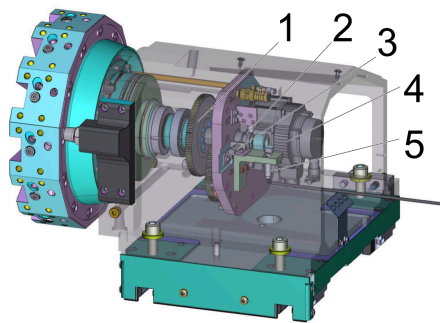




## Turret Indexer Assembly - ST-20/55 series - Troubleshooting Guide

# Turret Indexer Assembly - ST-20/55 series - Troubleshooting Guide

## Introduction



- 1. Internal Gears
- 2. Unclamp Switch
- 3. Clamp Switch
- 4. Servo Motor
- 5. Home Switch

## Symptom Table

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
<b>Alarm 113</b> TURRET FAILURE TO REACH UNCLAMP SWITCH  <b>Alarm 114</b> TURRET FAILURE TO REACH CLAMP SWITCH	The incoming air flow is incorrect.	Check the incoming air supply.
	There is a problem with the voltage to the turret clamp or unclamp solenoid.	Check the voltage to the turret clamp or unclamp solenoid.
	One or both of the turret clamp or unclamp proximity sensors is faulty.	Check the turret clamp or unclamp proximity sensors.
	The turret did not pop out far enough.	Check the piston, internal gears and spring assembly for damage.
	Turret piston air is not venting quick enough.	Install a quick exhaust.
<b>Alarm 106</b> A-AXIS POSITION ERROR	The internal gears are damaged. This can also cause unusual noise when the turret rotates.	Check the internal gears for damage.
	The servo motor has an electrical fault.	Check the servo motor connector and cables for shorts or contamination. Check the amplifier for shorts.
<b>Alarm 103</b> Axis Servo Error Too Large	The internal gears are damaged. This can also cause unusual noise when the turret rotates.	Check the internal gears for damage.
<b>Alarm 8125</b> Tool Turret Not Seated	Obstruction between tool turret and housing.	Clear obstruction such as chips.

Air leaking from solenoid muffler.	Air is bypassing the turret piston Quad-Ring.	Remove the non-pressureized air line, if the air is exhausting from the hose, the quad-ring has blowby. If the air is leaking from the solenoid then it has an internal leak.
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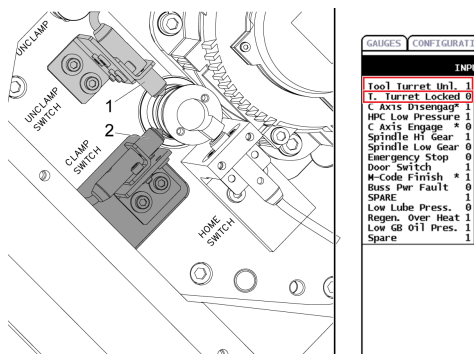
## Incoming Air Supply

### Corrective Action:

Make sure that the air compressor supplies the correct air pressure and air flow. For Haas machine air pressure specifications, go to [NEW MACHINE PRE-INSTALLATION](#). Select your machine and scroll to the the section labeled "Air/Coolant Requirements."

Attempt a tool change on the machine. When the machine has the correct air pressure and flow, the needle on the air pressure gauge should not drop more than 10 PSI (0.70 bar) during a tool change. This test confirms that the air pressure and air flow into the machine are correct.

## Clamp / Unclamp Proximity Sensors



### Corrective Action:

Go to the Diagnostic screen on the pendant. Go to the I/O tab. Use an M43 (Unclamp) M44 (Clamp) code in MDI mode to troubleshoot the switch that generates the alarm.

Check the discrete input Tool Turret Unl. for **Alarm 113**, or T. Turret Locked for **Alarm 114**. Test the sensor: Hold a screwdriver in front of the sensor. Make sure the input changes. If the activation ring is in front of the sensor, and you cannot test it, remove the sensor from the bracket to test the sensor correctly.

If an input does not change, jump the cable connector on the turret connector bracket.

If the input changes, replace the sensor. Refer to [ST/DS-20/25/30/35/Y - TURRET - CLAMP SWITCH/UNCLAMP SWITCH - ADJUSTMENT](#) for the correct sensor adjustment.

If the input does not change, refer to:

- [PROXIMITY SENSOR - HOW IT WORKS AND TROUBLESHOOTING GUIDE](#)
- [NEXT GENERATION CONTROL - I/O PCB - TROUBLESHOOTING GUIDE](#)
- [I/O PCB - TROUBLESHOOTING GUIDE \(CLASSIC HAAS CONTROL\)](#)

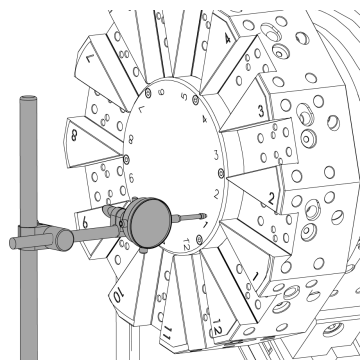
## Servo Motor

### Corrective Action:

Disconnect the axis servo motor cables. Make sure they are not contaminated. Measure the resistance from the pins labeled A, B, and C at the motor power cable connector to chassis ground. The reading should show an open circuit. If there is resistance to ground, the cable is at fault.

Go to: [SIGMA 1 - AXIS SERVO MOTOR AND CABLES - TROUBLESHOOTING GUIDE](#), [SIGMA 5 - AXIS SERVO MOTOR AND CABLES - TROUBLESHOOTING GUIDE](#) to troubleshoot the SIGMA motor and SIGMA motor cables.

## Turret Pop Out

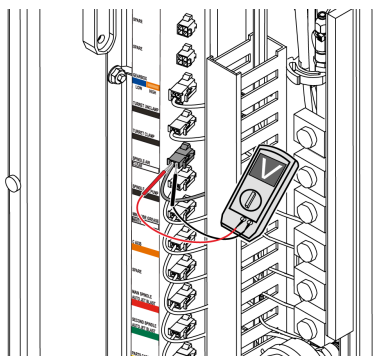


### Corrective Action:

If you commanded an M43 (Unclamp) and the turret moved, but did not move far enough to clear the coupler, measure the distance the turret traveled. The turret must move at least 0.130" for clearance past the couplers. The turret typically moves 0.200".

If the turret does not travel far enough, the piston shaft, gears, or spring assembly could be at fault, these components must be inspected by your local HFO.

## Clamp / Unclamp Solenoid Voltage



### Corrective Action:

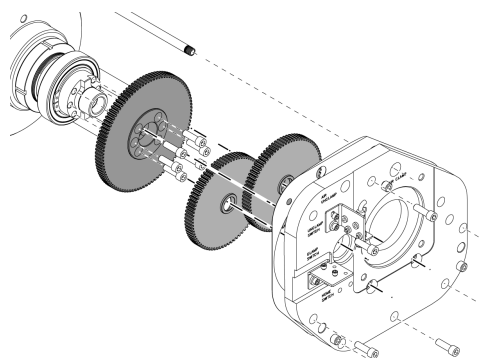
Measure the voltage of the clamp and unclamp solenoids. The solenoids are inside the consolidated air/lubrication manifold (CALM). The solenoids for Pre-CALM indexers are mounted on the turret housing.

Run M43 (Unclamp) and M44 (Clamp) codes in MDI mode to measure the voltage of both the solenoids. The voltage must measure 120 VAC.

If there is no voltage, refer to:

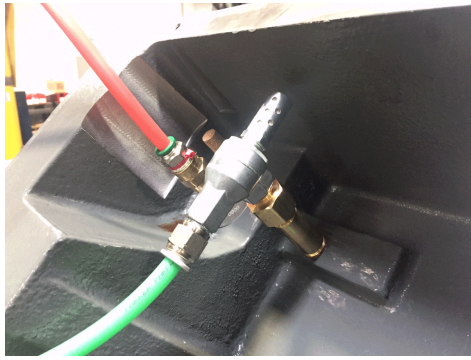
- [NEXT GENERATION CONTROL - I/O PCB - TROUBLESHOOTING GUIDE](#)
- [I/O PCB - TROUBLESHOOTING GUIDE \(CLASSIC HAAS CONTROL\)](#)

## Internal Gears



The turret's pop out and rotate function can fail because the tool changer gears are damaged. A machine crash can cause damage to the piston and gears, and must be inspected by your local HFO.

## Quick Exhaust



If the air is not venting fast enough when the turret is unclamping it may prevent the quad ring from "popping" into position. This can be detected by air leaking from the solenoid muffler during unclamp. Install a quick exhaust on the clamp hose as shown.

- 58-3665 Reducer
- 58-0004 1/4 NTP Nipple
- 58-1861 Muffler
- 58-1686 Reducer
- 59-2832B Quick Exhaust