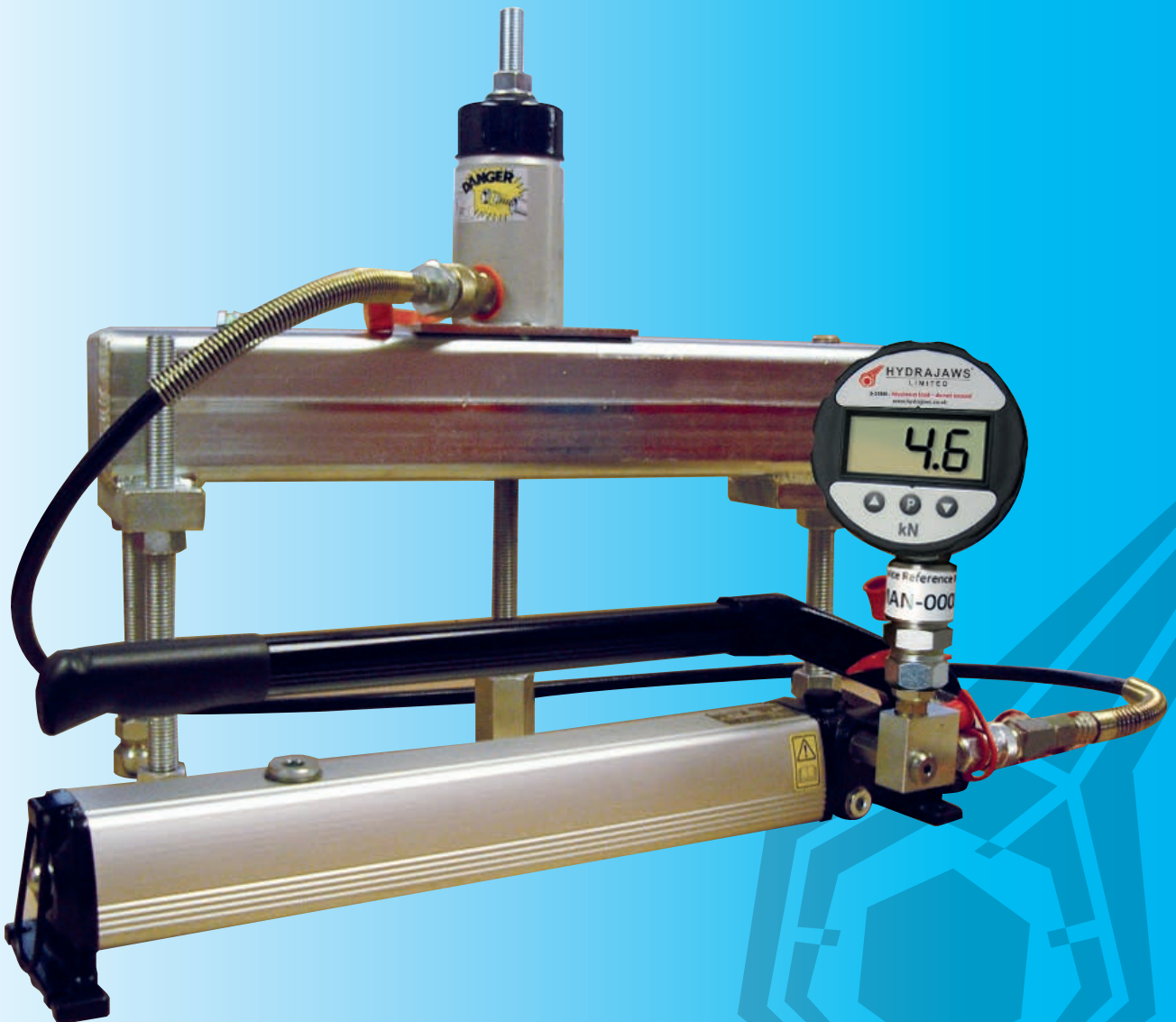


SAFETY POST & FOUNDATION TEST EQUIPMENT

Operating Instructions



KIT CONTENTS

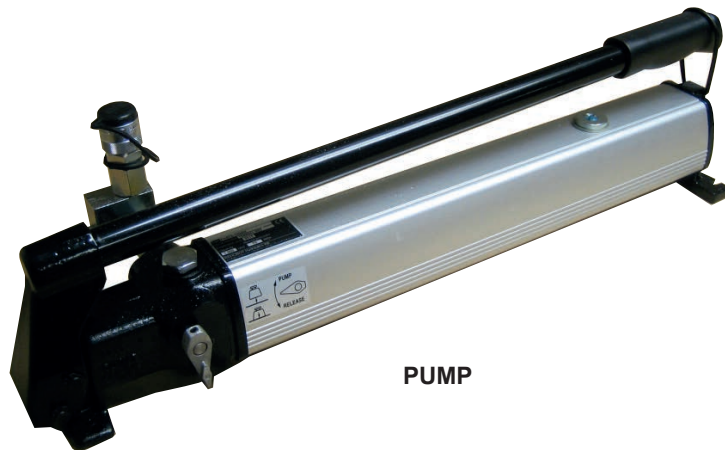
Hydraulic assembly for PUSH test kit comprises:
CFC1012 Push Cylinder, 30" Extension Tube, Base Plate, Tube Extension Rod, Hydraulic Pump, Connecting 2mtr Hydraulic Hose, Male Coupler, Slip Lock Extension, Cylinder Top Adaptor, Cylinder Base Adaptor, Coupler Dust Caps, Coupler Dust Plugs, Load Gauge and Coupler.

Hydraulic assembly for PULL test kit comprises:
CPF709 Pull Cylinder Hydraulic Pump, Connecting 2mtr Hydraulic Hose, Male Coupler, Slip Lock Extension, 10' Extension Tube, Cylinder Base Adaptor, Coupler Dust Caps, Coupler Dust Plugs, Chain Assembly 2.4m, Cylinder Base Sub Plate, Chain Shackle Adaptor, Load Gauge and Coupler.

Both kits come supplied with:
Wooden box, instructions and calibration certificate.

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PUMP

POST CAP BOX (OPTIONS):

- PTE 02 (100x32)
- PTE 03 (110x50)
- PTE 04 (130x55)
- PTE 05 (125x90)
- PTE 06 (175x90)
- PTE 07 (210x160)



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.

SAFETY RULES

- Modification of the tester, or tampering with its 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.

PUSH MODE PROCEDURE

PUSH MODE FOR Z SECTION STEEL POSTS

(100X32) (110X50) (125X90) (130X55) (175X60) (220X60)

1. Clamp appropriate post box to post (C1).
2. Attach cylinder to post at clevis end using pin (E1) to secure.
3. Connect hose to pump(Q) and cylinder(B).
4. Connect gauge to gauge adaptor.
5. Screw slip lock extension(F) to the cylinder rod end. Screw long extension tube (H) into the slip lock extension and close the slip lock down to the minimum distance setting. Insert the extension rod(J) with its base plate inside the extension tube (H).
6. Locate the reaction vehicle in a suitable position ensuring the contact point formed between the flat base(M) and the vehicle is perpendicular to the load direction. A suitable timber baulk should be used as shown.
7. Adjust the length between the post and vehicle using the extension rod within the extension tube and locating through the most suitable holes with the locking ball pin. Precise adjustment can be taken up with the slip lock.
8. Switch the valve on the pump to operate the cylinder.
9. Place a vertical Datum (D) adjacent to the post under test, ensuring it is isolated from any foundation movement.
10. Measure within 15mm to the height of loading(L).
11. Measure and mark within 15mm the position on the post where deflection measurement is to be taken.
12. Record distance between the post and the Datum(D).
13. Using the hand pump with a smooth and continuous action apply incremental loads (in steps of 1kN). Record the load and the deflection of the post within 1mm at each increment until one of the conditions below is reached:
 - a. A bending moment of 600Nm is achieved (100x32) and (110x50) Z posts.
 - b. A bending moment of 900Nm is achieved (125x90) Z post and (150 x 150) timber.
 - c. The post deflects 100mm at measuring position for (100x32) and (110x50) Z posts.
 - d. The post deflects 150mm at measuring position for (125x90) Z post and (150x150) timber.
14. On completion test and having taken measurements release the valve on the pump to retract the cylinder.

PULL MODE PROCEDURE

PULL MODE FOR Z SECTION STEEL POSTS

(100X32) (110X50) (125X90) (130X55) (175X60) (220X60)

1. Clamp appropriate post box to post (C1).
2. Screw Yoke (A) onto the cylinder(B).
3. Connect the Hydraulic Pipes to the cylinder (B) and Pump(Q).
3. Attach Yoke(A) to the Post Box with Screw Pins (E1).
4. Connect gauge to gauge adaptor.
5. Screw slip lock(F) to the cylinder(B).
6. Screw the Eye Bolt(G) to the Slip Lock (F).
7. Attach the Chain to the Eye Bolt(G) with the Shackle(R).

Note: use 1.5 tonne SW chain for 100x32 and 110x50 sections.
8. Fully extend the Cylinder (B) with switch valve on the pump (Q) on 'push' mode. DO NOT overload Push Load Indicator (S1) when extending the cylinder. Position the switch valve to neutral position at end of this operation.
9. Ensure the anchorage point on the Reaction Vehicle (min. weight 5 tonne) is perpendicular to the load direction, and attach the chain to it. Remove initial slack on the chain using the adjustment claw and the remaining slack with the Slip Lock(F).
10. Switch the valve on the pump (Q) to 'pull' mode.
11. Place the Datum Tripod (T) in line with the direction of loading, ensuring it is isolated from foundation movement.
12. Measure within 15mm the height of loading (L).
13. Measure and mark within 15mm the position on the post where direction measurement is to be taken.
14. Record the distance between the post and the Datum Tripod(T).
15. Apply incremental load (in steps of 1000N approx.) Record the load and the deflection of the post within 1mm at each increment until one of the conditions below is reached:
 - (a) a bending movement of 5000Nm is achieved.
 - (b) the post deflects 100mm at measuring position

Note: The pump (Q) should be operated with a smooth and continuous motion.

CALCULATIONS

- Results are to be recorded on the Form PTE/Rev A.
- The deflection of the post must be measured 600mm above either:
 - the edge of the *paved surface, if the traffic face of the fence is within 1.5 metres of the edge, or
 - the finished ground level or top of the concrete footing, whichever is higher, when the traffic face of the fence is more than 1.5 metres from the edge of the *paved surface.
- Bending Moment on the Post/Foundation (BM) = $W \times L$ where:

W = Load in Newtons indicated on the load indicator

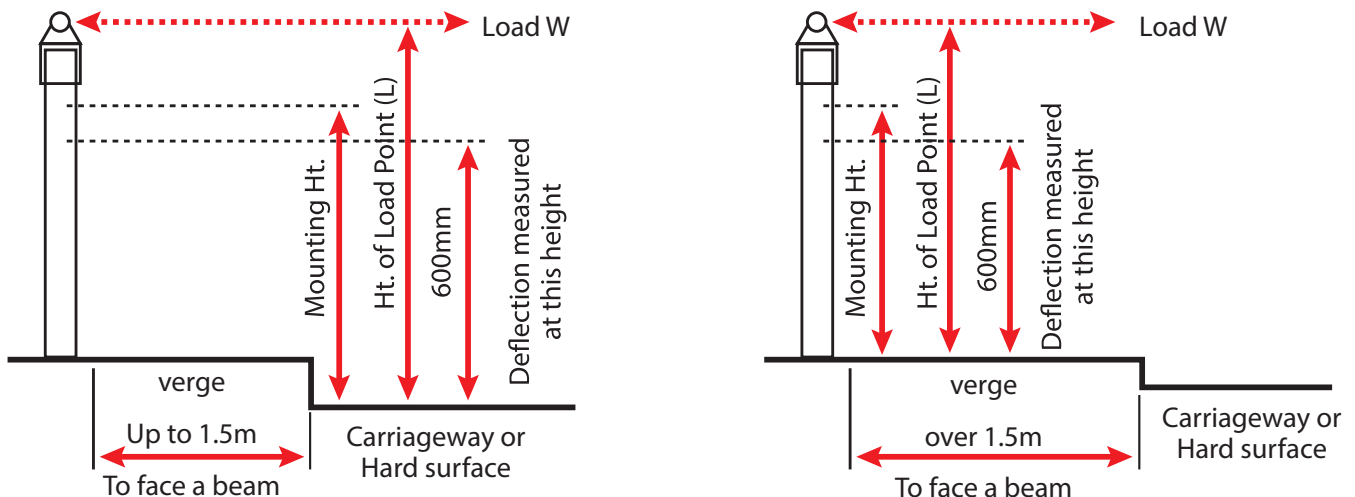
L = The height in metres between the point of loading and either:

 - the edge of the *paved surface, if the traffic face of the fence is within 1.5 metres of the edge, or
 - the finished ground level or top of the concrete footing, whichever is smaller, when the traffic face of the fence is more than 1.5 metres from the edge of the *paved surface.
- The post foundation is acceptable if a BM of 6000Nm is achieved without the deflection exceeding 100mm. For (100x32) and (110 x 50) steel posts, and:

A BM of 9000Nm is achieved without the deflection exceeding 150mm on (125 x 90) steel and (150 x 150) timber.

* Paved surface is defined as that which comprises carriageway and hard shoulder / hard strips.

VEHICLE RESTRAINT SYSTEMS (ENGINEERS MODULE)



W = Load in ram (push or pull) in Newtons

L = Height of load point in Metres (See above)

Bending Moment (BM) = $L \times W$

Load to be applied by ram = $\frac{BM (Nm)}{L (metres)}$ Newtons

For TCB/OBB/WR the BM = 6000Nm

For UCB & DROBB the BM = 9000Nm

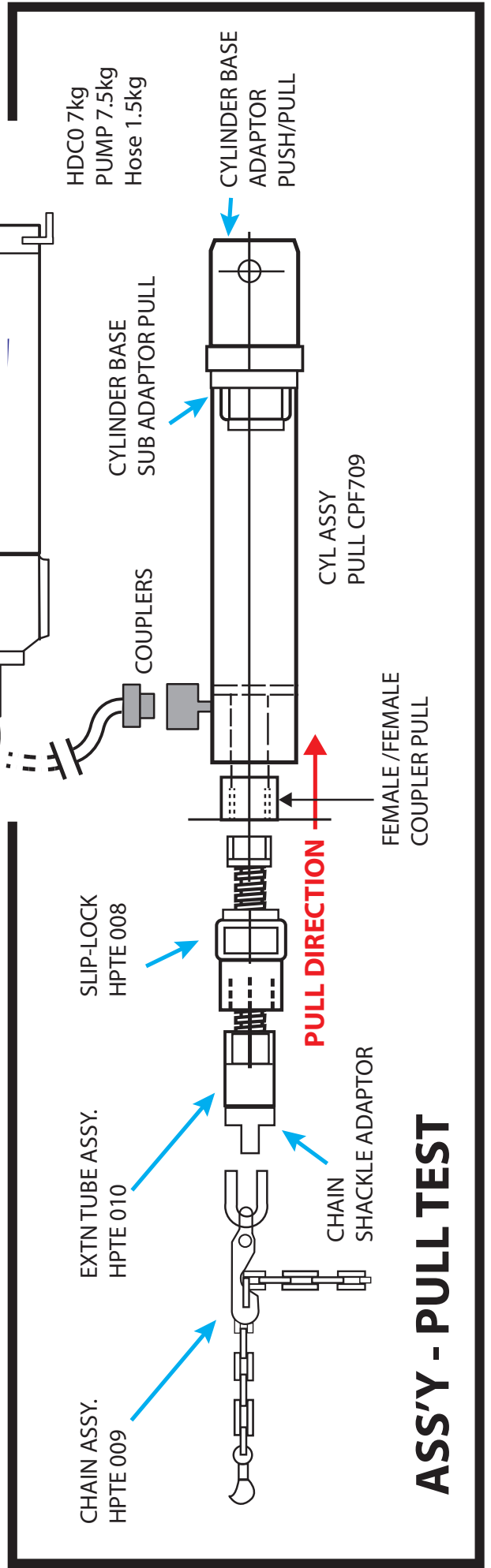
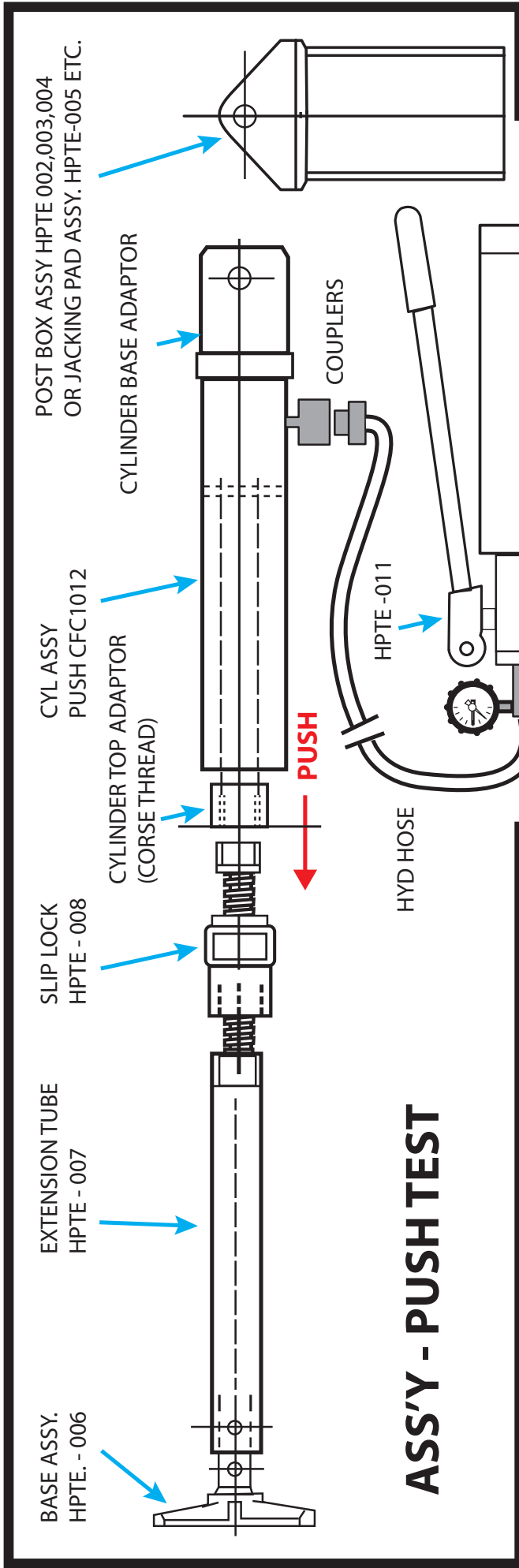
Max deflection permitted at full Bending Moment = 100mm

All loads to be applied horizontally and perpendicular to axis of post.

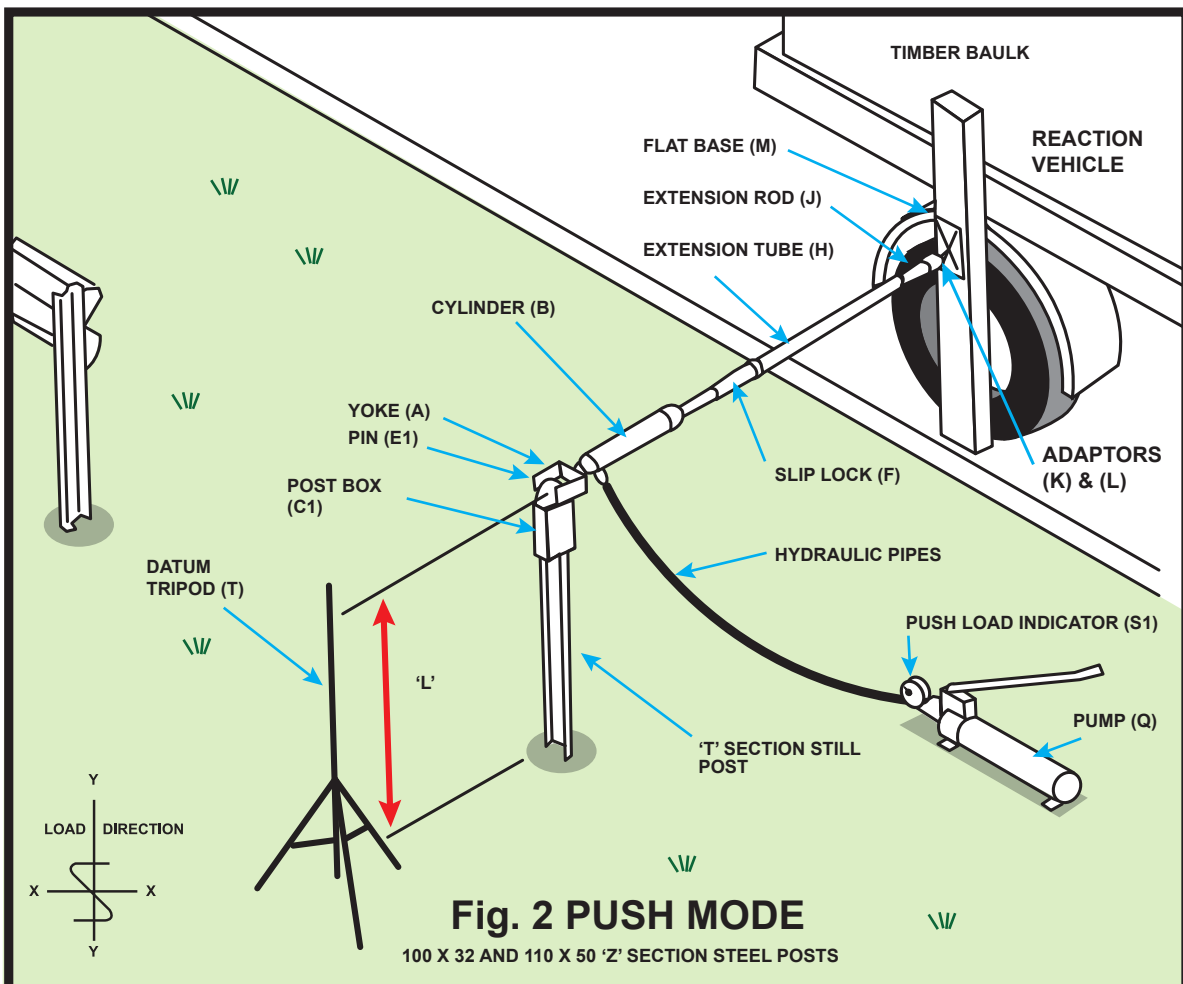
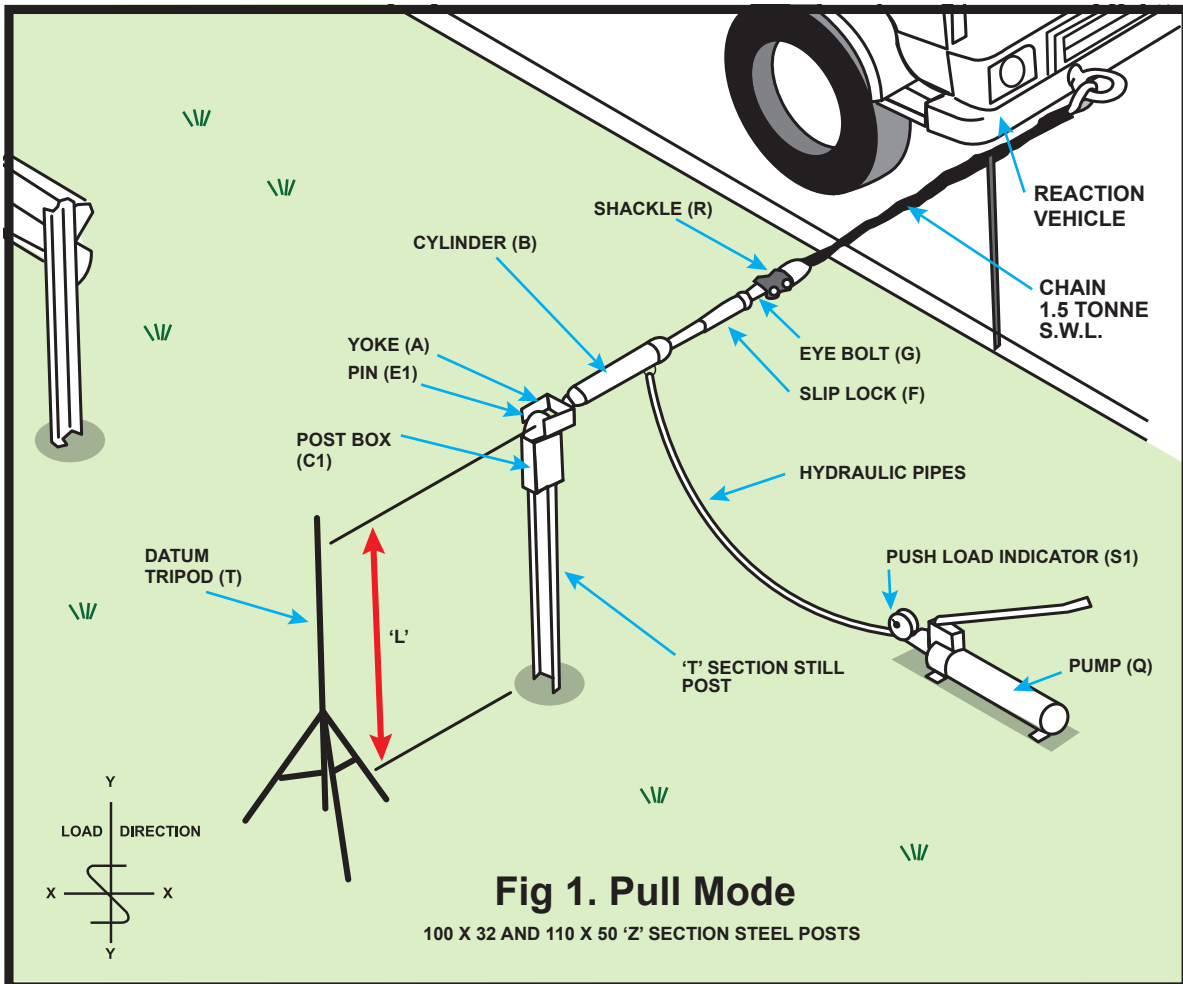
All test to be done in accordance with the Highways Agency Interim Requirements for Road Restraint Systems and the Non-Proprietary Safety Barrier System Drawings.

Gauges for ram may read in either Newtons or kilo Newtons (1kN = 1000N).

Tester set up Diagrams



Location Diagrams



VEHICLE SAFETY FENCE POST FOUNDATION TEST RESULTS

Date: Site:

Job No.

Order No. *=Delete as appropriate

Test No.	Push/ Pull *	Load (N)	Offset (mm)	Remarks
Details of Post				
Type of Post:		0		
Size of Post		1000		
Set Back:		2000		
Max BM - 6000Nm or 9000Nm *		3000		
Ht to load point (L): metres		4000		
Max Load required (BM/L): N		5000		
Location		6000		
		7000		
		8000		
		9000		
		10000		Max. Deflection

Test No.	Push/ Pull *	Load (N)	Offset (mm)	Remarks
Details of Post				
Type of Post:		0		
Size of Post		1000		
Set Back:		2000		
Max BM - 6000Nm or 9000Nm *		3000		
Ht to load point (L): metres		4000		
Max Load required (BM/L): N		5000		
Location		6000		
		7000		
		8000		
		9000		
		10000		Max. Deflection

Test No.	Push/ Pull *	Load (N)	Offset (mm)	Remarks
Details of Post				
Type of Post:		0		
Size of Post		1000		
Set Back:		2000		
Max BM - 6000Nm or 9000Nm *		3000		
Ht to load point (L): metres		4000		
Max Load required (BM/L): N		5000		
Location		6000		
		7000		
		8000		
		9000		
		10000		Max. Deflection

TEST UNDERTAKEN BY: -

(NAME) (SIGNATURE) DATE.....

