

Causes and solutions for uncoordinated movements of hydraulic cylinders for harvesters

The coordination of [hydraulic cylinders for harvesters](#)' movements directly affects the operational efficiency of the system. Problems such as multiple cylinders being out of sync, a single cylinder stalling, or abnormal speeds not only lead to decreased production capacity, but can also cause safety hazards. This article analyzes the common causes and provides solutions to help troubleshoot problems quickly.

1. Hydraulic system into the air triggered by unstable operation

(1) The main cause: when the air content in the hydraulic oil exceeds 1%, air bubbles rupture to produce air pockets, resulting in uneven piston resistance, crawling or shaking. Air mainly enters through the following ways.

Oil tank level is lower than the pump suction port more than 200mm, suction air when sucking oil

Piston rod seal aging (lip wear > 0.3mm), external air infiltration

Loose suction line connector or broken hose inner wall.

(2) Solution

System venting: reciprocate 3-5 times without load through the cylinder venting valve until there is no foam in the oil.

Seal maintenance: If the seal ring is worn out, replace the seal ring with a new one.

Piping inspection: observe the negative pressure of suction pipe when starting up, and test the leakage point of joints with soapy water.

2. Hydraulic pump abnormalities lead to power fluctuations

(1) Failure performance: pump body vibration, noise.

(2) Common causes: vane pump vane wear or plunger pump plunger stall, pump shaft and motor shaft coaxial deviation > 0.1mm, Oil viscosity is too high or too low.

(3) Repair measures

Pump body overhaul: check the wear, vane pump stator wear > 0.05mm, plunger pump clearance > 0.02mm replacement

Fluid management: Use ISO VG 46 hydraulic oil and check the viscosity regularly.

3. Seal failure and internal leakage resulting in abnormal speeds

(1) Leakage

Piston seal wear or spool seal breakage, resulting in: internal leakage of the cylinder, speed drop of more than 30%. Directional valve internal leakage, multi-cylinder not synchronized

(2) Solution strategy

Upgrade the seal, detect the leakage, and replace the valve with a new one if the spool is seriously worn.

4. Unstable flow due to piping failure

(1) Clogging risk

Hose or steel pipe problems cause intermittent flow: hose wall flaking or steel pipe welding slag residue. Loose hose clamps cause vibration and aggravate leakage

(2) Troubleshooting steps

Hose inspection: endoscopic inspection of the inner wall, replacement of high-pressure hose with steel wire layer

Pipe cleaning: Flush the new system to the oil particle size ISO 4406 18/16/13.

Fixing and reinforcement: set the spacing of pipe clamps according to the pipe diameter, and

ensure that the torque of the bolts meets the standard.

[Hydraulic cylinders for harvesters](#) do not operate in unison because of pressure, flow or resistance imbalances. Troubleshooting, testing, pressure calibration and seal maintenance can minimize the source of the problem and keep your equipment running reliably.

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