

DESCRIPTION

The Differential Safety Firing Head was designed to be used in Overbalanced tubing conveyed perforating in highly deviated wells, wells with open perforation, when achieving an absolute pressure is not possible, or in a situation where it is desirable to allow the tubular to fill itself, while tripping in the well.

The firing head has a set of ports to allow circulation of well fluids prior to activation. A drop ball is introduced into the work string that conveyed the firing head down hole. The ball can be allowed to free fall or be pumped down to the differential piston. The piston is pinned to a predetermined differential pressure and once the ball is seated, that pressure is applied against the piston and seated ball. When the piston is sheared free, it will strike the Hydro-Safety Impact assembly releasing the firing pin. This action will allow the well's hydrostatic pressure to drive the released firing pin into the detonator. Once the firing head assembly is activated a set of ports are exposed, allowing circulation of well fluids after detonation. This assembly's differential piston has a 7/16" bore through it and utilizes a 5/8" steel drop ball.

The pressure can be differentially pinned up to 8,000 psi @ 72°.

There is an Unthreaded Special Applications Top Sub available for this tool.

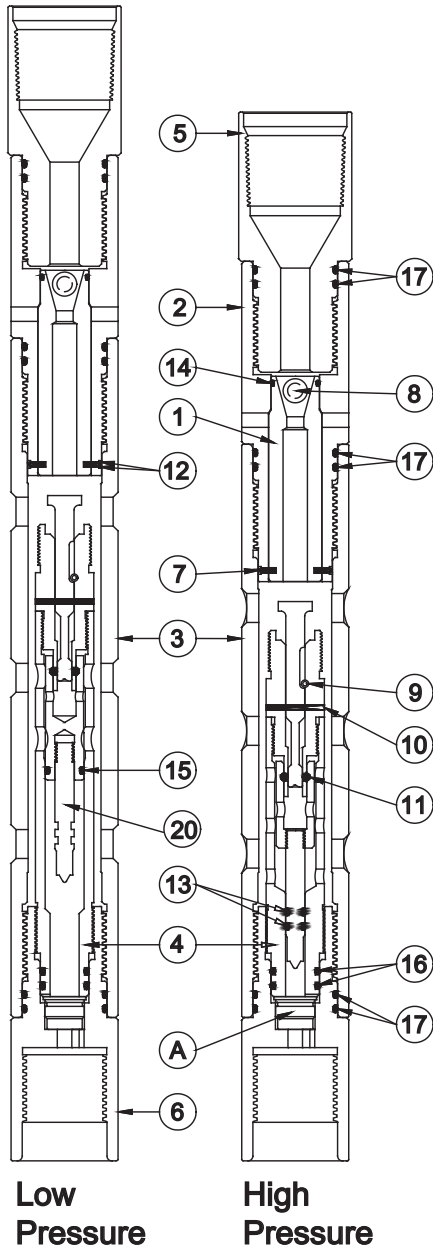
FEATURES AND BENEFITS

- Overbalanced Tubing Conveyed Perforating in highly deviated wells with open perforations.
- When achieving an absolute pressure is not possible.
- In a situation it is desirable to allow the tubing to fill itself up while tripping in the well or allow for circulation prior to and after perforating.

SPECIFICATIONS

| | TC-031-2750-000 (LP) | TC-031-2750-200 (HP) |
|-------------------------------|-------------------------------|------------------------|
| Top Sub | 2.910" O.D. 2-3/8 8rd EUE Box | |
| Tool O.D. | 2.75" (69.9 mm) | |
| Max. Temperature ¹ | 250°F (121°C) | |
| Max. Yield Strength | 83,000 lbs. (36 920 daN) | |
| Overall Length | 30 in. (76.2 cm) | 27.25 in. (69.2 cm) |
| Min. Operating Hydrostatic | 300 psi (2.0 MPa) | 2,000 psi (13.8 MPa) |
| Max. Operating Hydrostatic | 8,000 psi (55.4 MPa) | 20,000 psi (137.9 MPa) |

¹The maximum temperature can be increased to 450°F (230°C) by substituting the 90 durometer Nitrile O-ring with 90 durometer Viton O-rings. Refer to the Time vs Temperature Chart for Explosives to confirm any explosives requirements.



| ITEM | PART NUMBER | QTY. | DESCRIPTION |
|------|------------------|------|--|
| -- | TC-031-2750-000 | | 2-3/4 Diff. Safety Firing Head (LP) |
| | TC-031-2750-200 | | 2-3/4 Diff. Safety Firing Head (HP) |
| 1 | TC-031-0015-000 | 1 | Piston Differential |
| 2 | TC-031-0011-000 | 1 | Piston Sub |
| 3 | TC-031-0012-000 | 1 | Housing (LP) |
| | TC-031-0016-000 | | Housing (HP) |
| 4 | TC-012-1500-450 | 1 | Safety Impact, Modified (LP) |
| | TC-012-1500-550 | | Safety Impact, Modified (HP) |
| 5 | TC-031-0014-000 | 1 | Top Sub, 2-3/8 8rd EUE 2.910" O.D. |
| 6 | TC-005-0007-000 | 1 | Detonator Body, 2-3/4 & 2-7/8 TAG Guns |
| 7* | SF-010-0130-450 | 12 | Shear Pins, Steel |
| 8* | PUR-0514-012 | 1 | Drop Ball Chrome, 5/8" Dia. |
| 9* | SF-010-0188-125 | 1 | Roll Pin |
| 10* | PF-120-0125-150H | 1 | Spirol® Pin |
| 11* | ST-040-0188-000 | 4 | Ball Bearing |
| 12 | OOO-N569-031 | 2 | O-ring, N-90 (LP) |
| 13* | OOO-N569-109 | 2 | O-ring, N-90 (HP) only |
| 14* | OOO-N569-121 | 1 | O-ring, N-90 |
| 15* | OOO-N569-210 | 1 | O-ring, N-90 (LP) only |
| 16* | OOO-N569-214 | 2 | O-ring, N-90 |
| 17* | OOO-N569-225 | 6 | O-ring, N-91 |
| 20* | TC-012-0005-000 | 1 | Firing pin, CP Detonator |
| A | 51-6956-3 | 1 | CLCP, Initiator |
| -- | TC-031-2750-099P | - | Redress Kit, LP |
| -- | TC-031-2750-199P | - | Redress Kit, High Temp, LP |
| -- | TC-031-2750-299P | - | Redress Kit, HP |
| -- | TC-031-2750-399P | - | Redress Kit, High Temp, HP |
| -- | MAN-TC-031-2750 | -- | Assembly Manual, (LP & HP) |

* Denotes parts in redress kits.

High Temperature Kits contain Viton 90 Durometer O-rings.

Note: Explosive Component must be ordered separately.

An Unthreaded Special Application Top Sub is available:
P/N# TC-031-0013-000 (sold separately)

A Differential Piston (P/N TC-031-0018-000) with a 3/8" (0.375") bore is available, must be run with 7/16" (0.438") or larger drop ball. (sold separately)

Available is a detonator body (item # 6) to run with this firing head for 3-1/8" through 7" Tag Guns. P/N is TC-005-0009-000. (sold separately)