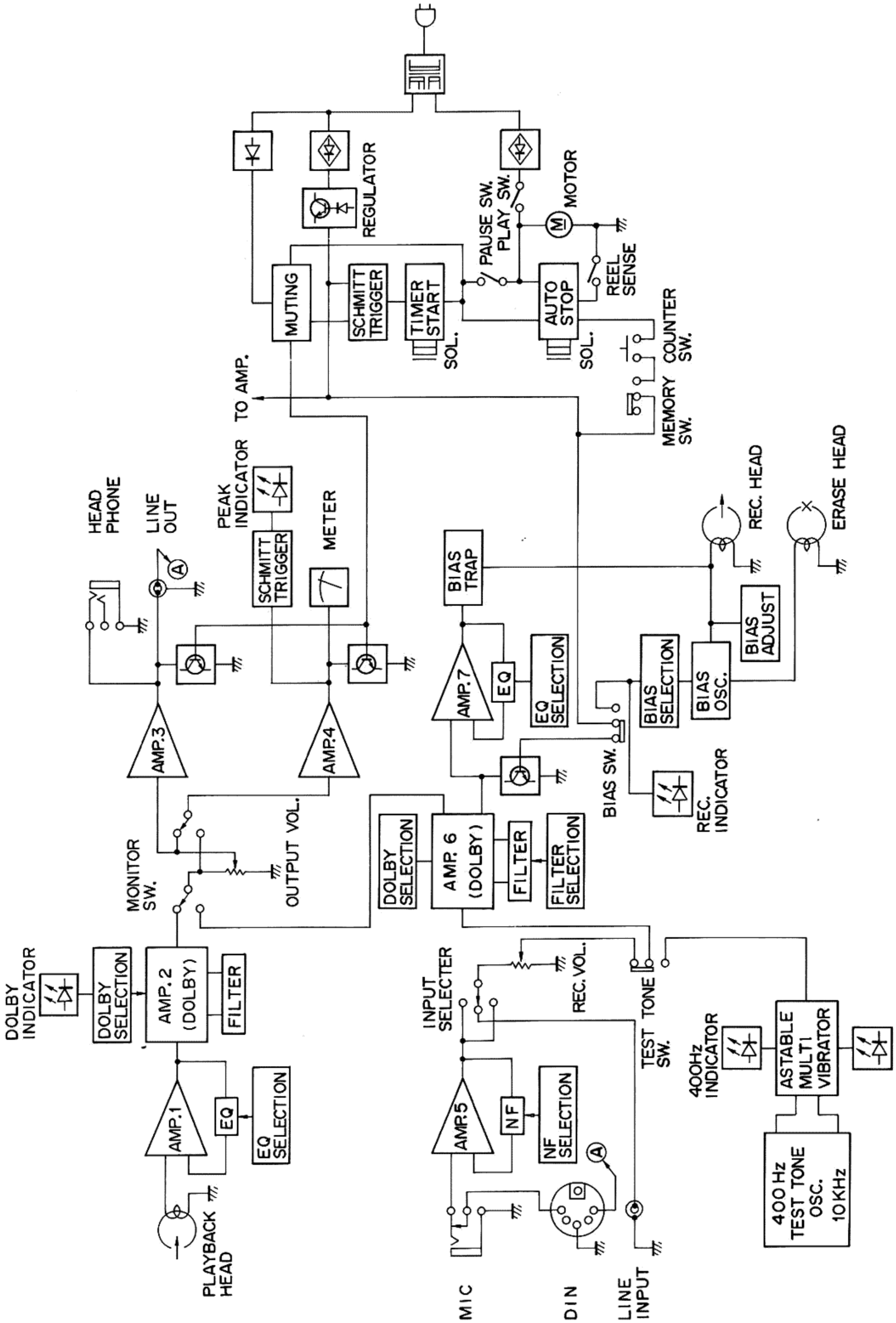


* Refer to Parts List.

CORD STRINGING FOR EJECT MECHANISM

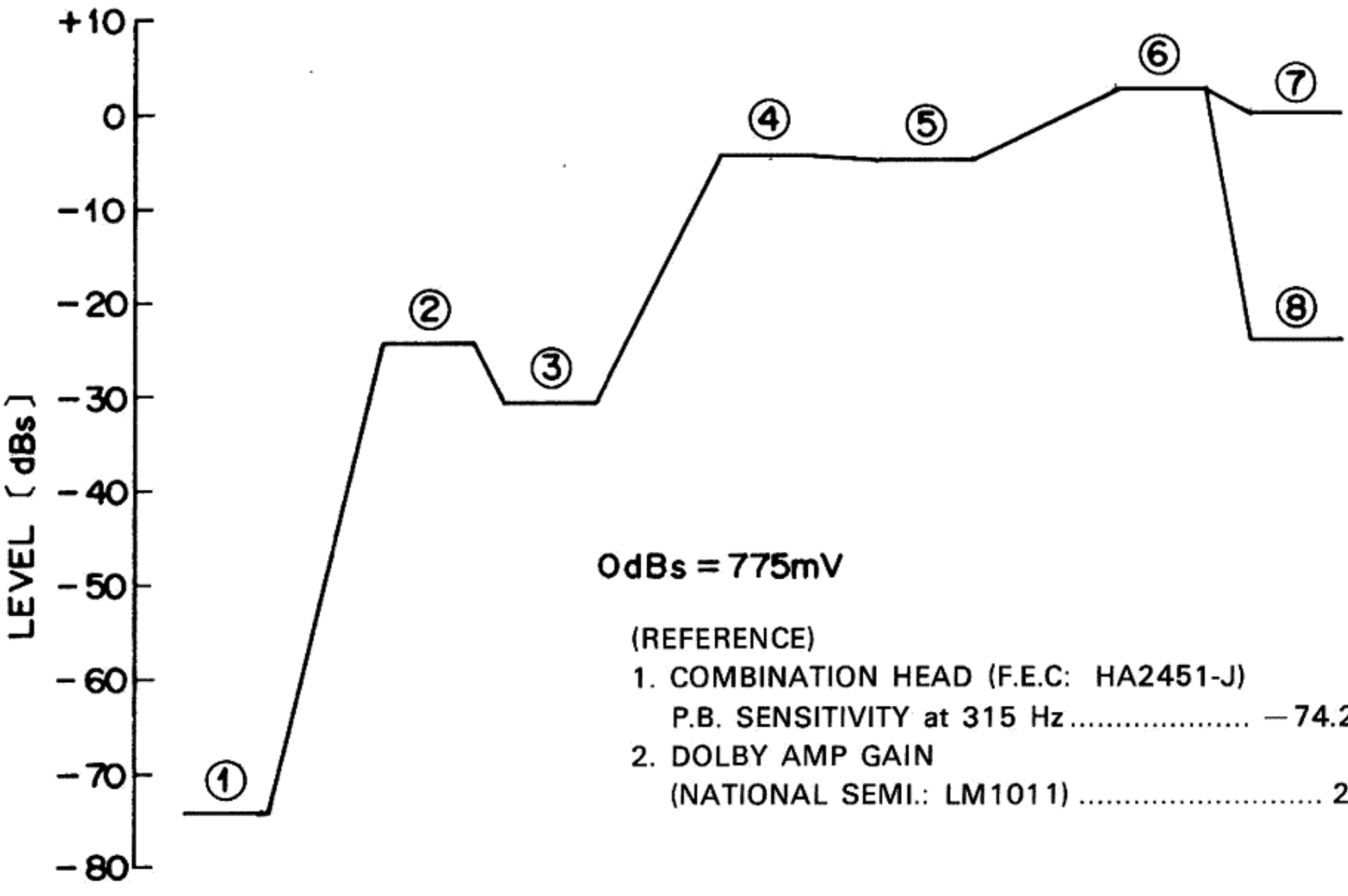


BLOCK DIAGRAM



LEVEL DIAGRAM (1)

PLAYBACK LEVEL DIAGRAM at 315 Hz (OUTPUT VOL.: MAX)

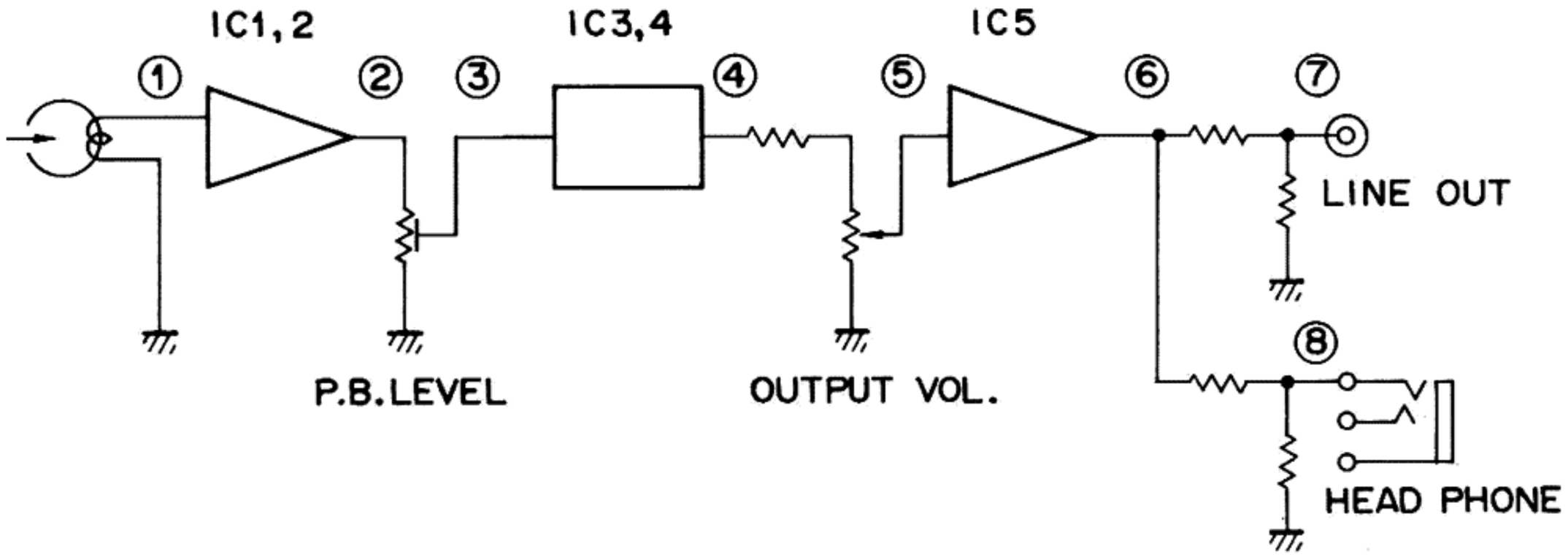


NO.	LEVEL (dBs)
1	−74.2
2	−24.5
3	−30.5
4	−4.5
5	−4.9
6	+2.5
7	0
8	−24.0

0dBs = 775mV

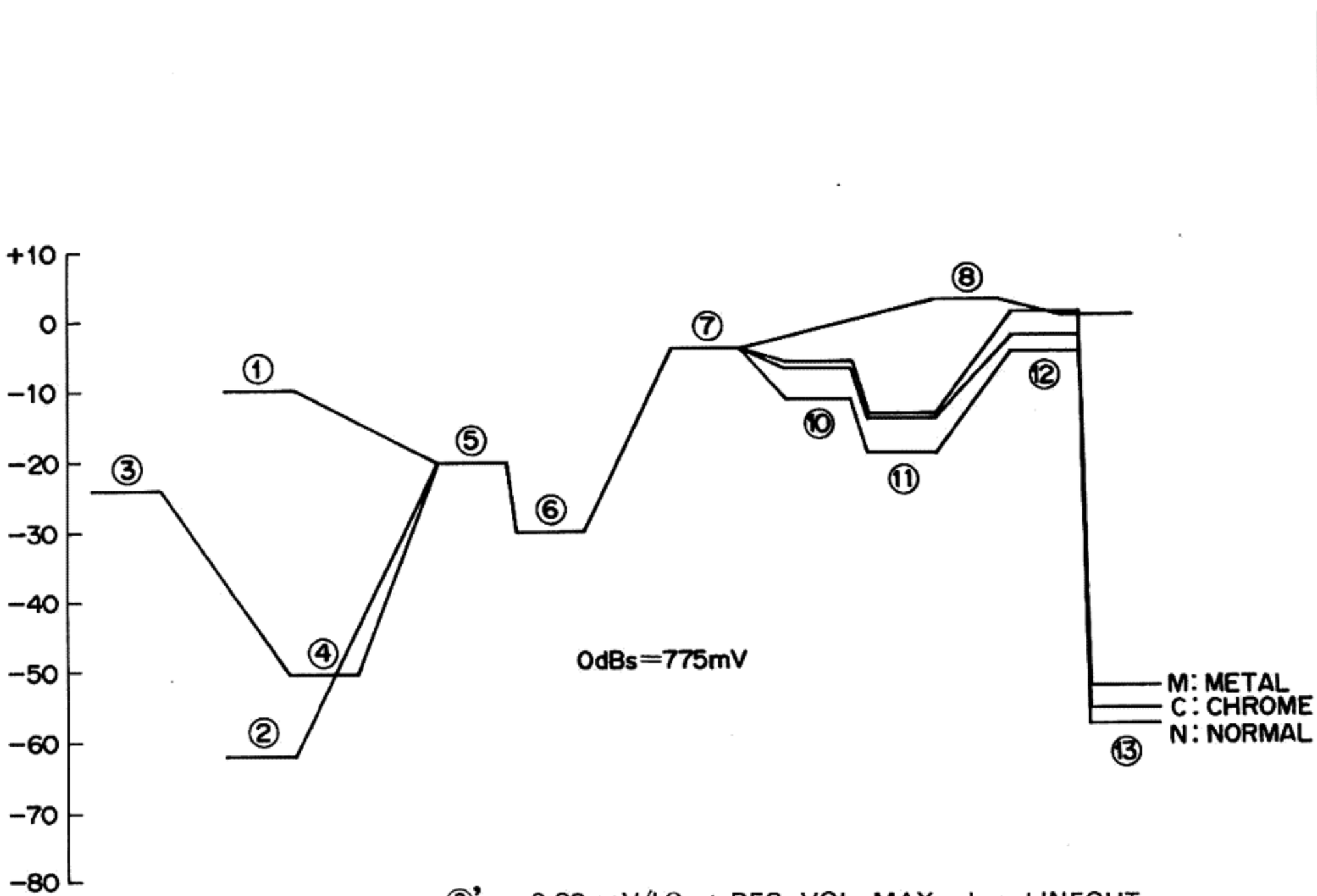
(REFERENCE)

1. COMBINATION HEAD (F.E.C: HA2451-J)
   P.B. SENSITIVITY at 315 Hz ..... −74.2 dBs
2. DOLBY AMP GAIN
   (NATIONAL SEMI.: LM1011) ..... 26 dB



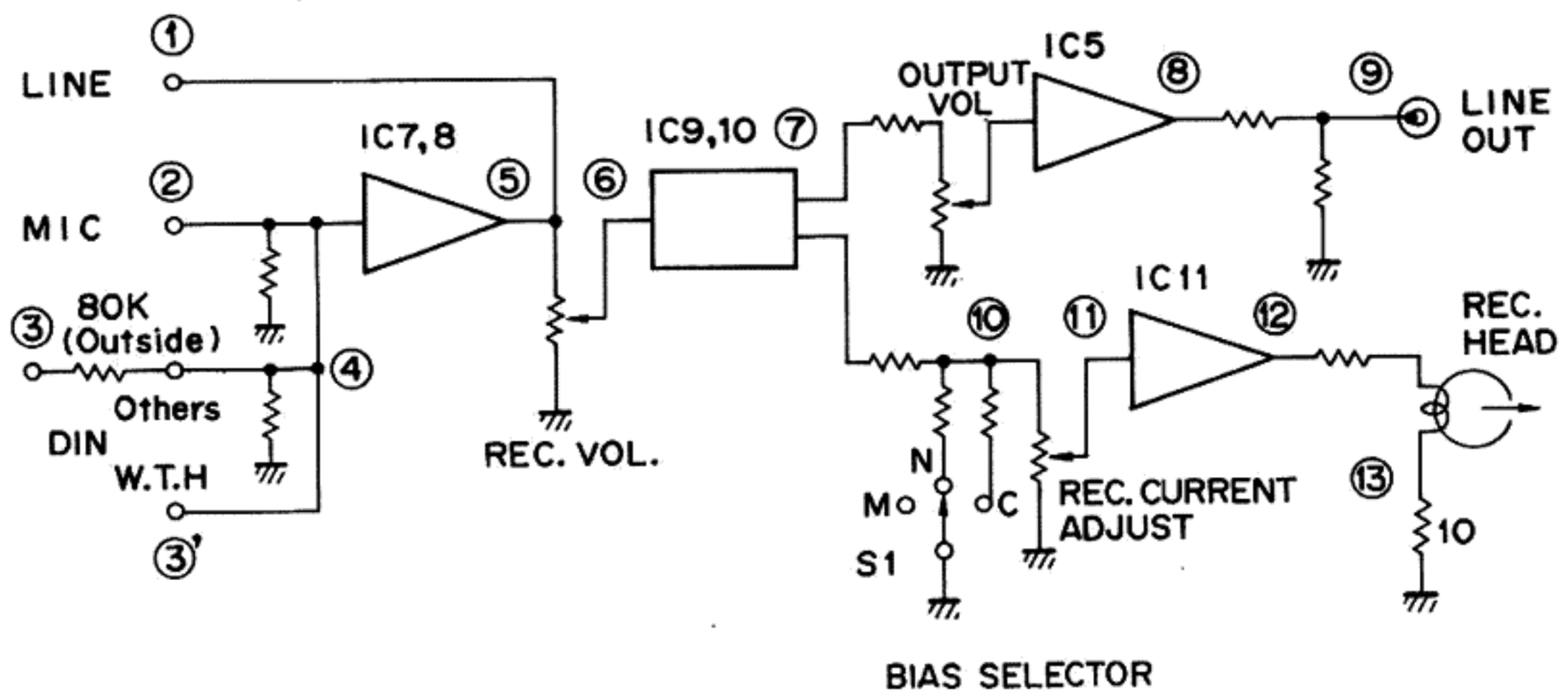
LEVEL DIAGRAM (2)

REC. LEVEL DIAGRAM at 315 Hz (OUTPUT VOL.: MAX)



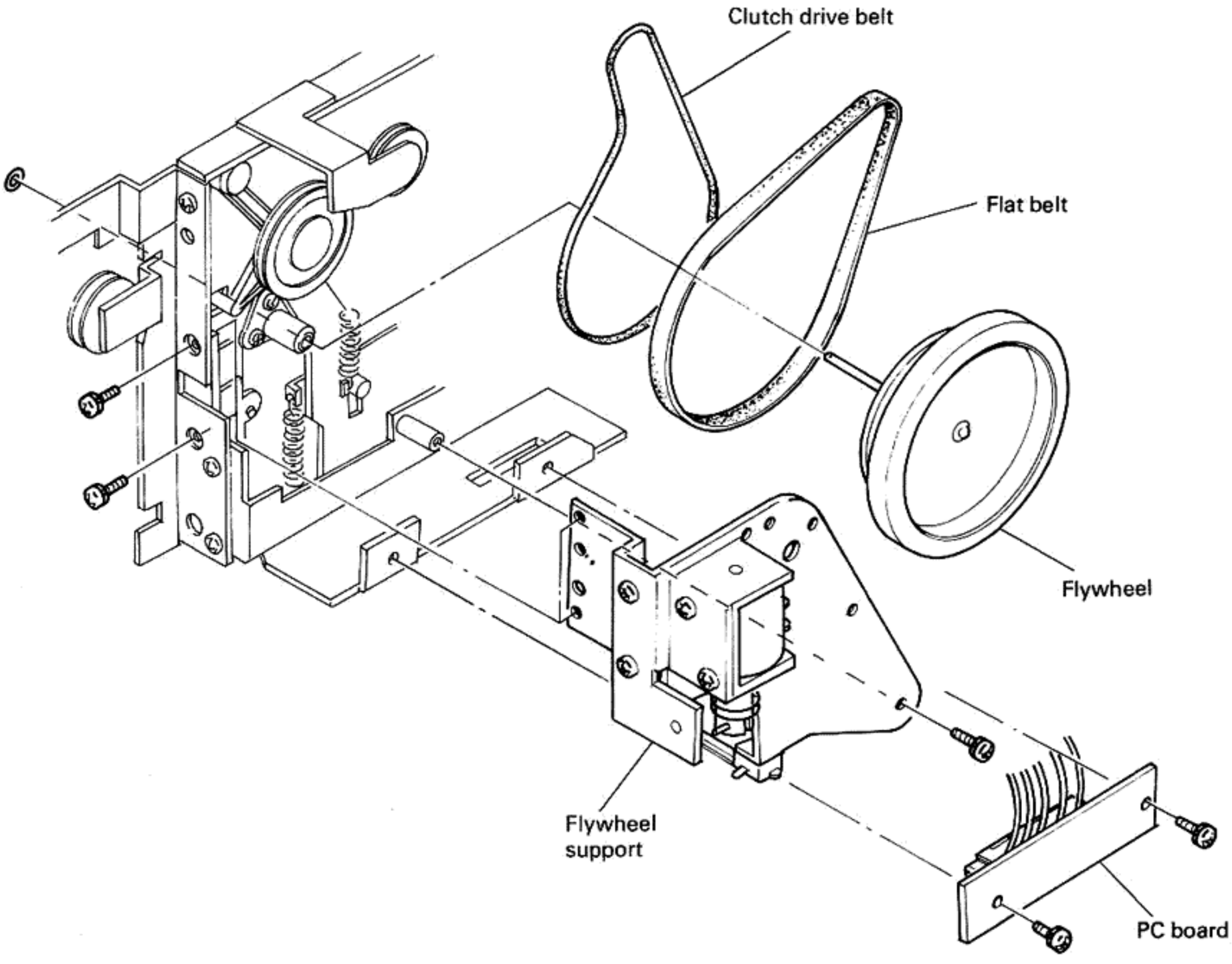
NO.		LEVEL (dBs)
1		−10
2		−62
3		−24
4		−50.5
5		−20.5
6		−30.5
7		−4.5
8		+2.5
9		0
10	M	−6.5
	N	−11.8
	C	−7.3
11	M	−13.8
	N	−19.3
	C	−14.6
12	M	+0.6
	N	−5.0
	C	−2.8
13	M	−53.1
	N	−58.7
	C	−56.5

③'..... 0.08 mV/kΩ at REC. VOL. MAX when LINEOUT LEVEL ⑨ indicates +4 dBs.



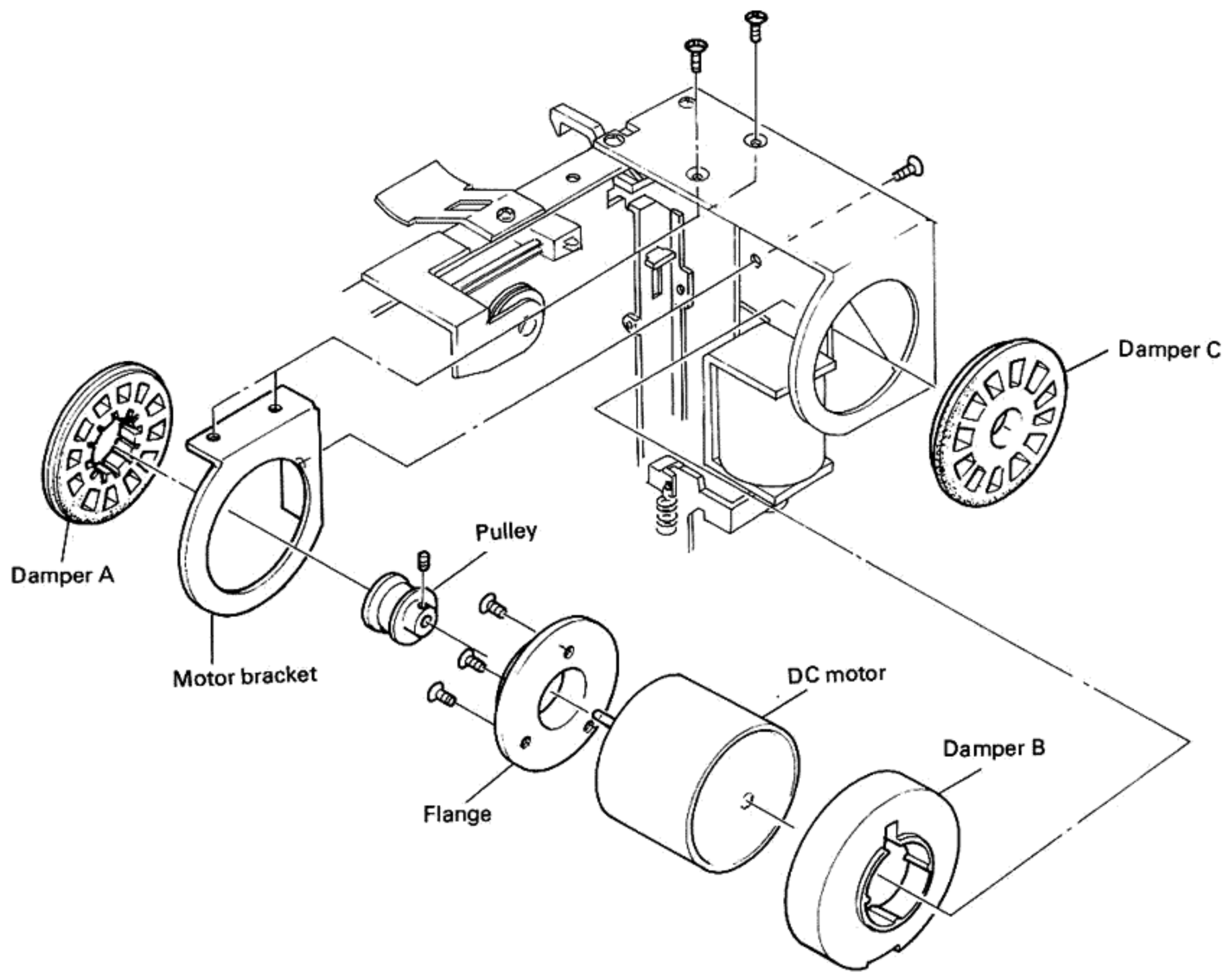
1. BELT

REPLACEMENT



1. Remove the PC board.
2. Remove the flywheel support.
3. Remove the flywheel.
4. The belts can be replaced.

2. DC MOTOR



Replace the DC motor as showned in the illustration.

CIRCUIT DESCRIPTION

I. Three-Head Configuration

The KX-1060 employs the three-head configuration, with three independent ferrite heads being used for record, playback and erase. The record and playback heads are combined into a single head assembly.

With the BIAS selector in the Metal Tape position, the bias current is approx. 2.5 times as large as that for normal tapes. In order to prevent head core saturation due to this large bias current, the KX-1060 uses material with a high-saturation flux density for its magnetic heads. The record head has a gap length of 5.5 μm to give a high saturation level, while the playback head has a gap length of 1 μm for improved high-frequency response.

II. Advantage of the Three-Head Configuration

1. Performance
   An independent record and playback head configuration permits optimum gap lengths for each head. This contributes to reduced distortion, increased saturation level, and widened dynamic range at high frequencies.
2. Feature
   Recordings can be monitored by the playback head immediately after they have been made. The KX-1060 has a Fine Bias Tuning control which utilizes this simultaneous record/monitoring capability.

III. Auto Stop

In the playback, fast forward, and rewind modes, sensor switch S11 mounted on the take-up reel base repeatly switches ON and OFF as the reel base rotates. This causes C168 to repeat charging and discharging, keeping Q32 ON. At this time, Q29, Q30, and Q33 are ON, OFF, and OFF respectively to maintain the Auto-Stop plunger inactive. When the tape is fully taken up, the reel base stops rotation so that the sensor switch becomes inoperative.

As a result, C168 is no longer charged, so Q32 switches OFF. This causes C166 to discharge through Q29, pulling down the base of Q29 to ground potential. Consequently Q29, Q30, and Q33 are turned OFF, ON, and ON respectively, causing the Auto-Stop plunger to operate to release the relevant control button.

The above sequence can be checked with an oscilloscope.

IV. Timer Stand-by

The Timer Stand-by circuit releases the Pause mode when the power to the deck is turned ON.

When the power to the unit is turned ON, C155 is charged (the charging time corresponds to timer start time.). This turns Q17 ON and Q18 OFF, causing Q31 to turn ON through C170. As a result, Q34 is turned ON to operate the timer standby plunger. This releases the Pause mode and puts the deck into another transport mode. A +B voltage is supplied to the base of Q29 through Pause switch S13 until the reel base assembly starts rotating. This prevents the Auto Shut-Off feature from being activated. The above sequence can be checked with an oscilloscope.

V. Memory Index

Counter switch S14 is turned ON only when the hundreds digit of the counter indicates "9". When tape is rewound to "999" with Memory switch S15 depressed, S14 is turned ON. This supplies a +B voltage to the base of Q28 via C169 to turn Q28 ON. As a result, the Auto Stop circuit activates to stop tape transport.

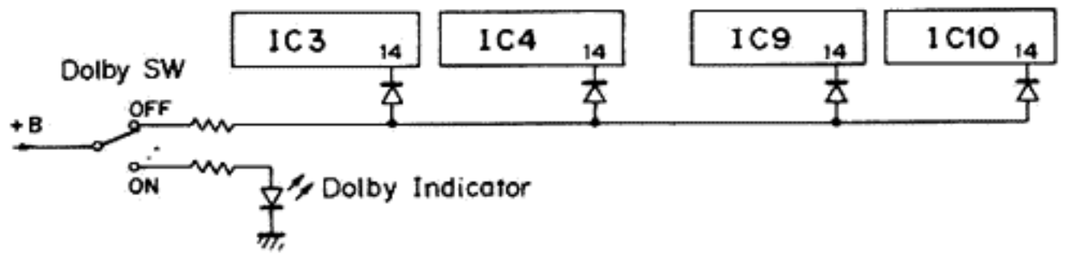
VI. Test Tone

Dual-channel operational amplifier IC12 acts as 2 phase shift oscillators. The oscillator indicated by an odd number oscillates at 400 Hz, while that indicated by an even number oscillates at 10 kHz. Q13 and Q14 constitute an astable multivibrator which produces square wave oscillations with alternate periods of 2 and 4 seconds. These square-wave signals are used to switch Q11, Q12, Q15, and Q16 (Q15 and 16 drive LED indicators.). As a result, 400 Hz and 10 kHz signals appear across variable resistor VR16 (test tone adjustment) alternately for 2 seconds and 4 seconds respectively. At the same time, the green and red LEDs are driven by Q11 and Q12 alternately for 2 and 4 seconds respectively.

While the test tone circuit is operating, Q3 and Q4 are turned ON to increase VU meter amplifier gain by approx. 20 dB.

This test tone is used for bias current fine adjustment to adjust record/playback frequency responses of individual tapes so that they are flat.

VII. Dolby ON/OFF Switching



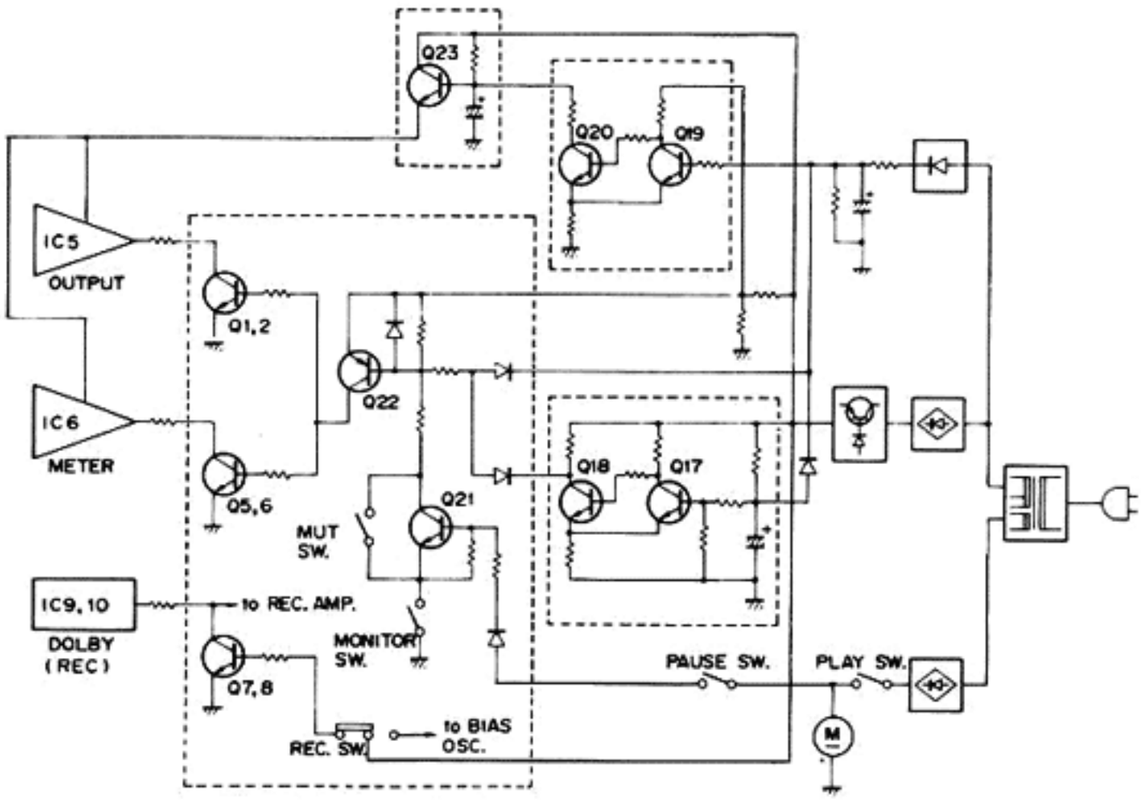
As shown in the above figure, the Dolby NR circuit is turned ON or OFF by removing or applying a +B voltage from or to pin 14 of the Dolby NR ICs (NS LM1011). In this switching system, pin 7 (or pin 3), which has conventionally been used for Dolby switching is always connected to the dynamic filter circuit. The DC voltage that controls the Variable Resistor Circuit for the dynamic filter is available at pin 14 of the Dolby ICs. To raise the DC level of pin 14 when the Dolby function is OFF, a sufficiently high input voltage is applied to this pin. This cancels the side chain path component and stops the encoding and decoding operations of the ICs.

When the Dolby NR function is ON, no DC voltage is applied to pin 14 of the Dolby ICs. This turns the Dolby NR circuit into the conventional switching connection, thus permitting encoding and decoding operations.

CIRCUIT DESCRIPTION

VIII. Muting Circuit

1. Muting while the power is ON (This circuit activates muting function until unattended recording is started.):



Before unattended recording is started, Q18 is ON. The voltage drop across R203 causes D16 to be ON, while that across R218 causes Q22 to be ON. This turns on Q1, Q2, Q5, and Q6, muting the output. When unattended recording is started, Q18 is turned OFF, also turning D16 OFF. This releases output muting. The +B power supply to IC5, IC6, and IC11 is gradually increased up to the specified voltage after the power to the deck is turned ON.

2. Muting during the Pause mode:
   This circuit operates only when MONITOR switch (S3) is in the TAPE position. At this time, the emitter of Q21 is pulled down to the ground potential. When PAUSE button S13 is depressed, the +B supply voltage turns Q21 ON. The voltage drop across R218 turns Q22 ON, thus muting the output.
3. S16 (Mute SW)
   This MUTE switch is effective only when MONITOR switch S3 is in the TAPE position. While the PLAY button is not depressed, S16 is ON. Since, at the time, the collector and emitter of Q21 are shorted, Q22 is turned ON to activate muting.
4. S8 (REC SW)
   While the REC button is not depressed, Q8 and Q9 are ON. This grounds the recording signal path to prevent the recording signal from being fed to the recording amplifier input.
5. Power OFF Muting
   When the power to the deck is turned OFF, the voltage rectified by D14 and D15 falls more quickly than the voltage supplied from Q27. As a result, the cathode potential of D17 becomes less than its anode potential. This turns D17 ON, and the voltage drop across R218 turns Q22 ON, thus activating muting. At the same time, Q19 is turned OFF, while Q20 is turned ON. This causes C158 to discharge quickly, turning off IC5 and IC6. Also, C155 is discharged quickly through D28 so as to make the muting operation time (unattended recording operation time) constant.

ADJUSTMENT

1. Test Instruments

- Solid state volt meter: SSVM
- Audio signal generator: AG
- Oscilloscope
- Frequency counter
- Wow and flutter meter
- Weighting filter
  (ASA A characteristic with NAB curve)
- Band pass filter
  (Attenuation: 75 dB/oct. or more)
- Cassette type torque gauge
- Spring balance
- Torque dial
- Head demagnetizer

2. Test Tapes

a) Test tapes for recording system adjustment
NORMAL:
MAXELL UD-XL1 (T93-0013-05)
CHROME (for measurement):
TDK AC-511 (T93-0010-05) or SAC-60

b) Test tape for playback measurement
TEAC MTT-111:
(Tape speed, azimuth)
TEAC MTT-216 (MTT-116U):
(Frequency characteristic)
TEAC MTT-216R (MTT-116R):
(Frequency characteristic)

3. Notes for Adjustments and Measurements

1. **Load resistance:** A pure resistance load of 100 kΩ should be connected to the LINE OUTPUT terminal.
2. **Standard level:** 0 dB = 0.775V
3. The electrical system should be adjusted by dividing it into playback and recording.
   Adjustment of recording requires perfect performance of the playback system.
   No special adjustment should be required unless inner components are replaced.
4. When the head is replaced, its stray magnetism must be completely erased by the demagnetizer prior to mounting the tape.
5. Unless otherwise designated, measurement should be carried out with the Dolby NR switch off.

4. Meanings of Technical Words

Standard playback condition: The state obtained by playback the level prescribe signal from the test tape 315 Hz (160 pWb/mm) and by adjusting the playback volume control so that standard output level (0 dBs=775 mV) can be obtained at the LINE OUTPUT terminal.

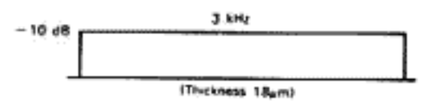
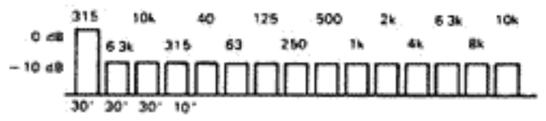
Standard record condition: For line input, the RECORD LEVEL control is to be adjusted so that the LINE output level is 0 dB when a −10 dB line input (1 kHz) is recorded then played back under the standard playback condition.

5. Standard Setting

Set up the control knobs as follows, unless otherwise specified.

BIAS SW	NORMAL
EQUALIZER SW	NORMAL
DOLBY SW	OFF
MONITOR SW	TAPE
INPUT SELECTOR SW	LINE
POWER SW	ON
MEMORY SW	OFF
OSC SW	OFF
OUTPUT VR	MAX
BIAS ADJ	CENTER

TEST TAPE SPECIFICATION

MODEL	TITLE	TIME CONSTANT	DESCRIPTION		APPLICATION
			FREQ/LEVEL	PROGRAM	
MTT-111	FLUTTER	—	3 kHz −10 dB	 30 Min.	Tape Speed Test Wow and Flutter Test
MTT-116R (MTT-216R)	FREQUENCY	1590 μs and 120 μs	40 Hz～18 kHz 0 dB/−10 dB 0 dB DIN REFERENCE LEVEL		Frequency Response Test
MTT-116U (MTT-216)	FREQUENCY	3180 μs and 120 μs	315 Hz～14 kHz 0 dB/−20 dB 0 dB: DIN REFERENCE LEVEL −4 dB		Frequency Response Test

ADJUSTMENT

See illustrations on page 15 ~ 18.

0 dBs = 0.775V

Adjustment items	Tape used	Test instruments	Input signal	Conditions and methods	Adjusting points L	Adjusting points R	Standard and remarks
1. Disassemble for Repair	—	—	—	Remove the dress panel, cassette lid knobs and head protector.	—	—	—
2. Demagnetizing & Cleaning	—	• Head demagnetizer • Cotton swab	—	Demagnetize R/P head and capstan. Clean R/P head, erase head, capstan and pinch roller.	—	—	—
3. Tape Speed	MTT-111	• Frequency counter	—	3000 Hz	VR of DC motor		—
4. Tilt of R/P Head	Cassette tape with mirror	—	—	Before adjustment, fix the three screws for the R/P head so that the tape guide of the R/P head is parallel to that of the erase head. Then, adjust the right lower side screw so that the tape can run without touching the guide.	Right lower side screw		—
5. Azimuth of R/P Head	MTT-116U (MTT-216) 10kHz, —20dB	• SSVM • Oscilloscope	—	Adjust the left side screw for the R/P head so that the maximum output is derived. Then, fix the screws with paint.	Left side screw		
6. Playback Level	MTT-116U (MTT-216)	• SSVM • Oscilloscope	—	REC: OFF, PLAY: ON, BIAS: NORMAL, EQ: NORMAL, DOLBY: OFF, MONITOR: TAPE, SELECTOR: LINE Play the test tape (315 Hz, 0dB) and adjust the semi-fixed VR until the playback level reaches 0dB at MAX position of the playback VR.	VR1	VR2	0dBs±1dBs
7. Bias Current and Oscillation Frequency	—	• SSVM	—	REC: ON, PLAY: OFF, BIAS: CHROME, EQ: CHROME, DOLBY: OFF, MONITOR: , SELECTOR: LINE Adjust the semi-fixed VR so that the output levels at the test points ⊕21-29 and ⊕22-29 reach the specified level. Check the oscillation frequency with a frequency counter.	VR11	VR12	(L11) 85kHz±5kHz
8. Bias Trap	—	• SSVM • Frequency counter • Trap coil adjusting rod	—	REC: ON, PLAY: OFF, BIAS: CHROME, EQ: CHROME, DOLBY: OFF, MONITOR: , SELECTOR: LINE Connect SSVM to the test points ⊕55-29 and ⊕56-29. Adjust the trap coil for minimum deflection of SSVM.	L9	L10	Minimum
9. VU Meter Calibration	—	• Audio signal generator • SSVM • Semi-fixed VR adjusting rod	1 (kHz) —10dB	REC: OFF, PLAY: OFF, BIAS: NORMAL, EQ: NORMAL, DOLBY: OFF, MONITOR: SOURCE, SELECTOR: LINE Set the playback VR to MAX. Adjust the LINE output level to 0dB with REC VR. Then, adjust the METER semi-fixed VR so that the VU meter indicates 0VU.	VR5	VR6	0VU±0.5VU
10. REC Current	—	• Audio signal generator • SSVM • Semi-fixed VR adjusting rod	1 (kHz) —10 dB	REC: ON, PLAY: OFF, BIAS: CHROME, EQ: CHROME, DOLBY: OFF, MONITOR: SOURCE, SELECTOR: LINE Under the standard recording and playback conditions, apply the input signal to LINE IN. Next, short the test points 31 and 32 to stop the oscillator output. Connect SSVM to the test points ⊕21-29 and ⊕22-29. Adjust the REC current semi-fixed VR for the specified level.	VR9	VR10	—56 dBs (116 μA)
11. Rec/play Level	AC-511	• Audio signal generator • SSVM • Semi-fixed VR adjusting rod	1 (kHz) 10 (dB)	REC: ON, PLAY: ON, BIAS: CHROME, EQ: CHROME, DOLBY: OFF, MONITOR: , SELECTOR: LINE Under the standard recording and playback conditions, apply the input signal to LINE IN. At the SOURCE position of MONITOR, check that the LINE output is 0dB. If adjustment is required, turn REC VR. At the TAPE position of MONITOR, adjust the REC current semi-fixed VR so that the LINE output is 0dB.	VR9	VR10	0dB±2dB

ADJUSTMENT

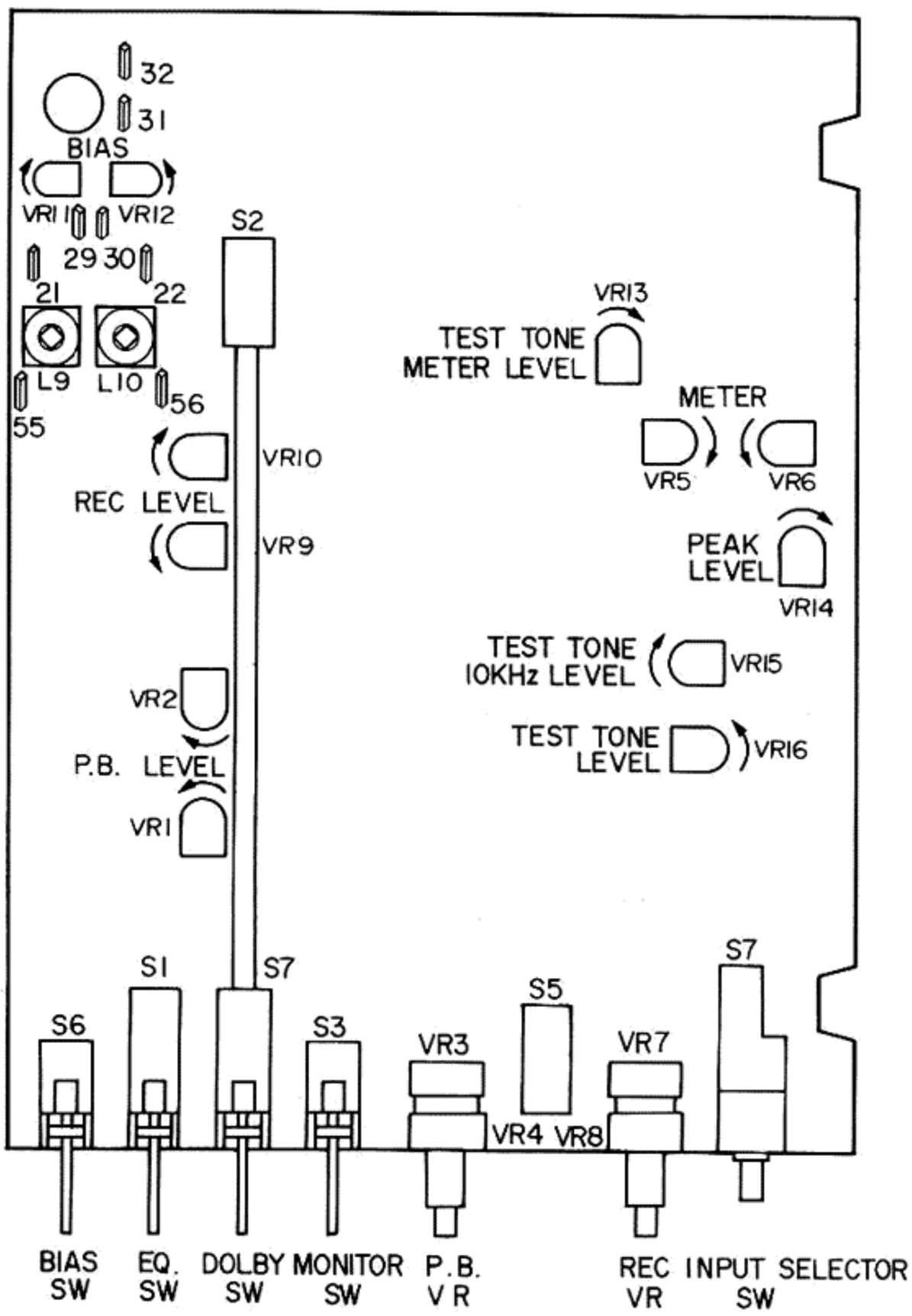
<table>
<tr><th rowspan="2">Adjustment items</th><th rowspan="2">Tape used</th><th rowspan="2">Test instruments</th><th rowspan="2">Input signal</th><th rowspan="2">Conditions and methods</th><th colspan="2">Adjusting points</th><th rowspan="2">Standard and remarks</th></tr>
<tr><th>L</th><th>R</th></tr>
<tr><td>12. Peak LED Level</td><td>—</td><td>• Audio signal generator
• SSVM
• Semi-fixed VR adjusting rod</td><td>1 (kHz)</td><td>
<table>
<tr><td>REC</td><td>PLAY</td><td>BIAS</td><td>EQ</td><td>DOLBY</td><td>MONITOR</td><td>SELECTOR</td></tr>
<tr><td>OFF</td><td>OFF</td><td>NORMAL</td><td>NORMAL</td><td>OFF</td><td>SOURCE</td><td>LINE</td></tr>
</table>
Under the above conditions, apply a —10 dB signal to LINE IN. Adjust REC VR and PB VR for the standard recording and playback conditions. Next, apply a —4 dB signal and check that the peak LED lights. Also, check that the light of LED goes off at —5 dB signal. If required, .repeat the same adjustment.</td><td>VR14</td><td>VR14</td><td>LED is ON at +6dB of LINE output level.
LED is OFF at +5dB of LINE output level.</td></tr>
<tr><td>13. Test Tone Level</td><td>—</td><td>• Semi-fixed VR adjusting rod
• SSVM
• Oscilloscope</td><td>—</td><td>
<table>
<tr><td>REC</td><td>PLAY</td><td>BIAS</td><td>EQ</td><td>DOLBY</td><td>MONITOR</td><td>SELECTOR</td></tr>
<tr><td>OFF</td><td>OFF</td><td>NORMAL</td><td>NORMAL</td><td>OFF</td><td>SOURCE</td><td>LINE</td></tr>
</table>
First adjust the 400 Hz output level with the semi-fixed VR so that the Rch VU meter indicates 0VU. Next, adjust the 10 kHz output level with the semi-fixed VR so that the Rch VU meter indicates 0VU at 10 kHz of oscillation frequency. Then, adjust the semi-fixed VR so that the Lch VU meter indicates 0VU.</td><td>VR13</td><td>VR16

VR15</td><td>LINE output level of 400Hz: —20dBs±2dB
Level difference between 400Hz and 10kHz: 0.5 dB max.
On VU meter: 0VU±1VU</td></tr>
<tr><td>14. Overall Frequency Response</td><td>AC-511</td><td>• Audio signal generator
• SSVM
• Semi-fixed VR adjusting rod</td><td>1 (kHz) —10 (dB)

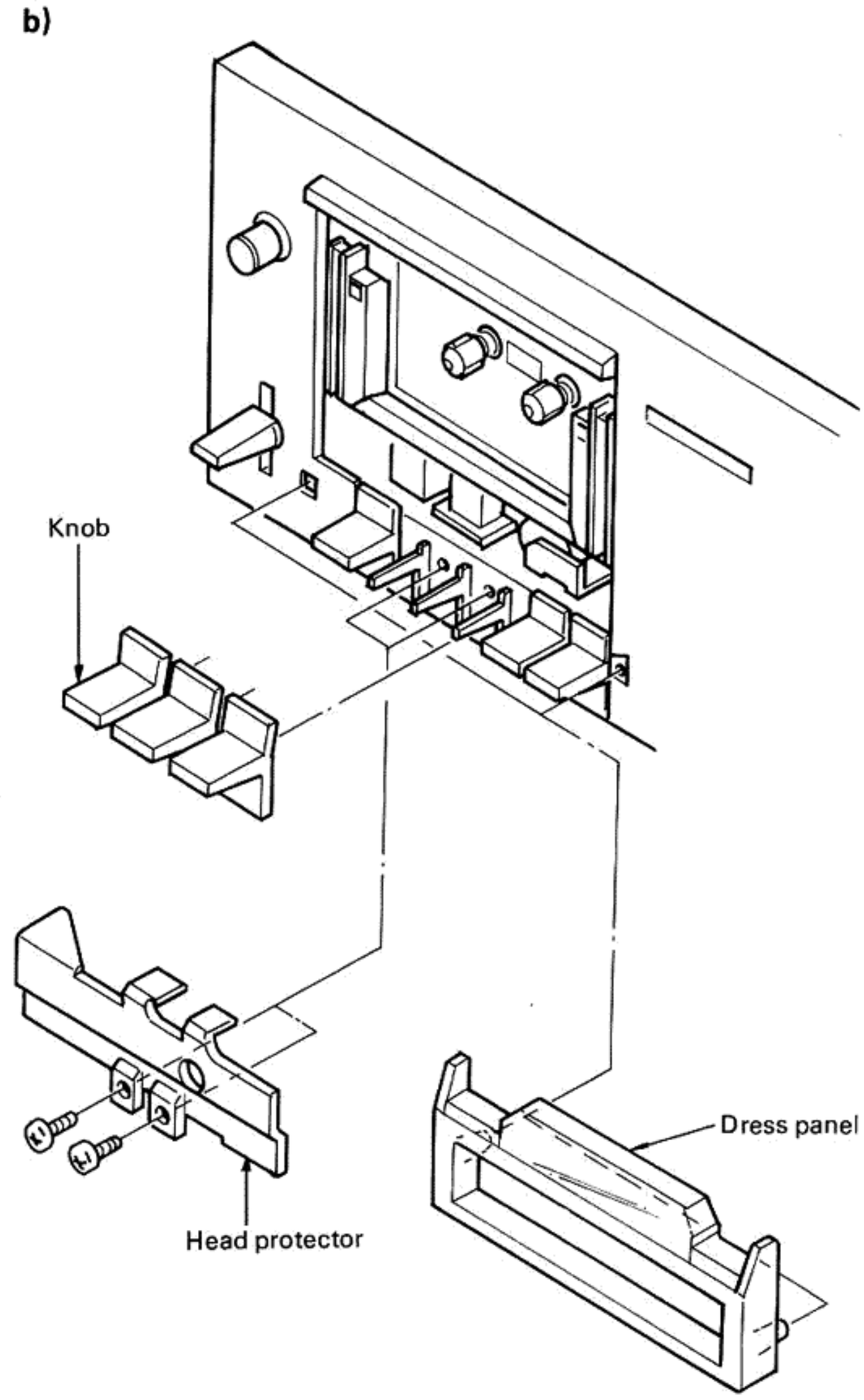
1 (kHz) —30 (dB)
10 (kHz) —30 (dB)</td><td>
<table>
<tr><td>REC</td><td>PLAY</td><td>BIAS</td><td>EQ</td><td>DOLBY</td><td>MONITOR</td><td>SELECTOR</td></tr>
<tr><td>ON</td><td>ON</td><td>CHROME</td><td>CHROME</td><td></td><td>TAPE</td><td>LINE</td></tr>
</table>
Set the DOLBY SW to ON. With a signal of 1 kHz, —10 dB applied to LINE IN, adjust for the standard recording and playback conditions. Under the above conditions, apply signals of 1 kHz, —30 dB and 10 kHz, —30 dB alternately. At the TAPE position of MONITOR, adjust the bias current semi-fixed VR to obtain the same record/play level on 1 kHz and 10 kHz.</td><td>VR11</td><td>VR12</td><td></td></tr>
</table>

ADJUSTMENT

PC BOARD (X28-1300-00)

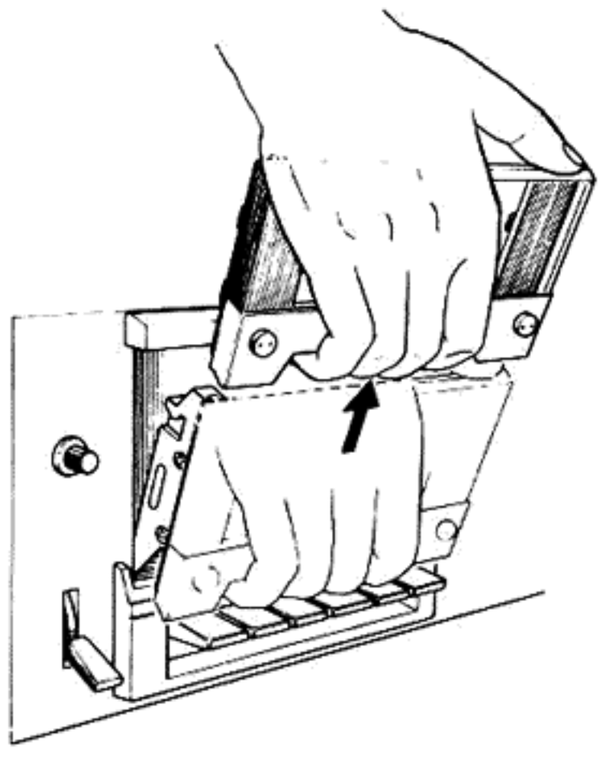


b)

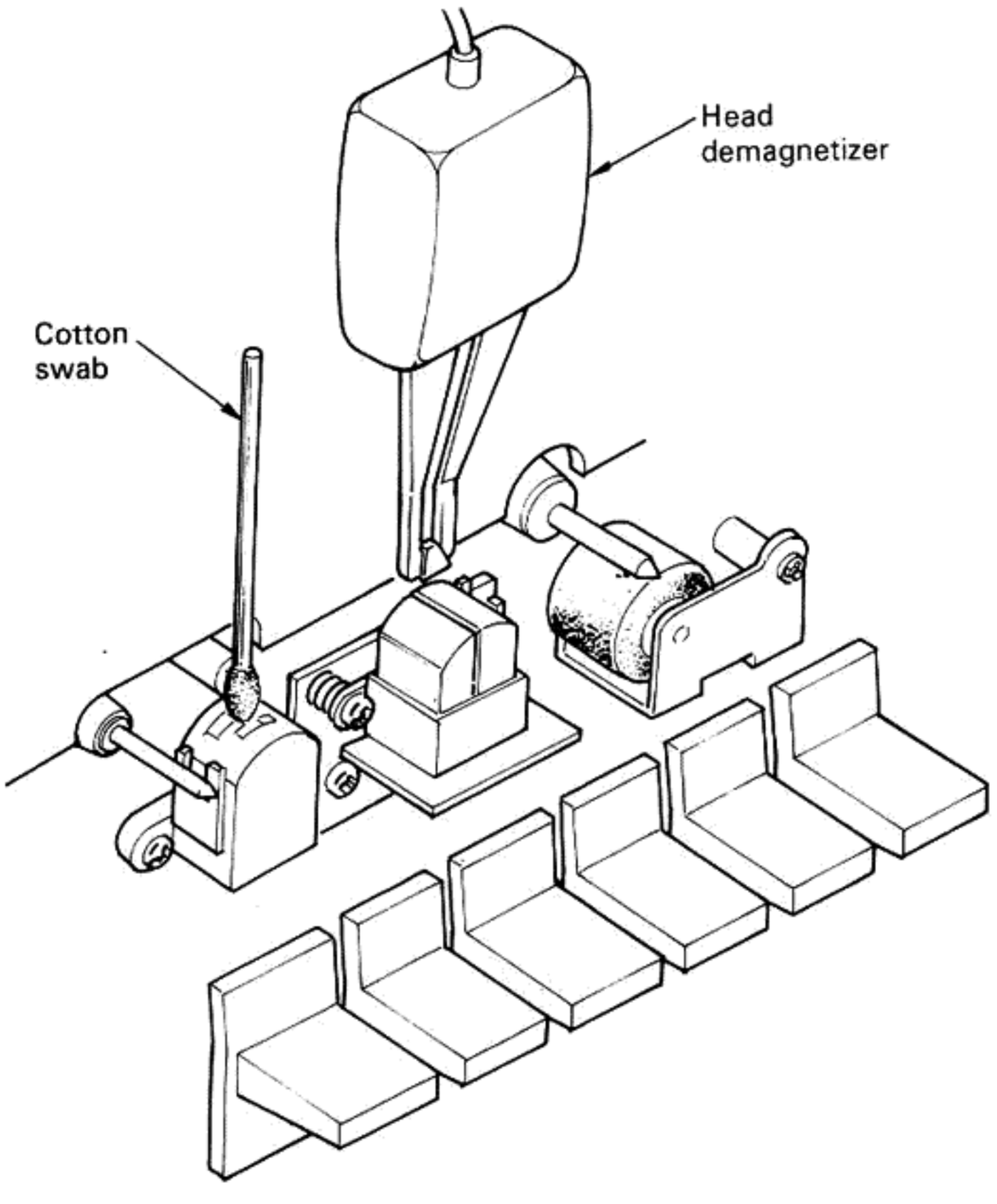


1. DISASSEMBLE FOR REPAIR

a) Pull up the cassette lid as illustrated below.

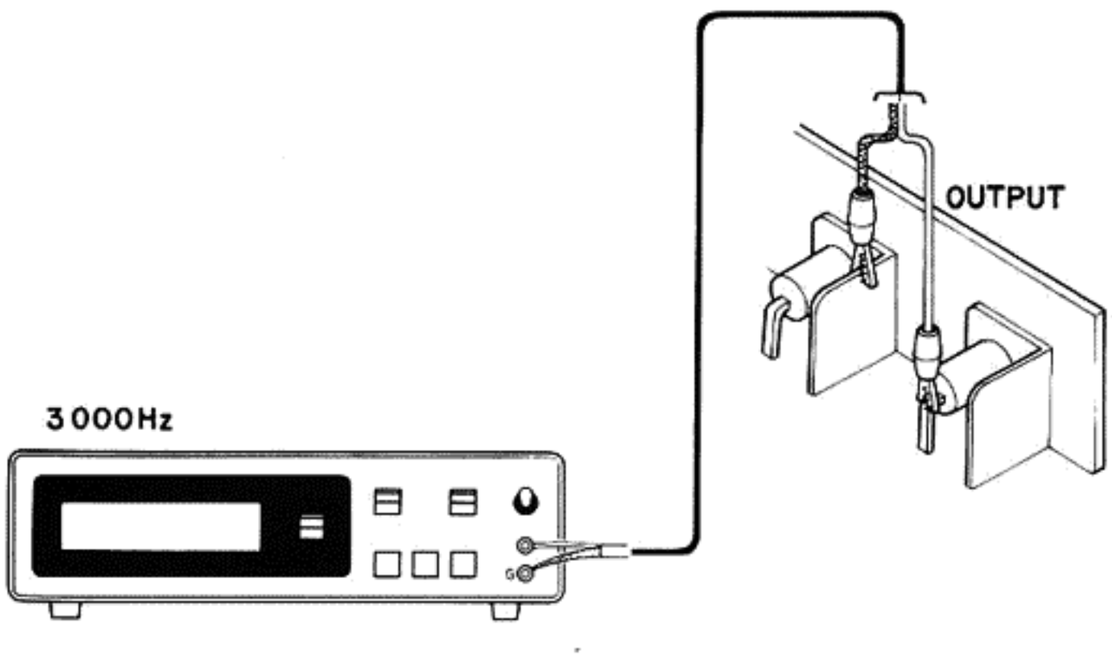


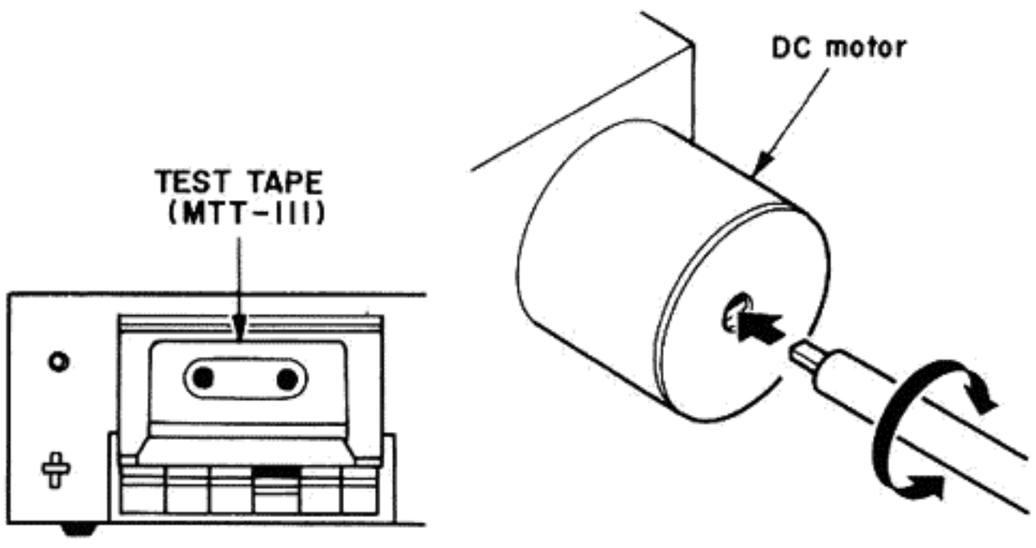
2. DEMAGNETIZING & CLEANING



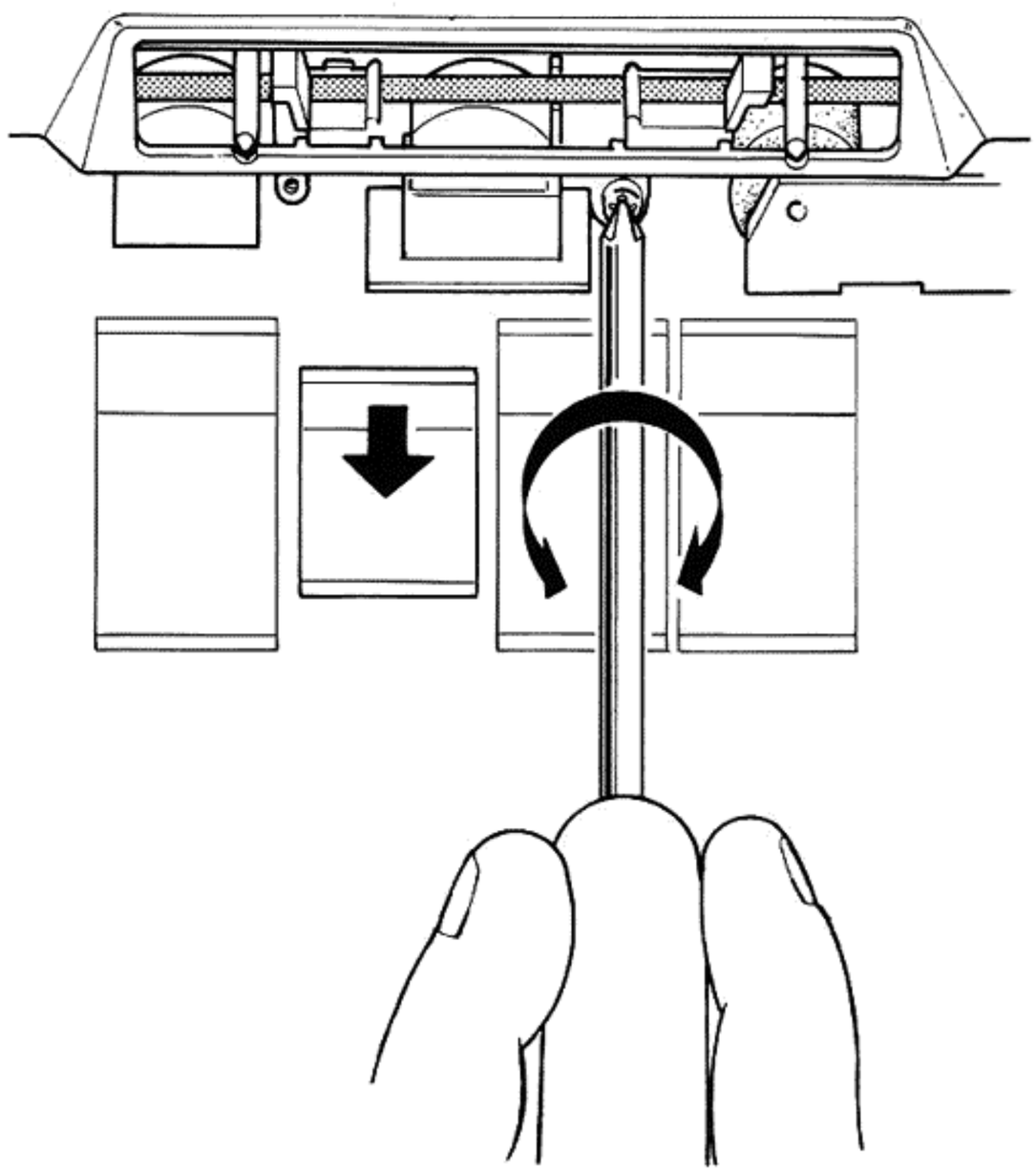
ADJUSTMENT

3. TAPE SPEED

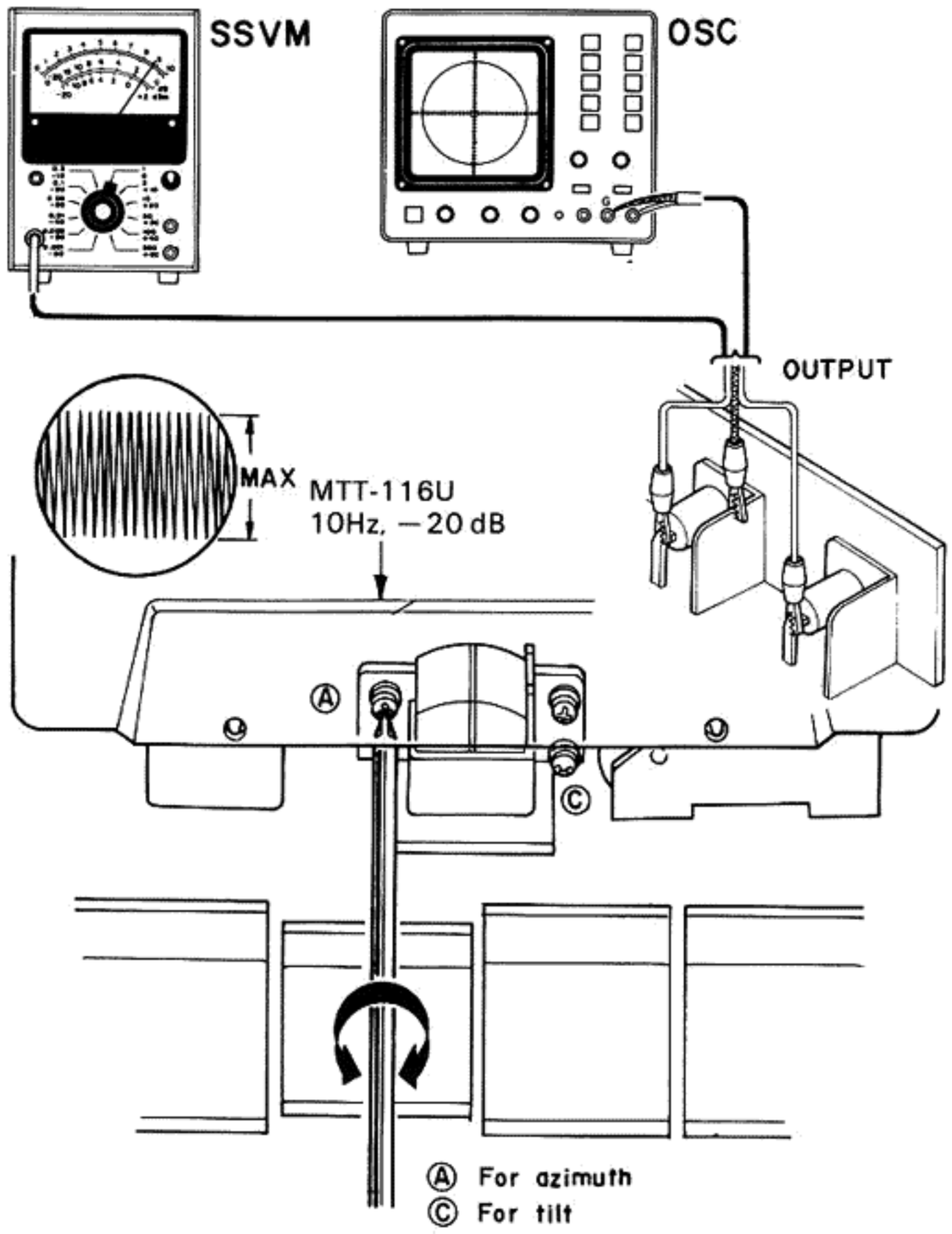




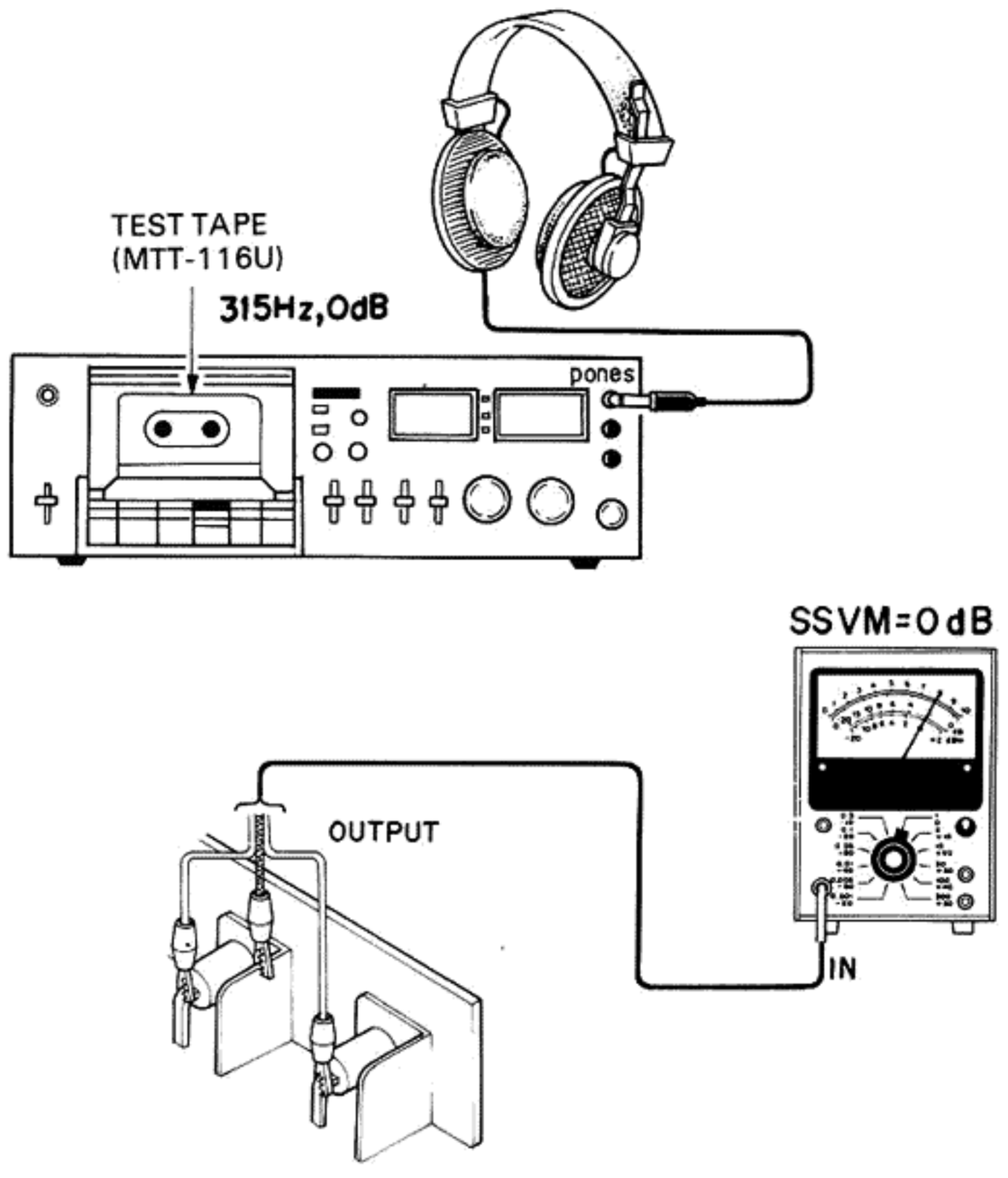
4. TILT OF R/P HEAD



5. AZIMUTH OF R/P HEAD

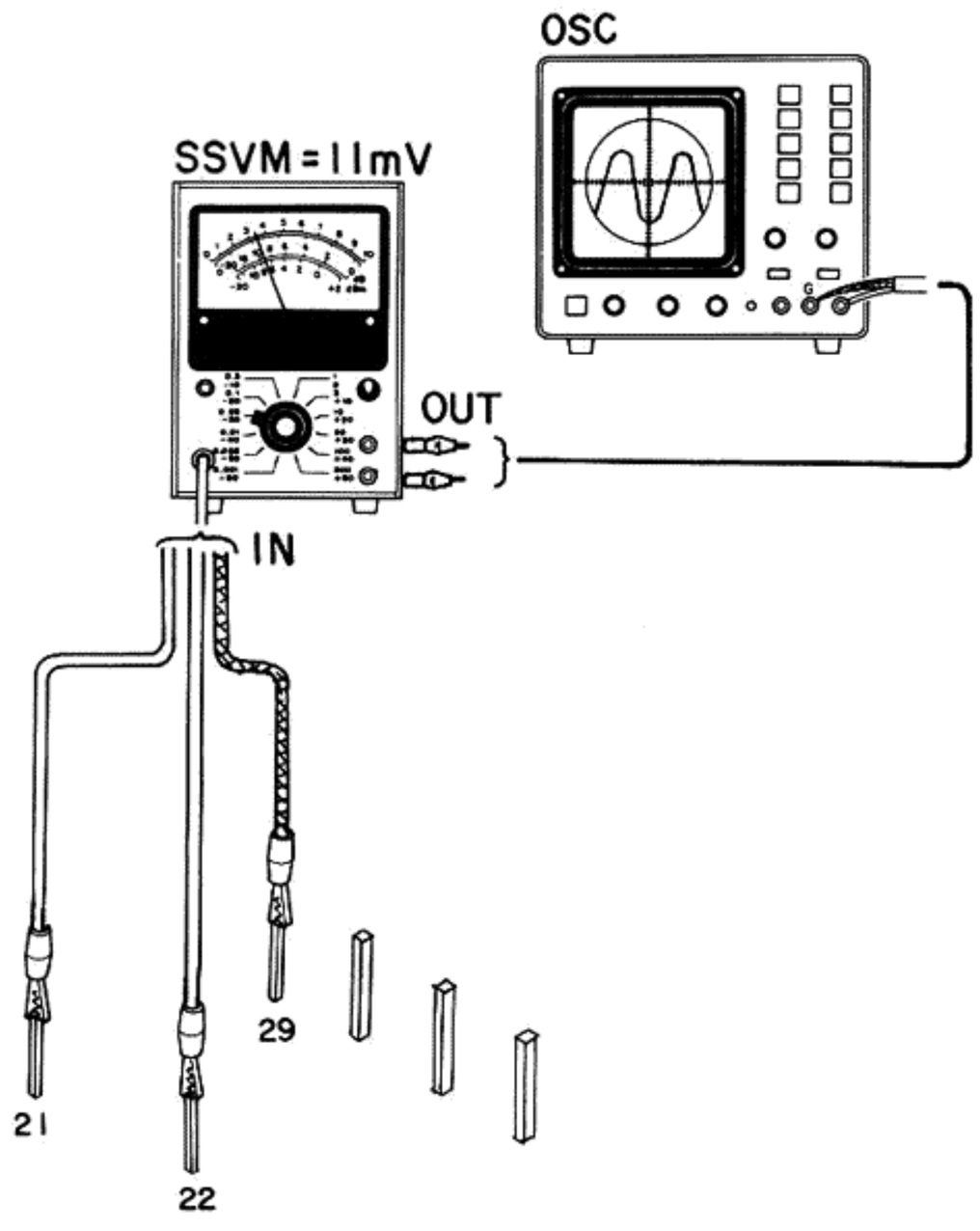


6. PLAYBACK LEVEL VR1, 2

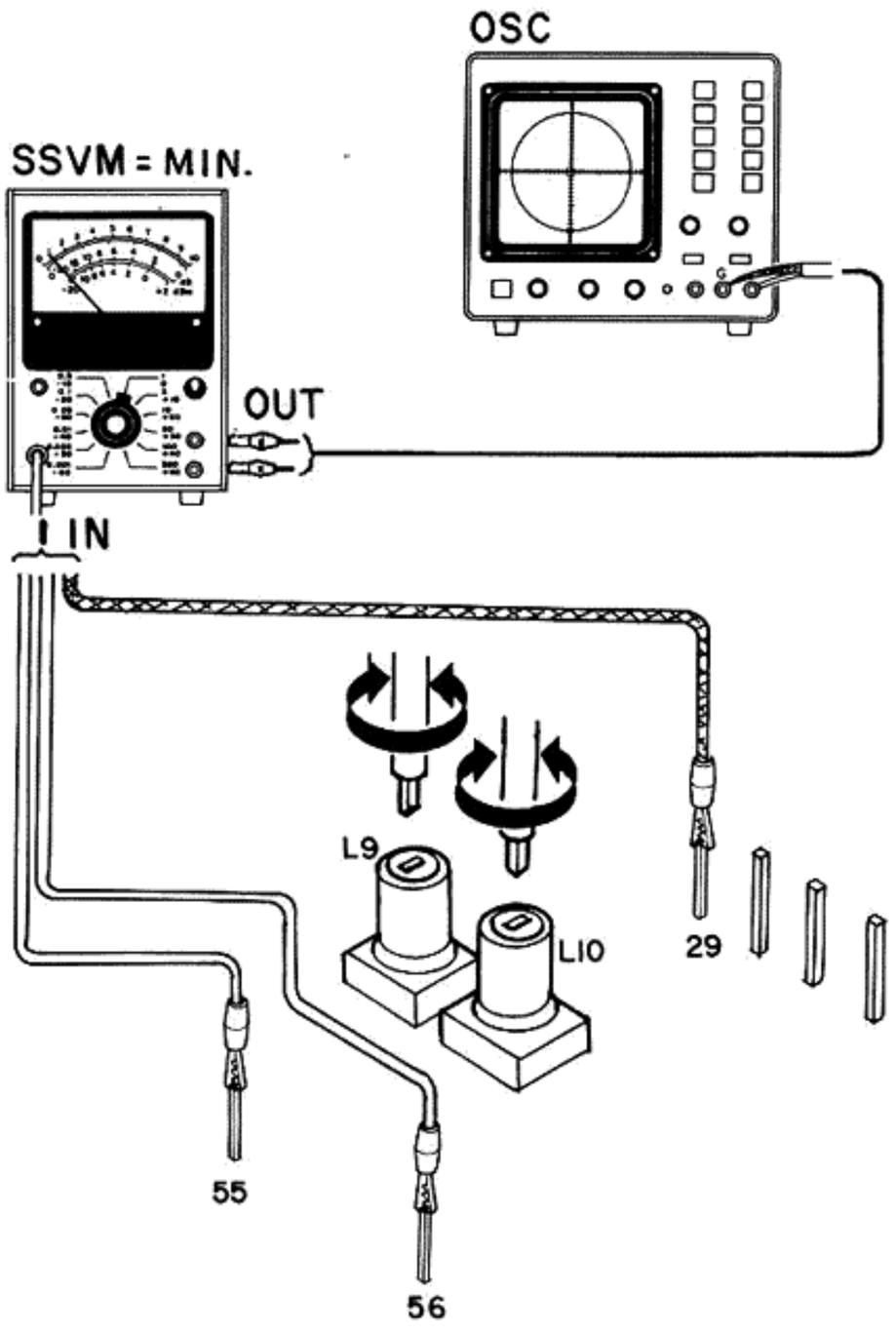


ADJUSTMENT

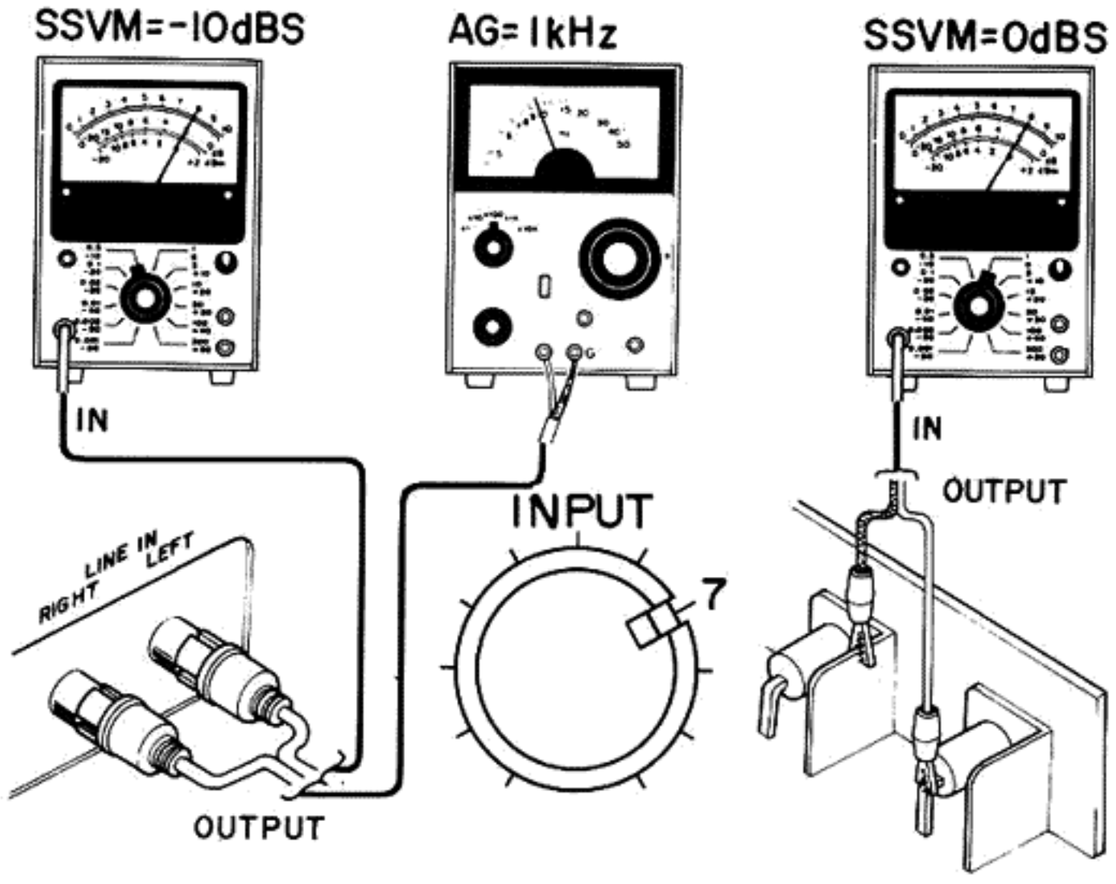
7. BIAS CURRENT VR11, 12



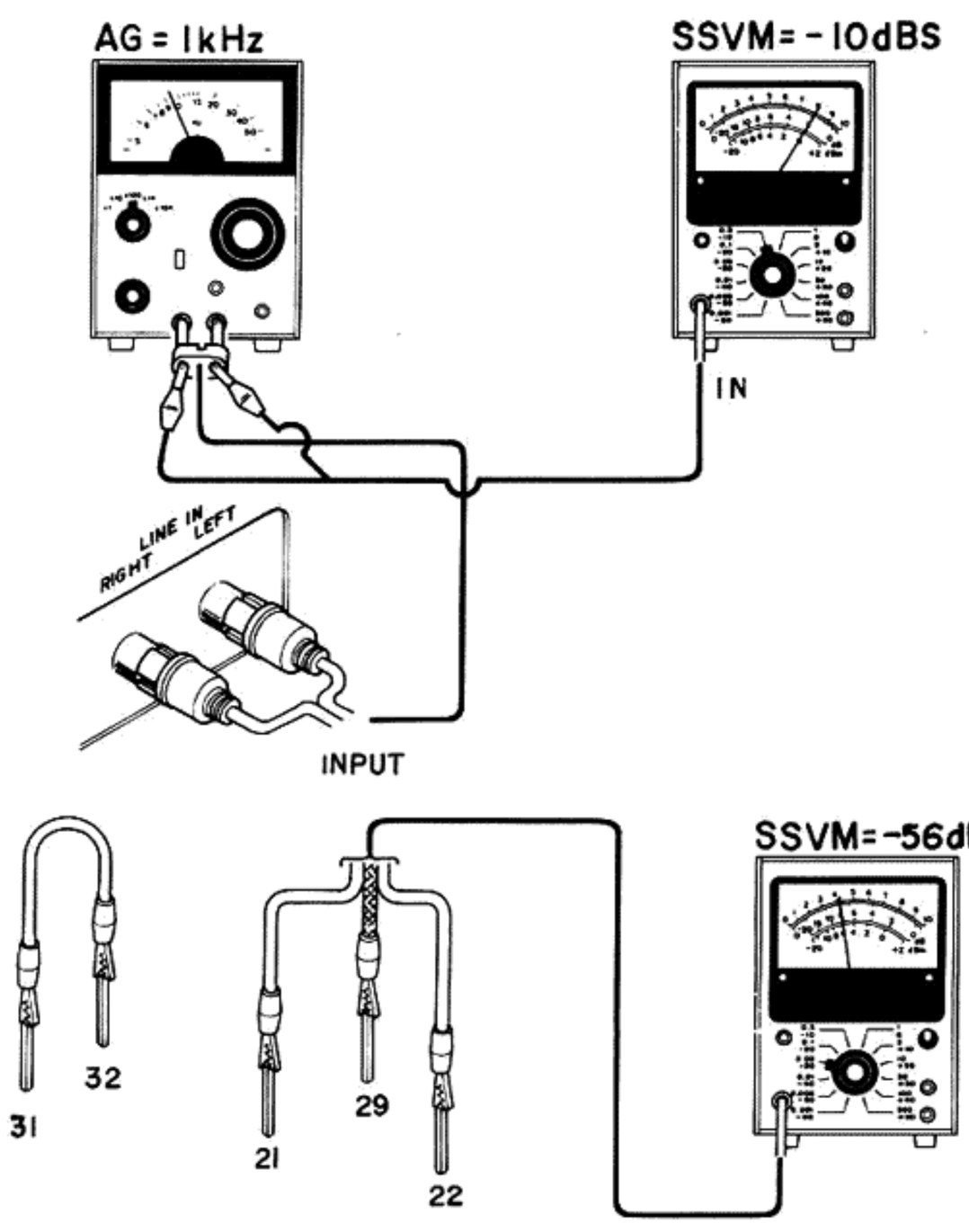
8. BIAS TRAP L9, 10



9. VU METER VR5, 6

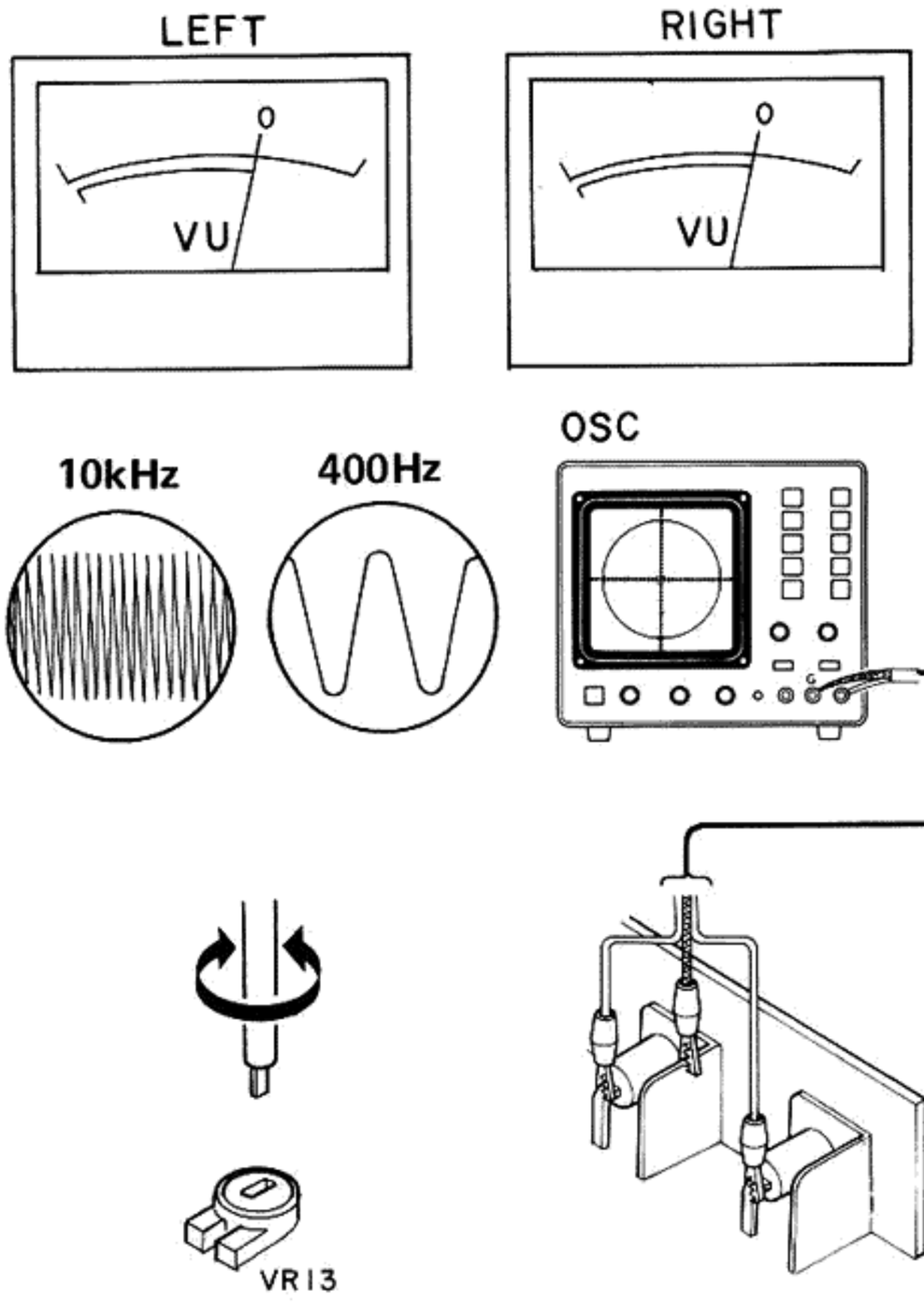


10. REC CURRENT VR9, 10

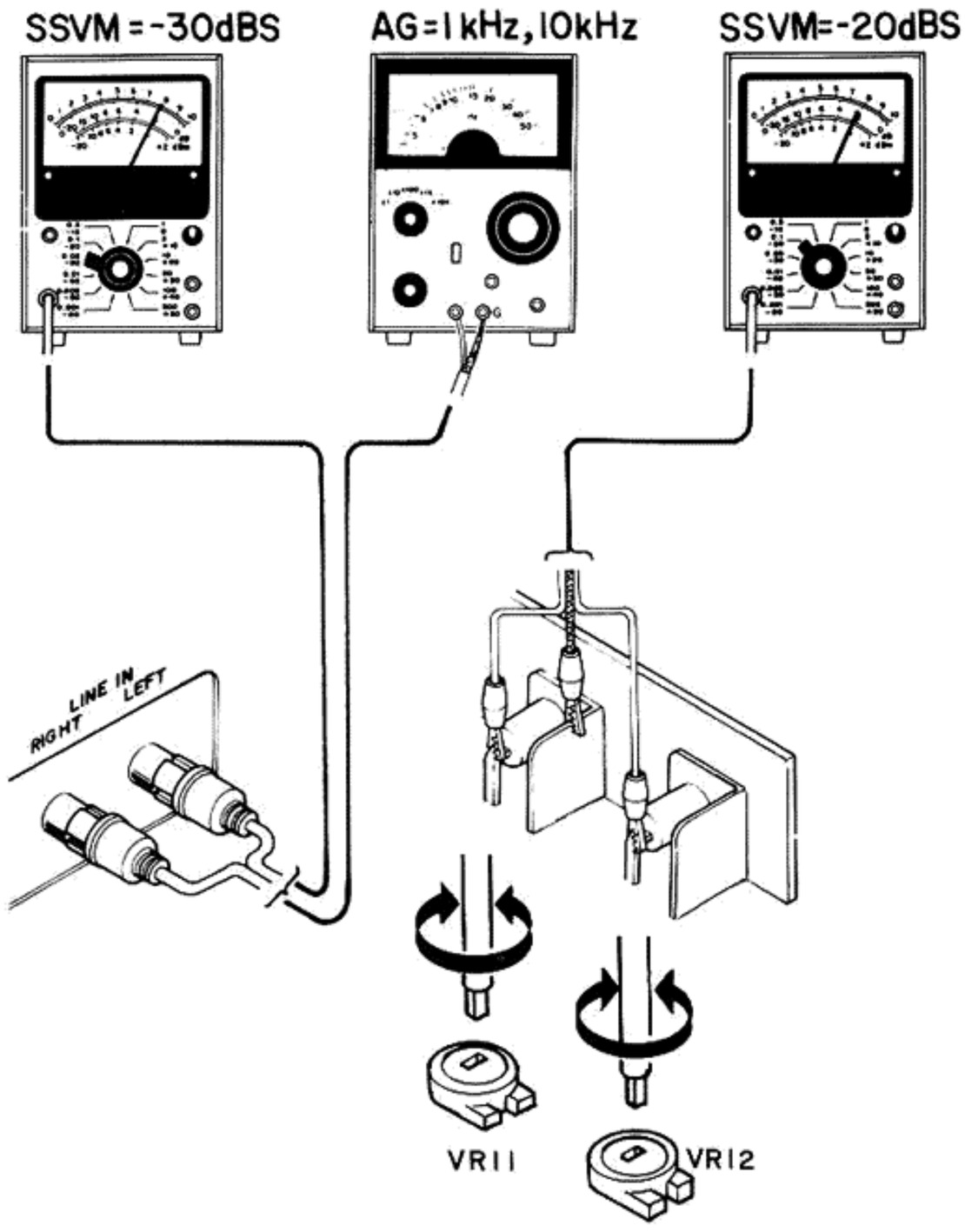


ADJUSTMENT

13-2. TEST TONE METER LEVEL VR13

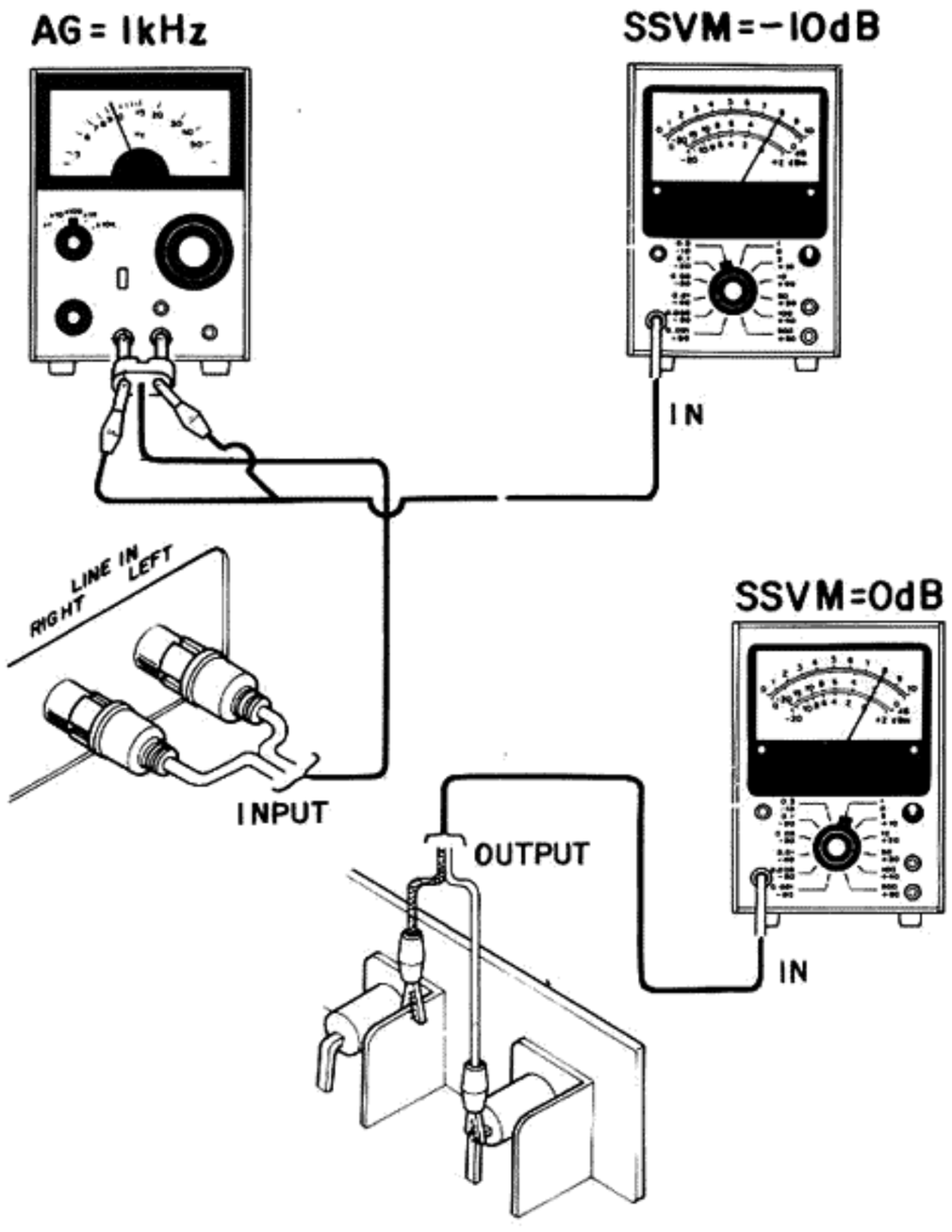


14. OVERALL FREQUENCY RESPONSE VR11, 12

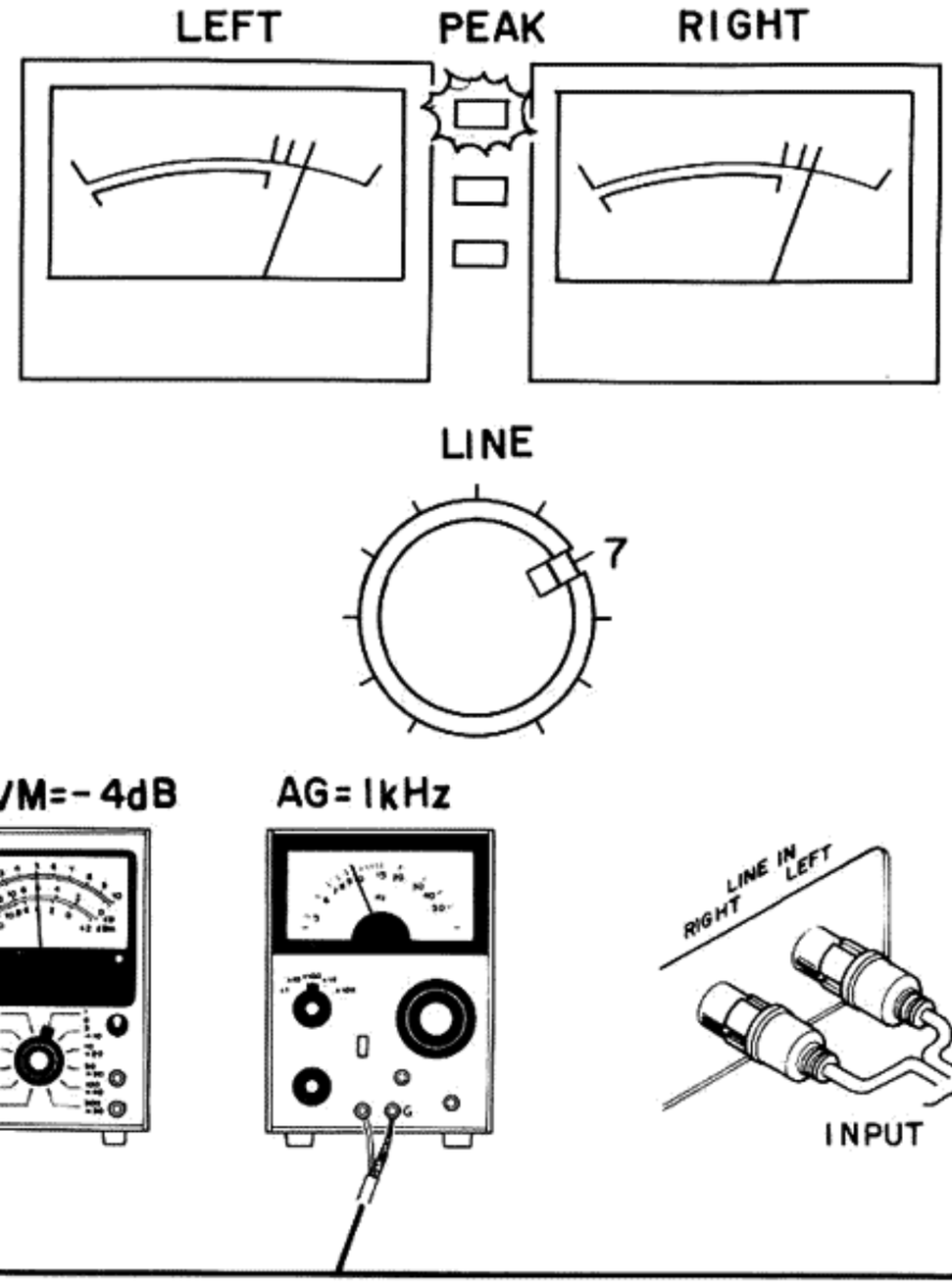


ADJUSTMENT

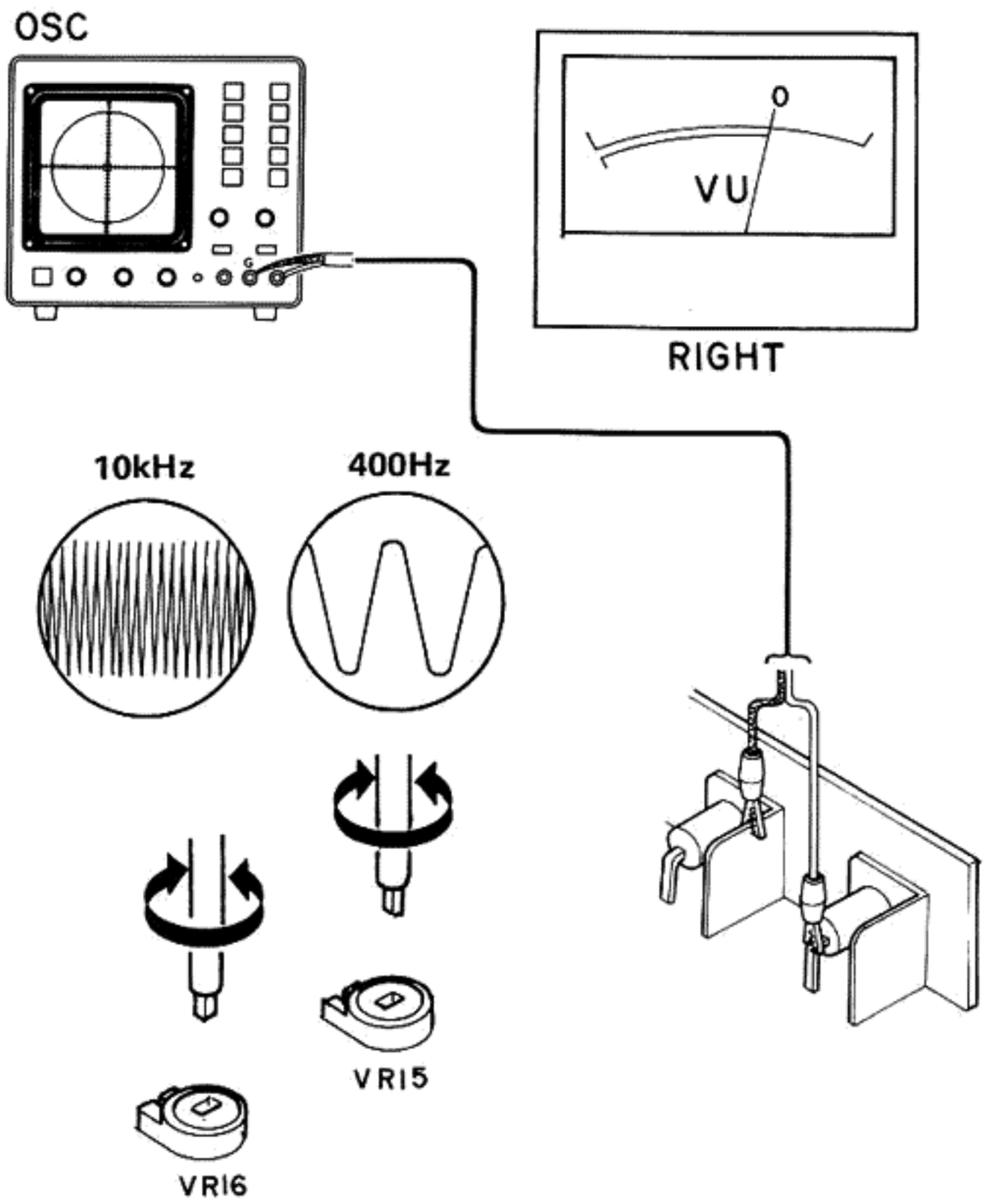
11. REC/PLAY LEVEL VR9, 10



12. PEAK LED LEVEL VR14

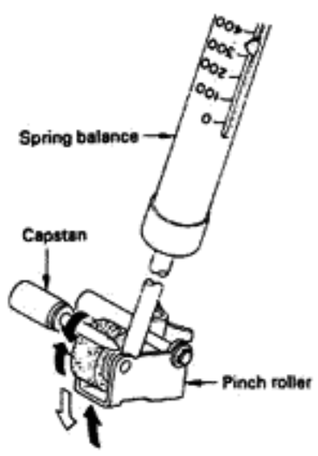


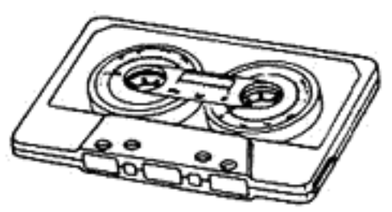
13-1. TEST TONE LEVEL VR15, 16



MEASUREMENT (MECHANISM)

Adjustment items	Tape used	Test instruments	Input signal	Conditions and methods	Standard and remarks
1. Torque				REC: OFF; PLAY: ; BIAS: NORMAL; EQ: NORMAL; DOLBY: OFF; MONITOR: TAPE; SELECTOR: LINE	
PLAY	SRK-CT-100 TW-2111	—	—	With a tape loaded, press the PLAY button and measure the dynamic torque.	40～75 g.cm
FF & REW	SRK-CT-160 TW-2231	—	—	Release the PLAY button and load the specified tape. Press the FF button. When the tape is fully wound, measure the static torque. Next, press the REW button. When the tape is fully rewound, measure the static torque. Repeat the above procedures 3 or 4 times and obtain averages of FF and REW torques.	FF torque: 80～160 g.cm REW torque: 80～160 g.cm
Back Tension	SRK-CT-10 TW-2111	—	—	With the FF and REW buttons released, load the specified tape. Press the PLAY button at the beginning of tape and measure the dynamic torque.	2.5～7.5 g.cm
2. Auto Stop Operating Time	SRK-CT-160 (Other tapes may be used) TW-2111	• Stop watch	—	Measure the time required to release the tape button (FF, PLAY, REW) after the tape reaches the end.	3 sec, ±2 sec.
3. Timer Start	SRK-CT-160 (Other tapes may be used)	• Stop watch	—	Press the PLAY and PAUSE buttons and set the POWER SW to OFF. Turn on the POWER SW a few seconds later and measure the time required to release the PAUSE button.	3 sec, ±2 sec.
4. Tape Speed and Wow/flutter	MTT-111	• SSVM • Counter • Wow/flutter meter	—	Models shipped to areas other than W: With the specified tape loaded, press the PLAY button and measure the tape speed and wow/flutter. For wow/flutter, measure both the RMS and WRMS values at the peak (JIS) on the wow/flutter meter. This measurement should be made at the beginning, middle and end of the tape with the PB VR set to the MAX position.	TAPE SPEED 3 kHz ±1% W&F (JIS) RMS: 0.15% max. WRMS: 0.08% max.
	MTT-111	• SSVM • Counter • Wow/flutter meter	—	Models shipped to W: Measure only the tape speed using the above procedure.	3 kHz ±1%
	XL-1 (T93-0013-15)	MK-669 • SSVM	3.15 (kHz) Use a built in oscillator	REC VR ..... MAX PB VR ..... MAX Under the above conditions, record and play a 3.15 kHz signal and measure wow/flutter through a DIN weighting circuit. This measurement should be made at the beginning, middle and end of the tape.	W&F (DIN): ±1.5% max. (peak)
6. FF and REW	C-60	• Stop watch	—	Measure the winding time in FF and REW modes.	Within 95 sec.each.
7. Pinch Roller Pressure	—	• Spring balance	—	Use a compression spring balance to push the pinch roller 1～2 mm, from the capstan thus stopping the pinch roller. Then, allow the pinch roller to contact the capstan just enough to start the pinch roller turning slightly, and read the measurement.	475±75g



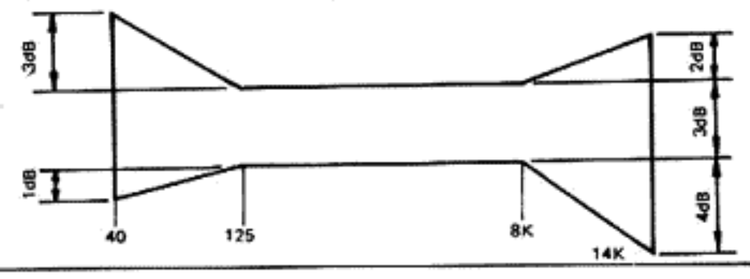


Cassette type torque gauge

MEASUREMENT (AMP)

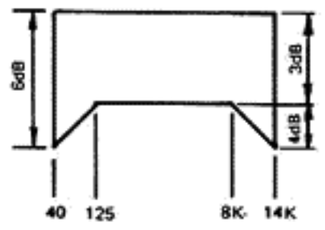
<table>
<tr><th>Adjustment items</th><th>Tape used</th><th>Test instrument</th><th>Input signal</th><th>Conditions and methods</th><th>Standard and remarks</th></tr>
<tr><td>1. Playback Level</td><td>MTT-116U
(MTT-216)</td><td>• SSVM
• Oscilloscope</td><td>—</td><td><table><tr><td>REC</td><td>PLAY</td><td>BIAS</td><td>EQ</td><td>DOLBY</td><td>MONITOR</td><td>SELECTOR</td></tr><tr><td>OFF</td><td>ON</td><td>NORMAL</td><td>NORMAL</td><td>OFF</td><td>TAPE</td><td>LINE</td></tr></table>Play a 315 Hz, 0dB signal and measure the playback level at the MAX position of PB VR.</td><td>0dBs±1dBs
(VR1,2)</td></tr>
<tr><td>2. Headphone Output Level</td><td>MTT-116U
(MTT-216)</td><td>• 8Ω (1/2W) resistor
• SSVM</td><td>—</td><td>Play a 315 Hz, 0dB signal. With PB VR set to the MAX position, connect a 8-ohm load resistor to the HEADPHONE output. Measure the output voltage across the resistor with SSVM.</td><td>−24 dB ±3 dB
(CH level difference:
3 dB max.)</td></tr>
<tr><td>3. Playback S/N</td><td>MTT-116U
(MTT-216)</td><td>• SSVM</td><td>—</td><td>Play a 315 Hz, 0dB signal under the standard playback condition and measure the output level. Then, set the tape deck in PLAY mode without loading a tape and measure the output level. Obtain the ratio between the two output levels.

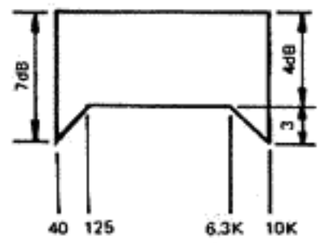
Also, measure the LINE output through a weighting circuit using the above procedure.</td><td>45 dB min.
(CH level difference:
4 dB max.)

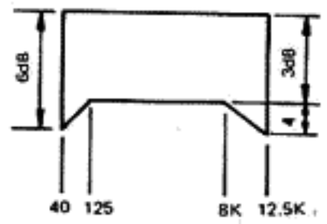
52 dB min.
(CH level difference:
4 dB max.)</td></tr>
<tr><td>4. Playback Frequency Response</td><td>MTT-116U
(MTT-216)</td><td>• SSVM</td><td>—</td><td>Under the standard playback condition, play each frequency on MTT-116U and measure the level at the LINE OUT terminal.
 
</td><td>See the figure at left.</td></tr>
<tr><td colspan="6">RECORDING SYSTEM</td></tr>
<tr><td>5. Minimum Input Level

LINE</td><td>—</td><td>• Audio signal generator
• SSVM
• Oscilloscope</td><td>1 (kHz)</td><td><table><tr><td>REC</td><td>PLAY</td><td>BIAS</td><td>EQ</td><td>DOLBY</td><td>MONITOR</td><td>SELECTOR</td></tr><tr><td>OFF</td><td>OFF</td><td>OFF</td><td>NORMAL</td><td>OFF</td><td>SOURCE</td><td></td></tr></table>REC VR ..... MAX
PB VR ..... MAX
INPUT SELECTOR SW ... LINE
Under the standard playback condition, apply a 1 kHz signal to LINE IN. Adjust the audio signal generator so that a signal of 0dBs (standard output level) is obtained at LINE OUT. Read the value of the input level at the output level of 0dBs.</td><td>−20 dBs ±3 dBs</td></tr>
<tr><td>MIC</td><td>—</td><td>• Audio signal generator
• SSVM
• Oscilloscope</td><td>1 (kHz)</td><td>INPUT SELECTOR SW ... MIC
Set other switches as shown above. Apply a 1 kHz signal to the MIC jack. Adjust the audio signal generator so that a signal of 0dBs (standard output level) is obtained at LINE OUT. Measure the input level at the output level of 0dBs.</td><td>−72 dBs ±3 dBs</td></tr>
<tr><td>ATT
MIC</td><td>—</td><td>• Audio signal generator
• SSVM
• Oscilloscope</td><td>1 (kHz)</td><td>INPUT SELECTOR SW ... ATT MIC
Set other switches as shown above. Measure the input level in the same manner.</td><td>−59 dBs ±3 dBs</td></tr>
<tr><td>DIN</td><td>—</td><td>• Audio signal generator
• SSVM
• Oscilloscope</td><td>1(kHz)</td><td>Models shipped to areas other than W.T.H.
Under the above conditions, disconnect the input from the MIC jack and apply a 1 kHz signal to the DIN input jack via a 80 kΩ resistor. Measure the input level at 0dBs (standard output level) of LINE output.</td><td>−34 dBs ±3 dBs</td></tr>
<tr><td>DIN</td><td>—</td><td>• Audio signal generator
• SSVM
• Oscilloscope</td><td>1 (kHz)</td><td><table><tr><td>REC</td><td>PLAY</td><td>BIAS</td><td>EQ</td><td>DOLBY</td><td>MONITOR</td><td>SELECTOR</td></tr><tr><td>OFF</td><td>ON</td><td>NORMAL</td><td>NORMAL</td><td>OFF</td><td>SOURCE</td><td>ATT MIC DIN</td></tr></table>Models shipped to W.T.H.
Under the above conditions, measure the input level in the same manner except that the 80 kΩ resistor should be removed.</td><td>(at +4dB) −52.7dB±3dB
* (at 0dB) −56.7dB±3dB</td></tr>
</table>

MEASUREMENT (AMP)

<table>
<tr><th>Adjustment items</th><th>Tape used</th><th>Test instruments</th><th>Input signal</th><th>Conditions and methods</th><th>Standard and remarks</th></tr>
<tr><td>6. Field Through</td><td>—</td><td>• SSVM</td><td>15 (kHz)
—20dBs</td><td>
<table>
<tr><th>REC</th><th>PLAY</th><th>BIAS</th><th>EQ</th><th>DOLBY</th><th>MONITOR</th><th>SELECTOR</th></tr>
<tr><td>ON</td><td>ON</td><td>NORMAL</td><td>NORMAL</td><td>OFF</td><td>TAPE</td><td>LINE</td></tr>
</table>
Without loading tape, set the tape deck in the standard recording and playback modes. Apply the specified signal to LINE IN and measure the level at the LINE OUT.
</td><td>—20 dB max.</td></tr>
<tr><td>7. Overall Frequency Response</td><td>AC-511</td><td>• Audio signal generator
• SSVM</td><td>40 (Hz)
63 (Hz)
125(Hz)
1 (kHz)
6.3(kHz)
10(kHz)
14(kHz)
—30(dB) each</td><td>
<table>
<tr><th>REC</th><th>PLAY</th><th>BIAS</th><th>EQ</th><th>DOLBY</th><th>MONITOR</th><th>SELECTOR</th></tr>
<tr><td>ON</td><td>ON</td><td>CHROME</td><td>CHROME</td><td></td><td>TAPE</td><td>LINE</td></tr>
</table>
Set the DOLBY SW to OFF. Other switches should be set as shown above. Record and play each of the specified signals and check that the frequency response meets the specifications.
Next, set the DOLBY SW to ON and check the frequency response of each signal.
</td><td>DOLBY.....OFF
 

CH level difference
Within 4 dB
DOLBY...ON
 

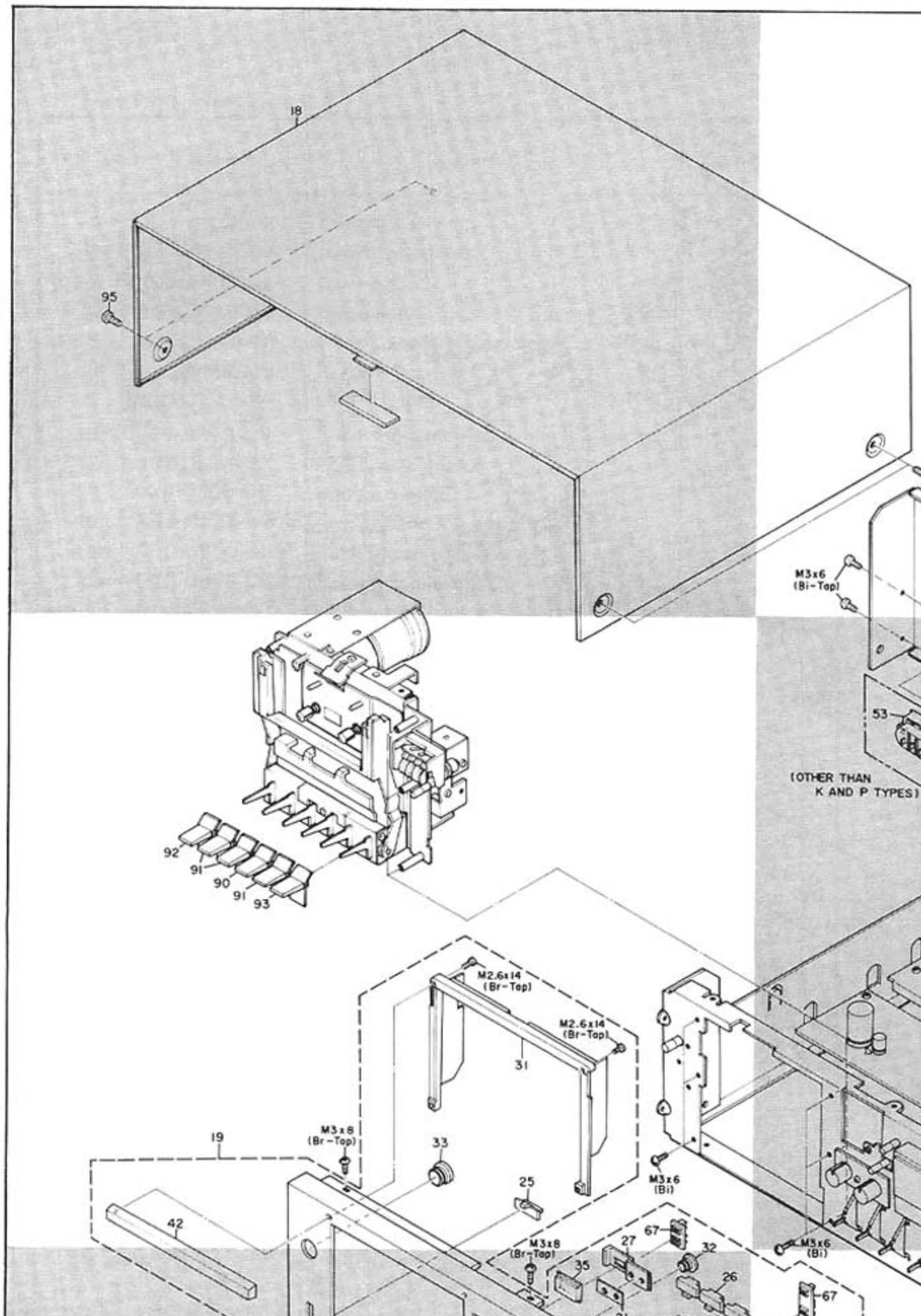
CH level difference:
Within 6 dB</td></tr>
<tr><td></td><td>XL-1</td><td></td><td>40 (Hz)
63 (Hz)
125(Hz)
1 (kHz)
6.3(kHz)
10(kHz)
14(kHz)
—30dB each</td><td>
<table>
<tr><th>REC</th><th>PLAY</th><th>BIAS</th><th>EQ</th><th>DOLBY</th><th>MONITOR</th><th>SELECTOR</th></tr>
<tr><td>ON</td><td>ON</td><td>NORMAL</td><td>NORMAL</td><td></td><td>TAPE</td><td>LINE</td></tr>
</table>
DOLBY ..... OFF
Set other switches as shown above. Record and play each of the specified signals and check that the frequency response meets the specifications. Next, set DOLBY to ON and check the frequency response of each signal. (Do not change the bias current set at the NORMAL position.)
</td><td>DOLBY.....OFF
 

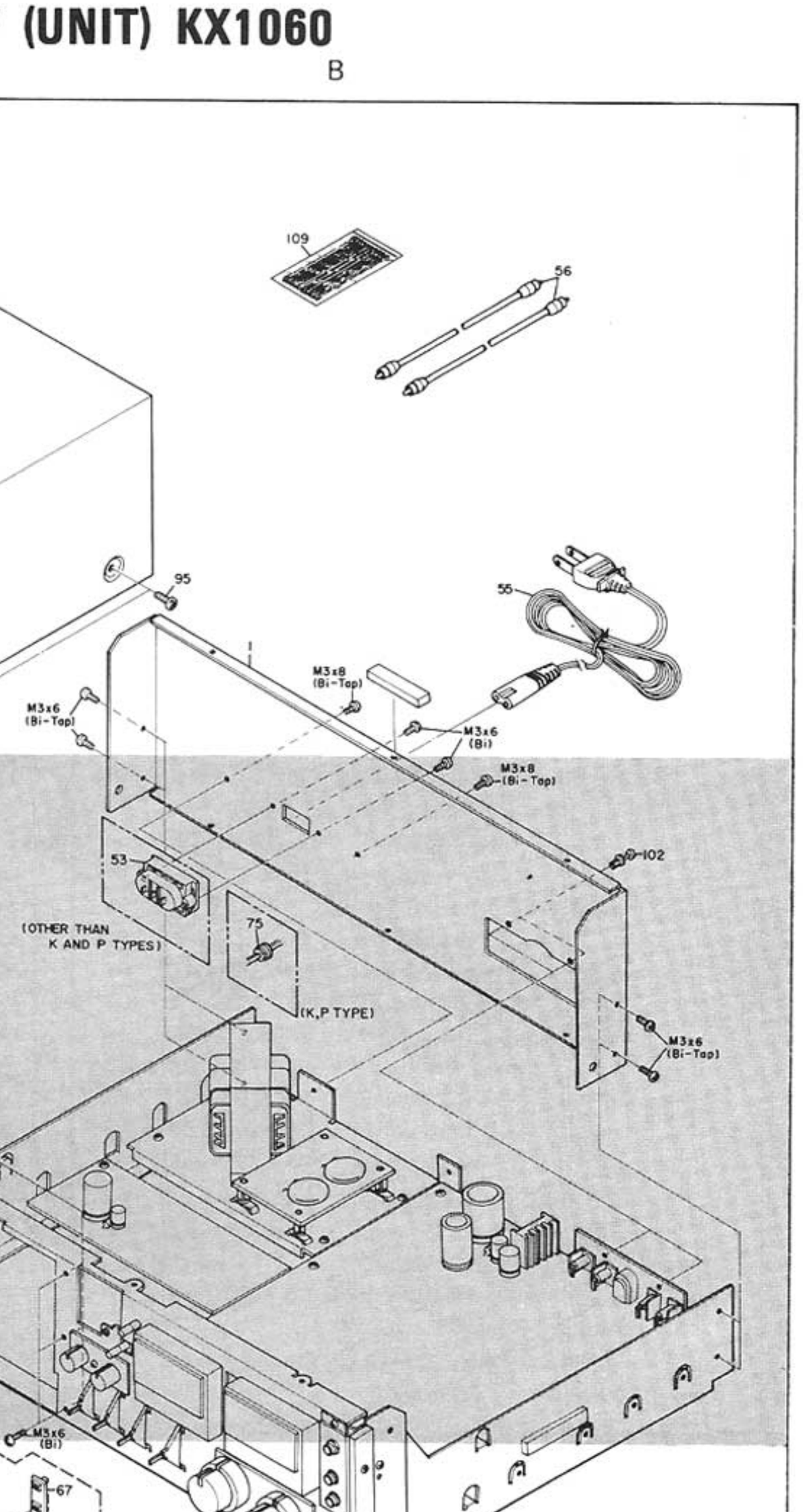
CH level difference:
Within 4 dB
DOLBY ... ON
Same as CHROME</td></tr>
<tr><td>8. Distortion</td><td>XL-1
AC-511</td><td>• Audio signal generator
• SSVM
• Distortion meter</td><td>1 (kHz)
—10(dB)</td><td>
<table>
<tr><th>REC</th><th>PLAY</th><th>BIAS</th><th>EQ</th><th>DOLBY</th><th>MONITOR</th><th>SELECTOR</th></tr>
<tr><td>ON</td><td>ON</td><td></td><td></td><td>OFF</td><td>TAPE</td><td>LINE</td></tr>
</table>
Under the standard recording and playback conditions, apply the specified signal to LINE IN. Record and play the signal simultaneously and measure the distortion at the LINE OUT using a distortion meter. Measure distortion on each tape with the BIAS and EQ switches set to appropriate positions.
</td><td>NORMAL ... Within 1.5%
CHROME ... Within 1.5%</td></tr>
<tr><td>9. Overall S/N</td><td></td><td>• Audio signal generator
• SSVM
• Oscilloscope</td><td>1 (kHz)
—10(dB)</td><td>
<table>
<tr><th>REC</th><th>PLAY</th><th>BIAS</th><th>EQ</th><th>DOLBY</th><th>MONITOR</th><th>SELECTOR</th></tr>
<tr><td>ON</td><td>ON</td><td></td><td></td><td></td><td>TAPE</td><td>LINE</td></tr>
</table>
Set the BIAS and EQ switches according to the type of tape used.
DOLBY ..... OFF
Under the standard recording and playback conditions, apply the specified signal to LINE IN and record. Next, shut off the signal and set the tape deck in recording mode. Measure the playback levels with signal and without signal. Obtain the ratio between the two playback levels.
Next, connect a weighting circuit between LINE OUT and SSVM and measure the playback level in the same manner.
Also, set the DOLBY SW to ON and measure in the same manner.
</td><td>NORMAL
<table>
<tr><th rowspan="2">CONDITION</th><th colspan="2">DOLBY</th></tr>
<tr><th>OFF</th><th>ON</th></tr>
<tr><td>FLAT</td><td>42 dB min.</td><td>47 dB min.</td></tr>
<tr><td>WEIGHTED</td><td>45 dB min.</td><td>52 dB min.</td></tr>
</table>
CHROME
<table>
<tr><th rowspan="2">CONDITION</th><th colspan="2">DOLBY</th></tr>
<tr><th>OFF</th><th>ON</th></tr>
<tr><td>FLAT</td><td>45 dB min.</td><td>49 dB min.</td></tr>
<tr><td>WEIGHTED</td><td>48 dB min.</td><td>55 dB min.</td></tr>
</table>
</td></tr>
</table>

MEASUREMENT (AMP)

Adjustment items	Tape used	Test instruments	Input signal	Conditions and methods	Standard and remarks
10. Erase ratio	XL-1	• Audio signal generator • SSVM • 1 kHz band-pass filter	1 (kHz) −4 (dB	REC: ON, PLAY: ON, BIAS: NORMAL, EQ: NORMAL, DOLBY: OFF, MONITOR: TAPE, SELECTOR: LINE Under the standard recording and playback conditions, apply the specified signal to LINE IN. Record the signal and then rewind the tape slightly. Next, record the tape without applying signal. Rewind the tape and measure the ratio of the playback level with signal to the level without signal, using a 1 kHz band-pass filter.	60 dB min.
11. Channel Separation	XL-1	• Audio signal generator • SSVM • 1 kHz band-pass filter	1 (kHz) −10 (dB)	REC: ON, PLAY: ON, BIAS: NORMAL, EQ: NORMAL, DOLBY: OFF, MONITOR: TAPE, SELECTOR: LINE Under the standard recording and playback conditions, apply the specified signal to one channel only. Record the signal on the channel. In this case, no signal is recorded on the other channel. Rewind and play the tape. Measure the ratio of the playback level with signal to the level without signal, using a 1 kHz band-pass filter.	L→R ... 30 dB min. R→L... 30 dB min.
12. Crosstalk between Tracks	XL-1 (Demagnetized tape)	• Audio signal generator • SSVM • 1 kHz band-pass filter	100 (Hz) −10(dB)	REC: ON, PLAY: ON, BIAS: NORMAL, EQ: NORMAL, DOLBY: OFF, MONITOR: TAPE, SELECTOR: LINE Under the standard recording and playback conditions, apply the specified signal to LINE IN. Record the signal. Next, reverse the cassette and play the tape. Measure the crosstalk using a 100 Hz band-pass filter.	40 dB min.
13. Bias Leak	—	• SSVM	—	REC: ON, PLAY: ON, BIAS: NORMAL, EQ: NORMAL, DOLBY: OFF, MONITOR: , SELECTOR: LINE Under the standard recording and playback conditions, operate the tape mechanism without loading tape. Measure the output levels at the TAPE and SOURCE positions of the MONITOR SW.	MONITOR in SOURCE position 60 dB max. MONITOR in TAPE position Below noise level

EXPLODED VIEW (UNIT) KX1060





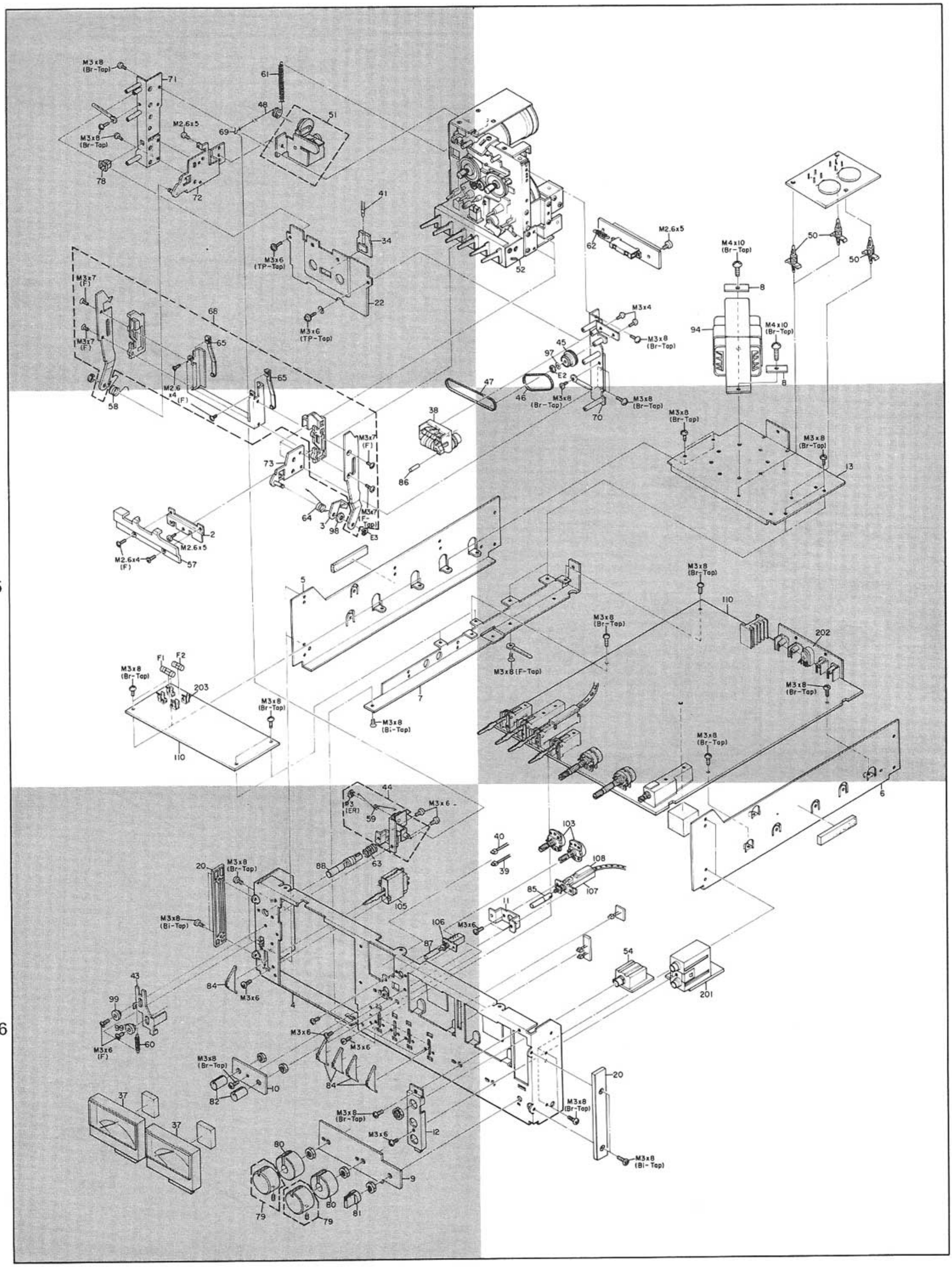
EXPLODED VIEW (UNIT) KX-1060

A B

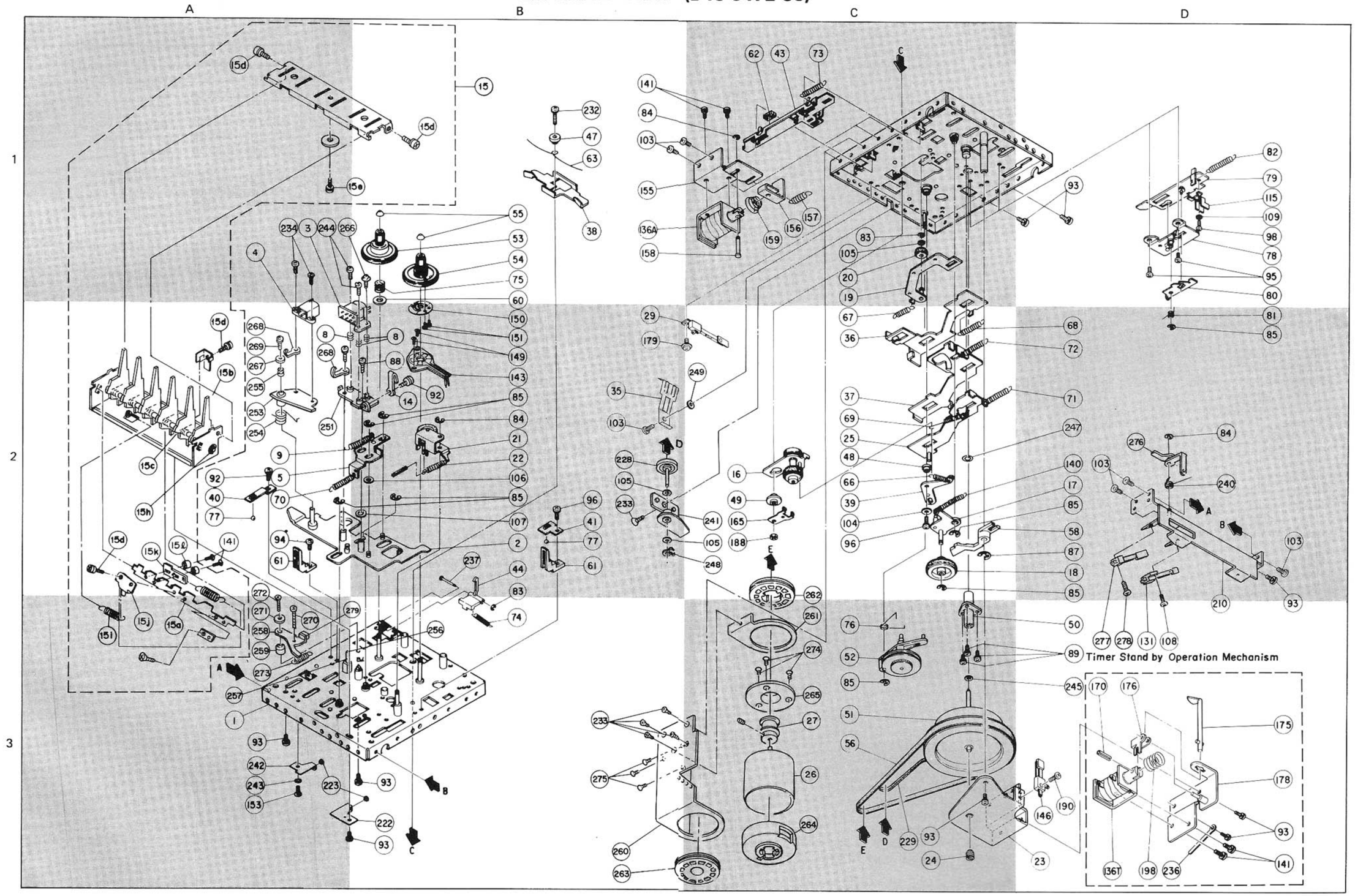
4

5

6



EXPLODED VIEW (D40-0472-05)



This 3-head tape mechanism D40-0472-05 is a modification of the tape mechanism D40-0454-05 for the model KX-550 and it includes the following new parts:

1. Motor
2. Motor bracket Y
3. Motor bracket Z
4. Damper A
5. Damper B
6. Damper C
7. Mounting flange

The above parts, 1 through 7, are provided for vibration protection of motor.

8. Record/play head
9. Erase head
10. Head panel caulking UA
11. Head sub-panel caulking CA
12. Record/play head spring
13. Head supporting spring
14. Erase head arm caulking
15. Erase head arm spring A
16. Erase head arm supporting spring
17. Cassette guide LD
18. Dummy capstan B
19. Felt
20. Pushbutton ass'y FF
21. Back tension brake D
22. Back tension collar B
23. Back tension spring C
24. Pinchroller spring J

The above parts, 8 through 24, are used to drive the 3-head tape mechanism.

25. Pack supporting spring W
26. Reel base ass'y Y
27. Switch mounting plate caulking E
28. Leaf switch 20A-D

EXPLODED VIEW PARTS LIST
(D40-0472-05)

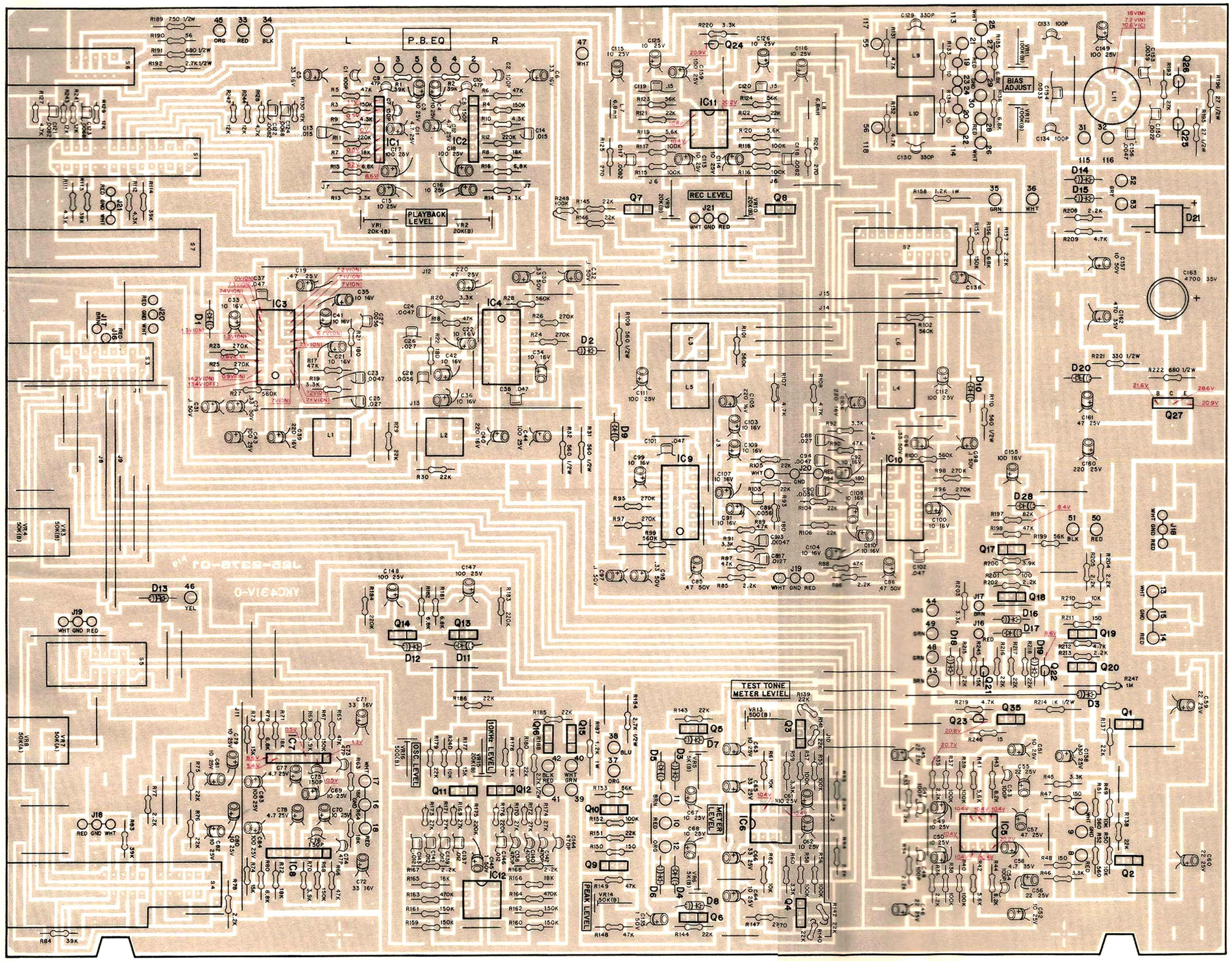
☆ : New Parts × No Stock

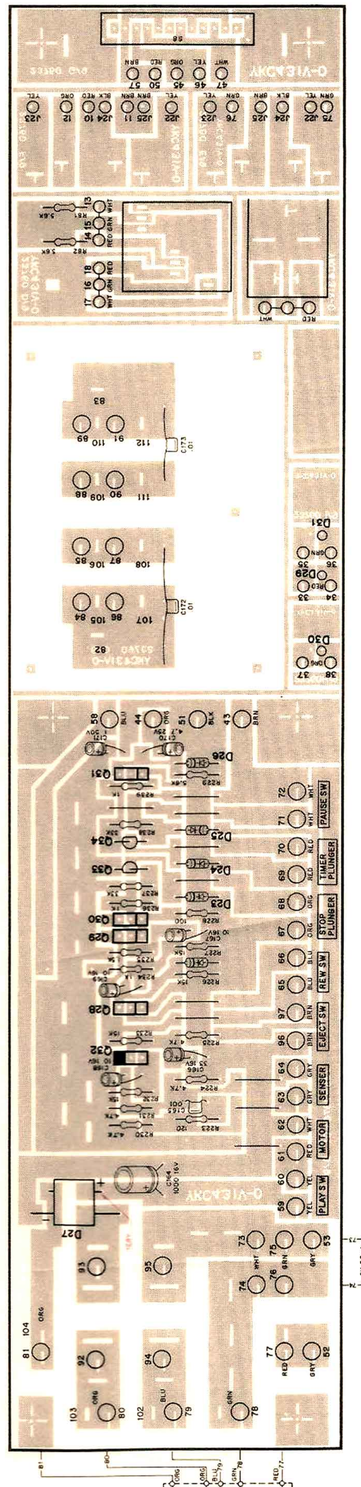
Fig. No	Parts No.	Description	Remarks
1	A11-0328-08	Chassis ass'y	× 3A
2	A11-0342-08	Head panel ass'y	× 2B
3	T34-0008-05	R/P head	☆ 2A
4	T32-0010-05	Erase head	☆ 1A
5	D10-0540-08	Head panel pushing plate C	☆ 2A
8	G01-0756-08	R/P head spring E	☆ 2A
9	G01-1017-08	Link spring C	☆ 2A
12	J21-2279-08	Erase head base B	2A
13	J32-0504-08	Erase head stud E	2A
14	E23-0308-08	Lug terminal E	☆ × 1A
15	**A13-0528-08**	**Pushbutton FA ass'y**	☆ 1B
15a	D10-0600-08	Pushbutton operational plate	3A
15b	D10-0898-08	Pushbutton lever FD	☆ × 2A
15c	G01-0720-08	Pushbutton lever spring I	2A
15d	N09-0203-08	SEMUS screw M2.6 × 4	1A,1B,2A
15e	N09-0202-08	SEMUS screw M2.6 × 6	1A
15f	—	—	
15g	N09-0590-08	SEMUS screw M2 × 4	1B
15h	N24-3030-60	E-ring 3ϕ	2A
15i	G01-0701-08	Pushbutton operational spring	3A
16	D14-0210-08	FF idler arm ass'y	2C
17	D10-0548-08	Auto idler supporter ass'y B	2D
18	D14-0212-08	Auto ider	2D
19	D10-0541-08	REW arm BB ass'y	1C
20	D14-0213-08	REW idler B	1C
21	D14-0211-08	Pinch roller ass'y	2B
22	G01-0761-08	Pinch roller spring J	☆ 2B
23	J21-2289-18	Flywheel support	× 3D
24	N09-0822-08	Adjusting screw	3C
25	D10-0542-08	FF arm C ass'y	2C
26	T42-0105-05	Motor	3B
27	D15-0510-18	Motor pulley	3B
28	J21-2275-18	Motor bracket	× 3B
29	S46-0307-08	Play switch S7 LS1139TY	2B
30	G13-0431-08	Rubber cushion	3B
31	J31-0422-08	Spring tube	3B
35	G02-0327-08	Cassette hold back spring plate W	☆ 2B
36	D30-0004-08	Brake lever D	2C
37	D10-0543-08	REW lever A	2C
38	D30-0003-08	Brake arm D	1B
39	D10-0545-08	FF tension arm	2C
40	J19-1267-08	Head panel retainer A	2A
41	J19-1268-08	Head panel retainer D	2B
42	J21-2282-08	Flywheel metal support A	3D
43	D10-0544-08	Wrong erase preventing lever D	1C
44	D10-0539-08	Wrong erase preventing latch F	2B
47	J31-0423-08	Brake arm spacer B	1B
48	J31-0424-08	FF tension arm spacer B	2C
49	D21-0648-08	FF idler arm spacer	2C
50	D23-0518-08	Flywheel metal F	3D
51	D01-0306-08	Flywheel	3C
52	D19-0213-08	Slip clutch ass'y D	3C
53	D03-0012-08	Supply reel ass'y Y	☆ 1B
54	D03-0009-08	Take-up reel ass'y Q	1B
55	B09-0205-08	Reel cap A	1B
56	D16-0214-08	Flat belt 84ϕ × 5 × 0.4t	3C
58	D10-0546-08	Auto lever A	2D
60	N19-0543-08	Polyethylene slider washer	1B

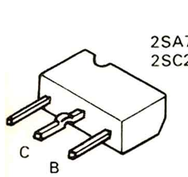
Fig. No.	Parts No.	Description	Remarks
61	J90-0310-08	Cassette guide E	☆×2A,2B
62	G13-0432-08	cushion A	1C
63	G01-0684-08	Brake arm spring C	1B
66	G01-0685-08	FF idler spring	2C
67	G01-0686-08	REW arm spring	2C
68	G01-0687-08	Brake lever spring E	2C
69	G01-0688-08	REW tension spring	2C
70	G01-0690-08	Head panel spring 70=72	2A
71	G01-0689-08	FF arm spring	2D
72	G01-0690-08	REW lever spring 70=72	2D
73	G01-0691-08	Wrong erace preventing latch spring B	1C
74	G01-0692-08	Wrong erase preventing latch spring D	3B
75	G01-0693-08	Back tension spring B	1B
76	G01-0694-08	Slip clutch spring D	3C
77	D90-0102-08	Steel ball 2ϕ	2A,2B
	D39-0076-08	**Pause ass'y H (includes 78~81, 115)**	
78	J19-1271-08	Pause base ass'y	1D
79	D10-0522-08	Pause arm ass'y	1D
80	D12-0213-08	Pause cam B	1D
81	G01-0703-08	Pause cam spring A	2D
82	G01-0696-08	Pause arm spring	1D
83	N24-3015-60	E ring ϕ1.5	1C,2B
84	N24-3020-60	E ring ϕ2.0	1B,2B,2D,3D
85	N24-3025-60	E ring ϕ2.5	2A,2B,2D,3C
87	N24-3040-60	E ring ϕ4.0	2D
88	N09-0590-08	SEMUS screw M2 × 4 (N30-2004-46 + N16-0026-46)	1A
89	N09-0591-08	SEMUS screw M2 × 5 (N30-2005-46 + N16-0026-46)	3D
92	N09-0203-08	SEMUS screw M2.6 × 4 (N30-2604-11 + N16-0026-46)	2A
93	N09-0246-08	SEMUS screw M2.6 × 5 (N30-2605-08 + N16-0026-46)	1D,3A,3B,3C
94	N30-2605-46	Pan head screw M2.6 × 5	2A
95	N30-2603-46	Pan head screw M2.6 × 3	1D
96	N09-0202-08	SEMUS screw M2.6 × 6 (N30-2606-11 + N16-0026-46)	2B,2C
98	N30-2003-46	Pan head screw M2 × 3	1D
103	N09-0828-08	Pan head tapping screw M3 × 5	1B,2B 2D
104	N15-1026-46	Flat washer 2.8 × 7.5 × 0.5	2C
105	N19-0539-08	Polyethylene slider washer 2.1 × 4.0 × 0.13	1C,2C
106	N19-0537-08	Polyethylene slider washer 3.1 × 5.4 × 0.13	2B
107	N19-0538-08	Polyethylen slider washer 4.1 × 6.5 × 0.13	2B
108	N09-0902-08	Pan head screw M2 × 6	☆× 3D
109	N16-0020-46	Spring washer M2.0	1D
111	N19-0536-08	R/P head spacer 5ϕ × 2.3ϕ × 0.2t	2B
115	J21-2290-08	Pause arm support F	1D
131	S46-1315-08	Leaf switch	☆ 3D
136A	T94-0056-08	Solenoid (B) 13V40	1B
136T	T94-0056-08	Solenoid (B) 13V40	
140	G01-0695-08	Auto idler supporter spring B	2D
141	N09-0227-08	SEMUS screw M3 × 4 (N30-3004 + N16-0030-46)	1B

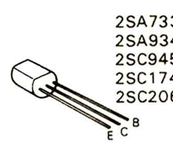
PC BOARD

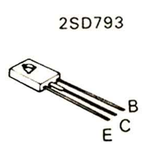
X28-1300-01

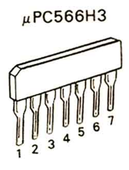


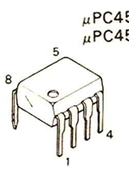


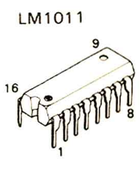












Q3,4,9～20 28～31	: 2SC2021FLN (R,S)		D1,2,9～12,16～19,22,25,26,28,32	: 1S2076
Q1,2,5～8,21	: 2SC945 (P,Q)		D3～8	: 1N60 PSP
Q22	: 2SA733A (P,Q)		D13～15,23,24	: GP10-4003 or ERB12-02R
Q23,24	: 2SC1740LN (R,S)		D20	: RD20EC
Q25,26	: 2SC2060 (Q,R)		D21,27	: ESAB03-02A
Q27	: 2SD793 (R,Q)		IC1,2,7,8	: MPC566H3 (L,M)
Q32	: 2SA786FLN (R,S)		IC3,4,9,10	: LM1011
Q33,34	: 2SA934 (Q,R)		IC5,6	: μPC4557C
			IC11,12	: μPC4558C

PARTS LIST

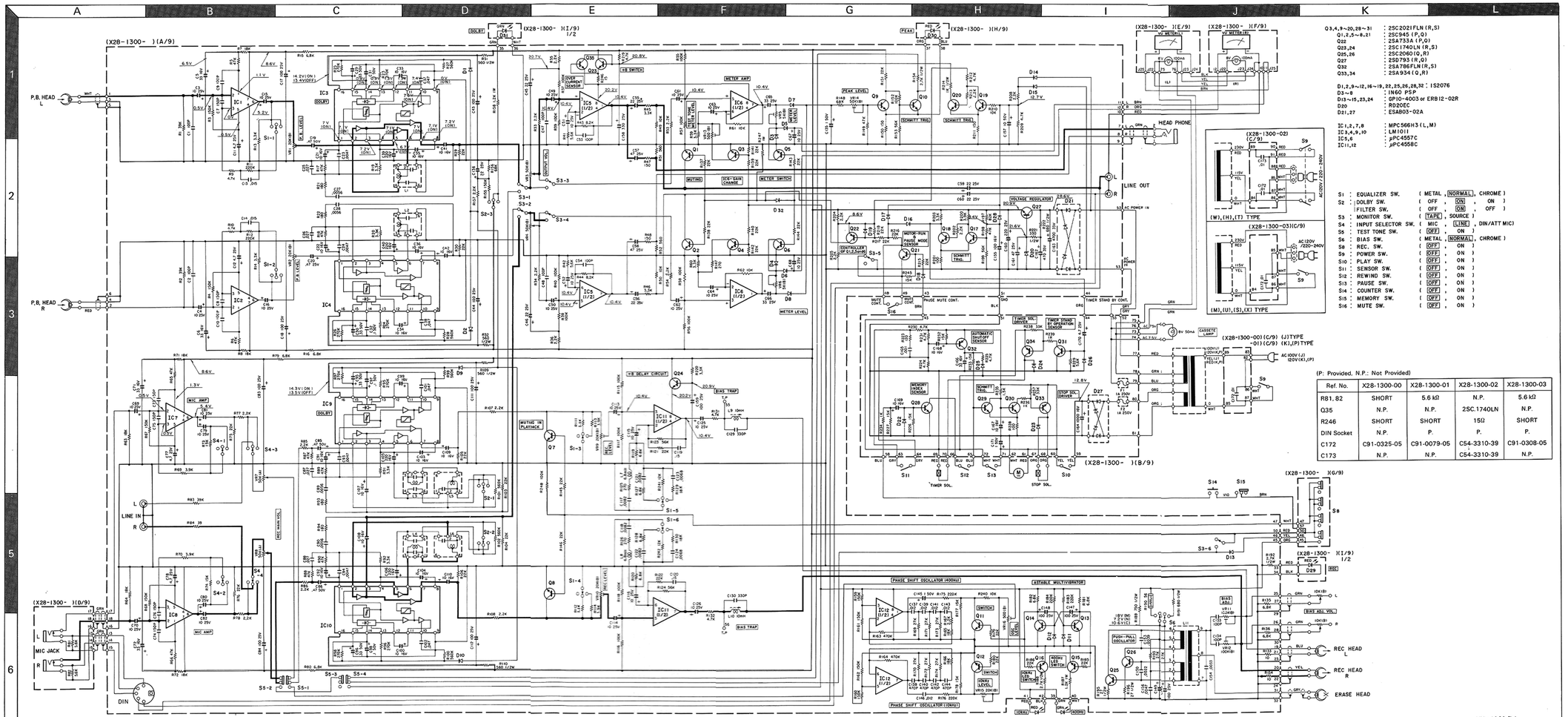
Ref. No. 参照番号	Parts No. 部品番号	Description 部品名／規格	Remarks 備考
C137	C45-1712-35	MYLAR 0.012UF J	
C138	C50-2047-15	FILM 470PF J	*
C139	C45-1712-35	MYLAR 0.012UF J	
C140	C50-2047-15	FILM 470PF J	*
C141	C45-1712-35	MYLAR 0.012UF J	
C142	C50-2047-15	FILM 470PF J	*
C143	C45-1712-35	MYLAR 0.012UF J	
C144	C50-2047-15	FILM 470PF J	*
C145	C24-1710-51	ELECTRO 1UF 50WV	
C146	C45-1712-35	MYLAR 0.012UF J	
C147	C24-1422-71	ELECTRO 220UF 25WV	
C148,149	C24-1410-71	ELECTRO 100UF 25WV	
C150	C45-1722-25	MYLAR 0.0022UF J	*
C153	C50-2039-25	FILM 0.0039UF J	*
C154	C91-0326-05	FILM 0.0039UF J	*
C155	C24-1210-71	ELECTRO 100UF 16WV	
C156	C45-1747-25	MYLAR 0.0047UF J	
C157	C24-1710-61	ELECTRO 10UF 50WV	
C158	C24-1433-71	ELECTRO 330UF 25WV	
C159	C24-1410-71	ELECTRO 100UF 25WV	
C160	C24-1422-71	ELECTRO 220UF 25WV	
C161	C24-1447-61	ELECTRO 47UF 25WV	
C162	C24-6547-71	ELECTRO 470UF 35WV	
C163	C90-0368-05	ELECTRO 4700UF 35WV	
C164	C24-1210-81	ELECTRO 1000UF 16WV	
C165	C45-1710-25	MYLAR 0.001UF J	
C166	C24-1233-61	ELECTRO 33UF 16WV	
C167-169	C24-1210-61	ELECTRO 10UF 16WV	
C170	C24-1447-51	ELECTRO 4.7UF 25WV	
C171	C24-1710-51	ELECTRO 1UF 50WV	
C172,173	C54-3310-39	CERAMIC 0.01UF	02
C172	C91-0079-05	CERAMIC 0.01UF	01
C172	C91-0308-05	MF 0.01UF 1000V	03
C172	C91-0308-05	MF 0.01UF 1000V	04
201 6B	E11-0311-05	PHONE JACK (MIC)	*
202 5B	E13-0456-05	PHONO JACK WITH DIN	
203 5A	J13-0055-05	FUSE HOLDER X4	
L1 ,2	L79-0306-05	FILTER 85KHZ	*
L3 ,4	L79-0303-05	FILTER 85KHZ	
L5 ,6	L79-0304-05	FILTER 19KHZ	
L7 ,8	L39-0309-05	COIL 6.8MH	*
L9 ,10	L39-0304-05	COIL 10MH	
L11	L32-0506-05	OSCILLATING COIL	*
R9 ,10	R48-2430-14	METAL 4.3K G 2E	*
R11 ,12	R48-2220-34	METAL 220K G 2E	*
R13 ,14	R48-2330-14	METAL 3.3K G 2E	*
R19 ,20	R48-2330-14	METAL 3.3K G 2E	*
R31 ,32	R43-1356-15	FL-PROOF RD560 J 2H	*
R91 ,92	R48-2330-14	METAL 3.3K G 2E	*
R109,110	R43-1356-15	FL-PROOF RD560 J 2H	*
R154	R43-1327-25	FL-PROOF RD2.7K J 2H	*
R158	R47-1412-25	FL-PROOF RS1.2K J 3A	
R187	R47-1412-25	FL-PROOF RS1.2K J 3A	
R188	R43-1327-25	FL-PROOF RD2.7K J 2H	*
R189	R43-1375-15	FL-PROOF RD750 J 2H	*
R190	R92-0505-05	RESISTOR(FUSE) 56	
R191	R43-1368-15	FL-PROOF RD680 J 2H	*
R192	R43-1327-25	FL-PROOF RD2.7K J 2H	*
R195,196	R43-1327-05	FL-PROOF RD27 J 2H	*
R214	R43-1310-25	FL-PROOF RD1K J 2H	*

Ref. No. 参照番号	Parts No. 部品番号	Description 部品名／規格	Remarks 備考
R221	R43-1333-15	FL-PROOF RD330 J 2H	*
R222	R43-1368-15	FL-PROOF RD680 J 2H	*
VR1 ,2	R12-3301-05	TRIMMING POT. 20K(B)	
VR3 ,4	R19-4305-05	POTENTIOMETER (OUTPUT)	*
VR5 ,6	R12-2302-05	TRIMMING POT. 5K(B)	
VR7 ,8	R19-4304-05	POTENTIOMETER (INPUT)	*
VR9 ,10	R12-3301-05	TRIMMING POT. 20K(B)	
VR11,12	R12-5304-05	TRIMMING POT. 100K(B)	*
VR13	R12-0303-05	TRIMMING POT. 500(B)	*
VR14	R12-4302-05	TRIMMING POT. 50K(B)	
VR15	R12-3301-05	TRIMMING POT. 20K(B)	
VR16	R12-0302-05	TRIMMING POT. 500(B)	
S1	S33-6308-05	LEVER SWITCH	
S2	S90-0306-05	REMOTE SWITCH	*
S3	S33-6307-05	LEVER SWITCH	*
S4	S29-4301-05	ROTARY WAFER SWITCH	*
S5	S90-0303-05	SLIDE SWITCH	*
S6	S33-2308-05	LEVER SWITCH	*
S7	S90-0304-05	REMOTE SWITCH CONTROL	*
S7	S90-0305-05	REMOTE SWITCH WIRE	*
S8	S31-4303-05	SLIDE SWITCH	*
D1 ,2	V11-0271-05	1S2076	
D3 -8	V11-0457-05	1N60PSP	
D9 -12	V11-0271-05	1S2076	
D13 -15	V11-7100-80	ERB12-02R	*
D13 -15	V11-9729-05	1N4003	*
D16 -19	V11-0271-05	1S2076	
D20	V11-1200-10	RD20EC	
D21	V11-7100-11	ESAB03-02A	*
D22	V11-0271-05	1S2076	
D23 ,24	V11-7100-80	ERB12-02R	*
D23 ,24	V11-9729-05	1N4003	*
D25 ,26	V11-0271-05	1S2076	
D27	V11-7100-11	ESAB03-02A	*
D28 ,32	V11-0271-05	1S2076	
D29 ,30	V11-1100-30	LED	*
D31	V11-1100-20	LED	*
IC1 ,2	V30-0274-20	UPC566H3(L,M)	
IC3 ,4	V30-0277-10	LM-1011	
IC5 ,6	V30-0273-20	UPC4557C	
IC7 ,8	V30-0274-20	UPC566H3(L,M)	
IC9 ,10	V30-0277-10	LM-1011	
IC11,12	V30-0349-10	UPC4558C	
Q3 -4	V03-2021-10	2SC2021FLN(R,S)	*
Q1 2,5-8	V03-0348-05	2SC945(P,Q)	
Q9 -20	V03-2021-10	2SC2021FLN(R,S)	*
Q12	V03-0348-05	2SC945(P,Q)	
Q21	V03-0348-05	2SC945(P,Q)	
Q22	V01-0733-40	2SA733A(P,Q)	
Q23 ,24	V03-1740-10	2SC1740LN(R,S)	*
Q25 ,26	V03-2060-10	2SC2060(Q,R)	*
Q27	V03-2209-10	2SC2209(Q)	
Q27	V04-0793-10	2SD793(R,Q)	
Q28 -31	V03-2021-10	2SC2021FLN(R,S)	*
Q32	V01-0786-10	2SA786FLN(R,S)	*
Q33 ,34	V01-0934-10	2SA934(Q,R)	*
Q35	V03-2021-10	2SC2021FLN(R,S)	02

PARTS LIST

Ref. No. 参照番号	Parts No. 部品番号	Description 部品名／規格	Remarks 備考
84 6A	K27-0077-04	KNOB X5 (ESCUTCHEON)	*
85 6B	K27-0311-13	KNOB (OSC)	*
86 5A	K27-0312-04	KNOB (RESET)	*
87 6A	K27-0313-04	KNOB (MEMORY)	*
88 6A	K27-0314-04	KNOB (EJECT)	*
89 3A	K27-0315-03	KNOB X3 (DOLBY,BIAS,EQ)	*
90 2A	K29-0653-03	KNOB (PLAY)	
91 2A	K29-0654-03	KNOB X3 (FF,REW,STOP	
92 2A	K29-0655-03	KNOB (REC)	
93 2A	K29-0656-03	KNOB (PAUSE)	
94 4B	L01-6241-05	POWER TRANSFORMER	*K
94 4B	L01-6241-05	POWER TRANSFORMER	P
94 4B	L01-6244-05	POWER TRANSFORMER	*T
94 4B	L01-6244-05	POWER TRANSFORMER	WH
94 4B	L01-6247-05	POWER TRANSFORMER	*M
94 4B	L01-6247-05	POWER TRANSFORMER	SU
94 4B	L01-6247-05	POWER TRANSFORMER	X
-	N30-2004-46	M2X4	
-	N30-2605-46	M2.6X5	
-	N30-3004-46	M3X4	
-	N30-3006-46	M3X6	
-	N32-2604-46	M2.6X4(F)	
-	N32-3006-46	M3X6(F)	
-	N32-3007-45	M3X7(F)	
-	N35-3006-45	M3X6(BI)	
-	N35-3006-46	M3X6(BI)	
-	N87-3007-46	M3X7(F)	
-	N87-3008-46	M3X8(BR-TAP)	
-	N87-4010-46	M4X10(BR-TAP)	
-	N87-4012-46	M4X12(BR-TAP)	
-	N88-3008-46	M3X8(F-TAP)	
-	N89-3006-46	M3X6(BI-TAP)	
-	N89-3008-45	M3X8(BI-TAP)	
-	N90-3006-46	M3X6(+TP)	
-	N90-3010-45	M3X10(TP)	
102 2B	N29-0216-05	PUSH RIVET X2	
95 1A	N09-0831-04	M4X6(BI-TAP)	
96 3A	N13-0202-04	DRESSED NUT X2	*
97 5B	N19-0016-04	WASHER	*
98 5A	N19-0543-04	WASHER	*
99 6A	N19-0554-04	WASHER X2	*
103 5B	R01-3304-05	POTENTIOMETER 10K(B)X2	*
105 6A	S33-1305-05	POWER SWITCH	*M
105 6A	S33-1305-05	POWER SWITCH	SU
105 6A	S33-1305-05	POWER SWITCH	X
105 6A	S33-2042-05	POWER SWITCH	*T
105 6A	S33-2042-05	POWER SWITCH	WH
105 6A	S33-2307-05	POWER SWITCH	*K
105 6A	S33-2307-05	POWER SWITCH	P
106 6A	S40-4302-05	PUSH SWITCH (MEMORY)	*
107 6B	S90-0301-05	REMOTE CONTROL ASSY	*
108 6B	S90-0302-05	REMOTE WIRE	*
109 1B	W01-0301-05	HEAD CLEANING BAR	
110 5B	X28-1300-01	REC/PLAY PCB ASSY	*K
110 5B	X28-1300-01	REC/PLAY PCB ASSY	P
110 5B	X28-1300-02	REC/PLAY PCB ASSY	*T
110 5B	X28-1300-02	REC/PLAY PCB ASSY	WH
110 5B	X28-1300-03	REC/PLAY PCB ASSY	*M
110 5B	X28-1300-03	REC/PLAY PCB ASSY	SU
110 5B	X28-1300-04	REC/PLAY PCB ASSY	*X

Ref. No. 参照番号	Parts No. 部品番号	Description 部品名／規格	Remarks 備考
(X28-1300)			
C1 ,2	C48-2110-15	POLYSTY 100PF J	*
C3 ,4	C25-1410-67	LL-ELEC 10UF 25WV	
C5 ,6	C24-1233-61	ELECTRO 33UF 16WV	
C7 ,8	C71-1715-15	CERAMIC 150PF J	
C9 ,10	C71-1710-15	CERAMIC 100PF J	
C11 ,12	C24-1447-51	ELECTRO 4.7UF 25WV	
C13 ,14	C45-1715-35	MYLAR 0.015UF J	
C15 ,16	C24-1410-61	ELECTRO 10UF 25WV	
C17 ,18	C24-1410-71	ELECTRO 100UF 25WV	
C19 ,20	C25-1747-47	LL-ELEC 0.47UF 50WV	
C21 ,22	C24-1210-61	ELECTRO 10UF 16WV	
C23 ,24	C45-1747-25	MYLAR 0.0047UF J	
C25 ,26	C45-1727-35	MYLAR 0.027UF J	
C27 ,28	C45-1756-25	MYLAR 0.0056UF J	
C29 ,30	C25-1733-47	LL-ELEC 0.33UF 50WV	
C31 ,32	C25-1710-47	LL-ELEC 0.1UF 50WV	
C33 -36	C24-1210-61	ELECTRO 10UF 16WV	
C37 ,38	C45-1747-35	MYLAR 0.047UF J	
C39 ,40	C24-1222-71	ELECTRO 220UF 16WV	
C41 ,42	C24-1210-61	ELECTRO 10UF 16WV	
C43 ,44	C24-1410-71	ELECTRO 100UF 25WV	
C45 ,46	C24-1422-61	ELECTRO 22UF 25WV	
C47 ,48	C71-1710-15	CERAMIC 100PF J	
C49 -52	C24-1410-61	ELECTRO 10UF 25WV	
C53 ,54	C71-1710-15	CERAMIC 100PF J	
C55 ,56	C24-1422-61	ELECTRO 22UF 25WV	
C57 ,58	C24-1447-61	ELECTRO 47UF 25WV	
C59 ,60	C25-1422-67	LL-ELEC 22UF 25WV	
C61 -64	C24-1410-61	ELECTRO 10UF 25WV	
C65 ,66	C24-1433-61	ELECTRO 33UF 25WV	
C67 ,68	C24-1410-61	ELECTRO 10UF 25WV	
C69 ,70	C25-1410-67	LL-ELEC 10UF 25WV	
C71 ,72	C24-1233-61	ELECTRO 33UF 16WV	
C73 -76	C71-1715-15	CERAMIC 150PF J	
C77 ,78	C24-1447-51	ELECTRO 4.7UF 25WV	
C79 -82	C24-1410-61	ELECTRO 10UF 25WV	
C83 ,84	C24-1410-71	ELECTRO 100UF 25WV	
C85 ,86	C25-1747-47	LL-ELEC 0.47UF 50WV	
C87 ,88	C45-1727-35	MYLAR 0.027UF J	
C89 ,90	C45-1756-25	MYLAR 0.0056UF J	
C91 ,92	C24-1210-61	ELECTRO 10UF 16WV	
C93 ,94	C45-1747-25	MYLAR 0.0047UF J	
C95 ,96	C25-1733-47	LL-ELEC 0.33UF 50WV	
C97 ,98	C25-1710-47	LL-ELEC 0.1UF 50WV	
C99 ,100	C24-1210-61	ELECTRO 10UF 16WV	
C101,102	C45-1747-35	MYLAR 0.047UF J	
C103,104	C24-1210-61	ELECTRO 10UF 16WV	
C105,106	C24-1222-71	ELECTRO 220UF 16WV	
C107-110	C24-1210-61	ELECTRO 10UF 16WV	
C111,112	C24-1410-71	ELECTRO 100UF 25WV	
C113-116	C24-1410-61	ELECTRO 10UF 25WV	
C117,118	C45-1782-25	MYLAR 0.0082UF J	
C119,120	C45-1715-45	MYLAR 0.15UF J	*
C121,122	C45-1782-25	MYLAR 0.0082UF J	
C123,124	C45-1768-25	MYLAR 0.0068UF J	*
C125,126	C25-1410-67	LL-ELEC 10UF 25WV	
C129,130	C50-2033-15	FILM 330PF J	*
C133,134	C48-2110-15	POLYSTY 100PF J	*
C135	C24-1710-51	ELECTRO 1UF 50WV	
C136	C24-1422-61	ELECTRO 22UF 25WV	



Q3,4,9~20,28~31 : 2SC2021FLN (R,S)
Q1,2,5~8,21 : 2SC945 (P,Q)
Q22 : 2SA733A (P,Q)
Q23,24 : 2SC1740LN (R,S)
Q25,26 : 2SC2060 (Q,R)
Q27 : 2SD793 (R,Q)
Q32 : 2SA786FLN (R,S)
Q33,34 : 2SA934 (Q,R)

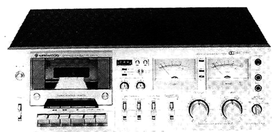
D1,2,9~12,16~19,22,25,26,28,32 : 1S2076
D3~8 : IN60 PSP
D13~15,23,24 : GP10-4003 or ERB12-02R
D20 : RD20EC
D21,27 : ESAB03-02A

IC1,2,7,8 : MPC566H3 (L,M)
IC3,4,9,10 : LM1011
IC5,6 : μPC4557C
IC11,12 : μPC4558C

S1 : EQUALIZER SW. { METAL , NORMAL , CHROME }
S2 : DOLBY SW. { OFF , ON , ON }
FILTER SW. { OFF , ON , OFF }
S3 : MONITOR SW. { TAPE , SOURCE }
S4 : INPUT SELECTOR SW. { MIC , LINE , DIN/ATT MIC}
S5 : TEST TONE SW. { OFF , ON }
S6 : BIAS SW. { METAL , NORMAL , CHROME }
S8 : REC. SW. { OFF , ON }
S9 : POWER SW. { OFF , ON }
S10 : PLAY SW. { OFF , ON }
S11 : SENSOR SW. { OFF , ON }
S12 : REWIND SW. { OFF , ON }
S13 : PAUSE SW. { OFF , ON }
S14 : COUNTER SW. { OFF , ON }
S15 : MEMORY SW. { OFF , ON }
S16 : MUTE SW. { OFF , ON }

(P: Provided, N.P.: Not Provided)

Ref. No.	X28-1300-00	X28-1300-01	X28-1300-02	X28-1300-03
R81, 82	SHORT	5.6 kΩ	N.P.	5.6 kΩ
Q35	N.P.	N.P.	2SC.1740LN	N.P.
R246	SHORT	SHORT	15Ω	SHORT
DIN Socket	N.P.	P.	P.	P.
C172	C91-0325-05	C91-0079-05	C54-3310-39	C91-0308-05
C173	N.P.	N.P.	C54-3310-39	N.P.

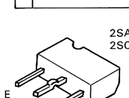


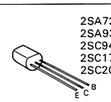
SPECIFICATIONS

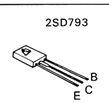
Type	Front Loading Stereo Cassette Deck with Dolby NR System
Track System	4-Track 2-Channel Stereo/Mono Recording/Playback
Recording System	AC Bias System (Bias Frequency 85 kHz)
Erasing System	AC System
Tape Speeds	4.76 cm/sec (1-7/8 ips)
Heads	Three Ferrite Heads Type Recording and Playback Combination Head × 1 Erasing Head × 1
Motor	Electronically Controlled DC Motor
Fast Winding Time	Approx. 85 seconds with C-60 tape
Frequency Response	Normal Tape 20 Hz to 18,000 Hz (30 Hz to 17,000 Hz ±3 dB) CrO_2 Tape 20 Hz to 20,000 Hz (30 Hz to 18,000 Hz ±3 dB) Metal Tape 20 Hz to 20,000 Hz (30 Hz to 19,000 Hz ±3 dB)
Signal to Noise Ratio:	Dolby NR ON (Over 5 kHz): 63 dB(Normal Tape), 65 dB(CrO_2, Metal Tape) Dolby NR OFF: 53 dB (Normal Tape, 55 dB (CrO_2, Metal Tape)
Harmonic Distortion	Less than 1.0% (at 1 kHz, 0VU with Metal Tape)
Wow and Flutter	0.045% (WRMS)
Input Sensitivity/Impedance	Line × 2 77.5 mV/50k ohms DIN × 1: 0.1 mV/4k ohms: Europe, U.K. and Scandinava models 0.75 mV/4.0k ohms: Models for Other Countries Microphones × 2 0.19 mV/18k ohms
Output Level/Load Impedance	Line × 2: 775 mV (0VU)/100k ohms DIN × 1: 775 mV (0VU)/100k ohms Headphones × 1: 48.9 mV/8 ohms to 16 ohms
Built-in Features	Three Ferrite Heads Type Dolby Noise Reduction System with LED Indicator Three Position Bias Selector (Metal-Normal-Chrome) Three Position Equalization Selector (Metal-Normal-Chrome) Three Position Input Selector (Line-Mic-DIN/ATT Mic) Fine Bias Adjustment Controls with Oscillator LED Test Tone Indicators (400 Hz/10 kHz) Full Auto Shut-Off Mechanism in all Modes Memory Index LED Peak and Recording Indicator Tape Monitor MPX Filter Timer Stand By Mechanism Three Digit Tape Counter Two Large Illuminated VU Meters Two Microphone Jacks, Headphone Jack DIN Rec/Playback Connector
Power Requirements	AC 120V, 60 Hz: USA and Canada Models AC 120V/220-240V (Switchable), 50/60 Hz: Other Countries
Power Consumption	14.0 watts
Dimensions	W 440 mm (17-5/16") H 153 mm (6") D 378 mm (14-7/8")
Weight	8.4 kg (18.5 lbs)
Supplied Accessories	Stereo Connection Cables × 2 Head Cleaning Kit × 1
Reference Tape	Normal: MAXELL XLI C-60, Chrome: TDK SA C-60, Metal: TDK MA-R C-60

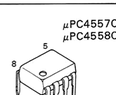
KENWOOD follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.

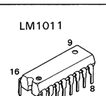
NOTE: Dolby is trademark of Dolby Laboratories.











DC voltages are measured with 20 kΩ/V VOM.

PARTS LIST

Ref. No. 参照番号	Parts No. 部品番号	Description 部品名／規格	Remarks 備考
UNIT(KX-1060)			
1 1A	-	REAR PANEL	
2 2A	-	HEAD COVER FITTINGS	
3 5A	-	LOCK PLATE	
4 6A	-	SUB PANEL	
5 5A	-	METALLIC FRAME(L)	
6 5B	-	METALLIC FRAME(R)	
7 5A	-	METALLIC FRAME(C)	
8 4B	-	POWER TRANS.FITTINGS	
9 6A	-	BLIND(A)	
10 6A	-	BLIND(B)	
11 6B	-	SWITCH FITTINGS	
12 6A	-	JACK FITTINGS	
13 5B	-	TOP PLATE	
14 3B	-	BOTTOM PLATE	
18 1A	A01-0608-12	METALLIC CABINET	*
19 2A	A20-1979-11	FRONT PANEL ASSY	*K
19 2A	A20-1979-11	FRONT PANEL ASSY	PM
19 2A	A20-1979-11	FRONT PANEL ASSY	SU
19 2A	A20-1979-11	FRONT PANEL ASSY	XW
19 2A	A20-1980-11	FRONT PANEL ASSY	*T
19 2A	A20-1981-11	FRONT PANEL ASSY	*H
-	B46-0055-20	WARRANTY CARD	P
-	B46-0060-00	WARRANTY CARD	T
-	B46-0062-20	WARRANTY CARD	UH
-	B46-0063-00	WARRANTY CARD	U
-	B46-0064-10	WARRANTY CARD	X
-	B50-2334-00	INSTRUCTION MANUAL	*K
-	B50-2334-00	INSTRUCTION MANUAL	SU
-	B50-2334-00	INSTRUCTION MANUAL	W
-	B50-2335-00	INSTRUCTION MANUAL	*P
-	B50-2335-00	INSTRUCTION MANUAL	MX
-	B50-2337-00	INSTRUCTION MANUAL	*T
-	B50-2338-00	INSTRUCTION MANUAL	*H
20 6A	B01-0132-04	PANEL ESCUTCHEON X2	*
21 3A	B03-0414-04	DRESSING PLATE	*
22 4A	B03-0415-03	DRESSING PLATE	*
23 3A	B03-0416-02	DRESSING PLATE(A)	*
24 3A	B03-0429-03	DRESSING PLATE(B)	*
25 2A	B07-0257-04	ESCUTCHEON X2	*
26 2A	B07-0287-04	ESCUTCHEON X2	*
27 3A	B07-0566-04	ESCUTCHEON (COUNTER)	*
28 3A	B07-0567-03	ESCUTCHEON (CONTROL)	*
29 3A	B07-0569-13	ESCUTCHEON (METER L)	*
30 3A	B07-0570-13	ESCUTCHEON (METER R)	*
31 2A	B07-0571-03	ESCUTCHEON (HOUSING)	*
32 3A	B07-0572-04	ESCUTCHEON (BUTTON-RING	*
33 2A	B07-0573-04	ESCUTCHEON (BUTTON-RING	*
34 4A	B08-3204-03	INDICATOR	*
35 3A	B10-0505-04	FRONT GLASS (COUNTER)	*
36 3A	B10-0508-02	FRONT GLASS	*
37 6A	B31-0512-05	LEVEL METER X2	*
38 4A	B35-0208-05	COUNTER	*
39 6B	B38-0213-05	LED ASSY(RED)	*
40 6B	B38-0214-05	LED ASSY(GREEN)	*
41 4A	B38-0215-05	LAMP ASSY 8V 50MA	*
42 3A	B43-0540-03	BADGE	*K
42 3A	B43-0540-03	BADGE	PM
42 3A	B43-0540-03	BADGE	SU
42 3A	B43-0540-03	BADGE	XW
42 3A	B43-0540-03	BADGE	H
42 3A	B43-0541-03	BADGE	*T
43 6A	D10-0592-24	EJECT LEVER(C)	*
44 5A	D10-0817-03	EJECT LEVER(D)ASSY	*
45 5B	D15-0512-04	PULLEY	*
46 4B	D16-0216-04	COUNTER BELT(A)	*
47 4B	D16-0217-04	COUNTER BELT(B)	*
48 4A	D19-0224-05	DIAL CORD	*
50 4B	D39-0041-05	PCB FITTINGS X3	
51 4A	D39-0093-05	DAMPER ASSY	*
52 4B	D40-0472-05	MECHANISM ASSY	*
53 2B	E03-0102-05	3P INLET	MS
53 2B	E03-0102-05	3P INLET	UT
53 2B	E03-0102-05	3P INLET	WH
54 6B	E11-0310-05	PHONE JACK	*
55 1B	E30-0181-05	POWER CORD	KP
55 1B	E30-1342-05	POWER CORD	X
55 1B	E30-1305-05	POWER CORD	MU
55 1B	E30-1328-05	POWER CORD	ST
55 1B	E30-1329-05	POWER CORD	WH
56 1B	E30-1331-05	AUDIO CORD	
57 5A	F07-0650-13	HEAD COVER	*
F1 ,2	F05-1023-05	FUSE 1A 250V	*M
F1 ,2	F05-1023-05	FUSE 1A 250V	SU
F1 ,2	F05-1023-05	FUSE 1A 250V	X
F1 ,2	F05-1024-05	FUSE 1A 250V	*K
F1 ,2	F05-1024-05	FUSE 1A 250V	P
F1 ,2	F06-1021-05	FUSE 1A 250V	*T
F1 ,2	F06-1021-05	FUSE 1A 250V	WH
58 4A	G01-0731-13	TORSION SPRING(A)	*
59 5A	G01-0732-13	TORSION SPRING(B)	*
60 6A	G01-0733-13	COIL SPRING(A)	*
61 4A	G01-0734-03	COIL SPRING(B)	*
62 4B	G01-0735-03	COIL SPRING(C)	*
63 6A	G01-0736-23	COIL SPRING	*
64 5A	G01-0752-03	TORSION SPRING(C)	*
65 4A	G02-0316-04	FLAT SPRING	*
-	H01-2349-14	CARTON BOX	*K
-	H01-2349-14	CARTON BOX	MS
-	H01-2349-14	CARTON BOX	UX
-	H01-2350-14	CARTON BOX	*P
-	H01-2351-14	CARTON BOX	*T
-	H01-2352-14	CARTON BOX	*W
-	H01-2353-14	CARTON BOX	*H
-	H12-0361-02	PACKING FIXTURE	
-	H20-0416-04	COVER	*M
-	H25-0078-04	BAG	
66 6B	J02-0049-14	FOOT X4	
67 2B	J19-1297-03	LED HOLDER	*
68 4A	J19-1908-12	CASSET HOLDER ASSY	*
69 4A	J19-1925-04	RING	*
70 5B	J21-2308-03	FITTINGS(R) ASSY	*
71 4A	J21-2310-03	FITTINGS(L) ASSY	*
72 4A	J21-2319-03	DOOR FITTINGS	*
73 5A	J21-2320-03	DOOR FITTINGS(R)	*
75 2B	J41-0034-05	POWER CORD BUSHING	KP
78 4A	J90-0308-05	SCREW GRUMMET	*
79 6A	K21-0609-04	KNOB X2 (VOLUME)	*
80 6A	K23-0633-04	KNOB X2 (REC/PLAY)	*
81 6A	K23-0636-03	KNOB (SELECTOR)	*
82 6A	K23-0637-03	KNOB X2 (BIAS)	*
83 3A	K27-0076-04	KNOB X2 (POWER/MONITOR)	*

PARTS LIST

Ref. No. 参照番号	Parts No. 部品番号	Description 部品名／規格	Re-marks 備考
②			
① 18 1A	A01-0608-12	METALLIC CABINET	* ③
19 2A	A20-1979-11	FRONT PANEL ASSY	*K ④
19 2A	A20-1979-11	FRONT PANEL ASSY	PM
19 2A	A20-1979-11	FRONT PANEL ASSY	SU
19 2A	A20-1979-11	FRONT PANEL ASSY	XW
			⑥
⑤ R221	R43-1333-15	FL-PROOF RD330 J 2H	*
R222	R43-1368-15	FL-PROOF RD680 J 2H	*
VR1 ,2	R12-3301-05	TRIMMING POT. 20K(B)	
VR3 ,4	R19-4305-05	POTENTIOMETER (OUTPUT)	*
VR5 ,6	R12-2302-05	TRIMMING POT. 5K(B)	

① Exploded view drawing No.
② Position in exploded view.
③ Symbol of new parts.
④ Area to which parts are shipped. Example: A20-1979-11 is the parts No. of FRONT PANEL ASS'Y for the "K" type products (for USA).
When this column is blank, it means that the same type of parts (same parts No.) are used for the products shipped to all areas.
⑤ Reference No. in schematic diagram.
⑥ Abbreviation of "Flame proof metal oxide film resistor". All capacitors and resistors are listed using abbreviations.
⑦ Abbreviations

* Abbreviations of capacitors (Parts No. with initial letter "C").

ELECTRO	Electrolytic capacitor
LL-ELEC	Low leak electrolytic capacitor
NP-ELEC	Non-pole electrolytic capacitor
MICA	Mica capacitor
POLYSTY	Polystyrene capacitor
MYLAR	Mylar capacitor
CERAMIC	Ceramic capacitor
TANTAL	Tantalum capacitor
MF	Metallized film capacitor
OIL	Oil capacitor

The unit "UF" is used in lieu of "μF"

* Abbreviations of resistors (Parts No. with initial letters "R").

RC	Carbon composition resistor	
RD	Carbon film resistor	
FL-PROOF RD	Flame-proof carbon film resistor	
RW	Wire wound power resistor	
FL-PROOF RS	Flame-proof metal oxide film resistor	
RN	Metal film resistor	
2B	Rated wattage	1/8W
2E	Rated wattage	1/4W
2H	Rated wattage	1/2W
3A	Rated wattage	1W
3D	Rated wattage	2W
3F	Rated wattage	3W
3G	Rated wattage	4W
3H	Rated wattage	5W

All resistor values are indicated with the unit (Ω) omitted.

* Abbreviations common to capacitors and resistors.

C	±0.25pF (Used for capacitors only)
D	±0.5pF (Used for capacitors only)
F	±1%
G	±2%
J	±5%
K	±10%
M	±20%
Z	+80%, −20% (Used for capacitors only)
P	+100%, −0% (Used for capacitors only)

⑧ Resistors RD (carbon composition resistors) are not listed in the parts list. For values, refer to the schematic diagram.

KX-1060

A product of
TRIO-KENWOOD CORPORATION
6-17, 3-chome, Aobadai, Meguro-ku, Tokyo 153, Japan

KENWOOD ELECTRONICS, INC.
1315 E. Watsoncenter Rd, Carson, California 90745
75 Seaview Drive, Secaucus, New Jersey 07094, U.S.A.
TRIO-KENWOOD ELECTRONICS, N.V.
Leuvensesteenweg 184 B-1930 Zaventem, Belgium
TRIO-KENWOOD ELECTRONICS GmbH
Rudolf-Braas-Str. 20, 6056 Heusenstamm, West Germany
TRIO-KENWOOD FRANCE S.A.
5, Boulevard Ney, 75018 Paris, France
TRIO-KENWOOD SVENSKA AB
Kemistvagen 10A, S-183 21 Taby, Sweden
TRIO-KENWOOD (AUSTRALIA) PTY. LTD.
30 Whiting St., Artarmon, N.S.W. 2064, Australia
KENWOOD & LEE ELECTRONICS, LTD.
Room 501, Wang Kee Building, 5th Floor, 34-37, Connaught Road, Central, Hong Kong

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