



SNAPSET II PACKER

7" X 2-7/8"

Manual No:
DL-636-7000-059

Revision: **E**

Revision Date:
10/20/2023

Authored by: B.Mathis

Approved by: F.Johnson

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)	GAGE OD (INCHES)	NOMINAL ID (INCHES)		
7	17.0 – 26.0	6.276 – 6.538	6.000	2.50	2-7/8 EUE	63672 63672H ¹ 63672V ² 63672C ³ 63672HC ⁴ 63672VC ⁵
	26.0 – 32.0	6.094 – 6.276	5.875	2.50	2-7/8 EUE	63670 63670H ¹ 63670V ² 63670C ³ 63670HC ⁴ 63670VC ⁵

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

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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

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 packer to setting depth with an ASI-X Packer or other comparable packer 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). Then apply a minimum weight of 14,000 lbs at the packer to pack off the elements and set the slips.

E) RELEASING PROCEDURES

Pick up on the work string, pulling enough tension to relax the elements, release the slips and re-set the internal latch. The packer can now be retrieved or reset downhole.

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 (F°)
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 (1) in vise.

I-1.1) From lower end of tool, unscrew and remove set screws (29) from torque sleeve (20).

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

I-1.2.1) Remove o-ring (30) from bottom sub (28).

I-1.3) Unscrew and remove torque pins (22) from torque ring (21).

I-1.4) Unscrew and remove torque sleeve (20) from rubber retainer (15).

I-1.5) Remove torque ring (21) from lower mandrel (19).

I-1.6) Remove collet (16) from lower mandrel (19).

I-1.7) Unscrew and remove lower mandrel (19) from inner mandrel (2).

I-1.8) Unscrew rubber mandrel (11) from valve body (18).

I-1.9) Remove rubber mandrel assembly and disassemble:

I-1.9.1) Remove elements (13, 14), rubber spacers (12), and rubber retainer (15) from rubber mandrel (11).

I-1.10) Unscrew and remove valve body (18) from central body (10).

I-1.10.1) Remove o-ring (31) from valve body (18).

I-1.11) Unscrew and remove central body (10) from upper cone (9).

I-1.12) Unscrew and remove seal (24) from valve piston (23).

I-1.13) Unscrew and remove valve piston (23) from valve piston cap (17).

I-1.13.1) Remove o-ring (34) from valve piston (23).

I-2) Unclamp and remove top sub (1) from vise and clamp lower end of inner mandrel (2) in vise.

CAUTION₃: Do NOT wrench or clamp on seal surface.

I-2.1) From upper end of tool, unscrew and remove spring cage cap (27) from spring cage (5).

CAUTION₄: Compression spring (4) is compressed with spring tension against upper slip body assembly.



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I) DISASSEMBLY(cont'd)

- I-2.2) Unscrew and remove top sub (1) from inner mandrel (2).
- I-2.3) Remove compression spring (4) from spring cage (5).
- I-2.4) Wedge slips outward (if needed). Remove upper slip body assembly and disassemble:
 - I-2.4.1) Remove wedges (if needed). Remove releasing slip (7), upper slips (8), and slip springs (25) from upper slip body (6).
 - I-2.4.2) Unscrew and remove spring cage (5) from upper slip body (6).
 - I-2.4.3) Remove spring retaining ring (26) from upper slip body (6).
- I-2.5) Remove upper cone (9) from inner mandrel (2).
 - I-2.5.1) Remove o-ring (33) from upper cone (9).
- I-2.6) Remove compensating piston (3) from inner mandrel (2).
 - I-2.6.1) Remove o-rings (32, 34) from compensating piston (3).
- I-2.7) Remove valve piston cap (17) from inner mandrel (2).
- I-3) Unclamp inner mandrel (2) and remove from vise.

J) ASSEMBLY

NOTE1: Clean and inspect all parts. Replace all worn and damaged parts. Install parts in proper order, and orientation and tighten/torque all connections properly.

CAUTION5: To ensure tool operates properly, install o-rings in o-ring grooves **NOT** thread reliefs unless stated otherwise (Fig. 2).

J-1) Assemble valve piston assembly and install:

- J-1.1) Screw seal (24) onto valve piston (23).

CAUTION6: Do NOT rip or tear seal while installing.

- J-1.2) Install o-ring (34) in o-ring groove in valve piston (23).
- J-1.3) Install valve piston assembly onto inner mandrel (2) from lower end.

J-2) Clamp lower end of inner mandrel (2) in vise.

CAUTION3: Do NOT wrench or clamp on seal surface.

- J-2.1) From upper end of tool, screw valve piston cap (17) into valve piston (23).
- J-2.2) Install o-rings (32, 34) in o-ring grooves in compensating piston (3).
- J-2.3) Install compensating piston (3) onto inner mandrel (2).

CAUTION6: Do NOT rip or tear o-ring while installing.

- J-2.4) Install o-ring (33) in o-ring groove in upper cone (9).
- J-2.5) Install upper cone (9) onto inner mandrel (2).

CAUTION6: Do NOT rip or tear o-ring while installing.

J-2.6) Assemble upper slip body assembly and install:

- J-2.6.1) Install spring retaining ring (26) into upper slip body (6).
- J-2.6.2) Screw spring cage (5) into upper slip body (6).
- J-2.6.3) Install releasing slip (7), upper slips (8), and slip springs (25) into upper slip body (6). Wedge slips outwards.

NOTE2: Install two (2 ea) springs per slip (Fig. 3).

- J-2.6.4) Install upper slip body assembly onto inner mandrel (2).
- J-2.7) Install compression spring (4) into spring cage (5).

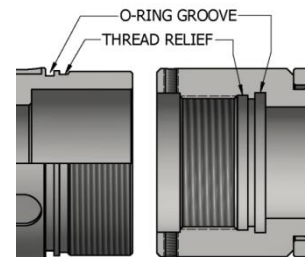


Fig. 2

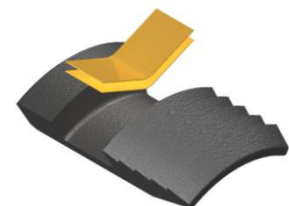


Fig. 3



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J) ASSEMBLY (cont'd)

J-2.8) Screw top sub (1) onto inner mandrel (2).

J-2.9) Screw spring cage cap (27) onto spring cage (5). Remove wedges.

CAUTION: Compression spring (4) will be compressed with spring tension against upper slip body assembly.

J-3) Unclamp and remove inner mandrel (2) from vise. Clamp top sub (1) in vise.

J-3.1) Screw central body (10) onto upper cone (9).

CAUTION: Do NOT rip or tear o-rings while installing.

J-3.2) Install o-ring (31) in o-ring groove in valve body (18).

J-3.3) Screw valve body (18) into central body (10).

J-3.4) Assemble rubber mandrel assembly and install:

J-3.4.1) Install rubber retainer (15), elements (13, 14), and rubber spacers (12) onto rubber mandrel (11).

J-3.4.2) Install rubber mandrel assembly onto inner mandrel (2). Screw rubber mandrel (11) into valve body (18).

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

J-3.5) Screw lower mandrel (19) onto inner mandrel (2).

J-3.6) Install collet (16) and torque ring (21) onto lower mandrel (19).

J-3.7) Screw torque sleeve (20) onto rubber retainer (15). Align slots in torque sleeve (20) with threaded holes in torque ring (21) and pocket holes in lower mandrel (19).

J-3.8) Screw torque pins (22) into torque ring (21).

J-3.9) Install o-ring (30) in o-ring groove in bottom sub (28).

J-3.10) Screw bottom sub (28) into torque sleeve (20).

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

J-3.11) Screw set screws (29) into torque sleeve (20).

J-4) Unclamp top sub (1) from vise and remove assembled tool.

K) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 63670	P/N 63672
1	1	TOP SUB	DLMS60	60156610	
2	1	MANDREL	L-80	63670210	
3	1	COMPENSATING PISTON	DLMS60	61070710	
4	1	COMPRESSION SPRING	DLMCRSP	61070920	
5	1	SPRING CAGE	1026	61070310	
6	1	UPPER SLIP BODY	DLMS35 / DLMS60	60070320	
7	1	RELEASING SLIP	DLMS110	60070125	
8	2	UPPER SLIP	DLMS35	60070115	
9	1	UPPER CONE	DLMS80	61070410	
10	1	CENTRAL BODY	P-110	63670381	
11	1	RUBBER MANDREL	1026	63670220	
12	2	RUBBER SPACER	DLMS60	61170840	61172840
13	1	ELEMENT	70 DURO NITRILE	60270511	60272511



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K) PARTS LIST (cont'd)

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 63670	P/N 63672
14	2	ELEMENT	90 DURO NITRILE	60270513	60272513
15	1	RUBBER RETAINER	1026	63570850	63572850
16	1	COLLET	P-110	63570660	
17	1	VALVE PISTON CAP	L-80	61070720	
18	1	VALVE BODY	1026	63670350	63672350
19	1	LOWER MANDREL	1026	63670230	
20	1	TORQUE SLEEVE	1026	63670370	
21	1	TORQUE RING	1026	63570725	
22	2	TORQUE PIN	.50-13 X .50 HSCS	63570377	
23	1	VALVE PISTON	DLMS60	61170730	
24	1	SEAL	90 DURO NITRILE	61170520	
25	6	SLIP SPRING	-	7170902	
26	1	SPRING RETAINING RING	DLMS35	60070820	
27	1	SPRING CAGE CAP	DLMS60	60170810	
28	1	BOTTOM SUB	L-80	63670630	
29	2	SET SCREW 3/8-16 UNC X 1/2	STEEL	SSS037C050	
30	1	234 O-RING	90 DURO NITRILE	90234	
31	1	239 O-RING	90 DURO NITRILE	90239	
32	1	338 O-RING	90 DURO NITRILE	90338	
33	1	339 O-RING	90 DURO NITRILE	90339	
34	2	350 O-RING	90 DURO NITRILE	90350	

REDRESS KIT (RDK)		63670050	63672050
ASSEMBLED WEIGHT		229 LBS	230 LBS

K-1) ELASTOMER TRIM OPTIONS

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

K-1.1) HSN

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 63670H	P/N 63672H
13	1	ELEMENT	70 DURO HSN	60270511H	60272511H
14	2	ELEMENT	90 DURO HSN	60270513H	60272513H
24	1	SEAL	90 DURO HSN	61170520H	
30	1	234 O-RING	90 DURO HSN	90234H	
31	1	239 O-RING	90 DURO HSN	90239H	
32	1	338 O-RING	90 DURO HSN	90338H	
33	1	339 O-RING	90 DURO HSN	90339H	
34	2	350 O-RING	90 DURO HSN	90350H	

REDRESS KIT (RDK)		63670050H	63672050H
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K) PARTS LIST (cont'd)

K-1.2) VITON

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 63670V	P/N 63672V
13	1	ELEMENT	70 DURO VITON	60270511V	60272511V
14	2	ELEMENT	90 DURO VITON	60270513V	60272513V
24	1	SEAL	90 DURO VITON	61170520V	
30	1	234 O-RING	90 DURO VITON	90234V	
31	1	239 O-RING	90 DURO VITON	90239V	
32	1	338 O-RING	90 DURO VITON	90338V	
33	1	339 O-RING	90 DURO VITON	90339V	
34	2	350 O-RING	90 DURO VITON	90350V	

REDRESS KIT (RDK)		63670050V	63672050V
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K-2) CARBIDE OPTIONS

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 63670C	P/N 63672C
8	2	CARBIDE UPPER SLIP	DLMS110	60070115C	



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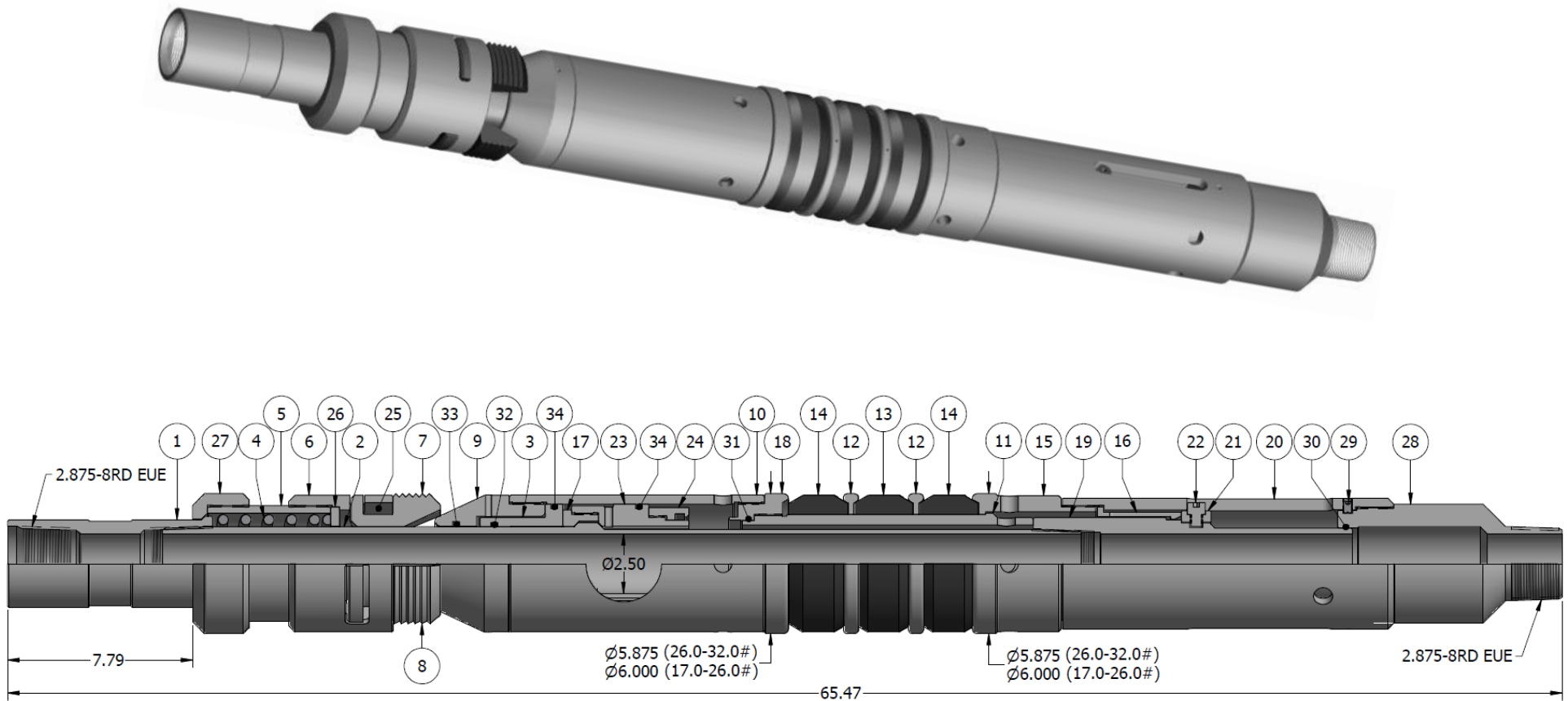
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L) TECHNICAL ILLUSTRATION



	<h1>SNAPSET II PACKER</h1> <h2>7" X 2-7/8"</h2>	Manual No: DL-636-7000-059
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M) REVISION HISTORY

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	APPROVED BY
10/20/2023	E	Added carbide options, General Screw Torque Recommendations; Revised nitrile temp. ratings, P/N 60156610 was 60070610, 60170810 was 60070810	J.Anderson	E.Visaez
02/11/2016	D	Added Elastomer Trim Options, Pre-Installation Inspection Procedures, Storage Recommendations; Revised P/N 60370920 was 61070920; Removed AFLAS from Elastomer Trim Temperature Guide	J.Anderson	J.McArthur