

Blackmore Turbo/Needle/Gear Seeder Troubleshooting Guide

March 18, 2004

Problem	Test	Solution
<p>Seeds not being exhausted at drop tubes, but being blown off at about the nine 0'clock position on the way back to the seed inventory tray</p>	<p>Can seeds be blown off with manual blow-off switch?</p>	<p>YES- the solenoid valve is good and the gear limit switch is bad or needs adjustment so it is activated by the screw on the gear bracket. See section VII on adjusting low pressure blow off timing</p> <p>NO- 3-Way solenoid valve might be bad, spring broken or have some debris in it, disassemble and inspect and repair/replace valve body as necessary or replace valve body. Section XIII</p>
<p>Seeds not blowing off at any point except with manual button</p>	<p>Push arm on container limit switch to make sure it is being activated, normally if the switch "clicks" it is good.</p>	<p>If seed then blows off normally, the container switch needs to be adjusted so it detects the tray. Arm should activate switch when tray first goes beneath drop tube. If there is no click from the switch itself, it is probably not good. Check it with a continuity meter</p>
<p>Seeds not being picked up or low vacuum</p>	<p>Do you have the correct size needle/tip? Check for loose/missing screws on the manifold Check for loose hose fittings or holes in hose. Use cigarette smoke or an incense stick, passed near the vacuum lines to see where air is sucked in, indicating a leak</p> <p>Pull hose off tube going to manifold mounting bar and put thumb over the end of it</p>	<p>Check chart or call Blackmore Tighten/replace screws</p> <p>Affix hose tightly, cut an inch (25mm) off the end and reattach to the hose barb, replace hose as needed</p> <p>If vacuum increases the leak is somewhere in the manifold. The most vacuum you can get is about 22+ inches of mercury (Hg) That indicates the system is tight to the manifold, and reason for not picking up seed may be wrong tips, or a leak in the manifold. Make sure the surface the manifold mounts to is flat. Remove any</p>

No seed being picked up but plenty of vacuum showing on gauge	Manifold probably mounted backwards so tips are not getting any vacuum	debris or high spots with a flat mill file
Seeds blow off at the wrong time, but only on the first and last row of the plug tray	Check Drive/timing wheel alignment marks when manifold is in seed exhaust position. Section II	When using the #1 hole in the drive/timing wheel the red timing mark must nearly align with the black mark (within 20°) on the panel when the manifold is in seed exhaust position When using any of the other holes in the wheel (2, 3, 4, 5) the black marks must be aligned, or nearly so when the manifold is in the seed exhaust position
Seeder picks up seed okay, until a tray activates the container limit switch, then it is on exhaust/pressure all the time	Check that cam limit switch is “clicking” okay	This problem normally requires replacement of the cam limit switch
Seeder won’t pick up seed and blows seed out of seed inventory tray, no vacuum indicated on gauge	Turn all switches off, then turn on “Power” switch only. Check that Gear limit switch is not stuck on (in down position)	If there is no click from the 3-Way valve, the valve could be stuck, the coil bad, or the 120-24 VAC transformer bad. Check that you have 24 VAC output from the transformer. Disassemble the valve and check for debris, a stuck plunger, or a broken spring. Repair/replace Gear limit switch as necessary
Vacuum gauge needle oscillates and you can’t get sufficient vacuum	Pull Cam limit switch away from wheel Make sure Cam limit switch is turning on and off Check 2-Way valve operation - With tray in seeder stop machine at 10 o’clock position and operate cam limit switch manually	If vacuum returns switch is out of adjustment, needs to be bent <i>towards</i> the wheel so it activates properly Switch should activate when wheel is about ¼” (6mm) onto the flat spot, or replace switch if needed If switch “clicks” on and off but valve doesn’t operate, remove and repair/replace valve as necessary
Seeds all vibrate to one end of seed inventory tray	Check that seeder is level	Make <i>entire seeder</i> level by placing shims beneath base of machine, then adjust shims

		as need be to keep seed even distributed
Manifold won't go all the way into seed tray or bounces when it gets there Manifold won't go all the way into seed tray or bounces when it gets there	Can top spring on drive spring assembly be rotated on shaft? Can top spring on drive spring assembly be rotated on shaft?	YES – spring has been compressed and needs replacement, or replace entire drive NO – check that rubber stop hasn't come loose and is stopping manifold too early or that some other obstruction is preventing full travel of gear drive system.
Manifold won't go all the way into seed tray or hesitates/jerks as it moves	Check that drive spring assembly isn't bent or in need of lubrication Check electrical supply	Replace drive spring assembly or disassemble to clean and lubricate, mark position of bearing blocks first. White plastic blocks are impregnated with a dry lubricant and don't require lubrication. Sometimes voltage or frequency varies effecting motor operation. Try a different circuit
Seed bounces too much when landing in plug tray	Check blow-off pressure Reduce blow-off pressure, make sure poppet in adjust/relief valve isn't stuck	Blow-off pressure is normally about 1 lb on the gauge, adjust as low as possible to still exhaust seeds from tips. Install a Roller/Dibbler to help retain seeds in cells Remove and clean spring and poppet to make sure valve is operational then adjust low pressure valve to get minimum pressure. In some cases spring and poppet may be kept out of valve to achieve absolute minimum pressure
Seeder stops dropping seeds for a few rows as tray is indexed	Check that there is no sideways movement in the tray as it advances through the seeder, so container switch gets consistent indication	Adjust rails so tray advances through seeder but without any side play
Uneven vibration in seed inventory tray	Remove tray and check for debris on bottom of tray and surface on which it rests Are seed tray clamps tight?	Remove debris or high spots with flat mill file Adjust screws on hold down clamps so clamps snap into place, or replace clamps as needed
Vacuum won't go low enough to achieve seed singulation	Is a smaller manifold rubber tip or needle tip available?	Smallest Rubber tip is #2, smallest Needle tip is Clear. See chart Section XVI

	Is muffler/filter removed from vacuum adjust valve?	Remove filter assembly to allow more air into the system thereby reducing vacuum
Seeds won't slide to bottom of seed inventory tray even with high tilt setting	Clean seed tray with warm soapy water and dry thoroughly, the surface gets sticky after a period of time or after sowing pelleted or coated seed	If that doesn't help use a <i>small</i> amount of talcum powder applied with an artists paint brush to make the surface more slippery
Vibrator won't vibrate [FMC model]	Adjust small brass screw on the end of small blue potentiometer mounted on the printed circuit board inside the seeder control box	Usually moving this screw back and forth a few times will make the unit operational, if not the SCR controller unit needs to be replaced, call Blackmore
10 minute rule	If you fuss around with the seeder for 5-10 minutes and it is not working any better call Blackmore, <u>we'll get mad only if you don't call.</u> We promise. If you will carefully observe the operation of the seeder and describe to us what the machine is doing or not doing, we can probably fix any problem you have over the phone	Call us and tell you what kind of seeder you have Turbo/Needle/Gear, what tray you are sowing and what seed you are sowing and we'll do our very best to talk you through how to make the machine do what it is supposed to do
Tray won't index so seed is sown multiple times in the same row	Make sure nothing is wrong with the tray and that you may easily slide it through the machine manually If tray goes through okay manually the clutch is probably slipping and needs to be tightened	To tighten clutch see section II C. in the manual. The clutch adjustment knob is located directly beneath the seeder motor and is easily accessed by lifting the control box with your left hand so that the knob may be turned with your right.