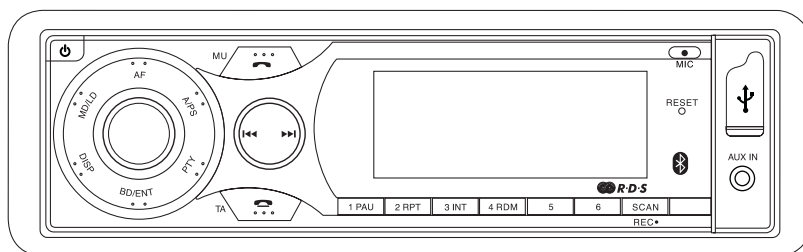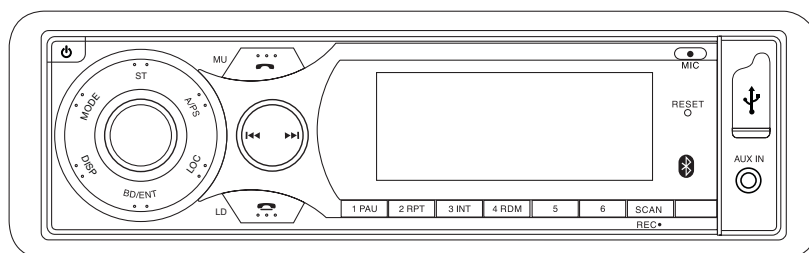# Operating and Installation Guide

Radio with Bluetooth and I-Pod Control
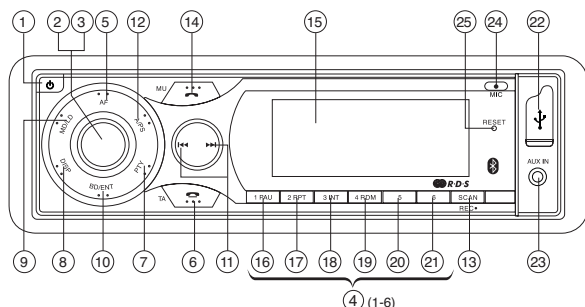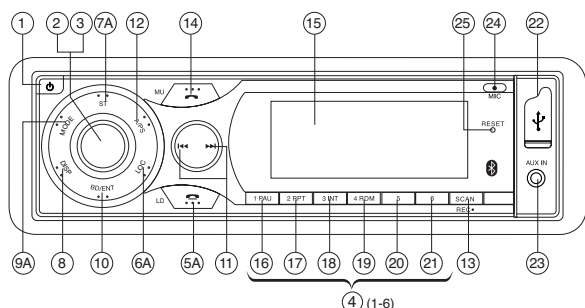
87752823 (Europe)

87752824 (NASO)

87489576

LOCATIONS OF CONTROLS

RDS Version (Europe)

without RDS Version (NASO)

1. POWER ON/OFF (⏻)
2. FUNCTION SELECT BUTTON: CONTROLS FOR BASS/TREBLE/BALANCE/FADER /
    (RDS: for Europe) INITIAL VOLUME / CT / TA VOL / EON / REC MODE / DSP
    (without RDS: for NASO) INITIAL VOLUME / CT / REC MODE / DSP
3. VOL UP/VOL DOWN BUTTON: CONTROLS FOR BASS/TREBLE/BALANCE/FADER /
    (RDS: for Europe) INITIAL VOLUME / CT / TA VOL / EON / REC MODE / DSP
    (without RDS: for NASO) INITIAL VOLUME / CT / REC MODE / DSP
4. PRESET STATIONS (1,2,3,4,5,6)
5. *(RDS: for Europe)* 'AF' function (ALTERNATIVE FREQUENCIES)
6. *(RDS: for Europe)* 'TA' function (TRAFFIC ANNOUNCEMENT) / END A CALL (☎)
7. *(RDS: for Europe)* 'PTY' function (PROGRAM TYPE)
5A. *(without RDS: for NASO)* LOUDNESS BUTTON (LD) / END A CALL (☎)
6A. *(without RDS: for NASO)* LOCAL/DISTANT BUTTON (LOC)
7A. *(without RDS: for NASO)* STEREO/MONO SELECTOR (ST)
8. DISPLAY BUTTON (DISP)
9. *(RDS: for Europe)* MODE/LOUDNESS BUTTON (MD/LD)
9A. *(without RDS: for NASO)* MODE BUTTON (MODE)
10. BAND/ENTER BUTTON (BD/ENT)
11. AUTOMATIC OR MANUAL TUNING (FREQ UP ▶▶ OR FREQ DOWN ◀◀)
12. AUTO SEEK SEARCH TUNING (A/PS)
13. 'SCAN' AUTOMATIC TUNING CONTROL / RECORD (SCAN/REC•)
14. MUTE BUTTON (MU) / ANSWER A CALL (☎)
15. LCD DISPLAY
16. PAUSE BUTTON *(for USB playback only)*
17. REPEAT BUTTON *(for USB playback only)*
18. INTRO BUTTON (Preview all Tracks) *(for USB playback only)*
19. RANDOM BUTTON *(for USB playback only)*
20, 21. FOLDER DOWN/UP (MP3/WMA Files only) *(for USB playback only)*
22. USB PORT
23. FRONT AUX IN
24. MICROPHONE *(for Bluetooth handsfree conversation)*
25. RESET

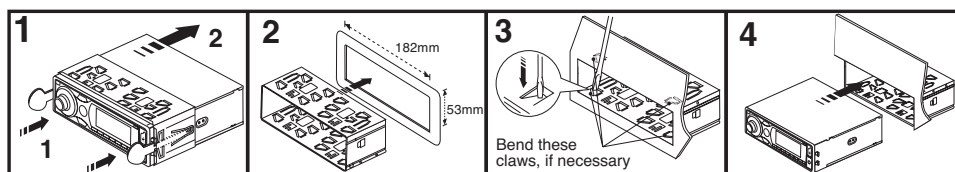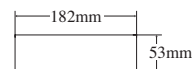## INSTALLATION (Non-Agricultural vehicle installation only)
PRECAUTIONS

- Choose the mounting location carefully so that the unit will not interfere with the normal driving functions of the driver.
- Avoid installing the unit where it would be subject to high temperatures, such as from direct sunlight or hot air from the heater, or where it would be subject to dust, dirt or excessive vibration.
- Use only the supplied mounting hardware for a safe and secure installation.
- Be sure to remove the front panel before installing the unit.

Mounting angle adjustment
Adjust the mounting angle to less than 20°.

MOUNTING EXAMPLE
Installation in the dashboard

Note: Keep the release key in a safe place as you may need it in the future to remove the unit from the car.

ISO CONNECTOR

RCA Jack Line Out
   White (left)   Red (right)

CONNECTOR A
1.
2.
3.
4.   MEMORY +12V
5.   AUTO ANTENNA OUTPUT
6.   DIMMER CONTROL
7.   +12V (TO IGNITION KEY)
8.   GROUND

Note: (connector A no. 7) must be connected to the vehicle ignition input in order to avoid the battery being drained when the vehicle is not used for long periods.

CONNECTOR B
1.   REAR RIGHT SPEAKER (+)
2.   REAR RIGHT SPEAKER (-)
3.   FRONT RIGHT SPEAKER (+)
4.   FRONT RIGHT SPEAKER (-)
5.   FRONT LEFT SPEAKER (+)
6.   FRONT LEFT SPEAKER (-)
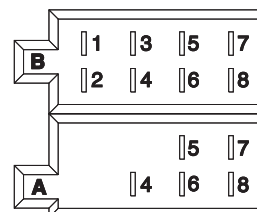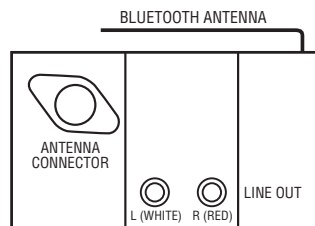7.   REAR LEFT SPEAKER (+)
8.   REAR LEFT SPEAKER (-)

Maintenance
FUSE REPLACEMENT
If the fuse blows, check the power connection and replace the fuse. If the fuse blows again after the replacement, there may be an internal malfunction. In this case, consult your nearest repair center.

Warning
Use the specified amperage fuse for each lead. Use of a higher amperage fuse may cause serious damage.

OPERATING INSTRUCTIONS

1. POWER ON/OFF (⏻)
Press (⏻) to turn on unit. Press and hold to turn OFF.

2. FUNCTION SELECT BUTTON: BASS/TREBLE/BALANCE/FADER /
(RDS: for Europe) **INITIAL VOLUME / CT / TA VOL / EON / REC MODE / DSP**
(without RDS: for NASO) **INITIAL VOLUME / CT / REC MODE / DSP**

3. VOLUME UP/DOWN
Turning **VOL** knob (right/left) to adjust VOL/BAS/TRE/BAL/FAD. To select other functions, press the **VOL** knob shortly until the desired functions are shown on the display. Figure 1 shows how to control functions that are selected using the **VOL** knob.
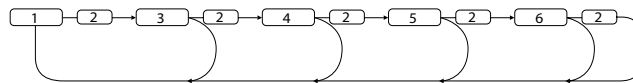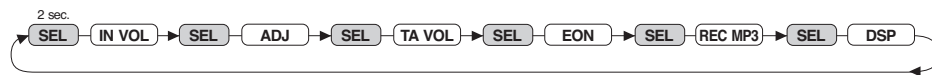
```
1 → 2 → 3 → 2 → 4 → 2 → 5 → 2 → 6 → 2
```

Fig. 1 Selection of sound control functions

1. VOL	2. SEL	3. BASS	4. TRE	5. BAL	6. FAD

Increase or decrease the volume by turning VOL knob (right/left). These buttons can be used to adjust the BASS, TREBLE, BALANCE and FADER.
(RDS: for Europe)

```
2 sec.
SEL → IN VOL → SEL → ADJ → SEL → TA VOL → SEL → EON → SEL → REC MP3 → SEL → DSP
```

Press and hold **VOL** knob to adjust INIT VOL /CT/TA VOL/EON ON/REC MODE/DSP
IN VOL: Can adjust Initial Volume level using this mode.
ADJ: Can adjust clock time. Turn **VOL** knob clockwise to set hours and counter clockwise to set minutes.
TA VOL: Can adjust TA Volume (The volume level when Traffic announcement is transmitted).
EON: Can selected EON condition, ON or OFF.
REC MP3:   Can select REC mode (MP3 or WMA)
DSP: Can select DSP mode (Classic, POP, Rock, Flat)

(without RDS: for NASO)

```
2 sec.
SEL → IN VOL → SEL → ADJ → SEL → REC MP3 → SEL → DSP
```

Press and hold **VOL** knob to adjust INIT VOL /CT/REC MODE/DSP
IN VOL: Can adjust Initial Volume level using this mode.
ADJ: Can adjust clock time. Turn **VOL** knob clockwise to set hours and counter clockwise to set minutes.
REC MP3:   Can select REC mode (MP3 or WMA)
DSP: Can select DSP mode (Classic, POP, Rock, Flat)

4. PRESET STATIONS (1,2,3,4,5,6)
When pressed momentarily, these keys select a preset station directly. When pressed longer than 1 sec., current station is stored in preset memory bank.

(RDS: for Europe)
USING THE RDS FUNCTION
What is RDS?
The RDS (Radio Data System) is a digital information system developed by the EBU (European Broadcast Union). Piggy-backed on normal FM broadcasts, RDS offers a variety of information services and automatic retuning functions for RDS-compatible car stereos.
In 1988, RDS became available in the United Kingdom, France, West Germany, Ireland and Sweden. Test transmissions are being conducted in many other European countries. It is expected that RDS will be available in most western European countries in the near future.

5. **'AF/REG' function (ALTERNATIVE FREQUENCIES)**
When pressed momentarily, AF/REG switching mode is selected.
When AF/REG switching mode is selected, the radio checks 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 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.

6. **'TA' function (TRAFFIC ANNOUNCEMENT)**
When pressed momentarily, it is activated as TA mode on or off
When TA mode is on and traffic announcement is transmitted
– If the volume level 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.

7. **'PTY' function (PROGRAM TYPE)**
When pressed momentarily, it is activated as TPY ON/OFF function and start to search corresponding PTY information then stops if the corresponding PTY information is detected.
By pressing this key longer than 2 sec., you can select PTY mode by turning Volume knob as below.
NEWS--AFFAIRS--INFO--SPORT--EDUCATE--DRAMA--CULTURE--SCIENCE--VARIED--POP--ROCK--EASY M--LIGHT M--CLASSIC--OTHER M--WEATHER--FINANCE--CHILDREN--SOCIAL--RELIGION--PHONE IN--TRAVEL--LEISURE--JAZZ--COUNTRY--NATION. M--OLDIES--FOLK M--DOCUMENT--TEST--ALARM

(without RDS: for NASO)
5A. **LOUDNESS BUTTON (LD)**
Press this button to boost the bass and treble response. Push button again to return to normal operation. This function is useful when listening at low levels. Loudspeakers are inefficient at low power levels and will tend to sound flat. The loudness control will boost the bass and treble response thus giving a more lively performance.

6A. **LOCAL/DISTANT BUTTON (LOC)**
Press LOC button for listening to strong stations. "LOC ON" indicator will appear on the display. Press this button again (Distant mode) for normal operation.

7A. **STEREO/MONO SELECTOR (ST)**
This function will only affect the FM reception. Press this button if the FM reception becomes noisy/hissy. If the station being received is in stereo, it will now be played in mono. Press this button again to return the receiver to normal reception.

8. **DISPLAY (DISP)**
Press **DISP** button to switch between display information such as radio frequencies, clock, track and other information depending on the playing MODE.

9. **MODE/LOUDNESS BUTTON (MD/LD) (RDS: for Europe)**
By pressing this key, user can select. AUX/TUNER/USB/AD2P mode.
LOUDNESS: By pressing this key longer than 2 sec., you can select LOUDNESS mode.

9A. **MODE BUTTON (MODE)** *(without RDS: for NASO)*
By pressing this key, user can select. AUX/TUNER/USB/AD2P mode.

10. **BAND BUTTON (BD)**
(RDS: for Europe) Each band is toggled cyclically by pressing this key FM1--FM2--FM3--MW1--MW2--LW.
(without RDS: for NASO) Each band is toggled cyclically by pressing this key FM1--FM2--FM3--AM1--AM2.

11. **AUTOMATIC OR MANUAL TUNING (FREQ UP ▶▶ OR FREQ DOWN ◀◀)**
(A) RADIO MODE
When pressed momentarily, these keys are operated as SEEK tuning mode.
When pressed longer than 1 sec., they are operated as MANUAL tuning mode.
(B) MP3/WMA PLAYER MODE
When pressed momentarily, they are operated as TRACK UP or TRACK DOWN mode.
When pressed longer than 1 sec., they are operated as CUE or REVIEW mode.

12. **AUTO SEEK SEARCH TUNING (A/PS)**
   PS - By pressing shortly, the radio searches for each preset station. Each preset station will be played for 5 sec.
   AS - By pressing longer than 1 sec, the 6 strongest stations are stored in the corresponding preset memory number. When Automatic Scan operation is finish, the radio executes the preset scan.

13. **'SCAN' AUTOMATIC TUNING CONTROL (SCAN)**
   Press **SCAN** button to activate radio scan. The unit will search for every station and will play 5 seconds of each station found. To cancel SCAN, press the button once more.

14. **MUTE BUTTON (MU)**
   Press this button to turn off the sound. Press it again to return to the previous volume level.

15. **LCD DISPLAY**
   The Liquid Crystal Display will display the current state of the unit.

MP3/WMA CONTROL LOCATION OF PARTS

TRACK/SEARCH BUTTON (11)
FORWARD AND REVERSE TRACK SEARCH (or changing songs)
Press the SKIP button (◄◄ or ►►) during play to go to the desired track(song).
   ◄◄ ....REVERSE   ►► ....FORWARD
Press and hold the SKIP button (◄◄ or ►►) during play to scan at high speed. When the desired music section is found, release the button. Normal play will resume.

16. **PAUSE BUTTON**
   During "PLAY", press (16) 'PAU' button to "PAUSE". Press it again to resume play.

17. **REPEAT BUTTON**
   When this button is pressed, "RPT ON" indication is displayed and play of the selected track will be continually repeated until the Track repeat mode is cancelled by pressing 'RPT' button again.

18. **INTRO BUTTON (Preview all Tracks)**
   When this button is pressed, "INT ON" indication is displayed and the first several seconds of each track is played. Press again to stop intro and listen to track.

19. **RANDOM BUTTON**
   When this button is pressed, "RDM ON" indication is displayed and each track is played in random instead of normal progression. To cancel RANDOM mode, press 'RDM' button (19) again.

20, 21. **FOLDER DOWN/UP (In case of MP3/WMA files)**
   Folder down / M6: Folder up

HOW TO SELECT MP3/WMA FILES
1. **Searching by Track:**
   • Press "A/PS", then search track is activated.
   • Turn "VOL" knob to left or right, select first digit desired.
   • Press "VOL" knob, then the first digit is fixed and second digit will flash.
   • Turn "VOL" knob to left or right, select 2'nd 3'rd respectively.
   • Press "BD/ENT", the song selected will start.
2. **Searching by Character:**
   • Press "A/PS" twice, then character search mode is activated.
   • Turn "VOL" knob to left or right, you can select the desired letter.
   • Press "VOL" knob, repeat steps above for 2'nd 3'rd character.
   • The songs with the same character that you selected is displayed.
   • Turn "VOL" knob to left or right, you can select the desired song.
   • Press "BD/ENT", then the song selected will start.
3. **Searching by File Name:**
   • Press "A/PS" 3 times, then folder search is activated.
   • Turn "VOL" knob to left or right, you can select the desired folder.
   • Press "BD/ENT", then the folder is fixed and the first file will be played.

Connecting it to Portable Digital MP3 Player

22. **USB PORT**
   Using USB cable to connect Your Portable Digital MP3 Player.
   Not all USB MP3 players types are supported

23. FRONT AUX IN
Convenient easy to use front "AUX IN" input jack, allows easy connection of Portable Media.

24. MICROPHONE

25. RESET
Reset button is placed on the housing.
The reset button is to be activated for the following reason:
• Initial installation of the unit when all wiring is completed.
• All the function button do not operate.
• Error symbol on the display.

RECORDING OPERATION

Recording / Storing / Deleting on USB Memory Stick
You can store recordings from the tuner (radio) on an USB memory stick. The recordings are made in the same order and end automatically when the memory is completely full.

Recording from the Tuner
• Insert a USB memory stick into the USB port.
• Use the **MODE** button select playback from the Band PLL tuner.

Starting Recording
• Press the **SCAN/REC•** button and keep it pressed for two seconds. **[REC USB]** appears in the display.
• Press the **BD/ENT** button **[RECORD]** appears in the display. Then **[R]** appears (flashing), followed by information on the storage location (e.g. **[01]**) and the length of the recording (e.g. **[19.58]**).

Stopping Recording
• Press the **BD/ENT** button.

Starting Delete
• Use the **MODE** button to select the USB mode. Track playback begins.
• Press the **SCAN/REC•** button and keep it pressed for two seconds. **[DELETE]** appears in the display.
• Press the **BD/ENT** button. The current track is deleted automatically.
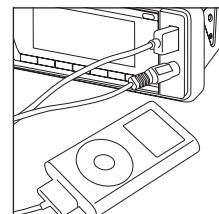
CONNECTING iPod

You can connect your iPOD portable device and play songs from the vehicle stereo. Only the audio feature is supported, other features of iPOD are not supported.

Playing Songs in iPOD
You now can play songs in iPOD once the cable is properly connected.
1. Press **MODE** repeatedly until I-POD shows in the display.
2. Press **A/PS.**
3. Turn **VOL to (left/right)** to select PLAYLIST – ARTISTS – ALBUMS – SONGS – GENRES – COMPOSER.
4. Press **SEL.**

If you are aware on how to use iPOD, the way to use the vehicle stereo feature is basically just the same. Take note of the equivalent key function below.

Vehicle Stereo	iPOD	Function
Turn VOL knob (left/right)	Rotate CLICK WHEEL	Up/down category/file browsing
Press VOL knob	Press SELECT button	Selecting a category/Play song

Note: Please refer to your iPOD user's manual for operating instructions.
Press A/PS to go back to Main Menu.

HOW TO USE BLUETOOTH IN YOUR VEHICLE AUDIO SYSTEM

How to Perform Pairing
Before you can dial out from the vehicle stereo, you must first perform PAIRING. Pairing is a procedure used to connect 2 Bluetooth devices together.
1. This unit's Bluetooth function is always on, perform the pairing starting from your cellular phone. Refer to your cellular manual on proper pairing.
2. Perform the search for available Bluetooth devices, **"CAR--BT"** will show. Enter **'0000'** when asking for code.
3. After successful pairing, connect to the head unit if it is not automatically connected.

How to make / receive calls using front panel
- To make calls using call history
  1. Press and hold " 📞 " to display "REDIAL" history.
  2. Using VOL knob on main unit, turn repeatedly to select the phone number you want to make call to and press " 📞 " to dial out.
- During conversation, press " 📞 " button to end call.
- When there is incoming call, press " 📞 " button to receive call.
- Press " 📞 " button to reject incoming call.

Audio Streaming
1. If your phone is "A2DP" format is compatible, you can play music from your mobile and the music will be transferred to the vehicle audio system.
2. Make sure your mobile and the vehicle radio unit is paired and connected.
3. Play the music in your mobile according to your mobile operating method.
4. Unit will display "A2DP" when receiving A2DP music automatically, but for some mobile your have to press MODE button to change A2DP mode.
5. You can press ◄◄ or ►► on head unit for previous or next tracks.

TECHNICAL SPECIFICATIONS

MP3/WMA PLAYER SECTION

Signal to Noise Ratio	> 60 dB
Channel Separation	> 50 dB (1kHz)
Frequency Response	20Hz - 20 kHz

TUNER (FM)
(RDS: for Europe)

Frequency range	87.5-108 MHz
Channel step	50 kHz

(without RDS: for NASO)

Frequency range	87.5-107.9 MHz
Channel step	200 kHz
Intermediate frequency	10.7 MHz
Sensitivity	2.8 µV
Stereo separation	30 dB
Signal to noise ratio	50 dB

TUNER MW(AM)

Frequency range	522-1620 KHz *(RDS: for Europe)*
Frequency range	530-1710 KHz *(without RDS: for NASO)*
Intermediate frequency	10.71 MHz
Sensitivity	32 dB

TUNER (LW) *(for Europe)*

Frequency range	144-290 KHz
Intermediate frequency	10.71 MHz

LINE-OUT

Output	5V (max.)
Impedance	10k Ohm

GENERAL

Power Supply	12V DC (10.8-15.6V allowable)
Speaker impedance	4 or 8 ohm
Output power	40W x 4CH

Note: Specifications and the design are subject to possible modification without notice due to improvement.
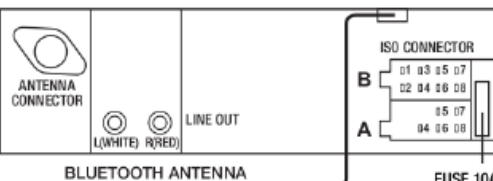
FCC STATEMENT

1. This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

MODEL NO. 87752824

FREQUENCY RANGE:
FM : 87.5 - 107.9 MHz
MW(AM) : 530 - 1710 KHz

POWER SUPPLY: 12V DC NEGATIVE GROUND

SPEAKER IMPEDANCE: 4 - 8 OHMS

INTERFERENCE ABSORBTION CIRCUIT

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation.

CE E13 026333   FCC ID:YJ6-87752824

WIRE CONNECTION

ANTENNA CONNECTOR

LINE OUT
L(WHITE) R(RED)

BLUETOOTH ANTENNA

ISO CONNECTOR
B: 01 03 05 07 / 02 04 06 08
A: 05 07 / 04 06 08
FUSE 10A

RCA LINE OUT
WHITE (LEFT) RED (RIGHT)

CONNECTOR A
4. MEMORY (+12V)
5. AUTO ANTENNA OUTPUT
6. DIMMER CONTROL
7. +12V (TO IGNITION KEY)
8. GROUND

CONNECTOR B
1. REAR RIGHT SPEAKER (+)
2. REAR RIGHT SPEAKER (-)
3. FRONT RIGHT SPEAKER (+)
4. FRONT RIGHT SPEAKER (-)
5. FRONT LEFT SPEAKER (+)
6. FRONT LEFT SPEAKER (-)
7. REAR LEFT SPEAKER (+)
8. REAR LEFT SPEAKER (-)

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different
  from that to which the receiver is connected.

-- Consult the dealer or an experienced radio/TV technician for help.

3. FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, Human proximity to the antenna shall not be less than 20cm (8 inches) during normal operation.