



TM ANCHOR

9-5/8" X 4-1/2"

Manual No:
DL-320-9625-199

Revision: **B**

Revision Date:
03/11/2015

Written by: *B.Mathis*

Approved by: *B.Oligschlaeger*

A) DESCRIPTION

The TM Anchor/Catcher is a retrievable positive action anchor tool to hold work strings in tension or compression during pump strokes to prevent tubing buckling. This increases pumping efficiency while reducing rod and tubing wear. This tool also catches the tubing should it part. Stainless steel drag springs employ low stress value to minimize failure under corrosive conditions. If the TM Anchor/Catcher cannot be released with right-hand rotation, it is equipped with emergency shear 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)	DRIFT ID (INCHES)		
9-5/8	32.3 – 53.5	8.535 – 9.001	8.250	4.00	3.833	4-1/2 EUE	32095

DIFFERENTIAL PRESSURE (MAX)	TENSILE LOAD THRU TOOL (MAX)	TORQUE THRU TOOL (MAX)
7,000 PSI	240,000 LBS	3,000 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.

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



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D) SETTING PROCEDURES

CAUTION₂: 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 the work string to the left with hand tongs—5 to 8 turns, depending on casing weight. After slips contact casing, pick upon work string with full calculated tension. Slack off while holding left-hand torque on work string. Alternately, pick 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 the work string to the right 5 to 8 turns at the anchor/catcher. Reciprocate the work string 2 to 3 times for a distance of several feet while rotating additional turns to the right.

NOTE₁: Prevent left-hand rotation when retrieving anchor.

If the anchor/catcher will not release in the normal manner, pick up on work string with sufficient force to shear the emergency shear release screws (60,000 lbs).

F) STORAGE PROCEDURES

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) RECOMMENDED 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) DISASSEMBLY

NOTE₂: Ensure vise is capable of handling weight of tool.

NOTE₃: Support tool during disassembly and assembly with jack stands as necessary.

H-1) Clamp coupling (1) in vise.

H-1.1) Unscrew and remove shear screws (13) from shear ring (8).

H-1.2) Remove shear ring (8) from bottom sub (7).

H-1.3) Move lower cone (4) down and remove Spirolox ring (15).

H-1.4) Unscrew and remove bottom sub (7) from mandrel (2).

H-1.5) Remove lower cone (4) from mandrel (2).

H-1.6) Unscrew and remove low head cap screws (12) from anchor body (6).



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H) DISASSEMBLY (cont'd)

- H-1.7) Remove drag springs (10) from anchor body (6).
- H-2) Unclamp and remove coupling (1) from vise. Clamp anchor body (6) in vise below slip windows.
 - H-2.1) Unscrew and remove coupling (1) from mandrel (2).
 - H-2.2) Unscrew and remove cap screw (11) from upper cone (9).
 - H-2.3) Unscrew and remove mandrel (2) from upper cone (9) (**NOTE₄**: Left-hand threads).
 - H-2.4) Remove slips (3) from anchor body (6).
 - H-2.4.1) Unscrew and remove button head cap screws (14) from slips (3).
 - H-2.4.2) Remove slip springs (5) from slips (3).
 - H-2.5) Remove upper cone (9) from anchor body (6).
- H-3) Unclamp and remove anchor body (6) from vise.

I) ASSEMBLY

- NOTE₂**: Ensure vise is capable of handling weight of tool.
- NOTE₃**: Support tool during disassembly and assembly with jack stands as necessary.
- NOTE₅**: Clean and inspect all parts. Replace all worn and damaged parts. Install parts in proper order, and orientation and tighten/torque all connections properly.

- I-1) Clamp anchor body (6) in vise below slip windows.
 - I-1.1) Install upper cone (9) into anchor body (6).
 - I-1.2) Assemble slips and install:
 - I-1.2.1) Set slip springs (5) in place on slips (3).
 - NOTE₆**: Install two (2ea) springs per slip (Fig. 2).
 - I-1.2.2) Screw button head cap screws (14) into slips (3).
 - I-1.2.3) Install slips (3) into anchor body (6).
 - I-1.3) Screw mandrel (2) into upper cone (9) (**NOTE₄**: Left-hand threads).
 - I-1.4) Align threaded hole in upper cone (9) with slot in anchor body (6). Screw socket cap screw (11) into upper cone (9).
 - I-1.5) Screw coupling (1) onto mandrel (2).
- I-2) Unclamp and remove anchor body (6) from vise. Clamp coupling (1) in vise.
 - I-2.1) Set drag springs (10) in place on anchor body (6). Align holes in drag springs (10) with threaded holes in anchor body (6). Screw low head cap screws (12) into anchor body to secure drag springs.
 - I-2.2) Install lower cone (4) onto mandrel (2).
 - I-2.3) Screw bottom sub (7) onto mandrel (2).
 - I-2.4) Slide lower cone (4) down and install Spirolox ring (15) in groove in lower cone.
 - I-2.5) Install shear ring (8) onto bottom sub (7). Align threaded holes in shear ring (8) with shear screw groove in bottom sub (7).
 - I-2.6) Screw shear screws (13) into shear pin retainer (8). Tighten until shear screws (13) make contact with bottom sub (7). Back shear screws (13) out 1/4 turn.
- I-3) Unclamp coupling (1) from vise and remove assembled tool.

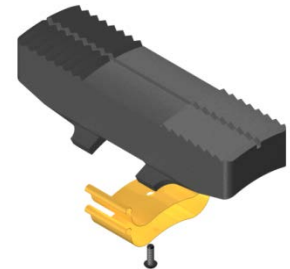


Fig. 2



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J) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	PART NUMBER
1	1	COUPLING	1026	CP4500E4500E
2	1	MANDREL	1026	32095210
3	3	SLIP	1026	32095110
4	1	LOWER CONE	1026	32095420
5	6	SLIP SPRING	INCONEL	32070950
6	1	ANCHOR BODY	1026	32095310
7	1	BOTTOM SUB	1026	32096620
8	1	SHEAR RING	1026	32096710
9	1	UPPER CONE	1026	32095410
10	3	DRAG SPRING	STAINLESS STEEL	32070920
11	1	CAP SCREW 5/8-11 UNC X 1"	STEEL	SCS062C100
12	6	LOW HEAD CAP SCREW 5/16-24 UNF X 1/2	STEEL	LHSC031F050
13	12	SHEAR SCREW 5/8-18 UNF X .45 (5000#)	BRASS	32045910
14	3	BUTTON HEAD CAP SCREW #8-32 UNC X 1/2	STEEL	BHSC832C050
15	1	SPIROLOX RING RR-551	-	4001551

REDRESS KIT (RDK)	32095050
ASSEMBLED WEIGHT	290 LBS



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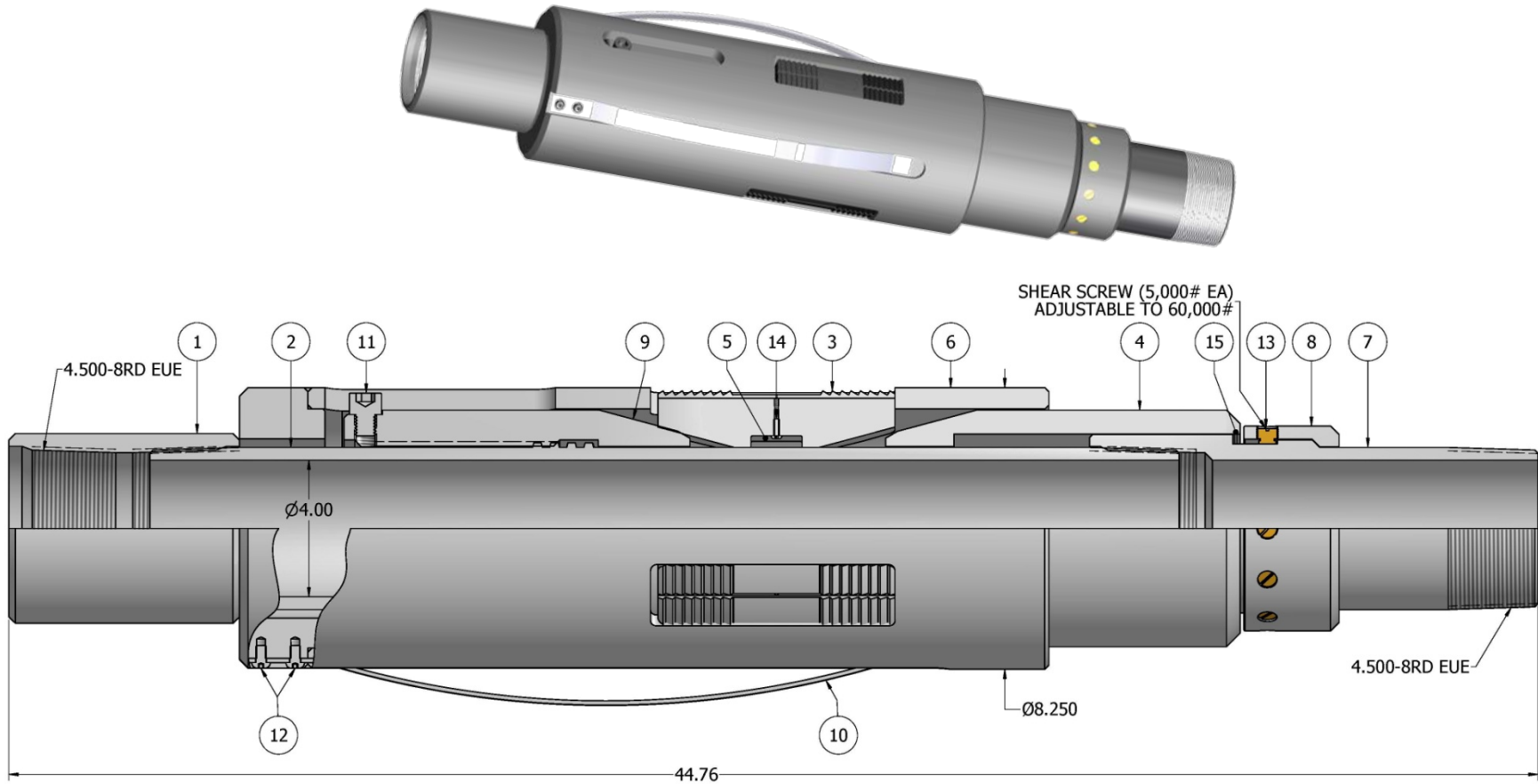
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K) TECHNICAL ILLUSTRATION



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L) REVISION HISTORY

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	APPROVED BY
03/11/15	B	Revised entire Parts List Added tool Drift ID, max. tensile load and torque thru tool, Pre-Installation Inspection and Storage Procedures	J.Anderson	K.Riggs