

UNASIS
PRECISION TOOLING



Aerospace Tooling

Breakaway Torque Tool Instruction Manual



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Unasis Portable Tri-Roller Swaging Tool



Unasis Portable Cutting Tool



Unasis Portable Proof Load Tool

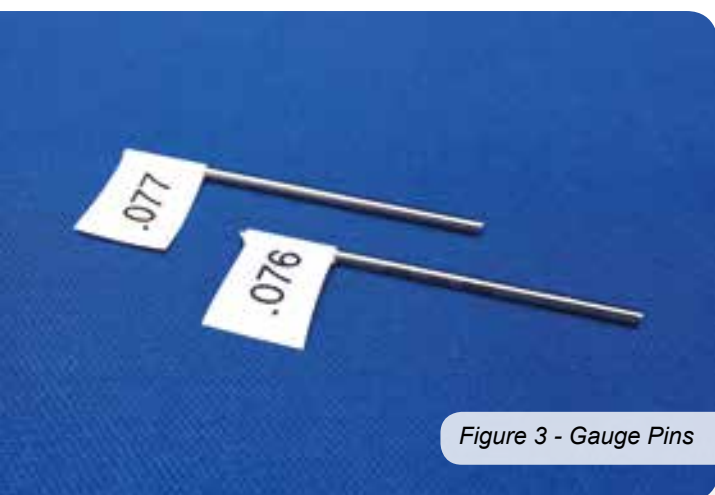
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Part List



Precautions Prior to Use

- Due to the tool being battery powered, it is advisable to have a spare AAA battery available in the event of battery life depletion.
- Ensure the housing has suitable clearance for test to be performed.
- Make sure all contact surfaces are clean and lube dry.
- Perform an initial test by hand to gauge the torque required to initiate bearing rotation.



Figure 5 - Turning on digital torque reader

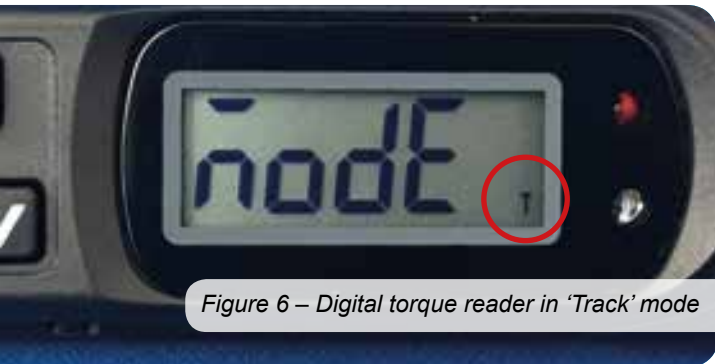


Figure 6 – Digital torque reader in 'Track' mode

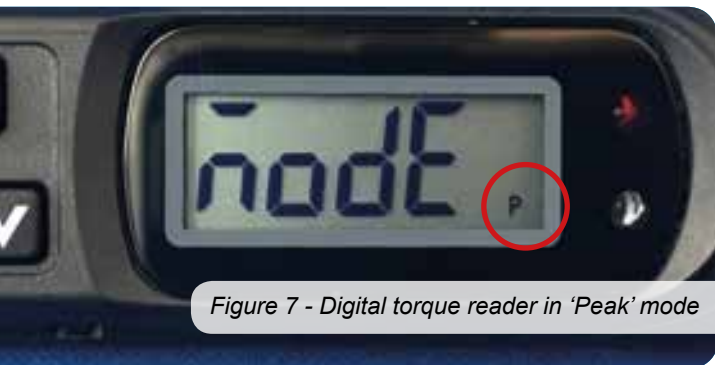


Figure 7 - Digital torque reader in 'Peak' mode



Figure 8 - Digital torque reader in 'cN-m' units

Set-Up Instructions

Turn on Tool

- Turn on digital torque reader by holding the “C” button.
- Connect the load cell to the electronic load display ensuring to match the keyway with the slot.
- Secure the connector by turning the collar clockwise.

Set Tool to 'Peak' mode

- Hold U/S button until a beeping sound occurs.
- Use arrow keys until the letter in the bottom right of the screen reads “P”.
- Click U/S button 3 times to return to the main screen.

Select Desired Units

- On main screen, click U/S button to select between units: cN-m, in-lb or kg-cm.



Figure 9 - Digital torque reader in 'in-lb' units



Figure 10 - Digital torque reader in 'kg-cm' units



Figure 11 - Digital torque reader set to highest value

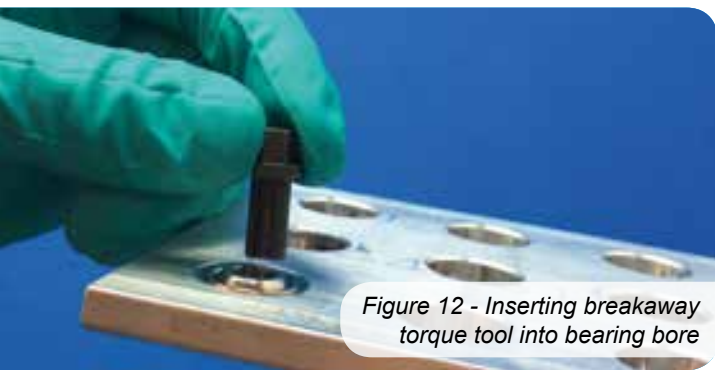


Figure 12 - Inserting breakaway torque tool into bearing bore

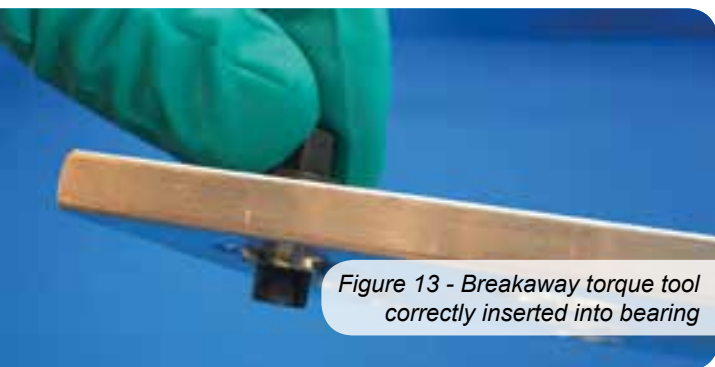


Figure 13 - Breakaway torque tool correctly inserted into bearing

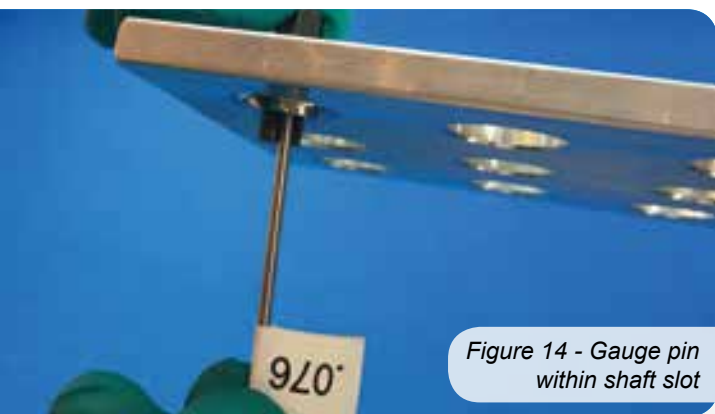


Figure 14 - Gauge pin within shaft slot

Operating Instructions

- On main screen, use arrow buttons to set torque to read the highest value: 400.0cN-m, 35.39 in-lb or 40.82 kg-cm.

Perform Breakaway Torque Test

- On main screen, click U/S button to select between units: cN-m, in-lb or kg-cm.

Step 1 – Insert Breakaway Torque Tool into Bearing

- Insert breakaway torque tool into bore of the bearing until the flange sits flush against the bearing.

Step 2 – Select Gauge Pin

- Select gauge pin that slides into the slot on the shaft causing a light interference fit with the bore.
- Fully insert the gauge pin.

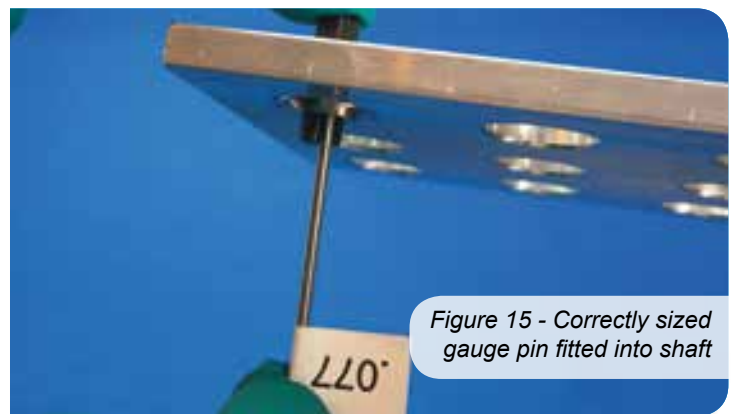


Figure 15 - Correctly sized gauge pin fitted into shaft

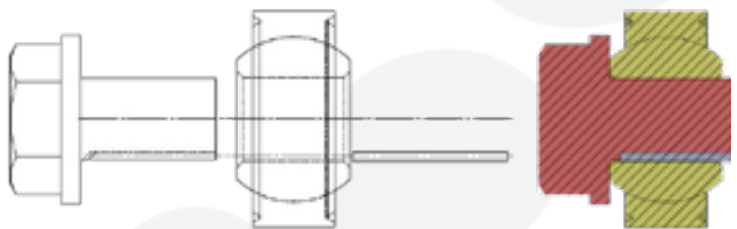


Figure 16 – Breakaway torque tool and gauge pin correctly fitted into bearing bore



Figure 17 – Digital torque reader correctly positioned onto breakaway torque tool

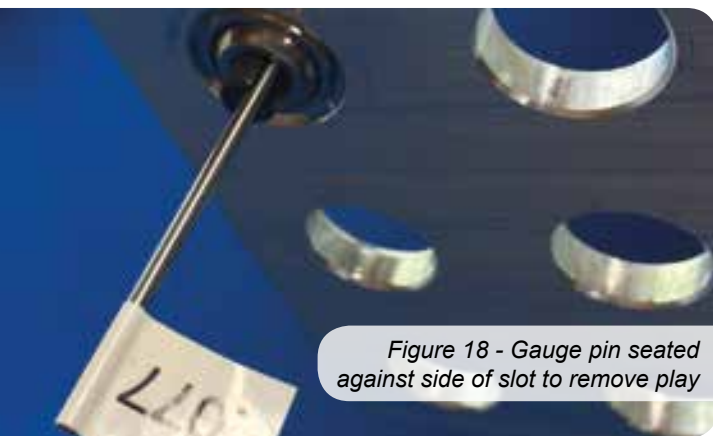


Figure 18 - Gauge pin seated against side of slot to remove play



Figure 19 - Applying torque using breakaway torque test tool

Step 3 – Position Digital Torque Reader

- Position the digital torque reader on the hex head of the breakaway torque tool.

Step 4 – Apply Torque to Breakaway Torque Test Tool

- Rotate handle slightly to lock gauge pin against the side of the slot on the shaft thus eliminating play.
- Gradually increase rotational torque, as slowly as possible, until rotation is initiated within the bearing.

NOTE: ENSURE THE BREAKAWAY TORQUE TOOL DOES NOT ROTATE WITH RESPECT TO THE INNER RING OF THE BEARING, AS THIS WILL INVALIDATE THE READING.

Step 5 – Read Torque Output

- Read torque output value to determine the breakaway torque.

NOTE: THIS TORQUE VALUE IS CONSIDERED YOUR BREAKAWAY TORQUE AND DETERMINES WHETHER THE BEARING INSTALLATION WAS COMPLETED SUCCESSFULLY.



Figure 20 - Torque value reading

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