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

NOTE$_1$: 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)				
12-3/4	43.0 – 65.42	11.750 – 12.130	11.590	4.00	4-1/2 EUE	41212RM 41212RMH[1] 41212RMV[2] 41212RMC[3] 41212RMHC[4] 41212RMVC[5]

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

DIFFERENTIAL PRESSURE (MAX)	TENSILE LOAD THRU TOOL (MAX)
4,000 PSI	198,500 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.

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

CAUTION$_2$: 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 27,000 lbs at the packer is required to pack off the elements.

NOTE$_2$: Take care not to pull more than two-thirds (2/3) of the safety shear setting.

NOTE$_3$: 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.

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 assy (8).

I-1.2) Remove shear pins (5) from hole in shear sleeve assy (8). Rotate shear sleeve assy (8) as needed.

I-1.3) Unscrew and remove bottom sub (4) from shear sleeve assy (8).

I-1.3.1) Remove o-ring (19) from bottom sub (4).

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

I-1.5) Remove rubber mandrel assembly from mandrel assy (1) and disassemble:

I-1.5.1) Remove element (3) and cone (2) off of rubber mandrel (14).

I-1.5.2) Remove o-ring (20) from rubber mandrel (14).

I-1.6) Unscrew and remove button head cap screws (17) from J-body (7) and spring ring (13); remove drag springs (10).

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

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

I-1.8.1) Wedge slips (12) outward (if needed). Unscrew and remove J-body (7) from slip body (15).

I-1.8.2) Remove wedges (if needed). Remove slips (12) and slip springs (11) from slip body (15).

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

I-1.9) Unscrew and remove mandrel assy (1) from top sub (6) (**NOTE$_6$**: Left-hand threads).

CAUTION$_4$: Do NOT wrench or clamp on seal surfaces.

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

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

J) ASSEMBLY

NOTE5: 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) From upper end of mandrel assy (1), install cage ring (9) onto mandrel assy (1).

J-1.2) Screw mandrel assy (1) into top sub (6) (**NOTE6**: Left-hand threads).

CAUTION4: 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 slip body (15).Wedge slips outward.

NOTE4: Uses three (3ea) slip springs (11) per slip (12).

J-1.3.2) Screw slip body (15) onto J-body (7). Remove wedges.

J-1.3.3) Install spring ring (13) onto J-body (7).

J-1.3.4) Install J-body assembly onto mandrel assy (1). Rotate J-body assembly to move "J-pin" of mandrel assy (1) into lower landing of J-slot.

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 (17) into J-body (7) and spring ring (13).

NOTE7: Uses three (3ea) drag springs (10) per drag spring location (8 total).

J-1.6) Assemble rubber mandrel assembly and install:

J-1.6.1) Install o-ring (20) into groove in rubber mandrel (14).

J-1.6.2) Install cone (2) and element (3) onto rubber mandrel (19).

J-1.6.3) Install rubber mandrel assembly onto mandrel assy (1).

CAUTION3: Do NOT rip or tear o-ring while installing.

J-1.7) Install shear sleeve assy (8) onto mandrel assy (1).

J-1.8) Install o-ring (19) into groove in bottom sub (4).

J-1.9) Screw bottom sub (4) onto mandrel assy (1).

CAUTION3: Do NOT rip or tear o-ring while installing.

J-1.10) Install shear pins (5) into shear sleeve assy (8) and bottom sub (4). Align plug hole in shear sleeve assy (8) with recessed hole in bottom sub (4) and install one shear pin (5) at a time.

J-1.11) Once desired quantity of shear pins (5) are in installed, screw pipe plug (16) into shear sleeve assy (8).

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

K) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 41212RM
1	1	MANDREL	1026	41213210
2	1	CONE	DLMS35	41212410
3	1	ELEMENT	70 DURO NITRILE	41212511
4	1	BOTTOM SUB	DLMS60	41213615
5	18	SHEAR PIN (4000#)	BRASS	41000990
6	1	TOP SUB	DLMS60	41213620
7	1	J-BODY	-	41212310X
8	1	SHEAR SLEEVE ASSY	-	41212850
9	1	CAGE RING	1026	41213325
10	24	DRAG SPRING	STAINLESS STEEL	40570920
11	18	SLIP SPRING	-	7170901
12	6	SLIP	1026	70013110
13	1	SPRING RING	DLMS35	41213820
14	1	RUBBER MANDREL	DLMS35	41213220
15	1	SLIP BODY	DLMS80/DLMS35	41213320
16	1	PIPE PLUG 1/4	STEEL	SPP025_OLD
17	24	BUTTON HEAD CAP SCREW 5/16-18 X 5/8	STEEL	BHSC031C062
18	16	SOCKET CAP SCREW 5/16-18 X 1.00	STEEL	SCS031C100
19	1	247 O-RING	90 DURO NITRILE	90247
20	1	351 O-RING	90 DURO NITRILE	90351

REDRESS KIT (RDK)		41212050
ASSEMBLED WEIGHT		477 LBS

K-1) ELASTOMER TRIM OPTIONS

NOTE$_8$: For temperature range, refer to Elastomer Trim Temperature Guide.

K-1.1) HSN

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 41212RMH
3	1	ELEMENT	70 DURO HSN	41212511H
19	1	247 O-RING	90 DURO HSN	90247H
20	1	351 O-RING	90 DURO HSN	90351H

REDRESS KIT (RDK)		41212050H

K) PARTS LIST (cont’d)

K-1.2) VITON

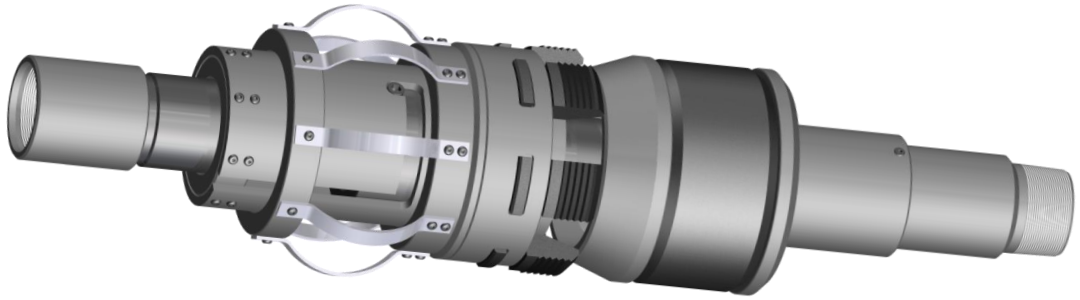
ITEM	QTY	DESCRIPTION	MATERIAL	P/N 41212RMV
3	1	ELEMENT	70 DURO VITON	41212511V
19	1	247 O-RING	90 DURO VITON	90247V
20	1	351 O-RING	90 DURO VITON	90351V

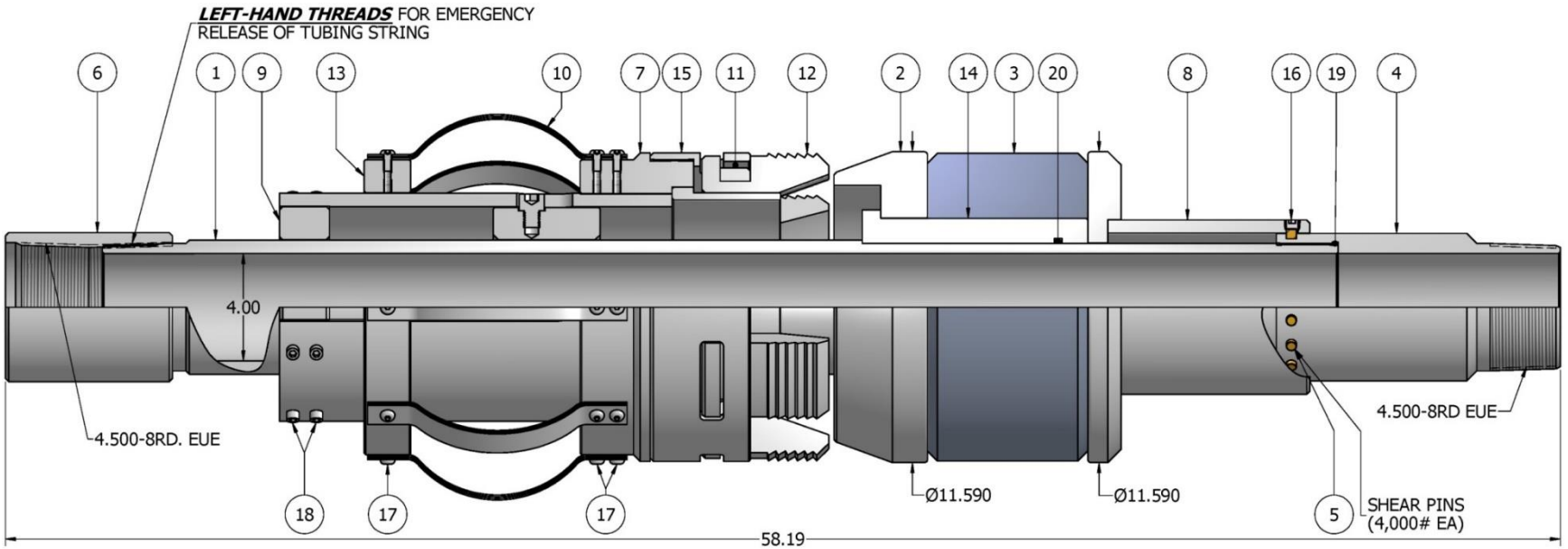
REDRESS KIT (RDK)		41212050V

K-2) CARBIDE OPTION

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 41212RMC
12	6	CARBIDE SLIP	DLMS110	70013110C

L) TECHNICAL ILLUSTRATION





M) REVISION HISTORY

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	APPROVED BY
10/30/2023	B	Revised entire manual	J.Anderson	E.Visaez
11/12/13	A	Created new manual	-	-