


Shuttle Troubleshooting

This chapter includes general guidelines and troubleshooting tables as an aid in isolating and recovering from malfunctions. **ONLY QUALIFIED, AUTHORIZED PERSONNEL SHOULD OPERATE OR MAINTAIN EQUIPMENT.**

Proper troubleshooting is finding the cause of a problem and correcting it in a safe and systematic manner. A change in the system often causes trouble. An understanding of the system, its modes of operation, and how these modes are to work will aid in finding the cause of the trouble.


⚡ ⚠ WARNING ⚠ ⚡

- Ensure that all requisite safety precautions are taken while diagnostic procedures are performed.
- Before attempting any maintenance or service operation, make sure that:
 - You do not begin any repair procedure until the proper shutdown procedures and the appropriate power lockout procedures have been applied.
 - The system is de-energized; main electrical switches are open.
- Some maintenance/troubleshooting procedures require the equipment to be running to perform the procedure. In this case only one person should be in command of operating the equipment in maintenance mode only. Constant communication with the person commanding the equipment should be maintained through the procedure.

Problem	Possible Causes	Remedy
Carrier does not move	Gear motor does not run	<ul style="list-style-type: none"> • Check wiring and plugs. • Gear motor diagnosis. • Replace gear motor.
	Malfunctioning control	<ul style="list-style-type: none"> • Diagnostic program.
Carrier speed too high / low	Malfunctioning control	<ul style="list-style-type: none"> • Diagnostic program.
Wrong carrier stop position.	Position of proximity switches are wrong	<ul style="list-style-type: none"> • Re-adjust proximity switches.
	Proximity switch defect	<ul style="list-style-type: none"> • Replace proximity switch.
Noise with / without vibrations	A Wheel assembly is out of alignment or defective	<ul style="list-style-type: none"> • Check all wheel assemblies for loose pieces and foreign parts. • Lubricate wheel block. • If this is not effective, replace drive wheel assembly.
	Guide Rollers are out of alignment or defective	<ul style="list-style-type: none"> • Re-adjust rollers/ replace rollers.

Skillet Power Roll Bed Troubleshooting

(Mounted on Shuttle Table)

Problem	Possible Cause	Remedy
Skid does not move	Gearmotor does not run	<ul style="list-style-type: none"> • Check wiring and plugs. • Gearmotor troubleshooting. • Replace gearmotor.
	Broken toothed belts	<ul style="list-style-type: none"> • Replace toothed belt.
	Carrying rollers are soiled with oil	<ul style="list-style-type: none"> • Clean rollers.
	IDC defective	<ul style="list-style-type: none"> • Replace IDC.
	Proximity switch(es) defective or loose	<ul style="list-style-type: none"> • Replace or readjust proximity switch.
Skid speed too high / low	Malfunctioning control	<ul style="list-style-type: none"> • Diagnostic program.
Wrong Skid stop position	Wrong proximity switch position	<ul style="list-style-type: none"> • Readjust proximity switch.
Noise with / without vibrations	Loose parts	<ul style="list-style-type: none"> • Check module for loose parts and parts that do not belong.
	Worn belt	<ul style="list-style-type: none"> • Replace toothed belt.
	Bearings of carrying rollers defective or worn	<ul style="list-style-type: none"> • Replace carrying rollers.

General Troubleshooting

Device Type	Typical Devices	Action
Re-settable	<ul style="list-style-type: none"> • Light screens • Access Gate Boxes/Safety Plugs • E-stops 	Visually inspect the protection area devices and reset any tripped devices.
Power Distribution	<ul style="list-style-type: none"> • Circuit breakers • Contactors/Relays • Connection 	Check that power is distributed to the control panels, field devices, and components.
Processing	<ul style="list-style-type: none"> • PLC Processor • Input/Output Modules 	Check the Main Control Panel processors and I/O modules for proper operation.
Communication	<ul style="list-style-type: none"> • EtherNet Module • DeviceNet Module 	Check the Main Control Panel EtherNet and DeviceNet Modules for proper operation.
Machinery	<ul style="list-style-type: none"> • VFDs • Motors • Switches/Sensors • Connection System (cables/cords) 	Follow a clear and logical approach to determining a failed device. Eliminate components that are a quick fix.