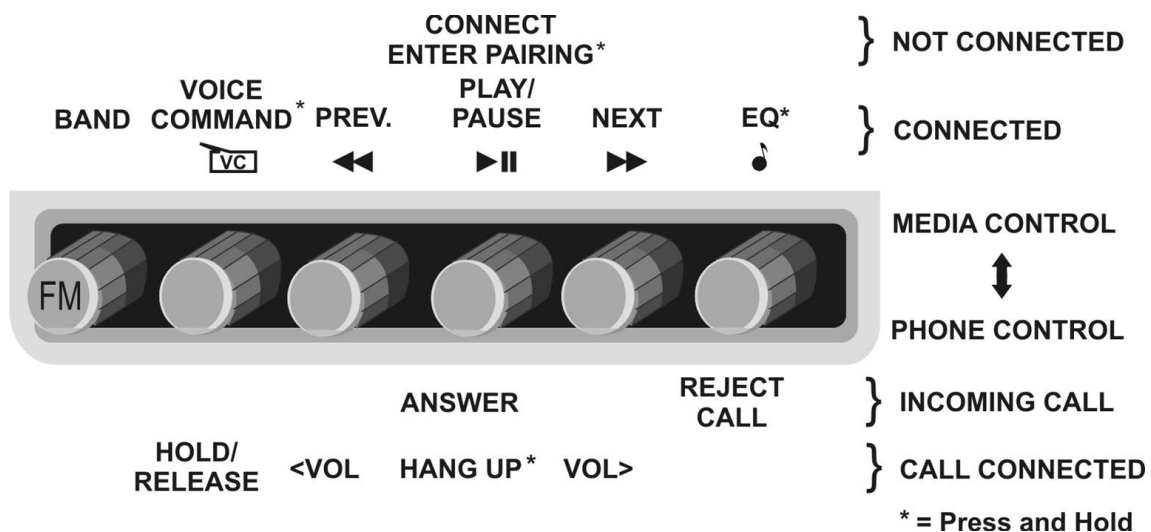


Release Date
January 2025

1955 THUNDERBIRD AM/FM/BLUETOOTH® RADIO INSTALLATION AND OPERATING INSTRUCTIONS AM/FM10.1



Model 303401BT



ANTIQUE AUTOMOBILE RADIO, INC.
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For HELP, Questions or Comments **email:**
support@radiosforoldcars.com

This radio is designed to preserve the original fit, functions and appearance, while providing the best of the latest digital technology in one small case! The modern features that were not available when your vehicle was new are cleverly disguised so that they are functional and easily accessible but not visible. The face, knobs and pushbuttons are designed and manufactured to look and feel just like the original. The AM dial scale looks like the original. The FM dial scale is hidden in the background. There is a small LED indicator in the center of the background to show certain available modes. In AM, the indicator will be red. It will be dim red when off station and bright red when tuned into a station. In FM, the indicator will be a dim green when off station, a bright green when tuned to a mono station and orange when locked on a stereo station. In the Bluetooth® mode this indicator has multiple uses. Please take a few minutes to read this manual and familiarize yourself with all the features of this radio. Although this radio is considerably smaller than the original, it will fit in the dash without any alterations. The radio is designed to work well with the original antenna. **Do not use the original, grounded speakers.** They will not handle the power or the frequency range of this radio.

Before you begin installation: Be Safe! Disconnect one battery terminal and leave it disconnected until installation is complete. Locate the antenna jack, the auxiliary input, line outputs and other options you may need before you mount the radio. If you want to “bench test” the radio, use a fully charged battery. Do not operate this radio directly from a battery charger. Serious damage may result! This radio has several protection circuits to help prevent damage from wiring errors and power faults in the vehicle’s electrical system. Never use a fuse rated for more than 10 Amps!

Speakers: See our line of Dual Voice Coil speakers designed specifically for this radio. Use only 4-ohm speakers. A quality full-range speaker with 40-watt RMS ratings should be sufficient. The higher the SPL rating of the speaker, the better it sounds. Look for an SPL of 88 or better. A good full range speaker should have a frequency range from less than 40 Hz to at least 18 kHz. Pay attention to polarity! Speaker terminals will be marked with a + and -. Note: - does not mean ground! This is a high-power radio in which both speaker lines are driven with high currents! **Never** allow any speaker lead to become grounded when the radio is on!

Operating Your Radio

Power & Volume: The left outer knob turns the radio on and off, as well as changes the volume for the radio.

Band selection: The leftmost pushbutton was the On/Off button on original radios. It is now marked FM. Each time you push the FM button the radio will toggle between AM and FM. The radio will be on the last station you were listening to when power was turned off.

Tuning: Turning the right outer knob will move the dial pointer up or down the dial scale. The radio is digitally tuned for stability but has the look and feel of an analog radio.

Note: the dial pointer and pushbuttons will only function when the radio has power and is turned on.

Tone: The tone control (behind the volume control) provides full bass and treble near the center position. Turning the control clockwise reduces treble and counterclockwise reduces bass.

Balance: Your radio has a balance control behind the tuning control. Turning the balance knob will shift the audio between the left speaker(s) and the right speaker(s). In a stereo system, the audio information sent to the right channel is often different than the left channel. When you set the balance to the extreme left or right, the radio will automatically switch out of the stereo mode and all of the information for both channels will be present in the speaker that is selected (Mono mode). Note: The balance control does not function in a single (mono) speaker setup.

Fader: To be able to adjust the front/rear speakers without altering the look of the original radio, there is a hidden fade control at the top of the dial in FM. To access the fader, tune to an FM station and let it play for a few seconds. Then, tune to the top (right) of the dial. The center LED will begin to blink green and orange to show you have reached the top of the dial (fader position). The radio station will start playing again. Use the **balance** control to adjust the front/rear fader. Turning the knob left will move the sound to your front speakers and turning the knob right will move the sound to your rear speakers. When you tune away from the top of the dial, the LED will stop blinking and the radio will resume normal operation. The balance control will no longer affect the fader function, and those settings will be permanently stored (until you change them). You can now readjust the balance control, if needed. Note: The fader is only operational in a 3 or 4 speaker setup.

Setting pushbuttons: Your radio has 5 presets for FM and 5 presets for AM. A major difference between the original radio and this one is the way the pushbuttons are set. **Never** attempt to pull out on the buttons! When you push a button, the radio will start playing the preset station, and the dial pointer will move to the selected location. To set a button to a different station: (1) Tune in the desired station. (2) Press and hold the button you want to set for about 5 seconds. The tuner will move to the previous setting and after about 2 seconds, the radio will begin playing at the newly selected station. The dial pointer may cycle to locate the correct position. This is normal. The dial pointer will stop at the new station. (3) Release the button. Be aware it takes a couple of seconds to store the new pushbutton data to memory so do not turn off the radio immediately after saving a new station. You can continue to set other buttons or tune in to other stations, but if the radio is turned off immediately, the new stations may not be saved. Please wait 5 seconds before powering off the unit after making a change.

Bluetooth®: To connect your phone, it must first be “paired” to this radio. Make sure Bluetooth is turned on, on your phone. Tune to the bottom of the dial in either band (below the 88 in FM or the 55 in AM). The stereo indicator in the dial will not be illuminated. Press and hold the middle pushbutton for about 5 seconds. You will see the stereo indicator blink blue, indicating a pairing signal has been sent. Search for available devices on your phone. “AARInc.BTvx.x” should be visible for a few minutes. Select it to pair to radio.

Once your phone is paired, it will connect automatically when the radio is turned on.

To enter Bluetooth® mode after initial connection, tune to the bottom of the dial in either band (below the 88 in FM or the 55 in AM). The stereo indicator in the dial will turn bright blue. To exit Bluetooth® mode, manually tune away from the low end of the dial. When listening to the radio (AM or FM) an incoming call will switch the radio into Bluetooth® mode to allow you to answer by briefly pressing the center button. To reject the call, press the rightmost button. See the illustration on the cover for all the alternate call functions. If the radio was not in Bluetooth® mode when the call began, the radio will return to the station you were listening to when the call ends. While streaming music, the buttons function as well. You can play/pause and skip songs using the pushbuttons. See the illustration on the cover for all the alternate music functions. For detailed Bluetooth® instructions go to www.antiqueautomobileradio.com/bluetooth-pairing-instructions/.

Your radio has a 12-wire harness for power, lights, speakers, 12v output and ground. See illustration on the back of the radio for more details. The **red** (fused) wire is the power input. It should be connected to the switched, 12-volt accessory circuit. The radio does not require constant power. The settings are stored internally when power is disconnected. The **green** wire is for the dial lights. It should be wired to the dash light circuit, so that the radio lights come on when the other gauge lights are turned on. The wiring for the front speakers is indicated by a **yellow band**. They include a **blue(+)** and **violet(-)** set for the left front speaker, and a **gray(+)** and **white(-)** set for the right front speaker. The rear speaker wiring is indicated by a **green band**. They also have a **blue(+)** and **violet(-)** set for the left rear speaker and a **gray(+)** and **white(-)** set for the right rear speaker. Your system may not use all the speaker connections. Be careful to cap off any unused wires so they cannot touch anything. The **orange** wire is a switched 12-volt output used to provide power for options like the remote turn-on for an external amplifier, power antenna, etc. If an accessory is powered by the orange wire, the accessory will shut off when power is switched off to the radio. Do not use it to power loads greater than 4 amps. The **black** wire is the system ground. This wire should be connected to a solid chassis ground. The Bluetooth® microphone is built in. No external wiring is required.



The **antenna** jack is located beneath the wiring harness exit. It will accept your original antenna plug.

The **foot sw.** jack in the upper right is for our foot control accessory that gives your radio a seek switch option mounted to the floor.

The **aux. input** jack left of the foot sw. is a standard 3.5 mm stereo jack. It is provided to allow accessories like CD players to be active when not using Bluetooth®. To switch to the auxiliary mode, tune the radio to the bottom of the dial in either band (below 88 in FM or below 55 in AM). The center LED will go out indicating you have reached the end of the dial and are now in aux. mode. The volume, tone, and balance controls will be functional, but the alternate fader will not be accessible. The aux. input is shared with Bluetooth® and Bluetooth® will override any aux. device. If you have a device paired to the radio, you will need to shut off Bluetooth® on that device. You should always adjust the volume level on the external device to match the volume level of the radio.

RCA jacks: There are 5 color-coded RCA jacks. The Left (white) and Right (red) jacks are front and rear stereo line outputs for an external power amplifier. The single black jack is for an external powered subwoofer. The subwoofer jack sends both the left and right low frequencies to the external device.

The speaker wires from the radio harness are still active when the RCA outputs are in use. Giving you the potential for more than 4 speakers. The fader and balance controls will work with all speaker outputs when an amplifier is added to your setup (see additional settings).

Additional Settings: When you receive your radio, it is set to North American channel spacing and is set to not use an external amplifier. You can change these settings by holding down the middle preset pushbutton while the power is switched off to the radio. While holding down the middle preset pushbutton turn the radio on. If an antenna is present, you will notice a green and red light in the center of the dial. The radio will scan through the local stations and determine which frequency to use for AM and FM. The dial pointer will be scanning up and down the dial. Once the dial pointer stops at the far right and the LED is blinking red you can press the 2nd preset pushbutton to add an external amplifier to your setup (balance and fader will work for the RCA output jacks on the back of the radio) or press the 4th preset pushbutton if you will not be using an external amplifier (this allows fade and balance to follow only the speakers connected from the harness). Once you have made your selection press the 1st preset pushbutton and you will return to normal radio functions. These changes will be permanently stored until they are changed again by repeating the steps above. If no antenna is present, the radio will not be able to determine which channel spacing to use and the LED will be orange to let you know no antenna was detected. You can still select or deselect an external amplifier (as described above) and save that setting by pressing the first leftmost pushbutton to return to normal radio operations.

Radio Specifications

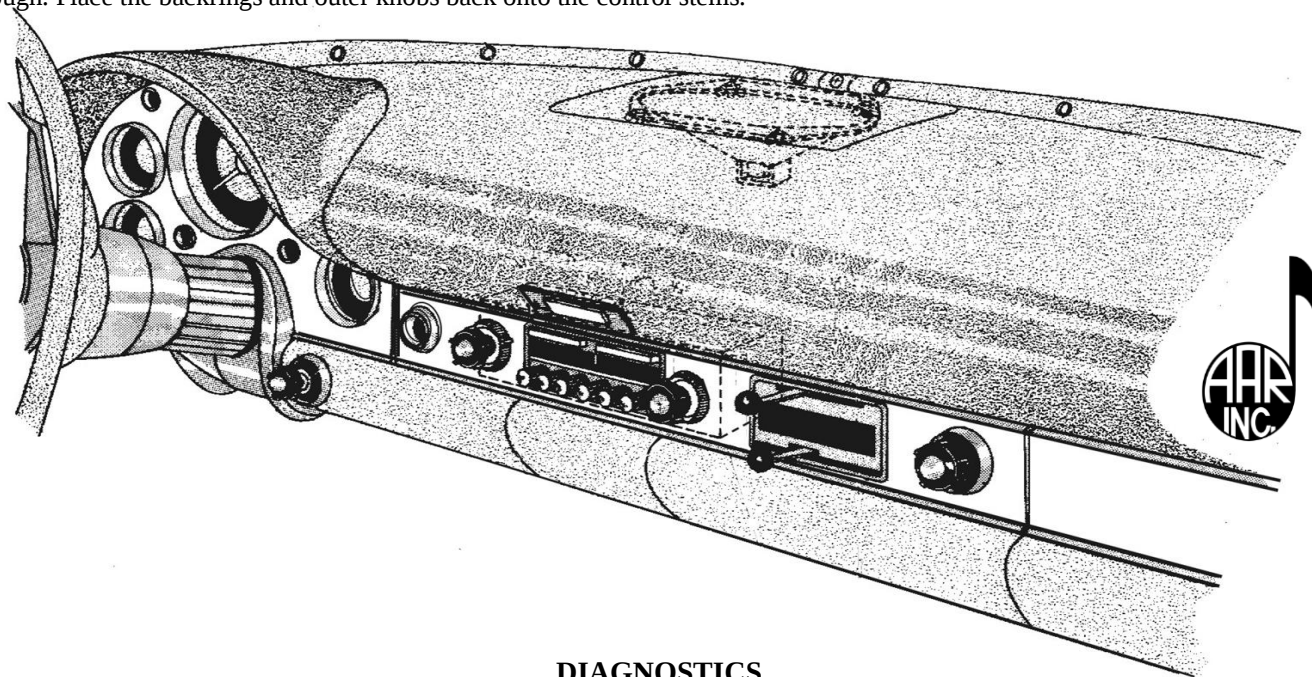
11.5-16 Volts DC Negative ground only
Output: 180 W. RMS (45 W x 4 speakers @ 4Ω 14.4 V, 1kHz)
10 Presets (5 AM, 5 FM) Digitally tuned w/analog display
Dimensions: 2.5" H, 8.75" W, 3.25" D (behind the dash)
3.5mm stereo input jack, Standard (Motorola) antenna jack

Foot Sw. jack for our optional foot control switch (FC-1)
Left, right and sub-woofer outputs use standard RCA jacks
Bluetooth® 5.0+EDR, Built in microphone for HFP, HSP, A2DP
Memory retention (presets and user settings) more than 40 years

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INSTALLATION

The dimensions of the front of your new radio are the same as the original, so it will install the same way that the original radio did. The radio is much smaller when viewed from the back than the original was, so the original mounting bracket won't fit. Included with your radio is a 9" back strap that can be easily cut and bent to any shape or size. It should be attached to the threaded ¼ -20 stud on the back of the radio and attached to the mounting bolt under the dash for the original radio. The strap will support the radio while taking some of the stress from the control shafts. Pull the outer knobs and backrings off the control shafts and remove the outer shaft nuts. Do not remove or loosen the inner shaft nuts! Position the radio in the dash and secure in place with the two ½" shaft nuts provided. Take care not to cross-thread or over tighten them. **Do not use power tools when tightening nuts or damage may occur.** Finger tight plus ½ turn is enough. Place the backrings and outer knobs back onto the control stems.



DIAGNOSTICS

Radio not functioning: Check for 12 volts going into the red (input) wire and about the same voltage coming out of the orange (output) wire. If no power is present, check the in-line fuses (10 amp on red wire & 3 amp on orange wire). Check for a good ground connection. The radio has a protection circuit built in that will not allow the radio to turn on if a speaker wire is shorted or pinched. The radio must have 12 volts on the red wire for the dial pointer to move with the tuning knob or pushbuttons.

No Sound: The radio will be muted in between stations. Make sure the antenna is plugged into the proper jack and the center LED shows that you are on station (see page 1 for LED descriptions). If an antenna is not connected there will be no sound coming from the speakers on AM or FM. You can check your speakers by using Bluetooth® or auxiliary mode if no antenna is present. Make sure your speakers are connected correctly (+ and -) and each speaker lead measures about 6 volts when measured with a volt meter to ground. The radio will not function with an original, grounded speaker.

Weak or No Reception: Check continuity between the center pin of the antenna plug and the antenna mast. It should read 0 ohms (like a short) Next, check continuity between the center pin of the antenna plug and the car body. It should not read (like an open circuit). If you're in a metal building, reception may be limited. Try it outside. If using a hidden antenna, make sure the signal will not be blocked by metal in the dash. Hidden antennas tend to have limited reception compared to a standard mast antenna. If using a windshield antenna, make sure it is still operational. You can always test reception with a new, standard mast antenna rested on the seat of the vehicle to verify if the antenna is causing any reception issues.

Ignition Noise: Usually caused by an ungrounded antenna shield. The base of the antenna must make good contact with the car body. This problem often shows up after a good paint job! Make sure the engine grounding straps are in place, clean and tightly bonded to the frame.

Distortion: Check to see if your speakers can handle at least 45 watts RMS. Small speakers that can only reproduce high frequency will distort on bass notes. Make sure the speakers are properly installed. Every speaker lead should measure about 6 volts to ground with the radio on and volume low. Resistance in the DC power input wiring can cause the amplifiers to "starve". If distortion seems to increase with volume, measure the voltage on the orange wire. If the voltage drops below 12 volts when the volume is raised, it is an indication of resistance between the battery and the radio – usually at the fuse block, but sometimes in the ignition switch. If the back strap is not bolted to a clean metal ground, try running a heavy ground wire from the ground lug on the radio directly to the firewall.

Radio shuts off after a few minutes: The radio has thermal protection built in to prevent damage from excessive heat. Possible causes are shorted or grounded speaker wires. See if any unused wires can touch anything. Make sure the heater or defroster duct isn't blowing directly on the radio.

Dial pointer issues: If the dial pointer gets stuck at one end or if it is misaligned, hold down one of the preset buttons for 5-10 seconds to realign or free dial pointer. If the dial pointer is stuck at one end of the dial, turn the tuning knob. The dial pointer should try to move while you're turning the knob. Continue to turn the tuning knob until the pointer resets itself.

BE SAFE: Make sure you are familiar with the way this radio works before you go out on the road. Driving demands your full attention.