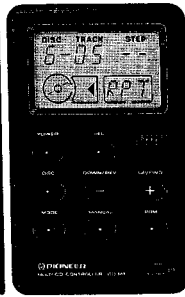


Service Manual

 **PIONEER®**
The future of sound and vision.



**ORDER NO.
CRT 1186**

MULTI-PLAY CD CONTROLLER

CD-M1

UC, EW

Note :

CD-M1 will not operate by itself.

To check its operation, connect to a multi-play CD player (CDX-M100) and a cassette deck equipped with an external input.

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SPECIFICATIONS

Power source	14.4 V DC (10.8-15.6 V allowable)
Grounding system	Negative type
Dimensions (hideaway unit)	111 (W) × 30 (H) × 80 (D) mm [4-3/8 (W) × 1-1/8 (H) × 3-1/8 (D) in.]
(controller)	66 (W) × 106 (H) × 16 (D) mm [2-5/8 (W) × 4-1/8 (H) × 5/8 (D) in.]
Weight (hideaway unit, Controller)	0.5 kg (1.1 lbs.)
Output voltage	250 mV(1kHz, 0dB)
Output impedance	2 kΩ

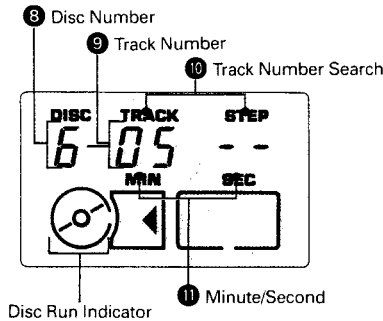
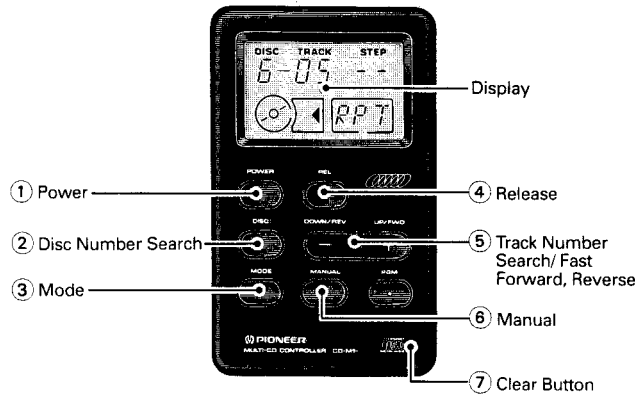
These specifications were determined and are presented in accordance with specification standards established by the Ad Hoc Committee of Car Stereo Manufacturers.

Note:

Specifications and the design are subject to possible modification without notice due to improvements.

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
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1. PLAYING COMPACT DISCS



Using the Clear button

Once all wiring is complete, press button ⑦ with a thin, pointed object. Though not a normal occurrence, the microprocessor which controls the operation of this unit can be affected by electrostatic noise. This generally is indicated by such symptoms as no power being supplied when you switch the unit on, failure of the buttons and controls, or an abnormal display. Should this happen, press button ⑦ with a thin, pointed object to reset the microprocessor.

- Turn the cassette deck power switch or the tuner power switch to the OFF position.

1 Press button ① to switch power ON and begin disc play.

2 Use the Disc Number Search function to select a disc.

Press button ② to select the desired disc number.

The disc number is displayed at ⑧.

- If a magazine tray contains no disc, the disc number is not displayed.

3 Use Track Number Search to select a track.

Confirm that "TRACK STEP" is shown at position ⑩ on the display. If not, press button ⑥. Press the (+) side of button ⑤ to increase the number at position ⑨, or the (-) side to decrease the number. Holding either side of button ⑤ down changes the track number at high speed.

4 Set the volume, balance, bass and treble to the desired level using the cassette deck controls.

5 To stop disc play, press button ①.

You can restart disc play from the beginning of the track at which play was stopped by pressing button ①. (UC)

Note:

- After you press button ②, it may take some time before play begins due to the time necessary to load and set the disc in the mechanism.
- The display counts down the number of seconds between tracks if the spacing is rather large (-'02, -'01).

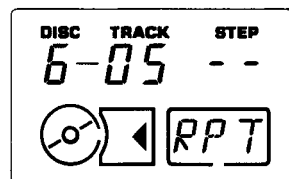
Using Music Repeat and Random Play

The display changes as follows with each press of button ③: RPT indicator→RDM indicator→OFF

Music Repeat

This function lets you listen to a track as many times as you wish.

1. While the track you want to repeat is playing, press button ③ so that "RPT" is shown on the display. Now the track will repeat until the Music Repeat function is cancelled.



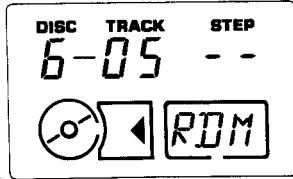
2. To cancel Music Repeat, press button ④.

- When Music Repeat is no operational, the compact discs contained in the magazine will play sequentially from beginning to end, and then start from disc 1 again.

Random Play

This function uses a built-in microprocessor to randomly select tracks from the current disc for playback.

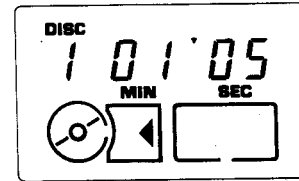
1. While a disc is playing, press button ③ so that "RDM" is shown on the display. Once play of the current track is complete, the microprocessor will randomly select the next track.



2. To cancel Random Play, press button ④.
 - Random Play will only select tracks on the disc that is currently playing.
 - Since tracks are selected at random, it is possible that the same track may be played twice in succession.

Using Fast Forward and Reverse

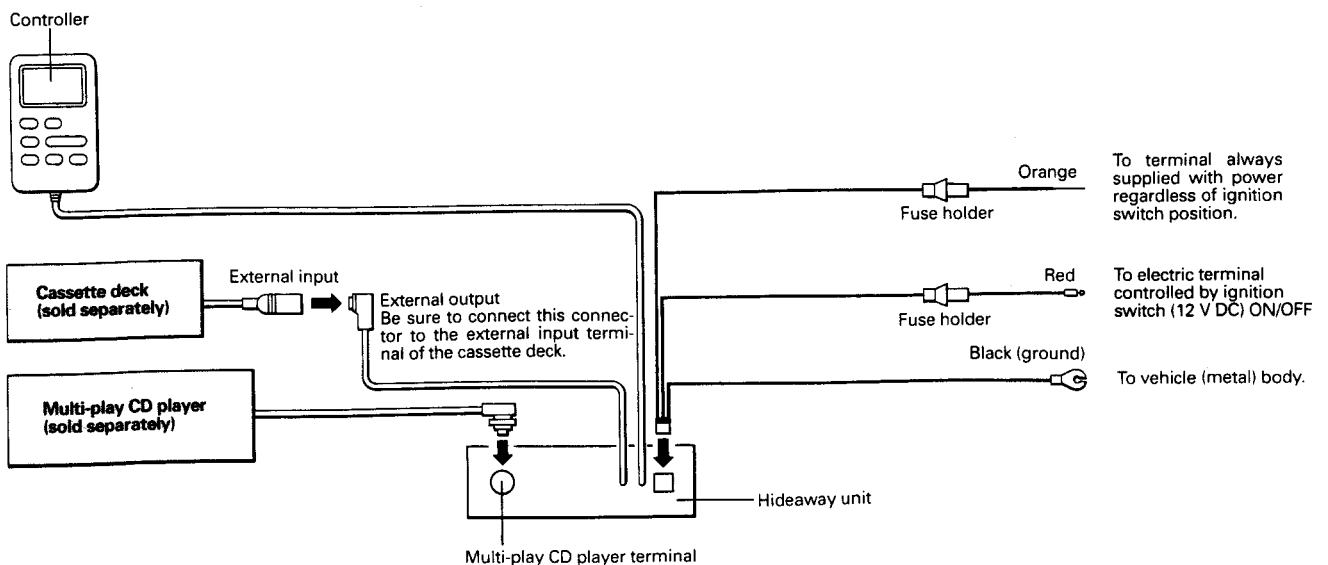
1. While a disc is playing, press button ⑥ so that "MIN SEC" is shown at position ① on the display. At this time the display will show the amount of elapsed disc play time.



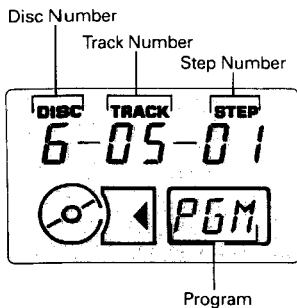
2. Press the (+) side of button ⑤ for fast forward, and the (-) side for reverse.
 - Sound is output during fast forward and reverse operations.

2. CONNECTION

- Before making final connections, make temporary connections then operate the unit to check for any connecting cord problems.
- Refer to the owner's manual for details on connecting the various cords of the cassette deck and other units then make connections correctly.
- Be sure to connect the memory power supply lead (orange) to a terminal that is always supplied with power regardless of the vehicle's ignition switch position. If this connection is made incorrectly or is forgotten, the unit will not work at all.
- Don't pass that orange lead through a hole into the engine compartment to connect to the battery. This will damage the lead insulation and cause a very dangerous short.
- Immediately after the multi-play CD player is connected to the system, it may not operate properly (i.e. the system will not enter the multi-play CD player mode when you press the power button). In this case, press the clear button of the main unit and the clear button of the multi-play CD player, and attempt operation again.



3. USING PROGRAM PLAY



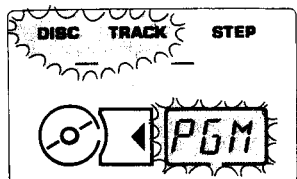
This function lets you program the play sequence of all of the tracks contained on the compact discs loaded in the magazine.

- Up to 32 selections can be programmed for a single magazine.
- Up to 16 different magazines (max. 32 selections per magazine) can be programmed individually. If you program more than 16 magazines, old programs are automatically replaced by new ones.
- Automatic Magazine Program Selection (AMPS) retrieves the right program from the memory automatically, as soon as a preprogrammed magazine is loaded. Preprogrammed magazines are identified using the CD in the tray 1 of the magazine. Therefore be sure that tray 1 contains a disc.
- The procedures for programming and changes must be performed within ten seconds after you press a button (while "DISC—TRACK" and "PGM" are flashing on the display). If you take longer than 10 seconds, you must start the procedure from the beginning again.

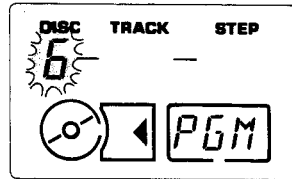
Programming and Playback

Example: Program the first step for play to track 5 on disc 6.

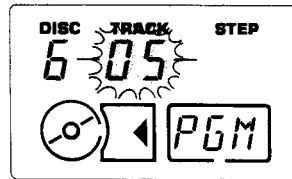
1. While a disc is playing, press button ④.



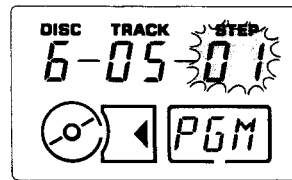
2. Press button ① repeatedly until the disc number becomes "6".



3. Use button ③ (+/-) to set the track number to "05".

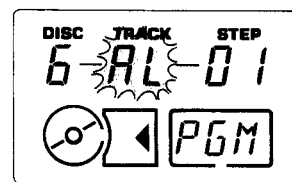


4. Press button ④ to complete one programming step.



Indicates "Step 1".

- Procedure 2, 3 and 4 above can be repeated until a maximum of 32 steps are programmed.
- Pressing button ④ after selecting a disc in procedure 2 above programs all of the tracks contained on the selected disc for playback.



"AL" indicates all tracks.

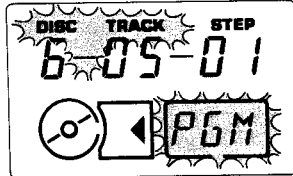
5. Once programming is complete, press button ② to begin play in the sequence contained in memory.
6. To cancel Program Play, press button ② again. To resume Program play, press button ④ followed by button ② within ten seconds.
- Program Play returns to the first step in the programmed sequence when it reaches the end of the program.
- Pressing button ③ during programmed play makes it possible to search for a specific step number from among the programmed selections.

Modifying a program

Use the following procedure to make changes in a program that has already been stored in memory.

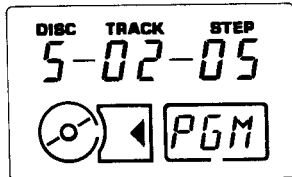
Example: Change the step 5 to track 7 on disc 3.

1. While a disc is playing, press button ④ and "Step 1" of the program will appear on the display.



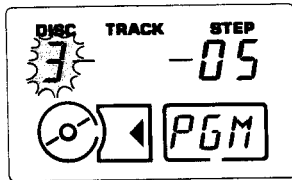
"DISC-TRACK" and "PGM" flash.

2. Press button ④ until "Step 5" is displayed.

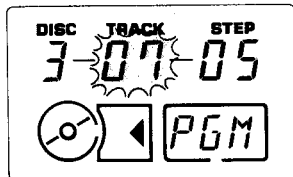


"Step 5" display.

3. Press button ① repeatedly until the disc number becomes "3".



4. Use button ③ (+/-) to set the track number to "07".



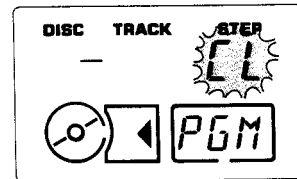
5. Press button ④. Now step 5 contains the newly programmed data, and the display shows "Step 6".

- Procedures 2, 3, 4 and 5 above can be repeated to modify multiple steps.
6. Press button ②. The program is modified, and playing begins.

Deleting a Program

Using the following sequence to delete the entire program for a magazine.

1. While a disc is playing, hold down button ④ for at least two seconds. When "CL" appears on the display, the entire program has been deleted.



2. When you release button ④ after deleting a program. "DISC-TRACK" and "PGM" will be flashing on the display. You will be able to enter a new program by beginning input within ten seconds. Otherwise, a normal display appears.
- The track playing when you delete the program continues to play after the deletion, followed by other tracks in their normal (unprogrammed) sequence.

Precautions

- If there is no magazine in the CD player, the indication appears on the controller display. Load a magazine.
- An *E r r* (error) indicator is shown on the display and operation of the system becomes impossible when there are no discs in the magazine or when the discs are loaded into the magazine with their labels facing upwards. Whenever this message appears, remove the disc magazine and check the discs.
- The indicator *HHHH* appears on the display and playback is automatically cut when the temperature around the multi-play CD player becomes too high. This protects the laser mechanism from serious damage. Listen to the tape until the temperature returns to normal.
- To assure proper operation of the unit, keep the vehicle interior temperature within a normal range using the vehicle's air conditioner or heater.
- When replacing fuses, be sure to use only fuses of the capacity prescribed on the fuse holder.
- When driving your vehicle, be sure to keep the volume of the unit set low enough to allow you to hear sounds coming from outside.

4. CIRCUIT DESCRIPTION

DATA COMMUNICATIONS

• Basic System Configuration

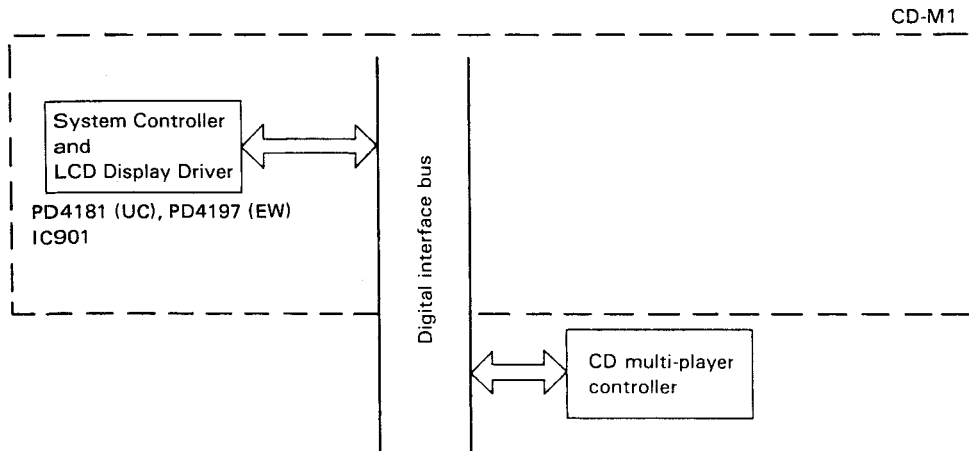


Fig. 1

• Data Bus Line

The data bus lines include the following five lines - BSKC, BDATA, BRXEN, BSRQ, and BRST.

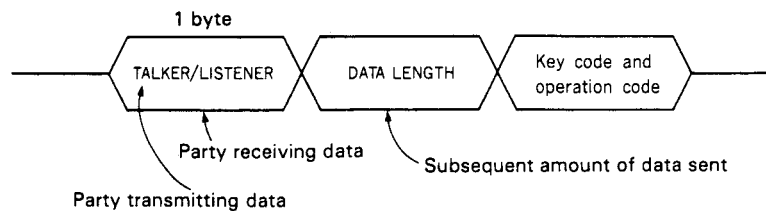
- BSKC — Synchronizing shift clock line
- BDATA — Data line
Data synchronized with shift clock when placed on this line
- BRXEN — Reception enable/disable signal line
The decision to enable or disable transmission of data from the transmitting end is conveyed via this line.
H (High impedance) --- Reception enabled
L --- Reception disabled

- BSRQ — Service request line
Request master for serial poll access.
H (High impedance) --- No service request
L --- Service request
- BRST — System reset line
Start of initialization including memory contents clearing when hardware reset executed. Communications initialization where memory contents are maintained when interface is cleared.

• Data Format

a) Master → Slave

CD MULTI-PLAYER



b) Slave → Master

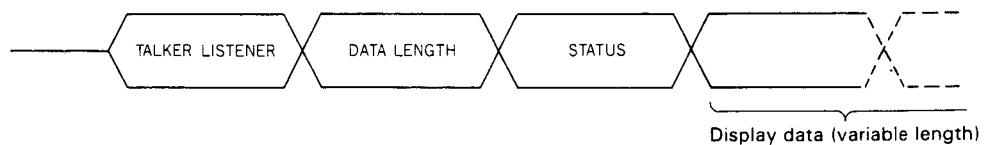


Fig. 2

• **Communication Timing Chart**

Example: Master → Slave

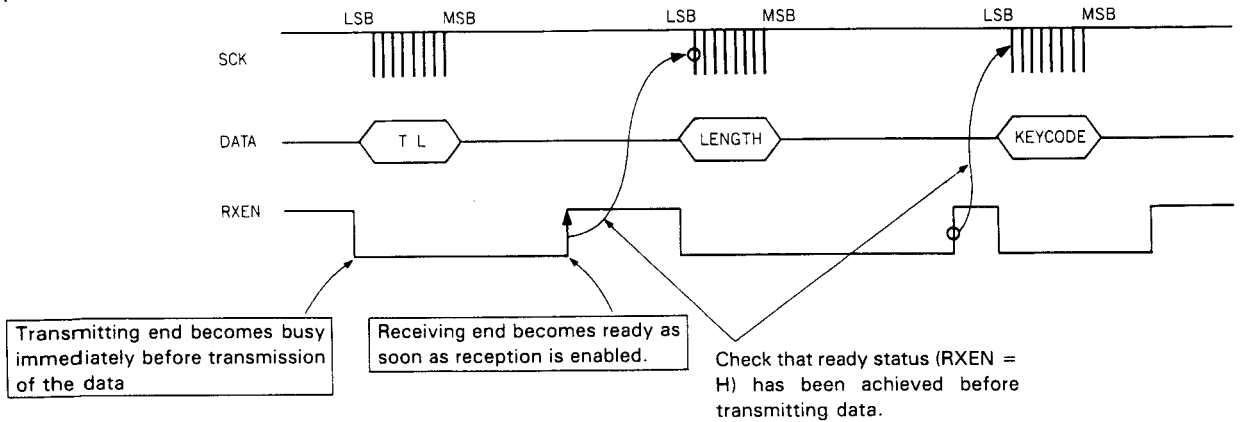
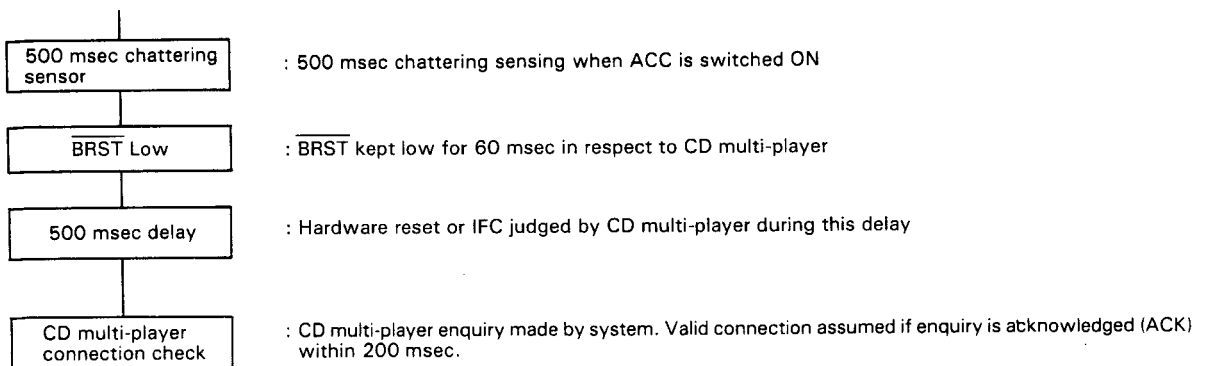


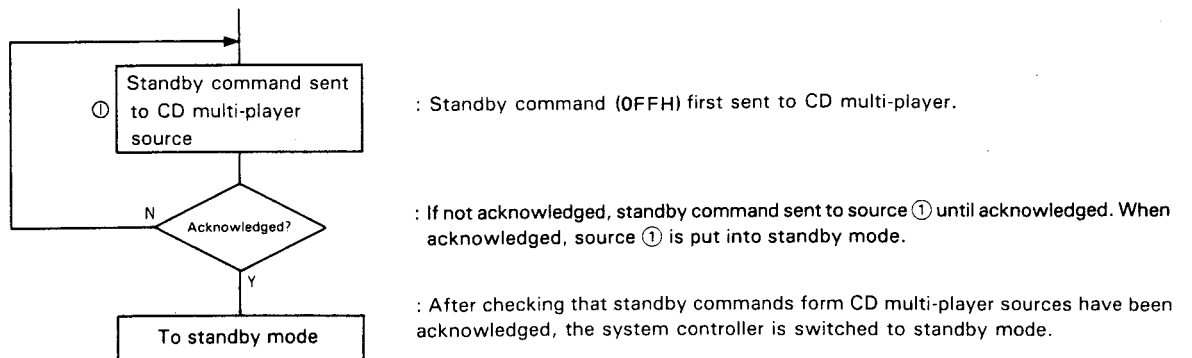
Fig. 3

• **Operation (System controller operation)**

a) Operation when ACC is ON



b) Operation when ACC is OFF



c) Serial polling when BSRQ is low

When transfer of display data from slave source to system controller is desired, BSRQ is set to low at the slave source. When the system controller detects this low SRQ state, polling is CD multi-player.

5. ADJUSTMENT

1 TEST MODE

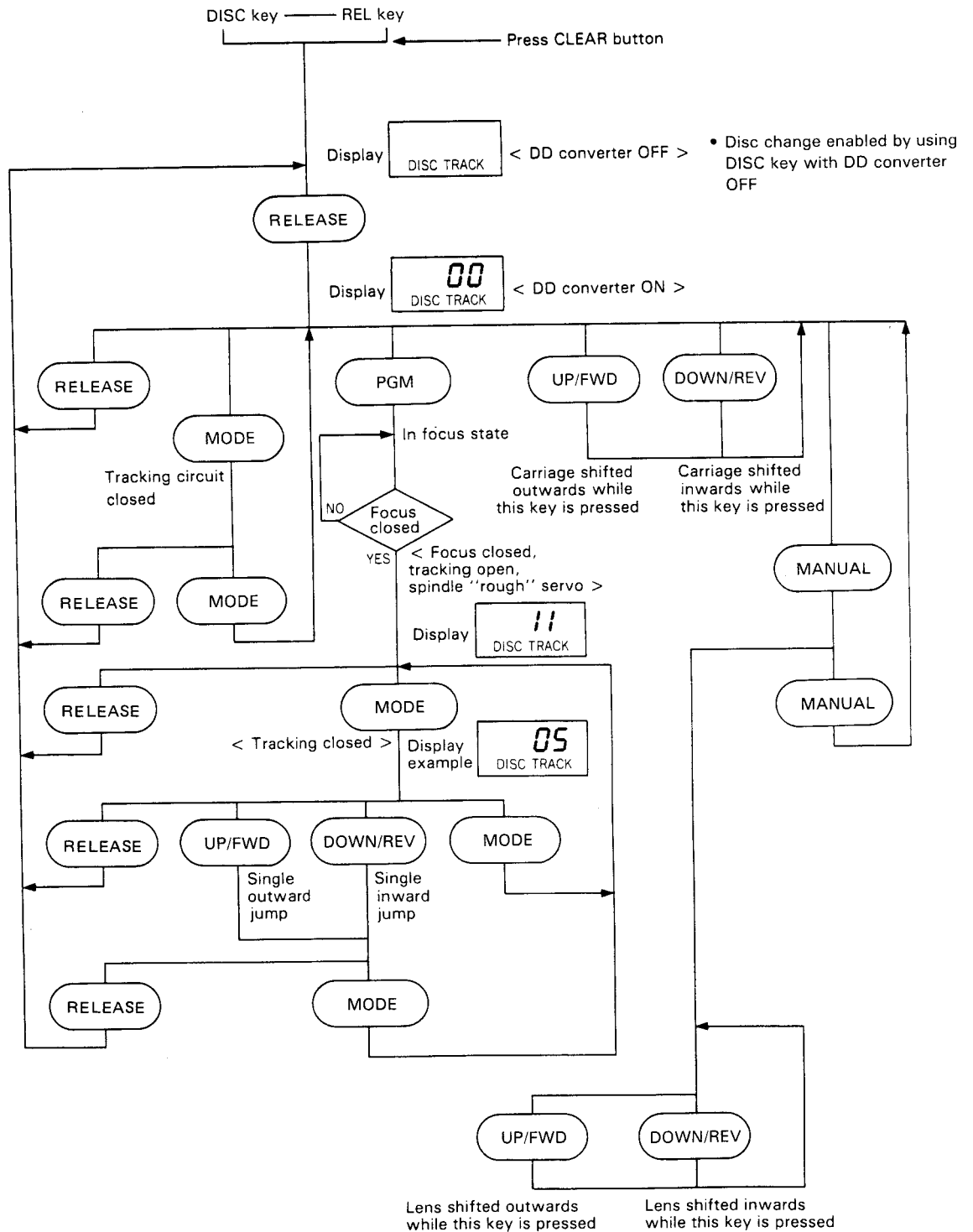
Test mode is mainly used in adjustment of CD multi-players (such as CDX-M1 00).

- Switching to test mode
While pressing the DISC key, REL keys together, switch the back-up ON or release the clear button.
- Canceling test mode
Press the CD multi-player clear button, and then the CD-M1 clear button. Or, switch the CD multi-player and CD-M1 back-up OFF.
- Key functions during test mode

a) CD multi-player

Key	Function
REL	DD converter ON/OFF
UP/FWD	FWD kick
DOWN/REV	REV kick
MANUAL	Carriage/tracking switching
MODE	Tracking close/OPEN switching
PGM	Focus close

• Flow Chart





● ICs and Transistors

2SC2458



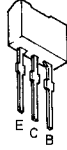
2SC3673



2SC3421



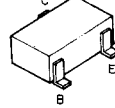
2SB1243



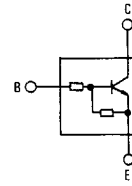
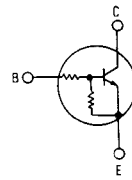
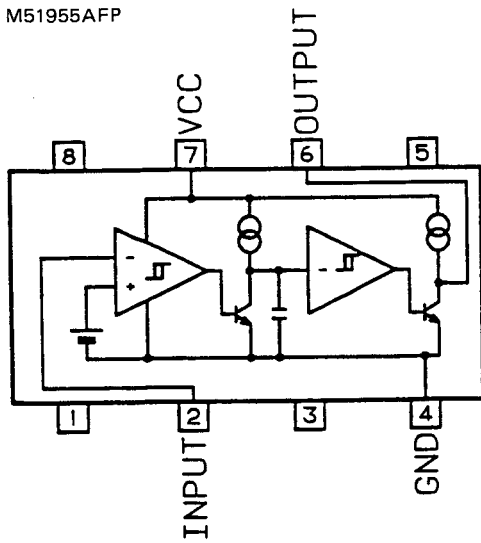
DTC114ES



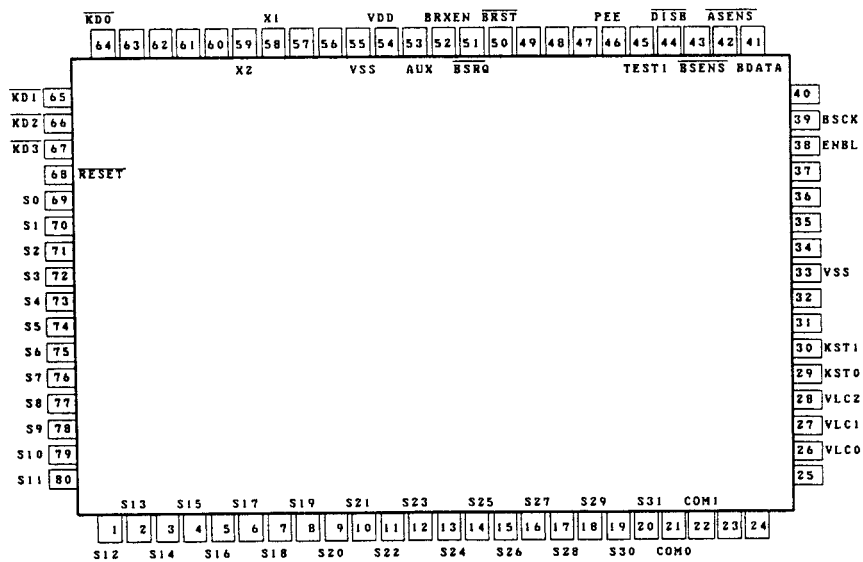
UN2211



M51955AFP



PD4181, PD4197



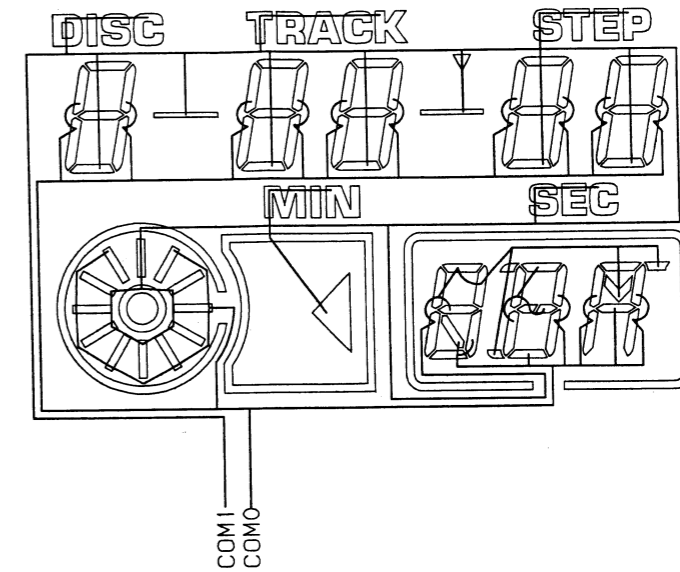
Output format	Meaning
N	N channel open drain
C	C-MOS

• Pin Function (PD4181, PD4197)

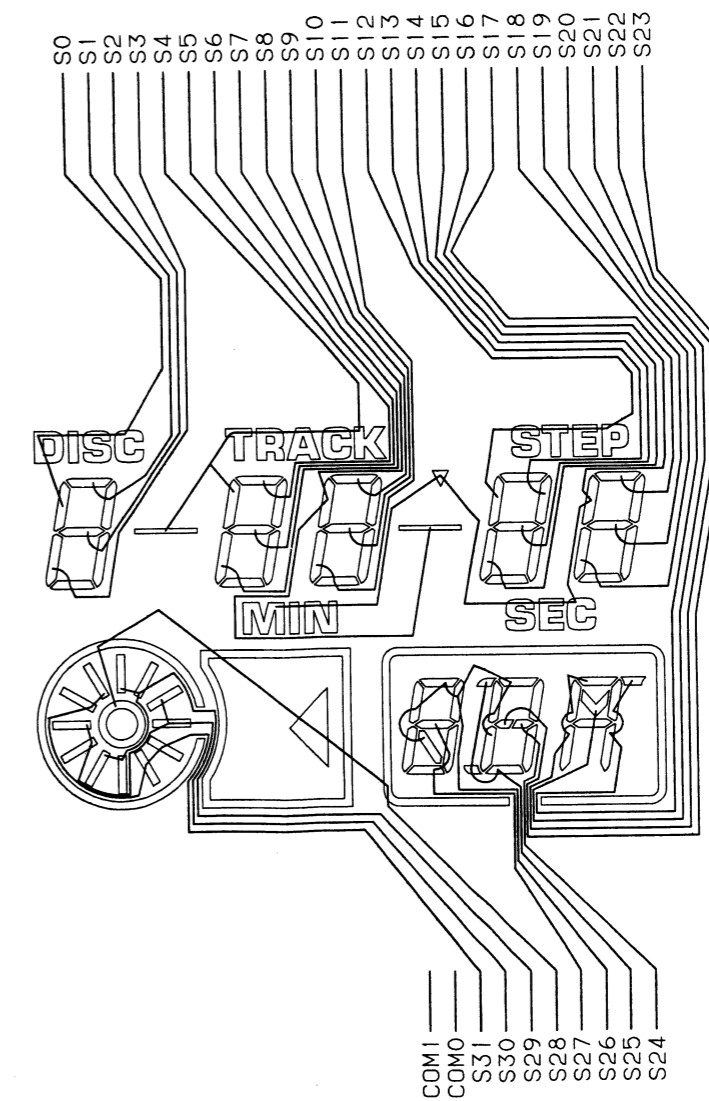
Pin No.	Pin Name	I/O	Output Format	Function and Operation
1 20 69 80	S12 S31 S0 S11	Output	C	Segment signal output terminal to LCD.
21	COM0	Output	C	Common signal terminal to LCD.
22	COM1			
23 - 25	NC			
26 28	VLC0 VLC2			Not used.
29	KST0	Output	N	Key return signal source output.
30	KST1			
31, 32	NC			
33, 55	VSS			Ground terminal.
34 - 37	NC			
38	ENBL	Input		Not used.
39	BSCK	Input/Output	C	System control microcomputer communications - clock input/output
40	NC			
41	BDATA	Input/Output	N	System control microcomputer communications - data input/output
42	ASENS	Input		ACC power supply sensor - H when ACC OFF
43	BSENS	Input		Back-up power supply sensor - H if back-up power level drops
44	DISB	Input		DISB input sensor - H when DISB OFF
45	TEST 1			Not used.
46	PEE	Output	C	Beep output
47 - 49	NC			
50	BRST	Output	C	Bus reset
51	BSRQ	Input	C	Data communications serial poll request (request when L)
52	BRXEN	Input/Output	C	Data communications busy line (busy when L)
53	AUX	Output	C	AUX B output
54	VDD			Power supply pin
56, 57	NC			
58	X1			System clock generator crystal connector pins.
59	X2			
60 - 63	NC			
64 67	KD0 KD3	Input		Key data input
68	RESET			

• LCD (CWW1254)

COMMON



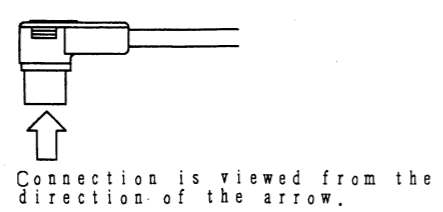
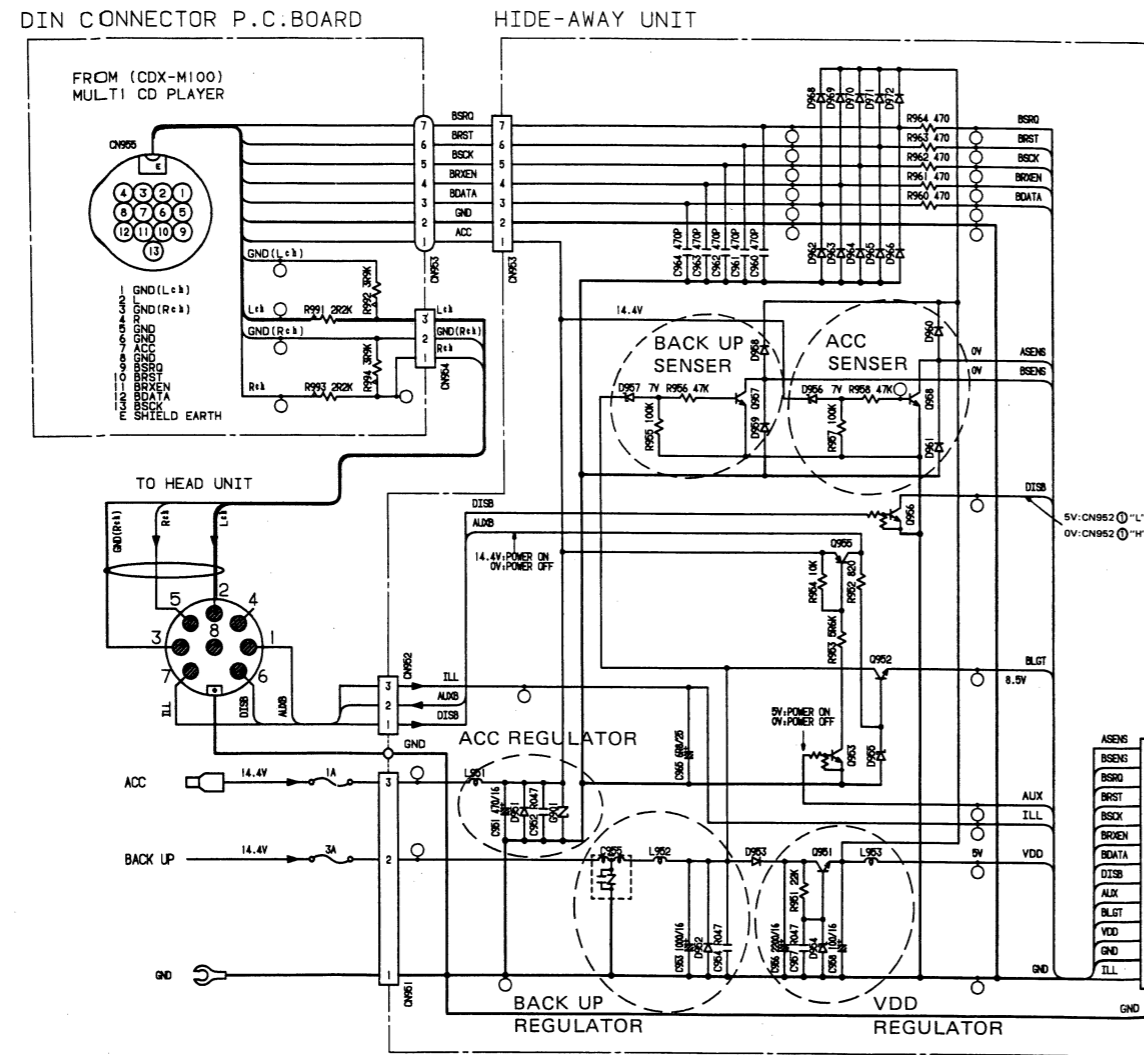
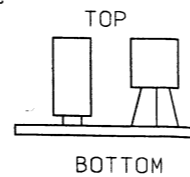
SEGMENT



6. SCHEMATIC CIRCUIT DIAGRAM

NOTE:

- Indicates a chip capacitor. Decimal points for resistor and capacitor fixed values are expressed as: 2.2 → 2R2, 0.022 → R022
- Indicates a chip resistor.
- Indicates a chip diode.
- Indicates a chip transistor.
- △ Chip parts installed on the bottom of P.C.Board.
- ▲ Chip parts installed on the top of P.C.Board.



HIDE-AWAY UNIT

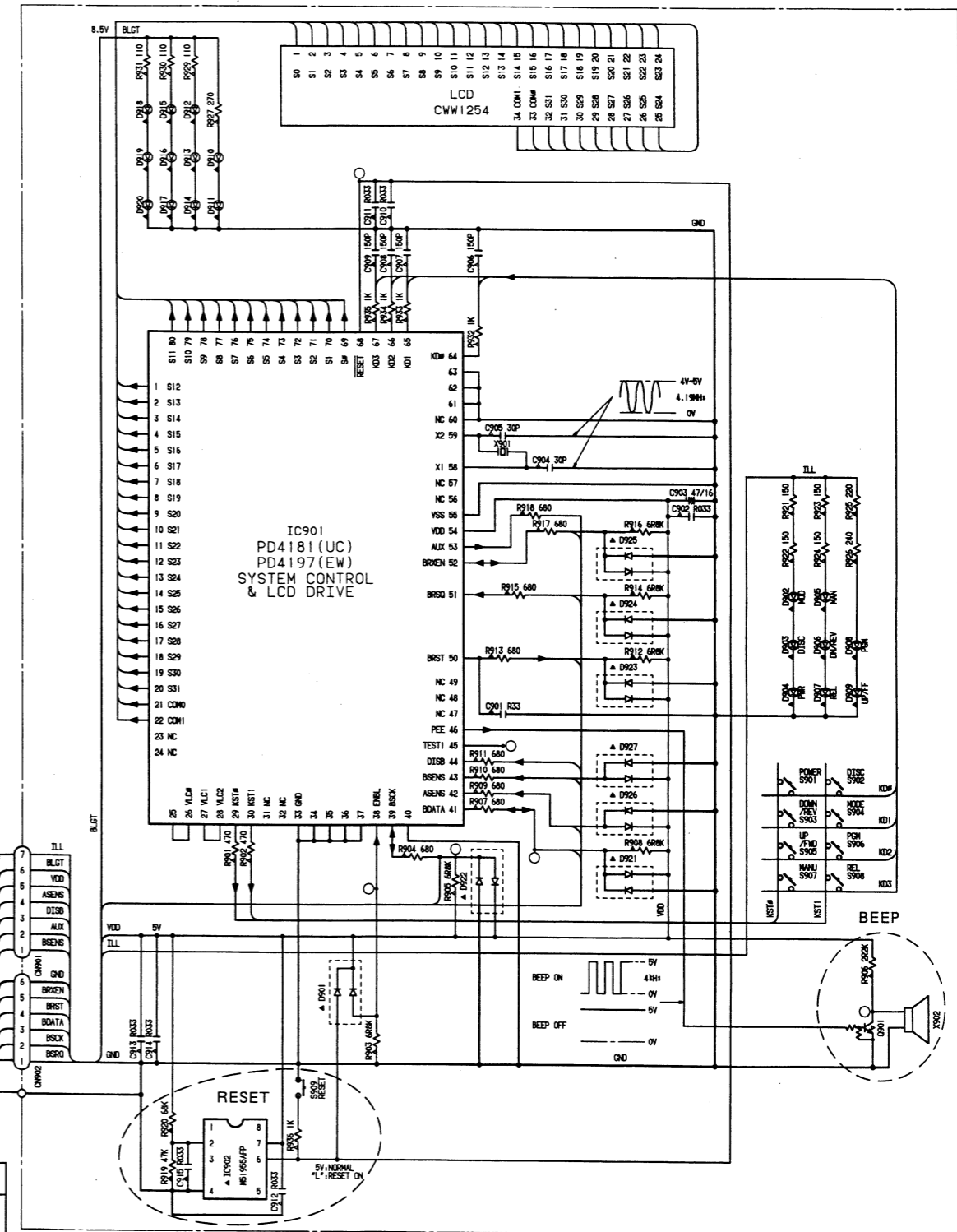
Q951	2SC3673
Q952	2SC3421
Q953, 956	DTCl14ES
Q955	2SB1243
Q957, 958	2SC2458
D951~953	ERA15-02VH
D954	RD5R6JSB2
D955	RD9R1JSB2
D956, 957	RD7R5JSB2
D958-972	ISS133

COMMANDER UNIT

Consists of

- CONTROL P.C. BOARD
- DIN CONNECTOR P.C. BOARD

CONTROL P.C. BOARD



COMMANDER UNIT

	EW	UC
Q901	UN2211	UN2211
D901, 916	MA151WK	MA151WK
D902~909	CL61PGCD680A	CL61YCD680A
D910~920	CL50PGCDA	CL50YCDCA
D921~927	MA153	MA153
X901	CSS1029	CSS1029
X902	CPV1005	CPV1005
S901~S909	CSG-212	CSG-212

Fig. 4

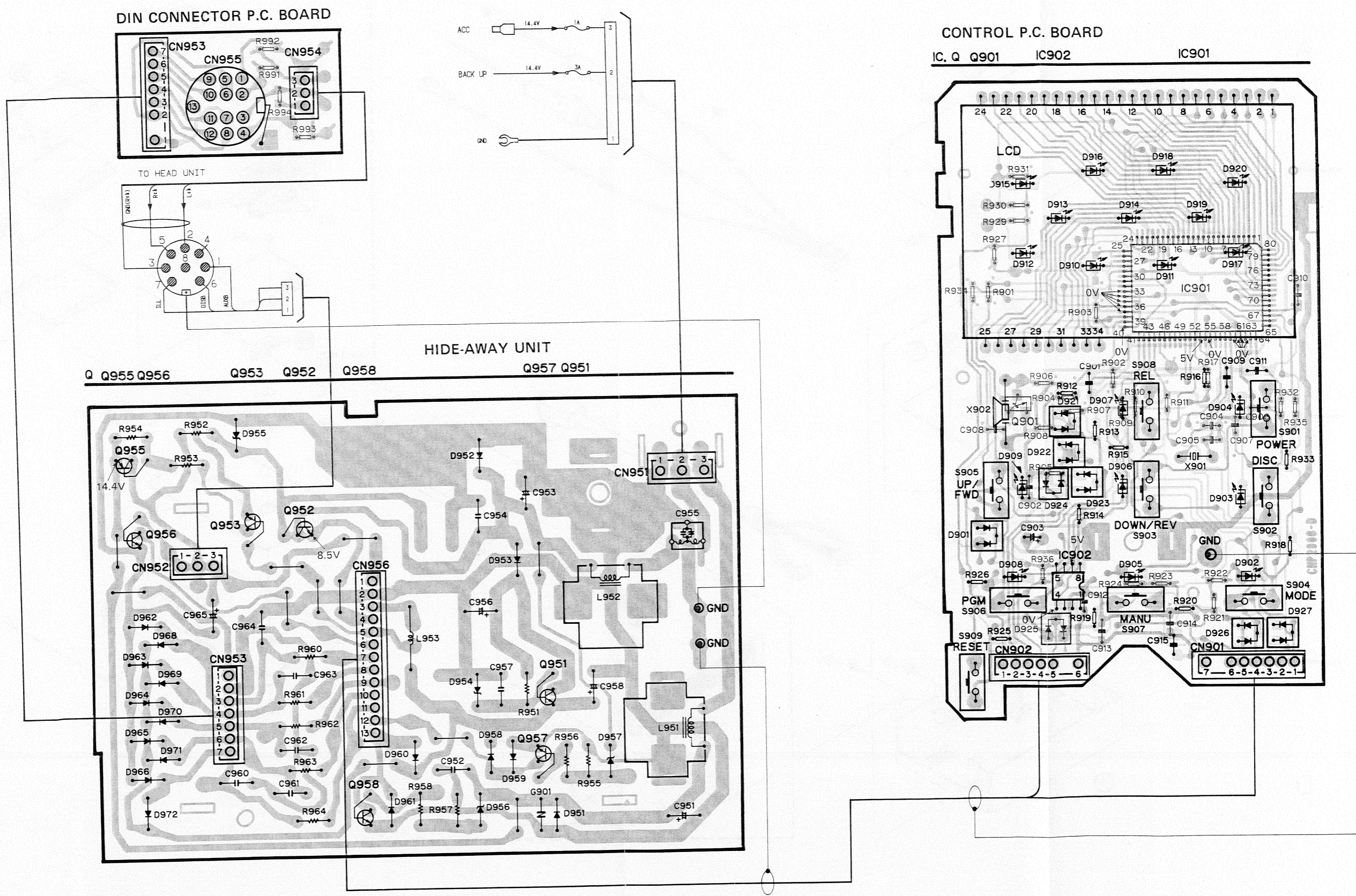
7. CONNECTION DIAGRAM

A

B

C

D



A

B

C

D

Fig. 5

CD-M1

8. EXPLODED VIEW

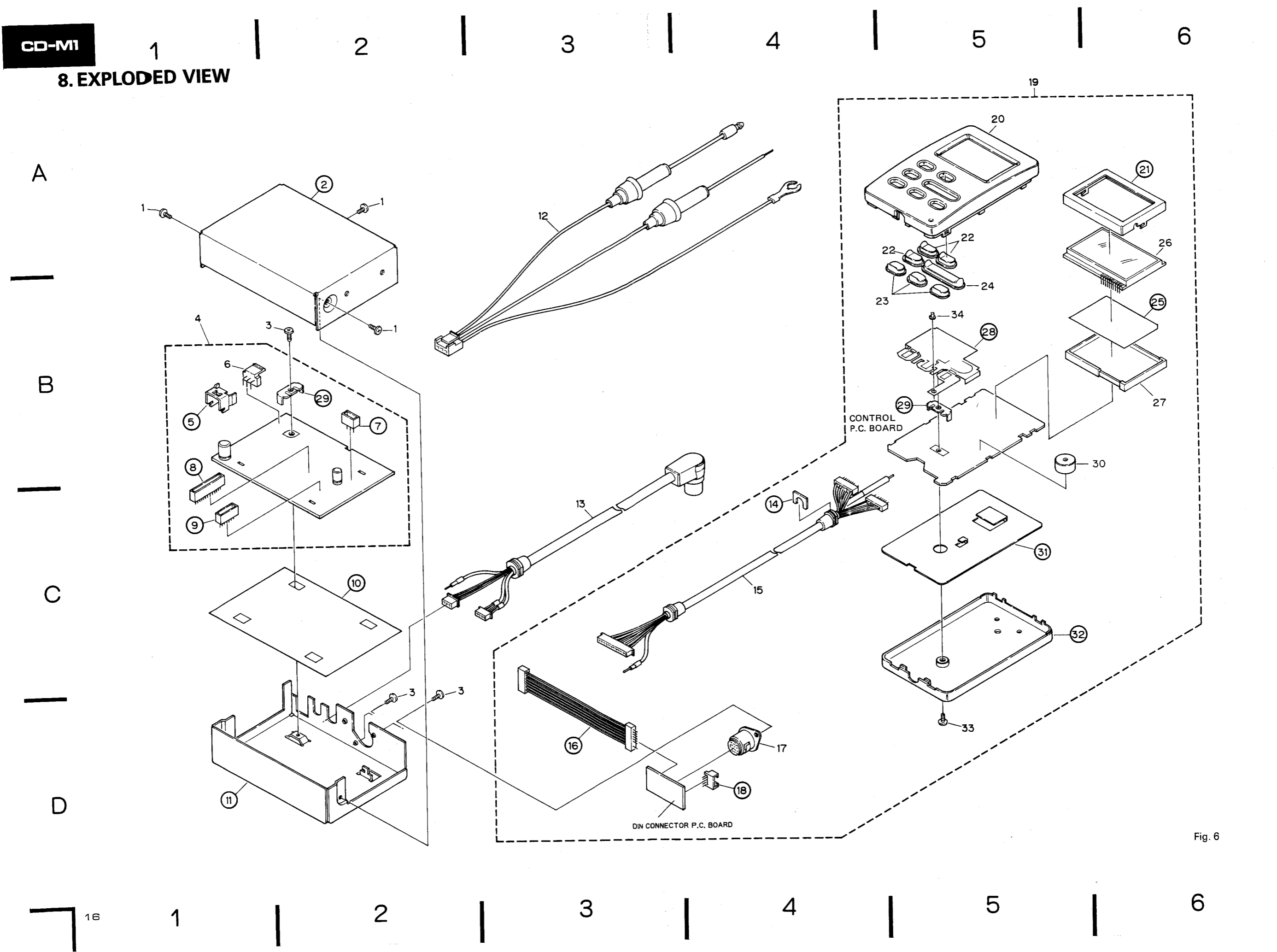


Fig. 6

• Parts List

NOTE:

- For your parts Stock Control, the fast moving items are indicated with the marks ★★ and ★.
- ★★: GENERALLY MOVES FASTER THAN ★.
- This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts whose parts numbers are omitted are subject to being not supplied.
- Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

Mark	No.	Part No.	Description	Mark	No.	Part No.	Description
	1	BMZ30P040FZK	Screw		20	CNS1756	Grille(UC)
	2		Case			CNS1757	Grille(EW)
	3	BMZ26P040FMC	Screw		21		Case
●	4	CWX1169	Hide-Away Unit	★	22	CAC1930	Button
	5		Bracket	★	23	CAC1932	Button
	6	CKS-460	Plug	★	24	CAC1931	Button
	7		Plug		25		Plate
	8		Plug		26	CWW1254	LCD
	9		Plug		27	CNV2002	Holder
	10		Insulator		28		Plate
	11		Chassis		29		Holder
★	12	CDE2353	Cord(EW)		30	CPV1005	Buzzer
★		CDE2352	Cord(UC)		31		Insulator
	13	CDE2217	Cord		32		Case
	14		Holder		33	BBZ26P080FZK	Screw
	15	CDE2234	Cord	★	34	CAC1934	Button
	16		Connector				
	17	CKP1007	Socket				
	18		Plug				
●	19	CWX1177	Commander Unit(UC)				
●		CWX1178	Commander Unit(EW)				

9. ELECTRICAL PARTS LIST

NOTE:

- For your parts Stock Control, the fast moving items are indicated with the marks ** and †.
- ** : GENERALLY MOVES FASTER THAN †.
- This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/8S □□□J, RS1/10S □□□J

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

Unit Number :
Unit Name : Hide-Away Unit

Commander Unit(CD-M1/UC EW)
Consists of Control P.C.Board DIN Connector P.C.Board

MISCELLANEOUS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
**	Q	951			2SC3673
**	Q	952			2SC3421
**	Q	953 956			DTC114ES
**	Q	955			2SB1243
**	Q	957 958			2SC2458
†	D	951 952 953			ERA15-02VH
†	D	954			RD5R6JSB2
†	D	955			RD9R1JSB2
†	D	956 957			RD7R5JSB2
†	D	958 959 960 961 962 963 964 965 966			1SS133
†	D	968 969 970 971 972			1SS133
L		951 952		Choke Coil	CTH1005
L		953		Ferri-Inductor	CTF-157
G		901		Surge Absorber	ERZ-C07DK220

Unit Number :
Unit Name : Commander Unit

MISCELLANEOUS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
**	IC	901		(UC)	PD4181
**	IC	901		(EW)	PD4197
**	IC	902			M51955AFP
**	Q	901		Chip Transistor	UN2211
†	D	901		Chip Diode	MA151WK-MT
†	D	902 903 904 905 906 907 908 909		(UC) Chip LED	CL61YCD680A
†	D	902 903 904 905 906 907 908 909		(EW) Chip LED	CL61PGCD680A
†	D	910 911 912 913 914 915 916 917 918 919 920		(UC) Chip LED	CL50YCDA
†	D	910 911 912 913 914 915 916 917 918 919 920		(EW) Chip LED	CL50PGCDA
†	D	921 922 923 924 925 926 927		Chip Diode	MA153-MC
X		901		Crystal Resonator	CSS1029
X		902		Buzzer	CPV1005
**	S	901 902 903 904 905 906 907 908 909		Switch	CSG-212
				LCD	CWW1254

RESISTORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
R		951			RD1/4PS223JL
R		952			RD1/4PS821JL
R		953			RD1/4PS562JL
R		954			RD1/4PS103JL
R		955 957			RD1/4PS104JL
R		956 958			RD1/4PS473JL
R		960 961 962 963 964			RD1/4PS471JL

RESISTORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
R		901 902			RS1/10S471J
R		903 905 908			RS1/10S682J
R		904 907 909 910 911 917			RS1/10S681J
R		906			RS1/10S222J
R		912 914 916			RS1/10S682J
R		913 915 918			RS1/10S681J
R		919			RS1/10S473J
R		920			RS1/10S683J
R		921 922 923 924			RS1/10S151J
R		925			RS1/10S221J

CAPACITORS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
C		951		470 μF/16V	CCH-114
C		952 954 957			CKCYF473Z50
C		953		1000 μF/16V	CCH1003
C		955			CCG-105
C		956		2200 μF/16V	CCH1001
C		958			CEA101M16L2
C		960 961 962 963 964			CKCYB471K50
C		965			CASA6R8M25

Mark	===== Circuit Symbol & No.	==== Part Name	Part No.
R	926		RS1/10S241J
R	927		RS1/10S271J
R	929 930 931		RS1/10S111J
R	932 933 934 935 936		RS1/10S102J
R	991 993		RS1/10S222J
R	992 994		RS1/10S392J

CAPACITORS

Mark	===== Circuit Symbol & No.	==== Part Name	Part No.
C	901		CKSYF334Z25
C	902 910 912 913 914		CKSYB333K25
C	903		CEA470M16LS
C	904 905		CCSQCH300J50
C	906 907 908		CCSQCH151J50
C	909		CCSQCH151J50
C	911 915		CKSYB333K25

10. PACKING METHOD

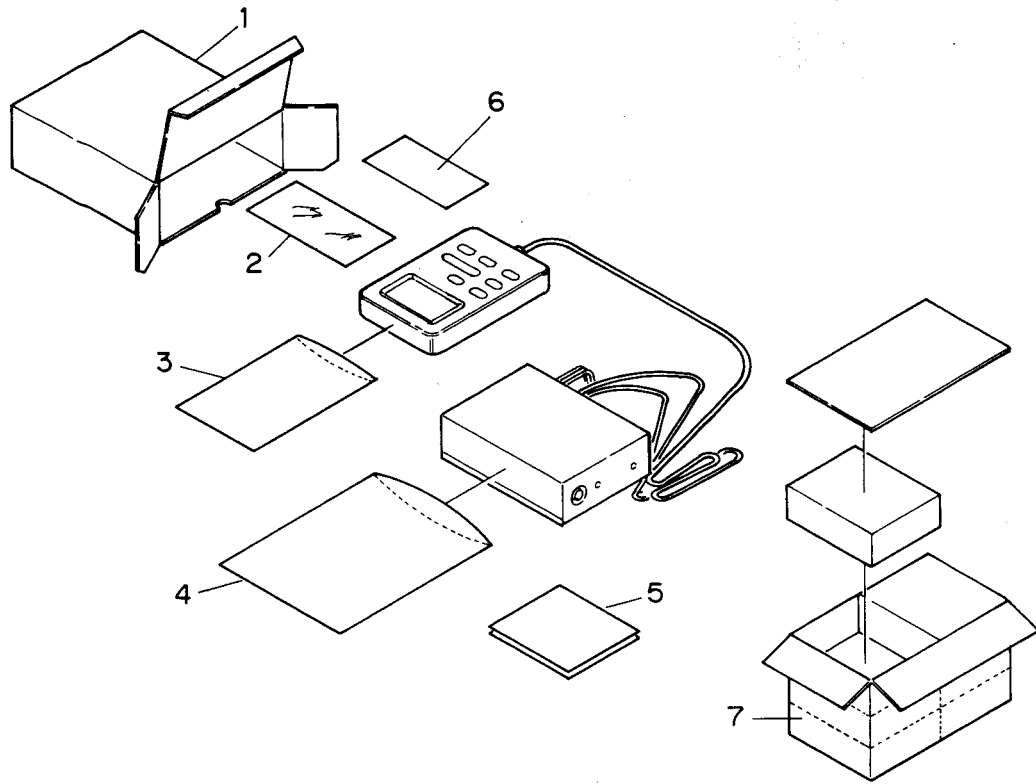


Fig. 7

● **Parts List**

Mark No.	Part No.	Description	Mark No.	Part No.	Description
1	CHG1540	Carton (UC)	5	CRD1242	Owner's Manual (UC)
	CHG1541	Carton (EW)		CRD1243	Owner's Manual (EW)
2	CEA1413	Accessory Assy			(English, French, German, Spanish, Swedish, Norwegian, Dutch, Italian)
2-1	BMZ30P050FZK	Screw(X1)			
2-2	CNC2559	Strap(Hanger)			
2-3	CNM-667	Velcro Tape	6	CDE2352	Cord (UC)
2-4	CNM1716	Velcro Tape		CDE2353	Cord (EW)
2-5	CNM1717	Velcro Tape	7	CHL1540	Contain Box (UC)
3	CEG1055	Air Cushioned Bag			
4	CEG1052	Air Cushioned Bag			