

7-6-(12) RECORD LEVEL ADJUSTMENT

A record level adjustment should be made whenever the tape used with the equipment is changed and the head is replaced.

1. Set the SPEED selector switch to HIGH and set the MONITOR switch to the INPUT position.
2. Set the TEST OSC switch to 1 KHz and adjust the LINE INPUT controls to obtain a 0 dB indication on the VU meter.
3. Change the MONITOR switch to the REPRO position and place the equipment in the record mode.
4. Adjust the RECORD LEVEL adjustment controls (VR 204) to obtain a 0 dB indication on the VU meter (record/reproduce output level).

7-6-(13) PEAK INDICATOR TRIGGER LEVEL ADJUSTMENT

Peak indicators are triggered at the recorded flux level of 1040 nWb/m.

This point is 15 dB above 185 nWb/m, 12.4 dB above 250 nWb/m, and 11.2 dB above 320 nWb/m as shown in Figure 7-10.

1. Set the LINE INPUT LEVEL switch to the "L" position, the LINE OUTPUT LEVEL switch to the "H" position, and connect the audio oscillator to the EXT OSC jack.
Set the TEST OSC switch to the EXT OSC, and feed a -8 dBm 1 KHz signal.
2. Set the MONITOR switch to the INPUT position and adjust the LINE INPUT controls for a 0 dB indication on the VU meter.
(At this time INPUT SRL switch is set to the OFF position.)
3. For NAB equalization, shift the feeding level of the audio oscillator to +4.4 dBm.

4. For IEC equalization, shift the feeding level of the audio oscillator to +3.2 dBm.
5. Turn the VR 108 adjustment controls fully counterclockwise and then clockwise until each peak indicator in the VU meter illuminates.

7-6-(14) STAND-BY FUNCTION

In the "ON" position, if one of the channels is changed from SAFE to READY, the MONITOR mode of this channel changes to INPUT from SEL/REP or REPRO; in addition, the transport is in STOP, F.FWD or RWD.

SECTION 8

MAJOR COMPONENT REPLACEMENT

Prior to replacing major components, perform all the steps for access to the transport.

8-1 REEL MOTOR ASSEMBLY REPLACEMENT

8-1-(1) REEL TABLE REPLACEMENT AND HEIGHT ADJUSTMENT

The reel table may be removed by removing the three cross-recessed screws accessible from the front of the transport.

To adjust the reel table height, loosen the two hex socket head screws in Figure 8-1, adjust the height and retighten the screws.

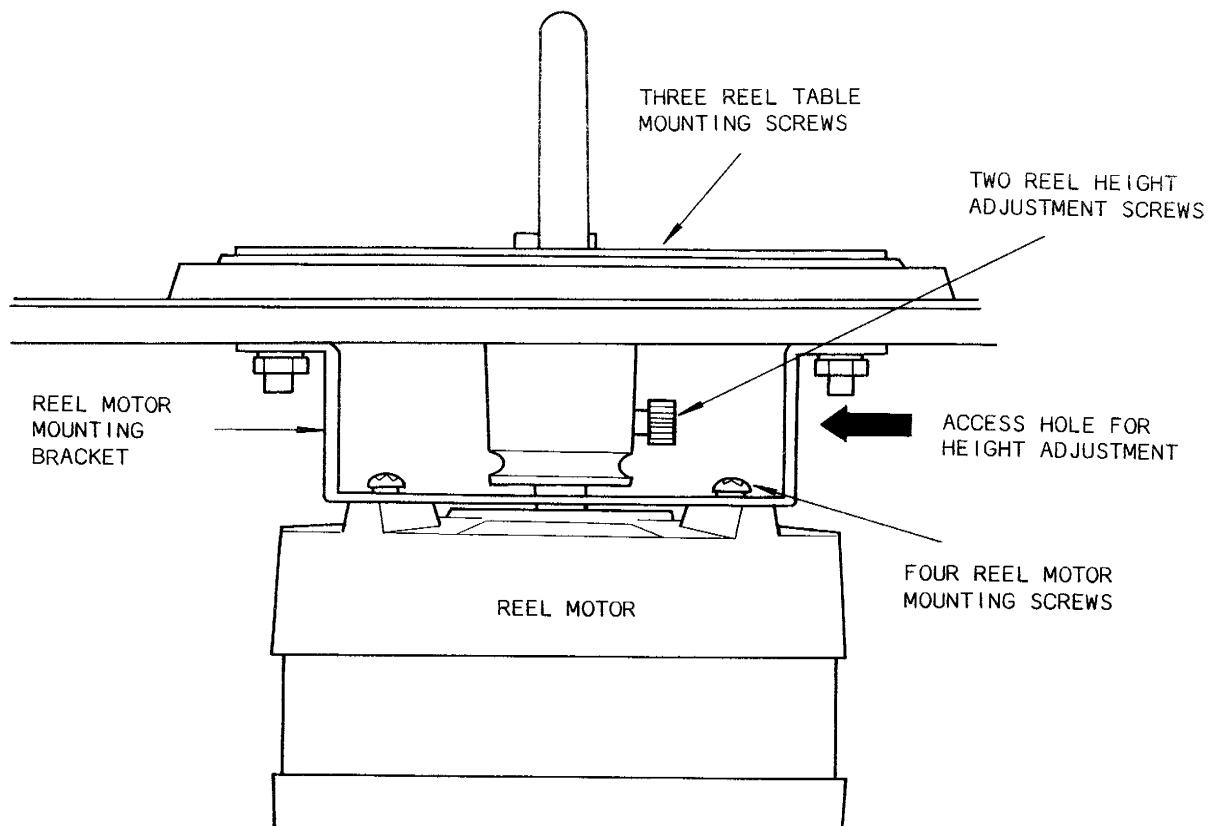


Figure 8-1 Reel Motor Mounting

8-1-(2) REEL MOTOR REPLACEMENT

To replace the supply or takeup motor proceed as follows:

1. Loosen the two hex socket head screws on the reel shaft holder (Figure 8-1) and remove the reel table and holder.
2. Tag and unsolder the motor leads attached to the printed circuit board.
3. Remove the four motor mounting cross-recessed screws, accessible from the front of the transport.
4. Remove the brake assembly and the brake drum by removing the four brake assembly mounting screws and two hex socket head screws on the bottom of the reel motor as shown in Figure 8-2.

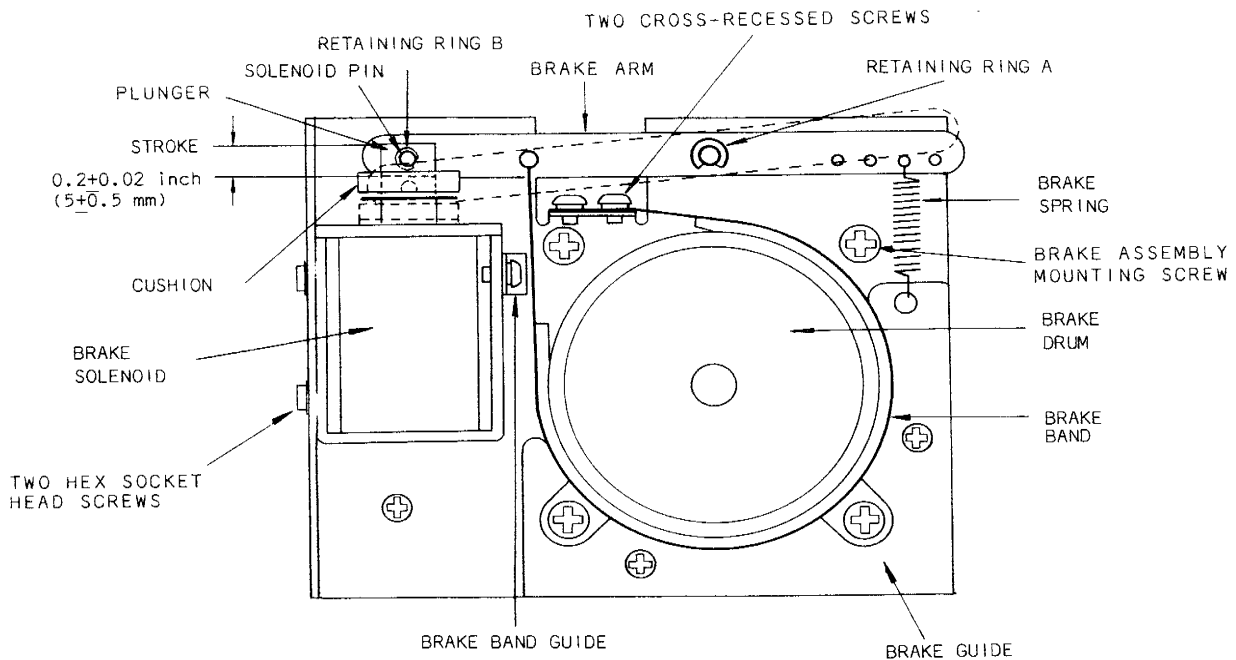


Figure 8-2 Brake Assembly

8-1-(3) BRAKE ARM ASSEMBLY AND BRAKE SOLENOID REPLACEMENT

When a new brake arm assembly or new brake solenoid is installed (Figure 8-2), it is necessary to position the brake guide and/or brake solenoid to ensure uniform brake band clearance around the brake drum when the solenoid is energized.

Also, the brake solenoid plunger must bottom in the solenoid housing when the solenoid is energized.

When the solenoid is de-energized, the brake band should uniformly contact the drum surface.

After installation, perform the brake adjustment procedure in Section 6 of this manual.

After completion of the adjustments, place the recorder in the play mode for 30 minutes.

Then press the STOP and PLAY pushbuttons alternately to ensure that the solenoid bottoms when it is hot.

To replace the brake arm assembly, proceed as follows:

The brake arm assembly consists of the brake arm and the brake band.

1. Remove the retaining rings "A" and "B", and remove the brake spring.
2. Remove the two cross-recessed screws, and replace the brake arm assembly.

To replace the brake solenoid, proceed as follows:

1. Remove the brake spring.
2. Remove retaining ring B on the solenoid pin and remove the solenoid pin.
3. Remove the solenoid housing and plunger by removing the two hex socket head screws.

4. Install a new solenoid housing and plunger and adjust the solenoid for a $5 \pm 0.5\text{mm}$ (0.2 ± 0.02 inch) plunger stroke by loosening the two hex socket head screws.

8-2 POWER TRANSFORMER REPLACEMENT

To replace the power transformer (refer to EXPLODED VIEW), proceed as follows:

1. Tag transformer leads and disconnect the three transformer connectors.
2. Remove the four M4 nuts that secure the transformer to the transport.
3. Install a new transformer in the reverse order of removal, and connect the three transformer connectors.

8-3 CAPSTAN MOTOR REPLACEMENT

The capstan motor should be replaced along with the servo control printed circuit board assembly.

To replace the capstan motor proceed as follows:

1. Remove the pinch roller, the head housing cover, the head front escutcheon as described in Section 5.
Remove the dust cap from the capstan by turning the dust cap counterclockwise.
2. Remove the connector on the servo control printed circuit board assembly located above the capstan.
3. Remove the servo control printed circuit board assembly and its mounting plate by turning the two M4 cross-recessed screws (D) and the four cross-recessed screws (B) on the mounting plate.

4. Remove the capstan mounting plate and capstan motor by removing the four M4 cross-recessed screws (A) on the mounting plate.
5. Remove the capstan motor by removing the three M4 cross-recessed screws (C) on the mounting plate and install a new capstan motor assembly in the reverse order of removal.

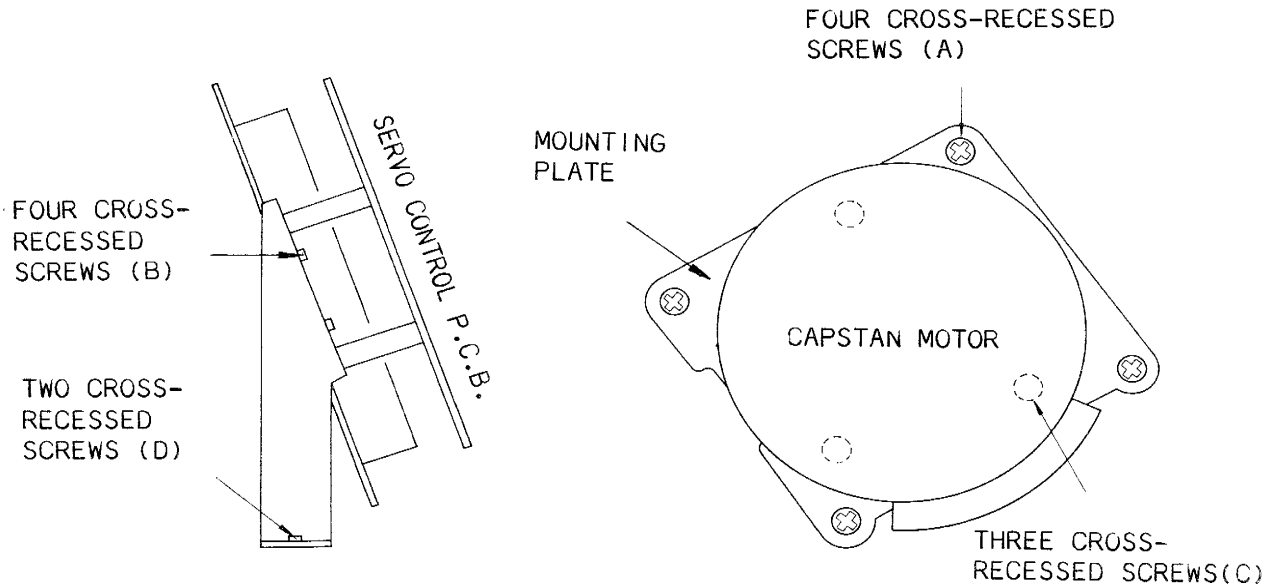


Figure 8-3 Location of DC Servo Capstan Motor

8-4 PINCH ROLLER REPLACEMENT

To replace the pinch roller assembly proceed as follows:

1. Remove the pinch roller cap by removing the flat head socket cap screw.
2. Install a new pinch roller, and pinch roller cap in the reverse order.

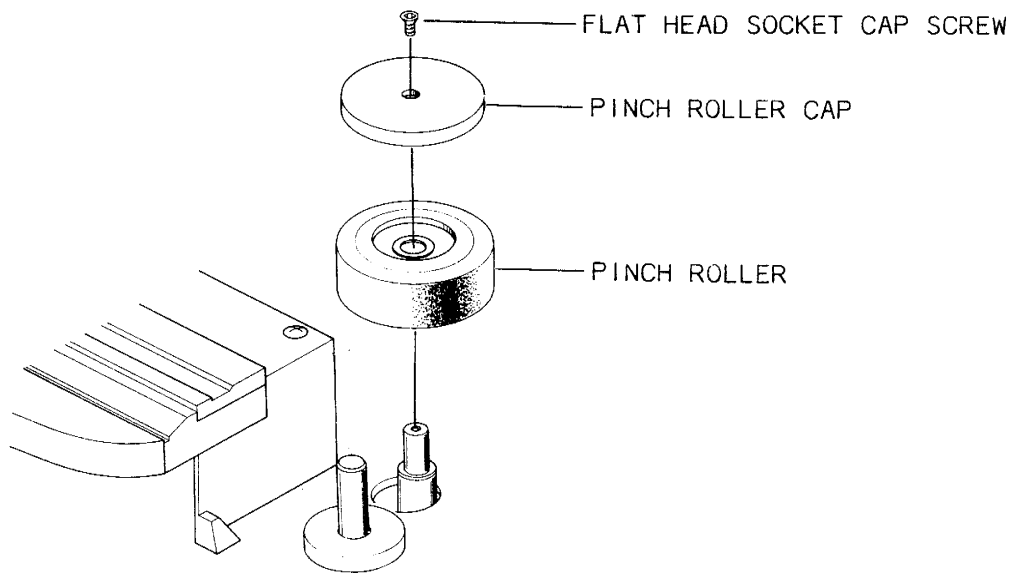


Figure 8-4 Pinch Roller Removal

8-5 HEAD ASSEMBLY REPLACEMENT

This section provides a description of the head assembly, the procedure for changing the head stack, and the adjustment procedure for adjusting head azimuth (tilt), head height, head zenith (perpendicularity), and tape wrap (racking).

These adjustments are required whenever a head stack is replaced.

8-5-(1) DESCRIPTION

The head assembly is mounted on three tape-guide posts and secured in place by the three screws labeled "M" in Figure 8-5.

Each head stack is secured to a bracket by the screws labeled "W".

Each bracket is suspended from the head base by the three spring-loaded screw labeled "H", "A", and "T".

Screws labeled "W" are used to adjust tape wrap.

Screws labeled "H", "A", and "T" are used to adjust height, azimuth, and zenith.

A head stack may be removed and re-lapped (face resurfaced) if the amount of wear is small and only an indication of poor head-to-tape contact is evident.

Poor contact is the result of improper adjustment and is evidenced by the loss of high frequency response of the record or reproduce head, difficulty in achieving bias peak (record head), and insufficient erase head erasure.

8-5-(2) HEAD STACK REPLACEMENT

To change a head stack, proceed as follows:

1. Lift the head cover and disconnect the ac power cord.
2. Remove the head assembly by removing the three screws labeled "M" and pull the two head connectors out.
3. Tag and unsolder the leads at the head connectors of the head assembly.
4. Remove the head stack by removing the three screws labeled "A", "T", and "H".
5. Install a new head stack by tightening the spring-loaded screws up and resolder the leads.
6. Paint the head face with a soft crayon, run the tape for about ten seconds, and check the crayon rubbed away by the tape.
If tape wrap is incorrect, adjust the wrap by loosening the screws labeled "W" as shown in Figure 8-5.

Head alignment and the following adjustments are necessary whenever the head is replaced.

1. For reproduce head replacement.
 - A. Reproduce equalization adjustment.
 - B. SRL adjustment.

2. For record head replacement
 - A. Record bias adjustment.
 - B. Overall frequency response adjustment.
 - C. Record level adjustment.
3. For erase head replacement.
 - A. Record bias adjustment.

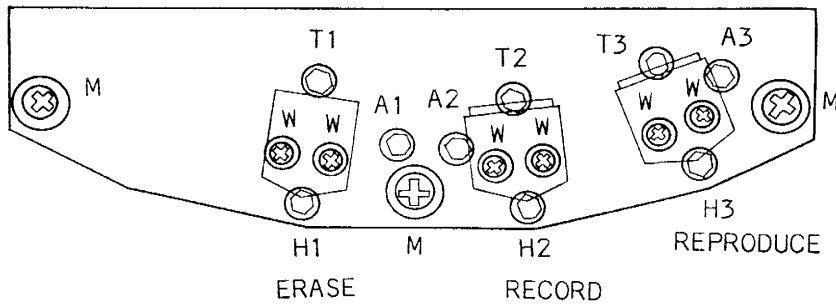


Figure 8-5 Head Assembly

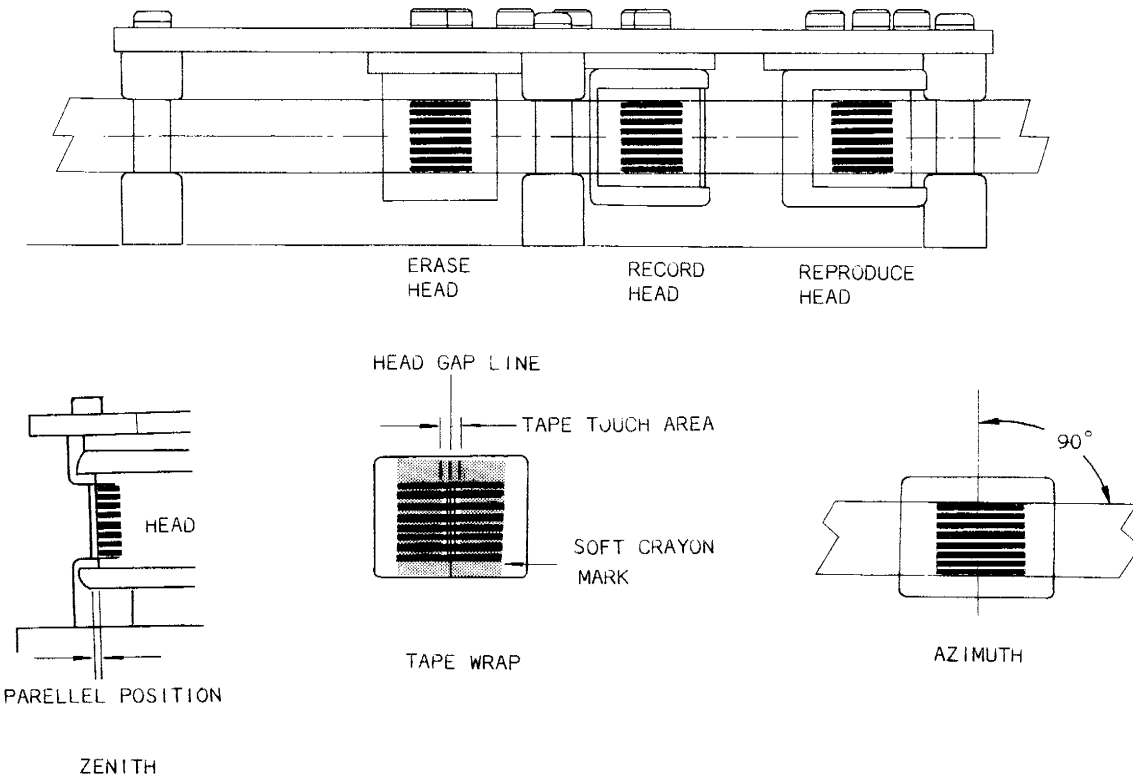


Figure 8-6 Head Alignment

8-5-(3) RECORD AND REPRODUCE HEAD ADJUSTMENT

Follow the procedure for reproduce system adjustment given in Section 7 of this manual.

For the final adjustment of a record head stack, the height and azimuth adjustment may be accomplished in the same manner as for a reproduce head stack, by playing back an alignment tape with the equipment in the selective reproduction mode.

8-5-(4) ERASE HEAD ALIGNMENT

Erase head azimuth is not critical, however wrap angle and head height relative to the record head are important to achieve maximum efficiency.

Poor erasure is often caused by misalignment of the erase head.

Before making any attempt to adjust the erase head stack, an entire electronic alignment procedure (reproduce, record, and bias alignment) should be performed so that the record and reproduce head height are correct, the SRL adjustment is correct, and bias and record levels are properly calibrated.

A temporary erase head adjustment can be accomplished by using a headset or a speaker/amplifier.

However, for precise alignment, a wave analyzer should be used.

Proceed as follows:

1. Follow the procedure for erasure test steps 1 through 6 given in Section 7-4-(4).

2. Observe the reading on the wave analyzer and turn screw "H" (Figure 8-5) 1/4 turn clockwise.

If the reading decreases, turn the screws "A" and "T" 1/4 turn clockwise.

If the reading increases when "H" is turned 1/4 turn clockwise, turn "H" counterclockwise past the original setting to 1/4 turn counterclockwise.

If the reading decreases, turn screws "A" and "T" counterclockwise by the same amount.

3. Repeat step 2 in small increments to achieve a minimum reading on the wave analyzer.

Typical amount of erasure should be 70 dB or better.

NOTE: After screw "H" is turned, be sure to turn screws "A" and "T" the same amount.

4. If adjustment of the erase head height alone does not achieve satisfactory erasure, set screws "H", "A", and "T" for a minimum reading on the wave analyzer.

Note that there are two gaps on the face of the erase head.

The trailing gap has the best effect on erasure and must have good contact with the tape.

Loosen screws "W" slightly and rotate the erase head stack for a minimum reading on the wave analyzer.

Tighten screws "W".

SECTION 9 TROUBLESHOOTING

9-1 PRELIMINARY PROCEDURES

If a problem should occur with the tape recorder, check that the following items are correct before proceeding.

As an aid in troubleshooting, refer to the following section and the schematic diagrams and parts lists included in this manual.

1. Head stacks are cleaned and demagnetized.
2. Head azimuth and height are correct.
3. Record bias has been adjusted properly.
4. Recommended tape has been used.
5. Input and output connectors are correctly wired.
6. AC line voltage tap is set to the correct value.
7. All operational switches have been correctly set.
8. Adjustment procedures have been correctly made using accurate test equipment.

9-2 TROUBLESHOOTING HINTS

Some of the more common problems, points to confirm and possible causes are listed in Table 9-1 and 9-2.

When a problem occurs, first, confirm certain points, and if the problem does not resolve itself, inspect other possible causes.

Table 9-1 Troubleshooting Hints for Amplifiers

Item	Symptom	Items to be checked	Defective parts
1	Record does not function.	Examine the READY/SAFE switch, input & output connector, head cords and consult operational procedures.	RL301 or Q301 on PB-15B or PB-15J is defective.
2	SEL/REP does not function.	Examine the MONITOR SELECT switch position, and consult operational procedures.	RL301 or Q301 on PB-15B or PB-15J is defective.
3	Bias level is not high enough.	Examine bias level, and resonance peak.	Q209,210,211 or 212 on PB-15B or PB-15J is defective.
4	Output level is not high enough.	Examine the LINE OUTPUT LEVEL switch position.	IC103 or 104 on PB-15B PB-15J is defective.
5	TEST OSC does not function.	Examine the MONITOR SELECT and TEST OSC switch position.	IC501 or 502 on PB-45G is defective.

Table 9-2 Troubleshooting Hints for Transport

Item	Symptom	Items to be checked	Defective parts
1	Transport does not function.	Examine the POWER switch, power cord, fuses, power receptacle.	IC4 on CB-317 or IC9 on PB-45N is defective.

Item	Symptom	Items to be checked	Defective parts
2	NO PLAY, F.FWD or RWD mode function.	Examine tape threading tension arm positions and EDIT switch.	IC1, Q4,6,7,8,9,10,11 14,15,16 or 18 on PB-45N is defective.
3	Record does not function or Record indicator does not light up.	Examine operational procedures.	IC1 or Q2 on PB-45N is defective.
4	EDIT does not function or EDIT indicator does not light up.	Examine operational procedures.	IC1 or 33 on PB-45N is defective.
5	Timer does not function.	Examine tape threading and tension arm positions.	IC2,3,32 or 33 on PB-45N is defective. Photo interrupter on PB-82M is defective.
6	Pinch roller does not function.	Examine looseness of nuts.	Q11, 14 or 18 on PB-45N is defective.
7	Brake does not function.	Examine the stroke of the Brake solenoid and smooth motion of the Brake arm.	Q4, 11, 15 or 16 on PB-45N is defective.
8	Capstan does not rotate or speed is incorrect.	Examine the connector of capstan motor P.C. Board, tension arm positions, pitch control knob position, and sped switch position.	Q5 on PB-45N is defective. Capstan motor or capstan motor P.C.Board is defective.

SECTION 10 PARTS LISTS AND SCHEMATICS

When ordering parts, the part number must be specified.

Components which do not have part numbers should be specified by a reference number.

Concerning components on the printed circuit boards, those which have part numbers should be specified by their respective part number, and those which do not have part numbers should be specified either by their assembly name or reference numbers.

NOTE

The part numbers in parenthesis are included in the assembly numbers indicated in the "Notes" next to those "Parts No.", therefore, those parts must be specified by the assembly numbers.

10-1 SAFETY COMPONENTS

For safe operation, components specified by the symbol Δ , in the circuit diagram, must not be replaced with ones of a different type. These safety components are also listed on Table 10-1.

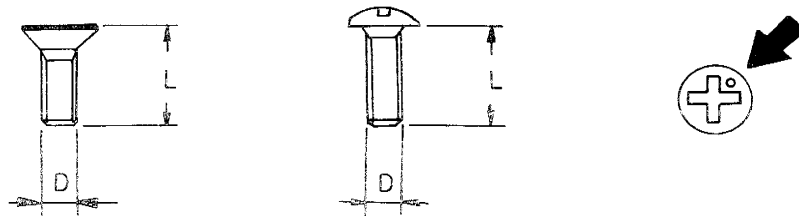
Table 10-1 Safety Component

Ref. No.	Description	Part No.	Assembly	Notes
2-10	Transformer, Power	TF11060	CHASSIS Ass'y	
2-16	Fuse, 5A, ϕ 5.2	FH7F050	"	Control P.C. Board Ass'y (PB-45N)
	Fuse, 3A, ϕ 5.2	FH7F030	"	
	Fuse, 2A, ϕ 5.2	FH7F020	"	
	Relay, Reel Motor switching	RY1DC029	"	
	Resistor, 18 ohm, 3W	R8DJ180M	"	
	11 ohm, 3W	R8DJ110M	"	
	5.1 ohm, 3W	R8DJ5R1M	"	
	0.33 ohm, 3W	R8DJR33M	"	
	100 ohm, 5W	R93-002K	"	
	Spark Killer 0.1 μ F+120 ohm (250 WV)	CZ20001W	"	
	Connector, 3P } pair, MB	CN403031	"	
	" 3P }	CN403075	"	
	" 6P } pair, MA and	CN406035	"	
	" 6P } MC	CN406077	"	
4-7	Capacitor, Reel Motor, 9 μ F (250 WV)	PB-76Z	Reel Ass'y	
	P.C. Board, Capacitor			
6-10	P.C. Board Ass'y, Power Switch	PB-76Q	Control Switch Ass'y	
	Fuse, Power Supply, 3A	FH7E030	"	
	Spark Killer, 0.033 μ F+120 ohm (250 WV)	CZ20004W	"	
	Spark Killer, 0.1 μ F+120 ohm (250 WV)	CZ20001W	"	
	Switch, Push, POWER SPEED REEL	WH12008	"	
8-2	Receptacle, A.C. Inlet, Power	CN603012	Connector	
	Power Cord	PZ9D003	Panel Ass'y	

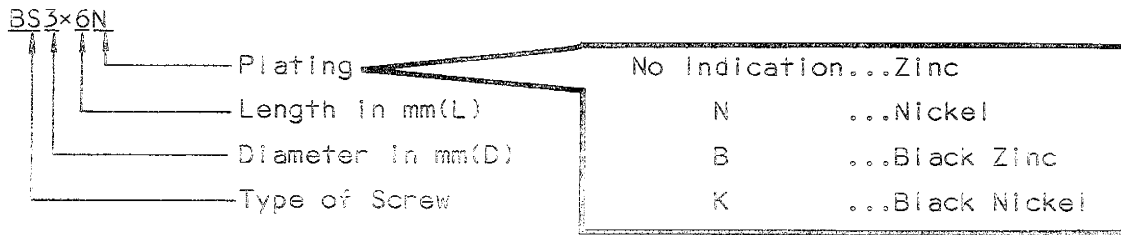
10-2 ASSEMBLY HARDWARE CODING

All screws conform to ISO standard, and have a cross-recessed head, unless otherwise noted.

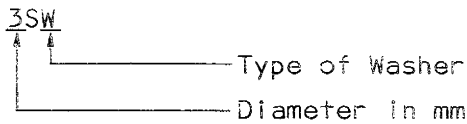
ISO screws have a point inscribed in the head as in the following figure.



EXAMPLE OF SCREW



EXAMPLE OF WASHER



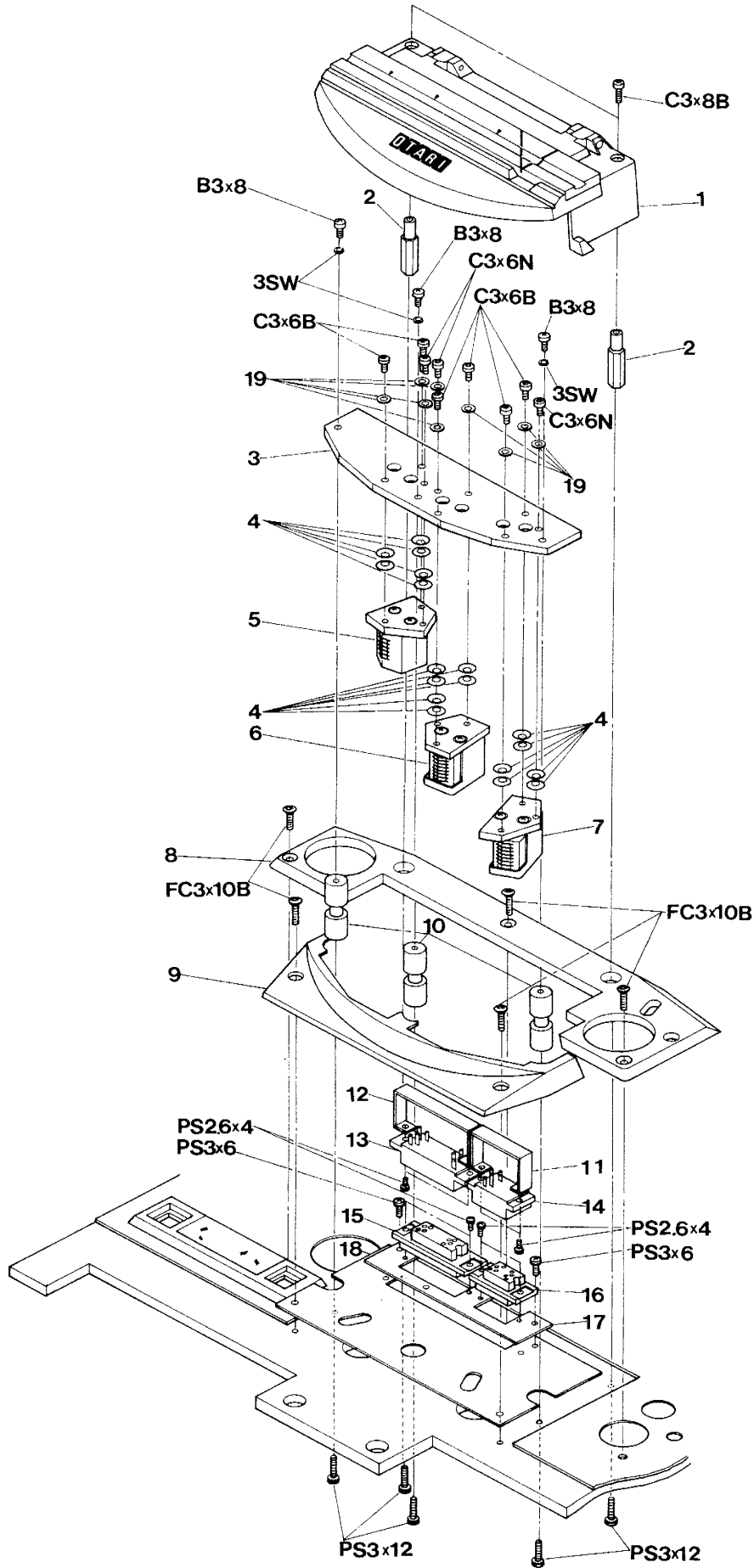
No.	Code	Full Name
1	BS	Blind SEMS Screw
2	PS	Pan SEMS Screw
3	TS	Triple Screw
4	B	Binding Head Screw
5	P	Pan Head Screw
6	F	Flat Countersunk Head Screw
7	O	Oval Countersunk Head Screw
8	H	Hex Head Bolt
9	T	Truss Head Screw

No.	Code	Full Name
10	C	Hex Socket Head Screw
11	S	Hex Socket Headless Set Screw
12	W	Flat Washer
13	SW	Spring Washer
14	N	Hex Nut
15	LW	Lock Washer
16	K	Knop Washer
17	FW	Fiber Washer
18	FC	Flat Head Socket Cap Screw
19	BC	Button Head Socket Cap Screw

10-3 PARTS LISTS AND EXPLODED VIEW

PARTS LIST 1. HEAD ASSEMBLY

Ref. No.	Description	Part No.	Notes
1-1	Head Housing Ass'y	KH-2H-A	
1-2	Stud, Head Housing Ass'y	KH4Y005	
1-3	Plate, Head Mount Base	KH0C036	
1-4	Washer, Conical Spring	PZ1E001	
1-5	Head, Erase, 8T/8CH	GH2E009B	
1-6	Head, Record, 8T/8CH	GH2R010B	
1-7	Head, Reproduce, 8T/8CH	GH2P011B	
1-8	Plate, Trim, Head Housing Ass'y	KH0F038	
1-9	Cover, Front, Head Housing Ass'y	KH0F037	
1-10	Guide, Head	KG2B007	
1-11	Handle B	CN7B-019	
1-12	Handle A	CN7B-018	
1-13	Connector, Male, Erase/Record Head	CN234130	
1-14	Connector, Male Reproduce Head	CN216128	
1-15	Connector, Female, Erase/Record Head	CN234129	
1-16	Connector, Female, Reproduce Head	CN216127	
1-17	Plate, Connector	KH2H001	
1-18	Plate, Shield	KH4Y001A	
1-19	Washer, Polyslider, $\phi 3 \times t0.5$	F524-3	



PARTS LIST 2. CHASSIS ASSEMBLY

Ref. No.	Description	Part No.	Notes
2-1	Panel, Trim, Transport	(T506408)	 Ass'y T5064-A
	Escutcheon, Pitch Control	(KC4H005A)	
	Escutcheon, Cue	(KR4B006A)	
	Escutcheon Ass'y, Timer	(T5064-B)	
2-2	Shaft, Tape Guide	KG6E003	
2-3	Panel, Trim, Control	T506402	
2-4	Panel, Chassis, Transport	T506401	
2-5	Clamp, Wire	PZ1G053	
2-6	Channel, Reinforce, Chassis	T506405	
2-7	Angle, Reinforce, Chassis	T506414	
2-8	Spacer, P.C. Board, LED (B)	(KZ7A823)	 Ass'y
2-9	P.C. Board Ass'y, LED (B)	PB-82T	
2-10	Transformer, Power	TF11060	
2-11	Angle, Reinforce, P.C. Board	PB44S01	
2-12	Frame, Chassis, Side	T506501	
2-13	Angle, L, P.C. Board, Control	T506505	
2-14	Angle, R, P.C. Board, Control	T506506	
2-15	Angle, P.C. Board, Control	T506504	
2-16	P.C. Board Ass'y, Control	PB-45N	
2-17	Channel, Reinforce, P.C. Board	T506502	
2-18	Spacer, P.C. Board, Control	T506503	
2-19	Angle, Reinforce, Chassis	T506507	
2-20	Washer, Trim, Panel	KZ6C051	
2-21	Washer Vinyl, Panel	KZ6C011	
2-22	Washer, Panel, Control	KZ6C009	
2-23	Washer, Polyslider, $\phi 6 \times t0.25$	F523-6	
2-24	Felt, Blind, Impedance Roller	PZ1B051	
2-25	Felt, Blind, Head Ass'y	PZ1B052	
2-26	Clamp, Wire	KA3A032	

PARTS LIST 3. CAPSTAN, PINCH ROLLER and SHIFTER ASSEMBLY

Ref. No.	Description	Part No.	Notes
3-1	Cap, Capstan Motor	KC0B011A	
3-2	Stud, Capstan Motor	KZ7B220	
3-3	Plate, Capstan Motor	KC4H001	
3-4	Motor, Capstan	MR5A008	
3-5	Bracket, R, Capstan P.C. Board	KC4V002	
3-6	Bracket, L, Capstan P.C. Board	KC4V001	
3-7	Knob, Pitch Control	KN1024A	
3-8	P.C. Board Ass'y, LED (A)	PB-82S	
3-9	Felt, Blind, Potentiometer	PZ1B037	
3-10	Potentiometer, 500 ohm	RV252009	
3-11	Bracket, Potentiometer	KC4H002	
3-12	Cap, Pinch Roller	KP0C021	
3-13	Washer, Polyslider, $\phi 6 \times +0.25$	F523-6	
3-14	Pinch Roller	KP-2B-A	
3-15	Retaining Ring, E type, $\phi 4$	F74TE20	
3-16	Shaft, Pinch Roller	KP0B014	
3-17	Angle, Spring Hook	KZ3A023	
3-18	Retaining Ring, E type, $\phi 3$	F74TE15	
3-19	Retaining Ring, E type, $\phi 2$	F74TE09	
3-20	Shaft, Roller Arm	KP4L001	
3-21	Spring, Roller Arm	GS1011	
3-22	Arm Ass'y, Pinch Roller	KP-2H-A	
3-23	Solenoid, Pinch Roller	GP1B10	
3-24	Pin, Solenoid	KZ5A003	
3-25	Rod, Solenoid	KZ6A022	
3-26	Spacer, P.C. Board Ass'y, LED (A)	KZ7A823	
3-27	Cushion, Solenoid	PZ1C021	
3-28	Limit Stop, Solenoid	KZ2A016	
3-29	Washer, Spherical, Rod	KP0G004	
3-30	Spring, Pressure, Rod	GS2003	
3-31	Nuts, M4, Rod	F517-4	
3-32	Spring, Shifter Arm B	GS1028-A	
3-33	Shaft, Shifter Arm	KR4B001	
3-34	Arm, Shifter A	KR0B005	

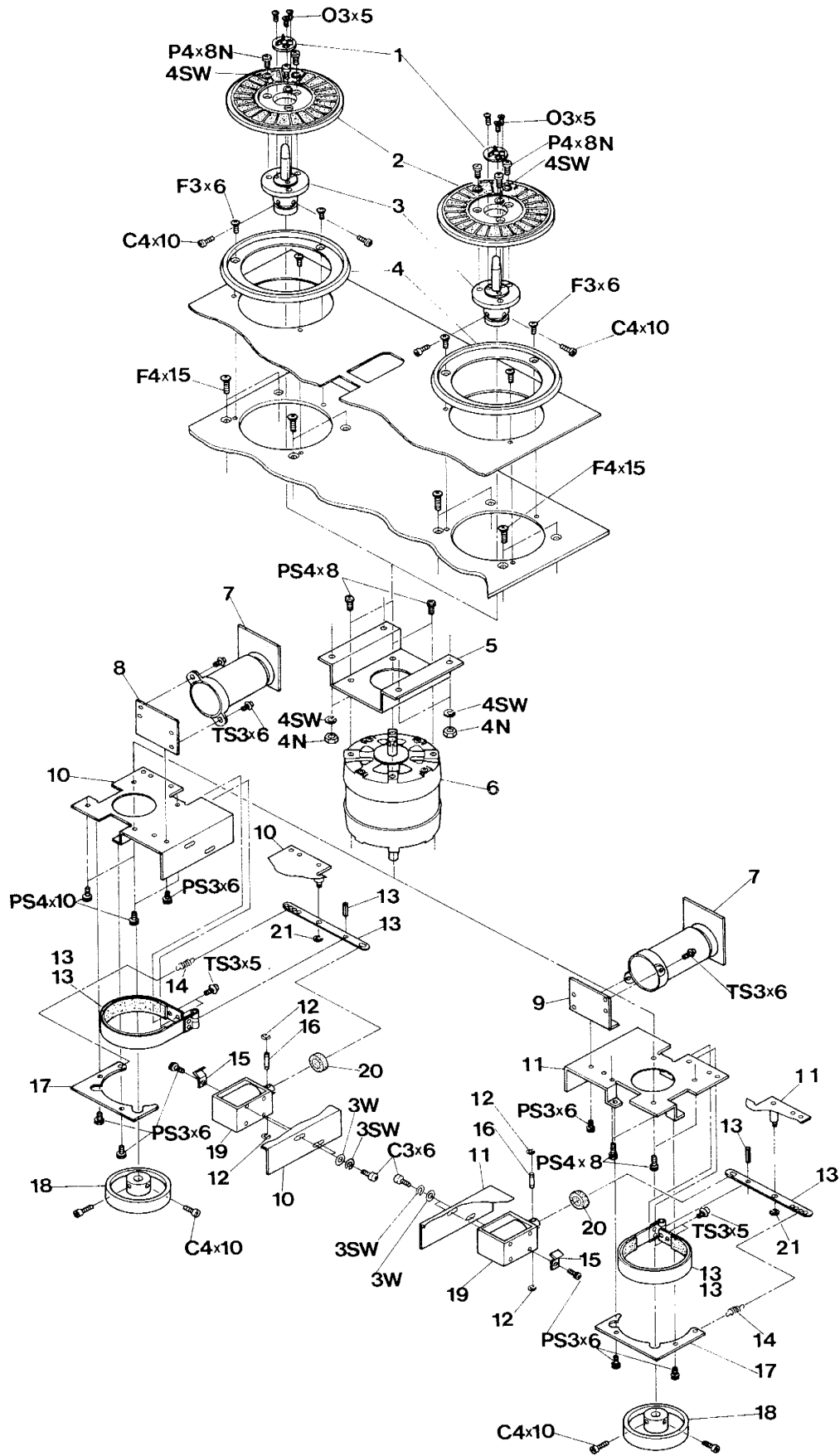
3. CAPSTAN, PINCH ROLLER, and SHIFTER ASSEMBLY

Ref. No.	Description	Part No.	Notes
3-35	Arm, Shifter B	KR0B006	
3-36	Knob, Cue Arm	KR4F002A	
3-37	Felt, Blind, Cue Arm	PZ1B001	
3-38	Shaft, Cue Arm	KR4B007	
3-39	Arm, Cue	KR4C001	
3-40	Switch, Micro	WH51029	
3-41	Bracket Ass'y, Switch, Cue	KR-4K-A	
3-42	Spring, Cue Arm	GS1033	
3-43	Hook, Cue Arm	KR4C003	
3-44	Latch Ass'y, Cue Arm	KR-4C-A	
3-45	Spring, Shifter Arm	GS1087	
3-46	Lug, Spring Hook	CN7D-003	

PARTS LIST 4. REEL ASSEMBLY

Ref. No.	Description	Part No.	Note
4-1	Nails, Reel Drive	KW0E038	
4-2	Reel Table	KW4J002	
4-3	Drum, Reel	KW0B017	
4-4	Protector, Reel	KW0H007A	
4-5	Bracket, Reel Motor	KW0G016	
4-6	Motor, Reel	MR1C023	
4-7	Capacitor, Reel motor, 9 μ F, 250WV	(CZ10047W)	Ass'y PB-76Z
	P.C. Board, Capacitor	(PB9A179)	
4-8	Bracket, L, Capacitor	KW4B003	
4-9	Bracket, R, Capacitor	KW4B004	
4-10	Bracket, L, Brake	KW0G013	
4-11	Bracket, R, Brake	KW0G012	
4-12	Retaining Ring, E Type, ϕ 2	F74TE09	
4-13	Arm Ass'y, Brake	KW-4J-A	
4-14	Spring, Brake	GS1024	
4-15	Clamp, Brake	KZ3A047	
4-16	Pin, Solenoid, Brake	KZ5A003	
4-17	Retainer, Brake	KW4B001	
4-18	Drum, Brake	KW0A012	
4-19	Solenoid, Brake	GP1F02	
4-20	Cushion, Solenoid, Brake	PZ1B049	
4-21	Retaining Ring, E Type, ϕ 3	F74TE15	

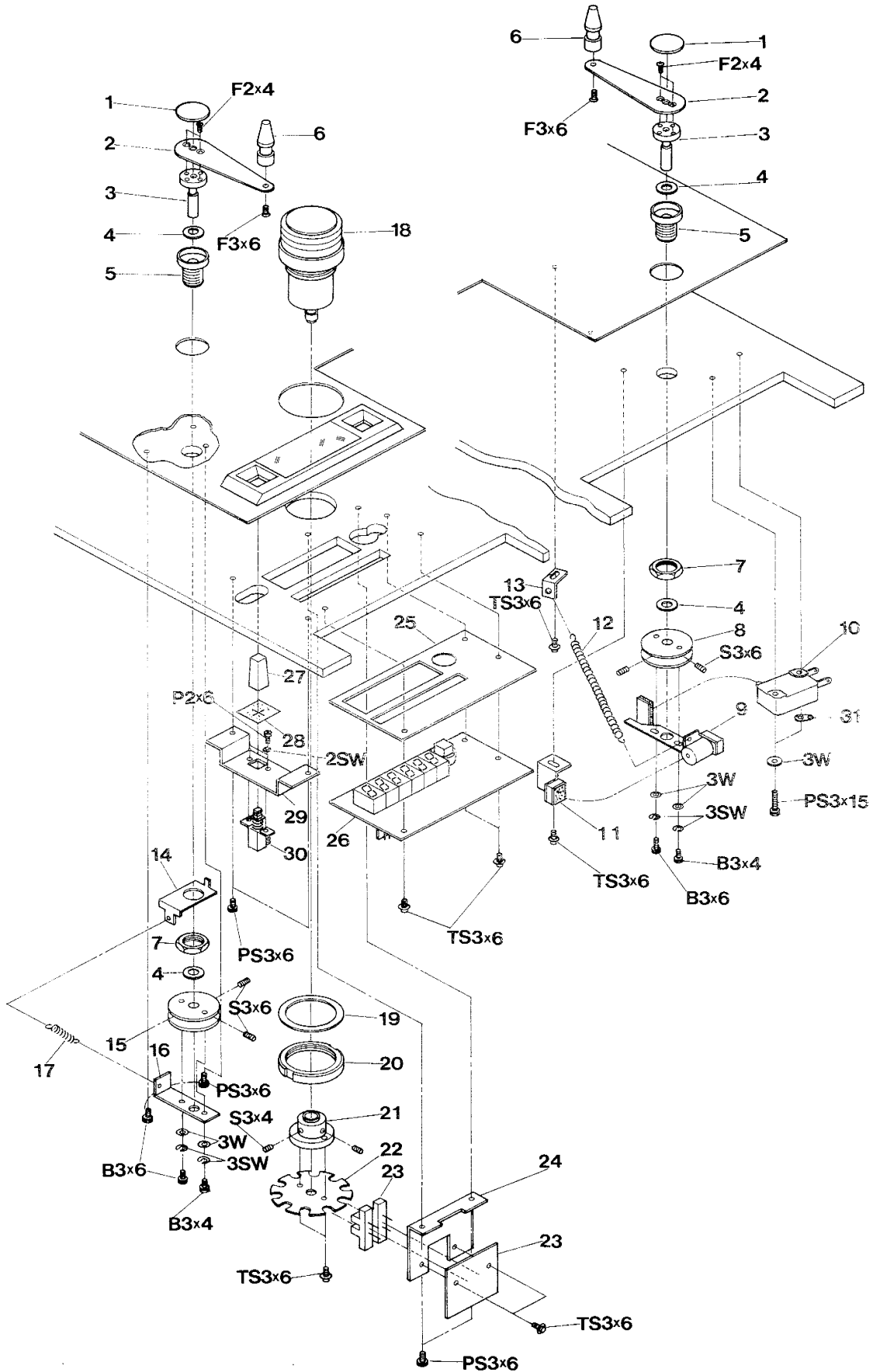
EXPLODED VIEW 4. REEL ASSEMBLY



PARTS LIST 5. TENSION ARM, IMPEDANCE ROLLER, and TIMER ASSEMBLY

Ref. No.	Description	Part No.	Notes
5-1	Cap, Arm	KA0C005	
5-2	Arm, Tension	KA0A017A	
5-3	Shaft, Arm	KA4J001	
5-4	Washer, Polyslider, $\phi 5 \times +0.5$	F524-5	
5-5	Holder, Arm	KA0B008	
5-6	Guide, Tension Arm	KG2D001	
5-7	Nut, Holder	KZ6D004	
5-8	Drum, B, Spring Retaining	KA0E005	
5-9	Arm, Ass'y, Switch	KA-4K-B	
5-10	Switch, Micro	WH51027	
5-11	Bracket Ass'y, Magnet	KA-4K-A	
5-12	Spring, Takeup, Tension Arm	GS1048	
5-13	Angle, Spring Hook	KZ3A023	
5-14	Plate, Spring Hook	KZ3A024	
5-15	Drum, A, Spring Retaining	KA0E004	
5-16	Angle, Limit Stop	KA0H004	
5-17	Spring, Supply Tension Arm	GS1032	
5-18	Roller Ass'y, Impedance	KI-2D-A	
5-19	Washer, Holder	K10H024	
5-20	Nut, Holder	K10H025	
5-21	Holder, Plate	K10H026	
5-22	Plate, Optical Shield	K14G003	
5-23	P.C. Board Ass'y, Direction	PB-82M	
5-24	Bracket, P.C. Board Ass'y	K14G002	
5-25	Sheet, Insulation	SR5K002	
5-26	P.C. Board Ass'y, Timer	PB-82L	
5-27	Button, Push, Memory	KN2067	
5-28	Felt, Blind, Button	PZ1B053	
5-29	Bracket, Switch, Memory	SR5K001	
5-30	Switch, Push, Memory	WH12097	
5-31	Lug, Terminal	CN7D-003	

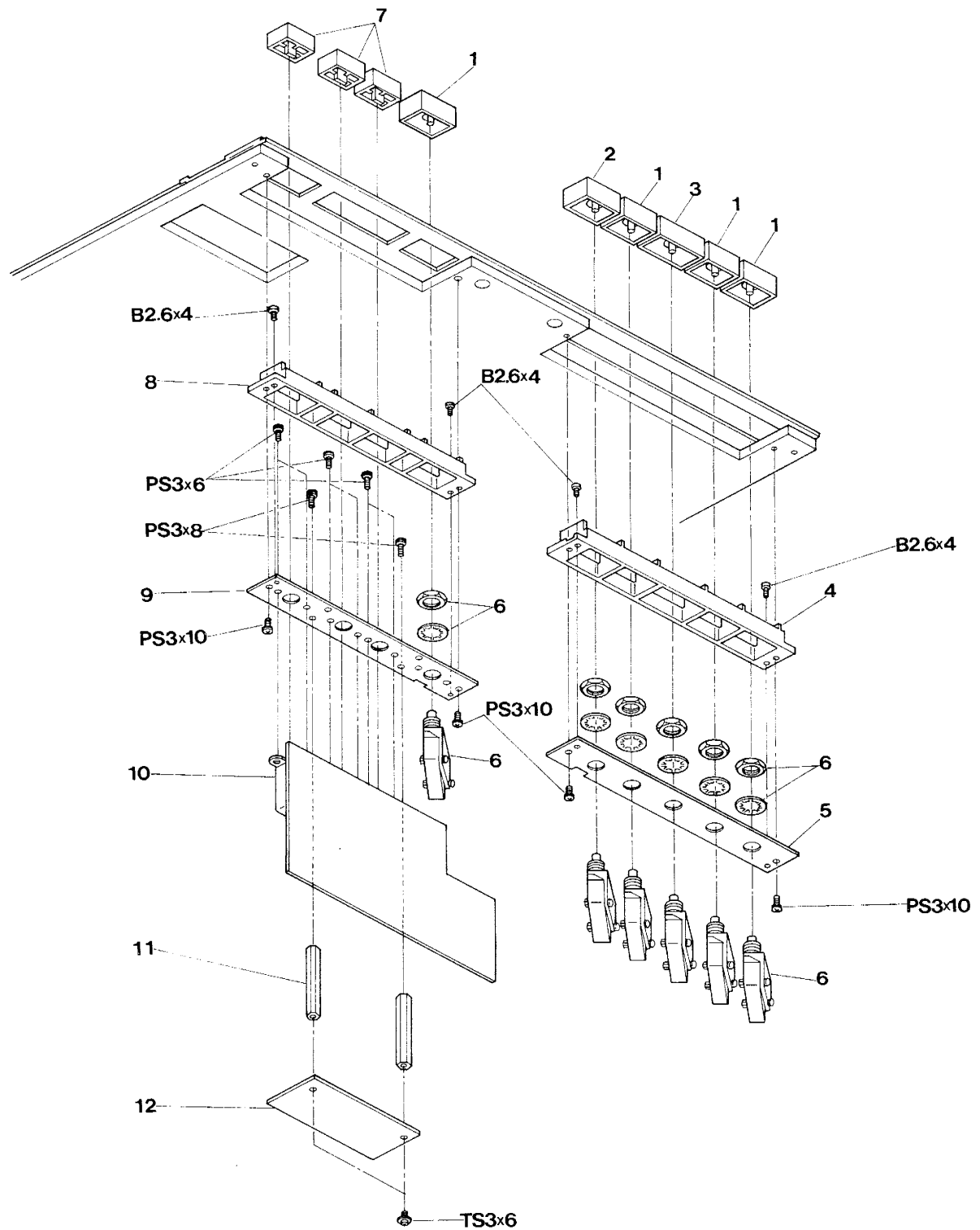
EXPLODED VIEW 5. TENSION ARM, IMPEDANCE ROLLER, and TIMER ASSEMBLY



PARTS LIST 6. CONTROL SWITCH ASSEMBLY

Ref. No.	Description	Part No.	Notes
6-1	Button, Push, A PLAY REWIND F.FWD EDIT	KN2069	
6-2	Button, Push, B, REC	KN2070	
6-3	Button, Push, C, STOP	KN2071	
6-4	Protector, R, Button	CB20602	
6-5	Plate, R, Switch Base	CB20601	
6-6	Switch, Micro	WH11007	
6-7	Button, Push, POWER SPEED REEL	KN2072	
6-8	Protector, L, Button,	CB20701	
6-9	Plate, L, Switch Base	PB41E01	
6-10	P.C. Board, Ass'y, Power Switch	PB-76Q	
6-11	Stud, Power Switch P.C. Board	KZ7B106	
6-12	P.C. Board Ass'y, Aux. Switch	PB-42F	

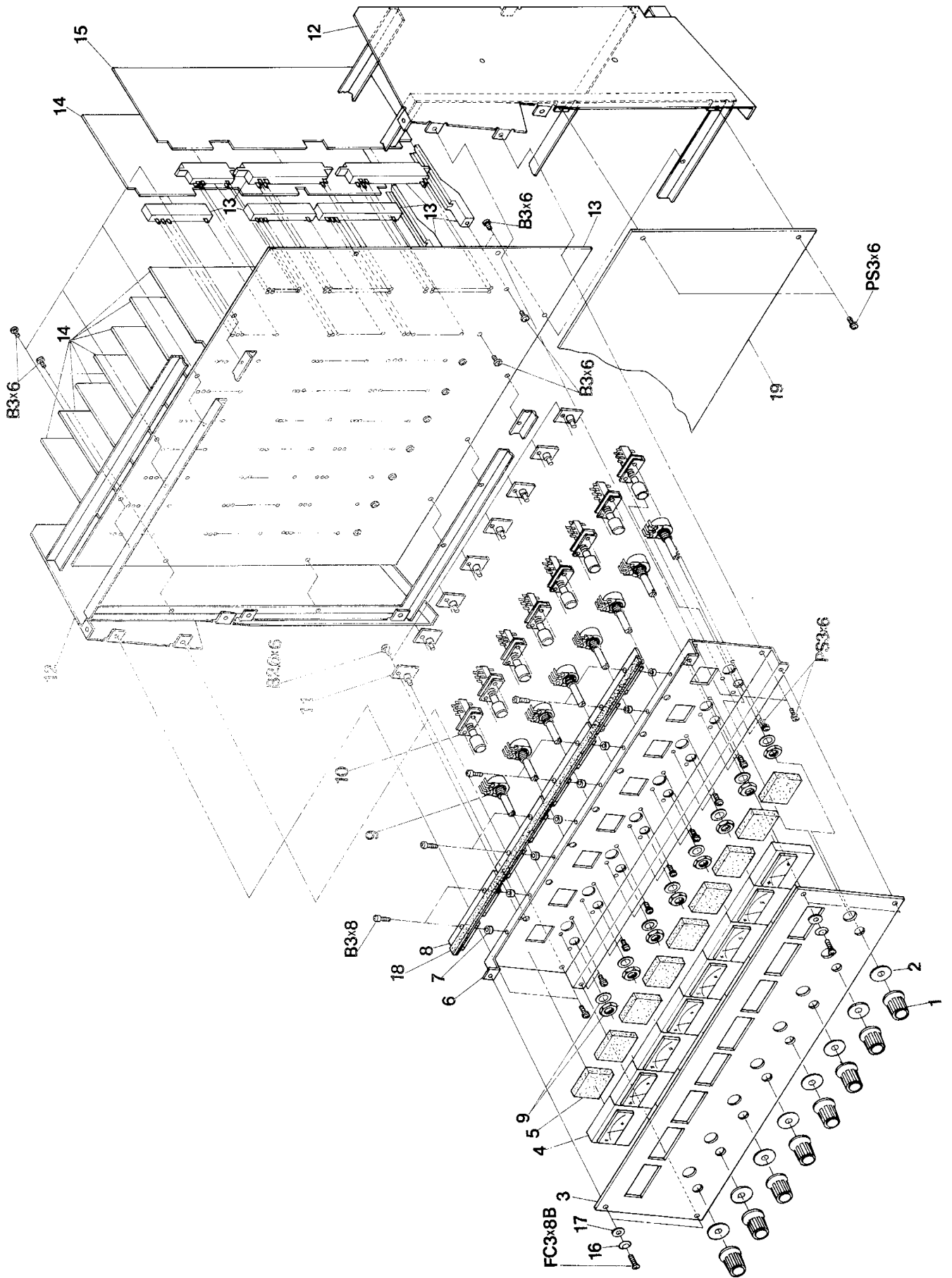
EXPLODED VIEW 6. CONTROL SWITCH ASSEMBLY



PARTS LIST 7. AMPLIFIER ASSEMBLY

Ref. No.	Description	Part No.	Notes
7-1	Knob, INPUT	KN1045B	
7-2	Washer, Knob	KZ6C052	
7-3	Panel, Trim, Amp.	A104601	
7-4	Meter, VU	ME11011	
7-5	Cushion, Meter	PZ1C051	
7-6	Panel, Chassis, Amp.	A104602	
7-7	Spacer, P.C. Board Ass'y, Lamp	KZ7A188	
7-8	Lamp, VU Meter	(LU2037)	Ass'y
	P.C. Board Ass'y, Lamp	PB-76H	
7-9	Potentiometer, 10 kohm	RV214082	
7-10	Switch, Push, SRL	WH12105G	
7-11	P.C. Board Ass'y, LED, PEAK	PB-76G	
7-12	Chassis, Amp.	A104603	
7-13	P.C. Board Ass'y, Mother	PB-76J	
7-14	P.C. Board Ass'y, REC/REP, Amp	PB-15B	NAB
		PB-15J	IEC
7-15	P.C. Board Ass'y, Amp. Control	PB-45G	
7-16	Washer, Trim, Panel	KZ6C051	
7-17	Washer, Vinyl, Panel	KZ6C011	
7-18	Sponge, Blind, Lamp	PZ1B019	
7-19	Plate, Shield	A104608	

EXPLODED VIEW 7. AMPLIFIER ASSEMBLY



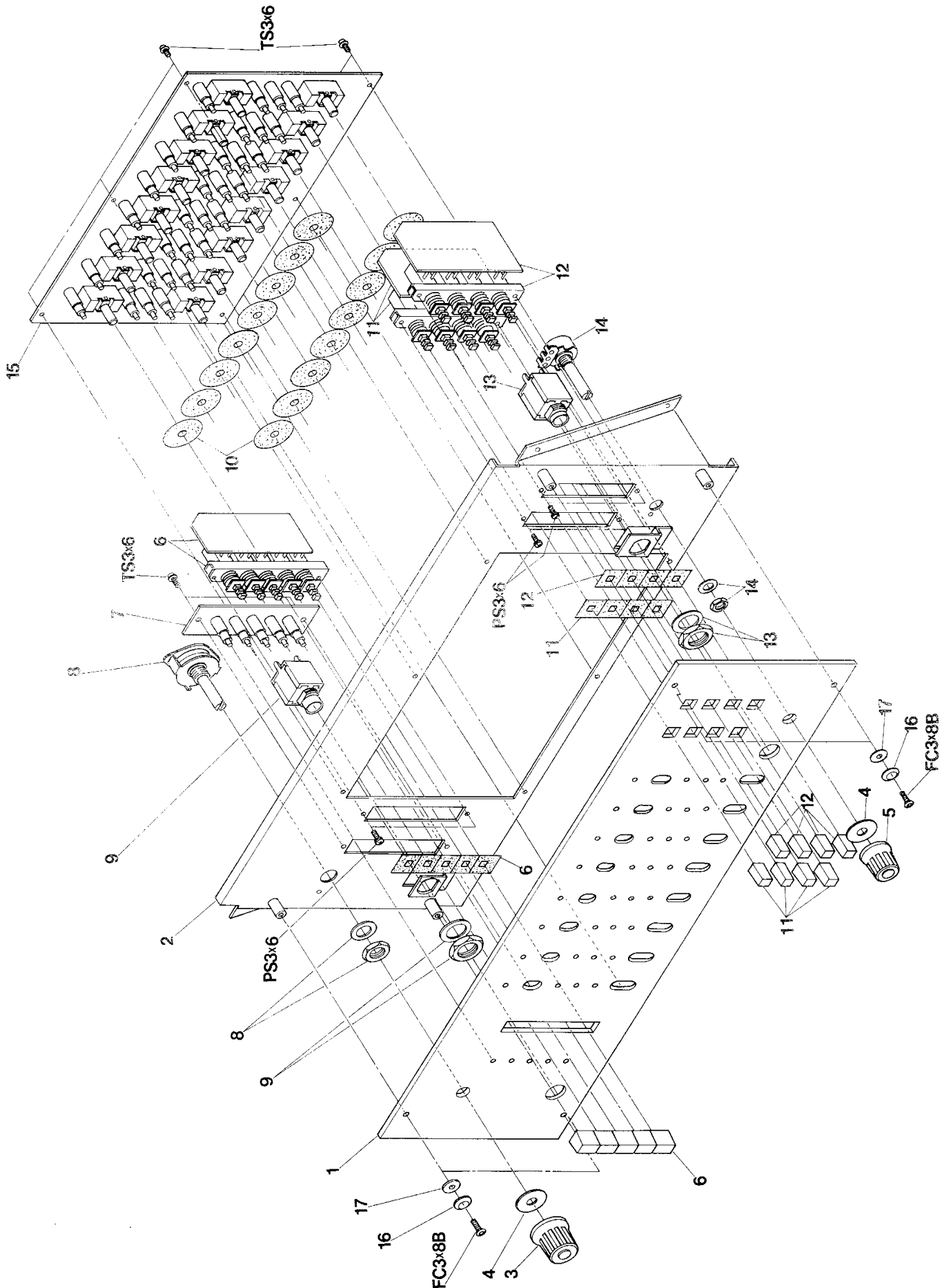
PARTS LIST 8. CONNECTOR PANEL ASSEMBLY

Ref. No.	Description	Part No.	Notes
8-1	Panel, Connector	CB70401	
8-2	Receptacle, A.C. Inlet, Power	CN603012	
8-3	Terminal, Ground	CN901040	
8-4	Connector, 3 Socket, XLR Type	CN103046	
8-5	Connector, 3 Pin, XLR Type	CN103045	
8-6	Clamp, Connector	CN7B-061	
8-7	Cable Ass'y, Remote Control	ZA62T0A	

PARTS LIST 9. AMPLIFIER CONTROL ASSEMBLY

Ref. No.	Description	Part No.	Notes
9-1	Panel, Trim, Amp. Control	CB23601	
9-2	Chassis, Amp. Control	CB23602	
9-3	Knob, TEST OSC	KN1046F	
9-4	Washer, Knob	KZ6C052	
9-5	Knob, PHONE LEVEL	KN1045D	
9-6	Button, Mode Select	(WH0B016B)	Ass'y
	Felt, Blind, Push Switch	(PZ1B053)	
	P.C. Board Ass'y, Mode Select	PB-45J	
9-7	P.C. Board Ass'y, Indicator LED	PB-76K	
9-8	Switch, Rotary, TEST OSC	WH63039	
9-9	Jack, EXT OSC	CN601142	
9-10	Felt, Blind, Lever Switch	PZ1B048	
9-11	Button, Phone Amp. B	(KN1061)	Ass'y
	Felt, Blind, Push Switch	(PZ1B053)	
	P.C. Board Ass'y, Phone Amp. B	PB-15H	
9-12	Button, Phone Amp. A	(KN1061)	Ass'y
	Felt, Blind, Push Switch	(PZ1B053)	
	P.C. Board Ass'y, Phone Amp. A	PB-15C	
9-13	Jack, PHONES	CN602144	
9-14	Potentiometer, 10 kohm	RV214082	
9-15	P.C. Board Ass'y, Mode Control	PB-45H	
9-16	Washer, Trim, Panel	KZ6C051	
9-17	Washer, Vinyl, Panel	KZ6C011	

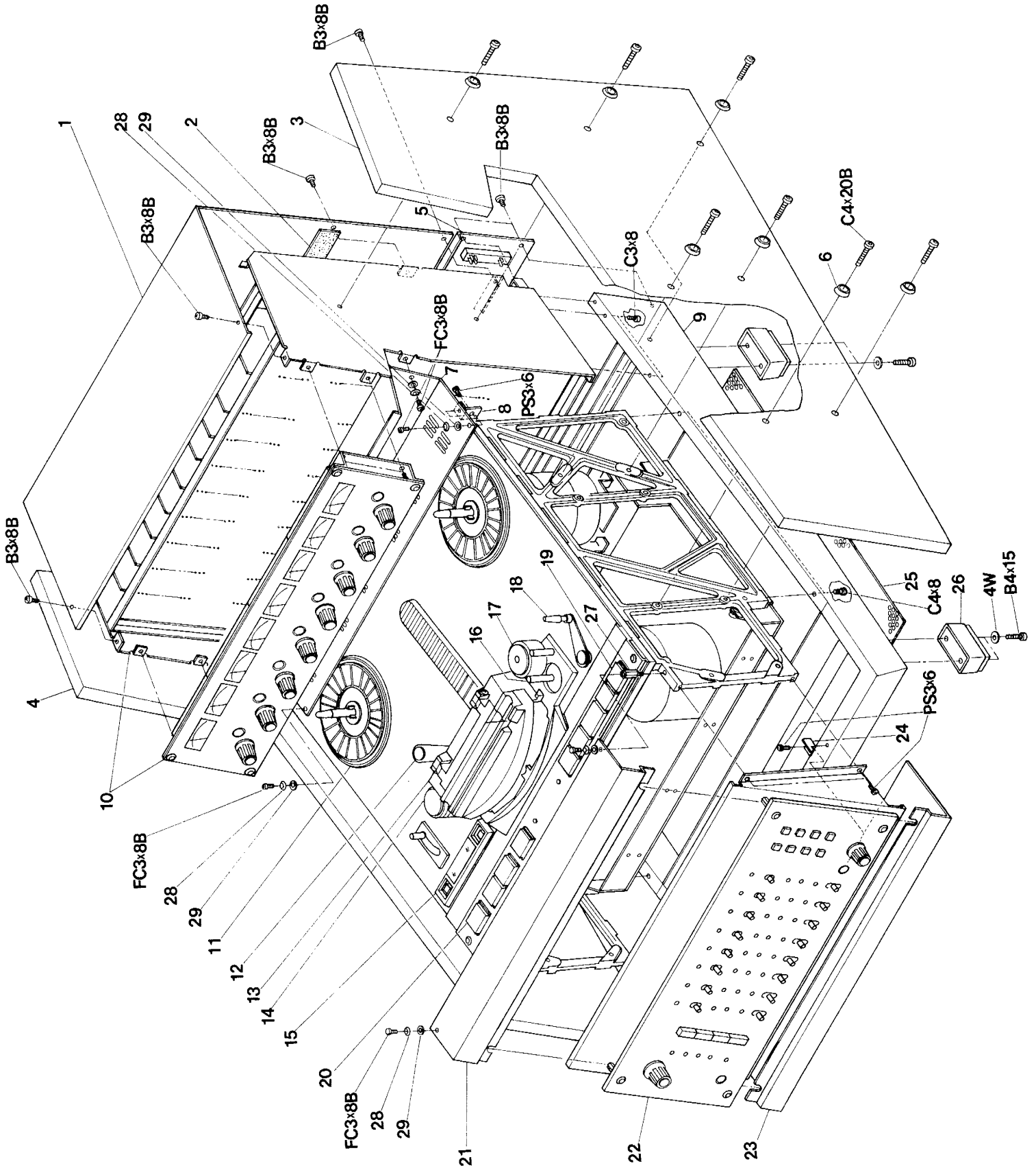
EXPLODED VIEW 9. AMPLIFIER CONTROL ASSEMBLY



PARTS LIST 10. CASE ASSEMBLY

Ref. No.	Description	Part No.	Notes
10-1	Cover, Rear	K105706	
10-2	Pad, Retainer	PZ1C052	
10-3	Board, Side, R	K105701	
10-4	Board, Side, L	K105702	
10-5	Connector Panel Ass'y	CB-704	
10-6	Washer, Trim, Panel	KZ6C028	
10-7	Cover, Ventilation	K105705	
10-8	Angle, Ventilation Cover, R	K105709	
10-8'	Angle, Ventilation Cover, L	K105710	
10-9	Frame, Bottom	K105707	
10-10	Amplifier Ass'y	A1046	
10-11	Reel Ass'y	KW-2E	
10-12	Tension Arm Ass'y A	KA-2H	
10-13	Head Ass'y	KH-2H	
10-14	Impedance Roller Ass'y	KI-2D	
10-15	Tape Timer Ass'y	SR-5K	
10-16	Capstan Ass'y	KC-4V	
10-17	Pinch Roller Ass'y	KP-2H	
10-18	Tension Arm Ass'y	KA-2I	
10-19	Control Switch Ass'y A	CB-234	
10-20	Control Switch Ass'y B	CB-238	
10-21	Cover, Front, Upper	K105703	
10-22	Amplifier Control Ass'y	CB-236	
10-23	Cover, Front, Lower	K105704	
10-24	Retainer, Front Cover	K105711	
10-25	Cover, Bottom	K105708	
10-26	Foot	CY4003	
10-27	Spacer, Front Cover	KZ7B127	
10-28	Washer, Trim, Panel	KZ6C051	
10-29	Washer, Vinyl, Panel	KZ6C011	

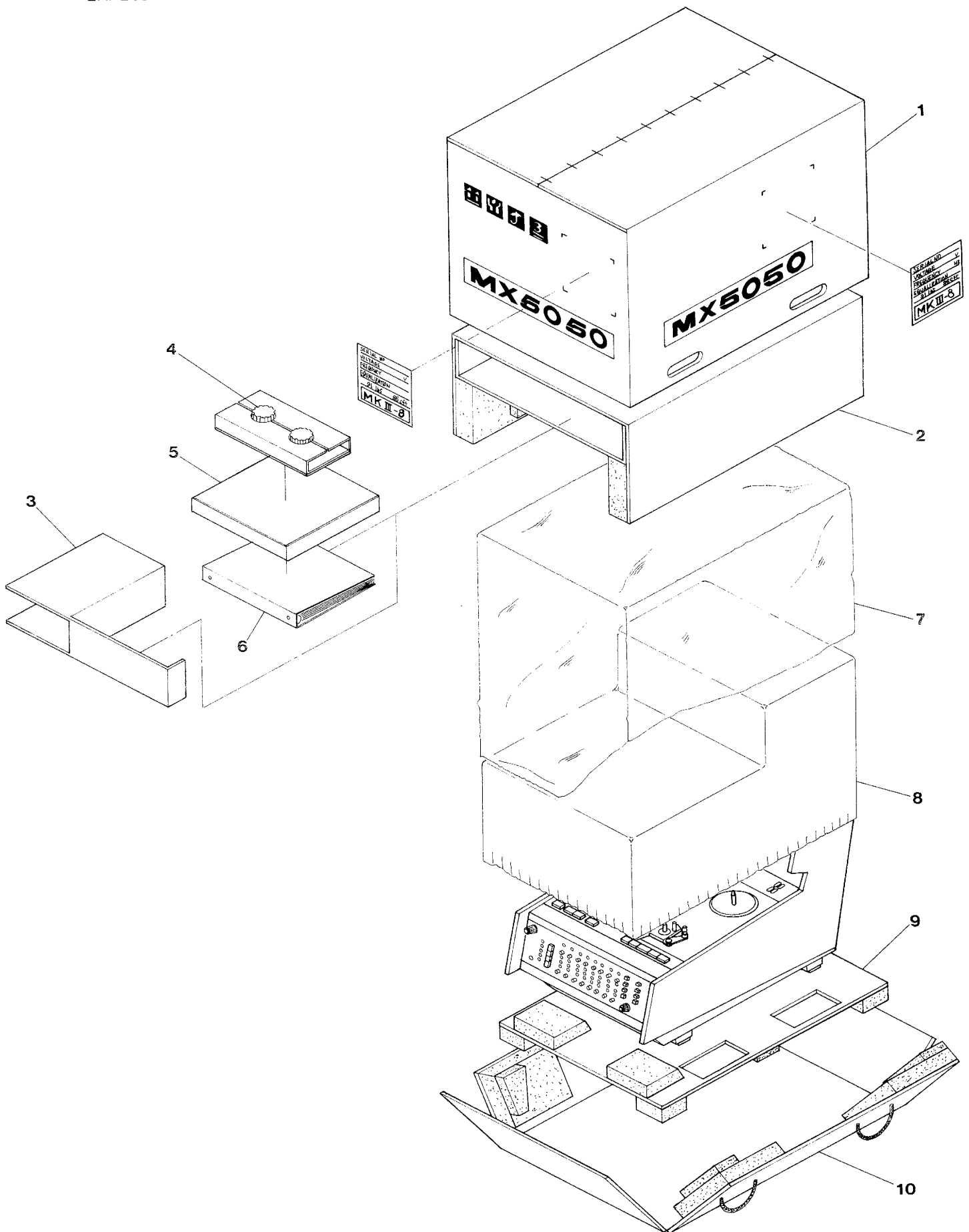
EXPLODED VIEW 10. CASE ASSEMBLY



PARTS LIST 11. PACKAGING

Ref. No.	Description	Part No.	Notes
11-1	Case, Packing	K705701	
11-2	Packing, Top	K705702	
11-3	Cover, Accessory Box	K705710	
11-4	Accessory, Hold Down Knob	KW0HC	
11-5	Accessory, Reel, NAB 10 1/2"	ZA-51H	
11-6	Accessory, Instruction and Maintenance Manual	0S3-033	
11-7	Cover, Polyethylene	PZ9C047	
11-8	Cover, Cloth	PZ9C034	
11-9	Packing, Bottom	K705711	
11-10	Packing, Side	K705716	

EXPLODED VIEW 11. PACKAGING



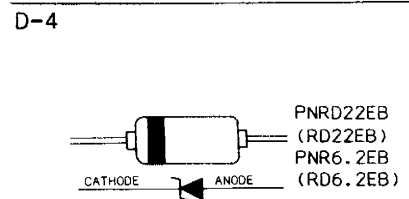
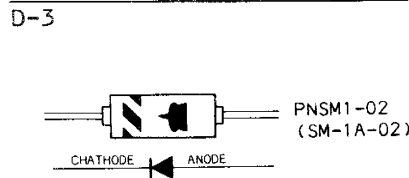
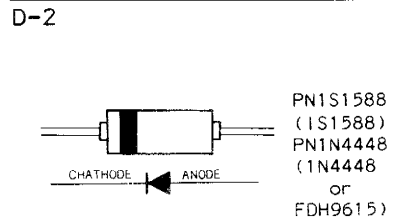
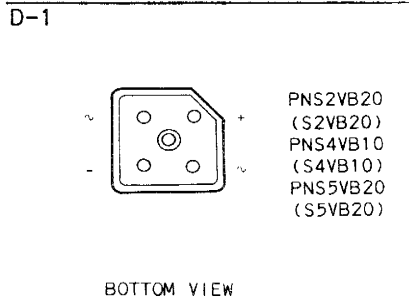
PARTS LIST 12. REMOTE CONTROL ASSEMBLY

Ref. No.	Description	Part No.	Notes
12-1	Panel, Trim	CB11001	
12-2	Chassis	CB11002	
12-3	Timer Escutcheon Ass'y	T5064-B	
12-4	Button, Push, B, REC	KN2070	
12-5	Button, Push, A, PLAY, RWD F.FWD	KN2069	
12-6	Button, Push, C, STOP	KN2071	
12-7	Protector, Button	CB20602	
12-8	Plate, Switch Base	CB20601	
12-9	Switch, Micro	WH11007	
12-10	Button, Push, Monitor Select	WH0B016B	
12-11	Button, Push, Memory	KN2067	
12-12	P.C. Board Ass'y, Tape Timer	PB-82W	
12-13	P.C. Board Ass'y, Memory Switch	PB-76W	
12-14	P.C. Board Ass'y, Mode LED	PB-45K	
12-15	P.C. Board Ass'y, Mode Switch Control	PB-45L	
12-16	P.C. Board Ass'y, Record LED	PB-76P	
12-17	Felt, Blind, Lever Switch	PZ1B048	
12-18	Felt, Blind, Push Switch	PZ1B053	
12-19	Spacer, Memory Switch P.C. Board	KZ7B133	
12-20	Spacer, Tape Timer P.C. Board	KZ7B132	
12-21	Spacer, Switch, Control	KZ7B130	
12-22	Spacer, Mode LED P.C. Board	KZ7B128	
12-23	Spacer, Record LED P.C. Board	KZ7B129	
12-24	Spacer, Mode Switch Control P.C. Board	KZ7B108	
12-25	Cable, Harness Ass'y	ZA-62U	
12-26	Foot Bottom, Front	CY4046	
12-27	Holder, Stand	CY4055	
12-28	Foot, Bottom, Rear	CY4054	
12-29	Stand, Support	CY4052	

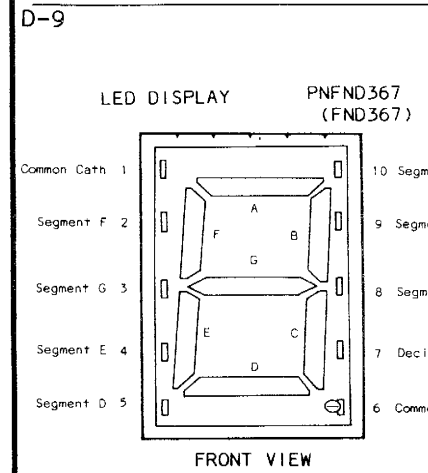
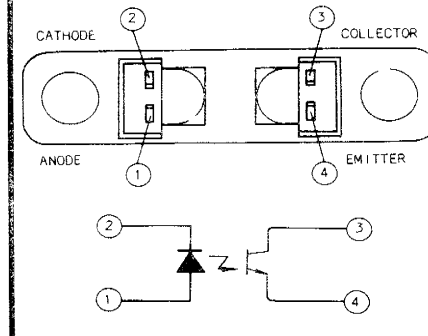
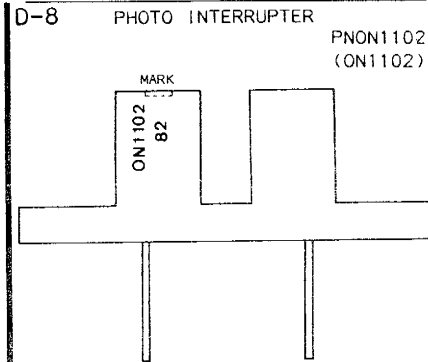
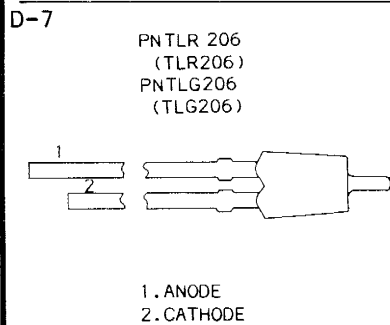
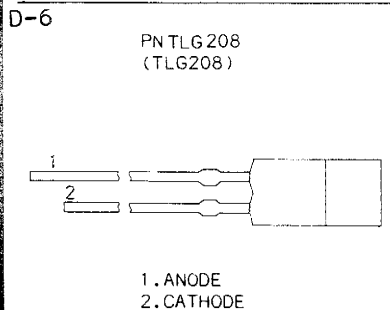
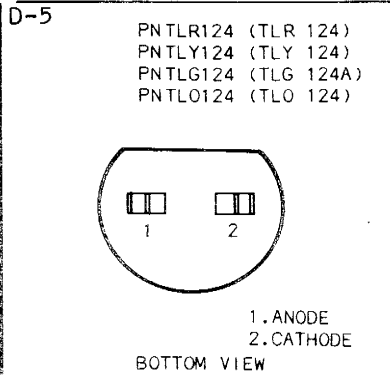
10-4 PIN IDENTIFICATION

The following table shows the pin identification of all diodes, LEDs transistors, and integrated circuits (ICs), used in the circuits of this equipment.

DIODES

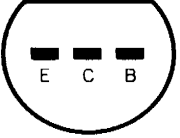


LED



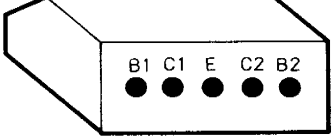
TRANSISTOR

Tr-1 QA720R (2SA720R)
QA1015GR (2SA1015GR)
QA1020Y (2SA1020Y)
QC1685R (2SC1685R)
QC1815BL (2SC1815BL)



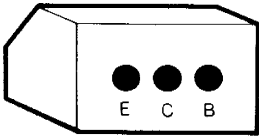
BOTTOM VIEW

Tr-2 QA798G (2SA798G)



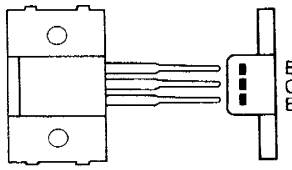
BOTTOM VIEW

Tr-3 QB564L (2SB564L)



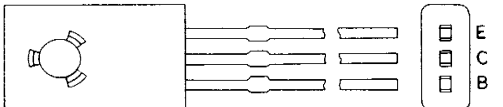
BOTTOM VIEW

Tr-4 QB616R (2SB616R)




BOTTOM VIEW

Tr-5 QC2324K (2SC2324K)



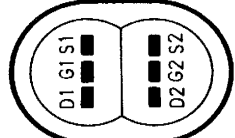
BOTTOM VIEW

Tr-6 Q2SK105J (2SK105J)
Q2SJ74BL (2SJ74BL)



BOTTOM VIEW

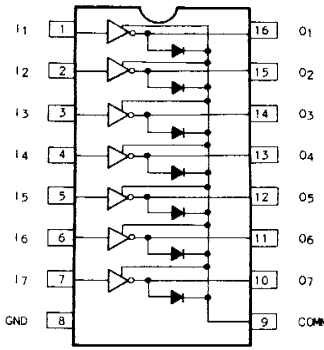
Tr-7 Q2K146BL (2SK146BL)



BOTTOM VIEW

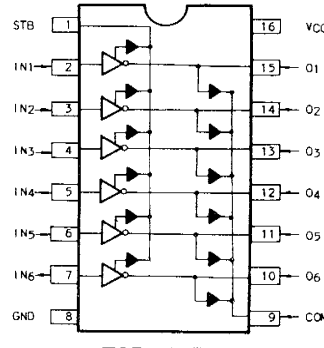
IC

IC-1 TRANSISTOR ARRAY
ITD 62301 (TD 62301)



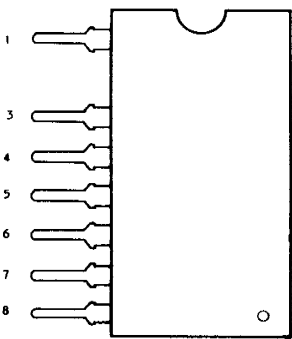
TOP VIEW

IC-2 TRANSISTOR ARRAY
IM54533P (M54533P)



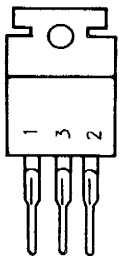
TOP VIEW

IC-6 IHA12017 (HA12017)



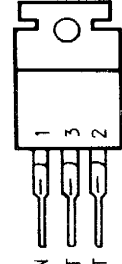
PIN FUNCTION:
1 OUT 6 IN +
3 BIAS 7 IN -
4 -VCC 8 +VCC
5 COMP.

IC-3 VOLTAGE REGULATOR
IHC14305 (μPC14305)
IHC14315 (μPC14315)
or
IE15UC (μA7815UC)
IHC14324 (μPC14324)



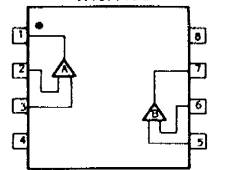
TOP VIEW

IC-4 VOLTAGE REGULATOR
IMC7915C (MC7915CT)
or
IE7915UC (μA7915UC)



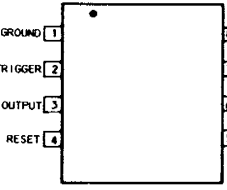
TOP VIEW

IC-5 1-0001 (NJM4559DE)
1-0009 (NJM4556DE)



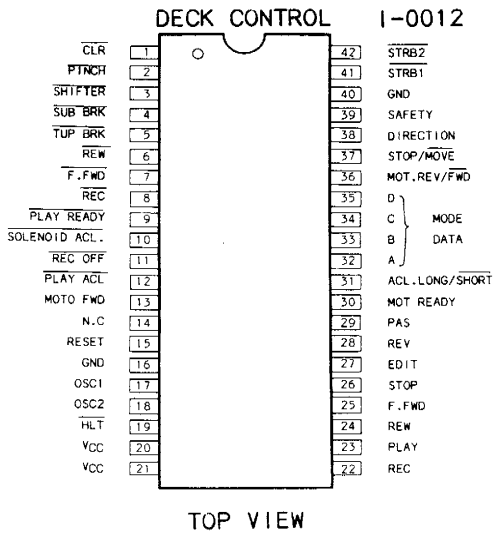
PIN FUNCTION:
1 A OUTPUT
2 A- INPUT
3 A+ INPUT
4 V-
5 B+ INPUT
6 B- INPUT
7 B OUTPUT
8 V+

IC-7 IRC555DB (RC555DB)

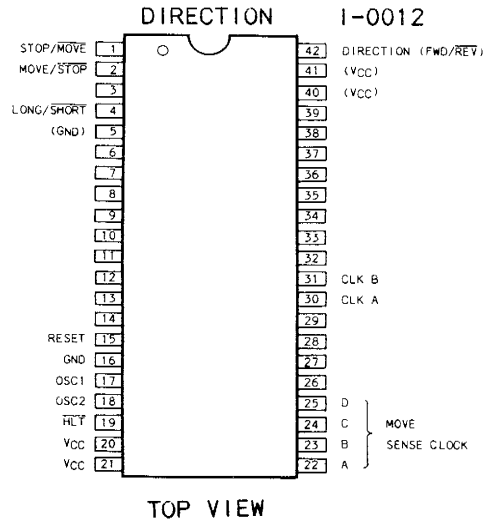


TOP VIEW

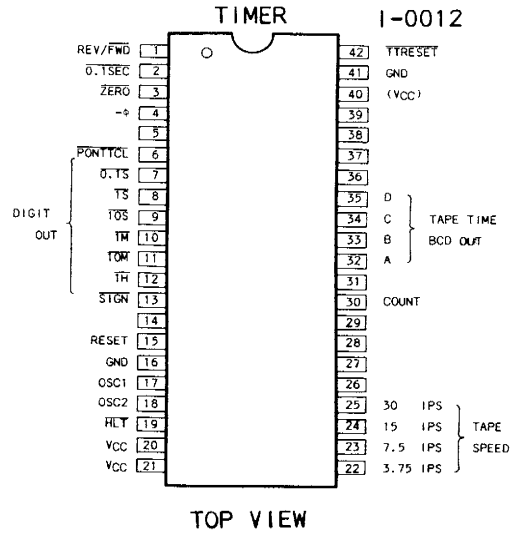
IC-8



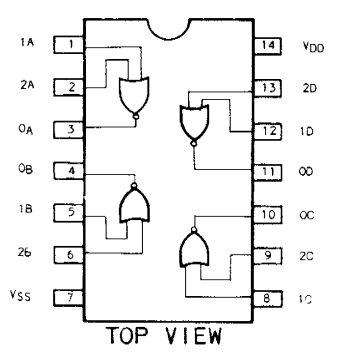
IC-9



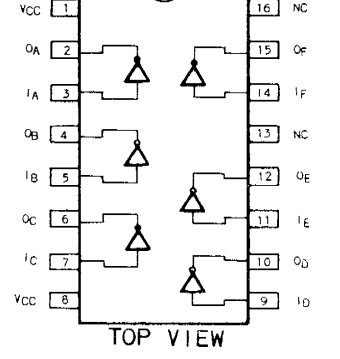
IC-10



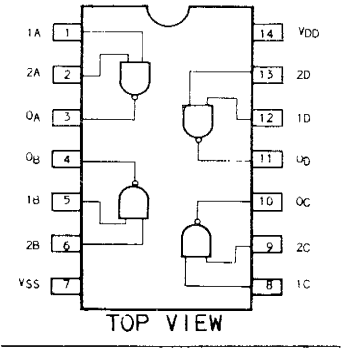
IC-11 IMC 14001 (MC 14001B)



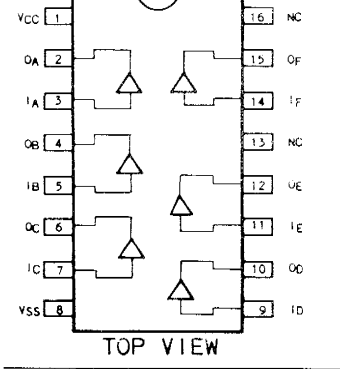
IC-15 IMC 14049 (MC 14049B)



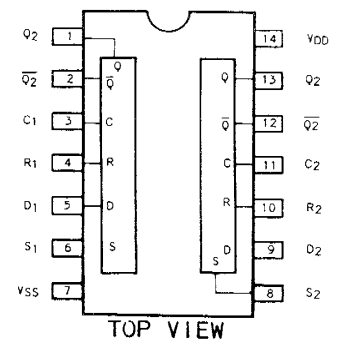
IC-12 IMC 14011 (MC 14011B)



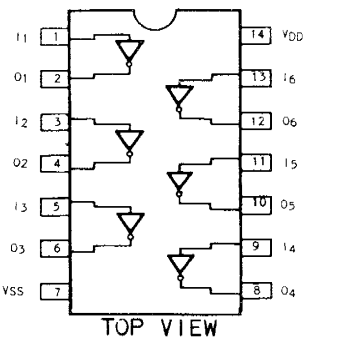
IC-16 IMC 14050 (MC 14050B)



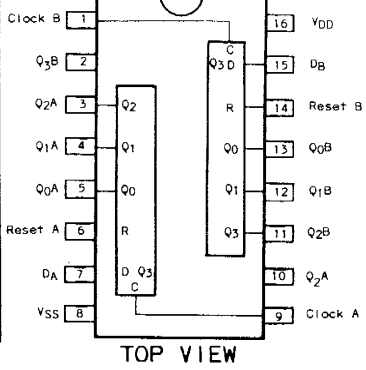
IC-13 IMC 14013 (MC 14013B)



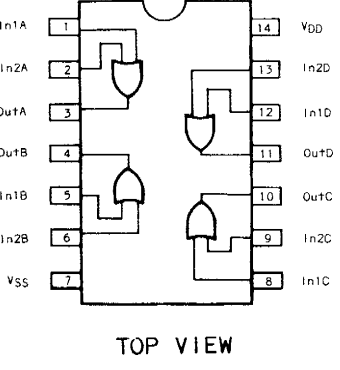
IC-17 IMC 14069 (MC 14069B)



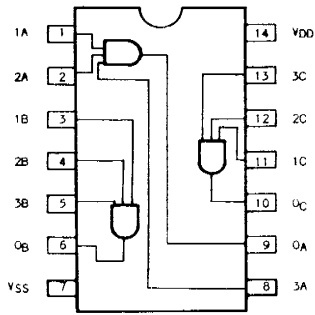
IC-14 IMC 14015 (MC 14015BCP)



IC-18 IMC 14071 (MC 14071B)

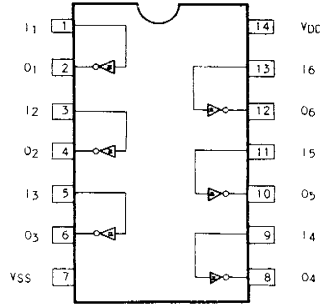


IC-19 IMC 14073
(MC 14073B)



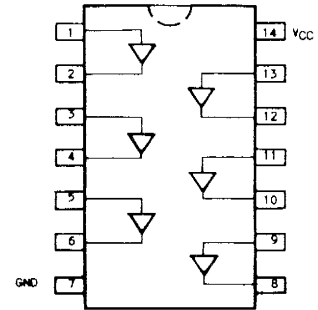
TOP VIEW

IC-22 IMC 14584
(MC 14584B)



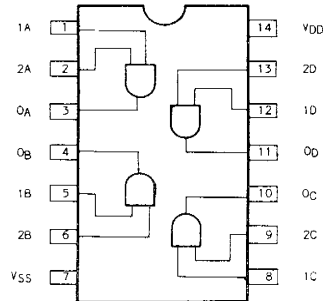
TOP VIEW

IC-25 IA07N
(SN7407N)



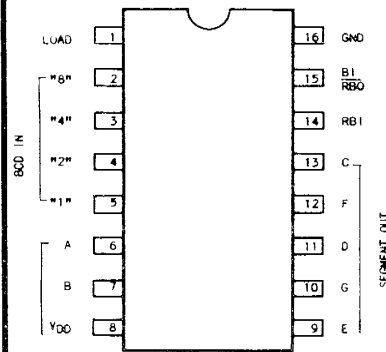
TOP VIEW

IC-20 IMC 14081
(MC 14081B)



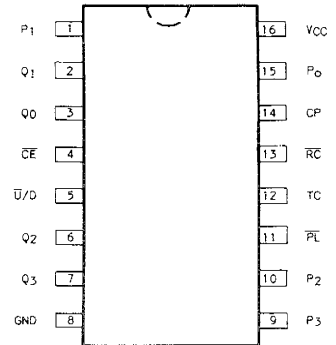
TOP VIEW

IC-23 IMSM 561
(MSM 561RS)



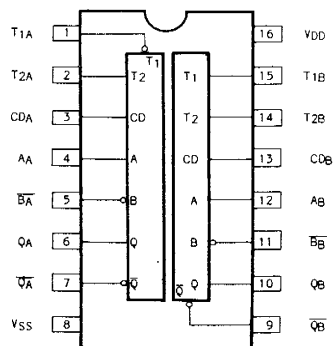
TOP VIEW

IC-26 IALS190N
(SN74ALS190N)



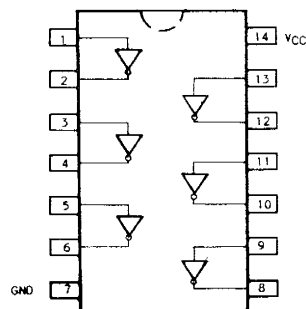
TOP VIEW

IC-21 IMC 14538
(MC 14538B)



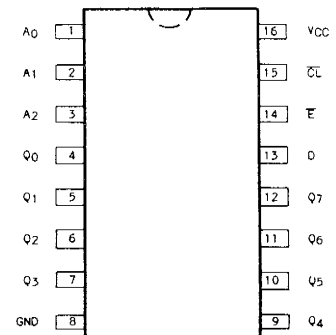
TOP VIEW

IC-24 IALS05N
(SN74LS05N)
IA06N
(SN7406N)



TOP VIEW

IC-27 IALS259N
(SN74LS259N)



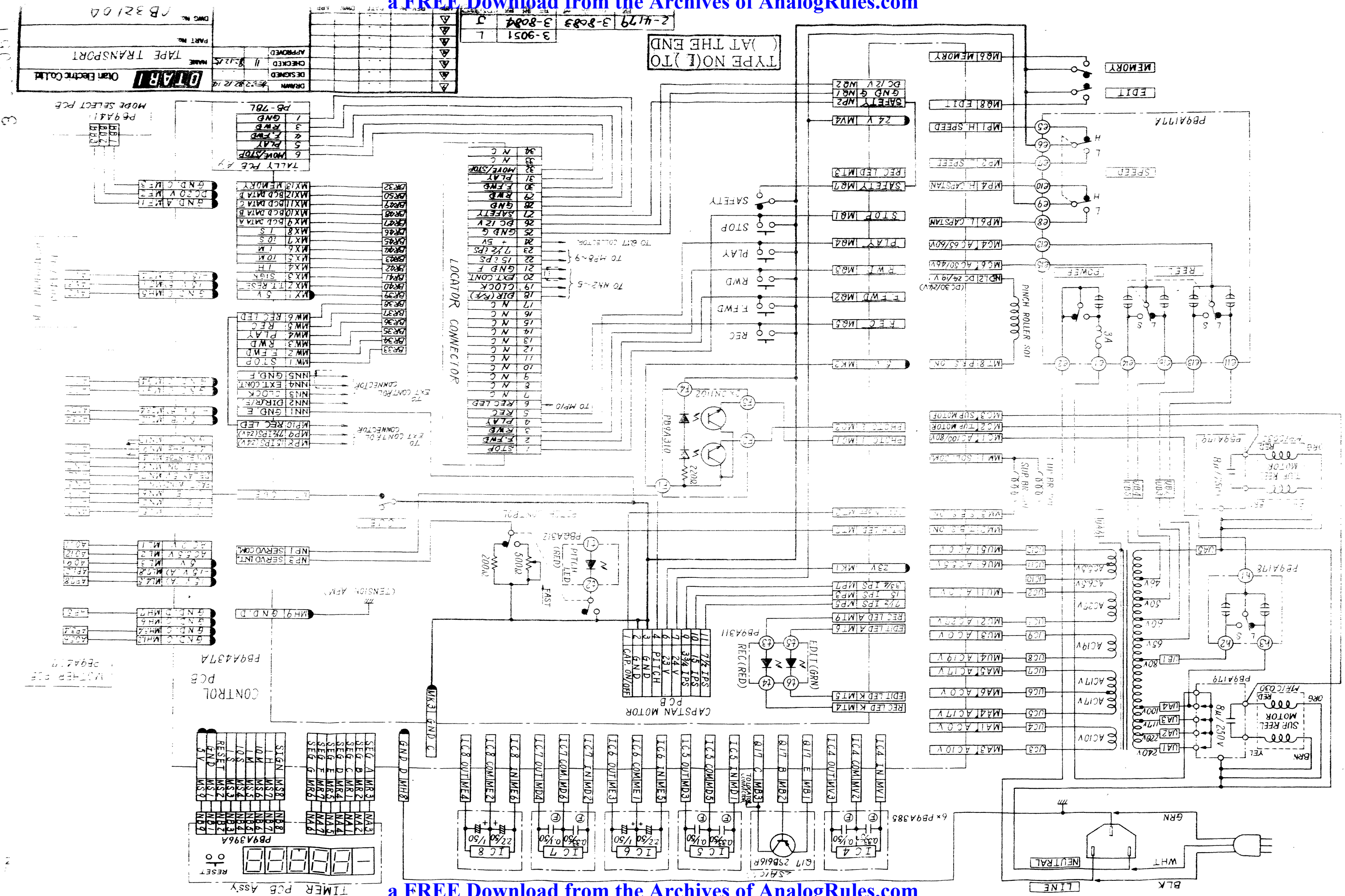
TOP VIEW

MX-5050 MK-III 8 TAPE RECORDER
SCHEMATIC DIAGRAMS

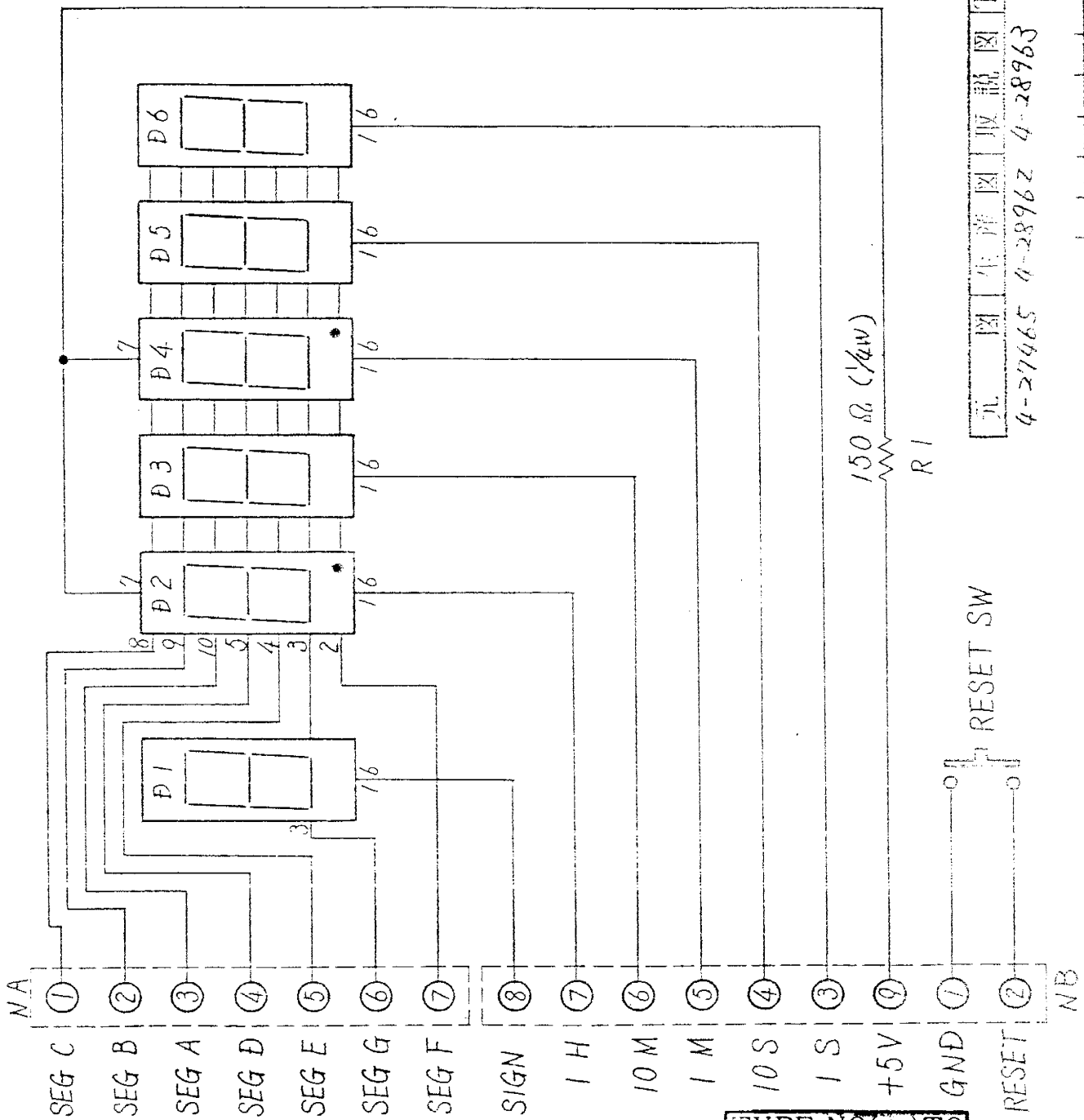
OTARI PART No.	ASSEMBLY NAME	TYPE L ~	DWG. No.
KH2H00B	Head Connection Diagram		4-28967
T50650B	Tape Transport Wiring Diagram		3-9051
PB82L0A	Timer PCB Ass'y		4-28963
PB44S0BA	Control PCB Ass'y		3-9052
A10460B	Amplifier Wiring Diagram		3-6431
PB15B0A	REC REP AMP PCB Ass'y		3-8498
PB45G0A	AMP Control PCB Ass'y		3-7133
PB76J0A	Mother PCB Ass'y		3-7134
PB45H0A	Mode Control PCB Ass'y		3-6298
PB15C0A	Head Phone PCB Ass'y		3-6394
PB45J0A	Mode Select PCB Ass'y		4-28994
PB76K0A	LED PCB Ass'y		4-29002
ZA62T0B	Cable Ass'y		4-28939
CB1100B	CB-110 Wiring Diagram		3-6372
PB82W0A	Tape Timer PCB Ass'y		4-28971
PB45K0A	Mode PCB Ass'y		3-6373
PB45L0A	Control PCB Ass'y		3-6374
PB76P0A	REC LED PCB Ass'y		4-28969
PB76W0A	Memory Switch PCB Ass'y		4-29000

MX5050 MK-III 8

22. DEC. 1983



TYPE NO () TO () AT THE END



元 図 生 産 図 取 説 図 TYPE
4-27465 4-28962 4-28963

適用
MK50508001 MK III-8 MK III-11

D1~6 PN-0214 COMMON: CATHODE

TYPE NO(Z) TO () AT THE END

5					材料		OTARI 小谷電機株式会社	
4					仕上	指定以外のエッジはイトメのこと	形式	
3					処理		品名	TIMER PCB ASSY
2					管寸法	OS	図名	CIRCUIT DIAGRAM
1					承認	JIS 一 級	品番	PB82LOA
記号	改訂番号	年月日	担当	承認	製 図	才 才 才	尺 度	第三角法
承認	検 図	80.7.22	設 計	80.7.22	製 図	80.7.22	単 位	mm

図番
A
28963