



HD RETRIEVABLE PACKER RIGHT-HAND AUTO 7" X 2-7/8"

Manual No:
DL-613-7000-004

Revision: **Q**

Revision Date:
09/22/2022

Authored by: B.Mathis

Approved by: D.Hushbeck

A) DESCRIPTION

The HD Retrievable Packer is a heavy duty service packer ideally suited for all types of squeeze cementing, formation fracturing, high pressure acidizing, etc. It is a large opening compression set packer with hydraulic button-type hold down. This packer withstands high pressure from above or below and uses a 3-element packing system, J-slot, and a drag block mechanism for easy setting. This packer has a built-in unloader which circulates across the hold down buttons to improve retrievability and run in performance.

B) SPECIFICATION GUIDE

CASING			TOOL		THREAD CONNECTIONS 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 6.062*	2.50	2-7/8 EUE	61372RS 61372RSH ¹ 61372RSV ²
	26.0 – 32.0	6.094 – 6.276	5.875	2.50	2-7/8 EUE	61370RS 61370RSH ¹ 61370RSV ²
	29.0 – 35.0	6.004 – 6.184	5.812 5.874*	2.50	2-7/8 EUE	61371RS 61371RSH ¹ 61371RSV ²

Elastomer Trim Options: ¹HSN, ²Viton *Maximum OD across retracted drag blocks.

NOTE₁: For 7" (35.0 - 38.0#) casing, refer to technical manual for 6-5/8" (20.0 - 24.0#) casing.

NOTE₂: Tools listed are right-hand set/ straight pick-up release. Additional configurations are available. Contact D&L Sales for more information.

DIFFERENTIAL PRESSURE (MAX)	HANGING WEIGHT ON SET TOOL (MAX)	TENSILE LOAD THRU UNSET TOOL (MAX)	TORQUE THRU TOOL (MAX)
10,000 PSI	135,000 LBS*	135,000 LBS	2,000 FT-LBS

*Casing must be cemented for this load rating.

CAUTION₁: Before running the tool, check the pressure affected areas chart and consider other effects to be certain that the unloader will remain closed during operation.

CAUTION₂: If the HD Packer is run with a retrievable bridge plug, make sure the bridge plug J-slot is compatible with the J-slot on the packer. Whichever direction you set the plug, the packer should set in the opposite direction.

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

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C) 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"	
1,000 – 1,500 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.

D) SETTING PROCEDURES

CAUTION₄: Do not run the tool without properly tightening connections. Running the tool with loose connections may damage the tool and cause malfunction.

Run to setting depth. The unloader remains open while running in. Pick up the tubing and rotate 1/4 turn at the packer. Slack off weight and set down on the packer to set the slips, close the unloader and compress the packing elements. A minimum weight of 14,000 lbs. at the packer is required to pack off the elements.

CAUTION₅: Run the tool slowly, as with any hold down type packer, to help prevent dulling of the hydraulic buttons.

E) RELEASING PROCEDURES

Pick up on the tubing to open the unloader, allowing time for the tubing and casing pressure to equalize. Continued upward movement of the tubing unsets the slips, relaxes the packing elements and re-jays the packer. The tool may now be moved and reset, or pulled from the well.



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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. 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.

G) PRESSURE AFFECTED AREAS GUIDE

When set downhole, the packer mandrel is subjected to a force created by differential pressure above or below the packer that acts on the pressure affected area (i.e., the piston effect). Depending on the tubing size and weight and the seal area of the packer the force created by differential pressure acts upwards or downwards on the packer mandrel. An upward force, designated as a negative (-) value, acts to push the packer mandrel up hole and must be accounted for to ensure that the packer remains set. A downward force, designated as a positive value, acts to push the packer mandrel down hole and must be accounted for when releasing the packer. Other factors (e.g., tubing movement due to temperature change) must be considered separately to determine all the forces acting on the packer.

PACKER SIZE (IN)	TUBING TO PACKER			PRESSURE AFFECTED AREA (IN ²)			
	SIZE (IN)	WEIGHT (LB/FT)	ID (IN)	ABOVE		BELOW	
7	1.900	2.40	1.650	4.358	(DOWN)	2.786	(DOWN)
		2.90	1.610	4.358	(DOWN)	2.684	(DOWN)
	2.375	4.00	2.041	2.764	(DOWN)	3.920	(DOWN)
		4.70	1.995	2.764	(DOWN)	3.774	(DOWN)
		5.95	1.867	2.764	(DOWN)	3.386	(DOWN)
	2.875	6.50	2.441	0.702	(DOWN)	5.328	(DOWN)
		7.90	2.323	0.702	(DOWN)	4.886	(DOWN)
		8.70	2.259	0.702	(DOWN)	4.656	(DOWN)
	3.500	7.70	3.068	-2.427	(UP)	8.041	(DOWN)
		9.30	2.992	-2.427	(UP)	7.679	(DOWN)
		10.20	2.922	-2.427	(UP)	7.354	(DOWN)
		12.95	2.750	-2.427	(UP)	6.588	(DOWN)
	4.000	9.50	3.548	-5.373	(UP)	10.535	(DOWN)
		11.00	3.476	-5.373	(UP)	10.138	(DOWN)
	4.500	12.75	3.958	-8.711	(UP)	12.952	(DOWN)

Example: Consider a 7" X 2-7/8" HD Packer set on 2.875", 7.90 lbs/ft tubing with a differential pressure of 3,000 PSI in the annulus around the tubing above the packer. What is the force acting on the seal area of the mandrel?

To calculate the force (lbs) acting on the seal area of the mandrel, refer to the Pressure Affected Area Guide for a 7" X 2-7/8" HD Packer run on 2.875", 7.90 lbs/ft tubing. In this example, the differential pressure from above the packer acts on the seal area of the packer mandrel across a pressure affected area of 0.702 in². Multiplying the differential pressure (3,000 PSI) by the pressure affected area (0.702 in²) results in a force of 2,106 lbs. The piston effect on the packer mandrel is a downward force of 2,106 lbs.



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H) 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

I) RECOMMENDED TOOLS

I-1) 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-2) SPECIAL TOOLS

ITEM	QTY	DESCRIPTION	PART NUMBER
T1	1	DRAG BLOCK ASSEMBLY TOOL	AT070110
T2	1	BUTTON REMOVAL TOOL	AT-BRT000
T3	1 GAL	KOPR-KOTE® ANTI-SEIZE LUBRICANT	DL-KOPR-KOTE-1G

J) DISASSEMBLY

J-1) Clamp top sub (1) in vise.

J-1.1) Slide J-body (20) as needed to unscrew and remove set screws (37) from J-pin bottom sub (23).

J-1.2) Unscrew and remove J-pin bottom sub (23) from inner mandrel (2).

NOTE₃: Drag block body assembly must be free to rotate.

J-1.2.1) Remove o-ring (39) from J-pin bottom sub (23).

J-1.3) Compress carbide drag blocks (22) using drag block body assembly tool (T1). Rotate drag block retainer (21) as needed to unscrew and remove set screws (35) from drag block body (18).

J-1.4) Unscrew and remove J-body (20) from drag block body (18) (**NOTE₄:** Left-hand threads).

J-1.4.1) Remove retaining ring (31) from J-body (20).

J-1.5) Remove drag block retainer (21) from drag block body (18).

J-1.6) Release carbide drag blocks (22). Remove carbide drag blocks (22) and drag block springs (3) from drag block body (18).

J-1.7) Unscrew and remove rubber mandrel cap (19) from rubber mandrel (11).

NOTE₅: For added leverage, insert a rod thru rubber retainer (15) and rubber mandrel (11) as needed.



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J) DISASSEMBLY (cont'd)

- J-1.8) Wedge lower slips (17) outwards (if needed). Remove drag block body assembly and disassemble:
 - J-1.8.1) Remove wedges. Remove lower slips (17) and lower slip springs (25) from drag block body (18).
- J-1.9) Unscrew and remove lower cone (16) from rubber retainer (15).
- J-1.10) Unscrew rubber mandrel (11) from valve body (28).
- J-1.11) Remove rubber mandrel assembly and disassemble:
 - J-1.11.1) Remove elements (13, 14), rubber spacers (12), and rubber retainer (15) from rubber mandrel (11).
 - J-1.11.2) Unscrew and remove gage ring (29) from rubber retainer (15).
- J-1.12) Unscrew and remove gage ring (29) from valve body (28).
- J-1.13) Unscrew and remove valve body (28) from central body (10)
 - NOTE:** For added leverage, insert a rod thru central body (10) as needed.
 - J-1.13.1) Remove o-ring (41) from valve body (28).
- J-1.14) Unscrew and remove central body (10) from hold down body (6).
- J-2) Remove top sub (1) from vise and clamp inner mandrel (2) in vise.
 - CAUTION:** Do NOT wrench or clamp on seal surface.
 - J-2.1) Unscrew and remove set screws (36) from top sub (1).
 - J-2.2) Unscrew and remove top sub (1) from inner mandrel (2).
 - J-2.2.1) Remove o-ring (40) from top sub (1).
 - J-2.3) Unscrew and remove hold down extension (33) from hold down body (6).
 - J-2.3.1) Remove o-rings (43) from hold down extension (33).
 - J-2.4) Unscrew and remove hold down cap (4) from hold down body (6).
 - J-2.5) Move strap retainer (32) downwards temporarily out of way.
 - J-2.6) Unscrew and remove flat head cap screws (34) from hold down body (6).
 - J-2.7) Remove hold down straps (7) from hold down body (6).
 - J-2.8) Remove hold down button springs (26) from hold down buttons (30).
 - J-2.9) Remove hold down buttons (30) from hold down body (6) using button removal tool (T2).
 - J-2.9.1) Remove o-rings (38) from hold down buttons (30).
 - J-2.10) Remove hold down body (6) from inner mandrel (2).
 - J-2.10.1) Remove o-rings (41, 45) from hold down body (6).
 - J-2.11) Remove strap retainer (32) from inner mandrel (2).
 - J-2.12) Unscrew and remove compensating mandrel (8) from seal receptacle (5).
 - J-2.12.1) Remove compensating piston (9) from compensating mandrel (8).
 - J-2.12.2) Remove o-rings (44, 45) from compensating piston (9).
- J-3) Unclamp and remove inner mandrel (2) from vise.
 - J-3.1) Remove seal receptacle (5) from inner mandrel (2).
 - J-3.1.1) Unscrew and remove seal retainer (27) from seal receptacle (5).
 - J-3.1.1.1) Remove o-rings (41, 42) and quad ring seal (24) from seal receptacle (5).



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K) ASSEMBLY

NOTE7: Clean and inspect all parts. Replace all worn and damaged parts. Install parts in proper order, and orientation and tighten/torque all connections properly.

CAUTION7: To ensure tool operates properly, install o-rings in o-ring grooves **NOT** thread reliefs (Fig. 2).

NOTE8: Apply KOPR-KOTE® anti-seize lubricant (T3) on STUB ACME and drill pipe connections when making up connections.

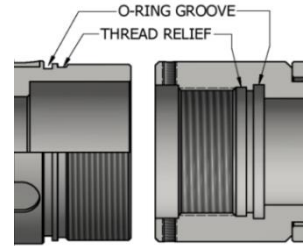


Fig. 2

K-1) Assemble seal receptacle assembly and install:

K-1.1) Install o-rings (41, 42) in grooves in seal receptacle (5).

K-1.2) Set quad ring seal (24) in place on seal receptacle (5).

K-1.3) Screw seal retainer (27) onto seal receptacle (5).

CAUTION7: Do not rip or tear o-ring or seal during installation.

K-1.4) Install seal receptacle assembly onto inner mandrel (2).

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

CAUTION6: Do **NOT** wrench or clamp on seal surface.

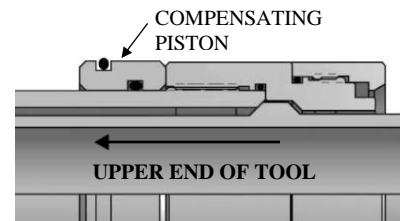


Fig. 3

K-2.1) Assemble compensating mandrel assembly and install:

K-2.1.1) Install o-rings (44, 45) in grooves in compensating piston (9).

K-2.1.2) Install compensating piston (9) onto compensating mandrel (8).

NOTE9: Compensating piston **MUST** be installed in correct direction (Fig. 3).

CAUTION7: Do not rip or tear o-ring during installation.

K-2.1.3) Screw compensating mandrel (8) into seal receptacle (5).

CAUTION6: Do **NOT** wrench or clamp on seal surface.



Fig. 4

K-2.2) Install strap retainer (32) onto inner mandrel (2).

K-2.3) Assemble hold down body assembly and install:

K-2.3.1) Install o-rings (41, 45) in grooves in hydraulic hold down body (6).

K-2.3.2) Install o-rings (43) in grooves in hold down extension (33).

K-2.3.3) Screw hold down extension (33) into hydraulic hold down body (6).

K-2.3.4) Install hold down body assembly onto inner mandrel (2).

K-2.4) Assemble hold down buttons (32) and install:

K-2.4.1) Install o-rings (38) in grooves in hold down buttons (30).

K-2.4.2) Install hold down buttons (30) into hydraulic hold down body (6) (Fig. 4).

CAUTION7: Do not rip or tear o-ring during installation.

K-2.4.3) Align slot in hold down buttons (30) with slot in hydraulic hold down body (6). Install hold down button springs (26) into hold down buttons (30).

NOTE10: Uses three (3ea) hold down button springs per hold down button (Fig. 5).

K-2.4.4) Set hold down straps (7) in slots in hold down buttons (30) and hydraulic hold down body (6) (Fig. 5).

K-2.4.5) Screw flat head socket cap screws (34) into hydraulic hold down body (6) securing hold down straps (7) in place (Fig. 5).

K-2.5) Screw strap retainer (32) onto hydraulic hold down body (6) capturing lower ends of hold down straps (7).



Fig. 5



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K) ASSEMBLY (cont'd)

K-2.6) Screw hold down cap (4) onto hydraulic hold down body (6) capturing upper ends of hold down straps (7).

K-2.7) Install o-ring (40) in groove in top sub (1).

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

CAUTION₇: Do not rip or tear o-ring during installation.

K-2.9) Screw socket set screws (36) into top sub (1).

K-3) Remove inner mandrel (2) from vise. Clamp central body (10) in vise.

K-3.1) Assemble rubber mandrel assembly:

K-3.1.1) Install o-ring (41) in groove in valve body (28).

K-3.1.2) Screw valve body (28) into central body (10).

K-3.1.3) Screw gage ring (29) onto valve body (28).

K-3.1.4) Screw gage ring (29) onto rubber retainer (15).

K-3.1.5) Install rubber retainer (15), rubber spacers (12), and elements (13, 14) onto rubber mandrel (11). Wrench on lower cone (16) to tighten assembly.

K-3.1.6) Screw rubber mandrel (11) into valve body (28).

CAUTION₇: Do not rip or tear o-ring during installation.

K-3.1.7) Screw lower cone (16) into rubber retainer (15).

NOTE₅: For leverage, insert a rod thru rubber retainer (15) and rubber mandrel (11) as needed.

K-4) Remove rubber mandrel assembly from vise. Clamp top sub (1) in vise.

K-4.1) Install rubber mandrel assembly onto inner mandrel (2). Screw central body (10) onto hold down body (6). Wrench on rubber mandrel (11) to tighten assembly.

K-4.2) Assemble drag block body assembly and install:

K-4.2.1) Install carbide lower slips (17) and lower slip springs (25) into drag block body (18). Wedge slips outward.

NOTE₁₁: Uses two (2ea) springs per slip (Fig. 6).

K-4.2.2) Install drag block body assembly onto rubber mandrel (11). Slide temporarily up out of the way.



Fig. 6

K-4.3) Screw rubber mandrel cap (19) onto rubber mandrel (11).

K-4.4) Install carbide drag blocks (22) and drag block springs (3) into drag block body (18). Compress carbide drag blocks (22) using drag block body assembly tool (T1).

NOTE₁₂: Uses (6ea) drag block springs per drag block (Fig. 7).

K-4.5) Install drag block retainer (21) capturing ends of carbide drag blocks (22). Align holes in drag block retainer to access threaded holes in drag block body.

K-4.6) Install retaining ring (31) onto J-body (20).

K-4.7) Screw J-body (20) into drag block body (18) (**NOTE₄**: Left-hand threads).

K-4.8) Screw set screws (35) into drag block body (25). Release carbide drag blocks (22).

K-4.9) Install o-ring (39) in groove in J-body (20).

K-4.10) Screw J-pin bottom sub (23) onto inner mandrel (2).

NOTE₃: Drag block body assembly must be free to rotate.

CAUTION₇: Do not rip or tear o-ring during installation.

K-4.11) Slide J-body (20) as needed to screw set screws (37) into J-pin bottom sub (23).

K-4.12) Remove wedges from carbide lower slips (23).

K-5) Remove top sub (1) from vise and remove assembled tool.

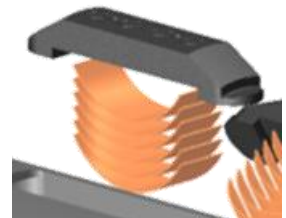



Fig. 7

	<div>HD RETRIEVABLE PACKER</div> <div>RIGHT-HAND AUTO</div> <div>7" X 2-7/8"</div>	Manual No: DL-613-7000-004
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L) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 61372RS	P/N 61370RS	P/N 61371RS
1	1	TOP SUB	DLMS110	61370615		
2	1	INNER MANDREL	DLMS110	61370215		
3	36	DRAG BLOCK SPRING	INCONEL	9101900		
4	1	HOLD DOWN CAP	DLMS110	61372370	61370370	61371370
5	1	SEAL RECEPTACLE	DLMS110	61370730		
6	1	HOLD DOWN BODY	DLMS110	61370320		
7	3	HOLD DOWN STRAP	DLMS110	61370360		
8	1	COMPENSATING MANDREL	DLMS110	61370240		
9	1	COMPENSATING PISTON	DLMS110	61370715		
10	1	CENTRAL BODY	DLMS110	61370385		
11	1	RUBBER MANDREL	DLMS110	61370220		
12	2	RUBBER SPACER	-	61172840 (DLMS60)	60270840 (DLMS35)	60271840 (DLMS35)
13	1	ELEMENT	80 DURO NITRILE	60272512	60270512	
14	2	ELEMENT	90 DURO NITRILE	60272513	60270513	
15	1	RUBBER RETAINER	DLMS110	61170850HT		
16	1	LOWER CONE	DLMS110	60070420HT		
17	4	LOWER SLIP W/ CARBIDE	DLMS110	60070135C		
18	1	DRAG BLOCK BODY	DLMS110 / DLMS60	61370335		
19	1	RUBBER MANDREL CAP	DLMS60	60170230		
20	1	J-BODY	DLMS110	61370340		
21	1	DRAG BLOCK RETAINER	DLMS60	60070910		60071910
22	6	DRAG BLOCK W/ CARBIDE	DLMSDB4	9080900C	9070900C	
23	1	J-PIN BOTTOM SUB	DLMS110	61370630		
24	1	QUAD RING SEAL	90 DURO NITRILE	61370520		

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L) PARTS LIST (cont'd)

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 61372RS	P/N 61370RS	P/N 61371RS
25	8	LOWER SLIP SPRING	ELGILOY	7170901		
26	18	HOLD DOWN BUTTON SPRING	ELGILOY	61370975		
27	1	SEAL RETAINER	DLMS110	61370530		
28	1	VALVE BODY	DLMS110	61370350		
29	2	GAGE RING	DLMS60	61172830	61170830	61171830
30	6	HOLD DOWN BUTTON W/ CARBIDE	DLMS60	61372140C	61370140C	
31	1	RETAINING RING	DLMS60	60070911		
32	1	STRAP RETAINER	DLMS110	61372650	61370650	61371650
33	1	HOLD DOWN EXTENSION	DLMS110	61370310		
34	3	FLAT HEAD CAP SCREW 5/16-18 UNC X 1/2	STEEL	FHSC031C050		
35	3	SET SCREW 5/16-18 UNC X 1/2	STEEL	SSS031C050		
36	3	SET SCREW 3/8-16 UNC X 3/8	STEEL	SSS037C037		
37	2	SET SCREW 3/8-16 UNC X 1/2	STEEL	SSS037C050		
38	6	230 O-RING	90 DURO NITRILE	90230		
39	1	233 O-RING	90 DURO NITRILE	90233		
40	1	235 O-RING	90 DURO NITRILE	90235		
41	3	241 O-RING	90 DURO NITRILE	90241		
42	1	243 O-RING	90 DURO NITRILE	90243		
43	2	339 O-RING	90 DURO NITRILE	90339		
44	1	344 O-RING	90 DURO NITRILE	90344		
45	2	350 O-RING	90 DURO NITRILE	90350		

REDRESS KIT (RDK)		61372050	61370050	61370050
ASSEMBLED WEIGHT		286 LBS	284 LBS	283 LBS

	<div>HD RETRIEVABLE PACKER</div> <div>RIGHT-HAND AUTO</div> <div>7" X 2-7/8"</div>	Manual No: DL-613-7000-004
		Revision: Q
		Revision Date: 09/22/2022
Authored by: B.Mathis		Approved by: D.Hushbeck

L) PARTS LIST (cont'd)

L-1) ELASTOMER TRIM OPTIONS

NOTE₁₃: For temperature range, refer to Elastomer Trim Temperature Guide.

L-1.1) HSN

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 61372RSH	P/N 61370RSH	P/N 61371RSH
13	1	ELEMENT	80 DURO HSN	60272512H	60270512H	
14	2	ELEMENT	90 DURO HSN	60272513H	60270513H	
24	1	QUAD RING SEAL	90 DURO HSN	61370520H		
38	6	230 O-RING	90 DURO HSN	90230H		
39	1	233 O-RING	90 DURO HSN	90233H		
40	1	235 O-RING	90 DURO HSN	90235H		
41	3	241 O-RING	90 DURO HSN	90241H		
42	1	243 O-RING	90 DURO HSN	90243H		
43	2	339 O-RING	90 DURO HSN	90339H		
44	1	344 O-RING	90 DURO HSN	90344H		
45	2	350 O-RING	90 DURO HSN	90350H		

REDRESS KIT (RDK)		61372050H	61370050H	61370050H
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	HD RETRIEVABLE PACKER RIGHT-HAND AUTO <i>7" X 2-7/8"</i>	Manual No: DL-613-7000-004
		Revision: Q
		Revision Date: 09/22/2022
<i>Authored by: B.Mathis</i>		<i>Approved by: D.Hushbeck</i>

L) PARTS LIST (cont'd)

L-1.2) VITON

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 61372RSV	P/N 61370RSV	P/N 61371RSV
13	1	ELEMENT	80 DURO VITON	60272512V	60270512V	
14	2	ELEMENT	90 DURO VITON	60272513V	60270513V	
24	1	QUAD RING SEAL	90 DURO VITON	61370520V		
38	6	230 O-RING	90 DURO VITON	90230V		
39	1	233 O-RING	90 DURO VITON	90233V		
40	1	235 O-RING	90 DURO VITON	90235V		
41	3	241 O-RING	90 DURO VITON	90241V		
42	1	243 O-RING	90 DURO VITON	90243V		
43	2	339 O-RING	90 DURO VITON	90339V		
44	1	344 O-RING	90 DURO VITON	90344V		
45	2	350 O-RING	90 DURO VITON	90350V		
		REDRESS KIT (RDK)		61372050V	61370050V	61370050V



HD RETRIEVABLE PACKER RIGHT-HAND AUTO 7" X 2-7/8"

Manual No:
DL-613-7000-004

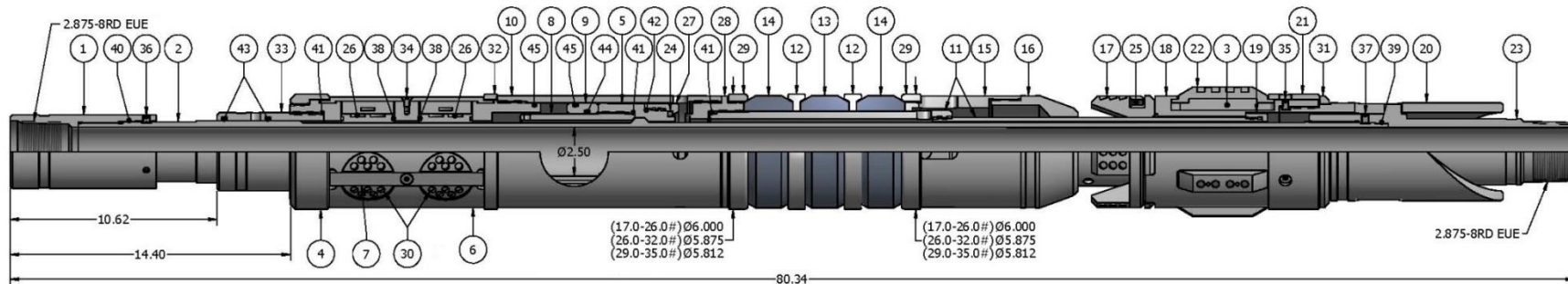
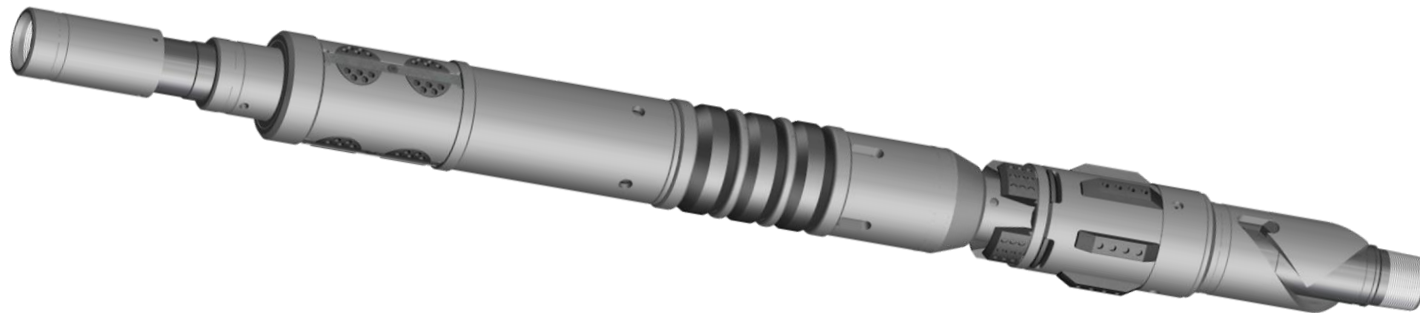
Revision: **Q**

Revision Date:
09/22/2022

Authored by: B.Mathis

Approved by: D.Hushbeck

M) TECHNICAL ILLUSTRATION



	HD RETRIEVABLE PACKER RIGHT-HAND AUTO <i>7" X 2-7/8"</i>	Manual No: DL-613-7000-004
		Revision: Q
		Revision Date: 09/22/2022
<i>Authored by: B.Mathis</i>		<i>Approved by: D.Hushbeck</i>

N) REVISION HISTORY

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	APPROVED BY
09/22/2022	Q	Revised 60170230 was 60070230	J.Anderson	J.Johnson
05/22/2017	P	Added General Screw Torque Recommendations; Revised Pressure Affected Area Guide example, Elastomer Trim Temperature Guide Nitrile temp. range	J.Anderson	J.Johnson
12/21/2015	N	Revised PRE-INSTALLATION INSPECTION PROCEDURES, Elastomer Durometer Temperatures – Nitrile (90/80/90 Duro) was 250° - 300°F, Nitrile (Contact D&L Sales) was 300°F +, Rubber Type Temperature Ranges – Nitrile was 70° - 300°F, HSN was 70° - 325°F; Updated materials; Removed Drift ID	B.Mathis	K.Riggs
06/04/2015	M	Added: HSN and Viton options, tool Drift ID, tool tolerances, Pre-Installation Inspection and Storage Procedures, recommended hand tools, special tool (T3); Revised: Pressure Affected Area Guide	J.Anderson	T.Myerley