

NON-INVASIVE MOBILE INSTALL

NO DUCT TAPE USED



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This paper details a non-invasive mobile installation of a ham radio in a 2021 Jeep Wrangler. The installation was relatively easy without modifications to the vehicle except a safety pin through the carpet under the drivers seat to zip tie wire and cable securely.

The key to this was studying the vehicle with a borescope, the wiring diagrams and watching video of other radio/audio installs. Most importantly, all equipment is secure in case of an accident, no pinching of coax/cables/wiring, or interfering with passengers/driver and NO USE OF DUCT TAPE.

The first thing was to decide where to mount the radio, remote head or hand held control head. The Jeep has little room to install a radio without it sticking out like an eyesore. I wanted the vehicle to look as factory as possible. I studied installations of audio amplifiers and other radios on Youtube. There was not enough room behind the dash, under the rear seats would not allow folding of the seats for cargo and cargo space in the back would make running the thick control head with connectors near impossible. The only good spot would be under the driver seat, or under the front passenger seat. I opted for mounting under the driver seat.

The following are pictures after the installation was completed.





POWER WIRING

I am a proponent of wiring directly to the battery. However, Jeep added separate circuits to programmable switches. The leads were located under the passenger dash. I chose the 40 amp switch/wire and added a 20 amp inline fuse.

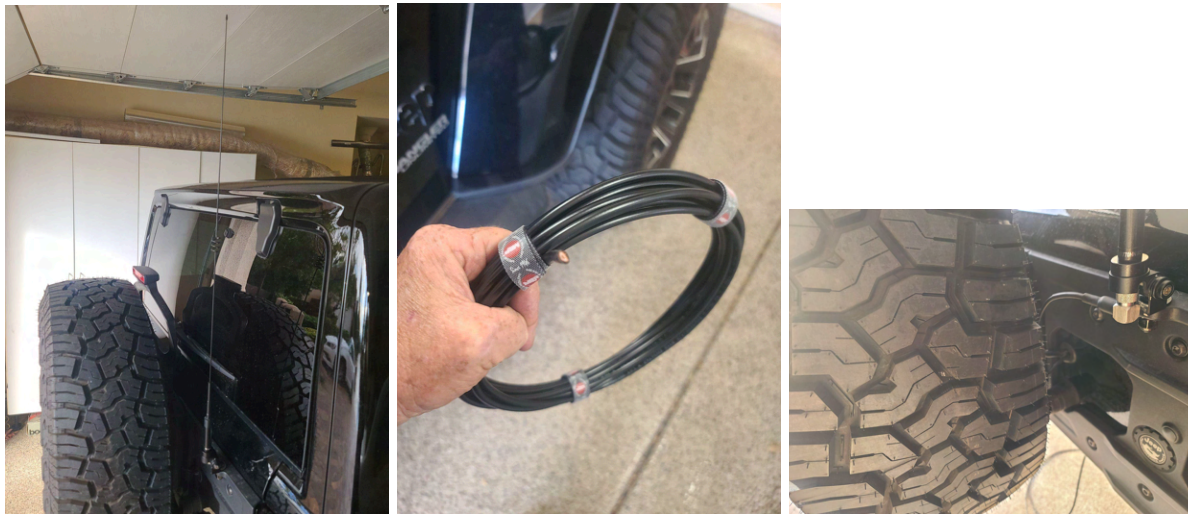


I utilized a welding rod to fish the wire behind the dash and through the center console where it made an exit in a carpet seam under the driver seat and right next to a factory chassis ground (Lucky me). The ground was in acceptable limits showing .3 ohms. Adding power pole connectors and configuring the switch, the power phase was done.



ANTENNA/COAX

I chose to mount a Diamond NR770HNMO dual band antenna on the tailgate. The Jeep reinforced tailgate has a one inch hole to presumably mount a $\frac{3}{8}$ shank cb antenna. This could have been tapped to a $\frac{5}{8}$ 24 UNEF thread to mount with a NMO So 239, or N connector. The mount area is on a slope which would have put the antenna off kilter unless I ground it down parallel. Instead I utilized a Diamond K400 NMO mount secured by a $\frac{1}{2}$ bolt.



The antenna was paired with Messi & Paoloni Hyperflex 5 coax. The coax was run behind the rear tire and through a factory grommet with the factory rear camera/third brake light wiring. The interior panel was pulled and the coax was tied with the factory wiring into the

rear panel. I fished solid speaker wire through a 5/16 factory hole on each side of the tailgate. A butt connector was crimped to the inner conductor and the speaker wire. The coax fit nicely in a factory channel under the weather stripping and grommets added. From there, I fished the coax with the welding rod down the rear panel to the rear door sill, then through a wiring channel that exited under the front seat, just opposite the power lines.



MOUNTING THE RADIO BRICK

Aftermarket amplifier mounts for under the seat mounting are around \$70.00 and made of 16 gauge sheet metal. At the race shop I found a piece of ugly 1/8 inch aluminum diamond plate and began fabricating my own mount. After several templates, cutting, grinding, fitting and refitting the mount was done.



However, directly mounting the brick put it right under the floor vent. I didn't want to add heat to the radio, so I made risers and an air diverter to put any hot air under and past the brick. I could not deal with the diamond plate, so I painted everything satin black. With the seat in a "normal driving position, nothing is visible.



The Hand Held Control Head Cable was routed under the seat. Also, when not in use it drops into the center console and can be locked up.

CONCLUSION

The install worked out as I envisioned. No cables or wires were visible, no safety hazards, no pinched coax, and no modifications to the vehicle. Everything looks factory and NO DUCT TAPE was used.

