



ASI-X ANCHOR

6" X 2-7/8"

Manual No:
DL-323-6000-1688

Revision: **A**

Revision Date:
06/29/2023

Authored by: *J.Anderson*

Approved by: *E.Visaez*

A) DESCRIPTION

The ASI-X Anchor is a mechanically set double grip tubing anchor designed to be exceptionally durable and debris tolerant. The ASI-X Anchor is an adaptation of the ASI-X Packer and is suited for treating, testing, injecting, pumping wells, and flowing wells, deep or shallow. The double slip design allows the anchor to be left in tension or compression, depending on well conditions and the required application. The J-slot design allows easy setting and releasing with 1/4 turn right-hand set, right-hand release.

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)		
6	23.0 – 26.0	5.132 - 5.240	4.907	2.38`	2-7/8 EUE	32362 32362H ¹ 32362V ²

Elastomer Trim Options: ¹HSN, ²Viton

NOTE₁: Tools listed are right-hand set / right-hand release.

DIFFERENTIAL PRESSURE (MAX)	TENSILE LOAD THRU TOOL (MAX)	TORQUE THRU TOOL (MAX)
7,500 PSI	65,500 LBS*	800 FT-LBS

*This is the maximum tensile value that can be pulled through the tool. If weight is hung through the anchor, the shear release plus the hanging weight cannot exceed this value.

C) PRE-INSTALLATION INSPECTION PROCEDURES

CAUTION₁: 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

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)

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 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.

D-1) COMPRESSION SET

Run the anchor to setting depth. Pick up the work string 12" – 13" to allow for setting stroke plus desired work string load. Rotate the work string 1/4 right-hand turn at the anchor, and then lower the work string while releasing torque. Slack off 12,000 lbs on the work string sufficient weight to set the anchor. Pull 14,000 lbs tension to assure that the upper slips are set. The work string can then be left in tension or compression.

D-2) TENSION SET

Run to setting depth, pick up on the work string and rotate 1/4 turn to the right at the anchor then lower the work string slacking off available weight to set the anchor lower slips. Pull 12,000 lbs tension to set upper slips. After setting the anchor, the work string can be left in compression or tension.

E) RELEASING PROCEDURES

The releasing procedures are the same whether the anchor has been tension or compression set. Set down weight on the anchor to unseat the J-pin from the tension shoulder of the J-slot. Rotate the work string 1/4 right-hand turn at the anchor and pick up while holding right-hand torque. Weight in addition to pipe weight may be required to pick up on anchor. Continue to pick up to release the slips thus allowing the anchor to be re-set or removed from the well.

E-1) EMERGENCY RELEASE

In the event the anchor will not release in the normal manner, the J-pin ring is equipped with an emergency shear release. The shear screws can be sheared with straight pickup above tubing weight. The shear release value is adjustable from 24,000 lbs to 72,000 lbs (6,000 lbs/screw) by adding or removing shear screws from the J-pin ring. When released in this manner, the anchor will reset automatically when moved down the 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.

Store the tool, if possible, in an enclosed, temperature and humidity controlled environment. Avoid excessively high temperatures over long periods of time. 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

RUBBER TYPE	TEMPERATURE RANGE
NITRILE	40° - 250°F
HSN (HNBR)	70° - 300°F
VITON	100° - 350°F

H) RECOMMENDED TOOLS

H-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

H-2) SPECIAL TOOLS

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

I) DISASSEMBLY

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

I-1.1) Remove Smalley heavy duty external ring (24) from shear bottom sub (23).

I-1.2) Unscrew and remove set screws (16) from shear bottom sub (23). Move J-body (20) as necessary to access set screws (16).

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

I-1.3) Unscrew and remove shear bottom sub (23) from inner mandrel (2).

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

I-1.3.1) Remove o-ring (25) from shear bottom sub (23).

I-1.3.2) Unscrew and remove shear screws (14) from J-pin ring (10).

I-1.3.3) Remove J-pin ring (10) from shear bottom sub (23).

I-1.4) Compress drag blocks (22) with drag block assembly tool (T1).

I-1.5) Unscrew and remove set screws (15) from drag block body (18).

I-1.6) Unscrew and remove J-body (20) from drag block body (18) (**NOTE4:** Left-hand threads).

I-1.7) Remove drag block retainer (21) from drag block body (18).

I-1.8) Remove drag block assembly tool (T1). Remove drag blocks (22) and drag block springs (3) from drag block body (18).

I-1.9) Unscrew and remove rubber mandrel cap (19) from slip mandrel (6). Move drag block body assembly upwards to access rubber mandrel cap (19) as necessary.



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I) DISASSEMBLY (cont'd)

I-1.10) Wedge lower slips (17) outward (if needed). Remove drag block body assembly and disassemble:

I-1.10.1) Remove wedges (if needed). Remove lower slips (17) and slip springs (12) from drag block body (18).

I-1.11) Unscrew slip mandrel (6) from cone (9) and remove from inner mandrel (2).

I-1.12) Remove cone (9) from inner mandrel (2).

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

NOTE₅: Do **NOT** wrench or clamp on seal surface.

I-2.1) Unscrew and remove spring cage cap (11) from spring cage (5).

CAUTION₃: Compression spring (4) is compressed with spring tension against spring assembly.

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

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

I-2.4) Wedge releasing slip (7) and upper slips (8) outwards (if needed). Remove spring cage assembly and disassemble:

I-2.4.1) Remove wedges (if needed). Remove releasing slip (7), upper slips (8) and slip springs (13) from spring cage (5).

I-3) Unclamp and remove inner mandrel (2) from vise.

J) ASSEMBLY

NOTE₂: Clean and inspect all parts. Replace all worn and damaged parts. Install parts in proper order, and orientation and tighten/torque all connections properly.

CAUTION₄: To ensure tool operates properly, install o-rings in o-ring grooves **NOT** thread reliefs (Fig. 2).

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

NOTE₅: Do **NOT** wrench or clamp on seal surface.

J-1.1) Assemble spring cage assembly and install:

J-1.1.1) Install upper slips (8), releasing slip (7), and slip springs (13) into spring cage (5). Wedge slips outwards.

NOTE₆: Install two (2ea) springs per slip (Fig. 3).

J-1.1.2) Install spring cage assembly onto inner mandrel (2). Remove wedges.

J-1.2) Install compression spring (4) onto inner mandrel (2).

J-1.3) Screw top sub (1) onto inner mandrel (2).

J-1.4) Screw spring cage cap (25) into spring cage (5).

CAUTION₃: Compression spring (4) will be compressed with spring tension against spring cage assembly.

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

J-2.1) Install cone (9) onto inner mandrel (2).

J-2.2) Install slip mandrel (6) onto inner mandrel (2) and screw into cone (9).

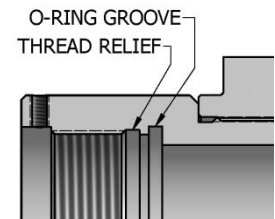


Fig. 2

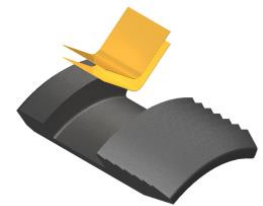


Fig. 3



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J) ASSEMBLY (cont'd)

J-2.3) Assemble drag block body assembly and install:

J-2.3.1) Install lower slips (17) and slip springs (12) into drag block body (18).
Wedge slips outward.

NOTE6: Install two (2ea) springs per slip (Fig. 4).

J-2.3.2) Install drag block body assembly onto slip mandrel (6). Remove wedges.

J-2.4) Screw rubber mandrel cap (19) onto slip mandrel (6). Move drag block body assembly upwards to access rubber mandrel thread as necessary.

J-2.5) Install drag blocks (22) and drag block springs (3) into drag block body (18). Compress drag blocks (22) with drag block assembly tool (T1).

NOTE7: Install four (4 ea) springs per block (Fig. 5).

J-2.6) Install drag block retainer (21) onto drag block body (18) capturing ends of drag blocks (22).

J-2.7) Screw J-body (20) into drag block body (18) (**NOTE4:** Left-hand threads).

J-2.8) Screw set screws (27) into drag block body (18). Remove drag block assembly tool (T1).

J-2.9) Install J-pin ring (10) onto shear bottom sub (23). Align threaded holes in J-pin ring (10) with counterbores in shear bottom sub (23)

J-2.10) Screw shear screws (14) into J-pin ring (10). Tighten until shear screws (14) contact shear bottom sub (23). Back out 1/4 turn.

J-2.11) Install o-ring (25) in o-ring groove in shear bottom sub (23).

J-2.12) Screw shear bottom sub (23) onto inner mandrel (2).

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

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

J-2.13) Screw set screws (16) into shear bottom sub (23). Move J-body (20) as necessary to access threaded holes in bottom sub (23).

J-2.14) Install Smalley heavy duty external ring (24) in ring groove in shear bottom sub (23).

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

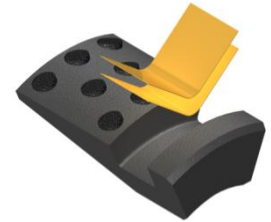


Fig. 4



Fig. 5



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K) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 32362
1	1	TOP SUB	DLMS80	60156610
2	1	INNER MANDREL	DLMS80	32356210
3	16	DRAG BLOCK SPRING		9100900
4	1	COMPRESSION SPRING	DLMCRSP	61056920
5	1	SPRING CAGE	DLMS80	32362325
6	1	SLIP MANDREL	DLMS80	32362220
7	1	RELEASING SLIP	DLMS110	60062125
8	2	CARBIDE UPPER SLIP	DLMS110	60062115C
9	1	CONE	DLMS110	32362410
10	1	J-PIN RING	DLMS110	32356875
11	1	SPRING CAGE CAP	DLMS60	60162810
12	8	LOWER SLIP SPRING		7155901
13	6	UPPER SLIP SPRING		7155902
14	12	SHEAR SCREW (5000#)	DLM464BRS	65050902
15	3	5/16-18 UNC X 5/16 SOCKET SET SCREW	STEEL	SSS031C031
16	2	1/4-20 UNC X 3/8 SOCKET SET SCREW	STEEL	SSS025C037
17	4	CARBIDE LOWER SLIP	DLMS110	60062135C
18	1	DRAG BLOCK BODY	DLMS60	60062335
19	1	RUBBER MANDREL CAP	DLMS60	60156230
20	1	J-BODY	DLMS60	32356345
21	1	DRAG BLOCK RETAINER	DLMS60	60062910
22	4	560 CARBIDE DRAG BLOCK	DLMSDB4	9056900C
23	1	SHEAR BOTTOM SUB	DLMS80	32351655
24	1	SMALLEY HEAVY DUTY EXTERNAL RING	DLMSC	WSM-312
25	1	231 O-RING	90 DURO NITRILE	90231

REDRESS KIT (RDK)		32362050
ASSEMBLED WEIGHT		117 LBS



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K) PARTS LIST (cont'd)

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 32362H
25	1	231 O-RING	90 DURO HSN	90231H

REDRESS KIT (RDK)		32362050H
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K-1.2) VITON

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 32362V
25	1	231 O-RING	90 DURO VITON	90231V

REDRESS KIT (RDK)		32362050V
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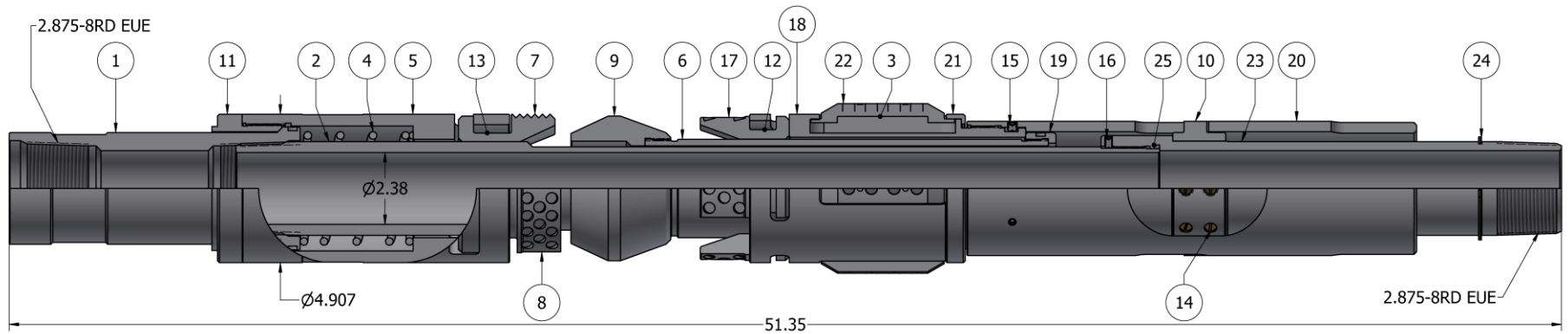
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L) TECHNICAL ILLUSTRATION



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REVISION HISTORY

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	APPROVED BY
06/29/2023	A	Created manual	-	-