A) DESCRIPTION

The AS-II Packer is a large-opening, compression-set packer with mechanical slip hold-downs. This packer withstands high pressure from above or below by using a 3-element packing system, and upper and lower mechanical slips. A J-slot and a drag block mechanism are incorporated for easy setting. This packer has a built-in unloader which circulates across the mechanical hold-down slips to improve retrievability. The unloader has a pressure compensating piston to keep it closed when pressure is greater below the set packer.

The AS-II Packer is available in the standard J-slot arrangement - right-hand auto set with straight pick-up release. Other J-slot arrangements are available: right-hand manual set, left-hand auto set, and left-hand manual set. All J-slot arrangements are straight pick-up release.

B) SPECIFICATION GUIDE

CASING			**TOOL**		**THREAD CONNECTION** BOX UP / PIN DOWN	**PART NUMBER**
SIZE (INCHES)	**WEIGHT** (LBS/FT)	**RECOMMENDED HOLE SIZE** (INCHES)	**GAGE OD** (INCHES)	**NOMINAL ID** (INCHES)		
3-1/2"	7.7 – 10.2	2.922 – 3.068	2.781	1.25	1.900 NUE	61135RS 61135RSH[1] 61135RSV[2] 61135RSC[3] 61135RSHC[4] 61135RSVC[5]

Tool Options: [1]HSN, [2]Viton, [3]Nitrile, Carbide, [4]HSN, Carbide, [5]Viton, Carbide

DIFFERENTIAL PRESSURE (MAX)	**TENSILE LOAD THRU TOOL** (MAX)
7,000 PSI	27,887 LBS

C) PRE-INSTALLATION INSPECTION PROCEDURES

CAUTION[1]: 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

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

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.

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[2]: Do not run the tool without properly tightening connections. Running the tool with loose connections may damage the tool and cause malfunction.

Run to setting depth. The unloader remains open while running in. Pick up the work string and rotate 1/4 right-hand turn at the packer. Slack off weight and set down on the packer to set the slips, close the unloader and compress the packing elements. A minimum of 7,000 lbs at the packer is required to pack off the elements.

E) RELEASING PROCEDURES

Pick up on the work string to open the unloader. Allow time for the tubing and casing pressure to equalize. Continue to pick up on the work string to unset the top slips, relax the elements, and re-jays the packer. The tool may now be moved and reset, or pulled from the well.

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. Elements should be in a relaxed state—free from tension, compression, and other stresses that could cause deformation.

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) ELASTOMER TRIM TEMPERATURE GUIDE

NITRILE (STD)			
TEMPERATURE RANGE (F°)	**DUROMETER**		
	END	**MIDDLE**	**END**
40° - 125°	80	70	80
125° - 250°	90	70	90
150° - 250°	90	80	90
250° +	Contact D&L Sales		

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

H) RECOMMENDED TOOLS

H-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
- 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-2) OPTIONAL SPECIAL TOOLS

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

I) DISASSEMBLY

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

I-1.1) Unscrew and remove bottom sub (23) from inner mandrel (2).

NOTE1: Drag block body assembly must be free to rotate.

I-1.2) Unscrew and remove set screws (30) from J-body (20).

I-1.3) Compress drag blocks (22) with drag block assembly tool (T1). Unscrew and remove J-body (20) from drag block body (18) (**NOTE2**: Left-hand threads).

I-1.4) Release and remove drag blocks (22) and drag block springs (3).

I-1.5) Unscrew and remove rubber mandrel cap (19) from rubber mandrel (11).

I-1.6) Wedge lower slips (17) outwards (if needed). Remove drag block body assembly and disassemble:

I-1.6.1) Remove wedges (if needed). Remove lower slips (17) and lower slip springs (25) from drag block body (18).

I-1.7) Unscrew and remove lower cone (16) from rubber retainer (15).

I-1.8) Unscrew rubber mandrel (11) from central coupling (27). Remove rubber mandrel assembly from inner mandrel (2) and disassemble:

I-1.8.1) Remove elements (13), rubber spacer (12), and rubber retainer (15) from rubber mandrel (11).

I-1.9) Unscrew and remove central coupling (27) from central body (10).

I-1.9.1) Remove o-ring (32) from central coupling (27).

I-1.10) Unscrew and remove central body (10) from upper cone (9).

I-1.11) Unscrew valve body (21) from valve piston cap (28) and remove from spacer (14) and inner mandrel (2).

I-1.11.1) Remove seal (24) and o-ring (34) from valve body (21).

I-1.12) Remove spacer (14) from inner mandrel (2).

I-2) Unclamp and remove top sub (1) from vise and clamp inner mandrel (2) in vise.

CAUTION3: Do NOT wrench or clamp on seal surface.

I-2.1) Unscrew and remove spring cage (5) from upper slip body (29).

CAUTION4: Compression spring has tension against slip body assembly

I-2.2) Unscrew and remove top sub (1) from inner mandrel (2).

I-2.3) Remove compression spring (4) from inner mandrel (2).

I) DISASSEMBLY (cont'd)

I-2.4) Wedge releasing slip (7) and upper slips (8) outwards (if needed). Remove upper slip body assembly and disassemble:

I-2.4.1) Remove wedges (if needed). Remove releasing slip (7), upper slips (8), and upper slip springs (26) from upper slip body (29).

I-2.5) Remove upper cone (9), compensating piston (6), and valve piston cap (28) from inner mandrel (2).

I-2.5.1) Remove o-rings (33, 34) from compensating piston (6).

I-3) Unclamp and remove inner mandrel (2) from vise.

J) ASSEMBLY

NOTE3: Clean and inspect all parts. Replace all worn and damaged parts. Install parts in proper order, and orientation and tighten/torque all connections properly.

CAUTION5: To ensure tool operates properly, install o-rings in o-ring grooves **NOT** thread reliefs (Fig. 2).

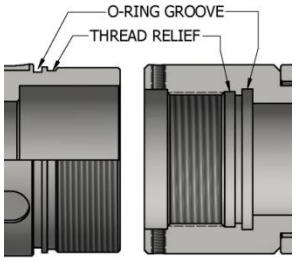


Fig. 2

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

CAUTION3: Do NOT wrench or clamp on seal surface.

J-1.1) Install o-rings (33, 34) in o-ring grooves in compensating piston (6).

J-1.2) Install valve piston cap (28) and compensating piston (6) onto inner mandrel (2).

CAUTION6: Do NOT rip or tear o-ring while installing.

J-1.3) Install upper cone (9) onto inner mandrel (2).

J-1.4) Assemble upper slip body assembly and install:

J-1.4.1) Install releasing slip (7), upper slips (8), and upper slip springs (26) into spring cage (5). Wedge slips outwards.

J-1.4.2) Install upper slip body (29) onto inner mandrel (2). Remove wedges.

J-1.5) Install compression spring (4) onto inner mandrel (2).

J-1.6) Screw top sub (1) onto inner mandrel (2).

J-1.7) Screw spring cage (5) onto upper slip body (29).

CAUTION4: Compression spring has tension against upper slip body assembly.

J-2) Unclamp and remove inner mandrel from vise. Clamp top sub (1) in vise.

J-2.1) Install spacer (14) onto inner mandrel (2).

J-2.2) Install o-ring (34) in o-ring groove in valve body (21).

J-2.3) Install seal (24) into valve body (21).

J-2.4) Install valve body (21) onto inner mandrel (2) and screw into valve piston cap (28).

CAUTION7: Do NOT rip or tear seal while installing.

J-2.5) Install central body (10) onto valve body and piston (21, 6) and screw onto upper cone (9).

CAUTION6: Do NOT rip or tear o-rings while installing.

J-2.6) Install o-ring (32) in o-ring groove in central coupling (27).

J-2.7) Screw central coupling (27) into central body (10).

J-2.8) Assemble rubber mandrel assembly and install:

J-2.8.1) Install rubber retainer (15), elements (13), and rubber spacer (12) onto rubber mandrel (11).

J) ASSEMBLY (cont'd)

J-2.8.2) Install rubber mandrel (11) onto inner mandrel (2) and screw into valve body (21).

CAUTION$_6$: Do NOT rip or tear o-ring while installing.

J-2.9) Screw lower cone (16) into rubber retainer (15).

J-2.10) Assemble and install drag block body assembly:

J-2.10.1) Install lower slips (17) and lower slip springs (25) into drag block body (18). Wedge slips outwards.

J-2.10.2) Install drag block body (18) onto rubber mandrel (11). Remove wedges.

J-2.11) Screw rubber mandrel cap (19) onto rubber mandrel (11).

J-2.12) Install drag blocks (22) and drag block springs (3) in drag block body (18). Compress drag blocks (22) with drag block assembly tool (T1).

J-2.13) Screw J-body (20) onto drag block body (18) capturing ends of drag blocks (22) (**NOTE$_2$**: Left-hand threads).

NOTE$_1$: Drag block body assembly must be free to rotate.

J-2.14) Screw set screws (30) into J-body (20). Remove drag block assembly (T1) to release drag blocks (22).

J-2.15) Screw bottom sub (23) onto inner mandrel (2). Position J-pin of bottom sub (23) in running position in J-slot.

NOTE$_1$: Drag block body assembly must be free to rotate.

J-3) Unclamp top sub (1) from vise and remove tool assembly.

K) PARTS LIST

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 61135RS
1	1	TOP SUB	DLMS60	60030610
2	1	INNER MANDREL	DLMS60	61030210
3	8	DRAG BLOCK SPRING	.014 INCONEL	9102900
4	1	COMPRESSION SPRING	DLMCRSP	61030920
5	1	SPRING CAGE	DLMS60	61030320
6	1	COMPENSATING PISTON	DLMS60	61030710
7	1	RELEASING SLIP	DLMS110	60030125
8	2	UPPER SLIP	DLMS35	60030115
9	1	UPPER CONE	DLMS80	61030410
10	1	CENTRAL BODY	DLMS60	61030370
11	1	RUBBER MANDREL	DLMS60	61030220
12	1	RUBBER SPACER	DLMS60	60030840
13	2	ELEMENT	80 DURO NITRILE	60030512
14	1	SPACER	DLMS110	61030525
15	1	RUBBER RETAINER	DLMS60	60030850
16	1	LOWER CONE	DLMS60	60030420
17	4	LOWER SLIP	DLMS35	60030135

K) PARTS LIST (cont'd)

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 61135RS
18	1	DRAG BLOCK BODY	DLMS60	60330335
19	1	RUBBER MANDREL CAP	DLMS60	61030230
20	1	J-BODY	DLMS60	61030340
21	1	VALVE BODY	DLMS80	61030350
22	4	DRAG BLOCK W/CARBIDE	DLMSDB4	9028900C
23	1	BOTTOM SUB	DLMS110	61030630
24	1	SEAL	80 DURO NITRILE	61030520
25	4	LOWER SLIP SPRING	-	7125900
26	3	UPPER SLIP SPRING	-	61345975
27	1	CENTRAL COUPLING	DLMS80	61030620
28	1	VALVE PISTON CAP	DLMS60	61030720
29	1	UPPER SLIP BODY	DLMS60	60030320
30	3	SET SCREW 1/4-20 UNC X 3/16	STEEL	SSS025C018
31	1	127 O-RING	90 DURO NITRILE	90127
32	1	134 O-RING	90 DURO NITRILE	90134
33	1	223 O-RING	90 DURO NITRILE	90223
34	2	227 O-RING	90 DURO NITRILE	90227

REDRESS KIT (RDK)		61135050
ASSEMBLED WEIGHT		44 LBS

K-1) ELASTOMER TRIM OPTIONS

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

K-1.1) HSN

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 61135RSH
13	2	ELEMENT	80 DURO HSN	60030512H
24	1	SEAL	80 DURO HSN	61030520H
31	1	127 O-RING	90 DURO HSN	90127H
32	1	134 O-RING	90 DURO HSN	90134H
33	1	223 O-RING	90 DURO HSN	90223H
34	2	227 O-RING	90 DURO HSN	90227H

REDRESS KIT (RDK)		61135050H

K) PARTS LIST (cont’d)

K-1.2) VITON

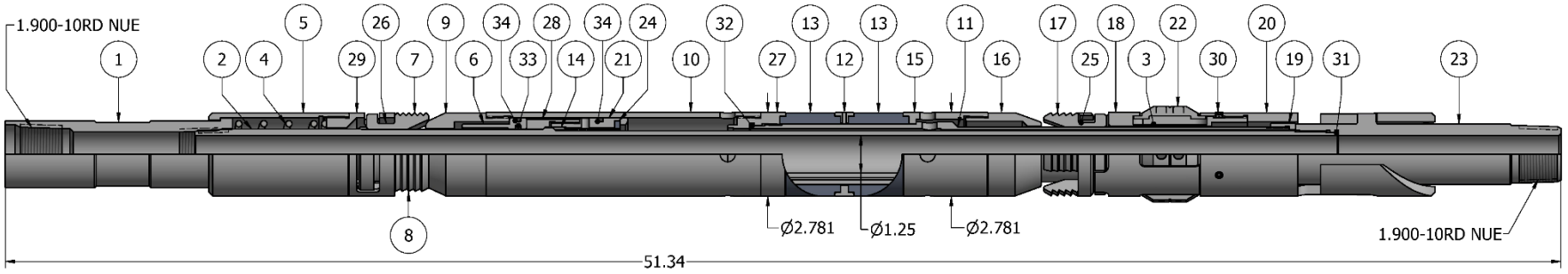
ITEM	QTY	DESCRIPTION	MATERIAL	P/N 61135RSV
13	2	ELEMENT	80 DURO VITON	60030512V
24	1	SEAL	80 DURO VITON	61030520V
31	1	127 O-RING	90 DURO VITON	90127V
32	1	134 O-RING	90 DURO VITON	90134V
33	1	223 O-RING	90 DURO VITON	90223V
34	2	227 O-RING	90 DURO VITON	90227V

REDRESS KIT (RDK)		61135050V

K-2) CARBIDE OPTIONS

ITEM	QTY	DESCRIPTION	MATERIAL	P/N 61135RSC
8	2	CARBIDE UPPER SLIP	DLMS110	60030115C
17	4	CARBIDE LOWER SLIP	DLMS110	60030135C

L) TECHNICAL ILLUSTRATION



M) REVISION HISTORY

DATE	REVISION	DESCRIPTION OF CHANGES	REVISED BY	APPROVED BY
10/03/2022	C	Add “RS” to 61135, carbide options	J.Anderson	K.Plunkett
05/11/2018	B	Revised P/N 61345975 was 7145901, 7125900 was 7145902, 61030340 was 61030343	J.Anderson	T.Myerley
02/22/2018	A	Created new manual	-	-