BM-880

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model
E Model

Model Name Using Similar Mechanism	NEW
Tape Transport Mechanism Type	MB-880-58

SPECIFICATIONS

Tape	(MICROCASSETTE)™ (normal position type)
Recording system	4-track 2-channel monaural (L channel for electronic index signals, R channel for sound signals)
Tape speed	2.4 cm/s ($15/16$ in./s), 1.2 cm/s ($15/32$ in./s)
Fast winding time	Approx. 1 min. 50 sec. (2.4 cm/s) with Sony microcassette MC-60BM
Frequency response	200 – 4,000 Hz (at 1.2 cm/s) 200 – 6,000 Hz (at 2.4 cm/s)
Speaker	Approx. 5.7 cm ($21/4$ inches) dia.
Power output	350 mW (at 10% distortion)
Input	TELEPHONE PICKUP (minijack) Sensitivity 0.2 mV Input impedance 10 kohms
Output	EARPHONE (minijack) for 8–300-ohm earphones
CONTROL UNIT connector	for HU-80 or FS-75
Power requirements	9V DC DC IN 9V jack accepts the supplied AC power adaptor for use on 120V AC, 60Hz (US, Canadian model) 220V AC, 50Hz (AEP, E model) 240V AC, 50Hz (UK model)
Power consumption	14W (US, Canadian model) (with the supplied AC power adaptor) 13W (AEP, UK model) (with the supplied AC power adaptor)
Dimensions	Approx. 200×70×245mm (w/h/d) ($7^7/_8 \times 2^7/_8 \times 9^3/_4$ inches) including projecting parts and controls
Weight	Approx. 1.4kg (3 lb 2 oz)
Supplied accessory	AC power adaptor (AC-980) (1)

Design and specifications subject to change without notice.

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.

使用時は添付資料も参照のこと
Refer to the additional documents

DICTATOR/TRANSCRIBER

SONY®

TABLE OF CONTENTS

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:
Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

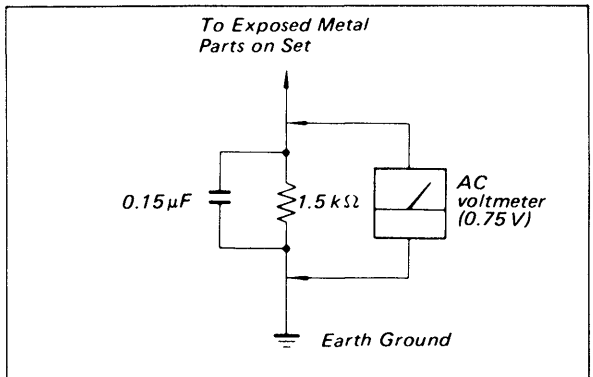


Fig. A. Using an AC voltmeter to check AC leakage.

SECTION 1
SERVICING NOTES

[NOTES FOR REPAIRING]

1. STANDBY ON (S101) Switch
   The STANDBY ON switch is not a switch for turning ON/OFF the power source. Pay attention when repairing that the electricity is turned on even if the STANDBY ON switch is turned off.
   - The states when turning off the STANDBY ON switch are as follows.
     a. LCD back light (EL901) will be turned off.
     b. LCD (ND901) display will be turned off.
     c. Motors (M901, 902) will be stopped.
     d. Plungers (PM901, 902) will be turned off.
     e. Any key input will be ignored.

     The above items from b to e are controlled by the microcomputer which makes the pin ㊳ of IC113 (microcomputer) become Low level.
2. IC Link (PS101)
   Attention should be paid when repairing because the IC link is cut if the circuit is shortened by mistake.

[LCD CHECK METHOD]

This unit has LCD all lighting mode to check LCD.

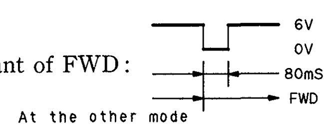
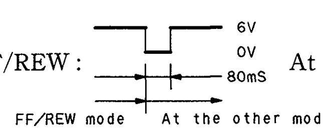
1. In order to perform LCD all lighting,
   - Without inserting a cassette, press the three buttons of RESET, ERASE, SCAN at the same time.
     LCD is all lighting.
2. In order to release LCD all lighting,
   - Insert a cassette, or turn off the STANDBY ON switch once.

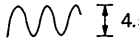
[PINCH ROLLER CLEANING MODE] (If You Want to Continue the Mechanical Operation with No Cassette)

1. With no cassette and with the cassette holder down (Cassette lid : open), while holding down the cassette detection switch (S901), press LISTEN ▷, FF ▷▷ and REW ◁◁ buttons on the this set to operate the mechanism.
2. Even if the switch S901 is released, in spite of no cassette, the shut off function will not be in force, arrowing the mechanism to continue to operate.

【MICROCOMPUTER μPD75312GF-136-3B9 (IC113)】

1. Terminal Description

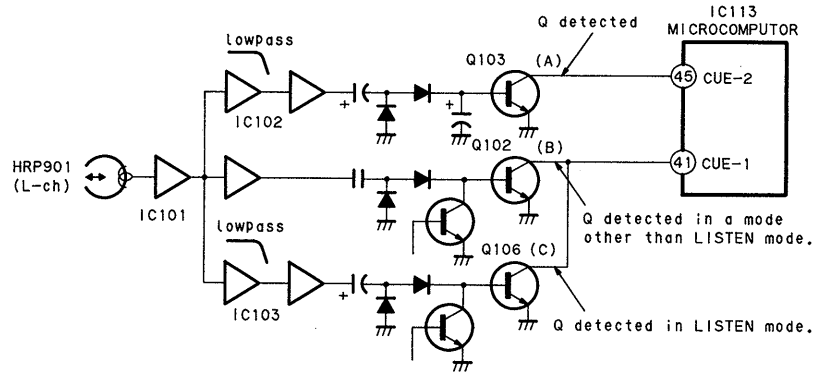
Pin No.	Pin Name	Usage	Voltage, Remarks
1	S12	LCD segment output	
2	S13	LCD segment output	
3	S14	LCD segment output	
4	S15	LCD segment output	
5	S16	LCD segment output	
6	S17	LCD segment output	
7	S18	LCD segment output	
8	S19	LCD segment output	
9	S20	LCD segment output	
10	S21	LCD segment output	
11	S22	LCD segment output	
12	S23	LCD segment output	
13	KOUT 0	Key scan output	
14	KOUT 1	Key scan output	
15	KOUT 2	Key scan output	
16	KOUT 3	Key scan output	
17	——	Not used	Open
18	——	Not used	Open
19	——	Not used	Open
20	——	Not used	Open
21	COM 0	LCD common output	
22	COM 1	LCD common output	
23	COM 2	LCD common output	
24	——	Not used	Open
25	LCD-BIAS	Output for LCD outer resistance	4.7V
26	V_{LCD0}	Power source for LCD drive	2.4V
27	V_{LCD1}	Power source for LCD drive	1.6V
28	V_{LCD2}	Power source for LCD drive	0.8V
29	ERASE-OUT	Erase control output	At Fast-Erase, DICT and TEL-REC : 0V At the other : 6V
30	BIAS-OUT	Bias control output	At DICT and TEL-REC : 0V At the other : 6V
31	FWD-PG-OUT	FWD plunger output	At FWD : 0.4V At the other : 6V
32	FWD-PG-KICK-OUT	FWD plunger kick output	In an instant of FWD :  At the other : 6V
33	VSS	GND	0V
34	BRK-PG-OUT	Brake plunger output	Finish the FF/REW :  At the other : 6V
35	FR-MOTOR-OUT	FF/REW-motor-output	At FF/REW : 0.2V At the other : 6V
36	FR-DIR-OUT	FF/REW-motor-direction-output	At FF : 0.5V At the other : 6V

Pin No.	Pin Name	Usage	Voltage, Remarks
37	A-OFF-OUT	Motor Auto-off output	Motor Auto-off (no cassette or after three minutes after STOP) : 2.4V At the other : 0V
38	STAND-BY	Standby switch input	ON : 4.7V STAND-BY : 0V
39	TAB-IN	TAB (erase proof) detection switch input	Cassette with TAB : 0V Cassette without TAB : 4.7V
40	CAS-IN	Cassette detection switch input	With a cassette : 0V Without a cassette : 4.7V
41	CUE-1-IN	CUE-1 input	} Refer to page 6 for LTR/SEC Detection.
45	CUE-2-IN	CUE-2 input	
42	SR	S reel signal input	Refer to page 10 for Detection of T and S Reel.
43	TR	T reel signal input	Refer to page 10 for Detection of T and S Reel.
44	DICT-IN	HU-DICT key input	At DICT key input of the hand control unit (HU-80) : 0V At the other : 4.6V
46	LTR-OUT	LTR/SEC signal output	At LTR oscillating :  5.1V Output 20Hz for three seconds. At SEC oscillating :  4.7V Output 750Hz for three seconds. At the other : 4.7V
47	REC-OUT	DICT, TEL-REC control output	At DICT, TEL-REC : 4.2V At the other : 0V
48	TEL-OUT	TEL-REC control output	At TEL-REC : 4.7V At the other : 0V
49	ALM-OUT	Alarm output	At alarm oscillating :  4.7V 2.05kHz
50	KIN 0	key scan input	
51	KIN 1	key scan input	
52	KIN 2	key scan input	
53	KIN 3	key scan input	
54	VDD	Positive power source terminal of the microcomputer	4.7V
55	——	Not used	Connect to VSS
56	——	Not used	Open
57	NC	Not used	Connect to VDD
58	X 1	Input for clock oscillation	 4.5Vp-p 4.19MHz
59	X 2	Input for clock oscillation	 5.0Vp-p 4.19MHz
60	HU-LIS-IN	HU-LISTEN key input	At LISTEN key-in of the hand control unit (HU-80) : 0.1V At the other : 4.7V
61	BS-IN	HU-BS key input	At BS key in of the hand control unit (HU-80) : 0.1V At the other : 4.7V
62	PB-OUT	Playback control output	At LISTEN : 4.7V At the other : 0V
63	MUTE-OUT	Amplifier mute output	At LISTEN, DICT, TEL-REC : 4.7V At the other : 0V
64	FS-IN	HU-FS key input	At FS key input of the hand control unit (HU-80) : 0.1V At the other : 4.7V
65	PR-IN	Foot switch LISTEN key input	At LISTEN key input of the foot control unit (FS-75) : 0.1V At the other : 4.7V
66	SEC-IN	HU-SEC key input	At SEC key input of the hand control unit (HU-80) : 0.1V At the other : 4.7V

Pin No.	Pin Name	Usage	Voltage, Remarks
67	LTR-IN	HU-LTR key input	At LTR key input of the hand control unit (HU-80) : 0.1V At the other : 4.7V
68	RESET	Microcomputer•reset input	Normal : 4.7V
69	S 0	LCD segment output	
70	S 1	LCD segment output	
71	S 2	LCD segment output	
72	S 3	LCD segment output	
73	S 4	LCD segment output	
74	S 5	LCD segment output	
75	S 6	LCD segment output	
76	S 7	LCD segment output	
77	S 8	LCD segment output	
78	S 9	LCD segment output	
79	S 10	LCD segment output	
80	S 11	LCD segment output	

• LTR/SEC Detection

1. Detection Circuit

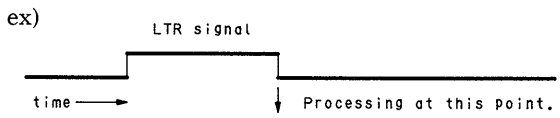


2. Discrimination Between LTR and SEC

	At LISTEN				At FF/REW			
(A) CUE-2	(L)	H	L	H	L	H	(L)	H
(B or C) CUE-1	(L)	L	H	H	L	L	(H)	H
	↓	↓	↓	↓	↓	↓	↓	↓
Judgement by microcomputer	(LTR)	LTR	SEC	no signal	LTR	SEC	(LTR)	no signal

- L(Low) and H(High) levels are input levels to the microcomputor CUE-1 and CUE-2.
- For the modes surrounded by pararenthese, their level combinations do not exit by hardware but they are the LTR modes by software.

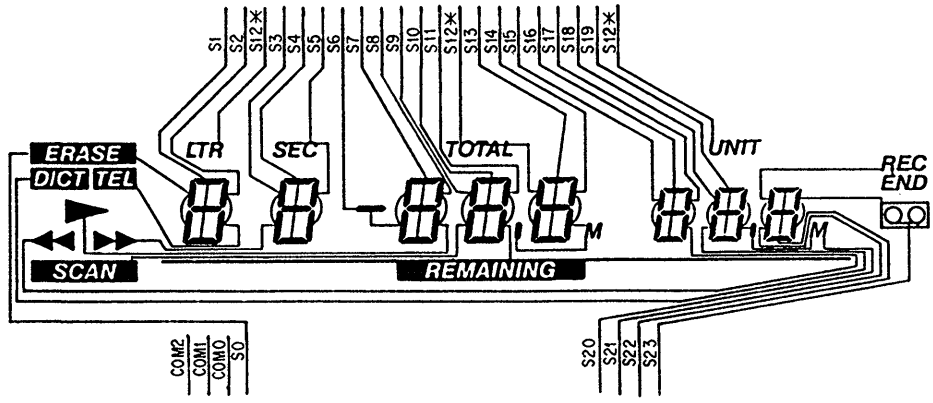
3. After discrimination, LTR/SEC processing will be perfomed when the LTR/SEC signal disappears.



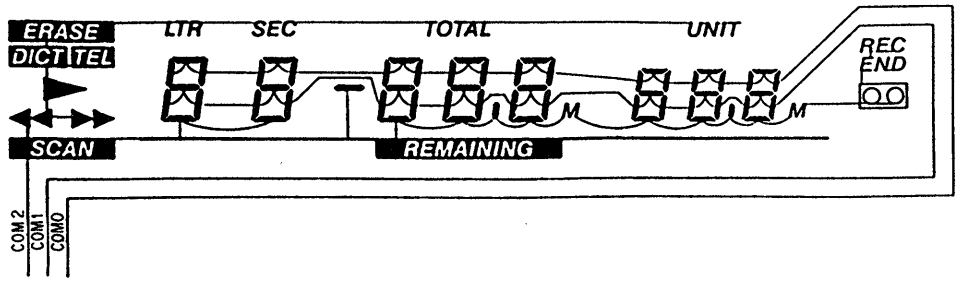
2. LCD (ND901) Connection Diagram

* : The name of S12 is all the same because S12 is shortened on the printed board.

SEGMENT



COMMON



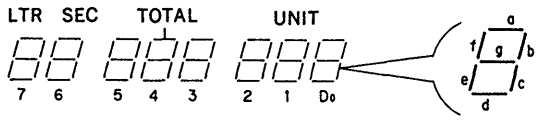
● LCD Check Method

This unit has LCD all lighting mode in order to check LCD.

1. In order to perform LCD all lighting,
   - Without inserting a cassette, press the three buttons of RESET, ERASE, SCAN at the same time.
     LCD is all lighting.
2. In order to release LCD all lighting,
   - Insert a cassette, or turn off the STANDBY ON switch once.

3. LCD Display Map

* Segment output (S0 to 23)



IC113 Pin No.	Segment Name	COM 0	COM 1	COM 2
12	S23	Counter D0-b	Counter D0-c	⊂⊃
11	S22	Counter D0-a	Counter D0-g	Counter D0-d
10	S21	Counter D0-f	Counter D0-e	"REC END"
9	S20	Counter D1-b	Counter D1-c	"." (dot) and "M"
8	S19	Counter D1-a	Counter D1-g	Counter D1-d
7	S18	Counter D1-f	Counter D1-e	"DICT"
6	S17	Counter D2-b	Counter D2-c	◀◀ (REW)
5	S16	Counter D2-a	Counter D2-g	Counter D2-d
4	S15	Counter D2-f	Counter D2-e	(not used)
3	S14	Counter D3-b	Counter D3-c	"." (dot) of TOTAL and "M"
2	S13	Counter D3-a	Counter D3-g	Counter D3-d
1	S12	Counter D3-f	Counter D3-e	"TOTAL", "UNIT", "LTR" (short on the LCD block board)
80	S11	Counter D4-b	Counter D4-c	"REMAINING"
79	S10	Counter D4-a	Counter D4-g	Counter D4-d
78	S9	Counter D4-f	Counter D4-e	"SCAN"
77	S8	Counter D5-b	Counter D5-c	▶ (FWD)
76	S7	Counter D5-a	Counter D5-g	Counter D5-d
75	S6	Counter D5-f	Counter D5-e	▬ (minus sign)
74	S5	Counter D6-b	Counter D6-c	"SEC"
73	S4	Counter D6-a	Counter D6-g	Counter D6-d
72	S3	Counter D6-f	Counter D6-e	▶▶ (FF)
71	S2	Counter D7-b	Counter D7-c	"TEL"
70	S1	Counter D7-a	Counter D7-g	Counter D7-d
69	S0	Counter D7-f	Counter D7-e	"ERASE"

• The pin name of the microcomputer (IC113) and the LCD segment name are the same.

4. Key-scan•Matrix

The pin No. and the pin name stand for those of the microcomputer (IC113).

Input \ Output		(Pin No.) 13	14	15	16
		(Pin Name) KOUT 0	KOUT 1	KOUT 2	KOUT 3
(Pin No.)	(Pin Name)				
50	KIN 0	RESET (S110)	ERASE (S109)	TEL REC (S108)	SCAN (S107)
51	KIN 1	FF (S114)	REW (S113)	LISTEN (S112)	STOP (S111)
52	KIN 2	REVERSE TIME			
		(Pin ① of S106)	(Pin ② of S106)	(Pin ③ of S106)	(Pin ④ of S106)
53	KIN 3	EJECT (S601)	not used	AUTO STOP (S104)	TAPE SPEED (S102)

- Hard is controlled by Low active (Low is input with turning on each switch.)

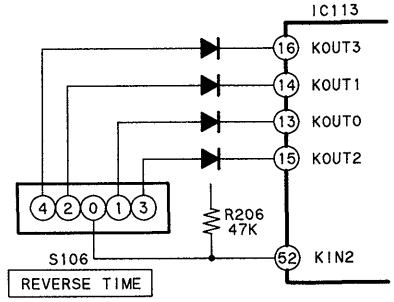
  TAPE SPEED is 2.4cm/s at Low.

  AUTO STOP is turned "ON" at Low.

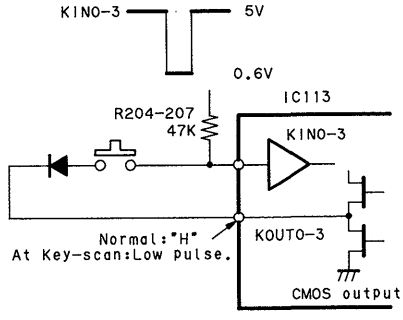
  Refer to the following figure for the key matrix of S106.

S106 position ○: ON

	0	1	2	3	4	5	6	7	8	9
Between C and 1		○		○		○		○		○
Between C and 2			○	○			○	○		
Between C and 3					○	○	○	○		
Between C and 4									○	○



- Key-scan is controlled by Low active.



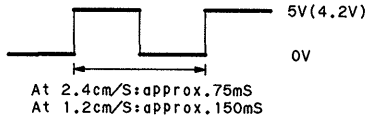
5. Detection of T and S Reel
   Pin ⑧ of IC602 (Pin ㊸ of IC113) : T reel
   Pin ⑩ of IC602 (Pin ㊷ of IC113) : S reel

Waveform condition:

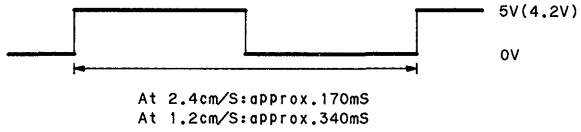
- Tape MC-60 is used.
- The period is different by the tape position.
- ( ) : Voltage of IC113 port.

FWD:

T reel at the tape TOP
S reel at the tape END

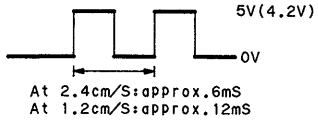


S reel at the tape TOP
T reel at the tape END

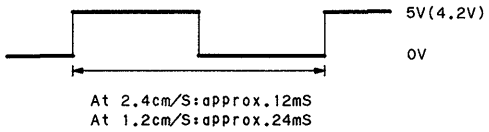


FF/REW:

T reel at the tape TOP
S reel at the tape END



S reel at the tape TOP
T reel at the tape END



Features

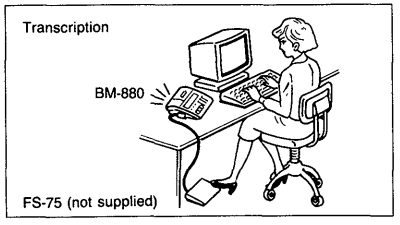
The Sony BM-880 microcassette dictator/transcriber is designed to be used for both dictation and transcription.

As a dictator

- The Sony HU-80 hand control unit (not supplied) remotely controls the BM-880 Microcassette dictator/transcriber.
- Dual electronic indexing function signals—"LTR" (end of letter) and "SEC" (special instructions to secretary) signals—can be recorded on a tape during dictating, recording of telephone calls, listening or in the stop mode.
- The end of the last recorded segment on the tape can easily be located using the record-end function.
- Alarm sound and indication on the display window informs recording error.
- Recording of telephone calls can be performed with the use of the TL-4 telephone recording adaptor (not supplied).
- With the use of the optional DE-35, DE-36 or MDR-U10M earphones, you can monitor the sound with the desired sound level during recording.

As a transcriber

- The scanning function allows easy display of the total recorded time of dictation in minutes, the number of documents and instructions recorded on the tape.
- Auto-stop function quickly accesses instructions and documents.
- VSC (Variable Speech Control) enables rapid and easy-to-listen-to playback.
- Auto backspace function with the REVERSE TIME control makes transcribing easy by enabling the reviewing of the last recorded words each time listening is resumed.
- Two tape speeds (2.4 cm/sec. and 1.2 cm/sec.) can be selected according to the user's needs.
- Rapid erasing function with ERASE and REW buttons.
- The Electronic "Index OFF" mode allows you to transcribe a cassette which was not recorded using a Sony Professional Dictating Machine.



Precautions

- Operate the unit only on 9 V DC.
- For AC operation, use the AC power adaptor supplied with this unit. Do not use any other AC power adaptor as it may cause malfunction.
- Unplug the AC power adaptor from the wall outlet when it will not be used for an extended period of time. To disconnect the adaptor, pull it out by grasping the adaptor. Never pull it by the cord.
- Do not install the unit in a location near heat sources such as radiators or airducts, or in a place subject to direct sunlight, excessive dust, mechanical vibration, or shock.
- Allow adequate air circulation to prevent internal heat build-up. Do not place the unit near materials (curtains, draperies) that may block the ventilation holes.
- Should any solid object or liquid fall into the unit, unplug the unit and have it checked by qualified personnel before operating it any further.
- The AC power adaptor which has been supplied becomes hot if it is connected to an AC outlet for a long period of time. But, this will not cause any trouble.

If you have any question or problem concerning your unit that is not covered in this manual, please consult the Sony dealer from whom you purchased the unit.

This section is extracted from instruction manual.

Operation Flow Chart

For details, refer to the pages in ●.

□: Necessary step ⬚: Optional step

Dictation

Connect the AC power adaptor to the unit and to an AC outlet. ●

Connect the optional HU-80 hand control unit. ●

Set STANDBY/ON to ON.

Insert a cassette. ●

If the counter is not reset to zero, press RESET. ●

Set TAPE SPEED.

Set the function selector of the HU-80 to DICT. Speak into the microphone.

Record the SEC signal before giving instructions to the secretary. ●

Quick review playback and correct the dictated material. Keep the function selector of the HU-80 pressed down toward B. SPACE to rewind the tape until the desired point on the tape is reached. Release the selector and playback of the dictation begins. When the reviewing is completed, set the function selector to DICT to proceed with dictation.

Record the LTR signal at the end of each document. ●

Check the recorded material with the use of the VSC function ● when the recording is completed. Then, find the end of the last recorded portion with the use of the record-end function ●.

Set the function selector of the HU-80 to STOP.

Press the eject button to remove the cassette.

Hand the cassette to your secretary or transcriptionist.

Transcription

Disconnect the HU-80 hand control unit.

Connect the optional FS-75 foot control unit. ●

Set STANDBY/ON to ON.

Insert the cassette. ●

Set SPEAKER to BUILT-IN or connect earphones.

Set AUTO STOP to OFF. ●

Set TAPE SPEED. ●

Press SCAN.
When the tape reaches the beginning of the dictated material, a beep tone is heard and the unit automatically shuts off. ●

Keep the right side of the pedal depressed. ●
(When the FS-75 is connected.)
or
Set the function selector of the HU-80 to LISTEN. ●
(When the HU-80 is connected.)
or
Press LISTEN ▶. ●
(When the BM-880 is used for operation.)

Adjust VOLUME and TONE.

Adjust the starting point for playback with the use of REVERSE TIME. (When the FS-75 is used.)

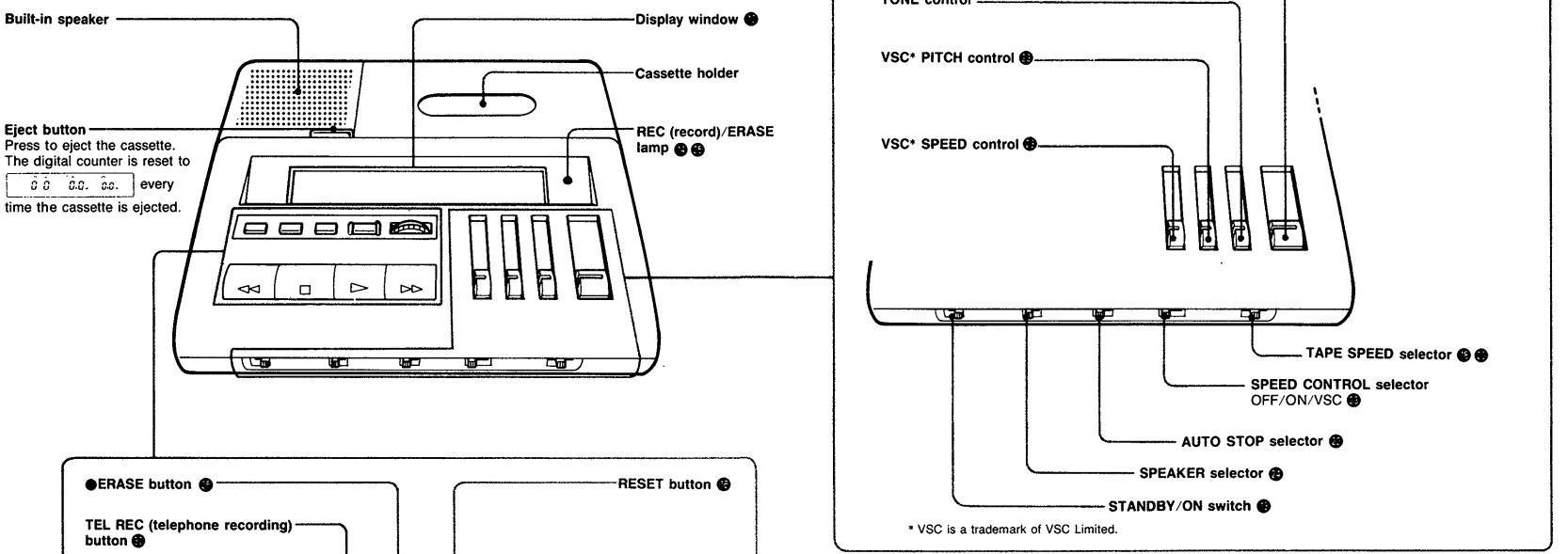
Set SPEED CONTROL to VSC and adjust SPEED and PITCH. ●
Set SPEED CONTROL to ON and adjust SPEED. ●

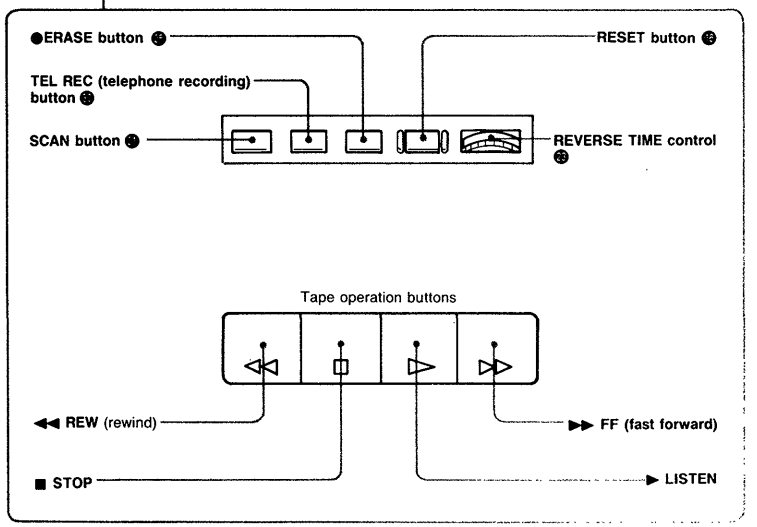
After transcribing, stop the tape.
Release the pedal. (When the FS-75 is used.) ●
or
Set the function selector to STOP. (When the HU-80 is used.) ●
or
Press STOP. (When LISTEN on the BM-880 is pressed to play back the tape.) ●

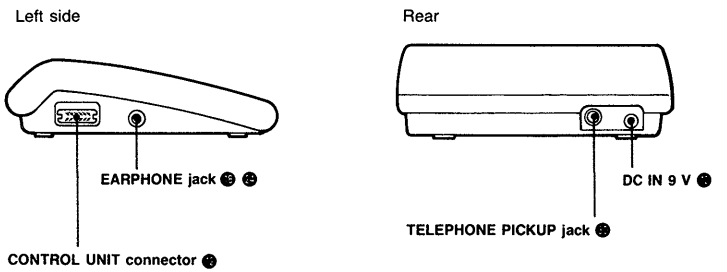
Erase the tape. ●

Location and Function of Controls

For details, refer to the pages indicated in ●.







Display window

SEC (secretary) Special instructions for secretary counter
Displays the number of special-instructions-for-secretary signals recorded.

LTR (letter) End of letter counter
Displays the number of end-of-letter signals (i.e. the number of documents) recorded.

TEL (telephone) recording indicator Displayed during recording of telephone calls.

ERASE indicator Displayed while the cassette is being erased.

DICT (dictation) indicator Displayed during recording.

▶ (listen) indicator Displayed during playback.

◀◀ (rewind) indicator Displayed while the cassette is being rewound.

SCAN indicator Appears when the SCAN button is pressed
While SCAN is displayed, REMAINING is also displayed. In this case, the display window indicates the remaining time of the recorded documents, remaining numbers of recorded LTR and SEC signals and the remaining time of the actual document. This disappears with a long beep tone when the tape reaches the tape top.

▶▶ (fast forward) indicator Displayed while the tape is advanced rapidly.

TOTAL (time/tape) counter Displays time or tape length of the recorded documents. The time counter and the tape counter is switched by pressing the RESET button for more than two seconde.

Time counter

Indicates the approximate time of the recorded documents.

Tape counter

Indicates the tape length of the recorded documents.

UNIT (time) counter Displays the time of each recorded document, i.e. displays the approximate recorded time of a dictation, from the portion where the LTR signal is recorded to the portion where the next LTR signal is recorded.

REC END indicator Blinks for approx. three seconds when the recording end portion is detected and disappears.

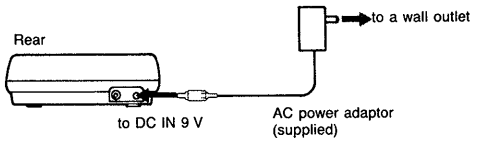
(cassette) indicator Displayed while cassette is inserted.
The indicator blinks in the following cases:
- The button is pressed when no cassette is inserted or when the cassette's safety tabs have been removed.
- About 3 minutes before reaching the end of the tape.
- End of tape or the tape is torn.

REMAINING indicator Appears when the SCAN button is pressed.
While REMAINING is displayed, recordings of dictation, telephone calls, LTR signals and SEC signals cannot be made. If the function selector is set to DICT or TEL REC, LTR or SEC button is pressed, REMAINING blinks and a beep tone is heard.
The numbers on the digital counter (LTR, SEC, TOTAL and UNIT) indicate the remaining number of the LTR signals and the SEC signals, remaining amount of dictations (TOTAL) and remaining time of the actual document while the unit is in playback, fast forward or rewind mode.
To clear the REMAINING mark, press RESET or the eject button.

- It may be difficult to read the liquid crystal counter display due to the watching angle.
- If you play back a music cassette or a cassette which was not recorded using a Sony Professional Dictating Machine, set the unit to the Electronic "Index OFF" mode. (See page ❾).

Preparation

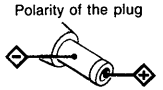
Power Connection



Note on the AC power adaptor

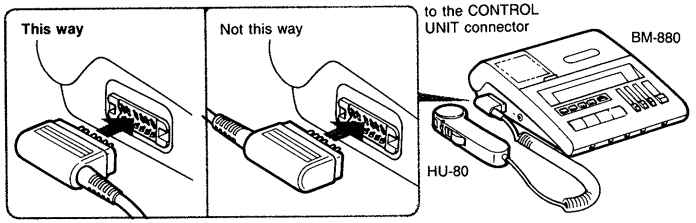
Use only the AC power adaptor supplied. Do not use any other AC power adaptor.

Polarity of the plug



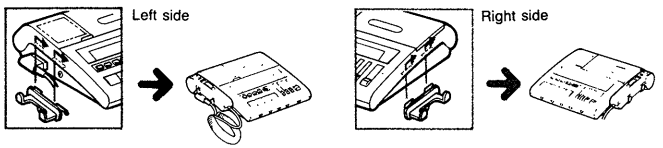
Connecting the HU-80 Hand Control Unit (not supplied)

For operation, refer to "Dictation" on page ⓮.



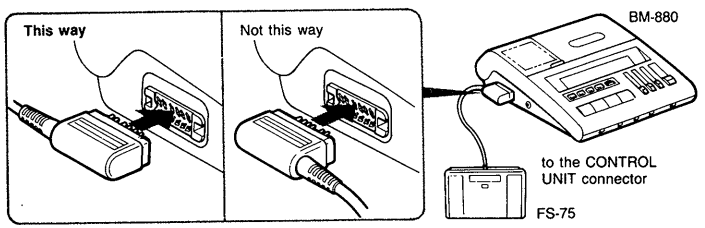
Attaching the cradle

Attach the supplied cradle with the HU-80 to the left or right side of the unit. Place the HU-80 hand control unit on the cradle while not in use. Insert the cradle into the slots and slide to secure it.

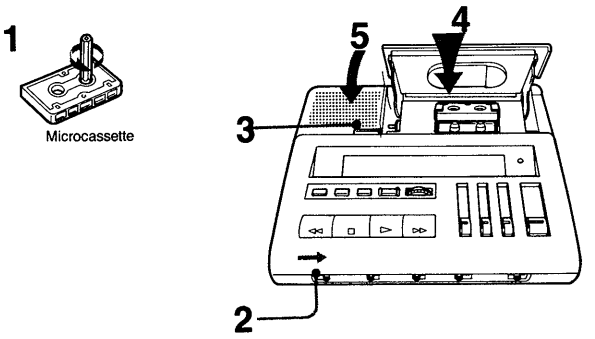


Connecting the FS-75 Foot Control Unit (not supplied)

For operation, refer to "Transcription" on page ⓯.



Cassette Insertion



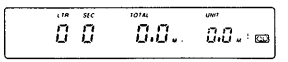
1 **Take up any slack in the tape.**

2 **Set STANDBY/ON to ON.**

3 **Press the eject button** to open the cassete holder.

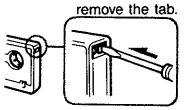
4 **Insert a cassette into the cassette holder with the side to be recorded on or played back facing upward.**
Push the cassette into the holder completely.

5 **Close the cassette holder.**
The digital counter displays zero and ⌧ appears.

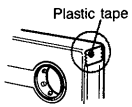


Notes on the Microcassette

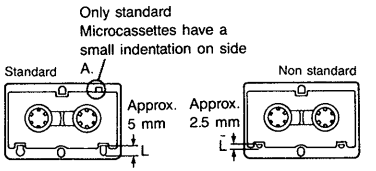
To protect cassettes from accidental erasure
When a recording is made, the previous recording is automatically erased. To prevent erasure, break the cassette tabs.



To reuse a cassette
To record on a cassette with removed tabs, cover each slot with a piece of plastic tape.



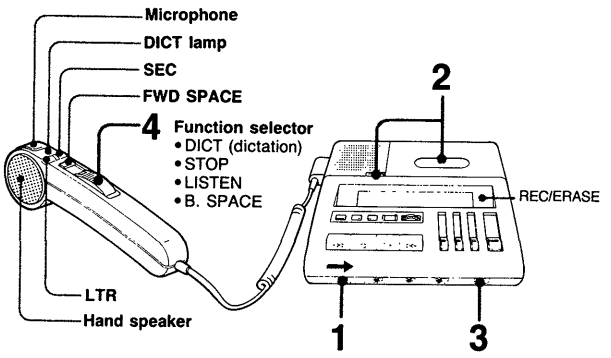
This unit uses only standard Microcassettes. Non standard cassettes cannot be used because their "L" dimension (see illustration) is different.



Dictation

To use the unit as a dictating machine, connect the HU-80 hand control unit (not supplied).
For connection, see page ⓭.

Operation



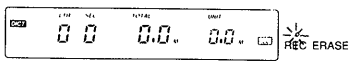
HU-80 (not supplied)

1 **Set STANDBY/ON to ON.**

2 **Insert a cassette.** (See page ⓭.)

3 **Set TAPE SPEED to the desired tape speed,** 2.4 or 1.2 (cm/sec.).

4 **Set the function selector to DICT.**
Recording starts. Speak into the microphone.
DICT appears on the display window.
The DICT lamp on the hand control unit lights up and REC/ERASE lamp on the BM-880 blinks when the microphone picks up sound.



To stop the tape
Set the function selector to STOP.

Note

Keep the HU-80 away from the BM-880 during recording.
If not, noise may be recorded.

Digital Counter

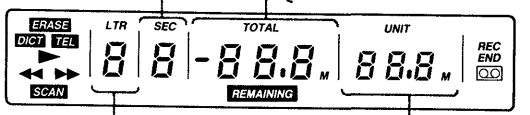
The number of instructions recorded increases by one every time SEC is pressed.
When the SEC button is pressed, the number blinks for about 3 seconds and then stops blinking.

Time counter: Total recorded time of dictation in minutes

RESET

To switch the counter to time or tape indication, keep the RESET button pressed for more than two seconds.

Tape counter: Numerical reference for recording and listening.



The number of documents recorded increases by one every time LTR is pressed.
When the LTR button is pressed, the number blinks for about 3 seconds and then stops blinking.

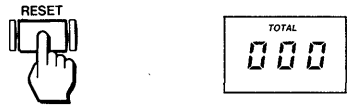
Recorded time of each document in minutes

■ To set the digital counter to zero

We recommend that you press the RESET button before starting dictation.
Keep the RESET button pressed for more than 0.5 second to reset the LTR (document), SEC (special instruction), TOTAL (time/tape) and UNIT (time) counters to zero.

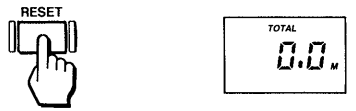
■ To reset the TOTAL (time/tape) counter to zero tape counter

When the RESET button is pressed for more than 2 seconds in the tape stop mode, the TOTAL (time/tape) counter changes to 000 and functions as a tape counter.



■ To reset the TOTAL (time/tape) counter to zero time counter

Keep the RESET button pressed for more than 2 seconds in the tape stop mode. The TOTAL (time/tape) counter changes to 0.0M and functions as a time counter.



The TOTAL (time/tape) counter and the UNIT time counter indicate the approximate time of the recorded material.

Notes

- The time counters are normally within plus or minus two minutes of the actual time when using a MC-60BM Microcassette.
- In case a microcassette other than MC-60BM is used, the time counter reading may differ to a larger extent from the actual time.
- The tape counter is switched to the time counter when the SCAN button is pressed.
- The numbers on the digital counter are memorized even when the STANDBY/ON switch is turned off.

Convenient Functions

■ To record LTR (letter) and SEC (secretary) signals

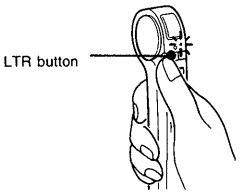
You can record electronic index signals on the tape while the unit is set in recording (dictation), telephone recording, stop or playback (with the HU-80) mode.

LTR (letter = end of document) signal: Record at the end of each document.
SEC (secretary = special instructions to secretary) signal: Record before giving instructions to the secretary.

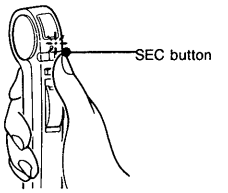
When the AUTO STOP function (page ⓰) is activated (AUTO STOP: ON), the tape automatically stops at each index signal when it is rewound, rapidly advanced or scanned. Documents and instructions can be located without the user's having to listen to the entire tape.

Before dictating, press RESET to reset the counters to zero.

To record the LTR signal
Press LTR on the HU-80.
Each time the button is pressed, the number on the LTR (document) counter increases by one.



To record the SEC signal
Press SEC on the HU-80.
Each time the button is pressed, the number on the SEC (special instruction) counter increases by one.



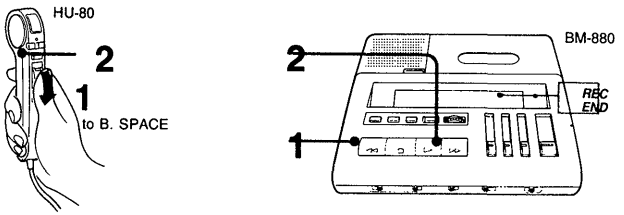
When the LTR or SEC signal is recorded, the number on the counter blinks and then lights up. Up to nine signals each can be recorded on each side of a cassette. If more than nine signals are recorded, "E" appears in the counter display.

Notes

- The LTR or the SEC signal should be recorded with the intervals of more than 6 seconds.
- Playback sound is muted when either the LTR or SEC button is pressed.
- If either the LTR or SEC button is pressed while turning on the SPEED CONTROL selector, the tape will run at normal tape speed.
- While playing back, if either the LTR or SEC button is pressed to record the index signal on the previously recorded LTR or SEC signal by mistake, a beep tone is heard and the index signal cannot be recorded.

■ Record-end function

You can easily find the end of the last recorded segment on the tape. This function enables you to continue recording from the point where you left off.



1 Rewind the tape a little.

2 Press ▶▶ FF (FWD SPACE).

The tape will rapidly advance and stop at the end of the last recorded segment. At the end of the last recording, a long beep tone is heard and REC END blinks for approx. 3 seconds on the display window and then, disappears.
If the unit is set in record mode by mistake, immediately stop the recording. The record-end function does not operate if the recorded material is shorter than a second.

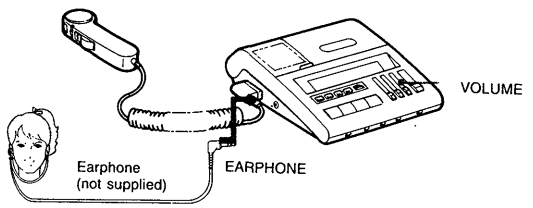
- Once the cassette is ejected or the STANDBY/ON switch is set to STANDBY, the record-end memory is cleared and the record-end function does not operate.

Recording time (Select the desired tape speed)

2.4 cm: For optimum sound (recommended for normal use)
A 60-minute recording can be made using both sides of the MC-60BM Microcassette.
1.2 cm: For longer recording time
A 120-minute recording can be made using both sides of the MC-60BM Microcassette.

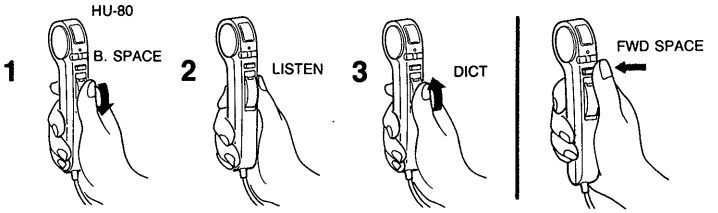
■ Monitoring while dictating

The recording can be monitored through earphones. Connect a Sony DE-35, DE-36 or MDR-U10M earphones (not supplied) to the EARPHONE jack located on the left side of the unit. Adjust VOLUME if required.



■ Quick reviewing (playback)/correcting the dictated material

You can easily listen to the dictated material and correct it if required.



1 Keep the function selector of the HU-80 pressed down toward B. SPACE to rewind the tape.

2 Release the selector. Playback of the dictation begins.

3 When the reviewing is completed, set the function selector to DICT to proceed with the dictation.

For fast winding of the tape, keep the FWD SPACE button of the HU-80 pressed until the desired portion is reached.

■ When you have finished dictating

Hand the cassette to your secretary without rewinding the tape.

Tips for More Efficient Dictation

Before you start dictation
- Organize your thoughts.
- Make notes or an outline of what you want to dictate.
- Check that the cassette is erased. (See page ❽.)

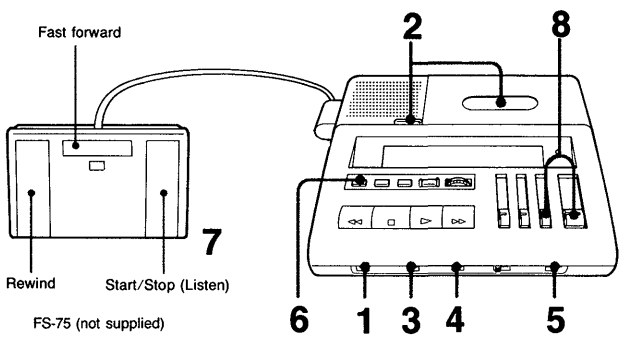
When you dictate
- Identify yourself. (Name, department, phone number)
- Indicate the type of dictation. (Memo, letter, etc.)
- Give transcribing instructions. (Type of stationery, number of copies and who they are for, envelopes, etc.)
- Specify distribution (Names, addresses, etc.)

During dictation
- Relax and speak clearly, at normal speed.
- Short sentences are best.
- Include punctuation.
- Spell difficult or unusual words.
- Correct your mistakes. (Review and redictate, or use SEC signal to alert the transcriptionist of changes or corrections.)
- At the end of each document, record an LTR signal.

Transcription

To use the unit as a transcribing machine, connect the FS-75 foot control unit (not supplied).
For connection, see page ⓫.

Operation



1 **Set STANDBY/ON to ON.**

2 **Insert a cassette.** (See page ⓭.)

3 **Set SPEAKER to BUILT-IN.**

4 **Set AUTO STOP to OFF.** (See page ⓮.)

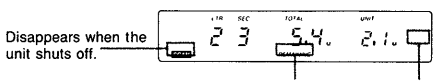
5 **Set TAPE SPEED to the same tape speed as that used for recording (dictation).**

To stop the tape
Release the pedal.

To rewind the tape
Keep the left side of the FS-75 pedal depressed.

To rapidly advance the tape
Keep the center top of the FS-75 pedal depressed.

6 **To check the recorded material by using the SCAN function:**
Press SCAN for a second.
SCAN and REMAINING appear on the display and the tape starts to be rewound.
When the tape reaches the beginning of the dictated material, a beep tone is heard and the unit automatically shuts off. When the tape is completely rewound, the total dictated time and the recorded time of the first document are displayed. The numbers of documents and special instructions recorded on the tape are also displayed on the display.



Disappears when the unit shuts off.

While REMAINING is displayed, the numbers on the display window indicate the amount of tape left. This is convenient to know the remaining amount of dictation when transcribing.
While REMAINING is displayed, dictating, telephone recording and recording of LTR and SEC signals cannot be performed.
Press RESET or the eject button. REMAINING will disappear.

When the tape reaches the tape top, this mark blinks while a long beep tone is heard and then lights up.

The above example of the counter indicates that the cassette has 2 documents and 3 special instructions. Total recorded time of the dictation is approx. 5.4 minutes and the recorded time of the first document is approx. 2.1 minutes.

Notes

- To stop scanning, press STOP.
- When the AUTO STOP switch is set to ON, the tape automatically stops at each electronic index signal previously recorded on the tape while scanning. This is convenient to locate the beginning of each document or special instruction.
- To restart scanning after it is stopped at the electronic index signal, press the SCAN or REW button.

7 **Keep the right side of the FS-75 pedal depressed** to listen to the tape.

8 **Adjust VOLUME and TONE.**

As to the display window, refer to page ⓰.

Notes on the time counter
While REMAINING is displayed (in scanning mode or in rewind mode after scanning) and the unit is stopped automatically when the LTR signal is detected, the number on the UNIT counter will be reset to 0.0 M after blinking for about 3 seconds to read the amount of the document.

Scan-top function
When the tape is advanced rapidly (in fast forward mode after scanning) while REMAINING is displayed, the tape will stop automatically at the portion from which the scanning was started. In this case, a beep tone is heard and the — (minus) mark on the TOTAL counter blinks for about 3 seconds and then stops blinking.

Convenient Functions

■ AUTO STOP function

With the AUTO STOP function, recorded documents and instructions can be located without the user's having to listen to the entire tape.

This function activates only in rewind, fast forward or scanning mode.

When the AUTO STOP switch is set to ON, *the tape automatically stops at each* electronic index signal previously recorded on the tape. (See "To record LTR and SEC signals" on page ●.)

When an LTR signal is detected, the LTR document counter number increases or decreases and blinks for approximately 3 seconds, and a beep tone is heard. The tape stops automatically.

When the SEC signal is detected, the special instruction counter number increases or decreases and blinks for approximately 3 seconds, and a beep tone is heard. The tape stops automatically.

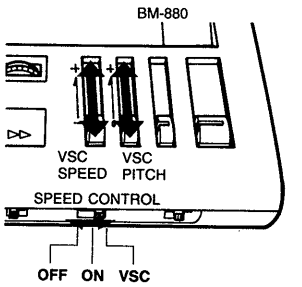
When the AUTO STOP switch is set to OFF, the numbers on the LTR (document) and SEC (special instruction) counters increase or decrease and blink when an LTR or SEC signal is detected, but the tape does not stop.

Note

The tape does not stop at the LTR or the SEC signal even if the AUTO STOP switch is set to ON while the FF or REW button is continuously depressed.

■ VSC (Variable Speech Control) and speed control function

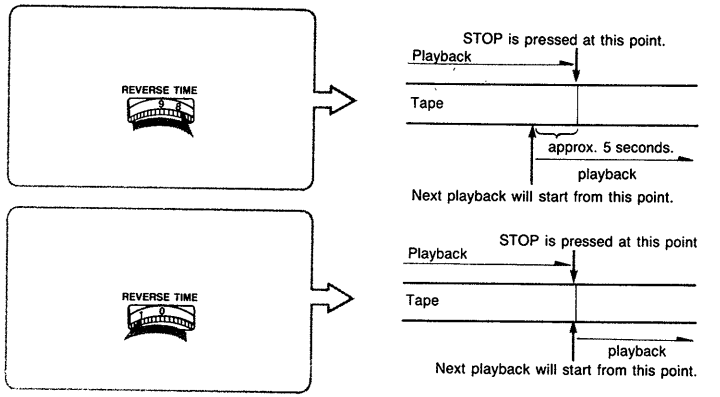
The tape can be played back at a speed faster than normal without distorting the voice. Set the SPEED CONTROL selector* to VSC and adjust both the SPEED and PITCH controls. Set the SPEED CONTROL selector to ON to adjust the SPEED control only.
When the SPEED CONTROL switch is set to OFF, the tape moves at the normal speed regardless of the position of the SPEED and PITCH controls.



* Tape speed can be changed in the range or approximately −20% to +80% with the use of the SPEED control.

■ Auto backspace function

This control operates only when the FS-75 foot control unit is connected.
With the use of the REVERSE TIME control, the tape is rewound a little each time it is stopped. Then, the last few recorded words can be reviewed when you resume listening.
Adjust the REVERSE TIME control to determine the length of tape to be rewound.
At "9" position, the tape is rewound so that the dictated material can be reviewed for about 5 seconds. At "0" position, the tape stops without being rewound at all.



Set the REVERSE TIME control to the desired position and keep the right side of the pedal depressed to listen to the tape.

■ Tape transport operation

	BM-880	HU-80	FS-75
Rewind	Press ◀◀ REW.	Keep the function selector pressed down toward B. SPACE.	Keep the left side of the pedal depressed.
Stop	Press ■ STOP.	Set the function selector to STOP.	Release the pedal.
Listen	Press ▶ LISTEN.	Set the function selector to LISTEN.	Keep the right side of the pedal depressed.
Fast forward	Press ▶▶ FF.	Keep the FWD SPACE button pressed.	Keep the top center of the pedal depressed.

Notes

- When a button is pressed while detecting the index signal during playback, the switching time of the operation modes may be delayed.
- When a cassette which was not recorded using a Sony Professional Dictating Machine (BM-531, 560, 570, 820, 880 etc.) is played back or wound rapidly (in fast forward or rewind mode), the switching time of the operation modes may be delayed. In this case, set the unit to the Electronic "Index OFF" mode. (See Page ❸).

■ Private listening

Connect a Sony DE-35, DE-36 or MDR-U10M earphones (not supplied) to the EARPHONE jack.
The sound will be heard through the earphones and speaker sound will be disconnected.

■ Selecting the speaker

You can listen to the dictated material through the built-in speaker or the speaker on the HU-80 by switching the SPEAKER selector to BUILT-IN or HAND.

Notes

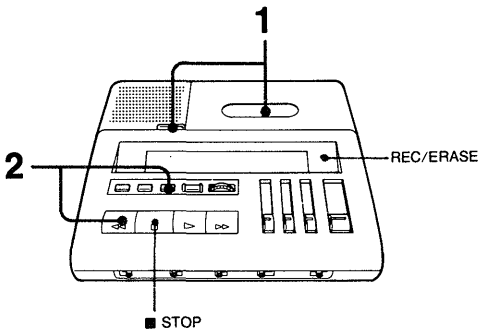
- E-INDEX signal of the Sony conventional models BM-531 and so on corresponds to the LTR signal of the model BM-880.
- LTR/SEC signals and E-INDEX signal do not correspond to the cue signals used for consumer type tape recorder.

Tips on Transcription

- **Before typing,** check the recorded time of the dictation and the number of LTR and SEC signals recorded on the cassette using the SCAN function.
- Erase the tape when transcription is finished.

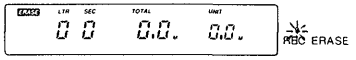
Erasing

The recording can be erased rapidly.



1 Insert the cassette with the side to be erased up.
Be sure not to rewind the tape after transcribing. The end portion of the dictated material to be erased should be positioned at the recording head.

2 Keep ERASE pressed and then press ◀◀ REW.
The REC/ERASE lamp lights up and ERASE appears on the display window. The portion of the tape being rewound is erased.



To stop the tape
Press ■ STOP.

For easier and quicker erasure of the entire cassette, use Sony BE-9H cassette eraser (not supplied).

Alarm System

An alarm sounds and an indication appears on the display window in the following situations.

Alarm system	Situation	To release alarm system
When you press a button, Beep Blinks.	• No cassette is inserted. • The cassette's safety tabs have been removed.	First, release the button, then • Insert a cassette. • Insert a new cassette or cover the safety slot.
The unit shuts off. Beep Blinks.	End of tape The tape is torn	Rewind the tape. Insert a new cassette.
When you press a button, Beep REMAINING Blinks.	When you attempt to record while REMAINING is displayed.	Clear the REMAINING mark by pressing the RESET or eject button.
While recording, Beep Beep Beep Blinks.	Approx. 3 minutes before the end of tape while recording.	Press ▶ LISTEN to stop alarm sound. Stop recording and insert a new cassette.
The unit shuts off during FF mode. Beep REC END Blinks.	End of recording.	The REC END disappears and alarm stops automatically when about 3 seconds have passed.
"E" appears.	The number of LTR or SEC signal exceeds 9.	Do not press LTR or SEC button more than 9 times.

Alarm system	Situation	To release alarm system
The unit shuts off during FF mode. The — (minus) mark on the TOTAL counter blinks. Beep	While REMAINING is displayed, the unit is rapidly advanced and automatically stopped at the portion from which the scanning was started.	The minus mark stops blinking and lights up automatically when about 3 seconds have passed.
The unit shuts off. Beep Number of LTR or SEC blinks.	Either LTR of SEC are detected while the tape is wound rapidly (in fast forward, rewind or scanning mode) and the AUTO STOP switch is set to ON.	The number of LTR or SEC stops blinking and lights up automatically when about 3 seconds have passed.
Either the LTR or SEC buttons are pressed while playing back the tape, Beep	Either the LTR or SEC signals are detected on the tape.	Release the button. Play back the tape continuously for more than 6 seconds and then, press the button again.
When you press a button. Beep	• When you press the TEL REC button except in the stop or dictating mode. • When you put the HU-80 in the dictating mode during the FF, REW or ERASE mode.	• To stop alarm sound, release the TEL REC button, or put the HU-80 in the stop mode. • To start recording, put the BM-880 in the stop mode first and then start recording.

Examples of Dictation and Transcription

Example of Dictation

Set the function selector of the HU-80 to DICT.

Press SEC.

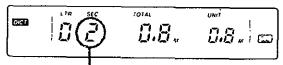
"This is a letter. Type it up and send it by express."
"Today's date is January 17, 1992.
This letter is for Mr. Alan R. Jefferson
Pyrene House, Sunbury on Thames,
Middlesex, TW16 7AT, U.K.

Dear Sir,
We received your order for"

Blinks for approx. 3 seconds and stops blinking.

Press SEC.

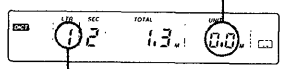
"under line
POI-L-5049-D3581", "quantity 270,000 today.
Shipment can be made within two weeks by Air.
Please accept our thanks for your order.
Faithfully yours,
John S. Smith
Sales Manager
U.K.G. Ltd."



Blinks for approx. 3 seconds and stops blinking.

This number is reset to 0.0 when the LTR button is pressed and increases until the LTR button is pressed again.

Press LTR.



Blinks for approx. 3 seconds and stops blinking

Set the function selector of the HU-80 to STOP.

Example of Transcription

Insert the cassette.

Set AUTO STOP to OFF.

Press SCAN.

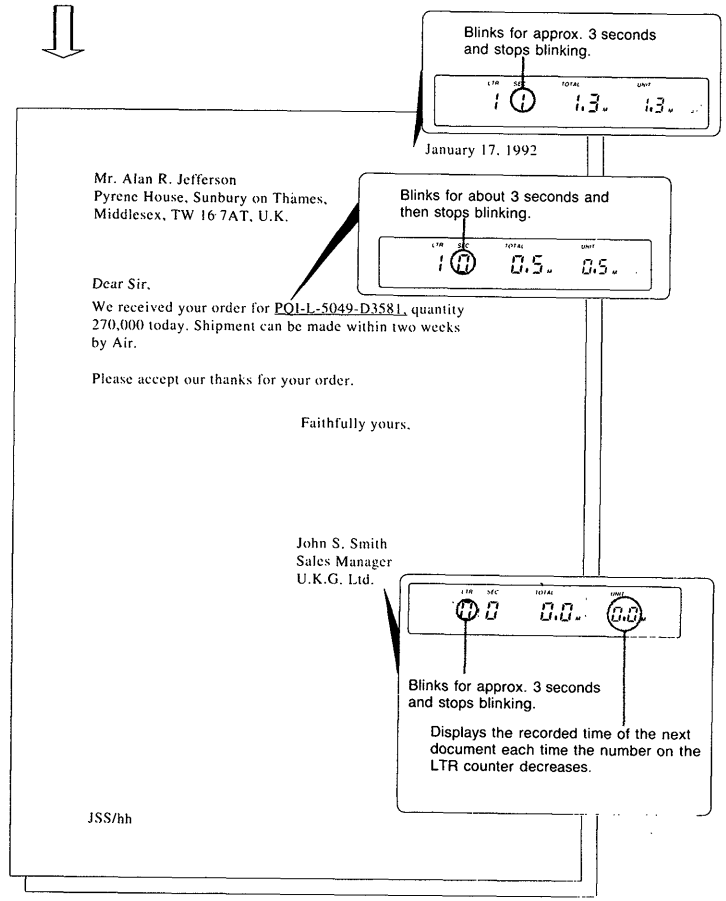
The unit automatically shuts off when the tape reaches the tape top.

The counter indicates the total amount of dictation.

When the tape reaches the beginning, SCAN disappears and the ⌧ blinks for about 3 seconds and then stops blinking.

Keep the right side of the FS-75 pedal depressed.

Tape playback starts.



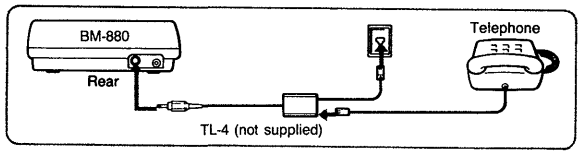
Stop the tape when the transcription is finished.

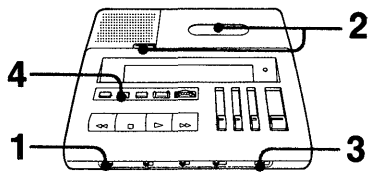
If desired, keep ERASE pressed and then, press ◀◀ REW to erase the cassette.

Other Convenient Functions

Telephone Recording

To record telephone conversation, connect the optional TL-4 telephone recording adaptor* to the TELEPHONE PICKUP jack. For further details, refer to the instruction manual of the telephone recording adaptor.





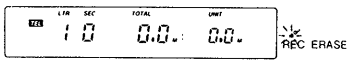
* The TL-4 telephone recording addaptor cannot be used on some telephones.

1 **Set STANDBY/ON to ON.**

2 **Insert a cassette.**

3 **Set TAPE SPEED to the desired tape speed.**

4 **Keep TEL REC** pressed for more than a second.
Telephone recording begins. REC/ERASE lamp flickers and TEL appears on the display window.



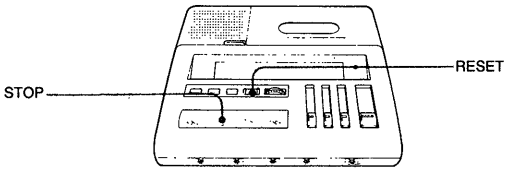
To stop the tape
Press ■ STOP.

At the beginning of telephone recording
LTR signal is automatically recorded.
While the LTR signal is being recorded (for about 3 seconds), the unit cannot be stopped even though STOP button is pressed.

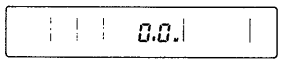
During telephone recording
Only the LTR, SEC and STOP buttons are operative.

Transcribing a cassette recorded with a dictator other than Sony's

If you transcribe a cassette which was not recorded using a Sony Professional Dictating Machine, set the unit to the Electronic "Index OFF" mode.



In the tape stop mode, keep both RESET and STOP pressed for more than 2 seconds.
Only the TOTAL counter is displayed and the number is reset to "0". The unit is in the Electronic "Index OFF" mode.



■ To return the unit to the Electronic "Index ON" mode

Change the mode by following the procedure above.

■ To switch the counter to time or tape indication

See page ⓮.

Notes

- In the Electronic "Index OFF" mode
  —the LTR or the SEC signal is not recorded even if you press the LTR or SEC button.
  —the AUTO STOP function does not work even if the AUTO STOP switch is set to "ON".
- If you play back in the Electronic "Index ON" mode and the cassette was not recorded using a Sony Professional Dictating Machine (BM-531, 560, 570, 820, 880 etc.), neither the operation buttons, the counters nor the auto backspace function will work correctly.

SECTION 3
MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured alcohol-moistened swab:
   record/playback head pinch roller
   erase head rubber belts
   capstan
2. Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
3. Do not use a magnetized screwdriver for the adjustment.
4. After the parts adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be perfomed with the rated power supply voltage unless otherwise noted.

Torque Measurement

Mode	Micro cassette type torque meter	Meter reading
Forward	CQ-103M	4 to 15g•cm (0.06 to 0.21oz•inch)
Fast Forward, Rewind	CQ-201M	35 to 90g•cm (0.49 to 1.25 oz•inch)

Tape Tension Measurement

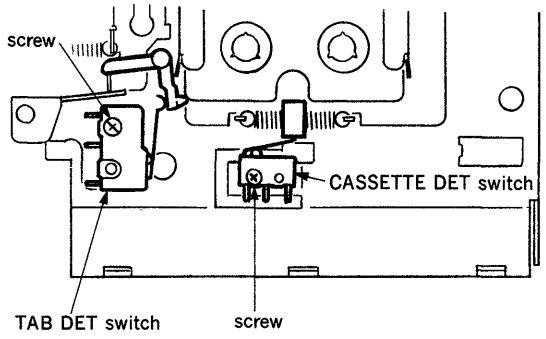
Micro cassette type tension meter	Meter reading
CQ-403M	30 to 60g (1.06 to 2.12oz)

TAB DET Switch Position

Adjust the screw for following position.
When inserting the cassette with the tab ·····ON
When inserting the cassette without the tab ·····OFF

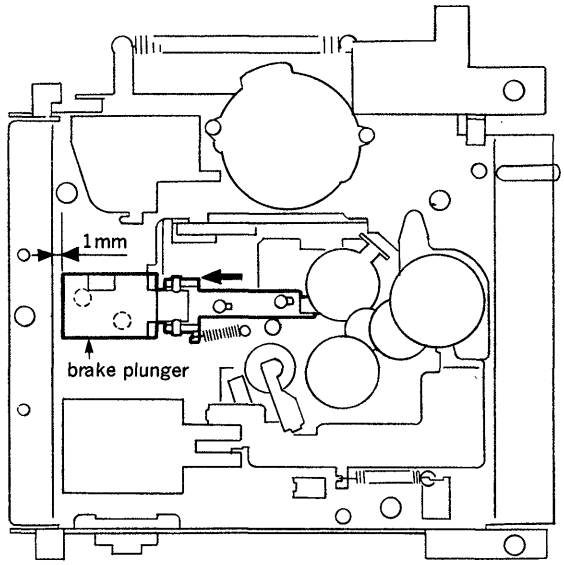
CASSETTE DET Switch Position Adjustment

Adjust the screw so that CASSETTE DET switch goes ON when inserting the cassette.



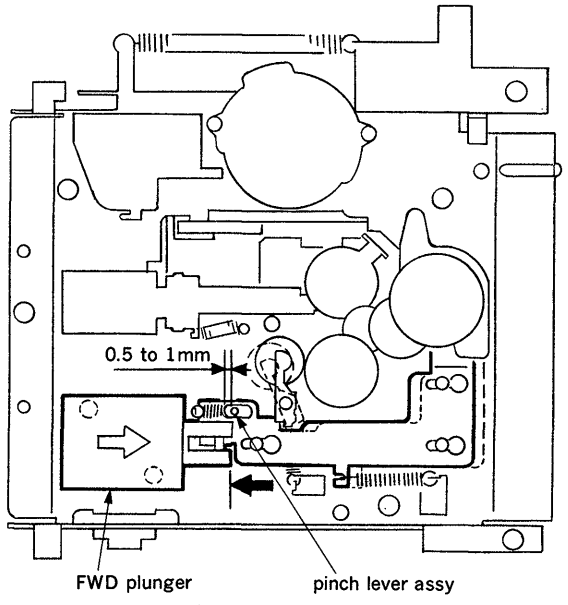
Brake Plunger Position Adjustment

Adjust the screw so that clearance between the plunger and the chassis is approximately 1mm as illustrated.



FWD Plunger Position Adjustment

1. When pulling FWD plunger fully with the hand, adjust the plunger installing screw so that clearance between FWD lever assy and FWD lever is approximately 1mm.
2. After adjustment, confirm that the pinch roller press against the capstan in FWD mode.



SECTION 4
ELECTRICAL ADJUSTMENTS

PRECAUTION

1. Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
2. Do not use a magnetized screwdriver for the adjustment.
3. After the parts adjustments, apply suitable locking compound to the parts adjusted.
4. The adjustments should be perfomed with the rated power supply voltage unless otherwise noted.
5. The adjustments should be performed in the order given in this service manual. (As a rule, playback circuit adjustment should be completed before performing recording circuit adjustment.)
6. VSC Ramp Rate, VSC PITCH and VSC Noise Level Adjustments for the VSC chain interract each other. When one of them is readjusted, be sure to perform two other adjustments.

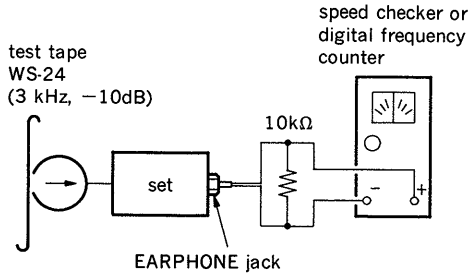
- Switches and controls should be set as follows unless otherwise specified.

STANDBY ON switch : ON
SPEED CONTROL switch : OFF
AUTO STOP switch : OFF
SPEAKER switch : BUILT-IN
TONE control : max.(+)
VSC PITCH control : 0
TAPE SPEED switch : 2.4

Tape Speed Adjustment

Setup :

Mode : playback (LISTEN)



Procedure :

1. SPEED CONTROL switch : OFF
   TAPE SPEED switch : 2.4
   Adjust RV602 for specified reading on speed checker or digital frequency counter.

Adjustment Values :

Speed checker	Digital frequency counter
0 to +1%	3,000 to 3,030Hz

2. SPEED CONTROL switch : OFF
   TAPE SPEED switch : 1.2
   Adjust RV601 for specified reading on speed checker or digital frequency counter.

Adjustment Values :

Speed checker	Digital frequency counter
+0.7 to +1.7%	1,510 to 1,526Hz

3. SPEED CONTROL switch : ON
   TAPE SPEED switch : 1.2
   VSC SPEED control : max. (+)
   Adjust RV603 for specified reading on speed checker or digital frequency counter.

Adjustment Values :

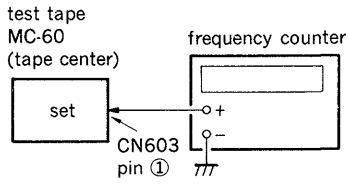
Speed checker	Digital frequency counter
+82 to +83%	2,725 to 2,750Hz

4. TAPE SPEED switch : 2.4
   Confirm that reading on speed checker is more than +82% or digital frequency counter is more than 5,450Hz.
   If the specification is not satisfied, adjust RV603 for reading on speed checker is +82 to +83% or digital frequency counter is 5,450 to 5,480Hz.
   Set the TAPE SPEED switch to 1.2 and confirm that reading on speed checker is more than +82% or digital frequency counter is more than 2,725Hz.

Adjustment Location : servo board

FF/REW Speed Adjustment

Setup :



Procedure :

1. Set the TAPE SPEED switch to 2.4.
2. Insert a cassette tape and press the REW button.
3. At this time, adjust RV604 for specified reading on frequency counter.
4. Then set the TAPE SPEED switch to 1.2.
5. Confirm that reading on frequency counter to press the REW button.

Adjustment Values :

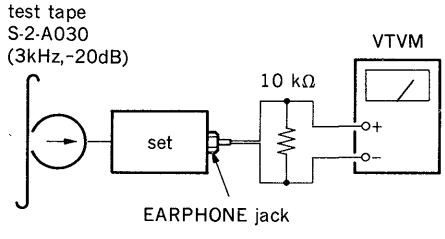
Tape Speed	Frequency counter
2.4 (cm)	165±5Hz
1.2 (cm)	80±5Hz

Adjustment Location : servo board

Record/playback Head Azimuth Adjustment

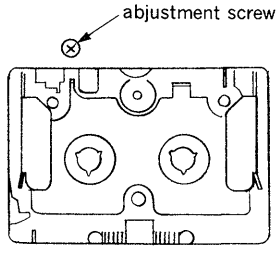
Procedure :

1. Mode : Playback (LISTEN)



2. Turn the adjustment screw to obtain the maximum reading on VTVM.
   Adjustment should be finished with the screw in tightening direction.
3. After the adjustment, lock the adjustment screw with suitable locking compound.

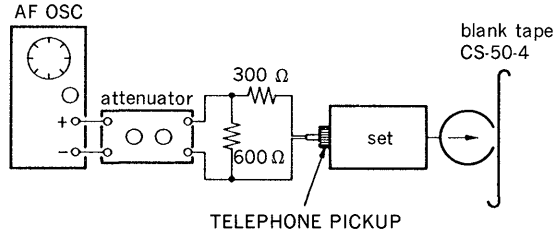
Adjustment Location : record/playback head



Record Bias Adjustment

Procedure :

1. Mode : record



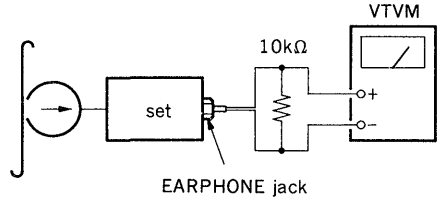
300Hz
3 kHz
5 kHz
} 77.5μV (−80dB)

2.4 (cm)

300Hz
3 kHz
} 77.5μV (−80dB)

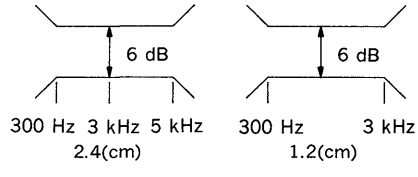
1.2 (cm)

2. Mode : playback (LISTEN)



Playback the tape recorded in step 1. If the specification is not satisfied, soldering or open for record bias pattern, then repeat step 1 and 2.

Adjustment Values :



Adjustment Location : main board

VSC BBD Bias Adjustment

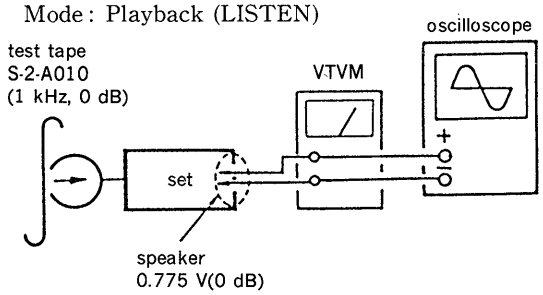
Note : Adjustments to the VSC chain should be made in this order.

Setting :

SPEED CONTROL switch : VSC
VSC PITCH control : 0

Setup :

Mode : Playback (LISTEN)



Procedure :

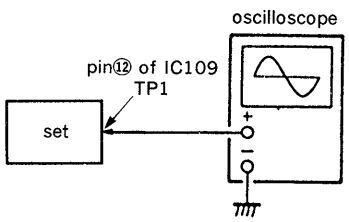
1. Adjust VOLUME control to obtain an undistorted 0.775V(0dB) output level.
2. Adjust RV105 to obtain a maximum sinewave output signal.

Adjustment Location : main board

VSC Ramp Rate Adjustment

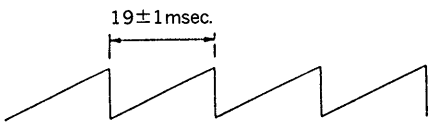
Setup :

SPEED CONTROL switch : VSC
VSC PITCH control : max. (+)



Procedure :

Adjust RV106 to obtain a sawtooth wave as shown below.



Adjustment Location : main board

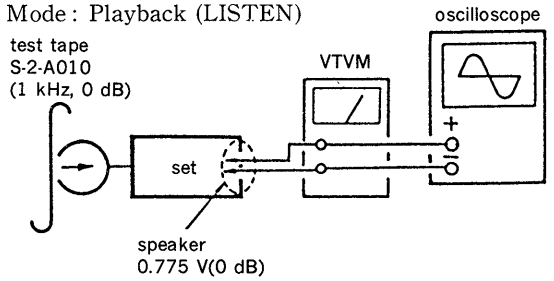
VSC PITCH Adjustment

Setting :

SPEED CONTROL switch : VSC
VSC SPEED control : max. (+)

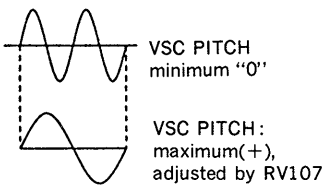
Setup :

Mode : Playback (LISTEN)



Procedure :

1. Adjust VOLUME control to obtain an undistorted 0.775V (0dB) output level.
2. Set VSC PITCH control to minimum "0".
3. Adjust oscilloscope timebase switch and control to obtain a two-cycle display.
4. Set VSC PITCH control to maximum (+).
5. Adjust RV107 to obtain a one-cycle display with oscilloscope settings unchanged.



Adjustment Location : main board

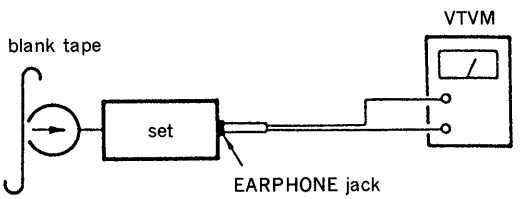
VSC Noise Level Adjustment

Setting :

SPEED CONTROL switch : VSC
VSC PITCH control : max. (+)

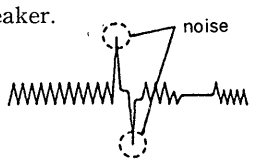
Setup :

Mode : playback (LISTEN)



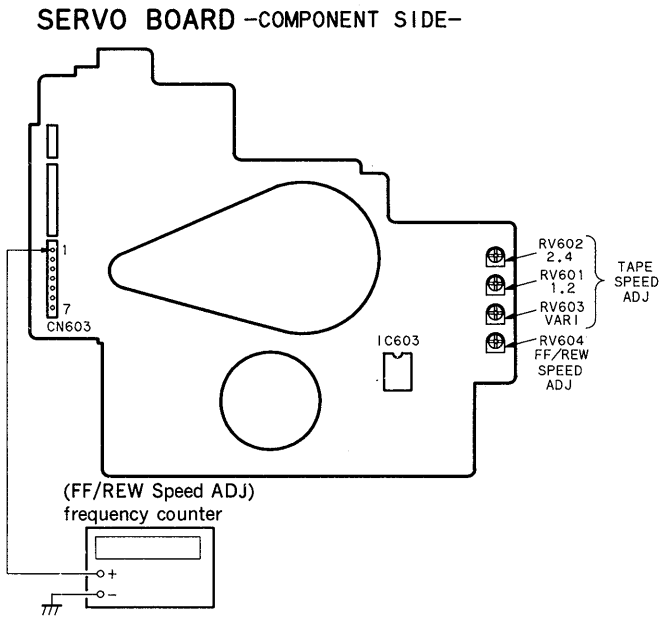
Procedure :

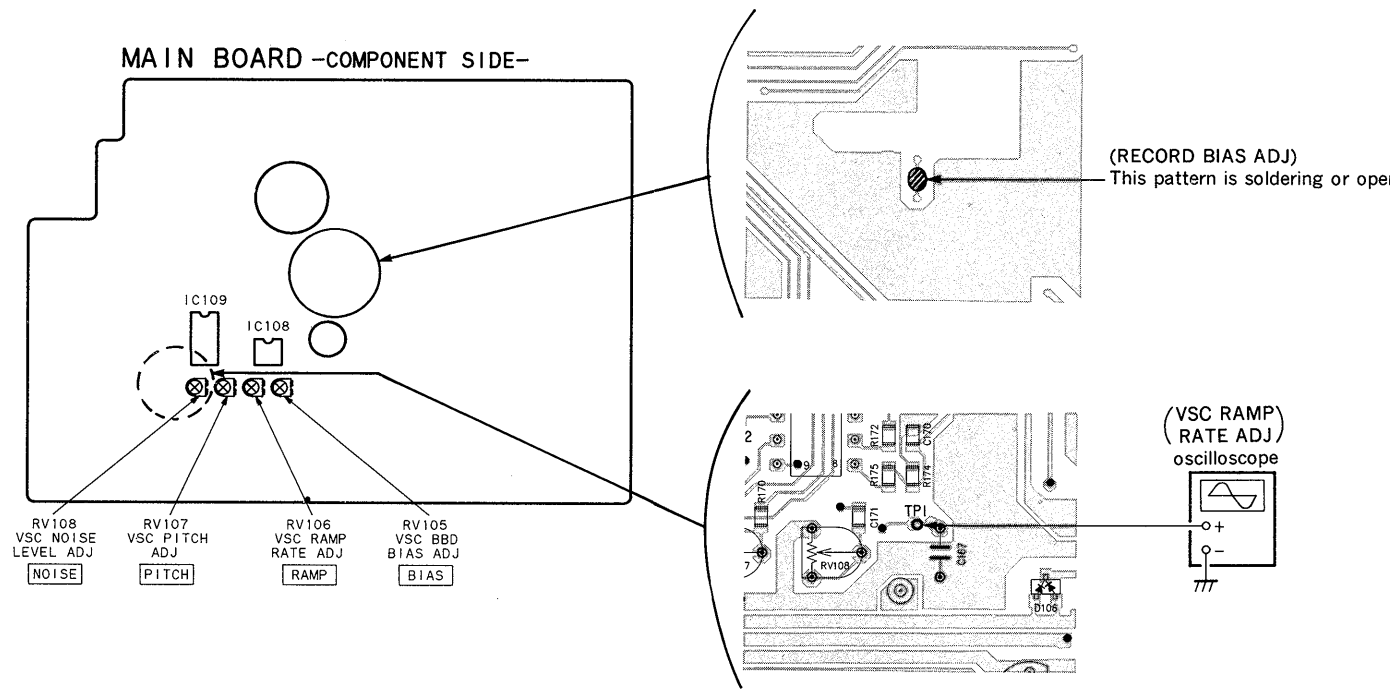
Adjust RV108 for a minimum noise output level, or Adjust RV108 to minimum noise position hearing the noise from speaker.



Adjustment Location : main board

Adjustment Location :

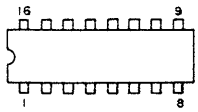




SECTION 5
DIAGRAMS

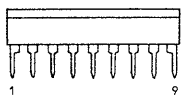
5-1. SEMICONDUCTOR LEAD LAYOUT

BA1701
TA7628HP

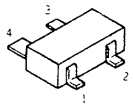


(TOP VIEW)

μPC1330HA

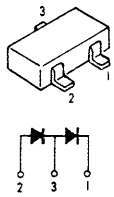


DWA010

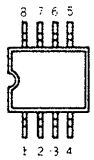


1. cathode
2. cathode
3. anode
4. anode

1SS226

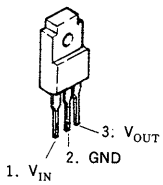


LA5524M
RC4558M

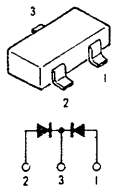


(TOPVIEW)

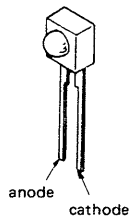
μPC24M05HF
μPC2406HF



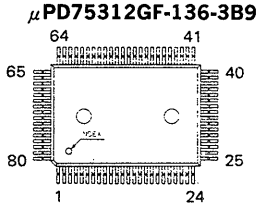
MA152WK



BR4371F

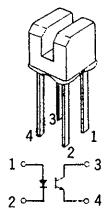


μPD75312GF-136-3B9

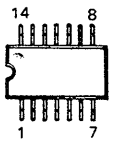


MARKING SIDE VIEW

PLI-13M

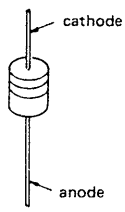


MC14066BF
SN74HC14ANS

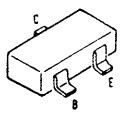


(TOP VIEW)

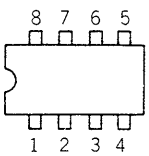
RD8.2ES-B2



FA1L4M-L31
2SA1162-G
2SA1563
2SC1623
2SC2712-YG
2SC3398
2SD1048-X7

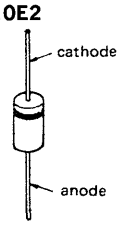


MN3204

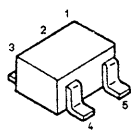


(Top view)

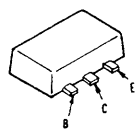
RD9.1F-B2
10E2



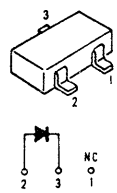
TC4S11F



2SB798-DL
2SD999-CLCK



SB01-05CP



BM-880 BM-880

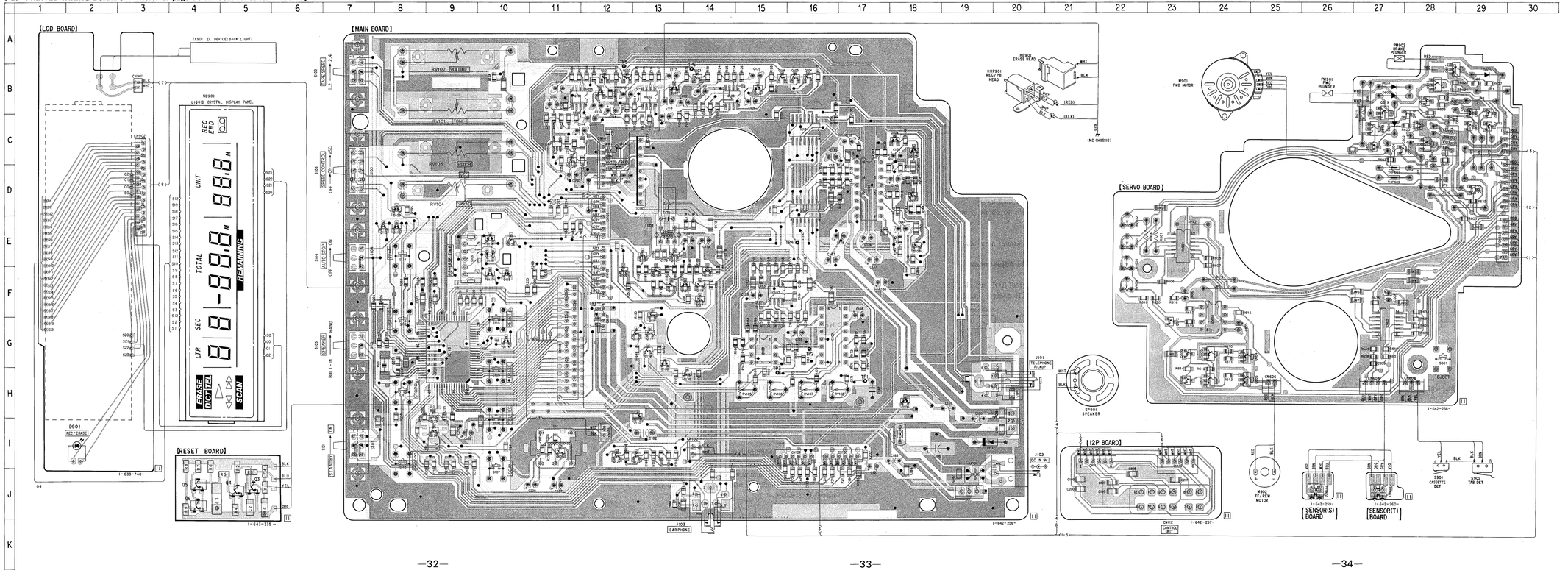
● Semiconductor Location

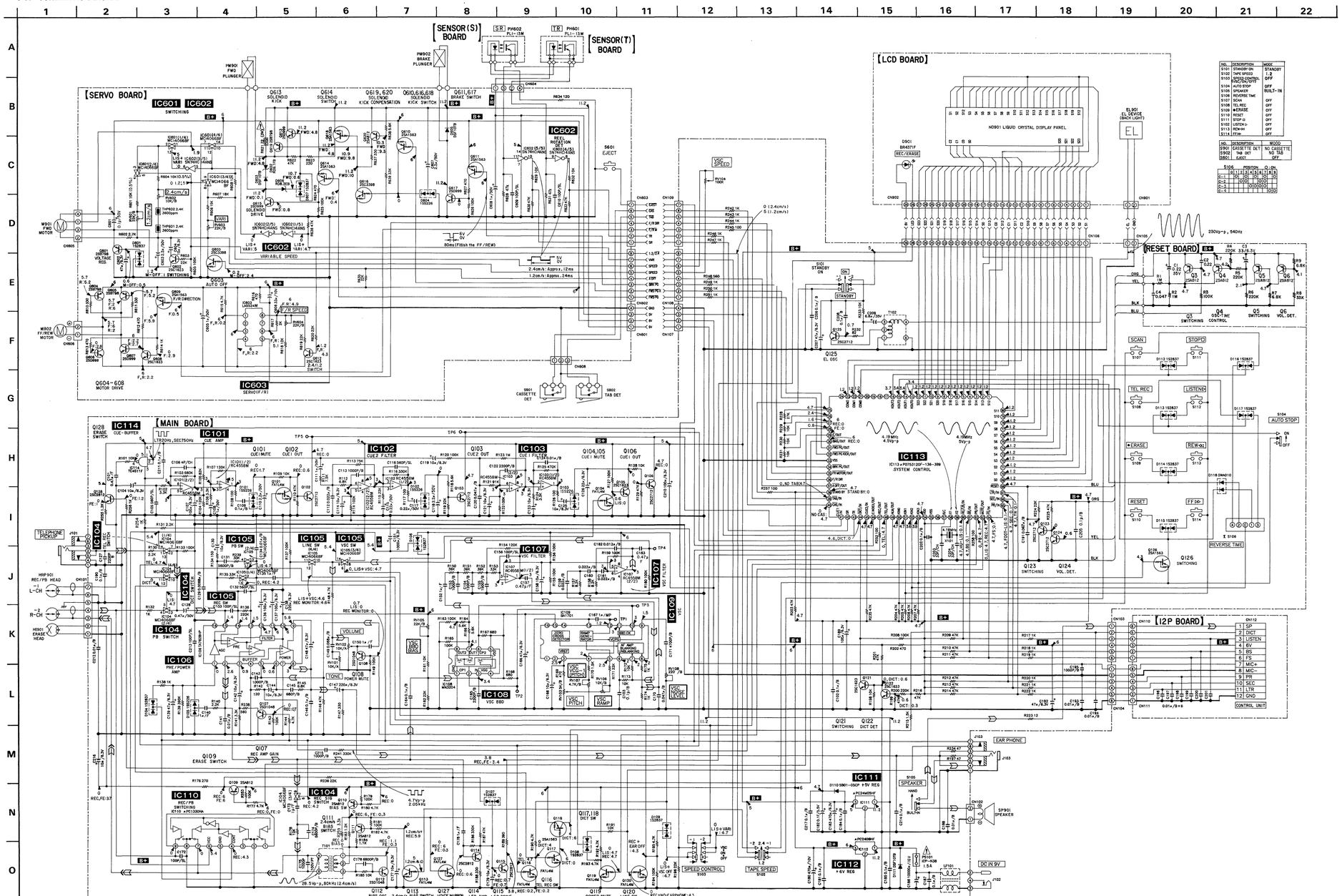
Ref. No.	Location	Ref. No.	Location
D101	B-12	Q101	B-12
D102	B-13	Q102	B-12
D103	B-15	Q103	B-14
D104	C-18	Q104	B-16
D105	C-18	Q105	B-16
D106	H-18	Q106	B-15
D107	F-13	Q107	D-18
D108	G-13	Q108	E-18
D109	D-8	Q109	F-12
D110	H-13	Q110	F-13
D111	I-19	Q111	F-13
D112	E-8	Q112	E-13
D113	E-8	Q113	E-13
D114	G-10	Q114	F-14
D115	F-10	Q115	F-14
D116	E-10	Q116	F-13
D117	F-10	Q117	G-13
D118	E-10	Q118	G-13
D601	C-28	Q119	G-13
D602	B-27	Q120	H-14
D603	B-27	Q121	I-12
D604	C-29	Q122	I-13
D605	B-29	Q123	I-9
D606	C-27	Q124	I-9
D607	C-27	Q125	I-11
D901	I-2	Q126	E-10
		Q127	F-14
IC101	B-11	Q128	C-11
IC102	B-13	Q601	C-28
IC103	B-14	Q602	C-27
IC104	C-16	Q603	D-29
IC105	D-16	Q604	G-24
IC106	D-17	Q605	G-24
IC107	F-15	Q606	H-24
IC108	G-15	Q607	H-24
IC109	G-16	Q608	H-23
IC110	D-13	Q609	G-23
IC111	J-19	Q610	C-29
IC112	I-20	Q611	C-29
IC113	G-9	Q612	G-23
IC114	C-11	Q613	C-27
IC601	E-23	Q614	C-29
IC602	G-27	Q615	B-28
IC603	G-24	Q616	C-28
		Q617	B-28
Q3	J-5	Q618	C-27
Q4	J-5	Q619	B-27
Q5	J-4	Q620	B-28
Q6	J-4		

Note:

- ● ○——: parts extracted from the component side.
- ● ——○: parts extracted from the conductor side.
- ● ●: Through hole.
- ▨: Pattern on the side which is seen.
- ▨: Pattern of the rear side.

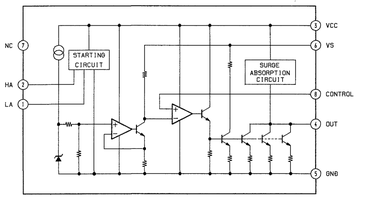
5-2. PRINTED WIRING BOARDS ● Refer to page 30 for Semiconductor Lead Layouts.





● IC Block Diagram

IC603 LA5524M



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 1/4 W or less unless otherwise specified.
- : nonflammable resistor.

Note:	Note:
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

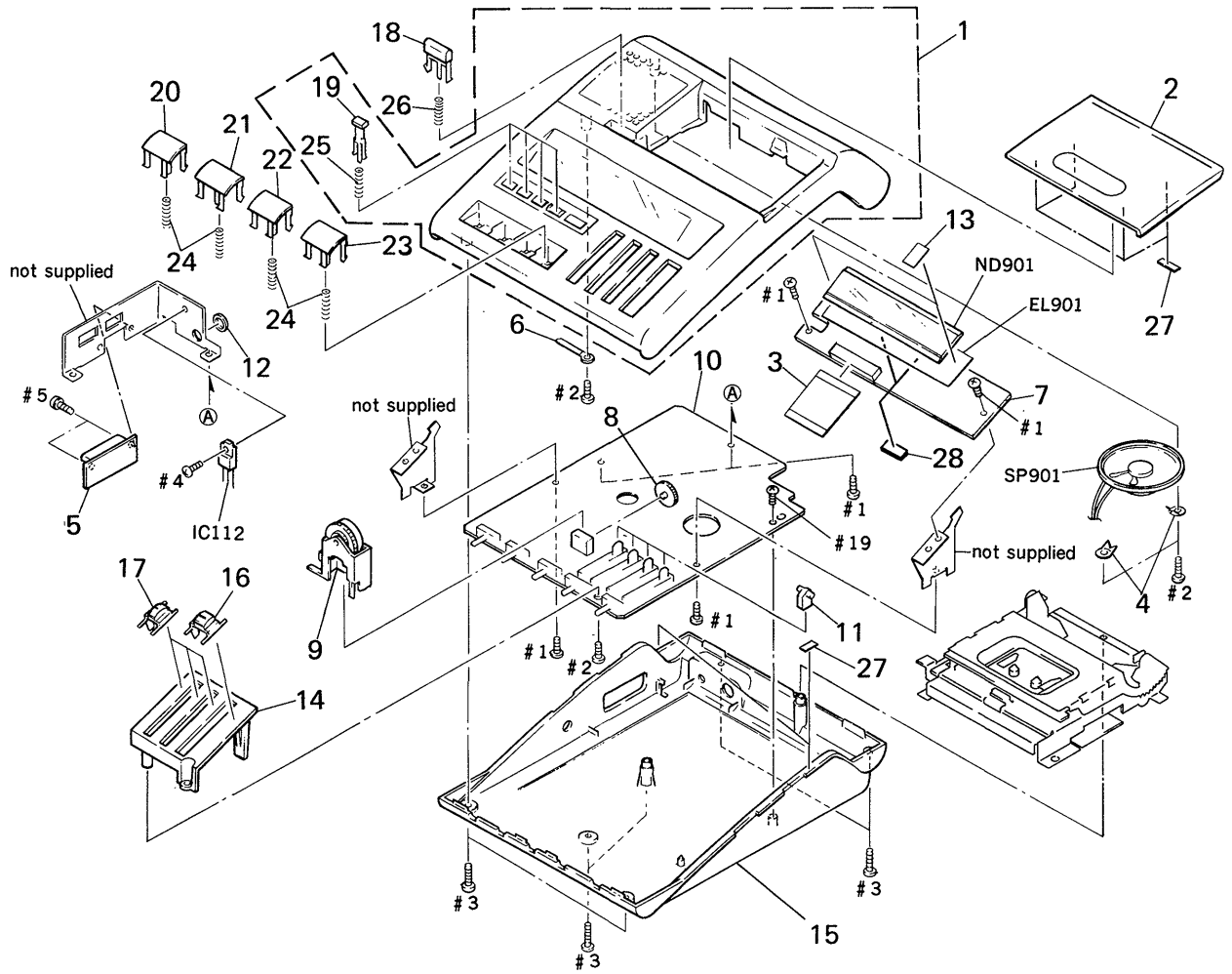
- B+ : B+ Line
- : adjustment for repair.
- Power voltage is dc 9V and fed with AC adaptor AC-980(J) (100V/50Hz) from external power voltage jack.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  - no mark : STOP (Cassette: IN, Motor: ON, 2.4cm/s)
  - LIS : LISTEN ▷
  - FE : Fast-Erase
  - REC : DICT/TEL-REC (no signal)
  - 1.2 : 1.2cm/s
  - F : FF
  - R : REW
  - FWD : LISTEN ▷, DICT, TEL, LTR, SEC
  - M.OFF : MOTOR OFF
  - VARI : SPEED CONTROL ON or VSC
- Voltages are taken with a VOM (Input Impedance 10MΩ). 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.
- Signal path.
  - : PB
  - : REC

SECTION 6
EXPLODED VIEWS

NOTE:

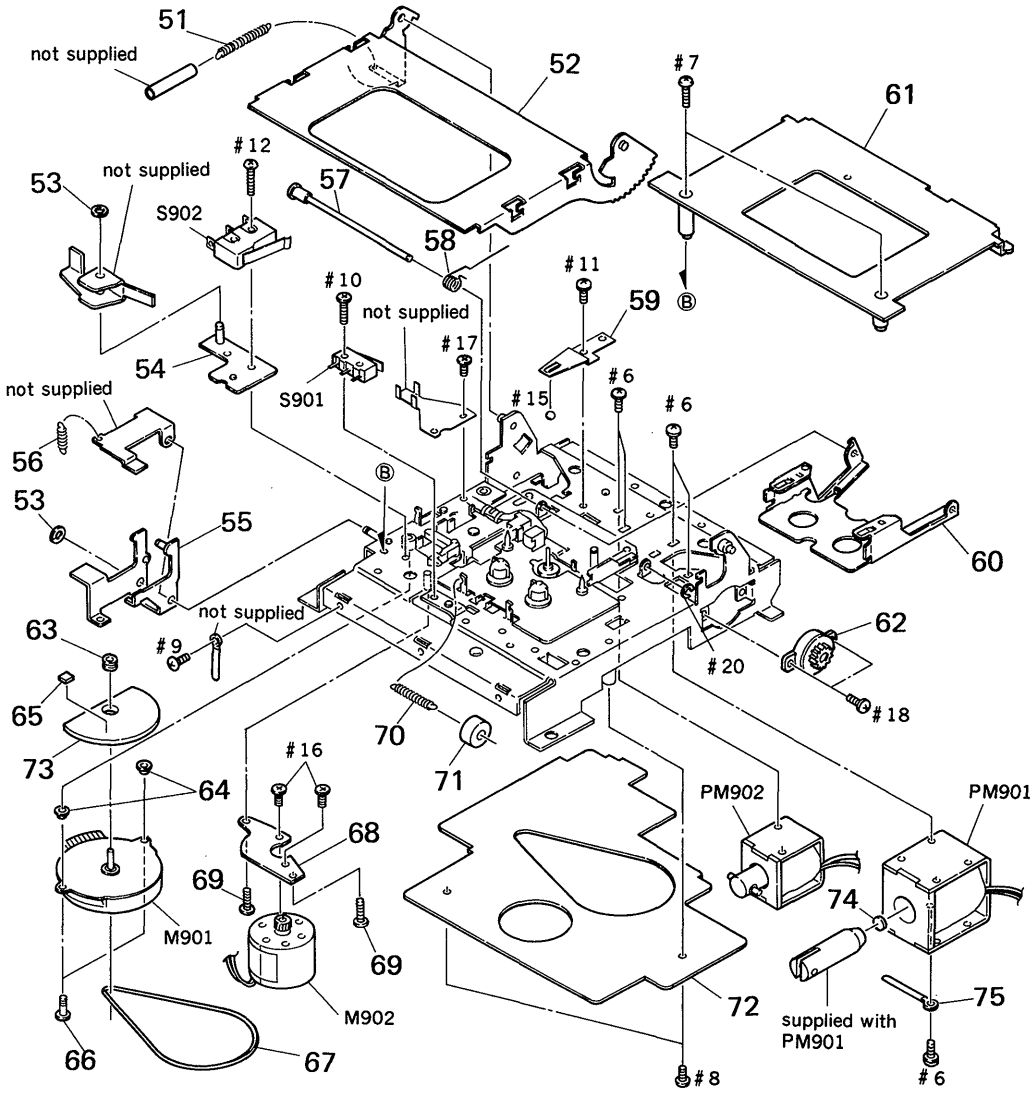
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE)...(RED)
  ↑ Parts Color ↑ Cabinet's Color
- Hardware (# mark) list is given in the last of this parts list.

1. CABINET SECTION



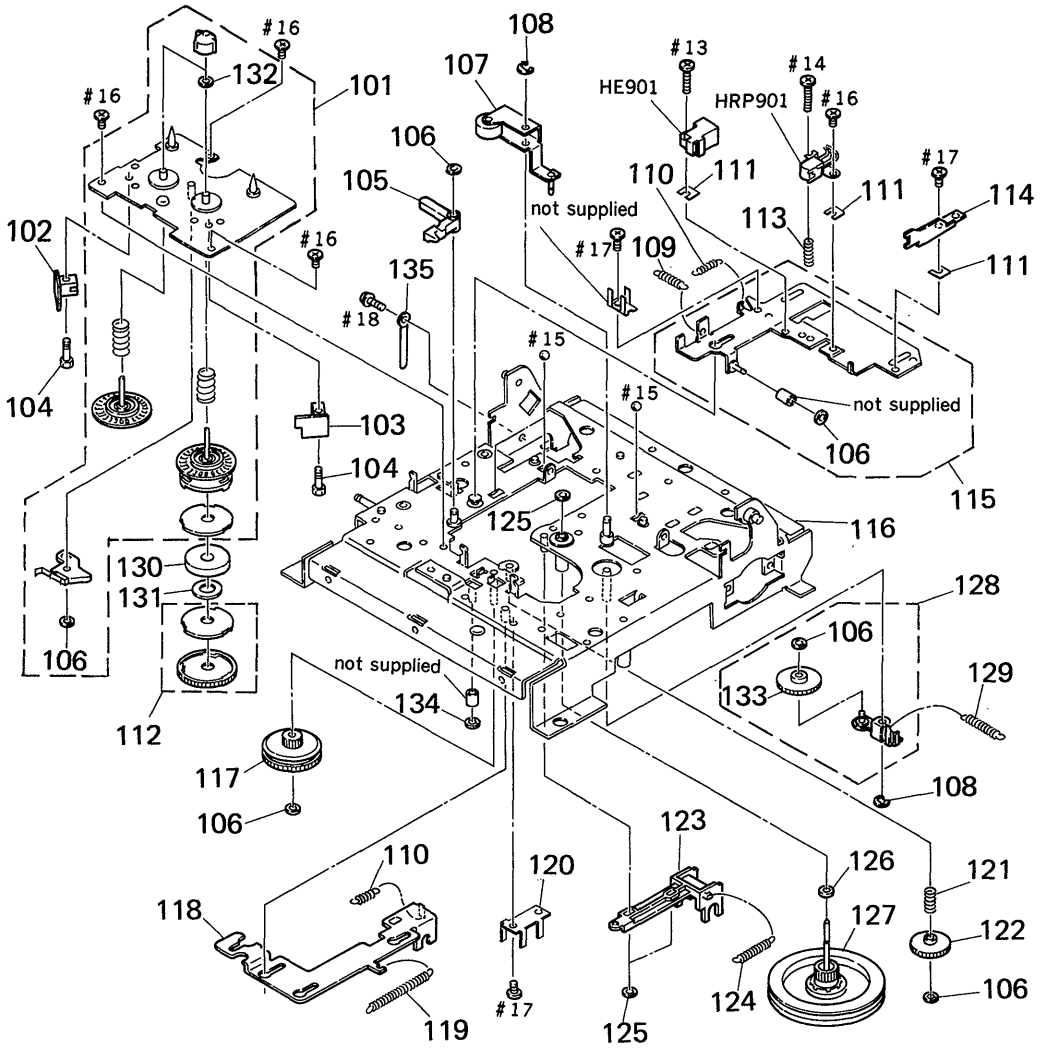
Ref. No.	Part No.	Description	Remark
1	X-3364-487-1	CABINET (FRONT) ASSY	
2	X-3364-490-1	LID (CASSETTE) ASSY	
* 3	1-575-497-11	WIRE, FLAT TYPE (29 CORE)	
4	3-845-110-00	RETAINER, SPEAKER	
* 5	1-642-257-11	12P BOARD	
* 6	3-701-822-00	HOLDER, WIRE	
* 7	1-633-748-11	LCD BOARD	
* 8	3-323-678-01	GEAR (SW DRIVING)	
9	X-3323-533-1	KNOB (REVERSE TIME) ASSY	
* 10	A-3016-199-A	MAIN BOARD, COMPLETE	
* 11	3-323-679-01	BUSHING	
* 12	3-323-680-01	COVER, JACK	
13	9-911-838-XX	CUSHION, MAGNET	
14	3-359-104-01	GUIDE, KNOB	
15	A-3041-767-A	CABINET (REAR) ASSY	
16	X-3323-535-1	KNOB (VOLUME) ASSY	
17	X-3323-536-1	KNOB (TONE) ASSY	
18	3-375-313-01	BUTTON (EJECT)	
19	3-323-695-01	BUTTON (SCAN, TEL REC, ERASE, RESET)	
20	3-323-698-01	BUTTON (REW)	
21	3-323-697-01	BUTTON (STOP)	
22	3-323-698-11	BUTTON (LISTEN)	
23	3-323-698-21	BUTTON (FF)	
24	3-323-696-01	SPRING, COMPRESSION	
25	3-323-694-01	SPRING, COMPRESSION	
26	3-323-692-01	SPRING, COMPRESSION	
27	3-831-441-XX	CUSHION	
28	3-831-441-XX	CUSHION	
EL901	1-808-962-11	DEVICE, EL	
IC112	8-759-148-79	IC uPC2406HF	
ND901	1-808-961-11	DISPLAY PANEL, LIQUID CRYSTAL	
SP901	1-503-616-11	SPEAKER	

2. MECHANISM DECK SECTION (1)



Ref. No.	Part No.	Description	Remark
51	3-375-321-01	SPRING, TENSION	
* 52	3-375-307-01	ARM (CASSETTE HOLDER)	
53	3-307-948-21	WASHER, NYLON	
* 54	X-3364-493-1	PLATE (EJECT) ASSY	
* 55	X-3364-491-1	LEVER (EJECT) ASSY	
56	3-375-319-01	SPRING, TENSION	
* 57	X-3364-492-1	HOLDER ASSY, SPRING	
58	3-375-320-01	SPRING (HOLDER)	
* 59	3-335-111-01	SPRING	
60	X-3335-109-1	HOLDER COMPLETE ASSY, CASSETTE	
61	3-375-312-01	PANEL (REEL)	
62	3-343-248-01	DAMPER (P), SMALL	
* 63	3-815-122-00	BUSHING, RUBBER	
* 64	3-335-208-01	CUSHION, MOTOR	
65	9-911-839-99	CUSHION, MOTOR	
66	3-335-207-01	SHAFT, MOTOR	
67	3-375-322-01	BELT	
* 68	3-353-962=01	BRACKET (FR MOTOR)	
69	3-714-118-01	SCREW (1.7X4)	
70	3-335-151-01	SPRING, TENSION	
* 71	3-335-116-01	ROLLER, EMP	
* 72	A-3016-198-A	SERVO BOARD, COMPLETE	
* 73	3-375-326-01	PLATE, MOTOR	
74	3-323-645-01	STOPPER	
* 75	3-701-822-00	HOLDER, WIRE	
M901	1-541-332-11	MOTOR (NBL-32R) (FWD)	
M902	1-541-685-11	MOTOR (FF/REW)	
PM901	1-454-576-11	SOLENOID, PLUNGER (FWD)	
PM902	1-454-577-11	SOLENOID, PLUNGER (BRAKE)	
S901	1-570-504-11	SWITCH, MICRO (CASSETTE DET)	
S902	1-554-385-00	SWITCH, MICRO (TAB DET)	

3. MECHANISM DECK SECTION (2)



Ref. No.	Part No.	Description	Remark
101	X-3335-118-1	CHASSIS COMPLETE ASSY, SUB	
* 102	1-642-259-11	SENSOR(S) BOARD	
* 103	1-642-260-11	SENSOR(T) BOARD	
104	3-335-104-01	SHAFT, INTERRUPTER	
* 105	3-335-167-01	LEVER, ERASING PROTECTION	
106	3-570-615-00	POLY-WASHER (DIA. 1.2)	
107	X-3335-134-2	LEVER ASSY, PINCH	
108	3-590-768-00	RING (A), E	
109	3-335-146-01	SPRING, TENSION	
110	3-335-150-01	SPRING, TENSION (POWER TENSION)	
111	3-578-138-01	SHIM (T=0.1)	
111	3-578-138-11	SHIM (T=0.2)	
111	3-578-138-21	SHIM (T=0.3)	
112	X-3335-107-1	LIMITER (B) ASSY, FWD	
113	3-375-311-01	SPRING, COMPRESSION	
114	3-375-318-01	GUIDE, TAPE	
* 115	X-3364-486-1	HEAD (BASE) ASSY	
* 116	X-3364-485-1	CHASSIS ASSY, MECHANICAL	
117	X-3335-135-1	LIMITER ASSY, FR	
* 118	3-335-174-01	LEVER, FWD	
119	3-335-143-01	SPRING, TENSION (POWER TENSION)	
120	3-335-109-01	SPRING	
121	3-335-230-01	SPRING, COMPRESSION	
122	3-335-121-01	GEAR, FR	
* 123	3-375-331-01	LEVER (B), BRAKE	
124	3-335-144-01	SPRING, TENSION	
125	3-578-242-11	WASHER	
126	3-701-436-11	WASHER, 1.6 POLYETHYLENE	
127	X-3335-112-1	FLYWHEEL ASSY	
* 128	X-3335-106-1	LEVER ASSY, FG	
129	3-335-152-01	SPRING, TENSION (POWER TENSION)	
130	3-335-126-01	PLATE, MAGNET	
131	3-335-123-01	SPACER (M)	
132	3-321-394-01	WASHER	
133	3-568-371-00	GEAR, FR IDLER	
134	3-321-393-01	WASHER, STOPPER	
* 135	2-277-426-01	CLAMP	
HE901	1-543-899-11	HEAD, MAGNETIC (ERASE)	
HRP901	1-543-725-11	HEAD, MAGNETIC (RECORD/PLAYBACK)	

LCD | MAIN | 12P | RESET

SECTION 7
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS
  uF: μF
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- COILS
  uH: μH
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA..., uPA...: μPA..., uPB...: μPB..., uPC...: μPC..., uPD...: μPD....

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
*	1-633-748-11	LCD BOARD	
		*********	
*	1-575-497-11	WIRE, FLAT TYPE (29 CORE)	
*	3-376-327-01	SHIELD (EL PC BOARD)	
	9-911-838-XX	CUSHION, MAGNET	
		< CONNECTOR >	
CN901	1-506-481-11	CONNECTOR 2P, MALE	
* CN902	1-563-632-11	CONNECTOR, FLEXIBLE 29P	
		< DIODE >	
D901	8-719-984-02	LED BR4371F (REC/ERASE)	
		< EL DEVICE >	
EL901	1-808-962-11	DEVICE, EL	
		< LIQUID CRYSTAL DISPLAY PANEL >	
ND901	1-808-961-11	DISPLAY PANEL, LIQUID CRYSTAL	
**********			
*	A-3016-199-A	MAIN BOARD, COMPLETE	
		**********	
*	1-642-257-11	12P BOARD	
		*********	
*	1-643-335-11	RESET BOARD	
		**********	
*	3-323-678-01	GEAR (SW DRIVING)	
*	3-323-680-01	COVER, JACK	
	7-621-770-XX	SCREW +P 2.6X8	
	7-682-548-04	SCREW +B 3X8	
	7-682-547-04	SCREW +BVTT 3X6 (S)	

Ref. No.	Part No.	Description			Remark
		< CAPACITOR >			
C1	1-135-072-21	TANTALUM CHIP	0.22uF	10%	35V
C2	1-164-299-11	CERAMIC CHIP	0.22uF	10%	25V
C3	1-135-162-21	TANTALUM CHIP	33uF	20%	6.3V
C4	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C101	1-162-637-11	CERAMIC CHIP	0.47uF		16V
C102	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C103	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C104	1-124-221-71	ELECT	10uF	20%	6.3V
C105	1-163-135-00	CERAMIC CHIP	560PF	5%	50V
C106	1-163-087-00	CERAMIC CHIP	4PF		50V
C107	1-124-584-00	ELECT	100uF	20%	10V
C108	1-126-160-11	ELECT	1uF	20%	50V
C109	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C110	1-124-257-71	ELECT	2.2uF	20%	50V
C111	1-126-160-11	ELECT	1uF	20%	50V
C112	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C113	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C114	1-124-221-71	ELECT	10uF	20%	6.3V
C115	1-124-464-11	ELECT	0.22uF	20%	50V
C116	1-163-135-00	CERAMIC CHIP	560PF	5%	50V
C117	1-124-464-11	ELECT	0.22uF	20%	50V
C118	1-124-257-71	ELECT	2.2uF	20%	50V
C119	1-124-221-71	ELECT	10uF	20%	6.3V
C120	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C121	1-124-221-71	ELECT	10uF	20%	6.3V
C122	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C123	1-124-221-71	ELECT	10uF	20%	6.3V
C124	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C125	1-124-221-71	ELECT	10uF	20%	6.3V
C126	1-126-153-11	ELECT	22uF	20%	6.3V
C127	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V

MAIN **12P** **RESET**

Ref.No.	Part No.	Description			Remark
C128	1-124-253-71	ELECT	0.47uF	20%	50V
C129	1-163-057-00	CERAMIC CHIP	0.0068uF	10%	50V
C130	1-124-221-71	ELECT	10uF	20%	6.3V
C131	1-163-018-00	CERAMIC CHIP	0.0056uF	5%	50V
C132	1-163-135-00	CERAMIC CHIP	560PF	5%	50V
C133	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C134	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C135	1-162-638-11	CERAMIC CHIP	1uF		16V
C136	1-124-584-00	ELECT	100uF	20%	10V
C137	1-124-584-00	ELECT	100uF	20%	10V
C138	1-126-369-11	ELECT	220uF	20%	6.3V
C139	1-126-154-11	ELECT	47uF	20%	6.3V
C140	1-162-638-11	CERAMIC CHIP	1uF		16V
C141	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C142	1-124-221-71	ELECT	10uF	20%	6.3V
C143	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C144	1-124-221-71	ELECT	10uF	20%	6.3V
C145	1-163-007-11	CERAMIC CHIP	680PF	10%	50V
C146	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C147	1-126-369-11	ELECT	220uF	20%	6.3V
C148	1-126-154-11	ELECT	47uF	20%	6.3V
C149	1-164-157-11	CERAMIC CHIP	0.068uF	10%	25V
C150	1-162-638-11	CERAMIC CHIP	1uF		16V
C151	1-124-471-00	ELECT	1000uF	20%	6.3V
C152	1-162-638-11	CERAMIC CHIP	1uF		16V
C153	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C154	1-163-010-11	CERAMIC CHIP	0.0012uF	10%	50V
C155	1-163-011-11	CERAMIC CHIP	0.0015uF	10%	50V
C156	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C157	1-162-637-11	CERAMIC CHIP	0.47uF		16V
C158	1-124-221-71	ELECT	10uF	20%	6.3V
C159	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C160	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C161	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C162	1-163-022-00	CERAMIC CHIP	0.012uF	10%	50V
C163	1-162-637-11	CERAMIC CHIP	0.47uF		16V
C164	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C165	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C166	1-126-154-11	ELECT	47uF	20%	6.3V
C167	1-136-177-00	FILM	1uF	5%	50V
C168	1-124-221-71	ELECT	10uF	20%	6.3V
C170	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C171	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C172	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C173	1-162-638-11	CERAMIC CHIP	1uF		16V
C174	1-163-018-00	CERAMIC CHIP	0.0056uF	5%	50V
C175	1-106-343-00	MYLAR	1000PF	5%	200V
C176	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C177	1-124-221-71	ELECT	10uF	20%	6.3V

Ref.No.	Part No.	Description			Remark
C178	1-162-638-11	CERAMIC CHIP	1uF		16V
C179	1-124-221-71	ELECT	10uF	20%	6.3V
C180	1-124-472-11	ELECT	470uF	20%	10V
C181	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C182	1-125-548-11	CAP, DOUBLE LAYERS	0.1F		5.5V
C183	1-124-472-11	ELECT	470uF	20%	10V
C184	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C185	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C186	1-126-939-11	ELECT	10000uF	20%	16V
C187	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C188	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C189	1-124-584-00	ELECT	100uF	20%	10V
C190	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C191	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C192	1-126-154-11	ELECT	47uF	20%	6.3V
C193	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C194	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C195	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C196	1-163-059-00	CERAMIC CHIP	0.01uF	10%	50V
C197	1-163-059-00	CERAMIC CHIP	0.01uF	10%	50V
C198	1-163-059-00	CERAMIC CHIP	0.01uF	10%	50V
C199	1-163-059-00	CERAMIC CHIP	0.01uF	10%	50V
C200	1-163-059-00	CERAMIC CHIP	0.01uF	10%	50V
C201	1-163-059-00	CERAMIC CHIP	0.01uF	10%	50V
C202	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C203	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C204	1-163-239-11	CERAMIC CHIP	33PF	5%	50V
C205	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C206	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C207	1-126-154-11	ELECT	47uF	20%	6.3V
C208	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C209	1-124-260-00	ELECT	6.8uF	20%	35V
C210	1-124-584-00	ELECT	100uF	20%	10V
C211	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C212	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C213	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C214	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V
C215	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C216	1-124-221-71	ELECT	10uF	20%	6.3V
C217	1-163-077-00	CERAMIC CHIP	0.1uF	10%	25V

< CONNECTOR >

CN101	1-506-472-11	CONNECTOR	7P, MALE
CN102	1-506-467-11	CONNECTOR	2P, MALE
CN103	1-506-471-11	CONNECTOR	6P, MALE
CN104	1-506-471-11	CONNECTOR	6P, MALE
CN105	1-506-467-11	CONNECTOR	2P, MALE
* CN106	1-563-606-11	CONNECTOR, FLEXIBLE	29P
CN107	1-506-469-11	CONNECTOR	4P, MALE

MAIN 12P RESET

Ref. No.	Part No.	Description	Remark
* CN109	1-568-934-11	PIN, CONNECTOR 7P	
* CN112	1-561-533-00	SOCKET, CONNECTOR 12P	
		< DIODE >	
D101	8-719-800-76	DIODE 1SS226	
D102	8-719-800-76	DIODE 1SS226	
D103	8-719-800-76	DIODE 1SS226	
D104	8-719-400-18	DIODE MA152WK	
D105	8-719-800-76	DIODE 1SS226	
D106	8-719-400-18	DIODE MA152WK	
D107	8-719-400-18	DIODE MA152WK	
D108	8-719-400-18	DIODE MA152WK	
D109	8-719-400-18	DIODE MA152WK	
D110	8-719-938-72	DIODE SB01-05CP	
D111	8-719-200-02	DIODE 10E2	
D112	8-719-400-18	DIODE MA152WK	
D113	8-719-400-18	DIODE MA152WK	
D114	8-719-400-18	DIODE MA152WK	
D115	8-719-400-18	DIODE MA152WK	
D116	8-719-400-18	DIODE MA152WK	
D117	8-719-400-18	DIODE MA152WK	
D118	8-719-940-45	DIODE DWA010	
		< IC >	
IC101	8-759-981-92	IC RC4558M	
IC102	8-759-981-92	IC RC4558M	
IC103	8-759-981-92	IC RC4558M	
IC104	8-759-008-67	IC MC14066BF	
IC105	8-759-008-67	IC MC14066BF	
IC106	8-759-230-04	IC TA7628HP	
IC107	8-759-981-92	IC RC4558M	
IC108	8-759-400-87	IC MN3204	
IC109	8-759-912-78	IC BA1701	
IC110	8-759-143-54	IC uPC1330HA	
IC111	8-759-144-84	IC uPC24M05HF	
IC112	8-759-148-79	IC uPC2406HF	
IC113	8-759-061-50	IC uPD75312GF-136-3B9	
IC114	8-759-209-69	IC TC4S11F	
		< JACK >	
J101	1-566-891-21	JACK (TELEPHONE PICKUP)	
J102	1-568-727-31	JACK, DC (DC IN 9V)	
J103	1-566-891-21	JACK (EARPHONE)	
		< LINE FILTER >	
LF101	1-424-361-11	FILTER, LINE	

Ref. No.	Part No.	Description	Remark
		< IC LINK >	
⚠ PS101	1-532-675-00	LINK, IC (ICP-N38) 1.5A	
		< TRANSISTOR >	
Q3	8-729-216-22	TRANSISTOR 2SA1162-G	
Q4	8-729-216-22	TRANSISTOR 2SA1162-G	
Q5	8-729-216-22	TRANSISTOR 2SA1162-G	
Q6	8-729-216-22	TRANSISTOR 2SA1162-G	
Q101	8-729-112-97	TRANSISTOR FA1L4M-L31	
Q102	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q103	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q104	8-729-112-97	TRANSISTOR FA1L4M-L31	
Q105	8-729-100-66	TRANSISTOR 2SC1623	
Q106	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q107	8-729-800-37	TRANSISTOR 2SD1048-X7	
Q108	8-729-800-37	TRANSISTOR 2SD1048-X7	
Q109	8-729-216-22	TRANSISTOR 2SA1162-G	
Q110	8-729-216-22	TRANSISTOR 2SA1162-G	
Q111	8-729-216-22	TRANSISTOR 2SA1162-G	
Q112	8-729-800-37	TRANSISTOR 2SD1048-X7	
Q113	8-729-112-97	TRANSISTOR FA1L4M-L31	
Q114	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q115	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q116	8-729-112-97	TRANSISTOR FA1L4M-L31	
Q117	8-729-112-97	TRANSISTOR FA1L4M-L31	
Q118	8-729-805-91	TRANSISTOR 2SA1563	
Q119	8-729-112-97	TRANSISTOR FA1L4M-L31	
Q120	8-729-112-97	TRANSISTOR FA1L4M-L31	
Q121	8-729-100-66	TRANSISTOR 2SC1623	
Q122	8-729-100-66	TRANSISTOR 2SC1623	
Q123	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q124	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q125	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q126	8-729-805-91	TRANSISTOR 2SA1563	
Q127	8-729-112-97	TRANSISTOR FA1L4M-L31	
Q128	8-729-230-49	TRANSISTOR 2SC2712-YG	
		< RESISTOR >	
R1	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R2	1-216-121-00	METAL CHIP 1M 5% 1/10W	
R3	1-216-097-00	METAL CHIP 100K 5% 1/10W	
R4	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R5	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R6	1-216-105-00	METAL CHIP 220K 5% 1/10W	
R7	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R8	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R9	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R101	1-216-073-00	METAL CHIP 10K 5% 1/10W	

Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note :
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

MAIN **12P** **RESET**

Ref. No.	Part No.	Description			Remark
R102	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R103	1-216-117-00	METAL CHIP	680K	5%	1/10W
R104	1-216-099-00	METAL CHIP	120K	5%	1/10W
R105	1-216-095-00	METAL CHIP	82K	5%	1/10W
R106	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R107	1-216-099-00	METAL CHIP	120K	5%	1/10W
R108	1-216-025-00	METAL CHIP	100	5%	1/10W
R109	1-216-073-00	METAL CHIP	10K	5%	1/10W
R110	1-216-089-00	METAL CHIP	47K	5%	1/10W
R111	1-216-070-00	METAL CHIP	7.5K	5%	1/10W
R112	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R113	1-216-094-00	METAL GLAZE	75K	5%	1/10W
R114	1-216-097-00	METAL CHIP	100K	5%	1/10W
R115	1-216-081-00	METAL CHIP	22K	5%	1/10W
R116	1-216-109-00	METAL CHIP	330K	5%	1/10W
R117	1-216-025-00	METAL CHIP	100	5%	1/10W
R118	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R119	1-216-081-00	METAL CHIP	22K	5%	1/10W
R120	1-216-097-00	METAL CHIP	100K	5%	1/10W
R121	1-216-096-00	METAL GLAZE	91K	5%	1/10W
R122	1-216-097-00	METAL CHIP	100K	5%	1/10W
R123	1-216-121-00	METAL CHIP	1M	5%	1/10W
R124	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R125	1-216-113-00	METAL CHIP	470K	5%	1/10W
R126	1-216-025-00	METAL CHIP	100	5%	1/10W
R127	1-216-097-00	METAL CHIP	100K	5%	1/10W
R128	1-216-073-00	METAL CHIP	10K	5%	1/10W
R129	1-216-089-00	METAL CHIP	47K	5%	1/10W
R130	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R131	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R132	1-216-049-00	METAL CHIP	1K	5%	1/10W
R133	1-216-097-00	METAL CHIP	100K	5%	1/10W
R134	1-216-029-00	METAL CHIP	150	5%	1/10W
R135	1-216-085-00	METAL CHIP	33K	5%	1/10W
R136	1-216-105-00	METAL CHIP	220K	5%	1/10W
R137	1-216-097-00	METAL CHIP	100K	5%	1/10W
R138	1-216-049-00	METAL CHIP	1K	5%	1/10W
R139	1-216-111-00	METAL CHIP	390K	5%	1/10W
R140	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R141	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R142	1-216-027-00	METAL CHIP	120	5%	1/10W
R143	1-216-097-00	METAL CHIP	100K	5%	1/10W
R144	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R145	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R146	1-216-089-00	METAL CHIP	47K	5%	1/10W
R147	1-216-037-00	METAL CHIP	330	5%	1/10W
R148	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R149	1-216-097-00	METAL CHIP	100K	5%	1/10W
R150	1-216-748-11	METAL CHIP	39K	1%	1/10W

Ref. No.	Part No.	Description			Remark
R151	1-216-748-11	METAL CHIP	39K	1%	1/10W
R152	1-216-748-11	METAL CHIP	39K	1%	1/10W
R153	1-216-085-00	METAL CHIP	33K	5%	1/10W
R154	1-216-099-00	METAL CHIP	120K	5%	1/10W
R155	1-216-097-00	METAL CHIP	100K	5%	1/10W
R156	1-216-097-00	METAL CHIP	100K	5%	1/10W
R157	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R158	1-216-071-00	METAL CHIP	8.2K	5%	1/10W
R159	1-216-097-00	METAL CHIP	100K	5%	1/10W
R160	1-216-097-00	METAL CHIP	100K	5%	1/10W
R161	1-216-073-00	METAL CHIP	10K	5%	1/10W
R162	1-216-081-00	METAL CHIP	22K	5%	1/10W
R163	1-216-097-00	METAL CHIP	100K	5%	1/10W
R164	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R165	1-216-097-00	METAL CHIP	100K	5%	1/10W
R166	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R167	1-216-045-00	METAL CHIP	680	5%	1/10W
R168	1-216-045-00	METAL CHIP	680	5%	1/10W
R169	1-216-041-00	METAL CHIP	470	5%	1/10W
R170	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R171	1-216-081-00	METAL CHIP	22K	5%	1/10W
R172	1-216-073-00	METAL CHIP	10K	5%	1/10W
R173	1-216-073-00	METAL CHIP	10K	5%	1/10W
R174	1-216-049-00	METAL CHIP	1K	5%	1/10W
R175	1-216-049-00	METAL CHIP	1K	5%	1/10W
R176	1-247-705-11	CARBON	270	5%	1/4W
R177	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R178	1-216-075-00	METAL CHIP	12K	5%	1/10W
R179	1-216-097-00	METAL CHIP	100K	5%	1/10W
R180	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R181	1-216-097-00	METAL CHIP	100K	5%	1/10W
R182	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R183	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R184	1-216-050-00	METAL GLAZE	1.1K	5%	1/10W
R185	1-216-073-00	METAL CHIP	10K	5%	1/10W
R186	1-216-109-00	METAL CHIP	330K	5%	1/10W
R187	1-216-089-00	METAL CHIP	47K	5%	1/10W
R188	1-216-037-00	METAL CHIP	330	5%	1/10W
R189	1-216-039-00	METAL CHIP	390	5%	1/10W
R190	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R191	1-216-073-00	METAL CHIP	10K	5%	1/10W
R192	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R193	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R194	1-216-097-00	METAL CHIP	100K	5%	1/10W
R195	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R196	1-216-081-00	METAL CHIP	22K	5%	1/10W
R197	1-216-017-00	METAL CHIP	47	5%	1/10W
R198	1-216-073-00	METAL CHIP	10K	5%	1/10W
R199	1-216-089-00	METAL CHIP	47K	5%	1/10W

MAIN | 12P | RESET | SENSOR (S)

Ref.No.	Part No.	Description			Remark
R200	1-216-105-00	METAL CHIP	220K	5%	1/10W
R201	1-216-089-00	METAL CHIP	47K	5%	1/10W
R202	1-216-041-00	METAL CHIP	470	5%	1/10W
R203	1-216-089-00	METAL CHIP	47K	5%	1/10W
R204	1-216-089-00	METAL CHIP	47K	5%	1/10W
R205	1-216-089-00	METAL CHIP	47K	5%	1/10W
R206	1-216-089-00	METAL CHIP	47K	5%	1/10W
R207	1-216-089-00	METAL CHIP	47K	5%	1/10W
R208	1-216-097-00	METAL CHIP	100K	5%	1/10W
R209	1-216-089-00	METAL CHIP	47K	5%	1/10W
R210	1-216-089-00	METAL CHIP	47K	5%	1/10W
R211	1-216-089-00	METAL CHIP	47K	5%	1/10W
R212	1-216-089-00	METAL CHIP	47K	5%	1/10W
R213	1-216-089-00	METAL CHIP	47K	5%	1/10W
R214	1-216-089-00	METAL CHIP	47K	5%	1/10W
R215	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R216	1-216-089-00	METAL CHIP	47K	5%	1/10W
R217	1-216-049-00	METAL CHIP	1K	5%	1/10W
R218	1-216-049-00	METAL CHIP	1K	5%	1/10W
R219	1-216-049-00	METAL CHIP	1K	5%	1/10W
R220	1-216-049-00	METAL CHIP	1K	5%	1/10W
R221	1-216-049-00	METAL CHIP	1K	5%	1/10W
R222	1-216-049-00	METAL CHIP	1K	5%	1/10W
R223	1-216-152-00	METAL GLAZE	12	5%	1/8W
R224	1-216-081-00	METAL CHIP	22K	5%	1/10W
R225	1-216-089-00	METAL CHIP	47K	5%	1/10W
R228	1-216-083-00	METAL CHIP	27K	5%	1/10W
R229	1-216-073-00	METAL CHIP	10K	5%	1/10W
R230	1-216-073-00	METAL CHIP	10K	5%	1/10W
R231	1-216-073-00	METAL CHIP	10K	5%	1/10W
R232	1-216-023-00	METAL CHIP	82	5%	1/10W
R233	1-216-073-00	METAL CHIP	10K	5%	1/10W
R234	1-216-017-00	METAL CHIP	47	5%	1/10W
R235	1-216-089-00	METAL CHIP	47K	5%	1/10W
R236	1-216-081-00	METAL CHIP	22K	5%	1/10W
R238	1-216-043-00	METAL CHIP	560	5%	1/10W
R239	1-216-084-00	METAL CHIP	30K	5%	1/10W
R241	1-216-109-00	METAL CHIP	330K	5%	1/10W
R242	1-216-049-00	METAL CHIP	1K	5%	1/10W
R243	1-216-049-00	METAL CHIP	1K	5%	1/10W
R244	1-216-049-00	METAL CHIP	1K	5%	1/10W
R245	1-216-025-00	METAL CHIP	100	5%	1/10W
R246	1-216-049-00	METAL CHIP	1K	5%	1/10W
R247	1-216-049-00	METAL CHIP	1K	5%	1/10W
R248	1-216-043-00	METAL CHIP	560	5%	1/10W
R249	1-216-049-00	METAL CHIP	1K	5%	1/10W
R250	1-216-049-00	METAL CHIP	1K	5%	1/10W
R251	1-216-049-00	METAL CHIP	1K	5%	1/10W
R252	1-216-025-00	METAL CHIP	100	5%	1/10W
R253	1-216-097-00	METAL CHIP	100K	5%	1/10W
R254	1-216-049-00	METAL CHIP	1K	5%	1/10W
R255	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R256	1-216-049-00	METAL CHIP	1K	5%	1/10W
R257	1-216-025-00	METAL CHIP	100	5%	1/10W
R258	1-216-025-00	METAL CHIP	100	5%	1/10W
R259	1-216-061-00	METAL CHIP	3.3K	5%	1/10W

< VARIABLE RESISTOR >

RV101	1-230-564-11	RES. VAR. SLIDE 10K (TONE)
RV102	1-230-564-11	RES. VAR. SLIDE 10K (VOLUME)
RV103	1-228-886-00	RES. VAR. SLIDE 5K (VSC PITCH)
RV104	1-237-364-11	RES. VAR. SLIDE 100K (VSC SPEED)
RV105	1-228-995-00	RES. ADJ. METAL 22K
RV106	1-228-994-00	RES. ADJ. METAL 10K
RV107	1-228-993-00	RES. ADJ. METAL 4.7K
RV108	1-230-504-11	RES. ADJ. METAL 220

< SWITCH >

S101	1-572-251-11	SWITCH. SLIDE (STANDBY ON)
S102	1-572-251-11	SWITCH. SLIDE (TAPE SPEED)
S103	1-571-212-11	SWITCH. SLIDE (SPEED CONTROL)
S104	1-572-251-11	SWITCH. SLIDE (AUTO STOP)
S105	1-572-251-11	SWITCH. SLIDE (SPEAKER)
S106	1-554-998-11	SWITCH. DIGITAL (REVERSE TIME)
S107	1-554-303-21	SWITCH. TACTILE (SCAN)
S108	1-554-303-21	SWITCH. TACTILE (TEL REC)
S109	1-554-303-21	SWITCH. TACTILE (●ERASE)
S110	1-554-303-21	SWITCH. TACTILE (RESET)
S111	1-554-303-21	SWITCH. TACTILE (STOP□)
S112	1-554-303-21	SWITCH. TACTILE (LISTEN▷)
S113	1-554-303-21	SWITCH. TACTILE (REW◁◁)
S114	1-554-303-21	SWITCH. TACTILE (FF▷▷)

< TRANSFORMER >

T101	1-433-251-00	TRANSFORMER. BIAS OSCILLATOR
T102	1-406-342-11	TRANSFORMER. OSCILLATOR

< OSCILLATOR >

X101	1-577-273-11	OSCILLATOR. CERAMIC (4.19MHz)

****

* 1-642-259-11 SENSOR (S) BOARD
****

< PHOTO INTERRUPTER >

PH602	8-749-920-85	PHOTO INTERRUPTER PLI-13M

****

SENSOR (T) SERVO

Ref. No.	Part No.	Description			Remark
*	1-642-260-11	SENSOR (T) BOARD			
		**********			
		< PHOTO INTERRUPTER >			
PH601	8-749-920-85	PHOTO INTERRUPTER PLI-13M			
**********					
*	A-3016-198-A	SERVO BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C601	1-124-766-00	ELECT	0.1uF	20%	50V
C602	1-126-154-11	ELECT	47uF	20%	6.3V
C603	1-124-257-71	ELECT	2.2uF	20%	50V
C604	1-124-221-71	ELECT	10uF	20%	6.3V
C605	1-126-160-11	ELECT	1uF	20%	50V
C606	1-124-229-00	ELECT	33uF	20%	10V
C607	1-124-257-71	ELECT	2.2uF	20%	50V
C608	1-126-160-11	ELECT	1uF	20%	50V
C609	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C610	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
		< CONNECTOR >			
CN604	1-506-483-21	CONNECTOR 4P, MALE			
CN605	1-506-469-11	CONNECTOR 4P, MALE			
CN606	1-506-481-11	CONNECTOR 2P, MALE			
CN608	1-506-482-11	CONNECTOR 3P, MALE			
		< DIODE >			
D601	8-719-400-18	DIODE	MA152WK		
D602	8-719-160-43	DIODE	RD9.1F-B2		
D603	8-719-200-02	DIODE	10E2		
D604	8-719-800-76	DIODE	1SS226		
D605	8-719-200-02	DIODE	10E2		
D606	8-719-110-08	DIODE	RD8.2ES-B2		
D607	8-719-400-18	DIODE	MA152WK		
		< IC >			
IC601	8-759-008-67	IC	MC14066BF		
IC602	8-759-925-80	IC	SN74HC14ANS		
IC603	8-759-820-70	IC	LA5524M		
		< JUMPER >			
JW1	1-216-296-00	METAL CHIP	0	5%	1/8W
JW2	1-216-296-00	METAL CHIP	0	5%	1/8W
JW3	1-216-296-00	METAL CHIP	0	5%	1/8W
JW4	1-216-296-00	METAL CHIP	0	5%	1/8W
JW5	1-216-296-00	METAL CHIP	0	5%	1/8W
JW6	1-216-296-00	METAL CHIP	0	5%	1/8W
JW7	1-216-296-00	METAL CHIP	0	5%	1/8W
JW8	1-216-296-00	METAL CHIP	0	5%	1/8W
JW9	1-216-296-00	METAL CHIP	0	5%	1/8W
		< TRANSISTOR >			
Q601	8-729-101-07	TRANSISTOR	2SB798-DL		
Q602	8-729-100-66	TRANSISTOR	2SC1623		
Q603	8-729-805-41	TRANSISTOR	2SC3398		
Q604	8-729-101-07	TRANSISTOR	2SB798-DL		
Q605	8-729-101-07	TRANSISTOR	2SB798-DL		
Q606	8-729-140-75	TRANSISTOR	2SD999-CLCK		
Q607	8-729-140-75	TRANSISTOR	2SD999-CLCK		
Q608	8-729-100-66	TRANSISTOR	2SC1623		
Q609	8-729-805-91	TRANSISTOR	2SA1563		
Q610	8-729-805-91	TRANSISTOR	2SA1563		
Q611	8-729-805-91	TRANSISTOR	2SA1563		
Q612	8-729-100-66	TRANSISTOR	2SC1623		
Q613	8-729-140-75	TRANSISTOR	2SD999-CLCK		
Q614	8-729-805-91	TRANSISTOR	2SA1563		
Q615	8-729-140-75	TRANSISTOR	2SD999-CLCK		
Q616	8-729-805-41	TRANSISTOR	2SC3398		
Q617	8-729-140-75	TRANSISTOR	2SD999-CLCK		
Q618	8-729-805-91	TRANSISTOR	2SA1563		
Q619	8-729-101-07	TRANSISTOR	2SB798-DL		
Q620	8-729-216-22	TRANSISTOR	2SA1162-G		
		< RESISTOR >			
R601	1-216-675-11	METAL CHIP	10K	0.5%	1/10W
R602	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R603	1-216-081-00	METAL CHIP	22K	5%	1/10W
R604	1-216-675-11	METAL CHIP	10K	0.5%	1/10W
R605	1-216-097-00	METAL CHIP	100K	5%	1/10W
R606	1-216-077-00	METAL CHIP	15K	5%	1/10W
R607	1-216-079-00	METAL CHIP	18K	5%	1/10W
R608	1-216-075-00	METAL CHIP	12K	5%	1/10W
R610	1-216-037-00	METAL CHIP	330	5%	1/10W
R611	1-216-037-00	METAL CHIP	330	5%	1/10W
R612	1-216-041-00	METAL CHIP	470	5%	1/10W
R613	1-216-041-00	METAL CHIP	470	5%	1/10W
R614	1-216-049-00	METAL CHIP	1K	5%	1/10W
R615	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R616	1-216-041-00	METAL CHIP	470	5%	1/10W
R617	1-216-056-00	METAL GLAZE	2K	5%	1/10W
R618	1-216-075-00	METAL CHIP	12K	5%	1/10W
R619	1-216-081-00	METAL CHIP	22K	5%	1/10W
R620	1-216-081-00	METAL CHIP	22K	5%	1/10W
⚠ R621	1-215-907-11	METAL OXIDE	22	5%	3W F
R622	1-216-089-00	METAL CHIP	47K	5%	1/10W
R623	1-216-033-00	METAL CHIP	220	5%	1/10W

Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note :
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

SERVO

Ref. No.	Part No.	Description			Remark
R624	1-216-041-00	METAL CHIP	470	5%	1/10W
R625	1-216-097-00	METAL CHIP	100K	5%	1/10W
R626	1-216-097-00	METAL CHIP	100K	5%	1/10W
R627	1-216-041-00	METAL CHIP	470	5%	1/10W
R628	1-216-089-00	METAL CHIP	47K	5%	1/10W
R629	1-216-073-00	METAL CHIP	10K	5%	1/10W
R630	1-216-089-00	METAL CHIP	47K	5%	1/10W
R631	1-216-089-00	METAL CHIP	47K	5%	1/10W
R632	1-216-073-00	METAL CHIP	10K	5%	1/10W
R633	1-216-089-00	METAL CHIP	47K	5%	1/10W
R634	1-216-027-00	METAL CHIP	120	5%	1/10W
R635	1-216-081-00	METAL CHIP	22K	5%	1/10W
R636	1-216-089-00	METAL CHIP	47K	5%	1/10W
R637	1-216-037-00	METAL CHIP	330	5%	1/10W
R638	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R639	1-216-085-00	METAL CHIP	33K	5%	1/10W
		< VARIABLE RESISTOR >			
RV601	1-237-606-11	RES. ADJ. METAL GRAZE 22K			
RV602	1-237-605-11	RES. ADJ. METAL GRAZE 10K			
RV603	1-237-606-11	RES. ADJ. METAL GRAZE 22K			
RV604	1-237-606-11	RES. ADJ. METAL GRAZE 22K			
		< SWITCH >			
S601	1-571-800-11	SWITCH. KEY BOARD (EJECT)			
		< THERMISTOR >			
THP601	1-806-367-11	THERMISTOR (POSITIVE) 2.4K			
THP602	1-806-367-11	THERMISTOR (POSITIVE) 2.4K			

****

MISCELLANEOUS
****

HE901	1-543-899-11	HEAD. MAGNETIC (ERASE)
HRP901	1-543-725-11	HEAD. MAGNETIC (RECORD/PLAYBACK)
M901	1-541-332-11	MOTOR (NBL-32R) (FWD)
M902	1-541-685-11	MOTOR (FF/REW)
PM901	1-454-576-11	SOLENOID. PLUNGER (FWD)
PM902	1-454-577-11	SOLENOID. PLUNGER (BRAKE)
S901	1-570-504-11	SWITCH. MICRO (CASSETTE DET)
S902	1-554-385-00	SWITCH. MICRO (TAB DET)
SP901	1-503-616-11	SPEAKER

****

Ref. No.	Part No.	Description	Remark
		ACCESSORIES & PACKING MATERIALS	
		********************************	
⚠.	1-465-393-11	ADAPTOR. AC (AC-980) (US. Canadian)	
⚠.	1-465-428-11	ADAPTOR. AC (AC-980) (UK)	
⚠.	1-465-429-11	ADAPTOR. AC (AC-980) (AEP. E)	
*	3-359-174-01	CUSHION (L)	
*	3-359-175-01	CUSHION (R)	
	3-754-652-11	MANUAL. INSTRUCTION (ENGLISH. FRENCH. GERMAN. SPANISH) (Canadian. AEP. UK. E)	
	3-754-652-21	MANUAL. INSTRUCTION (ENGLISH) (US)	

****

HARDWARE LIST

#1	7-682-547-04	SCREW +BVTT 3X6 (S)
#2	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S
#3	7-685-648-79	SCREW +BVTP 3X12 TYPE2 N-S
#4	7-682-548-04	SCREW +B 3X8
#5	7-621-770-XX	SCREW +P 2.6X8
#6	7-682-646-09	SCREW +PS 3X5
#7	7-621-772-20	SCREW +B 2X5
#8	7-621-773-86	SCREW +B 2.6X4
#9	7-621-770-87	SCREW +BVTT 2.6X5 (S)
#10	7-627-553-98	SCREW. PRECISION +P 2X8
#11	7-628-253-90	SCREW +PS 2.6X4
#12	7-621-772-58	SCREW +B 2X10
#13	7-627-552-57	SCREW. PRECISION +P 1.7X5
#14	7-627-552-97	SCREW. PRECISION +P 1.7X6
#15	7-671-111-11	STEEL. BALL 1.5MM
#16	7-627-552-28	SCREW. PRECISION +P 1.7X2
#17	7-627-552-18	SCREW. PRECISION +P 1.7X1.6
#18	7-628-253-00	SCREW +PS 2X4
#19	7-621-255-45	SCREW +BVTT 2X6 (S)
#20	7-624-102-04	STOP RING 1.5

Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note :
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

9-956-778-11

Sony Corporation
General Audio Group

English
92A0433-1
Printed in Japan

Published by Customer Relations and Service Group

BM-880

SONY
SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model
E Model

SUPPLEMENT-1

File this supplement with the service manual.

Except for Canadian model :
Serial No. 16,635 and later
Canadian model :
Serial No. A16,635 and later

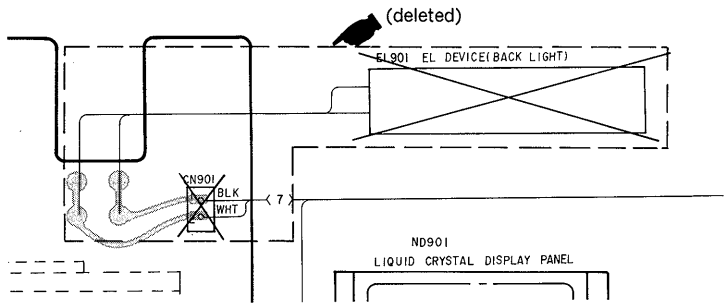
Subject : Change of LCD

Liquid crystal display has been changed.
The back light (ND901) and back light drive circuit deleted.

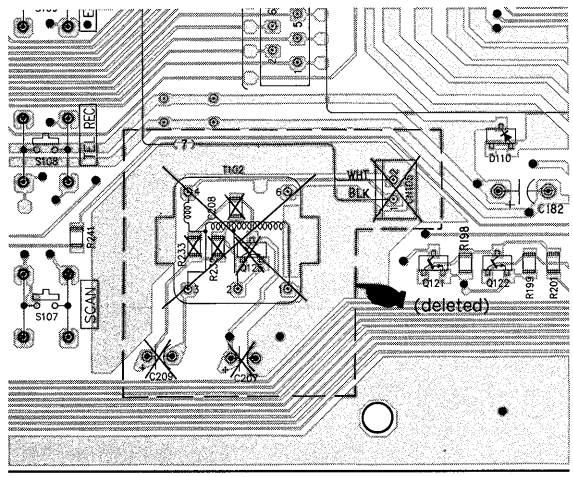
☛ : **changed portion.**

PRINTED WIRING BOARDS

Page 31 **(Location : A-4)**

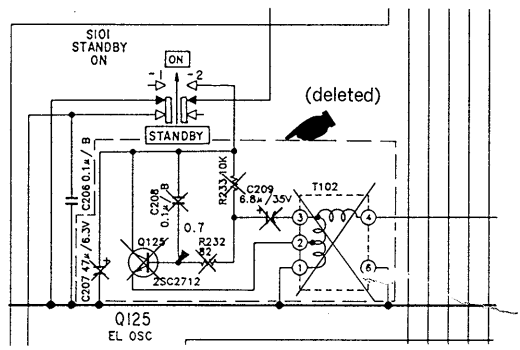


Page 32 **(Location : I-11)**

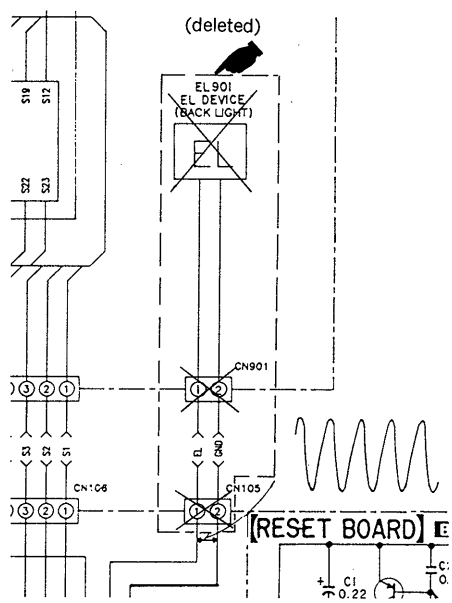


SCHEMATIC DIAGRAM

Page 37 **(Location : F-15)**

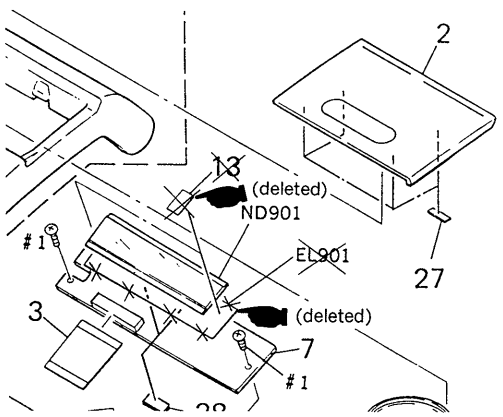


Page 37 **(Location : C-19)**



EXPLODED VIEWS

Page 39



Ref. No.	Part No.	Description	
~~13~~	~~9-911-838-XX~~	~~CUSHION, MAGNET~~	(deleted)
~~EL901~~	~~1-808-962-11~~	~~DEVICE, EL~~	(deleted)
ND901	1-808-961-21	DISPLAY PANEL, LIQUID CRYSTAL	(changed)

ELECTRICAL PARTS LIST

Page	Ref. No.	Former		New		Remark
		Part No.	Description	Part No.	Description	
42	~~CN901~~	1-506-481-11	PIN, CONNECTOR 2P	———	———	deleted
	EL901	1-808-962-11	DEVICE, EL	———	———	deleted
	ND901	1-808-961-11	DISPLAY PANEL, LIQUID CRYSTAL	1-808-961-21	DISPLAY PANEL, LIQUID CRYSTAL	changed
43	C207	1-126-154-11	ELECT 47uF 20% 6.3V	———	———	deleted
	C208	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	———	———	deleted
	C209	1-124-260-00	ELECT 6.8uF 20% 35V	———	———	deleted
	CN105	1-506-467-11	PIN, CONNECTOR 2P	———	———	deleted
44	Q125	8-729-230-49	TRANSISTOR 2SC2712-YG	———	———	deleted
46	R232	1-216-023-00	METAL GLAZE 82 5% 1/10W	———	———	deleted
	R233	1-216-073-00	METAL GLAZE 10K 5% 1/10W	———	———	deleted
	T102	1-406-342-11	TRANSFORMER, OSCILLATOR	———	———	deleted

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