A) DESCRIPTION

The D&L Drag Block Tubing Anchor/Catcher (or DB Anchor/Catcher), is a retrievable positive-action tubing anchor designed to hold the tubing string in tension or compression. The Drag Block Tubing Anchor/Catcher 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		RECOMMENDED HOLE SIZE (INCHES)	TOOL OD (INCHES)	TOOL ID (INCHES)	THREAD CONNECTION BOX UP / PIN DOWN	PART NUMBER
SIZE (INCHES)	WEIGHT (LBS/FT)					
4-1/2	9.5 – 13.5#	3.920 – 4.090	3.750	1.94	2-3/8 EUE	32545

DIFFERENTIAL PRESSURE (MAX)	TENSILE LOAD THRU TOOL (MAX)	TORQUE THRU TOOL (MAX)
10,000 PSI	64,000 LBS	2,200 FT LBS

C) SETTING PROCEDURES

At the desired setting depth, rotate tubing 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 tubing alternately pull up and set down weight several times to firmly set the slips. Release torque and apply full tension.

D) RELEASING PROCEDURES

D-1) NORMAL RELEASE

The Anchor-Catcher should be released with the tubing in slight compression. Apply slight amount of set-down weight. Rotate to the right five (5) to eight (8) turns and move the tubing up and down 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.

D-2) EMERGENCY RELEASE

If the Anchor-Catcher will not release normally, the tool can be released by shearing shear screws with an upward pull. Shear value is determined by the quantity of shear screws installed in tool (5,000# each).

E) RECOMMENDED TOOLS

E-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
- 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

E-2) SPECIAL TOOLS

ITEM	QTY	DESCRIPTION	PART NUMBER
T1	1	DRAG BLOCK ASSEMBLY TOOL	AT045110

F) DISASSEMBLY

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

F-1.1) Unscrew and remove crossover (4) from inner mandrel (2).

F-1.2) Unscrew and remove shear screws (14) from shear ring (5).

F-1.3) Remove shear ring (5) from inner mandrel (2).

F-1.4) Unscrew and remove set screws (16) from upper cone (9).

F-1.5) Remove slip cage assembly from inner mandrel (2) and disassemble:

F-1.5.1) Remove slip assemblies and disassemble:

F-1.5.1.1) Unscrew and remove button head cap screws (17) from slips (10).

F-1.5.1.2) Separate slips (10) and slip springs (13).

F-1.5.2) Remove lower cone (8) from slip cage (6).

F-2) Remove coupling (1) from vise. Clamp lower end of inner mandrel (2) in vise.

F-2.1) Unscrew and remove coupling (1) from inner mandrel (2).

F-2.2) Unscrew and remove set screws (15) from stop ring (7).

F-2.3) Remove stop ring (7) from inner mandrel (2).

F-2.4) Compress drag blocks (22) using drag block body assembly tool (T1). Unscrew and remove drag block retainer (11) from upper cone (9).

F-2.5) Release drag blocks (12). Remove drag blocks (12) and drag block springs (3) from upper cone (9).

F-2.6) Unscrew and remove upper cone (9) from inner mandrel (2).

F-2.6.1) Remove o-ring (18) from upper cone (9).

F-3) Remove inner mandrel (2) from vise.

G) ASSEMBLY

NOTE$_1$: Clean and inspect all parts. Replace all worn and damaged parts. Install parts in proper order and orientation.

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

G-1.1) Install o-ring (18) in groove in upper cone (9).

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

CAUTION: Do not rip or tear o-ring during installation.

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

NOTE$_2$: Uses three (3ea) springs per drag block (Fig. 1).

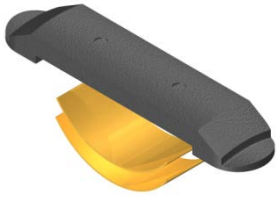


Fig. 1

G-1.4) Screw drag block retainer (11) onto upper cone (9) capturing ends of drag blocks (12). Release drag blocks (12).

G-1.5) Install stop ring (7) onto inner mandrel (2).

G-1.6) Align threaded holes in stop ring (7) with pocket holes in inner mandrel (2). Screw set screws (15) into stop ring (7).

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

G-2) Remove inner mandrel (2) from vise. Clamp coupling (1) in vise.

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

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

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

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

NOTE$_3$: Uses three (3ea) springs per slip (Fig. 2).

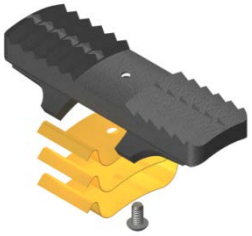


Fig. 2

G-2.1.2.2) Screw button head cap screws (17) into slips (10) (Fig. 2).

G-2.1.3) Install slip cage assembly on inner mandrel (2).

G-2.2) Align slots in slip cage (6) with threaded holes in upper cone (9). Screw set screws (16) into upper cone (9).

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

G-2.4) Align threaded holes in shear ring (5) with pocket holes in inner mandrel (2).Screw shear screws (14) into shear ring (5). Tighten until shear screws (14) contact inner mandrel (2). Back shear screws (14) out 1/4 turn.

G-2.5) Screw crossover (4) onto inner mandrel (2).

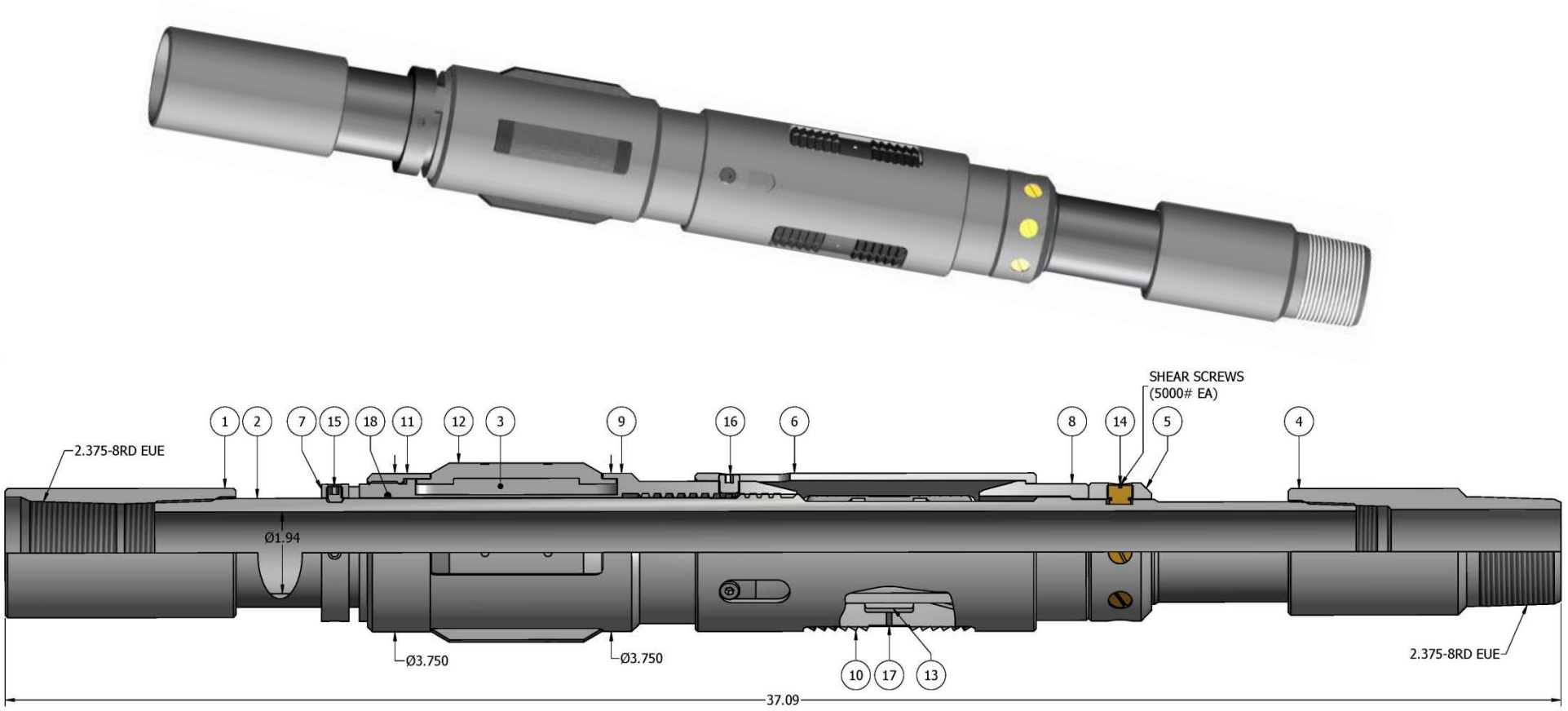
G-3) Unclamp coupling (1) from vise and remove assembled tool.

H) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 32545 (9.5 – 13.5#)
1	1	COUPLING	J-55	CP2375E2375E
2	1	INNER MANDREL	L-80	32545210
3	12	DRAG BLOCK SPRING	INCONEL	9100900
4	1	CROSSOVER	1026	CH2375N2375E
5	1	SHEAR RING	L-80	32545930
6	1	SLIP CAGE	L-80	32545320
7	1	STOP RING	L-80	32545910
8	1	LOWER CONE	L-80	32545420
9	1	UPPER CONE	L-80	32545410
10	3	SLIP	1026	32045110
11	1	DRAG BLOCK RETAINER	L-80	32545920
12	4	DRAG BLOCK	8620	9045900
13	9	SLIP SPRING	INCONEL	32045950
14	8	SHEAR SCREW (5000#) 5/8-18 UNC X .45	360 BRASS	32045910
15	4	SET SCREW 3/8-16 X 3/8	STEEL	SSS037C037
16	3	SET SCREW 1/2-13 X 7/16	STEEL	SSS050C043
17	3	BUTTON HEAD SCREW #10-24 X 5/16	STEEL	BHSC832C031
18	1	146 O-RING	90 DURO NITRILE	90146

ASSEMBLED WEIGHT		47 LBS

I) TECHNICAL ILLUSTRATION



J) REVISION HISTORY

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	APPROVED BY
02/19/14	B	Revised P/N BHSC832C031 was BHCS1024C031, P/N CP2375E2375E material was L-80, P/N SSS050C043 was SSS050C044; Added recommended hand tools, revision history	*J.Anderson*	*K.Riggs*