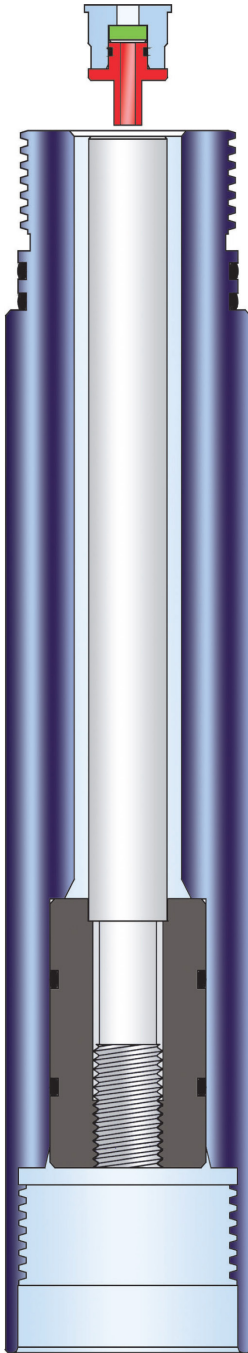


TECHNICAL INFORMATION:



The Time Delay Firing system is used in conjunction with a Pressure Activated Firing Head or the HTD-BLAST system. The Time Delay System consists of the time delay hardware, an igniter and a pyrotechnic time delay fuse. The igniter will be contained in a TC-005 series detonator body or TC-044 CT Transfer Sub. The single fuse system allows for a time of (6 minutes) between the activation of the firing head to detonation of the perforating guns. This time interval allows the bleeding off of the pressure used to activate the firing head to establish an underbalance condition or to perform another needed operation prior to perforation. In the event that more time is required, extra fuses may be incorporated into the system using the Extended Time Delay Hardware. The HTD-Blast System allows moving the BHA to different perforating intervals when run on coiled tubing.

ADVANTAGES:

Used with a Pressure Actuated Firing Impact, the Time Delay can be utilized to:

- Obtain maximum use of under or overbalanced pressures
- Independently perforate selected zones
- Reduce costs by allowing the running of multiple guns without using gun spacers
- Work in heavy mud systems
- Be used in producing completions, drillstem testing, and dual completions
- Increase operational time by the addition of time delay elements

SPECIFICATIONS:

	TC-043-2750-000	TC-043-3125-000
OD	2.750in (69.9 mm)	3.125in (79.4 mm)
Make-up Length	11.63in (295.3 mm)	
Max. Temperature *	250°F (121°C)	
Max. Hydrostatic HP	20,000 psi (137.9MPa)	
Tensile	142,700lbf (63 500 daN)	145,000lbf (64 500 daN)

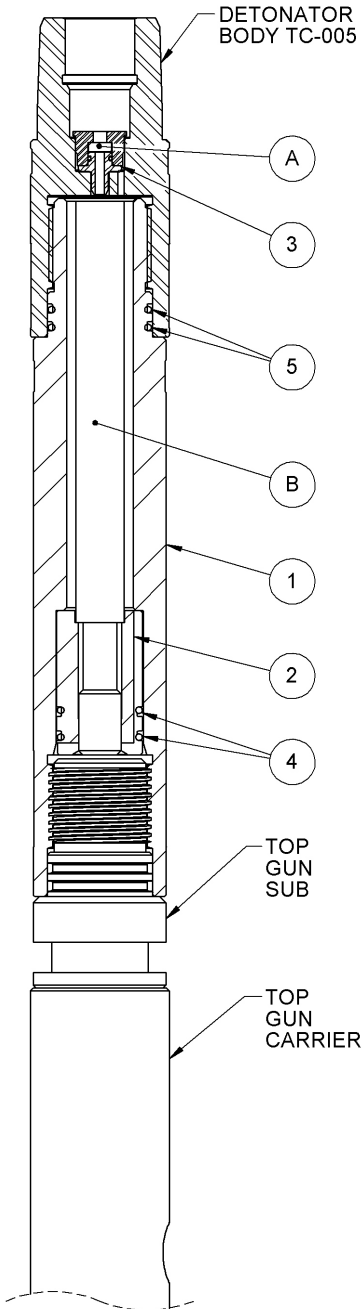
*The maximum temperature can be increased to 400° F (204°C) by substituting the 90 durometer Nitrile O-ring with 90 durometer Viton O-rings. See chart below for explosive component temperatures.

Note: Explosives sold separately.

DELAY FUSE:	2-450060-1	51-8200-4	51-8200-5		
Igniter:				2-350220-1	2-350620-1
Temperature 12HR	--	--	--	--	500°F (260°C)
Temperature 16HR	400°F (204°C)	--	--	--	--
Temperature 100HR	350°F (176°C)	450°F (232°C)	465°F (240°C)	450°F (232°C)	450°F (232°C)
Temperature 200HR	320°F (160°C)	435°F (223°C)	450°F (232°C)	435°F (223°C)	435°F (223°C)

TECHNICAL INFORMATION:

BOM AND SCHEMATIC: TC-043-2750-000



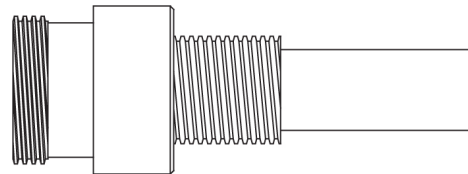
ITEM	PART #	QTY.	DESCRIPTION
--	TC-043-2750-000	--	Time Delay Hardware
1	TC-043-0009-000	1	Housing, 6 minute TD Fuse 2.750
2**	TC-043-0010-000	1	Support Block, 6 minute TD Fuse 2.750
3**	TC-043-0003-000	1	Igniter Support Assembly
4**	OOO-N569-222	2	O-Ring, N - 90
5**	OOO-N569-225	2	O-Ring, N - 90
A	2-350220-1	1	Primer, (sold separately)
	2-350620-1	1	TDI XL, (sold separately)
B	51-8200-4	1	6 Minute TD Fuse (sold separately)
	2-450060-1	1	6 Minute CLCP TD Fuse (sold separately)
--	TC-043-2750-099	--	Redress Kit
--	TC-043-2750-099XL	--	Redress Kit, TDI XL
--	TC-043-2750-399	--	Redress Kit, High Temp.
--	TC-043-2750-399XL	--	Redress Kit, High Temp., TDI XL
--	TC-043-0011-000	--	Installation Tool, for TC-043-2750-000

The Installation Tool (TC-043-0011-000 shown below and sold separately), is needed for the safe installation of the TD Fuse and Support Block into the fuse housing.

NOTES:

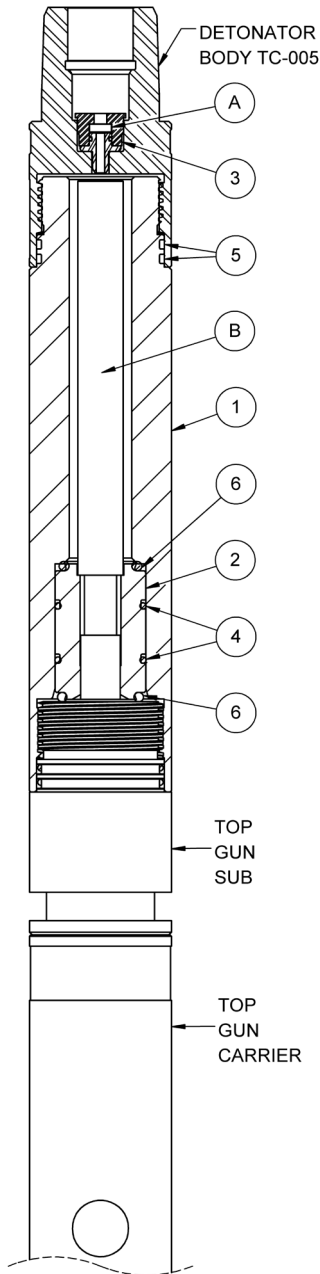
Explosive components are sold separately

**** Denotes the parts that are in the redress kit, TC-043-2750-099XL does not contain igniter support assembly, TC-043-2750-399 contains Viton O-Rings**



TECHNICAL INFORMATION:

BOM AND SCHEMATIC: TC-043-3125-000



ITEM	PART #	QTY.	DESCRIPTION
--	TC-043-3125-000	--	Time Delay Hardware
1	TC-043-0001-000	1	Housing, 6 minute TD Fuse 3.125
2**	TC-043-0002-000	1	Support Block, 6 minute TD Fuse 3.125
3**	TC-043-0003-000	1	Igniter Support Assembly
4**	OOO-N569-224	2	O-ring, N - 90
5**	OOO-N569-230	2	O-ring, N - 90
6**	OOO-N569-325	2	O-ring, N - 90
A	2-350220-1	1	Primer, (sold separately)
	2-350620-1	1	TDI XL, (sold separately)
B	51-8200-4	1	6 Minute TD Fuse (sold separately)
	2-450060-1	1	6 Minute CLCP TD Fuse (sold separately)
--	TC-043-3125-099	--	Redress Kit
--	TC-043-3125-099XL	--	Redress Kit, TDI XL
--	TC-043-3125-399	--	Redress Kit, High Temp.
--	TC-043-3125-399XL	--	Redress Kit, High Temp., TDI XL
--	TC-043-0006-000	--	Installation Tool, for TC-043-3125-000

The Installation Tool (TC-043-0006-000 shown below and sold separately), is needed for the safe installation of the TD Fuse and Support Block into the fuse housing.

NOTES:

Explosive components are sold separately

**** Denotes the parts that are in the redress kit, TC-043-3125-099XL does not contain igniter support assembly, TC-043-3125-399 contains Viton O-Rings**

