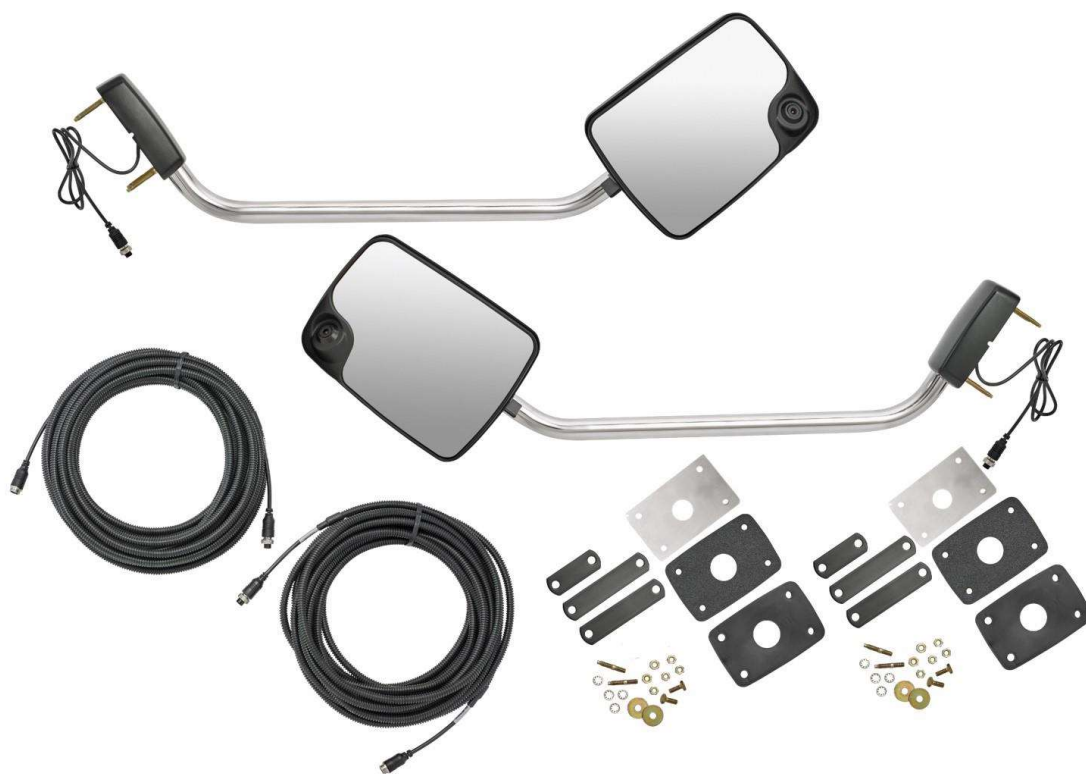


PeopleNet Video Intelligence

Generation 1 & 2 Side Cameras

Installation Guide

Rev. 4/13/18



(Gen-2 MirrorCam kit)

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Before You Begin

Tools Required:

- 10 mm deep well socket with 1/4" ratchet wrench
- Inch-pound torque wrench
- Center Punch
- Marking instrument (pencil or marker)
- Drill
- 9/32" drill bit
- 5/8" or 3/4" hole saw

Cautions and Warnings:

- Do not loosen fasteners at head or base that clamp to the camera's support tube.
- Make head and base position adjustments after installation to hood.
- Do not use mirror support tube to climb on vehicle hood. Damage to support tube or hood could result.

General Principles to Guide the Mounting Process

- The camera and mirror should be as far forward and as far up on the hood as is practical.
- The mount should employ existing holes whenever possible. In some cases this will be all existing holes. Holes that are not used should be capped, either with original hardware or inserts, to avoid noise and leakage.
- The mirror position should match the vehicle's original mirror position as much as practical.
- As shown below, wedge gaskets are provided and should be used to level the pole. The goal is to have the pole arm parallel to the ground.
- The base should be as close to vertical as possible, allowing the arm to swivel to the desired position without changing the vertical angle. Exceptions include cases when the original spot mirror was on a sharp angle such as an aerodynamic base.
- The cables should be routed into the cab following the path of existing vehicle electrical lines, such as headlight wires, whenever possible. Always route up the driver's side to avoid the exhaust system. Always be aware of the path of the hood and other moving parts.

Non-compatible Vehicle Makes & Models

Freightliner Argosy	n/a
Volvo VNL	2018 model
Volvo VNR	2018 model
International LT (ProStar)	2018 model

Prepare Hood

1. Remove OEM hood mirror(s) if equipped.

Determine Mounting Location

2. With someone seated in vehicle drivers seat, hold mirror-camera assembly mounting base up to the hood side region as shown in Figure A (use caution to prevent threaded studs in base from marring vehicle finish). Adjust base location until driver is able to see desired viewing area; refer to Figure A.
3. Mirror head should be located as low as possible while still providing proper viewing. Mirror view should be visible over wipers and/or hood.
4. Base mounting location must permit mounting fastener access from inside of hood/grill. Refer to figure B.
5. **IMPORTANT:** Base must be mounted to take advantage of strongest region of hood or structural supports inside the hood. This area is generally on the side of hood, near the grille. Failure to locate as described may result in hood damage. Region for mounting must be **FLAT**. Some hoods may be unsuitable for this type mirror or may require additional supports inside hood to prevent damage. For structural questions or mounting recommendations contact vehicle manufacturer or dealer.
6. When desired mirror location is determined, mark position of mounting base on hood with marking instrument.

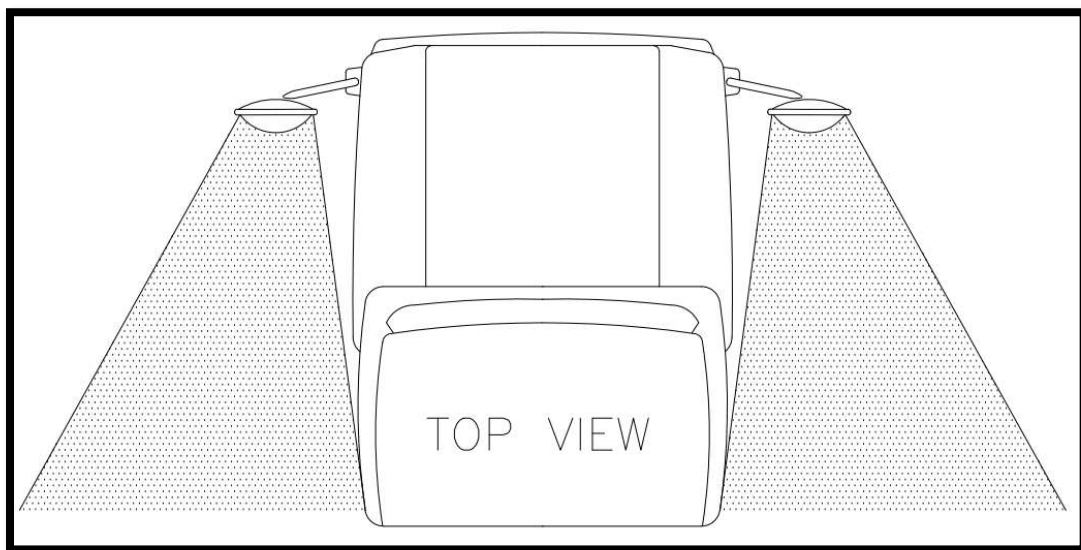


Figure A Mounting location for Camera Assembly

Mounting the Mirror

1. Using included plastic gasket as template, mark location of the four mounting holes and center wiring hole:

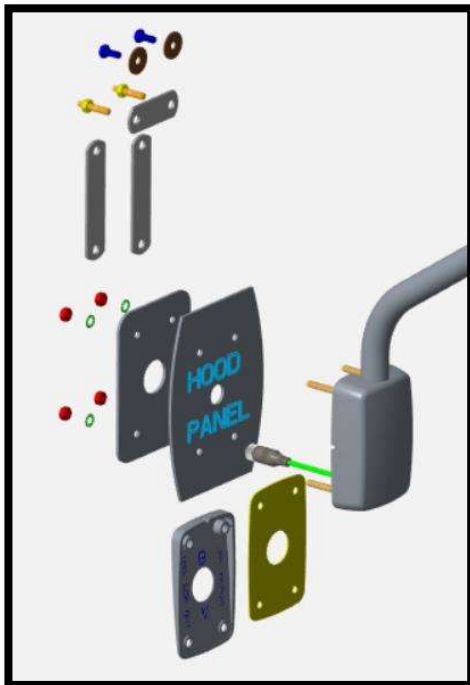


Figure B Base Mounting Hardware



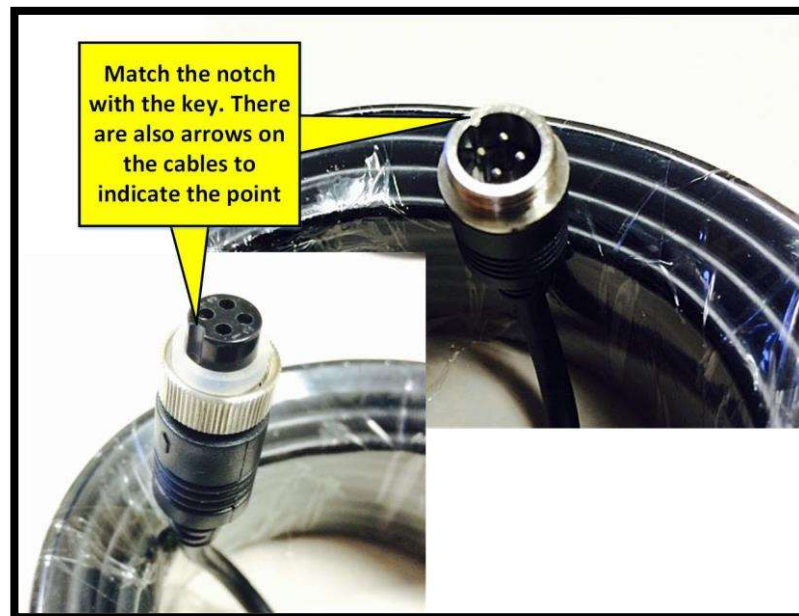
2. Use center punch to mark location to drill five holes
3. Drill four 9/32" mounting holes. (WARNING: area to be drilled must be free of all electrical lines, hoses, etc).
4. Drill one 5/8" or 3/4" wiring hole (for camera cable).
5. Attach the appropriate gasket on base threads. See the chart at the end of this guide for proper gasket position for your truck.
 - When mounting the assembly place the gasket between the mounting base and the truck hood.

- The intention of the wedge shaped gasket is to keep the upper tube arm horizontal when mounted on the various truck models, for the truck models that use the flat gasket the tube arm will be horizontal when mounted.
 - Position the wedge shaped gasket on the truck hood with either the “A” or “B” toward the top of the hood for proper fit to the truck.
 - Note: The printing on the wedge gasket should face the mounting base.
6. On the inside of hood, install the appropriate backing plate on studs. Several types are included to allow fit to various hood configurations. The aluminum backing plate is the preferred part to use where possible. Straps and/or oversize washers should only be installed when the aluminum backing plate does not fit the hood contour. Install lock washers and nuts. **Tighten to 31 in-lb.**
 7. Insert the camera cable through the gasket and the hood center hole, making sure that the lettering on the gasket faces away from the cab.

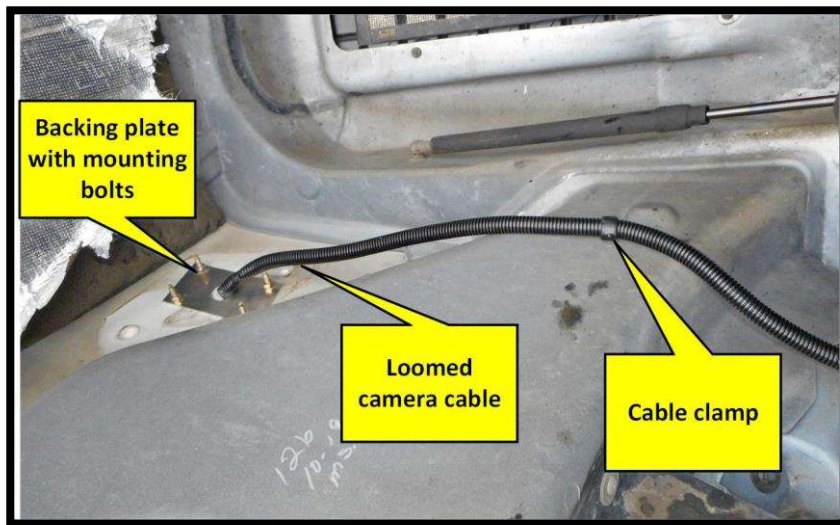
****NOTE** there are two sizes of nut in the kit. Verify that you have the correct nuts before tightening**

Extension Cable Routing

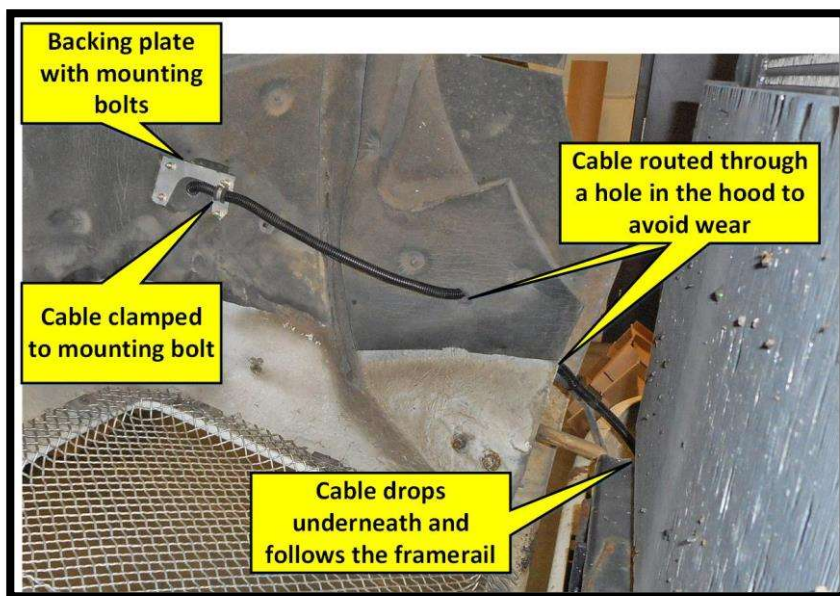
1. In a protected space around the forward frame-rail, connect the camera extension cables to each camera cable, making sure to align the key and notch as shown. It is recommended to wrap the connections with weather resistant electrical tape or use heat shrink tubing to ensure the connections stay protected from the elements.



2. Attach cabling to the hood side with a cable clamp, and route it to the forward frame-rail making sure to avoid any possible rub areas.

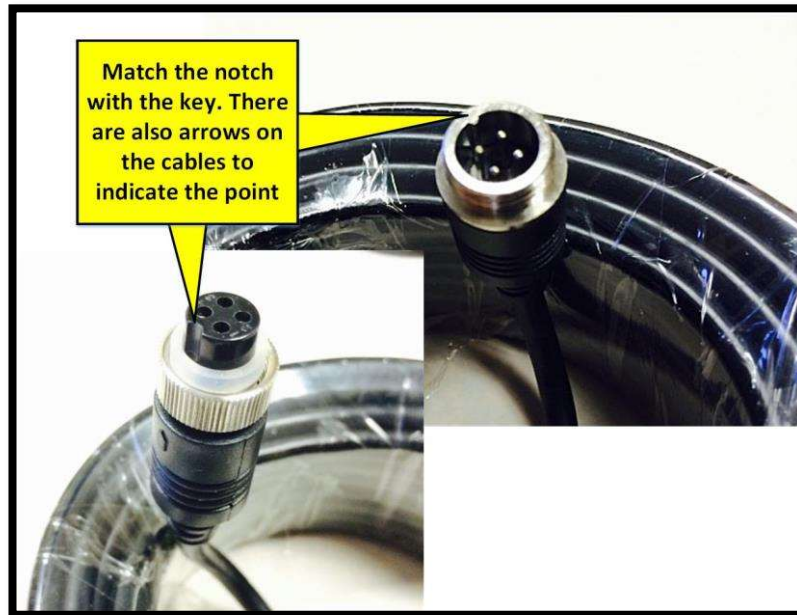


Example 1 - Volvo

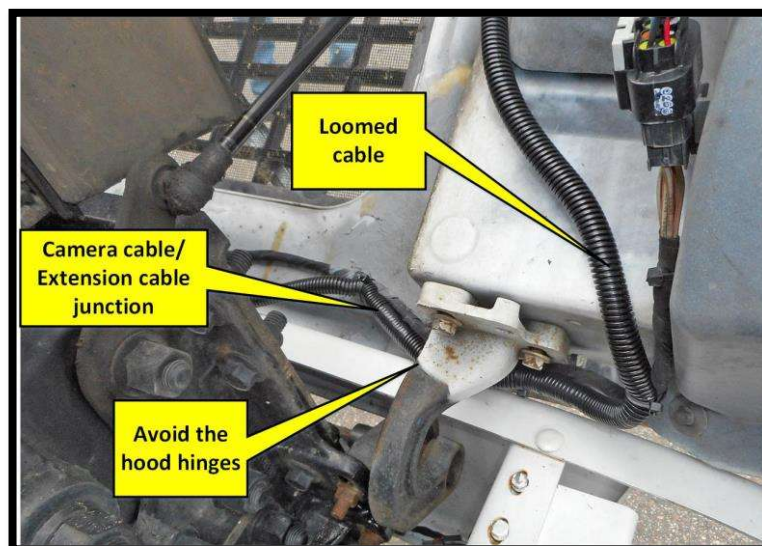


Example 2 – Kenworth T300

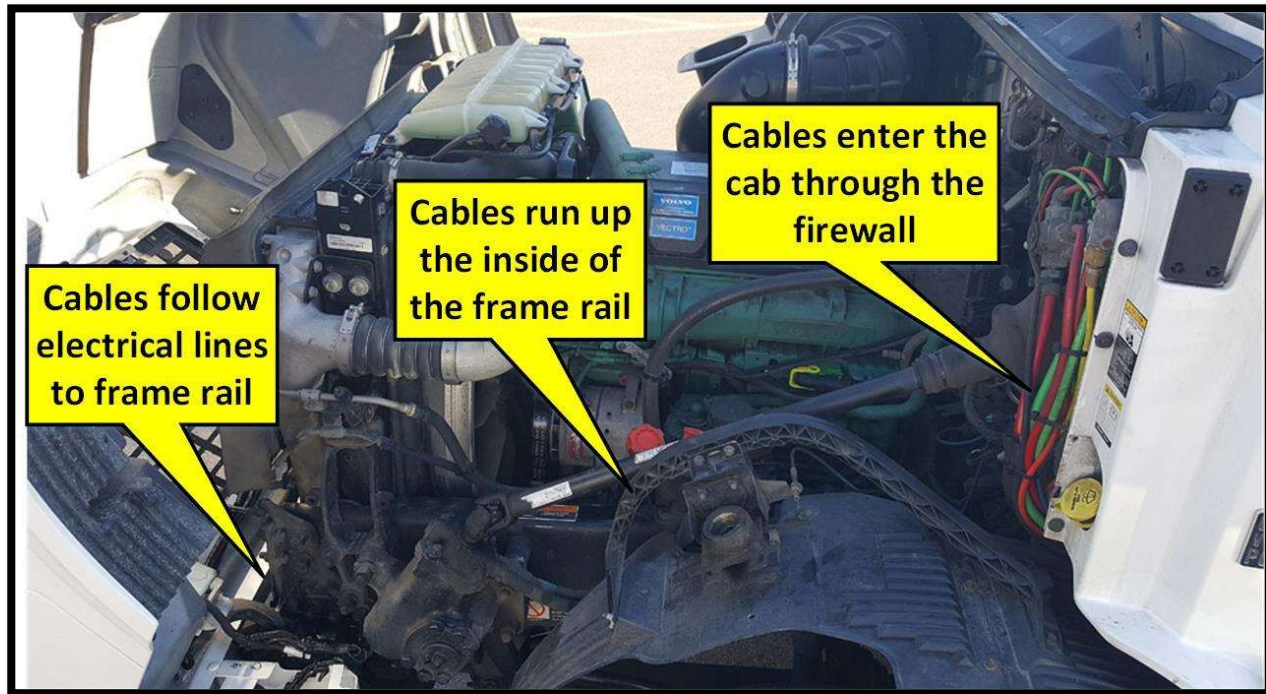
3. Repeat the process on the opposite side of the cab.



4. Route the passenger's side camera cable across to the driver's side following either the headlight power lines or the forward frame rail, making sure to avoid moving parts. The cable should be secured with a clamp or tie at least every 12 inches.

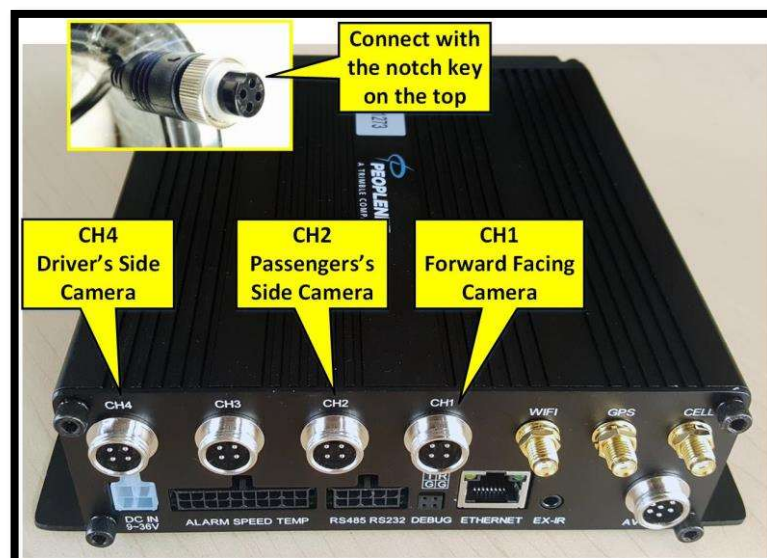


5. Route the cables up the driver's side frame rail avoiding movable parts, major heat sources, and any exposure to the wheel well.



6. Pass through the firewall through an existing opening if available. If none is available drill a 1" hole in a safe space, route the cables through, then seal it with a grommet and silicone sealant.
7. Route the cables across the dash to the DVR, then remove the loom from the final 12" of cable, allowing the cable to flex more easily.

*****Connect the passenger's side camera to the DVR CH2 position and the driver's side camera to the CH4 position*****



Adjusting and Targeting the Camera/Mirror

Adjusting the Mirror (Gen 2 MirrorCam only)

1. With someone seated in driver's seat, adjust mirror head or support arm to obtain desired viewing. Head and or base may be adjusted by firmly rotating about tube. Do not loosen fasteners to make this adjustment. See Figure A and Figure C.
2. Clean mirror glass with a commercial glass-cleaner product when necessary.

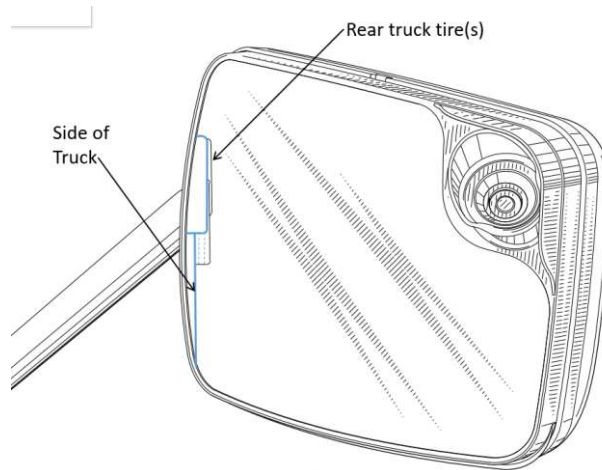
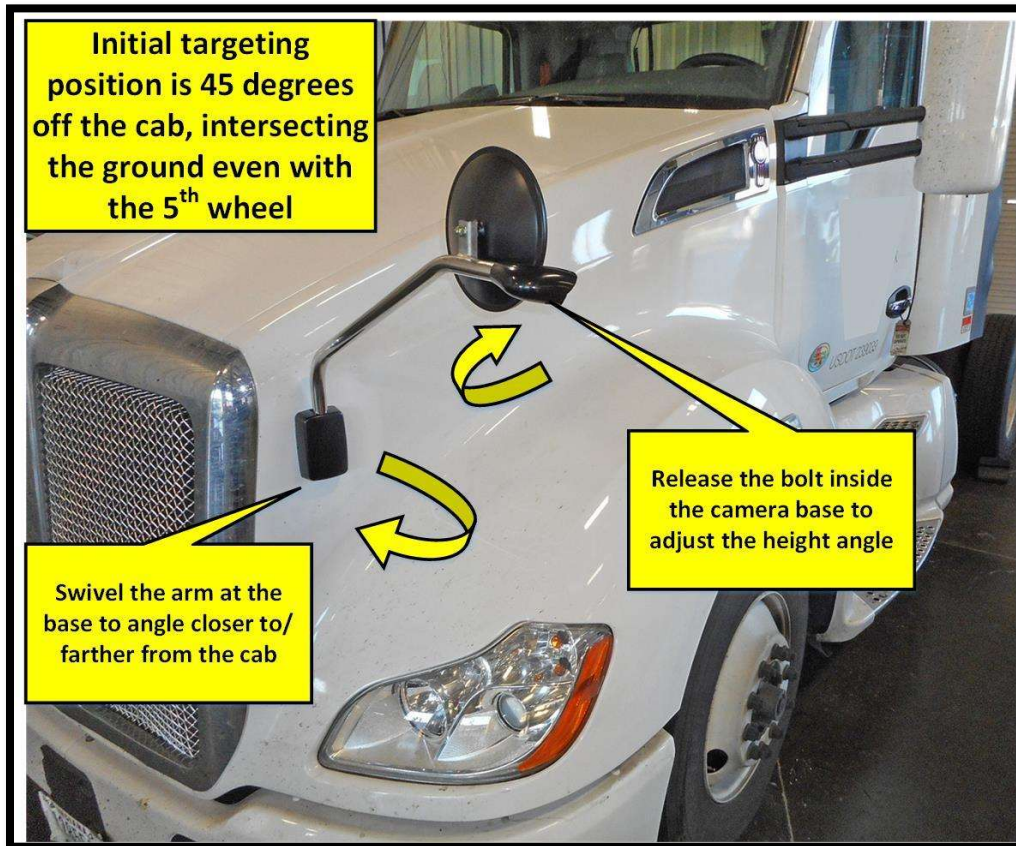


Figure C View From Hood Mirror

Side of cab and rear tire of tractor are visible along inside edge of mirror glass.
Note: MirrorCam head shown, vehicle position is similar for round mirror version.

Targeting the Camera (Gen 1 side cameras only)

1. Adjust the camera arms as shown below for the initial test.



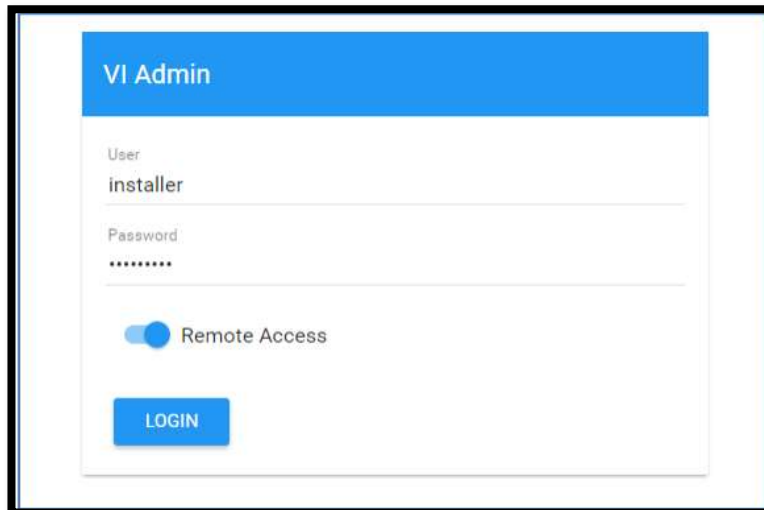
2. Run the “Configuring DVR” process until you reach “Test Camera” step (see page 18).
3. Verify in the snapshot that the “Driver camera” and “Passenger camera” fields show the correct camera.
4. Adjust the cameras as needed to get a clear view down the trailer, with the only the edge of the cab visible. The driver compartment should not be visible.
5. Press the “TEST CAMERAS” button after each adjustment to confirm success.
6. Once targeting is complete, use the adjustment nut on the spot mirror to approximate the original position for the driver, then rotate the mirror so the drip hole is on the bottom.

Adjusting the Mirror

1. With someone seated in driver's seat, adjust mirror or support arm to obtain desired viewing. Support arm angle may be adjusted by firmly rotating about tube at mounting base. Do not loosen fasteners to make this adjustment. See Drawing "A" below.
2. Clean mirror glass with a commercial glass-cleaner product when necessary

Activating Camera Channels

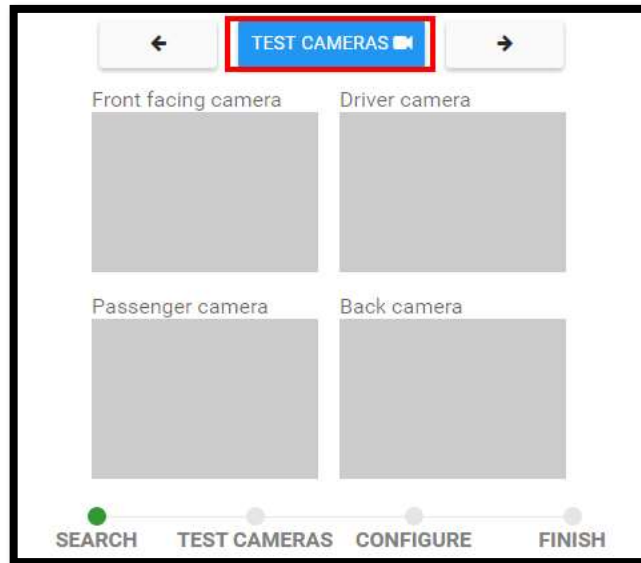
1. Navigate to the following website on your internet connected laptop, Tablet or Smart Phone:
 - a. <http://dvr.alpha.pnetvi.com/#/>
2. Type in the Login Credentials (all lowercase):
 - a. Username: installer
Password: installer



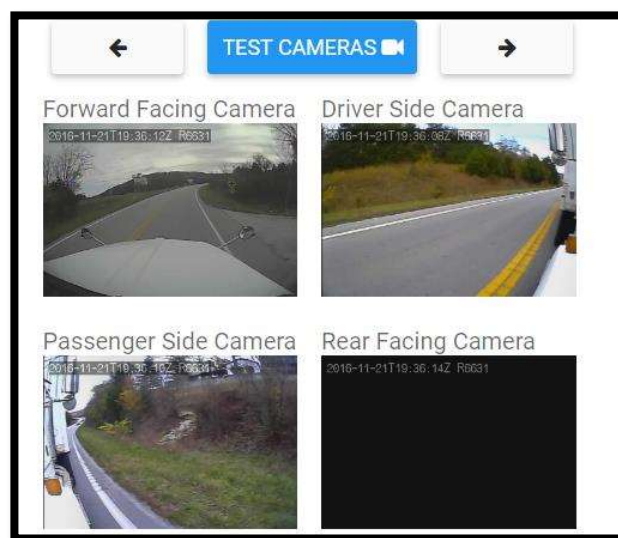
3. Enter in the DVR Serial Number into the field and press the SEARCH icon.



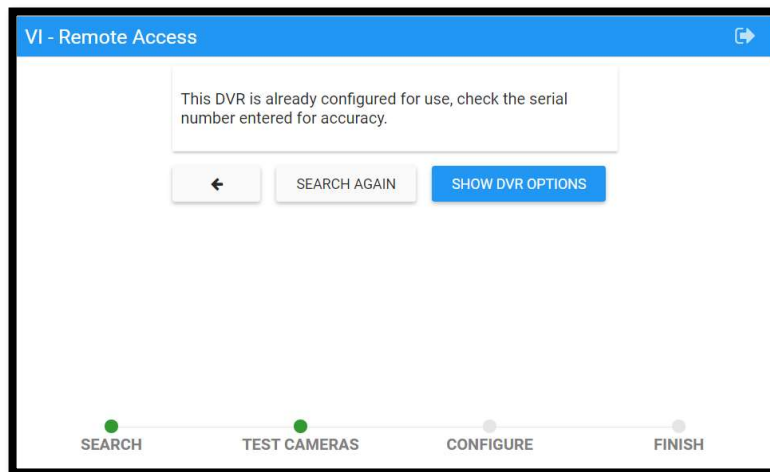
4. The following screen will come up if you connected successfully
 - a. Press the “TEST CAMERAS” button to bring up an image for each camera plugged into the DVR



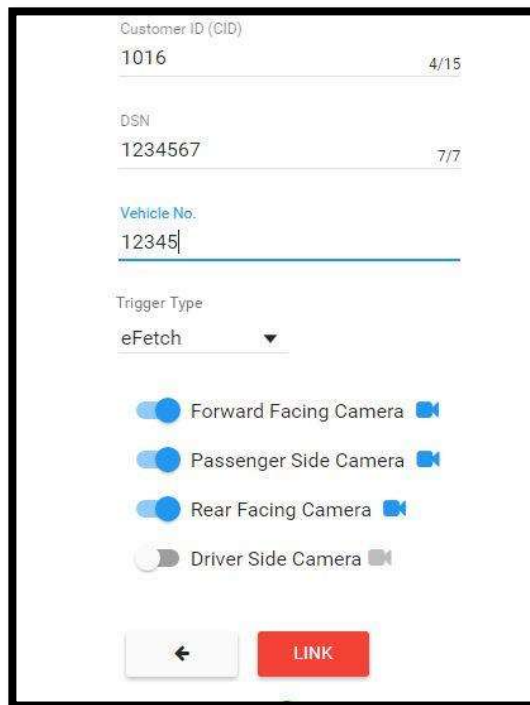
5. Verify that the images match the cameras and cover the correct areas, including the mirrors for the “Front facing camera” and the cab edge for the side cameras if present.
 - a. Verify in the snapshot that the “Driver camera” and “Passenger camera” fields show the correct camera.
 - b. Adjust the cameras as needed to get a clear view down the trailer, with only the edge of the cab visible and the wheel well just visible at the bottom.
The driver compartment should not be visible.



6. Once you have validated the images for all cameras are clear and the cameras are adjusted properly, press the “Right Arrow” highlighted in the image below to link the DVR
7. Click on “SHOW DVR OPTIONS”



8. Activate each camera that you are using in the section below the text. If you are installing a passenger side camera then only activate that channel. Once all desired channels are activated then press the “Update” button at the bottom.



Example Installations:

Volvo VNL Installs ONLY

These instructions refer to installation to a Volvo VNL hood.

Tools Required:

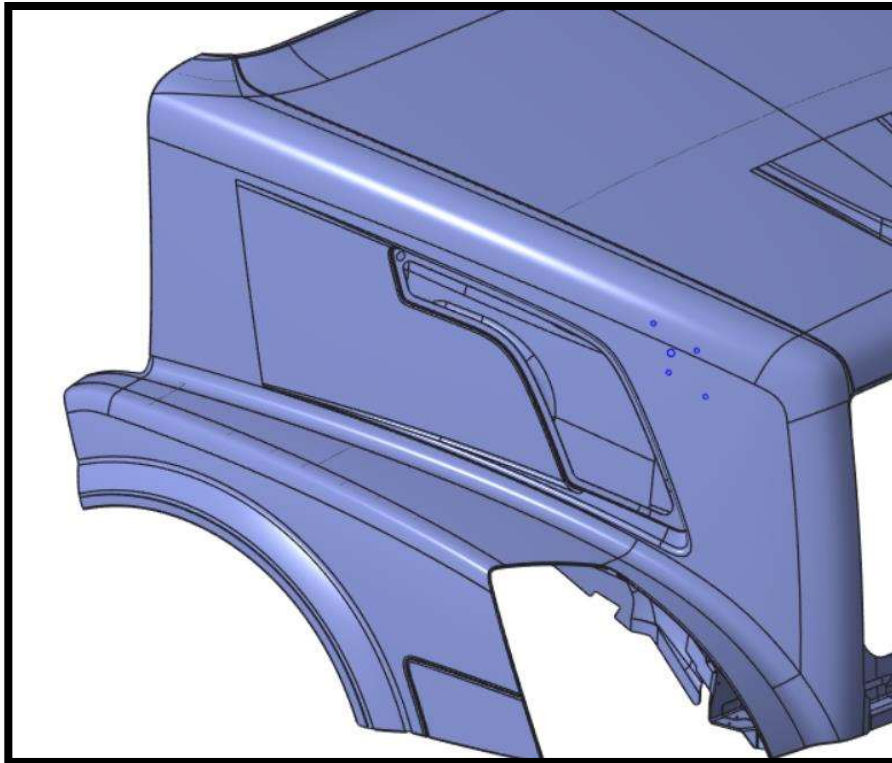
- 10 mm deep well socket with 1/4" ratchet wrench
- Inch-pound torque wrench
- Center Punch
- Marking instrument (pencil or marker)
- Drill
- 9/32" drill bit
- 5/8" or 3/4" hole saw

Cautions and Warnings:

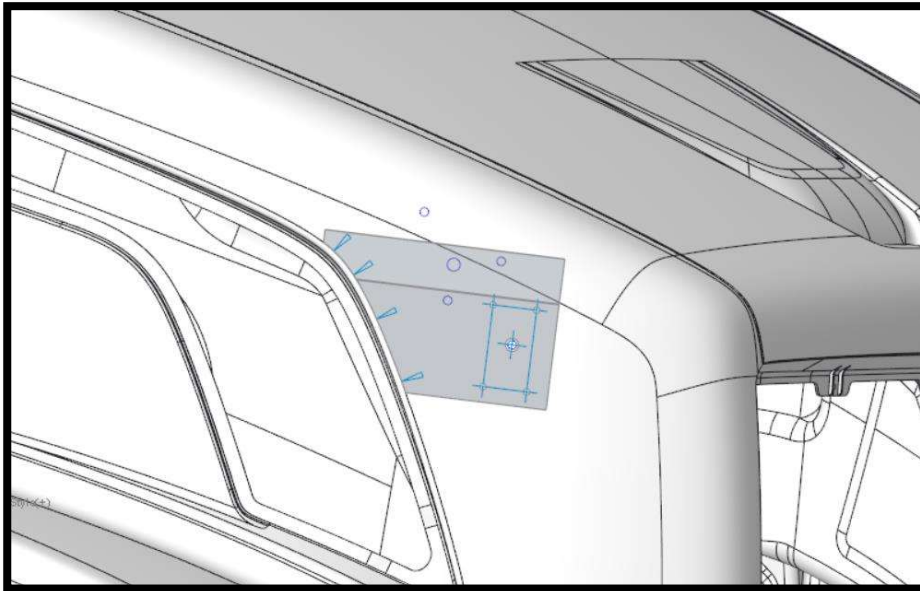
- Do not loosen fasteners at head or base that clamp to support tube.
- Make head and base position adjustments after installation to hood.
- Do not use mirror support tube to climb on vehicle hood. Damage to support tube or hood could result.

Prepare Hood

1. Remove OEM hood mirror(s) if equipped.



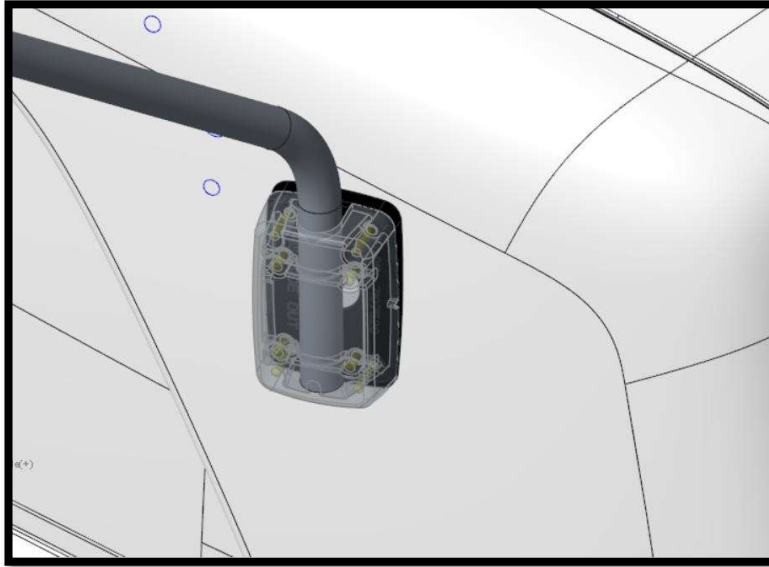
2. Align template included with this kit, using vent profile as guide for proper position (align with arrow darts). Large hole on template will align with one existing OEM hood hole, if previously equipped.



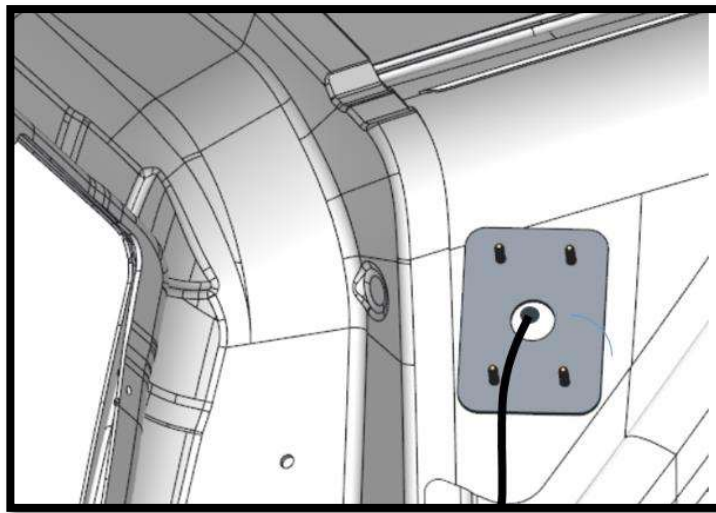
3. Use center punch to mark location to drill five holes
4. Drill four 9/32" mounting holes. (WARNING: area to be drilled must be free of all electrical lines, hoses, etc).
5. Drill one 5/8" or 3/4" wiring hole using hole saw (for camera cable).
6. Remove any insulation from inside hood, in region of mounting location only. Backing plate must lie on smooth, clean surface.

Mounting the Mirror

1. Align wedge gasket with hole pattern created in steps 4 and 5.
2. Insert camera assembly studs and wire harness through wedge gasket and hood surface. Wedge should be in position "B" (thick section is on top).

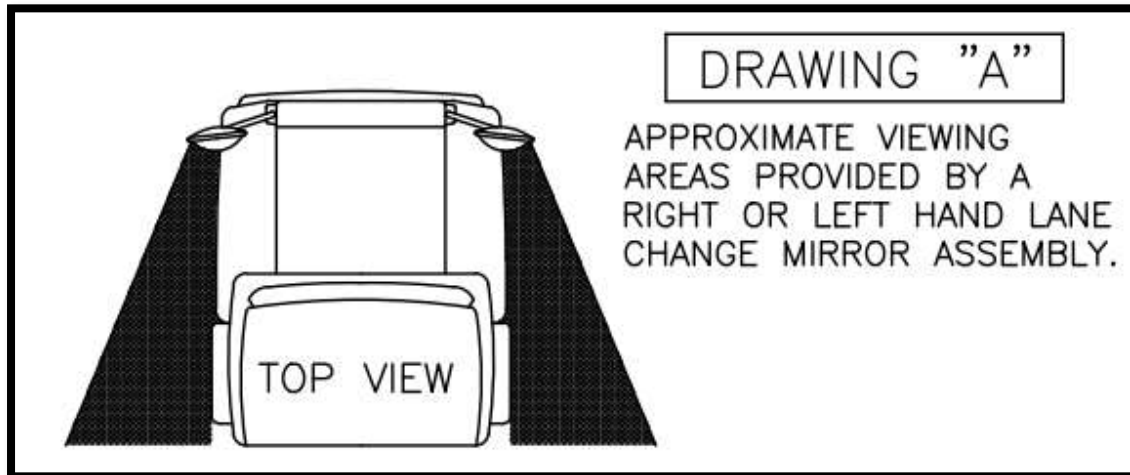


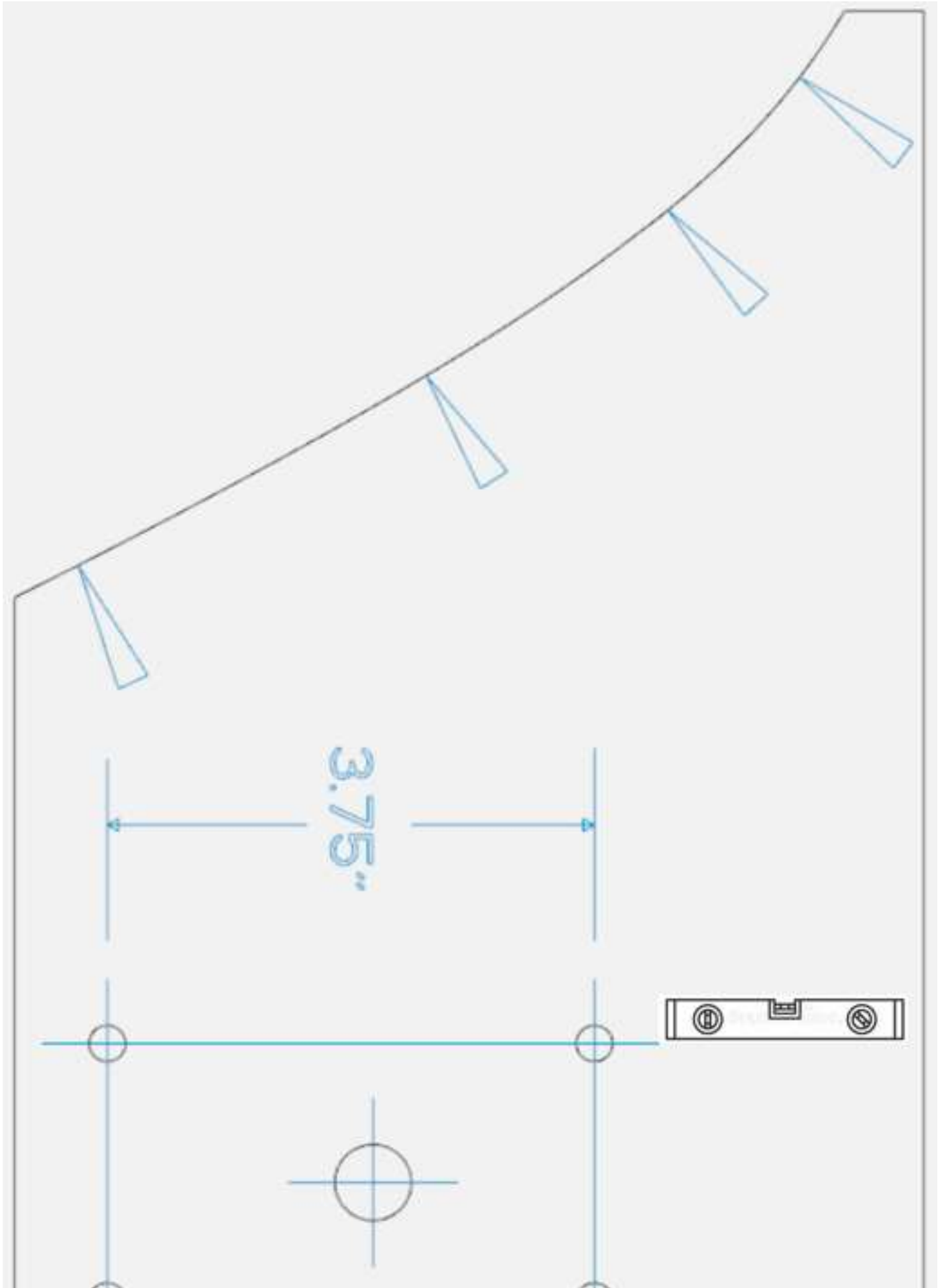
3. On the inside of hood, install the aluminum backing plate to studs. Install lock washers and nuts. Tighten to **31 in-lb with hand torque wrench**. Do not overtighten.



Adjusting the Mirror

3. With someone seated in driver's seat, adjust mirror or support arm to obtain desired viewing. Support arm angle may be adjusted by firmly rotating about tube at mounting base. Do not loosen fasteners to make this adjustment. See Drawing "A" below.
4. Clean mirror glass with a commercial glass-cleaner product when necessary.





Pod-Style Hood-Mount Mirror

1. If the truck already has a pod-style hood-mount mirror installed, remove the mirror and use the 4 holes as a guide for mounting the Aero Cam base.



2. With gasket in position as shown in the above picture, drill center hole using a 1-inch drill bit or hole saw.

OE Aerodynamic Hood-Mount Mirror

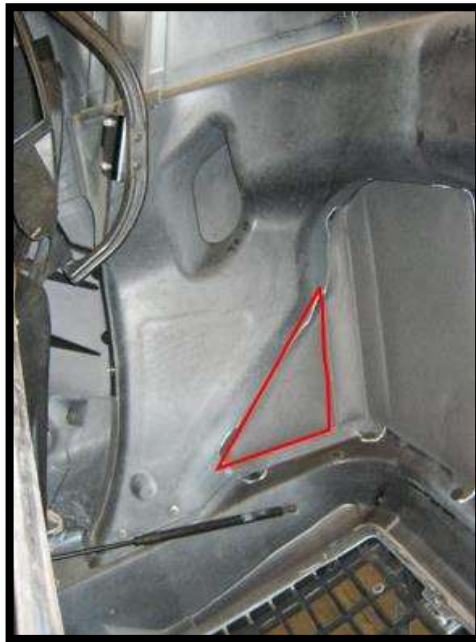
1. Remove the existing mirror. Place the gasket onto the hood so that the bottom, most forward hole is in the large center of the gasket. Use a level to ensure the gasket is properly positioned.



2. Drill center hole with a 1-inch drill bit or hole saw.
3. Drill the other four holes with a 5/16" or 8mm drill bit.
4. Use carriage bolts to fill the unused holes from the OE mirror.

No Existing Hood-Mount Mirror

1. Roughly align the base gasket in the center of the triangular area from the inside of the hood. Drill a small hole in the center of the 1" center hole.
2. From the outside of the hood, using the drilled hole as a guide, align the base gasket vertically and horizontally.
3. Carefully mark the four corner and the center-hole positions with a center punch or marker.
4. Drill center hole with a 1-inch drill bit or hole saw.
5. Drill the other four holes with a 5/16" or 8mm drill bit.



Kenworth T660s

1. Remove the studs from the base of the camera assembly. Replace the upper studs only with the shorter studs provided in the kit.
2. On one side of the truck select the camera assembly that will position the camera pointing rearward when mounted to that side. Place a gasket on the camera base with the adhesive side pointing away from the mounting base.
3. Feed the wire protruding from the camera's mounting base through the center hole of the gasket. Remove the paper liner from the gasket. Mount the camera assembly to the outside of the hood using one short backing strap on the top studs with lock washers and nuts and two ¼-20 hex head screws with lock washers and flat washers on the bottom. Tighten to 100 in-lb.



Vehicle Matrix for Gasket Wedge Position

Review the matrix below to confirm which camera arm and wedge-grommet is needed for your vehicle.

Incompatible Vehicle Types

Make	Model	Year
Freightliner	Argosy	n/a
Volvo	VNR	2018
Volvo	VNL	2018
International	LT (ProStar)	2018

Make	Model	SHORT ARM /Universal	LONG ARM:	T700 specific mount	Wedge 4° Up	Wedge 4° Down	No Wedge
Peterbilt	367	x				x	
Peterbilt	579	x				x	
Peterbilt	587	x				x	
Peterbilt	365	x				x	
Peterbilt	378	x				x	
Peterbilt	379	x				x	
Peterbilt	385	x				x	
Peterbilt	386	x				x	
Peterbilt	388	x				x	
Peterbilt	389	x				x	
Kenworth	T300		x				x
Kenworth	T370		x				x
Kenworth	T660		x				x
Kenworth	T680	x				x	
Kenworth	T700			x		x	
Kenworth	T800	x				x	
Kenworth	T880	x				x	
Kenworth	W900	x				x	
Kenworth	C500	x				x	
Kenworth	T440	x				x	
Kenworth	W-900B	x				x	

Volvo	VNM 200	x					x
Volvo	VNM 430	x					x
Volvo	VNM 630	x					x
Volvo	VNL 200	x			x		
Volvo	VNL 300	x			x		
Volvo	VNL 430	x			x		
Volvo	VNL 630	x			x		
Volvo	VNL 670	x			x		
Volvo	VNL 730	x			x		
Volvo	VNL 780	x			x		
Volvo	VNX 300	x				x	
Volvo	VNX 430	x				x	
Volvo	VNX 630	x				x	
Volvo	VHD 200	x				x	
Volvo	VHD 430	x				x	
Mack	Granite (800)	x					x
Mack	CXU	x					x
Mack	Pinnacle	x					x
Mack	Titan	x					x
Mack	CHU 613	x					x
Mack	Anthem	x					x
International	7400	x					x
International	4300		x				x
International	4400		x				x
International	Durastar		x			x	
International	Prostar	x				x	
International	Prostar	x				x	
International	Lonestar	x				x	
Hino	258 ALP		x				
Freightliner	Cascadia Evolution	x					x
Freightliner	Cascadia CA125	x					x
Freightliner	Cascadia 2018 (PT126SLP)	x					x
Freightliner	M2 106		x			x	

Freightliner	M2 112	x			x		
Freightliner	Columbia	x					x
Freightliner	Coronado	x			x		
Freightliner	122SD	x			x		
Freightliner	114SD	x			x		
Freightliner	FLD 120	x			x		
Freightliner	386	x			x		
Western Star	5700	x					x
Western Star	4900	x					x
Western Star	4700	x				x	
Western Star	6900	x				x	