

RIGHT-HAND AUTO 5-1/2" X 2-3/8" (23.0 – 26.0#)

Manual No: **DL-613-5500-1341**

Revision: B

Revision Date: **08/04/2022**

Approved by: K.Plunkett

A) DESCRIPTION

Authored by: J.Anderson

The HD Retrievable Packer is a heavy duty service packer ideally suited for all types of squeeze cementing, formation fracturing, high pressure acidizing, etc. It is a large opening compression set packer with hydraulic button-type hold down. This packer withstands high pressure from above or below and uses a 3-element packing system, J-slot, and a drag block mechanism for easy setting. This packer has a built-in unloader which circulates across the hold down buttons to improve retrievability and run in performance.

B) SPECIFICATION GUIDE

| CASING | | TO | OOL | | | |
|------------------|--------------------|--------------------------------------|---------------------|------------------------|---|---|
| SIZE (INCHES) | WEIGHT (LBS/FT) | RECOMMENDED HOLE SIZE (INCHES) | GAGE OD (INCHES) | NOMINAL ID (INCHES) | THREAD CONNECTIONS BOX UP / PIN DOWN | PART NUMBER |
| 5-1/2 | 23.0 – 26.0 | 4.548 – 4.670 | 4.375 | 1.88 | 2-3/8 EUE | 61354RS 61354RSH ¹ 61354RSV ² |

Elastomer Trim Options: ¹HSN, ²Viton

NOTE₁: Tools listed are right-hand set/ straight pick-up release. Additional configurations are available. Contact D&L Sales for more information.

| DIFFERENTIAL PRESSURE (MAX) | TENSILE LOAD THRU UNSET TOOL (MAX) | HANGING WEIGHT ON SET TOOL (MAX)* | TORQUE (MAX) |
|-----------------------------------|--|---|-----------------|
| 10,000 PSI | 58,000 LBS | 58,000 LBS* | 2,000 FT-LBS |

^{*}Casing must be cemented for this load rating.

CAUTION₁: Before running the tool, check the pressure affected areas chart, and consider other effects to be certain that the unloader will remain closed during operation.

CAUTION₂: If the HD Packer is run with a retrievable bridge plug, make sure the bridge plug J-slot is compatible with the J-slot on the packer. Whichever direction you set the plug, the packer should set in the opposite direction.

C) PRE-INSTALLATION INSPECTION PROCEDURES

CAUTION₃: D&L ships tool connections made-up hand-tight—labeled with hand-tight tape on the tool—unless stated otherwise. Properly tighten connections before operating tool (Fig. 1).



| GENERAL THREAD CONNECTION TORQUE RECOMMENDATIONS | | | | | |
|--|------------------|---------------------|--|--|--|
| STUB ACME / | INTERNAL TAPI | ERED TUBING THREADS | PREMIUM THREADS | | |
| ACME THREADS | UP TO 2-3/8" | GREATER THAN 2-3/8" | 111111111111111111111111111111111111111 | | |
| 600 – 800 FT-LBS | 600 – 800 FT-LBS | 800 – 1,200 FT-LBS | Consult thread manufacturer's recommendations. | | |

D & L OIL TOOLS

P.O. BOX 52220 TULSA, OK 74152

PHONE: (800) 441-3504 <u>www.dloiltools.com</u>



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

| 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.

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

CAUTION₄: 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 right-hand 1/4 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 weight of 14,000 lbs. at the packer is required to pack off the elements.

CAUTIONs: Run the tool slowly, as with any hold down type packer, to help prevent dulling of the hydraulic buttons.

E) RELEASING PROCEDURES

Pick up on the tubing to open the unloader, allowing time for the tubing and casing pressure to equalize. Continued upward movement of the work string unsets the slips, relaxes the packing 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. Elastomers should be in a relaxed state—free from tension, compression or other 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.



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G) PRESSURE AFFECTED AREA GUIDE

When set downhole, the packer mandrel is subjected to a force created by differential pressure above or below the packer that acts on the pressure affected area (i.e., the piston effect). Depending on the tubing size and weight and the seal area of the packer the force created by differential pressure acts upwards or downwards on the packer mandrel. An upward force, designated as a negative (-) value, acts to push the packer mandrel up hole and must be accounted for to ensure that the packer remains set. A downward force, designated as a positive value, acts to push the packer mandrel down hole and must be accounted for when releasing the packer. Other factors (e.g., tubing movement due to temperature change) must be considered separately to determine all the forces acting on the packer.

| PACKER SIZE | TUBING TO PACKER | | | PRESSURE AFFECTED AREA (IN²) | | | |
|-------------|------------------|-------------------|------------|------------------------------|--------|-------|--------|
| (IN) | SIZE (IN) | WEIGHT (LB/FT) | ID (IN) | ABOVE | | BELOW | |
| | 1.900 | 2.40 | 1.650 | 1.150 | (DOWN) | 2.424 | (DOWN) |
| | 1.900 | 2.90 | 1.610 | 1.150 | (DOWN) | 2.322 | (DOWN) |
| | | 4.00 | 2.041 | -0.445 | (UP) | 3.557 | (DOWN) |
| | 2.375 | 4.70 | 1.995 | -0.445 | (UP) | 3.412 | (DOWN) |
| | | 5.95 | 1.867 | -0.445 | (UP) | 3.023 | (DOWN) |
| 5 1/2 | | 6.50 | 2.441 | -2.507 | (UP) | 4.965 | (DOWN) |
| 5-1/2 | 2.875 | 7.90 | 2.323 | -2.507 | (UP) | 4.524 | (DOWN) |
| | | 8.70 | 2.259 | -2.507 | (UP) | 4.294 | (DOWN) |
| | | 7.70 | 3.068 | -5.636 | (UP) | 7.678 | (DOWN) |
| | 2.500 | 9.30 | 2.992 | -5.636 | (UP) | 7.317 | (DOWN) |
| | 3.500 | 10.20 | 2.922 | -5.636 | (UP) | 6.991 | (DOWN) |
| | | 12.95 | 2.750 | -5.636 | (UP) | 6.225 | (DOWN) |

Example: Consider a 5-1/2" X 2-3/8" HD Packer set on 2.375", 4.70 lbs/ft tubing with a differential pressure of 3,000 PSI in the annulus around the tubing above the packer. What is the force acting on the seal area of the mandrel?

To calculate the force (lbs) acting on the seal area of the mandrel, refer to the Pressure Affected Area Guide for a 5-1/2" X 2-3/8" HD Packer run on 2.375", 4.70 lbs/ft tubing. In this example, the differential pressure from above the packer acts on the seal area of the packer mandrel across a pressure affected area of -0.445 in². Multiplying the differential pressure (3,000 PSI) by the pressure affected area (-0.445 in^2) results in a force of -1,335 lbs. The piston effect on the packer mandrel is an upward force of 1,335 lbs.

H) ELASTOMER TRIM TEMPERATURE GUIDE

| NITRILE (STD) | | | | | |
|---------------|-------------------|--------|-----|--|--|
| TEMPERATURE | DUROMETER | | | | |
| RANGE (F°) | 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 |



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I) RECOMMENDED TOOLS

I-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

I-2) SPECIAL TOOLS

| ITEM | QTY | DESCRIPTION | PART NUMBER |
|------|-------|---------------------------------|-----------------|
| T1 | 1 | DRAG BLOCK ASSEMBLY TOOL | AT055110 |
| T2 | 1 | BUTTON REMOVAL TOOL | AT-BRT000 |
| Т3 | 1 GAL | KOPR-KOTE® ANTI-SEIZE LUBRICANT | DL-KOPR-KOTE-1G |

J) DISASSEMBLY

- J-1) Clamp top sub (1) in vise.
 - J-1.1) Unscrew and remove set screws (29) from J-pin bottom sub (23). Move J-body (20) as necessary to access screws.
 - J-1.2) Unscrew and remove J-pin bottom sub (23) from inner mandrel (2).

NOTE2: Drag block body must be free to rotate.

- J-1.2.1) Remove o-ring (35) from J-pin bottom sub (23).
- J-1.3) Unscrew and remove set screws (7) from J-body (20).
- J-1.4) Compress drag blocks (22) with drag block assembly tool (T1).
- J-1.5) Unscrew and remove J-body (20) from drag block body (18) (NOTE₃: Left-hand threads).
- J-1.6) Remove drag block retainer (21) from drag block body (18).
- J-1.7) Release drag blocks (22). Remove drag blocks (22) and drag block springs (3) from drag block body (18).
- J-1.8) Unscrew and remove rubber mandrel cap (19) from rubber mandrel (11).
 - NOTE₄: For added leverage, insert a rod through rubber retainer (15) and rubber mandrel (11) as needed.
- J-1.9) Wedge lower slips (17) outwards (if needed). Remove drag block body assembly and disassemble:
 - J-1.9.1) Remove wedges (if needed). Remove lower slips (17) and lower slip springs (25) from drag block body (18).
- J-1.10) Unscrew and remove lower cone (16) from rubber retainer (11).
- J-1.11) Unscrew rubber mandrel (11) from valve body (28).
- J-1.12) Remove rubber mandrel assembly and disassemble:
 - J-1.12.1)Remove elements (13, 14), rubber spacers (12) and rubber retainer (15) from rubber mandrel (11).
- J-1.13) Unscrew and remove valve body (28) from central body (10).
 - J-1.13.1)Remove o-ring (37) from valve body (28).
- J-1.14) Unscrew and remove central body (10) from hold down body (6).



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J) DISASSEMBLY (cont'd)

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

CAUTION6: Do <u>NOT</u> wrench or clamp on seal surface.

- J-2.1) Unscrew and remove set screws (29) from top sub (1).
- J-2.2) Unscrew and remove top sub (1) from inner mandrel (2).
 - J-2.2.1) Remove o-ring (36) from top sub (1).
- J-2.3) Unscrew and remove hold down cap (4) from hold down body (6).
 - J-2.3.1) Remove o-ring (42) from hold down cap (4).
- J-2.4) Remove upper strap retainer (32) from hold down body (6).
- J-2.5) Remove lower strap retainer (32) from hold down body (6) and move downwards out of way to be removed from inner mandrel (2) in later step.
- J-2.6) Unscrew and remove flat head cap screws (33) from hold down body (6).
- J-2.7) Remove hold down straps (31) from hold down body (6).
- J-2.8) Remove hold down button springs (26) from hold down buttons (30).
- J-2.9) Remove hold down buttons (30) from hold down body (6) with button removal tool (T2).
 - J-2.9.1) Remove o-rings (34) from hold down buttons (30).
- J-2.10) Remove hold down body (6) from inner mandrel (2).
 - J-2.10.1)Remove o-rings (40, 41) from hold down body (6).
- J-2.11) Remove strap retainer (32) from inner mandrel (2).
- J-2.12) Unscrew and remove compensating mandrel (8) from seal receptacle (5).
 - J-2.12.1) Remove compensating piston (9) from compensating mandrel (8).
 - J-2.12.2) Remove o-rings (38, 39) from compensating piston (9).
- J-3) Unclamp and remove inner mandrel (2) from vise.
 - J-3.1) Remove seal receptacle (5) from inner mandrel (2).
 - J-3.1.1) Unscrew and remove seal retainer (27) from seal receptacle (5).
 - J-3.1.1.1) Remove o-ring (37) and quad seal (24) from seal retainer (27).
 - J-3.1.2) Remove o-ring (38) from seal receptacle (5).

K) ASSEMBLY

- **NOTE₅:** Clean and inspect all parts. Replace all worn and damaged parts. Install parts in proper order, and orientation and tighten/torque all connections properly.
- **NOTE**₆: Apply KOPR-KOTE anti-seize lubricant (T1) on STUB ACME and drill pipe connections when making up connections.
- **CAUTION**₆: To ensure tool operates properly, install o-rings in o-ring grooves **NOT** thread reliefs unless stated otherwise (Fig. 2).
- K-1) Assemble seal receptacle assembly and install:
 - K-1.1) Install o-ring (38) in o-ring groove in seal receptacle (5).
 - K-1.2) Install o-ring (37) in o-ring groove in seal retainer (27).
 - K-1.3) Set quad seal (24) in place on seal retainer (27).
 - K-1.4) Screw seal retainer (27) onto seal receptacle (5).
 - **CAUTION**₇: Do not rip or tear o-ring or seal during installation.
 - K-1.5) Install seal receptacle assembly onto inner mandrel (2).

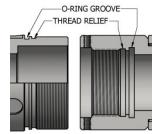


Fig. 2



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K) ASSEMBLY (cont'd)

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

CAUTION6: Do <u>NOT</u> wrench or clamp on seal surface.

- K-2.1) Assemble compensating mandrel assembly and install:
 - K-2.1.1) Install o-rings (38, 39) into o-ring grooves in compensating piston (9).
 - K-2.1.2) Install compensating piston (9) onto compensating mandrel (8).

NOTE₇: Compensating piston (9) MUST be installed in correct direction (refer to Technical Illustration, Det. A).

CAUTION7: Do not rip or tear o-ring during installation.

- K-2.2) Screw compensating mandrel (8) into seal receptacle (5).
- K-2.3) Install lower strap retainer (32) onto inner mandrel (2).
- K-2.4) Install o-rings (40, 41) in o-ring grooves in hold down body (6).
- K-2.5) Install hold down body (6) onto inner mandrel (2).
- K-2.6) Assemble hold down buttons (30) and install:

K-2.6.1) Install o-rings (34) in o-ring grooves in hold down buttons (30).

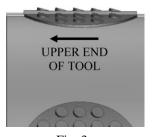


Fig. 3

Fig. 4

K-2.6.2) Install hold down buttons (30) into hold down body (6) (Fig. 3). Align slot in hold down buttons (30) with slot in hold down body (6).

CAUTION7: Do not rip or tear o-rings during installation.

K-2.6.3) Install hold down button springs (26) into hold down buttons (30).

NOTE₈: Install two (2ea) springs per button (Fig. 4).

- K-2.6.4) Set hold down straps (31) in slots in hold down buttons (30) and hold down body (6).
- K-2.6.5) Screw flat head cap screws (33) into hold down body (6).
- K-2.7) Install upper strap retainer (32) onto hold down body (6).
- K-2.8) Install o-ring (42) into o-ring groove in hold down cap (4).
- K-2.9) Screw hold down cap (4) into hold down body (6).

CAUTION₇: Do not rip or tear o-ring during installation.

- K-2.10) Install lower strap retainer (32) onto hold down body (6) to capture lower ends of hold down straps (31).
- K-2.11) Install o-ring (36) into o-ring groove in top sub (1).
- K-2.12) Screw top sub (1) onto inner mandrel (2).

CAUTION7: Do not rip or tear o-ring during installation.

- K-2.13) Screw set screws (29) into top sub (1).
- K-3) Unclamp and remove inner mandrel (2) from vise. Clamp top sub (1) in vise.
 - K-3.1) Screw central body (10) onto hold down body (6).

CAUTION₇: Do not rip or tear o-rings during installation.



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K) ASSEMBLY (cont'd)

- K-3.2) Install o-ring (37) into o-ring groove in valve body (28).
- K-3.3) Screw valve body (28) into central body (10).
- K-3.4) Assemble rubber mandrel assembly and install:
 - K-3.4.1) Install rubber retainer (15), rubber spacers (12), and elements (13, 14) onto rubber mandrel (11).
 - K-3.4.2) Install rubber mandrel assembly onto inner mandrel (2) and screw rubber mandrel (11) into valve body (28).

CAUTION₇: Do not rip or tear o-ring during installation.



Fig. 5

- K-3.5) Screw lower cone (16) into rubber retainer (11).
- K-3.6) Assemble drag block body assembly and install:
 - K-3.6.1) Install lower slips (17) and lower slip springs (25). Wedge slips outward.

NOTE₉: Install two (2ea) springs per slip (Fig. 5).

- K-3.6.2) Install drag block body assembly onto rubber mandrel (11). Remove wedges.
- K-3.7) Screw rubber mandrel cap (19) onto rubber mandrel (11).

NOTE₄: For added leverage, insert a rod through rubber retainer (15) and rubber mandrel (11) as needed.

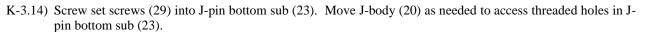
K-3.8) Install drag blocks (22) and drag block springs (3) into drag block body (18). Compress drag blocks (22) with drag block assembly tool (T1).

NOTE₁₀: Install four (4 ea) drag block springs per drag block (Fig. 6).

- K-3.9) Install drag block retainer (21) onto drag block body (18) to capture ends of drag blocks (22).
- K-3.10) Screw J-body (20) onto drag block body (18) (NOTE₃: Left-hand threads).
- K-3.11) Screw set screws (7) into J-body (20). Release drag blocks (22).
- K-3.12) Install o-ring (35) into o-ring groove in J-pin bottom sub (23).
- K-3.13) Screw J-pin bottom sub (23) onto inner mandrel (2).

NOTE2: Drag block body must be free to rotate.

CAUTION₇: Do not rip or tear o-ring during installation.



K-4) Remove top sub (1) from vise and remove assembled tool.



Fig. 6



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L) PARTS LIST

| ITEM | QTY | DESCRIPTION | MATERIAL | P/N 61354RS |
|------|-----|-----------------------------------|-----------------|-------------|
| 1 | 1 | TOP SUB | DLMS110 | 61345615 |
| 2 | 1 | MANDREL | DLMS110 | 61345215 |
| 3 | 20 | DRAG BLOCK SPRING | - | 9100900 |
| 4 | 1 | HOLD DOWN CAP | DLMS110 | 61350370 |
| 5 | 1 | SEAL RECEPTACLE | DLMS110 | 61345730 |
| 6 | 1 | HOLD DOWN BODY | DLMS110 | 61354321 |
| 7 | 4 | SOCKET SET SCREW 1/4-20 UNC X 3/8 | STEEL | SSS025C037 |
| 8 | 1 | COMPENSATING MANDREL | DLMS110 | 61345240 |
| 9 | 1 | COMPENSATING PISTON | DLMS110 | 61345710 |
| 10 | 1 | CENTRAL BODY | DLMS110 | 61345381 |
| 11 | 1 | RUBBER MANDREL | DLMS110 | 61345220 |
| 12 | 2 | RUBBER SPACER | DLMS60 | 60254840 |
| 13 | 1 | ELEMENT | 80 DURO NITRILE | 60254512 |
| 14 | 2 | ELEMENT | 90 DURO NITRILE | 60254513 |
| 15 | 1 | RUBBER RETAINER | DLMS60 | 60254850 |
| 16 | 1 | LOWER CONE | DLMS110 | 60045420HT |
| 17 | 4 | CARBIDE LOWER SLIP | DLMS110 | 60054135C |
| 18 | 1 | DRAG BLOCK BODY | DLMS110 | 61354335 |
| 19 | 1 | RUBBER MANDREL CAP | DLMS110 | 61345230 |
| 20 | 1 | J-BODY | DLMS110 | 61350340 |
| 21 | 1 | DRAG BLOCK RETAINER | DLMS60 | 61354910 |
| 22 | 5 | CARBIDE DRAG BLOCK | DLMSDB4 | 9056900C |
| 23 | 1 | BOTTOM SUB | DLMS110 | 61345635 |
| 24 | 1 | QUAD SEAL | 90 DURO NITRILE | 61345520 |
| 25 | 8 | LOWER SLIP SPRING | - | 7155901 |
| 26 | 16 | HOLD DOWN BUTTON SPRING | - | 61345975 |
| 27 | 1 | SEAL RETAINER | DLMS110 | 61345530 |
| 28 | 1 | VALVE BODY | DLMS110 | 61354350 |
| 29 | 7 | SOCKET SET SCREW 3/8-16 UNC X 3/8 | STEEL | SSS037C037 |
| 30 | 8 | HOLD DOWN BUTTON | DLMSSP | 61354140C |
| 31 | 4 | HOLD DOWN STRAP | DLMSFB4 | 61345360 |
| 32 | 2 | STRAP RETAINER | DLMS80 | 61354650 |



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L) PARTS LIST (cont'd)

| ITEM | QTY | DESCRIPTION | MATERIAL | P/N 61354RS |
|------|-----|---|-----------------|--------------|
| 33 | 4 | FLAT HEAD SOCKET CAP SCREW #10-24 UNC X 1/2 | STEEL | FHSC1024C050 |
| 34 | 8 | 125 O-RING | 90 DURO NITRILE | 90125 |
| 35 | 1 | 228 O-RING | 90 DURO NITRILE | 90228 |
| 36 | 1 | 230 O-RING | 90 DURO NITRILE | 90230 |
| 37 | 2 | 231 O-RING | 90 DURO NITRILE | 90231 |
| 38 | 2 | 232 O-RING | 90 DURO NITRILE | 90232 |
| 39 | 1 | 234 O-RING | 90 DURO NITRILE | 90234 |
| 40 | 1 | 235 O-RING | 90 DURO NITRILE | 90235 |
| 41 | 1 | 236 O-RING | 90 DURO NITRILE | 90236 |
| 42 | 1 | 333 O-RING | 90 DURO NITRILE | 90333 |

| REDRESS KIT (RDK) | 61354050 |
|-------------------|----------|
| ASSEMBLED WEIGHT | 118 LBS |

L-1) ELASTOMER TRIM OPTIONS

NOTE₁₁: For temperature range, refer to Elastomer Trim Temperature Guide.

L-1.1) HSN

| ITEM | QTY | DESCRIPTION | MATERIAL | P/N 61354RSH |
|------|-----|-------------|-------------|--------------|
| 13 | 1 | ELEMENT | 80 DURO HSN | 60254512H |
| 14 | 2 | ELEMENT | 90 DURO HSN | 60254513H |
| 24 | 1 | QUAD SEAL | 90 DURO HSN | 61345520H |
| 34 | 8 | 125 O-RING | 90 DURO HSN | 90125H |
| 35 | 1 | 228 O-RING | 90 DURO HSN | 90228H |
| 36 | 1 | 230 O-RING | 90 DURO HSN | 90230H |
| 37 | 2 | 231 O-RING | 90 DURO HSN | 90231H |
| 38 | 2 | 232 O-RING | 90 DURO HSN | 90232H |
| 39 | 1 | 234 O-RING | 90 DURO HSN | 90234Н |
| 40 | 1 | 235 O-RING | 90 DURO HSN | 90235H |
| 41 | 1 | 236 O-RING | 90 DURO HSN | 90236Н |
| 42 | 1 | 333 O-RING | 90 DURO HSN | 90333H |

| REDRESS KIT (RDK) | 61354050H |
|-------------------|-----------|



RIGHT-HAND AUTO 5-1/2" X 2-3/8" (23.0 – 26.0#)

Manual No: **DL-613-5500-1341**

Revision: B

Revision Date: **08/04/2022**

Approved by: K.Plunkett

L) PARTS LIST (cont'd)

L-1.2) VITON

| ITEM | QTY | DESCRIPTION | MATERIAL | P/N 61354RSV | |
|------|-----|-------------|---------------|--------------|--|
| 13 | 1 | ELEMENT | 80 DURO VITON | 60254512V | |
| 14 | 2 | ELEMENT | 90 DURO VITON | 60254513V | |
| 24 | 1 | QUAD SEAL | 90 DURO VITON | 61345520V | |
| 34 | 8 | 125 O-RING | 90 DURO VITON | 90125V | |
| 35 | 1 | 228 O-RING | 90 DURO VITON | 90228V | |
| 36 | 1 | 230 O-RING | 90 DURO VITON | 90230V | |
| 37 | 2 | 231 O-RING | 90 DURO VITON | 90231V | |
| 38 | 2 | 232 O-RING | 90 DURO VITON | 90232V | |
| 39 | 1 | 234 O-RING | 90 DURO VITON | 90234V | |
| 40 | 1 | 235 O-RING | 90 DURO VITON | 90235V | |
| 41 | 1 | 236 O-RING | 90 DURO VITON | 90236V | |
| 42 | 1 | 333 O-RING | 90 DURO VITON | 90333V | |

| REDRESS KIT (RDK) | 61354050V |
|-------------------|-----------|



RIGHT-HAND AUTO 5-1/2" X 2-3/8" (23.0 – 26.0#)

Manual No: **DL-613-5500-1341**

Revision: **B**

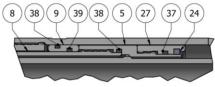
Revision Date: **08/04/2022**

Approved by: K.Plunkett

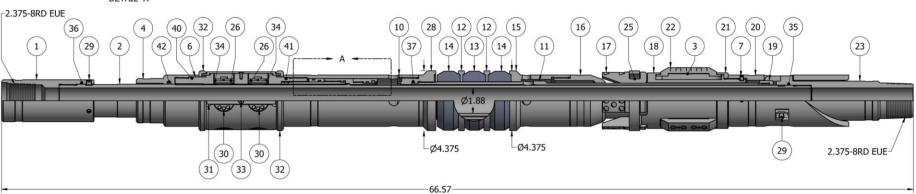
Authored by: J.Anderson

M) TECHNICAL ILLUSTRATION





DETAIL A





RIGHT-HAND AUTO 5-1/2" X 2-3/8" (23.0 – 26.0#)

Manual No: **DL-613-5500-1341**

Revision: **B**

Revision Date: **08/04/2022**

Approved by: K.Plunkett

Authored by: J.Anderson

N) REVISION HISTORY

| DATE | REVISION | DESCRIPTION OF CHANGES | REVISED BY | APPROVED BY |
|------------|----------|---------------------------------|------------|-------------|
| 08/04/2022 | В | Revised P/N 7155901 was 7145901 | J.Anderson | E.Visaez |
| 03/11/2020 | A | Created new manual | - | - |