A) DESCRIPTION

The DL Tension Packer is an economical, compact tool for injection, pumping, medium range treating and production applications. The packer is set by 1/4 right-hand rotation of the tubing and then pull tension. To release the packer, slack off the tubing and the packer will automatically re-jay into the release position. The packer has 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.

B) SPECIFICATION GUIDE

CASING			TOOL		THREAD CONNECTION BOX UP / PIN DOWN	PART NUMBER
SIZE (INCHES)	**WEIGHT** (LBS/FT)	**RECOMMENDED HOLE SIZE** (INCHES)	**GAGE OD** (INCHES)	**NOMINAL ID** (INCHES)		
8-5/8	20.0 – 28.0	8.017 – 9.191	7.750	2.44	2-7/8 EUE	40186 40186H[1] 40186V[2]
	24.0 – 40.0	7.725 – 8.097	7.500	2.44	2-7/8 EUE	40185 40185H[1] 40185V[2]

Elastomer Trim Options: [1]HSN, [2]Viton

DIFFERENTIAL PRESSURE (MAX)	TENSILE LOAD THRU TOOL (MAX)
5,000 PSI	90,000 LBS

C) PRE-INSTALLATION INSPECTION PROCEDURES

CAUTION$_1$: 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 (Fig. 1).

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.

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

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

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

CAUTION$_2$: Do not run the tool without properly tightening connections. Running the tool with loose connections may damage the tool and cause malfunction.

Run to setting depth. Set down on 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 18,000 lbs. at the packer is required to pack off the elements.

E) RELEASING PROCEDURES

Set down on work string to unset the slips, relax the packing elements and re-jay the packer. The tool may now be moved and reset, or pulled from the well.

E-1) EMERGENCY RELEASE

If this does not un-set the packer, torque the work string to the right until the secondary release threads break loose. Rotate 12 to 15 additional turns to the right at the tool and trip out with the work string. When released in this manner, the packer will remain downhole.

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.

G) ELASTOMER TRIM TEMPERATURE GUIDE

RUBBER TYPE	TEMPERATURE RANGE
NITRILE	70° - 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 (1) in vise.

I-1.1) From lower end of tool, unscrew and remove bottom sub (8) from mandrel (2).

I-1.2) Remove element (7) and cone (6) from mandrel (2).

I-1.3) Unscrew and remove button head cap screws (14, 15, 16) from cage ring (3) and J-body (5).

I-1.3.1) Remove star washers (17) from button head cap screws (14, 16).

I-1.4) Remove drag springs (4) from J-body (5).

I-1.5) Rotate and slide J-body assembly as needed to remove it from mandrel (2) and disassemble:

I-1.5.1) Remove spring ring (11) from J-body (5).

I-1.5.2) Wedge slips (9) outwards. Unscrew and remove low head cap screws (13) from slip sleeve (12).

I-1.5.3) Remove slip sleeve (12) from J-body (5).

I-1.5.4) Remove wedges. Remove slips (9) and slip springs (10) from J-body (5).

I-1.6) Unscrew and remove mandrel (2) from top sub (1) (**NOTE$_1$**: Left-hand threads).

I-1.6.1) Remove cage ring (3) from mandrel (2).

I-2) Unclamp and remove top sub (1) from vise.

J) ASSEMBLY

NOTE$_2$: Clean and inspect all parts. Replace all worn and damaged parts. Install parts in proper order, and orientation and tighten/torque all connections properly.

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

J-1.1) Install cage ring (3) onto upper end of mandrel (2).

J-1.2) Screw mandrel (2) into top sub (1) (**NOTE$_1$**: Left-hand threads).

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

J-1.3.1) Install slips (9) and slip springs (10) into J-body (5). Wedge slips outwards.

NOTE$_3$: Install two (2 ea) springs per slip (Fig. 2).

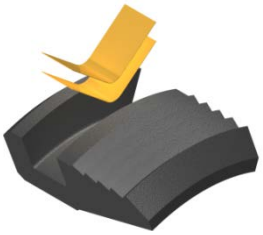


Fig. 2

J-1.3.2) Slide slip sleeve (12) into J-body (5). Align holes in J-body (5) with threaded holes in slip sleeve (12).

J-1.3.3) Screw low head cap screws (13) into slip sleeve (12). Remove wedges.

J-1.3.4) Install spring ring (11) onto upper end of J-body (5).

J-1.3.5) Install J-body assembly onto mandrel (2). Align J-slot in J-body with J-pin on mandrel (2) and move J-pin onto running position in J-slot (Fig. 3).

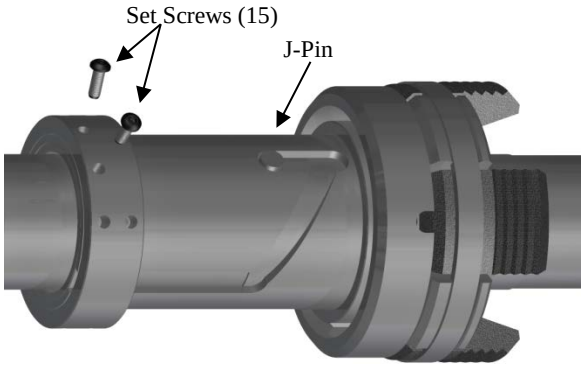


Fig. 3

J-1.4) Align holes in spring ring (11) and J-body (5) with threaded holes in cage ring (3). Screw button head cap screws (15) into cage ring (3) (Fig. 3).

J-1.5) Set drag springs (4) in place in sets of three (3 ea) on J-body (5). Be sure lower ends of drag springs (4) are captured under lip on J-body (5).

J-1.6) With holes in drag springs (4) aligned with threaded holes in cage ring (3), screw button head cap screws (14, 16) with (2 ea) star washers (17) into cage ring (3) and J-body (5).

J) ASSEMBLY (cont'd)

J-1.7) Install cone (6) and element (7) onto mandrel (2).

J-1.8) Screw bottom sub (8) onto mandrel (4).

J-2) Unclamp top sub (1) from vise and remove assembled tool.

K) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	24.0 – 40.0# P/N 40185	20.0 – 28.0# P/N 40186
1	1	TOP SUB	DLMS80	41273610-WBAC	
2	1	MANDREL	DLMS60	40187210	
3	1	CAGE RING	DLMS60	41273325	
4	12	DRAG SPRING	DLMSSP301	40070920	
5	1	J-BODY	DLMS60	41287310	41288310
6	1	CONE	DLMS35	40587410	40588410
7	1	ELEMENT	70 DURO NITRILE	40187511	40588511
8	1	BOTTOM SUB	DLMS80 / DLMS35	40085610-XBAC	40088610-XBAC
9	4	LOWER SLIP	DLMS35	60085135	
10	8	SLIP SPRING	ELGILOY	7170901	
11	1	SPRING RING	DLMS60	41287318	
12	1	SLIP SUPPORT	DLMS60	40087810	40088810
13	2	LOW HEAD CAP SCREW 5/16-18 UNC X 7/16	STEEL	LHSC031C043	
14	4	BUTTON HEAD CAP SCREW 5/16-18 UNC X 1"	STEEL	BHSC031C100	
15	6	BUTTON HEAD CAP SCREW 5/16-18 UNC X 7/8	STEEL	BHSC031C087	
16	4	BUTTON HEAD CAP SCREW 5/16-18 UNC X 1-1/4	STEEL	BHSC031C125	
17	16	TOOTHED STAR WASHER 5/16	STEEL	ELW031	

REDRESS KIT (RDK)		40185050	40186050
ASSEMBLED WEIGHT		102 LBS	117 LBS

K) PARTS LIST (cont'd)

K-1) ELASTOMER TRIM OPTIONS

NOTE$_4$: For temperature range, refer to Elastomer Trim Temperature Guide.

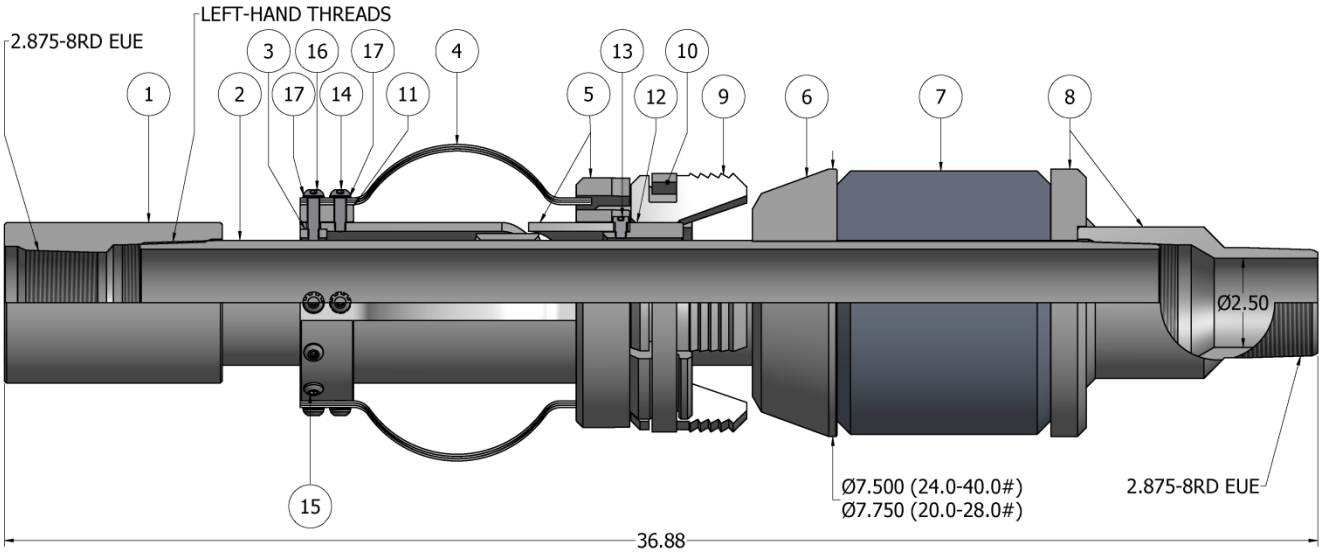
K-1.1) HSN

ITEM	QTY	DESCRIPTION	MATERIAL	24.0 – 40.0# P/N 40185H	20.0 – 28.0# P/N 40186H
7	1	ELEMENT	70 DURO HSN	40187511H	40588511H
		REDRESS KIT (RDK)		40185050H	40186050H

K-1.2) VITON

ITEM	QTY	DESCRIPTION	MATERIAL	24.0 – 40.0# P/N 40185V	20.0 – 28.0# P/N 40186V
7	1	ELEMENT	70 DURO VITON	40187511V	40588511V
		REDRESS KIT (RDK)		40185050V	40186050V

L) TECHNICAL ILLUSTRATION



M) REVISION HISTORY

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	APPROVED BY
02/18/2016	B	Added HSN and Viton options, max. differential pressure, max. tensile load thru tool, Pre-Installation Inspection Procedures, Storage Recommendations, Elastomer Trim Temperature Guide, Recommended Hand Tools, P/N BHSC031C125 and ELW031; Revised P/N BHSC031C100 qty 4 was 8	J.Anderson	J.McArthur