



TM ANCHOR LEFT-HAND SET 5-1/2" X 2-7/8"

Manual No:
DL-320-5500-1184

Revision: **A**

Revision Date:
10/31/2018

Authored by: J.Anderson

Approved by: K.Plunkett

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) | | |
| 5-1/2 | 13.0 – 23.0 | 4.670 – 5.044 | 4.500 | 2.38 | 2-7/8 EUE | 32056 |

NOTE: Tool listed is left-hand set / right-hand release. Other configurations are available.

| DIFFERENTIAL PRESSURE (MAX) | TENSILE LOAD THRU TOOL (MAX) |
|--------------------------------|---------------------------------|
| 7,000 PSI | 75,000 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.

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 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 shear screws, etc. Contact D&L sales for redress kit and/or other replacement part information.

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.

NOTE₂: 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 the work string with sufficient force to shear the emergency shear release screws (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



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H) DISASSEMBLY

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

H-1.1) From lower end of tool, 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 Smalley heavy duty ring (15) from lower cone.

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 flat head cap screws (12) from slip housing (6).

H-1.7) Remove drag springs (10) from slip housing (6).

H-2) Unclamp and remove coupling (1) from vise. Clamp slip housing (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) Wedge slips outwards (if needed). Unscrew and remove mandrel (2) from upper cone (9).

H-2.4) Remove wedges (if needed). Remove slips (3) from slip housing (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 slip housing (6).

H-3) Unclamp and remove slip housing (6) from vise.

I) ASSEMBLY

NOTE₃: 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 slip housing (6) in vise below slip windows.

I-1.1) Install upper cone (9) into slip housing (6).

I-1.2) Assemble slips and install:

I-1.2.1) Set slip springs (5) in place on slips (3).

NOTE₄: Install two (2 ea) springs per slip (Fig. 2).

I-1.2.2) Screw button head screws (14) into slips (3).

I-1.2.3) Install slips (3) into slip housing (6). Wedge slips outwards.

I-1.3) Install mandrel (2) into slip housing (6) and screw into upper cone (9). Remove wedges.

I-1.4) Align threaded hole in upper cone (9) with slot in slip housing (6). Screw cap screw (11) into upper cone (9).

I-1.5) Screw coupling (1) onto mandrel (2).

I-2) Unclamp and remove slip housing (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 slip housing (6). Screw flat head cap screws (12) into slip housing 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) Install Smalley heavy duty ring (15) in groove in lower cone (4). Move lower cone downwards to access ring groove.

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).

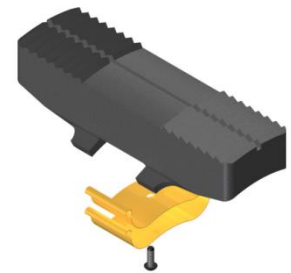


Fig. 2



**TM ANCHOR
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I) ASSEMBLY (cont'd)

- I-3) Screw shear screws (13) into shear ring (8). Tighten until shear screws contact bottom sub (7). Back shear screws out 1/4 turn.
- I-4) Unclamp coupling (1) from vise and remove assembled tool.

J) PARTS LIST

| ITEM | QTY | DESCRIPTION | MATERIAL | PART NUMBER |
|------|-----|---------------------------------------|-------------------|--------------|
| 1 | 1 | COUPLING | DLMS80 | CP-BAC-BBC-B |
| 2 | 1 | MANDREL | DLMS60 | 32055210 |
| 3 | 3 | SLIP | DLMS35 | 32055112 |
| 4 | 1 | LOWER CONE | DLMS60 | 32055420 |
| 5 | 6 | SLIP SPRING | - | 32055950 |
| 6 | 1 | SLIP HOUSING | DLMS60 | 32055310 |
| 7 | 1 | BOTTOM SUB | DLMS60 | 32056620 |
| 8 | 1 | SHEAR RING | DLMS60 | 32056710 |
| 9 | 1 | UPPER CONE ASSEMBLY | DLMS60 / DLMSFB18 | 32055410 |
| 10 | 3 | DRAG SPRING | DLMS301 | 32055920 |
| 11 | 1 | CAP SCREW 3/8-24 UNF X 3/8 | STEEL | SCS037F037 |
| 12 | 6 | FLAT HEAD CAP SCREW 5/16-18 UNC X 1/2 | STEEL | FHSC031C050 |
| 13 | 12 | SHEAR SCREW (5,000#) | DLM360BRS | 32045910 |
| 14 | 3 | BUTTON HEAD CAP SCREW #8-32 UNC X 3/8 | STEEL | BHSC832C037 |
| 15 | 1 | SMALLEY MEDIUM DUTY INTERNAL RING | DLMSC | WH-350 |

| | |
|-------------------|----------|
| REDRESS KIT (RDK) | 32056050 |
| ASSEMBLED WEIGHT | 70 LBS |



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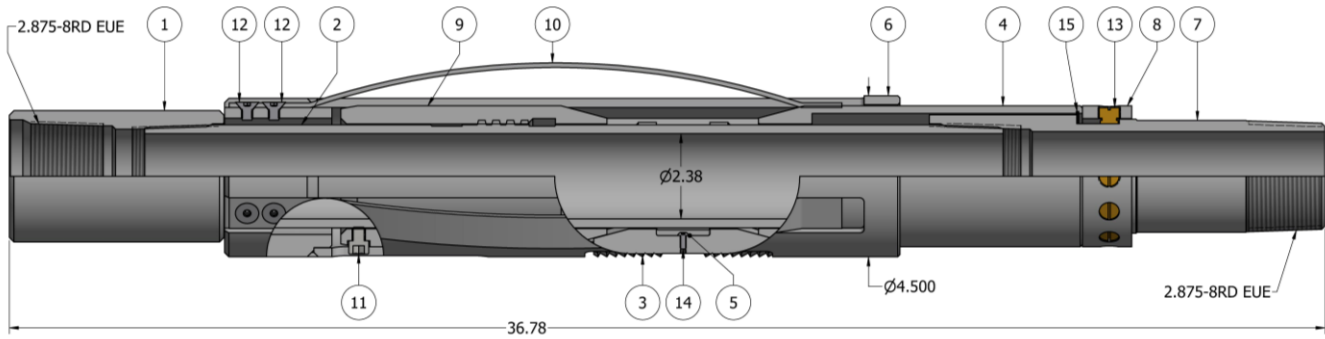
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K) TECHNICAL ILLUSTRATION



L) REVISION HISTORY

| DATE | REVISION | DESCRIPTION OF CHANGES | REVISED BY | APPROVED BY |
|------------|----------|------------------------|------------|-------------|
| 10/31/2018 | A | Created new manual | - | - |