	<h1>SNAPSET II PACKER</h1> <h2>9-5/8" X 3-1/2"</h2>	Manual No: <b>DL-636-9625-1572</b>
		Revision: <b>B</b>
		Revision Date: <b>08/11/2022</b>
		Authored by: J.Anderson
		Approved by: D.McKeon

## A) DESCRIPTION

The Snapset II Packer is a compression set tool requiring only straight set down weight to pack-off. This packer is run above another compression set packer (such as the AS-III Packer) to selectively treat, produce or inject in multiple zone completions. This packer is also used to isolate casing hole perforations.

This packer features a large by-pass area to prevent swabbing when running and retrieving. Once the packer is set, pressure from above or below acts down on the valve to maintain the seal and prevent upward movement of the tubing. When releasing, the valve allows debris to be washed from the upper slips. This packer is equipped with an internal latch to prevent setting prematurely when running in the hole. When releasing, the latch re-engages to allow movement downhole.

## B) SPECIFICATION GUIDE

CASING			TOOL		THREAD CONNECTION BOX UP / PIN DOWN	PART NUMBER
SIZE (INCHES)	WEIGHT (LBS/FT)	RECOMMENDED HOLE SIZE (INCHES)	OD (INCHES)	NOMINAL ID (INCHES)		
9-5/8	32.3 - 43.5	8.755 – 9.001	8.500	3.00	3-1/2 EUE	63696 63696H <sup>1</sup> 63696V <sup>2</sup> 63696C <sup>3</sup> 63696HC <sup>4</sup> 63696VC <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)
6,000 PSI	90,000 LBS

## C) 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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### 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:** Do not run the tool without properly tightening connections. Running the tool with loose connections may damage the tool and cause malfunction.

Run the packer to setting depth with an ASI-X Packer (or other comparable tool) below the Snapset II Packer. Set the lower tool to provide resistance to set the Snapset II Packer. Apply sufficient set down weight to release the internal latch (5,000 – 10,000 lbs). Apply a minimum weight of 25,000 lbs at the packer to pack off the elements and set the slips.

### E) RELEASING PROCEDURES

Pick up on the tubing string. Pull enough tension to relax the elements, release the slips and re-set the internal latch. The packer can now be retrieved or run down hole.

### 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.



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### G) ELASTOMER TRIM TEMPERATURE GUIDE

NITRILE (STD)			
TEMPERATURE RANGE (F°)	DUROMETER		
	END	MIDDLE	END
40° - 125°	80	70	80
125° - 250°	90	70	90
150° - 250°	90	80	90
250° +	Contact D&L Sales		

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
- STRAP WRENCH
- 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 set screws (30) from torque sleeve (20).

I-1.2) Unscrew and remove bottom sub (28) from torque sleeve (20).

I-1.2.1) Remove o-ring (36) from bottom sub (28).

I-1.3) Unscrew and remove torque pins (18) from torque ring (17).

I-1.4) Unscrew and remove torque sleeve (20) from rubber retainer adaptor (16).

I-1.5) Unscrew and remove torque ring (17) from lower mandrel (11).

I-1.6) Unscrew and remove collet (3) from rubber retainer adaptor (16).

I-1.7) Unscrew and remove lower mandrel (11) from inner mandrel (2).

**CAUTION:** Do NOT wrench or clamp on seal surface.

I-1.8) Unscrew and remove rubber retainer adapter (16) from rubber retainer (15).

I-1.9) Unscrew and remove rubber mandrel assembly from valve body (25) and disassemble:

**NOTE:** For leverage, insert a rod through rubber retainer (15) and rubber mandrel (19).

I-1.9.1) Remove elements (13, 14), rubber spacers (12) and rubber retainer (15) from rubber mandrel (19).

I-1.10) Unscrew and remove gage ring (29) from valve body (25).

I-1.11) Unscrew and remove valve body (25) from central body (10).

I-1.11.1) Remove o-ring (33) from valve body (25).

I-1.12) Unscrew and remove central body (10) from upper cone (9).

I-1.13) Unscrew and remove seal retainer (21) from seal receptacle (23).

I-1.14) Remove seal (24) from seal receptacle (23)



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### I) DISASSEMBLY (cont'd)

I-1.15) Unscrew and remove seal receptacle (23) from compensating mandrel (32).

I-1.15.1) Remove o-rings (34, 39) from seal receptacle (23).

I-2) Remove top sub (1) from vise and clamp on inner mandrel (2) in vise.

**CAUTION<sub>3</sub>:** Do NOT wrench or clamp on seal surface.

I-2.1) Unscrew and remove spring cage cap (27) from spring cage (5).

**CAUTION<sub>1</sub>:** Compression spring is compressed with spring tension against upper slip body assembly.

I-2.2) Unscrew and remove top sub (1) from inner mandrel (2).

I-2.3) Remove compression spring (4) off inner mandrel (2).

I-2.4) Remove upper slip body assembly off inner mandrel and disassemble:

I-2.4.1) Unscrew and remove spring cage (5) from upper slip support (31).

I-2.4.2) Wedge releasing slip (7) and upper slips (8) outwards (if needed). Unscrew and remove upper slip support (31) from upper slip body (6).

I-2.4.3) Remove wedges. Remove upper slips (7), releasing slips (8), and upper slip springs (26) from upper slip body (6).

I-2.5) Remove upper cone (9) off inner mandrel (2).

I-2.5.1) Remove o-ring (38) from upper cone (9).

I-2.6) Remove compensating piston (22) off inner mandrel (2).

I-2.6.1) Remove o-rings (37, 39) from compensating piston (22).

I-2.7) Remove compensating mandrel (32) inner mandrel (2).

I-3) Remove inner mandrel (2) from vise.

### J) ASSEMBLY

**NOTE<sub>3</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>5</sub>:** To ensure tool operates properly, install o-rings in o-ring grooves, NOT thread reliefs unless stated otherwise (Fig. 2).

J-1) Clamp inner mandrel (2) in vise.

**CAUTION<sub>3</sub>:** Do NOT wrench or clamp on seal surface.

J-1.1) Install compensating mandrel (32) onto inner mandrel (2).

J-1.2) Install o-rings (37, 39) in grooves in compensating piston (22).

J-1.3) Install compensating piston (22) onto inner mandrel (2).

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

J-1.4) Install o-ring (38) in groove in upper cone (9).

J-1.5) Install upper cone (9) onto inner mandrel (2).

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

J-1.6) Assemble upper slip body assembly and install onto inner mandrel:

J-1.6.1) Install upper slips (7), releasing slips (8), and upper slip springs (26) into upper slip body (6). Wedge releasing slip (7) and upper slips (8) outwards (if needed).

J-1.6.2) Screw upper slip support (31) into upper slip body (6). Remove wedges.

J-1.6.3) Install upper slip body assembly onto inner mandrel (2).

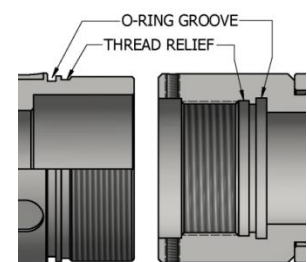


Fig. 2



# SNAPSET II PACKER

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### J) ASSEMBLY (cont'd)

J-1.7) Screw spring cage (5) into upper slip support (31).

J-1.8) Install compression spring (4) onto inner mandrel (2).

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

J-1.10) Screw spring cage cap (27) onto spring cage (5).

**CAUTION:** Compression spring is compressed with spring tension against upper slip body assembly.

J-2) Unclamp and remove inner mandrel (2) vise and clamp on top sub (1).

J-2.1) Install o-rings (34, 39) in o-ring groove in seal receptacle (23).

J-2.2) Install seal (24) onto seal receptacle (23).

J-2.3) Screw seal receptacle (23) onto compensating mandrel (32).

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

J-2.4) Screw seal retainer (21) onto seal receptacle (23).

J-2.5) Screw central body (10) onto upper cone (9).

**CAUTION:** Do not rip or tear o-rings during installation.

J-2.6) Install o-ring (33) in groove in valve body (25).

J-2.7) Screw valve body (25) into central body (10).

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

J-2.8) Screw gage ring (29) onto valve body (25).

J-2.9) Assemble rubber mandrel assembly and install:

J-2.9.1) Install rubber retainer (15), elements (13, 14), and rubber spacers (12) onto rubber mandrel (19).

J-2.9.2) Screw rubber mandrel (19) into valve body (25).

**CAUTION:** Do not rip or tear o-rings during installation.

**NOTE:** For leverage, insert a rod through rubber retainer (15) and rubber mandrel (19).

J-2.10) Screw rubber retainer adapter (16) into rubber retainer (15).

J-2.11) Screw lower mandrel (11) onto inner mandrel (2).

J-2.12) Screw collet (3) into rubber retainer adaptor (16).

J-2.13) Screw torque ring (17) onto lower mandrel (11). Align threaded holes with groove in torque ring (17).

J-2.14) Screw torque sleeve (20) onto rubber retainer adaptor (16).

J-2.15) Align slots in torque sleeve (20) with threaded holes in torque ring (17). Screw torque pins (18) into torque ring (17).

J-2.16) Install o-ring (36) in groove in bottom sub (28).

J-2.17) Screw bottom sub (28) into torque sleeve (20).

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

J-2.18) Screw set screws (30) into torque sleeve (20).

J-3) Unclamp top sub (1) from vise and remove assembled tool.



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### K) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 63696
1	1	TOP SUB	DLMS80	60095612
2	1	INNER MANDREL	DLMS110	63698210
3	1	COLLET	DLMS110	63698660
4	1	COMPRESSION SPRING	DLMCRSP	60395920HT
5	1	SPRING CAGE	DLMS60	63698311
6	1	UPPER SLIP BODY	DLMS110	60395320
7	1	RELEASING SLIP	DLMS110	60095125
8	2	UPPER SLIP	DLMS35	60095115
9	1	UPPER CONE	DLMS35	63698410
10	1	CENTRAL BODY	DLMS80	63698385
11	1	LOWER MANDREL	DLMS110	63698230
12	2	RUBBER SPACER	DLMS35	60296840S
13	1	ELEMENT	70 DURO NITRILE	60296511S
14	2	ELEMENT	90 DURO NITRILE	60296513S
15	1	RUBBER RETAINER	DLMS80	63698850
16	1	RUBBER RETAINER ADAPTOR	DLMS80	63698855
17	1	TORQUE RING	DLMS80	63698725
18	2	TORQUE PIN	.50-13 X .50 HSCS	63570377
19	1	RUBBER MANDREL	DLMS80	63698221
20	1	TORQUE SLEEVE	DLMS60	63698370
21	1	SEAL RETAINER	DLMS110	61395530
22	1	COMPENSATING PISTON	DLMS35	63698710
23	1	SEAL RECEPTACLE	DLMS80	63698730
24	1	SEAL	90 DURO NITRILE	61395520
25	1	VALVE BODY	DLMS110	61395350
26	6	UPPER SLIP SPRING	-	7170902
27	1	SPRING CAGE CAP	DLMS35	60095810
28	1	BOTTOM SUB	DLMS80	63698630-BBAE
29	1	GAGE RING	DLMS35	60296830
30	3	3/8-16 UNC X 5/8 SOCKET SET SCREW	STEEL	SSS037C062
31	1	UPPER SLIP SUPPORT	DLMS80	60395880
32	1	COMPENSATING MANDREL	DLMS80	63698240
33	1	160 O-RING	90 DURO NITRILE	90160
34	1	253 O-RING	90 DURO NITRILE	90253
35	1	256 O-RING	90 DURO NITRILE	90256



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### K) PARTS LIST (cont'd)

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 63696
36	1	350 O-RING	90 DURO NITRILE	90350
37	1	351 O-RING	90 DURO NITRILE	90351
38	1	352 O-RING	90 DURO NITRILE	90352
39	2	363 O-RING	90 DURO NITRILE	90363

REDRESS KIT (RDK)		63696050
ASSEMBLED WEIGHT		390 LBS

### K-1) ELASTOMER TRIM OPTIONS

**NOTE2:** For temperature range, refer to Elastomer Trim Temperature Guide.

#### K-1.1) HSN

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 63696H
13	1	ELEMENT	70 DURO HSN	60296511SH
14	2	ELEMENT	90 DURO HSN	60296513SH
33	1	160 O-RING	90 DURO HSN	90160H
34	1	253 O-RING	90 DURO HSN	90253H
35	1	256 O-RING	90 DURO HSN	90256H
36	1	350 O-RING	90 DURO HSN	90350H
37	1	351 O-RING	90 DURO HSN	90351H
38	1	352 O-RING	90 DURO HSN	90352H
39	2	363 O-RING	90 DURO HSN	90363H

REDRESS KIT (RDK)		63696050H
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#### K-1.2) VITON

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 63696V
13	1	ELEMENT	70 DURO VITON	60296511SV
14	2	ELEMENT	90 DURO VITON	60296513SV
33	1	160 O-RING	90 DURO VITON	90160V
34	1	253 O-RING	90 DURO VITON	90253V
35	1	256 O-RING	90 DURO VITON	90256V
36	1	350 O-RING	90 DURO VITON	90350V
37	1	351 O-RING	90 DURO VITON	90351V
38	1	352 O-RING	90 DURO VITON	90352V
39	2	363 O-RING	90 DURO VITON	90363V

REDRESS KIT (RDK)		63696050V
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### K) PARTS LIST (cont'd)

#### K-2) CARBIDE OPTION

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 63696C
8	2	CARBIDE UPPER SLIP	DLMS110	60095115C





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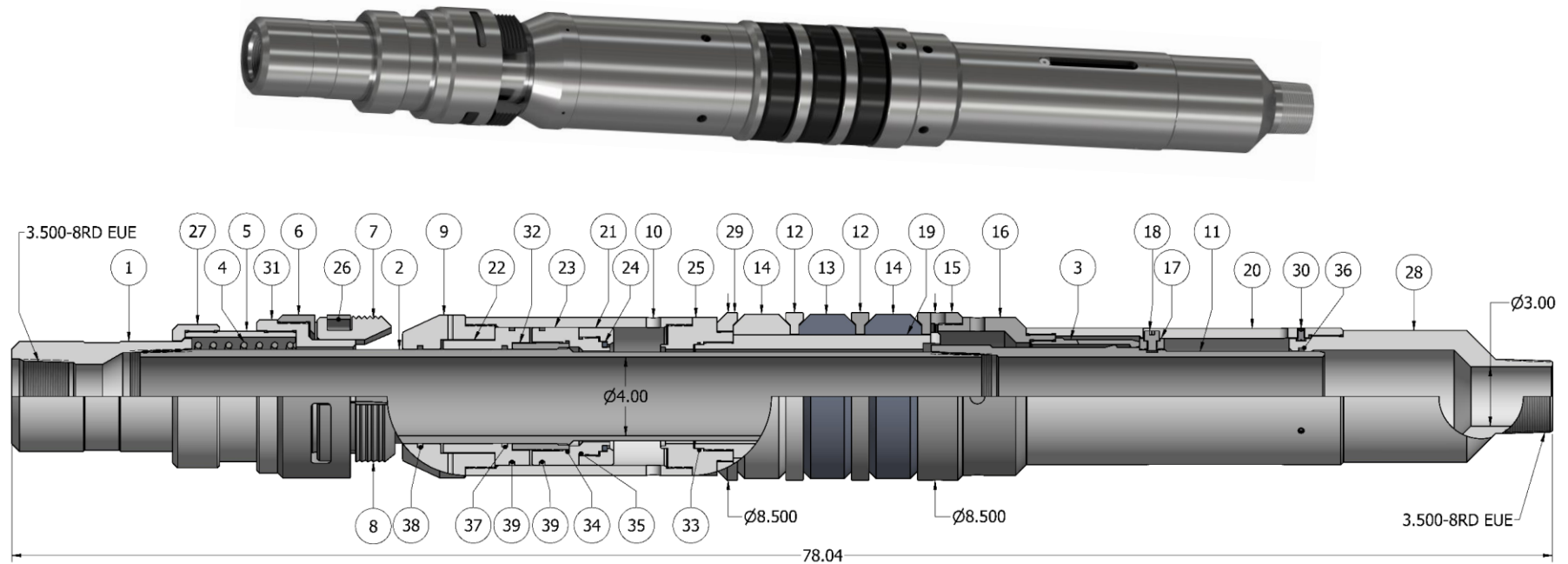
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## L) TECHNICAL ILLUSTRATION



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## M) REVISION HISTORY

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	APPROVED BY
08/11/2022	B	Revised disassembly, assembly, parts list, illustration for re-design	J.Anderson	E.Visaez
05/17/2022	A	Created manual	-	-