

Installation of Rear View Camera in a 1995 Roadtrek 190 Popular

Introduction. In the fall of 2010 we investigated rear view cameras for possible installation in our 1995 Roadtrek 190 Popular. The base vehicle is a Dodge Ram 3500. Such cameras are variously known as backup cameras or rear video cameras and are most often found on large Class A motor homes with no rear window. They provide a 130° wide angle view of the scene behind the RV and sometimes are installed along with an audible backing alarm. A Roadtrek does not need a rear view camera, but the wide view is handy for maneuvering in parking lots and campgrounds, viewing a towed vehicle or boat, or avoiding children while backing.

We searched the Internet and found poor reviews for wireless cameras. On Amazon the highest rated unit was a Rear View Safety Inc. Model RVS-770613. See website at www.rearviewsafety.com. We ordered the unit at a price of \$223 from Amazon and it arrived within a week. We found a Roadtrek owner's account of the installation of a similar camera. He concluded that installation is a major undertaking, taking from five to 20 hours. The system may be wired so that it only turns on when the vehicle is placed in reverse. Alternatively, the system may be wired to have power when the ignition is on so you may turn the unit on whenever you need it.

Test the system before you start. Instructions for the unit are minimal. We placed the camera, control box and monitor on a table and connected the cables per the instructions. We used a 12V battery and stepped through all the controls and functions to verify that the system worked OK as advertised. The wide field of view camera produces a somewhat fisheye picture with rather poor color rendition. The contrast and brightness may be adjusted from the monitor. The camera has infrared LED for night use. Read these installation instructions several times before you begin.

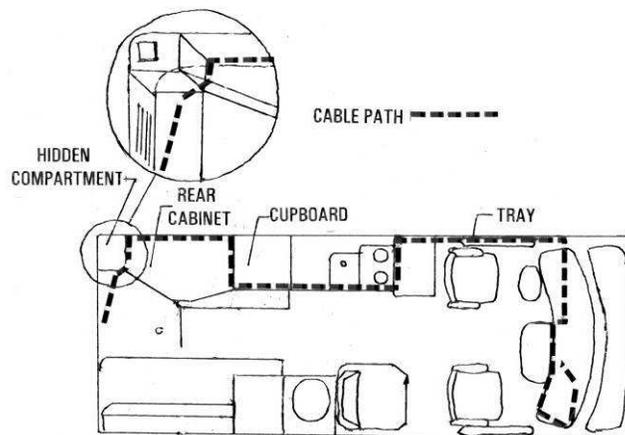


Figure 1. Camera cable path through the 1995 Roadtrek 190 Popular.

Plan the installation before you cut. The unit comes with 50 feet of cable between the camera and control unit, with connectors at each end. Figure out the entire cable run, including where you will drill 9/16" holes to pass the connectors through. In the Roadtrek

we found we could remove the brake light at the highest point on the rear of the roof and access the A/C exhaust cavity behind the louvers. I mounted the camera on top of the fiberglass roof **immediately** above that light (Figure 5.)



Figure 2. Top brake light hole allows cable fishing from inside.

Drill holes and fish the cables through them. The next step was to drill a 9/16" hole at the rear upper left corner of the interior rear cabinet on the driver's side. The hole must angle upward toward the removed brake light opening, and penetrate two bulkheads. Use an electrical fish tape to fish a pulling wire from the cabinet upward and through **two** bulkhead holes to pull the camera cable and its connector into the cabinet.

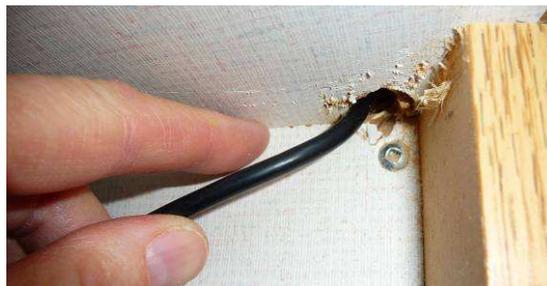


Figure 3 and 4. Camera cable path through upper left side cabinet.

Mount the camera. I mounted the camera by marking the location of the two mounting screw holes in the U bracket, and marked the location of a 9/16" hole behind the camera for the camera cable. I drilled two 1/8" holes for using two 1/4 20 stainless steel metal screws with SS washers. I drilled a 9/16" hole behind the camera for the camera cable.

Screw the U-bracket for the camera into the fiberglass top. Be careful not to tighten the metal screws too much or you will strip the threads from the fiberglass. Insert the camera cable into the 9/16" hole and back out the rear stop light opening.

Next, attach the pulling wire to the camera cable end sticking out of the brake light opening, and pull it behind the rear louvers and through the bulkhead holes into the rear cabinet. I used black electrical tape to smooth the transition from camera cable connector to the pulling wire. To facilitate pulling the cable, unscrew the four screws holding the panel holding interior corner reading light. This opening will allow reaching up into the hidden compartment to help feed the camera cable through the two bulkheads (Figure 1.)



Figure 5. Camera mounted just above top rear brake light.

Close the installation. Screw the top brake light back into its hole. Mount the camera head on its U-frame mount using six tiny screws. **Caution:** The screws are so tiny it is easy to drop one and search for it on hands and knees. You are working on a ladder, so here is the trick to accomplish putting in the six screws. Insert a round toothpick (or drill bit) into each side of the sun hood, U-bracket, and camera to align the holes and position the camera. Then carefully twist in each of the top and bottom screws on each side **by hand**. Remove the positioning toothpicks and insert the middle two screws by hand, then tighten all six screws. Check the camera aim. Aim slightly downward to view the ground immediately behind the RV. Since the camera has a 130° view, aiming the camera should be the last step and is best done by watching the view on the monitor.

Seal the holes. Use a clear or white silicone sealant to fill the holes where the camera cable and U-bracket mounting screws penetrate the fiberglass roof. There is a rubber grommet on the cable, but silicone sealant is an easier water stop.



Figure 6. Stuffing the camera cable above left side cabinets.

Cable route through the RV. The vinyl headliner of the inside of the Roadtrek easily pushes upward from the top of the driver's side cabinets to serve as a wire way (Figure 6.). Drill a 9/16" hole on the top right corner of the rear driver's side cabinet, being careful not to pierce the vinyl headliner (Figure 4.). Drill a 9/16" hole from the open shelf above the wardrobe closet into the open tray on the left side of the RV (Figure 7.) Remove the plastic trim on the driver's side A-pillar. This will expose a hidden part of the tray bottom. Next drill a 9/16" hole upward into the front of the tray.



Figure 7. Camera cable goes through hole from wardrobe top into left tray.

Run the long cable. Now run the long camera cable from the upper rear cabinet into the aisle, and stuff the cable gently over the top of all cabinets and under the vinyl headliner on the left side (Figure 6.) Continue tucking the cable down the back of the wardrobe wall and then through the hole through the bulkhead at the end of the small open tray. Feed the cable down through the hole in the front of that tray and along the groove in the A-pillar (Figure 8.) Use black electrical tape to fasten the cable into the groove (Figure 9.) Re-install the plastic trim on the left A-pillar so it completely hides the cable and the tray hole through which it passes.



Figure 8. Camera cable runs down through tray front into A-pillar behind cloth trim.



Figure 9. Run the camera cable down the A-pillar and secure it with electrical tape.

Tidy up. The main cable between the camera and control unit is much longer than the RV. I stuffed the excess cable back into the rear interior hidden compartment (Figure 1.) I used aluminum tape to seal the drilled hole. Be sure to allow enough cable in front on the left side of the parking brake mechanism to reach the location of the control unit. If you allow too much cable to reach the control box, roll the excess into a coil and secure it with a cable tie. Stash it in the space beneath the glove box.

Control box placement. Now locate the control box and monitor. The plastic glove box is fitted into its opening without screws. I removed the plastic glove box and observed there is space behind and below it. Next I fished the camera cable from the parking brake over the steering column near the firewall and over other wires. I stuffed the cable in the space between the top of the carpet surrounding the engine bulge and the dashboard. Continue tucking in the cable until you reach the passenger side of the dashboard. I drilled a 9/16" hole in the metal edge of the dashboard at a right side location that is hidden beneath the glove box door.



Figure 10. Monitor is mounted on dashboard with minimal view obstruction.

Monitor placement. After testing the system and adjusting the camera on top, I decided to locate the 7" monitor where I can see it while backing. I chose a location above and to the right of the radio with the mounting base at the edge of the dashboard eyebrow. This location minimally affects vision through the windshield, and slightly protrudes into the view of the right windshield wiper. (Do not try to mount the monitor high near the rear view mirror.)

Monitor cable installation. I drilled a 9/16” hole under the top left corner of the glove box in a place hidden when the door is closed. (It may look neater to fish the monitor cable through its own 9/16” hole in the plastic dashboard and into the space beneath the glove box.) I threaded the monitor cable through this hole into the space under the glove box and plugged the monitor connector into the control box. I coiled the excess monitor cable and secured it with a cable tie. Replace the plastic glove box and stuff any exposed cables or wires out of sight. I secured the monitor mounting base to the plastic dashboard with furnished sheet metal screws. At this point I installed cable clamps every 10” in the rear cabinet to keep the camera cord up against the outer top corner of the cabinet (Figure 3.) If the monitor picture has a black eyebrow at the top, raise the camera sunshade.

Power cord connection. I decided to use a 12V cigarette lighter plug (Radio Shack or auto store) and a 6-foot extension cord replacement to power the control box.* That wire was stuffed beneath the motor housing carpet and right side of the dashboard. I spliced the power cord into the power leads, soldered them, and wrapped the splices with electrical tape. I stuffed the spliced wire under the dashboard. *After a few months of use I wired the power supply directly into 12 VDC wires behind the glove box and eliminated the cigarette lighter plug. The camera red power light comes on when we start the engine.

Afterthoughts. I spent about 20 hours “doing it right.” I cannot over-emphasize that you must plan the cable runs in detail before you drill or cut. Do not cut the 50-foot cord. I’m certain I could reduce the installation time 75% next time.

“The next time” was a year later. A friend had a 1991 Independent RT and I installed the RVS camera in about 2 hours. I drilled all the holes first. Then pulled the wire. He and his wife love it because it provides a quick check before backing over children.

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