




Gekko Systems Carbon Scout Troubleshooting Guide 230607

Fault	Possible Cause	Counter Measures
Standard Features		
Zero or negative Carbon Concentration reading	Moisture on the laser sensor face	Wipe face with a soft cloth
	Salt and dust on the laser sensor face	Wipe face with a soft cloth
	No carbon in a sample	Is dropper in tank
	No carbon in the sample	Check a leach tank has not been selected
	Laser misalignment	Align laser sensor. Refer to Section 4.4.14 for the laser alignment procedure.
Leaking carbon from the strainer	The trap door will not close	Check air pressure.
	The trap door will not close	Check air cylinder is not seized.
	The trap door will not close	Check trap door mechanism is not seized.
	Trap faces not meeting	Check for bends or distortion of the strainer, replace if required.
Laser sensor level over- and under-range	Wiring connections	Check connections are as per electrical drawings. A qualified electrician is required. 
	Incorrect laser sensor settings	Verify and correct any incorrect settings on the laser sensor.
Laser sensor measurements deviation	Laser system cooling system failure	Check and rectify cooling system for laser sensor
	Incorrect laser sensor alignment	Verify and correct laser alignment
	Misting inside cabinet	Check and clear any mist inside the cabinet Check air shot in working order
Sample fill time exceeded	Slurry or water level not reaching the required level	Increase sample time setting in the "Parameters" page to suit. Sample times may differ per tank due to longer or shorter sample lines.
Purge water flow fault	Low supply water pressure	Check water supply pressure is adequate
	Blocked sample line	Clear blockage on a sample line
Actual sample volume exceeds target sample volume	Inadequate Sample Addition Volume setting	Reduce Sample Addition Volume setting in the "Parameters" page
Sample cone overflowing	Inadequate Sample Addition Volume setting	Reduce Sample Addition Volume setting in the "Parameters" page
Carbon Scout crash stopped	Low air pressure	Check the air supply is active and at a pressure above 400 kPa.
The pinch valve sleeve was torn or ruptured	Air supply to pinch valve sleeve exceeds rating for rubber sleeve	Reduce air pressure to an adequate level. Refer to the pinch valve manual for detail on optimum and differential pressure settings.
HMI screen is blank	No power to Carbon Scout	Verify electrical power is on. If in doubt, call an electrician. 
Sample cone not empty alarm	Blocked strainer	Use a wire brush to clean the strainer if dirty.
	XV-913 and/or XV-914 and/or XV-912 not operating correctly	Check valve operation, including actuator and airlines.
Higher than expected carbon concentration reading	A leaking valve on the inlet manifold, leaking cone inlet valve	Replace valve that is by-passing.
	Cone level sensor fails	Initial clean radar probe with a soft cloth, if the issue continues to recalibrate, consider replacement of probe.

Fault	Possible Cause	Counter Measures
Non-standard (optional) features		
High XRF analyser temperature	No compressed air supply	Check compressed air supply to the vortex tube
	Air leakages on XRF cooling system	Check for leaks on air tubing and associated connections
	Faulty cooling system	Inspect vortex tube internals and all connections
No XRF measurement (if installed)	XRF analyser heartbeat fault	Investigate fault for the loss of heartbeat on the XRF measurement system. If the fault is related to electrical and instrumentation connections, call an electrician. 
	XRF analyser has powered off and reset due to high temperature	Check XRF cooling system
XRF measurement not triggered to initialise	Carbon Scout cabinet door open, resulting in the door safety interlock broken	Close Carbon Scout enclosure door and reset interlocks
Density measurement out of range (if installed)	Load cell settings and/or scaling incorrect	Check scaling factors for load cell weight transmitter are consistent with the PLC scaling factors

90-LIT-01 Laser Level Sensor

Failure	Symptom	Check
Dirty laser face or excessive mist/occlusions	PV Bad alarm, slow or inaccurate laser response on carbon	Measure response time and variability on Carbon compared to typical. Check response on strainer flap.
Signal fault or complete sensor failure	PV bad alarm and no response	Check response on sample cone discharge flap or strainer discharge flap.
Empty strainer calibration fault	20mA value different from measured	Measure empty strainer discharge flap compared to calibration check within spec
Span fault	Closed sample cone discharge valve distance different from normal	Measure closed sample cone discharge valve check within spec

90-LIT-02 Sample Cone Level Sensor

Failure	Symptom	Check
Sensor reliability fault	Erratic reasons or incorrect response	Fill sample cone and drain, checking for variability and check weight response matches.
Sensor alarm/failure	No response or PV bad	Fill sample cone and drain, checking for variability and check weight response matches.
Volume calibration fault	Volume reading incorrectly	Add timed water dose, measure volume compared to history, and compare weight.

90-WIT-01 Sample Cone Load Cell Weight Transmitter

Failure	Symptom	Check
Calibration drift	The known volume of water is significantly different from normal	Fill the cone with specific water volume and measure the weight check within spec.
Transmitter failure	PV bad, and no response	Fill the cone with specific water volume and measure the weight check within spec.
Span shift	Idle value is different from zero.	Check empty against calibration zero value when idle.
Fan pressure compensation failure. Calibration completed with the door at different states for zero and span.	The known volume of water is significantly different from normal	Fill the cone with specific water volume and measure the weight check within spec.

90-FIT-01 Purge Water Supply Flowmeter

Failure	Symptom	Check
Sensor reliability fault	Erratic reasons or incorrect response	Open Purge Valve and Slurry Inlet Valve check for a response within spec.
Sensor alarm/failure	No response or PV bad	Open Purge Valve and Slurry Inlet Valve check for a response within spec.

90-PT-01 Water Supply Pressure Transmitter

Failure	Symptom	Check
Sensor reliability fault	Erratic reasons or incorrect response	Open Purge Valve and Slurry Inlet Valve check for a response within spec.
Sensor alarm/failure	No response or PV bad	Open Purge Valve and Slurry Inlet Valve check for a response within spec.

90-AE-01 pH Probe

Failure	Symptom	Check
Dirty sensor	Slow sensor response	Measure rate of change in slurry and water within spec
Sensor alarm/failure	No response or PV bad	Measure rate of change in slurry and water within spec
Calibration required	Sensor value out of typical range	Check sensor value against baseline calibrated value.

90-AE-02 DO Probe

Failure	Symptom	Check
Dirty sensor	Slow sensor response	Measure rate of change in slurry and water within spec
Sensor alarm/failure	No response or PV bad	Measure rate of change in slurry and water within spec
Calibration required	Sensor value out of typical range	Check sensor value against baseline calibrated value.

90-AIT-03 XRF Analyser

Failure	Symptom	Check
Dirty window	Baseline elements changing or no prox fault on empty strainer fire	Check baseline elements against a freshly cleaned window and check for prox fault on an empty strainer fire
The incorrect strainer in use	High iron results	Empty strainer fire check for iron levels

90-XV-912 Laser Window Flap

Failure	Symptom	Check
Wear of valve seat	Increased dirty laser NOTE dirty laser must be reliable. Currently not usable.	Check the frequency of the dirty laser.
Wear of valve wafer	Increased dirty laser	Check the frequency of dirty laser
Actuator failure	It doesn't open or close.	Check valve state with laser or water hole ability.
Valve jam	It doesn't open or close.	Check valve state with laser or water hole ability.
Incorrect airline polarity	Open when controller commands close and vice versa	Check valve state with laser or water hold ability

90-XV-913 Sample Cone Outlet Valve

Failure	Symptom	Check
Wear of valve seat	Leaks water	Measure leaking rate
Wear of valve wafer	Leaks Water	Measure leaking rate
Actuator failure	It doesn't open or close.	Check valve state with laser or water hole ability.
Valve jam	It doesn't open or close.	Check valve state with laser or water hole ability.
Incorrect airline polarity	Open when controller commands close and vice versa	Check valve state with laser or water hold ability

90-XV-914 Strainer Discharge Flap

Failure	Symptom	Check
Actuator worn	Leaks carbon NOTE if XRF style strainer, carbon may leak out XRF hole.	Measure carbon height, then drop volume of water on carbon, measure again and check for loss outside of spec.
Actuator failure	It doesn't open or close	Check operation with laser
Valve jam	It doesn't open or close	Check operation with laser
Incorrect airline polarity	Open when controller commands close and vice versa	Check valve state with laser

90-XV-919 Purge Valve

Failure	Symptom	Check
Valve worn	Leaks water	Measure leaking rate, Check flow rate with flowmeter when valve closed.
Actuator worn	Leaks water pneumatic system water ingress	Measure leaking rate. Check for water in airlines. Check flow rate with flowmeter when valve closed.
Actuator failure	It doesn't open or close.	Measure leaking rate, and check pressure drop and flow rate when opening.
Valve jam	It doesn't open or close.	Measure leaking rate, and check pressure drop and flow rate when opening.
Incorrect airline polarity	Open when controller commands close and vice versa	Measure leaking rate, and check pressure drop and flow rate when opening.

