

# SECTION 7: TROUBLESHOOTING

## 7.1 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. Adherence to a routine maintenance regimen will minimize the occurrence of many common problems. Refer to **Section 6.3, 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 Operator's Manual and the Generator Operator's Manual. Should the situation remain unresolved after exhausting available sources, contact the Vanair Service Department at:

**Phone: 800-526-8817 (toll free)**

**Phone: 219-879-5100, ext. 400**

**Fax: 219-879-5335**

### NOTE

When contacting the Vanair Service Department, please have machine serial number on hand to quickly expedite service. See *Figures W-1* (machine) and/or *W-2* (compressor unit) in the *Warranty Details Section* for serial plate locations.



### WARNING

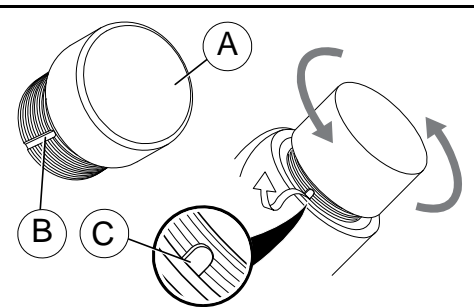
**DO NOT** operate any of the Air N Arc 300 Serie's functions if there is a known unsafe condition. Disable the equipment by disconnecting it from its power source. Install a lock-out tag to identify the equipment as inoperable to other personnel to prevent accidental application.



### WARNING

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

**Refer to Figure 7-1. Open fill cap SLOWLY (contents under pressure) to make sure all pressure has been relieved.**



KEY	DESCRIPTION
A	COMPRESSOR FILL CAP (red)
B	FILL CAP BLEED VENT GROOVE
C	Open/crack cap <b>slightly</b> to allow bleed vent to relieve pressure

**Figure 7-1: Pressure Relief**

## 7.2 TROUBLESHOOTING GUIDE

Fault/Malfunction	Possible Cause	Corrective Action
ENGINE		
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	Check engine fuse: See <b>Section 6.7, Servicing the System Fuses and Circuit Breakers</b> , and/or consult the Engine Operator's Manual.
Engine will not start	Low fuel and/or oil supply	Check fuel gauge. Check engine oil level; refer to <b>Section 6.6.12, Checking the Engine Oil</b> . Replenish as necessary. Consult the Engine Operator's Manual for additional information on engine maintenance.
	Pinched fuel line	Replace or reroute if necessary.
	Plugged fuel filter(s)	Replace if necessary. Refer to <b>Section 2.4, Engine</b> , and the Engine Operator'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 Operator's Manual.
	Defective oil pressure switch	Check continuity, and replace if necessary.
	Defective engine temperature switch	Check continuity, and replace if necessary.
	Poor ground connection	Check and clean/renew connection.
	Machine hood shutdown safety switch prevents start-up of engine	Close hood panel or check if roof switch is faulty. See <b>Section 1.11, Machine Canopy Access Safety Switch</b> .
Improper Control Operation: Engine does not speed up	Throttle solenoid stuck	Lubricate; replace throttle solenoid if necessary.
	Governor stuck	Free governor and lubricate if necessary.
	Fuel filter partly plugged	Replace fuel filter. Refer to <b>Section 2.4, Engine</b> , and the Engine Operator's Manual.
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## 7.2 TROUBLESHOOTING GUIDE

Fault/Malfunction	Possible Cause	Corrective Action
ENGINE (CONTINUED)		
Improper Control Operation: Engine does not speed up (continued)	Operating pressure too high	Adjust to proper pressure setting. Refer to <b>Section 2.2.7, Adjustable Pressure Switch</b> , and <b>Section 6.6.14, Adjusting the Pressure Setting</b> . Replace if switch continues to deviate from setting.
	Fuel filter partly plugged	Replace fuel filter. Refer to <b>Section 2.4, Engine</b> , and the Engine Operator's Manual.
		Auxiliary fuel pump may be needed for remote fuel tank. Refer to <b>Section 4, Installation</b> .
Defective Throttle Control Relay	Solenoid not actuating	Inspect; replace if necessary.
Improper Control Operation: Engine does not slow down	Leak in control line	Check for leaks; replace line if necessary.
	Pressure switch out of adjustment	Adjust to proper pressure setting. Refer to <b>Section 2.2.7, Adjustable Pressure Switch</b> , and <b>Section 6.6.14 Adjusting the Pressure Setting</b> . Replace if switch continues to deviate from setting.
	Pressure switch faulty	Replace pressure switch.
	Governor stuck	Free governor and lubricate if necessary. Refer to Engine Operator's Manual.
Engine overheats	Low oil level	Check engine oil level; refer to <b>Section 6.6.12, Checking the Engine Oil</b> . Replenish as necessary. Consult the Engine Operator's Manual for additional information on engine maintenance.
	Engine coolant level low	Check; add if necessary. Refer to Engine Operator's Manual.
	Located too close to obstruction	Move further from obstruction.
	Engine oil filter plugged	Replace engine oil filter. Refer to <b>Section 2.4, Engine</b> , and the Engine Operator's Manual.
	Engine oil radiator plugged	Clear debris/dirt from cooler core/flush shroud. Refer to <b>6.6.11</b> .
	Restricted cooling air in or out	Clear debris/dirt from engine radiator. Refer to <b>6.6.11</b> .
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## 7.2 TROUBLESHOOTING GUIDE

Fault/Malfunction	Possible Cause	Corrective Action
ENGINE (CONTINUED)		
Engine overheats (continued)	Fault with engine cooling system	Consult Engine Operator's Manual.
	Compressor oil level low (fan hydraulics depend on compressor oil level)	Check oil level and refill to proper level if necessary (ensure machine is parked on a level surface). Refer to <b>Section 6.6.3, Checking the Compressor Oil.</b>
Engine stops during operation	Low oil level	Check engine oil level; refer to <b>Section 6.6.12, Checking the Engine Oil.</b> Replenish as necessary. Consult the Engine Operator's Manual for additional information on engine maintenance.
	High engine temperature	Let engine cool. Check for engine coolant level. Refer to <i>Engine Overheats</i> fault.
	Engine shutdown switch activated	Confirm that access door is properly in place. Replace faulty engine shutdown switch; see <b>Section 1.11, Machine Canopy Access Safety Switches.</b>
Gradual loss of engine power	Contaminated fuel	Draw and replace fuel supply.
	Engine air filter contaminated	Check air filter. Replace if necessary (refer to the Engine Operator's Manual).
	Fuel filter(s) contaminated	Check fuel filters. Refer to <b>Section 2.4, Engine</b> , and the Engine Operator's Manual for additional information on engine maintenance.
	Low fuel level	Add fuel.
	Overload	Reduce load; check load use, and reduce
	Engine not warmed up	Allow engine to warm up.
<b>For additional information concerning an engine problem, consult the Engine Operator's Manual.</b>		
COMPRESSOR		
Compressor overheats  This condition will cause a compressor shutdown and compressor fault light to turn on. Before restarting the compressor, determine the cause for overheating.	Low compressor oil level	Check oil level and refill to proper level if necessary (ensure machine is parked on a level surface). Refer to <b>Section 6.6.3, Checking the Compressor Oil.</b>
	Obstructed fluid cooler	Clear debris/dirt from cooler core/flush shroud.
	Obstructed cooler fins	Clear/clean if required. Refer to <b>Section 6.6.11.</b>
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## 7.2 TROUBLESHOOTING GUIDE

Fault/Malfunction	Possible Cause	Corrective Action
COMPRESSOR (CONTINUED)		
Compressor overheats (continued)  This condition will cause a compressor shutdown and compressor fault light to turn on. Before restarting the compressor, determine the cause for overheating.	Insufficient air flow over cooler	Check for obstructions (frame, body, etc.) to cooling air flow.
	Defective temperature switch	Check switch; replace if necessary.
	Compressor oil filter plugged	Replace filter; refer to <b>Section 6.6.4, Replacing the Compressor Oil Filter Element.</b>
	Input rpm too high	Adjust to proper setting; refer to <b>Section 6.6.13, Adjusting the Engine Speed</b> , and the Engine Operator's Manual.
	Fan not operating	Low oil; check oil level and refill to proper level if necessary (ensure machine is parked on a level surface). Refer to <b>Section 6.6.3, Checking the Compressor Oil.</b>  Belt slip on hydraulic pump. Refer to <b>Section 6.6.15.5 or Section 6.6.15.6.</b>
Compressor shuts down with air demand present	Compressor temperature switch opening	Check compressor oil level. Replenish if necessary.
	Restricted cooling air intake	Reposition machine.
	Fan not operating	Low oil; check oil level and refill to proper level if necessary (ensure machine is parked on a level surface). Refer to <b>Section 6.6.3, Checking the Compressor Oil.</b>  Belt slip on hydraulic pump. Refer to <b>Section 6.6.15.5 or Section 6.6.15.6.</b>
	Compressor oil filter plugged	Replace filter; refer to <b>Section 6.6.4, Replacing the Compressor Oil Filter Element.</b>
	Clutch faulty	Inspect; replace if necessary.
	Plugged or restricted cooler core	Flush cooler. Consult the Vanair Service Department for assistance in cleaning/flushing the cooler core.
	Contaminated cooler fins	Clean cooler fins. Refer to <b>Section 6.6.11, Inspecting the System Coolers.</b>
Compressor will not build up pressure	Low compressor oil level	Check oil level and refill to proper level if necessary (ensure machine is parked on a level surface). Refer to <b>Section 6.6.3, Checking the Compressor Oil.</b>
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## 7.2 TROUBLESHOOTING GUIDE

Fault/Malfunction	Possible Cause	Corrective Action
COMPRESSOR (CONTINUED)		
Compressor will not build up pressure (continued)	Air demand too high	Check for leaks and take corrective action.
		Check air tools for wear, damage, or malfunctions. Replace or repair.
	Compressor capacity too low to accommodate demand	Substitute larger capacity compressor system.
	Compressor air filter plugged	Check air filter. Replace if necessary; refer to <b>Section 6.6.1, Compressor Air Filter</b> .
	Pressure switch out of adjustment	Reset pressure switch. Refer to <b>Section 2.2.7, Adjustable Pressure Switch</b> , and <b>Section 6.6.14, Adjusting the Pressure Setting</b> . Replace if switch continues to deviate from setting.
	Defective pressure switch	Replace pressure switch.
	Engine does not speed up	Adjust speed control. Consult <b>Section 6.6.13, Adjusting the Engine Speed</b> , and the Engine Operator's Manual.
	Engine governor stuck	Free governor and lubricate if necessary. Consult the Engine Operator's Manual.
	Control throttle solenoid stuck	Replace throttle solenoid.
	Belt(s) slipping	Re-situate and adjust belt tension, or replace belt if necessary. Consult <b>Section 6.6.15, Replacing and Re-tensioning the Serpentine Belts</b>
	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.
	Inlet valve fails to open	Repair/replace inlet valve. Refer to <b>Section 6.6.2, Repairing the Air Inlet Valve</b> . Order inlet valve repair kit—see <b>Table 9A: Recommended Spare Parts List</b> .
	Inlet valve frozen shut	Repair/replace inlet valve. Refer to <b>Section 6.6.2, Repairing the Air Inlet Valve</b> . Order inlet valve repair kit—see <b>Table 9A: Recommended Spare Parts List</b> .
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## 7.2 TROUBLESHOOTING GUIDE

Fault/Malfunction	Possible Cause	Corrective Action
COMPRESSOR (CONTINUED)		
Compressor system over-pressures  This condition will cause a compressor shutdown, and a fault light will turn on. Before restarting the compressor, determine the cause of the over-pressure. May also cause the relief valve to open.	Pressure switch setting too high	Reset pressure switch. Refer to <b>Section 2.2.7, Adjustable Pressure Switch</b> , and <b>Section 6.6.14, Adjusting the Pressure Setting</b> . Replace if switch continues to deviate from setting.
	Pressure switch malfunction	Check for operation/damage: repair or replace.
	Unload solenoid valve defective	Replace solenoid valve.
	Leak in air control line	Check for leaks and take corrective action.
	Restriction in control line	Clean if soiled; if ice is present, clear and remove.
	Damaged/kinked control line	Check line for damage (wear, kinks, etc.). Re-route, re-tie or replace if necessary (refer to <b>Appendix A, A.6 Hose Installation Guide</b> for assistance in running or checking hose lines).
	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 ( <b>DO NOT</b> use wire cutters: use a loom cutting tool or a clean, sharp razor blade).
	Inlet valve Teflon "O" ring popped out of groove	Replace "O" ring: Refer to <b>Section 6.6.2, Repairing the Air Inlet Valve</b> . Order inlet valve repair kit—see <b>Table 9A: Recommended Spare Parts List</b> .
	Inlet valve piston is stuck in down position.	Check for proper operation with an auxiliary air source—replace or rebuild inlet valve. Consult <b>Section 6.6.2</b> .
	Compressor shaft seal is leaking	Replace shaft seal with available kit. Refer to <b>Section 6.6.7</b> .
	Minimum pressure/check valve is malfunctioning	Rebuild or replace check valve: Refer to <b>Section 6.6.10</b> ; order check valve repair kit—see <b>Table 9A: Recommended Spare Parts List</b> .
	Pressure gauge is malfunctioning	Check gauge for proper operation; replace if necessary and check controls.
	Defective safety valve	Replace safety valve.
	Plugged coalescer	Replace coalescer. Refer to <b>Section 6.6.6, Replacing the Spin-on Air/Oil Coalescer</b> .
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## 7.2 TROUBLESHOOTING GUIDE

Fault/Malfunction	Possible Cause	Corrective Action
COMPRESSOR (CONTINUED)		
No service air output (See also <i>Compressor will not build up pressure</i> )	If equipped, OSHA valve/velocity fuses, not functioning properly	Reset or replace OSHA valve.
Low service air output (See also <i>Compressor will not build up pressure</i> )	Clogged compressor air filter	Check air filter. Replace if necessary; refer to <b>Section 6.6.1, Compressor Air Filter</b> .
	Solenoid valve sending continuous signal to inlet valve	Rebuild or replace solenoid valve if defective. Refer to <b>Section 6.6.8</b>
	Incorrect compressor speed	Adjust speed. Refer to <b>Section 6.6.14</b> .
Compressor stalls	Pressure switch setting too high	Adjust pressure switch setting. Refer to <b>Section 2.2.7, Adjustable Pressure Switch</b> , and <b>Section 6.6.14 Adjusting the Pressure Setting</b> . Replace if switch continues to deviate from setting.
	Speed is set too low	Check to see if compressor goes to high speed.
System operating pressure below specified minimum	Air demand too high	Check air tools for wear, damage, or malfunctions. Replace or repair.
	Compressor capacity too low to accommodate demand	Substitute larger capacity compressor system.
	System leaks or is damaged	Inspect for leaks. Repair and/or replace damaged parts as necessary. Use <b>Section 9, Illustrated Parts List</b> to visually confirm/identify any part that needs to be replaced before ordering part.
	Pressure switch set too low/malfunction	Adjust pressure switch setting. Refer to <b>Section 2.2.7, Adjustable Pressure Switch</b> , and <b>Section 6.6.14, Adjusting the Pressure Setting</b> . Replace if switch continues to deviate from setting.
	Input rpm too low	Adjust to proper setting.
	Contaminated inlet valve	Remove valve and clean piston. Refer to <b>Section 6.6.2, Repairing the Air Inlet Valve</b> . Order inlet valve repair kit—see <b>Table 9A: Recommended Spare Parts List</b> .
	Inlet valve fails to open	Repair/replace inlet valve. Refer to <b>Section 6.6.2, Repairing the Air Inlet Valve</b> . Order inlet valve repair kit—see <b>Table 9A: Recommended Spare Parts List</b> .
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## 7.2 TROUBLESHOOTING GUIDE

Fault/Malfunction	Possible Cause	Corrective Action
COMPRESSOR (CONTINUED)		
System operating pressure below specified minimum (continued)	Inlet valve frozen shut	Repair/replace inlet valve. Refer to <b>Section 6.6.2, Repairing the Air Inlet Valve</b> . Order inlet valve repair kit—see <b>Table 9A: Recommended Spare Parts List</b> .
Excess amount of oil in air discharge	Machine not on level surface	Move machine to level surface.
	Compressor oil level too high	The correct oil level is between the bottom of the oil port threads (low level) to the top lip of the port's threads (high level). Drain excess oil to correct level.
		Tank not positioned with the drain at its lowest point. Reposition machine. <b>NOTE:</b> Machine must be operated while on a level surface in order for proper compressor oil circulation throughout the system.
	Scavenger system not operating	Inspect scavenger line for obstructions or leaks. Replace if necessary.
	Coalescer element plugged or damaged	Replace the coalescer element. Consult <b>Section 6.6.6, Replacing the Spin-on Air/Oil Coalescer</b> . Order replacement coalescer element—see <b>Table 9A: Recommended Spare Parts List</b> .
Excessive moisture in the compressed air	Moisture accumulating in air tank	Drain water from air tank. Refer to <b>Section 6.6.9, Draining the Air Tank</b> .
WELDER		
Welder and 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 Vanair® Mfg., Inc. 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	Fuse at welder field blown	Replace the welder field fuse. Refer to <b>Section 6.7, Servicing the System Fuses and Circuit Breakers</b>
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## 7.2 TROUBLESHOOTING GUIDE

Fault/Malfunction	Possible Cause	Corrective Action
WELDER (CONTINUED)		
No welder output in CC mode	Bad ground connect	Make sure of connection. Clean welding surface.
	Faulty electrical circuit	Check electrical circuit.
GENERATOR		
No AC generator output	Serpentine belt slipping or damaged	Re-situate and adjust belt tension, or replace belt if necessary. Consult <b>Section 6.6.15, Replacing and Re-tensioning the Serpentine Belts</b> . Order replacement belt—see <b>Table 9A: Recommended Spare Parts List</b> .
	Faulty AC generator relay	Check; replace if necessary.
	Faulty capacitor	Check; replace if necessary.
Low AC voltage	Engine speed too low for demand	Adjust speed control. Consult <b>Section 6.6.13, Adjusting the Engine Speed</b> , and the Engine Operator's Manual.
	Weak or faulty capacitor	Check; replace if necessary.
	Belt slipping	Check tension or replace belt if necessary. Consult <b>Section 6.6.16, Replacing and Re-tensioning the Serpentine Belts</b> . Order replacement belt—see <b>Table 9A: Recommended Spare Parts List</b> .
High AC voltage	Engine speed too high for demand	Adjust speed control. Consult <b>Section 6.6.13, Adjusting the Engine Speed</b> , and the Engine Operator's Manual.