

RIGHT-HAND SET / RIGHT-HAND RELEASE

7-5/8" W/ 2-3/8" EUE (PIN DOWN)

DL-725-7625-227 Revision: E

Manual No:

Revision Date:

12/15/2015

Authored by: B.Mathis

Approved by: K.Plunkett

## A) **DESCRIPTION**

The AS Retrievable Bridge Plug is a high pressure plug for multiple zone and selective single zone operations such as acidizing, fracturing, cementing and testing. It features a large internal by-pass to reduce swabbing when running and retrieving. The by-pass closes during the setting of the plug and opens prior to releasing the upper slips to equalize pressure when unsetting. The by-pass is located directly below the upper slips to help wash debris when the by-pass is open.

This tool can be set in tension or compression. It can be set shallow in unsupported casing to contain pressure while working on wellhead equipment. It can be set in tension making it ideal for setting shallow to test wellhead equipment and also deep, high-pressure wells.

The ASW Retrievable Bridge Plug is a version of the AS Retrievable Bridge Plug that allows the plug to be set on wireline or with a hydraulic setting tool, and retrieved with tubing. It cannot be reset in the wellbore once it is unset, but it can be pulled, re-dressed and run again. A Wireline Adapter Kit is required for this version.

CAUTION<sub>1</sub>: When running this tool with a packer, make sure the J-slots in the plug, running/ retrieving tool, and packer are all compatible.

#### B) **RELATED TOOLS** (sold separately)

B-1) 7-5/8" X 2-7/8" Spring Loaded Retrieving Tool (P/N 57775) – refer to technical manual DL-577-7625-175.

C	ASING	RECOMMENDED	TOOL		DADT
SIZE (INCHES)	WEIGHT (LBS/FT)	HOLE SIZE (INCHES)	OD (INCHES)	THREAD CONNECTION PIN DOWN	PART NUMBER
	24.0 - 29.7	6.875 - 7.025	6.672	2-3/8 EUE	72575RR 72575RRH <sup>1</sup> 72575RRV <sup>2</sup>
7-5/8	29.7 - 33.7	6.765 - 6.875	6.527	2-3/8 EUE	72576RR 72576RRH <sup>1</sup> 72576RRV <sup>2</sup>
	33.7 - 39.0	6.625 - 6.765	6.625 – 6.765 6.453 2-3/8 EUE		72577RR 72577RRH <sup>1</sup> 72577RRV <sup>2</sup>

Elastomer Trim Options: HSN<sup>1</sup>, Viton<sup>2</sup>

NOTE<sub>1</sub>: Tools listed are right-hand set / right-hand release. Additional J-slot designs are available.

DIFFERENTIAL	HANGING WEIGHT	TENSILE LOAD	TORQUE
PRESSURE	ON SET TOOL	THRU TOOL	THRU TOOL
(MAX)	(MAX)	(MAX)	(MAX)
8,000 PSI	$80,000 \text{ LBS}^{\dagger}$	80,000 LBS	2,000 FT-LBS

<sup>†</sup>Casing must be cemented for this load rating.

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



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# D) PRE-INSTALLATION INSPECTION PROCEDURES

#### Fig. 1

TIGHT	G	ENERAL THREAD CO	NNECTION TORQUE RECOM	IMENDATIONS
HOME	STUB ACME /	INTERNAL TAPI	ERED TUBING THREADS	PREMIUM THREADS
	ACME 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.

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>3</sub>: Do not run the tool without properly tightening connections. Running the tool with loose connections may damage the tool and cause malfunction.
- CAUTION₄: Lift the AS Retrievable Bridge Plug by placing the sling or chain just below the pulling head. <u>DO NOT</u> lift the bridge plug by the upper slip body assembly (Fig. 2).



#### **E-1) TENSION SET**

Run to setting depth while latched to its spring loaded retrieving tool. Pick up, rotate 1/4 turn to the right at the plug, and lower tubing to set lower slips. Pull tension to pack-off elements, slack off, and then pick up again to assure plug setting (16,000 lbs minimum). After setting plug, slack off tubing weight, hold left-hand torque and pick up to free tubing from plug.

#### **E-2) COMPRESSION SET**

Run to setting depth while latched to its spring-loaded retrieving tool. Pick up, rotate 1/4 turn to the right at the plug, and lower tubing to set lower slips. Slack off sufficient weight to pack-off elements, then pick up to firmly set upper slips and slack off again (16,000 lbs minimum). After setting plug, slack off tubing weight, hold left-hand torque and pick up the free tubing from plug.



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#### F) RELEASING PROCEDURES

Lower tubing until the retrieving tool automatically latches to the AS Retrievable Bridge Plug. Sand may be washed from the upper slip by circulating through the upper portion of the plug. Slack off weight, hold right-hand torque pick up to open the by-pass valve, and wait until differential pressure has equalized. Continue upward movement to release upper slips, relax packing elements and re-latch. The plug may now be removed or re-located.

#### F-1) EMERGENCY RELEASE

If the plug will not release conventionally, slack off re-set, then pick straight up to shear J-pins and release the plug (standard J-pins will shear at 40,000 lbs each – refer to Parts List for J-pins with other shear values). Once the J-pins are sheared, the tool cannot be moved down hole.

**NOTE**<sub>2</sub>: Most of the component parts are manufactured from heat-treated alloy steel. Therefore, extended exposure to corrosives can be detrimental to the metallurgy. Care in cleaning the tool soon after removal from the well can help extend the life of component parts. After removal, close inspection of the parts is necessary to identify any parts which require replacement.

#### **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. 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.

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

## H) ELASTOMER TRIM TEMPERATURE GUIDE

I	NITRILE	70° - 250°F
	HSN (HNBR)	70° - 300°F
ſ	VITON	100° - 350°F

RUBBER

TYPE

## 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

TEMPERATURE

RANGE

- SOCKET SETS
- 3/8-INCH DRIVE
  - 1/2-INCH DRIVE
- HAMMERS
  - SLEDGE
  - BALL PEEN
  - DEAD BLOW



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## I) RECOMMENDED TOOLS (cont'd)

## I-2) SPECIAL TOOLS

ITEM	QTY	DESCRIPTION	PART NUMBER
T1	1	DRAG BLOCK ASSEMBLY TOOL	AT070110

## J) DISASSEMBLY

- J-1) Clamp upper cone (9) in vise.
  - **NOTE<sub>3</sub>**: If needed, align hole in upper cone (9) with slot in sealing mandrel (27) and insert punch (or other tool) to prevent tool components from rotating during disassembly.
  - J-1.1) Unscrew and remove set screws (39) from lower end of body extension (28).
  - J-1.2) Unscrew and separate body extension (28) from J-pin body (23) (**NOTE**<sub>4</sub>: Left-hand threads). **NOTE**<sub>5</sub>: Drag block body assembly must be free to rotate.
  - J-1.3) Remove J-pins (15) from J-pin body (23).
  - J-1.4) Remove J-pin body (23) from J-slot mandrel (20).
  - J-1.5) Compress drag blocks (22) with drag block body assembly tool (T1). Unscrew and remove set screws (37) from drag block body (18). Rotate drag block retainer (21) as needed to access set screws (37).
  - J-1.6) Unscrew and remove body extension (28) from drag block body (18) (**NOTE**<sub>4</sub>: Left-hand threads). J-1.6.1) Remove retaining ring (31) from body extension (28).
  - J-1.7) Remove drag block retainer (21) from drag block body (18).
  - J-1.8) Release drag blocks (22). Remove drag blocks (22) and drag block springs (3) from drag block body (18).
  - J-1.9) Unscrew and remove rubber mandrel cap (19) from lower slip sleeve (35).
  - J-1.10) Remove drag block body assembly and disassemble:
    - J-1.10.1) Wedge lower slips (17) outward (if needed). Unscrew and remove socket cap screws (36) from drag block body (18).
    - J-1.10.2) Remove lower slip support (32) from drag block body (18).
    - J-1.10.3) Remove wedges (if needed). Remove lower slips (17) and lower slip springs (25) from drag block body (18).
  - J-1.11) Unscrew and remove set screws (38) from lower slip sleeve (35).
  - J-1.12) Unscrew and remove lower slip sleeve (35) from rubber mandrel (11).
  - J-1.13) Unscrew and remove set screws (38) from J-slot mandrel (20).
  - J-1.14) Unscrew and remove J-slot mandrel (20) from sealing mandrel (27).
  - J-1.15) Unscrew rubber mandrel (11) from center coupling (10).
  - J-1.16) Remove rubber mandrel assembly and disassemble:
    - J-1.16.1) Remove elements (13, 14), rubber spacers (12), and lower cone (16), from rubber mandrel (11).
  - J-1.17) Unscrew and remove gage ring (29) from center coupling (10).
  - J-1.18) Moving to upper end of tool, unscrew and remove set screws (39) from pulling head (1).
  - J-1.19) Unscrew and remove pulling head (1) from upper mandrel (2).

CAUTION<sub>5</sub>: Compression spring (4) is compressed with spring tension against pulling head (1).

- J-1.19.1) Unscrew and remove spring retaining ring (34) from pulling head (1).
- J-1.20) Remove compression spring (4) from upper mandrel (2).



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## J) DISASSEMBLY (cont'd)

- J-1.21) Remove upper slip body assembly and disassemble:
  - J-1.21.1) Wedge releasing slips (7) and upper slips (8) outward (if needed). Unscrew and remove upper slip support (33) from upper slip body (6).
  - J-1.21.2) Remove wedges (if needed). Remove releasing slips (7), upper slips (8), and upper slip springs (26) from upper slip body (6).
- J-1.22) Unscrew and remove set screws (38) from upper mandrel (2).
- J-1.23) Unscrew and remove upper mandrel (2) from sealing mandrel (27).
- J-1.24) Remove plug (5) from sealing mandrel (27).
  - J-1.24.1) Remove o-ring (43) from plug (5).
- J-1.25) Remove sealing mandrel (27) from center coupling (10).
- J-1.26) Unscrew and remove set screws (38) from upper cone (9).
- J-1.27) Unscrew and remove center coupling (10) from upper cone (9).
  - J-1.27.1) Remove bonded seals (24) and internal ring (40) from center coupling (10).
    - J-1.27.1.1) Remove o-rings (41) from bonded seals (24).
  - J-1.27.2) Remove o-ring (42) from center coupling (10).
- J-2) Unclamp and remove upper cone (9) from vise.
  - J-2.1) Remove seal retaining ring (30) from upper cone (9).
- NOTE<sub>6</sub>: To redress tool assembly, follow disassembly instructions. It is recommended by D&L Oil Tools to replace all seals, elements, o-rings, shear screws, etc. when redressing tool.

#### **K) ASSEMBLY**

- NOTE<sub>7</sub>: Clean and inspect all parts. Replace all worn and damaged parts. Install parts in proper order, orientation and tighten/torque all connections properly.
- CAUTION<sub>6</sub>: To ensure tool operates properly, install o-rings in o-ring grooves NOT thread reliefs unless states otherwise. (Fig. 3).

#### K-1) Clamp upper cone (9) in vise.

- K-1.1) Install seal retaining ring (30) in upper cone (9).
- K-1.2) Install o-ring (42) in groove in center coupling (10).
- K-1.3) Install o-rings (41) in grooves in bonded seals (24).
- K-1.4) Install bonded seals (24) and internal ring (40) in center coupling (10).CAUTION<sub>7</sub>: Do not rip or tear o-rings during installation.
- K-1.5) Screw center coupling (10) into upper cone (9).
- K-1.6) Screw set screws (38) into upper cone (9).
- K-1.7) Install sealing mandrel (27) through bonded seals in center coupling (10). CAUTION<sub>8</sub>: Do not damage bonded seals during installation.
- K-1.8) Install o-ring (43) in groove in plug (5).
- K-1.9) Install plug (5) into end of sealing mandrel (27).

CAUTION<sub>7</sub>: Do not rip or tear o-ring during installation.

K-1.10) Screw upper mandrel (2) onto sealing mandrel (27).

NOTE<sub>3</sub>: If needed align hole in upper cone (9) with slot in sealing mandrel (27) and insert punch (or other tool) to prevent tool components from rotating during assembly.

K-1.11) Screw set screws (38) into upper mandrel (2).

O-RING GROOVE

Fig. 3



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## K) ASSEMBLY (cont'd)

- K-1.12) Assemble upper slip body assembly and install:
  - K-1.12.1) Install releasing slips (7), upper slips (8) and upper slip springs (26) into upper slip body (6). Wedge slips outward.

NOTE<sub>8</sub>: Install one (1ea) spring per slip (Fig. 4).

- K-1.12.2) Screw upper slip support (33) into upper slip body (6).
- K-1.12.3) Install upper slip body assembly onto upper mandrel (2). Remove wedges.
- K-1.13) Install compression spring (4) onto upper mandrel (2).
- K-1.14) Screw spring retaining ring (34) onto pulling head (1).
- K-1.15) Screw pulling head (1) onto upper mandrel (2).

CAUTION<sub>5</sub>: Compression spring (4) will be compressed with spring tension against pulling head (1).

- K-1.16) Screw set screws (39) into pulling head (1).
- K-1.17) Moving to lower end of tool, screw gage ring (29) onto center coupling (10).
- K-1.18) Assemble rubber mandrel assembly and install:

K-1.18.1) Install elements (13, 14), rubber spacers (12), and lower cone (16) onto rubber mandrel (11).

K-1.18.2) Install rubber mandrel assembly onto sealing mandrel (27).

K-1.19) Screw rubber mandrel (11) into center coupling (10).

CAUTION<sub>7</sub>: Do not rip or tear o-ring during installation.

- K-1.20) Screw J-slot mandrel (20) onto sealing mandrel (27).
- K-1.21) Screw set screws (38) into J-slot mandrel (20).
- K-1.22) Screw lower slip sleeve (35) onto rubber mandrel (11).
- K-1.23) Screw set screws (38) into lower slip sleeve (35).
- K-1.24) Assemble drag block body assembly and install:
  - K-1.24.1) Install lower slips (17) and lower slip springs (25) into drag block body (18). Wedge slips outward.
    - NOTE<sub>9</sub>: Install two (2ea) springs per slip (Fig. 5).
  - K-1.24.2) Install lower slip support (32) into drag block body (18).
  - K-1.24.3) Align threaded holes in drag block body (18) with holes in lower slip support (32). Screw socket cap screws (36) into drag block body (18).
  - K-1.24.4) Install drag block body assembly onto lower slip sleeve (35). Remove wedges.
- K-1.25) Screw rubber mandrel cap (19) onto lower slip sleeve (35).
- K-1.26) Install drag blocks (22) and drag block springs (3) into drag block body (18). Compress drag blocks (22) with drag block body assembly tool (T1). NOTE<sub>10</sub>: Install six (6 ea) springs per drag block (Fig. 6).
- K-1.27) Install drag block retainer (21) onto drag block body (18) capturing ends of drag blocks (22).
- K-1.28) Install retaining ring (31) onto body extension (28).
- K-1.29) Screw body extension (28) into drag block body (18) (NOTE<sub>4</sub>: Left-hand threads).
- K-1.30) Screw set screws (37) into drag block body (18). Release drag blocks (22). Move drag block retainer (21) as necessary to access threaded holes in drag block body (18).



Fig. 5

Fig. 6



Fig. 4





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# K) ASSEMBLY (cont'd)

K-1.31) Install J-pin body (23) onto J-slot mandrel (20).

Fig. 7



- K-1.32) Align holes in J-pin body (23) with lower tension shoulder of J-slot mandrel (20). Install J-pins (15) into J-pin body (23) (Fig. 7).
- K-1.33) Slide drag block body assembly down and screw body extension (28) onto J-pin body (23) (NOTE<sub>4</sub>: Left-hand threads).

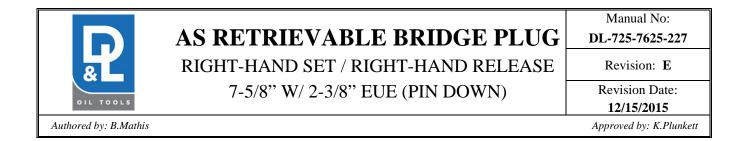
NOTE<sub>5</sub>: Drag block body assembly must be free to rotate.

- K-1.34) Screw set screws (39) into body extension (28).
- K-2) Unclamp upper cone (9) from vise and remove assembled tool.



## L) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	24.0 – 29.7# P/N 72575RR	29.7 – 33.7# P/N 72576RR	33.7 – 39.0# P/N 72577RR
1	1	PULLING HEAD	P-110	72570710		
2	1	UPPER MANDREL	P-110		72570212	
3	36	DRAG BLOCK SPRING	INCONEL		9101900	
4	1	COMPRESSION SPRING	CHROME VANADIUM		72570920	
5	1	PLUG	DLMS110		72570216	
6	1	UPPER SLIP BODY	L-80		72575320	
7	2	RELEASING SLIP	P-110		72575125	
8	2	UPPER SLIP W/ CARBIDE	P-110	72575115C		
9	1	UPPER CONE	P-110	72570411		
10	1	CENTER COUPLING	P-110	72570620		
11	1	RUBBER MANDREL	P-110	72575220		
12	2	RUBBER SPACER	DLMS35	60275840	6027	6840
13	1	ELEMENT	70 DURO NITRILE	60275511	6027	6511
14	2	ELEMENT	90 DURO NITRILE	60275513	6027	6513
					72570870-25 (25,000#	)
15	2	J-PIN	DLMS110	72570870-30 (30,000#)		
15	2	<b>NOTE</b> <sub>11</sub> : Shear value is stamped on J-pin.	DLWISTIO	72570870-35 (35,000#)		
				72570870-40 (STD 40,000#)		
16	1	LOWER CONE	P-110	72575420	72576420	72577420
17	4	LOWER SLIP W/ CARBIDE	DLMS110		60075135C	



## L) PARTS LIST (cont'd)

ITEM	QTY	DESCRIPTION	MATERIAL	24.0 – 29.7# P/N 72575RR	29.7 – 33.7# P/N 72576RR	33.7 – 39.0# P/N 72577RR	
18	1	DRAG BLOCK BODY	P-110/1026	72575330			
19	1	RUBBER MANDREL CAP	DLMS60		60070230		
20	1	J-SLOT MANDREL	DLMS110		72570230		
21	1	DRAG BLOCK RETAINER	1026		72575910		
22	6	DRAG BLOCK W/ CARBIDE	4140	9080900C	9070	900C	
23	1	J-PIN BODY	DLMS110		72570875		
24	2	BONDED SEAL	90 DURO NITRILE	60045520			
25	8	LOWER SLIP SPRING	ELGILOY	7170901			
26	4	UPPER SLIP SPRING	INCONEL	DL94830			
27	1	SEALING MANDREL	P-110	72570214			
28	1	BODY EXTENSION	DLMS110		72570370		
29	1	GAGE RING	DLMS60	72575830	72576830	72577830	
30	1	SEAL RETAINING RING	DLMS110		72570225		
31	1	RETAINING RING	DLMS60		60075911		
32	1	LOWER SLIP SUPPORT	1026		72575913		
33	1	UPPER SLIP SUPPORT	P-110		72575349		
34	1	SPRING RETAINING RING	DLMS110		72570820		
35	1	LOWER SLIP SLEEVE	DLMS110		72570912		
36	2	CAP SCREW 1/2-13 UNC X 3/4	STEEL		SCS050C075		
37	3	SET SCREW 5/16-18 UNC X 5/8	STEEL		SSS031C062		



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

ITEM	QTY	DESCRIPTION	MATERIAL	24.0 – 29.7# P/N 72575RR	29.7 – 33.7# P/N 72576RR	33.7 – 39.0# P/N 72577RR
38	12	SET SCREW 3/8-16 UNC X 3/8	STEEL	SSS037C037		
39	6	SET SCREW 3/8-16 UNC X 1/2	STEEL	SSS037C050		
40	1	SMALLEY HEAVY DUTY INTERNAL RING	STEEL	WHM-275		
41	2	145 O-RING	90 DURO NITRILE	90145		
42	1	234 O-RING	90 DURO NITRILE	90234		
43	1	322 O-RING	90 DURO NITRILE	90322		

REDRESS KIT (RDK)	72575050	72576050	72577050
ASSEMBLED WEIGHT	372 LBS	369 LBS	368 LBS



#### L-1) ELASTOMER TRIM OPTIONS

NOTE<sub>12</sub>: For temperature range, refer to Elastomer Trim Temperature Guide.

L-1.1) HSN

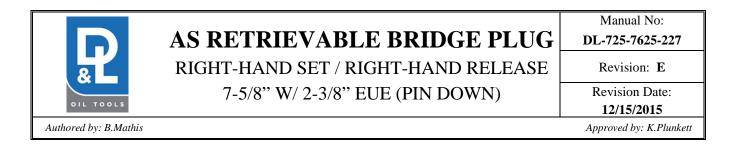
ITEM	QTY	DESCRIPTION	MATERIAL	24.0 – 29.7# P/N 72575RRH	29.7 – 33.7# P/N 72576RRH	33.7 – 39.0# P/N 72577RRH
13	1	ELEMENT	70 DURO HSN	60275511H	60276511H	
14	2	ELEMENT	90 DURO HSN	60275513H 60276513H		6513H
24	1	BONDED SEAL	90 DURO HSN	60045520H		
41	2	145 O-RING	90 DURO HSN	90145H		
42	1	234 O-RING	90 DURO HSN	90234H		
43	1	322 O-RING	90 DURO HSN	90322H		

	REDRESS KIT (RDK)		72575050H	72576050H	72577050H
L-1.2) VITON					

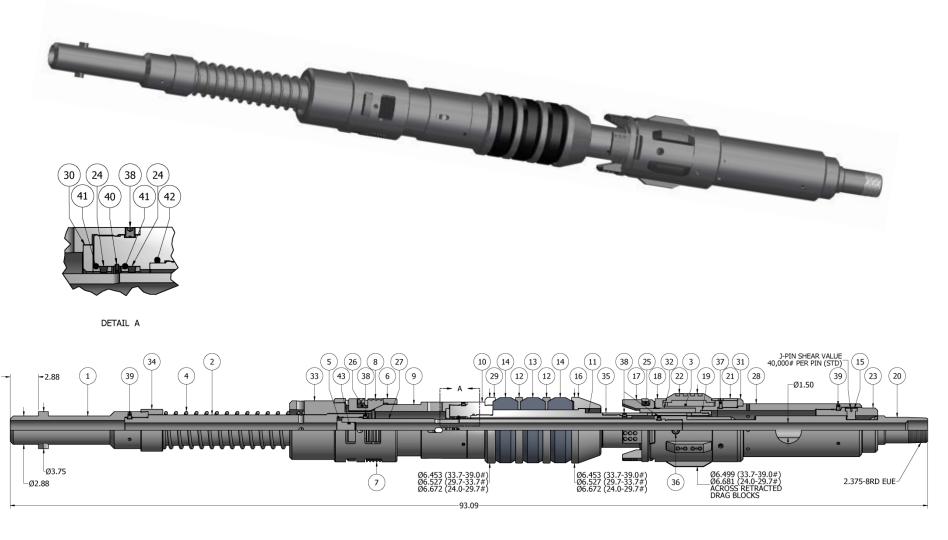
L-1.2) VITON	
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ITEM	QTY	DESCRIPTION	MATERIAL	24.0 – 29.7# P/N 72575RRV	29.7 – 33.7# P/N 72576RRV	33.7 – 39.0# P/N 72577RRV
13	1	ELEMENT	70 DURO VITON	60275511V	60276511V	
14	2	ELEMENT	90 DURO VITON	60275513V	60276513V	
24	1	BONDED SEAL	90 DURO VITON	60045520V		
41	2	145 O-RING	90 DURO VITON	90145V		
42	1	234 O-RING	90 DURO VITON	90234V		
43	1	322 O-RING	90 DURO VITON	90322V		

REDRESS KIT (RDK)	72575050V	72576050V	72577050V
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#### M) TECHNICAL ILLUSTRATION



	AS RETRIEVABLE BRIDGE PLUG	Manual No: DL-725-7625-227
&	RIGHT-HAND SET / RIGHT-HAND RELEASE	Revision: E
OIL TOOLS	7-5/8" W/ 2-3/8" EUE (PIN DOWN)	Revision Date: 12/15/2015
Authored by: B.Mathis		Approved by: K.Plunkett

# N) REVISION HISTORY

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	APPROVED BY
12/15/2015	Е	Revised 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	J.Anderson	B.Oligschlaeger
11/18/2015	D	Added max. hanging weight on set tool, max. tensile load thru tool, max. torque thru tool; Revised P/N 9101900 was 9100900, P/N 9101900 qty 36 was 12	J.Anderson	K.Riggs
06/12/14	С	Revised Drag Block Assembly Tool was AT010110, Redress Kit P/N 72575050 was 72570050, 72576050 was 72571050 and 72577050 was 72571050, Assembled Weight for 72575RR was 331LBS and 72576RR and 72577RR was 328LBS; Added Related Tools, HSN and Viton options (P/N 72575RRH, 72575RRV, 72576RRH, 72576RRV, 72577RRH, 72577RRH, 72577RRV), max. differential pressure, Pre-Installation Inspection Procedures, caution for tightening connections, caution for lifting plug, Storage Procedures, Element Selection Guide, Recommended Tools, caution for o-ring installation, Options Parts List, O.D. across retracted drag blocks, Revision History.	S. McEntire	K. Riggs