

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. Be aware that additional troubleshooting information may be found in other sources, such as the Engine Operation Manual. 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

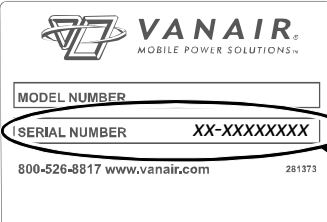
Fax: 219-879-5335

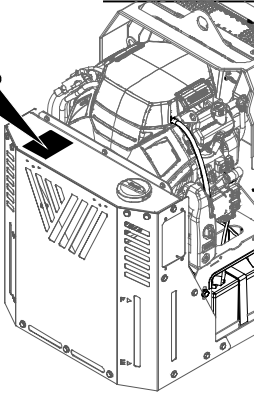
This section contains symptoms and usual causes for the most common types of problems that may occur. All available data concerning the trou-

ble 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

TABLE 6A: TROUBLESHOOTING GUIDE		
Fault/Malfunction	Possible Cause	Corrective Action
Failure to Start	No Fuel	Fill if necessary.
	Pinched Fuel Line	Replace or reroute.

Continued on next page

TABLE 6A: TROUBLESHOOTING GUIDE

Fault/Malfunction	Possible Cause	Corrective Action
Failure to Start (continued)	Plugged Fuel Filter	Replace fuel filter / fuel filter element.
	Low Battery Voltage	Recharge or replace.
		Loose connections-tighten.
		Dirty connections-clean.
	Plugged Air Filter	Replace air filter element.
	Defective Oil Pressure Switch	Check continuity-replace.
	Defective Air Temperature Switch	Check continuity-replace.
	Blown Fuse	Check continuity-replace.
	Poor ground connection	Check and clean/renew.
Engine problems	Refer to Engine Operation Manual.	
Compressor Shuts Down with Air Demand	No Fuel	Fill if necessary.
	Compressor Temperature Switch Opening	Low oil level-top up.
		Restricted cooling air intake; clean-reposition machine.
		Fan not operating; check ground, check fan switch.
	Plugged Oil Filter	Replace oil filter element.
	Dirty Cooler Core	Clean.
	Contaminated Cooler Core	Remove and clean.
Defective Engine Oil Pressure Switch	Replace.	
Compressor will Not Build Up Pressure	Air Demand Too Great	Check for leaks/correct.
		Too much air demand.
	Air Filter Plugged	Check and replace air filter element, if needed.
	Engine Does Not Speed Up	Engine governor stuck.
Belts Slipping	Readjust.	
Compressor Over-Pressures	Leak in Air Control Line	Check and correct.
	Inlet Valve Stuck	Free or replace, if necessary.
	Restriction in Control Line	Dirt or ice, clean/free up.
	Defective Safety Valve	Replace.
	Plugged Coalescer	Replace coalescer element.
Insufficient Air Delivery	Plugged Air Filter	Replace air filter element.
	Plugged Coalescer	Replace coalescer element.
	Inlet Valve Stuck	Free or replace.
	Belts Slipping	Readjust.
Oil Carryover	Oil Level Overfull	Drain to correct level.
	Plugged Oil Scavenge Orifice	Remove and clean.
	Scavenge Return Line Kinked	Replace/re-route.
	Check Valve Stuck	Replace.
	Defective Coalescer	Replace coalescer element.

Continued on next page

TABLE 6A: TROUBLESHOOTING GUIDE		
Fault/Malfunction	Possible Cause	Corrective Action
Oil Carryover (continued)	Discharge Pressure Too Low	Review air usage.
		Check pressure regulator setting.
Sleep Mode Does Not Activate	Air Leak in Discharge Minimum Pressure Valve	Check valve. Replace if necessary.
System Does Not Actiate From Sleep Mode with Demand	System in Hybernation Mode	Power cycle the machine. Contact Vanair Service Department for additional information.
Compressor Overheating	Insufficient Oil	Check level and top up (DO NOT overfill).
	Restricted Cooling Air Flow	Reposition machine; remove restrictions to air flow.
	Fan Not Operating	Check ground connection.
		Check circuit breaker.
		Check for shorted wires.
		Check fan motor.
	Plugged Oil Filter	Replace oil filter element.
	Cooler Core Plugged	Clean.
	Pressure Set Too High	Readjust.
	Restricted Cooling Air Flow	Reposition machine.
Contaminated Cooler Core	Remove and clean.	
System Retains Pressure After Shutdown	No Signal to Blowdown Valve	Check solenoid line for leak/fold.
	Blowdown Valve Plugged	Inspect; clean if necessary.
	Plugged Coalescer Element	Replace.
Improper Control Operation	Engine Does Not Speed Up	Cylinder stuck, replace.
		Operating pressure too high.
		Fuel filter partly plugged.
	Engine Does Not Slow Down	Faulty pressure sensor - replace.
Faulty Pressure Sensor	Replace.	
Engine Overheating [‡]	Low Oil Level	Top up to acceptable level; DO NOT overfill.
	Oil Filter Plugged	Replace oil filter element.
	Restricted Cooling Air In/Out	Clean engine intake grill.
		Too close to obstruction; move machine or remove obstruction.
		Engine oil cooler plugged; inspect/clear.
Compressor Pressure Too High	Readjust.	

[‡] Consult Engine Manual for additional engine information.

6.2 EXTREME CONDITION OPERATION

When operating in extreme cold or hot conditions, in the presence of high humidity, or at a high altitude, extra attention should be given to any indication that could lead to a serious problem. Engine power and compressor air output will

be reduced at high altitude or hot ambient temperatures.

Machine review and maintenance check schedules should be more frequent than the normal suggestions given in the **Maintenance Schedule Tables (Table 5A, and Table 5B in Section 5)**.

Become acquainted with the situation-adjusted



operation approaches given in this section before operating the power system package in any type of extreme ambient condition. For additional operation information consult the Engine Operation Manual, or visit the engine manufacturer’s web site given in that manual.

6.2.1 HIGH MOISTURE CONDITION: EMULSIFICATION OF OIL IN ROTARY SCREW COMPRESSOR SYSTEMS

If machine is operating in a high moisture environment, water contamination may persist after following the regular preventative maintenance schedule and standard operating procedures.

Refer to **Section 4.7.8**, in **Section 4**, which addresses start-up concerns for high moisture con-

ditions.

6.2.2 COLD WEATHER OPERATION

Consult the information in **Table 6.2A** for preventative and/or repair measures. The Gas Viper can be more difficult to start in cold weather. Once the engine is started, the air density becomes larger and the intake efficiency also becomes higher. More output can be expected in cold areas. When the temperature is very low, extra care must be taken regarding fuel and oil changes in their viscosity, freezing of water contained in the piping, or of water adhering on the filter.

6.2.3 HIGH TEMPERATURE OPERATION

Consult the information in **Table 6.2B** for preventative and/or repair measures. Reduce load duty

TABLE 6.2A - COLD WEATHER OPERATION

Symptom	Cause	Prevention / Corrective Action
Water freezes in the fuel line Lubrication oil viscosity increases	WATER Water in the fuel can freeze at temperatures below 32°F (0°C), blocking fuel lines. At an extremely cold temperature, the viscosity of lubrication oil may increase and the torque of starter may exceed its permissible value, hindering proper starting.	<ul style="list-style-type: none"> • Park the vehicle or equipment indoors when not in use. • Check the fuel filter regularly to insure that it contains no water. • Use a block heater. • Maintain the battery; this will make it easier to start a diesel engine in cold weather. • In below zero temperatures a fuel line deicer product may need to be used. • Vanguard™ Premium Synthetic Oil is suitable for use from -40°F to 110°F (-40°C to 43°C). • For additional engine precautions, consult the Engine Operation Manual. • Vanair® recommends installation of the cold weather heater option kit. Consult Sections 7.9, 7.12 and 7.14 for cold weather kit option. • Keep the fuel tank full to prevent condensation from forming inside the tank and lessen the chances of water getting in the fuel line. • The standard recommendation of 15W-40 engine oil is suitable for temperatures down to -4°F (-20°C). If temperatures are consistently below 30°F (-1°C), it is recommended that 5W-30 oil be used. If temperatures are below -25°F (-32°C), a high-performance, fully synthetic oil, such as AMSOIL 5W-30 should be used which is suitable to temperatures of -55°F (-48°C).

TABLE 6.2B - HIGH TEMPERATURE OPERATION

Symptom	Cause	Prevention / Corrective Action
Overheating/high compartment temperatures Diminished engine performance	High ambient temperatures, confined spaces, soundproof cases and other reasons. Among these the most important factor is the temperature of the intake and cooling air.	<ul style="list-style-type: none"> • Extra care should be taken to keep the engine and air compressor clean and to not restrict the air flow around the unit. • Consult the Engine Operation Manual for fuel, lubrication oil and cooling requirements under extreme temperatures. • At the minimum, all coolers, including air passage ways around the coolers, should be free of debris and dirt. The fan, driven by the engine, is designed to run continuously to assure a constant flow of cooling air. • If high ambient overheating occurs, reduce the duty cycle. <p>The operator should be aware that high temperatures can influence engine performance, which can directly effect some machine function capacity outputs.</p>

cycle to less than 60% when operating in ambient temperatures above 104°F (40°C).

Extra care should be taken to keep the engine and air compressor clean and to not restrict the air flow around the unit. Consult the Engine Operator’s Manual for fuel, lubrication oil and cooling requirements under extreme temperatures.

When operating the machine in high temperature areas, precautions should be taken to prevent overheating. At the minimum, all coolers, includ-

ing air passage ways around the coolers, should be free of debris and dirt.

The operator should be aware that high temperatures can influence engine performance, which can directly effect some machine function capacity outputs.

6.2.4 HIGH DUST CONTENT OPERATION

Consult the information in **Table 6.2C** for preven-

TABLE 6.2C - HIGH DUST CONTENT OPERATION

Symptom	Cause	Prevention / Corrective Action
Overheating System contamination Stalling	Machine components exposed to frequent or constant dust interaction, can result in diminished system performance, or machine cessation.	<ul style="list-style-type: none"> • The intake air must be cleaned with the air cleaner—inspect the air filter frequently for dust build-up and replace as needed. • Ensure that the oil cooler fins are kept clean to prevent overheating. • If the machine is not being used for an extended period of time, an additional precaution, such as covering the machine with a tarp, will help to keep the inside of the machine free of dust particle accumulation. • For extreme cases of high dust content environments, machine fluids may need to be replaced at more frequent intervals. Adjust maintenance schedule accordingly.



tative and/or repair measures. When the machine is to be used in continuously dusty environments, special care must be taken with the engine's air cleaner, compressor air cleaner, and compressor oil cooler.

6.2.5 HIGH ALTITUDE OPERATION

Engine horsepower will decrease by 3.5% for every 1,000 feet above sea level. At high altitude overall unit performance will deteriorate, and care will need to be taken not to overload the engine.

Table 6.3 lists the fault codes along with their corresponding descriptions.