How it Works

Most Haas Spindle Gearboxes are lubricated by an external oil pump powered by an electric motor. This oil pump assembly is mounted to the side of the gearbox. When the pump operates, you can see oil that circulates through the clear oil lines to and from the pump. There is an oil flow sensor mounted on the oil pump assembly to monitor the oil flow.

50-taper spindle: this sequence occurs while the spindle operates:

- The oil-pump motor [1] receives 120 VAC.
- The oil pump pressurizes the oil in the pressure reservoir [7].
- The pressure in the reservoir causes oil to flow through the lubrication tube [8] to the oil nozzle [9].
- The anti-siphon solenoid [10] receives 120 VAC, and closes. No air is allowed into the lubrication tube.
- If the flow of oil through the pump is not sufficient, the oil flow sensor [6] opens and the control generates Alarm 2012.
- If the oil level in the reservoir becomes low, the oil level switch [12] opens and the control generates Alarm 2011.

40-taper spindle: this sequence occurs while the spindle operates:

- The oil-pump motor [3] receives 120 Vac.
- Oil is pulled from the sump tank [4], through a filter [1], and past the oil flow sensor [2].
- The oil flows over the gears and drains back to the sump tank.
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Section 1

Symptom: Alarm 179 LOW GEARBOX OIL PRESSURE, Alarm 2011 SPINDLE GEARBOX OIL LEVEL IS LOW, or Alarm 2012 INSUFFICIENT SPINDLE GEARBOX OIL FLOW.

Cause: The oil level is low.

Corrective Action:

Fix the leaks.

Machines with oil fill plug [1]: Remove the oil fill plug. Operate the spindle at a low RPM. Fill the sump tank to the top of the oil plug. Use Mobil SHC 627 transmission oil or equivalent. Install the oil fill plug.

Machines with a reservoir: Add 17 oz (500 ml) of Mobil SHC 627 transmission oil to the reservoir. Some machines have the reservoir near the spindle fan [1]. Other machines have the reservoir mounted on the sump tank [2]. Remove the spindle head covers to get access to it.

Caution: Do not add more than 500 ml of oil at a time. The plastic reservoir will completely empty the oil into the gearbox.
Symptom: Alarm 179 LOW GEARBOX OIL PRESSURE or Alarm 2012 INSUFFICIENT SPINDLE GEARBOX OIL FLOW

Cause: There is a clog in the oil-pump inlet screen.

Corrective Action:


Section 3

Symptom: Alarm 179 LOW GEARBOX OIL PRESSURE or Alarm 2012 INSUFFICIENT SPINDLE GEARBOX OIL FLOW

Cause: There is a problem with the oil flow sensor or pressure switch.

Corrective Action:

Remove the oil flow sensor from the oil-pump assembly. Use a screwdriver to manually operate the switch. Navigate to the I/O tab in DIAGNOSTICS. Make sure the diagnostic bit for Low Lube Press changes from 0 to 1.

Note: The name of this diagnostic bit in older software versions is Low GB Oil Flow.

If the diagnostic bit for Low Lube Press does not change from 0 to 1, disconnect the oil flow sensor from the connector bracket. Put an electrical jumper across the (2) pins in the connector for the oil flow sensor [1]. Make sure the diagnostic bit for Low Lube Press changes from 0 to 1. If the input changes, the oil flow proximity sensor is faulty.

If the diagnostic bit for Low Lube Press does not change from 0 to 1, disconnect the cable from the P12 connector [2] on the I/O PCB. Put an electrical jumper across pins 2 and 3 of the P12 connector. Make sure the diagnostic bit for Low Lube Press changes from 0 to 1. If the input changes, the 950 cable is defective. If the input does not change, troubleshoot the I/O PCB.

Check the pressure switch with a voltmeter when the pump is running. If the switch is open (O.L.) when there is pressure in the system, replace it.
Section 4

Symptom: Alarm 2011 SPINDLE GEARBOX OIL LEVEL IS LOW

Cause: There is a problem with the oil level switch.

Corrective Action:

Remove the oil-level switch from the gearbox. While you move the float from position [2] to position [1], measure for continuity across pins 2 and 4 of the connector for the oil-level switch. The oil-level switch operates correctly when:

- There is not continuity when the magnet is at position [2].
- There is continuity when the magnet is at position [1].

Replace the oil-level switch if it does not operate correctly.

Disconnect the 950 cable from the P12 connector on the I/O PCB. Measure for continuity across pins 1 and 3 of the connector for the oil-level switch on the 950 cable. If there is continuity, there is a short circuit in the 950 cable. Replace the cable.

Put an electrical jumper across pins 1 and 3 of the P12 connector. Press [PARAM/DGNOS] twice. Navigate to the I/O tab. Make sure the diagnostic bit for Low GB Oil Level changes from 1 to 0. If the input does not change, troubleshoot the I/O PCB.
Section 5

Symptom: Alarm 179 LOW GEARBOX OIL PRESSURE or Alarm 2012 INSUFFICIENT SPINDLE GEARBOX OIL FLOW

Cause: The oil-pump motor does not receive power.

Corrective Action: Troubleshoot the oil-pump motor.

Command the spindle to operate.

Note: There is a voltage output to the gearbox oil pump when the spindle operates.

Monitor the motor fan on the gearbox oil pump. If the motor fan on the gearbox oil pump does not operate, make sure the oil pump receives the correct voltage. Use a multimeter with needle-tip probes to measure the voltage across the cable connector for the gearbox oil pump.

⚠️ Note: Do not measure the voltage with the oil pump cable disconnected from the 300A cable.

The measured voltage must be 120 VAC. If the voltage is correct and the pump does not operate, go to Section 6.

If the voltage is not correct, make sure the voltage output from the I/O PCB is correct. Use a multimeter with needle tip test probes to measure the voltage between pin 1 and pin 2 on the 300A-cable connector at P41 (Classic Haas Control) or P32 (Next Generation Control) on the I/O PCB.

⚠️ Note: Do not measure the voltage with the 300A cable disconnected from the P41 connector on the I/O PCB.

The measured voltage must be 120 VAC. If the measured voltage is correct, the 300A cable is defective. If there is no voltage output, go to diy.haascnc.com to troubleshoot the I/O PCB.
Symptom: Alarm 179 LOW GEARBOX OIL PRESSURE or Alarm 2012 INSUFFICIENT SPINDLE GEARBOX OIL FLOW

Cause: There is a problem with the oil-pump motor gears or coupler.

Corrective Action: Inspect the gears or coupler.

Remove the top assembly [1] of the oil pump. Inspect the gears [2]. Make sure they are in good condition. Inspect the sleeved coupler [3]. Replace the sleeved coupler (P/N 93-30-5725) if it is broken.