S0014 Requirement PTO Driven SB300/330/360

S0014	Version 1	Structural	01-07-04

PTO Driven Hydraulic System

The hydraulic components on the Tractor unit consists of the following:

- PTO pump fitted to the truck
- Hydraulic oil tank with low pressure filter
- High pressure supply and low pressure return lines
- Cross line relief valve and solenoid dump valve

Required Set-up of Truck and Pump

The truck speed control is required to be fitted with a governor that can be set to a particular rev range when the PTO pump is engaged. This will ensure that the correct oil flow can be achieved for the appropriate model (refer to model specific details). A cross-line relief and solenoid dump valve should be incorporated into the circuit. Some models of pump are fitted with either or both of these devices. This is acceptable provided that the cross-line relief remains active in the circuit at all times.

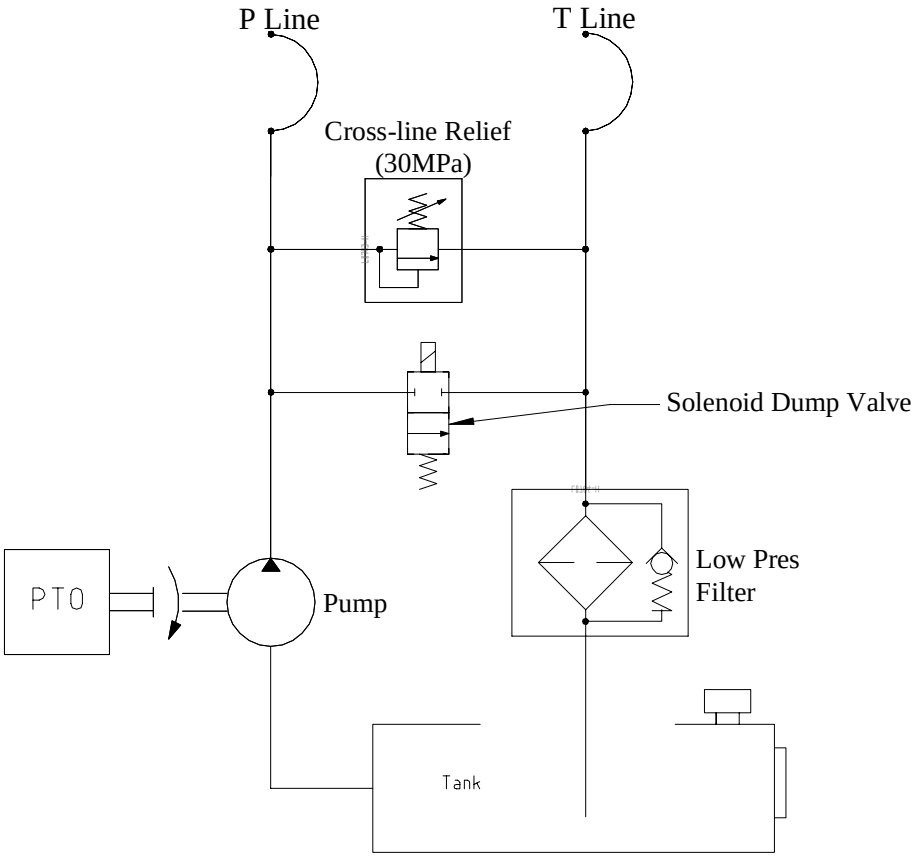

Figure 1: Schematic for Typical PTO Pump Supply Circuit

Take precautions when disconnecting hydraulic tubing and hoses to ensure that no hydraulic pressure has been retained in the line when the power supply to the system has been switched off.

Electrical Controls

The electrical connection of the Sidelifter controls to the truck is made with a seven-wire interface:

1.	Black -	Earth for all controls and lights.
1.	Blue -	Output from the container position optical sensor.
1.	Grey -	Output for throttle control signal.
1.	Red -	Supply to the control system via a 20amp relay (not supplied).
1.	Pink -	Output to emergency stop.
1.	White/Yellow -	Supply to the container position optical sensor.
1.	Orange -	Supply to the Work Lamps via a 20amp relay (not supplied).

This may be wired directly into the truck or connected via an S Type Plug. The standard voltage for all inputs and outputs is 24v, but may be set up for 12v systems where appropriate. STEELBRO recommends the use of the S type plug to avoid confusion with other plugs.

Most installations will require two control switches in the cab of the truck.

- The main system start/stop switch turns the system on and off. This would typically activate a relay that supplies power (red) to the control system and engages the PTO pump (other). This relay should be earthed through the 'handbrake on' contacts to ensure the system cannot be activated while the vehicle is in motion.
- A Work Lamp (or night lights) switch is required to activate the relay supplying power (orange) to the crane mounted night working lights.

Three output signals are available for feedback to the truck.

- The container position output (blue) will provide a signal when the optical sensor has sighted an object within 500mm from the side of the vehicle. This is wired to a signal lamp on the stabiliser leg housing to alert the driver when the front twistlock passes the corner of the container, to assist with correct positioning the vehicle.
- The output for the Emergency Stop (pink) will provide a continuous signal all the time that the crane control system is active. When the emergency stop is triggered on the remote control or on the front of the control cabinet, this will cease. This should be wired to the ignition (electronic or otherwise) to stop the engine and open the solenoid dump valve, when this signal is no longer present. This must also be wired in such a way that the vehicle can be started when the main start/stop in the cab is turned off and the crane control system is inactive.

IMPORTANT: The emergency stop is a critical safety function of the PTO driven sidelifter. In the emergency condition the hydraulic power source must be effectively removed. STEELBRO highly recommends the set-up described in figure 1. Use of a pump such as a parker F1 with BPV-F1-81 bypass valve, provided it is wired correctly, is an effective way of achieving this.

- The throttle control signal (grey) is activated whenever a movement is made with the joysticks on the remote. This can be used on some vehicles to signal the engine management system to change engine speed. The signal continues for three seconds after the joysticks are released to allow for smoother start-stop operations. This can reduce the heating of hydraulic oil, as the PTO can be set to run at a lower idle speed. Most vehicles have the PTO operating speed set when the main system switch is activated.

Model Specific Details

PTO Details:	
Oil tank volume: minimum	200 L
Low pressure filter flow:	230 l/min
Low pressure filter filtration (absolute):	25 micron
Flow rate	120 l/min
Pressure	280 bar
Truck Governor	Control range / All range
Electrical:	
Current Draw @ 12V (Standard Night Lights 2 lights)	15 A
Current Draw @ 12V (Special Night Lights 6 lights)	23 A
Control System voltage:	12 or 24 V