



# DL-CS ANCHOR

## 8-5/8" X 3-1/2"

Manual No:  
**DL-322-8625-309**

Revision: **C**

Revision Date:  
**11/26/2018**

Authored by: *B.Mathis*

Approved by: *D.Hushbeck*

### A) DESCRIPTION

The DL-CS Anchor is used to anchor downhole equipment from rotating and/or moving up the hole. The anchor is designed to resist up to 12,000 Ft-lbs of torque with a unique cone and slip design while preventing movement up or down hole. It can be set in casing or open hole.

### B) SPECIFICATION GUIDE

CASING			TOOL OD (INCHES)	THREAD CONNECTION BOX UP / PIN DOWN	PART NUMBER
SIZE (INCHES)	WEIGHT (LBS/FT)	RECOMMENDED HOLE SIZE (INCHES)			
8-5/8	24.0 – 40.0	7.725 – 8.097	7.500	3-1/2 IF TOOL JOINT	32285

<b>TORQUE THRU TOOL (MAX)</b>
12,000 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.

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)



# DL-CS ANCHOR

8-5/8" X 3-1/2"

Manual No:  
**DL-322-8625-309**

Revision: **C**

Revision Date:  
**11/26/2018**

Authored by: *B.Mathis*

Approved by: *D.Hushbeck*

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

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) 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.

The DL-CS Anchor requires a bottom restriction to set compressive force against in the form of a permanent or retrievable bridge plug, bottom of the drilled hole, top of cement, etc.

To set the anchor, run the tool to the restriction and set weight down to initiate the setting procedure. Apply enough weight (approximately 40,000 lbs) at the anchor to shear the upper row of shear screws (5,000 lbs/screw) and the shear screws in the slip body (1,200 lbs/screw). The DL-CS Anchor is now set and locked in place with the internal ratcheting mechanism. The shear values can be reduced by removing shear screws, but caution must be taken not to shear prematurely.

## E) RELEASING PROCEDURES

Apply straight, upward pull with enough tension to shear the releasing shear screws (5,000 lbs/screw). The cones will move away allowing the slips to retract back into the anchor. The tool is now free to be retrieved. The shear values can be reduced by removing shear screws, but caution must be taken not to shear prematurely.

## 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
- 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) DISASSEMBLY

H-1) Clamp upper connector (2) in vise.

H-1.1) Unscrew and remove set screws (17) from bottom sub (13).

H-1.2) Unscrew and remove bottom sub (13) from mandrel (3).

H-1.3) Unscrew and remove shear screws (16) from shear cap (12).

H-1.4) Remove shear cap (12) and disc springs (11) from mandrel (3).

H-1.5) Unscrew and remove lower cone cap (10) from lower cone (9).



# DL-CS ANCHOR

## 8-5/8" X 3-1/2"

Manual No:  
**DL-322-8625-309**

Revision: **C**

Revision Date:  
**11/26/2018**

Authored by: B.Mathis

Approved by: D.Hushbeck

### H) DISASSEMBLY (cont'd)

- H-1.6) Wedge slips outward (if needed). Remove slip body assembly from mandrel (3) and disassemble:
  - H-1.6.1) Remove wedges (if needed). Remove no-turn slips (14), slips (15) and tapered slip springs (20) from slip body (8).
  - H-1.6.2) Unscrew and remove shear screws (18) from slip body (8).
  - H-1.6.3) Remove lower cone (9) from slip body (8).
- H-1.7) Unscrew and remove set screws (17) from top sub (1).
- H-1.8) Unscrew and remove top sub (1) from upper connector (2).
- H-1.9) Remove pin retainer (5) from upper connector (2).
- H-1.10) Remove pin (4) from upper connector (2). Tap pin (4) with hammer as necessary.
- H-1.11) Unscrew and remove set screws (19) from upper connector (2).
- H-1.12) Unscrew and remove shear screws (16) from upper cone (7).
- H-1.13) Unscrew and/or slide mandrel (3) to remove from lock ring (6). (**NOTE**<sub>1</sub>: Left-hand threads).
- H-1.14) Unscrew and remove upper cone (7) from upper connector (2).
  - H-1.14.1) Unscrew and remove lock ring (6) from upper cone (7).
- H-2) Unclamp and remove upper connector (2) 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.

- I-1) Clamp upper connector (2) in vise.
  - I-1.1) Assemble mandrel assembly and install:
    - I-1.1.1) Install lock ring (6) onto upper area of mandrel (3) above ratchet threads.

**NOTE**<sub>3</sub>: Threads on lock ring (6) are directional – it **MUST** be installed in correct direction for tool to work properly.

**CAUTION**<sub>3</sub>: Do not engage lock ring (6) onto ratchet threads.
    - I-1.1.2) Install upper cone (7) onto lower end of mandrel (3).
    - I-1.1.3) Carefully thread upper cone (7) onto lock ring (6). Align threaded holes in upper cone (7) with groove in mandrel (3).

**CAUTION**<sub>3</sub>: Do not engage lock ring (6) onto ratchet threads.
    - I-1.1.4) Screw shear screws (16) into upper cone (7). Tighten until shear screws (16) contact mandrel (3). Back shear screws (16) out 1/4 turn.
    - I-1.1.5) Install mandrel assembly by screwing upper cone (7) of mandrel assembly into upper connector (2).
    - I-1.1.6) Screw set screws (19) into upper connector (2).
  - I-1.2) Align holes in upper connector (2) with slots in mandrel (3). Install pin (4) into upper connector (2) and mandrel (3). Set pin (4) flush with OD of upper connector (2). Tap pin (4) with hammer as necessary.
  - I-1.3) Install pin retainer (5) onto upper connector (2).
  - I-1.4) Screw top sub (1) onto upper connector (2).
  - I-1.5) Screw set screws (17) into top sub (1).
  - I-1.6) Assemble slip body assembly and install:
    - I-1.6.1) Install lower cone (9) into slip body (8).
      - I-1.6.1.1) Align threaded holes in slip body (8) with groove in lower cone (9). Screw shear screws (18) into slip body (8). Tighten and back out 1/4 turn.
    - I-1.6.2) Install tapered slip springs (20) in place on no-turn slips (14) and slips (15).



# DL-CS ANCHOR

## 8-5/8" X 3-1/2"

Manual No:  
**DL-322-8625-309**

Revision: **C**

Revision Date:  
**11/26/2018**

Authored by: *B.Mathis*

Approved by: *D.Hushbeck*

### I) ASSEMBLY (cont'd)

I-1.6.3) Install no-turn slips (14) and slips (15) into slip body (8). Wedge slips outward.

**NOTE4:** No-turn slips (14) must be 180° from each other.

I-1.6.4) Install slip body assembly onto mandrel (3).

I-1.7) Screw lower cone cap (10) onto lower cone (9).

I-1.8) Install disc springs (11) and shear cap (12) onto mandrel (3). Align threaded holes in shear cap (12) with groove in mandrel (3).

I-1.9) Screw shear screws (16) into shear cap (12). Tighten until shear screws (16) contact mandrel (3). Back shear screws (16) out 1/4 turn.

I-1.10) Screw bottom sub (13) onto mandrel (3).

I-1.11) Screw set screws (17) into bottom sub (13).

I-2) Unclamp upper connector (2) from vise and remove assembled tool.

### J) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 32285
1	1	TOP SUB	P-110	32285610
2	1	UPPER CONNECTOR	P-110	32285310
3	1	MANDREL	P-110	32285210
4	1	PIN	P-110	32285990
5	1	PIN RETAINER	P-110	32285620
6	1	LOCK RING	L-80	32285011
7	1	UPPER CONE	P-110	32285410
8	1	SLIP BODY	P-110	32285320
9	1	LOWER CONE	P-110	32285420
10	1	LOWER CONE CAP	P-110	32285715
11	4	DISC SPRING	P-110	32285920
12	1	SHEAR CAP	P-110	32285710
13	1	BOTTOM SUB	P-110	32285630
14	2	SLIP - NO TURN	1026	32285111
15	2	SLIP	1026	32285110
16	18	SHEAR SCREW (5000#) 5/8-18 UNF X .45	DLM360BRS	32045910
17	7	SET SCREW 3/8-16 UNC X 1/2	STEEL	SSS037C050
18	8	SHEAR SCREW (1200#) 1/4-20 UNC X 1/2	DLM360BRS	BSSSLT025C050
19	3	SET SCREW 3/8-16 UNC X 5/8	STEEL	SSS037C062
20	4	TAPERED SLIP SPRING	INCONEL	DL94830

ASSEMBLED WEIGHT	433 LBS
------------------	---------



# DL-CS ANCHOR

8-5/8" X 3-1/2"

Manual No:  
**DL-322-8625-309**

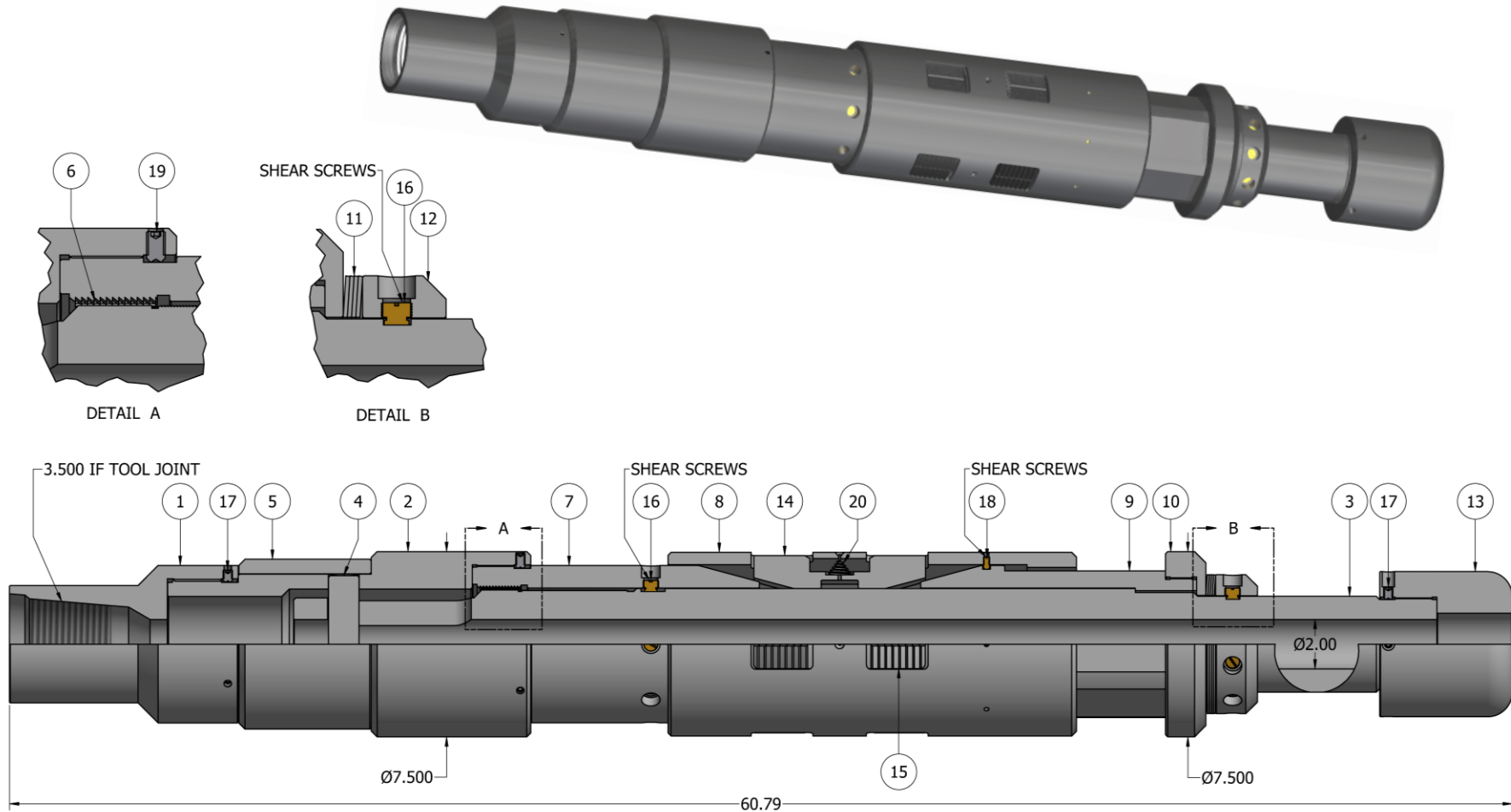
Revision: **C**


Revision Date:  
**11/26/2018**

Authored by: *B.Mathis*

Approved by: *D.Hushbeck*

## K) TECHNICAL ILLUSTRATION



	<b>DL-CS ANCHOR</b> 8-5/8" X 3-1/2"	Manual No: <b>DL-322-8625-309</b>
		Revision: <b>C</b>
		Revision Date: <b>11/26/2018</b>
<i>Authored by: B.Mathis</i>		<i>Approved by: D.Hushbeck</i>

**L) REVISION HISTORY**

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	APPROVED BY
11/26/2018	C	Added General Screw Torque Recommendations, Storage Recommendations; Removed RDK	J.Anderson	D.Hushbeck
10/24/13	B	Revised P/N 32285110 was 32585110, P/N DL94830 was 32070950 & quantity was 16, P/N 32285920 quantity was 3, Assembled Weight was 440 LBS; Added Recommended Hand Tools, Redress Kit P/N 32285050, Revision History; Removed P/N BHSC832C037	S. McEntire	J. McArthur