



# DRAG BLOCK TUBING ANCHOR/CATCHER

## 9-5/8" X 4-1/2" w/ 3-1/2" EUE

Manual No:  
**DL-325-9625-500**

Revision: **A**

Revision Date:  
**05/18/2016**

Authored by: J.Anderson

Approved by: N.Banker

### A) DESCRIPTION

The Drag Block Mechanical Tubing Anchor/Catcher (DB Anchor) is a retrievable positive-action tubing anchor designed to hold the tubing string in tension or compression. It has drag blocks to allow the anchor to be run deeper than conventional drag spring anchors. The anchor prevents movement of the tubing during pumping strokes; and holds it stationary if it should part. The use of a tension tubing anchor increases pump efficiency, reduces rod and tubing wear, and keeps tubing and rods from falling into the well in case of a part.

### 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)		
9-5/8	32.3 – 53.5	8.535 – 9.001	8.250	3.00	3-1/2 EUE	32595-XBAE 32595H-XBAE <sup>1</sup> 32595V-XBAE <sup>2</sup>

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

DIFFERENTIAL PRESSURE (MAX)	TENSILE LOAD THRU TOOL (MAX)	TORQUE THRU TOOL (MAX)
6,500 PSI	180,000 LBS	2,000 FT 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.

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.

**D & L OIL TOOLS**  
P.O. BOX 52220 TULSA, OK 74152  
PHONE: (800) 441-3504 [www.dloiltools.com](http://www.dloiltools.com)



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## C) PRE-INSTALLATION INSPECTION PROCEDURES (cont'd)

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.

At the desired setting depth, rotate work string to the left with hand tongs, five (5) to eight (8) turns depending on casing weight. After slips contact casing, pull full calculated tension. Slack off and, while holding left-hand torque on work string, alternately pull up and set down weight several times to firmly set the slips. Release torque and apply full tension.

## E) RELEASING PROCEDURES

The anchor-catcher should be released with the work string in slight compression. Apply slight amount of set-down weight. Rotate to the right five (5) to eight (8) turns and reciprocate the work string two (2) or three (3) times for a distance of several feet while rotating additional turns to the right. Prevent left-hand rotation when retrieving anchor.

### E-1) EMERGENCY RELEASE

If the anchor-catcher will not release in a normal manner, emergency shear release can be obtained with an upward pull. Shear value is determined by the quantity of shear screws installed in tool (5,000# per screw).

## 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.

## G) ELASTOMER TRIM TEMPERATURE GUIDE

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



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## 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
- STRAP WRENCH
- 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) OPTIONAL SPECIAL TOOLS

ITEM	QTY	DESCRIPTION	PART NUMBER
T1	1	DRAG BLOCK ASSEMBLY TOOL	AT095110

## I) DISASSEMBLY

- I-1) Clamp coupling (1) in vise.
- I-1.1) From lower end of tool, unscrew and remove crossover (17) from mandrel (2).
- I-1.2) Unscrew and remove shear screws (4) from shear ring (5).
- I-1.3) Remove shear ring (5) from inner mandrel (2).
- I-1.4) Unscrew and remove set screws (14) from upper cone (9).
- I-1.5) Remove slip cage assembly from inner mandrel (2) and disassemble:
- I-1.5.1) Remove slip assemblies and disassemble:
- I-1.5.1.1) Unscrew and remove button head cap screws (16) from slips (10).
- I-1.5.1.2) Separate slips (10) and slip springs (13).
- I-1.5.2) Remove lower cone (8) from slip cage (6).
- I-2) Unclamp and remove coupling (1) from vise. Clamp lower end of inner mandrel (2) in vise.
- I-2.1) Unscrew and remove coupling (1) from inner mandrel (2).
- I-2.2) Unscrew and remove set screws (15) from stop ring (7).
- I-2.3) Remove stop ring (7) from inner mandrel (2).
- I-2.4) Compress drag blocks (22) with drag block assembly tool (T1).
- I-2.5) Unscrew and remove drag block retainer (11) from upper cone (9).
- I-2.6) Remove drag block assembly tool (T1) from drag blocks (22). Remove drag blocks (12) and drag block springs (3) from upper cone (9).
- I-2.7) Unscrew and remove upper cone (9) from inner mandrel (2).
- I-2.7.1) Remove o-ring (18) from upper cone (9).
- I-3) Unclamp and remove inner mandrel (2) from vise.



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### J) ASSEMBLY

**NOTE<sub>3</sub>:** Clean and inspect all parts. Replace all worn and damaged parts. Install parts in proper order, and orientation and tighten/torque all connections properly.

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

J-1.1) Install o-ring (17) in o-ring groove in upper cone (9).

J-1.2) Screw upper cone (9) onto inner mandrel (2).

**CAUTION<sub>3</sub>:** Do not rip or tear o-ring during installation.

J-1.3) Install drag blocks (12) and drag block springs (3) in upper cone (9). Compress drag blocks (22) with drag block assembly tool (T1).

**NOTE<sub>2</sub>:** Uses six (6 ea) springs per drag block (Fig. 2).

J-1.4) Screw drag block retainer (11) onto upper cone (9) capturing ends of drag blocks (12). Remove drag block assembly tool (T1) from drag blocks (22).

J-1.5) Install stop ring (7) onto inner mandrel (2). Align threaded holes in stop ring (7) with pocket holes in inner mandrel (2).

J-1.6) Screw set screws (14) into stop ring (7).

J-1.7) Screw coupling (1) onto inner mandrel (2).

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

J-2.1) Assemble slip cage assembly and install on inner mandrel (2):

J-2.1.1) Install lower cone (8) into slip cage (6).

J-2.1.2) Assemble slip assemblies and install in slip cage (6):

J-2.1.2.1) Set slip springs (13) in place on slips (10).

**NOTE<sub>4</sub>:** Uses three (3 ea) springs per slip (Fig. 3).

J-2.1.2.2) Screw button head cap screws (16) into slips (10).

J-2.1.2.3) Install slip cage assembly on inner mandrel (2).

J-2.2) Align slots in slip cage (6) with threaded holes in upper cone (9). Screw set screws (14) into upper cone (9).

J-2.3) Install shear ring (5) onto inner mandrel (2).

J-2.4) Align threaded holes in shear ring (5) with pocket holes in inner mandrel (2). Screw shear screws (4) into shear ring (5). Tighten and back out 1/4 turn.

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

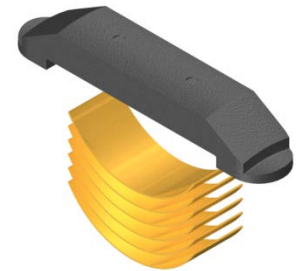


Fig. 2

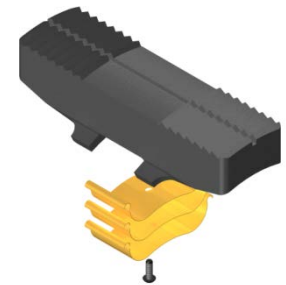


Fig. 3

### K) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 32595-XBAE
1	1	COUPLING	DLMS80	CP3500E4500E
2	1	INNER MANDREL	DLMS80	32585210
3	36	DRAG BLOCK SPRING	-	9101900
4	12	SHEAR SCREW (5,000#)	DLM360BRS	32045910
5	1	SHEAR RING	L-80	32585930
6	1	SLIP CAGE	L-80	32595320
7	1	STOP RING	L-80	32585910
8	1	LOWER CONE	P-110	32595420



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## K) PARTS LIST (cont'd)

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 32595-XBAE
9	1	UPPER CONE	P-110	32595410
10	3	SLIP	1026	32095110
11	1	DRAG BLOCK RETAINER	L-80	32595920
12	6	DRAG BLOCK	DLMSDB8	9080900
13	9	SLIP SPRING	-	32070950
14	3	SET SCREW 5/8-18 UNF X 1"	STEEL	SSS062F100
15	4	SET SCREW 1/2-13 UNC X 3/4	STEEL	SSS050C075
16	3	BUTTON HEAD CAP SCREW #8-32 UNC X 1/2	STEEL	BHSC832C050
17	1	CROSSOVER	DLMS80	CH4500E3500E
18	1	248 O-RING	90 DURO NITRILE	90248

REDRESS KIT (RDK)	32595050
ASSEMBLED WEIGHT	279 LBS

### K-1) ELASTOMER TRIM OPTIONS

**NOTE<sub>1</sub>:** For temperature range, refer to Elastomer Trim Temperature Guide.

#### K-1.1) HSN

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 32595H-XBAE
18	1	248 O-RING	90 DURO HSN	90248H

REDRESS KIT (RDK)	32595050H
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#### K-1.2) Viton

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 32595V-XBAE
18	1	248 O-RING	90 DURO VITON	90248V

REDRESS KIT (RDK)	32595050V
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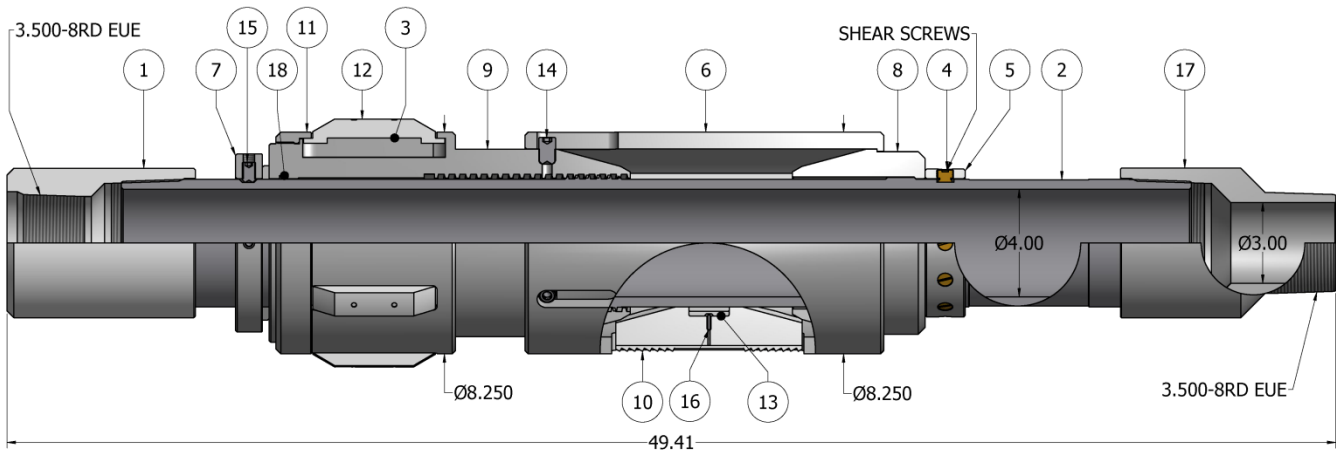
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## L) TECHNICAL ILLUSTRATION



## M) REVISION HISTORY

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	APPROVED BY
05/18/2016	A	Created new manual	-	-