



**Full Flow
Reverse Circulation
Junk Baskets**

Logan Full Flow Reverse Circulation Junk Basket

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OVERVIEW

The Logan Full Flow Reverse Circulation Junk Basket is designed to successfully remove all types of small junk objects from the hole that would not be fished out by other junk baskets by utilizing the principle of reverse fluid circulation. It is similar to the Logan Reverse Circulation Junk Basket.

The unique feature of the Logan Full Flow Reverse Circulation Junk Basket is its Full Flow Valve Assembly. This valve assembly eliminates premature reverse flow action. It seals off the cavity used for reverse circulation until it is needed, yet enables continuous circulation through the center while running in the hole. This keeps shale and debris from clogging the valve — the primary cause of premature reverse flow action. Reverse fluid circulation can be maintained even when the tool is fitted with a fishing magnet.

The tool's drain feature eliminates pulling a wet string even if the inner barrel becomes plugged.

USES

The Logan Full Flow Reverse Circulation Junk Basket effectively retrieves all types of junk that accumulates at the bottom of a well: rock bit cones and bearings, tong pins, broken slips, bits of wireline, small hand tools, debris from twisted-off drill strings, mill cuttings, and similar items.

CONSTRUCTION

The Logan Full Flow Reverse Circulation Junk Basket consists of: a lifting sub (provided for ease of handling and for storage of the steel ball), top sub, barrel, full flow valve assembly, filter, Type A mill shoe, and an upper and lower junk catcher. (For the component breakdown of the junk catcher assembly, refer to the Junk Catcher Assemblies tables on pages 13 – 22.)

The short fingers of the upper junk catcher are designed to break the core that has been cut by the mill shoe. The combination of short and long fingers of the lower junk catcher trap and retrieve the core and junk. Both junk catchers freely-revolve within the mill shoe, so breakage of the junk catcher fingers is eliminated.

Valve Assembly

The full flow valve assembly consists of: a steel ball, ball seat, ball seat retainer, four (4) shear pins, and O-ring seals.

As with the Logan Reverse Circulation Junk Basket, reverse fluid circulation is created by the unique construction of the barrel, which is basically a two-bowl assembly.

When the steel ball is in place in the valve seat, circulation fluid is directed around the valve through the inner passages of the barrel, jetted outward and downward against the full circumference of the hole, flows in a continuous stream into the barrel, up through the barrel, then out the return ports at the upper end of the barrel.

Sometimes, lowering a reverse circulation junk basket towards a fish may cause pieces of shale, shell, and other debris to break away from the walls of the well, sift up through the junk catchers, and clog the valve of that starts the reverse flow action. A clogged valve may cause reverse circulation to begin too early or at an other undesirable time.

The unique feature of the Logan Full Flow Reverse Circulation Junk Basket is the Full Flow Valve Assembly. This valve assembly seals off the cavity used for reverse circulation until it is needed. The ball seat of the Logan Full Flow Reverse Circulation Junk Basket is fastened with shear pins to the ball seat

retainer. This blocks off the reverse circulation ports and provides a passageway between the top sub and barrel that directs flow through the inside diameter of the barrel to keep it clean during run in.

After the steel ball is dropped and seated, pump pressure causes the pins to shear. The ball seat drops down to the matching beveled shoulder in the barrel. This opens the cavity to start reverse circulation.

Optional Accessories Mill Shoes

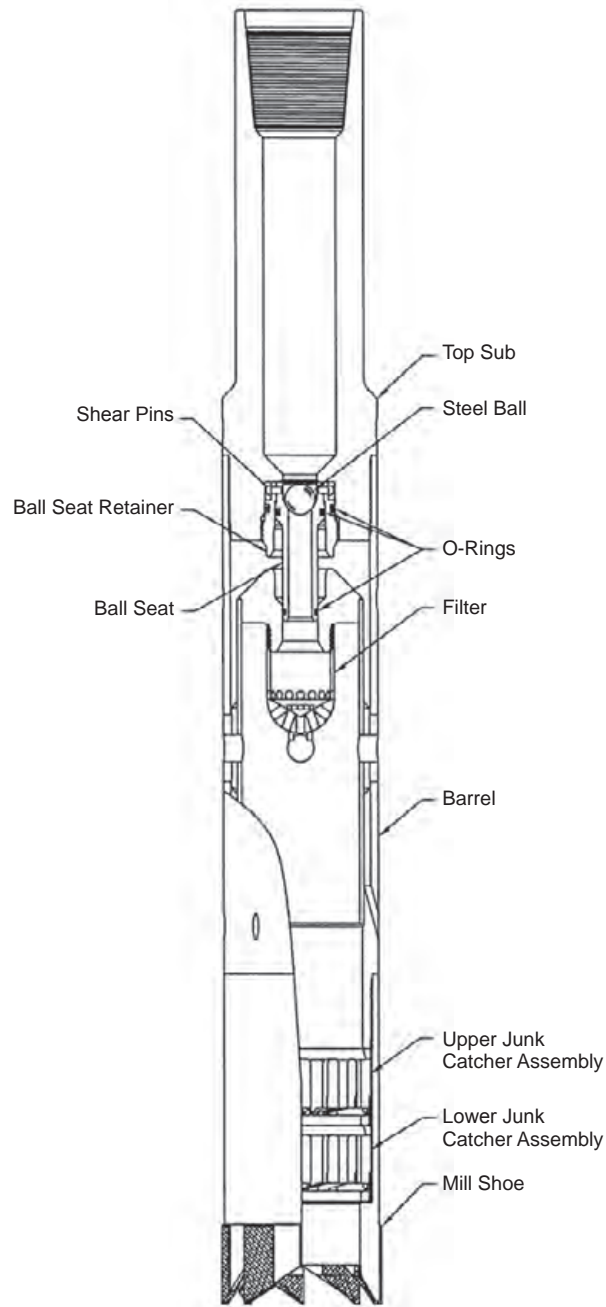
The hard, rugged, and long-lasting qualities of tungsten-carbide-faced mill shoes can cut away any protruding excess metal that may interfere with the free entry and retention of the debris in the Junk Basket.

If the fish is embedded in a hard formation and a core must be cut, the Junk Basket must be equipped with the proper mill shoe. If the fish is laying loosely on the bottom of the hole, the Junk Basket may be equipped with a proper mill or finger shoe.

Logan Full Flow Reverse Circulation Junk Baskets are furnished with a standard Type A mill shoe. It is constructed of conventional hard metal and has side wings.

The Type B mill shoe is similar to the Type A design, but is dressed with sintered tungsten carbide. This extremely tough, hard-faced material will rapidly and effectively mill junk during fishing operations.

The Type C Mill Shoe is a flat-bottomed shoe. It is dressed with sintered tungsten carbide on the bottom and on the inner and outer faces. It will effectively mill junk and is especially effective for cutting cores.



**Logan Full Flow Reverse Circulation
Junk Basket**

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Finger Shoes

A finger shoe may be installed on the bottom of the barrel in place of the mill shoe when the junk is too large to pass through the catchers. Finger shoes will normally retrieve larger objects than mill shoes, provided the junk is lying loose on the bottom of the well and a core does need not to be taken.

After the Junk Basket has engaged the fish, rotation while lowering will cause the long fingers to close under the fish and retain it in the barrel. Finger replacements are easy and inexpensive to replace on the finger shoe body.

Magnet Inserts

A Logan Full Flow Reverse Circulation Junk Basket can be easily converted to an effective fishing magnet with the advantages of reverse fluid circulation. Simply replace the junk catcher assembly with a Logan Magnet Insert.

Logan Magnet Inserts are machined to fit into the recess normally occupied by the junk catcher assembly. The Logan Magnet Insert is generally used to thoroughly clean the hole prior to diamond drilling and in hard-to-drill formations.

OPERATION

First, examine the Logan Full Flow Reverse Circulation Junk Basket and make sure it is properly assembled and in good working condition. Check inside the top sub to be sure the ball seat is properly positioned in the ball seat retainer and the shear pins are in place. Select the proper shoe. If the fish is embedded in a hard formation and a core must be cut, the Junk Basket must be equipped with the proper mill shoe. (See **Mill Shoes** and **Finger Shoes** for more information.)

The Logan Full Flow Reverse Circulation Junk Basket is made up to the bottom of the fishing string. Remove the lifting sub. Retain the lifting sub and the steel ball on the rig floor. Connect the top sub of the Junk Basket to the string.

If small junk particles are prevalent in the hole, a junk sub should be installed above the Junk Basket. If a window sub is available, install it on the top joint of drill pipe and connect the kelly.

Lower the Junk Basket to a point within several feet from the bottom of the hole. Begin circulation to wash the hole. Stop circulation and turn off the pumps. Unscrew the kelly from the string. Drop the steel ball down the drill pipe. Reconnect the kelly.

CAUTION: Make sure the inside diameters of the tool joints in the string are large enough to pass the steel ball. Be sure to retain the steel ball at the surface while the Junk Basket is being lowered into the hole.

If a window sub is available, remove the plug from the window sub and drop the steel ball down the drill pipe. Replace the plug in the window sub.

When the steel ball is dropped into the valve seat, circulation fluid travels outward and downward through the inner passage of the barrel and out through the vents in the lower end. The fluid is then deflected to the center of the tool and up through the return holes in the upper end of the barrel. This reverse fluid circulation directs and carries the debris into the hollow barrel above the junk catcher assembly.

Turn the circulation pumps back on to shear the pins and actuate the full flow valve assembly for reverse circulation. Observe the mud pressure gauge. A slight pressure build-up will occur when the steel ball reaches the ball seat. A sudden drop in pressure will be noticed on the gauge when the pins shear. This will indicate that reverse circulation has begun.

While maintaining high pressure circulation, lower the tool with slow right-hand rotation and lower the Junk Basket to the bottom of the hole. If coring, continue slow right-hand rotation and lowering until a core at least ten inches long has been cut.

NOTE: When using the tungsten carbide-faced shoes, maintain one (1) ton of weight on the shoe and rotate the basket to give a surface speed of 250 ft/min to ensure proper milling.

Stop rotation and circulation and pull the Logan Full Flow Reverse Circulation Junk Basket from the hole.

Recovering a Fish with a Junk Basket Equipped with a Mill Shoe

First, determine that the Logan Full Flow Reverse Circulation Junk Basket is properly assembled and that all of the parts are in good working condition.

Lower the Junk Basket to approximately ten feet off the bottom of the hole. Before dropping the steel ball, turn on the circulation pumps to force circulation through the Junk Basket to condition the mud and flush out any mud that may have accumulated in the barrel during the run. Maintain circulation for a few minutes. Turn off the circulating pumps.

Unscrew the kelly from the string. Drop the steel ball down the drill pipe and reconnect the kelly. If a window sub is available, remove the plug from the window sub and drop the steel ball down the drill pipe. Replace the plug in the window sub.

After the steel ball has dropped down the drill pipe, its downward progress will be halted when it encounters the valve seat in the Junk Basket. When circulation is resumed, the fluid is forced in a continuous stream that creates the reverse circulation action — to the center of the Junk Basket, up through the inner passages of the barrel, jetted out of the return ports in the upper barrel and down against the full circumference of the hole, and deflected to flush all objects and debris towards the center.

Turn on the circulating pumps. While maintaining high pressure circulation, slowly rotate the string to the right and lower the Junk Basket to the bottom of the hole.

If coring, continue right-hand rotation and lower until a 10-inch-long core has been cut.

NOTE: When using hard-faced mill shoes, maintain one (1) ton of weight on the shoe and rotate the basket 50 –150 rpm to ensure proper milling.

The piece of cut core allows the fish to ride past the junk catcher. The fingers on the junk catcher fold back while the core and fish enter. Pulling up the Junk Basket will cause the junk catcher's fingers to dig in and cut off a section of the core, thereby holding the fish and core securely in the Junk Basket barrel.

Stop rotation and circulation and pull the Logan Full Flow Reverse Circulation Junk Basket from the hole.

Recovering a Fish with a Junk Basket Equipped with a Finger Shoe

First, determine that the Logan Full Flow Reverse Circulation Junk Basket is properly assembled and that all of the parts are in good working condition.

Remove the lifting sub and keep it and the steel ball on the rig floor.

Connect the Junk Basket's top sub to the string and run the tool in the hole. If small junk particles are prevalent in the hole, a junk sub should be installed on top of the top sub. If a window sub is available, install it on the top joint of drill pipe before connecting the kelly.

Lower the Junk Basket to approximately ten feet off the bottom of the hole. Before dropping the steel ball, turn on the circulation pumps to force circulation through the Junk Basket to condition the mud and flush out any mud that may have accumulated in the barrel during the run. Maintain circulation for a few minutes. Turn off the circulating pumps.

Unscrew the kelly from the string. Drop the steel ball down the drill pipe and reconnect the kelly. If a window sub is available, remove the plug from the window sub and drop the steel ball down the drill pipe. Replace the plug in the window sub.

After the steel ball has dropped down the drill pipe, its downward progress will be halted when it encounters the valve seat in the Junk Basket. When circulation is resumed, the fluid is forced in a continuous stream that creates the reverse circulation action — to the center of the Junk Basket, up through the inner passages of the barrel, jetted out of the return ports in the upper barrel and down against the full circumference of the hole, and deflected to flush all objects and debris towards the center.

Turn on the circulating pumps. While maintaining high pressure circulation, slowly rotate the string to the right and lower it until approximately two tons of weight rest against the bottom of the hole. This will cause the fingers of the finger shoe to close under the fish. Stop rotation and circulation and pull the Junk Basket from the hole.

Fish or Core Removal

Unscrew the mill or finger shoe from the Junk Basket and thoroughly wash out the barrel.

NOTE: The Logan Full Flow Reverse Circulation Junk Basket should be washed as soon as possible after use. Pay particular attention to the space between the inner and outer barrels.

MAINTENANCE

Good maintenance will ensure the best performance and maximum life of the Logan Full Flow Reverse Circulation Junk Basket. Disassemble and thoroughly clean the Junk Basket as soon as possible after each job. Pay particular attention to the space between the inner and outer barrels. Worn or damaged parts should be replaced during disassembly/assembly procedures.

NOTE: If using a Logan Magnet Insert, thoroughly clean it after each use and make sure the circulation hole is clean. Always store the magnet insert with the keeper in place to preserve magnetism.

DISASSEMBLY

All disassembly and repairs should be conducted in a clean, well-equipped shop.

The following disassembly instructions are for a Logan Full Flow Reverse Circulation Junk Basket with a mill or finger shoe:

1. Remove the top sub.
2. Using a pipe wrench, unscrew and remove the ball seat retainer. Place the pipe wrench on the diameter of the ball seat retainer that protrudes from bottom of the top sub. Knock out the pieces of broken shear pins from the top of the ball seat retainer.

3. Remove the steel ball and ball seat.

If tool is equipped with a finger shoe, skip to step 5.

4. Unscrew the mill shoe. Remove the junk catcher from the shoe.
5. Remove the finger shoe:
 - (a) Unscrew the finger shoe from the barrel.
 - (b) Unscrew the finger shoe replacement from the finger shoe body.
6. Using the T-wrench provided, reach inside bottom of the barrel and unscrew the filter. Remove the filter and clean out any debris that may be lodged in the filter holes.
7. Wash out the inside and the inner passages of the barrel.
8. Carefully inspect all parts. Replace damaged parts with new ones.

ASSEMBLY

The Logan Full Flow Reverse Circulation Junk Basket is easily assembled using standard shop tools. No special tools are required.

Make sure all parts have been thoroughly cleaned, inspected, and lubricated prior to assembly.

1. Carefully inspect all parts. Replace worn or damaged parts with new parts.
2. Be sure the inside and inner passages of the barrel are clean.
3. Install the junk catcher in the shoe. Install the mill shoe.

If installing a finger shoe, skip to step 4.

4. Install the finger shoe:
 - (a) Screw the finger shoe onto the barrel.
 - (b) Screw the finger shoe replacement onto the finger shoe body.
5. Install the steel ball and valve seat.
6. Install the valve assembly with the wrench provided.
7. Place new O-ring seals on the ball seat retainer and the ball seat. Insert the ball seat into and against the matching beveled shoulder of the ball seat retainer. Install new shear pins. Screw this assembly into the top sub until snug. Heavy torque is not required.
8. Install the top sub.
9. Store the steel ball in the lifting sub.
10. Paint or coat with grease to prevent rust.

The Logan Full Flow Reverse Circulation Junk Basket is now ready for use.

Magnet Insert Installation

1. Remove the shoe from the barrel of the Junk Basket.
2. Remove the junk catcher from the shoe.
3. Install the Logan Magnet Insert into the junk catcher recess.
4. Reassemble the Junk Basket.

NOTE: *Thoroughly clean the Logan Magnet Insert after each use. Be sure the circulation hole is clean. Always store the magnet insert with the keeper in place to preserve magnetism.*



LOGAN FULL FLOW REVERSE CIRCULATION JUNK BASKETS

HOLE SIZE		4-1/8 to 4-1/2	4-5/8 to 5	6-1/8 to 6-1/2	7-1/2 to 8-1/4	8-3/8 to 9-1/2	9-5/8 to 10-5/8	10-3/4 to 11-5/8
BARREL O.D.		4	4-1/2	5-3/4	7	7-7/8	9-1/8	10-1/8
MAXIMUM DIAMETER OF FISH		2-1/2	3-1/16	4-3/8	5-1/8	6-1/16	7-1/16	7-11/16
COMPLETE ASSEMBLY	Logan Part No.	304-400	304-450	304-575	304-700	304-788	304-913	304-1013
	Bowen No.	71226	70702	71127	70908	70923	71198	71218
BALL SEAT	Logan Part No.	S1000	S1002	S1002	S1003	S1003	S1005	S1005
	Bowen No.	70699	70851	70851	67354	67354	67168	67168
SHEAR PIN	Logan Part No.	S2000	S2000	S2000	S2003	S2003	S2003	S2003
	Bowen No.	70852	70852	70852	67175	67175	67175	67175
	No. Req'd	4	4	4	4	4	4	4
UPPER JUNK CATCHER ASSEMBLY <i>(See Note 1)</i>	Logan Part No.	14000-008	14000-009	500-051	14000-011	14000-012	14000-013	14000-014
	Bowen No.	22070-W	22075-W	15130-W	22050-W	21640-W	14632-W	25235-W
LOWER JUNK CATCHER ASSEMBLY <i>(See Note 1)</i>	Logan Part No.	600-016	600-017	600-020	600-022	600-023	600-024	500-019
	Bowen No.	21855-W	21780-W	28349-W	21725-W	18725-W	14633-W	18945-W
STEEL BALL	Logan Part No.	D4000	D4002	D4002	D4007	D4007	D4009	D4009
	Bowen No.	6640	4453	4453	2572	2572	2665	2665
TOP SUB	Logan Part No.	S4000	S4001	S4002	S4003	S4004	S4005	S4006
	Bowen No.	71227	71104	71125	70935	70926	71202	71219
BARREL	Logan Part No.	S5000	S5001	S5002	S5003	S5004	S5005	S5006
	Bowen No.	71230	71116	71115	70911	70924	71203	71220
BALL SEAT RETAINER	Logan Part No.	S6002	S6002	S6002	S6003	S6003	S6005	S6005
	Bowen No.	70850	70850	70850	67353	67353	67167	67167
FILTER	Logan Part No.	S7002	S7002	S7002	S7003	S7003	S7005	S7005
	Bowen No.	80768	80768	80768	70731	70731	70764	70764
RETAINER	Logan Part No.	568-331	568-331	568-331	568-243	568-243	568-248	568-248
O-RING SEAL	Bowen No.	27-34	27-34	27-34	30-21	30-21	30-26	30-26
UPPER SEAT O-RING SEAL	Logan Part No.	568-325	568-325	568-325	568-231	568-231	568-235	568-235
	Bowen No.	27-28	27-28	27-28	30-9	30-9	30-13	30-13
LOWER SEAT O-RING SEAL	Logan Part No.	568-215	568-215	568-215	568-224	568-224	568-229	568-229
	Bowen No.	27-20	27-20	27-20	30-2	30-2	30-7	30-7
MILL SHOE A <i>(Hard Faced Mill Teeth)</i>	Logan Part No.	S3000-A	S3001-A	S3002-A	S3003-A	S3004-A	S3005-A	S3006-A
	Bowen No.	71228	70909	71124	72070	72081	71199	72080

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- (1) For component breakdown of the junk catcher assemblies, refer to Junk Catcher Assemblies chart.
- (2) For type A, B, or C shoes: unless specified, shoes will be furnished with the same O.D. as minimum hole size shown.
- (3) Finger shoe replacement is furnished with the same O.D. as standard shoe unless otherwise specified.

When ordering, please specify:

- (1) Complete assembly or part number
- (2) Top Sub connection
- (3) O.D. and type of shoe

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LOGAN FULL FLOW REVERSE CIRCULATION JUNK BASKETS

HOLE SIZE	4-1/8 to 4-1/2	4-5/8 to 5	6-1/8 to 6-1/2	7-1/2 to 8-1/4	8-3/8 to 9-1/2	9-5/8 to 10-5/8	10-3/4 to 11-5/8	
BARREL O.D.	4	4-1/2	5-3/4	7	7-7/8	9-1/8	10-1/8	
MAXIMUM DIAMETER OF FISH	2-1/2	3-1/16	4-3/8	5-1/8	6-1/16	7-1/16	7-11/16	
COMPLETE ASSEMBLY	Logan Part No.	304-400	304-450	304-575	304-700	304-788	304-913	304-1013
	Bowen No.	71226	70702	71127	70908	70923	71198	71218

OPTIONAL COMPONENTS

MILL SHOE B <i>(Tungsten Carbide Mill Teeth)</i>	Logan Part No.	S3000-B	S3001-B	S3002-B	S3003-B	S3004-B	S3005-B	S3006-B
	Bowen No.	71228	70909	71124	72070	72081	71199	72080
MILL SHOE C <i>(Tungsten Carbide Faced)</i>	Logan Part No.	S3000-C	S3001-C	S3002-C	S3003-C	S3004-C	S3005-C	S3006-C
	Bowen No.	71228	70909	71124	72070	72081	71199	72080
LIFTING SUB	Logan Part No.	D6000	D6002	D6004	D6006	D6008	D6009	D6009
	Bowen No.	4568	424	425	1849	426	427	427
PIPE PLUG	Logan Part No.	S9000	S9000	S9001	S9002	S9003	S9003	S9003
	Bowen No.	61520	61520	61521	61522	61523	61523	61523
T-WRENCH	Logan Part No.	S10000	S10000	S10000	S10001	S10001	S10002	S10002
	Bowen No.	72067	72067	72067	72069	72069	72068	72068

FINGER SHOE

COMPLETE ASSEMBLY	Logan Part No.	600-101	600-102	600-115	600-107	600-108	600-109	600-110
	Bowen No.	7300	4456	2738	2740	2741	2742	2743
BODY	Logan Part No.	D7001	D7002	D7015	D7007	D7008	D7009	D7010
	Bowen No.	7300-2	4456-2	2738-2	2740-2	2741-2	2742-2	2743-2
REPLACEMENT	Logan Part No.	D10001	D10002	D10015	D10007	D10008	D10009	D10010
	Bowen No.	7300-1	4456-1	2738-1	2740-1	2741-1	2742-1	2743-1

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- (3) Finger shoe replacement is furnished with the same O.D. as standard shoe unless otherwise specified.

When ordering, please specify:

- (1) Complete assembly or part number
- (2) Top Sub connection
- (3) O.D. and type of shoe

Recommended Spare Parts:

- (1) 2 Junk Catchers
- (2) 2 Mill Shoes
- (3) 1 Ball Seat
- (4) 1 Ball Seat Retainer
- (5) 1 Steel Ball
- (6) 4 Valve Repair Kits
- (7) 2 Catcher Repair Kits (for each assembly)

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BARREL O.D.		4	4-1/2	5-3/4	7	7-7/8	9-1/8	10-1/8
MAXIMUM DIAMETER OF FISH		2-1/2	3-1/16	4-3/8	5-1/8	6-1/16	7-1/16	7-11/16
COMPLETE ASSEMBLY	Logan Part No.	304-400	304-450	304-575	304-700	304-788	304-913	304-1013
	Bowen No.	71226	70702	71127	70908	70923	71198	71218

MAGNET INSERTS

COMPLETE ASSEMBLY	Logan Part No.	...	600-047	600-050	600-052	600-053	600-054	600-055
	Bowen No.	...	61840	61866	61876	61953	61961	61963
ADAPTER	Logan Part No.	...	E4016	E4018	E4020	E4021	E4022	E4023
	Bowen No.	...	61841	61867	61948	61954	61966	61968
MAGNETIC ASSEMBLY	Logan Part No.	...	600-069	600-071	600-073	600-074	600-075	600-075
	Bowen No.	...	61812	61816	61820	61822	61826	61826

REPAIR KITS

UPPER CATCHER	Logan Part No.	14000-008RK	14000-009RK	600-020RK	14000-011RK	14000-012RK	14000-013RK	14000-14RK
REPAIR KITS	Bowen No.	22070-WK	22075-WK	28349-WK	22050-WK	21640-WK	14632-WK	25235-WK
LOWER CATCHER	Logan Part No.	600-016RK	600-017RK	500-051RK	600-022RK	600-023RK	600-024RK	500-019RK
REPAIR KITS	Bowen No.	21855-WK	21780-WK	15130-WK	21725-WK	18725-WK	14633-WK	18945-WK
VALVE REPAIR KIT	Logan Part No.	14000-032	14000-033	14000-034	14000-035	14000-036	14000-037	14000-038
	Bowen No.	72064	72062	72063	72058	72061	72065	72059

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- (2) For type A, B, or C shoes: unless specified, shoes will be furnished with the same O.D. as minimum hole size shown.
- (3) Finger shoe replacement is furnished with the same O.D. as standard shoe unless otherwise specified.

When ordering, please specify:

- (1) Complete assembly or part number
- (2) Top Sub connection
- (3) O.D. and type of shoe

Recommended Spare Parts:

- (1) 2 Junk Catchers
- (2) 2 Mill Shoes
- (3) 1 Ball Seat
- (4) 1 Ball Seat Retainer
- (5) 1 Steel Ball
- (6) 4 Valve Repair Kits
- (7) 2 Catcher Repair Kits (for each assembly)

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LOGAN FULL FLOW REVERSE CIRCULATION JUNK BASKETS

HOLE SIZE		11-3/4 to 12-1/2					
BARREL O.D.		11					
MAXIMUM DIAMETER OF FISH		8-5/16					
COMPLETE ASSEMBLY	Logan Part No.	304-1100					
	Bowen No.	70910					
BALL SEAT	Logan Part No.	S1005					
	Bowen No.	67168					
SHEAR PIN	Logan Part No.	S2003					
	Bowen No.	67175					
	No. Req'd	4					
UPPER JUNK CATCHER ASSEMBLY	Logan Part No.	14000-015					
(See Note 1)	Bowen No.	31046-W					
LOWER JUNK CATCHER ASSEMBLY	Logan Part No.	600-026					
(See Note 1)	Bowen No.	21760-W					
STEEL BALL	Logan Part No.	D4009					
	Bowen No.	2665					
TOP SUB	Logan Part No.	S4007					
	Bowen No.	70920					
BARREL	Logan Part No.	S5007					
	Bowen No.	70921					
BALL SEAT RETAINER	Logan Part No.	S6005					
	Bowen No.	67167					
FILTER	Logan Part No.	S7005					
	Bowen No.	70764					
RETAINER O-RING SEAL	Logan Part No.	568-248					
	Bowen No.	30-26					
UPPER SEAT O-RING SEAL	Logan Part No.	568-235					
	Bowen No.	30-13					
LOWER SEAT O-RING SEAL	Logan Part No.	568-229					
	Bowen No.	30-7					

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(1) For component breakdown of the junk catcher assemblies, refer to Junk Catcher Assemblies chart.

(2) For type A, B, or C shoes: unless specified, shoes will be furnished with the same O.D. as minimum hole size shown.

(3) Finger shoe replacement is furnished with the same O.D. as standard shoe unless otherwise specified.

When ordering, please specify:

- (1) Complete assembly or part number
- (2) Top Sub connection
- (3) O.D. and type of shoe

Recommended Spare Parts:

- (1) 2 Junk Catchers
- (2) 2 Mill Shoes
- (3) 1 Ball Seat
- (4) 1 Ball Seat Retainer
- (5) 1 Steel Ball
- (6) 4 Valve Repair Kits
- (7) 2 Catcher Repair Kits (for each assembly)

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LOGAN FULL FLOW REVERSE CIRCULATION JUNK BASKETS

HOLE SIZE		11-3/4 to 12-1/2						
BARREL O.D.		11						
MAXIMUM DIAMETER OF FISH		8-5/16						
COMPLETE ASSEMBLY	Logan Part No.	S304-1100						
	Bowen No.	70910						
MILL SHOE A <i>(Hard Faced Mill Teeth)</i>	Logan Part No.	S3007-A						
	Bowen No.	72071						
MILL SHOE B <i>(Tungsten Carbide Mill Teeth)</i>	Logan Part No.	S3007-B						
	Bowen No.	72071						
MILL SHOE C <i>(Tungsten Carbide Faced)</i>	Logan Part No.	S3007-C						
	Bowen No.	72071						
LIFTING SUB	Logan Part No.	D6009						
	Bowen No.	427						
PIPE PLUG	Logan Part No.	S9003						
	Bowen No.	61523						
T-WRENCH	Logan Part No.	S10002						
	Bowen No.	72068						

FINGER SHOE

COMPLETE ASSEMBLY	Logan Part No.	600-111						
	Bowen No.	2744						
BODY	Logan Part No.	D7011						
	Bowen No.	2744-2						
REPLACEMENT	Logan Part No.	D10011						
	Bowen No.	2744-1						

MAGNET INSERTS

COMPLETE ASSEMBLY	Logan Part No.	600-056						
	Bowen No.	61973						
ADAPTER	Logan Part No.	E4024						
	Bowen No.	61974						
MAGNETIC ASSEMBLY	Logan Part No.	600-076						
	Bowen No.	61828						

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- (1) For component breakdown of the junk catcher assemblies, refer to Junk Catcher Assemblies chart.
- (2) For type A, B, or C shoes: unless specified, shoes will be furnished with the same O.D. as minimum hole size shown.
- (3) Finger shoe replacement is furnished with the same O.D. as standard shoe unless otherwise specified.

When ordering, please specify:

- (1) Complete assembly or part number
- (2) Top Sub connection
- (3) O.D. and type of shoe

Recommended Spare Parts:

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- (2) 2 Mill Shoes
- (3) 1 Ball Seat
- (4) 1 Ball Seat Retainer
- (5) 1 Steel Ball
- (6) 4 Valve Repair Kits
- (7) 2 Catcher Repair Kits (for each assembly)

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LOGAN FULL FLOW REVERSE CIRCULATION JUNK BASKETS

HOLE SIZE	11-3/4 to 12-1/2						
BARREL O.D.	11						
MAXIMUM DIAMETER OF FISH	8-5/16						
COMPLETE ASSEMBLY	Logan Part No. 304-1100						
	Bowen No. 70910						

REPAIR KITS

UPPER CATCHER	Logan Part No. 14000-015RK						
REPAIR KITS	Bowen No. 31046-WK						
LOWER CATCHER	Logan Part No. 600-026RK						
REPAIR KITS	Bowen No. 21760-WK						
VALVE REPAIR KIT	Logan Part No. 14000-039						
	Bowen No. 72060						

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- (2) For type A, B, or C shoes: unless specified, shoes will be furnished with the same O.D. as minimum hole size shown.
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When ordering, please specify:

- (1) Complete assembly or part number
- (2) Top Sub connection
- (3) O.D. and type of shoe

Recommended Spare Parts:

- (1) 2 Junk Catchers
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Overview

The alternately long and short fingers of the junk catcher assembly extend almost to the center of the basket to form a close-fitting receptacle that will retain small pieces of junk that may impede drilling progress or hold a core sample.

Construction

The steel body design provides greater strength and durability. The retainer ring, retainer screws and springs are made of stainless steel to eliminate rust and corrosion problems. Fingers are inexpensive and can be easily replaced.

Assembly

After redressing a junk catcher assembly, care must be taken to ensure that alternate long and short fingers are assembled in proper sequence.

When ordering, please specify:

- (1) Name and number of assembly or part
- (2) Finger number and code, when ordering fingers

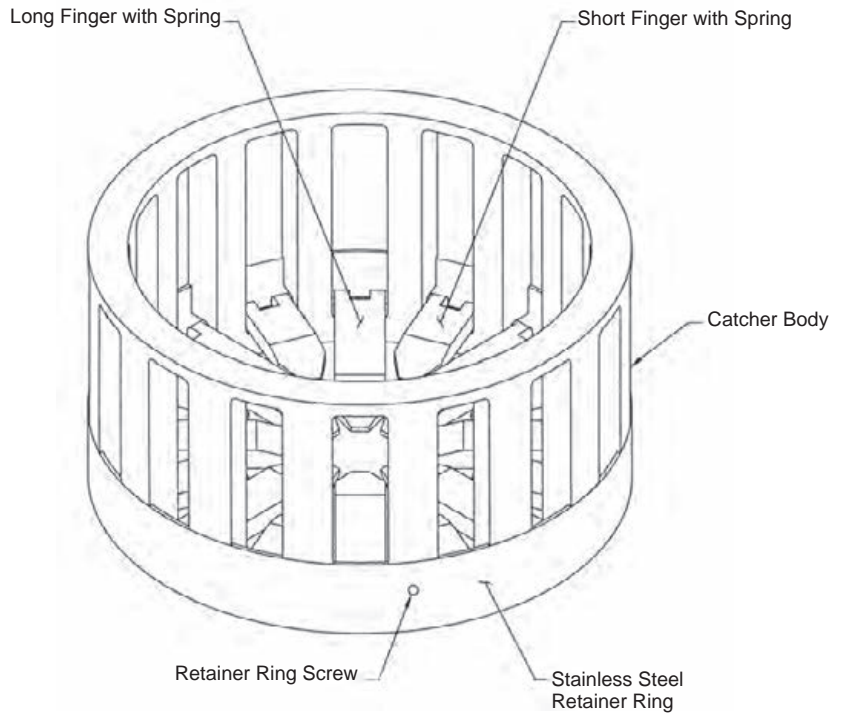
Recommended Spare Parts:

- (1) 2 Sets of Fingers
- (2) 4 Sets of Torsion Springs
- (3) 1 Set of Pivot Pins
- (4) 4 Retainer Screws

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Special Notes:

- (1) Code: Each finger is stenciled with a letter or letter-number code. These codes are used in lieu of the part number because of space limitation. See the Finger Code Chart below to cross-reference the code with the part number.

Finger Code Chart

Code	Part No.	Code	Part No.	Code	Part No.	Code	Part No.
A	E11006	I	E11003	P-1	E9007	21778-W	E9015
B	E9005	J	E11014	P-2	E11008	21779-W	E11016
C	E11005	K	E9014	W-1	E9012	362-W	E9006
D	—	L	E10003	W-2	E11013	363-W	E11007
E	E9001	M	E9010	W-3	E9002	690-W	E90015
F	E11000	N	E11010	W-4	E11001	691-W	E11015
G	E9013	O	—	X-1	E9019	666-W	E9009
H	E9004	P	—	X-2	E11020	667-W	E11011



LOGAN JUNK CATCHER ASSEMBLIES

INSIDE DIAMETER		2-11/32	2-39/64	2-23/32	2-17/32	2-17/32	2-31/32	3-1/16
OUTSIDE DIAMETER		3-3/32	3-15/64	3-1/4	3-11/32	3-11/32	3-11/16	3-13/16
LENGTH		1-7/8	1-7/8	1-7/8	1-7/8	1-7/8	2-1/4	2-1/2
COMPLETE ASSEMBLY	Logan Part No.	600-015	600-031	500-023	14000-008	600-016	500-024	14000-009
	Bowen No.	21795W	21810W	14593-W	22070-W	21855W	14589-W	22075-W
BODY	Logan Part No.	D11000	D11021	E7000	D11001	D11001	E7001	D11002
	Bowen No.	56357	45542	45541	68366	68366	45590	45591
FINGER RETAINER	Logan Part No.	D12000	D12019	E8000	D12001	D12001	E8001	D12002
<i>(stainless steel)</i>	Bowen No.	56358	45538	45543	68367	68367	45562	45592
SHORT FINGER *	Logan Part No.	E9011	E9001	E9001	E9011	E9011	E9002	E9002
	Bowen No.	68368	45539	45539	68368	68368	45574	45574
	Code	...	E	E	AD	...	W-3	R
	No. Req'd	4	5	5	8	4	5	10
MEDIUM FINGER *	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...
	Code	...	...	...	...	...	...	...
	No. Req'd	...	...	...	...	...	...	...
LONG FINGER *	Logan Part No.	E11012	E11000	E11000	...	E11012	E11001	...
	Bowen No.	68369	45540	45540	...	68369	45575	...
	Code	...	F	F	...	...	W-4	...
	No. Req'd	4	5	5	...	4	5	...
PIVOT PIN *	Logan Part No.	E12001	E12000	E12000	E12001	E12001	E12001	E12001
	Bowen No.	45583	45535	45535	45583	45583	45583	45583
	Req'd	8	10	10	8	8	10	10
TORSION SPRING *	Logan Part No.	E13009	E13006	E13006	E13009	E13009	E13007	E13009
<i>(stainless steel)</i>	Bowen No.	45571	45567	45567	45571	45571	55958	45571
	No. Req'd	8	10	10	8	8	10	10
RETAINER SCREW *	Logan Part No.	E14000	E14000	E14000	E14000	E14000	E14000	E14000
<i>(stainless steel)</i>	Bowen No.	42257	42257	42257	42257	42257	42257	42257
	No. Req'd	2	2	2	2	2	2	2
REPAIR KITS	Logan Part No.	600-015RK	600-031RK	500-023RK	14000-008RK	600-016RK	500-024RK	14000-009RK
<i>* Indicates parts included in kit</i>	Bowen No.	21795K	21810K	14593K	22070K	21855K	14589K	22075K

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When ordering, please specify:

- (1) Name and number of assembly or part
- (2) Finger number and code, when ordering fingers

Recommended Spare Parts:

- (1) 2 Sets of Fingers
- (2) 4 Sets of Torsion Springs
- (3) 1 Set of Pivot Pins
- (4) 4 Retainer Screws

Special Notes:

(1) Code: Each finger is stenciled with a letter or letter-number code. These codes are used in lieu of the part number because of space limitation. See the Finger Code Chart below to cross-reference the code with the part number.

Finger Code Chart

Code	Part No.	Code	Part No.	Code	Part No.	Code	Part No.
A	E11006	I	E11003	P-1	E9007	21778-W	E9015
B	E9005	J	E11014	P-2	E11008	21779-W	E11016
C	E11005	K	E9014	W-1	E9012	362-W	E9006
D	—	L	E10003	W-2	E11013	363-W	E11007
E	E9001	M	E9010	W-3	E9002	690-W	E90015
F	E11000	N	E11010	W-4	E11001	691-W	E11015
G	E9013	O	—	X-1	E9019	666-W	E9009
H	E9004	P	—	X-2	E11020	667-W	E11011

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LOGAN JUNK CATCHER ASSEMBLIES

INSIDE DIAMETER		3-1/16	3-13/32	3-13/32	3-9/32	3-13/32	3-21/32	3-3/4
OUTSIDE DIAMETER		3-13/16	3-31/32	3-31/32	4	4-1/16	4-9/32	4-15/32
LENGTH		2-1/2	1-63/64	1-63/64	2-3/8	2-3/8	2-1/4	2-9/16
COMPLETE ASSEMBLY	Logan Part No.	600-017	600-032	600-033	500-050	500-025	600-018	600-019
	Bowen No.	21780W	21880W	21805W	14598-W	19377-W	21790W	21735W
BODY	Logan Part No.	D11002	D11022	D11022	E70015	E7002	D11003	E7003
	Bowen No.	45591	45565	45565	45568	45563	45579	45559
FINGER RETAINER	Logan Part No.	D12002	D12020	D12020	E80015	E8002	D12003	E8003
<i>(stainless steel)</i>	Bowen No.	45592	45566	45566	45569	45564	45580	45560
SHORT FINGER *	Logan Part No.	E9002	E9002	E9002	E90015	E90015	E9012	E9004
	Bowen No.	45574	45574	45574	55962	55962	45581	45558
	Code	W-3	R	R	690-W	690-W	W-1	H
	No. Req'd	5	12	6	5	5	6	5
MEDIUM FINGER *	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...
	Code	...	...	...	...	...	...	...
	No. Req'd	...	...	...	...	...	...	...
LONG FINGER *	Logan Part No.	E11001	...	E11001	E11015	E11015	E11013	E11003
	Bowen No.	45575	...	45575	55963	55963	45582	45561
	Code	W-4	...	W-4	691-W	691-W	W-2	I
	No. Req'd	5	...	6	5	5	6	5
PIVOT PIN *	Logan Part No.	E12001	E12001	E12001	E12002	E12002	E12001	...
	Bowen No.	45583	45583	45583	55957	55957	45583	...
	No. Req'd	10	12	12	10	10	12	...
TORSION SPRING *	Logan Part No.	E13009	E13009	E13009	E13007	E13007	E13009	E13000
<i>(stainless steel)</i>	Bowen No.	45571	45571	45571	55958	55958	45571	45520
	No. Req'd	10	12	12	10	10	12	10
RETAINER SCREW *	Logan Part No.	E14000	E14000	E14000	E14000	E14000	E14000	E14000
<i>(stainless steel)</i>	Bowen No.	42257	42257	42257	42257	42257	42257	42257
	No. Req'd	2	2	2	2	2	2	2
REPAIR KITS	Logan Part No.	600-017RK	600-032RK	600-033RK	500-050RK	500-025RK	600-018RK	600-019RK
<i>* Indicates parts included in kit</i>	Bowen No.	21780K	21880K	21805K	14598K	19377K	21790K	21735K

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When ordering, please specify:

- (1) Name and number of assembly or part
- (2) Finger number and code, when ordering fingers

Recommended Spare Parts:

- (1) 2 Sets of Fingers
- (2) 4 Sets of Torsion Springs
- (3) 1 Set of Pivot Pins
- (4) 4 Retainer Screws

Special Notes:

- (1) Code: Each finger is stenciled with a letter or letter-number code. These codes are used in lieu of the part number because of space limitation. See the Finger Code Chart below to cross-reference the code with the part number.

Finger Code Chart

Code	Part No.	Code	Part No.	Code	Part No.	Code	Part No.
A	E11006	I	E11003	P-1	E9007	21778-W	E9015
B	E9005	J	E11014	P-2	E11008	21779-W	E11016
C	E11005	K	E9014	W-1	E9012	362-W	E9006
D	—	L	E10003	W-2	E11013	363-W	E11007
E	E9001	M	E9010	W-3	E9002	690-W	E90015
F	E11000	N	E11010	W-4	E11001	691-W	E11015
G	E9013	O	—	X-1	E9019	666-W	E9009
H	E9004	P	—	X-2	E11020	667-W	E11011

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LOGAN JUNK CATCHER ASSEMBLIES

INSIDE DIAMETER		3-3/4	3-3/4	4-3/32	4-1/16	4-1/16	4-13/32	4-13/32
OUTSIDE DIAMETER		4-15/32	4-15/32	4-3/4	4-7/8	4-7/8	5-5/32	5-5/32
LENGTH		2-9/16	2-9/16	2-1/2	2-25/32	2-25/32	2-13/16	1-13/32
COMPLETE ASSEMBLY	Logan Part No.	600-083	500-026	600-062	500-014	500-027	600-020	600-067
	Bowen No.	14747-W	14603-W	21820W	14607-W	14608-W	28349W	25250-W
BODY	Logan Part No.	E7003	E7003	D11015	E7004	E7004	D11004	D11019
	Bowen No.	45559	45559	45595	45555	45555	45511	68375
FINGER RETAINER <i>(stainless steel)</i>	Logan Part No.	E8003	E8003	D12015	E8004	E8004	D12004	D12004
	Bowen No.	45560	45560	45596	45556	45556	45519	45519
SHORT FINGER *	Logan Part No.	E9004	E9004	E9019	E9004	E9004	E9005	E9018
	Bowen No.	45558	45558	45597	45558	45558	45517	68376
	Code	H	H	X-1	H	H	B	
	No. Req'd	10	5	6	12	6	8	12
MEDIUM FINGER *	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...
	Code	...	...	...	...	...	...	...
	No. Req'd	...	...	...	...	...	...	...
LONG FINGER *	Logan Part No.	...	E11003	E11020	...	E9013	E11006	...
	Bowen No.	...	45561	45598	...	45557	45516	...
	Code	...	I	X-2	...	G	A	...
	No. Req'd	...	5	6	...	6	4	...
PIVOT PIN *	Logan Part No.	...	...	E12010	...	...	...	...
	Bowen No.	...	...	45599	...	...	...	...
	No. Req'd	...	...	12	...	...	...	...
TORSION SPRING * <i>(stainless steel)</i>	Logan Part No.	E13000	E13000	E13009	E13000	E13000	E13000	E13000
	Bowen No.	45520	45520	45571	45520	45520	45520	45520
	No. Req'd	10	10	12	12	12	12	12
RETAINER SCREW * <i>(stainless steel)</i>	Logan Part No.	E14000	E14000	E14000	E14000	E14000	E14000	E14000
	Bowen No.	42257	42257	42257	42257	42257	42257	42257
	No. Req'd	2	2	2	2	2	2	2
REPAIR KITS	Logan Part No.	600-083RK	500-026RK	600-062RK	500-014RK	500-027RK	600-020RK	600-067RK
	Bowen No.	14747K	14603K	21820K	14607K	14608K	28349K	25250K

* Indicates parts included in kit

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When ordering, please specify:

- (1) Name and number of assembly or part
- (2) Finger number and code, when ordering fingers

Recommended Spare Parts:

- (1) 2 Sets of Fingers
- (2) 4 Sets of Torsion Springs
- (3) 1 Set of Pivot Pins
- (4) 4 Retainer Screws

Special Notes:

- (1) Code: Each finger is stenciled with a letter or letter-number code. These codes are used in lieu of the part number because of space limitation. See the Finger Code Chart below to cross-reference the code with the part number.

Finger Code Chart

Code	Part No.	Code	Part No.	Code	Part No.	Code	Part No.
A	E11006	I	E11003	P-1	E9007	21778-W	E9015
B	E9005	J	E11014	P-2	E11008	21779-W	E11016
C	E11005	K	E9014	W-1	E9012	362-W	E9006
D	—	L	E10003	W-2	E11013	363-W	E11007
E	E9001	M	E9010	W-3	E9002	690-W	E90015
F	E11000	N	E11010	W-4	E11001	691-W	E11015
G	E9013	O	—	X-1	E9019	666-W	E9009
H	E9004	P	—	X-2	E11020	667-W	E11011

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LOGAN JUNK CATCHER ASSEMBLIES

INSIDE DIAMETER		4-13/32	4-5/16	4-5/16	4-17/32	4-17/32	4-3/4	4-13/16
OUTSIDE DIAMETER		5-5/32	5-5/16	5-5/16	5-13/32	5-13/32	5-5/8	5-23/32
LENGTH		2-13/16	2-7/8	2-7/8	2-7/8	2-7/8	2-5/8	3-1/16
COMPLETE ASSEMBLY	Logan Part No.	500-051	600-065	600-066	500-015	500-028	600-021	500-016
	Bowen No.	15130-W	14612-W	14613-W	19382-W	19383-W	21750W	14617-W
BODY	Logan Part No.	D11004	D11018	D11018	E7005	E7005	D11005	E7006
	Bowen No.	45511	45572	45572	45553	45553	45584	45512
FINGER RETAINER	Logan Part No.	D12004	D12017	D12017	E8005	E8005	D12005	E8006
<i>(stainless steel)</i>	Bowen No.	45519	45573	45573	45554	45554	45585	45552
SHORT FINGER *	Logan Part No.	E9005	E9005	E9005	E9005	E9005	E9005	E9005
	Bowen No.	45517	45517	45517	45517	45517	45517	45517
	Code	B	B	B	B	B	B	B
	No. Req'd	12	12	6	12	6	6	12
MEDIUM FINGER *	Logan Part No.	...	...	E9013	...	...	...	...
	Bowen No.	...	...	45557	...	...	...	...
	Code	...	...	G	...	...	...	...
	No. Req'd	...	...	3	...	...	...	...
LONG FINGER *	Logan Part No.	...	...	E11006	...	E11006	E11006	...
	Bowen No.	...	...	45516	...	45516	45516	...
	Code	...	...	A	...	A	A	...
	No. Req'd	...	...	3	...	6	6	...
PIVOT PIN *	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...
	No. Req'd	...	...	...	...	...	...	...
TORSION SPRING *	Logan Part No.	E13000	E13000	E13000	E13000	E13000	E13000	E13000
<i>(stainless steel)</i>	Bowen No.	45520	45520	45520	45520	45520	45520	45520
	No. Req'd	12	12	12	12	12	12	12
RETAINER SCREW *	Logan Part No.	E14000	E14000	E14000	E14000	E14000	E14000	E14000
<i>(stainless steel)</i>	Bowen No.	42257	42257	42257	42257	42257	42257	42257
	No. Req'd	2	2	2	2	2	2	2
REPAIR KITS	Logan Part No.	500-051RK	600-065RK	600-066RK	500-015RK	500-028RK	600-021RK	500-016RK
<i>* Indicates parts included in kit</i>	Bowen No.	15130K	14612K	14613K	19382K	19383K	21750K	14617K

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When ordering, please specify:

- (1) Name and number of assembly or part
- (2) Finger number and code, when ordering fingers

Recommended Spare Parts:

- (1) 2 Sets of Fingers
- (2) 4 Sets of Torsion Springs
- (3) 1 Set of Pivot Pins
- (4) 4 Retainer Screws

Special Notes:

- (1) Code: Each finger is stenciled with a letter or letter-number code. These codes are used in lieu of the part number because of space limitation. See the Finger Code Chart below to cross-reference the code with the part number.

Finger Code Chart

Code	Part No.	Code	Part No.	Code	Part No.	Code	Part No.
A	E11006	I	E11003	P-1	E9007	21778-W	E9015
B	E9005	J	E11014	P-2	E11008	21779-W	E11016
C	E11005	K	E9014	W-1	E9012	362-W	E9006
D	—	L	E10003	W-2	E11013	363-W	E11007
E	E9001	M	E9010	W-3	E9002	690-W	E90015
F	E11000	N	E11010	W-4	E11001	691-W	E11015
G	E9013	O	—	X-1	E9019	666-W	E9009
H	E9004	P	—	X-2	E11020	667-W	E11011

"Bowen" is a registered trademark of National Oilwell Varco.



LOGAN JUNK CATCHER ASSEMBLIES

INSIDE DIAMETER		4-13/16	5-1/4	5-3/16	5-3/16	5-7/16	5-7/16	5-5/8
OUTSIDE DIAMETER		5-23/32	6-1/8	6-1/4	6-1/4	6-3/8	6-3/8	6-19/32
LENGTH		3-1/16	3-5/16	3-5/16	3-5/16	3	3-5/16	2-7/8
COMPLETE ASSEMBLY	Logan Part No.	500-029	600-063	14000-011	600-022	500-017	500-030	600-060
	Bowen No.	14618-W	18935-W	22050-W	21725W	14622-W	14623-W	21865W
BODY	Logan Part No.	E7006	D11016	D11006	D11006	E7007	E7007	D11013
	Bowen No.	45512	45513	45550	45550	45545	45545	45602
FINGER RETAINER	Logan Part No.	E8006	D12016	D12006	D12006	E8007	E8007	D12014
<i>(stainless steel)</i>	Bowen No.	45552	45527	45551	45551	45546	45546	45528
SHORT FINGER *	Logan Part No.	E9005	E9005	E9013	E9013	E9005	E9005	E9005
	Bowen No.	45517	45517	45557	45557	45517	45517	45517
	Code	B	B	G	G	B	B	B
	No. Req'd	6	6	12	6	14	7	12
MEDIUM FINGER *	Logan Part No.	...	E11006	...	...	...	...	...
	Bowen No.	...	45516	...	...	...	...	...
	Code	...	A	...	...	...	...	...
	No. Req'd	...	3	...	...	...	...	...
LONG FINGER *	Logan Part No.	E11006	E11005	...	E11005	...	E11005	...
	Bowen No.	45516	45518	...	45518	...	45518	...
	Code	A	C	...	C	...	C	...
	No. Req'd	6	3	...	6	...	7	...
PIVOT PIN *	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...
	No. Req'd	...	...	...	...	...	...	...
TORSION SPRING *	Logan Part No.	E13000	E13000	E13000	E13000	E13000	E13000	E13000
<i>(stainless steel)</i>	Bowen No.	45520	45520	45520	45520	45520	45520	45520
	No. Req'd	12	12	12	12	14	14	12
* RETAINER SCREW	Logan Part No.	E14000	E14000	E14000	E14000	E14000	E14000	E14000
<i>(stainless steel)</i>	Bowen No.	42257	42257	42257	42257	42257	42257	42257
	No. Req'd	2	2	2	2	2	2	2
REPAIR KITS	Logan Part No.	500-029RK	600-063RK	14000-011RK	600-022RK	500-017RK	500-030RK	600-060RK
* Indicates parts included in kit	Bowen No.	14618K	18935K	22050K	21725K	14622K	14623K	21865K

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When ordering, please specify:

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- (2) Finger number and code, when ordering fingers

Recommended Spare Parts:

- (1) 2 Sets of Fingers
- (2) 4 Sets of Torsion Springs
- (3) 1 Set of Pivot Pins
- (4) 4 Retainer Screws

Special Notes:

- (1) Code: Each finger is stenciled with a letter or letter-number code. These codes are used in lieu of the part number because of space limitation. See the Finger Code Chart below to cross-reference the code with the part number.

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Finger Code Chart

Code	Part No.	Code	Part No.	Code	Part No.	Code	Part No.
A	E11006	I	E11003	P-1	E9007	21778-W	E9015
B	E9005	J	E11014	P-2	E11008	21779-W	E11016
C	E11005	K	E9014	W-1	E9012	362-W	E9006
D	—	L	E10003	W-2	E11013	363-W	E11007
E	E9001	M	E9010	W-3	E9002	690-W	E90015
F	E11000	N	E11010	W-4	E11001	691-W	E11015
G	E9013	O	—	X-1	E9019	666-W	E9009
H	E9004	P	—	X-2	E11020	667-W	E11011

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LOGAN JUNK CATCHER ASSEMBLIES

INSIDE DIAMETER		5-5/8	6	6	6	6-3/16	6-3/16	6-1/2
OUTSIDE DIAMETER		6-19/32	7	7	7	7-1/8	7-1/8	7-7/16
LENGTH		3-5/8	1-23/32	3-7/16	3.44	3-13/16	3-13/16	3-1/2
COMPLETE ASSEMBLY	Logan Part No.	600-061	14000-012	600-023	600-085	500-018	500-031	600-030
	Bowen No.	18936W	21640-W	18725W		14627-W	14628-W	18720-W
BODY	Logan Part No.	D11014	E7014	D11007	D11007	E7008	E7008	D11020
	Bowen No.	45514	68382	45505	45505	45547	45547	45515
FINGER RETAINER	Logan Part No.	D12014	D12007	D12007	D12007	E8008	E8008	D12018
<i>(stainless steel)</i>	Bowen No.	45528	45506	45506	45506	45548	45548	45529
SHORT FINGER *	Logan Part No.	E9005	E9016	E9014	E9014	E9006	E9006	E9014
	Bowen No.	45517	68383	45508	45508	47670	47670	45508
	Code	B	AH	K	K	362-W	362-W	K
	No. Req'd	6	12	6	12	12	6	6
MEDIUM FINGER *	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...
	Code	...	...	...	...	...	...	...
	No. Req'd	...	...	...	...	...	...	...
LONG FINGER *	Logan Part No.	E11005	...	E11014	...	E11007	E11014	
	Bowen No.	45518	...	45507	...	47669	45507	
	Code	C	...	J	...	363-W	J	
	No. Req'd	6	...	6	...	6	6	
PIVOT PIN *	Logan Part No.	...	...	...	...	E12008	E12008	...
	Bowen No.	...	...	...	...	45536	45536	...
	No. Req'd	...	...	...	...	12	12	...
TORSION SPRING *	Logan Part No.	E13000	E13002	E13004	E13004	E13001	E13001	E13004
<i>(stainless steel)</i>	Bowen No.	45520	45549	45509	45509	45537	45537	45509
	No. Req'd	12	12	12	12	12	12	12
RETAINER SCREW *	Logan Part No.	E14000	E14000	E14000	E14000	E14000	E14000	E14000
<i>(stainless steel)</i>	Bowen No.	42257	42257	42257	42257	42257	42257	42257
	No. Req'd	2	2	2	2	2	2	2
REPAIR KITS	Logan Part No.	600-061RK	14000-012RK	600-023RK	...	500-018RK	500-031RK	600-030RK
<i>* Indicates parts included in kit</i>	Bowen No.	18936K	21640K	18725K	...	14627K	14628K	18720K

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When ordering, please specify:

- (1) Name and number of assembly or part
- (2) Finger number and code, when ordering fingers

Recommended Spare Parts:

- (1) 2 Sets of Fingers
- (2) 4 Sets of Torsion Springs
- (3) 1 Set of Pivot Pins
- (4) 4 Retainer Screws

Special Notes:

- (1) Code: Each finger is stenciled with a letter or letter-number code. These codes are used in lieu of the part number because of space limitation. See the Finger Code Chart below to cross-reference the code with the part number.

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Finger Code Chart

Code	Part No.	Code	Part No.	Code	Part No.	Code	Part No.
A	E11006	I	E11003	P-1	E9007	21778-W	E9015
B	E9005	J	E11014	P-2	E11008	21779-W	E11016
C	E11005	K	E9014	W-1	E9012	362-W	E9006
D	—	L	E10003	W-2	E11013	363-W	E11007
E	E9001	M	E9010	W-3	E9002	690-W	E90015
F	E11000	N	E11010	W-4	E11001	691-W	E11015
G	E9013	O	—	X-1	E9019	666-W	E9009
H	E9004	P	—	X-2	E11020	667-W	E11011

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LOGAN JUNK CATCHER ASSEMBLIES

INSIDE DIAMETER		7-1/16	7-3/16	7-3/16	7-13/16	7-13/16	8-1/16
OUTSIDE DIAMETER		7-7/8	8-1/8	8-1/8	9-1/32	9-1/32	9-5/16
LENGTH		4-5/16	4-5/16	4-5/16	2-5/16	4-5/8	5
COMPLETE ASSEMBLY	Logan Part No.	600-034	14000-013	600-024	14000-014	500-019	500-054
	Bowen No.	9800-W	14632-W	14633-W	25235-W	18945-W	14637-W
BODY	Logan Part No.	D11023	E7009	E7009	E7016	E7010	E7013
	Bowen No.	68396	45521	45521	68388	45522	45523
FINGER RETAINER <i>(stainless steel)</i>	Logan Part No.	D12021	D12008	D12008	E8010	E8010	E8013
	Bowen No.	68397	45530	45530	45531	45531	45532
SHORT FINGER **	Logan Part No.	E9010	E9007	E9007	E9016	E11014	E9010
	Bowen No.	45525	45588	45588	68383	45507	45525
	Code	M	N	P-1	S	J	M
	No. Req'd	6	12	6	12	6	16
MEDIUM FINGER **	Logan Part No.	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...
	Code	...	...	...	...	...	...
	No. Req'd	...	...	...	...	...	...
LONG FINGER **	Logan Part No.	E10003	...	E11008	...	...	...
	Bowen No.	45510	...	45589	...	...	...
	Code	L	...	P-2	...	...	...
	No. Req'd	6	...	6	...	...	...
PIVOT PIN **	Logan Part No.	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...
	No. Req'd	...	...	...	...	...	...
TORSION SPRING ** <i>(stainless steel)</i>	Logan Part No.	E13002	E13002	E13002	E13004	E13004	E13004
	Bowen No.	45549	45549	45549	45509	45509	45509
	No. Req'd	12	12	12	12	12	16
RETAINER SCREW ** <i>(stainless steel)</i>	Logan Part No.	E14000	E14000	E14000	E14000	E14000	E14000
	Bowen No.	42257	42257	42257	42257	42257	42257
	No. Req'd	2	2	2	2	2	2
REPAIR KIT	Logan Part No.	600-034RK	14000-013RK	600-024RK	14000-014RK	500-019RK	500-054RK
	Bowen No.	9800K	14632K	14633K	25235K	18945K	154611K

** Indicates parts included in kit

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When ordering, please specify:

- (1) Name and number of assembly or part
- (2) Finger number and code, when ordering fingers

Recommended Spare Parts:

- (1) 2 Sets of Fingers
- (2) 4 Sets of Torsion Springs
- (3) 1 Set of Pivot Pins
- (4) 4 Retainer Screws

Special Notes:

- (1) Code: Each finger is stenciled with a letter or letter-number code. These codes are used in lieu of the part number because of space limitation. See the Finger Code Chart below to cross-reference the code with the part number.

Finger Code Chart

Code	Part No.	Code	Part No.	Code	Part No.	Code	Part No.
A	E11006	I	E11003	P-1	E9007	21778-W	E9015
B	E9005	J	E11014	P-2	E11008	21779-W	E11016
C	E11005	K	E9014	W-1	E9012	362-W	E9006
D	—	L	E10003	W-2	E11013	363-W	E11007
E	E9001	M	E9010	W-3	E9002	690-W	E90015
F	E11000	N	E11010	W-4	E11001	691-W	E11015
G	E9013	O	—	X-1	E9019	666-W	E9009
H	E9004	P	—	X-2	E11020	667-W	E11011

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LOGAN JUNK CATCHER ASSEMBLIES

INSIDE DIAMETER		8-1/16	8-5/16	8-5/16	8-5/16	8-11/16	9-1/8	9-1/8
OUTSIDE DIAMETER		9-5/16	9-3/4	9-3/4	9-3/4	10-3/32	10-7/16	10-7/16
LENGTH		5	5	5	4-1/2	5-3/32	5-3/16	5-3/16
COMPLETE ASSEMBLY	Logan Part No.	500-032	14000-015	600-026	600-064	600-027	500-020	500-033
	Bowen No.	14638-W	31046-W	21760W	22000-W	21840W	14642-W	14643-W
BODY	Logan Part No.	E7013	D11009	D11009	D11017	D11010	E7011	E7011
	Bowen No.	45523	45576	45576	45577	45593	45524	45524
FINGER RETAINER	Logan Part No.	E8013	D12010	D12010	D12010	D12011	E8011	E8011
<i>(stainless steel)</i>	Bowen No.	45532	45578	45578	45578	45594	45533	45533
SHORT FINGER *	Logan Part No.	E9010	E9010	E9010	E9010	E11014	E11014	E11014
	Bowen No.	45525	45525	45525	45525	45507	45507	45507
	Code	M	M	M	M	J	J	J
	No. Req'd	8	16	8	16	8	16	8
MEDIUM FINGER *	Logan Part No.	E11014	...	E10003	...	E10003	...	E10003
	Bowen No.	45507	...	45510	...	45510	...	45510
	Code	J	...	L	...	L	...	L
	No. Req'd	4	...	4	...	4	...	4
LONG FINGER *	Logan Part No.	E11017	...	E11010	...	E11010	...	E11010
	Bowen No.	68295	...	45526	...	45526	...	45526
	Code	N	...	N	...	N	...	N
	No. Req'd	4	...	4	...	4	...	4
PIVOT PIN *	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...
	No. Req'd	...	...	...	...	...	...	...
TORSION SPRING *	Logan Part No.	E13004	E13004	E13004	E13004	E13004	E13004	E13004
<i>(stainless steel)</i>	Bowen No.	45509	45509	45509	45509	45509	45509	45509
	No. Req'd	16	16	16	16	16	16	16
RETAINER SCREW *	Logan Part No.	E14000	E14000	E14000	E14000	E14000	E14000	E14000
<i>(stainless steel)</i>	Bowen No.	42257	42257	42257	42257	42257	42257	42257
	No. Req'd	2	2	2	2	2	2	2
REPAIR KITS	Logan Part No.	500-032RK	14000-015RK	600-026RK	600-064RK	600-027RK	500-020RK	500-033RK
<i>* Indicates parts included in kit</i>	Bowen No.	14638K	31046K	21760K	22000K	21840K	14642K	14643K

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When ordering, please specify:

- (1) Name and number of assembly or part
- (2) Finger number and code, when ordering fingers

Recommended Spare Parts:

- (1) 2 Sets of Fingers
- (2) 4 Sets of Torsion Springs
- (3) 1 Set of Pivot Pins
- (4) 4 Retainer Screws

Special Notes:

- (1) Code: Each finger is stenciled with a letter or letter-number code. These codes are used in lieu of the part number because of space limitation. See the Finger Code Chart below to cross-reference the code with the part number.

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Finger Code Chart

Code	Part No.	Code	Part No.	Code	Part No.	Code	Part No.
A	E11006	I	E11003	P-1	E9007	21778-W	E9015
B	E9005	J	E11014	P-2	E11008	21779-W	E11016
C	E11005	K	E9014	W-1	E9012	362-W	E9006
D	—	L	E10003	W-2	E11013	363-W	E11007
E	E9001	M	E9010	W-3	E9002	690-W	E90015
F	E11000	N	E11010	W-4	E11001	691-W	E11015
G	E9013	O	—	X-1	E9019	666-W	E9009
H	E9004	P	—	X-2	E11020	667-W	E11011

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LOGAN JUNK CATCHER ASSEMBLIES

INSIDE DIAMETER		10-1/8	10-1/8	9-7/8	11-3/16	12-3/8	12-3/8
OUTSIDE DIAMETER		11-3/8	11-3/8	11-21/32	13-5/8	13-13/16	13-13/16
LENGTH		6	6	5-31/32	7-5/16	7-7/8	7-7/8
COMPLETE ASSEMBLY	Logan Part No.	500-021	500-034	600-028	600-029	500-022	500-035
	Bowen No.	14647-W	14648-W	21770W	21775W	14652-W	14653-W
BODY	Logan Part No.	E7012	E7012	D11011	D11012	E7015	E7015
	Bowen No.	45586	45586	64810	45605	68391	68391
FINGER RETAINER	Logan Part No.	E8012	E8012	D12012	D12013	E8014	E8014
<i>(stainless steel)</i>	Bowen No.	45587	45587	64811	45606	68392	68392
SHORT FINGER *	Logan Part No.	E9009	E9009	E9009	E9015	E9017	E9017
	Bowen No.	666	666	666	45607	68393	68393
	Code	666-W	666-W	666-W	21778-W		
	No. Req'd	16	8	8	7	14	7
MEDIUM FINGER *	Logan Part No.	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...
	Code	...	...	...	...	...	...
	No. Req'd	...	...	...	...	...	...
LONG FINGER *	Logan Part No.	...	E11011	E11011	E11016	...	E11019
	Bowen No.	...	667	667	45608	...	68395
	Code	...	667-W	667-W	21779-W	...	...
	No. Req'd	...	8	8	7	...	7
PIVOT PIN *	Logan Part No.	E12012	E12012	E12012	E12009	E12013	E12013
	Bowen No.	45603	45603	45603	45609	68394	68394
	No. Req'd	16	16	16	14	14	14
TORSION SPRING *	Logan Part No.	E13005	E13005	E13005	E13010	E13004	E13004
<i>(stainless steel)</i>	Bowen No.	45604	45604	45604	45610	45509	45509
	No. Req'd	16	16	16	14	14	14
RETAINER SCREW *	Logan Part No.	E14000	E14000	E14000	E14000	E14000	E14000
<i>(stainless steel)</i>	Bowen No.	42257	42257	42257	42257	42257	42257
	No. Req'd	2	2	2	2	2	2
REPAIR KITS	Logan Part No.	500-021RK	500-034RK	600-028RK	600-029RK	500-022RK	500-035RK
	Bowen No.	1464K	14648K	21770K	21775K	14652K	14653K

* Indicates parts included in kit

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When ordering, please specify:

- (1) Name and number of assembly or part
- (2) Finger number and code, when ordering fingers

Recommended Spare Parts:

- (1) 2 Sets of Fingers
- (2) 4 Sets of Torsion Springs
- (3) 1 Set of Pivot Pins
- (4) 4 Retainer Screws

Special Notes:

(1) Code: Each finger is stenciled with a letter or letter-number code. These codes are used in lieu of the part number because of space limitation. See the Finger Code Chart below to cross-reference the code with the part number.

Finger Code Chart

Code	Part No.	Code	Part No.	Code	Part No.	Code	Part No.
A	E11006	I	E11003	P-1	E9007	21778-W	E9015
B	E9005	J	E11014	P-2	E11008	21779-W	E11016
C	E11005	K	E9014	W-1	E9012	362-W	E9006
D	—	L	E10003	W-2	E11013	363-W	E11007
E	E9001	M	E9010	W-3	E9002	690-W	E90015
F	E11000	N	E11010	W-4	E11001	691-W	E11015
G	E9013	O	—	X-1	E9019	666-W	E9009
H	E9004	P	—	X-2	E11020	667-W	E11011

LEGAL NOTICE

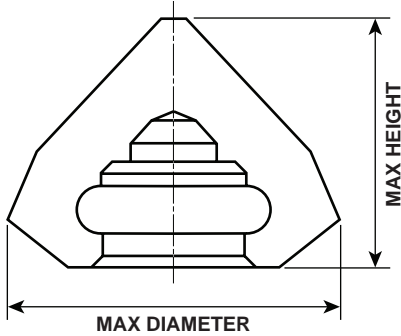
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LOGAN FULL FLOW REVERSE CIRCULATION JUNK BASKETS

ROCK BIT CONE DIMENSIONS

The cone sizes shown below may be used as a guide in junk fishing operations. Cone dimensions are the maximum for the size indicated in the middle column, which are the nominal Hughes Christensen Company bit cone sizes.



2-CONE BITS		SIZE	3-CONE BITS	
MAX DIA.	MAX HEIGHT		MAX DIA.	MAX HEIGHT
...	...	3-3/4 to 4-1/8	1-31/32	2-45/64
...	...	4-1/4 to 4-1/2	2-13/64	2-59/64
...	...	4-5/8 to 5	2-11/32	3-13/64
...	...	5-1/8 to 5-1/2	2-41/64	3-17/64
...	...	5-5/8 to 6	3-1/8	4-1/64
...	...	6-1/8 to 6-1/2	3-6/64	4-3/16
...	...	6-5/8 to 7	3-7/16	4-9/16
...	...	7-1/8 to 7-1/2	3-45/64	4-27/32
3-45/64	5-17/32	7-5/8 to 8	3-31/32	5-17/64
4-11/32	6-7/64	8-1/8 to 8-1/2	4-3/8	5-25/32
4-11/32	6-5/16	8-5/8 to 9	4-17/32	6-1/32
...	...	9-1/8 to 9-1/2	4-9/16	6-13/32
4-7/8	7	9-5/8 to 9-7/8	4-15/16	6-41/64
5-23/64	7-19/32	10-1/2 to 11-1/2	5-27/64	7-5/32
5-63/64	8-27/64	11-3/4 to 12-1/2	6-1/8	7-61/64
...	...	12-5/8 to 13-1/8	6-5/16	8-31/64
...	...	13-1/2 to 14-1/4	7-1/32	8-13/16
...	...	14-1/2 to 15	7-25/64	9-19/32
...	...	16	9-27/32	10-1/8
...	...	17 to 17-1/2	8-13/64	11-11/64
...	...	18-1/2 to 18-7/8	8-25/32	11-23/64
...	...	20	9-1/2	11-7/8
...	...	22	10-15/32	14-1/64
...	...	24	10-15/16	14-9/16
...	...	26	12-19/64	14-31/64



NOTES



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