How it Works

The Haas Bar Feeder was introduced in April 2015. Bar feeders are fully integrated with the Haas CNC control and automatically load bar stock into the turning center for automated part production.

The bar feeder relies on motors and proximity sensors to load and feed bars into the turning center. A DC motor loads the bars onto the charging tray. A servo motor pushes the bars into the turning center. Proximity sensors measure the bar length, and also make sure the bars are correctly loaded and fed into the turning center.

Haas Bar Feeder

1. Home switch
2. EOB (End of Bar) switch
3. Load "Q" switch
4. Load bar switch
5. In-position switch
6. Door switch
7. Trolley, belt, and belt tensioner assembly
8. Servo motor (trolley)
9. DC motor (bar loader)
10. Charging tray
11. Transfer tray
<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause</th>
<th>Corrective Action</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarm 702 V AXIS POSITION ERROR</td>
<td>The trolley hit an obstruction.</td>
<td>Adjust the charging tray.</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>A bar is stuck.</td>
<td>Clear bar path.</td>
<td>2</td>
</tr>
<tr>
<td>Alarm 712 V AXIS SERVO OVERLOAD</td>
<td>The belt skipped teeth.</td>
<td>Grid offset/zero return and check for belt damage.</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>The servo motor does not operate correctly.</td>
<td>Troubleshoot the servo motor.</td>
<td>4</td>
</tr>
<tr>
<td>Alarm 452 SERVO BAR MOTOR TIMEOUT</td>
<td>The bar feeder lifter hit an obstruction.</td>
<td>Remove obstructions from the lifter.</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>The DC motor brushes are worn.</td>
<td>Measure resistance of the DC motor.</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>The proximity sensor does not operate correctly. (Load bar)</td>
<td>Measure voltage to the proximity sensor.</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>There is no voltage to the DC motor.</td>
<td>Measure voltage to the DC motor.</td>
<td>8</td>
</tr>
<tr>
<td>Alarm 423 SERVO BAR EOB SWITCH POSITION</td>
<td>The proximity sensor does not operate correctly. (EOB switch)</td>
<td>Measure voltage to the proximity sensor.</td>
<td>7</td>
</tr>
<tr>
<td>Alarm 175 GROUND FAULT DETECTED</td>
<td>Cables are damaged or there is a contaminated electrical connection.</td>
<td>Check for connector damage.</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>The brushes are contaminated or there is a carbon buildup.</td>
<td>Check for contamination and remove dust.</td>
<td>10</td>
</tr>
<tr>
<td>Alarm 1015 CHECK SENSOR OR BAR</td>
<td>The proximity sensor does not operate correctly (Load &quot;Q&quot;).</td>
<td>Measure voltage to the proximity sensor.</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>The belt skipped teeth.</td>
<td>Grid offset/zero return and check for belt damage.</td>
<td>3</td>
</tr>
<tr>
<td>Alarm 2092 BAR FEEDER OUT OF POSITION</td>
<td>The bar feeder is not latched into position.</td>
<td>Relatch the bar feeder and check the pedal.</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>The proximity sensor does not operate correctly (In position switch).</td>
<td>Measure voltage to the proximity sensor.</td>
<td>7</td>
</tr>
<tr>
<td>Noisy</td>
<td>The bearing on the idle pulley is damaged.</td>
<td>Check for bearing damage.</td>
<td>12</td>
</tr>
<tr>
<td>Inconsistent push lengths.</td>
<td>Affected by previous push, pushrod timing delay, spindle liner size, chuck jaw size or grip strength.</td>
<td>Troubleshoot the pusher.</td>
<td>13</td>
</tr>
</tbody>
</table>

**Section 1**

**Symptom:** Alarm 702 V AXIS POSITION ERROR

**Possible Cause:** The trolley hit an obstruction.

**Corrective Action:**

Make sure bar feeder charging tray is not too high. When the tray is too high, the bar feeder can attempt to load two bars. Refer to the bar feeder manual for more information.

For machines with software version 11.26 or higher, zero return all axes.

For machines with software version 11.25 or lower, set the grid offset. Refer to [Axis Servo Motor - Set Grid Offset Parameter](#).
Symptom: Alarm 702 V AXIS POSITION ERROR

Possible Cause: A bar is stuck.

Corrective Action:
1. Squared-corner bar
2. Transfer tray
3. Chamfered-corner bar

The bar can get stuck when:

- **The bar is not chamfered**: Bars must have a smooth path. Any sharp corner in the bar path must be removed. Sharp corners can cause problems when you load a bar. Collets and chucks must have lead-in corners chamfered. Leading ends of a bar must be chamfered. When you create liners or use bar discs, use a generous lead-in chamfer.
- **The bar feeder is not aligned correctly**: Refer to the bar feeder manual; it has specific instructions on how to correctly position the bar feeder and adjust the transfer tray.
- **The bar is caught on the chuck jaw**: When you load a new bar, add a M19 code to your program to orient the chuck, and give the bar clearance to pass the chuck jaws.

For machines with software version 11.26 or higher, zero return all axes.

For machines with software version 11.25 or lower, set the grid offset. Refer to [Axis Servo Motor - Set Grid Offset Parameter](link).

Clear the bar. Find and correct the root cause of the problem.
Section 3

**Symptom:** Alarm 712 V AXIS SERVO OVERLOAD. Alarm 1015 CHECK SENSOR OR BAR.

**Possible Cause:** The belt skipped teeth.

**Corrective Action:**

For machines with software version 11.26 or higher, zero return all axes.

For machines with software version 11.25 or lower, set the grid offset. Refer to Axis Servo Motor - Set Grid Offset Parameter.

Check the belt [1] for visible signs of damage. If there is staggered V Axis motion, the belt [1] might be loose. Go to diy.haascnc.com to further troubleshoot the belt.

Section 4

**Symptom:** Alarm 712 V AXIS SERVO OVERLOAD

**Possible Cause:** The servo motor does not operate correctly.

**Corrective Action:**

Make sure the motor connections are properly seated and the cables are not damaged.

Section 5

**Symptom:** Alarm 452 SERVO BAR MOTOR TIMEOUT

**Possible Cause:** The bar feeder lifter hit an obstruction.

**Corrective Action:**

The DC motor (bar load) motor moves the lifter. If there is a physical obstruction blocking the movement of the lifter, the motor has a slip clutch that will allow the motor to continue to move. If there is an obstruction, the proximity sensors will not be activated. Remove any obstruction from the path of the bar feeder lifter.

Section 6

**Symptom:** Alarm 452 SERVO BAR MOTOR TIMEOUT.

**Possible Cause:** The brushes are worn.

**Corrective Action:**

1. Normal wear
2. Excessive wear

Disconnect the motor from the connector. Measure the resistance from pin to pin. The resistance must be between 5-20 Ohms. Measure the resistance from one of the pins to the motor chassis.

The resistance must be greater than 100k Ohms. If the measurements are less, there is not a good contact between the brushes and the commutator. Clean any contamination between the brushes and the commutator. Brushes that have too much wear are faulty. New brushes are approximately 0.6" (1.5 mm) in length.
**Section 7**

**Symptom:** Alarm 452 SERVO BAR MOTOR TIMEOUT. Alarm 423 SERVO BAR EOB SWITCH POSITION. Alarm 1015 CHECK SENSOR OR BAR. Alarm 2092 BAR FEEDER OUT OF POSITION.

**Possible Cause:** The proximity sensor does not operate correctly.

**Corrective Action:**

Find the correct sensor to troubleshoot:

1. Load bar (Alarm 452)
2. Home switch (Alarm 469)
3. EOB switch (Alarm 423)
4. Load "Q" (Alarm 1015)
5. In-position (Alarm 2092) - Before you attempt to troubleshoot the In-position switch, unlatch and re-latch the bar feeder using the foot pedals.
6. Door switch (No alarm) - When the door switch detects the door is open, the bar feeder will operate at 25% normal speed. If this switch does not operate correctly, it will operate at 25% normal speed while the door is closed.

Test the sensor for correct operation: hold a key or other steel object in front of the sensor. If the sensor lights up, the sensor is not faulty. If the sensor does not light up, continue to further troubleshoot the proximity sensor.


The correct voltage is 12 VDC.

- The EOB switch is a photo sensor, and should measure 115 VAC.

If voltage is correct, the sensor is at fault. Go to [Proximity Sensor - How it Works and Troubleshooting Guide](#) to further troubleshoot the proximity sensor.

If there is no voltage, go to [I/O PCB - How it Works and Troubleshooting Guide (Classic Haas Control)](#).
Section 8

Symptom: Alarm 452 SERVO BAR MOTOR TIMEOUT

Possible Cause: There is no voltage to the DC motor.

Corrective Action:

Run the DC motor: use G105 Q9 (Load Bar Stock) or G105 Q8 (Unload Bar Stock). Measure for DC voltage at the connector on the motor:

Adjust the multimeter range to 0.0 and set it for Min/Max. The power to the motor will only be on for one second before an alarm is generated and the power is shut off. The reading must be a minimum of 160 VDC, or show a signal change, when it is commanded to run. Some multimeters are not fast enough to read the voltage before the alarm occurs. It should still show a signal change or OL before the alarm is generated.

If there is no voltage and the signal does not change, go to I/O PCB - How it Works and Troubleshooting Guide (Classic Haas Control).

Section 9

Symptom: Alarm 175 GROUND FAULT DETECTED

Possible Cause: Cables are damaged or there is a contaminated electrical connection.

Corrective Action:

Perform a visual inspection of the motor cable and connectors. Make sure that the cable is in good condition and that the connectors are clean and secure.
Section 10

**Symptom:** Alarm 175 GROUND FAULT DETECTED

**Possible Cause:** The brushes are contaminated or there is a carbon buildup.

**Corrective Action:**

Power off the machine. Remove the brush caps from the DC motor (bar loader motor). Vacuum and clean the carbon dust from the motor and brushes. Check for wear or contamination in the brushes. New brushes are approximately 0.6” (1.5 mm) in length.

Section 11

**Symptom:** Alarm 2092 BAR FEEDER OUT OF POSITION

**Possible Cause:** The bar feeder is not latched into position.

**Corrective Action:**

Relatch the bar feeder and check the release pedal.

Step on the release pedal [1] and move the bar feeder to the Lockout/Lathe Setup position. Then move it back to the Feed/Auto position.

If the symptom remains go to section 8.
Section 12

Symptom: Noisy.

Possible Cause: The bearing on the idle pulley is damaged.

Corrective Action:

A damaged bearing can cause excessive noise.

Remove the bearing [1] from the idle pulley. Check the bearing for any rough movement or loose components.

Check for wear on the pulleys [2] on both ends of the belt.

Section 13

Symptom: Inconsistent push lengths.

Possible Cause: Affected by previous push, pushrod timing delay, spindle liner size, chuck jaw size or grip strength.

Corrective Action:

The length of the push can be affected by the previous push: If the previous part over-shoots, the next push will be shorter. If the previous part slides back into the chuck, the next part will be long.

The pushrod moves away from the bar too soon: If the push rod moves away before the chuck can close, it can cause the bar to move back. This is more common with the collet chuck. Adjust Parameter 249 CHUCK CLAMP DELAY.

The spindle liner is too big, or there is no spindle liner: The chuck does not pull the bar against the rod when clamping or the chuck jaws are thinner. The thin jaws can cause the material to rock on the open jaws and fall forward or backwards. Material can also hit the back of the chuck and spring forward. Adjust the spindle liner to the correct size for the bar.

The bar moves after the pusher stops: Reduce the push speed: Adjust parameters 316, 317, and 323.