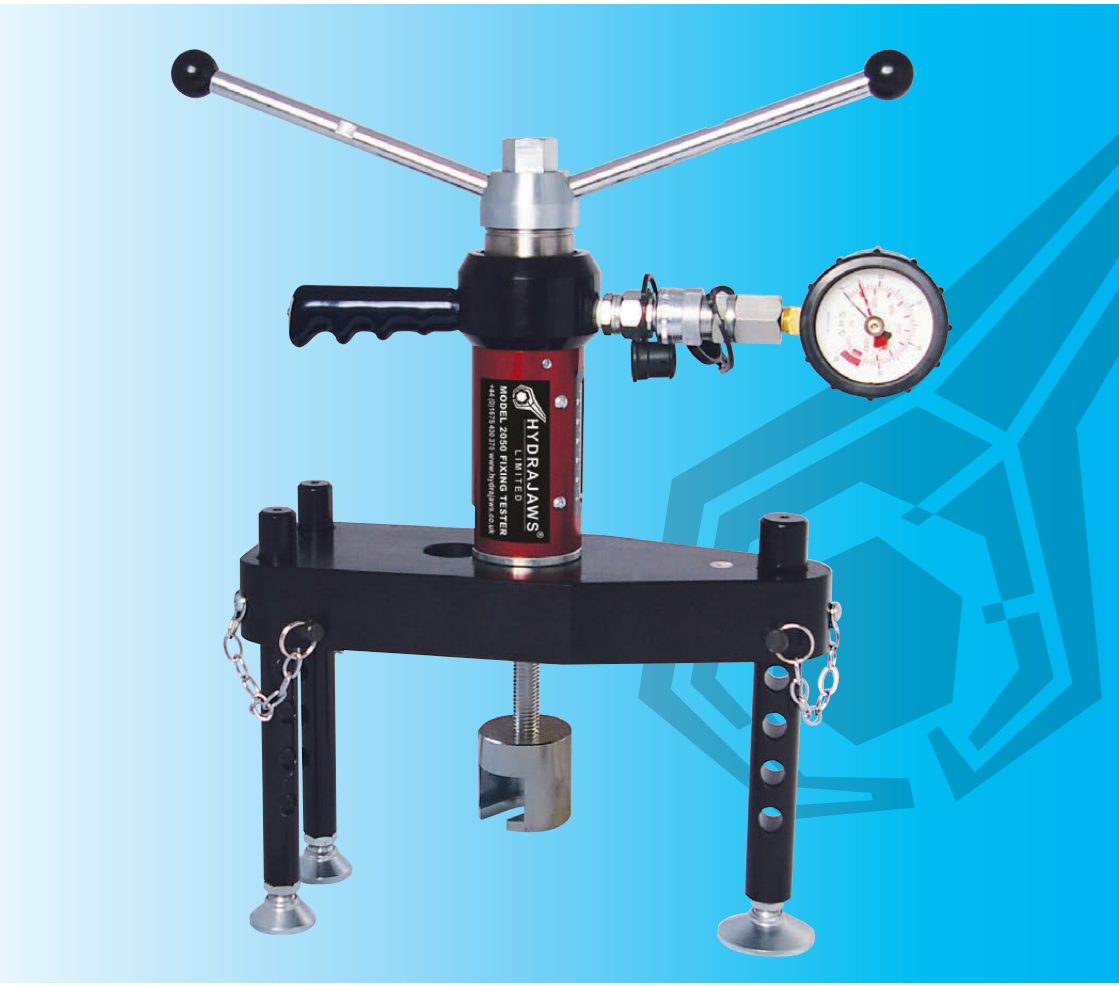
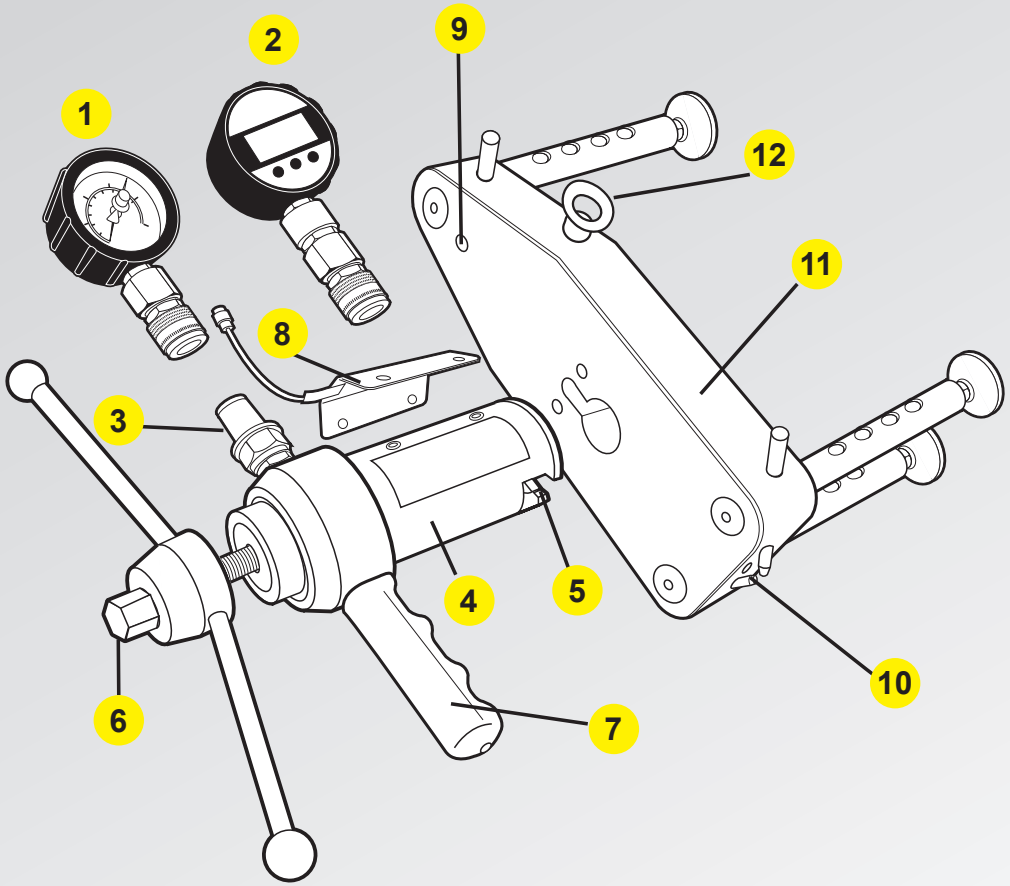
2050 Model Tester

Operating Instructions



HYDRAJAWS®
LIMITED



Model 2050 Parts

1. Gauge - Analogue with QR Hydraulic Coupler
2. Gauge - Digital with QR Hydraulic Coupler (optional)
3. Quick release coupling when fitted or gauge (1 & 2)
4. Tester body with 50mm/scale indicator
5. Load jaw
6. Turning handle with integrated nut
7. Grab Handle
8. Displacement sensor (optional)
9. Level bubble
10. Leg pins
11. Tester bridge
12. Safety eyehook

GENERAL DESCRIPTION

The model 2050 pull-out tester is a purpose made system for testing fixings, fasteners and anchors. It consists of a mechanical screw arrangement acting through a hydraulic load cell, which measures the load applied to the fixing directly. The resulting load value is then indicated on the dial type gauge or optional digital gauge.

The tester has a built in movement indicator scale 50mm to show “first movement” on the fixing prior to the test load being applied. The tester and bridge are supplied as an integral part of the standard tester kit.

A comprehensive range of accessories is also available, further increasing the scope of possible testing applications.

USE OF THE TESTER AS DIRECTED

The tester is intended for use by skilled personnel with the appropriate training and knowledge of the applicable safety precautions.

It is essential that the operating instructions are read before the tester is operated for the first time.

Always keep these operating instructions together with the tester.

Ensure that the operating instructions are with the tester when it is given to other persons.

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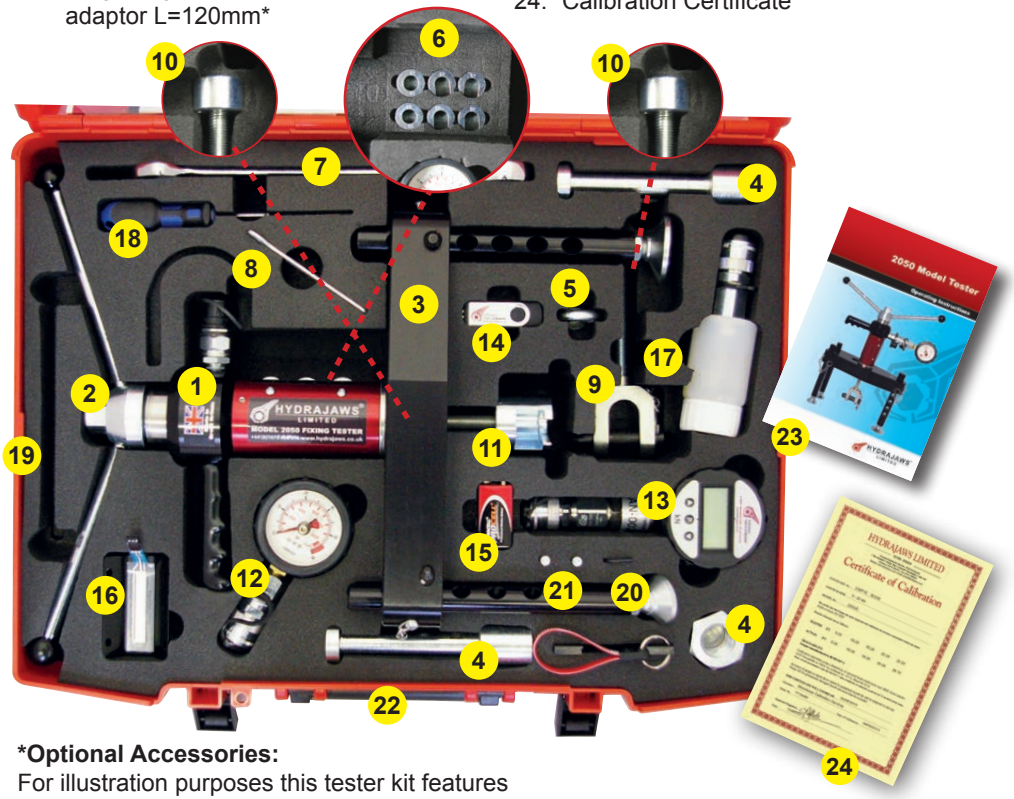
SAFETY RULES

- Modification of the tester, or tampering with it’s parts is not permissible.
- Observe the information printed in the operating instructions applicable to operation care and maintenance.
- The tester and its accessories may present hazards when used incorrectly by untrained personnel or not as directed.
- Use only the genuine Hydrajaws accessories or ancillary equipment listed in the operating instructions.

TESTER AND ACCESSORIES

KIT CONTENTS:

1. Model 2050 tester with quick release hydraulic coupler
2. Turning handle with integral 24mm Nut - alternative handle for use in confined spaces
3. Load spreading bridge with three telescopic legs and hardened pins
4. Threaded stud adaptors - M16, M20, M24 (+/- 30m*) (M10*, M12*)
5. Safety Eyehook
6. Slotted Button adaptors 6.5, 8.5, 10.5, 12.5
   Threaded Button adaptors M10,M12 (M4, M5, M6, M8*)
7. 24mm ratchet spanner
8. 10mm single wrench
9. Large ringbolt clevis adaptor L=120mm*
10. Locking adaptors x 2 :
    1.secured inside jaw
    2. Attached to clevis adaptor*
11. Bolt head M16 adaptor L=95mm
12. Detachable 50kN analogue gauge
13. Detachable 50kN Digital Bluetooth gauge*
14. USB memory stick*
15. Spare digital gauge battery*
16. Displacement Sensor plate and Displacement Sensor lead.*
17. Oil Replenisher Bottle
18. 3mm Ball driver
19. Piston key
20. Allen Key
21. Spare screws
22. Carry Case with Filler
23. Operating Instructions
24. Calibration Certificate



***Optional Accessories:**
For illustration purposes this tester kit features many optional accessories.

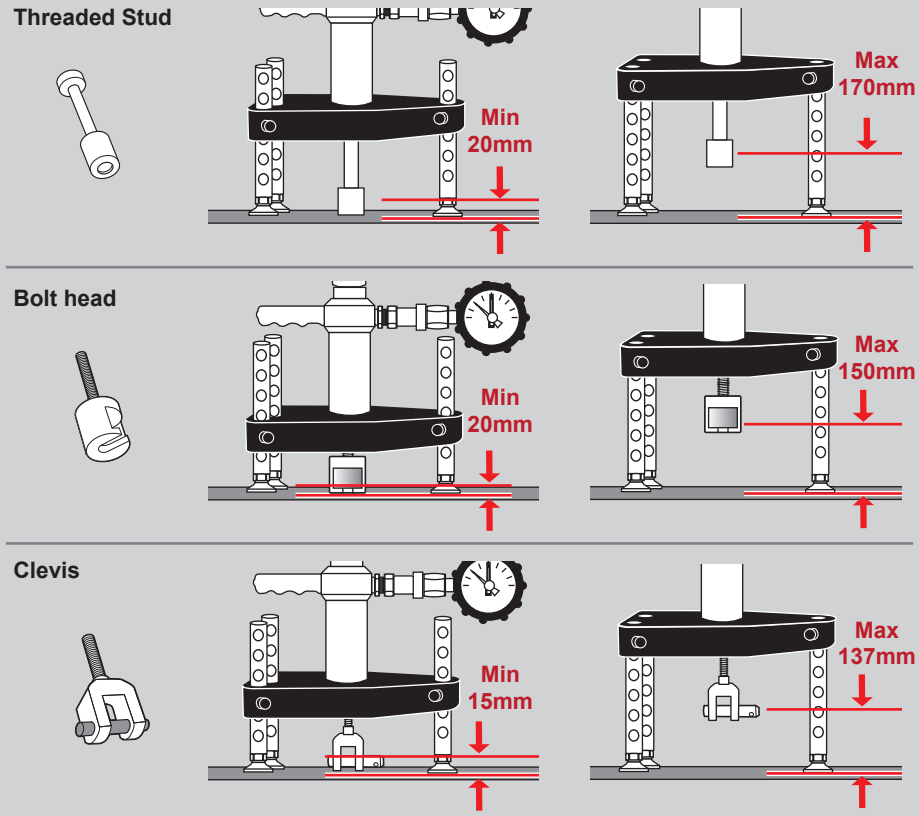
TECHNICAL SPECIFICATIONS

• Pull-out load range	0-50kN/lb/f
• Weight	
Tester only	2.5kg
Gross Box weight	14kg
• Packaged size	61cm x 47cm x 18cm
• Effective stroke	50mm
• Stroke scale	0-50mm
• Load gauge	Interchangeable
• Casing	Aluminium
• Loading jaw	Pivot-able through 360° with Spring return
• Operating handle	Standard size with integrated 24mm nut for confined spaces

Load Gauges

- Range available: Analogue: 0-50kN/lbf
  Digital: 0-50kN
- Accuracy: Analogue to +/-2.5% fsd
  Digital to +/-0.5% fsd
- Indication of pull-out load
- Calibrated in kN
- Traceable calibration certificate supplied with each gauge
- Protective rubber cover (analogue only)
- Impact resistant glass
- Protection against sudden load relief (i.e. sudden failure of fixing)
- Digital: peak hold memory
- Working Temperature:
  Analogue: -20°C to +60°C
  Digital: -30°C to +85°C

Adaptor ranges



1. GENERAL TESTING PROCEDURE

SETTING UP THE TESTER

1 Fit the appropriate adaptor to the tester. Example shown is a bolt tester adaptor. (For fitting of other adaptors please see individual instructions in this manual.)

2. The tester is supplied with a locking adaptor fitted into the tester body. This locking adaptor can be removed for fitting of different adaptors by using the 3mm Ball Driver. When replacing back in ensure it is fully engaged into the tester body before tightening **(fig 1)**. Thread the bolt tester adaptor into this, until it is fully engaged, using a quarter turn for position **(fig 2)**.

3. Make final adjustments so that the bolt tester adaptor, tester and fixing are aligned **(fig 3)**.

4. Position the tester so that the gauge can be easily read.

5. Adjust the length of the legs so that all three are in contact with the base material and the load spreading bridge is aligned and level by referring to the bubble levels on each face. Fine adjustment is available by unscrewing the feet by no more than approximately 15mm **(fig 4)**.

TESTING PROCEDURE

6. Set the red pointer on the gauge to zero - hold the tester by the grip handle and proceed to load the fastener by turning the operating handle clockwise **(fig 5)**.

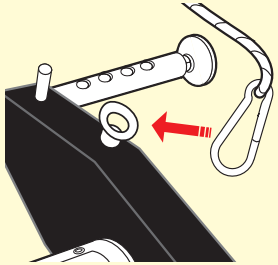
CAUTION!
Hold the fastener securely by the grip handle as long as the fastener is under load. When the load increases, note the reading on the displacement scale on the tester. Indication of failure of the fastener may be obtained by comparing the current reading with the original reading.

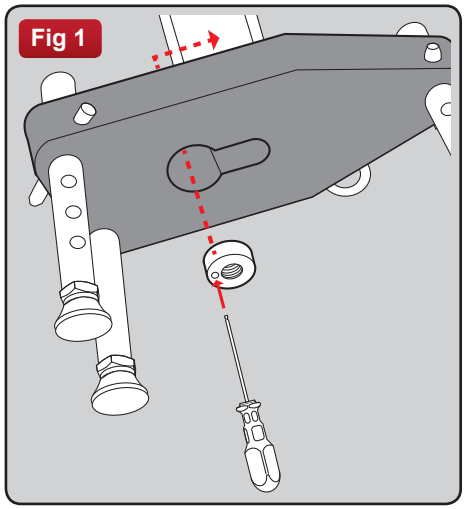
7. Increase the load until the required test load is attained. Hold this load and observe any falling back of the readings which would indicate movement and possible failure of the fastener. Record the satisfactory result.

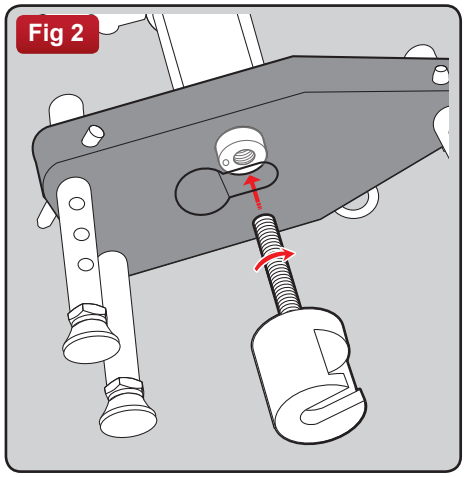
8. Release the load on the fastener by turning the operating handle anti-clockwise and allowing the test jaw to return to the original position.

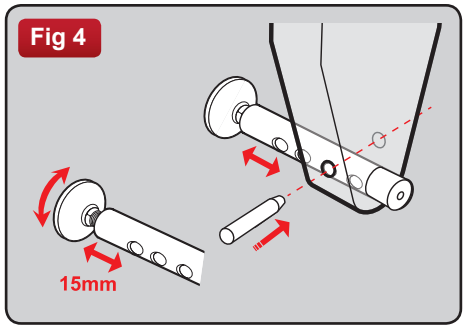
9. Remove the tester and bolt tester adaptor.

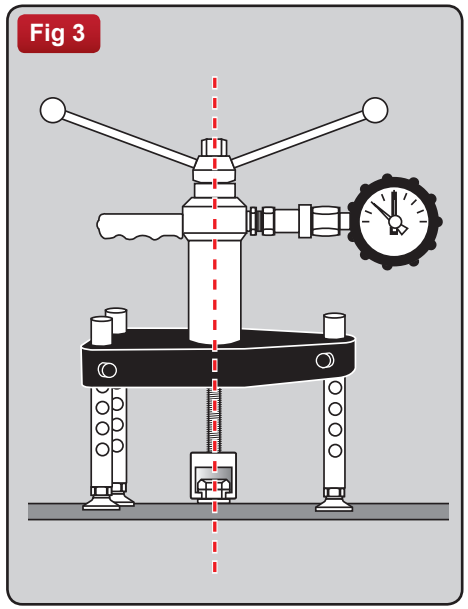
It is essential when testing on ceilings (upside down) and/or vertically, that a safety line is attached from the eyehook on tester body to a suitable solid fixing point. This will stop the tester falling and prevent injury to personnel and/or damage to test unit. If no suitable fixing point is available then attach to safety harness on personnel using the tester.

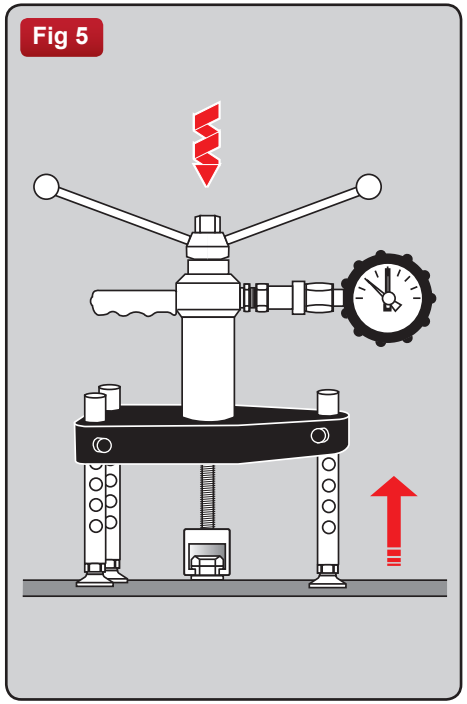












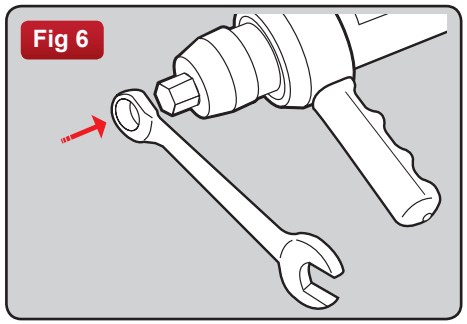
1. GENERAL TESTING PROCEDURE continued

Using the integrated nut

In confined spaces the integrated nut can be used with a 24mm ratchet spanner for better access in confined spaces and for easier operation **(fig 6)**.

Remove the handles by unscrewing from the base using the 10mm wrench **(fig 7)**. Ensure when re-attaching handles that they are tight on and secure.

Fig 6



Adjusting the handle position

The top part of the unit can be rotated if the handle or gauge becoming obstructed by the unit legs or other objects.

This is achieved by loosening the three grub screws **(a)** on the body using the allen key provided. Rotate the top until the handle and gauge are clear of obstacles and re-tighten the screws **(fig 8)**.

Fig 7

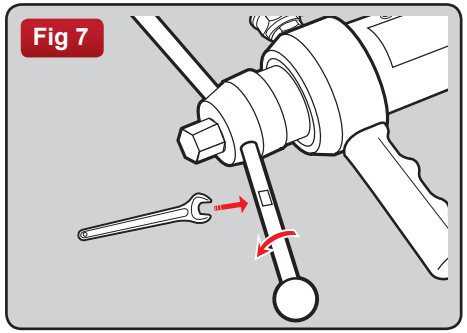
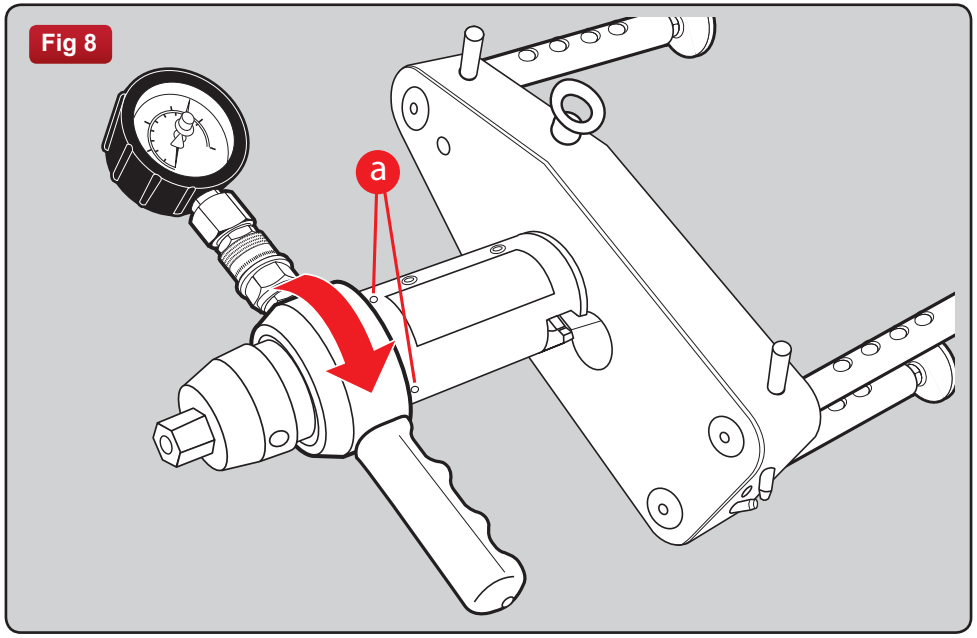


Fig 8



2. PULLING ADAPTORS

2.1 THE BOLT TEST ADAPTOR

Using the bolt test adaptor directly

For M16 nuts, the bolt tester adaptor **(a)** directly engages the nut **(b)** in the pulling jaw **(fig 9)**.

Mount the Locking adaptor into the tester (see Section 1 General testing procedure). Then thread the bolt tester adaptor into the tester body **(fig 10)**.

Fig 9

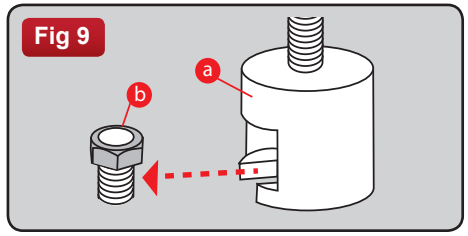
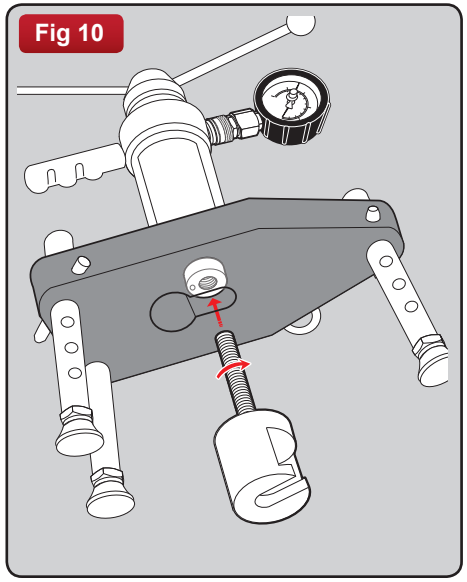


Fig 10



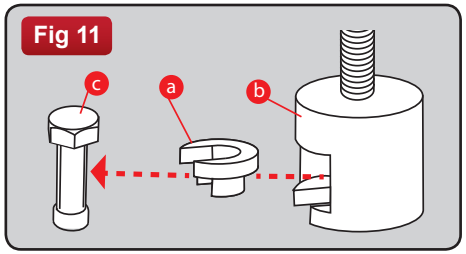
Using the bolt test adaptor with the slotted button adaptor

For testing M12 bolts the slotted button adaptor is used.

Mount the locking adaptor into the tester (see Section 1 General testing procedure). Then thread the bolt tester adaptor into the tester body **(fig 10)**.

The slotted button adaptor **(a)** slots into the bolt tester adaptor **(b)** and engages the nut **(c)** **(fig 11)**.

Fig 11



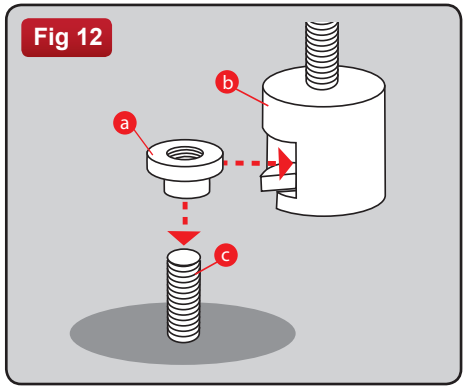
Using the bolt test adaptor with the threaded button adaptor

For testing threaded fixings the threaded button adaptor is used.

Mount the locking adaptor into the tester (see Section 1 General testing procedure). Then thread the bolt tester adaptor into the tester body **(fig 10)**.

The threaded button adaptor **(a)** threads on to the fixing **(c)** and then slots into the bolt tester adaptor **(b)** **(fig 12)**. Ensure the button adaptor has at least 2 complete thread turns on the fixing and is secure.

Fig 12



2.2 M16, M20 AND M24 THREADED STUD ADAPTORS

Suitable for testing sleeve and stud anchors of 10mm, 12mm and 16mm.

After the anchor has been set in accordance with the manufacturers recommendations, a suitable threaded rod **(a)** is screwed into the anchor and the adaptor **(b)** then fitted. The length of the threaded rod to be screwed into the anchor must be at least equal to the diameter of the anchor **(fig 13)**.

Remove the locking adaptor if fitted (see Section 1 General testing procedure). When the adaptor is securely fitted to the anchor thread position, place the tester over the adaptor, passing the head through the hole in the bridge and engage it in the pulling jaw of the tester **(fig 14)**. Level the load spreading bridge with the adjustable legs and swivel feet before commencing the application of the load.

Note: To use the optional M30 Thread stud adaptor, first attach it to fixing **(c)**. Then thread the M20 Adaptor **(d)** and proceed as above **(fig 15)**.

Fig 13

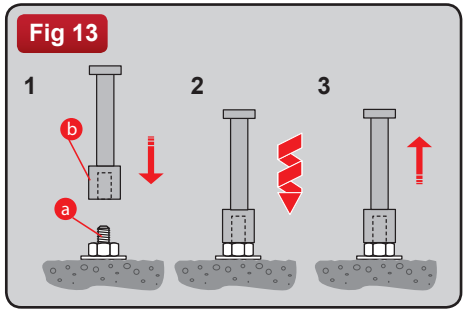


Fig 14

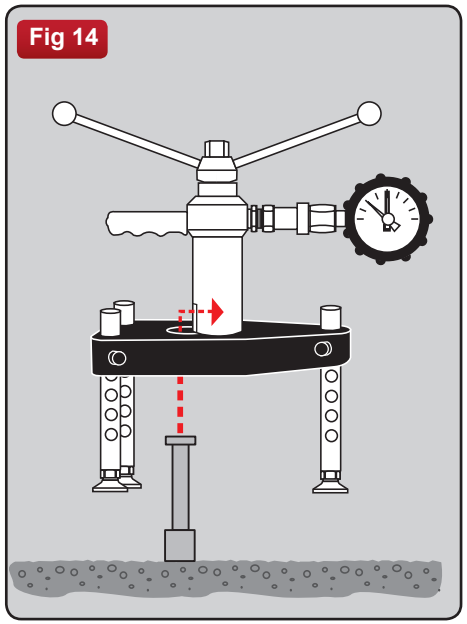
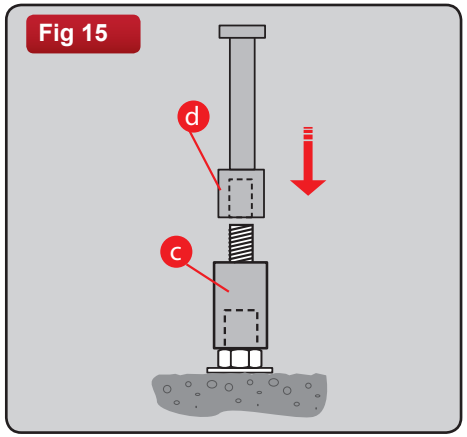


Fig 15



2.3 THE CLEVIS ADAPTOR

For testing ringbolts the Clevis adaptor is used.

Mount the locking adaptor into the tester (see Section 1 General testing procedure). Then thread the clevis adaptor into the tester body until it is fully engaged, using a quarter turn for positioning **(fig 16)**.

Remove crosspin from the clevis adaptor and offer the tester and bridge to engage eye of the anchor in the clevis. Some adjustment will be required on the swivel feet, so that this fit is achieved. Push clevis pin through the clevis and eyebolt, ensuring that the ball on the pin clicks into place, having passed through the second fork **(fig 17)**. Once fitted securely commence testing (see general testing procedure on page 6).

Fig 16

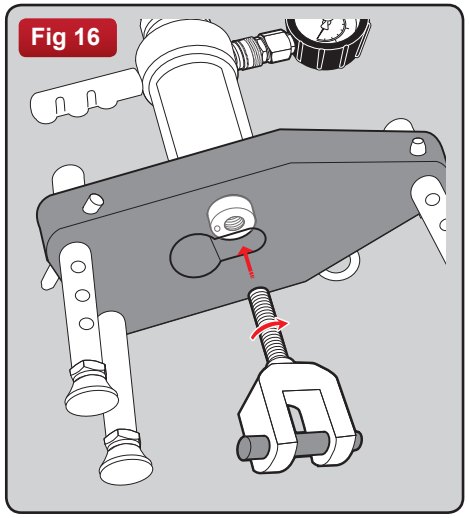
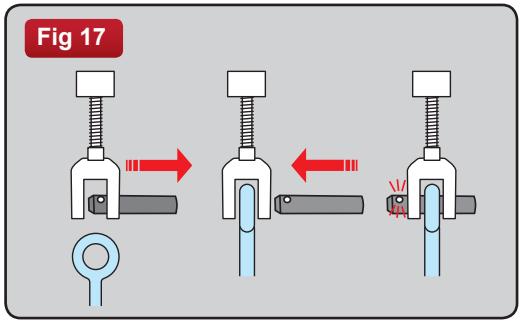


Fig 17



3. EXAMPLES OF USE

3.2 TESTING DOWELS

Mount the locking adaptor into the tester (see Section 1 General testing procedure). Thread the bolt test adaptor into the tester (see section 2.1).

(see fig 11) Using an appropriate slotted button adaptor if the screw is smaller than M16 **(a)**. Screw a bolt onto the dowel **(c)** and mount the bolt adaptor **(b)** to the bolt head.

Once fitted securely commence testing (see Section 1 General testing procedure).

3.3 TESTING ANCHOR BOLTS (MECHANICAL OR CHEMICAL)

Mount the threaded stud adaptor to the anchor bolt (see section 2.2).

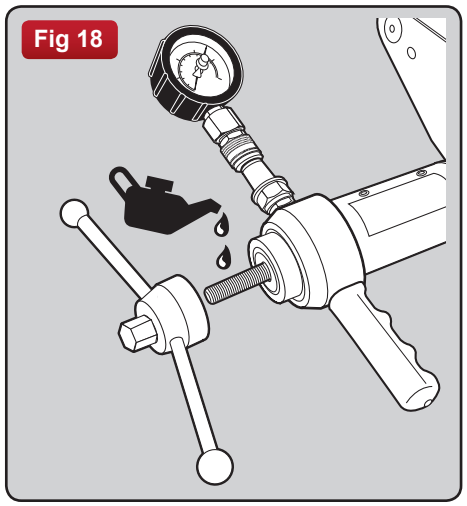
Remove the locking adaptor if fitted in tester (see Section 1 General testing procedure).

Mount the threaded stud adaptor into the tester ensuring it is fully engaged **(fig 14)**.

Start testing procedure (see Section 1 General testing procedure).

4. CARE OF TESTER

4.1 LUBRICATION



Lubrication of rod

This is required periodically depending on usage.

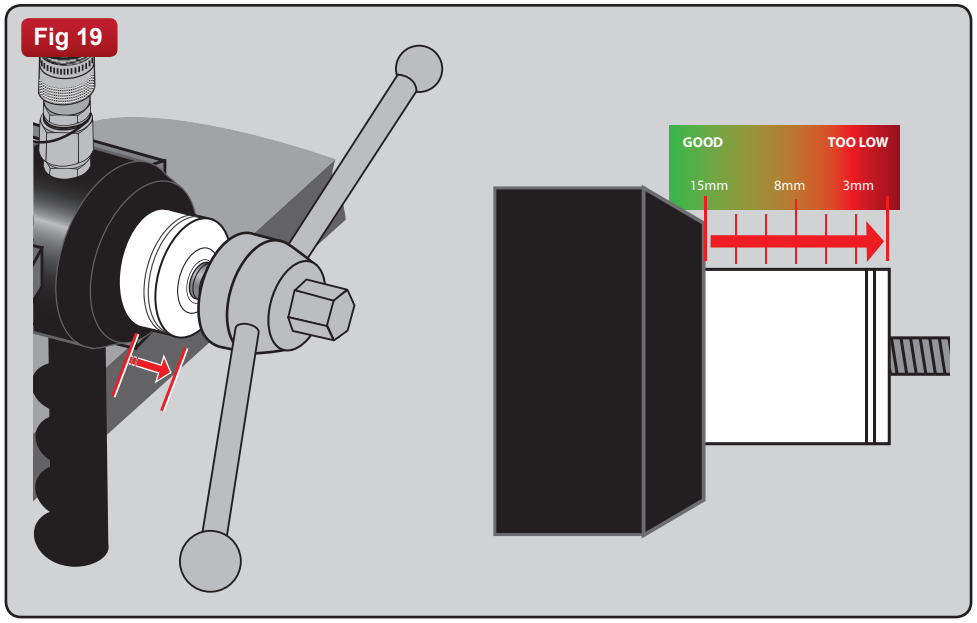
Unscrew and remove operating handle. Take care to avoid moving the washer and bearing below. Grease surfaces and threads before re-assembly **(fig 18)**.

Oil refilling

Connecting and disconnecting Gauges from the Tester body will eventually use up the spare oil capacity and will not allow the tester plunger to travel it's full stroke or give an accurate reading on the Gauge.

Eventually the plunger will stop at approx. 3mm from the edge and indicate that oil is too low **(fig 19)**.

(To refill oil see **4.2 oil refilling instructions**).

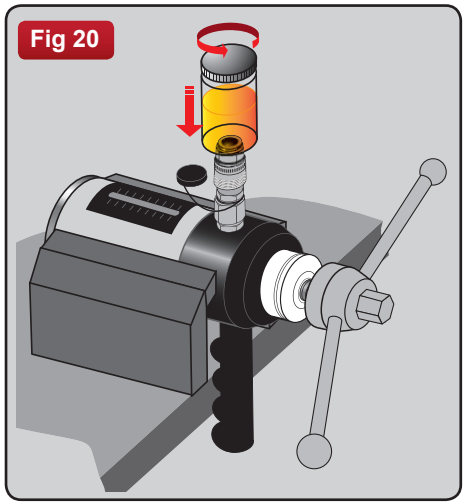


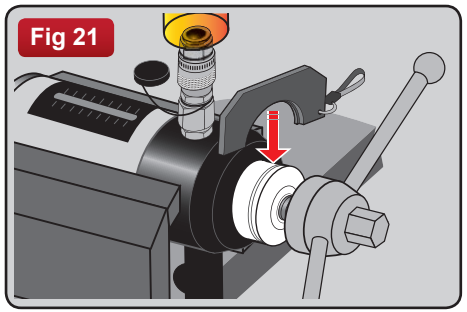
4.2 OIL REFILLING INSTRUCTIONS

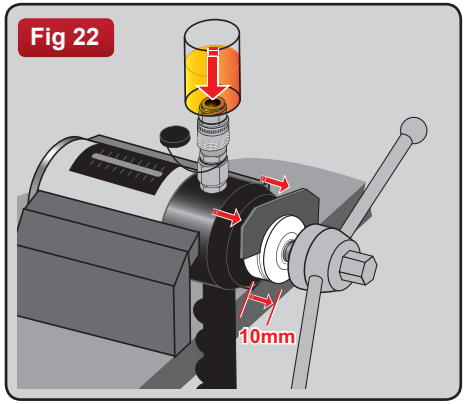
NOTE: A tester with a fixed gauge cannot be filled with oil by the operator.

1. Remove the bridge and all accessories.
2. Secure the tester (e.g. in a vice or other suitable holding device if on-site) with the coupler in the vertical position.
3. Connect the oil bottle via the quick release coupler.
4. Remove bottle cap **(fig 20)**.
5. Turn the handle anti-clockwise a few turns then using the piston key provided insert this into the groove on the piston. Ensure the piston key outer slot is nearer the piston body **(fig 21)**.
6. Force any air out of the system by pushing the piston in fully then pull on the piston key and handle until 10mm away from the inside of the slot. This will draw oil from the bottle **(fig 22)**.
7. Push the piston back in fully, pull out again and repeat until all the air bubbles are expelled into the bottle, the oil is replenished, and piston is 10mm from face of the Body.
8. Remove oil bottle.

Ensure not to pull the piston out further than 15mm.







Recommended oil:
Light Mineral DTE Type

4.3 CALIBRATION

From the date of purchase, your tester is calibrated for one year. After this time, the tester should be returned for calibration. Testers with Bluetooth Digital will receive a reminder message on their digital display, one month from date of renewal.

NOTES

FOR MORE INFORMATION ON HYDRAJAWS AND A FULL RANGE OF TESTING APPLICATIONS PLEASE VISIT THE WEBSITE AT:

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