Service Manu

Mini Cassette

Stereo Cassette Player



RQ-X05

Colour

(K)Black Type
(A)Blue Type
(S)Silver Type



Suffix for Model No.	Areas	Colour
[E]	Europe	(K) (A) (S)



MECHANISM SERIES: AR20

■SPECIFICATIONS

General:

Power Requirements:

Battery; 1.5V (one R6/LR6, "AA", UM-3 battery)

Power Output:

5mW+5mW..RMS(max.)

Output:

Headphones; 30Ω , ϕ 3.5

Dimensions:

 $109.9(W) \times 80.5(H) \times 29.8(D)$ mm

Weight:

Frequency Response:

154g (Without batteries)

40~18,000Hz (Normal, High/Metal)

(-6dB)

4.8cm/s

Tape Speed: Track System:

4-track, 2-channel stereo playback

Notes:

- 1. Weights and dimensions shown are approximate.
- 2.Design and specifications are subject to change without notice.

"Dolby" and the double-D symbol are trade marks of Dolby Laboratories Licensing Corporation.

⚠ WARNING

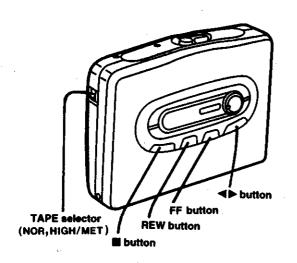
This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

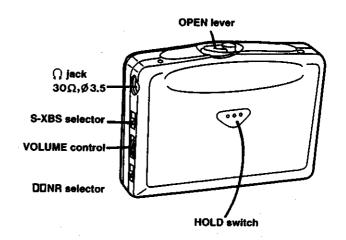
nasonic

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RQ-X05

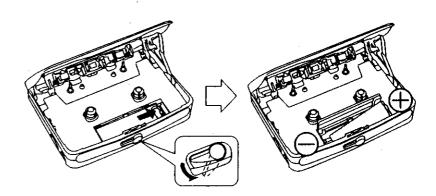
LOCATION OF CONTROLS





POWER SOURCE

Dry cell battery
 Insert a R6/LR6 battery
 (UM-3 or equivalent, not included).



ACCESSORIES

● Stereo earphones......RFEV317P-KS

■ MEASUREMENTS AND ADJUSTMENTS

• ADJUSTMENT INSTRUCTIONS

READ CAREFULLY BEFORE ATTEMPTING ADJUSTMENT

- 1. Set volume control to maximum.
- 2. Set Dolby NR Switch to OFF.
- 3. Set Tape selector switch to NORMAL.
- 4. Set S-XBS Switch to OFF.

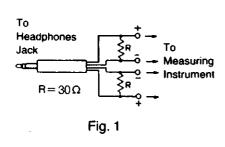
- 5. Set hold switch to OFF.
- 6. Set power source voltage to 1.5V DC.
- Output of signal generator should not be higher than necessary to obtain an output reading.

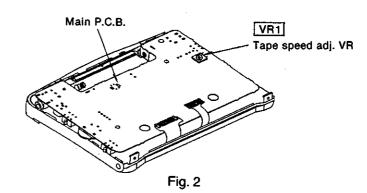
• CONTROL POSITIONS AND EQUIPMENT USED

1. Frequency counter

•TAPE SECTION

ITEM	TEST TAPE	MEASUREMENT POINT	ADJUSTMENT POINT	PROCEDURE
Tape speed	QZZCWAT (3kHz, – 10dB)	Connect the frequency counter to Headphones jack (30Ω) (Refer to Fig. 1)	VR1 (Refer to Fig. 2)	Playback the central part of the tape and adjust VR1 so that the tape speed is as follows. Forward: 3000 ± 10 Hz Reverse: 2940~3060 Hz Make sure that the frequency range in within ±60 Hz for between "Forward" and "Reverse" mode.





PROCEDURES FOR DISASSEMBLY OF THE MAIN PARTS ON THE MECHANISM

• How to remove the mechanism

Follow the procedures in Ref. Nos. $1\sim4$ in the Disassembly Instructions. (See page 5.) % After replacing the parts, refer to the notes for assembly. (See page 7.)

How to remove the head block and pinch roller

- Follow the procedures in Ref. Nos. 1 and 4 in the Disassembly Instructions, remove the cabinet ass'y and cassette lid ass'y. (See page 5.)
- 2. Unsolder the head FPC. (6 points.) (See Fig. 3.)

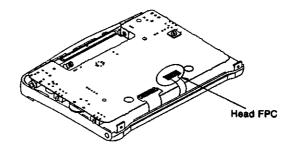
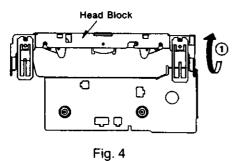
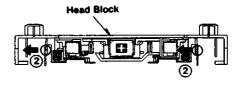


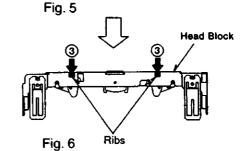
Fig. 3

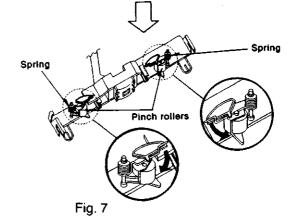
RQ-X05

- 3. Remove the head block in the direction of the arrow 1 and 2. (See Fig. 4, and 5.)
- 4. Remove the pinch roller in the direction of the arrow 3. (See Fig. 6.)
- 5. Remove 2 springs in order to remove the pinch roller. (See Fig. 7.)



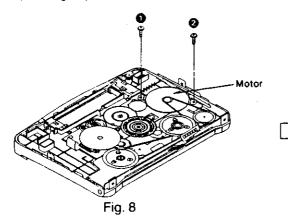


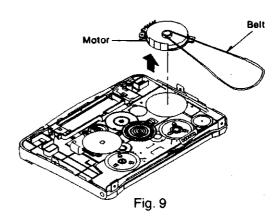




. How to remove the motor and belt

- 1. Follow the procedures in Ref. Nos. 1 and 2 in the Disassembly Instructions. (See page 5.)
- 2. Remove 2 screws (1), (2). (See Fig. 8.)
- 3. Remove the motor in the direction of the arrow. (See Fig. 9.)
- 4. Remove the belt from the motor. (See Fig. 9.)





• How to remove the rotary switch

1. Remove 3 screws (●~❸). (See Fig. 10.)

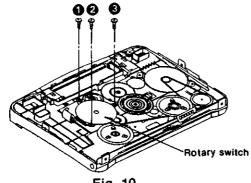
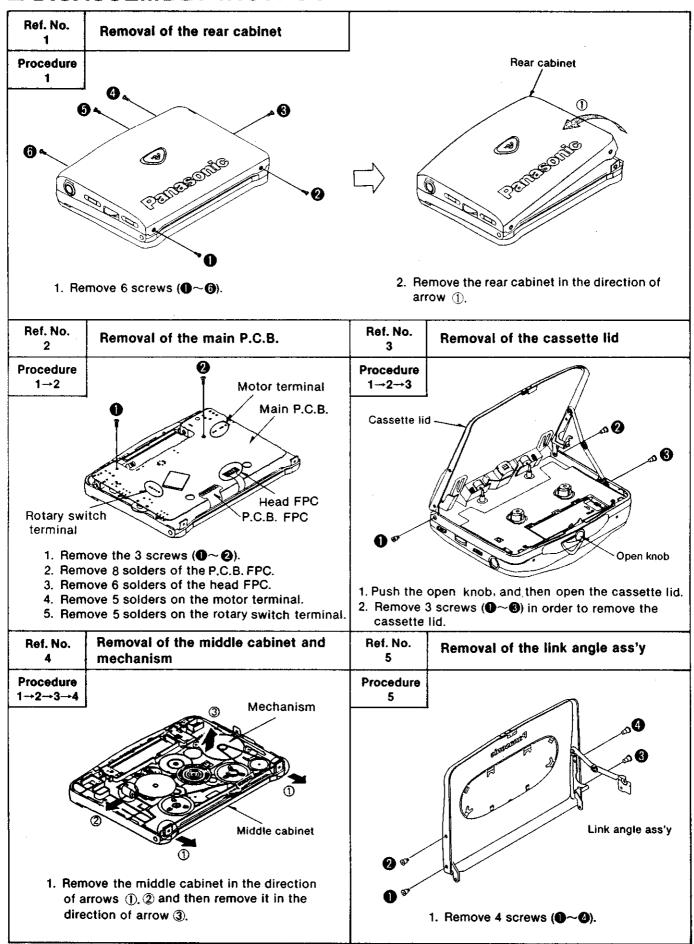
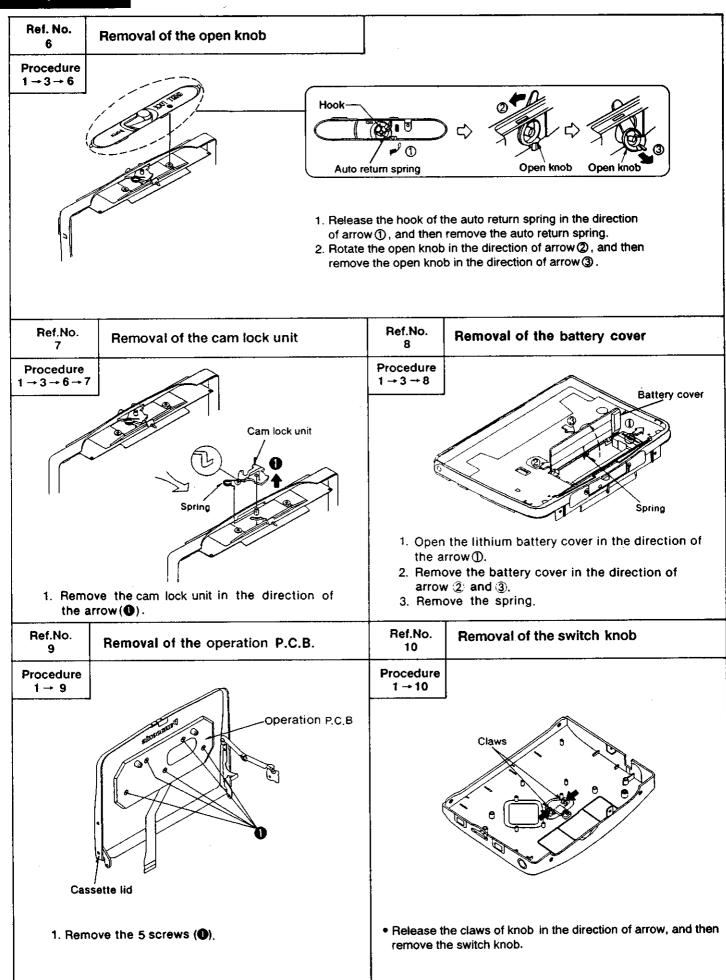


Fig. 10

■ DISASSEMBLY INSTRUCTIONS

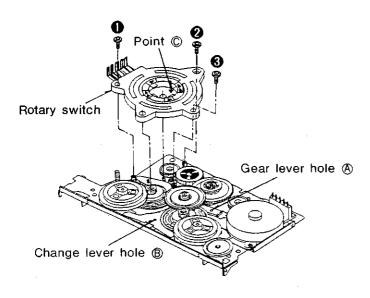




Notes for assembly

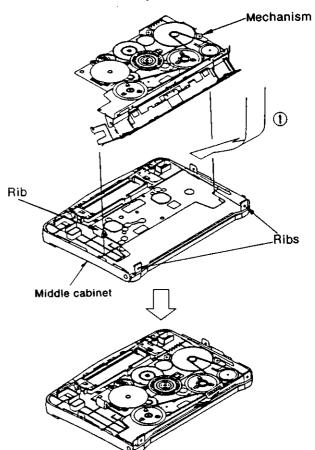
■Notice for assembling the rotary switch

- 2. Move the change lever manually until hole ® match the hole of chassis.
- 4. To fix the rotary switch, use 3 screws to tighten it.

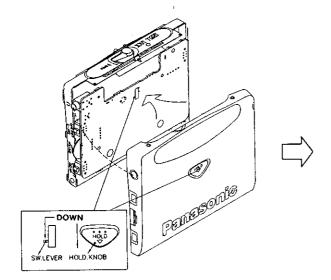


■ Notice for assembling the mechanism

- 1. Install the mechanism in the direction of arrow ①.
- 2. Engage the mechanism in the ribs of the middle cabinet.
- 3. Make sure the ribs fully to the mechanism.



■ Notice for installing the knobs and assembling the cabinet ass'y



 The hold knob to the switch lever in the direction of arrow.

Note: Before installing the switch knob, be sure to check the claws for defects that would render the claws unserviceable.

(If a white line like white wax on a claw is found, the claw may be broken when installing the switch knob.)



2.Make sure the cainet ass'y is installed completely and the knobs can be operated after assembled.

HOW TO CHECK OPERATIONS DURING DISASSEMBLY AND SERVICING

1. Cassette section

- Check operations during disassembly following the steps.
 - 1) Set the condition as shown in Fig. 1 in accordance with Disassembly Instructions. (DO NOT remove the solders on the head FPC.)
 - 2) Connect the PCB and motor and rotary switch with the extension cord (RFKZ0002).
 - 3) Short the short land with a soldering and then short-circuit them.
 - Short the short land SL1 for Power supply of AMP ON.
 - Short the short land SL2 for Power supply of motor ON.
 - Short the short land sl3 for Microcomputer reset.
 - Short the short land SL4 for Power supply of motor CCW
 - •Short the short land SL5 for Open/Close SW: ON.

Note: See next page for the points to be short-circuited.

- 4) Connect the battery (-) terminal to the mechanism chassis earth with a lead wire.
- 5) Manually operate the rotary switch gear when checking the FWD/REV/FF/REW operation.
 - Rotate manually the rotary switch gear (Fig 1-1) as the arrow direction shown until the checking mode you need direct the pointer.
- 6) Connect the battery (+) terminal and the battery (-) terminal foil to the power source (DC 1.5V) with a lead wire. (Fig. 1) Notes:
 - ① You have to turn off the power when you want to change mechanism mode.
 - Even if the mechanism unit is switched to the REV mode in Step 6, the head change-over switch (IC1) will remain in the FWD position, so set the FWD mode to check the audio. Before checking the operation problems and adjustments, be sure to release the hold state. (Hold switch (S2): "OFF")

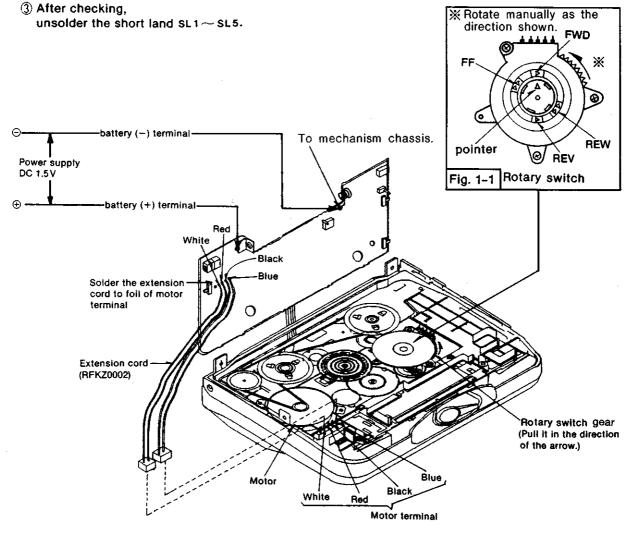
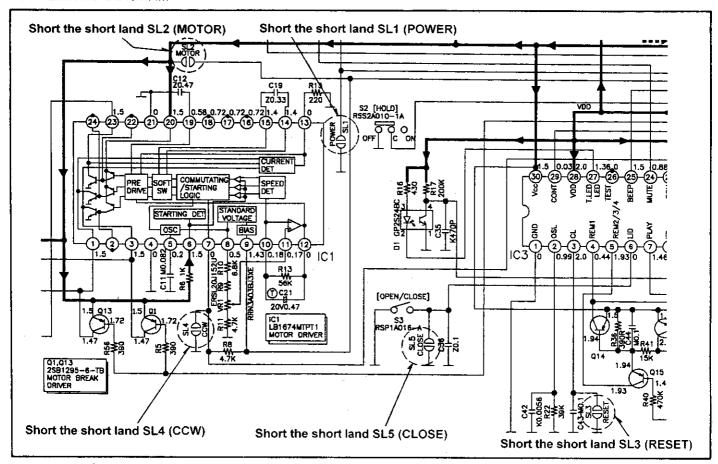


Fig. 1

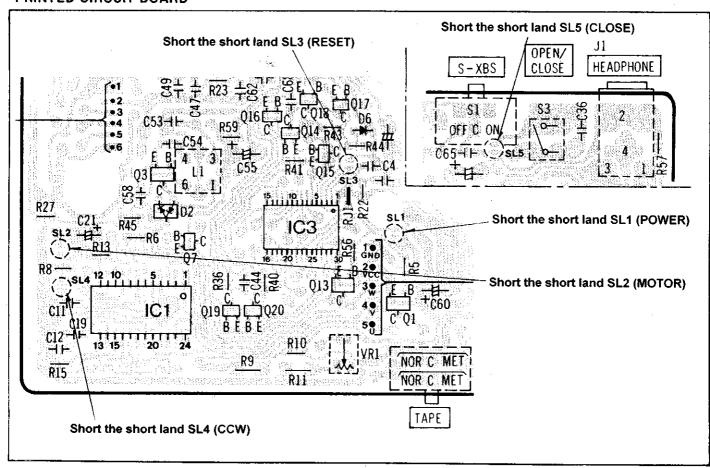


Short points

SCHEMATIC DIAGRAM



PRINTED CIRCUIT BOARD



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	O	Tе	-	_

●S1: S-XBS switch "OFF" position.

■S2: Hold switch in "OFF" position.

Open/close switch in "OPEN"

●S3: Open/close switch in "OPEN" position.

S4-1, 4-2: Tape selector switch in "Normal" position.

●S5: Dolby NR switch in "ON" position.

S6: Rotary switch in "FWD" position.

(1...FWD, 2...FF, 3...REV, 4...REW)

●\$7: STOP switch in "OFF" position.
●\$8: PLAY switch in "OFF" position.
●\$9: REW switch in "OFF" position

●S9: REW switch in "OFF" position ●S10: FF switch in "OFF" position.

●S11: BATT CHK switch in "OFF" position ●VR1: Tape speed adjustment VR.

●VR2-1,2-2: Volume control VR.

DC voltage measurement are taken witch electronics voltmeter from negative terminal of battery. NO mark...playback.

●Battery current: Volume minimum output84mA

Volume minimum output......100mA

+ B Voltage Line.

Playback Signal (Rch).

→ □□□□ Playback Signal (Lch).

●This schematic diagram may be modified at any time with the development of new technology.

■ RESISTOR AND CAPACITOR PARTS LIST

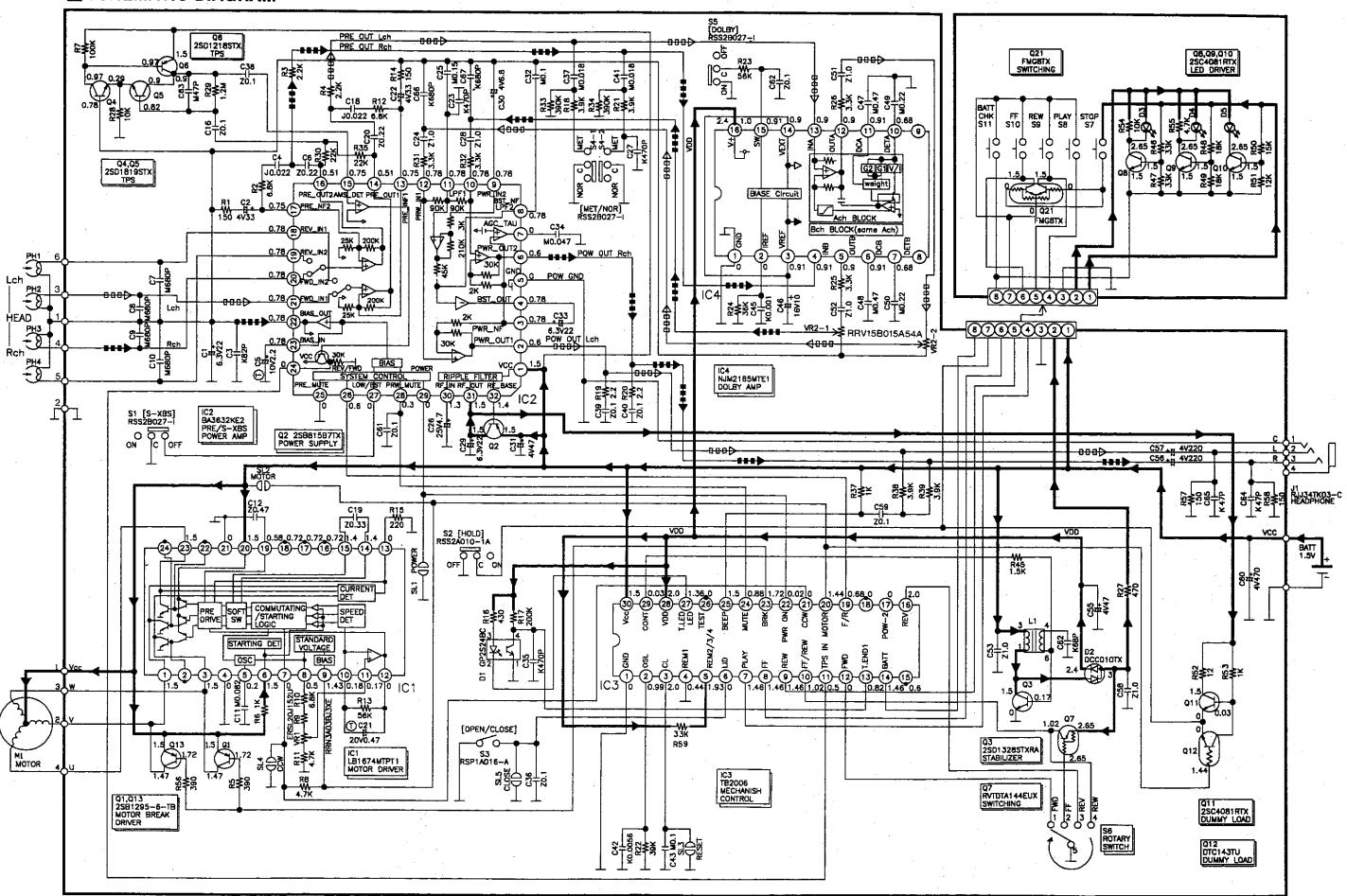
Notes:

- 1. (T)Indicates parts than are supplied by TAMACO
- 2. (M)Indicates parts than are supplied by MESA

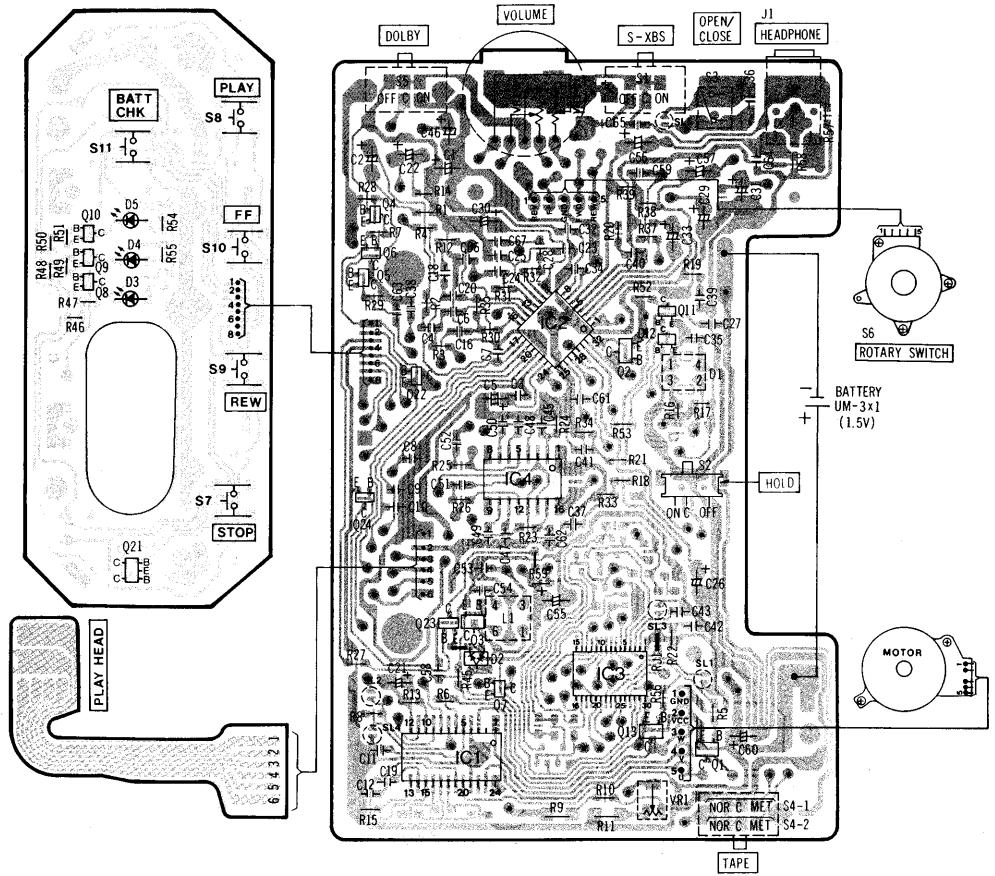
		*	∣∨alues &
	Ref No.	Parts No.	Remarks
	RESISTORS		
	R1,14	ERJ6GEYJ151V	(M)
	R2,10,12,54	ERJ6GEYJ682V	(M)
	R3,4	ERJ6GEYJ222V	(M)
	R5,56	ERJ6GEYJ391V	(M)
	R6,37,53	ERJ6GEYJ102V	(M)
	R7	ERJ6GEYJ104V	(M)
	R8 ·	ERJ6GEYJ472V	(M)
	R9	ERSL20J152U	(T)
	R11,55	ERJ6GEYJ562V	(M)
-	R13,23	ERJ6GEYJ563V	(M)
ļ	R15	ERJ6GEYJ331V	(M)
	R16	ERJ6GEYJ431V	(M)
	R17	ERJ6GEYJ204V	(M)
	R18,21,38,39	ERJ6GEYJ392V	(M)
	R19,20	ERJ6GEYJ2R2V	(M)
	R22	ERJ6GEYD393V	(M)
	R24	ERJ6GEYJ363V	(M)
	R25,26,31,32	ERJ6GEYJ332V	(M)
ĺ	R27	ERJ6GEYJ122V	(M)
	R28	ERJ6GEYJ103V	(M)
	R29	ERJ6GEYJ125V	(M)
	R30,35	ERJ6GEYJ223V	(M)
	R33,34	ERJ6GEYJ394V	(M)
	R45	ERJ6GEYJ152V	(M)
	R46,48,50	ERJ6GEYJ273V	(M)
	R47,49,51,59	ERJ6GEYJ333V	(M)
	R52	ERJ6GEYJ120V	(M)

		Values &
Ref No.	Parts No.	Remarks
CAPACITORS		
C1,29,33,	ECEA0JKS220I	(M)
C2.22	ECEA0GKS330I	(M)
C3	ECUV1H330KCN	(M)
C4,18	ECUV1E223JBN	(M) ·
C5	RCST1AY225RE	(M)
C6,20	ECUV1C224ZFN	(M)
C7,8,9,10,66,67	ECUV1H681KBN	(M)
C11	ECUV1C823MBN	(M)
C12	ECUV1C474ZFN	(M)
C16,32,38,43	ECUV1C104MBN	(M)
C19	ECUV1C334ZFN	(M)
C21	ECST1DY474RR	(T)
C23,27,35	ECUV1H471KBN	(M)
C24,28,51,52	ECUVNC105ZFN	(M)
,53,58,62		Į.
C25	ECUV1C154MBN	(M)
C26	ECEA1EKS4R7I	(M)
C30	ECST0GY685RR	(M)
C31,55	ECEA0GKS470I	(M)
C34	ECUV1C473MBN	(M)
C36,39,40,59,61	ECUV1C104ZFN	(M)
C37,41	ECUV1C183MBN	(M)
C42	ECUV1H562KBN	(M)
C45	ECUV1H102KBN	(M)
C46	ECEA1CKS100I	(M)
C47,48	ECUV1C474MBN	· (m)
C49,50	ECUV1C224MBN	(M)
C54,64,65	ECUV1H680KCN	(M)
C56,57	ECEA0GKS221I	(M)
C60	ECEA0GK\$4711	(M)
C63	ECUV1H820KCN	(M)

SCHEMATIC DIAGRAM



■ CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM



■ REPLACEMENT PARTS LIST (ELECTRICAL)

Notes

- 1. (T)Indicates parts than are supplied by TAMACO
- 2. (M)Indicates parts than are supplied by MESA

			Values &		
Ref No.	Parts No.	Parts Name & Description	Remarks		
INTEGRATED CIRCUITS, TRANSISTORS AND DIODES					
IC1	LB1674MTPT1	I.C.MOTOR DRIVE	(T)		
IC2	BA3632KE2	I.C.PRE/S-XBS/POWER AMP	(T)		
IC3	TB2006FN	I.C.MECH.CONTROL	(T)		
IC4	NJM2185MTE1	I.C.DOLBY	(T)		
Q1,13	2SB1295-6-TB	Transistor	(T)		
Q2	2SB815B7TX	Transistor	(T)		
Q3	2SD1328STXRA	Transistor	(T)		
Q4,5	2SD1819STX	Transistor	(Ŧ)		
Q6	2SB1218STX	Transistor	(T)		
Q7	RVTDTA144EUX	Transistor	(T)		
Q8,9,10	2SC4081RTX	Transistor	(T)		
Q11	2SD1328STXRA	Transistor	(T)		
Q12	RVTDTC143TUX	Transistor	(T)		
Q21	FMG8TX	Transistor	(T)		
D1	GP2S24BC	Photo Coupler	(T)		
D2	DCC010TX	Diode	(T)		
D3,4,5	LN1261CTR	Chip L.E.D	(T)		
COIL					
	RLO9A004-T	D-D CON.Coil	(T)		
VARIABLE F					
VR1	RRN3A03BJ3XE	V.R.Tape Speed	(T)		
VR2	RRV15B01A54A	V.R.Volume	(T)		
SWITCHES		I			
S1	RSS2B027-I	SW,S-XBS	(T)		
S2	RS\$2A010-1A	SW,Hold	(T)		
S3	RSP1A016-A	SW, (Open/Close)	(T)		
S4	RSS2B027-I	SW,Tape (Met/Nor)	(T)		
S5	R\$\$2B027-I	SW,Dolby	(T)		
S6 S7	RSR5D001-A	SW,Rotary (Mode)	(T)		
S8	EVQPQMB55	SW,Stop	(T)		
\$8 \$9	EVQPQMB55 EVQPQMB55	SW,Play	(T)		
S10	EVQPQMB55	SW,REW SW,FF	(T)		
S10	EVQPQMB55 EVQPQMB55		(T)		
JACK	EAGL/MIND33	SW BATT CHK	(T)		
JACK J1	RJJD4E30	lack Headahanas	(T)		
J I	NJJD4E3V	Jack, Headphones	(T)		

Notes:

- In this printed circuit board diagram, the parts and foil patterns on the board facing toward you are printed in black.
- The opposite side is printed in blue.
- The "" mark denotes the connection points of double-faced foil patterns (through holes) on both side of the printed circuit board.
- This printed circuit board diagram may be modified at any time with the development of new technology.

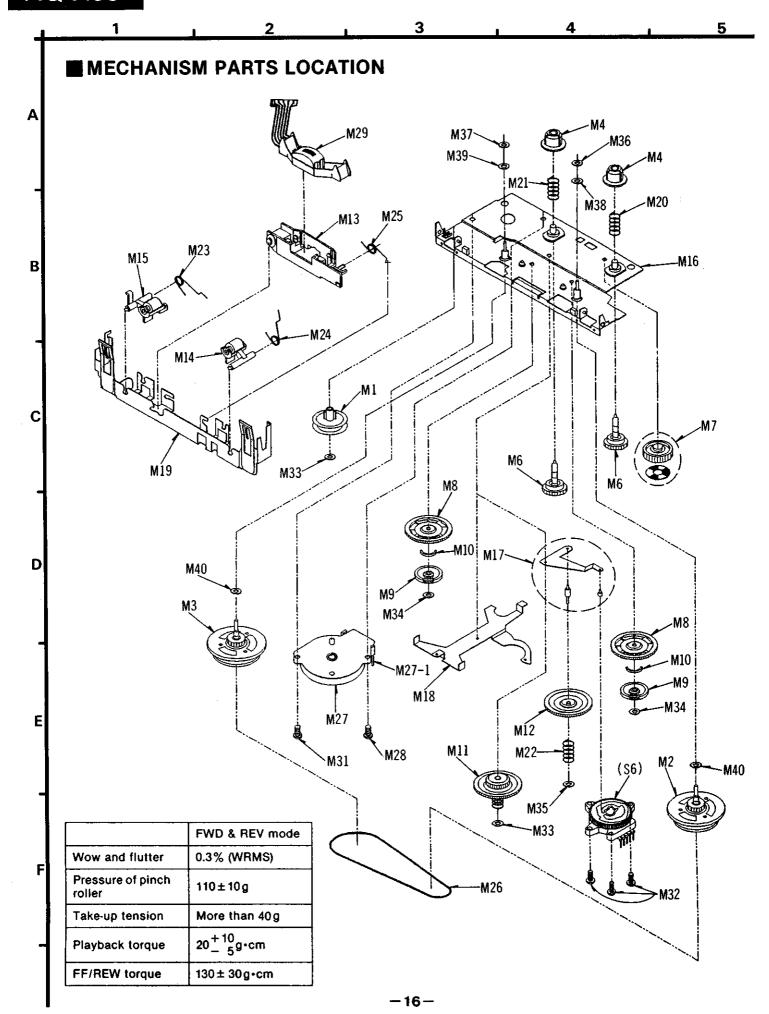
■ TERMINAL FUNCTION OF IC

● IC3 (TB2006FN011): Mechanism control

Pin No.	Mark	I/O Division	Function	Pin No.	Mark	I/O Division	Function
1	GND	_	GND terminal				Inputs the battery
2	osc	1/0	System clock terminal fosc=6.4kHz	14	BATT	ı	operation signal At low: BATT
3	CL	i	Clear (RESET) terminal	15,18	NC	_	Not connected
4	REM1	Ì	Inputs the remote signal for the stand by releas of DC/DC converter	,26 16	REV	ı	Inputs the mechanism status detection signal (REV)
5	REM 2/3/4	ı	Inputs the signal for remote control	17	POW-2	0	At low: REV Outputs the remote control
6	LID	1	Detection signal whether the cassette tape is inserted		1011-2		signal at low FWD/REV select terminal
7	PLAY	l l	Inputs the mechanism operation signal (PALY)	19	F/R	0	At high: FWD ON At low: REV ON
8	FF		At low: PLAY Inputs the mechanism operation signal (FF) At low: FF	20	M-CTL	0	Outputs the motor drive signal (MOTOR ON/OFF). At high: ON At low: OFF
9	REW	1	Inputs the mechanism operation signal (REW) At low: REW	21	ccw	0	Outputs the reversing motor drive control signal At high: REV
10	FF/REW	1	Inputs the mechanism status detection signal (FF/REW) At hi: FF, At low: REW	22	POWER	0	At low: FF Outputs the power switching signal
11	TPS IN	1	Inputs the TPS Control signal Inputs the mechanism status detection signal (FWD)	23	BRK	0	At low: ON Outputs the mechanism operation signal (STOP). At low: STOP
· -			At low: FWD Inputs the signal for the	24	MUTE	0	Outputs the muting signal At low: muting ON
			derection of tape rotation. When the pulse signal is input:	25	BEEP	0	Ouptuts the buzzer out terminal
13	T.END1	,	The current mode remains set as the tape is rotating.	27	T-LED LED	0.	Ouptuts the photo coupler control signal terminal
			No pulse signal: Stops or starts reverse playback as the	28	VDD	l	Power Supply terminal
		i	tape has stopped rotaing (ie,reched the end)	29	CONT	0	Ouptuts the DC-DC converter drive signal
	<u> </u>	•		30	VCC	ı	Power supply terminal

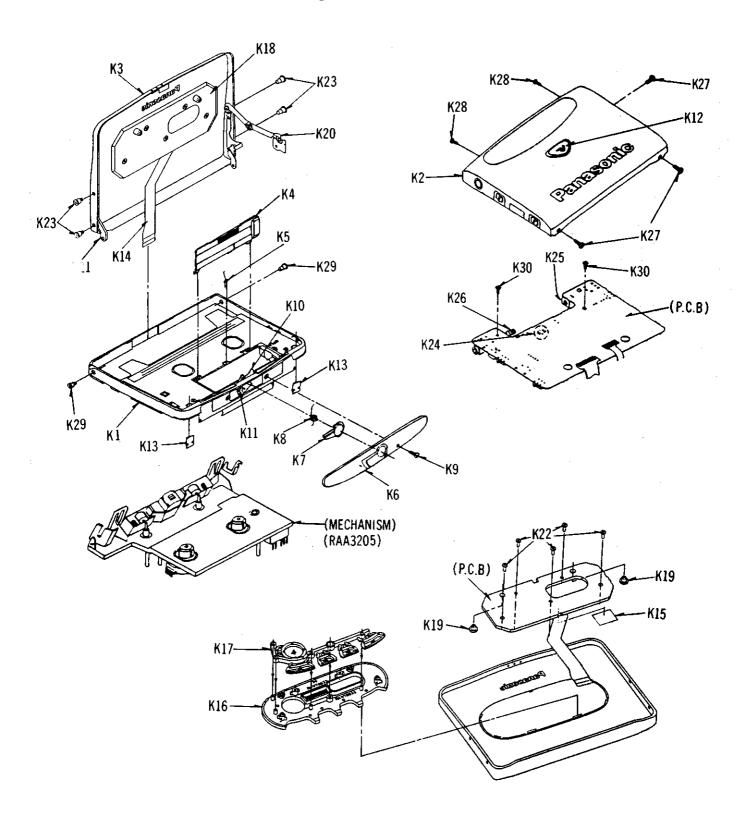
• Terminal guide of IC's, transistors and diodes

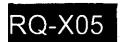
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в е в с с о о о о о о о о о о о о о о о о о	Cathode Cathode Anode Anode	Cathode Anode Cathode	Cathode A — 2 Co D3, 4, 5.	





MCABINET PARTS LOCATION





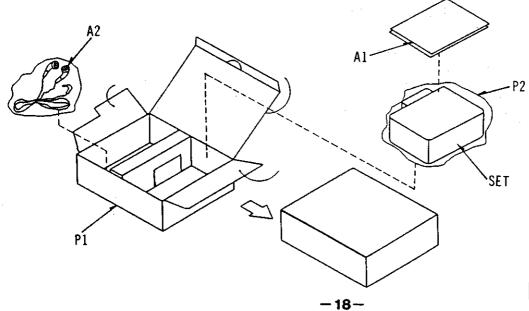
EREPLACEMENT PARTS LIST (MECHANISM, CABINET, ACCESSORIES, PACKING AND JIG/TOOL)

- 1. The (T) Indicates parts that are supplied TAMACO
- 2. The (M) Indicates parts that are supplied MESA
- 3. The reference number SA represent the grease tool usea for unit.

			Values 8
Ref No.	Parts No.	Parts Name & Description	Remarks
	CAL PARTS		
M1	RDP0069	Center Pulley	(T)
M2	RFKRQXV30C	Flywheel F Ass'y	(T)
M3	RFKRQXV30D	Flywheel R Ass'y	(T)
M4	RDR0030	Reel Cap	(T)
M6	RDG0274	Reel Gear	(T)
M7	RFKRQX10EC	Idler Gear Ass'y	(T)
M8	RDG0276	Change Gear A	(T)
M9	RDG0277	Change Gear B	(T)
M10	RMQ0434-1	Changing Plate	(T) ·
M11	RFKRQXV30B	Friction Gear Ass'y	(T)
M12	RDG0280	Operation Gear	(T)
M13	RML0335-2	Head Arm	(T)
M14	RFKRQX10EE	Pinch Roller Arm Ass'y F	(T)
M15	RFKRQX10EF	Pinch Roller Arm Ass'y R	(T)
M16	RFKRQX05A	Chassis Ass'y	(T)
M17	RFKRQX10EH	Gear Lever	(T)
M18	RML0339	Change Lever	(T)
M19	RFKRQXV30E	Head Block Spacer	(T)
M20	RMB0353	Reel Spring F	(T)
M21	RMB0354	Reel Spring R	(T)
M22	RMB0356	Operation Gear Spring	(T)
M23	RMB0357-1	Pinch Arm Spring R	(T)
M24	RMB0358-1	Pinch Arm Spring F	(T)
M25	RMB0359	Head Arm Spring	(T)
M26	RDV0059	Belt	(T)
M27	BFL26NBCWB	Motor	(T)
M27-1	RJST0001	Header Motor	(T)
M28	RHD14061	Screw (Motor Earth)	(T)
M29	RED0033	Head Ass'y	(T)
M31	RHD14063	Screw (Motor)	(T)
M32	RHD14043	Screw (Rotary Switch)	(m)
M33	RHW10003	Washer (Frition Gear/Center Pulley)	
M34	RHW17009	Washer (Change Gear)	(T)
M35	RHW11005	Washer (Operation Gear)	(T)
M36	RHW11004	Washer (Capstan F)	m
M37	RHW12015	Washer (Capstan R)	m
M38	RHW13014	Washer (Capstan F)	(n)
M39	RHW13015	Washer (Capstan R)	m
M40	RHW13016	Washer (Under Side-Capstan)	(iii)

Ref No.	Parts No.	Parts Name & Description	Values & Remarks
CABINET I			
K1	RFKKQX05E-S	Middle Cabinet Ass'y	T(T)
K2	RKST0018D-S	Rear Cabinet (Silver)	lπ
K2.	RKST0018D-A	Rear Cabinet (Blue)	lπ
K2	RKST0018D-K	Rear Cabinet (Black)	lπ
кз	RFKLQX05E-S	Cassette Lid Ass'v (Silver)	lm
КЗ	RFKLQX05E-A	Cassette Lid Ass'y (Blue)	lm
КЗ	RFKLQX05E-K	Cassette Lid Ass'y (Black)	lπ
K4	RKKT0005-K	Battery Cover	lm
K5	RMBT0001	Spring	lπ
K6	RKQT0006A-S	Upper Cabinet	lḿ.
K7	RGWT0013-S	Open Knob	lπ
K8	RMBT0012	Return Spring	lm
K9	RHDT0002-S	Screw	lä
K10	RMAT0019	Lock Cam	(T)
K11	RMBT0013	Lock Cam Spring	(ii)
K12	RGVT0024-H	Hold Knob	(T)
K13	RMCT0002-1	Pack Spring	(T)
K14	RJBT0077A	FPC PWB	m
K15	RMZT0009	FPC Sheet	l(ii)
K16	RKWT0033-Q	Panel	(r)
K17	RGUT0067-S	Deck Button	(T)
K18	RMVT0014-K	PWB, Sheet	l (t)
K19	RMGT0023-K	Stabilizer Gum	lπ
K20	RMAX1053	Link Ass'v	l (r)
K21	RMAT0002	Basic Angle (R)	m
K22	RHDT14015-K	Screw	lm
K23	RHDT0003-S	Screw (Silver)	m
K23	RHDT0003-K	Screw (Blue Black)	lm)
K24	RMNT0009	Phot Coupler Case	l m
K25	RJCT30005	Battery Terminal (+)	(n)
K26	RJCT70005-1	Battery Terminal (-)	(T)
K27	RHDT14017-S	Screw (Silver)	(T)
K27	RHDT14017-K	Screw (Black,Blue)	(T)
K28	RHDT0002-S	Screw (Silver)	(T)
K28	RHDT0002-K	Screw (Black Blue)	(T)
K29	RHDT0005-K	Screw	(T)
K30	XTNR14+3	Screw	l (ii)
ACCESSO			1(1)
A1	IRQTT0216-E	Instruction Book	(T)
A2	RFEV317P-KS	Inner Phones	(T)
PACKING	MATERIALS		1.3.7
P1	RPKT0200	Decoration Box (Silver)	(T)
P1	RPKT0205	Decoration Box (Blue)	l (ri)
P1	RPKT0206	Decoration Box (Black)	(T)
P2	RPFT0015	Set Bag	lii)
JIG/TOOL		1	1
SA1	QZZCWAT	TEST TAPE(Tape Speed etc)	(M)
SA2	QZZCFM	TEST TAPE(AZIMUTH/FREQ)	(M)

■ PACKING



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