3:1 & 5:1 Thunder Oil Pumps &
50:1 Thunder Grease Pumps

TROUBLESHOOTING 3:1 & 5:1 OIL PUMPS & 50:1 GREASE PUMPS

TROUBLESHOOTING 3:1 & 5:1 OIL PUMPS

New Pump Not Cycling?

1. Increase air pressure to start cycling and then, once the pump starts to cycle, back the pressure down to 50 PSI on 5:1 pumps and 70 PSI on 3:1 pumps.

Not Pumping?

1. A 3:1 pump mounted outside will not pump well on a cold morning.
2. Is there oil in the tank?
3. Is the pump suction tube tight?
4. Is there Teflon tape on the threads of the suction tube?

Check air side of pump:

1. Make sure the air compressor is on.
2. Make sure the airline is connected to the pump air inlet.
3. Check for leaking air coupler or leaking air inlet hose
4. Air pressure regulator installed correctly? An arrow indicates the proper flow direction.
5. Is the shut off valve on the air inlet side of the pump open?
6. What is the air regulator pressure setting?
    a. Make sure the air regulator adjustment knob is set high enough to allow air flow to the pump and allow the pump to cycle (between 20-25 PSI).
    b. Once the pump is primed: start at 50 PSI on 5:1 pumps and 70 PSI on 3:1 pumps. The final pressure will depend on the length of the runs, etc.

Check discharge side of pump:

1. Assuming it is a manual tip, is the non-drip tip on the control handle open?
    - Are the material line shut-off valves open? Note: This assumes that overhead reels are used and there is a shut-off valve at the pump for each reel.
2. Look for blockages:
    a. Run the pump discharge hose back into the tank to see if the pump runs.
    b. Verify: control handle, delivery hose, reel, y-strainer, etc. are unobstructed.
    c. Is the Oil Control Valve Handle inlet screen free of debris? Note: The inlet screen is held in the swivel by an O-ring. The threads must be taped/doped for an oil-tight seal.

Check for air motor problems:

1. Take the air spools out and inspect the O-rings and U-cups for damage or wear.
2. Check all seals, including track gaskets.
3. Check direction of the "U" cup lips on the air spools and the piston.
4. Clean and re-grease the air spools.
5. Make sure that the inner check valve is tight.

Pumping Slowly?

1. Make sure the non-drip tip on the control handle is fully open
2. Check the inlet air pressure is at least 50 PSI for a 5:1 pump and 75 PSI for a 3:1 pump
3. Make sure the material line shut-off valves leading to the control handle is fully open.
4. For outside tanks, in cold weather, the oil will thicken and the pump will pump slowly.

If the Pump cycles one time and then stops:

1. Make sure that the material outlet adapter hasn't been over-tightened. If the adapter bottomed out on the pump piston it will cause it to lock up.
2. Back out the adapter, re-tape, re-dope, and re-thread. Be careful not to over-tighten.

If the Pump cycles but will not deliver material:

Check everything out on the suction side of the pump

1. The product drum or tank may be empty.
2. Make sure that there are no cracks in the suction tube.
3. Check the suction tube connections to make sure that they are taped, doped and tight.
4. Inspect the inlet check valve on the bottom of the suction tube for damage.

5. If there is a low-level cut off valve installed, make sure that the travel of the float is unobstructed (make sure the float doesn't hit a tank wall or tank partition, etc.
6. Make sure the pump is primed. It may not be picking up any product.
7. To prime the pump:
    a. Turn the air regulator pressure to "0" PSI.
    b. Disconnect the oil hose at the control handle and place the hose into an oil catch bucket.
    c. Connect the air hose to the pump air inlet.
    d. Slowly cycle the pump, gradually raising the pressure to 20-30 PSI.
    e. Cycle the pump slowly until any trapped air has been purged from the system.
    f. Re-connect the hose to the control handle.
    g. Allow the pump to build line pressure and stall.
    h. Check for leaks.
    i. Adjust inlet air pressure upward as required for the application.

Note: If oil/grease pump constantly runs (no or little product is pumped), check the inlet side of the pump (downtube, etc.) for air leaks. Second possibility: if system has pressure relief on the output side, the pressure relief valve may be defective which would divert product back into the tank.

If the Pump does not cycle and blows air out of the exhaust:

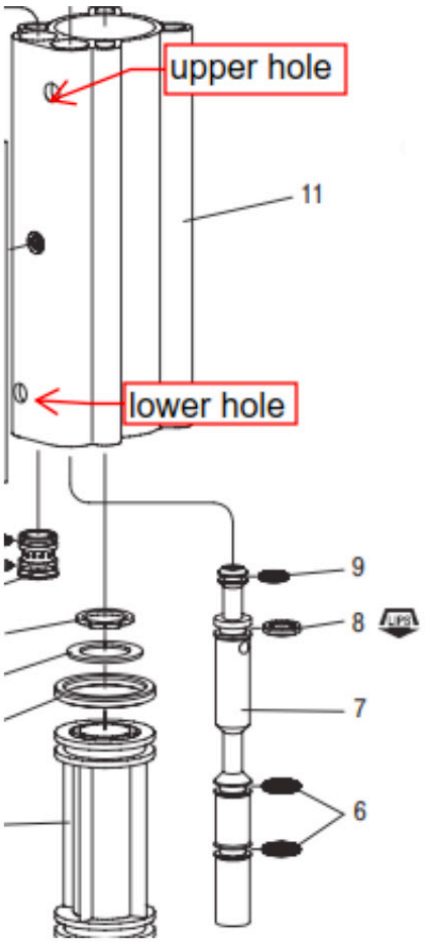
1. The O-rings and/or U-cups are probably worn. Rebuild the air motor.

If pump stalls out, blows air, or occasionally cycles even though the system isn't being used:

1. Check the air spools' O-rings and cup. Note: O-rings may be nicked or cut by a burr from an internal hole. Make sure the downtube is tight
2. Excessive pressure could cause the pump to blow air or cycle. Set to 50 PSI for a 5:1 pump and 75 PSI for a 3:1 pump.
3. Make sure the four bolts on the bottom of the pump air motor are tight.
4. Check for oil leaks.

Air leaks/blowing out the exhaust:

1. Check the air spools O-rings and cups. Note: O-rings may be nicked or cut by a burr from an internal hole.
2. Remove muffler cover, run the pump and identify if air is leaking from the upper or lower hole.
3. Swap the two spools from left to right. Retest the pump. If the air was leaking out the top hole and, after the swap, leaks out the bottom hole, the leak is probably associated with the leaking spool or its O-rings or cup. If, after the swap, the air leak remains in the same location, this indicates that there is likely a problem with the cylinder.



Pump is Leaking:

1. Verify that there isn't a loose/leaking connection.
2. Check to see if the down tube is tight where it attaches to the base of the air motor. Note: 100 ft./lb for 3:1 pumps; 140 ft./lb for 5:1 pumps. Note: Do not clamp aluminum pump cylinder in vise.

General Considerations:

1. To prevent leaks all threaded connections should be taped with three wraps of Teflon tape and doped with Gasoila Soft Set pipe dope.
2. If oil leaks from the bottom of the pump housing, the lower tube may have been accidently loosened when the pump was installed.

TROUBLESHOOTING 50:1 GREASE PUMPS

NOTE: The maximum PSI rating of individual system component may limit the maximum air pressure into the pump.

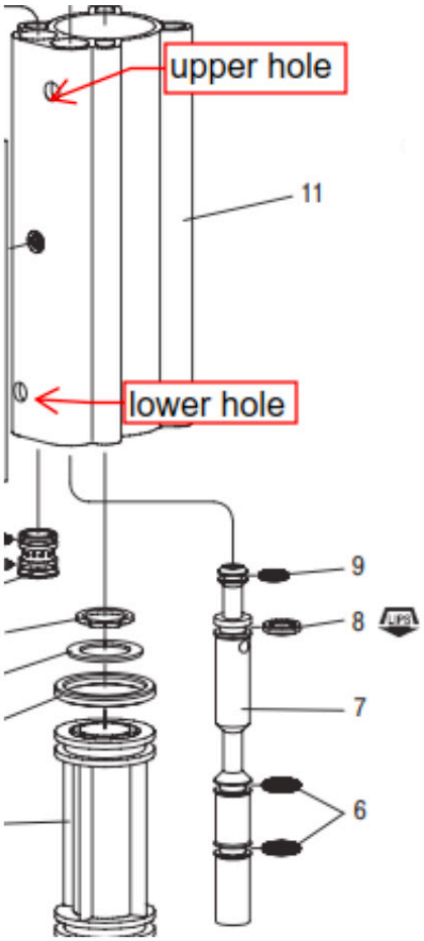
NOTE: Another consideration involves grease reels. High grease pressure will make the grease hose stiff and difficult to rewind. We recommend 70 PSI air pressure when a grease reel is involved.

Not Pumping?

1. Is the grease and the pump in a warm area?
2. Is the air line connected to the pump?
3. Is the shut off valve on the air inlet side of the pump open?
4. Are the material line shut-off valves open? Note: This assumes that overhead reels are used and there is a shut-off valve at the pump at each reel.
5. What is the air regulator pressure setting? Note: Air pressure could be below the level at which the pump can cycle.
6. Is there grease in the drum?
7. Is there a follower plate in the drum?
8. If the pump air motor cycles but the pump does not pump grease - remove the control handle and momentarily apply reduced air pressure to see if grease will come out of the hose.
9. If pump air motor does not cycle at all - check to see if there is something caught in the primer tube inside the drum/keg. (***Bolts, etc. can get lodged between the rod and the tube; ***kegs with plastic liners - the plastic keg liner can get sucked into the primer tube and lock the pump).

Air Motor Blowing Air or Cycling when not in use?

1. Check the air pressure regulator setting. Note: Excessive pressure could cause the pump to blow air or cycle.
2. Make sure the four bolts on the bottom of the pump air motor are tight.
3. Check for loose connections (leaks) on the material side of the system including hoses, material line couplings, shut-off valves and control handles.



Air leaks/blowing out the exhaust:

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Pump is Leaking

1. Where is the pump leaking?
2. Make sure that it is not a loose connection or a leaky tube fitting.
3. Check to see if the down tube is tight where it attaches to the base of the air motor.

Constantly Cycling

1. Dirt in Ball (#43) and seat (#44) in downtube
2. It's possible that position #41 and #40 are worn to the extent that it can't build pressure any more.