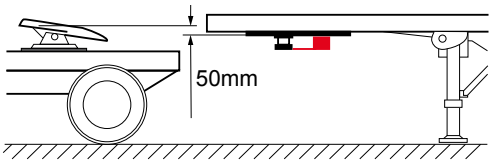
Driver operation instructions ETS

For semi-trailers with V1 software and E-pump

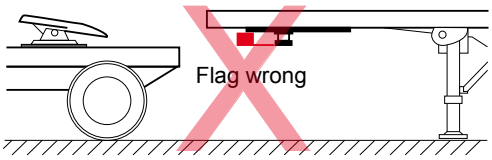
Introduction

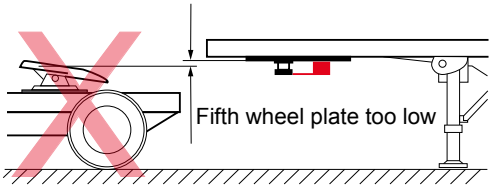
The VSE steering system for semi-trailers has been developed so no special procedures are necessary beyond those for a semi-trailer without a steering system. There are, however, a few points that require a bit of extra attention. This document contains the information necessary for a driver to quickly become familiar with the ins and outs of the steering system.



Coupling the trailer

When coupling the trailer, special attention must be given to ensure the flag (lever) on the kingpin is in line with the driving direction of the truck (when the truck and trailer are in line, the flag points toward the rear of the trailer). During coupling, the fifth wheel plate must be at the same height as the kingpin in order to prevent damage to the kingpin flag.





Charging system connection

Trailers with a VSE steering system can only be coupled to a truck with a charging system connection for the trailer. This is necessary to keep the batteries in the trailer fully charged and to ensure the VSE steering system functions properly at all times.

EBS/ABS

The VSE steering system requires an EBS/ABS connection between the truck and trailer because the EBS/ABS system provides the speed signal and the ignition-on power supply to the steering system.

Function lamp

Every trailer with a VSE steering system has a green function lamp. This lamp indicates the status of the steering system:

Normal steering mode: function lamp is off.
The steering system is operational.

Start-up mode: function lamp flashes, 1/8 second on and 3 seconds off (continuous cycle).
This mode is activated when the vehicle ignition is switched on (or the engine is started) after the trailer has been coupled at a different angle than the last time it was uncoupled. The steering system ‘waits’ for a steering movement. When the ignition is switched on (or the engine is started) after the trailer has just been coupled to the truck, the function lamp will go on briefly 1 or 2 times and then go off.

Alarm mode: function lamp is on.
This mode indicates a malfunction has been detected in the steering system.

Manual operation mode: function lamp flashes, 2/3 second on and 1/3 second off (continuous cycle).
This mode is only present on trailers outfitted for manual operation of the steering system.
For additional information, see the manual operation instructions.

Maintenance instructions

The ETS steering system is designed for low-maintenance. To ensure that no unexpected malfunctions occur, it is recommended that a number of items be checked on a regular basis:

Daily inspection:

Leakage from the hydraulic system, including the cylinders, lines, valve blocks etc.

Function lamp: operation at start-up.

Weekly inspection:

Oil level: Make sure the oil level remains between the minimum and maximum marks on the dipstick or sight glass.

Batteries: Level and specific gravity of the battery acid.

Hydraulic hoses: check for damage.

Malfunctions

In the unlikely event a malfunction occurs in the VSE steering system, the malfunction can be cleared by parking the vehicle, switching off the ignition for 10 seconds and then switching it on again. If the alarm occurs again immediately, it is recommended that you check the following items:

1. Check the oil level. If the oil level is too low, also check the steering system for oil leaks.
2. Check the charging system cable between the truck and the trailer.
3. If the malfunction occurs soon after the trailer has been coupled to the truck, check the flag on the kingpin sensor.
4. Check the voltage and condition of the batteries.
5. Check the mechanical connections of the steering cylinders for damage (steering ball joints etc.).
6. Check the operation of the ABS/EBS: When there is a malfunction in the trailer's ABS/EBS system, the ETS steering system may not function properly. Therefore, first correct the malfunction in the trailer's ABS/EBS system.

If none of these items are the source of the malfunction, you must contact a service garage.

Warning: If a malfunction occurs, the ETS axles will always move to the straight-ahead position when the vehicle moves. This affects the steering behaviour of the trailer. When stationary, this depends on the load condition.

Released by	Date
	15-02-2008