

SECTION 6: TROUBLESHOOTING

6.1 GENERAL INFORMATION

The information contained in this section has been compiled from years' worth of information gathered from the field. It 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 that can be performed in the least amount of time and with the least amount of removal or disassembly of parts should be performed first. Adherence to a routine maintenance regimen will minimize the occurrence of many common problems. Refer to **Section 5.3, Maintenance Schedule Table** for a typical maintenance regimen program.

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 Owner's Manual. Should the situation remain unresolved after exhausting available sources, contact your local dealer or the Vanair Service Department.



WARNING

DO NOT operate any of the Air N Arc 150 Series machine's functions if there is a known unsafe condition. Disable the equipment by disconnecting it from its power source. Install a lock-out tag to identify the equipment as inoperable to other personnel to prevent accidental application.



WARNING

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

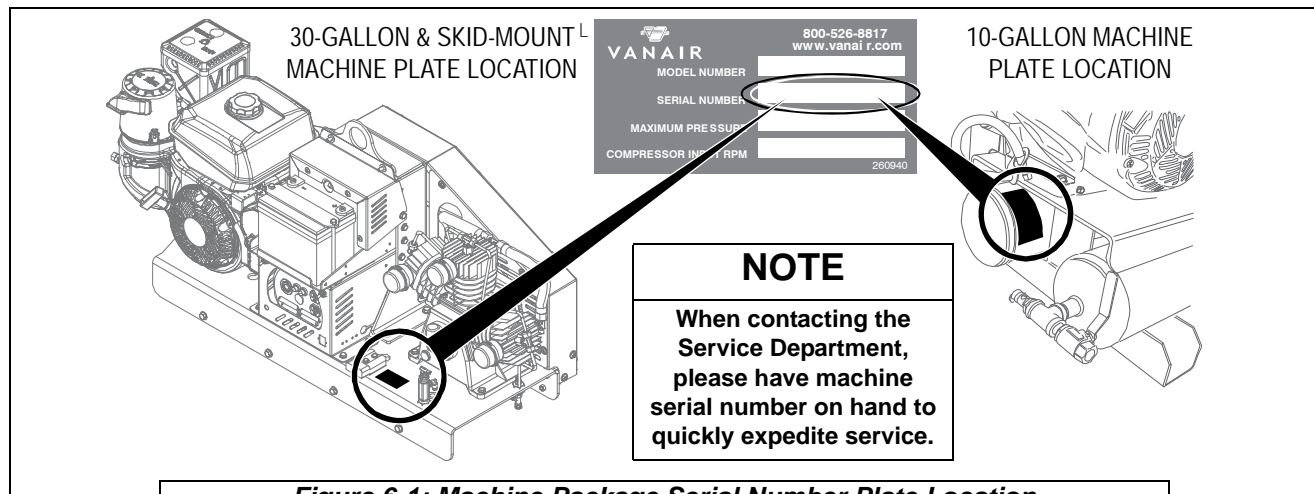


Figure 6-1: Machine Package Serial Number Plate Location

6.2 TROUBLESHOOTING GUIDE

Fault/Malfunction	Possible Cause	Corrective Action
ENGINE		
<i>For additional information concerning the engine, consult the Engine Owner's Manual</i>		
Engine will not crank	Faulty battery connection.	Check for proper battery connections and battery charge.
	Battery out of power	Recharge or replace battery.
	Engine fuse blown or faulty	Check engine fuse (consult the Engine Owner's Manual).
	Faulty starter connection	Check for proper electrical connections at starter.
	Poor ground connection	Check and clean/renew connection.
	Faulty starting solenoid	Replace solenoid.
Engine will crank, but not start	Low fuel and/or oil supply	Check fuel gauge. Check engine oil level; replenish as necessary. Refer to the Engine Owner's Manual for additional information on engine maintenance.
	Pinched fuel line	Replace or reroute if necessary.
	Plugged fuel filter	Replace if necessary. Refer to the Engine Owner's Manual for additional information on engine maintenance.
	Low battery voltage	Recharge or replace if necessary.
		Loose connections; tighten connections.
		Dirty connections; clean connections.
	Plugged engine air filter	Replace engine air filter. Refer to Engine Owner's Manual.
	Poor ground connection	Check and clean/renew connection.
	Fouled spark plug	Check spark plug and replace if necessary. See Engine Owner's Manual.
	Engine choke not operating properly	Check engine choke position.
Faulty starter motor	Replace starter.	
Improper Control Operation: Engine does not speed up	Throttle solenoid stuck	Check throttle solenoid. Replace if necessary.
		Check throttle relay; replace if necessary.
	Governor stuck	Free governor and lubricate if necessary.
Continued on next page		

6.2 TROUBLESHOOTING GUIDE

Fault/Malfunction	Possible Cause	Corrective Action
ENGINE (CONTINUED)		
Improper Control Operation: Engine does not speed up (cont.)	Fuel filter partly plugged	Replace fuel filter. Refer to the Engine Owner's Manual.
	Faulty pilot valve	Readjust or replace pilot valve.
Improper Control Operation: Engine does not slow down	Leak in control line	Check for leaks; replace line if necessary.
	Pilot valve out of adjustment or malfunctioning	Pressure settings may need to be reset.
	Unloader valve(s) sticking or faulty	Clean or rebuild/replace.
	Throttle solenoid stuck	Check throttle solenoid. Replace if necessary. Check throttle relay; replace if necessary.
	Governor stuck	Free governor and lubricate if necessary.
Engine overheats	Located too close to obstruction.	Move further from obstruction.
	Low oil level	Check engine oil level; Refer to the Engine Owner's Manual; replenish as necessary.
	Restricted cooling air in or out	Clean engine intake grill.
Engine stops during operation	Low oil level	Check engine oil level; Refer to the Engine Owner's Manual; replenish as necessary.
	Low fuel	Check fuel gauge. Fill as necessary.
	Engine overloaded	Reduce demand/Turn off one function.
	Engine idle set too low	Adjust idle to proper speed.
	Fouled spark plug	Check spark plug and replace if necessary. Refer to the Engine Owner's Manual.
Engine will not throttle up for various functions	Faulty throttle solenoid	Check throttle solenoid; replace if necessary.
		Check throttle relay; replace if necessary.
	Unloader valve(s) sticking or faulty	Clean or rebuild/replace.
	Blown system fuse	Check system fuse; replace if necessary.
Gradual loss of engine power	Contaminated fuel	Drain and replace fuel supply.
	Wrong fuel type fill	Use only gasoline—do not use E85, etc. Refer to Engine Owner's Manual for information on engine fuel type to use.
<i>Continued on next page</i>		

6.2 TROUBLESHOOTING GUIDE

Fault/Malfunction	Possible Cause	Corrective Action
ENGINE (CONTINUED)		
Gradual loss of engine power (continued)	Engine air filter contaminated	Check air filter. Replace if necessary (refer to the Engine Owner's Manual).
	Fuel filter contaminated	Check fuel filter. Refer to the Engine Owner's Manual for additional information on engine maintenance.
	Vapor lock	Machine overloading. Allow to cool.
		Refer to "Engine overheats" section in this Troubleshooting Guide.
	Fouled spark plug	Check spark plug and replace if necessary. Refer to Engine Owner's Manual.
Engine choke not operating properly.	Check engine choke position.	
COMPRESSOR		
Compressor overheats	Low compressor oil level	Check oil level and refill to proper level if necessary.
	Obstructed or restricted intake air flow	Check for obstructions (frame, body, etc.) to air filter vents. Replace air filter if necessary.
	Unloader valve(s) sticking or faulty	Clean or rebuild/replace.
	Dirty compressor, head, cylinder or intercooler	Clean with compressed air.
	Operating pressure too high.	Reduce operating pressure.
	Incorrect oil being used.	Drain and replace oil.
	Compressor cycle too long. (Proper cycle is 50-60% on Stop/Start operation and 75-80% on continuous run operation.)	Allow for longer rest period between cycles.
Compressor shuts down with air demand present	Restricted cooling air intake	Reposition machine for better surrounding circulation.
	Obstructed or restricted intake air flow	Check for obstructions (frame, body, etc.) of air filter vents. Replace air filter if necessary.
	Defective engine oil pressure switch	Replace engine oil pressure switch. Refer to the Engine Owner's Manual.
<i>Continued on next page</i>		

6.2 TROUBLESHOOTING GUIDE

Fault/Malfunction	Possible Cause	Corrective Action
COMPRESSOR (CONTINUED)		
Compressor shuts down with air demand present (continued)	Pressure control out of adjustment or malfunctioning	Pressure settings may need to be reset.
Compressor will not build up pressure	Compressor system is not receiving enough operating power	If running more than one function simultaneously, turn off competing function
	Air demand too high	Check for leaks and take corrective action.
		Check air tools for wear, damage, or malfunctions. Replace or repair.
	Pilot valve out of adjustment or malfunctioning	Pressure settings may need to be reset.
	Obstructed or restricted intake air flow	Check for obstructions (frame, body, etc.) to air filter vents. Replace air filter if necessary.
	Belt(s) slipping or broken	Re-situate and adjust belt tension, or replace belt if necessary. Consult Section 5.5.2, Replacing and Re-tensioning the Compressor and/or Generator Drive Belts.
	Engine governor stuck	Free governor and lubricate if necessary. Consult the Engine Owner's Manual.
	Unloader valve(s) sticking or faulty	Clean or rebuild/replace.
	Pressure relief valve not operating properly	Replace if necessary.
	Leak in air system	Inspect air system for leaks.
	Faulty throttle solenoid	Check throttle solenoid; replace if necessary.
Check throttle relay; replace if necessary.		
Drain cock open	Close drain cock.	
Loose tubes or fittings	Tighten fittings.	
<i>Continued on next page</i>		

6.2 TROUBLESHOOTING GUIDE

Fault/Malfunction	Possible Cause	Corrective Action	
COMPRESSOR (CONTINUED)			
Compressor will not build up pressure (continued)	Input rpm too low	Adjust to proper setting.	
	Service valve is open	Close service valve.	
	Pressure gauge is malfunctioning		Check pressure gauge function/control line routing: adjust, repair or replace as necessary.
			Check for proper operation with an auxiliary air source. Replace if necessary.
	Discharge piping leaks	Tighten connections; replace faulty piping.	
	Compressor incorrectly sized	Match task requirements within the compressor specification range.	
	Head gasket leaking	Replace head gasket.	
	Dirty or plugged inter-cooler tubes	Remove and clean inter-cooler tubes.	
	Worn or defective compressor valves	Replace worn parts.	
	Worn piston, worn out rings	Replace worn parts.	
Excessive moisture in the compressed air	Moisture accumulating in air tank	Drain water from air tank. Refer to Section 5.3, Maintenance Schedule Table , and Section 7.11, Installation and Dimension Diagram .	
	Excessive compressor heat	Allow compressor to cool down.	
Compressor system over-pressures	Damaged/kinked control line	Check line for damage (wear, kinks, etc.). Re-route, re-tie or replace if necessary.	
	Restriction in control line	Clean if soiled; if ice is present, clear and remove.	
	Control line connections are not properly seated/poor connection quality	Check lines for proper seating/ensure line ends have been cut cleanly and are square (DO NOT use wire cutters: use a loom cutting tool or a clean, sharp razor blade).	
	Pilot valve out of adjustment or malfunctioning	Pressure settings may need to be reset.	
<i>Continued on next page</i>			

6.2 TROUBLESHOOTING GUIDE

Fault/Malfunction	Possible Cause	Corrective Action
COMPRESSOR (CONTINUED)		
Compressor system over-pressures (continued)	Pressure gauge is malfunctioning	Check for proper operation with an auxiliary air source. Replace if necessary.
		Check pressure gauge function/control line routing: adjust, repair or replace as necessary.
	Defective safety valve	Replace safety valve.
No service air output	If equipped, OSHA valve/velocity fuse, not functioning properly	Reset or replace OSHA valve.
	Belt(s) not adjusted properly, worn or slipping/belt broken	Belt(s) out of position or malfunctioning. Consult Section 5.5.2, Replacing and Re-tensioning the Compressor and/or Generator Drive Belts.
Low service air output	Clogged compressor air filter	Check air filter. Replace if necessary.
	Pilot valve sticking	Replace pilot valve.
	Incorrect compressor speed	Adjust speed.
Excess amount of oil in air discharge	Compressor oil level too high	The correct oil level is the half-way mark on the sight glass with the compressor shut down, and the machine on a level surface. Drain excess oil to correct level.
	Compressor overheated	Air pressure regulated too high.
	Restricted air filter	Clean or replace air filter.
	Improper oil viscosity	Drain and replace oil.
	Worn piston rings	Replace piston rings.
Water in crankcase Oil breaking up Oil gets dirty; rusty valve or cylinder	Cycle too short; compressor does not operate long enough to vaporize condensed moisture during compression.	Allow for a longer operating cycle.
	Compressor operating outside in cold conditions or inlet filter not protected against weather.	Provide adequate protection against extreme weather conditions.
<i>Continued on next page</i>		

6.2 TROUBLESHOOTING GUIDE		
Fault/Malfunction	Possible Cause	Corrective Action
COMPRESSOR (CONTINUED)		
Water in crankcase Oil breaking up Oil gets dirty; rusty valve or cylinder (continued)	System pressure leaking back through check valve when compressor is stopped	Check and replace/check valve, if necessary.
	Wrong oil being used.	Drain and replace with proper oil.
Excessive vibration	Loose compressor, motor, engine or guard	Tighten components.
	Excessive discharge pressure	Reduce operating pressure.
	Compressor not level	Level compressor.
	Leg bolts tightened too tightly to floor	Loosen leg bolts.
	Wrong oil being used	Drain and replace with proper oil.
	Loose flywheel, drive pulley or drive belts	Tighten loose components and check belts.
	Worn rods, wrist pin or main bearings	Check and replace worn parts.
Compressor knocks	Compressor valves loose or broken	Check and replace worn or broken valves.
	Inspect check valve; it may knock at low pressures	Remove and clean check valve.
	Bearing failure	Replace compressor.
Compressor uses too much oil	Clogged inlet filter	Clean inlet filter or replace, if necessary.
	Wrong oil being used; wrong viscosity	Drain and replace oil.
	Oil level too high	Fill compressor with oil to proper level.
	Crankcase breather valve malfunction	Replace crankcase breather.
	Compressor runs unloaded too long	Increase load or stop compressor when not needed. Check for air leaks.
	Compressor operating outside in cold conditions or inlet filter not protected against weather	Provide adequate protection against extreme weather conditions.
	Worn piston rings	Replace piston rings.
	Piston rings not seated	See Piston rings not seated instructions, below.
Piston rings not seated	Ample time not allowed for new rings to seat	Allow 100 hours of normal operation for new rings to seat.

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6.2 TROUBLESHOOTING GUIDE

Fault/Malfunction	Possible Cause	Corrective Action
WELDER		
Welder and/or battery charger behave erratically	Connection cables or receptacles are soiled/contaminated	Check for twisted cables and/or soiled/contaminated or loose receptacle connections. Untwist and/or straighten out any suspected cable tensions. Carefully wipe off any contaminants to receptacle connectors before re-connecting. Replace any worn or damaged cables or receptacles. Contact the Vanair Service Department if behavior persists.
	Welding function is not drawing enough operating power	If running more than one function simultaneously, turn off competing function.
No welder output	No power to welder	Press black power button on welder lead.
	Incorrect battery voltage output	Check battery voltage for a minimum output of 11 volts DC.
	Serpentine belt out of position or malfunctioning	Re-situate and adjust belt tension, or replace belt if necessary. Consult Section 5.5.2, Replacing and Re-tensioning the Compressor and/or Generator Drive Belts.
	Welder 6-pin connector not making proper connection	Check welder 6-pin connector. Clean if necessary.
	Welder connections not solid	Inspect all welder connections.
	Internal fuse blown in weld module	Contact the Vanair® Service Department.
AC GENERATOR		
No AC generator output	Circuit breaker blown	Replace the circuit breaker.
	Capacitor failure	Replace capacitor.
	Loose or faulty wiring	Check wiring: Loose—secure; faulty—replace.
Low AC voltage	Engine speed too low for demand	Adjust speed control. Refer to the Engine Owner's Manual.
	Capacitor failure	Replace capacitor.
High AC voltage	Engine speed too high for demand	Adjust speed control. Refer to the Engine Owner's Manual.