



**Heavy Duty Digital Media Receiver with Short Chassis Design, AM/FM
Stereo Weather Band Radio, USB iPod® Control and Charging,
Front/Rear Auxiliary Inputs and built in PA**



Installation/ Operation Manual

50W x 4

ST-4050

Thank you for purchasing ST-4050 AM/FM/CD Receiver from REI. This product is designed and tested to with stand temperature and vibration extremes. Please read the owner's manual carefully before attempting to install this unit.

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

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

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

(800)228-9275

www.radioeng.com

FEATURES:

Heavy Duty construction for Tough Environments

Compact Chassis Design, less than 3" mounting depth

Non-volatile memory back-up stores user settings when battery is disconnected

Clock Memory with EEPROM stored Presets

Output Power 50W x 4

7 channel NOAA® Weather Band Tuner

Electronic AM/FM Stereo Tuner w/RBDS

Preset Up to 30 Radio Stations (18 FM, 12 AM)

EURO and USA frequency bands

White LED backlighting

MP3/WMA playback w/ ID3 Tag Support

2 Aux Inputs (Front 3.5mm Stereo Jack/Rear RCA)

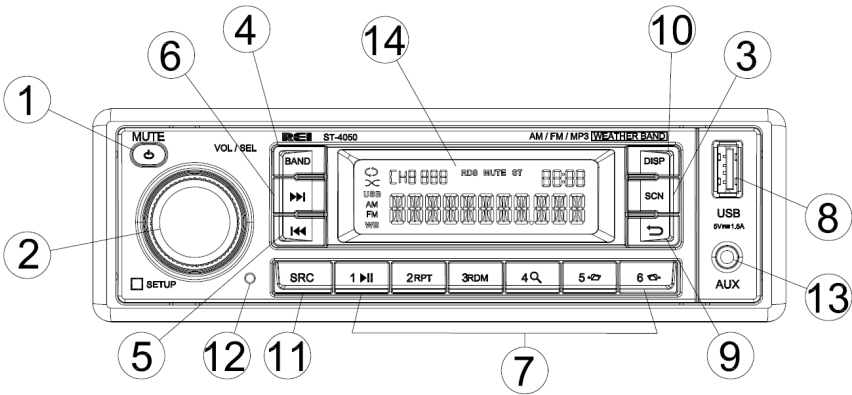
iPod® /iPhone® Charging and Playback Control via USB

Rear Channel RCA Line outputs

Built in Selectable PA input (Microphones & Adapter Sold Separately)

ISO Connector for vehicles manufactured with the ISO connect harness

CONTROLS AND INDICATORS



1. Power/Mute Button
2. Volume/Select Knob
3. Scan/Search Button
4. Band Button
5. Tune/Seek/Track Down Button
6. Tune/Seek/Track Up Button
7. Preset Memory/Recall, Media Control Buttons
8. Front USB Input
9. Back Button
10. Display Button
11. Source Select Button
12. Reset switch
13. Front AUX1 Input Jack
14. LCD Display

OPERATION

1) POWER/MUTE Button

Press the Power Button to turn the unit ON or hold to turn the unit OFF. The button will illuminate RED when OFF and BLUE when ON. When ON, press to MUTE the audio on/off. **Note: Radio can also be powered on by pressing any front button.**

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

Upon choosing the function, rotate the knob to adjust the desired setting.

PLEASE NOTE: If the Volume/Select Knob has not been adjusted for 3 seconds it will automatically revert back to the previous informational display.

Press and hold this button to access the radio SETUP MENU.

3) SCAN/SEARCH Button

Press and hold this button for 2 seconds to auto program available stations into 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 and stop.

4) BAND Button

Press this button to change radio bands as follows:

FM1—FM2—FM3—AM1—AM2—WB

5) TUNE/SEEK DOWN Button

Under Radio mode, press this button momentarily to manually tune downward. Press and hold a button and the radio will automatically seek to the previous radio station.

When playing digital media, use this button to track backwards to the previous track.

This button also functions as Weather Band Channel access. Under Weather Band mode, press this button to select Weather Band channels 1-7.

6) TUNE/SEEK UP Button

Under Radio mode, press this button momentarily to manually tune upward. Press and hold a button and the radio will automatically seek to the next radio station.

When playing digital media, use this button to track forwards to the next track.

This button also functions as Weather Band Channel access. Under Weather Band mode, press this button to select Weather Band channels 1-7.

7) Preset Memory/Recall Buttons 1-6

Press these buttons momentarily to select the preset stations.

Press and holding a button will set the current station to the button being pressed.

****Preset buttons are pre-assigned frequencies in Weather Band Mode.**

8) USB Input

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

9) BACK Button

Press this button to navigate Backwards when in Apple playback modes:

10) DISP Button

Press to change the display information

To set the Time:

With the radio's BLUE power light ON, 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 VOL/SEL Knob to adjust the minute. Press either the DISP or VOL/SEL button to save the time on the LCD.

11) SRC Button

Press this button to navigate between source modes:
TUNER—USB(when connected)—AUX1—AUX2.

12) Reset Switch

In the unlikely event that the radio is not operating correctly, press the RESET button to restart the operating system of the radio.

13) Front AUX 1 Input Jack

The unit is equipped with a front panel 3.5mm auxiliary input (AUX 1) so you can connect your external portable audio player or portable satellite radio receiver. A second REAR (AUX 2) RCA jack is also included on the rear of the radio.

14) LCD Display

Display shows the radios operational information.

WEATHER BAND MODE

NOAA National Weather Radio Broadcasts from over 380 Locations throughout the U.S. on seven VHF/FM frequencies. Tune to receive continuous weather information 24 hours a day on one of the following frequencies.

For local station listing see: <http://www.nws.noaa.gov/nwr/nwrbro.htm>

Press preset 1 to select weather band channel 1 - 162.400MHZ

Press preset 2 to select weather band channel 2 - 162.425MHZ

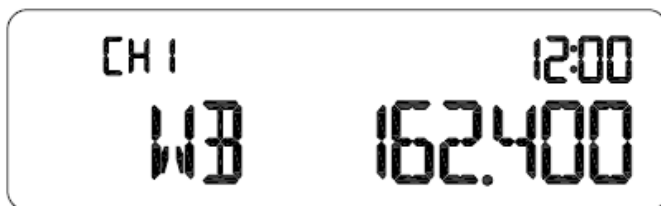
Press preset 3 to select weather band channel 3 - 162.450MHZ

Press preset 4 to select weather band channel 4 - 162.475MHZ

Press preset 5 to select weather band channel 5 - 162.500MHZ

Press preset 6 to select weather band channel 6 - 162.525MHZ

**Press SEEK UP/DOWN to select weather band channel 7 - 162.550 MHz



SETUP MENU

With the unit ON, press and hold the VOL/SEL button for 2 seconds. LCD will display MENU. Rotate the VOL/SEL knob to choose the option, then press to make a selection:

- SCROLL ON/OFF

Choose how iPod/iPhone®, and ID3 tag information is displayed on the LCD. With the scroll set to ON, information is repeated continuously on the front display. When set to OFF, information is not displayed unless the user presses the DISPLAY button.

- LOUD ON/OFF

Choose to turn LOUDNESS ON or OFF.

- RDS ON/OFF

Choose to turn the RDS (Radio Broadcast Data System) Scrolling display ON or OFF.

- MIC CARBON/DYNAMIC

The first option is to select a correct PA input based on the microphone type you are using. Rotate VOL/SEL button to choose type:

DYNAMIC

Microphone does NOT have on on-board volume control. PA volume control is built into the radio. Key the microphone to make adjustments.

CARBON

Microphone has on on-board volume control. Radio will not control the volume.

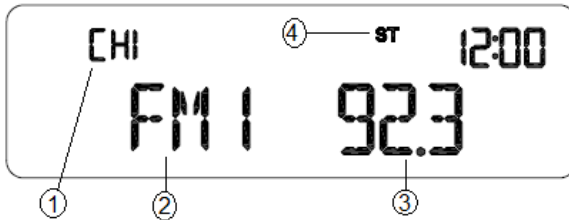
- VER XXXX

This is the firmware version present on the radio. Not all features described in this manual may be available on the radio at this time.

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 OPERATION



1. Preset Number

Displays the Preset Channel of the frequency.

2. AM/FM/WB Band Preset Mode

Press the BAND button to switch from FM1, FM2, FM3, AM1, AM2, or WB display on the left

3. Frequency Display

Displays the Frequency of the current tuned station on the right side when not in RDS mode

4. Stereo Indicator

Displays when the FM frequency is tuned in Stereo.

Radio Broadcast Data System

This unit is equipped to display RBDS (Radio Broadcast Data Service) information if broadcast by the current radio station.

NOTE: Radio stations broadcasting RBDS may not be available in your listening area.



1. RDS Display Indication

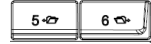
When RDS is set to ON in the MENU, FM station's receiving RDS text will display in this indicator.

2. FM Frequency Display

This area scrolls RDS text when RDS is set to ON.

USB OPERATION

Connect a USB storage device to the unit. The radio will automatically switch MODE'S and begin playback after the media is successfully loaded. Use the SEEK UP/DOWN buttons to change tracks. use the FOLDER UP/DOWN buttons to select the desired folder for playback.



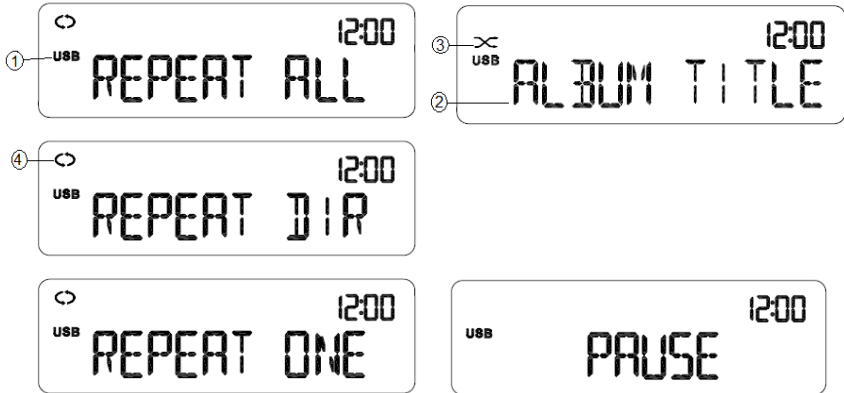
Press this button to REPEAT ONE, DIR, ALL, or NONE



Press this button to turn RANDOM ON/OFF



Press this button to PAUSE/PLAY the media



1. USB Detect

Display when a USB device is connected to the unit. Provides 1.5A charge current when connected to compatible devices.

2. Shows the Track, Folder and ID3 tag information file

Press the DISPLAY button cycle from Title, Artist, Album or track information.

3. Playback Mode of Operation

Displays when RANDOM Mode is active.

4. Playback Mode of Operation

Displays when REPEAT Mode is active.

SUPPORTED AUDIO FILES (MP3/WMA using ISO9660 formatting FLAC/AAC/M4A/WAV)

- The MP3 files with a sampling rate between 16 kHz & 48 kHz. And bitrates between 32 to 384 kbps. (44.1kHz/128kbps or higher is recommended)
- The WMA file with a sampling rate of 32, 44.1, or 48 kHz. And bitrates between 62 to 192 kbps. (44.1kHz/128kbps is recommended)

iPod®/iPhone® OPERATION

To listen to audio through your apple device, verify that a Certified USB extension is connected to the USB pigtail on the rear of the radio. Next, connect the USB cable to the Apple device. Once connected, the radio will automatically switch the source to iPod/iPhone® and begin charging the device. If the device has enough battery power, it will begin playback.

When connected, the user can playback specific files or folders. First press the SEARCH button.



The user can then rotate the VOL/SEL knob to select one of the following search options:

- Playlists
- Podcasts
- Audiobooks
- Songs
- Albums
- Artists

Press the VOL/SEL knob to choose. To return to a previous menu, press the RETURN button and choose again using the VOL/SEL knob.



Use the radio's SEEK up/down buttons to change tracks, and the button to PAUSE or PLAY the track. To return to the iPod/iPhone® source from any other source menu, touch SRC on the front panel until the iPod/iPhone® icon is shown on the front display.



AUX OPERATION

Press the SRC button on the front panel until the display shows either AUX 1 or AUX2. AUX 1 uses the front 3.5mm audio input while AUX 2 uses the rear RCA L/R audio inputs. It may be necessary to adjust the VOLUME level of the AUXILARLY input device if too little or too much signal is present.



PA OPERATION (microphone sold separately)

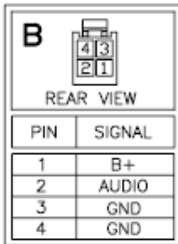
Connect a PA microphone into the 4-pin connector. Microphone has priority over all other audio modes and mutes the source audio being played when keyed. When the PA is triggered, the front display will show MIC, until the trigger is un-keyed. Any digital media being played at that time will be sent a PAUSE command. Once released, it will return to the previous source mode at the previous volume level. Any digital media will be given a PLAY command.

The PA operates regardless of radio status, as long as both ACC and Battery power is applied to the radio.

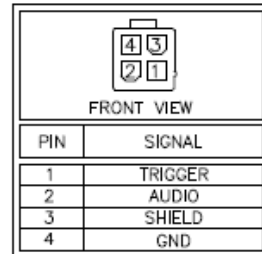
When set to CARBON mode, the volume of the PA is only adjustable on the microphone itself. When set to DYNAMIC mode, the volume level is adjustable only when keyed from the front using the VOL/SEL button.



A rear view of the radio's PA pin connection option is shown below:



Carbon PA



Dynamic PA

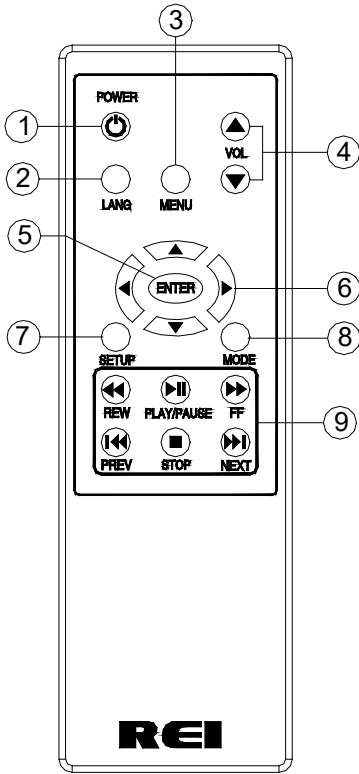
iPod® and iPhone® are trademarks of Apple Inc., registered in the U.S. and other countries. Functionality may vary by model number, operation is not guaranteed.

The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by REI under license.



OPTIONAL REMOTE CONTROL

*Requires 2AA Batteries



- (1) Power Button
- (2) Language Button (N/A)
- (3) Menu Button (N/A)
- (4) Volume Up/Down Buttons
- (5) Enter Button (N/A)
- (6) Scroll Buttons
- (7) Setup Button
- (8) Mode Button
- (9) Playback Buttons

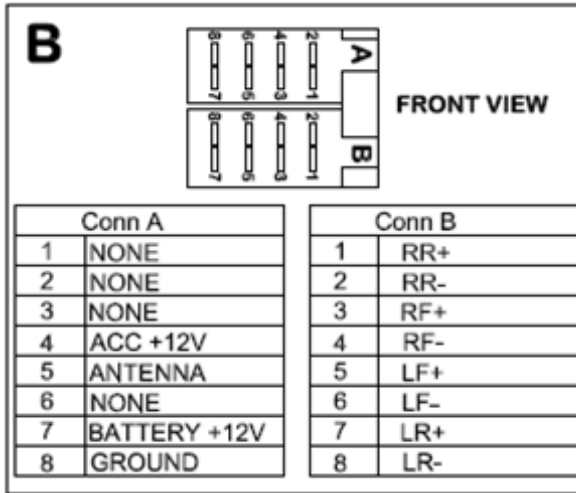
ELECTRICAL CONNECTIONS

Follow this easy wiring diagram when installing Radio and Speakers.

Warning:

*This radio is designed for 12V DC Negative Ground Systems Only.

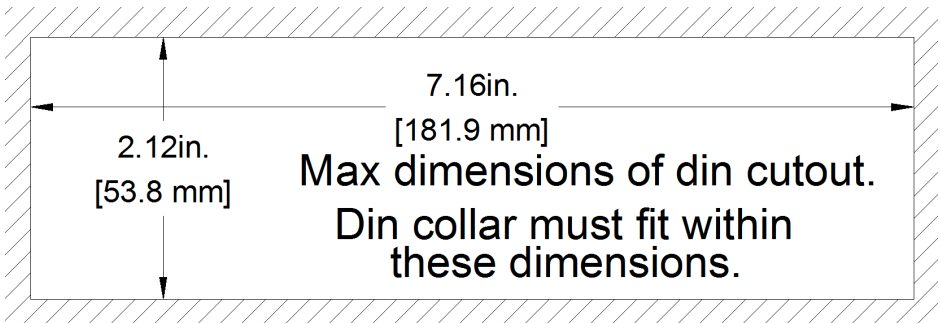
**Shorting or grounding any of the speaker wires can damage the radio and is not covered by warranty.



****NOTE: BOTH THE RADIO'S BATTERY +12V & ACC +12V POWER WIRES MUST BE CONNECTED FOR OPERATION.**

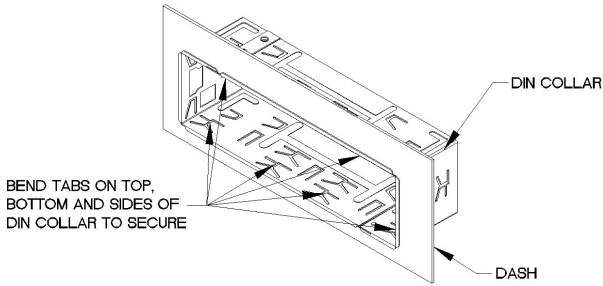
REQUIRED RADIO DIMENSIONS

Verify the radio will fit by following the suggested dimensions below. Carefully cut or file as necessary until the sleeve easily slides into the opening.

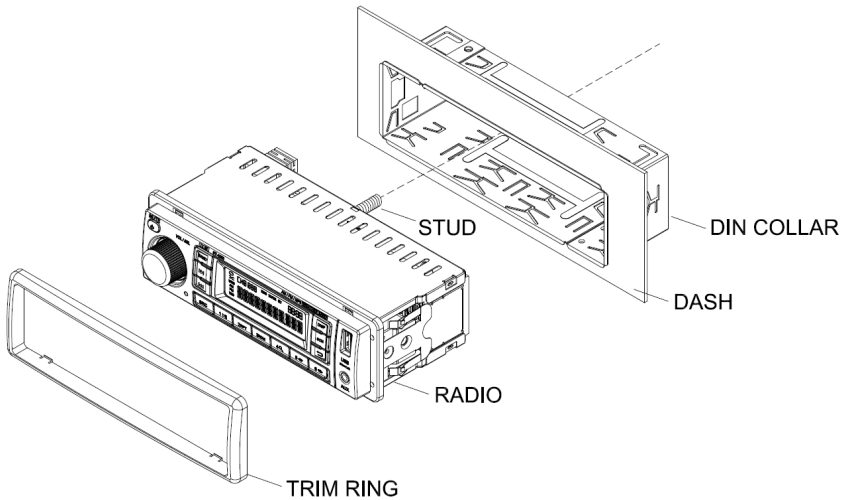


INSTALLING THE RADIO

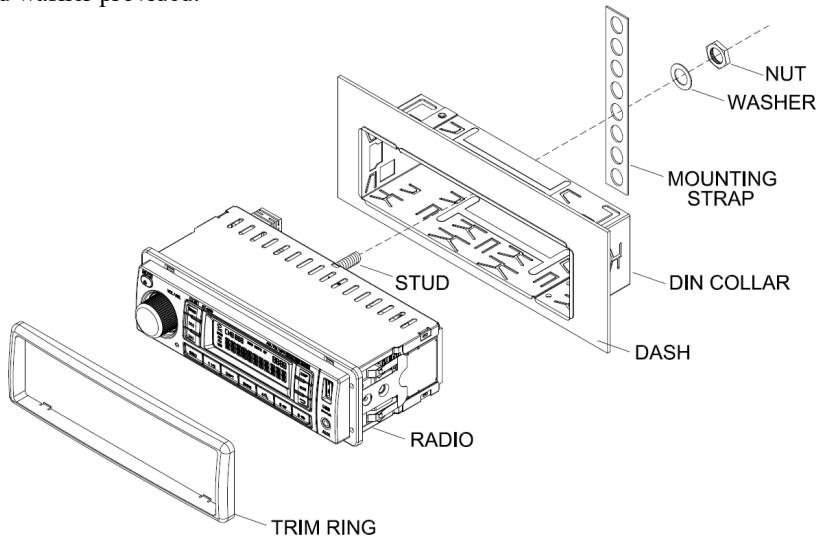
1. Place the DIN collar into the dash opening. Bend the tabs outward as shown on the drawing below to lock into place.



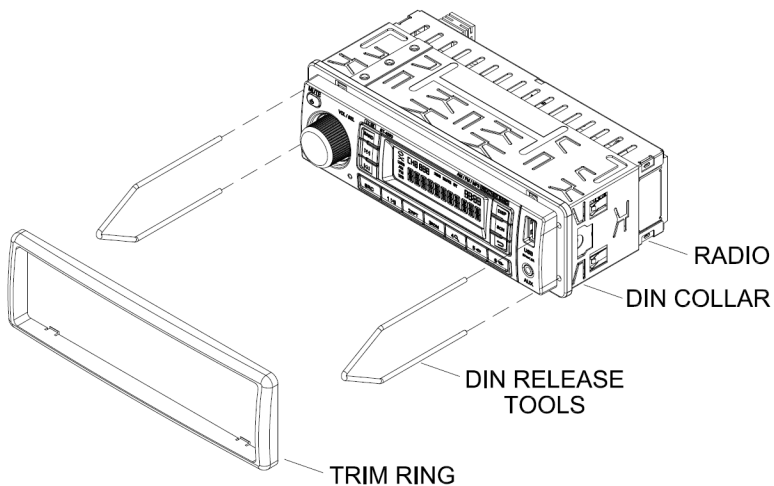
2. Pass the harness and antenna cable through the DIN collar, and connect to the back of the radio. Verify clearance; then gently insert the radio into the DIN Collar until both spring clips are locked into place.



3. If additional support is needed, bend the included support bracket, and secure it to the vehicle using a screw. Secure the opposite end to the radio's rear stud using the nut and washer provided.



4. To remove the radio, insert the two release keys into the holes on the front face of the radio. The tools must be inserted with the notched side facing the radio. Slide the keys forward until you hear a click. Then pull the radio out, releasing it from the DIN collar.



TROUBLE SHOOTING

Problem	Cause	Solution
Radio will not power up	No power to BATTERY wire or blown 10A main fuse.	Check for both ACC & BATTERY voltage with Multi-meter, check all fuses.
No sound	Speakers not connected; speakers connected with bad splices; Speakers shorted to ground; speaker load is not within 4-8 Ω.	Connect speakers to harness; check all spliced wires; verify speakers not shorted to chassis; verify total speaker impedance. Check volume level.
Public Address can NOT be audible over speakers	PA setting in MENU is wrong; microphone is pinned wrong; wrong microphone type is used. Microphone is defective.	Turn the volume up on the microphone or radio when the LCD display's MIC; Check that the correct microphone type is connected. Check the PA setting's in the radio's menu.
LCD Display says MIC and front controls are locked	PA system is triggered	Remove microphone connection and verify correct pinning and or type, replace microphone. Reset the unit.
Cannot tune radio stations	The antenna cable is not connected. The signal is too weak. The radio is in the wrong frequency steps.	Connect the antenna cable. Check the frequency spacing in the radio's SERVICE menu.
USB media not playing, or says loading.	Media is the wrong file type.	Convert files to a usable format, see file requirements section of the manual.
Audio is distorted or low.	Source audio level is too weak or overdriven. Bitrate of audio file is too large.	Adjust the volume level of the auxiliary source. Change the sample frequency or Bitrate of the file.
iPod® screen displays "loading" for a long period of time.	Device is not a supported device. The radio supports a majority of iPod® models, but not all are guaranteed.	Wait for iPod® to load or reconnect 30-pin plug. If still loading, then device is not supported, or has low battery. Use the AUX input or a Bluetooth® connection instead.
The Radio does NOT respond to the front buttons	An error in operation has occurred	Reset the unit from the front panel.
The Radio does not charge my device	The device requires additional current via the USB to charge the device	Unplug and try again. The USB cannot support more than 5V/1.5A.

SPECIFICATIONS

AUDIO SECTION

Power supply voltage (negative ground)	12V DC (10V-18V)
Standby Current.....	<5mA
Max Current Consumption.....	10A
Speaker impedance	4-8 Ohms per channel
Maximum Pre-output Voltage.....	2.0Vrms/10k ohms

POWER OUTPUT

Continuous Output into 4 Ω , @1KHz at 10 % THD	4 x 25Watts
Maximum Power Output (Volume control Maximum).....	50W \times 4 (at 1kHz)

FM TUNER

Range	(USA) 87.5 – 107.9 MHz	(EUR) 87.50 – 108.00 MHz
Usable Sensitivity (S/N = 30dB).....	7.34dBf.(0.6uV/75ohms)	
Signal to noise ratio	58dB (Mono)	
Stereo separation (@ 1K Hz)	42 dB	

AM TUNER

Range	(USA)530 – 1,710 kHz	(EUR) 522 – 1,620 kHz
Usable Sensitivity (S/N = 20dB).....	23dBuV (14.4uV)	
Signal to noise ratio (LEVEL60dbuV).....	60 dB	

WEATHER BAND TUNER

Range	162.400 –162.550MHz	
Usable Sensitivity (S/N = 20dB).....	0.7uV(-9dBuV)	
Signal to noise ratio (LEVEL40dbuV).....	42dB	

USB INTERFACE

USB Standard.....	USB1.1/2.0 (Full Speed)
Maximum Supply	5V/1.5A
File System.....	Fat16/32

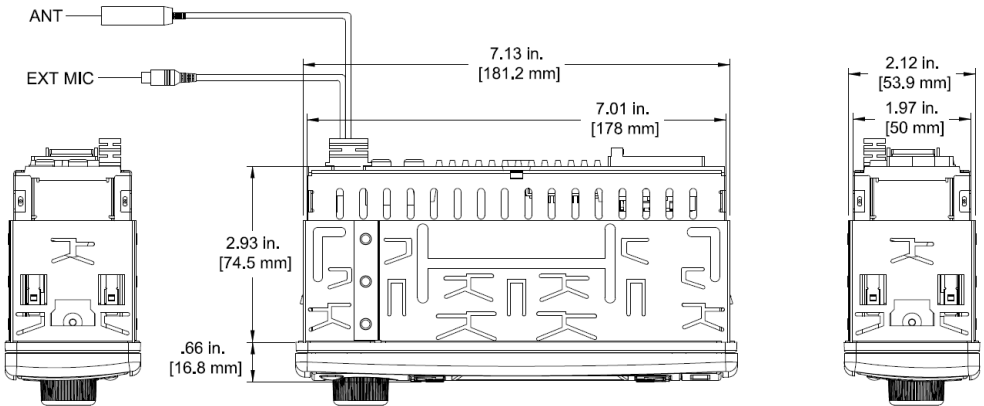
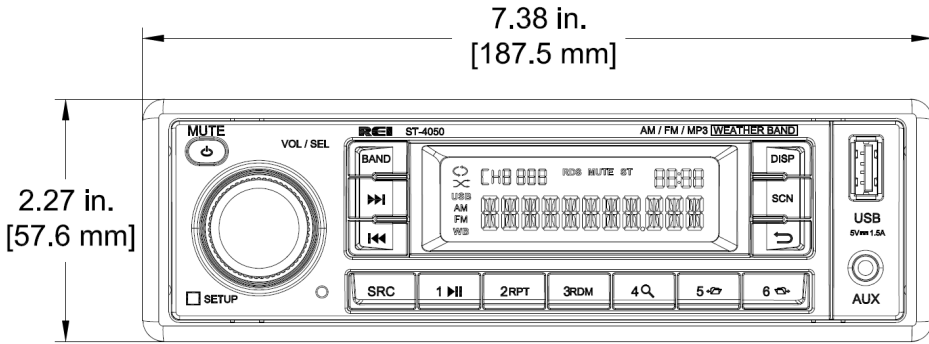
AUXILIARY INPUT SPECIFICATIONS

Input Voltage Maximum Voltage.....	2.0V
Frequency Response (+/- 1dB).....	20 – 20,000Hz
Input impedance.....	10K Ω

DIMENSIONS

Chassis (W x H x D)	1882m (7") x 54mm (2") x 75mm(3")
Nosepiece (W x H x D)	188mm (7-3/8") x 58mm (2-1/4") x 18mm (5/8")
Weight	1.2lbs

**Due to continuous product improvement, specifications and design are subject to change without notice.*



REI LIMITED WARRANTY

What Does This Warranty Cover?

This warranty only covers failures due to defects in materials or workmanship which occur during normal use.

What Does This Warranty Not Cover?

This warranty does not cover damage which occurs in shipment or failures which are caused by products not supplied by REI or failures which result from accident, misuse, abuse, neglect, mishandling, misapplication, faulty installation, set-up adjustment, improper maintenance, alteration, improper antenna, inadequate signal pick-up, maladjustment of consumer controls, modification, line power surge, or damage that is attributable to acts of God, or service by anyone other than a REI Factory Service Center. This warranty does not include service or labor charges connected with the determination or replacement of defective parts or the operation of this equipment. REI is not responsible for any labor charges incurred by any person or company other than REI authorized repair centers.

LIMITS AND EXCLUSIONS

There are no express warranties except as listed above.

REI SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANY BREACH OF THIS WARRANTY, INCLUDING WITHOUT LIMITATION, DAMAGES TO TAPES OR DISCS. ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTIES OF MERCHANTABILITY, ARE LIMITED TO THE APPLICABLE WARRANTY PERIOD SET FORTH BELOW. Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions or limitations may not apply to you.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

What is the Period of Coverage?

REI will repair this product, free of charge, from the date of original purchase in the event of a defect in materials or workmanship as follows:

For ninety (90) days - microphones, speakers, antennas, housings, rechargeable batteries, remanufactured product and all non-warranty repairs (replaced parts and labor only).

For one (1) year - all other manufactured products.

For three (3) years - select manufactured motorcoach products.

For three (3) years - select surveillance equipment.

REI may have contractual agreements which provide REI motorcoach and surveillance products with additional coverage.

Call 877-726-4617 for details.

Any product supplied by REI, but not manufactured by REI, will include the original manufacturers warranty only.

What Will REI Do to Correct Problems?

Once the product is deemed by REI to be a warrantable defect, REI will, at its own discretion, repair or replace the product with new or reconditioned product. All warranty repairs and/or product replacements will include the remaining warranty from the original purchase date.

How Do You Get Service?

For assistance in obtaining service for REI products call toll free 877-726-4617 (Continental United States and Canada only) or 402-339-2200 (outside Continental United States and Canada) between the hours of 7:00A.M. - 5:00P.M. CST Monday thru Friday (excluding Holidays).

Prior to calling REI, customers must have the part number, serial number, VIN number (if it's a motorcoach product) and detailed description of the problem ready to provide to the REI service representative. After providing the proper information to REI, customers will be issued a return authorization number. When the REI service representative provides the return authorization number, they will also give instructions for returning the item. Any discrepancies in following this procedure may cause shipments to be refused or warranty claims to be rejected.

IMPORTANT! REI does not accept product returns for repair or replacement without first issuing a return authorization number. All returns must be sent freight prepaid and insured by the customer. REI will not accept COD shipments.

IMPORTANT! REI does not accept responsibility for lost shipments. It is the customer's responsibility to provide REI with the part number, serial number, return authorization number and shipper tracking number in the event REI does not have record of receiving product for repair or replacement.

Once warranty service has been performed on your product, REI will ship the item freight prepaid to any business address in the Continental United States or Canada. Customers located outside the Continental United States and Canada are responsible for all freight charges. Any duties or fees, if any, are the customer's responsibility.

Any repair deemed non-warranty by REI will be subject to all freight charges, and in some cases inspection fees, to be paid by the customer. These fees may exist regardless of whether the product is repaired. If a customer requires help in trouble shooting a problem, contact REI and request technical assistance before requesting a return authorization number.

What Must You Do To Keep This Warranty in Effect?

KEEP YOUR ORIGINAL PROOF OF PURCHASE AS IT MAY BE REQUIRED IN ORDER TO RECEIVE WARRANTY SERVICE.

Make sure the serial number is not removed, altered or defaced.

Do not attempt to have your product repaired by anyone other than a REI Factory Service Center.

Also, see "What Does This Warranty Not Cover".

REI AUTHORIZED REPAIR FACILITIES:

REI
6534 L Street
Omaha, Nebraska 68117
Phone: 877-726-4617

REI
1376 Bennett Drive, Unit 126
Longwood, Florida 32750

What if your Product is a Non-Warranty Repair?

All Products sent to REI for repair which are determined, at REI's discretion, to be non-warrantable repair may incur inspection fees regardless of actual repair being performed or will incur repair fees if the product is repaired. All non-warranty repairs include a 90 day warranty for any components that are replaced, if any, and labor performed. Inspection fees apply regardless of whether a product is determined to be non-warrantable prior to shipping to REI. All freight charges, duties or fees associated with non-warranty repair are the customer's responsibility.

NOTES:



Radio Engineering Industries, Inc.

www.radioeng.com

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