

Back-Up Camera Installation Guide

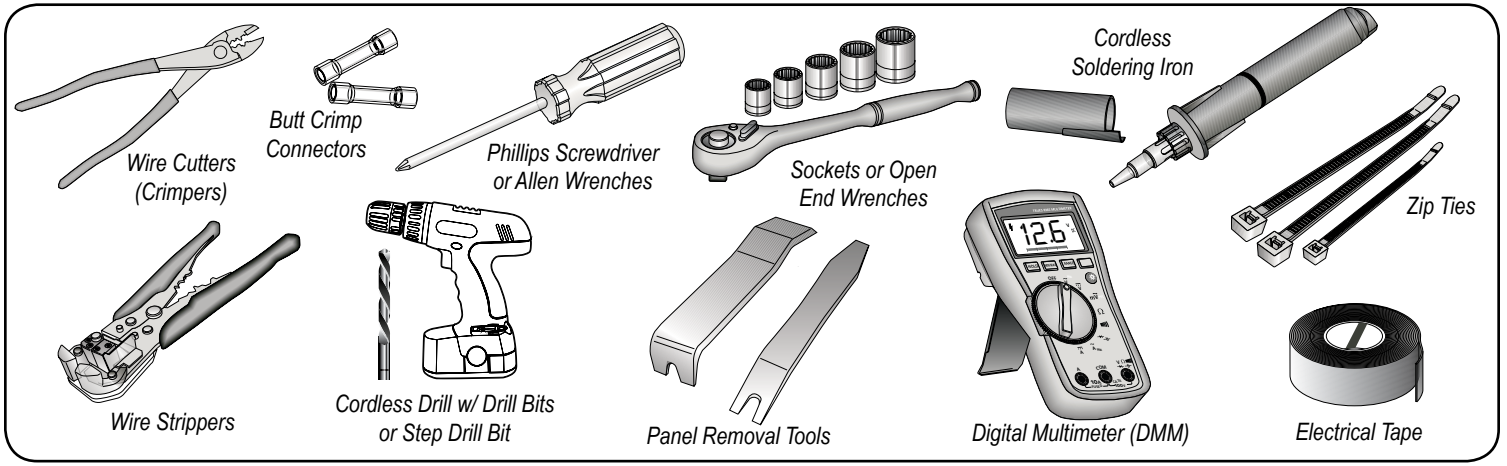
Difficulty Level: Moderate **Average Installation Time: 3-4 Hours**

In This Guide: Back-up camera installation requires connecting power wiring to the existing reverse lighting circuit and adding a chassis ground, as well as routing a video signal cable to the front of the vehicle where it connects to an in-dash or dash-mounted LCD screen or monitor. Follow these easy installation steps to ensure correct installation of your back-up camera system.

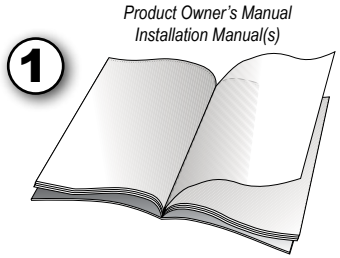
Important

This content has not been verified by Amazon for accuracy, completeness, or otherwise. Consult your vehicle's owner's manual and the product's manual before attempting an installation. Contact the product's manufacturer or consult a Mobile Electronics Certified Professional installer if you are uncertain about how to properly install your product. Amazon attempts to be as accurate as possible, however, because of the number of vehicles and products available to consumers, it is not possible to provide detailed installation steps that apply universally to all vehicles and products. Amazon does not warrant that product descriptions or other content of this site is accurate, complete, reliable, current, or error-free. Further, Amazon disclaims any warranties, express or implied, as further set forth in the 'Conditions of Use' for Amazon.com.

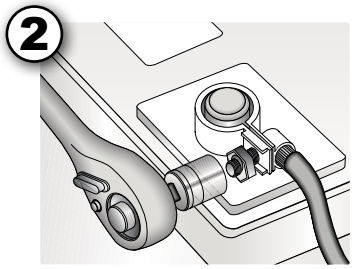
Tools and Supplies Needed:



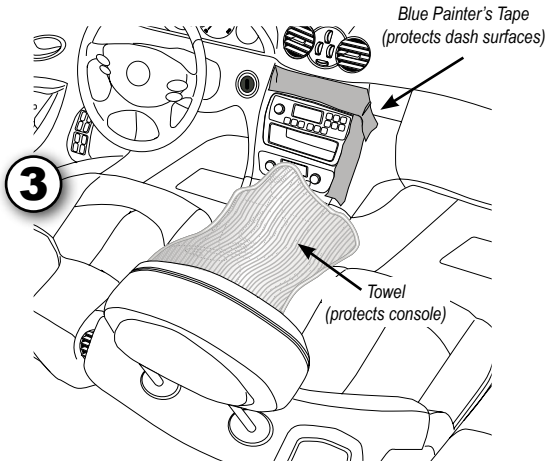
Before You Begin



Read all instructions carefully



Disconnect the negative battery cable



Protect interior surfaces

Note: accessories such as video cables or vehicle specific auxiliary video input adapters may be required to complete the installation and are available for purchase on Amazon.com.

Back-Up Camera Options

Factory-style Camera

Factory-style cameras are designed for cars sold without a factory-installed back-up camera. These cameras are similar in appearance and installation to that of a factory-installed camera. The installation location varies by vehicle application. Installing a factory-style camera on a vehicle which had a factory option offered (but not installed), allows for a factory-like finish.



Honda Accord Factory-style Camera



Toyota Factory-style Camera

Surface-mount Camera

The most common style, surface-mount cameras, are self-contained units with mounting tabs or brackets that attach the camera to the vehicle using mounting screws. These cameras install under the license plate light housing on most vehicles.



Surface Mount Cameras



Flush-mount Camera

This style installs into an existing or custom-drilled hole, which allows the camera to fit 'flush' into the vehicle body, rear-light housing, or trunk lid.



Flush Mount Cameras



License Plate Mount Camera

This style installs into a license plate frame or attaches to the existing license plate mount. Installation involves replacing the existing license plate bracket, but does not require drilling holes.



License Plate Frame Camera Mounts and Cameras



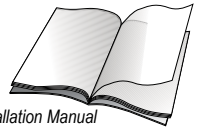
Wired vs. Wireless Cameras

Wired and wireless backup camera options are available. Considerations that should be made when deciding to purchase either a wired or wireless camera include price, ease of installation, reliability and quality of the video image.

Caution:

Before attempting any DIY back-up camera installation, assess your comfort level disassembling vehicle interior panels and ensure you have the recommended tools for the job. Many independent retail installation shops welcome jobs with products purchased on Amazon.com. Always look for a Mobile Electronics Certified Professional (MECP) installation technician to handle your most challenging installation needs.

General Pre-Installation Information


Installation Manual

Note: Follow the specific instructions included with your camera for best results.

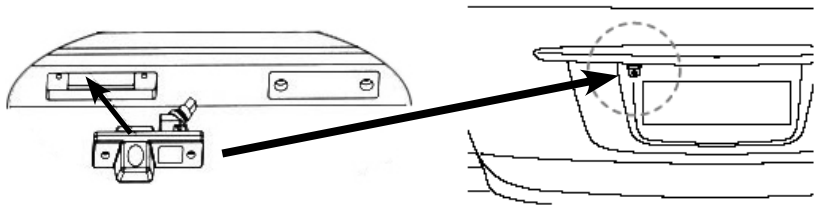
Location of Camera

The mounting location of the camera depends on the camera type and the vehicle on which you are installing the camera. For most vehicles, back-up cameras install centered above the license plate. Use the original equipment factory camera's location when installing an aftermarket factory-style camera to ensure a factory-like fit and appearance. Use the following guidelines for locating the back-up camera:

Factory-style Camera

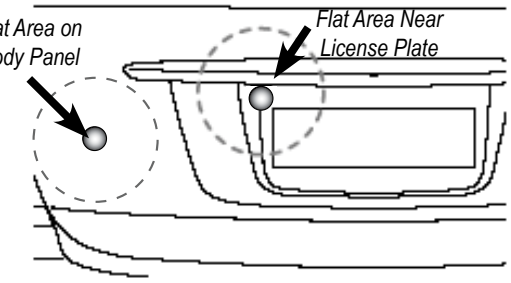
Each model comes with specific installation instructions. Follow these installation instructions for the best results. Some models come with installation bezels or trim pieces to replicate a factory fit.

Example of Factory-style Camera replacing a license plate light. Most Factory-style cameras use factory mounting locations and hardware.



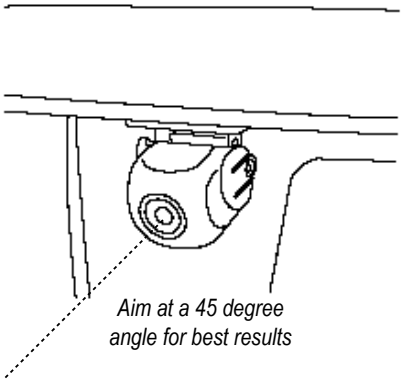
Flush-mount Camera

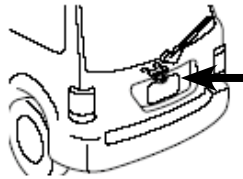
The installation location for flush-mount cameras is typically on a flat part of the vehicle where the camera body installs into a drilled hole with a depth of 2-3 inches, to allow sufficient clearance. The mounting area is often located on the opposite side of a trunk key switch for visual balance (if equipped) or where a flat part of the body panel allows for good seating of the camera's bezel around the lens. The installation hole size is approximately 1.5 inches in diameter and should be cut with a hole saw using a battery-powered drill. Be sure to check the specific installation instructions for suggested placement, hole diameter and depth requirements.

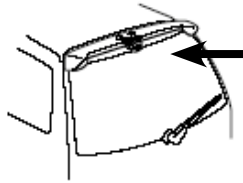


Surface-Mount Camera

The installation location for surface-mount cameras is typically above the license plate, attached to the license plate light housing, pointing down at a 45-degree angle. Built-in brackets allow for easy attachment to the vehicle using supplied hardware. Follow the camera's installation instructions for exact placement. Depending on where the camera is mounted (such as in a trunk lid or SUV hatch), you may need to drill a hole above or behind the mounting surface large enough for the power, ground and video wiring to pass into the trunk or vehicle interior to facilitate connections.

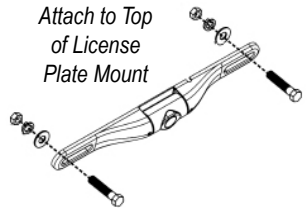






License Plate Camera

Installation of these cameras is straightforward. The camera attaches to the existing license plate trim ring or comes built-in with a complete replacement trim ring. Simply remove the license plate hardware and install the license plate camera following the product's installation instructions.



Back-up Camera Connections

To find factory wire color information for your vehicle's reverse lighting circuit(s), visit DIY wiring resources like **www.eAutoRepair.com** or **www.AllDataDIY.com**. Review the back-up camera manufacturer's installation instructions for specific details for wiring connections to the camera.

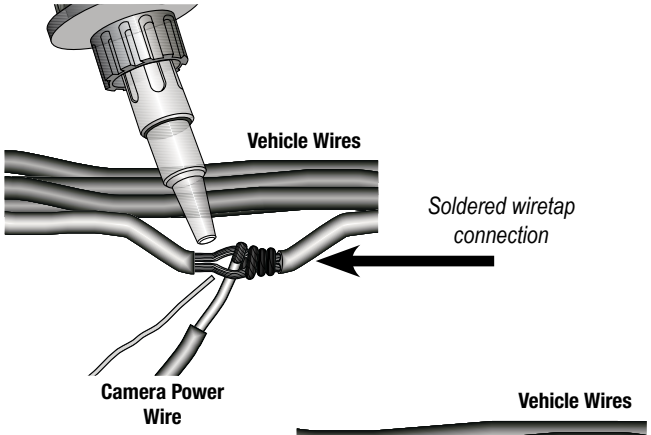
Connect Reverse Light Power

Most back-up cameras require a connection to the vehicle's positive (+) 12-volt reverse lighting circuit, which provides power to the camera only while the vehicle is in reverse. However, some cameras are wired to an integration device or an in-dash receiver that provides the power connection directly to the camera. This type of connection provides power to the camera only when the vehicle is in reverse, just as if it was wired into the reverse lighting circuit. This connection would be located on the receiver's (or integration device's) wiring harness labeled as 'power output to camera.'

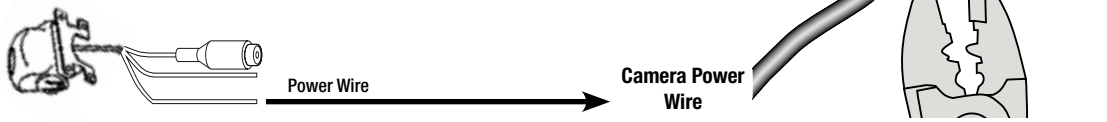
Note: Depending on where the camera is mounted (such as in a trunk lid), you may need to drill a hole above or behind the mounting surface large enough for the power and ground to pass into the trunk or vehicle interior to facilitate connections.

Locate the positive (+) 12-volt reverse light wire and verify its operation using a Digital Multimeter (DMM). Complete the wiretap connection as follows:

1) Strip a 1/2" to 3/4" of insulation from the end of the back-up camera's power wire.
2) Strip a 1/2" section of the vehicle's (+) 12-volt reverse light trigger wire insulation. Do not cut the wire.
3) Separate the copper strands of the vehicle's reverse light wire into two sections, creating an opening in the middle of the reverse light wire through which the back-up camera's power wire can be inserted.
4) Insert the back-up camera power wire into the vehicle reverse light wire.
5) Wrap the end of the back-up camera power wire around the exposed vehicle reverse light wire.
6) Solder the new wiretap connection.
7) Use electrical tape to cover the soldered connection.



If soldering the wiretap connection is not possible, cut the factory wires, then use a butt connector to crimp them back together along with the camera's power wire. Please note that some video display screens may also require a reverse circuit connection to switch the screen on the camera video input.



Caution:

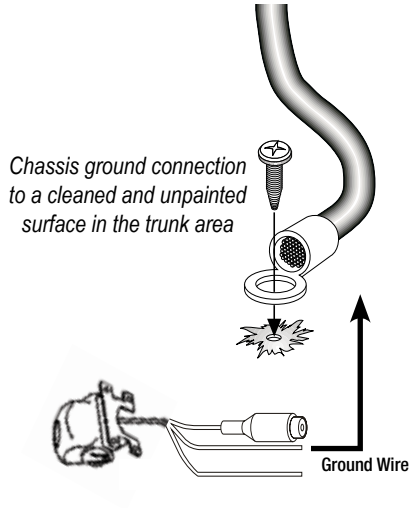
For vehicles with low voltage (+5 volt), pulse width modulated (PWM), or low current LED-based reverse lamp circuits, seek professional installation for the electrical connection. These circuits cannot directly connect to a (+) 12 volt power source and may require special vehicle specific adapter devices or electronic parts. The individual vehicle determines the required parts to provide the proper reverse lighting circuit power to the camera. If you can't locate a dedicated +12 volt reverse light wire using a DMM at the reverse light wiring harness, your vehicle may have one of these special circuits. As an alternative, use a +12 volt Accessory (key switched) circuit for power to the camera.

Back-up Camera Connections (Continued)

Connect Chassis Ground

Connect the ground wire's ring terminal to a solid metal point on the vehicle body or chassis using the hardware supplied with the back-up camera. Avoid using a factory ground point to eliminate voltage spike-induced noise, which will appear as lines on the screen displaying the reverse camera image.

1) Locate a suitable ground point with no obstructions on, around, or behind it (such as fuel tanks, wiring harnesses, etc.)
2) Drill a 1/8" hole. Clean the painted surface around the hole and remove the paint by sanding down to bare metal. This step helps ensure good electrical conductivity.
3) Attach the ground wire's ring terminal to the location using a #8 sheet metal screw (or supplied hardware).



Connect Video Signal

All wired camera systems require a video connection to an in-dash or on-dash LCD screen or monitor. This connection can be a proprietary multi-pin cable matched to a specific screen or video receiver (that may also contain power and chassis ground wires within the cable). It can also be a standardized composite video connection (the yellow RCA connector). If a composite video RCA cable is required, but not included with the back-up camera, it can be purchased separately on Amazon.com.

1) Connect the VIDEO OUT on the back-up camera to a composite video RCA cable.
2) Route the cable from the back-up camera to the location of the video screen, which may be an in-dash video receiver, rear view mirror with LCD screen, or dedicated back-up camera screen.

   Note: *Depending on where the camera is mounted, you may need to drill a hole above or behind the mounting surface large enough for the video connector to pass into the trunk or vehicle interior to facilitate connecting to the screen. If the camera is located in a trunk or hatch, the cable must run through the wiring 'boot' that houses the factory wiring. Follow factory wiring paths for the best results.*
3) Connect to the REAR VIEW CAMERA INPUT on the screen (if present) or simply the VIDEO INPUT connection, if there is not a dedicated rear camera input.
4) If the video receiver or screen requires a hard-wired connection to the reverse light circuit to recognize the reverse camera image and display it properly, run the reverse light power input wire on the receiver (typically labeled 'reverse input') to the back of the car and connect it to the vehicle's reserve light wire using the same method described to connect the camera power on the previous page.
5) If the receiver or screen provides a 'power output to camera' wire, connect the camera's power wire to this wire instead of directly to the reverse lighting circuit. This allows the receiver or screen to provide power to the camera through its connection to the reverse lighting circuit.

Wireless back-up camera systems do not require a wired video signal connection to the screen. Follow the instructions included with the wireless camera and screen, if you are installing a wireless product.

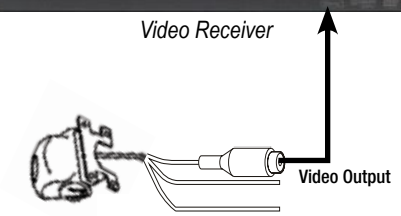
Rear View Mirror w/ Screen



OR



Video Receiver



Verify Operation and Finish Installation

Verify Operation

Before reassembly, verify correct operation of the back-up camera system.

1) Turn the vehicle to the ACC position. It's not necessary to start the engine for this test.
2) Place your foot on the brake.
3) Place the gear selector in REVERSE.
4) The back-up camera image should appear on the video screen.
5) Place the gear selector in PARK.
6) The back-up image should switch back to the default screen, such as the music source playing on the receiver.

Testing Tip:
Low-light conditions affect the clarity of the back-up camera image. Testing the back-up camera's performance during daylight is recommended.

Reassembly

Reassemble any parts of the vehicle removed during the reverse camera installation. Verify all wiring is securely tied down with zip ties and routed away from moving parts or heat sources.