

Fluid Power General Troubleshooting

Use these charts to help in listing all the possible causes of trouble when you begin diagnosing and testing a machine. Once you have located the cause, check the item in the chart again for the possible remedy. The technical manual for each machine supplements these charts by giving more detailed and specific causes and remedies.

System Inoperative

Possible Causes:	Remedy:
No oil in system.	Fill to full mark. Check system for leaks.
Oil low in reservoir.	Check level and fill to full mark. Check system for leaks.
Oil of wrong viscosity.	Refer to specifications for proper viscosity.
Filter dirty or plugged.	Drain oil and replace filters. Try to find source of contamination.
Restriction in system.	Oil lines could be dirty or have inner walls that are collapsing, cutting off oil supply.
Clean or replace lines.	Clean orifices.
Air leaks in suction line.	Repair or replace lines.
Dirt in pump.	Clean and repair pump. If necessary, drain and flush hydraulic system. Try to find source of contamination.
Badly worn pump.	Repair or replace pump. Check for problems causing pump wear such as misalignment or contaminated oil.
Badly worn components.	Examine and test valves, motors, cylinders, etc. for external and internal leaks. If wear is abnormal, try to locate the cause.
Oil leak in pressure lines.	Tighten fittings or replace defective lines. Examine mating surfaces on couplers for irregularities.
Components not properly adjusted.	Refer to machine technical manual for proper adjustment of components.
Relief valve defective.	Test relief valves to make sure they are opening at their rated pressure. Examine seals for damage that could cause leaks. Clean relief valves and check for broken springs, etc.
Pump rotating in wrong direction.	Reverse to prevent damage.
Excessive load on system.	Check specification of unit for load limits.
Hoses attached improperly.	Attach properly and tighten securely.
Slipping or broken pump drive.	Replace couplers or belts if necessary. Align them and adjust tension.
Pump not operating.	Check for shut-off device on pump or pump drive.

System Operates Erratically

Possible Causes:	Remedy:
Air in system.	Examine suction side of system for leaks. Make sure oil level is correct. Oil leaks on the pressure side of system could account for loss of oil.
Cold oil.	Viscosity of oil may be too high at start of warm-up period. Allow oil to warm up to operating temperature before using hydraulic functions.
Components sticking or binding.	Check for dirt or gummy deposits. If contaminated, try to find the source of contamination. Check for worn or bent parts.
Pump damaged.	Check for broken or worn parts. Determine cause of pump damage.
Dirt in relief valves.	Clean relief valves or replace.
Restriction in filter or suction line.	Suction line could be dirty or have inner walls that are collapsing, cutting off oil supply. Clean or replace suction line. Also, check filter line for restrictions.

System Operates Slowly

Possible Causes:	Remedy:
Cold oil.	Allow oil to warm up before operating machine.
Oil viscosity too heavy.	Use oil recommended by the manufacturer.
Insufficient engine speed.	Refer to operator's manual for recommended speed. If machine has a governor, it may need adjustment.
Low oil supply.	Check reservoir and add oil if necessary. Check system for leaks that could cause loss of oil.
Adjustable orifice restricted too much.	Back out orifice and adjust it. Check machine specifications for proper setting.
Air in system.	Check suction side of the system for leaks.
Badly worn pump.	Repair or replace pump. Check for problems causing pump wear such as misalignment or contaminated oil.
Restriction in suction line or filter.	Suction line could be dirty or have inner walls that are collapsing to cut off oil supply. Clean or replace suction line. Examine filter for plugging.
Relief valves not properly set or leaking.	Test relief valves to make sure they are opening at their rated pressure. Examine valves for damaged seats that could leak.
Badly worn components.	Examine and test valves, motors, cylinders, etc. for external and internal leaks. If wear is abnormal, try to locate the cause.
Valve or regulators plugged.	Clean dirt from components. Clean orifices. Check for source of dirt and correct.
Oil leak in pressure lines.	Tighten fittings or replace defective lines. Examine mating surfaces on couplers for irregularities.
Components not properly adjusted.	Refer to machine technical manual for proper adjustment of components.

System Operates Too Fast

Possible Causes:	Remedy:
Adjustable orifice installed backward or not installed.	Install orifice parts correctly and adjust.
Obstruction or dirt under seat of orifice.	Remove foreign material. Readjust orifice.
Overspeeding of engine.	Refer to operator's manual for recommended speed. If machine has a governor, it may need adjustment.