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Superior Hydraulic Fishing Jar

www.loganoiltools.com

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GENERAL DESCRIPTION
The Logan Superior Hydraulic Fishing Jar is a straight pull, up only, jarring tool that utilizes a special valve section to meter oil from one side of the piston to the other side. This allows for controlled jarring action during a stuck fish recovery. The straight pull load being applied by the operator controls the intensity of the jarring blow. A lighter pull load provides a lighter jarring blow, while a heavier pull load provides a heavier jarring blow. The jarring blow is infinitely adjustable down hole during the jarring operation without any rig floor adjustments being required prior to the run. Simply vary the pull load to change the jarring blow. During the re-cocking cycle of the Jar, a very light load is required since no metering of oil is done during the re-cocking. Oil is returned through large ports during the re-cocking which requires only enough load to overcome friction. This light re-cocking load allows the operator to hit a series of very rapid blows if needed to free the stuck fish.

The Jar’s operating chambers are both sealed and isolated from each other to prevent contamination of the metering section of the Jar. The impact section of the Jar utilizes a heavy anti-galling grease to lubricate the splines and impact faces. The metering section utilizes special grade hydraulic oil (viscosity @ 40°C, CsT 22.00) for metering and lubrication of the tool. The sealed chambers prevent well contamination in these areas. Logan Superior Hydraulic Fishing Jars are hydrostatically pressure balanced and provide maximum inside diameters for passage of wireline tools.

APPLICATION
A Logan Superior Energizer should be installed in the string when maximum jarring impact and impulse are needed. This is especially true in shallow, deviated, or directional holes.

CAUTION: The Superior Energizer should be located above all concentrated mass (drill collars, heavy weight drill pipe, etc.) that is immediately above the Jar. This concentrated mass is used to provide the impact and impulse at the stuck point while jarring. The working string above the Superior Energizer should not have a "weight per foot" change for at least 1,000 feet of string directly above the Superior Energizer. The only exception is for a lighter joint screwed directly into the Superior Energizer for flexibility when needed for bending. No mass above the Superior Energizer improves the jarring results at the stuck point. Concentrated weight mass above the Superior Energizer can cause the impact to occur and result in damage to the Superior Energizer, Jar, BHA components, or the fish. In deviated, directional, or oversized holes, any Jar and Energizer should be isolated from stiffer sections by a more flexible joint of string. This will protect tools and other string components from excessive bending loads that can result in fatigue failure.

It is recommended that not less than two (2) joints of drill collars and not less than four (4) joints of heavyweight drill pipe be run between the Logan Superior Hydraulic Fishing Jar and the Superior Energizer or between the Jar and the working string. However, if this is absolutely necessary or desired, care should be taken to avoid excessively high impact loads.

Fishing, Milling, and Washover
For fishing operations, the Logan Superior Hydraulic Fishing Jar should be placed immediately below a string of concentrated mass (drill collars, heavyweight drill pipe, etc.).

The Logan Superior Hydraulic Fishing Jar is well suited to milling and washover due to its larger integral mandrel design.

Formation Testing
The Logan Superior Hydraulic Fishing Jar is ideal for use in drill stem testing. This will not interfere with the test equipment and does not cause the test to be lost when jarring becomes necessary. The seals used in the Logan Superior Hydraulic Fishing Jar will handle much higher pressures than are normally encountered in drill stem testing.

The Logan Superior Hydraulics Fishing Jar is ideal for freeing open-hole or hook-wall packers if they become stuck enough to require jarring. One or two jarring blows will usually free the packer. The hook-wall packer sticks less often than the open-hole type, but requires higher jarring to free it.

Coring
Breaking a core without a Jar in the string can require considerable pull load on the drill pipe. When a Jar is used, only a comparatively moderate pull is usually required to deliver an impact sufficient to break the core.
Superior Hydraulic Fishing Jar

OPERATION

Preparation
Carefully examine the Logan Superior Hydraulic Fishing Jar before use to ensure it has been properly assembled and filled with jar oil. The tool should be tested in a jar tester prior to field use. Check all connections to ensure they are tightened to the proper torque. (See Chart C — Recommended Tightening Torques on pages 16 – 17.)

RIG UP

WARNING: The Logan Superior Hydraulic Fishing Jar is shipped in the closed or cocked position. When closed, the jar should not be left suspended from the elevator, especially with any appreciable weight suspended below it. When in this position, the Jar can fire causing damage to the rig or bodily harm.

The Logan Superior Hydraulic Fishing Jar should be carefully opened and assembled in the string below the concentrated mass (drill collars, heavy-weight drill pipe, etc.).

It is recommended that a Logan Superior Energizer be run with the Superior Hydraulic Fishing Jar for maximum effectiveness.

JARRING

Before use, carefully examine the Jar to ensure it has been properly assembled and is filled with jar oil. The tool should be tested in a jar tester prior to field use.

Check all connections to ensure that they are tightened to the proper torque. (See Chart C — Recommended Tightening Torques on pages 16 and 17.)

WARNING: At no time during the pull cycle of the fishing jar should the maximum recommended load be exceeded. (See Chart B — Strength and Test Data on pages 16 and 17 for pull loads).

It is recommended that a low initial pull load of 30% to 50% of the maximum load be used so the operator can see the effects of the jarring action before increasing the jarring load.

If a Superior Energizer is being used, the minimum applied pull load should be per the minimum pull required (above weight of string and collars) to obtain effective blows per strength data chart in the Logan Superior Energizer instruction manual.

Jarring Procedure
1. To strike the initial blow, set the string down to ensure the Jar is fully closed. Raise the string, applying the desired over-pull at the Jar.
2. Set the brake and wait for the Jar to strike its blow. The first blow could take from a few seconds to several minutes due to hole conditions such as temperature, depth, amount of stretch in string, and the amount of over-pull.
3. Close the Jar and repeat the process. Increase the load as required to free the stuck fish.

WARNING: Do not exceed the published maximum load for the tool.

TROUBLESHOOTING

Operation difficulties are sometimes encountered by operators, some of which are listed below along with cor-rective procedures.

If unable to strike the initial blow:
1. Make sure the Jar is fully closed or cocked.
   a. Lower the string further to apply more closing force before applying pull load.
   b. If the pumps are running, the pump pressure will be exerting an opening force on the Jar.
   To calculate the additional force required to close the Jar, multiply the pump pressure x the pump
   open area (See Chart A — specifications on pages 16 and 17) and apply additional force.
   c. If additional weight can not be applied and the Jar is still not cocked, it may be necessary to temporarily reduce the pump pressure to get the Jar to cock.

RIG DOWN AND RIG FLOOR MAINTENANCE

The Logan Superior Hydraulic Fishing Jar will usually come out of the hole in the open position.

CAUTION: If the Jar comes out of the hole in the closed or cocked position. It should not be left hanging from the elevators, especially with any amount of weight hanging off the tool. If the jar is allowed to fall the length of its free stroke, bodily harm or damage to the rig or working string could occur.

To prevent corrosion, all exposed seal surfaces should be cleaned and greased prior to closing the Jar for storage. All balance ports should be flushed out along with the I.D. and the area around the washpipe and floater inside the washpipe body. Wash the tool joints and coat with a good anti-gall tool joint grease. Replace the thread protectors before racking the tools.

DRESSING AREA MAINTENANCE

Overview
After prolonged field service, the Logan Superior Hydraulic Fishing Jar should be disassembled, cleaned, inspected, and redressed.

Equipment Required
The following is a list of equipment that will be required to dress the Jar.
1. A suitable vise and tong or equivalent device of suitable size.
2. Overhead crane with 2,000 lb. minimum capacity.
Superior Hydraulic Fishing Jar

3. Pipe wrenches of suitable sizes for outside diameters of body parts and for all internal parts.

4. Chain wrenches of suitable sizes for all threaded parts.

5. A suitable belt pulley assembly that can be suspended from a hoist for rotating threaded parts during make up or break out.

6. Nylon lift straps suitable for lifting heavy parts during disassembly or assembly.

7. A suitable jar tester for tool diameter and length.

8. Logan Fishing Jar Service Kit.

9. The required packing assembly sleeves for the size tool being dressed.

10. Floater positioning tool for the size tool being dressed.

Caution: The Jar could contain residual well pressure. Care should be taken when draining oil from the tool to avoid bodily harm.

DISASSEMBLY

NOTE: The Jar should always be in the open position prior to disassembly. This will place the piston assembly in the relief area of the stroking assembly.

1. Position the Jar in a floor vise with the connector body centered in the vise. Support the mandrel end of the Jar with a support stand.

2. Loosen the pressure body and back off the connection, place an oil catch bucket below the connection, to catch the oil in the pressure chamber. Exercise care at this point of disassembly since residual well pressure could be trapped inside. Allow the oil to drain from the pressure body.

3. Remove the pressure body, floater body and washpipe body as an assembly and lay aside for later disassembly. Remember to use the pulley belt assembly to support the parts as they are being removed. Not supporting the parts properly can cause thread galling or other damage.

4. Unscrew and remove the washpipe, and lay it on a pallet.

5. Remove the seal body, piston assembly, and by-pass body and protect these part by wrapping them in soft rags. Lay them on the workbench.

6. Reposition the Jar in the vise; clamp it in the vise on the spline body. Support the Jar at the balance body with a support stand.

7. Remove the connector body and place it on a pallet.

CAUTION: The piston retainer ring grooves on the mandrel extension might hang the connector body I.D. seals when removal is attempted. (4-3/4” O.D. size only) If this happens, install the split, seal installation rings, with the big end pointed down toward the end of the mandrel extension. Hold the split rings in position until the connector body has covered them. Now the connector body should come off without resistance. Place connector body on a pallet.

8. Remove the installation rings and store for later use. Remove the mandrel extension and lay it on a pallet.

9. Remove the impact sleeve, if so equipped, and lay it on a pallet.

10. Remove the mandrel from the spline body and lay it on a pallet.

11. Remove the spline body from the vise.

12. Now position the pressure body, floater body and washpipe body in the vise, clamping on the floater body.

13. Remove the washpipe body taking care to catch any oil that might have migrated into the washpipe body when the assembly was removed. Lay it on a pallet.

14. Remove the pressure body taking care to catch any oil that might still be trapped inside. Lay it on a pallet.

15. Remove the floater from the floater body by tapping it out with a brass drift. Set it on the workbench.

16. Remove the floater body from the vise and place it on a pallet. The disassembly is now complete.

INSP ECTION OF PARTS

All parts should be cleaned prior to inspection. If steam cleaning or high-pressure washing is available this is the best type of cleaning to be applied to the parts.

Inspect all seals as they are removed for unusual wear patterns. Noting seal wear can help pinpoint other areas of wear that could cause premature seal failure.

NOTE: Seals are always replaced at a major redress when the tool is at a repair facility.

CAUTION: Magnetic particle inspection of all parts is strongly recommended for locating fatigue cracks that could lead to catastrophic failure down hole. Inspect all parts for signs of wear on seal surfaces, splines, bores, bearing faces at each connection, 15° shoulders at each connection, and impact surfaces. Inspect all outside body parts for rotational wear, especially if the tools have been used for heavy milling jobs.
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INSPECTION OF CRITICAL PARTS

Pressure Body
Examine the pull bore of the pressure body for galling or pitting. If severe damage is noted, the parts will have to be replaced or reworked by grinding and chrome plating. This procedure cannot be done in the oil field facility. Return it to the manufacturing facility for repair.

Piston Assembly
Inspect the O.D. of the piston for abrasion or galling.

NOTE: All pistons will show some signs of wear due to the interference fit between it and the pressure body so some light marking is acceptable. If the marking is so pronounced that it can be felt with the fingers, it probably needs to be replaced. Inspect the back of the piston for wear or pitting, this is a sealing surface and must have at least a 16 rms finish to be acceptable. Inspect the seal body for pitting or scratches on the sealing surface, the side with the groove, minor pitting is acceptable. Insure that the oil passage groove is clean and clear of obstructions.

Impact Surfaces
The impact loads are taken on the male end of the spline body and the impact sleeve large O.D. end face, if equipped or on the end of the mandrel extension. These areas should be inspected for upsets due to high impact loads. Any upsets can be removed with a file or handheld die grinder and the proper cutting bit. Also inspect for visual signs of cracking or damage.

CAUTION: Care should be taken when using power tools. Always wear protective eye-wear and gloves to prevent metal particles from getting in your eyes and hands.

Splines
Inspect the splines in the spline body and the splines on the mandrel for any type of unusual damage such as heavy spline wear on the sides of the splines from heavy milling jobs. Look for burrs on the edges of the splines from normal use. Remove burrs with a file or handheld grinder.

CAUTION: Care should be taken when using power tools. Always wear protective eye-wear and gloves to prevent metal particles from getting in your eyes and hands.

ASSEMBLY

Preparation
Make sure all parts have been cleaned and inspected. Prior to assembly, install all seals in their proper location by observing their location and direction on pages 8 and 9. Some seals have special non-extrusion devices and care should be taken to assure their proper assembly. All seals should be lubricated with jar oil prior to assembly.

1. Place the spline body in the vise and clamp it down. Apply a good anti-galling grease to the inside of the splines and inside the top end of the spline body past the mandrel seals.

2. Install the mandrel through the spline body. Take care to ensure the splines on the mandrel are lined up with the splines in the spline body. Grease the splines on the mandrel before assembly.

3. Install the mandrel extension onto the end of the mandrel and torque it to the specification torque found in the strength data chart. (See Chart C — Recommended Tightening Torques on pages 16 and 17.) Some Jars require an impact sleeve. If the Jar you are working on requires the sleeve, install it before the mandrel extension is screwed onto the mandrel. When installing the impact sleeve, install it with the larger O.D. end going on first. Make sure the threads are coated with KOPR-KOTE® or equivalent thread compound. Keep the thread compound confined between the O-ring seals on the connection to avoid contamination of the hydraulic oil.

4. Install the balance body onto the spline body with balance holes pointed away from spline body. Coat the threads with thread compound. Install seal installation sleeve or split rings on or in the mandrel extension grooves or shoulder area as noted on page 7.

5. Install connector body onto mandrel extension with the low-pressure seal end, O-ring on O.D. only, pointed toward balance body. Make sure the entire length of the mandrel extension is lubricated with jar oil to ease assembly. Screw threaded end into balance body and tighten. Remove the split ring or sleeve-type seal installation rings from the grooves on the mandrel extension.

6. Install the by-pass body with the larger diameter shoulder end pointed toward the connector body. The 4-3/4" O.D. x 2-1/4" I.D. Jar uses a combination by-pass body/piston retainer ring. This is a split ring and requires it be seated in the grooves and the piston pushed on over its smaller diameter end during assembly with the counterbored end pointed toward the connector body.
7. Install the piston with the recessed or counter-bored end pointed toward the connector body.

8. Install the seal body with the groove pointed toward the piston seal surface.

9. Install the washpipe. Make sure to apply thread compound to the threads of the mandrel extension. Torque to specified torque. (See Chart C — Recommended Tightening Torques on pages 16 and 17 for ft-lbs.)

10. Remove any excess thread compound from the washpipe, mandrel extension, and the connector body pin O.D. (below the O.D. polypak seals). Apply clean jar lube on the cone and seal body assembly.

11. Install the pressure body.

**NOTE:** The pressure body is stenciled with “Connector Body End” and “Floater Body End.” Please make note and assemble in the proper direction. Make sure that the threads on the connector body are coated with thread compound.

12. Install the floater body. Make sure the threads are coated with thread compound. Do not use excessive amounts. This could contaminate the jar lube.

13. Coat the O.D. and the I.D. of the floater with clean jar lube. Install the floater and position it at the distance from the end of the floater body specified in the technical specifications chart. (See Chart A — Specifications on pages 16 and 17.)

14. Install the washpipe body. Make sure the threads are coated with thread compound.

15. Tighten all outside body joints to the recommended tightening torque specified on the strength data chart. (See Chart C — Recommended Tightening Torques on pages 16 and 17 for ft-lbs.)

**FILLING THE JAR WITH OIL**

**NOTE:** After the Logan Superior Hydraulic Fishing Jar has been assembled, it should remain fully open with the mandrel extended until it has been filled with oil. After the filling operation and testing the washpipe body should be removed and the floater position checked prior to racking the Jar for future service.

All Logan Fishing Jars fill in the same manner so no special precautions are required.

1. Place the Jar in the vise with the mandrel end approximately 24” lower than the floater body where the fill plugs are located.

2. Attach the fill plug adapters that are provided with the Logan Jar Service Kit.

3. Attach the volume pump oil supply hose to the lower or bottom fill plug hole in the floater body.

4. Attach the oil return hose to the upper or top fill plug hole.

5. Fill the Jar with oil. Watch the return line to see when the air bubbles disappear.

**NOTE:** It may take several minutes before oil is seen in the return line. The main oil chamber will have to fill before air can be purged from the system.

6. When you start to see oil in the return line, slowly elevate the low or mandrel end of the Jar to aid in the purging process. Raise the jar approximately six (6) inches at a time. Pause the pumping action occasionally to allow the air to bleed out through the return line. Continue the process until the jar is approximately horizontal to the floor and no more air bubbles appear in the return line.

7. When the Jar is full of oil, install the fill plug in the top or upper fill plug hole first. Then rotate the Jar 180° and install the other fill plug.

**TESTING THE JAR**

**NOTE:** Prior to testing the Jar make sure you have all the necessary technical data and test loads. Refer to Chart B — Strength and Test Data on pages 16 and 17.

1. Install the proper jar tester subs onto the Jar and lift it into the jar tester using an appropriate hoist.

2. Set the jar tester at the proper loads for the tool being tested.

3. Conduct the low-load test first, recording the time for each pull-through. Typically the Jar is stroked one (1) time at low-load and five (5) times at high-load settings.

4. Re-adjust the jar tester for a high-load test and conduct the test recording the pull-through times on each test.

5. It is recommended that the low-load test be repeated after the high-load test. The reason for this is to ensure the low-load pulls are the same after the Jar is at maximum operating temperature.

**CAUTION:** The first one or two pulls during the low-test pull can be very slow and take several minutes to complete due to the Jar being cool. As the Jar is stroked it will gradually warm up causing the oil to thin even more and the pull through times will get faster.

**ORDERING INFORMATION**

When ordering, please specify:

1. Name and number of assembly or part
2. Casing O.D.
3. Size and type of connection
Superior Hydraulic Fishing Jar

Metal Parts
(Upper Half)

Metal Parts
(Lower Half)

Mandrel

Mandrel Extension

Spline Body

Balance Body

Mandrel Extension

Impact Sleeve
(not required for some assemblies)

Connector Body

Mandrel

Bypass Ring

Cone

Seal Body

Pressure Body

Fill Plug

Floater

Floater Body

Washpipe

Washpipe Body

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- Spline Body Polypak: 2 Required
- Spline Body Seal: 1 Required
- Mandrel Extension Polypak: 2 Required
- Mandrel Seal: 1 Required
- Connector Body Wiper: 1 Required
- Connector Body ID Polypak*: 4 Required
- Connector Body OD Seal – Small: 1 Required
- Connector Body OD Seal – Large: 2 Required

* Note: Some sizes have a large and small ID Polypak.

Polypaks and Seals (Upper Half)
Polypaks and Seals

* Note: Some sizes have a large and small ID Polypak.

Washpipe Body Seal
1 Required
## Superior Hydraulic Fishing Jar

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## Superior Hydraulic Fishing Jar

### TOOL JOINT CONNECTION

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*Logan Superior Hydraulic Fishing Jar • 11*
## Superior Hydraulic Fishing Jar

### TOOL JOINT CONNECTION

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### COMPONENTS

**Redress Kits**

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**Complete Assembly**

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*Redress Kits include O-Ring Packing Sets, Polypak Kits, and Connector Body Wipers*

**To be advised by engineering**

† Mandrel Extension Assembly Sleeve is not included in the Redress Kit. Must be purchased separately.

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## Superior Hydraulic Fishing Jar

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### COMPONENTS

#### FLOATER BODY

- **LARGE**
  - Logan Part No.: 568-240
  - Req’d: 1
  - **568-362**

- **SMALL**
  - Logan Part No.: 569-238
  - Req’d: 1
  - **568-361**

#### FILL PLUG

- Logan Part No.: AG10002
  - Req’d: 2
  - **AG10002**

#### FLOATER BODY

- **SMALL**
  - Logan Part No.: 568-006
  - Req’d: 2
  - **568-006**

#### FILL PLUG SEAL

- Logan Part No.: BD299
  - Req’d: 2
  - **BD294**

#### FLOATER

- Logan Part No.: BD119
  - Req’d: 2
  - **BD114**

#### FLOATER SEAL

- **LARGE**
  - Logan Part No.: 568-238
  - Req’d: 1
  - **568-361**

- **SMALL**
  - Logan Part No.: 569-235
  - Req’d: 1
  - **568-349**

#### FLOATER OD POLYPAK

- Logan Part No.: BD209-2
  - Req’d: 2
  - **BD204-4**

#### FLOATER ID POLYPAK

- Logan Part No.: BX144-3
  - Req’d: 2
  - **BD204-3**

#### FLOATER OD PARBAK RING

- Logan Part No.: L370-12
  - Req’d: 1
  - **BD264**

#### FLOATER ID PARBAK RING

- Logan Part No.: L376-12
  - Req’d: 1
  - **BD284**

#### FLOATER POSITIONING TOOL

- Logan Part No.: AG1000-38
  - Req’d: 1
  - **AG1000-50**

#### SEAL BODY

- Logan Part No.: BD199
  - Req’d: 2
  - **BD294**

#### SEAL BODY SEAL

- Logan Part No.: L370-12
  - Req’d: 1
  - **BD264**

#### NON-EXTRUSION SEAL BODY

- Logan Part No.: L370-12
  - Req’d: 1
  - **BD264**

#### SEAL PROTECTOR RING

- Logan Part No.: L376-12
  - Req’d: 1
  - **BD284**

#### SETTING TOOL

- Logan Part No.: AG1000-38
  - Req’d: 1
  - **AG1000-50**

#### CONE

- Logan Part No.: BD139
  - Req’d: 1
  - **BD134**

#### BYPASS RING

- Logan Part No.: BD159
  - Req’d: 1
  - **BD154**

#### WASHPIPE

- Logan Part No.: BD169
  - Req’d: 1
  - **BD164**

#### WASHPIPE SEAL (LARGE)

- Logan Part No.: 568-234
  - Req’d: 1
  - **568-347**

#### WASHPIPE SEAL (SMALL)

- Logan Part No.: BD179
  - Req’d: 1
  - **BD174**

#### WASHPIPE BODY SEAL (LARGE)

- Logan Part No.: 568-240
  - Req’d: 1
  - **568-362**

#### WASHPIPE BODY SEAL (SMALL)

- Logan Part No.: 568-238
  - Req’d: 1
  - **568-361**

#### REDRESS KITS *

- Logan Part No.: BD189
  - Req’d: 1
  - **BD184**

#### COMPLETE O-RING KIT

- Logan Part No.: BD199
  - Req’d: 1
  - **BD194**

---

* Redress Kits include O-Ring Packing Sets, Polypak Kits, and Connector Body Wipers

** To be advised by engineering
## Superior Hydraulic Fishing Jar

### Tool Joint Connection

<table>
<thead>
<tr>
<th>Tool Joint Connection</th>
<th>2-7/8 EUE</th>
<th>3-1/2</th>
<th>4-1/2</th>
<th>5-1/2</th>
<th>6-5/8</th>
</tr>
</thead>
<tbody>
<tr>
<td>API REG</td>
<td>API IF</td>
<td>API IF</td>
<td>API REG</td>
<td>API REG</td>
<td></td>
</tr>
</tbody>
</table>

### Outside Diameter — Inches

<table>
<thead>
<tr>
<th></th>
<th>4-1/2</th>
<th>4-3/4</th>
<th>6-1/4</th>
<th>6-3/4</th>
<th>7-3/4</th>
</tr>
</thead>
<tbody>
<tr>
<td>API REG</td>
<td>API IF</td>
<td>API IF</td>
<td>API REG</td>
<td>API REG</td>
<td></td>
</tr>
</tbody>
</table>

### Inside Diameter — Inches

<table>
<thead>
<tr>
<th></th>
<th>2-3/8</th>
<th>2-1/4</th>
<th>2-1/4</th>
<th>2-3/4</th>
<th>3-1/16</th>
</tr>
</thead>
<tbody>
<tr>
<td>API REG</td>
<td>API IF</td>
<td>API IF</td>
<td>API IF</td>
<td>API IF</td>
<td></td>
</tr>
</tbody>
</table>

### Complete Assembly

<table>
<thead>
<tr>
<th>Complete Assembly</th>
<th>Logan Part No.</th>
<th>611-450</th>
<th>611-475</th>
<th>611-625</th>
<th>611-675</th>
<th>611-775</th>
</tr>
</thead>
</table>

### Components

#### Complete PolyPAK Kit

<table>
<thead>
<tr>
<th>Logan Part No.</th>
<th>BD209</th>
<th>BD202</th>
<th>BD203</th>
<th>BD207</th>
<th>BD204</th>
</tr>
</thead>
</table>

#### Complete PolyPAK Kit

- **Spline Body PolyPAK**
  - Logan Part No.
  - BD209-1
  - BD202-1
  - BD203-1
  - **BD204-1**
  - No. Req'd.
  - 2
  - 2
  - 2
  - **2**

- **Mandrel Extension PolyPAK**
  - Logan Part No.
  - BD209-2
  - BD202-2
  - BD203-2
  - **BD204-2**
  - No. Req'd.
  - 2
  - 2
  - 2
  - **2**

- **Connector Body ID PolyPAK (Small)**
  - Logan Part No.
  - BX144-3
  - BD202-3
  - BD203-3
  - **BD204-3**
  - No. Req'd.
  - 4
  - 4
  - 4
  - **4**

- **Connector Body ID PolyPAK (Large)**
  - Logan Part No.
  - BD209-4
  - BD202-4
  - BD203-4
  - **BD204-4**
  - No. Req'd.
  - ... 2
  - ... 2
  - ... **2**

- **Connector Body OD PolyPAK**
  - Logan Part No.
  - BD209-5
  - BD202-5
  - BD203-5
  - **BD204-5**
  - No. Req'd.
  - 2
  - 2
  - 2
  - **2**

- **Floater OD PolyPAK**
  - Logan Part No.
  - BX144-3
  - BD202-6
  - BD203-6
  - **BD204-6**
  - No. Req'd.
  - 2
  - 2
  - 2
  - **2**

- **Floater ID PolyPAK**
  - Logan Part No.
  - BD209-6
  - BD202-6
  - BD203-6
  - **BD204-6**
  - No. Req'd.
  - 12
  - 1
  - **1**

- **Mandrel Extension Assembly Sleeve†**
  - Logan Part No.
  - BD209-7
  - BD202-7
  - BD203-7
  - **BD204-7**
  - No. Req'd.
  - 1
  - 1
  - 1
  - **1**

#### PolyPAK Kit

- **Consists of:**
  - Spline Body PolyPAK
  - Mandrel Extension PolyPAK
  - Connector Body ID PolyPAK (Small)
  - Connector Body ID PolyPAK (Large)
  - Connector Body OD PolyPAK
  - Floater OD PolyPAK
  - Floater ID PolyPAK
  - Mandrel Extension Assembly Sleeve†

#### PolyPAK Kit

- **PolyPAK Kit**
  - No. Req'd.
  - Spline Body PolyPAK
  - 2
  - Mandrel Extension PolyPAK
  - 2
  - Connector Body ID PolyPAK (Small)
  - 4
  - Connector Body ID PolyPAK (Large)
  - ...
  - Connector Body OD PolyPAK
  - 2
  - Floater OD PolyPAK
  - 2
  - Floater ID PolyPAK
  - 2
  - Mandrel Extension Assembly Sleeve†
  - 1

#### JAR LUBE

<table>
<thead>
<tr>
<th>Logan Part No.</th>
<th>49842-A</th>
<th>49842-B</th>
<th>49842-C</th>
<th>49842-D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bowen No.</td>
<td>49842-A</td>
<td>49842-B</td>
<td>49842-C</td>
<td>49842-D</td>
</tr>
<tr>
<td>1 Gallon</td>
<td>49842-A</td>
<td>49842-B</td>
<td>49842-C</td>
<td>49842-D</td>
</tr>
<tr>
<td>5 Gallons</td>
<td>49842-C</td>
<td>49842-D</td>
<td>49842-C</td>
<td>49842-D</td>
</tr>
<tr>
<td>20 Gallons</td>
<td>49842-C</td>
<td>49842-D</td>
<td>49842-C</td>
<td>49842-D</td>
</tr>
<tr>
<td>55 Gallons</td>
<td>49842-C</td>
<td>49842-D</td>
<td>49842-C</td>
<td>49842-D</td>
</tr>
</tbody>
</table>

**To be advised by engineering**

† Mandrel Extension Assembly Sleeve is not included in the Redress Kit. Must be purchased separately.
### Chart A — Specifications

<table>
<thead>
<tr>
<th>Complete Assembly</th>
<th>611-306</th>
<th>611-312</th>
<th>611-313</th>
<th>611-375</th>
<th>611-377</th>
<th>611-376</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outside Diameter (Inches)</strong></td>
<td>3-1/16</td>
<td>3-1/8</td>
<td>3-1/8</td>
<td>3-3/4</td>
<td>3-3/4</td>
<td>3-3/4</td>
</tr>
<tr>
<td><strong>Inside Diameter (Inches)</strong></td>
<td>1-1/2</td>
<td>1-1/2</td>
<td>1-1/2</td>
<td>1-1/4</td>
<td>1-1/4</td>
<td>1-7/8</td>
</tr>
<tr>
<td><strong>Connection</strong></td>
<td>2-3/8 API EUE</td>
<td>2-3/8 API REG</td>
<td>2-7/8 PAC</td>
<td>2-3/8 API IF</td>
<td>2-7/8 API REG</td>
<td>2-3/8 API EUE</td>
</tr>
<tr>
<td><strong>Length (Feet &amp; Inches)</strong></td>
<td>10’ - 0”</td>
<td>10’ - 0”</td>
<td>10’ - 0”</td>
<td>12’ - 8”</td>
<td>12’ - 8”</td>
<td>12’ - 8”</td>
</tr>
<tr>
<td><strong>Stroke (Inches)</strong></td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td><strong>Floater Position (Inches)</strong></td>
<td>Measured Distance from Floater to End of Floater Body</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Standard Temperature</strong></td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>9</td>
<td>9</td>
<td>8-3/4</td>
</tr>
<tr>
<td><strong>Drill Collar Weight Range (Lbs)</strong></td>
<td>300 – 4,000</td>
<td>300 – 4,000</td>
<td>300 – 4,000</td>
<td>400 – 6,000</td>
<td>400 – 6,000</td>
<td>400 – 6,000</td>
</tr>
<tr>
<td><strong>Pump Open Area (Sq In)</strong></td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

### Chart B — Strength and Test Data

<table>
<thead>
<tr>
<th>Complete Assembly</th>
<th>611-306</th>
<th>611-312</th>
<th>611-313</th>
<th>611-375</th>
<th>611-377</th>
<th>611-376</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Jar Tester Low Test Pull Load Minimum / Maximum (Lbs)</strong></td>
<td>7,000/12,000</td>
<td>9,000/12,000</td>
<td>7,000/12,000</td>
<td>12,000/16,000</td>
<td>12,000/16,000</td>
<td>12,000/16,000</td>
</tr>
<tr>
<td><strong>Jar Tester Standard Pull Test (Lbs)</strong></td>
<td>18,000</td>
<td>30,000</td>
<td>18,000</td>
<td>35,000</td>
<td>35,000</td>
<td>35,000</td>
</tr>
<tr>
<td><strong>Field Load — Max Pull Load</strong></td>
<td>36,000</td>
<td>55,000</td>
<td>36,000</td>
<td>72,000</td>
<td>72,000</td>
<td>51,000</td>
</tr>
<tr>
<td><strong>Lift Load After Jarring</strong></td>
<td>185,000</td>
<td>253,000</td>
<td>185,000</td>
<td>330,000</td>
<td>330,000</td>
<td>285,000</td>
</tr>
<tr>
<td><strong>Tensile @ Yield (Lbs)</strong></td>
<td>4,200</td>
<td>7,500</td>
<td>4,200</td>
<td>14,500</td>
<td>14,500</td>
<td>9,650</td>
</tr>
</tbody>
</table>

### Chart C — Recommended Tightening Torques (Ft-Lbs)

<table>
<thead>
<tr>
<th>Complete Assembly</th>
<th>611-306</th>
<th>611-312</th>
<th>611-313</th>
<th>611-375</th>
<th>611-377</th>
<th>611-376</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spline Body to Balance Body</strong></td>
<td>2,100</td>
<td>2,700</td>
<td>2,100</td>
<td>3,500</td>
<td>3,650</td>
<td>3,500</td>
</tr>
<tr>
<td><strong>Balance Body to Connector Body</strong></td>
<td>2,100</td>
<td>2,700</td>
<td>2,100</td>
<td>3,500</td>
<td>3,650</td>
<td>3,500</td>
</tr>
<tr>
<td><strong>Connector Body to Pressure Body</strong></td>
<td>2,100</td>
<td>2,700</td>
<td>2,100</td>
<td>3,500</td>
<td>3,650</td>
<td>3,500</td>
</tr>
<tr>
<td><strong>Mandrel to Mandrel Extension</strong></td>
<td>500</td>
<td>600</td>
<td>500</td>
<td>700</td>
<td>700</td>
<td>700</td>
</tr>
<tr>
<td><strong>Pressure Body to Floater Body</strong></td>
<td>2,100</td>
<td>2,700</td>
<td>2,100</td>
<td>3,500</td>
<td>3,650</td>
<td>3,500</td>
</tr>
<tr>
<td><strong>Mandrel Extension to Washpipe</strong></td>
<td>500</td>
<td>600</td>
<td>500</td>
<td>700</td>
<td>700</td>
<td>700</td>
</tr>
<tr>
<td><strong>Floater Body to Washpipe Body</strong></td>
<td>2,100</td>
<td>2,700</td>
<td>2,100</td>
<td>3,500</td>
<td>3,650</td>
<td>3,500</td>
</tr>
</tbody>
</table>
### Chart A — Specifications

<table>
<thead>
<tr>
<th>Complete Assembly</th>
<th>611-425</th>
<th>611-450</th>
<th>611-475</th>
<th>611-625</th>
<th>611-775</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outside Diameter (Inches)</strong></td>
<td>4-1/4</td>
<td>4-1/2</td>
<td>4-3/4</td>
<td>6-1/4</td>
<td>7-3/4</td>
</tr>
<tr>
<td><strong>Inside Diameter (Inches)</strong></td>
<td>2</td>
<td>2-3/8</td>
<td>2-1/4</td>
<td>2-1/4</td>
<td>3</td>
</tr>
<tr>
<td><strong>Connection</strong></td>
<td>2-7/8 API IF</td>
<td>2-7/8 API EUE</td>
<td>3-1/2 API IF</td>
<td>4-1/2 API IF</td>
<td>6-5/8 API REG</td>
</tr>
<tr>
<td><strong>Length (Feet &amp; Inches)</strong></td>
<td>13' - 6&quot;</td>
<td>13' - 6&quot;</td>
<td>13' - 6&quot;</td>
<td>15' - 6&quot;</td>
<td>15' - 0&quot;</td>
</tr>
<tr>
<td><strong>Stroke (Inches)</strong></td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td><strong>Floater Position (Inches)</strong></td>
<td>Measured distance from floater to end of floater body</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Standard Temperature</strong></td>
<td>9</td>
<td>9</td>
<td>10-3/4</td>
<td>10-3/4</td>
<td>11</td>
</tr>
<tr>
<td><strong>Drill Collar Weight Range (LBS)</strong></td>
<td>400 – 6,000</td>
<td>400 – 6,000</td>
<td>500 – 8,000</td>
<td>8,500 – 15,000</td>
<td>12,200 – 21,000</td>
</tr>
<tr>
<td><strong>Pump Open Area (SQ IN)</strong></td>
<td>6</td>
<td>7-1/2</td>
<td>7</td>
<td>11</td>
<td>16</td>
</tr>
</tbody>
</table>

### Chart B — Strength and Test Data

<table>
<thead>
<tr>
<th>Complete Assembly</th>
<th>611-425</th>
<th>611-450</th>
<th>611-475</th>
<th>611-625</th>
<th>611-775</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Jar Tester Low Test Pull Load Minimum / Maximum (LBS)</strong></td>
<td>12,000/16,000</td>
<td>12,000/16,000</td>
<td>15,000/20,000</td>
<td>18,000/26,000</td>
<td>18,000/26,000</td>
</tr>
<tr>
<td><strong>Jar Tester Standard Pull Test (LBS)</strong></td>
<td>35,000</td>
<td>30,000</td>
<td>50,000</td>
<td>100,000</td>
<td>100,000</td>
</tr>
<tr>
<td><strong>Field Load — Max Pull Load</strong></td>
<td>75,000</td>
<td>60,000</td>
<td>100,000</td>
<td>200,000</td>
<td>275,000</td>
</tr>
<tr>
<td><strong>Lift Load After Jarring</strong></td>
<td>375,000</td>
<td>360,000</td>
<td>505,000</td>
<td>1,000,000</td>
<td>1,600,000</td>
</tr>
<tr>
<td><strong>Tensile @ Yield (LBS)</strong></td>
<td>18,500</td>
<td>12,000</td>
<td>18,100</td>
<td>40,800</td>
<td>79,000</td>
</tr>
<tr>
<td><strong>Torque @ Yield (FT-LBS)</strong></td>
<td>5000</td>
<td>5000</td>
<td>9900</td>
<td>20000</td>
<td>39000</td>
</tr>
</tbody>
</table>

### Chart C — Recommended Tightening Torques (FT-LBS)

<table>
<thead>
<tr>
<th>Complete Assembly</th>
<th>611-425</th>
<th>611-450</th>
<th>611-475</th>
<th>611-625</th>
<th>611-775</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spline Body to Balance Body</strong></td>
<td>5,000</td>
<td>5,000</td>
<td>9,990</td>
<td>20,000</td>
<td>39,000</td>
</tr>
<tr>
<td><strong>Balance Body to Connector Body</strong></td>
<td>5,000</td>
<td>5,000</td>
<td>9,990</td>
<td>20,000</td>
<td>39,000</td>
</tr>
<tr>
<td><strong>Connector Body to Pressure Body</strong></td>
<td>5,000</td>
<td>5,000</td>
<td>9,990</td>
<td>20,000</td>
<td>39,000</td>
</tr>
<tr>
<td><strong>Mandrel to Mandrel Extension</strong></td>
<td>1,500</td>
<td>1,500</td>
<td>1,800</td>
<td>7,000</td>
<td>12,500</td>
</tr>
<tr>
<td><strong>Pressure Body to Floater Body</strong></td>
<td>5,000</td>
<td>5,000</td>
<td>9,990</td>
<td>20,000</td>
<td>39,000</td>
</tr>
<tr>
<td><strong>Mandrel Extension to Washpipe</strong></td>
<td>1,500</td>
<td>1,500</td>
<td>1,000</td>
<td>4,800</td>
<td>10,500</td>
</tr>
<tr>
<td><strong>Floater Body to Washpipe Body</strong></td>
<td>5,000</td>
<td>5,000</td>
<td>9,990</td>
<td>20,000</td>
<td>39,000</td>
</tr>
</tbody>
</table>

---

**Diagram:**

- Mandrel
- Spline Body
- Balance Body
- Connector Body
- Pressure Body
- Floater Body
- Mandrel to Mandrel Extension (internal connection)
- Mandrel Extension to Washpipe (internal connection)
- Washpipe Body
Jar Service Kit  Note: Photos of parts are not actual size.

- J1045-001 3/8" Fill Plug Adapter
- J1046-001 7/16" Fill Plug Adapter
- J1224-001 5/8" Fill Plug Adapter
- J1086 1/4" Female Couplers
- J1374 Hex Bushing
- J1373 Box Coupler
- J1376 Hose Fitting
- J1085 1/4" Male Couplers
- J1078 1/4" x 1" Pipe Nipple
- J1077 Fill Plug Wrench
- J1075 Torx Head Fill Plug Wrench
- J1073 Installation Tool
- J1074 O-Ring Installation Tool
- J1080 Line Filter

568010-100 O-Ring
568005-100 O-Rings
### Complete Assembly

<table>
<thead>
<tr>
<th>Description</th>
<th>Logan Part No.</th>
<th>Bowen No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seal Protector Ring Installation Tool</td>
<td>J1073</td>
<td>145213</td>
</tr>
<tr>
<td>O-Ring Installation Tool</td>
<td>J1074</td>
<td>626</td>
</tr>
<tr>
<td>Fill Plug Wrench — T30 Torx Head</td>
<td>J1075</td>
<td>359T</td>
</tr>
<tr>
<td>Fill Plug Wrench — Allen Head</td>
<td>J1077</td>
<td>620A</td>
</tr>
<tr>
<td>1/4&quot; x 1” Pipe Nipple</td>
<td>J1078</td>
<td>36953</td>
</tr>
<tr>
<td>Line Filter</td>
<td>J1080</td>
<td>56565</td>
</tr>
<tr>
<td>1/4&quot; Male Coupler</td>
<td>J1085</td>
<td>656</td>
</tr>
<tr>
<td>1/4&quot; Female Coupler</td>
<td>J1086</td>
<td>655</td>
</tr>
<tr>
<td>3/8” Box x 1/4” Galvanized Box Coupler</td>
<td>J1373</td>
<td></td>
</tr>
<tr>
<td>1/8” Box x 1/4”</td>
<td>J1374</td>
<td></td>
</tr>
<tr>
<td>Pin Hex Bushing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

When ordering, please specify:

1. Name and number of assembly or part
STOCKING DISTRIBUTORS

Canada
Lee Oilfield Service Ltd.
4604 Eleniak Road NW
Edmonton, AB T6B2S1
Canada
Tel: (780) 440-6705
Fax: (780) 463-5570

Dubai
Woodhouse International
P.O. Box 23724
Dubai, UAE
Tel: 971-4-347-2300
Fax: 971-4-347-4642

Logan Oil Tools
Dubai, UAE
Tel: 971-4-347-2300 ext. 13

Singapore
Logan Oil Tools Ltd.
54 Loyang Way
Singapore 508747

United Kingdom
Logan Oil Tools, U.K. Limited
Thainstone Business Centre
Craigshannock Suite
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