# Goniostat for the Tormek

# Instructions for Building

**Version 1**
**11 August 2024**

# Goniostat for Tormek

This document is intended to you print and build the goniostat jig for use with a Tormek.

If you have any questions, please contact me at ColvinTools@Gmail.com.

Good luck.

Rich Colvin

# Goniostat for Tormek

## Table of Contents

# Goniostat for Tormek

## Bill of Materials

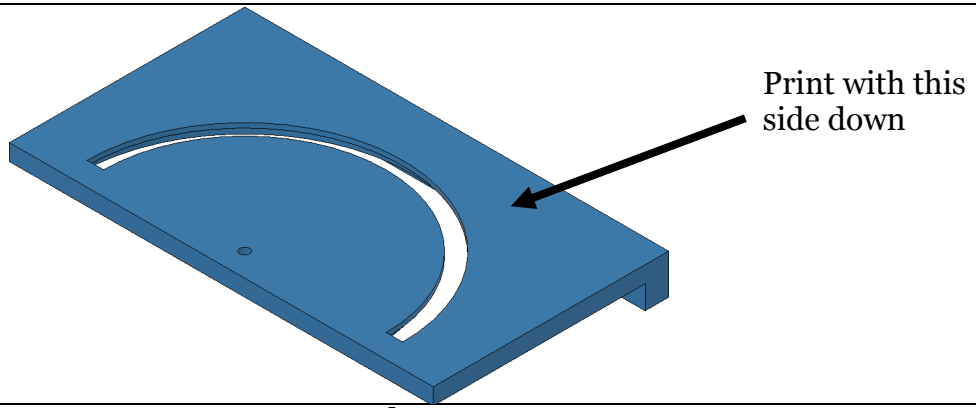
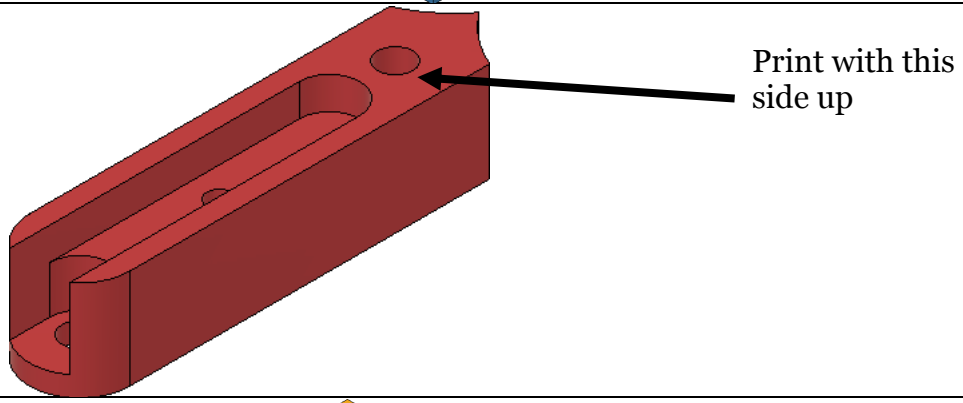
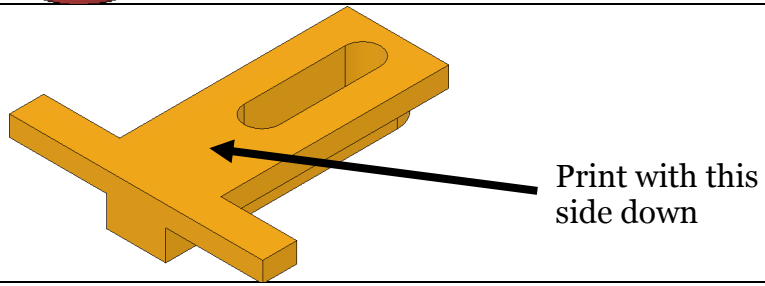
Parts required for building this are below. The item numbers are shown in the following drawings using an orange, circled number like the one to the right.


**NOTE:** Pictures shown in the table below are to help with identification. Sizes shown are not representative of the actual size.

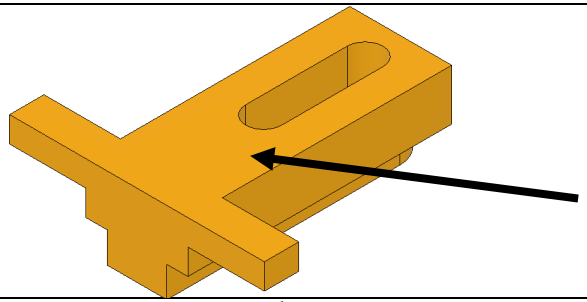
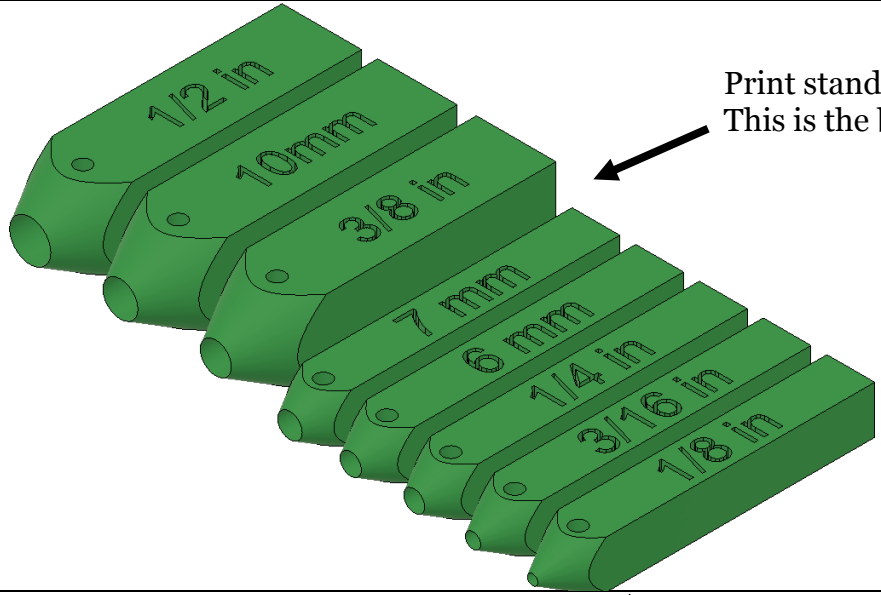
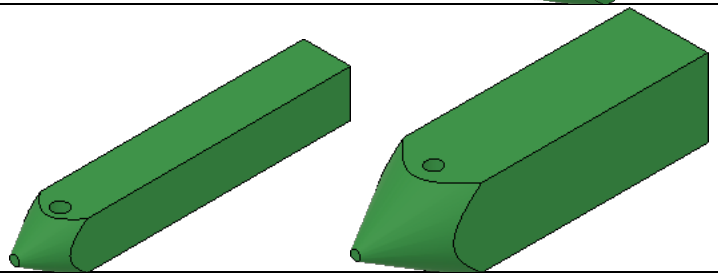
| Item # | Item | Qty | Source | Source Part Number | Comments |
|---|---|---|---|---|---|
| 101 | **Short-Thread Alloy Steel Shoulder Screw** 6 mm Shoulder Diameter, 4 mm Shoulder Length, M5 x 0.8 mm Thread | 1 | McMaster-Carr | 94361A517 | For the tool fence |
| 102 | **Black-Oxide Steel Machined Neck T-Slot Bolt** M6 x 1 mm Thread, 28 mm Thread Length, 6 mm Wide Slot | 1 | McMaster-Carr | 92770A113 | For the tool fence |
| 103 | **Steel Knurled Grip Knob** M6 x 1mm Threaded Through Hole, 25mm Diameter Head | 1 | McMaster-Carr | 60765K333 | For the tool fence |
| 104 | **Black-Oxide Steel Knurled Grip Knob** M6 x 1 mm Thread 19mm Long Stud | 1 | McMaster-Carr | 61165K73 | For the tool fence when using the depth stop |
| 105 | **Flat-Tip Set Screws** M6 x 1 mm Thread, 5 mm Long | 1 | McMaster-Carr | 93245A125 | For the tool holders Box of 50 |
| 106 | **Flared-Collar Knurled-Head Thumb Screw** M6 x 1.00 mm Thread Size, 14 mm Long | 1 | McMaster-Carr | 99607A292 | For the tool holders |
| 107 | **Tormek SVD-110 Tool Rest** | 1 | Tormek dealer | SVD-110 | |
| 108 | **Tormek WM-200 AngleMaster** | 1 | Tormek dealer | WM-200 | |

# Goniostat for Tormek

## 3D Printing the Parts

| | |
|---|---|
| **Base Plate** |   |
| **Tool Fence** |   |
| **Depth Stop – 15mm** |   |

# Goniostat for Tormek

| | |
|---|---|
| **Depth Stop – 25mm** |   |
| **Tool Holders**<br><br>Slicer (e.g., Ultimaker Cura) should allow for all to be printed at once. |   |
| **Generic Tool Holders**<br><br>Use with 3D CAD (e.g., Autodesk Fusion 360) for any sizes not already defined. |  |

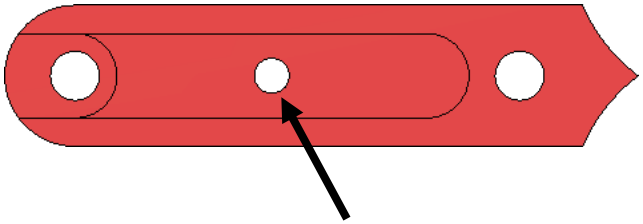
# Assembly of the Goniostat

Tools needed:

- M6-1.0 tap
- M5-0.8 tap

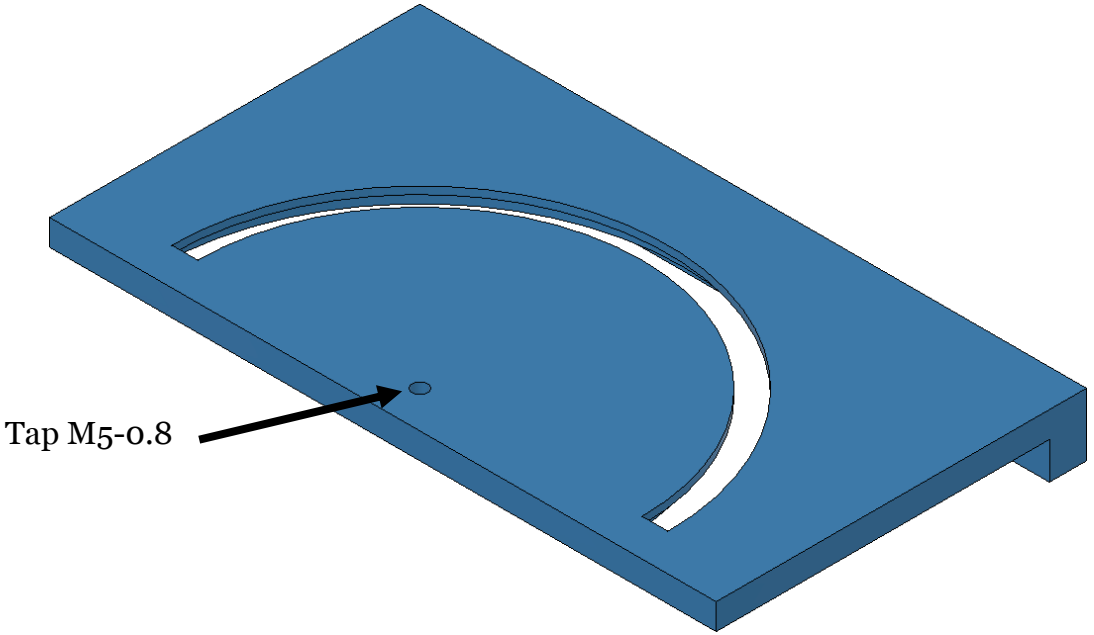
## Tool Fence

Tap the center hole using an M6-1.0 tap.




## Base Plate

Tap the center hole using an M5-0.8 tap.

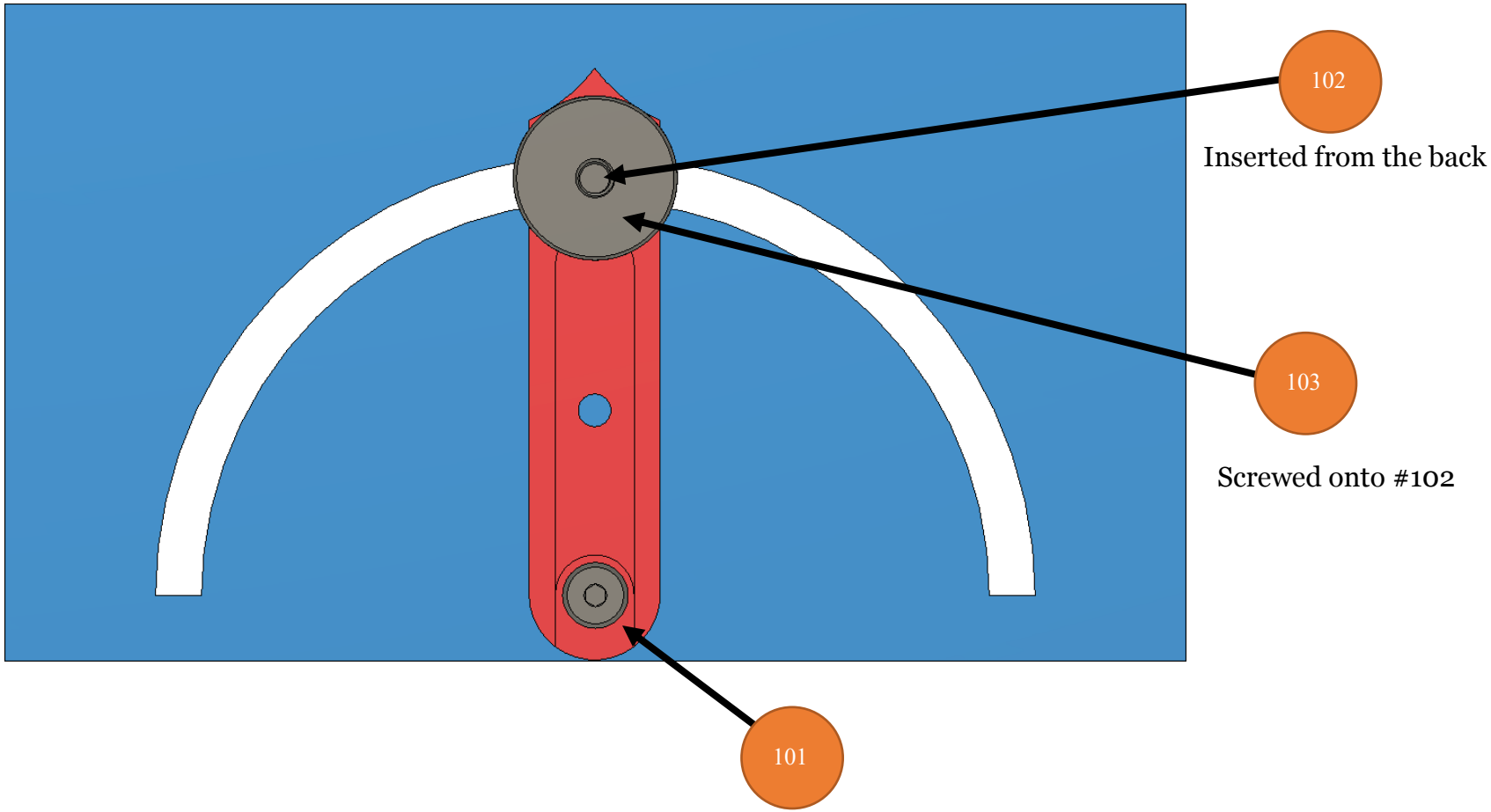


## Tool Holder Lock Down Screw

For item 102 (Machined Neck T-Slot Bolt), it inserts from the back. You will need to cut down the shoulder so that it does not project above the surface of the base plate. If it does, the tool fence will not sit flat against the base plate.

I used a metal lathe, but a file could also be used.

## Tool Holder Lock Down Screw



# Goniostat for Tormek

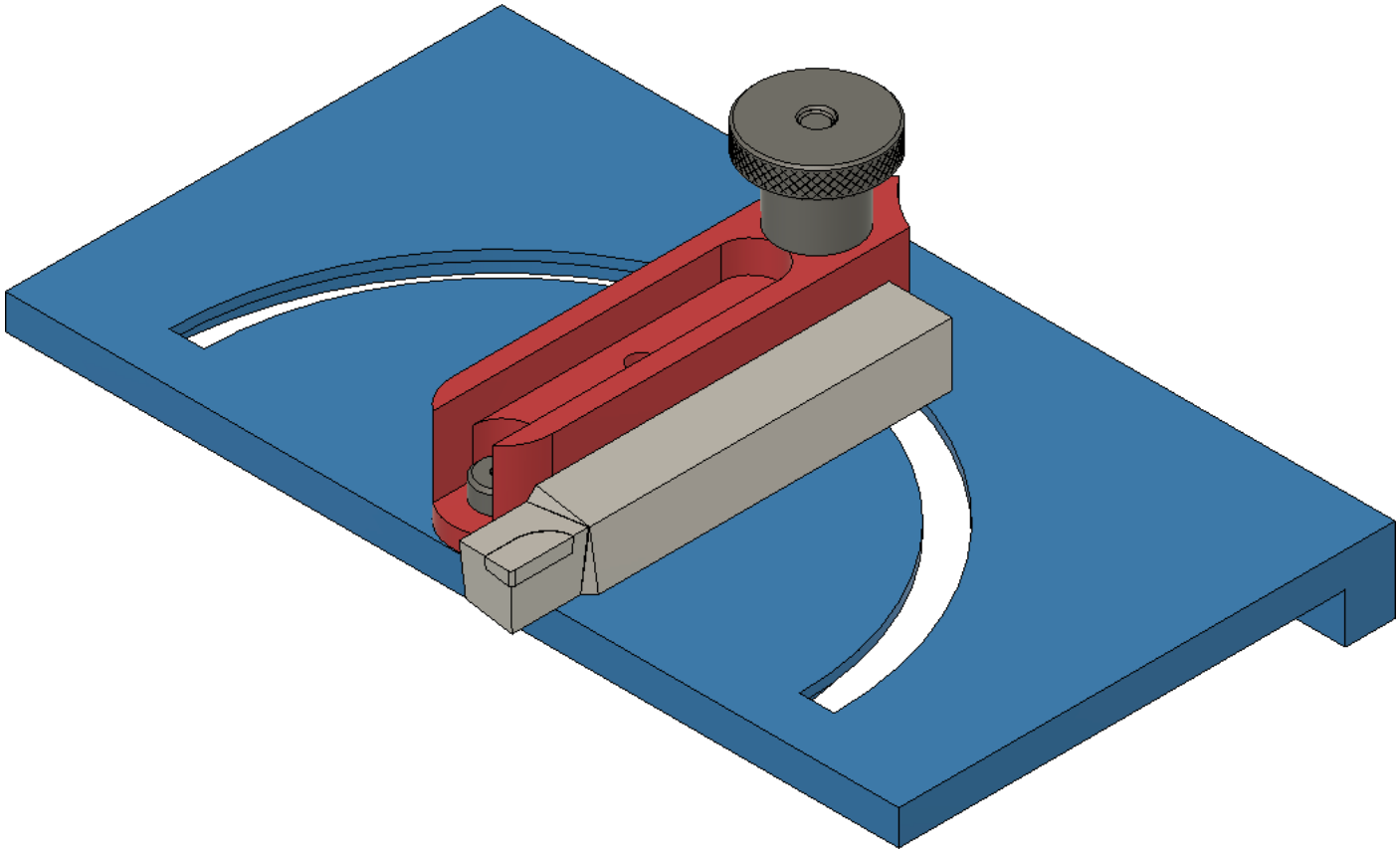
## Using the Goniostat

**Using the goniostat jig with a typical square lathe tool.**

The tool (gray) is held against the tool fence (red). The base plate (blue) slides left and right on the Tormek SVD-110.

The angle used for the tool fence can be set using a typical student's compass.

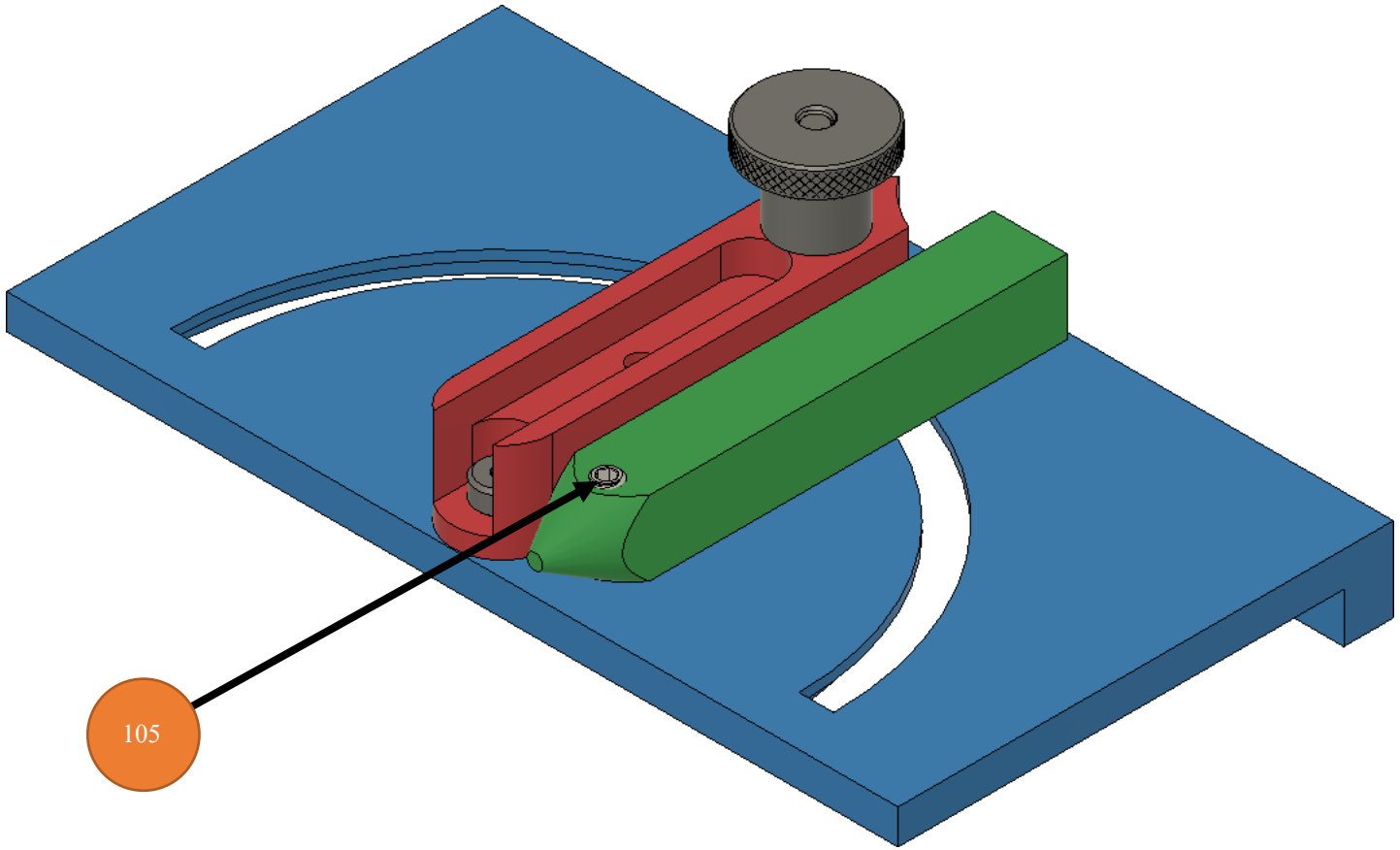
The angle for the base plate as it pertains to the grindstone is set using the WM-200.



# Goniostat for Tormek

**Using the goniostat jig with a round tool.**

The tool is held in the tool holder (green) using a set screw (#105). The tool holder is held against the tool fence (red). The base plate (blue) slides left and right on the Tormek SVD-110.



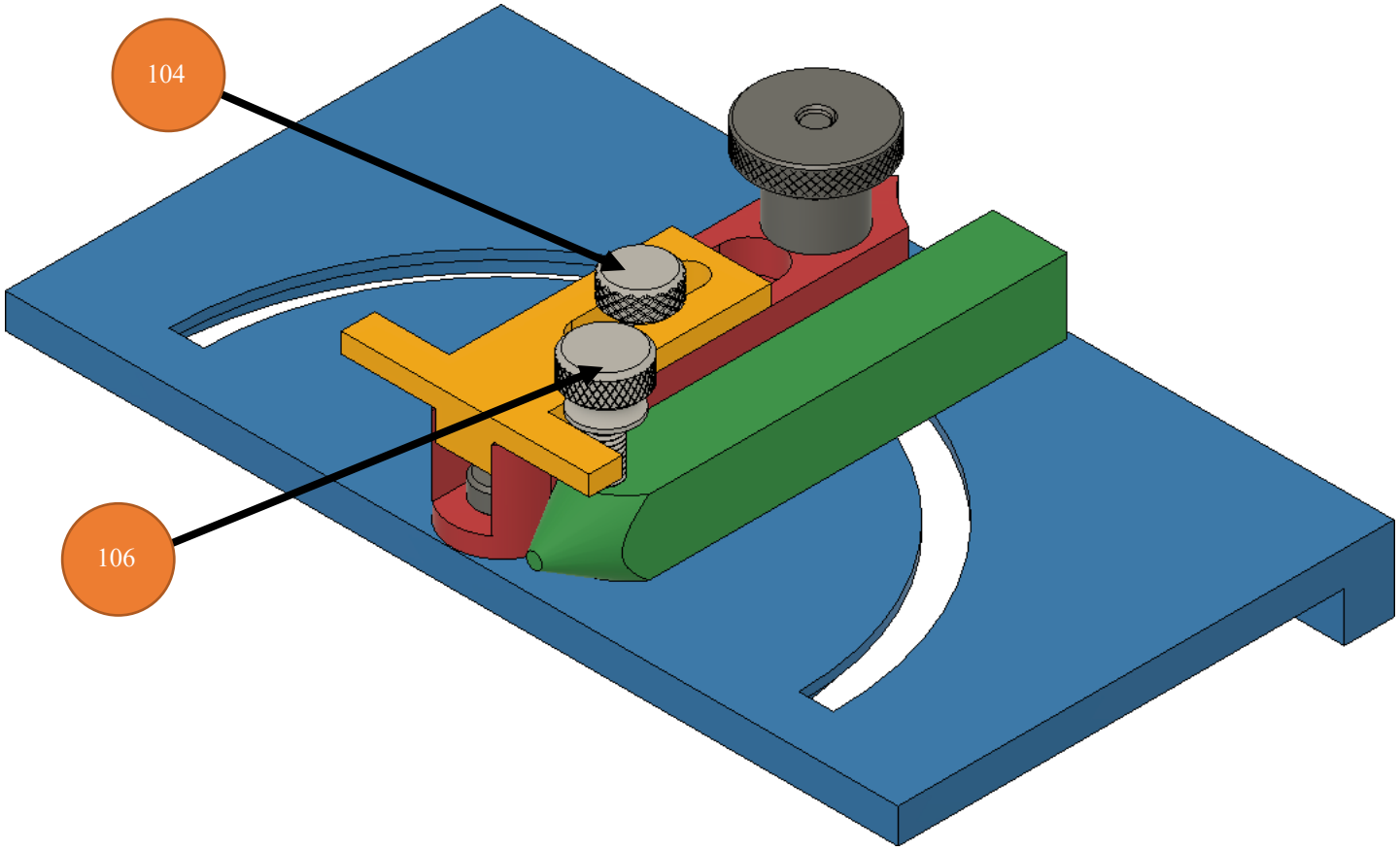
# Goniostat for Tormek

**Using the goniostat jig with a round tool where both wings of the tool need to be equal length.**

The tool is held in the tool holder using the thumb screw, part #106 (this replaces the set screw).

The tool depth stop (yellow) is attached to the tool fence using part #104. The depth of the grind is set by sliding the depth stop to the desired setting and locked down using the thumb screw.

The tool holder (green) is held against the tool fence (red). The base plate (blue) slides left and right on the Tormek SVD-110.



# Goniostat for Tormek

## Document Version History

| Ver | Date | Comment |
|---|---|---|
| **1.0** | 11 Aug 24 | Initial document |