SECTION 6: TROUBLESHOOTING

6.1 GENERAL INFORMATION

This section contains symptoms and usual causes for the most common types of problems that may occur. All available data concerning the trouble should be systematically analyzed before undertaking any repairs or component replacement.

A visual inspection is worth performing for almost all problems and may avoid unnecessary additional damage to the machine. The procedures which can be performed in the least amount of time and with the least amount of removal or disassembly of parts should be performed first.

⚠ WARNING

Before starting, performing maintenance, or replacing parts, relieve the entire system pressure by opening a service valve, which will vent all pressure to the atmosphere.

Although Vanair® strives to anticipate situations that may occur during the operation life of the machine package, the Troubleshooting Guide may not cover all possible situations. Should the situation remain unresolved after exhausting available sources, contact the Vanair Service Department at:

Toll Free: 844-VAN-SERV 844-[826-7378]

Phone: 219-879-5100

Fax: 219-879-5335

This section contains symptoms and usual causes for the most common types of problems that may occur. All available data concerning the trouble should be systematically analyzed before undertaking any repairs or component replacement.

A visual inspection is worth performing for almost all problems and may avoid unnecessary additional damage to the machine. The procedures which can be performed in the least amount of time and with the least amount of removal or disassembly of parts should be performed first.

Although Vanair strives to anticipate situations that may occur during the operation life of the machine package, the Troubleshooting Guide may not cover all possible situations. Should the situation remain unresolved after exhausting available sources, contact the Vanair Service Department, with the machine serial number readily available (refer to ***Figure 6-1***).

NOTE

When contacting the Vanair Service Department, please have machine serial number on hand to quickly expedite service. Serial number can be located on the serial plate, as shown.

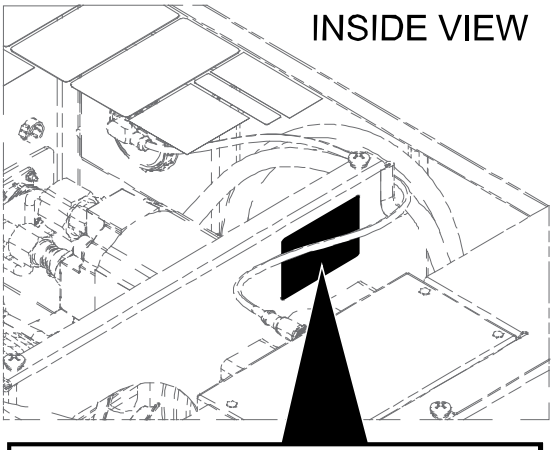

Figure 6-1: Machine Serial Plate/Serial Number Location

6.2 TROUBLESHOOTING GUIDE - HYDRAULICS

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
HYDRAULIC DRIVE SYSTEM: EXCESSIVE NOISE		
Motor is too noisy	Coupling is mis-aligned	Align unit and check condition of seals, bearings and coupling.
	Motor and/or coupling is/are worn or damaged	Regard any or all of the following: Tighten leaking connections; fill reservoir to proper level (with rare exception all return lines should be below fluid level in reservoir); bleed air from system; replace pump shaft seal (and shaft if worn at seal journal).
Relief valve too noisy	Valve setting is set too low or too close to another valve setting	Install pressure gauge and adjust to correct pressure.
	Worn poppet and/or seat	Overhaul or replace poppet and/or seat.
HYDRAULIC DRIVE SYSTEM: EXCESSIVE HEAT		
Motor is heated	Fluid is heated	Refer to information under “Fluid is heated” heading below.
	Relief or unloading valve is set too high	Install pressure gauge and adjust to correct pressure (keep at least 125 psi difference between valve settings).
	Motor is worn or damaged	Overhaul or replace motor.
Relief valve is heated	Fluid is heated	Refer to information under “Fluid is heated” heading below.
	Valve is set incorrectly	Install pressure gauge and adjust to correct pressure (keep at least 125 psi difference between valve settings).
	Valve is worn or damaged	Rebuild or replace valve.
Fluid is heated	System pressure is too high	Install pressure gauge and adjust to correct pressure (keep at least 125 psi difference between valve settings).
	System pressure is too high	Install pressure gauge and adjust to correct pressure (keep at least 125 psi difference between valve settings).
	Fluid is fouled or quantity too low	Change filters and also system fluid if improper viscosity; fill reservoir to proper level.
	Fluid viscosity is not correct	Change filters and also system fluid if improper viscosity; fill reservoir to proper level.
Oil discharge from regulator weep hole	Fluid cooling system is faulty	Clean cooler and/or cooler strainer; replace cooler control valve; repair or replace cooler.
	Pump, valve, motor, cylinder or other component is/are worn	Overhaul or replace item as noted.
HYDRAULIC DRIVE SYSTEM: INCORRECT FLOW CONDITION		
No existing flow at motor	Motor not receiving fluid	Regard any or all of the following: Replace dirty filters; clean clogged inlet line; clean or replace reservoir breather vent; fill reservoir to proper level; overhaul or replace supercharge pump.
	Entire flow passing over relief valve	Adjust as necessary.
	Pump is damaged	Check for damaged pump or pump drive—replace as necessary, and align coupling.
	Pump is assembled improperly	Overhaul or replace pump.

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6.2 TROUBLESHOOTING GUIDE - HYDRAULICS

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
HYDRAULIC DRIVE SYSTEM: INCORRECT FLOW CONDITION (CONTINUED)		
Flow is low	Flow control is set too low (Closed Center System [CCS])	Adjust as necessary.
	Relief valve is set too low	Adjust as necessary.
	Partial flow passing over relief	Adjust as necessary.
	External leak in the system exists	Locate and tighten leaking connections.
	Pump drive motor RPM is incorrect	Replace with correct unit.
	Pump, valve, motor is/are worn	Overhaul or replace item as noted.
Flow is excessive	Flow control is set too high (Closed Center System [CCS])	Adjust as necessary.
	Pump drive motor RPM is incorrect	Replace with correct unit. Adjust vehicle RPM.
	Replacement pump is not properly sized	Replace with correct unit.
HYDRAULIC DRIVE SYSTEM: INCORRECT PRESSURE CONDITION		
Pressure is absent	No flow	Refer to information in the “No Existing Flow” column under INCORRECT FLOW CONDITION in this guide
Pressure is low	Pressure relief path is present	Refer to information in the “No Existing Flow” and the “Flow is Low” columns under INCORRECT FLOW CONDITION in this guide
	Pressure relief valve is set too low	Adjust pressure relief valve. Rebuild or replace if necessary.
	Pressure relief valve is damaged or inoperable	Rebuild or replace pressure valve.
	Pump or motor is damaged or inoperable	Overhaul or replace as necessary.
Pressure is erratic	Air is present in fluid	Tighten leaking connections, fill reservoir to proper level, and bleed air from system.
	Relief valve is worn or inoperable	Rebuild or replace valve.
	Fluid is contaminated	Check system fluid and filters; replace if necessary.
	Pump or motor is worn	Overhaul or replace as necessary.
Pressure is excessive	Pressure relief valve out of adjustment	Adjust; Rebuild or replace if necessary.
HYDRAULIC DRIVE SYSTEM: FAULTY OPERATION		
Hydraulic Flow Is Present But Motor Does Not Rotate	Mechanically bound	Locate the bind, and repair.
	Command signal solenoid is absent	Contact the Vanair® Service Department.
	Solenoid valve is inoperative	Replace valve.
	Motor is worn or damaged	Overhaul or replace motor.
Hydraulic Flow Is Present But Motor Rotates Slowly	Low system flow	Refer to information under INCORRECT FLOW CONDITION in this guide.
	Viscosity of fluid too high	Fluid may be too cold; allow system to warm up.
		Fluid may be fouled; change system fluid to correct viscosity fluid.

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6.2 TROUBLESHOOTING GUIDE - HYDRAULICS

MALFUNCTION/FAULT	POSSIBLE CAUSE	CORRECTIVE ACTION
HYDRAULIC DRIVE SYSTEM: FAULTY OPERATION (CONTINUED)		
Hydraulic Flow Is Present But Motor Rotates Slowly	Relief valve is out of adjustment or malfunctioning	Adjust, repair or replace.
	Solenoid valve sticks	Repair or replace.
Hydraulic Motor Moves Erratically	Pressure is erratic	Refer to information under INCORRECT PRESSURE in this guide.
	Air is present in fluid	Refer to information under EXCESSIVE NOISE in this guide.
	Command signal is erratic	Repair command console or connection wire(s).
	Relief valve is out of adjustment or malfunctioning	Adjust, repair or replace.
	Solenoid valve sticks	Clean and adjust; replace if necessary. Check system fluid and filters; replace if necessary.
	Cylinder or motor is worn or damaged	Overhaul or replace cylinder or motor.
Hydraulic Motor Rotates Excessively	Flow is excessive	Refer to information under INCORRECT FLOW CONDITION in this guide.