4th Axis Homing Kit Setup

Product Identification: 4th Axis Homing Kit (PN 31921)

Purpose: This document details setup of the 4th Axis Homing Kit with PathPilot™ to reference a 4th axis to a repeatable home position on PCNC 1100 and PCNC 770 mills. A homing kit eliminates the need to re-indicate work after a power cycle, eliminates rewinding of the axis after operations that jog the axis in one direction only, and reduces setup time for 4th axis work.

Qty.	4th Axis Homing Kit (PN 31921)	PN
1	Proximity Sensor	31922
1	6' Lead	—
1	DIN Connector	30624

NOTE: *If any of these items are missing, contact Tormach Customer Service for a replacement at (608) 849-8381.*

Using Proximity Sensor

1. Power on mill according to *Power On/Power Off Procedure* detailed below.

⚠️ **WARNING! Electrical Shock Hazard:** *Be sure to power off machine before making any electrical modifications. Failure to do so may result in serious injury or death.*

Power Off/On Procedure

Power Off	1. Push red *E-stop* button in	
	2. Click *Exit* on screen; when prompted click *OK* to power off	
	3. Turn Main Disconnect *Off* (see image at right)	

Power On	1. Turn Main Disconnect *On* (see image at right)	
	2. After software loads, turn red E-stop clockwise to release	
	3. Press green *Start* button	
	4. Click *Reset* on screen	

2. Identify DIN Connector on one end of 4th Axis Homing Kit (see **Figure 1 inset**); plug in to accessory port on operator panel.

3. Mount Proximity Sensor on a temporary fixture like a Magnetic Base or similar (see **Figure 1**).

NOTE: *Dedicated setups may be devised for particular jobs depending on part geometry.*
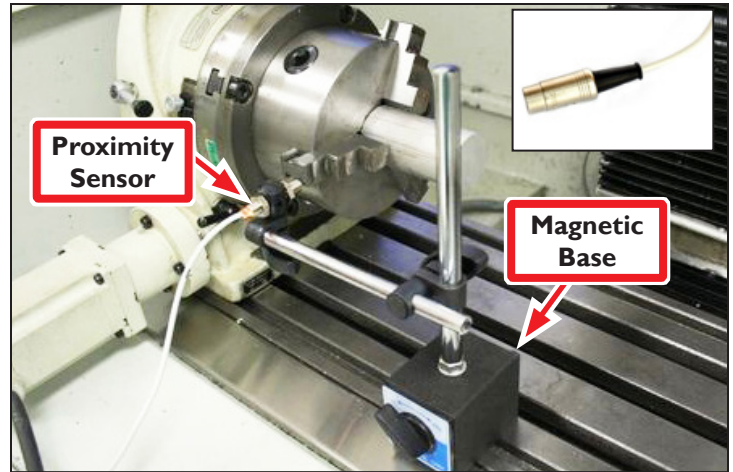

Figure 1

4. Identify a Trigger point for Proximity Sensor. In the setup shown in **Figure 2**, one jaw of 3-jaw Chuck on the 4th axis serves as a Trigger as it rotates in a perpendicular path toward the Proximity Sensor.

NOTE: *Any metallic object of reasonable size may be used to trigger the Proximity Sensor; however, steel and iron are best. Nonferrous metals have a reduced sensing distance.*

5. Ensure Trigger approaches Proximity Sensor face from a 90° angle (see **Figure 2**).

6. Position Proximity Sensor no more than .060" (1.5 mm) from Trigger point for accurate detection.

NOTE: *Repeatability is dependent on both the size of the Trigger and the airgap between the Trigger and the Proximity Sensor face. In the setup shown in **Figure 1** and **Figure 2**, repeatability was better than 15 arc seconds of rotation.*
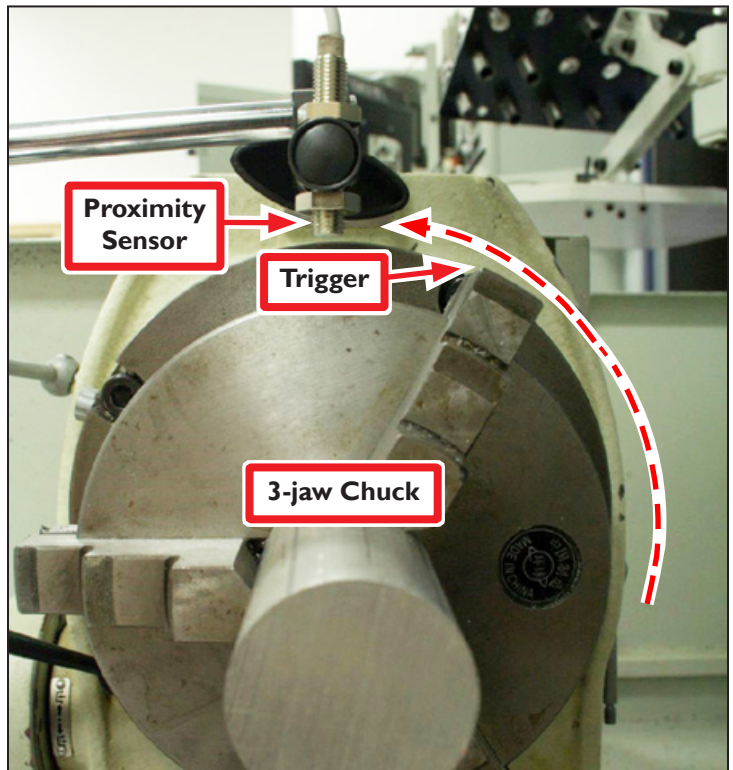

Figure 2

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7. On PathPilot interface's *Settings* screen, click *4th Axis Homing* (PN 31921) checkbox (see **Figure 3**).

8. Using *REF A* button (see **Figure 3**), reference A-axis to a home position.

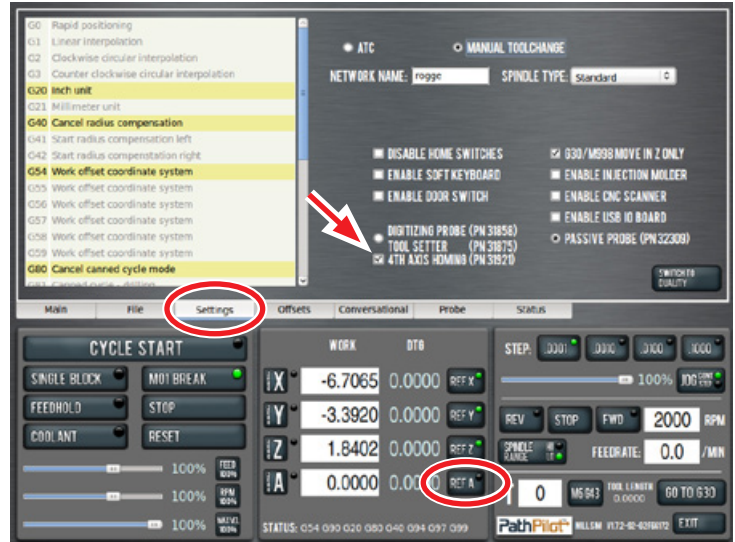9. After 4th axis homing is complete, remove DIN Connector from operator panel's accessory port.

Figure 3