REI

AM/FM/DVD/CD/MP3 Receiver with USB/SD & Auxiliary Inputs

3 Built-in Microphone inputs for PA Announcements

Installation/Operation Manual

50W x 4   VR-3000

Thank you for purchasing the VR-3000 AM/FM/DVD/CD/MP3/USB/SD Receiver from REI. This product is designed and tested to withstand temperature and vibration extremes. Please read the owner's manual carefully before attempting to install.

If you have an installation question or need installation assistance, please call the:

SERVICE HOT LINE
1-877-726-4617 Toll Free USA & CANADA
1-402-339-2200

IF ADDITIONAL INSTALLATION COMPONENTS ARE NECESSARY, CONTACT YOUR REI

SALES REP FOR:

 ** OEM /FACTORY WIRING HARNESS ADAPTERS

 ** ANTENNAS & ANTENNA ADAPTERS

 ** SPEAKERS & GRILLS

Radio Engineering Industries, Inc.
6534 "L" Street
Omaha, Nebraska   68117
www.radioeng.com

Your player will only play commercial DVDs with region code [1] labels on them.

FEATURES:

Electronic AM/FM Stereo Tuner w/RBDS

Anti-skip DVD/CD Mechanism

Front-panel USB type-A input

Front-panel SD/SDHC CARD input

Plays MP3/WMA/AAC file formats

Independent front panel 3.5mm Audio Input jack

Independent rear RCA A/V AUX 2 input jacks w/ automatic trigger

Wireless Remote Control

Non-Volatile memory back-up

50W x 4 Output power
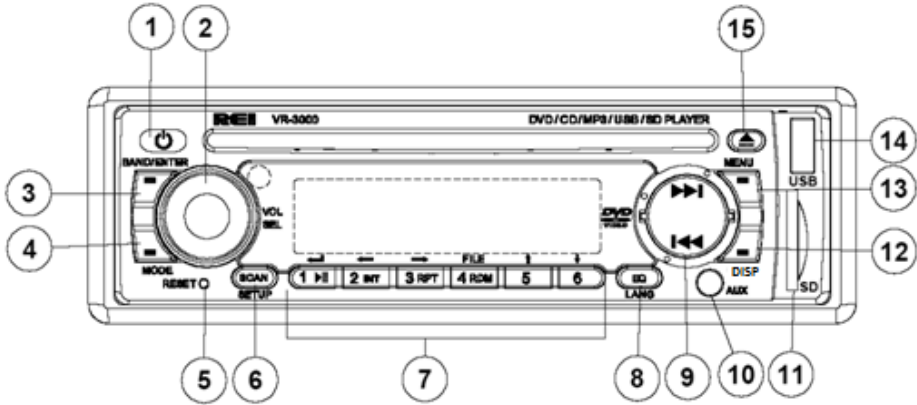
USA/EURO Radio Frequency bands

Radio Station Lock-Out

Green LED backlighting

Displays ID3 tag information

Composite Video Output via locking BNC connection

3 Microphone input jacks for PA announcements

CONTROLS AND INDICATORS

(1)   Power Button

(2)   Volume/Select Knob

(3)   Band/Enter Button

(4)   Mode Button

(5)   Reset Button

(6)   Scan/Setup Button

(7)   Preset Memory/ Menu Scroll Buttons

(8)   EQ/Language Button

(9)   Radio Station Tune/Seek, Track Control Buttons

(10) Front Auxiliary Input Jack

(11) SD Card Input slot

(12) Display Button

(13) Menu Button

(14) USB Input Slot

(15) Eject Button

OPERATION

1) Power Button
   Press the Power Button to turn ON or OFF the unit. A red light means the unit is in standby, a Blue light means the radio is on.

2) Volume/Select Knob
   Rotate the knob left or right to change the volume level.
   Press the knob to select one of the following functions:
   VOL---BASS---TREB---BAL---FAD
   Rotate the knob to adjust the desired setting.

3) Band/Enter Button
   Press this button to change radio bands as follows:
   FM1—FM2—FM3—AM1—AM2
   Press this button to confirm changes in the SETUP menu

4) Mode Button
   Press this button to select source mode (RADIO/DISC/USB/CARD/AUX1/AUX2)
   *USB and SD card must be inserted to activate these modes

5) Reset Button
   If there is a malfunction of the unit, pressing the RESET button will clear the system

6) Scan/Setup Button
   Press and hold this button for 2 seconds to auto program available stations into all the preset memory buttons. This function will erase previous memorized stations and store the newly searched stations. Once completed, the radio will scan for 5 seconds through each of the preset stations of either the AM or FM band.

   Press this button to automatically preview all radio stations in that band for 5 seconds

   Setup Button
   During video playback operation only, the Setup button can be pressed to access the radio's SETUP MENU.   Doing so will PAUSE the source material until the user exits.
   **The SETUP options can only be seen with a monitor connected to the composite video output. The radio will display PAUSE, continue to press SETUP to exit this menu.

7) Preset Memory, Scroll, Recall Buttons
   Press these buttons momentarily to select the preset stations.
   Press and holding a button will preset the current station to the button being pressed.

   While in video SETUP, use these buttons ⬅ ➡ ⬇ ⬆ to scroll through available options.   Press ⬅ or BAND/ENTER to confirm the desired selection. The **FILE** Button selects the desired file format for playback ie. MUSIC, PHOTO, or MOVIE when multiple formats are available on the source media(CD/DVD/USB/SD).

▶❚❚ Press this button to PAUSE/PLAY the media (CD/DVD/SD/USB)

INT Press and hold this button to select INTRO ON/OFF on CD playback

RPT Press and hold this button to change REPEAT from Track, Folder, All

RDM Press and hold this button to turn RANDOM ON/OFF

8) EQ/Language Button
   Press this button to apply preset sound effects to the units audio output signal. Pressing this button selects EQ POP, EQ CLASS, EQ ROCK, & EQ CUST.   When any of the sound modes other than EQ CUST is selected, the BASS & TREBLE controls are disabled on the volume select knob.

   Language Button
   Press and hold this button during DVD playback to select one of the optional subtitle languages available on multi-language DVD discs.

9) TUNE / SEEK /TRACK Buttons
   Under Radio mode, press the desired button to manually tune a station moving upward or downward. Press and hold button momentarily and the radio will automatically seek or down to the next available radio station. Press and hold button for 2 seconds and the radio continuously tunes up or down until the button is released.

   When playing digital media, use these buttons to track UP/DOWN to the desired chapter to playback.

10) Auxiliary Input Jacks
    The unit is equipped with a front panel 3.5mm auxiliary audio input so you can connect your external portable audio player or portable satellite radio receiver. Press Mode to display AUX 1 for operation.

    The radio is also equipped with a second Rear AUX 2 Audio/Video RCA input for connecting a secondary A/V device.   Press Mode for AUX 2 for operation. When video is connected and the player is in AUX 2 mode, the video will output through the main VIDEO OUT BNC connection.

    When connected to GROUND, the Brown AUX 2 trigger wire on the rear of the radio will automatically power the VR-3000 and switch the source to AUX 2.   When the ground is removed, the Radio will return to its previous state.

    *It may be necessary to adjust the volume level on the auxiliary devise to achieve the optimal volume level.

11) SD Card Input
Insert the SD card and the radio will automatically switch to the CARD input and begin playback.

12) DIS Button
Press this button to change between Time and Mode Information display.

Setting the Time:
Press this button momentarily to display the time. Next, press and hold this button until the hour display begins to flash. Rotate Volume/Select Knob to adjust the hour. Press the DISP button again, and the minute display will flash. Rotate Volume/Select Knob to adjust the minute. Press Volume/Select to save the desired time.

13) Menu Button
Press this button to go to the main menu of the DVD disc.   This button also serves as Root DIR access for available digital files on the source media being played.

14) USB Input
Insert a USB drive and the radio will automatically switch to USB input and begin playback.

**Note: The unit's USB port does not support the Apple iPod or iPhone.

15) Eject Button
Press this button to eject the CD/DVD

RADIO SYSTEM MENU
Press and hold the VOL/SEL button for 2 seconds.   LCD will display MENU, make the desired selection below:

To change display SCROLL OPTIONS, rotate VOL/SEL, then press to choose:
- Scroll OFF - RDS text will not display automatically, must press the DISP key to view.
- Scroll ONCE - RDS text will display automatically but is limited to one time. It will update automatically when new information is received.
- Scroll ON - RDS text will display automatically and continuously.

To enable the RDS option, rotate VOL/SEL, then press to choose:
- RDS ON
- RDS OFF

This is the firmware version present on the radio.
- VER 001

To save and exit MENU mode, press and hold the VOL/SEL button.
Note: Menu will exit automatically after 5 continuous seconds without saving any selections.
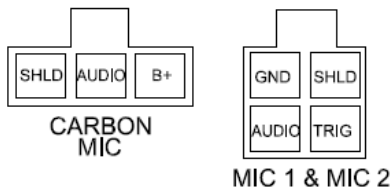
RADIO STATION LOCK-OUT

Radio station Lock-Out gives Fleet managers the ability to restrict AM/FM playback.   To enable operation, set acceptable stations into all the AM & FM presets.   If only one station is allowed, preset that same station into all presets of either the FM or AM band.   Once the stations are set, Press and hold both the VOL/SEL (2) and BAND (3) buttons for 3 seconds.   The display will scroll "ENTER CODE", at which time the user can enter a personal 4 digit code using presets 1-6.   Once entered, the display will show "LOCKED" giving the user confirmation.   The user will have access to only the AM & FM stations found in presets 1-6.   If the user attempts to change the station using the SEEK/TUNE buttons, the display will scroll "ENTER CODE".   Entering the wrong code will scroll "ERR CODE".   Once the user enters the correct code, the display will show "UNLOCKED" and restore the radio to normal operation.

PA OPERATION

The VR-3000 has three PA Microphone inputs, 2 Dynamic & 1 Carbon microphone input.   All microphones have priority over all other audio modes and MUTE the source audio being played when keyed.   When the PA is triggered, the front display will show MIC 1, MIC 2 or MIC, until the trigger is un-keyed. Once released, it will return to the previous source mode at the previous volume level.
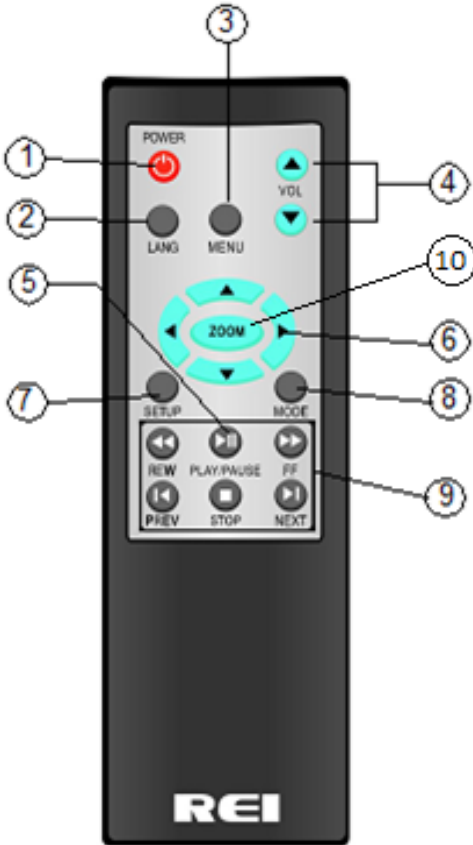
The Dynamic MIC 1 input is the Primary, and the other input MIC 2 is the Secondary.   When the two are keyed simultaneously, the MIC 1 microphone will always have priority over the MIC 2.

All PA inputs operate regardless of radio power status, as long as both ACC and Battery power is applied to the radio. The volume levels of MIC 1 & MIC 2 can be independently adjusted from the radio's main Volume/Select knob on the front of the radio. Once released, their final volume levels are stored into memory as default for the next time they are keyed.   The volume levels of MIC 1 & MIC 2 can only be adjusted when they are keyed. The volume of the Carbon microphone MIC is only adjustable on the microphone itself and therefore its level is not saved. A rear view of the radio's PA pin connections are shown below:

CARBON MIC

MIC 1 & MIC 2

REMOTE CONTROL

*Requires 2AA Batteries (included)

(1)   Power Button

(2)   Language Button

(3)   Menu Button

(4)   Volume Up/Down Buttons

(5)   Enter/Play/Pause Button

(6)   Scroll Buttons

(7)   Setup Button

(8)   Mode Button

(9)   Playback Buttons

(10)   Zoom Button

NOTE:
For easy viewing at night, the backlighting will <u>always</u> be on when ACC +12V switched power is applied. Backlighting will only shut off when the switched ACC +12V power is removed.

SETUP OPERATION

Setup operation requires the user be in either DVD/CD/USB or SD CARD mode to operate.   When in on of these source modes, press SETUP to activate the on-screen display. Press SETUP again to go BACK and/or EXIT at any time. Changes made in the SETUP menu will not return to default by pressing the RESET button on the front of the radio.   To reset these changes, see the DEFAULT option in the SETUP menu.
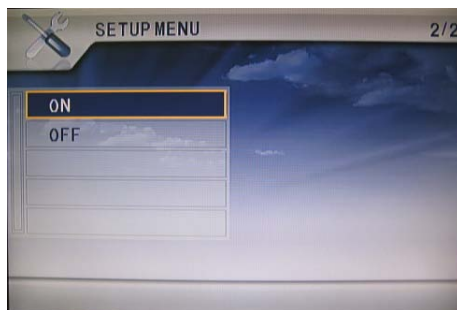
SYSTEM OPTIONS:
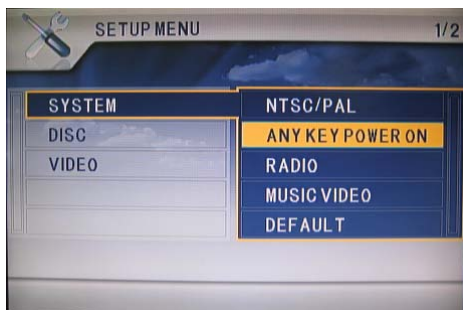
NTSC/PAL/AUTO:

This option allows the user to choose a composite output   signal to either NTSC or PAL depending on the video monitor used.   The AUTO option will output the signal according to the current DVD title.   Scroll to highlight the desired selection as shown on the right.   Press the BAND/ENTER button to confirm selection.
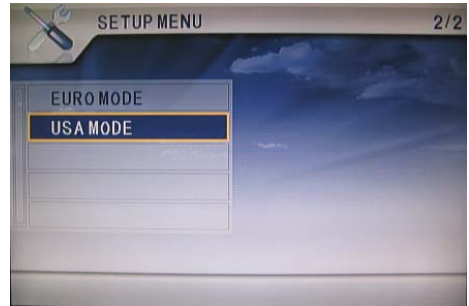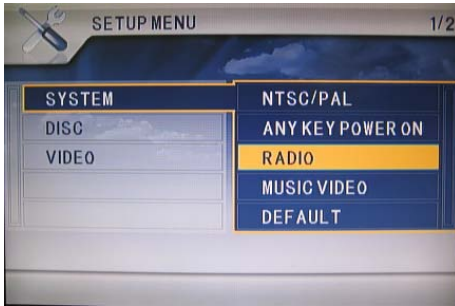

ANY KEY POWER ON:

This option gives the user a choice between having any of the front panel buttons turn the radio on, or only the power button. Having the selection at ON means any button will power up the radio, having it set to OFF means only the power button can turn the radio on.   Press the BAND/ENTER button to confirm selection.

RADIO:

The RADIO option allows the user choices between either EURO MODE or USA MODE.   These modes will change the frequency steps of the FM/AM tuner in the radio.   Press the BAND/ENTER button to confirm selection.

MUSIC VIDEO:

The MUSIC VIDEO option gives the user the option to output a composite video image during digital music playback. When ON is selected, the file information is displayed on the VIDEO OUT signal.   When OFF is selected, the VIDEO OUT is not active. Press the BAND/ENTER button to confirm selection.

Below is CD IMAGE when set to ON   Below is MP3/WMA image when set to ON

DEFAULT:

The DEFAULT option allows the user the option to return all SETUP settings to their default conditions including language options. Press the BAND/ENTER button to confirm selection.

DISC OPTIONS

OSD LANG:

The OSD LANG option allows the user to change the default On-Screen Display (OSD) language displayed on the SETUP menu from ENGLISH to PORTUGUESE. Press the BAND/ENTER button to confirm selection.

AUDIO LANG:
The AUDIO LANG option allows the user to change the default audio soundtrack on a DVD disc. The disc must support the language type. Due to different DVD encodings, this feature may not work on all Disc's, and the user may be required to access this feature from the DVD's main menu. Press the BAND/ENTER button to confirm selection.
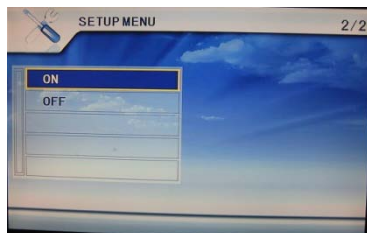

SUBTITLE LANG:
The SUBTITLE LANG option allows the user to change the default Subtitle Language displayed on the bottom of the screen for DVD discs. The disc must support the language type selected. Due to different DVD encodings, this feature may not work on all discs. If playing DIVX encoded media, select DIVX SUBTITLE LANG to change the subtitle language. Press the BAND/ENTER button to confirm selection.

AUTOPLAY:

The AUTOPLAY option enables AUTO PLAY of most the DVD discs.   When set to ON the disc will immediately begin playback when inserted, allowing the user to skip the MENU and previews section.   When set to OFF the user must navigate to the disc MENU to playback the disc.

VIDEO OPTIONS

ADJUST:

The VIDEO options give the user control of the Video Output settings.   To change, scroll to select ADJUST and press the BAND/ENTER button. Once selected, the user can scroll to choose the desired screen option to modify.   Press the BAND/ENTER button to select the option; then scroll to choose the desired setting from 0 to 100. Press the BAND/ENTER button to confirm.

BRIGHTNESS 0-100   CONTRAST 0-100

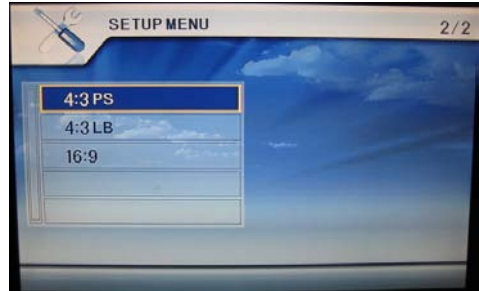HUE 0-100   SATURATION 0-100

SHARPNESS 0-100

TV RATIO:

To select the appropriate aspect ratio of the connected monitors, select TV RATIO and press the BAND/ENTER button. Once selected, the user can scroll to choose either; 4:3 PAN & SCAN, 4:3 LETTERBOX, or 16:9 WIDE-SCREEN.   Press the BAND/ENTER button to select the option.
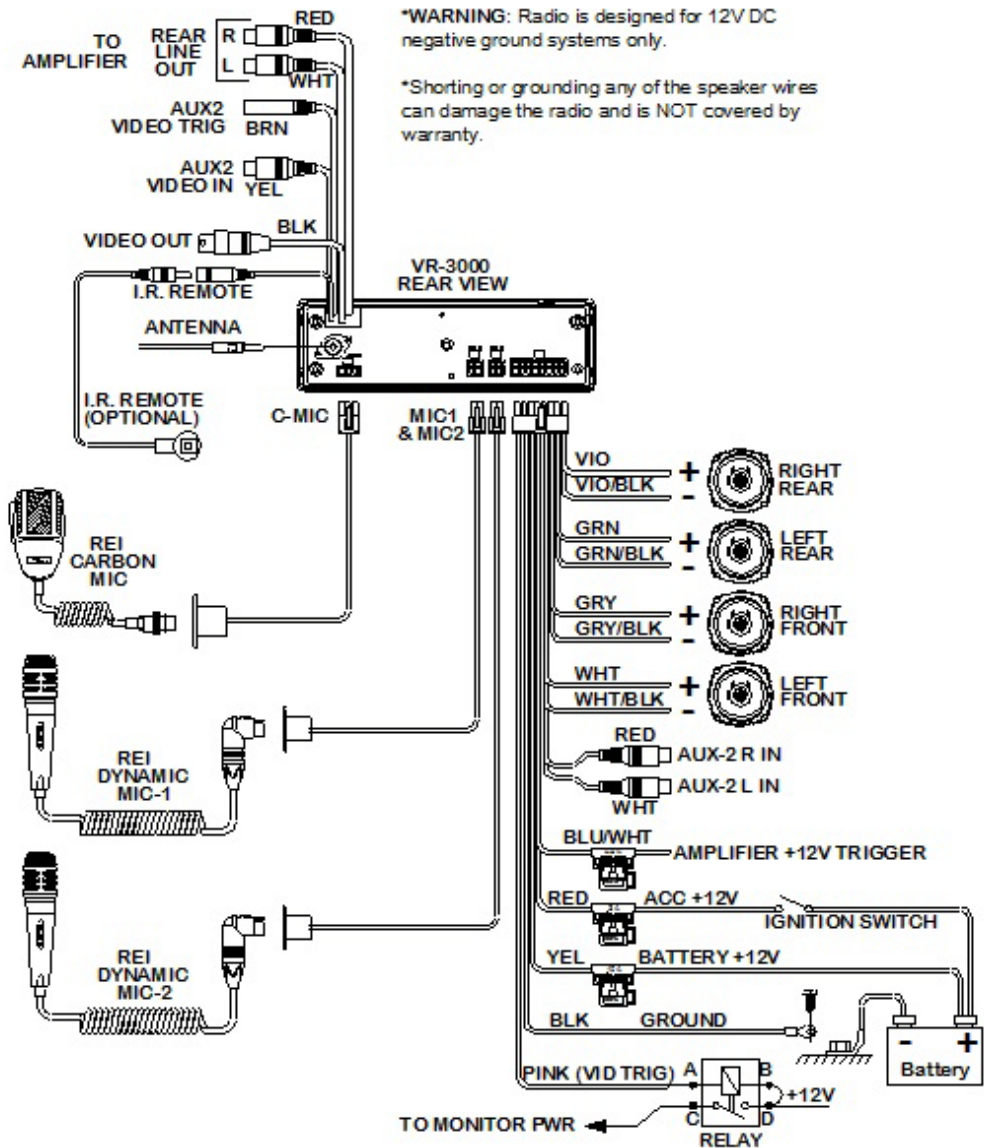
TV RATIO   SELECT TV ASPECT RATIO

*The ZOOM button found on the remote control will also allow the user to adjust the picture during DVD playback to ZOOM in by 2X, 3X, 4X, 1/2, 1/3, ¼, or OFF

RADIO CONNECTIONS

Follow this easy wiring diagram when installing.   Be sure to disconnect the batteries negative terminal before beginning.

*WARNING: Radio is designed for 12V DC negative ground systems only.

*Shorting or grounding any of the speaker wires can damage the radio and is NOT covered by warranty.

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AUDIO FILE REQUIREMENTS (.MP3/.WMA using ISO9660 formatting)
- The MP3 files with a sampling rate of 32, 44.1, or 48 kHz. And a bitrates between 32 to 320 kbps. (44.1khz/128kbps or higher is recommended)
- The WMA file with a sampling rate of 32, 44.1, or 48 kHz. And a bitrates between 62 to 192 kbps. (44.1khz/128kbps is recommended)

MPEG-4 FILE REQUIREMENTS (.MP4)
- Profile: MPEG-4 Simple profile
- Bitrate: Max. 7 Mbps on USB FS, 10 Mbps on DVD, 7 Mbps on CD
- Frame rate: Max. 30 fps
- Image size: Max. 800 *480 pixels
- Audio: Maximum bitrate 320 kbps (AAC-LC)
- File extension: .mp4
- Max File size limit is 2G Fat16

DivX® FILE REQUIREMENTS (.AVI)
- Files encoded with Xvid or divX Profiles, using bitrates of 4854kbps or less, and a resolution of 30fps from 32*32 to 800*480
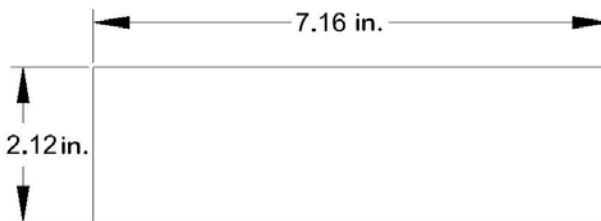
MPEG-1/MPEG-2 BITRATES (.MPG)
- MPEG1: 44.1 kHz/48 kHz/32 kHz
- MPEG2: 22.05 kHz/24 kHz/16 kHz
- MPEG2.5: 11.025 kHz/12 kHz/8 kHz

NOTE*:*
Individual file size limit is 2G in accordance with Fat16/32 file restrictions.
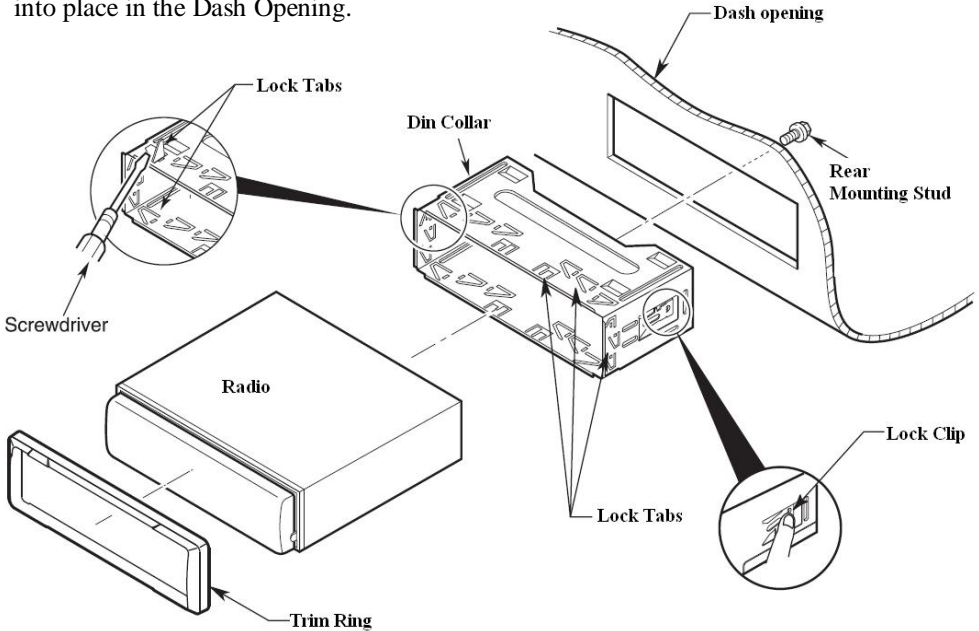
REQUIRED RADIO DIMENSIONS

Verify the radio will fit by following the suggested dimensions below.

Dash Opening Dimensions
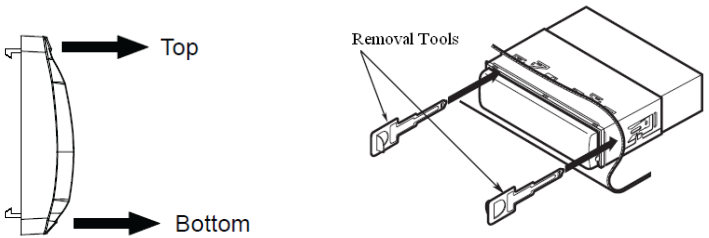
RADIO INSTALLATION

1.   Verify lock Clips on the DIN collar are pressed inward.   Place the collar into the dash opening.   Bend the tabs outward as shown on the drawing below to secure into place in the Dash Opening.

2.   Route all cable through the DIN collar and make all the necessary rear connections with the radio. Verify clearance; then gently insert the radio into the DIN Collar until both sides are locked. Install Trim Ring if not already installed.   Secure rear mounting stud for additional support.

RADIO REMOVAL

3.   To remove the radio, disconnect the rear support if installed.   Carefully release the front Trim Ring lock tabs at the top and bottom of the nosepiece.   Then insert the two release keys on both sides of the nosepiece and pull the radio out.

TROUBLESHOOTING

Problem	Cause	Measure
Power light does not turn on	No power to yellow wire; no power to red wire; blown fuse	Check for ACC/BATTERY voltage with Multi-meter, check fuse; press RESET button.
Speakers have no sound	Speakers not connected; speakers connected with bad splices; Speakers shorted to ground; total speakers load not within 4-8Ω/ch	Connect speakers to harness; check all spliced wires; verify speakers not shorted to chassis; verify total speaker impedance.
No Video Out on monitors	Video output BNC cable not connected; Video monitors don't have power; Video signal not the right format; Video Trigger set to OFF	Re-connect Video out cable; confirm Monitors have power; Press SETUP and change the System option to NTSC or PAL; change VIDEO TRIGGER to ON in SETUP menu
Public Address can NOT be heard over speakers	Microphone volume level is "0"; microphone is plugged into the wrong input; wrong microphone type is used	Turn the volume up when the LCD display's MIC 1 or MIC 2; Check that the correct microphone type is connected
DVD stops after loading or Digital Media says "Unsupported Video"	Media is an unsupported file type or DVD is not a region 1 Coded Disk.	Encode media with a supported file type; make sure disc has been finalized; use different software
DVD requires a PASSWORD for playback	Disc is not authored to skip trailers and the start menu automatically	Enter the SETUP menu and scroll to the DISC menu. Turn the AUTOPLAY to OFF.
LCD Display says MIC /MIC 1/ or MIC 2 and front controls are locked	PA system is triggered	Remove microphone connections and verify correct pinning; replace microphone

SPECIFICATIONS:
General Specifications

Operating Voltage	(10.0 –15.6V allowable)
Maximum Current Consumption	10A
Standby Current Consumption	less than 20mA

POWER OUTPUT

Continuous Output (4Ω, 20 to 20,000 Hz at 1% THD)	4 x 22 Watts
Maximum Power Output	4 x 50 Watts
Speaker Impedance	4-8 Ohms

FM STEREO RADIO

Frequency range	USA 87.5MHZ – 107.9MHZ (0.2 MHz step)
	EURO 87.50MHZ –108.00MHz (0.05 MHz step)
Usable Sensitivity	10.2 dBf. (0.9 uV, 75Ω)
50db Quieting Sensitivity	15.2 dBf. (1.6 uV, 75Ω)
Frequency Response	30Hz – 15kHz (+/- 3dB)
Alternate Channel Selectivity	75dB
Stereo Separation	40dB (1kHz)
Image Rejection Ration	75dB
IF rejection ratio	100dB
Signal to Noise ratio	70dB

AM RADIO

Frequency range	USA 530kHz – 1710kHz (10 kHz step)
	EURO 522kHz – 1620kHz (9 kHz step)
Usable Sensitivity	27 dB/uV (25uV, S/N 20dB)

CD/DVD PLAYER

Signal/Noise Ratio (1kHz)	75dB
Frequency Response (+/- 1dB)	5 – 20,000Hz
Total Harmonic Distortion (1kHz)	less than 0.20% (1Khz)
Number of Channels	2 (stereo)
MP3 decoding format	MPEG-1 & 2 Audio layer 3
WMA decoding format	Ver. 7, 7.1,8,9,10,11 (2ch audio)
	(Windows Media Player)
AAC decoding format	MPEG-4 AAC (iTunes encoded only)
	(.m4a) (ver 8.0 and earlier)
DivX decoding format	Home theater Ver. 3,4,5.2,6 (.avi, dixv)
Usable Discs:	DVD-Video, DVD-R/RW, DVD+R/RW/DL, Video CD, SVCD, CD-R/RW, CD-Audio, MPG, CD-MP3, DVD-MP3 WMA, JPEG

USB INTERFACE

USB Standard	USB1.1/2.0 (Full Speed)
Maximum Supply Current	500mA
File System	Fat16/32
Decoding Format	same as DVD

SD CARD INTERFACE

Frequency Response (+/- 1dB)	10 – 20,000Hz

Dynamic Range	80dB (1kHz)
Harmonic Distortion	0.01%
Decoding Format	same as DVD

AUDIO PRE-AMP SPECIFICATIONS

Max Output level	5V
Output Impedance	600Ω
Subwoofer output	Not adjustable

AUXILIARY INPUT SPECIFICATIONS

Frequency Response (+/- 1db)	20HZ – 20Khz
Input Voltage Maximum Voltage	1200mV
Input impedance	100KΩ

VIDEO PLAYBACK

Format:	NTSC/PAL/AUTO
Video Output level	1.0V p-p/75Ω (+/-0.2V)