



VMC - 30/40-Taper - Belt/Gearbox - TRP Clamp/Unclamp Sensor - TSC - Adjustment

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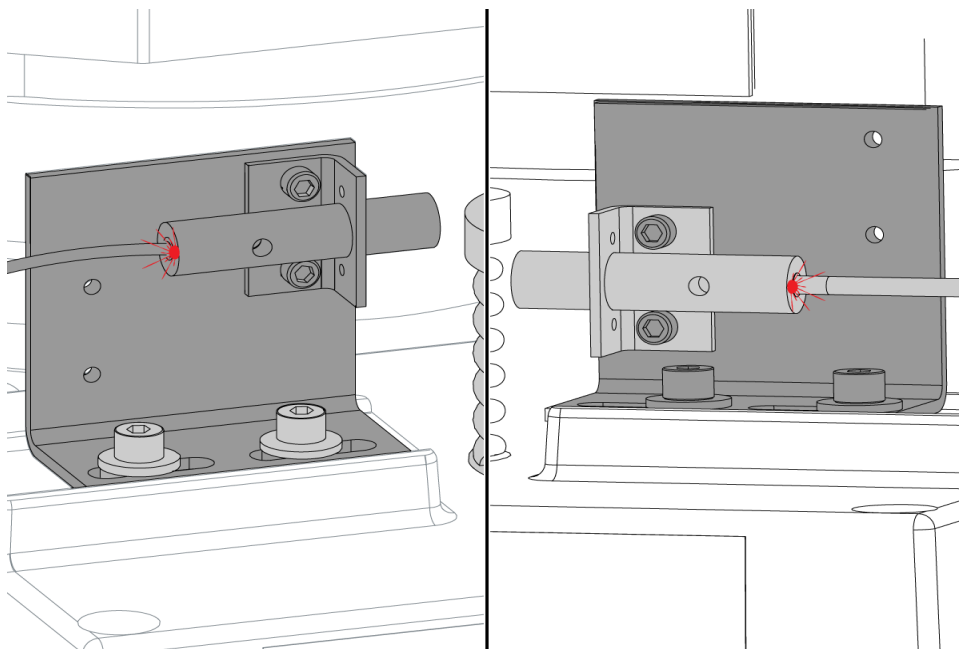
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VMC - 30/40-Taper - Belt/Gearbox - TRP Clamp/Unclamp Sensor - TSC - Adjustment - Introduction

This procedure tells you how to do these adjustments:

1. drawbar height
2. proximity sensor ("switch") positions for the engaged/disengaged (clamp/unclamp proximity) drawbar.



Machine Compatibility

Do this procedure on a vertical mill with these components:

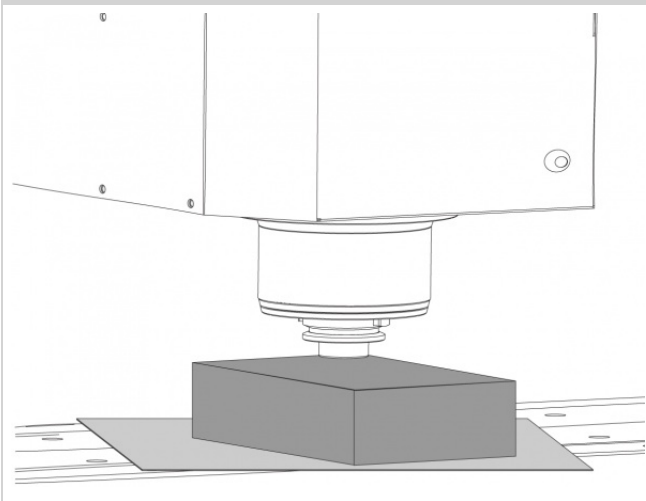
- belt/gearbox drive
- 30- or 40-taper spindle
- through-spindle coolant (TSC)
- adjustable tool release piston (TRP) clamp and unclamp proximity sensors

Tools Required

PRESSURE GAUGE SERVICE KIT
(P/N 93-2621)

VMC - 20/30/40-Taper - Drawbar Height - Check

STEP 1



Jog the X Axis and the Y Axis until the spindle is in the middle of the table.

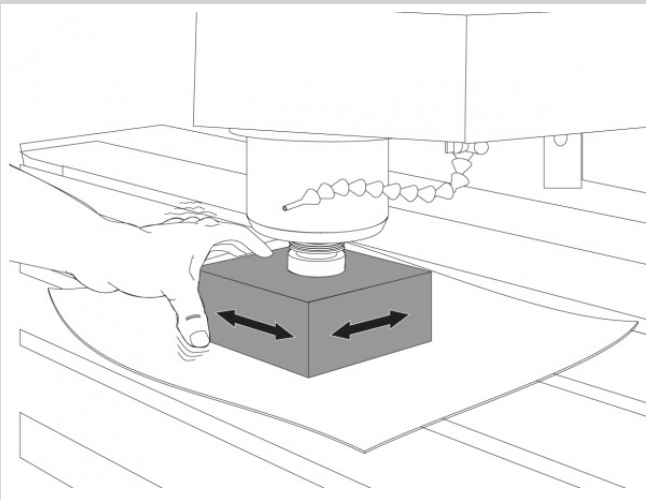
Put a toolholder with no tool into the spindle. Put a piece of paper on the table to protect the table. Put the aluminum block on the piece of paper.



Jog the Z Axis in the negative (-) direction.

Do this until the toolholder is approximately 0.30" (8 mm) from the top of the block.

STEP 2



Push [.001/1].



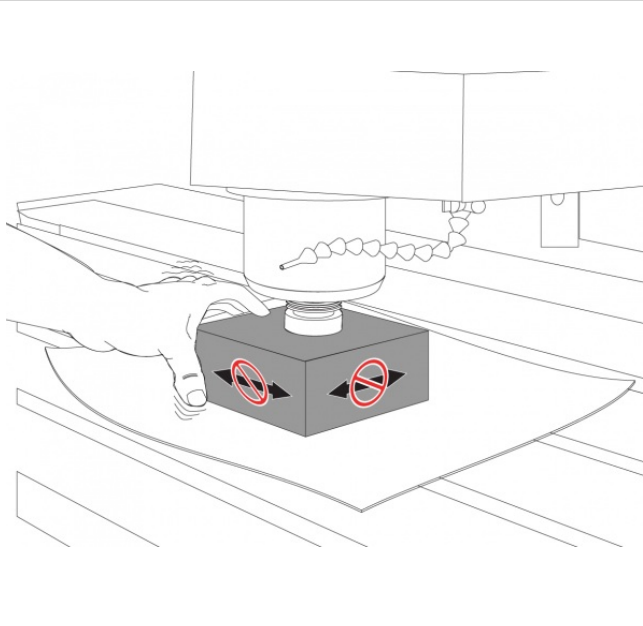
Jog the Z Axis in the negative (-) direction one increment at a time. Jog until the toolholder lightly touches the block.

The block can move in the X and Y axes, but not in the Z Axis.



Caution: Do not push the tool-release button. This causes a Z-Axis overload.

STEP 3



Push **[.001/1]**.



Jog the Z Axis in the negative (-) direction 0.002" (0.05 mm).

The block is tight.



Push **[POSIT]** to show the Position display. Push **[MDI]** and then **[HAND JOG]** to change the position display to zero.



Jog the Z Axis in the positive (+) direction 0.100" (2.54 mm) above the block.

Push and hold the tool-release button. With moderate force, try to move the aluminum block. If the drawbar height is correct, the block does not move at 0.100.

If the block moves, go to Step 4. If the block does not move, go to Step 5.

STEP 4

Do this step if the block moved in Step 3.



Push **[MDI]** and then **[HAND JOG]**. Push **[.01/10]**.



Jog the Z Axis in the negative (-) direction 0.01" (0.254 mm), one increment.



Push and hold the tool-release button.

Try to move the aluminum block. If the block moves, jog the Z Axis one increment at a time until the block cannot move. Record the number of increments you must move the spindle. The number of increments is the number of shims to add.

STEP 5

Do this step if the block did not move in Step 3.



Push **[.01/10]**.



Jog the Z Axis in the positive (+) direction 0.01" (0.254 mm), one increment.



Push and hold the tool-release button.

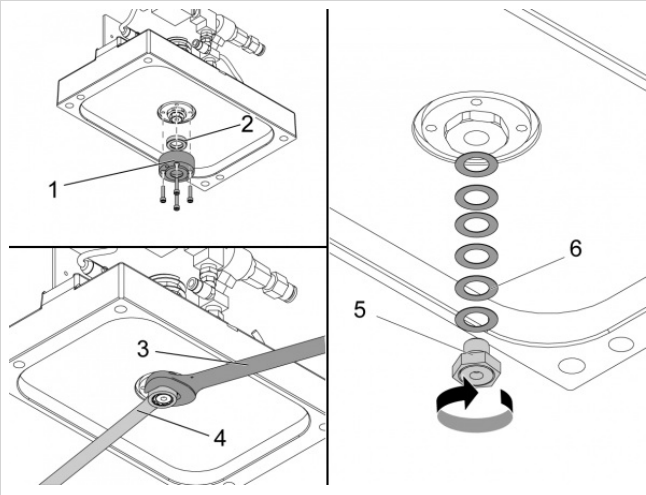
Try to move the aluminum block. If the block does not move, jog the Z Axis one increment at a time until the block moves. Record the number of increments you must move the spindle. The number of increments is the number of shims to remove.

VMC - 30/40-Taper - Belt/Gearbox - TSC - TRP - Add or Remove Shims

STEP 1

Disconnect the proximity-switch and solenoid cables at the solenoid bracket. Disconnect the TSC hose. Disconnect the pre-charge and tool-release air tubes from the solenoid. Lift the TRP assembly from the spindle and move it forward to remove it.

STEP 2



Remove the TSC seal housing [1] and the TSC seal [2]. If the seal housing has hoses attached to it, remove them. Use an open-ended wrench [3] to hold the TRP shaft. Use a closed-end wrench [4] to turn the TRP bolt [5] clockwise to loosen.



Note: The threads for the tool-release bolt go in the opposite direction.

Add or remove shim washers [6] from the tool TRP bolt. Apply medium-strength thread-locking compound (for example, blue Loctite®) to the TRP bolt.

STEP 3

Install the TRP bolt into the bottom of the TRP. A torque wrench is not necessary to tighten the TRP bolt. Install the TSC seal and TSC seal housing. If you removed hoses from the housing, connect them.

Install the TRP assembly into the machine. Torque the TRP screws. Refer to [Haas Fastener Torque Specifications](#). Use the value for iron.

Connect the pre-charge and tool-release air tubes to the solenoid. Connect the TSC hose. Connect the proximity-switch and solenoid cables. Do this section again: "VMC - 20/30/40-Taper - Drawbar Height - Check."

VMC - 20/30/40-Taper - TRP - TSC - Pre-charge - Adjustment

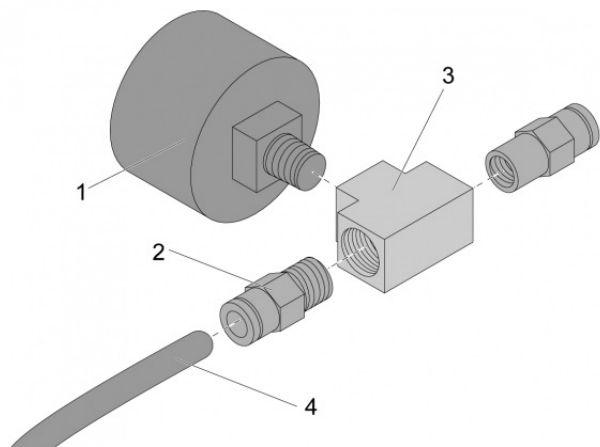
This procedure tells you how to do these tasks:

- Assemble the pressure gauge service kit.
- Use the pressure kit to adjust the TRP pre-charge.



Note: Do not do this procedure if the machine does not have through-spindle coolant. The location of the pre-charge solenoid may vary.

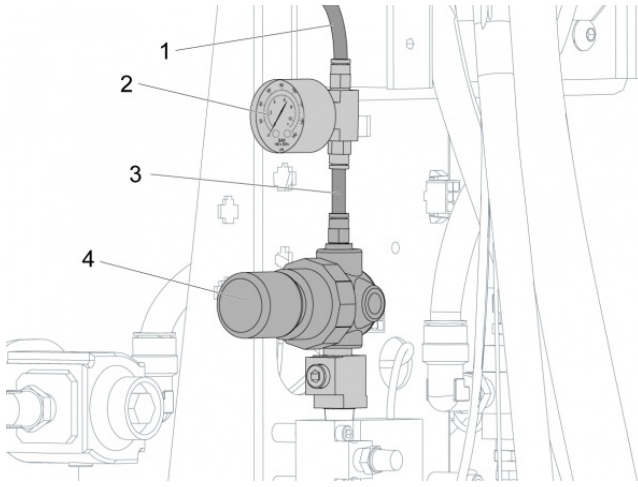
STEP 1



Do these steps to make a pressure-gauge assembly:

- Attach the gauge [1] to the tee-fitting [3].
- Attach the (2) quick-release fittings [2] to the tee-fitting.
- Put the 1/4" tubing [4] into one of the quick-release fittings [2].

STEP 2

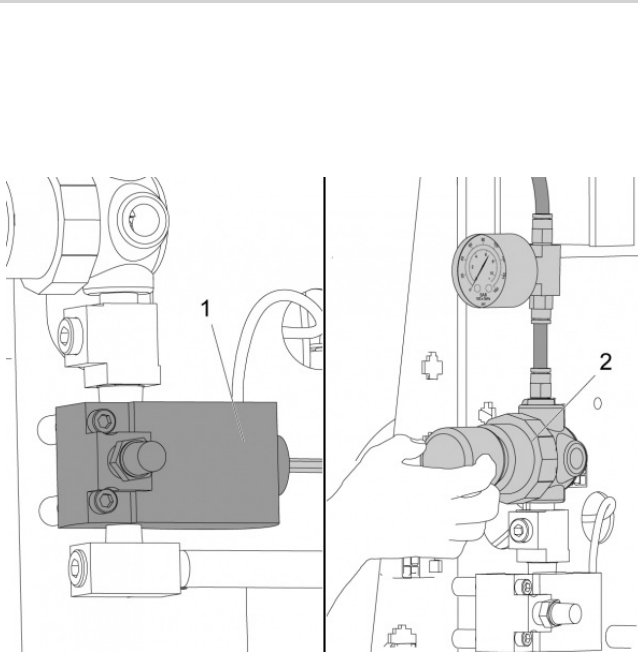


Disconnect the tube [1] from the output-side of the pre-charge pressure regulator [4].

Put the tube into the top of the pressure-gauge assembly [2].

Connect the 1/4" tube [3] from the pressure-gauge assembly to the regulator.

STEP 3



On some machines, you cannot adjust the regulator. Use the pressure-gauge assembly to make sure the regulator operates correctly. Do these steps to make sure the regulator [2] operates correctly:

Adjustable regulator:

Push and hold the button on the pre-charge solenoid valve [1]. Do this for 20 seconds.

Pull the regulator adjustment knob to unlock it. Set the air pressure to 30 psi (2.1 bar). Release the solenoid button. Push and hold the button on the solenoid valve [1], again. Do this for 20 seconds.

Make sure the gauge shows 30 psi (2.1 bar). Release the solenoid button. Push the regulator adjustment knob to lock it.

Non-adjustable regulator:

Push and hold the button on the pre-charge solenoid valve [1]. Do this for 20 seconds.

Make sure the gauge shows 30 psi (2.1 bar). If the gauge does not show 30 psi (2.1 bar), the regulator is defective. Replace the regulator.

Both: Remove the pressure-gauge assembly from the regulator.


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STEP 1



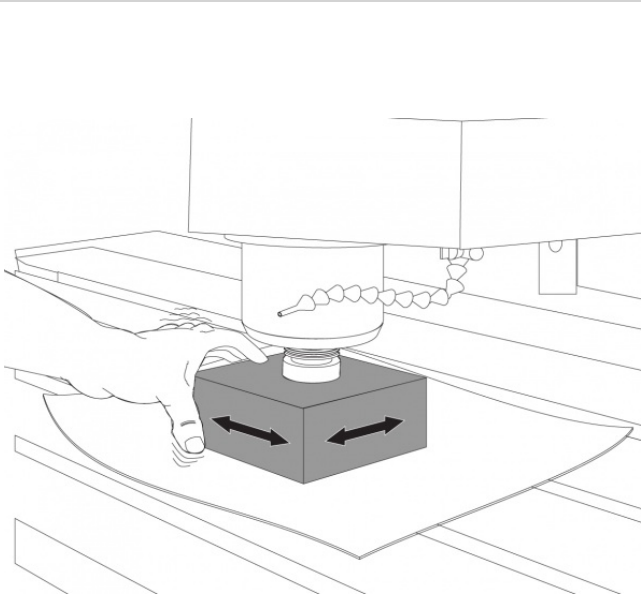
Clear the **[EMERGENCY STOP]**. Push **[RESET]** to stop each alarm.

If the machine does not have a Consolidated Air/Lubrication Module (CALM), do these steps:

1.  Push **[PARAM/DGNOS]**.
2. Set Parameter **76 LOW AIR PRESSURE** to **99999**.
3. Turn the main air regulator to decrease the air pressure to 75 psi (5.2 bar).

Move the center of the table under the spindle axis. Put a toolholder with no cutting tool into the spindle.

STEP 2



Put a piece of paper on the table to prevent damage to the table.

Put the aluminum block [2] on the piece of paper.



Push **[.001/1]**.



Slowly jog the Z Axis in the negative (-) direction until the toolholder lightly touches the block.

The block can move in the X and Y axes, but not in the Z Axis.



Push **[POSITION]**.



Push **[ORIGIN]**.



Caution: Do not push the tool-release button. This causes a Z-Axis overload.



Jog the Z Axis in the positive (+) direction 0.060" (1.52 mm) above the block.

STEP 3

INPUTS 1		OUTPUTS 1	
Tool Changer In	0	SPARE	0
Tool Changer Out	1	SPARE	0
Tool One In Pos.	1	SPARE	0
Low TSC Pressure	1	Circuit Breaker	1
Tool In Position	1	Low GB Oil Pres.	0
Spindle Hi Gear	0	APC Door	0
Spindle Low Gear	1	APC Pin Clr #1	1
Emergency Stop	0	APC Pin Clr #2	0
Grd/Sfty Switch	0	Tool Unclmp Rnt*	1
M-Code Finish *	1	Ax Grease Press.	0
Buss Pwr Fault	0	APC Pal #2 Home	1
Low Air Pressure	0	APC Pal #1 Home	0
Low Lube Press.	0	Ground Fault	0
Regen. Over Heat	1	G31 Block Skip	0
Draw Bar Open	0	Spigot Position	1
Draw Bar Closed	1	Conveyr Overcrnt	1
		Power Servos	1
		Move Spigot CW	0
		Move Spigot Ccw	0
		Pal Ready Light	0
		TSC Purge	0
		Unclamp Pre-Chrg	0
		HTC Shuttle Out	0
		Brake 5th Axis	0
		Door Lock	0
		Sp Lube Pump On	0
		Vacuum Enable	0
		SMTC Pocket down	0
		TSC Coolant	0
		HiIntensityLight	0
		Worklight	0
		Enable Conveyor	0
		Reverse Conveyor	0

< 3 of 6 >



Press **[PARAM/DGNOS]** until the Diagnostics tab shows.

Push the tool-release button while you monitor the status of **Draw Bar Open**.

If **Draw Bar Open** changes to **1**, no adjustment is necessary. Install the spindle head covers.

STEP 4

If **Draw Bar Open** does not change to **1** when you push the tool-release button, adjust the sensor as follows:

1. Loosen the (2) **Draw Bar Open** sensor screws. Keep the screws sufficiently tight to control the adjustment.
2. Lightly tap the **Draw Bar Open** sensor in the direction of the TRP. Do this until **Draw Bar Open** changes to **1** when you push the tool-release button.
3. Push the tool-release button (2) more times. **Draw Bar Open** changes from **0** to **1** with each tool release.
4. Jog the Z Axis in the negative (-) direction to 0.050" (1.27 mm) above the block.

Push the tool-release button while you monitor the status of **Draw Bar Open**. If **Draw Bar Open** stays at **0**, no adjustment is necessary. If **Draw Bar Open** changes to **1**, do these steps:

1. Lightly tap the **Draw Bar Open** sensor away from the TRP until **Draw Bar Open** stays **0** when you push the tool-release button.
2. Push **[TOOL RELEASE]** (2) more times to make sure **Draw Bar Open** stays **0**.
3. Torque the (2) **Draw Bar Open** screws. Refer to [Haas Fastener Torque Specifications](#). Use the value for iron.
4. Jog to 0.06" (1.52 mm) away from the block.

Push **[TOOL RELEASE]** while you monitor the status of **Draw Bar Open**. If **Draw Bar Open** changes to **1**, no adjustment is necessary. If **Draw Bar Open** stays at **0**, do these steps:

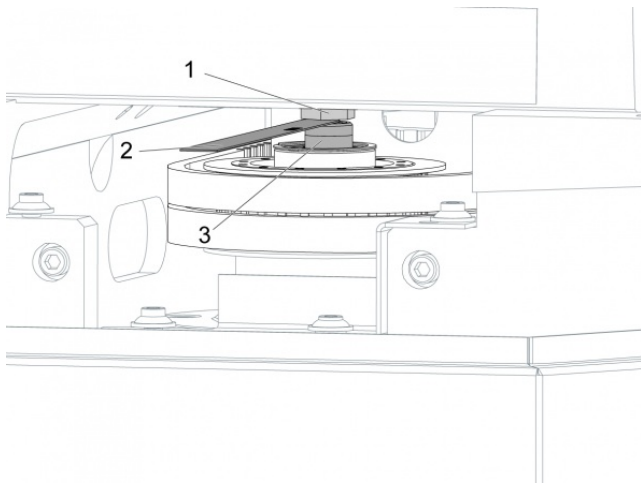
1. Loosen the (2) **Draw Bar Open** sensor screws. Keep the screws sufficiently tight to control the adjustment.
2. Lightly tap the **Draw Bar Open** sensor in the direction of the TRP. Do this until **Draw Bar Open** changes to **1** when you push the tool-release button.
3. Push **[TOOL RELEASE]** (2) more times to make sure **Draw Bar Open** changes from **0** to **1**.
4. Torque the (2) **Draw Bar Open** screws. Refer to [Haas Fastener Torque Specifications](#). Use the value for iron.



Note: When you push the tool-release button, the adjustment of the sensor is correct if:

- At 0.06" (1.52 mm) above the block, (**Draw Bar Open**=**1**) . The sensor is on.
- At 0.05" (1.27 mm) above the block, (**Draw Bar Open**=**0**) . The sensor is off.

STEP 5



Remove the toolholder from the spindle.

Remove the TSC seal from the bottom of the tool-release piston.

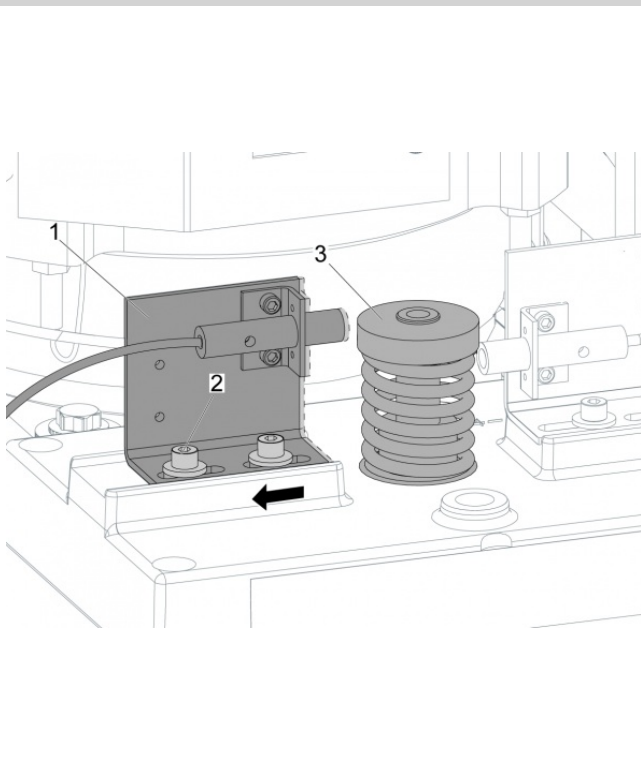
Put a 0.02" (.508 mm) feeler gauge [1] between the tool-release bolt [2] for the TRP and the drawbar [3].

STEP 6



Push **[MDI/DNC]**. Push **[DELETE]** to clear any code in the display. Type **M59 P1120**. Push **[WRITE/ENTER]**.

STEP 7



Adjust the **Draw Bar Closed** sensor as follows:

Remove the toolholder from the spindle. Operate this code in **MDI** mode:

```
%  
M56 P1114;  
%
```

If **Draw Bar Closed** does not change to **0**, do these steps:

1. Loosen the (2) sensor screws [2]. Keep the screws sufficiently tight to control the adjustment.
2. Lightly tap the clamp sensor [1] away from the TRP until **Draw Bar Closed** = **0**.
3. Push **[RESET]**. If the adjustment is correct, **Draw Bar Closed** changes to **1**.
4. Remove the 0.02" (0.508 mm) feeler gauge. Put a 0.04" (1.016 mm) feeler gauge between the TRP and the drawbar.
5. Do Step 6 again.

STEP 8

Push the tool-release button (2) more times to make sure **Draw Bar Closed** does not change from **1** to **0**.

If **Draw Bar Closed** = **1**, the adjustment to the clamp sensor is not necessary.

Torque the (2) clamp sensor screws. Refer to [Haas Fastener Torque Specifications](#). Use the value for iron.



Set Parameter **76**, LOW AIR DELAY, to **1500**.

Do some tool changes to make sure that the TRP is correctly adjusted. Make sure the TRP has no leaks.