



# RETRIEVABLE SEAL BORE PACKER, DUAL BORE, 17-4 PH SS FLOW WET 7" X 5.000" X 4.000"

Manual No:  
**DL-268-7000-044**

Revision: **B**

Revision Date:  
**04/06/2020**

Authored by: *J.Anderson*

Approved by: *K.Riggs*

## A) DESCRIPTION

The Retrievable Seal Bore (RSB) Dual Bore Packer delivers high performance with simplicity of design and desirable economics. This packer allows for a larger ID through the packer by sealing in an upper sealbore. This packer is rated for 7,000 psi and can be equipped to withstand severe corrosion and high temperatures.

**NOTE:** Setting and retrieving tools sold separately.

## B) RELATED TOOLS (sold separately)

B-1) #20 LC Hydraulic Setting Tool (P/N 39420)—refer to technical manual *DL-394-20-229*.

B-2) 7" X 5.000" X 4.000" Setting Adapter Kit (P/N 26970X)—refer to technical manual *DL-269-7000-1105*.

B-3) 7" X 5.000" X 4.000" Retrieving Tool (P/N 26970XRT)—refer to technical manual *DL-269-7000-1106*.

B-4) 5.000" Seal Bore Accessories (P/N varies)—refer to technical manual *DL-581-5000-804*.

B-5) 4.000" Seal Bore Accessories (P/N varies)—refer to technical manual *DL-581-4000-440*.

## C) SPECIFICATION GUIDE

CASING			TOOL OD (INCHES)	SEAL BORE (INCHES)	MIN ID THRU SEALS (INCHES)	PART NUMBER
SIZE (INCHES)	WEIGHT (LBS/FT)	RECOMMENDED HOLE SIZE (INCHES)				
7	26.0 – 32.0	6.094 – 6.276	5.875	5.000 / 4.000	4.00 / 3.00	26871X-P 26871XH-P <sup>1</sup> 26871XV-P <sup>2</sup>

Elastomer Trim Options: <sup>1</sup>HSN, <sup>2</sup>Viton

DIFFERENTIAL PRESSURE (MAX)	TENSILE LOAD THRU TOOL (MAX)
7,000 PSI	129,000 LBS

## D) 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](http://www.dloiltools.com)



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**D) 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.

**E) 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.

Run the RSB Packer in on a hydraulic pressure setting assembly with the RSB Setting Adapter Kit. To set the packer, follow the setting procedures provided in the technical manual for the hydraulic pressure setting assembly.

**F) RELEASING PROCEDURES**

Run the RSB Retrieving Tool into the well until the tool is sitting on the packer. Set down weight to shear the screws retaining the latch mandrel of the retrieving tool and to engage the threaded latch of the retrieving tool with the top sub of the packer (Refer to the retrieving tool technical manual for retrieving tool operating procedures). Continue setting down to engage releasing collet of the retrieving tool with the support ring of the packer. Once the retrieving tool is fully engaged with the packer, straight pick up a minimum of 9,600 lbs to shear the screws retaining the packer support ring. Continue picking up to release the slips and relax the packing element. The packer may now be removed from the well.

**F-1) EMERGENCY RELEASE**

If the packer fails to release, the retrieving tool can be released with straight pick up to shear the retrieving tool shear ring. Apply right-hand rotation to disconnect the retrieving tool from the packer (refer to the retrieving tool technical manual for retrieving tool operating procedures).

**G) 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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## H) ELASTOMER TRIM TEMPERATURE GUIDE

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

## I) 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

## J) DISASSEMBLY

J-1) Clamp lock ring housing (3) in vise.

J-1.1) From lower end of tool, unscrew and remove set screws (20) from bottom sub (18).

J-1.2) Unscrew and remove bottom sub (18) from connector sleeve (14).

J-1.2.1) Remove o-ring (25) from bottom sub (18).

J-1.3) Unscrew and remove cap screws (4) from collet (15).

J-1.4) Unscrew and remove set screws (20) from connector sleeve (14).

J-1.5) Unscrew and remove connector sleeve (14) from collet (15) and lower cone (13).

J-1.6) Unscrew and remove set screws (20) from collet (15).

J-1.7) Unscrew and remove collet (15) from mandrel (2).

J-1.7.1) Unscrew and remove shear screws (17) from collet (15).

J-1.7.2) Separate collet (15) from support ring (9)

J-1.7.3) Remove o-rings (24, 25) from collet (15).

J-1.8) Wedge slips outwards (if needed). Unscrew and remove shear screws (21) from slip body (11).

J-1.9) Unscrew and remove low head cap screws (16) from lower cone (13).

J-1.10) Remove lower cone (13) from slip body (11).

J-1.11) Remove pick-up ring (8) from mandrel (2).

J-1.12) Unscrew upper cone (10) from gage ring (6).

J-1.13) Remove slip body assembly and disassemble:

J-1.13.1) Remove wedges (if needed). Remove slips (12) and slip springs (4) from slip body (11).

J-1.13.2) Unscrew and remove low head cap screws (16) from upper cone (10).

J-1.13.3) Remove upper cone (10) from slip body (11).

J-1.14) Moving to upper end of tool, unscrew and remove upper seal bore (1) from mandrel (2).

J-1.15) Remove o-rings (25) from mandrel (2).

J-2) Unclamp and remove lock ring housing (3) from vise. Clamp upper end of mandrel (2) in vise.

J-2.1) Remove gage ring (6) and element (7) from mandrel (2).



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## J) DISASSEMBLY (cont'd)

J-2.2) Unscrew and remove shear screws (22, 23) from lock ring housing (3).

J-2.3) Unscrew lock ring housing (3) from lock ring (5) and remove from mandrel (2).

J-2.4) Unscrew and remove lock ring (5) from mandrel (2) (**NOTE**<sub>3</sub>: Left-hand threads).

**NOTE**<sub>4</sub>: Using snap ring spreader pliers, lock ring (5) may be spread slightly to be removed.

J-3) Unclamp and remove mandrel (2) from vise.

## K) ASSEMBLY

**NOTE**<sub>2</sub>: Clean and inspect all parts. Replace all worn and damaged parts. Install parts in proper order, and orientation and tighten/torque all connections properly.

**CAUTION**<sub>3</sub>: To ensure tool operates properly, install o-rings in o-ring grooves **NOT** thread reliefs (Fig. 2).

K-1) Clamp upper end of mandrel (2) in vise.

K-1.1) Slide lock ring (5) onto upper end of mandrel (2).

**NOTE**<sub>5</sub>: Threads on lock ring (5) are directional—it **MUST** be installed in correct direction for tool to work properly.

K-1.2) Install lock ring housing (3) onto mandrel (2). Carefully screw lock ring housing (3) onto lock ring (5) until lock ring housing (3) shoulders against mandrel (2). Align threaded hole in lock ring housing (3) with slot in lock ring (5).

K-1.3) Screw shear screw (22) into lock ring housing (3). Tighten until shear screw (22) make contact with mandrel (2). Back shear screw (22) out 1/4 turn.

K-1.4) Align threaded holes in lock ring housing (3) with shear screw groove in mandrel (2).

K-1.5) Screw shear screws (23) into lock ring housing (3). Tighten until shear screws (23) make contact with mandrel (2). Back shear screws (23) out 1/4 turn.

K-1.6) Install element (7) and gage ring (6) onto mandrel (2).

K-2) Unclamp and remove mandrel (2) from vise. Clamp lock ring housing (3) in vise.

K-2.1) Install o-rings (25) in o-ring grooves in mandrel (2).

K-2.2) Install upper seal bore (1) onto mandrel (2) and screw into lock ring housing (3).

**CAUTION**<sub>4</sub>: Do not rip or tear o-rings during installation.

K-2.3) Assemble slip body assembly and install:

K-2.3.1) Install upper cone (10) into lower end of slip body (11). Align threaded holes in upper cone (10) with slots in slip body (11).

K-2.3.2) Screw low head cap screws (16) into upper cone (10).

K-2.3.3) Install slip springs (19) and slips (12) into slip body (11). Wedge slips outwards.

K-2.3.4) Install slip body assembly onto inner mandrel (2). Screw upper cone (10) into gage ring (6). Remove wedges.

K-2.4) Install pick-up ring (8) into ring groove in mandrel (2).

K-2.5) Install lower cone (13) into slip body (11). Align threaded holes in lower cone (13) with slots in slip body (11).

K-2.6) Screw low head cap screws (16) into lower cone (13).

K-2.7) Align threaded holes in slip body (11) with pocket holes in upper and lower cones (10, 13). Screw shear screws (21) into slip body (11). Tighten until shear screws (21) make contact with cones. Back shear screws (21) out 1/4 turn.

K-2.8) Install o-rings (24, 25) in o-ring grooves in collet (15).

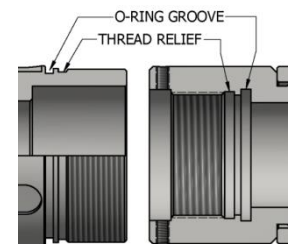


Fig. 2



**RETRIEVABLE SEAL BORE PACKER,  
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**K) ASSEMBLY (cont'd)**

- K-2.9) Install support ring (9) into collet (15). Align threaded holes in collet (15) with pocket holes in support ring (9).
- K-2.10) Screw shear screws (17) into collet (15). Tighten until shear screws (17) make contact with support ring (9). Back shear screws (17) out 1/4 turn.
- K-2.11) Screw collet (15) onto mandrel (2).  
**CAUTION4:** Do not rip or tear o-ring during installation.
- K-2.12) Screw set screws (20) into collet (15).
- K-2.13) Install connector sleeve (14) onto collet (15) and screw onto lower cone (13) and collet (15).  
**CAUTION4:** Do not rip or tear o-ring during installation.
- K-2.14) Align slots in connector sleeve (14) with threaded holes in collet (15). Screw cap screws (4) into collet (15).
- K-2.15) Screw set screws (20) into upper end of connector sleeve (14).
- K-2.16) Install o-ring (25) in o-ring groove in bottom sub (18).
- K-2.17) Screw bottom sub (18) into connector sleeve (14).  
**CAUTION4:** Do not rip or tear o-ring during installation.
- K-2.18) Screw set screws (20) into connector sleeve (14).
- K-3) Unclamp lock ring housing (3) from vise and remove assembled tool.

**L) PARTS LIST**

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 26871X-P
1	1	UPPER SEAL BORE	DLMSS100	26872X215-P
2	1	MANDREL	DLMSS100	26870211-P
3	1	LOCK RING HOUSING	DLMS80	26571856
4	2	CAP SCREW 3/8-16 UNC X 3/8	STEEL	SCS037C037
5	1	LOCK RING	DLMS80	67070011
6	1	GAGE RING	DLMS60	26571860-5_875
7	1	ELEMENT	80 DURO NITRLE	26574512
8	1	PICKUP RING	DLMS80	26574662
9	1	SUPPORT RING	DLMSS100	26570530-P
10	1	UPPER CONE	DLMS80	26570410
11	1	SLIP BODY	DLMS80	26571320-5_875
12	4	SLIP	DLMS60	26570110
13	1	LOWER CONE	DLMS80	26570420
14	1	CONNECTOR SLEEVE	DLMSS100	26570611-P



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**L) PARTS LIST (cont'd)**

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 26871X-P
15	1	RELEASING COLLET	DLMSS100	26570661-P
16	4	LOW HEAD CAP SCREW 3/8-16 UNC X 3/8	STEEL	LHSC037C037
17	8	SHEAR SCREW (1200#) 1/4-20 UNC X 1/4	DLM360BRS	BSSSLT025C025
18	1	BOTTOM SUB	DLMSS100	26571624-P
19	4	SLIP SPRING		DL94830
20	9	SET SCREW 3/8-16 UNC X 3/8	STEEL	SSS037C037
21	12	SHEAR SCREW (3400#) 3/8-16 UNC X 3/8	DLM360BRS	BSSSLT037C037
22	1	SHEAR SCREW (750#) #10-32 UNF X 3/8	DLM360BRS	BSSSLT1032F037
23	8	SHEAR SCREW (1200#) 1/4-20 UNC X 3/8	DLM360BRS	BSSSLT025C037
24	1	247 O-RING	90 DURO NITRILE	90247
25	4	352 O-RING	90 DURO NITRILE	90352
26	10	DRIV-LOK PIN (4800#) 5/16 X 1"	4140	DLP031100 <sup>†</sup>

<sup>†</sup>Refer to Setting Adapter Kit technical manual for placement.

REDRESS KIT (RDK)		26871X050
ASSEMBLED WEIGHT		230 LBS

**L-1) ELASTOMER TRIM OPTIONS**

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

**L-1.1) HSN**

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 26871XH-P
7	1	ELEMENT	80 DURO HSN	26574512H
24	1	247 O-RING	90 DURO HSN	90247H
25	4	352 O-RING	90 DURO HSN	90352H

REDRESS KIT (RDK)		26871X050H
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**L-1.2) VITON**

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 26871XV-P
7	1	ELEMENT	80 DURO VITON	26574512H
24	1	247 O-RING	90 DURO VITON	90247V
25	4	352 O-RING	90 DURO VITON	90352V

REDRESS KIT (RDK)		26871X050V
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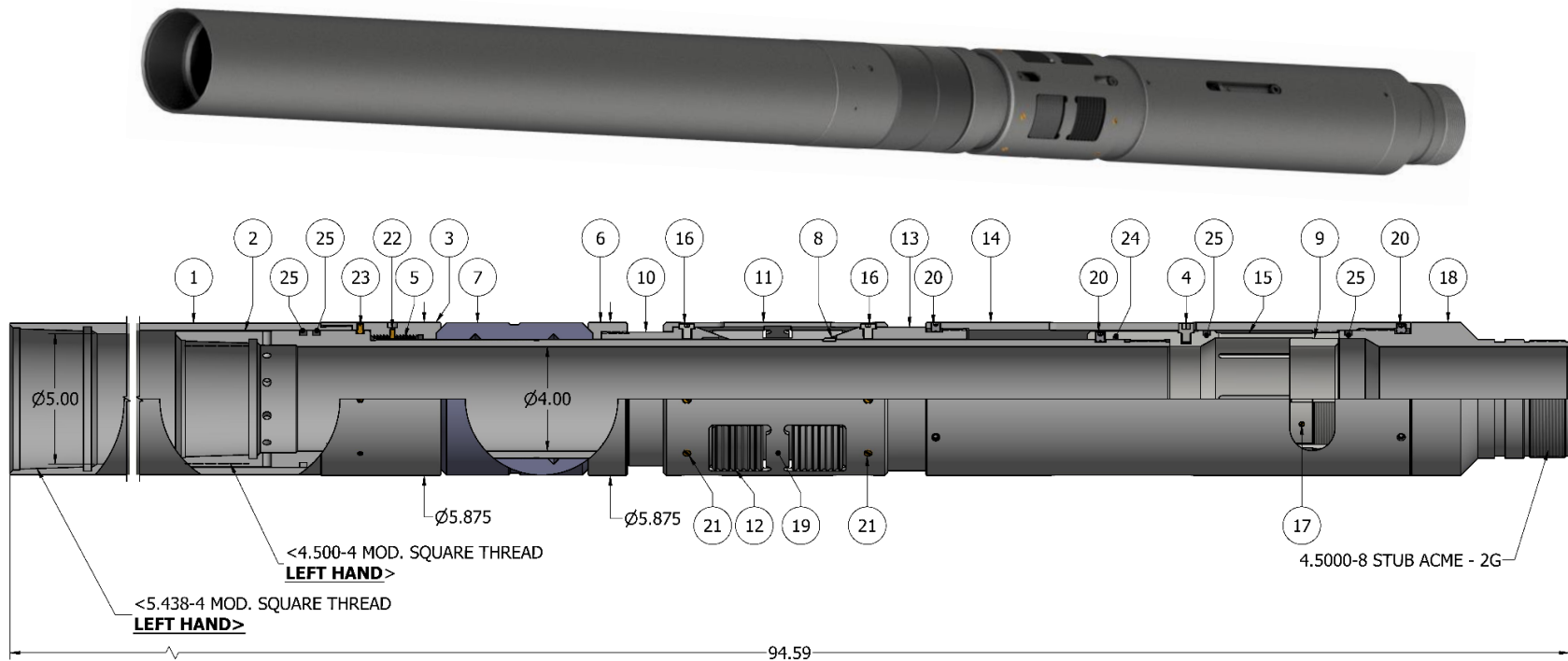
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## M) TECHNICAL ILLUSTRATION



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**N) REVISION HISTORY**

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	APPROVED BY
04/06/2020	B	DL94830 was DL94829	J.Anderson	E.Visaez
02/22/2018	A	Created new manual	-	-