



# TM ANCHOR

## 7" X 3-1/2"

Manual No:  
**DL-320-7000-048**

Revision: **C**

Revision Date:  
**11/16/2018**

Authored by: *B.Mathis*

Approved by: *B.Oligschlaeger*

### A) DESCRIPTION

The TM Anchor/Catcher is a retrievable positive action anchor tool to hold tubing 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 a straight pull 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)		
7	26.0 – 32.0	6.094 – 6.276	5.875	3.00	3-1/2 EUE	32073

DIFFERENTIAL PRESSURE (MAX)	TENSILE LOAD THRU TOOL (MAX)
7,000 PSI	89,000 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.

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.

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)

When redressing the tool, D&L recommends replacement of all 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 the tubing to the left with hand tongs (5 to 8 turns, depending on casing weight). After slips contact casing, pull full calculated tension. Slack off and while holding left-hand torque on tubing, 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 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.

**NOTE:** Prevent left-hand rotation when retrieving anchor.

#### E-1) EMERGENCY RELEASE

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 (adjustable in 5,000 lbs increments to 60,000 lbs).

### 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.

### 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

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) Slide 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).



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### H) DISASSEMBLY (cont'd)

- H-1.6) Moving to upper end of tool, unscrew and remove low head cap screws (12) from anchor body (6).
- 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) Loosen cap screw (11). Cap screw (11) to be removed in later step.
  - H-2.2) Unscrew and remove mandrel (2) and coupling (1) from upper cone (9).
    - H-2.2.1) Unscrew and remove coupling (1) from mandrel (2).
  - H-2.3) Unscrew and remove cap screw (11) from upper cone (9).
  - H-2.4) Remove slips (3) from anchor body (6).
    - H-2.4.1) Unscrew and remove button head 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) Remove anchor body (6) from vise.

### I) ASSEMBLY

**NOTE<sub>2</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.

- I-1) Clamp anchor body (6) below slip windows in vise.
  - 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) and screw button head screws (14) into slips (3).

**NOTE<sub>3</sub>:** Install two (2ea) springs per slip (Fig. 2).
    - I-1.2.2) Insert slips (3) into anchor body (6).
  - I-1.3) Align threaded hole in upper cone (9) with slot in anchor body (6). Loosely screw cap screw (11) into upper cone (9).
  - I-1.4) Screw coupling (1) onto mandrel (2).
  - I-1.5) Screw mandrel (2) and coupling (1) into upper cone (9).
  - I-1.6) Tighten cap screw (11) 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).
  - I-2.2) Screw low head cap screws (12) into anchor body (6).
  - I-2.3) Install lower cone (4) onto mandrel (2).
  - I-2.4) Screw bottom sub (7) onto mandrel (2).
  - I-2.5) Slide lower cone (4) down and install Spirolox ring (15) in ring groove in lower cone (4).
  - I-2.6) Install shear ring (8) onto bottom sub (7). Move lower cone (4) upwards as necessary to align threaded holes in shear ring (8) with shear screw groove in bottom sub (7).
  - I-2.7) Screw shear screws (13) into shear ring (8). Tighten until shear screws (13) contact 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	DLMS60	CP3500E3500N
2	1	MANDREL	DLMS60	32070210
3	3	SLIP	DLMS35	32070110
4	1	LOWER CONE	DLMS80	32070420
5	6	SLIP SPRING	-	32070950
6	1	ANCHOR BODY	DLMS60	32070310
7	1	BOTTOM SUB	DLMS80	32073620
8	1	SHEAR RING	DLMS80	32073710
9	1	UPPER CONE	DLMS60	32070410
10	3	DRAG SPRING	-	32070920
11	1	CAP SCREW 1/2-20 UNF X 1/2	STEEL	SCS050F050
12	6	LOW HEAD CAP SCREW 5/16-24 UNF X 1/2	STEEL	LHSC031F050
13	12	SHEAR SCREW	DLM360BRS	32045910
14	3	BUTTON HEAD SCREW #8-32 X 1/2	STEEL	BHSC832C050
15	1	SMALLEY MEDIUM DUTY INTERNAL RING	DLMSC	WH-431

REDRESS KIT (RDK)		32073050
ASSEMBLED WEIGHT		136 LBS



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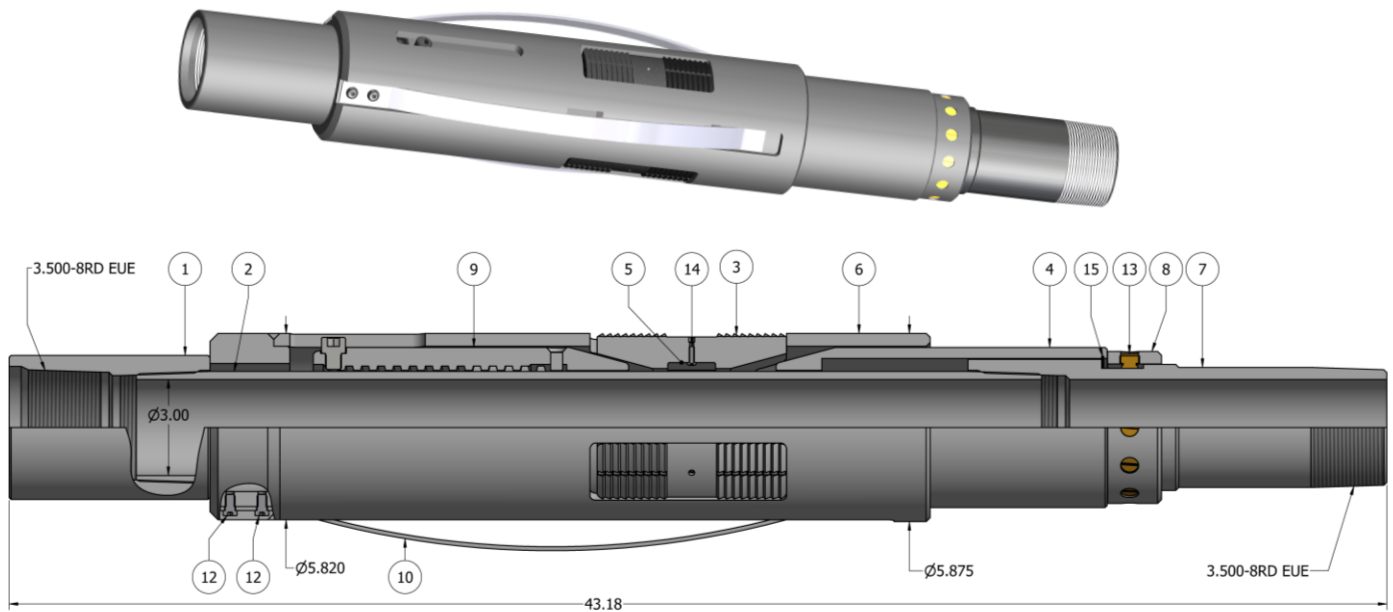
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### K) TECHNICAL ILLUSTRATION



### L) REVISION HISTORY

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	APPROVED BY
11/16/2018	C	Revised P/N LHSC031F050 was LHSC031F031, WH-431 was WH-437; Added General Screw Torque Recommendations	J.Anderson	J.Johnson
12/01/2015	B	Added max. differential pressure and tensile load thru tool, Pre-Installation Inspection Procedures, Storage Recommendations, Recommended Tools; Revised P/N 32070950 was 51778, LHSC031F031 was BHSC031F037, BHSC832C050 was BHSC08C050	J.Anderson	J.McArthur