



# ADJUSTABLE UNION

## 1.900", 1-1/2" (3.64#) BTS-8

Manual No:  
**DL-535-1900-1323**

Revision: **A**

Revision Date:  
**01/29/2020**

Authored by: *J.Anderson*

Approved by: *K.Plunkett*

### A) DESCRIPTION

The Adjustable Union allows the distance between two pieces of equipment to be adjusted per downhole requirements prior to placing equipment. Prior to installation downhole, the length of the Adjustable Union can be extended or shortened by removing the key from the key holder and screwing the mandrel up or down the tool. The length of the Adjustable Union can then be locked in place by re-inserting the key.

### B) SPECIFICATION GUIDE

TUBING SIZE (INCHES)	TOOL OD (INCHES)	TOOL ID (INCHES)	THREAD CONNECTION BOX UP / PIN DOWN	TOOL LENGTH (INCHES)		STROKE LENGTH (INCHES)	PART NUMBER
				CONTRACTED	EXTENDED		
1.900	2.38	1.25	1-1/2" (3.64#) BTS-8	40.51	64.51	24	53519-XYADB 53519H-XYADB <sup>1</sup> 53519V-XYADB <sup>2</sup>

Elastomer Trim Options: <sup>1</sup>HSN, <sup>2</sup>Viton

**NOTE1:** Other tool lengths available. Contact D&L Sales for more information.

SAFE WORKING PRESSURE (MAX)	TENSILE LOAD THRU TOOL (MAX)	ROTATIONAL TORQUE THRU TOOL (MAX)
7,000 PSI	30,000 LBS	700 FT-LBS

### C) PRE-INSTALLATION INSPECTION PROCEDURES

**CAUTION1:** 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](http://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 o-rings. Contact D&L sales for redress kit and/or other replacement part information.

### D) ELASTOMER TRIM TEMPERATURE GUIDE

RUBBER TYPE	TEMPERATURE RANGE
NITRILE	40° - 250°F
HSN (HNBR)	70° - 300°F
VITON	100° - 350°F

### E) 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)
- STRAP WRENCH
- "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

### 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. 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) DISASSEMBLY

**NOTE2:** Support tool during disassembly and assembly with jack stands as needed.

G-1) Clamp top sub (1) in vise.

G-1.1) From lower end of tool, unscrew and remove set screws (8) from bottom sub (5).

G-1.2) Unscrew and remove bottom sub (5) from mandrel (2).

G-1.2.1) Remove o-ring (11) from bottom sub (5).

G-1.3) Unscrew and remove set screws (9) from retaining sleeve (6)

G-1.4) Remove retaining sleeve (6) from mandrel (2)

G-1.5) Remove key (7) from key holder (4).

G-1.6) Unscrew and remove set screws (10) from lower end of outer sleeve (3).

G-1.7) Unscrew key holder (4) from outer sleeve (3). Unscrew key holder from mandrel (2) threads and remove from mandrel.



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## G) DISASSEMBLY (cont'd)

- G-1.8) Remove mandrel (2) from outer sleeve (3).
  - G-1.8.1) Remove o-rings (12) from mandrel (2).
- G-1.9) Unscrew and remove set screws (10) from upper end of outer sleeve (3).
- G-1.10) Unscrew and remove outer sleeve (3) from top sub (1).
- G-2) Unclamp and remove top sub (1) from vise.
  - G-2.1) Remove o-ring (12) from top sub (1).

## H) ASSEMBLY

**NOTE<sub>3</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.

**CAUTION<sub>2</sub>:** To ensure tool operates properly, install o-rings in o-ring grooves **NOT** thread reliefs unless stated otherwise (Fig. 2).

**NOTE<sub>2</sub>:** Support tool during disassembly and assembly with jack stands as needed.

- H-1) Install o-ring (12) in o-ring groove of top sub (1).
- H-2) Clamp top sub (1) in vise.

- H-2.1) Screw outer sleeve (3) onto top sub (1).

- CAUTION<sub>3</sub>:** Do not rip or tear o-ring during installation.

- H-2.2) Screw set screws (10) into upper end of outer sleeve (3).

- H-2.3) Install o-rings (12) in o-ring grooves in mandrel (2).

- H-2.4) Install mandrel (2) into outer sleeve (3).

- CAUTION<sub>3</sub>:** Do not rip or tear o-rings during installation.

- H-2.5) Install key holder (4) onto mandrel (2). Screw onto mandrel (2) to obtain desired tool length.

- H-2.6) Screw key holder (4) into outer sleeve (3).

- H-2.7) Screw set screws (10) into lower end of outer sleeve (3).

- H-2.8) Align key slot in key holder (4) with groove in mandrel (2). Install key (7) into key holder.

- H-2.9) Install retaining sleeve (6) onto mandrel (2) and onto key (7). Align threaded holes in retaining sleeve with pocket holes in key holder (4).

- H-2.10) Screw set screws (9) into retaining sleeve (6).

- H-2.11) Install o-ring (11) in o-ring groove in bottom sub (5).

- H-2.12) Screw bottom sub (5) onto mandrel (2).

- H-2.13) Screw set screws (8) into bottom sub (5).

- H-3) Unclamp top sub (1) and remove assembled tool from vise.

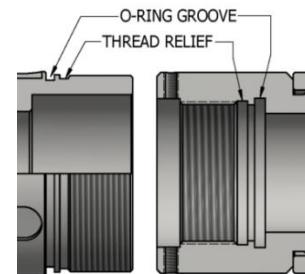


Fig. 2



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### I) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 53519-XYADB
1	1	TOP SUB	DLMS80	53519610-WYADB
2	1	MANDREL	DLMS80	53519210
3	1	OUTER SLEEVE	DLMS80	53519620
4	1	KEY HOLDER	DLMS80	53519630
5	1	BOTTOM SUB	DLMS80	53519650-WYADB
6	1	RETAINING SLEEVE	DLMS80	53519910
7	1	KEY	DLMSKS	KS025X025X100
8	4	SOCKET SET SCREW #10-24 UNC X 1/4	STEEL	SSS1024C025
9	2	SOCKET SET SCREW 1/4-20 UNC X 3/16	STEEL	SSS025C018
10	8	SOCKET SET SCREW #10-24 UNC X 3/16	STEEL	SSS1024C018
11	1	222 O-RING	90 DURO NITRILE	90222
12	3	224 O-RING	90 DURO NITRILE	90224

REDRESS KIT (RDK)	53519050
ASSEMBLED WEIGHT	29 LBS

#### I-1) ELASTOMER TRIM OPTIONS

**NOTE4:** For temperature range, refer to Elastomer Trim Temperature Guide.

##### I-1.1) HSN

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 53519H-XYADB
11	1	222 O-RING	90 DURO HSN	90222H
12	3	224 O-RING	90 DURO HSN	90224H

REDRESS KIT (RDK)	53519050H
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##### I-1.2) VITON

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 53519V-XYADB
11	1	222 O-RING	90 DURO VITON	90222V
12	3	224 O-RING	90 DURO VITON	90224V

REDRESS KIT (RDK)	53519050H
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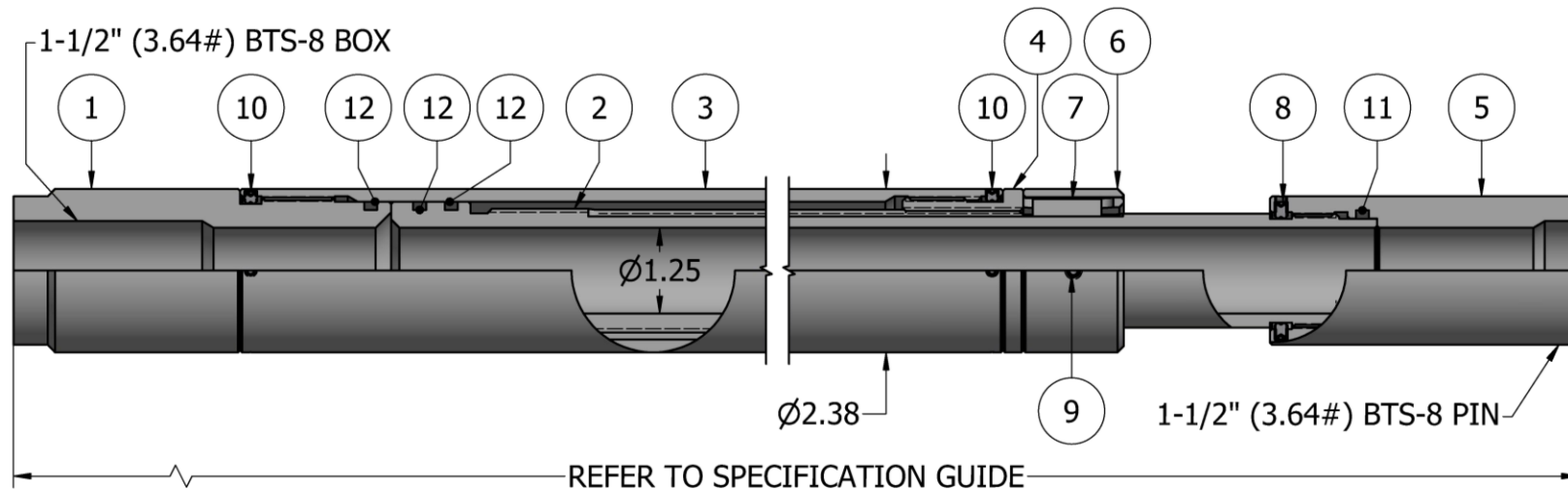
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### J) TECHNICAL ILLUSTRATION



### K) REVISION HISTORY

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	APPROVED BY
01/29/2020	A	Created new manual	-	-