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)		
10-3/4	32.75 – 55.5	9.760 – 10.192	9.500	3.00	3-1/2 EUE	40110-XBAE 40110H-XBAE[1] 40110V-XBAE[2]

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

DIFFERENTIAL PRESSURE (MAX)	TENSILE LOAD THRU TOOL (MAX)
5,000 PSI	120,000 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.

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

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 22,000 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) Unscrew and remove bottom sub (8) from mandrel (2).

I-1.2) Remove rubber mandrel assembly from mandrel (2):

I-1.2.1) Separate element (7) and cone (6) from rubber mandrel (13).

I-1.2.2) Remove o-ring (18) from rubber mandrel (13).

I-1.3) Unscrew and remove button head cap screws (17) from cage ring (3).

I-1.4) Remove J-body assembly from mandrel (2) and disassemble:

I-1.4.1) Unscrew and remove button head cap screws (16) from spring ring (11).

I-1.4.2) Remove spring ring (11) from J-body (5).

I-1.4.3) Unscrew and remove button head cap screws (15) from J-body (5).

I-1.4.4) Remove drag springs (4) from J-body (5).

I-1.4.5) Unscrew and remove low head cap screws (14) from slip support (12).

I-1.4.6) Wedge slips (9) outwards. Remove slip support (12) from J-body (5).

I-1.4.7) Remove wedges. Remove slips (9) and slip springs (10) from J-body (5).

I-1.5) Unscrew and remove mandrel (2) from top sub (1) (**NOTE$_2$**: Left-hand threads).

I-1.5.1) Remove cage ring (3) from mandrel (2).

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

J) ASSEMBLY

NOTE$_1$: 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 mandrel (2).

J-1.2) Screw mandrel (2) into top sub (1) (**NOTE$_2$**: 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 three (3 ea) springs per slip (Fig. 2).

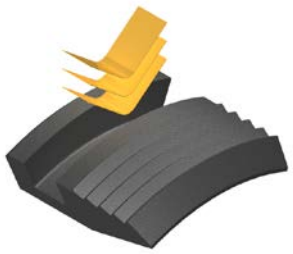


Fig. 2

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

J-1.3.3) Screw low head cap screws (14) into slip support (12). Remove wedges.

J-1.3.4) Set drag springs (4) in place on J-body (5). Align holes in drag springs (4) with threaded holes in J-body (5).

J-1.3.5) Screw button head cap screws (15) into J-body (5).

J-1.3.6) Install spring ring (11) onto upper end of J-body (5). Align holes in drag springs (4) with threaded holes in spring ring (11);

J-1.3.7) Screw button head cap screws (16) into spring ring (11).

J-1.3.8) Install J-body assembly onto mandrel (2). Position J-pin of mandrel (2) in J-slot running position in J-body (5). Align holes in J-body (5) with threaded holes in cage ring (3).

J-1.4) Screw button head cap screws (17) into cage ring (3).

F) ASSEMBLY (cont’d)

J-1.5) Assemble rubber mandrel assembly and install:

J-1.5.1) Install o-ring (18) in o-ring groove in rubber mandrel (13).

J-1.5.2) Install cone (6) and element (7) onto rubber mandrel (13).

J-1.5.3) Install rubber mandrel (13) and assembly onto mandrel (2).

CAUTION$_3$: Do not rip or tear o-ring during installation.

J-1.6) 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	P/N 40110-XBAE
1	1	TOP SUB	DLMS80	41213620-BBAE
2	1	MANDREL	DLMS110 / DLMS60	40110210
3	1	J-BODY RING	DLMS60	41210321
4	18	DRAG SPRING	DLM17CR40	40570920
5	1	J-BODY	1026	41010310
6	1	CONE	DLMS80	40510410
7	1	ELEMENT	70 DURO NITRILE	40510511
8	1	BOTTOM SUB	1026	40110630-XBAE
9	4	SLIP	1026	40010110
10	12	SLIP SPRING	ELGILOY	7170901
11	1	SPRING RING	DLMS35	41010820
12	1	SLIP SUPPORT	DLMS80	41010810
13	1	RUBBER MANDREL	DLMS60	41010220
14	1	LOW HEAD CAP SCREW 5/16-18 UNC X 5/8	STEEL	LHSC031C062
15	12	BUTTON HEAD CAP SCREW 5/16-18 UNC X 3/8	STEEL	BHSC031C037
16	6	BUTTON HEAD CAPSCREW 5/16-18 UNC X ½	STEEL	BHSC031C050
17	11	BUTTON HEAD CAP SCREW 5/16-18 UNC X 3/4	STEEL	BHSC031C075
18	1	349 O-RING	90 DURO NITRILE	90349

REDRESS KIT (RDK)		40110050
ASSEMBLED WEIGHT		223 LBS

K-1) ELASTOMER TRIM OPTIONS

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

K-1.1) HSN

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 40110H-XBAE
7	1	ELEMENT	70 DURO HSN	40510511H
18	1	349 O-RING	90 DURO HSN	90349H

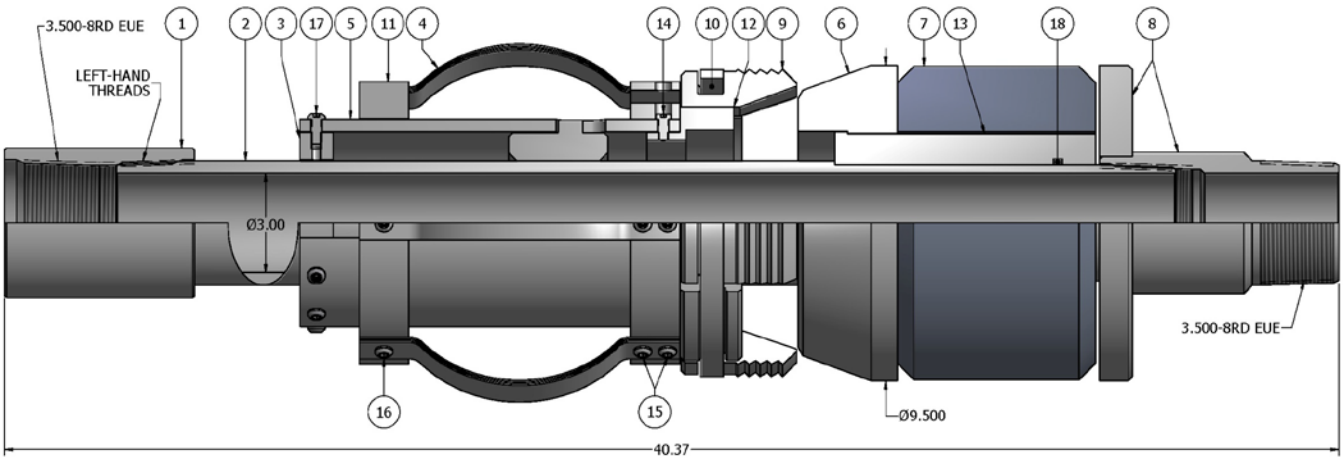
REDRESS KIT (RDK)		40110050H

K-1.2) VITON

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 40110V-XBAE
7	1	ELEMENT	70 DURO VITON	40510511V
18	1	349 O-RING	90 DURO VITON	90349V

REDRESS KIT (RDK)		40110050V

L) TECHNICAL ILLUSTRATION



M) REVISION HISTORY

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	APPROVED BY
12/28/2015	C	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; Revised Assembled weight 223 lbs was 217 lbs, P/N 41213620-BBAE was 41010620, 41210321 was 41210320, 40110630-XBAE was 40110630, 7170901 was 7170900, 90349 was 90340	J.Anderson	N.Banker