

## 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.

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- Insure 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.



## Pendulum System Troubleshooting Problem **Possible Causes** Remedy Lack of lubrication. Lubricate the chain. Chain tension too high • Reduce take-up weight **Excessive chain wear** or chain tension. Blocked or damaged bearings. • Inspect bearings and clean if blocked. Note: The chain stretches Replace if damaged. and wears at the contact Chain obstruction in the run. • Remove the obstruction, substitute the point between pin and ring. This wear is normal and it is chain if too much damage. not a conveyor problem. Chain Surge • The conveyor must not be loaded more than the maximum capacity. Chain loose and wearing. • Check the take-up. Add weight if required. Chain too loose Take-up jammed • Clear take-up Too much loose chain. ٠ Check the take-up. Add weight, if required. Back up or stacking of chain Blocked or damaged bearings. • Inspect bearings and clean if blocked. Replace if damaged. **Blocked or damaged** Accumulated or excess • Remove from conveyor and clean. bearings lubrication Damaged pin or line obstruction • Remove the obstruction and substitute the **Bearing pin** damaged bearing pin with a new pin (don't try to straighten the banded pin). Excessive wear, causes Excessive chain tension. • Reduce take-up weight hammering of the returns on the vertical curves. Scored bearings pins. Remove the obstruction and substitute the • **Excessive return** damaged bearing pin with a new pin (don't tension. try to straighten the banded pin). Excessive Chain tension. • Diminish the tension. Irregular movement of Frame sliding bearings warn or • Carefully clean or substitute if warn. take-up floating frame blocked with grease and/or debris. Gearmotor Excessive conveyor chain • Check the run eliminating the obstructions overheating tension. or blocks on the line. **Needs** lubrication Fill the gearbox with oil till the level • indicated by the plate or, if needed, Excessive noise in the lubricate the transmission chain. gearbox Oil losses. Lock all closing caps and covers and add lubricant.



Pendulum System Troubleshooting		
Problem	Possible Causes	Remedy
	Worn or broken devices.	• Disassemble the gear and substitute it.
The conveyor chain swings or flaps.	Too much loosened chain.	<ul><li>Adjust take-up.</li><li>NEVER take away chain links.</li></ul>

Skid/Body Lock/Unlock Assembly Troubleshooting		
Problem	Possible Causes	Remedy
Lock / Unlock device does not engage/disengage	Pneumatic system malfunction	<ul> <li>Check if air supply is available and of proper pressure.</li> <li>Check if valves are operating freely.</li> <li>Check connections.</li> </ul>
	Sensors malfunctioning	<ul> <li>Verify that the sensors are clean, well-positioned, and operational.</li> <li>Check cables and connections are secure and not damaged.</li> </ul>
	Control system malfunction	<ul> <li>Check PLC and relays to ensure that control parameters are proper.</li> <li>Check cable and connections.</li> </ul>
	Mechanism is loose	Check that the various sub-assemblies are securely mounted.