

UniChain Cross Transfer - 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.

For more UniChain Belt installation, maintenance, & troubleshooting information, please refer to the “UniChain Engineering Manual” included in the Appendix files.

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
Skid doesn't move	Gearmotor doesn't run.	• Check wiring and plugs.
		• Gearmotor diagnosis.
		• Replace motor.
	Chain broken.	• Replace chain.
	IDC out of order.	• Replace IDC.
Skid speed too high/low.	IDC out of order.	• Replace IDC.
Skid moves erratically.	Polygon effect, Chain tension too low.	• Check and readjust chain tension on both sides.
Noise with / without vibrations.	One main assembly is defective.	• Check all main assemblies for loose pieces and foreign parts.
Wrong stop position of the skid.	Position of proximity wrong.	• Readjust proximity switch.
	Proximity defect.	• Change proximity switch.

UniChain Plastic Belt – Troubleshooting

For more Installation, Maintenance, & Troubleshooting information, please refer to the “UniChain Engineering Manual” included in the Appendix files.

Problem	Possible Causes	Remedy
Belt is jumping off the sprockets or not engaging properly.	Incorrect catenary sag.	Ensure catenary sag on return side of belt is as recommended by uni-chains engineering department or engineering manual. Too much slack can reduce wrap angle or not provide proper back tension on the sprocket.
	Incorrect shaft location relative to belt (“A” dimension).	Compare existing shaft location to the recommended A dimension in the uni-chains belt catalog. Adjust drive shaft as necessary to meet these dimensions.
	Incorrect belt return design.	Ensure belt returnway allows clearance for the necessary catenary sag. If needed adjust return rollers or remove slider return strips to get proper sag. Contact uni-chains engineering for assistance.
	Sprockets not aligned correctly with each other.	Check that sprocket teeth are aligned with each other across the shaft so that they all engage the belt at the same location. Many sprockets have timing marks that should be placed in alignment all the way across the shaft.
	Insufficient belt wrap around drive sprockets.	Relocate the first catenary support roller to ensure proper belt wrap around drive sprockets. Check if excess slack in the catenary is causing the wrap angle to be reduced. Remove slack if necessary.
	Drive and idle shafts are not parallel with each other.	Check the alignment using the methods described in the aligning shafts section of the uni-chains engineering manual. Correct if necessary.
	Locked sprocket on drive and idle shafts are not in line with respect to each other.	The locked drive and idle sprockets must be in the same location on the shaft relative to each other. Check for alignment and adjust if necessary.
	Sprockets are not engaged properly with the belt.	Some sprockets have defined travel directions that must be maintained to drive the belt. Some belts have defined sprocket paths. Consult installation guidelines for more information.

Problem	Possible Causes	Remedy
Excessive belt and/or pin wear.	Belts, sprockets, or wearstrip exposed to abrasive particles.	Eliminate or reduce the exposure of the belt, sprockets or wearstrips to abrasive materials. Replace wearstrip material if it has become embedded with particles.
	Incorrect wearstrip material.	Ensure wearstrip material is correct for the belt material, load and speed combination as well as environmental conditions. Contact uni-chains for assistance in wearstrip choice.
	Binding of belt in the conveyor frame.	Examine the conveyor to ensure it is level and square. Look for any concentrated wear points on the belt or frame. These are spots where the belt is rubbing causing wear. Correct the frame to eliminate these contact points.
	Incorrect or uneven product loading	Add support under loading area of belt. Take measures to reduce the relative motion between product and belt. If product is side loaded, add an edge guide to opposite side to support the belt.
	Excessive belt speed.	High speed belts, especially those on shorter length conveyors, will wear more quickly than belts at lower speeds. Reduce belt speed if possible.
	Too many backflex and front flex points.	The more times the belt hinge must pivot around the pin, the more quickly it will wear. Center drives, take-up systems with multiple rollers, and transition points where the belt goes from horizontal to incline are examples where the belt must front or back flex. The more of these that can be eliminated the less quickly the belt will wear.
	Incorrect wearstrip spacing or arrangement.	Ensure wearstrip spacing and configuration is optimized for the load on the belt, belt style, and environmental conditions. Contact uni-chains engineering for assistance.
	Sprockets are not engaged properly with the belt.	Some sprockets have defined travel directions that must be maintained to drive the belt. Some belts have defined sprocket paths. Consult installation guidelines for more information.

General Troubleshooting

Device Type	Typical Devices	Action
Re-settable	• Light screens • Access Gate Boxes/Safety Plugs • E-stops	Visually inspect the protection area devices and reset any tripped devices.
Power Distribution	• Circuit breakers • Contactors/Relays • Connection	Check that power is distributed to the control panels, field devices, and components.
Processing	• PLC Processor • Input/Output Modules	Check the Main Control Panel processors and I/O modules for proper operation.
Communication	• EtherNet Module • DeviceNet Module	Check the Main Control Panel EtherNet and DeviceNet Modules for proper operation.
Machinery	• 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.