


# R0015037 Bench Assemble SY Assembly

Bench assembly instructions for SY assembly

 Difficulty **Hard**

 Duration **6 hour(s)**

## Contents

Introduction

Step 1 - Unless otherwise stated

Step 2 - Fit bearings to rollers

Step 3 - Optional R0019222 roller upgrade

Step 4 - Fit guide pin washers and Assemble

Step 5 - Shaft orientation

Step 6 - Position rollers

Step 7 - Optional R0019222 roller upgrade

Step 8 - Quality check

Step 9 - ECR Raised

Step 10 - Pre assembly

Step 11 - Pre assembly

Step 12 - Pre assembly Centralise plate

Step 13 - Assemble linear rail assembly

Step 14 - Assemble linear rail assembly

Step 15 - Align roller fences

Step 16 - Align roller fences extra photos

Step 17 - Assemble leadscrew components

Step 18 - Assemble leadscrew components

Step 19 - Mount leadscrew assembly

Step 20 - Fit stepper motor and coupling

Step 21 - Fit stepper motor and coupling

Comments

## Introduction

### Tools Required

Standard Hex Key set  
Standard Spanner set  
1 Meter straight edge  
Feeler Gauges

### Parts Required

B0000044 Linear Rail MSB25 260mm Long (AMT) x 2  
B0000046 Slide Base Bearing Block (Straight Grease Nipple) x 4

B0000173 blanking cap x 10  
 B0000234 Straight Grease Nipple M6 ST/ST x 4  
 B0000245 Needle Bearing 12 D 16 D 10 Long (ENA) x 12  
 B0001060 Grease Fitting M6x0.75 to Ø4 x 4  
 B0001061 Grease fitting M6 x 1 to 4mm x 4  
 B0001123 Double angular contact bearing 6 I/D 17 O/D 9 long x 2  
 B0001185 Leadscrew nut Iigus x 1  
 C0001005 Stepper Motor AS1050 x 1  
 D0005184 Guide Roller x 6  
 D0005186 Guide Pin Washer x 6  
 D0015172 Centralise Plate (with SY) x 1  
 D0015173 Saw SY Saddle Brace x 1  
 D0015174 Roller Fence (With SY) x 2  
 D0015175 Saw Saddle Carriage Block x 2  
 D0015176 Cylinder Mount Block x 2  
 D0015178 Z Block x 2  
 D0015207 Outer Bearing Housing x 1  
 D0015208 Leadscrew Bearing Block x 1  
 D0015209 Leadscrew Attachment Bracket x 1  
 D0015222 SY Grease Manifold x 2  
 D0015240 Collar Clamp: SY Axis ZX5 x 1  
 D0015316 Leadscrew Bearing Block Cover x 1  
 D0015415 Turret Pickup Arm ZX5 x 2  
 D0015416 Bracket: Turret Stop RH ZX5 x 1  
 D0015417 Bracket: Turret Stop LH ZX5 x 1  
 D0015698 Flag Block x 1  
 D0015777 Leadscrew SY x 1  
 D0016336 SY table blower x 1  
 E0000336 Sensor: M8; 2mm, PNP N/O, M8 conn x 1  
 H0005185 Shaft 12mm: 90.5 Saw Fence Roller Pin x 6  
 M0001209 Bracket m8 proximity sensor 90 degree x 1  
 P0000200 Elbow Adaptor 6mm - M5 x 7  
 P0001127 Guide cylinder 20 x 30 compact x 2  
 P0001157 Turret Stop: 6 Station Right Handed Somatec x 1  
 P0001158 Turret Stop: 6 Station Left Handed Somatec x 1

## Step 1 - Unless otherwise stated

All bolts to have Loctite 243 adhesive applied unless otherwise stated

All Threaded Pneumatic connections to have Loctite 570 applied

All bolts to be pen marked once adhesive applied and correct tension added



## Step 2 - Fit bearings to rollers

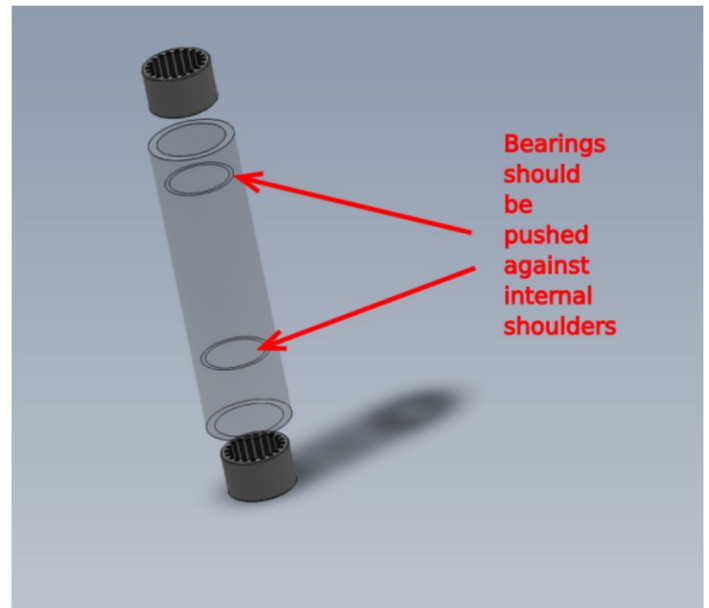
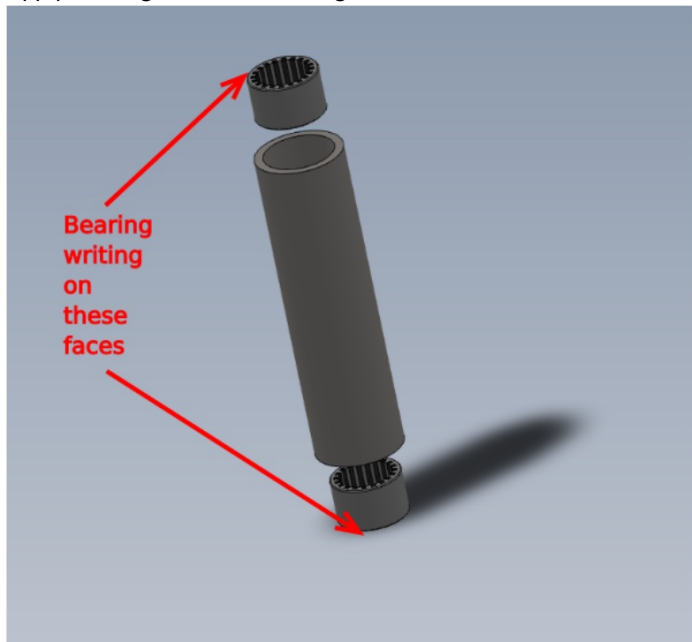
Assemble 6 off D0005184 Guide Roller

Each roller has 2 off B0000245 Needle Bearing fitted

Ensure bearings are fitted correct orientation . Writing on edge of bearing should be face outwards

Use bearing dolly and push bearing down to should within roller body

Apply liberal grease to all bearings within rollers



## Step 3 - Optional R0019222 roller upgrade

**i** ...Upgrade R0019222 may be issued with machine . Check with supervisor if required on build . All steps will be listed as optional for this upgrade within this dokit

Fit 8 off B0000416 Bearings to 4 off D0010357 backfence rollers. Ensure bearings are pushed to shoulder within rollers

Fit 4 off D00110358 roller pin to assembled rollers, ensuring fitting pin does not change position of fitted bearings

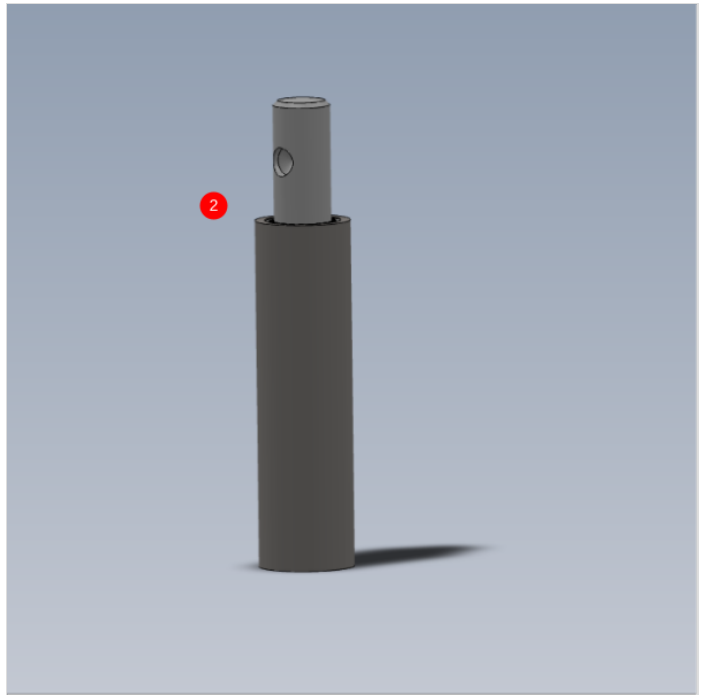
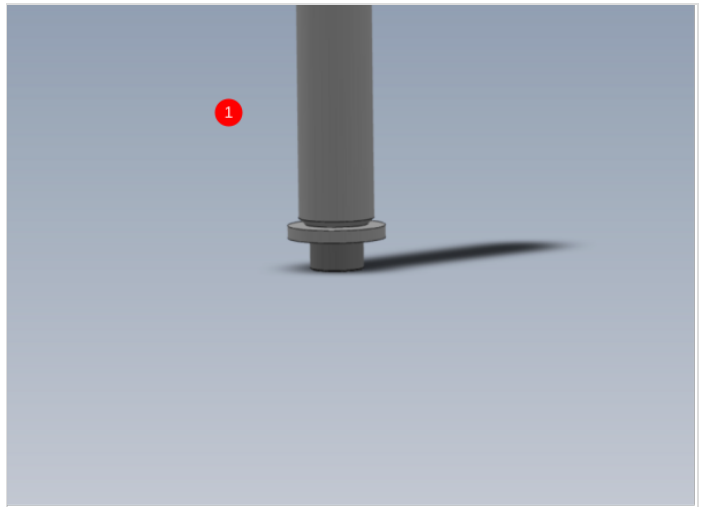
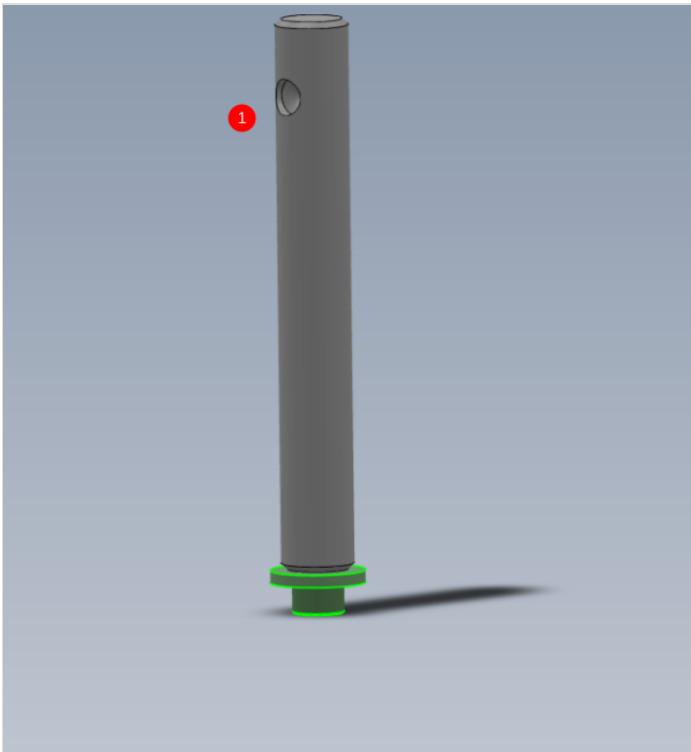


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## Step 4 - Fit guide pin washers and Assemble

1 Fit 6 off D0005186 Guide Pin Washer to H0005185 Shaft 12mm: 90.5 Saw Fence Roller Pin  
Hold shaft in vice and use M5 x 12 socket cap to secure washer to end of shaft . Finalise bolt  
Repeat for all 6 shafts/washers

2 Fit Rollers to shafts





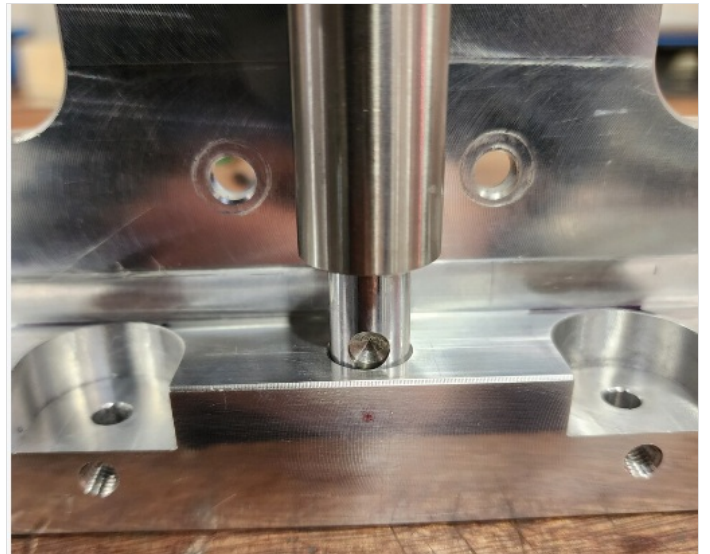
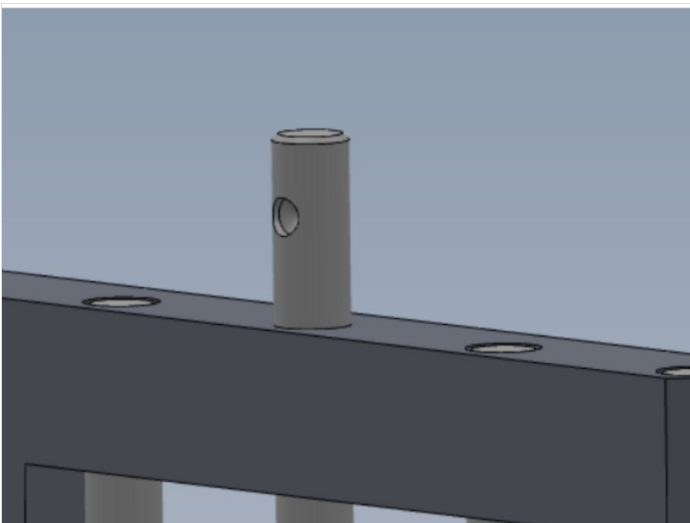


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## Step 5 - Shaft orientation

Dimples in H0005185 Shaft are not used in this application.

When fitting shaft, position dimple 180 degrees opposing M6 fixing point in backfence



## Step 6 - Position rollers

1 insert shaft into bore following previous step information

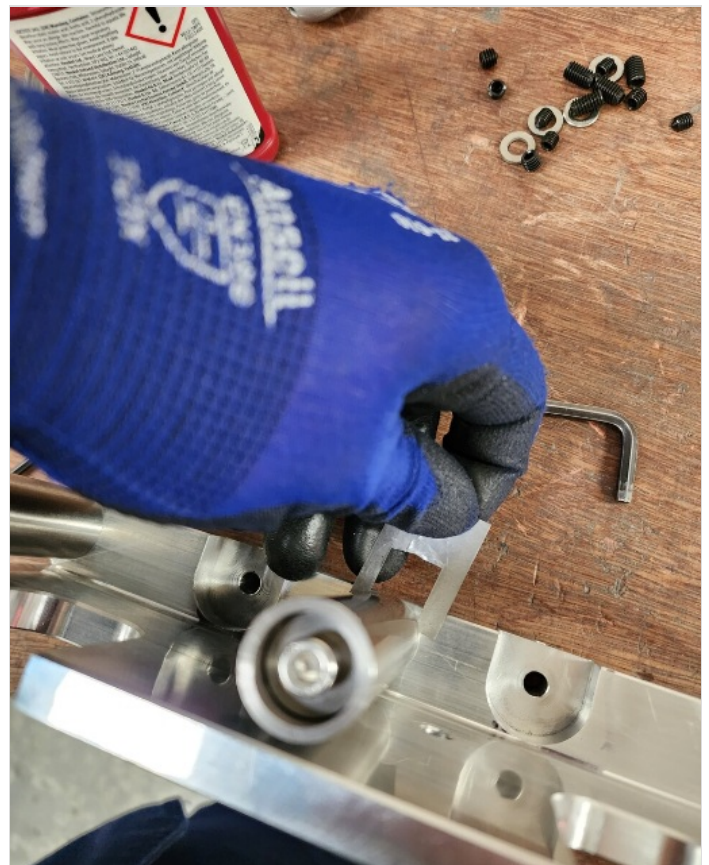
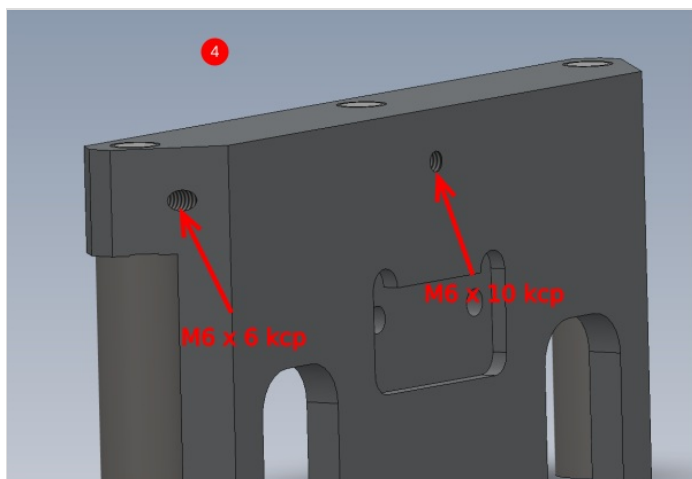
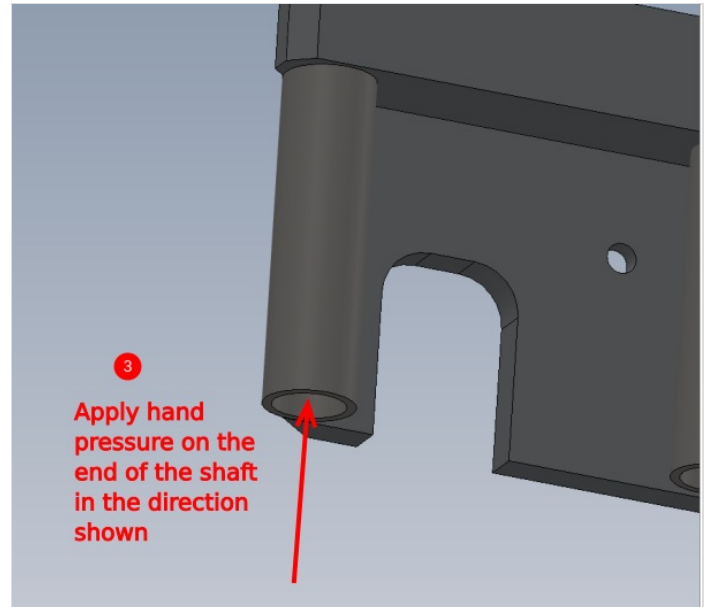
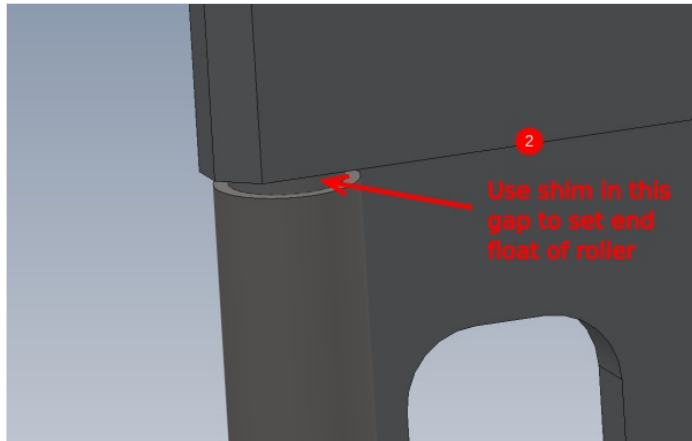
2 Insert 0.125mm/0.005" shim between roller and backfence at indicated point

3 Apply very light hand pressure to area shown to position shaft correctly

4 Fit and finalise M6 x 10 kcp grubscrew to secure shaft

5 Remove shim, as only very light hand pressure has been used, this will mean the shim can be extracted without the need to release pressure on the M5 socket cap holding the roller in position

Repeat for all 6 rollers



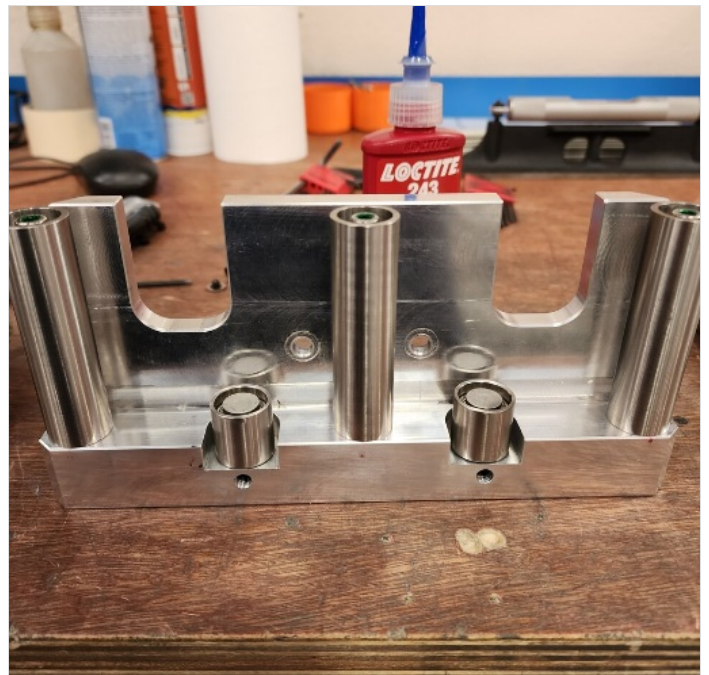
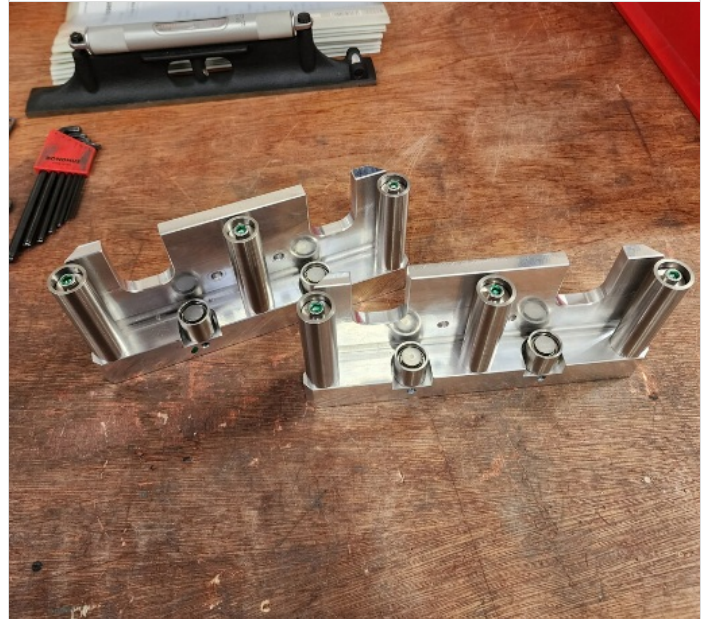


## Step 7 - Optional R0019222 roller upgrade

Assemble optional rollers onto supplied roller housings

Ensure M6 A form washer is fitted to small rollers as shown

Secure shafts with M6 x 6 pointed grubscrews







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## Step 8 - Quality check

Use 1 meter straight edge to check alignment of rollers

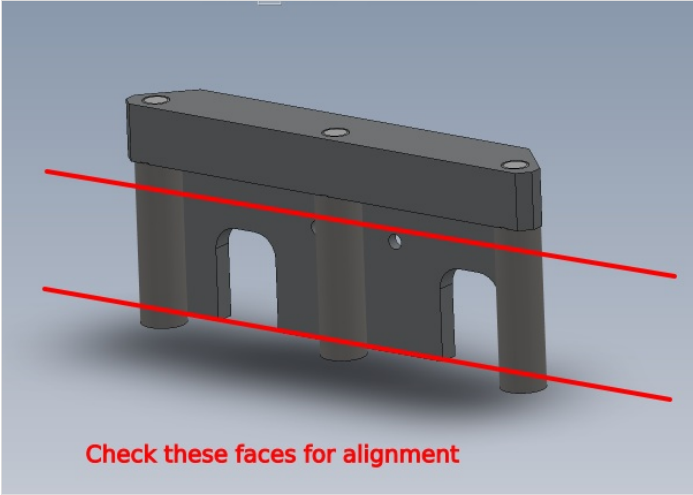
Place straight edge against front face of rollers

Use feeler gauges to check

Mis alignment of rollers on the plain indicated

Rotate rollers individually to check for eccentric rotation.

Report any discrepancies above 0.002"/0.05mm to supervisor





## Step 9 - ECR Raised

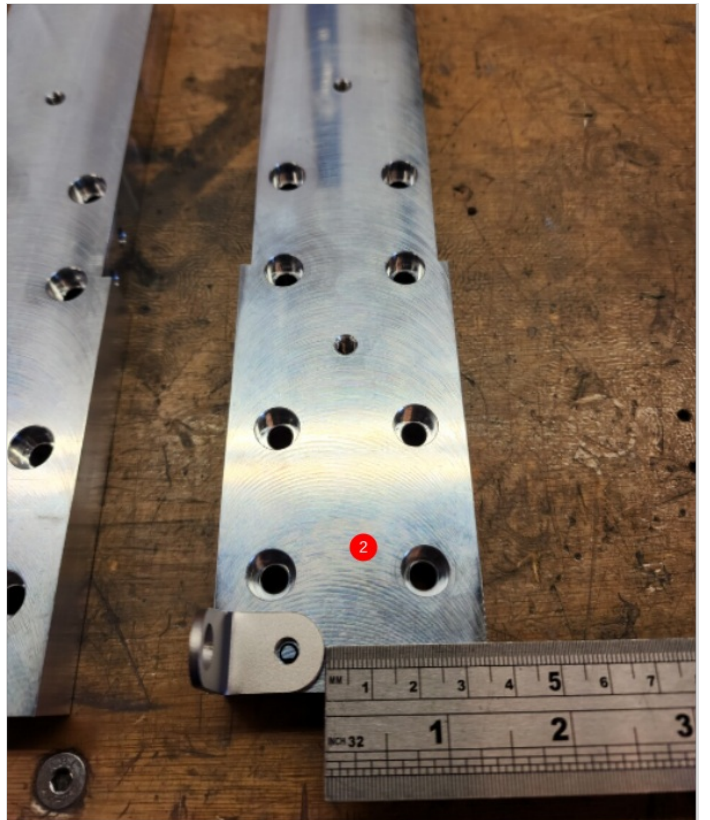
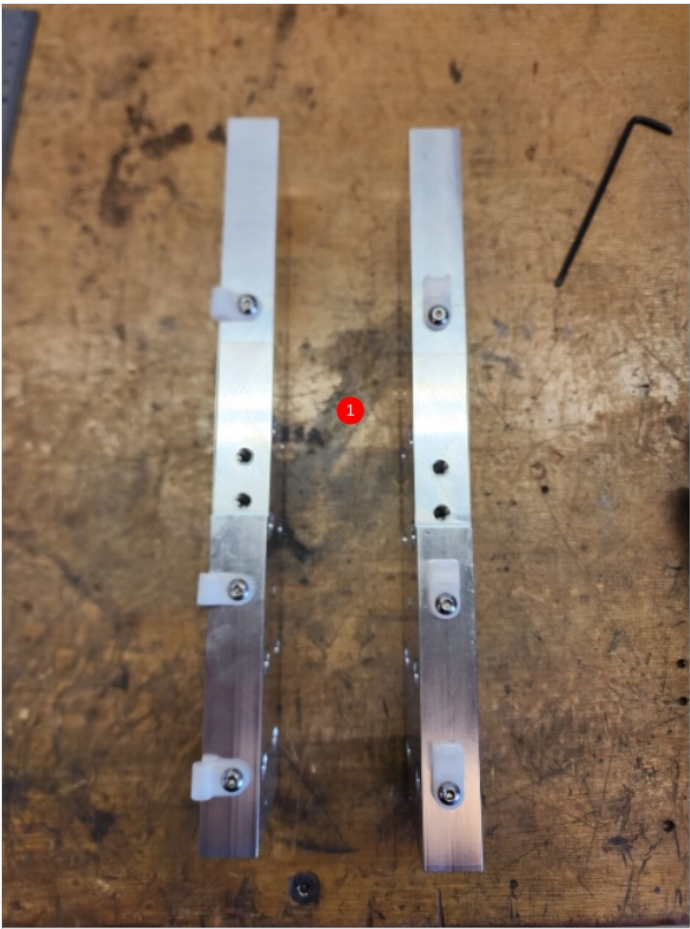
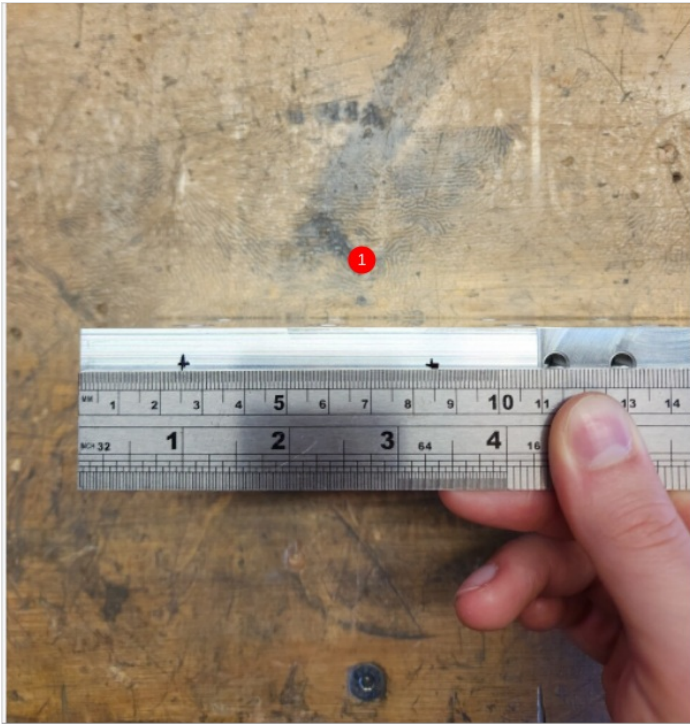
ECRs raised to cover all below modifications



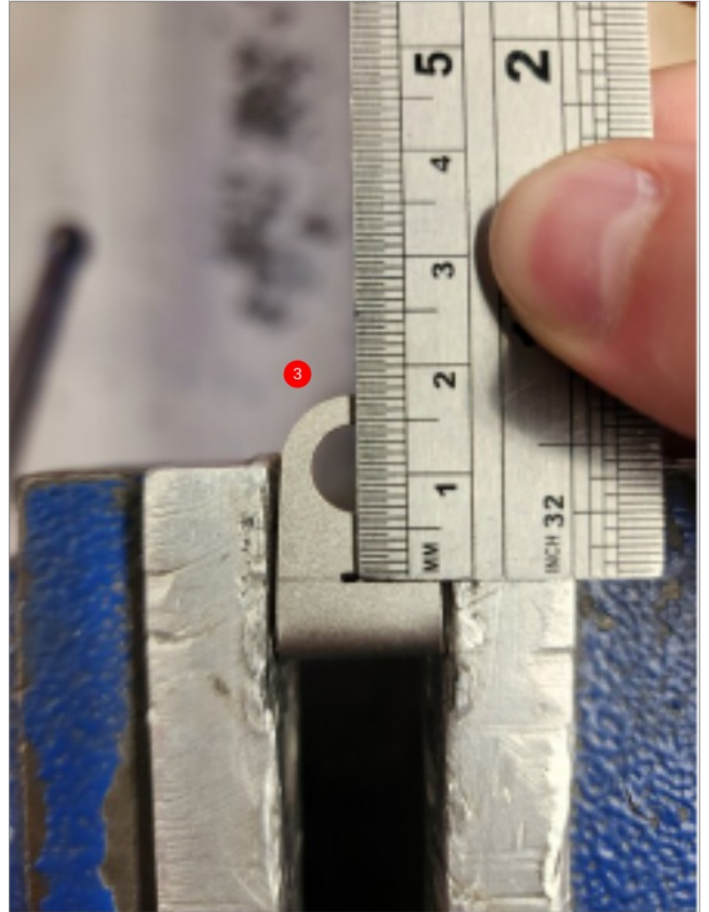
## Step 10 - Pre assembly

- 1 Assemble tie bases onto D0015175 Saw Saddle Carriage Block as shown Drill and tap M4 and fit m4 cable tie bases and secure with M4 x 6 button head as shown
- 2 Add fixing point for datum sensor as shown
- 3 Rework M0001209 Bracket m8 proximity sensor 90 degree as shown to add 8mm diameter hole









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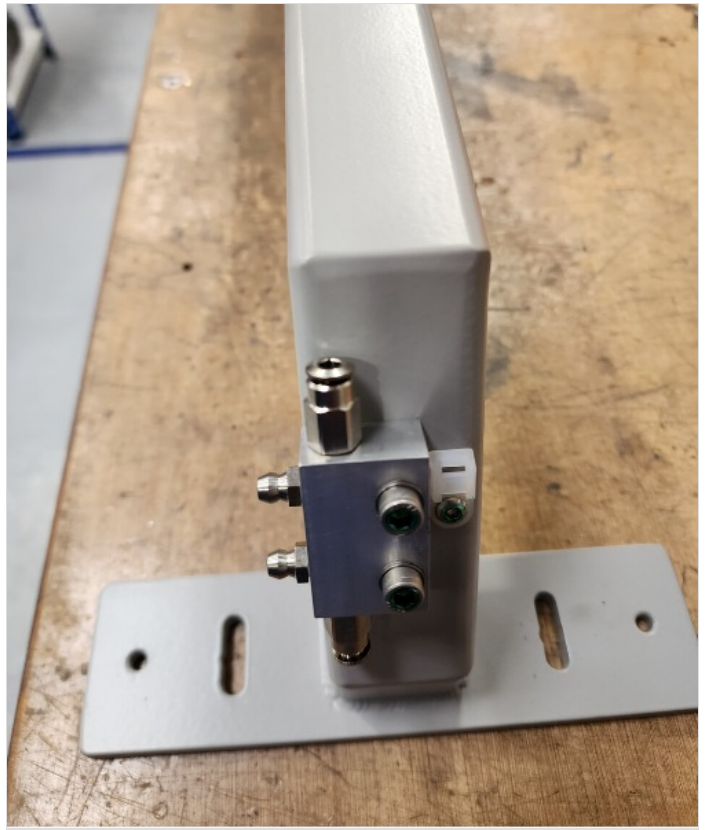
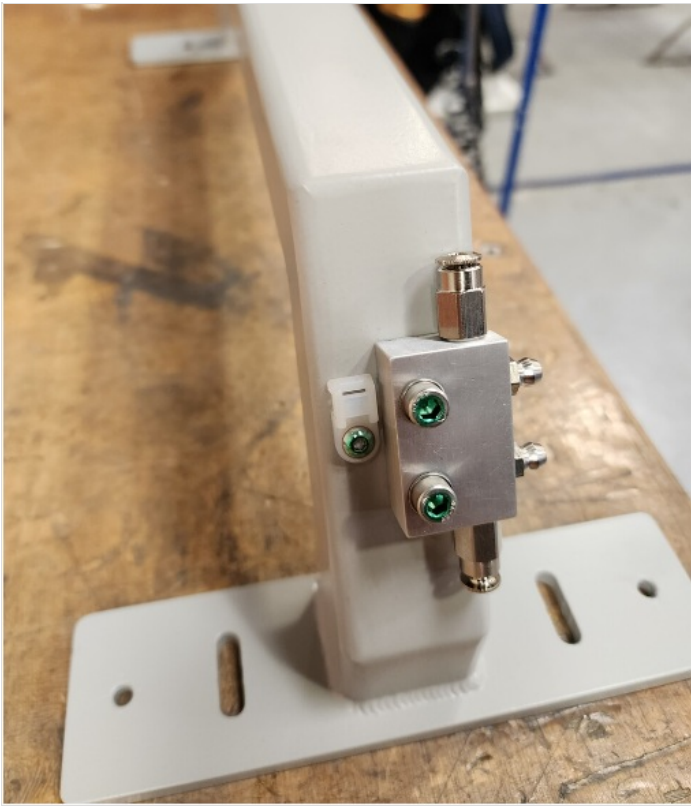
## Step 11 - Pre assembly

Use D0015222 SY Grease Manifold as jig to drill 2 off M5 tapped holes to secure Add M4 Tapped hole beside to fix a M4 cable tie base

Assemble each SY grease manifold with 2 off M6 straight grease nipples and 2 off B0001061 Grease fitting M6 x 1 to 4mm as shown.

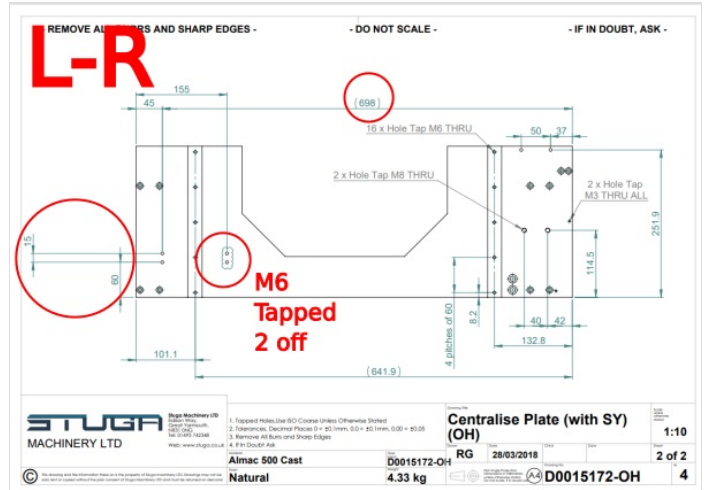
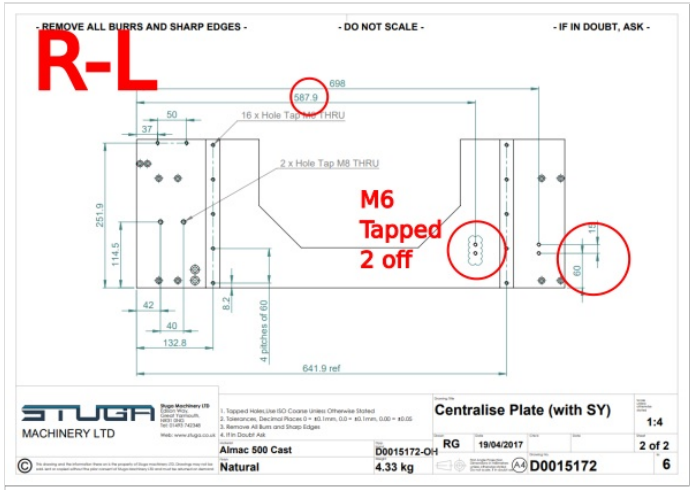
Secure with M5 x 20 socket caps and A form washers





# Step 12 - Pre assembly Centralise plate

D0015172 Check for rework. Add if not present





## Step 13 - Assemble linear rail assembly

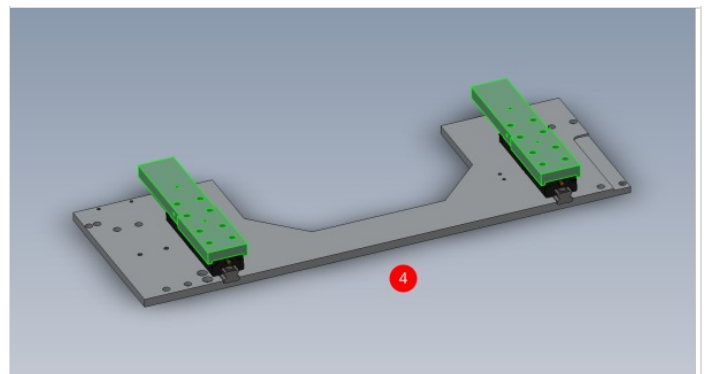
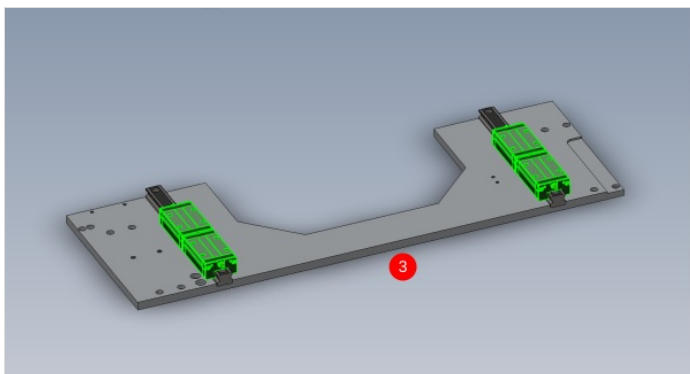
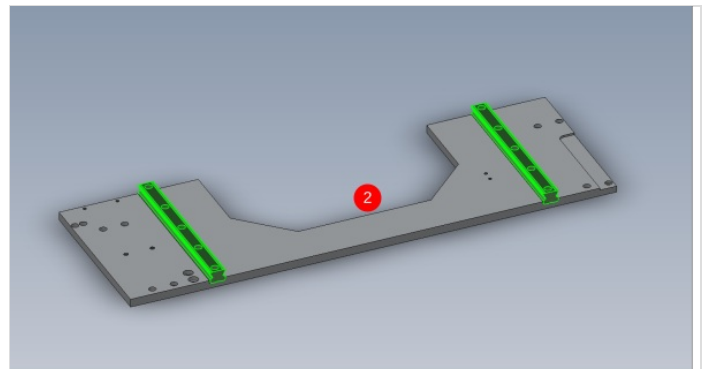
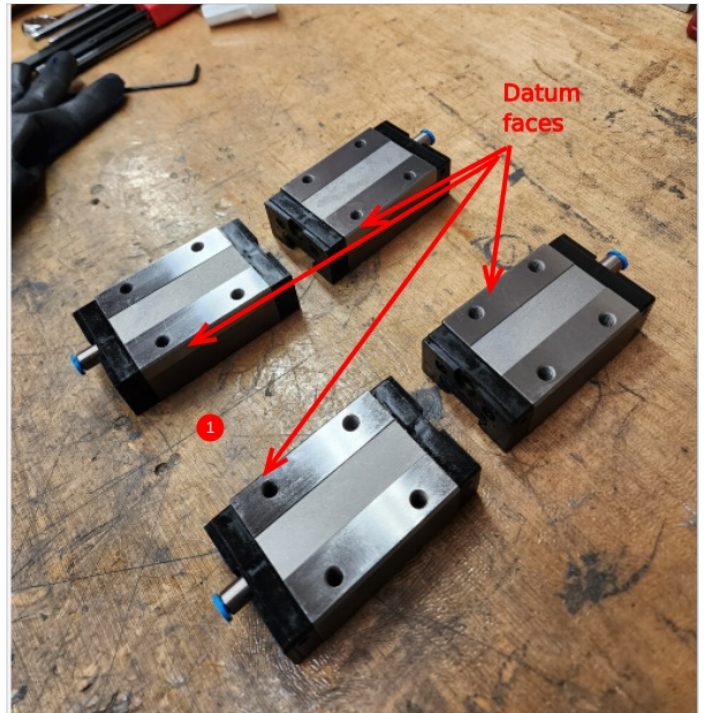
1 Degrease B0000046 Slide Base Bearing Block with Fe10. Fit 4 off B0001060 Grease Fitting M6x0.75

2 Fit 2 off B0000044 Linear Rail to D0015172 Centralise Plate as shown. Use M6 x 16 socket caps , do not apply final tension or adhesive

3 Fit 4 off B0000046 Slide Base Bearing Block as shown

4 Fit 2 off D0015175 Saw Saddle Carriage Block, Use M6 x 12 socket caps. Apply final tension and adhesive to these bolts

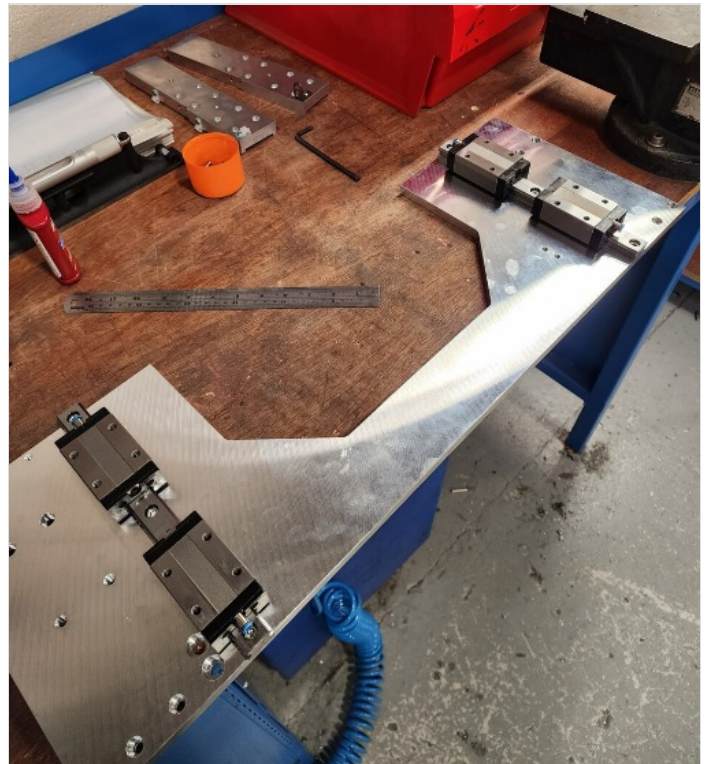
5 Fit roller assemblies and fix with M6 x 16 socket caps and A form washers



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## Step 14 - Assemble linear rail assembly

Photos for clarity







## Step 15 - Align roller fences

1 Possible Adjustment directions are shown using clearance in the counterbored linear rail holes

2 Alignment requirement

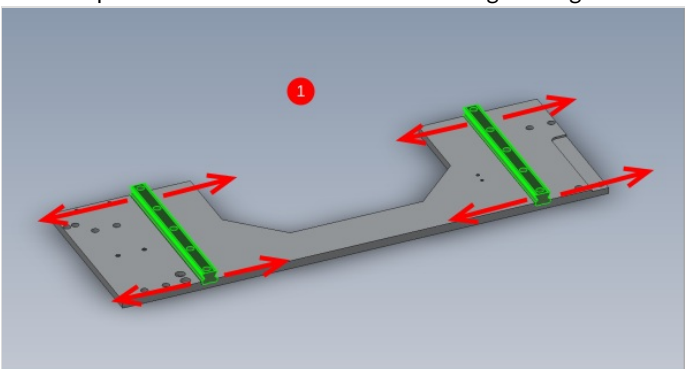
3 Starting position for alignment, ensure roller fence blocks are pushed against centralise plate

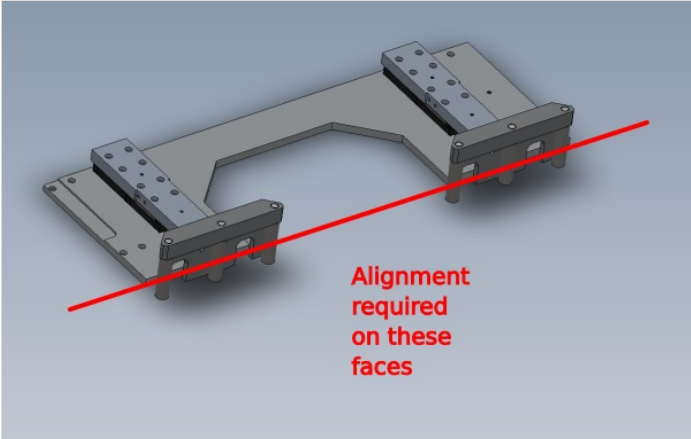
4 Adjust linear rails to enable both front fence rollers to be aligned correctly

5 Tolerance of 0.002"/0.05mm to be adhered to. Any discrepancy report to supervisor

6 Finalise M6 x 16 socket caps that hold the position of the B0000044 Linear Rail

7 Add 10 off B0000173 blanking caps to finalise rails. Ensure caps are fitted flush to rail. Bearing rails can be removed to allow access to covers caps to be fitted. Take care when re fitting bearings onto rails



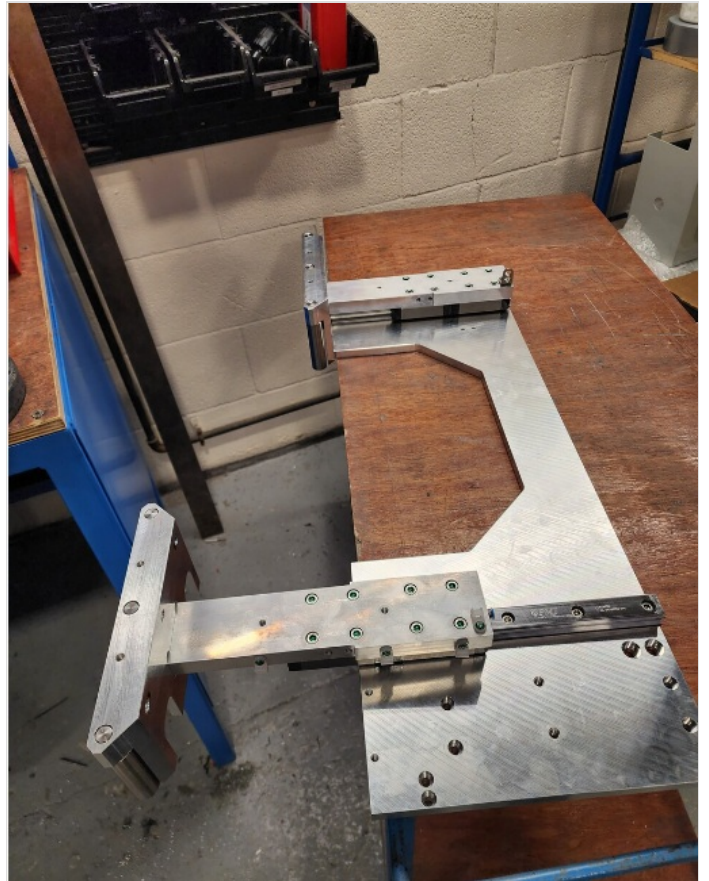
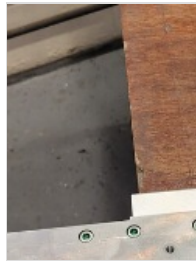
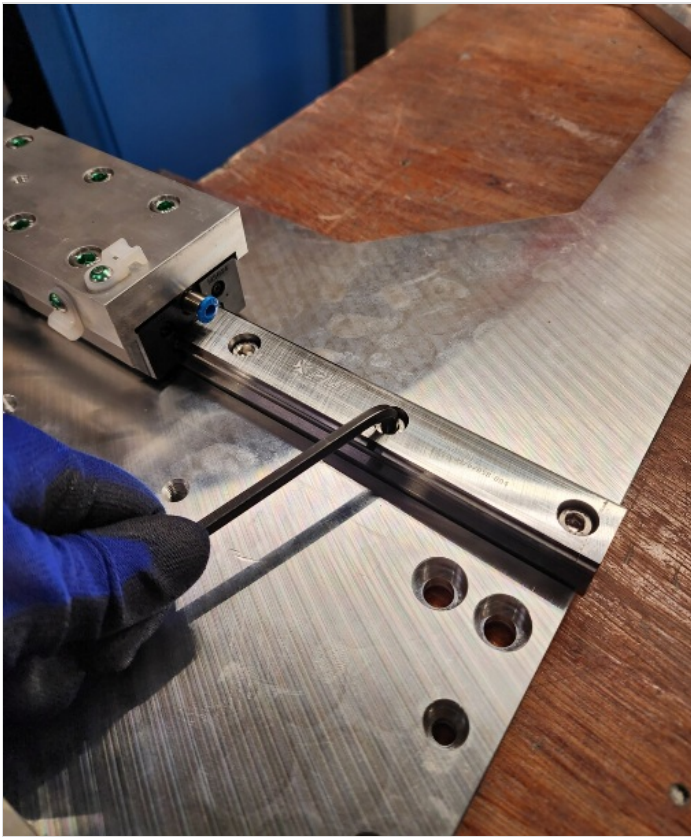






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Step 16 - Align roller fences extra photos





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## Step 17 - Assemble lead screw components

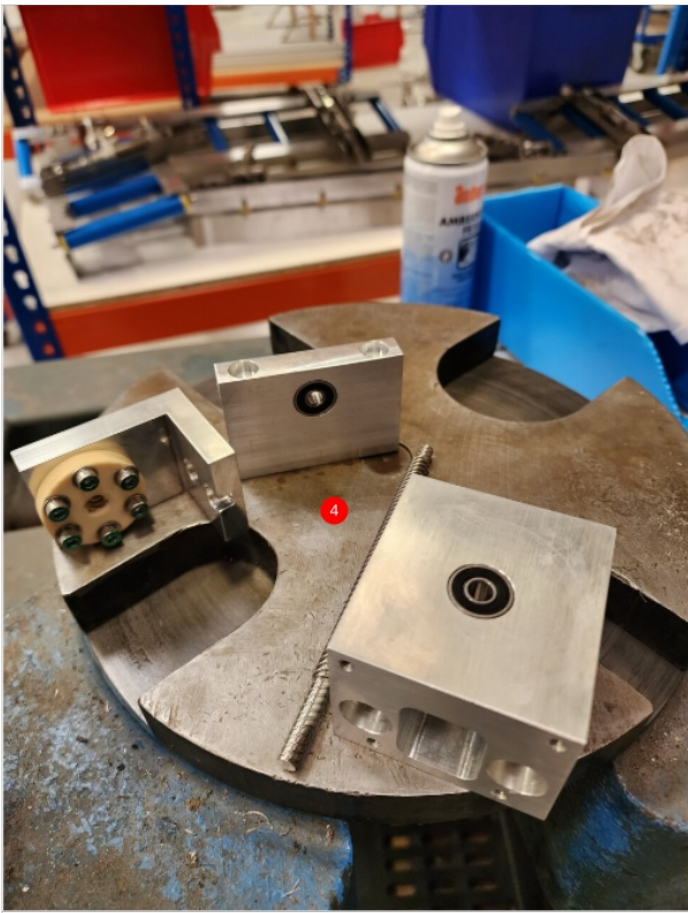
- 1 Degrease components D0015208 Leadscrew Bearing Block, D0015207 Outer Bearing Housing and 2 off B0001123 Double angular contact bearings
- 2 Attach B0001185 Leadscrew nut Igus to D0015209 Leadscrew Attachment Bracket and use 6 off M4 x 20 socket caps and A form washers to fix as shown
- 3 Check fitment of D0015777 Leadscrew SY as shown. Leadscrew should turn through nut with very little resistance
- 4 Observe correct bearing fit and use loctite 641 . insert B0001123 Double angular contact bearings into D0015208 Leadscrew Bearing Block and D0015207 Outer Bearing Housing
- 5 Combine assembled parts as shown











## Step 18 - Assemble leadscrew components



## Step 19 - Mount leadscrew assembly

**⚠** ...Ensure perfect alignment is achieved when assembly is mounted. Travel should be free and consistent at all points of leadscrew movement

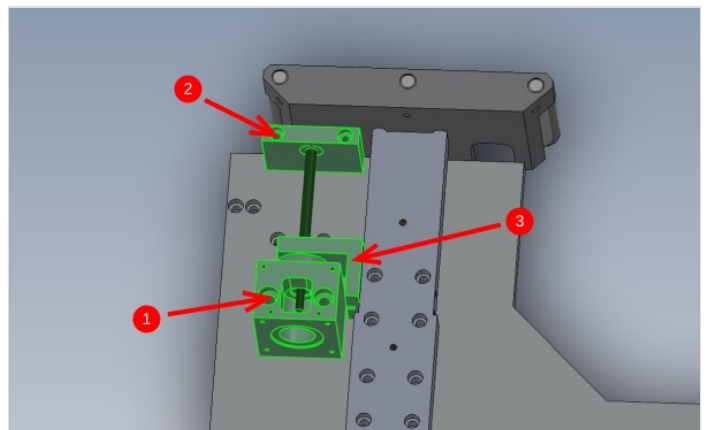
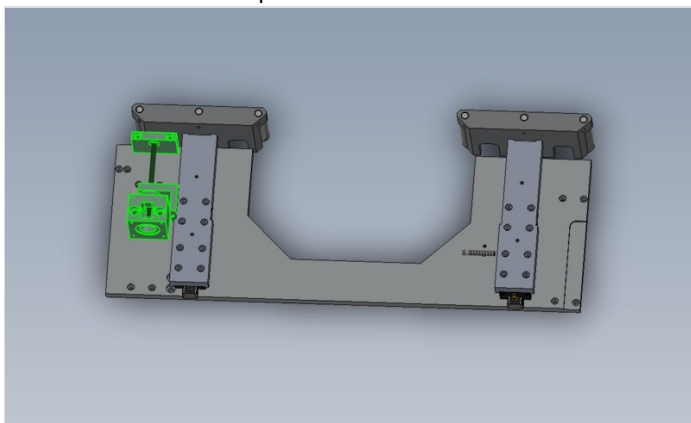
Mount leadscrew assembly as shown to centralise plate

Use

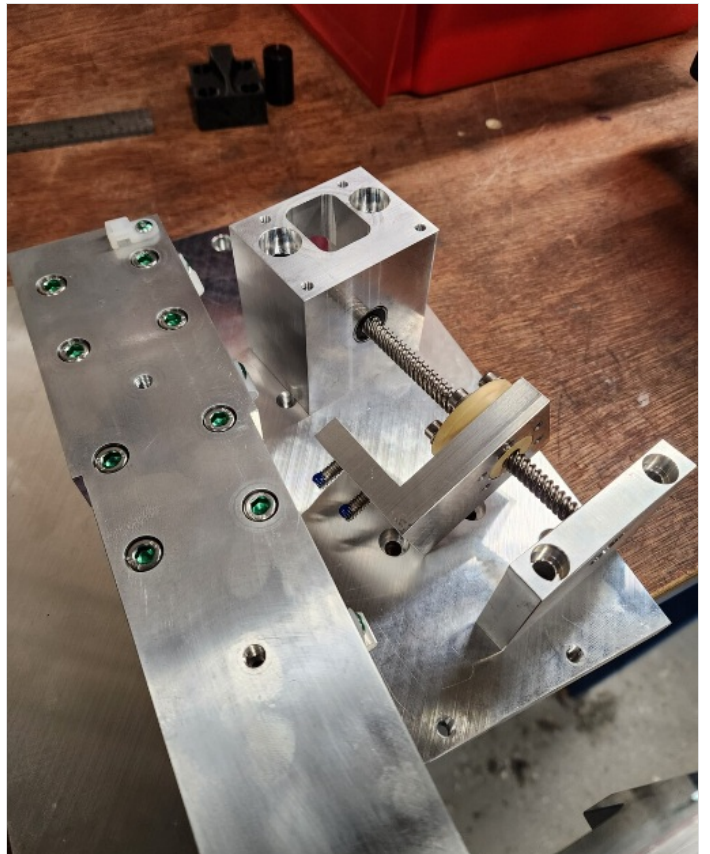
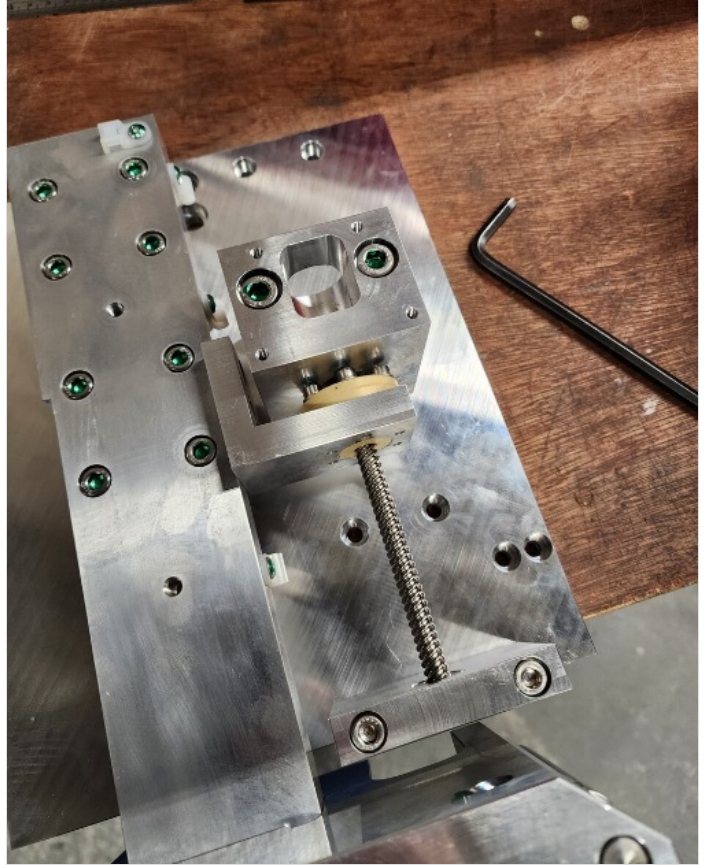
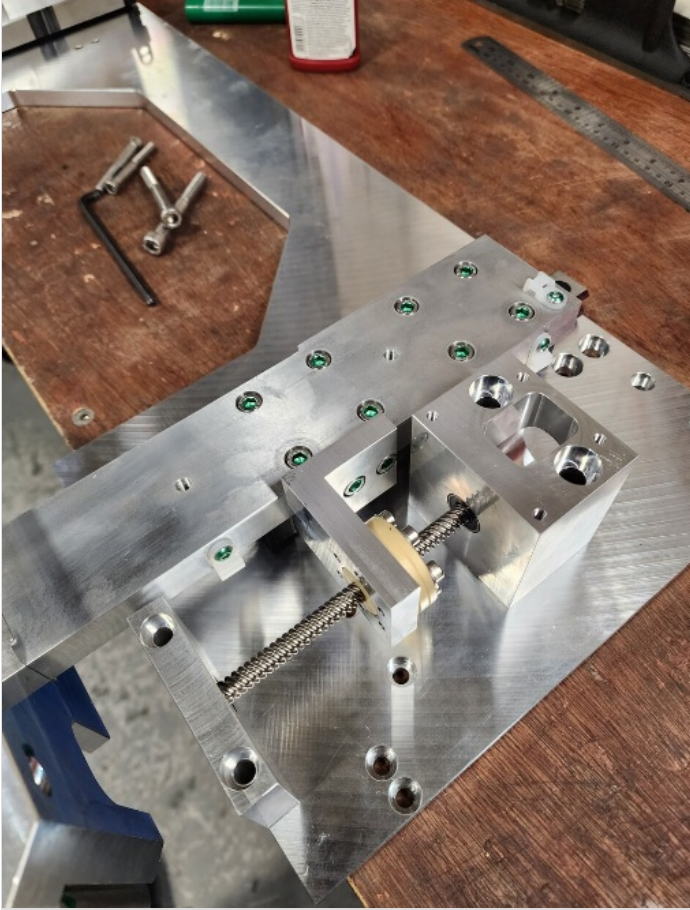
1 2 off M8 x 70 socket caps

2 2 off M6 x 50 socket caps

3 2 off M6 x 16 socket caps









## Step 20 - Fit stepper motor and coupling


1 Fit D0015240 Collar Clamp to leadscrew as shown

2 Fit C0001005 Stepper Motor AS1050 as shown. One side will fit to stepper motor, Ensure orientation the correct way

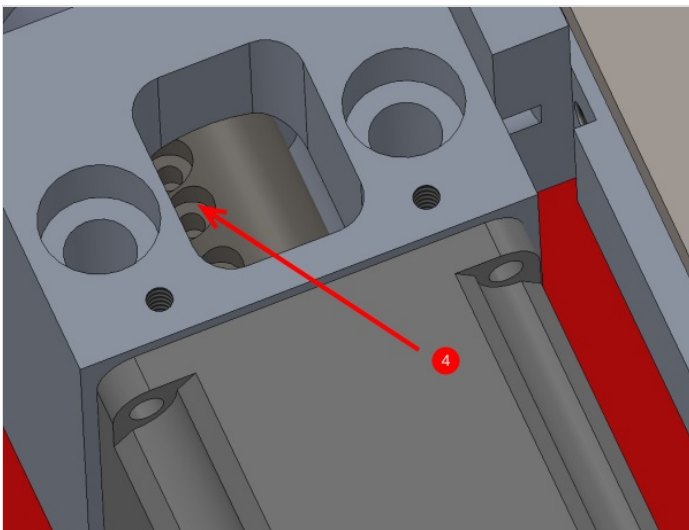
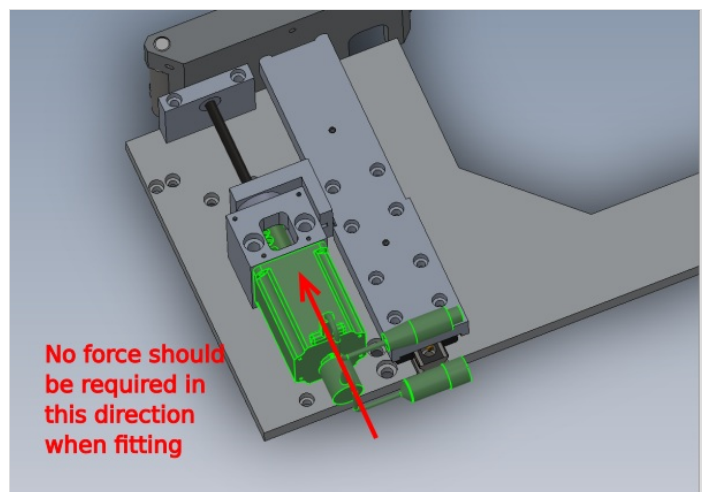
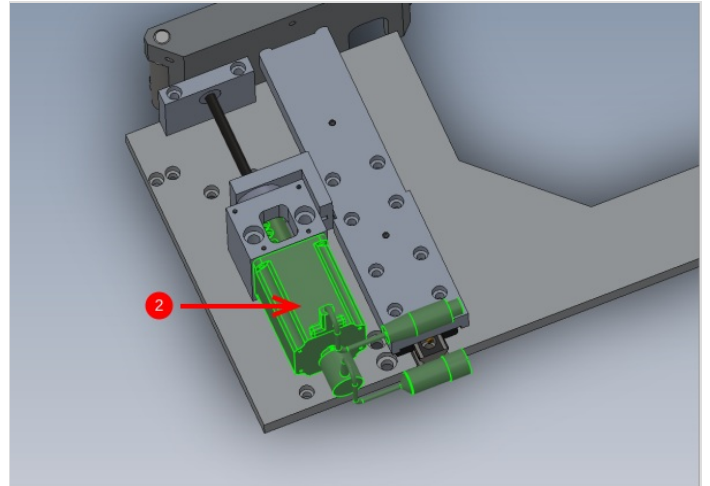
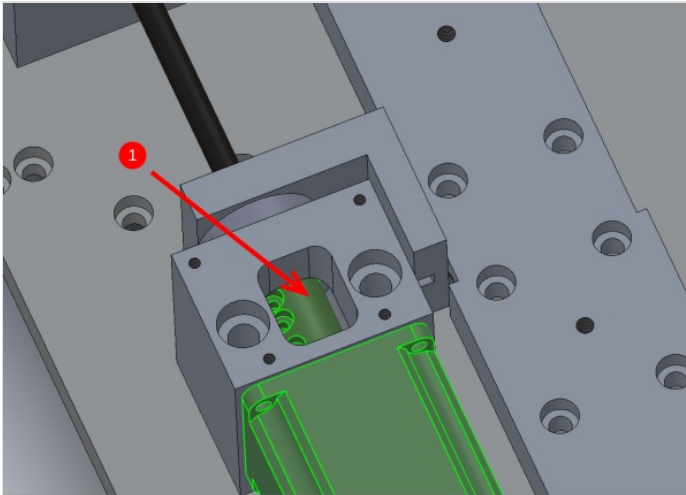
3 Secure stepper motor with 4 of M4 x 12 socket caps

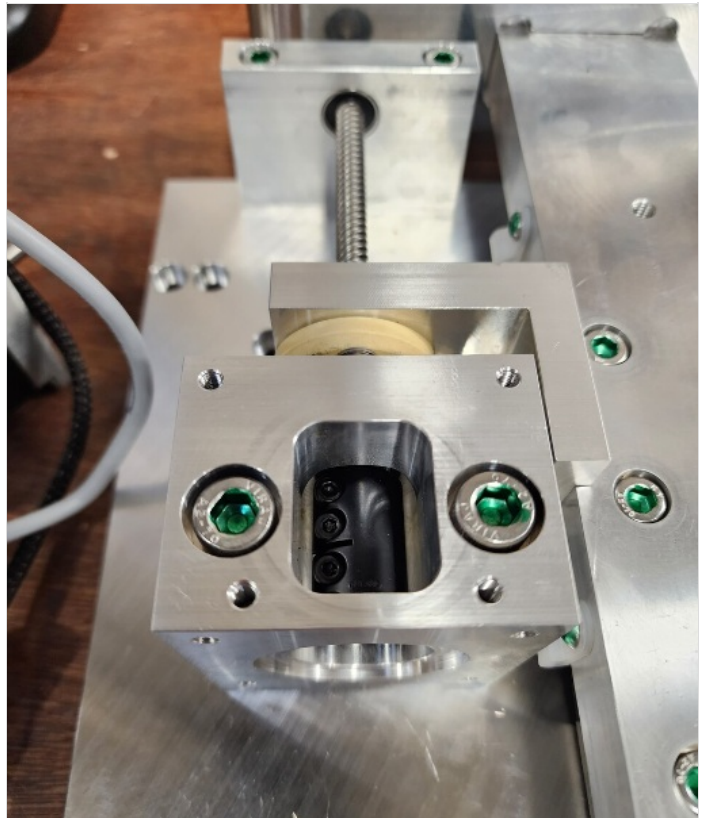
4 Check Coupling is not in contact with housing wall

Apply adhesive to coupling fasteners and tighten to maximum

 ...There must be no force required in the direction shown when fitting these components. If force is required investigate to identify cause

5 Fit D0015316 Leadscrew Bearing Block Cover with M4 x 10 countersunk bolts





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Step 21 - Fit stepper motor and coupling

