MOTION
INDEX DRIVES

Rotary Index Table

Trouble Shooting Guide

Quality in Motion Since 1970

* Potential Causes must be checked in sequential order as listed in the tables below:

Problem	Potential Cause	Solution
Indexer knocks/ Indexer is making noise during index	Table is not stopping in dwell	Ensure the table during normal operation is starting from dwell, where the indicator is pointing straight towards output dial (12:00 position, stratight up, for normal index applications, 3:00 for trunnion applications).
	Limit switch/proximity switch is broken or not functional	Replace switch
	Loose Fasteners between tooling and top dial/ dowels missing or broken	Check bolt torque and tighten if required. Ensure dowels are installed. Use corporate bolt specifications or industry standard for torque requirement.
	Table is moving on base plate/frame.	Check bolt torque and tighten if required.
	Base plate or frame is moving on floor	Check bolt torque and tighten if required.
	Controls program or logic is programmed improperly	Reprogram logic and recheck controls operation
	Brake on motor is not functioning properly	Ensure the brake is wired properly and the rectifier is receiving the proper voltage. If it is receiving voltage, contact motor manufacturer and/or Motion Index Drives, Inc. for further brake information. The brake could be worn out and in need of either replacement or adjustment.
	Tooling fixtures not built/set up/measured to be in same location	Theodolite/ laser track/ faro each tooling set to a fixed location to ensure all tooling is set to same point. If it is not, shim tooling accordingly
	Input shaft bearing/end cap wear or improper preload	Contact Motion Index Drives, Inc.
	Bad cam followers	Contact Motion Index Drives, Inc.
	Cam shifting on input shaft	Contact Motion Index Drives, Inc.

Problem	Potential Cause	Solution
Tooling is not stopping in position	Table is not stopping in dwell	Check tooling for one complete 360 degree rotation and ensure no stationary items are touching the rotating tooling
	Pulley/belt/guard is loose or hitting (if applicable)	Check pulley belt and guard. Make sure all bushings on pulleys and the guard is tight and not hitting or touching the pulleys or belts
	Motor is noisy	See below troubleshooting symptom
	External gear reducer is moving up and/or down	See below troubleshooting symptom
	Motor fan guard is hitting fan	Remove the fan guard off of motor. Check to make sure gurad is not bent. If re-quired, bend fan guard so that is does not touch fan. Recheck for noise.
	Indexer over/under travels	See below troubleshooting symptom
	Loose fasteners between base and indexer, or between indexer and tooling	Check bolt torque and tighten if required.
	Switch bracket is loose or there is switch interference	Check bolt torque and tighten if required. If there is interference, adjust switch so it does not crash anymore. Check after adjustment to ensure proper switch operation
	Gear reducer issue	If gear reducer makes noise, contact gear reducer manufacturer and/or Motion Index Drives, Inc.
	Bad cam follower	Contact Motion Index Drives, Inc.
	Input shaft or output dial bearing failure	Contact Motion Index Drives, Inc.
	Cam follower to cam interference	Contact Motion Index Drives, Inc.
	Cam shifting on input shaft	Contact Motion Index Drives, Inc.

Problem	Potential Cause	Solution
Motor overload is tripping in system panel	Tooling is jammed	Check all tooling and ensure there are no interferences between the rotating and stationary tooling/equipment.
	Motor is single phasing	Check wiring to Motor. Check all fuses. Meter all 3 phases of power to motor at motor pecker head to ensure all 3 phases come to AC motor.
	Brake is not releasing	Check power coming to rectifier. Ensure two phases are feeding rectifier. Check wiring in panel. If power is coming to rectifier, but brake is not releasing, rectifier may be bad. Contact Motion Index Drives, Inc. or motor manufacturer for replacement rectifier. If rectifier is ok, contact motor manufacturer or Motion Index Drives, Inc. for replacement motor.
	Motor overload is not sized properly for the motor	Check full load amp rating of motor compared to motor overload in system panel. Ensure the overload is large enough for the motor supplied on the indexing equipment. If not, replace motor overload with a properly sized unit.
	Gear reducer failure	Contact Motion Index Drives, Inc.
	Index table bearing failure	Contact Motion Index Drives, Inc.

Problem	Potential Cause	Solution
Tooling is shaking during index	Table is starting up out of dwell at high speed	Ensure the table during normal operation is starting from dwell, where the indicator is pointing straight towards output dial (12:00 position, stratight up, for normal index applications, 3:00 for trunnion applications).
	Tooling is loose to top dial	Check bolt torque and tighten if required.
	Table is being operated by a variable frequency device	Many times, with VFD's, the program in the VFD can interfere with the mechanically designed accelerations and deceleration cut into the index drive cam. The VFD needs to be utilized as a motor starter, with no accel or decel, either on or off. The frequency can be set by the end user, but this frequency needs to be held for the entire cycle (i.e. 0Hz to 40Hz to 0 Hz, with no delay between frequencies!)
	Top bearing has excessive wear	Contact Motion Index Drives, Inc.
	Bad cam follower	Contact Motion Index Drives, Inc.

Problem	Potential Cause	Solution
Motor is noisy	Motor is single phasing	Check wiring to Motor. Check all fuses. Meter all 3 phases of power to motor at motor pecker head to ensure all 3 phases come to AC motor.
	Motor is not wired properly	Check wiring to Motor. Check all fuses. Meter all 3 phases of power to motor at motor pecker head to ensure all 3 phases come to AC motor. Check wiring in system panel and wiring in motor.
	Motor is not supplied with proper voltage	Check voltage being supplied to motor and ensure it matches the motor name plate. Make sure the jumpers in the motor pecker head are set to the voltage being supplied to the index table.
	Fan is hitting fan guard	Remove the fan guard off of motor. Check to make sure guard is not bent. If required, bend fan guard so that is does not touch fan. Recheck for noise.
	Motor brake is not disengaged	Check power coming to rectifier. Ensure two phases are feeding rectifier. Check wiring in panel. If power is coming to rectifier, but brake is not releasing, rectifier may be bad. Contact Motion Index Drives, Inc. or motor manufacturer for replacement rectifier. If rectifier is ok, contact motor manufacturer or Motion Index Drives, Inc. for replacement motor.
	Motor pulley bushing is bad (if applicable)	Replace entire pulley and bushing with a new high quality unit.
	Motor pulley is improperly aligned (if applicable)	Check pulley on motor and make sure it is square to motor face and not misaligned as this will cause an angular pull on the belts, which causes noise.
	Motor pulley is hiting motor housing (if applicable)	Check clearance between motor pulley and motor face. Make sure the two are clear of each other. Is not, slightly move the motor pulley away from the motor face for clearance
	Internal motor problems	Contact motor manufacturer and/or Motion Index Drives, inc.

Problem	Potential Cause	Solution
Motor is smoking	Motor is single phasing	Check wiring to Motor. Check all fuses. Meter all 3 phases of power to motor at motor pecker head to ensure all 3 phases come to AC motor.
	Motor is not wired properly	Check wiring to Motor. Check all fuses. Meter all 3 phases of power to motor at motor pecker head to ensure all 3 phases come to AC motor. Check wiring in system panel and wiring in motor.
	Motor is overloaded	Check the amperage the motor is drawing compared to the motor rating. If the motor is drawing more than its rated full load amperage, contact Motion Index Drives, and/or the motor manufacturer. Ensure that the motor is not single phasing and it is receiving the proper voltage before assuming it is overdrawing current!
	Motor is received wrong voltage	Check voltage being supplied to motor and ensure it matches the motor name plate. Make sure the jumpers in the motor pecker head are set to the voltage being supplied to the index table.
	Motor brake rectifier is damaged	Contact Motion Index Drives, Inc. or motor manufacturer for replacement rectifier.
	Motor has failed	Contact Motion Index Drives, Inc. or motor manufacturer for replacement motor.

Problem	Potential Cause	Solution
Squeaking noise from table	Interference between tooling and other object during index	Check all tooling and ensure there are no interferences between the rotating and stationary tooling/equipment.
	Pulley/belt is slipping(if applicable)	Adjust belt tension by tensioning bolts located under motor to ensure belt is not too loose. Belt should be tight enough where there is ~+/-5mm of deflection in the center of the belts.
	Pulley/belt/guard is loose or hitting (if applicable)	Check the pulley, belts and belt guard and ensure they are tight and not hitting one another. Adjust guard to make sure the guard does not hit the belts.
	Brake on motor is not functioning properly	Brake gap on motor may need to be adjusted. Brake may not be getting proper voltage and not opening fully. Contact Motion Index Drives or Motor Manufacturer.
	Gear reducer internal issue	Contact Motion Index Drives, Inc. and or Gear Reducer Manufacturer.
	Internal index drive bearing failure	Contact Motion Index Drives, Inc.

Problem	Potential Cause	Solution
Indexer is leaking oil	Potential oil residual from another piece of equipment	Check other equipment around the area to see if oil can be visually seen coming from somewhere.
	Liquefied grease from index drive externally	Check outside perimeter of indexer. The grease in the top bearing can liquefy sometimes and create an oily residue on the floor. This is normal and is ok to see.
	Gear reducer leak	If the gear reducer is found to leak, check the leak point. If it is leaking from the drain, fill, or vent plug, check oil level. If it is leaking from the housing, contact Motion Index Drives, Inc. or the reducer manufacturer.
	Seal failure	Check seals around input shaft of indexer. If oil is seen leaking from the seal, a new seal must be installed.

Problem	Potential Cause	Solution
Indexer is not rotating/locked	Tooling is jammed	Check all tooling and ensure there are no interferences between the rotating and stationary tooling/equipment.
	Motor is not being energized	Check wiring to Motor. Check all fuses. Meter all 3 phases of power to motor at motor pecker head to ensure all 3 phases come to AC motor. Check wiring in system panel and wiring in motor. Potentially a bad motor starter in panel. Check power coming out of motor starter and replace if necessary.
	Motor brake is not disengaged	Check power coming to rectifier. Ensure two phases are feeding rectifier. Check wiring in panel. If power is coming to rectifier, but brake is not releasing, rectifier may be bad. Contact Motion Index Drives, Inc. or motor manufacturer for replacement rectifier. If rectifier is ok, contact motor manufacturer or Motion Index Drives, Inc. for replacement motor.
	Pulley bushing has failed (if applicable)	Replace entire pulley and bushing with a new high quality unit.
	Motor has failed	Contact Motion Index Drives, Inc. or motor manufacturer for replacement motor.
	Gear reducer has failed	Contact Motion Index Drives, Inc.
	Top bearing has failed	Contact Motion Index Drives, Inc.

Problem	Potential Cause	Solution
Tooling seems to raise and lower during index	Optical illusion	Double check the table and ensure that what is seen is truly what is occuring.
	Top bearing has excessive wear.	Contact Motion Index Drives, Inc.

Problem	Potential Cause	Solution
Index walks/moves during index	Base plate/frame is loose to floor	Check bolt torque and tighten if required.
	Indexer is loose to base plate/frame	Check bolt torque and tighten if required.
	Tooling is loose to indexer	Check bolt torque and tighten if required.

Problem	Potential Cause	Solution
The indexer continues to rotate and keeps passing dwell position	Switches are not set up properly	Set switches so that the motor off switch(es) set the indexer to stop in dwell.
	Improper wiring	Check wiring to/from switches to ensure the switches are working properly. Fix wiring to switches for proper feedback.
	Controls/logic is not set up properly	Check controls/logic program to ensure the table operates properly and the motor off and dwell switches are utilized to manufacturer recommendation. Contact Motion Index Drives, Inc. with further questions.
	Switches are defective	Check switches. Ensure they operate properly. If not, replace with new.

Problem	Potential Cause	Solution
The index drive over/ under travels	Motor off switch cam out of position	Check dwell indicator. Ensure it is pointing straight up (12:00). If it is not, adjust switches so that the table is stopping in dwell. See figure 1
	Brake on motor is not engaging	The brake gap may be out of adjustment. Contact Motion Index Drives, Inc. or the motor manufacturer.
	Defective switch	Replace switch!

Problem	Potential Cause	Solution
Indexer stops in different positions on each index	Loose switch cams	Check switch cams and ensure they are tight. If they are not, tighten them and then check dwell position to ensure the unit is stopping in the correct position.
	Faulty controls/logic	Check logic/controls. Ensure there are no timers or other parameters set to control when motor is turned off. Motor should be de-energizing the moment the motor off switch is made, or the dwell (in-position) switch is made. There should be no delay from the time the switch is made to the time the motor is de-energized and the brake is engaged. This should all happen simultaneously.

Problem	Potential Cause	Solution
The indexer rotates in the wrong direction	Wrong phasing to motor	Check phasing to motor. Reverse and two of the three phases to motor to change index table rotation direction.
	Improper controls wiring	Check wiring in panel. Reverse wiring in panel so two of three phases get switched to operate the table in the reverse direction.
	Improper controls program	Check controls program. With a reversing motor starter, ensure the controls is triggering the proper direction of rotation.

Problem	Potential Cause	Solution
The external gear reducer is moving up and/or down	Loose fasteners between indexer and gear reducer flange	Check fasteners between gear reducer and index table flange. Ensure the fasteners are torqued to specification. If they are not, go to the next item!
	Fasteners are too long between reducer and indexer	If fasteners are found to be torqued properly, but gear reducer still moves, the fasteners may be too long. Remove fasteners, replace with shorter units, and contact Motion Index Drives, Inc. for follow up.

*Preventative Mainenance Guidelines

ITEM	MAINTENANCE REQUIRED AND FREQUENCY
Oil in Index Drive	Check visual sight glass every month and change oil every 2 years or sooner if water contamination occurs
Grease to Top Bearing	Grease through zerk fittings every 500 hours (or install automatic lubrication system to machine). Turntable must be running to properly grease the entire bearing.
Gear Reduction	If Table has internal gears, change oil once every two years. If external gear reducer, check every 6 months.
V Belts (Certain Models Only)	Remove sheet metal guard and verify tension on belts every 4,000 hours. Deflection should not be more than +/- 5 mm
Limit Switches	Check electrical Limit Switches for proper contact every 6 months. Verify Index Drive is stopping in correct position.
Motor	Check amp reading on Motor every 6 months. Found on motor name plate If motor is a Brake Motor, check Brake settings every 6 months. Adjust if necessary, or install new Brake on Motor.
Bolt Torque on top dial	Follow bolt specification or corporate standard for appropriate bolt size used. Every six months.
Bolt Torque on turntable to baseplate	Follow bolt specification or corporate standard for appropriate bolt size used. Every six months
Bolt Torque on Baseplate to Floor Anchors	Follow bolt specification or corporate standard for appropriate bolt size used. Every six months