Do this procedure if you have at least one of these conditions. These conditions can cause Alarm 121 - "Low Oil Level or Pressure":

1. The oil pump does not operate.
2. There is contamination at the bottom of the reservoir.

How it works:

When the spindle is on or the axes are in motion, the lubrication system is on. When the mechanical oil pump motor [1] is on, the gearbox and cam [3] rotate. The gearbox and cam push the lever arm [4] up. The lever arm pushes the plunger [2] up. Every 30 minutes, the gearbox and cam allow the plunger to drop. When the plunger drops, it pushes oil out of the oil pump [5] into the oil filter [7] and out of the oil output hose [6]. The oil level switch [8] tells the control when the oil level in the reservoir is low.
Caution: When you do maintenance or repair on CNC machines and their components, you must always follow basic safety precautions. This decreases the risk of injury and mechanical damage.

Do these steps before you do work in the machine or in the control cabinet:

- Set the main circuit breaker to the [OFF] position.
- Use an approved lock with an approved safety tag. Always follow lock-out procedures in accordance to local government rules.
- After turning off the machine, wait at least 5 minutes before working in the control cabinet, to allow power to dissipate. Wait for the voltage indicator LED on the vector drive to go off completely.
- Always turn off the main air supply when you work on any part of the pneumatic system.
- Make sure to rest the spindle head on a block of wood when work is done on a vertical axis. This will prevent any unintended movement that could result in the axis falling.
- Never alter any safety circuits on the machine.

You should not do machine repair or service procedures unless you are qualified and knowledgeable about the processes. Serious damage to the machine components can result in costly repairs. The service technicians at your Haas Factory Outlet (HFO) have the training and experience, and are certified to do these tasks safely and correctly. The repair and service work performed by your HFO is protected with a limited warranty.

Danger: Some service procedures can be dangerous or life-threatening. DO NOT attempt a procedure that you do not fully understand. If you have any doubts about doing a procedure contact your Haas Factory Outlet (HFO) and schedule a service visit.

Prerequisites

These components are included in the service kit (P/N: 93-2167):

1. Reservoir gasket
2. Oil pump tube
3. Retaining wire.
4. Retention ring.
5. Felt filter.
7. Coarse screen
8. Inline filter

Machine Compatibility

The Bijur mechanical oil pump was used on these machines.

- Small and medium VMCs from 1989 to 2008.
- Large VMCs from 1995 to 2014.
- HMCs from 1994 to 2015.

Parts Included

[KIT] 93-2166  QTY: 1
SERVICE KIT, BIJUR MECHANICAL OIL PUMP
STEP 1
Support the oil reservoir.
Remove the (4) screws that hold the reservoir to the pump assembly.
Replace the reservoir gasket.
Clean the reservoir to remove the built-up contamination. Replace the tube from the oil pump and oil filter.

STEP 2
Replace these items from the oil pump in the order shown:
1. The retaining wire.
2. The retention ring.
3. The felt filter.
4. The fine screen.
5. The coarse screen.

STEP 3
Use a 3/8" open end wrench [1] to loosen the pump head fitting [2].
Disconnect the oil line [3].
Use adjustable pliers to remove the check valve [4] for the pump-head.
**STEP 4**

Clean all of the contamination out of the ball and seat area [1]. Dry the check valve.

Shake the check valve. If you cannot hear the ball moving freely in the check valve, clean it again. Make sure the ball can move freely.

Install the check valve for the pump-head and the oil line that you removed in Step 1. Install the remaining components in the reverse order that they were removed. Make sure they are dry.

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**STEP 5**

Remove the canister filter cap [1]. Remove the o-ring [2].

Remove the inline filter [3] and o-ring [4] from the canister body. The o-ring may stick to the filter. Replace the inline filter [3].

Install the items in the reverse order that they were removed. Install the oil reservoir. Replace the reservoir gasket.

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**STEP 6**

Fill the reservoir to the **MAX** fill line [1].

⚠️ **Note:** To prevent build up of contamination, use Mobil SHC 625, Mobil 1 5W-20, or Mobil 1 10W-30. Do not use Mobil Vactra #2.

When you use Vactra #2, contamination ("sludge") collects in the reservoir. This causes the pump assembly to become clogged.

You must fill the reservoir tank to the **MAX** fill line [1] each time you fill the tank. This makes sure the dip trough [2] is full of oil. This lubricates the drive and worm gears [3] of the pump.
### STEP 1

Lift the plunger to hand-prime the pump. Do this until the pressure reads approximately 20 psi (1.38 bar).

**Note:** If the lever arm [1] pushes up on the plunger, you cannot hand-prime the pump. Operate the spindle up to 30 minutes for the next pump cycle to complete.

In MDI mode, command the spindle to run at low speed, for example, 5 RPM.

This turns on the oil pump motor.

Stop the spindle when the lever arm drops.

### STEP 2


Pull up on the plunger [2].

Oil comes out of the fitting [3] when the pump operates correctly.

Connect the oil feed tube. Do step 3 to check the oil pressure.

If no oil comes out of the fitting, refer to [Mechanical Bijur Lube Pump Troubleshooting Guide](#).

### STEP 3

In MDI mode, command the spindle to run at a low speed, for example, 5 RPM.

**Note:** The Bijur mechanical pump takes approximately 30 minutes to do a complete cycle.

Look at the oil pressure gauge when the plunger drops.

The oil pressure gauge shows 20 to 40 psi (1.38 - 2.75 bar). The pressure gradually decreases to 0 psi (0.0 bar) in 3-10 minutes.