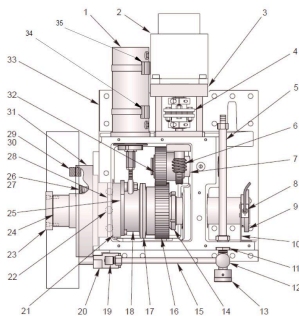




Turret Indexer Assembly - SL-10/30 ST-10/15 - Troubleshooting Guide

Turret Indexer Assembly - SL-10/30 ST-10/15 - Troubleshooting Guide

Turret Indexer Assembly



1. Air Cylinder Assembly

2. Motor

3. Worm Housing

4. Coupling Assembly

5. Coolant Line Assembly

6. Worm Shaft

7. TC Transfer Shaft

8. Turret Home Switch

9. TC Switch Ring

10. Turret Switch Bracket

11. Bulkhead Fitting

12. Coolant Valve

13. Coolant Knob

14. Bearing Nut N-13

15. Coolant Line

16. TC Spur Gear (keyed)

17. Belleville Washers (2)

18. TC Belleville Spacer

19. Coolant Elbow

20. Coolant Transfer Assembly

21. TC Turret Cams (2)

22. 15/16 Steel Balls (3)

23. Turret Retainer

24. TC Turret Shaft

25. TC Cam Lever

26. Die Spring Retainer

27. Die Spring

28. Cam Cage

29. Male Turret Coupling

30. Female Turret Coupling

31. Turret Mount Coupling

32. TC Cluster Gear

33. TC Turret Housing

34. Turret Unclamp Sensor

35. Turret Clamp Sensor

Symptom Table

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
---------	----------------	-------------------

Alarm 113 Turret failure to reach the Unclamp switch, Alarm 2022 Turret failure to leave clamp switch, Alarm 8113 Turret failed to reach the unclamp switch	The incoming air pressure or air flow is incorrect.	Check the incoming air supply.
	There is a problem with the voltage to the turret clamp / unclamp solenoid.	Check the voltage to the turret clamp / unclamp solenoid.
	There is a problem with the turret clamp / unclamp solenoid.	Check the turret clamp / unclamp solenoid.
	There is a problem with the clamp/unclamp cylinder.	Test the air cylinder for faulty piston seal.
	The turret unclamp sensor is faulty or out of adjustment.	Check the turret unclamp sensor.
Alarm 114 TURRET failure to reach the Clamp switch Alarm 2023 Turret failure to leave unclamp switch	Turret is out of alignment.	Check Turret/Motor coupling adjustment.
	Mechanical binding of turret.	Check turret for possible turret o-ring damage or chip intrusion.
	The turret clamp sensor is faulty or out of adjustment.	Check the turret clamp sensor.
Unusual noise as the turret rotates	Tool Turret Die springs are broken.	Remove Tool Turret to inspect or replace springs.
Toolchanger oil leaking from the solenoid at the lube cabinet.	Oil lands on air cylinder.	Clean airlines, solenoid, and air cylinder. Install Oil Shield . See Installation procedure for more information.
Alarm 106 A-AXIS POSITION ERROR	The servo motor has an electrical fault.	Go to DIY servo system trouble shooting.
	Mechanical obstruction.	Inspect turret for possible obstruction or binding during rotation.
Axis rotating slowly, hesitating to rotate.	Contaminated HPC Pressure Sensor cable.	Check the HPC Pressure cable for coolant contamination.

Solenoid

Corrective Action:

CALM System (All solenoids located in the lube panel)

Use needle tipped probes and take care not to touch probes tips together when checking voltage.

Set the meter to AC voltage.

In MDI command an M43 and press cycle start to unclamp the turret.

Measure the voltage to the clamp and unclamp solenoid. The solenoids are inside the CALM (consolidated air/lubrication manifold) panel. The voltage should measure 120 VAC.

If there is no voltage, refer to:

- [NEXT GENERATION CONTROL - I/O PCB - TROUBLESHOOTING GUIDE](#)
- [I/O PCB - TROUBLESHOOTING GUIDE \(CLASSIC HAAS CONTROL\)](#)

If voltage at the I/O is correct inspect the cable.

If the solenoid appears to be faulty, go to [SOLENOID TROUBLESHOOTING GUIDE](#).

Pre CALM System

Power off, lock and tag out the machine.

Remove the left rear machine enclosure panel.

Locate the clamp/unclamp solenoid and power connection behind the Tool Turret assembly.

Remove lock out tags, power up and zero return the machine.

Use needle tipped probes and take care not to touch probes tips together when checking voltage.

Set the meter to AC voltage.

In MDI command an M43 and press cycle start to unclamp the turret.

Measure the voltage at the solenoid power connection. Do Not unplug the cable. The voltage should measure 120 VAC.

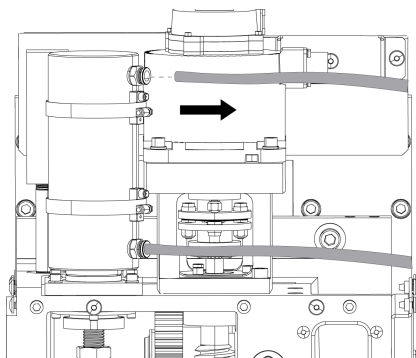
If there is no voltage, refer to:

- [NEXT GENERATION CONTROL - I/O PCB - TROUBLESHOOTING GUIDE](#)
- [I/O PCB - TROUBLESHOOTING GUIDE \(CLASSIC HAAS CONTROL\)](#)

If voltage at the I/O is correct inspect the cable.

If the solenoid appears to be faulty, go to [SOLENOID TROUBLESHOOTING GUIDE](#).

Air Cylinder



Note: There may be some variation of the cylinder cushion dampening between directions of movement for different vendors. Verify the air cylinder operation when installed. Do not test by hand.

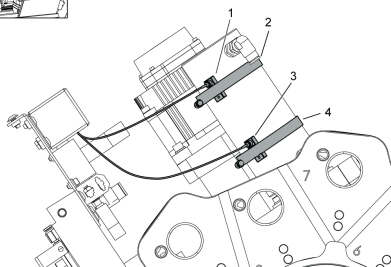
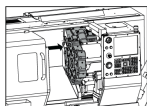
Corrective Action:

With the turret clamped test the air cylinder for faulty piston seal.

Remove the upper hose (unclamp) on the cylinder.

If air is escaping from the upper hose (unclamp) connection on the cylinder the cylinder piston seal is bad and piston should be replaced.

Clamp/Unclamp Sensors

**Corrective Action:**

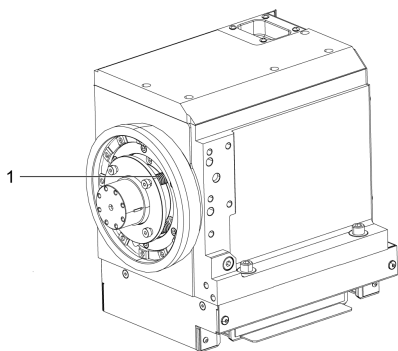
Check the turret unclamp and clamp sensors.

Use a magnet and pass it over the sensors. Watch the diagnostics screen to make sure they activate with the magnet.

If the magnet did not activate the sensors inspect the cables. If the cables are not damaged then the sensor will need to be replaced.

If the sensors were activated then they may need to be adjusted. Verify the motor coupler alignment before adjusting sensors. Refer to [ST-10/10Y, SL-10-30, TL-15/25, HL-1-6 - TURRET LOCK AND UNLOCKED SENSORS - ADJUSTMENT](#) procedure.

Turret Die Springs

**Corrective Action:**

With the turret clamped, rotate the turret back and forth by hand. If there is movement in the turret the die springs are broken and need to be replaced.

Refer to [HL/SL/ST-10 - TURRET - REPLACEMENT](#) from the manual. Once the turret is removed the springs can be replaced.

Mechanical Binding

Corrective Action:

If the o-ring under the rear turret chip skirt fails it can cause binding and prevent the turret from rotating into position. A failed o-ring will also allow for coolant and chip intrusion into the back side of the turret. In this case the turret should be removed to clear the chips and inspected for possible damage.

A failed o-ring will also allow for coolant and chip intrusion into the back side of the turret. In this case the turret should be removed to clear the chips and inspect for possible damage.

Alignment

If the turret is knocked out of alignment you may have to re-align the turret motor coupler.

Refer to [SL-10/20/30, ST-10/10Y - MOTOR COUPLING - ALIGNMENT](#) procedure.

If the turret is knocked out of alignment a full geometry inspection should be done. Make corrections as needed.

Servo Motor

Corrective Action:

The servo motor has an electrical fault. Possible failed motor, bad or contaminated cable connection, a damaged cable, or failed amplifier.

Refer to [SIGMA 1 - AXIS SERVO MOTOR AND CABLES - TROUBLESHOOTING GUIDE](#) or [SIGMA 5 - AXIS SERVO MOTOR AND CABLES - TROUBLESHOOTING GUIDE](#) for detailed information.