



# SEAL BORE ACCESSORIES

## 2.688”

Manual No:  
**DL-581-2688-780**

Revision: **C**

Revision Date:  
**10/02/2020**

Authored by: J.Anderson

Approved by: B.Oligschlaeger

### A) DESCRIPTION

The D&L 2.688” Seal Bore Accessories are designed to work with D&L Permapak Packers with 2.688” seal bores.

**NOTE<sub>1</sub>:** Other seal bore accessories are available. Contact D&L Sales for more information.

### B) PRE-INSTALLATION INSPECTION PROCEDURES

**CAUTION<sub>1</sub>:** 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.

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.

### C) 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.

### D) ELASTOMER TRIM TEMPERATURE

RUBBER TYPE	TEMPERATURE RANGE
NITRILE	40° - 250°F
HSN (HNBR)	70° - 300°F
VITON/VTR	100° - 350°F
ATR	100° - 400°F



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## 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)
- “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) LOCATOR SEAL ASSEMBLY

The Locator Seal Assembly is used in installations which require floating seals. Once landed, the seal locator prevents downward movement of the tubing while allowing the seal to move with tubing contraction.

### F-1) SPECIFICATION GUIDE

PACKER BORE SIZE (INCHES)	ASSEMBLY OD (INCHES)	ASSEMBLY BORE (INCHES)	THREAD CONNECTION BOX UP / PIN DOWN	PART NUMBER
2.688	3.13	1.94	2-3/8 EUE / 2.3125 STUB ACME	58326 58326H <sup>1</sup> 58326V <sup>2</sup> 58326ATR <sup>3</sup> 58326VTR <sup>4</sup>

Elastomer Trim Options: <sup>1</sup>HSN, <sup>2</sup>Viton, <sup>3</sup>AFLAS, Teflon, Ryton Seal Stack, <sup>4</sup>Viton, Teflon, Ryton Seal Stack

### F-2) DISASSEMBLY

F-2.1) Clamp locator sub (1) in vise.

F-2.1.1) Remove bonded seals (2) and seal spacer (3) from locator sub (1).

F-2.1.1.1) Remove o-rings (4) from bonded seals (2).

F-2.2) Unclamp and remove locator sub (1) from vise.

### F-3) ASSEMBLY

**NOTE**<sub>2</sub>: Clean and inspect all parts. Replace all worn and damaged parts. Install parts in proper order, and orientation.

F-3.1) Clamp locator sub (1) in vise.

F-3.1.1) Install o-rings (4) in o-ring grooves in bonded seals (2).

F-3.1.2) Install bonded seals (2) and seal spacer (3) onto locator sub (1).

**CAUTION**<sub>1</sub>: Do not rip or tear o-rings during installation

F-3.2) Unclamp locator sub (1) from vise and remove assembled tool.

### F-4) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 58326
1	1	LOCATOR SUB	DLMS110	58326610
2	2	BONDED SEAL	90 DURO NITRILE	58026520*
3	1	SEAL SPACER	DLMS60	58026550*
4	2	141 O-RING	90 DURO NITRILE	90141*

\*Not part of ATR and VTR assemblies. Refer to ATR and VTR Seal Stack Assembly (K.4).

ASSEMBLED WEIGHT	13 LBS
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## F) LOCATOR SEAL ASSEMBLY (cont'd)

### F-5) ELASTOMER TRIM OPTIONS

NOTE<sub>3</sub>: For temperature range, refer to Elastomer Trim Temperature Guide.

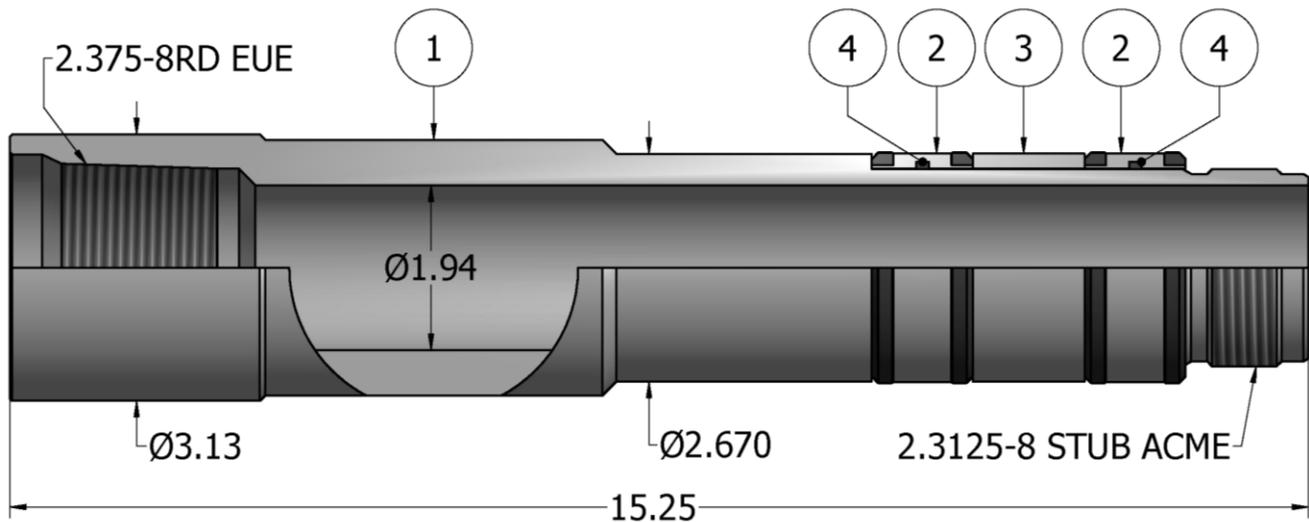
#### F-5.1) HSN

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 58326H
2	2	BONDED SEAL	90 DURO HSN	58026520H
4	2	141 O-RING	90 DURO HSN	90141H

#### F-5.2) VITON

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 58326V
2	2	BONDED SEAL	90 DURO VITON	58026520V
4	2	141 O-RING	90 DURO VITON	90141V

### F-6) TECHNICAL ILLUSTRATION





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### G) ANCHOR LATCH ASSEMBLY

The D&L Anchor Latch is used to hold tubing in tension, or compression. The D&L Anchor Latch will automatically latch into the packer upon set down. To release the Anchor Latch from the packer put 1 to 2 points tension (1,000-2,000 lbs) on the tubing and rotate 8-10 turns to right at packer. The D&L Anchor Latch works with standard packer latch thread.

#### G-1) SPECIFICATION GUIDE

PACKER BORE SIZE (INCHES)	ASSEMBLY OD (INCHES)	ASSEMBLY BORE (INCHES)	TENSILE LOAD THRU TOOL (MAX)	THREAD CONNECTION BOX UP / PIN DOWN	PART NUMBER
2.688	3.470	1.94	72,000 LBS	2-3/8 EUE / 2.3125 STUB ACME	58226 58226H <sup>1</sup> 58226V <sup>2</sup> 58226ATR <sup>3</sup> 58226VTR <sup>4</sup>

Elastomer Trim Options: <sup>1</sup>HSN, <sup>2</sup>Viton, <sup>3</sup>AFLAS, Teflon, Ryton Seal Stack, <sup>4</sup>Viton, Teflon, Ryton Seal Stack

#### G-2) DISASSEMBLY

G-2.1) Clamp top sub (1) in vise.

G-2.1.1) Remove bonded seals (4) and seal spacer (5) from seal mandrel (2).

G-2.1.1.1) Remove o-rings (6) from bonded seals (2).

G-2.1.2) Unscrew and remove seal mandrel (2) from top sub (1).

G-2.1.3) Remove collet (3) from seal mandrel (2).

G-2.2) Unclamp and remove top sub (1) from vise.

#### G-3) ASSEMBLY

**NOTE2:** Clean and inspect all parts. Replace all worn and damaged parts. Install parts in proper order, and orientation and tighten/torque all connections properly..

G-3.1) Clamp top sub (1) in vise.

G-3.1.1) Install collet (3) onto seal mandrel (2).

G-3.1.2) Screw seal mandrel (2) into top sub (1).

G-3.1.3) Install o-rings (6) in o-ring grooves in bonded seals (4).

G-3.1.4) Install bonded seals (4) and seal spacer (5) onto seal mandrel (2).

**CAUTION1:** Do not rip or tear o-rings during installation

G-3.2) Unclamp top sub (1) and remove assembled tool from vise.

#### G-4) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 58226
1	1	TOP SUB	DLMS60	58226610
2	1	SEAL MANDREL	DLMS110	58226210
3	1	COLLET	DLMS110	58226003
4	2	BONDED SEAL	90 DURO NITRILE	58026520*
5	1	SEAL SPACER	DLMS60	58026550*
6	2	141 O-RING	90 DURO NITRILE	90141*

\*Not part of ATR and VTR assemblies. Refer to ATR and VTR Seal Stack Assembly (K.4).

ASSEMBLED WEIGHT	18 LBS
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## G) ANCHOR LATCH ASSEMBLY (cont'd)

### G-5) ELASTOMER TRIM OPTIONS

**NOTE<sub>3</sub>:** For temperature range, refer to Elastomer Trim Temperature Guide.

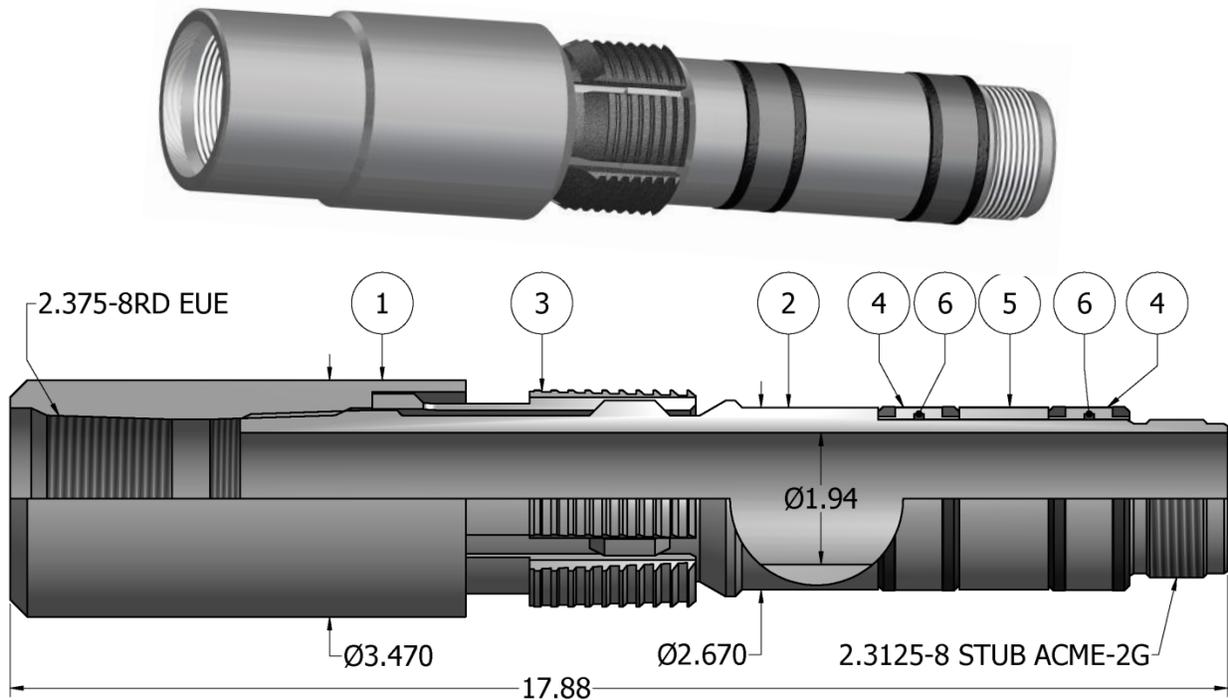
#### G-5.1) HSN

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 58226H
4	2	BONDED SEAL	90 DURO HSN	58026520H
6	2	141 O-RING	90 DURO HSN	90141H

#### G-5.2) VITON

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 58226V
4	2	BONDED SEAL	90 DURO VITON	58026520V
6	2	141 O-RING	90 DURO VITON	90141V

## G-6) TECHNICAL ILLUSTRATION



## H) SNAP LATCH ASSEMBLY

The Snap Latch Seal Assembly latches into the packer upon set down (like our Anchor Latch Seal Assembly). It can be removed with straight pull of 2,000 to 4,000 lbs. above tubing weight. The Snap Latch Seal Assembly is used where a mechanical indication is required to verify the seal assembly is properly positioned in the packer bore.



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### H) SNAP LATCH ASSEMBLY (cont'd)

#### H-1) SPECIFICATION GUIDE

PACKER BORE SIZE (INCHES)	ASSEMBLY OD (INCHES)	ASSEMBLY BORE (INCHES)	THREAD CONNECTION BOX UP / PIN DOWN	PART NUMBER
2.688	3.63	1.94	2-3/8 EUE / 2.3125 STUB ACME	57826 57826H <sup>1</sup> 57826V <sup>2</sup> 57826ATR <sup>3</sup> 57826VTR <sup>4</sup>

Elastomer Trim Options: <sup>1</sup>HSN, <sup>2</sup>Viton, <sup>3</sup>AFLAS, Teflon, Ryton Seal Stack, <sup>4</sup>Viton, Teflon, Ryton Seal Stack

#### H-2) DISASSEMBLY

H-2.1) Clamp top sub (1) in vise.

H-2.1.1) Remove bonded seals (4) and seal spacer (5) from seal mandrel (2).

H-2.1.1.1) Remove o-rings (7) from bonded seals (2).

H-2.1.2) Unscrew and remove seal mandrel (2) from top sub (1).

H-2.1.3) Unscrew and remove set screws (6) from top sub (1).

H-2.1.4) Unscrew and remove snap latch collet (3) from seal mandrel (2).

H-2.2) Unclamp and remove top sub (1) from vise.

#### H-3) 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.

H-3.1) Clamp top sub (1) in vise.

H-3.1.1) Screw snap latch collet (3) onto seal mandrel (2).

H-3.1.2) Screw set screws (6) into top sub (1).

H-3.1.3) Screw seal mandrel (2) into top sub (1).

H-3.1.4) Install o-rings (7) in o-ring grooves in bonded seals (4).

H-3.1.5) Install bonded seals (4) and seal spacer (5) onto seal mandrel (2).

**CAUTION<sub>1</sub>:** Do not rip or tear o-rings during installation

H-3.2) Unclamp top sub (1) from vise and remove assembled tool.

#### H-4) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 57826
1	1	TOP SUB	1026	57826610
2	1	SEAL MANDREL	P-110	57826210
3	1	SNAP LATCH COLLET	P-110	57826003
4	2	BONDED SEAL	1026/90 DURO NITRILE	58026520*
5	1	SEAL SPACER	DLMS60	58026550*
6	3	SET SCREW #10-24 UNC X 1/4	STEEL	SSS1024C025
7	2	141 O-RING	90 DURO NITRILE	90141*

\*Not part of ATR and VTR assemblies. Refer to ATR and VTR Seal Stack Assembly (K.4).

ASSEMBLED WEIGHT	20 LBS
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## H) SNAP LATCH ASSEMBLY (cont'd)

### H-5) ELASTOMER TRIM OPTIONS

NOTE<sub>3</sub>: For temperature range, refer to Elastomer Trim Temperature Guide.

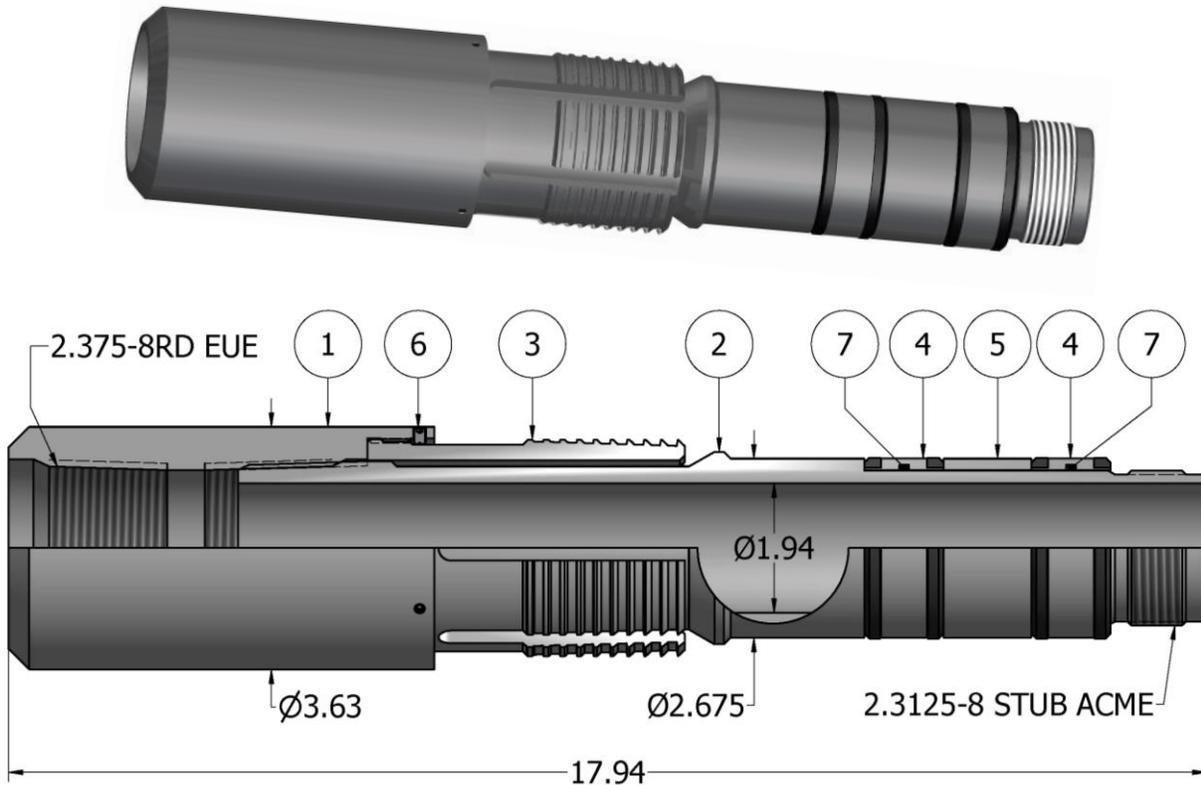
#### H-5.1) HSN

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 57826H
4	2	BONDED SEAL	1026/90 DURO HSN	58026520H
7	2	141 O-RING	90 DURO HSN	90141H

#### H-5.2) VITON

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 57826V
4	2	BONDED SEAL	1026/90 DURO VITON	58026520V
7	2	141 O-RING	90 DURO VITON	90141V

### H-6) TECHNICAL ILLUSTRATION





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### I) SEAL UNIT ASSEMBLY

The D&L Seal Unit Assembly is used in conjunction with the D&L Anchor Latch or Locator Assembly to increase the length of seals. The D&L Seal Unit Assembly is installed between the Anchor Latch or Locator Assembly and the Mule Shoe.

#### I-1) SPECIFICATION GUIDE

PACKER BORE SIZE (INCHES)	ASSEMBLY OD (INCHES)	ASSEMBLY BORE (INCHES)	THREAD CONNECTION BOX UP / PIN DOWN	PART NUMBER
2.688	2.670	1.94	2.3125 STUB ACME	58126 58126H <sup>1</sup> 58126V <sup>2</sup> 58126ATR <sup>3</sup> 58126VTR <sup>4</sup>

Elastomer Trim Options: <sup>1</sup>HSN, <sup>2</sup>Viton, <sup>3</sup>AFLAS, Teflon, Ryton Seal Stack, <sup>4</sup>Viton, Teflon, Ryton Seal Stack

#### I-2) DISASSEMBLY

I-2.1) Clamp seal mandrel (1) in vise.

I-2.1.1) Remove bonded seals (2) and seal spacer (3) from seal mandrel (1).

I-2.1.1.1) Remove o-rings (5) from bonded seals (2).

I-2.2) Unclamp and remove seal mandrel (1) from vise.

I-2.3) Remove o-ring (4) from seal mandrel (1).

#### I-3) 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-3.1) Install o-ring (4) in thread relief in seal mandrel (1).

I-3.2) Clamp seal mandrel (1) in vise.

I-3.2.1) Install o-rings (5) in o-ring grooves in bonded seals (2).

I-3.2.2) Install bonded seals (2) and seal spacer (3) onto seal mandrel (1).

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

I-3.3) Unclamp seal mandrel (1) and remove assembled tool from vise.

#### I-4) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 58126
1	1	SEAL MANDREL	L-80	58126012
2	2	BONDED SEAL	90 DURO NITRILE	58026520*
3	1	SEAL SPACER	1026	58026550*
4	1	139 O-RING	90 DURO NITRILE	90139
5	2	141 O-RING	90 DURO NITRILE	90141*

\*Not part of ATR and VTR assemblies. Refer to ATR and VTR Seal Stack Assembly (K.4).

ASSEMBLED WEIGHT	8 LBS
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## I) SEAL UNIT ASSEMBLY (cont'd)

### I-5) ELASTOMER TRIM OPTIONS

NOTE<sub>3</sub>: For temperature range, refer to Elastomer Trim Temperature Guide.

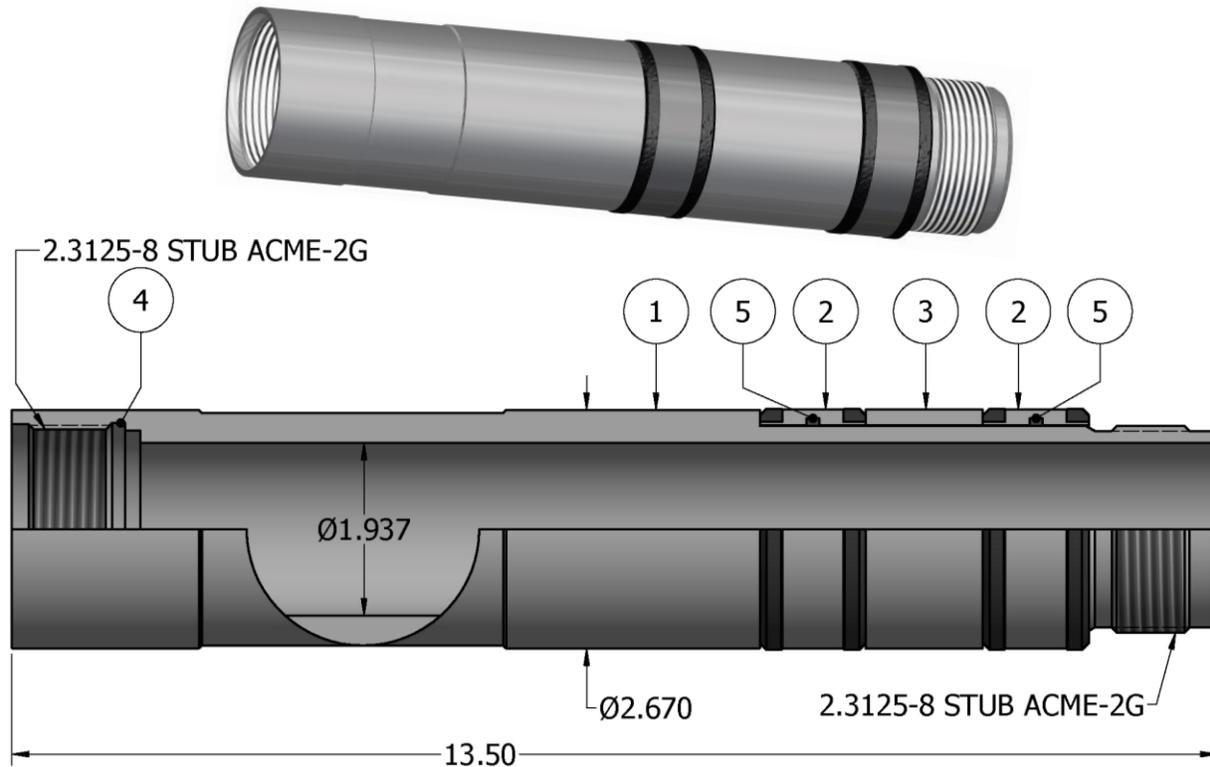
#### I-5.1) HSN

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 58126H
2	2	BONDED SEAL	90 DURO HSN	58026520H
4	1	139 O-RING	90 DURO HSN	90139H
5	2	141 O-RING	90 DURO HSN	90141H

#### I-5.2) VITON

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 58126V
2	2	BONDED SEAL	90 DURO VITON	58026520V
4	1	139 O-RING	90 DURO VITON	90139V
5	2	141 O-RING	90 DURO VITON	90141V

### I-6) TECHNICAL ILLUSTRATION





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### J) MULE SHOE

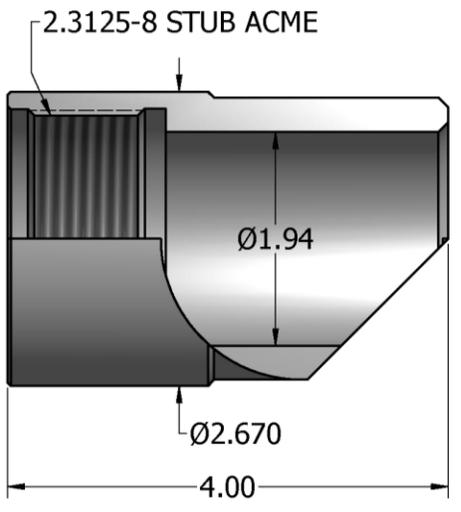
The D&L Mule Shoe is installed on the bottom of the D&L Anchor Latch, Seal Locator, or Seal Unit. The D&L Mule Shoe allows for rotation of the tubing to help guide the seals into the packer seal bore.

#### J-1) SPECIFICATION GUIDE

PACKER BORE SIZE (INCHES)	PART OD (INCHES)	PART BORE (INCHES)	THREAD CONNECTION	PART NUMBER
2.688	2.670	1.938	2.3125-8 STUB ACME	58426615

WEIGHT	2 LBS
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#### J-2) TECHNICAL ILLUSTRATION



### K) ATR AND VTR SEAL STACK OPTION ASSEMBLY

The ATR and VTR seal stack options are available for all seal bore accessories. Refer to Rubber Selection Guide for temperature range.

#### K-1) ASSEMBLY

**NOTE<sub>2</sub>:** Clean and inspect all parts. Replace all worn and damaged parts. Install parts in proper order and orientation.

K-1.1) Clamp seal bore accessory in vise. Follow assembly instructions given above for seal bore accessory for all other parts.

K-1.2) Install end spacer (S.5) onto seal bore accessory.

K-1.3) Install three (3) AFLAS/Viton rings (S.1), Teflon rings (S.2), and Ryton rings (S.3) in order onto seal bore accessory.

**CAUTION<sub>4</sub>:** Rings must be installed in the proper order and orientation. Refer to Technical Illustration below.

K-1.4) Install center spacer (S.4) onto seal bore accessory.



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## K) ATR AND VTR SEAL STACK OPTION ASSEMBLY (cont'd)

K-1.5) Install three (3) Ryton rings (S.3), Teflon rings (S.2), and AFLAS/Viton rings (S.1) in order onto seal bore accessory.

**CAUTION4:** Rings must be installed in the proper order and orientation. Refer to Technical Illustration below.

K-1.6) Install end spacer (S.5) onto seal bore accessory.

K-1.7) Unclamp seal bore accessory from vise and remove assembled tool.

### K-2) ATR OPTION PARTS LIST

**NOTE3:** For temperature range, refer to Elastomer Trim Temperature Guide.

ITEM	QTY	DESCRIPTION	MATERIAL	PART NUMBER
S	1	2.688" ATR SEAL STACK	-	58726ATRSS
S.1	6	AFLAS SEAL RING	AFLAS	587AF268
S.2	6	TEFLON SEAL RING	TEFLON	587TF268
S.3	6	RYTON SPACER	RYTON	587RY268
S.4	1	CENTER SPACER	1026	587CS268
S.5	2	END SPACER	1026	587ES268

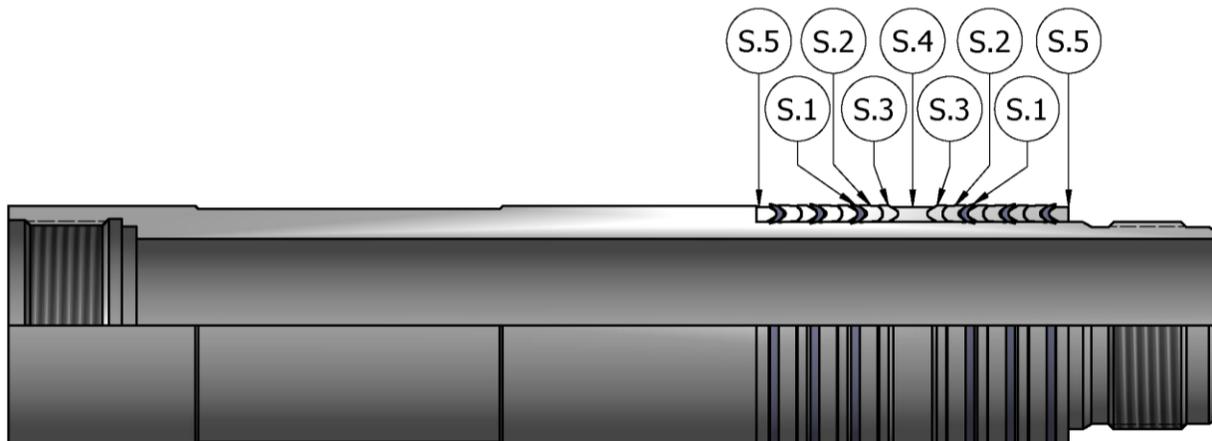
### K-3) VTR OPTION SEAL STACK

**NOTE3:** For temperature range, refer to Elastomer Trim Temperature Guide.

ITEM	QTY	DESCRIPTION	MATERIAL	PART NUMBER
S	1	2.688" VTR SEAL STACK	-	58726VTRSS
S.1	6	VITON SEAL RING	VITON	587VF268
S.2	6	TEFLON SEAL RING	TEFLON	587TF268
S.3	6	RYTON SPACER	RYTON	587RY268
S.4	1	CENTER SPACER	1026	587CS268
S.5	2	END SPACER	1026	587ES268

### K-4) TECHNICAL ILLUSTRATION

**NOTE4:** Seal Unit Assembly (P/N 58126ATR) shown. Order, orientation and quantity typical of all assemblies.





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### L) REVISION HISTORY

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	APPROVED BY
10/02/2020	C	Revised nitrile temp. rating, snap latch straight pull release amount; Added tensile load thru anchor latch	J.Anderson	D.Hushbeck
01/20/2016	B	Added Pre-Installation Inspection Procedures and Storage Recommendations; Revised Rubber Type Temperature Ranges – Nitrile was 70° - 300°F, HSN was 70° - 325°F	J.Anderson	J.McArthur
11/11/14	A	Created new manual	-	-