L0001 Steer Axle Operation Logic

L0001	Version 1	Special Options	01-10-00

Steer Axle Operation for R.O.R LM and TM Steer Axles.

The LM and TM steer axles use brake chambers for locking cylinder over the aluminum locking cylinder used in _____ axles.

The system is designed for maximum safety in mind. With any fault due to loss of air pressure or power supply the system will lock once the track rod passes the neutral position.

Option for a manual override is also available from the manufactory of the steer axle but for our product this as not found to be of any practical use in the Sidelifter application. However this system has been used on five units which were supplied to Reunion Island in Dec 99.

System Operation:

Air supply comes from auxiliary air tank, the air supply to this tank is protected by a hold back valve which is mounted off the brake tanks giving maximum protection to the brake system.

Supply airline from auxiliary tank then supplies the steer axle load sense valve and solenoid valve.

Steer Axle Torpress bag air supply is controlled by the load sense valve which gets it signal from the air springs.

When the unit has a laden load on the air springs the load sense valve then increases the pressure to the Torpress giving control and surability when the steering is under load.

When the unit has an unladen load on the air springs the load sense valve then decreases the pressure to the Torpress bag with minimum resistance but still giving the steer axle controlled resistance.

The load sense valve has a setting when laden of 5 bar.

when unladen of 1 bar.

Air Solenoid.

The air solenoid valve is N/O and its supply is from the auxiliary tank, therefore air is supplied to the locking cylinder all the time unless the solenoid valve is activated.

When the solenoid valve is activated the line pressure to the cylinder lock is released to atmosphere, locking the steer axle once the track rod passes the neutral position.

NOTE: The solenoid valve has a manual override switch on it, this can be switched over locking the axle up till the switch is turned back to its open position.

The manual override switch must be returned back to its open position before the system can operate normally.

The power supply for the solenoid valve can be supplied two different ways:

When the prime mover engages into reverse, it feeds the solenoid valve. This is the most common way of supplying power.

Trailer must be strengthened up before reversing to allow the steer axle to strengthen up before engaging the steering lock

If the driver fails to do this, the axle will steer making reversing very difficult.

The other option is to have a switch and power light in the prime mover cab to supply power to the solenoid. This allows the driver to select the steer axle lock before entering the yard where the steer axle will need to be locked. The driver must remember to turn the switch off after the reversing manoeuvre is complete. This is the reason why there should be a power supply light with the switch in the primer mover cab.

Operation	Aux Air Supply	Solenoid Valve	Load Sense Valve Input Pressure	Torpress Bag Pressure	Lock Cylinder
Road use Laden	5.5 – 7.5 Bar	Not active	Max input ? Bar	5 Bar	Unlocked
Road use Unladen	5.5 – 7.5 Bar	Not active	Min input ? Bar	1 Bar	Unlocked
Reverse selected Laden	5.5 – 7.5 Bar	Electrically activated	Max input ? Bar	5 Bar	Locked
Reverse selected Unladen	5.5 – 7.5 Bar	Electrically activated	Min input ? Bar	1 Bar	Locked
Solenoid valve manual switch closed Laden	5.5 – 7.5 Bar	Manually Activated	Max input ? Bar	5 Bar	Locked
Solenoid valve manual switch closed Unladen	5.5 – 7.5 Bar	Manually Activated	Min input ? Bar	1 Bar	Locked
Loose of air supply	0 Bar	Not active /Active	0 Bar	0 Bar	Locked