How it Works

Door Interlock systems lock the front doors when the machine is in use. The pneumatic interlock system is comprised of a solenoid inside the air/lube panel, a proximity sensor [1], a piston [2], and a stop block [3]. When a program is in operation, the solenoid energizes, and air pressure pushes the piston [2] into the path of the stop block [3] so that the door cannot be opened. When the program stops, the solenoid is de-energized, and the piston [2] springs back so that the door can be opened.

A key switch on the side of the control pendant allows you to select a lock/run or an unlock/setup mode. Each mode affects how the machine operates when the doors are opened. Refer to your Operator’s Manual for more information.

In the image, the cover for the sensor and piston is removed.

1. Proximity sensor
2. Piston
3. Stop block

Note: The door shown closes to the right. On machines with two doors, the sensor and stop block for the left door are on the left side of the piston.
### Section 1

**Symptom:** Alarm 223 DOOR LOCK FAILURE

**Possible Cause:** The sensor is misaligned

**Corrective Action:**

If the door was removed or any components are loose, the door interlock sensor can become misaligned. Inspect the door rollers and make sure all of the interlock components are aligned.

- \( R \) is 0.0" - 0.09" (0.0 - 2.3 mm). Space \( R \) is the distance between the end of the proximity sensor housing [2] and the top of the stop block [3].
- \( S \) is 0.06" - 0.25" (1.5 - 6.4 mm). Space \( S \) is the distance between the extended piston [1] and the stop block [3].

### Section 2

**Symptom:** Alarm 223 DOOR LOCK FAILURE

**Possible Cause:** No power to the solenoid or the sensor

**Corrective Action:**

Interlock solenoids use the power-to-lock system.

Command a spindle speed of 100 rpm.

Measure the voltage at the I/O PCB. The correct voltage is 120 VAC. Verify that voltage is present (connectors P29 [1] on a Classic Haas Control (CHC), P40 and P41 [2] on a Next Generation Control (NGC)) when the door is closed and locked. If no voltage is present, go to [diy.haascnc.com](https://diy.haascnc.com) to troubleshoot the I/O PCB. If voltage is present, test the solenoid. Refer to [diy.haascnc.com](https://diy.haascnc.com) to troubleshoot the solenoid.
Set the pendant key to “run”/locked mode. Close the door. Make sure the sensor indicator lights [4,5] activate. If the sensor lights fail to activate, the sensor may be defective, misaligned, or have a faulty connection. Refer to Sections 1 and diy.haascnc.com to troubleshoot the proximity sensors.

Section 3

Symptom: Alarm 223 DOOR LOCK FAILURE

Possible Cause: Piston is stuck from contamination

Corrective Action:

Remove the fitting [1] and the piston assembly [2] from the interlock body [3]. Use a pick to remove the bottom o-ring [7].

Clean the inside of the interlock body and all parts. Replace any damaged o-rings.

Apply a thin coat of silicone grease to the top o-ring [4], the piston shaft [5], the spring [6], and the bottom o-ring [7].

Fix the source of contamination to prevent a recurrence of the problem.