

Continuously Improving Flow Control



OMNI DIRECTIONAL & HOT TAP SIGNALLER INSTALLATION, OPERATION & MAINTENANCE MANUAL



To Pipeline Engineering & Supply Co. Ltd

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OMNI DIRECTIONAL & HOT TAP MECHANICAL/VISUAL and/or ELECTRICAL PIG SIGNALLER

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- A. Operation
- B. Installation
- C. Maintenance

The equipment supplied is designed for operation within the pressures, temperatures and service medium detailed on the supplied General Arrangement Drawing and/or Data Plate/Data Sheet. The equipment must not be used outside of these design parameters. Operating outside of these parameters may contravene Pressure Equipment Regulations and shall invalidate any Pipeline Engineering equipment warranty.



ASSEMBLY DETAIL



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1.1 Operation

The signaller is designed to be mounted in any position around the circumference of a pipeline and can be installed using a Hot Tap Tool, in accordance with the Hot Tapping Procedure.

Signallers are installed at designated intervals along a pipeline it indicate the passage of a pig or sphere.

An omni-directional trigger protrudes into the pipeline operating the visual and/or electrical indicators as the pig passes.



1.2 Indication

The signaller indicates the passage of a pig through the pipeline in either or both of the following ways:-

1) Visual Flag Unit: - When the pig passes, the flag is flipped from a position perpendicular to the axis of the signaller. The flag is re-set manually.

2) Electrical Switch: - The proximity switch is actuated when the pig passes, the switch automatically re-sets at the control panel.

1.3 Position of the Flag

Once the Body & Trigger Assembly have been correctly installed, the Flag should be in a position parallel to the direction of the Runpipe. Ensure the Flag free from obstructions that may impede operation.

1.4 Positioning of Magnets



There should be no requirement to re-set the positions of the magnets.

1.5 **Proximity Switch**

The proximity switches are single changeover Reed switches type, which may or may not be energised on installation. Checking for 'open' and 'closed' circuits should be made by the installer.

Testing: An Ohmmeter should be used. On no account should Bell tests or Meggers be used, as permanent damage to the switch will result.





**Double Switch Arrangement Shown

1.6 Adjustable Trigger

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This Signaller comes with an Adjustable Trigger as Standard, having a total initial adjustment of +8mm.

However, the Trigger will be pre-set in the factory (with 0mm extension) to suit the designated Wall Thickness of the Runpipe.

Should the Trigger need to be extended simply slacken the Grub Screw ½ to ¾ of a turn. Unscrew the Trigger Pin out to suit the required length (8mm MAX.).

Retighten the Grub Screw.

B. INSTALLATION: NON HOT TAPPING

- 1) Mark the position where the signaller is to be mounted and cut a 38mm diameter hole in the pipeline.
- WARNING: PRIOR TO WELDING REMOVE THE BODY (complete with internals) FROM THE BOSS – TO PREVENT DAMAGE.
- 3) Place the signaller boss centrally over the hole; carefully weld to the Runpipe, using an approved welding procedure, ensuring excessive weld penetration does not occur. A 'Root Gap' should be 2.5mm.







C. RE-ASSEMBLY

Re-assemble the signaller, screwing the Body to the limit of the threads using a 19mm square drive. Fit the Top/Flag Assembly to the required alignment with the Runpipe. Tighten the 3 grub screws. Position Weather Cover, locating the 3 Lugs in the Grub Screw holes.

NOTE: - After the signaller has been assembled onto the pipeline, all damaged paintwork should be repaired using the appropriate paint system.





D. SIGNALLER MAINTENANCE

1) WARNING: THE SIGNALLER MUST NOT BE REMOVED UNDER PRESSURE WITHOUT SPECIAL TOOLS SUPPLIED BY PIPELINE ENGINEERING

- 2) A program of regular maintenance is recommended for the signaller.
- 3) Damage or Leakage

Damage or leakage may occur during operation for many reasons and may require repair and replace damaged parts.

Once dismantled, all internal surfaces should be thoroughly cleaned and checked for wear.

Standard items to be re-newed prior to re-assembly, if required:-

- a) 1 Set of seal/s
- b) 1 Internal Spring (Upper)
- c) 1 Internal spring (Lower)
- d) 1 Flag spring
- e) 1 set of anti-extrusion rings
- f) 1 Thread Cleaning Ring**

All other materials are designed and manufactured for long periods of service. If some of these parts have been subject to unforeseen forces during operation and are obviously damaged, they can be re-ordered.

The internals may need to be removed. A special tool is needed where the pipeline can not be depressurised, contact Pipeline Engineering for details.

**The Thread Cleaning Ring is unique to Pipeline Engineering. It is designed to clear any debris from the internal Boss threads that may have been deposited during the Hot Tapping operation prior to the the Signaller Body thread engaging with the Boss.

The Thread Cleaning Ring, together with the Signaller Body, has been designed to overcome the issue of Signallers jamming during the installation procedure.

The Thread Cleaning Ring is a 'one use only' component and should be replaced during maintenance or if the Signaller is to be re-used/moved.

E. INSTALLATION & REPLACING THREAD CLEANER

(The Thread Cleaner is specifically for use in Hot Tap Operations)



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NOTE: ALL APPLICABLE SAFETY PRECAUTIONS SHOULD BE FOLLOWED. The THREAD CLEANER is a 'One Use Only' component.

- Slacken the Grub Screw securing the Trigger Housing to the Signaller Body.
- Carefully unscrew the Trigger Housing from the Signaller Body. Place the internal components (Trigger, Magnet Holder & Spring) in a clean and secure location.
- Position the Thread Cleaner so that the 3 Locating Lugs align with the reciprocating grooves in the Signaller Body (See Illustration).
- Firmly push the Thread Cleaner into position ensuring it is correctly seated.
- Clean and inspect the internal components (Trigger, Magnet Holder & Spring) prior to reassembly, replace any damaged components.
- Reassemble the Trigger Housing and carefully screw fully into Signaller Body & tighten.
- Retighten the Grub Screw securing the Trigger Housing to the Signaller Body.
- Replace the O-Ring & Anti-extrusion Ring prior to reinstallation.

