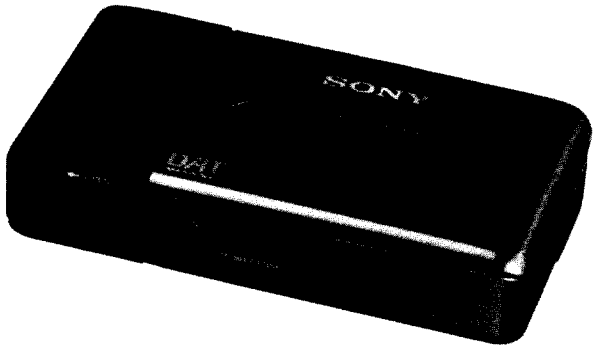
WMD-DT1

SERVICE MANUAL

US Model
Canadian Model
AEP Model



DAT
Digital Audio Tape
WALKMAN

Model Name Using Similar Mechanism	NEW
Tape Transport Mechanism Type	MT-WMDDT1-108

SPECIFICATIONS

Tape: Digital audio tape
Sampling frequency: 48 kHz, 44.1 kHz, 32 kHz
Quantization: Standard: 16-bit linear
Long-play mode: 12-bit Non linear
Frequency response: Standard: Fs 48 kHz 20 – 22,000 Hz (+1.0 dB/–1.5 dB)
Fs 44.1 kHz 20 – 20,000 Hz (+1.0 dB/–1.5 dB)
Fs 32 kHz 20 – 14,500 Hz (+1.0 dB/–1.5 dB)
Long-play mode:
Fs 32 kHz 20 – 14,500 Hz (+ 1.0 dB/– 1.5 dB)
Wow and flutter: Below measurable limit (less than ± 0.001% W.PEAK)
Output: REMOTE/PHONES: nine pole jack
PHONES: stereo minijack
load impedance 8 – 300 Ω
Power output: 5 mW + 5 mW 16 Ω
Power requirements: 3 V DC
Two LR6 (size AA) batteries
Two rechargeable batteries (not supplied)
DC IN 3V jack accepts:
• Sony AC-E30L AC power adaptor (not supplied) for use on:

U.S.A. and Canada	120 V AC, 60 Hz
U.K.	240 V AC, 50 Hz
European countries	220 – 230 V AC, 50 Hz
Other countries	120 V AC, 50 Hz or 220 V AC, 60 Hz

• Sony DCC-E130L car battery cord (not supplied) for use on 12 V car battery

Battery life:

Battery	Playback
Sony alkaline AM3 (N)	Approx. 4 hours
Sony rechargeable NC-AA-2	Approx. 1.5 hours

Do not use the manganese batteries with this unit.

Dimensions: Approx. 116.3 × 28.5 × 69.5 mm ($4^5/_8 \times 1^1/_8 \times 2^3/_4$ in.) (w/h/d)
Mass: Approx. 250 g (8.9 oz.)
incl. batteries, not incl. other accessories

Design and specifications subject to change without notice.

Optional Accessories

AC power adaptor AC-E30L
Battery charger kit BPK-800
Rechargeable battery NC-AA-2
Car connecting pack CPA-3
Car battery cord DCC-E130L
Stereo active speaker system SRS-88
Earphones (headphones) with micro plugs MDR-D55, MDR-D77
DAT cleaning cassette DT-10CL

MICROFILM

DIGITAL AUDIO TAPE PLAYER

SONY®

TABLE OF CONTENTS

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

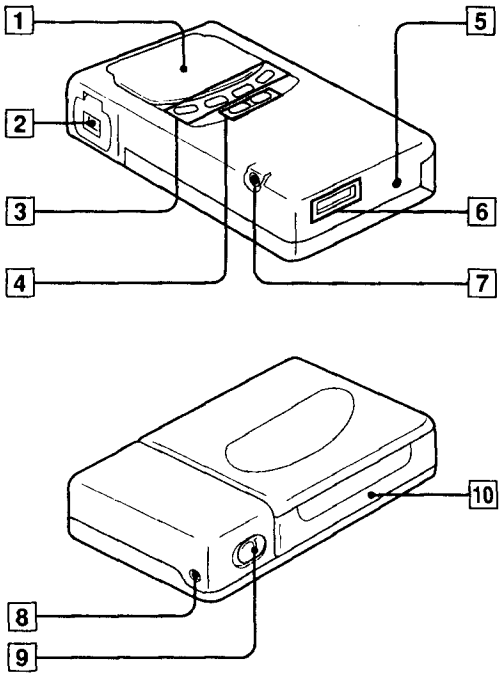
SECTION 1
GENERAL

This section is extracted from instruction manual.

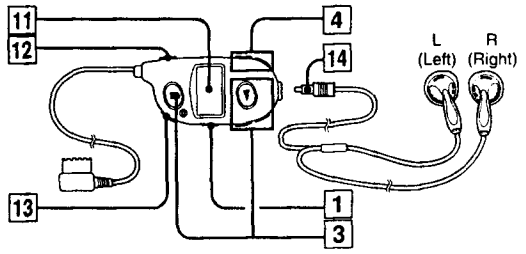
Parts Identification

Refer to the pages in ( ) for details.

Main Unit

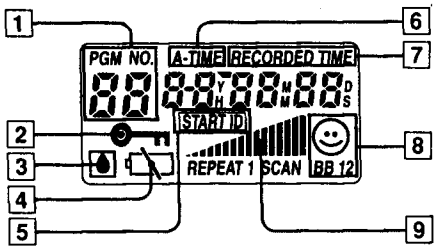


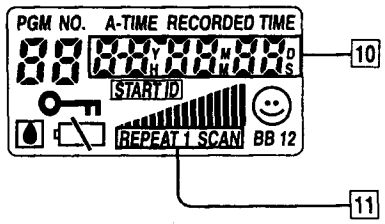
Stereo Earphones with Remote Controller



1. Main unit: Hold cover (20)
   Remote controller: HOLD switch (20)
2. Battery compartment (8)
3. Tape operation buttons (12)
4. VOL (volume) buttons (11)
5. BATT (battery) indicator
   This indicator lights up when the tape is running, or flashes when the batteries become weak.
6. REMOTE/PHONES (remote controller/earphones) jack (11)
7. PHONES (earphones) jack (21)(22)
8. DC IN 3V (external power input) jack (9)(21)
9. OPEN switch (10)
10. Cassette holder (10)
11. Display window (14)(15)
12. BB/AVLS (Bass Boost/ Automatic Volume Limiter System) button (19)
13. SCAN/REPEAT (music scan/ repeat play) button (17)(18)
14. Micro plug

Display Window of the Remote Controller



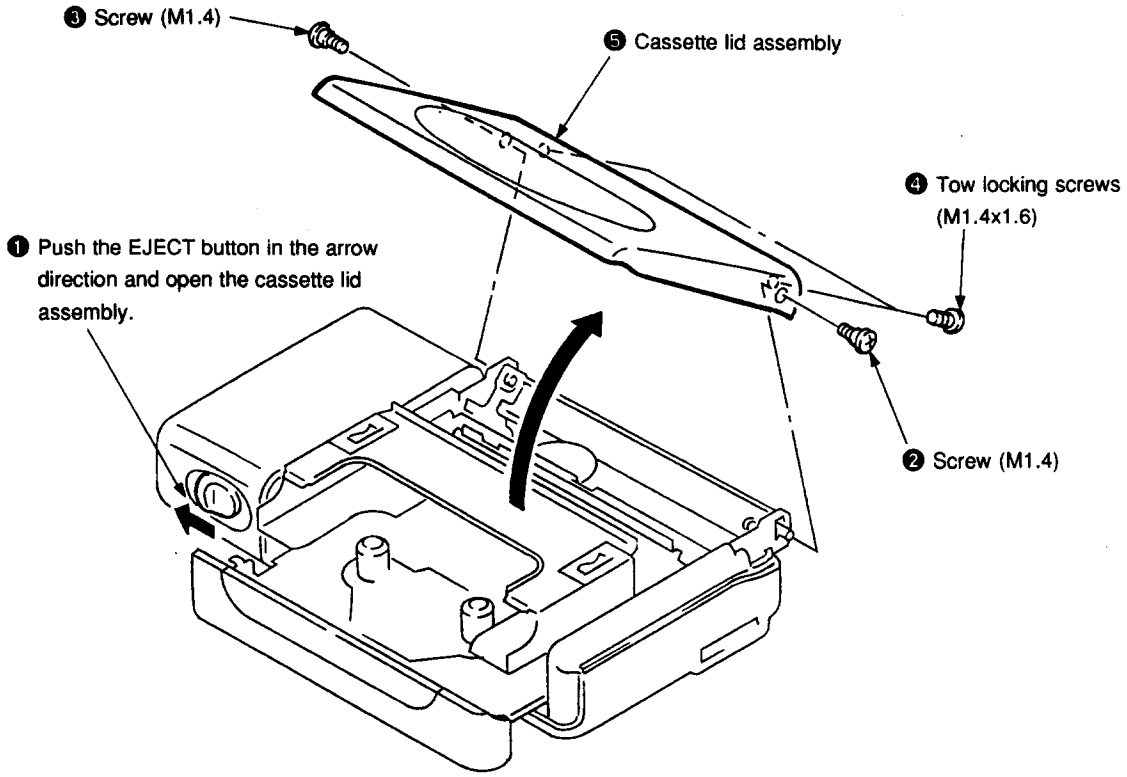


1. Indicates the current track number if the program number is recorded on the tape.
2. Appears when the HOLD switch on the remote controller is set to the "HOLD" position.
3. Flashes when the moisture condensation has occurred inside the unit. (The unit will automatically shut off.)
4. Flashes when the batteries inside the unit become weak.
5. Appears when the unit detects the start ID.
6. Appears when the absolute time (elapsed playing time of the tape) is being displayed. (during basic tape operation except when the AMS function is in operation)
7. Appears when the recorded date or recorded time is being displayed. (during playback or Repeat play) (Date function)
8. Appears when the Bass Boost or AVLS function is in operation.
9. Current volume level indication
10. Tape counter/Message indication
    The following indications appear:
    - Absolute time*1
    - The number of times you have pressed the ▶▶/▶▶| (▶▶) or |◀◀/◀◀ (◀◀) button for activating the AMS function
    - "OPEn" (when you slide the OPEN switch)
    - "TOP" (at the beginning of the tape)
    - "END" (at the end of the tape)
    - Each pressing of the ▶ button changes the indication cyclically as follows:
      "SP" (standard-play mode) or "LP" (long-play mode) and the sampling frequency → recorded date (year, month and date)*2 → recorded time (hour, minute and second)*3 → normal display mode
    - "Error" (when the malfunctions occur) (The unit will automatically shut off.)
11. Appears when the Repeat play or Music scan function is in operation.

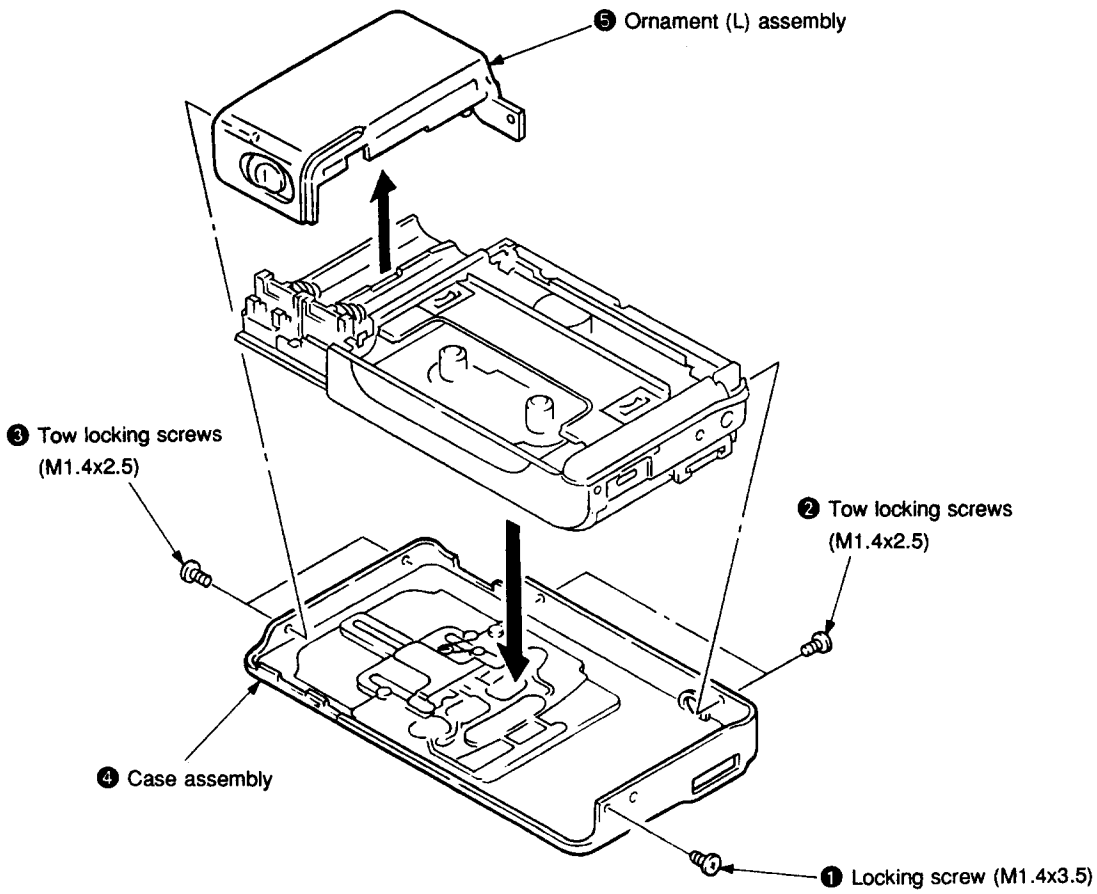
*1 When the absolute time has not been recorded on the tape, "– H – – M – – S" will be displayed.
*2 When the recording date has not been recorded on the tape, "– – Y – – M – – D" will be displayed.
*3 When the recording time has not been recorded on the tape, "– – H – – M – – S" will be displayed.

SECTION 2
DISASSEMBLY

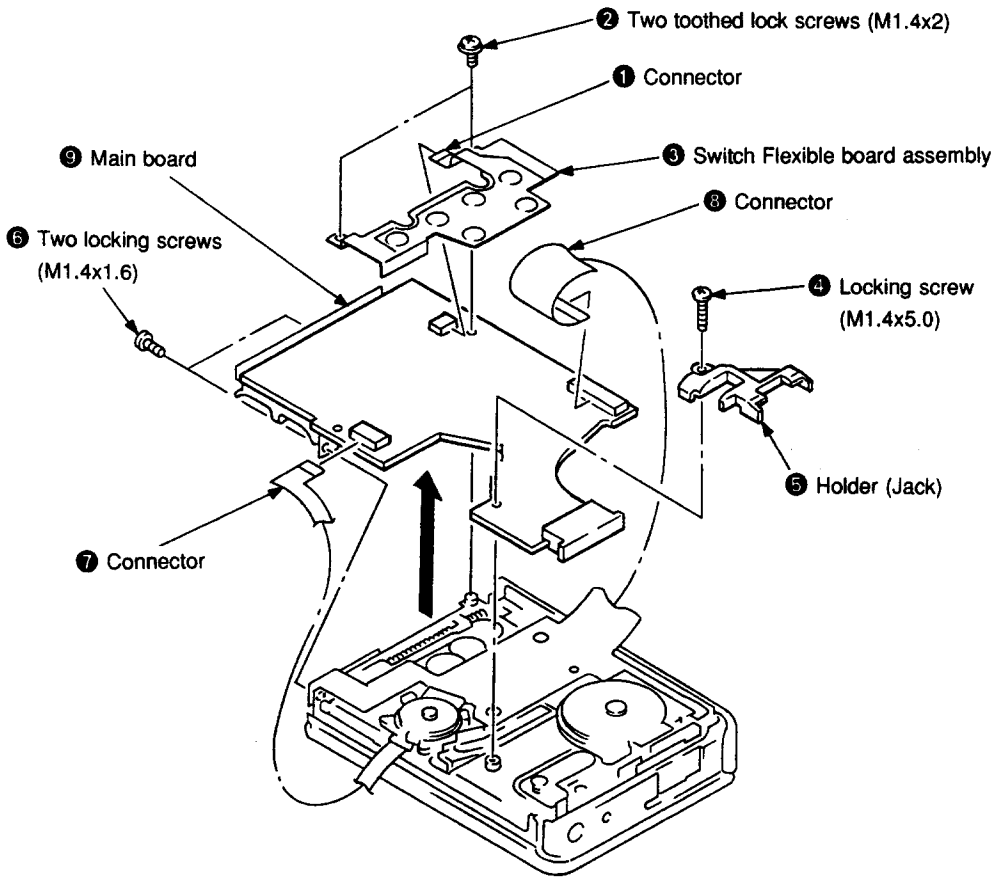
2-1. REMOVAL OF CASSETTE LID ASSEMBLY



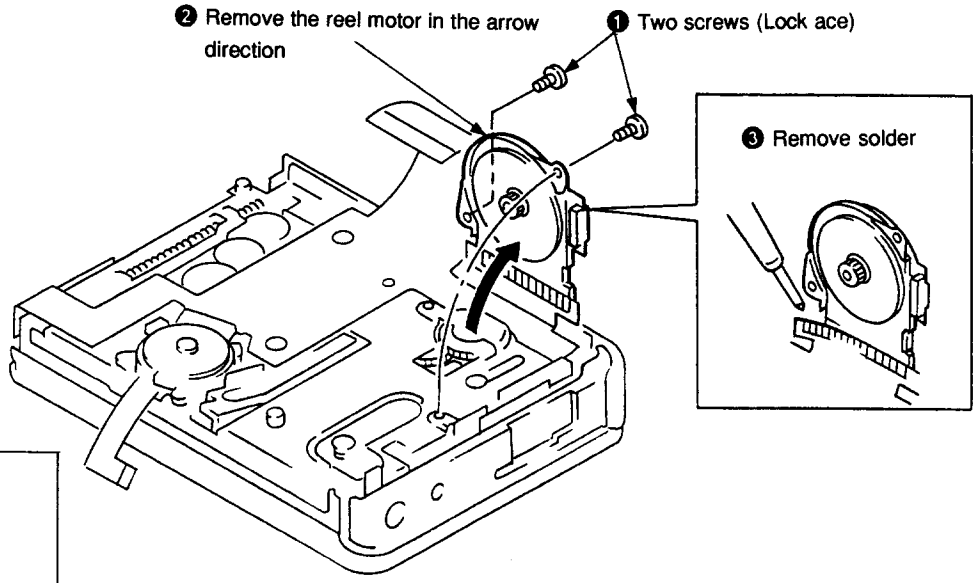
2-2. REMOVAL OF CASE AND ORNAMENT (L) ASSEMBLIES



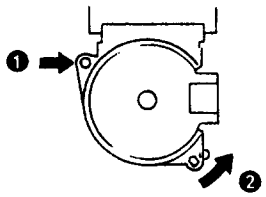
2-3. REMOVAL OF MAIN BOARD



2-4. REMOVAL OF REEL MOTOR

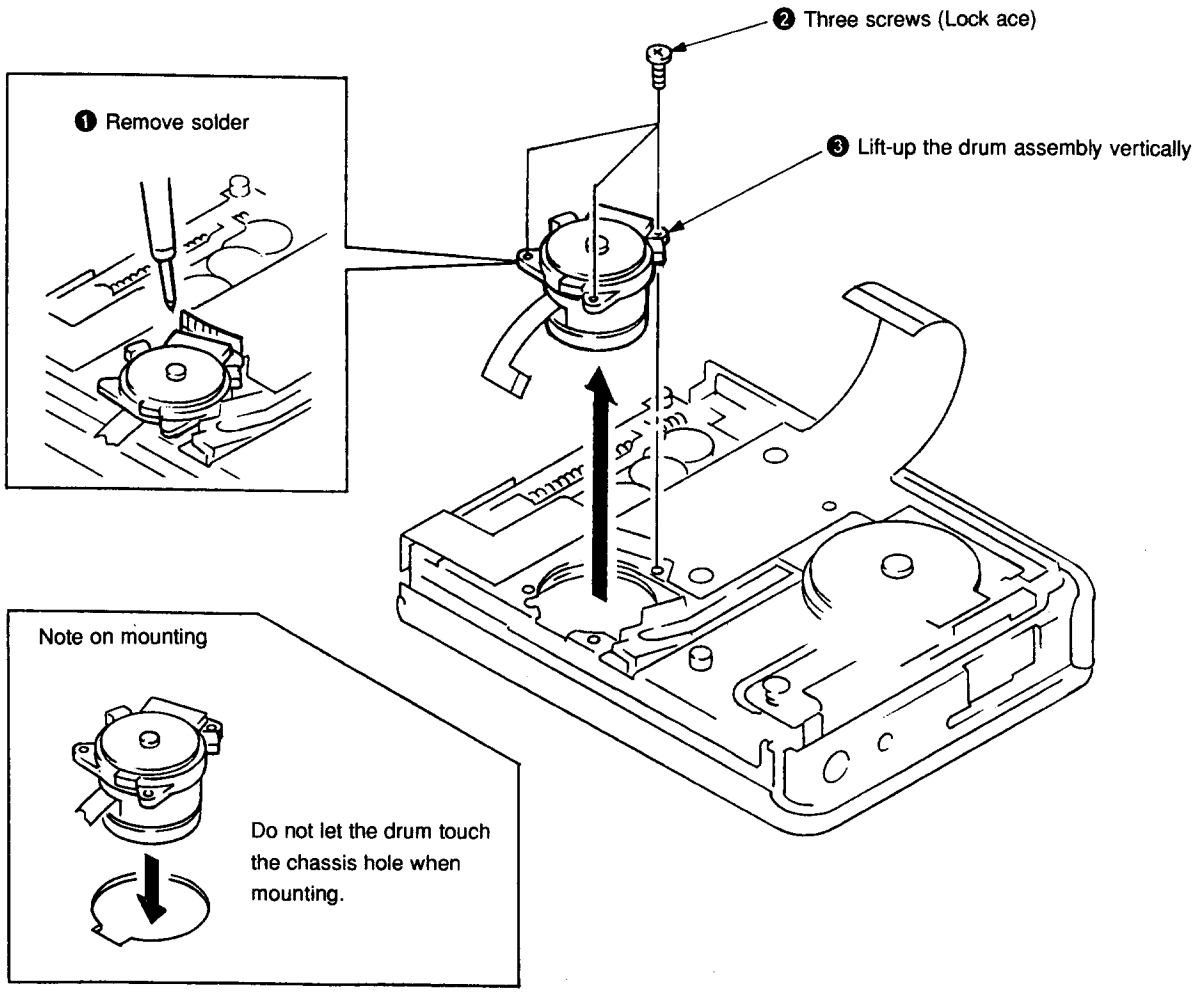


Note on mounting



❶ First, match this hole with the hole of the chassis.
❷ Match this hole with the hole of the chassis by turning the reel motor counterclockwise.
* Mounting the reel motor vertically may damage the gear.

2-5. REMOVAL OF DRUM ASSEMBLY



SECTION 3
TEST MODE

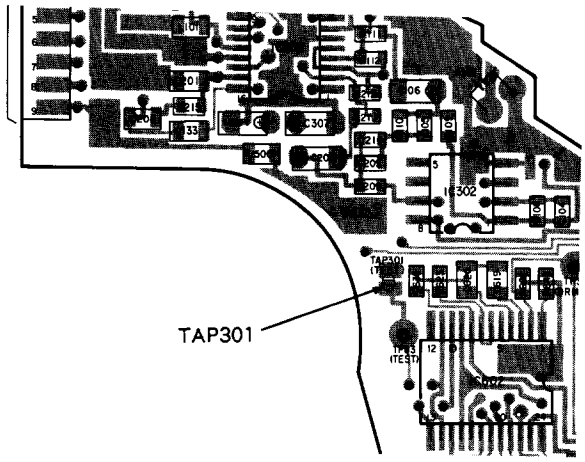
The microprocessor of this unit has eight test modes.
Performing test modes requires the remote commander RM-DT1MP provided.
Information on the test modes are displayed on the LCD of the remote commander.
This service manual describes the four test modes which are used in the checks in servicing.

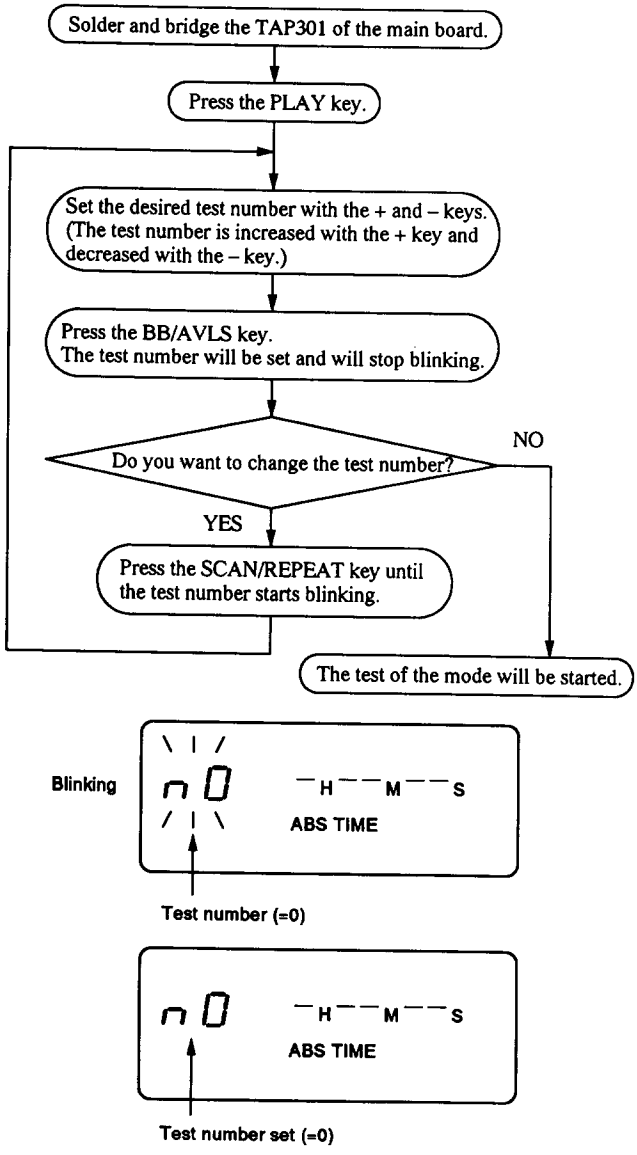
3-1. Test Mode Types

Test Number	Name of Mode
0	Normal test mode
1	Error rate measurement mode
2	Mechanism individual operation mode (No tape)
3	Mechanism individual operation mode (With tape)
4	Motor constant-voltage drive mode (No tape)
5	End sensor check mode
6	Key input check mode
7	Aging 1 mode

3-2. Setting Test Modes

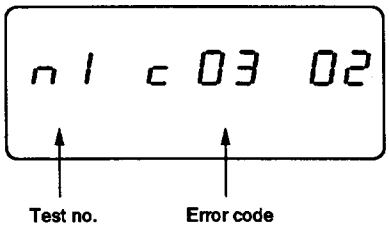
— Main board (side A)—





3-3. CAUTION Display in Test Mode

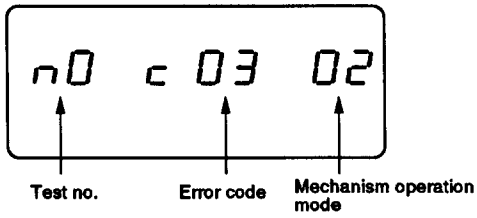
- When the CAUTION is detected, CAUTION and the error code will be displayed.
- CAUTION can be released by pressing the PLAY key.



3-4. Normal Test Mode=0

- Operate the keys in the same way as in the normal mode. When CAUTION occurs, the error code and the mechanism operation mode at that time will be displayed on the LCD.

(LCD display when CAUTION occurs)



Error Code List

Error Code	Contents
01	The drum motor is not rotating or the drum FG has not been detected
02	The reel motor is not rotating or the reel motor FG has not been detected
03	The drum motor speed is not stable
04	The reel motor speed is not stable
05	The tape top has not been detected
06	The tape end has not been detected
07	Tracking is not stable
08	The PLL does not lock

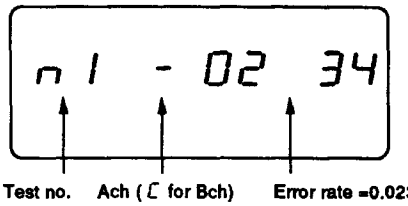
Mechanism Operation Mode List

Mechanism Operation Mode	Contents
01	STOP
02	FWD×1 (Standard speed)
03	FWD×2 (CUE)
04	FWD×4 (Approx. ×4 speed FORWARD)
05	FWD×8 (Approx. ×8 speed FORWARD)
06	FF
07	RVS×1 (Standard speed)
08	RVS×2 (REVIEW)
09	RVS×4 (Approx. ×4 speed REVERSE)
10	RVS×8 (Approx. ×8 speed REVERSE)
11	REW

3-5. Error Rate Measurement Mode=1

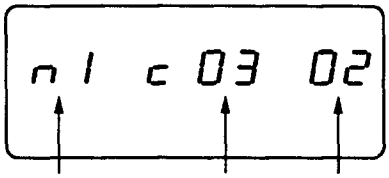
- The error rate of the Ach or Bch is measured and the result will be displayed on the LCD.
  The error rate displayed can be selected by the BB/AVLS key.
- Operate the keys in the same way as in the normal mode. When CAUTION occurs, the error code and the mechanism operation mode at that time will be displayed on the LCD.

(LCD display in the test mode)



Test no. Ach (C for Bch) Error rate =0.0234

(LCD display when CAUTION occurs)



Test no. Error code Mechanism operation mode

Error Code List

Error Code	Contents	Detected or Not
01	The drum motor is not rotating or the drum FG has not been detected	○
02	The reel motor is not rotating or the reel motor FG has not been detected	○
03	The drum motor speed is not stable	○
04	The reel motor speed is not stable	○
05	The tape top has not been detected	○
06	The tape end has not been detected	○
07	Tracking is not stable	×
08	The PLL does not lock	×

○ means error has been detected
× means no error has been detected

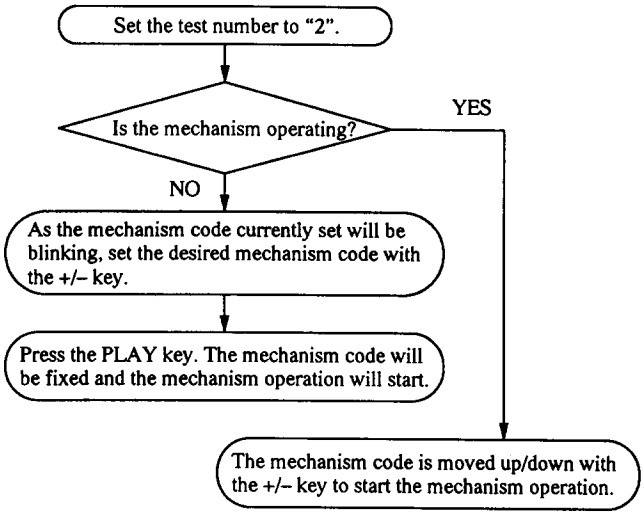
Mechanism Operation Mode List

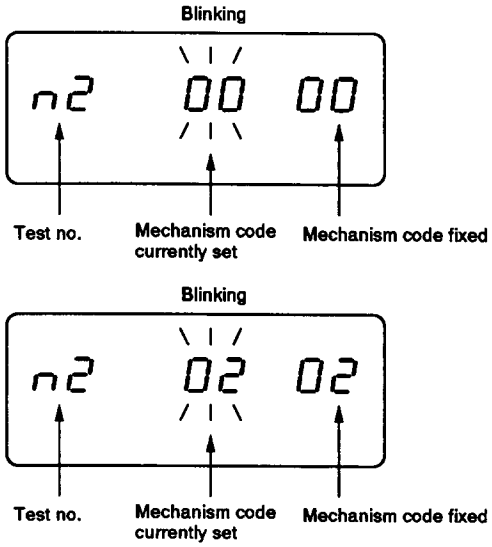
Mechanism Operation Mode	Contents
01	STOP
02	FWD×1 (Standard speed)
03	FWD×2 (CUE)
04	FWD×4 (Approx. ×4 speed FORWARD)
05	FWD×8 (Approx. ×8 speed FORWARD)
06	FF
07	RVS×1 (Standard speed)
08	RVS×2 (REVIEW)
09	RVS×4 (Approx. ×4 speed REVERSE)
10	RVS×8 (Approx. ×8 speed REVERSE)
11	REW

3-6. Mechanism Individual Operation Mode (No Tape)=2

- The drum and reel motor operate individually. Set the mechanism operation with the keys.

(Setting)





Mechanism Code List

Mechanism Code	Contents
00~01	Drum FG servo 4000 rpm, reel motor STOP
02	Drum STOP, reel speed servo (Minimum speed in the LP mode)
03	Drum STOP, reel speed servo (Minimum speed in the SP mode)
04	Drum STOP, reel speed servo (Minimum speed in the wide track mode)
05	Drum STOP, reel speed servo (FWD×4)
06	Drum STOP, reel speed servo (FWD×8)
07	Drum STOP, reel speed servo (FWD×50)
08	Drum STOP, reel speed servo (RVS×1)
09	Drum STOP, reel speed servo (RVS×4)
10	Drum STOP, reel speed servo (RVS×8)
11	Drum STOP, reel speed servo (RVS×50)

Error Code List

Error Code	Contents	Mechanism Code (Detected or Not)	
		00 to 01	02 to 11
01	The drum motor is not rotating or the drum FG has not been detected	○	×
02	The reel motor is not rotating or the reel motor FG has not been detected	×	○
03	The drum motor speed is not stable	○	×
04	The reel motor speed is not stable	×	○
05	The tape top has not been detected	×	×
06	The tape end has not been detected	×	×
07	Tracking is not stable	×	×
08	The PLL does not lock	×	×

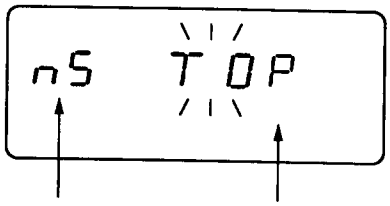
○ means error has been detected
× means no error has been detected

3-7. End Sensor Check Mode=5

〔**Note**〕 Use a blank tape.

- When the PLAY key is pressed in the stop state, the end sensor LED will blink in the period shown in Fig. (a). When the tape end is detected, "End" will be displayed on the LCD.
- When the FF key is pressed in the stop state, the end sensor LED will blink in the period shown in Fig. (b). When the tape end is detected, "End" will be displayed on the LCD.
- When the REW key is pressed in the stop state, the end sensor LED will blink in the period shown in Fig. (b). When the tape top is detected, "TOP" will be displayed on the LCD.
- No mechanism operation.
- CAUTION will not be detected.

(LCD display in the test mode)



Test no.

Detection of tape top
(End if tape end has been detected)

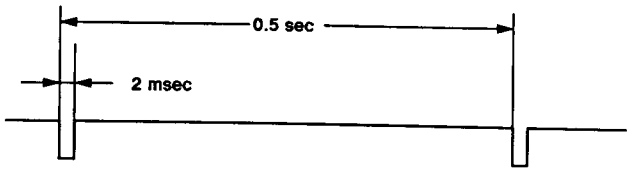


Fig. (a). When FWD×1 (PB)

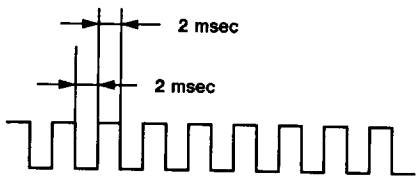


Fig. (b). Other than FWD×1

SECTION 4
MECHANICAL ADJUSTMENTS

Precautions

1. Input a DC 3.0V power supply to the DC IN 3V jack.
2. To clean the drum, moisten a chamois leather (2-034-697-00) or cloth (knit) that has been folded into fours with alcohol slightly, press it lightly against the drum and rotate the drum in the counterclockwise direction (2 to 3 times).

Torque Check

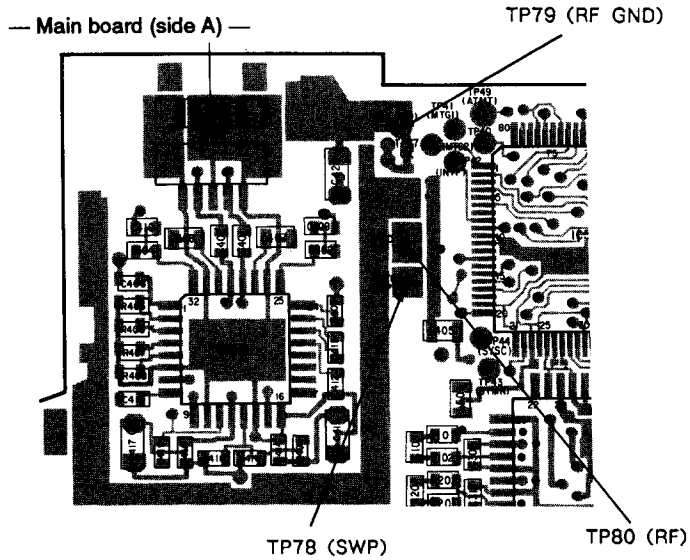
Torque	Torque Meter	Reading the
FWD (▶) back tension	TW-7131 (8-909-708-71)	3.5 to 5.5g • cm (S side)
REVIEW (⏮=▶+◀◀) back Tension	TW-7131 (8-909-708-71)	0.5 to 1.5g • cm (T side)

Tape Path Adjustment

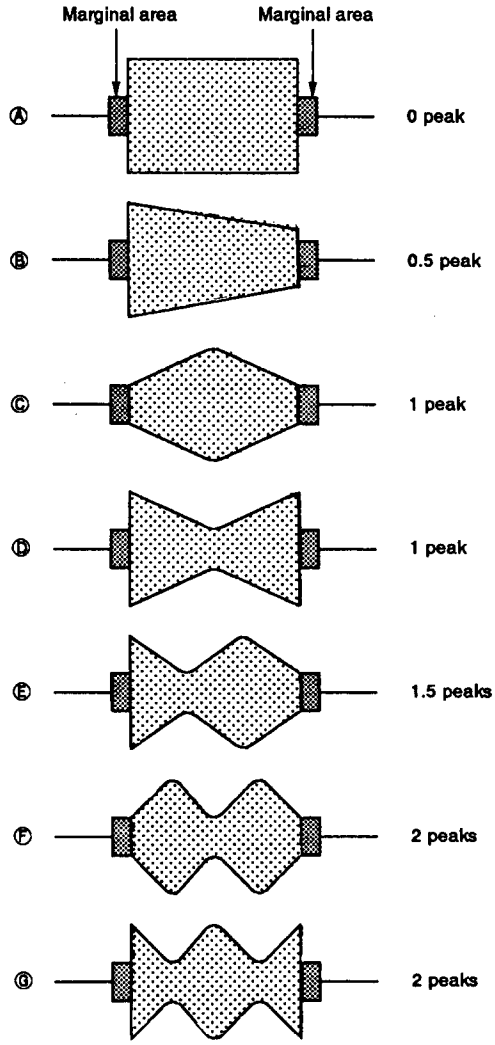
Be sure to perform this adjustment when the drum, S side roller guide section parts and T side roller guide section parts are replaced.

Procedure:

1. Remove the cassette lid assembly and case assembly.
2. Connect CH1 of an oscilloscope to TP80 (RF) and TP79 (RF GND) of the main board, then CH2 (trigger) to TP78 (SWP).



3. Load the test tape TY-7231 (8-119-874-00) and press PLAY (▶).
4. Check that the waveform of the oscilloscope (RF signal) becomes Ⓐ, Ⓑ, Ⓒ, Ⓓ, Ⓔ, Ⓕ, or Ⓖ shown in Fig. 1 (There must be two peaks or less and the marginal area must appear as well.).
   If the specification is not satisfied, perform adjustments from step 5.
   If the specification is satisfied, perform adjustments from step 7.



- **There must be two peaks or less and the marginal area must appear as well.**
- **Approximate upper waveform value: 0.4 to 0.6 mV when the waveform is most spread.**

Fig. 1.

5. Adjust the T side roller guide so that the marginal area appears at the right side of the RF signal (approx. 0.2 msec.). (Perform the adjustment 10 sec. after pressing PLAY (▶).)

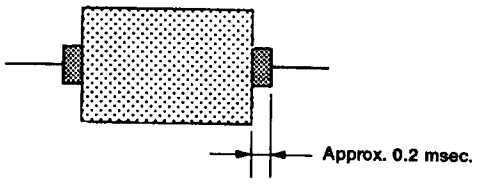


Fig. 2.

6. Adjust the S side roller guide so that the RF signal becomes Ⓐ, Ⓑ, Ⓒ, Ⓓ, Ⓔ, Ⓕ, or Ⓖ shown in Fig. 1
7. Press REW (◀◀) and check that the marginal area appears at the left side of the RF signal (approx. 0.2 msec.). If it does not appear, rotate the S side and T side roller guides in the counterclockwise direction by approximately 1/4.
   Press the REW (◀◀) again and check that the marginal areas appear at both the right and left sides of the waveform.
8. When the following modes are set, check that the RF waveform satisfies the following conditions.
   In PLAY (▶): There are two peaks or less and the marginal area must appear as well.
   In CUE (▶▶|), REVIEW (|◀◀), FF (▶▶|), or REW (◀◀): The marginal area appears.

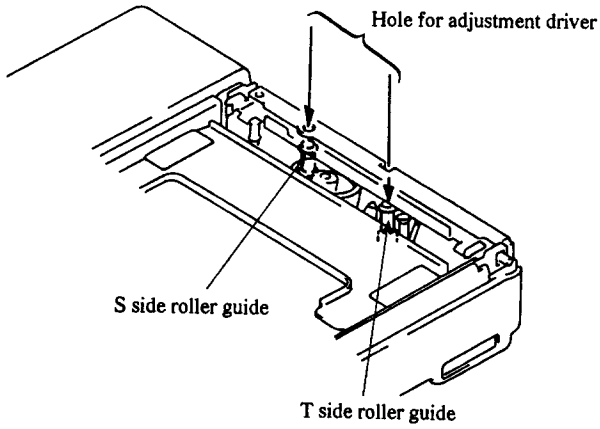
PLAY (▶)
↓
STOP (■)*
↓
PLAY (▶)
↓
STOP (■)*
↓
EJECT (← OPEN)*
↓
LOAD*
↓
PLAY (▶)
↓
CUE (▶▶|)
↓
PLAY (▶)
↓

REVIEW (|◀◀)
↓
PLAY (▶)
↓
STOP (■)*
↓
FF (▶▶)
↓
PLAY (▶)
↓
STOP (■)*
↓
REW (◀◀)
↓
PLAY (▶)

*: The RF waveform does not appear.

9. Press EJECT (← OPEN) and eject the test tape.
10. Remove the oscilloscope, and attach the cassette lid assembly and case assembly.

Adjustment Location:



SECTION 5
IC PIN FUNCTIONS

IC401 PLAYBACK EQUALIZER AMPLIFIER (CXA1354Q)

Pin No.	Pin Name	I/O	Function
1	HA A Vcc	–	Power supply pin of the Ach head amplifier and 2nd amplifier.
2	MP HIGH 2	–	Connects the resistor or current source for fixing the PCM EQ high band peak amount (For the Metal-Powder tape)
3	MP HIGH 1	–	Connects the resistor or current source for fixing the PCM EQ high band characteristics (For MP)
4	MP PHASE	–	Connects the resistor or current source for fixing the PCM EQ phase characteristics (For MP)
5	MP LOW	–	Connects the resistor or current source for fixing the PCM EQ low band characteristics (For MP)
6	PB GND		GND pin of parts other than the head amplifier, 2nd amplifier, and Limiter
7	EQ OUT	O	PCM EQ output pin
8	LIM IN	I	Limiter input pin
9	SWP OUT	O	Switching pulse output pin
10	LIM GND	–	Limiter GND pin
11	RFDT OUT	O	Limiter output pin
12	LIM Vcc	–	Limiter power supply pin
13	INT TC	–	Connects the integrating capacitor of the integrator.
14	PLCK IN	I	Signal input pin of the integrator
15	VREG OUT	–	Output pin of the regulator with decoupling capacitor
16	TAPE SW	–	Pin which switches the two EQ characteristics (For MP and Ba-Fe). Sets the EQ characteristics fixed by the external resistor of Pins ② to ⑤ when low and Pins ⑰ to ⑳ when high
17	BF HIGH 2	–	Connects the resistor or current source for fixing the PCM EQ high band peak amount (For Ba-Fe)
18	BF HIGH 1	–	Connects the resistor or current source for fixing the PCM EQ high band characteristics (For Ba-Fe)
19	BF PHASE	–	Connects the resistor or current source for fixing the PCM EQ phase characteristics (For Ba-Fe)
20	BF LOW	–	Connects the resistor or current source for fixing the PCM EQ low band characteristics (For Ba-Fe)
21	PB Vcc	–	Power supply pins of other than the head amplifier, 2nd amplifier and Limiter
22	EQ IN	I	EQ input pin
23	SW OUT	O	Switcher amplifier output pin
24	HA B Vcc	–	Power supply pins of the Bch head amplifier and 2nd amplifier
25	HA B OUT	O	Output pin of the Bch head amplifier
26	HA B GND	–	GND pin of the Bch head amplifier and 2nd amplifier
27	HA B PC	–	Pin which connects the emitter pass capacitor of the first emitter-earthed transistor of the Bch head amplifier
28	HA B IN	I	Input pin of the Bch head amplifier
29	HA A IN	I	Input pin of the Ach head amplifier
30	HA A PC	–	Pin which connects the emitter pass capacitor of the first emitter-earthed transistor of the Ach head amplifier
31	HA A GND	–	GND pin of the Ach head amplifier and 2nd amplifier
32	HA A OUT	O	Output pin of the Ach head amplifier

IC501 DAT SIGNAL PROCESSING FOR PLAYBACK EXCLUSIVELY (CXD2606R)

Pin No.	Pin Name	I/O	Function
1	TX	O	Digital out
2	BCK	O	BCK output pin (64×fs)
3	XBCK	O	BCK reverse output pin (64×fs)
4	DADT	O	DA data output pin
5	WCK	O	WCK output pin
6	LRCK 1	O	LRCK output pin (1)
7	LRCK 2	O	LRCK output pin (2)
8	INTF	O	DA data interpolation recognition signal output pin. "H": Interpolation
9	MUTE	I	DA data mute signal input pin. "H": Mute
10	Vss	–	GND
11	LSBF	I	DA data LSB/MSB first select signal. "H": LSB first, "L": MSB first
12	CSPW	O	PWM output pin for controlling the capstan speed
13	CBPW	O	PWM output pin for controlling the capstan bias
14	CPPW	O	PWM output pin for controlling the capstan phase
15	DSPW	I/O	PWM output pin for controlling the drum speed (MTCL ⑲=when "H") [Note 1]
16	DBPW	I/O	PWM output pin for controlling the drum bias (MTCL ⑲=When "H") [Note 1]
17	FLGC	O	CRC results monitor output pin
18	ERIH	O	Erasure correction state monitor output pin. "H": Erasure prohibited
19	MTCL	I	System motor select signal input pin. "H": 2 motors, "L": 1 motor
20	SPD1	I	Capstan speed select signal input pin (1)
21	SPD2	I	Capstan speed select signal input pin (2)
22	FDRV	I	Tape running direction select signal input pin. "H": REV, "L": FWD
23	CMTR	I	Capstan motor ON/OFF signal input pin. "H": ON, "L": OFF
24	DMTR	I	Drum motor ON/OFF signal input pin. "H": ON, "L": OFF
25	FGSG	I	Capstan FG input pin
26	FGL1	I	Capstan FG frequency division ratio setting data input pin (1)
27	FGL2	I	Capstan FG frequency division ratio setting data input pin (2)
28	SBDT	I/O	Microprocessor interface data input/output pin
29	EXCK	I	Clock input pin for the microprocessor interface
30	$\overline{\text{SBEN}}$	I	Microprocessor interface enable signal input pin. "L": Enable
31	V_{DD}	–	Power supply (+5V)
32	SBSY	O	Sync signal output pin for the microprocessor interface
33	SYSC	O	ECC start timing signal output pin. "L": Ach, "H": Bch
34	SYNM	O	C1 syndrome monitor output pin
35	CHER	I	Error correction strategy setting input pin
36	XRST	I	Chip reset input pin. "L": Reset
37	DRSW	I	Drum normal rotation/reverse rotation recognition signal input pin. "H": Normal rotation, "L": Reverse rotation
38	EMP	O	Emphasis ON/OFF output pin. "H": Emphasis ON
39	TRPH	O	Track pitch recognition signal output pin
40	STID	O	Start ID monitor output pin
41	SKID	O	Skip ID monitor output pin
42	FMID	O	Format ID monitor output pin
43	LPSP	O	Playback mode recognition signal output pin. "L": SP, "H": LP
44	PLCK	O	PLL CK output pin
45	SWP	I	Switching pulse input pin. "L": Ach, "H": Bch

Pin No.	Pin Name	I/O	Function
46	RFDT	I	RF input pin
47	TST 1	I	Test input pin (1). Fixed at "L"
48	XTlI	I	Crystal input pin (49.152 MHz)
49	XTlO	O	Crystal output pin (49.152 MHz)
50	Vss	–	GND
51	XT2I	I	Crystal input pin (22.5792 MHz)
52	XT2O	O	Crystal output pin (22.5792 MHz)
53	TST 2	I	Test input pin (2). Fixed at "L"
54	MTG 1	O	Signal output pin for inputting the error monitor data (1)
55	MTG 2	O	Signal output pin for inputting the error monitor data (2)
56	XOE	O	External RAM XOE output pin
57	XWE	O	External RAM XWE output pin
58	XRAS	O	External RAM XRAS output pin
59	XCAS	O	External RAM XCAS output pin
60~68	A8~A0	O	Address bus
69	D 0	I/O	Data bus 0
70	D 1	I/O	Data bus 1
71	VDD	–	Power supply (+5V)
72	D 2	I/O	Data bus 2
73	D 3	I/O	Data bus 3
74	ATT	I	Attenuator input pin
75	ERMN	I/O	CRC state monitor output pin (When FSSL ⑰ ="L") [Note 2]
76	ATMT	I/O	Auto mute monitor output pin (When FSSL ⑰ ="L") [Note 2]
77	FSSL	I	Fs information setting input pin
78	MCLK	O	Internal system clock output pin
79	F256	O	256×fs output pin
80	F128	O	128×fs output pin

[Note 1] DSPW and DBPW become the PLL lock range switching signal when MTCL is "L" and DMTR is "H". The following lock ranges can be set.

DSPW ⑮	DBPW ⑯	Lock Range
0	0	± 16%
0	1	− 34-+4%
1	0	− 5-+39%
1	1	± 22%

When DMTR is "L", "H" will be output for both.

[Note 2] When FSSL is "H", ERMN and ATMT become the input pins for setting the Fs information. The settings are as follows.

ERMN ⑮	ATMT ⑯	Fs Information
0	0	48kHz
1	0	44.1kHz
0	1	32kHz
1	1	–

IC503 SYSTEM CONTROL (CXP80620-457R)

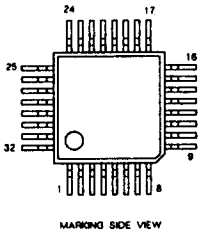
Pin No.	Pin Name	I/O	Function
1	KATO 1	O	PWM IC pass circuit ON/OFF control signal (PLAY : "H", FF/REW : "L") (Not used)
2	DRMBRAKE	O	Drum motor brake signal
3	PWM-EN	O	PWM IC pass circuit ON/OFF control signal (PLAY : "H", FF/REW : "L") (Not used)
4	DDCONT	O	Main DC/DC converter ON/OFF control signal
5	NC	O	Not used
6	NC	O	Not used
7	LOAD	O	Loading switch input ("L": ON)
8	SEL LOAD	O	Pin for determining whether momentary tape-up is performed or not immediately after loading. Not tape-up when "H", tape-up when "L". (Fixed at "L" in this unit.)
9	ATMT	I	Muting monitor input ("H": Muting)
10	NC	O	Not used
11	NC	O	Not used
12	NC	O	Not used
13	ATT	O	VOLUME selection switch output
14	NC	O	Not used
15	NC	O	Not used
16	NC	O	Not used
17	LCDCS	O	Chip select output to the LCD driver ("L": Select)
18	NC	O	Not used
19	NC	O	Not used
20	WAKE-UP2	O	Wake-up signal input
21	NC	O	Not used
22	NC	O	Not used
23	22M	O	22 MHz oscillation selection switch output
24	49M	O	49 MHz oscillation selection switch output
25	NSMD	O	Noise shaper selection switch output
26	NC	O	Not used
27	NC	O	Not used
28	NC	O	Not used
29	NC	O	Not used
30	NC	O	Not used
31	NC	O	Not used
32	NC	O	Not used
33	TEON	O	Take-up side end sensor LED ON/OFF control signal ("H": OFF)
34	TEON	O	Take-up side end sensor LED ON/OFF control signal ("H": OFF)
35	SEON	O	Supply side end sensor LED ON/OFF control signal ("H": OFF)
36	SEON	O	Supply side end sensor LED ON/OFF control signal ("H": OFF)
37	MP	I	Not used
38	RST	I	Reset input
39	Vss	–	GND
40	XTAL	O	Crystal oscillation (6 MHz) output
41	EXTAL	I	Crystal oscillation (6 MHz) input
42	SBSY	I	Communication request signal from DSP (CXD2606R)
43	SBDT	I	Serial data input from DSP (CXD2606R)
44	SBDT	O	Serial data output to DSP (CXD2606R)
45	EXCK	O	Serial clock output to DSP (CXD2606R)

Pin No.	Pin Name	I/O	Function
46	DSPLE	O	DSP (CXD2606R) enable signal
47	DFMLE	O	Digital filter (SM5853AF) data enable signal
48	NC	–	Not used
49	NC	–	Not used
50	AVss	–	A/D converter GND
51	AVREF	–	A/D converter reference voltage
52	AVDD	–	A/D converter power supply
53	WAKE-UP	I	Wake-up signal input
54	HOLD	I	Not used
55	DEW	I	Dew detection signal input
56	KEY	I	Key input
57	R-KEY	I	Remote commander key input
58	TEND	I	Take-up side end sensor input
59	SEND	I	Supply side end sensor input
60	BATT	I	Battery voltage level detection
61	SYSC	I	Error code correction start timing signal input ("L": Ach, "H": Bch)
62	NC	I	Not used
63	NC	I	Not used
64	NC	I	Not used
65	DVPLCK	I	PLCK/DVPK input (PLL clock input)
66	GND	–	GND
67	DRMFG	I	Drum motor FG input
68	MTFG	I	Reel motor FG input
69	NC	O	Not used
70	NC	O	Not used
71	NC	O	Not used
72	DACRST	O	D/A converter (SM5853AF) reset signal
73	DRMPWM	O	PWM output for controlling the drum motor
74	RELPWM	O	PWM output for controlling the reel motor
75	SYMN	I	C1 syndrome pulse input
76	FLGC	I	C1 OK flag input
77	NC	O	Not used
78	LCDSO	O	Serial data output to the LCD driver
79	LCDCLK	O	Serial clock output to the LCD driver
80	DSPW	O	DSP (CXD2606R) PLL lock range selection signal output
81	DBPW	O	DSP (CXD2606R) PLL lock range selection signal output
82	NC	O	Not used
83	BEEP	O	Buzzer signal output
84	PCK	I	PWM clock input
85	TEST	I	Test mode selection ("L": Test Mode)
86	Vss	–	GND
87	VDD	–	Power supply
88	NC	–	Not used
89	FGL1	–	Not used
90	XRST	O	Reset signal to DSP (CXD2606R)

Pin No.	Pin Name	I/O	Function
91	CHER	O	Error correction mode selection signal
92	AMPSW	O	Headphone amplifier ON/OFF control signal ("H": OFF)
93	AMPMUTE	O	Headphone amplifier mute signal ("H": Mute)
94	DDMUTE	O	Digital mute signal ("H": Mute)
95	DACSMUTE	O	D/A converter mute signal ("H"=Mute)
96	FDRV	O	Tape running direction selection signal to DSP (CXD2606). ("L": FWD)
97	STBY	O	Standby signal to the motor driver IC
98	RELFRC	O	Reel motor running direction selection signal ("L": FWD)
99	NOR/ × 2	O	Capstan speed normal / ×2 speed selection ("L": Normal)
100	LEDCONT	O	POWER LED output ("L": LED lights up)

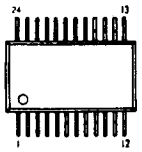
6-2. SEMICONDUCTOR LEAD LAYOUTS

CXA1354Q



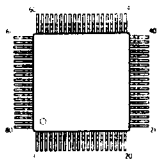
MARKING SIDE VIEW

CXA8022N-ELL2000
LB1882V-TLM
MB3796PFV-G-BND-ER
CXA8029N-TLM

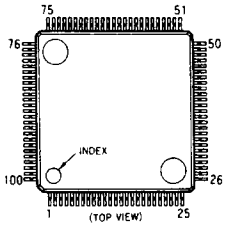


(TOP VIEW)

CXD2606R

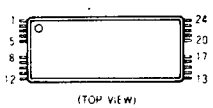


CXP80620-457R



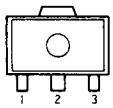
MB3776APNF-G-SNY-ER

MB81C4256A-80PFTN-LV

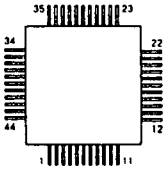


(TOP VIEW)

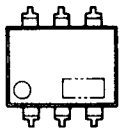
RH5RH352B-T1



SM5853AF

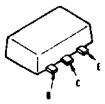


XC2141C62YMR
XC2141C64ZMR

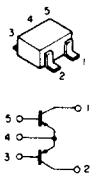


2SA1586-YG
2SB1295-UL6
2SD1819A-R
UN5115
UN5213

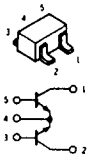
2SB1121-ST
2SC2982C-TE12L



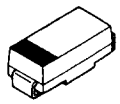
XN1115
XN1401



XN1213
XN1215
XN1504-TX



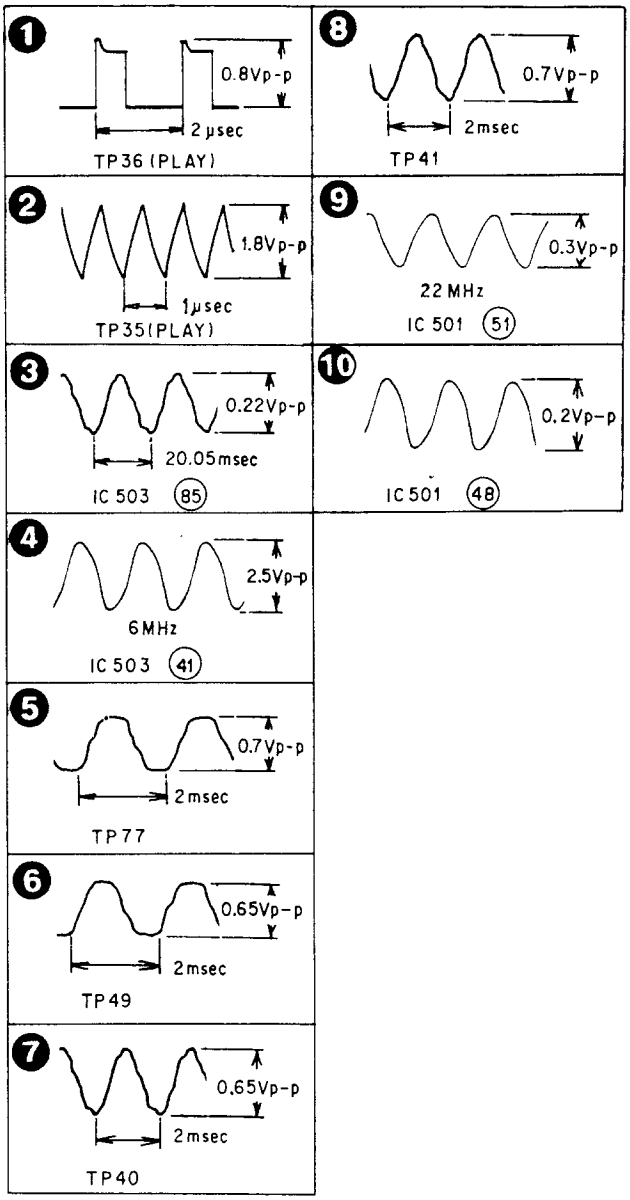
DSM10C-TR



6-4. SCHEMATIC DIAGRAM

• See page 31 to 33 for IC Block Diagrams.

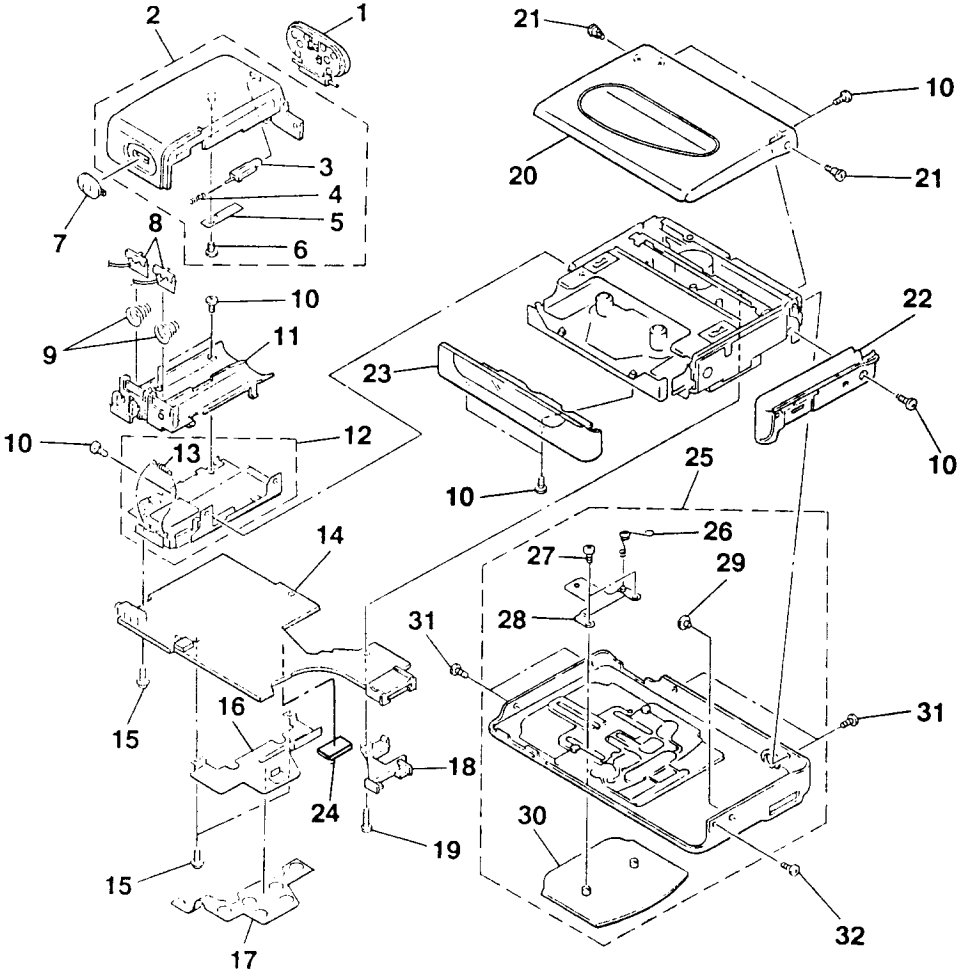
• Waveforms



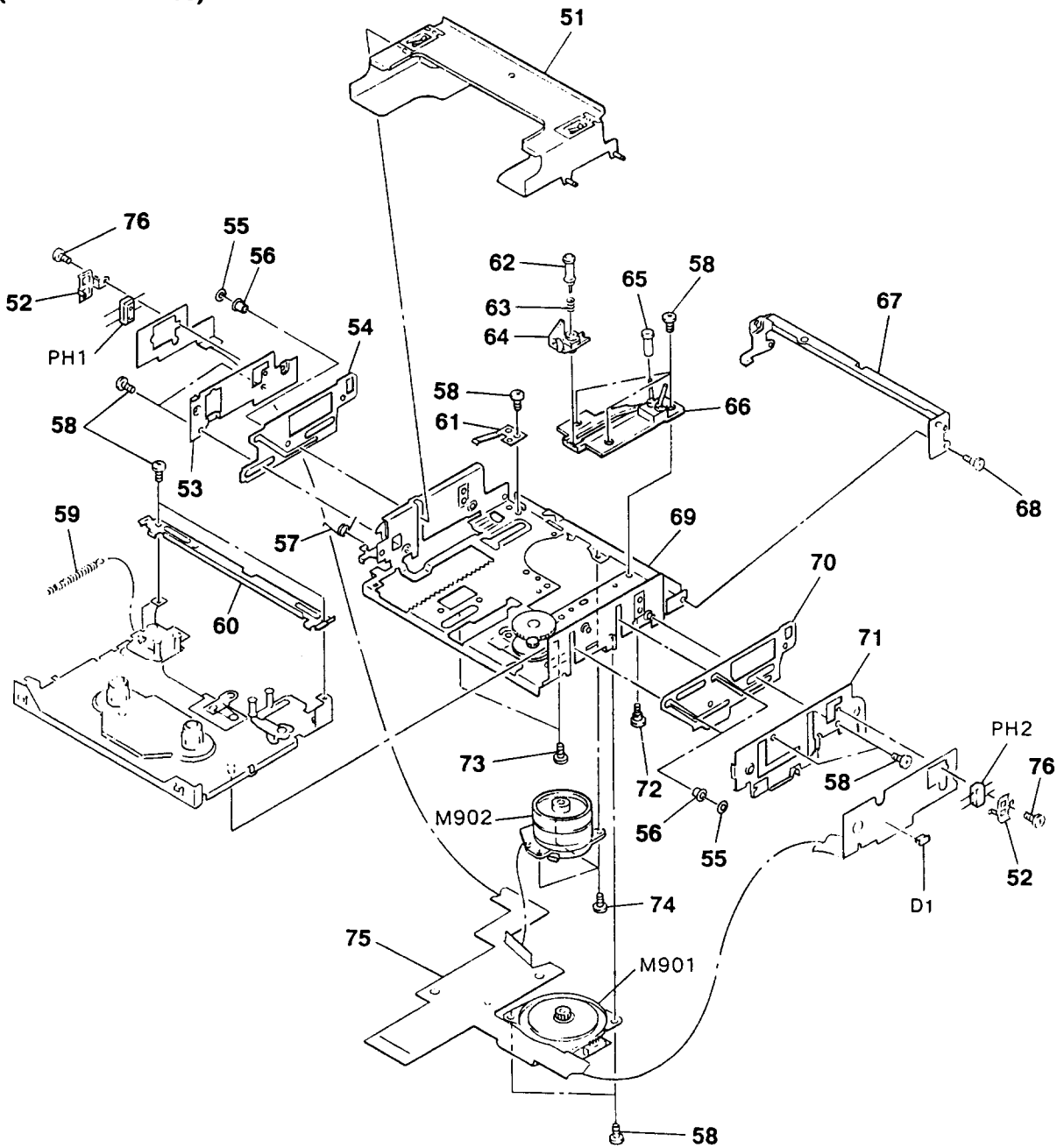
Note:

- All capacitors are in µF unless otherwise noted. pF:µµF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ : internal component.
- ▭ : Panel designation.
- ▬ : B+ Line
- Voltage and waveforms are dc with respect to ground in playback mode.
- Voltages are taken with a VOM.
  Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⋑ : PB

7-1. CASE AND FRONT PANEL ASSEMBLIES



7-2. MECHANISM ASSEMBLY (1) (MT-WMDDT1-108)



7-3. MECHANISM ASSEMBLY (2)
(MT-WMDDT1-108)