



SC TENSION UNLOADER

7/8" with 1.660" EUE

Manual No:
DL-525-0875-931

Revision: **B**

Revision Date:
04/21/2022

Authored by: J.Anderson

Approved by: K.Riggs

A) DESCRIPTION

The SC Tension Unloader provides a means of equalizing tubing and annulus pressures when used with a tension packer. It also serves as a by-pass to allow fluid to pass through the mandrel of the packer while running the tubing string in and out of the well.

The SC Tension Unloader features simple setting and releasing and the ability to unload pressure above or below. The collet feature allows the unloader to remain closed while setting weight or picking up on the packer without packing off or swabbing the elements. The SC Tension Unloader transmits torque for setting and releasing packer below string.

B) SPECIFICATION GUIDE

TUBING SIZE (INCHES)	TOOL		THREAD CONNECTION BOX UP / PIN DOWN	PART NUMBER
	OD (INCHES)	NOMINAL ID (INCHES)		
7/8	2.250	0.88	1.660 EUE	52504 52504H ¹ 52504V ²

Elastomer Trim Options: ¹HSN, ²Viton

DIFFERENTIAL PRESSURE (MAX)	TENSILE LOAD THRU TOOL (MAX)
10,000 PSI	23,500 LBS

C) PRE-INSTALLATION INSPECTION PROCEDURES

CAUTION: D&L ships tool connections made-up **HAND TIGHT**—labeled with hand-tight tape on the tool (Fig. 1) — unless stated otherwise. Tighten/torque all connections properly before operating tool.



Fig. 1

GENERAL THREAD CONNECTION TORQUE RECOMMENDATIONS			
STUB ACME / ACME THREADS	INTERNAL TAPERED TUBING THREADS		PREMIUM THREADS
	UP TO 2-3/8"	GREATER THAN 2-3/8"	
600 – 800 FT-LBS	600 – 800 FT-LBS	800 – 1,200 FT-LBS	Consult thread manufacturer's recommendations.

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. Properly tighten connections.

Before re-using the tool, D&L recommends disassembly and inspection of the tool. Clean parts and ensure parts are in good working condition. Replace worn or damaged parts with D&L replacement parts.

When redressing the tool, D&L recommends replacement of all seals, o-rings, etc. Contact D&L sales for redress kit and/or other replacement part information.

D & L OIL TOOLS
P.O. BOX 52220 TULSA, OK 74152
PHONE: (800) 441-3504 www.dloiltools.com



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D) OPERATING PROCEDURES

CAUTION: Do not run the tool without properly tightening connections. Running the tool with loose connections may damage the tool and cause malfunction.

The SC Tension Unloader can be run in open or closed position. Make up unloader with tubing and packer. Run string down hole to the desired depth. Pick up a minimum of 2,000 lbs to close the unloader. Set down weight (approximately 2,000 lbs) to open the unloader. Allow time for pressure to equalize to ensure before moving string. If the packer should hang up, excessive tension to free the packer will close the unloader. Refer to the applicable packer technical manual for packer specific setting and releasing procedures.

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.

Store the tool, if possible, in an enclosed, temperature and humidity controlled environment. Avoid excessively high temperatures over long periods of time. Keep tool dry and protected from condensation. Do not store in contact with or near volatile or corrosive chemicals,

F) ELASTOMER TRIM TEMPERATURE GUIDE

RUBBER TYPE	TEMPERATURE RANGE
NITRILE	40° - 250°F
HSN (HNBR)	70° - 300°F
VITON	100° - 350°F

G) 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

H) DISASSEMBLY

H-1) Clamp body (1) in vise.

H-1.1) Unscrew and remove cap screw (5) from mandrel (2).

H-1.2) Unscrew valve (3) from body (1). Mandrel assembly must be free to rotate.

H-1.3) Remove mandrel assembly from body (1) and disassemble:

H-1.3.1) Unscrew and remove seal retaining cap (4) from mandrel (2).

H-1.3.1.1) Remove o-ring (8) and seal (6) from seal retaining cap (4).

H-1.3.2) Remove valve (3) from mandrel (2).

H-1.3.2.1) Remove o-ring (7) from valve (3).

H-2) Unclamp and remove body (1) from vise.



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I) ASSEMBLY

NOTE1: Clean and inspect all parts. Replace all worn and damaged parts. Install parts in proper order, and orientation and tighten/torque all connections properly.

I-1) Clamp body (1) in vise.

I-1.1) Assemble mandrel assembly and install:

I-1.1.1) Install o-ring (7) in o-ring groove in valve (3).

I-1.1.2) Install valve (3) onto mandrel (2). Align slot in valve with pin on mandrel (2).

CAUTION3: Do NOT rip or tear o-ring during installation.

I-1.1.3) Install o-ring (10) in o-ring groove in seal retaining cap (4).

I-1.1.4) Install seal (6) in seal groove in seal retaining cap (4).

I-1.1.5) Screw seal retaining cap (4) onto mandrel (2).

CAUTION4: Do NOT damage bonded seal during installation.

I-1.1.6) Install mandrel assembly into body (1). Screw valve (3) into body (1).

CAUTION3: Do NOT rip or tear o-ring during installation.

I-1.2) Align threaded hole in valve (3) with hole in lower end of body (1). Screw cap screw (5) into valve.

I-2) Unclamp body (1) from vise and remove assembled tool.

J) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 52504
1	1	BODY	DLMS60	52504330
2	1	MANDREL	DLMS60	52504210
3	1	VALVE	DLMS60	52504350
4	1	SEAL RETAINING CAP	DLMS60	52504525
5	1	BUTTON HEAD CAP SCREW 5/16-18 UNC X 1/4	STEEL	BHSC031C025
6	1	SEAL	90 DURO NITRILE	52504520
7	1	219 O-RING	90 DURO NITRILE	90219
8	1	223 O-RING	90 DURO NITRILE	90223

REDRESS KIT (RDK)	52504050
ASSEMBLED WEIGHT	9 LBS



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J) PARTS LIST (cont'd)

J-1) ELASTOMER TRIM OPTIONS

NOTE₂: For temperature range, refer to Elastomer Trim Temperature Guide.

J-1.1) HSN

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 52504H
6	1	SEAL	90 DURO HSN	52504520H
7	1	219 O-RING	90 DURO HSN	90219H
8	1	223 O-RING	90 DURO HSN	90223H

REDRESS KIT (RDK)		52504050H
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J-1.2) VITON

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 52504V
6	1	SEAL	90 DURO VITON	52504520V
7	1	219 O-RING	90 DURO VITON	90219V
8	1	223 O-RING	90 DURO VITON	90223V

REDRESS KIT (RDK)		52504050V
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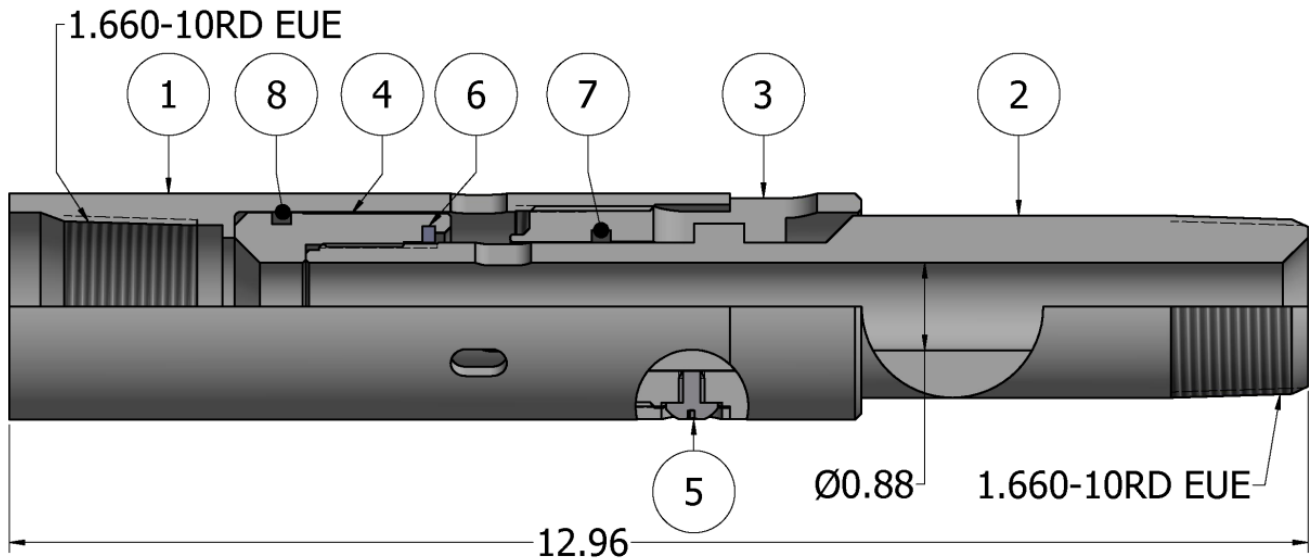
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K) TECHNICAL ILLUSTRATION



L) REVISION HISTORY

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	APPROVED BY
04/21/2022	B	Revised BHSC031C025 was BHSC031C031	J.Anderson	J.Johnson
08/27/2015	A	Created new manual	-	-