



## **Optical Switch for use with the Stoneridge Programmer Operating Instructions**

## General Method

The Lisle Design Optical Switch is used in place of the Stoneridge flexi switch. Fit the Optical Switch to the vehicle and connect it to the 4-way socket (Socket B) on the Stoneridge Programmer. Then follow the instructions in the Stoneridge Tachograph Programmer User Manual found under 'W-factor (Vehicle Characteristic Coefficient) Determination', sub-paragraph 'Fixed Distance Method No. 2'.

Please note that the following instructions and comments apply to all fixed distance calibration tests whichever optical or mechanical detectors are used.

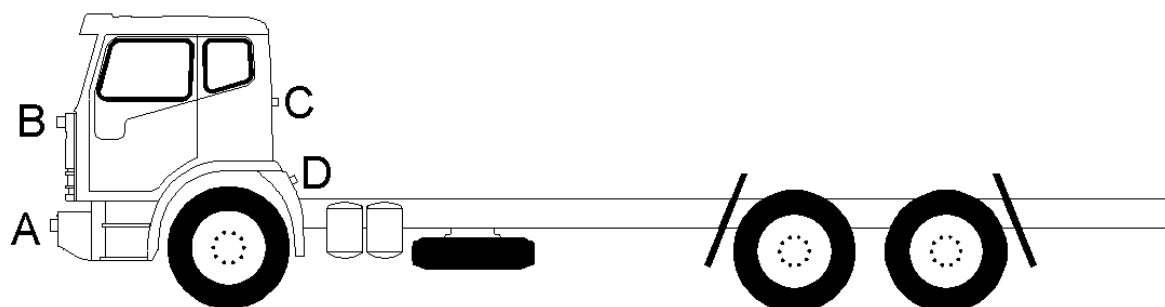
## Positions of Optical Switch

When fitting the optical switch to the vehicle please note that it should be fitted so that it points directly at the reflectors as it passes them.

*Please Note:* Optical switch part no. L1436-2 has the optical device fitted to a bracket which is then fitted to the attachment device. The bracket is intentionally *not a right angle*. The optical device gives better performance when not exactly parallel or perpendicular to the reflectors. The angle of the bracket helps maintain the device at an angle to the reflectors. The angle does not affect the accuracy of the calibration.

The following general fitting arrangements are recommended.

- 1 Attach the optical switch to the front bumper or the front number plate of the vehicle to be calibrated (location 'A' in the diagram below), or perhaps a little higher on the front of the vehicle (location 'B' in the diagram below). Arrange for the optical switch to point directly downwards. Place the reflector strips on the ground across the direction of travel of the vehicle. Note: this arrangement is the preferred method as it is likely to give the most consistent results.
- 2 Attach the optical switch to a suitable point on the front of the vehicle (locations 'A' and 'B' in the diagram below) or the back of the cab (locations 'C' and 'D' in the diagram below) such that the switch is pointing directly to the side of the vehicle. Attach the reflectors vertically to a wall or equivalent alongside the test track. Ensure that the optical switch is attached to the vehicle at a height corresponding to the midpoint of the reflectors.

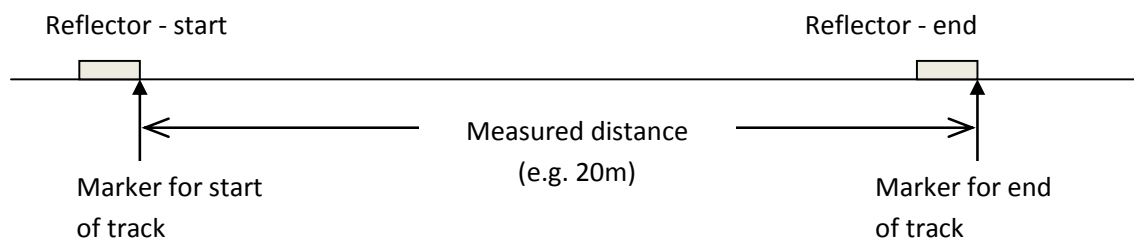


*Options for position of the optical switch on the vehicle to be calibrated*

Once the optical device has been attached to the vehicle, the cable from the device should be routed into the cab through an open window. Ensure that the cable does not trail on the ground as it can then easily be damaged.

## Positions of Reflectors

Position the first reflector so that it is just beside the mark giving the start of the track; position the second reflector so that it is just beside the mark giving the end of the track. Although it is unimportant which side of the markers is chosen, it is important that the same side is chosen for both markers.



When reflectors are used placed on the ground they should be placed perpendicular to the direction of travel of the vehicle during the test.

When reflectors are held vertically at the side of the test track it is clearly important to get the correct spacing between the reflectors. It is also very important to ensure that each reflector is precisely vertical. To make this easier to achieve, the reflectors supplied by Lisle Design have slots at either end which allow for adjustment.

## Reflectors on stands

It might appear convenient to have the reflectors mounted on vertical stands. This arrangement will only work reliably if there is a good method to ensure that the stands are placed exactly over the marks for the beginning and end of the measured distance **and** an appropriate mechanism is used to ensure that the stands are precisely vertical. In practice this arrangement can easily give very unreliable results and should be discouraged.

## Driving during the calibration test

When using optical or mechanical switches to detect the beginning and end of a measured distance it is important to drive the vehicle smoothly. In particular, the driving should be such that the distance between optical detector and reflector is the same (or almost the same) at beginning and end of the measured distance. This is fairly easy to achieve when the optical device is attached to the front bumper (maybe to the number plate) and the reflectors are on the ground. More care is required when the reflectors are mounted on a wall (or equivalent). In this case it is essential to drive the vehicle as parallel to the wall as possible.

For more  
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