MOTOR 1^A

User's Manual

For Serial#'s
MOT1AA-0820-00001
to
MOT1AA-0820-02010

RetroSound®

MODERN SOUND FOR YOUR CLASSIC

TABLE OF CONTENTS

General Features

- AM/FM tuner with 30 presets (12 AM and 18 FM)

- Selectable international tuner frequencies

- 18 watts RMS/40 watts peak x 4 channels

- Three EQ presets plus user-controlled bass, treble, fader, and balance adjustments

- OEM styling

- InfiniMount bracket and control shaft system for maximum installation flexibility

- Compatible with all RetroSound® vehicle specific bezels, faceplates and knob kits

- Rear auxiliary input

- Separate power antenna and amplifier turn-on lead(s)

What's in the box

Thank you for purchasing a RetroSound® radio. RetroSound® radios combine classic styling with the advanced features you expect from a modern car stereo. Your RetroSound® radio consists of two main parts: the Radio Face and the Radio Motor.
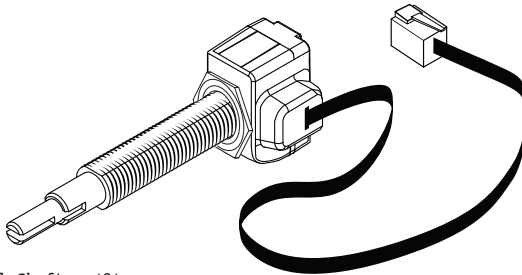
NOTE: All hardware will not be required for every installation. Extra items are included to help you get the right fit for your vehicle.

Radio Face Box
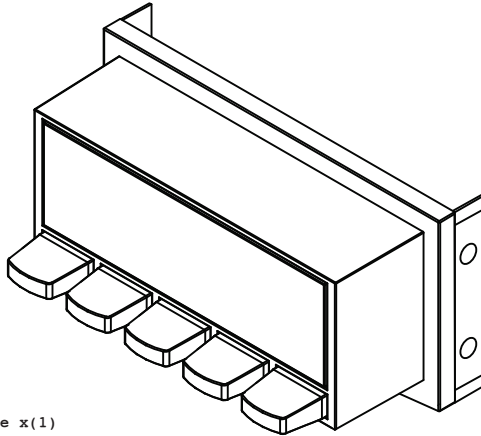
(A) Radio Face x(1)

Radio Face will vary depending on product purchased.
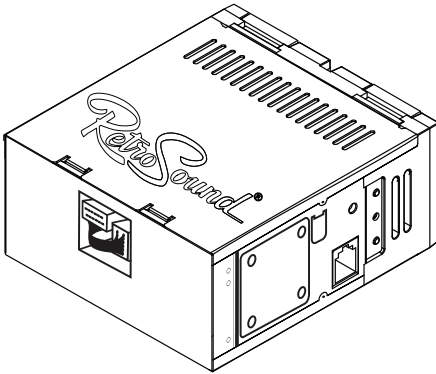

(B) Control Shafts x(2)

(C) Shaft Nuts x(6)

(D) Shaft Washers x(8)

(E) Small Screws x(4)

Radio Motor Box

F Radio Motor x(1)

Main Wiring Harness x(1)

G

Speaker Harness x(1)

H

Power Harness x(1)

I
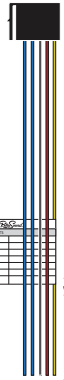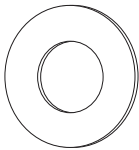
K InfiniMount Screws x(10)

L 6mm Nut x(4)

J Large Washer x(8)

O Dual Thread Bolt x(1)

P 10 mm Self Tapping Screw x(1)
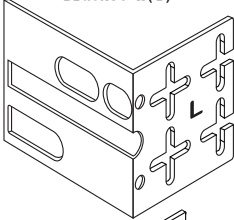
Q Lock Washer x(3)

R Self Tapping Screw x(1)

S 7 mm Nut x(1)

T Rubber Stopper x(1)

U Backstrap x(1)

M Left InfiniMount Bracket x(1)

N Right InfiniMount Bracket x(1)

W Large Plastic Spacer x(2)

X Cupped Plastic Spacer x(2)

PRECAUTIONS

PLEASE OBSERVE THESE PRECAUTIONS WHEN INSTALLING AND USING THIS UNIT:

This user's manual does not cover all possible installation scenarios. Please be sure to follow the instructions carefully while attempting installation. If you feel you cannot install this unit yourself, consult with a local car audio professional.
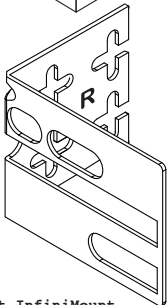
Retro Manufacturing, LLC is not liable for any problems resulting from improper installation of the unit.

If you have questions about installing your radio, contact us at **tech@retromanufacturing.com** or by calling **888.325.1555**.

- If the unit does not turn on, check all wiring first. Then check the fuse in your vehicle's fuse panel and the fuse at the unit's wiring harness. If either fuse has failed, eliminate the cause of the failure, and replace the fuse with one prescribed for this unit.

- Do not disassemble or modify the unit or attempt to repair it yourself. If the unit needs to be repaired, consult your dealer or Retro Manufacturing, LLC.

- This unit is not designed for a marine environment. Please do not use the unit where it will be exposed to moisture or excessive dust. Exposure to moisture will damage the unit and void your warranty.

- Use caution when routing wiring and cables to prevent them from being caught in the vehicle chassis, or damaged by screws or moving parts, such as seat rails.

- Cutting the main wiring harness, antenna lead, USB or auxiliary cables **will void the warranty** of your radio.

- If mounting the Radio Face or Radio Motor remotely, use extreme caution not to damage these units' internal parts when choosing brackets and screws.

- Never install the unit in a location where it interferes with your field of vision.

- Use the supplied metal backstrap to secure the rear of the unit. Failure to secure the back of the unit will damage the shafts and **will void the warranty**.

- Never splice into the power lead to supply other equipment with power.

- After installation and wiring, always check the normal operation of other electrical equipment.

- Make sure that no wires interfere with driving or getting in and out of the vehicle. Insulate all exposed wires to prevent short-circuiting or electric shock.

- Keep the volume of your radio at a level that allows you to hear outside noises, such as emergency sirens and train crossing warnings. Prolonged exposure to high volume levels may also result in hearing loss.

- This unit is designed for operation with a negative ground 12-volt DC battery system. Do not operate this unit with other battery systems, especially an 18-volt or 24-volt DC or a positive ground system. If you have a 6-volt system, you need to either convert to 12-volt DC or purchase a separate inverter that will increase the voltage to 12-volts. NOTE: The inverter needs to be rated at 10 amps or higher for the radio to operate properly.

The information enclosed in this user's manual is to be used as a guide to assist you in the assembly, installation, and operation of your radio. This guide does not cover every installation possibility, every vehicle, or every aspect of the installation process.

Retro Manufacturing, LLC or its subsidiaries assume no responsibility for any installation. This manual may be updated from time to time.

Please check our website for the latest updates:

www.retromanufacturing.com

Installation Instructions

Parts Needed
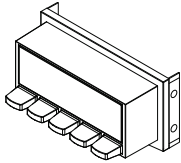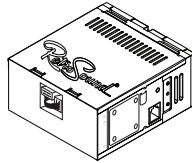
(A) Radio Face x(1)	(F) Radio Motor x(1)	(E) Small Screws x(4)

Step #1 Connect ribbon cable to the Radio Face.
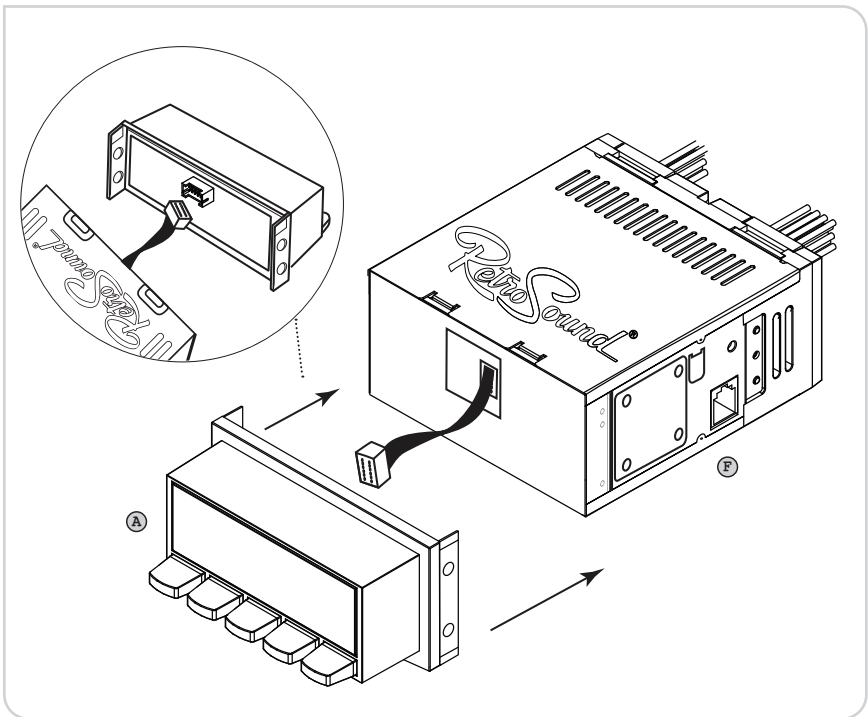
Plug the ribbon cable from the Radio Motor(F) into the Radio Face(A). The ribbon cable is attached to the Radio Motor in the square opening on the front of the Radio Motor. Plug the loose end into the Radio Face making sure the other end is plugged into the Radio Motor securely.

Step #2 Attach the Radio Face.

Before attaching the Radio Face ensure the RetroSound® logo on the Radio Motor is facing upwards. Attach the Radio Face to the Radio Motor with the four Small Screws(E).

Special Instructions for APACHE Radio Users

Apache Radio Face users will need to take an additional step to set up your radio to work in Apache Mode. Once the radio is fully assembled, installed, and powered on, press and hold the Right-Front knob for three seconds to access the sub-menu system. You will see AUTO SEEK or MANUAL. Release and press the Right-Front knob repeatedly to SEL PANEL, then rotate the Right-Front knob clockwise to show NORMAL or APACHE panel choices. With the APACHE panel selected, press the Right-Front knob to set.

Attaching the InfiniMount Brackets

Parts Needed
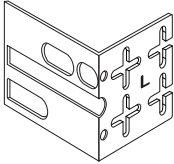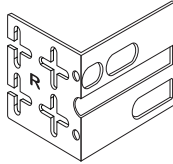
(M) Left InfiniMount Bracket x(1)	(N) Right InfiniMount Bracket x(1)	(K) InfiniMount Screws x(8)

Step #3 Attach the InfiniMount Brackets.
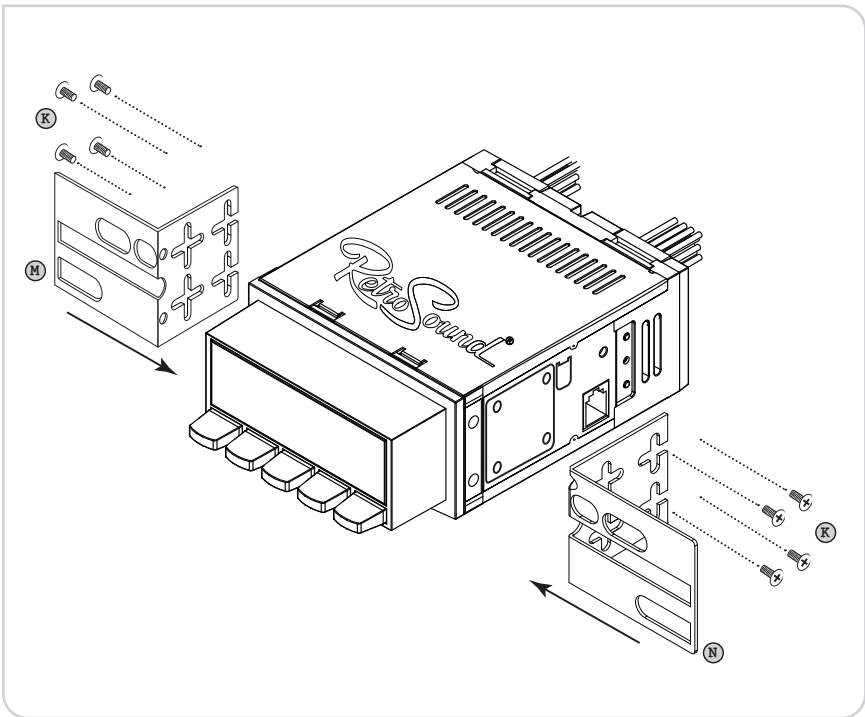
Attach both InfiniMount Brackets(M,N) to Radio Motor using the supplied InfiniMount Screws(K) (the brackets are marked with an "L" for left and an "R" for right). Make sure the RetroSound® logo on the Radio Motor is facing upwards. Before tightening the screws, you may also move the brackets forward, backward, up, or down as needed. The InfiniMount Brackets may be rotated, cut, or bent to achieve the perfect fit. A minimum of two screws must be used on each bracket to secure them correctly.

Parts Needed

B Control Shafts x(2)	C Shaft Nuts x(4)	D Shaft Washers x(4)

Step #4 Measure & Set Shaft Width
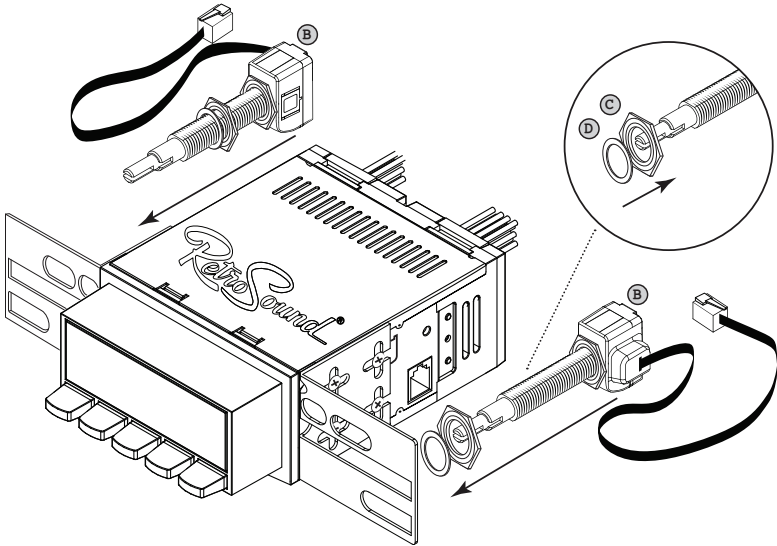
Measure vehicle dash for proper width (shaft hole center to center) and offset of the shafts (some vehicle shaft locations may be offset from the radio display). Match the shaft locations from your dash to the proper InfiniMount Bracket location. Place a Shaft Nut(C) and Shaft Washer(D) on each shaft about halfway down; the Shaft Nuts will be adjusted in the next step to set the proper depth.

Installing the Control Shafts

Step #5 Set Control Shaft Depth
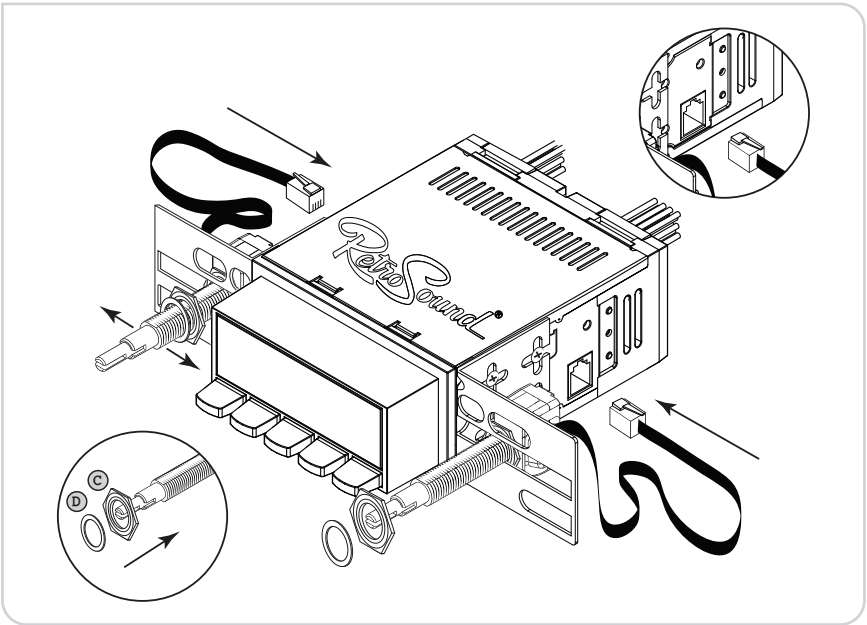
Insert the Control Shafts into InfiniMount Brackets, add a Shaft Nut(C), and Shaft Washer(D) to each shaft. To start, bring the shafts forward until the brass portion is about a quarter-inch past the display face. Adjust the depth of the shafts as needed by moving the shaft nuts forward or backward. Once you ensure the shafts are at the proper width and depth, snug down the shaft nuts to finger tight (DO NOT OVERTIGHTEN). With the shafts securely in place, plug the shaft cables into the Radio Motor.

Adjusting Control Shaft Depth

The Control Shafts may need to be adjusted forwards or backwards throughout the installation process to achieve the perfect depth.
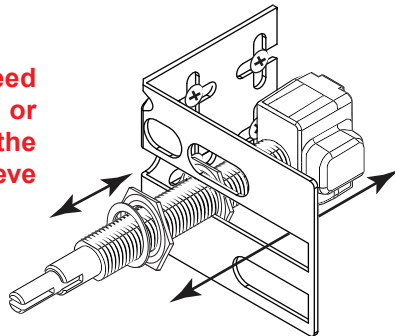
Parts Needed
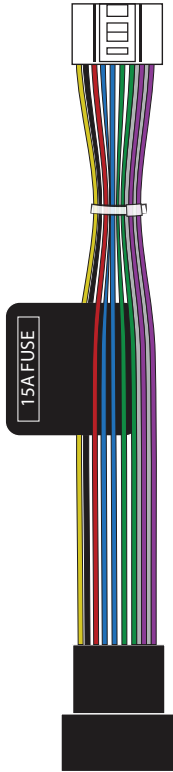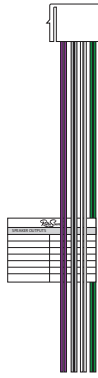
H Speaker Harness x(1)
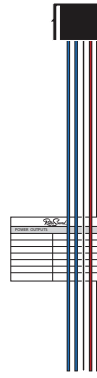
I Power Harness x(1)
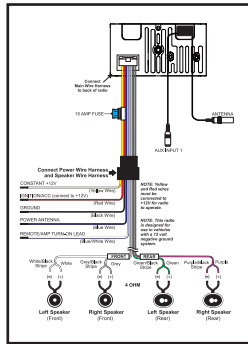
Refer to the wiring diagram included in your Radio Motor box or on our website.

G Main Wiring Harness x(1)

Step #6 Connect the Wiring Harness

Locate the three wiring harnesses: Main Wiring Harness(G), Speaker Harness(H), and Power Harness(I) from your Radio Motor box. Using the Power Harness and Speaker Harness, connect the bare wire ends of your power and speaker wires to the appropriate power and speaker locations in your vehicle (see wiring diagram included in your Radio Motor box). Then connect the Main Wiring Harness to the back of the Radio Motor. Do not connect the Speaker and Power Harnesses to the Main Wiring Harness until Step #7.

If you find this step too difficult, consult with a local audio installation professional, or contact us at **tech@retromanufacturing.com** for assistance.

Using a Bezel

Optional: Install the Bezel
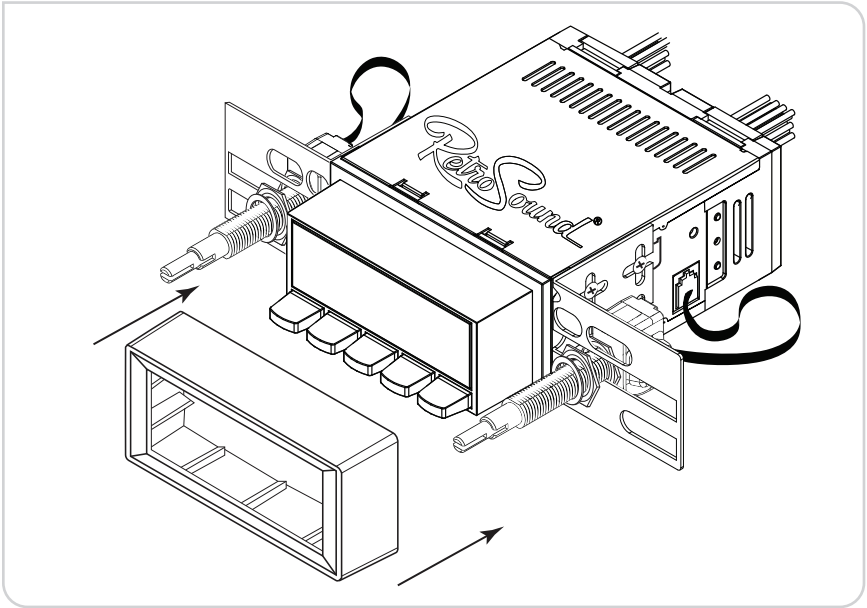
If you are using a Bezel, slide the Bezel over the Radio Face **BEFORE** inserting the assembled radio into the dash. To achieve a proper fit, you may need to use the Cupped Plastic Spacers(X) in front of the dash, before the final nuts and washers are applied. If the fit does not look correct for your particular installation, revisit Step #5 to adjust the shaft depth as necessary.

Dashboard

X
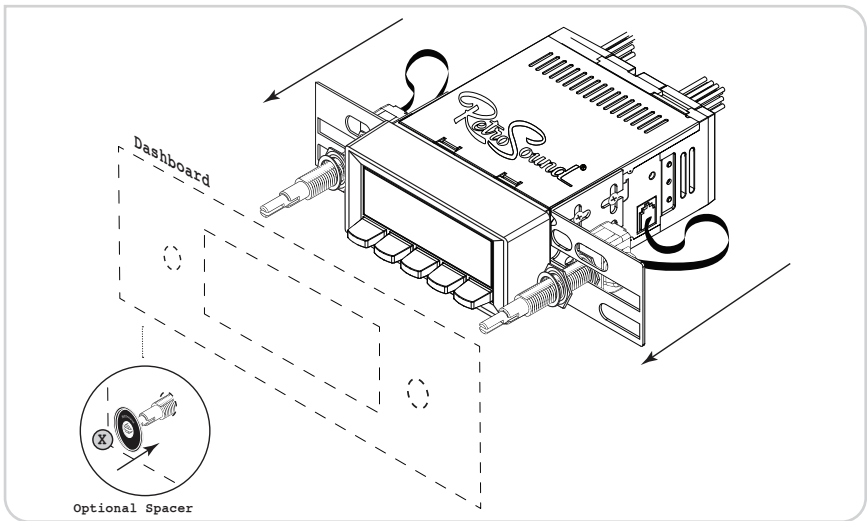
Optional Spacer

Optional: Install the Faceplate
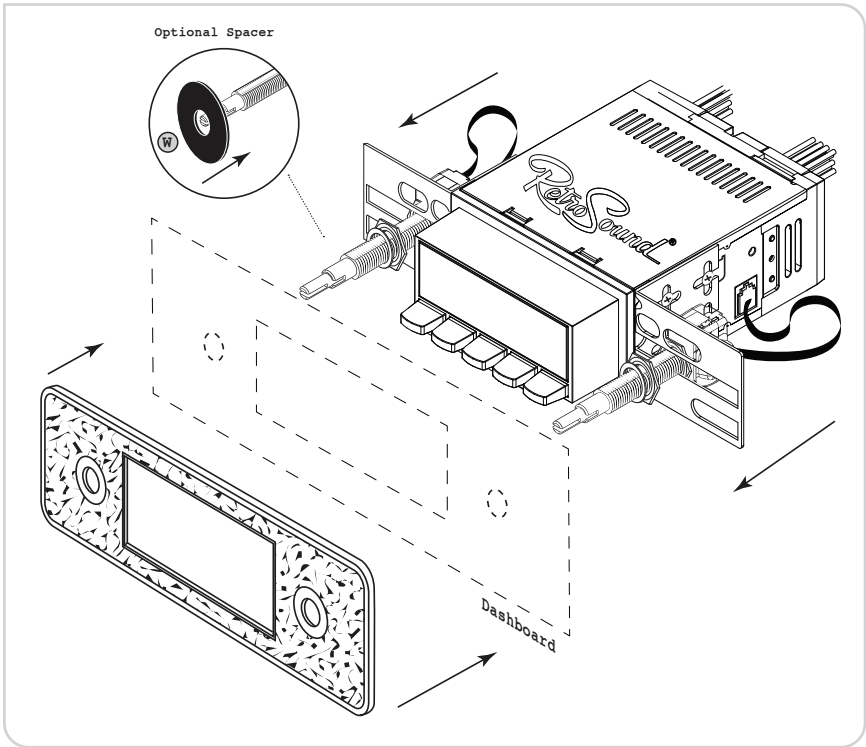
If you are using a Faceplate, slide the radio into the opening from behind the dash **BEFORE** adding the Faceplate. To achieve a proper fit, you may need to use the Large Plastic Spacers(W). If using the spacers, place them on the shafts behind the dash. Align the Faceplate over the shafts from the front of the dash. The Radio Face should align flush with the Faceplate, and the shafts should only protrude about a quarter inch past the Radio Face. If the fit does not look correct for your particular installation, revisit Step #5 to adjust the shaft depth as necessary.

IMPORTANT STEP: Attach the Backstrap!

Before completing the installation with the final nuts and washers, it is **IMPORTANT** that you secure the unit to your vehicle using the supplied Backstrap to support the unit's weight properly. Failure to attach the Backstrap will damage the Control Shafts and void your warranty. (See the instructions on the following page.)

Attaching the Backstrap

Parts Needed

(U) Backstrap x(1)	(O) Dual Thread Bolt x(1)	(Q) Lock Washer x(1) (S) 7 mm NUT x(1)	(P) 10 mm Self Tapping Screw x(1)
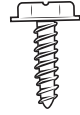
Step #7 Attach the Backstrap
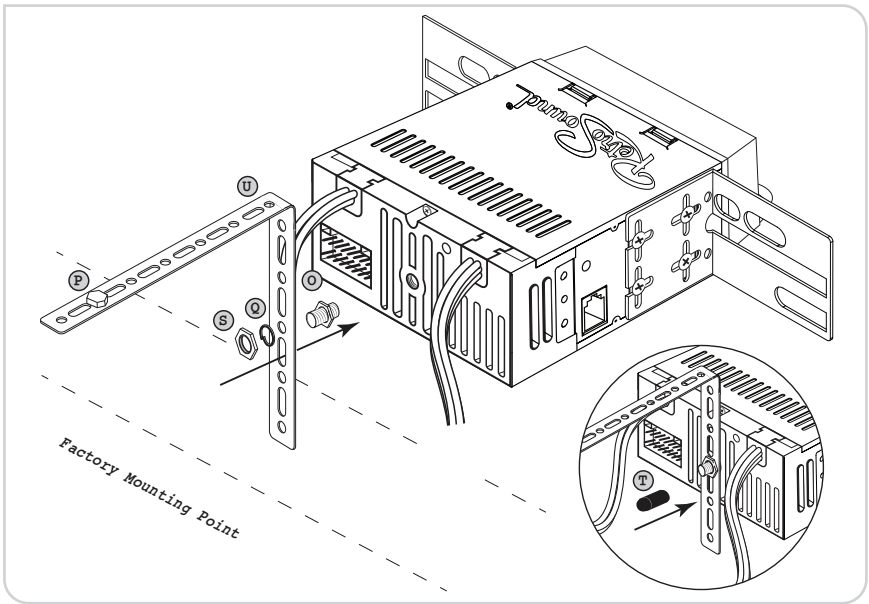
Before attaching the backstrap, connect both the Speaker Harness(H) and Power Harness(I) to the female plug of the Main Wiring Harness(G). If you are using an AUX device, connect it at this time and route the cable to it's proper location. Next, you will need to secure the back of the radio using the supplied Backstrap(U) and mounting hardware. The backstrap mounts to the threads on the back of the Radio Motor using the Dual Thread Bolt(O), Lock Washer(Q), and 7 mm Nut(S) and can be bent or adjusted to align with the mounting point of the original factory radio behind the dash. The Rubber Stopper(T) can be added if needed to cover the Dual Thread Bolt. Secure the other end of the backstrap to the factory mounting point on your vehicle using the 10 mm Self Tapping Screw(P) or the Self Tapping Screw(R).

Parts Needed

Ⓒ Shaft Nuts x(2)

Ⓓ Shaft Washers x(2)

Step #8 Complete the Installation

Bezel: Once the radio is supported from the rear and set into the dash with the Bezel installed, add a final Shaft Washer(D) and Shaft Nut(C) to each Control Shaft.
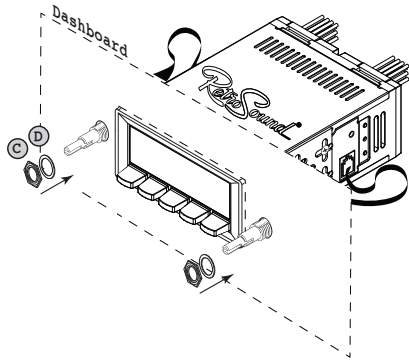
Faceplate: Once the radio is supported from the rear and set into the dash, add your Faceplate and a final Shaft Washer(D) and Shaft Nut(C) to each Control Shaft.
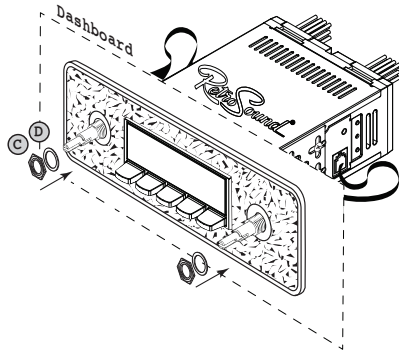
To complete the installation of your radio, add the rear and front knobs to both Control Shafts.

NOTE: All hardware will not be required for every installation. Extra items are included to help you get the right fit for your vehicle.

Operating the Radio

Front Panel Controls

(Vintage Dial Screen sold separately)

5 6 8 10 12 14 16

③ Preset Buttons

① Left-Front Knob

② Left-Rear Knob

Right-Rear Knob ⑤

Right-Front Knob ④
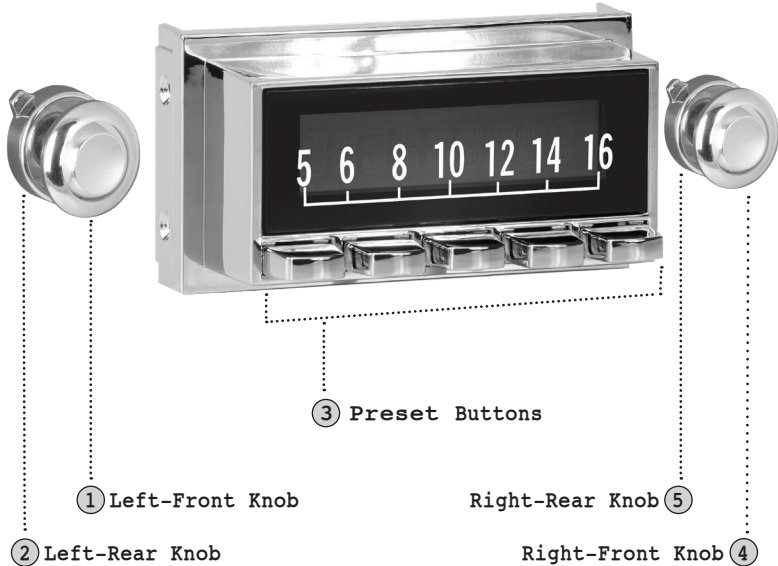
Power On/Off
Press the Left-Front Knob(1) to turn the unit on. RETROSOUND will appear on the screen. Press and hold the Left-Front Knob(1) to turn the unit off. GOODBYE will appear on the screen to confirm that it has turned off.

Volume
Rotate the Left-Front Knob(1) to adjust the volume between 0-46 (minimum-maximum).

Mode
Rotate the Left-Rear Knob(2) clockwise to select from available listening sources: RADIO, AUX. The auxiliary input may be used to play music from any portable device with a standard headphone output, such as an MP3 player, iPod® or iPhone®, portable CD player or portable satellite radio receiver.

Radio Tuning
Rotate the Right-Front Knob(4) to tune to the next or previous AM/FM frequency.

Note: When the radio is tuned to a strong FM station, the stereo indicator will appear in the upper right corner of the LCD (two oval circles).

Radio Bands
Rotate the Right-Rear Knob(5) counter-clockwise to toggle through the five radio bands (two AM and three FM).

Storing Radio Presets (For all Radio Faces, except Apache)
There are six radio presets for each radio band. For presets one through five, tune to the desired radio station and then press and hold the desired Preset Button(3) to store the station into memory. To set the sixth preset rotate the Right-Rear Knob(5) clockwise and hold for 3 seconds to store.

Storing Radio Presets for an Apache Radio Face
To store a preset on an Apache Radio Face, rotate the Right-Front Knob(4) to tune to the desired station, then rotate the Right-Rear Knob(5) clockwise to select the desired preset(1-6). Once selected, press the Right-Front Knob to store.

Selecting Radio Presets (For all Radio Faces, except Apache)
To recall radio presets, press the appropriate Preset Button(3) in the selected radio band. To recall preset six, turn the Right-Rear Knob(5) clockwise and release it.

Selecting Radio Presets for an Apache Radio Face
To recall a radio preset, turn the Right-Rear Knob(5) clockwise and release it. Repeat to move through the presets.

Mute
Press the Right-Front Knob(4) to activate the mute function. To deactivate the mute function, press the Right-Front Knob once more.

System Settings

System Settings

The System Settings sub-menu system enables access to the numerous additional features of your RetroSound® radio. Press and hold the Right-Front Knob(4) for three seconds to access the sub-menu system. Then repeatedly press the Right-Front Knob(4) to cycle through the available sub-menu options. Once in a specific sub-menu, rotate the Right-Front Knob either clockwise or counter-clockwise to change the options.

Auto Seek/Manual

This sub-menu toggles either Auto Seek or Manual tuning. In Auto Seek mode the radio will tune to the next available station when tuning.

To access the AUTO SEEK/MANUAL sub-menu, press and hold the Right-Front Knob(4) for three seconds. Repeatedly press the Right Front Knob(4) until AUTO SEEK appears on the screen. Rotate the Right-Front Knob(4) clockwise or counter-clockwise to select the desired option. Once the desired setting is shown, let the unit time out to set.

A Store

This sub-menu will automatically fill FM presets on all three FM bands of six presets each (eighteen total presets) with the strongest stations.

To access the A STORE sub-menu, press and hold the Right-Front Knob(4) for three seconds. Repeatedly press the Right Front Knob(4) until A STORE appears on the screen. Then press the Left-Front Knob(1) to activate and begin storing presets. This process can take up to one minute to complete.

Local/Distant

This sub-menu changes the sensitivity of the FM tuner. When listening to the FM tuner, selecting between LOCAL and DISTANT can aid in listening to weak FM stations or compensate for stations that have too strong of a signal.

To access the LOCAL/DISTANT sub-menu, press and hold the Right-Front Knob(4) for three seconds. Repeatedly press the Right Front Knob(4) until LOCAL/DISTANT appears on the screen. Rotate the Right-Front Knob(4) clockwise or counter-clockwise to select the desired option. Once the desired setting is shown, let the unit time out to set.

Clock

This sub-menu sets the clock.

To access the clock sub-menu, press and hold the Right-Front Knob(4) for three seconds. Repeatedly press the Right-Front Knob(4) until the time (AM 12:01) appears on the screen with the hours flashing. To adjust hours, rotate the Right-Front Knob(4) clockwise. Once the hour is set, press the Right-Front Knob(4) to change the minutes, then rotate the Right-Front Knob(4) clockwise to set the minutes. Once the desired setting is shown, let the unit time out to set.

Clock 12/24

This sub-menu toggles the clock from a twelve hour clock to a twenty-four hour clock. The default setting is for a twelve hour clock CLK 12.

To access the CLK 12/24 sub-menu, press and hold the Right-Front Knob(4) for three seconds. Repeatedly press the Right Front Knob(4) until CLK 12/24 appears on the screen. Rotate the Right-Front Knob(4) clockwise or counter-clockwise to select the desired option. Once the desired setting is shown, let the unit time out to set.

Display Frequency/Clock

This sub-menu sets the screen to display either the radio station you're listening to DISP FREQ or the current time CLK.

To access the DISP sub-menu, press and hold the Right-Front Knob(4) for three seconds. Repeatedly press the Right Front Knob(4) until DISP appears on the screen. Rotate the Right-Front Knob(4) clockwise or counter-clockwise to select the desired option. Once the desired setting is shown, let the unit time out to set.

Clock ON/OFF

This sub-menu sets the radio to display or hide the current time when the radio is off. The default setting is CLK ON.

To access the CLK ON/OFF sub-menu, press and hold the Right-Front Knob(4) for three seconds. Repeatedly press the Right Front Knob(4) until CLK ON appears on the screen. Rotate the Right-Front Knob(4) clockwise or counter-clockwise to select the desired option. Once the desired setting is shown, let the unit time out to set.

Beep On/Off

This sub-menu toggles the audible beep confirmation that sounds during operation of the radio. Select BEEP ON to hear the audible beep, and BEEP OFF to disable.

To access the BEEP sub-menu, press and hold the Right-Front Knob(4) for three seconds. Repeatedly press the Right Front Knob(4) until BEEP appears on the screen. Rotate the Right-Front Knob(4) clockwise or counter-clockwise to select the desired option. Once the desired setting is shown, let the unit time out to set.

Display Color

This sub-menu changes the display color. The default setting is SCAN, which will cycle through all of the available colors.

To access the display color sub-menu, press and hold the Right-Front Knob(4) for three seconds. Repeatedly press the Right Front Knob(4) until SCAN appears on the screen. Rotate the Right-Front Knob(4) clockwise or counter-clockwise to choose from the desired color presets. Once the desired color is shown, let the unit time out to set.

System Settings

Dimmer High/Low

This sub-menu adjusts the radio's display brightness between high (DIMM HIGH) and low (DIMM LOW).

To access the DIMMER sub-menu, press and hold the Right-Front Knob(4) for three seconds. Repeatedly press the Right-Front Knob(4) until DIMMER appears on the screen. Rotate the Right-Front Knob(4) clockwise or counter-clockwise to select the desired option. Once the desired setting is shown, let the unit time out to set.

Area USA/EUR/AUS/JAP/RUS

This sub-menu allows you to set your area to receive the appropriate broadcasts for your region. The default setting is the United States (USA).

To access the AREA sub-menu, press and hold the Right-Front Knob(4) for three seconds. Repeatedly press the Right Front Knob(4) until AREA appears on the screen. Rotate the Right-Front Knob(4) clockwise or counter-clockwise to select the desired region (USA/EUR/AUS/JAP/RUS). Once the desired region is shown, let the unit time out to set.

Volume Last/Adjust

This sub-menu adjusts the volume level at which the radio will turn on. The default setting is VOL LAST, which means the radio turns on at the volume level at which the radio was turned off. VOL ADJUS allows you to preset the volume level at which the radio turns on from 0-46, regardless of the volume level at which the radio was turned off (see "Volume" on page 17).

To access the VOLUME sub-menu, press and hold the Right-Front Knob(4) for three seconds. Repeatedly press the Right-Front Knob(4) until VOL appears on the screen. Rotate the Right-Front Knob(4) clockwise or counter-clockwise to select either VOL ADJUS or VOL LAST. If VOL ADJUS is selected, press the Right-Front Knob(4) again (AD VAL is shown) to set the volume level the radio will turn on at. Once the desired setting is shown, let the unit time out to set.

Digital Signal Processor

This sub-menu toggles the Digital Signal Processor (DSP) on and off. The default setting is DSP OFF. When activated, you may then select one of three preset equalization settings:

- CLASSIC This setting offers subtle sonic adjustments that lend themselves to classical music.

- POP This setting accentuates bass and treble frequencies and is suitable for popular music.

- ROCK This setting accentuates treble frequencies and is suitable for rock music.

To access the DSP sub-menu, press the Left-Front Knob(1) once, DSP OFF will be displayed. Rotate the Left-Front Knob(1) clockwise or counter-clockwise to select from the available presets. Once the desired setting is shown, let the unit time out to set.

Bass
This sub-menu adjusts the radio's bass levels.

To access the BASS sub-menu, repeatedly press the Left-Front Knob(1) until BASS appears on the screen. Rotate the Left-Front Knob(1) clockwise or counter-clockwise to select the desired level. Once the desired setting is shown, let the unit time out to set.

Treble
This sub-menu adjusts the radio's treble levels.

To access the TREBLE sub-menu, repeatedly press the Left-Front Knob(1) until TREBLE appears on the screen. Rotate the Left-Front Knob(1) clockwise or counter-clockwise to select the desired level. Once the desired setting is shown, let the unit time out to set.

Balance
This sub-menu adjusts the radio's balance.

To access the BAL sub-menu, repeatedly press the Left-Front Knob(1) until BAL appears on the screen. Rotate the Left-Front Knob(1) clockwise or counter-clockwise to select the desired level. Once the desired setting is shown, let the unit time out to set.

Fader
This sub-menu adjusts the radio's fader.

To access the FADER sub-menu, repeatedly press the Left-Front Knob(1) until FADER appears on the screen. Rotate the Left-Front Knob(1) clockwise or counter-clockwise to select the desired level. Once the desired setting is shown, let the unit time out to set.

XBASS
This sub-menu enables or disables the XBAS function. XBAS boosts the low frequencies resulting in enhanced bass tones.

To access the XBAS sub-menu, repeatedly press the Left-Front Knob(1) until XBAS appears on the screen. Rotate the Left-Front Knob(1) clockwise or counter-clockwise to select the desired setting. Once the desired setting is shown, let the unit time out to set.

Troubleshooting

Problem	Possible Cause	Action to Solve Problem
Radio will not turn on (no lights, no sound)	Constant +12V (yellow) wire not connected or incorrect voltage	Check all connections for proper voltage with a volt meter. Voltage range: 12-15 volts
	+12V ignition/accessory (red) wire not connected or incorrect voltage	Check +12V accessory (red) wire connection and test voltage
	Ground (black) wire not connected	Check ground connection
	Fuse on constant +12V (yellow) wire is blown	Replace blown fuse
No sound heard from unit but unit lights up	Volume turned all the way down	Increase radio volume
	Internal amp in protection mode	Check speaker leads for any grounded or shorted wires or reset system to factory defaults*
	Wrong source mode selected	Make sure the unit is in the desired source mode (RADIO,AUX)
Unit blows fuses	Possible short in wiring or incorrect fuse used	Make sure only fuses with correct 15 amp ratings are used and check all wiring connections for possible short
	Battery hooked up backwards	Make sure battery is properly connected

*System Reset
To restore/reset the unit to factory defaults, remove all power from the unit, wait 5 minutes and then reconnect the power.

For replacement parts, visit our website at **www.retromanufacturing. com**, contact us by calling **888.325.1555** or send an email to **tech@ retromanufacturing.com** (see page 3-4 to confirm the part(s) needed).

Do your radios work on 6 volt systems or on positive ground systems?

No. Our radios are 12 volt, negative ground only. After-market converters and inverters are available but must provide at least 10 amps of continuous output.

I'm having problems getting the radio to turn on.

RetroSound® radios require 12 volts to both power leads. The red lead (+12 volt accessory) goes to a switched power source, and the yellow to a constant +12 volt power source. Using a volt meter, check the voltage when the key is turned from "off" to "on". If there is a significant drop in the voltage, the circuit to which you have the yellow lead attached cannot handle the additional draw of the radio. You will need to find another circuit that can handle the additional draw of the radio, or you will need to go directly to the battery.

What speaker wire do you recommend I use?

We recommend using 16 gauge wire for the speakers.

I have all 4 speakers connected to your radio and the display is lit up like it is working, but there's no sound coming out.

This usually indicates one of two things:

- Speaker wires touching each other or the vehicle chassis at some point. Check each speaker lead from radio to speaker.

- Speaker impedance below 4 ohms. Older speakers are usually not compatible with modern electronics.

My car originally came with a switch to control my automatic antenna. Can I use the RetroSound® radio's remote antenna wire to control my antenna?

No, you cannot. Your factory antenna is known as "semi-automatic." It requires a switch to either extend or retract the antenna. You must retain this switch to control your antenna; the RetroSound® radio's power antenna wire is for more modern "fully-automatic" antennas not requiring a separate switch.

Frequently Asked Questions

The sound output is all mid-range, with very little bass and a strangled-sounding upper range. What is wrong?

One of your speaker wires is connected backwards. This is called being "out of phase." Check to make sure positive is wired to positive and negative to negative on all your speakers.

Will cutting or bending the InfiniMount Brackets void the warranty or harm the unit?

No. The RetroSound® patented InfiniMount Bracket system has been designed specifically to be bent, cut and modified to simplify radio installation. Modifying the radio's brackets is actually encouraged to ensure proper fit.

If you have questions about modifying the brackets, contact us at **tech@retromanufacturing.com** or call us at **888.325.1555**.

How much should I tighten the shaft nuts when installing the brackets and mounting the radio to the dash?

DO NOT OVERTIGHTEN the shaft nuts. The shaft nuts are NOT the only means of securing the radio to the dash. There is a backstrap included which works with the shaft nuts to secure the radio to the dash. Please note that overtightening the shaft nuts could break the shafts. Retro Manufacturing, LLC will not be responsible for broken shafts due to overtightening the shaft nuts.

I have your radio with an amp connected, but hear a whining/buzzing sound through the speakers when I step on the accelerator.

If you have an external amplifier installed and experience a high-pitched noise that varies with the engine's RPM, there are many possible solutions:

- Make sure the amplifier's gain controls are not turned all the way up. Amplifiers amplify everything, including noise.

- Try grounding the amplifier near where it is installed.

- Try a filter on the amplifier's 12 volt power lead. Make sure to use a filter that includes a ground wire.

- On rare occasions, noise can be introduced through the antenna lead. If disconnecting the antenna makes the noise go away, you need to replace or repair the antenna plug where it goes into the radio.

FM

Tuning Range (USA, EUR, AUS, JAP, RUS tuning capable)..........87.5-107.9MHz

Antenna Terminal ....External Antenna Connector

Usable Sensitivity... 12.5dBf

Selectivity .... 75 dB @400kHz

Signal to Noise Ratio...62dB (Stereo), 67dB (Mono)

Harmonic Distortion @ 1 kHz ....0.8% (Stereo), 0.5% (Mono)

Separation...32dB @1kHz

Frequency Response 30-16,000Hz

AM

Tuning Range (USA, EUR, AUS, JAP, RUS tuning capable)............ 530-1710kHz

Antenna Terminal ....External Antenna Connector

General

Dimensions (Radio Face)..3.5"W x 1.5"H x 1.05"D

(dimensions will vary depending on product purchased

Dimensions (Radio Motor) ....3.96"W x 1.98"H x 4.30"D

Power Requirements...11.5-14.4V

Current Consumption (during operation) .... Max. 15A

Current Consumption (car off) ....<3.5 mA

Output Power (@14.4volts @4ohm @1% THD) ....18x4w RMS 40x4 Max

Output Impedance.. 4-8ohm

AUX Input (aux cable length, 8")...>300 mV / 6 kΩ

NOTE: All specifications are subject to change without notice.

Warranty

Your unit comes with a manufacturer's warranty covering any defects in materials and workmanship. Retro Manufacturing, LLC (collectively referred to as "the warranter") at its option will either (a) repair your unit with new or refurbished parts, or (b) replace it with a new or refurbished unit. The warranty period starts from the original purchase date and is valid for the length of time indicated in the chart below. The decision to repair or replace will be made by the warranter.

ITEM	WARRANTY
Motor 1A Radio	One (1) Year

During the "Parts" warranty period, there will be no charge for parts. You must mail in your unit during the warranty period. This warranty only applies to products purchased and serviced in the United States or Puerto Rico. This warranty is extended only to the original purchaser of a new product which was not sold "as is." A purchase receipt or other proof of the original purchase date is required for warranty service.

To handle a warranty issue, contact us at **tech@retromanufacturing.com** or **888.325.1555** for a Return Authorization (RA) number. All returns and warranty issues must be accompanied by a RA number. Any product received without a RA number will be refused.

LIMITED WARRANTY-LIMITS AND EXCLUSIONS

This warranty ONLY COVERS failures due to defects in materials and workmanship, and DOES NOT COVER normal wear and tear or cosmetic damage. The warranty ALSO DOES NOT COVER damages which occurred during shipment, failures which are caused by products not supplied by the warranter, failures which result from accident, misuse, abuse, neglect, bug infestation, mishandling, misapplication, alteration, faulty installation, set-up adjustment, maladjustment of consumer control, improper maintenance, improper antenna, inadequate signal reception or pickup, power line surge, improper voltage supply, lightning, modification, commercial use (such as use in hotels, offices, restaurants, or other business uses) or rental use of the product, or service by anyone other than Retro Manufacturing, LLC, or damage that is attributable to acts of God.

THERE ARE NO EXPRESS WARRANTIES EXCEPT AS LISTED UNDER "LIMITED WARRANTY". THE WARRANTER IS NOT LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THIS Unit, OR ARISING OUT OF ANY BREACH OF THIS WARRANTY. (As examples, this excludes damages for lost time, cost of having someone remove or re-install an installed unit if applicable, travel to and from the servicer, and loss of media, data or other memory contents. The items listed are not exclusive, but are for illustration only.) ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTY OF MERCHANTABILITY, ARE LIMITED TO THE PERIOD OF THE LIMITED WARRANTY.

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 exclusions 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. If a problem with this unit develops during or after the warranty period, you may contact your dealer or Retro Manufacturing, LLC.

Record the place and date of purchase for future reference.

Model No. _____

Serial No. _____

Purchase Date _____

Purchased From _____

Keep this information and your sales receipt in a safe place.

Retro® **MANUFACTURING**

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MODERN SOUND FOR YOUR CLASSIC

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