

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 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.

Note: When contacting the Vanair® Service Department, please have machine serial number on hand to quickly expedite service. (See Figure 6-1) for machine serial plate location.



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(219) 879-5100
Service: (844) VAN-SERV or
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NOTE: The machine serial number also displays on the instrument panel at start-up, and on the hours screen.

WARNING

Do Not operate any of the Air N Arc® 150 or Contractor Series functions if there is a known safety condition or component issue. Disable the equipment by disconnecting it from its power source. Install a Lock-out tag to identify the equipment is inoperable/out of service to other personnel to prevent accidental operation.

WARNING

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

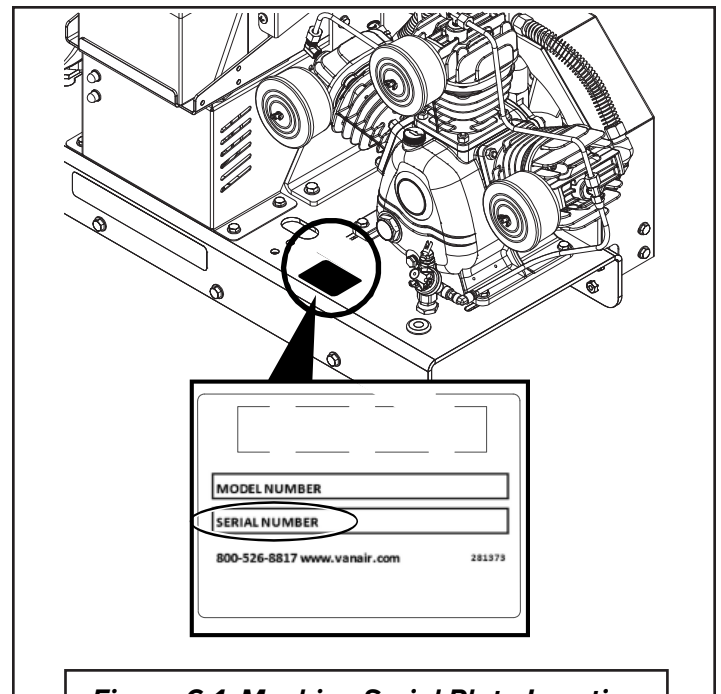


Figure 6-1: Machine Serial Plate Location

TABLE 6A: TROUBLESHOOTING GUIDE

Fault/Malfunction	Possible Cause	Corrective Action
ENGINE¹		
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: See Section 5.4.16, Servicing the System Fuses and Circuit Breakers , and/or consult the Engine Operation Manual.
	Faulty starter connection	Check for proper electrical connections at starter.
	Kill Switch and/or wiring	Inspect and replace if necessary
Engine Will Crank, But Not Start	Low fuel and/or oil supply	Check fuel level. Check engine oil level; refer to Table 5A, Key #5 . Replenish as necessary.
	Wrong fuel type fuel used	Use only clean, automotive grade gasoline—do not use E85, etc.
	Pinched fuel line	Replace or reroute if necessary.
	Fuel filter(s) and/or fuel lines partly plugged	Replace fuel filter or lines. Refer to sub-section Section 5.7 for assistance with replacing the engine gas and inline filters.
	Low battery voltage	Recharge or replace if necessary.
		Loose connections; tighten connections.
		Dirty connections; clean connections.
	Restricted engine air filter	Check that the air filter elements, and all components are properly secured. Clean or replace air filter element(s) necessary. (See Section 5.7 .)
	Defective oil pressure switch	Check continuity, and replace the oil pressure switch, if necessary. Refer to parts illustrations and tables for 7.4a and 7.4b .
		Disconnect the wire from switch. If the engine runs, the switch is faulty and needs replaced.
	Blown fuse	Check continuity, and replace if necessary. See Section 5.4.16, Servicing the System Fuses and Circuit Breakers , and/or consult the Engine Operation Manual.
	Poor ground connection	Check and clean/renew ground connection.
	Fouled spark plug	Check spark plug and replace if necessary. See sub-Section 5.7.4 .
	Engine choke not operating properly	Check engine choke position on control panel.
	Broken or faulty wiring	Check harness connections and wiring condition.
Improper Control Operation: Engine Does Not Speed Up	Stepper motor (Vanair® VNR680)	Check stepper motor
		Check throttle relay; replace if necessary. Refer to Section 5.4.16, Servicing the System Fuses and Circuit Breakers .
	Faulty stepper motor (Vanair® VNR680 model)	Faulty stepper. Replace if necessary.
		Refer to Section 5.4.16, Servicing the System Fuses and Circuit Breakers .
	Governor stuck	Free governor and lubricate if necessary.
¹ Do not attempt to service or replace major engine components, or any items that require special timing or adjustment procedures. Contact your Dealer or Vanair® Support. For additional information concerning the engine, consult the Vanair® VNR Engine Operation Manual.		
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TABLE 6A: TROUBLESHOOTING GUIDE

Fault/Malfunction	Possible Cause	Corrective Action
ENGINE (CONTINUED)¹		
Improper Control Operation: Engine Does Not Speed Up (continued)	Fuel filter(s) and/or fuel lines partly plugged	Replace fuel filter or lines. View sub-section 5.7.3 for assistance with replacing the engine gas and inline filters.
	Unloader valve(s) sticking or faulty	Consult the Vanair® Service Department.
	Blown system fuse	Check system fuse; replace if necessary. See Section 5.4.16, Servicing the System Fuses and Circuit Breakers , and/or consult the Engine Operation Manual.
	Broken or faulty wiring	Check harness connections and wiring condition.
Improper Control Operation: Engine Does Not Slow Down	Leak in control line	Check for leaks; replace line if necessary.
	Pressure control out of adjustment or malfunctioning	Pressure settings may need to be reset. Consult Section 5.4.1, Adjusting Compressor Cut-in/Cut-out Pressure .
	Unloader valve(s) sticking or faulty	Valves may need to be cleaned, rebuilt or replaced. Consult the Vanair® Service Department.
	Throttle stuck	Restart the engine.
	Defective air pressure switch (stock open)	Check continuity and replace switch, if necessary.
	Throttle solenoid	Check throttle solenoid. Replace if necessary.
		Check throttle relay; replace if necessary. Refer to Section 5.4.16, Servicing the System Fuses and Circuit Breakers .
	Broken or faulty wiring	Check harness connections and wiring condition.
Engine Overheats	Located too close to obstruction	Move further from obstruction, or move obstructing obstacle(s).
	Restricted engine oil filter	Replace engine oil filter. Refer to Table 5A, Key #2 . Also refer to sub-section 5.7
	Low oil level	Check engine oil level; refer to Table 5A, Key #5 . Replenish as necessary. Also refer to sub-sections 5.7 for engine oil issues.
	Restricted engine air filter	Check that the air pre-cleaner and filter elements, and all components are properly secured (air pre-cleaner: Table 5A, Key #3 , and air filter: Table 5A, Key #12 . Clean or replace as necessary.
	Restricted cooling air in or out	Clean engine intake grill; Clean oil cooler fins (Vanair® VNR680)
	Engine oil cooler plugged	Clear debris/dirt from cooler core/flush shroud. (See 7.4a and 7.4b .)
Engine Stops During Operation	Low oil level; or oil level too high	Check engine oil level; refer to Table 5A, Key #5 . Replenish as necessary. See sub-section 5.7 for more information.
	Low fuel	Check fuel level. Fill as necessary.
	Defective oil pressure switch	Check continuity and replace switch, if necessary.
	Fuel filter(s) and/or fuel lines partly plugged	Replace fuel filter or lines. Refer to sub-section 5.7 for more information.
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TABLE 6A: TROUBLESHOOTING GUIDE

Fault/Malfunction	Possible Cause	Corrective Action
ENGINE (CONTINUED)¹		
Engine Stops During Operation (continued)	Wrong fuel type fill	Use only clean, automotive grade gasoline. Do not use E85 or other fuel alternatives.
	Restricted engine air filter	Replace. Refer to sub-section 5.7 for more information.
	Restricted cooling air in or out	Clean engine air filter cover and intake grill. Check engine air filter.
	Fouled spark plug	Check spark plug and replace if necessary. See sub-section 5.7 for additional information.
Gradual Loss Of Engine Power	Contaminated fuel	Drain and replace fuel supply with fresh gasoline.
	Wrong fuel type fill	Use only clean, automotive grade gasoline—do not use E85, etc.
	Engine air filter contaminated	Check air pre-cleaner and filter elements, and all components are properly secured (air pre-cleaner: Table 5A, Key #3 , and air filter: Table 5A, Key #12 . Clean or replace air filter element(s) necessary. See 5.7
	Fuel filter(s) and/or fuel lines partly plugged	Replace fuel filter or lines. See sub-section 5.7 for additional information.
	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. See sub-section 5.7.4 .
	Engine choke not operating properly	Check engine choke position on controller.
COMPRESSOR		
Flywheel Rotation Slows Down	Belt(s) slipping	Re-tension or replace belts.
Severe Vibration	Bent crankshaft	Remove and replace. Contact Vanair® Service Department.
Abnormal Noise	Worn or damaged belt	Check and replace belt as needed
	Knocking noise	Compressor or bearing worn; Contact Vanair® Service Department.
	Worn connecting rod bearing.	Replace compressor.
Compressor Overheats	Low compressor oil level	Check oil level and refill to proper level if necessary. Refer to Table 5A, Key #4 . Do not overfill.
	Obstructed or restricted intake air flow	Check for obstructions (frame, body, etc.) to air filter vents. Clean, or replace air filter if necessary. See Table 5A, Key #13 .
	Duty cycle too high	Reduce the duty cycle.
	Unloader valve(s) sticking or faulty	Valves may need to be cleaned, rebuilt or replaced. Consult the Vanair® Service Department.
Compressor Will Not Build Up Air Pressure	Broken valve plate	Repair or replace the valve plate.
	Pilot valve malfunction	Replace the pilot valve.
	Dirt on the valve plate	Remove and clean it.
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TABLE 6A: TROUBLESHOOTING GUIDE

Fault/Malfunction	Possible Cause	Corrective Action
COMPRESSOR (CONTINUED)¹		
Compressor Will Not Build Up Air Pressure (continued)	Leaks from safety valve	Repair or replace safety valve.
	Leaks from bolt holes	Tighten the nuts even with packing.
	Uneven valve seat surface	Remove and lap the surface.
	Excessive blow by on piston rings	Replace with new ones.
	Bad packing (gasket too thick)	Replace packing (gasket).
	Excessive air leaks	Eliminate air leaks.
	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. Make sure tools are rated properly for this machine.
	Pressure control out of adjustment or malfunctioning	Pressure settings may need to be reset. Consult Section 5.4.1, Adjusting Compressor Cut-in/Cut-out Pressure .
	Compressor capacity too low to accommodate demand	Substitute larger capacity compressor system.
	Obstructed or restricted intake air flow	Check for obstructions (frame, body, etc.) to air filter vents. Replace air filter if necessary. Refer to Table 5A, Key #13 .
	Belt(s) slipping	Re-situate and adjust belts for tension, or replace belts if necessary. Consult Section 5.4.3, Replace and Re-tension the Compressor and/or Generator Drive Belts , and its sub-sections.
	Engine governor stuck	Free governor and lubricate if necessary. Consult Vanair® Service
	Unloader valve(s) sticking or faulty	Valves may need to be cleaned or rebuilt/replaced. Consult with Vanair® Service Department.
	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. Refer to Section 5.4.16, Servicing the System Fuses and Circuit Breakers .
	Service valve is open	Close service valve.
Slipping Of Belts	Pressure gauge is malfunctioning	Check pressure gauge function/control line routing; adjust, repair or replace as necessary.
	Pressure gauge is malfunctioning (continued)	Check for proper operation with an auxiliary air source. Replace if necessary.
	Discharge piping leaks	Tighten connections; replace faulty piping.
	Working pressure too high	Lower working pressure.
	Improper belt tension	Re-situate and adjust belts for tension, or replace belts if necessary. Consult Section 5.4.3, Replacing and Re-tensioning the Compressor and/or Generator Drive Belts , and its sub-sections.
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TABLE 6A: TROUBLESHOOTING GUIDE

Fault/Malfunction	Possible Cause	Corrective Action
COMPRESSOR (CONTINUED)¹		
Slipping of Belts <i>(continued)</i>	Worn belt	Replace with new ones.
Inaccuracy Of Pressure Gauge	Pressure gauge damaged	Replace.
Excessive Moisture In The Compressed Air	Moisture accumulating in air tank	Drain water from air tank. Refer to Section 5.4.15, Draining the Air Tank .
Compressor System Over-pressures and/or Relief Valve Opens	Damaged/kinked control line	Check line for damage (wear, kinks, etc.). Re-route, re-tie or replace if necessary. (Refer to Section 7.10, Hose Installation Guide for assistance in running or checking hose lines).
	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. Consult Section 5.4.1, Adjusting Compressor Cut-in/Cut-out Pressure .
	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.
	Head unloader blocked open	Inspect/clean unloader valve.
	Belt(s) not adjusted properly, worn or slipping	Belt(s) out of position or malfunctioning. Consult Section 5.4.3, Replacing and Re-tensioning the Compressor and/or Generator Drive Belts , and its sub-sections.
System Operating Pressure Below Specified Minimum	Air tools not performing adequately	Use air tools that match compressor capabilities. Check air tools for wear, damage, or malfunctions. Replace or repair.
	Compressor capacity too low to accommodate demand	Use a larger capacity compressor system.
	Pressure control out of adjustment or malfunctioning	Pressure settings may need to be reset. Consult Section 5.4.1, Adjusting Compressor Cut-in/Cut-out Pressure .
	System leaking, or is damaged	Inspect for leaks. Repair and/or replace damaged parts as necessary. Use Section 9, Illustrated Parts List to visually confirm/identify any part that needs to be replaced before ordering part.
	Pressure switch set too low/malfunction	Pressure settings may need to be reset. Consult Section 5.4.1, Adjusting Compressor Cut-in/Cut-out Pressure .
	Input RPM too low	Adjust to proper setting.
	Clogged compressor air filters	Check air filters. Replace if necessary; See Table 5A, Key #13 .
	Incorrect engine speed	Reduce load. See Section 5.4.2, Adjusting the Engine Speed .
	Pilot valve stuck open	Check valve; clean or replace if necessary.
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TABLE 6A: TROUBLESHOOTING GUIDE

Fault/Malfunction	Possible Cause	Corrective Action
COMPRESSOR (CONTINUED)¹		
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. See Table 5A, Key #4 .
Excessive Oil Consumption/ Low Oil Level	Worn piston rings or cylinder	Replace. Consult Vanair® Service Department for piston ring and cylinder maintenance procedures.
	Oil leaks	Check for any source of oil leaks; correct and repair.
	Wrong oil being used	Use correct oil; Drain and refill with recommended oil.
DC GENERATOR		
Welder and/or Battery Charger Behaves Erratically	Poor connections	Check for twisted cables or loose receptacle connections. Check weld board connections.
	Connection cables or receptacles are soiled/contaminated (continued)	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 Vanair® Service Department if behavior persists.
	Power level too low	If running more than one function simultaneously, turn off competing function.
Display Not Working	Loose or faulty wiring/connections	Check wiring and connectors: If loose, secure; If faulty, replace.
GENERATOR		
No AC Generator Output	Serpentine belt out of position or malfunctioning	Re-situate and adjust belt tension, or replace belt if necessary. Consult Section 5.4.3, Replacing and Re-tensioning the Compressor and/or Generator Drive Belts , and its sub-sections.
	Loose or faulty wiring	Check wiring: Loose - secure; faulty - replace.
	Circuit breaker blown	Reset the circuit breaker. Refer to Section 5.4.16, Servicing the System Fuses and Circuit Breakers . Replace if faulty. (See Figures 2-1 and Figures 5.13 and 5.14).
Low AC Voltage	Engine speed too low for demand	Adjust speed control. Consult Section 5.4.2, Adjusting the Engine Speed .
	Faulty capacitor	Replace capacitor.
High AC Voltage	Engine speed too high for demand	Adjust speed control. Consult Section 5.4.2, Adjusting the Engine Speed , and the Engine Operation Manual.
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