

FedEx

Blind Spot Camera & Backup Sensor Installation Step Vans



Monitor Mounting Overhead in Step Van

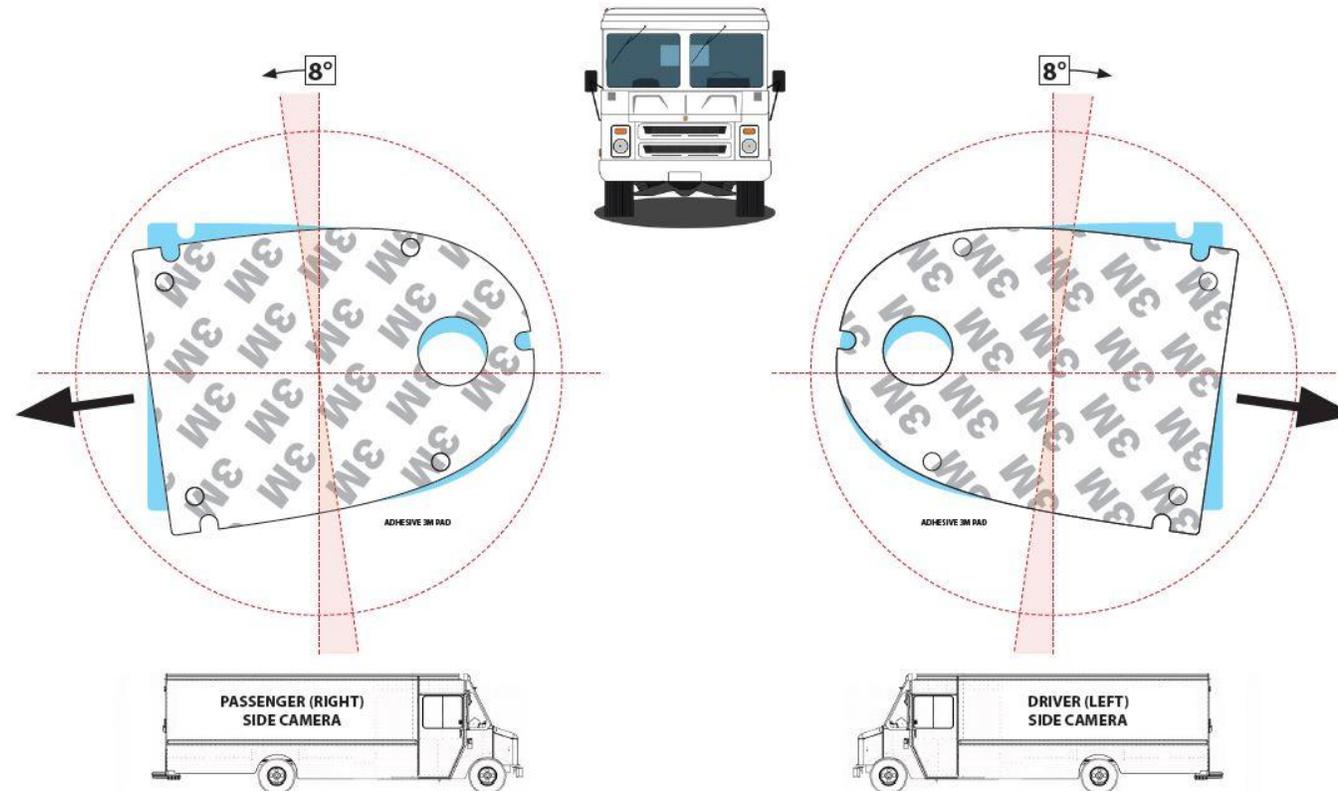
- In most cases, the monitor will be mounted on the underside of overhead package shelf of the step van.
- Mount with machine screws/bolts, nuts and washers. Never use self tapping/drilling screws for mounting overhead.
- Sit in driver's seat to determine the best viewing angle
- Be mindful of existing equipment, such as fan or driver facing camera.
- Use the existing hole in the shelf if available to route the monitor cable through.
- If no hole exists, drill 3/4" hole. Insert a snap bushing.
- **Note:** Some step vans and some Utilimaster vans as an example are prewired for a backup camera.
- Utilimaster: Look for a 15-pin plug at top left A pillar.
 - Lt/Green – Reverse
 - Pink – Ignition
 - White - Ground



Side Cameras – Step Van

SIDE CAMERA RECOMMENDED ANGLE OF VIEW

CAMERAS SET UP TO FACE TOWARDS THE REAR OF STEP VAN



Side Cameras – Step Van (cont.)

Flush Mounting – All Step Vans

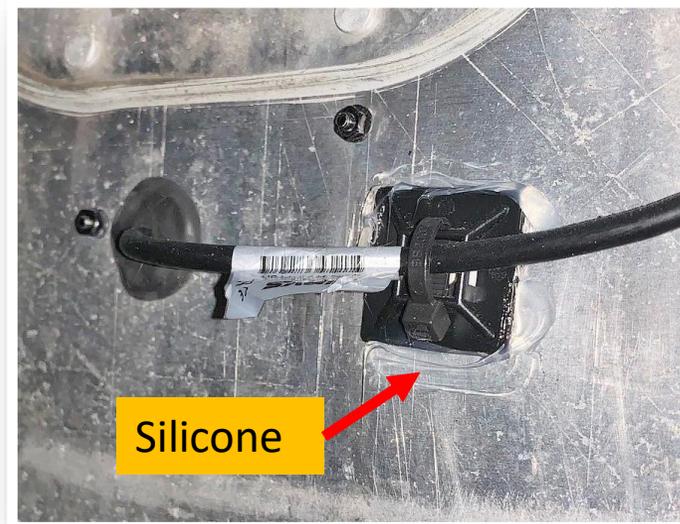
- **Note:** All step vans should have access on the backside of the fender for flush mounting. Always double check on both sides of the panel to verify before drilling any holes. Be sure to check both sides of the step van for an air vent.
- **Note:** **Do not mount the camera in front of the air vent!** Mount the camera below the air vent. If there is no vent on the passenger side, mount the camera at the same height as the driver's side camera.
- The location of the camera and angle of 8° will need to be set before drilling the holes. Once determined, mark the hole locations.
- Check the and adjust the camera angle with the flat lens portion of the camera. **“Level” apps are available for smart phones.**
- Mark the screw holes.
- The camera cable will require a 3/4” hole. Use the foam sealing tape to mark the cable hole
- The camera will be mounted to the fender with #4 machine screws, lock nuts and washers. Machine screws will require 1/8” holes.
- Coat the cable hole with brush on primer.
- Apply the foam sealing tape to the fender.
- Verify the screw holes are correct, then peel the camera side if the 3M tape.
- Attach the camera.
- Route camera cables to interior of van and make the connections.



Side Cameras – Step Van (cont.)

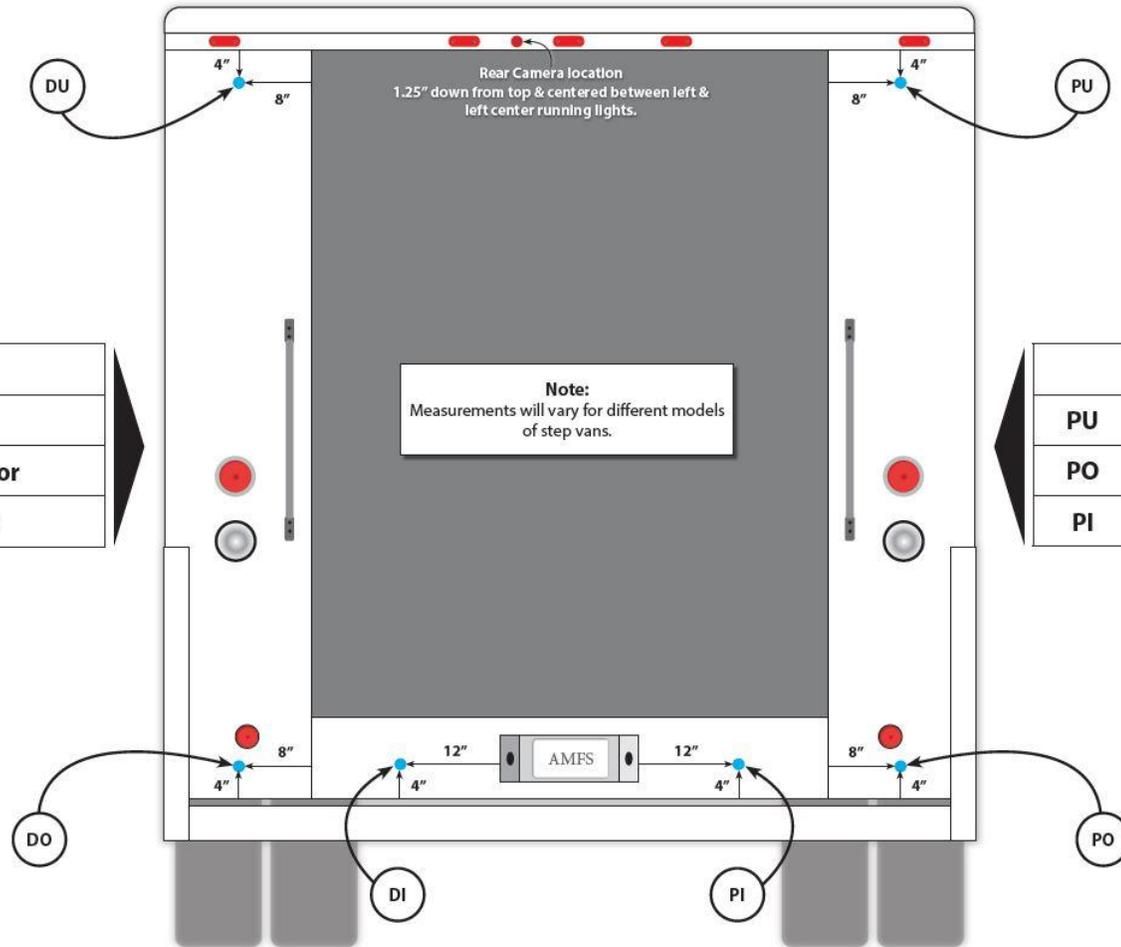
Inside view of the installed side camera.

- Clean the surface thoroughly and use a stick tab (cable tie mount) and zip tie to secure the camera cable to the sidewall. The double-sided tape will fail! Be sure to run a bead of silicone around the perimeter of the stick tab.
- Route the cable to the vertical door channel and up to the overhead shelf.



Step Van Backup Sensors & Rear Camera Locations

UTILIMASTER STEP VAN - SENSORS & REAR CAMERA POSITIONS



DRIVER SIDE	
DU	Upper Sensor
DO	Outside Lower Sensor
DI	Inside Lower Sensor

PASSENGER SIDE	
PU	Upper Sensor
PO	Outside Lower Sensor
PI	Inside Lower Sensor

Note: Measurements will vary based on year, manufacturer, model and door size.

Rear Camera Installation - Step Van

The RVS-770 rear backup camera will mount above the rear door, centered if possible. It may need to be offset due to the location of existing running lights. If this is the case, mount between the center light and either left or right center light. Make sure the camera does not block any of the existing lights.

- **Note:** Always avoid mounting the camera above a light to avoid the light washing out the camera's view.
- Use 10-24 x 1" machine screws, nylon insert lock nuts and washers to secure the bracket to the van body.
- Drill a 3/4" hole for the cable and grommet.
- Brush primer around the grommet hole and allow to dry.
- Insert the rubber grommet that is on the camera cable into the opening, making sure that it is seated properly.
- Use the supplied Allen head screws, lock washers and flat washers to attach the camera to the bracket.
- Do Not tighten completely until the system is powered up.
- Once the system is powered up, you will need to adjust the angle of the camera.
- Adjust so you can see the edge of the bumper.
- Adjust the sun shield so it shades the camera as much as possible without blocking any of the view.



Backup Sensor Overview

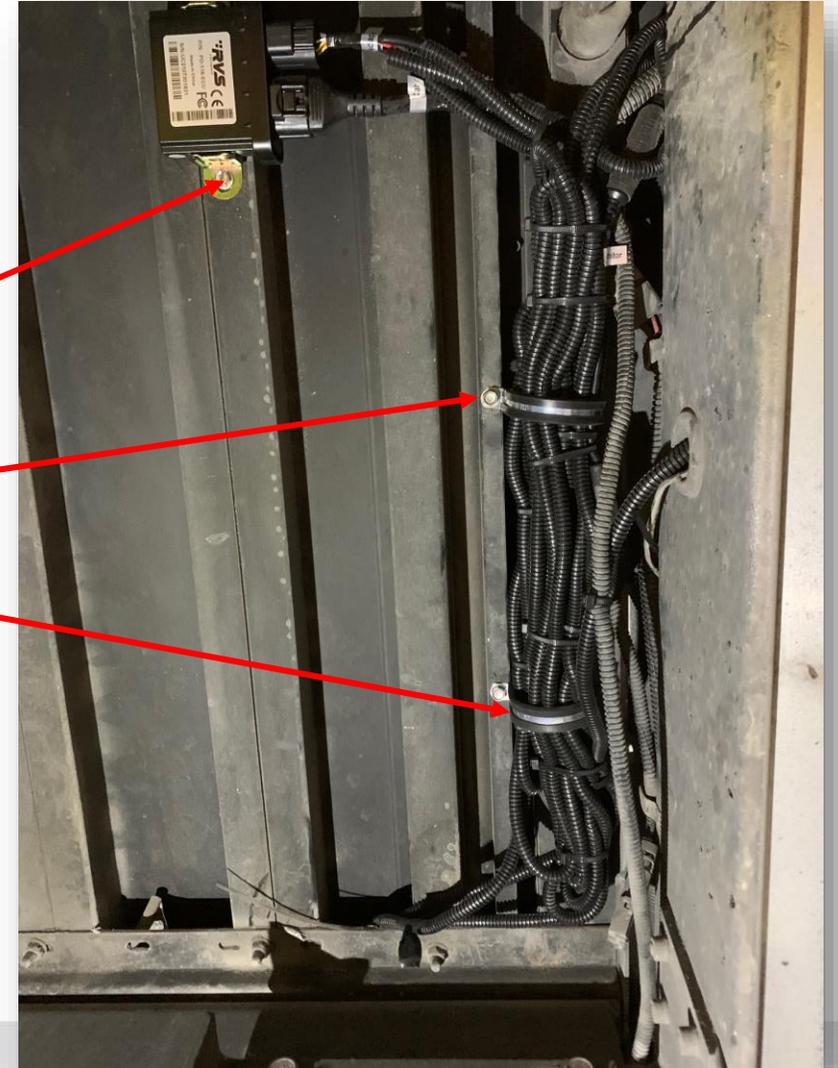
This system is designed to use 6 backup sensors.

- Each sensor and cable will be labeled for the corresponding mounting location. Cables are also tagged with numbers.
- Upper sensors:
 - DU = Driver Upper (#5)
 - PU = Passenger Upper (#6)
- Lower sensors:
 - DO = Driver Outer (#1)
 - DI = Driver Inner (#2)
 - PI = Passenger Inner (#3)
 - PO = Passenger Outer (#4)
- The 2 upper sensors mount near the upper outside corners of the body.
 - These are sensors DU and PU.
- The 4 lower sensors mount in the body below the door and above the bumper or in the bumper in some cases.
 - These are sensors DO, DI, PI, PO.
- The sensor control module (ECU) will mount to the framing on the underside of the floor on the driver's side.
- Note: Some vehicles will have existing backup up sensors – You may be able to use the existing grommets.
- It will be best to mount the ECU first. This will allow you to:
 - Plug in the sensor cable connector and route to each sensor proper sensor location and determine the length of cable needed.
- The lower cables will route across the bottom to each corresponding sensor location.
- The upper sensor cables will route up into the cargo area to each corresponding sensor location.
- Plug in the power/monitor connector and route up into the cargo area along with the upper sensor cables.



Backup Sensor ECU - Step Van

- The ECU will be located on the underside of the floor in the rear driver's side corner.
- If there is not an existing hole in the floor to route the cables through, drill a 1" hole in the floor near the back wall. Check for wires and any substructure before drilling.
- Secure the ECU to the underside framing with 1/4-20 bolts, nuts and washers or #14 self drilling screws and washers.
- Bundle the excess lower sensor cables:
 - Secure with cable clamps inside the floor framing.
 - or
 - Zip tie securely to an existing wire loom using multiple zip ties.
 - **Note:** ONLY use this method if it is impossible to use loom clamps.
- **Note:** Be sure the watertight connectors are fully seated and locked into the ECU.



Backup Sensors – Step Van

- The 2 upper sensors (DU and PU) will mount in each top corner of the cargo area. Determine from the inside how far up and to the outside the sensor holes can be drilled. Upper sensor location are easy to access.
- The 4 lower sensors (DO, DI, PI, PO) will mount into the body below the floor level as high above the rear bumper as possible. There will be substructure in this area, so be mindful of this before drilling the sensor holes.
- **Note:** You must route each labeled sensor to its proper location and connect the corresponding sensor. (See diagram below right).
- You will need to use the supplied split loom for the sensor cables.
 - Drill a 1" (25mm) hole for each sensor.
 - Treat the cut sensor opening with brush on primer.
 - Use the supplied rubber boots.
 - Be sure to properly align the sensor in the hole. They are marked with an arrow on the backside and the "Hood" should be positioned at the top on the front side.
- Secure the upper cables to be clear of the door spring, cables and rollers. Route the cables to the driver's side.
- Secure the lower cables to existing wiring or framing or route through existing channel to the driver's side.
- Route the upper cables along with the monitor cable through the floor.
- Use the OEM lighting wire access in the floor or drill a 7/8" hole in the floor as close to the corner as possible. Make sure the cables cannot be damaged by feet or cargo.



DU			PU
DO	DI	PI	PO

Backup sensor placement order

Cable Routing – Step Van

- Route the loomed upper sensor cable across to the passenger side upper backup sensor. Be sure to secure the cable so that it cannot come in contact with the door spring, cables or door. If using stick tabs to attach zip ties, add screw in center or add silicone to the perimeter of the stick tab. The double-sided tape will fail!
- Route the rear camera cable towards the driver's side and secure along with the passenger side sensor cable.
- Bundle the excess cables vertically in the driver's side corner of the cargo box. **Note:** Be sure that cables cannot be damaged by shifting packages.
- Route loomed cable and wires through existing wire channel or body framing to the front of the truck toward the passenger bulkhead and then to the driver's side A pillar.



Reverse Wire – Step Van



- You will need to extend the yellow reverse wire coming from the Backup Sensor ECU to reach and connect to the driver's side backup light (or possibly the backup alarm beeper if equipped).
- The vehicle's reverse wire should be accessible inside the cargo area. It may be easiest to take the light assembly loose from the vehicle to determine which is the correct wire. You can then make your connection on the inside of the cargo area.
- The backup light location and mounting style will vary by body manufacturer. Some are held in with screws, some just pop in with a rubber boot.
- Be sure to loom the wire.

Held in by screws
Mounted in rubber boot



Cover

Wire harness

Step Van Cable Routing – (cont.)

- Route the rear camera cable past the bulkhead and through the horizontal channel over the driver's side door/window.
- If mounting the monitor to the overhead shelf:
 - Route the rear camera cable over the shelf towards the center.
 - Route the left side camera cable up the vertical channel at the left front side (B pillar) of the door/window and towards the center.
 - Route the right-side camera cable up the vertical channel at the right front side (B pillar) of the door/window and towards the center.
- If mounting the monitor to the dash:
 - Route the rear camera cable over the shelf towards the center.
 - Route the left side camera cable up the vertical channel at the left front side (B pillar) of the door/window and towards the center.
 - Route the right-side camera cable up the vertical channel at the right front side (B pillar) of the door/window and towards the center.



Completing the Installation

Verify all cameras function properly:

- Rear camera displays full screen when the vehicle is put in reverse.
- Left side camera displays full screen with the left turn signal.
- Right side camera displays full screen with the right turn signal.
- Verify that the left and right camera view work properly when the brake pedal is pressed.

Verify that the backup sensors are located properly and function properly.

(Testing is easiest with 2 people. If a 2nd person is not available, place an object in front of each sensor to test. A tall ladder may work for the upper sensors).

- Verify that each sensor is properly positioned
- Verify that each sensor shows it is triggering visually on the monitor.
- Verify that you can hear that each sensor is triggering audibly.

- Verify that the default monitor view is set to the left and right camera split screen.
- Verify that the rear camera is adjusted to see the edge of the bumper.
- Verify that the rear camera sun shield is adjusted so that it shades the camera as much as possible w/o blocking any of the view.
- Verify that the rear camera grid lines are adjusted properly.
- Verify that the monitor turns off when the vehicle key is in the off position.
- Be sure to leave the following in the vehicle:
 - The RVS laminated “Quick Start” guide.
 - The RVS operation guide booklet.
- Be sure to perform the AMODS post inspection.
- Be sure that the vehicle is as clean or cleaner than you found it! NO metal shavings, wire clippings, ends of zip ties, TOOLS, etc....

Product Information and Technical Help



A Safe Fleet Brand

For product information

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800-764-1028

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FedEx Step Van install guide Version 2 Rev 1

