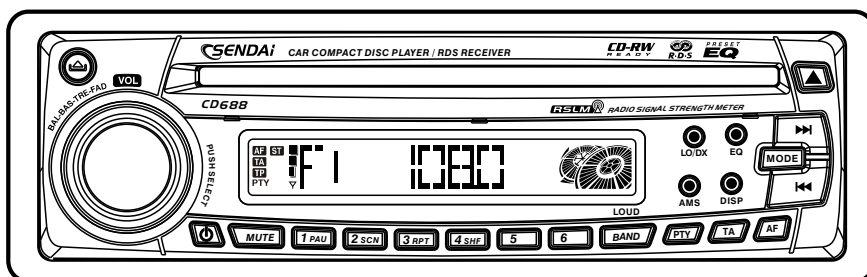


SENDAI

Operator's manual

CAR RADIO CD PLAYER / RDS RECEIVER

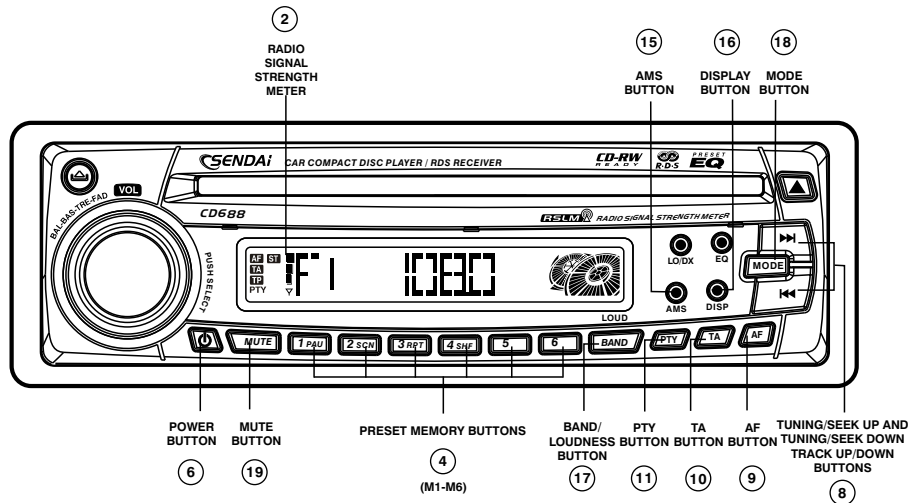
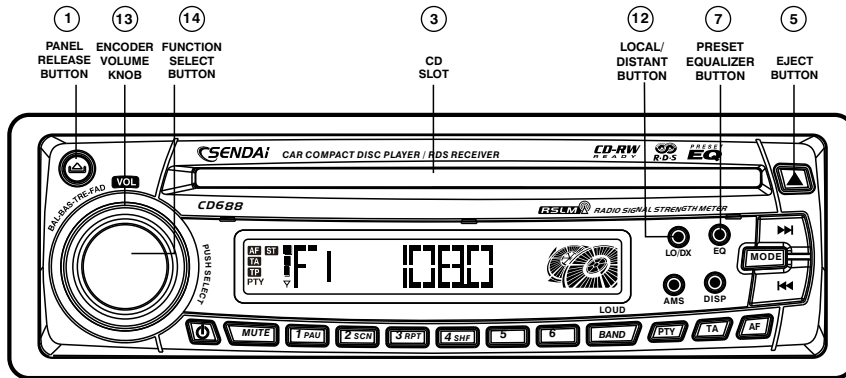
CD688



ITEM CODE : 345777

e13
020957

CONTROL AND FUNCTION KEYS

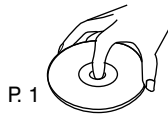


HANDLING COMPACT DISCS MOISTURE CONDENSATION

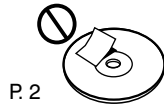
On a rainy day or in a very damp area, moisture may condense on the lenses inside the unit. Should this occur, the unit will not operate properly. In such a case, remove the disc and wait for about an hour until the moisture has evaporated.

NOTES ON CDs

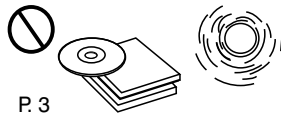
1. A dirty or defective disc may cause sound dropouts while playing. To enjoy optimum sound, handle the disc as follows. Handle the disc by its edge. To keep the disc clean, do not touch the surface (P.1).



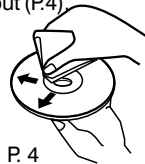
2. Do not stick paper or tape on the disc (P.2).



3. Do not expose the discs to direct sunlight or heat sources such as hot air-ducts, or leave them in a car parked in direct sunlight where there can be a considerable rise in temperature inside the car (P.3).



4. Before playing, clean the discs with an optional cleaning cloth. Wipe each disc from the centre out (P.4).



5. Do not use solvents such as benzene, thinner, commercially available cleaners, or antistatic spray intended for analog discs.

NOTES ON DISCS

If you use the discs explained below, the sticky residue can cause the CD to stop spinning and may cause malfunction or ruin your discs.

Do not use second-hand or rental CDs that have a sticky residue on the surface (for example, from peeled-off stickers or from ink, or glue leaking from under the stickers).

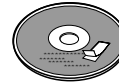
There are paste residue.

Ink is sticky (P.5).



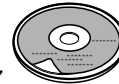
Do not use rental CDs with old labels that are beginning to peel off.

Stickers that are beginning to peel away, leaving a sticky residue (P.6).



Do not use your CDs with labels or stickers attached.

Labels are attached (P.7).



Do Not Use Special Shape CDs

Be sure to use round shape CDs only for this unit and do not use any special shape CDs. Use of special shape CDs may cause the unit to malfunction. (P.8).



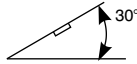
Be sure to use CDs with disc mark
Only for this unit.



CD-Rs and CD-RWs which have not undergone finalization processing cannot be played. (For more information on finalization processing, refer to the manual for your CD-R/CD-RW writing software or CD-R/CD-RW recorder.) Additionally, depending on the recording status, it may prove impossible to play certain CDs record on CD-R or CD-RW.

1. INSTALLATION

- Before finally installing the unit, connect the wiring temporarily and make sure it is all connected up properly and the unit and system work properly.
- Use only the parts included with the unit to ensure proper installation. The use of Unauthorized parts can cause malfunctions.
- Consult with your nearest dealer if installation requires the drilling of holes or other modifications of the vehicle.
- Install the unit where it does not get in the driver's way and cannot injure the passenger if there is a sudden stop, like an emergency stop.
- If installation angle exceeds 30° from horizontal, the unit might not give its optimum performance.



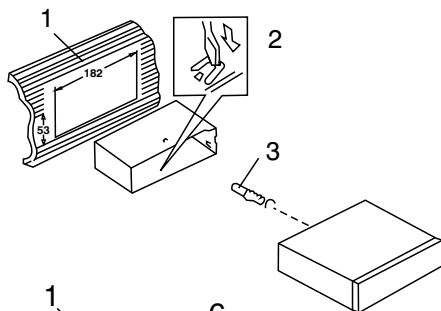
- Avoid installing the unit where it would be subject to high temperature, such as from direct sunlight, or from hot air, from heater, or where it would be subject to dust dirt or excessive vibration.
- Be sure to remove the front panel before installing the unit.

DIN FRONT/REAR-MOUNT

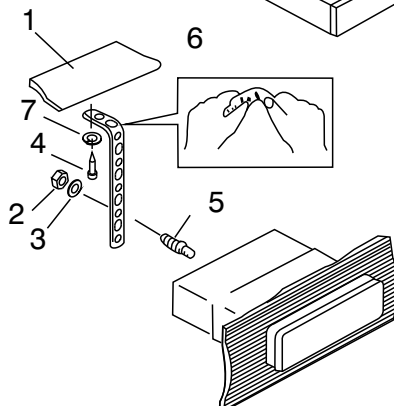
This unit can be properly installed either from "Front" (conventional DIN Front-mount) or "Rear" (DIN Rear-mount installation, utilizing threaded screw holes at the sides of the unit chassis). For details, refer to the following illustrated installation methods A and B.

DIN FRONT-MOUNT (Method A)

Installation the unit

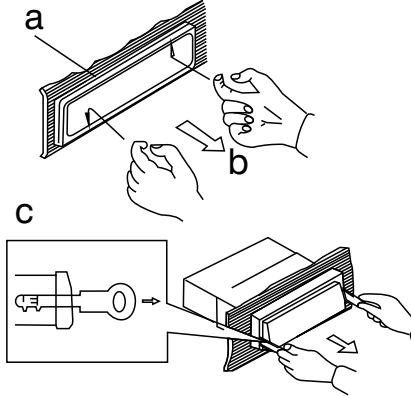


1. Dashboard
2. Holder
After inserting the half sleeve into the dashboard, select the appropriate tab according to the thickness of the dashboard material and bend them inwards to secure the holder in place.
3. Screw



1. Dashboard
2. Nut (5mm)
3. Spring washer
4. Screw (5x25mm)
5. Screw
6. Support Strap
Be sure to use the support strap to secure the back of the unit in place. The strap can be bent by hand to the desired angle.
7. Plain washer

Removing the unit



- a. Frame
- b. Insert fingers into the groove in the front of frame and pull out to remove the frame. (When re-attaching the frame, point the side with a groove down wards and attach it.)
- c. Insert the levers supplied with the unit into the grooves at both sides of the unit as shown in figure until they click. Pulling the levers makes it possible to remove the unit from the dashboard.

Trim Plate Installation:

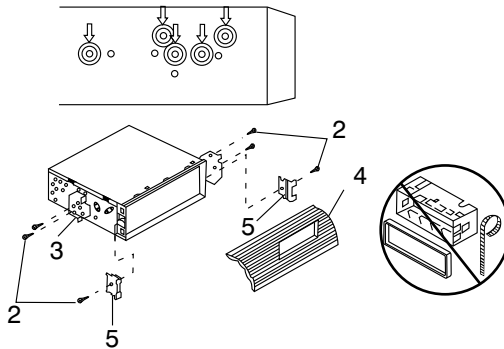
Push the trim plate against the chassis until it is fitted.

You must do this before you install the front panel, otherwise it can't be attached.

DIN REAR-MOUNT (METHOD B)

Installation using the screw holes on the sides of the unit.

Fastening the unit to the factory radio mounting bracket.



1. Select a position where the screw holes of the bracket and the screw holes of the main unit become aligned (are fitted) and tighten the screws at 2 places on each side.
2. Screw
3. Factory radio mounting bracket.
4. Dashboard or Console
5. Hook (Remove this part)

Note: the mounting box, outer trim ring, and half-sleeve are not used for method B installation.

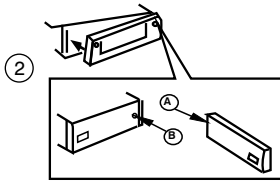
2. DETACHABLE CONTROL PANEL (D.C.P.)

Removing The Detachable Control Panel (D.C.P).



1. Turn the power off
2. Press the D.C.P. release button
3. Remove the D.C.P.

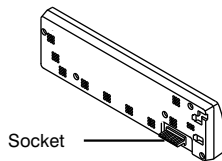
Attaching the DCP



1. Attach the panel at the right side first, with point B on the main unit touching point A on the D.C.P. (As shown on the diagram).
2. Then press the left side of D.C.P. onto the main unit until a "click" sound is heard.

CAUTION

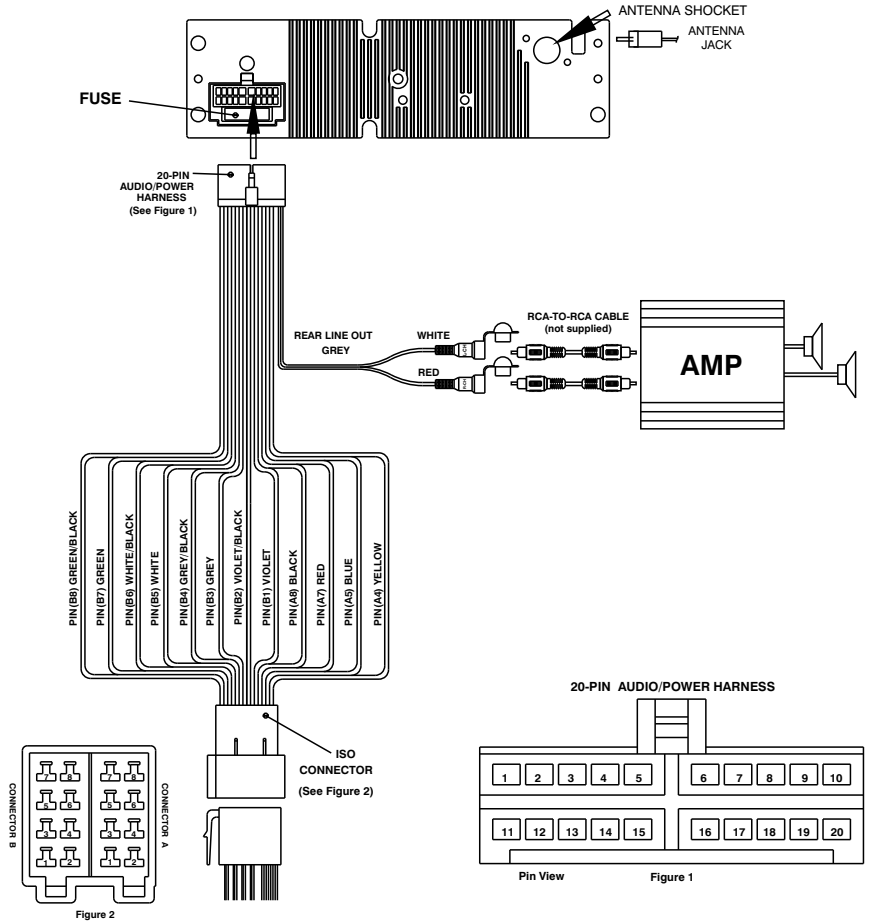
- DO NOT insert the D.C.P from the left side. Doing so may damage it.
- The D.C.P can easily be damaged by shocks. After removing it, place it in a protective case and be careful not to drop it or subject it to strong shocks.
- When the release button is pressed and the D.C.P is unlocked, the car's vibrations may cause it to fall. To prevent damage to the D.C.P, always store it in a protective case after detaching it.
- The rear connector that connects the main unit and the D.C.P is an extremely important part. Be careful not to damage it by pressing on it with fingernails, pens, screwdrivers, etc.



Note:

If the D.C.P is dirty, wipe off the dirt with soft, dry cloth only. And use a cotton swab soaked in isopropyl alcohol to clean the socket on the back of the D.C.P.

3. WIRING DIAGRAM (20 PIN + ISO PLUG)



ISO CONNECTOR 4PIN + 8PIN FEMALE WITH MALE TERMINAL

ISO CONNECTOR WIRING CHART

PIN	WIRE COLOR	FUNCTION/LABEL
A4	YELLOW	BATTERY(+)
A5	BLUE	POWER ANTENNA
A7	RED	IGNITION(ACC)
A8	BLACK	GROUND
B1	VIOLET	RIGHT REAR SPEAKER (+)
B2	VIOLET/BLACK	RIGHT REAR SPEAKER (-)
B3	GREY	RIGHT FRONT SPEAKER (+)
B4	GREY/BLACK	RIGHT FRONT SPEAKER (-)
B5	WHITE	LEFT FRONT SPEAKER (+)
B6	WHITE/BLACK	LEFT FRONT SPEAKER (-)
B7	GREEN	LEFT REAR SPEAKER (+)
B8	GREEN/BLACK	LEFT REAR SPEAKER (-)

PIN	WIRE COLOR	FUNCTION/LABEL
1	GREY/BLACK	RIGHT FRONT SPEAKER (-)
2	GREY	RIGHT FRONT SPEAKER (+)
3	VIOLET	RIGHT REAR SPEAKER (+)
4	VIOLET/BLACK	RIGHT REAR SPEAKER (-)
5		
6	GREEN	LEFT REAR SPEAKER (+)
7	GREEN/BLACK	LEFT REAR SPEAKER (-)
8	RED	IGNITION(ACC)
9	BLACK	REAR PRE-AMP LINE OUT COMMON
10	RED	RIGHT REAR PRE-AMP LINE OUT
11	WHITE	LEFT FRONT SPEAKER (+)
12	WHITE/BLACK	LEFT FRONT SPEAKER (-)
13		
14	BLUE	POWER ANTENNA
15	YELLOW	BATTERY(+)
16	BLACK	CHASSIS GROUND
17		
18		
19		
20	WHITE	LEFT REAR PRE-AMP LINE OUT

4. BASIC OPERATIONS

1) PANEL RELEASE BUTTON (REL)

Press this button to remove the control panel.

6) POWER ON/OFF BUTTON (PWR)

Press this button to turn on or off the power.

16) DISP BUTTON (DISP)

Press this button to view Clock, Programme Type (PTY), and Frequency of the station in listening.

18) MODE BUTTON (MODE)

Press this button to select Radio, CDP modes.

The available selections :

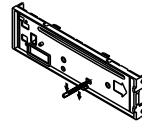
Radio CD Player

Radio > CDP

RESET BUTTON

The RESET button is located on the main unit (as shown on the diagram). To press it vertically with a ballpoint pen or metal object will activate it. The reset button is to be activated for the following reasons:

- Initial installation of the unit when all wiring is completed.
- All the function buttons do not operate.
- Error symbol on the display.



Note: If press RESET button, the unit still cannot function normally, please use a cotton swab soaked in isopropyl alcohol to clean the socket on the back of the control panel.

5. AUDIO OPERATIONS

7) PRESET EQUALIZER BUTTON (EQ)

Press this button to toggle the following EQ setting:

FLAT->CLASSIC->POP M->ROCK M->DSP OFF

At DSP OFF mode, EQ will be controlled by Bass/Treble setting.

13) ENCODER VOLUME KNOB

Turn this knob to adjust desired volume level.

14) FUNCTION SELECT BUTTON

Press this button to select desired audio function.

ORDER OF FUNCTION: VOL->BASS (BAS)->TREBLE (TRE)->BALANCE (BAL)-> FADER (FAD)

While the selected function is displayed, turn Volume Knob to adjust the level within 5 seconds, otherwise the unit will return to volume adjustment mode.

17) BAND/LOUDNESS BUTTON (BAND/LOUD)

Press the Band/Loudness Button long to switch the loudness on or off. When Loudness is on, display will show 'Loud On' for a few seconds.

19) MUTE BUTTON (MUTE)

Press this button to mute the sound. Press it again to resume listening.

6. RADIO OPERATIONS AND RDS OPERATIONS

2) RADIO SIGNAL STRENGTH METER (RSLM)

This is used to indicate the signal strength of current radio station broadcast. When you choose RADIO mode, it will show on the display.



4.) STATION PRESET BUTTONS (M1-M6)

1. Press these buttons briefly to recall the stored stations in the selected band.
2. Presetting stations manually, Press the BAND button to select the band for the station to be preset. Use Tuning Up/Down to tune in the stations to be preset. Press the Preset button at which you want to store the station for at least 2 seconds. The preset number will appear on the display accompanied by a beep, this indicates that the station has been stored into memory.

8) TUNING / SEEK UP AND TUNING / SEEK DOWN BUTTONS

1. Press these buttons briefly will operate AUTO SEARCH tuning mode, the radio will tune up or down to the next station and remain on the frequency.
2. Press these buttons more than 2 seconds, operate as MANUAL SEARCH buttons, under this mode the tuning frequency will advance up or down rapidly when the button is pressed. If the buttons are not pressed within 3 seconds, they will return to auto search mode.

12) LOCAL/DISTANT BUTTON (LO/DX)

During station tuning, this button allows you prior to access strong local station only (Local mode), or to access a wider range of using distant mode (DX). When power up DX mode will be selected automatically; Press LOC button briefly to select Local mode and "LOCAL" symbol on the LCD will light up for a few seconds.

15) AUTO MEMORY STORE/PRESET SCAN BUTTON (AMS)

1. PRESET SCAN: Press AMS button briefly enter Preset Scan mode, it will scan all the preset stations in the memories, you can hear that will stay on each station for about 5 seconds.
2. AUTO MEMORY STORE: Press AMS button long to enter Auto Store mode, this feature will automatically scan the current band and enter up to 6 strongest stations into the 6 preset memories. To stop Auto Store & Scan, press the AMS button again.

17) BAND/LOUDNESS BUTTON (BAND/LOUD)

This is a dual function button. Press this button short to change between BAND FM1, FM2, FM3 & AM(MW) bands. Press it long to turn on or off Loudness function.

9) AF BUTTON(ALTERNATIVE FREQUENCIES)

When pressed short, AF switching mode is selected.

When AF switching mode is selected, the radio check the signal strength of the AF all the time.

When pressed long, it is activated as regional mode ON/OFF.

- Regional mode ON:

AF Switching or PI SEEK is implemented to the station which have all PI codes are same as current station. REG segment is turned on, in LCD display.

- Regional mode OFF:

The Regional code in the format of PI code is ignored when AF switching or PI SEEK is implemented.

Some broadcasting stations may change their program from normal broadcasting to regional broadcasting for a certain period. When regional mode is off, the region identification in the PI code is ignored; the radio may switch to a local variant of the current program. When region mode is on, the radio will only switch to a program carrying the exact same PI code.

Note: When AF switch is on, at this moment use tuning up/down to search station will only stop at station which has RDS broadcasting.

10) TA BUTTON(TRAFFIC ANNOUNCEMENT)

When pressed short, it is activated as TA mode on or off

When TA mode is on and traffic announcement is **transmitting or boardcasting**.

- When the unit is in CD mode, it will switch to radio mode temporarily.

- If the volume lever was under the threshold point, it will be raised to the threshold point.

- When TP station is received, TP segment is turned on in LCD display.

When pressed long, EON TA LOCAL /EON TA DISTANCE mode is selected.

- EON TA LOCAL mode

When the field strength level of EON linked is less than the threshold level. The radio does not switch that station and user can hardly listen to any disturbances. "EON TA LO " is displayed a few second.

- EON TA DISTANCE mode

EON TA switching is try to implemented by the infomation of current station "EON TA DX" is displayed a few second this mode is selected

Note: When TA switch is on, at this moment use tuning up/down to search station will only stop at station which has TA broadcasting.

11) PTY BUTTON

Each time when this button is pressed, the PTY mode will toggle in the following order:

PTY Music Group -> PTY Speech Group ->PTY Off

The current PTY code is displayed on the LCD, use the 6 preset buttons to select the other PTY code, the distribution of program type are as follow:

Button Number	Music Group	Speech Group
M1	POP , ROCK	NEWS, AFFAIRS, INFO
M2	EASY, LIGHT	SPORT, EDUCATE, DRAMA
M3	CLASSICS, OTHER	CULTURE, SCIENCE, VARIED
M4	JAZZ, COUNTRY	WEATHER, FINANCE, CHILDREN
M5	NATION, OLDIES	SOCIAL, RELIGION, PHONE IN
M6	FOLK	TRAVEL, LEISURE, DOCUMENT

When PTY code is selected, the radio will search the band for the station that matches the PTY code.

OVERVIEW OF THE RDS FUNCTION

Radio Data System (RDS) is a broadcasting service that allows FM stations to send additional digital information along with the regular radio program signal. Your car stereo offers you a variety of services. Here are just a few:

- **PI (Program identification)**
It is a code that identifies RDS stations; it is unique for each station.
- **PS (PROGRAM Service Name)**
The name of the current station, it is shown on the display.
- **AF (Alternative Frequencies List)**
The list(s) of Alternative Frequencies give information on the various transmitters broadcasting the same program in the same or adjacent reception area. If the main frequency should get worse, the radio will tune automatically to the strongest Alternative frequency.
- **TP (Traffic Program)**
If the tuned program carries Traffic Announcement, the TP indicator will turn on.
- **TA (Traffic Announcement)**
When an actual traffic bulletin is on air, the TA indicator will also turn on.
- **PTY (Program Type Codes)**
This code is used to designate the current program material being broadcast. With this feature, you can search the programs that match the selected program type, which is chosen from a specific list of types.
- **EON (Enhanced Other Networks Information)**
It is a supplementary service enabling the radio to obtain information not only from the current station but also from the others.
- **CT (Clock Time)**
This function permits to update the clock of the receiver to the nation from which the station is broadcasting (from PI). It could happen that on the display will be shown the wrong hour; this happens because in Italy the Clock Time function is not working yet.

Notes

- Depending on the country or region, not all of the RDS functions are available in Italy.
- RDS may not work properly if the signal strength is weak or if the station you are tuned to is not transmitting RDS data.

PROGRAMMABLE OPTIONALS

To use this function keep press long **SEL** Button for few seconds, each time you press this Button the mode will move and the functions will shown on the display, turn the **encoder volume knob up/ down** to set the desires functions ,the function states as following:

- **TA SEEK, TA ALARM**
To determine what action will the radio take if the newly tuned station does not receive TP Information for 5 seconds.
TA SEEK
The radio retunes to a different station which contains TP information.
TA ALARM
The radio does not retune but beeps will come out.
- **PI SOUND, PI MUTE**
When the vehicle is crossing the area where two stations with same AF but different PI code can be received at the same time, the receiver will become unstable, under this situation two modes can be selected.
PI SOUND
The different PI sounds will be heard.
PI MUTE
Under the same situation, the radio will be muted.
- **RETUNE L, RETUNE S**
To determine the initial time of automatic TA Search or PI Search.
RETUNE L 90 seconds
RETUNE S 30 seconds
- **MASK PI, MASK ALL**
"PI" is referred to "Different PI with same AF".
During AF search, PI stations and non-RDS stations with strong signal will be masked, in the latter case, the non-RDS stations may cause interference, resulting the real AF to be masked due to the misjudgment of the radio under interference.
There are two options to handle this situation.
MASK PI to mask only the AF with different PI.
MASK ALL mask both PI and strong signal non-RDS stations.
- **BEEPS 2ND, BEEP ALL, BEEP OFF**
To determine how the beep sound is generated when the keys are pressed.
BEEP 2ND Beeps only when the second function of the dual function button is selected (long press).
BEEP ALL Beeps when any buttons is pressed.
BEEP OFF To disable the beep option.

7.CD OPERATIONS

CD SLOT

Insert the disc into CD slot. The CD will begin to play.

M1) PAUSE BUTTON (PAU)

Press this button to pause CD play, press again to release pause.

M2) SCAN BUTTON (SCN)

Press this button, the first 10 seconds of each track will be played sequentially until this button is pressed again, then normal play will resume at the current track.

M3) REPEAT BUTTON (RPT)

Press this button, the current track will be played repeatedly until this button is pressed again.

M4) SHUFFLE BUTTON (SHF)

Press this button to play all tracks on CD in random. Press again to deactivate it.

EJECT BUTTON ▲

Press this button to eject the CD from the unit. The receiver will switch to radio mode automatically.

TRACK UP AND TRACK DOWN BUTTON

Press the Track Up Button to skip to the next track or previous track. Press the Track Down button during play will return to the beginning of the current track, press it one more time to skip to previous skip. Press and hold Track Up/Down Button to fast forward or fast reverse. CD player starts when you release the button.

8.SPECIFICATIONS

CD PLAYER

System	Compact disc audio system
Usable disc	Compact disc
Sampling frequency	44.1KHz
No of quantization bits	1bit
Frequency	5-20,000Hz
Number of channels	2 stereo
S/N Ration	70dB

RADIO SECTION

FM

Frequency Range	87.5-108 Mhz
Intermediate Frequency	10.7 MHz
Usable Sensitivity	Better than 15dB at S/N 30 dB
Stereo Separation	25 dB at 1KHz
S/N Ratio	50 dB

AM(MW)

Frequency Range	522-1620 Khz
Intermediate Frequency	450KHz
Usable Sensitivity	Better than 45dB
S/N Ratio	40 dB

GENERAL

Power Supply	DC 11 -14V
Polarity	Negative Ground
Speaker impedance	4 ohms
Power Output	30W x 4

REMARK :

Specifications subject to change without notice.

9.TROUBLE SHOOTING

Before going through the check list, check wiring connection. If any of the problems persist After check list has been made, consult your nearest service dealer.

Symptom	Cause	Solution
No power	The car ignition is not on.	If the power supply is properly connected to the car accessory terminal, switch the ignition key to
	The fuse is blown.	Replace the fuse.
Disc cannot be loaded or ejected	Presence of CD disc inside the player.	Remove the disc in the player, then put a new one.
	Inserting the disc in reverse direction.	Insert the compact disc with the label facing upward.
	Compact disc is extremely dirty or defective disc.	Clean the disc or try to play a new one.
	Temperature inside the car is too high.	Cool off or until the ambient temperature returns to normal.
	Condensation.	Leave the player to off for an hour or so, then try again.
No sound	Volume is in minimum.	Adjust volume to a desired level.
	Wiring is not properly connected.	Check wiring connection.
The operation keys do not work	The built-in microcomputer is not operating properly due to noise.	Press the RESET button. Front panel is not properly fixed into its
Sound skips.	The installation angle is more than 30 degrees.	Adjust the installation angle to less than 30 degrees.
	The disc is extremely dirt or defective disc.	Clean the compact disc. Then try to play a new one.
The radio does not work. The radio station automatic selection	The antenna cable is not connected.	Insert the antenna cable firmly.
	The signals are too weak.	Select a station manually.
ERROR 1	Mechanism Error	Press the reset button if the error code does not disappear, consult your nearest service dealer.
ERROR 2	Servo Error	Press the reset button if the error code does not disappear, consult your nearest service dealer.