



Hydraulic Release Overshoot



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Logan Hydraulic Release Overshot

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OVERVIEW

The Logan Hydraulic Release Overshot is designed to be used in horizontal drilling application where drill string rotation to release an overshot is impossible. The Hydraulic Release Overshot can also be used in normal fishing operations like the Logan Series 150 Overshot. The overshot does not require a drop ball to activate during the fishing or recovery operation. The overshot engages the fish in the same manner as the Logan Series 150 Overshot. Simply lower it down over the fish until the fish bottoms out in the overshot. If in a normal straight well, slight right-hand rotation can be used to ease engagement of the fish. To release the overshot from the fish, simply relax any string tension in a normal well and apply slight downward loading. Increase circulation until at least 200 psi increase is indicated on the circulation pressure gauge. Slowly lift the string and the overshot should be released so it can be pulled back up the hole.

NOTE: *Due to hole conditions and pull load, it may be necessary to give the overshot a sharp downward bump when attempting to release the overshot to disengage the wickers from the fish and the convolutes from the wedges in the bowl.*

CONSTRUCTION

All parts of the overshot are manufactured from high grade alloy steel and heat treated to allow for optimum strength and wear.

Due to design constraints, spiral grapples can not be built for this design. Therefore, the catch range of the Logan Hydraulic Release Overshot catch range is smaller.

OPERATION

Before running the Hydraulic Release Overshot down the well to retrieve a stuck or broken fish, ensure that the overshot is properly dressed with the right size internal parts to catch the fish. Make sure that the overshot has been properly assembled and tested prior to being run down hole.

Normal Straight Hole Well Application

In a normal straight hole application the overshot is run down hole to the approximate stuck point in the well. Slowly lower the overshot while using slight right-hand rotation while lowering the assembly, the right-hand rotation of the cut-lipped guide will help to pick or push the fish to the center of the well and the overshot for proper entry into the overshot assembly. Continue to lower the overshot assembly until the fish bottoms out inside the overshot. Watch the load indicator. The overshot is completely engaged on the fish when the string weight starts to get lower. Stop circulation at this point to ensure the grapple is pushed down and loaded on the fish by the release piston spring. Slowly raise the fishing string until a load is indicated on the load indicator. Pull up to 25,000 lbs. over the string weight to set the grapple on the fish. After the grapple has been set, the fish can be pulled from the well.

CAUTION: *During the recovery operation if is becomes necessary to jar on the stuck fish to get it out, make sure that a jar placement has been run to insure that the impact at the overshot does not exceed the load rating of the assembly.*

NOTE: *Jarring impacts are at least four (4) times greater than the over pull being applied to the string. For example, if a load of 100,000 lbs is applied above string weight to the fishing string and there is a Logan Superior Hydraulic Fishing Jar, or equivalent competitor's jar in the string with the associated accessories, the impact load at the stuck point can be 400,000 lbs. minimum.*

Directional Well Application

Ensure that the overshot assembly has been properly assembled with the right size internal parts to recover the stuck or broken fish. Test the overshot assembly prior to running it in the hole. It is easy to get stuck in a horizontal drilling application because of frictional hole drag and the high degree of deviation used in this type of application.

If it becomes necessary to retrieve a stuck or broken fish in a horizontal drilling application, follow these basic rules. First, work the overshot assembly down to the stuck point in the well. Use the same techniques to work the overshot assembly down to the stuck point, as those used on a normal bottom hole assembly. When the stuck point is reached, continue downward movement to cause the overshot to engage the fish. When an increased load is seen on the load indicator, the overshot is engaged with the fish. At this point stop any circulation and pull a slight strain on the fishing string to ensure the overshot is engaged. Pull a load on the string of 25,000 lbs. above the string weight to set the grapple on the fish and in the bowl. Pull up on the string to remove the fish from the well. If it becomes necessary to resume circulation after the grapple has been set and the upward pull on the fish has started, make sure to maintain a slight strain on the fishing string to ensure



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the grapple stays engaged on the fish. If it becomes necessary to unlatch the overshot from the fish due to a stuck condition that can not be resolved, relax the tension on the string and apply a downward load to the fishing string. Increase the circulation rate to allow for a 200-psi increase in pressure at the circulation gauge. Raise the overshot assembly by straight pull application and remove it from the well.

ASSEMBLY

Make sure all parts are clean. Inspect all parts for service damage prior to assembly. Repair any damage before assembly. Insure that all parts required for redress are on the pallet before starting the assembly.

CAUTION: Always use a hook strap and hoist to lift the parts to be assembled to avoid back injuries. Always wear eye protection. Always wear gloves when handling metal parts to avoid injury from metal shavings or sharp edges.

Using the shop workbench, pre-assemble the release piston and main piston assembly.

1. Install the proper O-ring seal into the inside groove of the release piston.
2. Assemble the proper O-ring seal onto the main piston.
3. Install the main piston into the release piston as shown. Dip both pieces into hydraulic oil prior to assembly to allow for easier assembly.
4. Using the proper lifting equipment, place the top sub in a floor vise.
5. Install the proper O-ring seal into the inside groove of the top sub pin thread end.

6. Install the release piston seat and spring onto the release piston as shown.

NOTE: Make sure the main piston is bottomed out inside the release piston before installing the spring and seat.

7. Install the main piston into the top sub.

CAUTION: Apply thread compound on the threads to prevent galling and hydraulic oil on the piston surface where the O-ring seal will land.

8. Install the grapple onto the release piston using the (4) four supplied allen head cap screws. Refer to the parts list to ensure you have the correct screws.
9. Using a slip strap or belt and pulley, lift the bowl and slide it over the grapple.

CAUTION: Make sure the bowl is well balanced in the strap before lifting.

NOTE: The bowl will slip straight over the grapple due to the slots allowing it to close down so that there is no interference between the bowl and grapple.

CAUTION: Coat the threads with thread compound before screwing the bowl and top sub threads together.

10. Install the basket grapple control into the bowl. Rotate the grapple if necessary to align the slot in the bowl with the slot in the grapple to properly seat the control. Make sure the control is properly seated.
11. Install the cut-lipped guide into the bowl.

NOTE: Apply thread compound to prevent galling.

After assembly is complete, move the overshot assembly to a bucking unit or properly support the assembly in a vise. Tighten the outside connections to the proper torque, see specification sheet, using a chain wrench with proper handle and a chain hoist with load indicator or a bucking unit.

Disassemble in reverse order.

INSPECTION AND REPAIR

After the overshot parts have been disassembled and thoroughly washed, lay them on a piece of cardboard or other suitable material so they can dry.

CAUTION: Always take care when working with metal parts. Burrs and sharp edges can cause injury. Always wear gloves and eye protection.

1. Inspect the guide for any damage to the cut-lipped area. Minor damage can be repaired using standard shop procedures. Inspect the threads to insure no galling or corrosion is present. Roll the guide across the workbench to ensure no egging due to rig tongs has occurred.
2. Inspect the mill control packer for damage to the rubber pack-off element and the outer O-ring seal. Also check the mill teeth for damage and ensure that the tang or finger hasn't been bent during operation.
3. Inspect the bowl for any internal damage to the convolutes and threads. Minor damage can be repaired with a die grinder and soft stone or other types of grinding tools. Ensure that the bowl is not egged from tonging.



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4. Inspect the basket grapple for damaged wickers or breaks or cracks prior to being used again. Any damage to the grapple in these areas will cause the grapple to be replaced.
5. Inspect the retainer screws for damaged threads or heads, replace if necessary.
6. Inspect the release piston for damage or corrosion in the sealing areas. Polish if required and smooth out any nicks or scratches that might be in the sealing areas. Severe damage will cause the part to be replaced or sent back to Logan Oil Tools for repair.
7. Inspect the main piston in the same manner as the release piston.
8. Inspect the release piston spring. If there is no fracture or if the spring is not bent, it is fine for re-use.
9. Inspect the spring seat for any damage. Damage such as cuts or burrs can be repaired with a die grinder and stone.
10. Inspect the top sub for any damage to the tool joint threads and the main piston thread. Damage to these areas can be repaired with a soft stone and die grinder or other suitable grinding tool.

CAUTION: Any major damage or damage requiring the part to be plated should be returned to Logan Oil Tools for these processes.

After all the parts have been inspected and repaired, re-wash them and allow to air dry. Spray or coat them with any suitable moisture displacing oil and store for later assembly and use.

TEST PROCEDURE

After the Hydraulic Release Overshot has been assembled, it can be tested if required prior to being run in the hole.

NOTE: Plug the main piston I.D. if testing with shop air supply (150 psi max). Skip this section if testing the unit on a test well with proper circulation capability.

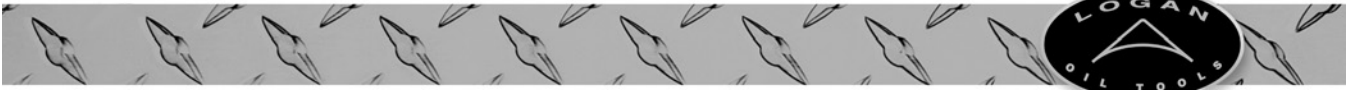
1. Install blank off plug into the threaded I.D. of the main piston. This can be accomplished by using a long extension with the correct socket or by removing the bowl, guide, and grapple to allow access to the area where the plug needs to be installed.
2. Install the proper test sub (with a shop air quick disconnect male adapter installed in it and a lifting bail) into the top sub. Apply liquid Teflon to the test sub pin connection before installing it into the top sub to prevent an air leak.
3. Using a side-mount floor vise, anchor the test fish to the floor vise. Ensure that the test fish is of the proper size.
4. Lift the overshot with a chain hoist attached to the lifting bail so the assembly will hang straight. Lower it down over the test fish. Then lower the overshot until the fish is totally swallowed by the overshot assembly.
5. Lift the overshot assembly with a chain hoist to ensure the grapple has engaged the test fish. Avoid accidents by checking the tension on the chain hoist as it is lifted to ensure the hoist is not overloaded. Pull up enough to ensure the grapple has engaged the fish securely.
6. After a sufficient load has been applied to ensure engagement, lower the assembly to simulate slacking off on the fishing string. Connect the shop air hose to the fitting and allow a few seconds for the release piston to move. Listen for a "clunk" when the piston moves.
7. Raise the hoist and the overshot should pull off the fish.
8. Repeat this test two or three times to ensure proper tool operation.

MAINTENANCE

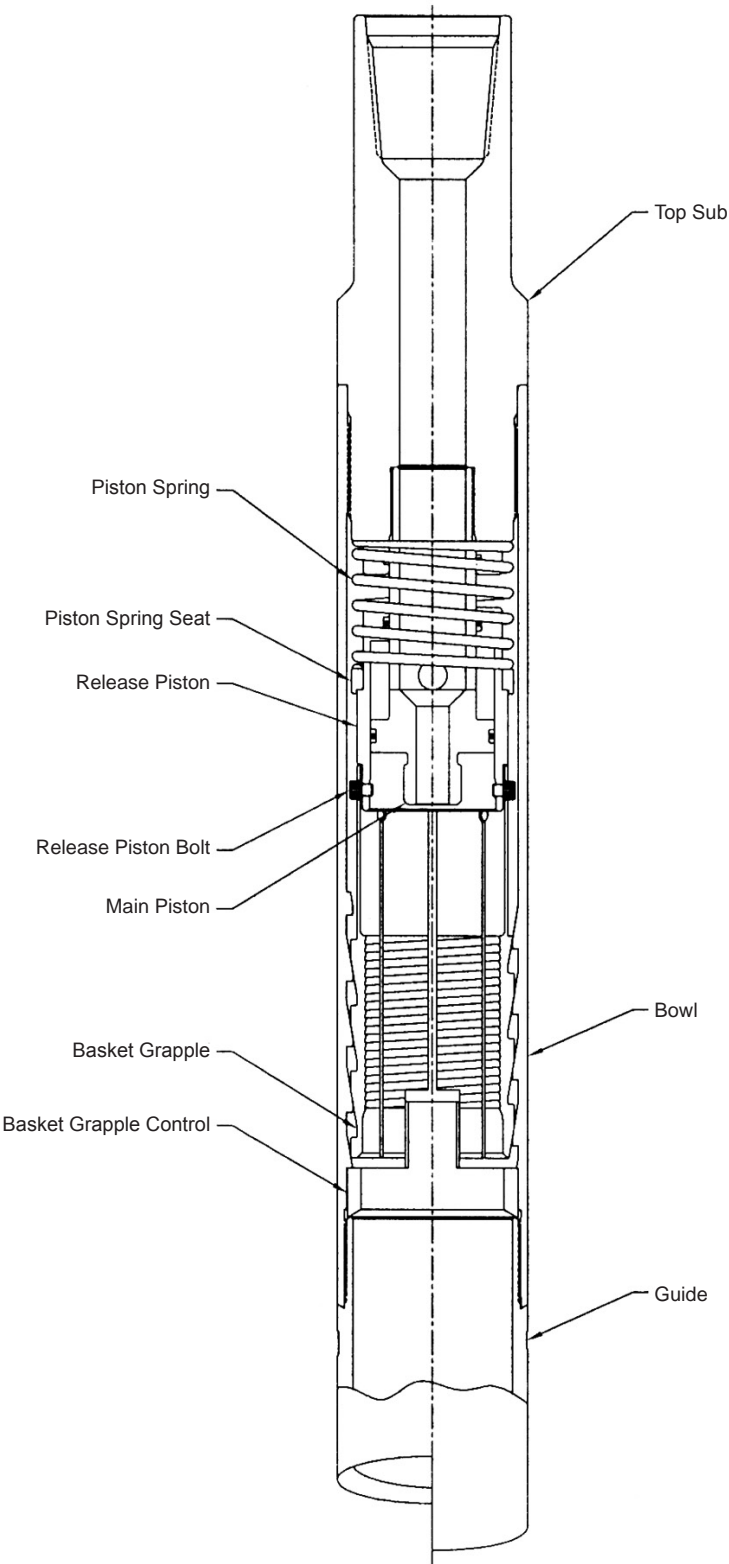
The Hydraulic Release Overshot must be flushed out after each use to remove any mud or well fluids that might corrode the internal seal surfaces.

CAUTION: Always wear eye protection and any other needed clothing when servicing equipment to protect your body from water blast or debris being washed off the tool.

1. Remove the guide, mill control packer, and bowl from the overshot (see instructions on page 3) to expose the grapple.
2. Remove the four (4) grapple retaining screws (see instructions on page 3) to access the piston area.
3. Flush out the piston area thoroughly with fresh water. Let dry or blow off using shop air supply.
4. Thoroughly oil the piston area with hydraulic oil. Push against the release piston to collapse the spring to ensure that the oil has been applied to all surfaces.



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MAXIMUM CATCH (IN)		N/A	4-1/4	6-3/8
OVERSHOT O.D. (IN)		4-11/16	5-3/4	8-1/8
STANDARD CONNECTIONS		CUSTOMER SPECIFIED CONNECTIONS		
TYPE		HR150	HR150	HR150
COMPLETE ASSEMBLY	Logan Part No.	HR180-469-000	HR180-575-002	HR180-813-002
COMPONENTS				
TOP SUB	Logan Part No.	N/A	HR1035-001	HR1059-001
MAIN PISTON	Logan Part No.	N/A	HR5035-001	HR5059-001
RELEASE PISTON	Logan Part No.	N/A	HR6035-001	HR6059-001
SPRING SEAT	Logan Part No.	N/A	HR10035-001	HR10059-001
SPRING	Logan Part No.	N/A	HR4035-001	HR4059-001
BOWL	Logan Part No.	N/A	HR2035-001	HR2059-001
BASKET GRAPPLE	Logan Part No.	N/A	HR7035-112	HR7059-160
STANDARD GUIDE	Logan Part No.	N/A	A3035	A3054
PISTON SPRING	Logan Part No.	N/A	HR4035	HR4054
BASKET GRAPPLE RETAINER SCREWS	Logan Part No.	N/A	HR9035-001	HR9035-001
BASKET GRAPPLE CONTROL	Logan Part No.	N/A	A9035-112	HR9059-160
GUIDE	Logan Part No.	N/A	A3035	A3059
MAIN PISTON SEAL (I.D.)	Logan Part No.	N/A	568334	568344
MAIN PISTON SEAL (O.D.)	Logan Part No.	N/A	568340	568430
RELEASE PISTON SEAL (I.D.)	Logan Part No.	N/A	568334	568344

Logan Oil Tools reserves the right to change or discontinue designs without notice.

STRENGTH DATA

TENSILE STRENGTH @ YIELD (LBS)	N/A	673,632	1,000,063
BASKET GRAPPLE STRENGTH (LBS)	N/A	379,064	549,907
TORSIONAL YIELD (FT/LBS)	N/A	22,673	40,470
RECOMMENDED MAKE UP TORQUE (FT/LBS)	N/A	5,668	10,100
MAXIMUM MAKE UP TORQUE (FT/LBS)	N/A	11,000	20,200

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