

Service Manual

REPAIR & ADJUSTMENTS



**ORDER NO.
ARP-835-0**

STEREO CASSETTE TAPE DECK

CT-S88R

CT-S88R(BK)

- Model CT-S88R [BK] is a black version of the CT-S88R.
- Model CT-S88R [BK]/D/G (U.S. Military model) has wooden side panels and the remote control IN/OUT terminals.
- Models CT-S88R [BK] (black) and CT-S88R (silver) come in versions distinguished as follows:

Type	Applicable model		Power requirement	Destination
	CT-S88R [BK]	CT-S88R		
KU	○	—	AC120V only	U.S.A.
KC	○	—	AC120V only	Canada
HEM	○	○	AC220V (240V)*	European continent
HB	○	—	AC240V (220V)*	United Kingdom
D	○	—	AC120V/220V/240V (switchable)	General market
D/G	○	—	AC120V/220V/240V (switchable)	U.S. Military

* Change the primary wiring of the power transformer.

- This service manual is applicable to the KU, KC, HEM, HB, D and D/G types.
- As to the KC, HEM, HB, D and D/G types, please refer to pages 57 — 61.
- As to the circuit descriptions, please refer to the CT-S88R service manual (ARP-836).
- Ce manuel d'instruction se réfère au mode de réglage en français.
- Este manual de servicio trata del método ajuste escrito en español.

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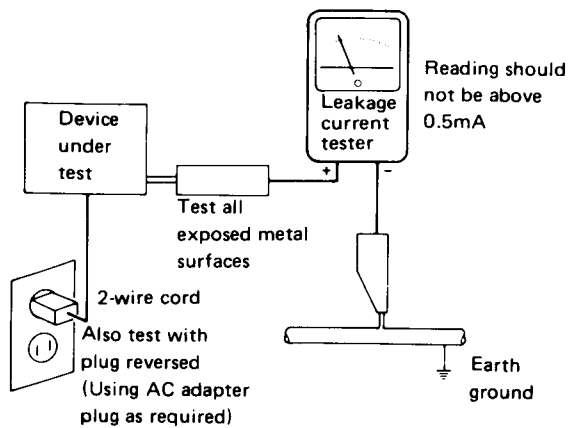
SAFETY INFORMATION

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 ⚠ 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.

1. SPECIFICATIONS

System	4 track, 2-channel stereo
Heads	"Hard Permalloy" recording/playback head x 1 "Ferrite" erasing head x 1
Motor	DC servo motor x 1 DC reel motor x 1 DC assist motor x 1
Wow and Flutter	No more than 0.055% (WRMS) No more than $\pm 0.16\%$ (DIN)
Fast winding Time	Approximately 100 seconds (C-60 tape)
Frequency Response	
-20 dB recording:	
Normal tape	35 to 16,000 Hz ± 3 dB
Chrome tape	35 to 16,000 Hz ± 3 dB
Metal tape	35 to 17,000 Hz ± 3 dB
0 dB recording:	
Chrome tape	30 to 10,000 Hz
Metal tape	30 to 15,000 Hz
Signal-to-Noise Ratio	
Dolby NR OFF	More than 57 dB
dbx ON	92 dB
Noise Reduction Effect	
Dolby NR B type ON	More than 10 dB (at 5 kHz)
Dolby NR C type ON	More than 19 dB (at 5 kHz)
Dynamic range (dbx ON)	110 dB
Harmonic Distortion	No more than 0.7% (0 dB)
Input (Sensitivity)	
LINE (INPUT)	54 mV (Input impedance 96 k Ω)
MIC	0.25 mV (Source impedance 600 Ω)
Output (Reference level)	
LINE (OUTPUT)	316 mV (Output impedance 5.2 k Ω)
Headphone	0.25 mW (Load impedance 8 Ω)

Subfunctions

- Recording/playback auto-reverse (Quick reverse)
- Random programmed playback
- Skip search/music search
- Noise reduction systems (dbx, Dolby NR B/C types)
- Auto tape selector
- Timer stand-by function
- Headphone jack
- Automatic rec' mute function
- Large fluorescent tube
- 4 digit digital tape counter
- Multifunction switches (operation/music selection switch)
- System remote control available (Only D/G model)

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 V/220 V/240 V, 50/60 Hz (switchable)

Power Consumption

KU, KC models	34 W
HEM, HB, HP models	40 W
D, D/G models	28 W

Dimensions (Except for D/G model)

.....	420 (W) x 101 (H) x 318 (D) mm
.....	16-9/16 (W) x 4 (H) x 12-8/16 (D) in
(D/G model)	458 (W) x 102 (H) x 318 (D) mm
.....	18-1/16 (W) x 4 (H) x 12-8/16 (D) in

Weight [(without package) except for D/G model]

.....	5.6 kg (12 lb 6 oz)
[(without package) D/G model]	6.4 kg (14 lb 2 oz)

Accessories

Operating instructions	1
Connection cord with pin plugs	2
Control cord (Only D/G model)	1

NOTE:

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

INFORMATION TO USER [FOR U.S.A. MODEL]

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- reorient the receiving antenna
- relocate this component with respect to the receiver
- move this component away from the receiver
- plug this component into a different outlet so that component and receiver are on different branch circuits.

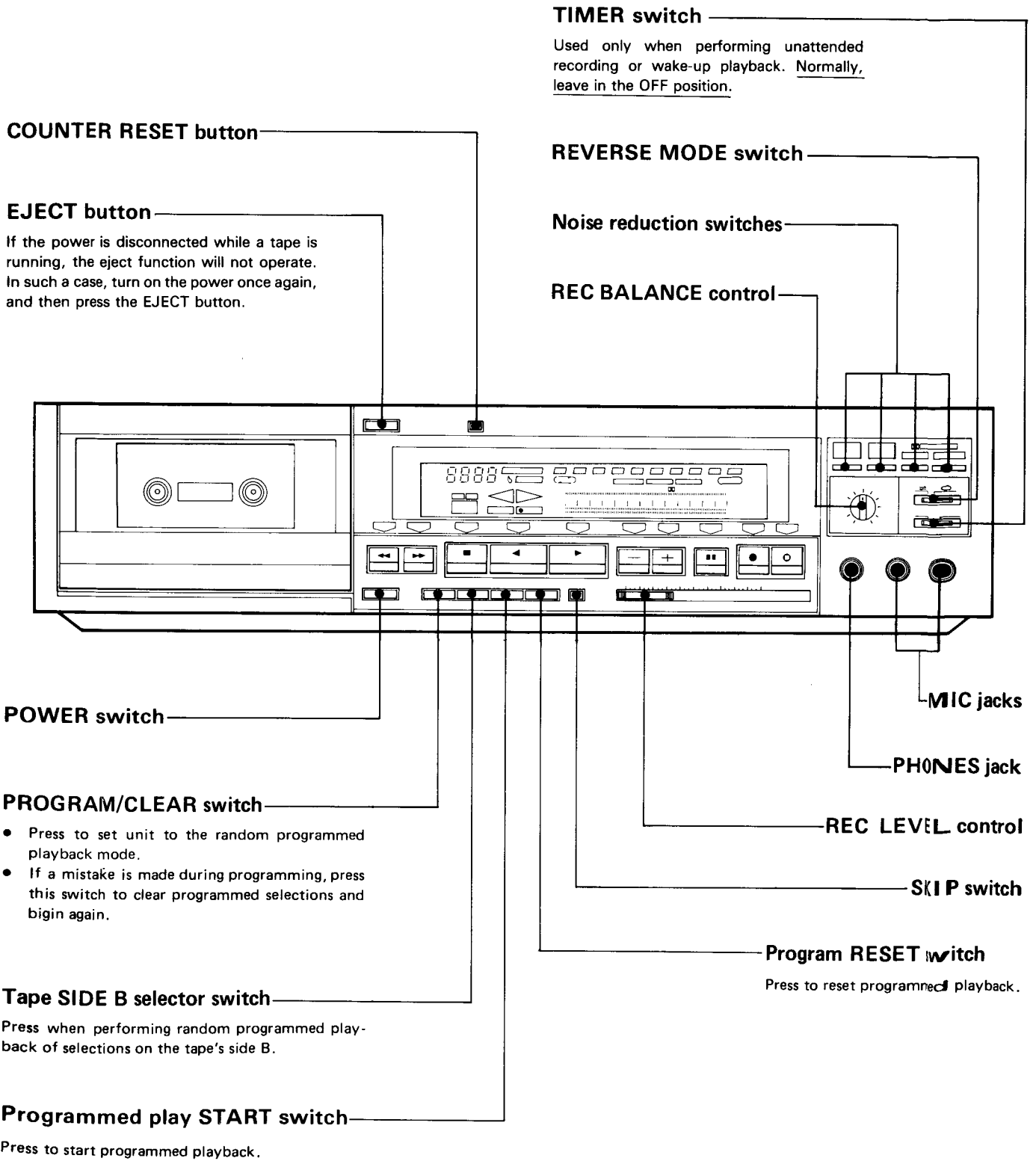
If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

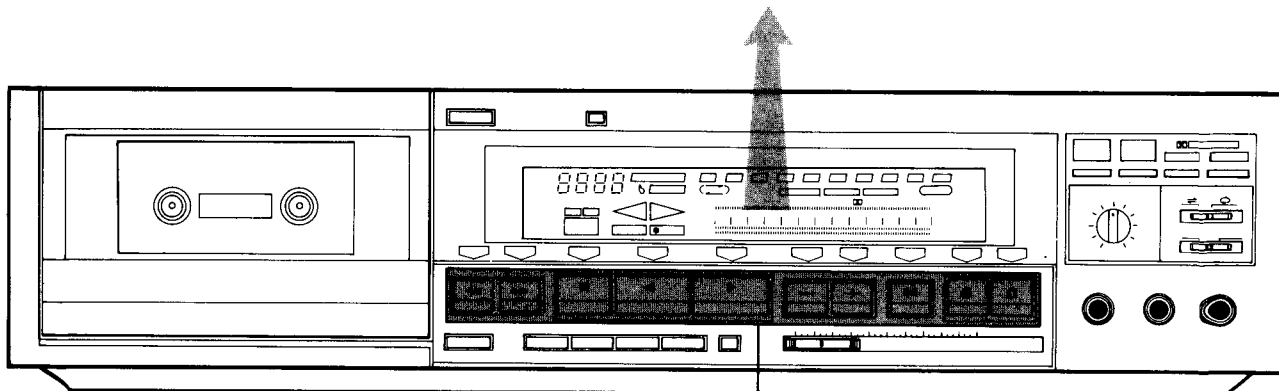
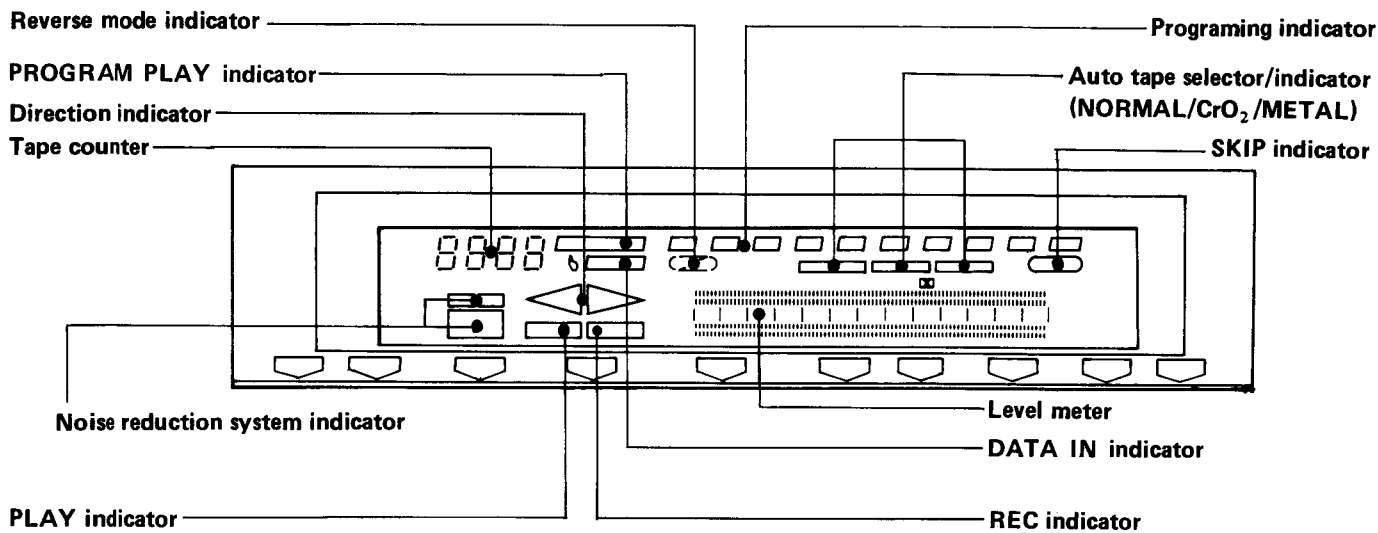
"How to Identify and Resolve Radio-TV Interference Problems".

This booklet is available from the US Government Printing Office, Washington, D.C., 20402, Stock No. 004-000-00345-4.

The above instructions apply only to units which will be operated in the United States.

2. FRONT PANEL FACILITIES





Operating switches/Programming switches

These switches are used for operating deck, and also for programming selections for random programmed playback.

[When used as operating switches]

- ◀ : Rewind switch
- ▶▶ : Fast forward switch
- : STOP switch
- ◀ : REVERSE switch. Press to play back the reverse side of the tape (the side opposite from the side visible in the holder).
- ▶ : FORWARD switch. Press to play back the forward side of the cassette tape (the side visible in the holder).
- : Press when performing skip search and music search.
- +

- : PAUSE switch. Press to temporarily stop the tape travel. To restart the tape travel, press once again. The pause function does not operate when the deck is in the fast forward or rewind modes.
- : REC switch. The deck cannot be placed in the recording mode if a cassette with broken erasure prevention tabs is loaded, or if no tape cassette is loaded.
- : REC MUTE switch. Press during recording to eliminate unwanted portions, or to create a non-recorded interval between tracks.

[When used as programming switches]

Used during random programmed play operation.

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

- dbx is a trademark of DBX incorporated.

3. DISASSEMBLY

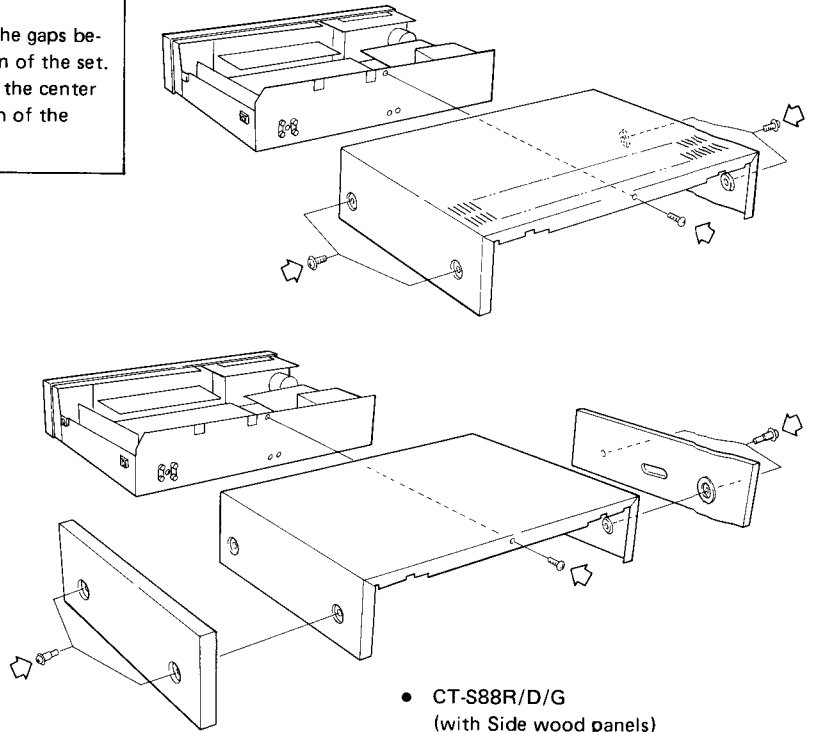
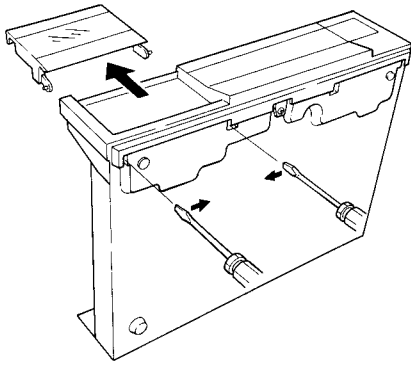
Disassembly of The Tape Transport Unit

1. Remove The Bonnet Case

Undo the screws in the left and right hand sides of the bonnet case (two screws per side) and the screw in the top center of the rear panel. The side wood panels in CT-S88R/D/G are disassembled and reassembled together with the bonnet.

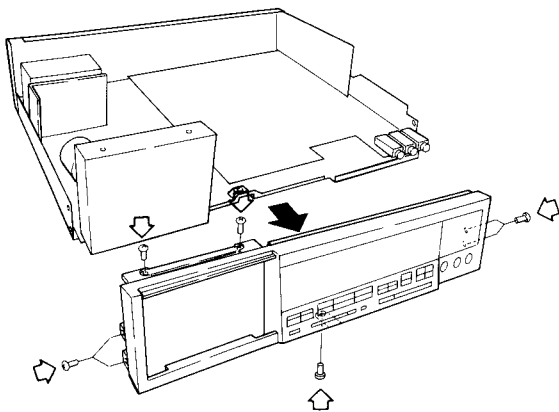
2. Remove The Door

Stand the set upright and insert screwdrivers into the gaps between the front panel and the chassis in the bottom of the set. By bending the hinge sections of the door towards the center of door, the door can be pulled out in the direction of the arrows.



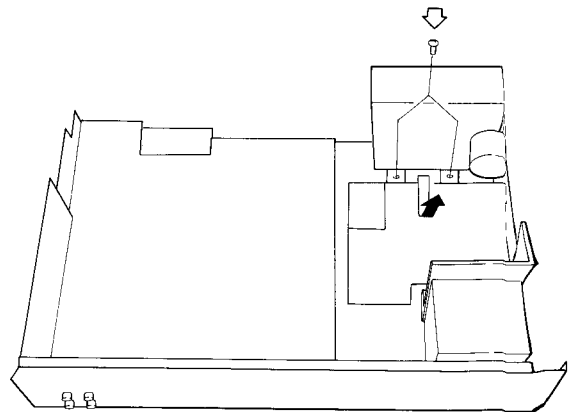
3. Remove The Front Panel

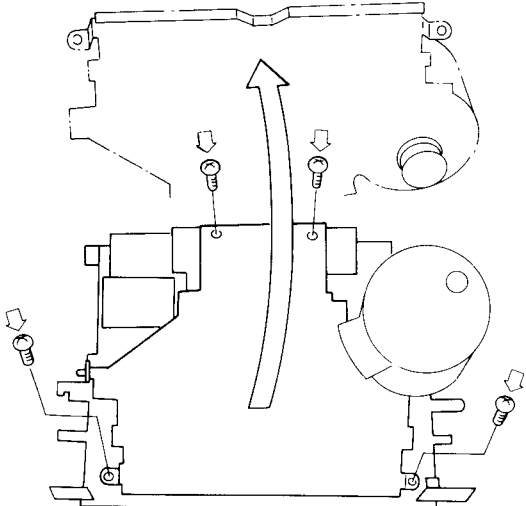
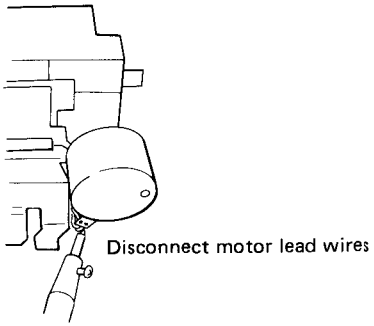
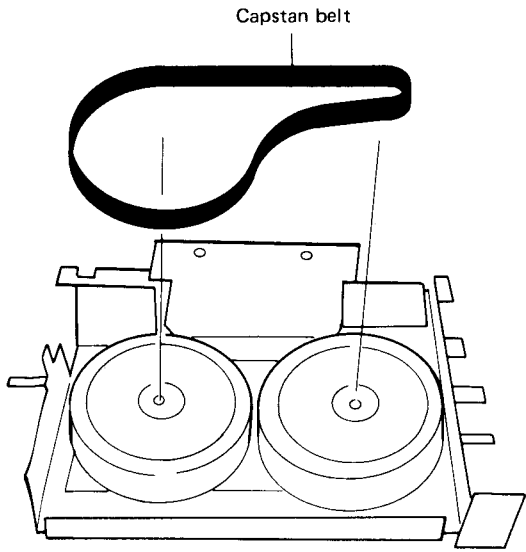
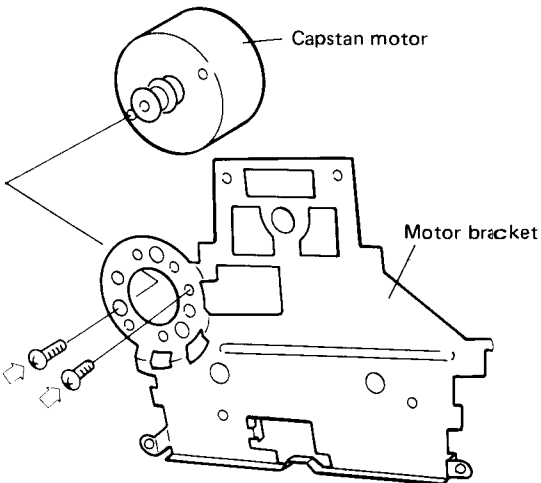
Undo the setscrews in the top of the tape transport unit and the setscrews in the left and right hand sides (two screws each side) and then pull the front panel out forwards.

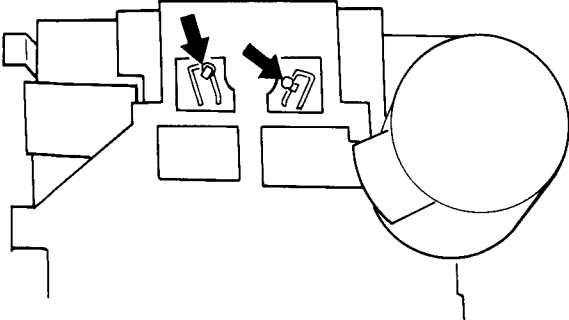
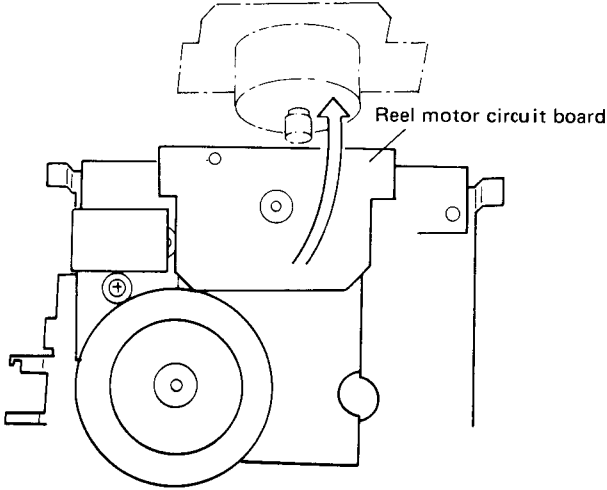
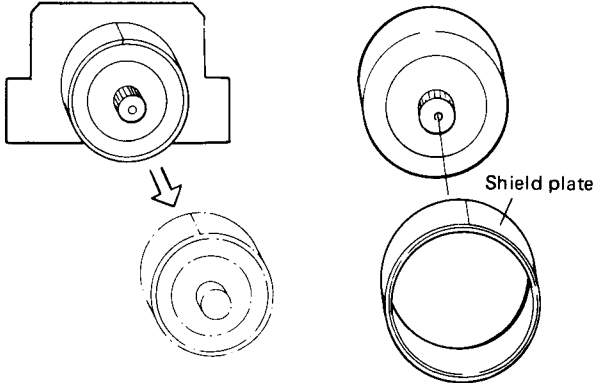
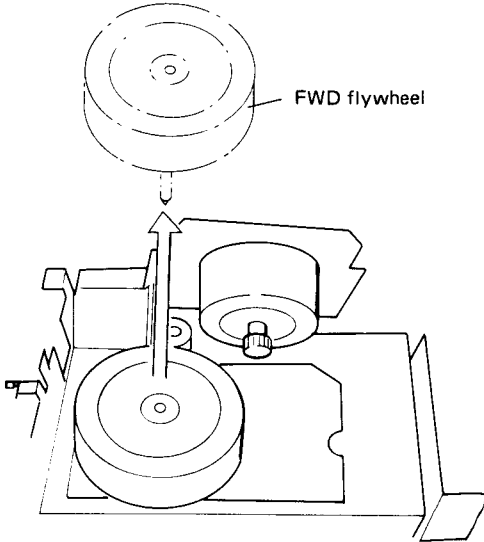


4. Remove The Tape Transport Unit

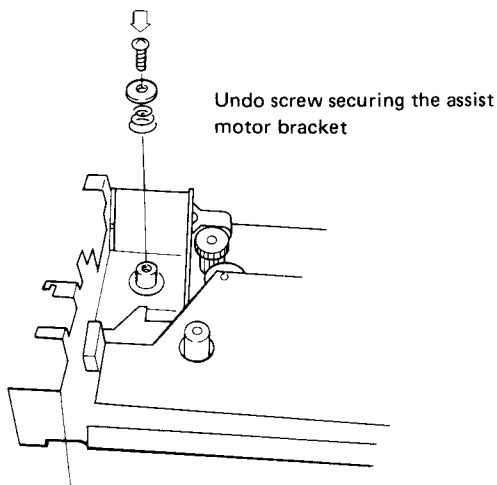
Undo the two setscrews securing tape transport unit and then remove unit by swivelling the unit base back and up.



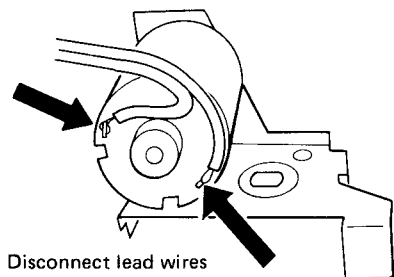
<p>Belt Replacement</p>	<p>Capstan Motor Replacement</p>
<p>1. Remove The Tape Transport Unit from The Chassis (See page 6.)</p>	<p>1. Remove The Tape Transport Unit from The Chassis (See page 6.)</p>
<p>2. Remove The Motor Bracket Undo screws in all four coners to remove the motor bracket from the chassis.</p> 	<p>2. Disconnect The Motor Lead Wires from The motor</p> 
<p>3. Replace The Belt, and Reassemble in The Reverse Order</p>	<p>3. Remove The Motor Bracket (See step 2 in previous procedure.)</p>
	<p>4. Remove Bracket from The Motor, and Replace The Motor</p> 
	<p>5. Reassemble in The Reverse Order (Making sure that the motor is mounted in the correct direction.)</p>
	<p>6. Adjust Tape Speed</p>

Reel Motor Replacement	Assist Motor Replacement
<p>1. Remove The Tape Transport Unit from The Chassis (See page 6.)</p>	<p>1. Remove The Tape Transport Unit from The Chassis (See page 6.)</p>
<p>2. Remove The Motor Bracket (See page 7.)</p>	<p>2. Remove The Motor Bracket (See page 7.)</p>
<p>3. Disconnect The Jumper Leads from The Reel Motor Terminals (Using a soldering iron.)</p> <p style="text-align: center;">Remove the terminal connection leads</p> 	<p>3. Remove The Reel Motor (Together with Its Circuit Board) from The Chassis.</p> 
<p>4. Remove The Reel Motor from The Circuit Board, And Also Remove The Shield Plate.</p> <p>Remove reel motor from circuit board Remove shield plate</p> 	<p>4. Remove The FWD Flywheel</p> 
<p>5. Fit The Shield Plate onto A New Motor And Fix into Position with Bond.</p>	<p>Continued on the next page.</p>
<p>6. Secure by Wrapping Mylar Tape Around The Outside.</p>	
<p>7. Reassemble in The Reverse Order. (Reversing the operations in Step 3 thru 1)</p>	

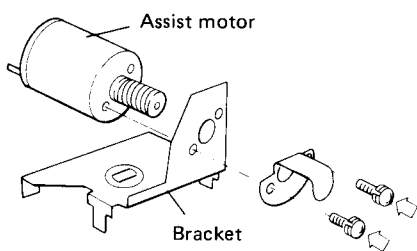
5. Remove The Assist Motor (Together with Corresponding Bracket) from The Chassis.



6. Disconnect The Lead Wires from The Terminals with A Soldering Iron.



7. Remove The Assist Motor from The Bracket



8. Remove The Shield Plate from The Old Motor And Wind And Secure It onto A New Motor.

9. Mount The New Motor into The Bracket.

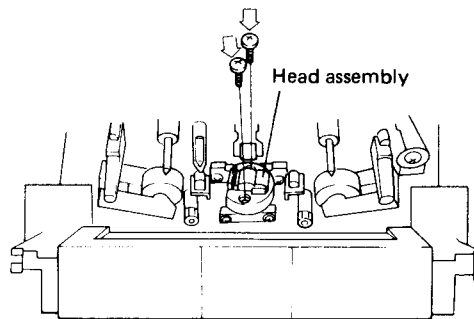
10. Apply Grease to The Worm Gear And to The End of Motor Axle.

11. Reassemble in The Reverse Order (Reversing The Operations in Steps 6 thru 1).

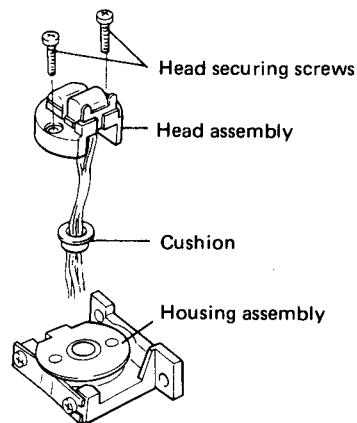
Head Replacement

1. Remove The Tape Transport Unit from The Chassis (See page 6.)

2. Undo The Screws Securing The Head, And Remove The Head Assembly.



3. Remove The Cushion from The Lead Wires, And Then Pass Lead Wires from A New Head Through The Cushion (Making Sure That The Leads Are Passed in The Right Direction)



4. Reassemble in The Reverse Order.

5. Proceed with Tape Transport And Electrical Adjustments.

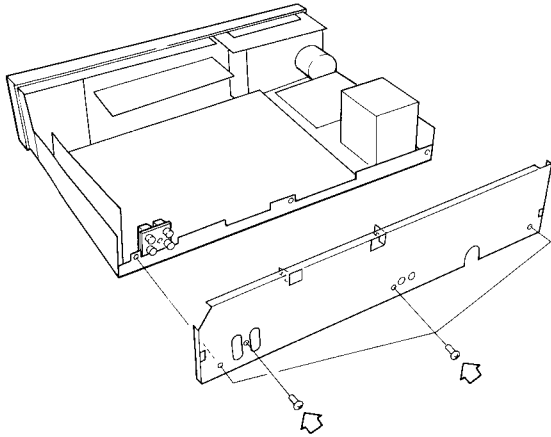
Note: After completing the head replacement procedure, always ensure that the securing screws are sealed.

Main Unit Removal

1. Remove The Bonnet (See page 6.)

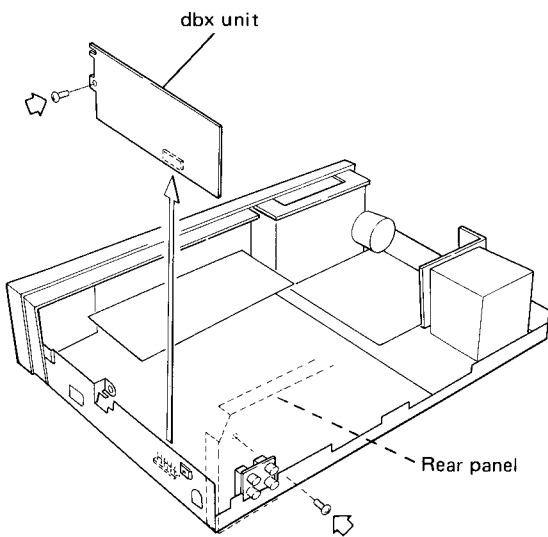
2. Remove The Rear Panel

Undo the three setscrews in the rear panel and a setscrew securing the 4-pin jack. Then release the rear panel hooks by lifting up.



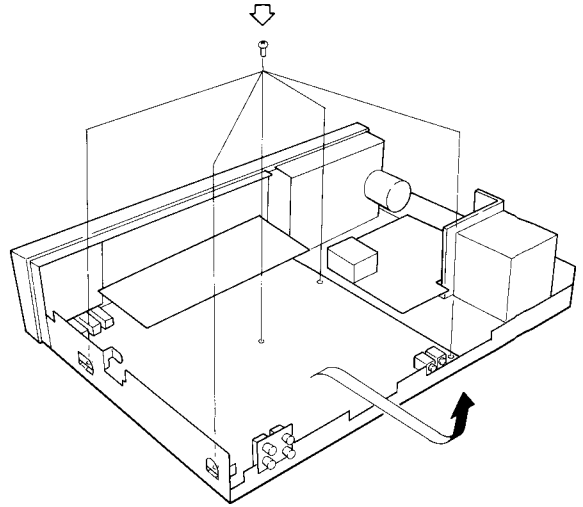
3. Remove The dbx Unit

Undo the one setscrew to remove the dbx unit. (Undo the one setscrew in the rear panel if the rear panel has been not removed.)



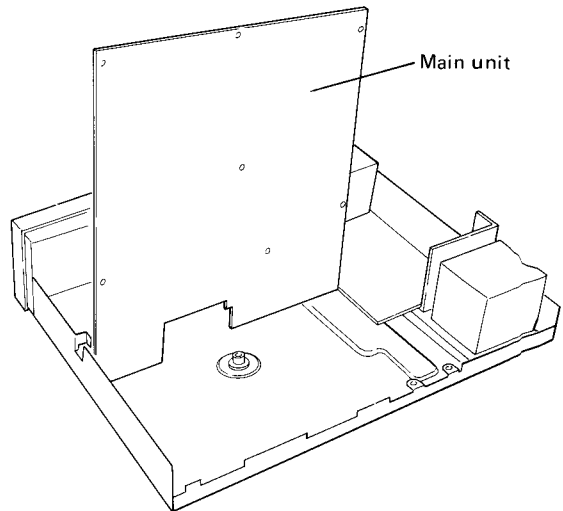
4. Remove The Main Unit

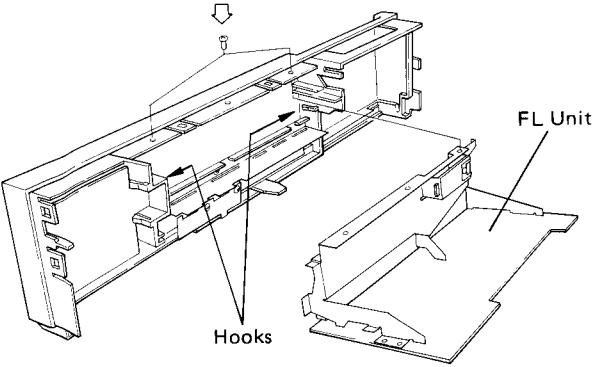
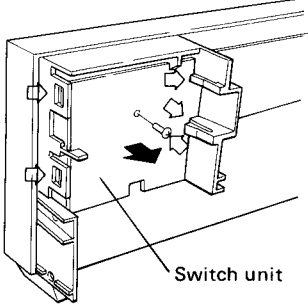
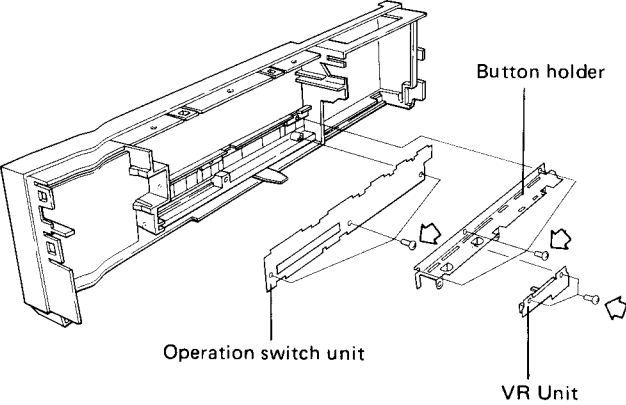
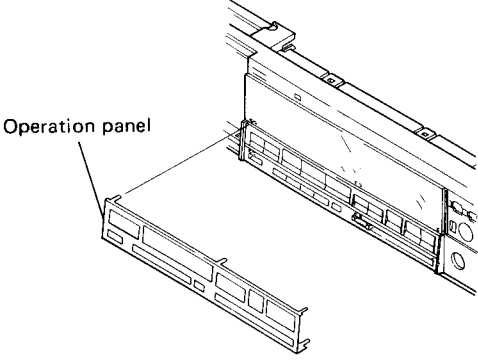
Undo five screws securing the Main unit, and then lift the rear side of the Main unit and pull out backwards.



5. Stand The Main Unit

Cut out wires ties properly and raise up the Main unit.

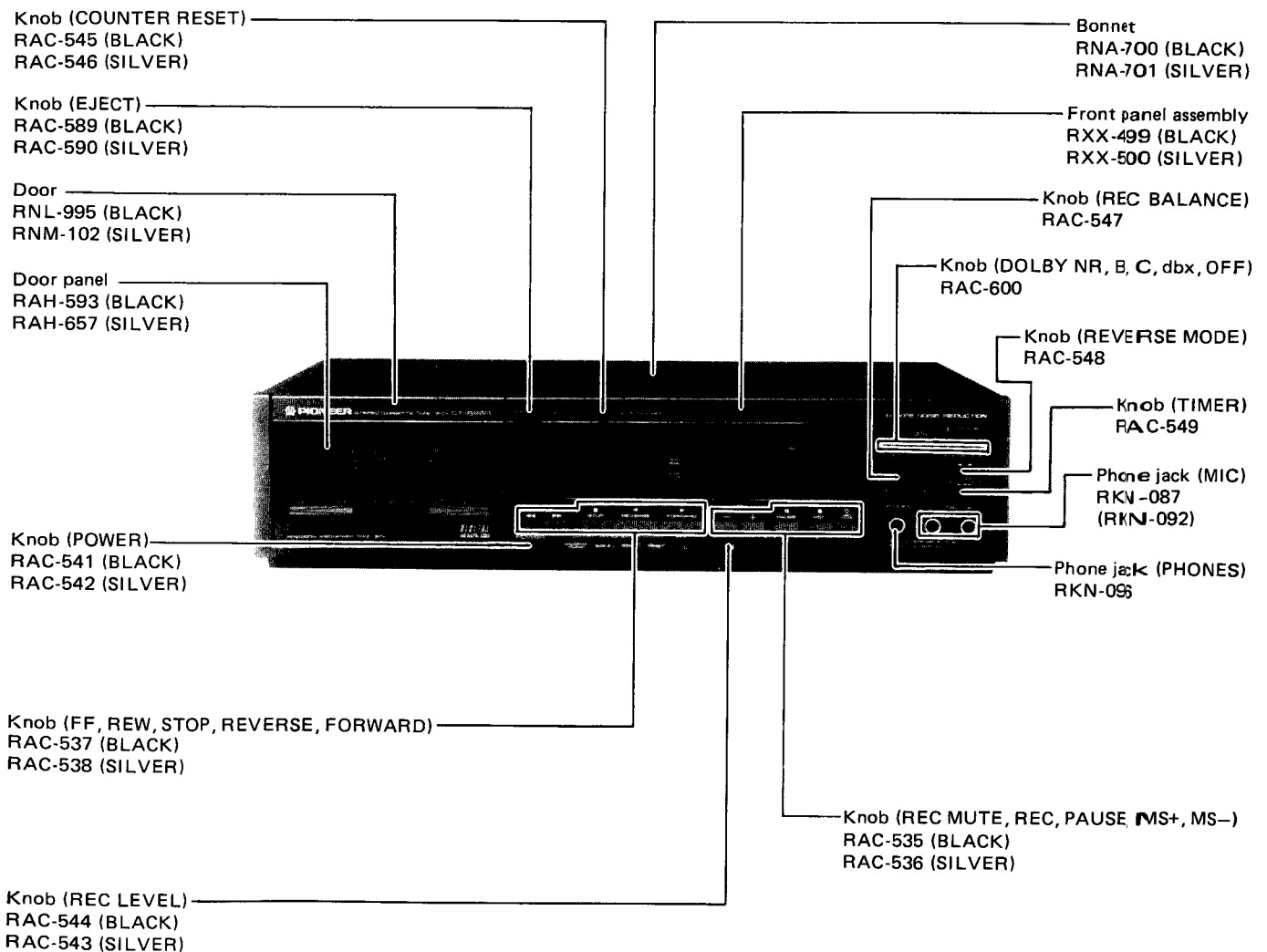


<p>FL Unit Removal</p>	<p>Switch Unit Removal</p>
<p>1. Remove The Bonnet (See page 6.)</p>	<p>1. Remove The Bonnet (See page 6.)</p>
<p>2. Remove The Door (See page 6.)</p>	<p>2. Remove The Door (See page 6.)</p>
<p>3. Remove The Front Panel (See page 6.)</p>	<p>3. Remove The Front Panel (See page 6.)</p>
<p>4. Remove The FL Unit Undo two setscrews at the top and then disengage the two hooks projecting from the inside of the front panel.</p> 	<p>4. Remove The Switch Unit Undo the one screw securing the switch unit, and then disengaging the two hook catches and the two inserting sections, pull the unit out toward the rear.</p> 
<p>VR Unit and Operation Switch Unit Removal</p>	<p>Operation Panel Removal</p>
<p>1. Remove The Bonnet (See page 6.)</p>	<p>1. Remove The Bonnet (See page 6.)</p>
<p>2. Remove The Door (See page 6.)</p>	<p>2. Remove The door (See page 6.)</p>
<p>3. Remove The Front Panel (See page 6.)</p>	<p>3. Remove The Front Panel (See page 6.)</p>
<p>4. Remove The VR Unit Undo the two screws securing the VR unit.</p> <p>5. Remove The Operation Switch Unit Undo the three setscrews, and then remove the unit from the button holder by swivelling towards the rear. (● Undo the three screws securing the button holder.)</p> 	<p>4. Remove The Operation Panel Straighten the operation panel holding bends from the rear of the front panel, and remove the operation panel (struck by the dual-sided adhesive tape).</p> <p>Note: If the operation panel is removed, it is not used again.</p> 

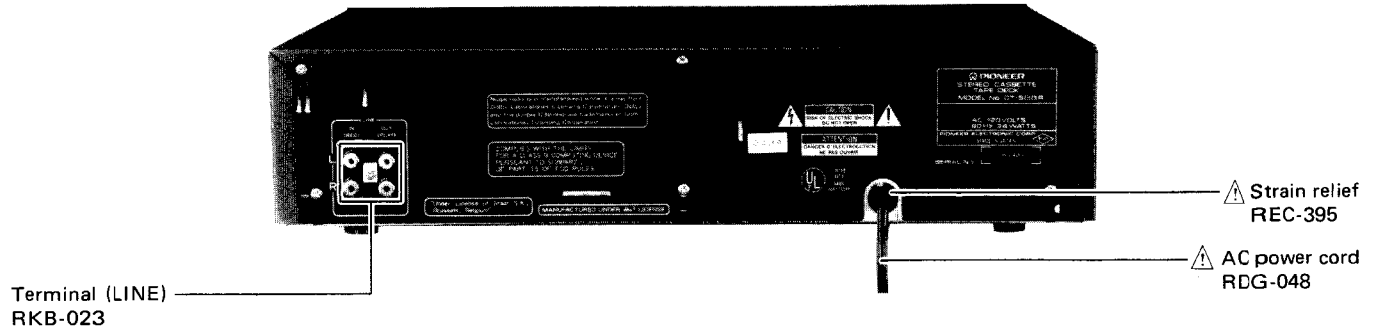
4. PARTS LOCATION

- *Parts without part number cannot be supplied.*
- *The \triangle make 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.

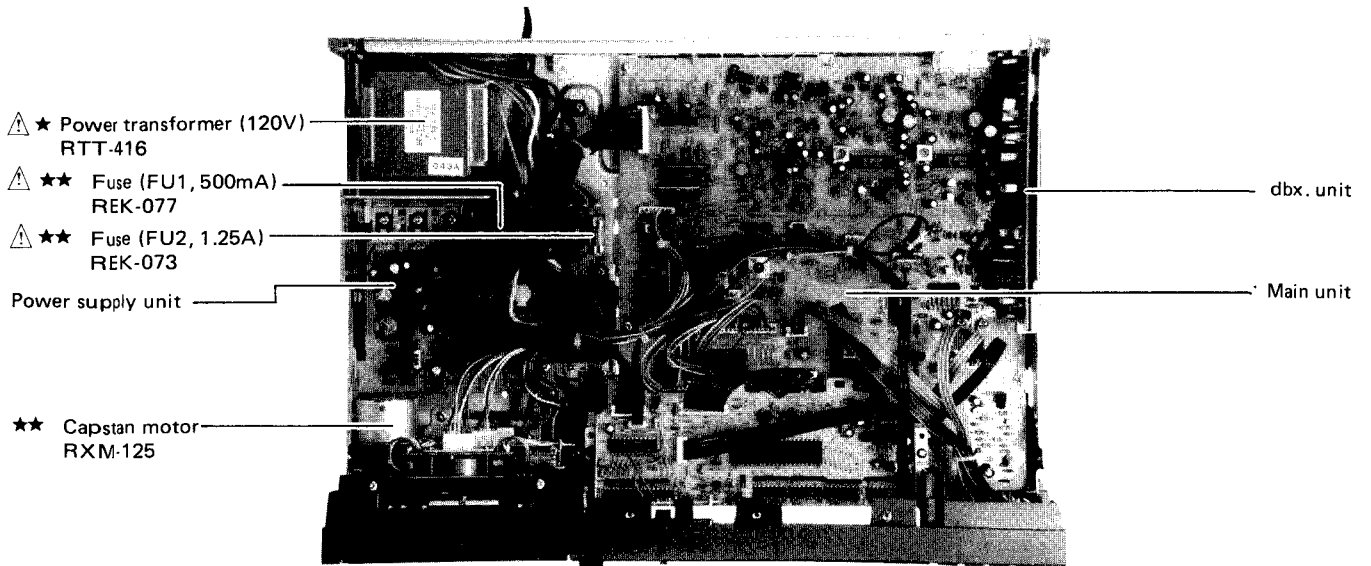
Front Panel View



Rear Panel View (KU type)



Top View (KU type)



5. EXPLODED VIEW AND PARTS LIST

NOTES:

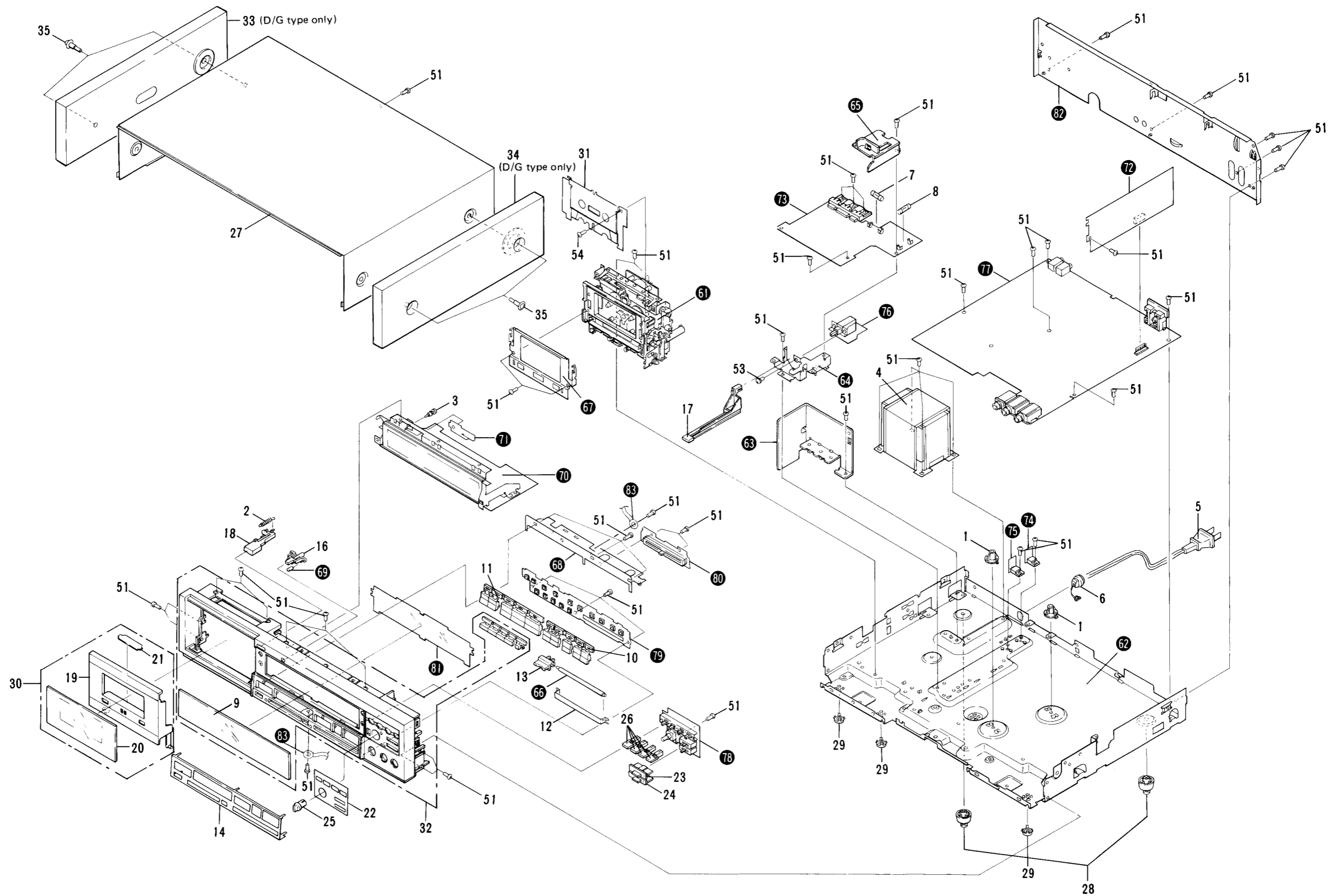
- Parts without part number cannot be supplied.
- The \triangle mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- For your Parts Stock Control, the fast moving items are indicated with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

Parts List of Exploded View

- (BK) : CT-S88R [BK] (Black)
- (SL) : CT-S88R (Silver)

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1	RNL-792	Stud		31	RXX-486	Cassette plate assembly
	2	RBL-137	Eject spring		32	RXX-499 (BK)	Front panel assembly
	3	RBM-014	Nylon rivet			RXX-500 (SL)	
\triangle ★	4	RTT-416	Power transformer (120V)		33	RXX-491	Side wood panel (L) (D/G type only)
\triangle	5	RDG-048	AC Power cord		34	RXX-492	Side wood panel (R) (D/G type only)
\triangle	6	REC-395	Strain relief		35	FBT40P080FZK	Screw 4 x 8 (with out D/G type)
\triangle ★★	7	REK-077	Fuse (FU1, 500mA)			RBA-093	Screw (for D/G type)
\triangle ★★	8	REK-073	Fuse (FU2, 1.25A)		51	BBZ30P080FMC	
	9	RAH-591	Meter panel		52	.....
	10	RAC-535 (BK) RAC-536 (SL)	Knob (MS+, MS-, PAUSE, REC, REC MUTE)		53	PMA30P060FMC	
	11	RAC-537 (BK) RAC-538 (SL)	Knob (FF, REW, STOP, REVERSE, FORWARD)		54	BCT26P100FZK	
	12	RNH-419	VR Plate		61		Tape transport unit
	13	RAC-544 (BK) RAC-543 (SL)	Knob (REC LEVEL)		62		Chassis
	14	RAH-753 (BK) RAH-595 (SL)	Operation panel		63		Heat sink
	15		.....		64		Switch holder
					65		Cover
	16	RAC-545 (BK) RAC-546 (SL)	Knob (COUNTER RESET)		66		VR Shaft
	17	RAC-541 (BK) RAC-542 (SL)	Knob (POWER)		67		Pocket holder
	18	RAC-589 (BK) RAC-590 (SL)	Knob (EJECT)		68		Knob plate
	19	RNL-995 (BK) RNM-102 (SL)	Door		69		Cushion (A)
	20	RAH-593 (BK) RAH-657 (SL)	Door panel		70		FL Unit
	21	RAH-603 (BK) RAH-752 (SL)	Door plate		71		Reset switch unit
	22	RAH-592	NR Plate		72		dbx unit
	23	RAC-548	Knob (REVERSE MODE)		73		Power supply unit
	24	RAC-549	Knob (TIMER)		74		Transistor unit A
	25	RAC-547	Knob (REC BALANCE)		75		Transistor unit B
	26	RAC-600	Knob (DOLBY NR, B, C, dbx, OFF)		76		Power switch unit
	27	RNA-700 (BK) RNA-701 (SL)	Bonnet		77		Main unit
	28	REC-369	Leg assembly		78		Switch unit
	29	RNM-046	Leg		79		Operation switch unit
	30	RXX-496 (BK) RXX-507 (SL)	Door assembly		80		VR Unit
					81		Meter screen
					82		Rear panel
					83		Grounding lead wire

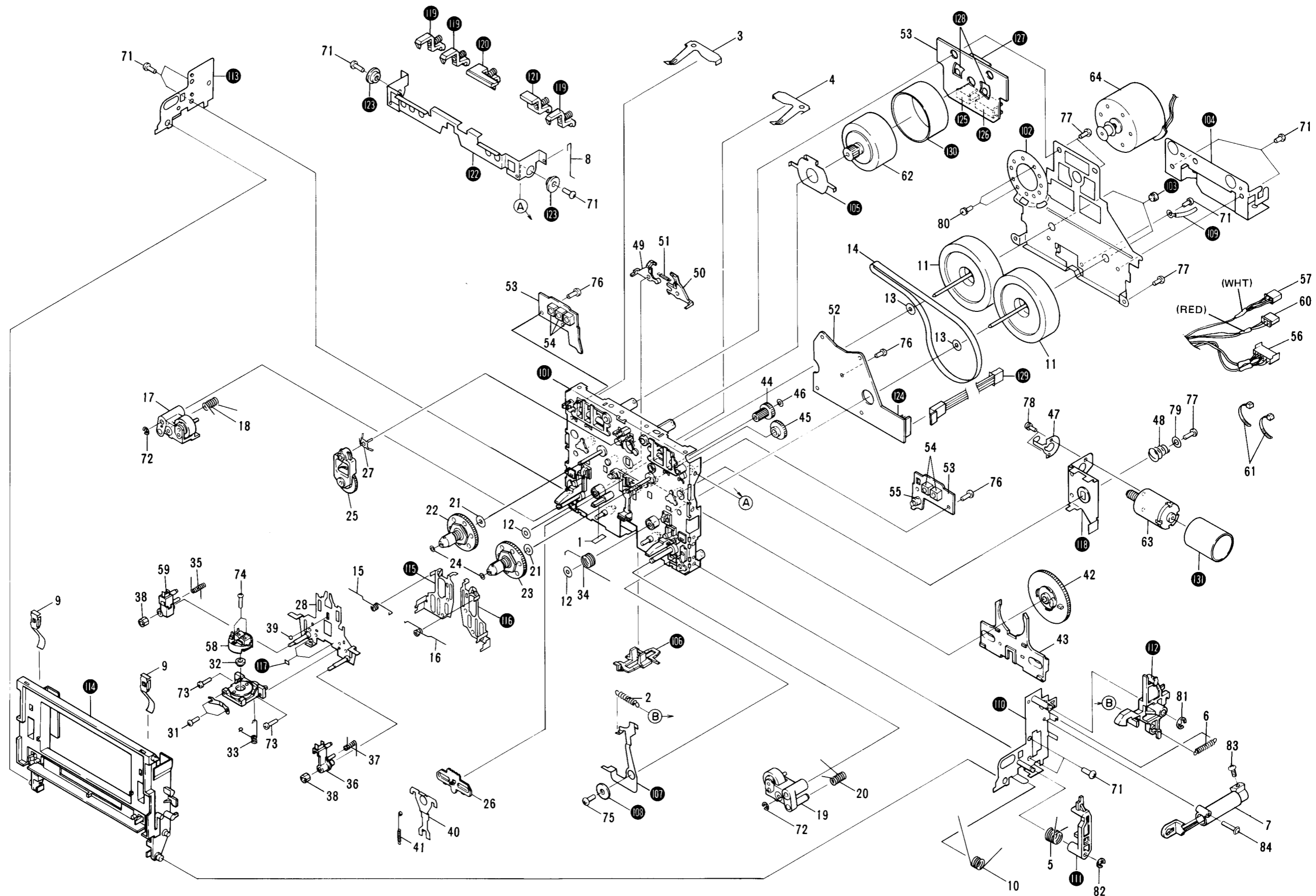
Exterior Components



Tape Transport Unit

A
B
C
D

A
B
C
D



NOTES:

- *Parts without part number cannot be supplied.*
- *The Δ 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.

Parts List of Tape Transport Unit

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
					46	RBF-057	Washer
					47	RBK-187	Thrust spring
					48	RBL-090	BKT spring
					49	RNL-936	Brake lever (L)
					50	RNL-937	Brake lever (R)
					51	RBL-092	Brake spring
					52	RNR-321	Sensor panel
					53	RNR-270	P.C. board
				★★	54	RSG-162	Tact switch
				★	55	NJL5141E	Photo-interrupter
					56	RKS-029	Connector (6-P)
					57	RKS-030	Connector (3-P)
				★★	58	RPB-120	Tape head assembly
				★★	59	RXC-049	Sensor assembly
					60	RKS-031	Connector (3-P)
					61	REC-371	Wire tie
				★★	62	RXM-122	Reel motor assembly
				★★	63	RXM-134	Assist motor assembly
				★★	64	RXM-125	Capstan motor assembly
					71	PVZ30P040FMC	Screw 3 x 4
					72	YE20FUC	Washer E-type
					73	PMA20Y050FMC	Screw 2 x 5
					74	PMZ14P050FNi	Screw 1.4 x 5
					75	PVZ30P060FMC	Screw 3 x 6
					76	PRZ20P060FMC	Screw 2 x 6
					77	PRZ26P080FMC	Screw 2.6 x 8
					78	PMA20P030FZB	Screw 2 x 3
					79	WB30FMC	Washer
					80	PMA26P040FMC	Screw 2.6 x 4
					81	YE30FUC	Washer E-type
					82	YE25FUC	Washer E-type
					83	PMZ26P040FMC	Screw 2.6 x 4
					84	iCZ20P120FMC	Screw 2 x 12
					101		Chassis
					102		Motor bracket
					103		Thrust screw
					104		Hold plate
					105		Grounding plate
					106		Wire holder
					107		Eject prevention arm (R)
					108		Spacer
					109		Cord fixer
					110		Bracket assembly
1	REF-025		Reflection plate				
2	RBL-091		Eject prevention spring				
3	RBK-188		Hold spring (L)				
4	RBK-189		Hold spring (R)				
5	RBL-076		Stopper spring (R)				
6	RBL-077		Eject arm spring				
7	RXC-036		Damper assembly				
8	RBL-078		Rod (R)				
9	RNH-349		Hold spring				
10	RBL-079		Door spring (R)				
11	RXC-037		Flywheel assembly				
12	RBF-030		Oil stopper washer				
13	WA26D045D025		Washer				
★★	14	REB-522	Capstan belt				
	15	RBL-080	SB spring (L)				
	16	RBL-081	SB spring (R)				
★★	17	RXC-038	Pinch roller assembly (L)				
	18	RBL-082	Pinch roller spring (L)				
★★	19	RXC-039	Pinch roller assembly (R)				
	20	RBL-083	Pinch roller spring (R)				
	21	WA21D070D013	Washer				
	22	RXC-040	Reel base assembly				
	23	RXC-075	TU reel base assembly				
	24	RBF-057	Washer				
★★	25	RXC-076	Idler assembly				
	26	RNL-926	C/R slide plate				
	27	RBK-191	Damper spring				
	28	RXC-042	Head base plate				
	29	RXC-043	Head housing				
	30	RBK-184	Azimuth spring				
	31	RBA-092	Azimuth screw				
	32	REB-521	Cushion				
	33	RBL-085	Rotator spring				
	34	RBL-086	HB spring				
	35	RBL-087	Spring (L)				
	36	RNL-929	Tape guide				
	37	RBL-088	Spring (R)				
	38	RNL-930	Nut				
	39	REF-024	Steel ball				
	40	RBK-185	Hold spring				
	41	RBL-089	CR slide spring				
	42	RXC-044	Gear assembly				
	43	RNL-932	Switching slide plate				
	44	RNM-103	Worm gear				
	45	RNL-934	Idler gear				

• Continued on the next page below.

6. ELECTRICAL PARTS LIST

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 ¹	561	RD¼PS	561J
47kΩ	47 × 10 ³	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 ¹	5621	RN¼SR	5621F
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- The **Δ** 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.

Miscellaneous Parts

P.C. BOARD ASSEMBLIES

Mark	Symbol & Description	Part No.
	Main unit	Non supply
	Switch unit	
	Operation switch unit	
	VR Unit	
	Power supply unit	
	Transistor A unit	
	Transistor B unit	
	Power switch unit	
	FL Unit	
	Reset switch unit	
	dbx unit	

FUSES

Mark	Symbol & Description	Part No.
Δ★★	FU1 Fuse (500mA)	REK-077
Δ★★	FU2 Fuse (1.25A)	REK-073

TAPE TRANSPORT UNIT

Mark	Symbol & Description	Part No.
★★	S1501 Tact switch (AR-REV)	RSG-162
★★	S1502 Tact switch (DOOR)	RSG-162
★★	S1503 Tact switch (AR-FWD)	RSG-162
★★	S1504 Tact switch (METAL DET.)	RSG-162
★★	S1506 Tact switch (CrO ₂ DET.)	RSG-162
★★	CM Capstan motor	RXM-125
★★	RM Reel motor	RXM-122
★★	AM Assist motor	RXM-134
★★	Sensor assembly (Leader tape DET.)	RXC-049
★★	Tape head assembly	RPB-120
★★	Photo-interrupter (Tape end DET.)	NJL5141E

OTHERS

Mark	Symbol & Description	Part No.
Δ★	T1 Power transformer (120V)	RTT-416
Δ	AC Power cord	RDG-448
Δ	Strain relief	REC-395

Continued from the preceding page

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	111		Stopper (R)		124		Connector (6-P)
	112		Eject arm (R)		125		Connector (3-P)
	113		Side plate (A)		126		Connector (6-P)
	114		Door frame		127		Connector (7-P)
	115		Slide base (L)		128		Jumper wire
	116		Slide base (R)		129		Connector (6-P)
	117		Spacer		130		Shield plate
	118		Assist motor bracket (R)		131		Shield plate
	119		REC detector assembly				
	120		Metal detector assembly				
	121		Eject detector assembly				
	122		Detector arm				
	123		Spacer				

Main Unit

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	Q330	PD3031A
★★	Q331	LC7800
★★	Q114, Q214	AN7370K
★★	Q113	M5220L
★★	Q115, Q118, Q119	M5218L
★★	Q332	TC5066BP
★★	Q324, Q325	BA6109
★★	Q327	M5233P
★★	Q326	BA335
★★	Q101 - Q108, Q116, Q201 - Q208, Q216, Q301, Q305, Q309, Q314, Q317, Q320 - Q323	2SC1740S
★★	Q306, Q307, Q315, Q318, Q319	2SA933S
★★	Q302 - Q304	2SC2060
★★	Q117, Q217	2SC2240
★★	Q110, Q111, Q210, Q211	2SK246
★★	Q109, Q112, Q209, Q212	2SJ103
★	D301 - D305, D307 - D319, D324 - D330	1S2473
△ ★	D306	1SR35-100A
△ ★	D323	RD3.0FB1
★	D320-D322 (D/G type only)	1S2473

COILS

Mark	Symbol & Description	Part No.
	L301 OSC Coil	RTD-038
	L103, L203 Trap coil	RTF-152
	L101, L201 MPX Filter	RTF-138
	L104, L204 Peaking coil (6.8mH)	RTF-126
	L105, L205 Trap coil	RTF-153
	L102, L202 Coil (36mH)	RTF-155

CAPACITORS

Mark	Symbol & Description	Part No.
	C129, C229, C323	CEAR10M50
	C122, C222	CEJAR15M50
	C130, C230, C140, C240	CEJAR33M50
	C123, C223, C176, C276, C316	CEAR47M50
	C138, C238, C174, C274, C311, C325, C335	CEA010M50
	C132, C142, C232, C242, C315	CEA4R7M50
	C107, C113, C120, C124, C125, C133, C135, C136, C141, C148, C150 - C152, C178, C207, C213, C220, C224, C225, C233, C235, C236, C241, C248, C251, C252, C278, C308, C317	CEA100M16
	C104, C106, C137, C204, C206, C304, C313, C320, C334, C342	CEA330M16
	C175, C309, C310, C314, C344	CEA470M16
	C177, C277, C275	CEA101M16

Mark	Symbol & Description	Part No.
	C114, C214	CEA471M16
	C111, C112, C211, C212, C172, C272	CEANL010M50
	C102, C202	CEANL100M16
	C109, C209, C145, C245	CQMA222J50
	C322, C331	CQMA682K50
	C126, C139, C226, C239	CQMA182J50
	C110, C210, C306, C307	CQMA332J50
	C118, C218	CQMA472J50
	C116, C147, C216, C247	CQMA822J50
	C105, C127, C144, C146, C205, C227, C244, C246	CQMA103J50
	C108, C208	CQMA153J50
	C305	CQMA223J50
	C115, C119, C215, C219	CQMA273J50
	C117, C128, C217, C228, C324	CQMA333J50
	C321	CQMA104K50
	C303	CQPA183J100
	C101, C201	CQSA821J50
	C318, C319	CCDCH300J50
	C301, C302	CCDSL101K500
	C103, C131, C134, C173, C203, C231, C234, C273, C333, C336	CCDSL101J50
	C143, C243	CCDSL221J50
	C121, C171, C221, C271	CKDYB471K50
	C312, C326, C327, C329, C337 - C341, C343, C345	CKDYF103Z50
	C170, C270	CKDYF473Z50
	C328, C330	CKDYX104M25

RESISTORS

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Symbol & Description	Part No.
★	V101, V201, V303 Semi-fixed (10k-B)	VRTB6VS103
★	V102, V103, V202, V203 Semi-fixed (22k-B)	VRTB6VS223
★	V301, V302 Semi-fixed (150k-B)	VRTB6VS154
	R339 Resistor array (10k x 6, 22k x 2)	RCX-029
	R346 Resistor array (22k x 4, 22k x 4)	RCX-028
	R338 Resistor array (22k x 7)	RM7-223J
△	R108, R276, R308	RD1/2PMF □□□J
	R102 - R105, R108, R109, R133, R134, R141, R146, R147, R150, R170, R171, R173-R176, R178 - R181, R203 - R205, R209, R212, R213, R233, R234, R241, R263, R266, R270, R271, R273 - R280, R285, R301, R302, R308, R309, R313, R317, R323, R333, R337, R344, R345, R349, R353 - R355, R367, R369, R470	RD1/4PM □□□J
	R329, R343 (D/G type only)	RD1/4PM □□□JNL
	R172, R272	RD1/6PM □□□J
	Other resistors	RD1/6PM □□□J

OTHERS

Mark	Symbol & Description	Part No.
★★	RY301 Reed relay	RSR-035
	Terminal (LINE)	RKB-023
	S101, S202 Phone jack (MIC)	RKN-092
	Phone jack (PHONES)	RKN-096
★	X301 Ceramic resonator	RSS-035
	J20 Connector 8P	RKP-590

Switch Unit

SWITCHES

Mark	Symbol & Description	Part No.
★★	S501 - S503 Push switch assembly B (dbx, DOLBY NR B,C)	RSG-171
★★	S504 Slide switch (TIMER)	RSH-064
★★	S505 Slide switch (REVERSE MODE)	RSH-066

RESISTORS

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Symbol & Description	Part No.
★	V501 Variable (5k-B) (REC BALANCE)	RCS-030
	R501, R502	RD1/6PM □□□J

Operation Switch Unit

SWITCHES

Mark	Symbol & Description	Part No.
★★	S701 - S715 Tact switch (REW/1, FF/2, STOP/3, REV-PLAY/4, FWD-PLAY/5, MS-/6, MS+/7, PAUSE/8, REC/9, REC MUTE/10, PROGRAM/CLEAR, SIDE B, START, RESET, SKIP)	RSG-155

VR Unit

RESISTOR

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. before.

Mark	Symbol & Description	Part No.
★	V801 Slide variable (5k-A) (REC LEVEL)	RCW-014

Power Supply Unit

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
△ ★★	Q401, Q402	2SD1276
△ ★★	Q404	2SD1265
★★	Q403, Q407, Q409, Q410, Q411, Q413	2SC1740S
★★	Q405, Q406, Q408, Q412	2SA933S
△ ★	D401	S4VB20F
△ ★	D418	1B2Z1-LC2
△ ★	D419	1B2C1-LC2
△ ★	D403 - D406	1SR35-100A
★	D407, D414 - D417, D420, D421	1SS254
△ ★	D409	RD15EB3 (MTZ15C)
△ ★	D410, D411	RD5.6EB2 (RD5.6EB3) (MTZ5.6B) (MTZ5.6C)
△ ★	D412	RD27EB1 (RD27EB2) (MTZ27A) (MTZ27B)
△ ★	D413	RD20EB1 (RD20EB2) (MTZ20A) (MTZ20B)

CAPACITORS

Mark	Symbol & Description	Part No.
	C429	CEA2R2M50
	C418	CEA3R3M50
	C427	CEA4R7M50
	C403, C432, C433	CEA100M16
	C412	CEA470M10
	C408, C413, C425, C426	CEA470M25
	C416	CEA470M50
	C414	CEA101M10
	C411	CEA101M16
	C402, C424	CEA101M25
	C420	CEA101M35
	C405, C428	CEA221M16
	C415	CEA221M50
	C410	CEA102M16
	C401, C407	CEA102M35
	C419	CEA472M16
	C404, C409, C417, C430, C431	CKDYF103Z50
	C406	CKDYF473Z50

RESISTORS

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Symbol & Description	Part No.
△	R406	RS1LF122J
△	R401, R403, R407, R408	RD1/2PMF □□□J
	R402, R404, R405, R414, R423	RD1/4PM □□□J
	Other resistors	RD1/6PM □□□J

OTHERS

Mark	Symbol
△	Fuse h

Transistor U

SEMICONDUCTOR

Mark	Symbol
△ ★★	Q1301

Transistor U

SEMICONDUCTOR

Mark	Symbol
△ ★★	Q1201

Power Switch

SWITCH

Mark	Symbol
△ ★★	S1401

CAPACITOR

Mark	Symbol
△	C1401

FL Unit

SEMICONDUCTOR

Mark	Symbol
★★	Q603
★★	Q604
★★	Q613
★★	Q607
★★	Q611
★★	Q601
★★	Q614
★★	Q619
★	D601
△ ★	D607

OTHERS

Mark	Symbol & Description	Part No.
△	Fuse holder	RKR-024

Transistor Unit A

SEMICONDUCTOR

Mark	Symbol & Description	Part No.
△★★	Q1301	2SD1265

Transistor Unit B

SEMICONDUCTOR

Mark	Symbol & Description	Part No.
△★★	Q1201	2SD1265

Power Switch Unit

SWITCH

Mark	Symbol & Description	Part No.
△★★	S1401 Push switch (POWER)	RSA-063

CAPACITOR

Mark	Symbol & Description	Part No.
△	C1401 Ceramic (0.01/AC400V)	RCG-006 (RCG-009)

FL Unit

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	Q603	LC7555
★★	Q604	TA7318P
★★	Q613	PDE004
★★	Q607 - Q610	TC5066BP
★★	Q611, Q612	TC5067BP
★★	Q601, Q622, Q623	2SC1740S
★★	Q614 - Q616, Q618, Q624	2SA933S
★★	Q619 - Q621, Q625	DTC143XS
★	D601, D602	1SS254
△★	D607	MTZ9.1A (MTZ9.1B) (RD9.1EB1) (RD9.1EB2)

CAPACITORS

Mark	Symbol & Description	Part No.
	C605, C606	CEJAR22M50
	C604	CEAR47M50
	C602, C603	CEA010M50
	C607, C608	CEA4R7M50
	C613,	CEA100M16
	C614	CEA100M35
	C611	CEA470M16
	C601, C609	CEA330M16
	C610	CQMA102J50
	C615, C616	CKDYF103Z50
	C612	CQSA221J50

RESISTORS

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Symbol & Description	Part No.
★	V601 Semifixed (150k-B)	VRTB6VS154
△	R603, R661	RD1/2PMF □□□J
	R638 - R641	RM7-103J
	Resistor array (10k x 7)	
	R619 Resistor array (47k x 14)	RM14-473J
	R614 - R618	RCX-030
	Resistor array (100k x 12)	
	Other resistors	RD1/6PM □□□J

OTHERS

Mark	Symbol & Description	Part No.
	FL tube tape	REH-014
	Nylon rivet	RBM-014
★	Fluorescent display tube	FIP13AW24Y

Reset Switch Unit

SWITCH

Mark	Symbol & Description	Part No.
★★	S1101 Push switch (COUNTER RESET)	RSG-155

dbx Unit

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
★★	Q913	AN6291
★★	Q914	M5218L
★★	Q901 - Q912, Q915, Q919	2SC1740SLN
★★	Q916 - Q918	2SA933S
△★	D903	RD5.6EB1 (RD5.6EB2) (MTZ5.6A) (MTZ5.6B)
★	D901, D902	1S2473

CAPACITORS

Mark	Symbol & Description	Part No.
	C946	CEA101M16
	C947	CEA331M10
	C939, C940, C945	CEA330M16
	C925, C926, C948	CEA470M10
	C929, C930, C936, C943, C944	CEA100M16
	C949	CEA4R7M50
	C935, C937, C938	CEA010M50
	C917, C918 Electrolytic (10/16, NL)	RCH-069 (RCH-070)
	C919, C920 Electrolytic (0.68/50, NL)	RCH-073 (RCH-074)
	C913, C914	CEAR33M50
	C901, C902	CEAR22M50
	C941, C942	CCDSL181J50
	C903 - C906	CQMA104J50
	C915, C916	CQMA333J50
	C923, C924, C933, C934	CQMA223J50
	C927, C928	CQMA472J50
	C907 - C910	CQMA332J50
	C921, C922	CQSA471J50
	C931, C932	CQSA391J50
	C911, C912	CQSA331J50

RESISTORS

Note: When ordering resistors, convert the resistance value into code form, and then rewrite the part no. as before.

Mark	Symbol & Description	Part No.
★	V901 Semi-fixed (2.2k)	VRTB6VS222
	R912, R914, R942, R916, R958, R959, R957	RD1/4PM □□□J
	Other resistors	RD1/6PM □□□J

OTHERS

Mark	Symbol & Description	Part No.
	Connector socket 8-P	RKP-602

Part No.
2SD1276
2SD1265
1, Q413 2SC1740S
2SA933S
S4VB20F

1B2Z1-LC2
1B2C1-LC2
1SR35-100A
1SS254
421 RD15EB3
(MTZ15C)

RD5.6EB2
(RD5.6EB3)
(MTZ5.6B)
(MTZ5.6C)
RD27EB1
(RD27EB2)
(MTZ27A)
(MTZ27B)
RD20EB1
(RD20EB2)
(MTZ20A)
(MTZ20B)

Part No.
CEA2R2M50
CEA3R3M50
CEA4R7M50
CEA100M16
CEA470M10

CEA470M25
CEA470M50
CEA101M10
CEA101M16
CEA101M25
CEA101M35
CEA221M16
CEA221M50
CEA102M16
CEA102M35

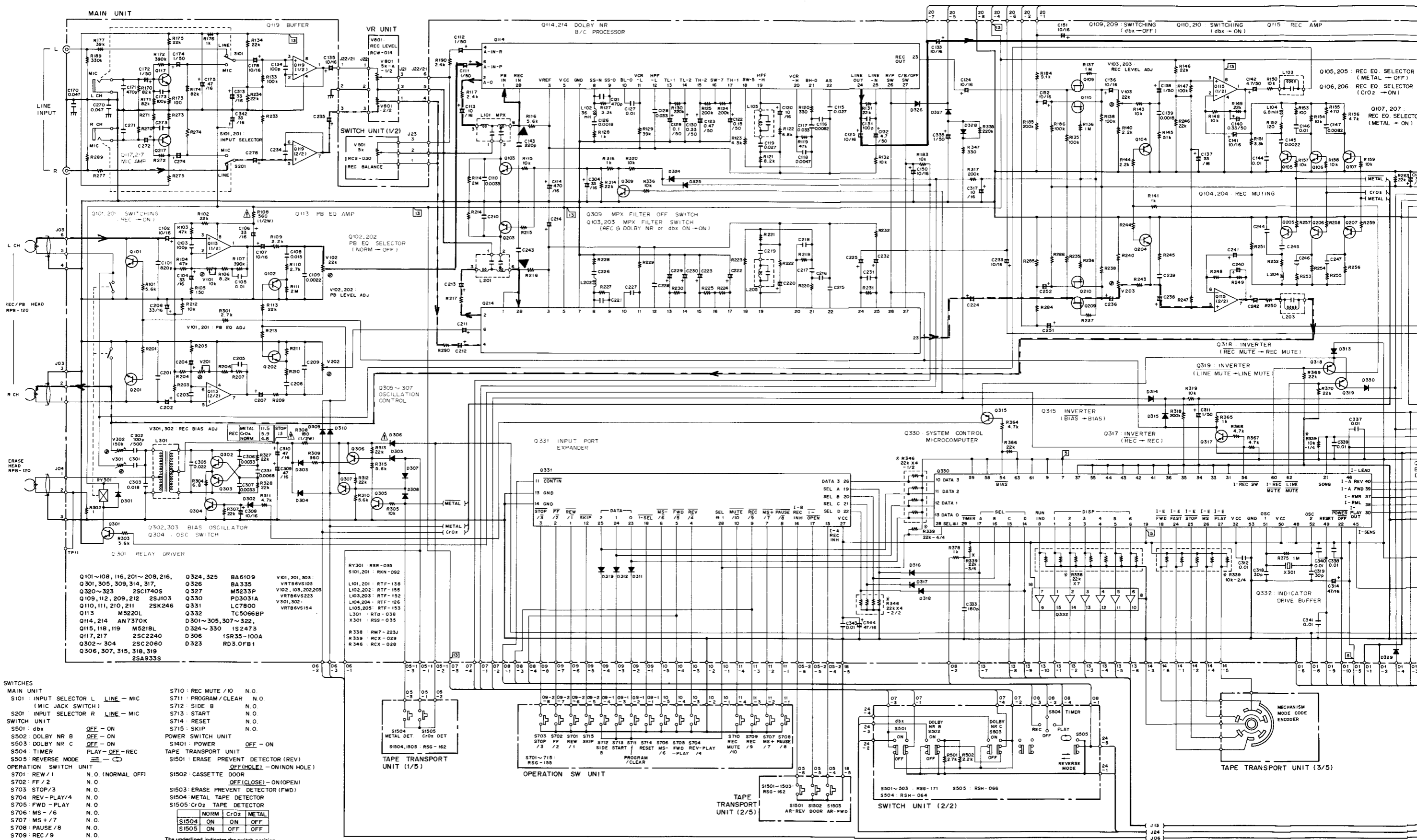
CEA472M16
CKDYF103Z50
CKDYF473Z50

Convert the resistance value into code form, and then rewrite the part no. as before.

Part No.
RS1LF122J
RD1/2PMF □□□J
RD1/4PM □□□J
RD1/6PM □□□J

7. SCHEMATIC DIAGRAM

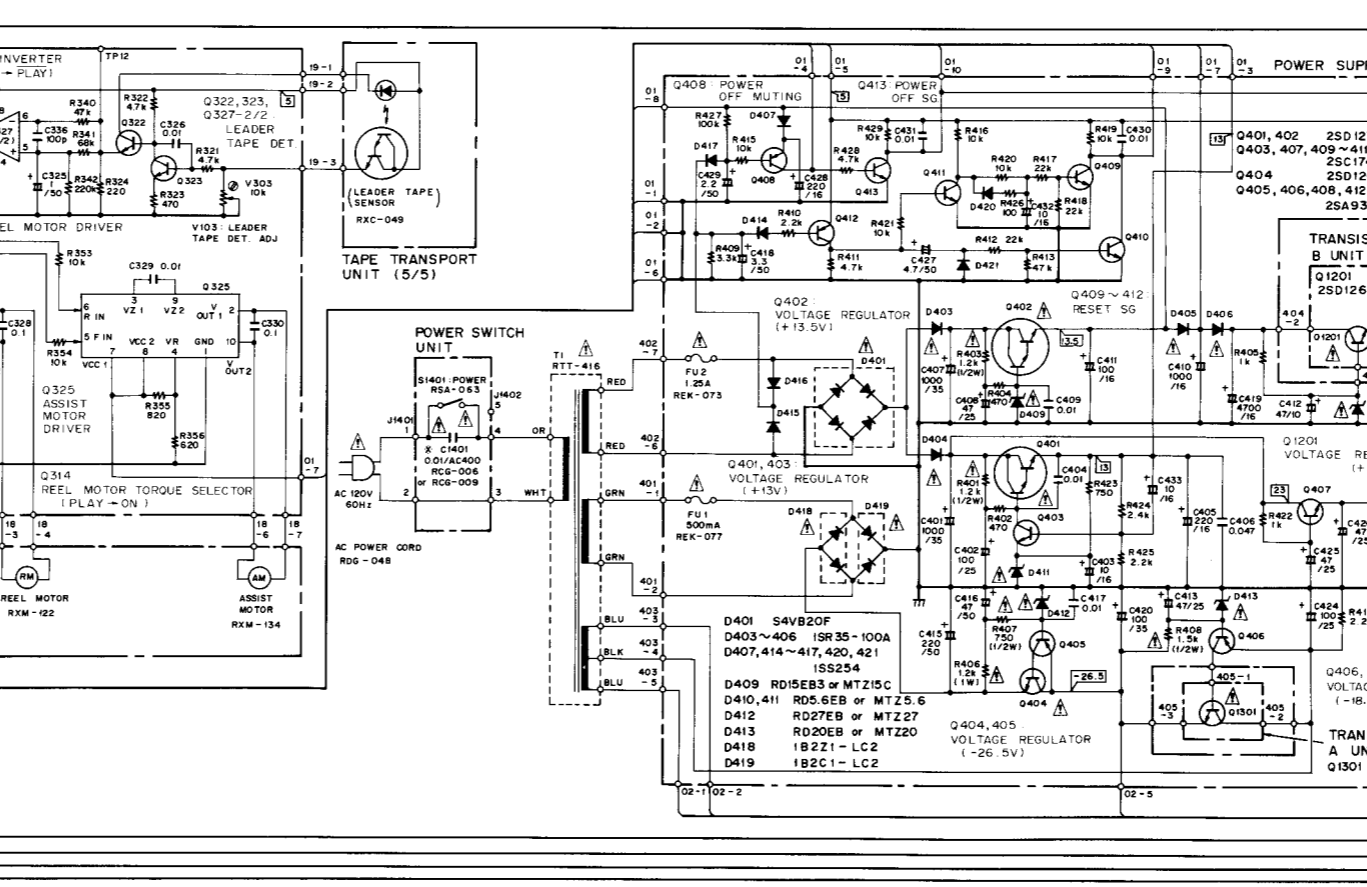
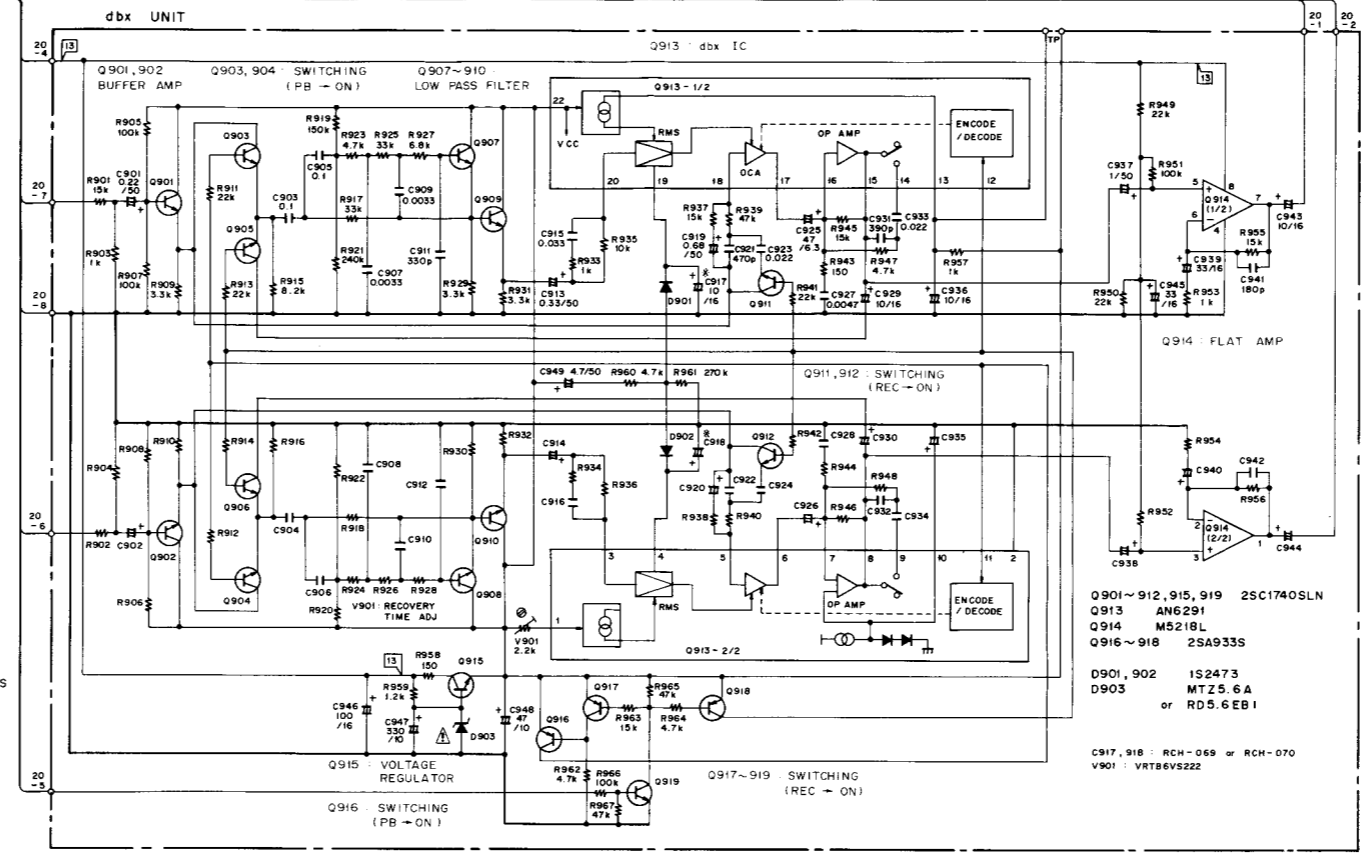
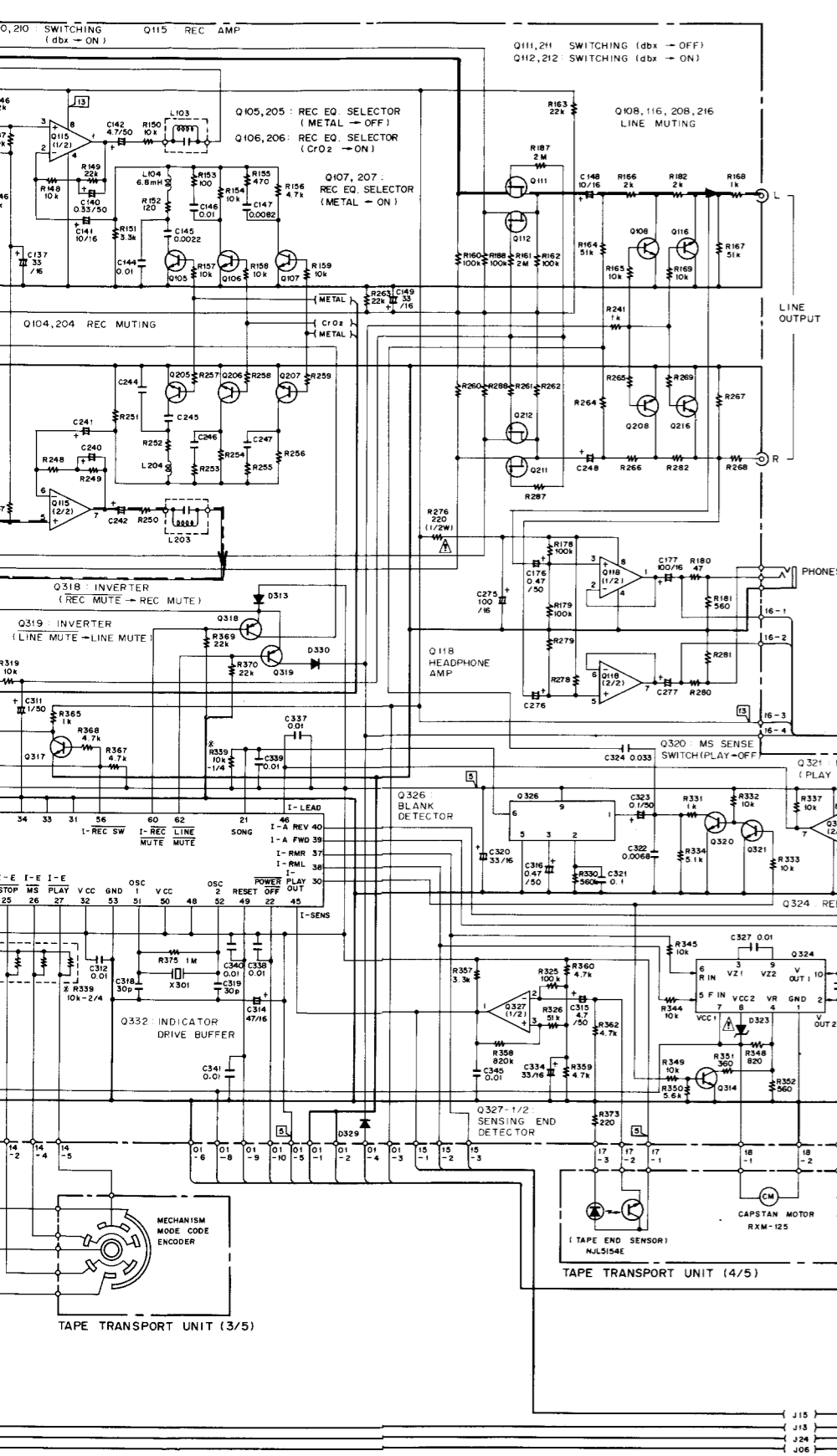
• D320-D322, R329, R343 and REMOTE CONTROL terminals on the Main unit apply to D/G type only.



Q101~108, 116, 201~208, 216, 2301, 305, 309, 314, 317, 330~323, 25C1740S	Q324, 325 BA6109	V101, 201, 303: VRT6V5103
Q109, 112, 209, 212, 25J103	Q330 PD3031A	V102, 103, 202, 203: VRT6V5223
Q110, 111, 210, 211, 25K246	Q331 LC7800	V301, 302: VRT6V5154
Q113 M5220L	Q332 TC5066BP	
Q14, 214 AN7370K	D301~305, 307~322, 324~330 IS2473	
Q115, 118, 119 M521BL	D306 1SR35-100A	
Q117, 217 25C2240	D323 RD3.0FB1	
Q302~304 25C2060		
Q306, 307, 315, 318, 319 25A933S		

- SWITCHES**
- MAIN UNIT**
- S101: INPUT SELECTOR L LINE - MIC
 - S201: MIC JACK SWITCH
 - S201: INPUT SELECTOR R LINE - MIC
- SWITCH UNIT**
- S501: dbx OFF - ON
 - S502: DOLBY NR B OFF - ON
 - S503: DOLBY NR C OFF - ON
 - S504: TIMER PLAY - OFF - REC
 - S505: REVERSE MODE
- OPERATION SWITCH UNIT**
- S701: REW / 1 N.O. (NORMAL OFF)
 - S702: FF / 2 N.O.
 - S703: STOP / 3 N.O.
 - S704: REV - PLAY / 4 N.O.
 - S705: FWD - PLAY N.O.
 - S706: MS - / 6 N.O.
 - S707: MS + / 7 N.O.
 - S708: PAUSE / 8 N.O.
 - S709: REC / 9 N.O.
- POWER SWITCH UNIT**
- S1401: POWER OFF - ON
- TAPE TRANSPORT UNIT**
- S1501: ERASE PREVENT DETECTOR (REV) OFF (HOLE) - ON (NON HOLE)
 - S1502: CASSETTE DOOR OFF (CLOSE) - ON (OPEN)
 - S1503: ERASE PREVENT DETECTOR (FWD)
 - S1504: METAL TAPE DETECTOR
 - S1505: CrO2 TAPE DETECTOR
- | | | | |
|-------|------|------|-------|
| | NORM | CrO2 | METAL |
| S1504 | ON | ON | OFF |
| S1505 | ON | OFF | OFF |
- The underlined indicates the switch position.

NOTE:
 The indicated semiconductors are representative ones only.
 Other alternative semiconductors may be used and are
 listed in the parts list.



A
 B
 C
 D
 E
 F

1

2

3

A

A

B

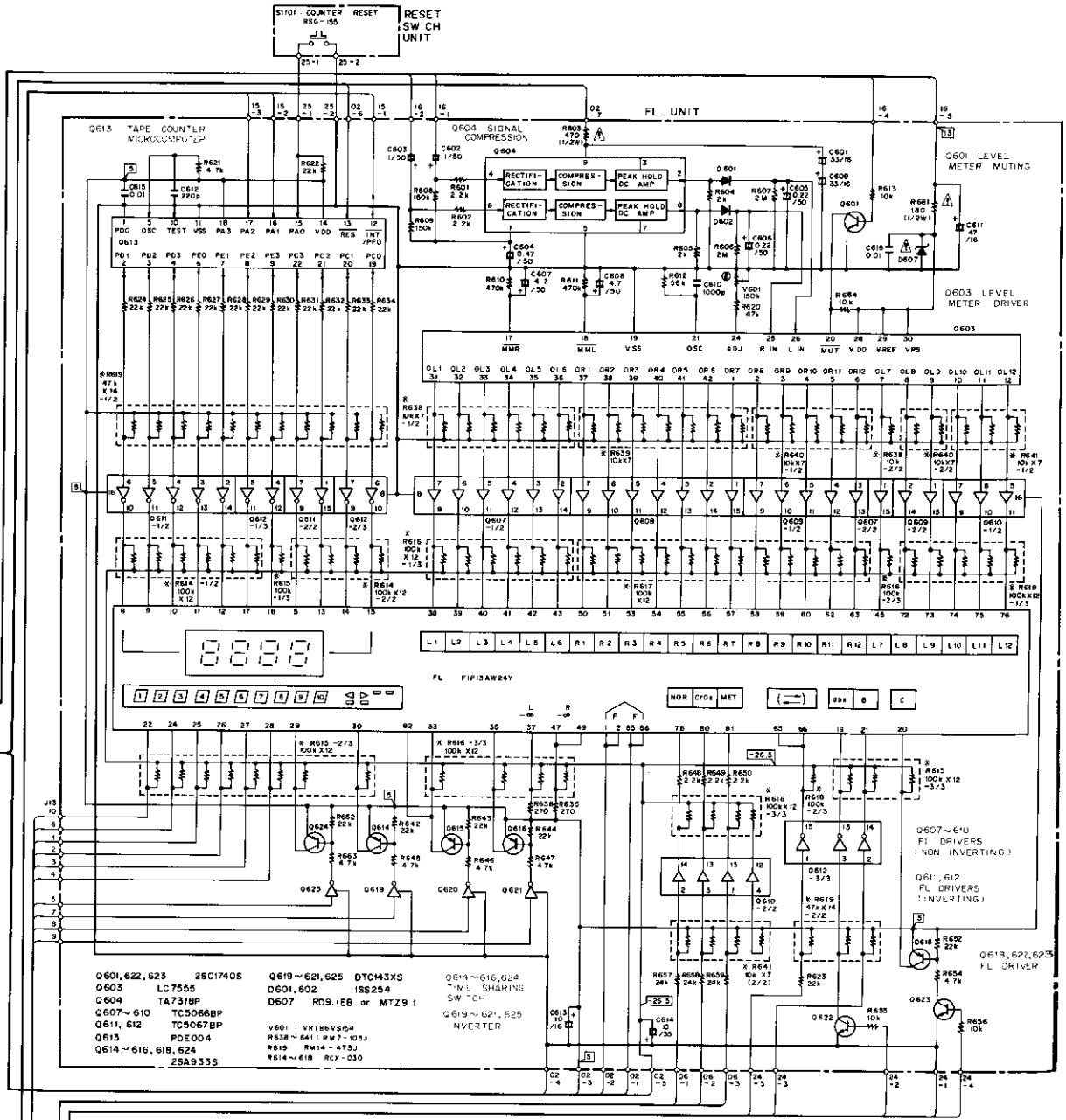
B

C

C

D

D



1. RESISTORS:
Indicated in Ω , $k\Omega$, $M\Omega$, μW , $\frac{1}{2}W$, $\frac{3}{4}W$, 5% tolerance unless otherwise noted; k, M, μ , W, (F), $\pm 1\%$, (G), $\pm 2\%$, (K), $\pm 10\%$, (M), $\pm 20\%$ tolerance.
2. CAPACITORS:
Indicated in capacity (μF)/voltage (V) unless otherwise noted; p, nF, indication without voltage is 50V except electrolytic capacitor.
3. VOLTAGE CURRENT:
DC voltage (V) at no input signal
4. OTHERS:
Signal route
Adjusting point
The Δ 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.
* marked capacitors and resistors have parts numbers.
This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

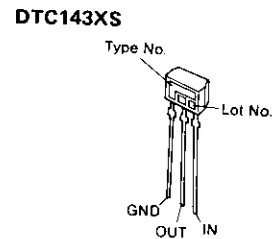
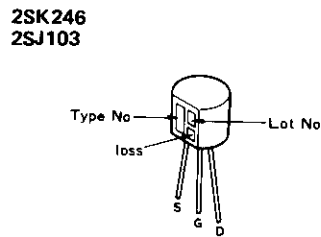
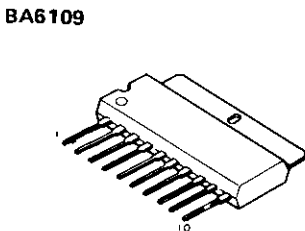
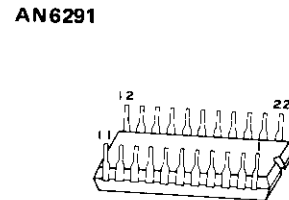
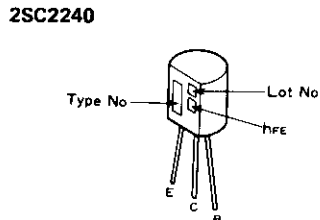
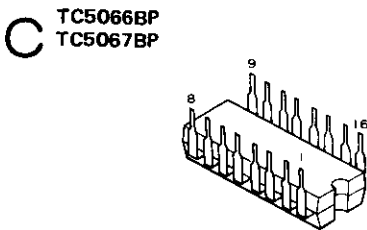
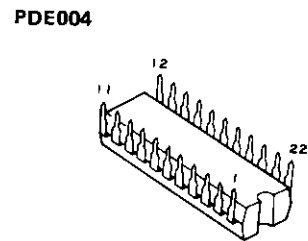
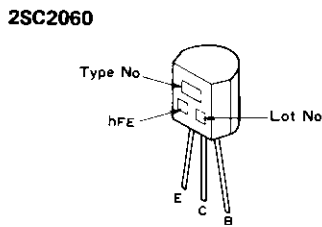
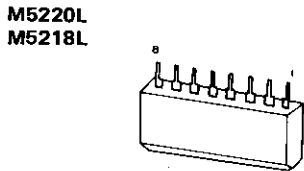
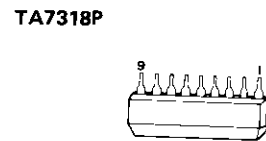
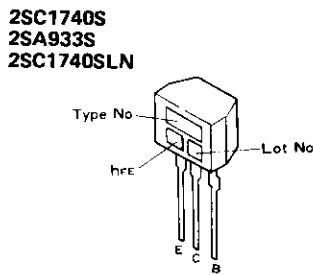
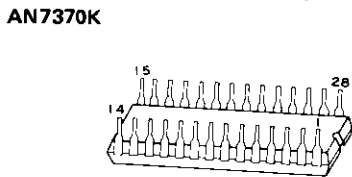
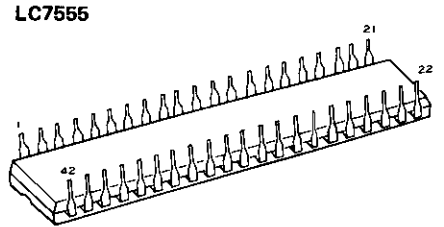
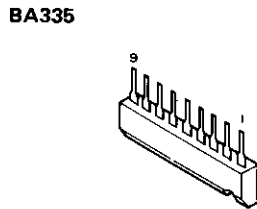
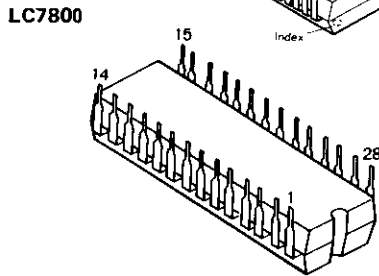
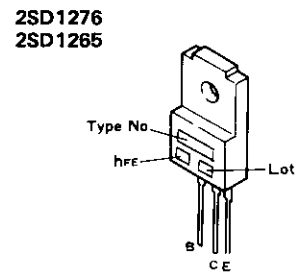
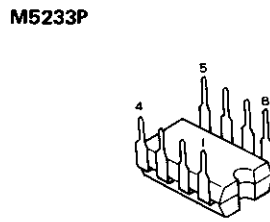
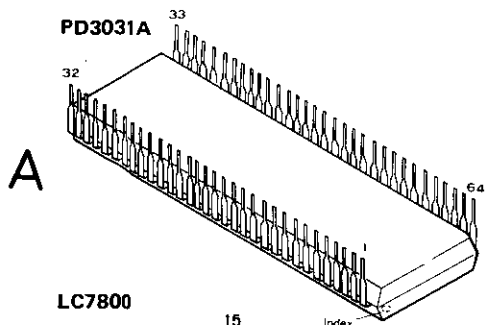
SWITCHES
RESET SWITCH UNIT
S101: COUNTER RESET N.O. (NORMAL OFF)

1

2

3

External Appearance of Transistors and ICs



8. P.C. BOARDS CONNECTION DIAGRAM

1

2

3

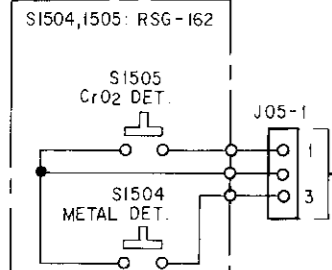
4

5

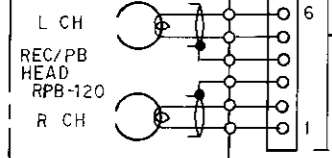
6

A

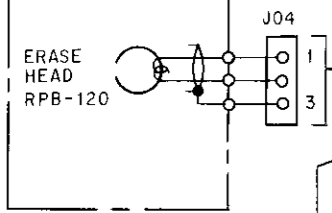
TAPE TRANSPORT UNIT (1/2)



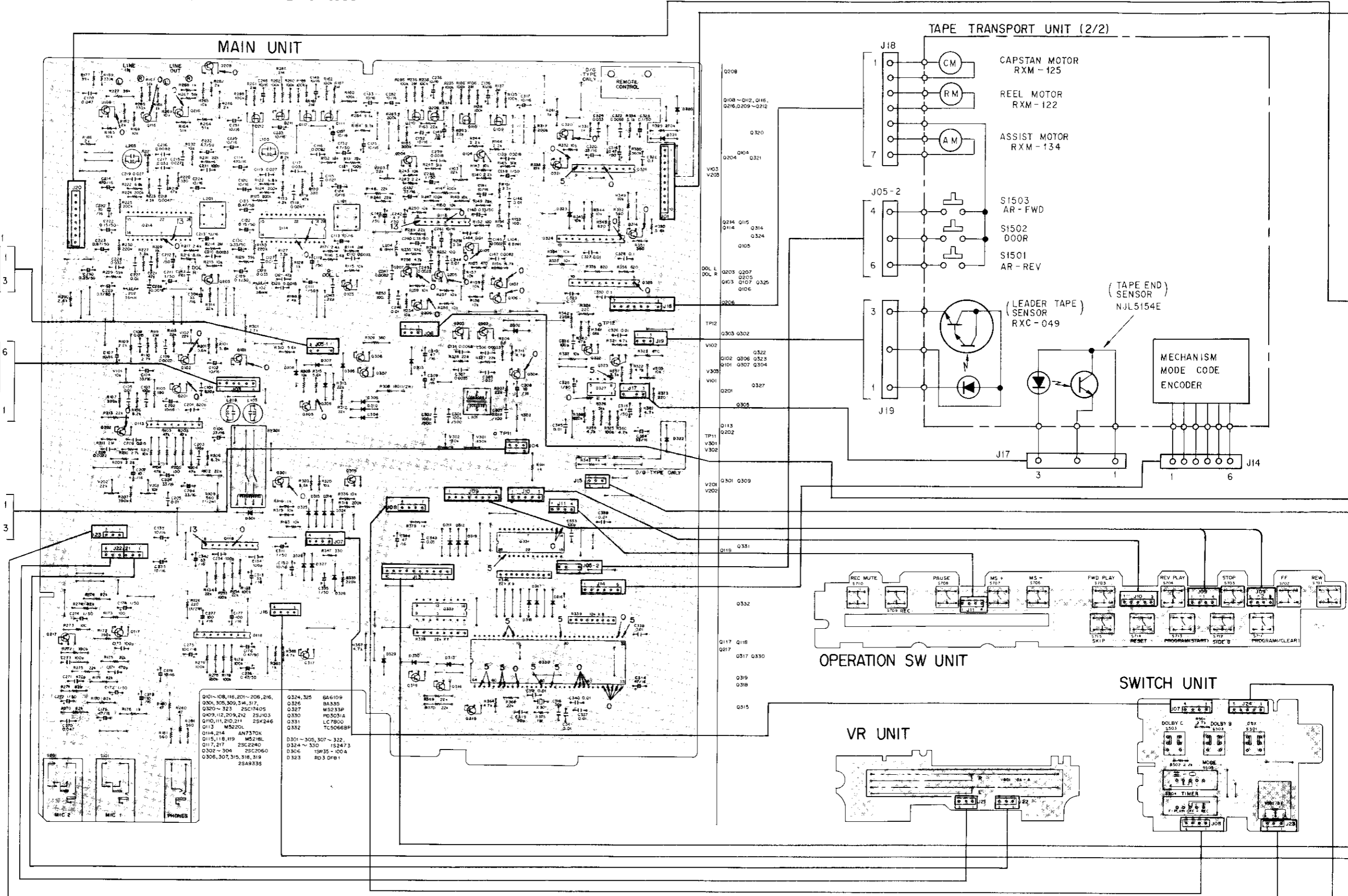
B



C



D



1

2

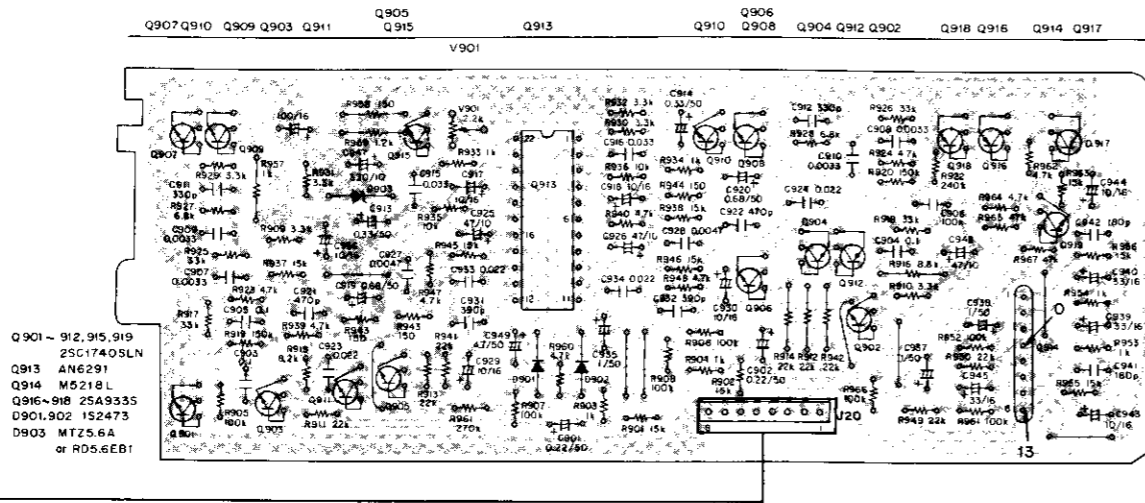
3

4

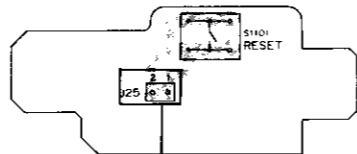
5

6

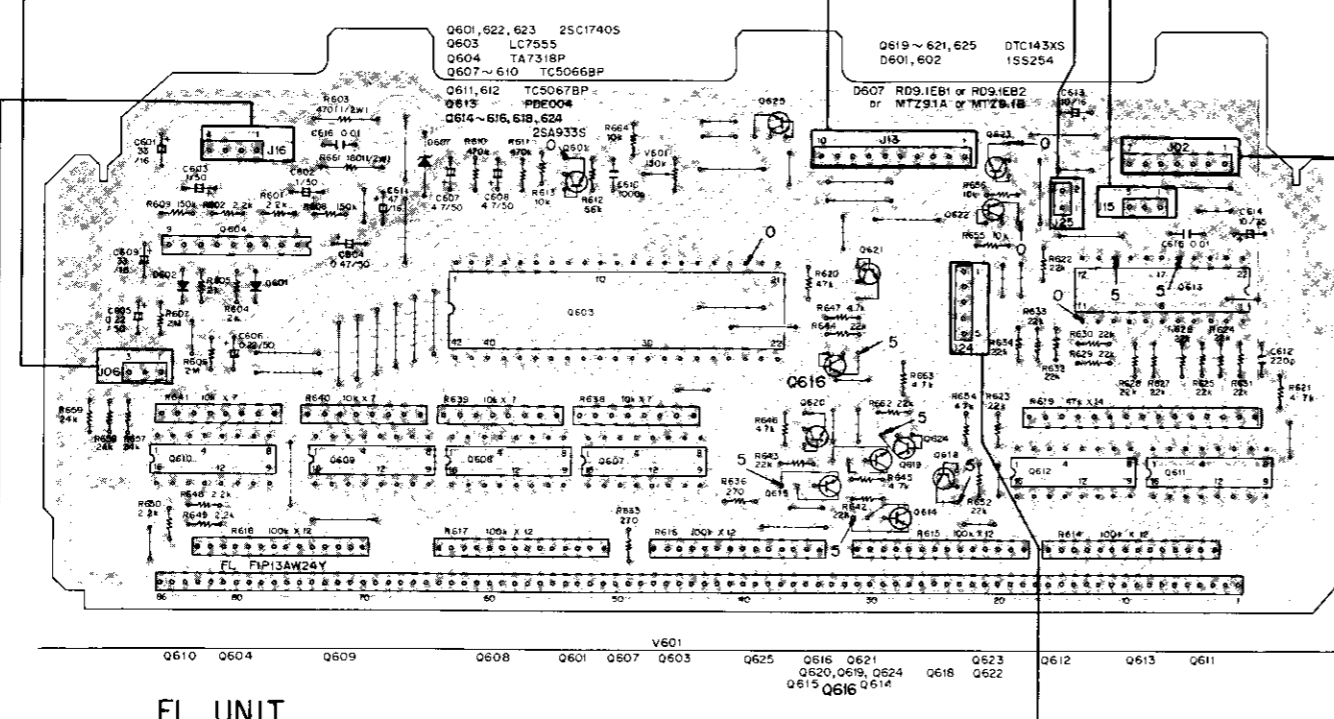
dbx UNIT



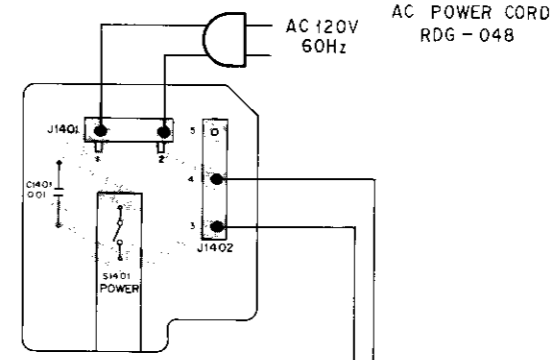
RESET SWITCH UNIT



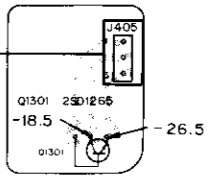
FL UNIT



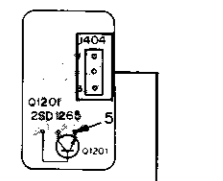
POWER SWITCH UNIT



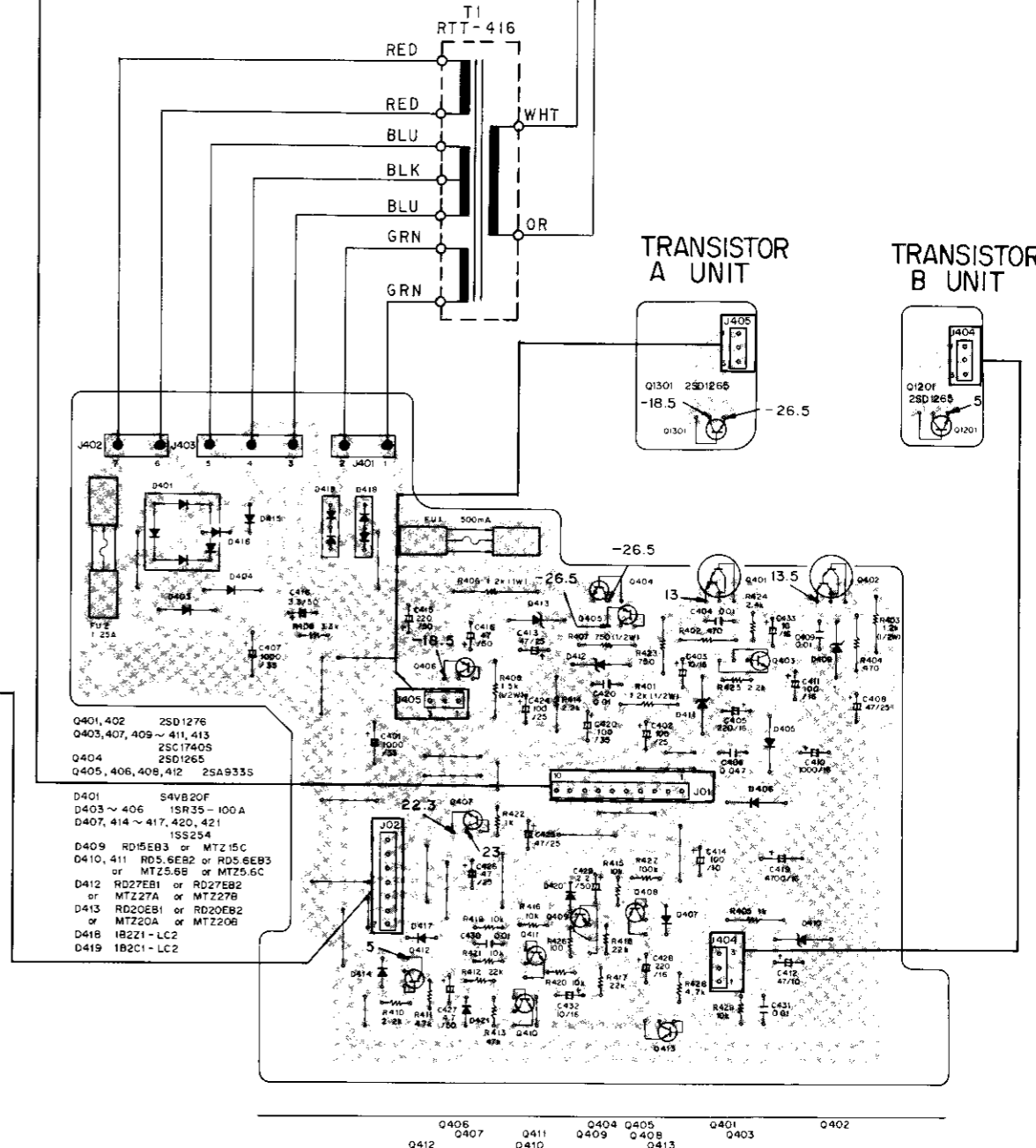
TRANSISTOR A UNIT



TRANSISTOR B UNIT



POWER SUPPLY UNIT



A

B

C

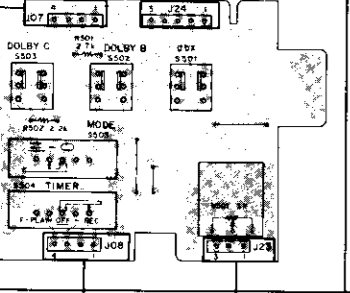
D

PE END)
ISOR)
5154E

MECHANISM
MODE CODE
ENCODER

J14

SWITCH UNIT

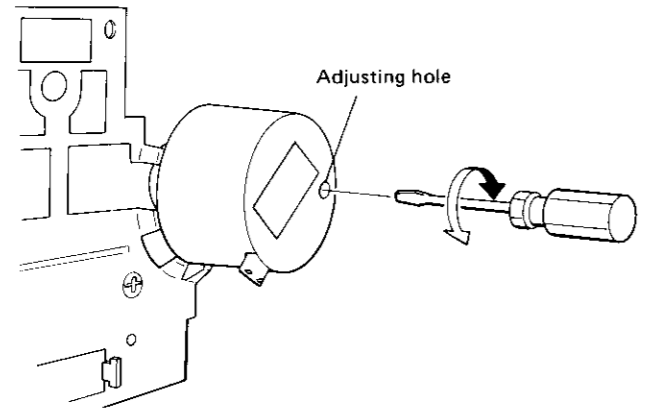


9. ADJUSTMENTS

9.1 MECHANICAL ADJUSTMENT

1. Tape Speed Adjustment Check

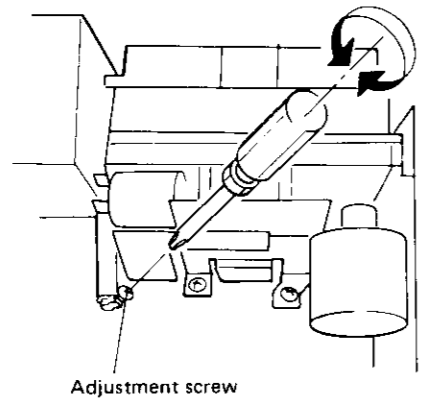
Mode	Test tape	Adjustment position	Rating (playback frequency)
PLAY	STD-301 (3kHz)	Variable Resistor control	3010Hz ± 5Hz



2. Door Damping Check And Adjustment

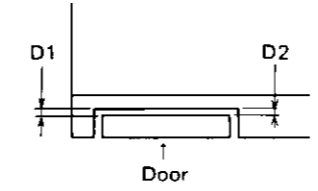
Adjustment position	Specifications
Cylinder adjustment screw If door bounces back : turn clockwise If door opens in two steps : turn counter clockwise	Open the door (eject operation) but with no cassettes loaded. The door should open smoothly in a single action without bouncing back at the fully open position.

<Reference> Door opening speed: 0.8 sec. ±0.3 sec. (normal temperature)



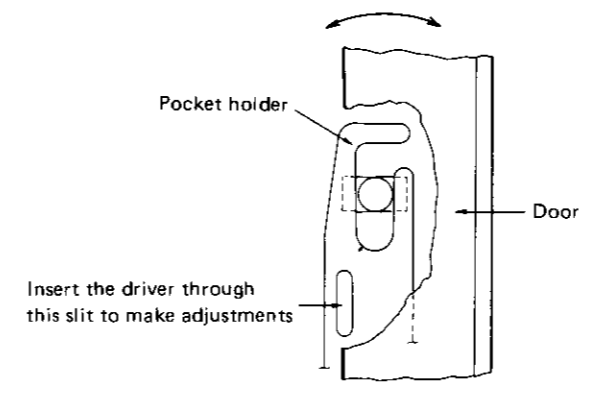
3. Door Position Check And Adjustment

• The door position dimensions when viewed from above must conform with the following specifications.



<D dimensions>
 Standard value 1.2 mm
 Permissible values 0.9 thru 1.6 mm
 Difference between left and right $|D1 - D2| < 0.4 \text{ mm}$

• If the above ratings are not satisfied, adjust bending the pocket holder as shown below.

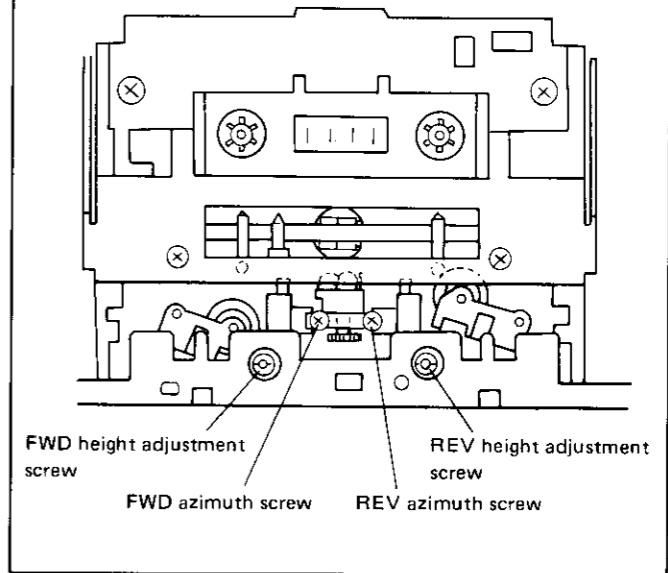
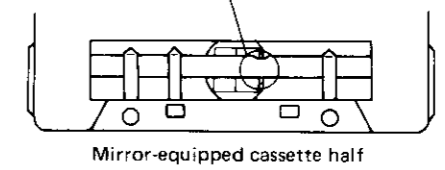


4. Tape Transport Adjustment

(remove cassette door)

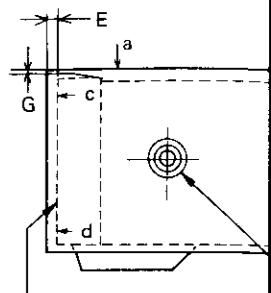
Mode	Adjustment location	Specifications
FWD STOP	FWD azimuth screw	The head must be parallel with the tape transport direction when viewed from above with the door frame open.
REV STOP	REV azimuth screw	
STOP	Height adjustment screws (both left and right)	Tape should pass through the center of the tape guide (rough visual adjustment).
FWD PLAY	Left height adjustment screw	Adjust the "upstream" tape guide so that tape does not curl at the guide.
REV PLAY	Right height adjustment screw	

Eliminate curling at the head guide



5. Side Wood Panel P (CT-S88R/D/G)

• Dimensions for the side must conform with the



E dimensions
 Inclination (section c and F dimension
 Inclination (sections a and G dimension

• If the above dimension setscrews and shift the amounts before retightening.

• The left hand panel is a

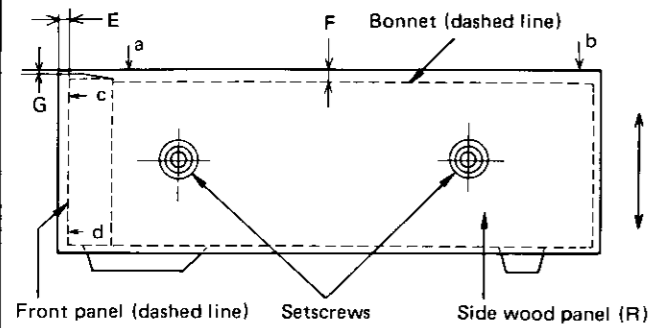
6. Playback Mode Eject

• The tape deck should not be pressed (taking up the tape) in playback mode.
 • The tape deck should not be pressed (taking up the tape) in playback mode. height of 5 cm with the facing down.

5. Side Wood Panel Position Check & Adjustment

(CT-S88R/D/G)

- Dimensions for the side wood panels as seen from the side must conform with the following specifications.



- E dimensions 1 ± 0.5 mm
- Inclination (section c and d) $|Ec - Ed| < 0.5$ mm
- F dimension
- Inclination (sections a and b) $|Fa - Fb| < 0.5$ mm
- G dimension 0 - 2 mm
- (L - R difference < 1 mm)

- If the above dimension limits are not satisfied, loosen the two setscrews and shift the panel up/down left/right by appropriate amounts before retightening the screws.

- The left hand panel is adjusted in the same way.

6. Playback Mode Eject Check

- The tape deck should not stop when the EJECT button is pressed (taking up the slackness in the thrust direction) during playback mode.
- The tape deck should not stop when the set is dropped from a height of 5 cm with the front panel, and then the two sides facing down.

9.2 ELECTRICAL ADJUSTMENTS

Pre-requisites for Electrical Adjustments

1. All mechanical adjustments must have been completed.
2. The heads must be cleaned and demagnetized.
3. Let the set warm up for several minutes before starting.
4. Set signal level to $0\text{dBv} = 1\text{Vrms}$.
5. Connect a 50 kohm (47 to 52 kohms permissible) load resistance across the output terminals.
6. Leave all DOLBY NR and dbx switches off unless specified otherwise.

Test Tapes

- Playback system adjustments : STD-331B (see Fig. 9-1)
- NORMAL blank tape : STD-608A
- CrO₂ blank tape : STD-603
- METAL blank tape : STD-610

List of Adjustments

1. Head azimuth adjustment
2. Playback equalizer adjustment
3. Playback level adjustment
4. Leader tape detection operation adjustment
5. Level Meter adjustment
6. Recording and playback frequency response adjustment
7. Recording level adjustment
8. dbx system recovery time adjustment

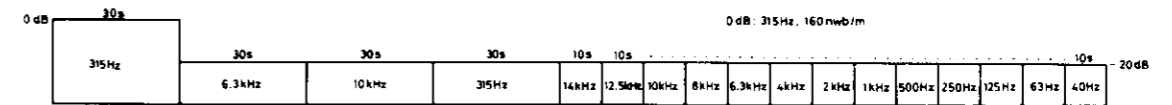


Fig. 9-1 STD-331B test tape

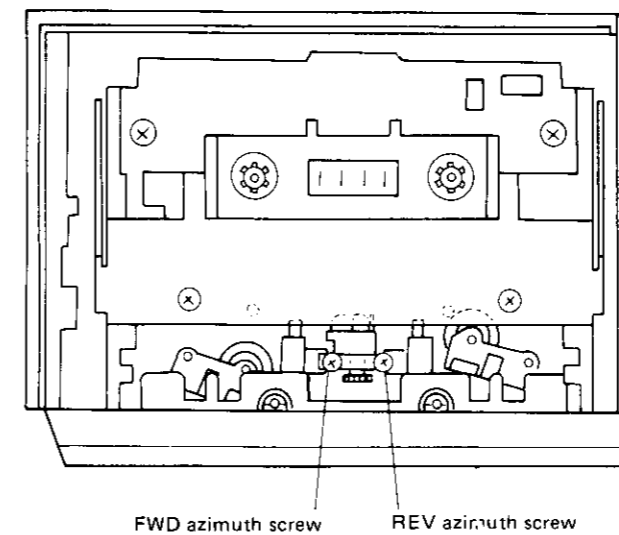


Fig. 9-2 Head azimuth adjustment

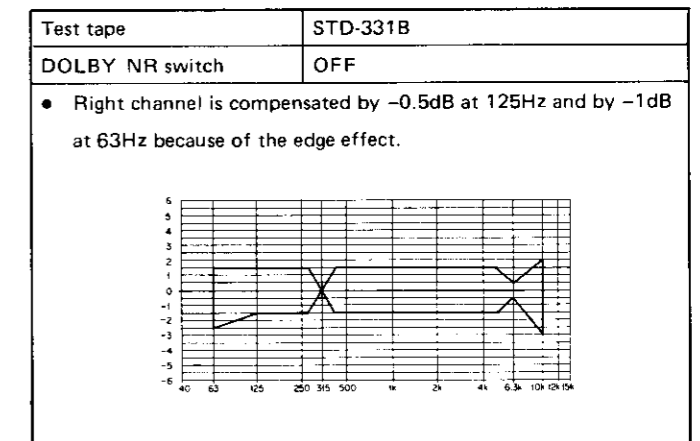


Fig. 9-3 Playback frequency response permissible zone

1. Head azimuth adjustment

• Adjust V102 and V202 to maximum positions, and V101 and V201 to mechanical center positions.

Mode	Input signal & test tape	Adjustment position	Measuring position	Adjustment value	Remarks
1 FWD-PLAY	Play the 10kHz/-20dB portion of the STD-331B test	FWD azimuth screw (Fig. 9-2)	Left and right line output terminals	Maximum playback signal level	
2 REV-PLAY		REV azimuth screw (Fig. 9-2)			

2. Playback equalizer adjustment

Mode	Input signal & test tape	Adjustment position	Measuring position	Adjustment value	Remarks
1 FWD-PLAY	Play the 315Hz and 6.3kHz/-20dB portion of the STD-331B test tape	V101 (L ch) V201 (R ch)	Left and right line output terminals	Adjust the 6.3kHz level to 0dB in respect to the 315Hz playback level	±0.5dB variation permissible
2 FWD/REV PLAY	Play various frequencies at -20dB on the STD-331B test tape	Check		The results must lie in the zone shown in Fig. 9-3.	

3. Playback level adjustment

• Execute this adjustment carefully since the result is used in setting the Dolby NR level.

Mode	Input & test tape	Adjustment position	Measuring position	Adjustment value	Remarks
FWD-PLAY	Play the 315Hz/0dB portion of the STD-331B test tape	V102 (L ch)	TP (DOL.L) (*)	-17.9dBv (127.3mV)	
		V202 (R ch)	TP (DOL.R) (*)		

* DOL.L is the left hand lead wire at R116, and DOL.R is the left hand lead wire at R216.

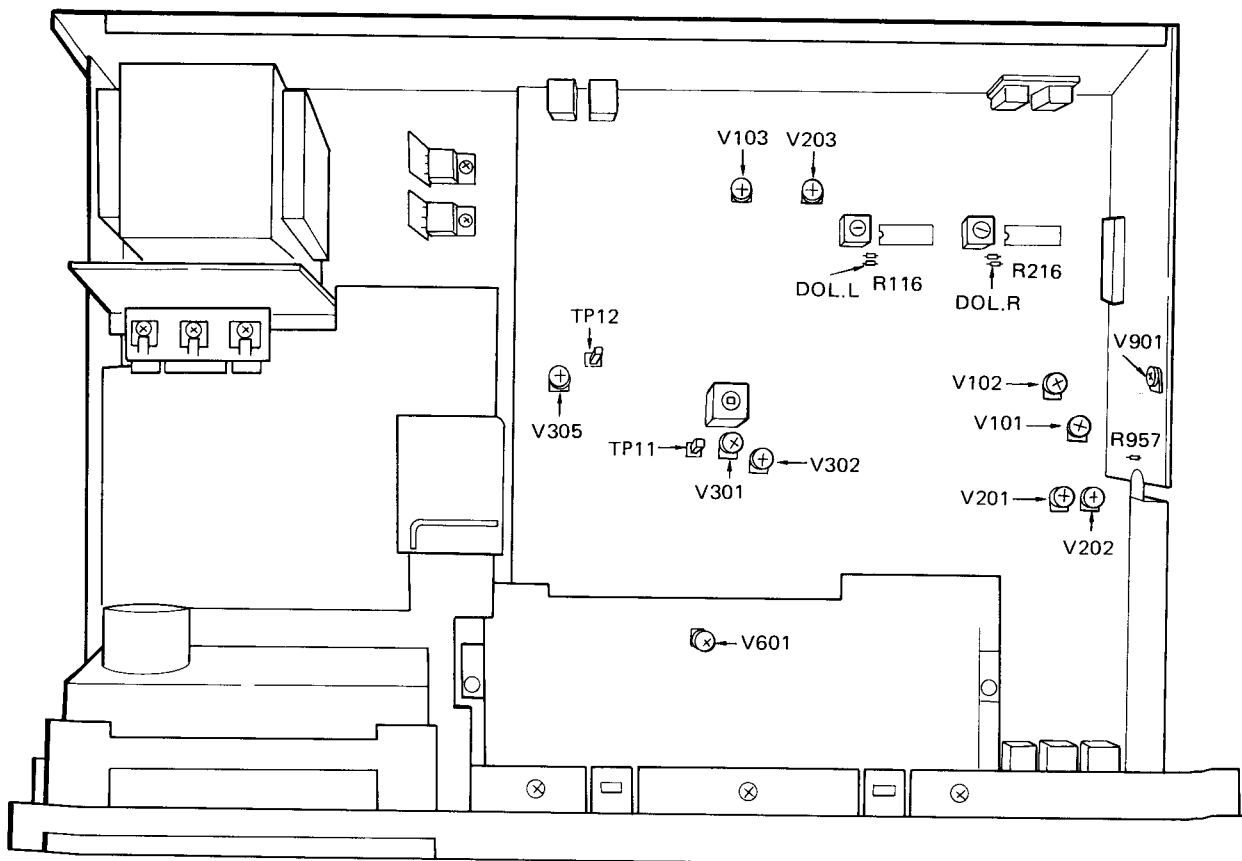


Fig. 9-4 Adjustment locations

4. Leader tape detection operation adjustment						
Mode	Input signal & test tape	Adjustment position	Measuring position	Adjustment value	Remarks	
1 PLAY	No input — load an empty cassette half.	V305	TP12 (LEADER)	1V ^{+0.2} ₋₀ V		
2 • Check that the leader tape is correctly detected (in both FWD and REV directions when in endless reverse mode).						
5. Level meter adjustment						
Mode	Input signal & test tape	Adjustment position	Measuring position	Adjustment value	Remarks	
1 REC/ PAUSE	Apply a 315Hz/-10dBv signal to the line input terminals, and load the STD-608A test tape	REC LEVEL controls	TP (DOL.L) TP (DOL.R)	-14.9dBv (180mV)		
2		V601	Turn V601 fully counterclockwise, and turn slowly clockwise and stop when the "+3VU" segments come on.			
6. Recording and playback frequency response adjustment						
• Leave the DOLBY NR switch off.						
Mode	Input signal & test tape	Adjustment position	Measuring position	Adjustment value	Remarks	
1 REC/ PAUSE	Apply a 315Hz-30dBv signal to the line input terminals and load the STD-608A test tape.	REC LEVEL controls	TP (DOL.L) TP (DOL.R)	-37.9dBv (12.7mV)		
2 FWD REC → PLAY	Record and play 315Hz and 6.3kHz signals at an input level of -30dBv.	V301 (L ch) V302 (R ch)	Left and right line output terminals	Adjust through repeated record/playback cycles to obtain a 6.3kHz playback level of +1.0dB in respect to the 315Hz signal.	Variations from +0.5dB to +1.5dB are permissible.	
3 REC → PLAY	With an input level of -30dBv record and play signals from 63Hz to 12kHz).	Check		Specifications for FWD and REV, and DOLBY NR OFF and ON (types B and C) (see Fig. 9-5) must be satisfied (for both FWD and REV).		
4 If the specifications are not satisfied (including the following checks), readjust the 6.3kHz playback level to within -1.5dB and +2.5dB in respect to the 315Hz signal in step 2.						
5 Repeat the step 3 check using the STD-603 test tape. The specifications shown in Fig. 9-6 are to be satisfied.						
6 Repeat the step 3 check using the STD-610 test tape. The specifications shown in Fig. 9-7 are to be satisfied.						
7 After completing the adjustment, check the distortion and ensure against "under bias".						
7. Recording level adjustment						
• Leave the DOLBY NR switch off.						
Mode	Input signal & test tape	Adjustment position	Measuring position	Adjustment value	Remarks	
1 REC/ PAUSE	Apply a 315Hz/-10dBv signal to the line input terminals, and load the STD-608A test tape.	REC LEVEL controls	TP (DOL.L) TP (DOL.R)	-17.9dBv (127.4mV)		
2 REC → PLAY	Record and play the 315Hz/-10dBv signal.	V103 (L ch) V203 (R ch)		Adjust through repeated record/playback cycles until a playback signal level of -17.9dBv (127.4mV) is obtained.		
3 REC → PLAY	Record and play the 315Hz/-10dBv signal on STD-603.	Check		-17.9±1.5dBv		
4 REC → PLAY	Record and play the 315Hz/-10dBv signal on STD-610.	Check		-17.9±1.5dBv		

8. dbx system recovery time adjustment

Mode	Input signal & test tape	Adjustment position	Measuring position	Adjustment value	Remarks
STOP	None	V901	R957 terminals	DC15mV	

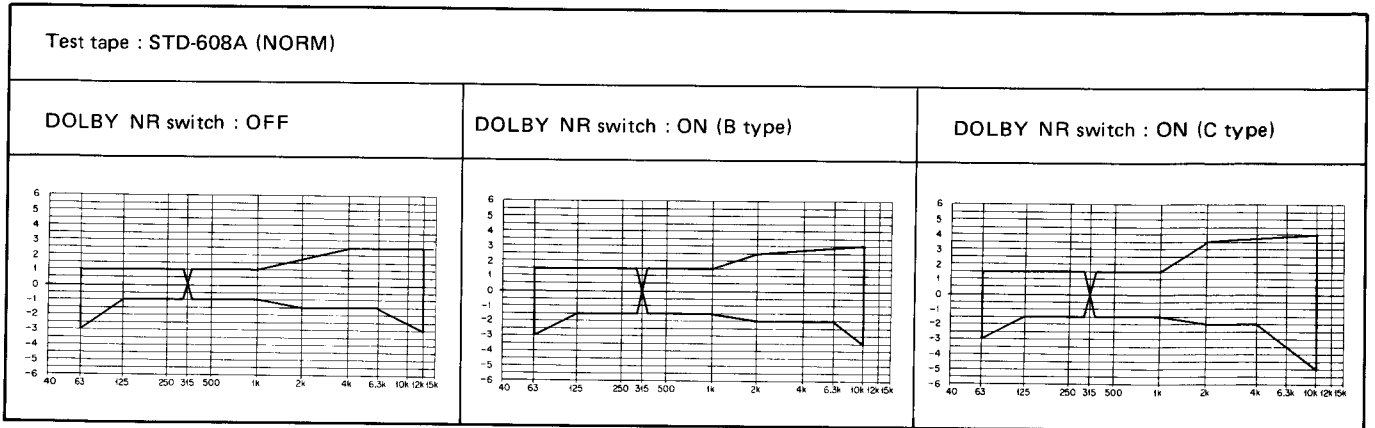


Fig. 9-5 Recording & playback frequency response tolerance zone (NORM)

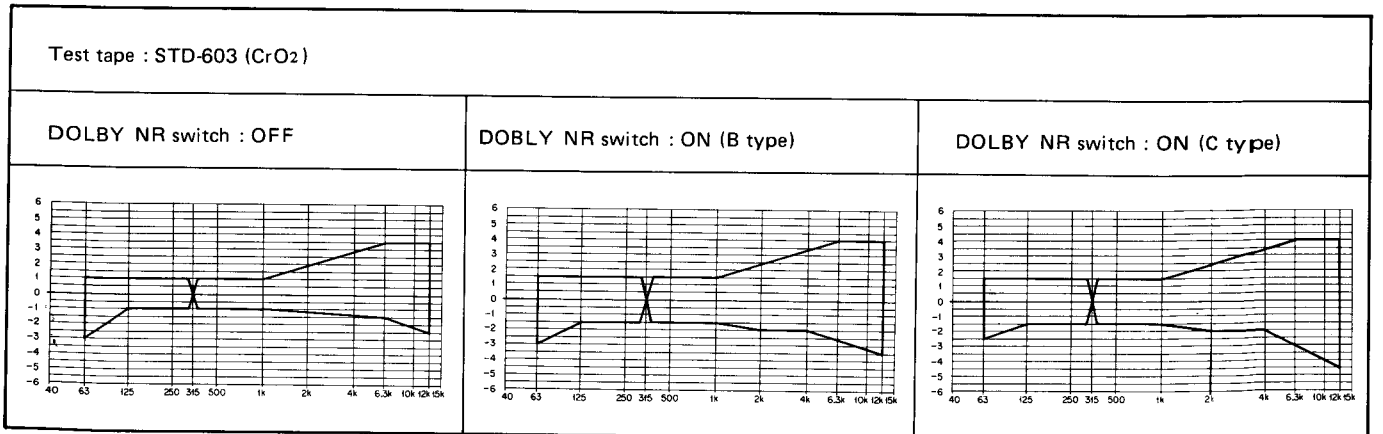


Fig. 9-6 Recording & playback frequency response tolerance zone (CrO₂)

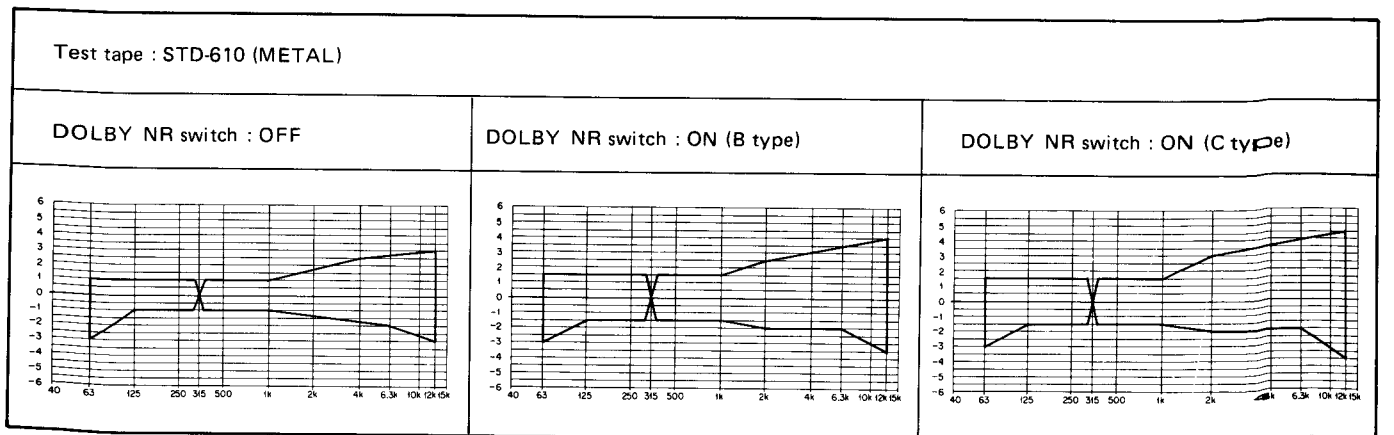
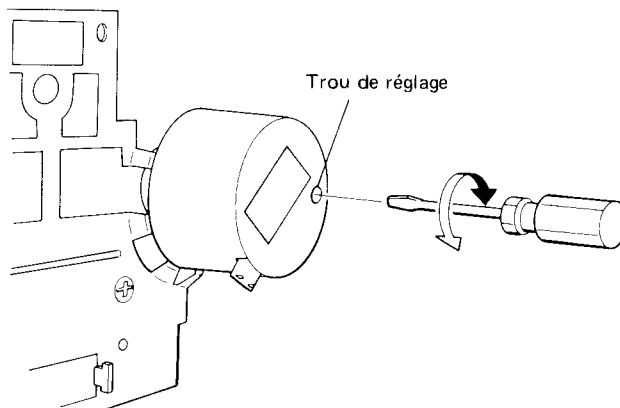


Fig. 9-7 Recording & playback frequency response tolerance zone (METAL)

9. RÉGLAGE

1. Contrôle du réglage de la vitesse de défilement

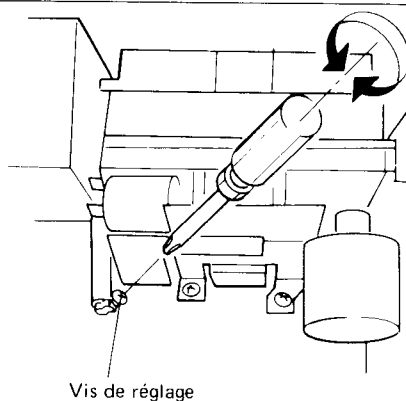
Mode	Bande d'étalonnage	Emplacement du réglage	Etalonnage caractéristique (fréquence de lecture)
LECTURE	STD-301 (3kHz)	Contrôle de résistance variable	3010Hz±5Hz



2. Contrôle et réglage d'amortissement de la trappe à cassette

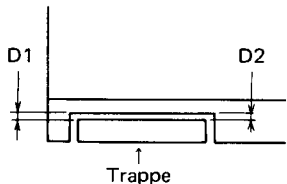
Emplacement du réglage	Caractéristiques
<p>Vis de réglage de cylindre</p> <p>Si la trappe se dégage brutalement en arrière: tourner dans le sens des aiguilles d'une montre.</p> <p>Si la trappe se dégage en deux fois: tourner dans le sens contraire des aiguilles d'une montre.</p>	<p>Ouvrir la trappe à cassette (commande d'éjection), mais sans présence de cassette à l'intérieur. La trappe à cassette doit s'ouvrir progressivement, sans à-coups, sans se décoller brutalement en arrière et en deux temps, jusqu'à l'ouverture totale.</p>

<Référence> Vitesse d'ouverture de la trappe à cassette: 0,8±0,3 sec. (à la température normale)



3. Contrôle et réglage de positionnement de trappe à cassette

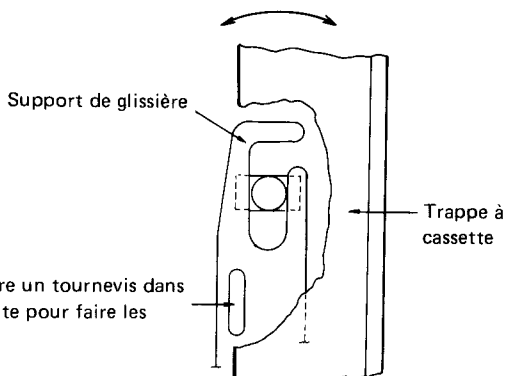
- Les dimensions de positionnement de la trappe sont conformes aux caractéristiques suivantes après inspection visuelle par dessus de la platine.



<D Dimensions>

Valeur nominale: 1,2 mm
 Tolérances: 0,9 à 1,6 mm
 Différences la gauche et la droite: $|D1 - D2| < 0,4 \text{ mm}$

- Si les tolérances qui sont mentionnées ci-dessus ne sont pas satisfaites, ajuster en pliant le support de glissière de la valeur indiquée en procédant comme représenté sur le schéma ci-dessous.

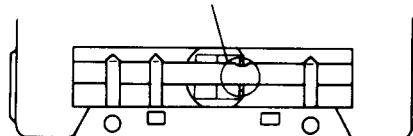


4. Réglage du système de transport de bande

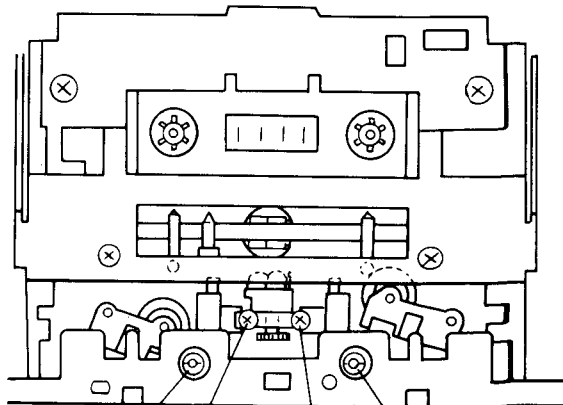
(retirer la trappes à cassette)

Mode	Emplacement du réglage	Caractéristiques
Arrêt en défilement normal	Vis de réglage d'azimut en défilement normal	Lorsque le montant de la trappe à cassette est ouvert, la tête doit être parallèle au sens de défilement de la bande lorsqu'elle est regardée par-dessus.
Arrêt en défilement inverse	Vis de réglage d'azimut en défilement inverse	
Charger un demi-boîtier de cassette équipé d'un miroir et relever l'embase de la tête à la main pour que la bande touche le guide de bande.		
Arrêt	Vis de réglage de hauteur (gauche et droite)	Contrôler (visuellement) si la bande est positionnée à la hauteur de la section centrale du guide de bande.
Lecture en défilement normal	Vis de réglage de hauteur gauche	Ajuster la position du premier guide de bande pour être certain que la bande ne forme pas de plis au niveau du guide.
Lecture en défilement inverse	Vis de réglage de hauteur droite	

Aucune formation de plis ne doit se produire à la hauteur du guide de bande



Demi-boîtier de cassette équipé d'un miroir



Vis de réglage de hauteur en défilement normal

Vis de réglage d'azimut en défilement normal

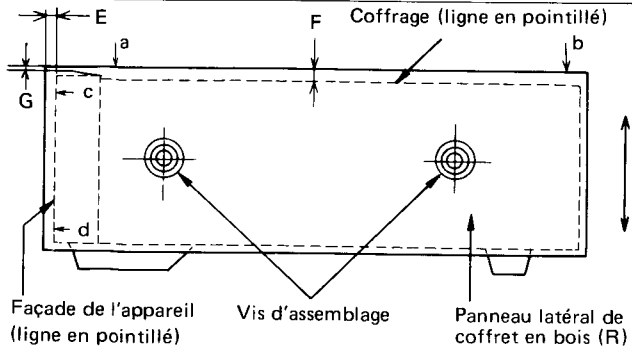
Vis de réglage de hauteur en défilement inverse

Vis de réglage d'azimut en défilement inverse

5. Réglage et contrôle de position du panneau latéral de coffret en bois

(CT-S88R/D/G)

- Les dimensions des panneaux latéraux de coffret en bois vus de côté doivent être conformes aux caractéristiques suivantes.



Dimension E	1 ± 0,5 mm
Inclinaison (sections c et d)	$|E_c - E_d| < 0,5 \text{ mm}$
Dimension F	
Inclinaison (sections a et b)	$|F_a - F_b| < 0,5 \text{ mm}$
Dimension G	0 à 2 mm
	(Différence L - R < 1 mm)

- Si les dimensions mentionnées ci-dessus ne sont pas satisfaites, desserrer le deux vis d'assemblage et décaler le panneau dans le sens vertical ou dans le sens horizontal de la valeur nécessaire et resserrer les vis.

- La position du panneau placé du côté gauche peut être ajustée de la même façon.

6. Contrôler d'éjection en mode de lecture

- La platine magnétophone ne doit pas s'arrêter quand la touche EJECT est pressée (rattrapage du manque de tension de la bande dans la direction de la poussée) au cours du mode de lecture.
- La platine magnétophone ne doit pas s'arrêter quand l'appareil est lâché d'une hauteur de 5 cm avec la façade dirigée vers le sol puis les côtés tour à tour dirigés vers le sol.

9.1 RÉGLAGES ÉLECTRIQUES

Conditions nécessaires pour effectuer les réglages électriques

1. Tous les réglages des mécanismes doivent avoir été préalablement réalisés.
2. Les têtes magnétiques doivent être propres et démagnétisées.
3. Laisser chauffer les platines pendant quelques minutes avant de commencer à faire les réglages électriques.
4. Caler le niveau du signal de référence à 0dBv= 1V effi.
5. Raccorder une résistance de charge de 50K-ohms entre les bornes de sortie de ligne (les charges se trouvant dans les limites de 47K à 52K-ohms sont tolérées).
6. A moins d'une indication contraire, tous les commutateurs DOLBY NR et dbx doivent se trouver en position OFF.

Liste des réglages à exécuter

1. Réglage d'azimut de tête magnétique
2. Réglage de l'égalisateur de lecture
3. Réglage du niveau de lecture
4. Réglage de détection de bande-amorce
5. Réglage de décibelmètre
6. Calage de réponse en fréquence d'enregistrement et de lecture
7. Réglage du niveau d'enregistrement
8. Réglage de durée de rétablissement du système dbx

Bandes d'étalonnage

Réglages des systèmes de lecture: STD-331B
(voir la Fig. 9-1)

Bande vierge ordinaire (NORMAL) : STD-608A

Bande vierge au chrome (CrO₂) : STD-603

Bande vierge au fer (METAL) : STD-610

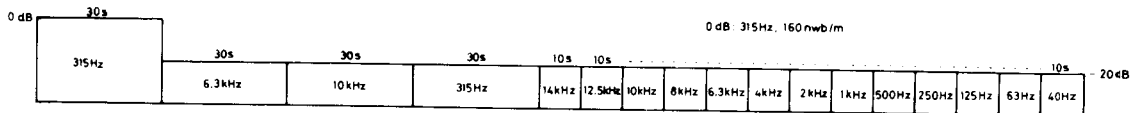
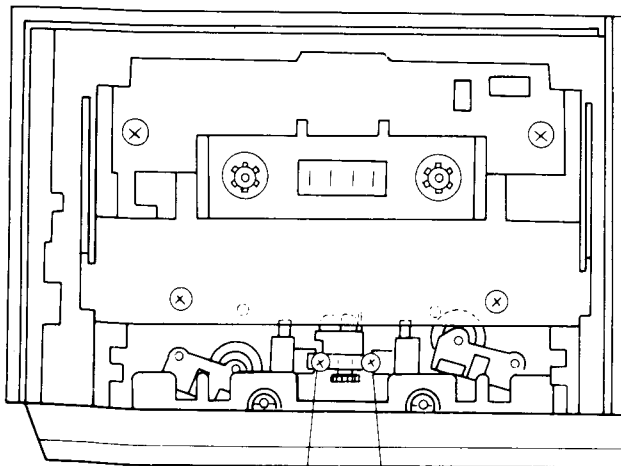


Fig. 9-1 Bande d'étalonnage STD-331B



Vis de réglage d'azimut en défilement normal Vis de réglage d'azimut en défilement inverse

Fig. 9-2 Vis de réglage d'azimut de tête

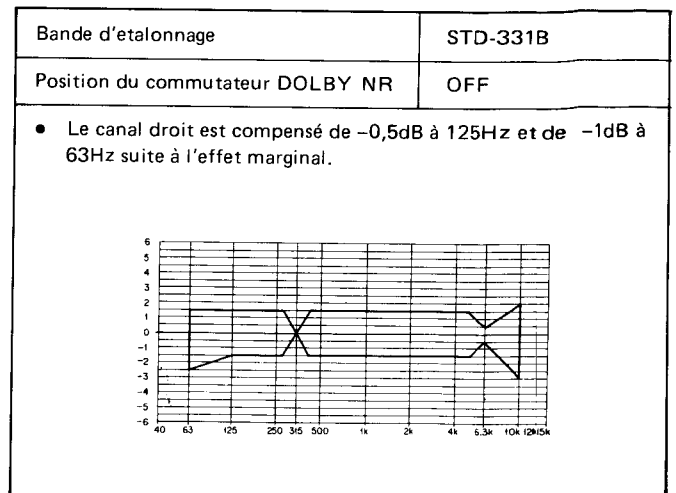


Fig. 9-3 Zone de tolérance de réponse en fréquence de lecture

1. Réglage d'azimut de tête magnétique

- Régler les résistances variables V102 et V202 de façon à obtenir des niveaux maximaux et les résistances variables V101 et V201 sur leur position mécanique centrale.

	Mode	Signal d'entrée appliqué et bande d'étalonnage	Emplacement du réglage	Emplacement de la borne d'étalonnage	Valeur relevée	Observations
1	DÉFILEMENT NORMAL-LECTURE	Lire le passage préenregistré de 10kHz/-20dB de la bande d'étalonnage STD-331B	Vis de réglage d'azimut de tête d'avance normal (voir la figure 9-2)	Bornes de sortie de ligne droite et gauche	Niveau maximum du signal de lecture	
2	LECTURE-DÉFILEMENT INVERSE		Vis de réglage d'azimut de tête d'avance inverse (voir la figure 9-2)			

2. Réglage de l'égalisateur de lecture

	Mode	Signal d'entrée appliqué et bande d'étalonnage	Emplacement du réglage	Emplacement de la borne d'étalonnage	Valeur relevée	Observations
1	DÉFILEMENT NORMAL-LECTURE	Lire le passage préenregistré de 315Hz et de 6,3kHz/-20dB de la bande d'étalonnage STD-331B	V101 (canal gauche) V201 (canal droit)	Bornes de sortie de ligne droite et gauche	Ajuster le niveau de lecture de 6,3kHz à 0dB par rapport au niveau de lecture de 315Hz	±0,5dB d'écart admissible
2	DÉFILEMENT NORMAL-DÉFILEMENT INVERSE LECTURE	Lire plusieurs sections de fréquence préenregistrées -20dB de la bande d'étalonnage STD-331B	Confirmer		Les résultats doivent se placer dans la zone représentée sur la figure 9-3	

3. Réglage du niveau de lecture

- Ce réglage servant à étalonner le niveau du DOLBY NR doit être exécuté avec une grande précision.

	Mode	Signal d'entrée appliqué et bande d'étalonnage	Emplacement du réglage	Emplacement de la borne d'étalonnage	Valeur relevée	Observations
1	DÉFILEMENT NORMAL-LECTURE	Lire le passage préenregistré de 315Hz/0dB de la bande d'étalonnage STD-331B	V102 (canal gauche) V202 (canal droit)	TP (DOL.L)(*) TP (DOL.R)(*)	-17,9dBv (127,3mV)	

* DOL.L est le fil de jonction gauche à R116 et DOL.R est le fil de jonction gauche à R216.

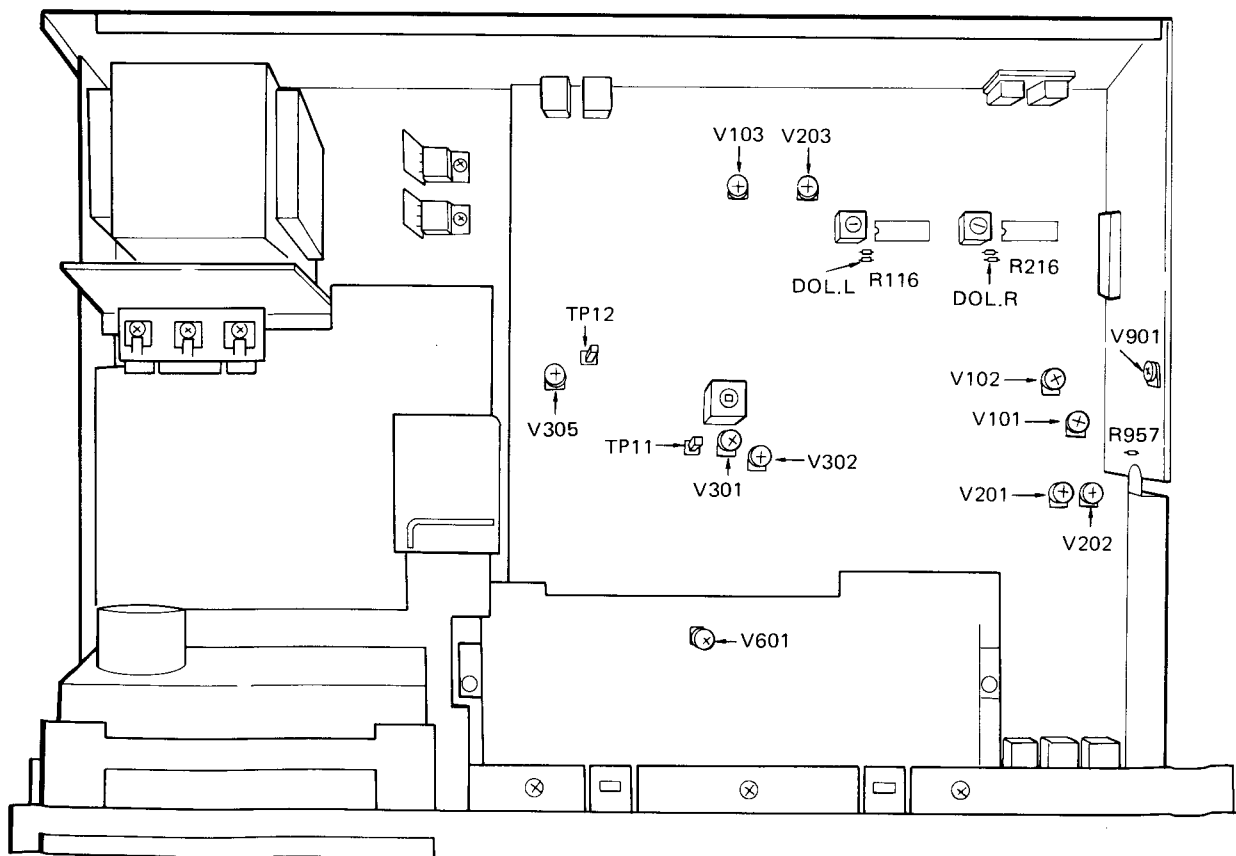


Fig. 9-4 Implantation des composants de réglage

4. Réglage de détection de bande-armorce

	Mode	Signal d'entrée appliqué et bande d'étalonnage	Emplacement du réglage	Emplacement de la borne d'étalonnage	Valeur relevée	Observations
1	LECTURE	Aucun signal injecté; charger une demi-cassette vide	V305	TP12 (BANDE-AMORCE)	$1V^{+0,2}_-0$	
2	● S'assurer que la bande-armorce est correctement détectée (dans les deux sens: défilement normal et défilement inverse quand la platine est réglée en mode continu)					

5. Réglage des décibelmètres

	Mode	Signal d'entrée appliqué et bande d'étalonnage	Emplacement du réglage	Emplacement de la borne d'étalonnage	Valeur relevée	Observations
1	PAUSE A L'ENREGISTREMENT	Appliquer un signal de 315Hz/ -10dBv aux bornes d'entrée de ligne et charger la bande d'étalonnage STD-608A	Potentiomètres de niveau d'enregistrement	TP (DOL.L) TP (DOL.R)	-14,9dBv (180mV)	
2			V601	Tourner complètement V601 dans le sens contraire des aiguilles d'une montre puis la tourner lentement dans le sens des aiguilles d'une montre et s'arrêter dès que les segments "+3VU" s'allument		

6. Réglage de réponse en fréquence de lecture et d'enregistrement

- Conserver le commutateur DOLBY NR en position OFF.

	Mode	Signal d'entrée appliqué et bande d'étalonnage	Emplacement du réglage	Emplacement de la borne d'étalonnage	Valeur relevée	Observations	
1	PAUSE A L'ENREGISTREMENT	Appliquer un signal de 315Hz/ -30dBv aux bornes d'entrée de ligne et charger la bande d'étalonnage STD-608A	Potentiomètres de niveau d'enregistrement	TP (DOL.L) TP (DOL.R)	-37,9dBv (12,7mV)		
2	DÉFILEMENT NORMAL - ENREGISTREMENT → LECTURE	Enregistrer et lire les signaux de 315Hz et 6,3kHz au niveau d'entrée de -30dBv	V301 (canal G) V302 (canal D)	Bornes de sortie de ligne gauche et droite	Obtenir un niveau de lecture de 6,3kHz et de +1dB par rapport au niveau du signal de 315Hz en effectuant des essais successifs d'enregistrement et de lecture	Les écarts admissibles sont de l'ordre de +0,5dB à +1,5dB	
3	ENREGISTREMENT → LECTURE	Enregistrer et lire les signaux de 63Hz à 12kHz avec un niveau d'entrée de +30dBv	Contrôler				Les caractéristiques des modes de défilement normal et de défilement inverse, quand le commutateur DOLBY NR est sur OFF et sur ON (types B et C) (voir la figure 9-5) doivent être satisfaites (pour les deux modes précités)
4	Si les caractéristiques ne sont pas satisfaites (y compris les contrôles qui suivent), refaire le réglage du niveau de lecture de 6,3kHz pour obtenir un résultat de plaçant dans les limites spécifiées de -1,5dB et +2,5dB par rapport au niveau du signal de 315Hz, comme indiqué à l'opération 2.						
5	Refaire le contrôle décrit dans l'opération 3 avec la bande d'étalonnage STD-603. Les caractéristiques indiquées par la figure 9-6 doivent être satisfaites.						
6	Refaire le contrôle décrit dans l'opération 3 avec la bande d'étalonnage STD-610. Les caractéristiques indiquées par la figure 9-7 doivent être satisfaites.						
7	Lorsque les réglages sont terminés, contrôler la distorsion et s'en assurer par rapport à la souspolarisation.						

7. Réglage du niveau d'enregistrement

- Conserver le commutateur DOLBY NR en position OFF.

	Mode	Signal d'entrée appliqué et bande d'étalonnage	Emplacement du réglage	Emplacement de la borne d'étalonnage	Valeur relevée	Observations
1	PAUSE A L'ENREGISTREMENT	Injecter un signal de 315Hz/-10dBv par les bornes d'entrée de ligne et charger la bande d'étalonnage STD-608A	Potentiomètres de niveau d'enregistrement	TP (DOL.L) TP (DOL.R)	-17,9dBv (127,4mV)	
2	ENREGISTREMENT → LECTURE	Enregistrer et lire le signal de 315Hz au niveau d'entrée de -10dBv	V103 (canal G) V203 (canal D)		Obtenir un niveau de lecture de -17,9dBv (127,4mV) en effectuant des essais successifs d'enregistrement et de lecture	
3	ENREGISTREMENT → LECTURE	Enregistrer et lire le signal de 315Hz/-10dBv sur la bande d'étalonnage STD-603	Contrôler		-17,9±1,5dBv	
4	ENREGISTREMENT → LECTURE	Enregistrer et lire le signal de 315Hz/-10dBv sur la bande d'étalonnage STD-610	Contrôler		-17,9±1,5dBv	

8. Réglage de durée de recouvrement du système dbx					
Mode	Signal d'entrée appliqué et bande d'étalonnage	Emplacement du réglage	Emplacement de la borne d'étalonnage	Valeur relevée	Observations
ARRÊT	Aucun signal	V901	Bornes R957	DC15mV	

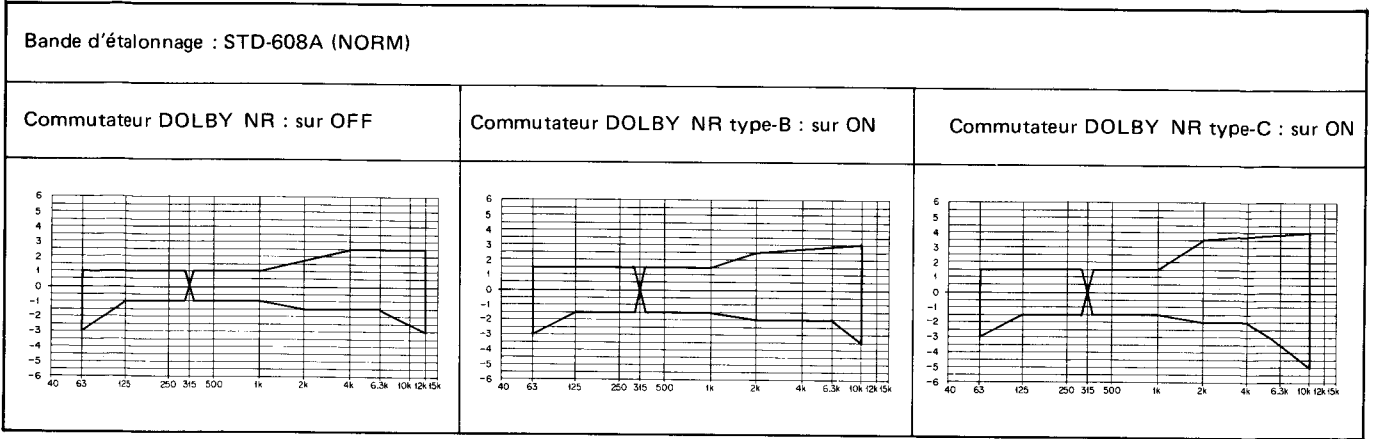


Fig. 9-5 Zones admissibles de réponse en fréquence d'enregistrement et de lecture (NORM)

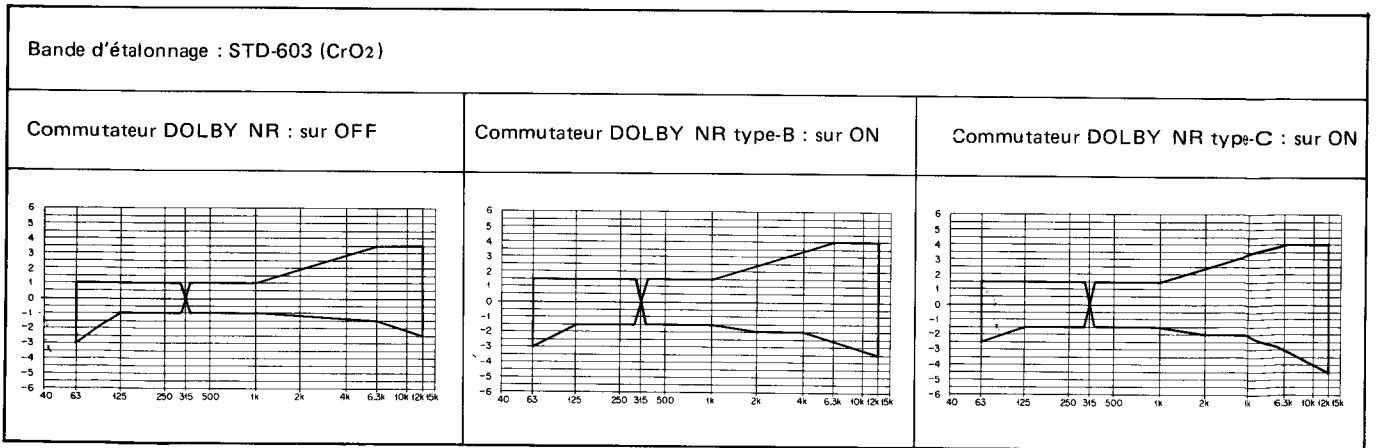


Fig. 9-6 Zones admissibles de réponse en fréquence d'enregistrement et de lecture (CrO₂)

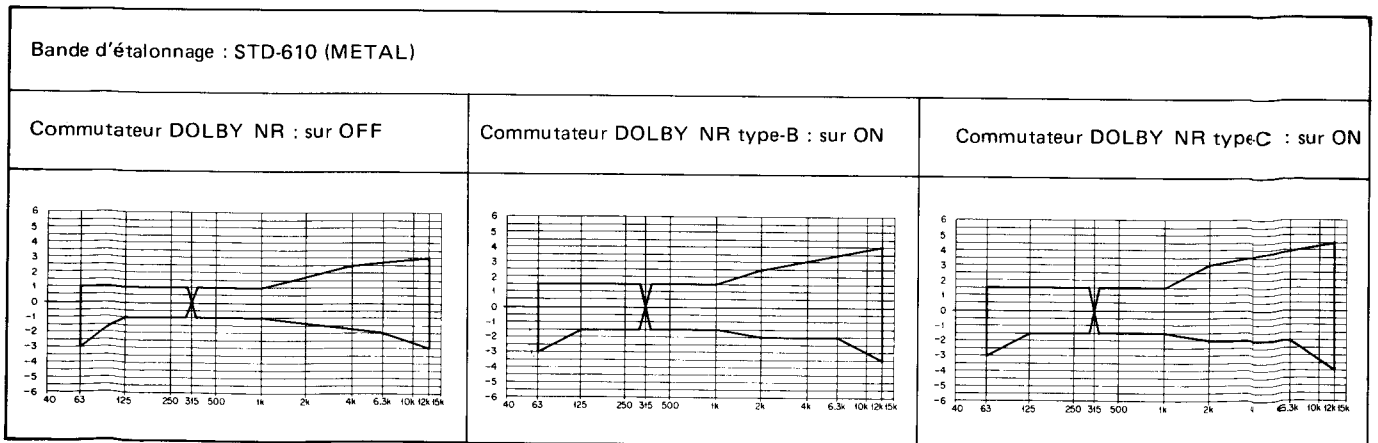
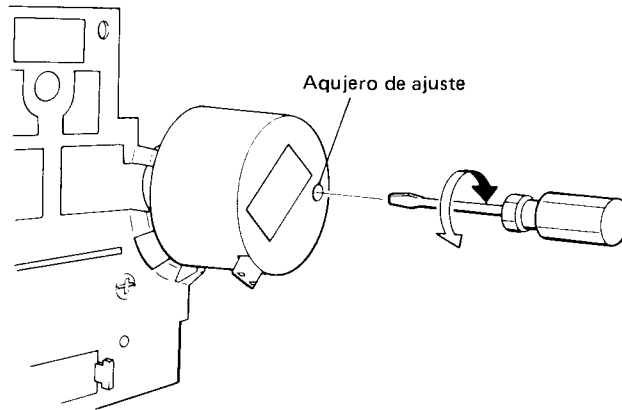


Fig. 9-7 Zones admissibles de réponse en fréquence d'enregistrement et de lecture (METAL)

9. AJUSTE

1. Inspección de ajuste de velocidad de la cinta

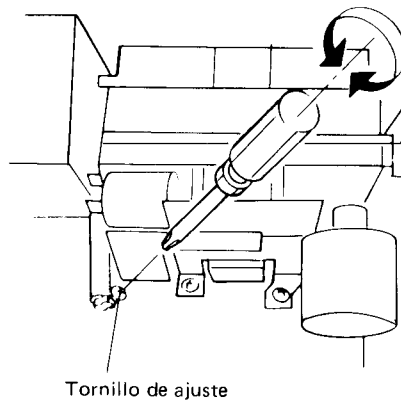
Modo	Cinta de prueba	Posición de ajuste	Capacidad (Frecuencia de reproducción)
PLAY	STD-301 (3kHz)	Control del resistor variable	3010Hz±5Hz



2. Inspección y ajuste de amortiguamiento de la puerta

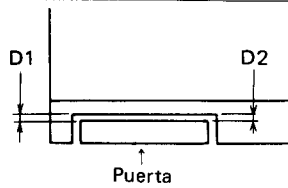
Posición de ajuste	Especificaciones
Tornillo de ajuste del cilindro Si la puerta rebota hacia atrás: girar a la derecha Si la puerta se abre en dos pasos: girar a la izquierda	Abra la puerta (operación de eyección) sin el cassette cargado. La puerta debe abrirse suavemente en una acción sin rebotar en la posición completamente abierta.

<Referencia> Velocidad de abertura de la puerta: 0,8 seg. ± 0,3 seg. (temperatura normal)



3. Inspección y ajuste de la posición de las puertas

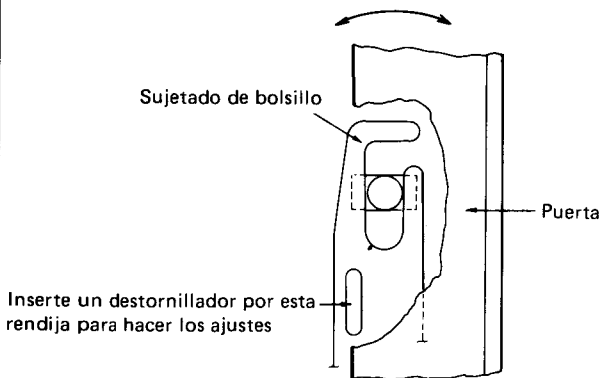
- Las dimensiones de la posición de las puertas vistas de arriba deben estar de acuerdo con las siguientes especificaciones.



<Dimensiones D>

Valor estándar	1,2 mm
Valores permisibles	0,9 a 1,6 mm
Diferencia entre la derecha e izquierda	$D1 - D2 < 0,4 \text{ mm}$

- Si no están de acuerdo con los valores indicados, efectúe el ajuste doblando el sujetador de bolsillo como se muestra abajo.

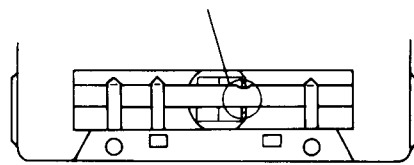


4. Ajuste de la dirección de marcha de la cinta

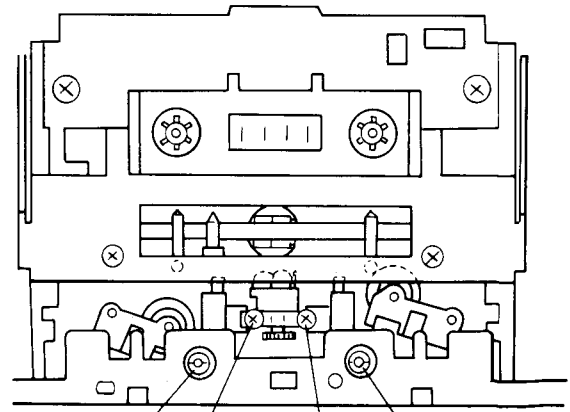
(Quite la puerta de cassette)

Modo	Posición de ajuste	Especificaciones
Parada de avance "FWD STOP"	Tornillo de ajuste azimutal de inversión FWD	El cabezal debe estar en paralelo con la dirección de marcha de la cinta vista de arriba con el marco de puerta abierto
Parada de inversión "REV STOP"	Tornillo de ajuste azimutal de inversión REV	
Coloque una mitad de cassette equipado con espejo, y levante la base del cabezal con la mano para poner la cinta en correcto contacto con la guía de cinta.		
Parada "STOP"	Tornillos de ajuste de altura (derecho e izquierdo)	La cinta debe pasar por el centro de la guía de cinta (ajuste visual)
Avance-reproducción "FWD PLAY"	Tornillo de ajuste de altura izquierdo	Ajuste la guía de cinta de "corriente arriba" de manera que la cinta no se encrespe en la guía
Inversión-reproducción "REV PLAY"	Tornillo de ajuste de altura derecho	

Elimine el encrespado en la guía cabezal



Mitad de cassette con espejo

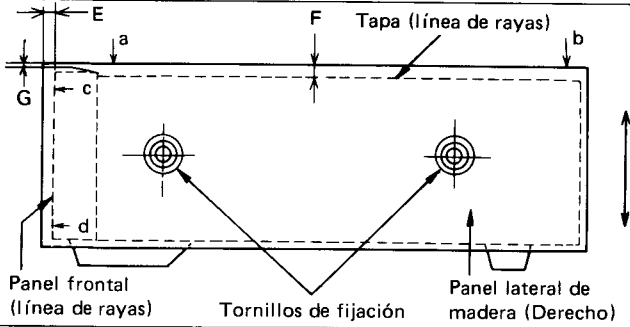


Tornillo de ajuste de altura de avance "FWD" Tornillo de ajuste de altura de inversión "REV"

Tornillo de ajuste azimutal "FWD" Tornillo de ajuste azimutal "REV"

5. Inspección y ajuste de la posición de los paneles laterales de madera (CT-S88R/D/G)

- Las dimensiones de los paneles laterales de madera vistos de los costados deben estar de acuerdo con los valores dados abajo.



Dimensión E	$1 \pm 0,5 \text{ mm}$
Inclinación (secciones c y d)	$|Ec - Eb| < 0,5 \text{ mm}$
Dimensión F	
Inclinación (secciones a y b)	$|Fa - Fb| < 0,5 \text{ mm}$
Dimensión G	$0 - 2 \text{ mm}$ (Diferencia en la derecha e izquierda (1 mm))

- Si no están de acuerdo con los valores especificados, afloje los dos tornillos de fijación y regule el panel hacia arriba/abajo/derecha/izquierda y reapriete los tornillos.

- El panel izquierdo se ajusta de la misma manera.

6. Inspección de la expulsión en el modo de reproducción

- El deck de cinta no debe pararse al presionar el botón de eyección "EJECT" (para quitar la laxitud en la dirección de empuje) durante el modo de reproducción.
- El deck de cinta no debe parar al caer de una altura de 5 cm con su panel delantero hacia abajo y luego ambos costados.

9.1 AJUSTES ELECTRICOS

Requisitos previos para los ajustes eléctricos

1. Todos los ajustes mecánicos deben estar terminados.
2. Los cabezales deben estar limpios y desimados.
3. Deje que el aparato se caliente por varios minutos antes de iniciar los ajustes.
4. Regule el nivel de señal a $0\text{dBv} = 1\text{Vrms}$.
5. Conecte una resistencia de carga de 50 kilohmios (47 a 52 kilo-ohmios permisibles) a través de los terminales de salida.
6. Deje todos los interruptores DOLBY NR y dbx en OFF a menos que se indique de otra manera.

Lista de ajustes

1. Ajuste azimutal del cabezal
2. Ajuste del ecualizador de reproducción
3. Ajuste del nivel de reproducción
4. Ajuste de la operación de detección de punta de la cinta
5. Ajuste del indicador de nivel
6. Ajuste de respuesta de frecuencia de grabación y reproducción
7. Ajuste del nivel de grabación
8. Ajuste del tiempo de recuperación del sistema dbx

Cintas de prueba

- Ajustes del sistema de reproducción : STD-331B
(Véase la Fig. 9-1)
- Cinta en blanco NORMAL : STD-608A
Cinta en blanco CrO₂ : STD-603
Cinta en blanco METAL : STD-610

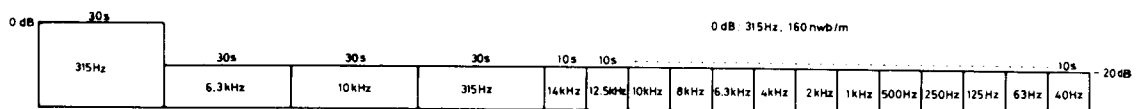
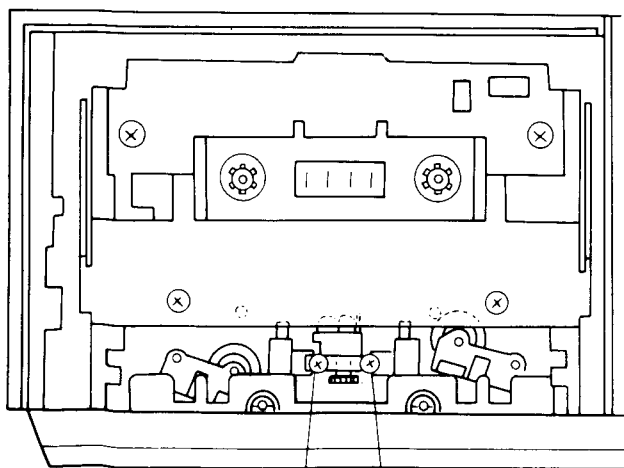


Fig. 9-1 Cinta de prueba STD-331B



Tornillo de ajuste azimutal de inversión "REV" Tornillo de ajuste azimutal de avance "FWD"

Fig. 9-2 Ajuste azimutal del cabezal

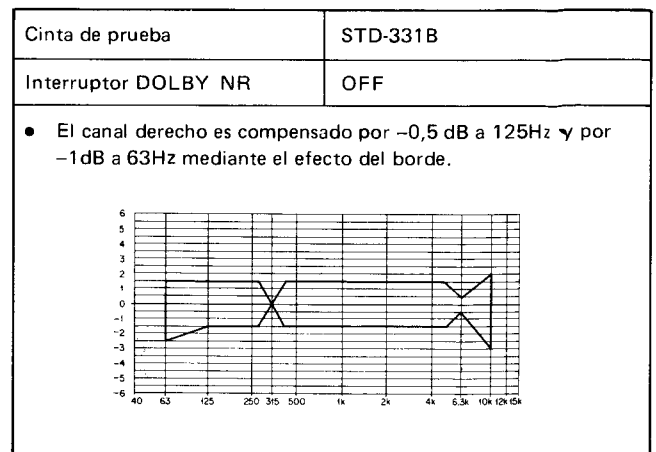


Fig. 9-3 Zona permisible de respuesta de frecuencia de reproducción

1. Ajuste azimutal del cabezal

• Regule V102 y V202 a las posiciones máximas, y V101 y V201 a las posiciones centrales mecánicas.

Modo	Señal de entrada y cinta de prueba	Posición de ajuste	Posición de medición	Valor de ajuste	Observaciones
1 Avance-reproducción "FWD-PLAY"	Reproduzca la porción de 10kHz/ -20dB de la cinta de prueba STD-331B	Tornillo de ajuste azimutal de avance "FWD" (Fig. 9-2)	Terminales de salida de línea derecho e izquierdo	Nivel máximo de señal de reproducción	
2 Inversión-reproducción "REV-PLAY"		Tornillo de ajuste azimutal de inversión "REV" (Fig.9-2)			

2. Ajuste del ecualizador de reproducción

Modo	Señal de entrada y cinta de prueba	Posición de ajuste	Posición de medición	Valor de ajuste	Observaciones
1 Avance-reproducción "FWD-PLAY"	Reproduzca la porción de 315Hz y 6,3kHz/-20dB de la cinta de prueba STD-331B	V101 (Canal Izq.) V201 (Canal Der.)	Terminales de salida de línea derecho e izquierdo	Regule el nivel de 6,3kHz a 0dB con respecto al nivel de reproducción de 315Hz	Variación de ±0,5dB permisible
2 Avance/inversión/reproducción "FWD/REV/PLAY"	Reproduzca varias frecuencias a -20dB en la cinta de prueba STD-331B	Revisar		Los resultados deben ser como se muestran en la zona indicada en la Fig.9-3	

3. Ajuste del nivel de reproducción

• Efectúe cuidadosamente este ajuste, y a que su resultado se usa en la graduación del nivel Dolby NR.

Modo	Señal de entrada y cinta de prueba	Posición de ajuste	Posición de medición	Valor de ajuste	Observaciones
1 Avance-reproducción "FWD-PLAY"	Reproduzca la porción 315Hz/0dB de la cinta de prueba STD-331B	V102 (Canal Izq.) V202 (Canal Der.)	TP (DOL.L) (*) TP (DOL.R) (*)	-17,9dBv (127,3mV)	

* DOL.L es el cable conductor izquierdo en R116, y DOL.R es el cable conductor izquierdo en R216.

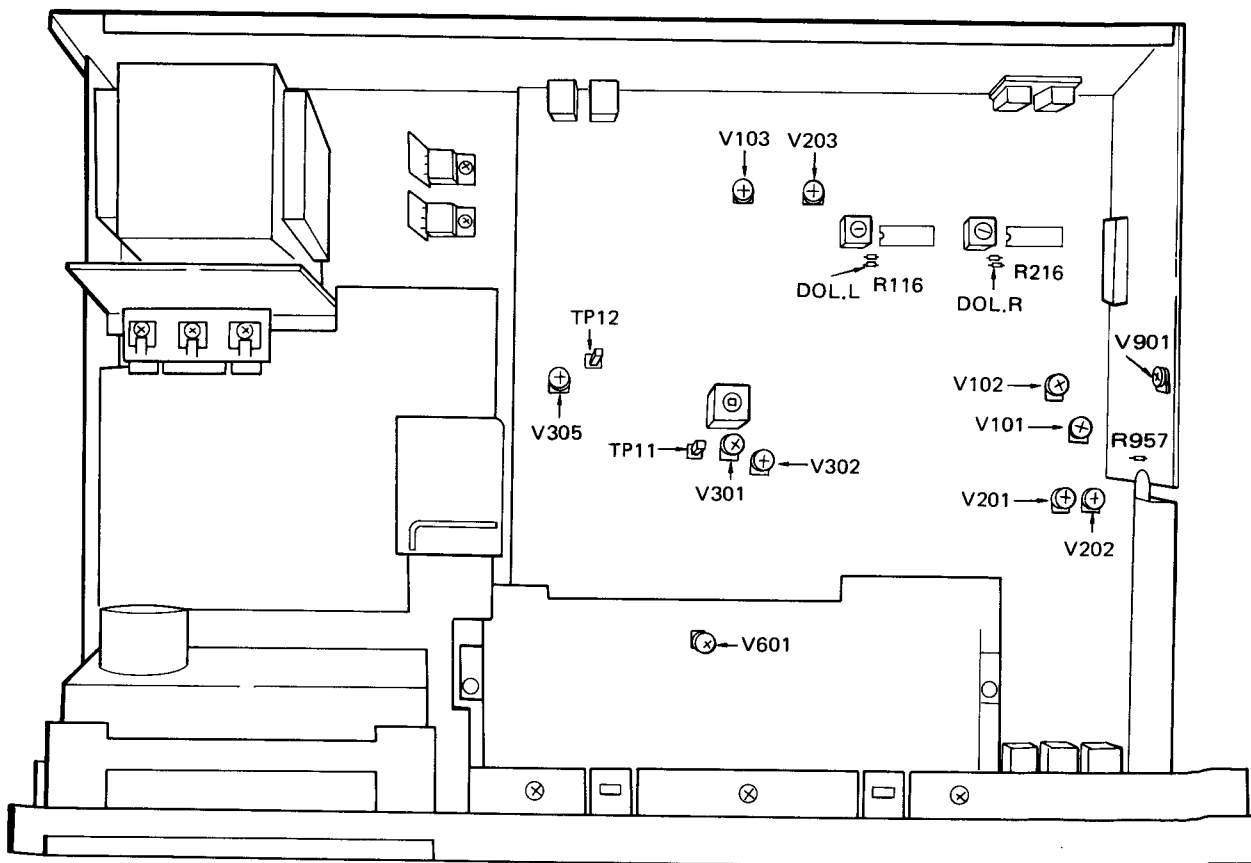


Fig. 9-4 Posiciones de ajuste

4. Ajuste de la operación de detección de punta de la cinta

Modo	Señal de entrada y cinta de prueba	Posición de ajuste	Posición de medición	Valor de ajuste	Observaciones
1 Reproducción "PLAY"	Sin entrada — cargar una mitad de cassette vacío	V305	TP12 (PUNTA DE LA CINTA)	1V ^{+0,2} ₋₀ V	

2 • Confirme que la punta de la cinta es correctamente detectada (en las direcciones de avance "FWD" e inversión "REV" en el modo de inversión sin fin).

5. Ajuste del indicador de nivel

Modo	Señal de entrada y cinta de prueba	Posición de ajuste	Posición de medición	Valor de ajuste	Observaciones
1 Grabación/pause "REC/PAUSE"	Aplique una señal de 315Hz/ -10dBv a los terminales de entrada de línea y coloque la cinta de prueba STD-608A	Controles del nivel de grabación "REC LEVEL"	TP (DOL.L) TP (DOL.R)	-14,9dBv (180mV)	
2		V601	Gire el V601 completamente a la izquierda y gírelo suavemente a la derecha y pare el giro cuando se enciendan los segmentos "+3VU"		

6. Ajuste de la respuesta de frecuencia de grabación y reproducción

• Deje en OFF el interruptor DOLBY NR.

Modo	Señal de entrada y cinta de prueba	Posición de ajuste	Posición de medición	Valor de ajuste	Observaciones
1 Grabación/pausa "REC/PAUSE"	Aplique una señal de 315Hz/ -30dBv a los terminales de entrada de línea y coloque la cinta de prueba STD-608A	Controles del nivel de grabación "REC LEVEL"	TP (DOL.L) TP (DOL.R)	-37,9dBv (12,7mV)	
2 Avance Grabación — reproducción "FWD REC → PLAY"	Grabe y reproduzca las señales de 315Hz y 6,3kHz a un nivel de entrada de -30dBv	V301 (Can. Izq.) V302 (Can. Der.)	Terminales de salida de línea derecho e izquierdo	Regule mediante repetición de grabación/reproducción para obtener un nivel de reproducción de +6,3kHz a +1,0dB con respecto a la señal de 315Hz	Las variaciones de +0,5dB a +1,5dB son permisibles.
3 Grabación — Reproducción "REC → PLAY"	Con un nivel de entrada de +30dBv, grabe y reproduzca señales de 6,3kHz a 12kHz	Revisar		Las especificaciones para FWD y REV, y DOLBY NR OFF y ON (tipos B y C) (Véase la Fig. 9-5) deben estar en conformidad (para FWD y REV)	
4 Si las especificaciones no están en conformidad (incluyendo las siguientes inspecciones), reajuste el nivel de reproducción de 6,3kHz a la un valor dentro de -1,5dB y +2,5dB con respecto a la señal de 315Hz en el procedimiento 2.					
5 Repita la inspección del procedimiento 3 usando la cinta de prueba STD-603. Las especificaciones mostradas en la Fig. 9-6 deben estar en conformidad.					
6 Repita la inspección del procedimiento 3 usando la cinta de prueba STD-610. Las especificaciones mostradas en la Fig. 9-7 deben estar en conformidad.					
7 Después del ajuste, confirme que no hay deformación y revise "baja polarización"					

7. Ajuste del nivel de grabación

• Deje en OFF el interruptor DOLBY NR.

Modo	Señal de entrada y cinta de prueba	Posición de ajuste	Posición de medición	Valor de ajuste	Observaciones
1 Grabación/pausa "REC/PAUSE"	Aplique una señal de 315Hz/ -10dBv a los terminales de entrada de línea y coloque la cinta de prueba STD-608A	Controles del nivel de grabación "REC LEVEL"	TP (DOL.L) TP (DOL.R)	-17,9dBv (127,4mV)	
2 Grabación — reproducción "REC → PLAY"	Grabe y reproduzca la señal de 315Hz/-10dBv	V103 (Can. Izq.) V203 (Can. Der.)		Regule mediante repetición de grabación/reproducción hasta obtener un nivel de reproducción de -17,9dBv (127,4mV)	
3 Grabación-reproducción "REC → PLAY"	Grabe y reproduzca la señal de 315Hz/-10dBv en STD-603	Revisar		-17,9±1,5dBv	
4 Grabación — reproducción "REC → PLAY"	Grabe y reproduzca la señal de 315Hz/-10dBv en STD-610	Revisar		-17,9±1,5dBv	

8. Ajuste del tiempo de recuperación del sistema dbx

Modo	Señal de entrada y cinta de prueba	Posición de ajuste	Posición de medición	Valor de ajuste	Observaciones
STOP	Non	V901	Terminales R957	DC15mV	

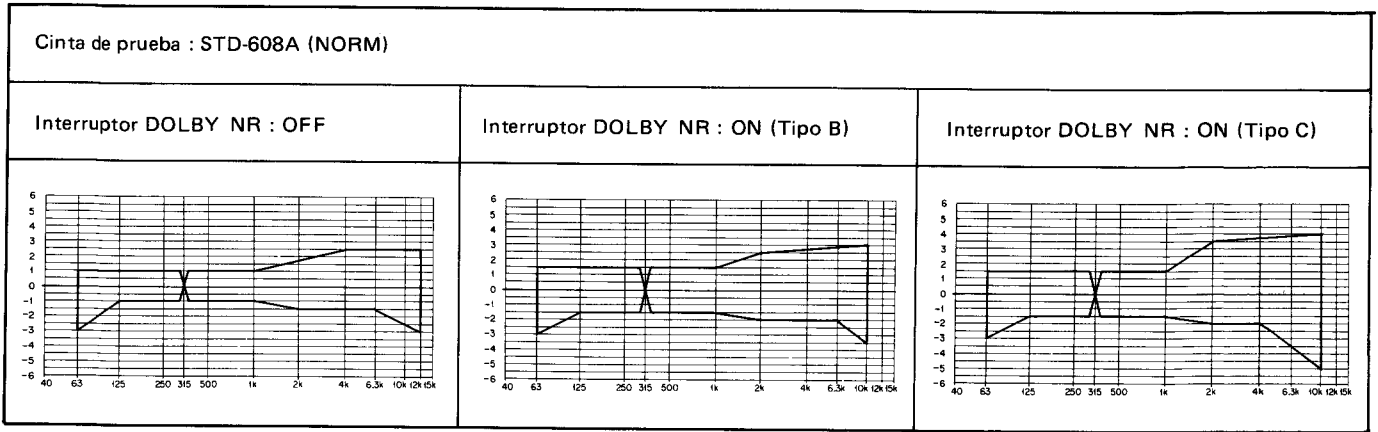


Fig. 9-5 Zonas permisibles de respuesta de frecuencia de grabación y reproducción (NORM)

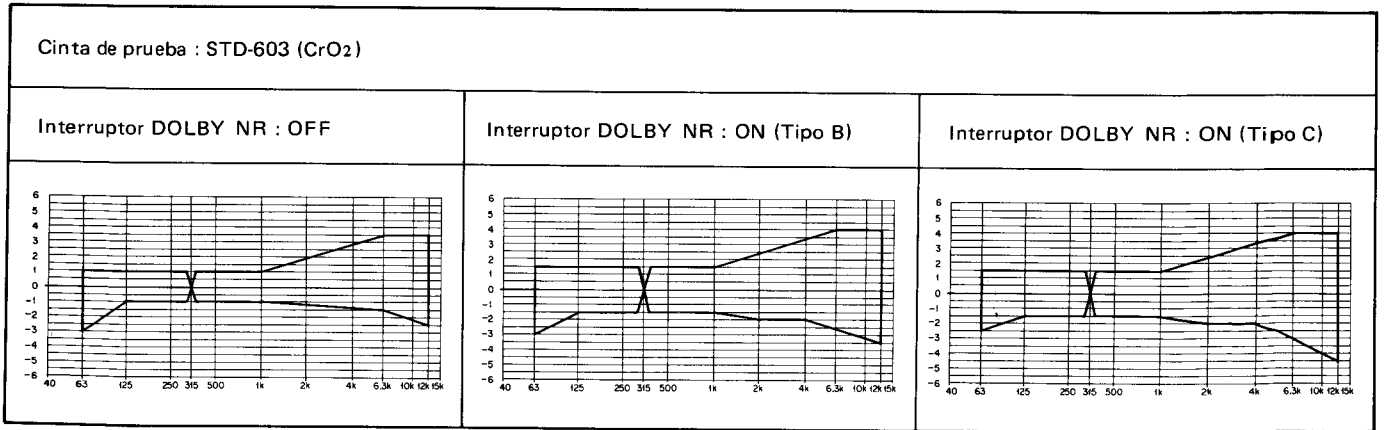


Fig. 9-6 Zonas permisibles de respuesta de frecuencia de grabación y reproducción (CrO₂)

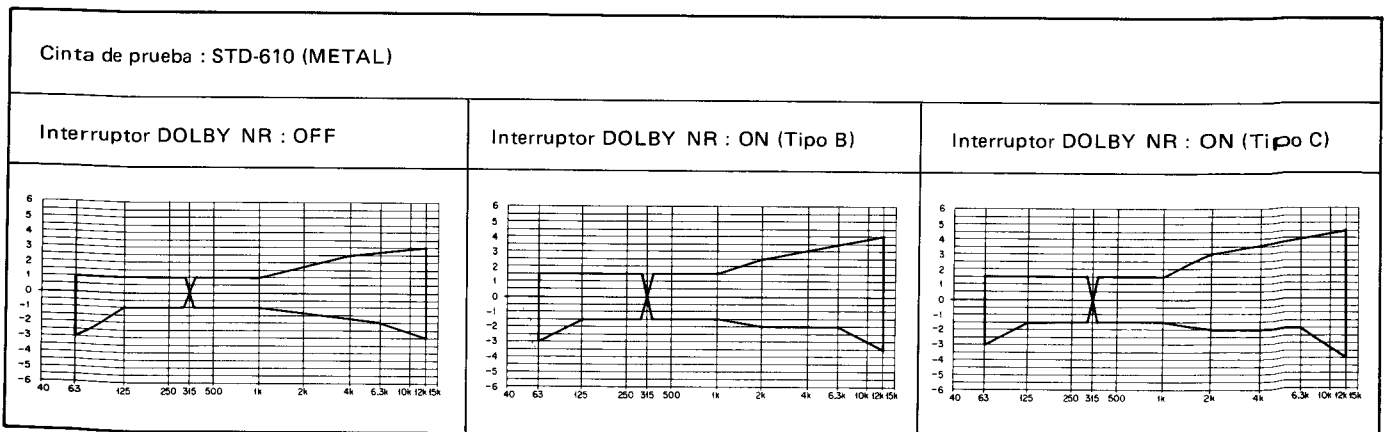
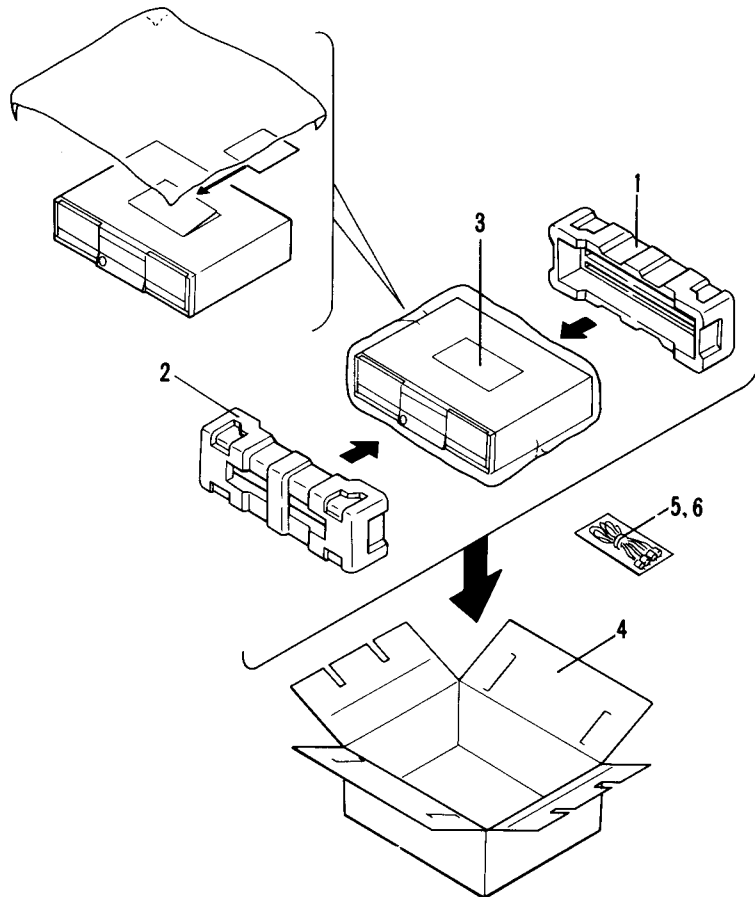


Fig. 9-7 Zonas permisibles de respuesta de frecuencia de grabación y reproducción (METAL)

10. PACKING

Mark	No.	Part No.	Description
	1	RHA-273	Pad R (without D/G type)
		RHA-272	Pad R (for D/G type)
	2	RHA-271	Pad F (without D/G type)
		RHA-270	Pad F (for D/G type)
	3	RRB-248	Operating instruction (English)
	4	RHG-785	Packing case ([BK], without D/G type)
		RHG-793	Packing case (silver model)
		RHG-786	Packing case (D/G type)
	5	RDE-010	Connection cord
	6	RDE-081	Control cord (D/G type only)



11. SUPPLEMENT FOR KC, HEM, HB, D AND D/G TYPES

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 ¹	561	.....	RD¼PS	561J
47kΩ	47 × 10 ³	473	.....	RD¼PS	473J
0.5Ω	0R5	.....	.....	RN2H	05K
1Ω	010	.....	.....	RS1P	010K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62kΩ	562 × 10 ¹	5621	RN¼SR	5621F
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- The Δ 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.

The KC, HEM, HB, D and D/G types are the same as the KU type with the exception of following sections:

Mark	Symbol & Description	Part No.					
		KU type	KC type	HEM type	HB type	D type	D/G type
Δ ★	T1 Power transformer (120V) (220/240V) (120/220/240V)	RTT-416	RTT-416	.....	.....	.....	.....
		.....	.....	RTT-418	RTT-418	.....	.....
		.....	.....	.....	.....	RTT-419	RTT-419
Δ ★★	FU1 Fuse (500mA) Fuse (T315mA)	REK-077	REK-077	.....	.....	REK-077	REK-077
		.....	.....	REK-052	REK-095	.....	.....
Δ ★★	FU2 Fuse (1.25A) Fuse (T1.25A)	REK-073	REK-073	.....	.....	REK-073	REK-073
		.....	.....	REK-070	REK-101	.....	.....
Δ ★★	S1 Line voltage selector	.....	.....	.....	.....	RSX-056	RSX-056
Δ	AC power cord	RDG-048	RDG-064	RDG-027	RDG-032	RDG-050	RDG-050
Δ	Strain relief (for AC power cord)	REC-395	.....	REC-396	REC-396	REC-395	REC-395
	Main unit	non supply	non supply	non supply	non supply	non supply	non supply
	Power supply unit	non supply	non supply	non supply	non supply	non supply	non supply
	Power switch unit	non supply	non supply	non supply	non supply	non supply	non supply
	Packing case (CT-S88R [BK])	RHG-785	RHG-785	RHG-785	RHG-785	RHG-785	RHG-786
	Packing case (CT-S88R)	.....	.....	RHG-793	.....	.....	.....
	Pad F	RHA-271	RHA-271	RHA-271	RHA-271	RHA-271	RHA-270
	Pad R	RHA-273	RHA-273	RHA-273	RHA-273	RHA-273	RHA-272
	Control cord	.....	.....	.....	.....	.....	RDE-081
	Operating instructions (English)	RRB-248	RRB-248	.....	RRB-248	RRB-248	RRB-248
	(English/German/French/Italian)	.....	.....	RRE-074	.....	.....	.....

CT-S88R/KC, HEM, HB, D, D/G

Main Unit

- Main unit for the KC, HEM, HB and D types is the same as the KU type.
- Main unit for the D/G type is the same as the KU type with the exception of the following sections:

Mark	Symbol & Description	Part No.		Remarks
		KU type	D/G type	
★	D320 – D322 Diode	.....	1S2473	
	R329 Carbon film resistor	.....	RD1/4PM274J	
	R343 Carbon film resistor	.....	RD1/4PM102J	
	Terminal (REMOTE CONTROL)	.....	RKN-071	

Power Supply Unit

- Power supply unit for the KC, D and D/G types is the same as the KU type.
- Power supply unit for the HEM and HB types is the same as the KU type with the exception of the following sections:

Mark	Symbol & Description	Part No.		Remarks
		KU type	HEM & HB types	
	C421 – C423 Ceramic capacitor	.....	CKDYF103Z50	

Power Switch Unit

- Power switch units for KC, HEM, HB, D and D/G types are the same as the KU type with the exception of the following sections:

Mark	Symbol & Description	Part No.			Remarks
		KU & KC type	HEM & HB type	D & D/G type	
⚠	C1401 Ceramic capacitor	RCG-006 (RCG-009)	RCG-009	RCG-008 (RCG-013) (VCG-032)	

Line Voltage Selection for HEM and HB Types

1. Disconnect the AC power cord.
2. Remove the bonnet case.
3. Change the connection of the power transformer primary lead wires as follows:
 - 220V: Connect the gray lead wire to the J1402-5 terminal on the power switch unit, and connect the red lead wire to the J1402-4 terminal.
 - 240V: Connect the gray lead wire to the J1402-4 terminal on the power switch unit, and connect the red lead wire to the J1402-5 terminal.
4. Stick the line voltage label on the rear panel.

Description	Part No.
220V label	AAX-193
240V label	AAX-192