



Pack-off Sub

MAN-TTT-181 (R02)

Thru-Tubing Technology

A Division of Owen Oil Tools LP

402 Machine Loop

Scott, Louisiana, 70583, USA

Phone: +1 (337) 984-1181

Fax: +1 (337) 984-3044

www.corelab.com/owen

Warning: Use of Owen equipment contrary to manufacturer's specifications or operating instructions may result in property damage, serious injury or fatality.

This technology is regulated by and, if exported, was exported from the United States in accordance with the Export Administration Regulations (EAR). Diversion contrary to U.S. law is prohibited. Export and/or re-export of this technology may require issuance of a license by the Bureau of Industry and Security (BIS), U.S. Department of Commerce. Consult the BIS, the EAR, and/or Owen Compliance Services, Inc. to determine licensing requirements for export or re-export of this technology.

This document contains Confidential Information of Owen Oil Tools LP (Owen) and is furnished to the customer for information purposes only. This document must not be reproduced in any way whatsoever, in part or in whole, or distributed outside the customer organization, without first obtaining the express written authorization of Owen. This document is the property of Owen and returnable upon request of Owen.

© 2012 Owen Oil Tools LP

Pack-off Sub

Description

The Pack-off Sub is designed to run above the continuous tubing overshoot. It consists of a top sub, a molded packing, and a bottom sub.

Operation

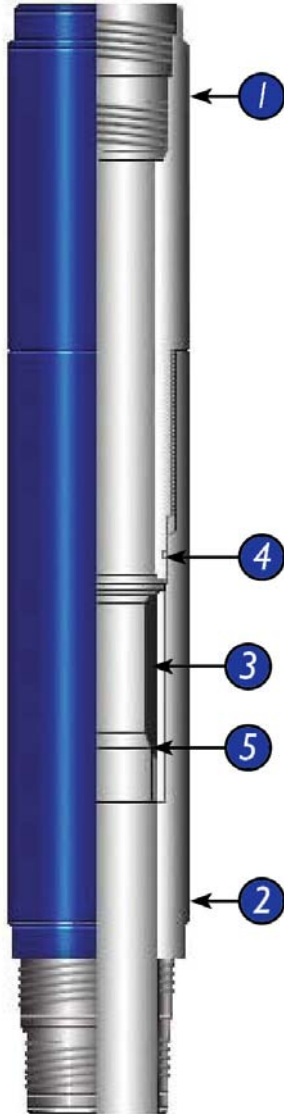
Once the fish has been engaged with the overshoot, the pack-off sub creates a seal between the work string and the fish. Circulation can now be maintained through the fish that allows for a hydraulic releasing tool to be activated. This makes it possible to retrieve the damaged tubing and any tools that may be attached. The molded packing is rated for 10,000 psi (if packing is not torn while engaging fish).



Note: Unless otherwise indicated, all the strength figures given in this manual, are the result of calculations based on the yield strength of the material used in the manufacture of this product. These strength calculations are considered accurate within plus or minus 20% and are to be used only as a guide. They do not constitute a guarantee, actual or implied. In use, appropriate allowance should be made as a safety factor.

Pack-off Sub

TT0181-186C BOM, Schematic and Specs



ITEM	QTY	TOOL PARTS DESCRIPTION	PART NUMBER
1	1	Top Sub	TT0181-186C-001
2	1	Bottom Sub	TT0181-186C-002
3	1	Molded Pack-Off f/1" CT Viton	TT0183-100AV
	1	Molded Pack-Off f/1 1/4" CT Viton	TT0183-125BV
4	1	O-Ring 1 3/8" x 1 1/2" x 1/16" 2-028	PUR-TORV000-028
5	1	Steel Support Ring	TT0181-186C-003

Tool Name: 1.858 in. OD Series C Pack-Off Sub

Product Code: TT0181-186C **Tool OD:** 1.858 in. **Tool ID:** 1.300 in.

Material: AISI 4340 **Tool Length:** 12.25 in.

Minimum Yield: 160,000 psi MY

Strength Properties of Tool:

Minimum Yield Point and Load to Yield: Stub Acme Box Connection, 69,000 lbs.

Burst Point and Burst Pressure: The O-ring groove of the Top Sub, 16,400 psi.

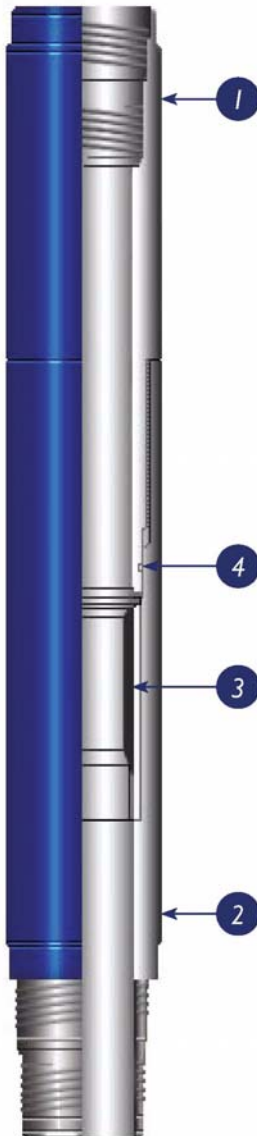
Torsional Weak Point and Ft-Lbs to Yield: Stub Acme Connection 1,010 ft-lbs.

Recommended Make Up Torque:

1st Connection: Stub Acme Connection - 350 ft-lbs.

Pack-off Sub

TT0181-206B BOM, Schematic and Specs



ITEM	QTY	TOOL PARTS DESCRIPTION	PART NUMBER
1	1	Top Sub	TT0181-206B-001
2	1	Bottom Sub	TT0181-206B-002
3	1	Molded Pack-Off f/1" CT Viton	TT0183-100AV
	1	Molded Pack-Off f/1 1/4" CT Viton	TT0183-125BV
4	1	O-Ring 1 7/16" x 1 5/8" x 3/32" 2-127	PUR-TORV000-127

Tool Name: 2.063 in. OD Series B Pack-Off Sub

Product Code: TT0181-186C **Tool OD:** 2.063 in. **Tool ID:** 1.300 in.

Material: AISI 4340 **Tool Length:** 14.13 in.

Minimum Yield: 140,000 psi MY

Strength Properties of Tool:

Minimum Yield Point and Load to Yield: Bottom Sub Stub Acme Connection at 52,000 lbs., with 420 ft-lbs. of Make Up Torque, at 5,000 psi. Internal Pressure

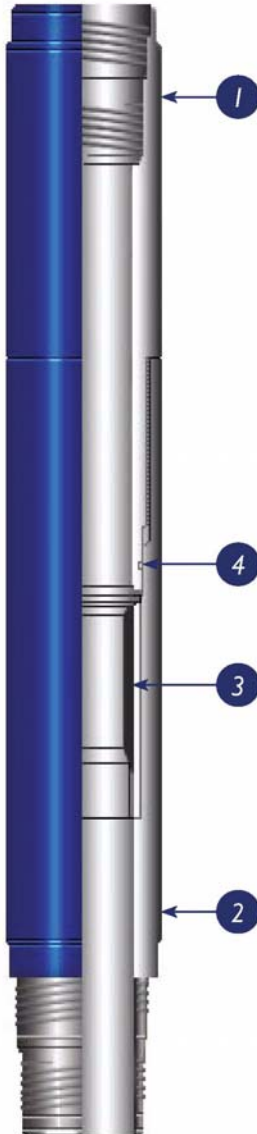
Burst Point and Burst Pressure: Recess for O-ring Seat in Bottom Sub Stub Acme Box Connection, at 26,900 psi.

Torsional Weak Point and Ft-Lbs to Yield: Bottom Sub Stub Acme Box Connection at 1,258 ft-lbs.

Recommended Make Up Torque:

1st Connection: Stub Acme Connection - 420 ft-lbs.

TT0181-209B BOM, Schematic and Specs



ITEM	QTY	TOOL PARTS DESCRIPTION	PART NUMBER
1	1	Top Sub	TT0181-209B-001
2	1	Bottom Sub	TT0181-209B-002
3	1	Molded Pack-Off f/1" CT Viton	TT0183-100AV
	1	Molded Pack-Off f/1 1/4" CT Viton	TT0183-125BV
4	1	O-Ring 1 7/16" x 1 5/8" x 3/32" 2-127	PUR-TORV000-127

Tool Name: 2.093 in. OD Series B Pack-Off Sub

Product Code: TT0181-209B **Tool OD:** 2.093 in. **Tool ID:** 1.300 in.

Material: AISI 4140 HT 285-341 Bhn **Tool Length:** 14.13 in.

Minimum Yield: 100,000 psi

Strength Properties of Tool:

Minimum Yield Point and Load to Yield: Stub Acme Pin Connection on Top Sub at 44,800 lbs., w/ 5,000 psi Internal Pressure and a Make up Torque of 480 ft-lbs.

Burst Point and Burst Pressure: Stub Acme Pin Connection on Top Sub at 26,400 psi Burst Pressure.

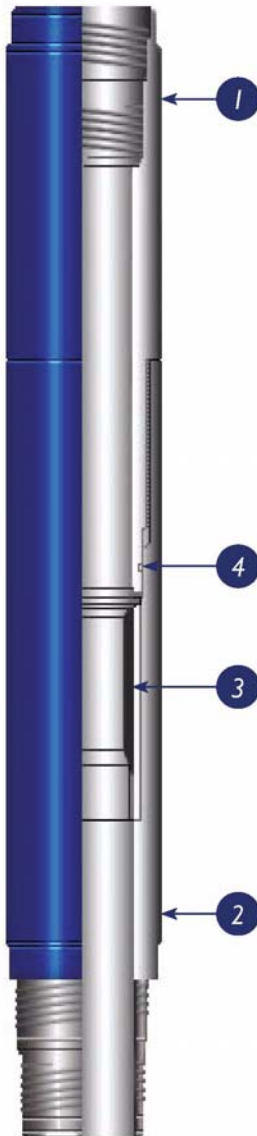
Torsional Weak Point and Ft-Lbs to Yield: Stub Acme Box Connection on Bottom Sub at 980 ft-lbs of Torque.

Recommended Make Up Torque:

1st Connection: Stub Acme Connection - 480 ft-lbs.

Pack-off Sub

TT0181-225B BOM, Schematic and Specs



ITEM	QTY	TOOL PARTS DESCRIPTION	PART NUMBER
1	1	Top Sub	TT0181-225B-001
2	1	Bottom Sub	TT0181-225B-002
3	1	Molded Pack-Off f/1" CT Viton	TT0183-100AV
	1	Molded Pack-Off f/1 1/4" CT Viton	TT0183-125BV
4	1	O-Ring 1 1/2" x 1 11/16" x 3/32" 2-128	PUR-TORV000-128

Tool Name: 2.250 in. OD Pack-Off Sub

Product Code: TT0181-225B **Tool OD:** 2.250 in. **Tool ID:** 1.31 in.

Material: AISI 4140 HT **Tool Length:** 14 in.

Minimum Yield: 100,000 psi

Strength Properties of Tool:

Minimum Yield Point and Load to Yield: Top Sub Stub Acme Pin Connection will yield at 53,000 lbs, when the connection is torqued to recommended make up torque of 750 ft-lbs.

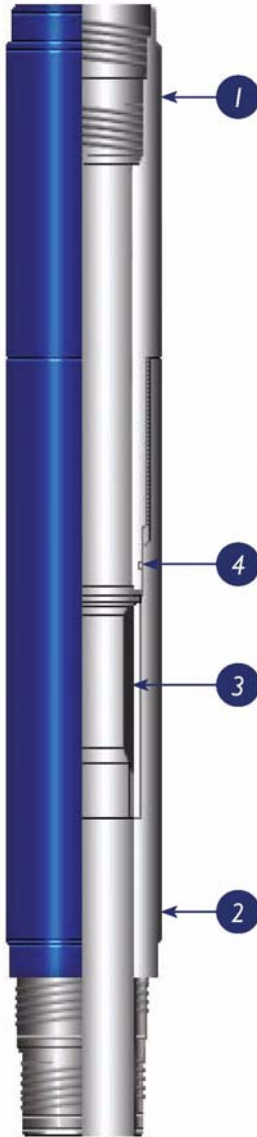
Burst Point and Burst Pressure: Bottom Sub Pack-Off Housing 15,000 psi.

Torsional Weak Point and Ft-Lbs to Yield: Top Sub Stub Acme Pin Connection will yield at 1,520 ft-lbs.

Recommended Make Up Torque:

1st Connection: Stub Acme Connection - 750 ft-lbs.

TT0181-230B BOM, Schematic and Specs



ITEM	QTY	TOOL PARTS DESCRIPTION	PART NUMBER
1	1	Top Sub	TT0181-230B-001
2	1	Bottom Sub	TT0181-230B-002
3	1*	Molded Pack-Off f/1 1/4" CT Viton	TT0183-125BV
	1	Molded Pack-Off f/1 1/2" CT Viton	TT0183-150CV
4	1	O-Ring 1 3/4" x 1 15/16" x 3/32" 2-132	PUR-TORV000-132

* 1-1/4" Requires Pack-Off Kit TT0181-230BKB

Tool Name: 2.295 in. OD Slimhole Pack-Off Sub

Product Code: TT0181-230B **Tool OD:** 2.295 in. **Tool ID:** 1.563 in.

Material: AISI 4340 38-42 Rc **Tool Length:** 14.33 in.

Minimum Yield: 140,000 psi

Strength Properties of Tool:

Minimum Yield Point and Load to Yield: The shoulder of the pack-off bore of the Bottom Sub, 49,700 lbs ; the thread relief of the box connection of the Bottom Sub, 55,900 lbs.

Burst Point and Burst Pressure: The O-ring groove of the Top Sub, 16,800 psi.

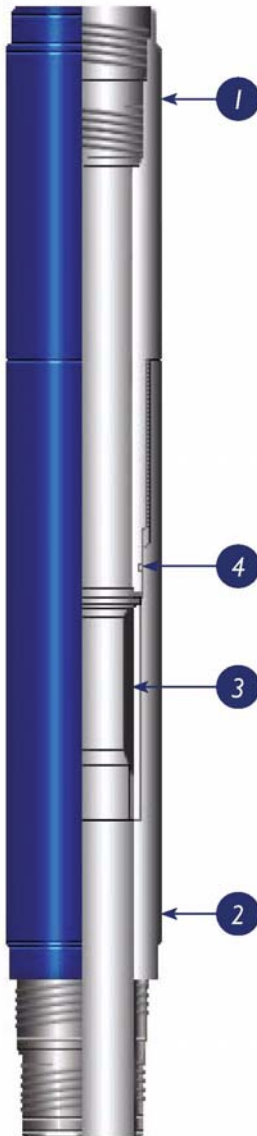
Torsional Weak Point and Ft-Lbs to Yield: 1,620 ft-lbs as a function of torsional yield of the box connection of the Bottom Sub.

Recommended Make Up Torque:

1st Connection: Stub Acme Connection - 405 ft-lbs.

Pack-off Sub

TT0181-270C BOM, Schematic and Specs



ITEM	QTY	TOOL PARTS DESCRIPTION	PART NUMBER
1	1	Top Sub	TT0181-270C-001
2	1	Bottom Sub	TT0181-270C-002
3	1*	Molded Pack-Off f/1 1/4" CT Viton	TT0183-125BV
	1*	Molded Pack-Off f/1 1/2" CT Vton	TT0183-150CV
	1	Molded Pack-Off f/1 3/4" CT Viton	TT0183-175DV
4	2	O-Rings 2 1/16" x 2 1/4" x 3/32" 2-137	PUR-TORV000-137

* 1 1/4" requires Pack-Off Kit TT0181-270CKB

* 1 1/2" requires Pack-Off Kit TT0181-270CKC

Tool Name: 2.700 in. OD Slimhole CT Pack-Off

Product Code: TT0181-270C **Tool OD:** 2.700 in. **Tool ID:** 1.813 in.

Material: AISI 4140 HT **Tool Length:** 15.6 in. w/ 2-3/8 in. CS Conn.

Minimum Yield: 100,000 psi

Strength Properties of Tool:

Minimum Yield Point and Load to Yield: The shoulder near the pin connection of the Top Sub, 47,200 lbs.

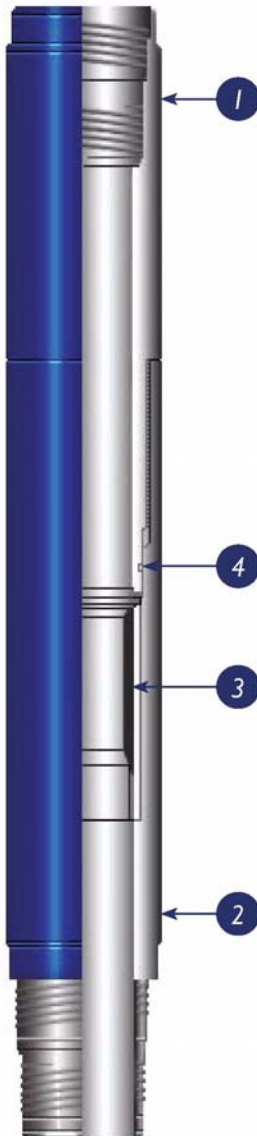
Burst Point and Burst Pressure: The O-ring groove on the Top Sub, 13,300 psi; the O-ring bore section of the Bottom Sub, 17,700 psi.

Torsional Weak Point and Ft-Lbs to Yield: 2,160 ft-lbs as a function of torsional yield of the box connection of the Bottom Sub.

Recommended Make Up Torque:

1st Connection: Stub Acme Connection - 640 ft-lbs.

TT0181-313B BOM, Schematic and Specs



ITEM	QTY	TOOL PARTS DESCRIPTION	PART NUMBER
1	1	Top Sub	TT0181-313B-001
2	1	Bottom Sub	TT0181-313B-002
3	1*	Molded Pack-Off f/1 1/4" CT Viton	TT0183-125BV
	1*	Molded Pack-Off f/1 1/2" CT Viton	TT0183-150CV
	1*	Molded Pack-Off f/1 3/4" CT Viton	TT0183-175DV
4	1	O-Rings 2 1/4" x 2 1/8" x 1/8" 2-228	PUR-TORV000-228

* 1 1/4" requires Pack-Off Kit TT0181-313BKB

* 1 1/2" requires Pack-Off Kit TT0181-313BKC

* 1 3/4" requires Pack-Off Kit TT0181-313BKD

Tool Name: 3.125 in. OD Pack-Off Sub

Product Code: TT0181-313B **Tool OD:** 3.125 in. **Tool ID:** 1.813 in.

Material: AISI 4140 HT 285-341 Bhn **Tool Length:** 17.9 in.

Minimum Yield: 100,000 psi

Strength Properties of Tool:

Minimum Yield Point and Load to Yield: The thread recess of the pin connection of the Top Sub, 90,400 lbs.

Burst Point and Burst Pressure: The O-ring bore of the Bottom Sub, 21,700 psi.

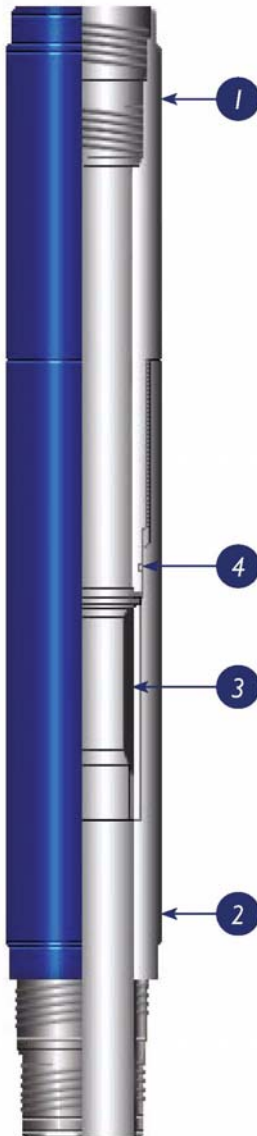
Torsional Weak Point and Ft-Lbs to Yield: 3,890 ft-lbs as a function of torsional yield of the box end of the Bottom Sub; 9,800 ft-lbs as a function of torsional yield of the Top Sub at the thread recess of the pin connection.

Recommended Make-Up Torque:

1st Connection: Stub Acme Connection - 1,160 ft-lbs.

Pack-off Sub

TT0181-317C BOM, Schematic and Specs



ITEM	QTY	TOOL PARTS DESCRIPTION	PART NUMBER
1	1	Top Sub	TT0181-317C-001
2	1	Bottom Sub	TT0181-317C-002
3	1*	Molded Element f/1 1/2" Coil Tubing Viton	TT0183-150CV
	1*	Molded Element f/1 3/4" Coil Tubing Viton	TT0183-175DV
	1*	Molded Element f/2" Coil Tubing Viton	TT0183-200EV
4	1	O-Rings 2 5/16" x 2 1/2" x 3/32" 2-141	PUR-TORV000-141
	*	1 1/2" requires Pack-Off Kit TT0181-317CKC	
	*	1 3/4" requires Pack-Off Kit TT0181-317CKD	
	*	2" requires Pack-Off Kit TT0181-317CKE	

Tool Name: 3.166 in. OD Slimhole CT Pack-Off

Product Code: TT0181-317C **Tool OD:** 3.166 in. **Tool ID:** 2.094 in.

Material: AISI 4140 HT

Tool Length: 15.4 in.

Minimum Yield: 100,000 psi

Strength Properties of Tool:

Minimum Yield Point and Load to Yield: The fillet near the pin connection of the Top Sub, 70,100 lbs.

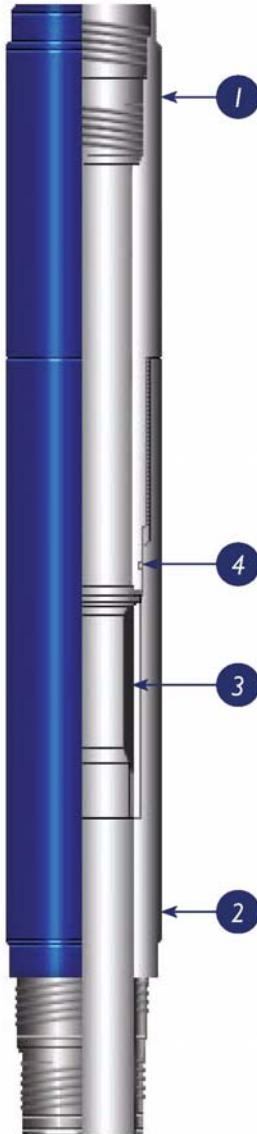
Burst Point and Burst Pressure: The O-ring groove on the Top Sub, 8,990 psi; the pack-off housing ID of the Bottom Sub, 22,900 psi.

Torsional Weak Point and Ft-Lbs to Yield: 3,490 ft-lbs as a function of torsional yield of the box connection of the Bottom Sub.

Recommended Make Up Torque:

1st Connection: Stub Acme Connection -1,040 ft-lbs.

TT0181-338B BOM, Schematic and Specs



ITEM	QTY	TOOL PARTS DESCRIPTION	PART NUMBER
1	1	Top Sub	181-338B-001
2	1	Bottom Sub	181-338B-002
3	1*	Molded Element f/1 1/2" Coil Tubing Viton	TT0183-150CV
	1*	Molded Element f/1 3/4" Coil Tubing Viton	TT0183-175DV
	1*	Molded Element f/2" Coil Tubing Viton	TT0183-200EV
4	1	O-Ring 2 3/8" x 2 5/8" x 1/8" 2-229	PUR-TORV000-229

* 1 1/2" requires Pack-Off Kit TT0181-317CKC

* 1 3/4" requires Pack-Off Kit TT0181-317CKD

* 2" requires Pack-Off Kit TT0181-317CKE

Tool Name: 3.375 OD CT Pack-Off

Product Code: TT0181-338B **Tool OD:** 3.375 in. **Tool ID:** 2.094 in.

Material: AISI 4140 HT **Tool Length:** 15.6 in.

Minimum Yield: 100,000 psi

Strength Properties of Tool:

Minimum Yield Point and Load to Yield: The fillet near the pin connection of the Top Sub, 102,000 lbs.

Burst Point and Burst Pressure: The O-ring groove of the Top Sub, 14,300 psi; the O-ring bore of the Bottom Sub, 22,000 psi.

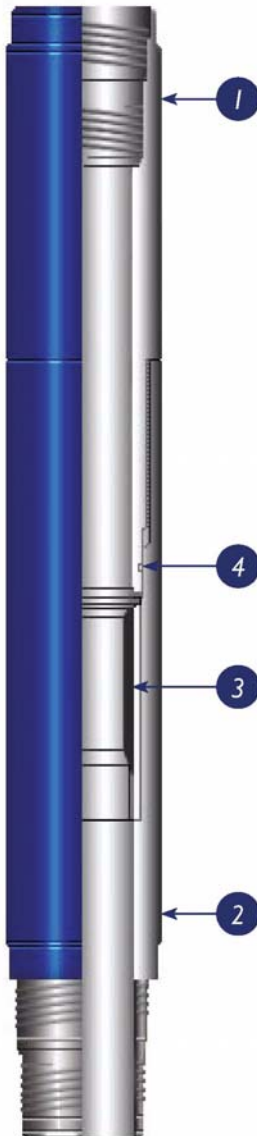
Torsional Weak Point and Ft-Lbs to Yield: 4,770 ft-lbs as a function of torsional yield of the box connection of the Bottom Sub.

Recommended Make Up Torque:

1st Connection: Stub Acme Connection -1,190 ft-lbs.

Pack-off Sub

TT0181-363B BOM, Schematic and Specs



ITEM	QTY	TOOL PARTS DESCRIPTION	PART NUMBER
1	1	Top Sub (normally sold blank)	TT0181-363B-001
2	1	Bottom Sub (normally sold blank)	TT0181-363B-002
3	1*	Molded Pack-Off f/1 1/2" CT Viton	TT0183-150CV
	1*	Molded Pack-Off f/1 3/4" CT Viton	TT0183-175DV
	1*	Molded Pack-Off f/2" CT Viton	TT0183-200EV
	1*	Molded Pack-Off f/2 3/8" CT Viton	TT0183-238FV
4	1	O-Ring 2 13/16" x 3" x 3/32" 2-149	PUR-TORV000-149

- * 1 1/2" requires Pack-Off Kit TT0181-363 BKC
- * 1 3/4" requires Pack-Off Kit TT0181-363 BKD
- * 2" requires Pack-Off Kit TT0181-363 BKE
- * 2 3/8" requires Pack-Off Kit TT0181-363 BKF

Tool Name: 3.625 in. OD Series B Pack-Off Sub

Product Code: TT0181-363B **Tool OD:** 3.625 in. **Tool ID:** 2.500 in.

Material: AISI 4140 HT 285-341 Bhn **Tool Length:** 19.2 in.

Minimum Yield: 100,000 psi

Strength Properties of Tool:

Minimum Yield Point and Load to Yield: Top Sub Stub Acme Pin Connection with 5,000 psi Internal Pressure, Torqued up to 1,000 ft/lbs with 137,761 Pound Load.

Burst Point and Burst Pressure: Packing Housing Recess in Bottom Sub 18,400 psi. Stub Acme Pin Connection on Top Sub at 19,500 psi Burst Pressure.

Torsional Weak Point and Ft-Lbs to Yield: Stub Acme Box Connection on Bottom Sub at 4,828 ft-lbs of Torque.

Recommended Make Up Torque:

1st Connection: Stub Acme Connection - 1,000 ft-lbs.

1.0 Pre-Assembly



Warning: *Make sure all tool parts and components have been thoroughly cleaned or serious damage and/or injury could occur!*



Note: *Verify that the correct O-ring redress kit and quantities are used as specified on the Bill Of Materials (for example, 5 each etc....). Lay out all redress kit components on a clean surface.*



Note: *Make sure to lubricate all O-rings and threaded surfaces.*



Note: *Visually inspect all parts for damage or wear. Thread parts together without the O-rings to check fit. Repair or replace damaged parts.*



Caution: *Always file wrench marks or burrs and clean off debris!*



Caution: *This tool should always be disassembled, cleaned thoroughly, inspected and reassembled after each job!*

2.0 Assembly

2.1 Grease the entire ID of the Bottom Sub (item #2) and place it pin threads down onto a work surface.

2.2 Insert the required Molded Pack-off Element.



Note: *If you are using the optional Housings, Spacers, Rings or Sleeves, install them at this time as well.*

2.3 Put the O-ring (item #3) into the Top Sub (item #1) then grease the entire ID of the sub. Grease the pin threads of the sub, then make up to the Bottom Sub wrench tight.

Pack-off Sub

3.0 Disassembly

3.1 Place the tool in a vise on the Top Sub (item #1).

3.2 Remove the Bottom Sub (item #2).

3.3 Remove the Molded Pack-off Element from the Bottom Sub.



Note: If you used the optional Housings, Spacers, Rings or Sleeves, remove them at this time as well.



Note: Remove and discard all O-rings. Replace O-rings after each use. Thoroughly clean tool parts in a cleaner approved by state and/or local laws.



Note: Visually inspect tool for swelling after each use. Damaged or swelled components must be replaced.



Note: It is recommended that a Magnetic Particle Inspection (MPI) be completed on all components after each job.