



SEAL BORE ACCESSORIES

3.000”

Manual No:
DL-581-3000-661

Revision: **C**

Revision Date:
10/02/2020

Authored by: J.Anderson

Approved by: D.Hushbeck

A) DESCRIPTION

The D&L 3.000” Seal Bore Accessories are designed to work with D&L Permapak Packers with 3.000” seal bores.

NOTE₁: Other seal bore accessories are available. Contact D&L Sales for more information.

B) 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.

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 GUIDE

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
3.000	3.875	2.37	2-7/8 EUE / 2.6785 STUB ACME	58330 58330H ¹ 58330V ² 58330ATR ³ 58330VTR ⁴

¹HSN Option, ²Viton Option, ³AFLAS, Teflon, Ryton Seal Stack Option, ⁴Viton, Teflon, Ryton Seal Stack Option

F-2) DISASSEMBLY

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

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

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

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

F-3) ASSEMBLY

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

F-3.1) Clamp locator (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 (1).

CAUTION: Do not rip or tear o-rings during installation

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



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F) LOCATOR SEAL ASSEMBLY (cont'd)

F-4) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 58330
1	1	LOCATOR MANDREL	DLMS110	58330610
2	2	BONDED SEAL	DLMS60 / 90 DURO NITRILE	58030520*
3	1	SEAL SPACER	DLMS60	58030550*
4	2	147 O-RING	90 DURO NITRILE	90147*

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

ASSEMBLED WEIGHT	13 LBS
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F-5) ELASTOMER TRIM OPTIONS

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

F-5.1) HSN

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 58330H
2	2	BONDED SEAL	DLMS60 / 90 DURO HSN	58030520H
4	2	147 O-RING	90 DURO HSN	90147H

F-5.2) VITON

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 58330V
2	2	BONDED SEAL	DLMS60 / 90 DURO VITON	58030520V
4	2	147 O-RING	90 DURO VITON	90147V



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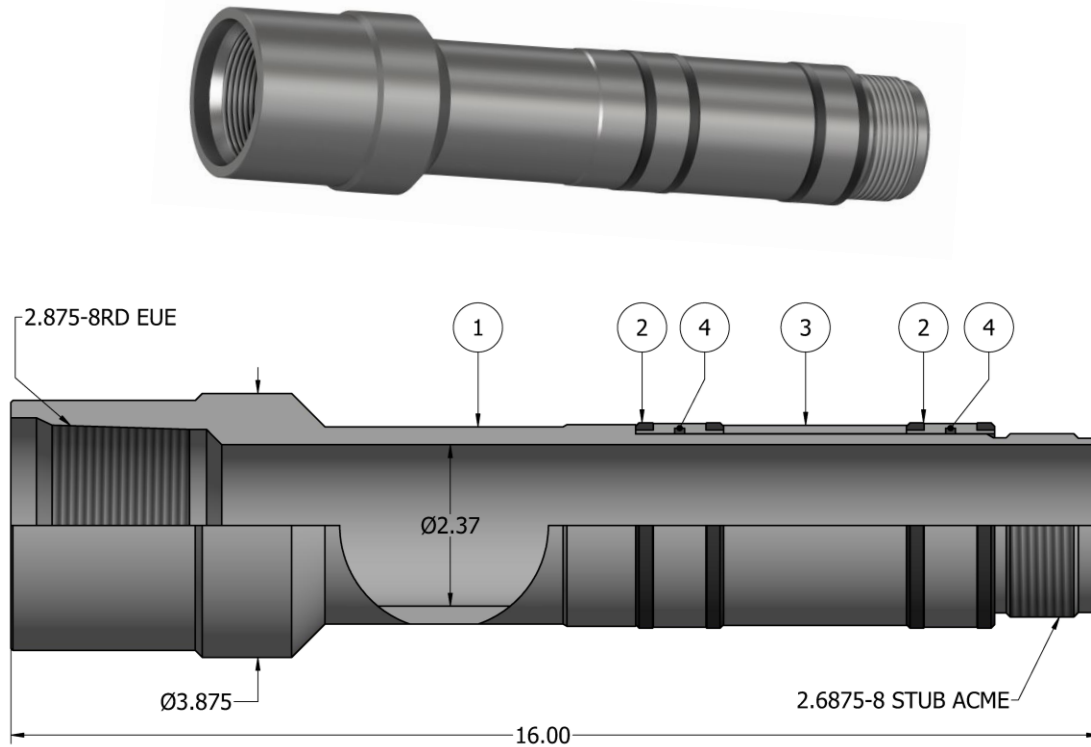
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F) LOCATOR SEAL ASSEMBLY (cont'd)

F-6) TECHNICAL ILLUSTRATION



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
3.000	3.968	2.375	68,000 LBS	2.875 EUE / 2.6875 STUB ACME	58230 58230H ¹ 58230V ² 58230ATR ³ 58230VTR ⁴

¹HSN Option, ²Viton Option, ³AFLAS, Teflon, Ryton Seal Stack Option, ⁴Viton, Teflon, Ryton Seal Stack Option



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G) ANCHOR LATCH ASSEMBLY (cont'd)

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-2.3) Remove o-ring (7) from top sub (1).

G-3) ASSEMBLY

NOTE₂: Clean and inspect all parts. Replace all worn and damaged parts. Install parts in proper order and orientation.

- G-3.1) Install o-ring (7) in groove in top sub (1).
- G-3.2) Clamp top sub (1) in vise.
 - G-3.2.1) Install collet (3) onto seal mandrel (2).
 - G-3.2.2) Screw seal mandrel (2) into top sub (1).
 - G-3.2.3) Install o-rings (6) in grooves in bonded seals (4).
 - G-3.2.4) Install bonded seals (4) and seal spacer (5) onto seal mandrel (2).

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

- G-3.3) Unclamp top sub (1) and remove assembled anchor latch assembly from vise.

G-4) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 58230
1	1	TOP SUB	L-80	58230610
2	1	SEAL MANDREL	P-110	58230210
3	1	COLLET	P-110	58230003
4	2	BONDED SEAL	90 DURO NITRILE	58030520*
5	1	SEAL SPACER	1026	58030550*
6	2	147 O-RING	90 DURO NITRILE	90147*
7	1	336 O-RING	90 DURO NITRILE	90336

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

ASSEMBLED WEIGHT	20 LBS
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G) ANCHOR LATCH ASSEMBLY (cont'd)

G-4.1) ELASTOMER TRIM OPTIONS

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

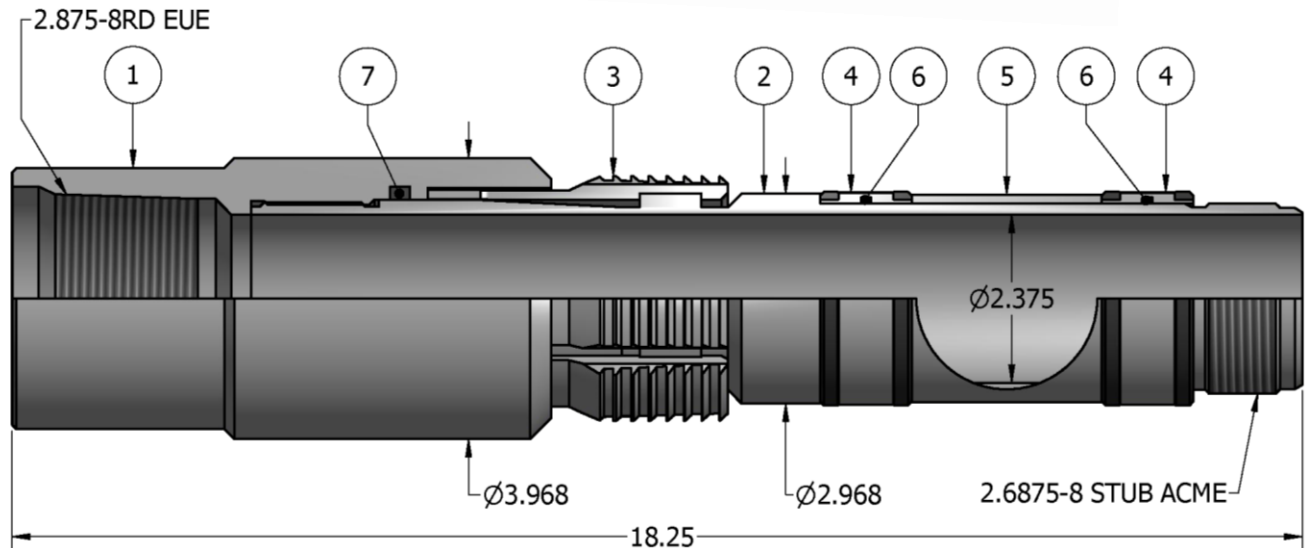
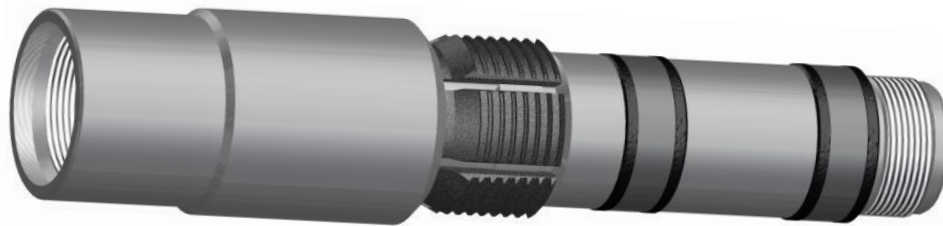
G-4.1.1) HSN

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 58230H
4	2	BONDED SEAL	90 DURO HSN	58030520H
6	2	147 O-RING	90 DURO HSN	90147H
7	1	336 O-RING	90 DURO HSN	90336H

G-4.1.2) VITON

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 58230V
4	2	BONDED SEAL	90 DURO VITON	58030520V
6	2	147 O-RING	90 DURO VITON	90147V
7	1	336 O-RING	90 DURO VITON	90336V

G-5) TECHNICAL ILLUSTRATION





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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.

H-1) SPECIFICATION GUIDE

PACKER BORE SIZE (INCHES)	ASSEMBLY OD (INCHES)	ASSEMBLY BORE (INCHES)	THREAD CONNECTION BOX UP / PIN DOWN	PART NUMBER
3.000	3.968	2.37	2-7/8 EUE / 2.6875-8 STUB ACME	57830 57830H ¹ 57830V ² 57830ATR ³ 57830VTR ⁴

¹HSN Option, ²Viton Option, ³AFLAS, Teflon, Ryton Seal Stack Option, ⁴Viton, Teflon, Ryton Seal Stack Option

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 (6) 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 snap latch collet (3) from top sub (1).

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

H-2.3) Remove o-ring (7) from top sub (1).

H-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.

H-3.1) Install o-ring (7) in o-ring groove in top sub (1).

H-3.2) Clamp top sub (1) in vise.

H-3.2.1) Screw snap latch collet (3) into top sub (1).

H-3.2.2) Screw seal mandrel (2) into top sub (1).

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

H-3.2.3) Install o-rings (6) in o-ring grooves in bonded seals (4).

H-3.2.4) Install bonded seals (4) and seal spacer (5) onto seal mandrel (2).

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

H-3.3) Unclamp top sub (1) from vise and remove assembled tool.



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H) SNAP LATCH ASSEMBLY (cont'd)

H-4) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 57830
1	1	TOP SUB	DLMS80	57830610
2	1	MANDREL	DLMS110	57830210
3	1	SNAP LATCH	DLMS110	57830003
4	2	BONDED SEAL	NITRILE	58030520*
5	1	SEAL SPACER	DLMS60	58030550*
6	2	147 O-RING	90 DURO NITRILE	90147*
7	1	336 O-RING	90 DURO NITRILE	90336

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

ASSEMBLED WEIGHT	19 LBS
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H-4.1) ELASTOMER TRIM OPTIONS

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

H-4.1.1) HSN

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 57830H
4	2	BONDED SEAL	HSN	58030520H
6	2	147 O-RING	90 DURO HSN	90147H
7	1	336 O-RING	90 DURO HSN	90336H

H-4.1.2) VITON

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 57830V
4	2	BONDED SEAL	VITON	58030520V
6	2	147 O-RING	90 DURO VITON	90147V
7	1	336 O-RING	90 DURO VITON	90336V



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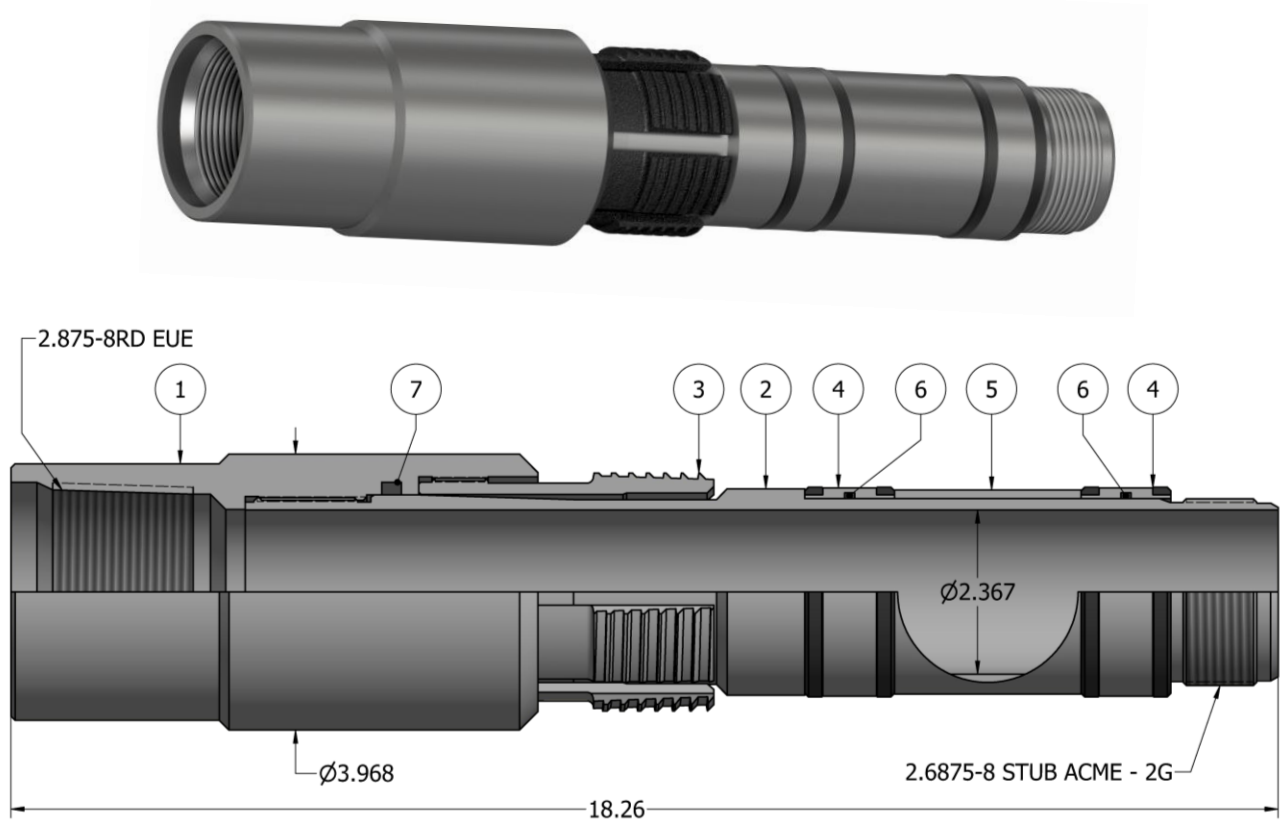
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Approved by: *D.Hushbeck*

H) SNAP LATCH ASSEMBLY (cont'd)

H-5) TECHNICAL ILLUSTRATION



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
3.000	2.960	2.375	2.6875 STUB ACME	58130 58130H ¹ 58130V ² 58130ATR ³ 58130VTR ⁴

¹HSN Option, ²Viton Option, ³AFLAS, Teflon, Ryton Seal Stack Option, ⁴Viton, Teflon, Ryton Seal Stack Option



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I) SEAL UNIT ASSEMBLY (cont'd)

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) Remove seal mandrel (1) from vise.

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

I-3) ASSEMBLY

NOTE₂: Clean and inspect all parts. Replace all worn and damaged parts. Install parts in proper order and orientation.

I-3.1) Install o-ring (4) in groove in seal mandrel (1).

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

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

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

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

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

I-4) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 58130
1	1	SEAL MANDREL	P-110	58130012
2	2	BONDED SEAL	1026/NITRILE	58030520
3	1	SEAL SPACER	1026	58030550*
4	1	145 O-RING	90 DURO NITRILE	90145*
5	2	147 O-RING	90 DURO NITRILE	90147

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

ASSEMBLED WEIGHT	7 LBS
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I-4.1) ELASTOMER TRIM OPTIONS

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

I-4.1.1) HSN

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 58130H
2	2	BONDED SEAL	1026/HSN	58030520H
4	1	145 O-RING	90 DURO HSN	90145H
5	2	147 O-RING	90 DURO HSN	90147H

I-4.1.2) VITON

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 58130V
2	2	BONDED SEAL	1026/VITON	58030520V
4	1	145 O-RING	90 DURO VITON	90145V
5	2	147 O-RING	90 DURO VITON	90147V



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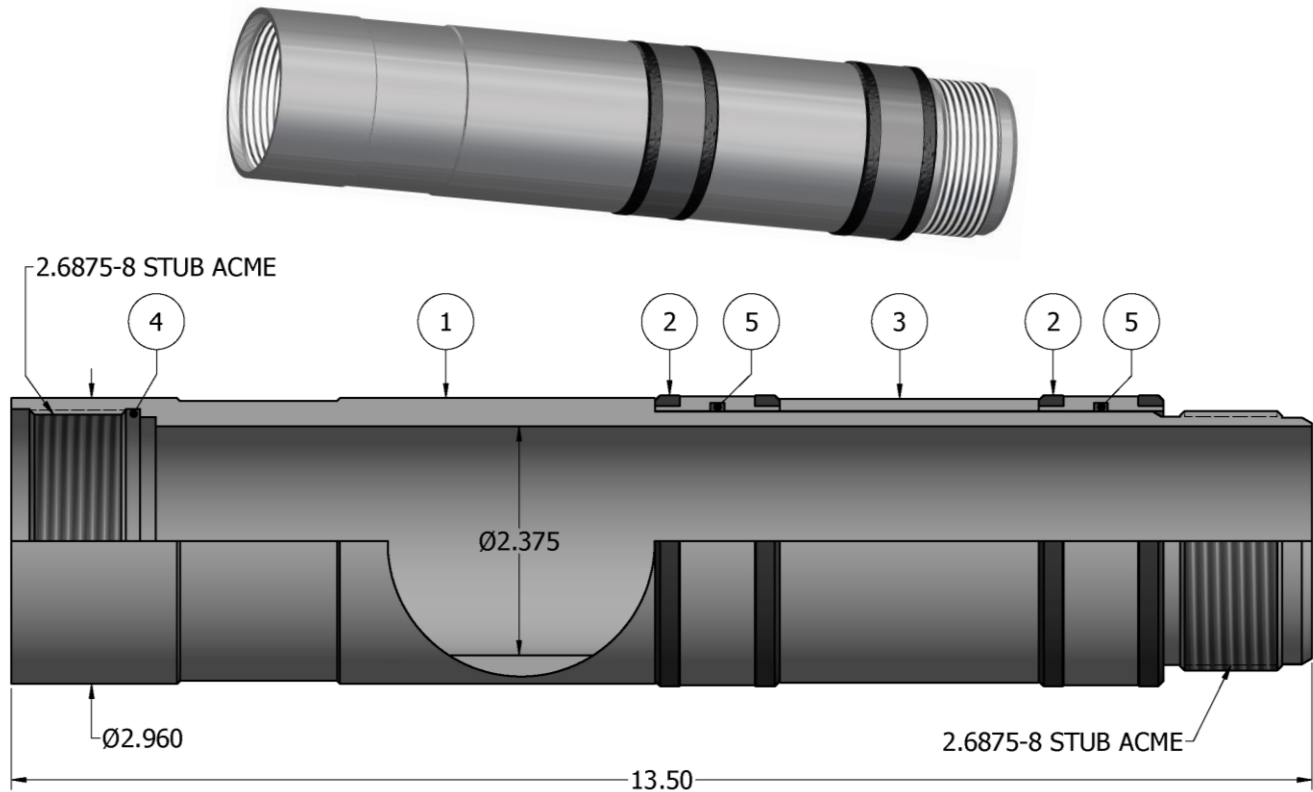
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I) SEAL UNIT ASSEMBLY (cont'd)

I-5) TECHNICAL ILLUSTRATION



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
3.000	2.985	2.375	2.6875-8 STUB ACME	58430615

WEIGHT		2 LBS
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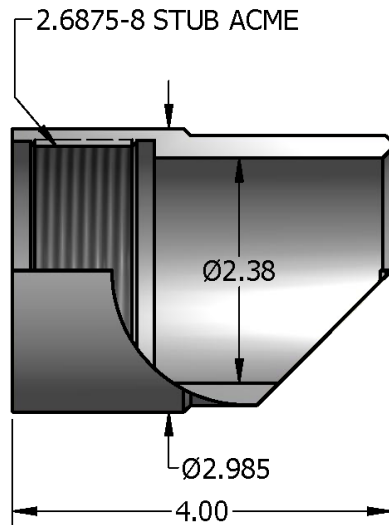
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J) MULE SHOE (cont'd)

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 Elastomer Trim Temperature Guide for temperature range.

K-1) ASSEMBLY

NOTE₂: 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.

CAUTION₄: 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.

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.



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

K-2) ATR OPTION PARTS LIST

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

ITEM	QTY	DESCRIPTION	MATERIAL	PART NUMBER
S	1	3.000" ATR SEAL STACK	-	58730ATRSS
S.1	6	AFLAS RING	AFLAS	587AF300
S.2	6	TEFLON RING	TEFLON	587TF300
S.3	6	RYTON SPACER	RYTON	587RY300
S.4	1	CENTER SPACER	1026	587CS300
S.5	2	END SPACER	1026	587ES300

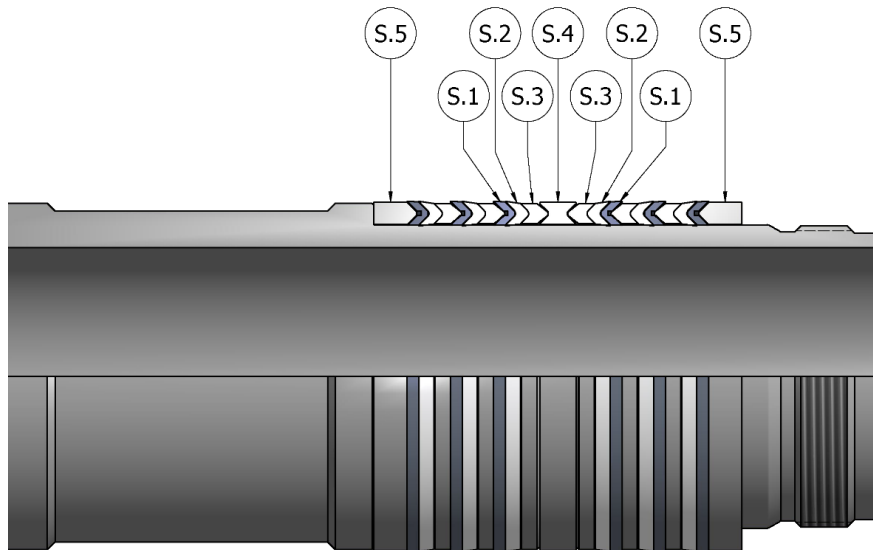
K-3) VTR OPTION SEAL STACK

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

ITEM	QTY	DESCRIPTION	MATERIAL	PART NUMBER
S	1	3.000" VTR SEAL STACK	-	58730VTRSS
S.1	6	VITON RING	VITON	587VF300
S.2	6	TEFLON RING	TEFLON	587TF300
S.3	6	RYTON SPACER	RYTON	587RY300
S.4	1	CENTER SPACER	1026	587CS300
S.5	2	END SPACER	1026	587ES300

K-4) TECHNICAL ILLUSTRATION

NOTE₄: Generic assembly 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 snap latch straight pull release amount; Added tensile load thru anchor latch	J.Anderson	D.Hushbeck
12/16/2019	B	Added Elastomer Trim Temp. Guide, P/N 58330 and 57830, ATR and VTR seal stack options	J.Anderson	D.Hushbeck
02/13/14	A	Created new manual	-	-