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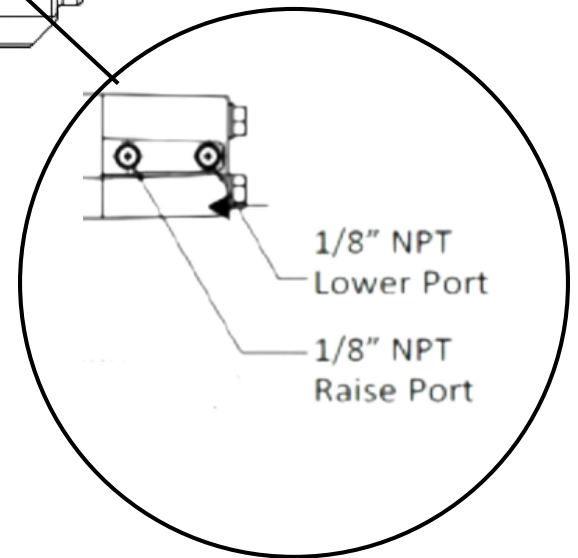
DMD Series
Dump Pump
Troubleshooting
Actions to Confirm and Correct

Side View

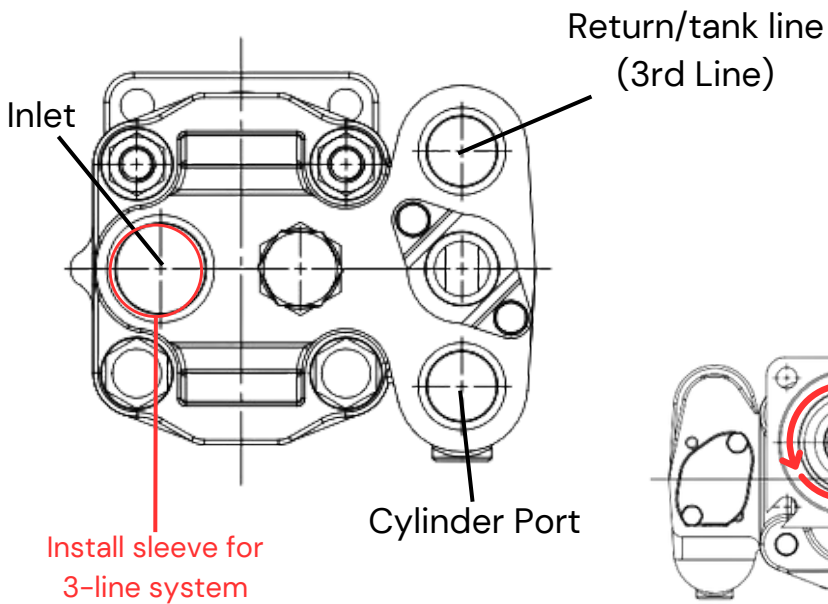
Cable pull off/Overshift protection

Spool

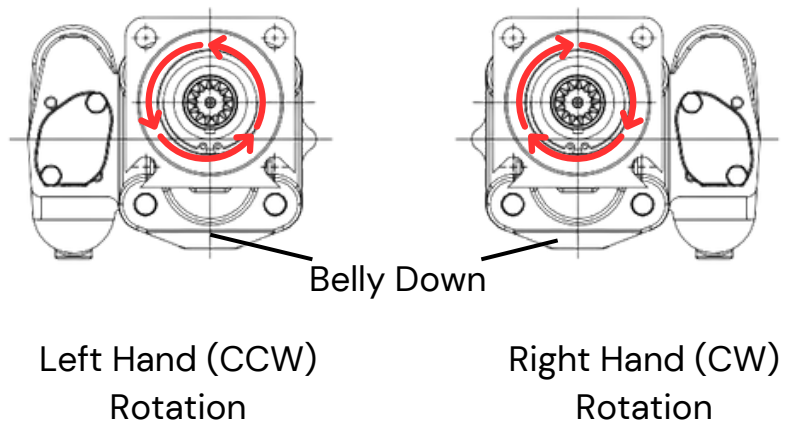
Airshift



Rear View



Front View



Won't Raise the Bed



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Caution: Actions and Inspections described below are with the Truck turned OFF, keys out of the cab, and wheels chocked. Truck Air System to be charged to a minimum of 110 PSI, prior to inspections below. Actions that require dump pump operation and equipment functions should be completed with trained operators in accordance to safety standards.

1. Ensure that the inlet ball valve (if installed) is in the fully open position and zip tie to make sure it stays open when not being serviced.
2. Verify the hydraulic reservoir has the proper operating oil level, when the cylinder is in the fully collapsed position, and the breather on the reservoir is not clogged. *Recommended reservoir oil operating capacity; cylinder total volume of oil (fully extended amount) plus 10 gallons reserve. Example: 5 Stage cylinder requiring 28 gallons of oil to fully extend, PLUS 10 gallons of reserve oil in the reservoir will need a minimum of 38 total gallons in the reservoir.*
3. Hose Plumbing:
 - a. The Suction Line must be SAE 100R4 type hose, minimum 1- $\frac{1}{4}$ " size using crimped or T-Bolt clamps to prevent air from entering the system. Dump systems over 25 GPM should increase the Suction Line to 1- $\frac{1}{2}$ " or larger.
 - b. Verify pressure line fittings are tight and not leaking. The use of Teflon tape is not recommended. Use approved liquid thread sealant. Caution, do not overtighten NPT fittings, as it will fracture cast iron components.
 - c. If using a 3-line system, confirm the return oil hydraulic hose is connected to the reservoir below operating oil level. If reservoir design has the return port on the top of the unit, a drop tube must be installed to prevent aeration and cavitation. Location of the drop tube must be positioned as far away from the suction port as possible.
4. Using the Dump Pump Cab Air /Manual Controls, shift the Dump Pump into the raise position. This will require a second person to witness the stroke/movement of the Dump Pump valve spool. Confirm stroke/movement and the plastic "Pull Off/Overstroke Cap" is not damaged or contaminated from road debris. Inspect air lines and fittings for leaks. **ONLY DO THIS** when the Truck is not running!
 - a. Air Shifted Dump Pumps: Confirm proper pneumatic line connections on Cab Controls and Dump Pump Air Shifter is correct. There should be air supply sent to the Dump Pump Air Shift port closest to the valve body of the pump in Raise mode. In Raise mode, the Dump Pump Spool moves into the Pump Valve Body towards the front of the pump, (when viewed from the rear (hydraulic hose end) of the Dump Pump). If Dump Pump Spool is not moving, loosen the 2 fastening bolts and then retorque to 9 Ft. Lbs. Retest to confirm Dump Pump Spool movement.
 - b. Manual Shifted Dump Pumps: Confirm that when Cab Controls are moved to "Raise" Position, the Dump Pump Spool moves into the Pump Valve Body towards the front of the pump, (when viewed from the rear (hydraulic hose end) of the Dump Pump). Ensure that linkage has proper movement to fully shift Valve Spool.
5. If an empty or unloaded bed will Raise, but will not when bed is loaded/full, the Dump Pump's Relief Valve may need to be inspected. A Relief Valve stuck in the open or bypass position, indicates service or replacement of the Relief Valve may be needed.
6. To confirm Dump Pump's performance condition, install an in-line hydraulic flow & pressure gauge with adjustable (variable area) orifice valve between the Dump Pump and Cylinder to confirm the Dump Pump's GPM Flow and Relief Valve setting. Record data taken and contact Permco Customer Service, with Engine RPM during operation, PTO %, Dump Pump Part Number and hydraulic cylinder(s) maximum PSI.

<u>Condition</u>	<u>Possible Cause</u>	<u>Corrective Action</u>
Reservoir low	Look for leaks	Add oil
Inlet problem /Noisy Pump	Check for closed ball valve Check for undersized line Check for collapsed hose Check for Suction Line leak	Inspect ball valve, Suction Line type, size and clamps/crimps
Reservoir Oil Foaming	Check for return above oil level	Plumb return line below working oil level
Pump rotating wrong	Check rotation on direct mounted Dump Pump	Pump input shaft coupled to PTO will turn opposite direction of PTO
Pump rotating wrong	Check for correct shaft on remote mounted Dump Pump	Couple to other shaft
Pump not turning	Confirm PTO engagement and disengagement. Inspect PTO output shaft splines for wear.	Inspect PTO
Pump low GPM	Check for wear in pump	Replace or repair

Won't Hold The Bed In Neutral



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The valve body on this pump is designed to hold the bed up in the neutral position. Of the three spool positions, only the "lower" position, allows the internal valve coring to bypass the load check, allowing the bed to retract/lower.

Typically the most common reason for the bed drifting down in neutral position, is the relief valve is either leaking/stuck partially open internally. The first step would be to raise an empty bed, or hook up to a trailer with an empty bed. Minimal pressure should raise the bed at least halfway or more.

Shift into the hold position, immediately disengage PTO using the PTO manufacturer guidelines. Confirm the bed is holding or drifting down. Some Cylinder Manufacturers allow for a short temporary drift immediately after Cylinder raise flow ceases.

If the bed is drifting down in the Neutral (Hold) Position, with PTO disengaged, the relief valve needs to be inspected. Ensure the bed is fully lowered, Truck Engine Off and wheels chocked.

1. Close the inlet or suction ball valve at the reservoir (if equipped).
2. Remove the Dump Pump Relief Valve located on the rear of the pump. Do not remove end cap or jam nut. See picture for relief valve location on Page 2. Remove the assembly as a unit. Note - Hydraulic Oil will drain out of this cavity.
3. Inspect the O-ring on the nose of the relief valve for tears or deformation. Inspect the relief valve for dirt and debris, including rocks, rubber, floor dry, welding slag, etc. If the relief valve shows signs of contamination or damage, contact Permco Customer Service for a replacement relief valve if needed. Important- relief valves are set to a particular pressure setting from the factory. Do not adjust without qualified personnel to verify pressure setting.

The remaining potential options for bed drift are rare but are listed below:

1. Leak across the spool or land of valve body can occur but if the valve and spool are damaged enough for this, often the spool does not shift properly
2. Truck OFF and Bed fully Down, use the Dump Pump Cab Controls, shift the Dump Pump from the Neutral position to the Raise and then into the Lower Positions allowing a second person to witness the stroke/movement of the Dump Pump valve spool. Confirm stroke/movement the plastic "Pull Off/Overstroke Cap" is not damaged or contaminated from road debris.

Air Shifted Dump Pumps: Confirm proper pneumatic line connections on Cab Controls and Dump Pump Air Shifter. Confirm any pneumatic air loss on line connections at Dump Pump and Cab Controls. There should not be any air supply sent to the Dump Pump Air Shifter in the Hold/Center position.

Manual Shifted Dump Pumps: Confirm that when Cab Controls are moved to Hold/Center Position, the Dump Pump Spool moves into Center position. Adjust linkage if needed.

Won't Lower the Bed



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1. Using the Dump Pump Cab Controls, shift the Dump Pump into the "Lower" position on the Valve Body. This will require a second person to witness the stroke/movement of the Dump Pump valve spool. Confirm stroke/movement and that the black plastic "Pull Off/Overstroke Cap" is not damaged or contaminated from road debris.
 - a. Air Shifted Dump Pumps: Confirm proper pneumatic line connections on Cab Controls and Dump Pump Air Shifter is correct. There should be air supply sent to the Dump Pump Air Shift port towards the front of the pump. In Lower mode, the Dump Pump Spool moves out of the Pump Valve Body towards the rear of the pump, (when viewed from the rear of the Dump Pump). If Dump Pump Spool is not moving, loosen the 2 fastening bolts and then retorque to 9 Ft. Lbs. Retest to confirm Dump Pump Spool movement.
 - b. Manual Shifted Dump Pumps: Confirm that when Cab Controls are moved to "Lower" Position, the Dump Pump Spool moves into Lower position. Adjust linkage if needed.
2. A common installation mistake on 2 line systems is when a 3rd line sleeve is installed into the inlet port of the Dump Pump, but a dedicated Return Hose for a 3 line system was not installed. In this situation, the bed will drift down slowly as oil slowly passes by the sleeve. 3rd line Dump systems are preferred as it prolongs Pump durability by adding cooling and filtration capability.
3. If a return line filter is installed, confirm the direction of the oil path compared to the markings on the filter head.

<u>Problem</u>	<u>Checks</u>	<u>Corrective Action</u>
Manual Shift Dump Pump Spool won't shift	Check linkage on Manual Type shifter	Adjust accordingly
Air Shift Dump Pump Spool won't shift	Verify air supply at air shifter	Fix air loss problem
Air Shift Dump Pump Spool won't shift	Verify Spool movement, check for bent spool or internal binding in Air Shifter assembly.	Loosen and retorque Air Shifter Fasteners to 9 Ft. Lbs. If Spool is bent, replace.
Filter on backwards	Check for flow arrow on filter	Install correctly
Sleeve in inlet (2-line)	Check for sleeve in the inlet on 2-line	Remove sleeve

Bulletin_524-1_DP TROUBLESHOOTING



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