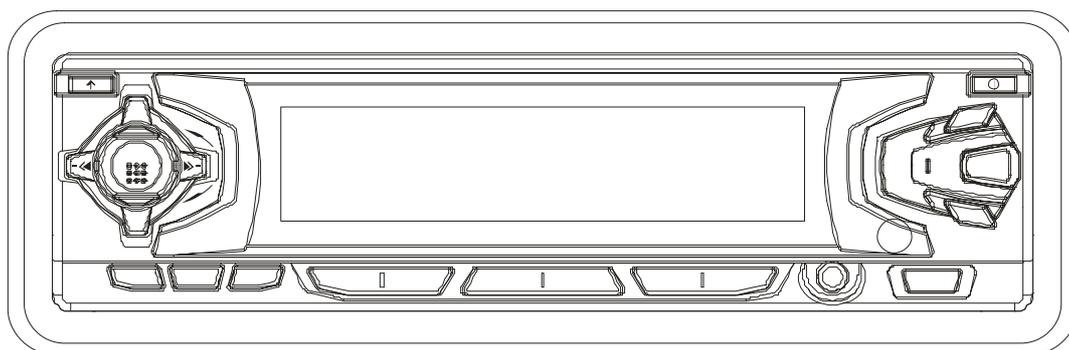


OWNER'S MANUAL

Mobile Audio System



- **PLL Synthesizer Stereo Radio**
- **Cassette Player**
- **Automatic Memory Storing**
- **Fold Down Full Detachable Panel**
- **Preset Equalization**
- **CD Changer Control (FOR CDC VERSION ONLY)**
- **Auxiliary Input Function (FOR AUX IN VERSION ONLY)**
- **Remote Control (OPTIONAL)**

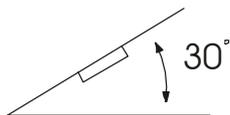
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INSTALLATION

Notes:

- Choose the mounting location where the unit will not interfere with the normal driving function of the driver.
- Before finally installing the unit, connect the wiring temporarily and make sure it is all connected up properly and the unit and the 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.



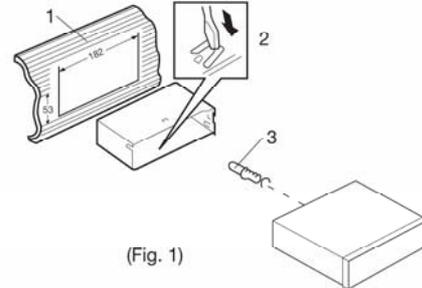
- Avoid installing the unit where it would be subject to high temperature, such as from direct sunlight, or from hot air, from the heater, or where it would be subject to dust, dirt or excessive vibration.

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.

DIN FRONT-MOUNT (Method A)

Installing the unit

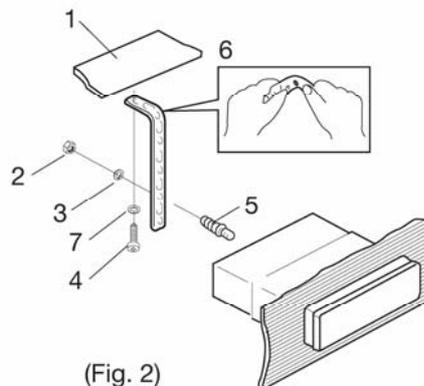


(Fig. 1)

1. Dashboard
2. Holder

After inserting the holder 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



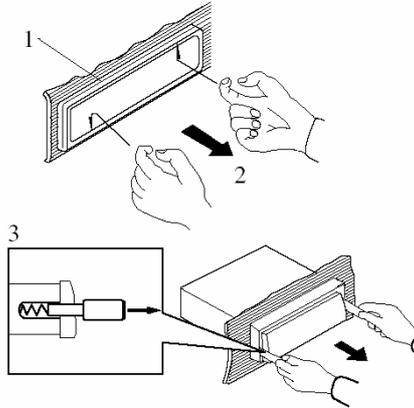
(Fig. 2)

1. Dashboard
2. Nut (5mm)
3. Spring washer
4. Screw (5x25mm)
5. Screw
6. Strap
7. Plain washer

Be sure to use the strap to secure the back of the unit in place. The strap can be bent by hand to the desired angle.

INSTALLATION

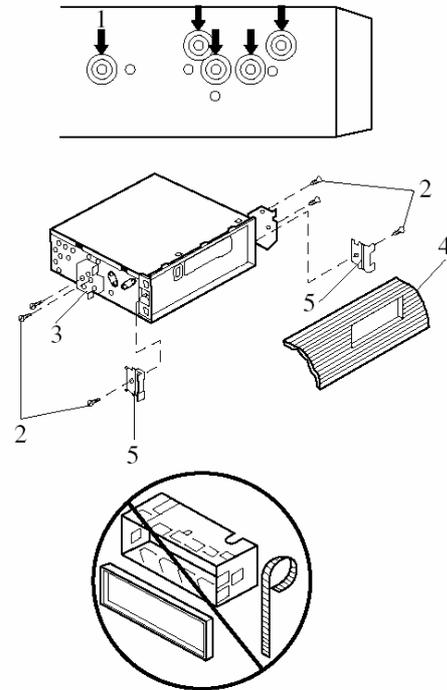
Removing the unit



1. Frame
2. Insert the fingers into the groove in the front of frame and pull out to remove the frame. (When reattaching the frame, point the side with a groove downwards and attach it.)
3. Lever
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.

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.

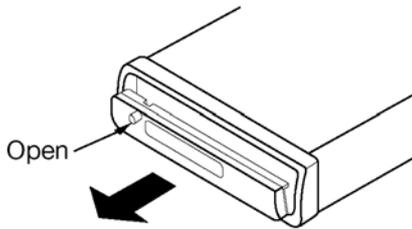
1. Select a position where the screw holes of the bracket and the screw holes of the main unit become aligned (are fitted), and tighten the screws at 2 places on each side.
Use either truss screws (5 x 5mm) or flush surface screw (4 x 5mm), depending on the shape of the screw holes in the bracket.
2. 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.

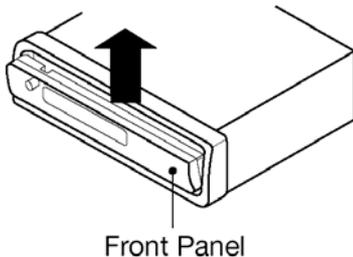
USING THE DETACHABLE FRONT PANEL

To Detach the Front Panel

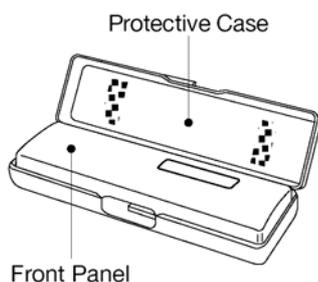
1. Press the **OPEN** button, then the front panel will be folded down.



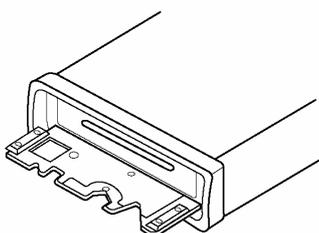
2. Remove the front panel by pulling its middle-hand side outward.



3. For safekeeping, store the front panel in the supplied protective case immediately after being removed.

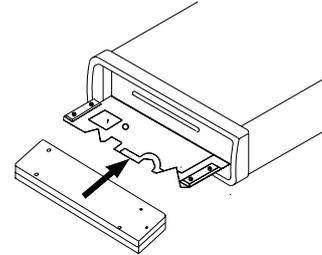


4. Push the front metal plate into the main body. A 'click' sound will be heard.



To Reinstall the Front Panel

1. When the metal plate is folded down, insert the front panel into the metal plate then push them into the main body. A 'click' sound should be heard.



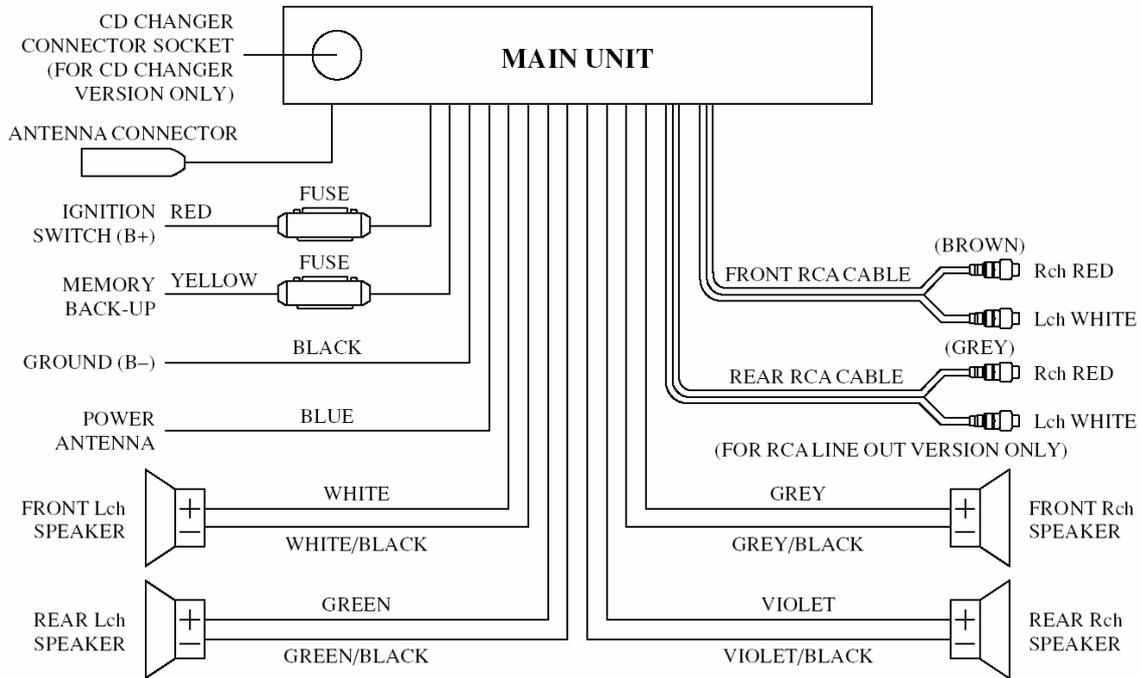
2. Note that if the front panel fails to lock in position properly, pressing control button may not function and display may be missing some segments. Press the **OPEN** button and then reinstall the front panel again.

Precautions when handling

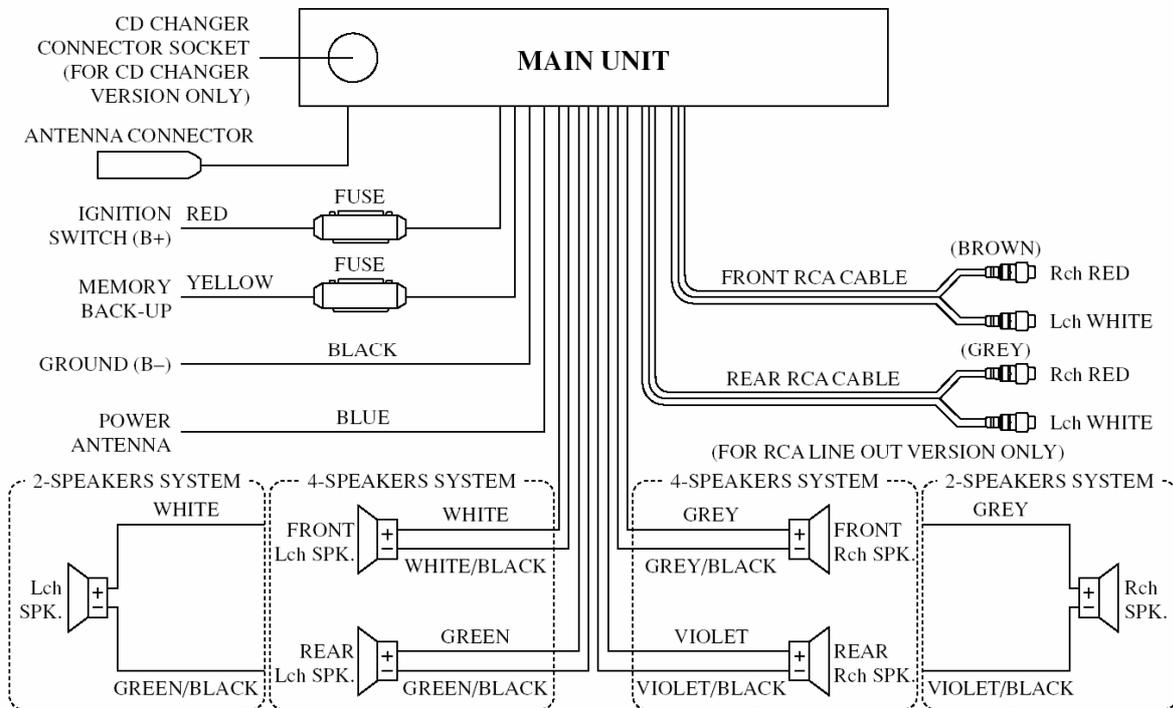
1. Do not drop the front panel.
2. Do not put pressure on the display or control buttons when detaching or re-installing the front panel.
3. Do not touch the contacts on the front panel or on the main unit body. It may result in poor electrical contact.
4. If any dirt or foreign substances adhered on the contacts, they can be removed with a clean and dry cloth.
5. Do not expose the front panel to high temperatures or direct sunlight in anywhere.
6. Keep away any volatile agents (e.g. benzene, thinner, or insecticides) from touching the surface of the front panel
7. Do not attempt to disassemble the front panel.

WIRING CONNECTION

For 4 x 25W or 4 x 40W System



For 4 x 7W or 2 x 25W System

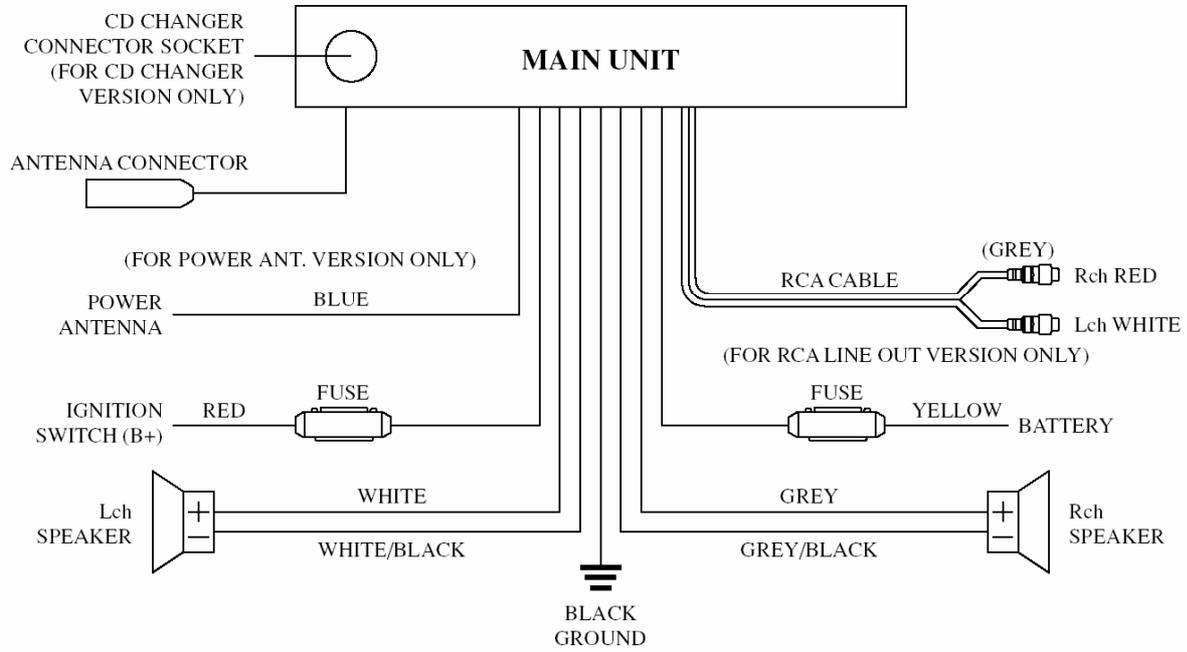


Note:

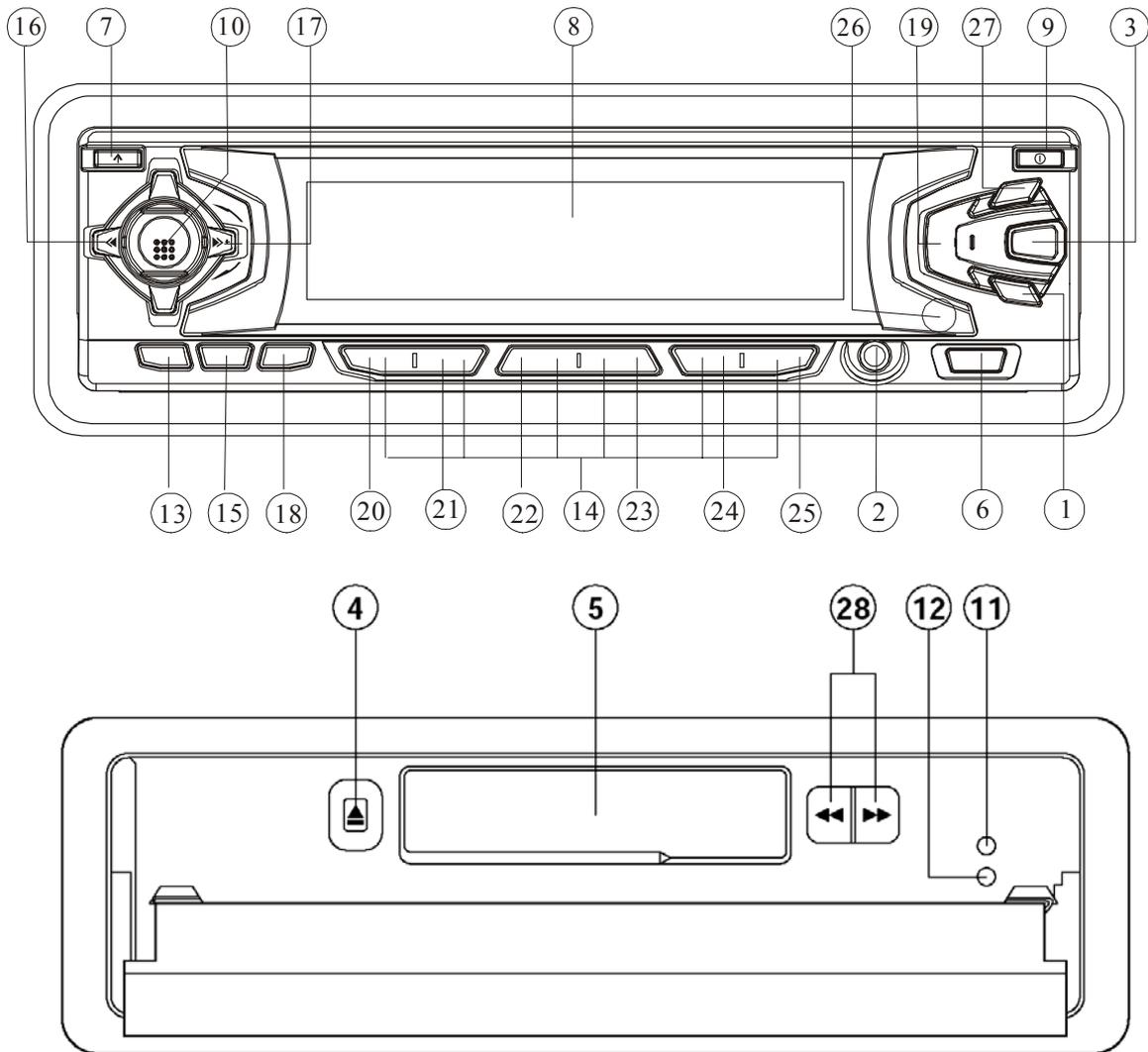
1. For 2-speakers system, green, violet, white/black and grey/black wire leads are unconnected and isolated.
2. For 2-speakers system, keep the fader indicator at center position to maintain the existing volume level.

WIRING CONNECTION

For 2 x 7W System



OPERATION

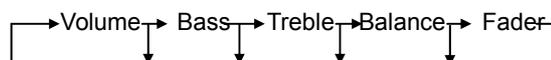


GENERAL OPERATION

- **ON/OFF (FOR LCD VERSION ONLY)**
Switch on the unit by pressing any button (except **OPEN** button (7) and **EJECT** button (4)). When system is on, press \odot button (9) to turn off the unit.
- **ON/OFF/ILLUMINATE (FOR VFD VERSION ONLY)**
Switch on the unit by pressing any button (except **OPEN** button (7) and **EJECT** button (4)). When system is on, press \odot /ILL button (9) shortly to control the brightness of VFD. Press

it for several seconds to turn off the unit.

- **FACEPLATE RELEASE**
Press **OPEN** button (7) to fold down the front panel.
- **SOUND ADJUSTMENT**
Press **SEL** button (10) shortly to select the desired adjustment mode. The adjustment mode will change in the following order:



By rotating the **AUDIO ADJ** knob (10), it is possible to adjust the desired sound quality.

OPERATION

- **LOUDNESS**
Press **BND/LOU** button (13) for several seconds to reinforce the bass output and display will show "LOUD". Press it for several seconds again to release this function.
- **SET THE CLOCK**
Press and hold down the **DISP** button (15) until the clock is shown on the display and flashes. Then press the **MANU/SKIP** \ll button (16) to change minutes or **MANU/SKIP** \gg button (17) to change hours.
- **SELECT MODE**
Press **MODE** button (6) to choose desired listening mode. (e.g. radio mode to cassette mode to CDC mode to AUX IN mode.)
CD source can be input from the CDC socket (back of the unit).
- **MUTE**
Press **MUT** button (3) to mute down the sound instantly. If any button (except **OPEN** button (7) and **EJECT** button (4)) is pressed in mute state, the mute mode is released.
- **LIQUID CRYSTAL DISPLAY**
Exhibit current frequency and activated functions on the display (8).
- **EQUALIZATION**
Press **EQ** button (19) to turn on equalization function and to select desired audio mode. There are five kinds of mode as below:

→ DSP OFF → FLAT → CLASSICS → POP M → ROCK M

- **REMOTE SENSOR (OPTIONAL)**
Point the remote control handset to the remote sensor **IR** (26). Press the function keys on the handset to control the system.
- **AUXILIARY INPUT**
The unit can be connected to a portable audio player through the **AUX IN** jack (2)
- **FLASHING LED**
If the front panel does not install in the main unit, the LED (11) will be flashing.
- **RESET**
Reset button (12) must be activated with either a ballpoint pen or thin metal object. 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 (12), the unit can't work yet, please use a cotton swab soaked in isopropyl alcohol to clean the socket on the front panel.

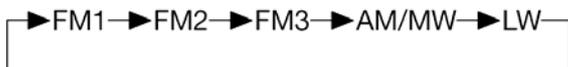
OPERATION

RADIO OPERATION

● BAND SELECTION

At tuner mode, press **BND/LOU** button (13) shortly to select the desired band.

The reception band will change in the following order:



● SELECTING STATION

Press **SKIP/MANU** $\gg+$ button (17) or **SKIP/MANU** $\ll-$ button (16) shortly to activate automatic seek function. Press for several seconds until “**MANUAL**” appears on the display, the manual tuning mode is selected. If both buttons have not pressed for several seconds, they will return to seek tuning mode and “**AUTO**” appears on the display.

● LOCAL/DISTANT

Press **LOC** button (1) to select between local and distant stations.

Local setting for reception of strong station, and a distant setting for reception of weaker stations. This function is effect during AUTO SEEK operation.

● AUTOMATIC MEMORY STORING & PROGRAM SCANNING

- Automatic memory storing

Press **AS/PS** button (18) for several seconds, the radio searches from the current frequency and checks the signal strength until one cycle search is finished. And then 6 strongest stations are stored into the corresponding preset number button.

- Program scanning

Press **AS/PS** button (18) shortly to scan preset station. When the field

strength level is more than the threshold level of stop level, the radio is holding at that preset number for several seconds with release mute, then searches again.

● STATION STORING

Press any one of the preset buttons (14) (1 to 6) to select a station, which had been stored in the memory. Press this button for several seconds, current station is stored into the number button.

● MONO/STEREO

Press **MON** button (27) to select mono or stereo mode. You can sometimes improve reception of distant stations by selection mono operation.

OPERATION

CASSETTE OPERATION

- **PROGRAM BUTTON (FOR AUTO-REVERSE VERSION ONLY)**

These two buttons (28) perform the dual functions of changing the direction of tape playback and fast forward/rewind of the tape.

- Change Tape Playback Direction:
Press both buttons together to play the other side of a tape.
- Fast forward/rewind:
Press the button with the double arrows pointing the same direction as the direction indicator in the LCD to fast forward; press other button in the opposite direction to fast rewind.

- **EJECT**

- For Auto Stop Version:
Push halfway to run the cassette tape fast forward and fully down to eject the cassette tape.
- For Auto Reverse Version:
Push down to eject the cassette tape.

- **CASSETTE COMPARTMENT**

Insert a cassette tape into the cassette compartment (5). The cassette mechanism will load it in play mode.

CD CHANGER OPERATION (FOR CD CHANGER VERSION ONLY)

- **SELECT TRACKS**

Press **MANU/SKIP** -<< button (16) or **MANU/SKIP** >>+ button (17) to move to the previous track or the following track. Track number shows on display.

Hold press **MANU/SKIP** -<< button (16) or **MANU/SKIP** >>+ button (17) to fast reverse or fast forward. Disc play starts from when you release the button.

- **PAUSE PLAYING**

Press **PAU** button (20) to pause CDC player. Press it again to resume play.

- **PREVIEWING ALL TRACKS**

Press **SCN** button (21) shortly to play first several seconds of each track on current disc. Press and hold **SCN** button (21) for several seconds to play first several seconds of the first track on each disc in the CD magazine. Press it again to stop intro and listen to track.

- **REPEATING INDIVIDUAL TRACKS OR WHOLE CDs**

Press **RPT** button (22) shortly to continuously repeat the same track. Press and hold **RPT** button (22) for several seconds to continuously repeat all tracks on the current disc. Press it again to stop repeat.

- **PLAYING ALL TRACKS IN RANDOM**

Press **SHF** button (23) shortly to play all tracks on the current disc in random order. Press and hold **SHF** button (23) for several seconds to select a disc in random and play the selected disc in random order. Press it again to cancel the function.

- **SELECTING DISC**

Press **D.DN** button (24) to select previous disc and **D.UP** button (25) to select next disc.

SPECIFICATION

GENERAL

Power Supply Requirements	: DC 12 Volts, Negative Ground
Chassis Dimensions	: 178 (W) x 155 (D) x 50 (H)
Maximum Output Power	
- Version V	: 4x7 watts or 2x25 watts
- Version Z	: 4x25 watts
- Version Y	: 4x40 watts
- Low Power Version	: 2x7 watts
Current Drain	
- Version V	: 5 Ampere (max.) (For Normal Power Version)
- Version Z	: 10 Ampere (max.) (For High Power Version)
- Version Y	: 15 Ampere (max.) (For High Power Version)
- Low Power Version	: 3 Ampere (max.) (For Low Power Version)

CASSETTE PLAYER

Tape Speed	: 4.76 cm/sec
Fast Forward Time	: 180 seconds (C-60 type)
Frequency Response	: 125 to 6,300 Hz
Channel Separation	: >35 dB
Crosstalk	: >40 dB
Wow and Flutter	: <0.35% WRMS
Tone Controls	
- Bass (at 100 Hz)	: ± 10 dB
- Treble (at 10 kHz)	: ± 10 dB

RADIO

	For 3 Bands (Europe)	For 2 Bands (Europe)	For 2 Bands (U.S.A.)
	FM	FM	FM
Frequency Coverage	87.5 to 108 MHz	87.5 to 108 MHz	87.5 to 107.9 MHz
IF	10.7 MHz	10.7 MHz	10.7 MHz
Sensitivity (S/N=30dB)	4 μ V	4 μ V	4 μ V
Stereo Separation	>25dB	>25dB	>25dB
	MW	MW	AM
Frequency Coverage	522 to 1620 kHz	522 to 1620 kHz	530 to 1710 kHz
IF	450 kHz	450 kHz	450 kHz
Sensitivity (S/N=20dB)	36 dBu	36 dBu	36 dBu
	LW		
Frequency Coverage	144 to 288 kHz		
IF	450 kHz		
Sensitivity (S/N=20dB)	38 dBu		

TROUBLE SHOOTING

The following checks will assist in reaction of most problems which you may counter with your unit. After you have made these check, If there has any problem persist, consult your nearest service dealer.

Before going through the checklist be first refer back to the connection operation procedures.

Symptom	Cause	Solution
No power.	The ignition switch is not ON.	If the power supply is connected to the car accessory circuits, but the engine is not moving, switch the ignition key to "ACC".
	The fuse is blown.	Replace the fuse with another fuse.
No Sound.	The power is not connected properly.	Double check the power line.
	The connection lines are not connected properly.	Check the speaker wires and other connection wires.
Cassette tape can not be loaded or Ejected.	Presence of a cassette tape in the player.	Remove the cassette tape in the player, then put in the new one.
	The temperature in the car is too high.	Cool off the inside of the car, then try again.
	Condensation.	Leave the cassette player off for an hour or so then try again.
The sound quality is poor.	The cassette is defective.	Try another cassette. If that cassette plays properly, the first cassette is defective.
The radio does not Work.	The antenna cable is not connected.	Insert the antenna cable firmly.
The radio station automatic selection does not work.	The signals are too weak.	Select a station manually.

CAUTION

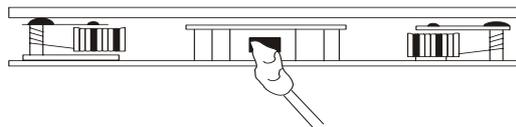
Metal parts of this unit (especially on the back) become quite hot during operation, to be careful to avoid touching parts other than the handle immediately after removing the unit.

MAINTENANCE

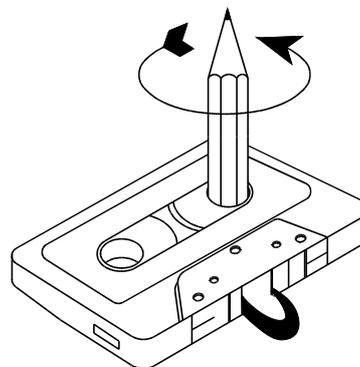
For System

The following suggestions help you care for the product so that you can enjoy it for years.

1. Keep the product dry. If it does get wet, wipe it dry immediately. Liquids might contain minerals that can corrode the electronic circuits.
2. Keep the product away from dust and dirt, which can cause premature wear of parts.
3. Handle the product gently and carefully. Dropping it can damage circuit boards and cases, and can cause the product to work improperly.
4. Wipe the product with a dampened cloth occasionally to keep it looking new. Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the product.
5. Use and store the product only in normal temperature environments. High temperature can shorten the life of electronic devices, damage batteries, and distort or melt plastic parts.



4. Clean the capstans and the pinch rollers with the cotton swab.
5. Allow the tape head, capstans and pinch rollers to dry before operating.
6. Do not touch the tape with your fingers, if it becomes loose, wind it back by twisting a six-sided pencil in the cassette reel.



For Tape Player

Periodic cleaning of the tape head and capstan shaft will ensure good reproduction of music and trouble-free operation. Cleaning of the tape head should be done every 20 to 30 hours of operation or when the high tones have become less clear.

1. Use a cassette-cleaning cartridge if available. If one is not available, use a cotton swab soaked in isopropyl rubbing alcohol.
2. While holding the tape door open, locate tape head to the right of the opening and in the centre of the unit.
3. Clean the tape head with the cotton swab.

IGNITION AND INTERFERENCE NOISE

Ignition

The most common source of noise in reception is the ignition system. This is normally due to the fact that radio is placed relatively close to the ignition system (engine). This type of noise can be easily detected because it will vary in intensity of pitch with the speed of the engine.

Usually, the ignition noise can be suppressed considerably by using a radio suppression type high voltage ignition wire and suppressor resistor in the ignition system. (Most vehicles employ this wire and resistor but it may be necessary to check them for correct operation.) Another method of suppression is the use of additional noise suppressors. These can be obtained from most CB/A amateur radio or electronic supply shops.

Interference

Radio reception in a moving environment (automobile) is very different from reception in a stationary (home). It is very important to understand the difference.

AM reception will deteriorate when passing through a tunnel or when passing under high voltage lines. Also, noise can be picked up from passing automobiles. Although AM is subject to environmental noise, it has the ability to be received at great distance. This is due to the fact that broadcasting signals follow the curvature of the earth and are reflected back by the upper atmosphere.

FM reception is just the opposite of AM. It is not subject to environmental noise and it does have the ability to be received at great distances (usually 30 miles). Also, tall buildings, mountains, or hills can block the FM signal.

To reduce the possibility of these problems, ALWAYS FINE TUNE a station, and if possible, set the antenna height to 30 inches.

CAUTION

1. This unit is designed to operate on 12-volts DC, negative ground electrical system only. Do not attempt to install this unit in a vehicle having a positive ground system.
2. You should not touch the high-polished playback head with any metallic or magnetic tools.
3. Your unit has built-in filtering to eliminate most of the noise that might come through the power source. However, with some vehicles, particularly older models, some clicking or other unwanted noise might be present.