GEN 1 TROUBLESHOOTING CHART

Symptom	Problem	Diagnostics	Solution
No Fertilizer being delivered - all rows	Fan and Auger not turning	Verify all couplers are fully engaged and compatible with tractor couplers	Re-install coupler/Install proper couplers compatible w/ tractor coupler
		Hydraulic GP gage reads lower than limits stated in Hooking Up the Hydraulics on page 26.	Increase Hydraulic flow on SCV / Confirm proper SCV flow direction and correct SCV for priority flow are being used in tractor
			Verify proper hose sizing and no hose restriction in the line
			Verify tractor is outputting stated flow in manual @ stated pressure (simultaneously)
		Hydraulic GT gage reads higher than limits stated in Hooking Up the Hydraulics on page 26.	Verify return line is installed in correct tractor motor return port (see tractor manual or implement dealer)
			Re-install coupler/Install proper couplers compatible w/ tractor coupler
			Verify proper hose sizing and no hose restriction in the line
		Verify CDR port hose is not leaking oil	If case drain is leaking see “case drain Hose leaking” symptom
		With hydraulics and tractor turned off verify fan rotates by hand	Verify fan inlet screen is not contacting fan wheel and preventing it from spinning
	Fan Air Gauge Pressure less than 16” H20	If using electronic pressure sensor, verify it matches the mechanical gauge	If they don’t match, verify mechanical gauge is correct and then recalibrate electronic gauge (see controller manual for details)
		Verify Fan Rotation	Fan rotation must be clockwise (CW) when viewed from the screen side of fan. If rotation is not CW, see hydraulic schematic’s on pages __ and plumb as shown for your machine.
		Verify gap between fan and shroud is set to .25” or less but doesn’t rub	If not correct adjust fan spacing per manual instructions
		Verify GP & GT gauges read within limits in the manual	Re-install coupler/Install proper couplers compatible w/ tractor coupler
			Increase Hydraulic flow on SCV / Confirm proper SCV flow direction and correct SCV for priority flow are being used in tractor
			Verify proper hose sizing and no hose restriction in the line
			Verify tractor is outputting stated flow in manual @ stated pressure (simultaneously)
		Inspect check valve CV1 on valve manifold and verify nothing stuck in it	Clean and inspect removing any debris
			Verify spring is still operational, if not replace cartridge valve
	Auger turning wrong direction	Check to see if auger(s) and fan are both turning clockwise when viewed from fan screen side or counter clockwise when viewed from fan motor side	See hydraulic schematics in manual for your machine and verify it is plumbed as shown.

	Fan Running, Auger not turning	Check to verify there are no plugged rows and air is coming out of ALL the hoses	Clean out any plugged rows and check for auger obstructions
		Run diagnostics from controller manually opening PWM valve and verify augers do not physically turn (Fan must be running)	If augers turn but no speed is registered, troubleshoot encoder and cabling
		Check condition and routing of auger motor chain.	Replace auger chain if needed
		Check for auger obstructions (with chain off auger should turn with pliers and minimal force)	Clean out any plugged rows and see paragraph 6.1.2 Eliminating Auger Obstructions.
		Check controller calibration settings	Verify settings match Montag calibration numbers found in operators manual or on website
		Check controller cabling and connections for damage, corrosion, and proper seating	Clean connections, verify good connection
		Disconnect auger drive chain, turn on fan, apply 12 VDC to PWM coil plug	If auger runs wide open troubleshoot wiring or controller
		Ohm out PWM coil and/or check for magnetic field by inserting a screwdriver into coil center	The resistance of the PWM coil should be approximately 7.1 0hms on the valve block and 15 0hms on the black Brand PWM valve (on older machines)
		Remove PWM valve cartridge and check for visual issues	Clean PWM valve if there are visible contaminants
	Fan Running, Auger turning	Check to see if auger(s) and fan are both turning clockwise when viewed from fan screen side or counter clockwise when viewed from fan motor side	See hydraulic schematics in manual for your machine and verify it is plumbed as shown.
		Verify product is in the tank	If not filling tank full, may have to level product to have product at all rows when tank nears empty.
		Check for build up on auger flights	Keep product dry to avoid caking not only in tank and on augers but also build up in hoses.
		Verify tank is not bridging	If product has abnormal amount of fine this can cause bridging. Use the best quality of product to alleviate product flow problems.
Rate is inconsistent	Fan running auger turns then stops – no auger obstructions and/or controller is not registering rate	Check controller high and low limit PWM calibration settings.	Look in manual or online for recommended initial start up values. These numbers will have to be adjust slightly per machine and product type.
		Verify CFR is in proper range	Look in manual or online for initial start up values. These numbers will have to be adjust slightly per machine and product type.
		Run diagnostics from controller manually opening PWM valve and verify augers do not physically turn (Fan must be running)	If augers turn but no speed is registered, troubleshoot encoder and cabling
		Check all PWM Valve and Encoder cables and connections.	Look for cuts or abrasions on harness. Check connectors for water or corrosion damage.

		If two section or product machine, troubleshoot by swapping PWM and encoder to opposite side and manually opening PWM (Fan must be running)	If problem stays with section, check encoder on that section. If it switches side, troubleshoot harness.
		Raven encoder only:	
		Check set screw on Encoder shaft.	Set screw should be tight and encoder turning with motor.
		Check for proper signal from controller to encoder. For Montag Supplied Raven 36 pulse encoders check for + 5 volts DC between the ground and power socket and the ground and signal socket.	See connector and harness pinouts for proper electrical troubleshooting.
		If voltage is correct, auger is turning and no rate is being recorded. Replace encoder.	Follow installation instructions for proper encoder installation
		For all other Encoders contact your supplier's technical service department for voltages and pinning.	
Actual rate applied is higher than desired rate.	Controller settings are not correct.	Check calibration settings and adjust as needed. (see page 44 also)	
		Verify CFR is in proper range	To increase rate, decrease CFR, to decrease rate increase CFR
		Verify encoder pulse settings	Verify with serial number what encoder pulse setting should be according to instructions in manual.
		check low limit setting if set to high auger will not run slow enough.	Lower low limit according to set-up instructions.
Actual rate applied is lower than desired rate.	Controller settings are not correct.	Check calibration settings and adjust as needed. Verify CFR and encoder pulse settings see page ___ also check high limit settings. If it is set to low the auger will not run up to max speed.	
		Verify CFR is in proper range	To increase rate, decrease CFR, to decrease rate increase CFR
		Verify encoder pulse settings	Verify with serial number what encoder pulse setting should be according to instructions in manual.
		check high limit setting if set to low auger will not run fast enough.	
	Loose or Bad connection.	Check all controller cable connections.	Look for any sign of corrosion or green film on contacts.
	Auger Chain drive.	Check condition and routing of auger motor chain.	Replace any sticking and damaged roller chain.

No Fertilizer being delivered – some rows or actual rate applied is lower than desired rate.	Air passages plugged / obstructed.	Clear air passages at air chamber outlet tubes (see paragraph 6.1.3 clearing air passages).	Determine what caused the plug. Some possible causes are field conditions, product quality, hoses or hose routing, and incorrect set-up.
	Build up on Augers or in hoses.	Clean augers or hoses (check quality of fertilizer as needed).	Clean as necessary. Change fertilizer or supplier if getting fertilizer that is bad because of moisture or excess fines.
	Fertilizer Bridged in tank.	Clear bridging and (check quality of fertilizer).	Excessive fines can cause bridging with some products depending on humidity and other environment factors.
	Kinked or worn hoses	Check condition of hoses for sharp bends and worn spots and replace as needed.	If toolbar moves or folds, observe how this affect hoses and routing. May have to allow more hose for toolbar movement.
Case drain alarm is buzzing	Case drain pressure exceeded 24 PSI	Check if Case drain Bypass Hose is leaking	If leaking, follow diagnostics below.
		Case drain hose to tractor is sized incorrectly.	Minimum case drain hose size is 1/2”.
		Case drain hose became disconnected from tractor.	Check hose connections at the tractor.
		Case drain hose is not connected to zero pressure return oil port.	Check tractor manual to verify case drain is connected to zero pressure return line.
		Look to see if fan motor is leaking oil by shaft seal.	Fan motor has failed, replace motor following instructions in the manual.
		Case drain hose is plugged or quick coupler is restricted.	Take off case drain hose at hydraulic block and run Gen I catching the oil in a bucket. Correct flow should be max a drip to pencil lead width flow of oil. If flow is 1 to 1.5 gpm, then motor is about to fail. If flow looks correct, re connect and test at tractor by taking quick disconnect off. The flows should be the same.
		Fan motor has failed.	Check oil flow as describe above. If more oil than acceptable, fan motor has failed. Replace fan motor following instructions in the manual.
Case drain Bypass Hose leaking	Case drain pressure exceeded 28 PSI	Case drain hose to tractor is sized incorrectly.	Minimum case drain hose size is 1/2”.
		Case drain hose became disconnected from tractor.	Check hose connections at the tractor.
		Case drain hose is not connected to zero pressure return oil port.	Check tractor manual to verify case drain is connected to zero pressure return line.
		Look to see if fan motor is leaking oil by shaft seal.	Fan motor has failed, replace motor following instructions in the manual.
		Case drain hose is plugged or quick coupler is restricted.	Take off case drain hose at hydraulic block and run Gen I catching the oil in a bucket. Correct flow should be max a drip to pencil lead width flow of oil. If flow is 1 to 1.5 gpm, then motor is about to fail. If flow looks correct, re connect and test at tractor by taking quick disconnect off. The flows should be the same.
		Fan motor has failed.	Check oil flow as describe above. If more oil than acceptable, fan motor has failed. Replace fan motor following instructions in the manual.