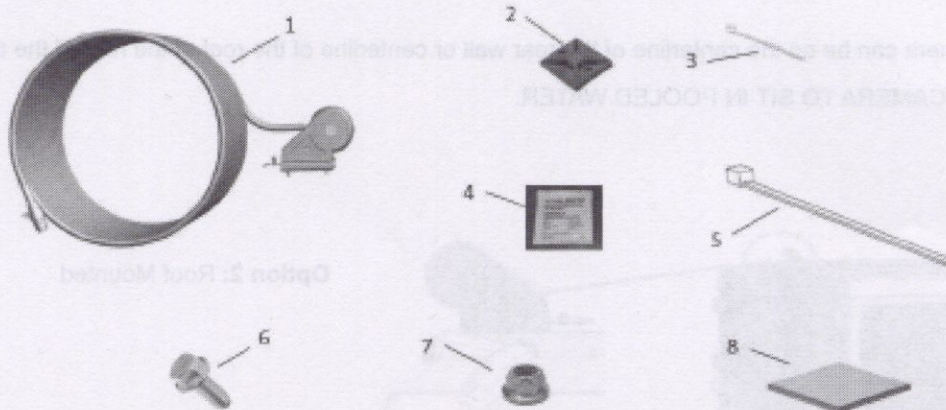


Rear Trailer Camera Installation Instructions

Table 1: Kit Contents



Kit Contents		
Item	Description	Qty
1	Camera Assembly (including harness)	1
2	Adhesive Clip Base	24
3	Tie Strap, 7.5 Inch	25
4	Alcohol Wipe	24
5	Tie Strap, 28 Inch	4
6	M6 Flange Head Bolt	2
7	M6 Nylon Insert Flanged Hex Nut	2
8	Temporary Adhesive Pad	1
9	Installation Instructions	1

Tools Required

- Ladder
- Hand Drill
- 6.6 mm Drill Bit (can use 6.6 to 7.0 mm drill bit)
- 8 mm Wrench
- 10 mm Wrench
- Wire Cutters
- Pencil

Material Required

- Brake Parts Cleaner (or 50/50 water and isopropyl alcohol solution)
- Garbage bag

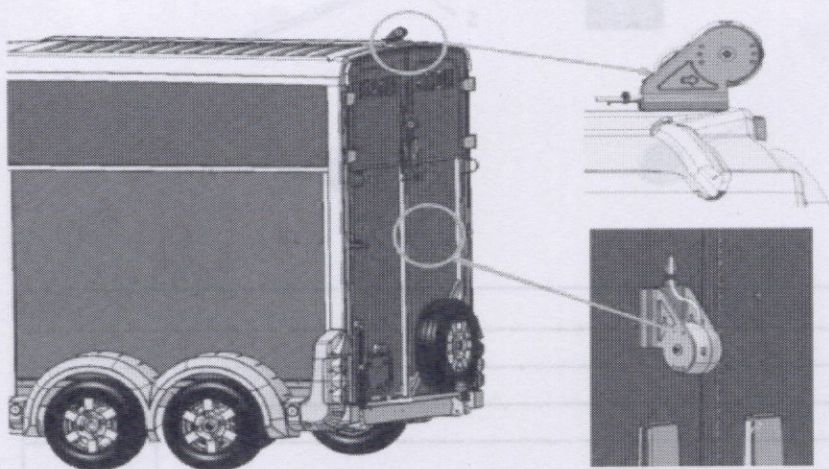
Rear Trailer Camera Mounting Options

NOTE: Some SPECIFIC FEATURES require the camera to be mounted on the Rear wall and in a specific zone. TRANSPARENT TRAILER and REAR TRAILER GUIDANCE are two features that require the camera to be mounted this way. See owners manual for a complete list of features that require the camera to be mounted in this specific zone.

These instructions provide a rear wall mounted or a roof mounted option. If the SPECIFIC FEATUERS are not being used, then either option is possible. Calibration is required following the camera installation to complete the set up of the features. Setup of the trailer profile and calibration can be completed via the TRAILERING APP which can be accessed via the home screen. See owner's manual for details.

The position of the camera can be on the centerline of the rear wall or centerline of the roof at the rear of the trailer.

DO NOT ALLOW THE CAMERA TO SIT IN POOLED WATER.



Option 2: Roof Mounted

Option 1: Rear Wall Mounted

Note: SPECIFIC FEATURES requires the camera to be mounted on the rear wall

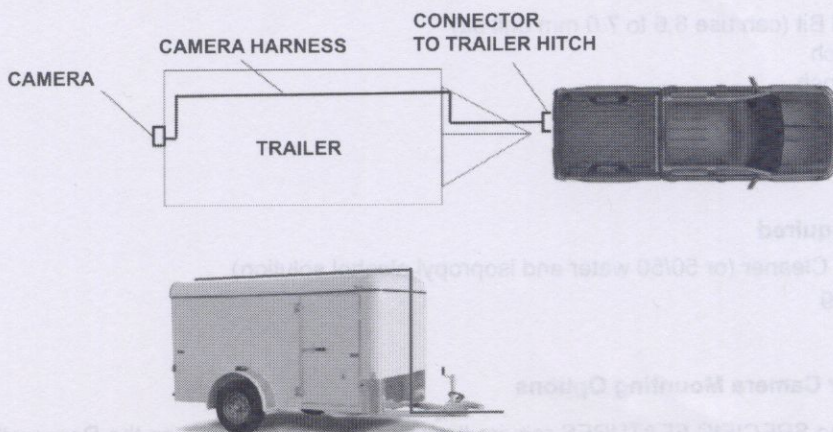
NOTE: If this set up is not using the SPECIFIC FEATURES listed above, then there are no calibrations needed after installing the camera. Place the camera where it will provide the desired view and secure it in place by following the instructions in this manual.

NOTE: Always keep the camera lens clean. Some functions will not work correctly if the lens is not clean.

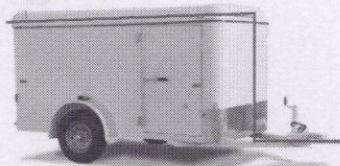
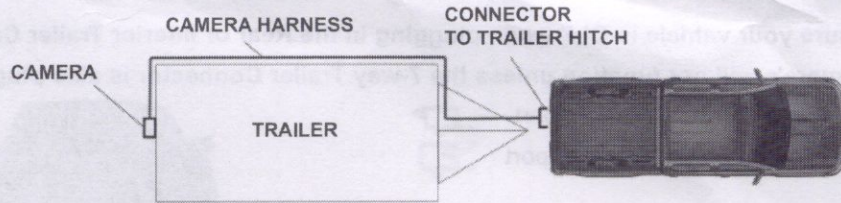
Note (Harness Routing Options)

The following illustrations provide an overview of a couple options for routing the harness. The preferred routing of the harness is on the top or side of the trailer. Avoid routing under the trailer to reduce the chances of damage to the harness.

Option 1: Route on the roof of the Trailer.



Option 2: Route on the side of the Trailer.



Interior Trailer Camera Mounting Option: Determine the desired location and follow the "Guidelines for routing the harness", described below.

Note: The preferred mounting location of the Interior Trailer Camera is on the front vertical wall facing rearward, since the display mirrors (flips) the image.

Guidelines for routing the harness

Note: Observe the following precautions when routing the harness on the trailer:

- Do not route under the trailer. Routing underneath the trailer allows debris to damage, trap or cut the harness.
- Do not route the harness by sharp edges or moving parts that may damage the harness.
- Do not twist the harness or make any sharp bends (90 degree) in the harness that may compromise the wire integrity.
- Provide enough slack for the connection to the vehicle, allowing for maximum turning angles between the truck and trailer.
- Bundle and secure any excess wires with the large tie straps.
- Evenly space the Adhesive Clip Bases along the harness.
- Try to keep the distance between mounting points (tie straps or adhesive clip bases) to less than 8 inches (200mm).
- DO NOT CUT THE HARNESS TO MAKE IS SHORTER. THE CONNECTORS ARE NOT MADE TO BE REMOVED AND REINSTALLED.**

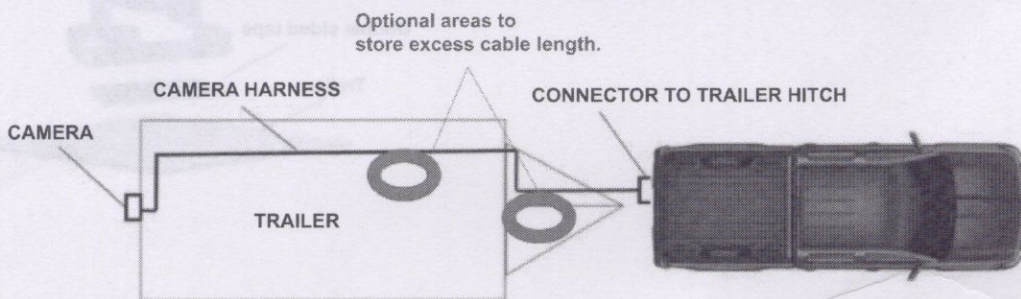
Procedure

1. Uncoil the harness as much as possible to minimize the amount of twisting as it is routed on the trailer. Note that there are 2 Velcro straps holding the cable together. Keep these for use later. They will be used to store the length of cable from the trailer hitch connector when the trailer is in storage.
2. Determine the routing path, either on top or the side of the trailer (refer to illustrations on page 2 & 3).
3. Prior to installation, lay out the camera harness along the trailer, from the trailer hitch connection to the desired camera location, to ensure adequate length.
4. If there is excess cable length, look for a spot to secure it out of the way. A couple suggestions would be on top of the trailer or front A-Frame.

NOTE: DO NOT CUT THE HARNESS TO MAKE IS SHORTER. THE CONNECTORS ARE NOT MADE TO BE REMOVED AND REINSTALLED.

NOTE: The large 28 inch tie straps are for securing the coil together and or securing the coiled section to the trailer.



NOTE: The Adhesive Clip Base and small tie straps can also be used to secure the coiled section to the trailer.

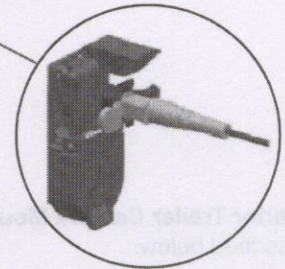
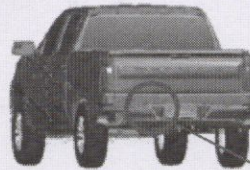
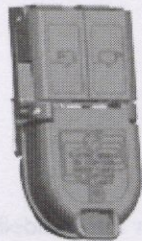


5. Mate the connection to the trailer hitch in the port of the Trailer Hitch Connector

NOTE: Make sure your vehicle is OFF when plugging in the Rear or Interior Trailer Camera.

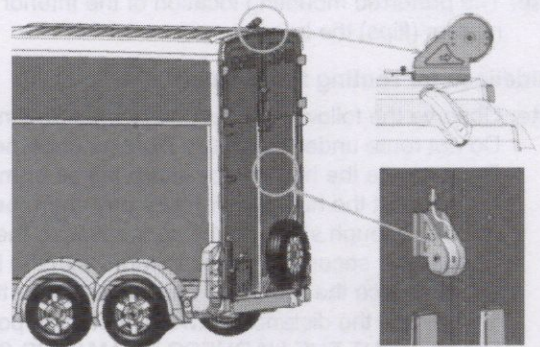
NOTE: The camera's will not function unless the 7-way Trailer Connector is also plugged in.

- * Rear Trailer Camera in the upper right port 
- * Interior Trailer Camera in the upper left port 

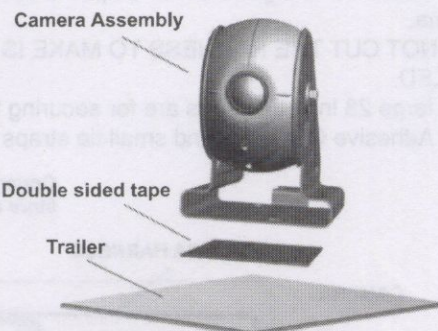


Determine the mounting location

1. Determine the desired location of the camera. On rear or top of the trailer (reference page 2). For support of the SPECIFIC FEATURES the camera must be mounted within a specific target area on the rear of the trailer. See SPECIFIC FEATURES MOUNTING LOCATION for mounting details.



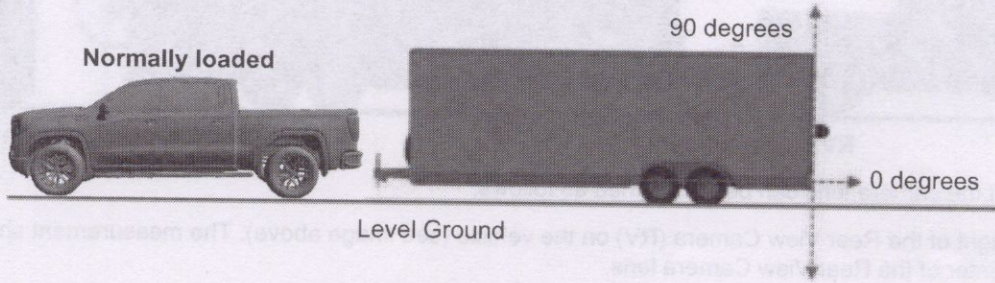
2. Clean the bracket and area where you want to install the Camera with the Brake Parts Cleaner (or 50/50 water and isopropyl alcohol solution) and then use the alcohol wipe to sterilize the mounting location.
3. Use the double sided TEMPORARY tape (clear liner on clear tape) to secure the camera to the trailer:
 - A. Apply face side adhesive (non-liner side) of tape to the bracket utilizing firm hand pressure.
 - B. Remove liner from bracket tape, apply bracket to mounting surface utilizing firm hand pressure.
 - C. Part can be repositioned until the final location is determined.



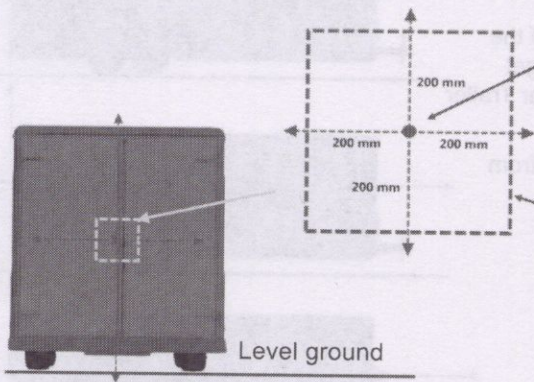
ACCESSORIES

SPECIFIC FEATURES Mounting Location

NOTE: The vehicle and trailer must be flat and level while setting up the Rear Trailer Camera for SPECIFIC FEATURES (listed in the Rear Trailer Camera Mounting Options on Page 2).

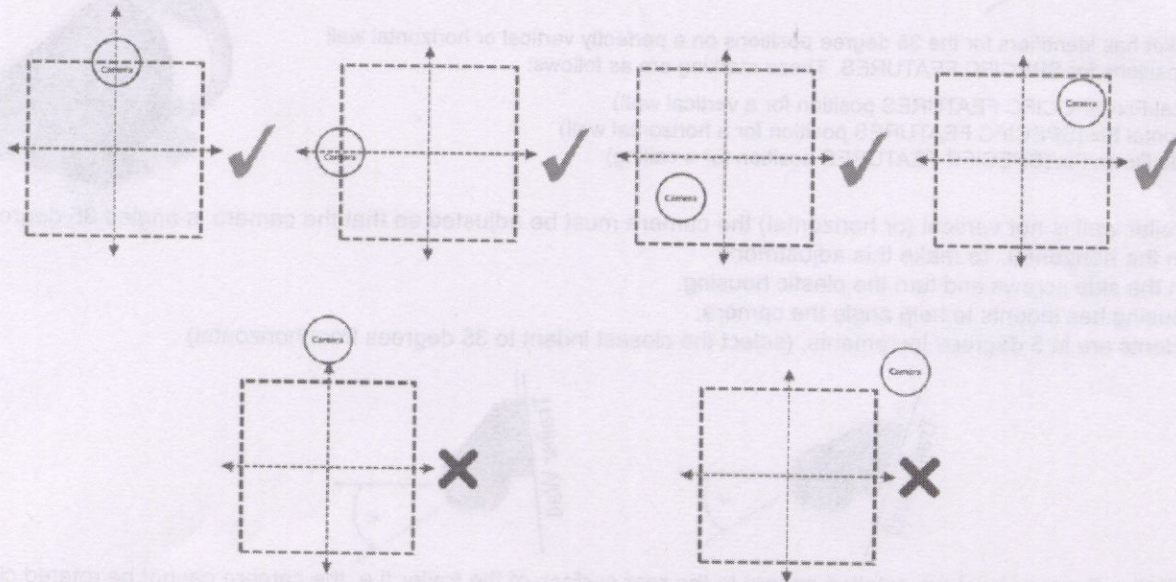


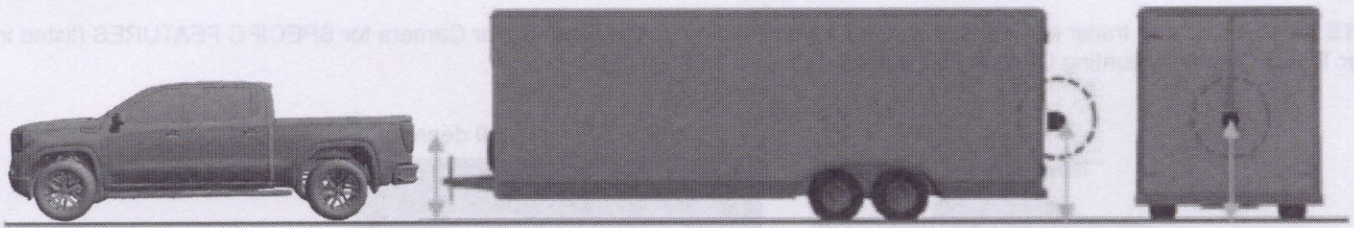
For support of the SPECIFIC FEATURES, the Rear Trailer Camera must be mounted within a specific Target Area on the rear of the trailer. This Target Area is 200 mm (7-7/8") in any direction of the Ideal Position of the camera lens.



- Ideal Position (center of the camera lens)**
- Center line of the trailer
 - 100 mm (3-15/16") higher than the vehicle rear camera
 - Camera angled 35 degrees from the horizontal
- Target Area**
- 200 mm (7-7/8") in any direction of the Ideal Position

Some examples of where the camera lens is OK or Not OK.



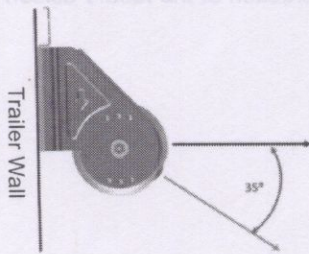
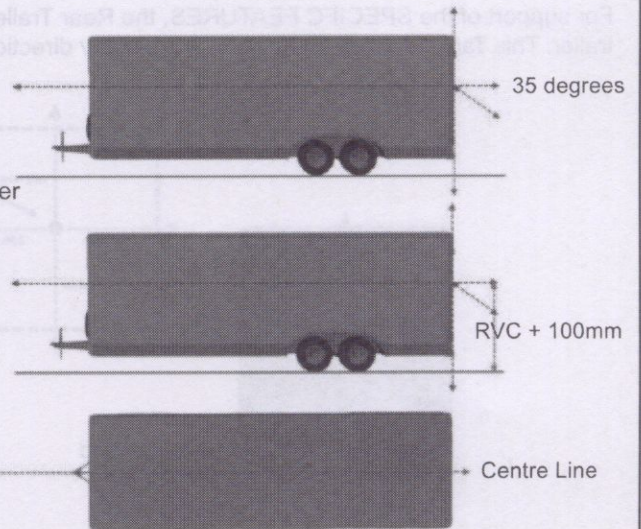


RV camera height

RV camera height + 100mm

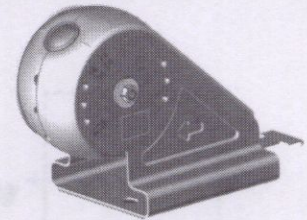
The Ideal Position of the camera lens can be determined as follows:

1. Measure the height of the Rear View Camera (RV) on the vehicle (see image above). The measurement should be from the ground to the center of the Rear View Camera lens.
2. The height of the Ideal Position for the Rear Trailer Camera is the Rear View Camera height (measured in step 1) plus 100 mm (~3 15/16"). This measurement should be from the ground to center of the Rear Trailer Camera lens.
3. The Rear Trailer Camera should be mounted on the center line of the trailer. (The ideal position is the center line of the trailer at the target height, however SPECIFIC FEATURES will still function if the Rear Trailer Camera lens is within the target area).
4. The Rear Trailer Camera must be angled 35 degrees downward from the horizontal:



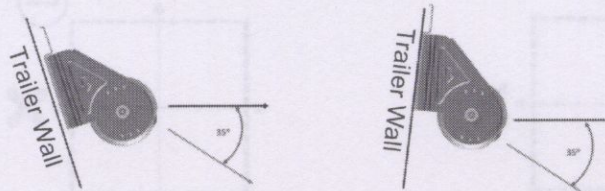
NOTE: The bracket has identifiers for the 35 degree positions on a perfectly vertical or horizontal wall For identifying positions for SPECIFIC FEATURES. These marking are as follows:

- VF-IT** Vertical Fix (SPECIFIC FEATURES position for a vertical wall)
- HF-IT** Horizontal Fix (SPECIFIC FEATURES position for a horizontal wall)
- UDF-IT** Upside Down Fix (SPECIFIC FEATURES position for a ceiling)



NOTE: If the trailer wall is not vertical (or horizontal) the camera must be adjusted so that the camera is angled 35 degrees downward from the horizontal. To make this adjustment:

- a. Loosen the side screws and turn the plastic housing.
- b. The housing has indents to help angle the camera.
- c. The indents are in 5 degrees increments. (select the closest indent to 35 degrees from horizontal)



5. The Rear Trailer Camera must be installed square to the rear surface of the trailer (i.e. the camera cannot be rotated clockwise or counterclockwise when viewed straight on).
6. The Rear Trailer Camera must be installed on a flat surface such that it is not angled (yaw) to the left or right (i.e. the camera should be looking straight out (square to the trailer) along the centerline of the trailer)

SPECIFIC FEATURES Set Up

Key on the vehicle and select the Trailing App via the home screen and follow the prompts. The prompts will help complete a trailer profile (this requires the user to input measured trailer dimensions and other information about the trailer into the app). Once this has been completed the user will follow the steps within the Trailing App to complete the calibration/alignment process (calibration/alignment requires the user to drive forward with the trailer). Status will be indicated to the user within the Trailing App. Once a successful calibration/alignment has been completed the user may proceed to mounting the Rear Trailer Camera permanently. While in the Trailing App the user also has the ability to request camera previews to visually assess positioning, etc.

Test the view of the camera

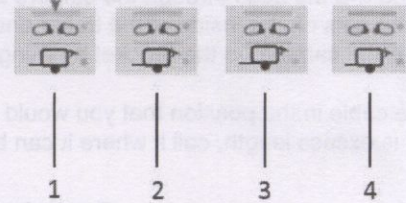
Key on the vehicle and select the Camera App on the display.

The Rear Trailer Camera view is accessed by selecting the Trailer Mirror package button found on the bottom of the center stack display. Selecting this button will cycle through the available views which include the Video Trailer Mirrors view, Rear Trailer Camera view, and a combination of Video Trailer Mirrors and Rear Trailer Camera views, indicated by amber lights found on the button. The "off" state (represented with the gray dots and gray bar) will be present when the user selects another camera option.

Note: When no Trailer Camera is connected, a "No accessory camera found" message will be displayed.

Note: The Interior Trailer Camera can be previewed from within the Trailing App by selecting the Interior Trailer Preview soft button once the camera has been connected.

Amber indicates "on"
Gray indicates "off"



1. Side View Camera view
2. Rear Trailer Camera view
3. Combination Side View Cameras & Rear Trailer Camera view
4. Views are off

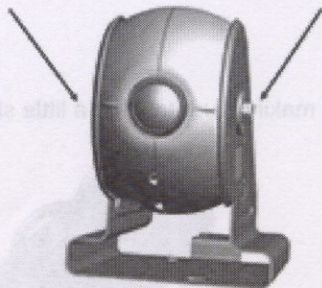
1. Determine if the view from the camera is desirable.
 - A. If needed, loosen the screws on the side of the camera assembly, with an 8mm wrench, to adjust the angle of the camera, and retighten the screws.
 - B. If needed, reposition the camera location.

Note: If mounting the Interior Trailer Camera on the ceiling inside the trailer, the camera housing may need to be removed from the bracket and flipped 180 degrees and replaced back in the bracket to invert the image on the screen properly.

Option for Inverted Image:

If the image from the camera is inverted on the display (i.e. from being mounted on the ceiling of the trailer), then remove the screws and rotate the housing 180 degrees as shown below.

Remove Screws (both sides)

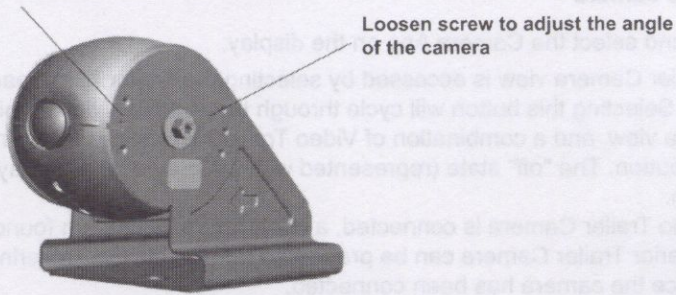


Rotate housing 180 degrees
Reinstall Screws



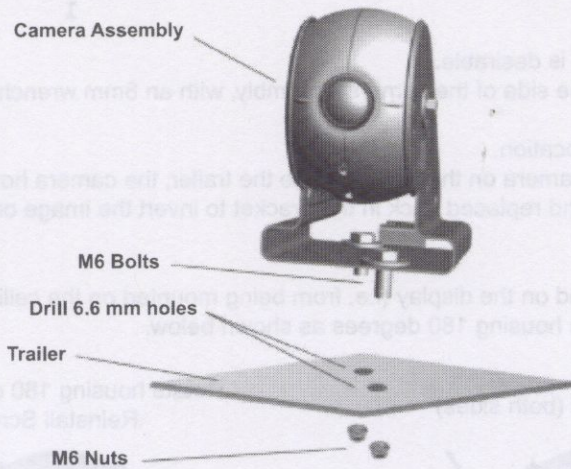
2. Outline the final mounting area with a temporary marker or pencil.
3. Also mark where the camera is positioned in the bracket and remove the camera from the bracket by removing the two M5 screws on the sides with a 8mm wrench.
4. Remove temporary tape from bracket using finger pressure to roll adhesive off the bracket. Any residue can be cleaned off with the Brake Parts Cleaner or 3M Prep Solvent 70 or similar adhesive remover.
5. Clean surfaces with Brake Parts Cleaner or 50/50 water/isopropyl alcohol solution.
6. Replace the bracket in the final mounting area and mark the openings where the bolts will be inserted.

Mark where the camera lens lines up with the bracket



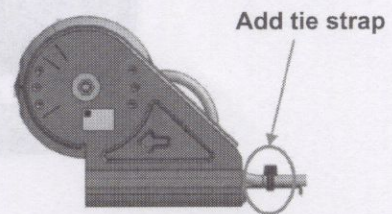
Permanently mount the camera

1. Move the camera away from the mounting area markings and drill the two 6.6 mm holes for the bolts.
 - NOTE:** Can create the holes between 6.6 and 7.0 mm.
2. Place the two M6 bolts through the camera bracket and through the holes in the trailer.
3. Install the nuts on the inside of the trailer and secure the bracket to the trailer.
4. Reinstall the camera on the bracket by lining up the camera lens with the marking on the bracket and secure with the two M5 screws.
5. Line the cable in the position that you would like to permanently route it from the camera to the Trailer Hitch Connector.
6. If there is excess length, coil it where it can be secured out of the way (refer to illustration on page 3).



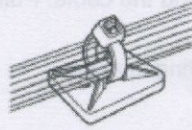
Routing the harness from the Camera Assembly

1. Using a small 7.5 inch tie strap, secure the harness to the camera bracket making sure to keep a little slack from the camera housing to the tie strap.

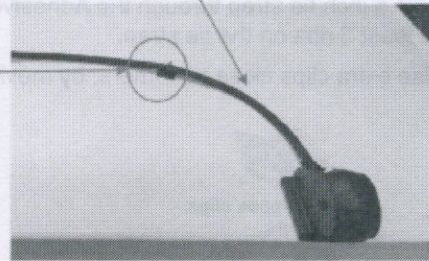


2. Locate the first Adhesive Clip Base from the camera assembly so that the harness has a smooth bend radius.
3. Clean the area of the first Adhesive Clip Base with the Brake Parts Cleaner and then with the alcohol wipe.
4. Peel the tape from the Adhesive Clip Base and press it into the desired location.
5. Insert one 7.5 inch tie strap through the Adhesive Clip Base and around the cable. Pull to tighten and cut off the excess length, leaving at least 3 ribs on the tie strap.

Assembled Adhesive Clip Base with tie strap around the harness

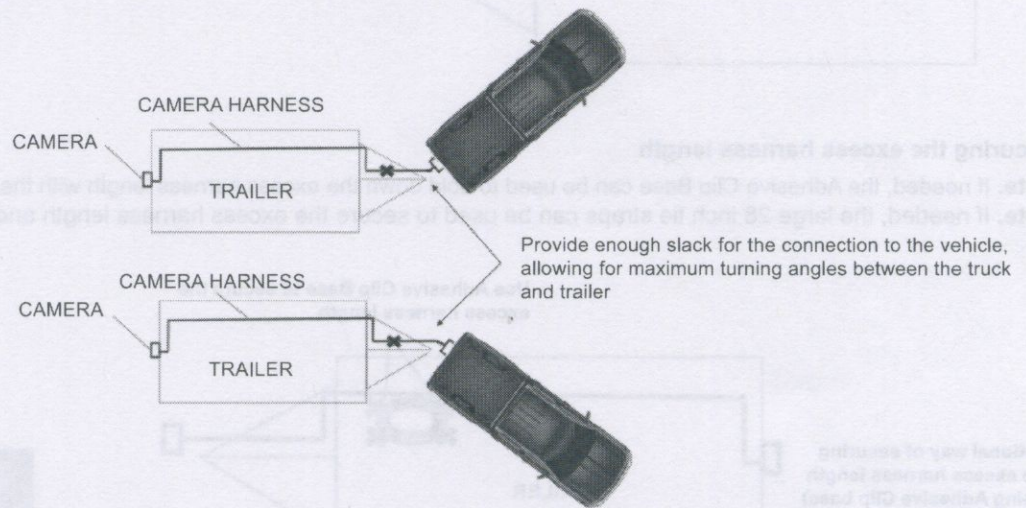


smooth bend radius

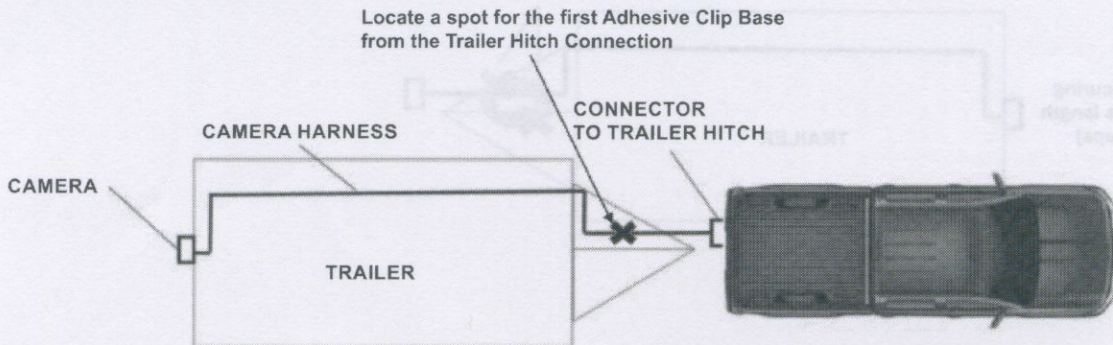


Routing the harness from the Trailer Hitch Connection

1. Starting at the trailer hitch connection, route the cable to the frame of the trailer leaving some slack for movement between the vehicle and trailer and locate where the first Adhesive Clip Base should be placed.
- NOTE:** Include enough slack to account for the worst turning case situation.



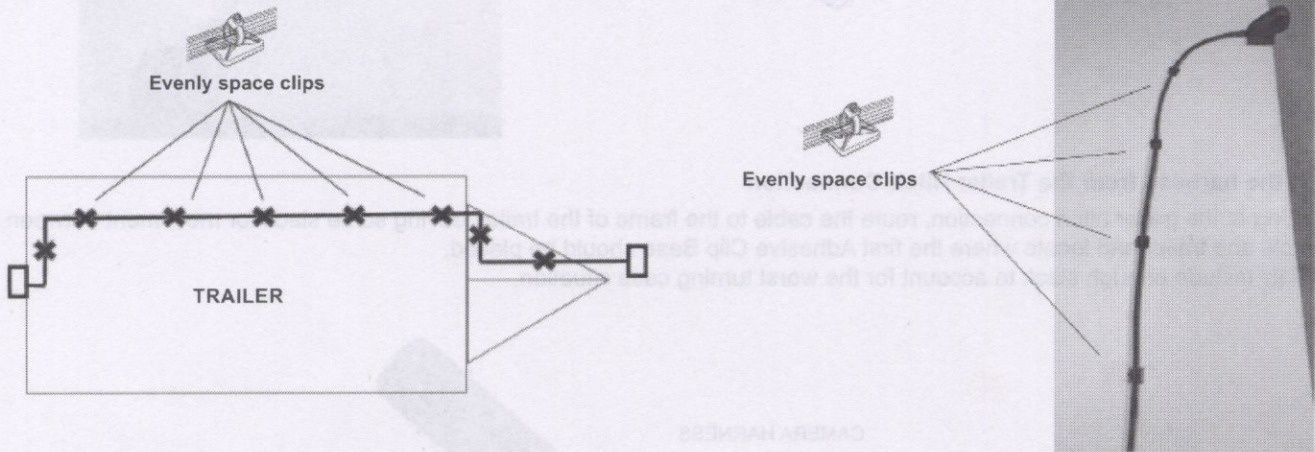
2. Clean the area of the first Adhesive Clip Base with the Brake Parts Cleaner and then with the alcohol wipe.
3. Peel the tape from the Adhesive Clip Base and press it into the desired location.
4. Insert one 7.5 inch tie strap through the Adhesive Clip Base and around the cable. Pull to tighten and cut off the excess length, leaving at least 3 ribs on the tie strap.



Securing the harness (general routing)

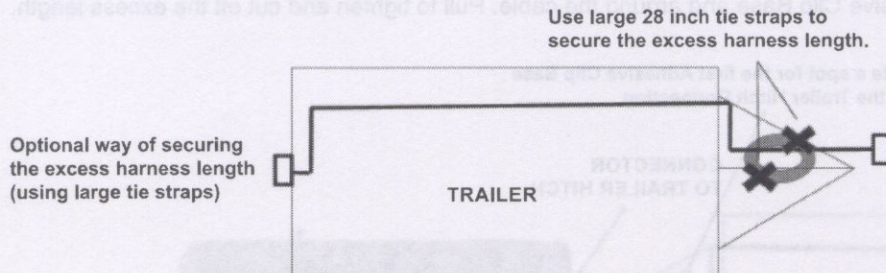
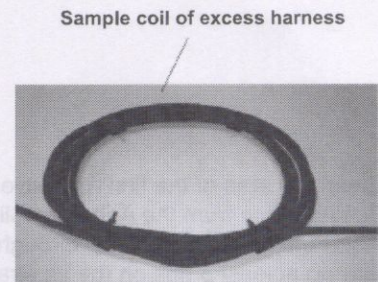
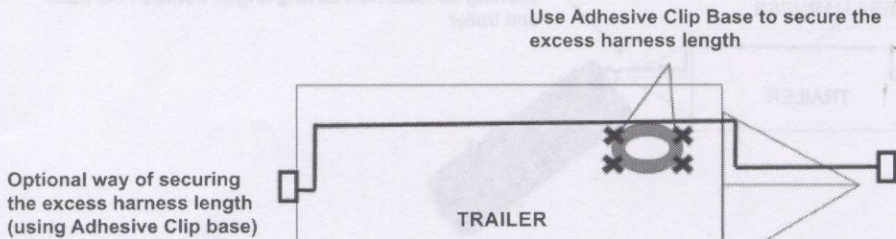
1. Straighten the harness between the camera and trailer hitch, leaving any extra slack in a spot safe to coil and secure it. Do not kink or fold the harness.
2. Take the Adhesive Clip Base and evenly space them along the path of the cable (preferably less than 8" (200 mm) between clips).
3. At each clip, clean the area with the Brake Parts Cleaner and then with the alcohol wipe.
4. Peel the tape from the Adhesive Clip Base and press it into the desired location.
5. Insert one 7.5 inch tie strap through the Adhesive Clip Base and around the cable. Pull to tighten and cut off the excess length, leaving at least 3 ribs on the tie strap.

NOTE: Use extra clips close to corners, by moving parts, or tight routing spaces.



Securing the excess harness length

- Note.** If needed, the Adhesive Clip Base can be used to hold down the excess harness length with the tie straps around the coiled section.
- Note.** If needed, the large 28 inch tie straps can be used to secure the excess harness length and/or securing it to the trailer.

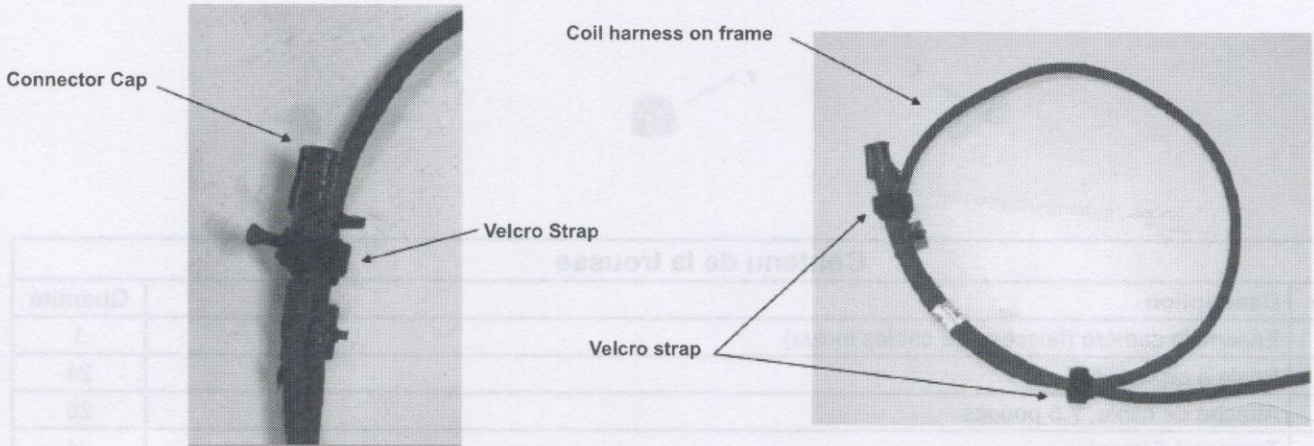


Securing the harness when the trailer is not in use.

Note that there were 2 Velcro straps holding the cable together when removing the camera assembly from the packaging. These Velcro straps are intended to be used to secure the excess cable when the trailer is not in use.

1. Disconnect the harness from the trailer hitch connection.
2. Clean and install the connector cap on the end of the connector.
3. Coil the harness on the frame of the trailer. Do not kink or fold the harness.
4. Locate a spot on the harness to secure the end of the cable (trailer hitch connector).
5. Add a Velcro strap on the harness and wrap it around the end of the cable.
6. Add the second Velcro strap to secure any other area that has extra slack in it.

NOTE: When storing the harness, do not coil it too tightly or make sharp bends (90 degree) such that it could compromise the wire integrity.


Troubleshooting

1. Make sure that the 7-way Trailer Connector is plugged into the Trailer Hitch Connector on the vehicle. This will activate the Trailer Camera connections.

Some vehicles have to be in sleep mode before the camera image is recognized. To do this, turn the vehicle off, open and close the driver's door and wait about 2 minutes. During this time, connect the 7-way Trailer Connector and the Trailer Camera connector (Rear, Interior or both).

2. Go to the Trailering App on your vehicle display and configure your trailer.
3. After configuring your trailer:

If the Trailer App says that there is **No Trailer Connected**, then it is not recognizing the 7-way. Need to disconnect and reconnect it, and may have to put the vehicle to sleep for this. If the Trailer App says that there is a Trailer, select the appropriate trailer configuration. After this, if there is a **Blank Screen** for the Rear or Interior Trailer Camera's, then there is a break in the line of coax cables. The most common problem is a disconnect somewhere between the camera and SVPM+.