

Mirrors for Walk-In Vans and Medium Straight Trucks

To operate a vehicle safely, drivers must make good decisions based upon what they can see. The view through the windshield lets the driver know what is ahead, but the rear view is limited to information provided largely by mirrors. Several factors have critical bearing on a mirror's effectiveness, including size, shape, location, adjustment, and cleanliness.

Flat mirrors do not give enough information to make good driving decisions. Convex mirrors provide additional help, but they must be selected and adjusted properly.

Limiting Factors

The width and configuration of the windshield and side windows determine the appropriate size and spacing of mirrors. Seat position is another factor, especially where the forward side post (window frame) blocks the driver's view. Alternative mounting brackets may help in such cases.

Vibration can interfere with the reflected image, especially at low speeds. Like any other safety-related defect, vibration-induced looseness in the mirrors, mirror brackets, or cab mounts should be repaired as soon as it is detected.

Most mirror-related problems can be overcome if you keep these three important points in mind:

1. Your objective is to have a mirror system that the driver will use and that gives a clear view on each side of the vehicle;
2. The entire reflective surface of all mirrors should be visible from the driver's position; and
3. Mirrors should be spaced on the mounting bracket to eliminate blind spots.

Mirror Brackets

Mirrors should be firmly supported on brackets that are long enough to accommodate both the flat mirror and the convex mirror. Select sturdy brackets; lightweight mirror brackets are more susceptible to vibration damage.

Bracket location is also important. If any portion of the mirror assembly is less than six feet from the ground, it should be designed and installed to break away or collapse when subjected to a rearward force of 90 pounds or more.

Mirror Size and Location

It is difficult to establish criteria for mirrors that will fit all vehicle types and sizes, but Liberty Mutual recommends using the following guidelines for sizing and placement of flat and convex mirrors on walk-in vans and straight trucks:

Flat Mirrors

- One on each side.
- Minimum reflective area: 50 square inches (5 inches wide by 10 inches high).
- Locate the mirrors on a line parallel to the windshield and up to 18 inches (maximum) forward of the driver.
- The center line of the mirrors should be at eye level.
- The inside edge of both mirrors should be located in line with the outer edge of the vehicle body.
- The size, configuration, and location of the side windows and windshield will determine bracket location and, ultimately, the location of the mirrors on the brackets.
- Above all, be sure the entire reflective surface of both mirrors is visible from the driver's position.

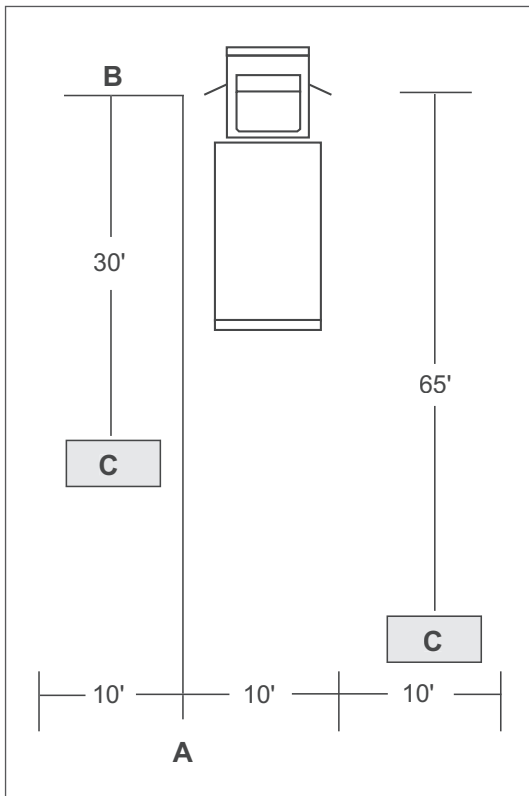


Figure 1.

Typical mirror check station layout for vans and straight trucks.

Convex Mirrors

- One on each side.
- Minimum reflective area: 25 square inches (5 inches wide by 5 inches high, or 6 inches in diameter).
- Radius of curvature: 20 to 30 inches.
- Space convex mirrors from 1 to 5 inches below the flat mirrors. (The size and configuration of the side windows will determine the exact space. The objective is to minimize the blind spot caused by the forward location of the mirrors.)
- The entire reflective surface must be visible from the driver's position.

Adjusting Your Mirrors

If your operations involve several vehicles and/or several drivers, consider setting up a permanent mirror check station. A check station is simply a set of painted lines and boxes on the ground that serve as targets for mirror adjustments.

Figure 1 shows a check station layout. You can paint a check station on any flat ground surface at least 30 feet wide by 80 feet long. Lines A and B should be 6 inches wide. Target boxes C should be approximately 5 feet wide and 8 feet long, and may be solid, outlined, or cross-hatched.

How to Adjust Mirrors at a Mirror Check Station

1. Position vehicle parallel to, and as close to, Line A as possible.
2. Stop vehicle with mirror over Line B.
3. Rotate each flat mirror horizontally until the inside edge picks up the left and right sides of the vehicle.
4. Tilt each flat mirror vertically until the appropriate Target C (left or right) is visible in the bottom of the mirror.

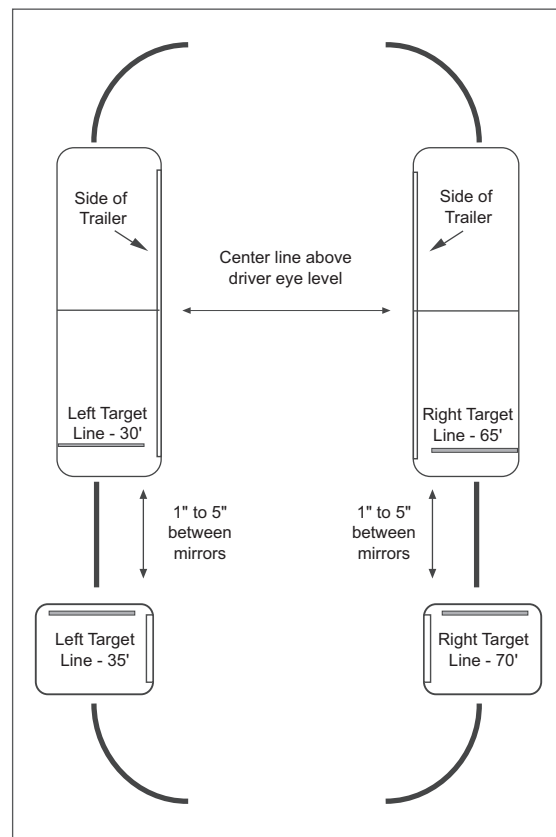


Figure 2.

What the driver should see in properly adjusted mirrors.

5. Rotate each convex mirror horizontally until the inside edge picks up the left and right sides of the vehicle.
6. Tilt each convex mirror vertically until Target C is visible in the top of the mirror.

If you don't have a permanent check station, you can adjust your mirrors by placing objects on the ground at appropriate distances, and adjusting the mirrors until the objects are visible. Once the adjustment is complete, the view from the driver's position should be similar to that shown in **Figure 2**.

If space is limited, or weather will not allow for year-round use of an outdoor mirror check station, a good alternative is an indoor, vertical mirror check station. **Figure 3** outlines the dimensions and adjustment procedures for a vertical check station. Again, Lines **A** and **B** should be 6 inches wide. The mirror targets themselves should be approximately 10 inches by 15 inches.

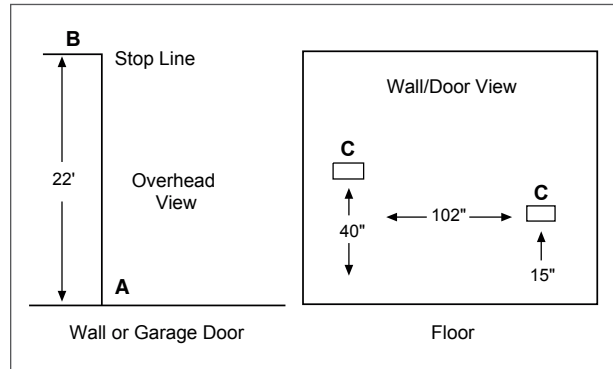


Figure 3.
Vertical mirror check station

Cleanliness

If mirrors are not kept clean, even the best positioning and adjustment won't matter. Be sure drivers have the necessary products to keep the mirrors free of dirt, dust, and weather-related obstructions such as condensation, frost, and ice. In addition, the windows through which the driver observes the mirrors must be free of such visual obstructions.

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