A) DESCRIPTION

The AS Retrievable Bridge Plug is a 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 and 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$_1$: 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) 20” X 4-1/2” Spring Loaded Retrieving Tool (P/N 57720-XBEE) – refer to Technical Manual *DL-577-20000-456*.

C) SPECIFICATION GUIDE

CASING			**GAGE OD** (INCHES)	**THREAD CONNECTION** PIN DOWN	**PART NUMBER**
SIZE (INCHES)	**WEIGHT** (LBS/FT)	**RECOMMENDED HOLE SIZE** (INCHES)			
20	133.0 – 169.0	18.376 – 18.730	18.000	4-1/2 IF TOOL JOINT	72520RR-XBEE 72520RRH-XBEE[1] 72520RRV-XBEE[2]

Elastomer Trim Options: [1]HSN, [2]Viton

NOTE$_1$: Tools listed are right-hand set / right-hand release. Additional J-slot designs are available.

DIFFERENTIAL PRESSURE (MAX)	**TENSILE LOAD THRU TOOL** (MAX)	**HANGING WEIGHT ON SET TOOL** (MAX)	**TORQUE THRU TOOL** (MAX)
3,000 PSI	106,200 LBS	106,200 LBS[†]	2,000 FT-LBS

[†]Casing must be cemented for this load rating.

D) PRE-INSTALLATION INSPECTION PROCEDURES

CAUTION2: 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.

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.

E) SETTING PROCEDURES

CAUTION3: 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. **DO NOT** lift the bridge plug by the upper slip body assembly (Fig. 2).

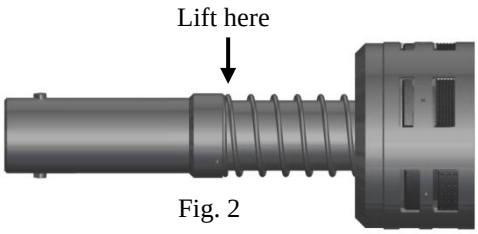


Fig. 2

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 work string to set lower slips. Pull tension to pack-off elements, slack off, and then pick up again to assure plug setting (40,000 lbs minimum). After setting plug, slack off work string 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 work string to set lower slips. Slack off sufficient weight to pack-off elements, then pick up to firmly set upper slips and slack off again (40,000 lbs minimum). After setting plug, slack off work string weight, hold left-hand torque and pick up the free tubing from plug.

F) RELEASING PROCEDURES

Lower work string 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 50,000 lbs each) Once the J-pins are sheared, the tool cannot be moved down hole.

NOTE2: Contact D&L Engineering if running tool equipped with lower than standard value shear J-pins.

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.

H) PRESSURE AFFECTED AREA 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 when releasing the packer. 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 (INCHES)	**PRESSURE AFFECTED AREA** (SQ. INCHES)	
	ABOVE	**BELOW**
20	33.18 (DOWN)	-33.18 (UP)

Example: Consider a 20" AS Bridge Plug set on tubing with a differential pressure of 1,000 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 20" AS Bridge Plug. 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 33.18 in^2. Multiplying the differential pressure (1,000 psi) by the pressure affected area (33.18 in^2) results in a force of 33,180 lbs. The piston effect on the packer mandrel is a downward force of 33,180 lbs.

I) 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

J) RECOMMENDED TOOLS

J-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, 4-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
- JACK STANDS

J-2) SPECIAL TOOLS

ITEM	QTY	DESCRIPTION	PART NUMBER
T1	1	DRAG BLOCK ASSEMBLY TOOL	AT018110

K) DISASSEMBLY

NOTE$_3$: Ensure vise is capable of handling weight of tool.

NOTE$_4$: Support tool during disassembly with jack stands as necessary.

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

NOTE$_5$: 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.

K-1.1) Unscrew and remove set screws (41) from bottom sub (28).

K-1.2) Unscrew and remove bottom sub (28) from J-slot mandrel (20).

K-1.3) Unscrew and remove set screws (41) from body extension (37).

K-1.4) Unscrew and separate body extension (37) from J-pin body (23) (**NOTE$_6$**: Left-hand threads).

NOTE$_7$: Drag block body assembly must be free to rotate.

K-1.5) Remove J-pins (31) from J-pin body (23).

K-1.6) Remove J-pin body (23) from J-slot mandrel (20).

K-1.7) Unscrew and remove set screws (40) from drag block body adapter (35).

K-1.8) Unscrew and remove body extension (37) from drag block body adapter (35) (**NOTE$_6$**: Left-hand threads).

K-1.9) Compress drag blocks (22) with drag block assembly tool (T1). Unscrew and remove drag block retainer (21) from drag block body adapter (35).

K) DISASSEMBLY (cont'd)

K-1.10) Release drag blocks (22). Remove drag blocks (22) and drag block springs (3) from drag block body (18).

K-1.11) Unscrew and remove rubber mandrel cap (19) from lower rubber mandrel (34).

K-1.12) Remove drag block body assembly and disassemble:

K-1.12.1) Wedge lower slips (17) outward (if needed). Unscrew and remove cap screws (39) from drag block body (18).

K-1.12.2) Remove lower slip support (32) from drag block body (18).

K-1.12.3) Remove wedges (if needed). Remove lower slips (17) and lower slip springs (25) from drag block body (18).

K-1.12.4) Unscrew and remove set screws (41) from drag block body (18).

K-1.12.5) Unscrew and remove drag block body adapter (35) from drag block body (18) (**NOTE6**: Left-hand threads).

K-1.13) Unscrew and remove lower cone support (38) from lower cone (16).

K-1.14) Unscrew and remove lower cone (16) from rubber retainer (15).

K-1.15) Unscrew and remove set screws (40) from lower rubber mandrel (34).

K-1.16) Unscrew and remove lower rubber mandrel (34) from rubber mandrel (11).

K-1.17) Unscrew and remove set screws (41) from J-slot mandrel (20).

K-1.18) Unscrew and remove J-slot mandrel (20) from sealing mandrel (27).

K-1.19) Unscrew rubber mandrel (11) from center coupling (10).

K-1.20) Remove rubber mandrel assembly and disassemble:

K-1.20.1) Remove elements (13, 14), rubber spacers (12) and rubber retainer (15) from secondary rubber mandrel (36).

K-1.20.2) Remove secondary rubber mandrel (36) from rubber mandrel (11).

K-1.20.3) Remove o-ring (45) from rubber mandrel (11).

K-1.21) Unscrew and remove gage ring (29) from center coupling (10).

K-1.22) Moving to upper end of tool, unscrew and remove set screws (41) from pulling head (1).

K-1.23) Unscrew and remove pulling head (1) from upper mandrel (2).

CAUTION5: Compression spring (4) is compressed with spring tension against pulling head (1).

K-1.24) Remove compression spring (4) from upper mandrel (2).

K-1.25) Remove upper slip body and disassemble:

K-1.25.1) Wedge releasing slips (7) and upper slips (8) outward (if needed). Unscrew and remove upper slip support (33) from upper slip body (6).

K-1.25.2) Remove wedges (if needed). Remove releasing slips (7), upper slips (8) and upper slip springs (26) from upper slip body (6).

K-1.26) Unscrew and remove set screws (40) from upper mandrel (2).

K-1.27) Unscrew and remove upper mandrel (2) from sealing mandrel (27).

K-1.28) Remove plug (5) from sealing mandrel (27).

K-1.28.1) Remove o-ring (43) from plug (5).

K-1.29) Remove sealing mandrel (27) from upper cone (9).

K-1.30) Unscrew and remove set screws (41) from upper cone (9).

K-1.31) Unscrew and remove center coupling (10) from upper cone (9).

K-1.31.1) Remove bonded seals (24) and o-ring (42) from center coupling (10).

K-1.31.1.1) Remove o-rings (44) from bonded seals (24).

K) DISASSEMBLY (cont’d)

K-2) Unclamp and remove upper cone (9) from vise.

K-2.1) Remove seal retaining ring (30) from upper cone (9).

NOTE$_8$: 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.

L) ASSEMBLY

NOTE$_3$: Ensure vise is capable of handling weight of tool.

NOTE$_4$: Support tool during disassembly and assembly with jack stands as necessary.

NOTE$_9$: Clean and inspect all parts. Replace all worn and damaged parts. Install parts in proper order, orientation and tighten/torque all connections properly.

CAUTION$_6$: To ensure tool operates properly, install o-rings in o-ring grooves NOT thread reliefs (Fig. 3).

L-1) 0Clamp upper cone (9) in vise.

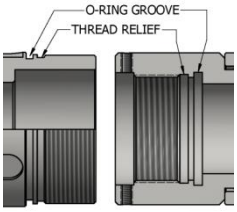


Fig. 3

L-1.1) Install seal retaining ring (30) into upper cone (9).

L-1.2) Install o-ring (42) in o-ring groove in center coupling (10).

L-1.3) Install o-rings (44) in o-ring grooves in bonded seals (24).

L-1.4) Install bonded seals (24) in center coupling (10).

CAUTION$_7$: Do not rip or tear o-rings during installation.

L-1.5) Screw center coupling (10) into upper cone (9).

L-1.6) Screw set screws (41) into upper cone (9).

L-1.7) Install sealing mandrel (27) through bonded seals (24) in center coupling (10).

CAUTION$_8$: Do not damage bonded seals during installation.

L-1.8) Install o-ring (43) in o-ring groove in plug (5).

L-1.9) Install plug (5) into end of sealing mandrel (27).

CAUTION$_7$: Do not rip or tear o-rings during installation.

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

NOTE$_5$: 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.


Fig. 4

L-1.11) Screw set screws (40) into upper mandrel (2).

L-1.12) Assemble upper slip body and install:

L-1.12.1) Install releasing slips (7), upper slips (8) and upper slip springs (26) into upper slip body (6). Wedge slips outward.

NOTE$_{10}$: Install one (1ea) spring per slip (Fig. 4).

L-1.12.2) Screw upper slip support (33) into upper slip body (6). Remove wedges.

L-1.12.3) Install upper slip body assembly onto upper mandrel (2).

L-1.13) Install compression spring (4) onto upper mandrel (2).

L-1.14) Screw pulling head (1) onto upper mandrel (2).

CAUTION$_5$: Compression spring (4) will be compressed with spring tension against pulling head (1).

L-1.15) Screw set screws (41) into pulling head (1).

L-1.16) Moving to lower end of tool, screw gage ring (29) onto center coupling (10).

L) ASSEMBLY (cont’d)

L-1.17) Assemble rubber mandrel assembly and install:

L-1.17.1) Install o-ring (45) in o-ring groove in rubber mandrel (11).

L-1.17.2) Install secondary rubber mandrel (36) onto rubber mandrel (11).

CAUTION$_7$: Do not rip or tear o-ring during installation.

L-1.17.3) Install rubber retainer (15), elements (13, 14) and rubber spacers (12) onto secondary rubber mandrel (36).

L-1.17.4) Install rubber mandrel assembly onto sealing mandrel (27).

L-1.18) Screw rubber mandrel (11) into center coupling (10).

CAUTION$_7$: Do not rip or tear o-ring during installation.

L-1.19) Screw J-slot mandrel (20) onto sealing mandrel (27).

L-1.20) Screw set screws (41) into J-slot mandrel (20).

L-1.21) Screw lower rubber mandrel (34) onto rubber mandrel (11).

L-1.22) Screw set screws (40) into lower rubber mandrel (34).

L-1.23) Screw lower cone (16) into rubber retainer (15).

L-1.24) Screw lower cone support (38) into lower cone (16).

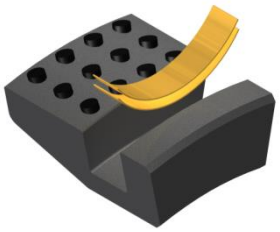


Fig. 5

L-1.25) Assemble drag block body assembly and install:

L-1.25.1) Screw drag block body adapter (35) into drag block body (18) (**NOTE$_6$**: Left-hand threads).

L-1.25.2) Screw set screws (41) into drag block body (18).

L-1.25.3) Install lower slips (17) and lower slip springs (25) into drag block body (18). Wedge lower slips (17) outward.

NOTE$_{11}$: Install two (2ea) springs per slip (Fig. 5).

L-1.25.4) Install lower slip support (32) into drag block body (18).

L-1.25.5) Align threaded holes in drag block body (18) with holes in lower slip support (32). Screw cap screws (39) into drag block body (18). Remove wedges.

L-1.25.6) Install drag block body assembly onto rubber mandrel (11).

L-1.26) Screw rubber mandrel cap (19) onto lower rubber mandrel (34).

L-1.27) Install drag blocks (22) and drag block springs (3) in drag block body (18). Compress drag blocks (22) with drag block assembly tool (T1).

NOTE$_{12}$: Install six (6ea) springs per drag block (Fig. 6).

L-1.28) Screw drag block retainer (21) onto drag block body (18) capturing ends of drag blocks (22). Release drag blocks (22).

L-1.29) Screw body extension (37) into drag block body adapter (35) (**NOTE$_6$**: Left-hand threads).

L-1.30) Screw set screws (40) into drag block body adapter (35).

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

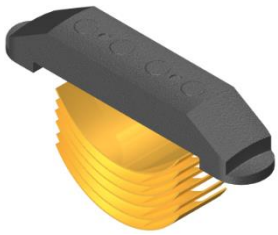
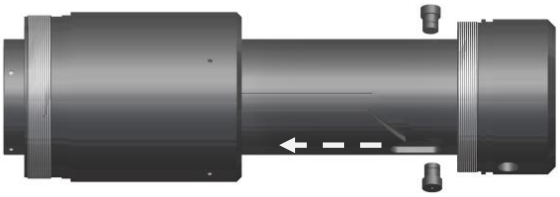


Fig. 6

L) ASSEMBLY (cont’d)

Fig. 7



L-1.32) Align holes in J-pin body (23) with running position of J-slot mandrel (20). Install J-pins (31) into J-pin body (23) (Fig. 7).

L-1.33) Slide drag block body assembly down and screw body extension (37) onto J-pin body (23) (**NOTE$_6$**: Left-hand threads).

NOTE$_7$: Drag block body assembly must be free to rotate.

L-1.34) Screw set screws (41) into body extension (37). Remove wedges.

L-1.35) Screw bottom sub (28) onto J-slot mandrel (20).

L-1.36) Screw set screws (41) into bottom sub (28).

L-2) Unclamp upper cone (9) from vise and remove assembled tool.

M) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 72520RR-XBEE
1	1	PULLING HEAD	DLMS110	72516715
2	1	UPPER MANDREL	DLMS110	72516210
3	96	DRAG BLOCK SPRING	INCONEL	9101900
4	1	COMPRESSION SPRING	CHROME VANADIUM	60316920
5	1	PLUG	DLMS110	72516216
6	1	UPPER SLIP BODY	DLMS110	72520320
7	2	RELEASING SLIP	DLMS110	72520125
8	4	UPPER SLIP W/ CARBIDE	DLMS110	72520115C
9	1	UPPER CONE	DLMS110	72518410
10	1	CENTER COUPLING	DLMS110	72518620
11	1	RUBBER MANDREL	DLMS110	72516220
12	2	RUBBER SPACER	DLMS35	60220840
13	1	ELEMENT	70 DURO NITRILE	60220511
14	2	ELEMENT	90 DURO NITRILE	60220513
15	1	RUBBER RETAINER	DLMS110	61320850
16	1	LOWER CONE	DLMS110	61318420
17	6	LOWER SLIP W/ CARBIDE	DLMS110	60020135C
18	1	DRAG BLOCK BODY	DLMS110	60320335
19	1	RUBBER MANDREL CAP	DLMS110	72416230

M) PARTS LIST (cont’d)

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 72520RR-XBEE
20	1	J-SLOT MANDREL	DLMS110	72516230
21	1	DRAG BLOCK RETAINER	DLMS110	60020910
22	16	DRAG BLOCK W/ CARBIDE	DLMSDB4	9080900C
23	1	J-PIN BODY	DLMS110	72516875
24	2	BONDED SEAL	90 DURO NITRILE	72516520
25	12	LOWER SLIP SPRING	INCONEL	7116901
26	6	UPPER SLIP SPRING	625 INCONEL	DL94831
27	1	SEALING MANDREL	DLMS110	72516214
28	1	BOTTOM SUB	DLMS110	72516630
29	1	GAGE RING	DLMS110	60220830
30	1	SEAL RETAINING RING	1026	72518225
31	2	J-PIN	DLMS110	72585870
32	1	LOWER SLIP SUPPORT	DLMS110	60318912
33	1	UPPER SLIP SUPPORT	DLMS110	72520348
34	1	LOWER RUBBER MANDREL	DLMS110	72516221
35	1	DRAG BLOCK BODY ADAPTER	DLMS110	72518355
36	1	SECONDARY RUBBER MANDREL	DLMS110	60318225
37	1	BODY EXTENSION	DLMS110	72516370
38	1	LOWER CONE SUPPORT	DLMS110	72518421
39	2	CAP SCREW 1/2-13 UNC X 1-1/2	STEEL	SCS050C150
40	10	SET SCREW 3/8-16 UNC X 3/8	STEEL	SSS037C037
41	22	SET SCREW 3/8-16 UNC X 1/2	STEEL	SSS037C050
42	1	266 O-RING	90 DURO NITRILE	90266
43	1	249 O-RING	90 DURO NITRILE	90249
44	2	261 O-RING	90 DURO NITRILE	90261
45	1	267 O-RING	90 DURO NITRILE	90267

REDRESS KIT (RDK)		72520050
ASSEMBLED WEIGHT		2,506 LBS

M) PARTS LIST (cont’d)

M-1) ELASTOMER TRIM OPTIONS

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

M-1.1) HSN

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 72520RRH-XBEE
13	1	ELEMENT	70 DURO HSN	60220511H
14	2	ELEMENT	90 DURO HSN	60220513H
24	2	BONDED SEAL	90 DURO HSN	72516520H
42	1	266 O-RING	90 DURO HSN	90266H
43	1	249 O-RING	90 DURO HSN	90249H
44	2	261 O-RING	90 DURO HSN	90261H
45	1	267 O-RING	90 DURO HSN	90267H

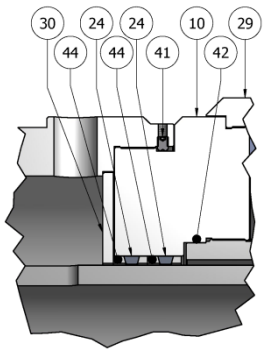
REDRESS KIT (RDK)		72520050H

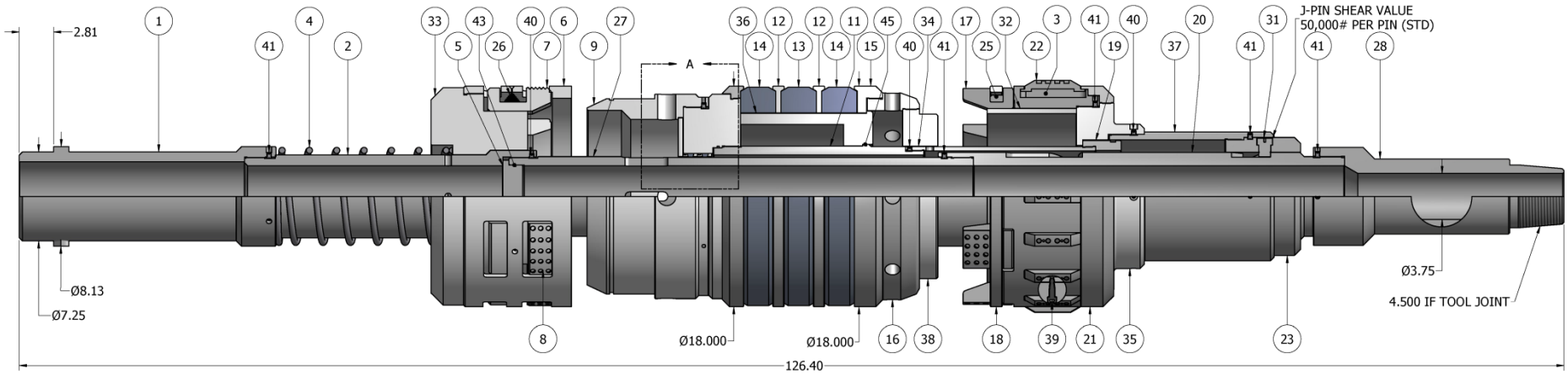
M-1.2) VITON

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 72520RRV-XBEE
13	1	ELEMENT	70 DURO VITON	60220511V
14	2	ELEMENT	90 DURO VITON	60220513V
24	2	BONDED SEAL	90 DURO VITON	72516520V
42	1	266 O-RING	90 DURO VITON	90266V
43	1	249 O-RING	90 DURO VITON	90249V
44	2	261 O-RING	90 DURO VITON	90261V
45	1	267 O-RING	90 DURO VITON	90267V

REDRESS KIT (RDK)		72520050V

N) TECHNICAL ILLUSTRATION





O) REVISION HISTORY

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	APPROVED BY
08/21/2023	G	Revised P/N 90266 was 90213, 90266H was 90213H, 90266V was 90213V	J.Anderson	D.McKeon
07/19/2019	F	Revised max. hanging weight and tensile load; Added Pressure Affected Area Guide	J.Anderson	K.Riggs
12/14/2015	E	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
11/09/2015	D	Added max. tensile load thru tool, hanging weight from set tool, torque thru tool	J.Anderson	K.Riggs
01/07/15	C	Revised Elastomer Trim Temperature Guide was Element Selection Guide, Assembled weight was 2500LBS; Added Related Tools, HSN and Viton options (72520RRH-XBEE, 72520RRV-XBEE), max. differential pressure, Pre-Installation Inspection Procedures, caution for tightening connections, caution for lifting plug, Storage Procedures, Elastomer Trim Temperature Guide, Recommended Hand Tools, note for vise and jack stands during assembly/disassembly, caution for o-ring installation, Elastomer Trim Options, Revision History.	S. McEntire	K. Riggs