



# RETRIEVABLE SEAL BORE (RSB) PACKER, LARGE BORE 9-5/8" X 6.000"

Manual No:  
**DL-265-9625-273**

Revision: **E**

Revision Date:  
**06/14/2022**

Authored by: J.Anderson

Approved by: N.Banker

## A) DESCRIPTION

The Retrievable Seal Bore (RSB) Packer delivers high performance with simplicity of design and desirable economics. This packer is rated for 7,000 PSI at 250°F with standard nitrile elastomers and can be equipped to withstand severe corrosion and high temperatures. The RSB Packer is set on wireline (with minor changes) or on tubing with a hydraulic setting tool and is retrieved using a retrieving tool.

**NOTE<sub>1</sub>:** A retrieving tool is required to retrieve these packers and must be purchased separately.

**NOTE<sub>2</sub>:** When run on wireline, this packer requires at least a 30 second burn on the wireline setting tool to ensure a proper set. A burn time less than 30 seconds may shear the setting tool off of the packer before fully setting the packer.

## B) RELATED TOOLS (sold separately)

B-1) 9-5/8" X 6.000" Wireline Adapter Kit (WLAK) (P/N 26795-2)—refer to technical manual *DL-267-9625-275*.

B-2) 9-5/8" X 6.000" RSB Retrieving Tool (P/N 26696-2)—refer to technical manual *DL-266-9625-202*.

## 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)				
9-5/8	43.5 – 53.5	8.535 – 8.755	8.250	6.000	4.750	26595-2 26595H-2 <sup>1</sup> 26595V-2 <sup>2</sup> 26595C-2 <sup>3</sup> 26595HC-2 <sup>4</sup> 26595VC-2 <sup>5</sup>
	40.0 – 47.0	8.681 - 8.835	8.500	6.000	4.750	26596-2 26596H-2 <sup>1</sup> 26596V-2 <sup>2</sup> 26596C-2 <sup>3</sup> 26596HC-2 <sup>4</sup> 26596VC-2 <sup>5</sup>

Tool Options: <sup>1</sup>HSN, <sup>2</sup>Viton, <sup>3</sup>Nitrile, Carbide, <sup>4</sup>HSN, Carbide, <sup>5</sup>Viton, Carbide

DIFFERENTIAL PRESSURE (MAX)	TENSILE LOAD THRU TOOL (MAX)	TORQUE THRU TOOL (MAX)
7,000 PSI	175,000 LBS	2,000 FT-LBS

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

**CAUTION<sub>1</sub>:** 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.

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

**CAUTION<sub>2</sub>:** 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 wireline or hydraulic pressure setting assembly with the RSB Setting Adapter Kit. Setting is initiated at approximately 4,800 lbs of force. The slips are set and the elements are compressed at approximately 21,000 lbs. The setting equipment will shear out at approximately 58,000 lbs of force.

To release from the B2 Hydraulic setting tool using a solid setting nut, right-hand rotation is required after the packer is set.

## 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 RSB Retrieving Tool 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 fully the retrieving tool is fully engaged with the packer, straight pick up a minimum of 14,400 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 (Refer to RSB Retrieving Tool manual for retrieving tool operating procedures).



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## 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. Elastomers should be in a relaxed state—free from tension, compression or other 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.

## 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 setting sleeve (1) in vise.

J-1.1) From lower end of tool, unscrew and remove set screws (23) from connector sleeve (13).

J-1.2) Unscrew and remove bottom sub (16) from connector sleeve (13).

J-1.2.1) Remove o-ring (27) from bottom sub (16).

J-1.3) Unscrew and remove cap screws (22) from collet (14).

J-1.4) Unscrew and remove set screws (23) from connector sleeve (13).

J-1.5) Unscrew and remove connector sleeve (13) from lower cone (12) and collet (14).

J-1.6) Unscrew and remove set screws (23) from collet (14).

J-1.7) Unscrew collet (14) from inner mandrel (8).

J-1.8) Remove collet assembly and disassemble:

J-1.8.1) Unscrew and remove shear screws (18) from collet (14).

J-1.8.2) Remove support ring (15) from collet (14).

J-1.8.3) Remove o-ring (26) and o-ring and back-up ring (28, 25) from collet (14).

J-1.9) Unscrew and remove low head cap screws (20) from lower cone (12).

J-1.10) Unscrew and remove lower shear screws (21) from both ends of slip body (10).

J-1.11) Wedge slips (11) outwards (if needed). Remove lower cone (12) from inner mandrel (8).

J-1.12) Unscrew upper cone (9) from rubber retainer (7).



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## J) DISASSEMBLY (cont'd)

J-1.13) Remove pick-up ring (5) from inner mandrel (8).

J-1.14) Remove slip body assembly from inner mandrel (8) and disassemble:

J-1.14.1) Remove wedges (if needed). Remove slips (11) and slip springs (24) from slip body (10).

J-1.14.2) Unscrew and remove low head cap screws (20) from upper cone (9).

J-1.14.3) Remove slip body (10) from upper cone (9).

J-2) Unclamp and remove setting sleeve (1) from vise. Clamp lower end of inner mandrel (8) in vise.

J-2.1) From upper end of tool, unscrew and remove cap screws (22) from top sub (3).

J-2.2) Unscrew and remove setting sleeve (1) from lock ring housing (2).

J-2.3) Unscrew and remove shear screws (17) from lock ring housing (2).

J-2.4) Unscrew and remove set screws (23) from top sub (3).

J-2.5) Unscrew and remove top sub (3) from inner mandrel (8).

J-2.6) Unscrew and remove shear screw (19) from lock ring housing (2).

J-2.7) Unscrew and remove lock ring housing (2) from lock ring (4).

J-2.8) Unscrew and remove lock ring (4) from inner mandrel (8).

**NOTE<sub>3</sub>:** Using snap ring spreader pliers, the lock ring (4) may be spread slightly to be easily removed from inner mandrel (8).

J-2.9) Remove element (6), and rubber retainer (7) from inner mandrel (8).

J-3) Unclamp and remove inner mandrel (8) from vise.

## K) ASSEMBLY

**NOTE<sub>4</sub>:** 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 inner mandrel (8) in vise.

K-1.1) From upper end of tool, install rubber retainer (7), and element (6) onto inner mandrel (8).

K-1.2) Screw and/or slide lock ring (4) onto inner mandrel (8) (**NOTE<sub>5</sub>:** Left-hand threads).

**NOTE<sub>6</sub>:** Threads on lock ring (4) are directional—it **MUST** be installed in correct direction for tool to work properly.

K-1.3) Install lock ring housing (2) onto inner mandrel (2). Carefully screw lock ring housing (2) onto lock ring (4). Align gap in lock ring (4) with threaded hole in lock ring housing (2).

K-1.4) Screw shear screw (19) into lock ring housing (2) until screw is flush with OD of lock ring housing (2).

K-1.5) Screw top sub (3) onto inner mandrel (8). Align shear screw groove in top sub (3) with threaded holes in lock ring housing (8).

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

K-1.6) Screw shear screws (17) into lock ring housing (8). Tighten until shear screws (17) make contact with top sub (3). Back shear screws (17) out 1/4 turn. .

K-1.7) Screw set screws (23) into top sub (3).

K-1.8) Screw setting sleeve (1) onto lock ring housing (8). Align slots in setting sleeve (1) with threaded holes in top sub (3).

K-1.9) Screw cap screws (22) into top sub (3).

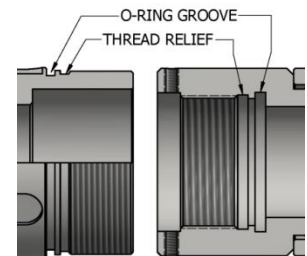


Fig. 2



# RETRIEVABLE SEAL BORE (RSB) PACKER, LARGE BORE 9-5/8" X 6.000"

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## K) ASSEMBLY (cont'd)

K-2) Unclamp and remove inner mandrel (8) from vise. Clamp setting sleeve (1) in vise.

K-2.1) Assemble slip body assembly and install:

K-2.1.1) Install upper cone (9) into slip body (10). Align threaded holes in upper cone (9) with slots in slip body (10).

K-2.1.2) Screw low head cap screws (20) into upper cone (9).

K-2.1.3) Align threaded holes in slip body (10) with pocket holes in upper cone (9).

K-2.1.4) Screw shear screws (21) into slip body (10). Tighten until shear screws (21) make contact with upper cone (9). Back shear screws (21) out 1/4 turn. .

K-2.1.5) Install slips (11) and slip springs (24) into slip body (10). Wedge slips (11) outwards.

K-2.1.6) Install slip body assembly onto inner mandrel (8) and screw upper cone (9) into rubber retainer (7). Remove wedges.

K-2.2) Install pick-up ring (5) in ring groove in inner mandrel (8).

K-2.3) Install lower cone (12) onto inner mandrel (8). Align threaded holes in lower cone (12) with slots in slip body (10).

K-2.4) Screw low head cap screws (20) into upper cone (9).

K-2.5) Align threaded holes in slip body (10) with pocket holes in lower cone (12).

K-2.6) Screw shear screws (21) into slip body (10). Tighten until shear screws (21) make contact with lower cone (12). Back shear screws (21) out 1/4 turn.

K-2.7) Assemble collet assembly and install:

K-2.7.1) Install o-ring (26) in o-ring groove in collet (14).

K-2.7.2) Install o-ring (28) and back-up rings (25) in o-ring groove (Det. A).

K-2.7.3) Install support ring (15) into collet (14). Align pocket holes in support ring (15) with threaded holes in collet (14).

K-2.7.4) Screw shear screws (18) into collet (14). Tighten until shear screws (18) make contact with support ring (15). Back shear screws (18) out 1/4 turn.

K-2.7.5) Screw collet (14) onto inner mandrel (8).

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

K-2.7.6) Screw set screws (23) into collet (23).

K-2.8) Install connector sleeve (13) onto collet (14) and screw onto lower cone (12) and collet (14). Align slots in connector sleeve (13) with threaded holes in collet (14).

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

K-2.9) Screw cap screws (22) into collet (14).

K-2.10) Screw set screws (23) into upper end of connector sleeve (13).

K-2.11) Install o-ring (27) in o-ring groove in bottom sub (6).

K-2.12) Screw bottom sub (16) into connector sleeve (13).

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

K-2.13) Screw set screws (23) into lower end of connector sleeve (13).

K-3) Unclamp setting sleeve (1) from vise and remove assembled tool.



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## L) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 26595-2	P/N 26596-2
1	1	SETTING SLEEVE	DLMS110	26596761	
2	1	LOCK RING HOUSING	DLMS80	26595855	26596856
3	1	TOP SUB	DLMS110	26594371	
4	1	LOCK RING	DLMS80	67295011	67295005
5	1	PICKUP RING	DLMS80	26594662	
6	1	ELEMENT	80 DURO NITRILE	67295512	67296512
7	1	RUBBER RETAINER	DLMS80	26595860	26596860
8	1	INNER MANDREL	DLMS110	26594211	
9	1	UPPER CONE	DLMS80	26594411	
10	1	SLIP BODY	DLMS80	26595321	26596321
11	4	SLIP	DLMS35	26595110	26596110-2
12	1	LOWER CONE	DLMS80	26594421	
13	1	CONNECTOR SLEEVE	DLMS110	26594612SLB	
14	1	COLLET	DLMS80	26594661	
15	1	SUPPORT RING	DLMS35	26594530	
16	1	BOTTOM SUB	DLMS80	26595621	26596620
17	4	1/4-20 UNC X 1/2 SLOTTED SHEAR SCREW (1200#)	DLM360BRS	BSSSLT025C050	
18	12	1/4-20 UNC X 1/4 SLOTTED SHEAR SCREW (1200#)	DLM360BRS	BSSSLT025C025	
19	1	#10-32 UNF X 3/8 SLOTTED SHEAR SCREW (750#)	DLM360BRS	BSSSLT1032F037	
20	4	3/8-16 UNC X 3/8 LOW HEAD SOCKET CAP SCREW	STEEL	LHSC037C037	
21	12	3/8-16 UNC X 3/8 SLOTTED SHEAR SCREW (3000#)	DLM360BRS	BSSSLT037C037	
22	4	3/8-16 UNC X 3/8 SOCKET CAP SCREW	STEEL	SCS037C037	
23	13	3/8-16 UNC X 3/8 SOCKET SET SCREW	STEEL	SSS037C037	
24	4	SLIP SPRING	DLMELG	DL94829	DL94830
25	2	PARBACK BACKUP RINGS	DLMELG	4500365	
26	1	261 O-RING	90 DURO NITRILE	90261	90261
27	1	262 O-RING	90 DURO NITRILE	90262	90262
28	1	365 O-RING	90 DURO NITRILE	90365	90365
29	12	5/16 X 1 DRIV-LOK PIN (4800#)	4140	DLP031100*	

\*Refer to WLAK technical manual for placement

REDRESS KIT (RDK)		26595050	26596050
ASSEMBLED WEIGHT		318 LBS	338 LBS



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## L) PARTS LIST (cont'd)

### L-1) ELASTOMER TRIM OPTIONS

**NOTE<sub>7</sub>:** For temperature range, refer to Elastomer Trim Temperature Guide.

#### L-1.1) HSN

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 26595H-2	P/N 26596H-2
6	1	ELEMENT	80 DURO HSN	67295512H	67296512H
26	1	261 O-RING	90 DURO HSN	90261H	90261H
27	1	262 O-RING	90 DURO HSN	90262H	90262H
28	1	365 O-RING	90 DURO HSN	90365H	90365H

REDRESS KIT (RDK)		26595050H	26596050H
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#### L-1.2) VITON

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 26595V-2	P/N 26596V-2
6	1	ELEMENT	80 DURO VITON	67295512V	67296512V
26	1	261 O-RING	90 DURO VITON	90261V	90261V
27	1	262 O-RING	90 DURO VITON	90262V	90262V
28	1	365 O-RING	90 DURO VITON	90365V	90365V

REDRESS KIT (RDK)		26595050V	26596050V
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### L-2) CARBIDE OPTIONS

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 26595C-2	P/N 26596C-2
11	4	CARBIDE SLIP	DLMS110	26595110C	26596110C-2





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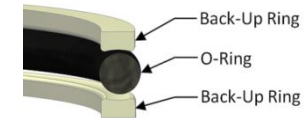
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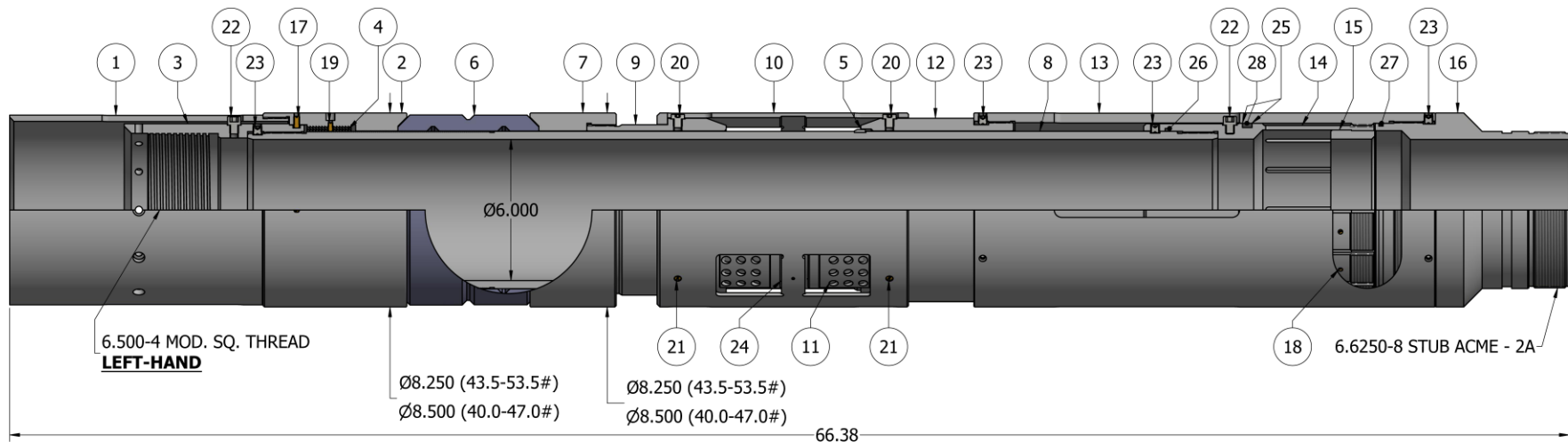
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## M) TECHNICAL ILLUSTRATION



DETAIL A (TYP.)  
**NOTE:** CURVED FACES  
OF BACK-UP  
RINGS FACE O-RING





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## N) REVISION HISTORY

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	APPROVED BY
06/14/2022	E	Added 26596-2, carbide and wicker options	J.Anderson	J.Johnson
02/11/2020	D	Revised Elastomer Trim Temp. Guide nitrile rating, DL94830 was DL94829	J.Anderson	E.Visaez
12/14/2016	C	Corrected tensile load thru tool 175,000 lbs was 17,500 lbs	J.Anderson	N.Banker
07/13/2016	B	Added General Screw Torque Recommendations; Revised P/N DLP031100 was DLP031062, qty 12 was 6	J.Anderson	C.Colvin
03/23/2016	A	Created new manual	-	-