HOW TO MEASURE AXLES

Accurate axle measurements are essential to ensure correct fitment and performance. The following two methods outline how to measure your housing and diff centre to determine the correct axle lengths for your setup.

- **Option A – Centre Removed (page 4)**
  Use this method if the diff centre has been removed from the housing. Measurements are taken from the drive flanges and diff centre faces, making it the simplest and most accurate way to calculate axle lengths.

- **Option B – Centre Installed (page 13)**
  Choose this method if the diff centre is already fitted in the housing. Measurements are taken from each end cap to the inner splines inside the centre, then compared to the overall flange-to-flange width to confirm axle lengths.

Important Notes

- These measurements are based on a **Ford 9” differential** with a **40 spline Strange Spool**.
- You may encounter a **washer, block, or crosspin** that prevents pushing a tape measure all the way through the centre. This distance will represent your axle “gap.”
- If your diff centre has a stopper in the middle of the axles, the axles **should not touch** this. Complete the measurements as instructed, but please inform us if your measurement stops at a washer or similar. We will adjust the axle length accordingly when you place your order.

As you take your measurements, please enter them in the table provided on the next page for easy reference.

RECORD YOUR MEASUREMENTS

Measurement Name	Where to Measure	Description / Purpose	Applies To	OPTION A Measurement	OPTION B Measurement
OVERALL	From outer end of left drive flange to outer end of right drive flange	Total flange-to-flange width of housing	Option A & B		
CENTRE WIDTH	From outside of left adjuster cap to outside of right adjuster cap (diff centre)	Determines total width of the diff centre	Option A		N/A
CENTRE LEFT	From left-hand adjuster cap to inside of left-hand spline	Used to calculate left axle length	Option A		N/A
CENTRE RIGHT	From right-hand adjuster cap to inside of right-hand spline	Used to calculate right axle length	Option A		N/A
HOUSING LEFT	From left-hand end cap face to left-hand diff centre adjuster	Used with CENTRE LEFT to get left axle length	Option A		N/A
HOUSING RIGHT	From right-hand end cap face to right-hand diff centre adjuster	Used with CENTRE RIGHT to get right axle length	Option A		N/A
AXLE LEFT	From left-hand end cap face to inner of left-hand spline (with centre fitted)	Measures left axle length directly when centre is installed	Option B	N/A	
AXLE RIGHT	From right-hand end cap face to inner of right-hand spline (with centre fitted)	Measures right axle length directly when centre is installed	Option B	N/A	

OPTION A
CENTRE REMOVED

OPTION A – CENTRE REMOVED

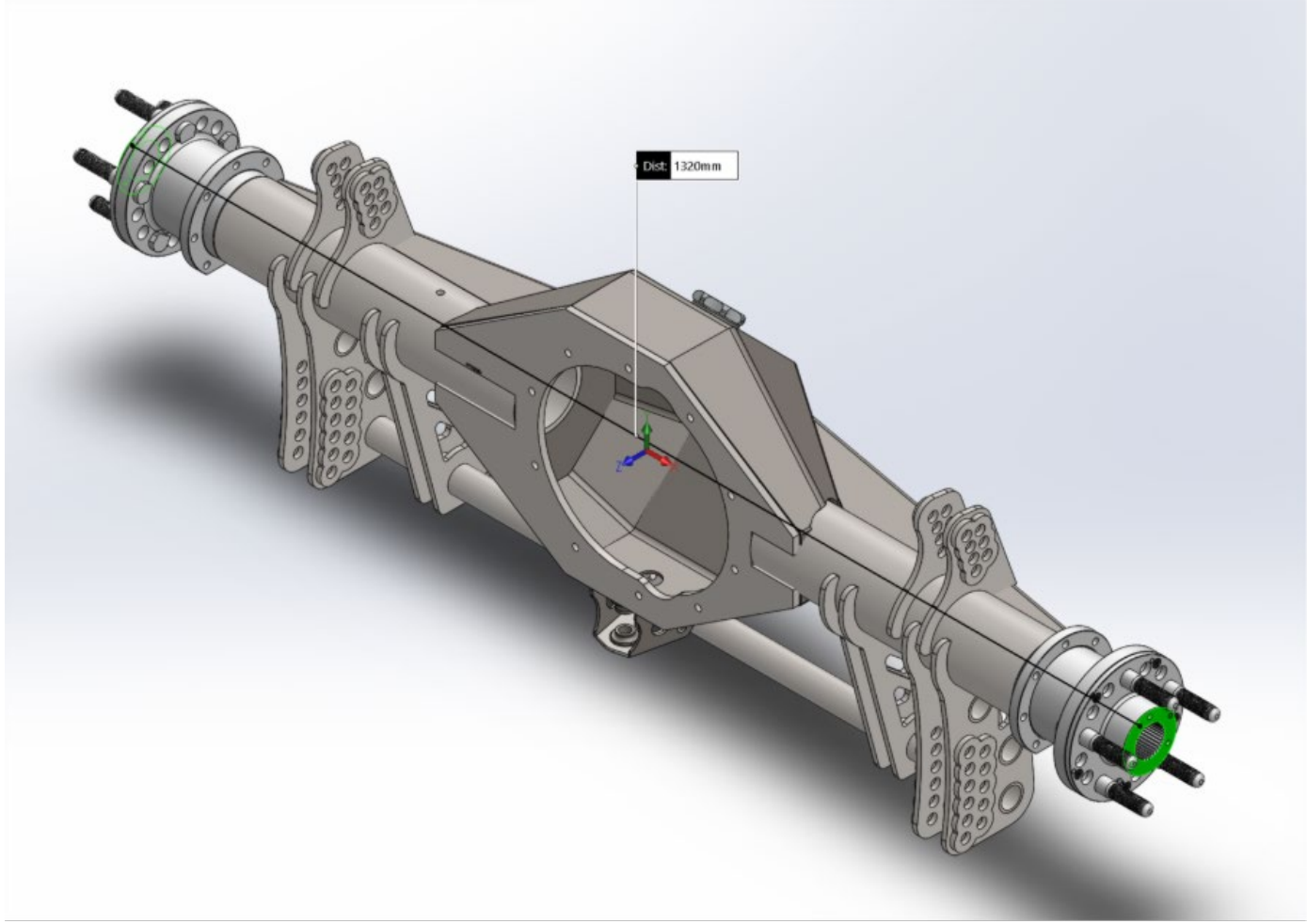
⚠ **Start with:**

- Centre **removed** from housing
- Floater hubs AND drive flanges fitted

Step 1

With centre **removed**, measure from outer end of drive flange, to outer end of drive flange on the opposite side.

Record this as **OVERALL.**

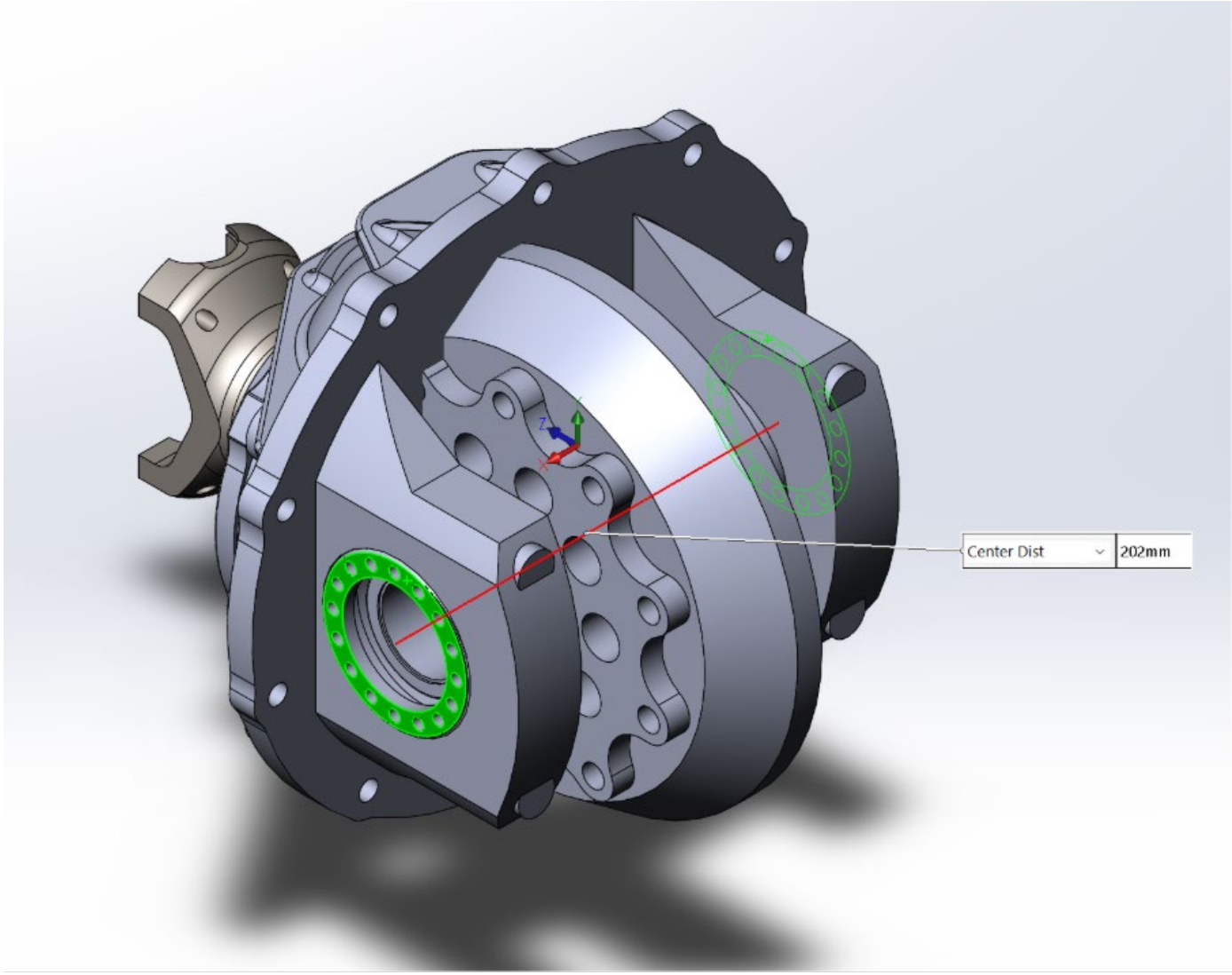


OPTION A – CENTRE REMOVED

Step 2

On the diff centre, measure from outside of adjuster cap, to outside adjuster cap on the opposite side.

Record this as **CENTRE WIDTH.**

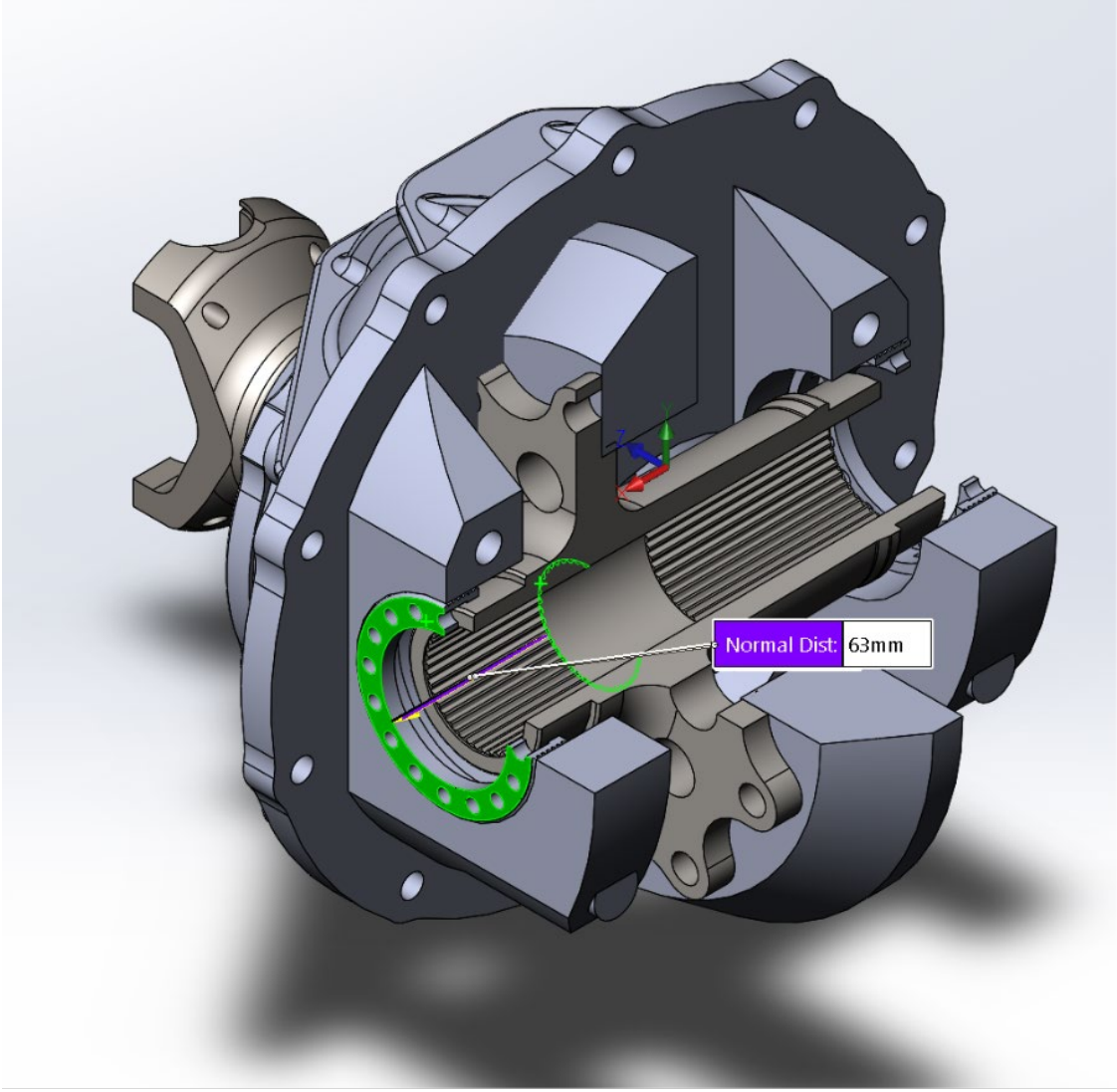


OPTION A – CENTRE REMOVED

Step 3

Measure the distance from the LEFT HAND adjuster cap, to the inside of the spline

Record this as **CENTRE LEFT**.

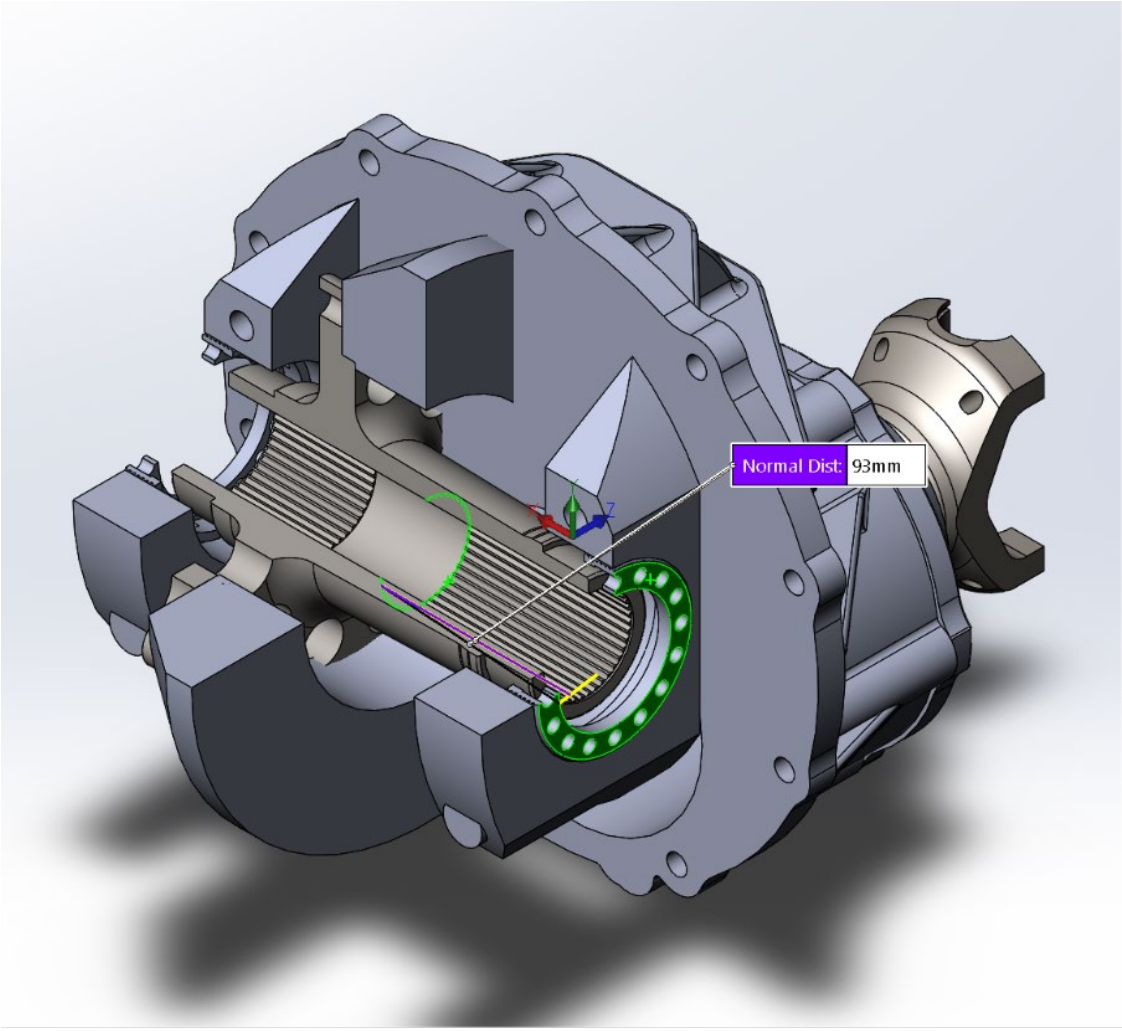


OPTION A – CENTRE REMOVED

Step 4

Measure the distance from the RIGHT HAND adjuster cap, to the inside of the spline

Record this as **CENTRE RIGHT**.



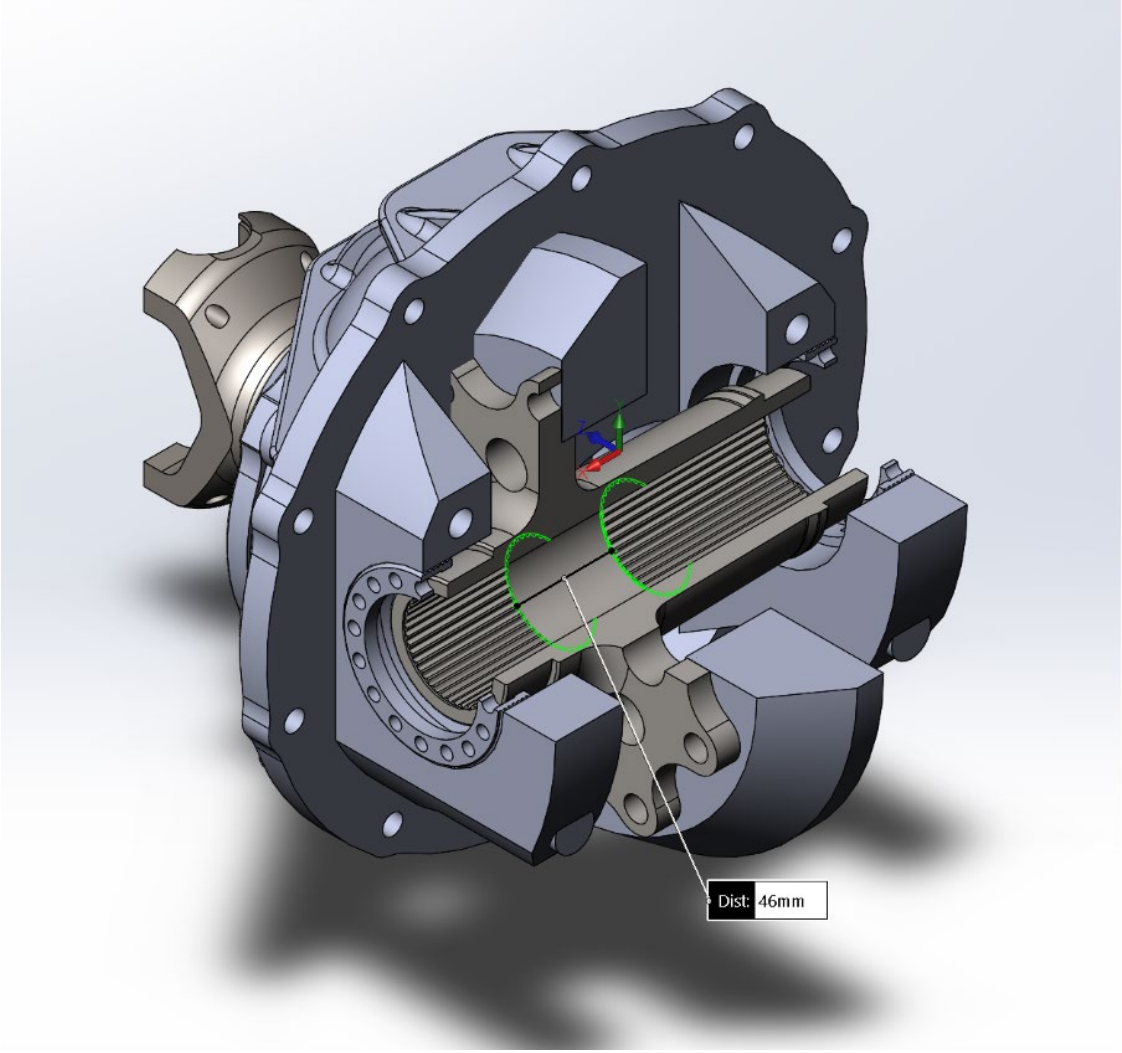
OPTION A – CENTRE REMOVED

Step 5

Now calculate the internal gap to ensure your measurements are correct.

Subtract the combined values of **CENTRE LEFT** and **CENTRE RIGHT** from the **CENTRE WIDTH** measured in Step 2.

Example: 202 – (63 + 93) = 46 mm gap*



*** Note: a 46 mm gap is unusually large.** Typical gaps range between 7–35 mm, depending on the centre type:

- **Truetrac:** approximately 7–10 mm
- **Spool or factory LSD:** around 35 mm

OPTION A – CENTRE REMOVED

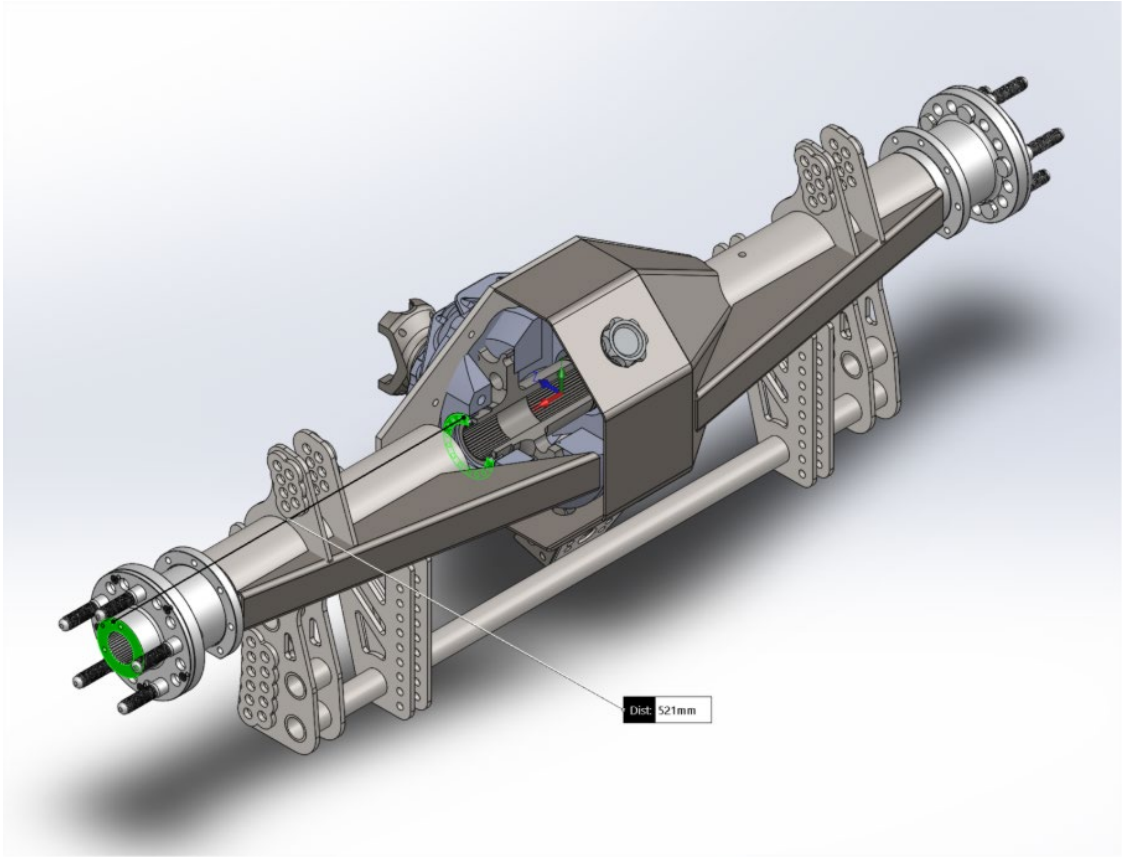
Step 6

Fit diff centre to housing

Step 7

Measure from the left hand end cap face, to the left hand diff centre adjuster.

Record this as **HOUSING LEFT**.

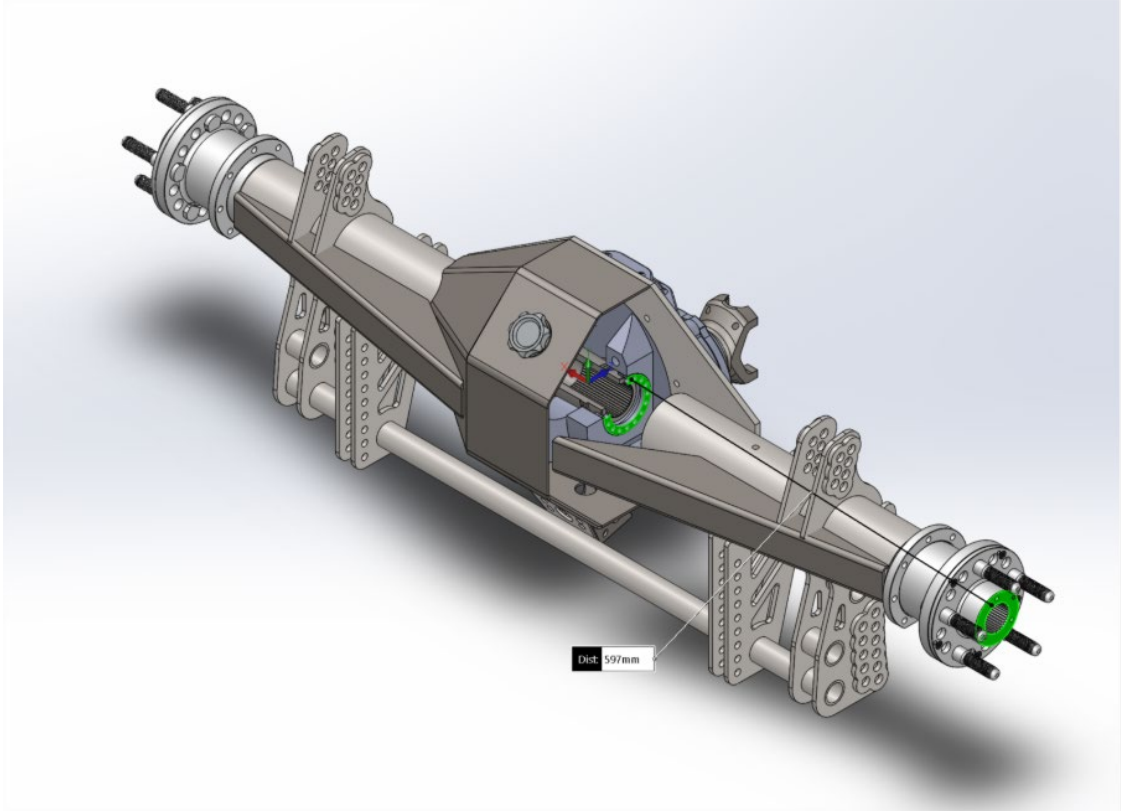


OPTION A – CENTRE REMOVED

Step 8

Measure from the right hand end cap face,
to the right hand diff centre adjuster.

Record this as **HOUSING RIGHT.**



OPTION A – CENTRE REMOVED

Step 9

Calculate Axle Lengths and Confirm the Gap

Next, calculate each axle length using the measurements you've taken.

1. Left Axle Length

Add the **CENTRE LEFT** and **HOUSING LEFT** measurements.
Example: 63 + 521 = **584 mm (Left Axle Length)**

2. Right Axle Length

Add the **CENTRE RIGHT** and **HOUSING RIGHT** measurements.
Example: 93 + 597 = **690 mm (Right Axle Length)**

OPTION A – CENTRE REMOVED

Step 10

Double-Check the Internal Gap

To confirm your measurements, subtract the combined axle lengths from the **OVERALL** measurement.

Example: 1320 – (584 + 690) = **46 mm gap**

⚠ **Note:** The calculated gap should closely match the gap determined earlier.

If it differs significantly, recheck your measurements before proceeding.

OPTION B
CENTRE INSTALLED

OPTION B – CENTRE INSTALLED

⚠ **Start with:**

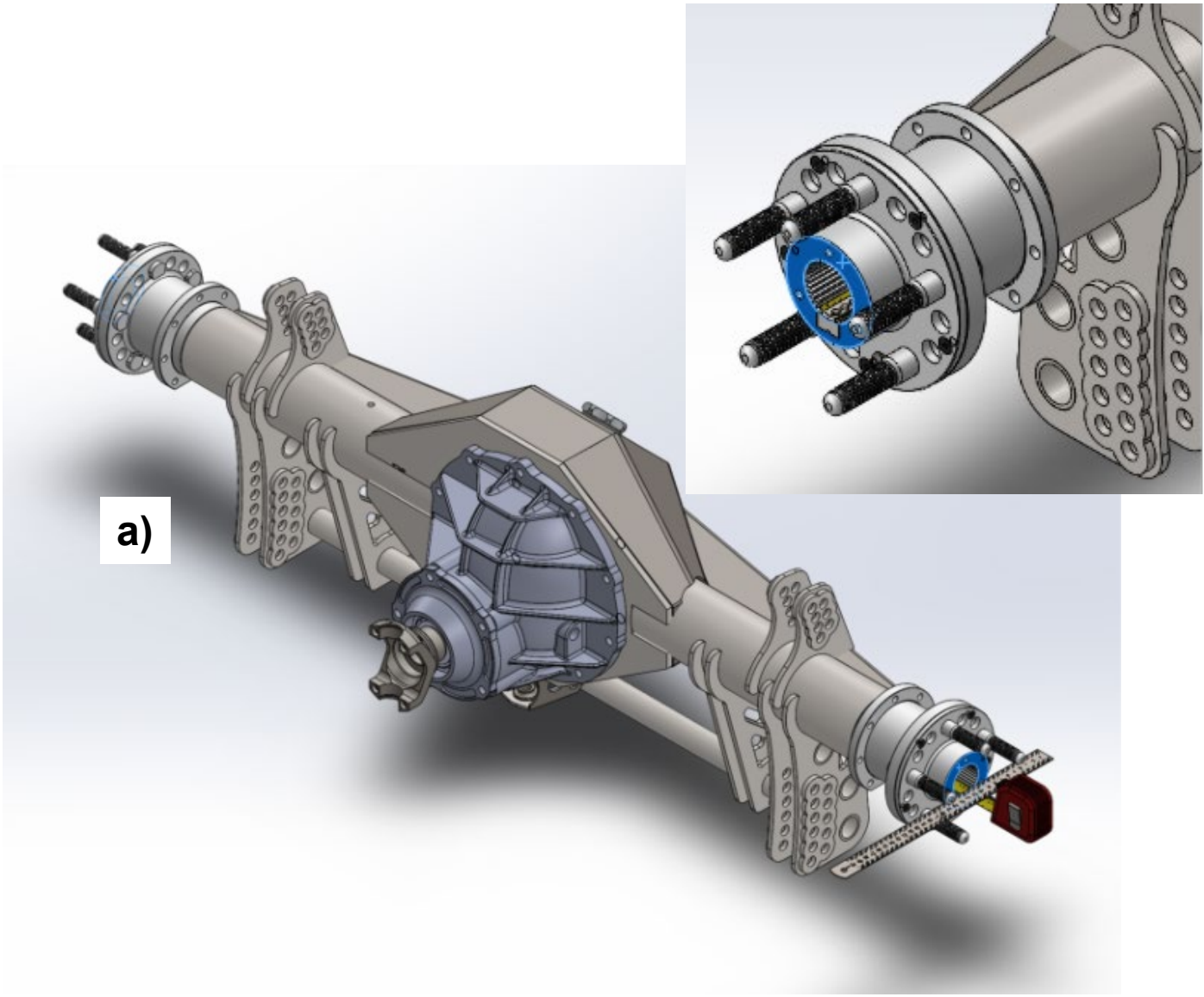
- Centre **fitted** to housing
- Floater hubs AND drive flanges fitted

Step 1

With the centre fitted, measure from the outer end of one drive flange to the outer end of the opposite drive flange.

Record this as **OVERALL**.

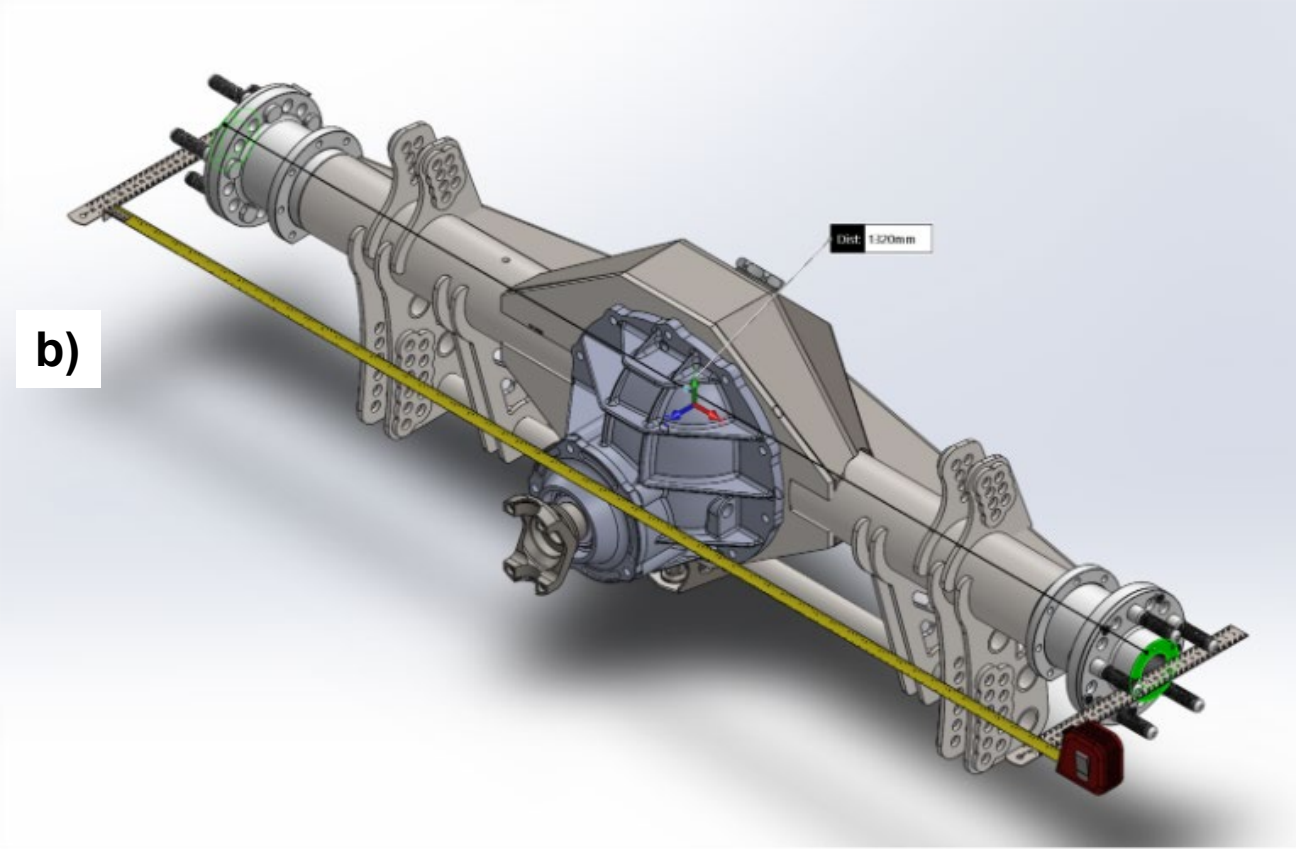
a) If your diff centre is open through the middle (e.g. a spool), you can use a tape measure straight through the centre, as shown in the diagram.



OPTION B – CENTRE INSTALLED

Step 1

b) If your centre has a washer or cross pin, use two rulers and a tape measure as shown in the diagram on the right.



OPTION B – CENTRE INSTALLED

Step 2

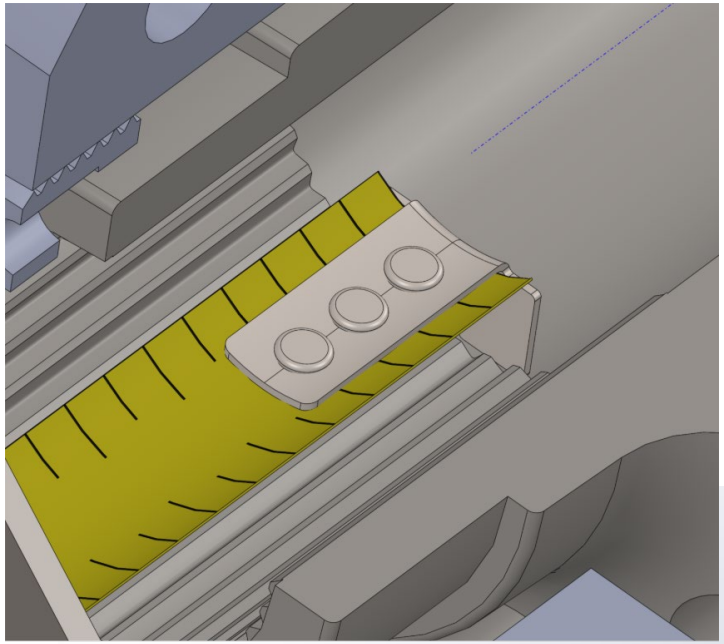
Carefully measure from the **left-hand end cap face** to the **inner end of the left-hand diff centre spline**.

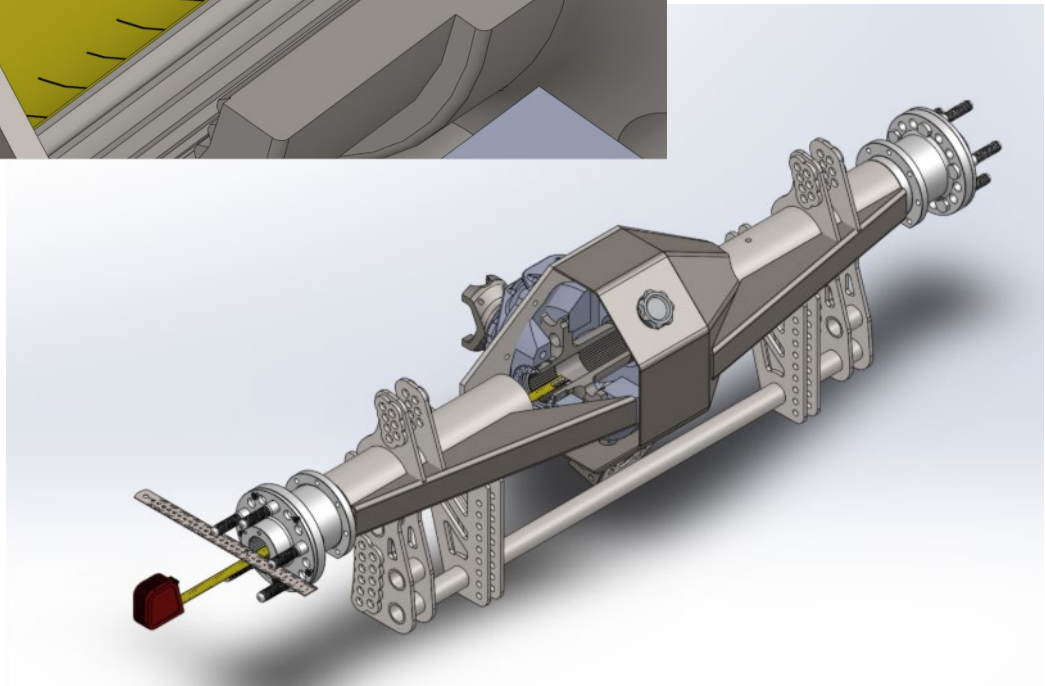
To do this:

- Insert the **tape measure** through the **left-hand axle tube** and into the **centre** of the housing.
- Keep the tape flat and straight along the bottom of the tube as you feed it in.
- As the tape reaches the **centre**, look down the tube and feel for when the tape starts to slide smoothly over the surface outside the spline.
- Continue feeding it in slowly, you'll feel a small "step up" or bump as the tape moves onto the splines.
- Gently rock or roll the tape at this point, you'll feel it bump or catch slightly as it moves across the spline teeth.
- Push the tape in a little further **until it just drops off the splines** again. This indicates you've reached the inner end of the left-hand spline.

Be careful **not to push too far**, as the tape may cross the centre and enter the right-hand spline.

Record this measurement as **AXLE LEFT**.





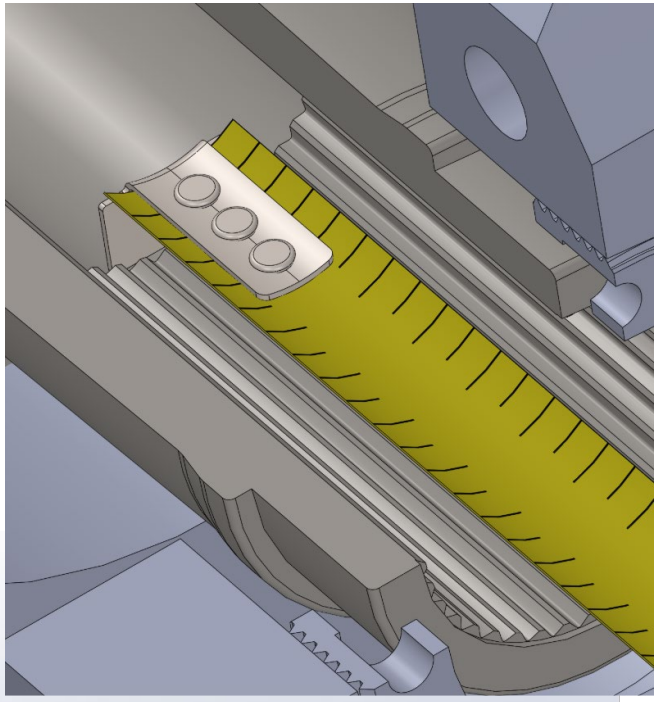
OPTION B – CENTRE INSTALLED

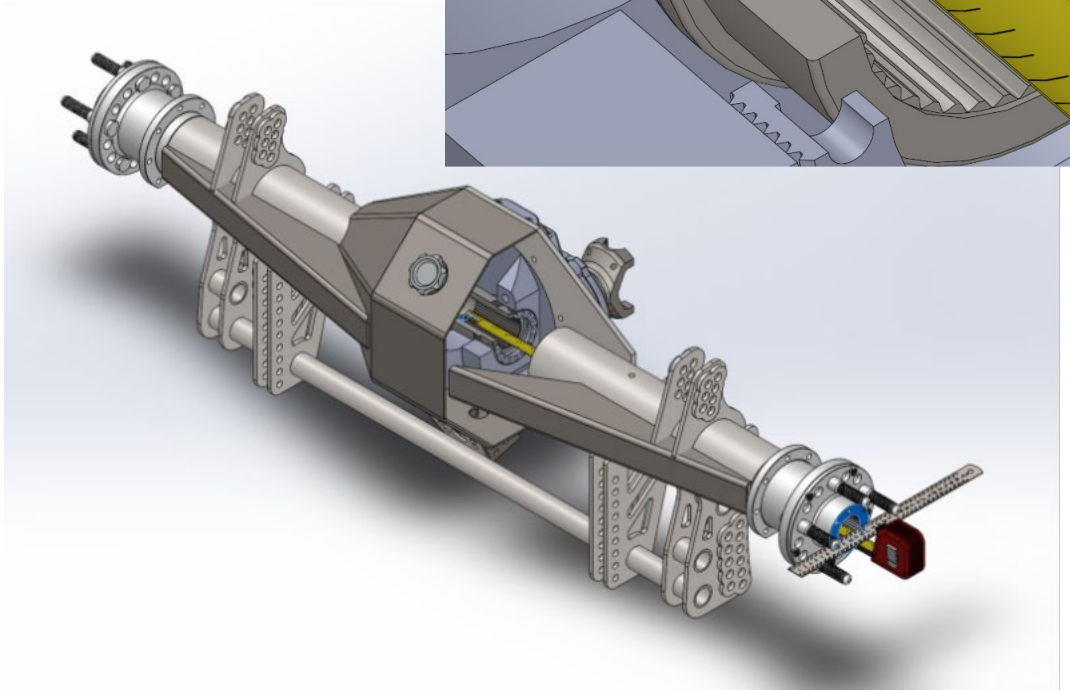
Step 2

Using the **same method**, measure from the **right-hand end cap face** to the **inner end of the right-hand diff centre spline**.

Record this measurement as **AXLE RIGHT**.

✅ **Tip:** Take your time when feeling for the spline with the tape measure. The “step up” and “drop off” points are subtle but important for accurate results.





OPTION B – CENTRE INSTALLED

Step 3

Once you have your **OVERALL, AXLE LEFT** and **AXLE RIGHT** measurements, you can check that your measurements make sense by calculating the **spline gap**.

How to calculate:

Add your **AXLE LEFT** and **AXLE RIGHT** measurements together.

Subtract that total from your **OVERALL** measurement.

Typical Spline Gap Ranges

- **Truetrac:**~7-10 mm
- **Detroit Locker:** ~25 mm
- **Spool:** ~10-35 mm
- **Wavetrac:** ~35 mm

Formula:
Spline Gap = Overall Length – (Axle Left + Axle Right)

Example	Calculation	Result	Meaning
i.	1320 – (584 + 690) = **46 mm**	✅ **Correct**	This is within a normal spline gap range.
ii.	1320 – (723 + 690) = **–93 mm**	❌ **Too Long**	You've probably measured too far and gone **over the gap** onto the **other spline**.
iii.	1320 – (521 + 690) = **109 mm**	❌ **Too Short**	You've likely measured only to the **start of one spline**, not the inner end.

If your calculated gap doesn't fall close to the expected range for your diff centre type, recheck that your tape was correctly positioned and that you didn't measure past or short of the spline.