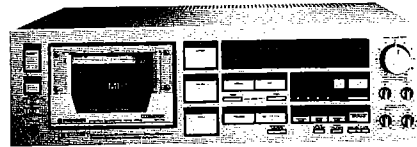


23

**PIONEER®**

# Service Manual

**REPAIR & ADJUSTMENTS**



**ORDER NO.  
ARP-449-0**

**STEREO CASSETTE TAPE DECK**

# CT-A9

**MODEL CT-A9 COMES IN SEVEN VERSIONS DISTINGUISHED AS FOLLOWS:**

Type	Voltage	Remarks
KU	AC120V only	U.S.A. model
KC	AC120V only	Canada model
HEM	AC220V (240V)	European continent model
HB	AC240V (220V)	United Kingdom model
HP	AC240V (220V)	Australia model
D	AC120V, 220V, 240V (switchable)	General export model
D/G	AC120V, 220V, 240V (switchable)	U.S. Military model

- This service manual is applicable to the KU type. For servicing of the other types, please refer to pp. 72~79.
- For the circuit and mechanism descriptions, please refer to the CT-A9 service manual (ARP-462-0).
- Ce manuel d'instruction se réfère au mode de réglage, en français.
- Este manual de servicio trata del método de ajuste escrito en español.

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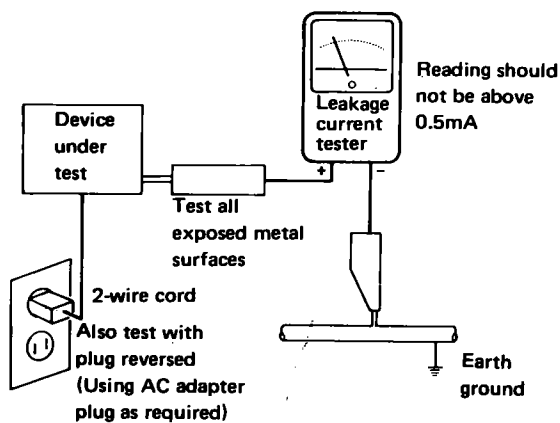
# 1. SAFETY INFORMATION

## 1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

### LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

## 2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a  $\Delta$  on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

## 2. SPECIFICATIONS

System .....	4 track, 2 channel stereo
Heads .....	"Ribbon Sendust" recording/playback combination head x 1, Erasing head x 1
Motor .....	Quartz PLL D.D. capstan motor x 1 Coreless reel motor x 1
Wow/Flutter .....	No more than 0.018% (WRMS) No more than $\pm 0.048\%$ (DIN)
Fast Winding Time .....	Approx. 80 seconds (C-60 tape)
Frequency Response	
-20 dB recording:	
Normal tape .....	20 to 21,000 Hz (30 to 19,000 Hz $\pm 3$ dB)
Chrome tape .....	20 to 22,000 Hz (25 to 20,000 Hz $\pm 3$ dB)
Metal tape .....	20 to 23,000 Hz (25 to 21,000 Hz $\pm 3$ dB)
0 dB recording:	
Chrome tape .....	20 to 11,000 Hz
Metal tape .....	20 to 16,000 Hz
Signal-to-Noise Ratio	
Dolby NR OFF .....	More than 58 dB
Noise Reduction Effect	
Dolby type B NR ON .....	More than 10 dB (at 5 kHz)
Dolby type C NR ON .....	More than 19 dB (at 5 kHz)
Harmonic Distortion .....	No more than 0.8% (0 dB)
Input (Sensitivity)	
LINE (INPUT) .....	63 mV (Input impedance 100 k $\Omega$ )
Output (Reference level)	
LINE (OUTPUT) .....	0,63 V (Output impedance 7 k $\Omega$ )
Headphone .....	0,45 mW (Load impedance 8 $\Omega$ )

### MISCELLANEOUS

Power Requirements	
KU, KC models .....	AC 120 V, 60 Hz
HEM model .....	AC 220 V, 50/60 Hz
HB, HP models .....	AC 240 V, 50/60 Hz
D, D/G models .....	AC 120/220/240V, 50/60 Hz (switchable)
Power Consumption	
KU, KC models .....	52 watts
HEM, HB, HP models .....	57 watts
D, D/G models .....	46 watts
Dimensions .....	420 (W) x 130 (H) x 374 (D) mm 16-9/16 (W) x 5-1/8 (H) x 14-12/16 (D) in
Weight (without packaging) .....	10 Kg (22 lb 1 oz)

### FURNISHED PARTS

Operating instructions .....	1
Connection cord with pin plug .....	2

### SUBFUNCTIONS

- MOL balance control type AUTO BLE
- Dolby NR system (type B and C)
- Quartz PLL D.D. capstan motor
- Closed loop dual capstan
- One touch MS, one touch tape return
- Auto monitor
- Auto tape selector function
- Dual mode counter
- Auto rec mute
- Recording level warning zone switch
- Auto loading/power eject
- Timer standby function

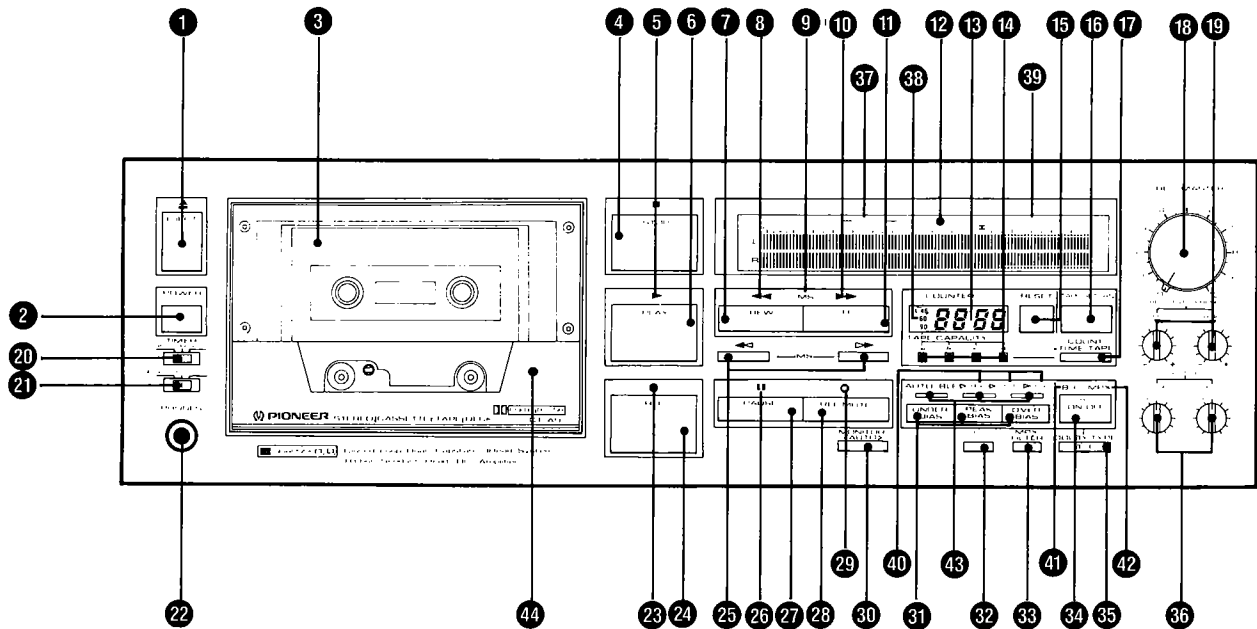
### NOTES:

1. Reference Tapes:  
Normal and LH: DIN 45513/BLATT6 or equiv.  
CrO<sub>2</sub> DIN 45513/BLATT7 (CrO<sub>2</sub>) or equiv.
2. Reference Recording Level: Meter 0 dB indicating level (160 nwb/m magnetic level = Philips cassette reference level)
3. Reference Signal: 315 Hz
4. Wow and Flutter: • JIS (3 kHz, with acoustic compensation (weighted) rms value); DIN 3,150Hz with acoustic compensation (weighted) PEAK value DIN 45507
5. Frequency Response: • Measured at -20 dB level, DOLBY NR OFF, level deviation is  $\pm 6$  dB without indication.
6. Signal-to-Noise Ratio: • Measured at 3rd harmonic distortion 3% level, weighted (DIN 45513/BLATT7)
7. Sensitivity: Input level (mV) required for reference recording level with input (REC) level control set to maximum
8. Maximum Allowable Input: While decreasing settings of input (REC) level controls and increasing level at input jacks, this is the maximum input level (mV) at the point where recording amplifier OUTPUT waveform becomes clipped.
9. Reference Output Level: Playback output level when meter indicates 0 dB.
10. This model does not employ a recording/playback connector (DIN-type).

### NOTE:

*Specifications and the design are subject to possible modifications without notice due to improvements.*

### 3. FRONT PANEL FACILITIES



**1 EJECT BUTTON**

Press this button to open the cassette door. Whenever inserting or removing a cassette tape, be sure that the power is turned ON.

**2 POWER SWITCH**

When this switch is depressed power is turned ON, and when it is depressed again, power is turned OFF. After the power is turned ON, the unit will not operate for a duration of 4 seconds which is the necessary time for the unit to become stable.

**3 CASSETTE DOOR**

This door opens when the EJECT button is pressed. Insert cassette tapes with the visible part of the tape downward. When a cassette tape is inserted, the cassette door will automatically close. The cassette door will also close if it is lightly pressed. Unless the unit is powered, the door can not be opened.

**NOTE:**

*If the cassette door is closed after turning the power off, the next time the power is turned ON and an operating switch is pressed, the cassette door will open and close once. This is in order to reset the microprocessor to the correct condition, and is not a malfunction.*

**4 STOP SWITCH**

Depress this switch to stop the tape travel and to release the operating switches.

**5 PLAY INDICATOR (▶)**

This indicator lights when the PLAY switch is pressed. It also lights when the REC switch is pressed to set the unit in the recording mode.

**6 PLAY SWITCH**

Depress this switch to playback a tape.

**7 REW SWITCH**

Depress this switch to rewind the tape. (The tape will travel from right to left.)

**8 REWIND INDICATOR (◀◀)**

This indicator lights when the rewind switch (REW) is pressed. The indicator lights also when the music search (MS) ◀◀ switch is pressed.

**9 MUSIC SEARCH INDICATOR (MS)**

This indicator lights when either of the music search switches (◀◀ or ▶▶) is pressed.

**10 FAST FORWARD INDICATOR (▶▶)**

This lights when the fast forward (FF) switch is pressed. When the music search (MS) switch ▶▶ is pressed, the indicator also lights.

**11 FF SWITCH**

Depress this switch to send the tape forward. (The tape will travel from left to right.)

**12 LEVEL METER**

This indicates the recording level during recording and the output level during playback. The top part is for the left (L) channel and the bottom part for the right (R) channel.

**13 DUAL MODE COUNTER (COUNTER)**

This counter has two functions, "tape counter" and "real time counter," depending on the position of the counter mode switch (● TIME/TAPE).

When used as a "tape counter," the figures change as the tape travels and its transport position is indicated by a 4-digit number. When the RESET button is pressed, the counter is reset to "0000."

When the power is switched on, the counter functions as a "tape counter."

When used as a "real time counter," the remaining time on the tape during recording or playback is indicated. Set the TAPE CAPACITY switch to the position corresponding to the type of tape (length, hub diameter) being used.

**14 TAPE CAPACITY SWITCH (TAPE CAPACITY)**

When the dual mode counter is used as a real time counter, this switch is set in accordance with the tape type (tape length, hub diameter).

**L46** ..... For C-46 large hub diameter tapes.

**46** ..... For C-46 tapes.

**60** ..... For C-60 tapes.

**90** ..... For C-90 tapes.

**NOTE:**

*For tapes other than those listed above, set to the position nearest to the actual length of the tape used. In those cases, there may be some difference in the time displayed.*

**15 RESET BUTTON (RESET)**

Press this to reset the tape counter to "0000." Before recording or playback, press this button to reset the tape counter to "0000." It will then be easy to find programs on the tape if a note is made of the tape counter numbers and of the recording or playback contents. The numbers provide you with a guideline for finding programs afterward which you want to listen to. The tape counter can be reset while being used as a real time counter, however "0000" is displayed only while the RESET button is depressed.

**16 TAPE RETURN SWITCH (TAPE RETURN)**

When this switch is pressed, the fast forward or rewind functions will begin, sending the tape to the "0000" position, where it will automatically stop. This is a convenient function when you wish to listen immediately to a program you have just recorded, or when you wish to perform repeat play of a certain program.

**17 COUNTER MODE SWITCH (● TIME/TAPE)**

Push this switch to select the dual mode counter function.

**18 REC MASTER VOLUME CONTROL (REC MASTER)**

This control is for adjusting general recording levels. The recording level increases when the control is turned clockwise, and decreases when turned counter-clockwise. The control is equipped with a memory marker useful for remembering a predetermined volume level, for example when performing fade-in.

**19 REC LEVEL PRESET VOLUME CONTROLS (REC LEVEL PRESET)**

These are normally set in the click position (▼). After setting the general recording level with the recording master volume control, these controls can be used to finely tune the R and L channels' volume levels. The recording level is increased when the controls are turned in the (+) direction, and reduced when the controls are turned in the (-) direction.

**20 TIMER SWITCH (TIMER)**

This switch is used when an optional audio timer is utilized for unattended recording or wakeup playback.

**NOTE:**

*The timer switch should always be in the OFF position when not performing timer recording or playback. If a cassette tape is inserted and the switch is set to the REC or PLAY position, the unit will automatically enter the recording or playback mode whenever the power switch is turned on.*

**21 BIAS SWITCH (Connected to TIMER SWITCH)**

Depending on the program source to be recorded, this switch can be set in 3 positions to adjust the peak bias in a  $\pm 15\%$  range. When you wish to emphasize high ranges or low ranges, you can choose a setting with deeper (more) or shallower (less) bias. When bias is shallow, the high ranges are extended, but distortion increases in proportion. Conversely when bias is deepened, the high ranges fall off, but distortion is lessened.

**UNDER :** Set to this position for recording music such as rock music with wide dynamic range in the high ranges, and substantial modulation of sounds.

**PEAK :** For recording most general kinds of music.

**OVER :** Set to this position when you wish to record classic and other similar music with increased middle and low range MOL, and low distortion.

**NOTE:**

*This switch operates when the TIMER switch is set to the REC position.*

**22 PHONES JACK**

This is the output jack for the stereo headphones.

**23 RECORDING INDICATOR (●)**

This lights when the unit is set to the recording mode.

**24 REC SWITCH**

This switch is pressed for recording. When the switch is pressed, the tape deck is placed in the recording standby mode, and the pause indicator (■ ■), play indicator (▶) and recording indicator (●) will light. To begin recording, press the PAUSE switch to release from the recording standby mode.

**NOTE:**

- *The switch cannot be placed in the ON position if the accidental erasure prevention tab on the cassette have been broken off, or if no cassette is in the unit.*
- *To release the tape deck from the recording mode, press the STOP switch.*

**25 MUSIC SEARCH SWITCH (MS)**

This switch is pressed when searching for the beginning of programs.

**26 PAUSE INDICATOR (■ ■)**

This indicator lights when the PAUSE switch is pressed. It also lights when the REC switch is pressed.

**27 PAUSE SWITCH**

Depress this switch to stop the tape travel temporarily during recording or playback. Depress this switch again to allow the tape to continue to travel.

The tape does not stop during fast forward or rewind operations even when the PAUSE switch is depressed.

**28 REC MUTE SWITCH (REC MUTE)**

When the unit is in the recording mode, if this switch is pressed, 4 seconds of non-recorded interval will be created automatically. This can be used for eliminating unwanted portions during recording, or for producing an appropriate non-recorded interval between programs.

Be careful not to press this switch except when necessary.

**29 RECORDING MUTE INDICATOR (○)**

This indicator flashes when the REC MUTE switch is pressed to create an automatic 4 second non-recorded portion. When a non-recorded portion longer than 4 seconds is created, the indicator changes from flashing to steadily lighted.

**30 AUTO MONITOR SWITCH (AUTO MONITOR)**

This unit is equipped with an automatic monitor function. This means that when the unit is in the recording standby mode, SOURCE MONITOR, or when in the playback mode, TAPE MONITOR is automatically selected. However, when you wish to select TAPE/SOURCE monitoring manually, this switch can be pressed. When the switch is pressed, the unit will switch to the mode opposite to that of prior to pressing the switch. For example, if the unit is in the TAPE MONITOR mode before the switch is pressed, it will switch to the SOURCE MONITOR.

The [TAPE]—MONITOR—[SOURCE] indicators in the level meter will light to show the monitoring mode.

**31 BIAS SWITCHES (UNDER BIAS, PEAK BIAS, OVER BIAS)**

These switches are used when adjusting the AUTO BLE to choose an under, peak, or over bias point. When these switches are pressed, the AUTO BLE operation begins. During BLE adjustment, the indicators above the switches flash as appropriate. When BLE adjustment is completed, the indicator for the appropriate switch lights steadily.

In order to protect against mistaken operation, the BLE operation will not start even if the switches are pressed unless the unit is in the stop condition.

**32 AUTO BLE CLEAR SWITCH (CLEAR)**

When this switch is pressed, the data set by the AUTO BLE system are cleared. After clearing, the bias, level and equalization are all set to the standard values selected by the auto tape selector.

**NOTE:**

*When the unit is in the recording, playback, recording standby, or playback standby mode, data will not be cleared even if the clear switch is pressed. To clear data, perform this operation with the unit in the stop mode.*

**33 MULTIPLEX FILTER SWITCH (MPX FILTER)**

Push this switch when recording FM stereo broadcasts or TV programs using the Dolby noise reduction system.

Contained among the FM stereo signals are a 19 kHz pilot signal and the 38 kHz subcarrier. The MPX FILTER switch is pressed in order to safeguard against incorrect operation of the Dolby circuit due to these signals. Release the switch for any other recording. The switch does not function during playback.

**34 DOLBY NR SWITCH (DOLBY NR ON/OFF)**

Press this switch ON when using the Dolby NR system for recording or playback. When the Dolby NR system is ON, the Dolby indicator B or C lights.

~~~~~  
 "Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.  
 Noise Reduction manufactured under license from Dolby Laboratories Licensing Corporation.  
 ~~~~~

### 35 DOLBY B/C SELECTOR SWITCH (DOLBY NR B/C)

This deck is equipped both type B and type C Dolby noise reduction systems. After the DOLBY NR ON/OFF switch is pressed, select type B or C using this switch. The Dolby indicator corresponding to the switch position lights.

### 36 OUTPUT LEVEL VOLUME CONTROLS (OUTPUT LEVEL)

These controls are for adjusting the deck's output level. When the controls are turned clockwise, output level is increased.

**PHONES** ... Adjusts output level at headphones jack.

**LINE OUT** ... Adjusts output level at LINE OUTPUT (PLAY) terminals on the rear panel.

#### NOTE:

- The movement of the level meters is not affected by rotation of the output level volume controls.
- If the output level control is set at the minimum "0" position, no sound will be heard, even if the amplifier's volume control is rotated.
- If the PHONES volume control is set at the minimum "0" position, no sound will be heard from headphones.

### 37 MONITOR INDICATOR (MONITOR)

This indicator shows the monitoring mode selected by the automatic monitoring function.

### 38 TAPE CAPACITY INDICATOR

This indicator shows the type of tape selected with the TAPE CAPACITY switch.

### 39 TAPE INDICATORS (NORM/CrO<sub>2</sub>/METAL)

This mechanism uses the sensor holes on the cassette to detect the type of tape being used. It then automatically adjusts the proper recording bias and equalization for the tape. The type of tape is then shown on the tape indicator.

**NORM:** This indicator lights when normal tapes are used.

**CrO<sub>2</sub>:** This indicator lights when CrO<sub>2</sub> tapes are used.

**METAL:** This indicator lights when metal tapes are used.

#### NOTE:

*When using metal tapes without sensor holes, the tape selector will be set on the CrO<sub>2</sub> position. In this case, optimum recording and erasure may not be possible. We thus recommend that you use metal tapes with sensor holes. Pre-recorded metal tapes can be played as is on this unit.*

### 40 BIAS, LEVEL, EQ ADJUSTMENT INDICATORS

The AUTO BLE performs adjustments in the order bias → level → equalizer. The BIAS, LEVEL, and EQ indicators light in order together with the adjustment process. When the equalizer adjustment is completed, the indicators go out:

### 41 DOLBY INDICATORS (DOLBY NR)

These light when the DOLBY NR switch is set to ON.

[B]: This lights when the B type Dolby noise reduction system is operating.

[C]: This lights when the C type Dolby noise reduction system is operating.

### 42 MULTIPLEX INDICATOR (MPX)

This indicator lights when the Multiplex filter (MPX FILTER) switch is pressed ON.

### 43 BIAS INDICATORS

In accordance with the setting of the bias switches, these indicators flash during AUTO BLE adjustment, and light steadily when adjustment is completed.

### 44 HEAD CLEANING ACCESS PORT

#### About Transparent Tape Cassettes

This unit is equipped with an automatic loading device which optically detects the presence of a tape cassette in the cassette holder, thus causing the cassette door to automatically close.

- Some tape cassettes are made from a transparent plastic material. The unit's auto loading device may not operate properly when these transparent tape cassettes are used.
- In this event, press the cassette door slightly with your finger, or use one of the direct operating switches (recording switch or playback switch) to close the cassette door.

# 4. DISASSEMBLY

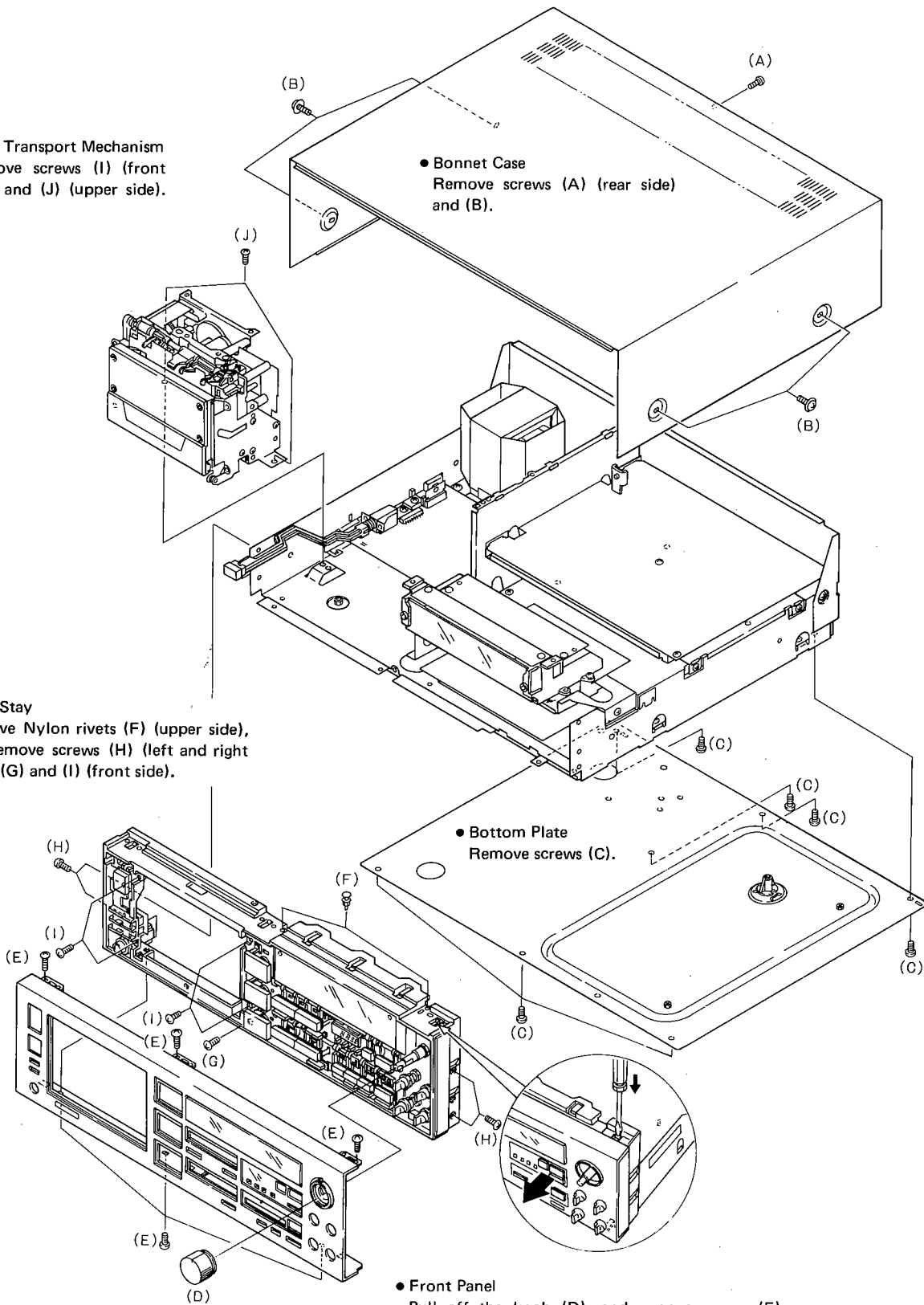
● Tape Transport Mechanism  
Remove screws (I) (front side) and (J) (upper side).

● Bonnet Case  
Remove screws (A) (rear side) and (B).

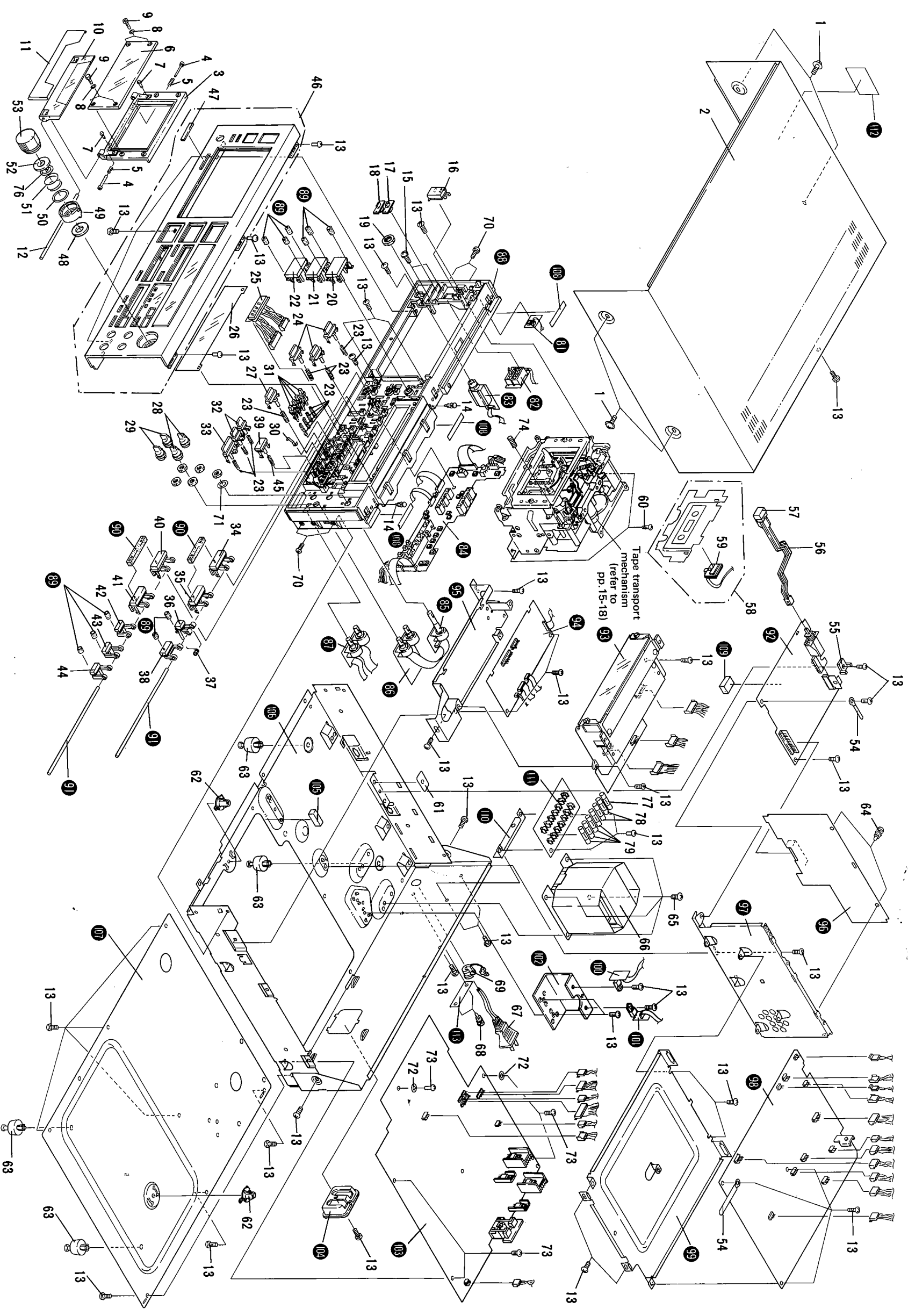
● Panel Stay  
Remove Nylon rivets (F) (upper side), and remove screws (H) (left and right side), (G) and (I) (front side).

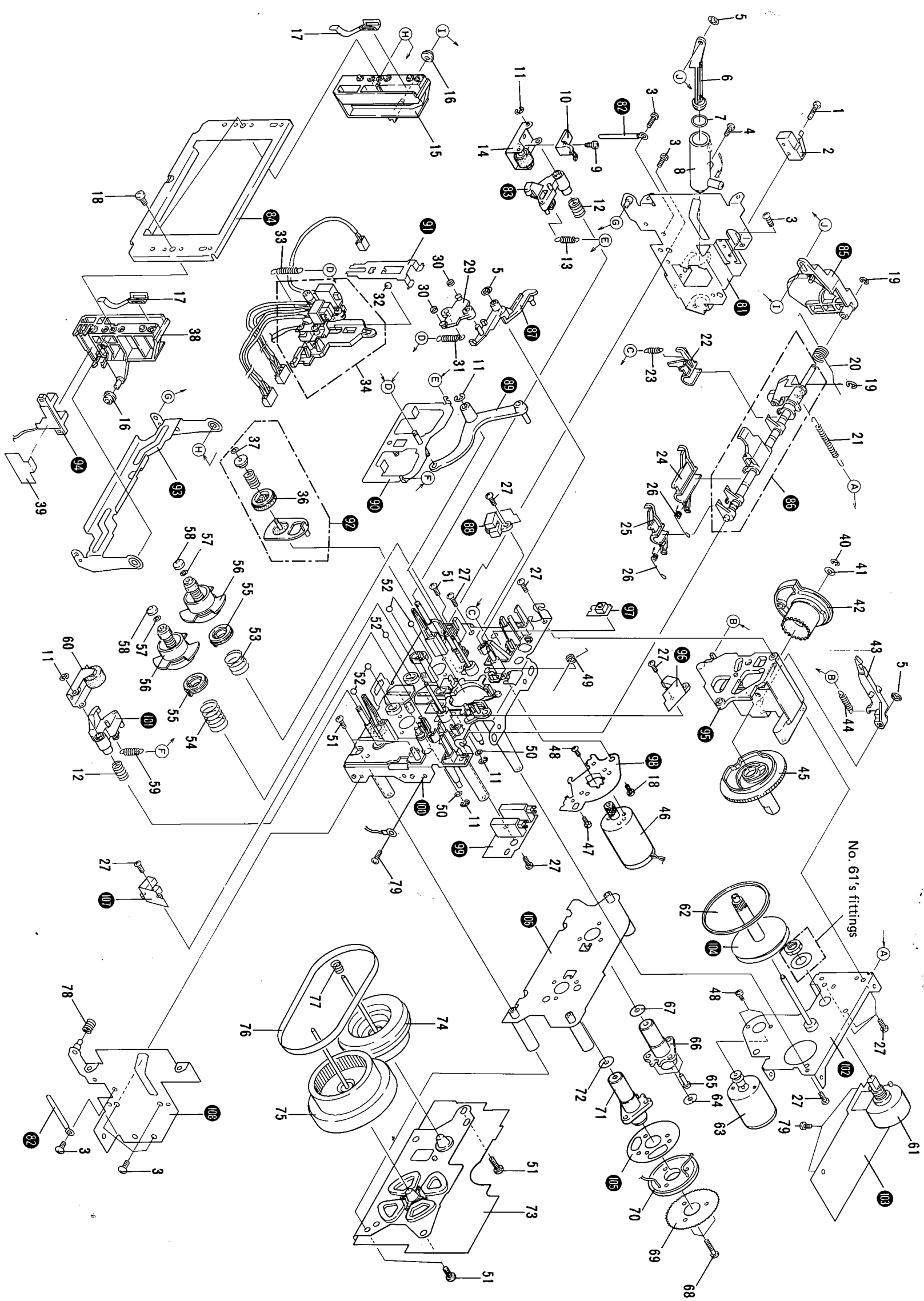
● Bottom Plate  
Remove screws (C).

● Front Panel  
Pull off the knob (D), and remove screws (E) (upper and bottom side), and remove the upper and lower retaining hooks.









1 2 3 4 5 6

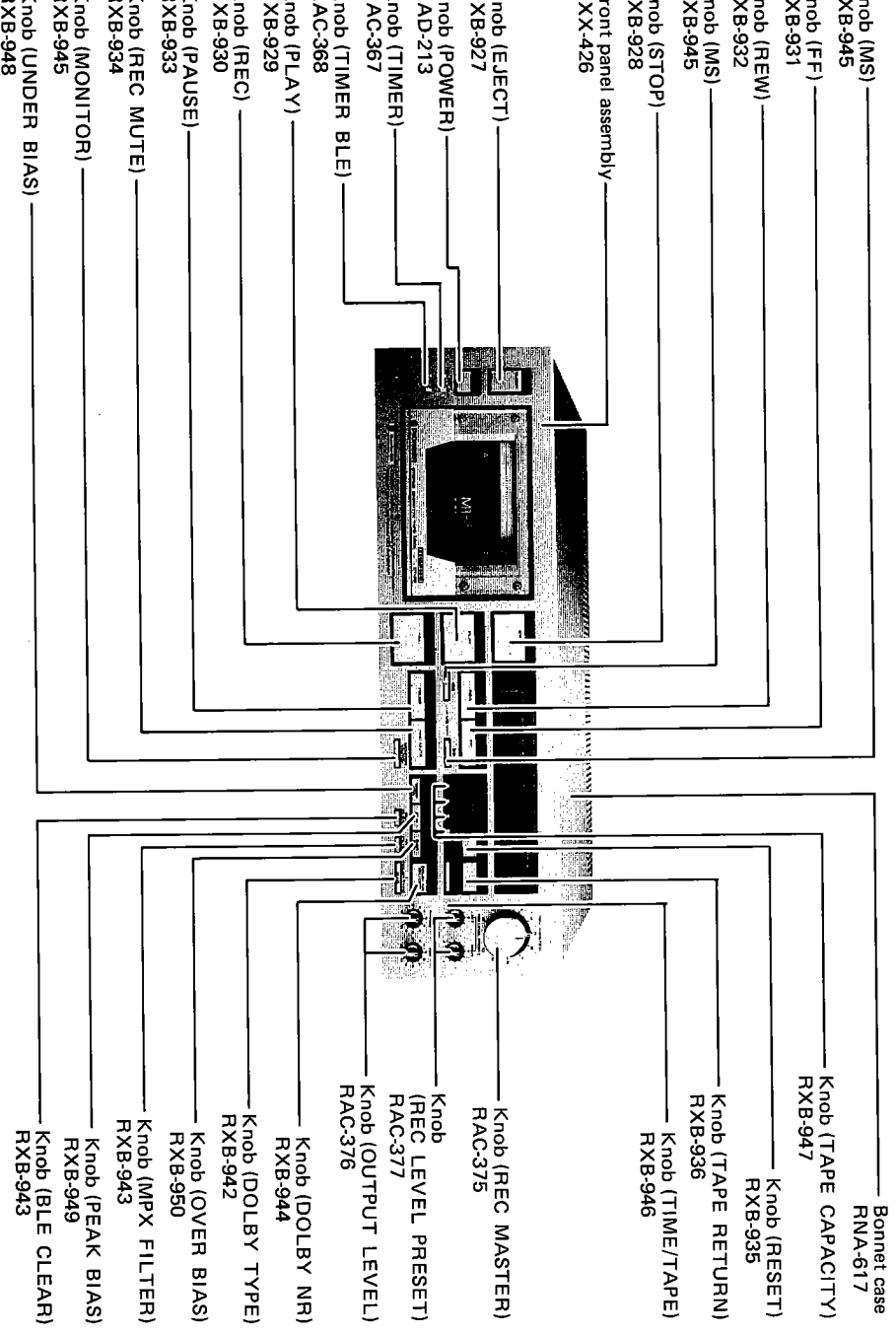
1 2 3 4 5 6

A B C D

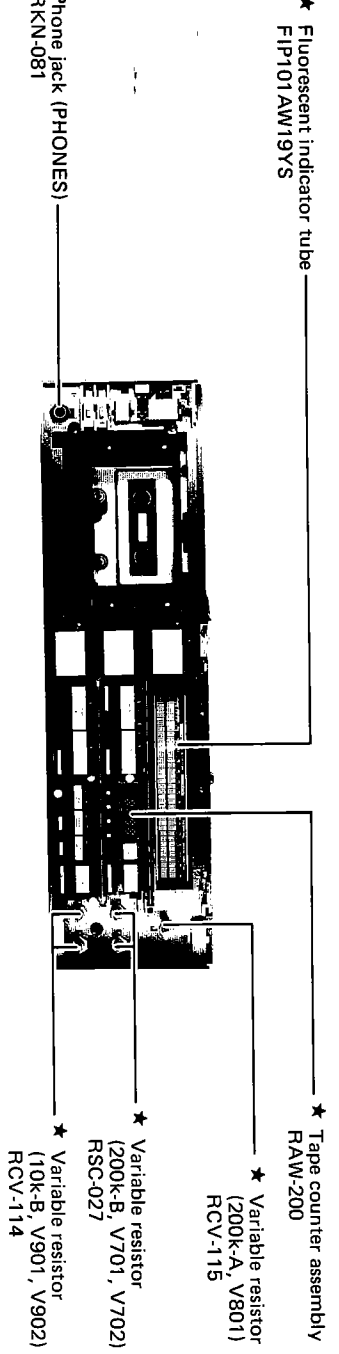
# 5. PARTS LOCATION

- NOTES:**
- Parts without part number cannot be supplied.
  - The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
  - For your Parts Stock Control, the fast moving items are indicated with the marks **★★** and **★**.
  - **★★ GENERALLY MOVES FASTER THAN ★.**
- This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.*

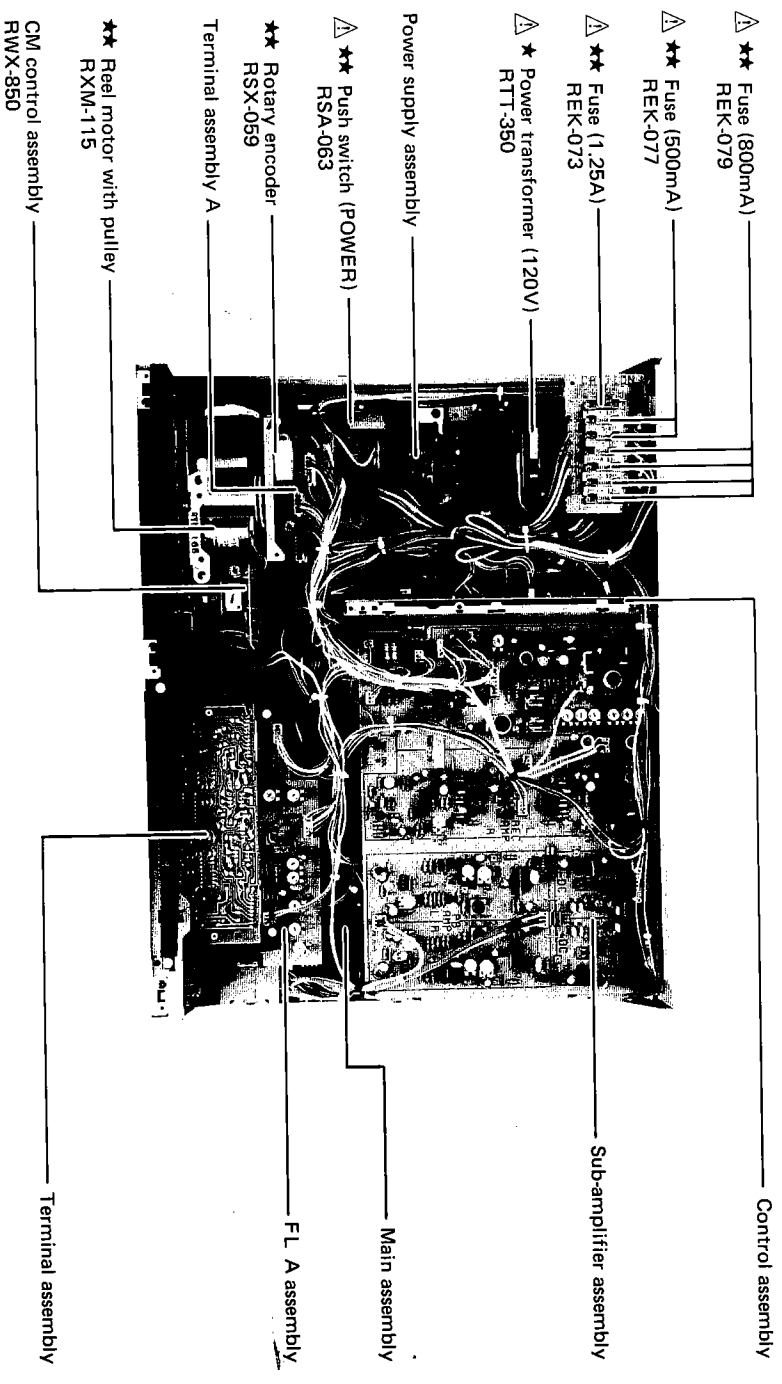
## Front Panel View



## Front View with Panel Removed



## Top View



## EXPLODED VIEWS

- Parts without part number cannot be supplied.
  - The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
  - For your Parts Stock Control, the fast moving items are indicated with the marks **★** and **★**.
  - **★ ★ GENERALLY MOVES FASTER THAN ★**
- This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.*

No.	Part No.	Description	Mark	No.	Part No.	Description
1	FBT40P080FNI	Screw 4 x 8		41	RXB-934	Knob (REC MUTE)
2	RNA-617	Bonnet case		42	RXB-948	Knob (UNDER BIAS)
3	RAH-488	Door frame		43	RXB-949	Knob (PEAK BIAS)
4	RNL-794	Door shaft		44	RXB-950	Knob (OVER BIAS)
5	RBL-058	Door spring		45	RBL-060	Knob spring B
6	RNL-762	Door A		46	RXX-426	Front panel assembly
7	REB-423	Door cushion		47	RAH-482	Name plate
8	RBF-074	Washer		48	RED-203	Friction felt
9	RBA-086	Dressing screw		49	RAC-371	Marker ring
10	RNL-763	Door B		50	RBF-072	Marker washer
11	RAH-491	Inscription plate		51	RBL-054	Marker spring
12	RLB-539	Door shaft		52	RNL-764	Ring with hook
13	BBZ30P080FZK	Screw 3 x 8		53	RAC-375	Knob (REC MASTER)
14	RBM-002	Nylon rivet 3 x 8		54	RNH-184	Cord fixer
15	PMZ26P060FMC	Screw 2.6 x 6		55	RNK-511	Upper guide
16	RXB-927	Knob (EJECT)		56	RNL-766	Rod
17	RAC-367	Knob (TIMER)		57	RAD-213	Knob (POWER)
18	RAC-368	Knob (TIMER BLE)		58	RXX-427	Cassette plate assembly
19	RBN-006	Nut	★	59	SLE-201C	LED
20	RXB-928	Knob (SOTP)		60	VBT30P060FMC	Screw 3 x 6
21	RXB-929	Knob (PLAY)		61	REB-508	Insulator
22	RXB-930	Knob (REC)		62	RNL-792	Stud
23	RBL-056	Knob spring A		63	REC-369	Foot assembly
24	RXB-945	Knob (MS, MONITOR)		64	RBM-003	Nylon rivet 3 x 4.5
25	RAW-200	Tape counter assembly		65	VBZ40P080FMC	Screw 4 x 8
26	RNL-798	Meter screen	★	66	RTT-350	Power transformer (120V)
27	RXB-955	Knob (COUNTER)	$\Delta$	67	RDG-048	AC power cord
28	RAC-377	Knob (REC LEVEL PRESET)	$\Delta$	68	RBM-001	Plastic rivet
29	RAC-376	Knob (OUTPUT LEVEL)	$\Delta$	69	REC-395	Strain relief
30	RNH-321	Ground spring	$\Delta$	70	BBZ30P060FMC	Screw 3 x 6
31	RXB-947	Knob (TAPE CAPACITY)		71	RBF-078	VR washer
32	RXB-943	Knob (BLE CLEAR, MPX FILTER)		72	WA30W120R100	Washer
33	RXB-942	Knob (DOLBY TYPE)		73	ATZ30P080FMC	Screw 3 x 8
34	RXB-932	Knob (REW)		74	RBL-059	Grounding spring
35	RXB-931	Knob (FF)		75	.....	
36	RXB-935	Knob (RESET)	$\Delta$ ★★	76	RBF-080	Washer
37	RBL-055	Grounding spring	$\Delta$ ★★	77	REK-073	Fuse (1.25A)
38	RXB-936	Knob (TAPE RETURN)	$\Delta$ ★★	78	REK-077	Fuse (500mA)
39	-RXB-944	Knob (DOLBY NR)	$\Delta$ ★★	79	REK-079	Fuse (800mA)
40	RXB-933	Knob (PAUSE)	★★	80	.....	

Mark	No.	Part No.	Description
	81		Eject switch assembly
	82		Timer switch assembly
	83		Headphones jack assembly
	84		Operation switch assembly
	85		Master VR assembly
	86		Preset VR assembly
	87		Output VR assembly
	88		Panel stay assembly
	89		Knob cushion A
	90		Knob cushion B
	91		Main shaft
	92		Power supply assembly
	93		F.L full assembly (F.L A, F.L, Terminal)
	94		Counter driver assembly
	95		Shield plate
	96		Control assembly
	97		P.C. board holder
	98		Sub-amplifier assembly
	99		Shield plate A
	100		Transistor A assembly
	101		Transistor B assembly
	102		Heat sink
	103		Main assembly
	104		Phono jack spacer
	105		Cushion
	106		Chassis
	107		Bottom plate
	108		Cushion
	109		Cushion D
	110		P.C. board holder
	111		Fuse A assembly
	112		Caution label
	113		Serial number plate

10. Metal Erasure Current Adjustment						
	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
	REC	No input, STD-604 test tape	V303	TP11-GND	175mV AC	
11. Bias Trap Adjustment						
	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
	REC	No input, STD-604 test tape	L101 (left channel) L201 (right channel)	Left and right OUTPUT terminals	Minimum bias leak	Measure with AC voltmeter and oscilloscope
12. Recording Bias Adjustment						
<ul style="list-style-type: none"> <li>Set the MONITOR switch to the SOURCE position, and adjust the OUTPUT level control to maximum level.</li> </ul>						
	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	REC-PAUSE	Apply a 6.3kHz/-20dBv (100mV) signal to the INPUT terminals	MASTER REC level control	Left and right OUTPUT terminals	-13.5dBv (211.3mV)	REC LEVEL PRESET control at click stop position
2	REC	Record the above signal onto the STD-608A test tape, and monitor playback simultaneously	V306 (left channel) V309 (right channel)	Left and right OUTPUT terminals (and MONITOR in the TAPE position)		After first turning V306 and V309 fully counter-clockwise, turn back clockwise and stop at a position where the level drops 3dB below the maximum playback level after passing through that maximum level position.
3	REC	Record the above signal onto the STD-603 test tape, and monitor playback simultaneously	V304 (left channel) V307 (right channel)			After first turning V304 and V307 fully counter-clockwise, turn back clockwise and stop at a position where the level drops 2.5dB below the maximum playback level after passing through that maximum level position.
4	REC	Record the above signal onto the STD-604 test tape, and monitor playback simultaneously	V305 (left channel) V308 (right channel)			After first turning V305 and V308 fully counter-clockwise, turn back clockwise and stop at a position where the level drops 2.5dB below the maximum playback level after passing through that maximum level position.
13. Recording Level Adjustment						
<ul style="list-style-type: none"> <li>Leave the DOLBY NR switch off.</li> </ul>						
	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	REC-PAUSE	Apply a 315Hz/-10dBv (316mV) signal to the INPUT terminals	MASTER REC level control	REC.DOL-L REC.DOL-R	-7.7dBv (412.1mV)	REC LEVEL PRESET control at click stop position
2	REC	Record the above signal onto the STD-608A test tape, and monitor playback simultaneously	V104 (left channel) V204 (right channel)	PBO.DOL-L PBO.DOL-R	-7.7dBv (412.1mV)	
3	Repeat the above steps using the STD-603 and STD-604 test tapes, adjusting to $-7.7 \pm 1.5$ dBv.					

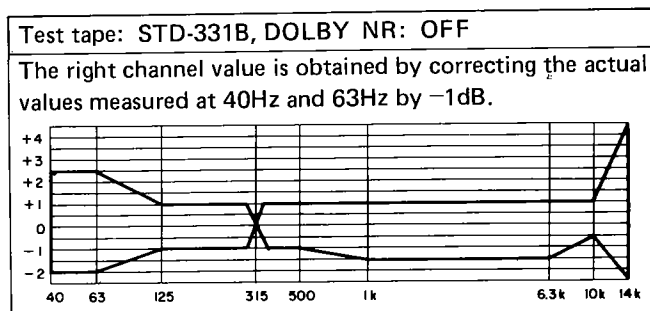


Fig. 11-9 Allowable playback frequency response zone

<b>14. Recording and Playback Frequency Response Adjustment</b>						
<ul style="list-style-type: none"> <li>Leave the DOLBY NR switch off, and set the OUTPUT level control to maximum level.</li> </ul>						
	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	REC-PAUSE	Apply a 315Hz/-30dBv (31.6mV) signal to the INPUT terminals	MASTER REC level control	Left and right OUTPUT terminals	-23.5dBv (66.8mV)	REC LEVEL PRESET control is at click-stop position
2	REC	Record the 315Hz and 10kHz signals onto the STD-608A test tape at the above level and monitor the playback simultaneously	V306 (left channel) V309 (right channel)	Left and right OUTPUT terminals	Adjust the 10kHz playback level to +0.5dB higher than the 315Hz level	
3	Record and playback signals up to 15kHz onto the STD-608A test tape, and check that the allowable frequency response zone shown in Fig. 11-10 is satisfied (for DOLBY NR OFF, and B and C).					
4	REC	Likewise, record and playback the same signal onto the STD-603 test tape	V304 (left channel) V307 (right channel)	Left and right OUTPUT terminals	Adjust the 10kHz playback level to +0.5dB in respect to the 315Hz level	
5	Record and playback signals up to 15Hz onto the STD-603 test tape, and check that the allowable frequency response zone shown in Fig. 11-12 is satisfied (for DOLBY NR OFF, and B and C).					
6	REC	Likewise, record and playback the same signal onto the STD-604 test tape	V305 (left channel) V308 (right channel)	Left and right OUTPUT terminals	Adjust the 10kHz playback level to +0.5dB in respect to the 315Hz level	
7	Record and playback signals up to 15kHz onto the STD-604 test tape, and check that the allowable frequency response zone shown in Fig. 11-11 is satisfied (for DOLBY NR OFF, and B and C).					
<b>15. AUTO-BLE Adjustment</b>						
	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	STOP (REC)	Load the STD-608A tape, and short TP14 momentarily to GND	V601 (FL ADJ)	Adjust so that the AUTO-BLE indicator "LEVEL" lights up (level measurement at PBO.DOL-R)		Shorting TP14 to GND activates AUTO-BLE test mode
2	Press the STOP button to put tape transport into STOP mode, and then press the PEAK BIAS button.					
3	(REC)	Load the STD-608A tape	V602 (FH ADJ.)	Adjust so that the AUTO-BLE indicator "LEVEL" blinks.		
4	Press the DATA CLEAR button with the deck in STOP mode. Then load the STD-608A tape and press the PEAK BIAS button (Proceed to step 5 after completion of AUTO-BLE operation).					
5	REC	Record a 1kHz signal at 0VU onto the STD-608A tape, and monitor the playback simultaneously	Check	PBO.DOL-R	-7.7dBv±0.3dB	
			If the above specifications are not met, return to step 1 and compensate for level deviation by adjusting V601.			
6	Press the DATA CLEAR button with the deck in STOP mode. Then load the STD-608A tape and press the PEAK BIAS button (Proceed to step 7 after completion of AUTO-BLE operation).					
7	REC	Record signals from 315Hz to 10kHz at -20VU onto the STD-608A tape, and monitor the playback simultaneously	Check	Left and right OUTPUT terminals	Check that the zone specifications shown in Fig. 11-13 are satisfied for DOLBY NR OFF/B/C.	
8	Repeat steps 6 and 7 with STD-603 and STD-604 test tapes, and check that the Fig. 11-13 specifications are satisfied.					
9	Press the DATA CLEAR button with the deck in STOP mode.					
10	Repeat the above procedure for UNDER BIAS and OVER BIAS, and again check that the zone specifications shown in Fig. 11-13 are satisfied.					

2. DC Amplifier DC Balance Adjustment						
	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1			V101 (left channel)	DC.BAL.TP-L	0±0.2V DC	Measure at the R113 lead facing the rear panel
2	STOP	No input	V201 (right channel)	DC.BAL.TP-R	0±0.2V DC	Measure at the R213 lead facing the rear panel
3. Control IC Clock Adjustment						
	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
	STOP	No input	V1001 (Control assembly)	Pin 21 of Q1002 (Control assembly)	200kHz±5kHz	Insert a capacitor of a few pF and measure by frequency counter.
4. BLE IC Clock Adjustment						
	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
	STOP	No input	L601 (Main assembly)	Pin 42 of Q612 (Main assembly)	294kHz±2kHz	Insert a capacitor of a few pF and measure by frequency counter.
5. Cassette Half Detector Sensitivity						
<ul style="list-style-type: none"> <li>Measure with a DC voltmeter of high input impedance (of about 1 Mega-ohm).</li> <li>Connect 5.1 kilo-ohm in parallel with R1031 in the control assembly for the adjustment, and remove it after the adjustment has been completed.</li> </ul>						
	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
	STOP	No input (cassette half not insert)	V081 (see Fig. 11-5) (Terminal assembly A)	Between 2 (+) and 1 (GND)(Terminal assembly A)	2.5V±0.1V DC	Prevent strong illumination being beamed onto the photo-interrupter.
6. Tape Transport and Head Azimuth Adjustment						
	Mode	Input signal & Test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	PLAY	Mirror-equipped cassette half	Height adjustment nut (see Fig. 11-7)	Tape guide (see Fig. 11-7)	No tape curling at the tape guide	Tape curling and floating up to 1/5 of the tape width is permissible.
2	PLAY	Play the 10kHz/-20dB section of the STD-331B test tape	Head azimuth adjustment screw (see Fig. 11-8)	Left and right OUTPUT terminals	Zero phase difference between left and right channels at maximum playback signal level (Playback level fluctuation 1.0dB max.).	
3	Check step 1, and readjust if necessary. Always perform step 2 after performing step 1.					

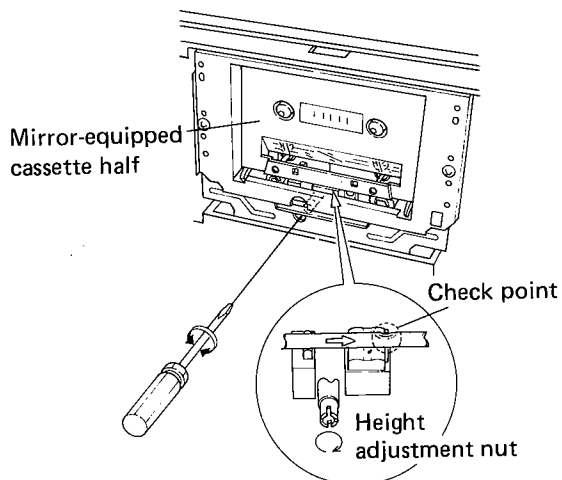


Fig. 11-7 Tape transport adjustment

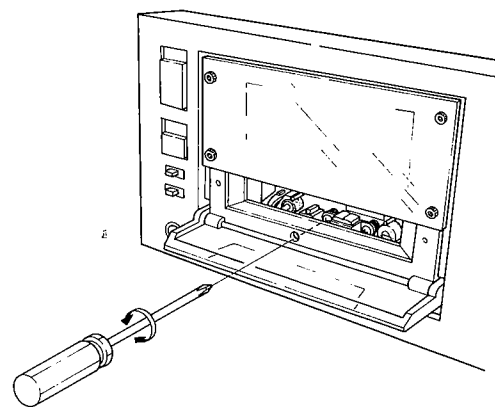


Fig. 11-8 Head azimuth adjustment

**7. Playback Equalizer Adjustment**

- Set V103 and V203 (playback level ADJ.) to maximum level, and V102 and V202 (playback EQ.ADJ.) to the mechanical center positions.

	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
	PLAY	Play the 315Hz/−20dB and 10kHz/−20dB sections of the STD-331B test tape	V102 (left channel) V202 (right channel)	Left and right OUTPUT terminals	Playback level at 10kHz to be +0.2 dB higher than the playback level at 315Hz	Check that the frequency response lies inside the allowable playback frequency response zone (see Fig. 11-9)

**8. Playback Level Adjustment**

- This adjustment must be performed accurately since it also sets the playback Dolby NR level.

	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
	PLAY	Play the 315Hz/0dB section of the STD-331B test tape	V103 (left channel) V203 (right channel)	PBO.DOL-L PBO.DOL-R	−7.7dBv (412.1mV)	Leave the DOLBY NR switch off.

**9. Level Meter Adjustment**

	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1	STOP	Apply a 315Hz/−10dBv (316mV) signal to the INPUT terminals	V2005 (I.REF)	TP28 (+)−TP29(−)	+7.5V±0.2V DC	
2			V2006 (6V)	TP30 (+)−GND	+6V+0.1V −0V DC	
3			V2007 (3V)	TP31 (+)−GND	+3V+0.1V −0V DC	
4			MASTER REC level control	REC.DOL-L REC.DOL-R	−7.7dBv (412.1mV)	
5		Set the input signal level to −20dBv (100mV)	Set the MONITOR switch to the SOURCE position.			
6			V2001 (left channel) V2002 (right channel)	TP26−GND TP27−GND	−14dBv (199.5mV)	
7			V2003 (left channel) V2004 (right channel)	Turn V2003 and V2004 fully clockwise, and turn slowly counter-clockwise and stop when the “−10dB” segments go out.		
8		Set the input signal level to −43dBv (7.08mV)	Confirm	The “−40dB” segments go out	If the “−40dB” segments go out, proceed to step 10.	
9		Set the input signal level to −42dBv (7.94mV)	V2003 (left channel) V2004 (right channel)	If the “−40dB” segments are on, readjust that the “−40dB” segments go out.		
10		Set the input signal level to −20dBv (100mV)	If the “−11dB” segments go out (less than “−12dB”), change the adjustment value of step 6 to −13.5dBv (211.3mV), and readjust step 6.			
11		Set the input signal level to −43dBv (7.08mV)	Confirm	The “−40dB” segments go out	If the “−40dB” segments are on, readjust from step 9	
12		Vary the input signal level	Confirm	Meter display “0dB”	Comes on at input level of −10±1dBv	
13			Confirm	Meter display “+10dB”	Comes on at input level of 0±1dBv	
14		Switch the input signal off when the “0dB” segments are on, and check that the “−30dB” segment for one channel is gone out when the other channel goes out. (meter recovery timing check)				



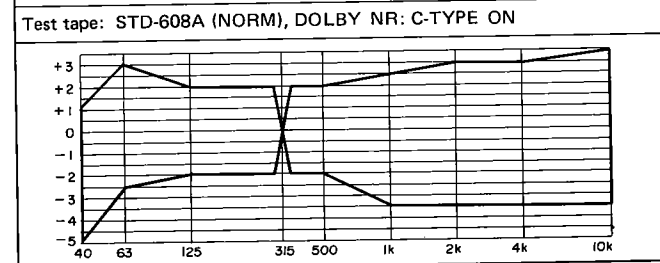
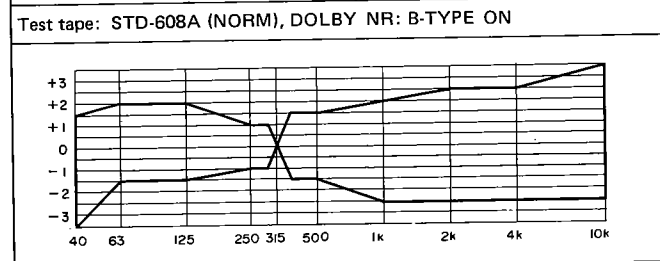
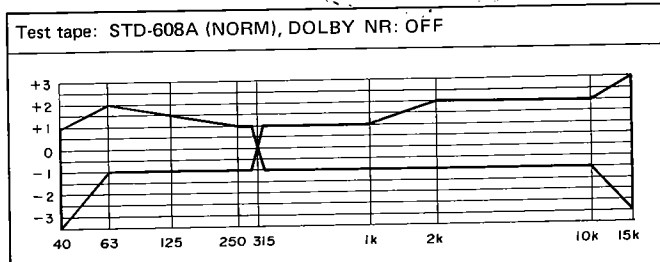


Fig. 11-10 Allowable recording/playback frequency response zone (NORM)

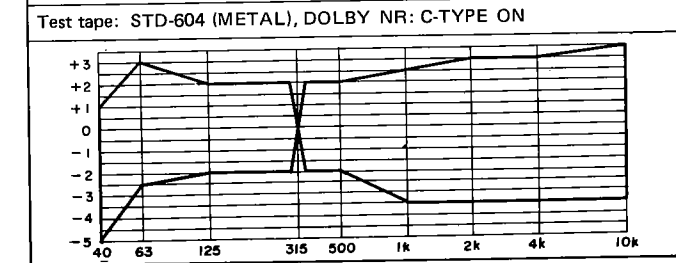
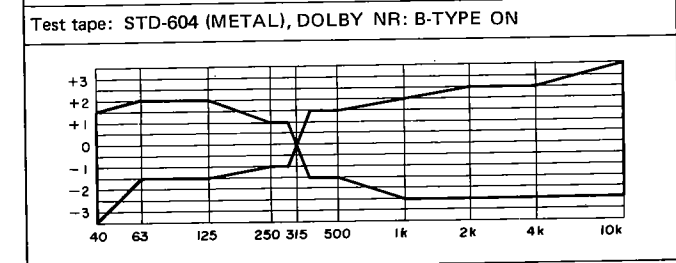
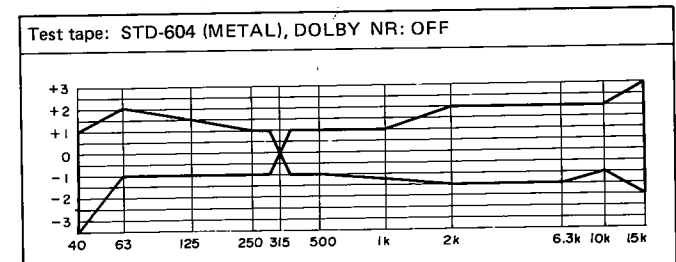


Fig. 11-11 Allowable recording/playback frequency response zone (METAL)

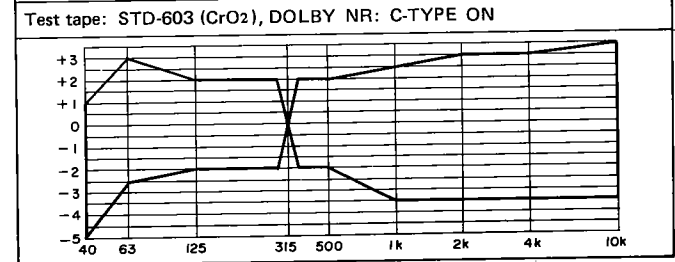
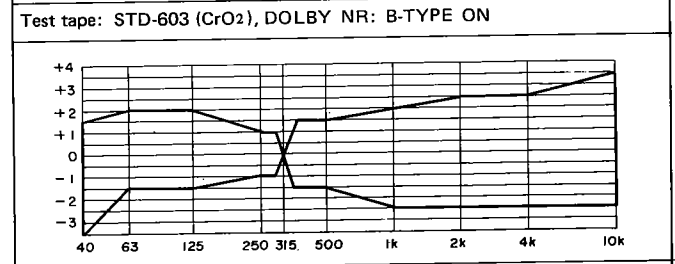
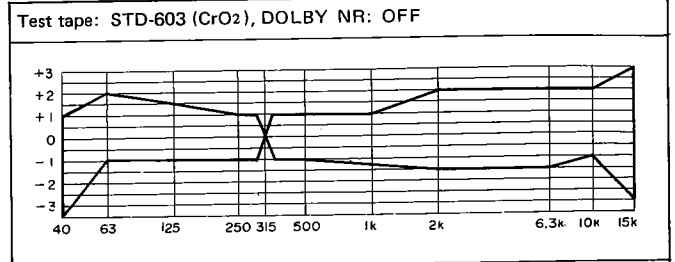


Fig. 11-12 Allowable recording/playback frequency response zone (CrO<sub>2</sub>)

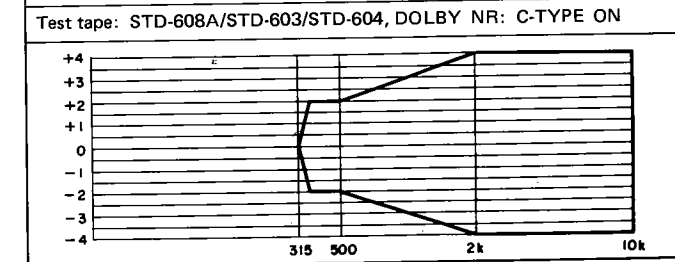
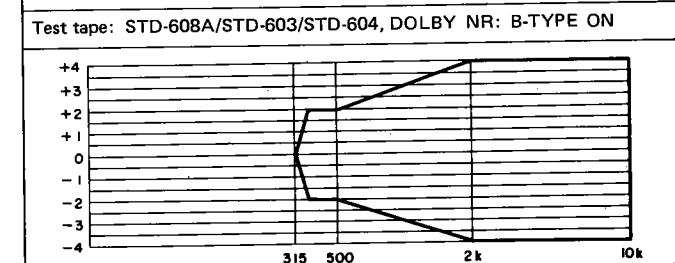
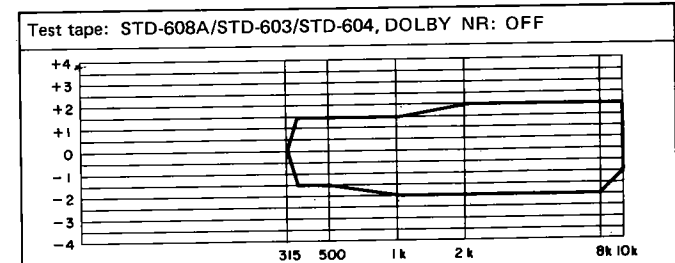


Fig. 11-13 Allowable recording/playback frequency response zone (NORM, AUTO-BLE)

# 11. RÉGLAGE

## 11.1 REGLAGES MECANIQUES

### 11.1.1 Réglage de la vitesse de la bande

\* Utiliser un fréquencemètre

Mode	Point du réglage	Spécifications
PLAY (reproduction)	V051 (Unité de commande CM)	La fréquence de reproduction doit se situer dans une plage $3005 \pm 10\text{Hz}$ au début de la bande d'essai STD-301.
PLAY	Point de réglage	La fréquence de reproduction doit se situer dans une plage $3000 \pm 30\text{Hz}$ au début de la bande d'essai STD-301.

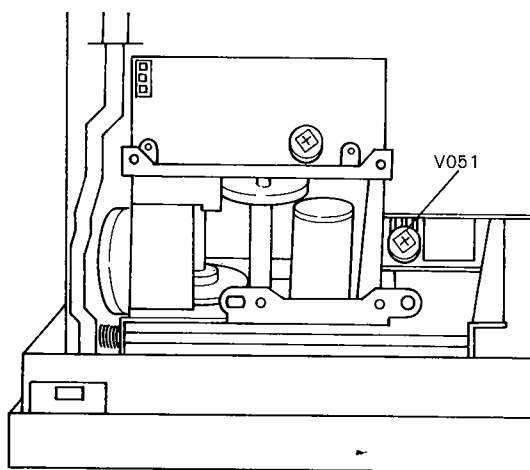


Fig. 11-1 Réglage de la vitesse de la bande

### 11.1.2 Réglage du clapet d'entrée d'air

Point du réglage	Spécifications
Vis de réglage du cylindre	La porte doit s'ouvrir en douceur (sans à-coups) et ne doit pas revenir d'un coup sec en arrière lorsqu'on l'ouvre à fond.

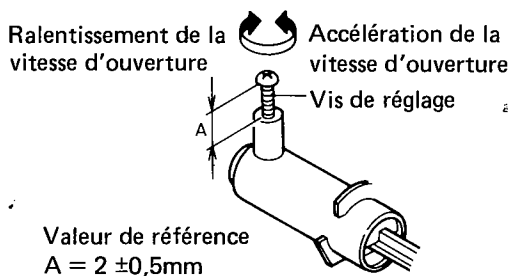


Fig. 11-2 Réglage du clapet d'entrée d'air

### 11.1.3 Réglage de la position de la porte

<b>Point de réglage 1</b>	Vu de face, les rapports entre les dimensions A et B, et entre les dimensions C et D doivent se situer entre 0,5 et 2.
<b>Point de réglage 2</b>	Vu de face, la différence entre E et G ne doit pas excéder $\pm 0,4\text{mm}$ , et E, F, et G doivent toutes dépasser 0,5mm.

Si les spécifications ci-dessus ne sont respectées, desserrer les vis et rerégler la position de la porte.

Standard A : A : C : D = 1 : 1 : 1 : 1,25

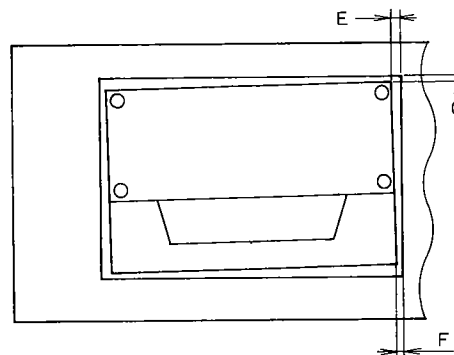
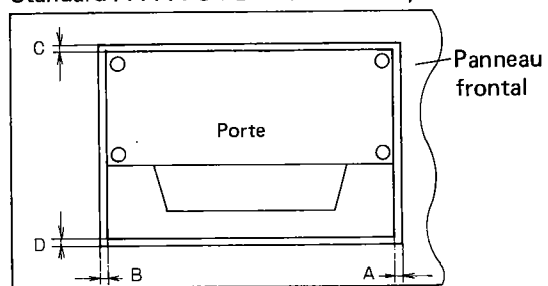


Fig. 11-3 Réglage de la position de la porte

## 11.2 REGLAGES ELECTRIQUES

### Conditions de réglages

1. Les réglages mécaniques doit être d'abord terminés.
2. Les têtes doivent être nettoyées et démagnétisées.
3. Laisser chauffer la platine pendant quelques minutes au moins avant de commencer un quelconque réglage électrique.
4. Le niveau de référence du signal est 0dBv= 1V rms.
5. Brancher une résistance de charge de 50 kohm (ou entre 47 et 52 kohm) sur les bornes de sortie (OUTPUT).
6. Sauf spécification contraire, laisser le contrôle de niveau de sortie (OUTPUT) sur la position maximum.
7. De la même manière, les autres commutateurs cités cidessous doivent être laissés dans la position indiquée sauf spécification contraire.
  - TIMER (minuteur) : OFF (arrêt)
  - DOLBY NR : OFF (arrêt)
  - FILTRE MPX : OFF (arrêt)
  - AUTO-BLE : CLEAR (indicateur DATA SET désenclenché)

### Bandes d'essai

- STD-331B\* : Réglages de reproduction (se référer à la Fig. 11-4).
- STD-608A : Bande vierge NORMALE
- STD-603 : Bande vierge à l'oxyde de chrome CrO<sub>2</sub>
- STD-604 : Bande vierge METAL

\* Le niveau de référence d'enregistrement pour la STD-331A est 333Hz, 250nwb/m, pour la STD-331B, 315Hz, 160nwb/m.

### Liste des réglages

1. Réglage de la tension de sortie du régulateur shunt (sauf pour les types KC, HEM, HB et HP).
2. Réglage de la balance DC de l'amplificateur DC.
3. Réglage de base du circuit intégré de commande.
4. Réglage de base du circuit intégré BLE.
5. Réglage de la sensibilité du détecteur de cassette.
6. Réglage de l'azimutage de la tête et du transport de la bande.
7. Réglage de l'égaliseur de reproduction.
8. Réglage du niveau de reproduction.
9. Réglage de l'indicateur de niveau.
10. Réglage du courant d'effacement METAL.
11. Réglage du circuit de polarisation.
12. Réglage de la polarisation d'enregistrement.
13. Réglage du niveau d'enregistrement.
14. Réglage de la réponse en fréquence et de reproduction.
15. Réglage AUTO-BLE.

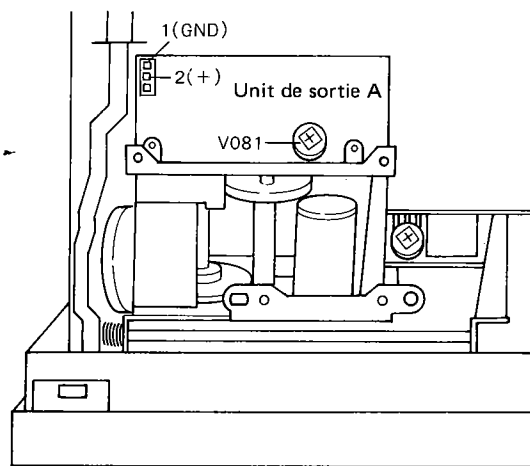


Fig. 11-5 Réglage de la sensibilité du détecteur de cassette

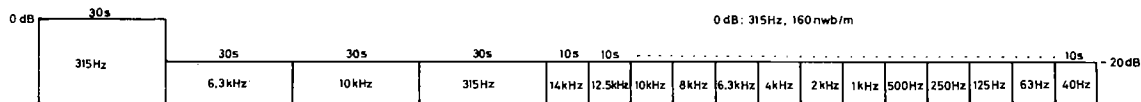


Fig. 11-4 Bande d'essai STD-331B

1. Réglage de la tension de sortie du régulateur shunt

- A l'exclusion des types KC, HEM, HB et HP

	Mode	Signal d'entrée et bande d'essai	Point du réglage	Point de mesure	Valeur du réglage	Remarques
1	STOP	Pas d'entrée	V301	Q311 Emetteur	+10V ± 0,5V CC	Réglage +CC
2			V302	Q312 Emetteur	-10V ± 0,5V CC	Réglage -CC

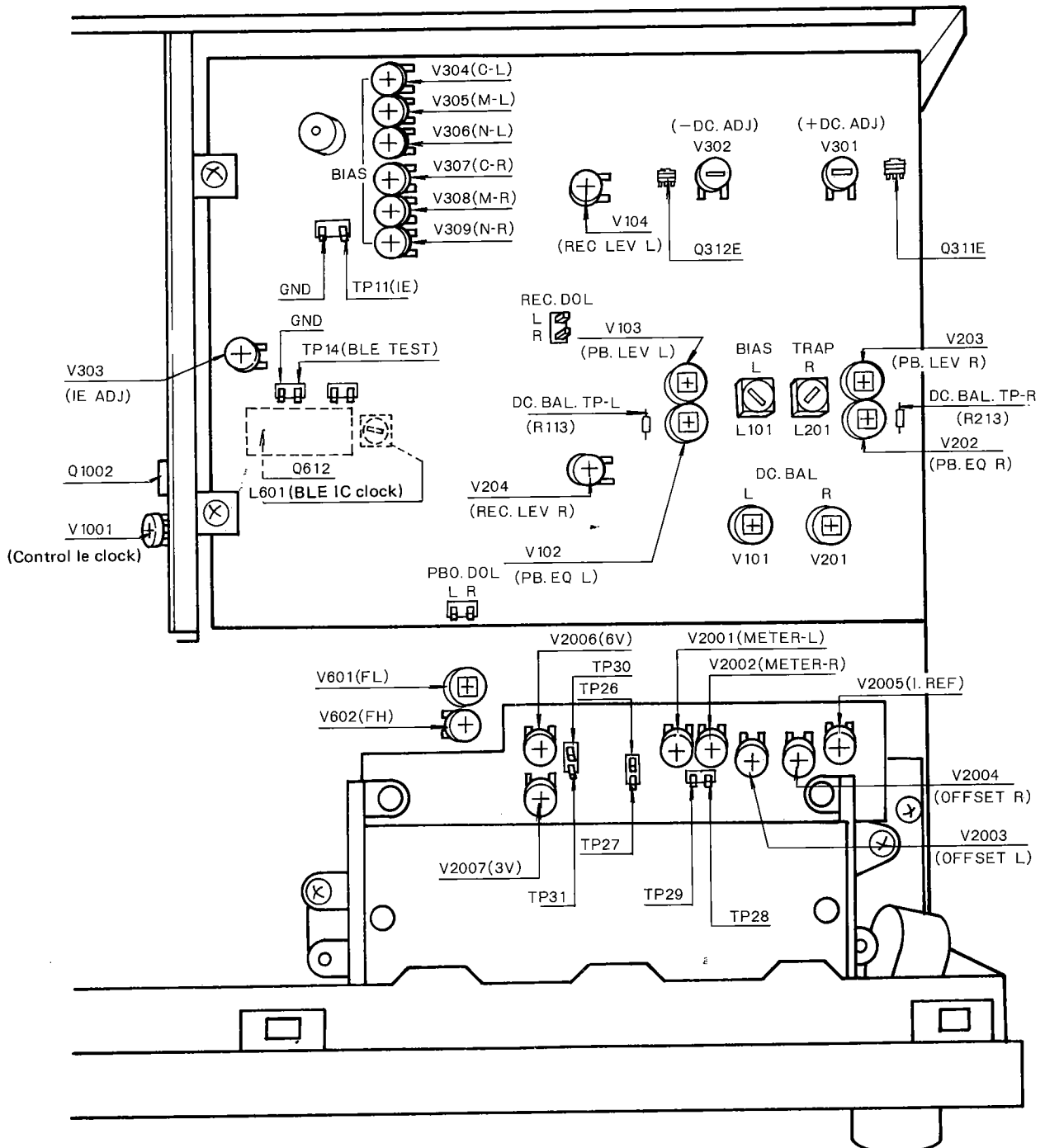


Fig. 11-6 Points des réglages

2. Réglage de la balance CC de l'amplificateur CC						
	Mode	Signal d'entrée et bande d'essai	Point de réglage	Point de mesure	Valeur de réglage	Remarques
1	STOP	Pas d'entrée	V101 (canal gauche)	DC.BAL.TP-L	0±0,2V CC	Faire une mesure au fil R113 en face du panneau arrière
2			V201 (canal droit)	DC.BAL.TP-R	0±0,2V CC	Faire une mesure au fil R123 en face du panneau arrière
3. Réglage de base du circuit intégré de commande						
	Mode	Signal d'entrée et bande d'essai	Point de réglage	Point de mesure	Valeur de réglage	Remarques
	STOP	Pas d'entrée	V1001 (unité de commande)	Fiche 21 de Q1002 (unité de commande)	200kHz ± 5kHz	Insérer un condensateur de quelques pF et faire une mesure à l'aide d'un fréquencemètre
4. Réglage de base du circuit intégré ELE.						
	Mode	Signal d'entrée et bande d'essai	Point de réglage	Point de mesure	Valeur de réglage	Remarques
	STOP	Pas d'entrée	L601 (unité principale)	Fiche 42 de Q612 (unité principale)	294kHz ± 2kHz	Insérer un condensateur de quelques pF et faire une mesure à l'aide d'un fréquencemètre
5. Sensibilité du détecteur de cassette						
<ul style="list-style-type: none"> <li>Faire une mesure à l'aide d'un voltmètre CC à impédance d'entrée élevée (d'environ 1 mega-ohm).</li> <li>Brancher 5,1 kohm en parallèle avec le R1301 dans l'unité de commande pour le réglage, et l'enlever après la fin du réglage.</li> </ul>						
	Mode	Signal d'entrée et bande d'essai	Point de réglage	Point de mesure	Valeur de réglage	Remarques
	STOP	Pas d'entrée (cassette non insérée)	V081 (voir Fig. 11-5) (unité de sortie A)	Entre 2 (+) et 1 (masse) (unité de sortie A)	2,5V ± 0,1V CC	Eviter qu'un éclairage intense ne vienne frapper l'interrupteur photo-électrique.
6. Réglage de l'azimuthage de la tête et du transport de la bande						
	Mode	Signal d'entrée et bande d'essai	Point de réglage	Point de mesure	Valeur de réglage	Remarques
	PLAY (reproduction)	Cassette équipée d'un miroir	Ecrou de réglage de hauteur (se référer à la Fig. 11-7)	Guide de la bande (se référer à la Fig. 11-7)	Pas d'ondulation de la bande au niveau du guide de la bande	Un mouvement et une ondulation égaux à 1/5 de la largeur de la bande sont acceptables.
2	PLAY (reproduction)	Reproduire la partie 10kHz/-20dB de la bande d'essai STD-331B	Vis de réglage de l'azimuthage de la tête (Se référer à la Fig. 11-8).	Bornes de sortie (OUTPUT) droit et gauche	Différence de phase nulle entre les canaux droit et gauche au niveau maximal de reproduction (fluctuation du niveau de reproduction, 1,0dB au maximum).	
3	Vérifier l'étape 1, et rerégler si nécessaire. Veiller à toujours effectuer l'étape 2 après l'étape 1.					

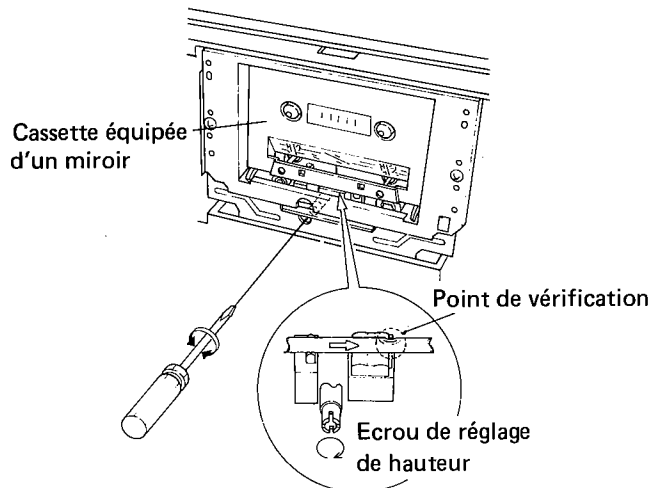


Fig. 11-7 Réglage du transport de la bande

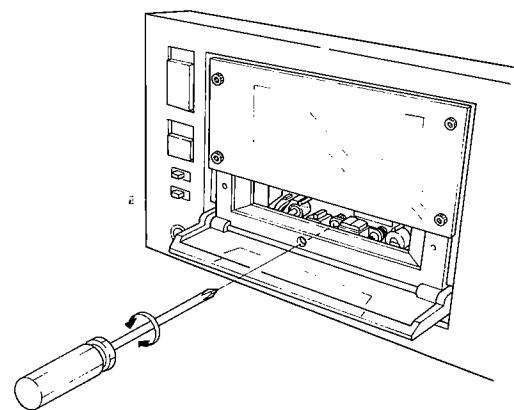


Fig. 11-8 Réglage de l'azimutage de la tête

7. Réglage de l'égaliseur de reproduction						
<ul style="list-style-type: none"> <li>Régler V103 et V203 (réglage du niveau de reproduction) au niveau maximal et les V102 et V202 sur la position mécanique médiane.</li> </ul>						
Mode	Signal d'entrée et bande d'essai	Point de réglage	Point de mesure	Valeur de réglage	Remarques	
PLAY (reproduction)	Reproduire les parties 315Hz/-20dB et 10kHz/-20dB de la bande d'essai STD-331B	V102 (canal gauche) V202 (canal droit)	Bornes de sortie (OUTPUT) droit et gauche	Le niveau de reproduction à 10kHz doit être de +0,2dB supérieur au niveau de reproduction à 315Hz	Vérifier que la réponse en fréquence est située à l'intérieur de la zone de réponse en fréquence admissible (se référer à la Fig. 11-9)	
8. Réglage du niveau de reproduction						
<ul style="list-style-type: none"> <li>Ce réglage doit être effectué avec précision dans la mesure où il conditionne également le niveau de reproduction du réducteur de bruit DOLBY.</li> </ul>						
Mode	Signal d'entrée et bande d'essai	Point du réglage	Point de mesure	Valeur de réglage	Remarques	
PLAY (reproduction)	Reproduire la partie 315Hz/0dB de la d'essai STD-331B	V103 (canal gauche) V203 (canal droit)	PBO.DOL-L PBO.DOL-R	-7,7dBv (412,1mV)	Laisser le commutateur du réducteur de bruit DOLBY désenclenché.	
9. Réglage de l'indicateur de niveau						
Mode	Signal d'entrée et bande d'essai	Point du réglage	Point de mesure	Valeur de réglage	Remarques	
1	Appliquer un signal de 315Hz/-10dBv (316mV) sur les bornes d'entrée	V2005 (I.REF)	TP28(+)-TP29(-)	+7,5V ± 0,2V CC	Le contrôle REC LEVEL PRESET (préréglage du niveau d'enregistrement) est sur la position d'arrêt mécanique	
2		V2006 (V)	TP30(+)-GND (MASSE)	+6V <sup>+0,1V</sup> <sub>-0V</sub> CC		
3		V2007 (3V)	TP31(+)-GND (MASSE)	+3V <sup>+0,1V</sup> <sub>-0V</sub> CC		
4		Contrôle du niveau MASTER REC	REC.DOL-L REC.DOL-R	-7,7dBv (412,1mV)		
5	STOP	Placer le commutateur MONITOR (contrôle d'enregistrement) sur la position SOURCE.				
6	Régler le niveau du signal d'entrée sur -20dB (100mV)	V2001 (canal gauche) V2002 (canal droit)	TP26-GND (masse) TP27-GND (masse)	-14dBv (199,5mV)	Tourner V2003 et V2004 à fond dans le sens des aiguilles d'une montre, puis tourner lentement dans le sens contraire des aiguilles d'une montre, et s'arrêter lorsque les segments "-10dB" disparaissent.	
7		V2003 (canal gauche) V2004 (canal droit)				
8	Régler le signal d'entrée à -43dBv (7,08mV).	Confirmation	Les segments "-40dB" disparaissent.	Si les segments "-40dB" disparaissent, procéder à l'étape 10.		
9	Régler le signal d'entrée à -42dBv (7,94mV).	V2003 (canal gauche) V2004 (canal droit)	Si les segments "-40dB" apparaissent, refaire le réglage de façon à les faire disparaître.			
10	Régler le signal d'entrée à -20dBv (100mV).	Si les segments "-11dB" (moins de "-12dB") disparaissent, changer la valeur de réglage de l'étape 6 à -13,5dBv (211,3mV) et refaire un réglage au niveau de l'étape 6.				
11	Régler le signal d'entrée à -43dBv (7,08mV).	Confirmation	Les segments "-40dB" disparaissent.	Si les segments "-40dB" apparaissent, procéder à l'étape 9.		
12	Faire varier le niveau du signal d'entrée	Confirmation	Affichage de l'indicateur "0dB"	Activé pour un signal d'entrée de -10dB±10dBv.		
13		Confirmation	Affichage de l'indicateur "+10dB"	Activé pour un signal d'entrée de 0dB±1dBv.		
14	Fermer le signal d'entrée lorsque les segments "0dB" apparaissent, et vérifier que le segment "-30dB" pour un canal disparaît lorsque l'autre canal est fermé (vérification de la durée de réactivation des indicateurs).					

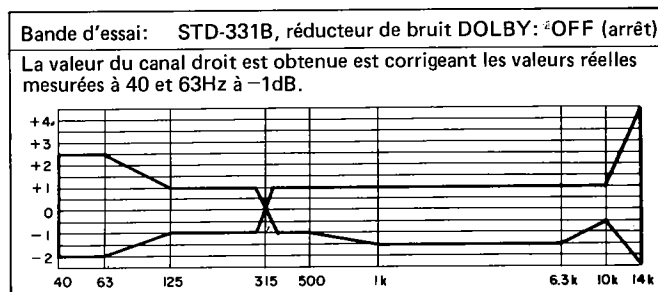


Fig. 11-9 Zone de réponse en fréquence de reproduction admissible

<b>10. Réglage du courant d'effacement métal</b>						
	Mode	Signal d'entrée et bande d'essai	Point du réglage	Point de mesure	Valeur de réglage	Remarques
	REC (enregistrement)	Pas d'entrée, bande d'essai STD-604	V303	TP11-GND (masse)	175mV CA	
<b>11. Réglage du circuit de polarisation</b>						
	Mode	Signal d'entrée et bande d'essai	Point du réglage	Point de mesure	Valeur de réglage	Remarques
	REC (enregistrement)	Pas d'entrée, bande d'essai STD-604	L101 (canal gauche) L201 (canal droit)	Bornes de sortie (OUTPUT) gauche et droit	Dispersion minimale de polarisation courant alternatif	Faire les mesures à l'aide d'un voltmètre et d'un oscilloscope
<b>12. Réglage de la polarisation d'enregistrement</b>						
<ul style="list-style-type: none"> <li>Placer le commutateur de contrôle d'enregistrement (MONITOR) sur la position SOURCE, et régler le niveau de sortie (OUTPUT) au maximum.</li> </ul>						
	Mode	Signal d'entrée et bande d'essai	Point du réglage	Point de mesure	Valeur de réglage	Remarques
1	REC-PAUSE	Appliquer un signal de 6,3kHz/-20dB (100mV) sur les bornes d'entrée (INPUT)	Commande de niveau MASTER REC	Bornes de sortie (OUTPUT) droit et gauche	-13,5dBv (211,3mV)	La commande REC LEVEL PRESET sur la position d'arrêt mécanique
2	REC	Enregistrer le signal ci-dessus sur la bande d'essai STD-608A et faire une vérification d'écoute immédiate	V306 (canal gauche) V309 (canal droit)	Les bornes de sortie (OUTPUT) droite et gauche (et MONITOR sur la position TAPE)		Après avoir tourné V306 et V309 à fond dans le sens des aiguilles d'une montre, tourner inversement dans le sens contraire des aiguilles d'une montre, et s'arrêter sur la position où le niveau s'abaisse de 3dB au dessous du niveau maximal de reproduction après être passé par ce niveau maximal de reproduction.
3	REC	Enregistrer le signal ci-dessus sur la bande d'essai STD-603 et faire une vérification d'écoute immédiate	V304 (canal gauche) V307 (canal droit)			Après avoir tourné V304 et V307 à fond dans le sens des aiguilles d'une montre, tourner inversement dans le sens contraire des aiguilles d'une montre, et s'arrêter sur la position où le niveau s'abaisse de 2,5dB au dessous du niveau maximal de reproduction après être passé par ce niveau maximal de reproduction.
4	REC	Enregistrer le signal ci-dessus sur la bande d'essai STD-604 et faire une vérification d'écoute immédiate	V305 (canal gauche) V308 (canal droit)			Après avoir tourné V305 et V308 à fond dans le sens des aiguilles d'une montre, tourner inversement dans le sens contraire des aiguilles d'une montre, et s'arrêter sur la position où le niveau s'abaisse de 2,5dB au dessous du niveau maximal de reproduction après être passé par ce niveau maximal de reproduction.
<b>13. Réglage du niveau d'enregistrement</b>						
<ul style="list-style-type: none"> <li>Laisser le réducteur de bruit DOLBY désenclenché.</li> </ul>						
	Mode	Signal d'entrée et bande d'essai	Point du réglage	Point de mesure	Valeur de réglage	Remarques
1	REC-PAUSE	Appliquer un signal de 315Hz/-10dB (316mV) sur les bornes d'entrée (INPUT)	Commande de niveau MASTER REC	REC.DOL-L REC.DOL-R	-7,7dBv (412,1mV)	La commande REC LEVEL PRESET sur la position d'arrêt mécanique
2	REC	Enregistrer le signal ci-dessus sur la bande d'essai STD-608A et faire une vérification d'écoute immédiate	V104 (canal gauche) V204 (canal droit)	PBO.DOL-L PBO.DOL-R	-7,7dBv (412,1mV)	
3	Recommencer les étapes ci-dessus en utilisant les bandes d'essai STD-603 et STD-604, en réglant à -7,7±1,5dBv.					



14. Réglage de la réponse en fréquence d'enregistrement et de reproduction						
● Laisser le réducteur de bruit DOLBY désenclenché, et régler le niveau de sortie (OUTPUT) au maximum.						
	Mode	Signal d'entrée et bande d'essai	Point du réglage	Point de mesure	Valeur de réglage	Remarques
1	REC-PAUSE	Appliquer un signal de 315Hz/-30dB (31,6mV) aux bornes d'entrée (INPUT)	Commande de niveau MASTER REC	Bornes de sortie (OUTPUT) gauche et droite	-23,5dBv (66,8mV)	Le contrôle REC LEVEL PRESET sur la position d'arrêt mécanique
2	REC	Enregistrer les signaux de 315Hz et 10kHz sur la bande d'essai STD-608A au niveau ci-dessus et faire un contrôle de reproduction simultané	V306 (canal gauche) V309 (canal droit)	Bornes de sortie (OUTPUT) droite et gauche	Régler le niveau de reproduction du 10kHz à +0,5dB plus élevé que le niveau du 315Hz	
3	Enregistrer et reproduire les signaux jusqu'à 15kHz sur la bande d'essai STD-608A, et vérifier que la zone admissible de réponse en fréquence indiqué sur la Fig. 11-10 est respectée (pour le DOLBY désenclenché, B et C).					
4	REC	De la même manière, enregistrer et reproduire le même signal sur la bande d'essai STD-603	V304 (canal gauche) V307 (canal droit)	Bornes de sortie (OUTPUT) droite et gauche	Régler le niveau de reproduction du 10kHz à +0,5dB plus élevé que le niveau du 315Hz	
5	Enregistrer et reproduire les signaux jusqu'à 15kHz sur la bande d'essai STD-603, et vérifier que la zone admissible de réponse en fréquence indiqué sur la Fig. 11-12 est respectée (pour le DOLBY désenclenché, B et C).					
6	REC	De la même manière, enregistrer et reproduire le même signal sur la bande d'essai STD-604	V305 (canal gauche) V308 (canal droit)	Bornes de sortie (OUTPUT) droit et gauche	Régler le niveau de reproduction du 10kHz à +0,5dB plus élevé que le niveau du 315Hz	
7	Enregistrer et reproduire les signaux jusqu'à 15kHz sur la bande d'essai STD-604, et vérifier que la zone admissible de réponse en fréquence indiqué sur la Fig. 11-11 est respectée (pour le DOLBY désenclenché, B et C).					
15. Réglage AUTO-BLE						
	Mode	Signal d'entrée et bande d'essai	Point du réglage	Point de mesure	Valeur de réglage	Remarques
1	STOP (REC)	Charger la bande STD-608A, et court-circuiter TP14 sur GND (masse)	V601 (FL ADJ)	Faire le réglage de la façon à ce que l'indicateur "LEVEL" AUTO-BLE s'illumine (mesure de niveau à PBO.DOL-R)		Le fait de mettre TP14 en court-circuit avec GND (masse) active le mode de test AUTO-BLE
2	Appuyer sur le bouton STOP pour faire passer le transport de la bande en mode STOP. Appuyer sur le bouton PEAK BIAS.					
3	(REC)	Charger la bande STD-608A	V602 (FH ADJ)	Faire le réglage de façon à ce que l'indicateur "LEVEL" AUTO-BLE s'illumine.		
4	Appuyer sur le bouton DATA CLEAR, la platine étant en mode STOP. Puis charger la bande STD-608A et appuyer sur le bouton PEAK BIAS (passer à l'étape 5 après avoir terminé l'opération de AUTO-BLE).					
5	REC	Enregistrer un signal de 1kHz à 0VU sur la bande d'essai STD-608A, et faire un contrôle de reproduction simultané	Vérification	PBO.DOL-R	-7,7dB ± 0,3dB	Si les spécifications ci-dessus ne sont pas respectées, revenir à l'étape 1 et compenser la déviation de niveau en réglant V601.
6	Appuyer sur le bouton DATA CLEAR, la platine étant en mode STOP. Puis charger la bande STD-608A et appuyer sur le bouton PEAK BIAS (passer à l'étape 7 après avoir terminé l'opération de AUTO-BLE)					
7	REC	Enregistrer des signaux de 315Hz à 10kHz à +20VU sur la bande d'essai STD-608A, et faire un contrôle de reproduction simultané	Vérifier	Bornes de sortie (OUTPUT) droite et gauche	Vérifier que les spécifications de zone indiquées sur la Fig. 11-13 sont respectées pour DOLBY OFF (désenclenché)/B/C.	
8	Répéter les étapes 6 et 7 avec les bandes d'essai STD-603 et STD-604, et vérifier que les spécifications de la Fig. 11-13 sont respectées.					
9	Appuyer sur le bouton DATA CLEAR, la platine étant en mode STOP.					
10	Répéter les opérations ci-dessus pour UNDER BIAS et OVER BIAS, et vérifier de nouveau que les spécifications de zone indiquées sur la Fig. 11-13 sont respectées.					

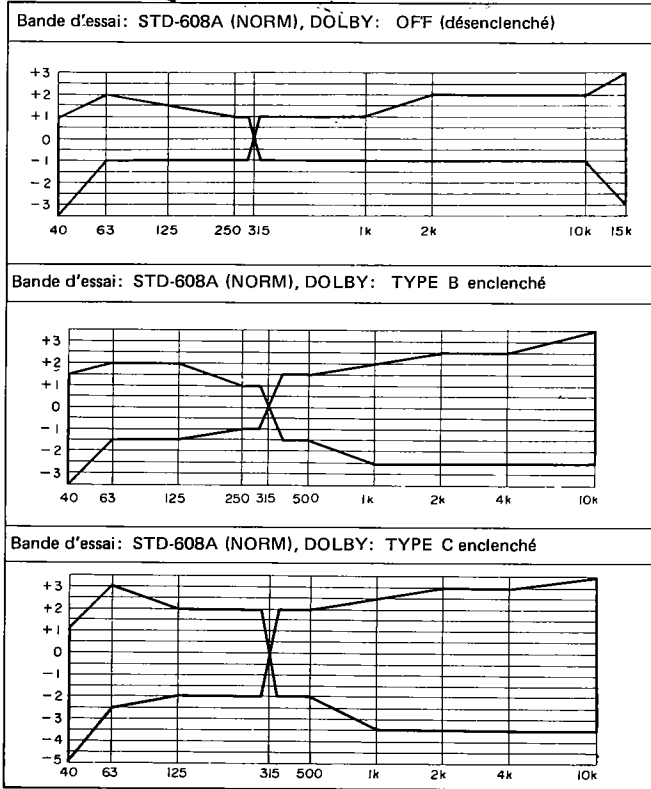


Fig. 11-10 Zone admissible de réponse en fréquence d'enregistrement/reproduction (NORM)

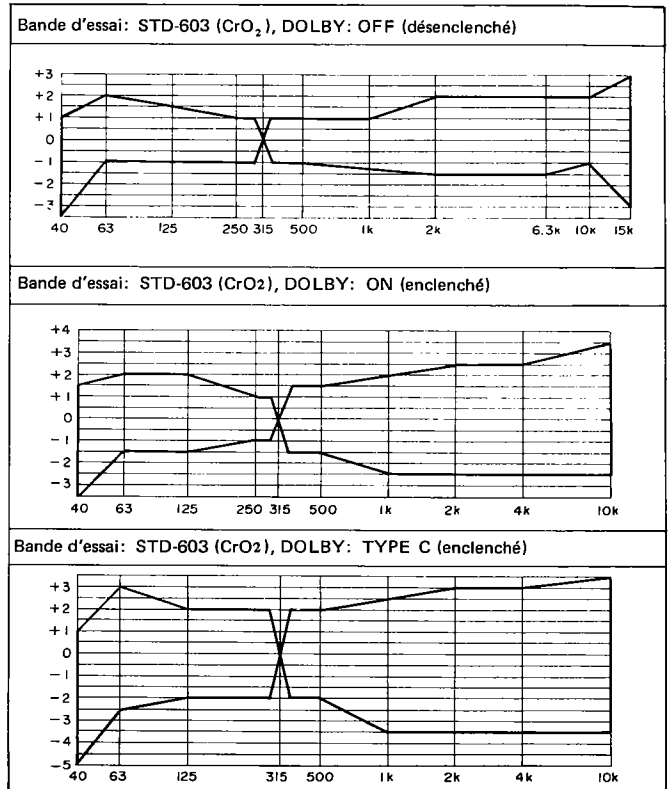


Fig. 11-12 Zone admissible de réponse en fréquence d'enregistrement/reproduction (CrO<sub>2</sub>)

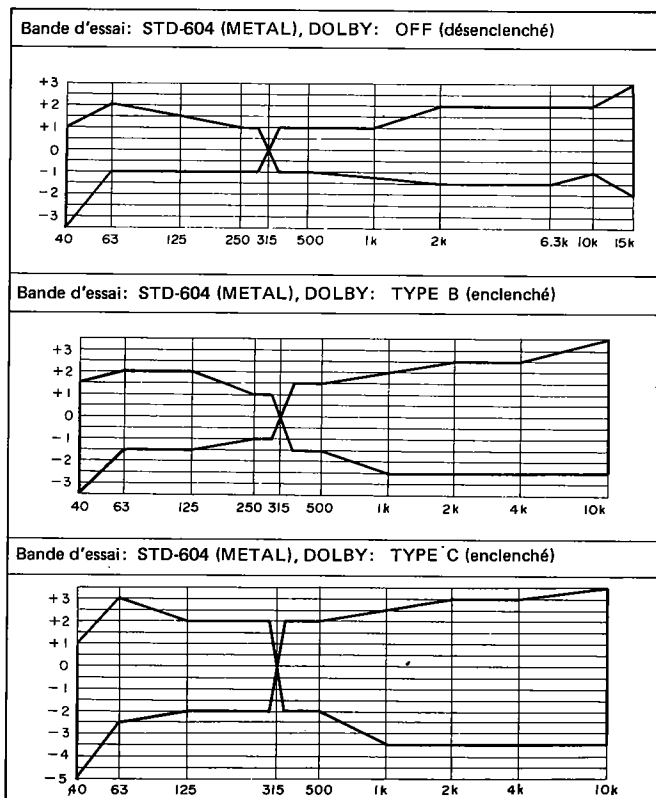


Fig. 11-11 Zone admissible de réponse en fréquence d'enregistrement/reproduction (METAL)

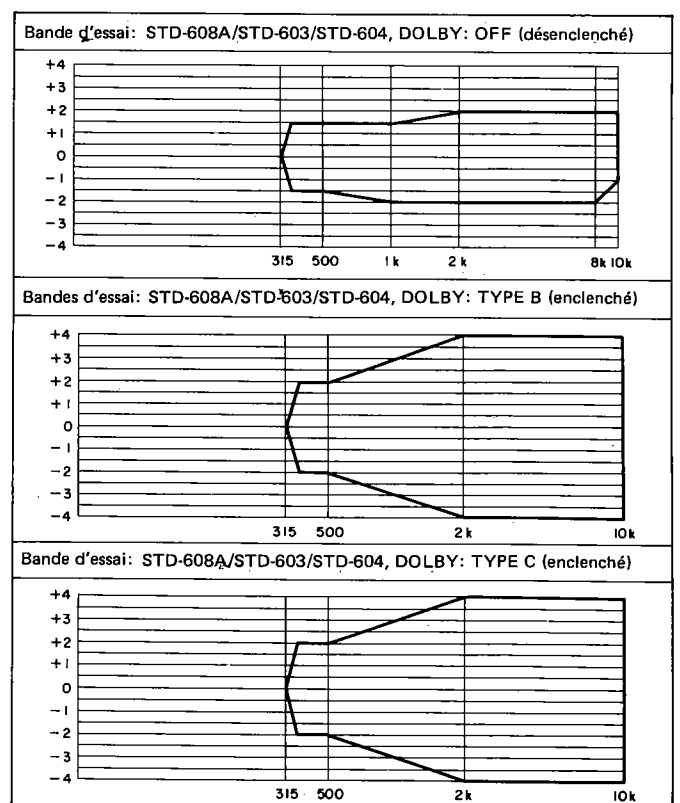


Fig. 11-13 Zone admissible de réponse en fréquence d'enregistrement/reproduction (NORM, AUTO-BLE)

# 11. AJUSTE

## 11.1 AJUSTES MECANICOS

### 11.1.1 Ajuste de la velocidad de la cinta

\*Emplear un frecuencímetro

Modo	Lugar de ajuste	Especificaciones
PLAY	V051 (conjunto de control CM)	La frecuencia de reproducción debe estar dentro del margen de $3005 \pm 10\text{Hz}$ al principio de la cinta de prueba STD-301.
PLAY	Comprobación	La frecuencia de reproducción debe estar dentro del margen de $3000 \pm 30\text{Hz}$ al principio de la cinta de prueba STD-301.

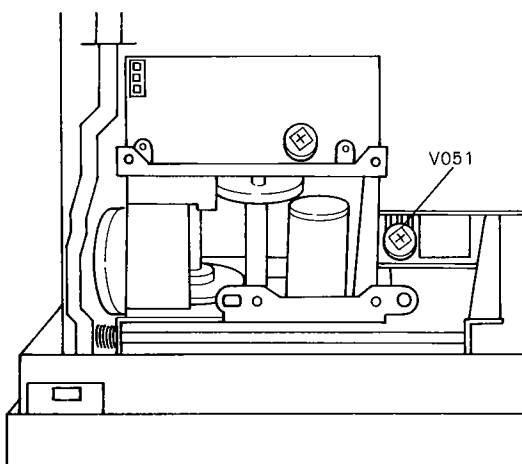


Fig. 11-1 Ajuste de la velocidad de la cinta

### 11.1.2 Ajuste del amortiguador neumático

Lugar de ajuste	Especificaciones
Tornillo de ajuste del cilindro	La puerta debe abrirse suavemente (sin chirridos, etc.) y no debe "retroceder" una vez abierta.

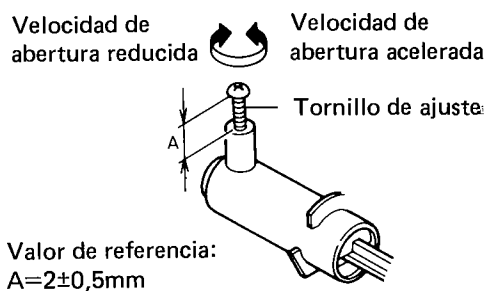


Fig. 11-2 Ajuste del amortiguador neumático

11.1.3 Ajuste de la posición de la puerta

<b>Comprobación 1</b>	Mirando desde delante, los radios entre las dimensiones A y B, y entre las dimensiones C y D deben estar dentro del margen de 0,5 a 2.
<b>Comprobación 2</b>	Mirando desde delante, la diferencia entre E y G no debe exceder de $\pm 0,4\text{mm}$ , y E, F y G deben exceder de 0,5mm.

Si no se satisfacen las especificaciones de arriba, aflojar los tornillos y volver a ajustar la posición de la puerta.

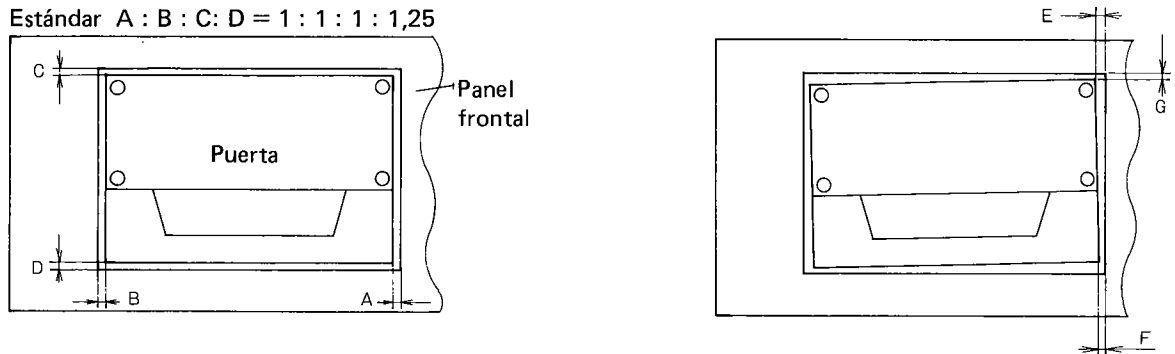


Fig. 11-3 Ajuste de la posición de la puerta

### 11.2 AJUSTES ELECTRICOS

#### Condiciones para los ajustes

1. En primer lugar deben completarse los ajustes mecánicos.
2. Las cabezas deben limpiarse y desmagnetizarse.
3. Dejar precalentarse el magnetofono por lo menos durante algunos minutos antes de comenzar cualquier ajuste eléctrico.
4. El nivel de la señal de referencia es de 0dBv= 1Vrms.
5. Conectar una resistencia de carga de 50 Kohmios (o entre 47 a 52 Kohmiso) a los terminales OUTPUT.
6. A menos que se especifique lo contrario, dejar el control del nivel OUTPUT en la posición de nivel máximo.
7. Del mismo modo, los demás interruptores abajo enumerados se tienen que dejar en las posiciones indicadas a menos que se especifique lo contrario.

TIMER : OFF  
 DOLBY NR : OFF  
 MPX FILTER : OFF  
 AUTO-BLE : CLEAR (el indicador DATA SET apagado)

#### Cintas de prueba

- STD-331B\* : Ajustes de reproducción (Ver la Fig. 11-4)
- STD-608A : Cinta virgen NORMAL  
 STD-603 : Cinta virgen de CrO2  
 STD-604 : Cirta virgen de METAL
- \* Mientras que el nivel de grabación de referencia para la STD-331A es de 333Hz, 250nwb/m, el mismo nivel para la STD-331B es de 315Hz, 160nwb/m.

#### Lista de ajustes

1. Ajuste de la tensión de salida del regulado de derivación (excluyendo los tipos KC, HEM, HB y HP)
2. Ajuste del balance de CC del amplificador de CC
3. Ajuste del reloj de IC de control
4. Ajuste del reloj de BLE IC
5. Ajuste de la sensibilidad del detector de cassetes
6. Ajuste del transporte de la cinta y acimut de la cabeza
7. Ajuste del ecualizador de reproducción
8. Ajuste del nivel de reproducción
9. Ajuste del medidor de nivel
10. Ajuste de la corriente de borrado para METAL
11. Ajuste de la trampa de polarización
12. Ajuste de la polarización de grabación
13. Ajuste del nivel de grabación
14. Ajuste de la respuesta en frecuencia de grabación y reproducción
15. Ajuste de AUTO-BLE

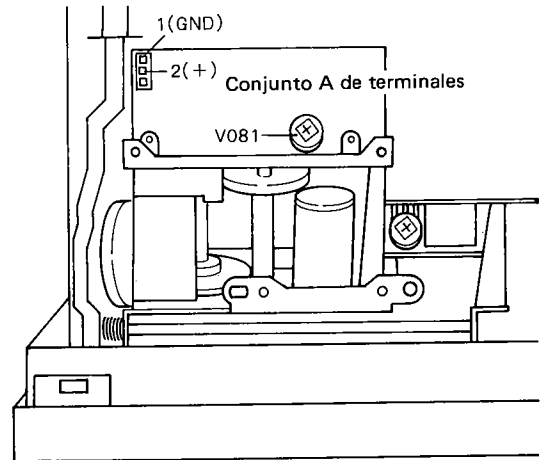


Fig. 11-5 Ajuste de la sensibilidad del detector de cassetes

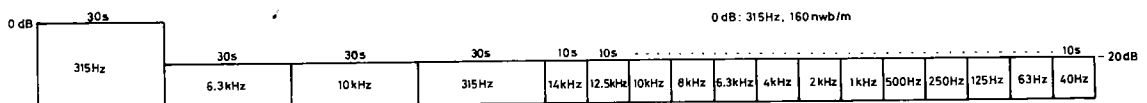


Fig. 11-4 Cinta de prueba STD-331B

**1. Ajuste de la tensión de salida del regulador de derivación**  
 • Excluyendo los tipos KC, HEM, HB y HP

	Modo	Señal de entrada y cinta de prueba	Lugar de ajuste	Lugar de medición	Valor de ajuste	Observaciones
1	STOP	Sin entrada	V301	Emisor Q311	+10V±0,5V CC	+DC ADJ.
			V302	Emisor Q312	-10V±0,5V CC	-DC ADJ.

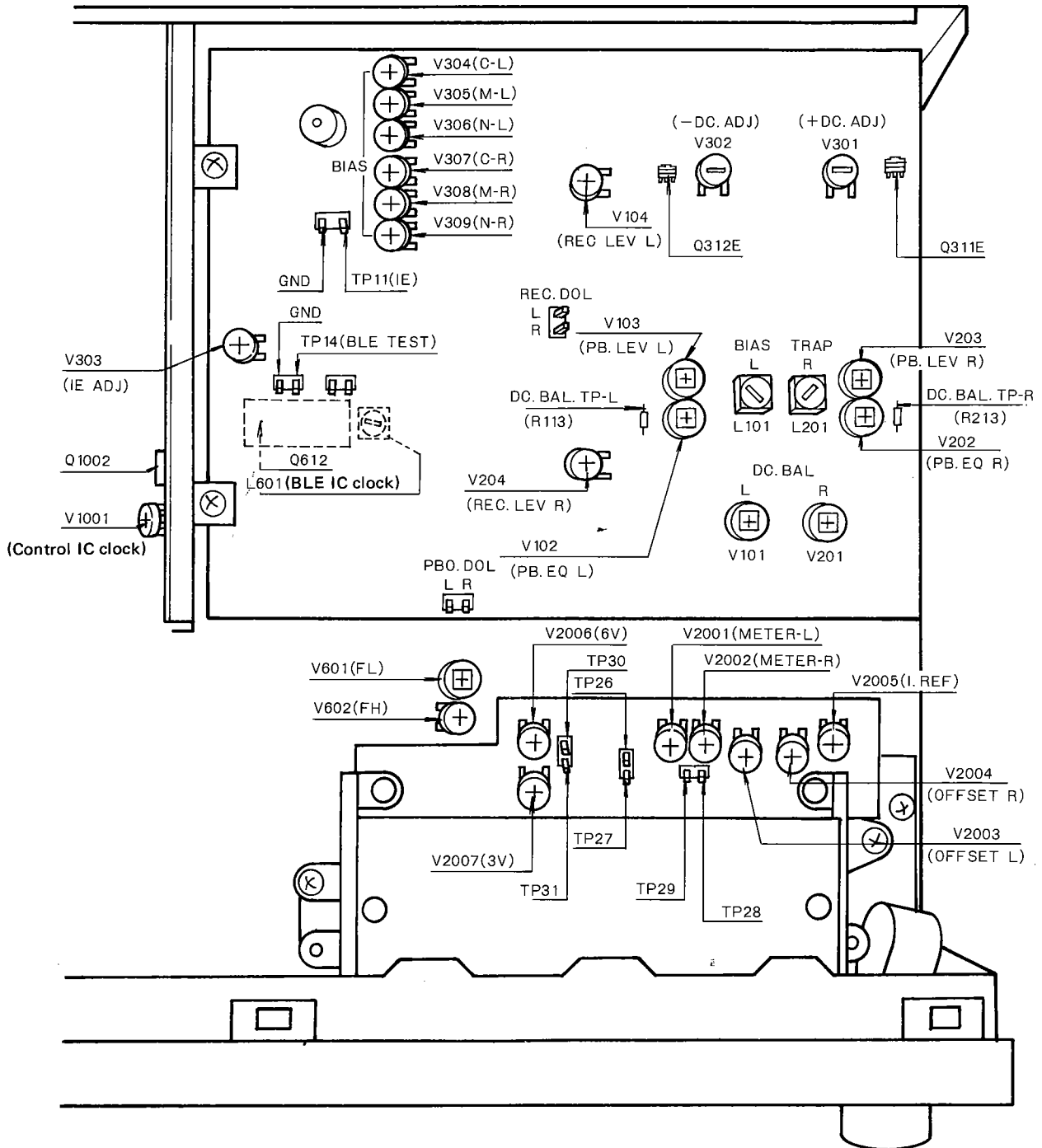


Fig. 11-6 Lugares de ajuste

2. Ajuste del balance de CC del amplificador de CC						
	Modo	Señal de entrada y cinta de prueba	Lugar de ajuste	Lugar de medición	Valor de ajuste	Observaciones
1	STOP	Sin entrada	V101 (canal izquierdo)	DC.BAL.TP-L	0±0,2V CC	Medir en el conductor de R113 encarado al panel posterior
2			V201 (canal derecho)	DC.BAL.TP-R	0±0,2V CC	Medir en el conductor de R213 encarado al panel posterior
3. Ajuste del reloj de IC de control						
	Modo	Señal de entrada y cinta de prueba	Lugar de ajuste	Lugar de medición	Valor de ajuste	Observaciones
	STOP	Sin entrada	V1001 (Conjunto de control)	Pin 21 of Q1002 (Conjunto de control)	200kHz±5kHz	Insertar un condensador de algunos pF y medir con el frecuencímetro
4. Ajuste del reloj de BLE IC						
	Modo	Señal de entrada y cinta de prueba	Lugar de ajuste	Lugar de medición	Valor de ajuste	Observaciones
	STOP	Sin entrada	L601 (Conjunto principal)	Pin 42 of Q612 (Conjunto principal)	294kHz±2kHz	Insertar un condensador de pocos pF y medir con el frecuencímetro
5. Sensibilidad del detector de casetes						
<ul style="list-style-type: none"> <li>• Medir con un voltímetro de CC de alta impedancia de entrada (de aprox. 1M ohmio).</li> <li>• Conectar una resistencia de 5,1K ohmios en paralelo con R1031 del conjunto de control para el ajuste, y sacarla después de haber completado el ajuste.</li> </ul>						
	Modo	Señal de entrada y cinta de prueba	Lugar de ajuste	Lugar de medición	Valor de ajuste	Observaciones
	STOP	Sin entrada (sin casete insertado)	V081 (ver la Fig. 11-5) (conjunto A de terminales)	Entre 2(+) y 1 (GND) (conjunto A de terminales)	2,5V±0,1V CC	Evitar que iluminación potente dé de lleno en el fotointerruptor
6. Ajuste del transporte de la cinta y del acimut de la cabeza						
	Modo	Señal de entrada y cinta de prueba	Lugar de ajuste	Lugar de medición	Valor de ajuste	Observaciones
1	PLAY	Casete provisto de espejo	Tuerca de ajuste de la altura (ver la Fig. 11-7)	Guía de la cinta (ver la Fig. 11-7)	Sin bucle de cinta en la guía de cinta	Bucle de cinta y flotación hasta 1/5 de la anchura de cinta permisibles
2	PLAY	Reproducir la parte de 10kHz/-20dB de la cinta de prueba STD-331B	Tornillo de ajuste del acimut de la cabeza (ver la Fig. 11-8)	Terminales OUTPUT izquierdo y derecho	Diferencia de fase cero entre los canales izquierdo y derecho al nivel máximo de reproducción (fluctuación máx. del nivel de reproducción de 1,0dB)	
3	Verificar el paso 1, y reajustar si fuera necesario. Efectuar siempre el paso 2 después del paso 1.					

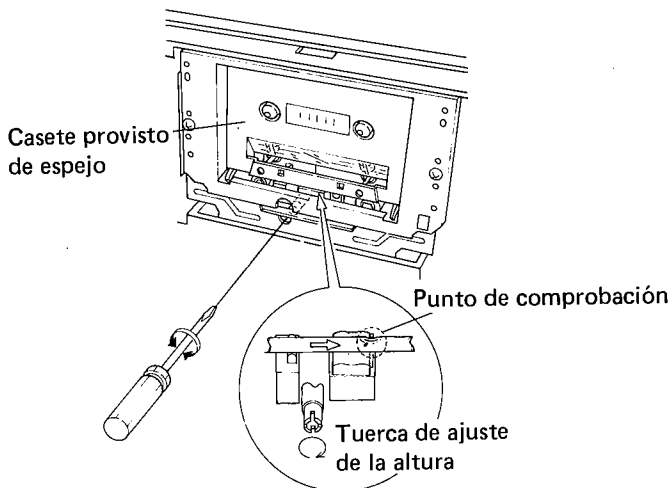


Fig. 11-7 Ajuste del transporte de la cinta

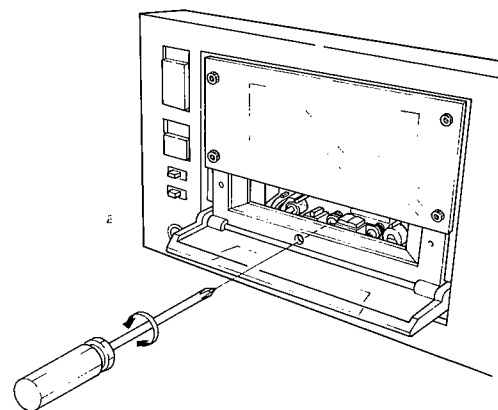


Fig. 11-8 Ajuste del acimut de la cabeza

7. Ajuste del ecualizador de reproducción					
<ul style="list-style-type: none"> <li>Ajustar V103 y V203 (ADJ. del nivel de reproducción) al nivel máximo, y V102 y V202 (EQ. ADJ. de reproducción) a las posiciones del centro mecánico.</li> </ul>					
Modo	Señal de entrada y cinta de prueba	Lugar de ajuste	Lugar de medición	Valor de ajuste	Observaciones
PLAY	Reproducir las partes de 315Hz/-20dB y de 10kHz/-20dB de la cinta de prueba 331B	V102 (canal izquierdo) V202 (canal derecho)	Terminales OUTPUT izquierdo y derecho	El nivel de reproducción a 10kHz tiene que ser +0,2dB más alto que el nivel de reproducción a 315Hz	Comprobar que la respuesta en frecuencia caiga dentro de la zona permisible de respuesta en frecuencia de reproducción (ver la Fig. 11-9)
8. Ajuste del nivel de reproducción					
<ul style="list-style-type: none"> <li>Este ajuste debe efectuarse con precisión porque ajusta también el nivel de reducción de ruido Dolby de reproducción.</li> </ul>					
Modo	Señal de entrada y cinta de prueba	Lugar de ajuste	Lugar de medición	Valor de ajuste	Observaciones
PLAY	Reproducción la parte de 315Hz/0dB de la cinta de prueba STD-331B	V103 (canal izquierdo) V203 (canal derecho)	PBO.DOL-L PBO.DOL-R	-7,7dBv (412,1mV)	Dejar el interruptor DOLBY NR en la posición OFF
9. Ajuste del medidor de nivel					
Modo	Señal de entrada y cinta de prueba	Lugar de ajuste	Lugar de medición	Valor de ajuste	Observaciones
1	Aplicar la señal de 315Hz/-10dB (316mV) a los terminales INPUT	V2005 (I.REF)	TP28(+)-TP29(-)	+7,5V±0,2V CC	
2		V2006 (6V)	TP30(+)-GND	+6V+0,1V CC -0V	
3		V2007 (3V)	TP31(+)-GND	+3V+0,1V CC -0V	
4		Control del nivel MASTER REC	REC.DOL-L REC.DOL-R	-7,7dBv (412,1mV)	
5	Ajustar el nivel de la señal de entrada a -20dBv (100mV)	Poner el conmutador MONITOR en la posición SOURCE.			
6		V2001 (canal izquierdo) V2002 (canal derecho)	TP26-GND TP27-GND	-14dBv (199,5mV)	
7		V2003 (canal izquierdo) V2004 (canal derecho)	Girar V2003 y V2004 totalmente hacia la derecha, y girarlos lentamente hacia la izquierda y parar cuando desaparezcan los segmentos de "-10dB".		
8	Ajustar el nivel de la señal de entrada a -43dBv (7,08mV)	Confirmar	Se apagan los segmentos de "-40dB"	Si se apagan los segmentos de "-40dB", proceder con el paso 10.	
9	Ajustar el nivel de la señal de entrada a -42dBv (7,94mV)	(Canal izquierdo) (Canal derecho)	Si los segmentos de "-40dB" están iluminados, reajustar de modo que se apaguen los segmentos de "-40dB".		
10	Ajustar el nivel de la señal de entrada a -20dBv (100mV)	Si se apagan los segmentos de "-11dB" (menos de "-12dB"), cambiar el valor de ajuste del paso 6 a -13,5dBv (211,3 mV) y reajustar con el paso 6.			
11	Ajustar el nivel de la señal de entrada a -43dBv (7,08mV)	Confirmar	Se apagan los segmentos de "-40dB".	Si los segmentos de "-40dB" están iluminados, reajustar a partir del paso 9.	
12	Variar el nivel de la señal de entrada	Confirmar	Indicación "0dB" en el medidor	Sale en el nivel de entrada de -10±1dBv.	
13		Confirmar	Indicación de "+10dB" en el medidor	Sale en el nivel de entrada de 0±1dBv.	
14	Desactivar la señal de entrada cuando los segmentos de "0dB" se enciendan, y comprobar que el segmento de "-30dB" para un canal se apaga cuando se apaga el otro canal. (Comprobación de la sincronización de recuperación del medidor)				

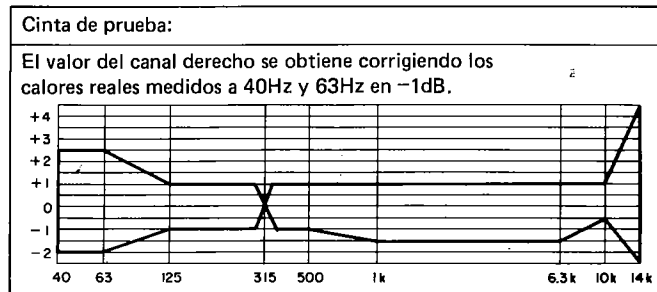


Fig. 11-9 Zona de respuesta en frecuencia de reproducción permisible



10. Ajuste de la corriente de borrado para metal							
	Modo	Señal de entrada y cinta de prueba	Lugar de ajuste	Lugar de medición	Valor de ajuste	Observaciones	
	REC	Sin señal, cinta de prueba STD-604	V303	TP11-GND	175mV CA		
11. Ajuste de trampa de polarización							
	Modo	Señal de entrada y cinta de prueba	Lugar de ajuste	Lugar de medición	Valor de ajuste	Observaciones	
	REC	Sin entrada, cinta de prueba STD-604	L101 (canal izquierdo) L201 (canal derecho)	Terminales OUTPUT izquierdo y derecho	Fuga de polarización mínima	Medir con un voltímetro de CA y un osciloscopio	
12. Ajuste de la polarización de grabación							
<ul style="list-style-type: none"> <li>● Poner el conmutador MONITOR en la posición SOURCE y ajustar el control de nivel de OUTPUT al nivel máximo.</li> </ul>							
	Modo	Señal de entrada y cinta de prueba	Lugar de ajuste	Lugar de medición	Valor de ajuste	Observaciones	
1	REC-PAUSE	Aplicar una señal de 6,3kHz/-20dBv (100mV) a los terminales INPUT	Control del nivel MASTER REC	Terminales OUTPUT izquierdo y derecho	-13,5dBv (211,3mV)	Control REC LEVEL PRESET en la posición con parada	
2	REC	Grabar la señal de arriba en la cinta de prueba STD-608A y monitorizar simultáneamente la producción	V306 (canal izquierdo) V309 (canal derecho)	Terminales OUTPUT izquierdo y derecho (y MONITOR en la posición TAPE)	Después de girar en primer lugar V306 y V309 completamente hacia la izquierda, girar hacia la derecha y detenerse en la posición donde el nivel caiga 3dB por debajo del nivel de reproducción máximo después de pasar por la posición del nivel máximo.		
3	REC	Grabar la señal de arriba en la cinta de prueba STD-603 y monitorizar simultáneamente la reproducción	V304 (canal izquierdo) V307 (canal derecho)				Después de girar en primer lugar V304 y V307 completamente hacia la izquierda, girar hacia la derecha y detenerse en la posición donde el nivel caiga 2,5dB por debajo del nivel de reproducción máximo después de pasar por la posición del nivel máximo.
4	REC	Grabar la señal de arriba en la cinta de prueba STD-604 y monitorizar simultáneamente la reproducción	V305 (canal izquierdo) V308 (canal derecho)				Después de girar en primer lugar V305 y V308 completamente hacia la izquierda, girar hacia la derecha y detenerse en la posición donde el nivel caiga 2,5dB por debajo del nivel de reproducción máximo después de pasar por la posición del nivel máximo.
13. Ajuste del nivel de grabación							
<ul style="list-style-type: none"> <li>● Dejar el interruptor DOLBY NR en la posición OFF.</li> </ul>							
	Modo	Señal de entrada y cinta de prueba	Lugar de ajuste	Lugar de medición	Valor de ajuste	Observaciones	
1	REC-PAUSE	Aplicar una señal de 315Hz/-10dBv (316mV) a los terminales INPUT	Control de nivel MASTER REC	REC.DOL-L REC.DOL-R	-7,7dBv (412,1mV)	Control REC LEVEL PRESET en la posición con parada	
2	REC	Grabar la señal de arriba en la cinta de prueba STD-608A y monitorizar simultáneamente la reproducción	V104 (canal izquierdo) V204 (canal derecho)	PBO.DOL-L PBO.DOL-R	-7,7dBv (412,1mV)		
3	Repetir los pasos de arriba empleando las cintas de prueba STD-603 y STD-604, ajustando a $-7,7 \pm 1,5$ dBv.						

14. Ajuste de la respuesta en frecuencia de grabación y reproducción						
● Dejar el interruptor DOLBY NR en la posición OFF, y ajustar el control de nivel OUTPUT al nivel máximo.						
	Modo	Señal de entrada y cinta de prueba	Lugar de ajuste	Lugar de medición	Valor de ajuste	Observaciones
1	REC-PAUSE	Aplicar una señal de 315Hz/-30dBv (31,6mV) a los terminales INPUT	Control del nivel MASTER REC	Terminales OUTPUT izquierdo y derecho	-23,5dBv (66,8mV)	Control REC LEVEL PRESET en la posición con parada
2	REC	Grabar las señales de 315Hz y de 10kHz en la cinta de prueba STD-608A al nivel de arriba y monitorizar simultáneamente la reproducción	V306 (canal izquierdo) V309 (canal derecho)	Terminales OUTPUT izquierdo y derecho	Ajuster el nivel de reproducción de 10kHz a +0,5dB más alto que el nivel de la señal de 315Hz	
3	Grabar y reproducir las señales hasta 15kHz en la cinta de prueba STD-608A, y comprobar que la zona de respuesta en frecuencia permisible, mostrada en la Fig. 11-10, se satisfaga (para DOLBY NR OFF, y B y C).					
4	REC	Del mismo modo, grabar y reproducir la misma señal en la cinta de prueba STD-603	V304 (canal izquierdo) V307 (canal derecho)	Terminales OUTPUT izquierdo y derecho	Ajustar el nivel de reproducción de 10kHz a +0,5dB con respecto al nivel de 315Hz	
5	Grabar y reproducir señales hasta 15kHz en la cinta de prueba STD-603 y comprobar que la zona de respuesta en frecuencia permisible, mostrada en la Fig. 11-12, se satisfaga (para DOLBY NR OFF, y B y C)					
6	REC	Del mismo modo, grabar y reproducir la misma señal en la cinta de prueba STD-604	V305 (canal izquierdo) V308 (canal derecho)	Terminales OUTPUT izquierdo y derecho	Ajustar el nivel de reproducción de 10kHz a +0,5dB con respecto al nivel de 315Hz	
7	Grabar y reproducir señales hasta de 15kHz en la cinta de prueba STD-604 y comprobar que la zona de respuesta en frecuencia permisible, mostrada en la Fig. 11-11, se satisfaga (para DOLBY NR OFF, y B y C).					
15. Ajuste de AUTO-BLE						
	Modo	Señal de entrada y cinta de prueba	Lugar de ajuste	Lugar de medición	Valor de ajuste	Observaciones
1	STOP (REC)	Cargar la cinta de prueba STD-608A y cortocircuitar momentáneamente TP14 a GND	V601 (FL ADJ)	Ajustar de modo que el indicador "LEVEL" de AUTO-BLE se ilumine (medición del nivel en PBO.DOL-R)		Al cortocircuitar TP14 a GND se activa el modo de prueba de AUTO-BLE
2	Presionar el botón STOP para establecer el transporte de la cinta en el modo STOP, y luego presionar el botón PEAK BIAS.					
3	(REC)	Cargar la cinta STD-608A	V602 (FH ADJ.)	Ajustar de modo que el indicador "LEVEL" de AUTO-BLE se ilumine.		
4	Presionar el botón DATA CLEAR con el magnetófono en el modo STOP. Entonces, cargar la cinta STD-608A y presionar el botón PEAK BIAS (proceder con el paso 5 después de haber completado la operación del AUTO-BLE).					
5	REC	Grabar una señal de 1kHz a 0VU en la cinta de prueba STD-608A y monitorizar simultáneamente la reproducción	Comprobar	PBO.DOL-R	-7,7dBv±0,3dB	Si no se satisfacen las especificaciones de arriba, volver al paso 1 y compensar la desviación del nivel ajustando V601.
6	Presionar el botón DATA CLEAR con el magnetófono en el modo STOP. Luego, cargar la cinta STD-608A y presionar el botón PEAK BIAS (proceder con el paso 7 después de haber completado la operación del AUTO-BLE)					
7	REC	Grabar señales de 315Hz a 10kHz a -20VU en la cinta de prueba STD-608A y monitorizar simultáneamente la reproducción	Comprobar	Terminales OUTPUT izquierdo y derecho	Comprobar que las especificaciones de la zona mostrada en la Fig. 11-13 se satisfacen para DOLBY NR OFF/B/C.	
8	Repetir los pasos 6 y 7 con las cintas de prueba STD-603 y STD-604 y comprobar que se satisfacen las especificaciones de la Fig. 11-13.					
9	Presionar el botón DATA CLEAR con el magnetófono en el modo STOP.					
10	Repetir los procedimientos de arriba para UNDER BIAS y OVER BIAS, y comprobar de nuevo que las especificaciones de la zona mostrada en la Fig. 11-13 se satisfagan.					

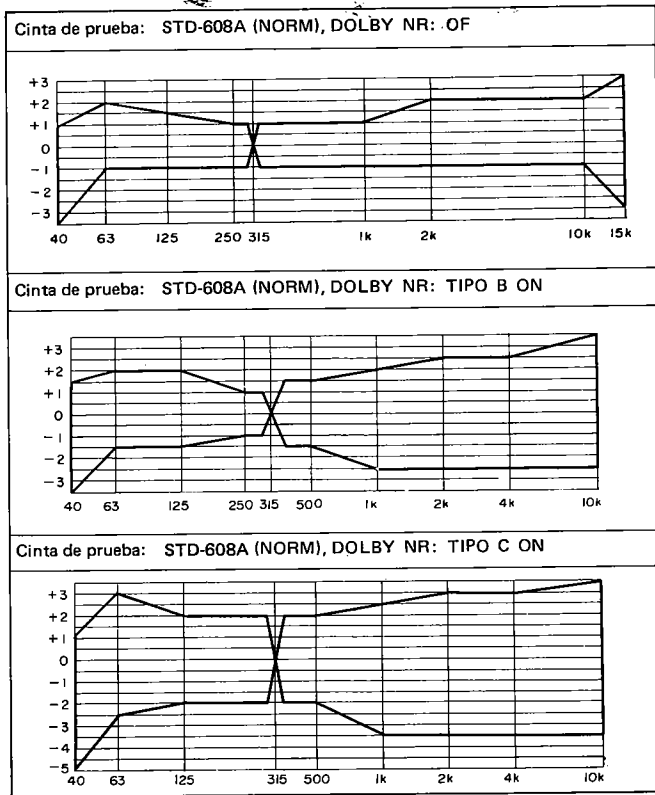


Fig. 11-10 Zona de respuesta en frecuencia permisible para grabación/reproducción (NORM)

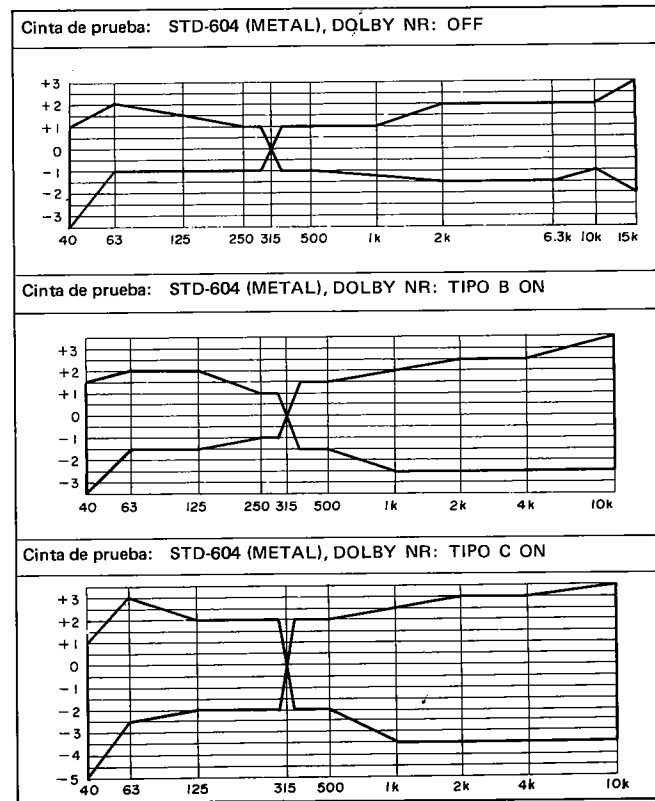


Fig. 11-11 Zona de respuesta en frecuencia permisible para grabación/reproducción (METAL)

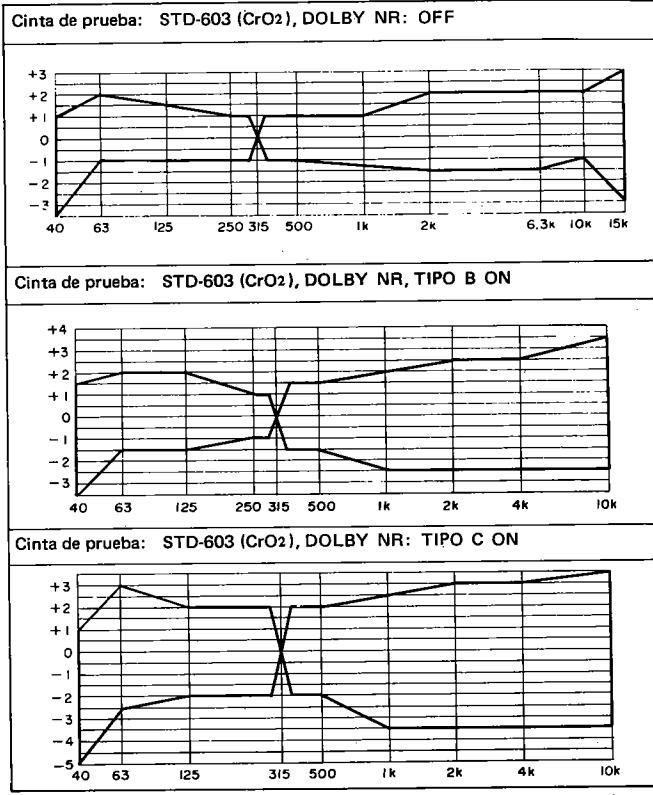


Fig. 11-12 Zona de respuesta en frecuencia permisible para grabación/reproducción (CrO2)

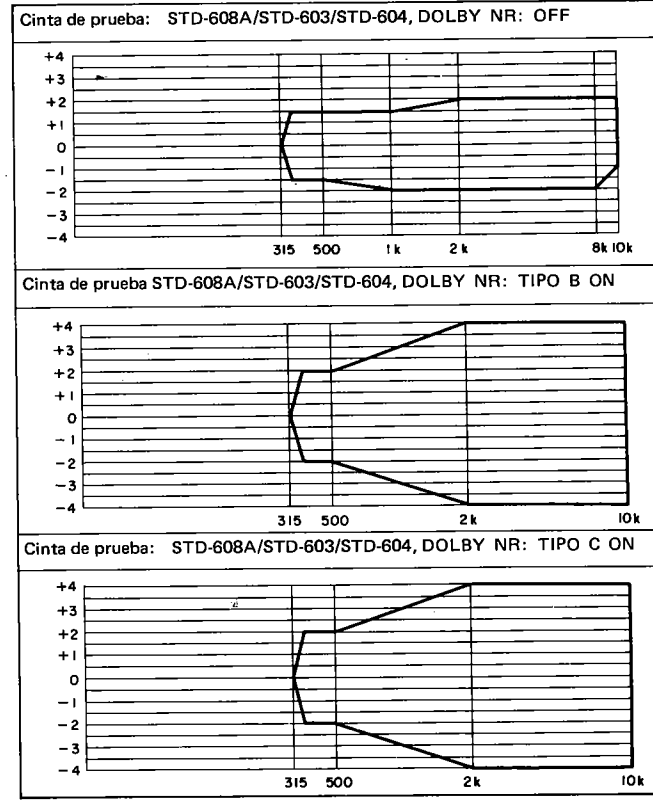


Fig. 11-13 Zona de respuesta en frecuencia permisible para grabación/reproducción (NORM, AUTO-BLE)

## 12. SUPPLEMENTS FOR KC , D , HEM , HB AND HP TYPES

Models CT-A9/KC (Canada model), HEM (European continent model), HB (United Kingdom model), HP (Australia model), and D (General export model) are the same as the CT-A9/KU (U.S.A. model) with the exception of this supplement.

**NOTES:**

- When ordering resistors, first convert resistance values into code form as shown in the following examples.  
*Ex. 1* When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).  
 560Ω    56 × 10<sup>1</sup>    561 ..... RD¼PS 561J  
 47kΩ    47 × 10<sup>3</sup>    473 ..... RD¼PS 473J  
 0.5Ω    0R5 ..... RN2H 0R5K  
 1Ω      010 ..... RS1P 010K  
*Ex. 2* When there are 3 effective digits (such as in high precision metal film resistors).  
 5.62kΩ    562 × 10<sup>1</sup>    5621 ..... RN¼SR 5621F
- The  $\Delta$  mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your Parts Stock Control, the fast moving items are indicated with the marks **★★** and **★**.  
**★★ GENERALLY MOVES FASTER THAN ★.**  
 This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.

### Contrast of Miscellaneous Parts

Mark	Symbol & Description	Part No.					
		KU type	KC type	HEM type	HB type	HP type	D type
$\Delta$ ★★	FU1901      Fuse (1.25A)	REK-073	REK-073	.....	.....	.....	.....
	Fuse (T800mA)	.....	.....	REK-064	REK-064	REK-064	.....
$\Delta$ ★★	FU1902, FU1903      Fuse (500mA)	REK-077	REK-077	.....	.....	.....	.....
	Fuse (T315mA)	.....	.....	REK-052	REK-052	REK-052	.....
$\Delta$ ★★	FU1904, FU1905      Fuse (800mA)	REK-079	REK-079	.....	.....	.....	.....
	Fuse (T500mA)	.....	.....	REK-049	REK-049	REK-049	.....
$\Delta$ ★★	FU1906, FU1907      Fuse (800mA)	REK-079	REK-079	.....	.....	.....	.....
	Fuse (T630mA)	.....	.....	REK-061	REK-061	REK-061	.....
$\Delta$ ★★	FU1801      Fuse (T315mA)	.....	.....	REK-052	REK-052	REK-052	.....
$\Delta$ ★★	S1    Line voltage selector	.....	.....	.....	.....	.....	RSX-057
$\Delta$ ★	T1    Power transformer (120V)	RTT-350	RTT-352	.....	.....	.....	.....
	(220V/240V)	.....	.....	RTT-354	RTT-354	RTT-354	.....
	(120V/220V/240V)	.....	.....	.....	.....	.....	RTT-356
$\Delta$	AC power cord	RDG-048	RDG-048	RDG-027	RDG-032	RDG-029	RDG-050
$\Delta$	Strain relief (for AC power cord)	REC-395	REC-395	REC-396	REC-396	REC-396	REC-395
	Operating instructions (English)	RRB-225	RRB-225	.....	RRB-225	RRB-225	RRB-225
	(English/German/French/Italian)	.....	.....	RRE-055	.....	.....	.....

**Contrast of P.C. Board Assemblies**

Mark	Symbol & Description	Part No.					
		KU type	KC type	HEM type	HB type	HP type	D type
	Fuse A assembly	no supply	same as KU	no supply	same as HEM	same as HEM	.....
	Fuse B assembly	.....	.....	no supply	same as HEM	same as HEM	.....
	Power supply assembly	no supply	same as KU	no supply	same as HEM	same as HEM	no supply
	Sub-amplifier assembly	no supply	no supply	same as KC	same as KC	same as KC	same as KU

**Fuse A Assembly**

- Fuse A assembly is mounted the fuse holders for FU1901 – FU1907.
- For KU type and for HEM type differ in the size of the fuse holders.

**Fuse B Assembly (for HEM, HB, and HP types)**

- Fuse B assembly is mounted the fuse holder for FU1801.

**Power Supply Assembly for D Type**

- Power supply assembly for D type is the same as the KU type with the exception of the indications on te P.C. board.

**Power Supply Assembly for HEM, HB, and HP Types**

- Power supply assembly for HEM type is the same as the KU type with the exception of the following parts.

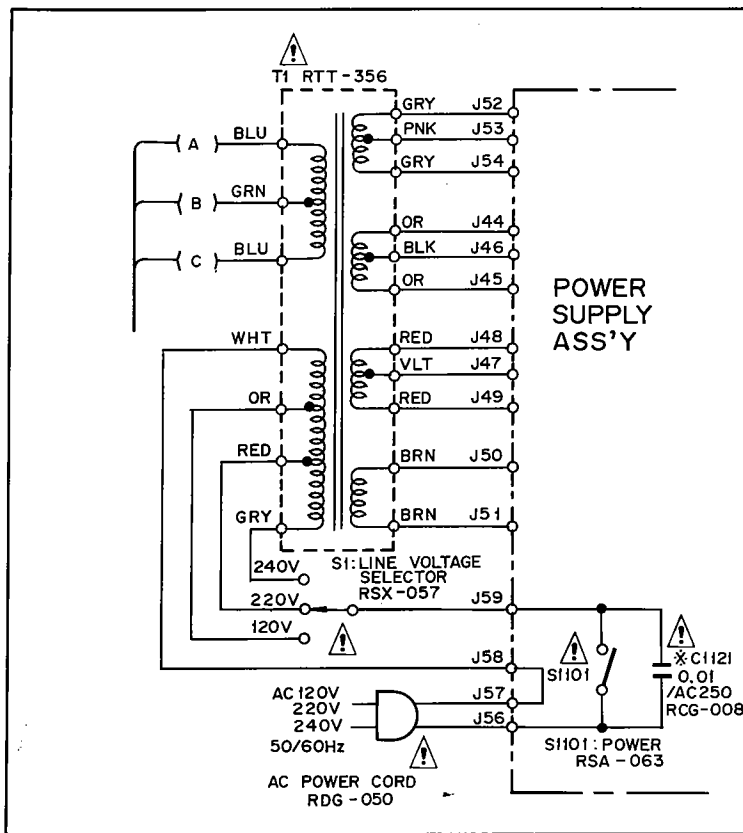
Mark	Symbol & Description	Part No.		Remarks
		for KU type	for HEM type	
⚠	C1121 Ceramic capacitor	RCG-008	.....	0.01/AC250V
	C1125, C1127	.....	RCG-009	0.01/AC400V
	C1126	.....	CKDYF 473Z 50	
		.....	CQMA 183K 160	

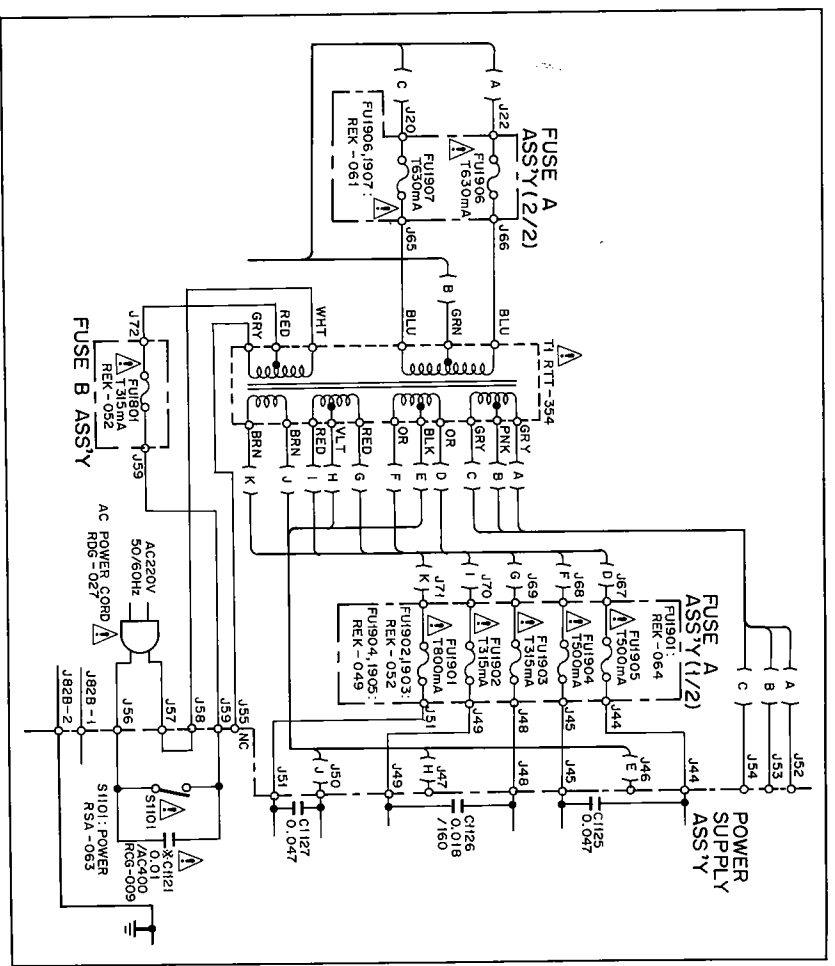
**Sub-Amplifier Assembly for KC, HEM, HB, and HP Types**

- Sub-amplifier assembly for KC, HEM, HB and HP types is the same as the KU type with the exception of the following parts.

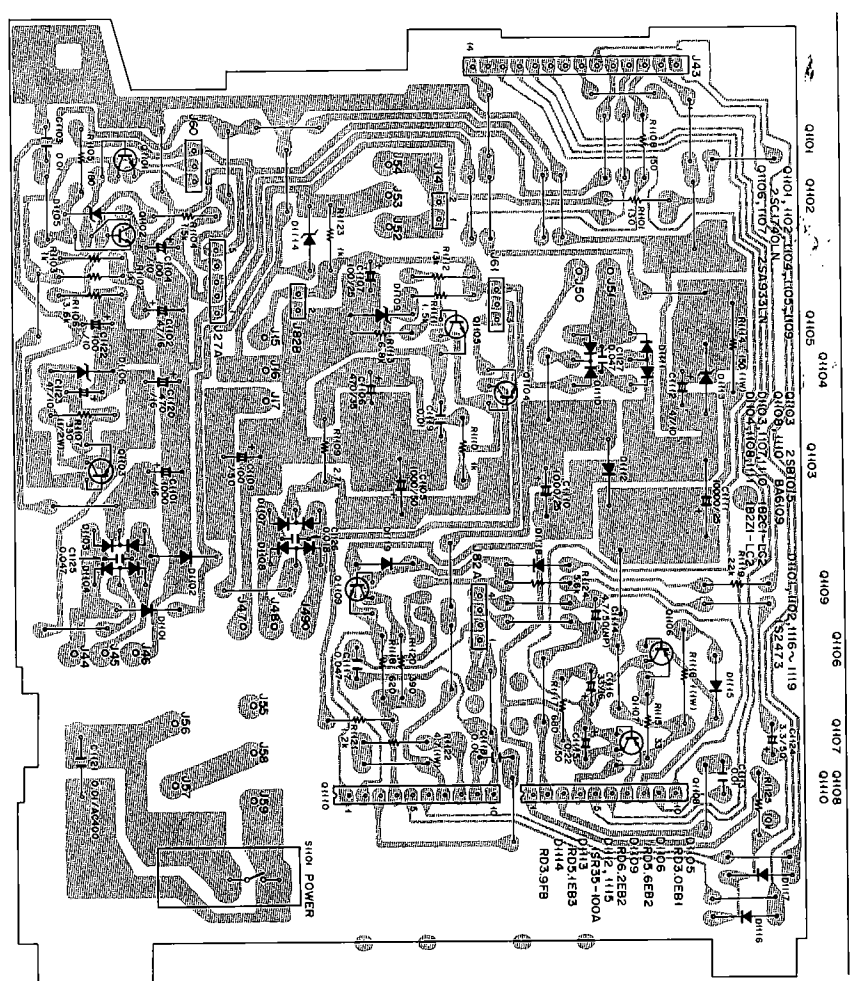
Mark	Symbol & Description	Part No.		Remarks
		for KU type	for HEM type	
⚠	R301, R302	RD1/4PM 200J	RS2PF 200J	
★	V301, V302 Semi-fixed resistor	RCP-145	.....	
	R357 – R360	.....	RD1/4PM 112J	
★★	Q309	2SA933LN	2SA937LN	
★★	Q310	2SC1740LN	2SC2021LN	
⚠★★	Q311	2SB1015	2SB834	
⚠★★	Q312	2SD1406	2SD880	

Power Supply Circuit for D Type

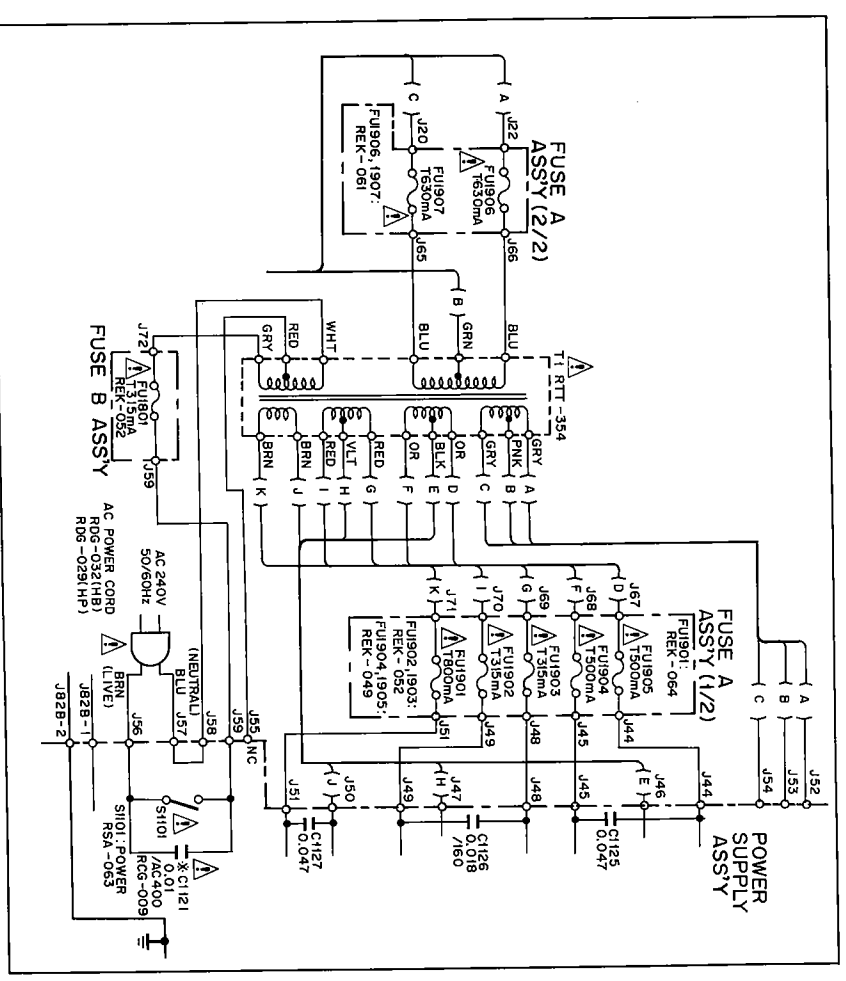




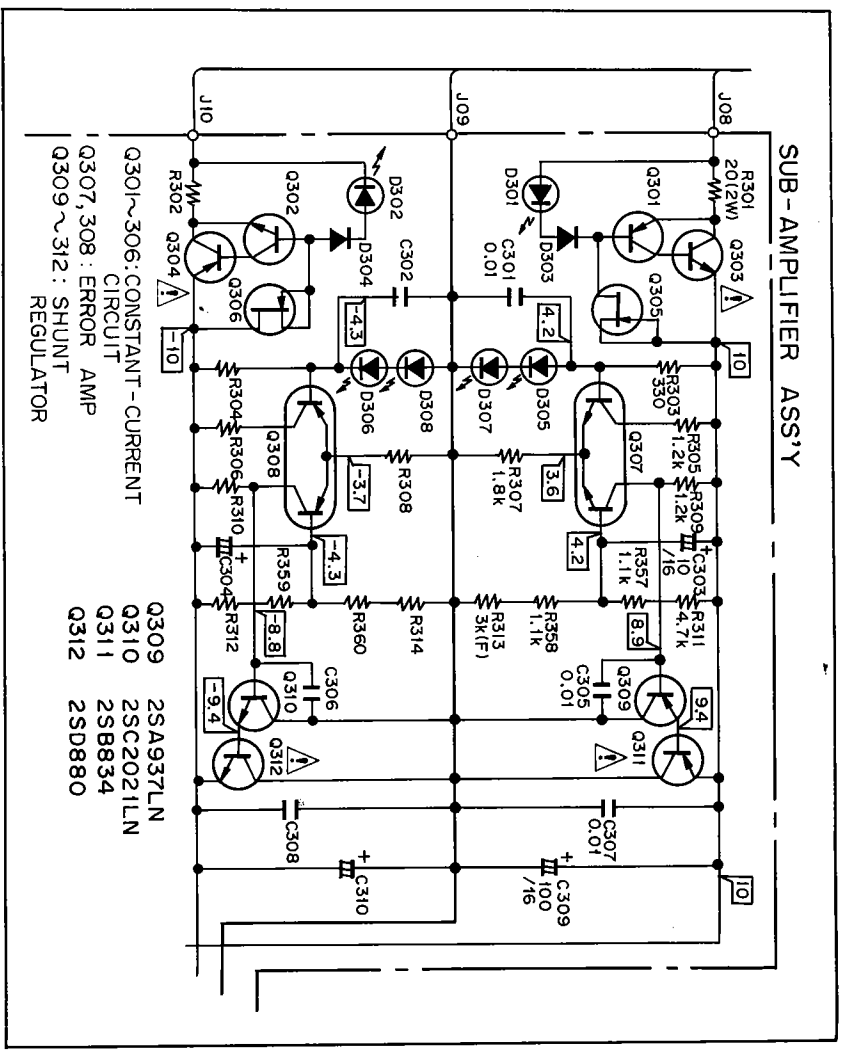
1 2 3



4 5



1 2 3



4 5 6

D

C

B

A

