

CS-GM1

GM NBS Truck 2007-2012 CCD Backup Camera Kit Installation Guide

Thank you for your purchase! These instructions are intended for the do-it-yourselfer who decides to install the camera without professional assistance. Keep in mind you will be installing a device that uses electrical power from your computer controlled truck. If you are not confident in your ability to attach this device without damaging your electrical system, new camera, or yourself please seek PROFESSIONAL INSTALLATION!

BEFORE YOU BEGIN:

Cables: The main harness from the camera is long enough to run down through the bottom of the tailgate and through the back of the bed. The connector should be tied up in an accessible location behind the rear license plate so that it can be disconnected to remove the tailgate if necessary. The power and ground leads should be extended into the cab with the provided length of 18ga. wire. Although it may be tempting to connect power and ground at the rear of the truck, we STRONGLY SUGGEST that you run the power/ground cable all the way into the cab. This will result in a much more reliable installation than making those connections outside the cab, exposed to the elements. These instructions will show you how to run the power/ground wires and RCA output cable all the way into the cab.

If you are using an aftermarket navigation display you should already have the proper video input and reverse trigger wire required for this installation. **NOTE FOR ADVENT OGM-1:** To insure a stable and immediate picture when the vehicle is put into reverse, you may need to wire the camera to an ignition or accessory source of power. See the **Left I/P Junction Block** diagram on page 5. There are no other connections necessary on the Advent unit to activate the reverse camera input – it receives its reverse trigger through the onboard LAN.

If you are using the factory NAV screen as your display: You must have the dealer re-flash your NAV system for a backup camera. Any GM dealer can do it and it *should* cost around \$100 or less. In addition, you may need a video interface that allows you to connect the camera to the factory wiring harness at the back of the radio. 2009 and newer trucks with DVD will not need the interface – see the **Factory GM Navi Connections** on page 5.

REQUIRED TOOLS:

- Standard wire stripper/crimper
- 13mm socket wrench
- Black tape or shrink tube
- Razor knife or poking tool (optional)
- Drill & 1/4" and 1" drill bit or step bit (*if holes are not pre-drilled at factory*)
- RTV or butyl sealant

Section 1: Setting up for the installation

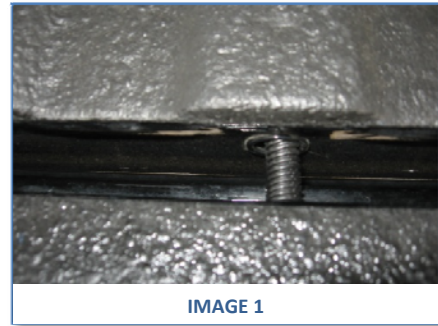
Unpack the contents of the package and gather the required tools listed above so you can be sure you have everything you need before you begin. In the package you should have the bezel with camera,

power pigtail, 18ft. power/ground wire extension, wire connectors, zip ties, split loom, and snap grommets for the tailgate and bed.

1. Remove any plastic interior components to allow access to the necessary wires of your video interface device. This may include the side panel of the center console if applicable. If you have a 2009 or newer model truck with DVD and are not using a video interface device, you must remove the NAV radio to access the wiring harness as explained in Appendix A.
2. Remove your old tailgate bezel - Use the 13mm socket wrench to remove the bottom bolt of the tailgate latch. Using a plastic tool, pry the trim up to release the clips holding it in place, or pull the tailgate handle up out of the way with one hand and firmly grab the plastic bezel with the other and give it a good tug. Be careful not to bust a knuckle on the way out.
3. Every truck we've ever seen has drain holes in the bottom of the tailgate and most newer trucks (usually 09-up) have a hole in the back of the bed as well. If you already have holes in the tailgate and back of the bed, you do not have to remove the tailgate to run the camera cable, and can skip to **Section 3**. If you do not have the existing hole in the bed, remove the tailgate from the truck as per the factory manual. We will be drilling a hole in the bottom of the tailgate (OPTIONAL IF YOU USE THE DRAIN HOLE METHOD) and the rear of the bed for wire passage.

Section 2: Drill the access holes (if not already there):

1. Using a ¼" drill bit or your 1" hole saw, drill a hole in the center of the pickup box end as shown in **IMAGE 1**. **It is important to locate it on the rear panel so you don't drill through the floor of the bed, but also high enough so you can't see the wires when the tailgate is closed.** Once you get the ¼" hole drilled, use your 1" bit to enlarge the hole for the snap bushing.
2. Making sure that the holes will line up, and do the same to the bottom of your tailgate.
3. Install the plastic snap bushings. These bushings provide an inside diameter large enough to use the included wire loom to protect your camera cable. **Tip: install a slight amount of RTV to the exposed metal on both holes before installing the grommets to avoid rusting and help secure the grommet.**



Note that the example in the photo is using the included split loom with the wiring harness - it is required and adds an extra layer of protection from chafing.

Section 3: Connect the power to the camera:

1. Using a "fish" tool, drop the camera cable out the center tailgate drain hole and through the existing hole in the bed. Cover the camera cable with the provided split loom and carefully push the split loom up the camera cable towards the camera (into the tailgate), making sure you push enough through to insure that the split loom will not work its way out of the tailgate over time. An easy way to insure it stays in place is to tape the loom to the camera cable under the truck

bed. Keep in mind that all we are doing with the split loom is protecting the camera cable against chafing for the remainder of the life of the truck. Pull the excess wire slack under the truck.

2. Attach the included 18ft. wire extensions to the power and ground (RED & BLACK) wires on the adaptor cable. (*NOTE: pay attention to which wire is attached to which color – we usually connect the strand of wire with the insulation with writing on it to the RED power lead and the plain insulated wire to the BLACK ground lead*). Connect the included RCA extension to the adaptor cable's female RCA. Connect the camera harness to the RCA/power adaptor (**be careful with the camera connector as it only fits one way!**) and seal all the connections to keep out moisture – this step is CRITICAL for the longevity of your installation! If you do not plan to remove the tailgate, we suggest using RTV silicone and/or a high quality electrical tape (rated for exterior use) to permanently seal all of your connections. If you plan to remove the tailgate on a regular basis, we suggest using RTV silicone/tape to seal the power/ground & RCA connections, and tape to seal the camera lead to adaptor connection.
3. We suggest covering the RCA and power/ground wires in 5/8" or 3/4" split loom tubing for the run forward into the cab (large split loom is not provided, but is available in most auto parts stores). The suggested route forward is to follow the existing factory harnesses up the left side frame rail, using the provided zip ties to attach to the factory loom at regular intervals. **BE SURE TO LEAVE SOME STRAIN RELIEF AT THE RCA/POWER ADAPTOR AND ZIP TIE THE WIRES SECURELY SO YOU DON'T ACCIDENTLY UPLUG THE RCA OR POWER/GROUND LEADS AS YOU ARE STRINGING THE WIRES FORWARD.**

4. Every GM truck we've seen has a large grommet through the driver's floor near the front left corner of the driver's seat for the parking brake cable. We recommend using this grommet to route your camera cables through. If for some reason you don't have this cable, you will have to find another suitable location. Be careful not to damage any other vehicle wires if you are going through an existing wiring harness!



IMAGE 2

5. For those who want to use the cable access mentioned above, remove the driver's side sill plate and peel the carpet back far enough to see the top of the grommet (see [IMAGE 2](#)). Being careful not to slice the cable, use your razor knife or poking tool to make a new hole somewhere in the grommet and expand it large enough for your RCA cable to penetrate. **BE CAREFUL RUNNING YOUR RCA LEAD THROUGH THIS GROMMET – THE GROMMET CAN BE VERY STIFF AND COULD DAMAGE THE RCA LEAD AS YOU PUSH IT THROUGH – BE SURE YOUR HOLE IS LARGE ENOUGH BEFORE YOU ATTEMPT TO PUSH THE RCA LEAD THROUGH IT!** In image 2 you can see that the camera wire(s) are now sharing the grommet with the existing cable. This grommet will have to be resealed using your RTV or butyl tape but wait until the cables are in place (next step) to ensure you have the proper amount of slack at both ends.
6. Push the cable(s) through the grommet location in the floor mentioned in the previous step, and route the RCA cable under the carpet toward the video interface unit or navigation receiver.

Route the power/ground wires to the Left I/P Junction Block (it's under the large square black plastic cover to the left of the foot brake).

7. As a final check, make sure that the cable(s) are now secure from all moving parts under the vehicle and moving freely through the holes created in the box and/or tailgate. Coil up any excess cable behind the dash or console and secure it with a zip tie. Once secure, use the RTV or butyl tape to seal your floor grommet. Try to seal it from the top and bottom to ensure a good seal and avoid moisture in the cab. Now you can put your carpet and sill plates back together.

Section 4: Connect your device to the camera harness

1. If you are connecting the camera to an aftermarket receiver, connect the camera's RCA cable to the backup camera input and secure the connection. ***If you are using the Advent OGM-1:*** See the **Left I/P Junction Block** diagram on Page 5 for power/ground locations. You can hook the power to the reverse light output (port X10, pin 8 – should be a dark blue wire), *but you may have unsatisfactory video quality on initial activation of the camera in reverse.* If this is the case, we suggest hooking camera power to an ignition (Port X14, pin 7) or accessory source (Port X14, pin 8). In all cases, camera ground should be hooked to Port X14, pin 1 or any clean metal surface.
2. If you are connecting directly to your factory GM NAV harness, see the **Factory GM Navi Connections** diagram on Page 5. Power and ground should be connected as outlined in step 1.
3. If you are using a GMX-550, attach the camera power lead to the butt connector on the "Factory camera control" wire. Connect the RCA cable to the appropriate video input of the GMX-550.

Section 5: Test the camera

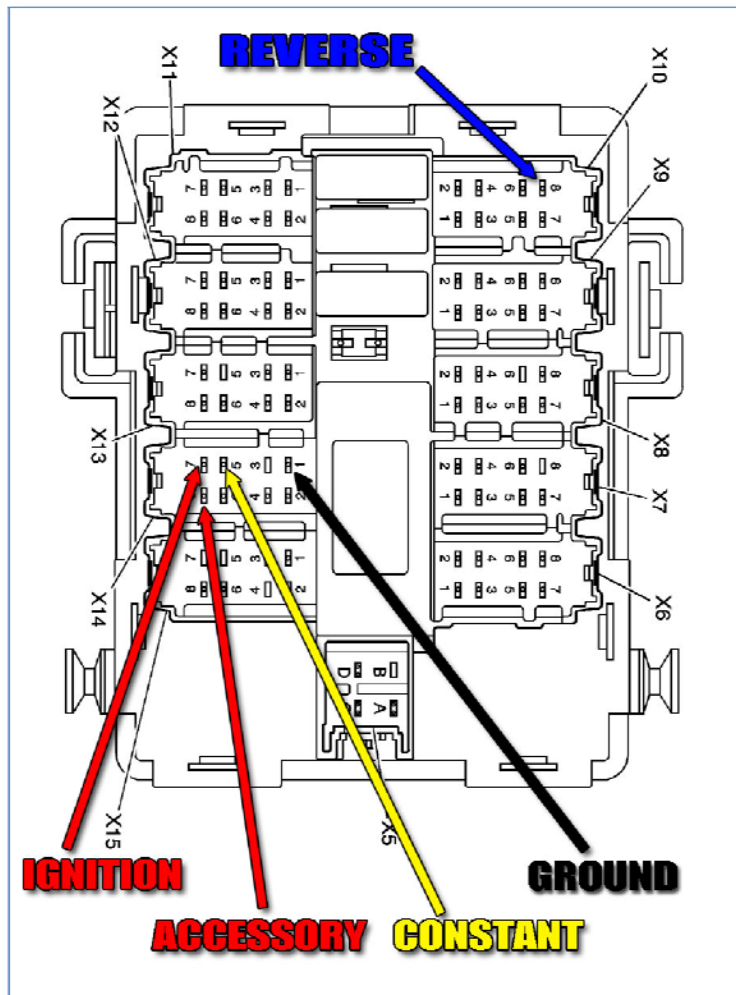
1. Turn on the ignition (some trucks may require the vehicle to be running) and place the truck into reverse, making sure that the screen displays properly. If so, you're ready for the next step. If not, chances are that something isn't connected properly. Be sure to go over all of your power and ground connections using a test light or VOM to make sure you have power and ground where and when you need it (i.e. power to the camera when the vehicle is in reverse and a good solid ground). One common error is pulling the RCA/power connections apart at the rear of the truck when pulling the wires forward.

Section 6: Reassemble the tailgate bezel

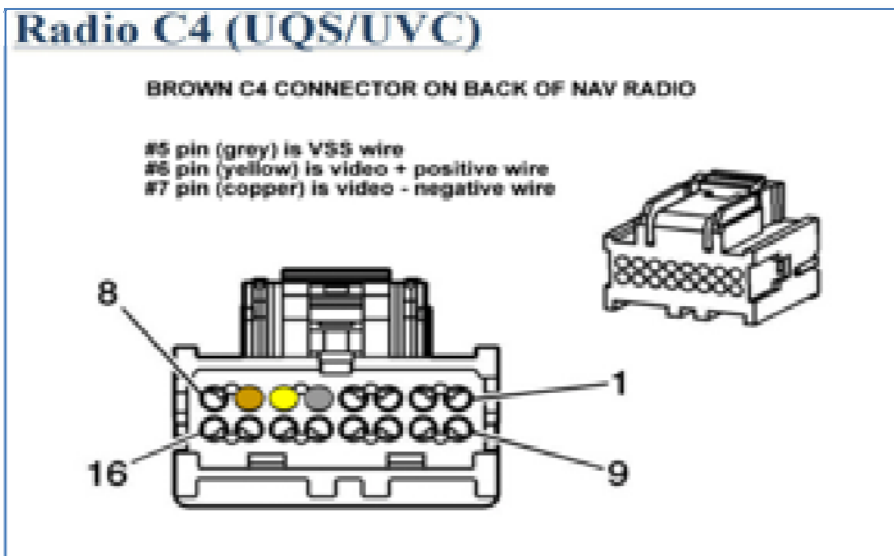
Once everything tests OK, you can put the bezel back together by reinstalling your lock (if applicable) and tightening the 13mm bolt. Be sure you taped all the connections under the vehicle so that they are sealed from moisture.

If you required the lock plug for tailgates without a lock, place a small dab of adhesive on the side of the plastic plug before installing it into the bezel.

2008-12 Left I/P Junction Block (TYPICAL):



Factory GM Navi Connections (TYPICAL):



APPENDIX A

Wiring the backup camera directly to your vehicle navigation wiring harness:

It is possible to wire the camera directly to your vehicle harness provided you have factory navigation on 2007NBS and newer trucks. A special adaptor harness is required unless your truck is 2009 and newer with DVD. Contact us if you need this harness. You will also need to have the navi unit “flashed” by a GM dealer to accept the camera once it is wired up correctly.

To wire the camera to your factory NAV display, purchase a short RCA FEMALE to FEMALE cable and cut one end off. Strip the insulation to reveal the wires within the RCA coax. You should see a shielded wire (+) and a non-shielded wire (-) (usually braided) within the RCA coax.

Next remove your radio to gain access to the wiring harness. Find the brown connector (C4) on the back of your NAV radio and connect the leads as shown in the **Factory GM Navi Connections** diagram above. Wire the shielded (+) RCA wire to pin 6 and the unshielded (-) wire to pin 7 in your harness. (wire colors may not match so just reference the pin locations) Then plug in the camera’s RCA output cable to the female RCA.

Connect the camera power to a power source as discussed above and the camera ground to any valid ground source. When the vehicle is put in reverse the camera will come on automatically.

TROUBLESHOOTING:

We will provide you with excellent support of your new camera. We just ask that try a few things before contacting us:

1. Was your navigation properly re-flashed for a backup cam? This is only required when using the factory navigation. You should see a black screen with a banner across the top when in reverse. If not, call your dealer and have them re-flash it.
2. Do you have power at the camera when the truck is in reverse? Be sure to test the read lead at the camera end FIRST. If you do not have power, check your connection or check the fuse covering the circuit you’re getting power from.
3. Do you have a good ground?
4. Is the video RCA cable connected and secure at the camera and the display device?

If you can rule out these potential problems areas, contact us and we will help you resolve the issue.