

Measurement for sleeve making

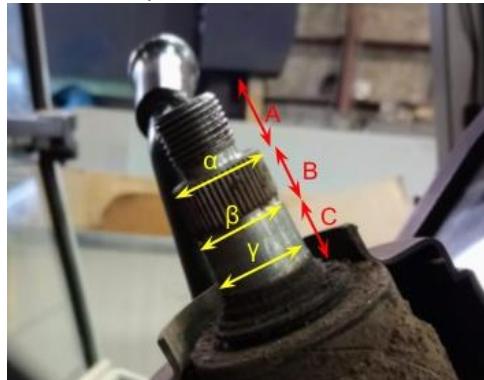
1 Toothed sleeve

A. Tool required

Caliper.

B. Required information

- Vehicle brand and model
- Number of spline teeth and high resolution picture of the teeth top view
- Spline inner diameter
- Spline outer diameter(α)
- Shaft top diameter(β)
- Shaft bottom diameter(γ)
- Spline bolt height(A)
- Height from shaft top to teeth top(B)
- Height from shaft bottom to shaft top (C)



C. Steps

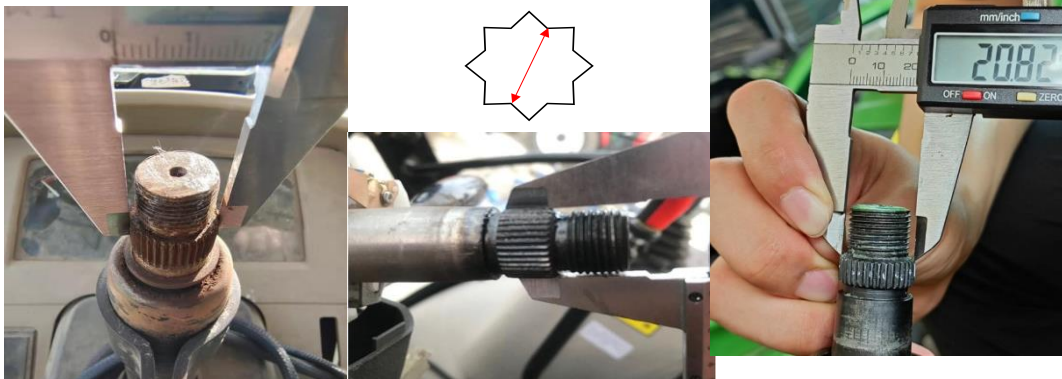
1) Count the teeth number

The exact teeth number of the spline is required, normally 18, 36 or 40 teeth are common. It is recommended to count three times to make sure the teeth number is correct and also take a high resolution picture of the teeth top view.



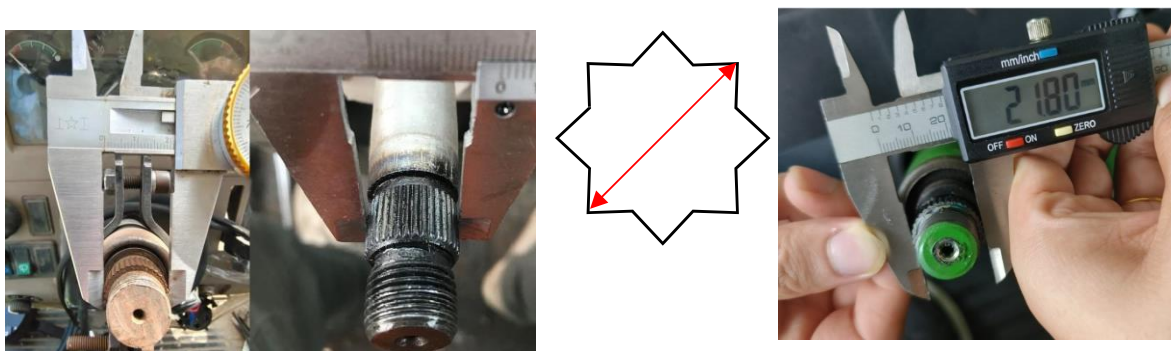
2) Measure spline inner diameter

Like the red arrow line as below, use the tips of the caliper jaws to measure the exact opposite grooves of the spline and record the value. Then rotate the caliper 90° and measure again. If the difference between the two values is less than 1mm, both values are valid, usually use the larger one as the inner diameter.



3) Measure spline outer diameter(α)

As shown on below pics, measure the outer diameter of spline and record the value. Then rotate the caliper 90° and record the measure again. If the difference between the two values is less than 1mm, both values are valid, usually use the larger one as the outer diameter.

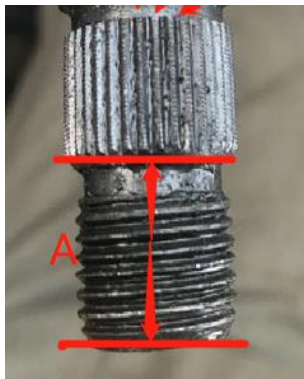


4) Measure the shaft top diameter(β) , the shaft bottom diameter (γ) and the height from shaft bottom to shaft top (C)

It is necessary to measure the diameter and height on these two locations to get the taper information. It is recommended to measure three times from different direction.

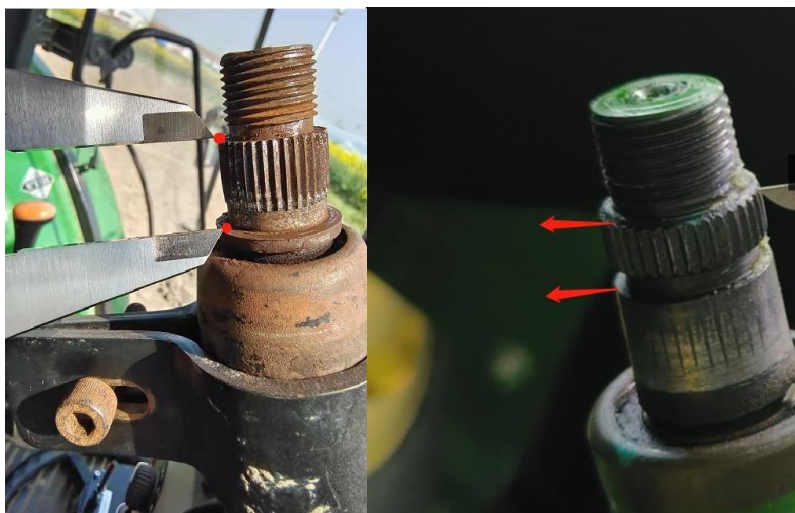


5) Measure bolt height(A)



6) Measure the height from shaft top to teeth top(B)

When measuring this height, it is necessary to consider the sleeve mounting which will be different for different vehicles, like below two types. Please measure the height from the top of teeth to the top point on the shaft.



2 Keyhole sleeve

A. Tool required

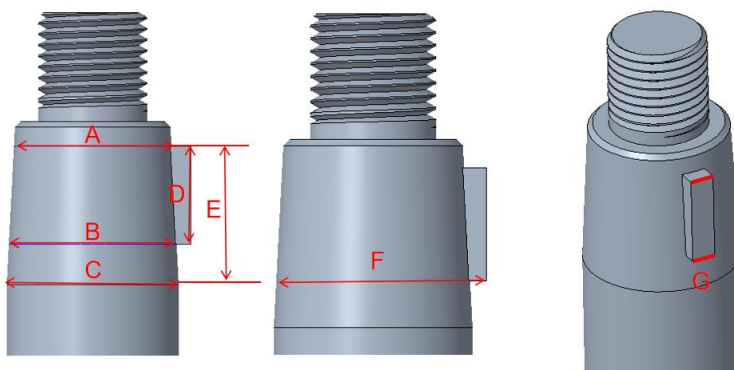
Caliper.

B. Required information

- Keyhole top diameter (A)
- Keyhole bottom diameter (B)
- Sleeve mount point diameter (C)
- Keyhole height(D)
- Height from keyhole top to sleeve mount point (E)
- Keyhole bottom and extension width (F)
- Keyhole width (G)

C. Steps

Please measure the necessary parameters according to the diagram below.



1) Measure keyhole top diameter (A)

Place caliper horizontally over the keyhole to measure the value.

2) Measure keyhole bottom diameter (B)

Place caliper horizontally under the keyhole to measure the value.

3) Measure the sleeve mount point diameter (C)

Measure the diameter below the keyhole where the sleeve fixed with caliper.

4) Measure keyhole height (D)

Measure the height between the top and bottom side of the keyhole with caliper.

5) Measure height from keyhole top to sleeve mount point (E)

Measure the height from the top side of the keyhole to the fixed position of the sleeve with caliper.

6) Measure keyhole bottom and extension width (F)

Measure the keyhole width with caliper with the caliper.

7) Measure keyhole width(G)

Measure the keyhole width with caliper.



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