



RETRIEVABLE SEAL BORE PACKER 7" X 3.250"

Manual No:
DL-260-7000-304

Revision: **B**

Revision Date:
04/02/2020

Authored by: B.Mathis

Approved by: F.Johnson

A) DESCRIPTION

The Retrievable Seal Bore (RSB) Packer delivers high performance with simplicity of design and desirable economics. This packer is rated up to 300°F with Nitrile elastomers (refer to Elastomer Trim Temperature Guide) and can be equipped to withstand severe corrosion and high temperatures. This packer is set on wireline or on tubing with a hydraulic setting tool and is retrieved using a retrieving tool.

NOTE₁: Setting and retrieving tools sold separately.

NOTE₂: 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) 7" X 3.250" Wireline Adapter Kit (WLAK) (P/N 25973)—refer to technical manual DL-259-7000-957.

B-2) 6-5/8" X 3.250" RSB Retrieving Tool (P/N 26665)—refer to technical manual DL-261-6625-958.

C) SPECIFICATION GUIDE

CASING			TOOL			
SIZE (INCHES)	WEIGHT (LBS/FT)	RECOMMENDED HOLE SIZE (INCHES)	GAGE OD (INCHES)	SEAL BORE (INCHES)	MIN ID THRU SEALS (INCHES)	PART NUMBER
7	23.0 – 29.0#	6.184 – 6.366	5.938	3.250	2.420	26073

DIFFERENTIAL PRESSURE (MAX)
7,000 PSI

D) PRE-INSTALLATION INSPECTION PROCEDURES

CAUTION₃: D&L ships tool connections made-up hand-tight—labeled with hand-tight tape on the tool—unless stated otherwise. Properly tighten connections before operating tool (Fig. 1).



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

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

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

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: 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 pressure setting assembly with the RSB Wireline Adapter Kit (WLAK). This packer may also be set utilizing a hydraulic setting tool run on tubing.

F) RELEASING PROCEDURES

To release the RSB packer – run the RSB Retrieving Tool into the well on tubing and latch into the packer. Set down a minimum of 6,000 lbs at the packer to shear out the mandrel from the upper latch. The releasing collet will engage the support ring under the collet in the RSB Packer. Straight pick up shears the support ring away from the collet fingers allowing the collet to collapse. Continued upward movement releases the slips and relaxes the packing element. The RSB Packer is now free of the casing and can be removed from the well.

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, 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).

H) ELASTOMER TRIM TEMPERATURE GUIDE

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



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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 (9) in vise.

J-1.1) Unscrew and remove set screws (20) from lower end of connector sleeve (14).

J-1.2) Unscrew and remove bottom sub (8) from connector sleeve (14).

J-1.2.1) Remove o-ring (26) from bottom sub (8).

J-1.3) Unscrew and remove set screws (20) from upper end of connector sleeve (14).

J-1.4) Unscrew and remove cap screws (18) from collet (15).

J-1.5) Unscrew and remove connector sleeve (14) 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 (22) from collet (15) fingers.

J-1.7.2) Separate collet (15) from support ring (16)

J-1.7.3) Remove o-rings (25, 26) from collet (15).

J-1.8) Unscrew and remove shear screws (24) from lower cone (13).

J-1.9) Unscrew and remove low head cap screws (19) from lower cone (13).

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

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

J-2.1) Move to upper end of tool - unscrew and remove cap screws (18) from top sub (1).

J-2.2) Unscrew and remove setting sleeve (9) from ratchet ring housing (3).

J-2.3) Unscrew and remove shear screws (23) from ratchet ring housing (3).

J-2.4) Unscrew and remove set screws (20) from top sub (1).

J-2.5) Unscrew and remove top sub (1) from mandrel (2)

J-2.6) Unscrew and remove shear screw (21) from ratchet ring housing (3).

J-2.7) Unscrew ratchet ring housing (3) from lock ring (5).

J-2.8) Unscrew and/or slide lock ring (5) from mandrel (2).

NOTE: Using snap ring spreader pliers, lock ring (5) may be spread slightly to pass over ratchet threads.

J-2.9) Remove ratchet ring housing (3) from mandrel (2).

J-2.10) Remove element (7) from mandrel (2).

J-2.11) Unscrew and remove rubber retainer (6) from upper cone (10).



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J) DISASSEMBLY (cont'd)

J-2.12) Wedge slips outwards (if needed). Remove slip cage assembly and disassemble:

J-2.12.1) Unscrew and remove shear screws (24) from slip cage (11).

J-2.12.2) Remove wedges (if needed). Remove slips (12) and slip springs (4) from slip cage (11).

J-2.12.3) Unscrew and remove low head cap screws (19) from upper cone (10).

J-2.12.4) Remove upper cone (10) from slip cage (11).

J-2.12.5) Using snap ring spreader pliers, remove pickup ring (17) from mandrel (2).

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

K) ASSEMBLY

NOTE₁₀: Clean and inspect all parts. Replace all worn and damaged parts. Install parts in proper order, orientation and tighten/torque all connections properly.

CAUTION₆: To ensure tool operates properly, install o-rings in o-ring grooves - **NOT** thread reliefs (Fig. 2).

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

K-1.1) Using snap ring spreader pliers, install pickup ring (17) in groove in mandrel (2).

K-1.2) Assemble slip cage assembly and install:

K-1.2.1) Install upper cone (10) into lower end of slip cage (11).

K-1.2.2) Align threaded holes in upper cone (10) with slots in slip cage (11). Screw low head cap screws (19) into upper cone (10).

K-1.2.3) Screw shear screws (24) into slip cage (11). Tighten until shear screws (24) make contact with upper cone (10). Back shear screws (24) out 1/4 turn.

K-1.2.4) Install slip springs (4) and slips (12) into slip cage (11). Wedge slips outwards.

K-1.2.5) Install slip cage assembly onto mandrel (2).

K-1.3) Screw rubber retainer (6) onto upper cone (10).

K-1.4) Install element (7) onto mandrel (2).

K-1.5) Install ratchet ring housing (3) onto mandrel (2).

K-1.6) Push components downwards on mandrel (2) to install lock ring (5). Using snap ring spreader pliers, spread lock ring (5) slightly to pass over ratchet threads (or screw lock ring (5) onto mandrel (2) threads) (**NOTE₇:** Left-hand threads).

NOTE₈: Threads on lock ring (5) are directional—it MUST be installed in correct direction for tool to work properly.

K-1.7) Screw ratchet ring housing (3) onto lock ring (5). Push components upwards until element (7) contacts ratchet ring housing (3).

K-1.8) Align threaded hole for shear screw (21) in ratchet ring housing (3) with gap in lock ring (5). Screw shear screw (21) into ratchet ring housing (3). Tighten until shear screw (21) makes contact with mandrel (2). Back shear screws (21) out 1/4 turn.

K-1.9) Screw top sub (1) onto mandrel (2).

K-1.10) Align shear screw groove in top sub (1) with threaded holes in ratchet ring housing (3). Screw shear screws (23) into ratchet ring housing (3). Tighten until shear screws (23) make contact with top sub (1). Back shear screws (23) out 1/4 turn.

K-1.11) Screw set screws (20) into top sub (1).

K-1.12) Install setting sleeve (9) onto top sub (1) and screw it into ratchet ring housing (3).

K-1.13) Align slots in setting sleeve (9) with threaded holes in top sub (1). Screw cap screws (18) into top sub (1).

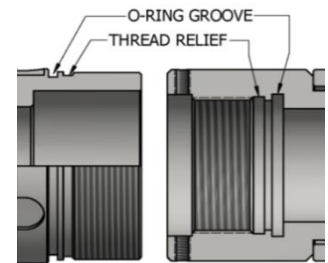


Fig. 2



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K) ASSEMBLY (cont'd)

K-2) Unclamp and remove mandrel (2) from vise. Clamp setting sleeve (9) in vise.

K-2.1) Install lower cone (13) into slip cage (11).

K-2.2) Align threaded holes in lower cone (13) with slots in slip cage (11). Screw low head cap screws (19) into lower cone (13).

K-2.3) With threaded holes in slip cage (11) aligned with recessed holes in lower cone (13) - screw shear screws (24) into slip cage (11). Tighten until shear screws (24) make contact with lower cone (13). Back shear screws (24) out 1/4 turn. Remove wedges.

K-2.4) Makeup collet assembly and install:

K-2.4.1) Install support ring (16) into collet (15).

K-2.4.2) Align threaded holes in collet (15) with recessed holes in support ring (16). Screw shear screws (22) into collet (15). Tighten until shear screws (22) make contact with support ring (16). Back shear screws (22) out 1/4 turn.

K-2.4.3) Install o-rings (25, 26) in o-ring grooves in collet (15).

K-2.4.4) Screw collet (15) onto mandrel (2).

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

K-2.4.5) Screw set screws (20) into collet (15).

K-2.5) Install connector sleeve (14) onto collet (15) and screw onto lower cone (13).

CAUTION4: Do not rip or tear o-ring or back-up rings during installation.

K-2.6) Align slots in connector sleeve (14) with threaded holes in collet (15). Screw cap screws (18) into collet (15).

K-2.7) Screw set screws (20) into upper end of connector sleeve (14).

K-2.8) Install o-ring (26) in o-ring groove in bottom sub (8).

K-2.9) Screw bottom sub (8) into connector sleeve (14).

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

K-2.10) Screw set screws (20) into lower end of connector sleeve (14).

K-3) Unclamp ratchet ring housing (3) from vise and remove assembled tool.

L) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 26073
1	1	TOP SUB	DLMS80	26073610
2	1	MANDREL	DLMS80	26073210
3	1	RATCHET RING HOUSING	DLMS41X80	26574855
4	4	SLIP SPRING	X-750 INCONEL	DL94830
5	1	LOCK NUT	DLMS80	67070011
6	1	RUBBER RETAINER	DLMS35	26574860
7	1	ELEMENT	80 DURO NITRILE	26574512
8	1	BOTTOM SUB	DLMS80	26073621



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L) PARTS LIST (cont'd)

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 26073
9	1	SETTING SLEEVE	DLMS80	26073761
10	1	UPPER CONE	DLMS80	26570410
11	1	SLIP CAGE	DLMS80	26570320
12	4	SLIP	DLMS60	26570110
13	1	LOWER CONE	DLMS80	26570420
14	1	LOWER CONNECTOR SLEEVE	DLMS80	26570611
15	1	RELEASE COLLET	DLMS110	26073661
16	1	SUPPORT RING	DLMS80	26073530
17	1	PICKUP RING	DLMS80	26574662
18	4	SOCKET CAP SCREW 3/8-16 UNC X 3/8	STEEL	SCS037C037
19	4	LOW HEAD SOCKET CAP SCREW 3/8-16 UNC X 3/8	STEEL	LHSC037C037
20	12	SET SCREW 3/8-16 UNC X 3/8	STEEL	SSS037C037
21	1	SHEAR SCREW (750# EA) #10-32 UNF X 3/8	DLM360BRS	BSSSLT1032F037
22	8	SHEAR SCREW (1200# EA) 1/4-20 UNC X 5/16	DLM360BRS	BSSSLT025C031
23	10	SHEAR SCREW (1200# EA) 1/4-20 UNC X 3/8	DLM360BRS	BSSSLT025C037
24	12	SHEAR SCREW (3000# EA) 3/8-16 UNC X 3/8	DLM360BRS	BSSSLT037C037
25	1	247 O-RING	90 DURO NITRILE	90247
26	2	352 O-RING	90 DURO NITRILE	90352
27	10	DRIV-LOK PIN (4800# EA) 5/16 X 1"	4140	DLP031100*

*Refer to WLAK technical manual for placement.

REDRESS KIT (RDK)	26073050
ASSEMBLED WEIGHT	225 LBS



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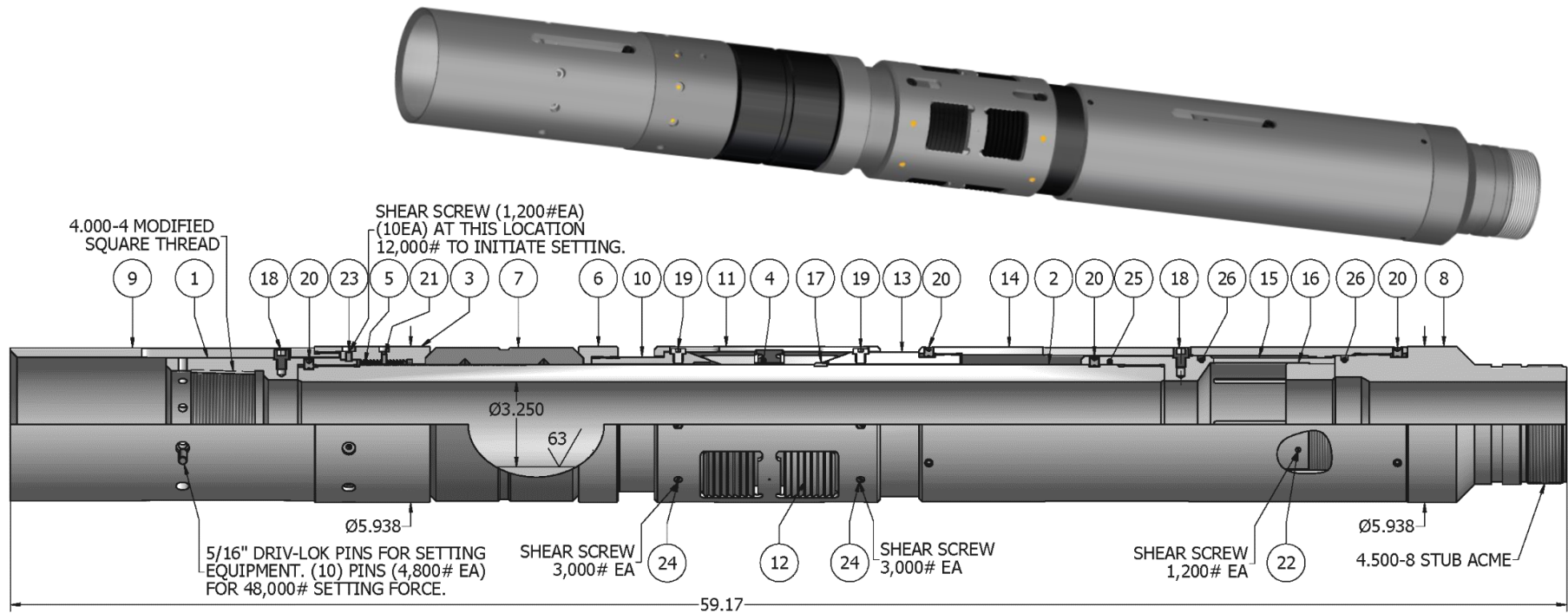
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M) TECHNICAL ILLUSTRATION



N) REVISION HISTORY

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	APPROVED BY
04/02/2020	B	Added General Screw Torque Recommendations; Revised nitrile and HSN temp ratings, P/N DL94830 was DL94829	J.Anderson	E.Visaez
11/04/2015	A	Created new tech manual;	-	-