



PUMP-OUT CEMENTING SLEEVE

7”

Manual No:
DL-220-7000-1701

Revision: **A**

Revision Date:
09/13/2023

Authored by: *J.Anderson*

Approved by: *K.Plunkett*

A) DESCRIPTION

The Pump-Out Cementing Sleeve is used for cementing tubing strings in both cased and open holes. It allows for internal parts to be pumped out after the cementing process leaving a full open bore with no loss of tubing strength. It is available in a variety of materials. A basket or packer placed below the sleeve provides a seal-point for pumping cement up the outside of the tubing string.

B) SPECIFICATION GUIDE

SIZE (INCHES)	TOOL OD (INCHES)	TOOL ID (INCHES)	TOOL ID AFTER PUMP OUT (INCHES)	THREAD CONNECTION BOX UP / PIN DOWN	PART NUMBER
7	7.75	2.50	6.20	7” BTC	22070-XBLE

TENSILE LOAD THRU TOOL (MAX)
165,000 LBS

C) PRE-INSTALLATION INSPECTION PROCEDURES

Before first use, D&L recommends disassembly and inspection of the tool unless stated otherwise. Ensure parts have not been damaged during shipping. Replace damaged parts with D&L replacement parts. Contact D&L sales for replacement part information. Re-assemble the tool after inspection. Install parts in the correct order and orientation.

D) OPERATION

Trip the steel ball down to the Pump-Out Cementing Sleeve. Apply the necessary pressure to the ball to shear the shear screws to move the lower piston downwards and open the cementing port. Commence cementing operations. After the desired amount of cement has been placed, pump the closing plug down to the Pump-Out Cementing Sleeve. Apply the necessary pressure to shear the shear screws to move the closing sleeve downwards and close the cementing port. Continue to apply the necessary pressure to shear to the remaining shear screws and pump out the lower and upper pistons.

OPEN PORT	CLOSE PORT	PUMP OUT
993 PSI	993 PSI	1,748 PSI



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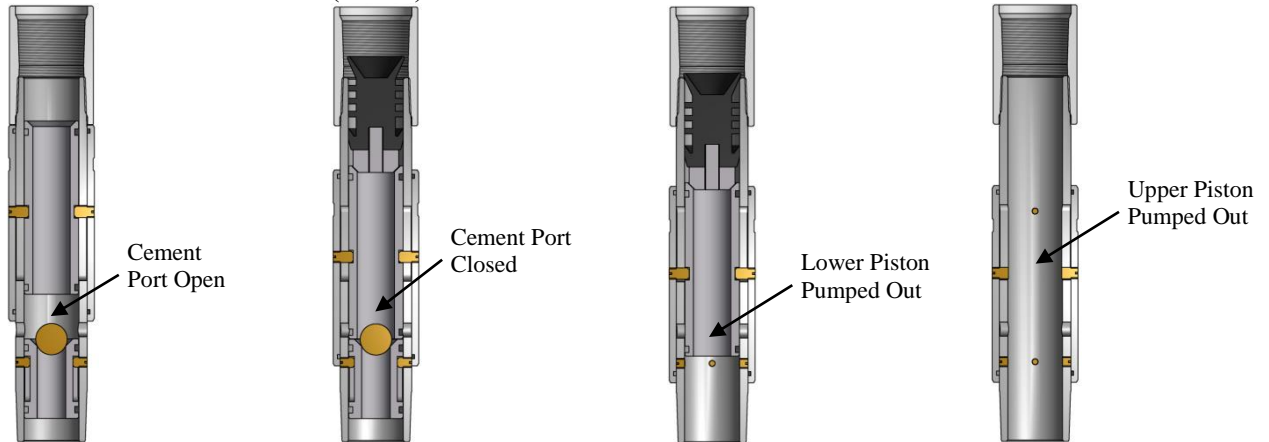
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D) OPERATING PROCEDURES (cont'd)



NOTE1: For illustrative purposes only. Does not depict actual tool.

E) STORAGE RECOMMENDATIONS

When preparing the tool for storage, follow the Pre-Installation Inspection Procedures. Re-assemble the tool with connections hand-tight only and in running position if applicable. Elements should be in a relaxed state—free from tension, compression, and other stresses that could cause deformation.

Store the tool, if possible, in an enclosed, temperature and humidity controlled environment. Avoid excessively high temperatures over long periods of time. Shield elastomeric parts from ultraviolet light sources. Keep tool dry and protected from condensation. Do not store in contact with or near volatile or corrosive chemicals. Do not store near ozone generating equipment or operations such as welding.

F) RECOMMENDED HAND TOOLS

- VISE
- GLOVES
- ALLEN WRENCHES
- TAPE MEASURE
- O-RING PICK
- BAR
 - 1/2-INCH
 - 3/4-INCH
- PAINT BRUSH, 2-INCH
- PIPE WRENCH, 3-FT (2 EA)
- “CHEATER” PIPE, 4-FT LONG
- ADJUSTABLE WRENCH, 12-INCH
- CORDLESS DRILL, 18V
- SNAP RING SPREADER PLIERS
- ALIGNING PUNCH
- SCREWDRIVER SET, FLAT-TIPPED
- SOCKET SETS
 - 3/8-INCH DRIVE
 - 1/2-INCH DRIVE
- HAMMERS
 - SLEDGE
 - BALL PEEN
 - DEAD BLOW



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G) DISASSEMBLY

- G-1) Clamp upper end of mandrel (1) in vise.
 - G-1.1) Unscrew and remove shear screws (8) from outer sleeve (5)
 - G-1.2) Remove outer sleeve (5) from mandrel (1).
 - G-1.2.1) Remove o-rings (9) from outer sleeve (5).
 - G-1.3) Unscrew and remove shear screws (6, 7) from mandrel (1).
 - G-1.4) Remove lower piston (4) from mandrel (1).
 - G-1.4.1) Remove o-rings (10) from lower piston (4).
 - G-1.5) Unscrew and remove shear screws (6) from mandrel (1).
 - G-1.6) Remove upper piston (3) from mandrel (1).
 - G-1.6.1) Remove o-rings (10) from upper piston (3).
- G-2) Unclamp and remove mandrel (1) from vise.

H) ASSEMBLY

NOTE: Clean and inspect all parts. Replace all worn and damaged parts. Install parts in proper order, and orientation and tighten/torque all connections properly.

- H-1) Clamp upper end of mandrel (1) in vise.
 - H-1.1) Install o-rings (10) in grooves in upper piston (3).
 - H-1.2) Install upper piston (3) into mandrel (1). Align counterbores in upper piston (3) with threaded holes in mandrel (1).

CAUTION: Do not rip or tear o-rings during installation.
 - H-1.3) Screw shear screws (6) into mandrel (1). Tighten until shear screws (6) contact upper piston (3). Back shear screws (6) out 1/4 turn.
 - H-1.4) Install o-rings (10) in grooves in lower piston (4).
 - H-1.5) Install lower piston (4) into mandrel (1). Align slots in lower piston (4) with threaded holes in mandrel (1).

CAUTION: Do not rip or tear o-rings during installation.
 - H-1.6) Screw shear screws (7) into mandrel (1). Tighten until screws (7) contact lower piston (4). Back out screws (7) 1/4 turn.
 - H-1.7) Ensure remaining threaded holes in mandrel (1) are aligned with counterbores in lower piston (4). Screw shear screws (6) into mandrel (1). Tighten until screws (6) contact lower piston (4). Back out 1/4 turn.
 - H-1.8) Install o-rings (9) in grooves in outer sleeve (5).
 - H-1.9) Install outer sleeve (5) onto mandrel (1). Align threaded holes in outer sleeve (5) with slots in mandrel (1).

CAUTION: Do not rip or tear o-rings during installation.
 - H-1.10) Screw shear screws (8) into outer sleeve (5). Tighten until shear screws (8) contact upper piston (3). Back shear screws (8) out 1/4 turn.
- H-2) Unclamp mandrel (1) from vise and remove assembled tool.



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I) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	PART NUMBER
1	1	MANDREL	DLMS80	22070215
2	1	CLOSING PLUG	DLM6061T6/RUBBER	22070950
3	1	UPPER PISTON	DLM6061T6	22070725
4	1	LOWER PISTON	DLM6061T6	22070715
5	1	OUTER SLEEVE	DLMS60	22070101
6	12	7/16-20 UNF X 1/2 SLOTTED SHEAR SCREW (5000#)	DLM360BRS	BSSSLT043F050
7	6	5/8-11 UNC X 5/8 SLOTTED SHEAR SCREW (8800#)	DLM360BRS	BSSSLT062C062
8	2	5/8-11 UNC X 1" SLOTTED SHEAR SCREW (8800#)	DLM360BRS	BSSSLT062C100
9	2	263 O-RING	90 DURO NITRILE	90263
10	4	359 O-RING	90 DURO NITRILE	90359
11	1	STEEL BALL	STEEL	SB2625

ASSEMBLED WEIGHT		115 LBS
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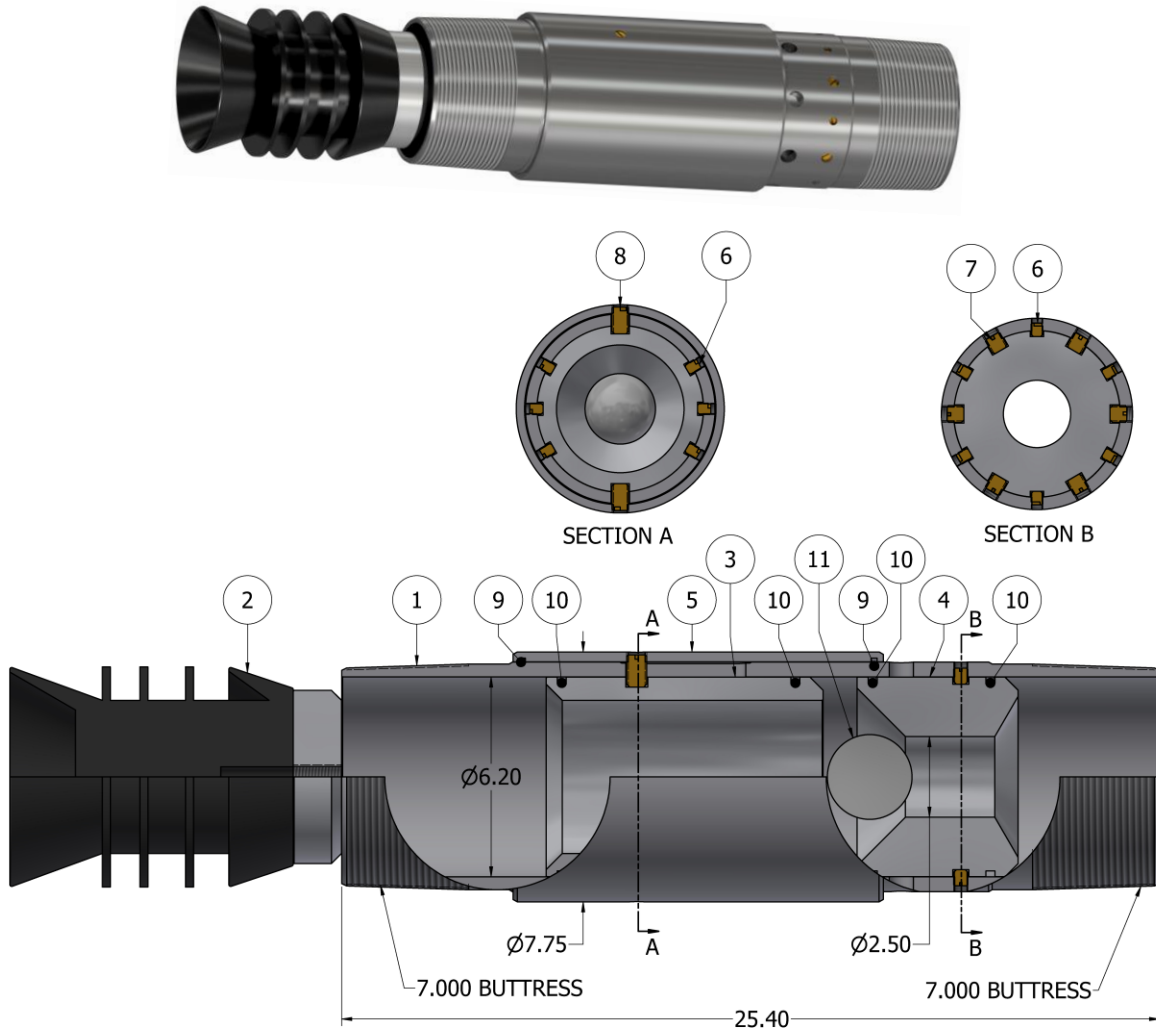
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J) TECHNICAL ILLUSTRATION



K) REVISION HISTORY

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	APPROVED BY
09/13/2023	A	Created manual	-	-