MR-1 V-2 Touch Probe Retrofit Guide

1: Disassemble V-1 Touch Probe

The first step in the Touch Probe Retrofit is to disassemble your existing V-1 Touch Probe.

MATERIALS

Parts

- (1) V-1 Touch Probe

Hardware

- N/A

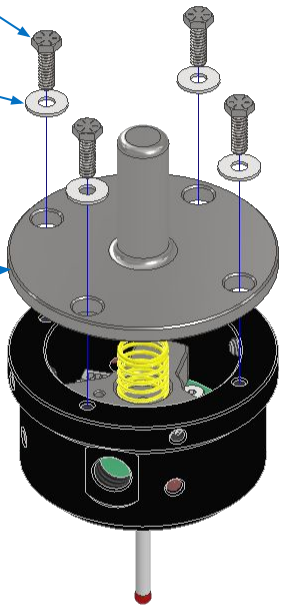
Tools

- 3/16” Wrench

HEX HEAD CAP SCREW, 4-40 X .375
QTY = 4

#4 WASHER
QTY = 4

TOUCH PROBE COVER
QTY = 1



Instructions

B1. Using a 3/16” wrench, carefully undo the 4x HEX HEAD CAP SCREW, 4-40 X .375, as these screws compress the spring contained within the touch probe.

B2. Remove and set aside the 4x HEX HEAD CAP SCREW, 4-40 X .375, the Touch Probe Cover and the 4x #4 WASHERS. These will be used in the assembly of the V-2 Touch Probe.

MATERIALS

Parts

- (1) V-1 Touch Probe

Hardware

- N/A

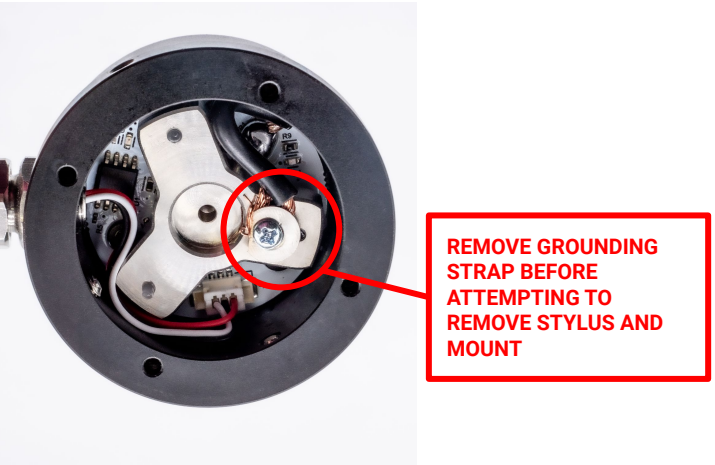
Tools

- Pin
- Phillips Head Screwdriver

COMPRESSION SPRING
QTY = 1

TOUCH PROBE STYLUS MOUNT
QTY = 1

TOUCH PROBE STYLUS
QTY = 1



REMOVE GROUNDING STRAP BEFORE ATTEMPTING TO REMOVE STYLUS AND MOUNT

NOTE: IF YOU HAVE DIFFICULTY UNTHREADING THE TOUCH PROBE STYLUS FROM THE STYLUS MOUNT, YOU CAN INSTALL THE STYLUS INTO A .25” COLLET IN THE SPINDLE OF YOUR MR-1. THIS WILL ALLOW YOU TO TORQUE THE STYLUS WITHOUT BENDING OR SCRATCHING IT.

Instructions

C1. Remove the Compression Spring and set it aside for later use in the V-2 Touch Probe assembly.

C2. Unscrew the grounding strap from the Touch Probe Stylus Mount.

C3. Remove the Touch Probe Stylus and Mount from the V-1 Touch Probe Housing.

C4. While gripping the Stylus Mount, insert a pin into the hole on the Touch Probe Stylus and unscrew it.
Note: If you have difficulties unscrewing the Touch Probe Stylus, grip the shank of the stylus in a ¼” collet inserted into your MR-1 spindle and unscrew the Stylus Mount.

C5. Set the Touch Probe Stylus aside for later use in the V-2 Touch Probe Assembly.

MATERIALS

Parts

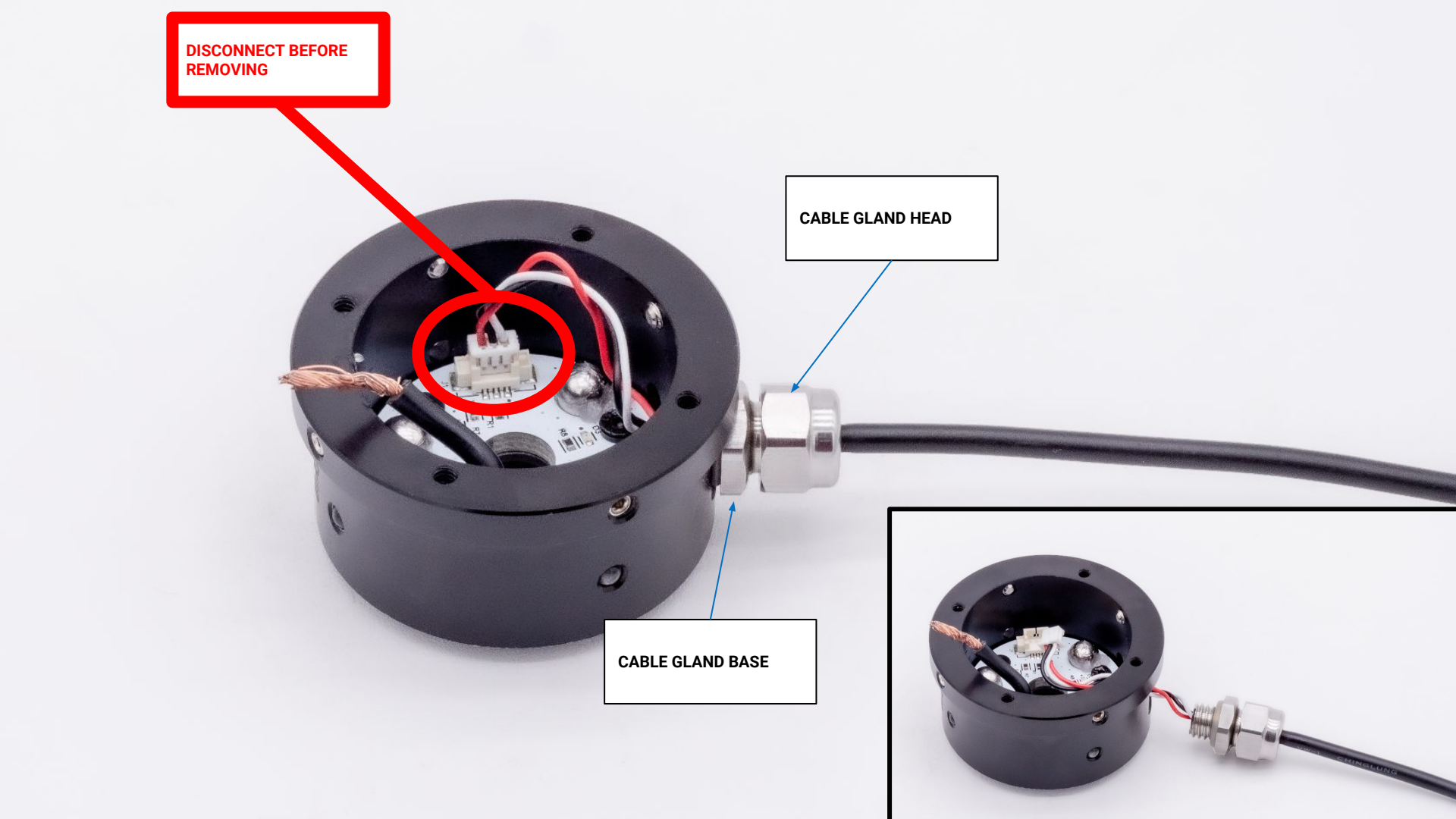
- (1) V-1 Touch Probe

Hardware

- N/A

Tools

- 1/2” Wrench


DISCONNECT BEFORE REMOVING
CABLE GLAND HEAD
CABLE GLAND BASE

Instructions

A1. Disconnect the Touch Probe Cable from the V-1 Touch Probe PCB. Using a ½” wrench, loosen the Cable Gland Base until the cable can be removed through the threaded hole as shown

A2. Slide the cable through the threaded hole and set aside for later use in the V-2 Touch Probe.

MATERIALS

Parts

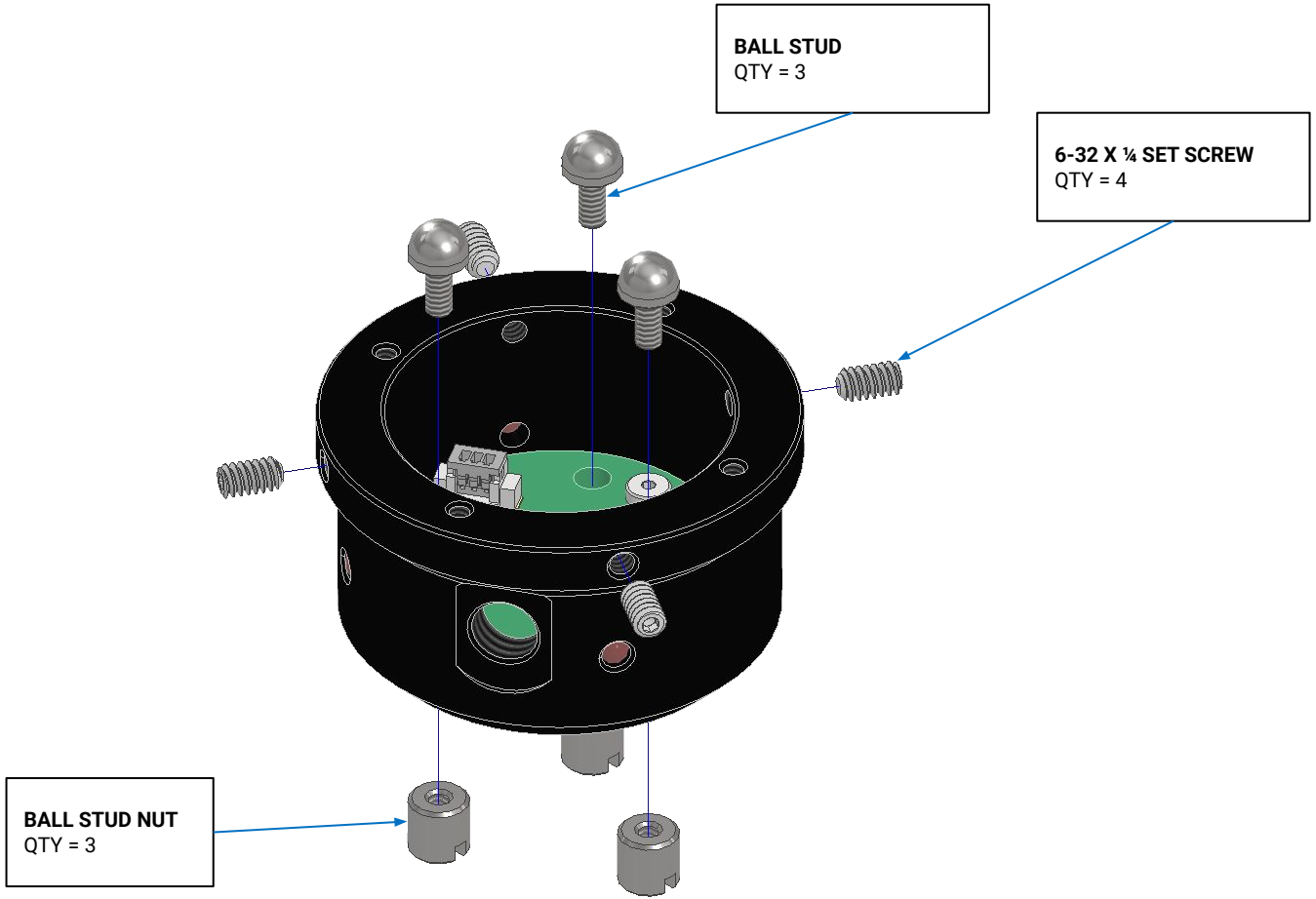
- (1) V-1 Touch Probe

Hardware

- N/A

Tools

- Flat Head Screwdriver
- 1/16” Hex Key


BALL STUD
QTY = 3
6-32 X ¼ SET SCREW
QTY = 4
BALL STUD NUT
QTY = 3

Instructions

D1. Using a 1/16” hex key, remove the Set Screws as shown and set it aside for later use in the V-2 Touch Probe assembly.

D2. Unscrew the Ball Stud Nuts. Remove the Ball Studs and set both the Ball Studs and Ball Stud Nuts aside for later use in the V-2 Touch Probe assembly.

MATERIALS

Parts

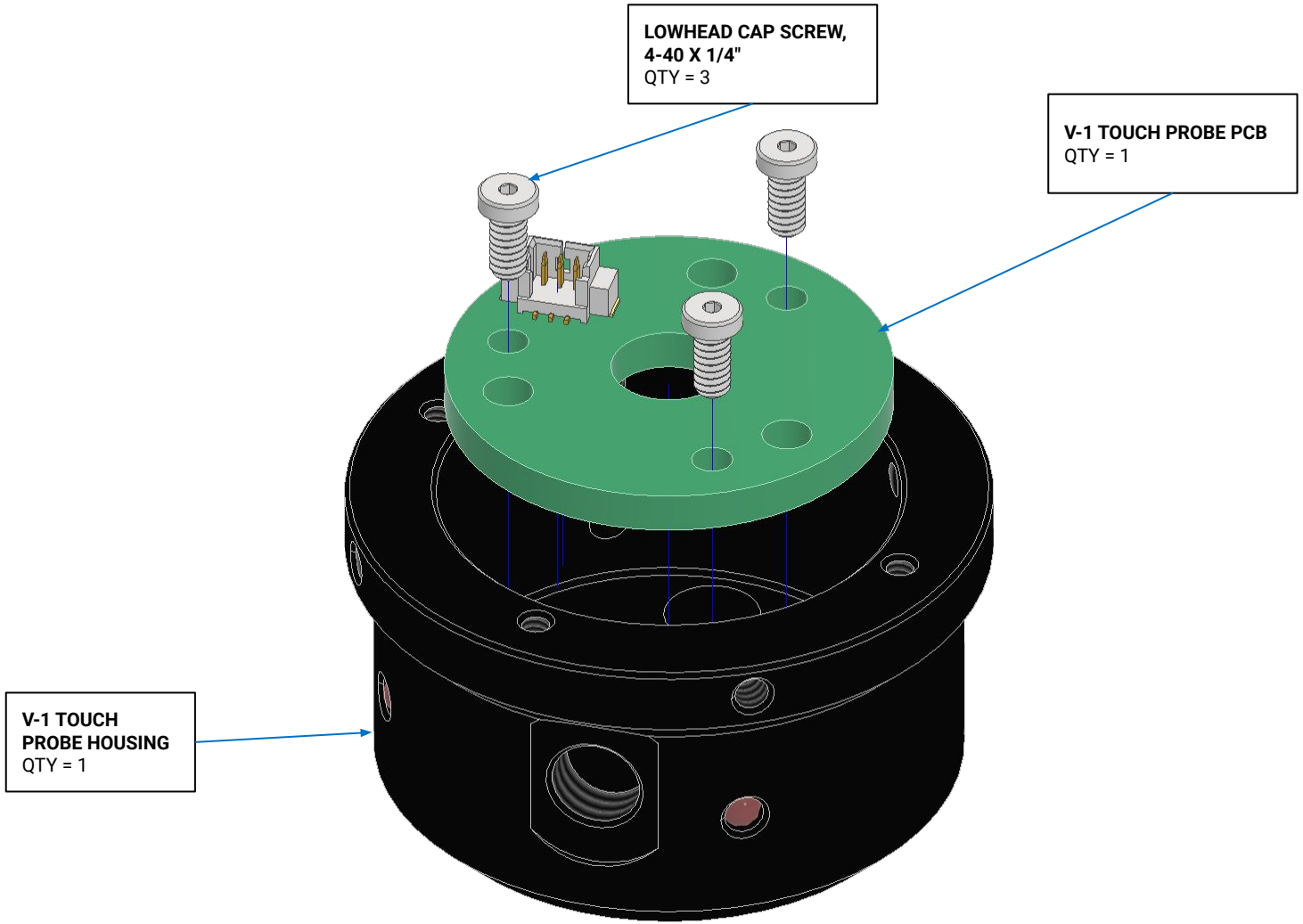
- (1) V-1 Touch Probe

Hardware

- N/A

Tools

- .050” Hex Key


LOWHEAD CAP SCREW, 4-40 X 1/4"
QTY = 3
V-1 TOUCH PROBE PCB
QTY = 1
V-1 TOUCH PROBE HOUSING
QTY = 1

Instructions

E1. Using a 0.050” hex key, remove the LOWHEAD CAP SCREWS, 4-40 X 1/4" as shown.

E2. Remove the PCB from the Touch Probe Housing. The lowhead cap screws, V-1 Touch Probe Housing and V-1 PCB will not be used in the assembly of the V-2 Touch Probe.

2: Assemble V-2 Touch Probe

Re-using components for the V-1 Touch Probe, the next step is to assemble the V-2 Touch Probe.

MATERIALS

Parts

- (1) V-2 Touch Probe Housing
- (1) V-2 Touch Probe PCB

Hardware

- (3) SOCKET HEAD CAP SCREWS 4-40 X ¼”

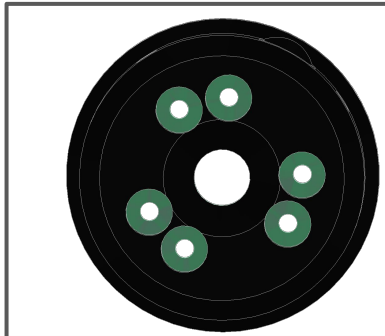
Tools

- 3/32” Hex Key
- Cloth or Towel

SHCS CAP SCREW, 4-40 X 1/4"
QTY = 3

V-2 TOUCH PROBE PCB
QTY = 1

V-2 TOUCH PROBE HOUSING
QTY = 1



Instructions

A1. With a cloth or towel, wipe down the bottom of the PCB and the bottom, inner, face of the V-2 Touch Probe Housing. Ensure no debris is present on these surfaces, so that the PCB will sit flat.

A2. Insert the V-2 Touch Probe PCB into the V-2 Touch Probe Housing as shown. Rotate the PCB until the six Ball Stud holes are aligned with the 6 holes in the base of the V-2 Touch Probe Housing.

A3. Use a 3/32” Hex Key, fasten the V-2 Touch Probe PCB to the V-2 Touch Probe Housing with the SHCS CAP SCREWS, 4-40 X 1/4" as shown.

MATERIALS

Parts

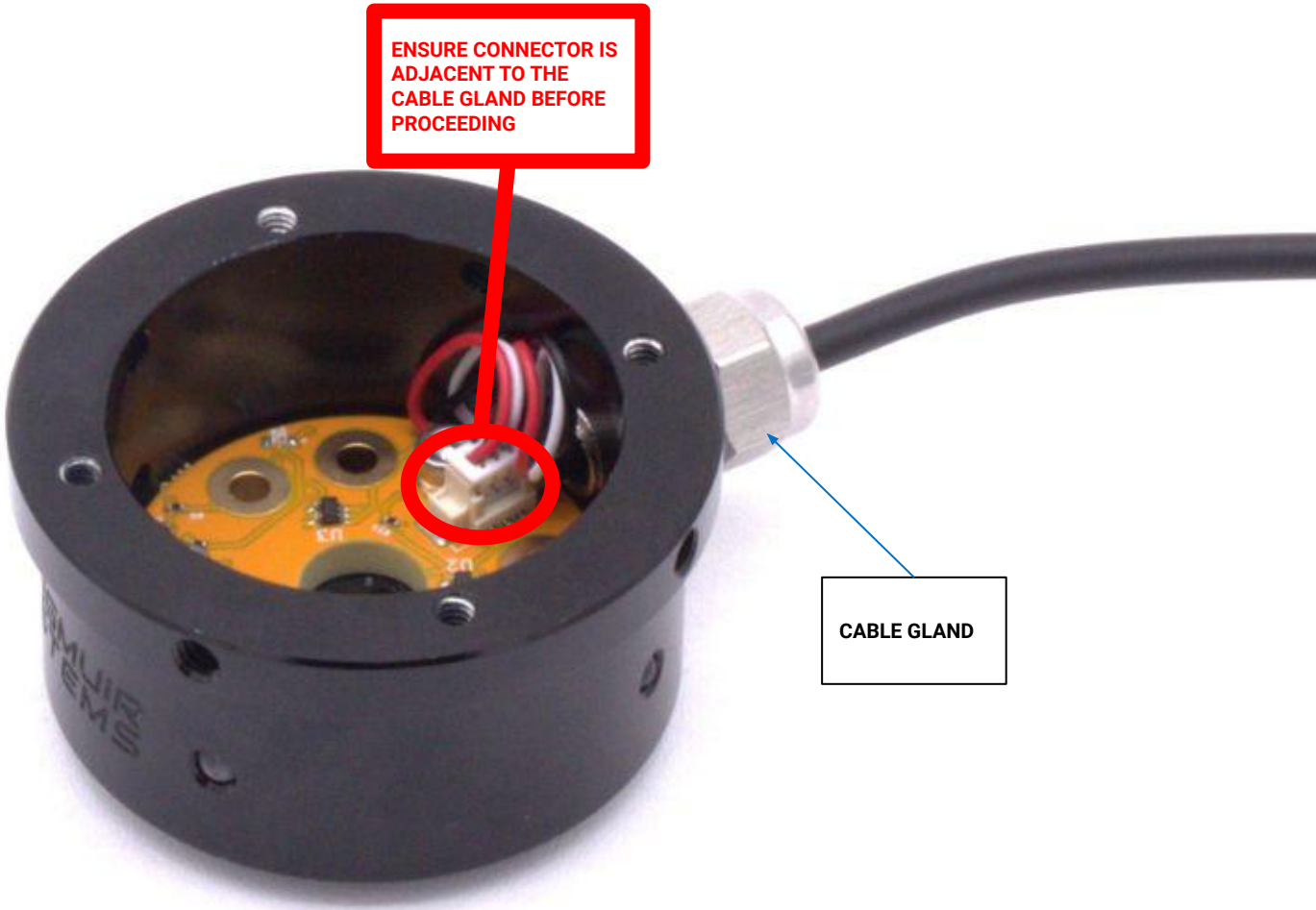
- (1) Touch Probe Cable

Hardware

- N/A

Tools

- ½” Wrench


ENSURE CONNECTOR IS ADJACENT TO THE CABLE GLAND BEFORE PROCEEDING
CABLE GLAND

Instructions

C1. Insert the connector of the Touch Probe Cable through the Cable Gland hole in the side of the housing.

C2. Attach the connector to the V-2 Touch Probe PCB as shown.

C3. Thread the Cable Gland Base into the Cable Gland hole and tighten with a ½” Wrench.

C4. Tighten the Cable Gland Head with a ½” Wrench until the cable no longer slides freely within the Cable Gland.

MATERIALS

Parts

- (6) Ball Studs
- (6) Ball Stud Nuts

Hardware

- N/A

Tools

- Flat Head Screwdriver

BALL STUD
QTY = 6

ENSURE ALL BALL STUD NUTS DO NOT TOUCH THE HOUSING ANYWHERE

BALL STUD NUT
QTY = 6

Instructions

B1. Insert the 6x Ball Studs into the holes in the PCB. Secure the Ball Studs using the Ball Stud Nuts which can be tightened using a flathead screwdriver.

B1. Inspect the bottom side of the housing to ensure that an air gap exists between each of the Ball Stud Nuts and the hole in the Touch Probe Housing. If contact exists, loosen the Ball Stud Nut and shift it over as needed to create the required air gap before re-tightening.

MATERIALS

Parts

- (1) V-2 Touch Probe Stylus Mount
- (1) Touch Probe Stylus
- (1) Compression Spring

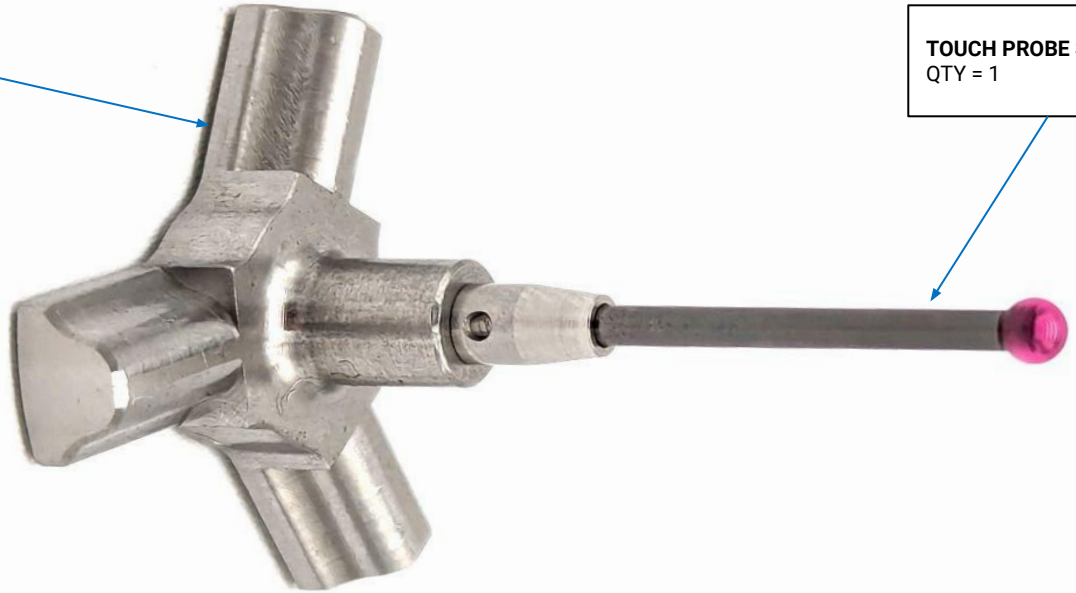
Hardware

- N/A

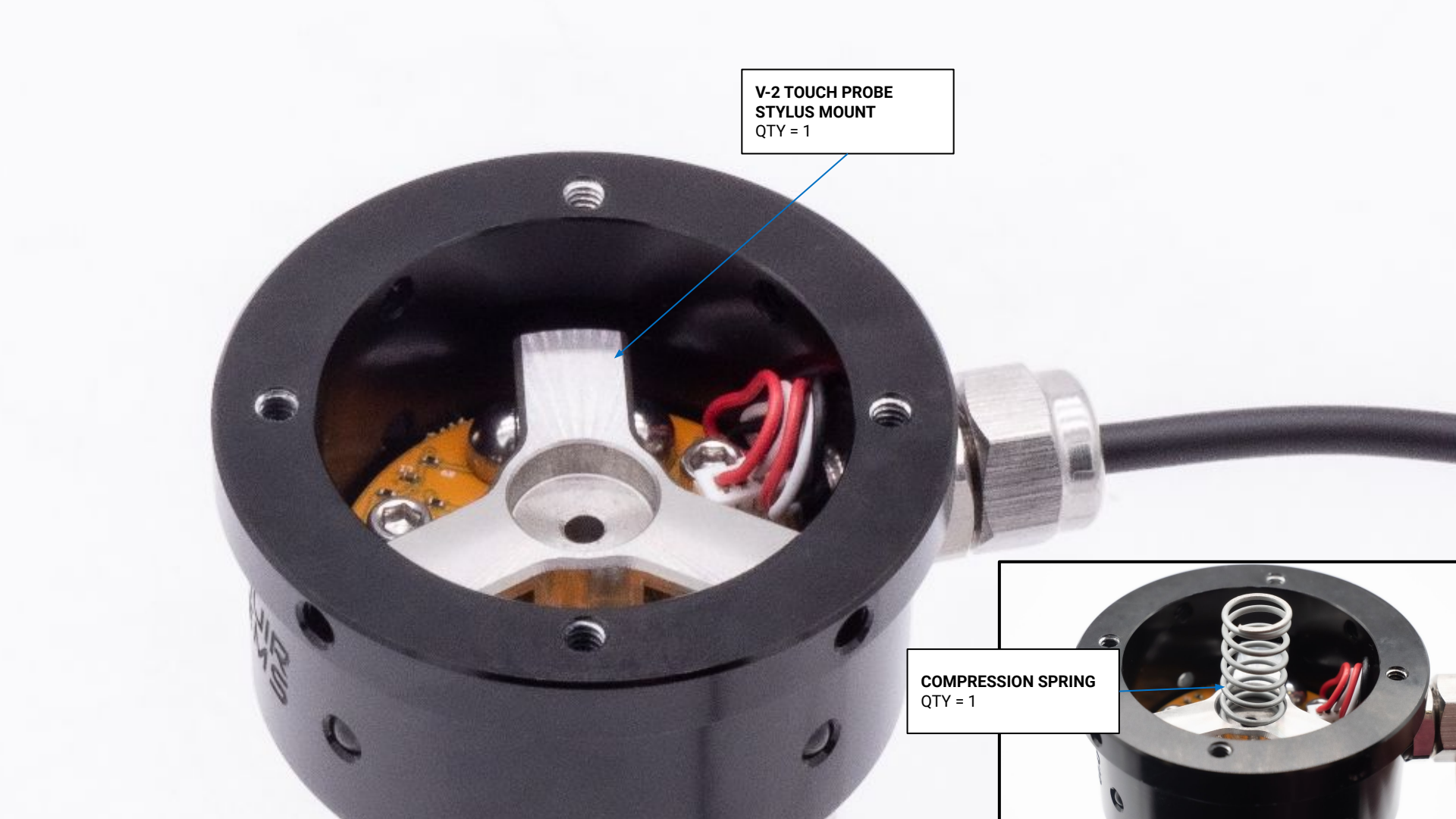
Tools

- Small Hex Key

V-2 TOUCH PROBE STYLUS MOUNT
QTY = 1



TOUCH PROBE STYLUS
QTY = 1


V-2 TOUCH PROBE
STYLUS MOUNT
QTY = 1
COMPRESSION SPRING
QTY = 1

Instructions

D1. Insert a pin into the hole on the Touch Probe Stylus and screw it into the V-2 Touch Probe Stylus Mount.
Note: If you have difficulties unscrewing the Touch Probe Stylus, grip the shank of the stylus in a ¼” collet inserted into your MR-1 spindle and unscrew the Stylus Mount.

D2. Place the Stylus assembly into the housing such that the 3 pin features rest in between sets of Ball Studs as shown.

D3. Place the Compression Spring into the hole in the center of the Touch Probe Stylus Mount as shown.

MATERIALS

Parts

- (1) Touch Probe Cover

Hardware

- (4) HEX HEAD CAP SCREW, 4-40 X .375
- (4) #4 WASHER

Tools

- 3/16” Wrench


#4 WASHER
QTY = 4
TOUCH PROBE COVER
QTY = 1
HEX HEAD CAP SCREW,
4-40 X .375
QTY = 4
ENSURE SPRING IS
FULLY SEATED IN
CENTER HOLE OF THE
COVER

Instructions

E1. Align the top of the spring to the shallow hole in the center of the Touch Probe Cover, as shown.

E2. With the spring aligned, Gently compress the housing down until the HEX HEAD CAP SCREWs, 4-40 X .375 can be installed.

E3. Using a 3/16” wrench, use the HEX HEAD CAP SCREWs, 4-40 X .375 to secure the Touch Probe Cover as shown. These screws should be snug, but not excessively tight. This is to ensure that runout adjustments can be effected by the adjustment screws without excessive resistance.

MATERIALS

Parts

- (1) V-1 Touch Probe

Hardware

- 6-32 X ¼ SET SCREW

Tools

- 1/16” Hex Key


ENGMUR
SYSTEMS
6-32 X ¼ SET SCREW
QTY = 4

Instructions

F1. Using a 1/16” hex key, Install the 6-32 X ¼ SET SCREWS as shown. Thread each set screw until it just barely contacts the Touch Probe Cover.

F2. Ensure Cut Control version 24.1.1 or greater is installed on your machine.

F3. Adjust the Touch Probe Runout as shown here.

F4. Plug the Touch Probe into your MR-1. Open the ‘Probing’ module in Cut Control and select the ‘test’ feature. Using your fingers, manually trigger the probe stylus and check you