

Section 5 Troubleshooting

5.1 — Engine Troubleshooting

Table 5-1. Engine Diagnostics

Problem	Cause	Correction
Engine will not crank.	<ol style="list-style-type: none"> 1) Fuse blown. 2) Loose, corroded or defective battery cables. 3) Defective starter contact. 4) Defective starter motor. 5) Dead Battery. 	<ol style="list-style-type: none"> 1) Correct short circuit condition by replacing 7.5 Amp fuse. 2) Tighten, clean or replace as necessary.* 3) Tighten, clean or replace as necessary.* 4) Tighten, clean or replace as necessary.* 5) Charge or replace battery.
Engine cranks but will not start.	<ol style="list-style-type: none"> 1) Out of fuel. 2) Defective fuel solenoid (FS). 3) Defective spark plug(s). 4) Valve clearance needs adjustment. 	<ol style="list-style-type: none"> 1) Replenish fuel / Turn on fuel valve. 2) * 3) Clean, re-gap or replace plug(s). 4) Adjust valve clearance.
Engine starts hard and runs rough.	<ol style="list-style-type: none"> 1) Air cleaner plugged or damaged. 2) Defective spark plug(s). 3) Fuel regulator not set. 4) Fuel pressure incorrect. 5) Fuel selector in wrong position. 	<ol style="list-style-type: none"> 1) Check / replace air cleaner. 2) Clean, re-gap or replace plug(s). 3) Set fuel regulator. 4) Confirm fuel pressure to regulator is 10-12" water column (19-22mm mercury) for LP, and 3.5 - 7" water column (9-13mm mercury) for natural gas. 5) Move selector to correct position.
Generator is set to OFF, but the engine continues to run.	<ol style="list-style-type: none"> 1) Control board wired incorrectly. 2) Defective control board. 	<ol style="list-style-type: none"> 1) Repair wiring or replace control board.* 2) Replace control board.
No AC output from generator.	<ol style="list-style-type: none"> 1) Main line circuit breaker is in the OFF (or OPEN) position. 2) Generator internal failure. 	<ol style="list-style-type: none"> 1) Reset circuit breaker to ON (or CLOSED). 2) *
No transfer to standby after utility source failure.	<ol style="list-style-type: none"> 1) Defective transfer switch coil. 2) Defective transfer relay. 3) Transfer relay circuit open. 4) Defective control logic board. 	<ol style="list-style-type: none"> 1) * 2) * 3) * 4) *
Unit consumes large amounts of oil.	<ol style="list-style-type: none"> 1) Engine over filled with oil. 2) Engine breather defective. 3) Improper type or viscosity of oil. 4) Damaged gasket, seal or hose. 	<ol style="list-style-type: none"> 1) Adjust oil to proper level. 2) * 3) See "Engine Oil Recommendations." 4) Check for oil leaks.
* Contact an Authorized Independent Service Dealer for assistance.		

5.2 — Generator Troubleshooting

Table 5-2. Generator Diagnostics

Active Alarm	LED	Problem	Things to Check	Solution
NONE	GREEN	Unit running in AUTO but no power in house.	Check Generator Disconnect circuit breaker.	Contact servicing dealer if Generator Disconnect circuit breaker is in the ON position.
HIGH TEMPERATURE	RED	Unit shuts down during operation.	Check the LEDs/Screen for alarms.	Check ventilation around the intake, exhaust and rear of generator. Contact servicing dealer if no obstruction is found.
OVERLOAD REMOVE LOAD	RED	Unit shuts down during operation.	Check the LEDs/Screen for alarms.	Clear alarm and remove household loads from the generator. Put back in AUTO and restart.
RPM SENSE LOSS	RED	Unit was running and shuts down, attempts to restart.	Check the LEDs/Screen for alarms.	Clear alarm and remove household loads from the generator. Put back in AUTO and restart. If problem returns, contact servicing dealer to investigate possible fuel issue.
NOT ACTIVATED	NONE	Unit will not start in AUTO with utility loss.	See if screen says unit not activated.	Refer to activation section in Owner's Manual.
None	GREEN	Unit will not start in AUTO with utility loss.	Check screen for start delay countdown.	If the start up delay is greater than expected, contact servicing dealer to adjust from 2 to 1500 seconds.
LOW OIL PRESSURE	RED	Unit will not start in AUTO with utility loss.	Check the LEDs/Screen for alarms.	Check oil level. Add oil per Owner's Manual. Contact servicing dealer if oil level is correct.
RPM SENSE LOSS	RED	Unit will not start in AUTO with utility loss.	Check the LEDs/Screen for alarms.	Clear alarm. Navigate to the BATTERY MENU on the control pad LCD. Contact servicing dealer if battery is GOOD. Replace battery If CHECK BATTERY is displayed.
OVERCRANK	RED	Unit will not start in AUTO with utility loss.	Check the LEDs/Screen for alarms.	Check fuel line shutoff valve is in the ON position. Clear alarm. Attempt to start the unit in MANUAL. If it does not start or starts and runs rough, contact servicing dealer.
LOW VOLTS REMOVE LOAD	RED	Unit will not start in AUTO with utility loss.	Check the LEDs/Screen for alarms.	Clear alarm and remove household loads from the generator. Set back to AUTO and restart.
FUSE PROBLEM	RED	Unit will not start in AUTO with utility loss.	Check the LEDs/Screen for alarms.	Check ATO 7.5 Amp fuse. Replace with same type fuse if bad. Contact servicing dealer if fuse is good.
OVERSPEED	RED	Unit will not start in AUTO with utility loss.	Check the LEDs/Screen for alarms.	Contact servicing dealer.
UNDER VOLTAGE	RED	Unit will not start in AUTO with utility loss.	Check the LEDs/Screen for alarms.	Contact servicing dealer.
UNDERSPEED	RED	Unit will not start in AUTO with utility loss.	Check the LEDs/Screen for alarms.	Contact servicing dealer.

Table 5-2. Generator Diagnostics (Continued)

Active Alarm	LED	Problem	Things to Check	Solution
STEPPER OVERCURRENT	RED	Unit will not start in AUTO with utility loss.	Check the LEDs/Screen for alarms.	Contact servicing dealer.
MISWIRE	RED	Unit will not start in AUTO with utility loss.	Check the LEDs/Screen for alarms.	Contact servicing dealer.
OVERVOLTAGE	RED	Unit will not start in AUTO with utility loss.	Check the LEDs/Screen for alarms.	Contact servicing dealer.
LOW BATTERY	YELLOW	Yellow LED illuminated in any state.	Check screen for additional information.	Clear alarm. Navigate to the BATTERY MENU on the control pad LCD. Contact servicing dealer if battery is GOOD. Replace battery If CHECK BATTERY is displayed.
BATTERY PROBLEM	YELLOW	Yellow LED illuminated in any state.	Check screen for additional information.	Contact servicing dealer.
CHARGER WARNING	YELLOW	Yellow LED illuminated in any state.	Check screen for additional information.	Contact servicing dealer
SERVICE A	YELLOW	Yellow LED illuminated in any state.	Check screen for additional information.	Perform SCHEDULE A maintenance. Press ENTER to clear.
SERVICE B	YELLOW	Yellow LED illuminated in any state.	Check screen for additional information.	Perform SCHEDULE B maintenance. Press ENTER to clear.
Inspect Battery	YELLOW	Yellow LED illuminated in any state.	Check screen for additional information.	Inspect battery. Press ENTER to clear.

5.3 — Synergy Troubleshooting

Table 5-3. Synergy Diagnostics

Ecode/Active Alarm	LED	Problem	Things to Check	Possible Causes/Solution
1048 VSCF Overload	RED	Unit shuts down during operation.	Check the LEDs/Screen for alarms.	Alternator, AVR or wiring is damaged. Contact servicing dealer.
1049 VSCF Overload	RED	Unit shuts down during operation.	Check the LEDs/Screen for alarms.	Generator output is shorted or severely overloaded. Identify and clear the overload, and then restart.
1051 VSCF High Battery	YELLOW	Yellow LED illuminated in any state.	Check the LEDs/Screen for alarms.	Voltage supply to the AVR is high. If an external battery charger is in use, contact installing dealer to correct installation. If an external battery charger is NOT in use, contact servicing dealer.
1052 VSCF DC Overvoltage	RED	Unit shuts down during operation.	Check the LEDs/Screen for alarms.	Probable causes are: 1) The generator was temporarily overloaded. 2) The output was temporarily shorted. Try to restart the unit.
1053 VSCF Gate Fault	RED	Unit shuts down during operation or starting.	Check the LEDs/Screen for alarms.	AVR is damaged. Contact servicing dealer.
1054 VSCF IGBT Overtemp.	RED	Unit shuts down during operation or starting.	Check the LEDs/Screen for alarms.	Probable causes are: 1) Replace AVR filter. Inspect fan. 2) Intake or exhaust air path is blocked. Check intake and exhaust. 3) The BIG fan is not running (only runs when the engine is running). KEEP FINGERS AWAY FROM FAN HOUSING- PERSONAL INJURY CAN OCCUR IF FAN IS RUNNING. Contact servicing dealer. 4) Air leak in AVR enclosure. Contact servicing dealer. 5) Engine running too hot. Inspect air intake and exhaust. 6) Ambient temperature has risen above 60° F. Derate the generator output per specifications.
1055 VSCF Phase Error	RED	Unit shuts down during starting.	Check the LEDs/Screen for alarms.	An incorrect voltage and frequency has been detected during starting. Probable causes are: 1) Alternator damage. Contact servicing dealer. 2) Generator has started into a severe load. Manually operate transfer switch back to utility position and try to restart unit. If problem persists, remove load and attempt to restart unit again. 3) The engine may not be reaching its prescribed speed. Proceed as follows: <ul style="list-style-type: none"> • Verify stepper motor is moving and linkage is free. • Verify stepper motor is plugged in. • Verify gas pressure is within specified limits.
1056 VSCF Undervoltage	RED	Unit shuts down during operation or starting.	Check the LEDs/Screen for alarms.	The generator output voltage is too low. Probable causes are: 1) The load is too large. Remove load and attempt to restart unit. 2) Alternator or AVR damage. Contact servicing dealer.

Table 5-3. Synergy Diagnostics (Continued)

Ecode/Active Alarm	LED	Problem	Things to Check	Possible Causes/Solution
1057 VSCF Overvoltage	RED	Unit shuts down during operation or starting.	Check the LEDs/Screen for alarms.	Probable causes are: 1) The generator has been overloaded. Remove load and attempt to restart unit. 2) Generator has started into a severe load. Manually operate transfer switch back to utility position and try to restart unit. If problem persists, remove load and attempt to restart unit again.
1058 VSCF DC Undervoltage	RED	Unit shuts down during operation or starting.	Check the LEDs/Screen for alarms.	The DPE winding supplies this voltage. 1) Alternator damage. Contact servicing dealer.
1059 VSCF Field Loss	RED	Unit shuts down during starting.	Check the LEDs/Screen for alarms.	Unit detects no output voltage while starting. 1) Alternator damage. Contact servicing dealer.
1061 VSCF Field Loss	RED	Unit shuts down during operation.	Check the LEDs/Screen for alarms.	Unit detects loss of output voltage while running. 1) Alternator damage. Contact servicing dealer.
1060 Big Fan Failure	RED	Unit shuts down during operation.	Check the LEDs/Screen for alarms.	This alarm occurs when the AVR electronics temperature exceeds 70 C. Possible causes are: 1) AVR filter faulty. Replace AVR filter. 2) Intake or exhaust air path is blocked. Check intake and exhaust. 3) The BIG fan is not running (only runs when the engine is running). KEEP FINGERS AWAY FROM FAN HOUSING- PERSONAL INJURY CAN OCCUR IF FAN IS RUNNING. Contact servicing dealer. 4) Air leak in AVR enclosure. Contact servicing dealer. 5) Engine running too hot. Inspect air intake and exhaust. 6) Ambient temperature has risen above 60° F. Derate the generator output per specifications. If message is displayed when generator is stopped, also check SMALL fan. Small fan RUNS for 60 minutes after generator is stopped and keeps electronics cool during heat soak.
1065 Overfrequency	RED	Unit shuts down during operation.	Check the LEDs/Screen for alarms.	Probable causes are: 1) Overload. Remove load and attempt to restart unit. 2) RPM sensor has failed. Contact servicing dealer. 3) Stepper motor problem. Contact servicing dealer.
1066 VSCF Speed mismatch	RED	Unit shuts down during Operation or starting.	Check the LEDs/Screen for alarms.	1) Fuel problem (pressure loss). Check fuel supply and attempt to restart unit. 2) A large load is not wired through the Loadshed module. Contact installing dealer to correct installation. 3) Large overload. Remove load and attempt to restart unit. 4) Throttle or engine problem. Contact servicing dealer.
1070 Small fan failure	YELLOW	"Small fan failure" is displayed. If unit was running in AUTO and utility returns, it will continue to run for one hour to cool electronics without fan.	Check the LEDs/Screen for alarms.	Small fan current incorrect. Probable causes are: 1) Fan wiring or mechanical problem. Contact servicing dealer. 2) Air path is blocked. Check AVR filter. KEEP FINGERS AWAY FROM FAN HOUSING- PERSONAL INJURY CAN OCCUR IF FAN IS RUNNING.

5.4 — Load Shed Troubleshooting

Table 5-4. Load Shed Diagnostics

Symptom	Possible Causes
Generator stalls when large load is supplied.	1) Total load is too big for the generator and fuel type. Contact installing dealer to correct installation. 2) A large load is not wired through the Loadshed module. Contact installing dealer to correct installation.
Large loads keep getting shed and locked out (load LED goes out for 30 minutes).	Total load is too big for generator. Contact installing dealer to correct installation.
Output voltage is low/high.	Voltage calibration incorrect. Contact servicing dealer.
Generator does not pull full power.	Current calibration incorrect. Contact servicing dealer.