MDS-302

SONY

SERVICE MANUAL

US Model
Canadian Model
AEP Model
UK Model

SUPPLEMENT-2

File this supplement with the service manual.

Subject : 1. CORRECTION
2. PARTS CHANGE
3. CHANGE OF THE ADJUSTMENT SPECIFICATION
4. SERVICE NOTE
5. BOARD CHANGE
6. ADDITION OF MDS-302//2 MODEL (US, Canadian model only)

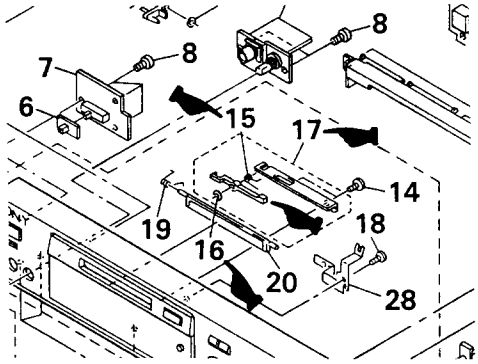
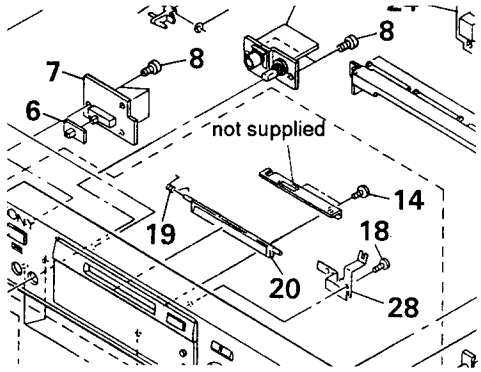
(ECN-CD501076/CD501059)

1. CORRECTION

- Correct your service manual as shown below.

EXPLODED VIEW

☛ : Indicates corrected portion

Page	INCORRECT				CORRECT			
	Ref. No	Part No	Description	Remark	Ref. No	Part No	Description	Remark
57	* 13	1-654-134-11	HP BOARD		* 13	1-654-136-11	HP BOARD	
	15	4-970-768-01	SPRING, TORSION				DELETE	
	16	3-315-384-31	WASHER, STOPPER				DELETE	
	17	X-4945-420-1	BRACKET (LOCK LEVER) ASSY				DELETE	
								
	* 21	1-654-136-11	REC BOARD		* 21	1-654-134-11	REC BOARD	

- Correct your supplement-1 as shown below.

TEST MODE

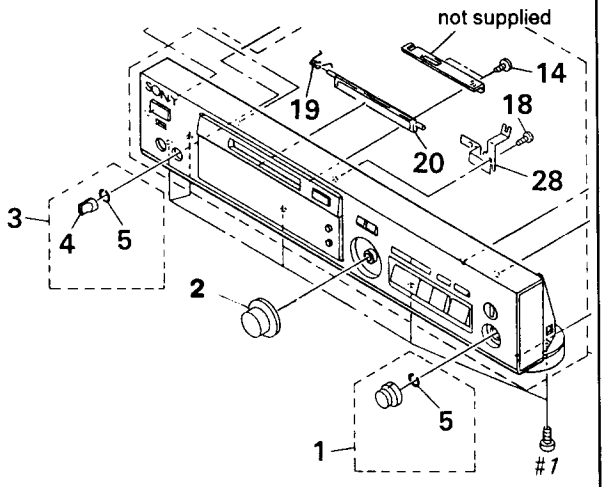
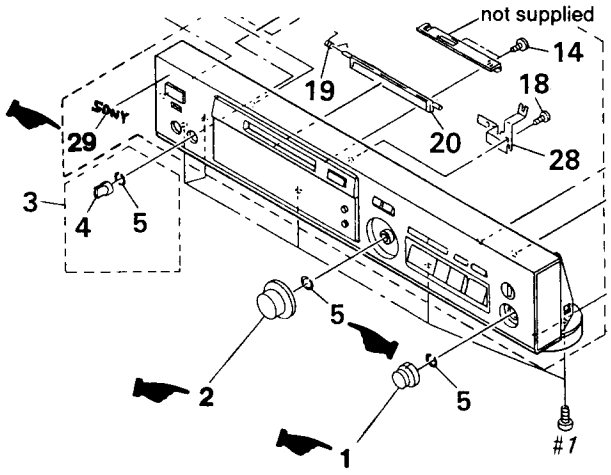
1-5. Functions of Other keys

Page	INCORRECT		CORRECT	
3	▷/□□	Sets continuous playback when pressed in the STOP state. When pressed during continuous playback, the tracking servo turns ON/OFF.	▷	Sets continuous playback when pressed in the STOP state. When pressed during continuous playback, the tracking servo turns ON/OFF.

2. PARTS CHANGE

- Revise your service manual as shown below due to parts supply classification has been changed.

☛: Changed portion

<table>
<tr><th>Page</th><th>CURRENT</th><th>REVISED</th></tr>
<tr><td>57
(2)</td><td>Ref.No Part No Description Remark
1 X-4945-244-1 KNOB (REC) ASSY
2 X-4945-243-1 KNOB (AMS) ASSY
25 1-769-120-11 WIRE (FLAT TYPE)(22 CORE)
not supplied
 
</td><td>Ref.No Part No Description Remark
1 4-969-230-02 KNOB (REC)
2 4-969-229-01 KNOB (AMS)
25 1-776-015-11 WIRE (FLAT TYPE)(22 CORE)
29 4-942-568-01 EMBLEM (NO.5), SONY
 
</td></tr>
<tr><td>58</td><td>62 2-383-566-00 SCREW</td><td>62 4-886-821-11 SCREW, S TIGHT, +PTTWH 3X6</td></tr>
</table>

3. CHANGE OF THE ADJUSTMENT SPECIFICATION

The specification of the previous issed **"Supplement-1 ELECTRICAL ADJUSTMENT"** has been changed as below.

2-5. Temperature Compensation Offset Adjustment

Page	CURRENT	REVISED
6	**Specifications :** The Temperature should be within "TEMP = E0" and "TEMP = 1F".	**Specifications :** The "TEMP = ▯▯" should be within "E0 - EF", "F0 - FF", "00 - 0F", "10 - 1F" and "20 - 2F".

4. SERVICE NOTE

[Note for replacement of IC121 and IC171 on the BD board]

IC121 on the BD board of this unit has modified from CXD2535AR to CXD2535BR due to an improvement.
Some contents of nonvolatile memory in the IC171 are modified according to this modification. When replacing IC171, the previous contents for IC121 (CXD2535AR) are written as an initialized value from the system control IC. (When replacing IC171, turn the power on once to write an initialized value.)
In case the IC171 on the BD board is replaced, which uses CXD2535BR to IC121, see the following procedure to rewrite the contents of nonvolatile memory. As for replacement of IC121, use CXD2535BR to rewrite the contents of IC171.

Table Comparison between CXD2535AR and CXD2535BR regarding the contents of nonvolatile memory

ADDRESS	CXD2535AR	CXD2535BR
15	90	93
2D	33	1A
2E	33	1A

- **How to rewrite the nonvolatile memory**

① Plug in the power plug to an outlet pressing the AMS knob, and release the AMS knob.
② Turn the AMS knob to be displayed "EEP MODE".
If the YES button is pressed, the display will be changed to "EEP ** @@".
(** : Address, @@ : data)
③ Turn the AMS knob to be displayed "EEP 15 @@".
④ If the AMS knob is pressed, "EEP 15 @@ > @@" will be displayed. So turn the AMS knob to be displayed "EEP 15 @@ > 93".
⑤ Pressing the YES button, "Complete!" is displayed once, "EEP 15 93" is displayed, and the data is rewritten.
⑥ As for the address 2D and 2E, rewrite each of them to "1A" following the steps ③ to ⑤ as well.
⑦ After the all modification are complete, press the NO button to be displayed "EEP MODE".
⑧ Press the REPEAT button. In case a disc is unloaded, the display "STANDBY" will be go on and off, then unplug the power plug. In case a disc is loaded, "STANDBY" is displayed once and the disc is ejected. After that, unplug the power plug from an outlet to be out from the EEP rewriting mode. (Refer to **[How to stop test mode]** as below.)
Note : The modification in the contents of nonvolatile memory is not reflected if the power is not turned off once.

[How to stop test mode]

In the previous mentioned text regarding test mode, "Exiting the test mode" is that should be unplug the power plug from an outlet. If the test mode is released in this way, an incorrect operation will rarely occur to the set. So release the test mode according to the followings.

- **Method 1**

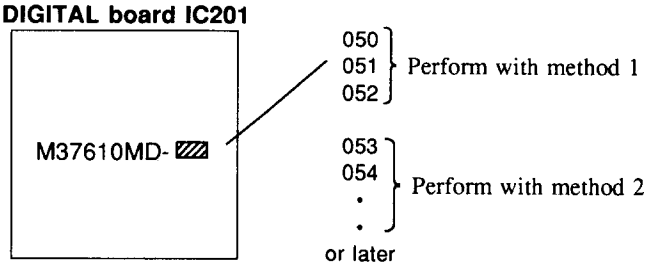
(1) Unplug the power plug from an outlet.
(2) Short-circuit C532 (condenser for back-up) on the POWER board with a pincette etc., and discharge it.

- **Method 2**

(1) Press the REPEAT button.
(2) In case a disc is unloaded, the display "STANDBY" will go on and off.
In case a disc is loaded, the "STANDBY" is displayed once and the disc is ejected.
(3) Unplug the power plug from an outlet.

- To stop test mode will be different according to a model name of IC201 on the DIGITAL board. Refer to the following "How to discriminate".

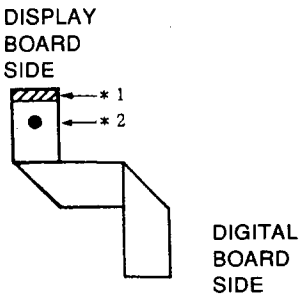
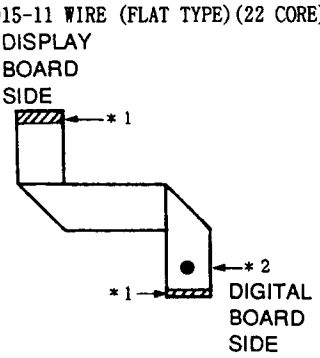
How to discriminate



[About the interchangeability of connectors and boards]

The parts in the table 1 has changed according to a change of the DISPLAY board (from the suffix of the board -13 to -14).
According to this change, no interchangeability is found as shown in the table 2 and the table 3.
Pay your attention to the parts replacement.

Table 1: Changed parts

Board name	DISPLAY BOARD	
	FORMER (the suffix of board before - 13)	NEW (the suffix of board after - 14)
	Ref.No Part No Description Remark	Ref.No Part No Description Remark
DISPLAY	CN701 1-770-204-11 CONNECTOR 22P	CN701 1-774-288-11 CONNECTOR 22P
DIGITAL	CN201 1-766-899-11 CONNECTOR 22P (with lock)	CN201 1-774-287-11 CONNECTOR 22P (without lock)
MISCELLANEOUS (DISPLAY-DIGITAL)	1-769-120-11 WIRE (FLAT TYPE) (22 CORE) 	1-776-015-11 WIRE (FLAT TYPE) (22 CORE) 

* 1: ▨ shows the face of terminals.
* 2: ● shows the blue seal.

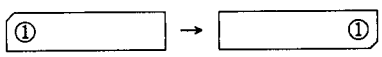
Table 2: Interchangeability between DISPLAY board and flat type wire

	DISPLAY BOARD	
	FORMER (the suffix of board before - 13)	NEW (the suffix of board after - 14)
FORMER (WIRE (FLAT TYPE))	○	×
NEW (WIRE (FLAT TYPE))	×	○

Table 3: Interchangeability between CN201 of DIGITAL board and flat type wire

	DIGITAL BOARD CN201	
	FORMER (with lock)	NEW (without lock)
FORMER (WIRE (FLAT TYPE))	○	× (* 3, * 4)
NEW (WIRE (FLAT TYPE))	× (* 3)	○

* 3: The flat type wire can be used without replacement by turning the connector's face of contact up side down.
(Turn the parts round in a 180 degree arc and re-install them.).



* 4: It is available to use without re-installing of the connector shown in * 3 by replacing the flat type wire to new one.

Reference

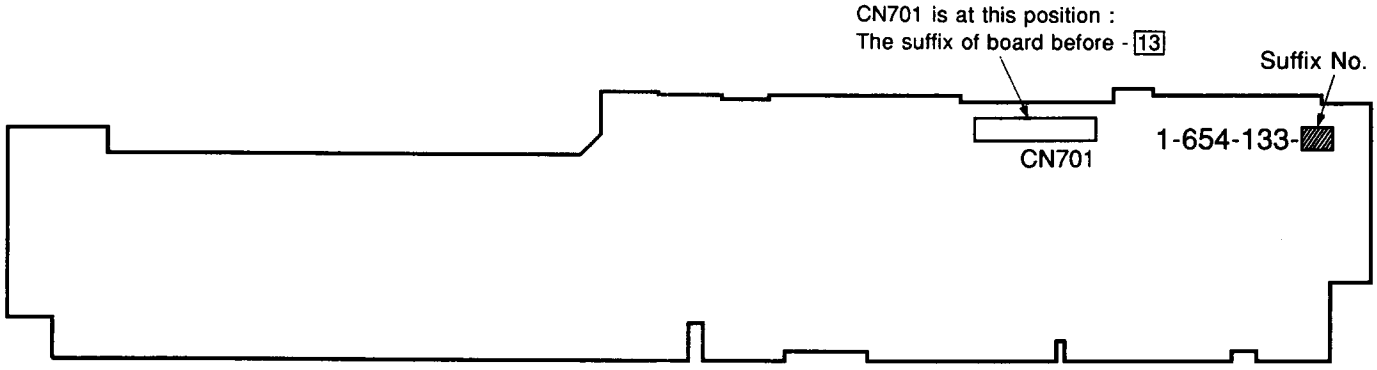
1. When the board which is the suffix of board after - 14 is used for the set which is the suffix of DISPLAY board before - 13 as a repair part :

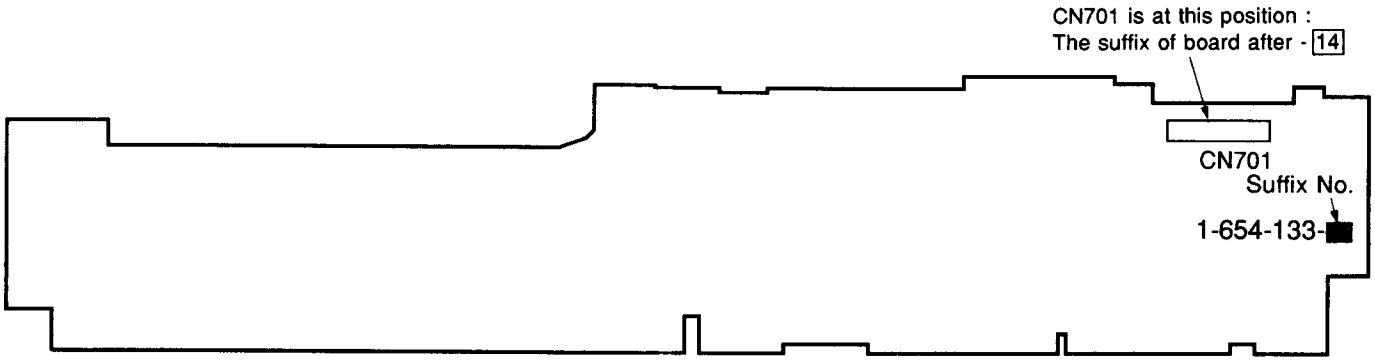
- Replace the flat type wire to new one.
- Install the CN201 on the DIGITAL board turning round in a 180 degree arc.

2. When the DIGITAL board is replaced :

- When the direction of CN201 on the DIGITAL board and the flat type wire's face of contact are up side down, turn the CN201 round in a 180 degree arc.

How to identify the suffix of board



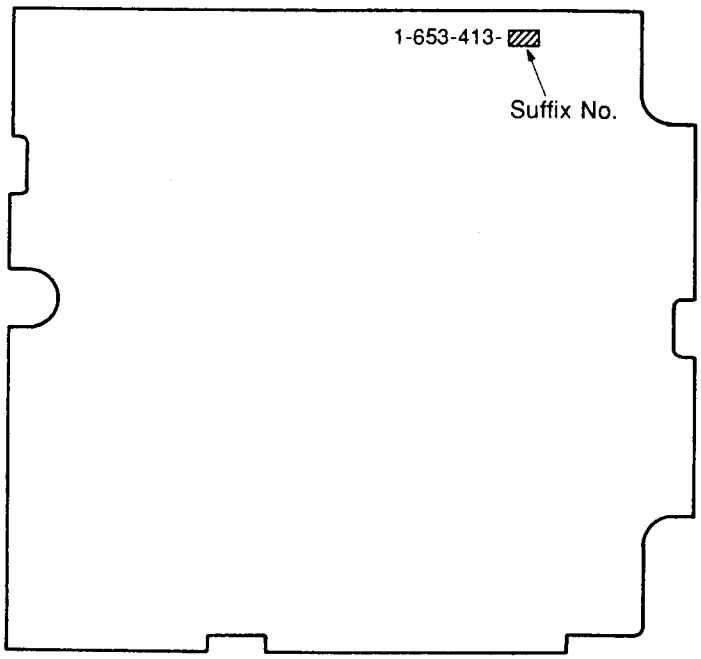


5. BOARD CHANGE

• BD Board change

NOTE: Many charge of mounting parts are different between boards which have a suffix No. - 15 or later and which have a suffix No. - 14 or before. Refer to this supplement-2 for boards which have a suffix No. - 15 or later. As for boards which have a suffix No. - 14 or before, refer to the previous issued manual (9-959-907-11) and supplement-1 (9-959-907-82).

• Part No. Location — BD board — (Component side)



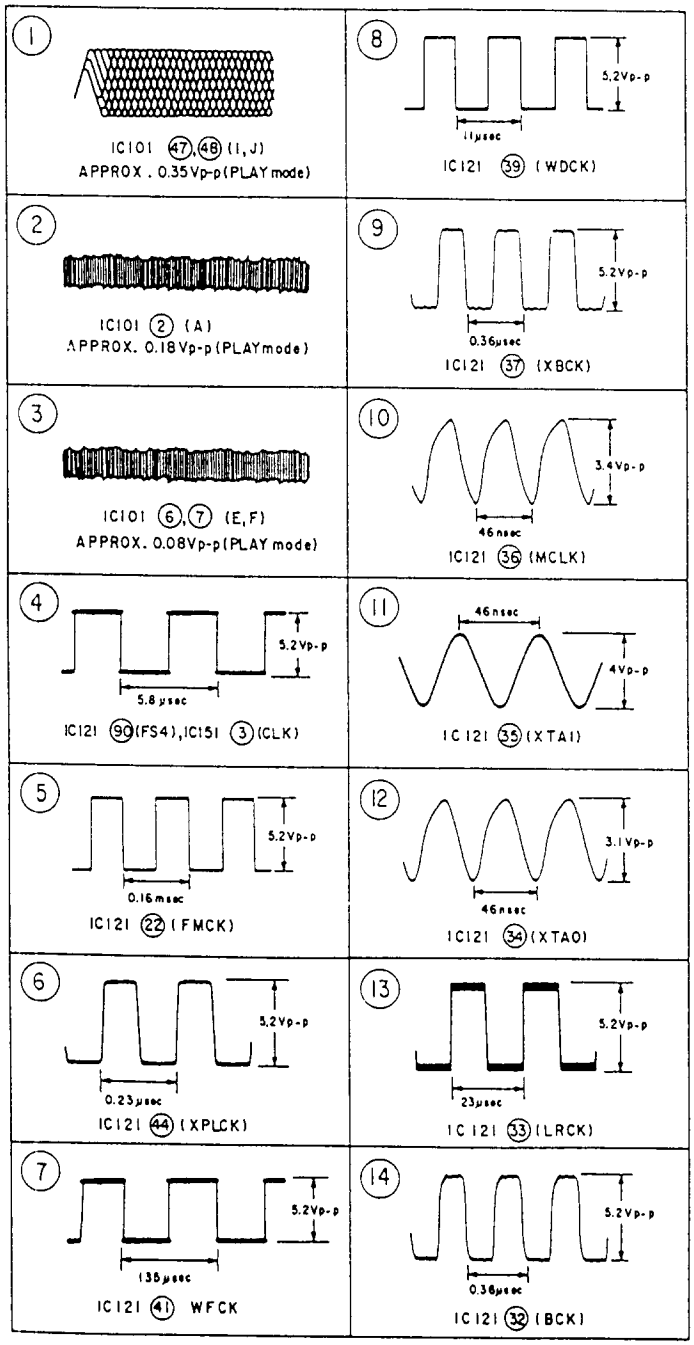
NOTE

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- % : indicates tolerance.
- Δ : internal component.

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

- B+ : B+ Line.
- ▭ : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark: STOP
  ( ) : PLAY
  < > : REC
  * : can not be measured.
- 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.
- Circled numbers refer to waveforms.
- Signal path.
  - : PB
  - : PB (Digital out)
  - : REC
  - : REC (Digital in)

• Waveforms

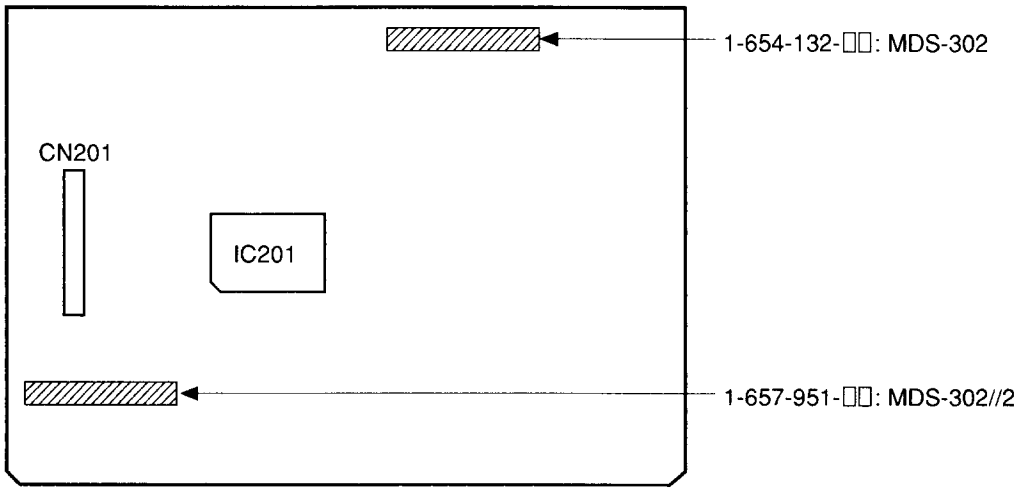


6. ADDITION OF MDS-302//2 MODEL (US, Canadian model only)

- The model of MDS-302//2 is added for US and Canadian models. The exterior of MDS-302//2 is the same as that of MDS-302, but it has own circuit boards so that there is no interchangeability these two models.

[How to identify between MDS-302 and MDS-302//2]

— DIGITAL Board —



Addition to the MDS-302//2 (US, Canadian model) Difference table

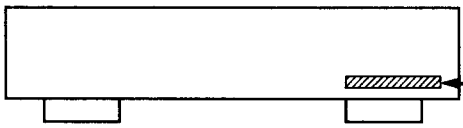
Page	MDS-302 (US, Canadian)				MDS-302//2 (US, Canadian)			
	Ref. No	Part No	Description	Remark	Ref. No	Part No	Description	Remark
57	* 24	A-4673-242-A	DISPLAY BOARD, COMPLETE		* 24	A-4673-764-A	DISPLAY BOARD, COMPLETE	
58	52	1-769-119-11	WIRE (FLAT TYPE) (18 CORE)		52	1-776-417-11	WIRE (FLAT TYPE) (18 CORE)	
	53	1-769-118-11	WIRE (FLAT TYPE) (30 CORE)		53	1-776-416-11	WIRE (FLAT TYPE) (30 CORE)	
	* 55	A-4673-238-A	POWER BOARD, COMPLETE		* 55	A-4673-633-A	POWER BOARD, COMPLETE	
	* 59	A-4673-554-A	DIGITAL BOARD, COMPLETE		* 59	A-4673-861-A	DIGITAL BOARD, COMPLETE	

In addition, there are two kinds of set JAPAN PRODUCT and MALAYSIA PRODUCT for US model of MDS-302//2.

[How to identify between JAPAN PRODUCT and MALAYSIA PRODUCT]

MODEL IDENTIFICATION

— BACK PANEL —



	Part No
JAPAN PRODUCT	4-969-228-0 □
MALAYSIA PRODUCT	4-969-228-7 □

Difference between productions made in Japan and Malaysia

MDS-302//2 (US) (Made in Japan)				MDS-302//2 (US) (Made in Malaysia)			
Ref. No	Part No	Description	Remark	Ref. No	Part No	Description	Remark
22	3-917-216-11	KNOB (TIMER)		22	3-917-216-21	KNOB (TIMER)	
⚠TR641	1-427-897-11	TRANSFORMER, POWER		⚠TR641	1-429-420-11	TRANSFORMER, POWER	
52	1-776-417-11	WIRE (FLAT TYPE) (18 CORE)		52	1-776-014-11	WIRE (FLAT TYPE) (18 CORE)	
53	1-776-416-11	WIRE (FLAT TYPE) (30 CORE)		53	1-776-013-11	WIRE (FLAT TYPE) (30 CORE)	
* 55	A-4673-764-A	DISPLAY BOARD, COMPLETE		* 55	A-4673-242-A	DISPLAY BOARD, COMPLETE	
⚠56	1-558-945-21	CORD, POWER (POLAR. SPT-1)		⚠56	1-575-042-21	CORD, POWER	
* 57	3-703-571-11	BUSHING (S) (4516), CORD		* 57	3-703-244-00	BUSHING (2104), CORD	
* 59	A-4673-861-A	DIGITAL BOARD, COMPLETE		* 59	A-4673-859-A	DIGITAL BOARD, COMPLETE	
* 60	4-969-228-01	PANEL, BACK		* 60	4-969-228-71	PANEL, BACK	

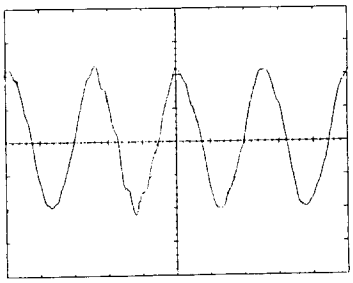
NOTE: As for the electrical parts, refer from page 46.

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

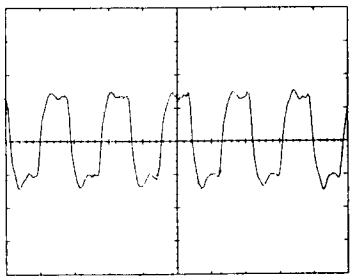
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une piéce portant le numéro spécifié.

• **Waveforms**

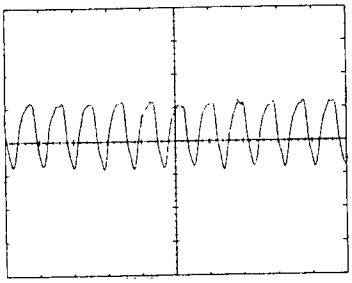
⑯ IC201 22pin 4.5Vp-p 8.13MHz



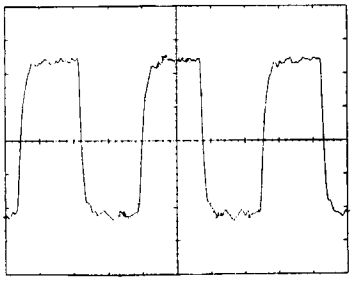
⑰ IC341 6pin 6.1Vp-p 11.3MHz



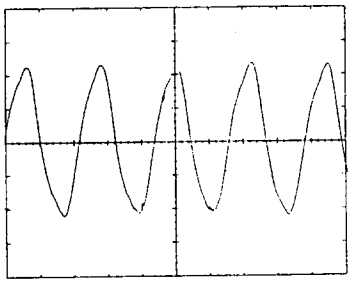
⑱ IC341 22pin 4.2Vp-p 22.3MHz



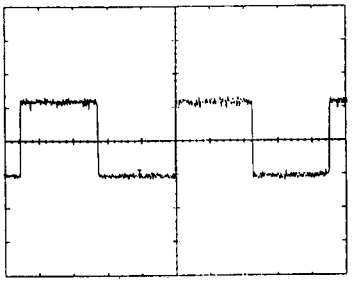
⑲ IC341 10pin 4.9Vp-p 2.82MHz



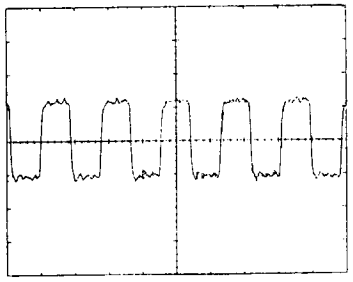
⑳ IC271 87pin 4.6Vp-p 22.3MHz



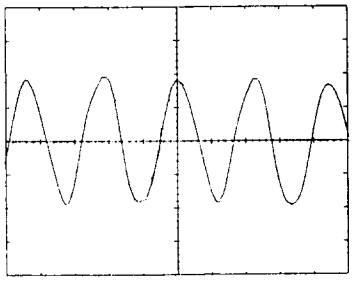
㉑ IC271 90pin 5.2Vp-p 44.1KHz



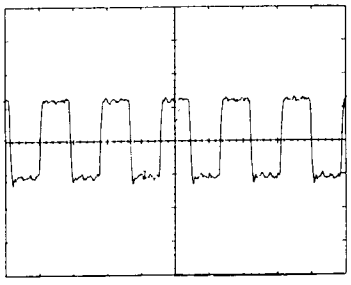
㉒ IC271 91pin 5.1Vp-p 2.82MHz



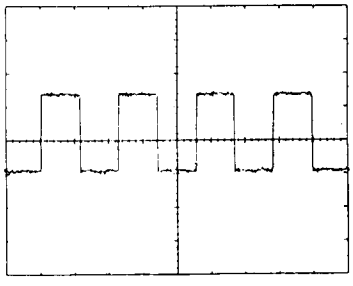
㉓ IC271 36pin 2Vp-p 45MHz



㉔ IC271 43pin 5.4Vp-p 2.82MHz



㉕ IC271 44pin 5Vp-p 43.9KHz



• Semiconductor Location

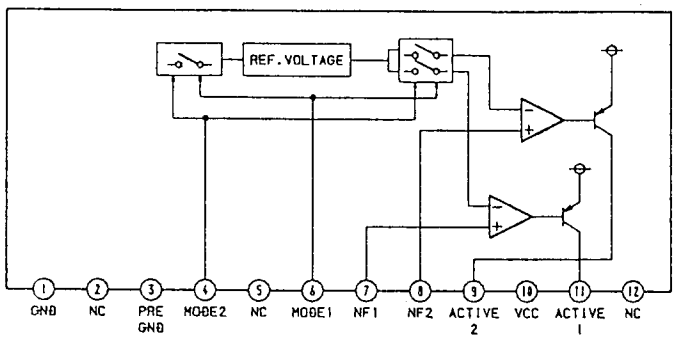
Ref. No.	Location
D501	F-6
D502	F-6
D503	F-6
D504	G-6
D505	F-5
D506	E-6
D507	F-7
D508	F-8
D521	F-7
D523	G-8
D532	E-8
D533	E-8
D536	E-8
D537	E-8
D581	E-9
D582	E-9
D701	E-15
IC501	E-7
IC511	E-7
IC521	G-8
IC531	E-8
IC541	G-7
IC571	F-10
IC591	F-9
IC621	I-8
IC622	I-8
IC623	I-8
IC671	H-10
IC701	C-11
IC702	C-14
Q581	F-9
Q583	F-9
Q584	F-9
Q701	E-13

Note:

- o—— : parts extracted from the component side.
- ▒▒▒ : Pattern on the side which seen.

• IC Block Diagrams

IC541 BA3960



IC701 M66004M8FP