See and be seen – part 1 – Rear Vision - Russell Walsh

Nobody can argue that good visibility is not necessary for those driving any motor vehicle, for trucks it is even more critical because their design and loading often prevents good all-around vision. For other road users the ability to see and recognise vehicles especially trucks coming from either direction plays a significant part in road safety.

This series of three Technical Bulletins will cover the ability of the driver to view the driving environment around and behind them in all weathers and at any time of day or night and will include a quick overview of what has gone before plus comments on the probable future enhancements for driver visibility.

The History

In the early days of trucking in New Zealand there was little need for rear view mirrors or windscreens as all around visibility was virtually unlimited despite the prevailing weather and load behind the driver.

It did not take time though before basic semi-enclosed cabs started to appear together with a rudimentary windscreen. The driver still had reasonable vision and could easily lean out the “doorways” to look around.

With fully enclosed cabs we saw examples of early rear-view mirrors but on the right side only and windscreen wipers (dealt with in Part 2). These early mirrors were only about 150 mm in diameter and where very susceptible to breakage.

The 1950’s saw larger mirrors fitted to both sides of the vehicle as standard equipment improving left side visibility whilst increasing the rear and side view. However, these were still susceptible to breakage and could easily be knocked out of alignment.

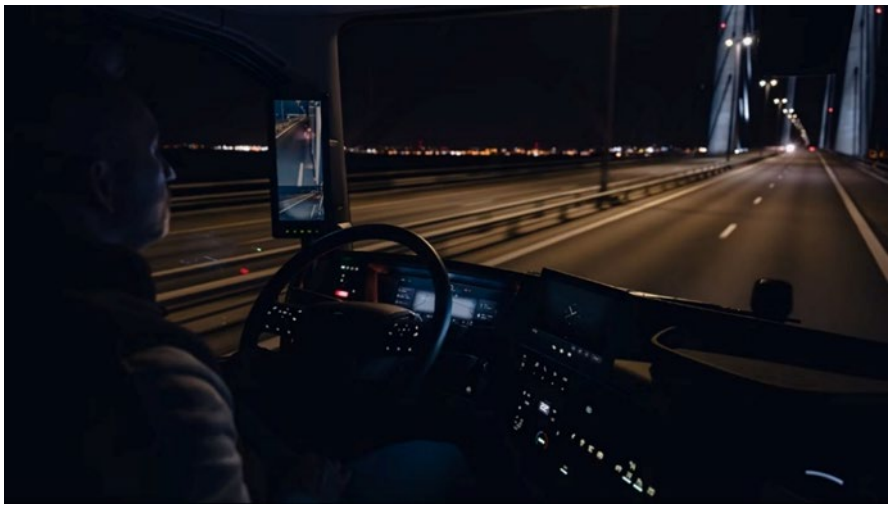
Over the years a number of advances were made to improve both rear and all-around visibility including spotter

mirrors, multi lens mirrors that gave a different view down the side than was possible with conventional mirrors. Both concave and convex mirrors were tried but these tendered to distort the view given to the driver and could cause problems for the unwary especially as they often showed a following vehicle to be a lot further away that it really was.

The above four images were retrieved from the New Zealand Post photographic archive

Managing blind spots

The nature of any truck is that there will always be blind spots down each side, across the rear and close in down the front. Reversing cameras have solved the rear facing problem and side spotting mirrors provided a degree of visibility down each side but issues still exist.



The above image was retrieved from, How Volvo's Camera Monitor System benefits your trucking business | Volvo Trucks

Digital technology

Manufacturers are now turning to digital technology, essentially CCTV, to provide an all-round view that is displayed to the driver on a screen in the cab, in easy view of the driver. replacing conventional mirrors. Many of these systems employ warnings when another vehicle, or person enters the danger zone around the truck. Some cameras also have an infra-red mode enabling improved visibility at night or conditions where visibility is limited, for example, in fog.

A number of additional benefits are claimed for the use of cameras instead of conventional mirrors including:

1. Improvements to situational awareness in particular tracking of trailers and the ability to adjust the view presented depending on the driving environment.
2. Improved fuel efficiency. Because the profile of the exterior mounted cameras is smaller than conventional mirrors aerodynamic drag is reduced. Tests have shown improvements of 2% to 3% in fuel efficiency are possible.
3. Potential to reduce driver fatigue as the driver no longer has to keep moving their head to see around the mirrors.
4. Camera systems can be integrated with other vehicle safety systems such as lane departure, presenting the driver with a total on screen safety picture around the vehicle.

Improvements to how a driver sees the driving environment around them has come a long way since trucks first started plying the roads in New Zealand no doubt improvements in technology will keep these improvements alive well into the future.