



DL SHEAR TENSION PACKER, RIGHT-HAND MANUAL

11-3/4" X 4-1/2"

Manual No:
DL-412-11750-168

Revision: **D**

Revision Date:
10/20/2023

Written by: *B.Mathis*

Approved by: *H.Bringham*

A) DESCRIPTION

The DL Tension Packer and DL Shear Tension Packer are economical, compact tools for injection, pumping, medium range treating and production applications. These packers are set by 1/4 right-hand rotation of the tubing and then pull tension. To release these packers, slack off the tubing and the packer will automatically re-jay into the release position. These packers have a right-hand rotation release allowing retrieval of the tubing string.

The DL Tension Packer can be run in tension or compression. When the DL Tension Packer is run in compression, the right-hand release option cannot be utilized.

The DL Shear Tension Packer features an adjustable straight pull safety shear release. This packer is not designed to be run in compression.

NOTE: If running the packer with high pressure from below, risk of unsetting the packer exists. Contact D&L sales for recommendations.

B) SPECIFICATION GUIDE

CASING			TOOL OD (INCHES)	TOOL ID (INCHES)	THREAD CONNECTION BOX UP / PIN DOWN	PART NUMBER
SIZE (INCHES)	WEIGHT (LBS/FT)	RECOMMENDED HOLE SIZE (INCHES)				
11-3/4	38.0 – 60.0	10.772 – 11.150	10.500	4.00	4-1/2" EUE	41211RM 41211RMH ¹ 41211RMV ² 41211RMC ³ 41211RMHC ⁴ 41211RMVC ⁵

Tool Options: ¹HSN, ²Viton, ³Nitrile, Carbide, ⁴HSN, Carbide, ⁵Viton, Carbide

DIFFERENTIAL PRESSURE (MAX)	TENSILE LOAD THRU TOOL (MAX)
4,000 PSI	170,000 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.

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



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C) PRE-INSTALLATION INSPECTION PROCEDURES (cont'd)

GENERAL SCREW TORQUE RECOMMENDATIONS									
SCREW SIZE (INCHES)	#6	#8	#10	1/4	5/16	3/8	7/16	1/2	5/8 and larger
TORQUE RANGE (INCH-POUNDS)	5 – 8	10 – 15	18 – 25	25 – 40	50 – 80	90 – 135	160 – 210	250 – 330	450 - 650

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, elements, o-rings, shear screws, etc. Contact D&L sales for redress kit and/or other replacement part information.

D) SETTING PROCEDURES

CAUTION₂: Do not run the tool without properly tightening connections. Running the tool with loose connections may damage the tool and cause malfunction.

Before running the packer, check the safety shear release to see that the desired quantities of shear pins are installed. Use of all shear pins is recommended.

Run to setting depth. Set down the work string and rotate 1/4 turn to the right at the packer. Pull tension on the packer to set the slips and compress the packing elements. A minimum pull of 25,000 lbs at the packer is required to pack off the elements.

NOTE₂: Take care not to pull more than two-thirds (2/3) of the safety shear setting.

NOTE₃: If a higher shear release is needed, optional mild steel shear pins (6,000 lbs/pin) can be used. Prior to installing these optional shear pins, contact D&L Oil Tools for recommendation on maximum shear value allowed for tool.

E) RELEASING PROCEDURES

Set down the tubing to unset the slips, relax the packing elements. Rotate 1/4 turn to the left at the packer to re-jay the packer. The packer may now be moved and reset or pulled from the well.

If this does not un-set the packer, pull to shear the safety shear release. Once it shears, the tool must be tripped out. If the safety shear release will not shear, torque the tubing to the right until the secondary release threads break loose. Rotate 12-15 additional turns to the right at the tool and trip out.

F) 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.



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G) ELASTOMER TRIM TEMPERATURE GUIDE

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

H) 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

I) DISASSEMBLY

I-1) Clamp top sub (6) in vise.

I-1.1) Unscrew and remove pipe plug (16) from shear sleeve (8).

I-1.2) Remove shear pins (5) from bottom sub (4) and shear sleeve (8). Rotate shear sleeve (8) as necessary to access pins.

I-1.3) Unscrew and remove bottom sub (4).

I-1.3.1) Remove o-ring (20) from bottom sub (4).

I-1.4) Remove shear sleeve (8) from mandrel (1).

I-1.5) Remove element (3) and cone (2) from rubber mandrel (15).

I-1.6) Remove rubber mandrel (15) from mandrel (1).

I-1.6.1) Remove o-ring (21) from rubber mandrel (15).

I-1.7) Unscrew and remove button head cap screws (18) from cage ring (9).

I-1.8) Remove J-body assembly from mandrel (1) and disassemble:

I-1.8.1) Unscrew and remove button head cap screws (18) from spring ring (13).

I-1.8.2) Unscrew and remove button head cap screws (19) from J-body (7); remove drag springs (10) from J-body (7).

I-1.8.3) Remove spring ring (13) from J-body (7).

I-1.8.4) Unscrew and remove low head cap screws (17) from J-body (7).

I-1.8.5) Wedge slips (12) outward (if needed). Remove slip support (14) from J-body (7).

I-1.8.6) Remove wedges (if needed). Remove slips (12) and slip springs (11) from J-body (7).

I-1.9) Unscrew and remove mandrel (1) from top sub (6) (**NOTE₄**: Left-hand threads).

CAUTION₃: Do NOT wrench or clamp on seal surfaces.

I-1.10) Remove cage ring (9) from mandrel (1).

I-2) Unclamp and remove top sub (6) from vise.



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J) ASSEMBLY

NOTE_s: Clean and inspect all parts. Replace all worn and damaged parts. Install parts in proper order and orientation.

J-1) Clamp top sub (6) in vise.

J-1.1) Install cage ring (9) onto mandrel (1).

J-1.2) Screw mandrel (1) into top sub (6) (**NOTE₄:** Left-hand threads).

CAUTION₃: Do NOT wrench or clamp on seal surfaces.

J-1.3) Assemble J-body assembly and install:

J-1.3.1) Install slips (12) and slip springs (11) into J-body (7). Wedge slips outward.

NOTE₇: Install two (2 ea) springs per slip (Fig. 2).

J-1.3.2) Install slip support (14) into J-body (7). Align threaded hole in slip support (14) with hole in J-body (7).

J-1.3.3) Screw low head cap screw (17) into slip support (14). Remove wedges.

J-1.3.4) Install spring ring (13) onto J-body (7).

J-1.3.5) Install J-body assembly onto mandrel (1).

J-1.4) Align holes in J-body (7) with threaded holes in cage ring (9). Screw button head cap screws (18) into cage ring (9).

J-1.5) Set drag springs (10) in place on J-body (7). Align holes in drag springs with threaded holes in J-body (7) and spring ring (13). Screw button head cap screws (19) into J-body (7) and button head cap screws (18) into spring ring (13).

NOTE₈: Install drag springs in sets of three (3ea).

J-1.6) Install o-ring (21) into groove in rubber mandrel (19).

J-1.7) Install rubber mandrel (15) onto mandrel (1).

CAUTION₄: Do not rip or tear o-ring during installation.

J-1.8) Install cone (2) and element (3) onto rubber mandrel (19).

J-1.9) Install shear sleeve (8) onto mandrel (1).

J-1.10) Install o-ring (20) into groove in bottom sub (4).

J-1.11) Screw bottom sub (4) onto mandrel (1).

CAUTION₄: Do not rip or tear o-ring during installation.

J-1.12) One at a time, align plug hole in shear sleeve (8) with pocket hole in bottom sub (4) and insert a shear pin (5).

J-1.13) When desired quantity of shear pins (5) are in place, screw pipe plug (16) into shear sleeve (8).

J-2) Unclamp top sub (6) from vise and remove assembled tool.

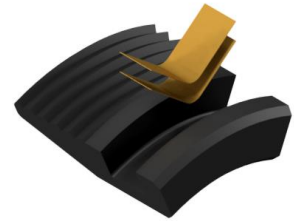


Fig. 2



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K) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 41211RM
1	1	MANDREL	DLMS110 / DLMS80	41210212
2	1	CONE	DLMS80	40511410
3	1	ELEMENT	80 DURO NITRILE	40511512
4	1	BOTTOM SUB	DLMS60	41210616
5	15	SHEAR PIN (4000#)	DLM360BRS	41000990
6	1	TOP SUB	DLMS60	41213620
7	1	J-BODY	DLMS60 / DLMS35	41011310
8	1	SHEAR SLEEVE	DLMS35 / DLMS60	41011851
9	1	CAGE RING	DLMS60	41210321
10	18	DRAG SPRING	DLMSSP301	40570920
11	10	SLIP SPRING	DLMINC625	7170901
12	5	SLIP	DLMS35	60011135
13	1	SPRING RING	DLMS35	41211820
14	1	SLIP SUPPORT	DLMS35	41011810
15	1	RUBBER MANDREL	DLMS60	41010221
16	1	1/4 NPT SOCKET PRESSURE PLUG	4140	SPP025
17	1	5/16-18 UNC X 5/8 LOW HEAD SOCKET CAP SCREW	STEEL	LHSC031C062
18	17	5/16-18 UNC X 5/8 BUTTON HEAD SOCKET CAP SCREW	STEEL	BHSC031C062
19	12	5/16-18 UNC X 3/8 BUTTON HEAD SOCKET CAP SCREW	STEEL	BHSC031C037
20	1	246 O-RING	90 DURO NITRILE	90246
21	1	247 O-RING	90 DURO NITRILE	90247
		REDRESS KIT (RDK)		41211050
		ASSEMBLED WEIGHT		278 LBS



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K) PARTS LIST (cont'd)

K-1) ELASTOMER TRIM OPTIONS

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

K-1.1) HSN

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 41211RMH
3	1	ELEMENT	80 DURO HSN	40511512H
20	1	246 O-RING	90 DURO HSN	90246H
21	1	247 O-RING	90 DURO HSN	90247H

REDRESS KIT (RDK)		41211050H
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K-1.2) VITON

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 41211RMV
3	1	ELEMENT	80 DURO VITON	40511512V
20	1	246 O-RING	90 DURO VITON	90246V
21	1	247 O-RING	90 DURO VITON	90247V

REDRESS KIT (RDK)		41211050V
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K-2) CARBIDE OPTION

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 41211RMC
12	5	CARBIDE SLIP	DLMS110	60011135C



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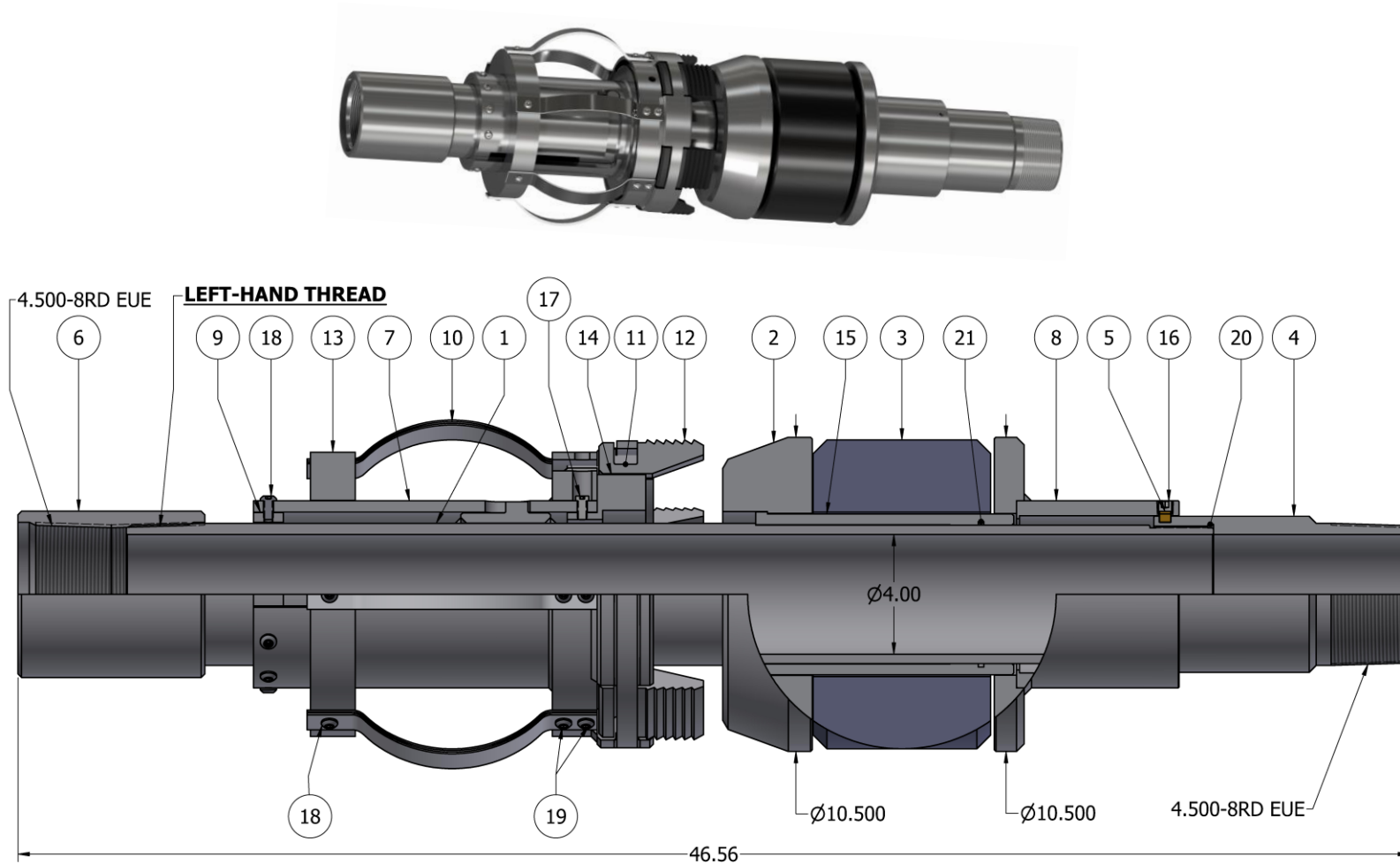
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L) TECHNICAL ILLUSTRATION





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M) REVISION HISTORY

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	APPROVED BY
10/20/2023	D	Revised entire manual	J.Anderson	E.Visaez
11/26/13	C	Revised P/N 60011135 was 40011110, P/N 41210212 material was L-80, P/Ns 40511410, 40511410, 41210616, 41213620, 41011851, 41011310, 41210321, 60011135, 41211820, 41011810, and 41010221 material was 1018; Added element selection guide, recommended hand tools, HSN and Viton options, revision history	J.Anderson	J.McArthur