LOGAN
OIL TOOLS



General Catalog

LOGAN OIL TOOLS **GENERAL CATALOG**

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LEGAL NOTICE

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

Overview

The Overshot is the most versatile and widely used fishing tool in the industry. Designed to engage, pack-off, retrieve, and release various types of fish, it's rugged construction, simplicity, and strength make the Overshot the standard choice of all external catch fishing tools. Logan Oil Tools offers four of the most commonly used Overshots:

- Series 10 Sucker Rod Overshot
- Series 20 Short Catch Sucker Rod Overshot
- Series 70 Short Catch Releasing Overshot
- Series 150 Releasing and Circulating Overshot

Each of the above series of Overshots are coded with one of the following strength designations:

- A = Full Strength (FS)
  For all torsional pulling and jarring strain
- B = Extra Full Strength (XFS)
  For extreme abuse
- C = Semi Full Strength (SFS)
  Maximum strength for special hole conditions
- D = Slim Hole (SH)
  For heavy pulling strains only
- E = Extra Slim Hole (XSH)
  For pick up jobs only

Type A (full strength) Overshots are recommended when casing, hole size, and fish size will permit.

Overshot Components

Top Sub

The Top Sub is the uppermost component of the Overshot assembly. It is equipped with a customer specified box connection to assure proper make-up with the fishing string.

Bowl

The Bowl, the major working component of the Overshot, is located between the Top Sub and the Guide.

The inside diameter features a threaded section that conforms to the exterior threads of the Grapple. This design permits any expansion or compression strain to be evenly distributed over the entire working surface of the Bowl, Grapple, and the fish. Any possible damage to the fish or Overshot is minimized.

Guide

The lowermost component of the Overshot assembly is the Guide. As its name implies, it guides the fish into the internal gripping mechanism (Grapple) of the Overshot. The Guide also minimizes possible damage to the Overshot by blocking the entry of a fish that exceeds the maximum catch size of the Overshot.

Grapples

The Grapple fits into the Bowl and is the gripping mechanism of the Overshot. There are two basic types of Grapples: Spiral and Basket.

Spiral Grapple

The left-handed, helix shape of the Spiral Grapple conforms to the tapered interior wickers of the Bowl. The specially hardened interior wickers of the Grapple assure positive engagement with the fish.

Basket Grapple

The Basket Grapple is a slotted, expandable cylinder with a wickered interior to engage the fish. Its tapered exterior conforms to the interior of the Bowl.

To meet the needs of various fishing operations, three types of Basket Grapples are available: Plain (standard), Short Catch Stop, and Long Catch Stop.

Plain Basket Grapple

This type of Basket Grapple is used to retrieve fish with a uniform outside diameter. During fishing operations, the fish passes completely through the Grapple. Wickers running the entire interior length of the Grapple securely grip the fish. The Plain Basket Grapple is standard equipment on all Overshots and will always be furnished unless another type is specified.

Basket Grapple with Short Catch Stop

This Grapple is used to retrieve couplings that are attached to a ruptured section of pipe that protrudes above the coupling. Two sets of wickers, each with a different inside diameter, are utilized. The smaller diameter threads catch the pipe above the collar and provide a stop so that the coupling can be engaged by the larger set of threads before being packed-off by a Control Packer.

Basket Grapple with Long Catch Stop

This type of Basket Grapple is designed to retrieve tool joints and collars with sufficient length remaining below the Grapple to allow pack-off with a Plain or Mill Control Packer. The internal shoulder at the upper end of the Grapple prevents the fish from completely passing through it. This shoulder also positions the Basket Control Packer around the fish for optimum pack-off.

Grapple Controls

A Grapple Control acts as a key that transmits torque from the Overshot Bowl to the Grapple while allowing the Grapple to move vertically inside the Bowl during operation. There are two types of Grapple Controls: Spiral and Basket. Spiral Grapple Controls are used with Spiral Grapples and are always plain — that is, without milling teeth or pack-off mechanism. Basket Grapple Controls are used with Basket Grapples. These may be plain, include a pack-off mechanism, and/or milling teeth.

Pack-off Mechanism

If circulation is required during the fishing operation, a Pack-off Mechanism is required to assure circulation goes through rather than around the fish. The type of Grapple (Spiral or Basket) being used will determine which type of Pack-off Mechanism is used.

Type A Packer

The Type A Packer is used on Overshots equipped with Spiral Grapples. The Type A Packer seals its outer diameter against the inside of the Bowl. It has an internal lip that seals around the fish. Each Type A Packer is designed to pack-off the specific catch size of each Spiral Grapple and one should be ordered for each size Grapple.

Control Packers

A Control Packer is used in conjunction with Overshots equipped with a Basket Grapple. Control Packers are available in two styles: Plain and Mill. The Plain Control Packer is used when the milling operation has preceded the fishing operation. The Mill Control Packer should be used when the fish requires light dressing prior to engagement. Only one Control Packer can be installed in the Overshot assembly at one time.

Control Packers are manufactured to match a specific Basket Grapple size. One Control Packer should be ordered for each size of Basket Grapple that has been ordered.

Overshot Accessories

Logan Series 150 Overshots can be equipped with a wide range of accessories, including Extension Subs, Oversized Guides, Wallhook Guides, Mill Guides, Inner and Outer Seals for Mill Control Packers, and Type E Mill Control Packers.

SERIES 10 SUCKER ROD OVERSHOTS

Overview

The Logan Series 10 Sucker Rod Overshot is a small, rugged tool designed for engaging and retrieving sucker rods, couplings, and other items from inside tubing strings.

The Series 10 Sucker Rod Overshot consists of a Top Sub, Bowl, Grapple, and a Guide. Depending on the diameter of the fish, either a Spiral or Basket Grapple will be used. Fish diameters near the maximum catch limits require the use of a Spiral Grapple and a Control Guide. Fish diameters that are substantially below the maximum catch limits of the Overshot require a Basket Grapple, a Basket Grapple Control, and a Plain Guide.

Engaging a Fish

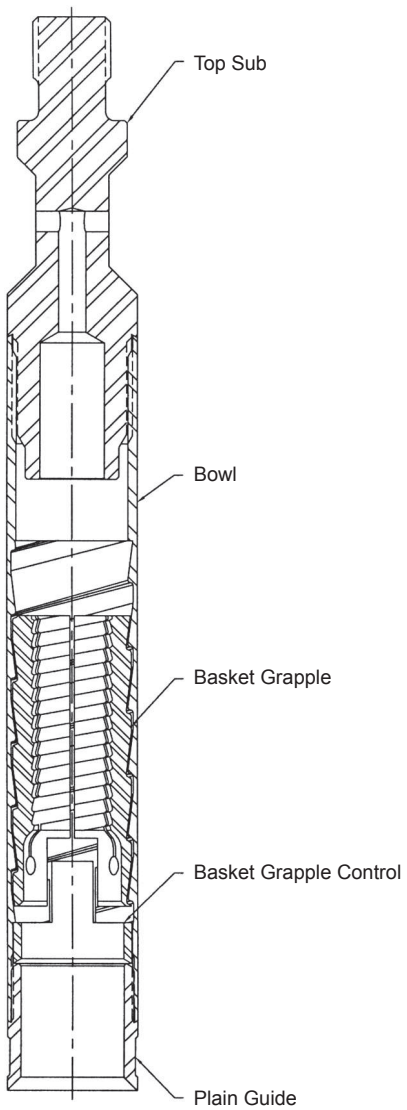
Dress the Overshot with the proper type and size of Grapple. Attach the Overshot to the bottom end of the fishing string and run it into the hole. As the Overshot nears the top of the fish, slowly rotate to the right as the overshot is lowered over the fish. After the fish is engaged, allow right-hand torque to release from the fishing string. Then raise the fish by pulling upward on the fishing string.

Releasing a Fish

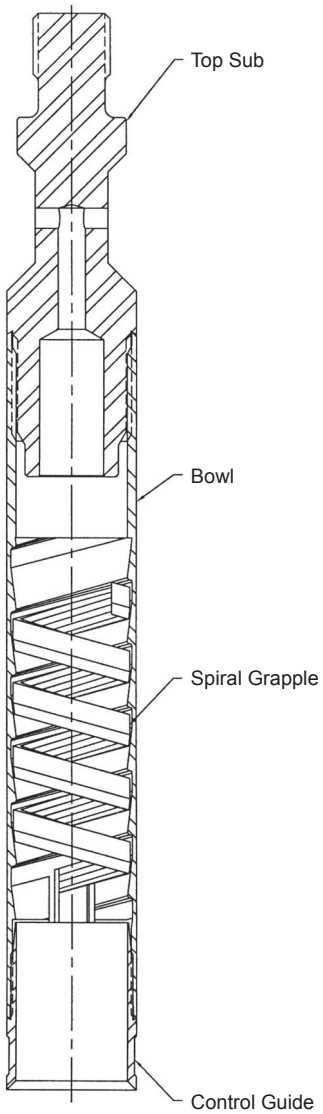
Bump down or drop the weight of the fishing string against the Overshot to break the hold of the grapple within the Bowl. Elevate the fishing string while slowly rotating it to the right until the Overshot has cleared the fish.

When ordering, please specify:

(1) Complete assembly or part number
(2) Top Sub connection
(3) Size and type of fish to be caught
(4) O.D., if other than standard



Basket Grapple Assembly



Spiral Grapple Assembly

SERIES 10 SUCKER ROD OVERSHOTS

MAXIMUM CATCH SIZE (Spiral)		1-1/16	1-1/4	1-3/8	1-1/2	1-1/2	1-5/8	1-5/8
MAXIMUM CATCH SIZE (Basket)		7/8	1-1/16	1-3/16	1-5/16	1-5/16	1-7/16	1-7/16
OVERSHOT O.D.		1-9/16	1.43	1-21/32	1-25/32	1-29/32	1-29/32	2-5/16
TYPE		FS	SH	SH	SH	SH	SH	FS
STANDARD TOP CONNECTION		3/4 Rod	3/4 Rod	3/4 Rod	3/4 Rod	3/4 Rod	3/4 Rod	7/8 Rod
COMPLETE ASSEMBLY	Logan Part No.	110-156-A	110-143-D	110-166-D	110-178-D	110-190-D	110-191-D	110-231-A
	Bowen No.	9790	17985	16490	13940	9990	9340	9880

SPIRAL COMPONENT PARTS

TOP SUB	Logan Part No.	B1000	B1001	B10015	B1002	B1004	B1004	B1004
	Bowen No.	9791	17986	16491	13941	9341	9341	9341
BOWL	Logan Part No.	B2000	B2001	B20015	B2002	B2003	B2004	B2005
	Bowen No.	9792	17987	16492	13942	9991	9342	9881
SPIRAL GRAPPLE	Logan Part No.	B3000	B3001	B30015	B3002	B3003	B3004	B3004
	Bowen No.	9793	17988	16493	13943	9992	9343	9343
CONTROL GUIDE	Logan Part No.	B4000	B4001	B40015	B4002	B4003	B4004	B4005
	Bowen No.	9796	17989	16496	13945	9993	9349	9883
SPIRAL GRAPPLE CONTROL	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...
GUIDE (CUT-LIPPED)	Logan Part No.	...	...	B80015	...	B4003	...	...
	Bowen No.	...	...	16496	...	9993	...	...

BASKET COMPONENT PARTS

BASKET GRAPPLE	Logan Part No.	B5000	B5001	B50015	B5002	B5003	B5004	B5004
	Bowen No.	9793	17988	16493	13943	9992	9343	9343
BASKET GRAPPLE CONTROL	Logan Part No.	B6000	B6001	B60015	B6002	B6003	B6004	B6005
	Bowen No.	9794	18003	16494	13947	9993	9344	153338
PLAIN GUIDE	Logan Part No.	B7000	B7001	B70015	B7002	B7003	B7004	B7005
	Bowen No.	9795	18004	16498	13944	9994	9345	9882

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

Note: Grapples are available in 1/16" intervals.

When ordering, please specify:

(1) Complete assembly or part number
(2) Top Sub connection
(3) Size and type of fish to be caught
(4) O.D., if other than standard

Recommended Spare Parts:

(1) Spiral: 2 Grapples, 1 Control
(2) Basket: 2 Grapples, 1 Control

Logan Coding

A = FS	Full Strength – For all pulling torsional and jarring strain
B = XFS	Extra Full Strength – For extreme abuse
C = SFS	Semi Full Strength – Maximum strength for special hole conditions
D = SH	Slim Hole – For heavy pulling strains only
E = XSH	Extra Slim Hole – For pick up jobs only

SERIES 10 SUCKER ROD OVERSHOTS

MAXIMUM CATCH SIZE (Spiral)		1-9/16	1-3/4	1-3/4	1-13/16	1-13/16	1-15/16	2
MAXIMUM CATCH SIZE (Basket)		1-3/8	1-9/16	1-7/16	1-5/8	1-5/8	1-3/4	1-13/16
OVERSHOT O.D.		1-27/32	2-1/16	2-1/16	2-1/8	2-5/16	2-1/4	2-5/16
TYPE		SH	SH	SH	SH	SFS	SH	SH
STANDARD TOP CONNECTION		5/8 Rod	5/8 Rod	7/8 Rod	7/8 Rod	7/8 Rod	7/8 Rod	7/8 Rod
COMPLETE ASSEMBLY	Logan Part No.	110-184-D	110-206-D	110-207-D	110-213-D	110-231-C	110-225-D	110-231-D
	Bowen No.	36423	54178 *	156309	27765	11480	16070	9400

SPIRAL COMPONENT PARTS

TOP SUB	Logan Part No.	B10051	B10053	B10054	B10052	B1006	B1007	B1008
	Bowen No.	36424	54179 *	156310	27766	11481	16071	9401
BOWL	Logan Part No.	B20051	B20053	B20054	B20052	B2006	B2007	B2008
	Bowen No.	36425	54180 *	156311	27767	11482	16072	9402
SPIRAL GRAPPLE	Logan Part No.	B30051	B30053	B30054	B30052	B3006	B3007	B3008
	Bowen No.	36436	54181	156312	27768	11483	16073	9403
CONTROL GUIDE	Logan Part No.	B40051	B40053	B40054	B40052	B4006	B4007	B4008
	Bowen No.	36427	54184	156313	27764	11484	16076	9406
SPIRAL GRAPPLE CONTROL	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...
GUIDE (CUT-LIPPED)	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...

BASKET COMPONENT PARTS

BASKET GRAPPLE	Logan Part No.	B50051	B50053	B50054	B50052	B5006	B5007	B5008
	Bowen No.	36436	54181	156312	27768	11483	16073	9403
BASKET GRAPPLE CONTROL	Logan Part No.	B60051	B60053	B60053	B60052	B6006	B6007	B6008
	Bowen No.	36437	54182	54182	27763	11485	16074	9405
PLAIN GUIDE	Logan Part No.	B70051	B70053	B70054	B70052	B7006	B7007	B7008
	Bowen No.	36426	54183	156333	27769	11486	16075	9404

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

Note: Grapples are available in 1/16" intervals.
** Left-hand threads.*

When ordering, please specify:
(1) Complete assembly or part number
(2) Top Sub connection
(3) Size and type of fish to be caught
(4) O.D., if other than standard

Recommended Spare Parts:
(1) Spiral: 2 Grapples, 1 Control
(2) Basket: 2 Grapples, 1 Control

Logan Coding

A = FS	Full Strength – For all pulling torsional and jarring strain
B = XFS	Extra Full Strength – For extreme abuse
C = SFS	Semi Full Strength – Maximum strength for special hole conditions
D = SH	Slim Hole – For heavy pulling strains only
E = XSH	Extra Slim Hole – For pick up jobs only

SERIES 10 SUCKER ROD OVERSHOTS

MAXIMUM CATCH SIZE (Spiral)		2	2-3/8
MAXIMUM CATCH SIZE (Basket)		1-13/16	2-3/16
OVERSHOT O.D.		2-7/8	2-27/32
TYPE		FS	SH
STANDARD TOP CONNECTION		7/8 Rod	7/8 Rod
COMPLETE ASSEMBLY	Logan Part No.	110-287-A	110-284-D
	Bowen No.	9530	15860

SPIRAL COMPONENT PARTS

TOP SUB	Logan Part No.	B1009	B1010
	Bowen No.	9531	15863
BOWL	Logan Part No.	B2009	B2010
	Bowen No.	9532	15861
SPIRAL GRAPPLE	Logan Part No.	B3008	B3010
	Bowen No.	9403	9872
CONTROL GUIDE	Logan Part No.	B4009	...
	Bowen No.	9535	...
SPIRAL GRAPPLE CONTROL	Logan Part No.	...	B8000
	Bowen No.	...	9873
GUIDE (CUT-LIPPED)	Logan Part No.	...	B8001
	Bowen No.	...	15862

BASKET COMPONENT PARTS

BASKET GRAPPLE	Logan Part No.	B5008	B5010
	Bowen No.	9403	9872
BASKET GRAPPLE CONTROL	Logan Part No.	B6008	B6010
	Bowen No.	9405	9873
PLAIN GUIDE	Logan Part No.	B7009	B7010
	Bowen No.	9533	15862

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

Note: Grapples are available in 1/16" intervals.

When ordering, please specify:

(1) Complete assembly or part number
(2) Top Sub connection
(3) Size and type of fish to be caught
(4) O.D., if other than standard

Recommended Spare Parts:

(1) Spiral: 2 Grapples, 1 Control
(2) Basket: 2 Grapples, 1 Control

Logan Coding

A = FS	Full Strength – For all pulling torsional and jarring strain
B = XFS	Extra Full Strength – For extreme abuse
C = SFS	Semi Full Strength – Maximum strength for special hole conditions
D = SH	Slim Hole – For heavy pulling strains only
E = XSH	Extra Slim Hole – For pick up jobs only

SERIES 20 SUCKER ROD OVERSHOTS

Overview

Logan Series 20 Short Catch Sucker Rod Overshots are designed for conditions when sucker rods, couplings, and other portions of a fish are too short for retrieval with a standard overshot.

The Logan Series 20 Short Catch Sucker Rod Overshot consists of a Top Sub, Bowl, Basket Grapple Control, and a Basket Grapple. The Grapple Control is located at the top end of the tool between the Top Sub and the Basket Grapple. The position of the Grapple Control above the Basket Grapple rather than below it allows the Basket Grapple to occupy the lowest position in the Bowl. This permits the exposed part of the fish to enter the Basket Grapple where it can be firmly and securely grasped.

Operation of the Logan Series 20 Short Catch Sucker Rod Overshot is the same as the Logan Series 10 Sucker Rod Overshot.

Catching a Fish

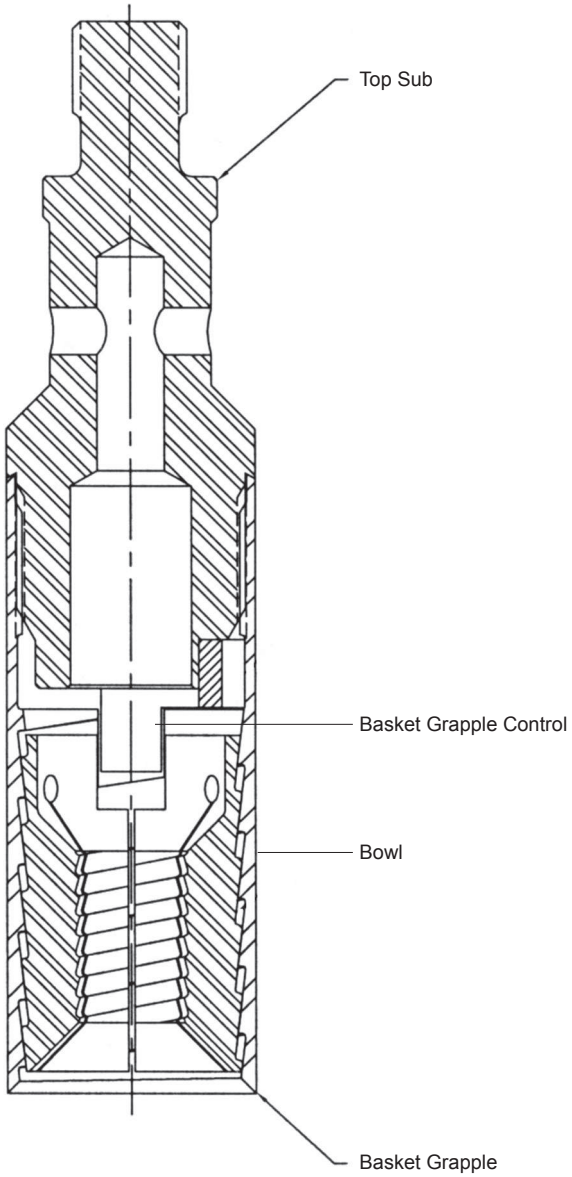
Dress the Overshot with the proper type and size of Grapple. Attach the Overshot to the bottom end of the fishing string and run it into the hole. Gradually lower the overshot over the fish. As the Overshot nears the top of the fish, slowly rotate it to the right to engage the fish. After the fish is engaged, allow right-hand torque to release from the fishing string. Then raise the fish by pulling upward on the fishing string.

Releasing a Fish

Bump down or drop the weight of the fishing string against the Overshot to break the hold of the grapple within the Bowl. Elevate the fishing string while slowly rotating it to the right until the Overshot has cleared the fish.

When ordering, please specify:

(1) Complete assembly or part number
(2) Top Sub connection
(3) Size and type of fish to be caught
(4) O.D., if other than standard



SERIES 20 SUCKER ROD OVERSHOTS

MAXIMUM CATCH SIZE (Basket)		7/8	1	1-1/4	1-3/8	1-1/2	1-3/4	1-13/16
OVERSHOT O.D.		1-1/4	1-3/8	1-5/8	1-3/4	1-29/32	2-1/4	2-5/16
TYPE *		SH	SH	SH	SH	SH	SH	SH
STANDARD TOP CONNECTION		5/8 Rod	5/8 Rod	5/8 Rod	3/4 Rod	3/4 Rod	7/8 Rod	7/8 Rod
COMPLETE ASSEMBLY	Logan Part No.	120-125-D	120-138-D	120-163-D	120-175-D	120-191-D	120-225-D	120-231-D
	Bowen No.	17315	25780	28760	18355	11555	47464	17438

BASKET COMPONENT PARTS

TOP SUB	Logan Part No.	B1011	B1012	B1013	B1014	B1004	B1007	B1008
	Bowen No.	17316	25781	28761	18356	9341	16071	9401
BOWL	Logan Part No.	B2011	B2012	B2013	B2014	B2015	B20155	B2016
	Bowen No.	17317	25782	28762	18357	11556	47465	17439
BASKET GRAPPLE	Logan Part No.	B3011	B3012	B3013	B3014	B3015	B30155	B3016
	Bowen No.	17318	25783	28763	18358	11557	47466	17440
BASKET GRAPPLE CONTROL	Logan Part No.	B4011	B4012	B4013	B4014	B4015	B40155	B4016
	Bowen No.	17319	25784	28764	18359	11558	47467	17441
OVERSIZED GUIDES	Logan Part No.	…	…	…	…	…	…	B5016
	Bowen No.	…	…	…	…	…	…	22276
GUIDE PINS	Logan Part No.	…	…	…	…	…	…	B6016
	Bowen No.	…	…	…	…	…	…	14876

Note: Grapples are available in 1/16" intervals.

MAXIMUM CATCH SIZE (Basket)		2-1/8	2-1/8	2-3/8	2-1/2			
OVERSHOT O.D.		2-25/32	2-7/8	3-1/8	3-1/4			
TYPE		SH	FS	SH	FS			
STANDARD TOP CONNECTION		7/8 Rod	2-3/8 Tbg	2-3/8 Tbg	2-3/8 Tbg			
COMPLETE ASSEMBLY	Logan Part No.	120-278-D	120-287-A	120-313-D	120-325-A			
	Bowen No.	18305	20170	20645	22270			

BASKET COMPONENT PARTS

TOP SUB	Logan Part No.	B1017	B1018	B1019	B1020			
	Bowen No.	18306	20172	20646	22271			
BOWL	Logan Part No.	B2017	B2018	B2019	B2020			
	Bowen No.	18307	20171	20647	22272			
BASKET GRAPPLE	Logan Part No.	B3017	B3017	B3019	B3020			
	Bowen No.	18308	18308	20648	22273			
BASKET GRAPPLE CONTROL	Logan Part No.	B4017	B4017	B4019	B4020			
	Bowen No.	18309	18309	20649	22274			
OVERSIZED GUIDES	Logan Part No.	…	B5018	…	B5020			
	Bowen No.	…	20173	…	22275			
GUIDE PINS	Logan Part No.	…	B6018	…	B6020			
	Bowen No.	…	20174	…	20651			

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

Note: Grapples are available in 1/16" intervals.

When ordering, please specify:

(1) Complete assembly or part number
(2) Top Sub connection
(3) Size and type of fish to be caught
(4) O.D., if other than standard

Recommended Spare Parts:

(1) Spiral: 2 Grapples, 1 Control
(2) Basket: 2 Grapples, 1 Control

Logan Coding

A = FS	Full Strength – For all pulling torsional and jarring strain
B = XFS	Extra Full Strength – For extreme abuse
C = SFS	Semi Full Strength – Maximum strength for special hole conditions
D = SH	Slim Hole – For heavy pulling strains only
E = XSH	Extra Slim Hole – For pick up jobs only

HYDRAULIC RELEASE OVERSHOTS

Overview

The Logan Hydraulic Release Overshot was designed to aid in the recovery of a stuck fish in a horizontal drilling application where normal rotation for release is not obtainable.

Construction

The Logan Hydraulic Release Overshot is manufactured of the finest available alloy steels and to the precise tolerances that have become a Logan standard.

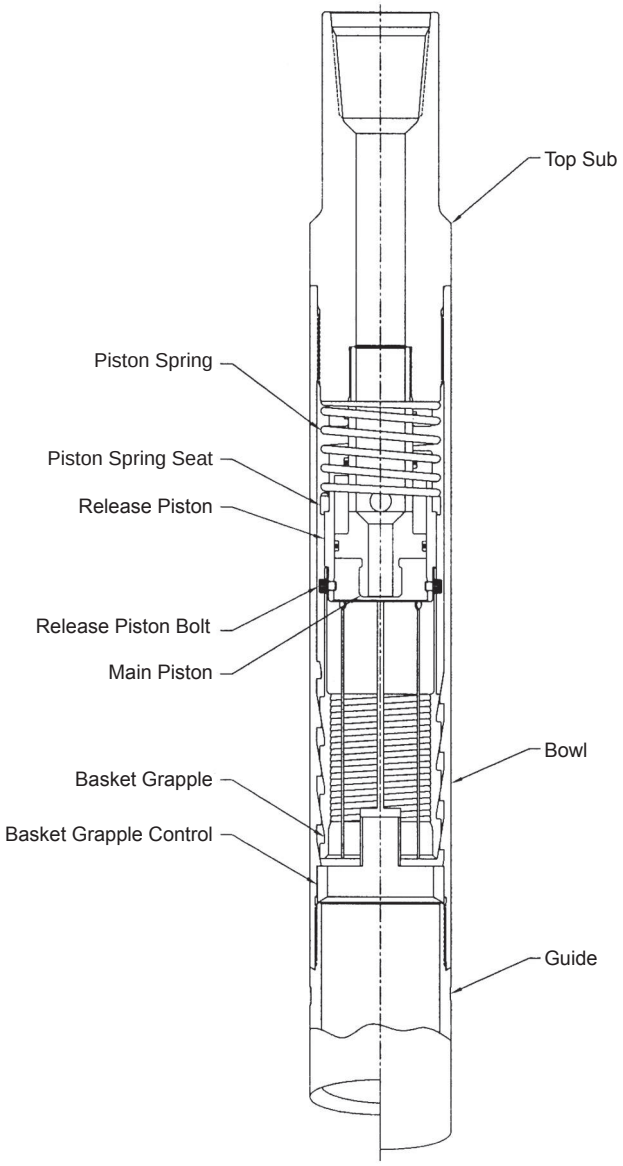
Operation

The Logan Hydraulic Release Overshot requires only set down load or movement to engage the fish.

If the fish can not be retrieved and release is necessary, simply relax any tension that might have been applied to the string during the retrieval operation. Increased flow rate through the tool will cause the fish to be released. No drop ball is necessary for the tool to work. This eliminates pulling a wet string that is associated with drop ball application, or the possibility of leaving anything in the hole.

When ordering, please specify:

(1) Complete assembly or part number
(2) Top sub connection
(3) Size and type of fish to be caught
(4) O.D., if other than standard



HYDRAULIC RELEASE OVERSHOTS

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

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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

SERIES 70
SHORT CATCH OVERSHOTS

Overview

The Logan Series 70 Short Catch Overshot is designed for conditions when the fish is too short to be engaged with a standard overshot. The Grapple Control is positioned above the Basket Grapple rather than below it to allow the Basket Grapple to occupy the lowest position in the Bowl. This enables the overshot to firmly engage and retrieve a very short fish.

The Logan Series 70 Short Catch Overshot assembly consists of a Top Sub, Bowl, Basket Grapple Control, and a Basket Grapple. Although the Series 70 Overshot has no Guide, the components function in the same manner as the standard Logan Series 150 Releasing and Circulating Overshot.

Operation of the Logan Series 70 Short Catch Releasing Overshot is identical to the Series 150.

Catching the Fish:

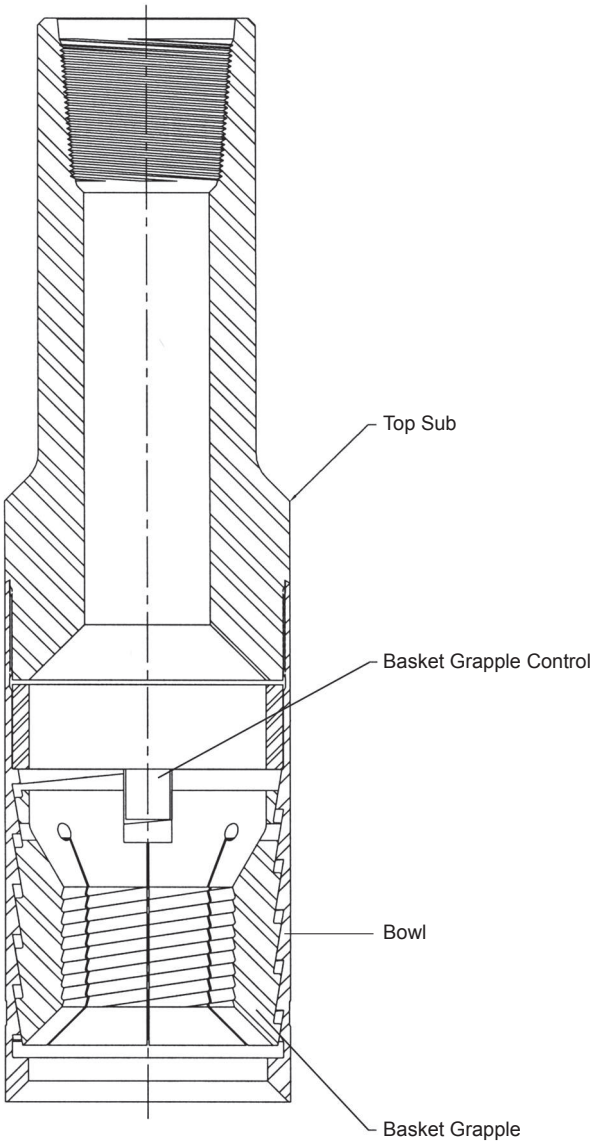
Attach the Overshot to the bottom end of the fishing string and run it into the hole. The Logan Series 70 Overshot assembly is rotated to the right and lowered as the fish enters the expandable grapple. With the fish in the Grapple, stop right-hand rotation and exert an upward pull to fully capture the fish.

Releasing the Fish:

A sharp downward force (bump) is applied to the Overshot to break the hold of the grapple within the bowl. The Overshot is then rotated to the right while it is slowly elevated to release the Grapple from the fish.

When ordering, please specify:

(1) Complete assembly or part number
(2) Top Sub connection
(3) Size and type of fish to be caught
(4) O.D., if other than standard



SERIES 70 SHORT CATCH OVERSHOTS

MAXIMUM CATCH SIZE (Basket)		1-5/8	2-1/2	2-5/8	3-1/16	3-1/16	3-1/16	3-3/8
OVERSHOT O.D.		2-5/16	3-5/8	3-3/4	3-15/16	4-5/8	4-1/8	4-3/8
TYPE		SH	SH	SH	SH	FS	SH	SH
COMPLETE ASSEMBLY	Logan Part No.	170-231-D	170-363-D	170-375-D	170-394-D	170-463-A	170-413-D	170-438-D
	Bowen No.	38506	17615	13535	63892	11290	10434	C-11023
TOP SUB	Logan Part No.	C1000	C1001	C1002	C10025	C1003	C1004	C10045
	Bowen No.	38507	17616	13536	63893	11295	10435	A-11024
BOWL	Logan Part No.	C2000	C2001	C2002	C20025	C2003	C2004	C20045
	Bowen No.	38508	17617	13537	63894	11291	10436	B-11025
BASKET GRAPPLE	Logan Part No.	C3000	C3001	C3002	C30025	C3003	C3004	C30045
	Bowen No.	38509	17618	13538	63895	11292	10437	B-11026
BASKET GRAPPLE CONTROL	Logan Part No.	C4000	C4001	C4002	C40025	C4003	C4004	C40045
	Bowen No.	38510	17619	13539	63896	11294	10438	A-11027

MAXIMUM CATCH SIZE (Basket)		3-21/32	3-21/32	3-3/4	3-3/4	4-1/4	4-3/4	5-1/4
OVERSHOT O.D.		4-11/16	5-5/8	4-3/4	5-1/2	5-3/4	5-7/8	6-1/4
TYPE		SH	FS	SH	FS	FS	SH	SH
COMPLETE ASSEMBLY	Logan Part No.	170-468-D	170-563-A	170-475-D	170-550-A	170-575-A	170-587-D	170-625-D
	Bowen No.	10543	11297	12645	12785	13065	10560	14805
TOP SUB	Logan Part No.	C1005	C1006	C1005	C1008	C1009	C1010	C10105
	Bowen No.	10544	11298	10544	12786	13066	10561	14806
BOWL	Logan Part No.	C2005	C2006	C2007	C2008	C2009	C2010	C20105
	Bowen No.	10545	11299	12646	12787	13067	10562	14807
BASKET GRAPPLE	Logan Part No.	C3005	C3006	C3007	C3008	C3009	C3010	C30105
	Bowen No.	10546	11300	12647	12788	13068	10563	14808
BASKET GRAPPLE CONTROL	Logan Part No.	C4005	C4006	C4007	C4008	C4009	C4010	C40105
	Bowen No.	10547	11301	12648	12789	13069	10564	14809

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

Notes: Grapples are available in 1/16" intervals.

Logan Coding

A = FS Full Strength – For all pulling torsional and jarring strain
B = XFS Extra Full Strength – For extreme abuse
C = SFS Semi Full Strength – Maximum strength for special hole conditions
D = SH Slim Hole – For heavy pulling strains only
E = XSH Extra Slim Hole – For pick up jobs only

When ordering, please specify:

(1) Complete assembly or part number
(2) Top Sub connection
(3) Size and type of fish to be caught
(4) O.D., if other than standard

Recommended Spare Parts:

(1) 2 Grapples, 1 Control

SERIES 70 SHORT CATCH OVERSHOTS

MAXIMUM CATCH SIZE (Basket)		4-3/4	6	6-1/4	6-1/2	7	7-3/4	8
OVERSHOT O.D.		6-5/8	7-5/8	7-7/8	8-1/4	8-1/2	9-1/4	9-3/4
TYPE		FS	FS	FS	FS	FS	FS	FS
COMPLETE ASSEMBLY	Logan Part No.	170-663-A	170-763-A	170-787-A	170-825-A	170-850-A	170-925-A	170-975-A
	Bowen No.	11303	11630	16975	38939	20050	25030	20060
TOP SUB	Logan Part No.	C1011	C1012	C1013	C1014	C1015	C1016	C1017
	Bowen No.	11304	11631	16976	38940	20051	25031	20061
BOWL	Logan Part No.	C2011	C2012	C2013	C2014	C2015	C2016	C2017
	Bowen No.	11305	11632	16977	38941	20052	25032	20062
BASKET GRAPPLE	Logan Part No.	C3011	C3012	C3013	C3014	C3015	C3016	C3017
	Bowen No.	11306	11633	16978	38942	20053	25033	20063
BASKET GRAPPLE CONTROL	Logan Part No.	C4011	C4012	C4013	C4014	C4015	C4016	C4017
	Bowen No.	11307	11634	16979	38943	20054	25034	20064

MAXIMUM CATCH SIZE (Basket)		8-1/4	9	13-1/2				
OVERSHOT O.D.		10	11-1/4	16				
TYPE		FS	FS	FS				
COMPLETE ASSEMBLY	Logan Part No.	170-1000-A	170-1125-A	170-1600-A				
	Bowen No.	…	33878	…				
TOP SUB	Logan Part No.	C10175	C1018	C1019				
	Bowen No.	…	33879	…				
BOWL	Logan Part No.	C20175	C2018	C2019				
	Bowen No. …	33880	…					
BASKET GRAPPLE	Logan Part No.	C30175	C3018	C3019				
	Bowen No.	…	33881	…				
BASKET GRAPPLE CONTROL	Logan Part No.	C40175	C4018	C4019				
	Bowen No. …	33882	…					

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Notes: Grapples are available in 1/16" intervals.

Logan Coding

A = FS Full Strength – For all pulling torsional and jarring strain
B = XFS Extra Full Strength – For extreme abuse
C = SFS Semi Full Strength – Maximum strength for special hole conditions
D = SH Slim Hole – For heavy pulling strains only
E = XSH Extra Slim Hole – For pick up jobs only

When ordering, please specify:

(1) Complete assembly or part number
(2) Top Sub connection
(3) Size and type of fish to be caught
(4) O.D., if other than standard

Recommended Spare Parts:

(1) 2 Grapples, 1 Control

SERIES 150 RELEASING & CIRCULATING OVERSHOTS

Overview

The Logan Series 150 Releasing and Circulating Overshot consists of three main external parts: a Top Sub, a Bowl, and a Guide. Internal catch and pack-off parts are determined by the diameter of the fish. Each assembly is designed for a maximum catch diameter. A Spiral Grapple, Spiral Grapple Control, and a Type A Packer are used in the overshot bowl when the diameter of the fish is near the published maximum catch diameter of the overshot. When the diameter of the fish is considerably below the maximum catch diameter of the overshot (usually 1/2"), a Basket Grapple, a Mill Control Packer, or Basket Grapple Control are used in the overshot bowl.

Operation

In fishing operations, the Logan Series 150 Releasing and Circulating Overshot will function in the same manner, whether using a Spiral or Basket Grapple.

The Logan Series 150 Releasing and Circulating Overshot requires right-hand rotation only, during both engaging and releasing operations. The right-hand-only rotation feature eliminates the possibility of accidental left-hand unscrewing.

Catching the Fish

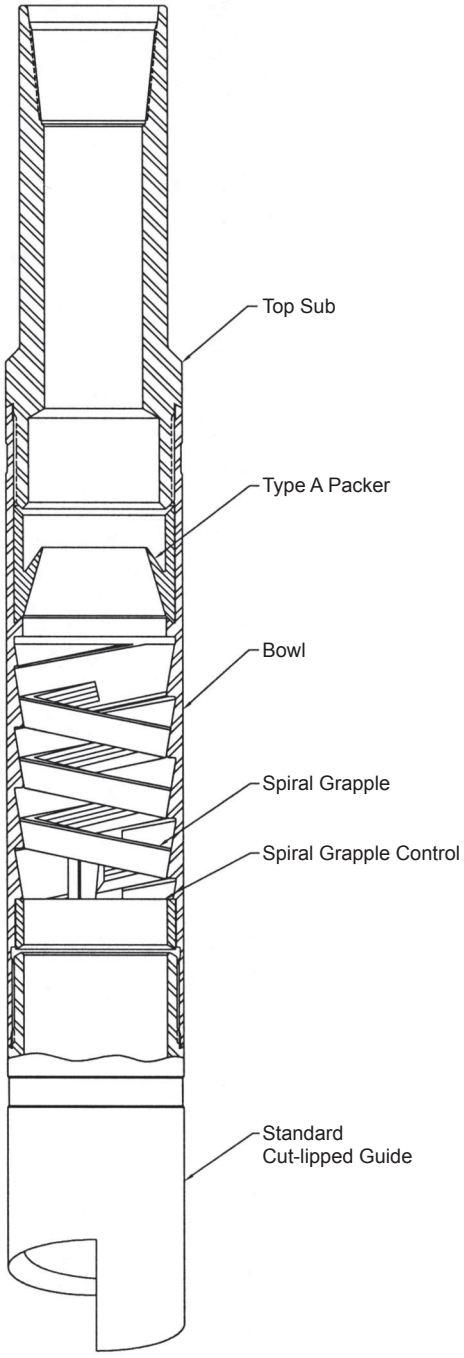
The Logan Series 150 Releasing and Circulating Overshot assembly is rotated to the right and lowered as the fish enters the expandable grapple. With the fish in the grapple, rotation ceases and an upward pull is exerted to fully capture the fish.

Releasing the Fish

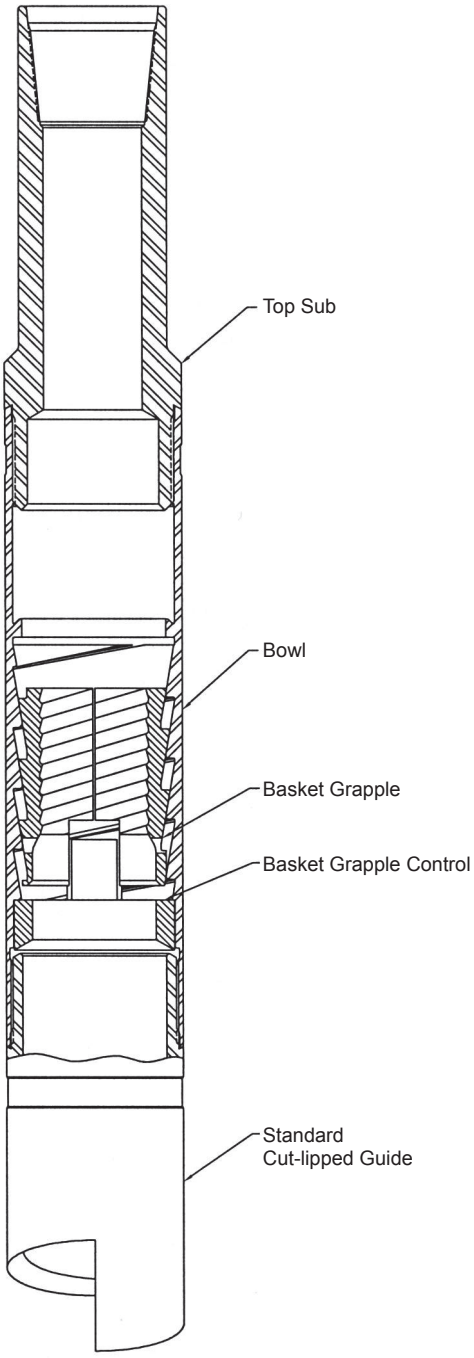
A sharp downward force (bump) is applied to break the hold of the grapple within the bowl. The Logan Series 150 Releasing and Circulating Overshot is then rotated to the right and slowly elevated to release the grapple from the fish.

When ordering, please specify:

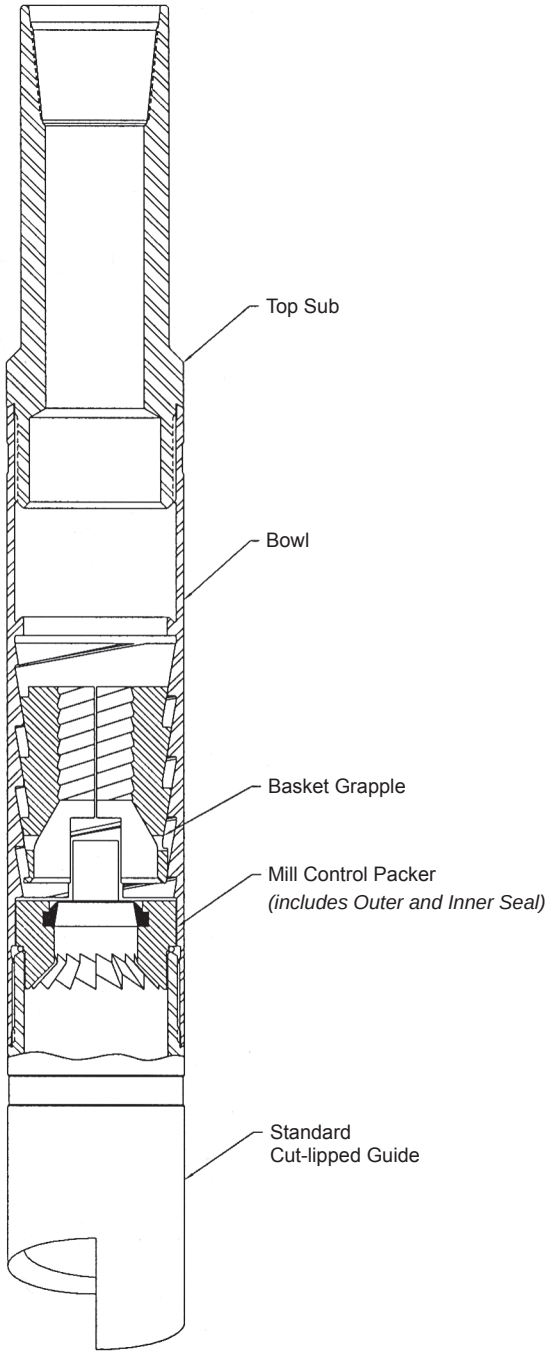
(1) Complete assembly or part number
(2) Top Sub connection
(3) Size and type of fish to be caught
(4) O.D., if other than standard



Spiral Grapple with Spiral Grapple Control and Type A Packer



Basket Grapple
with Basket Grapple Control



Basket Grapple
with Mill Control Packer

SERIES 150 RELEASING & CIRCULATING OVERSHOTS

MAXIMUM CATCH SIZE (Spiral)		2	2-1/8	2-3/8	2-3/8	2-3/8	2-1/2	2-1/2
MAXIMUM CATCH SIZE (Basket)		1-3/4	1-3/4	2	1-7/8	1-7/8	2	2
OVERSHOT O.D.		2-5/16	2-5/8	3-1/8	3-1/2	4-1/8	3-3/8	3-5/8
TYPE		SH	SH	XSH	FS	FS	SH	FS
COMPLETE ASSEMBLY	Logan Part No.	150-231-D	150-263-D	150-313-E	150-350-A	150-414-A	150-338-D	150-363-A
	Bowen No.	B-8919	C-10199	9305	C-4741	1443	C-4623	C-5080
TOP SUB	Logan Part No.	A0950	A1000	A1001	A1002	A10025	A1003	A1004
	Bowen No.	A-8920	A-10200	9311	B-4742	1445	A-5083	A-5081
BOWL	Logan Part No.	A1950	A2000	A2001	A2002	A20025	A2003	A2004
	Bowen No.	B-8921	B-10201	9306	B-4743	1446	B-5088	B-5082
STANDARD GUIDE (CUT-LIPPED)	Logan Part No.	B7008	A3000	A3001	A3002	A30025	A3003	A3004
	Bowen No.	9404	A-10206	9312	A-4745	1450	A-5093	A-5087

SPIRAL COMPONENT PARTS

PACKER	Logan Part No.	A4950	A4000	A4001	A4002	A40025	A4003	A4004
	Bowen No.	9407	B-10202	9309	L-1453	1453	B-5089	B-3395
SPIRAL GRAPPLE	Logan Part No.	B3008	A5000	A5001	A5002	A50025	A5003	A5004
	Bowen No.	9403	B-10204	9307	B-782	1448	B-5091	B-5085
SPIRAL GRAPPLE CONTROL	Logan Part No.	A6950	A6000	A6001	A6002	A60025	A6003	A6004
	Bowen No.	9405	A-10205	9308	B-783	1449	A-5092	A-5086

BASKET COMPONENT PARTS

BASKET GRAPPLE	Logan Part No.	B5008	A7000	A7001	A7002	A70025	A7003	A7004
	Bowen No.	9403	B-10204	9307	B-782	1448	B-5091	B-5085
BASKET GRAPPLE CONTROL	Logan Part No.	B6008	A8000	A8001	A8002	A80025	A8003	A8004
	Bowen No.	9405	A-10205	9308	B-783	1449	A-5092	A-5086
MILL CONTROL PACKER	Logan Part No.	A9950	A9000	A9001	A9002	A90025	A9003	A9004
	Bowen No.	9407M	B-10202-R	9309-R	L-1453-R	1453-R	B-5089-R	B-3395-R

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Logan Coding

A = FS Full Strength – For all pulling torsional and jarring strain
B = XFS Extra Full Strength – For extreme abuse
C = SFS Semi Full Strength – Maximum strength for special hole conditions
D = SH Slim Hole – For heavy pulling strains only
E = XSH Extra Slim Hole – For pick up jobs only

When ordering, please specify:

(1) Complete assembly or part number
(2) Top Sub connection
(3) Size and type of fish to be caught
(4) O.D., if other than standard

Recommended Spare Parts:

(1) Spiral: 3 Packers, 2 Grapples, for each size, and 1 Control
(2) Basket: 2 Grapples, 2 Control Packers or Mill Control Packers for each size
(3) Mill Control Packers: 3 Inner Seals and Outer Seals

SERIES 150 RELEASING & CIRCULATING OVERSHOTS

MAXIMUM CATCH SIZE (Spiral)		2-7/8	3-1/16	3-1/8	2-7/8	2-7/8	3-1/16	3-1/16
MAXIMUM CATCH SIZE (Basket)		2-1/2	2-11/16	2-5/8	2-3/8	2-3/8	2-9/16	2-9/16
OVERSHOT O.D.		3-5/8	3-3/4	3-7/8	3-3/4	4	3-15/16	4-3/16
TYPE		XSH	SH	SH	SH	FS	SH	FS
COMPLETE ASSEMBLY	Logan Part No.	150-363-E	150-375-D	150-388-D	150-376-D	150-400-A	150-393-D	150-419-A
	Bowen No.	9270	37585	C-1835	C-1827	C-4736	C-5101	C-5098
TOP SUB	Logan Part No.	A1005	A10055	A10056	A10057	A1006	A1007	A1008
	Bowen No.	9276	37586	A-1842	A-1834	A-4737	A-5102	A-5099
BOWL	Logan Part No.	A2005	A20055	A20056	A20057	A2006	A2007	A2008
	Bowen No.	9271	37587	B-1836	B-1828	B-4738	B-5103	B-5100
STANDARD GUIDE (CUT-LIPPED)	Logan Part No.	A3005	A30055	A30056	A30057	A3006	A3007	A3008
	Bowen No.	9275	37592	A-1841	A-1833	A-4740	A-3598	A-4405

SPIRAL COMPONENT PARTS

PACKER	Logan Part No.	A4005	A40055	A40056	A40057	A4006	A4007	A4008
	Bowen No.	8550	37588	B-1839	A-1831	L-809	B-3594	L-7090
SPIRAL GRAPPLE	Logan Part No.	A5005	A50055	A50056	A50057	A5006	A5007	A5008
	Bowen No.	9272	37590	B-1837	A-1829	M-805	B-3596	B-4403
SPIRAL GRAPPLE CONTROL	Logan Part No.	A6005	A60055	A60056	A60057	A6006	A6007	A6008
	Bowen No.	9273	37591	A-1838	A-1830	M-806	B-3597	B-4403

BASKET COMPONENT PARTS

BASKET GRAPPLE	Logan Part No.	A7005	A70055	A70056	A70057	A7006	A7007	A7008
	Bowen No.	9272	37590	B-1837	A-1829	M-805	B-3596	B-4403
BASKET GRAPPLE CONTROL	Logan Part No.	A8005	A80055	A80056	A80057	A8006	A8007	A8008
	Bowen No.	9273	37591	A-1838	A-1830	M-806	B-3597	B-4404
MILL CONTROL PACKER	Logan Part No.	A9005	A90055	A90056	A90057	A9006	A9007	A9008
	Bowen No.	8550-R	37588-R	B-1839-R	A-1831-R	L-809-RS	B-3594-R	L-7090-R

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Logan Coding

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B = XFS Extra Full Strength – For extreme abuse
C = SFS Semi Full Strength – Maximum strength for special hole conditions
D = SH Slim Hole – For heavy pulling strains only
E = XSH Extra Slim Hole – For pick up jobs only

When ordering, please specify:

(1) Complete assembly or part number
(2) Top Sub connection
(3) Size and type of fish to be caught
(4) O.D., if other than standard

Recommended Spare Parts:

(1) Spiral: 3 Packers, 2 Grapples, for each size, and 1 Control
(2) Basket: 2 Grapples, 2 Control Packers or Mill Control Packers for each size
(3) Mill Control Packers: 3 Inner Seals and Outer Seals

SERIES 150 RELEASING & CIRCULATING OVERSHOTS

MAXIMUM CATCH SIZE (Spiral)		3-1/8	3-1/8	3-1/8	3-1/8	3-1/4	3-1/4	3-1/4
MAXIMUM CATCH SIZE (Basket)		2-5/8	2-5/8	2-5/8	2-5/8	2-3/4	2-3/4	2-3/4
OVERSHOT O.D.		4	4-1/8	4-1/8	4-1/4	4-1/8	4-3/8	4-3/8
TYPE		SH	FS	FS	FS	SH	FS	FS
COMPLETE ASSEMBLY	Logan Part No.	150-400-D	150-413-A	150-412-A	150-425-A	150-413-D	150-437-A	150-438-A
	Bowen No.	C-5104	9105	8220	C-4822	C-5115	9630	C-5112
TOP SUB	Logan Part No.	A1009	A1010	A10105	A1011	A1012	A10125	A1013
	Bowen No.	A-5105	9106	8221	A-4823	A-5116	9631	A-5113
BOWL	Logan Part No.	A2009	A2010	A20105	A2011	A2012	A20125	A2013
	Bowen No.	B-5106	9107	8223	B-4824	B-5117	9632	B-5114
STANDARD GUIDE (CUT-LIPPED)	Logan Part No.	A3009	A3010	A3010	A3011	A3012	A30125	A3013
	Bowen No.	A-5111	1746	1746	A-793	A-5122	1519	A-3207

SPIRAL COMPONENT PARTS

PACKER	Logan Part No.	A4009	A4010	A4010	A4011	A4012	A40125	A4013
	Bowen No.	B-5107	809	809	L-7090	B-5118	1517	L-1517
SPIRAL GRAPPLE	Logan Part No.	A5009	A5010	A5010	A5011	A5012	A50125	A5013
	Bowen No.	B-5109	1741	1741	B-791	B-5120	1518	B-3205
SPIRAL GRAPPLE CONTROL	Logan Part No.	A6009	A6010	A6010	A6011	A6012	A60125	A6013
	Bowen No.	A-5110	1747	1747	B-792	A-5121	1520	B-3206

BASKET COMPONENT PARTS

BASKET GRAPPLE	Logan Part No.	A7009	A7010	A7010	A7011	A7012	A70125	A7013
	Bowen No.	B-5109	1741	1741	B-791	B-5120	1518	B-3205
BASKET GRAPPLE CONTROL	Logan Part No.	A8009	A8010	A8010	A8011	A8012	A80125	A8013
	Bowen No.	B-5110	1747	1747	B-792	A-5121	1520	B-3206
MILL CONTROL PACKER	Logan Part No.	A9009	A9010	A9010	A9011	A9012	A90125	A9013
	Bowen No.	B-5107-R	809-R	809-R	L-7090-R	B-5118-R	1517-R	L-1517-R

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D = SH Slim Hole – For heavy pulling strains only
E = XSH Extra Slim Hole – For pick up jobs only

When ordering, please specify:

(1) Complete assembly or part number
(2) Top Sub connection
(3) Size and type of fish to be caught
(4) O.D., if other than standard

Recommended Spare Parts:

(1) Spiral: 3 Packers, 2 Grapples, for each size, and 1 Control
(2) Basket: 2 Grapples, 2 Control Packers or Mill Control Packers for each size
(3) Mill Control Packers: 3 Inner Seals and Outer Seals

SERIES 150 RELEASING & CIRCULATING OVERSHOTS

MAXIMUM CATCH SIZE (Spiral)		3-3/8	3-3/8	3-3/8	3-3/8	3-1/2	3-1/2	3-1/2
MAXIMUM CATCH SIZE (Basket)		2-7/8	2-7/8	2-7/8	2-7/8	2-7/8	2-7/8	2-7/8
OVERSHOT O.D.		3-7/8	4-1/4	4-3/8	4-1/2	4-3/8	4-13/16	4-1/2
TYPE		XSH	SH	FS	FS	SH	FS	SH
COMPLETE ASSEMBLY	Logan Part No.	150-388-E	150-425-D	150-4375-A	150-450-A	150-438-D	150-482-A	150-450-D
	Bowen No.	21300	C-5126	9635	C-5123	C-4619	C-4732	C-3793
TOP SUB	Logan Part No.	A10135	A1014	A10145	A1015	A1016	A1017	A10161
	Bowen No.	21301	A-5127	9636	A-5124	A-4620	A-4733	A-3794
BOWL	Logan Part No.	A20135	A2014	A20145	A2015	A2016	A2017	A20161
	Bowen No.	21302	B-5128	9637	B-5125	B-4621	B-4734	A-3795
STANDARD GUIDE (CUT-LIPPED)	Logan Part No.	A30135	A3014	A30145	A3015	A3016	A3017	A30161
	Bowen No.	21307	A-4629	4197	A-3361	A-4622	A-4735	A-3609

SPIRAL COMPONENT PARTS

PACKER	Logan Part No.	A40135	A4014	A40145	A4015	A4016	A4017	A4015
	Bowen No.	21303	B-4625	4185	L-6515	L-7065	L-168	L-6515
SPIRAL GRAPPLE	Logan Part No.	A50135	A5014	A50145	A5015	A5016	A5017	A5016
	Bowen No.	21305	B-4627	4195	B-3359	B-3607	M-164	B-3607
SPIRAL GRAPPLE CONTROL	Logan Part No.	A60135	A6014	A60145	A6015	A6016	A6017	A6016
	Bowen No.	21306	B-4628	4196	B-3360	B-3608	M-185	B-3608

BASKET COMPONENT PARTS

BASKET GRAPPLE	Logan Part No.	A70135	A7014	A70145	A7015	A7016	A7017	A7016
	Bowen No.	21305	B-4627	4195	B-3359	B-3607	M-164	B-3607
BASKET GRAPPLE CONTROL	Logan Part No.	A80135	A8014	A80145	A8015	A8016	A8017	A8016
	Bowen No.	21306	B-4628	4196	B-3360	B-3608	M-185	B-3608
MILL CONTROL PACKER	Logan Part No.	A90135	A9014	A90145	A9015	A9016	A9017	A9015
	Bowen No.	21303-R	B-4625-R	4185-R	L-6515-R	L-7065-R	L-168-R	L-6515-R

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When ordering, please specify:

(1) Complete assembly or part number
(2) Top Sub connection
(3) Size and type of fish to be caught
(4) O.D., if other than standard

Recommended Spare Parts:

(1) Spiral: 3 Packers, 2 Grapples, for each size, and 1 Control
(2) Basket: 2 Grapples, 2 Control Packers or Mill Control Packers for each size
(3) Mill Control Packers: 3 Inner Seals and Outer Seals

SERIES 150 RELEASING & CIRCULATING OVERSHOTS

MAXIMUM CATCH SIZE (Spiral)		3-21/32	3-21/32	3-21/32	3-21/32	3-3/4	3-3/4	3-13/16
MAXIMUM CATCH SIZE (Basket)		3-1/8	3-1/8	3.220	3-1/8	3-7/32	3-1/4	3-5/16
OVERSHOT O.D.		4-1/2	4-9/16	4-11/16	5	4-5/8	4-11/16	4-7/16
TYPE		SH	SH	SFS	FS	SH	SFS	SH
COMPLETE ASSEMBLY	Logan Part No.	150-450-D	150-456-D	150-469-C	150-500-A	150-463-D	150-468-C	150-444-D
	Bowen No.	17201	C-5151	9109	C-5148	C-5129	9120	C-9773
TOP SUB	Logan Part No.	A10175	A1018	A1019	A1020	A1021	A1019	A10217
	Bowen No.	17202	A-5152	9110	A-5149	A-5130	9110	A-9774
BOWL	Logan Part No.	A20175	A2018	A2019	A2020	A2021	A20215	A20217
	Bowen No.	17203	B-5153	9111	B-5150	B-5131	9121	B-9775
STANDARD GUIDE (CUT-LIPPED)	Logan Part No.	A30175	A3018	A3019	A3020	A3021	A30215	A30217
	Bowen No.	17204	A-4341	6667	A-4412	A-5135	9125	A-9779

SPIRAL COMPONENT PARTS

PACKER	Logan Part No.	A4018	A4018	A4019	A4020	A4021	A40215	A40217
	Bowen No.	L-6665	L-6665	6665	B-3219	B-5538	9122	L-6163
SPIRAL GRAPPLE	Logan Part No.	A5018	A5018	A5019	A5020	A5021	A50215	A50217
	Bowen No.	B-4339	B-4339	6662	B-4410	B-5133	9123	B-9777
SPIRAL GRAPPLE CONTROL	Logan Part No.	A6018	A6018	A6019	A6020	A6021	A60215	A60217
	Bowen No.	B-4340	B-4340	6674	B-4411	A-5134	9124	A-9778

BASKET COMPONENT PARTS

BASKET GRAPPLE	Logan Part No.	A7018	A7018	A7019	A7020	A7021	A70215	A70217
	Bowen No.	B-4339	B-4339	6662	B-4410	B-5133	9123	B-9777
BASKET GRAPPLE CONTROL	Logan Part No.	A8018	A8018	A8019	A8020	A8021	A80215	A80217
	Bowen No.	B-4340	B-4340	6674	B-4411	A-5134	9124	A-9778
MILL CONTROL PACKER	Logan Part No.	A9018	A9018	A9019	A9020	A9021	A90215	A90217
	Bowen No.	L-6665-R	L-6665-R	6665-R	B-3219-R	B-5538-R	9122-R	L-6163-R

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When ordering, please specify:

(1) Complete assembly or part number
(2) Top Sub connection
(3) Size and type of fish to be caught
(4) O.D., if other than standard

Recommended Spare Parts:

(1) Spiral: 3 Packers, 2 Grapples, for each size, and 1 Control
(2) Basket: 2 Grapples, 2 Control Packers or Mill Control Packers for each size
(3) Mill Control Packers: 3 Inner Seals and Outer Seals

SERIES 150 RELEASING & CIRCULATING OVERSHOTS

MAXIMUM CATCH SIZE (Spiral)		3-3/4	3-7/8	3-7/8	4	4	4-1/8	4-1/8
MAXIMUM CATCH SIZE (Basket)		3-1/8	3-1/4	3-3/8	3-1/2	3-3/8	3-5/8	3-1/2
OVERSHOT O.D.		5-1/8	5-1/4	4-5/8	4-7/8	5-5/16	5	5-7/16
TYPE		FS	FS	SH	SH	FS	SH	FS
COMPLETE ASSEMBLY	Logan Part No.	150-513-A	150-525-A	150-462-D	150-488-D	150-531-A	150-500-D	150-544-A
	Bowen No.	C-4686	9515	C-6230	C-5154	C-5142	C-5428	C-5425
TOP SUB	Logan Part No.	A1022	A1023	A10235	A1024	A1025	A1026	A1027
	Bowen No.	A-4687	9516	A-6231	A-5155	A-5143	A-5429	A-5426
BOWL	Logan Part No.	A2022	A2023	A20235	A2024	A2025	A2026	A2027
	Bowen No.	B-4688	9517	B-6232	B-5156	B-5144	B-5430	B-5427
STANDARD GUIDE (CUT-LIPPED)	Logan Part No.	A3022	A3023	A30235	A3024	A3025	A3026	A3027
	Bowen No.	A-816	876	A-6236	A-5161	A-1507	B-4899	B-1999

SPIRAL COMPONENT PARTS

PACKER	Logan Part No.	A4022	A4023	A40235	A4024	A4025	A4026	A4027
	Bowen No.	A-811	856	A-1707	B-5157	B-1508	B-4895	L-1867
SPIRAL GRAPPLE	Logan Part No.	A5022	A5023	A50235	A5024	A5025	A5026	A5027
	Bowen No.	B-814	859	B-6234	B-5159	B-1505	B-4897	B-1997
SPIRAL GRAPPLE CONTROL	Logan Part No.	A6022	A6023	A60235	A6024	A6025	A6026	A6027
	Bowen No.	B-815	875	A-6235	B-5160	A-1506	B-4898	A-1998

BASKET COMPONENT PARTS

BASKET GRAPPLE	Logan Part No.	A7022	A7023	A70235	A7024	A7025	A7026	A7027
	Bowen No.	B-814	859	B-6234	B-5159	B-1505	B-4897	B-1997
BASKET GRAPPLE CONTROL	Logan Part No.	A8022	A8023	A80235	A8024	A8025	A8026	A8027
	Bowen No.	B-815	875	A-6235	B-5160	A-1506	B-4898	A-1998
MILL CONTROL PACKER	Logan Part No.	A9022	A9023	A90235	A9024	A9025	A9026	A9027
	Bowen No.	811-R	856-R	60947R	B-5157-R	A-1508-R	B-4895-R	L-1867-R

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When ordering, please specify:

(1) Complete assembly or part number
(2) Top Sub connection
(3) Size and type of fish to be caught
(4) O.D., if other than standard

Recommended Spare Parts:

(1) Spiral: 3 Packers, 2 Grapples, for each size, and 1 Control
(2) Basket: 2 Grapples, 2 Control Packers or Mill Control Packers for each size
(3) Mill Control Packers: 3 Inner Seals and Outer Seals

SERIES 150 RELEASING & CIRCULATING OVERSHOTS

MAXIMUM CATCH SIZE (Spiral)		4-1/4	4-1/4	4-1/4	4-1/4	4-1/2	4-1/2	4-5/8
MAXIMUM CATCH SIZE (Basket)		3-3/4	3-3/4	3-11/16	3-11/16	3-7/8	3-7/8	4-1/8
OVERSHOT O.D.		5-1/8	5-1/8	5-9/16	5-9/16	5-3/8	5-13/16	5-1/2
TYPE		SH	SH	FS	FS	SH	FS	SH
COMPLETE ASSEMBLY	Logan Part No.	150-513-D	150-512-D	150-556-A	150-555-A	150-538-D	150-581-A	150-550-D
	Bowen No.	C-5162	4716	5896	C-4819	C-5165	C-4814	C-4969
TOP SUB	Logan Part No.	A1028	A10285	A1029	A10295	A1030	A1031	A10315
	Bowen No.	A-5163	4718	5897	A-4820	A-5166	A-4815	A-4970
BOWL	Logan Part No.	A2028	A20285	A2029	A20295	A2030	A2031	A20315
	Bowen No.	B-5164	4717	5898	B-4821	B-5167	B-4816	B-4971
STANDARD GUIDE (CUT-LIPPED)	Logan Part No.	A3028	A30285	A3029	A30295	A3030	A3031	A30315
	Bowen No.	A-4676	4719	187	L-187	B-2491	B-1989	M-1138

SPIRAL COMPONENT PARTS

PACKER	Logan Part No.	A40285	A40285	A4029	A4029	A4030	A4031	A4032
	Bowen No.	B-4672	4672	169	169	B-2487	B-2199-1	1140
SPIRAL GRAPPLE	Logan Part No.	A50285	A50285	A5029	A5029	A5030	A5031	A5032
	Bowen No.	B-4674	4674	165	165	B-2489	B-1987	1135
SPIRAL GRAPPLE CONTROL	Logan Part No.	A60285	A60285	A6029	A6029	A6030	A6031	A6032
	Bowen No.	A-4675	4675	186	186	B-2490	B-1988	1137

BASKET COMPONENT PARTS

BASKET GRAPPLE	Logan Part No.	A70285	A70285	A7029	A7029	A7030	A7031	A7032
	Bowen No.	B-4674	4674	165	165	B-2489	B-1987	1135
BASKET GRAPPLE CONTROL	Logan Part No.	A80285	A80285	A8029	A8029	A8030	A8031	A8032
	Bowen No.	A-4675	4675	186	186	B-2490	B-1988	1137
MILL CONTROL PACKER	Logan Part No.	A90285	A90285	A9029	A9029	A9030	A9031	A9032
	Bowen No.	B-4672-R	4672-R	169-R	169-R	B-2487-R	B-2199-1R	1140-R

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When ordering, please specify:

(1) Complete assembly or part number
(2) Top Sub connection
(3) Size and type of fish to be caught
(4) O.D., if other than standard

Recommended Spare Parts:

(1) Spiral: 3 Packers, 2 Grapples, for each size, and 1 Control
(2) Basket: 2 Grapples, 2 Control Packers or Mill Control Packers for each size
(3) Mill Control Packers: 3 Inner Seals and Outer Seals

SERIES 150 RELEASING & CIRCULATING OVERSHOTS

MAXIMUM CATCH SIZE (Spiral)		4-5/8	4-5/8	4-3/4	4-3/4	4-3/4	4-7/8	4-7/8
MAXIMUM CATCH SIZE (Basket)		4-1/8	4	4-1/4	4-1/4	4-1/8	4-1/4	4-1/4
OVERSHOT O.D.		5-5/8	5-15/16	5-5/8	5-3/4	6-1/16	5-3/4	6-1/8
TYPE		FS	FS	SH	FS	FS	SH	FS
COMPLETE ASSEMBLY	Logan Part No.	150-563-A	150-594-A	150-563-D	150-575-A	150-606-A	150-575-D	150-613-A
	Bowen No.	5698	5737	C-5168	8975	C-4829	C-7096	912
TOP SUB	Logan Part No.	A1032	A1033	A1034	A1035	A1036	A1037	A10375
	Bowen No.	5699	5738	A-5169	8976	A-4830	A-7097	908
BOWL	Logan Part No.	A2032	A2033	A2034	A2035	A2036	A2037	A20375
	Bowen No.	5700	5735	B-5170	8977	B-4831	B-7098	905
STANDARD GUIDE (CUT-LIPPED)	Logan Part No.	A3032	A3033	A3034	A3035	A3036	A3037	A30375
	Bowen No.	1143	192	B-2203	6121	B-2366	A-6391	1186

SPIRAL COMPONENT PARTS

PACKER	Logan Part No.	A4032	A4033	A4034	A4035	A4036	A4037	A40375
	Bowen No.	1140	195	B-2199	6114	B-2362	B-6387	1189
SPIRAL GRAPPLE	Logan Part No.	A5032	A5033	A5034	A5035	A5036	A5037	A50375
	Bowen No.	1135	196	B-2201	6112	B-2364	B-6389	1182
SPIRAL GRAPPLE CONTROL	Logan Part No.	A6032	A6033	A6034	A6035	A6036	A6037	A60375
	Bowen No.	1137	193	B-2202	6113	B-2365	A-6390	1187

BASKET COMPONENT PARTS

BASKET GRAPPLE	Logan Part No.	A7032	A7033	A7034	A7035	A7036	A7037	A70375
	Bowen No.	1135	196	B-2201	6112	B-2364	B-6389	1182
BASKET GRAPPLE CONTROL	Logan Part No.	A8032	A8033	A8034	A8035	A8036	A8037	A80375
	Bowen No.	1137	193	B-2202	6113	B-2365	A-6390	1187
MILL CONTROL PACKER	Logan Part No.	A9032	A9033	A9034	A9035	A9036	A9037	A90375
	Bowen No.	1140-R	195-R	B-2199-R	6114-R	B-2362-R	B-6387-R	1189-R

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(1) Complete assembly or part number
(2) Top Sub connection
(3) Size and type of fish to be caught
(4) O.D., if other than standard

Recommended Spare Parts:

(1) Spiral: 3 Packers, 2 Grapples, for each size, and 1 Control
(2) Basket: 2 Grapples, 2 Control Packers or Mill Control Packers for each size
(3) Mill Control Packers: 3 Inner Seals and Outer Seals

SERIES 150 RELEASING & CIRCULATING OVERSHOTS

MAXIMUM CATCH SIZE (Spiral)		4-7/8	5	5	5	5-1/8	5-1/4	5-3/8
MAXIMUM CATCH SIZE (Basket)		4-1/4	4-1/2	4-3/8	4-1/4	4-5/8	4-5/8	4-3/4
OVERSHOT O.D.		6-3/16	5-7/8	6-1/8	6-5/8	5-3/4	6-3/8	6-1/2
TYPE		FS	SH	SFS	FS	SH	SH	SH
COMPLETE ASSEMBLY	Logan Part No.	150-619-A	150-588-D	150-612-C	150-663-A	150-576-D	150-638-D	150-650-D
	Bowen No.	C-7093	C-5171	7787	C-4825	C-11823	6655	4773
TOP SUB	Logan Part No.	A1038	A1039	A10395	A1040	A10402	A10405	A10407
	Bowen No.	A-7094	A-5172	7789	B-4826	A-11824	6656	4774
BOWL	Logan Part No.	A2038	A2039	A20395	A2040	A20402	A20405	A20407
	Bowen No.	B-7095	B-5173	7788	B-4827	B-11825	4503	9205
STANDARD GUIDE (CUT-LIPPED)	Logan Part No.	A3038	A3039	A30395	A3040	A30402	A30405	A30407
	Bowen No.	A-2459	B-4371	5946	L-1074	A-11830	4504	4775

SPIRAL COMPONENT PARTS

PACKER	Logan Part No.	A4038	A4039	A40395	A4040	A40402	A40405	A40407
	Bowen No.	B-2455	L-5950	5950	L-4505	B-11826	4505	9209
SPIRAL GRAPPLE	Logan Part No.	A5038	A5039	A50395	A5040	A50402	A50405	A50407
	Bowen No.	B-2457	B-4369	5942	M-1071	B-11828	4498	9207
SPIRAL GRAPPLE CONTROL	Logan Part No.	A6038	A6039	A60395	A6040	A60402	A60405	A60407
	Bowen No.	B-2458	B-4370	5944	M-1072	A-11829	4499	9208

BASKET COMPONENT PARTS

BASKET GRAPPLE	Logan Part No.	A7038	A7039	A70395	A7040	A70402	A70405	A70407
	Bowen No.	B-2457	B-4369	5942	M-1071	B-11828	4498	9207
BASKET GRAPPLE CONTROL	Logan Part No.	A8038	A8039	A80395	A8040	A80402	A80405	A80407
	Bowen No.	B-2458	B-4370	5944	M-1072	A-11829	4499	9208
MILL CONTROL PACKER	Logan Part No.	A9038	A9039	A90395	A9040	A90402	A90405	A90407
	Bowen No.	B-2455-R	L-5950-R	5950-R	M-4505-RS	11826-R	4505-R	9209-R

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Logan Coding

A = FS Full Strength – For all pulling torsional and jarring strain
B = XFS Extra Full Strength – For extreme abuse
C = SFS Semi Full Strength – Maximum strength for special hole conditions
D = SH Slim Hole – For heavy pulling strains only
E = XSH Extra Slim Hole – For pick up jobs only

When ordering, please specify:

(1) Complete assembly or part number
(2) Top Sub connection
(3) Size and type of fish to be caught
(4) O.D., if other than standard

Recommended Spare Parts:

(1) Spiral: 3 Packers, 2 Grapples, for each size, and 1 Control
(2) Basket: 2 Grapples, 2 Control Packers or Mill Control Packers for each size
(3) Mill Control Packers: 3 Inner Seals and Outer Seals

SERIES 150 RELEASING & CIRCULATING OVERSHOTS

MAXIMUM CATCH SIZE (Spiral)		5-1/2	5-1/2	5-3/4	5-3/4	6	6-1/8	6-1/8
MAXIMUM CATCH SIZE (Basket)		4-7/8	4-3/4	5-1/8	5	5-1/4	5-1/2	5-3/8
OVERSHOT O.D.		6-5/8	7-1/8	6-7/8	7-3/8	7-5/8	7-1/4	7-3/4
TYPE		SH	FS	SH	FS	FS	SH	FS
COMPLETE ASSEMBLY	Logan Part No.	150-663-D	150-713-A	150-688-D	150-738-A	150-763-A	150-725-D	150-775-A
	Bowen No.	8625	C-5176	8978	C-4689	7572	C-5206	C-5204
TOP SUB	Logan Part No.	A1041	A1042	A1043	A1044	A1045	A1046	A1047
	Bowen No.	8626	A-5177	8979	A-4690	7573	A-5207	A-5205
BOWL	Logan Part No.	A2041	A2042	A2043	A2044	A2045	A2046	A2047
	Bowen No.	8617	B-2791	8980	B-3522	7574	B-5208	B-4218
STANDARD GUIDE (CUT-LIPPED)	Logan Part No.	A3041	A3042	A3043	A3044	A3045	A3046	A3047
	Bowen No.	8621	A-761	6701	L-120	218	A-5213	A-2065

SPIRAL COMPONENT PARTS

PACKER	Logan Part No.	A4041	A4042	A4043	A4044	A4045	A4046	A4047
	Bowen No.	8618	A-756	6697	L-110	223	B-5209	L-1642
SPIRAL GRAPPLE	Logan Part No.	A5041	A5042	A5043	A5044	A5045	A5046	A5047
	Bowen No.	8619	B-759	6699	M-104	220	B-5211	B-2063
SPIRAL GRAPPLE CONTROL	Logan Part No.	A6041	A6042	A6043	A6044	A6045	A6046	A6047
	Bowen No.	8620	B-760	6700	L-130	219	A-5212	B-2064

BASKET COMPONENT PARTS

BASKET GRAPPLE	Logan Part No.	A7041	A7042	A7043	A7044	A7045	A7046	A7047
	Bowen No.	8619	B-759	6699	M-104	220	B-5211	B-2063
BASKET GRAPPLE CONTROL	Logan Part No.	A8041	A8042	A8043	A8044	A8045	A8046	A8047
	Bowen No.	8620	B-760	6700	L-130	219	A-5212	B-2064
MILL CONTROL PACKER	Logan Part No.	A9041	A9042	A9043	A9044	A9045	A9046	A9047
	Bowen No.	L-8618-R	A-756-R	6697-R	L-110-R	223-R	B-5209-R	L-1642-R

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E = XSH Extra Slim Hole – For pick up jobs only

When ordering, please specify:

(1) Complete assembly or part number
(2) Top Sub connection
(3) Size and type of fish to be caught
(4) O.D., if other than standard

Recommended Spare Parts:

(1) Spiral: 3 Packers, 2 Grapples, for each size, and 1 Control
(2) Basket: 2 Grapples, 2 Control Packers or Mill Control Packers for each size
(3) Mill Control Packers: 3 Inner Seals and Outer Seals

SERIES 150 RELEASING & CIRCULATING OVERSHOTS

MAXIMUM CATCH SIZE (Spiral)		6-1/4	6-1/4	6-1/4	6-1/4	6-1/4	6-3/8	6-3/8
MAXIMUM CATCH SIZE (Basket)		5-5/8	5-9/16	5-9/16	5-9/16	5-1/2	5-3/4	5-5/8
OVERSHOT O.D.		7-3/8	7-5/8	7-5/8	7-7/8	7-7/8	7-1/2	7-3/4
TYPE		SH	SFS	SFS	FS	FS	SH	SFS
COMPLETE ASSEMBLY	Logan Part No.	150-738-D	150-762-C	150-763-C	150-777-A	150-788-A	150-750-D	150-775-C
	Bowen No.	9692	1873	8741	7791	C-2108	9009	9163
TOP SUB	Logan Part No.	A1048	A10485	A1049	A10495	A1050	A1051	A1052
	Bowen No.	9693	118	8742	7793	B-2106	9010	9165
BOWL	Logan Part No.	A2048	A20485	A2049	A20495	A2050	A2051	A2052
	Bowen No.	9694	1875	1641	1657	B-2109	9011	9164
STANDARD GUIDE (CUT-LIPPED)	Logan Part No.	A3048	A3049	A3049	A30495	A3050	A3051	A3052
	Bowen No.	9691	5525	5525	1493	A-2075	9007	5506

SPIRAL COMPONENT PARTS

PACKER	Logan Part No.	A4048	A4049	A4049	A40495	A4050	A4051	A4052
	Bowen No.	9689	1642	1642	1680	L-1680	9005	5508
SPIRAL GRAPPLE	Logan Part No.	A5048	A5049	A5049	A50495	A5050	A5051	A5052
	Bowen No.	9687	1644	1644	1659	B-2073	9003	5503
SPIRAL GRAPPLE CONTROL	Logan Part No.	A6048	A6049	A6049	A60495	A6050	A6051	A6052
	Bowen No.	9688	1645	1645	1660	A-2074	9004	5504

BASKET COMPONENT PARTS

BASKET GRAPPLE	Logan Part No.	A7048	A7049	A7049	A70495	A7050	A7051	A7052
	Bowen No.	9687	1644	1644	1659	B-2073	9003	5503
BASKET GRAPPLE CONTROL	Logan Part No.	A8048	A8049	A8049	A80495	A8050	A8051	A8052
	Bowen No.	9688	1645	1645	1660	A-2074	9004	5504
MILL CONTROL PACKER	Logan Part No.	A9048	A9049	A9049	A90495	A9050	A9051	A9052
	Bowen No.	9689-R	1642-R	1642-R	1680-R	L-1680-R	9005-R	5508-R

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D = SH Slim Hole – For heavy pulling strains only
E = XSH Extra Slim Hole – For pick up jobs only

When ordering, please specify:

(1) Complete assembly or part number
(2) Top Sub connection
(3) Size and type of fish to be caught
(4) O.D., if other than standard

Recommended Spare Parts:

(1) Spiral: 3 Packers, 2 Grapples, for each size, and 1 Control
(2) Basket: 2 Grapples, 2 Control Packers or Mill Control Packers for each size
(3) Mill Control Packers: 3 Inner Seals and Outer Seals

SERIES 150 RELEASING & CIRCULATING OVERSHOTS

MAXIMUM CATCH SIZE (Spiral)		6-1/2	6-1/2	6-5/8	6-5/8	6-3/4	6-3/4	6-7/8
MAXIMUM CATCH SIZE (Basket)		5-7/8	5-3/4	6	5-7/8	6-1/8	6	6-1/4
OVERSHOT O.D.		7-5/8	8-1/8	7-3/4	8-1/4	7-7/8	8-3/8	8
TYPE		SH	FS	SH	FS	SH	FS	SH
COMPLETE ASSEMBLY	Logan Part No.	150-763-D	150-813-A	150-775-D	150-825-A	150-788-D	150-838-A	150-800-D
	Bowen No.	9860	C-5342	4785	C-3032	C-5222	275	N-8995
TOP SUB	Logan Part No.	A1053	A1054	A1055	A1056	A1057	A1058	A10587
	Bowen No.	9861	A-5343	9133	A-3033	A-5223	276	L-8996
BOWL	Logan Part No.	A2053	A2054	A2055	A2056	A2057	A2058	A20587
	Bowen No.	9862	B-3711	9134	B-3034	B-5224	277	M-8997
STANDARD GUIDE (CUT-LIPPED)	Logan Part No.	A3053	A3054	A3055	A3056	A3057	A3058	A30587
	Bowen No.	9867	A-2376	9139	A-1818	A-5229	205	L-8989

SPIRAL COMPONENT PARTS

PACKER	Logan Part No.	A4053	A4054	A4055	A4056	A4057	A4058	A40587
	Bowen No.	9865	2372	9136	A-1814	B-5225	207	L-8985
SPIRAL GRAPPLE	Logan Part No.	A5053	A5054	A5055	A5056	A5057	A5058	A50587
	Bowen No.	9863	B-2374	9137	N-84	B-5227	209	M-8987
SPIRAL GRAPPLE CONTROL	Logan Part No.	A6053	A6054	A6055	A6056	A6057	A6058	A60587
	Bowen No.	9864	B-2375	9138	M-89	A-5228	208	M-8988

BASKET COMPONENT PARTS

BASKET GRAPPLE	Logan Part No.	A7053	A7054	A7055	A7056	A7057	A7058	A70587
	Bowen No.	9863	B-2374	9137	N-84	B-5227	209	M-8987
BASKET GRAPPLE CONTROL	Logan Part No.	A8053	A8054	A8055	A8056	A8057	A8058	A80587
	Bowen No.	9864	B-2375	9138	M-89	A-5228	208	M-8988
MILL CONTROL PACKER	Logan Part No.	A9053	A9054	A9055	A9056	A9057	A9058	A90587
	Bowen No.	9865-R	L-6635-R	9136-R	A-1814-R	B-5225-R	207-R	L-8985-R

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D = SH Slim Hole – For heavy pulling strains only
E = XSH Extra Slim Hole – For pick up jobs only

When ordering, please specify:

(1) Complete assembly or part number
(2) Top Sub connection
(3) Size and type of fish to be caught
(4) O.D., if other than standard

Recommended Spare Parts:

(1) Spiral: 3 Packers, 2 Grapples, for each size, and 1 Control
(2) Basket: 2 Grapples, 2 Control Packers or Mill Control Packers for each size
(3) Mill Control Packers: 3 Inner Seals and Outer Seals

SERIES 150 RELEASING & CIRCULATING OVERSHOTS

MAXIMUM CATCH SIZE (Spiral)		7	7	7	7	7	7-1/8	7-1/4
MAXIMUM CATCH SIZE (Basket)		6-3/8	6-3/8	6-1/4	6-3/8	6-1/4	6-1/2	6-5/8
OVERSHOT O.D.		8-1/8	8-1/8	8-1/8	8-3/8	8-5/8	8-1/4	8-3/8
TYPE		SH	SH	SH	SH	FS	SH	SH
COMPLETE ASSEMBLY	Logan Part No.	150-814-D	150-813-D	150-812-D	150-837-D	150-863-A	150-825-D	150-838-D
	Bowen No.	9815	9217	C-3263	17208	C-4817	9570	C-5354
TOP SUB	Logan Part No.	A10590	A1059	A10595	A1058	A1060	A10605	A1061
	Bowen No.	9816	9218	A-3033	276	B-4818	9544	A-5355
BOWL	Logan Part No.	A20590	A2059	A20595	A20598	A2060	A20605	A2061
	Bowen No.	9817	9219	B-3264	17209	B-3819	9571	B-5356
STANDARD GUIDE (CUT-LIPPED)	Logan Part No.	A3059	A3059	A30595	A3059	A3060	A30605	A3061
	Bowen No.	9226	9226	A-3269	9226	M-121	4792	A-5361

SPIRAL COMPONENT PARTS

PACKER	Logan Part No.	A4059	A4059	A40595	A4059	A4060	A40605	A4061
	Bowen No.	9224	L-9224	L-6310	9224	L-111	9231	B-5357
SPIRAL GRAPPLE	Logan Part No.	A5059	A5059	A50595	A5059	A5060	A50605	A5061
	Bowen No.	9222	9222	B-3267	9222	N-105	9229	B-5359
SPIRAL GRAPPLE CONTROL	Logan Part No.	A6059	A6059	A60595	A6059	A6060	A60605	A6061
	Bowen No.	9223	9223	B-3268	9223	M-131	9230	B-5360

BASKET COMPONENT PARTS

BASKET GRAPPLE	Logan Part No.	A7059	A7059	A70595	A7059	A7060	A70605	A7061
	Bowen No.	9222	9222	B-3267	9222	N-105	9229	B-5359
BASKET GRAPPLE CONTROL	Logan Part No.	A8059	A8059	A80595	A8059	A8060	A80605	A8061
	Bowen No.	9223	9223	B-3268	9223	M-131	9230	B-5360
MILL CONTROL PACKER	Logan Part No.	A9059	A9059	A90595	A9059	A9060	A90605	A9061
	Bowen No.	92240-R	9224-R	L-6310R	9224-R	L-111-R	9231-R	B-5357-R

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E = XSH Extra Slim Hole – For pick up jobs only

When ordering, please specify:

(1) Complete assembly or part number
(2) Top Sub connection
(3) Size and type of fish to be caught
(4) O.D., if other than standard

Recommended Spare Parts:

(1) Spiral: 3 Packers, 2 Grapples, for each size, and 1 Control
(2) Basket: 2 Grapples, 2 Control Packers or Mill Control Packers for each size
(3) Mill Control Packers: 3 Inner Seals and Outer Seals

SERIES 150 RELEASING & CIRCULATING OVERSHOTS

MAXIMUM CATCH SIZE (Spiral)		7-1/4	7-3/8	7-3/8	7-1/2	7-1/2	7-5/8	7-5/8
MAXIMUM CATCH SIZE (Basket)		6-1/2	6-3/4	6-5/8	6-7/8	6-3/4	7	6-7/8
OVERSHOT O.D.		8-7/8	8-1/2	9	8-5/8	9-1/8	8-3/4	9-1/4
TYPE		FS	SH	FS	SH	FS	SH	FS
COMPLETE ASSEMBLY	Logan Part No.	150-888-A	150-850-D	150-900-A	150-863-D	150-913-A	150-875-D	150-762-A
	Bowen No.	C-5352	4793	C-5230	C-7101	C-7099	4796	C-5241
TOP SUB	Logan Part No.	A1062	A1063	A1064	A1065	A1066	A1067	A10675
	Bowen No.	A-5353	4794	A-5231	A-7102	A-7100	4797	A-5242
BOWL	Logan Part No.	A2062	A2063	A2064	A2065	A2066	A2067	A20675
	Bowen No.	M-1026-1	9233	B-5232	B-7103	B-4516	9239	B-5243
STANDARD GUIDE (CUT-LIPPED)	Logan Part No.	A3062	A3063	A3064	A3065	A3066	A3067	A30675
	Bowen No.	M-1029	4795	A-4158	A-7108	A-3456	4798	A-5248

SPIRAL COMPONENT PARTS

PACKER	Logan Part No.	A4062	A4063	A4064	A4065	A4066	A4067	A40675
	Bowen No.	L-1025	9237	B-4154	B-7104	L-98	9243	B-5244
SPIRAL GRAPPLE	Logan Part No.	A5062	A5063	A5064	A5065	A5066	A5067	A50675
	Bowen No.	M-1027	9235	C-4156	B-7106	B-3454	9241	B-5246
SPIRAL GRAPPLE CONTROL	Logan Part No.	A6062	A6063	A6064	A6065	A6066	A6067	A60675
	Bowen No.	M-1031	9236	B-4157	A-7107	B-3455	9242	B-5247

BASKET COMPONENT PARTS

BASKET GRAPPLE	Logan Part No.	A7062	A7063	A7064	A7065	A7066	A7067	A70675
	Bowen No.	M-1027	9235	C-4156	B-7106	B-3454	9241	B-5246
BASKET GRAPPLE CONTROL	Logan Part No.	A8062	A8063	A8064	A8065	A8066	A8067	A80675
	Bowen No.	M-1031	9236	B-4157	A-7107	B-3455	9242	B-5247
MILL CONTROL PACKER	Logan Part No.	A9062	A9063	A9064	A9065	A9066	A9067	A90675
	Bowen No.	L-1025-R	9237-R	B-4154-R	B-7104-R	M-98-RS	9243-R	B-5244-R

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When ordering, please specify:

(1) Complete assembly or part number
(2) Top Sub connection
(3) Size and type of fish to be caught
(4) O.D., if other than standard

Recommended Spare Parts:

(1) Spiral: 3 Packers, 2 Grapples, for each size, and 1 Control
(2) Basket: 2 Grapples, 2 Control Packers or Mill Control Packers for each size
(3) Mill Control Packers: 3 Inner Seals and Outer Seals

SERIES 150 RELEASING & CIRCULATING OVERSHOTS

MAXIMUM CATCH SIZE (Spiral)		7-3/4	7-3/4	7-3/4	7-3/4	8	8	8-3/8
MAXIMUM CATCH SIZE (Basket)		7-1/8	7	7	7	7-3/8	7-1/4	7-3/4
OVERSHOT O.D.		8-7/8	8-7/8	9-3/8	9-3/8	9-1/8	9-5/8	9-1/2
TYPE		SH	SH	FS	FS	SH	FS	SH
COMPLETE ASSEMBLY	Logan Part No.	150-888-D	150-889-D	150-937-A	150-938-A	150-913-D	150-963-A	150-950-D
	Bowen No.	9850	C-5257	1665	C-1500	C-5265	264	4834
TOP SUB	Logan Part No.	A1068	A1069	A10695	A1070	A1071	A1072	A1073
	Bowen No.	9851	A-5258	1666	B-1502	A-5266	265	9063
BOWL	Logan Part No.	A2068	A2069	A20695	A2070	A2071	A2072	A2073
	Bowen No.	9852	B-5259	1283	B-1501	B-5267	266	9062
STANDARD GUIDE (CUT-LIPPED)	Logan Part No.	A3068	A3069	A30695	A3070	A3071	A3072	A3073
	Bowen No.	9857	A-5264	88	M-88	A-5272	240	9059

SPIRAL COMPONENT PARTS

PACKER	Logan Part No.	A4068	A4069	A40695	A40695	A4071	A4072	A4073
	Bowen No.	9855	B-5260	98 & L-98	98 & L-98	B-5268	235	9055
SPIRAL GRAPPLE	Logan Part No.	A5068	A5069	A50695	A5070	A5071	A5072	A5073
	Bowen No.	9853	B-5262	85 & N-85	N-85	B-5270	238	9057
SPIRAL GRAPPLE CONTROL	Logan Part No.	A6068	A6069	A60695	A60695	A6071	A6072	A6073
	Bowen No.	9854	A-5263	100 & M-100	100 & M-100	B-5271	239	9058

BASKET COMPONENT PARTS

BASKET GRAPPLE	Logan Part No.	A7068	A7069	A70695	A7070	A7071	A7072	A7073
	Bowen No.	9853	B-5262	85 & N-85	N-85	B-5270	238	9057
BASKET GRAPPLE CONTROL	Logan Part No.	A8068	A8069	A80695	A80695	A8071	A8072	A8073
	Bowen No.	9854	A-5263	100 & M-100	100 & M-100	B-5271	239	9058
MILL CONTROL PACKER	Logan Part No.	A9068	A9069	A90695	A90695	A9071	A9072	A9073
	Bowen No.	9855-R	B-5260-R	98-R & L-98-R	98-R & L-98-R	B-5268-R	235-R	9055-R

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When ordering, please specify:

(1) Complete assembly or part number
(2) Top Sub connection
(3) Size and type of fish to be caught
(4) O.D., if other than standard

Recommended Spare Parts:

(1) Spiral: 3 Packers, 2 Grapples, for each size, and 1 Control
(2) Basket: 2 Grapples, 2 Control Packers or Mill Control Packers for each size
(3) Mill Control Packers: 3 Inner Seals and Outer Seals

SERIES 150 RELEASING & CIRCULATING OVERSHOTS

MAXIMUM CATCH SIZE (Spiral)		8-3/8	8-1/2	8-1/2	8-5/8	8-7/8	9	9-5/8
MAXIMUM CATCH SIZE (Basket)		7-5/8	7-7/8	7-3/4	7-7/8	8-1/8	8-1/4	8-7/8
OVERSHOT O.D.		10-1/16	9-5/8	10-1/8	10-1/4	10-1/2	10-5/8	11-1/4
TYPE		FS	SH	FS	SH	FS	FS	FS
COMPLETE ASSEMBLY	Logan Part No.	150-1006-A	150-963-D	150-1013-A	150-1025-D	150-1050-A	150-1063-A	150-1125-A
	Bowen No.	C-1230	C-5284	8960	C-5297	C-5305	C-5321	C-12822
TOP SUB	Logan Part No.	A1074	A1075	A1076	A1077	A1078	A1079	A1080
	Bowen No.	B-1235	A-5285	8961	A-5298	A-5306	A-5322	A-12823
BOWL	Logan Part No.	A2074	A2075	A2076	A2077	A2078	A2079	A2080
	Bowen No.	B-1231	B-5286	8962	B-5299	B-5307	B-5323	B-12824
STANDARD GUIDE (CUT-LIPPED)	Logan Part No.	A3074	A3075	A3076	A3077	A3078	A3079	A3080
	Bowen No.	B-1236	A-5291	8959	A-5304	A-5312	A-5328	A-12829

SPIRAL COMPONENT PARTS

PACKER	Logan Part No.	A4074	A4075	A4076	A4077	A4078	A4079	A4080
	Bowen No.	L-1060	B-5287	8956	B-5300	B-5308	B-5324	B-12825
SPIRAL GRAPPLE	Logan Part No.	A5074	A5075	A5076	A5077	A5078	A5079	A5080
	Bowen No.	C-1232	B-5289	8957	B-5302	B-5310	B-5326	B-12827
SPIRAL GRAPPLE CONTROL	Logan Part No.	A6074	A6075	A6076	A6077	A6078	A6079	A6080
	Bowen No.	B-1233	A-5290	8958	B-5303	B-5311	B-5327	B-12828

BASKET COMPONENT PARTS

BASKET GRAPPLE	Logan Part No.	A7074	A7075	A7076	A7077	A7078	A7079	A7080
	Bowen No.	C-1232	B-5289	8957	B-5302	B-5310	B-5326	B-12827
BASKET GRAPPLE CONTROL	Logan Part No.	A8074	A8075	A8076	A8077	A8078	A8079	A8080
	Bowen No.	B-1233	B-5290	8958	B-5303	B-5311	B-5327	B-12828
MILL CONTROL PACKER	Logan Part No.	A9074	A9075	A9076	A9077	A9078	A9079	A9080
	Bowen No.	L-1060-R	B-5287-R	8956-R	B-5300-R	B-5308-R	B-5324-R	B-12825-R

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

Logan Coding

A = FS Full Strength – For all pulling torsional and jarring strain
B = XFS Extra Full Strength – For extreme abuse
C = SFS Semi Full Strength – Maximum strength for special hole conditions
D = SH Slim Hole – For heavy pulling strains only
E = XSH Extra Slim Hole – For pick up jobs only

When ordering, please specify:

(1) Complete assembly or part number
(2) Top Sub connection
(3) Size and type of fish to be caught
(4) O.D., if other than standard

Recommended Spare Parts:

(1) Spiral: 3 Packers, 2 Grapples, for each size, and 1 Control
(2) Basket: 2 Grapples, 2 Control Packers or Mill Control Packers for each size
(3) Mill Control Packers: 3 Inner Seals and Outer Seals

SERIES 150 RELEASING & CIRCULATING OVERSHOTS

MAXIMUM CATCH SIZE (Spiral)		9-3/4	10-1/8	11-1/4	12	14	14-3/4	16-3/4
MAXIMUM CATCH SIZE (Basket)		9	9-3/8	10-1/2	11-1/4	13-1/4	14	16
OVERSHOT O.D.		11-3/8	11-3/4	12-3/4	13-3/4	16	16-3/4	20-1/4
TYPE		FS	FS	FS	…	…	…	…
COMPLETE ASSEMBLY	Logan Part No.	150-1138-A	150-1175-A	150-1275-A	150-1375	150-1600	150-1675	150-2075
	Bowen No.	26255	C-5329	15800	33006	68028	64553	31653
TOP SUB	Logan Part No.	A1081	A1082	A1083	A1084	A1085	A1086	A1087
	Bowen No.	26256	5330	15801	33007	68029	64554	31654
BOWL	Logan Part No.	A2081	A2082	A2083	A2084	A2085	A2086	A2087
	Bowen No.	26257	5331	15802	33008	68030	64555	31655
STANDARD GUIDE (CUT-LIPPED)	Logan Part No.	A3081	A3082	A3083	A3084	A3085	A3086	A3087
	Bowen No.	26261	5336	15806	33012	68035	64560	31660

SPIRAL COMPONENT PARTS

PACKER	Logan Part No.	A4081	A4082	A4083	A4084	A4085	A4086	A4087
	Bowen No.	26260	B-5332	15805	33011	68031	64556	31656
SPIRAL GRAPPLE	Logan Part No.	A5081	A5082	A5083	A5084	A5085	A5086	A5087
	Bowen No.	26258	5334	15803	33009	68033	64558	31658
SPIRAL GRAPPLE CONTROL	Logan Part No.	A6081	A6082	A6083	A6084	A6085	A6086	A6087
	Bowen No.	26259	5335	15804	33010	68034	64559	31659

BASKET COMPONENT PARTS

BASKET GRAPPLE	Logan Part No.	A7081	A7082	A7083	A7084	A7085	A7086	A7087
	Bowen No.	26258	5334	15803	33009	68033	64558	31658
BASKET GRAPPLE CONTROL	Logan Part No.	A8081	A8082	A8083	A8084	A8085	A8086	A8087
	Bowen No.	26259	5335	15804	33010	68034	64559	31659
MILL CONTROL PACKER	Logan Part No.	A9081	A9082	A9083	A9084	A9085	A9086	A9087
	Bowen No.	26260-R	5332-R	15805-R	33011-R	68031-R	64556-R	31656-R

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Logan Coding

A = FS Full Strength – For all pulling torsional and jarring strain
B = XFS Extra Full Strength – For extreme abuse
C = SFS Semi Full Strength – Maximum strength for special hole conditions
D = SH Slim Hole – For heavy pulling strains only
E = XSH Extra Slim Hole – For pick up jobs only

When ordering, please specify:

(1) Complete assembly or part number
(2) Top Sub connection
(3) Size and type of fish to be caught
(4) O.D., if other than standard

Recommended Spare Parts:

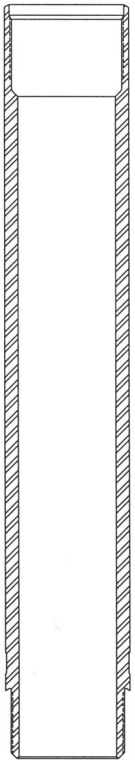
(1) Spiral: 3 Packers, 2 Grapples, for each size, and 1 Control
(2) Basket: 2 Grapples, 2 Control Packers or Mill Control Packers for each size
(3) Mill Control Packers: 3 Inner Seals and Outer Seals

EXTENSION SUBS

Overview

Logan Series 150 Extension Sub is used when the upper portion of the fish is damaged or cannot be engaged. This accessory will permit the overshot to be lowered far enough over the fish to ensure secure engagement and pack off. An extension sub is assembled between the top sub and the bowl. They are available in lengths from 24 to 60 inches. Special lengths are available upon request.

Logan Series 150 Extension Subs with stops can also be furnished upon request.

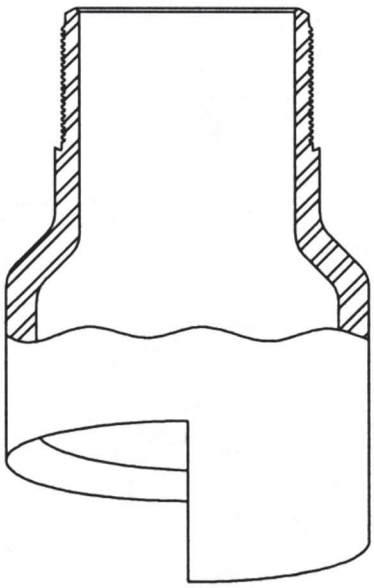


When ordering, please specify:

(1) O.D. and length
(2) Top or bottom extension
(3) For Upper Extension, advise part number for Top Sub or Assembly
(4) For Lower Extension, advise part number for Guide or Assembly

			LENGTHS						
EXTENSION SUB OD (INCHES)			24" Long	30" Long	36" Long	42" Long	48" Long	54" Long	60" Long
2	to 2-1/2	Weight	…	…	…	…	…	…	…
Over 2-1/2	to 3	Weight	…	…	…	…	…	…	…
Over 3	to 3-1/2	Weight	…	…	…	…	…	…	…
Over 3-1/2	to 4	Weight	…	…	…	…	…	…	…
Over 4	to 4-1/2	Weight	53	64	75	86	97	108	119
Over 4-1/2	to 5	Weight	59	72	84	97	109	122	135
Over 5	to 5-1/2	Weight	66	80	94	108	122	136	150
Over 5-1/2	to 6	Weight	73	88	103	119	134	150	166
Over 6	to 6 1/2	Weight	90	109	128	147	166	185	204
Over 6-1/2	to 7	Weight	102	124	146	168	190	212	234
Over 7	to 7-1/2	Weight	122	148	174	200	226	252	276
Over 7-1/2	to 8	Weight	127	154	181	209	236	263	290
Over 8	to 8-1/2	Weight	140	170	200	230	260	290	320
Over 8-1/2	to 9	Weight	150	182	214	246	278	310	342
Over 9	to 9-1/2	Weight	178	212	246	280	314	348	382
Over 9-1/2	to 10	Weight	166	202	238	274	310	346	382
Over 10	to 10-1/2	Weight	176	214	252	290	328	366	404
Over 10-1/2	to 11	Weight	184	224	264	304	344	384	424
Over 11	to 11-1/2	Weight	207	253	298	343	388	433	478
Over 11-1/2	to 12	Weight	218	266	314	362	410	458	516
Over 12	to 12-1/2	Weight	230	280	330	380	430	480	530
Over 12-1/2	to 13	Weight	245	300	355	410	465	520	575

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



SERIES 150 OVERSHOT OVERSIZED GUIDES

Overview

An Logan Series 150 Oversized Guide properly guides the fish into the overshot when the hole size is considerably larger than the diameter of the fish and the overshot may pass alongside the fish without engaging it. Installation of an oversized guide instead of a standard guide will ensure alignment of the fish with the overshot.

When ordering, please specify:

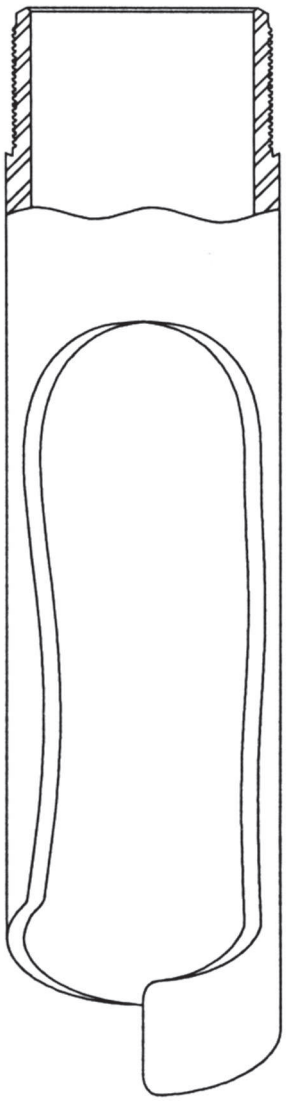
(1) Part number of Overshot Assembly, Standard Guide, or Bowl
(2) O.D. of Guide

SERIES 150 OVERSHOT OVERSIZED GUIDES

GUIDE OD (INCHES)		WEIGHT	GUIDE OD (INCHES)		WEIGHT
	to 4-1/2	…	Over 13	to 13-1/2	190
Over 4-1/2	to 5	23	Over 13-1/2	to 14	197
Over 5	to 5-1/2	27	Over 14	to 14-1/2	205
Over 5-1/2	to 6	30	Over 14-1/2	to 15	223
Over 6	to 6-1/2	34	Over 15	to 15-1/2	242
Over 6-1/2	to 7	49	Over 15-1/2	to 16	250
Over 7	to 7-1/2	65	Over 16	to 16-1/2	257
Over 7-1/2	to 8	75	Over 16-1/2	to 17	267
Over 8	to 8-1/2	85	Over 17	to 17-1/2	278
Over 8-1/2	to 9	87	Over 17-1/2	to 18	300
Over 9	to 9-1/2	90	Over 18	to 18-1/2	321
Over 9-1/2	to 10	110	Over 18-1/2	to 19	327
Over 10	to 10-1/2	131	Over 19	to 19-1/2	334
Over 10-1/2	to 11	137	Over 19-1/2	to 20	344
Over 11	to 11-1/2	143	Over 20	to 20-1/2	353
Over 11-1/2	to 12	159	Over 20-1/2	to 21	362
Over 12	to 12-1/2	175	Over 21	to 22	…
Over 12-1/2	to 13	183	Over 22	to 24	…

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

SERIES 150 OVERSHOT WALLHOOK GUIDES



Overview

When it is impossible to engage the top of a fish that is positioned in a washed out section of the well bore using a conventional overshot guide, a Logan Series 150 Wallhook Guide can be used to capture the neck of a fish, center it, and properly guide it into the bowl.

When ordering, please specify:

(1) Part number of Overshot Assembly, Standard Guide, or Bowl
(2) Length of Wallhook Guide
(3) O.D. if other than standard

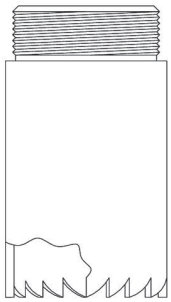
OD (INCHES)		WEIGHTS:	30" Long	36" Long	42" Long	48" Long
Over 5	to 5-1/2		66	94	110	116
Over 5-1/2	to 6		73	102	117	127
Over 6	to 6-1/2		80	110	126	138
Over 6-1/2	to 7		86	117	134	148
Over 7	to 7-1/2		93	126	144	159
Over 7-1/2	to 8		100	135	155	170
Over 8	to 8-1/2		106	145	166	188
Over 8-1/2	to 9		113	155	177	198
Over 9	to 9-1/2		…	166	191	213
Over 9-1/2	to 10		…	177	204	228
Over 10	to 10-1/2		…	189	244	273
Over 10-1/2	to 11		…	201	285	318
Over 11	to 11-1/2		…	214	299	333
Over 11-1/2	to 12		…	227	312	348
Over 12	to 12-1/2		…	…	327	366
Over 12-1/2	to 13		…	…	343	383
Over 13	to 13-1/2		…	…	360	402
Over 13-1/2	to 14		…	…	377	421
Over 14	to 14-1/2		…	…	391	436
Over 14-1/2	to 15		…	…	404	451
Over 15	to 15-1/2		…	…	419	467
Over 15-1/2	to 16		…	…	433	483
Over 16	to 16-1/2		…	…	448	500
Over 16-1/2	to 17		…	…	462	516
Over 17	to 17-1/2		…	…	479	535
Over 17-1/2	to 18		…	…	496	554

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

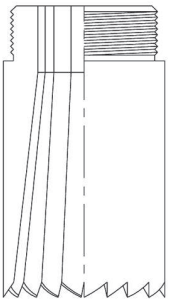
SERIES 150 OVERSHOT MILL GUIDES

Overview

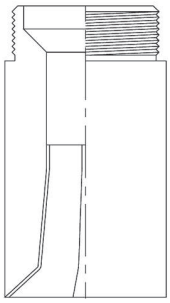
Logan Series 150 Overshot Mill Guides are designed to remove badly burred, flared, or jagged metal from the top of the fish. Mill Guides are used in place of the Standard or Oversized Guide to trim the fish so it can enter the overshot. Series 150 Overshot Mill Guides are available as a Type A, Type B, or Type C. Order by using the Standard Guide part number and the fish size.



Type A



Type B



Type C

Type A
Machine cut carburized teeth mill burrs off tool joints and drill collars.

Type B
Fluted design with tapered end teeth and straight inside teeth mills over pipe, upset sections, tool joints caught by the overshot, or when the top of the fish is unusually jagged.

Type C
Tungsten carburized tapered teeth and straight I.D. mills over pipe, upset sections, and tool joints caught by the overshot.

When ordering, please specify:
(1) Mill Guide O.D. and type
(2) Size of fish to mill over
(3) O.D. if other than standard
(4) Overshot Guide part number

TYPE A — Machine cut carburized teeth to mill burrs off tool joints and drill collars

GUIDE O.D. NOT OVER (inches)	3-1/2	4	4-1/2	5	5-1/2	6	6-1/2
Approximate Length of Guide (inches)	8	8	8	8	8	12	1

GUIDE O.D. NOT OVER (inches)	7	7-1/2	8	8-1/2	9	9-1/2	10
Approximate Length of Guide (inches)	12	12	12	16	16	16	16

GUIDE O.D. NOT OVER (inches)	10-1/2	11					
Approximate Length of Guide (inches)	16	16					

TYPE B — Fluted with end teeth tapered and straight inside teeth to mill over pipe, upset section, or tool joint that the overshot catches

GUIDE O.D. NOT OVER (inches)	4-1/4	5-1/2	6	7	7-1/2	8	8-1/2
Approximate Length of Guide (inches)	8	8	12	12	12	12	16

GUIDE O.D. NOT OVER (inches)	9	9-1/2	9-3/4				
Approximate Length of Guide (inches)	16	16	16				

TYPE C — Tungsten carbide tapered and straight ID to mill over pipe, upset section, or tool joint that the overshot catches

GUIDE O.D. NOT OVER (inches)	3-1/2	4	4-1/2	5	5-1/2	6	6-1/2
Approximate Length of Guide (inches)	8	8	8	8	8	12	12

GUIDE O.D. NOT OVER (inches)	7	7-1/2	8	8-1/2	9	9-1/2	10
Approximate Length of Guide (inches)	12	12	12	16	16	16	16

GUIDE O.D. NOT OVER (inches)	10-1/2	11	11-3/4				
Approximate Length of Guide (inches)	16	16	16				

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

SERIES 150 OVERSHOT MILL CONTROL PACKER INNER SEALS

STANDARD – TYPE R

FISH SIZE (inches)	3/4	7/8	1	1-1/8	1-1/4	1-5/16	1.315
Inner Seal	L13591	L66814	L12470	L12471	L12472	L14187	L12280

FISH SIZE (inches)	1-1/2	1-5/8–1.660	1-3/4	1-3/4	1-7/8	1.900	2
Inner Seal	L12281	L11568	L12177	L12177SH	L10803	L218114-1.900	L10804

FISH SIZE (inches)	2-1/16	2-1/8	2-1/4	2-5/16	2-3/8	2-1/2	2-5/8
Inner Seal	L218114-66	L10805	L10806	L218114-74	L10807	L10808	L10809

FISH SIZE (inches)	2.702	2-3/4	2-13/16	2-7/8	2-7/8	2-7/8	2.900
Inner Seal	L10994	L10810	L218114-90	L10811	L10811-100	L10811SH	L218114-2.900

FISH SIZE (inches)	3	3-1/16	3-1/8	3-3/16	3.220	3-1/4	3-1/4
Inner Seal	L10812	L10098	L10813	L218114-102	L218114-3.220	L10814	L10814S

FISH SIZE (inches)	3-5/16	3-3/8	3-7/16	3-1/2	3-5/8	3-21/32	3-3/4
Inner Seal	L218114-106	L10815	L218114-110	L10816	L10817	L10819	L10819

FISH SIZE (inches)	3-3/4	3-13/16	3-7/8	3-15/16	4	4-1/16	4-1/8
Inner Seal	L10819SH	L218114-122	L10820	L218114-126	L10821	L218114-130	L10822

FISH SIZE (inches)	4-1/8	4-1/4	4-1/4	4-3/8	4-1/2	4-5/8	4-5/8
Inner Seal	L10822SH	L10823	L10823SH	L10824	L10825	L10826	L10826SH

FISH SIZE (inches)	4-3/4	4-7/8	5	5-1/8	5-1/4	5-3/8	5-1/2
Inner Seal	L10827	L10828	L10829	L10830	L10831	L10832	L10833

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

Note: L10811-100 (2-7/8 catch) inner seal is HNBR material.

When ordering, please specify:

(1) Size of fish
(2) Inner Seal number

Recommended Spare Parts:

(1) 3 Inner Seals

SERIES 150 OVERSHOT MILL CONTROL PACKER INNER SEALS

STANDARD – TYPE R

FISH SIZE (inches)	5-5/8	5-3/4	5-7/8	6	6-1/8	6-1/4	6-3/8
Inner Seal	L10834	L10835	L10836	L10837	L10838	L10839	L10840

FISH SIZE (inches)	6-1/2	6-5/8	6-3/4	6-7/8	7	7-1/8	7-1/4
Inner Seal	L10841	L10842	L10843	L10844	L10845	L10846	L10847

FISH SIZE (inches)	7-3/8	7-1/2	7-5/8	7-3/4	7-7/8	8	8-1/8
Inner Seal	L10848	L10849	L10850	L10851	L10852	L10853	L10854

FISH SIZE (inches)	8-1/4	8-3/8	8-1/2	8-5/8	8-3/4	8-7/8	9
Inner Seal	L10855	L10856	L10857	L10858	L10859	L10860	L10861

FISH SIZE (inches)	9-1/8	9-1/4	9-3/8	9-1/2	9-5/8	9-3/4	10
Inner Seal	L10862	L10863	L10864	L12099	L12100	L12101	L12103

FISH SIZE (inches)	10-1/2	11-1/4	12	12-3/4			
Inner Seal	L218114-336	L63841	L10885	L81497			

PACK-OFF PIPE SIZE	1-1/4	1-1/2	2-1/16	2-3/8	2-3/8	2-7/8	2-7/8
PASS UPSET SIZE	1-13/16	1.900	2.330	2-19/32	2-21/32	3-3/32	3-7/32
Inner Seal	L13366	L13317	L13285	L11690	L11690	L11691	L11692

PACK-OFF PIPE SIZE	3-1/2	3-1/2	3-1/2	4-1/2	4-1/2		
PASS UPSET SIZE	3-3/4	3-13/16	3-15/16	5	5-1/8		
Inner Seal	L11693	L11693	L11694	L11695	L11696		

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

Note: L10811-100 (2-7/8 catch) inner seal is HNBR material.

When ordering, please specify:

(1) Size of fish
(2) Inner Seal number

Recommended Spare Parts:

(1) 3 Inner Seals

SERIES 150 OVERSHOT MILL CONTROL PACKER OUTER SEALS

PACKER	Logan Part No.	A9950	A9000	A9001	A9002	A90025	A9003	A9004
	Bowen No.	9407M	B-10202-R	9309-R	L-1453-R	1453-R	B-5089-R	B-3395-R
	Outer Seal	568-032	568-226	568-228	568-228	568-228	568-229	568-230

PACKER	Logan Part No.	A9005	A90055	A90056	A90057	A9006	A9007	A9009
	Bowen No.	8550-R	37588-R	B-1839-R	A-1831-R	L-809-RS	B-3594-R	B-5107-R
	Outer Seal	568-233	568-234	568-235	568-233	568-233	568-234	568-234

PACKER	Logan Part No.	A9010	A9011	A9012	A90125	A9013	A90135	A9014
	Bowen No.	809-R	L-7090-R	B-5118-R	1517-R	L-1517-R	21303-R	B-4625-R
	Outer Seal	568-234	568-235	568-235	568-236	568-236	568-236	568-237

PACKER	Logan Part No.	A90145	A9015	A9016	A90165	A9017	A9018	A9019
	Bowen No.	4185-R	L-6515-R	L-7065-R	1253-R	L-168-R	L-6665-R	6665-R
	Outer Seal	568-237	568-237	568-238	568-239	568-239	568-239	568-239

PACKER	Logan Part No.	A9020	A9021	A90215	A90217	A9022	A9023	A90235
	Bowen No.	B-3219-R	B-5538-R	9122-R	L-6163-R	811-R	856-R	60947R
	Outer Seal	568-239	568-240	568-239	568-238	568-240	568-241	568-241

PACKER	Logan Part No.	A9024	A9025	A9026	A9027	A90285	A9029	A9030
	Bowen No.	B-5157-R	A-1508-R	B-4895-R	L-1867-R	B-4672-R	169-R	B-2487-R
	Outer Seal	568-242	568-243	568-242	568-243	568-244	568-244	568-246

PACKER	Logan Part No.	A9031	A9032	A9033	A9034	A9035	A9036	A9037
	Bowen No.	B-2199-1R	1140-R	195-R	B-2199-R	6114-R	B-2362-R	B-6387-R
	Outer Seal	568-248	568-247	568-349	568-248	568-247	568-248	568-249

PACKER	Logan Part No.	A90375	A9038	A9039	A90395	A9040	A90402	A90405
	Bowen No.	1189-R	B-2455-R	L-5950-R	5950-R	M-4505-RS	11826-R	4505-R
	Outer Seal	568-250	568-249	568-250	568-250	568-252	568-251	568-252

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SERIES 150 OVERSHOT MILL CONTROL PACKER OUTER SEALS

PACKER	Logan Part No.	A90407	A9041	A9042	A9043	A9044	A9045	A9046
	Bowen No.	9209-R	L-8618-R	A-756-R	6697-R	L-110-R	223-R	B-5209-R
	Outer Seal	568-252	568-253	568-254	568-255	568-359	568-437	568-259

PACKER	Logan Part No.	A9047	A9048	A9049	A90495	A9050	A9051	A9052
	Bowen No.	L-1642-R	9689-R	1642-R	1680-R	L-1680-R	9005-R	5508-R
	Outer Seal	568-259	568-258	568-259	568-438	568-438	568-259	568-260

PACKER	Logan Part No.	A9053	A9054	A9055	A90555	A9056	A9057	A9058
	Bowen No.	9865-R	L-6635-R	9136-R	1634-R	A-1814-R	B-5225-R	207-R
	Outer Seal	568-259	568-439	568-260	568-260	568-260	568-261	568-261

PACKER	Logan Part No.	A90587	A9059	A90595	A9060	A90605	A9061	A9062
	Bowen No.	L-8985-R	9224-R	L-6310-R	L-111-R	9231-R	B-5357-R	L-1025-R
	Outer Seal	568-261	568-261	568-262	568-441	568-262	568-263	568-263

PACKER	Logan Part No.	A9063	A9064	A9065	A9066	A9067	A90675	A9068
	Bowen No.	9237-R	B-4154-R	B-7104-R	M-98-RS	9243-R	B-5244-R	9855-R
	Outer Seal	568-263	568-263	568-264	568-264	568-263	568-264	568-264

PACKER	Logan Part No.	A9069	A90695	A9070	A9071	A9072	A9073	A9074
	Bowen No.	B-5260-R	98-R	L-98-R	B-5268-R	235-R	9055-R	L-1060-R
	Outer Seal	568-265	568-265	568-265	568-266	568-445	568-267	568-268

PACKER	Logan Part No.	A9075	A9076	A9077	A9078	A9079	A9080	A9081
	Bowen No.	B-5287-R	8956-R	B-5300-R	B-5308-R	B-5324-R	B-12825-R	26260-R
	Outer Seal	568-266	568-268	568-269	568-270	568-269	568-271	568-273

PACKER	Logan Part No.	A9082	A9083	A9084	A9085	A9086	A9087	
	Bowen No.	5332-R	15805-R	33011-R	68031-R	64556-R	31656-R	
	Outer Seal	568-274	568-451	568-453	568-279	568-458	568-463	

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TYPE E MILL CONTROL PACKERS

PACKER	Logan Part No.	A9950E	A9000E	A9001E	A9002E	A90025E	A9003E	A9004E
	Bowen No.	9407E	B-10202-E	9309-E	L-1453-E	1453-E	B-5089-E	B-3395-E
	Outer Seal	568-032	568-226	568-228	568-228	568-228	568-229	568-230

PACKER	Logan Part No.	A9005E	A90055E	A90056E	A90057E	A9006E	A9007E	A9009E
	Bowen No.	8550-E	37588-E	B-1839-E	A-1831-E	L-809-ES	B-3594-E	B-5107-E
	Outer Seal	568-233	568-234	568-235	568-233	568-233	568-234	568-234

PACKER	Logan Part No.	A9010E	A9011E	A9012E	A90125E	A9013E	A90135E	A9014E
	Bowen No.	809-E	L-7090-E	B-5118-E	1517-E	L-1517-E	21303-E	B-4625-E
	Outer Seal	568-234	568-235	568-235	568-236	568-236	568-236	568-237

PACKER	Logan Part No.	A90145E	A9015E	A9016E	A90165E	A9017E	A9018E	A9019E
	Bowen No.	4185-E	L-6515-E	L-7065-E	1253-E	L-168-E	L-6665-E	6665-E
	Outer Seal	568-237	568-237	568-238	568-239	568-239	568-239	568-239

PACKER	Logan Part No.	A9020E	A9021E	A90215E	A90217E	A9022E	A9023E	A90235E
	Bowen No.	B-3219-R	B-5538-R	9122-R	L-6163-R	811-R	856-R	60947R
	Outer Seal	568-239	568-240	568-239	568-238	568-240	568-241	568-241

PACKER	Logan Part No.	A9024E	A9025E	A9026E	A9027E	A90285E	A9029E	A9030E
	Bowen No.	B-5157-E	A-1508-E	B-4895-E	L-1867-E	B-4672-E	169-E	B-2487-E
	Outer Seal	568-242	568-243	568-242	568-243	568-244	568-244	568-246

PACKER	Logan Part No.	A9031E	A9032E	A9033E	A9034E	A9035E	A9036E	A9037E
	Bowen No.	B-2199-1E	1140-E	195-E	B-2199-E	6114-E	B-2362-E	B-6387-E
	Outer Seal	568-248	568-247	568-349	568-248	568-247	568-248	568-249

PACKER	Logan Part No.	A90375E	A9038E	A9039E	A90395E	A9040E	A90402E	A90405E
	Bowen No.	1189-E	B-2455-E	L-5950-E	5950-E	M-4505-ES	11826-E	4505-E
	Outer Seal	568-250	568-249	568-250	568-250	568-252	568-251	568-252

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

When ordering, please specify:

(1) Specify catch size

TYPE E MILL CONTROL PACKERS

PACKER	Logan Part No.	A90407E	A9041E	A9042E	A9043E	A9044E	A9045E	A9046E
	Bowen No.	9209-E	L-8618-E	A-756-E	6697-E	L-110-E	223-E	B-5209-E
	Outer Seal	568-252	568-253	568-254	568-255	568-359	568-437	568-259

PACKER	Logan Part No.	A9047E	A9048E	A9049E	A90495E	A9050E	A9051E	A9052E
	Bowen No.	L-1642-E	9689-E	1642-E	1680-E	L-1680-E	9005-E	5508-E
	Outer Seal	568-259	568-258	568-259	568-438	568-438	568-259	568-260

PACKER	Logan Part No.	A9053E	A9054E	A9055E	A90555E	A9056E	A9057E	A9058E
	Bowen No.	9865-E	L-6635-E	9136-E	1634-E	A-1814-E	B-5225-E	207-E
	Outer Seal	568-259	568-439	568-260	568-260	568-260	568-261	568-261

PACKER	Logan Part No.	A90587E	A9059E	A90595E	A9060E	A90605E	A9061E	A9062E
	Bowen No.	L-8985-E	9224-E	L-6310-E	L-111-E	9231-E	B-5357-E	L-1025-E
	Outer Seal	568-261	568-261	568-262	568-441	568-262	568-263	568-263

PACKER	Logan Part No.	A9063E	A9064E	A9065E	A9066E	A9067E	A90675E	A9068E
	Bowen No.	9237-E	B-4154-E	B-7104-E	M-98-ES	9243-E	B-5244-E	9855-E
	Outer Seal	568-263	568-263	568-264	568-264	568-263	568-264	568-264

PACKER	Logan Part No.	A9069E	A90695E	A9070E	A9071E	A9072E	A9073E	A9074E
	Bowen No.	B-5260-E	98-E	L-98-E	B-5268-E	235-E	9055-E	L-1060-E
	Outer Seal	568-265	568-265	568-265	568-266	568-445	568-267	568-268

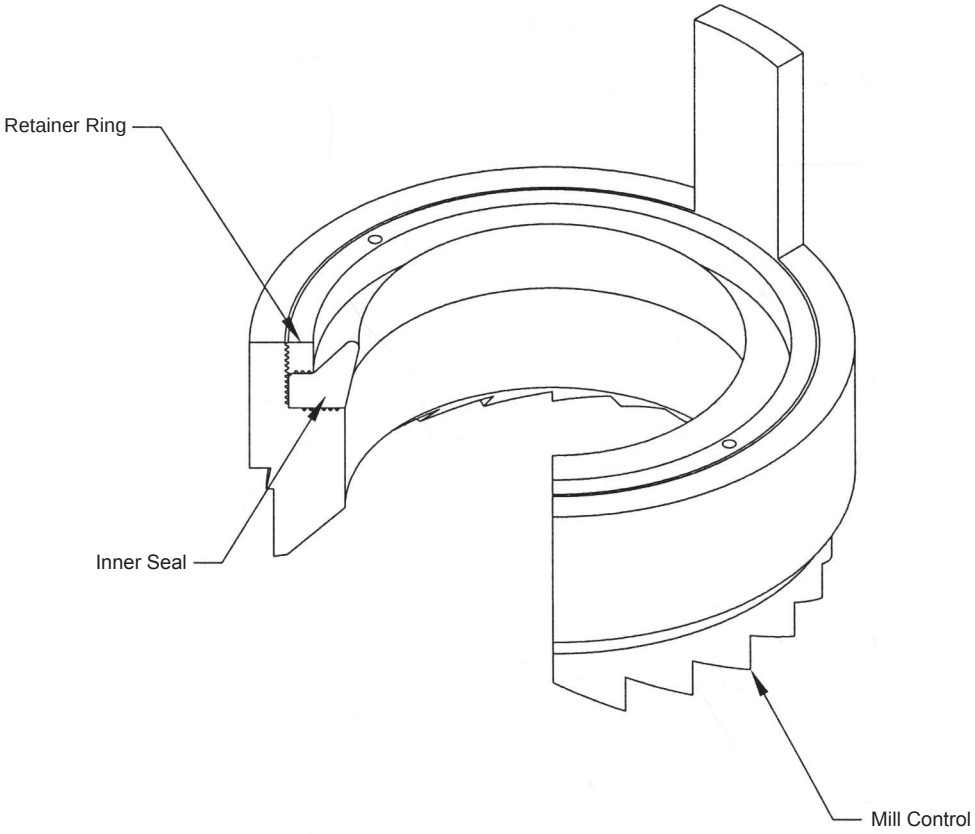
PACKER	Logan Part No.	A9075E	A9076E	A9077E	A9078E	A9079E	A9080E	A9081E
	Bowen No.	B-5287-E	8956-E	B-5300-E	B-5308-E	B-5324-E	B-12825-E	26260-E
	Outer Seal	568-266	568-268	568-269	568-270	568-269	568-271	568-273

PACKER	Logan Part No.	A9082E	A9083E	A9084E	A9085E	A9086E	A9087E
	Bowen No.	5332-E	15805-E	33011-E	68031-E	64556-E	31656-E
	Outer Seal	568-274	568-451	568-453	568-457	568-458	568-463

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When ordering, please specify:

(1) Specify catch size



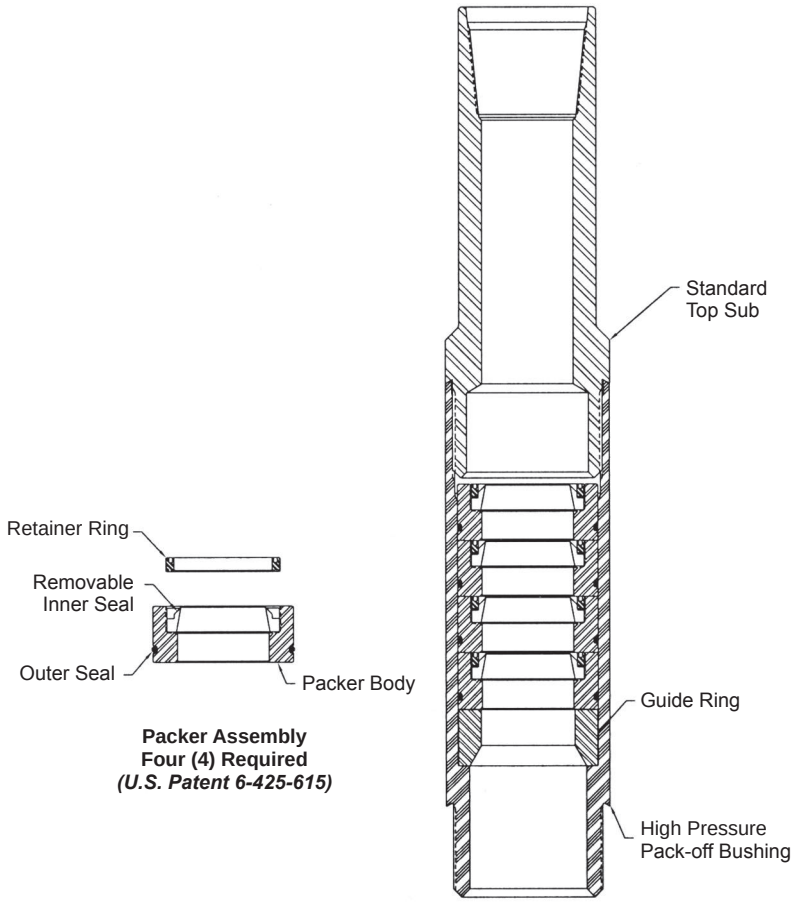
HIGH PRESSURE MILL CONTROL PACKERS

Overview

The Logan High Pressure Mill Control Packer (U.S. Patent 6-425-615) is designed for use with Series 150 Overshots and has been successfully field tested and proven to 5,000 psi. The unique design utilizes a steel retainer ring, which can be easily installed and removed with an adjustable spanner wrench, to compress the inner seal. The steel retainer ring is also machined with left-hand threads to prevent back-off. The body of the Mill Control Packer and the steel retainer ring are machined with a series of grooves to ensure maximum positive retention of the inner seal during high pressure operations. Correct steel retainer ring installation and proper inner seal squeeze are accurately defined when the retainer ring is flush with the top of the Mill Control Packer body.

When ordering, please specify:

(1) Overshot Assembly to be used with
(2) O.D. of tubing or pipe size to pack-off



Packer Assembly
Four (4) Required
(U.S. Patent 6-425-615)

HIGH PRESSURE PACK-OFF ASSEMBLIES

Overview

The Logan Series 150 High Pressure Pack-off Assembly is for use is areas with extreme pressure. The assemblies listed below are installed between the top sub and bowl of the overshot. High Pressure Pack-off Assemblies for use between the Bowl and Guide are available upon request. Assemblies for overshots not listed are available upon request.

When ordering, please specify:

(1) Overshot Assembly to be used with
(2) O.D. of tubing or pipe size to pack-off

Special Notes:

(1) High Pressure Pack-off Assemblies are used between the Top Sub and Bowl.

(2) High Pressure Pack-off Assemblies for use between the Bowl and Guide are available upon request.

(3) High Pressure Pack-off Assemblies for Overshots not listed are available upon request.

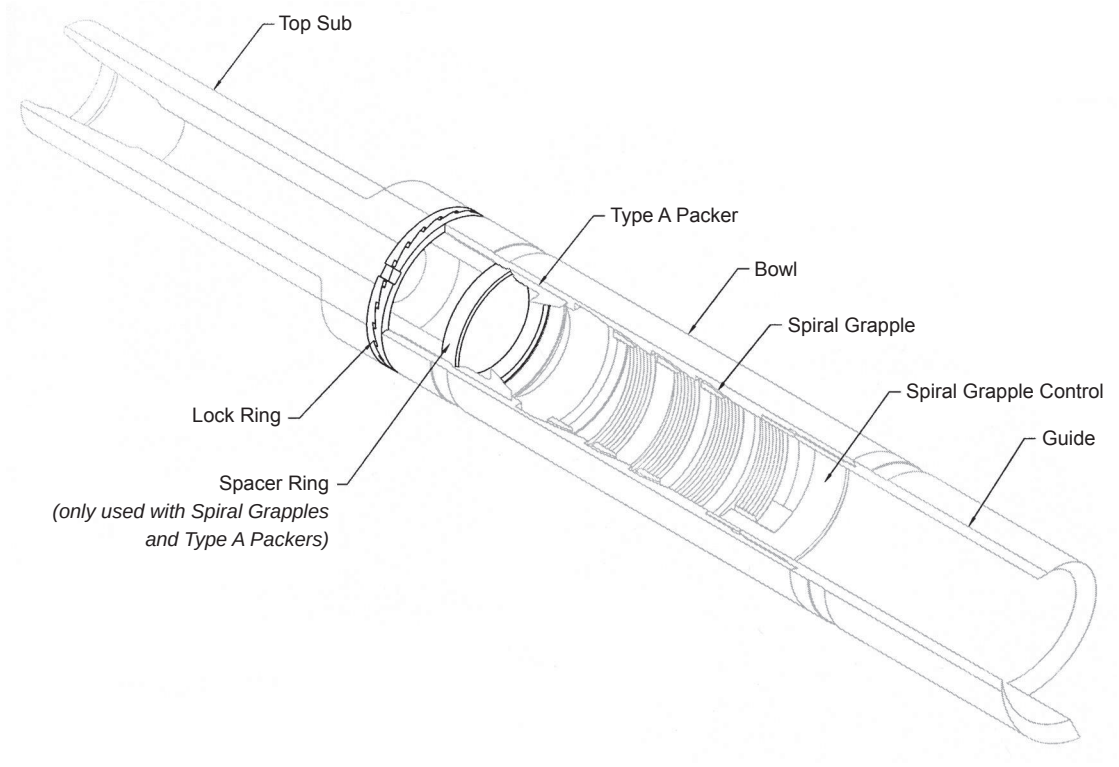
(4) Bi-Directional High Pressure Pack-off Assemblies are available upon request. (seals both internal and external pressure)

FOR USE WITH:								
OVERSHOT ASSEMBLY	Logan Part No.	150-413-A	150-413-D	150-438-A	150-425-D	150-4375-A	150-450-A	150-438-D
	Bowen No.	9105	C5115	C5112	C5126	9635	C5123	C4619
COMPLETE ASSEMBLY	Logan Part No.	800-249	800-252	800-254	800-256	800-257	800-258	800-259
BUSHING	Logan Part No.	HPP1010	HPP1012	HPP1013	HPP1014	HPP10145	HPP1015	HPP1016
PACKER *	Logan Part No.	HPP4010	HPP4012	HPP4013	HPP4014	HPP40145	HPP4015	HPP4016
GUIDE RING	Logan Part No.	GR1010	GR1012	GR1013	GR1014	GR10145	GR1015	GR1016
SPACER RING **	Logan Part No.	SR1010	SR1012	SR1013	SR1014	SR10145	SR1015	SR1016

FOR USE WITH:								
OVERSHOT ASSEMBLY	Logan Part No.	150-482-A	150-456-D	150-469-C	150-575-A	150-813-D		
	Bowen No.	C4732	C5151	9109	8975	9217		
COMPLETE ASSEMBLY	Logan Part No.	800-260	800-262	800-263	800-284	800-316		
BUSHING	Logan Part No.	HPP1017	HPP1018	HPP1019	HPP1035	HPP1059		
PACKER *	Logan Part No.	HPP4017	HPP4018	HPP4019	HPP4035	HPP4059		
GUIDE RING	Logan Part No.	GR1017	GR1018	GR1019	GR1035	GR1059		
SPACER RING **	Logan Part No.	SR1017	SR1018	SR1019	SR1035	SR1059		

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** Includes O-ring, Inner Seal, and Retainer Ring*
*** Optional Spacer Ring for Bi-Directional Pack-off*



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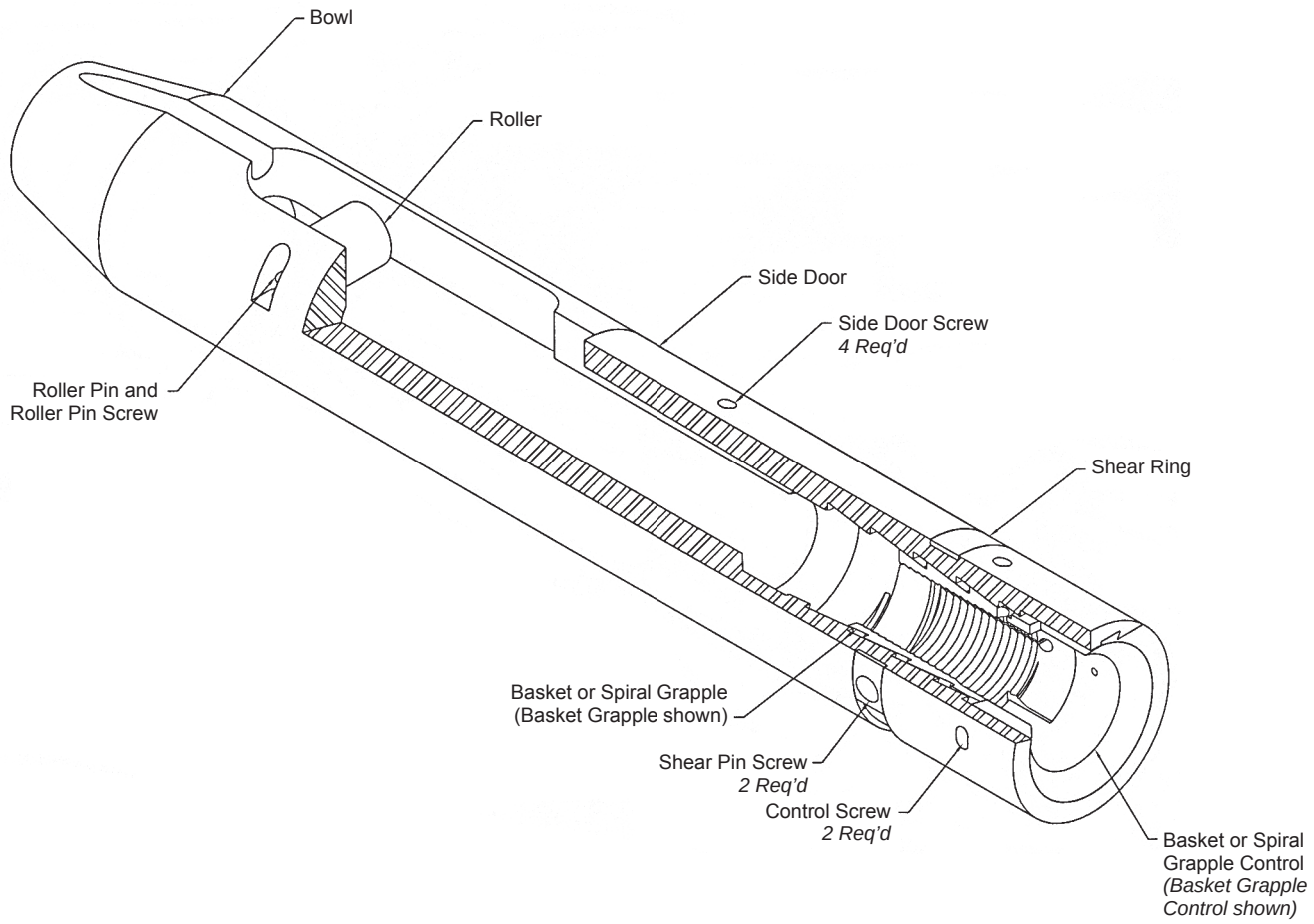
LOCK RINGS AND SPACERS

Overview

Lock Rings are installed between the Top Sub and the Bowl, and are designed to keep the Top Sub from inadvertently unscrewing from the Bowl. Lock Rings are typically used when a significant amount of torque is being applied through the overshot to the fish (such as encountered during back-off operations). The Lock Rings can be used with either a Basket Grapple or a Spiral Grapple, If a Spiral Grapple and a Type A Packer are being used, then a Spacer Ring must be used in conjunction with the Lock Rings. The Spacer Ring is installed into the Bowl and on top of the Type A Packer. When the Top Sub/Lock Ring assembly is installed into the Overshot Bowl, the Spacer Ring will secure the Type A Packer in the Bowl.

When ordering, please specify:

(1) Part number of the complete assembly for selected Overshot



SERIES 160 SIDE DOOR OVERSHOTS

Overview

A Logan Series 160 Side Door Overshot is recommended when fishing for cable tools or conductor lines in cased holes. The side door overshot is run in on tubing or drill pipe. Line can be fed into the tool by removing the door on the side of the bowl. The door is put back into position after the line is in place. The feature eliminates the necessity of cutting the line or cable and the possibility of the lines fouling when there are two lines in the hole.

Construction

Principal parts of the Series 160 Side Door Overshot are a bowl, grapple, and grapple control.

Operation

Remove the side door and interior parts. Place the bowl on the cable and fasten the side door. Slip the grapple onto the cable and screw into place in the bowl. Slip the grapple control into place and fasten the control screws.

Run in the overshot. As the overshot nears the fish, slowly rotate the string to the right as it is gradually lowered over the fish. The wickered grapple will engage the fish. Continued lowering and right-hand rotation of the string will move the grapple upward within the bowl. The grapple will expand to allow easy entry of the fish.

To Pull the Fish

Release torque out of the string and exert an upward strain on the pipe. The friction of the fish on the grapple wickers will pull the grapple down into the bowl. This causes the grapple to contract and tightly grip the fish. Maintain an upward strain on the string to pull the fish out of the hole.

To Release from a Fish

Bump down to break the grip. Gradually raise the string while slowly rotating it to the left.

Follow the same procedure to release from a recovered fish being sure to hold the fish below the overshot.

When odering, please specify:

(1) Complete assembly or part number
(2) Line diameter

SERIES 160 SIDE DOOR OVERSHOTS

MAXIMUM CATCH SIZE (Spiral)		2	2	2-3/8	2-3/8	2-3/8	3-1/8	3-21/32
MAXIMUM CATCH SIZE (Basket)		1-1/2	1-1/2	1-7/8	1-7/8	1-7/8	2-5/8	3-1/8
OVERSHOT O.D.		3-1/8	3-3/4	4	4-1/2	4-1/2	4-11/16	5-1/2
COMPLETE ASSEMBLY	Logan Part No.	160-313	160-375	160-400	160-450	160-451	160-469	160-550
	Bowen No.	15955	C11145	9560	6400	9985	9965	9920

COMPONENT PARTS

BOWL	Logan Part No.	AK1000	AK1001	AK1002	AK1003	AK1004	AK1005	AK1006
	Bowen No.	15957	C11146	9562	6401	9986	9966	9921
ROLLER	Logan Part No.	AK2000	AK2001	AK2002	AK2003	AK2003	AK2004	AK2005
	Bowen No.	15961	A5440	9566	6456	6456	9967	9922
ROLLER PIN	Logan Part No.	AK3000	AK3001	AK3002	AK3003	AK3003	AK3004	AK3005
	Bowen No.	15962	A11296	9567	6457	6457	9968	9923
ROLLER PIN SCREW	Logan Part No.	AK4000	AK4000	AK4000	AK4000	AK4000	AK4000	AK4001
	Bowen No.	9568	9568	9568	9568	9568	9568	9924
SHEAR RING	Logan Part No.	AK5000	AK5001	AK5002	AK5003	AK5003	AK5004	AK5005
	Bowen No.	15958	A14221	9564	6422	6422	9970	9925
SHEAR RING SCREW	Logan Part No.	AK6000	AK6001	AK6002	AK6003	AK6003	AK6002	AK6004
	Bowen No.	6460	23124	8593	25220	25220	8593	9906
	No. Req'd	2	2	2	2	2	2	2
SPIRAL GRAPPLE	Logan Part No.	AK7000	AK7001	A50025	A50025	A50025	A5010	A5019
	Bowen No.	1811	11147	1448	1448	1448	1741	6662
SPIRAL GRAPPLE CONTROL	Logan Part No.	AK8000	AK8001	AK8002	AK8002	AK8002	AK8003	AK8004
	Bowen No.	15965	A11148	6403	6403	6403	9973	9927
CONTROL SCREW	Logan Part No.	AK9000	AK9001	Q3012	AK9003	AK9003	AK9001	AK9004
	Bowen No.	15966	9933	9558	6459	6459	9933	9928
	No. Req'd	2	2	2	2	2	2	2
TOP SUB *(see Note 1)*	Logan Part No.	...	...	...	AK10000	...	...	...
	Bowen No.	...	...	...	7243, 7244	...	...	...
SIDE DOOR SCREW	Logan Part No.	Q3002	AK11001	AK11002	AK4000	AK9001	Q3012	Q3012
	Bowen No.	8181	23507	9559	9568	9933	9558	9558
		No. Req'd	4	6	6	4	4	44
BASKET GRAPPLE	Logan Part No.	AK12000	AK12001	AK12002	AK12002	AK12002	AK12003	AK12004
	Bowen No.	15956	B11147	6402	6402	6402	9972	9934
BASKET GRAPPLE CONTROL	Logan Part No.	AK13000	AK13001	AK13002	AK13002	AK13002	AK13003	AK13004
	Bowen No.	15965	B11148	6403	6403	6403	9973	9927

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

Special Notes:
(1) Assembly number 160-450 (6400) has a straight thread top connection in bowl and requires special top subs.

Recommended Spare Parts:
(1) 2 Grapples for each size, Basket and Spiral
(2) 2 Grapple Controls for each size

LEAD IMPRESSION BLOCKS

Overview

A Logan Lead Impression Block is an effective tool used to determine dimensions, configuration, condition, and location of the top end of a fish in the hole.

Construction

Logan Lead Impression Blocks are manufactured with a high strength alloy steel body and a soft lead insert at the lower end. All impression blocks (except those with sucker rod connections) are provided with a watercourse for flushing the top of the fish before lowering the tool against it. Impression blocks without a watercourse can be furnished upon request.

Lead O.D. is available in 1 to 12-1/4 inches. Additional sizes are available upon request.

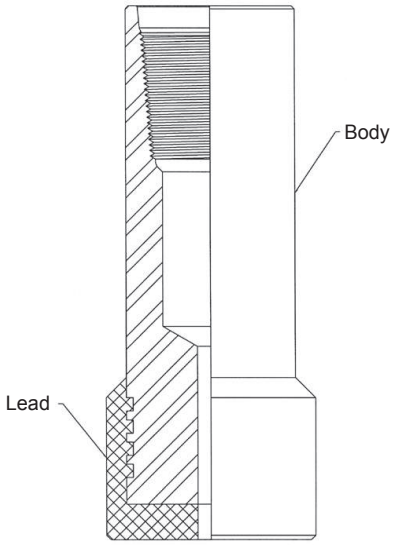
Operation

Make up the impression block to the bottom of the fishing string and run into the hole. Do not rotate. Slowly lower the impression block to the point of contact with the fish. Apply weight to the impression block and lift it from the hole.

When ordering, please specify:

(1) Complete assembly or part number
(2) Top connection
(3) Lead O.D.

Special Note:
(1) Additional sizes available upon request



SIZE (O.D. OF LEAD)	1	1-5/8	1-3/4	2-1/8	2-1/4	2-3/4	3
COMPLETE ASSEMBLY Logan Part No.	100-100	100-163	100-175	100-213	100-225	100-275	100-300
WATERCOURSE SIZE	None	None	None	None	None	None	1/2

SIZE (O.D. OF LEAD)	3-1/4	3-1/2	3-3/4	4	4-1/4	4-1/2	4 3/4
COMPLETE ASSEMBLY Logan Part No.	100-325	100-350	100-375	100-400	100-425	100-450	100-475
WATERCOURSE SIZE	1/2	1/2	1/2	1/2	1/2	3/4	3/4

SIZE (O.D. OF LEAD)	5	5-1/4	5-1/2	5-3/4	6	6-1/4	6-1/2
COMPLETE ASSEMBLY Logan Part No.	100-500	100-525	100-550	100-575	100-600	100-625	100-650
WATERCOURSE SIZE	3/4	3/4	3/4	3/4	3/4	3/4	3/4

SIZE (O.D. OF LEAD)	6-3/4	7	7-1/4	7-1/2	7-3/4	8	8-1/4
COMPLETE ASSEMBLY Logan Part No.	100-675	100-700	100-725	100-750	100-775	100-800	100-825
WATERCOURSE SIZE	3/4	3/4	3/4	3/4	3/4	3/4	3/4

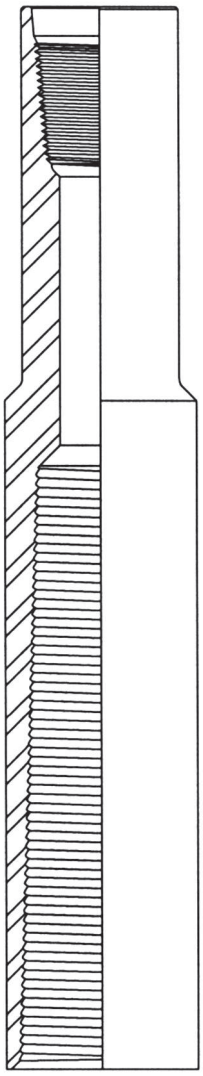
SIZE (O.D. OF LEAD)	8-1/2	8-3/4	9	9-1/4	9-1/2	9-3/4	10
COMPLETE ASSEMBLY Logan Part No.	100-850	100-875	100-900	100-925	100-950	100-975	100-1000
WATERCOURSE SIZE	3/4	3/4	3/4	3/4	3/4	3/4	3/4

SIZE (O.D. OF LEAD)	10-1/4	10-1/2	10-3/4	11	11-1/4	11-1/2	11-3/4
COMPLETE ASSEMBLY Logan Part No.	100-1025	100-1050	100-1075	100-1100	100-1125	100-1150	100-1175
WATERCOURSE SIZE	3/4	3/4	3/4	3/4	3/4	3/4	3/4

SIZE (O.D. OF LEAD)	12	12-1/4	14-1/2	15	15-1/2	17	17-1/4
COMPLETE ASSEMBLY Logan Part No.	100-1200	100-1225	100-1450	100-1500	100-1550	100-1700	100-1725
WATERCOURSE SIZE	3/4	3/4	3/4	3/4	3/4	3/4	3/4

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

ROTARY DIE COLLARS



Overview

Logan Rotary Die Collars are the simplest external catch fishing tools designed for retrieving a fish from the hole. Logan Die Collars are available in two types: Type A and Type B. They are available in an assortment of sizes, lengths, and connections, and can be custom made to specification.

Type A

Type A Rotary Die Collars are manufactured with an integral guide. The guide end of the die collar may be specified as flat smooth or cut-lipped.

Type B

Type B Die Collars are manufactured with a threaded bottom end for attaching a standard cut-lipped guide or wallhook guide of your choice.

Construction

Wickers

All Logan Rotary Die Collars are manufactured with hardened wickers (cutting teeth) to ensure positive, reliable engagement of the fish.

Standard wickers are a non-fluted, plain watertight design to provide circulation below the stuck point. Fluted type wickers are available upon request. They are designed to provide circulation to flush out cuttings during fish engagement. All Logan Rotary Die Collars are designed with a circulation hole drilled through the center.

Right-hand wickers for right-hand rotation engagement are standard on Logan Rotary Die Collars. Left-hand wickers are available upon request. There is no extra charge for left-hand wickers.

Operation

The Logan Rotary Die Collar is attached to the fishing string and lowered to the fish. Applying weight of less than one point while rotating will allow the wickers to engage the fish. The fish may be lifted from the hole after being securely engaged.

How to Order

The internal diameter of the largest wicker should be at least 1/2 inch larger than the outside diameter of the fish. The internal diameter of the smallest wicker should be at least 1/2 inch smaller than the outside diameter of the fish.

When ordering, please specify:

(1) Name and number of part
(2) Connection
(3) Type and size of guide if required
(4) O.D. if other than standard

Special Notes:
(1) An extra charge will be made for any change in I.D., O.D., length, or catch range.
(2) No extra charge for left-hand Die Collars.

ROTARY DIE COLLARS

COMPLETE ASSEMBLY	Logan Part No.	102-166	102-181	102-191	102-231	102-344	102-368	102-419
NOMINAL SIZE		3/4 Pipe	1 Pipe	1 Upset	1-1/4 Pipe	2-3/8 Pipe	2-3/8 Upset	2-3/8 API Reg
TO CATCH		1.050	1.315	1.469	1.660	2-3/8	2-21/32	3-1/8
TOTAL LENGTH		8	17	15	12	24	24	24
O.D.		1.660	1-13/16	1-29/32	2-5/16	3-7/16	3-11/16	4-3/16
DIAMETER OF LARGEST WICKER		1-3/16	1-1/2	1-5/8	1-7/8	2-9/16	2-13/16	3-5/16
DIAMETER OF SMALLEST WICKER		7/8	1	1-1/8	1-3/8	1-3/4	2	2-1/2

COMPLETE ASSEMBLY	Logan Part No.	102-444	102-400	102-438	102-488	102-525	102-475	102-506
NOMINAL SIZE		2-3/8 API IF	2-7/8 Pipe	2-7/8 Upset	2-7/8 API Reg	2-7/8 API IF	3-1/2 Pipe	3-1/2 Upset
TO CATCH		3-3/8	2-7/8	3-7/32	3-3/4	4-1/8	3-1/2	3-13/16
TOTAL LENGTH		24	24	24	24	24	32	32
O.D.		4-7/16	4	4-3/8	4-7/8	5-1/4	4-3/4	5-1/16
DIAMETER OF LARGEST WICKER		3-9/16	3-1/16	3-7/16	3-15/16	4-5/16	3-3/4	4-1/16
DIAMETER OF SMALLEST WICKER		2-3/4	2-1/4	2-5/8	3-1/8	3-1/2	2-5/8	2-15/16

COMPLETE ASSEMBLY	Logan Part No.	102-550	102-588	102-600	102-588	102-638	102-688	102-713
NOMINAL SIZE		3-1/2 API Reg	3-1/2 API FH	3-1/2 API IF	4-1/2 Pipe	4-1/2 Upset	4-1/2 API Reg	4-1/2 API FH
TO CATCH		4-1/4	4-5/8	4-3/4	4-1/2	5	5-1/2	5-3/4
TOTAL LENGTH		32	32	32	36	36	36	36
O.D.		5-1/2	5-7/8	6	5-7/8	6-3/8	6-7/8	7-1/8
DIAMETER OF LARGEST WICKER		4-1/2	4-7/8	5	4-3/4	5-1/4	5-3/4	6
DIAMETER OF SMALLEST WICKER		3-3/8	3-3/4	3-7/8	3-3/8	3-7/8	4-3/8	4-5/8

COMPLETE ASSEMBLY	Logan Part No.	102-750	102-706	102-756	102-825	102-850	102-888	102-813
NOMINAL SIZE		4-1/2 API IF	5-9/16 Pipe	5-9/16 Upset	5-9/16 API Reg	5-9/16 API FH	5-9/16 API IF	6-5/8 Pipe
TO CATCH		6-1/8	5-9/16	6-1/16	6-3/4	7	7-3/8	6-5/8
TOTAL LENGTH		36	42	42	42	42	42	42
O.D.		7-1/2	7-1/16	7-9/16	8-1/4	8-1/2	8-7/8	8-1/8
DIAMETER OF LARGEST WICKER		6-3/8	5-13/16	6-5/16	7	7-1/4	7-5/8	6-7/8
DIAMETER OF SMALLEST WICKER		5	3-15/16	4-7/16	5-1/8	5-3/8	5-3/4	5

COMPLETE ASSEMBLY	Logan Part No.	102-863	102-925	102-950	102-1000	102-1075	102-1363	
NOMINAL SIZE		6-5/8 Upset	6-5/8 API Reg	6-5/8 API FH	6-5/8 API IF	6-5/8 API Reg	6-5/8 API Reg	
TO CATCH		7-1/8	7-3/4	8	8-1/2	8-5/8	10-3/4	
TOTAL LENGTH		42	42	42	42	42	46	
O.D.		8-5/8	9-1/4	9-1/2	10	10-3/4	13-5/8	
DIAMETER OF LARGEST WICKER		7-3/8	8	8-1/4	8-3/4	9-3/4	12	
DIAMETER OF SMALLEST WICKER		5-1/2	6-1/8	6-3/8	6-7/8	7-7/8	10	

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

NOTES

FULL CIRCLE RELEASING SPEARS

Overview

Logan Full Circle Releasing Spears are used to internally engage and retrieve all sizes of tubing, drill pipe, and casing. It may be used with internal cutters for cut and pull operations. Full Circle Releasing Spears are designed to evenly distribute expansion strain over a long vertical section of a fish and ensure positive internal engagement. The design of the slips and the effect of the body tapers upon the slips permits tremendous pulling and jarring strains with no danger of distortion to the fish.

Construction

The Logan Full Circle Releasing Spear consists of a body, sleeve (integral with body), slip, unitizer, stop, safety ring, friction block, retainer screw and retainer set, and a mill type nut. Sub, bullnose, and sidehill type nuts are also available. The size and type of the upper box connection is furnished according to customer specification. Construction of the Full Circle Releasing Spear varies slightly according to size. Tubing and drill pipe Spears with four-inch nominal tubing and above, and all casing Spears, utilize Friction Block Assemblies as the friction grip mechanism.

Body

The body has a series of large tapers on the outside diameter that match similar tapers on the inside of the slips. During operation, the tapers cause the slips to expand and contact the fish. Lugs near the upper end of the body hold the upper ends of the slips in position.

Slips

The design of the full circle slips allows easy entry into or withdrawal from the fish. The slips form an almost complete diameter when retracted resulting in more slip engagement than most other spears. This design feature reduces any distortion to the fish.

Unitizer

The lower ends of the slips are held in position by the unitizer that fits around the lower end of the body. The unitizer is kept in place by the stop, safety ring, and nut at the lower end of the body.

Safety Ring

The safety ring prevents the Spear from entering a fish with an inside diameter that is too small for the retracted slips to enter.

Friction Blocks

The friction grip mechanism is a friction block assembly that includes inner and outer block springs. Friction blocks and springs contact the inner wall of the fish and hold the unitizer, retainer set, and slips in place until the shoulders of the tapers on the downwardly traveling body contact the the ends of the slips and the assembly is pushed into the fish to the desired depth.

Nut

The nut guides the Spear into the fish. A mill type nut is used to cut away the distorted end of a fish to ensure that the Spear enters the fish. If the fish is embedded in the side wall of a hole or is badly out of line, a sidehill type nut can be used to align the Spear to the fish. When the use of other tools is required below the Spear, such as an internal cutter, a sub type nut can provide the necessary connection.

Assembly

Connect the Spear to the bottom of the fishing string. The Spear should be in the retracted position with the upper and lower end of the slips engaged with the lugs on the body and the unitizer. The retracted slips will not engage the pipe as the Spear is run in.

Operation

Engaging and Pulling the Fish

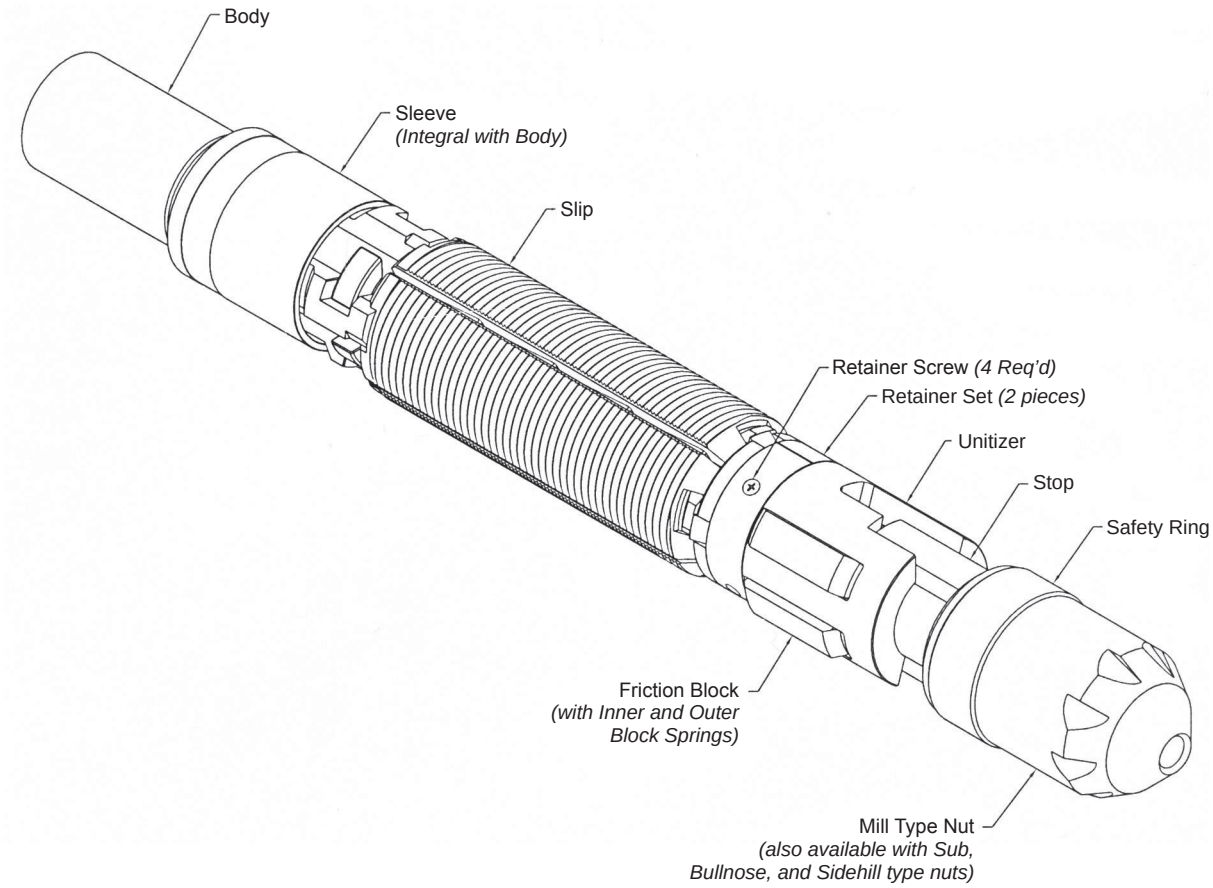
Slowly lower the fishing string until the Spear enters the fish at the desired depth. Rotate the fishing string at least one-sixth of a turn to the left for a left-hand spears (to the right for a right-hand spears). In deep or crooked holes, it may be necessary to rotate the string more than one-sixth of a turn. Additional rotation will not harm the operation of the Spear. Pull on the fish by raising the fishing string.

Releasing the Fish

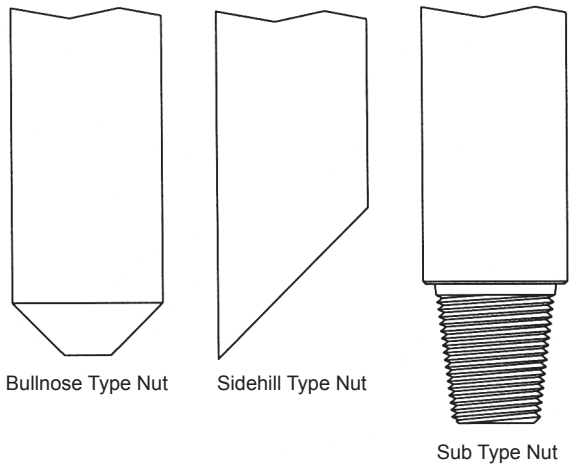
Bump down the full weight of the fishing string. Rotate the string at least one-sixth of a turn to the right for left-hand spears (to the left for right-hand spears). In deep or crooked holes, it may be necessary to rotate the string more than one-sixth of a turn. Additional rotation will not harm the operation of the Spear. Elevate the fishing string until it clears the fish. If the Spear will not release from the fish, bump down, and then simultaneously rotate the string to the right and slowly raise the string until the Spear clears the fish. It is important to combine rotation with elevation.

When ordering, please specify:

(1) Complete assembly or part number
(2) Size and type of top connection
(3) Size and type of fish to be caught



Optional Nuts



FULL CIRCLE RELEASING SPEARS

NOMINAL SIZE		2-3/8 DP	2-3/8 Tbg	2-7/8 DP	2-7/8 Tbg	3-1/2 DP	3-1/2 Tbg	4 DP
RECOMMENDED CATCHING RANGE *		2-3/8 DP	2-3/8 Tbg	2-7/8 DP	2-7/8 Tbg	3-1/2 DP	3-1/2 Tbg	4 DP
OD SMALLEST SLIPS RETRACTED		1-11/16	1-29/32	2	2-5/16	2-7/16	2-13/16	3-3/32
EXPANSION SLIPS OVER SAFETY RING		11/32	11/32	3/8	3/8	13/32	13/32	15/32
SLIP ENGAGEMENT AREA (SQ IN)		55	59	74	87	95	115	126
COMPLETE ASSEMBLY	Logan Part No.	204-000	204-001	204-002 †	204-003 ††	204-004	204-005	204-006
	Bowen No.	6175	6693	6246	6684	7640	6701	7648
TOP SUB	Logan Part No.	AV1000	AV1001	AV1002	AV1003	AV1004	AV1005	AV1006
(Includes Protector)	Bowen No.	6176	5858	6247	5774	6363	6702	6676
PROTECTOR	Logan Part No.	AV2000	AV2001	AV2002	AV2003	AV2004	AV2005	AV2006
	Bowen No.	6176-1	5858-1	6247-1	5774-1	6363-1	6702-1	6676-1
BODY	Logan Part No.	AV3000	AV3001	AV3002	AV3003	AV3004	AV3005	AV3006
	Bowen No.	6177	6694	6248	6685	7641	6703	7649
SLIP	Logan Part No.	AV4000	AV4001	AV4002	AV4003	AV4004	AV4005	AV4006
(Includes Fingers)	Bowen No.	6178	6695	6249	6686	C7642	6704	7650
	No. Req'd	3	3	3	3	3	3	3
UNITIZER	Logan Part No.	AV5000	AV5001	AV5002	AV5003	AV5004	AV5005	…
	Bowen No.	6179	6696	6250	6687	A7643	A6705	…
FRICTION RETAINER	Logan Part No.	AV6000	AV6001	AV6002	AV6003	AV6004	AV6005	…
(Includes Springs)	Bowen No.	6546F	6697F	A6542F	6688F	7644F	A6706F	…
FRICTION RETAINER	Logan Part No.	AV7000	AV7000	AV7000	AV7000	AV7000	AK9004-001	…
SCREWS	Bowen No.	6423	6423	6423	6423	6423	23508	…
	No. Req'd	4	4	4	4	4	4	…
FRICTION RETAINER	Logan Part No.	AV8000	AV8000	AV8001	AV8001	AV8002	AV8002	…
SPRINGS	Bowen No.	8951	8951	8945	8945	A8952	A8952	…
	No. Req'd	8	8	10	10	12	12	…
FRICTION BLOCK ASSY.	Logan Part No.	…	…	…	…	…	…	AV90000
Consists of:	Bowen No.	…	…	…	…	…	…	14931
UNITIZER	Logan Part No.	…	…	…	…	…	…	AV10000
	Bowen No.	…	…	…	…	…	…	14932
RETAINER SET	Logan Part No.	…	…	…	…	…	…	AV11000
(2 pieces)	Bowen No.	…	…	…	…	…	…	14933
FRICTION BLOCK	Logan Part No.	…	…	…	…	…	…	AV12000
	Bowen No.	…	…	…	…	…	…	14934
	No. Req'd	…	…	…	…	…	…	2
RETAINER SCREW	Logan Part No.	…	…	…	…	…	…	AV13000
	Bowen No.	…	…	…	…	…	…	15964
	No. Req'd	…	…	…	…	…	…	4
OUTER BLOCK SPRING	Logan Part No.	…	…	…	…	…	…	AV14000
	Bowen No.	…	…	…	…	…	…	14935
	No. Req'd	…	…	…	…	…	…	4
INNER BLOCK SPRING	Logan Part No.	…	…	…	…	…	…	AV15000
	Bowen No.	…	…	…	…	…	…	14936
	No. Req'd	…	…	…	…	…	…	4
STOP	Logan Part No.	AV16000	AV16001	AV16002	AV16003	AV16004	AV16005	AV16006
	Bowen No.	7638	6961	7639	A7452	A7645	7647	7653
SAFETY RING	Logan Part No.	AV17000	AV17001	AV17002	AV17003	AV17004	AV17005	AV17006
	Bowen No.	6547	6545	6543	6424	6541	6707	6681
NUT	Logan Part No.	AV18000	AV18001	AV18002	AV18003	AV18004	AV18005	AV18006
	Bowen No.	6180	5864	6251	6345	6267	6708	6682
NUT SET SCREW	Logan Part No.	AV19000	AV19000	AV19001	AV19001	AV19001	AV19002	AV19003
	Bowen No.	23330	23330	17762	17762	17762	23358	23345
	No. Req'd	2	2	2	2	2	2	2

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

CAUTION:

† 204-002 dressed for 2-7/8" 8.7 lb tubing will not go in completely. The top sub O.D. is 3-5/8" and will not fit into tubing.

†† 204-003 dressed for 2-7/8" 8.7 lb tubing will not go in completely. The top sub O.D. is 2-5/16" and will not fit into tubing.

FULL CIRCLE RELEASING SPEARS

NOMINAL SIZE		2-3/8 DP	2-3/8 Tbg	2-7/8 DP	2-7/8 Tbg	3-1/2 DP	3-1/2 Tbg	4 DP
RECOMMENDED CATCHING RANGE *		2-3/8 DP	2-3/8 Tbg	2-7/8 DP	2-7/8 Tbg	3-1/2 DP	3-1/2 Tbg	4 DP
OD SMALLEST SLIPS RETRACTED		1-11/16	1-29/32	2	2-5/16	2-7/16	2-13/16	3-3/32
EXPANSION SLIPS OVER SAFETY RING		11/32	11/32	3/8	3/8	13/32	13/32	15/32
SLIP ENGAGEMENT AREA (SQ IN)		55	59	74	87	95	115	126
COMPLETE ASSEMBLY	Logan Part No.	204-000	204-001	204-002 †	204-003 ††	204-004	204-005	204-006
	Bowen No.	6175	6693	6246	6684	7640	6701	7648

OPTIONAL COMPONENTS

UNITIZER	Logan Part No.	...	...	...	...	...	...	AV20000
	Bowen No.	...	...	...	...	...	...	7651
FRICTION RETAINER	Logan Part No.	...	...	...	...	...	...	AV21000
(Includes Springs)	Bowen No.	...	...	...	...	...	...	7652F
FRICTION RETAINER	Logan Part No.	...	...	...	...	...	...	AV22000
SCREWS	Bowen No.	...	...	...	...	...	...	23508
	No. Req'd	...	...	...	...	...	...	4
FRICTION RETAINER	Logan Part No.	...	...	...	...	...	...	AV23000
SPRINGS	Bowen No.	...	...	...	...	...	...	A8953
	No. Req'd	...	...	...	...	...	...	12
FRICTION BLOCK	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...

OPTIONAL ACCESSORIES

SAFETY RING PACK-OFF	Logan Part No.	AV25000	AV25001	AV25002	AV25003	AV25004	AV25005	AV25006
	Bowen No.	6181	6174	6252	5779	6268	6709	6683
EXTENSION *(3 feet long)*	Logan Part No.	AV26000	AV26001	AV26002	AV26003	AV26004	AV26005	AV26006
	Bowen No.	6176-6177	5858-6694	6247-6248	5771-6685	6263-7641	6702-6703	6676-7649
MILL TYPE NUT	Logan Part No.	AV18000-A	AV18001-A	AV18002-A	AV18003-A	AV18004-A	AV18005-A	AV18006-A
	Bowen No.	6180A	5864A	6251A	6345A	6267A	6708A	6682A
SUB TYPE NUT	Logan Part No.	AV18000-B	AV18001-B	AV18002-B	AV18003-B	AV18004-B	AV18005-B	AV18006-B
	Bowen No.	6180B	5864B	6251B	6345B	6267B	6708B	6682B
SIDEHILL TYPE NUT	Logan Part No.	AV18000-C	AV18001-C	AV18002-C	AV18003-C	AV18004-C	AV18005-C	AV18006-C
	Bowen No.	6180C	5864C	6251C	6345C	6267C	6708C	6682C

** Size and weight of pipe to be caught*

CAUTION:

† 204-002 dressed for 2-7/8" 8.7 lb tubing will not go in completely. The top sub O.D. is 3-5/8" and will not fit into tubing.

†† 204-003 dressed for 2-7/8" 8.7 lb tubing will not go in completely. The top sub O.D. is 2-5/16" and will not fit into tubing.

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When ordering, please specify:

(1) Complete assembly or part number
(2) Size and type of top connection
(3) Size and type of fish to be caught

Recommended Spare Parts:

(1) 2 sets of Slips for each size
(2) 1 Safety Ring for each size
(3) 1 unitizer and 2 friction retainers on 2-3/8" to 3-1/2" Tubing Spears
or 2 friction block assemblies on 4" Tubing Spears and larger
(4) 1 Stop

FULL CIRCLE RELEASING SPEARS

NOMINAL SIZE		4 Tbg	4-1/2 DP	5-1/2 DP	4-1/2 Csg	5 Csg	5-1/2 Csg	6 Csg
RECOMMENDED CATCHING RANGE *		4 Tbg	4-1/2 DP & 5-9/16 DP	5-1/2 & 5 Csg	4-1/2, 4-3/4	5 Csg	5-1/2 Csg	6 Csg
OD SMALLEST SLIPS RETRACTED		3-5/16	3-15/32	4-1/2	3-25/32	4	4-1/2	5-1/2
EXPANSION SLIPS OVER SAFETY RING		15/32	1/2	9/16	1/2	1/2	9/16	9/16
SLIP ENGAGEMENT AREA (SQ IN)		136	178	265	210	217	265	315
COMPLETE ASSEMBLY	Logan Part No.	204-007	204-008	204-009	204-010	204-011	204-012	204-013
	Bowen No.	6710	6715	6723	10536	9337	9342	9347
TOP SUB	Logan Part No.	AV1007	AV1008	AV1009	…	…	…	…
(Includes Protector)	Bowen No.	5839	6270	6277	…	…	…	…
PROTECTOR	Logan Part No.	AV2007	AV2008	AV2009	…	…	…	…
	Bowen No.	5839-1	6270-1	6277-1	…	…	…	…
BODY	Logan Part No.	AV3007	AV3008	AV3009	AV3010	AV3011	AV3012	AV3013
	Bowen No.	6711	6716	6724	10537	C9338	9343	9348
SLIP	Logan Part No.	AV4007	AV4008	AV4009	AV4010	AV4011	AV4012	AV4013
(Includes Fingers)	Bowen No.	6712	6717	6725	10538	9339	9344	9349
	No. Req'd	3	3	4	3	3	4	4
UNITIZER	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	…	…	…	…	…	…
FRICTION RETAINER	Logan Part No.	…	…	…	…	…	…	…
(Includes Springs)	Bowen No.	…	…	…	…	…	…	…
FRICTION RETAINER	Logan Part No.	…	…	…	…	…	…	…
SCREWS	Bowen No.	…	…	…	…	…	…	…
	No. Req'd	…	…	…	…	…	…	…
FRICTION RETAINER	Logan Part No.	…	…	…	…	…	…	…
SPRINGS	Bowen No.	…	…	…	…	…	…	…

** Size and weight of pipe to be caught*

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

When ordering, please specify:

(1) Complete assembly or part number
(2) Size and type of top connection
(3) Size and type of fish to be caught

Recommended Spare Parts:

(1) 2 sets of Slips for each size
(2) 1 Safety Ring for each size
(3) 1 unitizer and 2 friction retainers on 2-3/8" to 3-1/2" Tubing Spears
or 2 friction block assemblies on 4" Tubing Spears and larger
(4) 1 Stop

FULL CIRCLE RELEASING SPEARS

NOMINAL SIZE		4 Tbg	4-1/2 DP	5-1/2 DP	4-1/2 Csg	5 Csg	5-1/2 Csg	6 Csg
RECOMMENDED CATCHING RANGE *		4 Tbg	4-1/2 DP & 5-9/16 DP	5-1/2 & 5 Csg	4-1/2, 4-3/4	5 Csg	5-1/2 Csg	6 Csg
OD SMALLEST SLIPS RETRACTED		3-5/16	3-15/32	4-1/2	3-25/32	4	4-1/2	5-1/2
EXPANSION SLIPS OVER SAFETY RING		15/32	1/2	9/16	1/2	1/2	9/16	9/16
SLIP ENGAGEMENT AREA (SQ IN)		136	178	265	210	217	265	315
COMPLETE ASSEMBLY	Logan Part No.	204-007	204-008	204-009	204-010	204-011	204-012	204-013
	Bowen No.	6710	6715	6723	10536	9337	9342	9347
FRICTION BLOCK ASSEMBLY	Logan Part No.	AV90001	AV90002	AV90003	AV90004	AV90005	AV90006	AV90007
	Bowen No.	14901	14937	14838	14923	14943	14949	14950
Consists of:								
UNITIZER	Logan Part No.	AV10001	AV10002	AV10003	AV10004	AV10005	AV10006	AV10007
	Bowen No.	14902	14938	14839	14924	14944	14962	14951
RETAINER SET *(2 pieces)*	Logan Part No.	AV11001	AV11002	AV11003	AV11004	AV11005	AV11006	AV11007
	Bowen No.	14903	14939	14841	14925	14945	14841	14952
FRICTION BLOCK	Logan Part No.	AV12001	AV12002	AV12003	AV12004	AV12005	AV12006	AV12007
	Bowen No.	14904	14940	14840	14927	14946	14840	14953
	No. Req'd	2	2	4	2	2	4	4
RETAINER SCREW	Logan Part No.	AV13001	AV13000	AV13002	AV13000	AV13002	AV13002	AV13003
	Bowen No.	23108	15964	25214	15964	25214	25214	23126
	No. Req'd	4	4	4	4	4	4	4
OUTER BLOCK SPRING	Logan Part No.	AV14001	AV14002	AV14003	AV14004	AV14005	AV14006	AV14007
	Bowen No.	14919	14941	14842	14926	14947	14842	14954
	No. Req'd	4	4	8	2		4	4
INNER BLOCK SPRING	Logan Part No.	AV15001	AV15002	AV15003	AV15004	AV15005	AV15006	AV15007
	Bowen No.	14920	14942	14837	16589	14948	14837	14955
	No. Req'd	4	4	8	2	2	4	4
STOP	Logan Part No.	AV16007	AV16008	AV16009	AV16010	AV16011	AV16009	AV16012
	Bowen No.	7654	7655	7454	A7603	A7580	7454	7597
SAFETY RING	Logan Part No.	AV17007	AV17008	AV17012	AV17010	AV17011	AV17012	AV17013
	Bowen No.	6539	6720	6485	6733	7581	6485	6520
NUT	Logan Part No.	AV18007	AV18008	AV18012	AV18010	AV18011	AV18012	AV18013
	Bowen No.	5729	6721	6483	6376	7582	6483	6040
NUT SET SCREW	Logan Part No.	AV19004	AV19005	AV19006	AV19005	AV19005	AV19006	AV19006
	Bowen No.	23366	23368	23379	23368	23368	23379	23379
	No. Req'd	2	2	2	2	2	2	2

** Size and weight of pipe to be caught*

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

When ordering, please specify:

(1) Complete assembly or part number
(2) Size and type of top connection
(3) Size and type of fish to be caught

Recommended Spare Parts:

(1) 2 sets of Slips for each size
(2) 1 Safety Ring for each size
(3) 1 unitizer and 2 friction retainers on 2-3/8" to 3-1/2" Tubing Spears
or 2 friction block assemblies on 4" Tubing Spears and larger
(4) 1 Stop

FULL CIRCLE RELEASING SPEARS

NOMINAL SIZE		4 Tbg	4-1/2 DP	5-1/2 DP	4-1/2 Csg	5 Csg	5-1/2 Csg	6 Csg
RECOMMENDED CATCHING RANGE		4 Tbg	4-1/2 DP & 5-9/16 DP	5-1/2 & 5 Csg	4-1/2, 4-3/4	5 Csg	5-1/2 Csg	6 Csg
OD SMALLEST SLIPS RETRACTED		3-5/16	3-15/32	4-1/2	3-25/32	4	4-1/2	5-1/2
EXPANSION SLIPS OVER SAFETY RING		15/32	1/2	9/16	1/2	1/2	9/16	9/16
SLIP ENGAGEMENT AREA (SQ IN)		136	178	265	210	217	265	315
COMPLETE ASSEMBLY	Logan Part No.	204-007	204-008	204-009	204-010	204-011	204-012	204-013
	Bowen No.	6710	6715	6723	10536	9337	9342	9347

OPTIONAL COMPONENTS

UNITIZER	Logan Part No.	AV20001	AV20002	AV20003	AV20004	AV20005	AV20006	AV20007
	Bowen No.	B6713	6718	6726	10539	B9340	9345	9350
FRICTION RETAINER	Logan Part No.	AV21001	AV21002	AV21003	AV21004	AV21005	AV21006	AV21007
(Includes Springs)	Bowen No.	6714F	6719F	6727F	10540	9341	9346	9351
FRICTION RETAINER	Logan Part No.	AV22000	AV22000	AV22001	AV22001	AV22001	AV22001	AV22002
SCREWS	Bowen No.	23508	23508	25214	25214	25214	25214	23518
	No. Req'd	4	4	4	4	4	4	4
FRICTION RETAINER	Logan Part No.	AV23000	AV23000	AV23001	AV23002	AV23002	AV23002	AV23003
SPRINGS	Bowen No.	A8953	A8953	8918	10541	10541	10541	9606
	No. Req'd	12	14	16	14	14	16	18
FRICTION BLOCK	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	…	…	…	…	…	…

OPTIONAL ACCESSORIES

SAFETY RING PACK-OFF	Logan Part No.	AV25007	AV25008	AV25009	AV25010	AV25011	AV25009	AV25012
	Bowen No.	5730	6722	6484	6734	A7583	6484	6041
EXTENSION	Logan Part No.	AV26007	AV26008	AV26009	…	…	…	…
(3 feet long)	Bowen No.	5839-6711	6270-6716	6277-6724	…	…	…	…
MILL TYPE NUT	Logan Part No.	AV18007-A	AV18008-A	AV18009-A	AV18010-A	AV18011-A	AV18012-A	AV18013-A
	Bowen No.	5729A	6721A	6483A	6376A	7582A	6483A	6040A
SUB TYPE NUT	Logan Part No.	AV18007-B	AV18008-B	AV18009-B	AV18010-B	AV18011-B	AV18012-B	AV18013-B
	Bowen No.	5729B	6721B	6483B	6376B	7582B	6483B	6040B
SIDEHILL TYPE NUT	Logan Part No.	AV18007-C	AV18008-C	AV18009-C	AV18010-C	AV18011-C	AV18012-C	AV18013-C
	Bowen No.	5729C	6721C	6483C	6376C	7582C	6483C	6040C

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

FULL CIRCLE RELEASING SPEARS

NOMINAL SIZE		6-5/8 Csg	7 Csg	7 5/8 Csg	8-5/8 Csg	9-5/8 Csg	10-3/4 Csg	11-3/4 Csg
RECOMMENDED CATCHING RANGE		6-5/8 Csg	7 Csg	7 5/8 Csg & 9 Csg	8-5/8 & 10 Csg	9-5/8	10-3/4 Csg 12 Csg	11-3/4 to
OD SMALLEST SLIPS RETRACTED		5-1/2	5-3/4	6-7/16	7-1/4	8-3/16	9-1/2	10-9/16
EXPANSION SLIPS OVER SAFETY RING		5/8	5/8	5/8	11/16	3/4	13/16	13/16
SLIP ENGAGEMENT AREA (SQ IN)		350	365	430	485	580	690	785
COMPLETE ASSEMBLY	Logan Part No.	204-014	204-015	204-016	204-017	204-018	204-019	204-020
	Bowen No.	9796	9352	10608	6318	10473	6067	6073
TOP SUB	Logan Part No.	...	...	...	...	...	...	...
(Includes Protector)	Bowen No.	…	…	…	…	…	…	…
PROTECTOR	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	…	…	…	…	…	…	…
BODY	Logan Part No.	AV3014	AV3015	AV3016	AV3017	AV3018	AV3019	AV3020
	Bowen No.	9797	9353	10609	6319	10474	6068	6074
SLIP	Logan Part No.	AV4014	AV4015	AV4016	AV4017	AV4018	AV4019	AV4020
(Includes Fingers)	Bowen No.	9798	9354	10610	6320	10475	6069	6075
	No. Req'd	4	4	4	4	4	6	6
UNITIZER	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	…	…	…	…	…	…	…
FRICTION RETAINER	Logan Part No.	...	...	...	...	...	...	...
(Includes Springs)	Bowen No.	…	…	…	…	…	…	…
FRICTION RETAINER	Logan Part No.	...	...	...	...	...	...	...
SCREWS	Bowen No.	…	…	…	…	…	…	…
	No. Req'd	…	…	…	…	…	…	…
FRICTION RETAINER	Logan Part No.	...	...	...	...	...	...	...
SPRINGS	Bowen No.	…	…	…	…	…	…	…
FRICTION BLOCK	Logan Part No.	AV90008	AV90009	AV90010	AV90011	AV90012	AV90013	AV90014
ASSEMBLY	Bowen No.	14956	14958	14964	14970	14976	14981	14986
Consists of:								
UNITIZER	Logan Part No.	AV10008	AV10009	AV10010	AV10011	AV10012	AV10013	AV10014
	Bowen No.	14957	14959	14965	14971	14977	14982	14987
RETAINER SET	Logan Part No.	AV11008	AV11009	AV11010	AV11011	AV11012	AV11013	AV11014
(2 pieces)	Bowen No.	14834	14960	14966	14972	14978	14983	14988
FRICTION BLOCK	Logan Part No.	AV12008	AV12009	AV12010	AV12011	AV12012	AV12013	AV12014
	Bowen No.	14835	14961	14967	14973	14979	14984	14989
	No. Req'd	4	4	4	4	4	4	6
RETAINER SCREW	Logan Part No.	AV13001	AV13001	AV13004	AV13004	AV13004	AV13004	AV13004
	Bowen No.	23108	23108	25221	25221	25221	25221	25221
	No. Req'd	4	4	4	4	4	4	4
OUTER BLOCK SPRING	Logan Part No.	AV14008	AV14008	AV14009	AV14010	AV14011	AV14011	AV14014
	Bowen No.	14836	14836	14968	14974	17694	17694	14990
	No. Req'd	8	8	8	8	12	12	18
INNER BLOCK SPRING	Logan Part No.	AV15006	AV15006	AV15008	AV15009	AV15010	AV15010	...
	Bowen No.	14837	14837	14969	14975	11816	11816	…
	No. Req'd	8	8	8	8	12	12	…
STOP	Logan Part No.	AV16013	AV16014	AV16015	AV16016	AV16018	AV16017	AV16019
	Bowen No.	B6965	7609	7626	7494	7531	7627	7628
SAFETY RING	Logan Part No.	AV17014	AV17015	AV17016	AV17017	AV17018	AV17019	AV17020
	Bowen No.	6488	6522	6524	6528	6531	6533	6535
NUT	Logan Part No.	AV18014	AV18015	AV18016	AV18017	AV18018	AV18019	AV18020
	Bowen No.	6108	6046	6054	6321	6062	6071	6079
NUT SET SCREW	Logan Part No.	AV19006	AV19006	AV19007	AV19007	AV19007	AV19008	AV19008
	Bowen No.	23379	23379	23386	23386	23386	41056	41056
	No. Req'd	2	2	2	2	2	2	2

FULL CIRCLE RELEASING SPEARS

NOMINAL SIZE		6-5/8 Csg	7 Csg	7-5/8 Csg	8-5/8 Csg	9-5/8 Csg	10-3/4 Csg	11-3/4 Csg
RECOMMENDED CATCHING RANGE *		6-5/8 Csg	7 Csg	7-5/8 Csg & 9 Csg	8-5/8 & 10 Csg	9-5/8	10-3/4 Csg 12 Csg	11-3/4 to
OD SMALLEST SLIPS RETRACTED		5-1/2	5-3/4	6-7/16	7-1/4	8-3/16	9-1/2	10-9/16
EXPANSION SLIPS OVER SAFETY RING		5/8	5/8	5/8	11/16	3/4	13/16	13/16
SLIP ENGAGEMENT AREA (SQ IN)		350	365	430	485	580	690	785
COMPLETE ASSEMBLY	Logan Part No.	204-014	204-015	204-016	204-017	204-018	204-019	204-020
	Bowen No.	9796	9352	10608	6318	10473	6067	6073

OPTIONAL COMPONENTS

UNITIZER	Logan Part No.	AV20008	AV20009	AV20010	AV20011	AV20012	AV20013	AV20014
	Bowen No.	9799	9355	10611	7493	10476	6070	6078
FRICTION RETAINER	Logan Part No.	AV21008	AV21009	AV21010	AV21011	AV21012	AV21013	AV21014
(Includes Springs)	Bowen No.	9800	9356	10612	7495F	B10477	6532F	6534
FRICTION RETAINER	Logan Part No.	AV22003	AV22003	AV22004	AV22004	AV22004	AV22004	AV22004
SCREWS *(4 req'd)*	Bowen No.	6964	6964	25175	25175	25175	25175	25175
FRICTION RETAINER	Logan Part No.	AV23003	AV23003	AV23004	AV23005	AV23005	AV23011	AV23012
SPRINGS	Bowen No.	9606	9606	10613	8948	8948	A9631	9631
	No. Req'd	18	20	16	14	16	16	18
FRICTION BLOCK	Logan Part No.	...	...	...	AV24000	...	...	AV24001
	Bowen No.	…	…	…	15001	…	…	15000

OPTIONAL ACCESSORIES

SAFETY RING PACK-OFF	Logan Part No.	AV25013	AV25015	AV25014	AV25016	AV25017	AV25018	AV25019
	Bowen No.	6487	6047	6055	6529	6063	6072	6080
EXTENSION	Logan Part No.	...	...	...	...	...	...	...
(3 feet long)	Bowen No.	…	…	…	…	…	…	…
MILL TYPE NUT	Logan Part No.	AV18014-A	AV18015-A	AV18016-A	AV18017-A	AV18018-A	AV18019-A	AV18020-A
	Bowen No.	6108A	6046A	6054A	6321A	6062A	6071A	6079A
SUB TYPE NUT	Logan Part No.	AV18014-B	AV18015-B	AV18016-B	AV18017-B	AV18018-B	AV18019-B	AV18020-B
	Bowen No.	6108B	6046B	6054B	6321B	6062B	6071B	6079B
SIDEHILL TYPE NUT	Logan Part No.	AV18014-C	AV18015-C	AV18016-C	AV18017-C	AV18018-C	AV18019-C	AV18020-C
	Bowen No.	6108C	6046C	6054C	6321C	6062C	6071C	6079C

** Size and weight of pipe to be caught*

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

When ordering, please specify:

(1) Complete assembly or part number
(2) Size and type of top connection
(3) Size and type of fish to be caught

Recommended Spare Parts:

(1) 2 sets of Slips for each size
(2) 1 Safety Ring for each size
(3) 1 unitizer and 2 friction retainers on 2-3/8" to 3-1/2" Tubing Spears
or 2 friction block assemblies on 4" Tubing Spears and larger
(4) 1 Stop

FULL CIRCLE RELEASING SPEARS

NOMINAL SIZE		13-3/8 Csg
RECOMMENDED CATCHING RANGE *		13 to 13-3/8 Csg
OD SMALLEST SLIPS RETRACTED		12
EXPANSION SLIPS OVER SAFETY RING		13/16
SLIP ENGAGEMENT AREA (SQ IN)		890
COMPLETE ASSEMBLY	**Logan Part No.**	**204-021**
	Bowen No.	6081
TOP SUB	**Logan Part No.**	**…**
(Includes Protector)	Bowen No.	…
PROTECTOR	**Logan Part No.**	**…**
	Bowen No.	…
BODY	**Logan Part No.**	**AV3021**
	Bowen No.	6082
SLIP	**Logan Part No.**	**AV4021**
(Includes Fingers)	Bowen No.	6083
	No. Req'd	6
UNITIZER	**Logan Part No.**	**…**
	Bowen No.	…
FRICTION RETAINER	**Logan Part No.**	**…**
(Includes Springs)	Bowen No.	…
FRICTION RETAINER	**Logan Part No.**	**…**
SCREWS	Bowen No.	…
	No. Req'd	…
FRICTION RETAINER	**Logan Part No.**	**…**
SPRINGS	Bowen No.	…

** Size and weight of pipe to be caught*

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

When ordering, please specify:

(1) Complete assembly or part number
(2) Size and type of top connection
(3) Size and type of fish to be caught

Recommended Spare Parts:

(1) 2 sets of Slips for each size
(2) 1 Safety Ring for each size
(3) 1 unitizer and 2 friction retainers on 2-3/8" to 3-1/2" Tubing Spears
or 2 friction block assemblies on 4" Tubing Spears and larger
(4) 1 Stop

FULL CIRCLE RELEASING SPEARS

NOMINAL SIZE		13-3/8 Csg
RECOMMENDED CATCHING RANGE *		13 to 13-3/8 Csg
OD SMALLEST SLIPS RETRACTED		12
EXPANSION SLIPS OVER SAFETY RING		13/16
SLIP ENGAGEMENT AREA (SQ IN)		890
COMPLETE ASSEMBLY	Logan Part No.	204-021
	Bowen No.	6081
FRICTION BLOCK ASSEMBLY	Logan Part No.	AV90015
	Bowen No.	14991
Consists of:		
UNITIZER	Logan Part No.	AV10015
	Bowen No.	14992
RETAINER SET	Logan Part No.	AV11015
(2 pieces)	Bowen No.	14993
FRICTION BLOCK	Logan Part No.	AV12015
	Bowen No.	14994
	No. Req'd	6
RETAINER SCREW	Logan Part No.	AV13004
	Bowen No.	25221
	No. Req'd	4
OUTER BLOCK SPRING	Logan Part No.	AV14015
	Bowen No.	14996
	No. Req'd	18
INNER BLOCK SPRING	Logan Part No.	…
	Bowen No.	…
	No. Req'd	…
STOP	Logan Part No.	AV16020
	Bowen No.	7629
SAFETY RING	Logan Part No.	AV17021
	Bowen No.	6537
NUT	Logan Part No.	AV18021
	Bowen No.	6087
NUT SET SCREW	Logan Part No.	AV19008
	Bowen No.	41056
	No. Req'd	2

** Size and weight of pipe to be caught*

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When ordering, please specify:

(1) Complete assembly or part number
(2) Size and type of top connection
(3) Size and type of fish to be caught

Recommended Spare Parts:

(1) 2 sets of Slips for each size
(2) 1 Safety Ring for each size
(3) 1 unitizer and 2 friction retainers on 2-3/8" to 3-1/2" Tubing Spears
or 2 friction block assemblies on 4" Tubing Spears and larger
(4) 1 Stop

FULL CIRCLE RELEASING SPEARS

NOMINAL SIZE		13-3/8 Csg
RECOMMENDED CATCHING RANGE *		13 to 13-3/8 Csg
OD SMALLEST SLIPS RETRACTED		12
EXPANSION SLIPS OVER SAFETY RING		13/16
SLIP ENGAGEMENT AREA (SQ IN)		890
COMPLETE ASSEMBLY	Logan Part No.	204-021
	Bowen No.	6081

OPTIONAL COMPONENTS

UNITIZER	Logan Part No.	AV20015
	Bowen No.	6086
FRICTION RETAINER	Part No.	AV21015
(Includes Springs)	Bowen No.	6536F
FRICTION RETAINER	Logan Part No.	AV22004
SCREWS	No. Req'd	4
	Bowen No.	25175
FRICTION RETAINER	Logan Part No.	AV23013
SPRINGS	Bowen No.	8950
	No. Req'd	16
FRICTION BLOCK	Logan Part No.	AV24002
	Bowen No.	14995

OPTIONAL ACCESSORIES

SAFETY RING PACKOFF	Logan Part No.	AV25020
	Bowen No.	6088
EXTENSION	Logan Part No.	...
(3 feet long)	Bowen No.	...
MILL TYPE NUT	Logan Part No.	AV18021-A
	Bowen No.	6087A
SUB TYPE NUT	Logan Part No.	AV18021-B
	Bowen No.	6087B
SIDEHILL TYPE NUT	Logan Part No.	AV18021-C
	Bowen No.	6087C

** Size and weight of pipe to be caught*

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

When ordering, please specify:

(1) Complete assembly or part number
(2) Size and type of top connection
(3) Size and type of fish to be caught

Recommended Spare Parts:

(1) 2 sets of Slips for each size
(2) 1 Safety Ring for each size
(3) 1 unitizer and 2 friction retainers on 2-3/8" to 3-1/2" Tubing Spears
or 2 friction block assemblies on 4" Tubing Spears and larger
(4) 1 Stop

FULL CIRCLE RELEASING SPEAR SKIRTS

NOMINAL SIZE OF SPEAR		2-3/8	2-7/8	3-1/2	4	4-1/2	5-1/2	6-5/8
SKIRT SIZE (INCHES)		…	…	…	…	…	…	…
4 OD	Logan Part No.	AV27000-128	AV27001-128	…	…	…	…	…
	Bowen No.	4644	4646	…	…	…	…	…
4-1/2 OD	Logan Part No.	AV27000-144	AV27001-144	AV27002-144	AV27003-144	…	…	…
	Bowen No.	4645	4647	4649	19446	…	…	…
5 OD	Logan Part No.	…	AV27001-160	AV27002-160	AV27003-160	…	…	…
	Bowen No.	…	4648	4650	19447	…	…	…
5-1/2 OD	Logan Part No.	…	AV27001-176	AV27002-176	AV27003-176	AV27004-176	…	…
	Bowen No.	…	4778	4651	19448	4652	…	…
6 OD	Logan Part No.	…	…	AV27002-192	AV27003-192	AV27004-192	…	…
	Bowen No.	…	…	19441	19449	19454	…	…
6-5/8 OD	Logan Part No.	…	…	AV27002-212	AV27003-212	AV27004-212	AV27005-212	…
	Bowen No.	…	…	5495	19450	4653	4655	…
7 OD	Logan Part No.	…	…	AV27002-224	AV27003-224	AV27004-224	AV27005-224	…
	Bowen No.	…	…	5494	19451	4654	5497	…
7-5/8 OD	Logan Part No.	…	…	AV27002-244	AV27003-244	AV27004-244	AV27005-244	AV27006-244
	Bowen No.	…	…	4772	19452	4864	4656	4658
8-5/8 OD	Logan Part No.	…	…	AV27002-276	AV27003-276	AV27004-276	AV27005-276	AV27006-276
	Bowen No.	…	…	4773	19453	5496	4657	4659
9-5/8 OD	Logan Part No.	…	…	AV27002-308	…	AV27004-308	…	AV27006-308
	Bowen No.	…	…	56829	…	39190	…	4661
10-3/4 OD	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	…	…	…	…	…	…

NOMINAL SIZE OF SPEAR		7-5/8
SKIRT SIZE (INCHES)		…
4 OD	Logan Part No.	…
	Bowen No.	…
4-1/2 OD	Logan Part No.	…
	Bowen No.	…
5 OD	Logan Part No.	…
	Bowen No.	…
5-1/2 OD	Logan Part No.	…
	Bowen No.	…
6 OD	Logan Part No.	…
	Bowen No.	…
6-5/8 OD	Logan Part No.	…
	Bowen No.	…
7 OD	Logan Part No.	…
	Bowen No.	…
7-5/8 OD	Logan Part No.	…
	Bowen No.	…
8-5/8 OD	Logan Part No.	…
	Bowen No.	…
9-5/8 OD	Logan Part No.	…
	Bowen No.	…
10-3/4 OD	Logan Part No.	AV27007-344
	Bowen No.	79749

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FULL CIRCLE RELEASING SPEAR GUIDES

NOMINAL SIZE		4	4-1/2	5	5-1/2	6	6-5/8	7
GUIDE SIZE (INCHES)		…	…	…	…	…	…	…
OVER 5 to 6	Logan Part No.	AV28000	AV28001	AV28002	…	…	…	…
	Bowen No.	4662	4663	4664	…	…	…	…
OVER 6 to 7	Logan Part No.	AV28000	AV28001	AV28002	AV28003	…	…	…
	Bowen No.	4662	4663	4664	4665	…	…	…
OVER 7 to 8	Logan Part No.	…	AV28001	AV28002	AV28003	AV28004	…	…
	Bowen No.	…	4663	4664	4665	4685	…	…
OVER 8 to 9	Logan Part No.	…	AV28001	AV28002	AV28003	AV28004	AV28005	AV28006
	Bowen No.	…	4663	4664	4665	4685	4299	3824
OVER 9 to 10	Logan Part No.	…	…	…	AV28003	AV28004	AV28005	AV28006
	Bowen No.	…	…	…	4665	4685	4299	3824
OVER 10 to 11	Logan Part No.	…	…	…	AV28003	AV28004	AV28005	AV28006
	Bowen No.	…	…	…	4665	4685	4299	3824
OVER 11 to 12	Logan Part No.	…	…	…	…	…	AV28005	AV28006
	Bowen No.	…	…	…	…	…	4299	3824
OVER 12 to 13	Logan Part No.	…	…	…	…	…	…	AV28006
	Bowen No.	…	…	…	…	…	…	3824
OVER 13 to 14	Logan Part No.	…	…	…	…	…	…	AV28006
	Bowen No.	…	…	…	…	…	…	3824

NOMINAL SIZE		7-5/8	8-5/8	9	9-5/8	10-3/4	11-3/4	
GUIDE SIZE (INCHES)		…	…	…	…	…	…	
OVER 5 to 6	Logan Part No.	…	…	…	…	…	…	
	Bowen No.	…	…	…	…	…	…	
OVER 6 to 7	Logan Part No.	…	…	…	…	…	…	
	Bowen No.	…	…	…	…	…	…	
OVER 7 to 8	Logan Part No.	…	…	…	…	…	…	
	Bowen No.	…	…	…	…	…	…	
OVER 8 to 9	Logan Part No.	…	…	…	…	…	…	
	Bowen No.	…	…	…	…	…	…	
OVER 9 to 10	Logan Part No.	AV28007	…	…	…	…	…	
	Bowen No.	4666	…	…	…	…	…	
OVER 10 to 11	Logan Part No.	AV28007	AV28008	…	…	…	…	
	Bowen No.	4666	4295	…	…	…	…	
OVER 11 to 12	Logan Part No.	AV28007	AV28008	AV28009	AV28010	AV28011	AV28012	
	Bowen No.	4666	4295	4667	4668	79750	65526	
OVER 12 to 13	Logan Part No.	AV28007	AV28008	AV28009	AV28010	…	…	
	Bowen No.	4666	4295	4667	4668	…	…	
OVER 13 to 14	Logan Part No.	AV28007	AV28008	AV28009	AV28010	…	…	
	Bowen No.	4666	4295	4667	4668	…	…	

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FULL CIRCLE SPEAR SLIP RANGE FOR DRILL PIPE AND TUBING

FISH SIZE		2-3/8 DP	2-3/8 DP	2-3/8 Tbg	2-7/8 DP	2-7/8 DP	2-7/8 DP	2-7/8 Tbg
WEIGHT (LBS/FT)		6.65	4.8, 4.6	4.7, 4.6, 4.0	10.4	8.35	6.45	6.5, 6.4
SPEAR ASSEMBLY	Logan Part No.	204-000	204-000	204-001	204-002	204-002	204-002	204-003
	Bowen No.	6175	6175	6693	6246	6246	6246	6684
SLIP SIZE STAMPED		1-13/16	2	2-1/32	2-5/32	2-11/32	2-1/2	2-7/16
	Logan Part No.	AV4000	AV4000	AV4001	AV4002	AV4002	AV4002	AV4003
	Bowen No.	6178	6178	6695	6249	6249	6249	6686
SAFETY RING SIZE STAMPED		1-11/32	1-7/8	1-29/32	2	2-3/16	2-11/32	2-5/16
	Logan Part No.	AV17000	AV17000	AV17001	AV17002	AV17002	AV17002	AV17003
	Bowen No.	6547	6547	6545	6543	6543	6543	6424
SAFETY RING PACK-OFF SIZE STAMPED		1-11/32	1-7/8	1-29/32	2	2-3/16	2-11/32	2-5/16
	Logan Part No.	AV25000	AV25000	AV25001	AV25002	AV25002	AV25002	AV25003
	Bowen No.	6181	6181	6174	6252	6252	6252	5779

FISH SIZE		3-1/2 DP	3-1/2 DP	3-1/2 DP	3-1/2 DP	3-1/2 Tbg	3-1/2 Tbg	4 DP
WEIGHT (LBS/FT)		15.5	13.3	11.2	8.5	10.2, 9.3, 9.2	7.7	15.7
SPEAR ASSEMBLY	Logan Part No.	204-004	204-004	204-004	204-004	204-005	204-005	204-006
	Bowen No.	7640	7640	7640	7640	6701	6701	7648
SLIP SIZE STAMPED		2-5/8	2-25/32	2-15/16	3-3/32	2-31/32	3-1/8	3-9/32
	Logan Part No.	AV4004	AV4004	AV4004	AV4004	AV4005	AV4005	AV4006
	Bowen No.	C7642	C7642	C7642	C7642	6704	6704	7650
FRICTION BLOCK SIZE STAMPED		…	…	…	…	…	…	…
	Logan Part No.	…	…	…	…	…	…	AV12000
	Bowen No.	…	…	…	…	…	…	14934
SAFETY RING SIZE STAMPED		2-7/16	2-19/32	2-3/4	2-29/32	2-13/16	2-15/16	3-3/32
	Logan Part No.	AV17004	AV17004	AV17004	AV17004	AV17005	AV17005	AV17006
	Bowen No.	6541	6541	6541	6541	6707	6707	6681
SAFETY RING PACK-OFF SIZE STAMPED		2-7/16	2-19/32	2-3/4	2-29/32	2-13/16	2-15/16	3-3/32
	Logan Part No.	AV25004	AV25004	AV25004	AV25004	AV25005	AV25005	AV25006
	Bowen No.	6268	6268	6268	6268	6709	6709	6683

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FULL CIRCLE SPEAR SLIP RANGE FOR DRILL PIPE AND TUBING

FISH SIZE		4 DP	4 Tbg	4 Tbg	4-1/2 DP	4-1/2 DP	4-1/2 DP	5-1/2 DP
WEIGHT (LBS/FT)		14	11	9.5	20	18.1, 16.6	13.75, 12.75	24.7, 21.9
SPEAR ASSEMBLY	Logan Part No.	204-006	204-007	204-007	204-008	204-008	204-008	204-009
	Bowen No.	7648	6710	6710	6715	6715	6715	6723
SLIP SIZE STAMPED		3-11/32	3-1/2	3-19/32	3-11/16	3-7/8	4-1/32	4-3/4
	Logan Part No.	AV4006	AV4007	AV4007	AV4008	AV4008	AV4008	AV4009
	Bowen No.	7650	6712	6712	6717	6717	6717	6725
FRICTION BLOCK SIZE STAMPED		…	3-1/4	3-1/4	3-5/8	3-5/8	3-5/8	4-3/4
	Logan Part No.	AV12000	AV12001	AV12001	AV12002	AV12002	AV12002	AV12003
	Bowen No.	14934	14904	14904	14940	14940	14940	14840
SAFETY RING SIZE STAMPED		3-5/32	3-5/16	3-13/32	3-15/32	3-21/32	3-13/16	4-1/2
	Logan Part No.	AV17006	AV17007	AV17007	AV17008	AV17008	AV17008	AV17009
	Bowen No.	6681	6539	6539	6720	6720	6720	6485
SAFETY RING PACK-OFF SIZE STAMPED		3-5/32	3-5/16	3-13/32	3-15/32	3-21/32	3-13/16	4-1/2
	Logan Part No.	AV25006	AV25007	AV25007	AV25008	AV25008	AV25008	AV25009
	Bowen No.	6683	5730	5730	6722	6722	6722	6484

FISH SIZE		5-1/2 DP	5-1/2 DP	5-1/2 DP				
WEIGHT (LBS/FT)		25.25	22.2	19				
SPEAR ASSEMBLY	Logan Part No.	204-009	204-009	204-009				
	Bowen No.	6723	6723	6723				
SLIP SIZE STAMPED		4-3/4	4-7/8	5-1/16				
	Logan Part No.	AV4009	AV4009	AV4009				
	Bowen No.	6725	6725	6725				
FRICTION BLOCK SIZE STAMPED		4-3/4	4-3/4	4-3/4				
	Logan Part No.	AV12003	AV12003	AV12003				
	Bowen No.	14840	14840	14840				
SAFETY RING SIZE STAMPED		4-1/2	4-5/8	4-13/16				
	Logan Part No.	AV17009	AV17009	AV17009				
	Bowen No.	6485	6485	6485				
SAFETY RING PACK-OFF SIZE STAMPED		4-1/2	4-5/8	4-13/16				
	Logan Part No.	AV25009	AV25009	AV25009				
	Bowen No.	6484	6484	6484				

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FULL CIRCLE SPEAR SLIP RANGE FOR CASING

FISH SIZE		4-1/2 Csg	4-1/2 Csg	4-3/4 Csg	5 Csg	5 Csg	5 Csg	5 Csg
WEIGHT (LBS/FT)		13.5, 11.6	9.5	16	21	18.0, 17.7	15	13.0, 11.5
SPEAR ASSEMBLY	Logan Part No.	204-010	204-010	204-010	204-011	204-011	204-011	204-011
	Bowen No.	10536	10536	10536	9337	9337	9337	9337
SLIP SIZE STAMPED		4	4-5/32	4-5/32	4-7/32	4-11/32	4-15/32	4-19/32
	Logan Part No.	AV4010	AV4010	AV4010	AV4011	AV4011	AV4011	AV4011
	Bowen No.	10538	10538	10538	9339	9339	9339	9339
FRICTION BLOCK SIZE STAMPED		4-1/2	…	4-1/2	4-5/8	…	…	…
	Logan Part No.	AV12004	…	AV12004	AV12005	…	…	…
	Bowen No.	14927	…	14927	14946	…	…	…
SAFETY RING SIZE STAMPED		3-25/32	3-15/16	3-15/16	4	4-1/8	4-1/4	4-3/8
	Logan Part No.	AV17010	AV17010	AV17010	AV17011	AV17011	AV17011	AV17011
	Bowen No.	6733	6733	6733	7581	7581	7581	7581
SAFETY RING PACK-OFF SIZE STAMPED		3-25/32	3-15/16	3-15/16	4	4-1/8	4-1/4	4-3/8
	Logan Part No.	AV25010	AV25010	AV25010	AV25011	AV25011	AV25011	AV25011
	Bowen No.	6734	6734	6734	A7583	A7583	A7583	A7583

FISH SIZE		5-1/2 Csg	5-1/2 Csg	5-1/2 Csg	5-3/4	5-3/4	6 Csg	6 Csg
WEIGHT (LBS/FT)		23	20, 17	15.5, 14, 13	22.5, 19.5	17, 14	23	20, 18
SPEAR ASSEMBLY	Logan Part No.	204-012	204-012	204-012	204-012	204-012	204-012	204-012
	Bowen No.	9342	9342	9342	9342	9342	9347	9347
SLIP SIZE STAMPED		4-3/4	4-7/8	5-1/16	5-1/16	5-5/16	5-5/16	5-7/16
	Logan Part No.	AV4012	AV4012	AV4012	AV4012	AV4012	AV4013	AV4013
	Bowen No.	9344	9344	9344	9344	9344	9349	9349
FRICTION BLOCK SIZE STAMPED		4-3/4	…	…	5-1/16	…	4-3/4	…
	Logan Part No.	AV12006	…	…	AV12006	…	AV12007	…
	Bowen No.	14840	…	…	14840	…	14953	…
SAFETY RING SIZE STAMPED		4-1/2	4-5/8	4-13/16	4-13/16	5-1/16	5-1/16	5-3/16
	Logan Part No.	AV17012	AV17012	AV17012	AV17012	AV17012	AV17013	AV17013
	Bowen No.	6485	6485	6485	6485	6485	6520	6520
SAFETY RING PACK-OFF SIZE STAMPED		4-1/2	4-5/8	4-13/16	4-13/16	5-1/16	5-1/16	5-3/16
	Logan Part No.	AV25009	AV25009	AV25009	AV25009	AV25009	AV25012	AV25012
	Bowen No.	6484	6484	6484	6484	6484	6041	6041

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FULL CIRCLE SPEAR SLIP RANGE FOR CASING

FISH SIZE		6 Csg	6-5/8 Csg	6-5/8 Csg	6-5/8 Csg	7 Csg	7 Csg	7 Csg
WEIGHT (LBS/FT)		16, 15	32, 29, 28 24, 22	26.8, 26,	20, 17	40	38, 35 28	32, 30, 29,
SPEAR ASSEMBLY	Logan Part No.	204-013	204-014	204-014	204-014	204-014	204-015	204-015
	Bowen No.	9347	9796	9796	9796	9796	9352	9352
SLIP SIZE STAMPED		5-19/32	5-3/4	5-15/16	6-1/8	5-15/16	6	6-3/16
	Logan Part No.	AV4013	AV4014	AV4014	AV4014	AV4014	AV4015	AV4015
	Bowen No.	9349	9798	9798	9798	9798	9354	9354
FRICTION BLOCK SIZE STAMPED		…	5-3/4	…	6-1/8	6-1/8	5-3/4	…
	Logan Part No.	…	AV12008	…	AV12008	AV12008	AV12009	…
	Bowen No.	…	14835	…	14835	14835	14961	…
SAFETY RING SIZE STAMPED		5-11/32	5-1/2	5-11/16	5-7/8	5-11/16	5-3/4	5-15/16
	Logan Part No.	AV17013	AV17014	AV17014	AV17014	AV17014	AV17015	AV17015
	Bowen No.	6520	6488	6488	6488	6488	6522	6522
SAFETY RING PACK-OFF SIZE STAMPED		5-11/32	5-1/2	5-11/16	5-7/8	5-11/16	5-3/4	5-15/16
	Logan Part No.	AV25012	AV25013	AV25013	AV25013	AV25013	AV25015	AV25015
	Bowen No.	6041	6487	6487	6487	6487	6047	6047

FISH SIZE		7 Csg	7 Csg	7-5/8 Csg	7-5/8 Csg	7-5/8 Csg	8 Csg	8-1/8 Csg
WEIGHT (LBS/FT)		26, 24, 23, 22	20, 17	39, 33.7	29.7, 26.4	24, 20	26	39.5, 35.5
SPEAR ASSEMBLY	Logan Part No.	204-015	204-015	204-016	204-016	204-016	204-016	204-016
	Bowen No.	9352	9352	10608	10608	10608	10608	10608
SLIP SIZE STAMPED		6-3/8	6-17/32	6-11/16	6-15/16	7-3/32	7-7/16	7-1/4
	Logan Part No.	AV4015	AV4015	AV4016	AV4016	AV4016	AV4016	AV4016
	Bowen No.	9354	9354	10610	10610	10610	10610	10610
FRICTION BLOCK SIZE STAMPED		…	…	6-5/8	…	…	6-7/8	6-7/8
	Logan Part No.	…	…	AV12010	…	…	AV12010	AV12010
	Bowen No.	…	…	14967	…	…	14967	14967
SAFETY RING SIZE STAMPED		6-1/8	6-9/32	6-7/16	6-11/16	6-27/32	7-3/16	7
	Logan Part No.	AV17015	AV17015	AV17016	AV17016	AV17016	AV17016	AV17016
	Bowen No.	6522	6522	6524	6524	6524	6524	6524
SAFETY RING PACK-OFF SIZE STAMPED		6-1/8	6-9/32	6-7/16	6-11/16	6-27/32	7-3/16	7
	Logan Part No.	AV25015	AV25015	AV25014	AV25014	AV25014	AV25014	AV25014
	Bowen No.	6047	6047	6055	6055	6055	6055	6055

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FULL CIRCLE SPEAR SLIP RANGE FOR CASING

FISH SIZE		8-1/8 Csg	8-5/8 Csg	8-5/8 Csg	8-5/8 Csg	9 Csg	9 Csg	9 Csg
WEIGHT (LBS/FT)		32, 28	49, 44 38, 36	43, 40,	32, 28, 24	55	45	40, 38, 34
SPEAR ASSEMBLY	Logan Part No.	204-016	204-017	204-017	204-017	204-017	204-017	204-017
	Bowen No.	10608	6318	6318	6318	6318	6318	6318
SLIP SIZE STAMPED		7-7/16	7-9/16	7-13/16	8-1/16	7-13/16	8-1/16	8-5/16
	Logan Part No.	AV4016	AV4017	AV4017	AV4017	AV4017	AV4017	AV4017
	Bowen No.	10610	6320	6320	6320	6320	6320	6320
FRICTION BLOCK SIZE STAMPED			…	7-3/4	…	…	7-3/4	… …
	Logan Part No.	...	AV12011	...	...	AV12011	...	...
	Bowen No.	…	14973	…	…	14973	…	…
SAFETY RING SIZE STAMPED		7-3/16	7-1/4	7-1/2	7-3/4	7-1/2	7-3/4	8
	Logan Part No.	AV17016	AV17017	AV17017	AV17017	AV17017	AV17017	AV17017
	Bowen No.	6524	6528	6528	6528	6528	6528	6528
SAFETY RING PACK-OFF SIZE STAMPED		7-3/16	7-1/4	7-1/2	7-3/4	7-1/2	7-3/4	8
	Logan Part No.	AV25014	AV25016	AV25016	AV25016	AV25016	AV25016	AV25016
	Bowen No.	6055	6529	6529	6529	6529	6529	6529

FISH SIZE		9-5/8 Csg	9-5/8 Csg	9-5/8 Csg	10 Csg	10-3/4 Csg	10-3/4 Csg	11-3/4 Csg
WEIGHT (LBS/FT)		58, 47, 53.5	40, 36, 43.5	32.3, 29.3	33 48	55.5, 54, 51, 40.5, 32.75	45.5, 45, 40,	60, 54
SPEAR ASSEMBLY	Logan Part No.	204-018	204-018	204-018	204-018	204-019	204-019	204-020
	Bowen No.	10473	10473	10473	10473	6067	6067	6073
SLIP SIZE STAMPED		8-1/2	8-13/16	9	9-3/8	9-13/16	10-1/16	10-7/8
	Logan Part No.	AV4018	AV4018	AV4018	AV4018	AV4019	AV4019	AV4020
	Bowen No.	10475	10475	10475	10475	6069	6069	6075
FRICTION BLOCK SIZE STAMPED		8-7/8	…	…	8 7/8	10	…	…
	Logan Part No.	AV12012	...	...	AV12012	AV12013	...	...
	Bowen No.	14979	…	…	14979	14984	…	…
SAFETY RING SIZE STAMPED		8-3/16	8-1/2	8-11/16	9-1/16	9-1/2	9-3/4	10-9/16
	Logan Part No.	AV17018	AV17018	AV17018	AV17018	AV17019	AV17019	AV17020
	Bowen No.	6531	6531	6531	6531	6533	6533	6535
SAFETY RING PACK-OFF SIZE STAMPED		8-3/16	8-1/2	8-11/16	9-1/16	9-1/2	9-3/4	10-9/16
	Logan Part No.	AV25017	AV25017	AV25017	AV25017	AV25018	AV25018	AV25019
	Bowen No.	6063	6063	6063	6063	6072	6072	6080

FISH SIZE		11-3/4 Csg	12 Csg	13 Csg	13-3/8 Csg	13-3/8 Csg	16 Csg	
WEIGHT (LBS/FT)		47, 42, 38	40	54, 50, 45, 40	83, 72, 68, 61	54, 48	84, 75, 65, 55	
SPEAR ASSEMBLY	Logan Part No.	204-020	204-020	204-021	204-021	204-021	204-021	
	Bowen No.	6073	6073	6081	6081	6081	6081	
SLIP SIZE STAMPED		11-1/8	11-3/8	12-3/8	12-3/8	12-5/8	15-3/16	
	Logan Part No.	AV4020	AV4020	AV4021	AV4021	AV4021	AV4021	
	Bowen No.	6075	6075	6083	6083	6083	6083	
FRICTION BLOCK SIZE STAMPED		…	…	12-1/4	12-1/4	…	15	
	Logan Part No.	...	...	AV12015	AV12015	...	AV12015	
	Bowen No.	…	…	14994	14994	…	14994	
SAFETY RING SIZE STAMPED		10-13/16	11-1/16	12	12	12-1/4	14-13/16	
	Logan Part No.	AV17020	AV17020	AV17021	AV17021	AV17021	AV17021	
	Bowen No.	6535	6535	6537	6537	6537	6537	
SAFETY RING PACK-OFF SIZE STAMPED		10-13/16	11-1/16	12	12	12-1/4	14-13/16	
	Logan Part No.	AV25019	AV25019	AV25020	AV25020	AV25020	AV25020	
	Bowen No.	6080	6080	6088	6088	6088	6088	

STANDARD RELEASING SPEARS

Overview
Logan Releasing Spears provide a positive means to engage and retrieve an internal fish from the well. The design of this rugged, dependable, and inexpensive internal catch fishing tool ensures positive engagement, easy release and re-engagement. It may be used with other equipment such as pack-off assemblies and internal cutters.

Construction
The Logan Releasing Spear consists of a mandrel, grapple, releasing ring, and a bullnose nut. The size and type of the upper box connection is furnished according to customer specification.

Mandrel
The mandrel type may be specified as either flush or shoulder. Flush-type mandrels are designed to completely enter the fish. Shoulder-type mandrels provide a positive landing position on top of the fish. The mandrel is made of high strength, specially heat-treated alloy steel. The lower end is threaded to accept a bull nose nut, or the mill, sub, or sidehill type nuts.

Standard Spear Grapple
One-piece spear grapples are designed and manufactured to engage a specific size and weight of pipe, tubing, or casing to ensure maximum surface engagement and minimum fish distortion.

Segment-Type Spear Grapple
The segment-type spear grapple enhances the spear's usefulness by providing an extended catching range beyond the maximum range of the standard one-piece grapple. The Logan Segment-Type Spear Grapple consists of a grapple body, eight grapple segments, two retainer rings, four retainer ring screws, six retainer ring spacers, and sixteen grapple segment screws.

Release Ring
The cammed release ring matches the cammed nut ensuring a positive locking device that will not freeze or jam. It is a standard component of the releasing spear.

Nut
The standard bottom nut is a bullnose nut. Optional nut types, sub, mill, and sidehill, are available.

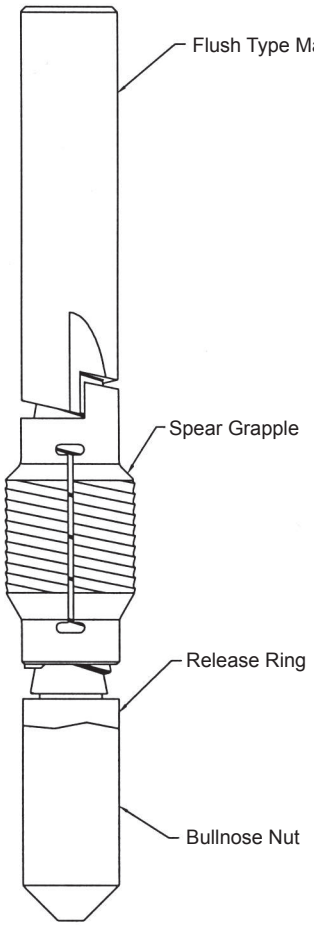
Spear Pack-off Assembly
Pack-off assemblies are available for all Logan Spear Assemblies and are designed to efficiently pack off all sizes of drill pipe, tubing and casing. Circulation through the fish is enabled by attaching the Spear Pack-off Assembly to the bottom of the spear with a sub type nut.

Assembly
With left-hand rotation, screw the grapple onto the mandrel from the lower pin end. Slip the release ring onto the mandrel and make up the nut to the mandrel aligning the cams. Screw the grapple down the mandrel against the release ring until hand tight. The Spear Assembly is now in its run-in position.

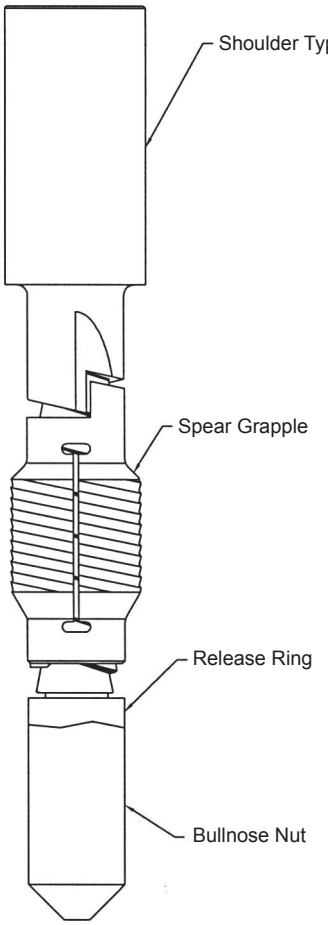
Operation
Engaging the Fish
The Logan Releasing Spear is made up to the bottom of the fishing string and lowered to the desired depth into the fish. Rotate the mandrel one full turn to the left to turn the mandrel through the grapple and move the grapple into engaging position. Pulling straight up will cause the tapers on the mandrel to expand the grapple and allow it to positively engage the fish.

Releasing the Fish
To release the fish, bump down and then make two to three rotations to the right. This right-hand rotation allows the mandrel to move up through the grapple thereby placing the grapple against the release ring and putting the spear in release position A straight upward pull will release the spear from the fish. Continue with slow, right-hand rotation when coming out of the fish.

When ordering, please specify:
(1) Name and part number of assembly or part
(2) Size and type of top connection
(3) Size and weight(s) of pipe to catch
(4) Flush or Shoulder type (specify O.D. of shoulder, "A")
(5) Mandrel length desired, "C"
(6) Thread size and type of nut, if wanted

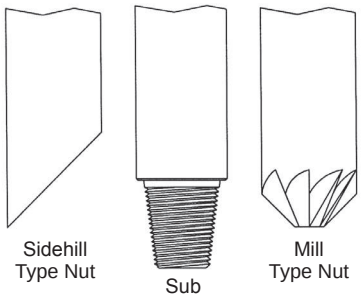


Spear Assembly
with Flush Type Mandrel



Spear Assembly
with Shoulder Type Mandrel

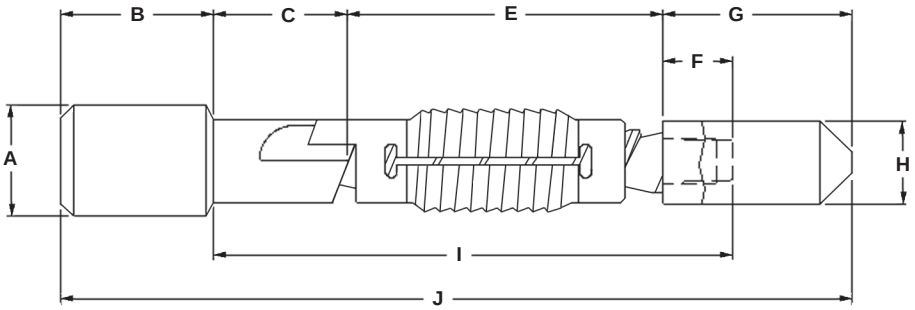
Optional Nuts



Sidehill
Type Nut

Sub
Type Nut

Mill
Type Nut



SHOULDER TYPE

STANDARD RELEASING SPEARS PRINCIPAL DIMENSIONS

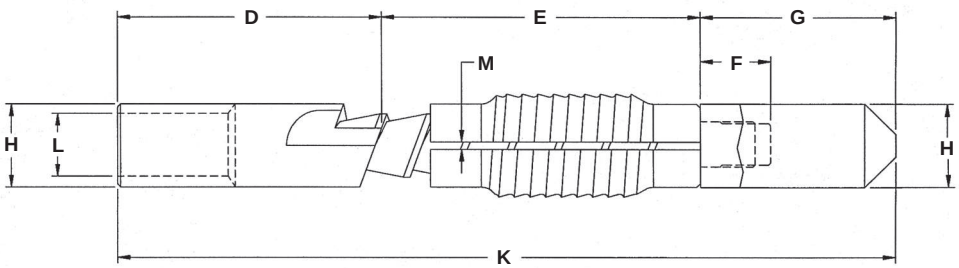
SPEAR MANDREL PART NO.	SPEAR SIZE	CLASS	ID	A	B	SHOULDER TYPE ONLY C	FLUSH TYPE ONLY D	E
F1000	1.050 OD Pipe	Standard	…	1-1/2	4-1/8	6	…	2-3/8
F1001	1.313 OD Pipe	Standard	…	1-5/8	3	3	…	3-5/16
F1002	1.660 OD Tubing	Standard	…	1-13/16	3	3	3-25/32	3-5/16
F1004	1.900 OD Tubing	Standard	…	2-1/2	5	3	7	5-1/16
F1005	2-3/8 OD Drill Pipe	Standard	…	3-1/8	7	3	7	5-29/32
F1007	2-3/8 OD Tubing	Standard	3/8	3-1/8	7	3	7	6-3/4
F1008	2-3/8 OD Tubing	Standard	3/8	3-1/8	7	3	7	9
F1009	2-7/8 OD Tubing	Standard	3/8	3-3/4	7	3	7-1/4	6-3/4
F1010	2-7/8 OD Tubing	Heavy Duty	3/8	3-3/4	7	3	7-1/4	9
F1012	3-1/2 OD Tubing	Standard	1/2	3-3/4	7	3-1/2	10-1/2	12
F1013	3-1/2 OD Drill Pipe	Heavy Duty	1/2	3-3/8	7	3-1/2	10-1/2	9-3/4
F1014	4 OD Tubing	Light Duty	3/4	3-3/4	7-1/2	3	10-3/8	8-1/8
F1015	4 OD Tubing	Standard	3/4	4-1/8	7-1/2	3	10-1/2	12
F1016	4-1/2 OD Tubing	Light Duty	3/4	4-1/2	8	3-1/2	3-3/4	9-3/4
F1017	4-1/2 OD Tubing	Standard	3/4	4-1/2	8	3-1/2	9-1/2	14-1/4
F1018	5 OD Casing	Light Duty	7/8	4-3/8	8	3-1/2	9-1/2	9-3/4
F1019	5 OD Casing	Standard	1	5	8	3-1/2	12	14-1/4
F1022	6 OD Casing	Light Duty	1	6	8	5-1/2	12	13
F1023	6 OD Casing	Standard	1	6	8	5-1/2	12	13
F1024	7 OD Casing	Standard	2	7	10	6-1/2	16-1/2	14-5/8
F1026	7 OD Casing	Heavy Duty	2	7	10	6-1/2	13-1/2	21-3/8
F1029	8-5/8 OD Casing	Standard	2-3/4	8-5/8	14	7	20-7/8	14-5/8
F1030	8-5/8 OD Casing	Heavy Duty	2-3/4	8-5/8	…	…	20-7/8	21-3/8
F1032	9-5/8 OD Casing	Standard	2-13/16	9-5/8	15-3/8	7	20-7/8	14-5/8
F1034	9-5/8 OD Casing	Standard	2-13/16	9-5/8	…	…	20-7/8	21-3/8
F1035	13-3/8 OD Casing	Standard	3-1/2	13-3/8	17-7/8	7	22-3/8	16-7/8

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

Notes:

1) For Flush or Shoulder type, specify O.D. of shoulder, "A"

2) Mandrel length desired, "C"



FLUSH TYPE

STANDARD RELEASING SPEAR PRINCIPAL DIMENSIONS

SPEAR MANDREL PART NO.	F	G	H	I	J	SHOULDER TYPE ONLY K	FLUSH TYPE ONLY L	M
F1000	7/8	2-3/8	11/16	9-5/8	15-1/4	…	…	3/16
F1001	1-3/8	2-1/2	15/16	7-11/16	11-13/16	…	…	1/4
F1002	1-3/8	2-1/2	1-1/8	7-11/16	11-13/16	…	…	3/8
F1004	2-1/4	5-5/8	1-3/8	10-5/16	18-11/16	…	…	7/16
F1005	2-1/4	6-17/32	1-11/16	…	…	19-7/16	…	5/8
F1007	2-1/4	6-5/8	1-7/8	12	23-3/8	23-3/8	…	5/8
F1008	2-1/4	6-5/8	1-7/8	14-1/4	25-5/8	22-5/8	…	5/8
F1009	2-1/2	7	2-5/16	12-1/4	23-3/4	21	…	5/8
F1010	2-1/2	7	2-5/16	14-1/2	26	23-1/4	…	5/8
F1012	3-1/2	9	2-13/16	19	31-1/2	32-1/2	…	5/8
F1013	3-5/8	8-1/8	2-1/2	16-5/8	31-1/8	…	…	5/8
F1014	2-1/2	8	3-1/4	13-5/8	26-5/8	26-1/2	…	5/8
F1015	3-1/2	9	3-1/4	18-1/2	31-1/2	31-1/2	…	5/8
F1016	3-1/2	10-3/4	3-5/8	16-3/4	32	32	…	1
F1017	3-1/2	10	3-5/8	21-1/4	35-3/4	33-3/4	…	3/4
F1018	3-1/2	10-5/8	4-1/32	16-3/4	31-7/8	29-7/8	…	13/16
F1019	3-1/2	10-5/8	4-1/32	21-1/4	36-3/8	36-7/8	…	13/16
F1022	3-1/2	12	5	16-3/8	39-3/16	37-11/16	3-5/16	1-1/4
F1023	3-1/2	12	5	16-3/8	…	43	3-5/16	1-1/4
F1024	3-1/2	12-3/4	5-3/4	…	…	40-1/4	3-1/2	1-5/8
F1026	3-1/2	12-3/4	5-3/4	31-3/8	53-3/8	47	3-1/2	1-5/8
F1029	4-1/2	13-3/4	7-1/4	26-1/8	53-7/8	49-1/4	5	1-5/8
F1030	4-1/2	13-3/4	7-1/4	…	…	56	5-3/4	1-5/8
F1032	3-1/2	14	8-1/4	25-1/8	51	49-1/4	6-1/4	1-5/8
F1034	3-1/2	13-3/4	8-1/4	…	…	56	6-1/4	1-5/8
F1035	3-1/2	12	11-3/4	27-3/8	53-3/4	51-1/4	7-3/4	1-5/8

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Notes:

1) For Flush or Shoulder type, specify O.D. of shoulder, "A"

2) Mandrel length desired, "C"

STANDARD RELEASING SPEARS

NOMINAL CATCH SIZE O.D.		1.050	1.313	1.660	1.900	2-3/8	2-3/8	2-3/8
SPEAR O.D.		11/16	7/8 NOM	1-1/8	1-3/8	1-11/16	1-7/8	1-7/8
SPEAR I.D.		…	…	…	…	…	3/8	3/8
DUTY CLASS		STD	STD	STD	STD	STD	STD	STD
COMPLETE ASSEMBLY	Logan Part No.	202-001	202-002	202-003	202-004	202-036	202-005	202-006
	Bowen No.	16455	19350	11195	9915	9645	1344	17228

REPLACEMENT PARTS

TOP SUB	Logan Part No.	F1000-A	F1001-A	F1002-A	…	…	…	…
	Bowen No.	16456A	19351A	11196A	…	…	…	…
MANDREL (FLUSH TYPE)	Logan Part No.	F1000	F1001	F1002	F1004	F1005	F1007	F1008
	Bowen No.	16456B	19351B	11196B	9916	9646	1345	17229
GRAPPLE	Logan Part No.	F3000	F3001	F3002	F3004	F3005	F3007	F3008
	Bowen No.	16457	19352	11197	9917	9647	1348	17230
RELEASE RING	Logan Part No.	F4000	F4001	F4002	F4004	F4005	F4007	F4007
	Bowen No.	16458	19353	11198	9918	9649	1347	1347
BULL NOSE NUT	Logan Part No.	F5000	F5001	F5002	F5004	F5005	F5007	F5007
	Bowen No.	16459	19354	11199	9919	9648	1346	1346

OPTIONAL PARTS

MANDREL (SHOULDER TYPE)	Logan Part No.	F1000	F1001	F1002	F1004	F1005	F1007	F1008
	Bowen No.	16456	19351	11196	9916	9646	1345	17229
MANDREL EXTRA LENGTH PER INCH (C & D)								

ACCESSORIES

MILL TYPE NUT	Logan Part No.	F5000-A	F5001-A	F5002-A	F5004-A	F5005-A	F5007-A	F5007-A
	Bowen No.	16459-A	19354-A	11199-A	9919-A	9648-A	1346-A	1346-A
SUB TYPE NUT	Logan Part No.	F5000-B	F5001-B	F5002-B	F5004-B	F5005-B	F5007-B	F5007-B
	Bowen No.	16459-B	19354-B	11199-B	9919-B	9648-B	1346-B	1346-B
SIDE HILL NUT	Logan Part No.	F5000-C	F5001-C	F5002-C	F5004-C	F5005-C	F5007-C	F5007-C
	Bowen No.	16459-C	19354-C	11199-C	9919-C	9648-C	1346-C	1346-C

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(1) Name and part number of assembly or part
(2) Size and type of top connection
(3) Size and weight(s) of pipe to catch
(4) Flush or Shoulder type (specify O.D. of shoulder, “A”)
(5) Mandrel length desired “C”
(6) Thread size and type of nut, if wanted

Recommended Spare Parts:

(1) 2 Grapples for each catch size

STANDARD RELEASING SPEARS

NOMINAL CATCH SIZE O.D.		2-7/8	2-7/8	2-7/8	3-1/2	3-1/2	4	4
SPEAR O.D.		2-5/16	2-5/16	2-5/16	2-13/16	2-1/2	3-1/4	3-1/4
SPEAR I.D.		3/8	3/8	3/8	1/2	1/2	3/4	3/4
DUTY CLASS		STD	STD LH	HD	STD	HD	LD	STD
COMPLETE ASSEMBLY	Logan Part No.	202-007	202-022	202-008	202-009	202-010	202-024	202-011
	Bowen No.	1227	62198	17231	9410	9945	530	9485

REPLACEMENT PARTS

TOP SUB	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...
MANDREL (FLUSH TYPE)	Logan Part No.	F1009	F10095	F1010	F1012	F1013	F1014	F1015
	Bowen No.	1231	62199	17232	9411	9946	531	9486
GRAPPLE	Logan Part No.	F3009	F30095	F3010	F3012	F3013	F3014	F3015
	Bowen No.	1230	49888	17233	9412	9947	532	9487
RELEASE RING	Logan Part No.	F4009	F4009	F4009	F4012	F4013	F4015	F4015
	Bowen No.	1229	1229	1229	1584	9948	534	534
BULL NOSE NUT	Logan Part No.	F5009	F50095	F5009	F5012	F5013	F5014	F5015
	Bowen No.	1228	62200	1228	9413	9949	533	9488

OPTIONAL

MANDREL (SHOULDER TYPE)	Logan Part No.	F1009	F10095	F1010	F1012	F1013	F1014	F1015
	Bowen No.	1231	62199	17232	9411	9946	531	9486
MANDREL EXTRA LENGTH PER INCH (C & D)								

ACCESSORIES

MILL TYPE NUT	Logan Part No.	F5009-A	F50095-A	F5010-A	F5012-A	F5013-A	F5014-A	F5015-A
	Bowen No.	1228-A	...	1228-A	9413-A	...	533-A	9488-A
SUB TYPE NUT	Logan Part No.	F5009-B	F50095-B	F5009-B	F5012-B	F5013-B	F5014-B	F5015-B
	Bowen No.	1228-B	...	1228-B	9413-B	...	533-B	9488-B
SIDE HILL NUT	Logan Part No.	F5009-C	F50095-C	F5009-C	F5012-C	F5013-C	F5014-C	F5015-A
	Bowen No.	1228-C	...	1228-C	9413-C	...	533-C	9488-C

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(2) Size and type of top connection
(3) Size and weight(s) of pipe to catch
(4) Flush or Shoulder type (specify O.D. of shoulder, “A”)
(5) Mandrel length desired “C”
(6) Thread size and type of nut, if wanted

Recommended Spare Parts:

(1) 2 Grapples for each catch size

STANDARD RELEASING SPEARS

NOMINAL CATCH SIZE O.D.		4-1/2	4-1/2	5	5	6	6	7	
SPEAR O.D.		3-5/8	3-5/8	4-1/32	4-1/32	5	5	5-3/4	
SPEAR I.D.		3/4	3/4	7/8	1	1	1	2	
DUTY CLASS		LD	STD	LD	STD	LD	STD	STD	
COMPLETE ASSEMBLY	Logan Part No.		202-017	202-012	202-035	202-013	202-023	202-014	202-015
	Bowen No.		13200	17475	1332	9680	9715	17234	9266

REPLACEMENT PARTS

TOP SUB	Logan Part No.		...	...	...	...	...	...	...
	Bowen No.		...	...	...	...	...	...	...
MANDREL (FLUSH TYPE)	Logan Part No.		F1016	F1017	F1018	F1019	F1022	F1023	F1024
	Bowen No.		13201	17476	1333	9681	9716	17235	9267
GRAPPLE	Logan Part No.		F3016	F3017	F3018	F3019	F3022	F3023	F3024
	Bowen No.		13202	17477	1334	9682	9717	17236	9268
RELEASE RING	Logan Part No.		F4017	F4017	F4019	F4019	F4023	F4023	F4024
	Bowen No.		13183	13183	1336	1336	9718	9718	9279
BULL NOSE NUT	Logan Part No.		F5017	F5017	F5019	F5019	F5023	F5023	F5024
	Bowen No.		13184	13184	1335	1335	9719	9719	9269

OPTIONAL PARTS

MANDREL (SHOULDER TYPE)	Logan Part No.		F1016	F1017	F1018	F1019	F1022	F1023	F1024
	Bowen No.		13201	17476	1333	9681	9716	17235	9267
MANDREL EXTRA LENGTH	Logan Part No.		...	...	...	...	...	...	...
PER INCH (C & D)	Bowen No.		...	...	...	...	...	...	...

ACCESSORIES

MILL TYPE NUT	Logan Part No.		F5017-A	F5017-A	F5019-A	F5019-A	F5023-A	F5023-A	F5024-A
	Bowen No.		13184-A	13184-A	1335-A	1335-A	9719-A	9719-A	9269-A
SUB TYPE NUT	Logan Part No.		F5017-B	F5017-B	F5019-B	F5019-B	F5023-B	F5023-B	F5024-B
	Bowen No.		13184-B	13184-B	1335-B	1335-B	9719-B	9719-B	9269-B
SIDE HILL NUT	Logan Part No.		F5017-C	F5017-C	F5019-C	F5019-C	F5023-C	F5023-C	F5024-C
	Bowen No.		13184-C	13184-C	1335-C	1335-C	9719-C	9719-C	9269-C

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(5) Mandrel length desired “C”
(6) Thread size and type of nut, if wanted

Recommended Spare Parts:

(1) 2 Grapples for each catch size

STANDARD RELEASING SPEARS

NOMINAL CATCH SIZE O.D.		7	8-5/8	8-5/8	9-5/8	9-5/8	13-3/8
SPEAR O.D.		5-3/4	7-1/4	7-1/4	8-1/4	8-1/4	11-3/4
SPEAR I.D.		2	2-3/4	2-3/4	2-13/16	2-13/16	3-1/2
DUTY CLASS		HD	STD	HD	STD	HD	STD
COMPLETE ASSEMBLY	Logan Part No.	202-016	202-025	202-018	202-019	202-020	202-021
	Bowen No.	17237	9380	17243	9281	17246	27780

REPLACEMENT PARTS

TOP SUB	Logan Part No.	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...
MANDREL (FLUSH TYPE)	Logan Part No.	F1026	F1029	F1030	F1032	F1034	F1035
	Bowen No.	17238	9381	17244	9282	17247	27781
GRAPPLE	Logan Part No.	F3026	F3029	F3030	F3032	F3034	F3035
	Bowen No.	17239	9382	17245	9283	17248	27782
RELEASE RING	Logan Part No.	F4024	F4029	F4029	F4032	F4032	F4033
	Bowen No.	9279	9383	9383	9286	9286	27783
BULL NOSE NUT	Logan Part No.	F5024	F5029	F5029	F5032	F5032	F5033
	Bowen No.	9269	9384	9384	9284	9284	27784

OPTIONAL PARTS

MANDREL (SHOULDER TYPE)	Logan Part No.	F1026	F1029	F1030	F1032	F1034	F1035
	Bowen No.	17238	9381	17244	9282	17247	27781
MANDREL EXTRA LENGTH PER INCH (C & D)							

ACCESSORIES

MILL TYPE NUT	Logan Part No.	F5024-A	F5029-A	F5029-A	F5032-A	F5032-A	F5035-A
	Bowen No.	9269-A	9384-A	9384-A	9284-A	9284-A	27784-A
SUB TYPE NUT	Logan Part No.	F5024-B	F5029-B	F5029-B	F5032-B	F5032-B	F5035-B
	Bowen No.	9269-B	9384-B	9384-B	9284-B	9284-B	27784-B
SIDE HILL NUT	Logan Part No.	F5024-C	F5029-C	F5029-C	F5032-C	F5032-C	F5035-C
	Bowen No.	9269-C	9384-C	9384-C	9284-C	9284-C	27784-C

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(4) Flush or Shoulder type (specify O.D. of shoulder, “A”)
(5) Mandrel length desired “C”
(6) Thread size and type of nut, if wanted

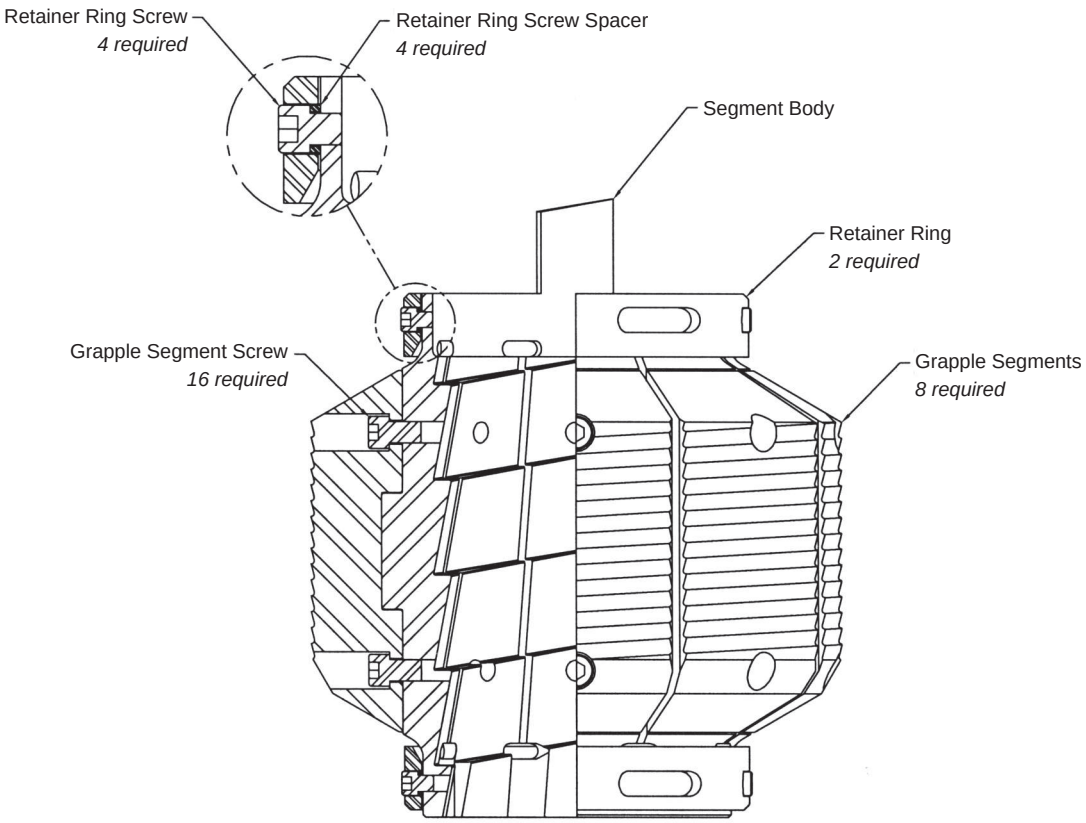
Recommended Spare Parts:

(1) 2 Grapples for each catch size

SEGMENTED SPEAR GRAPPLE ASSEMBLIES

Overview

The segment-type spear grapple enhances the spear's usefulness by providing an extended catching range beyond the maximum range of the standard one-piece grapple. The Logan Segment-Type Spear Grapple consists of a grapple body, eight grapple segments, two retainer rings, six retainer ring screws, six retainer ring spacers, and sixteen grapple segment screws.



SEGMENTED SPEAR GRAPPLE ASSEMBLIES

ASSEMBLES TO SPEAR	Logan Part No.			202-025				202-018	
	Bowen No.			9380				17243	
CATCH SIZE (PIPE SIZE)		10-3/4	11-3/4	12-3/4	13-3/8	10-3/4	11-3/4	12-3/4	13-3/8
PIPE WEIGHT		32.75	38.00	45.45	48.00	32.75	38.00	45.45	48.60
		48.00	54.00	66.72	68.00	48.00	54.00	66.72	68.00
		40.00	47.00	…	61.00	40.00	47.00	…	61.00
		55.50	60.00	…	85.00	55.50	60.00	…	85.00
COMPLETE ASSEMBLY	Logan Part No.			205-000				205-001	
	Bowen No.			9382				17245	
GRAPPLE BODY	Logan Part No.			F3029-A				F3030-A	
	Bowen No.			9382-A				17245-A	
GRAPPLE SEGMENT	Logan Part No.			F3029-B				F3030-B	
(8 per set)	Bowen No.			9382-B				17245-B	
SEGMENT SCREW	Logan Part No.			T3000				T3000	
	Bowen No.			12198				12198	
	No. Req'd			16				16	
RETAINER RING	Logan Part No.			T4000				T4000	
	Bowen No.			56855				56855	
	No. Req'd			2				2	
RETAINER RING SCREW	Logan Part No.			T5000				T5000	
	Bowen No.			23535				23535	
	No. Req'd			4				4	
RETAINER RING SCREW SPACER	Logan Part No.			T6000				T6000	
	Bowen No.			56979				56979	
	No. Req'd			4				4	

ASSEMBLES TO SPEAR	Logan Part No.			202-019					202-020		
	Bowen No.			9281					17246		
CATCH SIZE (PIPE SIZE)		13-3/8	14	16	18-5/8	20	13-3/8	14	16	18-5/8	20
PIPE WEIGHT		48.00	42.00	55.00	90.00	90.00	48.00	42.00	55.00	…	90.00
		68.00	57.00	65.00	106.50	94.00	68.00	57.00	65.00	…	94.00
		61.00	…	84.00	…	106.00	61.00	…	84.00	…	133.00
		85.00	…	109.00	…	133.00	85.00	…	…	…	…
COMPLETE ASSEMBLY	Logan Part No.			205-002					205-003		
	Bowen No.			9283					17248		
GRAPPLE BODY	Logan Part No.			F3032-A					F3034-A		
	Bowen No.			9283-A					17248-A		
GRAPPLE SEGMENT	Logan Part No.			F3032-B					F3034-B		
(8 per set)	Bowen No.			9283-B					17248-B		
SEGMENT SCREW	Logan Part No.			T3001					T3001		
	Bowen No.			23020					23020		
	No. Req'd			16					16		
RETAINER RING	Logan Part No.			T4001					T4001		
	Bowen No.			56409					56409		
	No. Req'd			2					2		
RETAINER RING SCREW	Logan Part No.			T5001					T5001		
	Bowen No.			56813					56813		
	No. Req'd			4					4		
RETAINER RING SCREW SPACER	Logan Part No.			T6000					T6000		
	Bowen No.			56979					56979		
	No. Req'd			4					4		

SEGMENTED SPEAR GRAPPLE ASSEMBLIES

ASSEMBLES TO SPEAR	**Logan Part No.**		**202-021**	
	Bowen No.		27780	
CATCH SIZE (PIPE SIZE)		16	18-5/8	20
PIPE WEIGHT		55.00	…	90.00
		65.00	…	94.00
		84.00	…	133.00
COMPLETE ASSEMBLY	**Logan Part No.**		**205-004**	
	Bowen No.		27782	
GRAPPLE BODY	**Logan Part No.**		**F3035-A**	
	Bowen No.		27782A	
GRAPPLE SEGMENT	**Logan Part No.**		**F3035-B**	
(8 per set)	Bowen No.		27782B	
SEGMENT SCREW	**Logan Part No.**		**T3002**	
	Bowen No.		12019	
	No. Req'd		16	
RETAINER RING	**Logan Part No.**		**T4002**	
	Bowen No.		56858	
	No. Req'd		2	
RETAINER	**Logan Part No.**		**T5002**	
RING SCREW	Bowen No.		56859	
	No. Req'd		4	
RETAINER RING	**Logan Part No.**		**T6000**	
SCREW SPACER	Bowen No.		56979	
	No. Req'd		4	

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

RELEASING SPEAR GRAPPLE RANGE CHART

LOGAN SPEAR GRAPPLE	Logan Part No.	F3000	F3000	F3000	F3000	F3000	F3000	F3000
	Bowen No.	16457	16457	16457	16457	16457	16457	16457
ACTUAL CATCHING RANGE:								
MINIMUM ID		.725		.799		.850	.912	.932
NOMINAL CATCH SIZE		.742		.813		.864	.924	.944
MAXIMUM ID		.750		.824		.875	.937	.957
OLD NOMINAL SIZE (INCHES)		3/4 ID & 3/4 X-STG Pipe		3/4 Std Pipe .824 ID		.875-.864 ID 1 to 2.25# CS Hydril	.937 ID	.957 ID 1" X-STG Pipe

LOGAN SPEAR GRAPPLE	Logan Part No.	F3000	F3000	F3000	F3000	F3001	F3001	F3001
	Bowen No.	16457	16457	16457	16457	19352	19352	19352
ACTUAL CATCHING RANGE:								
MINIMUM ID		.955	.975	1.033	1.100	.913	.956	1.005
NOMINAL CATCH SIZE		.967	.987	1.049	1.112	.937	.978	1.027
MAXIMUM ID		.982	1.000	1.058	1.125	.957	1.000	1.049
OLD NOMINAL SIZE (INCHES)		.982 ID	1" ID	1" Std Pipe 1.049 ID	1-1/8 ID	.957 ID 1" X-STG Pipe	1" ID	1.045 ID 1" Std Pipe

LOGAN SPEAR GRAPPLE	Logan Part No.	F3001	F3001	F3002	F3002	F3002	F3002	F3002
	Bowen No.	19352	19352	11197	11197	11197	11197	11197
ACTUAL CATCHING RANGE:								
MINIMUM ID		1.050	1.081	1.137	1.180	1.211	1.242	1.273
NOMINAL CATCH SIZE		1.072	1.103	1.170	1.215	1.246	1.277	1.308
MAXIMUM ID		1.093	1.125	1.207	1.250	1.281	1.312	1.342
OLD NOMINAL SIZE (INCHES)		1.093 ID	1.250 ID	1.187 ID	1.250 to 1.219 ID	1.281 to 1.250 ID	1.312 to 1.281 ID	1.343 to 1.312 ID

LOGAN SPEAR GRAPPLE	Logan Part No.	F3002	F3002	F3002	F3002	F3002	F3002	F3002
	Bowen No.	11197	11197	11197	11197	11197	11197	11197
ACTUAL CATCHING RANGE:								
MINIMUM ID		1.332	1.394	1.430	1.580	1.481	1.519	1.650
NOMINAL CATCH SIZE		1.367	1.429	1.465	1.615	1.516	1.554	1.687
MAXIMUM ID		1.402	1.464	1.500	1.652	1.551	1.589	1.720
OLD NOMINAL SIZE (INCHES)		1-3/8 ID 1-1/4 Tbg	1.438 ID	1.500 to 1.469 ID	1-1/2 Std Pipe & 1-5/8 ID	1.531 ID	1 9/16 ID	1.687 to 1.700 ID

LOGAN SPEAR GRAPPLE	Logan Part No.	F3002	F3002	F3002	F3002	F3002	F3002	F3004
	Bowen No.	11197	11197	11197	11197	11197	11197	9917
ACTUAL CATCHING RANGE:								
MINIMUM ID		1.722	1.771	1.836	1.895	1.957	2.024	1.441
NOMINAL CATCH SIZE		1.757	1.806	1.875	1.930	1.992	2.061	1.470
MAXIMUM ID		1.792	1.841	1.906	1.965	2.027	2.094	1.500
OLD NOMINAL SIZE (INCHES)		1-3/4 to 1-25/32 ID	1.815 ID	1-7/8 to 1-29/32	1-15/16 ID	2 ID	2.067 ID	1.500 ID to 1-1/2 X-STG Pipe

Note: Grapples are stenciled with nominal catch size.

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RELEASING SPEAR GRAPPLE RANGE CHART

LOGAN SPEAR GRAPPLE	Logan Part No.	F3004	F3004	F3004	F3004	F3004	F3004	F3004
	Bowen No.	9917	9917	9917	9917	9917	9917	9917
ACTUAL CATCHING RANGE:								
MINIMUM ID		1.470	1.472	1.553	1.566	1.598	1.612	1.673
NOMINAL CATCH SIZE		1.500	1.502	1.583	1.596	1.628	1.642	1.700
MAXIMUM ID		1.527	1.529	1.610	1.625	1.657	1.670	1.750
OLD NOMINAL SIZE (INCHES)				1-1/2 Std Pipe to 1.610 ID	1-5/8 ID	1.657 ID	1.670 ID	1-3/4 1.700 ID

LOGAN SPEAR GRAPPLE	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...
LOGAN SPEAR GRAPPLE	Logan Part No.	F3004	F3004	F3004	F3004	F3004	F3005	F3005
	Bowen No.	9917	9917	9917	9917	9917	9647	9647
ACTUAL CATCHING RANGE:								
MINIMUM ID		1.707	1.742	1.817	1.881	1.942	1.677	1.742
NOMINAL CATCH SIZE		1.737	1.772	1.847	1.911	1.972	1.719	1.778
MAXIMUM ID		1.781	1.800	1.875	1.939	2.000	1.750	1.815
OLD NOMINAL SIZE (INCHES)		1.781 ID	1.800 ID	1-7/8 ID	1.939 ID	2 ID	1.719 to 1.750 ID	2-3/8 Drill Pipe, 65.5#

LOGAN SPEAR GRAPPLE	Logan Part No.	...	...	...	F3007	F3007	F3007	F3007
	Bowen No.	...	...	...	1348	1348	1348	1348
LOGAN SPEAR GRAPPLE	Logan Part No.	F3005	F3005	F3005	F3008	F3008	F3008	F3008
	Bowen No.	9647	9647	9647	17230	17230	17230	17230
ACTUAL CATCHING RANGE:								
MINIMUM ID		1.802	1.864	1.968	1.788	1.796	1.889	1.952
NOMINAL CATCH SIZE		1.838	1.900	2.004	1.828	1.836	1.929	1.992
MAXIMUM ID		1.875	1.937	2.041	1.867	1.876	1.968	2.041
OLD NOMINAL SIZE (INCHES)		1-7/8 & 1-27/32 ID	1.875 to 1.937 ID	2-3/8 Tbg, 4 to 4.7# Down	1.867 ID Turn Body Down	1.875 ID Turn Body	1.937 to 1.968 ID	2-3/8 Tbg, 4 to 4.7#

LOGAN SPEAR GRAPPLE	Logan Part No.	F3007	F3007	F3007	F3007	F3007	F3007	F3007
	Bowen No.	1348	1348	1348	1348	1348	1348	1348
LOGAN SPEAR GRAPPLE	Logan Part No.	F3008	F3008	F3008	F3008	F3008	F3008	F3008
	Bowen No.	17230	17230	17230	17230	17230	17230	17230
ACTUAL CATCHING RANGE:								
MINIMUM ID		1.983	2.045	2.091	2.170	2.186	2.233	2.249
NOMINAL CATCH SIZE		2.023	2.085	2.131	2.211	2.226	2.273	2.289
MAXIMUM ID		2.062	2.125	2.172	2.250	2.266	2.312	2.329
OLD NOMINAL SIZE (INCHES)		2.000 to 2.062 ID	2-1/8 ID	2-7/8 DP, 9.75 to 10.4#	2-1/4 to 2-3/16 ID	2-17/64 ID	2-5/16 ID	2-7/8 OD 7.8 to 8.35# DP

Note: Grapples are stenciled with nominal catch size.

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RELEASING SPEAR GRAPPLE RANGE CHART

LOGAN SPEAR GRAPPLE	Logan Part No.	F3007	F3007	F3007	F3007	F3007	F3007	F3007
	Bowen No.	1348	1348	1348	1348	1348	1348	1348
LOGAN SPEAR GRAPPLE	Logan Part No.	F3008	F3008	F3008	F3008	F3008	F3008	F3008
	Bowen No.	17230	17230	17230	17230	17230	17230	17230
ACTUAL CATCHING RANGE:								
MINIMUM ID		2.295	2.358	2.390	2.420	2.556	2.608	2.670
NOMINAL CATCH SIZE		2.335	2.398	2.430	2.460	2.596	2.648	2.710
MAXIMUM ID		2.375	2.438	2.469	2.500	2.625	2.688	2.750
OLD NOMINAL SIZE (INCHES)		2-3/8 ID NX 1/2 Rod	2-3/8 ID 2-7/16 ID	2-7/8 Tbg 6.25-6.5#, 2-7/8 OD	2-7/16 ID 2-1/2 ID	2-5/8 ID & 2-9/16 ID	2-5/8 ID & 2-11/16 ID	2-3/4 ID

LOGAN SPEAR GRAPPLE	Logan Part No.	F3007	F3007	F3007	F3007	F3009	F3009	F3009
	Bowen No.	1348	1348	1348	1348	1230	1230	1230
LOGAN SPEAR GRAPPLE	Logan Part No.	F3008	F3008	F3008	F3008	F3010	F3010	F3010
	Bowen No.	17230	17230	17230	17230	17233	17233	17233
ACTUAL CATCHING RANGE:								
MINIMUM ID		2.921	3.046	3.170	3.264	2.280	2.351	2.390
NOMINAL CATCH SIZE		2.961	3.086	3.210	3.304	2.328	2.399	2.438
MAXIMUM ID		3.000	3.126	3.250	3.344	2.375	2.446	2.487
OLD NOMINAL SIZE (INCHES)		3 ID & 2-15/16 ID - NX DRIVE	3-1/16 ID & 3-1/8 ID	3-1/4 ID & 3-3/16 ID	3-11/32 ID & 3-9/32 ID	2-3/8 ID	2-3/8 to 2-7/16 ID	2-7/8 Tbg 6.25-6.5#, 2-7/8 OD

LOGAN SPEAR GRAPPLE	Logan Part No.	F3009	F3009	F3009	F3009	F3009	F3009	F3009
	Bowen No.	1230	1230	1230	1230	1230	1230	1230
LOGAN SPEAR GRAPPLE	Logan Part No.	F3010	F3010	F3010	F3010	F3010	F3010	F3010
	Bowen No.	17233	17233	17233	17233	17233	17233	17233
ACTUAL CATCHING RANGE:								
MINIMUM ID		2.468	2.515	2.593	2.671	2.718	2.827	2.843
NOMINAL CATCH SIZE		2.516	2.562	2.641	2.718	2.766	2.875	2.891
MAXIMUM ID		2.563	2.610	2.688	2.766	2.814	2.922	2.938
OLD NOMINAL SIZE (INCHES)		2.562 to 2-15/32 ID Pipe	3-1/2 OD 15.5# Drill	2-11/16 2-5/8 ID Drill Pipe	3-1/2 OD 12.4 to 13.3#	2-13/16 ID & 2-3/4 ID Drill Pipe	3-1/2 OD 10.2 to 11.2#	2-7/8 to 2-15/16 ID

Note: Grapples are stenciled with nominal catch size.

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RELEASING SPEAR GRAPPLE RANGE CHART

LOGAN SPEAR GRAPPLE	Logan Part No.	F3009	F3009	F3009	F3009	F3009	F3009	…
	Bowen No.	1230	1230	1230	1230	1230	1230	…
LOGAN SPEAR GRAPPLE	Logan Part No.	F3010	F3010	F3010	F3010	F3010	F3010	F3012
	Bowen No.	17233	17233	17233	17233	17233	17233	9412
ACTUAL CATCHING RANGE:								
MINIMUM ID		2.890	2.984	3.030	3.155	3.297	3.437	2.881
NOMINAL CATCH SIZE		2.938	3.032	3.078	3.203	3.345	3.485	2.933
MAXIMUM ID		2.992	3.079	3.125	3.250	3.392	3.532	2.992
OLD NOMINAL SIZE (INCHES)		3-1/2 OD 9.2-10.2# Tbg	3-1/2 OD 7.7# Tbg	3-1/8 3-1/16 ID	3-1/4 3-3/16 ID	3.340 to 3.382 ID	3-1/2 ID	3-1/2 OD 9.2-10.2# Tbg

LOGAN SPEAR GRAPPLE	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	…	…	…	…	…	…
LOGAN SPEAR GRAPPLE	Logan Part No.	F3012	F3012	F3012	F3012	F3012	F3012	F3012
	Bowen No.	9412	9412	9412	9412	9412	9412	9412
ACTUAL CATCHING RANGE:								
MINIMUM ID		2.949	3.021	3.146	3.256	3.365	3.444	3.522
NOMINAL CATCH SIZE		3.001	3.073	3.198	3.308	3.417	3.496	3.574
MAXIMUM ID		3.068	3.125	3.250	3.364	3.476	3.548	3.625
OLD NOMINAL SIZE (INCHES)		3-1/2 OD 7.7 to 9.2#	3-1/8 ID	3-1/4 ID 3-3/16 ID	4 OD 12.5 to 14.0# Drill Pipe	4 OD 11.0 to 11.6#	4 OD 9.5 to 11.0#	3.500 to 3.625 ID

LOGAN SPEAR GRAPPLE	Logan Part No.	…	…	F3014	F3014	F3014	F3014	F3014
	Bowen No.	…	…	532	532	532	532	532
LOGAN SPEAR GRAPPLE	Logan Part No.	F3012	F3012	F3015	F3015	F3015	F3015	F3015
	Bowen No.	9412	9412	9487	9487	9487	9487	9487
ACTUAL CATCHING RANGE:								
MINIMUM ID		3.584	3.646	3.218	3.327	3.406	3.484	3.608
NOMINAL CATCH SIZE		3.636	3.698	3.291	3.400	3.479	3.557	3.681
MAXIMUM ID		3.687	3.750	3.364	3.476	3.548	3.625	3.754
OLD NOMINAL SIZE (INCHES)		3-11/16 ID	3-3/4 ID	4 OD 12.5 to 14.0 Tbg	4 OD 11.0 to 11.6# Tbg	4 OD 9.5 to 11.0# Tbg	3-5/8 ID & 3-9/16 ID	4-1/2 OD 18.1 to 22.0# Tbg

Note: Grapples are stenciled with nominal catch size.

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RELEASING SPEAR GRAPPLE RANGE CHART

LOGAN SPEAR GRAPPLE	Logan Part No.	F3014	F3014	F3014	F3014	F3014	F3014	F3014
	Bowen No.	532	532	532	532	532	532	532
LOGAN SPEAR GRAPPLE	Logan Part No.	F3015	F3015	F3015	F3015	F3015	F3015	F3015
	Bowen No.	9487	9487	9487	9487	9487	9487	9487
ACTUAL CATCHING RANGE:								
Minimum ID		3.671	3.812	3.874	3.937	4.134	4.155	4.358
NOMINAL CATCH SIZE		3.744	3.885	3.947	4.010	4.207	4.228	4.431
MAXIMUM ID		3.826	3.958	4.026	4.090	4.276	4.300	4.506
OLD NOMINAL SIZE (INCHES)		4-1/2 OD 15.3 to 18.1# Tbg	4-1/2 OD 13.7 to 15.3# Tbg	4-1/2 OD 11.0 to 13.7# Tbg	4-1/2 OD 9.5 to 11.6# Tbg	5 OD 18.0 to 21.0# Tbg	5 OD 17.7 to 18.0# Tbg	5 Tbg 12.6 to15.0# (4.408 ID)

LOGAN SPEAR GRAPPLE	Logan Part No.	F3014	F3014	F3016	F3016	F3016	F3016	F3016
	Bowen No.	532	532	13202	13202	13202	13202	13202
LOGAN SPEAR GRAPPLE	Logan Part No.	F3015	F3015	F3017	F3017	F3017	F3017	F3017
	Bowen No.	9487	9487	17477	17477	17477	17477	17477
ACTUAL CATCHING RANGE:								
Minimum ID		4.406	4.874	3.682	3.761	3.823	3.886	4.073
NOMINAL CATCH SIZE		4.479	4.947	3.782	3.861	3.923	3.986	4.173
MAXIMUM ID		4.560	5.012	3.881	3.958	4.026	4.090	4.276
OLD NOMINAL SIZE (INCHES)		5 OD 11.5# Tbg	5-1/2 OD 14.0 to 17.0# Tbg	4-1/2 OD 15.3 to 18.1# Tbg	4-1/2 OD 13.7 to 15.3# Tbg	4-1/2 OD 11.0 to 13.7# Tbg	4-1/2 OD 9.5 to 11.6# Csg	5 OD 18.0 to 21.4# Csg

LOGAN SPEAR GRAPPLE	Logan Part No.	F3016	F3016	F3018	F3018	F3018	F3018	F3018
	Bowen No.	13202	13202	1334	1334	1334	1334	1334
LOGAN SPEAR GRAPPLE	Logan Part No.	F3017	F3017	F3019	F3019	F3019	F3019	F3019
	Bowen No.	17477	17477	9682	9682	9682	9682	9682
ACTUAL CATCHING RANGE:								
Minimum ID		4.214	4.307	4.093	4.234	4.390	4.469	4.515
NOMINAL CATCH SIZE		4.314	4.407	4.179	4.320	4.476	4.555	4.601
MAXIMUM ID		4.408	4.506	4.276	4.408	4.562	4.642	4.696
OLD NOMINAL SIZE (INCHES)		5 OD 15.0 to 18.0# Csg	5 OD 12.6 to 15.0# Csg	5 OD 18.0 to 21.0# Csg	5 OD 15.0 to 18.0# Csg	5 OD 11.5 to 15.0# Csg	5 OD 9.0 to 13.0# Csg	5 OD, 8# 5-1/2 OD 23 to 25# Csg

Note: Grapples are stenciled with nominal catch size.

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RELEASING SPEAR GRAPPLE RANGE CHART

LOGAN SPEAR GRAPPLE	Logan Part No.	F3018	F3018	F3018	F3018	F3018	F3018	F3018
	Bowen No.	1334	1334	1334	1334	1334	1334	1334
LOGAN SPEAR GRAPPLE	Logan Part No.	F3019	F3019	F3019	F3019	F3019	F3019	F3019
	Bowen No.	9682	9682	9682	9682	9682	9682	9682
ACTUAL CATCHING RANGE:								
MINIMUM ID		4.609	4.719	4.875	4.922	5.015	5.124	5.218
NOMINAL CATCH SIZE		4.695	4.805	4.961	5.008	5.101	5.210	5.304
MAXIMUM ID		4.782	4.892	5.048	5.095	5.192	5.297	5.390
OLD NOMINAL SIZE (INCHES)		5-1/2 OD 20.0 to 23.0# Csg	5-1/2 OD 17.0 to 20.0# Csg	5-1/2 OD 14.0 to 17.0# Csg	5-3/4 OD 19.5 to 22.5# Csg 9.0 to 13.0# Csg	5-3/4, 17-19.5# 5-1/2 OD	5-3/4 OD 14.0 to 17.0 Csg	6 OD 20.0# Csg to 23.0# Csg

LOGAN SPEAR GRAPPLE	Logan Part No.	F3018	F3018	F3018	F3022	F3022	F3022	F3022
	Bowen No.	1334	1334	1334	9717	9717	9717	9717
LOGAN SPEAR GRAPPLE	Logan Part No.	F3019	F3019	F3019	F3023	F3023	F3023	F3023
	Bowen No.	9682	9682	9682	17236	17236	17236	17236
ACTUAL CATCHING RANGE:								
MINIMUM ID		5.281	5.375	5.500	5.000	5.093	5.187	5.280
NOMINAL CATCH SIZE		5.367	5.461	5.586	5.134	5.227	5.321	5.414
MAXIMUM ID		5.454	5.552	5.675	5.266	5.360	5.454	5.547
OLD NOMINAL SIZE (INCHES)		6 OD 17.0 to 20.0# Csg	6 OD 14.0 to 17.0# Csg	6-5/8 OD 32.0 to 34.0# Csg	6 OD 23.0 to 26.0# Csg	6 OD 20.0 to 23.0# Csg	6 OD 17.0 to 20.0# Csg	6 OD 14.0 to 17.0# Csg

LOGAN SPEAR GRAPPLE	Logan Part No.	F3022	F3022	F3022	F3022	F3022	F3022	F3022
	Bowen No.	9717	9717	9717	9717	9717	9717	9717
LOGAN SPEAR GRAPPLE	Logan Part No.	F3023	F3023	F3023	F3023	F3023	F3023	F3023
	Bowen No.	17236	17236	17236	17236	17236	17236	17236
ACTUAL CATCHING RANGE:								
MINIMUM ID		5.406	5.530	5.593	5.656	5.671	5.781	5.796
NOMINAL CATCH SIZE		5.540	5.664	5.727	5.790	5.805	5.915	5.930
MAXIMUM ID		5.675	5.797	5.860	5.923	5.938	6.049	6.063
OLD NOMINAL SIZE (INCHES)		6 OD 10.5 to 14.0# Csg	6-5/8 OD 28.0 to 32.0# Csg	6-5/8 OD 26.0 to 29.0# Csg	6-5/8 OD 24.0 to 28.0# Csg	7 OD 38.0 to 40.0# Csg	6-5/8 OD 20.0 to 24.0# Csg	7 OD 33.7 to 38.0# Csg

Note: Grapples are stenciled with nominal catch size.

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

RELEASING SPEAR GRAPPLE RANGE CHART

LOGAN SPEAR GRAPPLE	Logan Part No.	F3022	F3022	F3022	F3022	F3022	F3022	F3024
	Bowen No.	9717	9717	9717	9717	9717	9717	9268
LOGAN SPEAR GRAPPLE	Logan Part No.	F3023	F3023	F3023	F3023	F3023	F3023	F3026
	Bowen No.	17236	17236	17236	17236	17236	17236	17239
ACTUAL CATCHING RANGE:								
MINIMUM ID		5.875	5.937	6.015	6.140	6.202	6.281	5.770
NOMINAL CATCH SIZE		6.009	6.071	6.149	6.274	6.335	6.415	5.970
MAXIMUM ID		6.142	6.204	6.282	6.407	6.469	6.548	6.173
OLD NOMINAL SIZE (INCHES)		6-5/8 OD 17.0 to 22.0# Csg	7 OD 29.0 to 33.7# Csg	7 OD 26.0 to 29.0# Csg	7 OD 22.0 to 26.0# Csg	7 OD 20.0 to 23.0# Csg	7 OD 17.0 to 20.0# Csg	7" 30.0-40.0# & 6-5/8 24.0# Csg

LOGAN SPEAR GRAPPLE	Logan Part No.	F3024	F3024	F3024	F3024	F3024	F3024	F3024
	Bowen No.	9268	9268	9268	9268	9268	9268	9268
LOGAN SPEAR GRAPPLE	Logan Part No.	F3026	F3026	F3026	F3026	F3026	F3026	F3026
	Bowen No.	17239	17239	17239	17239	17239	17239	17239
ACTUAL CATCHING RANGE:								
MINIMUM ID		5.895	6.020	6.270	6.364	6.567	6.864	6.987
NOMINAL CATCH SIZE		6.095	6.220	6.470	6.564	6.767	7.064	7.187
MAXIMUM ID		6.297	6.423	6.673	6.765	6.969	7.263	7.391
OLD NOMINAL SIZE (INCHES)		7 OD 26.0 to 35.0# Csg	7 OD 22.0 to 33.7# Csg	7 OD 13.0 to 24.0# Csg	7-5/8 OD 33.7 to 45.0# Csg	7-5/8 OD 26.4 to 39.0# Csg	7-5/8 OD 14.7 to 26.4# Csg	8-1/8 OD 32.0 to 42.0#Csg

LOGAN SPEAR GRAPPLE	Logan Part No.	F3024	F3024	F3024	F3024	F3024	F3024	F3024
	Bowen No.	9268	9268	9268	9268	9268	9268	9268
LOGAN SPEAR GRAPPLE	Logan Part No.	F3026	F3026	F3026	F3026	F3026	F3026	F3026
	Bowen No.	17239	17239	17239	17239	17239	17239	17239
ACTUAL CATCHING RANGE:								
MINIMUM ID		7.225	7.239	7.489	7.755	7.911	7.958	8.692
NOMINAL CATCH SIZE		7.425	7.439	7.689	7.955	8.111	8.158	8.892
MAXIMUM ID		7.628	7.642	7.892	8.157	8.313	8.360	9.094
OLD NOMINAL SIZE (INCHES)		8 OD 16.0 to 26.0# Csg	7-9/16 ID	8-5/8 OD 34.0 to 48.0# Csg	8-5/8 24.0 to 38.0#, 9" 55# Csg	8-5/8 OD 17.6 to 29.3# Csg	9 OD 34.0 to 45.0# Csg	9-5/8 OD 29.3 to 42.0# Csg

Note: Grapples are stenciled with nominal catch size.

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RELEASING SPEAR GRAPPLE RANGE CHART

LOGAN SPEAR GRAPPLE								
	Logan Part No.	F3024	F3029	F3029	F3029	F3029	F3029	F3029
	Bowen No.	9268	9382	9382	9382	9382	9382	9382
LOGAN SPEAR GRAPPLE								
	Logan Part No.	F3026	F3030	F3030	F3030	F3030	F3030	F3030
	Bowen No.	17239	17245	17245	17245	17245	17245	17245
ACTUAL CATCHING RANGE:								
MINIMUM ID		8.442	7.537	7.729	7.981	8.435	8.535	8.760
NOMINAL CATCH SIZE		8.642	7.690	7.882	8.134	8.588	8.688	8.913
MAXIMUM ID		8.884	7.846	8.034	8.315	8.755	8.846	9.065
OLD NOMINAL SIZE (INCHES)		9-5/8 OD 43.5 to 53.5# Csg	8-5/8 OD 36.0 to 48.0# Csg	8-5/8 28.0 to 38.0#, 9 OD 45.0 to 55.0# Csg	8-5/8 17.5 to 29.3#, 9 OD 34.0 to 45.0# Csg	9 OD 19.0# & 9-5/8 OD 43.5 to 58.0# Csg	9-5/8 OD 40.0 to 53.5# Csg	9-5/8 OD 29.3 to 42.0# Csg

LOGAN SPEAR GRAPPLE								
	Logan Part No.	F3029	205-000 *	205-000 *	205-000 *	205-000 *	205-000 *	205-000 *
	Bowen No.	9382	9382	9382	9382	9382	9382	9382
LOGAN SPEAR GRAPPLE								
	Logan Part No.	205-001 *	205-001 *	205-001 *	205-001 *	205-001 *	205-001 *	205-001 *
	Bowen No.	17245	17245	17245	17245	17245	17245	17245
ACTUAL CATCHING RANGE:								
MINIMUM ID		9.479	9.760	9.885	10.729	10.854	12.228	12.415
NOMINAL CATCH SIZE		9.632	9.913	10.038	10.882	11.007	12.381	12.568
MAXIMUM ID		9.784	10.065	10.192	11.034	11.159	12.534	12.721
OLD NOMINAL SIZE (INCHES)		10-3/4 OD 55.5 to 65.7# Csg	10-3/4 OD 40.0 to 55.5# Csg	10-3/4 OD 32.7 to 48.0# Csg	11-3/4 OD 47.0 to 60.0# Csg	11-3/4 OD 38.0 to 54.0# Csg	13-3/8 OD 61.0 to 85.0# Csg	13-3/8 OD 48.0 to 68.0# Csg

LOGAN SPEAR GRAPPLE								
	Logan Part No.	F3032	F3032	F3032	F3032	F3032	F3032	F3032
	Bowen No.	9283	9283	9283	9283	9283	9283	9283
LOGAN SPEAR GRAPPLE								
	Logan Part No.	F3034	F3034	F3034	F3034	F3034	F3034	F3034
	Bowen No.	17248	17248	17248	17248	17248	17248	17248
ACTUAL CATCHING RANGE:								
MINIMUM ID		8.435	8.519	8.596	8.738	9.738	9.867	9.225
NOMINAL CATCH SIZE		8.597	8.681	8.758	8.900	9.900	10.029	9.387
MAXIMUM ID		8.755	8.844	8.921	9.063	10.063	10.192	9.550
OLD NOMINAL SIZE (INCHES)		9-5/8 OD 43.5 to 58.0# Csg	9-5/8 OD 40.0 to 53.5# Csg	9-5/8 OD 36.0 to 43.5# Csg	9-5/8 OD 29.3 to 40.0# Csg	10-3/4 OD 40.0 to 55.5# Csg	10-3/4 OD 32.7 to 48.0# Csg	10-3/4 OD 71.0 to 76.0# Csg

Note: Grapples are stenciled with nominal catch size

** Segmented grapples.*

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

RELEASING SPEAR GRAPPLE RANGE CHART

LOGAN SPEAR GRAPPLE	Logan Part No.	205-002 *	F3032	F3032	F3032	F3032	205-002 *	205-002 *
	Bowen No.	9283	9283	9283	9283	9283	9283	9283
LOGAN SPEAR GRAPPLE	Logan Part No.	205-003 *	F3034	F3034	F3034	F3034	205-003 *	205-003 *
	Bowen No.	17248	17248	17248	17248	17248	17248	17248
ACTUAL CATCHING RANGE:								
MINIMUM ID		11.206	10.581	10.832	10.612	10.675	11.643	11.674
NOMINAL CATCH SIZE		11.369	10.743	10.994	10.774	10.837	11.805	11.837
MAXIMUM ID		11.531	10.906	11.157	10.937	11.000	11.968	12.000
OLD NOMINAL SIZE (INCHES)		11.5 ID	11-3/4 OD 54.0 to 65.0# Csg	11-3/4 OD 38.0 to 54.0# Csg	11-3/4 OD 60.0# Csg	11-3/4 OD 47.0 to 60.0# Csg	13-3/8 OD 11.937 ID Csg	13-3/8 OD 96.0#, 11.975 ID Csg

LOGAN SPEAR GRAPPLE	Logan Part No.	205-002 *	205-002 *	205-002 *	205-002 *	205-002 *	205-002 *	205-002 *
	Bowen No.	9283	9283	9283	9283	9283	9283	9283
LOGAN SPEAR GRAPPLE	Logan Part No.	205-003 *	205-003 *	205-003 *	205-003 *	205-003 *	205-003 *	205-003 *
	Bowen No.	17248	17248	17248	17248	17248	17248	17248
ACTUAL CATCHING RANGE:								
MINIMUM ID		12.022	12.393	12.455	13.143	13.312	13.330	15.112
NOMINAL CATCH SIZE		12.184	12.555	12.617	13.305	13.474	13.492	15.274
MAXIMUM ID		12.347	12.718	12.780	13.468	13.637	13.655	15.437
OLD NOMINAL SIZE (INCHES)		13-3/8 OD 72.0 to 85.0# Csg	13-3/8 OD 48.0 to 68.0# Csg	12-3/4 OD 12-3/4 ID	14 OD 42.0 to 57.0# Csg	13.599 to 13.609 ID	13-5/8 ID	16 OD 55.0 to 75.0# Csg

LOGAN SPEAR GRAPPLE	Logan Part No.	205-002 *	205-002 *	205-002 *	205-002 *			
	Bowen No.	9283	9283	9283	9283			
LOGAN SPEAR GRAPPLE	Logan Part No.	205-003 *	205-003 *	205-003 *	205-003 *			
	Bowen No.	17248	17248	17248	17248			
ACTUAL CATCHING RANGE:								
MINIMUM ID		14.925	17.331	18.862	17.487			
NOMINAL CATCH SIZE		15.087	17.493	19.024	17.650			
MAXIMUM ID		15.250	17.656	19.187	17.812			
OLD NOMINAL SIZE (INCHES)		16 OD 65.0 to 84.0# Csg	17-1/2 ID	20 OD 90.0 to 106.5# Csg	18-5/8 OD 87.5# Csg			

Note: Grapples are stenciled with nominal catch size

** Segmented grapples.*

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

RELEASING SPEAR PACK-OFF ASSEMBLIES

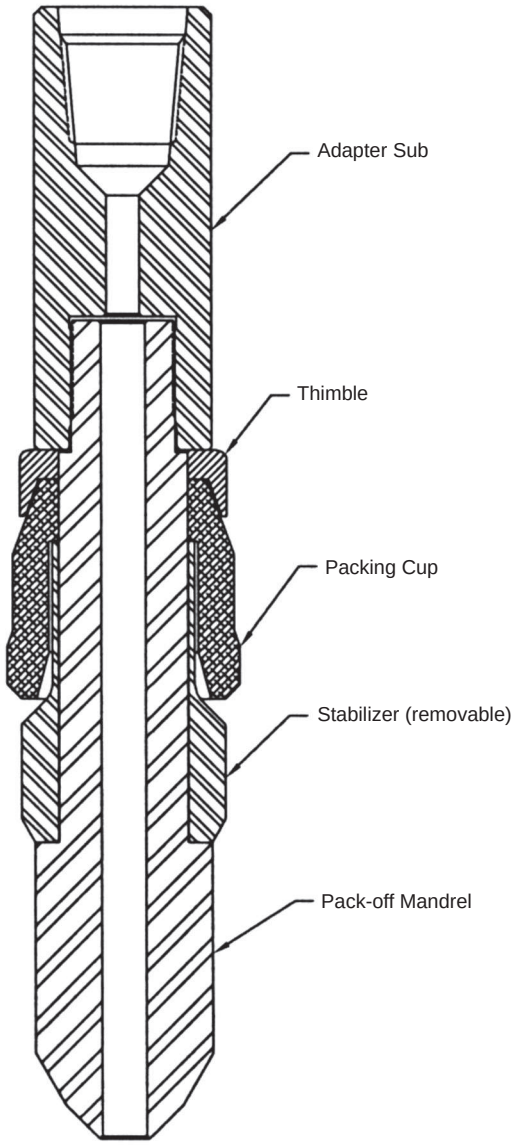
Overview

Pack-off Assemblies are available for all Logan Spear Assemblies and are designed to efficiently pack-off all sizes of tubing and casing. Circulation through the fish is enabled by attaching the Spear Pack-off Assembly to the bottom of the spear with a sub type nut.

The standard bottom nut is a bullnose nut. Optional nut types — sub, mill, and sidehill — are available.

When ordering, please specify:

(1) Name and part number of assembly or part
(2) Size and type of top connection
(3) Size and weight of pipe to be run in



RELEASING SPEAR PACK-OFF ASSEMBLIES

CASING SIZE TO PACK-OFF		1-1/2 Tbg	2-3/8 Tbg	2-7/8 Tbg	3-1/2 Tbg	4 Tbg	4-1/2 Tbg	5 Csg
OD ADAPTER SUB (INCHES)		1-1/4	1-13/16	1-13/16	2-1/2	3-1/4	3-1/2	4
OD INTEGRAL NUT (INCHES)		1	1-3/4	2	2	2-1/2	3-1/4	3-1/8
PACK-OFF ASSEMBLY	Logan Part No.	400-036	400-037	400-038	400-039	400-040	400-041	400-042
MANDREL	Logan Part No.	F6000	F6001	F6002	F6003	F6004	F6005	F6006
ADAPTER SUB	Logan Part No.	F7000	F7001	F7002	F7003	F7004	F7005	F7006
	Std. Length	6	8	8	8	8	9	10
PACKING CUP	Logan Part No.	F8000	F8001	F8002	F8003	F8004	F8005	F8006
THIMBLE	Logan Part No.	F9000	F9001	F9002	F9003	F9004	F9005	F9006
STABILIZER	Logan Part No.	F10000	F10001	F10002	F10003	F10004	F10005	F10006
CAN BE DRESSED TO PACK-OFF		…	…	3-1/2 DP	4 Tbg	…	4-1/2 Csg & 4-3/4 Csg	…

CASING SIZE TO PACK-OFF		5-1/2 Csg	6 Csg	6-5/8 Csg	8 Csg	9-5/8 Csg	10-3/4 Csg	11-3/4 Csg
OD ADAPTER SUB (INCHES)		4	4-3/4	4-3/4	6-1/8	6-3/8	8	8
OD INTEGRAL NUT (INCHES)		4	4-1/2	4-3/4	6-3/8	6-3/8	8	8
PACK-OFF ASSEMBLY	Logan Part No.	400-043	400-044	400-045	400-046	400-047	400-048	400-055
MANDREL	Logan Part No.	F6007	F6008	F6009	F6011	F6011	F6013	F6013
ADAPTER SUB	Logan Part No.	F7006	F7007	F7007	F7009	F7009	F7009	F7009
	Std. Length	10	12	12	12	12	12	12
PACKING CUP	Logan Part No.	F8007	F8008	F8009	F8010	F8011	F8012	F80125
THIMBLE	Logan Part No.	F9007	F9008	F9009	F9010	F9011	F9012	F90125
STABILIZER	Logan Part No.	F10007	F10008	F10009	F10011	F10011	F10012	F100125
CAN BE DRESSED TO PACK-OFF		5-3/4 Csg	…	7 & 7-5/8 Csg	8-5/8 Csg 9 Csg	…	…	…

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

When ordering, please specify:

(1) Name and part number of assembly or part
(2) Size and type of top connection
(3) Size and weight of pipe to be run in

Recommended Spare Parts:

(1) 2 Packers for each size
(2) 1 Thimble for each size

RELEASING SPEAR PACK-OFF ASSEMBLIES

CASING SIZE TO PACK-OFF		13-3/8 Csg	16 Csg
OD ADAPTER SUB (INCHES)		8	8
OD INTEGRAL NUT (INCHES)		8	8
PACK-OFF ASSEMBLY	Logan Part No.	400-049	400-066
MANDREL	Logan Part No.	F6013	F6013
ADAPTER SUB	Logan Part No.	F7009	F7009
	Std. Length	12	12
PACKING CUP	Logan Part No.	F8013	F8014
THIMBLE	Logan Part No.	F9013	*not req'd*
STABILIZER	Logan Part No.	F10013	F10014
CAN BE DRESSED TO PACK-OFF		13-5/8 Csg	…

CASING SIZE TO PACK-OFF		18-5/8 Csg	20 Csg
OD ADAPTER SUB (INCHES)		8	8
OD INTEGRAL NUT (INCHES)		8	8
PACK-OFF ASSEMBLY	Logan Part No.	400-067	400-068
MANDREL	Logan Part No.	F6013	F6013
ADAPTER SUB	Logan Part No.	F7009	F7009
	Std. Length	12	12
PACKING CUP	Logan Part No.	F8015	F8016
THIMBLE	Logan Part No.	*not req'd*	*not req'd*
STABILIZER	Logan Part No.	F10015	F10016
CAN BE DRESSED TO PACK-OFF		...	...

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

When ordering, please specify:

(1) Name and part number of assembly or part
(2) Size and type of top connection
(3) Size and weight of pipe to be run in

Recommended Spare Parts:

(1) 2 Packers for each size
(2) 1 Thimble for each size

RELEASING SPEAR STOP SUB ASSEMBLIES

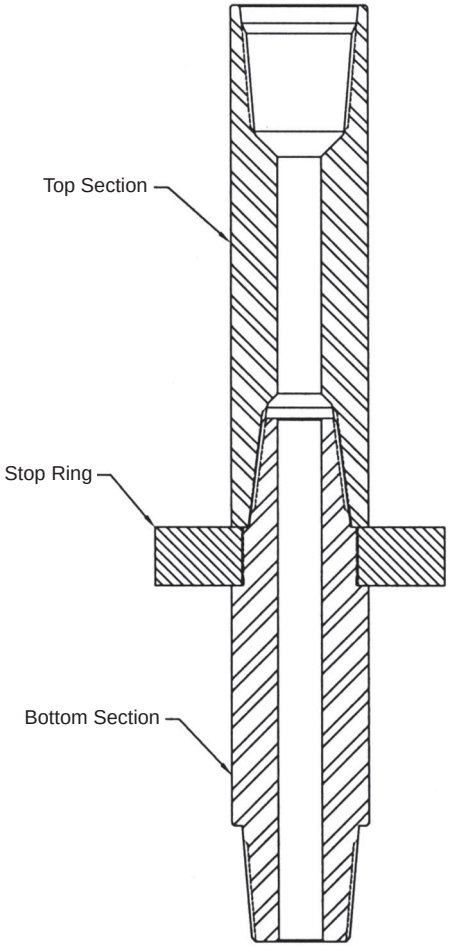
Overview

The Logan Releasing Spear Stop Sub Assembly is an accessory designed to convert a releasing spear with a flush-type mandrel into a shouldered type spear. It is installed in the box connection at the top of the mandrel when the use of a positive stop is desired or required.

A stop ring can be added to increase shoulder diameter. All stop rings are furnished with left-hand threads.

When ordering, please specify:

(1) O.D. of Stop Subs
(2) Length from stop to threaded connection
(3) Top and bottom connection desired
(4) Assembly number of spear on which the stop sub will be run
(5) O.D. of Stop Ring



STANDARD STOP SUB & FLUSH MANDREL OD		2-5/16	3-1/8	3-1/2	3-5/8	4-1/32	5
STOP SUB ASSEMBLY	Logan Part No.	400-071	400-064	400-063	400-050	400-051	400-052
STOP SUB (2 PCS. REQ'D)							
UPPER SECTION 18" LENGTH	Logan Part No.	F11009-A	F110002-A	F110005-A	F11000-A	F11001-A	F11002-A
LOWER SECTION 12" LENGTH	Logan Part No.	F11009-B	F110002-B	F110005-B	F11000-B	F11001-B	F11002-B
STOP RING	Logan Part No.	F12009	F120002	F120005	F12000	F12001	F12002
	Minimum O.D.	…	4-1/8	4-1/8	4-1/2	5	6

STANDARD STOP SUB & FLUSH MANDREL O.D.		5-3/4	7-1/4	7-3/4	8-1/4	11-3/4
STOP SUB ASSEMBLY	Logan Part No.	400-053	400-054	400-062	400-065	400-056
STOP SUB (2 PCS. REQ'D)						
UPPER SECTION 18" LENGTH	Logan Part No.	F11003-A	F11004-A	F11005-A	F11015-A	F11006-A
LOWER SECTION 12" LENGTH	Logan Part No.	F11003-B	F11004-B	F11005-B	F11015-B	F11006-B
STOP RING	Logan Part No.	F12003	F12004	F12005	F12015	F12006
	Minimum O.D.	7	8-5/8	9-5/8	9-5/8	13-3/8

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

PACKER RETRIEVER SPEARS

Overview

The Logan Packer Retriever Spear is designed to remove drillable full-bore packers from the well casing. With appropriate dressing, the tool can mill through the packer if necessary. It will remain in the proper catching position at all times once it is through the packer to engage the lower end of the packer, thereby enabling a one-trip milling and recovery operation. The tool can be released and reengaged, and also may be run with a jarring assembly.

Construction

The Logan Packer Retriever Spear consists of only three parts: a top coupling, mandrel, and a slip. An optional bull plug that can be dressed with tungsten carbide is available.

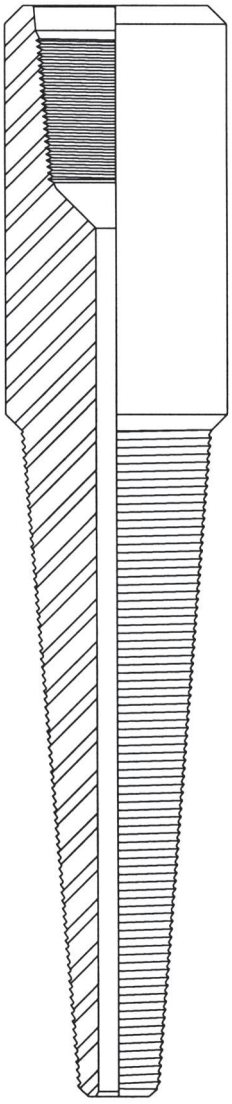
Operation

The Logan Packer Retriever Spear is installed at the lower end of the milling assembly. Sufficient extension joints allow the Packer Retriever Spear to clear the lower end of the packer bore before the dressed shoe or mill makes contact with the outside of the packer. As the Packer Retriever Spear enters the packer bore, the retrieving slip is forced up into position to allow passage through the packer bore. The slip automatically drops into the catch position as it clears the lower end of the packer. The milling operation may now be performed and the packer retrieved.

The Packer Retriever Spear remains in catch position at all times. It will not prematurely release due to sudden movement of the packer and can withstand severe upward strain. If necessary, the tool can be released with right-hand rotation and lowering of the fishing string after the slip has been pulled into friction contact with the packer.

When ordering, please specify:

(1) Complete assembly or part number
(2) O.D. of assembly
(3) Size and type of connection



TAPER TAPS

Overview

Logan Rotary Taper Taps are the simplest, and the most economical, internal catch fishing tools designed for retrieving a fish from the hole. They are available in an assortment of sizes, lengths, and connections, or can be custom-made to customer specifications.

Construction

The Taper Tap is manufactured in one piece from high grade alloy and specially heat treated for strength. Taper Taps are available in two types: plain and skirt type.

Plain Type

Plain type taper taps are not threaded on the outside diameter shoulder.

Skirt Type

Skirt type taper taps are designed to guide the fish for proper engagement and retrieval. The outside diameter shoulder is threaded for a skirt. Skirts can be furnished with a plain, lipped, or threaded end. Threaded end skirts must be used with oversized guides. Thread protectors are provided with skirt type taper taps and threaded end skirts.

Wickers

All Logan Rotary Taper Taps are manufactured with hardened wickers (cutting teeth) that provide an excellent grip for light-duty pickup jobs and ensure positive, reliable engagement of the fish.

Standard wickers are a non-fluted, plain watertight design to provide circulation below the stuck point. Fluted type wickers are available upon request. They are designed to provide circulation to flush out cuttings during fish engagement. All Logan Rotary Taper Taps are designed with a circulation hole drilled through the center.

Right-hand wickers for right-hand rotation engagement are standard on Logan Rotary Taper Taps. Left-hand wickers are available upon request. There is no extra charge for left-hand wickers.

Operation

Engaging the Fish

The Logan Rotary Taper Tap is attached to the fishing string and lowered into the hole to the top of the fish. Apply weight of less than one point and rotate the tap until the tapered threads have engaged the fish. Excessive weight and rotation could damage the wickers. When securely engaged, stop rotation and lift the fish from the hole.

How to Order

When ordering, please specify:

(1) Assembly number
(2) Size of fish to be caught
(3) Size and type of top connection
(4) Fluted or non-fluted wickers
(5) Threaded for skirt with skirt thread protector

TAPER TAPS

COMPLETE ASSEMBLY	Logan Part No.	203-150	203-175	203-181	203-190	203-231	203-238	203-306
NOMINAL SIZE		5/8 SR	3/4 SR	1-13/16 FJ	1 EUE	7/8 SR	1-1/4 EUE	2-3/8 EUE
O.D.		1-1/2	1-3/4	1-13/16	1.9	2-5/16	2-3/8	3-1/16
TO CATCH		1/2 to 1 ID	5/8 to 1-1/4 ID	3/4 to 1-3/8 ID	1 Pipe	7/8 to 1-1/2 ID	1-1/4 Pipe	2-3/8 OD CPL
DIAMETER OF SMALLEST WICKER		3/8	1/2	5/8	3/4	3/4	7/8	1-5/8
DIAMETER OF LARGEST WICKER		1-1/4	1-1/2	1-5/8	1-3/4	1-3/4	1-7/8	2-5/8
LENGTH OF TAPER	Inches	14	16	16	16	16	16	16

COMPLETE ASSEMBLY	Logan Part No.	203-313	203-338	203-363	203-375	203-413	203-425	203-463
NOMINAL SIZE		2-3/8 Reg	2-3/8 IF	2-3/8 Reg	2-7/8 Reg	2-7/8 IF	3-1/2 Reg	3-1/2 FH
O.D.		3-1/8	3-3/8	3-5/8	3-3/4	4-1/8	4-1/4	4-3/8
TO CATCH		2-3/8 Reg	2-3/8 IF HYD	2-3/8 Reg	2-7/8 Reg	2-7/8 Pipe API	3-1/2 Reg	3-1/2 Pipe API FH
DIAMETER OF SMALLEST WICKER		5/8	1-3/8	1-1/2	7/8	1-3/4	1	1-5/8
DIAMETER OF LARGEST WICKER		1-5/8	2-3/8	3	1-7/8	2-3/4	2-1/2	3-1/8
LENGTH OF TAPER	Inches	16	16	24	16	16	24	24

COMPLETE ASSEMBLY	Logan Part No.	203-463	203-475	203-500	203-525	203-550	203-575	203-600
NOMINAL SIZE		3-1/2 FH	3-1/2 IF	4-1/2 REED DS	4 FH	4-1/2 Reg	4-1/2 FH	4-1/2 XH
O.D.		4-5/8	4-3/4	5	5 1/4	5 1/2	5 3/4	6
TO CATCH		3-1/2 Pipe API FH	3-1/2 IF 3-1/2 Pipe	4-1/2 REED DS	4 FH	4-1/2 Reg	4 IF 4 Pipe 4-1/2 FH 4-1/2 Pipe	4-1/2 XH
DIAMETER OF SMALLEST WICKER		1-5/8	2-3/16	2-5/16	2-5/16	1-3/4	2-5/8	2-7/8
DIAMETER OF LARGEST WICKER		3-1/8	3-11/16	3-13/16	3-15/16	3-3/8	4-1/4	4-1/2
LENGTH OF TAPER	Inches	24	24	24	26	26	26	26

COMPLETE ASSEMBLY	Logan Part No.	203-613	203-675	203-700	203-738	203-775	203-800	
NOMINAL SIZE		4-1/2 IF	5-1/2 Reg	5-1/2 FH	5-1/2 IF	6-5/8 Reg	6-5/8 Reg	
O.D.		6-1/8	6-3/4	7	7-3/8	7-3/4	8	
TO CATCH		4-1/2 IF 4-1/2 PIPE	5-1/2 or 5-9/16 Reg	5-1/2 or 5-9/16 FH Pipe	5-1/2 or 5-9/16 IF Pipe	6-5/8 Reg	6-5/8 FH IF Pipe	
DIAMETER OF SMALLEST WICKER		3-1/4	2-1/4	3-5/8	4-1/4	3	4-5/8	
DIAMETER OF LARGEST WICKER		4-3/4	4	5-3/8	6	4-3/4	6-3/8	
LENGTH OF TAPER	Inches	24	28	28	28	28	28	

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

Note: No extra charge for Left-Hand Taper Taps.

When ordering, please specify:

(1) Assembly number
(2) Size of fish to be caught
(3) Size and type of top connection
(4) Fluted or non-fluted wickers
(5) Threaded for skirt with skirt thread protector

CORE TYPE JUNK BASKETS

Overview
The Logan Core Type Junk Basket is an easy to use junk retrieval tool designed to effectively remove small objects such as bit cones, slips, hand tools, and tail chains from the hole.

Construction
The Logan Core Type Junk Basket consists of a top sub, barrel, type A mill shoe, and an upper and lower catcher. The short fingers of the upper 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 catcher are designed to trap and retrieve the core and junk. Both catchers are free-revolving within the mill shoe, eliminating any breakage of the catcher fingers.

For component breakdown of the junk catcher assemblies, refer to the Junk Catcher Assemblies tables on pages 112 – 121.

Optional Accessories
Mill shoes for all Core Type Junk Baskets are available in three types: A, B, and C.

Type A Mill Shoe
Conventional hard metal with side wings.

Type B Mill Shoe
Dressed with sintered tungsten carbide.

Type C Mill Shoe
Flat bottomed and dressed with sintered tungsten carbide.

Magnet Inserts
Core Type Junk Baskets can easily be con-verted to an effective fishing magnet by replacing the upper and lower junk catcher assemblies with a magnet insert.

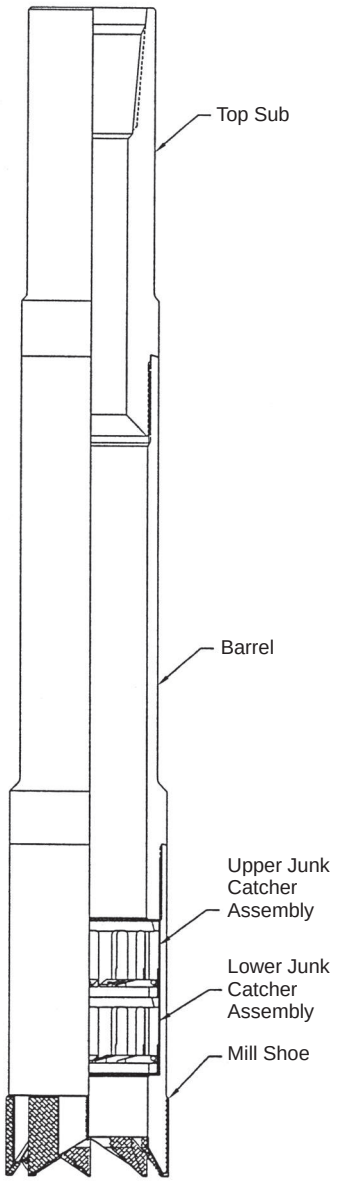
Finger Shoe
A Finger Shoe may be installed on the bottom of the barrel instead of a mill shoe when junk is lying loose on the bottom of the well or it is too large to pass through the catchers. After the junk basket has engaged the fish, the continued combination of rotating and lowering cause the long fingers of the finger shoe to close beneath the fish and retain it in the barrel.

Operation
The Logan Core Type Junk Basket is made up to the bottom of the fishing string and lowered to a point within several feet from the bottom of the hole. The coring action created by combination of fluid circulation and slow rotation of the tool while lowering will cut a 24-inch core. Upward strain on the string will allow the fingers of the upper catcher to break the core. The fingers of the lower catcher will trap the core and other junk for removal from the hole.

How to Order

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 Upper Catchers
(2) 2 Lower Catchers
(3) 2 Mill Shoes
(4) 2 Finger Shoes
(5) 4 Finger Shoe Replacements



CORE TYPE JUNK BASKETS

HOLE SIZE		3-3/4 to 4-1/8	4-1/4 to 4-1/2	4-5/8 to 5	4-5/8 to 5	5-1/8 to 5-1/2	5-5/8 to 6	5-5/8 to 6
BARREL O.D.		3-5/8	3-3/4	3-7/8	3-7/8	4-1/4	5-1/8	4-3/4
SHOE O.D.		3-5/8	4-1/16	4-1/2	4-1/2	4-7/8	5-1/8	5-3/8
MAXIMUM DIAMETER OF FISH		2-23/32	2-31/32	3-9/32	3-3/8	3-23/32	3-25/32	4-1/16
COMPLETE ASSEMBLY	Logan Part No.	301-363	301-375	301-388	301-387	301-425	301-512	301-475
	Bowen No.	14590	14586	14595	19375	14600	59993	14605
TOP SUB	Logan Part No.	E1000	E1001	E1002	E1002	E1003	D1004	E1004
	Bowen No.	14725	14726	14727	14727	14728	2619	14729
BARREL	Logan Part No.	E2000	E2001	E20015	E2002	E2003	E20035	E2004
	Bowen No.	14591	14587	14596	19376	14601	14746	14606
UPPER CATCHER	Logan Part No.	...	...	...	...	...	600-083	500-014
ASSEMBLY *(See Note 1)*	Bowen No.	...	...	...	...	...	14747-W	14607-W
LOWER CATCHER	Logan Part No.	500-023	500-024	500-050	500-025	500-026	500-026	500-027
ASSEMBLY *(See Note 1)*	Bowen No.	14593-W	14589-W	14598-W	19377-W	14603-W	14603-W	14608-W
TYPE A MILL SHOE	Logan Part No.	E5000-A	E5001-A	E50015	E5002-A	E5003-A	E50035-A	E5004-A
(Hard Faced Mill Teeth)	Bowen No.	14594-A	14574-A	14599-A	19378-A	14604-A	2625-A	14609-A\

OPTIONAL COMPONENTS

TYPE B MILL SHOE	Logan Part No.	E5000-B	E5001-B	E50015-B	E5002-B	E5003-B	E50035-B	E5004-B
(Tungsten Carbide	Bowen No.	14594-B	14574-B	14599-B	19378-B	14604-B	2625-B	14609-B
Mill Teeth)								
TYPE C MILL SHOE	Logan Part No.	E5000-C	E5001-C	E50015-C	E5002-C	E5003-C	E50035-C	E5004-C
(Tungsten Carbide	Bowen No.	14594-C	14574-C	14599-C	19378-C	14604-C	2625-C	14609-C
Faced)								
FINGER SHOE	Logan Part No.	E3000	E3001	E3002	E3002	E3003	...	E3004
	Bowen No.	22205	22206	22207	22207	22208	...	22209
	Max. Dia. of Fish	3-1/4	3-13/16	4-1/16	4-1/16	4-1/2	...	4-3/4
MAGNET INSERTS	Logan Part No.	500-036	500-037	500-038	500-038	500-039	...	500-040
	Bowen No.	61842	61838	61858	61858	60852	...	61862
ADAPTER	Logan Part No.	E4000	E4001	E4002	E4002	E4003	...	E4004
	Bowen No.	M-61843	M-61839	M-61859	M-61859	M-61853	...	M-61863
MAGNETIC ASSEMBLY	Logan Part No.	600-069	600-069	600-070	600-070	600-070	...	600-071
	Bowen No.	61812	61812	61814	61814	61814	...	61816

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

Special Notes:
(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.

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 Upper Catchers
(2) 2 Lower Catchers
(3) 2 Mill Shoes
(4) 2 Finger Shoes
(5) 4 Finger Shoe Replacements

CORE TYPE JUNK BASKETS

HOLE SIZE		6-1/8 to 6-1/2	6-1/8 to 6-1/2	6-1/8 to 6-1/2	6-5/8 to 7	7-1/4 to 8	8-1/4 to 9	9-1/4 to 10-1/8
BARREL O.D.		5-3/4	5-1/8	5-1/4	5-3/4	6-1/2	7-1/2	8-1/2
SHOE O.D.		5-3/4	5-7/8	5-7/8	6-1/4	7-1/8	8-1/8	9-1/8
MAXIMUM DIAMETER OF FISH		4-13/32	4-5/16	4-1/2	4-13/16	5-7/16	6-3/16	7-3/16
COMPLETE ASSEMBLY	Logan Part No.	301-576	301-513	301-525	301-575	301-650	301-750	301-850
	Bowen No.	59996	14610	19379	14615	14620	14625	14630
TOP SUB	Logan Part No.	E10045	E10047	E1005	E1006	E1007	E1008	E1009
	Bowen No.	59997	14730	19380	14731	14732	14733	14734
BARREL	Logan Part No.	E20045	E20047	E2005	E2006	E2007	E2008	E2009
	Bowen No.	15134	14611	19381	14616	14621	14626	14631
UPPER CATCHER	Logan Part No.	500-051	600-065	500-015	500-016	500-017	500-018	14000-013
ASSEMBLY *(See Note 1)*	Bowen No.	15130-W	14612-W	19382-W	14617-W	14622-W	14627-W	14632-W
LOWER CATCHER	Logan Part No.	600-020	600-066	500-028	500-029	500-030	500-031	600-024
ASSEMBLY *(See Note 1)*	Bowen No.	28349-W	14613-W	19383-W	14618-W	14623-W	14628-W	14633-W
TYPE A MILL SHOE	Logan Part No.	E50045-A	E50047-A	E5005-A	E5006-A	E5007-A	E5008-A	E5009-A
(Hard Faced Mill Teeth)	Bowen No.	2676-A	14614-A	19384-A	14619-A	14624-A	14629-A	14634-A

OPTIONAL COMPONENTS

TYPE B MILL SHOE	Logan Part No.	E50045-B	E50047-B	E5005-B	E5006-B	E5007-B	E5008-B	E5009-B
(Tungsten Carbide Mill Teeth)	Bowen No.	2676-B	14614-B	19384-B	14619-B	14624-B	14629-B	14634-B
TYPE C MILL SHOE	Logan Part No.	E50045-C	E50047-C	E5005-C	E5006-C	E5007-C	E5008-C	E5009-C
(Tungsten Carbide Faced)	Bowen No.	2676-C	14614-C	19384-C	14619-C	14624-C	14629-C	14634-C
FINGER SHOE	Logan Part No.	E30045	…	E3005	E3006	E3007	E3008	E3009
	Bowen No.	22218	…	19406	22210	22211	22212	22213
	Max. Dia. of Fish	4-13/32	…	5-3/8	5-29/32	6-1/2	7-1/4	8-1/8
MAGNET INSERTS	Logan Part No.	500-055	500-053	500-041	500-042	500-043	500-044	500-045
(Complete Assembly)	Bowen No.	61866	62637	61868	61874	61949	61955	61959
ADAPTER	Logan Part No.	E4018	E4031	E4005	E4006	E4007	E4008	E4009
	Bowen No.	M-61867	62638	M-61869	M-61875	M-61950	M-61956	M-61960
MAGNETIC ASSEMBLY	Logan Part No.	600-071	600-071	600-071	600-072	600-072	600-079	600-075
	Bowen No.	61816	61816	61816	61818	61822	61824	61826

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

Special Notes:
(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.

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 Upper Catchers
(2) 2 Lower Catchers
(3) 2 Mill Shoes
(4) 2 Finger Shoes
(5) 4 Finger Shoe Replacements

CORE TYPE JUNK BASKETS

HOLE SIZE		10-1/4 to 11-5/8	11-3/4 to 12-1/2	12-5/8 to 15	15 to 20			
BARREL O.D.		9-3/8	10-3/8	11-3/8	13-3/4			
SHOE O.D.		10-1/8	11-1/4	12-1/4	14-1/2			
MAXIMUM DIAMETER OF FISH		8-1/16	9-1/16	10-1/16	12-1/16			
COMPLETE ASSEMBLY	Logan Part No.	301-938	301-1038	301-1138	301-1375			
	Bowen No.	14635	14640	14645	14650			
TOP SUB	Logan Part No.	E1010	E1011	E1012	E1013			
	Bowen No.	14735	14736	14737	14738			
BARREL	Logan Part No.	E2010	E2011	E2012	E2013			
	Bowen No.	14636	14641	14646	14651			
UPPER CATCHER ASSEMBLY *(See Note 1)*	Logan Part No.	500-054	500-020	500-021	500-022			
	Bowen No.	14637-W	14642-W	14647-W	14652-W			
LOWER CATCHER ASSEMBLY *(See Note 1)*	Logan Part No.	500-032	500-033	500-034	500-035			
	Bowen No.	14638-W	14643-W	14648-W	14653-W			
TYPE A MILL SHOE *(Hard Faced Mill Teeth)*	Logan Part No.	E5010-A	E5011-A	E5012-A	E5013-A			
	Bowen No.	14639-A	14644-A	14649-A	14654-A			

OPTIONAL COMPONENTS

TYPE B MILL SHOE *(Tungsten Carbide Mill Teeth)*	Logan Part No.	E5010-B	E5011-B	E5012-B	E5013-B			
	Bowen No.	14639-B	14644-B	14649-B	14654-B			
TYPE C MILL SHOE *(Tungsten Carbide Faced)*	Logan Part No.	E5010-C	E5011-C	E5012-C	E5013-C			
	Bowen No.	14639-C	14644-C	14649-C	14654-C			
FINGER SHOE	Logan Part No.	E3010	E3011	E3012	E3013			
	Bowen No.	22214	22215	22216	22217			
	Max. Dia. of Fish	9-15/16	11	11-7/8	15-1/4			
MAGNET INSERTS *(Complete Assembly)*	Logan Part No.	500-046	500-047	500-048	500-049			
	Bowen No.	61969	61977	61979	61987			
ADAPTER	Logan Part No.	E4010	E4011	E4012	E4013			
	Bowen No.	M-61970	M-61978	M-61980	M-61988			
MAGNETIC ASSEMBLY	Logan Part No.	600-076	600-077	600-077	600-078			
	Bowen No.	61828	61830	61830	61834			

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

Special Notes:
(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.

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 Upper Catchers
(2) 2 Lower Catchers
(3) 2 Mill Shoes
(4) 2 Finger Shoes
(5) 4 Finger Shoe Replacements

REVERSE CIRCULATION JUNK BASKETS

Overview

Utilizing the principal of reverse fluid circulation, the Logan Reverse Circulation Junk Basket has been designed to remove all types of small junk objects from the hole. The tool's drain feature eliminates pulling a wet string. Even when the tool is fitted with a magnet insert, reverse circulation is maintained.

Construction

The Logan Reverse Circulation Junk Basket consists of a lifting sub, top sub, barrel, type A mill shoe, and a single junk catcher. A lifting sub is provided for ease of handling and for storage of the steel drop ball. Assemblies with two junk catchers are available upon request.

For component breakdown of the junk catcher assemblies, refer to the Junk Catcher Assemblies tables on pages 114 – 123.

Optional Accessories

Mill shoes for all reverse circulation junk baskets are available in three types: A, B, and C.

Type A Mill Shoe
Conventional hard metal with side wings.

Type B Mill Shoe
Similar to the Type A design, but dressed with sintered tungsten carbide.

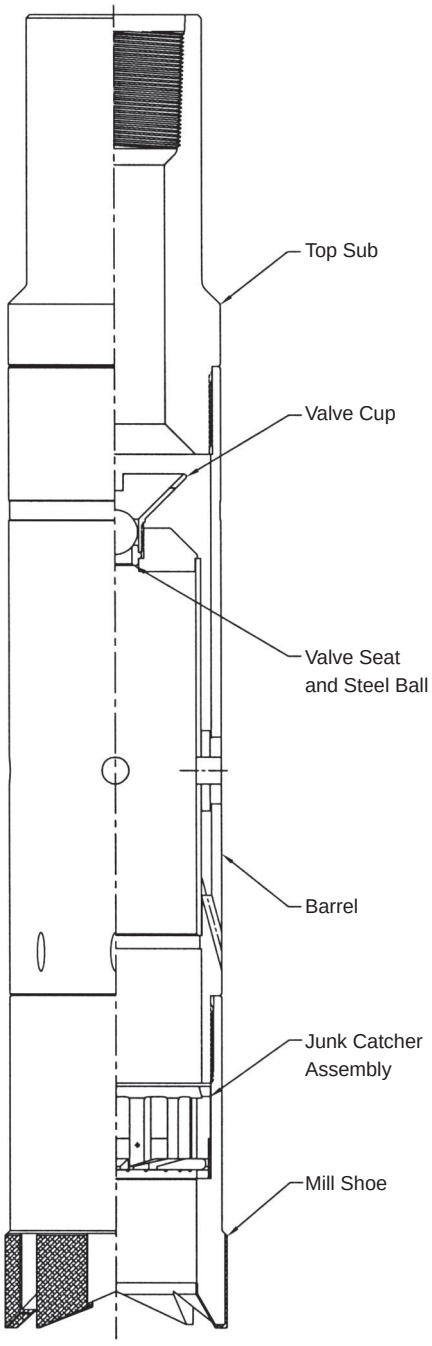
Type C Mill Shoe
Flat bottomed and dressed with sintered tungsten carbide.

Magnet Inserts
Reverse Circulation Junk Baskets can easily be converted to an effective fishing magnet by replacing the junk catcher assembly with a magnet insert.

Operation

The Logan Reverse Circulation Junk Basket is made up to the bottom of the fishing string and lowered to a point within several feet from the bottom of the hole. Begin circulation to wash the hole. Stop circulation and drop the steel ball. (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 carries the junk into the barrel above the junk catcher.)

Begin circulation again, slowly rotating while lowering the tool until a 10-inch core has been cut. Stop rotation and circulation and pull the tool from the hole.



REVERSE CIRCULATION JUNK BASKETS

HOLE SIZE		3-3/4 to 4	4-1/8 to 4-1/2	4-5/8 to 5	5-1/8 to 5-1/2	5-11/16 to 6	6-1/8 to 6-1/2	6-5/8 to 7-3/8
BARREL O.D.		3-5/8	4	4-1/2	4-7/8	5-1/8	5-3/4	6-1/4
MAXIMUM DIAMETER OF FISH		2-11/32	2-17/32	3-1/16	3-9/16	3-3/4	4-13/32	4-3/4
COMPLETE ASSEMBLY	Logan Part No.	302-363	302-400	302-450	302-487	302-513	302-575	302-625
	Bowen No.	6635	7295	4448	4572	2618	2670	2677
TOP SUB	Logan Part No.	D1000	D1001	D1002	D1003	D1004	D1005	D1006
	Bowen No.	6636	7296	4449	4573	2619	2671	2678
BARREL	Logan Part No.	D2000	D2001	D2002	D2003	D2004	D2005	D2006
	Bowen No.	6637	7297	4450	4574	2620	2672	2679
VALVE CUP	Logan Part No.	D3000	D3000	D3002	D3002	D3004	D3004	D3004
	Bowen No.	6638	6638	4451	4451	2621	2621	2621
STEEL BALL	Logan Part No.	D4000	D4000	D4002	D4002	D4004	D4004	D4004
	Bowen No.	6640	6640	4453	4453	2623	2623	2623
VALVE SEAT	Logan Part No.	D5000	D5000	D5002	D5002	D5004	D5004	D5004
	Bowen No.	6639	6639	4452	4452	2622	2622	2622
LIFTING SUB	Logan Part No.	D6000	D6000	D6002	D6002	D6004	D6004	D6006
	Bowen No.	4568	4568	424	424	425	425	1849
JUNK CATCHER	Logan Part No.	600-015	600-016	600-017	600-018	600-019	600-020	600-021
ASSEMBLY *(See Note 1)*	Bowen No.	21795W	21855W	21780W	21790W	21735W	28349W	21750W
TYPE A MILL SHOE	Logan Part No.	D8000-A	D8001-A	D8002-A	D8003-A	D8004-A	D8005-A	D8006-A
(Hard Faced Mill Teeth)	Bowen No.	6642A	7299A	4455A	4576A	2625A	2676A	2683A

OPTIONAL COMPONENTS

TYPE B MILL SHOE	Logan Part No.	D8000-B	D8001-B	D8002-B	D8003-B	D8004-B	D8005-B	D8006-B
(Tungsten Carbide Mill Teeth)	Bowen No.	6642B	7299B	4455B	4576B	2625B	2676B	2683B
TYPE C MILL SHOE	Logan Part No.	D8000-C	D8001-C	D8002-C	D8003-C	D8004-C	D8005-C	D8006-C
(Tungsten Carbide Faced)	Bowen No.	6642C	7299C	4455C	4576C	2625C	2676C	2683C
FINGER SHOES	Logan Part No.	600-100	600-101	600-102	600-103	600-104	600-105	600-106
(Complete Assembly)	Bowen No.	6643	7300	4456	4577	22208	22218	2739
	Max. Dia. of Fish	3-1/4	3-3/4	4-1/16	4 1/2	4-3/4	5-17/32	5-29/32
BODY	Logan Part No.	D7000	D7001	D7002	D7003	D7004	D7005	D7006
	Bowen No.	6643-2	7300-2	4456-2	4577-2	22208-2	22218-2	2739-2
REPLACEMENT	Logan Part No.	D10000	D10001	D10002	D10003	D10004	D10005	D10006
	Bowen No.	6643-1	7300-1	4456-1	4577-1	22208-1	22218-1	2739-1
MAGNET INSERTS	Logan Part No.	600-045	600-046	600-047	600-048	600-049	600-050	600-051
(Complete Assembly)	Bowen No.	61836	61848	61840	61850	61852	61866	61872
MAGNETIC ASSEMBLY	Logan Part No.	600-068	600-069	600-069	600-070	600-070	600-071	600-072
	Bowen No.	61810	61812	61812	61814	61814	61816	61818
ADAPTER	Logan Part No.	E4028	E4029	E4016	E4030	E4003	E4018	E4019
	Bowen No.	61837	61849	61841	61851	61853	61867	61873

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

Special Notes:

(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 replacements are 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 Upper Catchers
(2) 2 Lower Catchers
(3) 2 Mill Shoes
(4) 2 Finger Shoes
(5) 4 Finger Shoe Replacements

REVERSE CIRCULATION JUNK BASKETS

HOLE SIZE		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	11-3/4 to 12-1/2	12-5/8 to 13-5/8	13-3/4 to 16
BARREL O.D.		7	7-7/8	9-1/8	10-1/8	11	11-7/8	13
MAXIMUM DIAMETER OF FISH		5-3/16	6-1/16	7-1/16	7-11/16	8-5/16	8-11/16	9-7/8
COMPLETE ASSEMBLY	Logan Part No.	302-700	302-787	302-913	302-1013	302-1100	302-1187	302-1300
	Bowen No.	2554	2567	2659	2684	2690	2696	2702
TOP SUB	Logan Part No.	D1007	D1008	D1009	D1010	D1011	D1012	D1013
	Bowen No.	2493	2568	2660	2685	2691	2697	2703
BARREL	Logan Part No.	D2007	D2008	D2009	D2010	D2011	D2012	D2013
	Bowen No.	2555	2569	2661	2686	2692	2698	2704
VALVE CUP	Logan Part No.	D3007	D3007	D3009	D3009	D3009	D3009	D3009
	Bowen No.	2570	2570	2662	2662	2662	2662	2662
STEEL BALL	Logan Part No.	D4007	D4007	D4009	D4009	D4009	D4009	D4009
	Bowen No.	2572	2572	2665	2665	2665	2665	2665
VALVE SEAT	Logan Part No.	D5007	D5007	D5009	D5009	D5009	D5009	D5009
	Bowen No.	2571	2571	2663	2663	2663	2663	2663
LIFTING SUB	Logan Part No.	D6006	D6008	D6009	D6009	D6009	D6009	D6009
	Bowen No.	1849	426	427	427	427	427	427
JUNK CATCHER	Logan Part No.	600-022	600-023	600-024	500-019	600-026	600-027	600-028
ASSEMBLY *(See Note 1)*	Bowen No.	21725W	18725W	14633W	18945W	21760W	21840W	21770W
TYPE A MILL SHOE	Logan Part No.	D8007-A	D8008-A	D8009-A	D8010-A	D8011-A	D8012-A	D8013-A
(Hard faced Mill Teeth)	Bowen No.	2556A	2574A	2668A	2689A	2695A	2701A	2707A

OPTIONAL COMPONENTS

TYPE B MILL SHOE	Logan Part No.	D8007-B	D8008-B	D8009-B	D8010-B	D8011-B	D8012-B	D8013-B
(Tungsten Carbide	Bowen No.	2556B	2574B	2668B	2689B	2695B	2701B	2707B
Mill Teeth)								
TYPE C MILL SHOE	Logan Part No.	D8007-C	D8008-C	D8009-C	D8010-C	D8011-C	D8012-C	D8013-C
(Tungsten Carbide Faced)	Bowen No.	2556C	2574C	2668C	2689C	2695C	2701C	2707C
FINGER SHOES	Logan Part No.	600-107	600-108	600-109	600-110	600-111	600-112	600-113
(Complete Assembly)	Bowen No.	2740	2741	2742	2743	2744	2745	2746
	Max. Dia. of Fish	6-3/4	7-23/32	9	9-15/16	11	11-7/8	13
BODY	Logan Part No.	D7007	D7008	D7009	D7010	D7011	D7012	D7013
	Bowen No.	2740-2	2741-2	2742-2	2743-2	2744-2	2745-2	2746-2
REPLACEMENT	Logan Part No.	D10007	D10008	D10009	D10010	D10011	D10012	D10013
	Bowen No.	2740-1	2741-1	2742-1	2743-1	2744-1	2745-1	2746-1
MAGNET INSERTS	Logan Part No.	600-052	600-053	600-054	600-055	600-056	600-057	600-058
(Complete Assembly)	Bowen No.	61947	61953	61965	61963	61973	61975	61983
MAGNETIC ASSEMBLY	Logan Part No.	600-073	600-074	600-075	600-075	600-076	600-076	600-077
	Bowen No.	61820	61822	61826	61826	61828	61828	61830
ADAPTER	Logan Part No.	E4020	E4021	E4022	E4023	E4024	E4025	E4026
	Bowen No.	61948	61954	61966	61968	61974	61976	61982

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

Special Notes:

(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 replacements are 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 Upper Catchers
(2) 2 Lower Catchers
(3) 2 Mill Shoes
(4) 2 Finger Shoes
(5) 4 Finger Shoe Replacements

REVERSE CIRCULATION JUNK BASKETS

HOLE SIZE		16 to 17-1/2
BARREL O.D.		15
MAXIMUM DIAMETER OF FISH		11-1/8
COMPLETE ASSEMBLY	Logan Part No.	302-1500
	Bowen No.	2708
TOP SUB	Logan Part No.	D1014
	Bowen No.	2709
BARREL	Logan Part No.	D2014
	Bowen No.	2710
VALVE CUP	Logan Part No.	D3009
	Bowen No.	2662
STEEL BALL	Logan Part No.	D4009
	Bowen No.	2665
VALVE SEAT	Logan Part No.	D5009
	Bowen No.	2663
LIFTING SUB	Logan Part No.	D6009
	Bowen No.	427
JUNK CATCHER	Logan Part No.	600-029
ASSEMBLY *(See Note 1)*	Bowen No.	21775W
TYPE A MILL SHOE	Logan Part No.	D8014-A
(Hard faced Mill Teeth)	Bowen No.	2713A

OPTIONAL COMPONENTS

TYPE B MILL SHOE	Logan Part No.	D8014-B
(Tungsten Carbide Mill Teeth)	Bowen No.	2713B
TYPE C MILL SHOE	Logan Part No.	D8014-C
(Tungsten Carbide Faced)	Bowen No.	2713C
FINGER SHOES	Logan Part No.	600-114
(Complete Assembly)	Bowen No.	2747
	Max. Dia. of Fish	15-1/4
BODY	Logan Part No.	D7014
	Bowen No.	2747-2
REPLACEMENT	Logan Part No.	D10014
	Bowen No.	2747-1
MAGNET INSERTS	Logan Part No.	600-059
(Complete Assembly)	Bowen No.	61985
MAGNETIC ASSEMBLY	Logan Part No.	600-078
	Bowen No.	61832
ADAPTER	Logan Part No.	E4027
	Bowen No.	61986

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Special Notes:

(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 replacements are 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 Upper Catchers
(2) 2 Lower Catchers
(3) 2 Mill Shoes
(4) 2 Finger Shoes
(5) 4 Finger Shoe Replacements

FULL FLOW REVERSE CIRCULATION JUNK BASKETS

Overview

The Full Flow Reverse Circulation Junk Basket is similar to the Reverse Circulation Junk Basket. The unique difference is the Full Flow Valve Assembly that enables continuous circulation through the center thereby keeping out shale and debris while running in the hole. Premature reverse flow action caused by clogged valves is eliminated. The tool's drain feature eliminates pulling a wet string.

Construction

The Full Flow Reverse Circulation Junk Basket consists of a lifting sub, top sub, barrel, full flow valve assembly, filter, type A mill shoe, and an upper and lower catcher.

A lifting sub is provided for ease of handling and for storage of the steel drop ball. The short fingers of the upper 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 catcher are designed to trap and retrieve the core and junk. Both catchers are free-revolving within the mill shoe, eliminating any breakage of the catcher fingers.

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

For component breakdown of the junk catcher assemblies, refer to the Junk Catcher Assemblies tables on pages 115 – 123.

Optional Accessories

Mill shoes for all full flow reverse circulation junk baskets are available in three types: A, B, and C.

Type A Mill Shoe
Conventional hard metal with side wings.

Type B Mill Shoe
Similar to the Type A design, but dressed with sintered tungsten carbide.

Type C Mill Shoe
Flat bottomed and dressed with sintered tungsten carbide.

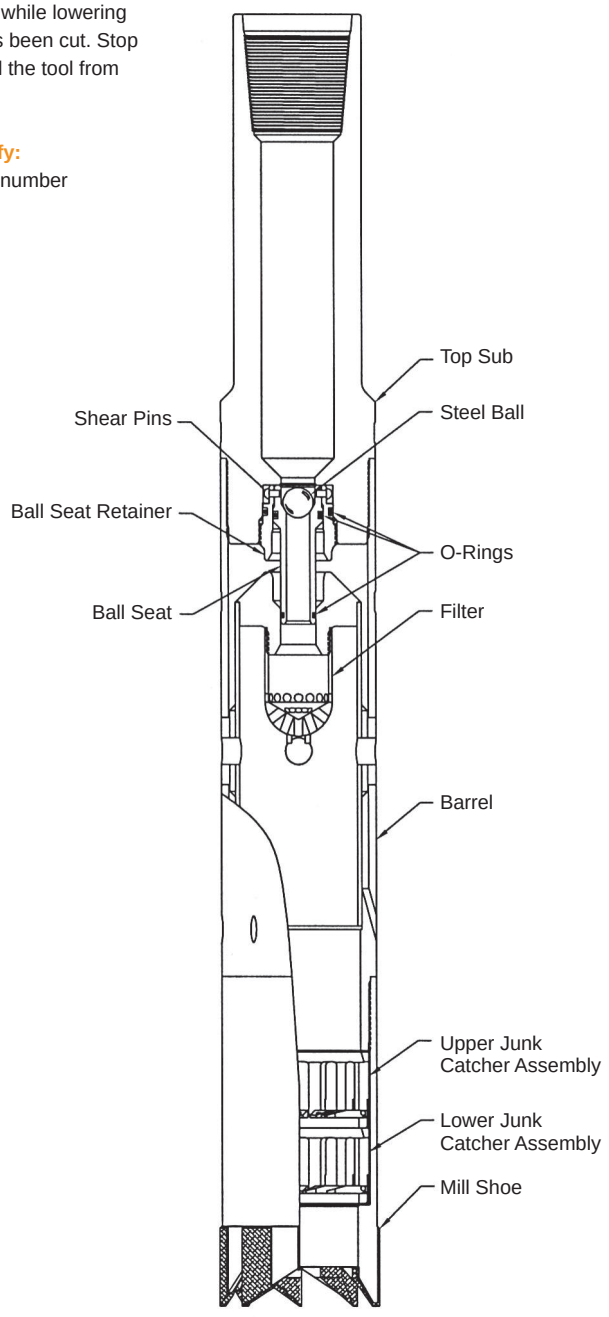
Magnet Inserts
Full Flow Reverse Circulation Junk Baskets can easily be converted to an effective fishing magnet by replacing both junk catcher assemblies with a magnet insert.

Operation

The Logan Full Flow Reverse Circulation Junk Basket is made up to the bottom of the fishing string and lowered to a point within several feet from the bottom of the hole. Begin circulation to wash the hole. Stop circulation and drop the steel ball. Begin circulation again to shear pins and actuate the valve assembly for reverse circulation. Begin slow rotation while lowering the tool until a 10-inch core has been cut. Stop rotation and circulation and pull the tool from the hole.

When ordering, please specify:

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



FULL FLOW REVERSE CIRCULATION JUNK BASKETS

HOLE SIZE		3-3/4 to 4	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
BARREL O.D.		3-5/8	4	4-1/2	5-3/4	7	7-7/8	9-1/8
MAXIMUM DIAMETER OF FISH		…	2-1/2	3-1/16	4-3/8	5-1/8	6-1/16	7-1/16
COMPLETE ASSEMBLY	Logan Part No.	304-363	304-400	304-450	304-575	304-700	304-788	304-913
	Bowen No.	154583	71226	70702	71127	70908	70923	71198
BALL SEAT	Logan Part No.	S1008	S1000	S1002	S1002	S1003	S1003	S1005
	Bowen No.	154601	70699	70851	70851	67354	67354	67168
SHEAR PIN	Logan Part No.	S2008	S2000	S2000	S2000	S2003	S2003	S2003
	Bowen No.	154602	70852	70852	70852	67175	67175	67175
	No. Req'd	4	4	4	4	4	4	4
UPPER JUNK CATCHER ASSEMBLY *(See Note 1)*	Logan Part No.	14000-016	14000-008	14000-009	500-051	14000-011	14000-012	14000-013
	Bowen No.	154611	22070-W	22075-W	15130-W	22050-W	21640-W	14632-W
LOWER JUNK CATCHER ASSEMBLY *(See Note 1)*	Logan Part No.	600-015	600-016	600-017	600-020	600-022	600-023	600-024
	Bowen No.	21795W	21855-W	21780-W	28349-W	21725-W	18725-W	14633-W
STEEL BALL	Logan Part No.	D4010	D4000	D4002	D4002	D4007	D4007	D4009
	Bowen No.	80295	6640	4453	4453	2572	2572	2665
TOP SUB	Logan Part No.	S4008	S4000	S4001	S4002	S4003	S4004	S4005
	Bowen No.	154598	71227	71104	71125	70935	70926	71202
BARREL	Logan Part No.	S5008	S5000	S5001	S5002	S5003	S5004	S5005
	Bowen No.	154599	71230	71116	71115	70911	70924	71203
BALL SEAT RETAINER	Logan Part No.	S6008	S6002	S6002	S6002	S6003	S6003	S6005
	Bowen No.	154600	70850	70850	70850	67353	67353	67167
FILTER	Logan Part No.	S7008	S7002	S7002	S7002	S7003	S7003	S7005
	Bowen No.	154603	80768	80768	80768	70731	70731	70764
RETAINER O-RING SEAL	Logan Part No.	568-225	568-331	568-331	568-331	568-243	568-243	568-248
	Bowen No.	568225	27-34	27-34	27-34	30-21	30-21	30-26
UPPER SEAT O-RING SEAL	Logan Part No.	568-118	568-325	568-325	568-325	568-231	568-231	568-235
	Bowen No.	568118	27-28	27-28	27-28	30-9	30-9	30-13
LOWER SEAT O-RING SEAL	Logan Part No.	568-118	568-215	568-215	568-215	568-224	568-224	568-229
	Bowen No.	568118	27-20	27-20	27-20	30-2	30-2	30-7
MILL SHOE A *(Hard Faced Mill Teeth)*	Logan Part No.	S3008-A	S3000-A	S3001-A	S3002-A	S3003-A	S3004-A	S3005-A
	Bowen No.	154612	71228	70909	71124	72070	72081	71199

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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

FULL FLOW REVERSE CIRCULATION JUNK BASKETS

HOLE SIZE		3-3/4 to 4	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
BARREL O.D.		3-5/8	4	4-1/2	5-3/4	7	7-7/8	9-1/8
MAXIMUM DIAMETER OF FISH		…	2-1/2	3-1/16	4-3/8	5-1/8	6-1/16	7-1/16
COMPLETE ASSEMBLY	Logan Part No.	304-363	304-400	304-450	304-575	304-700	304-788	304-913
	Bowen No.	154583	71226	70702	71127	70908	70923	71198

OPTIONAL COMPONENTS

MILL SHOE B	Logan Part No.	S3008-B	S3000-B	S3001-B	S3002-B	S3003-B	S3004-B	S3005-B
(Tungsten Carbide Mill Teeth)	Bowen No.	154612	71228	70909	71124	72070	72081	71199
MILL SHOE C	Logan Part No.	S3008-C	S3000-C	S3001-C	S3002-C	S3003-C	S3004-C	S3005-C
(Tungsten Carbide Faced)	Bowen No.	154612	71228	70909	71124	72070	72081	71199
LIFTING SUB	Logan Part No.	…	D6000	D6002	D6004	D6006	D6008	D6009
	Bowen No.	…	4568	424	425	1849	426	427
PIPE PLUG	Logan Part No.	…	S9000	S9000	S9001	S9002	S9003	S9003
	Bowen No.	…	61520	61520	61521	61522	61523	61523
T-WRENCH	Logan Part No.	…	S10000	S10000	S10000	S10001	S10001	S10002
	Bowen No.	…	72067	72067	72067	72069	72069	72068

FINGER SHOE

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

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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)

FULL FLOW REVERSE CIRCULATION JUNK BASKETS

HOLE SIZE		3-3/4 to 4	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
BARREL O.D.		3-5/8	4	4-1/2	5-3/4	7	7-7/8	9-1/8
MAXIMUM DIAMETER OF FISH		…	2-1/2	3-1/16	4-3/8	5-1/8	6-1/16	7-1/16
COMPLETE ASSEMBLY	Logan Part No.	304-363	304-400	304-450	304-575	304-700	304-788	304-913
	Bowen No.	154583	71226	70702	71127	70908	70923	71198

MAGNET INSERTS

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

REPAIR KITS

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

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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)

FULL FLOW REVERSE CIRCULATION JUNK BASKETS

HOLE SIZE		10-3/4 to 11-5/8	11- 3/4 to 12-1/2
BARREL O.D.		10-1/8	11
MAXIMUM DIAMETER OF FISH		7-11/16	8-5/16
COMPLETE ASSEMBLY	Logan Part No.	304-1013	304-1100
	Bowen No.	71218	70910
BALL SEAT	Logan Part No.	S1005	S1005
	Bowen No.	67168	67168
SHEAR PIN	Logan Part No.	S2003	S2003
	Bowen No.	67175	67175
	No. Req'd	4	4
UPPER JUNK CATCHER ASSEMBLY *(See Note 1)*	Logan Part No.	14000-014	14000-015
	Bowen No.	25235-W	31046-W
LOWER JUNK CATCHER ASSEMBLY *(See Note 1)*	Logan Part No.	500-019	600-026
	Bowen No.	18945-W	21760-W
STEEL BALL	Logan Part No.	D4009	D4009
	Bowen No.	2665	2665
TOP SUB	Logan Part No.	S4006	S4007
	Bowen No.	71219	70920
BARREL	Logan Part No.	S5006	S5007
	Bowen No.	71220	70921
BALL SEAT RETAINER	Logan Part No.	S6005	S6005
	Bowen No.	67167	67167
FILTER	Logan Part No.	S7005	S7005
	Bowen No.	70764	70764
RETAINER O-RING SEAL	Logan Part No.	568-248	568-248
	Bowen No.	30-26	30-26
UPPER SEAT O-RING SEAL	Logan Part No.	568-235	568-235
	Bowen No.	30-13	30-13
LOWER SEAT O-RING SEAL	Logan Part No.	568-229	568-229
	Bowen No.	30-7	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)

FULL FLOW REVERSE CIRCULATION JUNK BASKETS

HOLE SIZE		10-3/4 to 11-5/8	11- 3/4 to 12-1/2
BARREL O.D.		10-1/8	11
MAXIMUM DIAMETER OF FISH		7-11/16	8-5/16
COMPLETE ASSEMBLY	Logan Part No.	304-1013	304-1100
	Bowen No.	71218	70910
MILL SHOE A	Logan Part No.	S3006-A	S3007-A
(Hard Faced Mill Teeth)	Bowen No.	72080	72071
MILL SHOE B	Logan Part No.	S3006-B	S3007-B
(Tungsten Carbide Mill Teeth)	Bowen No.	72080	72071
MILL SHOE C	Logan Part No.	S3006-C	S3007-C
(Tungsten Carbide Faced)	Bowen No.	72080	72071
LIFTING SUB	Logan Part No.	D6009	D6009
	Bowen No.	427	427
PIPE PLUG	Logan Part No.	S9003	S9003
	Bowen No.	61523	61523
T-WRENCH	Logan Part No.	S10002	S10002
	Bowen No.	72068	72068

FINGER SHOE

COMPLETE ASSEMBLY	Logan Part No.	600-110	600-111
	Bowen No.	2743	2744
BODY	Logan Part No.	D7010	D7011
	Bowen No.	2743-2	2744-2
REPLACEMENT	Logan Part No.	D10010	D10011
	Bowen No.	2743-1	2744-1

MAGNET INSERTS

COMPLETE ASSEMBLY	Logan Part No.	600-055	600-056
	Bowen No.	61963	61973
ADAPTER	Logan Part No.	E4023	E4024
	Bowen No.	61968	61974
MAGNETIC ASSEMBLY	Logan Part No.	600-075	600-076
	Bowen No.	61826	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:
(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)

FULL FLOW REVERSE CIRCULATION JUNK BASKETS

HOLE SIZE		10-3/4 to 11-5/8	11- 3/4 to 12-1/2
BARREL O.D.		10-1/8	11
MAXIMUM DIAMETER OF FISH		7-11/16	8-5/16
COMPLETE ASSEMBLY	**Logan Part No.**	**304-1013**	**304-1100**
	Bowen No.	71218	70910

REPAIR KITS

UPPER CATCHER REPAIR KITS	**Logan Part No.**	**14000-14RK**	**14000-015RK**
	Bowen No.	25235-WK	31046-WK
LOWER CATCHER REPAIR KITS	**Logan Part No.**	**500-019RK**	**600-026RK**
	Bowen No.	18945-WK	21760-WK
VALVE REPAIR KIT	**Logan Part No.**	**14000-038**	**14000-039**
	Bowen No.	72059	72060

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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)

JUNK CATCHER ASSEMBLIES

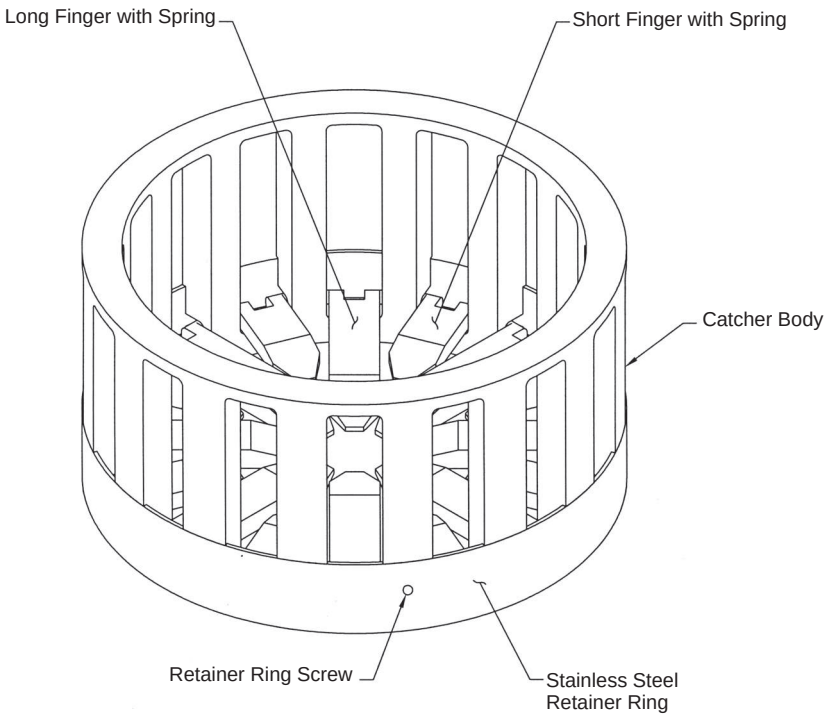
Overview
The alternately long and short fingers of the junk catcher assembly extend almost to the center of the basket to form a close-fitting receptacle that will retain small pieces of junk that may impede drilling progress or hold a core sample.

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



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.
A	E11006
B	E9005
C	E11005
D	—
E	E9001
F	E11000
G	E9013
H	E9004

Code	Part No.
I	E11003
J	E11014
K	E9014
L	E10003
M	E9010
N	E11010
O	—
P	—

Code	Part No.
P-1	E9007
P-2	E11008
W-1	E9012
W-2	E11013
W-3	E9002
W-4	E11001
X-1	E9019
X-2	E11020

Code	Part No.
21778-W	E9015
21779-W	E11016
362-W	E9006
363-W	E11007
690-W	E90015
691-W	E11015
666-W	E9009
667-W	E11011

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
(stainless steel)	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
(stainless steel)	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
(stainless steel)	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
** Indicates parts included in kit*	Bowen No.	21795K	21810K	14593K	22070K	21855K	14589K	22075K

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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.

Finger Code Chart

Code	Part No.
A	E11006
B	E9005
C	E11005
D	—
E	E9001
F	E11000
G	E9013
H	E9004

Code	Part No.
I	E11003
J	E11014
K	E9014
L	E10003
M	E9010
N	E11010
O	—
P	—

Code	Part No.
P-1	E9007
P-2	E11008
W-1	E9012
W-2	E11013
W-3	E9002
W-4	E11001
X-1	E9019
X-2	E11020

Code	Part No.
21778-W	E9015
21779-W	E11016
362-W	E9006
363-W	E11007
690-W	E90015
691-W	E11015
666-W	E9009
667-W	E11011

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
(stainless steel)	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
(stainless steel)	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
(stainless steel)	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
** Indicates parts included in kit*	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

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	Logan Part No.	E8003	E8003	D12015	E8004	E8004	D12004	D12004
(stainless steel)	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 *	Logan Part No.	E13000	E13000	E13009	E13000	E13000	E13000	E13000
(stainless steel)	Bowen No.	45520	45520	45571	45520	45520	45520	45520
	No. Req'd	10	10	12	12	12	12	12
RETAINER SCREW *	Logan Part No.	E14000	E14000	E14000	E14000	E14000	E14000	E14000
(stainless steel)	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
** Indicates parts included in kit*	Bowen No.	14747K	14603K	21820K	14607K	14608K	28349K	25250K

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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.
A	E11006
B	E9005
C	E11005
D	—
E	E9001
F	E11000
G	E9013
H	E9004

Code	Part No.
I	E11003
J	E11014
K	E9014
L	E10003
M	E9010
N	E11010
O	—
P	—

Code	Part No.
P-1	E9007
P-2	E11008
W-1	E9012
W-2	E11013
W-3	E9002
W-4	E11001
X-1	E9019
X-2	E11020

Code	Part No.
21778-W	E9015
21779-W	E11016
362-W	E9006
363-W	E11007
690-W	E90015
691-W	E11015
666-W	E9009
667-W	E11011

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
(stainless steel)	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
(stainless steel)	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
(stainless steel)	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
** Indicates parts included in kit*	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

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
(stainless steel)	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
(stainless steel)	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
(stainless steel)	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

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

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.
A	E11006
B	E9005
C	E11005
D	—
E	E9001
F	E11000
G	E9013
H	E9004

Code	Part No.
I	E11003
J	E11014
K	E9014
L	E10003
M	E9010
N	E11010
O	—
P	—

Code	Part No.
P-1	E9007
P-2	E11008
W-1	E9012
W-2	E11013
W-3	E9002
W-4	E11001
X-1	E9019
X-2	E11020

Code	Part No.
21778-W	E9015
21779-W	E11016
362-W	E9006
363-W	E11007
690-W	E90015
691-W	E11015
666-W	E9009
667-W	E11011

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
(stainless steel)	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
(stainless steel)	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
(stainless steel)	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
** Indicates parts included in kit*	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.

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

JUNK CATCHER ASSEMBLIES

INSIDE DIAMETER		7-1/16	7-3/16	7-3/16	7-11/16	7-13/16	7-13/16	8-1/16
OUTSIDE DIAMETER		7-7/8	8-1/8	8-1/8	9	9-1/32	9-1/32	9-5/16
LENGTH		4-5/16	4-5/16	4-5/16	4-5/8	2-5/16	4-5/8	5
COMPLETE ASSEMBLY	Logan Part No.	600-034	14000-013	600-024	600-025	14000-014	500-019	500-054
	Bowen No.	9800W	14632-W	14633W	21755W	25235-W	18945-W	14637-W
BODY	Logan Part No.	D11023	E7009	E7009	D11008	E7016	E7010	E7013
	Bowen No.	68396	45521	45521	68116	68388	45522	45523
FINGER RETAINER	Logan Part No.	D12021	D12008	D12008	D12009	E8010	E8010	E8013
(stainless steel)	Bowen No.	68397	45530	45530	68117	45531	45531	45532
SHORT FINGER *	Logan Part No.	E9010	E9007	E9007	E11014	E9016	E11014	E9010
	Bowen No.	45525	45588	45588	45507	68383	45507	45525
	Code	M	N	P-1	J	S	J	M
	No. Req'd	6	12	6	6	12	6	16
MEDIUM FINGER *	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	…	…	…	…	…	…
	Code	…	…	…	…	…	…	…
	No. Req'd	…	…	…	…	…	…	…
LONG FINGER *	Logan Part No.	E10003	…	E11008	E11018	…	E11018	…
	Bowen No.	45510	…	45589	70277	…	70277	…
	Code	L	…	P-2	J	…	J	…
	No. Req'd	6	…	6	6	…	6	…
PIVOT PIN *	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	…	…	…	…	…	…
	No. Req'd	…	…	…	…	…	…	…
TORSION SPRING *	Logan Part No.	E13002	E13002	E13002	E13004	E13004	E13004	E13004
(stainless steel)	Bowen No.	45549	45549	45549	45509	45509	45509	45509
	No. Req'd	12	12	12	12	12	12	16
RETAINER SCREW *	Logan Part No.	E14000	E14000	E14000	E14000	E14000	E14000	E14000
(stainless steel)	Bowen No.	42257	42257	42257	42257	42257	42257	42257
	No. Req'd	2	2	2	2	2	2	2
REPAIR KITS	Logan Part No.	600-034RK	14000-013RK	600-024RK	600-025RK	14000-014RK	500-019RK	500-054RK
** Indicates parts included in kit*	Bowen No.	9800K	14632K	14633K	21755K	25235K	18945K	154611K

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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.
A	E11006
B	E9005
C	E11005
D	—
E	E9001
F	E11000
G	E9013
H	E9004

Code	Part No.
I	E11003
J	E11014
K	E9014
L	E10003
M	E9010
N	E11010
O	—
P	—

Code	Part No.
P-1	E9007
P-2	E11008
W-1	E9012
W-2	E11013
W-3	E9002
W-4	E11001
X-1	E9019
X-2	E11020

Code	Part No.
21778-W	E9015
21779-W	E11016
362-W	E9006
363-W	E11007
690-W	E90015
691-W	E11015
666-W	E9009
667-W	E11011

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
(stainless steel)	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
(stainless steel)	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
(stainless steel)	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
** Indicates parts included in kit*	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.

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

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
(stainless steel)	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
(stainless steel)	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
(stainless steel)	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
** Indicates parts included in kit*	Bowen No.	1464K	14648K	21770K	21775K	14652K	14653K

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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.
A	E11006
B	E9005
C	E11005
D	—
E	E9001
F	E11000
G	E9013
H	E9004

Code	Part No.
I	E11003
J	E11014
K	E9014
L	E10003
M	E9010
N	E11010
O	—
P	—

Code	Part No.
P-1	E9007
P-2	E11008
W-1	E9012
W-2	E11013
W-3	E9002
W-4	E11001
X-1	E9019
X-2	E11020

Code	Part No.
21778-W	E9015
21779-W	E11016
362-W	E9006
363-W	E11007
690-W	E90015
691-W	E11015
666-W	E9009
667-W	E11011

FISHING MAGNETS AND MAGNET CHARGER

Overview

The Logan Fishing Magnet is designed to retrieve small metal, oddly-shaped objects such as milling shavings, bit cones, cutters, bearings, slips, tong pins, and hand tools from the bottom of the well bore. Typically, these objects are the result of bit failures, an accumulation of mill cuttings, or simply accidental droppings of unmillable objects. In almost all of these cases, the fish can not be engaged in the normal manner. Fishing magnets successfully remove these objects from the hole. The tool's design features generous circulation ports that wash away cuttings and other debris that might interfere with or prevent contact with the magnet. A variety of guides are available to accommodate any retrieval situation.

Construction

The Logan Fishing Magnet Assembly consists of a body, integral housing, integral pole plate, magnet element, and standard flush guide.

The body is manufactured from high strength alloy steel. It has a tool joint pin top connection and generous circulation ports.

The magnet element is the most efficient and powerful permanent magnet available. The magnet can be recharged if necessary.

The magnet body, housing, and pole plate are threaded and welded together during assembly with the magnet element in place.

The standard flush bottom guide is threaded and easily removed. Lipped guides and mill guides are also available.

Operation

Logan Fishing Magnets are usually run on tubing or drill pipe, but can be run on wireline. Wireline adapters are available.

The Logan Fishing Magnet is made up to the bottom of the fishing string and lowered into the hole to within six to twelve inches of the fish. Circulate to wash the fish. Reduce circulation and lower the fishing magnet to the fish. Slowly rotate to ensure positive contact. Discontinue circulation and lift the fishing magnet from the hole.

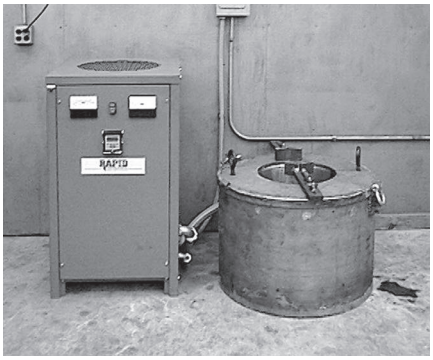
Optional Accessories

Guides

A flush guide is standard. Lipped guides and mill guides are also available. The lipped guide centralizes the fish to assure contact with the magnet. The mill guide enables milling of any soft formation or settling to free debris at the bottom of the hole.

Keepers

While magnets should not lose their strength during normal use, storing the magnet in the vicinity of an electric motor or bringing magnets too close to each other can adversely affect their charge. Keepers are recommended when storing magnets to reduce the attraction of miscellaneous metal objects or particles. A keeper is required for shipment via air freight.

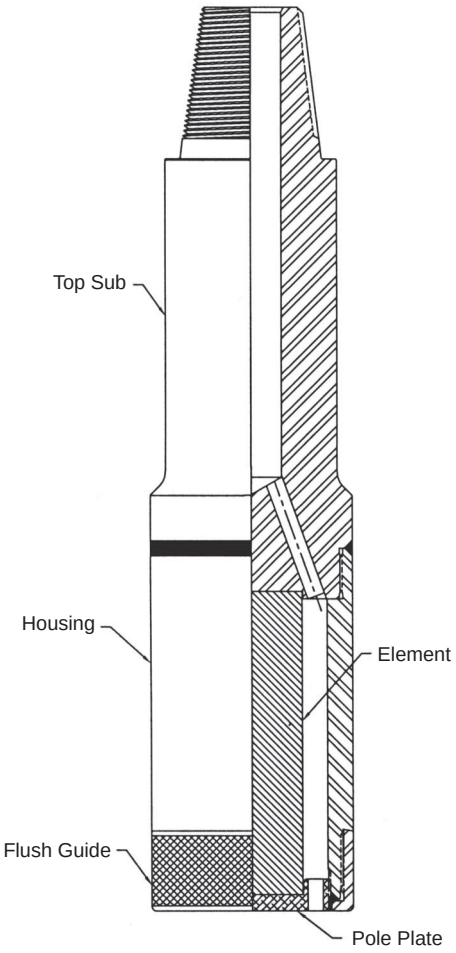


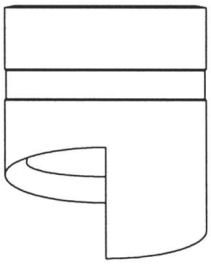
Magnet Chargers

Recharging is quick and easy with our state-of-the-art control console. There is no limit to the number of times a magnet can be recharged. Logan Magnet Chargers ensure maximum charging efficiencies with ease of operation and long-life durability.

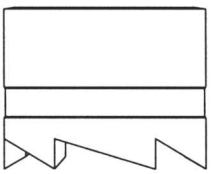
When ordering, please specify:

(1) Name and number of assembly
(2) Size – O.D.
(3) Top connection, if other than standard





Lipped Guide



Mill Guide

FISHING MAGNETS

HOLE SIZE		1-1/4 to 2	1-5/8 to 2-1/2	2 to 2-3/4	2-3/8 to 3-1/4	2-3/4 to 3-5/8	3 to 3-3/4	3-1/4 to 4-1/8
O.D. OF BODY		1	1-1/4	1-1/2	1-3/4	2-1/4	2-1/2	3
TOP CONNECTION		5/8-11 UNC	5/8 SR	5/8 SR	3/4 SR	3/4 SR	3/4 SR	2-3/8 Tbg
APPROXIMATE PULL IN LBS.		5 to 7	8 to 10	11 to 14	15 to 20	25 to 80	80 to 85	85 to 190
COMPLETE ASSEMBLY	Logan Part No.	306-100	306-125	306-150	306-175	306-225	306-250	306-300
	Bowen No.	32060	32080	32100	32120	32150	32170	32180
BODY	Logan Part No.	...	V1000	V1001	V1002	V1003	V1004	V1005
	Bowen No.	...	32081	32101	32121	32151	32171	32181
HOUSING	Logan Part No.	V20005	V2000	V2001	V2002	V2003	V2004	V2005
	Bowen No.	32062	32082	32102	32122	32152	32172	32182
POLE PLATE	Logan Part No.	V30005	V3000	V3001	V3002	V3003	V3004	V3005
	Bowen No.	32063	32083	32103	32123	32153	32173	32183
MAGNETIC ELEMENT	Logan Part No.	V4000	V4000	V4001	V4002	V4003	V4004	V4005
	Bowen No.	32064	32084	32104	32124	32154	32174	32184
FLUSH GUIDE	Logan Part No.	...	V6000	V6001	V6002	V6003	V6004	V6005
	Bowen No.	...	32085	32105	32125	32155	32175	32185
LIFTING CAP	Logan Part No.	...	...	...	...	...	...	...
	Connection	...	...	...	...	...	...	...

OPTIONAL COMPONENTS

CUT-LIPPED GUIDE	Logan Part No.	...	V6000	V6001	V6002	V6003	V6004	V6005
	Bowen No.	...	32085	32105	32125	32155	32175	32185
MILL GUIDE	Logan Part No.	...	V6000	V6001	V6002	V6003	V6004	V6005
	Bowen No.	...	32085	32105	32125	32155	32175	32185
ADAPTER – 5/8" SUCKER ROD	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...
ADAPTER – 3/4" SUCKER ROD	Logan Part No.	...	...	...	...	...	...	V7005
	Bowen No.	...	...	...	...	...	...	70513
KEEPER	Logan Part No.	V90005	V9000	V9001	V9002	V9003	V9004	V9005
	Bowen No.	...	66005	66008	74731	74732	66014	71716

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

Special Notes:
(1) Guides left oversized are extra charge. Magnets shipped via air freight must include a Keeper.

When ordering, please specify:
(1) Name and number of assembly
(2) Size – O.D.
(3) Top connection, if other than standard

Recommended Accessories:
(1) 1 Lipped Guide
(2) 1 Mill Guide

FISHING MAGNETS

HOLE SIZE		4 to 4-1/4	4-1/4 to 4-1/2	4-1/2 to 5	5-1/8 to 5-1/2	5-5/8 to 6	6-1/8 to 6-1/2	6-1/8 to 6-1/2
O.D. OF BODY		3-1/4	3-1/2	4	4-1/2	5	5-1/2	5-3/4
TOP CONNECTION		2-3/8 Tbg	2-3/8 API Reg	2-3/8 API Reg	2-7/8 API Reg	2-7/8 API Reg	3-1/2 API Reg	3-1/2 API Reg
APPROXIMATE PULL IN LBS.		85 to 190	150 to 250	175 to 250	250 to 320	320 to 385	385 to 425	385 to 435
COMPLETE ASSEMBLY	Logan Part No.	306-325	306-350	306-400	306-450	306-500	306-550	306-575
	Bowen No.	32190	32210	32230	32240	32260	32270	32280
BODY	Logan Part No.	V1006	V1007	V1008	V1009	V1010	V1011	V1012
	Bowen No.	32191	32211	32231	32241	32261	32271	32281
HOUSING	Logan Part No.	V2006	V2007	V2008	V2009	V2010	V2011	V2012
	Bowen No.	32192	32212	32232	32242	32262	32272	32282
POLE PLATE	Logan Part No.	V3006	V3007	V3008	V3009	V3010	V3011	V3012
	Bowen No.	32193	32213	32233	32243	32263	32273	32283
MAGNETIC ELEMENT	Logan Part No.	V4006	V4007	V4008	V4009	V4010	V4011	V4011
	Bowen No.	32194	32214	32234	32244	32264	32274	32274
FLUSH GUIDE	Logan Part No.	V6006	V6007	V6008	V6009	V6010	V6011	V6012
	Bowen No.	32195	32215	32235	32245	32265	32275	32285
LIFTING CAP	Logan Part No.	…	V8000	V8000	V8001	V8001	V8002	V8002
	Connection	…	2-3/8 API Reg	2-3/8 API Reg	2-7/8 API Reg	2-7/8 API Reg	3-1/2 API Reg	3-1/2 API Reg

OPTIONAL COMPONENTS

CUT-LIPPED GUIDE	Logan Part No.	V6006	V6007	V6008	V6009	V6010	V6011	V6012
	Bowen No.	32195	32215	32235	32245	32265	32275	32285
MILL GUIDE	Logan Part No.	V6006	V6007	V6008	V6009	V6010	V6011	V6012
	Bowen No.	32195	32215	32235	32245	32265	32275	32285
ADAPTER —	Logan Part No.	…	…	V5008	V5009	V5009	V5011	V5011
5/8" SUCKER ROD	Bowen No.	…	…	62250	62252	62252	62254	62254
ADAPTER —	Logan Part No.	V7005	…	V7008	V7009	V7009	V7011	V7011
3/4" SUCKER ROD	Bowen No.	70513	…	62251	62253	62253	62255	62255
KEEPER	Logan Part No.	V9006	V9007	V9008	V9009	V9010	V9011	V9012
	Bowen No.	66016	66021	66026	66027	66030	66031	74962

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When ordering, please specify:
(1) Name and number of assembly
(2) Size – O.D.
(3) Top connection, if other than standard

Recommended Accessories:
(1) 1 Lipped Guide
(2) 1 Mill Guide

FISHING MAGNETS

HOLE SIZE		6-5/8 to 7-1/2	7-5/8 to 8-1/2	8-5/8 to 9-3/4	9-7/8 to 11-5/8	10-1/2 to 11-7/8	11-3/4 to 13	12-1/4 to 14
O.D. OF BODY		6	7	8	9	10	10-1/2	11-1/2
TOP CONNECTION		3-1/2 API Reg	4-1/2 API Reg	4-1/2 API Reg	4-1/2 API Reg	6-5/8 API Reg	6-5/8 API Reg	6-5/8 API Reg
APPROXIMATE PULL IN LBS.		425 to 500	550 to 700	700 to 850	850 to 1,000	1,000 to 1,125	1,125 to 1,260	1,260 to 1,550
COMPLETE ASSEMBLY	Logan Part No.	306-600	306-700	306-800	306-900	306-1000	306-1050	306-1150
	Bowen No.	32290	32300	32310	32330	32340	32350	32370
BODY	Logan Part No.	V1013	V1014	V1015	V1016	V1017	V1018	V1019
	Bowen No.	32291	32301	32311	32331	32341	32351	32371
HOUSING	Logan Part No.	V2013	V2014	V2015	V2016	V2017	V2018	V2019
	Bowen No.	32292	32302	32312	32332	32342	32352	32372
POLE PLATE	Logan Part No.	V3013	V3014	V3015	V3016	V3017	V3017	V3019
	Bowen No.	32293	32303	32313	32333	32343	32343	32373
MAGNETIC ELEMENT	Logan Part No.	V4013	V4014	V4015	V4016	V4017	V4017	V4019
	Bowen No.	32294	32304	32314	32334	32344	32344	32374
FLUSH GUIDE	Logan Part No.	V6013	V6014	V6015	V6016	V6017	V6018	V6019
	Bowen No.	32295	32305	32315	32335	32345	32355	32375
LIFTING CAP	Logan Part No.	V8002	V8003	V8003	V8003	V8004	V8004	V8004
	Connection	3-1/2 API Reg	4-1/2 API Reg	4-1/2 API Reg	4-1/2 API Reg	6-5/8 API Reg	6-5/8 API Reg	6-5/8 API Reg

OPTIONAL COMPONENTS

CUT-LIPPED GUIDE	Logan Part No.	V6013	V6014	V6015	V6016	V6017	V6018	V6019
	Bowen No.	32295	32305	32315	32335	32345	32355	32375
MILL GUIDE	Logan Part No.	V6013	V6014	V6015	V6016	V6017	V6018	V6019
	Bowen No.	32295	32305	32315	32335	32345	32355	32375
ADAPTER — 5/8" SUCKER ROD	Logan Part No.	V5011	V5014	V5014	V5014	V5017	V5017	V5017
	Bowen No.	62254	62256	62256	62256	62258	62258	62258
ADAPTER — 3/4" SUCKER ROD	Logan Part No.	V7011	V7014	V7014	V7014	V7017	V7017	V7017
	Bowen No.	62255	62257	62257	62257	62259	62259	62259
KEEPER	Logan Part No.	V9013	V9014	V9015	V9016	V9017	V9017	V9019
	Bowen No.	66039	56181	66041	66044	66045	66045	66218

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

Special Notes:
(1) Guides left oversized are extra charge. Magnets shipped via air freight must include a Keeper.

When ordering, please specify:
(1) Name and number of assembly
(2) Size – O.D.
(3) Top connection, if other than standard

Recommended Accessories:
(1) 1 Lipped Guide
(2) 1 Mill Guide

FISHING MAGNETS

HOLE SIZE		15	17	20				
O.D. OF BODY		14	16	19				
TOP CONNECTION		6-5/8 API Reg	6-5/8 API Reg	7-5/8 API Reg				
APPROXIMATE PULL IN LBS.		1,700 to 2,100	3,200 to 4,000	4,200 to 5,000				
COMPLETE ASSEMBLY	Logan Part No.	306-1400	306-1600	306-1900				
	Bowen No.	32380	79183	79189				
BODY	Logan Part No.	V1020	V1021	V1022				
	Bowen No.	32381	145730	79190				
HOUSING	Logan Part No.	V2020	V2021	V2022				
	Bowen No.	32382	145731	79191				
POLE PLATE	Logan Part No.	V3020	V3021	V3022				
	Bowen No.	32383	145732	79192				
MAGNETIC ELEMENT	Logan Part No.	V4020	V4020	V4022				
	Bowen No.	32384	32384	79193				
FLUSH GUIDE	Logan Part No.	V6020	V6021	V6022				
	Bowen No.	32385	79188	79194				
LIFTING CAP	Logan Part No.	V8004	V8004	V8005				
	Connection	6-5/8 API Reg	6-5/8 API Reg	7-5/8 API Reg				

OPTIONAL COMPONENTS

CUT-LIPPED GUIDE	Logan Part No.	V6020	V6021	V6022				
	Bowen No.	32385	79188	79194				
MILL GUIDE	Logan Part No.	V6020	V6021	V6022				
	Bowen No.	32385	79188	79194				
ADAPTER — 5/8" SUCKER ROD	Logan Part No.	V5017	…	…				
	Bowen No.	62258	…	…				
ADAPTER — 3/4" SUCKER ROD	Logan Part No.	V7017	…	…				
	Bowen No.	62259	…	…				
KEEPER	Logan Part No.	V9020	V9021	V9022				
	Bowen No.	66219	145867	…				

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

Special Notes:
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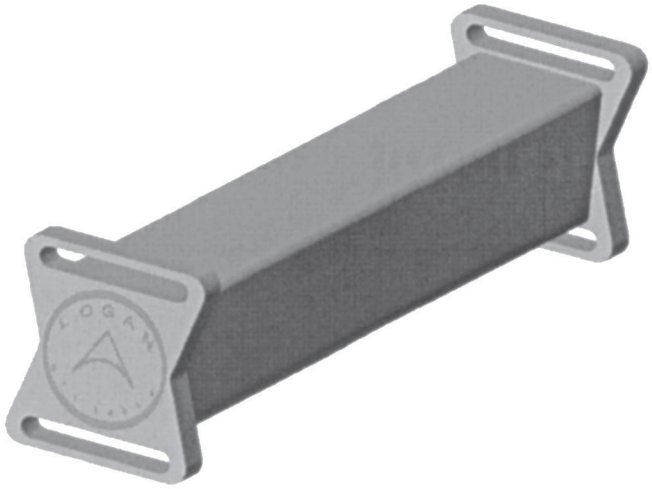
When ordering, please specify:
(1) Name and number of assembly
(2) Size – O.D.
(3) Top connection, if other than standard

Recommended Accessories:
(1) 1 Lipped Guide
(2) 1 Mill Guide

HEAVY-DUTY DITCH MAGNETS

Overview

The Logan Ditch Magnet is the most effective means available to trap and remove metal particles from drilling mud missed by the shale shaker. The ditch magnet will capture all magnetized metals. During milling operations, the magnet is particularly valuable for the removal of mill cuttings and debris that cause wear on mud pumps and other equipment. It eliminates the problems caused by harmful debris returned downhole and is equally effective in both washover and fishing jobs.



Construction

The clean, simple design eliminates the use of trays, gates, and other extra equipment. The magnet is encased in stainless steel and has integral handles at each end for lifting.

Operation

The ditch magnet is most effective when it is suspended by soft line in the mud ditch before the shale shaker, or in the shaker discharge. Depending on milling rate, the unit should be cleaned with fresh or salt water and cuttings wiped away several times per day. The unit may be cleaned less often when cuttings come at a slow rate.

LENGTH (INCHES)		18	24	36
COMPLETE ASSEMBLY	Logan Part No.	305-018	305-024	305-036
	Bowen No.	…	152761	79162
KEEPER	Logan Part No.	DMK-018	DMK-024	DMK-036

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

Special Notes:
(1) Magnets shipped via air freight must include a Keeper set.

When ordering, please specify:

(1) Name and number of magnet

NOTES



BI-DIRECTIONAL COILED TUBING JARS

Overview

The Logan Bi-Directional Coiled Tubing Jar is designed to hit upward and downward blows. It can be dressed to only hit up or down. These tools' small outside diameters and shorter lengths make them ideal for milling, drilling, workover, remedial, or completion operations, especially in vertical, deviated, and ultra-deep wellbores. Independent hydraulic timers respond to any push or pull load. The Logan Bi-Directional Coiled Tubing Jar operates by straight push or pull with splines that are engaged at all times.

Construction

Logan Bi-Directional Coiled Tubing Jars are hydrostatically pressure balanced and can operate at any depth. They can be dressed with special packing to withstand temperatures above 350° F.

Assembly

The Logan Bi-Directional Coiled Tubing Jar is shipped in the closed (cocked) position. The Jar should not be suspended in this position, especially with any weight suspended below it, as the Jar may unintentionally fire and cause equipment damage or bodily harm.

Operation

The Logan Bi-Directional Coiled Tubing Jar operates by straight push or pull and has splines that are engaged at all times. For maximum effectiveness, it is recommended that the Logan Bi-Directional Coiled Tubing Jar be run in combination with a Logan Bi-Directional Coiled Tubing Energizer.

The Logan Bi-Directional Coiled Tubing Jar should be carefully examined prior to use to ensure it has been properly assembled and filled with coiled tubing jar fluid. The tool should be tested in a jar tester prior to field use. All connections should be checked to ensure that they have been tightened to the proper torque.

At no time during the push/pull cycle should the maximum push/pull load be exceeded. (See Strength Data Chart below for push/pull loads.) It is recommended that the operator use a low initial load — 30% to 50% of the maximum load — so the effects of the jarring action can be reviewed before the jarring load is increased.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Outside diameter
(3) Connections, if other than standard
(4) Name and number of any desired spares
(5) Outside diameter of spare parts

SPECIFICATIONS

COMPLETE ASSEMBLY	616-169	616-213	616-288
OUTSIDE DIAMETER (INCHES)	1-11/16 (1.708)	2-1/8 (2.156)	2-7/8 (2.906)
MINIMUM INSIDE DIAMETER (INCHES)	17/32 (.530)	21/32 (.656)	29/32 (.906)
CONNECTION	1 AM MT	1-1/4 API REG	2-3/8 PAC
LENGTH - FULLY CLOSED (FEET & INCHES)	4' - 6-13/16"	5' - 4-9/16"	5' - 10-13/16"
TOTAL STROKE (INCHES)	8-3/4	9 *	9-1/4
PUMP OPEN AREA (SQ IN)	1.28	2.23 *	3.98

STRENGTH AND TEST DATA

COMPLETE ASSEMBLY		616-169	616-213	616-288
OUTSIDE DIAMETER (INCHES)		1-11/16 (1.708)	2-1/8 (2.156)	2-7/8 (2.906)
TEST LOADS:	Up	12,000	24,000 *	35,000
	Down	1,500 †	2,500 †	4,000 †
MAX PUSH/PULL LOAD (LBS)		12,000 †	24,000 * †	35,000 †
Jar with Energizer:				
No weight bars between tools		13,500	24,000 *	40,000
With at least one weight bar between tools		15,500	30,000 *	50,000
All Other Cases		15,500	30,000 *	50,000
MAX LIFT LOAD AFTER JARRING JAR FULLY EXTENDED TENSILE @ YIELD (LBS)		69,000	125,000	225,000
TORQUE @ YIELD (FT-LBS)		800	1,700	4,000 *

* *Data pending*

† *Requires special filling procedure. Do not over fill.*

BI-DIRECTIONAL COILED TUBING JARS

OUTSIDE DIAMETER - INCHES		1-11/16	2-1/8	2-7/8
INSIDE DIAMETER - INCHES		17/32	21/32	29/32
CONNECTION SIZE (BOX UP)		1" AMMT	1-1/2 AMMT	2-3/8 PAC
CONNECTION SIZE (PIN DOWN)		1" AMMT	1-1/2 AMMT	2-3/8 PAC
COMPLETE ASSEMBLY	Logan Part No.	616-169	616-213	616-288
COMPONENT PARTS				
TOP SUB	Logan Part No.	CC1000	CC1002	CC1004
TOP SUB SEAL	Logan Part No.	568122	568128	568226
PRESSURE BODY	Logan Part No.	CC2000	CC2002	CC2004
PRESSURE BODY NON-EXTRUSION RING	Logan Part No.	CC14000	CC14002	CC14004
PRESSURE BODY SEAL PROTECTOR RING	Logan Part No.	8-025	8-128	8-226
PRESSURE BODY SEAL	Logan Part No.	568025	568128	568226
PISTON BODY	Logan Part No.	CC3000	CC3002	CC3004
FLOATER BODY	Logan Part No.	CC4000	CC4002	CC4004
FLOATER BODY NON-EXTRUSION RING	Logan Part No.	CC14000	CC14002	CC14004
FLOATER BODY SEAL PROTECTOR RING	Logan Part No.	8-025	8-128	8-226
FLOATER BODY SEAL	Logan Part No.	568025	568128	568226
SPLINE BODY	Logan Part No.	CC5000	CC5002	CC5004
MANDREL	Logan Part No.	CC6000	CC6002	CC6004
MANDREL ID SEAL	Logan Part No.	568118	568120	568220
MANDREL EXTENSION	Logan Part No.	CC7000	CC7002	CC7004
NUT	Logan Part No.	CC8000	CC8002	CC8004
NUT ID SEAL PROTECTOR RING	Logan Part No.	8-117	8-120	8-220
NUT ID SEAL	Logan Part No.	568118	568120	568220
NUT OD NON-EXTRUSION RING	Logan Part No.	CC15000	CC15002	CC15004
	No. Req'd	2	2	2
NUT OD SEAL PROTECTOR RING	Logan Part No.	8-121	8-221	8-327
	No. Req'd	2	2	2
NUT OD SEAL	Logan Part No.	568914	568221	568327
NUT OD OPTISEAL	Logan Part No.	CC19000-001	CC19002-001	CC19004-001
UP PISTON	Logan Part No.	CC9000	CC9002	CC9004
DOWN PISTON	Logan Part No.	CC10000	CC10002	CC10004
FLOATER	Logan Part No.	CC11000	CC11002	CC11004
FLOATER ID NON-EXTRUSION RING	Logan Part No.	CC13000	CC13002	CC13004
FLOATER ID SEAL PROTECTOR RING	Logan Part No.	8-117	8-120	8-220
FLOATER ID SEAL	Logan Part No.	568911	568120	568220
FLOATER ID OPTISEAL	Logan Part No.	CC19000-002	CC22002	CC22004
FLOATER OD NON-EXTRUSION RING	Logan Part No.	CC15000	CC15002	CC15004
FLOATER OD SEAL PROTECTOR RING	Logan Part No.	8-121	8-221	8-327
FLOATER OD SEAL	Logan Part No.	568914	568221	568327
FLOATER OD OPTISEAL	Logan Part No.	CC19000-001	CC19002-001	CC19004-001
SPLINE	Logan Part No.	CC12000	CC12002	CC12004
	No. Req'd	2	2	4

BI-DIRECTIONAL COILED TUBING JARS

REDRESS KIT

Consists of:	Logan Part No.	CC21000	CC21002	CC21004
FLOATER ID NON-EXTRUSION RING	Logan Part No.	CC13000	CC13002	CC13004
	No. Req'd	1	1	1
PRESSURE & FLOATER BODY OD	Logan Part No.	CC14000	CC14002	CC14004
NON-EXTRUSION RING	No. Req'd	2	2	2
FLOATER & NUT OD NON-EXTRUSION RING	Logan Part No.	CC15000	CC15002	CC15004
	No. Req'd	3	3	3
SEAL KIT *	Logan Part No.	CC20000	CC20002	CC20004
	No. Req'd	1	1	1
SPLINE	Logan Part No.	CC12000	CC12002	CC12004
	No. Req'd	2	2	4

** Seal Kit includes O-Rings, Seal Protector Rings, and Opti-Seals.*

REQUIRED ACCESSORIES

COMBINATION WRENCH SIZE FOR MANDREL EXTENSION - INCHES		13/16	1	1-3/8
	No. Req'd	2	2	2
SIX-POINT SOCKET SIZE FOR NUT - INCHES		7/8	1-1/8	1-1/2
FLOATER ID SETTING TOOL	Logan Part No.	CC17000	CC17002	CC17004
FLOATER REMOVAL TOOL	Logan Part No.	CC18000	CC18002	CC18004
POLYPAK STRETCHER **	Logan Part No.	CD11000	CD11002	CD11004
POLYPAK INSTALLATION TOOL **	Logan Part No.	CD12000	CD12002	CD12004

*** Used for installing seals onto OD of Nut and Floater*

BI-DIRECTIONAL COILED TUBING ENERGIZERS

Overview

The double-acting, Logan Bi-Directional Coiled Tubing Energizer is an impact enhancement tool designed for slim holes (generally a well bore less than 6 inches in diameter). Its function is to supply intensified impact during the jarring operation by providing or enhancing jar impact from energy stored within its oil-filled compression chambers. It also functions as a shock absorber that prevents impact damage to the tool string at the bottom of the coil, which is often referred to as the bottom hole assembly or BHA. A Logan Bi-Directional Coiled Tubing Energizer is recommended any time a Logan Bi-Directional Coiled Tubing Jar is included in the work string.

Construction

Each size of Logan Bi-Directional Coiled Tubing Energizer is designed to match the corresponding size of Logan Bi-Directional Coiled Tubing Jar. The pull, push, torque, and lift loads are equal to or exceed those of the matching Logan Bi-Directional Coiled Tubing Jar.

Logan Bi-Directional Coiled Tubing Energizers are hydrostatically pressure balanced and have automatic oil thermal compensation. The independent push (compression) and pull (tension) oil-filled chambers are sealed and isolated from each other to prevent contamination.

Operation

The Logan Bi-Directional Coiled Tubing Energizer is run in conjunction with a Logan Bi-Directional Coiled Tubing Jar of the same size. It operates by straight push or pull and has splines that are engaged at all times. The Bi-Directional Coiled Tubing Energizer is essentially a fluid spring, which stores energy when a strain is pulled on the fishing string. When the strain is removed by the free stroke of the Bi-Directional Coiled Tubing Jar, the stored energy is released, accelerating portions of the tool and the weight bars until a blow of high impact is struck. The Bi-Directional Coiled Tubing Energizer absorbs much of the jarring shock from the rebounding string to protect the bottom hole assembly from damage.

The Logan Bi-Directional Coiled Tubing Energizer can be run at any depth. It can be dressed with special packing to withstand temperatures above 350° F. The Bi-Directional Coiled Tubing Energizer is also capable of transmitting torque for downhole motors. (See Strength Data below.)

When ordering, please specify:

(1) Name and number of assembly or part
(2) Outside diameter
(3) Connections, if other than standard
(4) Name and number of any desired spares
(5) Outside diameter of spare parts



SPECIFICATIONS

COMPLETE ASSEMBLY	617-169	617-213	617-288
OUTSIDE DIAMETER (INCHES)	1-11/16 (1.708)	2-1/8 (2.156)	2-7/8 (2.906)
MINIMUM INSIDE DIAMETER (INCHES)	17/32 (.530)	21/32 (.656) *	29/32 (.906)
CONNECTION	1 AM MT	1-1/4 API REG *	2-3/8 PAC
LENGTH - FULLY CLOSED (FEET & INCHES)	4' - 3-5/16"	5" - 9-3/16"	6' - 11/16"
TOTAL STROKE (INCHES)	3.95	5.50	6
PUMP OPEN AREA (SQ IN)	1.128	2.23 *	3.98

STRENGTH AND TEST DATA

COMPLETE ASSEMBLY	617-169	617-213	617-288
OUTSIDE DIAMETER (INCHES)	1-11/16 (1.708)	2-1/8 (2.156)	2-7/8 (2.906)
MAX PUSH/PULL LOAD (LBS)			
Jar with Energizer:			
No weight bars between tools	13,500	24,000 *	40,000
With at least one weight bar between tools	15,500	30,000 *	50,000
All Other Cases	15,500	30,000 *	50,000
MAX LIFT LOAD AFTER JARRING JAR FULLY EXTENDED TENSILE @ YIELD (LBS)	69,000	125,000 *	225,000 *
TORQUE @ YIELD (FT-LBS)	800	1,700 *	4,000 *

** Data pending*

BI-DIRECTIONAL COILED TUBING ENERGIZERS

OUTSIDE DIAMETER - INCHES		1-11/16	2-1/8	2-7/8
INSIDE DIAMETER - INCHES		17/32	21/32	29/32
CONNECTION SIZE (BOX UP)		1" AMMT	1-1/2 AMMT	2-3/8 PAC
CONNECTION SIZE (PIN DOWN)		1" AMMT	1-1/2 AMMT	2-3/8 PAC
COMPLETE ASSEMBLY	Logan Part No.	617-169	617-213	617-288
COMPONENT PARTS				
TOP SUB	Logan Part No.	CC1000	CC1002	CC1004
TOP SUB SEAL	Logan Part No.	568122	568128	568226
UPPER PRESSURE BODY	Logan Part No.	CD2000	CD2002	CD2004
UPPER PRESSURE BODY OD NON-EXTRUSION RING	Logan Part No.	CC14000	CC14002	CC14004
UPPER PRESSURE BODY OD SEAL PROTECTOR RING	Logan Part No.	8-025	8-128	8-226
UPPER PRESSURE BODY OD SEAL	Logan Part No.	568025	568128	568226
UPPER PRESSURE BODY ID NON-EXTRUSION RING	Logan Part No.	CD4000	CD4002	CD4004
	No. Req'd	2	2	2
UPPER PRESSURE BODY ID SEAL PROTECTOR RING	Logan Part No.	8-120	8-217	8-223
	No. Req'd	2	2	2
UPPER PRESSURE BODY ID SEAL	Logan Part No.	568120	568216	568224
LOWER PRESSURE BODY	Logan Part No.	CD3000	CD3002	CD3004
SPLINE BODY	Logan Part No.	CD5000	CC5002	CC5004
MANDREL	Logan Part No.	CD6000	CD6002	CD6004
MANDREL ID SEAL	Logan Part No.	568118	568120	568220
MANDREL OD NON-EXTRUSION RING	Logan Part No.	CC15000	CC15002	CC15004
MANDREL OD SEAL PROTECTOR RING	Logan Part No.	8-121	8-221	8-327
MANDREL OD SEAL	Logan Part No.	568914	568221	568327
MANDREL OD POLYPAK	Logan Part No.	BD209-11	BD209-13	BD209-12
MANDREL EXTENSION	Logan Part No.	CD7000	CD7002	CD7004
NUT	Logan Part No.	CD8000	CC8002	CC8004
NUT ID SEAL PROTECTOR RING	Logan Part No.	8-118	8-120	8-220
NUT ID SEAL	Logan Part No.	568118	568120	568220
NUT OD NON-EXTRUSION RING	Logan Part No.	CC15000	CC15002	CC15004
	No. Req'd	2	2	2
NUT OD SEAL PROTECTOR RING	Logan Part No.	8-121	8-221	8-327
	No. Req'd	2	2	2
NUT OD SEAL	Logan Part No.	568914	568120	568327
NUT OD OPTISEAL	Logan Part No.	CC19000-001	CC19002-001	CC19004-001
SPLINE	Logan Part No.	CC12000	CC12002	CC12004
	No. Req'd	2	2	4
REDRESS KIT	Logan Part No.	CD10000	CD10002	CD10004
Consists of:				
UPPER PRESSURE BODY	Logan Part No.	CC14000	CC14002	CC14004
OD NON-EXTRUSION RING	No. Req'd	1	1	1
NUT & MANDREL OD NON-EXTRUSION RING	Logan Part No.	CC15000	CC15002	CC15004
	No. Req'd	3	3	3
UPPER PRESSURE BODY ID NON-EXTRUSION RING	Logan Part No.	CD4000	CD4002	CD4004
	No. Req'd	2	2	2
SEAL KIT	Logan Part No.	CD9000	CD9002	CD9004
	No. Req'd	1	1	1
SPLINE	Logan Part No.	CC12000	CC12002	CC12004
	No. Req'd	2	2	4
REQUIRED ACCESSORIES				
COMBINATION WRENCH SIZE FOR MANDREL EXTENSION - INCHES		13/16	1	1-3/8
	No. Req'd	2	2	2
SIX-POINT SOCKET SIZE FOR NUT - INCHES		7/8	1-1/8	1-1/2
FLOATER REMOVAL TOOL*	Logan Part No.	CC18000	CC18002	CC18004
POLYPAK STRETCHER	Logan Part No.	CD11000	CD11002	CD11004
POLYPAK INSTALLATION TOOL	Logan Part No.	CD12000	CD12002	CD12004
UPPER PRESSURE BODY SETTING TOOL	Logan Part No.	CD13000	CD13002	CD13004
SAFETY SUB	Logan Part No.	CD15000	CD15002	CD15004

** Used for removing Nut from Upper Pressure Body*

SUPERIOR HYDRAULIC FISHING JARS

Overview

The Logan Superior Hydraulic 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 stuck fish recovery. The straight pull load applied by the operator controls the intensity of the jarring blow. The downhole jarring blow is infinitely adjustable without any rig floor adjustments necessary prior to the run. Impact of each blow can be varied by simply changing the pull load.

The Logan Superior Hydraulic Jar is well-suited for milling and washover operations due to its large mandrel design. Since the Jar will not interfere with test equipment, it is also ideal to use for drill stem testing. The seals used in the Logan Superior Hydraulic Jar can handle higher pressures than those normally encountered in drill stem testing.

Among its many uses, the Logan Superior Hydraulic Jar is also ideal for jarring and freeing open-hole or hook-wall packers that have become stuck. With comparatively moderate pull, the Logan Superior Hydraulic Jar can also deliver sufficient impact to break a core.

Construction

The Jar's operating chambers are sealed and isolated from each other to prevent contamination of the metering section of the Jar and the surrounding well areas.

Logan Superior Hydraulic Jars are hydrostatically pressure balanced and provide maximum inside diameters for passage of wireline tools.

Assembly

The Logan Superior Hydraulic Jar is shipped in the closed (cocked) position. The Jar should not be left suspended from the elevator in this position, especially with any weight suspended below it, as the Jar may accidentally fire and cause rig damage or bodily harm.

The Logan Superior Hydraulic Jar should be carefully opened and assembled in the string below the concentrated mass such as drill collars and heavyweight drill pipe.

Operation

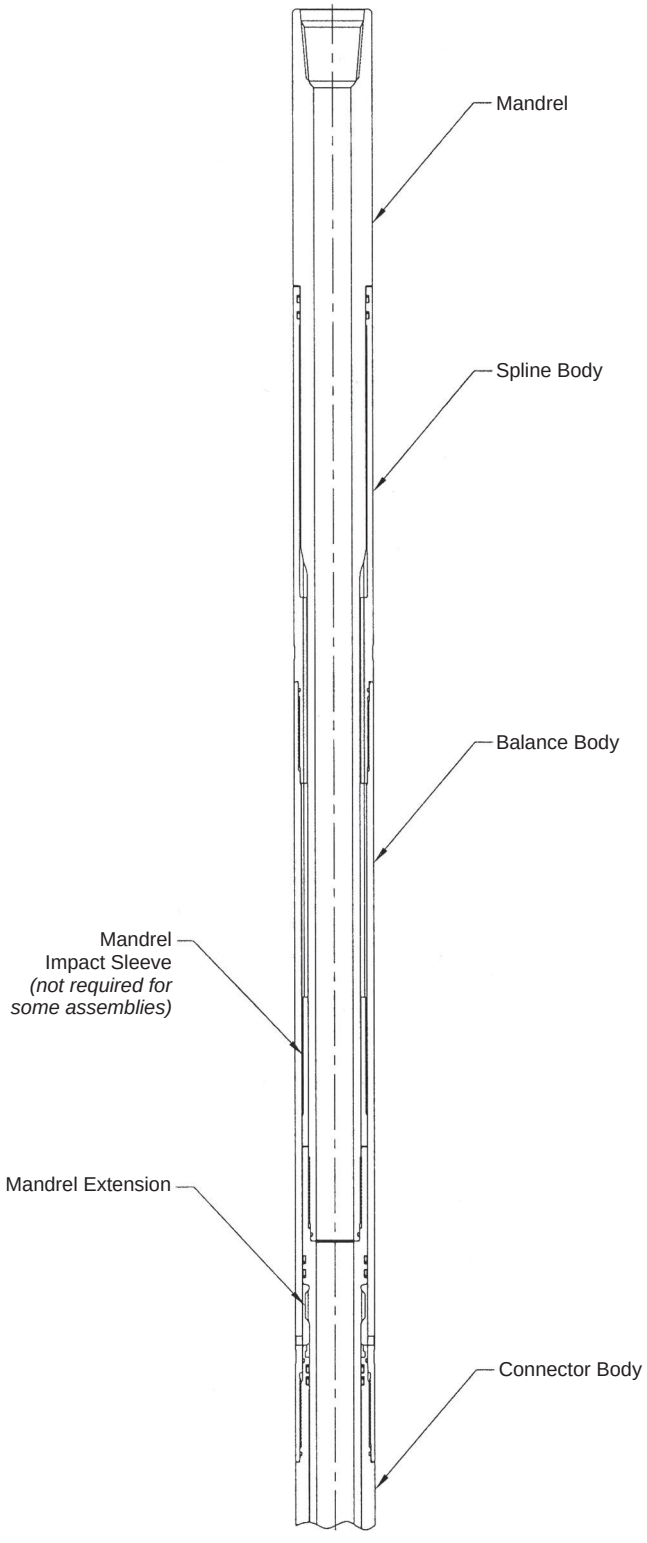
For maximum effectiveness, it is recommended that the Logan Superior Hydraulic Jar be run in combination with a Logan Superior Energizer.

The Logan Superior Hydraulic Jar should be carefully examined prior to 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. All connections should be checked to ensure that they have been tightened to the proper torque.

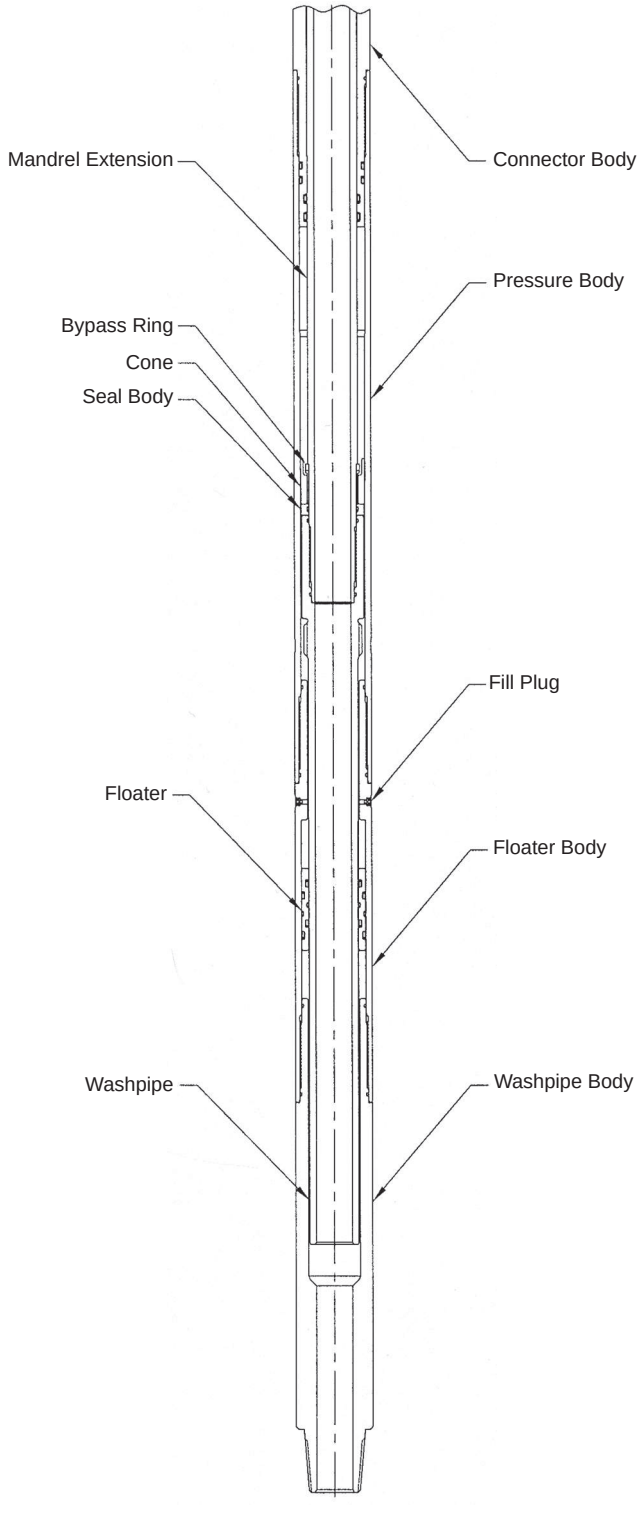
At no time during the pull cycle should the maximum load be exceeded. (See Strength Data Charts on pages 141 – 142 for pull loads.) It is recommended that the operator use a low initial pull load — 30% to 50% of the maximum load — so the effects of the jarring action can be reviewed before the jarring load is increased.

When ordering, please specify:

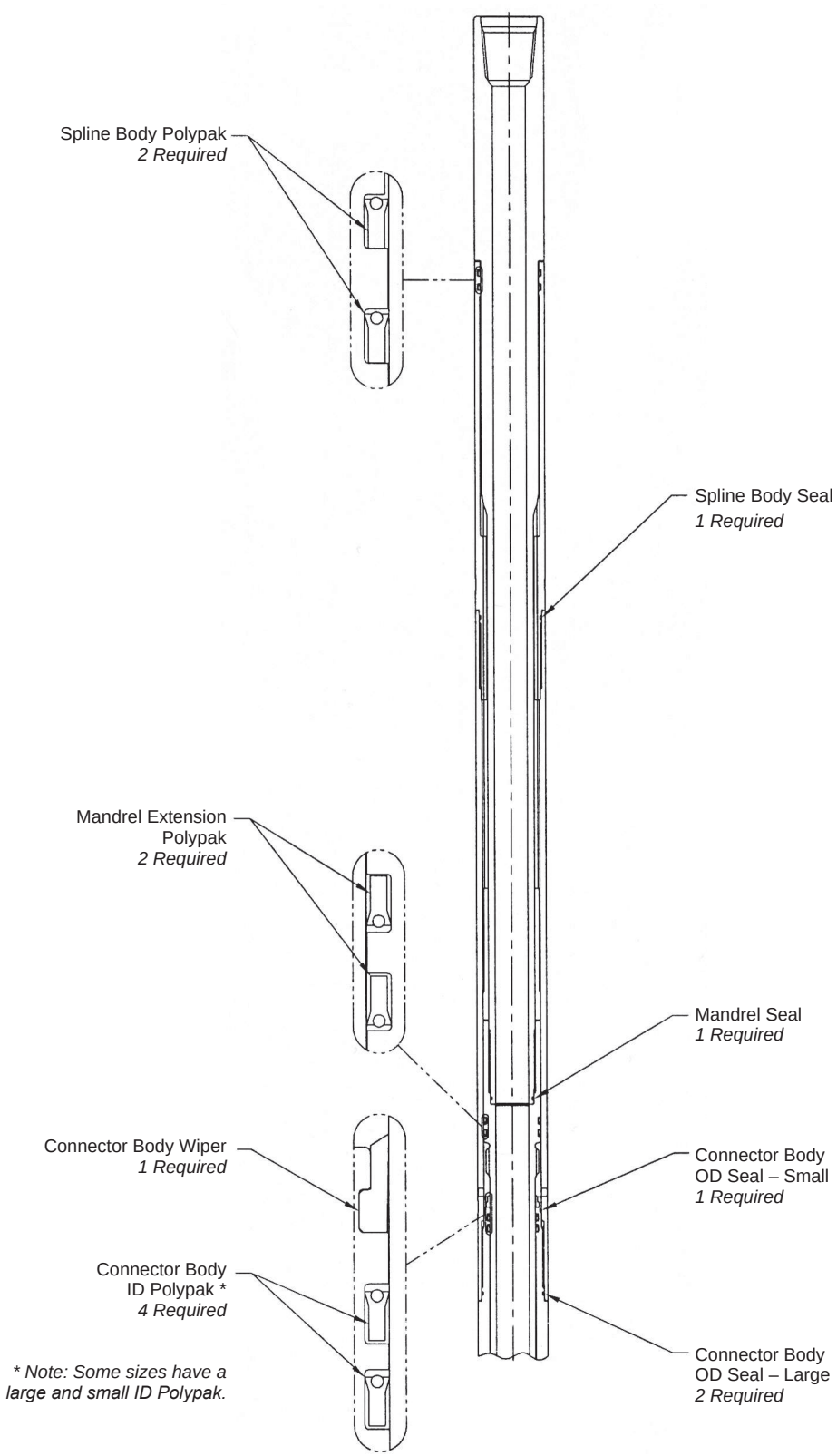
(1) Name and number of assembly or part
(2) Casing O.D.
(3) Size and type of connection



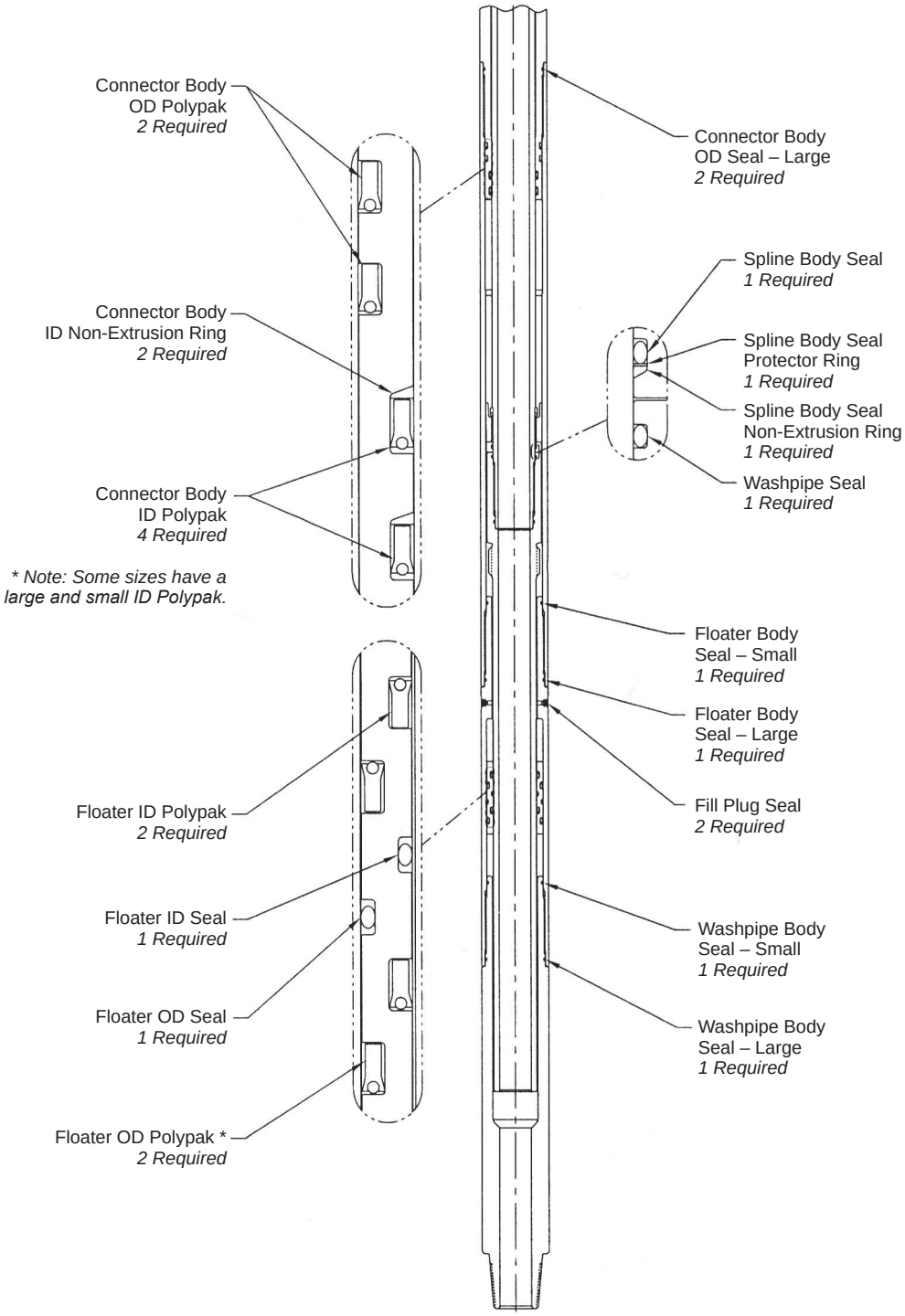
Metal Parts (Upper Half)



Metal Parts (Lower Half)



Polypaks and Seals (Upper Half)



Polypaks and Seals
(Lower Half)

SUPERIOR HYDRAULIC FISHING JARS

TOOL JOINT CONNECTION		2-3/8 API EUE	2-3/8 API Reg	2-7/8 PAC	2-3/8 API IF	2-7/8 API Reg	2-3/8 API EUE	2-7/8 API IF
OUTSIDE DIAMETER — INCHES		3-1/16	3-1/8	3-1/8	3-3/4	3-3/4	3-3/4	4-1/4
INSIDE DIAMETER — INCHES		1-1/2	1	1-1/2	1-1/2	1-1/4	1-7/8	2
COMPLETE ASSEMBLY	Logan Part No.	611-306	611-312	611-313	611-375	611-377	611-376	611-425
COMPONENTS								
MANDREL	Logan Part No.	BD15	BD10	BD15	BD11	BD11	BD18	BD16
MANDREL SEAL	Logan Part No.	…	…	…	568-225	568-225	…	568-229
	No. Req'd	…	…	…	1	1	…	1
MANDREL EXTENSION	Logan Part No.	BD25	BD20	BD25	BD21	BD21	BD28	BD26
MANDREL	Logan Part No.	568-225	568-224	568-225	…	…	568-229	…
EXTENSION SEAL	No. Req'd	1	1	1	…	…	1	…
MANDREL EXTENSION	Logan Part No.	BD205-2	BD205-2	BD205-2	BD201-2	BD201-2	AQ29003	BX144-3
POLYPAK	No. Req'd	1	2	1	2	2	2	2
MANDREL EXTENSION	Logan Part No.	…	…	…	…	…	…	…
WIPER	No. Req'd	…	…	…	…	…	…	…
MANDREL IMPACT SLEEVE	Logan Part No.	BD35	BD30	BD35	…	…	…	…
SPLINE BODY	Logan Part No.	BD45	BD40	BD45	BD41	BD41	BD48	BD46
SPLINE BODY SEAL	Logan Part No.	568-230	568-230	568-230	568-234	568-234	568-235	568-238
	No. Req'd.	1	1	1	1	1	1	1
SPLINE BODY	Logan Part No.	BD205-1	BD205-1	BD205-1	BD202-3	BD202-3	BX144-3	BD202-2
POLYPAK	No. Req'd	2	2	2	2	2	2	2
BALANCE BODY	Logan Part No.	BD55	BD50	BD55	BD51	BD51	BD58	BD56
CONNECTOR BODY	Logan Part No.	BD65	BD60	BD65	BD61	BD61	BD68	BD66
CONNECTOR BODY	Logan Part No.	568-230	568-230	568-230	568-234	568-234	568-235	568-238
SEAL (LARGE)	No. Req'd	2	2	2	2	2	2	2
CONNECTOR BODY	Logan Part No.	568-228	568-228	568-228	568-232	568-232	568-233	568-236
SEAL (SMALL)	No. Req'd	2	2	2	1	1	1	1
CONNECTOR BODY WIPER	Logan Part No.	…	…	…	BD71	BD71	BD78	BD76
CONNECTOR BODY	Logan Part No.	BD205-3	BD200-3	BD205-3	BD201-3	BD201-3	BD208-3	AQ29003
ID POLYPAK (SMALL)	No. Req'd	3	3	3	4	4	4	4
CONNECTOR BODY	Logan Part No.	…	…	…	…	…	…	…
ID POLYPAK (LARGE)	No. Req'd	…	…	…	…	…	…	…
CONNECTOR BODY	Logan Part No.	…	…	…	AQ29003	AQ29003	AQ29003	BX144-3
OD POLYPAK	No. Req'd	…	…	…	2	2	2	2
CONNECTOR BODY	Logan Part No.	8-228	8-228	8-228	L375-34	L375-34	L375-36	…
SEAL PROTECTOR RING	No. Req'd	2	2	2	2	2	2	…
CONNECTOR BODY ID	Logan Part No.	L365-32	L365-30	L365-32	BD231	BD231	L365-36	BD236
NON-EXTRUSION RING	No. Req'd	1	2	1	2	2	2	2
CONNECTOR BODY ID NON-EXTRUSION RING SETTING TOOL	Logan Part No.	**	AG1000-30.13	**	**	**	**	**
CONNECTOR BODY OD	Logan Part No.	…	BD240	…	…	…	…	…
NON-EXTRUSION RING	No. Req'd	…	1	…	…	…	…	…
(LARGE)								
CONNECTOR BODY OD	Logan Part No.	L366-33.5	BD250	L366-33.5	…	…	…	…
NON-EXTRUSION RING	No. Req'd	2	1	2	…	…	…	…
(SMALL)								
PRESSURE BODY	Logan Part No.	BD-85	BD80	BD85	BD81	BD81	BD88	BD86

SUPERIOR HYDRAULIC FISHING JARS

TOOL JOINT CONNECTION		2-3/8 API EUE	2-3/8 API Reg	2-7/8 PAC	2-3/8 API IF	2-7/8 API Reg	2-3/8 API EUE	2-7/8 API IF
OUTSIDE DIAMETER — INCHES		3-1/16	3-1/8	3-1/8	3-3/4	3-3/4	3-3/4	4-1/4
INSIDE DIAMETER — INCHES		1-1/2	1	1-1/2	1-1/2	1-1/4	1-7/8	2
COMPLETE ASSEMBLY	Logan Part No.	611-306	611-312	611-313	611-375	611-377	611-376	611-425
COMPONENTS								
FLOATER BODY	Logan Part No.	BD95	BD90	BD95	BD91	BD91	BD98	BD96
FLOATER BODY SEAL	Logan Part No.	568-230	568-230	568-230	568-234	568-234	568-235	568-238
(LARGE)	No. Req'd	1	1	1	1	1	1	1
FLOATER BODY SEAL	Logan Part No.	568-228	568-228	568-228	568-232	568-232	568-233	568-236
(SMALL)	No. Req'd	1	1	1	1	1	1	1
FLOATER BODY	Logan Part No.	AG10002	AG10002	AG10002	AG10002	AG10002	AG10002	AG10002
FILL PLUG	No. Req'd	2	2	2	2	2	2	2
FLOATER BODY	Logan Part No.	568-006	568-006	568-006	568-006	568-006	568-006	568-006
FILL PLUG SEAL	No. Req'd	2	2	2	2	2	2	2
FLOATER	Logan Part No.	BD115	BD110	BD115	BD111	BD111	BD118	BD116
FLOATER SEAL	Logan Part No.	568-228	568-228	568-228	568-232	568-232	568-233	568-236
(LARGE)	No. Req'd	3	1	3	1	1	1	
FLOATER SEAL	Logan Part No.	568-226	568-224	568-226	568-228	568-230	568-230	568-232
(SMALL)	No. Req'd	3	1	3	1	1	1	1
FLOATER OD	Logan Part No.	…	BD200-4	…	BD201-2	BD201-2	AQ29003	BX144-3
POLYPAK	No. Req'd	…	2	…	2	2	2	2
FLOATER ID	Logan Part No.	…	BD200-3	…	BD201-3	BD201-3	BD208-3	AQ29003
POLYPAK	No. Req'd	…	2	…	2	2	2	2
FLOATER OD	Logan Part No.	…	…	…	8-232	8-232	…	…
PARBAK RING	No. Req'd	…	…	…	1	1	…	…
FLOATER ID	Logan Part No.	8-226	…	8-226	8-228	8-228	…	…
PARBAK RING	No. Req'd	3	…	3	1	1	…	…
FLOATER	Logan Part No.	BD295	BD290	BD295	BD291	BD291	BD298	BD296
POSITIONING TOOL								
SEAL BODY	Logan Part No.	BD125	BD120	BD125	BD121	BD121	BD128	BD126
SEAL BODY SEAL	Logan Part No.	568-225	568-130	568-225	568-227	568-227	568-143	568-231
	No. Req'd	1	1	1	1	1	1	1
NON-EXTRUSION	Logan Part No.	BD265-001	BD260	L365-30.25	L370-5	L370-5	BD268	L370-9
RING	No. Req'd	1	1	1	1	1	1	1
SEAL	Logan Part No.	BD285-001	8-130	L375-30.25	8-227	8-227	8-143	L376-9
PROTECTOR RING	No. Req'd	1	1	1	1	1	1	1
SETTING TOOL	Logan Part No.	AG1000-30.25	AG1000-29.25	AG1000-30.25	AG1000-33.5	AG1000-33.5	AG1000-35.5	AG1000-37
CONE	Logan Part No.	BD135	BD130	BD135	BD131	BD131	BD138	BD136
BYPASS RING	Logan Part No.	BD155	BD150	BD155	BD151	BD151	BD158	BD156
WASHPIPE	Logan Part No.	BD165	BD160	BD165	BD161	BD161	BD168	BD166
WASHPIPE	Logan Part No.	…	568-130	…	568-227	568-227	568-143	568-231
SEAL (LARGE)	No. Req'd	…	1	…	1	1	1	1
WASHPIPE	Logan Part No.	568-224	568-221	568-224	568-225	568-225	568-228	568-229
SEAL (SMALL)	No. Req'd	1	1	1	1	1	1	1
WASHPIPE BODY	Logan Part No.	BD175	BD170	BD175	BD171	BD171	BD178	BD176
WASHPIPE BODY	Logan Part No.	568-230	568-230	568-230	568-234	568-234	568-235	568-238
SEAL (LARGE)	No. Req'd	1	1	1	1	1	1	1
WASHPIPE BODY	Logan Part No.	568-228	568-228	568-228	568-232	568-232	568-233	568-236
SEAL (SMALL)	No. Req'd	1	1	1	1	1	1	1

SUPERIOR HYDRAULIC FISHING JARS

TOOL JOINT CONNECTION		2-3/8 API EUE	2-3/8 API Reg	2-7/8 PAC	2-3/8 API IF	2-7/8 API Reg	2-3/8 API EUE	2-7/8 API IF
OUTSIDE DIAMETER — INCHES		3-1/16	3-1/8	3-1/8	3-3/4	3-3/4	3-3/4	4-1/4
INSIDE DIAMETER — INCHES		1-1/2	1	1-1/2	1-1/2	1-1/4	1-7/8	2
COMPLETE ASSEMBLY	Logan Part No.	611-306	611-312	611-313	611-375	611-377	611-376	611-425
COMPONENTS								
REDRESS KITS *	Logan Part No.	BD185	BD180	BD185	BD181	BD181	BD188	BD186
COMPLETE O-RING KIT	Logan Part No.	BD195	BD190	BD195	BD191	BD191	BD198	BD196
COMPLETE POLYPAK KIT	Logan Part No.	BD205	BD200	BD205	BD201	BD201	BD208	BD206
Consists of:								
SPLINE BODY POLYPAK	Logan Part No.	BD205-1	BD205-1	BD205-1	BD202-3	BD202-3	BX144-3	BD202-2
	No. Req'd	2	2	2	2	2	2	2
MANDREL EXTENSION POLYPAK	Logan Part No.	BD205-2	BD205-2	BD205-2	BD201-2	BD201-2	AQ29003	BX144-3
	No. Req'd	1	2	1	2	2	2	2
CONNECTOR BODY ID POLYPAK (SMALL)	Logan Part No.	BD205-3	BD200-3	BD205-3	BD201-3	BD201-3	BD208-3	AQ29003
	No. Req'd	3	3	3	4	4	4	4
CONNECTOR BODY ID POLYPAK (LARGE)	Logan Part No.	…	…	…	…	…	…	…
	No. Req'd	…	…	…	…	…	…	…
CONNECTOR BODY OD POLYPAK	Logan Part No.	…	…	…	AQ29003	AQ29003	AQ29003	BX144-3
	No. Req'd	…	…	…	2	2	2	2
FLOATER OD POLYPAK	Logan Part No.	…	BD200-4	…	BD201-2	BD201-2	AQ29003	BX144-3
	No. Req'd	…	2	…	2	2	2	2
FLOATER ID POLYPAK	Logan Part No.	…	BD200-3	…	BD201-3	BD201-3	BD208-3	AQ29003
	No. Req'd	…	2	…	2	2	2	2
MANDREL EXTENSION ASSEMBLY SLEEVE †	Logan Part No.	BD205-6	BD200-6	BD205-6	BD201-6	BD201-6	BD208-6	BD206-6
	No. Req'd	1	1	1	1	1	1	1

JAR LUBE	Logan Part No.	49842-A	49842-B	49842-C	49842-D			
	Bowen No.	49842-A	49842-B	49842-C	49842-D			
		1 Gallon	5 Gallons	20 Gallons	55 Gallons			

** 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.

SUPERIOR HYDRAULIC FISHING JARS

TOOL JOINT CONNECTION		2-7/8 API EUE	3-1/2 API IF	4-1/2 API IF	6-5/8 API Reg			
OUTSIDE DIAMETER — INCHES		4-1/2	4-3/4	6-1/4	7-3/4			
INSIDE DIAMETER — INCHES		2-3/8	2-1/4	2-1/4	3-1/16			
COMPLETE ASSEMBLY	Logan Part No.	611-450	611-475	611-625	611-775			
COMPONENTS								
MANDREL	Logan Part No.	BD19	BD12	BD13	BD14			
MANDREL SEAL	Logan Part No.	568-238	568-232	568-236	568-348			
	No. Req'd	1	1	1	1			
MANDREL EXTENSION	Logan Part No.	BD29	BD22	BD23	BD24			
MANDREL EXTENSION SEAL	Logan Part No.	…	…	568-234	568-341			
	No. Req'd	…	…	1	1			
MANDREL EXTENSION POLYPAK	Logan Part No.	BD209-2	BD202-2	BD203-2	BD204-2			
	No. Req'd	2	2	2	2			
MANDREL EXTENSION WIPER	Logan Part No.	…	…	BD223	BD224			
	No. Req'd	…	…	…	1			
MANDREL IMPACT SLEEVE	Logan Part No.	…	BD32	…	…			
SPLINE BODY	Logan Part No.	BD49	BD42	BD43	BD44			
SPLINE BODY SEAL	Logan Part No.	568-240	568-242	568-250	568-362			
	No. Req'd	1	1	1	1			
SPLINE BODY POLYPAK	Logan Part No.	BD209-1	BD202-1	BD203-1	BD204-1			
	No. Req'd	2	2	2	2			
BALANCE BODY	Logan Part No.	BD59	BD52	BD53	BD54			
CONNECTOR BODY	Logan Part No.	BD69	BD62	BD63	BD64			
CONNECTOR BODY SEAL (LARGE)	Logan Part No.	568-240	568-242	568-253	568-362			
	No. Req'd	2	2	2	2			
CONNECTOR BODY SEAL (SMALL)	Logan Part No.	568-239	568-239	568-250	568-361			
	No. Req'd	1	1	1	1			
CONNECTOR BODY WIPER	Logan Part No.	BD79	BD72	BD73	BD74			
CONNECTOR BODY ID POLYPAK (SMALL)	Logan Part No.	BX144-3	BD202-3	BD203-3	…			
	No. Req'd	4	2	4	…			
CONNECTOR BODY ID POLYPAK (LARGE)	Logan Part No.	…	BD202-4	…	BD204-3			
	No. Req'd	…	2	…	4			
CONNECTOR BODY OD POLYPAK	Logan Part No.	BD209-4	BD202-5	BD203-5	BD204-2			
	No. Req'd	2	2	2	2			
CONNECTOR BODY SEAL PROTECTOR RING	Logan Part No.	L375-41	…	…	BD274			
	No. Req'd	2	…	2	2			
CONNECTOR BODY ID NON-EXTRUSION RING	Logan Part No.	L365-41	BD232	BD233	BD234			
	No. Req'd	2	2	2	2			
CONNECTOR BODY ID NON-EXTRUSION RING SETTING TOOL	Logan Part No.	**	AG1000-40	**	AG1000-52			
CONNECTOR BODY OD NON-EXTRUSION RING (LARGE)	Logan Part No.	…	…	…	…			
	No. Req'd	…	…	…	…			
CONNECTOR BODY OD NON-EXTRUSION RING (SMALL)	Logan Part No.	…	…	…	…			
	No. Req'd	…	…	…	…			
PRESSURE BODY	Logan Part No.	BD89	BD82	BD83	BD84			
FLOATER BODY	Logan Part No.	BD99	BD92	BD93	BD94			

SUPERIOR HYDRAULIC FISHING JARS

TOOL JOINT CONNECTION		2-7/8 API EUE	3-1/2 API IF	4-1/2 API IF	6-5/8 API REG			
OUTSIDE DIAMETER — INCHES		4-1/2	4-3/4	6-1/4	7-3/4			
INSIDE DIAMETER — INCHES		2-3/8	2-1/4	2-1/4	3-1/16			
COMPLETE ASSEMBLY	Logan Part No.	611-450	611-475	611-625	611-775			
COMPONENTS								
FLOATER BODY	Logan Part No.	568-240	568-242	568-253	568-362			
SEAL (LARGE)	No. Req'd	1	1	1	1			
FLOATER BODY	Logan Part No.	568-238	568-239	568-250	568-361			
SEAL (SMALL)	No. Req'd	1	1	1	1			
FLOATER BODY	Logan Part No.	AG10002	AG10002	AG10002	AG10002			
FILL PLUG	No. Req'd	2	2	2	2			
FLOATER BODY	Logan Part No.	568-006	568-006	568-006	568-006			
FILL PLUG SEAL	No. Req'd	2	2	2	2			
FLOATER	Logan Part No.	BD119	BD112	BD113	BD114			
FLOATER SEAL	Logan Part No.	568-238	568-341	568-351	568-361			
(LARGE)	No. Req'd	2	2	2	2			
FLOATER SEAL	Logan Part No.	568-235	568-337	268-343	568-349			
(SMALL)	No. Req'd	1	1	1	1			
FLOATER OD	Logan Part No.	BD209-2	BD202-2	BD203-2	BD204-4			
POLYPAK	No. Req'd	2	2	2	2			
FLOATER ID	Logan Part No.	BX144-3	BD202-3	BD203-3	BD204-3			
POLYPAK	No. Req'd	2	2	2	2			
FLOATER OD	Logan Part No.	…	…	…	…			
PARBAK RING	No. Req'd	…	…	…	…			
FLOATER ID	Logan Part No.	…	…	…	…			
PARBAK RING	No. Req'd	…	…	…	…			
FLOATER	Logan Part No.	BD299	BD292	BD293	BD294			
POSITIONING TOOL								
SEAL BODY	Logan Part No.	BD129	BD122	BD123	BD124			
SEAL BODY SEAL	Logan Part No.	568-234	568-234	568-341	568-347			
	No. Req'd	1	1	1	1			
NON-EXTRUSION RING	Logan Part No.	L370-12	L370-12	L365-44	BD264			
	No. Req'd	1	1	1	1			
SEAL	Logan Part No.	L376-12	L388-12	L375-44	BD284			
PROTECTOR RING	No. Req'd	1	1	1	1			
SETTING TOOL	Logan Part No.	AG1000-38	AG1000-40	AG1000-44	AG1000-50			
CONE	Logan Part No.	BD139	BD132	BD133	BD134			
BYPASS RING	Logan Part No.	BD159	BD152	BD153	BD154			
WASHPIPE	Logan Part No.	BD169	BD162	BD163	BD164			
WASHPIPE SEAL	Logan Part No.	568-234	568-234	568-238	568-347			
(LARGE)	No. Req'd	1	1	1	1			
WASHPIPE SEAL	Logan Part No.	569-232	568-232	…	…			
(SMALL)	No. Req'd	1	1	…	…			
WASHPIPE BODY	Logan Part No.	BD179	BD172	BD173	BD174			
WASHPIPE BODY SEAL	Logan Part No.	568-240	568-242	568-253	568-362			
(LARGE)	No. Req'd	1	1	1	1			
WASHPIPE BODY SEAL	Logan Part No.	568-238	568-239	568-250	568-361			
(SMALL)	No. Req'd	1	1	1	1			
REDRESS KITS *	Logan Part No.	BD189	BD182	BD183	BD184			
COMPLETE O-RING KIT	Logan Part No.	BD199	BD192	BD193	BD194			

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

SUPERIOR HYDRAULIC FISHING JARS

TOOL JOINT CONNECTION		2-7/8 EUE API Reg	3-1/2 API IF	4-1/2 API IF	5-1/2 API Reg	6-5/8 API Reg		
OUTSIDE DIAMETER — INCHES		4-1/2	4-3/4	6-1/4	6-3/4	7-3/4		
INSIDE DIAMETER — INCHES		2-3/8	2-1/4	2-1/4	2-3/4	3-1/16		
COMPLETE ASSEMBLY	Logan Part No.	611-450	611-475	611-625	611-675	611-775		
COMPONENTS								
COMPLETE POLYPAK KIT	Logan Part No.	BD209	BD202	BD203	BD207	BD204		
Consists of:								
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	2	4	…	4		
CONNECTOR BODY ID POLYPAK (LARGE)	Logan Part No.	…	BD202-4	…	**	…		
	No. Req'd.	…	2	…	…	…		
CONNECTOR BODY OD POLYPAK	Logan Part No.	BD209-4	BD202-5	BD203-5	**	BD204-2		
	No. Req'd.	2	2	2	…	2		
FLOATER OD POLYPAK	Logan Part No.	BD209-2	BD202-2	BD203-2	**	BD204-4		
	No. Req'd.	2	2	2	…	2		
FLOATER ID POLYPAK	Logan Part No.	BX144-3	BD202-3	BD203-3	**	BD204-3		
	No. Req'd.	2	2	2	…	2		
MANDREL EXTENSION ASSEMBLY SLEEVE †	Logan Part No.	BD209-6	BD202-6	BD203-6	**	BD204-6		
	No. Req'd.	1	2	1	…	1		

JAR LUBE	Logan Part No.	49842-A	49842-B	49842-C	49842-D			
	Bowen No.	49842-A	49842-B	49842-C	49842-D			
		1 Gallon	5 Gallons	20 Gallons	55 Gallons			

*** To be advised by engineering*

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

SUPERIOR HYDRAULIC FISHING JAR STRENGTH DATA

CHART A — SPECIFICATIONS

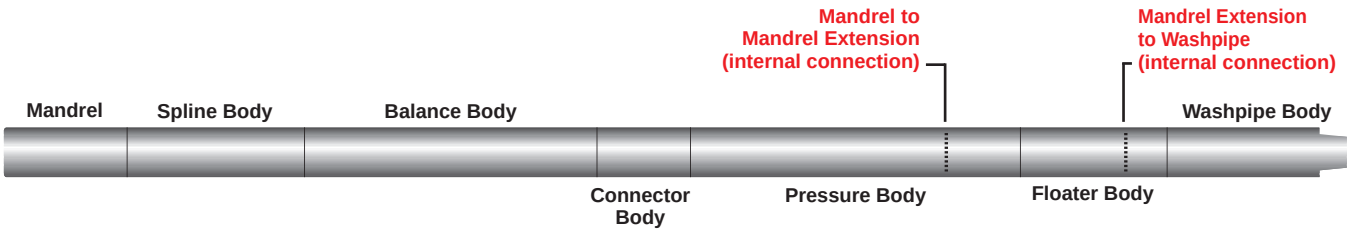
COMPLETE ASSEMBLY	611-306	611-312	611-313	611-375	611-377	611-376
OUTSIDE DIAMETER (INCHES)	3-1/16	3-1/8	3-1/8	3-3/4	3-3/4	3-3/4
INSIDE DIAMETER (INCHES)	1-1/2	1	1-1/2	1-1/2	1-1/4	1-7/8
CONNECTION	2-3/8 API EUE	2-3/8 API REG	2-7/8 PAC	2-3/8 API IF	2-7/8 API REG	2-3/8 API EUE
LENGTH (FEET & INCHES)	10' - 0"	10' - 0"	10' - 0"	12' - 8"	12' - 8"	12' - 8"
STROKE (INCHES)	10	10	10	10	10	10
FLOATER POSITION (INCHES)	MEASURED DISTANCE FROM FLOATER TO END OF FLOATER BODY					
STANDARD TEMPERATURE	8	8	8	9	9	8-3/4
HIGH TEMPERATURE	9-3/4	9-3/4	9-3/4	11	11	10-3/4
DRILL COLLAR WEIGHT RANGE (LBS)	300 – 4,000	300 – 4,000	300 – 4,000	400 – 6,000	400 – 6,000	400 – 6,000
PUMP OPEN AREA (SQ IN)	3	3	3	4	4	4

CHART B — STRENGTH AND TEST DATA

COMPLETE ASSEMBLY	611-306	611-312	611-313	611-375	611-377	611-376
JAR TESTER LOW TEST PULL LOAD MINIMUM / MAXIMUM (LBS)	7,000/12,000	9,000/12,000	7,000/12,000	12,000/16,000	12,000/16,000	12,000/16,000
JAR TESTER STANDARD PULL TEST (LBS)	18,000	30,000	18,000	35,000	35,000	35,000
FIELD LOAD — MAX PULL LOAD	36,000	55,000	36,000	72,000	72,000	51,000
LIFT LOAD AFTER JARRING JAR FULLY EXTENDED TENSILE @ YIELD (LBS)	185,000	253,000	185,000	330,000	330,000	285,000
TORQUE @ YIELD (FT-LBS)	4,200	7,500	4,200	14,500	14,500	9,650

CHART C — RECOMMENDED TIGHTENING TORQUES (FT-LBS)

COMPLETE ASSEMBLY	611-306	611-312	611-313	611-375	611-377	611-376
SPLINE BODY TO BALANCE BODY	2,100	2,700	2,100	3,500	3,650	3,500
BALANCE BODY TO CONNECTOR BODY	2,100	2,700	2,100	3,500	3,650	3,500
CONNECTOR BODY TO PRESSURE BODY	2,100	2,700	2,100	3,500	3,650	3,500
MANDREL TO MANDREL EXTENSION	500	600	500	700	700	700
PRESSURE BODY TO FLOATER BODY	2,100	2,700	2,100	3,500	3,650	3,500
MANDREL EXTENSION TO WASHPIPE	500	600	500	700	700	700
FLOATER BODY TO WASHPIPE BODY	2,100	2,700	2,100	3,500	3,650	3,500



SUPERIOR HYDRAULIC FISHING JAR STRENGTH DATA

CHART A — SPECIFICATIONS

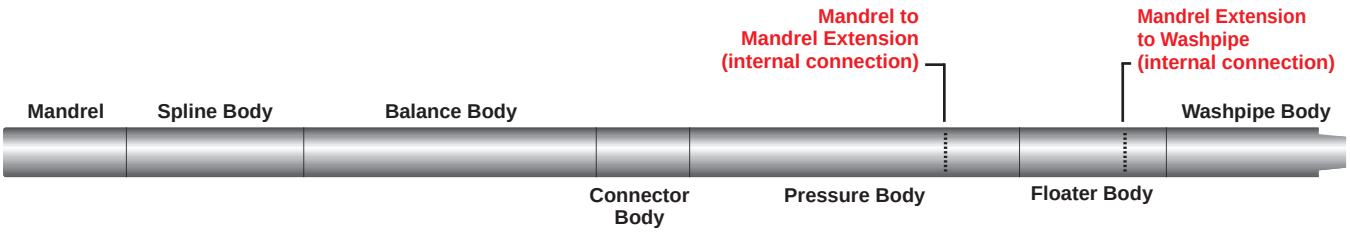
COMPLETE ASSEMBLY	611-425	611-450	611-475	611-625	611-775
OUTSIDE DIAMETER (INCHES)	4-1/4	4-1/2	4-3/4	6-1/4	7-3/4
INSIDE DIAMETER (INCHES)	2	2-3/8	2-1/4	2-1/4	3
CONNECTION	2-7/8 API IF	2-7/8 API EUE	3-1/2 API IF	4-1/2 API IF	6-5/8 API REG
LENGTH (FEET & INCHES)	13' - 6"	13' - 6"	13' - 6"	13' - 6"	15' - 0"
STROKE (INCHES)	12	12	12	12	12
FLOATER POSITION (INCHES)	MEASURED DISTANCE FROM FLOATER TO END OF FLOATER BODY				
STANDARD TEMPERATURE	9	9	10-3/4	10-3/4	11
HIGH TEMPERATURE	11	11	11-1/2	11-1/2	12-1/2
DRILL COLLAR WEIGHT RANGE (LBS)	400 – 6,000	400 – 6,000	500 – 8000	8,500 – 15,000	12,200 – 21,000
PUMP OPEN AREA (SQ IN)	6	7-1/2	7	11	16

CHART B — STRENGTH AND TEST DATA

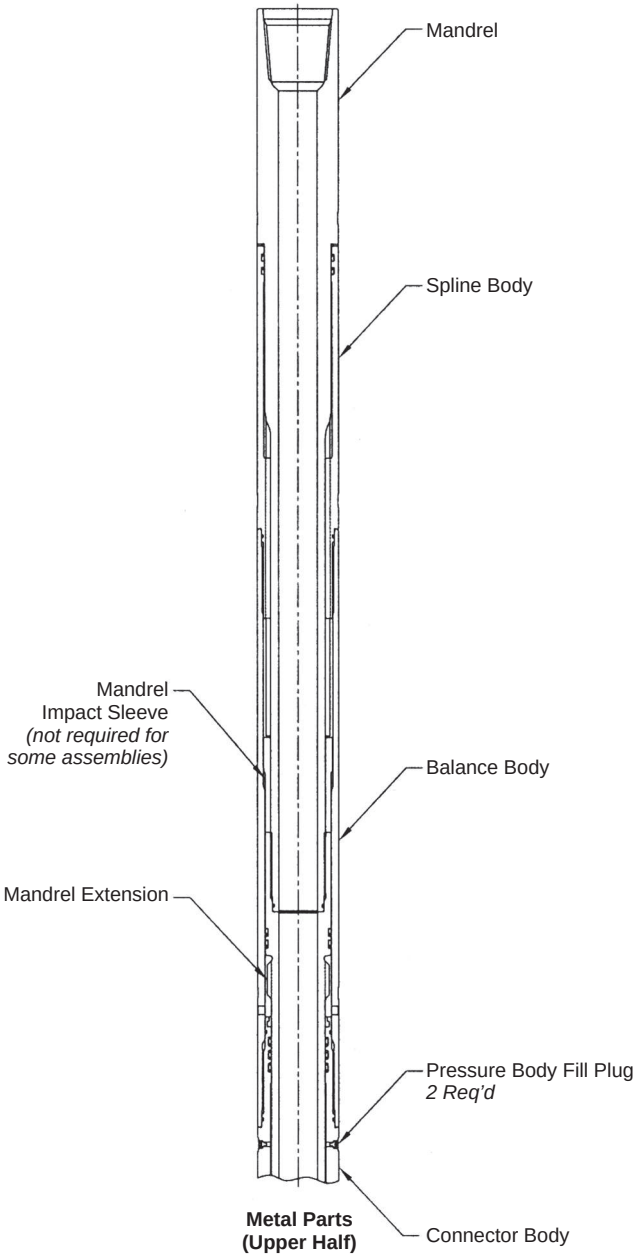
COMPLETE ASSEMBLY	611-425	611-450	611-475	611-625	611-775
JAR TESTER LOW TEST PULL LOAD MINIMUM / MAXIMUM (LBS)	12,000/16,000	12,000/16,000	15,000/20,000	18,000/26,000	18,000/26,000
JAR TESTER STANDARD PULL TEST (LBS)	35,000	30,000	50,000	100,000	100,000
FIELD LOAD — MAX PULL LOAD	75,000	60,000	100,000	200,000	275,000
LIFT LOAD AFTER JARRING JAR FULLY EXTENDED TENSILE @ YIELD (LBS)	375,000	360,000	505,000	1,000,000	1,600,000
TORQUE @ YIELD (FT-LBS)	18,500	12,000	18,100	40,800	79,000

CHART C — RECOMMENDED TIGHTENING TORQUES (FT-LBS)

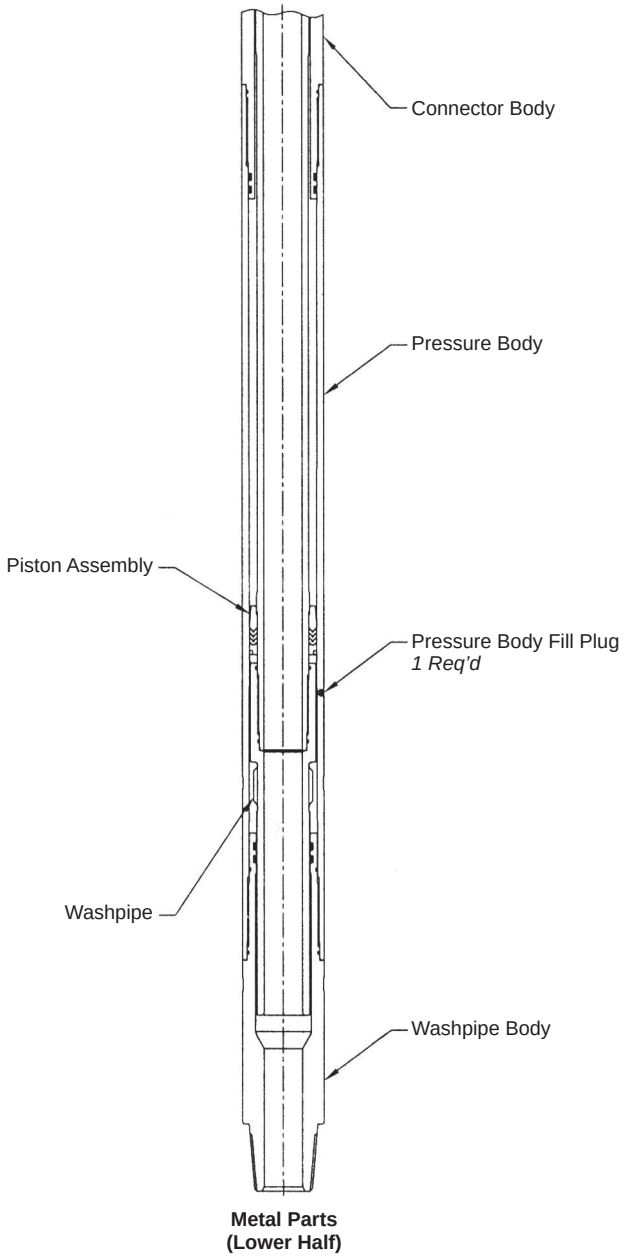
COMPLETE ASSEMBLY	611-425	611-450	611-475	611-625	611-775
SPLINE BODY TO BALANCE BODY	5,000	5,000	9,090	20,000	39,000
BALANCE BODY TO CONNECTOR BODY	5,000	5,000	9,090	20,000	39,000
CONNECTOR BODY TO PRESSURE BODY	5,000	5,000	9,090	20,000	39,000
MANDREL TO MANDREL EXTENSION	1,500	1,500	1,800	7,000	12,500
PRESSURE BODY TO FLOATER BODY	5,000	5,000	9,090	20,000	39,000
MANDREL EXTENSION TO WASHPIPE	1,500	1,500	1,000	4,800	10,500
FLOATER BODY TO WASHPIPE BODY	5,000	5,000	9,090	20,000	39,000



NOTES



Metal Parts (Upper Half)



Metal Parts (Lower Half)

SUPERIOR ENERGIZERS

Overview

The Logan Superior Energizer is run in conjunction with a Logan Superior Fishing Jar of the same size. Its function is to supply intensified impact during the jarring operation. Each size of Logan Superior Energizer is designed to match a corresponding size of Logan Superior Fishing Jar. The Superior Energizer is essentially a fluid spring, which stores energy when a strain is pulled on the fishing string. When the strain is removed by the free stroke of the fishing jar, the stored energy is released, accelerating the collars upward until a blow of high impact is struck. The tool absorbs much of the jarring shock from the rebounding string to protect tools and string from damage.

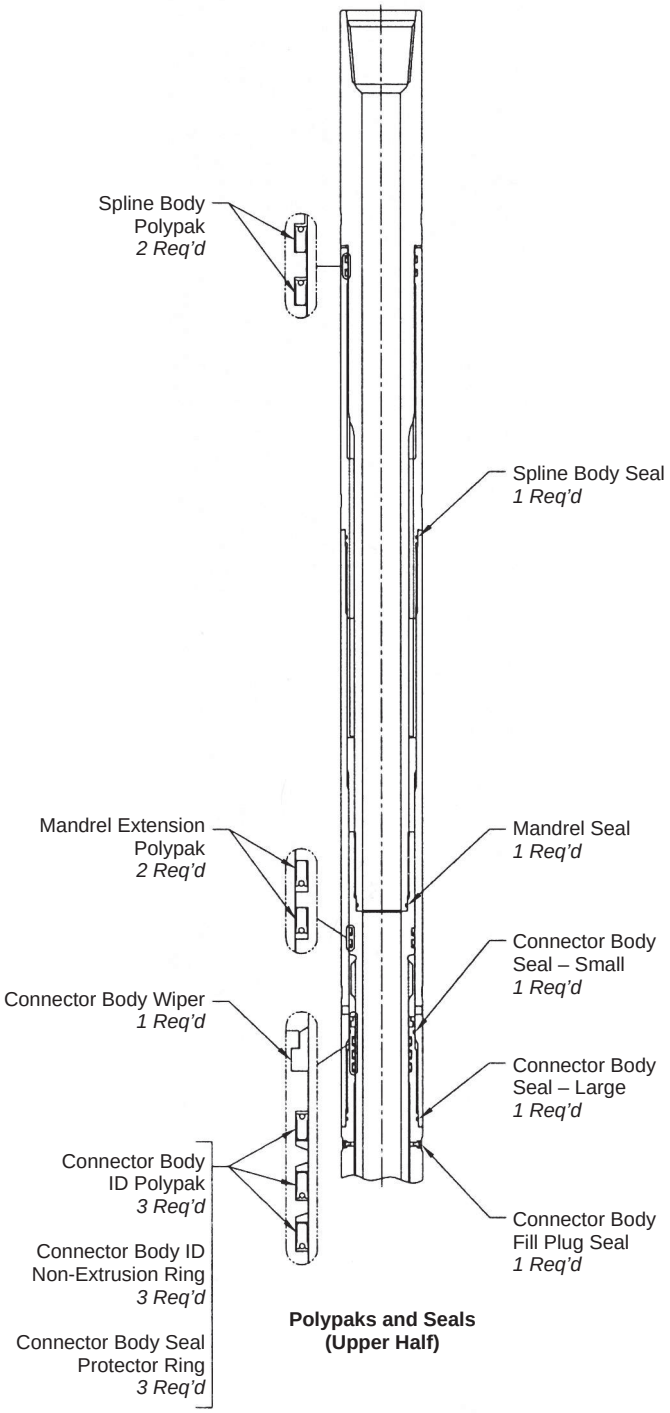
Operation

Operation of the Logan Superior Energizer is simple to use and requires only a straight pull at a speed determined by the job. It is completely safe to assemble since no high pressure pre-loading is required.

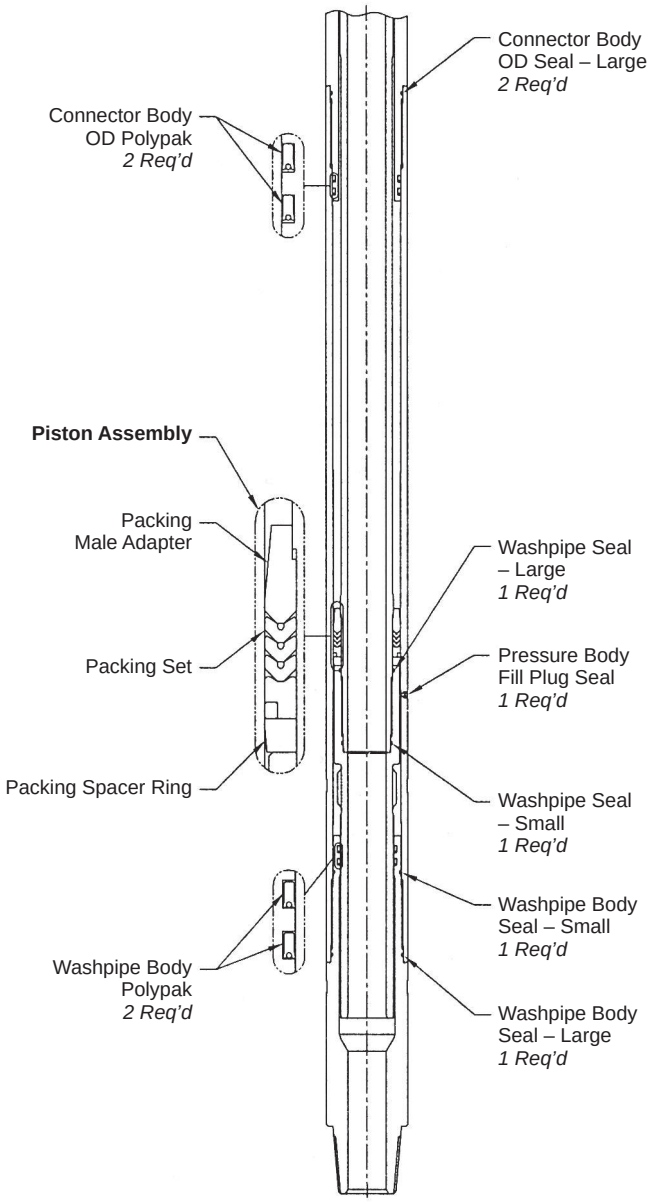
The Logan Superior Energizer can transmit full torque in either direction at all times while maintaining full circulation throughout the tool.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Name and number of any desired spares
(4) Outside diameter, if other than standard



Polypaks and Seals (Upper Half)



Polypaks and Seals (Lower Half)

SUPERIOR ENERGIZERS

TOOL JOINT CONNECTION		2-3/8 API Reg	2-3/8 EUE & 2-7/8 PAC	2-3/8 API IF	2-3/8 EUE	2-7/8 API IF	3-1/2 API IF	4-1/2 API IF
OUTSIDE DIAMETER — INCHES		3-1/8	3-1/16 & 3-1/8	3-3/4	3-3/4	4-1/4	4-3/4	6-1/4
INSIDE DIAMETER — INCHES		1	1-1/2	1-1/2	1-7/8	2	2-1/4	2-1/4
COMPLETE ASSEMBLY	Logan Part No.	614-312	614-306 & 614-313	614-375	614-376	614-425	614-475	614-625

COMPONENTS

MANDREL	Logan Part No.	BX10	BX11	BX12	BX18	BX13	BX14	BX15
MANDREL SEAL	Logan Part No.	…	568-225	568-225	**	568-229	568-232	568-236
	No. Req'd	…	1	1	…	1	1	1
SPLINE BODY	Logan Part No.	BX20	BX21	BX22	BX28	BX23	BX24	BX25
SPLINE BODY SEAL	Logan Part No.	568-230	568-230	568-234	**	568-238	568-242	568-254
	No. Req'd	1	1	1	…	1	1	1
SPLINE BODY	Logan Part No.	BD205-1	BD205-1	BD202-3	**	BD202-2	BD202-1	BD203-1
POLYPAK	No. Req'd	2	2	2	…	2	2	2
MANDREL SLEEVE	Logan Part No.	BX30	BX31	…	BX38	…	BX34	…
BALANCE BODY	Logan Part No.	BX40	BX41	BX42	BX48	BX43	BX44	BX45
MANDREL EXTENSION	Logan Part No.	BX50	BX51	BX52	BX58	BX53	BX54	BX55
MANDREL EXTENSION	Logan Part No.	BD205-2	BD205-2	BD201-2	**	BX144-3	BD202-2	BD203-2
POLYPAK	No. Req'd	2	1	2	…	2	2	2
PISTON ASSEMBLY	Logan Part No.	BX60	BX61	BX62	BX68	BX63	BX64	BX65
Consists of:								
PACKING SET	Logan Part No.	BX60-1	BX61-1	BX62-1	BX68-1	BX63-1	BX64-1	BX65-1
PACKING MALE ADAPTER	Logan Part No.	BX60-2	BX61-2	BX62-2	BX68-2	BX63-2	BX64-2	BX65-2
PACKING SPACER RING	Logan Part No.	BX60-3	BX61-3	BX62-3	BX68-3	BX63-3	BX64-3	BX65-3
CONNECTOR BODY	Logan Part No.	BX70	BX71	BX72	BX78	BX73	BX74	BX75
CONNECTOR BODY WIPER	Logan Part No.	…	…	BD71	**	BD76	BX84	BD73
CONNECTOR BODY	Logan Part No.	BD200-3	BD205-3	BD201-3	**	AQ29005	BX144-3	BD203-3
ID POLYPAK	No. Req'd	3	3	3	…	3	3	3
CONNECTOR BODY ID	Logan Part No.	L365-30	L365-32	BD231	**	BD236	BX154	BD233
NON-EXTRUSION RING	No. Req'd	2	2	3	…	3	3	3
CONNECTOR BODY	Logan Part No.	L375-30	8-228	**	**	**	L375-41	BD273
SEAL PROTECTOR RING	No. Req'd	2	2	…	…	…	3	3
CONNECTOR BODY	Logan Part No.	8-330	…	…	**	…	…	…
OD PARBAK RING	No. Req'd	1	…	…	…	…	…	…
CONNECTOR BODY OD	Logan Part No.	BX160	L366-33.5	…	**	…	**	…
NON-EXTRUSION RING	No. Req'd	1	2	…	…	…	…	…
CONNECTOR BODY	Logan Part No.	568-330	568-228	568-232	**	568-236	568-239	568-250
SEAL (SMALL)	No. Req'd	2	2	1	…	1	1	1
CONNECTOR BODY	Logan Part No.	568-230	568-230	568-234	**	568-238	568-242	568-252
SEAL (LARGE)	No. Req'd	2	2	2	…	2	2	2
CONNECTOR BODY	Logan Part No.	AG10002	AG10000	AG10002	**	AG10002	AG10002	AG10002
FILL PLUG	No. Req'd	2	2	2	…	2	2	2
CONNECTOR BODY	Logan Part No.	568-006	568-005	568-006	**	568-006	568-006	568-006
FILL PLUG SEAL	No. Req'd	2	2	2	…	2	2	2

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

*** To be advised by engineering*

SUPERIOR ENERGIZERS

TOOL JOINT CONNECTION		2-3/8 API Reg	2-3/8 EUE & 2-7/8 PAC	2-3/8 API IF	2-3/8 EUE	2-7/8 API IF	3-1/2 API IF	4-1/2 API IF
OUTSIDE DIAMETER — INCHES		3-1/8	3-1/16 & 3-1/8	3-3/4	3-3/4	4-1/4	4-3/4	6-1/4
INSIDE DIAMETER — INCHES		1	1-1/2	1-1/2	1-7/8	2	2-1/4	2-1/4
COMPLETE ASSEMBLY	Logan Part No.	614-312	614-306 & 614-313	614-375	614-376	614-425	614-475	614-625

COMPONENTS (CONTINUED)

CONNECTOR BODY OD POLYPAK	Logan Part No.	...	...	AQ29003	**	AQ29005	BD202-5	BD203-5
	No. Req'd	...	...	2	...	2	2	2
PRESSURE BODY	Logan Part No.	BX90	BX91	BX92	BX98	BX93	BX94	BX95
PRESSURE BODY FILL PLUG	Logan Part No.	AG10004	AG10004	AG10004	**	AG10000	AG10000	AG10000
	No. Req'd	1	1	1	...	1	1	1
PRESSURE BODY FILL PLUG SEAL	Logan Part No.	...	...	...	**	568-005	568-005	568-005
	No. Req'd	...	...	...	...	1	1	1
WASHPIPE	Logan Part No.	BX100	BX101	BX102	BX108	BX103	BX104	BX105
WASHPIPE SEAL (LARGE)	Logan Part No.	568-130	...	568-227	**	568-231	568-234	568-238
	No. Req'd	1	...	1	...	1	1	1
WASHPIPE SEAL (SMALL)	Logan Part No.	568-221	568-224	568-225	**	568-229	568-232	568-234
	No. Req'd	1	1	1	...	1	1	1
WASHPIPE BODY	Logan Part No.	BX110	BX111	BX112	BX118	BX113	BX114	BX115
WASHPIPE BODY SEAL (LARGE)	Logan Part No.	568-230	568-230	568-234	**	568-238	568-242	568-252
	No. Req'd	1	1	1	...	1	1	1
WASHPIPE BODY SEAL (SMALL)	Logan Part No.	568-228	568-228	568-232	**	568-236	568-240	568-250
	No. Req'd	1	1	1	...	1	1	1
WASHPIPE BODY POLYPAK	Logan Part No.	BD205-2	BD205-3	BD201-3	**	AQ29003	BX144-3	BD203-3
	No. Req'd	2	2	2	...	2	2	2
REDRESS KITS *	Logan Part No.	BX120	BX121	BX122	BX128	BX123	BX124	BX125
O-RING PACKING SET	Logan Part No.	BX130	BX131	BX132	BX138	BX133	BX134	BX135
POLYPAK KIT	Logan Part No.	BX140	BX141	BX142	BX148	BX143	BX144	BX145
Consists of:								
SPLINE BODY POLYPAK	Logan Part No.	BD205-1	BD205-1	BD202-3	**	BD202-2	BD202-1	BD203-1
	No. Req'd	2	2	2	...	2	2	2
MANDREL EXTENSION POLYPAK	Logan Part No.	BD205-2	BD205-2	BD201-2	**	BX144-3	BD202-2	BD203-2
	No. Req'd	2	1	2	...	2	2	2
CONNECTOR BODY ID POLYPAK	Logan Part No.	BD200-3	BD205-3	BD201-3	**	AQ29005	BX144-3	BD203-3
	No. Req'd	3	3	3	...	3	3	3
CONNECTOR BODY OD POLYPAK	Logan Part No.	...	...	AQ29003	**	AQ29005	BD202-5	BD203-5
	No. Req'd	...	...	2	...	2	2	2
WASHPIPE BODY POLYPAK	Logan Part No.	BD200-3	BD205-3	BD201-3	**	AQ29003	BX144-3	BD203-3
	No. Req'd	2	2	2	...	2	2	2
MANDREL EXTENSION ASSEMBLY SLEEVE	Logan Part No.	...	BD205-6	BX142-2	**	BX143-5	BX144-5	BX145-5
	No. Req'd	...	1	1	...	1	1	1

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

*** To be advised by engineering*

SUPERIOR ENERGIZERS

TOOL JOINT CONNECTION		5-1/2 API Reg	6-5/8 API Reg					
OUTSIDE DIAMETER — INCHES		6-3/4	7-3/4					
INSIDE DIAMETER — INCHES		2-3/4	3-1/16					
COMPLETE ASSEMBLY	Logan Part No.	614-675	614-775					

COMPONENTS

MANDREL	Logan Part No.	BX16	BX17					
MANDREL SEAL	Logan Part No.	**	**					
	No. Req'd	…	…					
SPLINE BODY	Logan Part No.	BX26	BX27					
SPLINE BODY SEAL	Logan Part No.	**	**					
	No. Req'd	…	…					
SPLINE BODY POLYPAK	Logan Part No.	**	**					
	No. Req'd	…	…					
MANDREL SLEEVE	Logan Part No.	BX36	BX37					
BALANCE BODY	Logan Part No.	BX46	BX47					
MANDREL EXTENSION	Logan Part No.	BX56	BX57					
MANDREL EXTENSION POLYPAK	Logan Part No.	**	**					
	No. Req'd	…	…					
PISTON ASSEMBLY	Logan Part No.	BX66	BX67					
Consists of:								
PACKING SET	Logan Part No.	BX66-1	BX67-1					
PACKING MALE ADAPTER	Logan Part No.	BX66-2	BX67-2					
PACKING SPACER RING	Logan Part No.	BX66-3	BX67-3					
CONNECTOR BODY	Logan Part No.	BX76	BX77					
CONNECTOR BODY WIPER	Logan Part No.	BX86	BD74					
CONNECTOR BODY ID POLYPAK	Logan Part No.	**	**					
	No. Req'd	…	…					
CONNECTOR BODY ID NON-EXTRUSION RING	Logan Part No.	**	**					
	No. Req'd	…	…					
CONNECTOR BODY SEAL PROTECTOR RING	Logan Part No.	**	**					
	No. Req'd	…	…					
CONNECTOR BODY OD PARBAK RING	Logan Part No.	**	**					
	No. Req'd	…	…					
CONNECTOR BODY OD NON-EXTRUSION RING	Logan Part No.	**	**					
	No. Req'd	…	…					
CONNECTOR BODY SEAL (SMALL)	Logan Part No.	**	**					
	No. Req'd	…	…					
CONNECTOR BODY SEAL (LARGE)	Logan Part No.	**	**					
	No. Req'd	…	…					
CONNECTOR BODY FILL PLUG	Logan Part No.	**	**					
	No. Req'd	…	…					
CONNECTOR BODY FILL PLUG SEAL	Logan Part No.	**	**					
	No. Req'd	…	…					
CONNECTOR BODY OD POLYPAK	Logan Part No.	**	**					
	No. Req'd	…	…					

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

*** To be advised by engineering*

SUPERIOR ENERGIZERS

TOOL JOINT CONNECTION		5-1/2 API Reg	6-5/8 API Reg					
OUTSIDE DIAMETER — INCHES		6-3/4	7-3/4					
INSIDE DIAMETER — INCHES		2-3/4	3-1/16					
COMPLETE ASSEMBLY	Logan Part No.	614-675	614-775					

COMPONENTS

CONNECTOR BODY OD POLYPAK	Logan Part No. No. Req'd	** …	** …					
PRESSURE BODY	Logan Part No.	BX96	BX97					
PRESSURE BODY FILL PLUG	Logan Part No. No. Req'd	** …	** …					
PRESSURE BODY FILL PLUG SEAL	Logan Part No. No. Req'd	** …	** …					
WASHPIPE	Logan Part No.	BX106	BX107					
WASHPIPE SEAL (LARGE)	Logan Part No. No. Req'd	** …	** …					
WASHPIPE SEAL (SMALL)	Logan Part No. No. Req'd	** …	** …					
WASHPIPE BODY	Logan Part No.	BX116	BX117					
WASHPIPE BODY SEAL (LARGE)	Logan Part No.	**	**					
WASHPIPE BODY SEAL (SMALL)	Logan Part No. No. Req'd	** …	** …					
WASHPIPE BODY POLYPAK	Logan Part No. No. Req'd	** …	** …					
REDRESS KITS *	Logan Part No.	BX126	BX127					
O-RING PACKING SET	Logan Part No.	BX136	BX137					
POLYPAK KIT	Logan Part No.	BX146	BX147					
Consists of:								
SPLINE BODY POLYPAK	Logan Part No. No. Req'd	** …	** …					
MANDREL EXTENSION POLYPAK	Logan Part No. No. Req'd	** …	** …					
CONNECTOR BODY ID POLYPAK	Logan Part No. No. Req'd	** …	** …					
CONNECTOR BODY OD POLYPAK	Logan Part No. No. Req'd	** …	** …					
WASHPIPE BODY POLYPAK	Logan Part No. No. Req'd	** …	** …					
MANDREL EXTENSION ASSEMBLY SLEEVE	Logan Part No. No. Req'd	** …	** …					

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

*** To be advised by engineering*

Z TYPE HYDRAULIC JARS

Overview

The Logan Z Type Hydraulic Jar is used for light drilling, fishing, coring, reaming, testing, side tracking, and washover operations. This straight-pull jar combines the principles of mechanics and hydraulics in a simple to assemble, easy to operate design. The jar has a closed hydraulic system that contains the hydraulic fluid within the jar and well fluids cannot enter the tool. The internal working parts are constantly lubricated by the hydraulic fluid within the tool resulting in long wear life of the parts.

Construction

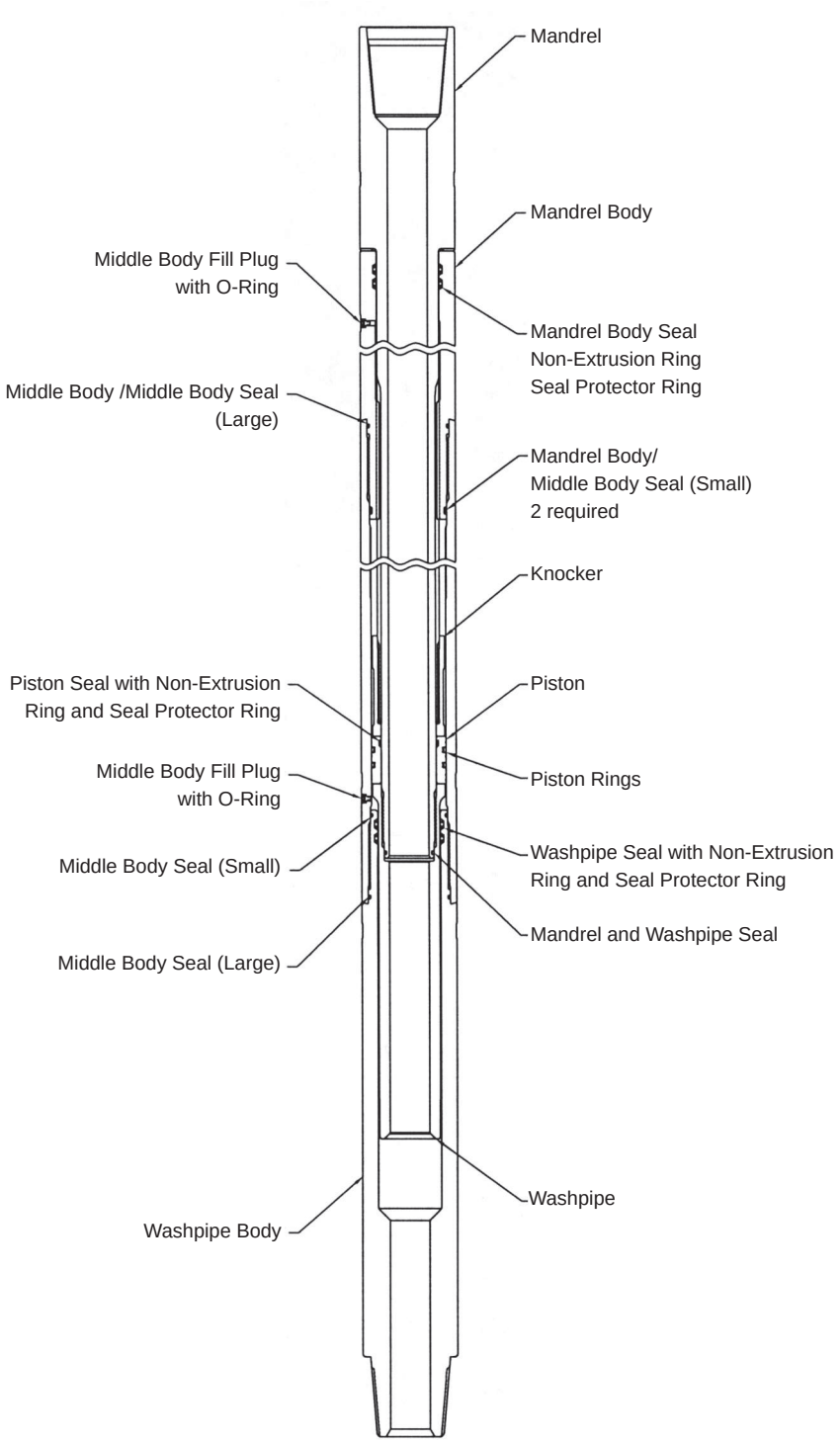
The Logan Z Type Hydraulic Jar consists of a mandrel/piston assembly that slides within a cylinder assembly. The mandrel/piston assembly is composed of a mandrel, piston assembly (a piston, two piston rings, an O-ring seal, a non-extrusion ring, and a seal protector ring), washpipe, knocker, and seal ring assemblies. The cylinder assembly consists of a mandrel body, middle body, washpipe body, fill plugs, and seal assemblies.

Operation

The Logan Z Type Hydraulic Jar is easy to use. Only straight pull is required to operate the jar. Each blow can be positively controlled by the operator from a very light blow to forceful impact. Successive blows can be struck as often as the operator can raise and slack off the running string. Full circulation through the tool can be maintained for effective flushing. Full torque may be used in either direction and at all times during operation.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Outside diameter, if other than standard



Z TYPE HYDRAULIC JARS

TOOL JOINT CONNECTION		7/8 Sucker Rod	1-13/16 Wilson FJ	1-1/4 API Reg	2-3/8 PH6 5.9# Hyd Bx	2-3/8 EUE	2-3/8 API Reg	2-7/8 API Reg
OUTSIDE DIAMETER (INCHES)		1-5/8	1-13/16	2-1/4	2-29/32	3-1/16	3-1/8	3-3/4
INSIDE DIAMETER (INCHES)		1/4	5/16	3/8	1	1-1/2	1	1-1/4
TYPE JAR		Sub	Special	Integral Mandrel	Sub	Sub	Integral Mandrel	Integral Mandrel
COMPLETE ASSEMBLY	Logan Part No.	605-000	605-001	605-002	605-003	605-004	605-005	605-006
	Bowen No.	70822	74723	54020	68010	55670	52504	52506
TOP SUB	Logan Part No.	AG3000	AG3001	...	AG3003	AG3004	...	...
	Bowen No.	70823	21156	...	68015	55889	...	...
MANDREL	Logan Part No.	AG4000	AG4001	AG4002	AG4003	AG4004	AG4005	AG4006
	Bowen No.	70825	21155	18780	68014	55888	38056	38041
PISTON ASSEMBLY	Logan Part No.	26000-018	26000-019	26000-020	26000-021	26000-022	26000-023	26000-024
(Ring Type Standard)	Bowen No.	70853	74725	59585	68019	56368	61282	68128
MANDREL BODY	Logan Part No.	AG5000	AG5001	AG5002	AG5003	AG5004	AG5005	AG5006
	Bowen No.	70824	21153	56571	68013	55887	52764	52770
MIDDLE BODY	Logan Part No.	AG6000	AG6001	AG6002	AG6003	AG6004	AG6005	AG6006
	Bowen No.	70826	74724	18777	68012	55886	42737	38044
WASHPIPE BODY	Logan Part No.	AG7000	AG7001	AG7002	AG7003	AG7004	AG7005	AG7006
	Bowen No.	70829	21151	18776	68011	55885	38064	38045
KNOCKER	Logan Part No.	...	...	AG8002	...	...	AG8005	AG8006
	Bowen No.	...	...	18781	…	…	38060	38049
WASHPIPE	Logan Part No.	AG9000	AG9001	AG9002	AG9003	AG9004	AG9005	AG9006
	Bowen No.	70828	21154	18779	68016	55890	42738	38046
MANDREL BODY FILL PLUG	Logan Part No.	AG10000	AG10000	AG10002	AG10000	AG10000	AG10002	AG10002
	Bowen No.	617	617	329	617	617	329	329
MIDDLE BODY FILL PLUG	Logan Part No.	...	...	AG10000	AG10004	AG10004	AG10000	AG10000
	Bowen No.	…	...	617	10641	10641	617	617
PACKING SET	Logan Part No.	26000-036	26000-037	26000-038	26000-039	26000-040	26000-041	26000-042
	Bowen No.	70961	74802	18793	68017	55924	44622	38048

JAR LUBE	Logan Part No.	49842-A	49842-B	49842-D				
	Bowen No.	49842-A	49842-B	49842-D				
		1 Gallon	5 Gallons	55 Gallons				

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

Special Notes:

(1) Packing Sets include all seals necessary to dress the tool. Non-Extrusion Rings and Seal Protector Rings are not included, and must be ordered separately.

(2) Service Kit does not include Seal Setting Tools, which must be ordered separately.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Outside diameter, if other than standard

Recommended Spares:

(1) 1 Service Kit
(2) 1 Washpipe
(3) 2 Piston Assemblies
(4) 16 Non-Extrusion Rings
(5) 16 Seal Protector Rings
(6) 4 Mandrel Body Fill Plugs
(7) 4 Middle Body Fill Plugs
(8) 8 Packing Sets
(9) 1 Mandrel Body Setting Tool
(10) 1 Piston Setting Tool

Z TYPE HYDRAULIC JARS

TOOL JOINT CONNECTION		7/8 Sucker Rod	1-13/16 Wilson FJ	1-1/4 API Reg	2-3/8 PH6 5.9# Hyd Bx	2-3/8 EUE	2-3/8 API Reg	2-7/8 API Reg
OUTSIDE DIAMETER (INCHES)		1-5/8	1-13/16	2-1/4	2-29/32	3-1/16	3-1/8	3-3/4
INSIDE DIAMETER (INCHES)		1/4	5/16	3/8	1	1-1/2	1	1-1/4
TYPE JAR		Sub	Special	Integral Mandrel	Sub	Sub	Integral Mandrel	Integral Mandrel
COMPLETE ASSEMBLY	Logan Part No.	605-000	605-001	605-002	605-003	605-004	605-005	605-006
	Bowen No.	70822	74723	54020	68010	55670	52504	52506
MANDREL	Logan Part No.	L365-16	L365-17	L365-24	L365-30.5	L364-32.5	L365-32	L365-35
NON-EXTRUSION RING	Bowen No.	365-16	365-17	365-24	365-30.5	364-32.5	365-32	365-35
	No. Req'd	8	4	4	8	8	8	8
MANDREL SEAL	Logan Part No.	L375-16	L375-17	L375-24	L375-30.5	L375-32.5	L375-32	L375-35
PROTECTOR RING	Bowen No.	375-16	375-17	375-24	375-30.5	375-32.5	375-32	375-35
	No. Req'd	8	4	4	8	8	8	8
MANDREL BODY	Logan Part No.	…	…	L56542	…	…	…	…
NON-EXTRUSION RING	Bowen No.	...	…	56542	…	...	…	...
MANDREL BODY	Logan Part No.	AG11000	…	…	…	…	…	…
INSERT	Bowen No.	71254	…	…	…	...	...	...
MANDREL BODY SEAL	Logan Part No.	…	…	L227-27.25	…	…	…	…
PROTECTOR RING	Bowen No.	…	...	227-27.25	…	…	…	…

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

Special Notes:

(1) Packing Sets include all seals necessary to dress the tool. Non-Extrusion Rings and Seal Protector Rings are not included, and must be ordered separately.

(2) Service Kit does not include Seal Setting Tools, which must be ordered separately.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Outside diameter, if other than standard

Recommended Spares:

(1) 1 Service Kit
(2) 1 Washpipe
(3) 2 Piston Assemblies
(4) 16 Non-Extrusion Rings
(5) 16 Seal Protector Rings
(6) 4 Mandrel Body Fill Plugs
(7) 4 Middle Body Fill Plugs
(8) 8 Packing Sets
(9) 1 Mandrel Body Setting Tool
(10) 1 Piston Setting Tool

Z TYPE HYDRAULIC JARS

TOOL JOINT CONNECTION		7/8 Sucker Rod	1-13/16 Wilson FJ	1-1/4 API Reg	2-3/8 PH6 5.9# Hyd Bx	2-3/8 EUE	2-3/8 API Reg	2-7/8 API Reg
OUTSIDE DIAMETER (INCHES)		1-5/8	1-13/16	2-1/4	2-29/32	3-1/16	3-1/8	3-3/4
INSIDE DIAMETER (INCHES)		1/4	5/16	3/8	1	1-1/2	1	1-1/4
TYPE JAR		Sub	Special	Integral Mandrel	Sub	Sub	Integral Mandrel	Integral Mandrel
COMPLETE ASSEMBLY	Logan Part No.	605-000	605-001	605-002	605-003	605-004	605-005	605-006
	Bowen No.	70822	74723	54020	68010	55670	52504	52506
RING TYPE	Logan Part No.	26000-018	26000-019	26000-020	26000-021	26000-022	26000-023	26000-024
PISTON ASSEMBLY	Bowen No.	70853	74725	59585	68019	56368	61282	68128
Consists of:								
PISTON	Logan Part No.	AG15000	...	AG15002	...	...	AG15005	AG15006
	Bowen No.	70827	...	59586	...	...	61283	68127
WAVE SPRING	Logan Part No.	L66164	...	...	...	...	...	...
	Bowen No.	66164	...	...	...	...	...	...
	No. Req'd	2	...	...	...	...	...	...
PISTON RING	Logan Part No.	...	...	L18783	...	...	L61284	L61287
	Bowen No.	...	...	18783	...	...	61284	61287
	No. Req'd	...	...	2	...	...	4	2
SEAL	Logan Part No.	...	...	568-214	...	...	568-223	568-226
	Bowen No.	...	...	568214	...	...	568223	568226
NON-EXTRUSION RING	Logan Part No.	...	...	L365-19	L370-1.5	L370-3.5	L370-1	L370-4
	Bowen No.	...	...	365-19	370-1.5	370-3.5	370-1	370-4
SEAL	Logan Part No.	...	...	L375-19	L376-1.5	L376-3.5	L376-1	L376-4
PROTECTOR RING	Bowen No.	...	...	375-19	376-1.5	376-3.5	376-1	376-4
CONE TYPE	Logan Part No.	...	26000-019	...	...	...	...	...
PISTON ASSEMBLY	Bowen No.	...	74725	...	...	...	...	...
Consists of:								
CONE	Logan Part No.	...	AG14001	...	AG14003	AG14004	...	...
	Bowen No.	...	74726	...	68020	55891	...	...
BY-PASS BODY	Logan Part No.	...	AG13001	...	...	...	...	...
	Bowen No.	...	74727	...	...	...	...	...
SEAL BODY	Logan Part No.	...	AG12001	...	AG12003	AG12004	...	...
	Bowen No.	...	74728	...	68021	55892	...	...
SEAL BODY SEAL	Logan Part No.	...	568-020	...	568-224	568-226	...	...
	Bowen No.	...	568020	...	568224	568226	...	...

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Special Notes:

(1) Packing Sets include all seals necessary to dress the tool. Non-Extrusion Rings and Seal Protector Rings are not included, and must be ordered separately.

(2) Service Kit does not include Seal Setting Tools, which must be ordered separately.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Outside diameter, if other than standard

Recommended Spares:

(1) 1 Service Kit
(2) 1 Washpipe
(3) 2 Piston Assemblies
(4) 16 Non-Extrusion Rings
(5) 16 Seal Protector Rings
(6) 4 Mandrel Body Fill Plugs
(7) 4 Middle Body Fill Plugs
(8) 8 Packing Sets
(9) 1 Mandrel Body Setting Tool
(10) 1 Piston Setting Tool

Z TYPE HYDRAULIC JARS

TOOL JOINT CONNECTION		7/8 Sucker Rod	1-13/16 Wilson FJ	1-1/4 API Reg	2-3/8 PH6 5.9# Hyd Bx	2-3/8 EUE	2-3/8 API Reg	2-7/8 API Reg
OUTSIDE DIAMETER (INCHES)		1-5/8	1-13/16	2-1/4	2-29/32	3-1/16	3-1/8	3-3/4
INSIDE DIAMETER (INCHES)		1/4	5/16	3/8	1	1-1/2	1	1-1/4
TYPE JAR		Sub	Special	Integral Mandrel	Sub	Sub	Integral Mandrel	Integral Mandrel
COMPLETE ASSEMBLY	Logan Part No.	605-000	605-001	605-002	605-003	605-004	605-005	605-006
	Bowen No.	70822	74723	54020	68010	55670	52504	52506

OPTIONAL

MANDREL BODY SETTING TOOL	Logan Part No.	AG1000-16	AG1000-17	AG1000-24	AG1000-29.5	AG1000-32.5	AG1000-32	AG1000-35
	Bowen No.	22709-16	22709-17	22709-24	22709-29.5	22709-32.5	22709-32	22709-3
PISTON SETTING TOOL	Logan Part No.	...	...	AG1000-19	AG1000-30.5	AG1000-31	AG1000-29	AG1000-32
	Bowen No.	…	…	22709-19	22709-30.5	22709-31	22709-29	22709-32
SERVICE KIT	Logan Part No.	26000-054	26000-055	26000-055	26000-055	26000-055	26000-055	26000-055
	Bowen No.	21279	55403	55403	55403	55403	55403	55403
HI-TEMPERATURE PACKING SET	Logan Part No.	...	26000-73	26000-074	...	26000-076	26000-077	26000-078
	Bowen No.	…	149945	149884	…	148247	73659	80004
PACKING SET	Logan Part No.	26000-036	26000-037	26000-038	26000-039	26000-040	26000-041	26000-042
Consists of:	Bowen No.	70961	74802	18793	68017	55924	44622	38048
MANDREL/ WASHPIPE SEAL	Logan Part No.	568-211	568-212	568-219	568-328	568-330	568-329	568-332
	Bowen No.	568211	568212	568219	568328	568330	568329	568332
	No. Req'd	4	4	4	4	4	4	4
LARGE MIDDLE BODY SEAL	Logan Part No.	568-216	568-019	568-224	568-036	568-038	568-231	...
	Bowen No.	568216	568019	568224	568036	568038	568231	568235
	No. Req'd	2	2	2	2	2	2	2
SMALL MIDDLE BODY SEAL	Logan Part No.	568-214	568-027	568-228	568-035	568-036	568-228	568-233
	Bowen No.	568214	568027	568228	568035	568036	568228	568233
	No. Req'd	3	3	3	3	3	3	3
WASHPIPE SEAL	Logan Part No.	...	568-115	568-210	568-224	568-226	568-220	568-222
	Bowen No.	…	568115	568210	568224	568226	568220	568222

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Special Notes:

(1) Packing Sets include all seals necessary to dress the tool. Non-Extrusion Rings and Seal Protector Rings are not included, and must be ordered separately.

(2) Service Kit does not include Seal Setting Tools, which must be ordered separately.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Outside diameter, if other than standard

Recommended Spares:

(1) 1 Service Kit
(2) 1 Washpipe
(3) 2 Piston Assemblies
(4) 16 Non-Extrusion Rings
(5) 16 Seal Protector Rings
(6) 4 Mandrel Body Fill Plugs
(7) 4 Middle Body Fill Plugs
(8) 8 Packing Sets
(9) 1 Mandrel Body Setting Tool
(10) 1 Piston Setting Tool

Z TYPE HYDRAULIC JARS

TOOL JOINT CONNECTION		7/8 Sucker Rod	1-13/16 Wilson FJ	1-1/4 API Reg	2-3/8 PH6 5.9# Hyd Bx	2-3/8 EUE	2-3/8 API Reg	2-7/8 API Reg
OUTSIDE DIAMETER (INCHES)		1-5/8	1-13/16	2-1/4	2-29/32	3-1/16	3-1/8	3-3/4
INSIDE DIAMETER (INCHES)		1/4	5/16	3/8	1	1-1/2	1	1-1/4
TYPE JAR		Sub	Special	Integral Mandrel	Sub	Sub	Integral Mandrel	Integral Mandrel
COMPLETE ASSEMBLY	Logan Part No.	605-000	605-001	605-002	605-003	605-004	605-005	605-006
	Bowen No.	70822	74723	54020	68010	55670	52504	52506
MANDREL BODY FILL PLUG SEAL	Logan Part No.	568-005	568-005	568-006	568-005	568-006	568-006	568-006
	Bowen No.	568005	568005	568006	568005	568006	568006	568006
MIDDLE BODY FILL PLUG SEAL	Logan Part No.	...	...	568-005	...	...	568-005	568-005
	Bowen No.	...	...	568005	...	...	568005	568005
PISTON SEAL	Logan Part No.	...	...	568-214	...	...	568-223	568-226
	Bowen No.	...	...	568214	...	...	568223	568226
MIDDLE BODY / MANDREL BODY SEAL	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...
WASHPIPE / MIDDLE BODY SEAL	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...
BACK-UP RINGS	Logan Part No.	8-024	...	...	...	...	...	...
	Bowen No.	8-024	...	...	...	...	...	...
MANDREL SEAL	Logan Part No.	568-015	...	...	...	...	...	...
	Bowen No.	568015	...	...	...	...	...	...
MANDREL BODY SEAL	Logan Part No.	568-024	...	...	...	...	...	...
	Bowen No.	568024	...	...	...	...	...	...

JAR LUBE	Logan Part No.	49842-A	49842-B	49842-D				
	Bowen No.	49842-A	49842-B	49842-D				
		1 Gallon	5 Gallons	55 Gallons				

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

Special Notes:
(1) Packing Sets include all seals necessary to dress the tool. Non-Extrusion Rings and Seal Protector Rings are not included, and must be ordered separately.
(2) Service Kit does not include Seal Setting Tools, which must be ordered separately.

When ordering, please specify:
(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Outside diameter, if other than standard

Recommended Spares:
(1) 1 Service Kit
(2) 1 Washpipe
(3) 2 Piston Assemblies
(4) 16 Non-Extrusion Rings
(5) 16 Seal Protector Rings
(6) 4 Mandrel Body Fill Plugs
(7) 4 Middle Body Fill Plugs
(8) 8 Packing Sets
(9) 1 Mandrel Body Setting Tool
(10) 1 Piston Setting Tool

Z TYPE HYDRAULIC JARS

TOOL JOINT CONNECTION		7/8 Sucker Rod	1-13/16 Wilson FJ	1-1/4 API Reg	2-3/8 PH6 5.9# Hyd Bx	2-3/8 EUE	2-3/8 API Reg	2-7/8 API Reg
OUTSIDE DIAMETER (INCHES)		1-5/8	1-13/16	2-1/4	2-29/32	3-1/16	3-1/8	3-3/4
INSIDE DIAMETER (INCHES)		1/4	5/16	3/8	1	1-1/2	1	1-1/4
TYPE JAR		Sub	Special	Integral Mandrel	Sub	Sub	Integral Mandrel	Integral Mandrel
COMPLETE ASSEMBLY	Logan Part No.	605-000	605-001	605-002	605-003	605-004	605-005	605-006
	Bowen No.	70822	74723	54020	68010	55670	52504	52506
MANDREL BODY FILL PLUG SEAL	Logan Part No.	568-005	568-005	568-006	568-005	568-006	568-006	568-006
	Bowen No.	568005	568005	568006	568005	568006	568006	568006
MIDDLE BODY FILL PLUG SEAL	Logan Part No.	...	...	568-005	...	...	568-005	568-005
	Bowen No.	...	...	568005	...	...	568005	568005
PISTON SEAL	Logan Part No.	...	...	568-214	...	...	568-223	568-226
	Bowen No.	...	...	568214	...	...	568223	568226
MIDDLE BODY / MANDREL BODY SEAL	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...
WASHPIPE / MIDDLE BODY SEAL	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...
BACK-UP RINGS	Logan Part No.	8-024	...	...	...	...	...	...
	Bowen No.	8-024	...	...	...	...	...	...
MANDREL SEAL	Logan Part No.	568-015	...	...	...	...	...	...
	Bowen No.	568015	...	...	...	...	...	...
MANDREL BODY SEAL	Logan Part No.	568-024	...	...	...	...	...	...
	Bowen No.	568024	...	...	...	...	...	...

JAR LUBE	Logan Part No.	49842-A	49842-B	49842-D				
	Bowen No.	49842-A	49842-B	49842-D				
		1 Gallon	5 Gallons	55 Gallons				

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

Special Notes:
(1) Packing Sets include all seals necessary to dress the tool. Non-Extrusion Rings and Seal Protector Rings are not included, and must be ordered separately.
(2) Service Kit does not include Seal Setting Tools, which must be ordered separately.

When ordering, please specify:
(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Outside diameter, if other than standard

Recommended Spares:
(1) 1 Service Kit
(2) 1 Washpipe
(3) 2 Piston Assemblies
(4) 16 Non-Extrusion Rings
(5) 16 Seal Protector Rings
(6) 4 Mandrel Body Fill Plugs
(7) 4 Middle Body Fill Plugs
(8) 8 Packing Sets
(9) 1 Mandrel Body Setting Tool
(10) 1 Piston Setting Tool

Z TYPE HYDRAULIC JARS

TOOL JOINT CONNECTION		2-3/8 API IF	2-3/8 EUE	2-7/8 API IF	2-7/8 EUE	3-1/2 API FH	3-1/2 API IF	3-1/2 API IF
OUTSIDE DIAMETER (INCHES)		3-3/4	3-3/4	4-1/4	4-1/2	4-3/4	4-3/4	4-3/4
INSIDE DIAMETER (INCHES)		1-1/2	1-7/8	1-15/16	2-3/8	1-1/2	2	2-1/4
TYPE JAR		Integral Mandrel	Integral Mandrel	Integral Mandrel	Integral Mandrel	Integral Mandrel	Integral Mandrel	Integral Mandrel
COMPLETE ASSEMBLY	Logan Part No.	605-007	605-008	605-009	605-010	605-011	605-012	605-018
	Bowen No.	52528	52497	52502	52653	52530	52500	…
TOP SUB	Logan Part No.	AG3007	AG3008	…	…	…	…	…
	Bowen No.	37412	20156	…	…	...	…	…
MANDREL	Logan Part No.	AG4007	AG4008	AG4009	AG4010	AG4011	AG4012	AG40125
	Bowen No.	37411	20155	44484	35850	25965	38115	38115
PISTON ASSEMBLY	Logan Part No.	26000-025	26000-026	26000-027	26000-028	26000-029	26000-030	26000-030
(Ring Type Standard)	Bowen No.	61288	61285	68420	68421	55285	55193	55193
MANDREL BODY	Logan Part No.	AG5007	AG5008	AG5009	AG5010	AG5011	AG5012	AG5012
	Bowen No.	52771	52772	52780	52815	52749	52833	52833
MIDDLE BODY	Logan Part No.	AG6007	AG6007	AG6009	AG6010	AG6011	AG6012	AG6012
	Bowen No.	20152	20152	41840	35853	25962	38112	38112
WASHPIPE BODY	Logan Part No.	AG7007	AG7008	AG7009	AG7010	AG7011	AG7012	AG70125
	Bowen No.	37407	20151	44487	35854	25961	38111	38111
KNOCKER	Logan Part No.	…	…	AG8009	AG8010	AG8011	AG8012	AG8012
	Bowen No.	...	...	44490	35857	25966	38116	38116
WASHPIPE	Logan Part No.	AG9007	AG9008	AG9009	AG9010	AG9011	AG9012	AG90125
	Bowen No.	37410	20154	44488	35855	25964	38114	38114
MANDREL BODY FILL PLUG	Logan Part No.	AG10002	AG10002	AG10002	AG10002	AG10002	AG10002	AG10002
	Bowen No.	329	329	329	329	329	329	329
MIDDLE BODY FILL PLUG	Logan Part No.	AG10000	AG10000	AG10000	AG10000	AG10002	AG10002	AG10002
	Bowen No.	617	617	617	617	329	329	329
PACKING SET	Logan Part No.	26000-043	26000-044	26000-045	26000-046	26000-047	26000-048	26000-048
	Bowen No.	37415	20163	44491	35858	25892	38120	38120

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Special Notes:

(1) Packing Sets include all seals necessary to dress the tool. Non-Extrusion Rings and Seal Protector Rings are not included, and must be ordered separately.

(2) Service Kit does not include Seal Setting Tools, which must be ordered separately.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Outside diameter, if other than standard

Recommended Spares:

(1) 1 Service Kit
(2) 1 Washpipe
(3) 2 Piston Assemblies
(4) 16 Non-Extrusion Rings
(5) 16 Seal Protector Rings
(6) 4 Mandrel Body Fill Plugs
(7) 4 Middle Body Fill Plugs
(8) 8 Packing Sets
(9) 1 Mandrel Body Setting Tool
(10) 1 Piston Setting Tool

Z TYPE HYDRAULIC JARS

TOOL JOINT CONNECTION		2-3/8 API IF	2-3/8 EUE	2-7/8 API IF	2-7/8 EUE	3-1/2 API FH	3-1/2 API IF	3-1/2 API IF
OUTSIDE DIAMETER (INCHES)		3-3/4	3-3/4	4-1/4	4-1/2	4-3/4	4-3/4	4-3/4
INSIDE DIAMETER (INCHES)		1-1/2	1-7/8	1-15/16	2-3/8	1-1/2	2	2-1/4
TYPE JAR		Integral Mandrel	Integral Mandrel	Integral Mandrel	Integral Mandrel	Integral Mandrel	Integral Mandrel	Integral Mandrel
COMPLETE ASSEMBLY	Logan Part No.	605-007	605-008	605-009	605-010	605-011	605-012	605-018
	Bowen No.	52528	52497	52502	52653	52530	52500	…
MANDREL	Logan Part No.	L365-36	L365-36	L365-40	L365-42	L365-40	L365-41	L365-41
NON-EXTRUSION RING	Bowen No.	365-36	365-36	365-40	365-42	365-40	365-41	365-41
	No. Req'd	8	8	8	8	8	8	8
MANDREL SEAL	Logan Part No.	L375-36	L375-36	L375-40	L375-42	L375-40	L375-41	L375-41
PROTECTOR RING	Bowen No.	375-36	375-36	375-40	375-42	375-40	375-41	375-41
	No. Req'd	8	8	8	8	8	8	8
MANDREL BODY	Logan Part No.	…	…	…	…	…	…	…
NON-EXTRUSION RING	Bowen No.	...	…	...	…	...	…	...
MANDREL BODY	Logan Part No.	…	…	…	…	…	…	…
INSERT	Bowen No.	...	…	...	…	...	…	...
MANDREL BODY SEAL	Logan Part No.	…	…	…	…	…	…	…
PROTECTOR RING	Bowen No.	...	…	…	…	…	…	…
RING TYPE	Logan Part No.	26000-025	26000-026	26000-027	26000-028	26000-029	26000-030	26000-030
PISTON ASSEMBLY	Bowen No.	61288	61285	68420	68421	55285	55193	55193
Consists of:								
PISTON	Logan Part No.	AG15007	AG15008	AG15009	AG15010	AG15011	AG15012	AG15012
	Bowen No.	61289	61286	68413	68415	55286	55194	55194
WAVE SPRING	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	…	…	…	…	…	…
	No. Req'd	…	…	…	…	…	…	…
PISTON RING	Logan Part No.	L61287	L61287	L68414	L68416	L25968	L25293	L25293
	Bowen No.	61287	61287	68414	68416	25968	25293	25293
	No. Req'd	4	4	3	3	2	2	2
SEAL	Logan Part No.	568-228	568-229	568-231	568-233	568-231	568-232	568-232
	Bowen No.	568228	568229	568231	568233	568231	568232	568232
NON-EXTRUSION RING	Logan Part No.	L370-6	L52495	L370-9	L370-11	L370-8.5	L370-10	L370-10
	Bowen No.	370-6	52495	370-9	370-11	370-8.5	370-10	370-10
SEAL PROTECTOR	Logan Part No.	L376-6	L52496	L376-9	L376-11	L376-8.5	L376-10	L376-10
RING	Bowen No.	376-6	52496	376-9	376-11	376-8.5	376-10	376-10

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Special Notes:
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(2) Service Kit does not include Seal Setting Tools, which must be ordered separately.

When ordering, please specify:
(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Outside diameter, if other than standard

Recommended Spares:
(1) 1 Service Kit
(2) 1 Washpipe
(3) 2 Piston Assemblies
(4) 16 Non-Extrusion Rings
(5) 16 Seal Protector Rings
(6) 4 Mandrel Body Fill Plugs
(7) 4 Middle Body Fill Plugs
(8) 8 Packing Sets
(9) 1 Mandrel Body Setting Tool
(10) 1 Piston Setting Tool

Z TYPE HYDRAULIC JARS

TOOL JOINT CONNECTION		2-3/8 API IF	2-3/8 EUE	2-7/8 API IF	2-7/8 EUE	3-1/2 API FH	3-1/2 API IF	3-1/2 API IF
OUTSIDE DIAMETER (INCHES)		3-3/4	3-3/4	4-1/4	4-1/2	4-3/4	4-3/4	4-3/4
INSIDE DIAMETER (INCHES)		1-1/2	1-7/8	1-15/16	2-3/8	1-1/2	2	2-1/4
TYPE JAR		Integral Mandrel	Integral Mandrel	Integral Mandrel	Integral Mandrel	Integral Mandrel	Integral Mandrel	Integral Mandrel
COMPLETE ASSEMBLY	Logan Part No.	605-007	605-008	605-009	605-010	605-011	605-012	605-018
	Bowen No.	52528	52497	52502	52653	52530	52500	…
CONE TYPE	Logan Part No.	…	…	…	…	…	…	…
PISTON ASSEMBLY	Bowen No.	…	…	…	…	…	…	…
Consists of:		…						
CONE	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	...	…	...	…	...	…
BY-PASS BODY	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	...	…	...	…	...	…
SEAL BODY	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	...	…	...	…	...	…
SEAL BODY SEAL	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	...	…	...	…	...	…

OPTIONAL

MANDREL BODY SETTING TOOL	Logan Part No.	AG1000-36	AG1000-36	AG1000-40	AG1000-42	AG1000-40	AG1000-41	AG1000-41
	Bowen No.	22709-36	22709-36	22709-40	22709-42	22709-40	22709-41	22709-41
PISTON SETTING TOOL	Logan Part No.	AG1000-34	AG2000	AG1000-37	AG1000-39	AG1000-36.5	AG1000-38	AG1000-38
	Bowen No.	22709-34	54922	22709-37	22709-39	22709-36.5	22709-38	22709-38
SERVICE KIT	Logan Part No.	26000-055	26000-055	26000-055	26000-055	26000-055	26000-055	26000-055
	Bowen No.	55403	55403	55403	55403	55403	55403	55403
HI-TEMPERATURE PACKING SET	Logan Part No.	…	…	26000-081	…	26000-083	26000-084	26000-084
	Bowen No.	…	…	78330	…	80115	80005	80005

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Special Notes:
(1) Packing Sets include all seals necessary to dress the tool. Non-Extrusion Rings and Seal Protector Rings are not included, and must be ordered separately.
(2) Service Kit does not include Seal Setting Tools, which must be ordered separately.

When ordering, please specify:
(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Outside diameter, if other than standard

Recommended Spares:
(1) 1 Service Kit
(2) 1 Washpipe
(3) 2 Piston Assemblies
(4) 16 Non-Extrusion Rings
(5) 16 Seal Protector Rings
(6) 4 Mandrel Body Fill Plugs
(7) 4 Middle Body Fill Plugs
(8) 8 Packing Sets
(9) 1 Mandrel Body Setting Tool
(10) 1 Piston Setting Tool

Z TYPE HYDRAULIC JARS

TOOL JOINT CONNECTION		2-3/8 API IF	2-3/8 EUE	2-7/8 API IF	2-7/8 EUE	3-1/2 API FH	3-1/2 API IF	3-1/2 API IF
OUTSIDE DIAMETER (INCHES)		3-3/4	3-3/4	4-1/4	4-1/2	4-3/4	4-3/4	4-3/4
INSIDE DIAMETER (INCHES)		1-1/2	1-7/8	1-15/16	2-3/8	1-1/2	2	2-1/4
TYPE JAR		Integral Mandrel	Integral Mandrel	Integral Mandrel	Integral Mandrel	Integral Mandrel	Integral Mandrel	Integral Mandrel
COMPLETE ASSEMBLY	Logan Part No.	605-007	605-008	605-009	605-010	605-011	605-012	605-018
	Bowen No.	52528	52497	52502	52653	52530	52500	…
PACKING SET	Logan Part No.	26000-043	26000-044	26000-045	26000-046	26000-047	26000-048	26000-048
Consists of:	Bowen No.	37415	20163	44491	35858	25892	38120	38120
MANDREL /	Logan Part No.	568-333	568-333	568-337	568-339	568-337	568-338	568-338
WASHPIPE SEAL	Bowen No.	568333	568333	568337	568339	568337	568338	568338
	No. Req'd	4	4	4	4	4	4	4
LARGE MIDDLE	Logan Part No.	568-235	568-235	568-239	568-241	568-241	568-241	568-241
BODY SEAL	Bowen No.	568235	568235	568239	568241	568241	568241	568241
	No. Req'd	2	2	2	2	2	2	2
SMALL MIDDLE	Logan Part No.	568-233	568-233	568-237	568-239	568-239	568-239	568-239
BODY SEAL	Bowen No.	568233	568233	568237	568239	568239	568239	568239
	No. Req'd	3	3	3	3	3	3	3
WASHPIPE SEAL	Logan Part No.	568-224	568-227	568-227	568-233	568-228	568-228	568-228
	Bowen No.	568224	568227	568227	568233	568228	568228	568228
MANDREL BODY	Logan Part No.	568-006	568-006	568-006	568-006	568-006	568-006	568-006
FILL PLUG SEAL	Bowen No.	568006	568006	568006	568006	568006	568006	568006
MIDDLE BODY	Logan Part No.	568-005	568-005	568-005	568-005	568-006	568-006	568-006
FILL PLUG SEAL	Bowen No.	568005	568005	568005	568005	568006	568006	568006
PISTON SEAL	Logan Part No.	568-228	568-229	568-231	568-233	568-231	568-232	568-232
	Bowen No.	568228	568229	568231	568233	568231	568232	568232
MIDDLE BODY /	Logan Part No.	…	…	…	…	…	…	…
MANDREL BODY SEAL	Bowen No.	…	…	…	…	…	…	…
WASHPIPE / MIDDLE	Logan Part No.	…	…	…	…	…	…	…
BODY SEAL	Bowen No.	…	…	…	…	…	…	…
BACK-UP RINGS	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	…	…	…	…	…	…
MANDREL SEAL	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	…	…	…	…	…	…
MANDREL BODY SEAL	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	…	…	…	…	…	…

JAR LUBE								
	Logan Part No.	49842-A	49842-B	49842-D				
	Bowen No.	49842-A	49842-B	49842-D				
		1 Gallon	5 Gallons	55 Gallons				

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Special Notes:

(1) Packing Sets include all seals necessary to dress the tool. Non-Extrusion Rings and Seal Protector Rings are not included, and must be ordered separately.

(2) Service Kit does not include Seal Setting Tools, which must be ordered separately.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Outside diameter, if other than standard

Recommended Spares:

(1) 1 Service Kit
(2) 1 Washpipe
(3) 2 Piston Assemblies
(4) 16 Non-Extrusion Rings
(5) 16 Seal Protector Rings
(6) 4 Mandrel Body Fill Plugs
(7) 4 Middle Body Fill Plugs
(8) 8 Packing Sets
(9) 1 Mandrel Body Setting Tool
(10) 1 Piston Setting Tool

Z TYPE HYDRAULIC JARS

TOOL JOINT CONNECTION		4-1/2 API FH	4-1/2 API IF	5-1/2 API Reg	6-5/8 API Reg	7-5/8 API Reg
OUTSIDE DIAMETER (INCHES)		6	6-1/4 & 6-1/2	6-3/4	7-3/4 & 8	9
INSIDE DIAMETER (INCHES)		2	2-1/4	2-3/8	3-1/16	3-3/4
TYPE JAR		Integral Mandrel	Integral Mandrel	Integral Mandrel	Integral Mandrel	Integral Mandrel
COMPLETE ASSEMBLY	Logan Part No.	605-013	605-014	605-015	605-016	605-017
	Bowen No.	52498	52544	52680	52711	68346
TOP SUB	Logan Part No.	...	...	...	...	...
	Bowen No.	...	...	...-	...	…
MANDREL	Logan Part No.	AG4013	AG4014	AG4015	AG4016	AG4017
	Bowen No.	14715	12375	11131	15156	66352
PISTON ASSEMBLY	Logan Part No.	26000-031	26000-032	26000-033	26000-034	26000-035
(Ring Type Standard)	Bowen No.	55246	55212	55335	68924	66355
MANDREL BODY	Logan Part No.	AG5013	AG5014	AG5015	AG5016	AG5017
	Bowen No.	52834	52835	52836	53088	66354
MIDDLE BODY	Logan Part No.	AG6013	AG6014	AG6015	AG6016	AG6017
	Bowen No.	14712	12372	11133	15158	66347
WASHPIPE BODY	Logan Part No.	AG7013	AG7014	AG7015	AG7016	AG7017
	Bowen No.	14711	12371	701	15164	66350
KNOCKER	Logan Part No.	AG8013	AG8014	AG8015	AG8016	AG8017
	Bowen No.	14717	12377	11134	15159	66348
WASHPIPE	Logan Part No.	AG9013	AG9014	AG9015	AG9016	AG9017
	Bowen No.	14714	12374	704	15163	66349
MANDREL BODY	Logan Part No.	AG10003	AG10003	AG10003	AG10003	AG10003
FILL PLUG	Bowen No.	508	508	508	508	508
MIDDLE BODY	Logan Part No.	AG10002	AG10002	AG10002	AG10002	AG10002
FILL PLUG	Bowen No.	329	329	329	329	329
PACKING SET	Logan Part No.	26000-049	26000-050	26000-051	26000-052	26000-053
	Bowen No.	14720	12383	9738	20980	66359
MANDREL	Logan Part No.	L453	L365-48	L365-50.75	L365-59	L365-65
NON-EXTRUSION RING	Bowen No.	453	365-48	708	365-59	365-65
	No. Req'd	8	8	8	8	8
MANDREL SEAL	Logan Part No.	L449	L375-48	L375-50.75	L375-59	L375-65
PROTECTOR RING	Bowen No.	449	375-48	709	375-59	375-65
	No. Req'd	8	8	8	8	8
MANDREL BODY	Logan Part No.	...	...	...	...	...
NON-EXTRUSION RING	Bowen No.	...	…	...	…	...

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

Special Notes:

(1) Packing Sets include all seals necessary to dress the tool. Non-Extrusion Rings and Seal Protector Rings are not included, and must be ordered separately.

(2) Service Kit does not include Seal Setting Tools, which must be ordered separately.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Outside diameter, if other than standard

Recommended Spares:

(1) 1 Service Kit
(2) 1 Washpipe
(3) 2 Piston Assemblies
(4) 16 Non-Extrusion Rings
(5) 16 Seal Protector Rings
(6) 4 Mandrel Body Fill Plugs
(7) 4 Middle Body Fill Plugs
(8) 8 Packing Sets
(9) 1 Mandrel Body Setting Tool
(10) 1 Piston Setting Tool

Z TYPE HYDRAULIC JARS

TOOL JOINT CONNECTION		4-1/2 API FH	4-1/2 API IF	5-1/2 API Reg	6-5/8 API Reg	7-5/8 API Reg
OUTSIDE DIAMETER (INCHES)		6	6-1/4 & 6-1/2	6-3/4	7-3/4 & 8	9
INSIDE DIAMETER (INCHES)		2	2-1/4	2-3/8	3-1/16	3-3/4
TYPE JAR		Integral Mandrel	Integral Mandrel	Integral Mandrel	Integral Mandrel	Integral Mandrel
COMPLETE ASSEMBLY	Logan Part No.	605-013	605-014	605-015	605-016	605-017
	Bowen No.	52498	52544	52680	52711	68346
MANDREL BODY INSERT	Logan Part No.	…	…	…	…	…
	Bowen No.	…	…	...	…	...
MANDREL BODY SEAL PROTECTOR RING	Logan Part No.	…	…	…	…	…
	Bowen No.	…	…	…	…	…
RING TYPE PISTON ASSEMBLY	Logan Part No.	26000-031	26000-032	26000-033	26000-034	26000-035
	Bowen No.	55246	55212	55335	68924	66355
Consists of:						
PISTON	Logan Part No.	AG15013	AG15014	AG15015	AG15016	AG15017
	Bowen No.	55247	55213	55339	68925	66357
WAVE SPRING	Logan Part No.	…	…	…	…	…
	No. Req'd	…	…	…	…	…
PISTON RING	Logan Part No.	L1999	L12379	L719	L15162	L66356
	Bowen No.	1999	12379	719	15162	66356
	No. Req'd	1	2	2	4	5
SEAL	Logan Part No.	568-236	568-237	568-239	568-426	568-430
	Bowen No.	568236	568237	568239	568426	568430
NON-EXTRUSION RING	Logan Part No.	L370-13.75	L370-15	L370-17	L365-53	L365-57
	Bowen No.	370-13.75	370-15	370-17	365-53	365-57
SEAL PROTECTOR RING	Logan Part No.	L376-13.75	L376-15	L376-17	L375-53	L375-57
	Bowen No.	376-13.75	376-15	376-17	375-53	375-57
CONE TYPE PISTON ASSEMBLY	Logan Part No.	…	…	…	…	…
	Bowen No.	…	…	…	…	…
Consists of:						
CONE	Logan Part No.	…	…	…	…	…
	Bowen No.	…	...	…	...	…
BY-PASS BODY	Logan Part No.	…	…	…	…	…
	Bowen No.	…	...	…	...	…
SEAL BODY	Logan Part No.	…	…	…	…	…
	Bowen No.	…	...	…	...	…
SEAL BODY SEAL	Logan Part No.	…	…	…	…	…
	Bowen No.	…	...	…	...	…

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Special Notes:

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(2) Service Kit does not include Seal Setting Tools, which must be ordered separately.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Outside diameter, if other than standard

Recommended Spares:

(1) 1 Service Kit
(2) 1 Washpipe
(3) 2 Piston Assemblies
(4) 16 Non-Extrusion Rings
(5) 16 Seal Protector Rings
(6) 4 Mandrel Body Fill Plugs
(7) 4 Middle Body Fill Plugs
(8) 8 Packing Sets
(9) 1 Mandrel Body Setting Tool
(10) 1 Piston Setting Tool

Z TYPE HYDRAULIC JARS

TOOL JOINT CONNECTION		4-1/2 API FH	4-1/2 API IF	5-1/2 API Reg	6-5/8 API Reg	7-5/8 API Reg
OUTSIDE DIAMETER (INCHES)		6	6-1/4 & 6-1/2	6-3/4	7-3/4 & 8	9
INSIDE DIAMETER (INCHES)		2	2-1/4	2-3/8	3-1/16	3-3/4
TYPE JAR		Integral Mandrel	Integral Mandrel	Integral Mandrel	Integral Mandrel	Integral Mandrel
COMPLETE ASSEMBLY	Logan Part No.	605-013	605-014	605-015	605-016	605-017
	Bowen No.	52498	52544	52680	52711	68346

OPTIONAL

MANDREL BODY SETTING TOOL	Logan Part No.	AG1001	AG1000-48	AG1000-51	AG1000-59	AG1000-65
	Bowen No.	448	22709-48	22709-51	22709-59	22709-65
PISTON SETTING TOOL	Logan Part No.	AG1000-41.75	AG2001	AG1000-45	AG1000-53	AG1000-57
	Bowen No.	22709-41.75	54309	22709-45	22709-53	22709-57
SERVICE KIT	Logan Part No.	26000-055	26000-055	26000-055	26000-055	26000-055
	Bowen No.	55403	55403	55403	55403	55403
HI-TEMPERATURE PACKING SET	Logan Part No.	26000-085	26000-086	26000-087	26000-088	…
	Bowen No.	148246	79015 & 147932	9738/006	20980/006 & 007	…
PACKING SET	Logan Part No.	26000-049	26000-050	26000-051	26000-052	26000-053
Consists of:	Bowen No.	14720	12383	9738	20980	66359
MANDREL / WASHPIPE SEAL	Logan Part No.	568-344	568-345	568-348	568-432	568-438
	Bowen No.	568344	568345	568348	568432	568438
	No. Req'd	4	4	4	4	4
LARGE MIDDLE BODY SEAL	Logan Part No.	568-248	568-252	568-256	568-261	568-265
	Bowen No.	568248	568252	568256	568261	568265
	No. Req'd	2	2	2	2	2
SMALL MIDDLE BODY SEAL	Logan Part No.	568-246	568-250	568-254	568-259	…
	Bowen No.	568246	568250	568254	568259	…
	No. Req'd	3	3	3	3	3
WASHPIPE SEAL	Logan Part No.	568-234	568-235	568-235	568-242	568-246
	Bowen No.	568234	568235	568235	568242	568246
MANDREL BODY FILL PLUG SEAL	Logan Part No.	568-011	568-011	568-011	568-011	568-011
	Bowen No.	568011	568011	568011	568011	568011
MIDDLE BODY FILL PLUG SEAL	Logan Part No.	568-006	568-006	568-006	568-006	568-011
	Bowen No.	568006	568006	568006	568006	568011
PISTON SEAL	Logan Part No.	568-236	568-237	568-239	568-426	568-430
	Bowen No.	568236	568237	568239	568426	568430

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Special Notes:

(1) Packing Sets include all seals necessary to dress the tool. Non-Extrusion Rings and Seal Protector Rings are not included, and must be ordered separately.

(2) Service Kit does not include Seal Setting Tools, which must be ordered separately.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Outside diameter, if other than standard

Recommended Spares:

(1) 1 Service Kit
(2) 1 Washpipe
(3) 2 Piston Assemblies
(4) 16 Non-Extrusion Rings
(5) 16 Seal Protector Rings
(6) 4 Mandrel Body Fill Plugs
(7) 4 Middle Body Fill Plugs
(8) 8 Packing Sets
(9) 1 Mandrel Body Setting Tool
(10) 1 Piston Setting Tool

Z TYPE HYDRAULIC JARS

TOOL JOINT CONNECTION		4-1/2 API FH	4-1/2 API IF	5-1/2 API Reg	6-5/8 API Reg	7-5/8 API Reg		
OUTSIDE DIAMETER (INCHES)		6	6-1/4 & 6-1/2	6-3/4	7-3/4 & 8	9		
INSIDE DIAMETER (INCHES)		2	2-1/4	2-3/8	3-1/16	3-3/4		
TYPE JAR		Integral Mandrel	Integral Mandrel	Integral Mandrel	Integral Mandrel	Integral Mandrel		
COMPLETE ASSEMBLY	**Logan Part No.**	**605-013**	**605-014**	**605-015**	**605-016**	**605-017**		
	Bowen No.	52498	52544	52680	52711	68346		
MIDDLE BODY / MANDRELBODY SEAL	**Logan Part No.**	**…**	**…**	**…**	**…**	**568-441**		
	Bowen No.	…	…	…	…	568441		
WASHPIPE / MIDDLE BODY SEAL	**Logan Part No.**	**…**	**…**	**…**	**…**	**568-263**		
	Bowen No.	…	…	…	…	568263		
BACK-UP RINGS	**Logan Part No.**	**…**	**…**	**…**	**…**	**…**		
	Bowen No.	…	…	…	…	…		
MANDREL SEAL	**Logan Part No.**	**…**	**…**	**…**	**…**	**…**		
	Bowen No.	…	…	…	…	…		
MANDREL BODY SEAL	**Logan Part No.**	**…**	**…**	**…**	**…**	**…**		
	Bowen No.	…	…	…	…	…		

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Special Notes:

(1) Packing Sets include all seals necessary to dress the tool. Non-Extrusion Rings and Seal Protector Rings are not included, and must be ordered separately.

(2) Service Kit does not include Seal Setting Tools, which must be ordered separately.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Outside diameter, if other than standard

Recommended Spares:

(1) 1 Service Kit
(2) 1 Washpipe
(3) 2 Piston Assemblies
(4) 16 Non-Extrusion Rings
(5) 16 Seal Protector Rings
(6) 4 Mandrel Body Fill Plugs
(7) 4 Middle Body Fill Plugs
(8) 8 Packing Sets
(9) 1 Mandrel Body Setting Tool
(10) 1 Piston Setting Tool

Z TYPE ENERGIZERS

Overview

The Logan Z Type Energizer is run in conjunction with a Logan Z Type Fishing Jar of the same size. Its function is to supply intensified impact during the jarring operation. Each size of Logan Z Type Energizer is designed to match a corresponding size of Logan Z Type Fishing Jar. The Z Type Energizer is essentially a fluid spring, which stores energy when a strain is pulled on the fishing string. When the strain is removed by the free stroke of the fishing jar, the stored energy is released, accelerating the collars upward until a blow of high impact is struck. The tool absorbs much of the jarring shock from the rebounding string to protect tools and string from damage.

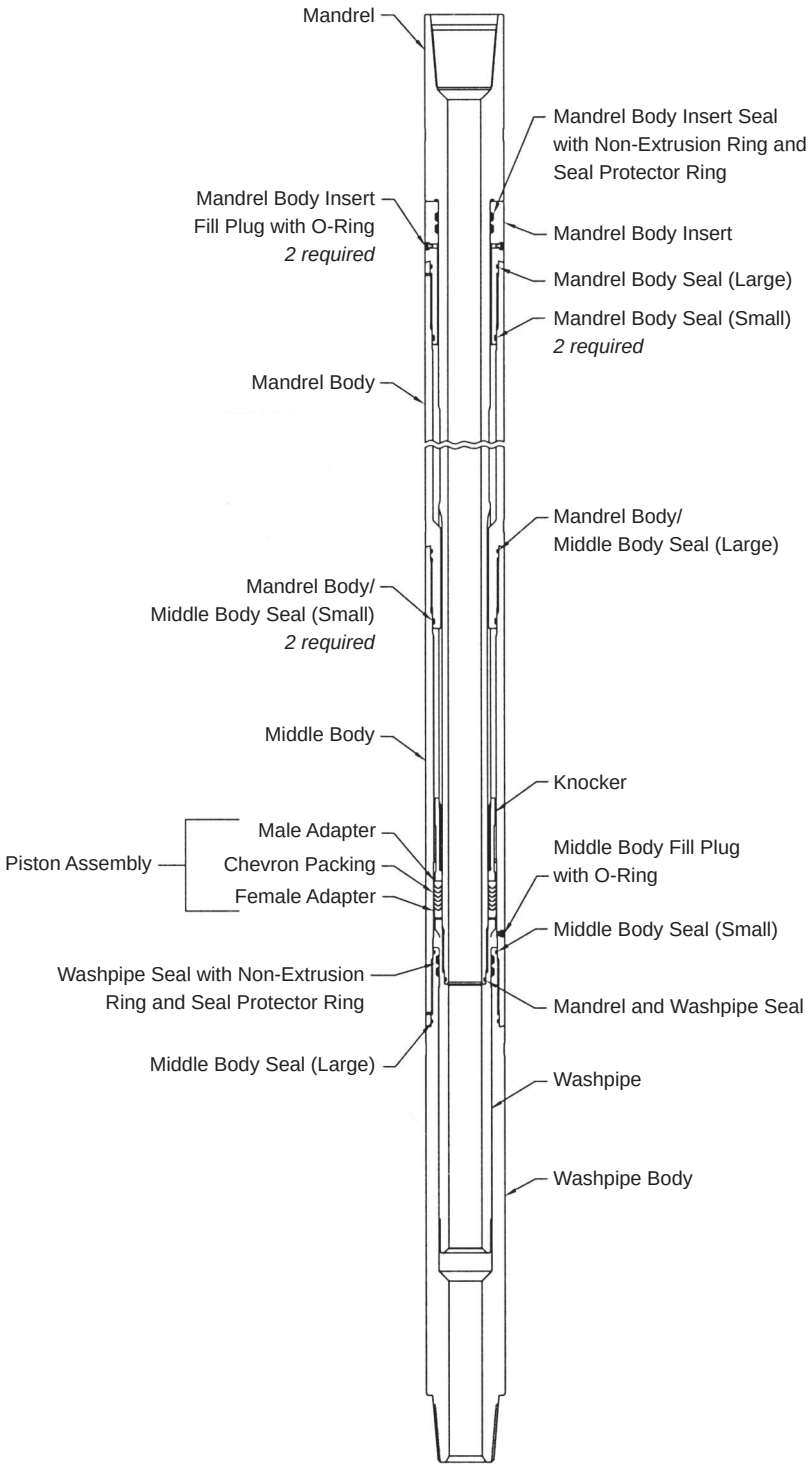
Operation

Operation of the Logan Z Type Energizer is simple to use and requires only a straight pull at a speed determined by the job. It is completely safe to assemble since no high pressure pre-loading is required.

The Logan Z Type Energizer can transmit full torque in either direction at all times while maintaining full circulation throughout the tool.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Name and number of any desired spares
(4) Outside diameter, if other than standard



Z TYPE ENERGIZERS

TOOL JOINT CONNECTION		Per Order	1-13/16 WFJ	1-1/4 API Reg	2-3/8 PH6 5.9# HYD	2-3/8 API Reg	2-3/8 API IF	2-3/8 EUE
OUTSIDE DIAMETER (INCHES)		1-5/8	1-13/16	2-1/4	2-29/32	3-1/8	3-3/4	3-3/4
INSIDE DIAMETER (INCHES)		1/4	5/16	3/8	1	1	1-1/2	1-7/8
JARS USED WITH		70822	74723	54020	68010	52504	52528	52497
TOTAL STROKE TO SOLID (INCHES)		6	6	6	12-3/4	8-3/4	7-7/8	7-5/8
COMPLETE ASSEMBLY	Logan Part No.	606-000	606-001	606-002	606-003	606-004	606-005	606-006
	Bowen No.	70957	64460	50640	68262	55867	55747	50660
TOP SUB	Logan Part No.	AG3000	AG3001	...	AG3003	...	AG3007	AG3008
	Bowen No.	70823	21156	...	68015	...	37412	20156
MANDREL	Logan Part No.	AH3000	AH3001	AH3002	AH3003	AH3004	AH3005	AH3006
	Bowen No.	70959	64461	50641	68267	55869	55749	50661
PISTON ASSEMBLY	Logan Part No.	...	27000-018	27000-019	27000-020	27000-021	27000-022	27000-023
	Bowen No.	...	64455	64317	68268	64234	64211	64330
MANDREL BODY INSERT	Logan Part No.	AH4000	AH4001	AH4002	AH4003	AH4004	AH4005	AH4005
	Bowen No.	71254	50634	50642	68266	50650	50283	50283
MANDREL BODY EXTENSION	Logan Part No.	...	...	...	AH5003	...	...	...
	Bowen No.	...	...	...	68265	...	...	...
MANDREL BODY	Logan Part No.	AH6000	AH6001	AH6002	AH6003	AH6004	AH6006	AH6006
	Bowen No.	70958	50635	50643	68264	50651	50284	50284
MIDDLE BODY	Logan Part No.	AH7000	AH7001	AH7002	AH7003	AH7004	AH7005	AH7005
	Bowen No.	70960	50636	50644	68263	55870	55748	55748
WASHPIPE BODY	Logan Part No.	AG7000	AG7001	AG7002	AG7003	AG7005	AG7007	AG7008
	Bowen No.	70829	21151	18776	68011	38064	37407	20151
KNOCKER	Logan Part No.	...	...	AG8002	...	AG8005	...	...
	Bowen No.	...	...	18781	...	38060	...	...
WASHPIPE	Logan Part No.	AG9000	AG9001	AG9002	AG9003	AG9005	AG9007	AG9008
	Bowen No.	70828	21154	18779	68016	42738	37410	20154
MANDREL BODY INSERT FILL PLUG	Logan Part No.	AG10000	AG10000	AG10002	AG10000	AG10002	AG10002	AG10002
	Bowen No.	617	617	329	617	329	329	329
	No. Req'd	2	2	2	2	2	2	2
MIDDLE BODY FILL PLUG	Logan Part No.	AG10004	AG10004	AG10000	AG10004	AG10000	AG10000	AG10000
	Bowen No.	10641	10641	617	10641	617	617	617

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Special Notes:

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(2) Service Kit does not include Seal Setting Tools, which must be ordered separately.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Name and number of any desired spares
(4) Outside diameter, if other than standard

Z TYPE ENERGIZERS

TOOL JOINT CONNECTION		Per Order	1-13/16 WFJ	1-1/4 API Reg	2-3/8 PH6 5.9# HYD	2-3/8 API Reg	2-3/8 API IF	2-3/8 EUE
OUTSIDE DIAMETER (INCHES)		1-5/8	1-13/16	2-1/4	2-29/32	3-1/8	3-3/4	3-3/4
INSIDE DIAMETER (INCHES)		1/4	5/16	3/8	1	1	1-1/2	1-7/8
JARS USED WITH		70822	74723	54020	68010	52504	52528	52497
TOTAL STROKE TO SOLID (INCHES)		6	6	6	12-3/4	8-3/4	7-7/8	7-5/8
COMPLETE ASSEMBLY	Logan Part No.	606-000	606-001	606-002	606-003	606-004	606-005	606-006
	Bowen No.	70957	64460	50640	68262	55867	55747	50660
MANDREL BODY INSERT	Logan Part No.	L8-024	…	L56542	…	…	…	…
NON-EXTRUSION RING	Bowen No.	8-024	…	56542	…	…	…	…
MIDDLE BODY INSERT	Logan Part No.	568-024	L8-027	L227-27.25	…	…	…	…
SEAL RING	Bowen No.	568-024	8-027	227-27.25	…	…	…	…
	No. Req'd	2	2	2	…	…	…	…
MANDREL & WASHPIPE	Logan Part No.	L365-16	L365-17	L365-24	L365-30.5	L365-32	L365-36	L365-36
NON-EXTRUSION RING	Bowen No.	365-16	365-17	365-24	365-30.5	365-32	365-36	365-36
	No. Req'd	8	8	8	8	8	8	8
MANDREL & WASHPIPE	Logan Part No.	L375-16	L375-17	L375-24	L375-30.5	L375-32	L375-36	L375-36
SEAL PROTECTOR RING	Bowen No.	375-16	375-17	375-24	375-30.5	375-32	375-36	375-36
	No. Req'd	8	8	8	8	8	8	8

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Special Notes:
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(2) Service Kit does not include Seal Setting Tools, which must be ordered separately.

When ordering, please specify:
(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Name and number of any desired spares
(4) Outside diameter, if other than standard

Z TYPE ENERGIZERS

TOOL JOINT CONNECTION		Per Order	1-13/16 WFJ	1-1/4 API Reg	2-3/8 PH6 5.9# HYD	2-3/8 API Reg	2-3/8 API IF	2-3/8 EUE
OUTSIDE DIAMETER (INCHES)		1-5/8	1-13/16	2-1/4	2-29/32	3-1/8	3-3/4	3-3/4
INSIDE DIAMETER (INCHES)		1/4	5/16	3/8	1	1	1-1/2	1-7/8
JARS USED WITH		70822	74723	54020	68010	52504	52528	52497
TOTAL STROKE TO SOLID (INCHES)		6	6	6	12-3/4	8-3/4	7-7/8	7-5/8
COMPLETE ASSEMBLY	Logan Part No.	606-000	606-001	606-002	606-003	606-004	606-005	606-006
	Bowen No.	70957	64460	50640	68262	55867	55747	50660

OPTIONAL

MANDREL BODY	Logan Part No.	AG1000-16	AG1000-17	AG1000-24	AG1000-30.5	AG1000-32	AG1000-36	AG1000-36
SETTING TOOL	Bowen No.	22709-16	22709-17	22709-24	22709-30.5	22709-32	22709-36	22709-36
PISTON ASSEMBLY	Logan Part No.	…	27000-018	27000-019	27000-020	27000-021	27000-022	27000-023
Consists of:	Bowen No.	…	64455	64317	68268	64234	64211	64330
UPPER ADAPTER	Logan Part No.	…	AH12001	AH12002	AH12003	AH12004	AH12005	AH12006
	Bowen No.	…	64456	64318	68270	64236	64213	64331
PACKING	Logan Part No.	…	AH13001	AH13002	AH13003	AH13004	AH13005	AH13006
	Bowen No.	…	64458	64320	68271	64237	64214	64333
LOWER ADAPTER	Logan Part No.	…	AH14001	AH14002	AH14003	AH14004	AH14005	AH14006
	Bowen No.	…	64457	64319	68269	64235	64212	64332
CONE	Logan Part No.	AH15000	…	…	…	…	…	…
	Bowen No.	77514	…	…	…	…	…	…
BY-PASS BODY	Logan Part No.	AH16000	…	…	…	…	…	…
	Bowen No.	77513	…	…	…	…	…	…
SEAL BODY	Logan Part No.	AH17000	…	…	…	…	…	…
	Bowen No.	77515	…	…	…	…	…	…
O-RING SEAL	Logan Part No.	L2-019	…	…	…	…	…	…
	Bowen No.	2-019	…	…	…	…	…	…

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Special Notes:
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(2) Service Kit does not include Seal Setting Tools, which must be ordered separately.

When ordering, please specify:
(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Name and number of any desired spares
(4) Outside diameter, if other than standard

Z TYPE ENERGIZERS

TOOL JOINT CONNECTION		Per Order	1-13/16 WFJ	1-1/4 API Reg	2-3/8 PH6 5.9# HYD	2-3/8 API Reg	2-3/8 API IF	2-3/8 EUE
OUTSIDE DIAMETER (INCHES)		1-5/8	1-13/16	2-1/4	2-29/32	3-1/8	3-3/4	3-3/4
INSIDE DIAMETER (INCHES)		1/4	5/16	3/8	1	1	1-1/2	1-7/8
JARS USED WITH		70822	74723	54020	68010	52504	52528	52497
TOTAL STROKE TO SOLID (INCHES)		6	6	6	12-3/4	8-3/4	7-7/8	7-5/8
COMPLETE ASSEMBLY	Logan Part No.	606-000	606-001	606-002	606-003	606-004	606-005	606-006
	Bowen No.	70957	64460	50640	68262	55867	55747	50660
O-RING PACKING SET	Logan Part No.	27000-034	27000-035	27000-036	27000-037	27000-038	27000-039	27000-040
Consists of:	Bowen No.	70961	50638	50835	68272	55873	55816	55497
WASHPIPE SEAL	Logan Part No.	568-211	568-115	568-210	568-224	568-220	568-224	568-227
	Bowen No.	568211	568115	568210	568224	568220	568224	568227
MANDREL	Logan Part No.	568-015	568-212	568-219	568-328	568-329	568-333	568-333
& WASHPIPE SEAL	Bowen No.	568015	568212	568219	568328	568329	568333	568333
	No. Req'd	1	2	4	5	4	4	3
MANDREL BODY	Logan Part No.	568-016	568-219	568-224	568-036	568-231	568-235	568-235
& MIDDLE BODY SEAL	Bowen No.	568016	568219	568224	568036	568231	568235	568235
– LARGE	No. Req'd	3	3	3	4	3	3	3
MANDREL BODY	Logan Part No.	568-214	568-027	568-222	568-035	568-228	568-233	568-233
& MIDDLE BODY SEAL	Bowen No.	568214	568027	568222	568035	568228	568233	568233
– SMALL	No. Req'd	3	3	3	8	5	5	5
MANDREL BODY INSERT	Logan Part No.	568-001	…	568-006	568-005	568-006	568-006	568-006
FILL PLUG SEAL	Bowen No.	568001	…	568006	568005	568006	568006	568006
	No. Req'd	2	…	2	2	2	2	2
MIDDLE BODY	Logan Part No.	…	568-005	568-005	…	568-005	568-005	568-005
FILL PLUG SEAL	Bowen No.	…	568005	568005	…	568005	568005	568005
SERVICE KIT	Logan Part No.	26000-054	26000-055	26000-055	26000-055	26000-055	26000-055	26000-055
	Bowen No.	21279	55403	55403	55403	55403	55403	55403

ENERGIZER FLUID	Logan Part No.	50529-A	50529-B	50529-C	50529-D	50529-E		
	Bowen No.	50529-A	50529-B	50529-C	50529-D	50529		
		1 Gallon	2 Gallons	5 Gallons	30 Gallons	55 Gallons		

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Special Notes:
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(2) Service Kit does not include Seal Setting Tools, which must be ordered separately.

When ordering, please specify:
(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Name and number of any desired spares
(4) Outside diameter, if other than standard

Z TYPE ENERGIZERS

TOOL JOINT CONNECTION		2-7/8 API Reg	2-7/8 API IF	2-7/8 EUE	3-1/2 API IF	3-1/2 API IF	4-1/2 API FH	4-1/2 API IF
OUTSIDE DIAMETER (INCHES)		3-3/4	4-1/4	4-1/2	4-3/4	4-3/4	6	6-1/4 & 6-1/2
INSIDE DIAMETER (INCHES)		1-1/4	1-15/16	2-3/8	1-1/2	2	2	2-1/4
JARS USED WITH		52506	52502	52653	52530	52500	52498	52544
TOTAL STROKE TO SOLID (INCHES)		8-1/4	8-5/8	10-3/8	8-7/8	10-1/8	8-5/8	13
COMPLETE ASSEMBLY	Logan Part No.	606-007	606-008	606-009	606-010	606-011	606-012	606-013
	Bowen No.	55895	55664	50708	50700	55812	55860	55905
TOP SUB	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	…	…	…	…	…	…	…
MANDREL	Logan Part No.	AH3007	AH3008	AH3009	AH3010	AH3011	AH3012	AH3013
	Bowen No.	55897	55769	50709	50701	55817	55862	55908
PISTON ASSEMBLY	Logan Part No.	27000-024	27000-025	27000-026	27000-027	27000-028	27000-029	27000-030
	Bowen No.	64248	64206	64340	64995	64264	64268	64272
MANDREL BODY INSERT	Logan Part No.	AH4008	AH4009	AH4010	AH4011	AH4012	AH4013	AH4014
	Bowen No.	50591	49412	50710	50702	49394	49635	50598
MANDREL BODY EXTENSION	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	…	…	…	…	…	…	…
MANDREL BODY	Logan Part No.	AH6007	AH6008	AH6009	AH6010	AH6011	AH6012	AH6013
	Bowen No.	50589	50371	50711	50703	50374	49634	50597
MIDDLE BODY	Logan Part No.	AH7007	AH7008	AH7009	AH7010	AH7011	AH7012	AH7013
	Bowen No.	55898	55660	50712	50704	55814	55863	55920
WASHPIPE BODY	Logan Part No.	AG7006	AG7009	AG7010	AG7011	AG7012	AG7013	AG7014
	Bowen No.	38045	44487	35854	25961	38111	14711	12371
KNOCKER	Logan Part No.	AG8006	AH9008	AG8010	AG8011	AG8012	AG8013	AG8014
	Bowen No.	38049	51185	35857	25966	38116	14717	12377
WASHPIPE	Logan Part No.	AG9006	AG9009	AH10009	AG9011	AG9012	AG9013	AH10013
	Bowen No.	38046	44488	64344	25964	38114	14714	55907
MANDREL BODY INSERT FILL PLUG	Logan Part No.	AG10002	AG10002	AG10002	AG10002	AG10002	AG10003	AG10003
	Bowen No.	329	329	329	329	329	508	508
	No. Req'd	2	2	2	2	2	2	2
MIDDLE BODY FILL PLUG	Logan Part No.	AG10000	AG10000	AG10000	AG10002	AG10000	AG10002	AG10002
	Bowen No.	617	617	617	329	617	329	329

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(3) Name and number of any desired spares
(4) Outside diameter, if other than standard

Z TYPE ENERGIZERS

TOOL JOINT CONNECTION		2-7/8 API Reg	2-7/8 API IF	2-7/8 EUE	3-1/2 API IF	3-1/2 API IF	4-1/2 API FH	4-1/2 API IF
OUTSIDE DIAMETER (INCHES)		3-3/4	4-1/4	4-1/2	4-3/4	4-3/4	6	6-1/4 & 6-1/2
INSIDE DIAMETER (INCHES)		1-1/4	1-15/16	2-3/8	1-1/2	2	2	2-1/4
JARS USED WITH		52506	52502	52653	52530	52500	52498	52544
TOTAL STROKE TO SOLID (INCHES)		8-1/4	8-5/8	10-3/8	8-7/8	10-1/8	8-5/8	13
COMPLETE ASSEMBLY	Logan Part No.	606-007	606-008	606-009	606-010	606-011	606-012	606-013
	Bowen No.	55895	55664	50708	50700	55812	55860	55905
MANDREL BODY INSERT	Logan Part No.	...	...	...	...	...	...	...
NON-EXTRUSION RING	Bowen No.	...	...	...	...	...	...	...
MIDDLE BODY INSERT	Logan Part No.	...	...	...	...	...	...	...
SEAL RING	Bowen No.	...	...	...	...	...	...	...
	No. Req'd	...	...	...	...	...	...	...
MANDREL & WASHPIPE	Logan Part No.	L365-35	L365-40	L365-42	L365-40	L365-41	L453	L365-48
NON-EXTRUSION RING	Bowen No.	365-35	365-40	365-42	365-40	365-41	453	365-48
	No. Req'd	8	8	8	8	8	8	8
MANDREL & WASHPIPE	Logan Part No.	L375-35	L375-40	L375-42	L375-40	L375-41	L449	L375-48
SEAL PROTECTOR RING	Bowen No.	375-35	375-40	375-42	375-40	375-41	449	375-48
	No. Req'd	8	8	8	8	8	8	8

OPTIONAL

MANDREL BODY	Logan Part No.	AG1000-35	AG1000-40	AG1000-42	AG1000-40	AG1000-41	AG1001	AG1000-48
SETTING TOOL	Bowen No.	22709-35	22709-40	22709-42	22709-40	22709-41	448	22709-48
PISTON ASSEMBLY	Logan Part No.	27000-024	27000-025	27000-026	27000-027	27000-028	27000-029	27000-030
Consists of:	Bowen No.	64248	64206	64340	64995	64264	64268	64272
UPPER ADAPTER	Logan Part No.	AH12007	AH12008	AH12009	AH12010	AH12011	AH12012	AH12013
	Bowen No.	64250	64208	64341	64997	64266	64269	64273
PACKING	Logan Part No.	AH13007	AH13008	AH13009	AH13010	AH13011	AH13012	AH13013
	Bowen No.	64251	64209	64343	64998	64267	64271	64275
LOWER ADAPTER	Logan Part No.	AH14007	AH14008	AH14009	AH14010	AH14011	AH14012	AH14013
	Bowen No.	64249	64207	64342	64996	64265	64270	64274
CONE	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...
BY-PASS BODY	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...
SEAL BODY	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...
O-RING SEAL	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...

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(2) Connections, if other than standard
(3) Name and number of any desired spares
(4) Outside diameter, if other than standard

Z TYPE ENERGIZERS

TOOL JOINT CONNECTION		2-7/8 API Reg	2-7/8 API IF	2-7/8 EUE	3-1/2 API IF	3-1/2 API IF	4-1/2 API FH	4-1/2 API IF
OUTSIDE DIAMETER (INCHES)		3-3/4	4-1/4	4-1/2	4-3/4	4-3/4	6	6-1/4 & 6-1/2
INSIDE DIAMETER (INCHES)		1-1/4	1-15/16	2-3/8	1-1/2	2	2	2-1/4
JARS USED WITH		52506	52502	52653	52530	52500	52498	52544
TOTAL STROKE TO SOLID (INCHES)		8-1/4	8-5/8	10-3/8	8-7/8	10-1/8	8-5/8	13
COMPLETE ASSEMBLY	Logan Part No.	606-007	606-008	606-009	606-010	606-011	606-012	606-013
	Bowen No.	55895	55664	50708	50700	55812	55860	55905
O-RING PACKING SET	Logan Part No.	27000-041	27000-042	27000-043	27000-044	27000-045	27000-046	27000-047
Consists of:	Bowen No.	55902	55666	50840	50841	55815	55866	55919
WASHPIPE SEAL	Logan Part No.	568-222	568-227	568-233	568-228	568-228	568-234	568-232
	Bowen No.	568222	568227	568233	568228	568228	568234	568232
MANDREL	Logan Part No.	568-332	568-327	568339	568-337	568-338	568-344	568-345
& WASHPIPE SEAL	Bowen No.	568332	568327	568339	568337	568338	568344	568345
	No. Req'd	4	4	4	4	4	4	4
MANDREL BODY	Logan Part No.	568-235	568-239	568-241	568-241	568-241	568-248	568-252
& MIDDLE BODY SEAL	Bowen No.	568235	568239	568241	568241	568241	568248	568252
– LARGE	No. Req'd	3	3	3	3	3	3	3
MANDREL BODY	Logan Part No.	568-233	568-237	568-239	568-239	568-239	568-246	568-250
& MIDDLE BODY SEAL	Bowen No.	568233	568237	568239	568239	568239	568246	568250
– SMALL	No. Req'd	5	5	5	5	5	3	5
MANDREL BODY INSERT	Logan Part No.	568-006	568-006	568-006	568-006	568-006	568-011	568-011
FILL PLUG SEAL	Bowen No.	568006	568006	568006	568006	568006	568011	568011
	No. Req'd	2	2	2	2	2	2	2
MIDDLE BODY	Logan Part No.	568-005	568-005	568-005	568-006	568-005	568-006	568-006
FILL PLUG SEAL	Bowen No.	568005	568005	568005	568006	568005	568006	568006
SERVICE KIT	Logan Part No.	26000-055	26000-055	26000-055	26000-055	26000-055	26000-055	26000-055
	Bowen No.	55403	55403	55403	55403	55403	55403	55403

ENERGIZER FLUID	Logan Part No.	50529-A	50529-B	50529-C	50529-D	50529-E		
	Bowen No.	50529-A	50529-B	50529-C	50529-D	50529		
		1 Gallon	2 Gallons	5 Gallons	30 Gallons	55 Gallons		

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(2) Connections, if other than standard
(3) Name and number of any desired spares
(4) Outside diameter, if other than standard

Z TYPE ENERGIZERS

TOOL JOINT CONNECTION		5-1/2 API Reg	6-5/8 API Reg	7-5/8 API Reg				
OUTSIDE DIAMETER (INCHES)		6-3/4	7-3/4 & 8	9				
INSIDE DIAMETER (INCHES)		2-3/8	3-1/16	3-3/4				
JARS USED WITH		52680	52711	66346				
TOTAL STROKE TO SOLID (INCHES)		13	13	13				
COMPLETE ASSEMBLY	Logan Part No.	606-014	606-015	606-016				
	Bowen No.	50720	55910	66372				
TOP SUB	Logan Part No.	...	...	...				
	Bowen No.	...	...	...				
MANDREL	Logan Part No.	AH3014	AH3015	AH3016				
	Bowen No.	50721	50146	66376				
PISTON ASSEMBLY	Logan Part No.	27000-031	27000-032	27000-033				
	Bowen No.	64240	64276	66382				
MANDREL BODY INSERT	Logan Part No.	AH4015	AH4016	AH4017				
	Bowen No.	50722	50149	66380				
MANDREL BODY	Logan Part No.	...	...	...				
EXTENSION	Bowen No.	...	...	...				
MANDREL BODY	Logan Part No.	AH6014	AH6015	AH6016				
	Bowen No.	50723	50147	66377				
MIDDLE BODY	Logan Part No.	AH7014	AH7015	AH7016				
	Bowen No.	50724	55911	66373				
WASHPIPE BODY	Logan Part No.	AG7015	AG7016	AG7017				
	Bowen No.	701	15164	66350				
KNOCKER	Logan Part No.	AG8015	AH9015	AG8017				
	Bowen No.	11134	50150	66348				
WASHPIPE	Logan Part No.	AG9015	AH10015	AG9017				
	Bowen No.	704	55912	66349				
MANDREL BODY INSERT	Logan Part No.	AG10003	AG10003	AG10003				
FILL PLUG	Bowen No.	508	508	508				
	No. Req'd	2	2	2				
MIDDLE BODY	Logan Part No.	AG10002	AG10002	...				
FILL PLUG	Bowen No.	329	329	...				

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(2) Connections, if other than standard
(3) Name and number of any desired spares
(4) Outside diameter, if other than standard

Z TYPE ENERGIZERS

TOOL JOINT CONNECTION		5-1/2 API Reg	6-5/8 API Reg	7-5/8 API Reg
OUTSIDE DIAMETER (INCHES)		6-3/4	7-3/4 & 8	9
INSIDE DIAMETER (INCHES)		2-3/8	3-1/16	3-3/4
JARS USED WITH		52680	52711	66346
TOTAL STROKE TO SOLID (INCHES)		13	13	13
COMPLETE ASSEMBLY	Logan Part No.	606-014	606-015	606-016
	Bowen No.	50720	55910	66372
MANDREL BODY INSERT	Logan Part No.	...	...	...
NON-EXTRUSION RING	Bowen No.	...	...	...
MIDDLE BODY INSERT	Logan Part No.	...	...	...
SEAL RING	Bowen No.	...	...	...
	No. Req'd	...	...	...
MANDREL & WASHPIPE	Logan Part No.	L365-50.75	L365-59	L365-65
NON-EXTRUSION RING	Bowen No.	708	365-59	365-65
	No. Req'd	8	8	8
MANDREL & WASHPIPE	Logan Part No.	L375-50.75	L375-59	L375-65
SEAL PROTECTOR RING	Bowen No.	709	375-59	375-65
	No. Req'd	8	8	8

OPTIONAL

MANDREL BODY	Logan Part No.	AG1000-51	AG1000-59	AG1017
SETTING TOOL	Bowen No.	22709-51	22709-59	22709-65
PISTON ASSEMBLY	Logan Part No.	27000-031	27000-032	27000-033
Consists of:	Bowen No.	64240	64276	66382
UPPER ADAPTER	Logan Part No.	AH12014	AH12015	AH12016
	Bowen No.	64242	64277	66378
PACKING	Logan Part No.	AH13014	AH13015	AH13016
	Bowen No.	64243	64279	66384
LOWER ADAPTER	Logan Part No.	AH14014	AH14015	AH14016
	Bowen No.	64241	64278	66379
CONE	Logan Part No.	...	...	...
	Bowen No.	...	...	...
BY-PASS BODY	Logan Part No.	...	...	...
	Bowen No.	...	...	...
SEAL BODY	Logan Part No.	...	...	...
	Bowen No.	...	...	...
O-RING SEAL	Logan Part No.	...	...	...
	Bowen No.	...	...	...

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(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Name and number of any desired spares
(4) Outside diameter, if other than standard

Z TYPE ENERGIZERS

TOOL JOINT CONNECTION		5-1/2 API Reg	6-5/8 API Reg	7-5/8 API Reg				
OUTSIDE DIAMETER (INCHES)		6-3/4	7-3/4 & 8	9				
INSIDE DIAMETER (INCHES)		2-3/8	3-1/16	3-3/4				
JARS USED WITH		52680	52711	66346				
TOTAL STROKE TO SOLID (INCHES)		13	13	13				
COMPLETE ASSEMBLY	Logan Part No.	606-014	606-015	606-016				
	Bowen No.	50720	55910	66372				
O-RING PACKING SET	Logan Part No.	27000-048	27000-049	27000-050				
Consists of:	Bowen No.	50842	55921	66383				
WASHPIPE SEAL	Logan Part No.	568-235	568-242	568-246				
	Bowen No.	568235	568242	568246				
MANDREL	Logan Part No.	568-348	568-432	568-438				
& WASHPIPE SEAL	Bowen No.	568348	568432	568438				
	No. Req'd	4	4	4				
MANDREL BODY	Logan Part No.	568-256	568-261	568-265				
& MIDDLE BODY SEAL	Bowen No.	568256	568261	568265				
– LARGE	No. Req'd	3	3	3				
	Price	$6.90	$7.00	$8.25				
MANDREL BODY	Logan Part No.	568-254	568-259	568-263				
& MIDDLE BODY SEAL	Bowen No.	568254	568259	568263				
– SMALL	No. Req'd	5	3	1				
MANDREL BODY INSERT	Logan Part No.	568-011	568-011	568-441				
FILL PLUG SEAL	Bowen No.	568011	568011	568441				
	No. Req'd	2	2	2				
MIDDLE BODY	Logan Part No.	568-006	568-006	568-011				
FILL PLUG SEAL	Bowen No.	568006	568006	568011				
SERVICE KIT	Logan Part No.	26000-055	26000-055	26000-055				
	Bowen No.	55403	55403	55403				

ENERGIZER FLUID	Logan Part No.	50529-A	50529-B	50529-C	50529-D	50529-E		
	Bowen No.	50529-A	50529-B	50529-C	50529-D	50529		
		1 Gallon	2 Gallons	5 Gallons	30 Gallons	55 Gallons		

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(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Name and number of any desired spares
(4) Outside diameter, if other than standard

SURFACE BUMPER JARS

Overview

The Logan Surface Bumper Jar is installed in the drill string at the surface and is used whenever the downole drilling, fishing, or washover running string becomes stuck and requires a heavy downward force to release it. It is often used to free key seated drill pipe and drill collars, and initiate sharp jarring blows down the string to actuate drilling bumper subs, bumper safety joints, and other similar downhole bumping tools. It is also useful for transmitting heavy downward impact to release imbedded grappling tools. Since it is not necessary that the two striking surfaces meet, the tool's 48-inch stroke allows the fish to be hammered down farther than what is possible with conventional jarring tools. Because it is intermittently used only on the surface to release a stuck fish, this tool has an extended service life when compared to conventional bumper subs.

Construction

The Surface Bumper Jar basically consists of a mandrel assembly working inside a bowl assembly.

Operation

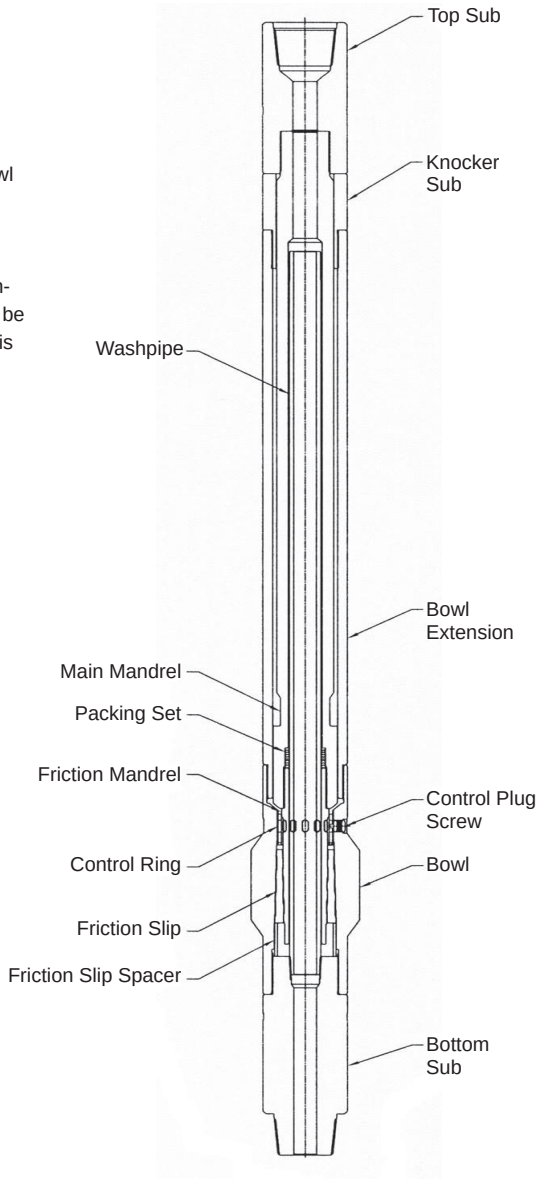
Full circulation through the tool can be maintained during operation and full torque may be utilized in either direction. The jarring force is set by a simple adjustment.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard

Recommended Spare Parts:

(1) 2 Washpipes
(2) 1 Friction Mandrel
(3) 1 Control Ring
(4) 1 Friction Slip
(5) 1 Control Ring Plug
(6) 6 Packing Sets



TOOL JOINT CONNECTION		4-1/2 API IF
OUTSIDE DIAMETER (INCHES)		7
INSIDE DIAMETER (INCHES)		1-7/8
STROKE		48
COMPLETE ASSEMBLY	Logan Part No.	609-001
	Bowen No.	74520
TOP SUB	Logan Part No.	AS1000
	Bowen No.	13587
KNOCKER SUB	Logan Part No.	AS2000
	Bowen No.	74522
BOWL EXTENSION	Logan Part No.	AS3000
	Bowen No.	74523
BOWL	Logan Part No.	AS4000
	Bowen No.	74524
BOTTOM SUB	Logan Part No.	AS5000
	Bowen No.	74525
MAIN MANDREL	Logan Part No.	AS6000
	Bowen No.	78609
WASHPIPE	Logan Part No.	AS7000
	Bowen No.	13588
PACKING SET	Logan Part No.	AS8000
	Bowen No.	66816
FRICTION MANDREL	Logan Part No.	AS9000
	Bowen No.	78610
CONTROL RING	Logan Part No.	AS10000
	Bowen No.	844
FRICTION SLIP	Logan Part No.	AS11000
	Bowen No.	B-236

REPLACEMENT PARTS

FRICTION SLIP SPACER	Logan Part No.	AS12000
	Bowen No.	13594
CONTROL RING PLUG	Logan Part No.	AS13000
	Bowen No.	4144
PLUG & CONTROL RING WRENCH	Logan Part No.	AS14000
1 with each Assembly	Bowen No.	86
MANDREL SOCKET WRENCH	Logan Part No.	AS15000
Sold Separately	Bowen No.	14773
LIFTING SUB	Logan Part No.	AS17000
Sold Separately	Bowen No.	242
FRICTION SLIP LUBE *(1 Tube)*	Logan Part No.	AS18000
Sold Separately	Bowen No.	74285

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

LUBRICATED FISHING BUMPER SUBS

Overview

The Logan Lubricated Fishing Bumper Sub is a dependable accessory that is suitable for all fishing operations, especially harsh, downhole applications and deep workover operations. It can also meet the demands of tools that require sharp, sustained bumping action to actuate or release them. The tool enables the operator to release the fishing tool in the event it becomes impossible to pull the fish. It can provide the necessary impact in either direction and deliver the required torque.

Construction

The Logan Lubricated Fishing Bumper Sub is constructed from specially high-strength, heat-treated alloy steel to withstand severe stress caused by tension, jarring, and torque.

The tool permits a vertical stroke, either upward or downward, whether it is rotating or not.

The Lubricated Fishing Bumper Sub is composed of six major parts: a mandrel, mandrel body, middle body, knocker, washpipe, and a washpipe body. Critical seal points between the mandrel and washpipe are fitted with seal/ring assemblies that increase the life of the rings and prevent O-ring extrusion.

Operation

The Logan Lubricated Fishing Bumper Sub is typically run directly above the spear, overshot, screw-in sub, or safety joint. When lift load is applied, the bumper sub will slide open until the knocker hits the mandrel body. Slacking weight off the work string to the fishing bumper sub will cause the mandrel body to slide back down the mandrel until the bottom shoulder of the mandrel body hits the top shoulder of the mandrel.

To Apply a Downward Blow

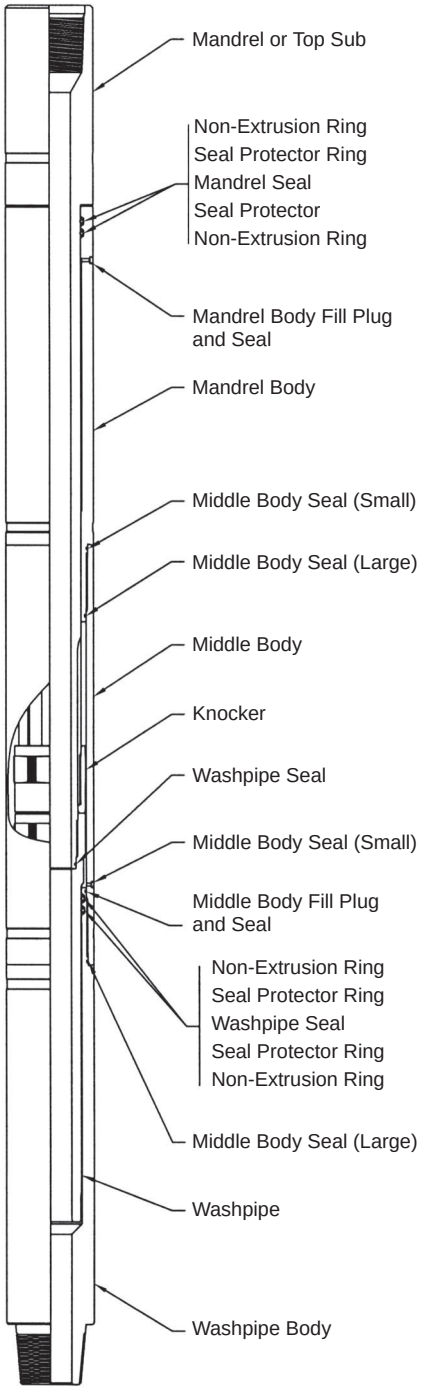
At the surface, mark the pipe to indicate the open and closed positions of the Lubricated Fishing Bumper Sub. Raise the fishing string to open the bumper sub and allow for extra string stretch. Sharply drop the string and stop with the brake approximately four to six inches above the closed position of the bumper sub to deliver a sharp downward blow. To deliver a solid downward blow, drop the full weight of the fishing string without braking.

To Apply an Upward Blow

At the surface, mark the pipe to indicate the open and closed positions of the Lubricated Fishing Bumper Sub. Raise the fishing string to open the bumper sub and allow for additional string stretch. Drop the string by the amount of the stretch only and stop it with the brake. As the pipe recoils at the bottom of the hole, the bumper sub will deliver a sharp upward blow.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Outside diameter, if other than standard
(4) Name and number of any desired spares



LUBRICATED FISHING BUMPER SUBS

CONNECTION		1-13/16 WILSON FJ	1-1/4 API Reg	2-3/8 API Reg	2-7/8 API Reg	2-3/8 API IF	2-3/8 EUE	2-7/8 API IF
OUTSIDE DIAMETER		1-13/16	2-1/4	3-1/8	3-3/4	3-3/4	3-3/4	4-1/4
INSIDE DIAMETER		3/8	3/8	1	1-1/4	1-1/2	1-7/8	1-15/16
STROKE LENGTH		10	10	15-1/2	15-1/2	15-1/2	15-1/2	15-1/2
COMPLETE ASSEMBLY	Logan Part No.	607-181	607-225	607-312	607-375	607-376	607-377	607-425
	Bowen No.	54781	41490	43501	43509	43470	43521	43531
TOP SUB	Logan Part No.	AJ1000	…	…	…	…	…	…
	Bowen No.	36811	…	…	…	…	…	…
MANDREL BODY	Logan Part No.	AJ2000	AJ2001	AJ2002	AJ2003	AJ2004	AJ2005	AJ2006
	Bowen No.	36742	41491	43502	43510	43471	43522	43532
MIDDLE BODY	Logan Part No.	AJ3000	AJ3001	AJ3002	AJ3003	AJ3004	AJ3005	AJ3006
	Bowen No.	36744	41492	43503	43511	43472	43523	43533
WASHPIPE BODY	Logan Part No.	AJ4000	AJ4001	AJ4002	AJ4003	AJ4004	AJ4005	AJ4006
	Bowen No.	54783	41493	43504	43512	43473	43524	43534
MANDREL	Logan Part No.	AJ5000	AJ5001	AJ5002	AJ5003	AJ5004	AJ5005	AJ5006
	Bowen No.	53721	41520	43506	43514	43475	43526	43536
WASHPIPE	Logan Part No.	…	AJ6001	AJ6002	AJ6003	AJ6004	AJ6005	AJ6006
	Bowen No.	…	41495	43505	43513	43474	43525	43535
NON-EXTRUSION RING	Logan Part No.	L365-19	L365-24	L365-32	L365-35	L365-36	L365-37.5	L365-40
	Bowen No.	365-19	365-24	365-32	365-35	365-36	365-37.5	365-40
	No. Req'd	4	8	8	8	8	8	8
SEAL PROTECTOR RING	Logan Part No.	L375-19	L375-24	L375-32	L375-35	L375-36	L375-37.5	L375-40
	Bowen No.	375-19	375-24	375-32	375-35	375-36	375-37.5	375-40
	No. Req'd	4	8	8	8	8	8	8
MANDREL BODY FILL PLUG	Logan Part No.	AG10000	AG10002	AG10002	AG10002	AG10002	AG10002	AG10002
	Bowen No.	617	329	329	329	329	329	329
MIDDLE BODY FILL PLUG	Logan Part No.	AG10000	AG10000	AG10004	AG10000	AG10000	AG10000	AG10000
	Bowen No.	617	617	10641	617	617	617	617
KNOCKER	Logan Part No.	…	AJ7001	AJ7002	AJ7003	AJ7004	AJ7005	AJ7006
	Bowen No.	…	41845	43508	43516	39845	43528	43538

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

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Outside diameter, if other than standard
(4) Name and number of any desired spares

Recommended Spare Parts:

(1) 1 Service Kit
(2) 6 Seal Packing Sets
(3) 4 Middle Body Fill Plugs
(4) 4 Mandrel Body Fill Plugs
(5) 16 Main Mandrel Non-Extrusion Rings
(6) 16 Main Mandrel Seal Protector Rings
(7) 1 Seal Ring Setting Tool

LUBRICATED FISHING BUMPER SUBS

SERVICE KIT	**Logan Part No.**	**26000-055**	**26000-055**	**26000-055**	**26000-055**	**26000-055**	**26000-055**	**26000-055**
	Bowen No.	55403	55403	55403	55403	55403	55403	55403
SETTING TOOL	**Logan Part No.**	**AG1000-19**	**AG1000-24**	**AG1000-32**	**AG1000-35**	**AG1000-36**	**AG1000-37.5**	**AG1000-40**
	Bowen No.	22709-19	22709-24	22709-32	22709-35	22709-36	22709-37.5	22709-40
SEAL PACKING	**Logan Part No.**	**28000-013**	**28000-014**	**28000-015**	**28000-016**	**28000-017**	**28000-018**	**28000-019**
Consists of:	Bowen No.	54784	41846	43519	43517	39720	43529	43539
MAIN MANDREL &	**Logan Part No.**	**568-211**	**568-219**	**568-329**	**568-332**	**568-333**	**568-334**	**568-337**
WASHPIPE BODY SEAL	Bowen No.	568211	568219	568329	568332	568333	568334	568337
	No. Req'd	4	4	4	4	4	4	4
MIDDLE BODY SEAL	**Logan Part No.**	**568-029**	**568-224**	**568-231**	**568-235**	**568-235**	**568-236**	**568-239**
LARGE	Bowen No.	568029	568224	568231	568235	568235	568236	568239
	No. Req'd	2	2	2	2	2	2	2
MIDDLE BODY SEAL	**Logan Part No.**	**568-027**	**568-222**	**568-229**	**568-233**	**568-233**	**568-233**	**568-237**
SMALL	Bowen No.	568027	568222	568229	568233	568233	568233	568237
	No. Req'd	2	2	2	2	2	2	2
WASHPIPE SEAL	**Logan Part No.**	**…**	**568-210**	**568-220**	**568-222**	**568-223**	**568-229**	**568-227**
	Bowen No.	…	568210	568220	568222	568223	568229	568227
MIDDLE BODY	**Logan Part No.**	**568-005**	**568-005**	**…**	**568-005**	**568-005**	**568-005**	**568-005**
FILL PLUG SEAL	Bowen No.	568005	568005	…	568005	568005	568005	568005
MANDREL BODY	**Logan Part No.**	**568-005**	**568-006**	**568-006**	**568-006**	**568-006**	**568-006**	**568-006**
FILL PLUG SEAL	Bowen No.	568005	568006	568006	568006	568006	568006	568006

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

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Outside diameter, if other than standard
(4) Name and number of any desired spares

Recommended Spare Parts:

(1) 1 Service Kit
(2) 6 Seal Packing Sets
(3) 4 Middle Body Fill Plugs
(4) 4 Mandrel Body Fill Plugs
(5) 16 Main Mandrel Non-Extrusion Rings
(6) 16 Main Mandrel Seal Protector Rings
(7) 1 Seal Ring Setting Tool

LUBRICATED FISHING BUMPER SUBS

CONNECTION		2-7/8 EUE	3-1/2 API IF or FH	3-1/2 API IF	4-1/2 API FH	4-1/2 API IF or FH	5-1/2 API Reg	6-5/8 API Reg
OUTSIDE DIAMETER		4-1/2	4-3/4	4-3/4	6	6-1/4	6-3/4	7-3/4
INSIDE DIAMETER		2-3/8	2	2-1/4	2-13/16	3-1/8	2-3/4	3-1/2
STROKE LENGTH		15-1/2	15-1/2	15-1/2	18	18	18	18
COMPLETE ASSEMBLY	Logan Part No.	607-450	607-475	607-476	607-600	607-625	607-675	607-775
	Bowen No.	42700	39727	…	39732	39737	39778	39752
TOP SUB	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	…	…	…	…	…	…
MANDREL BODY	Logan Part No.	AJ2007	AJ2008	AJ2008	AJ2009	AJ2010	AJ2011	AJ2012
	Bowen No.	42701	39861	39861	30541	34966	33244	34992
MIDDLE BODY	Logan Part No.	AJ3007	AJ3008	AJ3008	AJ3009	AJ3010	AJ3011	AJ3012
	Bowen No.	42702	33156	33156	30542	34967	33245	34993
WASHPIPE BODY	Logan Part No.	AJ4007	AJ4008	AJ40085	AJ4009	AJ4010	AJ4011	AJ4012
	Bowen No.	42703	39728	…	39733	39738	39779	39753
MANDREL	Logan Part No.	AJ5007	AJ5008	AJ50085	AJ5009	AJ5010	AJ5011	AJ5012
	Bowen No.	42705	39860	…	30545	34970	33248	34996
WASHPIPE	Logan Part No.	AJ6007	AJ6008	AJ60085	AJ6009	AJ6010	AJ6011	AJ6012
	Bowen No.	42704	39729	…	39734	39739	39780	39754
NON-EXTRUSION RING	Logan Part No.	L365-43	L365-42	L365-42	L365-50.25	L365-53	L365-54	L365-61
	Bowen No.	365-43	365-42	365-42	365-50.25	365-53	365-54	365-61
	No. Req'd	8	8	8	8	8	8	8
SEAL PROTECTOR RING	Logan Part No.	L375-43	L375-42	L375-42	L375-50.25	L375-53	L375-54	L375-61
	Bowen No.	375-43	375-42	375-42	375-50.25	375-53	375-54	375-61
	No. Req'd	8	8	8	8	8	8	8
MANDREL BODY FILL PLUG SEAL	Logan Part No.	AG10002	AG10002	AG10002	AG10002	AG10002	AG10002	AG10002
	Bowen No.	329	329	329	329	329	329	329
MIDDLE BODY FILL PLUG SEAL	Logan Part No.	AG10000	AG10000	AG10000	AG10000	AG10000	AG10000	AG10000
	Bowen No.	617	617	617	617	617	617	617
KNOCKER	Logan Part No.	AJ7007	AJ7008	AJ7008	AJ7009	AJ7010	AJ7011	AJ7012
	Bowen No.	42708	39863	39863	30546	34972	33250	34998

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When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Outside diameter, if other than standard
(4) Name and number of any desired spares

Recommended Spare Parts:

(1) 1 Service Kit
(2) 6 Seal Packing Sets
(3) 4 Middle Body Fill Plugs
(4) 4 Mandrel Body Fill Plugs
(5) 16 Main Mandrel Non-Extrusion Rings
(6) 16 Main Mandrel Seal Protector Rings
(7) 1 Seal Ring Setting Tool

LUBRICATED FISHING BUMPER SUBS

CONNECTION		2-7/8 EUE	3-1/2 API IF or FH	3-1/2 API IF	4-1/2 API FH	4-1/2 API IF or FH	5-1/2 API Reg	6-5/8 API Reg
OUTSIDE DIAMETER		4-1/2	4-3/4	4-3/4	6	6-1/4	6-3/4	7-3/4
INSIDE DIAMETER		2-3/8	2	2-1/4	2-13/16	3-1/8	2-3/4	3-1/2
STROKE LENGTH		15-1/2	15-1/2	15-1/2	18	18	18	18
COMPLETE ASSEMBLY	Logan Part No.	607-450	607-475	607-476	607-600	607-625	607-675	607-775
	Bowen No.	42700	39727	…	39732	39737	39778	39752
SERVICE KIT	Logan Part No.	26000-055	26000-055	26000-055	26000-055	26000-055	26000-055	26000-055
	Bowen No.	55403	55403	55403	55403	55403	55403	55403
SETTING TOOL	Logan Part No.	AG1000-43	AG1000-42	AG1000-42	AJ8000	AG1000-53	AG1000-54	AG1000-61
	Bowen No.	22709-43	22709-42	22709-42	10572	22709-53	22709-54	22709-61
SEAL PACKING	Logan Part No.	28000-020	28000-021	28000-021	28000-022	28000-023	28000-024	28000-025
Consists of:	Bowen No.	42709	39730	…	39735	39740	39781	39755
MAIN MANDREL &	Logan Part No.	568-340	568-339	568-339	568-347	568-426	568-427	568-434
W.P. BODY SEAL	Bowen No.	568340	568339	568339	568347	568426	568427	568434
	No. Req'd	4	4	4	4	4	4	4
MIDDLE BODY SEAL	Logan Part No.	568-242	568-242	568-242	568-250	568-253	568-256	568-261
LARGE	Bowen No.	568242	568242	568242	568250	568253	568256	568261
	No. Req'd	2	2	2	2	2	2	2
MIDDLE BODY SEAL	Logan Part No.	568-239	568-239	568-239	568-247	568-251	568-254	568-260
SMALL	Bowen No.	568239	568239	568239	568247	568251	568254	568260
	No. Req'd	2	2	2	2	2	2	2
WASHPIPE SEAL	Logan Part No.	568-231	568-229	568-229	568-236	568-239	568-238	568-246
	Bowen No.	568231	568229	…	568236	568239	568238	568246
MIDDLE BODY	Logan Part No.	568-005	568-005	568-005	568-005	568-005	568-005	568-005
FILL PLUG SEAL	Bowen No.	568005	568005	568005	568005	568005	568005	568005
MANDREL BODY	Logan Part No.	568-006	568-006	568-006	568-006	568-006	568-006	568-006
FILL PLUG SEAL	Bowen No.	568006	568006	568006	568006	568006	568006	568006

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When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Outside diameter, if other than standard
(4) Name and number of any desired spares

Recommended Spare Parts:

(1) 1 Service Kit
(2) 6 Seal Packing Sets
(3) 4 Middle Body Fill Plugs
(4) 4 Mandrel Body Fill Plugs
(5) 16 Main Mandrel Non-Extrusion Rings
(6) 16 Main Mandrel Seal Protector Rings
(7) 1 Seal Ring Setting Tool

FISHING BUMPER SUBS

Overview

One of the most common tools used for any kind of fishing job is the bumper sub. The tool's design allows full torque and unrestricted fluid circulation at all times. The Logan Fishing Bumper Sub can bump up or down to engage or disengage overshots or spears, or be used as a feed-off tool in milling or cutting operations. Other typical operations include releasing stuck drill pipe, drill collars, tubing, test tools, and safety joints. The fishing bumper sub can be used in conjunction with an overshot or spear.

Construction

This simple tool consists of five major components: a top sub, knocker, middle body, mandrel, and a mandrel body. All components are manufactured from high quality, heat-treated alloy steels.

The mandrel's hexagon shape allows it to slide in and out of the mandrel body's matching shape to transmit downhole torque. The standard stroke length of 20 inches is suitable for most purposes, although longer stroke lengths of 30, 36, 42, 48, and 60 inches are available.

A knocker seal ring, seal protector ring, and non-extrusion ring are provided on a standard knocker. Chevron packing knocker assemblies are available upon request and are recommended for extensive circulation through the fishing bumper sub.

Operation

The Logan Fishing Bumper Sub is typically run directly above the spear, overshot, screw-in sub, or safety joint. When lift load is applied, the bumper sub will slide open until the knocker hits the mandrel body. Slacking weight off the workstring to the fishing bumper sub will cause the mandrel body to slide back down the mandrel until the bottom shoulder of the mandrel body hits the top shoulder of the mandrel.

To Apply a Downward Blow

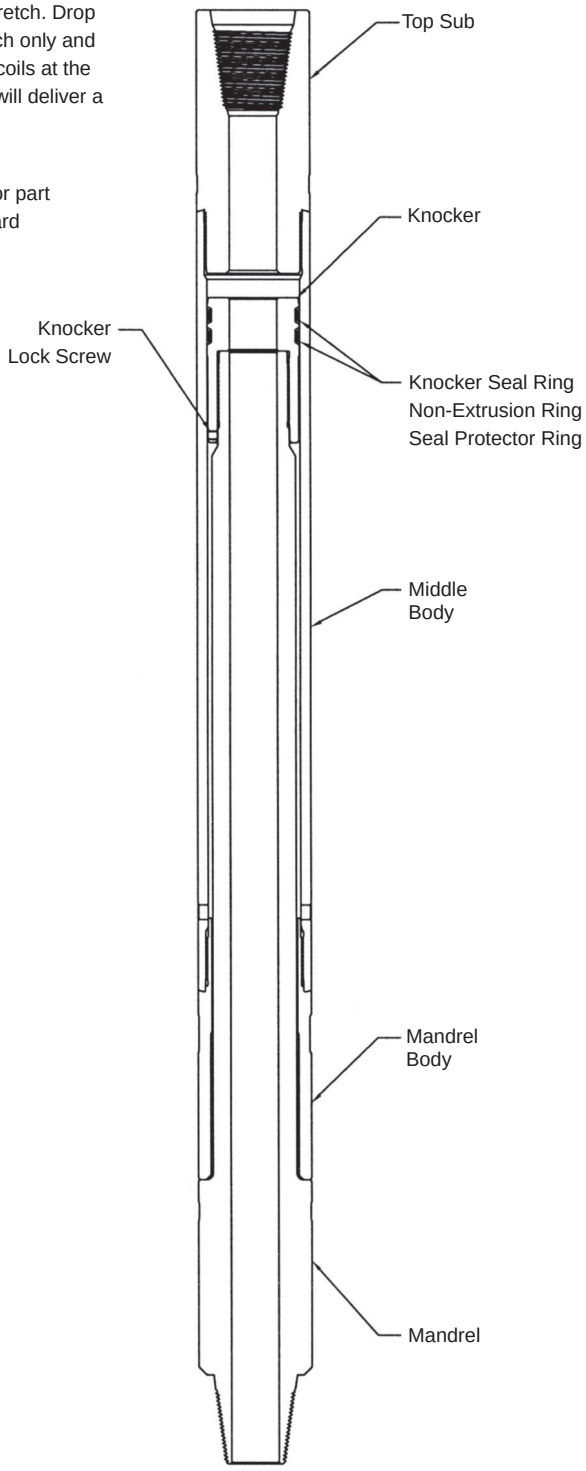
At the surface, mark the pipe to indicate the open and closed positions of the fishing bumper sub. Raise the fishing string to open the bumper sub and allow for extra string stretch. Sharply drop the string and stop with the brake approximately four to six inches above the closed position of the bumper sub to deliver a sharp downward blow. To deliver a solid downward blow, drop the full weight of the fishing string without braking.

To Apply an Upward Blow

At the surface, mark the pipe to indicate the open and closed positions of the fishing bumper sub. Raise the fishing string to open the bumper sub and allow for additional string stretch. Drop the string by the amount of the stretch only and stop it with the brake. As the pipe recoils at the bottom of the hole, the bumper sub will deliver a sharp upward blow.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Stroke length
(4) O.D., if other than standard



FISHING BUMPER SUBS

CONNECTION		1-13/16 WFJ	1-1/4 API Reg	2-3/8 EUE	2-3/8 API Reg	2-3/8 API IF	2-3/8 API IF	2-3/8 EUE
OUTSIDE DIAMETER (INCHES)		1-13/16	2-1/4	3-1/8	3-5/32	3-3/8	3-3/4	3-3/4
INSIDE DIAMETER (INCHES)		3/8	1/2	1-17/32	1	1	1-1/2	1-7/8
STROKE (INCHES)		20	20	20	20	20	20	20
COMPLETE ASSEMBLY	Logan Part No.	604-181	604-225	604-313	604-315	604-338	604-375	604-376
	Bowen No.	10120	18785	42592	10105	10190	39887	39893
TOP SUB	Logan Part No.	AF1000	AF1001	AF10015	AF1002	AF10025	AF1003	AF1004
	Bowen No.	10121	18786	42593	10106	10191	39888	39894
MANDREL BODY	Logan Part No.	AF2000	AF2001	AF20015	AF2002	AF20025	AF2003	AF2004
	Bowen No.	10123	18788	42596	10108	10193	39890	39896
MIDDLE BODY 20" STROKE	Logan Part No.	AF3000-20	AF3001-20	AF30015-20	AF3002-20	AF30025-20	AF3003-20	AF3004-20
	Bowen No.	10122	18787	42594	10107	10192	39889	39895
MANDREL 20" STROKE	Logan Part No.	AF4000-20	AF4001-20	AF40015-20	AF4002-20	AF40025-20	AF4003-20	AF4004-20
	Bowen No.	10125	18789	42597	10110	10194	39891	39897
KNOCKER	Logan Part No.	AF5000	AF5001	AF50015	AF5002	AF50025	AF5003	AF5004
	Bowen No.	10126	18790	42595	10111	10195	39892	39898
NON-EXTRUSION RING	Logan Part No.	L385-22	L385-27	L216-34	L387-6	L385-35	L216-38	L216-38
	Bowen No.	385-22	385-27	216-34	387-6	385-35	216-38	216-38
	No. Req'd	4	4	4	4	4	4	4
SEAL PROTECTOR RING	Logan Part No.	L386-22	L386-27	L227-34	L388-6	L386-35	L227-38	L227-38
	Bowen No.	386-22	386-27	227-34	388-6	386-35	227-38	227-38
	No. Req'd	4	4	4	4	4	4	4
KNOCKER SEAL RING	Logan Part No.	568-217	568-222	568-331	568-228	568-332	568-335	568-335
	Bowen No.	568217	568222	568331	568228	568332	568335	568335
	No. Req'd	2	2	2	2	2	2	2
KNOCKER LOCK SCREW	Logan Part No.	…	…	AF6001	AF6000	AF6000	AF6000	AF6001
	Bowen No.	…	…	54775	48879	48879	48879	54775

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Special Notes:

(1) Standard stroke for Bumper Subs is 20". Only the Mandrel and Middle Body need to be ordered to convert a standard 20" stroke assembly to one of greater stroke length. All other parts interchange for a given size. When a long stroke assembly is ordered by assembly number, the entire tool is ordered. To convert, order only the Mandrel and Middle Body by part number.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Stroke length
(4) O.D., if other than standard

Recommended Spare Parts:

(1) 8 Non-Extrusion Rings
(2) 8 Seal Protector Rings
(3) 16 Knocker Seals

FISHING BUMPER SUBS

CONNECTION		1-13/16 WFJ	1-1/4 API Reg	2-3/8 EUE	2-3/8 API Reg	2-3/8 API IF	2-3/8 API IF	2-3/8 EUE
OUTSIDE DIAMETER (INCHES)		1-13/16	2-1/4	3-1/8	3-5/32	3-3/8	3-3/4	3-3/4
INSIDE DIAMETER (INCHES)		3/8	1/2	1-17/32	1	1	1-1/2	1-7/8
STROKE (INCHES)		20	20	20	20	20	20	20
COMPLETE ASSEMBLY	Logan Part No.	604-181	604-225	604-313	604-315	604-338	604-375	604-376
	Bowen No.	10120	18785	42592	10105	10190	39887	39893

OPTIONAL ACCESSORIES

CHEVRON PACKING KNOCKER ASSEMBLY - BREAKDOWN:								
COMPLETE ASSEMBLY	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...
KNOCKER	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	
PACKING RING	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...
CENTER RING	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...
CHEVRON PACKING SET	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...
RETAINING RING	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...
PACKING RETAINER	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...
	No. Req'd	...	...	...	...	...	...	...

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

Special Notes:

(1) Standard stroke for Bumper Subs is 20". Only the Mandrel and Middle Body need to be ordered to convert a standard 20" stroke assembly to one of greater stroke length. All other parts interchange for a given size. When a long stroke assembly is ordered by assembly number, the entire tool is ordered. To convert, order only the Mandrel and Middle Body by part number.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Stroke length
(4) O.D., if other than standard

Recommended Spare Parts:

(1) 8 Non-Extrusion Rings
(2) 8 Seal Protector Rings
(3) 16 Knocker Seals

FISHING BUMPER SUBS

CONNECTION	1-13/16 WFJ	1-1/4 API Reg	2-3/8 EUE	2-3/8 API Reg	2-3/8 API IF	2-3/8 API IF	2-3/8 EUE
OUTSIDE DIAMETER (INCHES)	1-13/16	2-1/4	3-1/8	3-5/32	3-3/8	3-3/4	3-3/4
INSIDE DIAMETER (INCHES)	3/8	1/2	1-17/32	1	1	1-1/2	1-7/8

30" STROKE

COMPLETE ASSEMBLY	Logan Part No.	604-181	604-225	604-313	604-315	604-338	604-375	604-376
	Bowen No.	29523	29529	46881	29535	29538	46863	46866
MANDREL	Logan Part No.	AF4000-30	AF4001-30	AF40015-30	AF4002-30	AF40025-30	AF4003-30	AF4004-30
	Bowen No.	29524	29530	46882	29536	29539	46864	46867
MIDDLE BODY	Logan Part No.	AF3000-30	AF3001-30	AF30015-30	AF3002-30	AF30025-30	AF3003-30	AF3004-30
	Bowen No.	29525	29531	46883	29537	29540	46865	46868

36" STROKE

COMPLETE ASSEMBLY	Logan Part No.	604-181	604-225	604-313	604-315	604-338	604-375	604-376
	Bowen No.	29574	29580	49608	29586	29589	46890	46893
MANDREL	Logan Part No.	AF4000-36	AF4001-36	AF40015-36	AF4002-36	AF40025-36	AF4003-36	AF4004-36
	Bowen No.	29575	29581	46909	29587	29590	46891	46894
MIDDLE BODY	Logan Part No.	AF3000-36	AF3001-36	AF30015-36	AF3002-36	AF30025-36	AF3003-36	AF3004-36
	Bowen No.	29576	29582	46910	29588	29591	46892	46895

42" STROKE

COMPLETE ASSEMBLY	Logan Part No.	604-181	604-225	604-313	604-315	604-338	604-375	604-376
	Bowen No.	29619	29625	46935	16933	29643	46917	46920
MANDREL	Logan Part No.	AF4000-42	AF4001-42	AF40015-42	AF4002-42	AF40025-42	AF4003-42	AF4004-42
	Bowen No.	29620	29626	46936	16935	26944	46918	46921
MIDDLE BODY	Logan Part No.	AF3000-42	AF3001-42	AF30015-42	AF3002-42	AF30025-42	AF3003-42	AF3004-42
	Bowen No.	29621	29627	46937	16934	26945	46919	46922

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Special Notes:

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When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Stroke length
(4) O.D., if other than standard

Recommended Spare Parts:

(1) 8 Non-Extrusion Rings
(2) 8 Seal Protector Rings
(3) 16 Knocker Seals

FISHING BUMPER SUBS

CONNECTION	1-13/16 WFJ	1-1/4 API Reg	2-3/8 EUE	2-3/8 API Reg	2-3/8 API IF	2-3/8 API IF	2-3/8 EUE
OUTSIDE DIAMETER (INCHES)	1-13/16	2-1/4	3-1/8	3-5/32	3-3/8	3-3/4	3-3/4
INSIDE DIAMETER (INCHES)	3/8	1/2	1-17/32	1	1	1-1/2	1-7/8

48" STROKE

COMPLETE ASSEMBLY	Logan Part No.	604-181	604-225	604-313	604-315	604-338	604-375	604-376
	Bowen No.	29682	29688	46962	16936	29694	46944	46947
MANDREL	Logan Part No.	AF4000-48	AF4001-48	AF40015-48	AF4002-48	AF40025-48	AF4003-48	AF4004-48
	Bowen No.	29683	29689	46963	16938	29695	46945	46948
MIDDLE BODY	Logan Part No.	AF3000-48	AF3001-48	AF30015-48	AF3002-48	AF30025-48	AF3003-48	AF3004-48
	Bowen No.	29684	29690	46964	16937	29696	46946	46949

60" STROKE

COMPLETE ASSEMBLY	Logan Part No.	604-181	604-225	604-313	604-315	604-338	604-375	604-376
	Bowen No.	29748	29754	46989	29760	29763	46971	46974
MANDREL	Logan Part No.	AF4000-60	AF4001-60	AF40015-60	AF4002-60	AF40025-60	AF4003-60	AF4004-60
	Bowen No.	29749	29755	46990	29761	29764	46972	46975
MIDDLE BODY	Logan Part No.	AF3000-60	AF3001-60	AF30015-60	AF3002-60	AF30025-60	AF3003-60	AF3004-60
	Bowen No.	29750	29756	46991	29762	29765	46973	46976

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Special Notes:

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When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Stroke length
(4) O.D., if other than standard

Recommended Spare Parts:

(1) 8 Non-Extrusion Rings
(2) 8 Seal Protector Rings
(3) 16 Knocker Seals

FISHING BUMPER SUBS

CONNECTION		2-7/8 API Reg	2-7/8 API IF	2-7/8 EUE	3-1/2 API IF	3-1/2 API IF	4-1/2 API FH	4-1/2 API IF
OUTSIDE DIAMETER (INCHES)		3-3/4	4-1/4	4-1/2	4-3/4	4-3/4	6	6-1/4
INSIDE DIAMETER (INCHES)		1-1/4	1-15/16	2-3/8	2	1-1/2	2	2-1/4
STROKE (INCHES)		20	20	20	20	20	20	20
COMPLETE ASSEMBLY	Logan Part No.	604-377	604-425	604-450	604-475	604-476	604-600	604-625
	Bowen No.	10090	41824	36794	39905	10225	10135	10257
TOP SUB	Logan Part No.	AF1005	AF1006	AF1007	AF1008	AF10085	AF1009	AF1010
	Bowen No.	10091	41825	36795	39906	10226	10136	1025
MANDREL BODY	Logan Part No.	AF2005	AF2006	AF2007	AF2008	AF20085	AF2009	AF2010
	Bowen No.	10093	10158	36797	39908	10228	10138	10267
MIDDLE BODY	Logan Part No.	AF3005-20	AF3006-20	AF3007-20	AF3008-20	AF30085-20	AF3009-20	AF3010-20
(20-inch stroke)	Bowen No.	10092	10157	36796	39907	10227	10137	10262
MANDREL	Logan Part No.	AF4005-20	AF4006-20	AF4007-20	AF4008-20	AF40085-20	AF4009-20	AF4010-20
(20-inch stroke)	Bowen No.	10095	41828	36798	39909	10229	10140	10268
KNOCKER	Logan Part No.	AF5005	AF5006	AF5007	AF5008	AF50085	AF5009	AF5010
	Bowen No.	10096	41829	36799	39910	10230	10141	10250
NON-EXTRUSION RING	Logan Part No.	L385-37	L385-41	L216-44.5	L385-44	L385-44	L385-52	L385-54
	Bowen No.	385-37	385-41	216-44.5	385-44	385-44	385-52	385-54
	No. Req'd	4	4	4	4	4	4	4
SEAL PROTECTOR RING	Logan Part No.	L386-37	L386-41	L227-44.5	L386-44	L386-44	L386-52	L386-54
	Bowen No.	386-37	386-41	227-44.5	386-44	386-44	386-52	386-54
	No. Req'd	4	4	4	4	4	4	4
KNOCKER SEAL RING	Logan Part No.	568-334	568-338	568-341	568-341	568-341	568-349	568-427
	Bowen No.	568334	568338	568341	568341	568341	568349	568427
	No. Req'd	2	2	2	2	2	2	2
KNOCKER LOCK SCREW	Logan Part No.	AF6002	AF6000	AF6000	AF6000	AF6002	AF6003	AF6003
	Bowen No.	54769	48879	48879	48879	54769	43305	43305

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When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Stroke length
(4) O.D., if other than standard

Recommended Spare Parts:

(1) 8 Non-Extrusion Rings
(2) 8 Seal Protector Rings
(3) 16 Knocker Seals

FISHING BUMPER SUBS

CONNECTION		2-7/8 API Reg	2-7/8 API IF	2-7/8 EUE	3-1/2 API IF	3-1/2 API IF	4-1/2 API FH	4-1/2 API IF
OUTSIDE DIAMETER (INCHES)		3-3/4	4-1/4	4-1/2	4-3/4	4-3/4	6	6-1/4
INSIDE DIAMETER (INCHES)		1-1/4	1-15/16	2-3/8	2	1-1/2	2	2-1/4
STROKE (INCHES)		20	20	20	20	20	20	20
COMPLETE ASSEMBLY	Logan Part No.	604-377	604-425	604-450	604-475	604-476	604-600	604-625
	Bowen No.	10090	41824	36794	39905	10225	10135	10257

OPTIONAL ACCESSORIES

CHEVRON PACKING KNOCKER ASSEMBLY								
COMPLETE ASSEMBLY	Logan Part No.	25000-014	25000-015	25000-016	25000-017	25000-023	25000-018	25000-019
	Bowen No.	30910	59191	62774	59177	81172	50321	62205
KNOCKER	Logan Part No.	AF7000	AF7001	AF7002	AF7003	AF70035	AF7004	AF7005
	Bowen No.	30911	59192	62775	59178	81173	50322	62206
PACKING RING	Logan Part No.	AF8000	AF8001	AF8002	AF8003	AF80035	AF8004	AF8005
	Bowen No.	30912	59193	62776	59179	81174	50323	62207
CENTER RING	Logan Part No.	AF9000	AF9001	AF9002	AF9003	AF90035	AF9004	AF9005
	Bowen No.	30913	59194	62777	59180	81175	50324	62208
CHEVRON PACKING SET	Logan Part No.	AF10000	AF10001	AF10002	AF10003	AF100035	AF10004	AF10005
	Bowen No.	30914	59195	62778	59181	81176	50325	62209
RETAINING RING	Logan Part No.	AF11000	AF11001	AF11002	AF11003	AF110035	AF11004	AF11005
	Bowen No.	19812	59196	59182	59182	81177	50326	13177
PACKING RETAINER	Logan Part No.	AF12000	AF12001	AF12002	AF12003	…	AF12004	AF12005
	Bowen No.	62345	59197	62780	59183	…	50009	62210
	No. Req'd	2	2	2	2	…	2	2

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When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Stroke length
(4) O.D., if other than standard

Recommended Spare Parts:

(1) 8 Non-Extrusion Rings
(2) 8 Seal Protector Rings
(3) 16 Knocker Seals

FISHING BUMPER SUBS

CONNECTION	2-7/8 API Reg	2-7/8 API IF	2-7/8 EUE	3-1/2 API IF	3-1/2 API IF	4-1/2 API FH	4-1/2 API IF
OUTSIDE DIAMETER (INCHES)	3-3/4	4-1/4	4-1/2	4-3/4	4-3/4	6	6-1/4
INSIDE DIAMETER (INCHES)	1-1/4	1-15/16	2-3/8	2	1-1/2	2	2-1/4

30" STROKE

COMPLETE ASSEMBLY	Logan Part No.	604-377	604-425	604-450	604-475	604-476	604-600	604-625
	Bowen No.	29541	46869	46875	46878	29562	16150	20005
MANDREL	Logan Part No.	AF4005-30	AF4006-30	AF4007-30	AF4008-30	AF40085-30	AF4009-30	AF4010-30
	Bowen No.	29542	46870	46876	46879	29563	16151	20007
MIDDLE BODY	Logan Part No.	AF3005-30	AF3006-30	AF3007-30	AF3008-30	AF30085-30	AF3009-30	AF3010-30
	Bowen No.	29543	46871	46877	46880	29564	16152	20006

36" STROKE

COMPLETE ASSEMBLY	Logan Part No.	604-377	604-425	604-450	604-475	604-476	604-600	604-625
	Bowen No.	25180	46896	46902	46905	29604	10147	29610
MANDREL	Logan Part No.	AF4005-36	AF4006-36	AF4007-36	AF4008-36	AF40085-36	AF4009-36	AF4010-36
	Bowen No.	25182	46897	46903	46906	29605	10149	29611
MIDDLE BODY	Logan Part No.	AF3005-36	AF3006-36	AF3007-36	AF3008-36	AF30085-36	AF3009-36	AF3010-36
	Bowen No.	25181	46898	46904	46907	29606	10148	29612

42" STROKE

COMPLETE ASSEMBLY	Logan Part No.	604-377	604-425	604-450	604-475	604-476	604-600	604-625
	Bowen No.	29646	46923	46929	46932	29661	29667	29670
MANDREL	Logan Part No.	AF4005-42	AF4006-42	AF4007-42	AF4008-42	AF40085-42	AF4009-42	AF4010-42
	Bowen No.	29647	46924	46930	46933	29662	29668	29671
MIDDLE BODY	Logan Part No.	AF3005-42	AF3006-42	AF3007-42	AF3008-42	AF30085-42	AF3009-42	AF3010-42
	Bowen No.	29648	46925	46931	46934	29663	29669	29672

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When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Stroke length
(4) O.D., if other than standard

Recommended Spare Parts:

(1) 8 Non-Extrusion Rings
(2) 8 Seal Protector Rings
(3) 16 Knocker Seals

FISHING BUMPER SUBS

CONNECTION	2-7/8 API Reg	2-7/8 API IF	2-7/8 EUE	3-1/2 API IF	3-1/2 API IF	4-1/2 API FH	4-1/2 API IF
OUTSIDE DIAMETER (INCHES)	3-3/4	4-1/4	4-1/2	4-3/4	4-3/4	6	6-1/4
INSIDE DIAMETER (INCHES)	1-1/4	1-15/16	2-3/8	2	1-1/2	2	2-1/4

48" STROKE

COMPLETE ASSEMBLY	Logan Part No.	604-377	604-425	604-450	604-475	604-476	604-600	604-625
	Bowen No.	29697	46950	46956	46959	29715	19880	29736
MANDREL	Logan Part No.	AF4005-48	AF4006-48	AF4007-48	AF4008-48	AF40085-48	AF4009-48	AF4010-48
	Bowen No.	29698	46951	46957	46960	29716	19881	29737
MIDDLE BODY	Logan Part No.	AF3005-48	AF3006-48	AF3007-48	AF3008-48	AF30085-48	AF3009-48	AF3010-48
	Bowen No.	29699	46952	46958	46961	29717	19882	29738

60" STROKE

COMPLETE ASSEMBLY	Logan Part No.	604-377	604-425	604-450	604-475	604-476	604-600	604-625
	Bowen No.	29766	46977	46983	46986	29781	29790	25385
MANDREL	Logan Part No.	AF4005-60	AF4006-60	AF4007-60	AF4008-60	AF40085-60	AF4009-60	AF4010-60
	Bowen No.	29767	46978	46984	46987	29782	29791	25387
MIDDLE BODY	Logan Part No.	AF3005-60	AF3006-60	AF3007-60	AF3008-60	AF30085-60	AF3009-60	AF3010-60
	Bowen No.	29768	46979	46985	46988	29786	29792	25386

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When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Stroke length
(4) O.D., if other than standard

Recommended Spare Parts:

(1) 8 Non-Extrusion Rings
(2) 8 Seal Protector Rings
(3) 16 Knocker Seals

FISHING BUMPER SUBS

CONNECTION		5-1/2 API Reg	6-5/8 API Reg	7-5/8 API Reg
OUTSIDE DIAMETER (INCHES)		6-3/4	7-3/4	9
INSIDE DIAMETER (INCHES)		2-3/4	3-1/2	4
STROKE (INCHES)		20	20	20
COMPLETE ASSEMBLY	Logan Part No.	604-675	604-775	604-900
	Bowen No.	10690	26595	61596
TOP SUB	Logan Part No.	AF1011	AF1012	AF1013
	Bowen No.	10691	26596	61597
MANDREL BODY	Logan Part No.	AF2011	AF2012	AF2013
	Bowen No.	10693	26598	61599
MIDDLE BODY	Logan Part No.	AF3011-20	AF3012-20	AF3013-20
20- inch Stroke	Bowen No.	10692	26597	61598
MANDREL	Logan Part No.	AF4011-20	AF4012-20	AF4013-20
20- inch Stroke	Bowen No.	10694	26599	61600
KNOCKER	Logan Part No.	AF5011	AF5012	AF5013
	Bowen No.	10695	26594	61601
NON-EXTRUSION RING	Logan Part No.	L385-58	L385-65	L216-68.5
	Bowen No.	385-58	385-65	216-68.5
	No. Req'd	4	4	4
SEAL PROTECTOR RING	Logan Part No.	L386-58	L386-65	L227-68.5
	Bowen No.	386-58	386-65	227-68.5
	No. Req'd	4	4	4
KNOCKER SEAL RING	Logan Part No.	568-431	568-438	568-441
	Bowen No.	568431	568438	568441
	No. Req'd	2	2	2
KNOCKER LOCK SCREW	Logan Part No.	AF6003	AF6003	AF6004
	Bowen No.	43305	43305	54770

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When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Stroke length
(4) O.D., if other than standard

Recommended Spare Parts:

(1) 8 Non-Extrusion Rings
(2) 8 Seal Protector Rings
(3) 16 Knocker Seals

FISHING BUMPER SUBS

CONNECTION		5-1/2 API Reg	6-5/8 API Reg	7-5/8 API Reg				
OUTSIDE DIAMETER (INCHES)		6-3/4	7-3/4	9				
INSIDE DIAMETER (INCHES)		2-3/4	3-1/2	4				
STROKE (INCHES)		20	20	20				
COMPLETE ASSEMBLY	Logan Part No.	604-675	604-775	604-900				
	Bowen No.	10690	26595	61596				

OPTIONAL ACCESSORIES

CHEVRON PACKING KNOCKER ASSEMBLY								
COMPLETE ASSEMBLY	Logan Part No.	25000-020	25000-021	…				
	Bowen No.	57013	61103	…				
KNOCKER	Logan Part No.	AF7006	AF7007	…				
	Bowen No.	57014	61104	…				
PACKING RING	Logan Part No.	AF8006	AF8007	…				
	Bowen No.	57015	61105	…				
CENTER RING	Logan Part No.	AF9006	AF9007	…				
	Bowen No.	62374	62378	…				
CHEVRON PACKING SET	Logan Part No.	AF10006	AF10007	…				
	Bowen No.	57016	61106	…				
RETAINING RING	Logan Part No.	AF11006	AF11007	…				
	Bowen No.	57017	59907	…				
PACKING RETAINER	Logan Part No.	AF12006	AF12007	…				
	Bowen No.	62375	62379	…				
	No. Req'd	2	2	…				

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When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Stroke length
(4) O.D., if other than standard

Recommended Spare Parts:

(1) 8 Non-Extrusion Rings
(2) 8 Seal Protector Rings
(3) 16 Knocker Seals

FISHING BUMPER SUBS

CONNECTION		5-1/2 API Reg	6-5/8 API Reg	7-5/8 API Reg
OUTSIDE DIAMETER (INCHES)		6-3/4	7-3/4	9
INSIDE DIAMETER (INCHES)		2-3/4	3-1/2	4

30" STROKE

COMPLETE ASSEMBLY	**Logan Part No.**	**604-675**	**604-775**	**604-900**
	Bowen No.	14520	29568	70408
MANDREL	**Logan Part No.**	**AF4011-30**	**AF4012-30**	**AF4013-30**
	Bowen No.	14522	29569	70410
MIDDLE BODY	**Logan Part No.**	**AF3011-30**	**AF3012-30**	**AF3013-30**
	Bowen No.	14521	29570	70409

36" STROKE

COMPLETE ASSEMBLY	**Logan Part No.**	**604-675**	**604-775**	**604-900**
	Bowen No.	13590	29616	70411
MANDREL	**Logan Part No.**	**AF4011-36**	**AF4012-36**	**AF4013-36**
	Bowen No.	13592	29617	70413
MIDDLE BODY	**Logan Part No.**	**AF3011-36**	**AF3012-36**	**AF3013-36**
	Bowen No.	13591	29618	70412

42" STROKE

COMPLETE ASSEMBLY	**Logan Part No.**	**604-675**	**604-775**	**604-900**
	Bowen No.	29676	29679	70414
MANDREL	**Logan Part No.**	**AF4011-42**	**AF4012-42**	**AF4013-42**
	Bowen No.	29677	29680	70416
MIDDLE BODY	**Logan Part No.**	**AF3011-42**	**AF3012-42**	**AF3013-42**
	Bowen No.	29678	29681	70415

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

Special Notes:

(1) Standard stroke for Bumper Subs is 20". Only the Mandrel and Middle Body need to be ordered to convert a standard 20" stroke assembly to one of greater stroke length. All other parts interchange for a given size. When a long stroke assembly is ordered by assembly number, the entire tool is ordered. To convert, order only the Mandrel and Middle Body by part number.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Stroke length
(4) O.D., if other than standard

Recommended Spare Parts:

(1) 8 Non-Extrusion Rings
(2) 8 Seal Protector Rings
(3) 16 Knocker Seals

FISHING BUMPER SUBS

CONNECTION	5-1/2 API Reg	6-5/8 API Reg	7-5/8 API Reg
OUTSIDE DIAMETER (INCHES)	6-3/4	7-3/4	9
INSIDE DIAMETER (INCHES)	2-3/4	3-1/2	4

48" STROKE

COMPLETE ASSEMBLY	Logan Part No.	604-675	604-775	604-900
	Bowen No.	29742	29745	70417
MANDREL	Logan Part No.	AF4011-48	AF4012-48	AF4013-48
	Bowen No.	29743	29746	70419
MIDDLE BODY	Logan Part No.	AF3011-48	AF3012-48	AF3013-48
	Bowen No.	29744	29747	70418

60" STROKE

COMPLETE ASSEMBLY	Logan Part No.	604-675	604-775	604-900
	Bowen No.	29796	29799	70420
MANDREL	Logan Part No.	AF4011-60	AF4012-60	AF4013-60
	Bowen No.	29797	29800	70422
MIDDLE BODY	Logan Part No.	AF3011-60	AF3012-60	AF3013-60
	Bowen No.	29798	29801	70421

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

Special Notes:

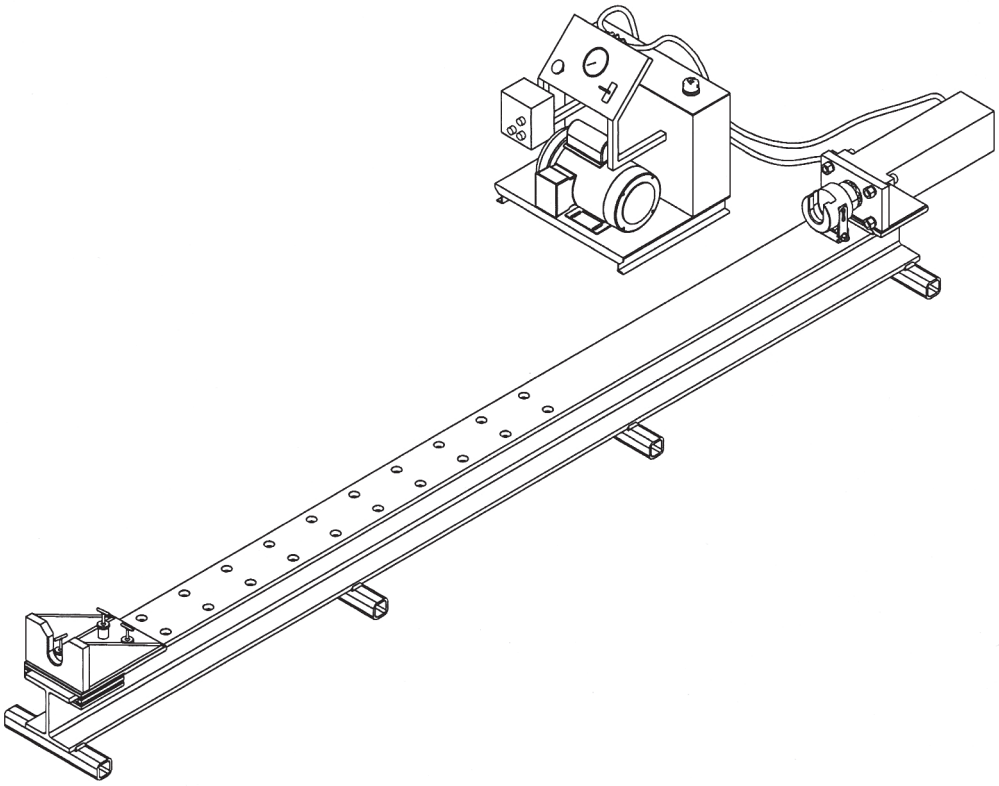
(1) Standard stroke for Bumper Subs is 20". Only the Mandrel and Middle Body need to be ordered to convert a standard 20" stroke assembly to one of greater stroke length. All other parts interchange for a given size. When a long stroke assembly is ordered by assembly number, the entire tool is ordered. To convert, order only the Mandrel and Middle Body by part number.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Stroke length
(4) O.D., if other than standard

Recommended Spare Parts:

(1) 8 Non-Extrusion Rings
(2) 8 Seal Protector Rings
(3) 16 Knocker Seals



JAR TESTER

Overview

The Logan Jar Tester is a versatile machine for setting, checking, or testing pull loads of a variety of tools with outer diameters up to 11 inches. The Jar Tester is capable of exerting tension or compression loads in a controlled manner. The Logan Jar Tester provides an effective and accurate means for shop testing hydraulic jars; setting and checking pull loads of mechanical rotary jars, safety joints, bumper subs, and other similar tools; and testing formation tools. It is especially useful when many such tools must be maintained on a recurring basis.

Construction

The Logan Jar Tester is composed of two basic components: a frame and a prime mover. A pull plate and cross head cradle the tool to be tested. The cross head is attached to a hydraulic cylinder that supplies the tensile or compressive load. The prime mover, which is also referred to as the power-pak, is an electric, motor-driven hydraulic power supply. It is composed of a hydraulic pump, an electric motor, a hydraulic reservoir, a start/stop switch, a pressure gauge, a filter, and appropriate valve fittings to properly operate and maintain the system.

All components of the Logan Jar Tester are manufactured from high-grade materials. All main load bearing members are made from selected heat-treated alloy steel for maximum strength and durability.

All Logan Jar Testers are completely assembled and tested before shipment. The unit requires very little maintenance. However, usual wear parts must be occasionally replaced.

When ordering, please specify:

(1) Test Subs, size and type connection



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



J1073
Installation Tool



J1074
O-Ring Installation Tool

J1077
Fill Plug Wrench



J1075
Torx Head
Fill Plug Wrench

568010-100
O-Ring



568005-100
O-Rings



J1080
Line Filter

Note: Photos of parts are not actual size.



Pump Hose



J1072
6 Ft. Exhaust Hose



J1069
Volume Pump



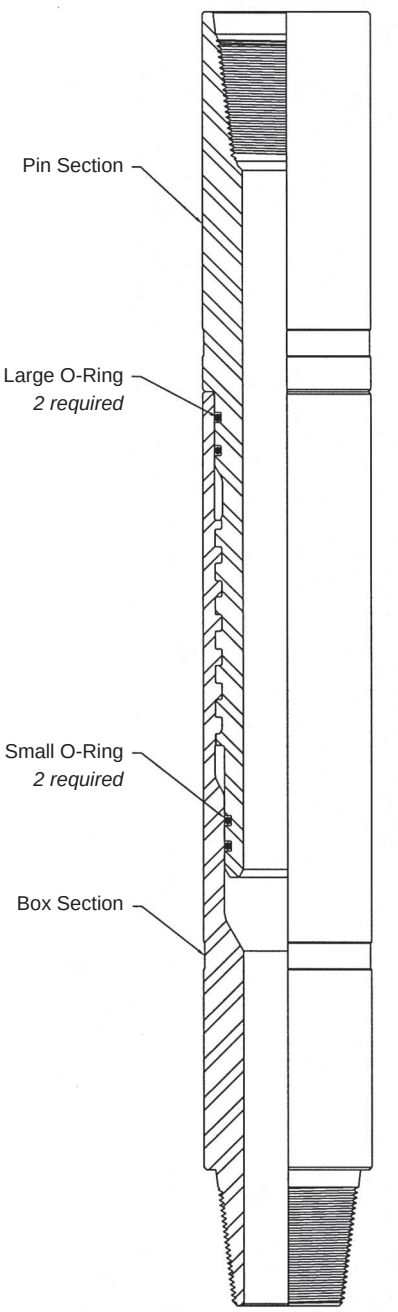
J1070
Metal Box

COMPLETE ASSEMBLY	**Logan Part No.**	**26000-055**
Consists of:	Bowen No.	145213
SEAL PROTECTOR RING	Logan Part No.	J1073
INSTALLATION TOOL	Bowen No.	625
O-RING	Logan Part No.	J1074
INSTALLATION TOOL	Bowen No.	626
FILL PLUG WRENCH —	Logan Part No.	J1075
T30 TORX HEAD	Bowen No.	359T
FILL PLUG WRENCH —	Logan Part No.	J1077
ALLEN HEAD	Bowen No.	620A
1/4" x 1" PIPE NIPPLE	Logan Part No.	J1078
	Bowen No.	36953
LINE FILTER	Logan Part No.	J1080
	Bowen No.	56565
1/4" MALE COUPLER	Logan Part No.	J1085
	Bowen No.	656
1/4" FEMALE COUPLER	Logan Part No.	J1086
	Bowen No.	655
3/8" BOX x 1/4" GALVANIZED	Logan Part No.	J1373
BOX COUPLER	Bowen No.	…
1/8" BOX x 1/4"	Logan Part No.	J1374
PIN HEX BUSHING	Bowen No.	…

1/4" 19 NPT PIN	Logan Part No.	J1376
HOSE FITTING	Bowen No.	…
6 FT. EXHAUST HOSE	Logan Part No.	J1072
	Bowen No.	33435
PUMP HOSE	Logan Part No.	…
	Bowen No.	2581
VOLUME PUMP	Logan Part No.	J1069
	Bowen No.	2580
METAL BOX	Logan Part No.	J1070
	Bowen No.	1995
5/8" FILL PLUG ADAPTER	Logan Part No.	J1224-001
	Bowen No.	…
7/16" 20 NF	Logan Part No.	J1046-001
FILL PLUG ADAPTER	Bowen No.	…
3/8" 24 NF	Logan Part No.	J1045-001
FILL PLUG ADAPTER	Bowen No.	…
O-RING	Logan Part No.	568010-100
	Bowen No.	568010
O-RING — 70 DURO NITRILE	Logan Part No.	568005-100
	Bowen No.	568005

When ordering, please specify:
(1) Name and number of assembly or part

DRILL PIPE SAFETY JOINTS



Overview

The Logan Drill Pipe Safety Joint is designed for the safe and dependable release from drilling, fishing, tubing, washover, or testing strings should they become stuck. The simple design of the Logan Drill Pipe Safety Joint has no release ring, which allows for quick disen-gagement procedures of the tool.

Construction

The Logan Drill Pipe Safety Joint comes in a variety of popular sizes for drill pipe strings. Logan will also design and manufacture safety joints to meet a customer's specific need. The Logan Drill Pipe Safety Joint is made up of a box section and a pin section. Each Safety Joint is designed to withstand internal and external pressures through the use of O-ring seals above and below the threads.

The O.D. and the I.D. of the Logan Drill Pipe Safety Joint match the standard O.D. and I.D. of the tool joint connection that is requested.

Operation

The coarse thread design of the Logan Drill Pipe Safety Joint is resistant to wedging or loosening of the tool during operation. The Safety Joint's design allows for the transmission of torque in the left-hand or right-hand direction.

To Disengage the Safety Joint in the Hole

1. Pick up on the drill string until 500 to 1,000 lbs. remains on the Safety Joint. If too much weight is left sitting on the Safety Joint, there is a possibility that damage could occur to the shoulder of the box section when the tool disengages.
2. Rotate the string to the left until approximately 20% to 40% of the tool's right-hand make-up torque is applied.
3. Pick up on the string slowly while rotating to the left to unscrew the Safety Joint. The coarse threads will lift the pipe approximately 1/2" to 1-1/2" (depending on the size of the Safety Joint) for each revolution of the string.
4. Care should be taken to keep a little weight on the Safety Joint as the tool is unscrewed as recommended in Step 1. The operator will be able to see a weight decrease as the Safety Joint separates.

To Reengage the Safety Joint in the Hole

1. Lower the string into the hole until the Pin Section contacts the Box Section.
2. Apply approximately 1,000 lbs. of weight and rotate the string slowly to the right. An increase in torque will indicate that the Safety Joint has reengaged.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Name and number of any desired spares
(4) O.D., if other than standard

DRILL PIPE SAFETY JOINTS

CONNECTION SIZE		2-3/8	2-3/8	2-7/8	2-7/8	2-7/8	3-1/2	3-1/2
CONNECTION TYPES		API Reg ACME Reg	API IF API FH HYD IF	API Reg ACME Reg	HYD IF	Int Flush	API Reg	HYD IF
TOOL O.D.		3-1/8	3-3/8	3-3/4	3-7/8	4-1/8	4-1/4	4-1/2
BORE		1	1-3/4	1-1/4	2-1/8	2-1/8	1-1/2	2-9/16
COMPLETE ASSEMBLY	Logan Part No.	601-313	601-338	601-375	601-388	601-413	601-425	601-450
PIN SECTION	Logan Part No.	Y1000	Y1001	Y1002	Y1003	Y1004	Y1005	Y1006
BOX SECTION	Logan Part No.	Y2000	Y2001	Y2002	Y2003	Y2004	Y2005	Y2006
O-RING – SMALL	Logan Part No.	568-325	568-226	568-227	…	568-333	568-333	…
	No. Req'd	2	2	2	…	2	2	…
O-RING – LARGE	Logan Part No.	568-329	568-332	568-333	…	568-337	568-337	…
	No. Req'd	2	2	2	…	2	2	…

CONNECTION SIZE		3-1/2	3-1/2	3-1/2	4	4	4-1/2	4-1/2
CONNECTION TYPES		API FH	API Reg	API IF	API FH	Int Flush	API Reg	API FH
TOOL O.D.		4-5/8	4-3/4	4-3/4	5-1/4	5-3/4	5-1/2	5-3/4
BORE		2-7/16	1-1/2	2-11/16	2-13/16	3-1/4	2-1/4	3
COMPLETE ASSEMBLY	Logan Part No.	601-463	601-475	601-476	601-525	601-575	601-550	601-575
PIN SECTION	Logan Part No.	Y1007	Y1008	Y1009	Y1010	Y1011	Y1012	Y1013
BOX SECTION	Logan Part No.	Y2007	Y2008	Y2009	Y2010	Y2011	Y2012	Y2013
O-RING – SMALL	Logan Part No.	568-337	…	568-337	…	…	…	568-344
	No. Req'd	2	…	2	…	…	…	2
O-RING – LARGE	Logan Part No.	568-341	…	568-341	…	…	…	568-349
	No. Req'd	2	…	2	…	…	…	2

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

Special Notes:
(1) Left-hand connections available upon request.

When ordering, please specify:
(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Name and number of any desired spares
(4) O.D., if other than standard.

DRILL PIPE SAFETY JOINTS

CONNECTION SIZE		4-1/2	4-1/2	5-1/2	5-1/2	5-1/2	6-5/8	6-5/8
CONNECTION TYPES		X-HOLE	API IF HYD IF	API Reg	API Reg	API Reg	API Reg	API Reg
TOOL O.D.		6	6-1/8	6-3/4	7	7-3/8	7-3/4	8
BORE		3-1/4	3-3/4	2-3/4	4	4-13/16	3-1/2	5
COMPLETE ASSEMBLY	Logan Part No.	601-600	601-613	601-675	601-700	601-738	601-775	601-800
PIN SECTION	Logan Part No.	Y1014	Y1015	Y1016	Y1017	Y1018	Y1019	Y1020
BOX SECTION	Logan Part No.	Y2014	Y2015	Y2016	Y2017	Y2018	Y2019	Y2020
O-RING – SMALL	Logan Part No.	…	568-347	…	…	…	568-355	568-435
	No. Req'd	…	2	…	…	…	2	2
O-RING – LARGE	Logan Part No.	…	568-429	…	…	…	568-359	568-438
	No. Req'd	…	2	…	…	…	2	2

CONNECTION SIZE		6-5/8	7-5/8	8-5/8				
CONNECTION TYPES		API IF	API Reg	API Reg				
TOOL O.D.		8-1/2	9	10				
BORE		5-29/32	4	4-3/4				
COMPLETE ASSEMBLY	Logan Part No.	601-850	601-900	601-1000				
PIN SECTION	Logan Part No.	Y1021	Y1022	Y1023				
BOX SECTION	Logan Part No.	Y2021	Y2022	Y2023				
O-RING – SMALL	Logan Part No.	…	568-361	…				
	No. Req'd	…	2	…				
O-RING – LARGE	Logan Part No.	…	568-363	…				
	No. Req'd	…	2	…				

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

Special Notes:
(1) Left-hand connections available upon request.

When ordering, please specify:
(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Name and number of any desired spares
(4) O.D., if other than standard.

TUBING SAFETY JOINTS

Overview

The Logan Tubing Safety Joint is designed for the safe and dependable release from drilling, fishing, tubing, washover, or testing strings should they become stuck. The simple design of the Logan Tubing Safety Joint has no release ring, which allows for quick disengagement procedures of the tool.

Construction

The Logan Tubing Safety Joint comes in a variety of popular sizes for tubing strings. Logan will also design and manufacture safety joints to meet a customer's specific need. The Logan Tubing Safety Joint is made up of a box section and a pin section. Each Safety Joint is designed to withstand internal and external pressures through the use of O-ring seals above and below the threads.

Logan Tubing Safety Joints will have an O.D. the same as the coupling O.D. and an I.D. the same as the I.D. of the tubing connection.

Operation

The coarse thread design of the Logan Tubing Safety Joint is resistant to wedging or loosening of the tool during operation. The Safety Joint's design allows for the transmission of torque in the left-hand or right-hand direction.

To Disengage the Safety Joint in the Hole

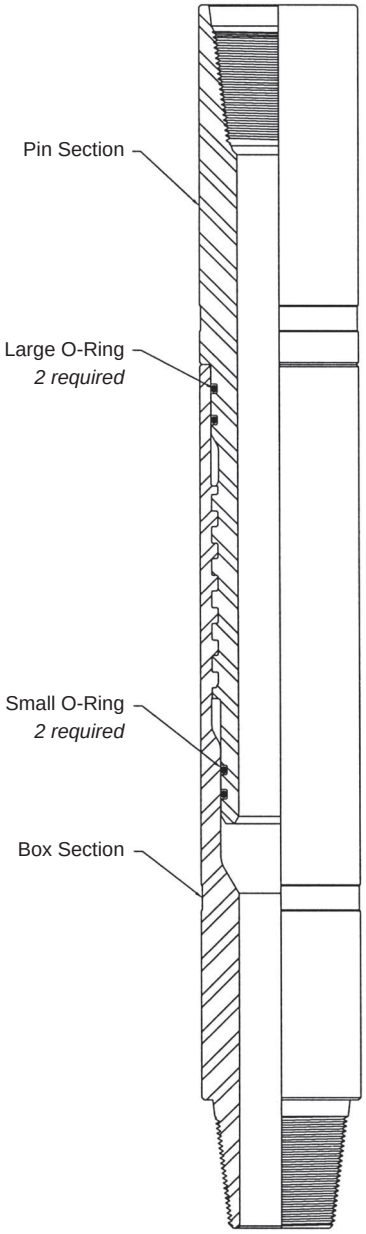
1. Pick up on the tubing string until 500 to 1,000 lbs. remains on the Safety Joint. If too much weight is left sitting on the Safety Joint, there is a possibility that damage could occur to the shoulder of the box section when the tool disengages.
2. Rotate the string to the left until approximately 20% to 40% of the tool's right-hand make-up torque is applied.
3. Pick up on the string slowly while rotating to the left to unscrew the Safety Joint. The coarse threads will lift the pipe approximately 1/2" for each revolution of the string.
4. Care should be taken to keep a little weight on the Safety Joint as the tool is unscrewed as recommended in Step 1. The operator will be able to see a weight decrease as the Safety Joint separates.

To Reengage the Safety Joint in the Hole

1. Lower the string into the hole until the Pin Section contacts the Box Section.
2. Apply approximately 1,000 lbs. of weight and rotate the string slowly to the right. An increase in torque will indicate that the Safety Joint has reengaged.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Name and number of any desired spares
(4) O.D., if other than standard



TUBING SAFETY JOINTS

CONNECTION SIZE		3/4	1	1	1-1/2	2	2-1/2	2-7/8
CONNECTION TYPE		EUE HARDY GRIFFIN	DSS	EUE	CS	EUE	EUE C-100	HYDRIL
TOOL O.D.		1.660	1.590	1-29/32	2-1/8	3-1/16	3-21/32	3-1/2
BORE		.812	.812	1	1-1/2	2	2-7/16	2-3/8
COMPLETE ASSEMBLY	Logan Part No.	602-166	602-159	602-191	602-213	602-306	602-366	602-350
PIN SECTION	Logan Part No.	Y3000	Y3001	Y3002	Y3003	Y3004	Y3005	Y3006
BOX SECTION	Logan Part No.	Y4000	Y4001	Y4002	Y4003	Y4004	Y4005	Y4006
O-RING – SMALL	Logan Part No.	…	…	568-025	568-131	568-138	568-228	…
	No. Req'd	…	…	2	2	2	2	…
O-RING – LARGE	Logan Part No.	…	…	568-128	568-225	568-332	568-336	…
	No. Req'd	…	…	2	2	2	2	…

CONNECTION SIZE		3	3
CONNECTION TYPE		EUE	EUE
TOOL O.D.		4-1/2	5
BORE		3	3
COMPLETE ASSEMBLY	Logan Part No.	602-450	602-500
PIN SECTION	Logan Part No.	Y3007	Y3008
BOX SECTION	Logan Part No.	Y4007	Y4008
O-RING - SMALL	Logan Part No.	568-152	…
	No. Req'd	2	…
O-RING - LARGE	Logan Part No.	568-241	…
	No. Req'd	2	…

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

Special Notes:
(1) Left-hand connections available upon request.

When ordering, please specify:
(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Name and number of any desired spares
(4) O.D., if other than standard.

WASHOVER SAFETY JOINTS

Overview

The Logan Washover Safety Joint is designed for the safe and dependable release from drilling, fishing, tubing, washover, or testing strings should they become stuck. The simple design of the Logan Washover Safety Joint has no release ring, which allows for quick disen-gagement procedures of the tool.

Construction

The Logan Washover Safety Joint comes in a variety of popular sizes for drill pipe strings. Logan will also design and manufacture safety joints to meet a customer's specific need. The Logan Washover Safety Joint is made up of a box section and a pin section. Each Safety Joint is designed to withstand internal and external pressures through the use of O-ring seals above and below the threads.

Logan Washover Safety Joints come with a drill pipe box top connection and a washover string pin bottom connection. This allows the Safety Joint to be run between the washover pipe and the drill string. The O.D. of the Washover Safety Joint will match the O.D. of the washover pipe.

Operation

The coarse thread design of the Logan Washover Safety Joint is resistant to wedging or loosening of the tool during operation. The Safety Joint's design allows for the transmission of torque in the left-hand or right-hand direction.

To Disengage the Safety Joint in the Hole

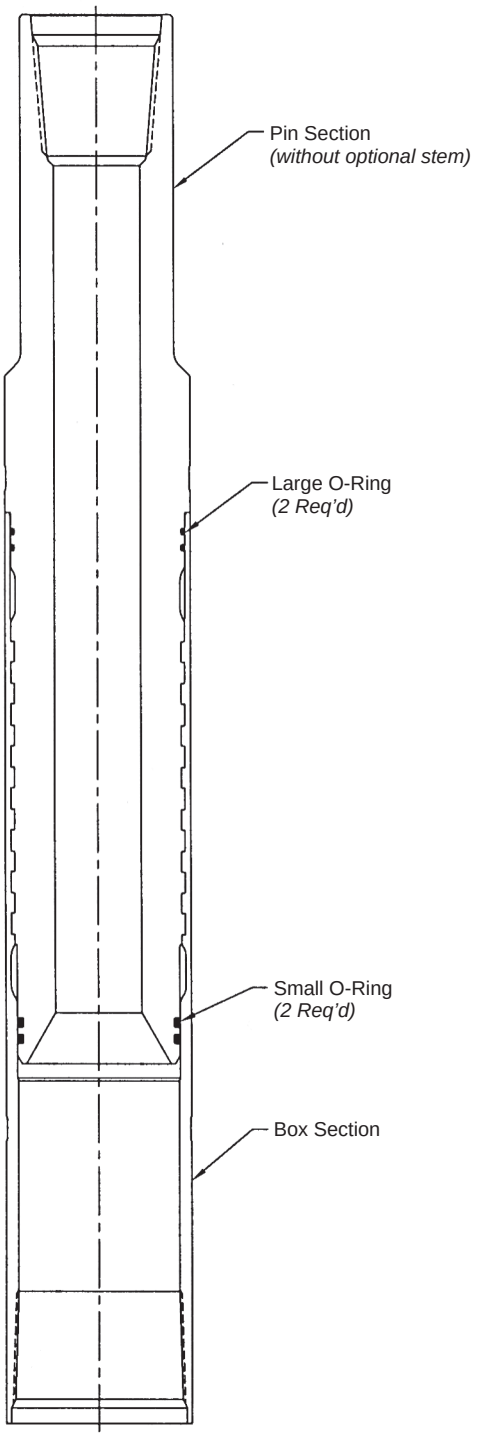
1. Pick up on the drill string until 500 to 1,000 lbs. remains on the Safety Joint. If too much weight is left sitting on the Safety Joint, there is a possibility that damage could occur to the shoulder of the box section when the tool disengages.
2. Rotate the string to the left until approximately 20% to 40% of the tool's right-hand make-up torque is applied.
3. Pick up on the string slowly while rotating to the left to unscrew the Safety Joint. The coarse threads will lift the pipe approximately 1/2" for each revolution of the string.
4. Care should be taken to keep a little weight on the Safety Joint as the tool is unscrewed as recommended in Step 1. The operator will be able to see a weight decrease as the Safety Joint separates.

To Reengage the Safety Joint in the Hole

1. Lower the string into the hole until the Pin Section contacts the Box Section.
2. Apply approximately 1,000 lbs. of weight and rotate the string slowly to the right. An increase in torque will indicate that the Safety Joint has reengaged.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Name and number of any desired spares
(4) O.D., if other than standard



WASHOVER SAFETY JOINTS

CONNECTION SIZE		4	4-1/2	5	5-1/2	5-3/4	7	7-3/8
CONNECTION TYPE		FJ	FJ	FJ	FJ	FJ	HYDRIL FJ	FJ
TOOL O.D.		4	4-1/2	5-3/8	5-5/8	5-3/4	7-5/16	7-3/8
BORE		1-1/4	1-1/4	2-1/8	2-9/16	2-7/16	3-3/4	3
COMPLETE ASSEMBLY	Logan Part No.	603-400	603-450	603-538	603-563	603-575	603-731	603-738
PIN SECTION WITHOUT STEM	Logan Part No.	Y5000-B	Y5001-B	Y5002-B	Y5003-B	Y5004-B	Y5005-B	Y5006-B
BOX SECTION	Logan Part No.	Y6000	Y6001	Y6002	Y6003	Y6004	Y6005	Y6006
O-RING	Logan Part No.	...	...	...	...	...	...	568-261
	No. Req'd	...	...	...	...	...	...	2

OPTIONAL

PIN SECTION WITH STEM	Logan Part No.	Y5000-A	Y5001-A	Y5002-A	Y5003-A	Y5004-A	Y5005-A	Y5006-A

CONNECTION SIZE		7-5/8	8-1/8	9	9-5/8	10-3/4	11-3/4
CONNECTION TYPE		FJ	FJ	FJ	FJ	FJ	FJ
TOOL O.D.		8	8-5/32	9-3/8	10-1/8	11-1/16	11-3/4
BORE		3-3/4	3-5/32	4		4	
COMPLETE ASSEMBLY	Logan Part No.	603-800	603-816	603-938	603-1013	603-1106	603-1175
PIN SECTION WITHOUT STEM	Logan Part No.	Y5007-B	Y5008-B	Y5009-B	Y5010-B	Y5011-B	Y5012-B
BOX SECTION	Logan Part No.	Y6007	Y6008	Y6009	Y6010	Y6011	Y6012
O-RING	Logan Part No.	568-262	...	...	...	...	...
	No. Req'd	2	...	...	...	...	...

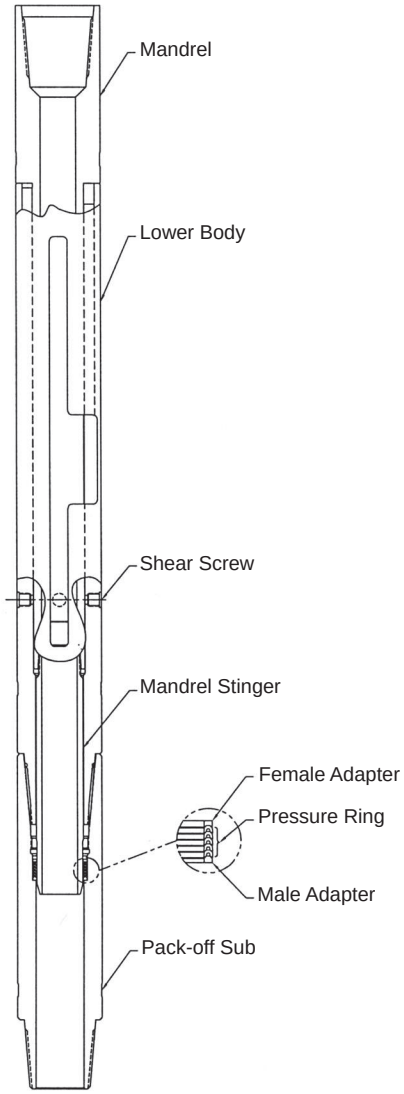
OPTIONAL

PIN SECTION WITH STEM	Logan Part No.	Y5007-A	Y5008-A	Y5009-A	Y5010-A	Y5011-A	Y5012-A

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

Special Notes:
(1) Left-hand connections available upon request

When ordering, please specify:
(1) Name and number of assembly or part
(2) Connections, if other than standard
(3) Name and number of any desired spares
(4) If ordering Pin Section With Stem, specify stem length
(5) O.D., if other than standard.



TYPE J SAFETY JOINTS

Overview

The Logan Type J Safety Joint provides a release option from tools such as taper taps or die collars that are normally non-releasable. It also provides a way to connect or disconnect fishing string and stuck fish.

Construction

Simple two-piece construction made of heat-treated alloy steel allows easy make-up and release. Special shear screws securely fasten the tool to prevent accidental unlatching before the fish is engaged.

Operation

The lugs on the top half of the Logan Type J Safety Joint are secured when they engage with the J-slots on the bottom half.

To Release the Safety Joint

Once the fish is engaged, a tension load is applied to the string to shear the shear screws. After the screws have been sheared and the tension released, slight left-hand torque is applied to the string while it is elevated. The lugs will shift into the release slots and the two halves of the safety joint will separate.

To Reengage the Safety Joint

Slowly rotate the string to the right. Lower the string until the lugs on the top half engage the J-slots in the lower half. Stop rotation. Maintain right-hand torque on the lowered string until the joint is fully engaged. The joint will remain engaged until it is released.

When ordering, please specify:

(1) Complete assembly or part number
(2) O.D. of assembly
(3) Size and type of connection
(4) O.D., if other than standard. For oversize, add 10% for each additional 1/4" or portion thereof to Pin Section and Box Section.

STANDARD TOOL O.D.		4-1/8	4-3/4	6-1/4	7-3/4			
COMPLETE ASSEMBLY	Logan Part No.	610-413	610-475	610-625	610-775			
MANDREL	Logan Part No.	Y7000	Y7001	Y7002	Y7003			
MANDREL STINGER	Logan Part No.	Y8000	Y8001	Y8002	Y8003			
LOWER BODY	Logan Part No.	Y9000	Y9001	Y9002	Y9003			
PACK-OFF SUB	Logan Part No.	Y10000	Y10001	Y10002	Y10003			
GLAND NUT	Logan Part No.	Y11000	Y11001	Y11002	Y11002			
FEMALE ADAPTER	Logan Part No.	SC3131-480	SC2652-480	SC3123-480	SC3433-480			
MALE ADAPTER	Logan Part No.	SC3132-280	SC2652-280	SC3123-280	SC3433-280			
CHEVRON PACKING	Logan Part No.	SC3132-160	SC2652-160	SC3123-160	SC3433-160			
SHEAR SCREW	Logan Part No.	Y12000	Y12000	Y12000	Y12000			
	No. Req'd.	2	2	4	4			
GLAND WRENCH	Logan Part No.	Y13000	Y13001	Y13002	Y13002			

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

NOTES

WELDED CUP JUNK SUBS

Overview

The Logan Welded Cup Junk Sub is an accessory tool that prevents cuttings from milling or drilling operations that are too heavy to be circulated from settling at the bottom of the hole.

Construction

The Logan Welded Cup Junk Sub is manufactured from high strength, heat-treated alloy steel to withstand wear.

Cup support ribs are welded to the main body of the tool. These ribs attach to the cup and guide the tool through tight places and prevent it from being crushed.

The standard welded assembly has a 10-inch-deep cup. Long (20-inch) and extra long (30-inch) cup lengths are available.

Assembly

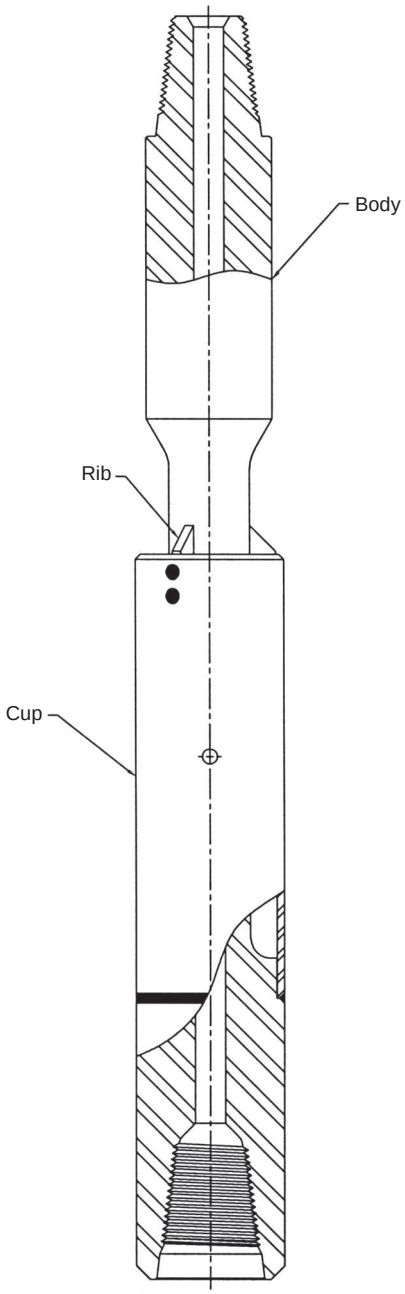
Welded cup junk subs are placed directly above the mill or drill bit. For severe milling jobs, it is customary to run two or three junk subs in tandem above the mill to increase cutting removal capacity and provide extra stabilization for the mill.

Operation

Welded cup junk subs can be run in an open hole or inside casing. When running inside casing, hard-faced pads dressed to the same O.D. as the mill or bit should be used.

When ordering, please specify:

(1) Complete assembly number
(2) Size and type of connections
(3) Cup length



WELDED CUP JUNK SUBS

SIZE RANGE (HOLE SIZE)		4-1/4 to 5-5/8	4-5/8 to 4-7/8	5-1/8 to 5-7/8	6 to 6-3/8	6-1/2 to 7-1/2	7-1/2 to 8-1/2	8-5/8 to 9-5/8
CONNECTION (STD. API REG)		2-3/8	2-7/8	3-1/2	3-1/2	3-1/2	4-1/2	4-1/2
DIAMETER OF BORE		3/4	1-1/4	1-1/2	1-1/2	1-1/2	2-1/4	2-1/4
O.D. OF TOP CONNECTION BODY		3-1/8	3-3/4	4-1/4	4-1/4	4-1/4	5-1/2	5-1/2
O.D. UNDER TOP CONNECTION		2	2-5/8	3-1/8	3-1/4	3-1/4	4-1/2	4-1/2
O.D. OF CUP		3-11/16	4	4-1/2	5	5-1/2	6-5/8	7
I.D. OF CUP		3-5/16	3-5/8	4-1/4	4-9/16	4-7/8	5-15/16	6-9/32
COMPLETE ASSEMBLY	**Logan Part No.**	**200-000-010**	**200-001-010**	**200-002-010**	**200-003-010**	**200-004-010**	**200-005-010**	**200-006-010**
	Bowen No.	20340	15450	15455	15460	15465	15470	15475
	Cup Length (in)	10	10	10	10	10	10	10

LONG TYPE

COMPLETE ASSEMBLY	**Logan Part No.**	**200-000-020**	**200-001-020**	**200-002-020**	**200-003-020**	**200-004-020**	**200-005-020**	**200-006-020**
	Bowen No.	20345	17060	17065	17070	17075	17080	17085
	Cup Length (in)	20	20	20	20	20	20	20

EXTRA LONG TYPE

COMPLETE ASSEMBLY	**Logan Part No.**	**200-000-030**	**200-001-030**	**200-002-030**	**200-003-030**	**200-004-030**	**200-005-030**	**200-006-030**
	Bowen No.	20295	20300	20305	20310	20315	20320	20325
	Cup Length (in)	30	30	30	30	30	30	30

SIZE RANGE (HOLE SIZE)		9-5/8 to 11-5/8	11-1/2 to 13	14-3/4 to 17-1/2				
CONNECTION (STD. API REG)		6-5/8	6-5/8	7-5/8				
DIAMETER OF BORE		3-1/2	3-1/2	4				
O.D. OF TOP CONNECTION BODY		7-3/4	7-3/4	8-7/8				
O.D. UNDER TOP CONNECTION		5-3/4	5-3/4	7-5/8				
O.D. OF CUP		8-5/8	9-5/8	12-7/8				
I.D. OF CUP		7-15/16	8-17/32	11-5/8				
COMPLETE ASSEMBLY	**Logan Part No.**	**200-007-010**	**200-008-010**	**200-009-010**				
	Bowen No.	15480	15485	55306				
	Cup Length (in)	10	10	10				

LONG TYPE

COMPLETE ASSEMBLY	**Logan Part No.**	**200-007-020**	**200-008-020**	**200-009-020**				
	Bowen No.	17090	17095	62533				
	Cup Length (in)	20	20	20				

EXTRA LONG TYPE

COMPLETE ASSEMBLY	**Logan Part No.**	**200-007-030**	**200-008-030**	**200-009-030**				
	Bowen No.	20330	20335	62536				
	Cup Length (in)	30	30	30				

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

When ordering, please specify:

(1) Complete assembly number
(2) Size and type of connections
(3) Cup length

THREADED CUP JUNK SUBS

Overview

The Logan Threaded Cup Junk Sub is an accessory tool that prevents cuttings from milling or drilling operations that are too heavy to be circulated from settling at the bottom of the hole. The removable threaded cup design allows easy inspection of the body. Damaged cups can easily be removed and replaced.

Construction

The Logan Threaded Cup Junk Sub is manufactured from high strength, heat-treated alloy steel to withstand wear.

The tool's strength is further enhanced by cup support ribs that are machined from the main body of the tool, not welded. These heavy-duty ribs support the cup and guide the tool through tight places and prevent it from being crushed.

The standard assembly has a 20-inch-deep cup. Standard (20-inch) and long (30-inch) cup lengths are available.

Assembly

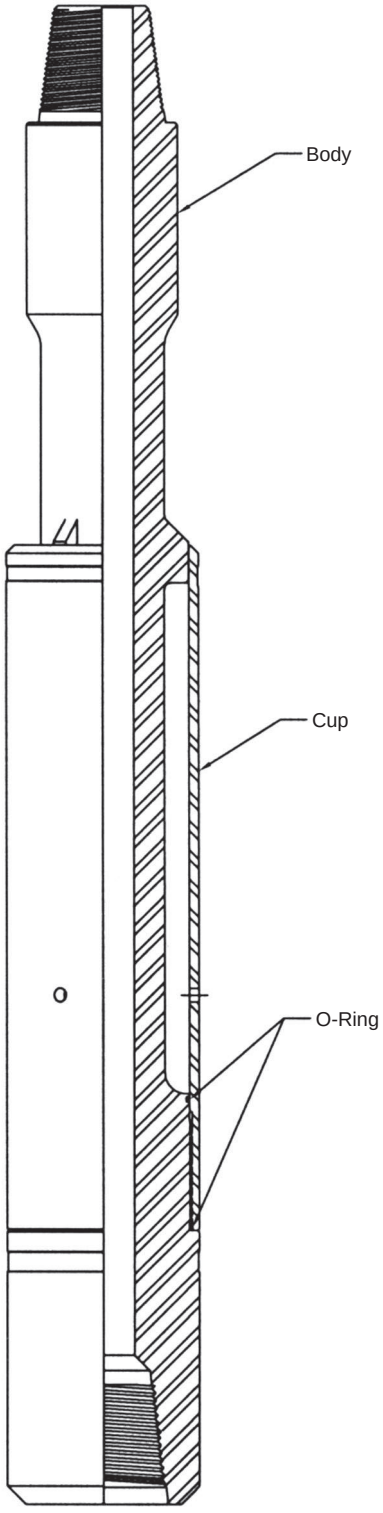
Threaded cup junk subs are placed directly above the mill or drill bit. For severe milling jobs, it is customary to run two or three junk subs in tandem above the mill to increase cutting removal capacity and provide extra stabilization for the mill.

Operation

Threaded cup junk subs can be run in an open hole or inside casing. When running inside casing, hard-faced pads dressed to the same O.D. as the mill or bit should be used.

When ordering, please specify:

(1) Complete assembly number
(2) Size and type of connections
(3) Cup length



THREADED CUP JUNK SUBS

CASING SIZE RANGE (HOLE SIZE)		4-1/4 to 5-5/8	4-5/8 to 4-7/8	4-5/8 to 4-7/8	5-1/8 to 5-7/8	6 to 6-3/8	6-1/2 to 7-1/2
CONNECTION (STD API REG)	2-3/8	2-3/8	2-7/8	2-7/8	3-1/2	3-1/2	3-1/2
DIAMETER OF BORE	3/4	3/4	1-1/4	1-1/4	1-1/2	1-1/2	1-1/2
O.D. OF TOP CONNECTION BODY	2-15/16	3-1/8	3-1/2	3-1/2	4-1/4	4-1/4	4-1/4
O.D. UNDER TOP CONNECTION	2	2	2-5/8	2-5/8	3-1/8	3-1/4	3-1/4
O.D. OF CUP *(Determines Part Number)*	3-1/2	3-3/4	4	4-1/4	4-1/2	5	5-1/2
I.D. OF CUP	3	3-5/16	3-9/16	3-3/4	4-1/4	4-9/16	4-7/8

LONG TYPE

CUP LENGTH (INCHES)		20	20	20	20	20	20	20
COMPLETE ASSEMBLY	Logan Part No.	201-014-20	201-000-20	201-013-20	201-001-20	201-002-20	201-003-20	201-004-20
BODY	Logan Part No.	KA1014-20	KA1000-20	KA1013-20	KA1001-20	KA1002-20	KA1003-20	KA1004-20
O-RING FOR GROOVE	Logan Part No.	*	568-234	568-237	*	*	568-244	568-247
O-RING FOR THREADED RELIEF GROOVE	Logan Part No.	*	568-151	568-238	*	*	568-157	568-157
THREADED CUP	Logan Part No.	KA2014-20	KA2000-20	KA2013-20	KA2001-20	KA2002-20	KA2003-20	KA2004-20

EXTRA LONG TYPE

CUP LENGTH (INCHES)		30	30	30	30	30	30	30
COMPLETE ASSEMBLY	Logan Part No.	201-014-30	201-000-30	201-013-30	201-001-30	201-002-30	201-003-30	201-004-30
BODY	Logan Part No.	KA1014-30	KA1000-30	KA1013-30	KA1001-30	KA1002-30	KA1003-30	KA1004-30
O-RING FOR GROOVE	Logan Part No.	*	568-234	568-237	*	*	568-244	568-247
O-RING FOR THREADED RELIEF GROOVE	Logan Part No.	*	568-151	568-238	*	*	568-157	568-157
THREADED CUP	Logan Part No.	KA2014-30	KA2000-30	KA2013-30	KA2001-30	KA2002-30	KA2003-30	KA2004-30

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

** To be advised upon request.*

When ordering, please specify:

(1) Complete assembly number
(2) Size and type of connections
(3) Length of cup

THREADED CUP JUNK SUBS

CASING SIZE RANGE (HOLE SIZE)		7-1/2 to 8-1/2	8-5/8 to 9-5/8		9-5/8 to 11-5/8		11-1/2 to 13	
CONNECTION (STD API REG)		4-1/2	4-1/2	4-1/2	6-5/8	6-5/8	6-5/8	6-5/8
DIAMETER OF BORE		2-1/4	2-1/4	2-1/4	3-1/2	3-1/2	3-1/2	3-1/2
O.D. OF TOP CONNECTION BODY		5-1/2	5-1/2	5-1/2	8	7-3/4	8	8
O.D. UNDER TOP CONNECTION		4-1/2	4-1/2	5-1/2	5-3/4	5-3/4	6	6
O.D. OF CUP (Determines Part Number)		6-5/8	7	8-1/2	8-5/8	9	9-5/8	10
I.D. OF CUP		5-15/16	6-9/32	7-9/16	7-15/16	8-1/8	8-17/32	8-29/32

LONG TYPE

CUP LENGTH		20	20	20	20	20	20	20
COMPLETE ASSEMBLY	Logan Part No.	201-005-20	201-006-20	201-007-20	201-008-20	201-009-20	201-010-20	201-011-20
BODY	Logan Part No.	KA1005-20	KA1006-20	KA1007-20	KA1008-20	KA1009-20	KA1010-20	KA1011-20
O-RING FOR GROOVE	Logan Part No.	568-256	568-258	568-263	*	568-265	568-267	568-268
O-RING FOR THREADED RELIEF GROOVE	Logan Part No.	568-163	568-258	568-264	*	568-266	568-268	568-269
THREADED CUP	Logan Part No.	KA2005-20	KA2006-20	KA2007-20	KA2008-20	KA2009-20	KA2010-20	KA2011-20

EXTRA LONG TYPE

CUP LENGTH		30	30	30	30	30	30	**30**
COMPLETE ASSEMBLY	Logan Part No.	201-005-30	201-006-30	201-007-30	201-008-30	201-009-30	201-010-30	201-011-30
BODY	Logan Part No.	KA1005-30	KA1006-30	KA1007-30	KA1008-30	KA1009-30	KA1010-30	KA1011-30
O-RING FOR GROOVE	Logan Part No.	568-256	568-258	568-263	*	568-265	568-267	568-268
O-RING FOR THREADED RELIEF GROOVE	Logan Part No.	568-163	568-258	568-264	*	568-266	568-268	568-269
THREADED CUP	Logan Part No.	KA2005-30	KA2006-30	KA2007-30	KA2008-30	KA2009-30	KA2010-30	KA2011-30

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

** To be advised upon request.*

When ordering, please specify:

(1) Complete assembly number
(2) Size and type of connections
(3) Length of cup

THREADED CUP JUNK SUBS

CASING SIZE RANGE (HOLE SIZE)	14-3/4 to 17-1/2	14-3/4 to 17-1/2	
CONNECTION (STD API REG)	7-5/8	7-5/8	
DIAMETER OF BORE	4	4	
O.D. OF TOP CONNECTION BODY	8-7/8	8-7/8	
O.D. UNDER TOP CONNECTION	7-5/8	7-5/8	
O.D. OF CUP (Determines Part Number)	12-3/4	12-7/8	
I.D. OF CUP	11-1/2	11-5/8	

LONG TYPE

CUP LENGTH		20	20
COMPLETE ASSEMBLY	Logan Part No.	201-039-20	201-012-20
BODY	Logan Part No.	KA10115-20	KA1012-20
O-RING FOR GROOVE	Logan Part No.	568-276	*
O-RING FOR THREADED RELIEF GROOVE	Logan Part No.	568-277	*
THREADED CUP	Logan Part No.	KA20115-20	KA2012-20

EXTRA LONG TYPE

CUP LENGTH		30	30
COMPLETE ASSEMBLY	Logan Part No.	201-039-30	201-012-30
BODY	Logan Part No.	KA10115-30	KA1012-30
O-RING FOR GROOVE	Logan Part No.	568-276	*
O-RING FOR THREADED RELIEF GROOVE	Logan Part No.	568-277	*
THREADED CUP	Logan Part No.	KA20115-30	KA2012-30

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

** To be advised upon request.*

When ordering, please specify:

(1) Complete assembly number
(2) Size and type of connections
(3) Length of cup

CROSSOVER SUBS

Overview

Logan Crossover Subs provide safe connection between joints of different sizes or types of drilling, tubing, or washover string sections having different end connections. Crossover subs may be used when it is necessary to have frequent disconnection points.

Construction

Logan Crossover Subs are machined from high grade, heat-treated alloy steel for maximum strength and durability, and threaded to customer specifications. A crossover sub can be a combination of a box section up with a pin section down, a box section up with tool joint connection down, or pin sections up and down.

When ordering, please specify:

(1) OD, ID, and length (shoulder-to-shoulder).
(2) Size and type of connection or thread on each end.

LARGEST OD	1-1/2	1-3/4	2	2-1/4	2-1/2	2-3/4	3
Min. Base Length	10	10	10	10	10	10	10

LARGEST OD	3-1/4	3-3/8	3-1/2	3-5/8	3-3/4	4	4-1/8
Min. Base Length	10	10	10	10	10	10	10

LARGEST OD	4-1/4	4-1/2	4-3/4	5	5-1/4	5-1/2	5-3/4
Min. Base Length	10	10	12	12	12	12	12

LARGEST OD	6	6-1/4	6-1/2	6-3/4	7	7-1/4	7-1/2
Min. Base Length	12	12	12	12	12	14	14

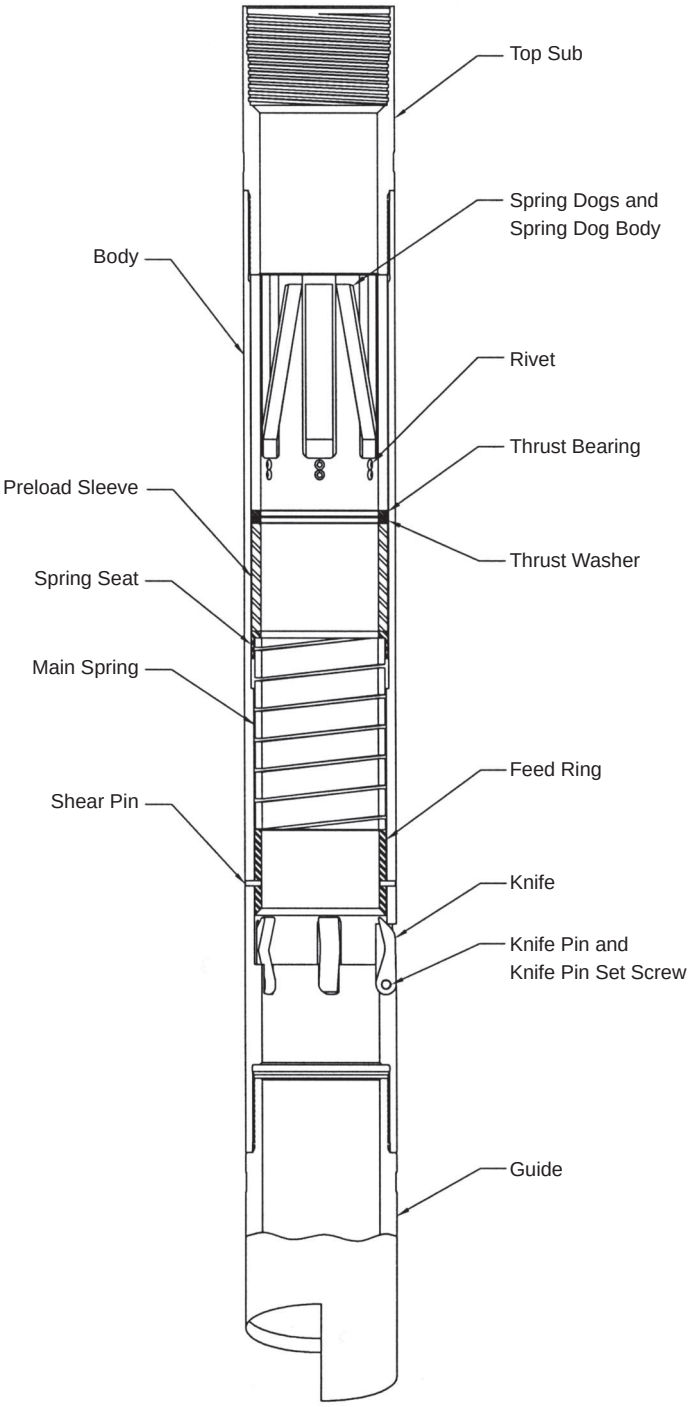
LARGEST OD	7-3/4	8	8-1/4	8-1/2	8-3/4	9	9-1/4
Min. Base Length	14	14	14	14	14	16	16

LARGEST OD	9-1/2	9-3/4	10	10-1/4	10-1/2	10-3/4	11
Min. Base Length	16	16	16	16	16	16	16

LARGEST OD	11-1/4	11-1/2	11-3/4	12	12-1/4	12-1/2	12-3/4
Min. Base Length	16	16	16	16	16	16	16

LARGEST OD	13	13-1/4	13-1/2	13-3/4	14		
Min. Base Length	16	16	16	16	16		

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



STANDARD EXTERNAL CUTTERS

Overview

The automatic spring-fed knives feature of this tool prevents excessive strain from being applied from the rig floor that could cause the knives to burn or break before the cut is completed.

Construction

The tool consists of a top sub, body, guide, knives, spring dog assembly, thrust washer, thrust bearing, preload sleeve, feed ring, main spring, and shear pins.

Spring Dog Assembly

The Spring Dog Assembly is standard equipment on all Logan External Cutters. The Spring Dog Assembly catches square shouldered collars or couplings and retains the cut off section after the cut is made. A variety of pipe sizes can be caught by each assembly for each different size of cutter.

Ratchet Pawl Assembly

The Ratchet Pawl Assembly is designed to catch tapered upset integral tool joints. They are also capable of catching square shouldered collars or couplings. Ratchet Pawl Assemblies fit only one particular size of pipe and will be provided upon request.

Special Note:
Single Pawl Spacer is required when using a Ratchet Pawl Assembly.

Slip Assembly

This optional assembly is designed to cut and retain pipe with external tool joints. The slips will grip the pipe at any point and retain the cut-off section after making the cut. Slip assemblies will be provided upon request.

Operation

Run the cutter to the desired depth. Apply enough pull load on the work string to pull the spring dog assembly (or ratchet pawl assembly if used) up against a coupling or upset of a tool joint. This will apply load to the thrust bearings, preload ring, and main spring that will shear the pins on the feed ring. This allows the main spring to apply sufficient load on the knives so the cut can be made.

STANDARD EXTERNAL CUTTERS

TUBING/CASING SIZE TO CUT		1.050 to 1.315 Tbg	1.315 to 2-3/8 Tbg	1.660 to 2-3/8 Tbg	1.900 to 2-7/8 Tbg	2-1/16 to 3-1/2 Tbg	2-3/8 to 3-1/2 Tbg	2 3/8 to 4 Tbg
MAX SIZE WILL PASS OVER		1.552	3-1/16	3-1/8	3-3/4	4-1/4	4-1/2	4-3/4
INSIDE DIAMETER (CUTTER)		1-5/8	3-1/8	3-1/4	3-7/8	4-3/8	4-5/8	4-7/8
OUTSIDE DIAMETER (CUTTER)		2-5/16	3-7/8	4-1/2	4-11/16	5-5/8	5-7/8	6-1/16
MINIMUM SIZE HOLE TO RUN IN		2-7/16	4-1/8	4-3/4	4-15/16	5-7/8	6-1/8	6-1/4
COMPLETE ASSEMBLY	Logan Part No.	410-231	410-388	410-450	410-468	410-563	410-588	410-606
w/SPRING DOG	Bowen No.	32848	47127	47167	47210	47309	47264	47360
TOP SUB	Logan Part No.	P1000	P1001	P1002	P1003	P1004	P1005	P1006
	Bowen No.	13626	47128	47168	47211	33574	47265	33648
BODY	Logan Part No.	P2000	P2001	P2002	P2003	P2004	P2005	P2006
	Bowen No.	13627	47129	47169	47212	47310	47266	47361
THRUST WASHER	Logan Part No.	P3000	P3001	P3002	P3003	P3004	P3005	P3006
	Bowen No.	13633	32904	47171	33083	36484	47268	33650
THRUST BEARING	Logan Part No.	P4000	P4001	P4002	P4003	P4004	P4005	P4006
	Bowen No.	32852	32905	47172	33084	33595	47269	33651
PRELOAD SLEEVE	Logan Part No.	P5000	P5001	P5002	P5003	P5004	P5005	P5006
	Bowen No.	32891	45844	47173	47214	33582	47270	47362
SPRING SEAT	Logan Part No.	P6000	P6001	P6002	P6003	P6004	P6005	P6006
	Bowen No.	80149	14209	47174	47215	33583	49254	47363
MAIN SPRING	Logan Part No.	P7000	P7001	P7002	P7003	P7004	P7005	P7006
	Bowen No.	13634	14217	33020	33085	9994	39164	33652
FEED RING	Logan Part No.	P8000	P8001	P8002	P8003	P8004	P8005	P8006
	Bowen No.	13635	32907	47175	33086	33579	47577	33653
SHEAR PIN	Logan Part No.	P9000	P9000	P9002	P9000	P9004	P9004	P9006
	Bowen No.	14205	14205	47578	14205	33580	33580	33654
	No. Req'd	2	2	2	2	2	2	2
KNIFE	Logan Part No.	P10000	P10001	P10002	P10003	P10004	P10004	P10006
	Bowen No.	13637	32909	33023	33088	34553	34553	33655
	No. Req'd	5	5	5	5	5	5	5
KNIFE PIN	Logan Part No.	P11000	P11001	P11002	P11003	P11004	P11004	P11006
	Bowen No.	37015	32910	33024	33089	34554	34554	33656
	No. Req'd	5	5	5	5	5	5	5
KNIFE PIN SET SCREW	Logan Part No.	…	P12001	P12002	P12003	P12004	P12004	P12006
	Bowen No.	…	32911	23687	23664	23703	23703	23685
	No. Req'd	…	5	5	5	5	5	5
GUIDE	Logan Part No.	P13000	P13001	P13002	P13003	P13004	P13005	P13006
	Bowen No.	13628	14203	47176	33093	33584	39169	33660

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

Special Notes:
(1) Assembly includes one Spring Dog assembly, which differs from Ratchet Pawl or Slip assemblies; see chart above.
(2) Connections other than API available upon request.
(3) Single Pawl Spacer is required when using Ratchet Pawl Assembly.

When ordering, please specify:
(1) Name and number of assembly or part
(2) Size and type of top connection
(3) Any desired options by name and number
(4) Any desired spares by name and number

Recommended Spare Parts:
(1) 2 sets Knife Pins
(2) 1 Feed Ring
(3) 24 Shear Pins
(4) 6 sets of Knives
(5) 2 Spring Dog, Ratchet Pawl, or Slip Assemblies
(6) 1 set Knife Pin Screws

STANDARD EXTERNAL CUTTERS

TUBING/CASING SIZE TO CUT		1.050 to 1.315 Tbg	1.315 to 2-3/8 Tbg	1.660 to 2-3/8 Tbg	1.900 to 2-7/8 Tbg	2-1/16 to 3-1/2 Tbg	2-3/8 to 3-1/2 Tbg	2 3/8 to 4 Tbg
MAXIMUM SIZE WILL PASS OVER		1.552	3-1/16	3-1/8	3-3/4	4-1/4	4-1/2	4-3/4
INSIDE DIAMETER (CUTTER)		1-5/8	3-1/8	3-1/4	3-7/8	4-3/8	4-5/8	4-7/8
OUTSIDE DIAMETER (CUTTER)		2-5/16	3-7/8	4-1/2	4-11/16	5-5/8	5-7/8	6-1/16
MINIMUM SIZE HOLE TO RUN IN		2-7/16	4-1/8	4-3/4	4-15/16	5-7/8	6-1/8	6-1/4
COMPLETE ASSEMBLY	Logan Part No.	410-231	410-388	410-450	410-468	410-563	410-588	410-606
w/SPRING DOG	Bowen No.	32848	47127	47167	47210	47309	47264	47360

SPRING DOG ASSEMBLY

COMPLETE ASSEMBLY	Logan Part No.	11000-000	11000-001	11000-002	11000-003	11000-004	11000-005	11000-006
Consists of:	Bowen No.	13629	47131	47177	47216	47313	47271	47365
SPRING DOG BODY	Logan Part No.	P14000	P14001	P14002	P14003	P14004	P14005	P14006
	Bowen No.	13630	47132	47178	47217	47314	47272	47366
SPRING DOG	Logan Part No.	P15000	P15001	P15002	P15003	P15004	P15004	P15006
	Bowen No.	13631	32917	47179	33103	33644	33644	33663
	No. Req'd	6	6	6	6	6	6	6
RIVET	Logan Part No.	P16000	P16001	P16002	P16003	P16004	P16002	P16004
	Bowen No.	13632	45626	47180	45842	44803	47180	44803
	No. Req'd	12	12	12	12	12	12	12

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

Special Notes:
(1) Assembly includes one Spring Dog assembly, which differs from Ratchet Pawl or Slip assemblies; see chart above.
(2) Connections other than API available upon request.
(3) Single Pawl Spacer is required when using Ratchet Pawl Assembly.

When ordering, please specify:
(1) Name and number of assembly or part
(2) Size and type of top connection
(3) Any desired options by name and number
(4) Any desired spares by name and number

Recommended Spare Parts:
(1) 2 sets Knife Pins
(2) 1 Feed Ring
(3) 24 Shear Pins
(4) 6 sets of Knives
(5) 2 Spring Dog, Ratchet Pawl, or Slip Assemblies
(6) 1 set Knife Pin Screws

STANDARD EXTERNAL CUTTERS

TUBING/CASING SIZE TO CUT		1.050 to 1.315 Tbg	1.315 to 2-3/8 Tbg	1.660 to 2-3/8 Tbg	1.900 to 2-7/8 Tbg	2-1/16 to 3-1/2 Tbg	2-3/8 to 3-1/2 Tbg	2 3/8 to 4 Tbg
MAXIMUM SIZE WILL PASS OVER		1.552	3-1/16	3-1/8	3-3/4	4-1/4	4-1/2	4-3/4
INSIDE DIAMETER (CUTTER)		1-5/8	3-1/8	3-1/4	3-7/8	4-3/8	4-5/8	4-7/8
OUTSIDE DIAMETER (CUTTER)		2-5/16	3-7/8	4-1/2	4-11/16	5-5/8	5-7/8	6-1/16
MINIMUM SIZE HOLE TO RUN IN		2-7/16	4-1/8	4-3/4	4-15/16	5-7/8	6-1/8	6-1/4
COMPLETE ASSEMBLY	Logan Part No.	410-231	410-388	410-450	410-468	410-563	410-588	410-606
w/SPRING DOG	Bowen No.	32848	47127	47167	47210	47309	47264	47360

OPTIONAL RATCHET PAWL ASSEMBLY

COMPLETE ASSEMBLY	Logan Part No.	11000-009	11000-010	11000-011	11000-012	11000-013	11000-014	11000-015
Consists of:	Bowen No.	13666	47138	47181	47218	47315	47275	47367
PAWL BODY	Logan Part No.	P17000	P17001	P17002	P17003	P17004	P17005	P17006
	Bowen No.	13667	47139	47182	47219	47316	47276	47368
RATCHET PAWL	Logan Part No.	P18000	P18001	P18002	P18003	P18004	P18005	P18006
	Bowen No.	13668	32946	47183	47220	47317	47277	47369
	No. Req'd	6	6	6	6	6	6	6
PAWL SPRING	Logan Part No.	P19000	P19001	P19002	P19003	P19002	P19002	P19002
	Bowen No.	14213	15656	14829	18729	14829	14829	14829
	No. Req'd	6	6	6	6	6	6	6
PAWL PIN	Logan Part No.	P20000	P20001	P20002	P20001	P20004	P20005	P20002
	Bowen No.	37011	33128	37019	33128	37031	47253	37019
	No. Req'd	6	6	6	6	6	6	6
SINGLE PAWL SPACER	Logan Part No.	P27000	P27001	P27002	P27003	P27004	P27005	P27006
(See Note 3)	Bowen No.	32890	47141	47190	47227	47326	47286	47378

OPTIONAL SLIP ASSEMBLY

COMPLETE ASSEMBLY	Logan Part No.	…	11000-019	11000-020	11000-021	11000-022	11000-023	11000-024
Consists of:	Bowen No.	…	47133	47185	47221	47319	47279	47371
SLIP	Logan Part No.	…	P21001	P21002	P21003	P21004	P21005	P21006
	Bowen No.	…	47134	47186	47222	47320	47280	47372
SLIP BOWL	Logan Part No.	…	P22001	P22002	P22003	P22004	P22005	P22006
	Bowen No.	…	47135	47187	47223	47321	47281	47373
SLIP BOWL RETAINER	Logan Part No.	…	P23001	P23002	P23003	P23004	P23005	P23006
	Bowen No.	…	47136	47188	47224	47322	47282	47374
SLIP SPRING	Logan Part No.	…	P24001	P24002	P24003	P24004	P24005	P24006
	Bowen No.	…	47137	47189	47225	47323	47283	47375
SLIP BOWL SHEAR PIN	Logan Part No.	…	P25001	P25001	P25001	P25004	P25004	P25004
	Bowen No.	…	47208	47208	47208	47324	47324	47324
	No. Req'd	…	4	4	4	4	4	4
SLIP ADAPTER	Logan Part No.	…	P26001	P26002	P26003	P26004	P26005	P26006
	Bowen No.	…	47130	47170	47213	47311	47267	47364

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STANDARD EXTERNAL CUTTERS

TUBING/CASING SIZE TO CUT		3-1/2, 4, 4-1/2 & 5 DP	4 to 5-3/4 Csg
MAXIMUM SIZE WILL PASS OVER		6-1/4	6-1/2
INSIDE DIAMETER (CUTTER)		6-3/8	6-5/8
OUTSIDE DIAMETER (CUTTER)		7-5/8	8-1/8
MINIMUM SIZE HOLE TO RUN IN		8-1/4	8-5/8
COMPLETE ASSEMBLY	Logan Part No.	410-763	410-813
w/SPRING DOG	Bowen No.	47422	47541
Consists of:			
TOP SUB	Logan Part No.	P1007	P1008
	Bowen No.	33885	33959
BODY	Logan Part No.	P2007	P2008
	Bowen No.	47423	47542
THRUST WASHER	Logan Part No.	P3007	P3008
	Bowen No.	33887	33961
THRUST BEARING	Logan Part No.	P4007	P4008
	Bowen No.	33888	33962
PRELOAD SLEEVE	Logan Part No.	P5007	P5008
	Bowen No.	47424	47543
SPRING SEAT	Logan Part No.	P6007	P6008
	Bowen No.	49255	49258
MAIN SPRING	Logan Part No.	P7007	P7008
	Bowen No.	33889	33963
FEED RING	Logan Part No.	P8007	P8008
	Bowen No.	33890	33964
SHEAR PIN	Logan Part No.	P9007	P9008
	Bowen No.	33891	33965
	No. Req'd	2	2
KNIFE	Logan Part No.	P10004	P10008
	Bowen No.	34553	44802
	No. Req'd	5	5
KNIFE PIN	Logan Part No.	P11004	P11008
	Bowen No.	34554	33966
	No. Req'd	5	5
KNIFE PIN SET SCREW	Logan Part No.	P12004	P12008
	Bowen No.	23703	23705
	No. Req'd	5	5
GUIDE	Logan Part No.	P13007	P13008
	Bowen No.	33897	33969

TUBING/CASING SIZE TO CUT		3-1/2, 4, 4-1/2 & 5 DP	4 to 5-3/4 Csg
MAXIMUM SIZE WILL PASS OVER		6-1/4	6-1/2
INSIDE DIAMETER (CUTTER)		6-3/8	6-5/8
OUTSIDE DIAMETER (CUTTER)		7-5/8	8-1/8
MINIMUM SIZE HOLE TO RUN IN		8-1/4	8-5/8

SPRING DOG ASSEMBLY

COMPLETE ASSEMBLY	Logan Part No.	11000-007	11000-008
Consists of:	Bowen No.	33949	47545
SPRING DOG BODY	Logan Part No.	P14007	P14008
	Bowen No.	33950	47546
SPRING DOG	Logan Part No.	P15007	P15007
	Bowen No.	50192	50192
	No. Req'd	6	6
RIVET	Logan Part No.	P16004	P16008
	Bowen No.	44803	50191
	No. Req'd	12	12

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Special Notes:
(1) Assembly includes one Spring Dog Assembly which differs from Ratchet Pawl or Slip Assemblies. See table on next page.
(2) Connections other than API available upon request.
(3) Single Pawl Spacer is required when using Ratchet Pawl Assembly. It is not included in the Complete Assembly.

When ordering, please specify:
(1) Name and number of assembly or part
(2) Size and type of top connection
(3) Any desired options by name and number
(4) Any desired spares by name and number

Recommended Spare Parts:
(1) 2 sets Knife Pins
(2) 1 Feed Ring
(3) 24 Shear Pins
(4) 6 sets of Knives
(5) 2 Spring Dog, Ratchet Pawl, or Slip Assemblies
(6) 1 set Knife Pin Screws

STANDARD EXTERNAL CUTTERS

TUBING/CASING SIZE TO CUT	3-1/2, 4, 4-1/2 & 5 DP	4 to 5-3/4 Csg
MAXIMUM SIZE WILL PASS OVER	6-1/4	6-1/2
INSIDE DIAMETER (CUTTER)	6-3/8	6-5/8
OUTSIDE DIAMETER (CUTTER)	7-5/8	8-1/8
MINIMUM SIZE HOLE TO RUN IN	8-1/4	8-5/8

TUBING/CASING SIZE TO CUT	3-1/2, 4, 4-1/2 & 5 DP	4 to 5-3/4 Csg
MAXIMUM SIZE WILL PASS OVER	6-1/4	6-1/2
INSIDE DIAMETER (CUTTER)	6-3/8	6-5/8
OUTSIDE DIAMETER (CUTTER)	7-5/8	8-1/8
MINIMUM SIZE HOLE TO RUN IN	8-1/4	8-5/8

OPTIONAL RATCHET PAWL ASSEMBLY

COMPLETE ASSEMBLY	Logan Part No.	11000-016	11000-017
Consists of:	Bowen No.	47426	47547
PAWL BODY	Logan Part No.	P17007	P17008
	Bowen No.	47427	47548
RATCHET PAWL	Logan Part No.	P18007	P18008
	Bowen No.	47428	47549
	No. Req'd	6	6
PAWL SPRING	Logan Part No.	P19002	P19008
	Bowen No.	14829	47443
	No. Req'd	6	6
PAWL PIN	Logan Part No.	P20004	P20008
	Bowen No.	37031	47550
	No. Req'd	6	6
SINGLE PAWL SPACER	Logan Part No.	P27007	P27008
(See Note 3)	Bowen No.	47437	47557

OPTIONAL SLIP ASSEMBLY

COMPLETE ASSEMBLY	Logan Part No.	11000-025	11000-026
Consists of:	Bowen No.	47430	47551
SLIP	Logan Part No.	P21007	P21008
	Bowen No.	47431	47552
SLIP BOWL	Logan Part No.	P22007	P22008
	Bowen No.	47432	47553
SLIP BOWL RETAINER	Logan Part No.	P23007	P23008
	Bowen No.	47433	47554
SLIP SPRING	Logan Part No.	P24007	P24008
	Bowen No.	47434	47556
SLIP BOWL SHEAR PIN	Logan Part No.	P25007	P25008
	Bowen No.	47435	47555
	No. Req'd	4	4
SLIP ADAPTER	Logan Part No.	P26007	P26008
	Bowen No.	47425	47544

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Special Notes:

(1) Assembly includes one Spring Dog Assembly which differs from Ratchet Pawl or Slip Assemblies. See table on next page.

(2) Connections other than API available upon request.

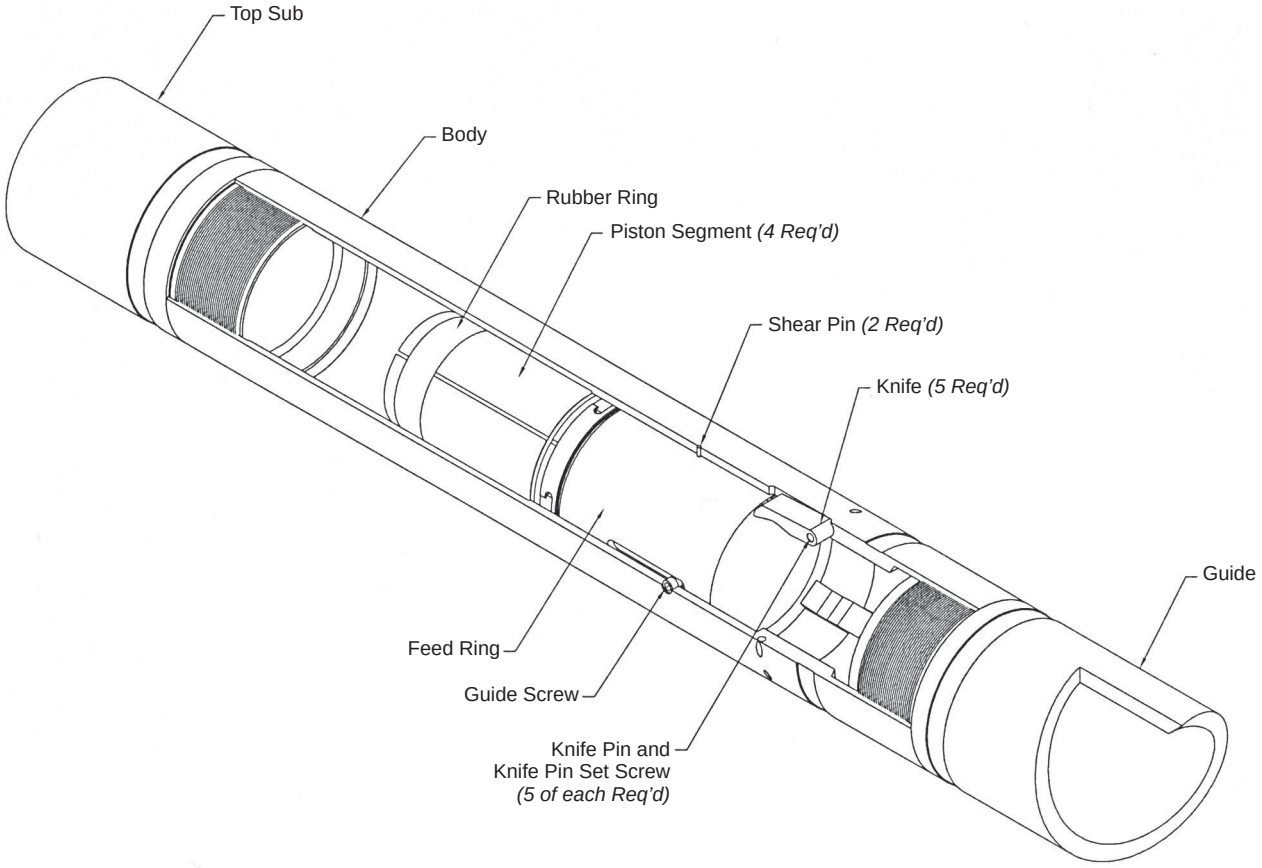
(3) Single Pawl Spacer is required when using Ratchet Pawl Assembly. It is not included in the Complete Assembly.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Size and type of top connection
(3) Any desired options by name and number
(4) Any desired spares by name and number

Recommended Spare Parts:

(1) 2 sets Knife Pins
(2) 1 Feed Ring
(3) 24 Shear Pins
(4) 6 sets of Knives
(5) 2 Spring Dog, Ratchet Pawl, or Slip Assemblies
(6) 1 set Knife Pin Screws



HYDRAULIC EXTERNAL CUTTERS

Overview

These quick, smooth operating tools allow for fast recovery of tubing or drill pipe. A hydraulically fed piston forces the knives of this cutter into the pipe to give the operator sensitive cutting control.

Construction

The tool consists of a top sub, segmented piston assembly, knives, knife pins, guide screw, body, and guide. The segmented piston assembly's feed ring has four interlocking conical piston segments. A heavy-duty rubber ring stretched around the top of the segments firmly holds them in place. A fluid jet hole in each piston segment restricts fluid to provide suffi-cient pump down force against the piston to feed the knives while allowing enough fluid to cool and lubricate the knives during the cut. Each piston assembly is designed for one particular pipe size.

Operation

Begin by assembling the cutter with the proper size piston assembly for the size of the pipe that will be cut. Run the cutter to the desired cutting depth and engage the mud pumps with all lines open. Slowly close the standpipe valve until sufficient pressure forces down the drill string and shears the shear pins. The amount of pressure required depends on the size of cutter and piston assembly being used. Open the standpipe valve to relieve the pressure going downhole. Begin rotating the drill string at 15 to 25 rpm. Gradually close the standpipe valve until sufficient pressure is exerted downhole to feed the piston assembly into the knives to begin making the cut.

Avoid pump surges during the cut. Contraction and expansion of the string during the cut will cause the cutter to move up and down the string. This motion will damage the knives.

Completion of the cut is signaled by initial rough chattering followed by smooth rotation.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Size and type of top connection
(3) Name and number of any desired options

HYDRAULIC EXTERNAL CUTTERS

PIPE SIZE TO CUT		1.315 to 2-1/16	1.315 to 2-3/8	1.900 to 2-7/8	1.900 to 2-7/8	1.900 to 2-7/8	2-1/16 to 4 FJ
MAXIMUM SIZE WILL PASS OVER		2-3/4	3-1/16	3-7/16	3-9/16	3-5/8	4-1/8
INSIDE DIAMETER (CUTTER)		2-7/8	3-3/16	3-5/8	3-13/16	3-7/8	4-5/16
OUTSIDE DIAMETER (CUTTER)		3-3/4	4-1/16	4-7/16	4-9/16	4-11/16	5-5/8
MINIMUM SIZE HOLE TO RUN IN		4	4-5/16	4-11/16	4-13/16	4-15/16	5-7/8
COMPLETE ASSEMBLY	Logan Part No.	411-375	411-406	411-444	411-456	411-468	411-563
	Bowen No.	70086	34415	70209	79215	41727	34551
TOP SUB	Logan Part No.	N1001	N10027	N1002	N10025	N1003	N1004
	Bowen No.	70087	34416	70210	79271	33081	33574
BODY	Logan Part No.	N2001	N2004	N2002	N20025	N2005	N2006
	Bowen No.	70088	34417	70211	79272	41728	34552
FEED RING	Logan Part No.	N3001	N3004	N3002	N30025	N3005	N3006
	Bowen No.	70089	49819	70212	79273	49824	49829
SHEAR PIN	Logan Part No.	P9000	P9000	P9000	N40015	P9000	N4006
	Bowen No.	33087	33087	33087	34420	33087	34555
	No. Req'd	2	2	2	2	2	2
KNIFE	Logan Part No.	N5001	N5004	P10003	N50025	P10003	P10004
	Bowen No.	80147	34421	33088	79275	33088	34553
	No. Req'd	5	5	5	5	5	5
KNIFE PIN	Logan Part No.	N6001	N6004	P11003	N60025	P11003	P11004
	Bowen No.	80148	34422	33089	A14348	33089	34554
	No. Req'd	5	5	5	5	5	5
KNIFE PIN SET SCREW	Logan Part No.	N7001	N7002	N7002	...	N7002	P12004
	Bowen No.	23654	23666	23666	...	23666	23703
	No. Req'd	5	5	5	...	5	5
FEED RING O-RING	Logan Part No.	568-235	568-237	568-241	568-242	568-243	568-247
	Bowen No.	568235	568237	568241	568242	568243	568247
GUIDE	Logan Part No.	N8001	N8004	N8002	N80025	P13003	N8006
	Bowen No.	70090	34424	70213	79274	33093	187
GUIDE SCREW	Logan Part No.	N9001	N9001	N9001	N9001	N9001	N9006
	Bowen No.	34418	34418	34418	34418	34418	34556
	No. Req'd	2	2	2	2	2	2
PISTON ASSEMBLY	Logan Part No.	10000-010	10000-013	10000-011	10000-047	10000-014	10000-015
(Consists of):	Bowen No.	70091	34425	70232	79283	41733	34559
	Pipe Size	2-1/16	2-3/8	2-7/8	2-7/8	2-7/8	3-1/2
PISTON SEGMENT SET	Logan Part No.	N10001	N10004	N10002	N100025	N10005	N10006
	Bowen No.	70092	49814	70233	79284	49825	49830
RUBBER RING	Logan Part No.	N11002	N11001	N11001	N11001	N11001	N11006
	Bowen No.	70093	34564	34564	34564	34564	34561
PISTON O-RING	Logan Part No.	568-234	568-236	568-235	568-236	568-237	568-246
	Bowen No.	568234	568236	568235	568236	568237	568246

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When ordering, please specify:

(1) Name and number of assembly or part
(2) Size and type of top connection
(3) Name and number of any desired options

Recommended Spare Parts:

(1) 2 Piston Assemblies
(2) 1 Feed Ring
(3) 24 Shear Pins
(4) 30 Knives
(5) 10 Knife Pins
(6) 5 Pin Screws
(7) 6 Rubber Rings
(8) 6 Piston O-rings
(9) 6 Feed Rings O-rings

HYDRAULIC EXTERNAL CUTTERS

PIPE SIZE TO CUT		1.315 to 2-1/16	1.315 to 2-3/8	1.900 to 2-7/8	1.900 to 2-7/8	1.900 to 2-7/8	2-1/16 to 4 FJ
MAXIMUM SIZE WILL PASS OVER		2-3/4	3-1/16	3-7/16	3-9/16	3-5/8	4-1/8
INSIDE DIAMETER (CUTTER)		2-7/8	3-3/16	3-5/8	3-13/16	3-7/8	4-5/16
OUTSIDE DIAMETER (CUTTER)		3-3/4	4-1/16	4-7/16	4-9/16	4-11/16	5-5/8
MINIMUM SIZE HOLE TO RUN IN		4	4-5/16	4-11/16	4-13/16	4-15/16	5-7/8
COMPLETE ASSEMBLY	**Logan Part No.**	**411-375**	**411-406**	**411-444**	**411-456**	**411-468**	**411-563**
	Bowen No.	70086	34415	70209	79215	41727	34551

OPTIONAL

PISTON ASSEMBLY	**Logan Part No.**	**10000-019**	**10000-022**	**10000-020**	**10000-048**	**10000-023**	**10000-024**
Consists of:	Bowen No.	70094	34427	70214	79281	41736	34562
	Pipe Size	1.900	2-1/16	2-3/8	2-3/8	2-3/8	2-7/8
PISTON SEGMENT SET	**Logan Part No.**	**N12001**	**N12004**	**N12002**	**N120025**	**N12005**	**N12006**
	Bowen No.	70095	49817	70215	79282	49828	49831
RUBBER RING	**Logan Part No.**	**N13001**	**N13002**	**N13002**	**N11001**	**N13002**	**N11001**
	Bowen No.	70096	34567	34567	34564	34567	34564
PISTON O-RING	**Logan Part No.**	**568-234**	**568-236**	**568-235**	**568-236**	**568-237**	**568-246**
	Bowen No.	568234	568236	568235	568236	568237	568246

PISTON ASSEMBLY	**Logan Part No.**	**10000-028**	**10000-031**	**10000-029**	**10000-049**	**10000-032**	**10000-033**
Consists of:	Bowen No.	70097	34429	70217	79279	41738	34565
	Pipe Size	1.660	1.900	2-1/16	2-1/16	2-1/16	2-3/8
PISTON SEGMENT SET	**Logan Part No.**	**N14001**	**N14004**	**N14002**	**N140025**	**N14005**	**N14006**
	Bowen No.	70098	49818	70218	79280	49826	49832
RUBBER RING	**Logan Part No.**	**N13001**	**N13002**	**N13002**	**N13002**	**N13002**	**N11001**
	Bowen No.	70096	34567	34567	34567	34567	34564
PISTON O-RING	**Logan Part No.**	**568-234**	**568-236**	**568-235**	**568-236**	**568-237**	**568-246**
	Bowen No.	568234	568236	568235	568236	568237	568246

PISTON ASSEMBLY	**Logan Part No.**	**10000-037**	**10000-040**	**10000-038**	**10000-050**	**10000-041**	**10000-042**
Consists of:	Bowen No.	70100	34432	70219	79277	41740	34568
	Pipe Size	1.315	1.600	1.900	1.900	1.900	2-1/16
PISTON SEGMENT SET	**Logan Part No.**	**N16001**	**N16004**	**N16002**	**N160025**	**N16005**	**N16006**
	Bowen No.	70101	49815	70220	79278	49827	49833
RUBBER RING	**Logan Part No.**	**N17001**	**N17004**	**N13002**	**N13002**	**N13002**	**N13002**
	Bowen No.	70102	34431	34567	34567	34567	34567
PISTON O-RING	**Logan Part No.**	**568-234**	**568-236**	**568-235**	**568-236**	**568-237**	**568-246**
	Bowen No.	568234	568236	568235	568236	568237	568246

PISTON ASSEMBLY	**Logan Part No.**	**...**	**10000-045**	**...**	**...**	**...**	**10000-046**
Consists of:	Bowen No.	...	34434	...	...	...	53881
	Pipe Size	...	1.315	...	...	...	4
PISTON SEGMENT SET	**Logan Part No**	**...**	**N18004**	**...**	**...**	**...**	**N18006**
	Bowen No.	...	49816	...	...	...	53880
RUBBER RING	**Logan Part No.**	**...**	**N19004**	**...**	**...**	**...**	**N19006**
	Bowen No.	...	34436	...	...	...	51153
PISTON O-RING	**Logan Part No.**	**...**	**568-236**	**...**	**...**	**...**	**568-246**
	Bowen No.	...	568236	...	...	...	568246

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

HYDRAULIC EXTERNAL CUTTERS

PIPE SIZE TO CUT		2-3/8 to 4	3-1/2 to 5
MAXIMUM SIZE WILL PASS OVER		4-13/16	6-3/8
INSIDE DIAMETER (CUTTER)		4-7/8	6-1/2
OUTSIDE DIAMETER (CUTTER)		6-1/16	8
MINIMUM SIZE HOLE TO RUN IN		6-1/4	8-1/2
COMPLETE ASSEMBLY	Logan Part No.	411-606	411-800
	Bowen No.	51148	35957
TOP SUB	Logan Part No.	N1005	N1006
	Bowen No.	13177	35958
BODY	Logan Part No.	N2007	N2008
	Bowen No.	56992	35959
FEED RING	Logan Part No.	N3007	N3008
	Bowen No.	51150	49834
SHEAR PIN	Logan Part No.	N4007	N4006
	Bowen No.	7227	34555
	No. Req'd	2	2
KNIFE	Logan Part No.	N5007	N5008
	Bowen No.	12382	35960
	No. Req'd	5	5
KNIFE PIN	Logan Part No.	N6007	P11004
	Bowen No.	37022	34554
	No. Req'd	5	5
KNIFE PIN SET SCREW	Logan Part No.	...	P12004
	Bowen No.	...	23703
	No. Req'd	...	5
FEED RING O-RING	Logan Part No.	568-251	568-438
	Bowen No.	568251	568438
GUIDE	Logan Part No.	N8007	N8008
	Bowen No.	13412	35932
GUIDE SCREW	Logan Part No.	N9007	N9006
	Bowen No.	51149	34556
	No. Req'd	2	2

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

When ordering, please specify:

(1) Name and number of assembly or part
(2) Size and type of top connection
(3) Name and number of any desired options

Recommended Spare Parts:

(1) 2 Piston Assemblies
(2) 1 Feed Ring
(3) 24 Shear Pins
(4) 30 Knives
(5) 10 Knife Pins
(6) 5 Pin Screws
(7) 6 Rubber Rings
(8) 6 Piston O-rings
(9) 6 Feed Rings O-rings

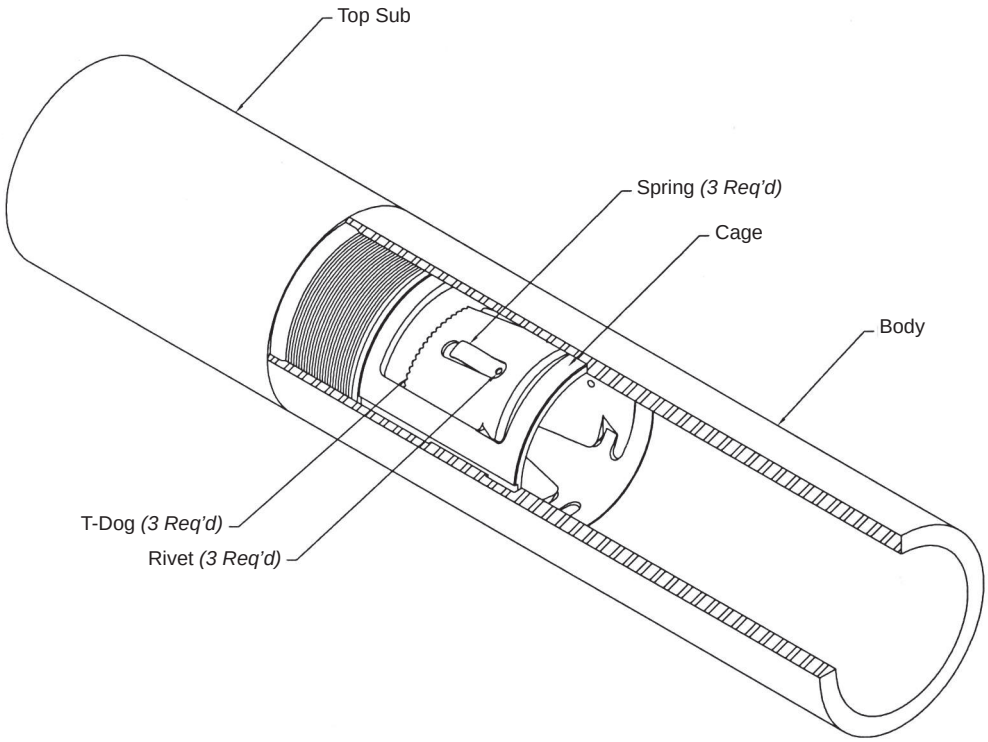
PISTON ASSEMBLY	Logan Part No.	10000-025	10000-017
(Consists of):	Bowen No.	51230	35963
	Pipe Size	3-1/2	5
PISTON SEGMENT SET	Logan Part No.	N12007	N10008
	Bowen No.	51231	49821
RUBBER RING	Logan Part No.	N11006	N11008
	Bowen No.	34561	35965
PISTON O-RING	Logan Part No.	568-250	568-259
	Bowen No.	568250	568259

OPTIONAL

PISTON ASSEMBLY	Logan Part No.	10000-034	10000-026
Consists of:	Bowen No.	51345	35966
	Pipe Size	2-7/8	4-1/2
PISTON SEGMENT SET	Logan Part No.	N14007	N12008
	Bowen No.	51346	49823
RUBBER RING	Logan Part No.	N11001	N11008
	Bowen No.	34564	35965
PISTON O-RING	Logan Part No.	568-250	568-259
	Bowen No.	568250	568259

PISTON ASSEMBLY	Logan Part No.	10000-043	10000-035
Consists of:	Bowen No.	51344*	35968
	Pipe Size	2-3/8	4
PISTON SEGMENT SET	Logan Part No.	N16007	N14008
	Bowen No.	51343	49822
RUBBER RING	Logan Part No.	N11001	N15008
	Bowen No.	34564	35970
PISTON O-RING	Logan Part No.	568-250	568-259
	Bowen No.	568250	568259

PISTON ASSEMBLY	Logan Part No.	10000-016	10000-044
Consists of:	Bowen No.	51151	35971
	Pipe Size	4	3-1/2
PISTON SEGMENT SET	Logan Part No.	N10007	N16008
	Bowen No.	51152	49820
RUBBER RING	Logan Part No.	N11007	N11001
	Bowen No.	51153	34564
PISTON O-RING	Logan Part No.	568-250	568-259
	Bowen No.	568250	568259



T-DOG OVERSHOTS

Overview

The Logan T-Dog Overshot is designed to catch collared pipe or tubing and is releasable. The release operation may be repeated several times without damage the tool's ability to re-engage.

Construction

The body of the Logan T-Dog Overshot is constructed from heat-treated alloy steel with flame-hardened slip teeth for positive engagement under the coupling. The solid body construction, with no windows, enables the T-Dog Overshot to be used in the washover string for one-trip recovery. Box-pin washpipe connections allow the overshot to be positioned at any point in the washover string. The cage design allows the coupling to pass unrestricted through the tool to allow the washover of several joints of pipe at one time.

Operation

Although the Logan T-Dog Overshot may be run anywhere in the washpipe, it is generally placed directly above the guide or rotary shoe. The tool is run down over the string of pipe, past a collar, or connection. The spring-loaded T-dogs expand to pass over the collar. When the string is elevated the T-dogs firmly engage the coupling and the fish is retrieved.

The T-Dog Overshot may be released at any time by picking up and engaging a collar. A slight strain is maintained while the tool is slowly rotated to the right. This action enables the T-dogs to expand and release the coupling.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Size and type of top connection

OVERSHOT O.D.		3-7/8	4-5/8	5-3/4	8-1/8			
COMPLETE ASSEMBLY	Logan Part No.	195-388	195-463	195-575	195-813			
TOP SUB	Logan Part No.	BB1000	BB1001	BB1002	BB1003			
BODY	Logan Part No.	BB2000	BB2001	BB2002	BB2003			
CAGE	Logan Part No.	BB3000	BB3001	BB3002	BB3003			
T-DOG	Logan Part No.	BB4000	BB4001	BB4002	BB4003			
	To Catch	2-3/8 EUE	2-7/8 EUE	…	…			
SPRING	Logan Part No.	BB5000	BB5000	BB5001	BB5002			
RIVET	Logan Part No.	P16002	P16002	P16002	P16002			

INTERNAL CUTTERS

Overview

Logan Internal Cutters are used to cut tubing, casing, and drill pipe and may also be run on sucker rods and macaroni strings. These mechanically operated cutters permit alternate sizes of pipe to be cut when redressing an assembly. All Logan Internal Cutters feature a device that permits the operator to set the cutter to any depth, release the tool, and reset it to another depth without coming out of the hole.

Each cutter is designed to cut a given range of tubing when dressed with correctly sized components. Collar finders are also available for each size.

Construction

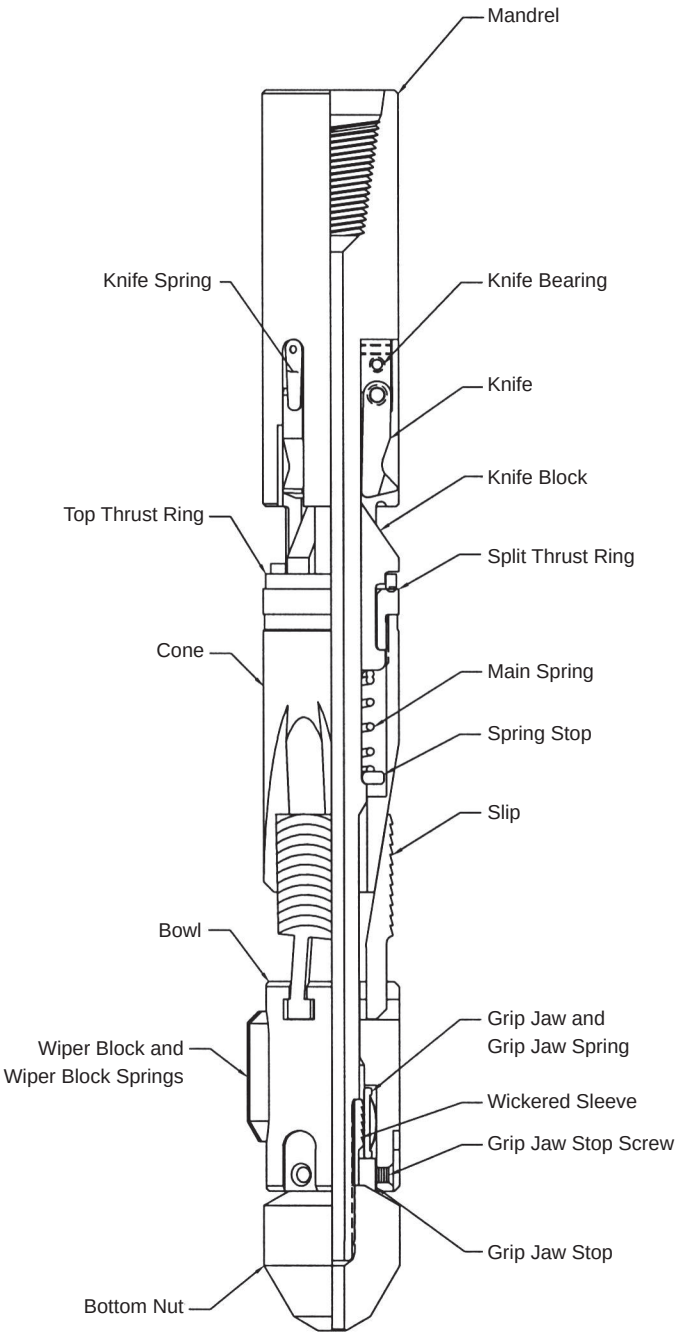
Logan Internal Cutters consist of either a wiper block or drag spring assembly for setting in the pipe. Slips and a cone assembly anchor the cutter. A main spring aids in maintaining uniform feed to the knives. Knife blocks drive the knives upward and outward to engage the pipe. Precision ground knives easily cut the pipe.

Operation

After the cutter has been lowered to desired cutting depth, anchor the cutter by slowly rotating while continuing to lower. This will set the slips and allow the mandrel to travel down under the knife blocks. The knife blocks will force the knives up and outward to engage the pipe so the cut can be made. Apply minimum weight while slow rotation (8 to 18 rpm) of the work string is continued. Cutting is best accomplished by slacking off in increments while making the cut. Lack of reverse torque and free rotation of the work string will indicate that the cut has been made.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Size of pipe to cut



INTERNAL CUTTERS

PIPE SIZE TO CUT		1.900 Tbg	2-3/8 Tbg	2-7/8 Tbg	2-7/8 Tbg	3-1/2 Tbg	4-1/2 FH DP	4-1/2 IF DP
CAN BE DRESSED FOR		…	2-7/8 IF DP 2-7/8 Tbg	…	3-1/2 IF DP	4 Tub 4-1/2 Tbg	4-1/2 IF DP 4-1/2 Csg	4-1/2, 4-3/4, 5 & 5-1/2 Csg
MINIMUM CUTTER O.D.		1-1/2	1-13/16	2-1/4	2-1/4	2-5/8	2-1/2	3-3/8
STANDARD ASSEMBLY		Drag Spring	Drag Spring	Drag Spring	Drag Spring	Wiper Block	Drag Spring	Wiper Block
COMPLETE ASSEMBLY	Logan Part No.	409-000	409-002	409-003	409-004	409-005	409-006	409-007
Consists of:	Bowen No.	25940	2174	8505	9176	8570	9465	8844
MANDREL	Logan Part No.	Q1000	Q1002	Q1003	Q1004	Q1005	Q1006	Q1007
	Bowen No.	25941	2175	8506	9177	8571	9466	8845
KNIFE BEARING	Logan Part No.	Q2000	Q2002	Q2002	Q2004	Q2004	Q2004	Q2004
	Bowen No.	25942	8433	8433	8575	8575	8575	8575
	No. Req'd	3	3	3	3	3	3	3
KNIFE SPRING SCREW	Logan Part No.	Q3000	Q3002	Q3002	Q3002	Q3002	Q3002	Q3002
	Bowen No.	13834	8181	8181	8181	8181	8181	8181
	No. Req'd	3	3	3	3	3	3	3
KNIFE SPRING	Logan Part No.	Q4000	Q4002	Q4002	Q4004	Q4004	Q4004	Q4004
	Bowen No.	25959	8434	8434	8629	8629	8629	8629
	No. Req'd	3	3	3	3	3	3	3
KNIFE	Logan Part No.	Q5000	Q5002	Q5002	Q5004	Q5004	Q5006	Q5004
	Bowen No.	25943	8432	8432	8572	8572	6807	8572
	No. Req'd	3	3	3	3	3	3	3
KNIFE BEARING SCREW	Logan Part No.	Q6000	Q6002	Q6003	Q6004	Q6005	Q6005	Q6005
	Bowen No.	23501	8529	8567	9189	8576	8576	8576
	No. Req'd	3	3	3	3	3	3	3
KNIFE PIN	Logan Part No.	Q7000	Q7002	Q7002	Q7004	Q7004	Q7006	Q7004
	Bowen No.	25944	8501	8501	8573	8573	9467	8573
	No. Req'd	3	3	3	3	3	3	3
KNIFE PIN SCREW	Logan Part No.	AA9001	Q8002	Q8002	Q8004	Q8004	Q8002	Q8004
	Bowen No.	12484	8445	8445	8574	8574	8445	8574
	No. Req'd	3	3	3	3	3	3	3
KNIFE BLOCK	Logan Part No.	Q9000	Q9002	Q9003	Q9004	Q9004	Q9006	Q9007
	Bowen No.	25945	8436	8507	8580	8580	6809	8846
	No. Req'd	3	3	3	3	3	3	3
TOP THRUST	Logan Part No.	Q10000	Q10002	Q10003	Q10004	Q10005	Q10006	Q10007
	Bowen No.	25946	9421	8508	9422	8612	6810	8931
SPLIT THRUST	Logan Part No.	Q11000	Q11002	Q11003	Q11004	Q11005	Q11006	Q11007
	Bowen No.	25947	8438	8509	9179	8582	7496	8848

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

Notes:
(1) Slip number Q15009 is for 5" 15-21# Csg, for 5" 11.5-13# Csg use Slip number Q40009.
(2) Where both Wiper Block and Drag Spring parts are shown, the cutter can be ordered with either. If not specified, Wiper Block parts will be furnished. (Note: Assemblies are priced differently.)

When ordering, please specify:
(1) Name and number of assembly or part
(2) Size of pipe to cut
(3) Whether or not Bottom Nut is to be fitted for collar finder
(4) Knives with carbide tips available upon request

Recommended Spare Parts:
(1) 6 sets of Knives
(2) 2 sets of Knife Pins
(3) 6 sets of Knife Springs
(4) 2 sets of Knife Spring Screws
(5) 1 set of Slips
(6) 1 set of Wiper Blocks
(7) 1 set of Wiper Block Springs
(8) 1 set of Wiper Block Screws
(9) 1 set of Grip Jaws
(10) 1 set of Grip Jaw Springs
(11) 1 Wickered Sleeve
(12) 1 set of Drag Springs
(13) 1 set of Drag Springs Screws

INTERNAL CUTTERS

PIPE SIZE TO CUT		1.900 Tbg	2-3/8 Tbg	2-7/8 Tbg	2-7/8 Tbg	3-1/2 Tbg	4-1/2 FH DP	4-1/2 IF DP
CAN BE DRESSED FOR		…	2-7/8 IF DP 2-7/8 Tbg	…	3-1/2 IF DP	4 Tbg 4-1/2 Tbg	4-1/2 IF DP 4-1/2 Csg	4-1/2, 4-3/4, 5 & 5-1/2 Csg
MINIMUM CUTTER O.D.		1-1/2	1-13/16	2-1/4	2-1/4	2-5/8	2-1/2	3-3/8
STANDARD ASSEMBLY		Drag Spring	Drag Spring	Drag Spring	Drag Spring	Wiper Block	Drag Spring	Wiper Block
COMPLETE ASSEMBLY	Logan Part No.	409-000	409-002	409-003	409-004	409-005	409-006	409-007
	Bowen No.	25940	2174	8505	9176	8570	9465	8844
CONE	Logan Part No.	Q12000	Q12002	Q12003	Q12004	Q12005	Q12006	Q12007
	Bowen No.	25948	2177	8510	9180	8583	9468	8849
MAIN SPRING	Logan Part No.	Q13000	Q13002	Q13002	Q13004	Q13005	Q13006	Q13007
	Bowen No.	25949	8440	8440	9191	8584	9469	8850
SPRING STOP	Logan Part No.	Q14000	Q14002	Q14002	Q14004	Q14005	Q14005	Q14007
	Bowen No.	25950	8442	8442	9192	8585	8585	8851
SLIP	Logan Part No.	Q15000	Q15002	Q15003	Q15004	Q15005	Q15006	Q15007
	Bowen No.	25958	2180	4005	2178	8586	7201	8852
	No. Req'd	3	3	3	3	3	2	3
GRIP JAW SET	Logan Part No.	Q16000	Q16002	Q16002	Q16002	Q16005	Q16005	Q16005
	Bowen No.	25951	8443	8443	8443	8588	8588	8588
GRIP JAW SPRING	Logan Part No.	Q17000	Q17000	Q17000	Q17000	Q17005	Q17005	Q17005
	Bowen No.	8444	8444	8444	8444	8589	8589	8589
	No. Req'd	3	3	3	3	3	3	3
BOWL	Logan Part No.	Q18000	Q18002	Q18003	Q18004	Q18005	Q18006	Q18007
	Bowen No.	25952	8521	8520	9181	8597	9470	8853
GRIP JAW STOP	Logan Part No.	Q19000	Q19002	Q19003	Q19004	Q19005	Q19006	Q19005
	Bowen No.	25953	8446	8515	9182	8590	9471	8590
GRIP JAW STOP SCREW	Logan Part No.	Q20000	Q20002	Q20002	Q20002	Q20005	Q20005	Q20005
	Bowen No.	23096	62517	62517	62517	62681	62681	62681
	No. Req'd	3	3	3	3	3	3	3
WICKERED SLEEVE LONG	Logan Part No.	Q21000	Q21002	Q21002	Q21004	Q21005	Q21006	Q21005
	Bowen No.	25954	8568	8568	9185	8591	9475	8591
BOTTOM NUT	Logan Part No.	Q22000	Q22002	Q22003	Q22003	Q22005	Q22006	Q22007
	Bowen No.	25955	8565	8566	8566	8596	9476	8857

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Notes:
(1) Slip number Q15009 is for 5" 15-21# Csg, for 5" 11.5-13# Csg use Slip number Q40009.
(2) Where both Wiper Block and Drag Spring parts are shown, the cutter can be ordered with either. If not specified, Wiper Block parts will be furnished. (Note: Assemblies are priced differently.)

When ordering, please specify:
(1) Name and number of assembly or part
(2) Size of pipe to cut
(3) Whether or not Bottom Nut is to be fitted for collar finder
(4) Knives with carbide tips available upon request

Recommended Spare Parts:
(1) 6 sets of Knives
(2) 2 sets of Knife Pins
(3) 6 sets of Knife Springs
(4) 2 sets of Knife Spring Screws
(5) 1 set of Slips
(6) 1 set of Wiper Blocks
(7) 1 set of Wiper Block Springs
(8) 1 set of Wiper Block Screws
(9) 1 set of Grip Jaws
(10) 1 set of Grip Jaw Springs
(11) 1 Wickered Sleeve
(12) 1 set of Drag Springs
(13) 1 set of Drag Springs Screws

INTERNAL CUTTERS

PIPE SIZE TO CUT		1.900 Tbg	2-3/8 Tbg	2-7/8 Tbg	2-7/8 Tbg	3-1/2 Tbg	4-1/2 FH DP	4-1/2 IF DP
CAN BE DRESSED FOR		…	2-7/8 IF DP 2-7/8 Tbg	…	3-1/2 IF DP	4 Tbg 4-1/2 Tbg	4-1/2 IF DP 4-1/2 Csg	4-1/2, 4-3/4, 5 & 5-1/2 Csg
MINIMUM CUTTER O.D.		1-1/2	1-13/16	2-1/4	2-1/4	2-5/8	2-1/2	3-3/8
STANDARD ASSEMBLY		Drag Spring	Drag Spring	Drag Spring	Drag Spring	Wiper Block	Drag Spring	Wiper Block
COMPLETE ASSEMBLY	Logan Part No.	409-000	409-002	409-003	409-004	409-005	409-006	409-007
	Bowen No.	25940	2174	8505	9176	8570	9465	8844
WIPER BLOCK	Logan Part No.	…	…	…	…	Q23005	…	Q23007
	Bowen No.	…	…	…	…	8598	…	8854
	No. Req'd	…	…	…	…	3	…	3
WIPER BLOCK SPRING	Logan Part No.	…	…	…	…	Q24005	…	Q24007
	Bowen No.	…	…	…	…	8599	…	8863
	No. Req'd	…	…	…	…	9	…	9
WIPER BLOCK SCREW	Logan Part No.	…	…	…	…	Q25005	…	Q25005
	Bowen No.	…	…	…	…	8856	…	8856
	No. Req'd	…	…	…	…	6	…	6
BOWL DRAG SPRING TYPE	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	…	…	…	…	…	…
MANDREL EXTENSION	Logan Part No.	…	…	…	Q27004	Q27005	Q27006	Q27005
	Bowen No.	…	…	…	9183	8595	9472	8595
DRAG SPRING	Logan Part No.	Q28000	Q28002	Q28002	Q28002	Q28005	Q28005	Q28005
	Bowen No.	25956	8569	8569	8569	8592	8592	8592
	No. Req'd	3	3	3	3	3	3	3
DRAG SPRING RING	Logan Part No.	Q29000	Q29002	Q29003	Q29003	Q29005	Q29006	Q29007
	Bowen No.	25957	8500	8518	8518	8594	9473	8855
DRAG SPRING SCREW	Logan Part No.	Q20000	Q20002	Q20002	Q20002	Q30005	Q20005	AK6004
	Bowen No.	23096	62517	62517	62517	62734	62681	8593
	No. Req'd	6	6	6	6	6	6	6
WICKERED SLEEVE SHORT	Logan Part No.	…	Q21002	Q31003	…	…	…	…
	Bowen No.	…	8568	8564	…	…	…	…
DRAG SPRING SHORT	Logan Part No.	…	…	Q32003	…	…	…	…
	Bowen No.	…	…	8449	…	…	…	…
	No. Req'd	…	…	3	…	…	…	…
ROD KNIFE	Logan Part No.	…	…	Q33003	Q33003	…	…	…
	Bowen No.	…	…	9423	9423	…	…	…

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

Notes:
(1) Slip number Q15009 is for 5" 15-21# Csg, for 5" 11.5-13# Csg use Slip number Q40009.
(2) Where both Wiper Block and Drag Spring parts are shown, the cutter can be ordered with either. If not specified, Wiper Block parts will be furnished. (Note: Assemblies are priced differently.)

When ordering, please specify:
(1) Name and number of assembly or part
(2) Size of pipe to cut
(3) Whether or not Bottom Nut is to be fitted for collar finder
(4) Knives with carbide tips available upon request

Recommended Spare Parts:
(1) 6 sets of Knives
(2) 2 sets of Knife Pins
(3) 6 sets of Knife Springs
(4) 2 sets of Knife Spring Screws
(5) 1 set of Slips
(6) 1 set of Wiper Blocks
(7) 1 set of Wiper Block Springs
(8) 1 set of Wiper Block Screws
(9) 1 set of Grip Jaws
(10) 1 set of Grip Jaw Springs
(11) 1 Wickered Sleeve
(12) 1 set of Drag Springs
(13) 1 set of Drag Springs Screws

INTERNAL CUTTERS

PIPE SIZE TO CUT		1.900 Tbg	2-3/8 Tbg	2-7/8 Tbg	2-7/8 Tbg	3-1/2 Tbg	4-1/2 FH DP	4 1/2 IF DP
CAN BE DRESSED FOR		…	2-7/8 IF DP 2-7/8 Tbg	…	3-1/2 IF DP	4-Tbg 4-1/2 Tbg	4-1/2 IF DP 4-1/2 Csg	4-1/2, 4-3/4, 5 & 5-1/2 Csg
MINIMUM CUTTER O.D.		1-1/2	1-13/16	2-1/4	2-1/4	2-5/8	2-1/2	3-3/8
STANDARD ASSEMBLY		Drag Spring	Drag Spring	Drag Spring	Drag Spring	Wiper Block	Drag Spring	Wiper Block
COMPLETE ASSEMBLY	Logan Part No.	409-000	409-002	409-003	409-004	409-005	409-006	409-007
	Bowen No.	25940	2174	8505	9176	8570	9465	8844
TOP THRUST TO CUT COUPLING	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	…	…	…	…	…	…
TOP THRUST	Logan Part No.	…	…	…	…	Q34005	…	…
	Bowen No.	…	…	…	…	8581	…	…
SLIP	Logan Part No.	…	…	…	…	Q35005	…	…
	Bowen No.	…	…	…	…	8587	…	…
WIPER BLOCK	Logan Part No.	…	…	…	…	Q36005	…	…
	Bowen No.	…	…	…	…	8605	…	…
BOTTOM NUT	Logan Part No.	…	…	…	…	Q37005	…	…
	Bowen No.	…	…	…	…	8634	…	…
KNIFE BLOCK	Logan Part No.	…	…	…	…	Q38005	…	…
	Bowen No.	…	…	…	…	22278	…	…

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

Notes:
(1) Slip number Q15009 is for 5" 15-21# Csg, for 5" 11.5-13# Csg use Slip number Q40009.
(2) Where both Wiper Block and Drag Spring parts are shown, the cutter can be ordered with either. If not specified, Wiper Block parts will be furnished. (Note: Assemblies are priced differently.)

When ordering, please specify:
(1) Name and number of assembly or part
(2) Size of pipe to cut
(3) Whether or not Bottom Nut is to be fitted for collar finder
(4) Knives with carbide tips available upon request

Recommended Spare Parts:
(1) 6 sets of Knives
(2) 2 sets of Knife Pins
(3) 6 sets of Knife Springs
(4) 2 sets of Knife Spring Screws
(5) 1 set of Slips
(6) 1 set of Wiper Blocks
(7) 1 set of Wiper Block Springs
(8) 1 set of Wiper Block Screws
(9) 1 set of Grip Jaws
(10) 1 set of Grip Jaw Springs
(11) 1 Wickered Sleeve
(12) 1 set of Drag Springs
(13) 1 set of Drag Springs Screws

INTERNAL CUTTERS

PIPE SIZE TO CUT		5 IUDP	5 Csg	6 Csg	7 Csg	8-5/8 to 9 Csg	9-5/8 Csg	11-3/4 Csg
CAN BE DRESSED FOR		…	5-1/2 Csg	6-5/8 Csg 7 Csg	7-5/8, 8 Csg 8-1/2 Csg	9-5/8 Csg	10-3/4 Csg 11-3/4 Csg	12 LP
MINIMUM CUTTER O.D.		3-3/8	4	5	5-11/16	7-1/4	8-1/4	…
STANDARD ASSEMBLY		Drag Spring	Wiper Block	Wiper Block	Wiper Block	Wiper Block	Wiper Block	Wiper Block
COMPLETE ASSEMBLY	Logan Part No.	409-008	409-009	409-010	409-011	409-012	409-013	409-014
	Bowen No.	9081	8200	14785	8745	15532	15080	41876
MANDREL	Logan Part No.	Q1008	Q1009	Q1010	Q1011	Q1012	Q1013	Q1014
	Bowen No.	9082	8176	14786	8746	15533	15081	41877
KNIFE BEARING	Logan Part No.	Q2004	Q2009	Q2009	Q2009	Q2012	Q2012	Q2012
	Bowen No.	8575	8179	8179	8179	15110	15110	15110
	No. Req'd	3	3	3	3	5	5	5
KNIFE SPRING SCREW	Logan Part No.	Q3002	Q3002	Q3002	Q3002	Q3012	Q3012	Q3012
	Bowen No.	8181	8181	8181	8181	9558	9558	9558
	No. Req'd	3	3	3	3	5	5	5
KNIFE SPRING	Logan Part No.	Q4004	Q4009	Q4009	Q4009	Q4012	Q4012	Q4012
	Bowen No.	8629	8180	8180	8180	15111	15111	15111
	No. Req'd	3	3	3	3	5	5	5
KNIFE	Logan Part No.	Q5008	Q5009	Q5009	Q5009	Q5012	Q5012	Q5012
	Bowen No.	9042	8177	8177	8177	15102	15102	15102
	No. Req'd	3	3	3	3	5	5	5
KNIFE BEARING SCREW	Logan Part No.	Q6005	Q6009	Q6009	Q6009	Q6012	Q6013	Q6013
	Bowen No.	8576	8229	8229	8229	15553	15112	15112
	No. Req'd	3	3	3	3	5	5	5
KNIFE PIN	Logan Part No.	Q7004	Q7009	Q7009	Q7009	Q7012	Q7013	Q7013
	Bowen No.	8573	8178	8178	8178	15558	15113	15113
	No. Req'd	3	3	3	3	5	5	5
KNIFE PIN SCREW	Logan Part No.	Q8004	Q8009	Q8009	Q8009	Q8012	Q8012	Q8012
	Bowen No.	8574	8208	8208	8208	15114	15114	15114
	No. Req'd	3	3	3	3	5	5	5
KNIFE BLOCK	Logan Part No.	Q9007	Q9009	Q9009	Q9009	Q9012	Q9012	Q9012
	Bowen No.	8846	8183	8183	8183	15115	15115	15115
	No. Req'd	3	3	3	3	5	5	5
TOP THRUST	Logan Part No.	Q10008	Q10009	Q10010	Q10011	Q10012	Q10013	Q10014
	Bowen No.	8847	8241	14787	8748	15534	15099	41878

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Notes:
(1) Slip number Q15009 is for 5" 15-21# Csg, for 5" 11.5-13# Csg use Slip number Q40009.
(2) Where both Wiper Block and Drag Spring parts are shown, the cutter can be ordered with either. If not specified, Wiper Block parts will be furnished. (Note: Assemblies are priced differently.)

When ordering, please specify:
(1) Name and number of assembly or part
(2) Size of pipe to cut
(3) Whether or not Bottom Nut is to be fitted for collar finder
(4) Knives with carbide tips available upon request

Recommended Spare Parts:
(1) 6 sets of Knives
(2) 2 sets of Knife Pins
(3) 6 sets of Knife Springs
(4) 2 sets of Knife Spring Screws
(5) 1 set of Slips
(6) 1 set of Wiper Blocks
(7) 1 set of Wiper Block Springs
(8) 1 set of Wiper Block Screws
(9) 1 set of Grip Jaws
(10) 1 set of Grip Jaw Springs
(11) 1 Wickered Sleeve
(12) 1 set of Drag Springs
(13) 1 set of Drag Springs Screws

INTERNAL CUTTERS

PIPE SIZE TO CUT		5 IUDP	5 Csg	6 Csg	7 Csg	8-5/8 to 9 Csg	9-5/8 Csg	11-3/4 Csg
CAN BE DRESSED FOR		…	5-1/2 Csg	6-5/8 Csg 7 Csg	7-5/8, 8 Csg 8-1/2 Csg	9-5/8 Csg	10-3/4 Csg 11-3/4 Csg	12 LP
MINIMUM CUTTER O.D.		3-3/8	4	5	5-11/16	7-1/4	8-1/4	…
STANDARD ASSEMBLY		Drag Spring	Wiper Block	Wiper Block	Wiper Block	Wiper Block	Wiper Block	Wiper Block
COMPLETE ASSEMBLY	Logan Part No.	409-008	409-009	409-010	409-011	409-012	409-013	409-014
	Bowen No.	9081	8200	14785	8745	15532	15080	41876
SPLIT THRUST	Logan Part No.	Q11007	Q11009	Q11010	Q11011	Q11012	Q11013	Q11014
	Bowen No.	8848	8185	14788	8750	15535	15084	41879
CONE	Logan Part No.	Q12008	Q12009	Q12010	Q12011	Q12012	Q12013	Q12014
	Bowen No.	9083	8186	14789	8751	15536	15085	41880
MAIN SPRING	Logan Part No.	Q13008	Q13009	Q13010	Q13011	Q13012	Q13013	Q13014
	Bowen No.	9084	8187	14790	8752	15537	15086	41881
SPRING STOP	Logan Part No.	Q14007	Q14009	Q14010	Q14011	Q14012	Q14013	Q14014
	Bowen No.	8851	8209	14791	8753	15538	15087	41882
SLIP	Logan Part No.	Q15008	Q15009	Q15010	Q15011	Q15012	Q15013	Q15014
	Bowen No.	9043	1924	14792	8754	15539	15275	41883
	No. Req'd	3	3	3	3	3	3	3
GRIP JAW SET	Logan Part No.	…	Q16009	Q16010	Q16011	Q16012	Q16013	Q16014
	Bowen No.	…	8193	14793	8755	15540	15089	41884
GRIP JAW SPRING	Logan Part No.	…	Q17009	Q17010	Q17011	Q17012	Q17012	Q17012
	Bowen No.	…	8194	14797	8756	15108	15108	15108
	No. Req'd	…	3	3	3	3	3	3
BOWL	Logan Part No.	Q18008	Q18009	Q18010	Q18011	Q18012	Q18013	Q18014
	Bowen No.	9044	8190	14794	8761	15542	15090	41885
GRIP JAW STOP	Logan Part No.	Q19005	Q19009	Q19010	Q19011	Q19012	Q19013	Q19014
	Bowen No.	8590	8202	14795	8757	15543	15091	41886
GRIP JAW STOP SCREW	Logan Part No.	Q20005	Q20009	Q20010	Q20010	Q20010	Q20010	Q20010
	Bowen No.	62681	25221	8251	8251	8251	8251	8251
	No. Req'd	3	3	3	3	3	3	3
WICKERED SLEEVE LONG	Logan Part No.	Q21008	Q21009	Q21010	Q21011	Q21012	Q21013	Q21014
	Bowen No.	9045	8236	14799	8762	15546	15096	41888
BOTTOM NUT	Logan Part No.	Q22007	Q22009	Q22010	Q22011	Q22012	Q22013	Q22014
	Bowen No.	8857	8196	14800	8763	15547	15097	41889

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Notes:
(1) Slip number Q15009 is for 5" 15-21# Csg, for 5" 11.5-13# Csg use Slip number Q40009.
(2) Where both Wiper Block and Drag Spring parts are shown, the cutter can be ordered with either. If not specified, Wiper Block parts will be furnished. (Note: Assemblies are priced differently.)

When ordering, please specify:
(1) Name and number of assembly or part
(2) Size of pipe to cut
(3) Whether or not Bottom Nut is to be fitted for collar finder
(4) Knives with carbide tips available upon request

Recommended Spare Parts:
(1) 6 sets of Knives
(2) 2 sets of Knife Pins
(3) 6 sets of Knife Springs
(4) 2 sets of Knife Spring Screws
(5) 1 set of Slips
(6) 1 set of Wiper Blocks
(7) 1 set of Wiper Block Springs
(8) 1 set of Wiper Block Screws
(9) 1 set of Grip Jaws
(10) 1 set of Grip Jaw Springs
(11) 1 Wickered Sleeve
(12) 1 set of Drag Springs
(13) 1 set of Drag Springs Screws

INTERNAL CUTTERS

PIPE SIZE TO CUT		5 IUDP	5 Csg	6 Csg	7 Csg	8-5/8 to 9 Csg	9-5/8 Csg	11-3/4 Csg
CAN BE DRESSED FOR		…	5-1/2 Csg	6-5/8 Csg 7 Csg	7-5/8, 8 Csg, & 8-1/2 Csg	9-5/8 Csg	10-3/4 Csg 11-3/4 Csg	12 LP
MINIMUM CUTTER O.D.		3-3/8	4	5	5-11/16	7-1/4	8-1/4	…
STANDARD ASSEMBLY		Drag Spring	Wiper Block	Wiper Block	Wiper Block	Wiper Block	Wiper Block	Wiper Block
COMPLETE ASSEMBLY	Logan Part No.	409-008	409-009	409-010	409-011	409-012	409-013	409-014
	Bowen No.	9081	8200	14785	8745	15532	15080	41876
WIPER BLOCK	Logan Part No.	…	Q23009	Q23010	Q23011	Q23012	Q23013	Q23014
	Bowen No.	…	8191	14801	8758	15548	15098	41887
	No. Req'd	…	3	3	3	3	3	3
WIPER BLOCK SPRING	Logan Part No.	…	Q24005	Q24010	Q24010	Q24012	Q24012	Q24012
	Bowen No.	…	8599	8759	8759	15276	15276	15276
	No. Req'd	…	24	24	24	36	36	36
WIPER BLOCK SCREW	Logan Part No.	…	Q25005	Q25010	Q25010	Q25010	Q25010	Q25010
	Bowen No.	…	8856	8760	8760	8760	8760	8760
	No. Req'd	…	6	6	6	6	6	6
BOWL DRAG SPRING TYPE	Logan Part No.	…	Q26005	…	…	…	…	…
	Bowen No.	…	8201	…	…	…	…	…
MANDREL EXTENSION	Logan Part No.	Q27008	Q27009	Q27010	Q27011	Q27012	Q27013	Q27014
	Bowen No.	9093	8237	14796	8246	15544	15092	41892
DRAG SPRING	Logan Part No.	Q28008	Q28009	Q28010	Q28010	Q28012	Q28012	Q28014
	Bowen No.	9092	8203	8247	8247	15093	15093	41890
	No. Req'd	3	3	3	3	3	3	3
DRAG SPRING RING	Logan Part No.	Q29007	Q29009	Q29010	Q29011	Q29012	Q29013	Q29014
	Bowen No.	8855	8205	14798	8248	15545	15095	41891
DRAG SPRING SCREW	Logan Part No.	Q20005	Q20009	Q20010	Q20010	Q20010	Q20010	Q20010
	Bowen No.	62681	25221	8251	8251	8251	8251	8251
	No. Req'd	6	3	3	3	3	3	3
WICKERED SLEEVE SHORT	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	…	…	…	…	…	…
DRAG SPRING SHORT	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	…	…	…	…	…	…
	No. Req'd	…	…	…	…	…	…	…
ROD KNIFE	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	…	…	…	…	…	…

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Notes:
(1) Slip number Q15009 is for 5" 15-21# Csg, for 5" 11.5-13# Csg use Slip number Q40009.
(2) Where both Wiper Block and Drag Spring parts are shown, the cutter can be ordered with either. If not specified, Wiper Block parts will be furnished. (Note: Assemblies are priced differently.)

When ordering, please specify:
(1) Name and number of assembly or part
(2) Size of pipe to cut
(3) Whether or not Bottom Nut is to be fitted for collar finder
(4) Knives with carbide tips available upon request

Recommended Spare Parts:
(1) 6 sets of Knives
(2) 2 sets of Knife Pins
(3) 6 sets of Knife Springs
(4) 2 sets of Knife Spring Screws
(5) 1 set of Slips
(6) 1 set of Wiper Blocks
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(11) 1 Wickered Sleeve
(12) 1 set of Drag Springs
(13) 1 set of Drag Springs Screws

INTERNAL CUTTERS

PIPE SIZE TO CUT		5 IUDP	5 Csg	6 Csg	7 Csg	8-5/8 to 9 Csg	9-5/8 Csg	11-3/4 Csg
CAN BE DRESSED FOR		…	5-1/2 Csg	6-5/8 Csg 7 Csg	7-5/8, 8 Csg, & 8-1/2 Csg	9-5/8 Csg	10-3/4 Csg 11-3/4 Csg	12 LP
MINIMUM CUTTER O.D.		3-3/8	4	5	5-11/16	7-1/4	8-1/4	…
STANDARD ASSEMBLY		Drag Spring	Wiper Block	Wiper Block	Wiper Block	Wiper Block	Wiper Block	Wiper Block
COMPLETE ASSEMBLY	Logan Part No.	409-008	409-009	409-010	409-011	409-012	409-013	409-014
	Bowen No.	9081	8200	14785	8745	15532	15080	41876
TOP THRUST TO CUT COUPLING	Logan Part No.	…	Q34009	Q34010	Q34011	Q34012	Q39015	Q34014
	Bowen No.	…	8184	14802	8749	15541	15083	41896
TOP THRUST	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	…	…	…	…	…	…
SLIP	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	…	…	…	…	…	…
WIPER BLOCK	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	…	…	…	…	…	…
BOTTOM NUT	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	…	…	…	…	…	…
KNIFE BLOCK	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	…	…	…	…	…	…

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Notes:
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(2) Where both Wiper Block and Drag Spring parts are shown, the cutter can be ordered with either. If not specified, Wiper Block parts will be furnished. (Note: Assemblies are priced differently.)

When ordering, please specify:
(1) Name and number of assembly or part
(2) Size of pipe to cut
(3) Whether or not Bottom Nut is to be fitted for collar finder
(4) Knives with carbide tips available upon request

Recommended Spare Parts:
(1) 6 sets of Knives
(2) 2 sets of Knife Pins
(3) 6 sets of Knife Springs
(4) 2 sets of Knife Spring Screws
(5) 1 set of Slips
(6) 1 set of Wiper Blocks
(7) 1 set of Wiper Block Springs
(8) 1 set of Wiper Block Screws
(9) 1 set of Grip Jaws
(10) 1 set of Grip Jaw Springs
(11) 1 Wickered Sleeve
(12) 1 set of Drag Springs
(13) 1 set of Drag Springs Screws

INTERNAL CUTTERS

PIPE SIZE TO CUT		13 & & 13-3/8 Csg	16 Csg	20 Tbg				
CAN BE DRESSED FOR		…	18-5/8 Csg	20-3/4 Csg				
MINIMUM CUTTER O.D.		11-3/4	14-1/2	18-5/8				
STANDARD ASSEMBLY		Wiper Block	Wiper Block	Wiper Block				
COMPLETE ASSEMBLY	Logan Part No.	409-015	409-016	409-017				
	Bowen No.	19525	21240	19760				
MANDREL	Logan Part No.	Q1015	Q1016	Q1017				
	Bowen No.	19526	21241	19761				
KNIFE BEARING	Logan Part No.	Q2012	Q2012	Q2012				
	Bowen No.	15110	15110	15110				
	No. Req'd	5	5	5				
KNIFE SPRING SCREW	Logan Part No.	Q3012	Q3012	Q3012				
	Bowen No.	9558	9558	9558				
	No. Req'd	5	5	5				
KNIFE SPRING	Logan Part No.	Q4012	Q4012	Q4012				
	Bowen No.	15111	15111	15111				
	No. Req'd	5	5	5				
KNIFE	Logan Part No.	Q5012	Q5012	Q5012				
	Bowen No.	15102	15102	15102				
	No. Req'd	5	5	5				
KNIFE BEARING SCREW	Logan Part No.	Q6013	Q6013	Q6013				
	Bowen No.	23003	15112	15112				
	No. Req'd	5	5	5				
KNIFE PIN	Logan Part No.	Q7015	Q7013	Q7013				
	Bowen No.	39231	15113	15113				
	No. Req'd	5	5	5				
KNIFE PIN SCREW	Logan Part No.	Q8012	Q8012	Q8012				
	Bowen No.	15114	15114	15114				
	No. Req'd	5	5	5				
KNIFE BLOCK	Logan Part No.	Q9012	Q9012	Q9012				
	Bowen No.	15115	15115	15115				
	No. Req'd	5	5	5				

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Notes:
(1) Slip number Q15009 is for 5" 15-21# Csg, for 5" 11.5-13# Csg use Slip number Q40009.
(2) Where both Wiper Block and Drag Spring parts are shown, the cutter can be ordered with either. If not specified, Wiper Block parts will be furnished. (Note: Assemblies are priced differently.)

When ordering, please specify:
(1) Name and number of assembly or part
(2) Size of pipe to cut
(3) Whether or not Bottom Nut is to be fitted for collar finder
(4) Knives with carbide tips available upon request

Recommended Spare Parts:
(1) 6 sets of Knives
(2) 2 sets of Knife Pins
(3) 6 sets of Knife Springs
(4) 2 sets of Knife Spring Screws
(5) 1 set of Slips
(6) 1 set of Wiper Blocks
(7) 1 set of Wiper Block Springs
(8) 1 set of Wiper Block Screws
(9) 1 set of Grip Jaws
(10) 1 set of Grip Jaw Springs
(11) 1 Wickered Sleeve
(12) 1 set of Drag Springs
(13) 1 set of Drag Springs Screws

INTERNAL CUTTERS

PIPE SIZE TO CUT		13 & 13-3/8 Csg	16 Csg	20 Csg				
CAN BE DRESSED FOR		…	18-5/8 Csg	20-3/4 Csg				
MINIMUM CUTTER O.D.		11-3/4	14-1/2	18-5/8				
STANDARD ASSEMBLY		Wiper Block	Wiper Block	Wiper Block				
COMPLETE ASSEMBLY	Logan Part No.	409-015	409-016	409-017				
	Bowen No.	19525	21240	19760				
TOP THRUST	Logan Part No.	Q10015	Q10016	Q10017				
	Bowen No.	19527	21242	19762				
SPLIT THRUST	Logan Part No.	Q11015	Q11016	Q11017				
	Bowen No.	19528	21243	19763				
CONE	Logan Part No.	Q12015	Q12016	Q12017				
	Bowen No.	19529	21244	19764				
MAIN SPRING	Logan Part No.	Q13015	Q13016	Q13017				
	Bowen No.	19530	21245	19765				
SPRING STOP	Logan Part No.	Q14015	Q14016	Q14017				
	Bowen No.	19531	21246	19766				
SLIP	Logan Part No.	Q15015	Q15016	Q15017				
	Bowen No.	19532	21247	19767				
	No. Req'd	3	3	3				
GRIP JAW SET	Logan Part No.	Q16015	Q16016	Q16017				
	Bowen No.	19533	21248	19768				
GRIP JAW SPRING	Logan Part No.	Q17015	Q17016	8234				
	Bowen No.	19534	21249	19769				
	No. Req'd	4	4	4				
BOWL	Logan Part No.	Q18015	Q18016	Q18017				
	Bowen No.	19535	21250	19770				
GRIP JAW STOP	Logan Part No.	Q19015	Q19016	Q19017				
	Bowen No.	19536	21251	19771				
GRIP JAW STOP SCREW	Logan Part No.	Q20015	Q20016	Q20010				
	Bowen No.	41871	21679	8251				
	No. Req'd	3	3	3				

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Notes:
(1) Slip number Q15009 is for 5" 15-21# Csg, for 5" 11.5-13# Csg use Slip number Q40009.
(2) Where both Wiper Block and Drag Spring parts are shown, the cutter can be ordered with either. If not specified, Wiper Block parts will be furnished. (Note: Assemblies are priced differently.)

When ordering, please specify:
(1) Name and number of assembly or part
(2) Size of pipe to cut
(3) Whether or not Bottom Nut is to be fitted for collar finder
(4) Knives with carbide tips available upon request

Recommended Spare Parts:
(1) 6 sets of Knives
(2) 2 sets of Knife Pins
(3) 6 sets of Knife Springs
(4) 2 sets of Knife Spring Screws
(5) 1 set of Slips
(6) 1 set of Wiper Blocks
(7) 1 set of Wiper Block Springs
(8) 1 set of Wiper Block Screws
(9) 1 set of Grip Jaws
(10) 1 set of Grip Jaw Springs
(11) 1 Wickered Sleeve
(12) 1 set of Drag Springs
(13) 1 set of Drag Springs Screws

INTERNAL CUTTERS

PIPE SIZE TO CUT		13 & 13-3/8 Csg	16 Csg	20 Csg
CAN BE DRESSED FOR		…	18-5/8 Csg	20-3/4 Csg
CUTTER O.D. (MINIMUM)		11-3/4	14-1/2	18-5/8
STANDARD ASSEMBLY		Wiper Block	Wiper Block	Wiper Block
COMPLETE ASSEMBLY	Logan Part No.	409-015	409-016	409-017
	Bowen No.	19525	21240	19760
WICKERED SLEEVE LONG	Logan Part No.	Q21015	Q21016	Q21017
	Bowen No.	19540	21253	19778
BOTTOM NUT	Logan Part No.	Q22015	Q22016	Q22017
	Bowen No.	19541	21254	19779
WIPER BLOCK	Logan Part No.	Q23015	Q23016	Q23017
	Bowen No.	19542	21252	19772
	No. Req'd	6	8	6
WIPER BLOCK SPRING	Logan Part No.	Q24012	Q24012	Q24012
	Bowen No.	15276	15276	15276
	No. Req'd	72	54	48
WIPER BLOCK SCREW	Logan Part No.	Q25010	Q25016	Q25010
	Bowen No.	8760	21678	8760
	No. Req'd	6	12	6
BOWL DRAG SPRING TYPE	Logan Part No.	…	…	…
	Bowen No.	…	…	…
MANDREL EXTENSION	Logan Part No.	Q27015	Q27016	Q27017
	Bowen No.	19537	21255	19773
DRAG SPRING	Logan Part No.	Q28015	Q28016	Q28017
	Bowen No.	19538	21256	19774
	No. Req'd	6	6	6
DRAG SPRING RING	Logan Part No.	Q29015	Q29016	Q29017
	Bowen No.	19539	21257	19799
DRAG SPRING SCREW	Logan Part No.	Q20010	Q20010	Q20010
	Bowen No.	8251	8251	8251
	No. Req'd	6	6	6

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Notes:
(1) Slip number Q15009 is for 5" 15-21# Csg, for 5" 11.5-13# Csg use Slip number Q40009.
(2) Where both Wiper Block and Drag Spring parts are shown, the cutter can be ordered with either. If not specified, Wiper Block parts will be furnished. (Note: Assemblies are priced differently.)

When ordering, please specify:
(1) Name and number of assembly or part
(2) Size of pipe to cut
(3) Whether or not Bottom Nut is to be fitted for collar finder
(4) Knives with carbide tips available upon request

Recommended Spare Parts:
(1) 6 sets of Knives
(2) 2 sets of Knife Pins
(3) 6 sets of Knife Springs
(4) 2 sets of Knife Spring Screws
(5) 1 set of Slips
(6) 1 set of Wiper Blocks
(7) 1 set of Wiper Block Springs
(8) 1 set of Wiper Block Screws
(9) 1 set of Grip Jaws
(10) 1 set of Grip Jaw Springs
(11) 1 Wickered Sleeve
(12) 1 set of Drag Springs
(13) 1 set of Drag Springs Screws

INTERNAL CUTTERS

PIPE SIZE TO CUT		13 & 13-3/8 Csg	16 Csg	20 Csg				
CAN BE DRESSED FOR		…	18-5/8 Csg	20-3/4 Csg				
MINIMUM CUTTER O.D.		11-3/4	14-1/2	18-5/8				
STANDARD ASSEMBLY		Wiper Block	Wiper Block	Wiper Block				
COMPLETE ASSEMBLY	Logan Part No.	409-015	409-016	409-017				
	Bowen No.	19525	21240	19760				
WICKERED SLEEVE SHORT	Logan Part No.	…	…	…				
	Bowen No.	…	…	…				
DRAG SPRING SHORT	Logan Part No.	…	…	…				
(3 req'd)	Bowen No.	…	…	…				
	No. Req'd	…	…	…				
ROD KNIFE	Logan Part No.	…	…	…				
	Bowen No.	…	…	…				
TOP THRUST	Logan Part No.	…	…	…				
TO CUT COUPLING	Bowen No.	…	…	…				
TOP THRUST	Logan Part No.	…	…	…				
	Bowen No.	…	…	…				
SLIP	Logan Part No.	…	…	…				
	Bowen No.	…	…	…				
WIPER BLOCK	Logan Part No.	…	…	…				
	Bowen No.	…	…	…				
BOTTOM NUT	Logan Part No.	…	…	…				
	Bowen No.	…	…	…				
KNIFE BLOCK	Logan Part No.	…	…	…				
	Bowen No.	…	…	…				

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Notes:
(1) Slip number Q15009 is for 5" 15-21# Csg, for 5" 11.5-13# Csg use Slip number Q40009.
(2) Where both Wiper Block and Drag Spring parts are shown, the cutter can be ordered with either. If not specified, Wiper Block parts will be furnished. (Note: Assemblies are priced differently.)

When ordering, please specify:
(1) Name and number of assembly or part
(2) Size of pipe to cut
(3) Whether or not Bottom Nut is to be fitted for collar finder
(4) Knives with carbide tips available upon request

Recommended Spare Parts:
(1) 6 sets of Knives
(2) 2 sets of Knife Pins
(3) 6 sets of Knife Springs
(4) 2 sets of Knife Spring Screws
(5) 1 set of Slips
(6) 1 set of Wiper Blocks
(7) 1 set of Wiper Block Springs
(8) 1 set of Wiper Block Screws
(9) 1 set of Grip Jaws
(10) 1 set of Grip Jaw Springs
(11) 1 Wickered Sleeve
(12) 1 set of Drag Springs
(13) 1 set of Drag Springs Screws

INTERNAL CUTTERS

PIPE SIZE TO CUT		2-3/8 Tbg	3-1/2 OD Tbg	3-1/2 OD Tbg	4-1/2 FH DP	4-1/2 FH DP	4-1/2 IF DP	4-1/2 IF DP
CAN BE DRESSED TO CUT		2-7/8 IF DP & 2-7/8 Tbg	4 OD Tbg	4-1/2 OD Tbg	4-1/2 X-Hole DP	4-1/2 OD Csg	4-1/2 OD Tbg & Csg	4-3/4 OD Csg
CUTTER O.D. (MINIMUM)		1-13/16	2-5/8	2-5/8	2-1/2	2-1/2	3-3/8	3-3/8
STANDARD ASSEMBLY		Drag Spring	Wiper Block	Wiper Block	Drag Spring	Drag Spring	Wiper Block	Wiper Block
COMPLETE ASSEMBLY	Logan Part No.	409-002	409-005	409-005	409-006	409-006	409-007	409-007
	Bowen No.	2174	8570	8570	9465	9465	8844	8844
TOP THRUST	Logan Part No.	Q39000	Q39003	Q34005	...	...	...	Q10008
	Bowen No.	8437	8613	8581	...	...	...	8847
SLIP	Logan Part No.	Q40000	Q40003	Q35005	...	Q40006	Q40007	Q40007
	Bowen No.	2181	8577	8587	...	23945	8932	8932
	No. Req'd	3	3	3	...	3	3	3
WIPER BLOCK	Logan Part No.	...	Q41003	Q36005	...	...	Q41007	Q41007
	Bowen No.	...	8614	8605	...	...	8933	8933
	No. Req'd	...	3	3	...	...	3	3
DRAG SPRING	Logan Part No.	...	Q42003	...	Q42005	Q42006	...	Q42005
	Bowen No.	...	8611	...	8611	23946	...	8611
	No. Req'd	...	3	...	3	3	...	3
BOTTOM NUT	Logan Part No.	...	Q43003	Q43004	Q43005	...	...	Q43008
	Bowen No.	...	8602	8634	9457	...	...	8934
KNIFE BLOCK	Logan Part No.	...	...	Q38005	...	...	...	...
	Bowen No.	...	...	22278	...	...	...	...
	No. Req'd	...	...	3	...	...	...	...
TOP THRUST CUT COUPLING	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...
KNIFE	Logan Part No.	...	...	...	...	...	...	...
	Bowen No.	...	...	...	...	...	...	...

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

Notes:
(1) Slip number Q15009 is for 5" 15-21# Csg, for 5" 11.5-13# Csg use Slip number Q40009.
(2) Where both Wiper Block and Drag Spring parts are shown, the cutter can be ordered with either. If not specified, Wiper Block parts will be furnished. (Note: Assemblies are priced differently.)

When ordering, please specify:
(1) Name and number of assembly or part
(2) Size of pipe to cut
(3) Whether or not Bottom Nut is to be fitted for collar finder
(4) Knives with carbide tips available upon request

Recommended Spare Parts:
(1) 6 sets of Knives
(2) 2 sets of Knife Pins
(3) 6 sets of Knife Springs
(4) 2 sets of Knife Spring Screws
(5) 1 set of Slips
(6) 1 set of Wiper Blocks
(7) 1 set of Wiper Block Springs
(8) 1 set of Wiper Block Screws
(9) 1 set of Grip Jaws
(10) 1 set of Grip Jaw Springs
(11) 1 Wickered Sleeve
(12) 1 set of Drag Springs
(13) 1 set of Drag Springs Screws

INTERNAL CUTTERS

PIPE SIZE TO CUT		4-1/2 IFDP	4-1/2 IFDP	5 OD Csg	5-1/2 Csg	6 OD Csg	6 OD Csg	7 OD Csg
CAN BE DRESSED TO CUT		5 OD Csg	5-1/2 OD Csg	5-1/2 OD Csg	5-3/4 OD Csg	6-5/8 OD Csg	7 OD Csg	7-5/8 OD Csg
CUTTER O.D. (MINIMUM)		3-3/8	3-3/8	4	4	5	5	5-11/16
STANDARD ASSEMBLY		Wiper Block	Wiper Block	Wiper Block	Wiper Block	Wiper Block	Wiper Block	Wiper Block
COMPLETE ASSEMBLY	Logan Part No.	409-007	409-007	409-009	409-009	409-010	409-010	409-011
	Bowen No.	8844	8844	8200	8200	14785	14785	8745
TOP THRUST	Logan Part No.	Q10008	Q10008	Q39009	Q39020	Q34010	...	Q34011
	Bowen No.	8847	8847	8242	54550	14802	...	8749
SLIP	Logan Part No.	Q40008	Q40020	Q40009	Q40021	Q40010	Q40011	Q40012
	Bowen No.	14004	53055	8405	54551	14803	29499	8764
	No. Req'd	3	3	3	3	3	3	3
WIPER BLOCK	Logan Part No.	Q41008	Q41020	Q41009	Q41021	Q41010	Q41011	Q41012
	Bowen No.	14001	53056	8219	54552	14818	20982	8770
	No. Req'd	3	3	3	3	3	3	3
DRAG SPRING	Logan Part No.	Q42005	...	Q42009	Q42013	Q42010	...	Q42010
	Bowen No.	8611	...	8207	54553	8249	...	8249
	No. Req'd	3	...	3	3	3	...	3
BOTTOM NUT	Logan Part No.	Q43009	Q43009	Q43010	Q43010	Q43011	Q43012	Q43013
	Bowen No.	14002	14002	8234	8234	14817	36498	8774
KNIFE BLOCK	Logan Part No.	Q44009	Q44010	...	...	...	...	...
	Bowen No.	14003	53057	...	...	...	...	...
	No. Req'd	3	3	...	...	...	...	...
TOP THRUST CUT COUPLING	Logan Part No.	...	...	...	...	Q45011	Q45011	...
	Bowen No.	...	...	...	...	14816	14816	...
KNIFE	Logan Part No.	...	Q5008	...	...	...	...	...
	Bowen No.	...	9042	...	...	...	...	...

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Notes:
(1) Slip number Q15009 is for 5" 15-21# Csg, for 5" 11.5-13# Csg use Slip number Q40009.
(2) Where both Wiper Block and Drag Spring parts are shown, the cutter can be ordered with either. If not specified, Wiper Block parts will be furnished. (Note: Assemblies are priced differently.)

When ordering, please specify:
(1) Name and number of assembly or part
(2) Size of pipe to cut
(3) Whether or not Bottom Nut is to be fitted for collar finder
(4) Knives with carbide tips available upon request

Recommended Spare Parts:
(1) 6 sets of Knives
(2) 2 sets of Knife Pins
(3) 6 sets of Knife Springs
(4) 2 sets of Knife Spring Screws
(5) 1 set of Slips
(6) 1 set of Wiper Blocks
(7) 1 set of Wiper Block Springs
(8) 1 set of Wiper Block Screws
(9) 1 set of Grip Jaws
(10) 1 set of Grip Jaw Springs
(11) 1 Wickered Sleeve
(12) 1 set of Drag Springs
(13) 1 set of Drag Springs Screws

INTERNAL CUTTERS

PIPE SIZE TO CUT		7 OD Csg	8 5/8 - 9 OD Csg	9-5/8 OD Csg	9-5/8 OD Csg	11.75 OD Csg	16 OD Csg	20 OD Csg
CAN BE DRESSED TO CUT		8 & 8-1/8 OD Csg	9-5/8 OD Csg	10-3/4 OD Csg	11-3/4 OD Csg	12 LP	18-5/8 OD Csg	20-3/4 OD Csg
CUTTER O.D. (MINIMUM)		5-11/16	7-1/4	8-1/4	8-1/4	…	14-1/2	18-5/8
STANDARD ASSEMBLY		Wiper Block	Wiper Block	Wiper Block	Wiper Block	Wiper Block	Wiper Block	Wiper Block
COMPLETE ASSEMBLY	Logan Part No.	409-011	409-012	409-013	409-013	409-014	409-016	409-017
	Bowen No.	8745	15532	15080	15080	41876	21240	19760
TOP THRUST	Logan Part No.	Q34011	Q34012	Q39015	Q45015	Q34014	…	Q39019
	Bowen No.	8749	15541	15083	15116	41896	…	19776
SLIP	Logan Part No.	Q40013	Q40014	Q40015	Q40016	Q40017	Q40018	Q40019
	Bowen No.	15408	15551	15088	15079	41894	21672	19777
	No. Req'd	3	3	3	3	3	3	3
WIPER BLOCK	Logan Part No.	Q41013	Q41014	Q41015	Q41016	Q41017	Q41018	Q41019
	Bowen No.	15407	15554	15101	15078	41893	21671	19775
	No. Req'd	3	3	3	3	3	3	3
DRAG SPRING	Logan Part No.	Q42010	Q42011	Q42011	Q42012	…	…	…
	Bowen No.	8249	15109	15109	15129	…	…	…
	No. Req'd	3	3	3	3	…	…	…
BOTTOM NUT	Logan Part No.	Q43014	Q43017	Q43015	Q43016	Q43018	…	…
	Bowen No.	15405	15552	15268	15077	41895	…	…
KNIFE BLOCK	Logan Part No.	…	…	…	…	…	…	…
	Bowen No.	…	…	…	…	…	…	…
	No. Req'd	…	…	…	…	…	…	…
TOP THRUST CUT COUPLING	Logan Part No.	…	Q45014	Q45015	…	…	…	…
	Bowen No.	…	15549	15116	…	…	…	…
KNIFE	Logan Part No.	Q46013	…	…	…	Q46018	…	…
	Bowen No.	15406	…	…	…	21673	…	…

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Notes:
(1) Slip number Q15009 is for 5" 15-21# Csg, for 5" 11.5-13# Csg use Slip number Q40009.
(2) Where both Wiper Block and Drag Spring parts are shown, the cutter can be ordered with either. If not specified, Wiper Block parts will be furnished. (Note: Assemblies are priced differently.)

When ordering, please specify:
(1) Name and number of assembly or part
(2) Size of pipe to cut
(3) Whether or not Bottom Nut is to be fitted for collar finder
(4) Knives with carbide tips available upon request

Recommended Spare Parts:
(1) 6 sets of Knives
(2) 2 sets of Knife Pins
(3) 6 sets of Knife Springs
(4) 2 sets of Knife Spring Screws
(5) 1 set of Slips
(6) 1 set of Wiper Blocks
(7) 1 set of Wiper Block Springs
(8) 1 set of Wiper Block Screws
(9) 1 set of Grip Jaws
(10) 1 set of Grip Jaw Springs
(11) 1 Wickered Sleeve
(12) 1 set of Drag Springs
(13) 1 set of Drag Springs Screws

INTERNAL PRESSURE PIPE CUTTERS

Overview

The Logan Internal Pressure Pipe Cutter utilizes pump pressure to actuate three carbide-coated knives to cut single and multiple strings of pipe from 4 inches O.D. to 36-inches O.D. Each different size cutter can be dressed with different lengths of knives to cut different sizes of pipe. Pump pressure is preset by a simple adjustment so the knives will extend at the exact desired diameter. Flow restriction across an orifice feeds a piston that forces the knives out. When the knives reach a pre-set diameter, the operator will see a sudden pressure drop that indicates that the pipe has been cut.

Construction

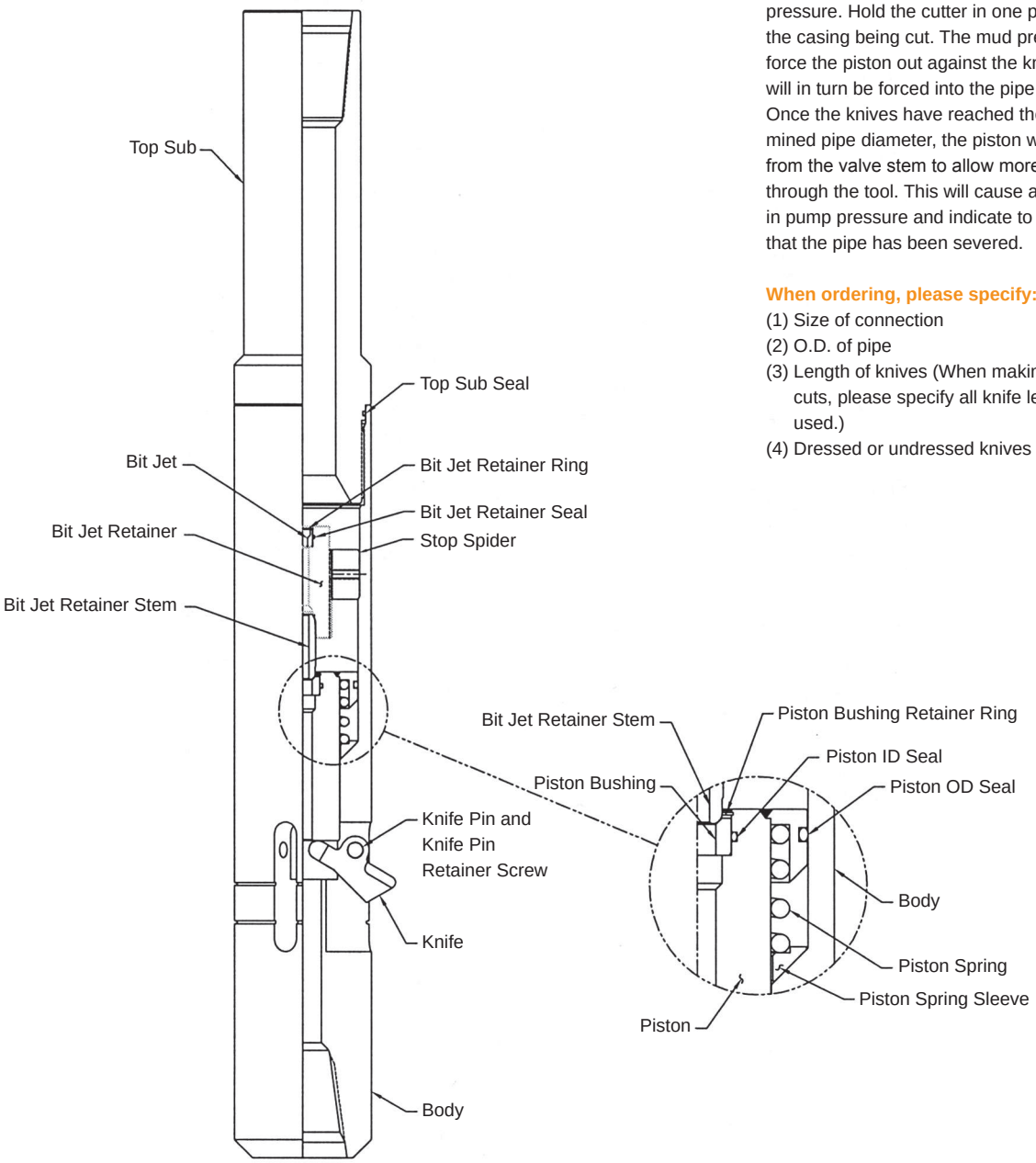
The Logan Internal Pressure Pipe Cutter consists of a body, multiple knives with knife pins and retainer screws, a piston with a pressure relief valve system consisting of a valve stem, flow bushing, flow bean retainer, stop spider, flow bean, and set screws. All component parts are manufactured from specially selected alloys.

Operation

The Logan Internal Pressure Pipe Cutter is run on tubing or drill pipe with the knives wired so that they stay in their grooves until the desired cutting depth is reached. Stabilization should be run above the cutter. Begin rotation of the drill string at approximately 35 to 50 rpm. Engage the mud pumps at about 900 psi pump pressure. Hold the cutter in one position inside the casing being cut. The mud pressure will force the piston out against the knives, which will in turn be forced into the pipe being cut. Once the knives have reached the predetermined pipe diameter, the piston will separate from the valve stem to allow more mud to flow through the tool. This will cause a rapid drop in pump pressure and indicate to the operator that the pipe has been severed.

When ordering, please specify:

(1) Size of connection
(2) O.D. of pipe
(3) Length of knives (When making multiple cuts, please specify all knife lengths to be used.)
(4) Dressed or undressed knives when ordering



INTERNAL PRESSURE PIPE CUTTERS

PIPE SIZE TO CUT		4	4-1/2 to 6-1/8	6-5/8 to 7-5/8	8-5/8 to 11-3/4	9-5/8 to 36	10-3/4 to 36	13-3/8 to 36
CUTTER O.D.		3-1/4	3-5/8	5-9/16	7-3/8	8-1/4	9-1/2	11-3/4
CONNECTION SIZE (BOX UP)		2-3/8 Reg	2-3/8 IF	3-1/2 IF	Blank	Blank	Blank	Blank
CONNECTION SIZE (BOX DOWN)		2-3/8 Reg	2-3/8 Reg	3-1/2 Reg	Blank	Blank	Blank	Blank
COMPLETE ASSEMBLY	Logan Part No.	412-325	412-363	412-556	412-738	412-825	412-950	412-1175
	Bowen No.	150444	147483	147489	150959	147495	147343	147369
BODY	Logan Part No.	R1000	R1001	R1002	R1003	R1004	R1005	R1006
	Bowen No.	150445	147484	147490	151022	147496	147344	147370
KNIFE (UNDRESSED)	Logan Part No.	R2000	R2001	R2002	R2003	R2004	R2005	R2013
	Bowen No.	150446	80357	80717	151023	147008	147357	147358
	No. Req'd	3	3	3	3	3	3	3
KNIFE PIN	Logan Part No.	R3000	R3000	R3002	R3003	R3004	R3005	R3005
	Bowen No.	80359	80359	80719	151024	147009	147371	147371
	No. Req'd	3	3	3	3	3	3	3
KNIFE PIN RETAINER	Logan Part No.	AK9004	AK9004	R4002	R4003	R4003	R4004	R4004
SCREW	Bowen No.	23508	23508	13847	148526	148526	148256	148256
	No. Req'd	3	3	3	3	3	3	3
SPRING SLEEVE	Logan Part No.	…	R5001	R5002	…	R5003	…	…
	Bowen No.	…	147487	147493	…	147499	…	…
SPRING	Logan Part No.	R6000	R6001	R6002	R6003	R6003	R6004	R6004
	Bowen No.	150449	147488	147494	147500	147500	147384	147384
PISTON	Logan Part No.	R7000	R7001	R7002	R7003	R7004	R7005	R7005
	Bowen No.	150450	147485	147491	151025	147497	147373	147373
PISTON O.D. SEAL	Logan Part No.	568-330	568-333	568-346	R8003	R8004	R8005	R8005
	Bowen No.	27-33	27-36	27-49	151026	147012	147374	147374
PISTON I.D. SEAL	Logan Part No.	568-220	568-220	568-220	568-228	568-331	568-331	568-331
	Bowen No.	27-25	27-25	27-25	568228	27-34	27-34	27-34
PISTON BUSHING	Logan Part No.	R10000	R10000	R10000	R10002	R10002	R10002	R10002
	Bowen No.	80356	80356	80356	147013	147013	147013	147013
PISTON BUSHING	Logan Part No.	R11000	R11000	R11000	R11001	R11001	R11001	R11001
RETAINER RING	Bowen No.	21116	21116	21116	147014	147014	147014	147014
BIT JET RETAINER	Logan Part No.	R12000	R12000	R12001	R12002	R12002	R12003	R12003
	Bowen No.	80352	80352	80714	147015	147015	147377	147377

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Special Note:
(1) Optional bullnose nut available upon request.

When ordering, please specify:
(1) Size of connection
(2) O.D. of pipe
(3) Length of knives (When making multiple cuts, please specify all knife lengths to be used.)
(4) Dressed or undressed knives when ordering

INTERNAL PRESSURE PIPE CUTTERS

PIPE SIZE TO CUT		4	4-1/2 to 6-1/8	6-5/8 to 7-5/8	8-5/8 to 11-3/4	9-5/8 to 36	10-3/4 to 36	13-3/8 to 36
CUTTER O.D.		3-1/4	3-5/8	5-9/16	7-3/8	8-1/4	9-1/2	11-3/4
CONNECTION SIZE (BOX UP)		2-3/8 Reg	2-3/8 IF	3-1/2 IF	Blank	Blank	Blank	Blank
CONNECTION SIZE (BOX DOWN)		2-3/8 Reg	2-3/8 Reg	3-1/2 Reg	Blank	Blank	Blank	Blank
COMPLETE ASSEMBLY	Logan Part No.	412-325	412-363	412-556	412-738	412-825	412-950	412-1175
	Bowen No.	150444	147483	147489	150959	147495	147343	147369
BIT JET RETAINER SEAL	Logan Part No.	568-117	568-117	568-117	568-219	568-219	568-219	568-219
	Bowen No.	568117	568117	568117	27-24	27-24	27-24	27-24
BIT JET RETAINER STEM	Logan Part No.	R16000	R16000	R16000	R16001	R16001	R16001	R16001
	Bowen No.	80354	80354	80354	147017	147017	147017	147017
STOP SPIDER	Logan Part No.	R17000	R17001	R17002	R17003	R17004	R17005	R17006
	Bowen No.	150451	80353	80715	151027	145168	147354	147381
STOP SPIDER SET SCREW	Logan Part No.	R18000	R18001	R18002	AX10002	AX10002	AX10002	R18004
	Bowen No.	23705	23706	23709	145165	145165	145165	23384
	No. Req'd	3	3	3	3	3	3	3
BIT JET	Logan Part No.	R14000	R14001	R14001	R14002	R14002	R14002	R14002
	Bowen No.	150682	80453	80453	147016	147016	147016	147016
BIT JET RETAINER RING	Logan Part No.	R15000	R15000	R15000	R15002	R15002	R15002	R15002
	Bowen No.	54131	54131	54131	33788	33788	33788	33788
TOP SUB	Logan Part No.	R19000	R19001	R19002	R19003	R19004	R19005	R19006
	Bowen No.	150452	80351	80713	151028	147018	147356	147383
TOP SUB SEAL	Logan Part No.	568-231	568-234	568-249	568-359	568-438	568-440	568-447
	Bowen No.	30-9	30-12	30-27	568359	27-65	568440	27-74
TOP SUB SEAL	Logan Part No.	…	…	…	…	568-437	…	…
	Bowen No.	…	…	…	…	27-64	…	…

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

Special Note:
(1) Optional bullnose nut available upon request.

When ordering, please specify:
(1) Size of connection
(2) O.D. of pipe
(3) Length of knives (When making multiple cuts, please specify all knife lengths to be used.)
(4) Dressed or undressed knives when ordering

INTERNAL PRESSURE PIPE CUTTERS

CENTRALIZING TOP SUBS

5" O.D.	Logan Part No.	...	R2100	...	...	...	...	...
	Bowen No.	...	80566	...	...	...	...	...
5-1/2" O.D.	Logan Part No.	...	R2101	...	...	...	...	...
	Bowen No.	...	80567	...	...	...	...	...
7" O.D.	Logan Part No.	...	...	R2102	...	...	...	...
	Bowen No.	...	...	80720	...	...	...	...
7-5/8" O.D.	Logan Part No.	...	...	R2103	...	...	...	...
	Bowen No.	...	...	80721	...	...	...	...

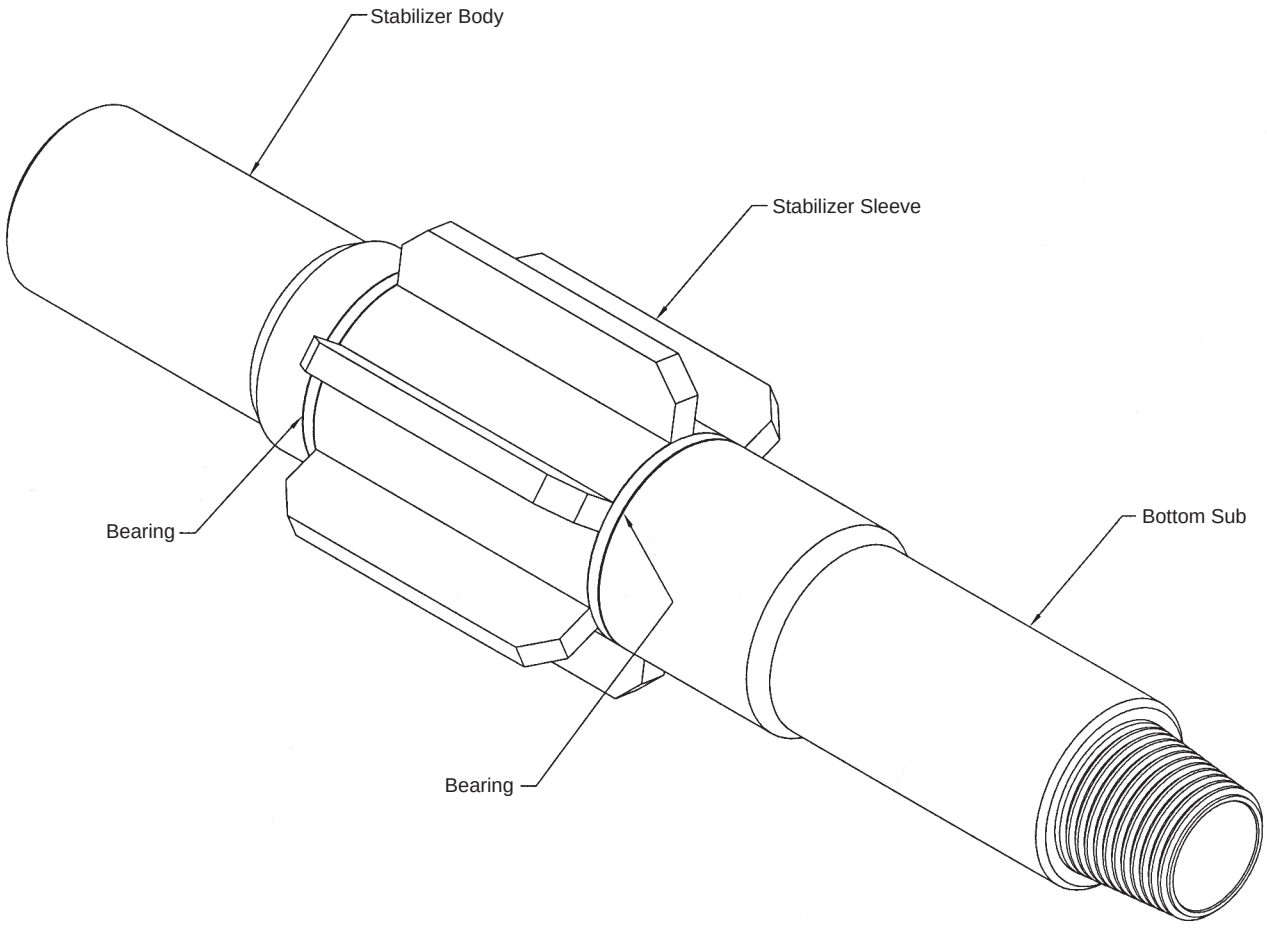
KNIVES (UNDRESSED)

7-5/8" to 9-5/8" O.D.	Logan Part No.	...	...	R2006	...	...	...	...
	Bowen No.	...	...	81896	...	...	...	...
10-3/4" O.D.	Logan Part No.	...	...	...	R2007	R2008	...	...
	Bowen No.	...	...	...	151029	147021	...	...
11-3/4" to 13-3/8" O.D.	Logan Part No.	...	...	...	R2007	...	R2010	...
	Bowen No.	...	...	...	151029	...	147358	...
13-3/8" to 16" O.D.	Logan Part No.	...	...	...	...	R2011	R2014	R2013
	Bowen No.	...	...	...	...	147022	147359	147358
16" to 18-5/8" O.D.	Logan Part No.	...	...	...	...	...	...	R2014
	Bowen No.	...	...	...	...	...	...	147359
18" to 20" O.D.	Logan Part No.	...	...	...	...	R2015	R2017	...
	Bowen No.	...	...	...	...	147023	147360	...
18-5/8 to 24" O.D.	Logan Part No.	...	...	...	...	...	...	R2017
	Bowen No.	...	...	...	...	...	...	147360
24" to 30" O.D.	Logan Part No.	...	...	...	...	R2018	R2020	...
	Bowen No.	...	...	...	...	147024	147361	...
26" to 30" O.D.	Logan Part No.	...	...	...	...	...	...	R2020
	Bowen No.	...	...	...	...	...	...	147361
30" to 34" O.D.	Logan Part No.	...	...	...	...	R2021	...	...
	Bowen No.	...	...	...	...	147025	...	...
34" to 36" O.D.	Logan Part No.	...	...	...	...	R2022	R2024	R2024
	Bowen No.	...	...	...	...	147026	147362	147362

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

Special Note:
(1) Optional bullnose nut available upon request.

When ordering, please specify:
(1) Size of connection
(2) O.D. of pipe
(3) Length of knives (When making multiple cuts, please specify all knife lengths to be used.)
(4) Dressed or undressed knives when ordering



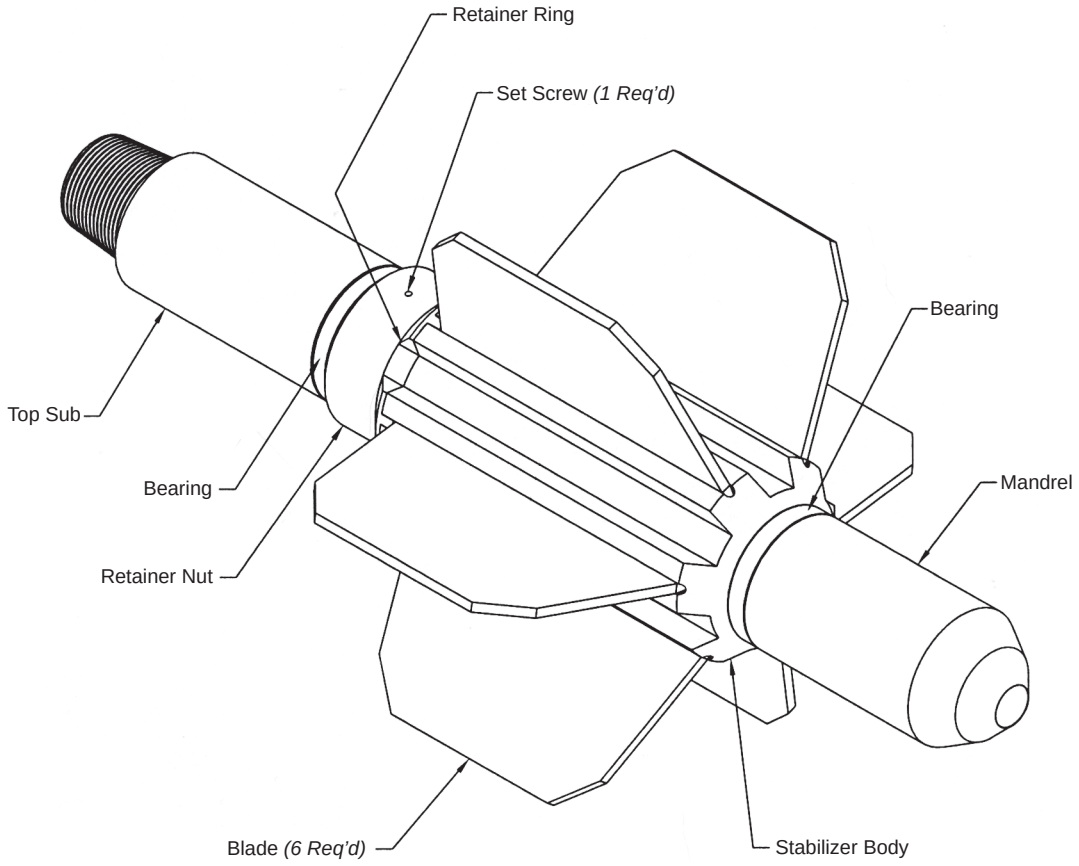
FIXED BLADE NON-ROTATING STABILIZERS

TOOL JOINT CONNECTION		2-3/8 API Reg	3-1/2 API IF	4-1/2 API IF	6-5/8 API Reg
OUTSIDE DIAMETER — INCHES		3-1/8	4-3/4	6-1/2	8
INSIDE DIAMETER — INCHES		1	2-11/16	3-3/4	3-1/2
COMPLETE ASSEMBLY	Logan Part No.	903-313	903-475	903-650	903-800

COMPONENTS

BODY	Logan Part No.	BW100	BW101	BW102	BW103
BEARING	Logan Part No.	BW200	BW201	BW202	BW203
	No. Req'd	2	2	2	2
STABILIZER	Logan Part No.	BW300	BW301	BW302	BW303
BOTTOM SUB	Logan Part No.	BW400	BW401	BW402	BW403

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



VARIABLE BLADE NON-ROTATING STABILIZERS

TOOL JOINT CONNECTION		2-3/8 API Reg	3-1/2 API IF	4-1/2 API IF	6-5/8 API Reg			
OUTSIDE DIAMETER — INCHES		3-1/8	4-3/4	6-5/8	8			
INSIDE DIAMETER — INCHES		**	**	2	**			
COMPLETE ASSEMBLY	Logan Part No.	904-313	904-475	904-663	904-800			

COMPONENTS

TOP SUB	Logan Part No.	NRS100	NRS101	NRS102	NRS103			
MANDREL	Logan Part No.	NRS200	NRS201	NRS202	NRS203			
STABILIZER BODY	Logan Part No.	NRS300	NRS301	NRS302	NRS303			
STABILIZER BLADE	Logan Part No.	NRS400	NRS401	NRS402	NRS403			
BEARING	Logan Part No.	NRS500	NRS501	NRS502	NRS503			
	No. Req'd	2	2	2	2			
RETAINER RING	Logan Part No.	NRS600	NRS601	NRS602	NRS603			
RETAINER RING NUT	Logan Part No.	NRS700	NRS701	NRS702	NRS703			
SET SCREW	Logan Part No.	NRS800	NRS801	AX10002	NRS803			

*** To be advised by engineering*

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


Type A


Type B


Type C


Type D


Type E


Type F


Type G

ROTARY SHOES

Overview

Logan Rotary Shoes are designed in various styles and sizes to service the many different conditions encountered in fishing and washover operations. Hard-faced dressing material is used to form the cutting or milling surfaces on the Rotary Shoes that are subjected to high abrasion and severe impact.

Construction

Logan Rotary Shoes are dressed with a special hard-face compound made of crushed sintered tungsten carbide particles and a resilient matrix of nickel-silver alloy. Tungsten carbide particles have a hardness nearly equal to that of diamonds. They retain their hardness at high temperatures and are not affected by the heat generated from the cutting operation. The tough nickel-silver alloy matrix holds the tungsten carbide particles in place and cushions the particles against strong impact.

Styles and Usage

Type A
Cuts on the inside diameter and bottom. Does not cut on the outside diameter. Used to cut metal on fish without cutting the casing.

Type B
Cuts on the outside diameter and bottom. Does not cut on the inside diameter. Used to wash over a fish and cut metal or formation in an open hole.

Type C
Cuts on the inside and outside diameters and bottom. Used to wash over and cut metal, formation, or cement.

Type D
Used where clearances are limited. Cuts on the inside diameter and bottom. Does not cut on the outside diameter. Cuts metal on the fish without cutting the casing.

Type E
Used where clearances are limited. Cuts on the outside diameter and bottom. Does not cut on the inside diameter. Used to wash over a fish or cut metal, formation, or cement in an open hole.

Type F
Used to size and dress the top of a fish inside the casing. Makes a tapered cut on the inside diameter and cuts on the bottom. Does not cut on the outside diameter.

Type G
Cuts on the inside and outside diameters and on the bottom. Used to wash over a fish or cut metal, formation, or cement in an open hole where inside clearances are limited.

Type H
Cuts on the inside and outside diameters and on the bottom. Used to wash over a fish or cut metal, formation, or cement in an open hole where outside clearances are limited.

Type I
Cuts on the bottom only. Does not cut on the inside or outside diameters. Saw-tooth design allows maximum circulation. Used only for washing over and cutting formation.

Type J
Cuts on the outside diameter and bottom. Does not cut on the inside diameter. Saw-tooth design allows maximum circulation. Used only for washing over and cutting formation.

Type K
Cuts on the bottom only. Does not cut on the inside or outside diameters. Used only for washing over and cutting formation.

When ordering, please specify:

(1) Type of shoe
(2) Size, type, and weight of connection
(3) O.D. and I.D. of shoe


Type H


Type I


Type J


Type K

JUNK MILLS

Overview

Logan Junk Mills are hard-faced with sintered tungsten carbide particles that mill away stuck fish that can not be retrieved with conventional fishing methods. These tools are highly resistant to impact and their super rates of penetration result in fewer round trips. Their maximum useful life is enhanced by their self-sharpening feature.

Milling tool selection should be based on the ratio of milling edges to the material being milled, the replacement of milling edges as wear occurs, and the amount of circulation required to remove cuttings.

Logan Oil Tools supplies many types of milling tools, each well suited for a specific operation, including:

- Bladed Junk Mills
- Blunt Nose Tapered Mills
- Cement Junk Mills
- Concave “Cone Buster” Junk Mills
- Econo Mills
- Flat Bottom Junk Mills
- Long Nose Tapered Mills
- Pilot Mills
- Round Nose Mills
- Skirted Junk Mills
- String Mills
- Super Junk Mills
- Tapered Mills
- Watermelon Mills

CASING ROLLERS

Overview

The Logan Casing Roller repairs and restores dented, collapsed, or buckled tubing or casing of any size and weight to its original inside diameter and roundness.

Construction

The Logan Casing Roller is composed of a mandrel with eccentric roll surfaces, three heavy-duty, precision ground rollers, a nose cone, and rugged ball bearings. Special wear resistant alloy steels are used in the manufacture of the tool. The rollers are hardened to improve their wear resistance. The rollers are secured to the mandrel by the nose cone that is retained by rugged ball bearings. Circulation capabilities are provided by a through bore.

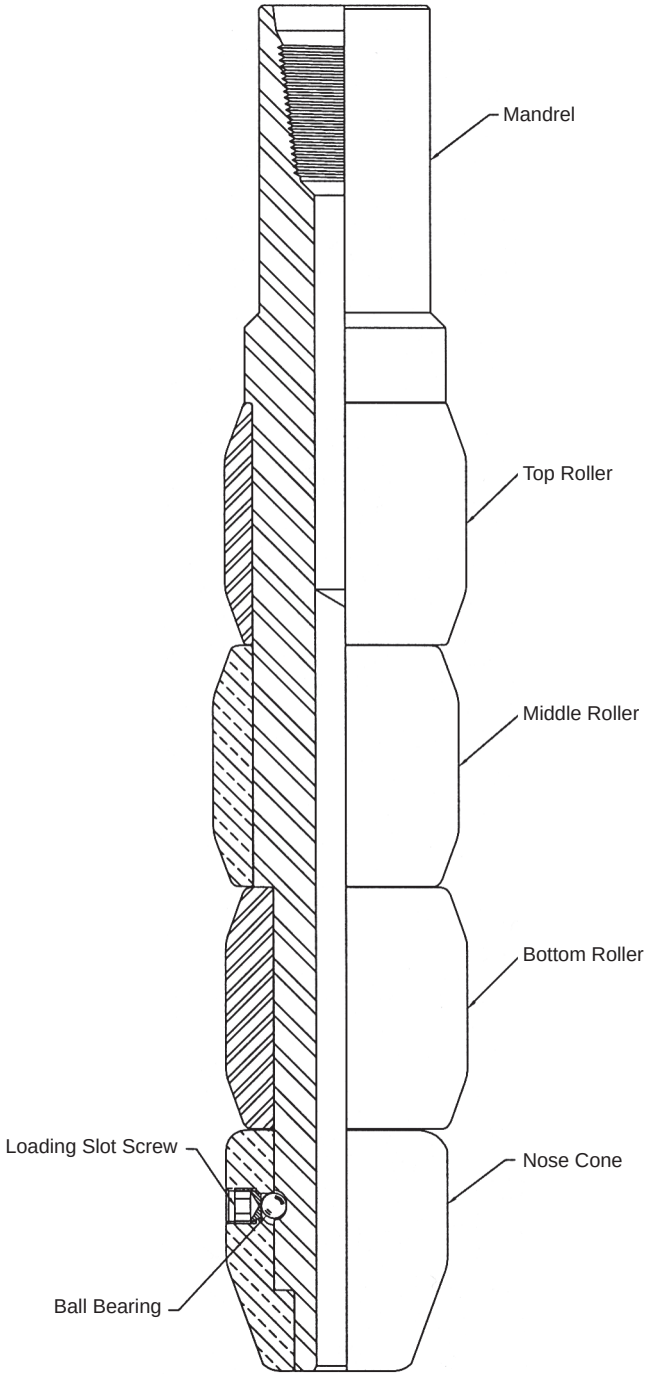
Logan Casing Rollers can be redressed with larger size rollers to restore larger size casing. The casing roller can be used in right-hand or left-hand rotation and can be ordered with either right- or left-hand connections. Special nose cones can be ordered with a tool joint connection so that lower stinger assemblies can be run if desired.

Operation

Good fluid circulation and slow rotary speeds make the operation of the Logan Casing Roller a simple, effective process. The casing roller is made up to the bottom of the drill string. Slowly lower and rotate the string until the damaged section is reached. Begin circulation and continue to slowly lower the string while increasing rotation speed. The tapered nose cone will guide the tool and allow it to enter and open the collapsed section. Adequate downward pressure must be maintained. Too little pressure will cause wear on the tool without restoring the casing. If string weight is insufficient for downward progress, add drill collars.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Casing O.D. and weight
(3) Top connection, if other than standard



CASING ROLLERS

CASING SIZE TO ROLL		2-3/8 Tbg	2-7/8 Tbg	3-1/2 Tbg	4 3-1/2 LP 4 Tbg	4-1/2 4-3/4 5	5-1/2 5-3/4 6	6-5/8 7
TOP CONNECTION		… …	1-13/16 WFJ	API 1-1/4 Reg	API 2-3/8 Reg	API 2-3/8 Reg	API 2-7/8 Reg	API 3-1/2 Reg
CIRCULATION HOLE		3/8	3/8	5/16	1/4	1/2	5/8	1
ROLLER LENGTH		3	3	3	4	4	5	6
COMPLETE ASSEMBLY	Logan Part No.	502-238	502-288	502-350	502-400	502-450	502-550	502-663
	Bowen No.	28802	26395	29046	28963	20660	20910	20920
MANDREL	Logan Part No.	W1000	W1001	W1002	W1003	W1004	W1005	W1006
	Bowen No.	28803	26396	29501	28964	20661	20911	20921
NOSE CONE	Logan Part No.	W2000	W2001	W2002	W2003	W2004	W2005	W2006
	Bowen No.	28807	26400	29050	28965	20662	20912	20922
BOTTOM ROLLER	Logan Part No.	W3000	W3001	W3002	W3003	W3004	W3005	W3006
	Bowen No.	28806	26399	29049	28966	20663	20913	20923
MIDDLE ROLLER	Logan Part No.	W4000	W4001	W4002	W4003	W4004	W4005	W4006
	Bowen No.	28805	26398	29048	28967	20664	20914	20924
TOP ROLLER	Logan Part No.	W5000	W5001	W5002	W5003	W5004	W5005	W5006
	Bowen No.	28804	26397	29047	28968	20665	20915	20925
BALL BEARINGS	Logan Part No.	W6000	W6000	W6002	W6003	W6003	W6003	W6006
	Bowen No.	17294	17294	27940	20666	20666	20666	20926
	No. Req'd	9	13	9	7	9	13	15
SET SCREW (LOADING SLOT)	Logan Part No.	W7000	W7001	W7002	W7005	W7005	W7005	W7006

CASING SIZE TO ROLL		7-5/8 8-5/8	9 9-5/8 10	10-3/4 11-3/4 12	13 13-3/8	16 18-5/8		
TOP CONNECTION		API 4-1/2 Reg	API 4-1/2 Reg	API 6-5/8 Reg	API 6-5/8 Reg	API 6-5/8 Reg		
CIRCULATION HOLE		1-1/4	1-1/2	1-3/4	2	2		
ROLLER LENGTH		7	8	9	10	11		
COMPLETE ASSEMBLY	Logan Part No.	502-763	502-900	502-1075	502-1300	502-1600		
	Bowen No.	20930	20940	20950	20960	20970		
MANDREL	Logan Part No.	W1007	W1008	W1009	W1010	W1011		
	Bowen No.	20931	20941	20951	20961	20971		
NOSE CONE	Logan Part No.	W2007	W2008	W2009	W2010	W2011		
	Bowen No.	20932	20942	20952	20962	20972		
BOTTOM ROLLER	Logan Part No.	W3007	W3008	W3009	W3010	W3011		
	Bowen No.	20933	20943	20953	20963	20973		
MIDDLE ROLLER	Logan Part No.	W4007	W4008	W4009	W4010	W4011		
	Bowen No.	20934	20944	20954	20964	20974		
TOP ROLLER	Logan Part No.	W5007	W5008	W5009	W5010	W5011		
	Bowen No.	20935	20945	20955	20965	20975		
BALL BEARINGS	Logan Part No.	W6007	W6007	W6007	W6010	W6010		
	Bowen No.	20936	20936	20936	20966	20966		
	No. Req'd	12	16	24	21	28		
SET SCREW (LOADING SLOT)	Logan Part No.	W7007	W7007	W7009	W7010	W7011		
	Bowen No.							

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

CASING ROLLER RANGE SHEET

CASING DATA		UPPER ROLLER			MIDDLE ROLLER		
SIZE	CASING WEIGHT	PART NO.	OUTSIDE DIA.	SEQ. NO.	PART NO.	OUTSIDE DIA.	SEQ. NO.
2-3/8	4.6	W5000 28804	1.750	001	W4000 28805	1.938	001
2-7/8	6.4	W5001 26397	2.1871	001	W4001 26398	2.360	001
3-1/2	7.7	W5002 29047	2.8121	001	W4002 29048	2.674	001
4	9.5	W5003 28968	3.219	001	W4003 28967	3.281	001
4-1/2	9.5	W5004 20665	3.688	001	W4004 20664	3.875	002
	11.6					3.688	001
	13.6					3.526	003
4-3/4	15.8					3.875	001
5	11.5		4.250	002		4.250	008
	13.0					4.114	005
	15.0					4.192	006
	17.7		4.000	004		3.976	007
	18.0					3.965	004
	21.0		3.688	001		4.000	009
5-1/2	13.0	W5005 20915	4.662	005	W4005 20914	4.554	004
	14.0					4.738	005
	15.0					4.666	003
	15.5		4.609	001			
	17.0					4.802	001
	20.0		4.359	002		4.574	002
	23.0					4.358	006
5-3/4	14.0		4.875	004		5.082	007
	17.0					4.894	008
	19.5		4.662	005			
	22.5					4.694	009
6	15.0		5.125	006		5.300	010
	16.0					5.250	011
	18.0					5.100	012
	20.0					4.956	013
	23.0		4.875	004		4.982	014
6-5/8	17.0	W5006 20925	5.734	007	W4006 20924	5.910	001
	20.0					5.745	002
	22.0		5.609	002			
	24.0					5.609	003
	26.0					5.478	004
	26.0					5.442	005
	28.0		5.359	003		5.350	006
	29.0					5.547	007
	32.0					5.375	008
7	17.0		6.250	004		6.202	009
	20.0					6.038	010
	22.0					6.164	011
	23.0		6.000	001		6.108	012
	24.0					6.048	013
	26.0		5.830	006		6.094	014
	28.0					5.970	015
	29.0					5.910	001
	30.0					5.854	016
	32.0		5.734	007		5.830	017
	35.0		5.609	002		5.776	018
	38.0					5.609	003
	40.0					5.442	005

CASING ROLLER RANGE SHEET

CASING DATA		LOWER ROLLER			NOSE CONE		
SIZE	CASING WEIGHT	PART NO.	OUTSIDE DIA.	SEQ. NO.	PART NO.	OUTSIDE DIA.	SEQ. NO.
2-3/8	4.6	W3000 28806	1.750	001	W2000 28807	1.562	001
2-7/8	6.4	W3001 26399	2.187	001	W2001 26400	1.875	001
3-1/2	7.7	W3002 29049	2.812	001	W2002 29050	2.437	001
4	9.5	W3003 28966	3.219	001	W2003 28965	2.875	001
4-1/2	9.5	W3004 20663	3.688	001	W2004 20662	3.125	001
	11.6						
	13.6						
4-3/4	15.8						
5	11.5		4.250	002			
	13.0						
	15.0		4.000	004			
	17.7						
	18.0						
	21.0		3.688	001			
5-1/2	13.0	W3005 20913	4.662	005	W2005 20912	3.750	001
	14.0						
	15.0						
	15.5		4.609	001			
	17.0						
	20.0		4.359	002			
	23.0						
5-3/4	14.0		4.875	003			
	17.0						
	19.5		4.662	005			
	22.5						
6	15.0		5.125	004			
	16.0						
	18.0						
	20.0						
	23.0		4.875	003			
6-5/8	17.0	W3006 20923	5.734	005	W2006 20922	5.000	002
	20.0						
	22.0		5.609	002			
	24.0						
	26.0						
	26.0						
	28.0		5.359	003			
	29.0						
	32.0						
7	17.0		6.250	004			
	20.0						
	22.0					5.500	001
	23.0		6.000	001			
	24.0						
	26.0						
	28.0		5.830	006			
	29.0						
	30.0						
	32.0		5.734	005			
	35.0						
	38.0		5.609	002			
	40.0					5.000	002

CASING DATA		UPPER ROLLER			MIDDLE ROLLER		
SIZE	CASING WEIGHT	PART NO.	OUTSIDE DIA.	SEQ. NO.	PART NO.	OUTSIDE DIA.	SEQ. NO.
7-5/8	20.0	W5007 20935	6.500	001	W4007 20934	6.875	001
	24.0					6.676	002
	26.4					6.562	003
	29.7		6.188	002		6.686	004
	33.7					6.468	005
	39.0					6.188	006
8-5/8	24.0		7.562	003		7.758	007
	28.0					7.594	008
	32.0		7.375	004			
	36.0					7.402	009
	38.0					7.302	010
	40.0		7.125	005		7.452	011
	43.0					7.304	012
	44.5					7.250	013
	49.0					7.024	014
9	34.0	W5008 20945	8.000	003	W4008 20944	7.676	009
	38.0		7.718	002		7.768	011
	40.0					7.676	009
	45.0		7.343	001		7.812	010
	55.0					7.375	004
9-5/8	29.3		8.500	004		8.720	005
	32.3					8.696	006
	36.0					8.438	007
	40.0		8.250	005		8.514	008
	43.0					8.354	001
	47.0		8.000	003		8.456	003
	53.5					8.164	002
10	33.0		8.812	006		9.050	012
10-3/4	32.7	W5009 20955	9.500	001	W4009 20954	9.728	001
	40.0					9.444	002
	40.5						
	45.0					9.254	003
	45.5						
	48.0					9.148	004
	51.0		9.250	002		9.294	005
	54.0					9.162	006
	55.5					9.114	007
11-3/4	38.0		10.250	003		10.896	008
	42.0					10.754	009
	47.0					10.594	010
	54.0					10.354	011
	60.0					10.138	012
12	40.0		10.750	004		10.862	013
13	40.0	W5010 20965	11.625	002	W4010 20964	11.846	006
	45.0					11.677	002
	50.0					11.534	003
	54.0					11.410	004
13-3/8	48.0		12.000	001		12.024	005
	54.5					11.812	001
	61.0					11.625	007
	68.0		11.626	002		11.812	001
	72.0					11.677	002
	83.0					11.320	009
	85.0					11.288	010
16	55.0	W5011 20975	14.500	001	W4011 20974	14.844	001
	65.0					14.554	002
	75.0					14.344	003
	84.0					14.114	004
18-5/8	78.0		17.000	002		17.304	005
	87.5					17.104	006
	96.6					16.904	007

CASING DATA		LOWER ROLLER			NOSE CONE		
SIZE	CASING WEIGHT	PART NO.	OUTSIDE DIA.	SEQ. NO.	PART NO.	OUTSIDE DIA.	SEQ. NO.
7-5/8	20.0	W3007 20933	6.500	001	W2007 20932	5.375	001
	24.0						
	26.4						
	29.7		6.188	002		6.500	002
	33.7						
	39.0						
8-5/8	24.0		7.562	003			
	28.0						
	32.0		7.375	004		6.000	003
	36.0						
	38.0						
	40.0		7.125	005			
	43.0						
	44.5						
	49.0						
9	34.0	W3008 20943	8.000	003	W2008 20942	6.625	001
	38.0		7.718	002			
	40.0						
	45.0		7.343	001			
	55.0						
9-5/8	29.3		8.500	004			
	32.3						
	36.0						
	40.0		8.250	005			
	43.0						
	47.0		8.000	003			
	53.5						
10	33.0		8.812	006			
10-3/4	32.7	W3009 20953	9.500	001	W2009 20952	8.250	001
	40.0						
	40.5						
	45.0						
	45.5						
	48.0						
	51.0		9.250	002		8.750	002
	54.0						
	55.5						
11-3/4	38.0		10.250	003			
	42.0						
	47.0						
	54.0						
	60.0						
12	40.0		10.750	004			
13	40.0	W3010 20963	11.625	002	W2010 20962	10.000	001
	45.0						
	50.0						
	54.0						
13-3/8	48.0		12.000	001			
	54.5						
	61.0						
	68.0		11.626	002			
	72.0						
	83.0						
	85.0						
16	55.0	W3011 20973	14.500	001	W2011 20972	14.000	001
	65.0						
	75.0						
	84.0						
18-5/8	78.0		17.000	002			
	87.5						
	96.6						

TUBING SCRAPERS

Overview

Obstruction-free tubing is critical for the efficient operation of many downhole tools during drilling, fishing, completion, or wireline jobs. The Logan Tubing Scraper removes rust, scale, cement, mud, bullets, paraffin, perforation burrs, and other obstructions or foreign material from inside the walls of tubing. Logan Tubing Scrapers condition 2-7/8, 3-1/2, and 4-1/2 inch O.D. tubing.

Construction

The one-piece mandrel design is rugged and easy to maintain. The splined body locks each blade into an integral part of the body to insure absolute safety and security.

Two sets of blades provide maximum cutting surface area whether the tool is run for rotary or vertical operations, or run on drill pipe or wireline. The scraper blades are designed with a long taper for passing through tubing connections with minimal chance of hang up. Each blade is constructed from high quality cast steel for excellent scraping characteristics and long-lasting durability.

Assembly

The tubing scraper can be quickly and easily assembled and disassembled in the field.

Slide the upper blade into the mandrel, align the holes in the blade with the holes in the mandrel and install the blade retaining screws. Then slide the lower blade onto the mandrel, align the holes in the blade with those in the mandrel and install the blade retaining screws.

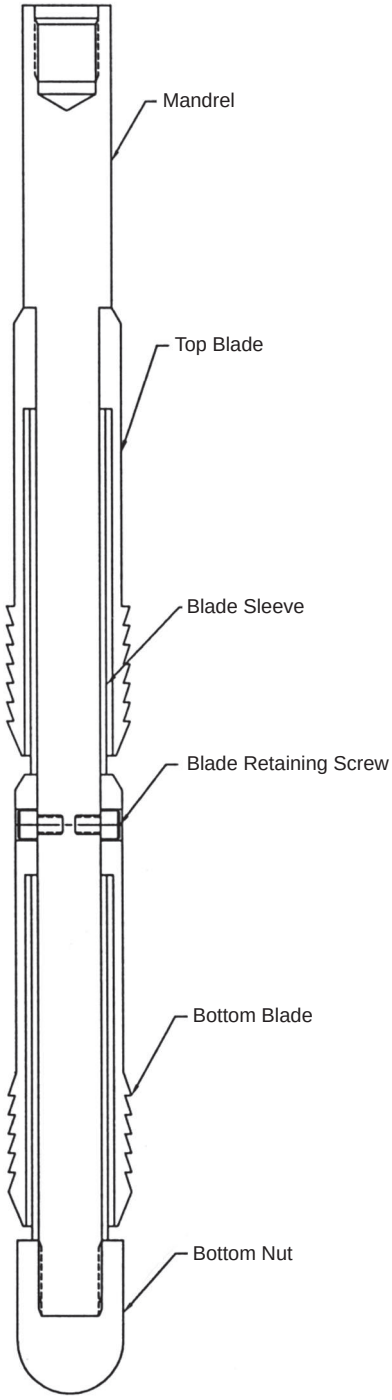
Install the bottom nut to complete the assembly.

Operation

The Logan Tubing Scraper is normally made up to the work string. Simply run the scraper into the tubing using rotation or spudding to clean the inside of the pipe.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Size and weight of tubing



TUBING SCRAPERS

SIZE TO SCRAPE (O.D.)		2-7/8 Tbg	3-1/2 Tbg	4 Tbg				
WEIGHT (LBS)		9.5 to 15.1						
CONNECTION		1-13/16 WFJ	1-1/4 API Reg	1-1/4 API Reg				
TOOL O.D.		2.10	2-1/4	2-1/4				
COMPLETE ASSEMBLY	Logan Part No.	508-213	508-225	508-225				
MANDREL	Logan Part No.	AX1006	AX1007	AX1007				
TOP BLADE	Logan Part No.	AX2006-A	AX2007-A	AX5007-A				
BOTTOM BLADE	Logan Part No.	AX2006-B	AX2007-B	AX5007-B				
BLADE SLEEVE	Logan Part No.	AX11000	AX11001	AX11001				
	No. Req'd	2	2	2				
BLADE RETAINING SCREW	Logan Part No.	AK4001	AK4001	AK4001				
	No. Req'd	4	4	4				
BULLNOSE NUT	Logan Part No.	AX12000	AX12000	AX12000				

OPTIONAL COMPONENTS

BOTTOM ADAPTER	Logan Part No.	AX13000	AX13001	AX13001				

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

When ordering, please specify:

(1) Name and number of assembly or part
(2) Size and weight of tubing

Recommended Spare Parts:

(1) 1 set of Blades for each size tubing

CASING SCRAPERS

Overview

Obstruction-free casing is critical for the efficient operation of many downhole tools during drilling, fishing, completion, or wireline jobs. The Logan Casing Scraper removes rust, scale, cement, mud, bullets, paraffin, perforation burrs, and other obstructions or foreign material from inside the walls of casing. Logan Casing Scrapers are available to condition pipe ranging from 4-1/2 to 13-3/8 inches O.D.

Construction

The one-piece mandrel design is rugged and easy to maintain. The splined body locks each blade into an integral part of the body to insure absolute safety and security.

Two sets of blades provide maximum cutting surface area whether the tool is run for rotary or vertical operations, or run on drill pipe or wireline. The scraper blades are designed with a long taper for passing through casing connections with minimal chance of hang up. Each blade is constructed from high quality cast steel for excellent scraping characteristics and long-lasting durability.

Assembly

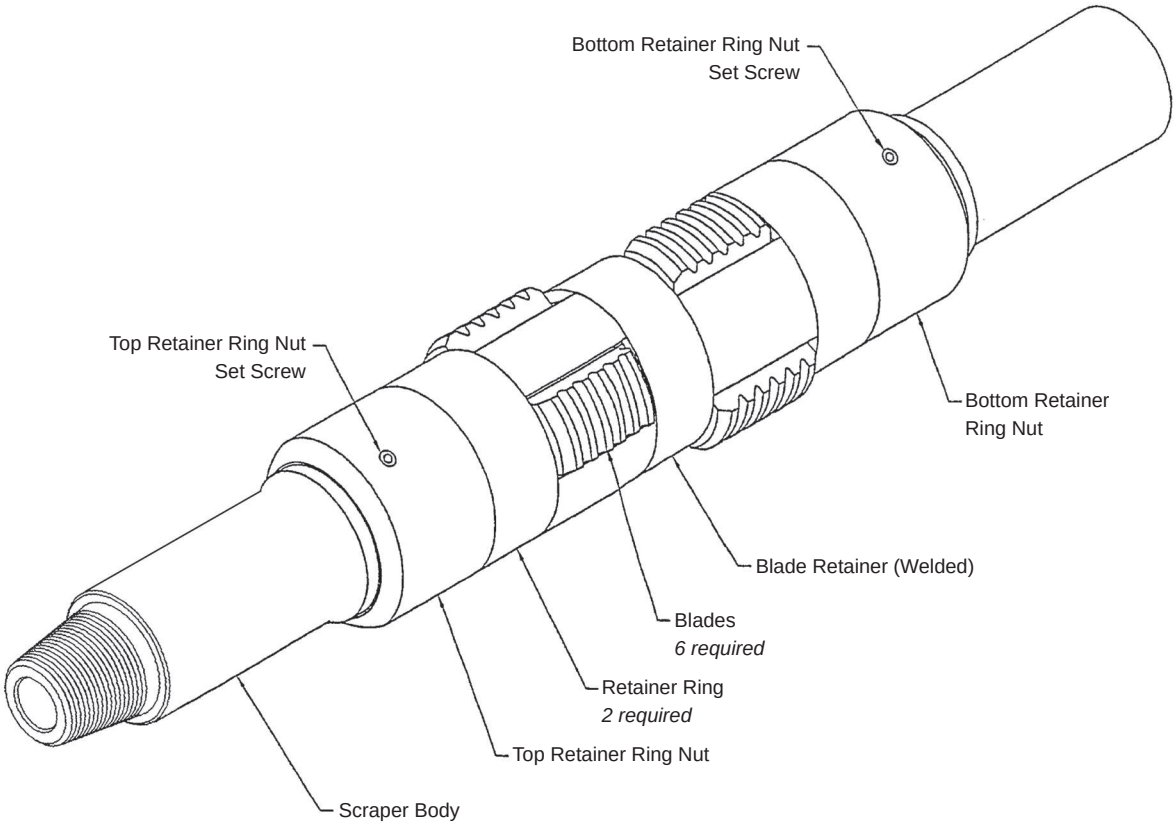
The Logan Casing Scraper is easily assembled using standard shop tools. No special tools are required. The blades and springs are held in place by the retainer rings and retainer ring nuts. The upper, or pin end connection on the mandrel, and the retainer nut are left-hand to prevent back off downhole during right-hand rotation should the set screws loosen during operation.

Operation

The Logan Casing Scraper is normally made up to the work string with a drill bit attached to the bottom connection. Simply run the scraper into the casing or tubing using rotation or spudding to clean the inside of the pipe.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Size and weight of casing
(3) Size and type of connection



CASING SCRAPERS

SIZE TO SCRAPE (O.D.)		4-1/2	5-1/2	7	9-5/8	10-3/4	13-3/8
WEIGHT (LBS)		9.5 to 15.1 5 13.0 to 26.7	14.0 to 20.0	17.0 to 38.0	32.2 to 64.9	32.75 to 73.2	48.0 to 98.0
CONNECTION		2-3/8 API Reg	2-7/8 API Reg	3-1/2 API Reg	4-1/2 API Reg	6-5/8 API Reg	6-5/8 API Reg
TOOL O.D.		3-5/8	4-1/2	5-3/8	7-1/2	8-3/4	11
COMPLETE ASSEMBLY	Logan Part No.	508-361	508-450	508-538	508-750	508-875	508-1100
MANDREL	Logan Part No.	AX800	AX10011	AX1002	AX1003	AX1004	AX1005
BLADE	Logan Part No.	AX2000	AX2001	AX2002	AX2003	AX2004	AX2005
	No. Req'd	6	6	6	6	8	6
SPRING	Logan Part No.	AX802	AX40011	AX4000	AX4003	AX40013	AX4005
	No. Req'd	18	18	30	30	32	30
TOP RETAINER RING NUT (LEFT-HAND THREAD)	Logan Part No.	AX7000	AX7001	AX7002	AX7003	AX7004	AX7005
BTM RETAINER RING NUT (RIGHT-HAND THREAD)	Logan Part No.	AX8000	AX8001	AX8002	AX8003	AX8004	AX8005
RETAINER RING	Logan Part No.	AX9000	AX9001	AX9002	AX9003	AX9004	AX9005
	No. Req'd	2	2	2	2	2	2
SET SCREW	Logan Part No.	P12004	AX10001	AX10002	AX10002	AX10002	AX10004
	No. Req'd	2	2	2	2	2	2

OPTIONAL DRESS FOR SIZE (O.D.)		5-1/2	5-3/4	7-5/8	…	11-3/4	…
WEIGHT (LBS)		20.0 to 26.0	14.0 to 24.4	24 to 47.1	…	42 to 87.2	…
BLADE	Logan Part No.	AX2000-002	AX30012	AX3002	…	AX3004	…
	No. Req'd	…	6	6	…	8	…
SPRING	Logan Part No.	AX802	AX40012	AX4000	…	…	…
	No. Req'd	…	18	30	…	…	…

OPTIONAL DRESS FOR SIZE (O.D.)		…	6-5/8	…	…	…	…
WEIGHT (LBS)		…	17 to 24	…	…	…	…
BLADE	Logan Part No.	…	AX30013	…	…	…	…
	No. Req'd	…	6	…	…	…	…
SPRING	Logan Part No.	…	AX40013	…	…	…	…
	No. Req'd	…	18	…	…	…	…

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

When ordering, please specify:

(1) Name and number of assembly or part
(2) Size and weight of casing
(3) Size and type of connection

Recommended Spare Parts:

(1) 1 set of Blades for each size casing

Note: Larger sizes are available upon request.

TYPE A PACKER TYPE TUBING PATCHES

Overview

This Logan Type A Packer Type Tubing Patch is used to repair a section of damaged tubing without having to remove the entire string from the hole to replace it. This external catch tool is designed to engage a previously prepared fish, pack it off, and become a permanent part of the tubing string. Positive engagement and seal-off in either direction provides a permanent, rigid connection that will remain leakproof for years, yet is easily removable if the need arises.

The Logan Type A Packer Type Tubing Patches will not restrict the bore of the tubing and are available in popular tubing sizes from 2-3/8 through 3-1/2 inches O.D.

Construction

The simple design of the Logan Type A Packer Type Tubing Patch is composed of five outside parts and four internal parts. The simple design of the Logan Type A Packer Type Tubing Patch matches its simple operation.

Operation

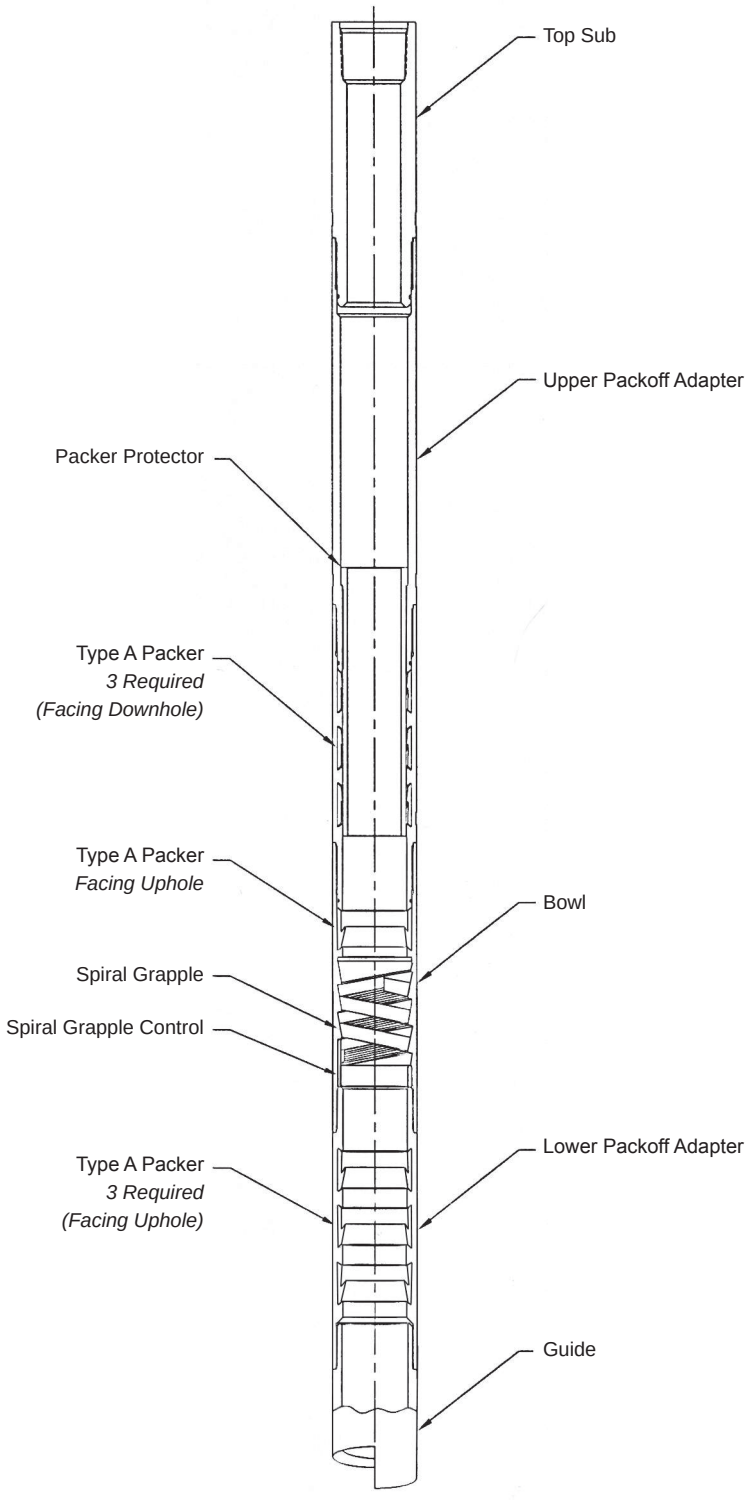
Prepare the upper end of the fish prior to running the Tubing Patch. Lower the tool into the hole until the depth of the fish is reached. Rotate the running string slowly to the right as it is slowly lowered. Combined slow rotation and lowering is important to the proper operation of the tool and should be continued until the fish has entered the tool. Watch the rig weight indicator to determine when the tool has reached the lower end of the top sub. Complete engagement can be assured by allowing the Tubing Patch to support 10,000 to 15,000 lbs. of weight. Pick up the running string to remove the weight from the Tubing Patch while letting the torque slacken from the running string.

If it becomes necessary to remove the tubing patch, bump down to release the grapple and slowly raise the string while rotating to the right. Continue rotation until the patch has cleared the tubing and lift from hole.

Ordinary corrosion does not affect the Tubing Patch and it may be released years after its initial setting. However, if the Tubing Patch has been cemented in place and cement has invaded the internal working parts, the patch may not release. In such cases, the patch can be milled away or by cutting the string below the patch for removal.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Size and weight of tubing



TYPE A PACKER TYPE TUBING PATCHES

O.D. TUBING		2-3/8	2-7/8	3-1/2				
O.D. PATCH		3-1/8	3-5/8	4-11/16				
COMPLETE ASSEMBLY	Logan Part No.	503-002	503-003	503-004				
	Bowen No.	…	…	…				
TOP SUB	Logan Part No.	Z1002	Z1003	Z10035				
	Bowen No.	…	36295	…				
TOP SUB SEAL	Logan Part No.	568-143	568-233	568241				
	Bowen No.	568143	568233	568241				
BOWL	Logan Part No.	Z2002	Z2003	Z20035				
	Bowen No.	…	36827	…				
BOWL SEAL	Logan Part No.	568-146	568-235	568-241				
	Bowen No.	568146	568235	568241				
	No. Req'd	2	1	1				
PACKER PROTECTOR	Logan Part No.	Z3002	Z3003	Z30035				
	Bowen No.	…	36296	…				
PACKER	Logan Part No.	A4001	A4005	A4019				
	Bowen No.	9309	8550	…				
	No. Req'd	7	7	7				
GRAPPLE	Logan Part No.	A5001	A5005	A5019				
	Bowen No.	9307	9272	6662				
GRAPPLE CONTROL	Logan Part No.	A6001	A6005	A6019				
	Bowen No.	9308	9273	6674				
GUIDE	Logan Part No.	A3001	A3005	A3019				
	Bowen No.	9312	9275	6667				
UPPER PACK-OFF ADAPTER	Logan Part No.	Z9002	Z9003	Z90035				
	Bowen No.	…	36297	…				
LOWER PACK-OFF ADAPTER	Logan Part No.	Z10002	Z10003	Z100035				
	Bowen No.	…	36298	…				
PACK-OFF ADAPTER EXTENSION	Logan Part No.	Z11002	…	Z110035				
	Bowen No.	…	…	…				

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

Note: H_2S casing patches available upon request.

When ordering, please specify:
(1) Complete assembly or part number
(2) Size and type of connection

TYPE A PACKER TYPE CASING PATCHES

Overview

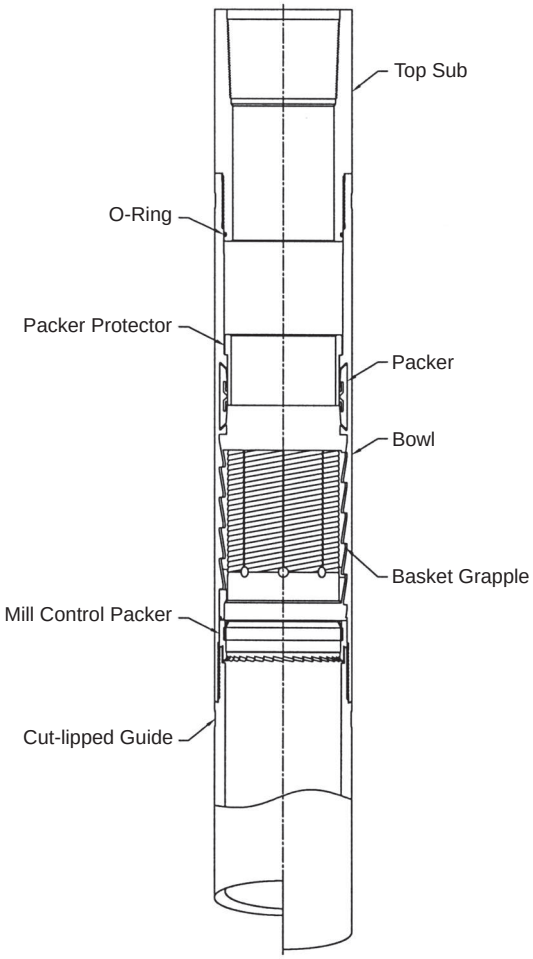
This Logan Type A Packer Type Casing Patch is used to repair a section of damaged casing without having to remove the entire string from the hole to replace it. This external catch tool is designed to engage a previously prepared fish, pack it off, and become a permanent part of the casing string. Positive engagement and seal-off in either direction provides a permanent, rigid connection that will remain leakproof for years, yet is easily removable if the need arises.

The Logan Type A Packer Type Casing Patches will not restrict the bore of the casing and are available in popular casing sizes from 4-1/2 to 13-5/8 inches O.D.

Construction

The simple design of the Logan Type A Packer Type Casing Patch matches its simple operation and is composed of a top sub, bowl, type A packer, packer protector, grapple, grapple control, and a guide.

Logan Type A Packer Type Casing Patches are constructed of the highest quality alloy steels to provide many years of service in harsh well environments. The grapple is manufactured of high quality hardened alloy steel that is able to bite into the casing to provide a secure attachment to the existing casing in the well.



Assembly

The Logan Type A Packer Type Casing Patch can easily be assembled on the rig site where it will be used. Install the Type A Packer in the bowl slot, making sure it is properly seated in the slot. With counter-clockwise rotation, screw the grapple into the bowl. Continue to screw the grapple into the bowl until it is at least 1/4 inch past the counter bore provided for the grapple control. Align the tang slot in the bowl and grapple. Install the grapple control making sure the tang aligns with the slot in the bowl and grapple. Screw the guide into the bottom of the assembly. Install the packer protector and screw the top sub onto the top of the bowl to complete the assembly. Tighten all connections to the recommended torque before running the Type A Packer Casing Patch in the hole.

Operation

Prepare the upper end of the fish prior to running the Casing Patch. Lower the tool into the hole until the depth of the fish is reached. Rotate the running string slowly to the right as it is slowly lowered. Combined slow rotation and lowering is important to the proper operation of the tool and should be continued until the fish has entered the tool. Watch the rig weight indicator to determine when the tool has reached the lower end of the top sub. Complete engagement can be assured by allowing the Casing Patch to support 15,000 to 20,000 pounds of weight. Pick up the running string to remove the weight from the Casing Patch while letting the torque slacken from the running string.

If it becomes necessary to remove the casing patch, bump down to release the grapple and slowly raise the string while rotating to the right. Continue rotation until the patch has cleared the casing and lift from hole.

Ordinary corrosion does not affect the Casing Patch and it may be released years after its initial setting. However, if the Casing Patch has been cemented in place and cement has invaded the internal working parts, the patch may not release. In such cases, the patch can be milled away or by cutting the string below the patch for removal.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Size and weight of casing
(3) Size and type of connection

TYPE A PACKER TYPE CASING PATCHES

O.D. CASING		4-1/2 Csg	5	5-1/2	5-3/4	6	6-5/8	7
O.D. PATCH		5-3/4	6-1/4	6-13/16	7-1/16	7-5/16	7-15/16	8-3/8
COMPLETE ASSEMBLY	Logan Part No.	503-005	503-006	503-007	503-008	503-009	503-010	503-011
	Bowen No.	11215	11220	11225	…	11230	11235	11240
TOP SUB	Logan Part No.	Z1005	Z1006	Z1007	Z1008	Z1009	Z1010	Z1011
	Bowen No.	5186	4866	4886	…	4966	4986	5026
TOP SUB SEAL	Logan Part No.	568-247	568-251	568-255	568-257	568-259	568-261	568-262
	Bowen No.	568247	568251	568255	568257	568259	568261	568262
	No. Req'd	1	1	1	1	1	1	1
BOWL	Logan Part No.	Z2005	Z2006	Z2007	Z2008	Z2009	Z2010	Z2011
	Bowen No.	11217	11222	11227	…	11232	11237	11242
PACKER PROTECTOR	Logan Part No.	Z3005	Z3006	Z3007	Z3008	Z3009	Z3010	Z3011
	Bowen No.	5188	4868	4888	…	4968	4988	5028
PACKER	Logan Part No.	Z4005	Z4006	Z4007	Z4008	Z4009	Z4010	Z4011
	Bowen No.	11216	11221	11226	…	11231	11236	11241
BASKET GRAPPLE	Logan Part No.	Z5005	Z5006	Z5007	Z5008	Z5009	Z5010	Z5011
	Bowen No.	11218	11223	11228	…	11233	11238	11243
GRAPPLE CONTROL	Logan Part No.	Z6005	Z6006	Z6007	Z6008	Z6009	Z6010	Z6011
	Bowen No.	11459	11461	11463	…	11465	11467	11469
GUIDE	Logan Part No.	Z7005	Z7006	Z7007	Z7008	Z7009	Z7010	Z7011
	Bowen No.	11219	11224	11229	…	11234	11239	11244

O.D. CASING		7-5/8	8-5/8	9-5/8	10-3/4	11-3/4	13-3/8	13-5/8
O.D. PATCH		9	10-1/16	11-1/8	12-5/16	13-3/8	15-1/8	16
COMPLETE ASSEMBLY	Logan Part No.	503-012	503-013	503-014	503-015	503-016	503-017	503-018
	Bowen No.	11245	11250	11255	11260	39136		80669
TOP SUB	Logan Part No.	Z1012	Z1013	Z1014	Z1015	Z1016	LP1007	Z1018
	Bowen No.	5046	5151	5206	5162	…		…
TOP SUB SEAL	Logan Part No.	568-265	568-269	568-273	568-274	…	568-280 Qty1	…
	Bowen No.	568265	568269	568273	568274	…	568-280 Qty2	…
	No. Req'd	1	1	1	1	…		…
BOWL	Logan Part No.	Z2012	Z2013	Z2014	Z2015	Z2016	LP2007	Z2018
	Bowen No.	11247	…	11257	11262	…		…
PACKER PROTECTOR	Logan Part No.	Z3012	Z3013	Z3014	Z3015	Z3016	LP7007	Z3018
	Bowen No.	5048	5153	5208	5164	…		…
PACKER	Logan Part No.	Z4012	Z4013	Z4014	Z4015	Z4016	AT6007	Z4018
	Bowen No.	11246	11251	11256	11261	…		…
BASKET GRAPPLE	Logan Part No.	Z5012	Z5013	Z5014	Z5015	Z5016	AT11007	Z5018
	Bowen No.	11248	11253	11258	11263	39142		…
GRAPPLE CONTROL	Logan Part No.	Z6012	Z6013	Z6014	Z6015	Z6016	AT10007	Z6018
	Bowen No.	11471	11473	11475	11477	39141		…
GUIDE	Logan Part No.	Z7012	Z7013	Z7014	Z7015	Z7016	LP3007	Z7018
	Bowen No.	11249	…	11259	11264	39144		…

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

Note:
(1) H2S casing patches available upon request.
(2) Type C Tungsten Carbide Mill Guides available upon request.

When ordering, please specify:
(1) Complete assembly or part number
(2) Size and type of connection

HIGH PRESSURE TYPE L PACKER TYPE CASING PATCHES

Overview

Logan High Pressure Type L Packer Type Casing Patches are designed to engage and seal off a properly prepared casing string. The Casing Patch design leaves the operator with a casing string that has a full-bore internal diameter. Logan High Pressure Type L Packer Type Casing Patches will not restrict the bore of the casing and are available in popular casing sizes from 4-1/2 to 13-5/8 inches OD. Larger size Casing Patches are available upon request.

The Logan High Pressure Type L Packer Type Casing Patches are available in 7,000, 10,000, and 12,000 psi working pressure ratings. All are designed to seal both internal and external pressure. Logan also manufactures a High Pressure Casing Patch that is rated at 15,000 psi working pressure. Lower and higher pressure Casing Patches of this design are available upon request.

Logan High Pressure Type L Packer Type Casing Patches are available with or without five-foot extension subs.

Construction

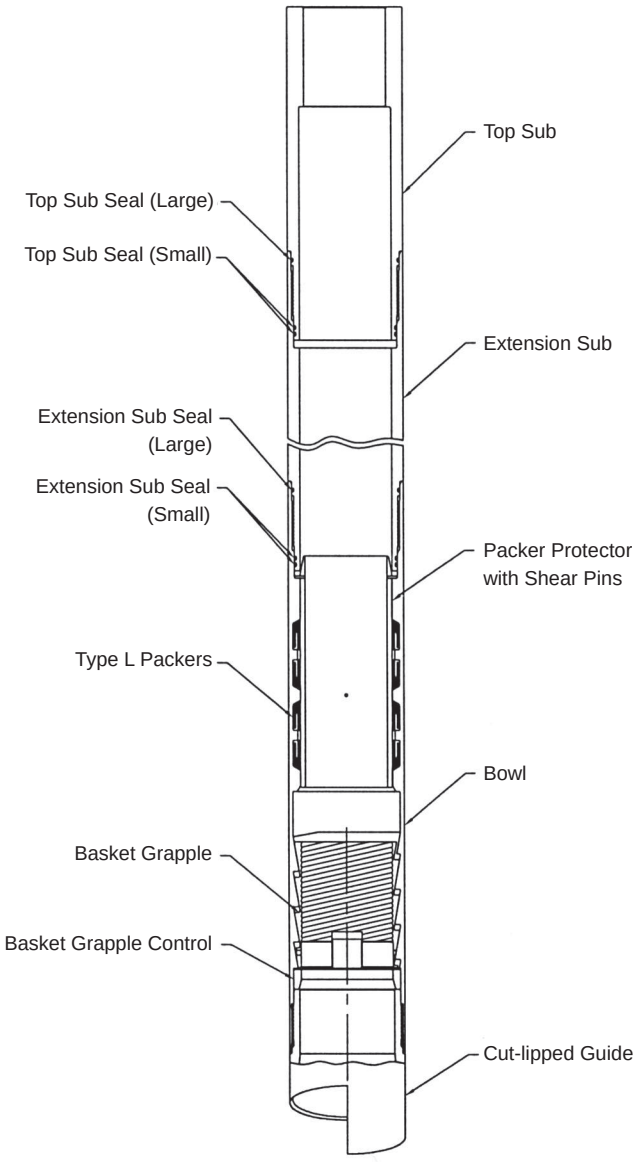
The tool is very similar in design and construction to the Logan Series 150 Overshot. A Top Sub, Bowl, and Guide make up the outer components of the assembly. A Basket Mill Control Packer, Basket Grapple, four Logan Type L Packers, Packer Protector, and Shear Pins are components inside the assembly. 4140 alloy steel is used in the manufacture of the major load bearing components. The Type L Packers are made of a blend of hydrogenated nitrile (HBNR) material that is compatible for service with most drilling and completion fluids, and is resistant to gas invasion and abrasion. They are rated at 275 °F (dry, with no circulation) and at 325 °F (with partial circulation).

Operation

Proper preparation of the casing to be patched is important to the success of the Logan High Pressure Type L Packer Type Casing Patch. The casing should be washed over to remove scale and splits and the pipe sized for a uniform sealing surface.

The properly assembled Casing Patch should be lowered to the top of the fish. Slow rotation combined with slow lowering is important to the operation of the assembly. Once the fish has entered the Casing Patch, slowly slack off the rotation until the Packer Protector bottoms out against the shoulder in the Top Sub and the casing is fully engaged in the patch. Apply a tensile load to the Casing Patch to set the grapple. The slips should then be set on the running string.

To test the patch, slowly engage the mud pumps so as not to slug the packers with excessive pressure. Then bring the pressure up to the desired test pressure.



Logan High Pressure Type L Packer Type Casing Patch for 7K, 10K, and 12K Assemblies

When ordering, please specify:

(1) Complete assembly or part number
(2) Size and type of connection
(3) With or without five-foot extensions

HIGH PRESSURE TYPE L PACKER TYPE CASING PATCHES — 7,000 PSI

O.D. CASING		4-1/2	5	5-1/2	5-3/4	6	6-5/8	7
O.D. PATCH		5-3/4	6-1/4	6-13/16	7-1/16	7-5/16	7-15/16	8-3/8
COMPLETE ASSEMBLY	Logan Part No.	509-709	509-710	509-700	509-701	509-712	509-713	509-711
TOP SUB	Logan Part No.	LP1009	LP1010	LP1000	LP1001	LP1012	LP1013	LP1011
TOP SUB SEAL	Logan Part No.	568-248	*	568-257	*	*	*	568-263
(SMALL)	No. Req'd	2	…	2	…	…	…	2
TOP SUB SEAL	Logan Part No.	568-251	*	568-257	*	*	*	568-265
(LARGE)	No. Req'd	1	…	1	…	…	…	1
BOWL	Logan Part No.	LP2009	LP2010	LP2000	LP2001	LP2012	LP2013	LP2011
GUIDE	Logan Part No.	LP3009	LP3010	LP3000	LP3001	LP3012	LP3013	Z7011
SHEAR PINS	Logan Part No.	AC14002	*	AC14002	*	*	*	AC14002
	No. Req'd	2	2	2	2	2	2	2
TYPE L PACKER	Logan Part No.	AT6009	AT6010	AT6000	AT6011	AT6012	AT6013	AT6001
	No. Req'd	4	4	4	4	4	4	4
PACKER PROTECTOR	Logan Part No.	AT7009	AT7010	AT7000	AT7001	AT7012	AT7013	ZL3011
GRAPPLE CONTROL	Logan Part No.	AT10009	AT10010	AT10000	AT10001	AT10012	AT10013	Z6011
GRAPPLE	Logan Part No.	AT11009	AT11010	AT11000	AT11001	AT11012	AT11013	Z5011

OPTIONAL

EXTENSION SUB	Logan Part No.	LPE1009	LPE1010	LPE1000	LPE1001	LPE1012	LPE1013	LPE1011
(5 feet long)								
EXTENSION SUB SEAL	Logan Part No.	568-248	*	568-257	*	*	*	568-263
(SMALL)	No. Req'd	2	…	2	…	…	…	2
EXTENSION SUB SEAL	Logan Part No.	568-251	*	568-257	*	*	*	568-265
(LARGE)	No. Req'd	1	…	1	…	…	…	1

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

Notes:
(1) H_2S casing patches available upon request.
(2) Higher pressure casing patches of this design are available upon request.
(3) Type C tungsten carbide mill guide available upon request.
(4) Larger size Casing Patches are available upon request.

When ordering, please specify:
(1) Complete assembly or part number
(2) Size and type of connection
(3) With or without five-foot extensions

HIGH PRESSURE TYPE L PACKER TYPE CASING PATCHES — 7,000 PSI

O.D. CASING		7-5/8	8-5/8	9-5/8	9-7/8	10-3/4	11-3/4	11-7/8
O.D. PATCH		9	10-1/16	11-1/4	11-9/16	12-5/16	13-3/8	13-7/8
COMPLETE ASSEMBLY	Logan Part No.	509-714	509-715	509-702	509-703	509-704	509-705	509-706
TOP SUB	Logan Part No.	LP1014	LP1015	LP1002	LP1003	LP1004	LP1005	LP1006
TOP SUB SEAL	Logan Part No.	*	*	568-274	568-274	568-275	*	568-278
(SMALL)	No. Req'd	…	…	2	2	2	…	2
TOP SUB SEAL	Logan Part No.	*	*	568-274	568-275	568-276	*	568-278
(LARGE)	No. Req'd	…	…	1	1	1	…	1
BOWL	Logan Part No.	LP2014	LP2015	LP2002	LP2003	LP2004	LP2005	LP2006
GUIDE	Logan Part No.	Z7012	LP3015	LP3002	LP3003	LP3004	LP3005	LP3006
SHEAR PINS	Logan Part No.	*	*	AC14002	AC14002	AC14002	*	AC14008
	No. Req'd	…	…	2	2	2	…	2
TYPE L PACKER	Logan Part No.	AT6014	AT6015	AT6002	AT6003	AT6004	AT6005	AT6006
	No. Req'd	4	4	4	4	4	4	4
PACKER PROTECTOR	Logan Part No.	AT7014	AT7015	AT7002	AT7003	AT6004	AT7005	AT7006
GRAPPLE CONTROL	Logan Part No.	Z6012	AT10015	AT10002	AT10003	AT9004	AT10005	AT10006
GRAPPLE	Logan Part No.	AT11014	AT11015	AT11002	AT11003	AT10004	AT11005	AT11006

OPTIONAL

EXTENSION SUB	Logan Part No.	LPE1014	LPE1015	LPE1002	LPE1003	LPE1004	LPE1005	LPE1006
(5 feet long)								
EXTENSION SUB SEAL	Logan Part No.	*	*	568-274	568-274	568-275	*	568-278
(SMALL)	No. Req'd	…	…	2	2	2	…	2
EXTENSION SUB SEAL	Logan Part No.	*	*	568-274	568-275	568-276	*	568-278
(LARGE)	No. Req'd	…	…	1	1	1	…	1

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

Notes:
(1) H_2S casing patches available upon request.
(2) Higher pressure casing patches of this design are available upon request.
(3) Type C tungsten carbide mill guide available upon request.
(4) Larger size Casing Patches are available upon request.

When ordering, please specify:
(1) Complete assembly or part number
(2) Size and type of connection
(3) With or without five-foot extensions

HIGH PRESSURE TYPE L PACKER TYPE CASING PATCHES — 7,000 PSI

O.D. CASING		13-3/8	13-5/8
O.D. PATCH		15-1/2	15-3/4
COMPLETE ASSEMBLY	Logan Part No.	509-707	509-708
TOP SUB	Logan Part No.	LP1007	LP1008
TOP SUB SEAL (SMALL)	Logan Part No.	568-279	568-280
	No. Req'd	2	2
TOP SUB SEAL (LARGE)	Logan Part No.	568-280	568-280
	No. Req'd	1	1
BOWL	Logan Part No.	LP2007	LP2008
GUIDE	Logan Part No.	LP3007	LP3008
SHEAR PINS	Logan Part No.	AC14002	AC14008
	No. Req'd	2	2
TYPE L PACKER	Logan Part No.	AT6007	AT6008
	No. Req'd	4	4
PACKER PROTECTOR	Logan Part No.	AT7007	AT7008
GRAPPLE CONTROL	Logan Part No.	AT10007	AT10008
GRAPPLE	Logan Part No.	AT11007	AT11008

OPTIONAL

EXTENSION SUB *(5 feet long)*	Logan Part No.	LPE1007	LPE1008
EXTENSION SUB SEAL (SMALL)	Logan Part No.	568-279	568-280
	No. Req'd	2	2
EXTENSION SUB SEAL (LARGE)	Logan Part No.	568-280	568-280
	No. Req'd	1	1

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

Notes:
(1) H_2S casing patches available upon request.
(2) Higher pressure casing patches of this design are available upon request.
(3) Type C tungsten carbide mill guide available upon request.
(4) Larger size Casing Patches are available upon request.

When ordering, please specify:
(1) Complete assembly or part number
(2) Size and type of connection
(3) With or without five-foot extensions

HIGH PRESSURE TYPE L PACKER TYPE CASING PATCHES — 10,000 PSI

O.D. CASING		4-1/2	5-1/2	7	9-5/8	9-7/8	10-3/4	13-3/8
O.D. PATCH		5-7/8	7	8-5/8	11.43	11-3/4	12-3/4	15-5/8
PRESSURE RATING (PSI)		10,000	10,000	10,000	10,000	10,000	10,000	10,000
COMPLETE ASSEMBLY	Logan Part No.	510L-005	510L-007	510L-011	510-963-010	510-1175-010	510-1275-010	510-1338
TOP SUB	Logan Part No.	ZL1005-10	ZL1007-10	ZL1011-10	BT1002-010	BT1003-010	BT2004-010	BT2007-010
TOP SUB SEAL	Logan Part No.	568248-200	568257-200	568263-200	568274-200	568274-400	568275-200	568279-200
(SMALL)	No. Req'd	2	2	2	2	2	2	2
TOP SUB SEAL	Logan Part No.	568251-200	568257-200	568265-200	568274-200	568275-400	568276-200	568280-200
(LARGE)	No. Req'd	1	1	1	1	1	1	1
BOWL	Logan Part No.	ZL2005-10	ZL2007-10-001	ZL2011-10	BT12002-010	BT2003-010	BT11004-010	BT11007-010
GUIDE	Logan Part No.	Z7005-10	ZL3007-10	Z7011-10	BT13002-010	BT3003-010	BT12004-010	BT12007-010
SHEAR PINS	Logan Part No.	AC14002	AC14002	AC14002	AC14008	AC14002	AC14008	AC14000
	No. Req'd	2	2	2	2	2	2	2
TYPE L PACKER	Logan Part No.	AT6009	AT6000	AT6001	AT6002	AT6003	AT6004	AT6007
	No. Req'd	4	4	4	4	4	4	4
PACKER PROTECTOR	Logan Part No.	ZL3005	ZL3007-10	ZL3011	AT7002	AT7003	AY6004-500	AT7007
GRAPPLE CONTROL	Logan Part No.	Z6005 *	ZL6007	Z6011	AT10002	AT10003	AY9004	AT10007
GRAPPLE	Logan Part No.	Z5005	ZL5007	Z5011	AY11002	AT11003	AY10004	AT11007

OPTIONAL

EXTENSION SUB	Logan Part No.	ZLE1005-10	ZLE1007-10	ZLE1011-10	BT3002-010	BTE1003-010	BTE3004-010	BT3007-010
(5 feet long)								
EXTENSION SUB SEAL	Logan Part No.	568248-200	568257-200	568263-200	568274-200	568274-400	568275-200	568279-200
(SMALL)	No. Req'd	2	2	2	2	2	2	2
EXTENSION SUB SEAL	Logan Part No.	568251-200	568257-200	568265-200	568274-200	568275-400	568276-200	568280-200
(LARGE)	No. Req'd	1	1	1	1	1	1	1

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

** Mill Control Packer instead of Grapple Control*

Notes:
(1) H_2S casing patches available upon request.
(2) Higher pressure casing patches of this design are available upon request.
(3) Other sizes of casing patches are available upon request.
(4) Casing patches can be made from special materials. Prices and delivery information is available upon request.

When ordering, please specify:
(1) Complete assembly or part number
(2) Size and type of connection
(3) With or without five-foot extensions

HIGH PRESSURE TYPE L PACKER TYPE CASING PATCHES — 12,000 PSI

O.D. CASING		5-1/2	9-5/8	9-7/8	10-3/4	11-3/4	13-3/8	13-5/8
O.D. PATCH		7-1/8	11-5/8	11-7/8	12-7/8	14-3/8	15-3/4	16-1/8
PRESSURE RATING (PSI)		12,000	12,000	12,000	12,000	12,000	12,000	12,000
COMPLETE ASSEMBLY	Logan Part No.	512-550-012	512-963-012	507-1188-12K	512-1288-012	507-1438-12K-500	507-1544-012-500	512-1363
TOP SUB	Logan Part No.	AT1000-12	AT1002-012	AY2003-12K	*	AY2006-12K-500	AY2007-012	AT1008-012
TOP SUB SEAL	Logan Part No.	568257-200	568273-200	568274-200	*	568278-200	568279-200	568279-200
(SMALL)	No. Req'd	2	2	2	2	2	2	2
TOP SUB SEAL	Logan Part No.	568257-200	568273-200	568275-200	*	568278-200	568280-200	568280-200
(LARGE)	No. Req'd	1	1	1	1	1	1	1
BOWL	Logan Part No.	AT12000-12	AT12002-012	AY11003-12K-500	*	AY11006-12K-500	AY11007-012-502	AT12008-012
GUIDE	Logan Part No.	AT13000-12	AT13002-012	AY12003-12K-500	*	AY12006-12K-500	AY12007-012-502	AT13008-012
SHEAR PINS	Logan Part No.	AC14002	AC14002	AC14002	*	AC14002	AC14008	AC14008
	No. Req'd	2	2	2	2	2	2	2
TYPE L PACKER	Logan Part No.	AT6000	AT6002	AT6003	AT6004	AT6006	AT6004	AT6008
	No. Req'd	4	4	4	4	4	4	4
PACKER PROTECTOR	Logan Part No.	ZL3007	AT7002	AY6003-500	*	AY6006-12K-500	AY6007-012-502	AT7008
GRAPPLE CONTROL	Logan Part No.	Z6007	AT10002	AY9003-500	*	AY9006-12K-500	AY9007-501	AT10008
GRAPPLE	Logan Part No.	Z5007	AT11002	AY10003	*	AY10006	AY10007-502	AT11008

OPTIONAL

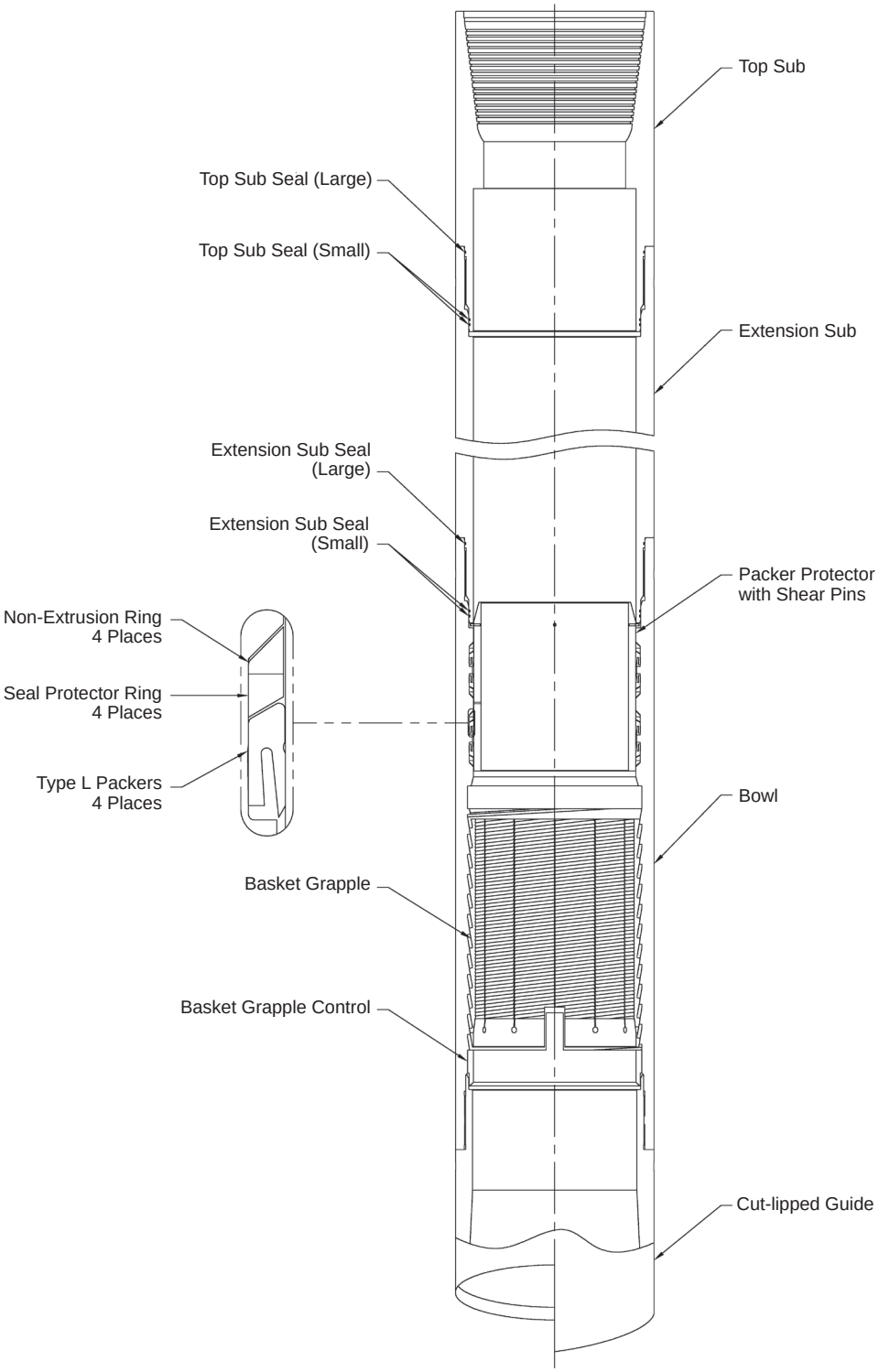
EXTENSION SUB	Logan Part No.	AT3000-12	AT3002-012	AY3003-12K-500	*	AY3006-12K-500	AY3007-012-502	AT3008-012
(5 feet long)								
EXTENSION SUB SEAL	Logan Part No.	568257-200	568273-200	568274-200	*	568278-200	568279-200	568279-200
(SMALL)	No. Req'd	2	2	2	2	2	2	2
EXTENSION SUB SEAL	Logan Part No.	568257-200	568273-200	568275-200	*	568278-200	568280-200	568280-200
(LARGE)	No. Req'd	1	1	1	1	1	1	1

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

** Part numbers available upon request*

Notes:
(1) H_2S casing patches available upon request.
(2) Higher pressure casing patches of this design are available upon request.
(3) Other sizes of casing patches are available upon request.
(4) Casing patches can be made from special materials. Prices and delivery information is available upon request.

When ordering, please specify:
(1) Complete assembly or part number
(2) Size and type of connection
(3) With or without five-foot extensions



Logan Type L Packer Type Casing Patch
15K Assembly

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

HIGH PRESSURE TYPE L PACKER TYPE CASING PATCHES — 15,000 PSI

O.D. CASING		4-1/2	5-1/2	14				
O.D. PATCH		6-1/4	7-1/8	17-3/8				
PRESSURE RATING (PSI)		15,000	15,000	15,000				
COMPLETE ASSEMBLY	Logan Part No.	515-625-15	515-713	515-1738				
TOP SUB	Logan Part No.	BT10056-15	ZL1007-15	AT1009-15				
TOP SUB SEAL	Logan Part No.	568248-200	568257-200	568280-200				
(SMALL)	No. Req'd	2	2	2				
TOP SUB SEAL	Logan Part No.	568251-200	568257-200	568281-200				
(LARGE)	No. Req'd	1	1	1				
BOWL	Logan Part No.	BT2005-15	ZL2007-15	AT12009-15				
GUIDE	Logan Part No.	BT7005-15	ZL7007-15	AT13009-15				
SHEAR PINS	Logan Part No.	AC14002	AC14002	AC14008				
	No. Req'd	2	2	4				
TYPE L SEAL RING SET	Logan Part No.	…	…	AT15009-15-001				
*Consisting of: **	No. Req'd.	…	…	1 Set				
TYPE L PACKER *	Logan Part No.	AT6009	AT6000	AT15009-15-002				
	No. Req'd	4	4	4				
SEAL PROTECTOR	Logan Part No.	…	…	AT15009-15-003				
RING (LEAD) *	No. Req'd	…	…	4				
NON-EXTRUSION RING	Logan Part No.	…	…	AT15009-15-004				
(STEEL) *	No. Req'd.	…	…	4				
PACKER PROTECTOR	Logan Part No.	ZL3005-001	ZL3007	AT7009-15				
GRAPPLE CONTROL	Logan Part No.	Z6005 *	ZL6007-15	AT10009-15				
GRAPPLE	Logan Part No.	Z5005	ZL5007-15	AT11009-15				

OPTIONAL

EXTENSION SUB	Logan Part No.	BTE1005-15	BTE1007-15	AT3009-15				
(5 feet long)								
EXTENSION SUB SEAL	Logan Part No.	568248-200	568257-200	568280-200				
(SMALL)	No. Req'd	2	2	2				
EXTENSION SUB SEAL	Logan Part No.	568251-200	568257-200	568281-200				
(LARGE)	No. Req'd	1	1	1				

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

** Mill Control Packer instead of Grapple Control*

Notes:
(1) H_2S casing patches available upon request.
(2) Other sizes of casing patches are available upon request.
(3) Casing patches can be made from special materials. Prices and delivery information is available upon request.

When ordering, please specify:
(1) Complete assembly or part number
(2) Size and type of connection
(3) With or without five-foot extensions

LEAD SEAL CASING PATCHES

Overview

Logan Lead Seal Casing Patches repair properly prepared pipe without restricting the bore of the casing or tubing. Lead seal patches are particularly suited for use in wells that contain fluids or gases harmful to rubber or synthetic packers and are as strong as the string being repaired. Patches are available in popular casing sizes ranging from 2-3/8 to 13-3/8 inches. H_2S service is available upon request.

Construction

Logan Lead Seal Casing Patches are composed of eleven parts. A guide and bowl make up the O.D. components. A grapple, grapple carrier, control ring, control ring set screws, end seal rings, lead seals, and a center seal ring make up the remainder of the patch.

Each part of the patch is manufactured from material that is specifically suitable for each part. Load bearing components are high strength, heat-treated alloy steel to maintain string integrity. The seal assembly is manufactured from pure, unalloyed, fully annealed lead.

A box connection on the upper end of the casing patch will be cut according to customer specifications.

Assembly

The casing patch is made up to the bottom of the new casing string. Use tongs only on the upper end of the bowl near the top connection.

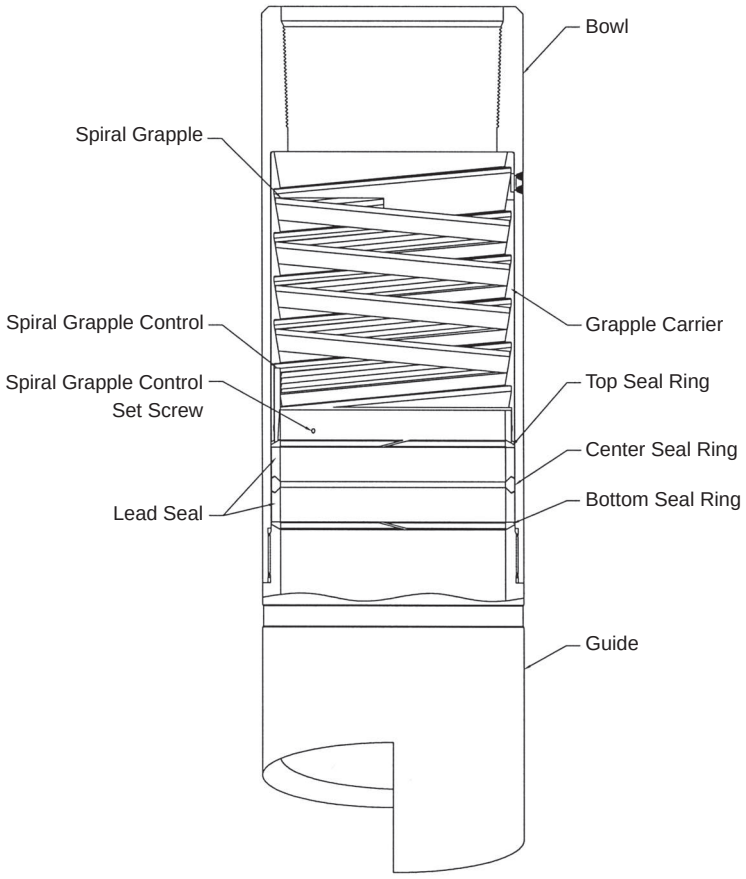
Operation

Properly cut and remove the damaged portion of casing from the hole. Prepare the top of the downhole casing for engagement and pack-off. Roll the casing if necessary to assure proper diameter and roundness.

Lower the tool into the hole until the top of the fish is reached. Continue lowering the string while slowly rotating the casing patch to the right until the fish has passed through the guide and has bottomed out in the grapple carrier. Stop rotation and slowly pick up the string to remove any weight or torque. (Any backlash from residual weight or torque could cause the patch to disengage.) The lead seal is set into position by raising the string. The grapple, grapple carrier, and control ring remain stationary. Compression between the grapple carrier and guide causes the lead seals to flow around the casing to form a rigid, leak-proof connection.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Casing O.D.
(3) Size and type of connection



LEAD SEAL CASING PATCHES

O.D. CASING		2-3/8	2-7/8	3-1/2	4	4-1/2	5	5-1/2
O.D. PATCH		3-7/16	4	4-3/4	5-1/4	5-3/4	6-1/4	6-13/16
COMPLETE ASSEMBLY	Logan Part No.	504-343	504-400	504-475	504-525	504-575	504-625	504-681
	Bowen No.	17258	16140	26525	22400	13270	13280	12315
BOWL	Logan Part No.	AA1000	AA1001	AA10015	AA1002	AA1003	AA1004	AA1005
	Bowen No.	17259	16141	26526	22401	13271	13281	12316
GRAPPLE CARRIER	Logan Part No.	AA2000	AA2001	AA20015	AA2002	AA2003	AA2004	AA2005
	Bowen No.	17260	16142	26527	22402	13272	13282	12317
SPIRAL GRAPPLE	Logan Part No.	AA3000	AA3001	AA30015	AA3002	AA3003	AA3004	AA3005
	Bowen No.	17261	16143	26528	22403	13273	13283	12318
SPIRAL GRAPPLE CONTROL	Logan Part No.	AA4000	AA4001	AA40015	AA4002	AA4003	AA4004	AA4005
	Bowen No.	17262	16144	26529	22404	13274	13284	12319
GUIDE	Logan Part No.	AA5000	AA5001	AA50015	AA5002	AA5003	AA5004	AA5005
	Bowen No.	17263	16145	26530	22405	13275	13285	12320
LEAD SEAL	Logan Part No.	AA6000	AA6001	AA60015	AA6002	AA6003	AA6004	AA6005
	Bowen No.	17264	16146	26531	22406	13276	13286	12324
	No. Req'd	2	2	2	2	2	2	2
END SEAL RING	Logan Part No.	AA7000	AA7001	AA70015	AA7002	AA7003	AA7004	AA7005
	Bowen No.	17265	16147	26532	22407	13277	13287	12322
	No. Req'd	2	2	2	2	2	2	2
CENTER SEAL RING	Logan Part No.	AA8000	AA8001	AA80015	AA8002	AA8003	AA8004	AA8005
	Bowen No.	17266	16148	26533	22408	13278	13288	12323
CONTROL SET SCREW	Logan Part No.	AA9000	AA9000	AA9000	AA9000	AA9000	AA9000	AA9000
	Bowen No.	12329	12329	12329	12329	12329	12329	12329
	No. Req'd	2	2	2	2	2	2	2

O.D. CASING		5-3/4	6	6-5/8	7	7-5/8	8-5/8	9-5/8
O.D. PATCH		7-1/16	7-5/16	7-15/16	8-3/8	9	10-1/16	11-1/8
COMPLETE ASSEMBLY	Logan Part No.	504-706	504-731	504-793	504-825	504-900	504-1006	504-1113
	Bowen No.	22410	13290	13300	12500	13070	13310	12475
BOWL	Logan Part No.	AA1006	AA1007	AA1008	AA1009	AA1010	AA1011	AA1012
	Bowen No.	22411	13291	13301	12501	13071	13311	12476
GRAPPLE CARRIER	Logan Part No.	AA2006	AA2007	AA2008	AA2009	AA2010	AA2011	AA2012
	Bowen No.	22412	13292	13302	12502	13072	13312	12477
SPIRAL GRAPPLE	Logan Part No.	AA3006	AA3007	AA3008	AA3009	AA3010	AA3011	AA3012
	Bowen No.	22413	13293	13303	12503	13073	13313	12478
SPIRAL GRAPPLE CONTROL	Logan Part No.	AA4006	AA4007	AA4008	AA4009	AA4010	AA4011	AA4012
	Bowen No.	22414	13294	13304	12504	13074	13314	12479
GUIDE	Logan Part No.	AA5006	AA5007	AA5008	AA5009	AA5010	AA5011	AA5012
	Bowen No.	22415	13295	13305	12505	13075	13315	12480
LEAD SEAL	Logan Part No.	AA6006	AA6007	AA6008	AA6009	AA6010	AA6011	AA6012
	Bowen No.	22416	13296	13306	12506	13076	13316	12481
	No. Req'd	2	2	2	2	2	2	2
END SEAL RING	Logan Part No.	AA7006	AA7007	AA7008	AA7009	AA7010	AA7011	AA7012
	Bowen No.	22417	13297	13307	12507	13077	13317	12482
	No. Req'd	2	2	2	2	2	2	2
CENTER SEAL RING	Logan Part No.	AA8006	AA8007	AA8008	AA8009	AA8010	AA8011	AA8012
	Bowen No.	22418	13298	13308	12508	13078	13318	12483
CONTROL SET SCREW	Logan Part No.	AA9000	AA9000	AA9000	AA9000	AA9000	AA9001	P12003
	Bowen No.	12329	12329	12329	12329	12329	12484	12484
	No. Req'd	2	2	2	2	2	2	2

LEAD SEAL CASING PATCHES

O.D. CASING		10-3/4	11-3/4	13-3/8				
O.D. PATCH		12-5/16	13-1/4	15-1/2				
COMPLETE ASSEMBLY	Logan Part No.	504-1231	504-1325	504-1550				
	Bowen No.	13320	20855	18445				
BOWL	Logan Part No.	AA1013	AA1014	AA1015				
	Bowen No.	13321	20856	18446				
GRAPPLE CARRIER	Logan Part No.	AA2013	AA2014	AA2015				
	Bowen No.	13322	20857	18447				
SPIRAL GRAPPLE	Logan Part No.	AA3013	AA3014	AA3015				
	Bowen No.	13323	20858	18448				
SPIRAL GRAPPLE	Logan Part No.	AA4013	AA4014	AA4015				
CONTROL	Bowen No.	13324	20859	18449				
GUIDE	Logan Part No.	AA5013	AA5014	AA5015				
	Bowen No.	13325	20860	18450				
LEAD SEAL	Logan Part No.	AA6013	AA6014	AA6015				
	Bowen No.	13326	20861	18451				
	No. Req'd	2	2	2				
END SEAL RING	Logan Part No.	AA7013	AA7014	AA7015				
	Bowen No.	13327	20862	18452				
	No. Req'd	2	2	2				
CENTER SEAL RING	Logan Part No.	AA8013	AA8014	AA8015				
	Bowen No.	13328	20863	18453				
CONTROL SET SCREW	Logan Part No.	AA9001	AA9001	AA9001				
	Bowen No.	12484	12484	12484				
	No. Req'd	2	2	2				

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

Special Notes:
(1) H_2S service are available upon request.

When ordering, please specify:
(1) Name and number of assembly or part
(2) Casing O.D.
(3) Size and type of top connection

LEAD SEAL CEMENTING CASING PATCHES

Overview

The Logan Lead Seal Cementing Casing Patch forms a permanent sealed connection between two strings of casing and cements them together in a single operation. In addition to utilizing the field proven, compression-type lead seals of the Logan Lead Seal Tubing and Casing Patch, the Logan Lead Seal Cementing Casing Patch incorporates a valve system that allows the patch and running string to be cemented in place immediately after the lead seals have been compressed.

Lead Seal Cementing Casing Patches are available in popular casing sizes ranging from 2-3/8 to 13-3/8 inches. H_2S service is available upon request.

Construction

The seal assembly is manufactured from pure, unalloyed, fully annealed lead that is particularly suited for use in wells that contain fluids or gases harmful to rubber or synthetic packers.

Assembly

After assembly, the lead seal cementing casing patch is made up to the bottom of the running string.

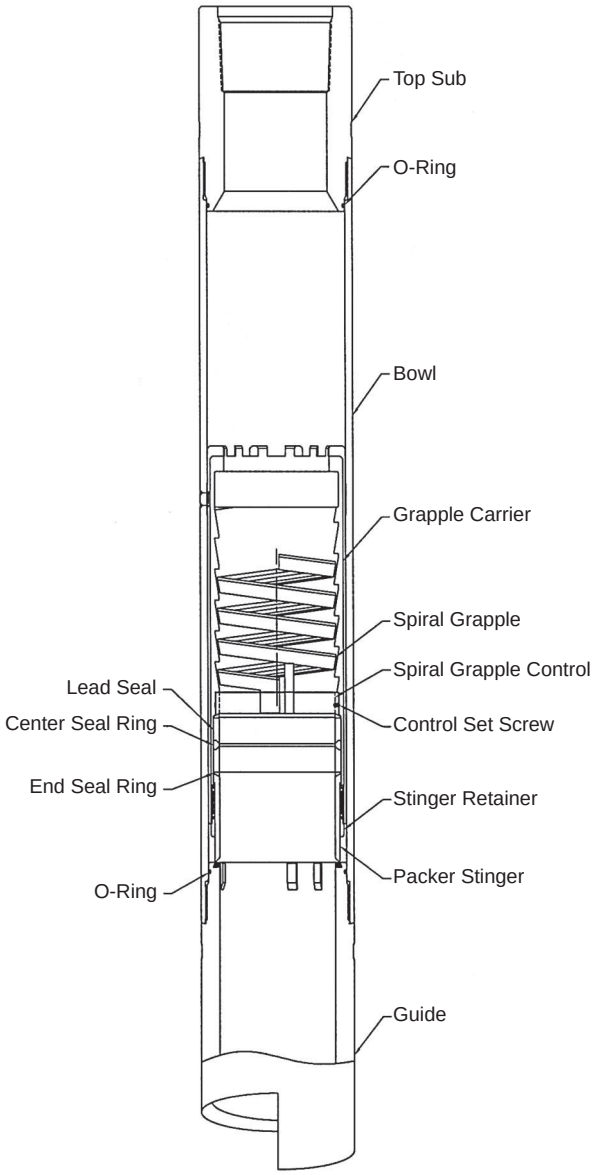
Operation

Properly cut and remove the damaged portion of casing from the hole. Prepare the top of the downhole casing for engagement and pack-off. Roll the casing if necessary to assure proper diameter and roundness.

Lower the string to the top of the prepared fish. Slowly rotate over the fish and apply an upward setting load. This will move the grapple and grapple carrier down and compress the lead seals against the guide to form the initial seal. Lower the running string to telescope the grapple carrier and stinger upward in the outer body to open the valve between the integral lead seal and the stinger. Immediately pump cement downhole. Cement will exit through the valve in the patch, placing cement around the outside of the patch and casing. After cement has been pumped, an upward load should be applied and maintained to the running string while the cement hardens.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Casing O.D.
(3) Size and type of connection



LEAD SEAL CEMENTING CASING PATCHES

O.D. CASING		2-3/8	2-7/8	3-1/2	4	4-1/2	5	5-1/2
O.D. PATCH		4-1/8	4-5/8	5-1/4	5-3/4	6-1/2	6-3/4	7-7/16
COMPLETE ASSEMBLY	Logan Part No.	505-413	505-463	505-525	505-575	505-650	505-675	505-744
	Bowen No.	40514	41209	41210	40596	40619	40649	38179
TOP SUB	Logan Part No.	AB12000	AB12001	AB12016	AB12002	AB12003	AB12004	AB12005
	Bowen No.	41092	41098	41104	41110	41116	41122	38415
BOWL	Logan Part No.	AB1000	AB1001	AB1016	AB1002	AB1003	AB1004	AB1005
	Bowen No.	41093	41099	41105	41111	41117	41123	38416
GRAPPLE CARRIER	Logan Part No.	AB2000	AB2001	AB2016	AB2002	AB2003	AB2004	AB2005
	Bowen No.	41095	41101	41107	41113	41119	41125	38417
GRAPPLE	Logan Part No.	AA3000	AA3001	AB3016	AA3002	AA3003	AA3004	AA3005
	Bowen No.	17261	16143	26528	22403	13273	13283	12318
GRAPPLE CONTROL	Logan Part No.	AA4000	AA4001	AB4016	AA4002	AA4003	AA4004	AA4005
	Bowen No.	17262	16144	26529	22404	13274	13284	12319
GUIDE	Logan Part No.	AB5000	AB5001	AB5016	AB5002	AB5003	AB5004	AB5005
	Bowen No.	41094	41100	41106	41112	41118	41124	38421
LEAD SEAL	Logan Part No.	AA6000	AA6001	AB6016	AA6002	AA6003	AA6004	AA6005
	Bowen No.	17264	16146	26531	22406	13276	13286	12324
	No. Req'd	2	2	2	2	2	2	2
END SEAL RING	Logan Part No.	AA7000	AA7001	AB7016	AA7002	AA7003	AA7004	AA7005
	Bowen No.	17265	16147	26532	22407	13277	13287	12322
	No. Req'd	2	2	2	2	2	2	2
CENTER SEAL RING	Logan Part No.	AA8000	AA8001	AB8016	AA8002	AA8003	AA8004	AA8005
	Bowen No.	17266	16148	26533	22408	13278	13288	12323
PACKER STINGER	Logan Part No.	AB10000	AB10001	AB10016	AB10002	AB10003	AB10004	AB10005
	Bowen No.	41096	41102	41108	41114	41120	41126	38420
STINGER RETAINER	Logan Part No.	AB11000	AB11001	AB11016	AB11002	AB11003	AB11004	AB11005
	Bowen No.	41097	41103	41109	41115	41121	41127	38419
CONTROL SET SCREW	Logan Part No.	AA9000	AA9000	AA9000	AA9000	AA9000	AA9000	AA9000
	Bowen No.	12329	12329	12329	12329	12329	12329	12329
	No. Req'd	2	2	2	2	2	2	2
BOWL SEAL	Logan Part No.	568-237	568-240	568-246	568-250	568-255	568-258	568-260
	Bowen No.	30-15	30-18	30-24	30-28	30-33	30-36	30-38
	No. Req'd	2	2	2	2	2	2	2

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

Special Notes:
(1) H_2S service, available upon request.

When ordering, please specify:
(1) Name and number of assembly or part
(2) Casing O.D.
(3) Size and type of connection

LEAD SEAL CEMENTING CASING PATCHES

O.D. CASING		5-3/4	6	6-5/8	7	7-5/8	8-5/8	9-5/8
O.D. PATCH		7-3/4	8	8-5/8	9-1/8	9-7/8	11-1/8	11-15/16
COMPLETE ASSEMBLY	Logan Part No.	505-775	505-800	505-863	505-913	505-988	505-1113	505-1194
	Bowen No.	41088	40679	40858	40859	40869	41004	41085
TOP SUB	Logan Part No.	AB12006	AB12007	AB12008	AB12009	AB12010	AB12011	AB12012
	Bowen No.	41128	41134	41140	41146	41152	41158	41164
BOWL	Logan Part No.	AB1006	AB1007	AB1008	AB1009	AB1010	AB1011	AB1012
	Bowen No.	41129	41135	41141	41147	41153	41159	41165
GRAPPLE CARRIER	Logan Part No.	AB2006	AB2007	AB2008	AB2009	AB2010	AB2011	AB2012
	Bowen No.	41131	41137	41143	41149	41155	41161	41167
GRAPPLE	Logan Part No.	AA3006	AA3007	AA3008	AA3009	AA3010	AA3011	AA3012
	Bowen No.	22413	13293	13303	12503	13073	13313	12478
GRAPPLE CONTROL	Logan Part No.	AA4006	AA4007	AA4008	AA4009	AA4010	AA4011	AA4012
	Bowen No.	22414	13294	13304	12504	13074	13314	12479
GUIDE	Logan Part No.	AB5006	AB5007	AB5008	AB5009	AB5010	AB5011	AB5012
	Bowen No.	41130	41136	41142	41148	41154	41160	41166
LEAD SEAL	Logan Part No.	AA6006	AA6007	AA6008	AA6009	AA6010	AA6011	AA6012
	Bowen No.	22416	13296	13306	12506	13076	13316	12481
	No. Req'd	2	2	2	2	2	2	2
END SEAL RING	Logan Part No.	AA7006	AA7007	AA7008	AA7009	AA7010	AA7011	AA7012
	Bowen No.	22417	13297	13307	28656	13077	13317	12482
	No. Req'd	2	2	2	2	2	2	2
CENTER SEAL RING	Logan Part No.	AA8006	AA8007	AA8008	AA8009	AA8010	AA8011	AA8012
	Bowen No.	22418	13298	13308	12508	13078	13318	12483
PACKER STINGER	Logan Part No.	AB10006	AB10007	AB10008	AB10009	AB10010	AB10011	AB10012
	Bowen No.	41132	41138	41144	41150	41156	41162	41168
STINGER RETAINER	Logan Part No.	AB11006	AB11007	AB11008	AB11009	AB11010	AB11011	AB11012
	Bowen No.	41133	41139	41145	41151	41157	41163	41169
CONTROL SET SCREW	Logan Part No.	AA9000	AA9000	AA9000	AA9000	AA9000	AA9001	P12003
	Bowen No.	12329	12329	12329	12329	12329	12484	12484
	No. Req'd	2	2	2	2	2	2	2
BOWL SEAL	Logan Part No.	568-262	568-263	568-265	568-267	568-270	568-449	568-450
	Bowen No.	30-40	30-41	30-43	30-45	30-48	27-76	27-77
	No. Req'd	2	2	2	2	2	2	2

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(1) Name and number of assembly or part
(2) Casing O.D.
(3) Size and type of connection

LEAD SEAL CEMENTING CASING PATCHES

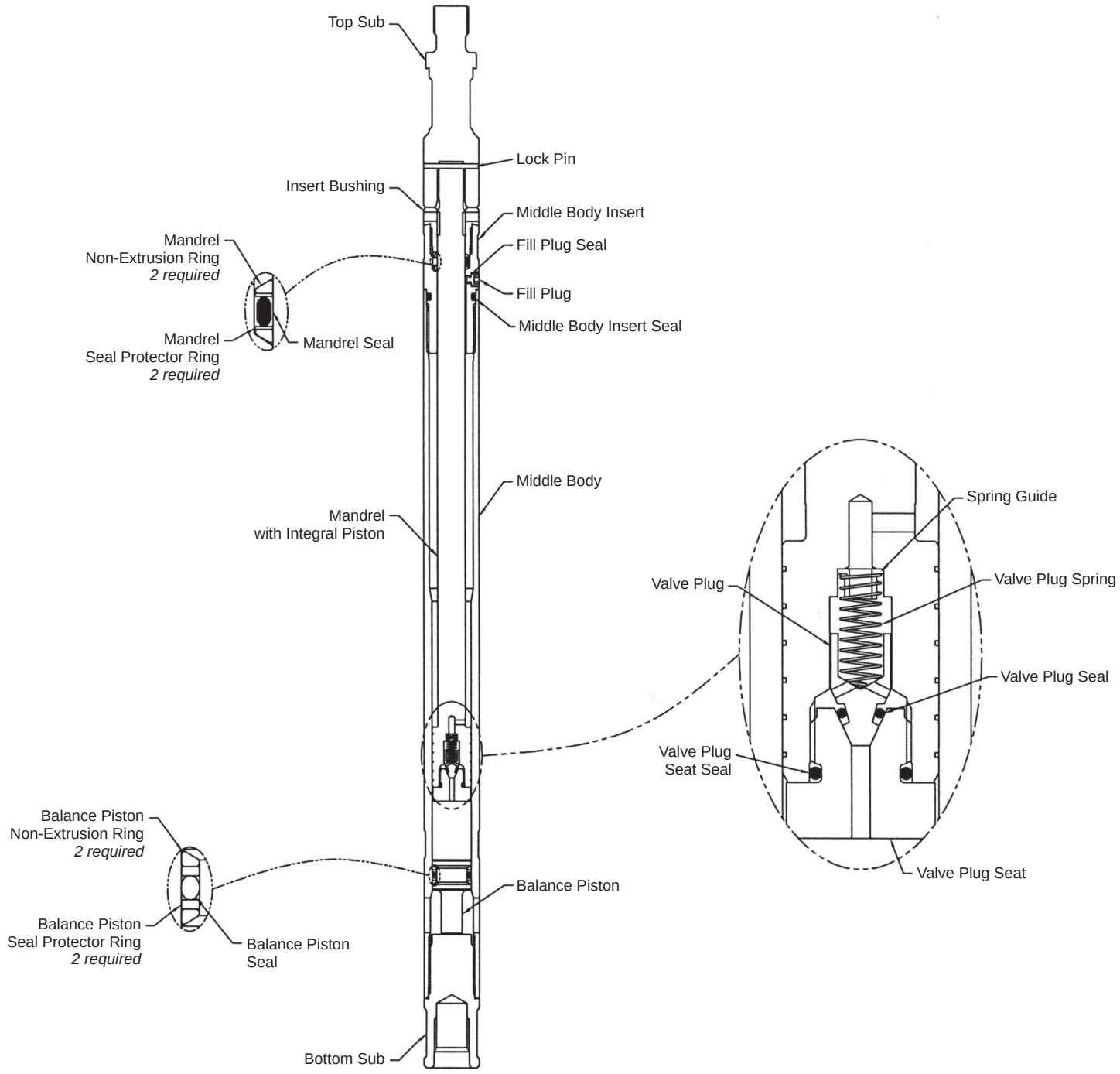
O.D. CASING		10-3/4	11-3/4	13-3/8
O.D. PATCH		13-5/8	14-3/4	16-5/8
COMPLETE ASSEMBLY	Logan Part No.	505-1363	505-1475	505-1663
	Bowen No.	41086	41089	41087
TOP SUB	Logan Part No.	AB12013	AB12014	AB12015
	Bowen No.	41170	41176	41185
BOWL	Logan Part No.	AB1013	AB1014	AB1015
	Bowen No.	41171	41177	41182
GRAPPLE CARRIER	Logan Part No.	AB2013	AB2014	AB2015
	Bowen No.	41173	41179	41183
GRAPPLE	Logan Part No.	AA3013	AA3014	AA3015
	Bowen No.	13323	20858	18448
GRAPPLE CONTROL	Logan Part No.	AA4013	AA4014	AA4015
	Bowen No.	13324	20859	18449
GUIDE	Logan Part No.	AB5013	AB5014	AB5015
	Bowen No.	41172	41178	41184
LEAD SEAL	Logan Part No.	AA6013	AA6014	AA6015
	Bowen No.	13326	20861	18451
	No. Req'd	2	2	2
END SEAL RING	Logan Part No.	AA7013	AA7014	AA7015
	Bowen No.	13327	20862	18452
	No. Req'd	2	2	2
CENTER SEAL RING	Logan Part No.	AA8013	AA8014	AA8015
	Bowen No.	13328	20863	18453
PACKER STINGER	Logan Part No.	AB10013	AB10014	AB10015
	Bowen No.	41174	41180	41186
STINGER RETAINER	Logan Part No.	AB11013	AB11014	AB11015
	Bowen No.	41175	41181	41187
CONTROL SET SCREW	Logan Part No.	AA9001	AA9001	AA9001
	Bowen No.	12484	12484	12484
	No. Req'd	2	2	2
BOWL SEAL	Logan Part No.	568-455	568-453	568-459
	Bowen No.	27-82	27-80	27-86
	No. Req'd	2	2	2

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Special Notes:
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When ordering, please specify:
(1) Name and number of assembly or part
(2) Casing O.D.
(3) Size and type of connection

NOTES


Top Sub
Lock Pin
Insert Bushing
Middle Body Insert
Mandrel
Non-Extrusion Ring
2 required
Fill Plug Seal
Fill Plug
Middle Body Insert Seal
Mandrel
Seal Protector Ring
2 required
Mandrel Seal
Middle Body
Mandrel
with Integral Piston
Spring Guide
Valve Plug
Valve Plug Spring
Valve Plug Seal
Valve Plug
Seat Seal
Valve Plug Seat
Balance Piston
Non-Extrusion Ring
2 required
Balance Piston
Balance Piston
Seal Protector Ring
2 required
Balance Piston
Seal
Bottom Sub

HYDRAULIC WIRELINE JARS

Overview

The dependable Hydraulic Wireline Jar utilizes a hydraulic system that permits controlled jarring in measuring line or stranded wireline operations when electrical continuity below the jar is not required. Such operations include permanent well completion services; setting and pulling gas lift valves, chokes, and other retrievable downhole tubing equipment; and cable services such as swabbing, bailing, and fishing.

Its simple hydraulic system permits the operator to control the intensity of the blow within a broad range — from a light blow as needed for measuring line, to one of forceful impact required for stranded wireline. It is particularly valuable in fishing, swabbing, and permanent well completion operations.

Construction

The Logan Hydraulic Wireline Jar essentially consists of two separate assemblies: a sliding mandrel within a hydraulic chamber. When completely assembled, these two principal assemblies are free to move within relationship to each other with their movement controlled by the hydraulic fluid. Seal ring assemblies are installed in the critical areas subject to high internal pressure. An integral piston on the lower end of the mandrel rests in the middle body cylinder when the jar is in closed position. A check valve in the piston allows the free passage of fluid to permit the jar to close freely. Each Hydraulic Wireline Jar top sub has appropriate wrench flats and fishing neck to provide safety against backing off during operation. Supplied with viton seals.

Assembly

The Hydraulic Wireline Jar is made up in the string just above the tools or equipment to be run. It is recommended that several sinker bars with an outside diameter corresponding to the jar be assembled above the tool. The weight of the sinker bars will determine the intensity of the jarring blow to a large extent. They will also aid in closing the jar with minimum lapse time.

The assembled tool is run into and out the well on measuring line or stranded wireline like any other fishing tool.

Operation

An upward strain is placed on the string by pulling upward, After setting the string, wait for the jar to strike a blow. After the jar has struck, slacking off the string will allow the jar to close. Repeat the jarring by pulling another strain on the string. The jarring force transmitted by the piston is proportional to the strain taken on the string. To increase the intensity of the blow, take a greater strain on the string. A lighter strain on the string will lessen the intensity of the jarring blow. The frequency of the blows struck can be as rapid as the operator can pick up and slack off the running string.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard

OUTSIDE DIAMETER		1-1/8	1-1/4	1-1/2	1-1/2	1-1/2	1-1/2	1-3/4
CONNECTIONS		5/8	15/16	15/16	15/16	15/16	15/16	3/4
PIN UP - BOX DOWN		11 THD	10 THD	10 THD	10 THD	10 THD	10 THD	SR
LENGTH OF STROKE		6-3/4	9-1/4	8-3/4	8-3/4	20	12	10
COMPLETE ASSEMBLY	Logan Part No.	700-000	700-925	700-875	700-002	700-003	700-004	700-1000
	Bowen No.	35097	11740	11180	48383	51227	35518	79297
TOP SUB	Logan Part No.	AL1000	AL1001	AL1002	AL1002	AL1002	AL1002	AL1003
	Bowen No.	35098	11741	10761	10761	10761	10761	12761
MIDDLE BODY	Logan Part No.	AL2000	AL2001	AL2002	AL2002	AL2003	AL2004	AL2005
	Bowen No.	35099	11744	11182	11182	51228	35519	12765
MIDDLE BODY INSERT	Logan Part No.	AL3000	AL3001	AL3002	AL3002	AL3002	AL3002	AL3003
	Bowen No.	35100	29486	28652	28652	28652	28652	79298
INSERT BUSHING	Logan Part No.	AL4000	AL4001	AL4002	AL4003	AL4002	AL4003	AL4006
	Bowen No.	35101	33572	33571	35085	33571	35085	79299
MANDREL	Logan Part No.	AL5000	AL5001	AL5002	AL5003	AL5004	AL5005	AL5006
	Bowen No.	35102	11742	11184	35086	51229	35520	79300
BOTTOM SUB	Logan Part No.	AL6000	AL6001	AL6002	AL6002	AL6002	AL6002	AL6003
	Bowen No.	35103	11747	11181	11181	11181	11181	12767

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When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard

Recommended Spare Parts:

(1) 1 Balanced Piston
(2) 2 Valve Plugs
(3) 4 Valve Plug Springs
(4) 2 Valve Plug Seats
(5) 6 Mandrel Non-Extrusion Rings
(6) 6 Mandrel Seal Protector Rings
(7) 4 Balance Piston Non-Extrusion Rings
(8) 4 Balance Piston Seal Protector Rings
(9) 6 Complete Packing Sets

HYDRAULIC WIRELINE JARS

OUTSIDE DIAMETER		1-1/8	1-1/4	1-1/2	1-1/2	1-1/2	1-1/2	1-3/4
CONNECTIONS		5/8	15/16	15/16	15/16	15/16	15/16	3/4
PIN UP - BOX DOWN		11 THD	10 THD	10 THD	10 THD	10 THD	10 THD	SR
LENGTH OF STROKE		6-3/4	9-1/4	8-3/4	8-3/4	20	12	10
COMPLETE ASSEMBLY	Logan Part No.	700-000	700-925	700-875	700-002	700-003	700-004	700-1000
	Bowen No.	35097	11740	11180	48383	51227	35518	79297
BALANCE PISTON	Logan Part No.	AL7000	AL7001	AL7002	AL7002	AL7002	AL7002	AL7003
	Bowen No.	35104	11746	11185	11185	11185	11185	12766
VALVE PLUG	Logan Part No.	AL8000	AL8000	AL8000	AL8000	AL8000	AL8000	AL8000
	Bowen No.	11189	11189	11189	11189	11189	11189	11189
VALVE PLUG SPRING	Logan Part No.	AL9000	AL9000	AL9000	AL9000	AL9000	AL9000	AL9000
	Bowen No.	834	834	834	834	834	834	834
VALVE PLUG SEAT	Logan Part No.	AL10000	AL10000	AL10001	AL10001	AL10001	AL10001	AL10001
	Bowen No.	11745	11745	11186	11186	11186	11186	11186
FILL PLUG	Logan Part No.	AG10004	AG10000	AG10000	AG10000	AG10000	AG10000	AG10000
	Bowen No.	39941	617	617	617	617	617	617
LOCK PIN	Logan Part No.	AL11000	AL11001	AL11002	AL11002	AL11002	AL11002	AL11003
	Bowen No.	15136	16010	13432	13432	13432	13432	18183
SPRING GUIDE	Logan Part No.	AL16000	AL16000	AL16000	AL16000	AL16000	AL16000	AL16000
	Bowen No.	48307	48307	48307	48307	48307	48307	48307
MANDREL	Logan Part No.	L365-11	L365-11	L365-15	L365-15	L365-15	L365-15	L365-17
NON-EXTRUSION RING	Bowen No.	365-11	365-11	365-15	365-15	365-15	365-15	365-17
	No. Req'd	2	2	2	2	2	2	2
MANDREL SEAL	Logan Part No.	L375-11	L375-11	L375-15	L375-15	L375-15	L375-15	L375-17
PROTECTOR RING	Bowen No.	375-11	375-11	375-15	375-15	375-15	375-15	375-17
	No. Req'd	2	2	2	2	2	2	2
BALANCE PISTON	Logan Part No.	L366-11	L366-11	L366-16	L366-16	L366-16	L366-16	L366-20
NON-EXTRUSION RING	Bowen No.	366-11	366-11	366-16	366-16	366-16	366-16	366-20
	No. Req'd	2	2	2	2	2	2	2
BALANCE PISTON SEAL	Logan Part No.	L82-11	L82-11	L82-16	L82-16	L82-16	L82-16	L82-20
PROTECTOR RING	Bowen No.	82-11	82-11	82-16	82-16	82-16	82-16	82-20
	No. Req'd	2	2	2	2	2	2	2

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When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard

Recommended Spare Parts:

(1) 1 Balanced Piston
(2) 2 Valve Plugs
(3) 4 Valve Plug Springs
(4) 2 Valve Plug Seats
(5) 6 Mandrel Non-Extrusion Rings
(6) 6 Mandrel Seal Protector Rings
(7) 4 Balance Piston Non-Extrusion Rings
(8) 4 Balance Piston Seal Protector Rings
(9) 6 Complete Packing Sets

HYDRAULIC WIRELINE JARS

OUTSIDE DIAMETER		1-1/8	1-1/4	1-1/2	1-1/2	1-1/2	1-1/2	1-3/4
CONNECTIONS		5/8	15/16	15/16	15/16	15/16	15/16	3/4
PIN UP - BOX DOWN		11 THD	10 THD	10 THD	10 THD	10 THD	10 THD	SR
LENGTH OF STROKE		6-3/4	9-1/4	8-3/4	8-3/4	20	12	10
COMPLETE ASSEMBLY	Logan Part No.	700-000	700-001	700-875	700-002	700-003	700-004	700-1000
	Bowen No.	35097	11740	11180	48383	51227	35518	79297
VITON O-RING PACKING SET	Logan Part No.	28000-008	28000-009	28000-010	28000-010	28000-010	28000-010	28000-011
Consists of:	Bowen No.	35106	11754	11191	11191	11191	11191	79327
MANDREL SEAL	Logan Part No.	568-112	568-112	568-210	568-210	568-210	568-210	568-212
	Bowen No.	568112	568112	568210	568210	568210	568210	568212
BALANCE PISTON SEAL	Logan Part No.	568-113	568-113	568-211	568-211	568-211	568-211	568-215
	Bowen No.	568113	568113	568211	568211	568211	568211	568215
MIDDLE BODY	Logan Part No.	568-116	568-116	568-215	568-215	568-215	568-215	568-218
INSERT SEAL (LARGE)	Bowen No.	568116	568116	568215	568215	568215	568215	568218
MIDDLE BODY	Logan Part No.	…	…	…	…	…	…	…
INSERT SEAL (SMALL)	Bowen No.	…	…	…	…	…	…	…
VALVE PLUG SEAL	Logan Part No.	568-007	568-007	568-007	568-007	568-007	568-007	568-007
	Bowen No.	568007	568007	568007	568007	568007	568007	568007
VALVE PLUG	Logan Part No.	568-110	568-110	568-112	568-112	568-112	568-112	568-112
SEAT SEAL	Bowen No.	568110	568110	568112	568112	568112	568112	568112
FILL PLUG SEAL	Logan Part No.	…	568-005	568-005	568-005	568-005	568-005	568-005
	Bowen No.	…	568005	568005	568005	568005	568005	568005

ACCESSORIES

SERVICE KIT	Logan Part No.	28001-013	28001-014	28001-015	28001-015	28001-015	28001-015	28001-016
	Bowen No.	35105	11751	11178	11178	11178	11178	15997
MANDREL BODY	Logan Part No.	AG1000-10	AG1000-11	AG1000-15	AG1000-15	AG1000-15	AG1000-15	AG1000-17
SETTING TOOL	Bowen No.	22709-10	22709-11	22709-15	22709-15	22709-15	22709-15	22709-17
BALANCE PISTON	Logan Part No.	AL13000-11	AL13001	AL13000-16	AL13000-16	AL13000-16	AL13000-16	AL13000-20
SETTING TOOL	Bowen No.	22729-11	11753	22729-16	22729-16	22729-16	22729-16	22729-20
JAR LUBE –	Logan Part No.	49842-A						
1 GALLON	Bowen No.	49842-A						
5 GALLONS	Logan Part No.	49842-B						
	Bowen No.	49842-B						
20 GALLONS	Logan Part No.	49842-C						
	Bowen No.	49842-C						
55 GALLONS	Logan Part No.	49842-D						
	Bowen No.	49842-D						

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(2) Connections, if other than standard

Recommended Spare Parts:

(1) 1 Balanced Piston
(2) 2 Valve Plugs
(3) 4 Valve Plug Springs
(4) 2 Valve Plug Seats
(5) 6 Mandrel Non-Extrusion Rings
(6) 6 Mandrel Seal Protector Rings
(7) 4 Balance Piston Non-Extrusion Rings
(8) 4 Balance Piston Seal Protector Rings
(9) 6 Complete Packing Sets

HYDRAULIC WIRELINE JARS

OUTSIDE DIAMETER		2-1/8	2-3/4
CONNECTIONS		7/8	1-9/16
PIN UP - BOX DOWN		SR	10 THD
LENGTH OF STROKE (INCHES)		11-5/8	20
COMPLETE ASSEMBLY	Logan Part No.	700-1163	700-006
	Bowen No.	11550	…
TOP SUB	Logan Part No.	AL1004	AL1005
	Bowen No.	11543	…
MIDDLE BODY	Logan Part No.	AL2006	AL2007
	Bowen No.	11537	…
MIDDLE BODY INSERT	Logan Part No.	AL3004	AL3005
	Bowen No.	11538	…
INSERT BUSHING	Logan Part No.	…	…
	Bowen No.	…	…
MANDREL	Logan Part No.	AL5007	AL5008
	Bowen No.	11539	…
BOTTOM SUB	Logan Part No.	AL6004	AL6005
	Bowen No.	11536	…
BALANCE PISTON	Logan Part No.	AL7004	AL7005
	Bowen No.	11540	…
VALVE PLUG	Logan Part No.	AL8000	AL8001
	Bowen No.	11189	…
VALVE PLUG SPRING	Logan Part No.	AL9000	AL9001
	Bowen No.	834	…
VALVE PLUG SEAT	Logan Part No.	AL10001	AL10002
	Bowen No.	11186	…
FILL PLUG	Logan Part No.	AG10002	AG10003
	Bowen No.	329	…
LOCK PIN	Logan Part No.	AL11004	AL11005
	Bowen No.	42732	…
SPRING GUIDE	Logan Part No.	AL16000	AL16001
	Bowen No.	48307	…

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(1) Name and number of assembly or part
(2) Connections, if other than standard

Recommended Spare Parts:

(1) 1 Balanced Piston
(2) 2 Valve Plugs
(3) 4 Valve Plug Springs
(4) 2 Valve Plug Seats
(5) 6 Mandrel Non-Extrusion Rings
(6) 6 Mandrel Seal Protector Rings
(7) 4 Balance Piston Non-Extrusion Rings
(8) 4 Balance Piston Seal Protector Rings
(9) 6 Complete Packing Sets

HYDRAULIC WIRELINE JARS

OUTSIDE DIAMETER		2-1/8	2-3/4
CONNECTIONS		7/8	1-9/16
PIN UP - BOX DOWN		SR	10 THD
LENGTH OF STROKE (INCHES)		6-3/4	20
COMPLETE ASSEMBLY	Logan Part No.	700-1163	700-006
	Bowen No.	11550	…
MANDREL	Logan Part No.	L365-21	L365-27
NON-EXTRUSION RING	Bowen No.	365-21	365-27
	No. Req'd	2	2
MANDREL SEAL	Logan Part No.	L375-21	L375-27
PROTECTOR RING	Bowen No.	375-21	375-27
	No. Req'd	2	2
BALANCE PISTON	Logan Part No.	L366-24	L366-28.5
NON-EXTRUSION RING	Bowen No.	366-24	…
	No. Req'd	2	2
BALANCE PISTON SEAL	Logan Part No.	L82-24	8-235
PROTECTOR RING	Bowen No.	82-24	…
	No. Req'd	2	2

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

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard

Recommended Spare Parts:

(1) 1 Balanced Piston
(2) 2 Valve Plugs
(3) 4 Valve Plug Springs
(4) 2 Valve Plug Seats
(5) 6 Mandrel Non-Extrusion Rings
(6) 6 Mandrel Seal Protector Rings
(7) 4 Balance Piston Non-Extrusion Rings
(8) 4 Balance Piston Seal Protector Rings
(9) 6 Complete Packing Sets

HYDRAULIC WIRELINE JARS

OUTSIDE DIAMETER		2-1/8	2-3/4
CONNECTIONS		7/8	1-9/16
PIN UP - BOX DOWN		SR	10 THD
LENGTH OF STROKE (INCHES)		11-5/8	20
COMPLETE ASSEMBLY	Logan Part No.	700-1163	700-006
	Bowen No.	11550	…
VITON O-RING PACKING SET	Logan Part No.	28000-012	28000-013
Consists of:	Bowen No.	11553	…
MANDREL SEAL	Logan Part No.	568-216	568-222
	Bowen No.	568216	568222
BALANCE PISTON SEAL	Logan Part No.	568-219	568-325
	Bowen No.	568219	568325
MIDDLE BODY	Logan Part No.	568-223	568-226
INSERT SEAL (LARGE)	Bowen No.	568223	568226
MIDDLE BODY	Logan Part No.	568-211	568-224
INSERT SEAL (SMALL)	Bowen No.	568211	568224
VALVE PLUG SEAL	Logan Part No.	568-007	568-007
	Bowen No.	568007	568007
VALVE PLUG	Logan Part No.	568-112	568-112
SEAT SEAL	Bowen No.	568112	568112
FILL PLUG SEAL	Logan Part No.	568-006	568-006
	Bowen No.	568006	568006

ACCESSORIES

SERVICE KIT	Logan Part No.	28001-017	
	Bowen No.	11554	
MANDREL BODY	Logan Part No.	AG1000-24	
SETTING TOOL	Bowen No.	22709-21	
BALANCE PISTON	Logan Part No.	AL13000-24	
SETTING TOOL	Bowen No.	22729-24	

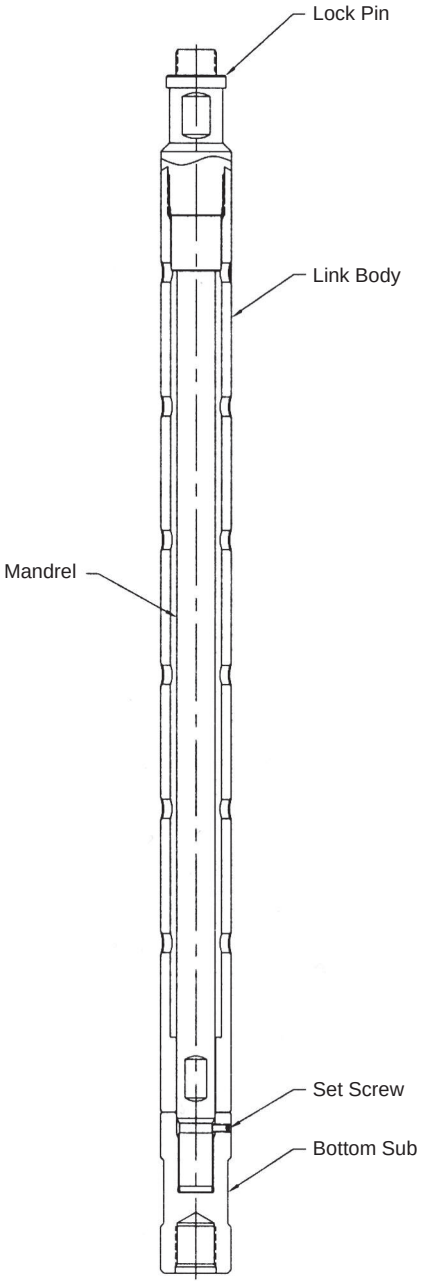
Logan Oil Tools reserves the right to change or discontinue designs without notice.

When ordering, please specify:

(1) Name and number of assembly or part
(2) Connections, if other than standard

Recommended Spare Parts:

(1) 1 Balanced Piston
(2) 2 Valve Plugs
(3) 4 Valve Plug Springs
(4) 2 Valve Plug Seats
(5) 6 Mandrel Non-Extrusion Rings
(6) 6 Mandrel Seal Protector Rings
(7) 4 Balance Piston Non-Extrusion Rings
(8) 4 Balance Piston Seal Protector Rings
(9) 6 Complete Packing Sets



TUBULAR WIRELINE JARS

Overview

The simple and rugged Logan Tubular Wireline Jar is designed for use in combination with the Logan Hydraulic Wireline Jar or by itself as a separate tool. The combination of tools is particularly useful in permanent well completion operations when the ability to jar both ways must be positively assured.

It is a straight-pull actuated jar and has no restricted stroke.

Construction

The Logan Tubular Wireline Jar is composed of a top sub, link body, mandrel, and a bottom sub. The link body is perforated to eliminate fluid cushioning and mud packing while in service.

Operation

The Logan Tubular Wireline Jar is actuated either manually or by the use of a reel. The jar is put into position by pulling or reeling. Sudden release or rapid unreeling causes the weight of the jar and sinker bars to close the jar. A sharp downward blow is delivered when the link body bottoms against the bottom sub when it closes on the downstroke. The full stroke will be either 20 or 30 inches.

Upward jarring with the Logan Tubular Wireline Jar is done in the same manner as with the Logan Hydraulic Wireline Jar.

When ordering, please specify:

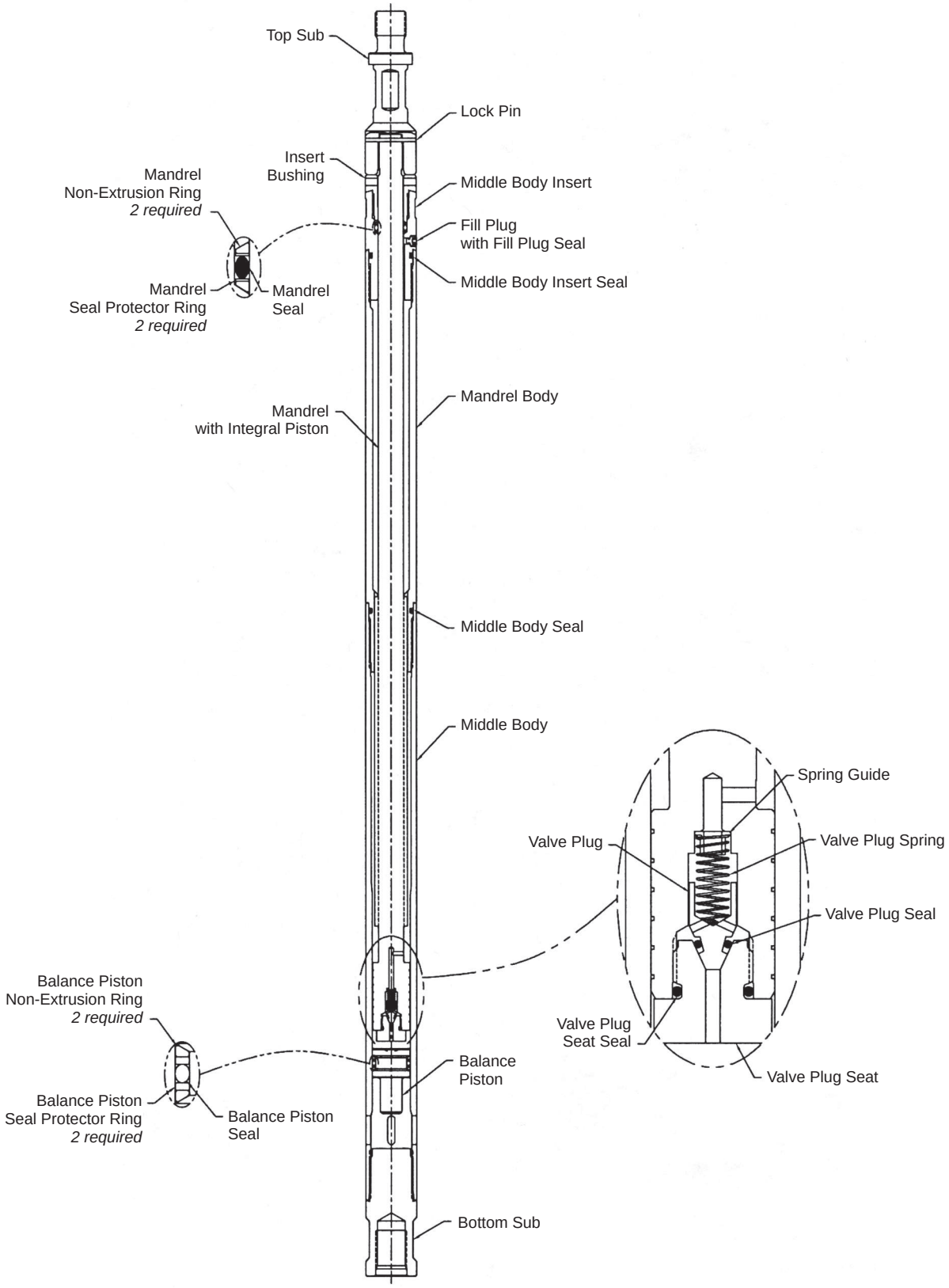
(1) Name and number of assembly or part
(2) Connections, if other than standard

TUBULAR WIRELINE JARS

OUTSIDE DIAMETER		1-1/8	1-1/4	1-1/4	1-1/2	1-1/2	1-3/4	1-3/4
CONNECTIONS		5/8	15/16	15/16	15/16	15/16	3/4	3/4
PIN UP - BOX DOWN		11 THD	10 THD	10 THD	10 THD	10 THD	SR	SR
LENGTH OF STROKE (INCHES)		18	20	30	20	30	20	30
COMPLETE ASSEMBLY	Logan Part No.	700-000-018	701-001-020	701-001-030	701-002-020	701-002-030	701-003-020	701-003-030
	Bowen No.	19355	12350	12350	10689	10689	14235	14235
TOP SUB	Logan Part No.	AM1000	AM1001	AM1001	AM1002	AM1002	AM1003	AM1003
	Bowen No.	19356	12351	12351	10677	10677	14236	14236
BODY	Logan Part No.	AM2000	AM2001	AM2001	AM2002	AM2002	AM2003	AM2003
	Bowen No.	19357	12352	12352	10758	10758	14237	14237
MANDREL	Logan Part No.	AM3000	AM3001	AM3001	AM3002	AM3002	AM3003	AM3003
	Bowen No.	19358	12368	12368	10924	10924	14232	14232
BOTTOM SUB	Logan Part No.	AM4000	AM4001	AM4001	AM4002	AM4002	AM4003	AM4003
	Bowen No.	19359	12356	12356	10678	10678	14233	14233
SPRING PIN	Logan Part No.	AM5000	AM5001	AM5001	AM5002	AM5002	AM5003	AM5003
	Bowen No.	13431	A-13568	A-13568	15143	15143	27220	27220

OUTSIDE DIAMETER		1-7/8	1-7/8	2-1/8	2-1/8			
CONNECTIONS		3/4	3/4	7/8	7/8			
PIN UP - BOX DOWN		SR	SR	SR	SR			
LENGTH OF STROKE (INCHES)		20	30	20	30			
COMPLETE ASSEMBLY	Logan Part No.	701-004-020	701-004-030	701-005-020	701-005-030			
	Bowen No.	21430	21430	11551	11551			
TOP SUB	Logan Part No.	AM1004	AM1004	AM1005	AM1005			
	Bowen No.	21431	21431	11547	11547			
BODY	Logan Part No.	AM2004	AM2004	AM2005	AM2005			
	Bowen No.	21432	21432	11544	11544			
MANDREL	Logan Part No.	AM3003	AM3003	AM3004	AM3004			
	Bowen No.	14232	14232	11531	11531			
BOTTOM SUB	Logan Part No.	AM4004	AM4004	AM4005	AM4005			
	Bowen No.	21433	21433	10732	10732			
SPRING PIN	Logan Part No.	AM5004	AM5004	AM5005	AM5005			
	Bowen No.	18183	18183	25499	25499			

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


Top Sub
Lock Pin
Insert Bushing
Mandrel Non-Extrusion Ring 2 required
Middle Body Insert
Fill Plug with Fill Plug Seal
Middle Body Insert Seal
Mandrel Seal Protector Ring 2 required
Mandrel Seal
Mandrel Body
Mandrel with Integral Piston
Middle Body Seal
Middle Body
Spring Guide
Valve Plug
Valve Plug Spring
Valve Plug Seal
Valve Plug Seat Seal
Valve Plug Seat
Balance Piston Non-Extrusion Ring 2 required
Balance Piston
Balance Piston Seal Protector Ring 2 required
Balance Piston Seal
Bottom Sub

HYDRAULIC ROD JARS

Overview
The Hydraulic Rod Jar provides a dependable means for controlled jarring in sucker rod operations when electrical continuity or circulation to the tools or below the jar is not required. Its simple hydraulic system permits the operator to control the intensity of the blow ranging from a light blow to one of terrific force.

Construction
The Logan Hydraulic Rod Jar essentially consists of a sliding mandrel within a hydraulic chamber. An integral piston on the lower end of the mandrel rests in the middle body cylinder when the jar is in closed position. Each Hydraulic Rod Jar is provided with a fishing neck on the top sub and is supplied with viton seals.

Assembly
The Hydraulic Rod Jar is made up in the string just above the tools or equipment to be run. The assembled tools are run into and out the well on the sucker rod like any other rod tool.

Operation
An upward strain is placed on the string by pulling upward, After setting the string, wait for the jar to strike a blow. After the jar has struck, slacking off the string will allow the jar to close. Repeat the jarring by pulling another strain on the string. The jarring force transmitted by the piston is proportional to the strain taken on the string. To increase the intensity of the blow, take a greater strain on the string. A lighter strain on the string will lessen the intensity of the jarring blow. The frequency of the blows struck can be as rapid as the operator can pick up and slack off the running string.

When ordering, please specify:
(1) Complete assembly or part number
(2) O.D. of assembly
(3) Size and type of connection

OUTSIDE DIAMETER		1-1/2	1-3/4	2-1/8
CONNECTIONS		15/16	3/4	7/8
PIN UP - BOX DOWN		10 THD	SR	SR
LENGTH OF STROKE (INCHES)		9-3/16	10	11-5/16
COMPLETE ASSEMBLY	Logan Part No.	703-001	703-003	703-005
	Bowen No.	28591	79316	13570
TOP SUB	Logan Part No.	AL1002	AL1003	AL1004
	Bowen No.	10761	12761	11543
MANDREL	Logan Part No.	BA2000	BA2001	BA2002
BODY INSERT	Bowen No.	28594	79317	10723
MANDREL BODY	Logan Part No.	BA3000	BA3001	BA3002
	Bowen No.	28593	12763	13572
MANDREL	Logan Part No.	BA4000	BA4001	BA4002
	Bowen No.	28592	79318	13571
MIDDLE BODY	Logan Part No.	AL2002	AL2005	AL2006
	Bowen No.	11182	12765	11537
BALANCE PISTON	Logan Part No.	AL7002	AL7003	AL7004
	Bowen No.	11185	12766	11540
BOTTOM SUB	Logan Part No.	AL6002	AL6003	AL6004
	Bowen No.	11181	12767	11536
VALVE PLUG	Logan Part No.	AL8000	AL8000	AL8000
	Bowen No.	11189	11189	11189
VALVE PLUG SPRING	Logan Part No.	AL9000	AL9000	AL9000
	Bowen No.	834	834	834
VALVE PLUG SEAT	Logan Part No.	AL10001	AL10001	AL10001
	Bowen No.	11186	11186	11186
MANDREL	Logan Part No.	L365-15	L365-17	L365-21
NON-EXTRUSION RING	Bowen No.	365-15	365-17	365-21
MANDREL SEAL	Logan Part No.	L375-15	L375-17	L375-21
PROTECTOR RING	Bowen No.	375-15	375-17	375-21
BALANCE PISTON	Logan Part No.	L366-16	L366-20	L366-24
NON-EXTRUSION RING	Bowen No.	366-16	366-20	366-24
BALANCE PISTON SEAL	Logan Part No.	L82-16	L82-20	L82-24
PROTECTOR RING	Bowen No.	9382-16	9382-20	9382-24

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

HYDRAULIC ROD JARS

OUTSIDE DIAMETER		1-1/2	1-3/4	2-1/8				
CONNECTIONS		15/16	3/4	7/8				
PIN UP - BOX DOWN		10 THD	SR	SR				
LENGTH OF STROKE (INCHES)		9-3/16	10	11-5/16				
COMPLETE ASSEMBLY	Logan Part No.	703-001	703-003	703-005				
	Bowen No.	28591	79316	13570				
FILL PLUG	Logan Part No.	AG10000	AG10000	AG10002				
	Bowen No.	617	617	329				
LOCK PINS	Logan Part No.	AL11002	AL11003	AL11004				
	Bowen No.	13432	18183	42732				
SPRING GUIDE	Logan Part No.	AL16000	AL16000	AL16000				
	Bowen No.	48307	48307	48307				
VITON O-RING PACKING SET	Logan Part No.	703-002	703-004	703-006				
Consists of:	Bowen No.	32679	79328	13573				
MANDREL SEAL	Logan Part No.	568-210	568-212	568-216				
	Bowen No.	27-15	27-17	27-21				
	No. Req'd	2	2	2				
BALANCE PISTON SEAL	Logan Part No.	568-211	568-215	568-219				
	Bowen No.	27-16	27-20	27-24				
MANDREL BODY	Logan Part No.	…	…	568-221				
INSERT – SMALL SEAL	Bowen No.	…	…	27-26				
MANDREL BODY	Logan Part No.	568-215	568-218	568-223				
INSERT – LARGE SEAL	Bowen No.	27-20	27-23	30-1				
MIDDLE BODY SEAL	Logan Part No.	568-215	568-218	568-223				
	Bowen No.	27-20	27-23	30-1				
VALVE PLUG SEAL	Logan Part No.	568-007	568-007	568-007				
	Bowen No.	27-2	27-2	27-2				
FILL PLUG SEAL	Logan Part No.	568-005	568-005	568-006				
	Bowen No.	568005	568005	27-1				
VALVE PLUG	Logan Part No.	568-112	568-112	568-112				
SEAT SEAL	Bowen No.	27-10	27-10	27-10				

ACCESSORIES

SERVICE KIT	Logan Part No.	28001-015	28001-016	28001-017				
	Bowen No.	11178	15997	11554				
MANDREL BODY	Logan Part No.	AG1000-15	AG1000-17	AG1000-21				
SETTING TOOL	Bowen No.	22709-15	22709-17	22709-21				
BALANCE PISTON	Logan Part No.	AL13000-16	AL13000-20	AL13000-24				
SETTING TOOL	Bowen No.	22729-16	22729-20	22729-24				

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

SPANG LINK JARS

Overview

Spang Link Jars are used in any wireline operation where jarring action is desirable. They are particularly suited to use as auxiliary equipment, for shearing pins, actuating plungers, and other similar uses. They are simple, lightweight, rugged, and easy to maintain.

SPANG LINK JARS

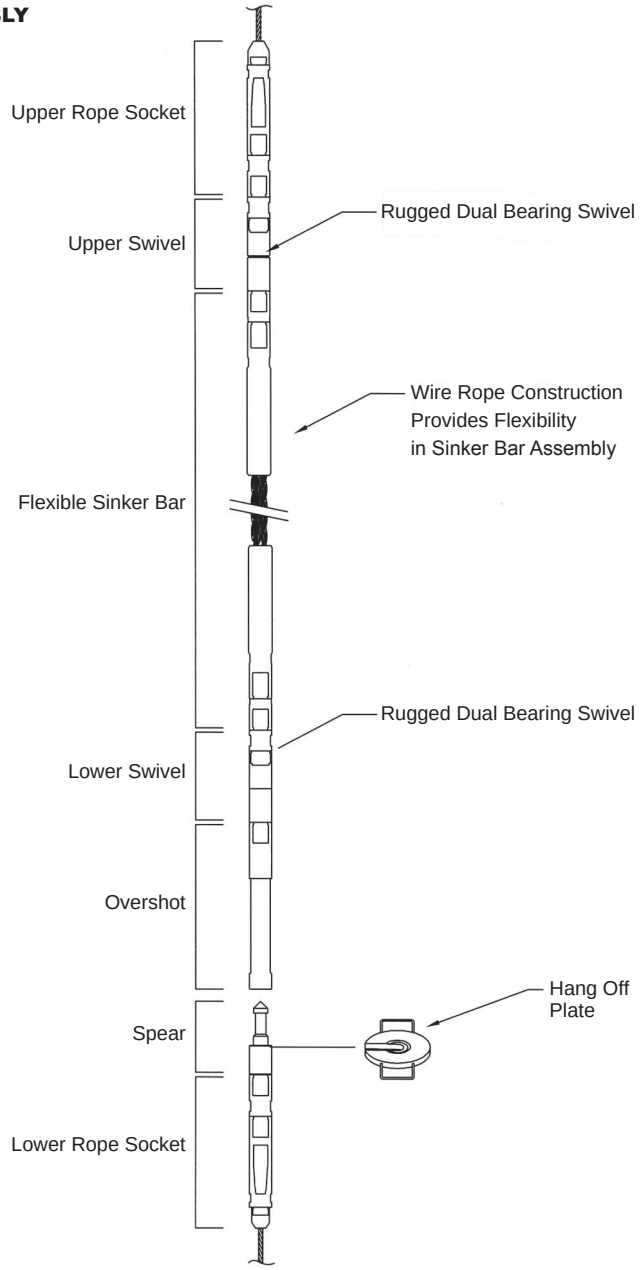
OUTSIDE DIAMETER		1	1-1/4	1-1/2	1-3/4	1-7/8		
TOP CONNECTIONS		5/8	15/16	15/16	3/4	3/4		
PIN BOTTOM - BOX		11 THD	10 THD	10 THD	SR	SR		
LENGTH OF STROKE (INCHES)		24	24	24 – 30	24 – 30	24 – 30		
COMPLETE ASSEMBLY	Logan Part No.	L18611	L186184	L18660	L18709	L21665		

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

When ordering, please specify:

(1) Complete assembly or part number
(2) Stroke length
(3) Size and type of connection

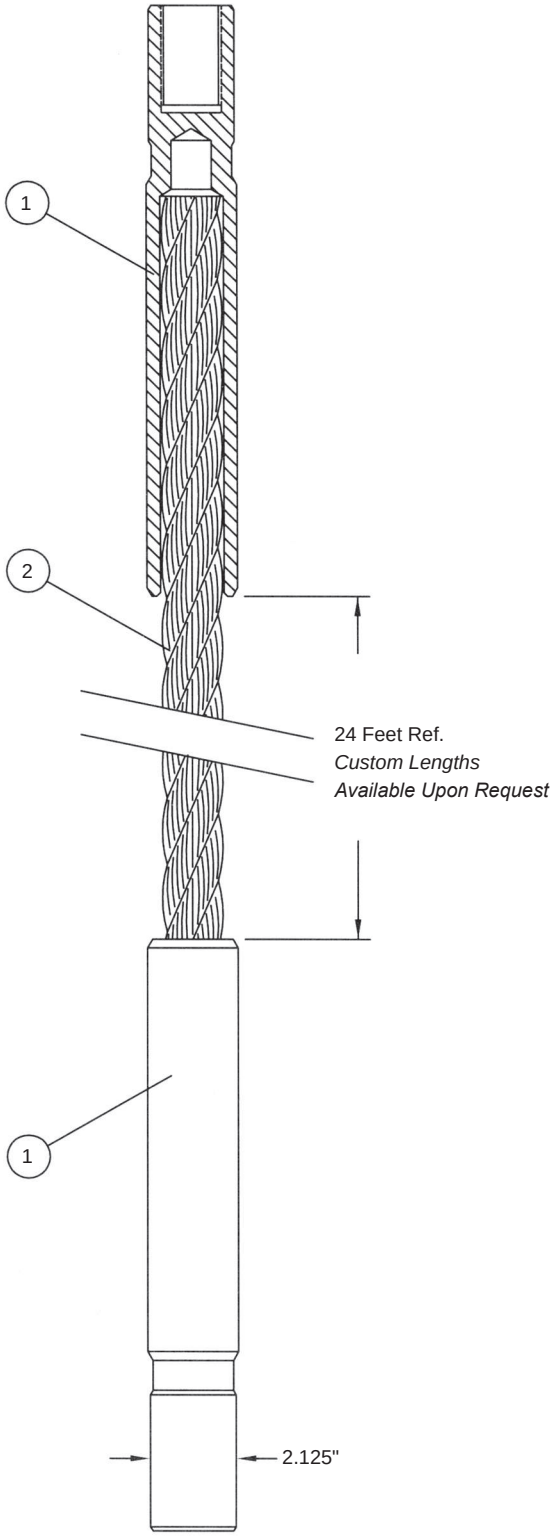
COOPER/LOGAN CABLE GUIDED FISHING ASSEMBLY WITH FLEXIBLE SINKER BAR



OUTSIDE DIAMETER (INCHES)		1-3/8	1-11/16	2-1/8 Knuckle
COMPLETE ASSEMBLY	Logan Part No.	...	...	...
SWIVEL	Logan Part No.	LCM47-100	LCM98-100	LCM71-100
FLEXIBLE SINKER BAR	Logan Part No.	LCM45-100	LCM97-100	LCM42-100
ROPE SOCKET – UPPER	Logan Part No.	LCM49-100	LCM12-102	LCM72-100
ROPE SOCKET – LOWER	Logan Part No.	LCM49-100	LCM12-102	LCM72-100
KNUCKLE JOINT	Logan Part No.	LCM92-100	LCM93-102	LCM94-100

ACCESSORIES

T-BAR CLAMP ASSEMBLY	Logan Part No.	LCM01-104	LCM01-104	LCM01-104
SPEAR HEAD OVERSHOT	Logan Part No.	LCM48-100	LCM76-100	LCM65-100



COOPER/LOGAN FLEXIBLE SINKER BAR ASSEMBLY

Overview

The Flexible Sinker Bar Assembly is designed for use during wireline stripping operations on drilling rigs that utilize top drive systems. The wire rope construction provides flexibility in the wire rope sinker bar assembly and alleviates the problems encountered when forcing a rigid type sinker bar assembly around the top drive housing. The slim-line rope socket provides clearance for running inside the drill pipe and is configured for large diameter wire rope to provide increased sinker bar weight.

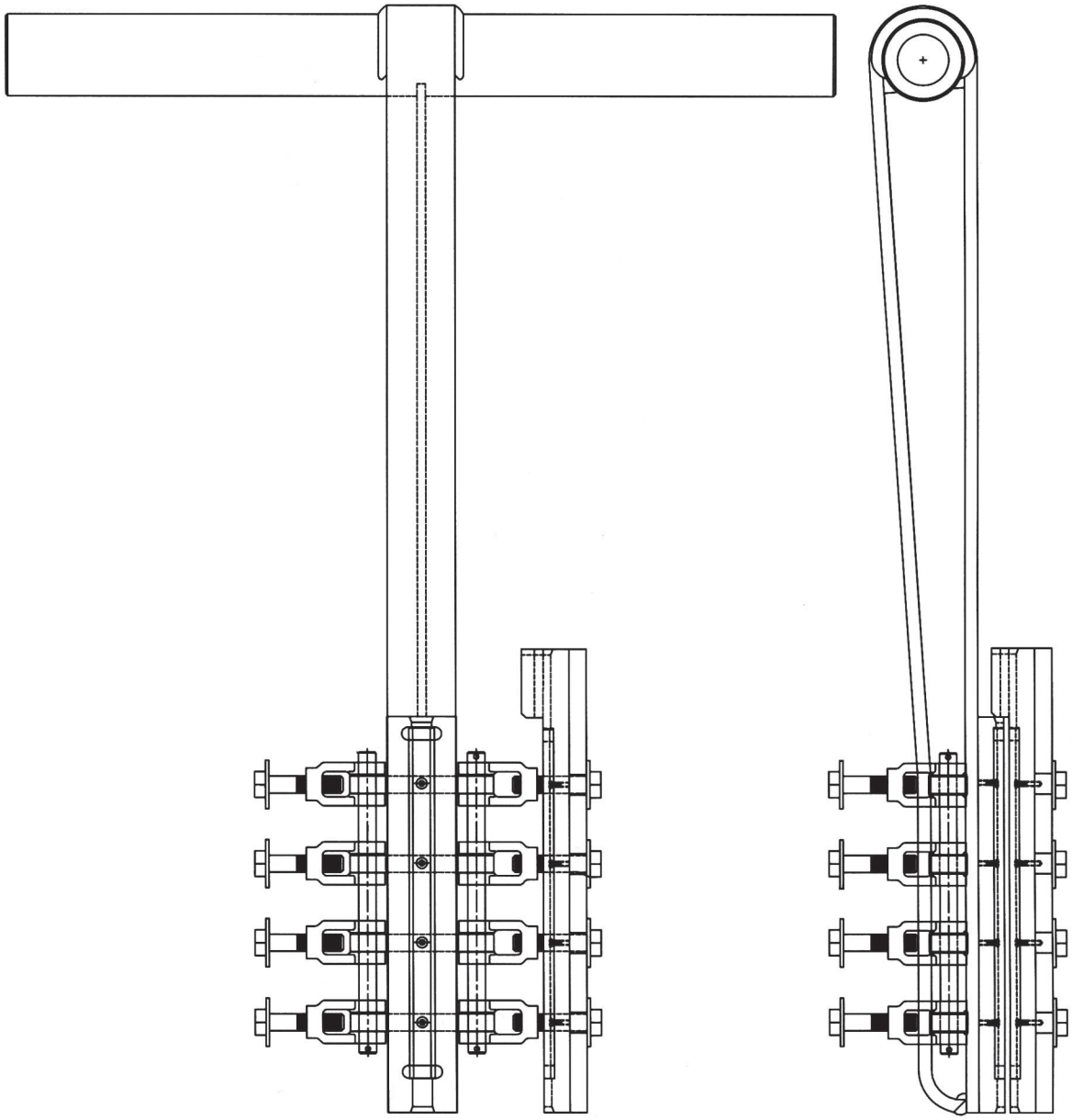
Notes:

1. *1.5" diameter wire rope – 6 x 41 IWRC (alternate 6 x 37), right regular lay EIPS (extra improved plow steel)*
2. *Maximum allowable working load: 25,000 lbs.*
3. *Proof load Wireline Sinker Bar Assembly to 50,000 lbs. prior to service.*
4. *Estimated total weight: 124.8 lbs.*

When ordering, please specify:

(1) Complete assembly number:

1-3/8" **LCM45-100**
1-11/16" **LCM97-100**
2-1/8" **LCM42-100**



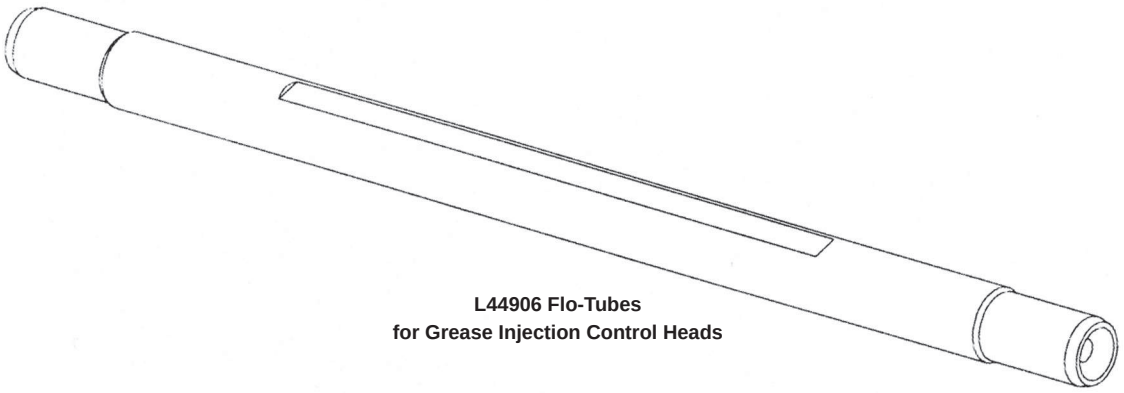
COOPER/LOGAN T-BAR WIRELINE CLAMPING TOOL

Overview

The T-Bar Wireline Clamping Tool is designed for wireline diameters up to 17/32" and wireline breaking strength of 24,500 pounds. Improved design features such as anti-shear on the upper clamp segment, increased support for wireline inserts, and increased T-bar body flange thickness, enhance the tool's safety during use in the field while maintaining the tool's proven existing capabilities.

When ordering, please specify:

(1) Complete assembly number: **LCM01-104**



L44906 Flo-Tubes
for Grease Injection Control Heads

FLO-TUBES

Part Number	Description	Actual Bore*
L44906-112	.107 – .109	0.112
L44906-135	.130 – .132	0.135
L44906-176	.171 – .173	0.176
L44906-177	.172 – .174	0.177
L44906-179	.174 – .176	0.179
L44906-183	.177 – .180	0.183
L44906-186	.181 – .183	0.186
L44906-189	.184 – .186	0.189
L44906-192	.187 – .189	0.192
L44906-194	.188 – .191	0.194
L44906-196	.192 – .193	0.196
L44906-199	.194 – .196	0.199
L44906-201	.195 – .198	0.201
L44906-208	.201 – .205	0.208
L44906-211	.206 – .208	0.211
L44906-213	.208 – .210	0.213
L44906-216	.211 – .213	0.216
L44906-219	.214 – .216	0.219
L44906-222	.216 – .219	0.222
L44906-223	.218 – .220	0.223
L44906-224	.219 – .221	0.224
L44906-226	.221 – .223	0.226
L44906-228	.222 – .225	0.228
L44906-231	.224 – .228	0.231
L44906-232	.227 – .229	0.232
L44906-234	.229 – .231	0.234
L44906-236	.231 – .233	0.236
L44906-238	.233 – .235	0.238
L44906-239	.234 – .236	0.239
L44906-240	.235 – .237	0.240
L44906-242	.237 – .239	0.242
L44906-245	.240 – .242	0.245

Part Number	Description	Actual Bore*
L44906-248	.242 – .245	0.248
L44906-249	.244 – .246	0.249
L44906-254	.248 – .251	0.254
L44906-256	.251 – .253	0.256
L44906-258	.253 – .255	0.258
L44906-260	.255 – .257	0.260
L44906-261	.256 – .258	0.261
L44906-267	.262 – .264	0.267
L44906-268	.263 – .265	0.268
L44906-275	.269 – .272	0.275
L44906-286	.281 – .283	0.286
L44906-288	.283 – .285	0.288
L44906-291	.285 – .288	0.291
L44906-293	.288 – .290	0.293
L44906-295	.290 – .292	0.295
L44906-298	.292 – .295	0.298
L44906-306	.300 – .303	0.306
L44906-312	.307 – .309	0.312
L44906-315	.310 – .312	0.315
L44906-316	.311 – .313	0.316
L44906-318	.312 – .315	0.318
L44906-321	.315 – .318	0.321
L44906-322	.317 – .319	0.322
L44906-325	.319 – .322	0.325
L44906-326	.321 – .323	0.326
L44906-328	.323 – .325	0.328
L44906-332	.327 – .329	0.332
L44906-334	.329 – .331	0.334
L44906-337	.332 – .334	0.337
L44906-339	.334 – .336	0.339
L44906-341	.336 – .338	0.341
L44906-343	.338 – .340	0.343

** +.002/–.000*

FLO-TUBES

Overview

Logan Oil Tools manufactures and supplies L44906 Flo-Tubes for grease injection control heads. After analyzing the industry's supply and demand of Flo-Tubes, a true need for a reliable and responsive source for this product was revealed — a source that could address the demand, and quickly dispatch the sizes and quantities needed in the field.

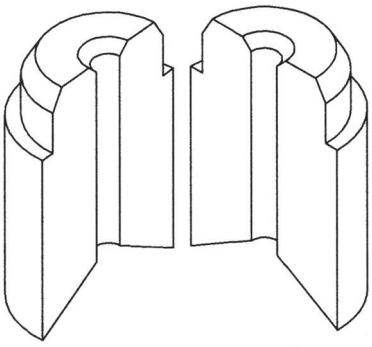
Comprehensive Inventory

Logan Oil Tools maintains a comprehensive inventory of all commonly requested sizes in its Houston warehouse as well as in all seven of its branch locations. Should your operations require sizes which you have found to be difficult to obtain, please discuss this with us. We will make arrangements to manufacture and stock those sizes in the quantities anticipated for future needs. Since Logan Oil Tools has its own gun drilling facility, we can respond quickly, maintain the quality you expect from Logan Oil Tools, and continue to meet your delivery demands.

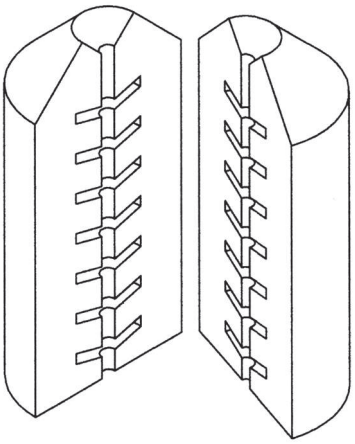
When ordering, please specify:

(1) Calipered size,
(2) Actual bore size, or
(3) Range of tubes needed

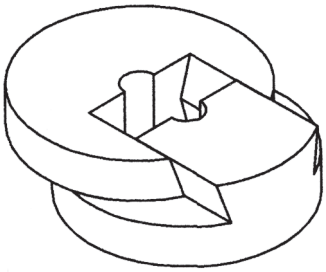
WIRELINE SPARE PARTS



Line Bushing



Line Rubber



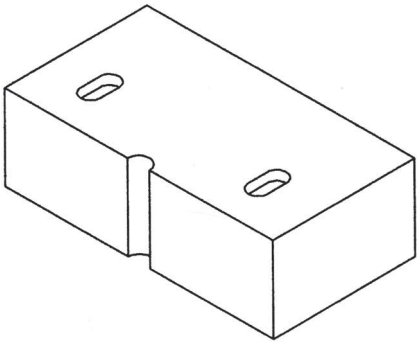
Interlocking Seats

REPLACEMENT PARTS FOR HYDRAULIC AND MANUAL LINE WIPERS AND CONTROL HEADS

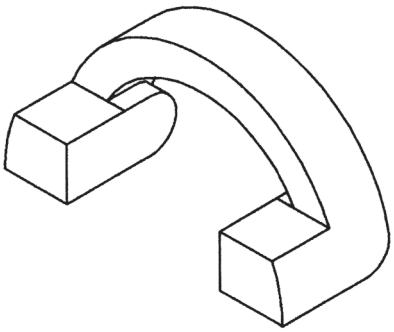
LINE BUSHINGS	Logan Part No.	L262	L10402	L74545				
LINE RUBBERS	Logan Part No.	L10975	L267	L10203				
INTERLOCKING SEATS	Logan Part No.	L10974	L6482	L10204				

REPLACEMENT PARTS FOR MEASURING LINE STUFFING BOXES

STUFFING BOX PACKING	Logan Part No.	LSBBT-6GR	LSBBT-BLACK	LSBBT-CROWN	LSBBT-RED



Inner Seal



Outer Seal

REPLACEMENT PARTS FOR WIRELINE BLOWOUT PREVENTERS

WIRELINE BOP INNER SEALS	Logan Part No.	L42211	L44155	L44098				
WIRELINE BOP OUTER SEALS	Logan Part No.	L42213	L44156	L44099				

85-TON POWER SWIVELS

Overview

The hydraulic motor-driven, Logan 85-Ton Power Swivel provides smooth, shock-free torque. It is rated to support tensile pipe loads of 85 tons at zero rpm and 45 tons of dynamic load at 100 rpm. The compact, swivel-head design weighs only 1,163 lbs and fits into most drilling or workover masts.

The design incorporates a reliable, custom drive train with hardened steel gears. For most applications, the Logan 85-Ton Power Swivel eliminates the use of dangerous spinning chains, tongs, and kelly spinners. The Power Swivel facilitates drilling with longer drill string lengths before the rig must be shut down to add pipe. Stops and start-ups are thereby reduced — improving rig efficiency and reducing wear on the pump, drawworks, and other rig equipment.

The Logan 85-Ton Power swivel uses a closed loop hydraulic system with a variable displacement, bi-directional pump, and air or electric remote controls. Speed control is continuously variable over the entire operating range. Pressure compensating-type torque control overrides the speed control to maintain maximum torque. The power unit's torque limits can be set, thereby eliminating the potential danger of twist-offs or swollen boxes in the drill string. An integral rotary swivel bearing, floating washpipe assembly, and gooseneck connection eliminates the need for a separate rotary swivel.

A 2-1/2" bore gooseneck and washpipe assembly allows circulation through the 2" I.D. stem while rotating or in static mode. An access plug allows wireline to be run through the unit.

Features include:

- Smooth, shock-free torque reduces drill string damage
- Fits most drilling and work over masts
- Allows use of longer drill string lengths
- Power unit torque limits can be set
- Separate rotary swivel is unnecessary
- Choice of diesel engines
- Increased environmental safety features on skids and trailers
- Easy to service

Extra cost options include:

- Air- or hydro-start engine
- Special hydraulic motor
- Lifting frame
- Electric or hydraulic loading winch
- Motor brake
- Control can be operated remotely or from the power unit
- Cold weather package



Gooseneck Trailer-Mounted Unit, Side View

The complete Logan 85-Ton Power Swivel package includes an elevator-type bail or hook-link adapters; a unitized washpipe packing box assembly; a fixed displacement, piston-type, hydraulic motor rated at 5,000 psi; a torque rein assembly; safety cable; and 1-inch quick disconnects. The components are available either trailer- or skid-mounted with powered hose reels to form a rugged unit. A swivel carrying stand is standard.

***CAUTION:** Refer to the installation procedure outlined on page 4 of the instruction manual before installing the Logan 85-Ton Power Swivel on a rig. Failure to properly install the Power Swivel can result in injury to the operator and/or rig floor personnel.*

Uses

The Logan 85-Ton Power Swivel is ideally suited for use in fishing and workover operations — such as the internal or external cutting of casing, tubing, or drill pipe; drilling out plugs, packers, or cement; milling operations; or scraping casing — whenever shock-free, controlled torque is essential to eliminating the potential danger of twist-offs or damage to cutting tools.

The compact, lightweight swivel-head design also makes it extremely effective for light to medium drilling applications including water wells, pilings for piers and foundations, in addition to oil and gas wells. Suspending the swivel from a boom or crane eliminates a great deal of set-up time or shifts to additional locations.

The Logan 85-Ton Power Swivel is also ideal for coring operations. Any length of core may be taken. Accurate and smooth torque ensures against damage to core tools or strings.

Construction

Power Swivel Assembly

The Logan 85-Ton Power Swivel is powered by a fixed displacement, piston-type, hydraulic motor rated at 5,000 psi. The motor is mounted on the underside of the swivel and is protected by a steel frame.

Two high pressure hydraulic hoses and the motor drain hose exit from the bottom of the assembly. The high pressure hydraulic hoses connect to the motor with quick disconnects. The motor drain hose is fitted with a self-sealing quick disconnect coupling.

The one-piece gooseneck is constructed of cast steel. A 2-inch I.D. NPT access plug located in the top allows passage of wireline and small tools through the swivel for downhole operations. The gooseneck and swivel packing are hydrostatically tested and rated at 5,000 psi circulating pressure.

The floating washpipe assembly and packing are self-aligning. Friction bearing surfaces of the washpipe (areas that contact the packing) are hard-surfaced for wear-resistance.

The elevator bail is machined from forged, heat-treated alloy steel for maximum strength. The bail, bail pins, and body are manufactured to API guidelines. The design incorporates a reliable, custom drive train with hardened steel gears consisting of: a motor drive gear, reduction drive gear, an intermediate gear, and the main drive gear. Roller bearings keep the gears in close alignment.

A magnetic drain plug is located on the lower cover plate of the swivel assembly. A tell-tale hole in the lower plate indicates hydraulic oil leakage past the motor shaft seal or lubricating gear oil past the input pinion shaft. A filler/relief plug is located on the upper cover plate. The gear housing is equipped with an oil level sight glass so the operator may check oil level with a quick glance.

To protect the main stem oil seal from dirt, an excluder seal is installed below the packing nut.

Control Units
Air controls consist of an air compressor and tank, an air filter/regulator/lubricator unit, and a pedestal mounted control panel with extra lines fitted with quick disconnect couplers. A lever-operated air valve controls the engine speed. Another single-lever air valve controls the direction and speed of the Power Swivel. A torque gauge, calibrated in ft-lbs, indicates torque.

Control assemblies for the Logan 85-Ton Power Swivel are either air or electric. They can be operated remotely (extra cost option) for operator convenience and safety, or from the power unit. Remote control assemblies are pedestal mounted. The control assembly is lightweight and the pedestal base is removable for easy storage on the trailer or skid. A new wireless remote with an operating range of 150 feet is also available.

The electric control panel consists of a rotary switch for controlling swivel direction and speed, an engine rpm control switch, a digital torque gauge, and an engine kill switch. An emergency kill switch is available for hazardous locations.

Torque limits can be easily and accurately set on both air and electric control units. A torque control unit mounted on the fuel tank can be preset to the desired torque limit with the turn of a knob. Torque will be indicated on the control panel in ft-lbs.

Basic Power System
The Logan 85-Ton Power Swivel is equipped with a diesel engine to provide power. The engine is sized to provide sufficient horsepower to operate the swivel to full torque and rpm limits. Control systems may be either air or electric.

On units equipped with air control systems, an air compressor, a three-gallon receiver tank, and an air filter-lubricator are also provided.

Hydraulic System
The hydraulic system includes a direct driven, variable displacement hydraulic pump that is mounted directly on the engine flywheel housing. All piping, valves, fittings, reservoirs, and other components required to complete the system are included. The hydraulic system is designed and rated at 5,000 psi working pressure.

The hydraulic reservoir is designed to dissipate heat and is adequately sized to disperse foam that may be generated during operation. A suction strainer and high pressure filters provide continuous filtration of the hydraulic fluid. Visual registers on the tank return filter and high pressure filters indicate when these elements need to be replaced.

Hydraulic hoses are reel-mounted on the power unit. They are connected to the power swivel hydraulic motor with swivel joints and quick disconnects.

A swivel carrying rack allows the swivel to be loaded and unloaded without breaking the hose connections.

Power Unit
The compact, easily transportable Power Swivel units may be mounted on a trailer, skid, or containerized. All units consist of an engine with a hydraulic pump, hydraulic piping, a hydraulic fluid reservoir, a hose reel assembly and hoses necessary for supplying hydraulic power to the power swivel motor. Brackets to hold and transport the swivel and the control panel are included.

Trailer-Mounted Unit
The compact, tandem axle trailer units meet all ICC regulations and are equipped with heavy-duty springs and electric brakes. The trailer can be supplied as a gooseneck or bumper pull trailer. Diamond-patterned deck plate provides solid, skid resistant flooring over the all welded, steel frame.

Skid-Mounted Unit
Skid units are rugged and made of heavy-duty structural tubing with welded construction. Both ends are rounded for easy skidding. Ends are fitted with an integral pipe that may be used to attach boom lines or hoist slings. Main runners, running the length of the skid, are strengthened by cross-members for additional rigidity. The entire frame is covered with diamond-patterned deck plate to provide a solid, skid resistant floor.

To meet environmental regulations, both trailer- and skid-mounted units are equipped with an integral containment lip to contain fluid spills.

Containerized Unit
Containerized units are built into a 20-foot ocean container. The containers are equipped with two bi-fold doors on one side, and double doors in the rear, to allow complete access. A louvered vent, which has an adjustable cover that can be sealed off for storage or transport, is installed on the front. The floor is diamond tread steel plate.

Operation

General Rules
Logan Oil Tools recommends the following rules be observed when operating the Power Swivel. These operational rules apply to all power swivel units, whether they are equipped with air or electric controls.

1. The pump displacement control should always be used to change the speed of the swivel. Setting the engine at the rated rpm will prolong engine and pump life, burn less oil, and result in increased fuel economy.
2. Set the speed control at neutral and allow the swivel to completely stop rotation before switching directions.
3. Filters should be checked on a daily basis.
4. The hydraulic fluid level should be checked daily. If the level is below the sight gauge, add hydraulic fluid.
5. Do not permit the hydraulic oil temperature to exceed 190°F for extended periods.

Air Controls
The air control system utilizes a lever-type control valve that is mounted on the remote control panel. These controls provide variable air pressure from 0 to 100 psi to the actuator/positioner to control both engine rpm and the speed/direction of swivel rotation.

When the swivel control lever is in the center position, the pump is in neutral and the Power Swivel is not rotating.

Electric Controls
Diesel engine rpm is controlled by the switch labeled “ENGINE” on the control panel.

Swivel rotation is controlled by the knob labeled “SWIVEL RPM.” It utilizes a forward/neutral/reverse switch to control rotation direction. Moving the switch to the “FORWARD” position will cause the Power Swivel to move in a right-hand (clockwise) direction.

Turn the “ENGINE” switch to “RUN” to increase engine rpm.

Pressure compensating-type torque control overrides the speed control to automatically maintain the maximum pre-established torque limit. This is accomplished by destroking the pump while maintaining engine speed.



POWER SWIVEL SPECIFICATIONS

MODEL NO.	PS85
NOMINAL LOAD RATING (tons)	85
DYNAMIC LOAD RATING @ 100 RPM (tons)	45
MAXIMUM TORQUE (ft-lbs)	3,950
MAXIMUM SPEED (rpm)	155
MAXIMUM CIRCULATING PRESSURE	5,000
STANDARD STEM CONNECTION	2-7/8 IF
GOOSENECK CONNECTION	2-1/2 NPT
SWIVEL HEAD ASSEMBLY WEIGHT (lbs)	1,163

POWER UNIT & CONTROL SPECIFICATIONS

MODEL NO.	PS85
DIESEL ENGINE *	QSB4.5 or C4.4
ENGINE CONT HP @ 2000 RPM	83
HYDRAULIC OUTPUT (max gpm/max psi)	43/5,000

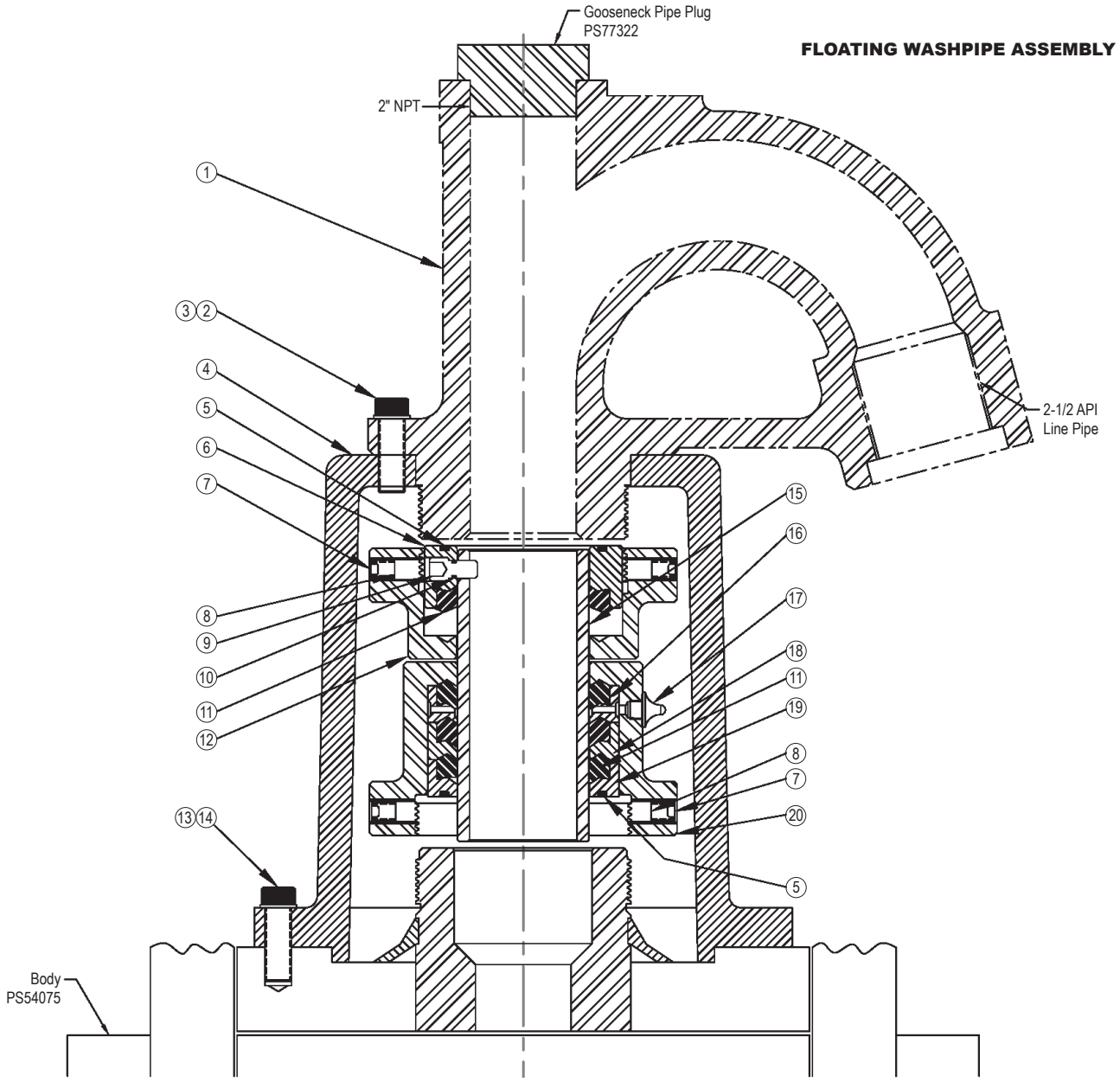
** Choice of Cummins, Caterpillar/Perkins, or John Deere*

CAUTION: *Before installing a Logan 85-Ton Power Swivel on a rig, refer to the installation procedure on page 5 of the instruction manual. Failure to properly install the Power Swivel can result in injury to the operator and rig floor personnel.*

PS85 POWER UNIT PARTS LIST

LOGAN PART NO.	QTY	DESCRIPTION
HYDRAULIC PUMP		
PS311412-001	1	Hydraulic Pump for Air Controls, Closed Loop
PS311412-002	1	Hydraulic Pump for Electric Controls
PS02196	1	Pump Stroke Positioner
PS02196-002	1	Pump Stroke Positioner Repair Kit
PS339412	1	Pump Stroke Positioner Bracket
PS73426	1	1/4" Check Valve
PS255002	1	Pump Motor Adapter
PS99376-002	1	Auxiliary Pump (Hose Reel Hydraulic Winch)
PS529412	1	Air Shuttle Valve (Pump Stroke)
HYDRAULIC RESERVOIR		
PS89046-001	1	40 gal Hydraulic Tank Reservoir
Consisting of:		
PS780412	1	Hydraulic Suction Strainer
PS754T08N	1	Hydraulic Suction 2" Ball Valve
PS099612	1	Hydraulic Return Filter Assembly
PS099612-001	1	Hydraulic Return Filter Element Only
PS02311	1	Filler Breather Cap
PS30795-002	1	Oil Level Gauge with Temperature
PS89046	1	Hydraulic Reservoir Only
PS233612	1	Relief Back Pressure Orifice
PS529412		Air Shuttle Valve
FUEL TANK		
PS96892-001	1	60 gal Fuel Tank Assembly
Consisting of:		
PS96892	1	Fuel Tank Only
PS96892-2	2	Fuel Sight Tube
PS94626	1	1-1/4" High Pressure Ball Valve
PS61648	2	High Pressure Filter Assemblies
PS02311	1	Filler Breather Cap
PS811412	1	Fuel Suction Tube
PS811412-A	1	Fuel Return Tube
MISCELLANEOUS		
PS57196	1	Heat Exchanger
PS57196-002	1	Heat Exchanger Guard
PSMM9000	1	Electric Winch
PS558612-001	1	Hydraulic Winch
PS44046	1	Battery Box
PS64044-003	1	Tool Box
PS211412	1	Power Swivel Stand
PS02196-002		Pump Stroke Positioner Repair Kit
PS921412-002		High Pressure Filter Housing
PS921412-003		High Pressure Filter Head
PS473912		Three-Port Coupler Repair Kit
HOSE REEL		
PS670712	1	Hose Reel Assembly
PS670712-HW	1	Hose Reel Assembly with Hydraulic Winch
PS06595	1	100 ft, High Pressure Hose Assembly
PS67595	1	100 ft, 3/4" Case Drain Hose
PS195412	1	Hydraulic Valve for Reel
PS195412-001	1	Hydraulic Valve for Reel with Hydraulic Winch
PS52250-1	1	Valve Handle Replacement Only
PS220712	1	Hydraulic Motor Hose Reel
PS89638-002	1	Flow Control Hose Reel
PS490412	1	Three-Port Coupling Hub
PS120712	1	Torque Hub
PS990412	1	Flanged Bearing

LOGAN PART NO.	QTY	DESCRIPTION
AIR TORQUE SET PANEL		
PS223612	1	Torque Set Panel Assembly
PS22236	1	0 – 3,950 ft/lbs Torque Gauge
PS98126	1	Torque Set Relief Valve
PS220512	1	Torque Set Air Override Valve
AIR CONTROL PANEL		
PS09966-003	1	Pump Control Valve
PS29966	1	Engine Throttle Control Valve
PS22236	1	0 – 3,950 ft/lbs Torque Gauge
PS220512	1	Engine Kill Valve
PS80345-003	5	1/4" Quick Disconnect, Air Male x Male Pipe
PS70345	1	1/4" Quick Disconnect, Hydraulic Male x Male Pipe
PS217752	1	Control Umbilical Bundle
PS70345-001	5	1/4" Quick Disconnect, Air Female
PS80345	1	1/4" Quick Disconnect, Hydraulic Female
AIR PREPARATION PACKAGE		
PS81455-002	1	Air Preparation Package
PS81455	1	3 Gallon Air Receiver
PS24695	1	Gauge
PS73585	1	Safety Pop-Off Valve
PS93646-001	1	Filter Regulator/Lubricator
PS81455-003	1	Tank Guard
ELECTRIC CONTROL BOX		
PSEC1009	1	Digital Torque Display
PSEC1008	1	Electric Pump Stroke Control
PSEC1041	1	Electric Control Cable Assembly
PS58628-010	2	Control Cable Connector Plug
PS58628-011	1	Panel Mount Connector Receptacle
PSEC1006	1	Two-position Switch/Engine Throttle
PSEC1007	1	Three-Position Switch/Direction Selector
HYDRAULIC FILTERS		
PS915512	1	Charge Pump Filter
PS780412-001	1	Suction Strainer
PS099612-001	1	Return Filter Element
PS921512-001	1	High Pressure Filter Element



FLOATING WASHPIPE ASSEMBLY (PS49028-001) REPLACEMENT PARTS

ITEM	LOGAN PART NO.	QTY	DESCRIPTION
1	PS09028	1	Gooseneck
2	ACSA8-500-13-150	4	1/2" - 13 x 1-1/2" Socket Head Cap Screw
3	LKWA-500	4	1/2" Lock Washer
4	PS19028	1	Bonnet
5	568236-100	2	O-Ring
6	PS79028	1	Upper Packing Nut Ring
7	PS50732-003	8	1/2" - 13 NC x 3/4 Socket Set Screw
8	PS20128	8	Washpipe Packing Nut Screw Retainer
9	PS99028-001	3	Washpipe Locking Pin with O-Ring
10	568010-100	3	O-Ring

ITEM	LOGAN PART NO.	QTY	DESCRIPTION
11	PS72327	1	Packing Set
12	PS39028	1	Upper Packing Nut
13	ACSA8-625-13-150	4	5/8" - 13 x 1-1/2" Socket Head Cap Screw
14	LKWA-625	4	5/8" Lock Washer
15	PS49028	1	Washpipe
16	PS69028	1	Spacer and Lantern Ring
17	PS63672	1	Packing Nut Grease Fitting
18	PS62327	1	Plain Spacer Ring
19	PS42327	1	Packing Bottom Ring
20	PS29028	1	Lower Packing Nut

SWIVEL HEAD PART LIST

Item numbers refer to drawing callouts on pages 301 – 311

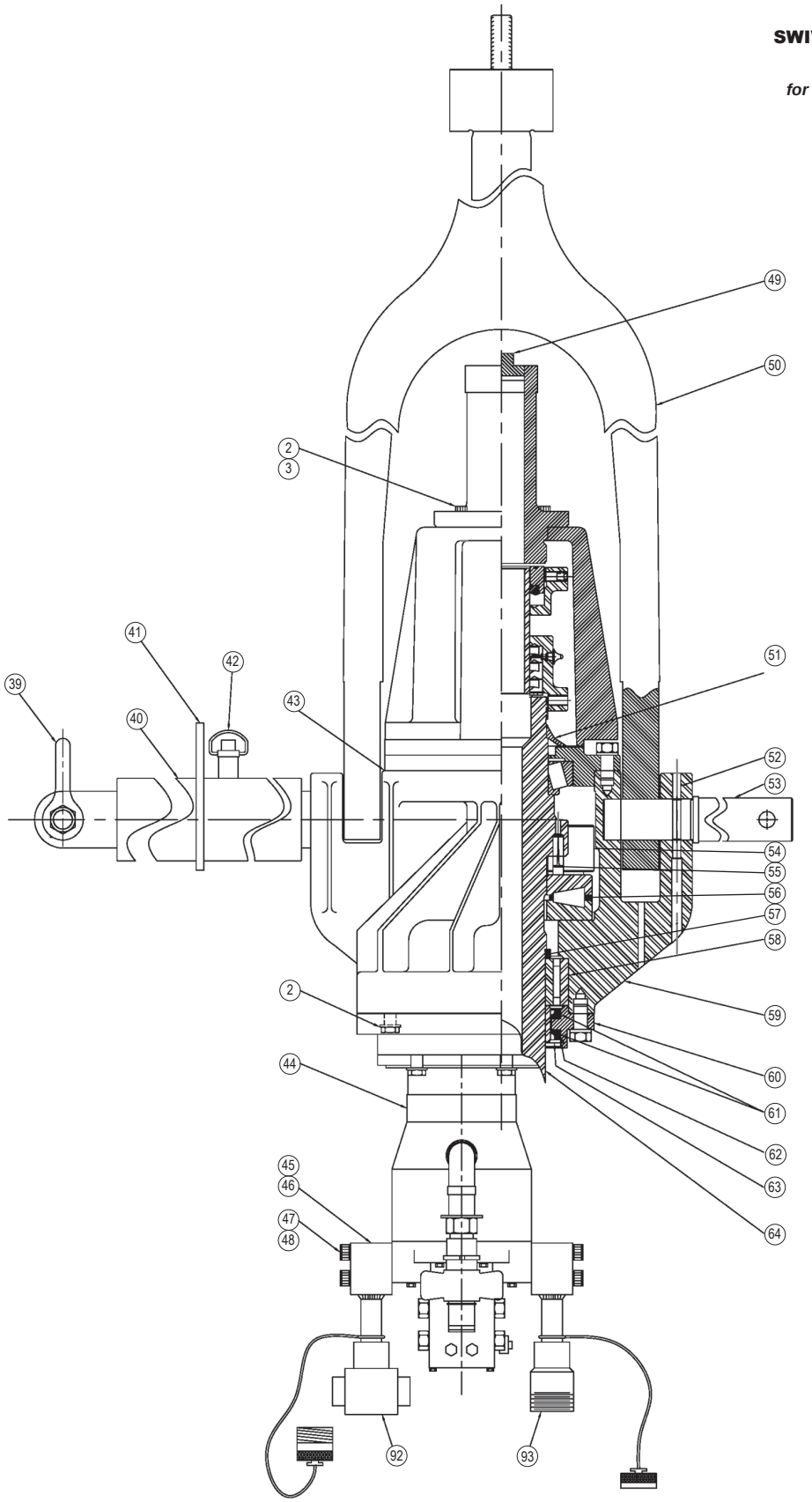
ITEM	PART NO.	QTY.	DESCRIPTION
1	PS09028	1	Gooseneck
2	ACSA8-500-13-150	14	1/2" - 13 x 1-1/2" Long Socket Head Cap Screw
3	LKWA-500	18	1/2" Lockwasher
4	PS19028	1	Bonnet
5	568236	2	O-Ring
6	PS79028	1	Upper Packing Nut Ring
7	PS50732-003	8	1/2" - 13 NC x 3/4" Long Socket Set Screw with Brass Point
8	PS20128	8	Washpipe Packing Nut Screw Retainer
9	PS99028	3	Washpipe Locking Pin with 568010 O-Ring
10	568010	3	O-Ring
11	PS72327	1 Set	Packing
12	PS39028	1	Upper Packing Nut
13	ACSA8-625-13-150	8	5/8" - 11 x 1-1/2" Long Socket Head Cap Screw
14	LKWA-625	23	5/8" Lockwasher
15	PS49028	1	Washpipe
16	PS69028	1	Spacer and Lantern Ring
17	PS63672	1	Packing Nut Grease Fitting
18	PS62327	1	Plain Spacer Ring
19	PS42327	1	Packing Bottom Ring
20	PS29028	1	Lower Packing Nut
21	HCSA8-625-13-150	9	5/8" - 11 x 1-1/2" Long Hex Head Cap Screw
22	PS44322	4	Dowel Pin
23	AHSS-625-11-625	4	5/8" - 11 x 5/8" Long Allen Head Set Screw
24	PS77122	1	Filler Plug Relief Fitting
25	PS98352	1	Oil Filler Plug
26	PS72602	1	Magnetic Drain Plug
27	PS72516	1	7/8" - 14 NPT x 3/4" Adapter
28	PS26274	1	3/4" x 90, 150# Street Ell
29	PS86753	1	3/4" Close Nipple
30	PS79052-001	1	3/4" Wing Nut Quick Disconnect
31	PS90152-002	1	3/4" Metal Dust Cap
32	PS90152-003	1	3/4" Metal Dust Plug
33	PS55164	1	Lower Bearing Retainer Gasket
34	HCSA8-625-11-175	6	5/8" - 11 x 1-3/4" Long Hex Head Cap Screw
35	PS50602	1	Saver Sub
36	HCSA8-500-13-150	4	1/2" - 13 x 1-1/2" Long Hex Head Cap Screw
38	PS53506	2	1" Swivel Joint
39	PS55115-003	1	Shackle
40	PS55115-002	1	Torque Rein Assembly (Long)
41	PS697702	1	Torque Rein Eye
42	PS21415	1	Torque Rein Pull Pin
43	PS91875	1	Upper Gear Cover Shim
44	PS91826-003	1	Hydraulic Motor
45	PS65895	2	1" - 4" Bolt Elbow Flange
46	568219-200	2	Flange O-Ring
47	ACSA8-375-13-275	8	3/8" - 16 x 2-3/4" Long Socket Head Cap Screw
48	LKWA-375	8	3/8" Lockwasher
49	PS77322	1	Gooseneck Pipe Plug
50	PS20213-001	1	Elevator Bail (Cast)
51	PS28444	1	Seal Protector
52	PS34813-001	2	Bolt and Nut for Bail Pin
53	PS65115	2	Bail Pin
54	PS12965	1	Final Reduction Gear
55	PS64702	6	Ring Gear Groove Pin
56	PS98402	1	Main Thrust Bearing
57	PS04685	1	Lower Stem Bearing Spacer
58	PS70602	1	Lower Stem Bearing
59	PS54075	1	Body
60	PS14685	1	Lower Stem Bearing Retainer
61	PS22602	2	Lower Oil Seal
62	PS16303	1	Seal Retainer Snap Ring
63	PS51602	1	Lower Seal Wear Ring
64	PS18444-001	1	Stem
65	PS64165	1	Second Reduction Pinion
66	PS05775	1	Second Reduction Gear Key
67	PS15165	1	First Reduction Pinion Upper Bearing
68	PS37965	1	First Reduction Pinion Upper Gear
69	PS05165	1	First Reduction Pinion Lower Bearing
70	PS44685	1	First Reduction Pinion Bearing Spacer
71	PS12685	1	Lower Gear Cover Gasket
72	PS25165	1	First Reduction Pinion Oil Seal
73	PS62516	1	Hydraulic Motor Adapter
74	PS08327	1	Retainer Ring
75	PS97327	1	Motor Adapter Sleeve
76	PS45165	1	Retainer Ring
77	PS85152	1	Second Reduction Shaft Lower Bearing
78	PS65165	2	Reduction Gear Key
79	PS95675	1	Lower Gear Cover Plate
80	PS27965	1	First Reduction Gear
81	PS84165	3	Roller Bearing
82	PS55935	1	Oil Seal Grease Fitting
83	PS90137	1	Oil Level Indicator Plug
84	PS88402	1	Upper Stem Bearing
85	PS02685	1	Upper Oil Seal
86	PS12165	1	Second Reduction Gear
87	PS53775	1	Upper Gear Cover Plate
88	PS03165	1	Final Reduction Pinion
89	PS95516-001	1	Motor Guard
90	PSWB3	3	Hose Safety Cable
91	G14085-BULK		HD-85W-140 Gear Lube, 2.5 Gal
92	PS65152	1	1" Quick Disconnect Coupler
93	PS01152	1	1" Quick Disconnect Nipple
	PS71107-001		Hydraulic Motor Shaft Seal Kit

TORQUE REINS AND COMPONENTS

PART NO.	DESCRIPTION	LENGTH/STROKE
PS55115-002	PS85 Long Torque Rein (standard with head or unit)	Retracted 31.25"/Extended 48.5" Long
PS55115-001	PS85 Short Torque Rein	Retracted 20"/Extended 26.5" Long
PS55115-006	PS85 Extra Short Torque Rein	Retracted 12"/Extended 19" Long
PS55116-001	PS85 Torque Rein Roller Assembly (includes insert to minimize movement to Torque Rein)	

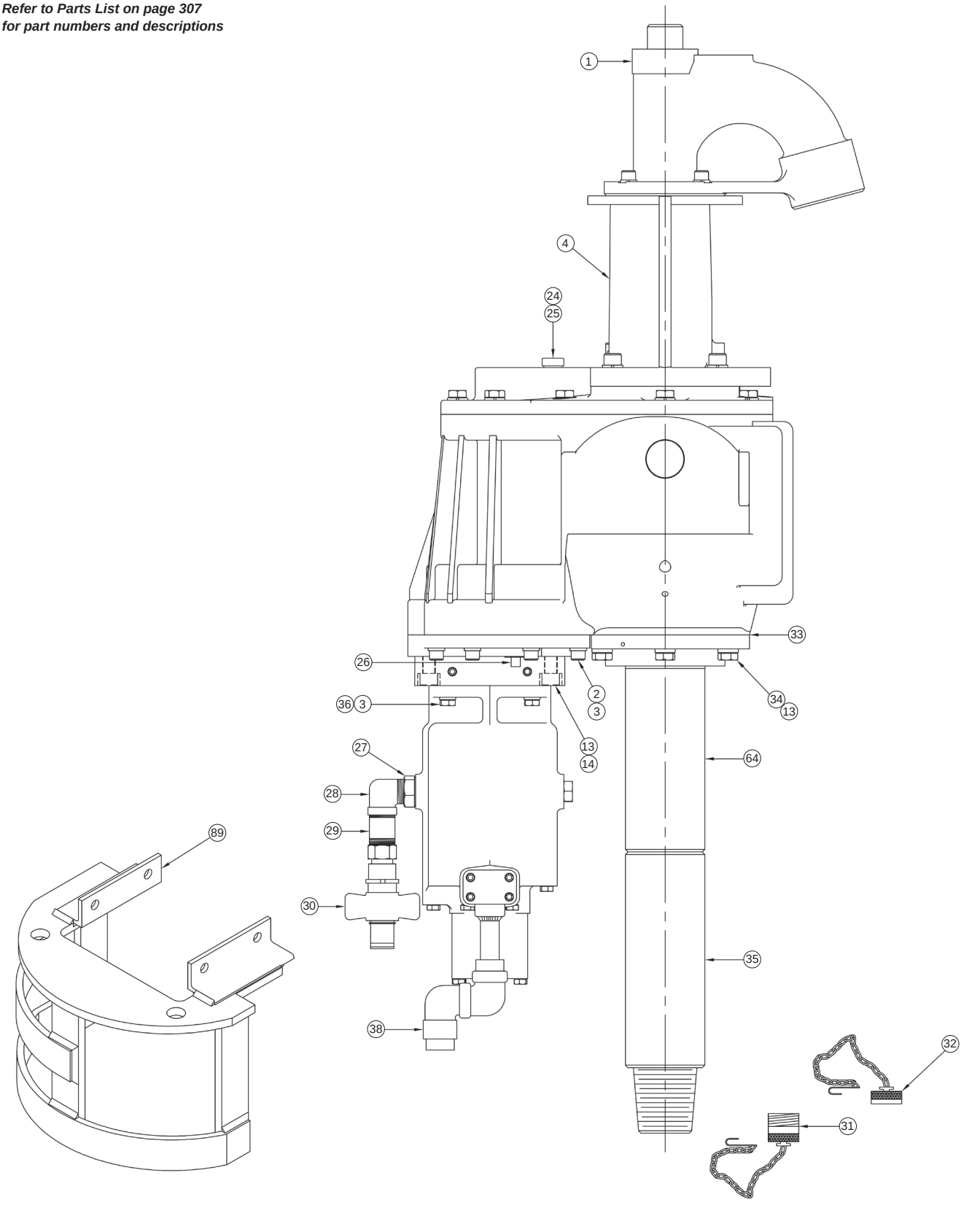
SWIVEL HEAD – FRONT VIEW

Refer to Parts List on page 307 for part numbers and descriptions



SWIVEL HEAD – SIDE VIEW

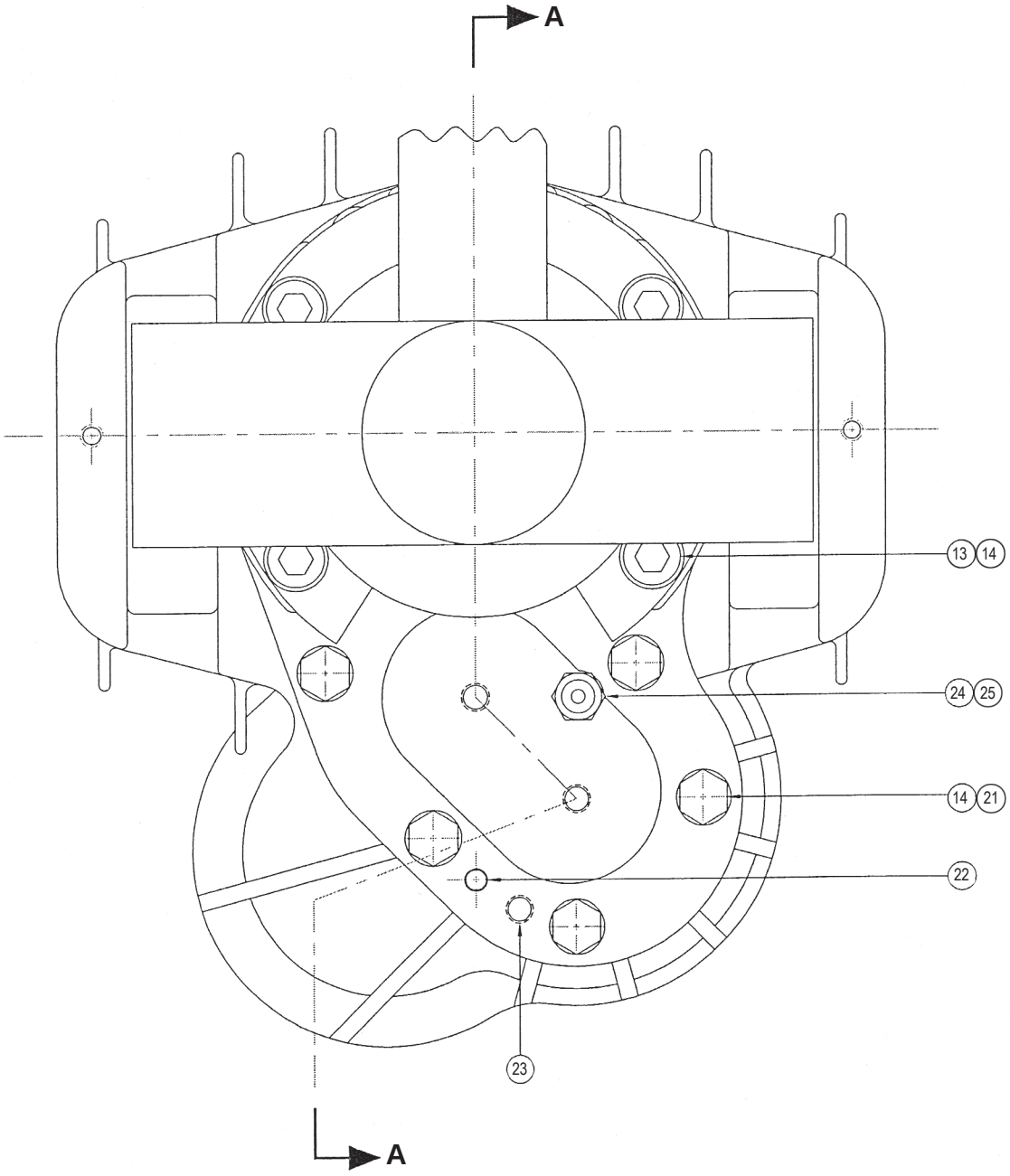
Refer to Parts List on page 307 for part numbers and descriptions



SWIVEL HEAD – TOP VIEW

Refer to Parts List on page 307 for part numbers and descriptions

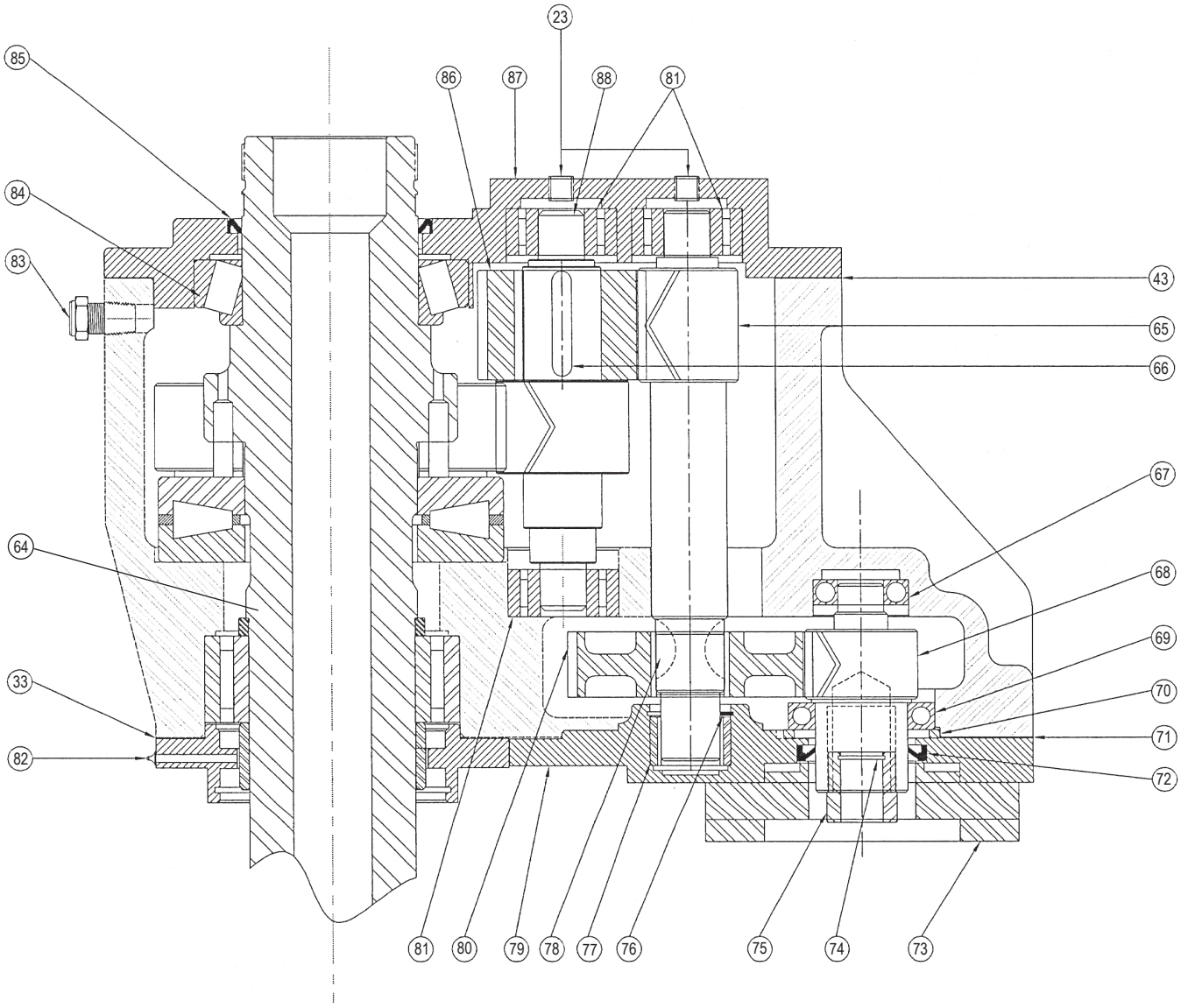
(See page 304 for Section A-A)



(See page 304 for Section A-A)

SECTION A-A – THROUGH GEAR TRAIN

Refer to Parts List on page 307 for part numbers and descriptions



120-TON POWER SWIVELS

Overview

The hydraulic motor-driven, Logan 120-Ton Power Swivel provides smooth, shock-free torque. It is rated to support tensile pipe loads of 120 tons at zero rpm and 65 tons of dynamic load at 100 rpm. The compact, swivel-head design weighs only 2,000 lbs and fits into most drilling or workover masts. Maximum torque is rated at 8,100 ft/lbs at 150 rpm maximum.

The design incorporates a reliable, custom drive train with hardened steel gears. For most applications, the Logan 120-Ton Power Swivel eliminates the use of dangerous spinning chains, tongs, and kelly spinners. The Power Swivel facilitates drilling with longer drill string lengths before the rig must be shut down to add pipe. Stops and start-ups are thereby reduced — improving rig efficiency and reducing wear on the pump, drawworks, and other rig equipment.

The Logan 120-Ton Power swivel uses a closed loop hydraulic system with variable displacement, bi-directional pump, and air, electric, or electric wireless remote controls. The variable volume pump and hydraulic system allow torque and speed to be infinitely adjusted within stated ranges, without shifting gears or stopping and restarting the unit. Speed control is continuously variable over the entire operating range. Pressure compensating-type torque control overrides the speed control to maintain maximum torque. The power unit's torque limits can be set, thereby eliminating the potential danger of twist-offs or swollen boxes in the drill string. An integral rotary swivel bearing, floating washpipe assembly, and gooseneck connection eliminates the need for a separate rotary swivel.

A 2-3/4" bore gooseneck and washpipe assembly allows circulation through the 2-11/16" I.D. stem while rotating or in static mode. An access plug allows wireline to be run through the unit.

Features include:

- Smooth, shock-free torque reduces drill string damage
- Fits many drilling and workover masts
- Allows use of longer drill string lengths
- Power unit torque limits can be set
- Separate rotary swivel is unnecessary
- Choice of diesel engines
- Increased environmental safety features on skids and trailers
- Easy to service
- Electric or hydraulic loading winch



120-Ton Power Swivel Head

Extra cost options include:

- Lifting frame
- Electric or hydraulic loading winch
- Cold weather package
- Hydraulic motor brakes

The complete Logan 120-Ton Power Swivel package includes an elevator-type bail; a unitized washpipe packing box assembly; a fixed displacement, piston-type, hydraulic motor rated at 5,000 psi; a torque rein assembly; safety cable; and 1-1/4" swivel joints. The components are available either trailer- mounted (gooseneck) or skid-mounted with powered hose reels to form a rugged unit. A swivel carrying stand is standard.

***CAUTION:** Refer to the installation procedure outlined on page 5 of the instruction manual before installing the Logan 120-Ton Power Swivel on a rig. Failure to install the Power Swivel properly can result in injury to the operator and/or rig floor personnel.*

Uses

The Logan 120-Ton Power Swivel is ideally suited for use in fishing and workover operations — such as the internal or external cutting of tubing, casing, or drill pipe; drilling out plugs, packers, or cement; milling operations; or scraping casing — whenever shock-free, controlled torque is essential to eliminating the potential danger of twist-offs or damage to cutting tools.

The compact, lightweight swivel-head design also makes it extremely effective for light to medium drilling applications including water wells, pilings for piers and foundations, in addition to oil and gas wells. Suspending the swivel from a boom or crane eliminates a great deal of set-up time or shifts to additional locations.

The Logan 120-Ton Power Swivel is also ideal for coring operations. Any length of core may be taken. Accurate and smooth torque ensures against damage to core tools or strings.

Construction

Power Swivel Assembly

The Logan 120-Ton Power Swivel is powered by two fixed displacement, piston-type, hydraulic motors rated at 5,000 psi. The motors are mounted on the underside of the swivel and is protected by a steel guard.

Two high pressure hydraulic hoses and the motor drain hose exit from the bottom of the assembly. The high pressure hydraulic hoses connect to the motor with quick disconnects with quick disconnect couplers. The motor drain hose is also fitted with a self-sealing quick disconnect coupling.

The one-piece gooseneck is constructed of cast steel. A 2-7/8" EUE access plug located in the top allows passage of wireline and small tools through the swivel for downhole operations. The access plug may be removed to permit passage of tools with diameters smaller than 2-1/4".The gooseneck and swivel packing are hydrostatically tested and rated at 5,000 psi maximum circulating pressure.

The floating washpipe assembly and packing are self-aligning. Friction bearing surfaces of the washpipe (areas that contact the packing) are hard-surfaced for wear-resistance.

The elevator bail is machined from forged, heat-treated alloy steel for maximum strength. The bail, bail pins, and body are manufactured to API guidelines.

The design incorporates a reliable, custom drive train with hardened steel gears consisting of: a motor drive gear, reduction drive gear, an intermediate gear, and the main drive gear. Roller bearings hold the gears in close alignment.

A magnetic drain plug is located on the lower cover plate of the swivel assembly. A tell-tale hole in the lower plate indicates hydraulic oil leakage past the motor shaft seal or lubricating gear oil past the input pinion shaft. A filler/relief plug is located on the upper cover plate. The gear housing is equipped with an oil level sight glass so the operator may check oil level with a quick glance.

To protect the main stem oil seal from dirt, an excluder seal is installed below the packing nut.

Control Units

Air controls consist of an air compressor and tank, an air filter/regulator/lubricator unit, and a pedestal mounted control panel with extra lines fitted with quick disconnect couplers. A lever-operated air valve controls the engine speed. Another single-lever air valve controls the direction and speed of the Power Swivel. A torque gauge, calibrated in ft-lbs, indicates torque.

Control assemblies for the Logan 85-Ton Power Swivel are either air or electric. They can be operated remotely (extra cost option) for operator convenience and safety, or from the power unit. Remote control assemblies are pedestal mounted. The control assembly is lightweight and the pedestal base is removable for easy storage on the trailer or skid. A new wireless remote with an operating range of 150 feet is also available.

The electric control panel consists of a rotary switch for controlling swivel direction and speed, an engine rpm control switch, a digital torque gauge, and an engine kill switch. An emergency kill switch is available for hazardous locations.

Torque limits can be easily and accurately set on both air and electric control units. A torque control unit mounted on the fuel tank can be preset to the desired torque limit with the turn of a knob. Torque will be indicated on the control panel in ft-lbs.

Basic Power System

The Logan 120-Ton Power Swivel is equipped with a diesel engine to provide power. The engine is sized to provide sufficient horsepower to operate the swivel to full torque and rpm limits. Engines are equipped with heavy-duty radiators, rain caps, and optional side panels. The engines may be air-, electric-, or hydro-start.

Control systems may be either air or electric. On units equipped with air control systems, an air compressor, a three-gallon receiver tank, and an air filter-lubricator are also provided. Power for electric control systems is provided by the engine's generator and battery.

Pressure compensating type torque control overrides the speed control to maintain maximum torque. The power unit's torque limits can be set, thereby eliminating the potential danger of twist-offs or swollen boxes in the string. The torque gauge, calibrated in ft-lbs, is located on the remote control panel.

Hydraulic System

The hydraulic system includes a direct driven, variable displacement hydraulic pump and gear box that are mounted directly on the engine flywheel housing. All piping, valves, fittings, reservoirs, and other components required to complete the system are included. The hydraulic system is designed and rated at 5,000 psi working pressure.

The hydraulic reservoir is designed to dissipate heat and is adequately sized to disperse foam that may be generated during operation. A suction strainer, high pressure filters, and a tank return filter provide continuous filtration of the hydraulic fluid. Visual registers on the tank return filter and high pressure loop filters indicate when these elements need to be replaced. The pump's displacement setting controls flow and eliminates the necessity of relief valves. This closed loop system reduces the required hydraulic reservoir capacity by 50% of that needed for fixed displacement, relief valve type systems.

All hydraulic hoses are reel-mounted on the power unit. They are connected to the power swivel hydraulic motor with swivel joints and quick disconnects.

A swivel carrying rack allows the swivel to be loaded and unloaded without breaking the hose connections.

Power Unit

The compact, easily transportable Power Swivel units may be mounted on a trailer or skid, or containerized. All units consist of an engine with a hydraulic pump, hydraulic plumbing, a hydraulic fluid reservoir, a hose reel assembly and hoses necessary for supplying hydraulic power to the power swivel motor. Brackets to hold and transport the swivel and the control panel are included.

Trailer-Mounted Unit

The compact, tandem axle trailer units meet all ICC regulations and are equipped with heavy-duty springs and electric brakes. Tongue weight is designed to ensure on-road stability and eliminate fishtailing. Diamond-patterned deck plate provides solid, skid resistant flooring over the all welded, steel frame.

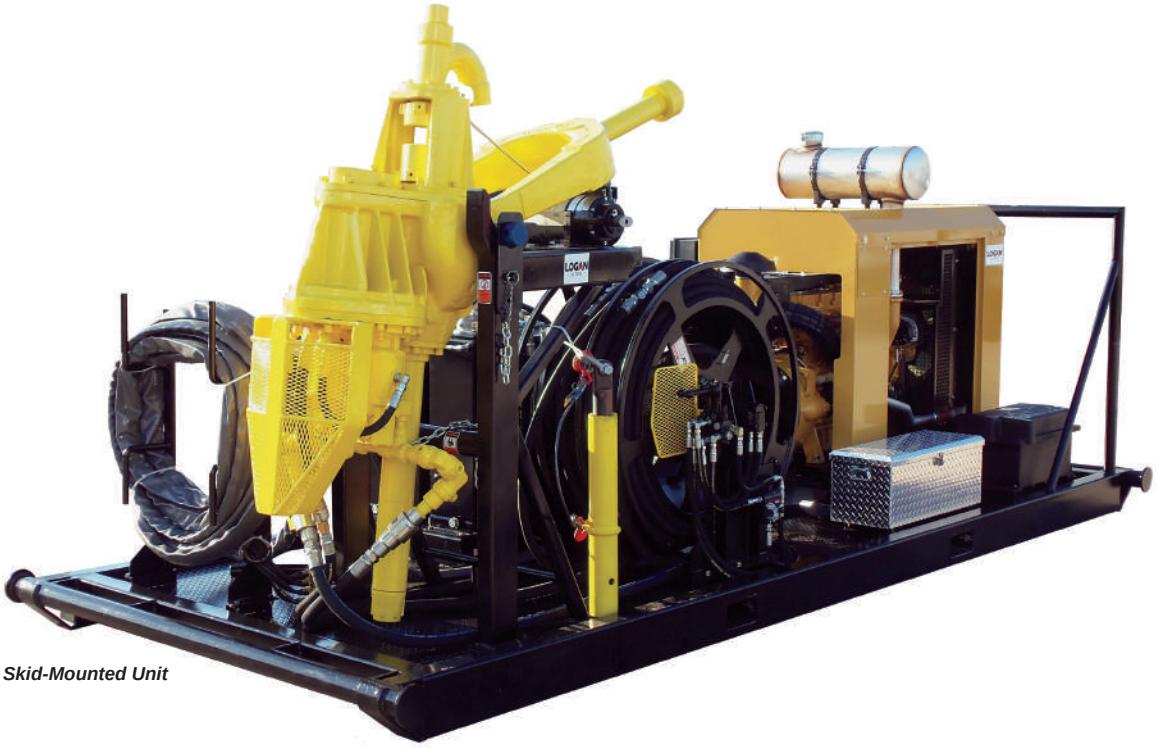
Skid-Mounted Unit

Skid-mounted units are rugged and made of heavy-duty structural tubing with welded construction. Both ends are rounded for easy skidding. Ends are fitted with an integral pipe that may be used to attach boom lines or hoist slings. Main runners, running the length of the skid, are strengthened by cross-members for additional rigidity. To meet environmental regulations, both trailer- and skid-mounted units are equipped with skirts to contain fluid spills.

Containerized Unit

Containerized units are built into a 20-foot ocean container. The containers are equipped with two bi-fold doors on one side, and double doors in the rear, to allow complete access. A louvered vent, which has an adjustable cover that can be sealed off for storage or transport, is installed on the front. The floor is diamond tread steel plate.

The entire frame is covered with diamond-patterned deck plate to provide a solid, skid resistant floor.

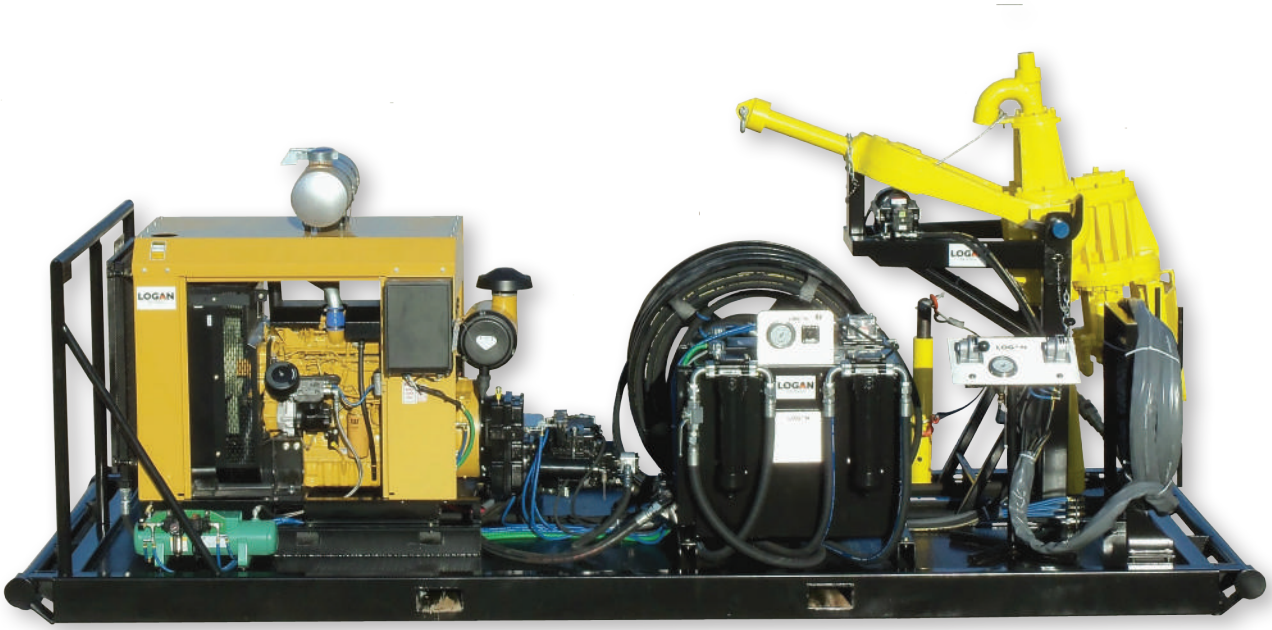


Skid-Mounted Unit



Containerized Unit

120-TON POWER SWIVEL SPECIFICATIONS



POWER SWIVEL SPECIFICATIONS

MODEL NO.	PS120
NOMINAL LOAD RATING (tons)	120
DYNAMIC LOAD RATING @ 100 RPM (tons)	65
MAXIMUM TORQUE (ft-lbs)	8,100
MAXIMUM SPEED (rpm)	150
MAXIMUM CIRCULATING PRESSURE	5,000
STANDARD STEM CONNECTION	3-1/2 IF
GOOSENECK CONNECTION	3" LP
SWIVEL HEAD ASSEMBLY WEIGHT (lbs)	2,000

POWER UNIT & CONTROL SPECIFICATIONS

MODEL NO.	PS120
DIESEL ENGINE *	QSB6.7 or C6.6
ENGINE CONT HP @ 2000 RPM	225/173
HYDRAULIC OUTPUT (max gpm/max psi)	89/5,000

** Choice of Cummins or Caterpillar/Perkins*

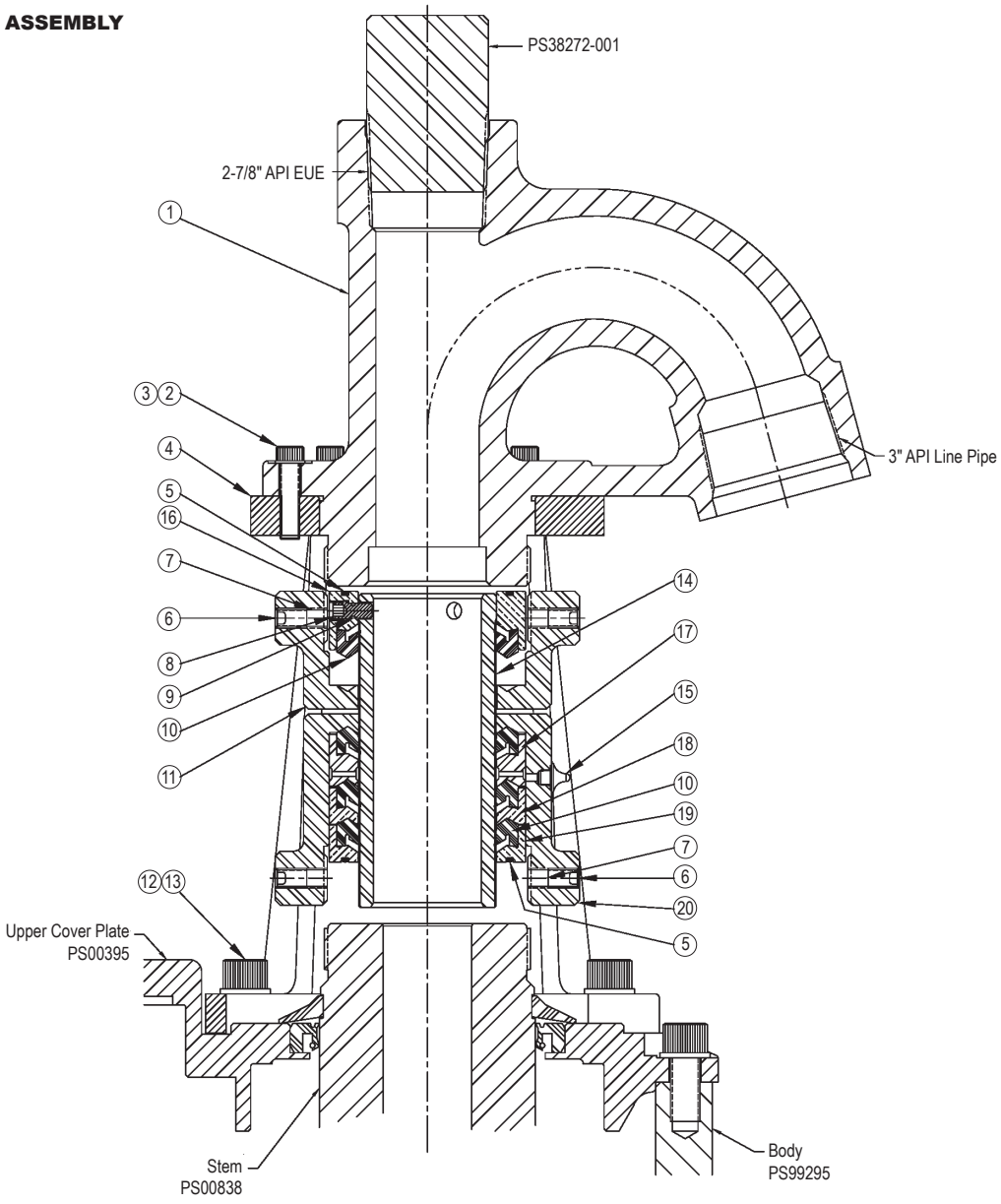
CAUTION: *Before installing a Logan 120-Ton Power Swivel on a rig, refer to the installation procedure on page 6 of the instruction manual. Failure to properly install the Power Swivel can result in injury to the operator and rig floor personnel.*

PS120 POWER UNIT PARTS LIST

LOGAN PART NO.	QTY	DESCRIPTION
HYDRAULIC PUMP		
PS511512	1	Hydraulic Pump for Air Controls
PS511512-001	1	Hydraulic Pump for Electric Controls
PS02196	1	Pump Stroke Positioner
PS02196-002	1	Pump Stroke Positioner Repair Kit
PS73426	1	1/4" Check Valve
PS711512-001	1	Pump Drive
PS260412	1	Auxiliary Pump (Hose Reel and Hydraulic Winch)
HYDRAULIC RESERVOIR		
PS34196-001	1	40 gal Hydraulic Tank Reservoir
Consisting of:		
PS780412	1	Hydraulic Suction Strainer
PS754T08N	1	Hydraulic Suction 2" Ball Valve
PS099612	1	Hydraulic Return Filter Assembly
PS099612-001	1	Hydraulic Return Filter Element Only
PS80602	1	Hydraulic Vacuum Gauge
PS02311	1	Filler Breather Cap
PS30795-002	1	Oil Level Gauge with Temperature
PS89046	1	Hydraulic Reservoir Only
PS233612	1	Relief Back Pressure Orifice
FUEL TANK		
PS16892-001	1	60 gal Fuel Tank Assembly
Consisting of:		
PS96892	1	Fuel Tank Only
PS96892-2	2	Fuel Sight Tube
PS94626	1	1-1/4" High Pressure Ball Valve
PS61648	2	High Pressure Filter Assemblies
Consisting of:		
PS921512-001	2	High Pressure Filter Element Lng
PS921412-002	2	High Pressure Filter Housing
PS921412-003	2	High Pressure Filter Head
PS02311	1	Filler Breather Cap
PS811412	1	Fuel Suction Tube
PS811412-A	1	Fuel Return Tube
MISCELLANEOUS		
PS990712	1	Umbilical Stand
PS28674	1	Control Stand
PS57196	1	Heat Exchanger
PS57196-002	1	Heat Exchanger Guard
PSMM9000	1	Electric Winch
PS558612-001	1	Hydraulic Winch
PS44046	1	Battery Box
PS64044-003	1	Tool Box
PS87472	1	Power Swivel Stand

LOGAN PART NO.	QTY	DESCRIPTION
HOSE REEL		
PS94376	1	Hose Reel Assembly
PS94376-HW	1	Hose Reel Assembly with Hydraulic Winch
PS97556	1	100 ft High Pressure Hose Assembly
PS24376	1	100 ft, 3/4" Case Drain Hose
PS195412	1	Hydraulic Valve for Reel
PS195412-001	1	Hydraulic Valve for Reel with Hydraulic Winch
PS52250-1	1	Valve Handle Replacement Only
PS220712-002	1	Hydraulic Motor Hose Reel
PS89638-002	1	Flow Control Hose Reel
PS490412	1	Three-Port Coupling Hub
PS473912	1	Three-Port Coupling Seal Kit
PS120712	1	Torque Hub
AIR TORQUE SET PANEL		
PS223612	1	Torque Set Panel Assembly
PS17196	1	0 – 8,100 ft/lbs Torque Gauge
PS98126	1	Torque Set Relief Valve
PS220512	1	Torque Set Air Override Valve
AIR CONTROL PANEL		
PS09966-003	1	Pump Control Valve
PS29966	1	Engine Throttle Control Valve
PS17196	1	0 – 8,100 ft/lbs Torque Gauge
PS220512	1	Engine Kill Valve
PS80345-003	5	1/4" Quick Disconnect, Air Male x Male Pipe
PS70345	1	1/4" Quick Disconnect, Hydraulic Male x Male Pipe
PS217752	1	Control Umbilical Bundle
PS70345-001	5	1/4" Quick Disconnect, Air Female
PS80345	1	1/4" Quick Disconnect, Hydraulic Female
AIR PREPARATION PACKAGE		
PS81455-002	1	Air Preparation Package
PS81455	1	3 gal Air Receiver
PS24695	1	Gauge
PS73585	1	Safety Pop-Off Valve
PS93646-001	1	Filter Regulator/Lubricator
PS81455-003	1	Tank Guard
ELECTRIC CONTROL BOX		
PSEC1009	1	Digital Torque Display
PSEC1008	2	Electric Pump Stroke Control
PSEC1041	1	Electric Control Cable Assembly
PS58628-010	1	Control Cable Connector Plug
PS58628-011	1	Panel Mount Connector Receptacle
PSEC1006	1	Two-Position Switch/Engine Throttle
PSEC1007	1	Three-Position Switch/Direction Selector
HYDRAULIC FILTERS		
PS915512	1	Charge Pump Filter
PS780412-001	1	Suction Strainer
PS099612-001	1	Return Filter Element
PS921512-001	1	High Pressure Filter Element

FLOATING WASHPIPE ASSEMBLY



PS120 FLOATING WASHPIPE ASSEMBLY (PART NO. PS19738-001) REPLACEMENT PARTS

ITEM	LOGAN PART NO.	QTY	DESCRIPTION
1	PS58738	1	Gooseneck
2	ACSA8-500-13-200	7	1/2" - 13 x 2" Socket Head Cap Screw
3	LKWA-500	7	1/2" Lock Washer
4	PS68738	1	Bonnet
5	568243-100	2	O-Ring
6	PS50732-003	8	1/2" - 13 NC x 3/4 Socket Set Screw
7	PS20128	8	Washpipe Packing Nut Screw Retainer
8	PS99028-001	3	Washpipe Lock Pin without Ring
9	568-010	3	O-Ring
10	PS55327	1	Packing Set

ITEM	LOGAN PART NO.	QTY	DESCRIPTION
11	PS88738	1	Upper Packing Nut
12	ACSA8-750-10-325	6	3/4" - 10 x 3-1/4" Socket Head Cap Screw
13	LKWA-750	6	3/4" Lock Washer
14	PS19738	1	Washpipe
15	PS63672	1	Packing Nut Grease Fitting
16	PS78738	1	Upper Packing Nut Ring
17	PS75327	1	Packing Lantern Ring
18	PS85327	1	Combination Ring
19	PS09738	1	Packing Bottom Ring
20	PS98738-001	1	Lower Packing Nut

SWIVEL HEAD PARTS LIST

Item numbers refer to drawing callouts on pages 319 – 322

ITEM	PART NO.	QTY.	DESCRIPTION
1	PS38272-001	1	2-7/8" EUE Gooseneck Plug
2	PS58738	1	Gooseneck
3	HCLWA-500	15	1/2" Lock Washer
4	ACSA8-500-13-200	7	1/2 - 13 x 2" Socket Head Cap Screw
5	PS48303-001	1	Torque Rein Assembly (Long) Standard
6	PS31415	1	Torque Rein Pull Pin
7	PS90137	1	Oil Level Indicator Plug
8	PS99295	1	Body
9	PS67272	1	Lower Gear Cover Gasket
10	PS13595	1	Lower Gear Cover Plate
11	ACSA8-750-10-2000	15	3/4 - 10 x 2" Socket Head Cap Screw
12	HCLWA-750	32	3/4" Lock Washer
13	PS82272	1	Lower Stem Bearing Retainer
14	ACSA8-750-10-1500	6	3/4 - 10 x 1-1/2" Socket Head Cap Screw
15	PS84548	2	Hydraulic Motor
16	PS135002	2	Manifold Assembly Right/Left
17	PS93456	2	1-1/4" Pipe Swivel Joint
18	PS22196	2	1-1/4" Quick Disconnect
19	PS75886	2	1-1/4" Dust Cap
20	PS65886	2	1-1/4" Dust Plug
21	PS79127	1	Saver Sub
22	PS00838-001	1	Stem
23	PS87272	2	Lower Stem Bearing - Inner/Wear Ring
24	PS61472	1	Lower Oil Seal
25	PS10002	1	Snap Ring
26	PS68272	1	Lower Oil Seal - Inner
27	PS62472	1	Lower Stem Bearing - Outer
28	PS97272	1	Main Thrust Bearing
29	PS83272	6	Ring Gear Groove Pin
30	PS80272	1	Main Drive Gear
31	PS28413	2	Bail Pin
32	PS44813	2	Retainer (Bolt & Nut)
33	PS56144	1	Seal Protector Ring
34	PS19738-001	1	Floating Washpipe Assembly

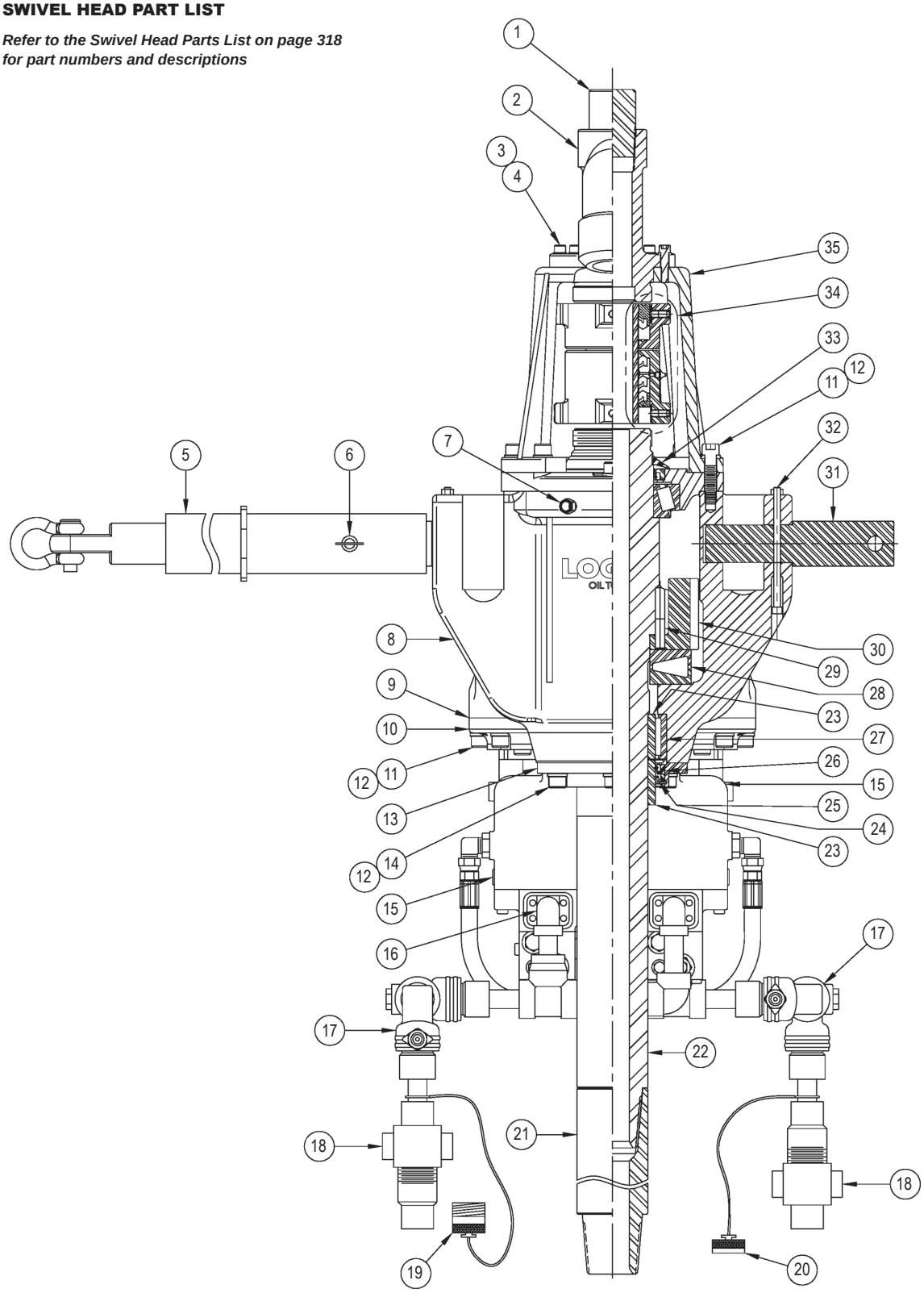
ITEM	PART NO.	QTY.	DESCRIPTION
35	PS68738	1	Bonnet
36	PS00395	1	Upper Cover Plate
37	PS78272	1	Upper Gear Cover Shim
38	PS57272	1	Upper Gear Cover Gasket
39	PS72602	1	Magnetic Drain Plug
40	PS78103	1	Male Quick Disconnect Nut
41	PS93272	1	Lower Stem Bearing Retainer Gasket
42	PS37557	1	Motor Guard
43	ACSA8-750-10-3250	6	3/4 - 10 x 3-1/4" Socket Head Cap Screw
44	ACSA8-750-10-1750	5	3/4 - 10 x 1-3/4" Socket Head Cap Screw
45	PS98272	2	Cover Dowel Pin
46	PS98352	1	Oil Filler Plug
47	PS77122	1	Filler Plug Relief Fitting
48	PS09664	1	Elevator Bail
49	PS58272	1	Upper Oil Seal
50	PS77272	1	Upper Stem Bearing
51	PS29595	1	Third Stage Shift & Gear
52	PS18295	3	Shaft & Gear Bearing
53	PS64395	1	First Reduction Gear
54	PS03595	1	Second Stage Shaft Bearing
55	PS59795	1	First Reduction Gear Spacer
56	PS74395	1	Second Stage Shaft Key
57	HCSA8-500-13-150	8	1/2 - 13 x 1-1/2" Hex Head Cap Screw
58	PS26303	2	Seal Retainer Ring
59	PS916502	2	Motor Drive Gear Bearing - Lower
60	PS18795	2	Pinion Oil Seal
61	PS49295	2	First Reduction Pinion
62	PS08295	2	Upper Bearing - Input Pinion
63	PS39295	1	Second Stage Shaft & Pinion
64	PS13732	2	Retainer Screw
	G14085-BULK		85W-140 Gear Oil
	PS71107-001		Hydraulic Motor Shaft Seal Kit
	PS293512		Hydraulic Motor Brake
	SWEDGE-002		3" L.P. x 2" L.P. x 4 SWEDGE

TORQUE REINS AND COMPONENTS

PART NO.	DESCRIPTION	LENGTH/STROKE
PS48303-001	PS120 Long Torque Rein (standard with head or unit)	Retracted 32.5"/Extended 51.75" Long
PS48303	PS120 Short Torque Rein	Retracted 22.5"/Extended 36" Long
PS48303-014	PS120 Extra Short Torque Rein	Retracted 12"/Extended 22" Long
PS55116	PS120 Torque Rein Roller Assembly	

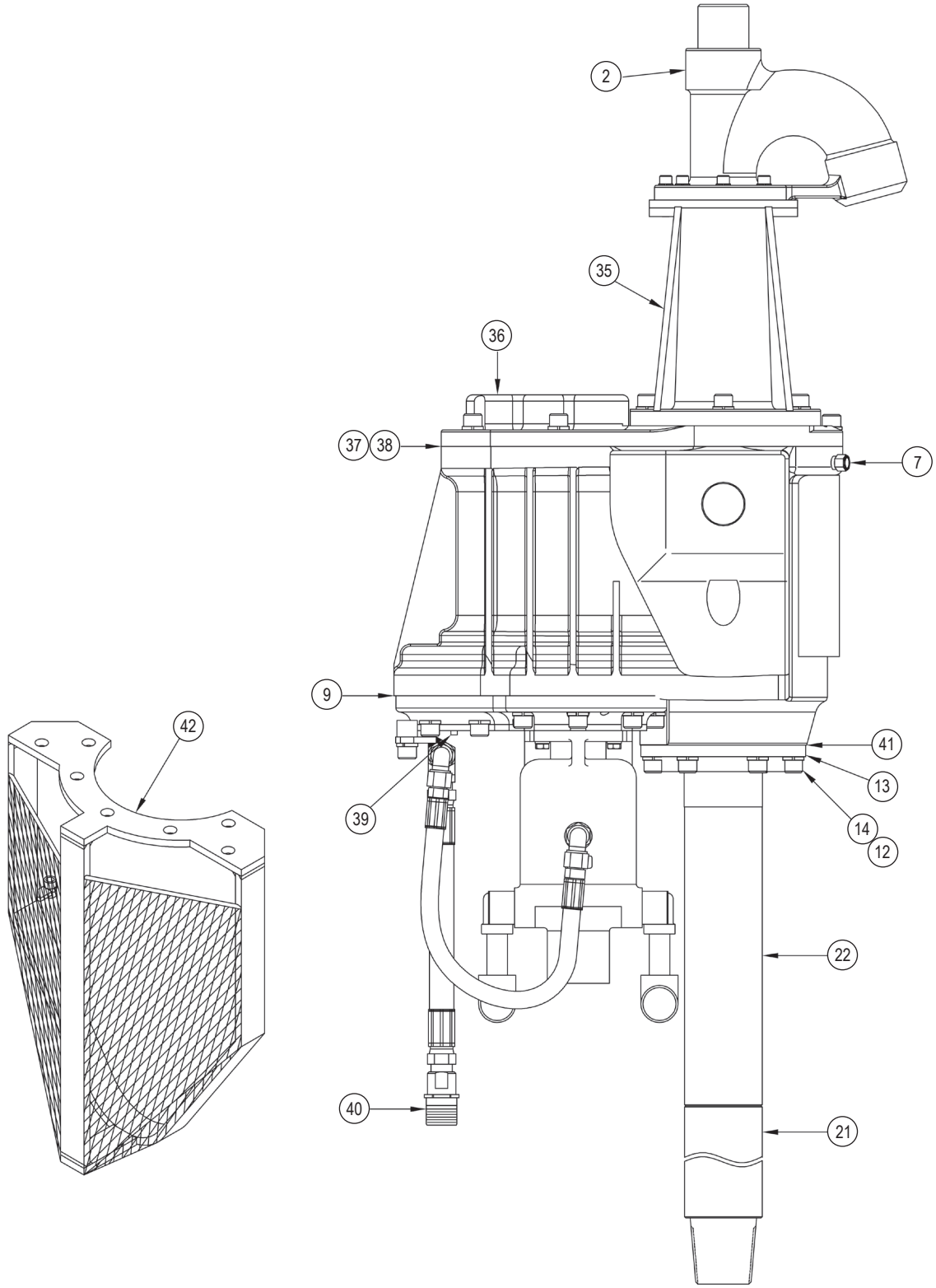
SWIVEL HEAD PART LIST

Refer to the Swivel Head Parts List on page 318 for part numbers and descriptions



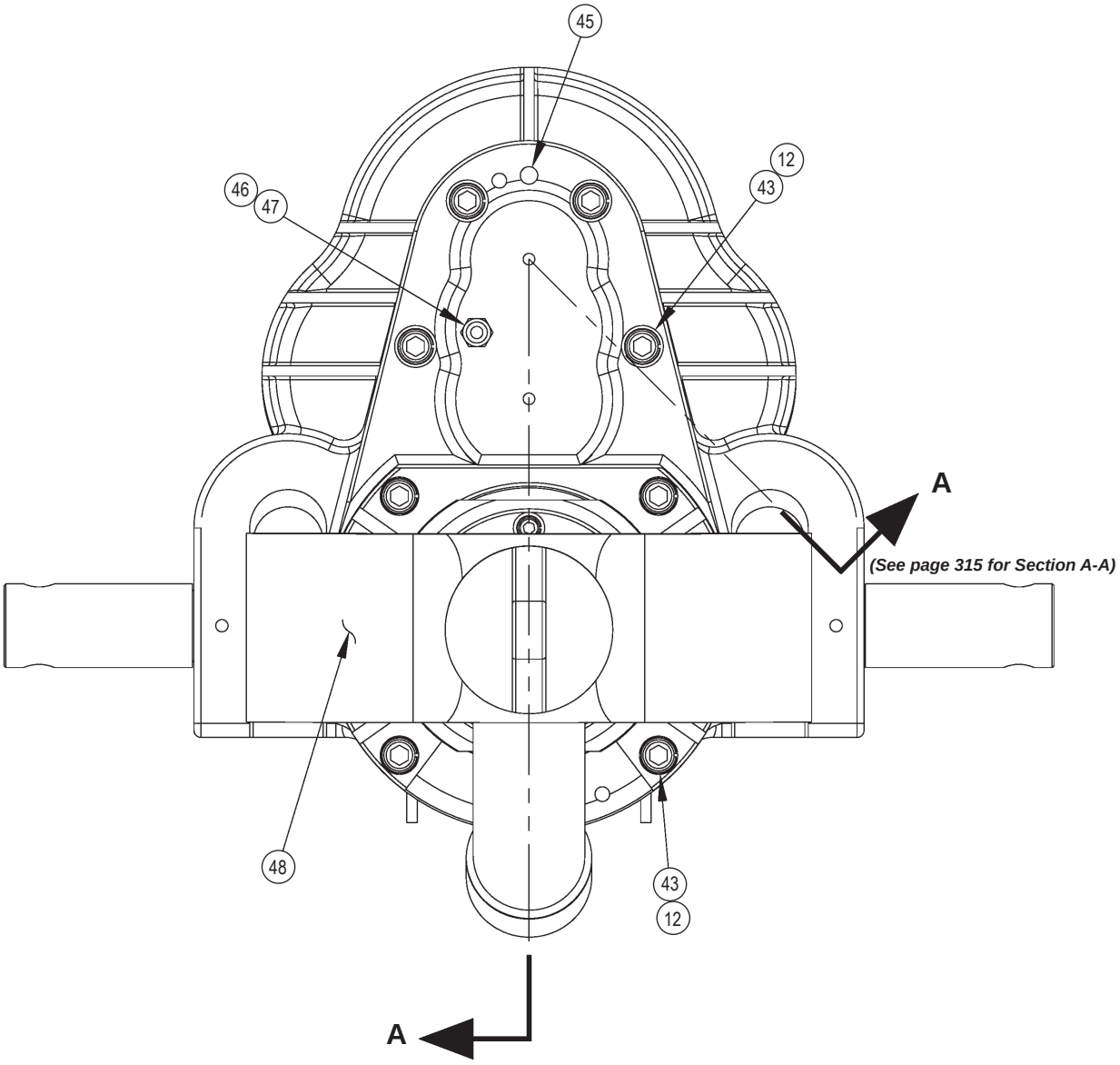
SWIVEL HEAD – SIDE VIEW

Refer to the Swivel Head Parts List on page 318 for part numbers and descriptions



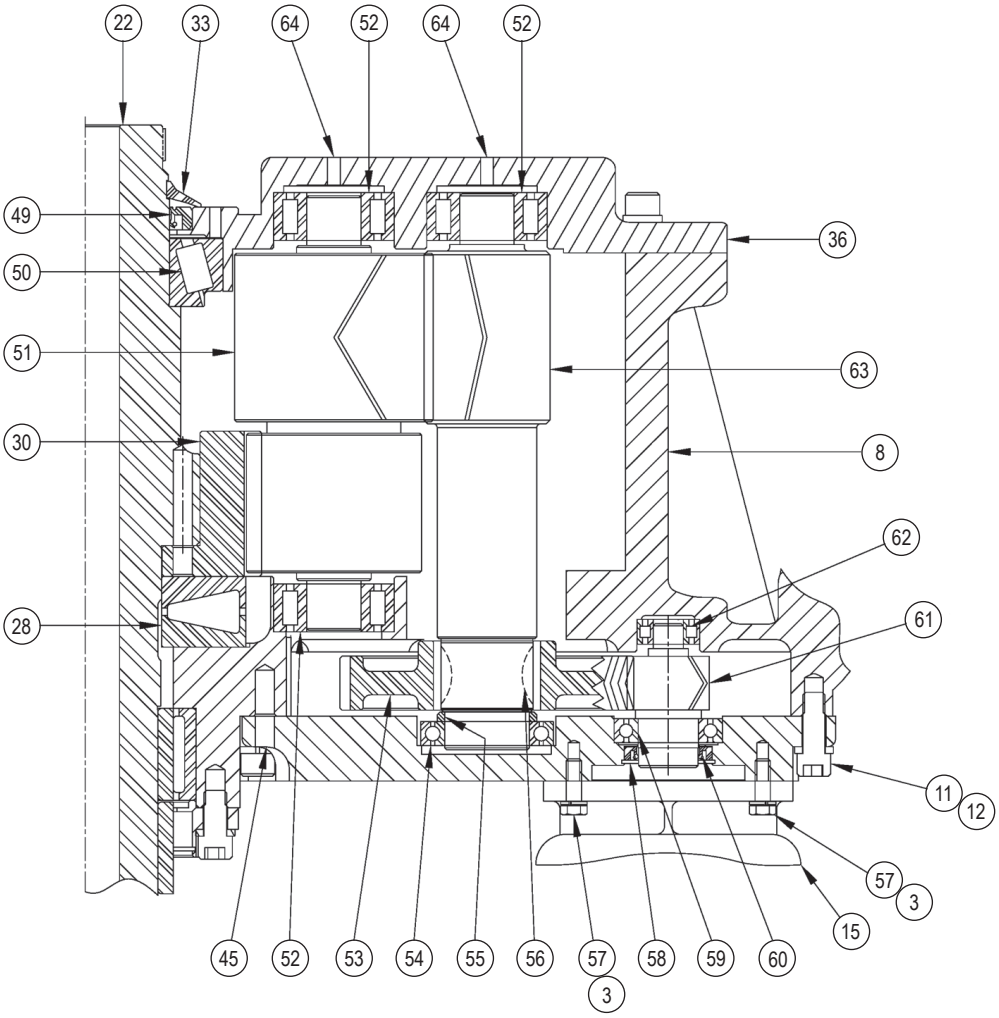
SWIVEL HEAD – TOP VIEW

Refer to the Swivel Head Parts List on page 318 for part numbers and descriptions



SECTION A-A – THROUGH GEAR TRAIN

Refer to the Swivel Head Parts List on page 318 for part numbers and descriptions



CONVERSION TABLES

INCHES AND FEET TO DECIMALS, CENTIMETERS, MILLIMETERS, AND METERS

Inch	Decimal	mm
1/32	0.03125	0.794
1/16	0.0625	1.588
1/8	0.1250	3.175
3/16	0.1875	4.763
1/4	0.2500	6.350
5/16	0.3125	7.938
3/8	0.3750	9.525
7/16	0.4375	11.113
1/2	0.5000	12.700
9/16	0.5625	14.288
5/8	0.6250	15.875
11/16	0.6875	17.463
3/4	0.7500	19.050
13/16	0.8125	20.638
7/8	0.8750	22.225
15/16	0.9375	23.813
1	1.0000	25.400
1-1/32	1.03125	26.194
1-1/16	1.0625	26.988
1-1/8	1.1250	28.575
1-3/16	1.1875	30.163
1-1/4	1.2500	31.750
1-5/16	1.3125	33.338
1-3/8	1.3750	34.925
1-7/16	1.4375	36.513
1-1/2	1.5000	38.100
1-9/16	1.5625	39.688
1-5/8	1.6250	41.275
1-11/16	1.6875	42.863
1-3/4	1.7500	44.450
1-13/16	1.8125	46.038
1-7/8	1.8750	47.625
1-15/16	1.9375	49.213
2	2.0000	50.800
2-1/32	2.03125	51.594
2-1/16	2.0625	52.388
2-1/8	2.1250	53.975
2-3/16	2.1875	55.563
2-1/4	2.2500	57.150
2-5/16	2.3125	58.738
2-3/8	2.3750	60.325
2-7/16	2.4375	61.913
2-1/2	2.5000	63.500
2-9/16	2.5625	65.088
2-5/8	2.6250	66.675
2-11/16	2.6875	68.263
2-8/4	2.7500	69.850
2-13/16	2.8125	71.438

Inch	Decimal	mm
2-7/8	2.8750	73.025
2-15/16	2.9375	74.613
3	3.0000	76.200
3-1/32	3.03125	76.994
3-1/16	3.0625	77.778
3-1/8	3.1250	79.375
3-3/16	3.1875	80.963
3-1/4	3.2500	82.550
3-5/16	3.3125	84.138
3-3/8	3.3750	85.725
3-7/16	3.4375	87.313
3-1/2	3.5000	88.900
3-9/16	3.5625	90.488
3-5/8	3.6250	92.075
3-11/16	3.6875	93.663
3-3/4	3.7500	95.250
3-13/64	3.8125	96.838
3-7/8	3.8750	98.425
3-15/16	3.9375	100.013
4	4.0000	101.600
4-1/32	4.03125	102.394
4-1/16	4.0625	103.188
4-1/8	4.1250	104.775
4-3/16	4.1875	106.363
4-1/4	4.2500	107.950
4-5/16	4.3125	109.538
4-3/8	4.3750	111.125
4-7/16	4.4375	112.713
4-1/2	4.5000	114.300
4-9/16	4.5625	115.888
4-5/8	4.6250	117.475
4-11/16	4.6875	119.063
4-3/4	4.7500	120.650
4-13/16	4.8125	122.238
4-7/8	4.8750	123.825
4-15/16	4.9375	125.413
5	5.0000	127.000
5-1/32	5.03125	127.794
5-1/16	5.0625	128.588
5-1/8	5.1250	130.175
5-3/16	5.1875	131.763
5-1/4	5.2500	133.350
5-5/16	5.3125	134.938
5-3/8	5.3750	136.525
5-7/16	5.4375	138.113
5-1/2	5.5000	139.700
5-9/16	5.5625	141.288
5-5/8	5.6250	142.875

By moving the decimal point one digit to left, the millimeter column will read in centimeters.
By moving the decimal point three digits to the left, and with the addition of zeros when necessary, the same column will read in meters.

CONVERSION TABLES
INCHES AND FEET TO DECIMALS AND MILLIMETERS

Inch	Decimal	mm
5-11/16	5.6875	144.463
5-8/4	5.7500	146.050
5-13/16	5.8125	147.638
5-7/8	5.8750	149.225
5-15/16	5.9375	150.813
6	6.0000	152.400
6-1/32	6.03125	153.194
6-1/16	6.0625	153.988
6-1/8	6.1250	155.575
6-3/16	6.1875	157.163
6-1/4	6.2500	158.750
6-5/16	6.3125	160.338
6-3/8	6.3750	161.925
6-7/16	6.4375	163.513
6-1/2	6.5000	165.100
6-9/16	6.5625	166.688
6-5/8	6.6250	168.275
6-11/16	6.6875	169.863
6-3/4	6.7500	171.450
6-13/16	6.8125	173.038
6-7/8	6.8750	174.625
6-15/16	6.9375	176.213
7	7.0000	177.800
7-1/32	7.03125	178.594
7-1/16	7.0625	179.388
7-1/8	7.1250	180.975
7-3/16	7.1875	182.563
7-1/4	7.2500	184.150
7-5/16	7.3125	185.738
7-3/8	7.3750	187.325
7-7/16	7.4375	188.913
7-1/2	7.5000	190.500
7-9/16	7.5625	192.088
7-5/8	7.6250	193.675
7-11/16	7.6875	195.263
7-3/4	7.7500	196.850
7-13/16	7.8125	198.438
7-7/8	7.8750	200.025
7-15/16	7.9375	201.613
8	8.0000	203.200
8-1/32	8.03125	203.994
8-1/16	8.0625	204.788
8-1/8	8.1250	206.375
8-3/16	8.1875	207.963
8-1/4	8.2500	209.550
8-5/16	8.3125	211.138
8-3/8	8.3750	212.725
8-7/16	8.4375	214.313

Inch	Decimal	mm
8-1/2	8.5000	215.900
8-9/16	8.5625	217.488
8-5/8	8.6250	219.075
8-11/16	8.6875	220.663
8-8/4	8.7500	222.250
8-13/16	8.8125	223.838
8-7/8	8.8750	225.425
8-15/16	8.9375	227.013
9	9.0000	228.600
9-1/32	9.03125	229.394
9-1/16	9.0625	230.185
9-1/8	9.1250	231.778
9-3/16	9.1875	233.363
9-1/4	9.2500	234.950
9-5/16	9.3125	236.538
9-3/8	9.3750	238.125
9-7/16	9.4375	239.713
9-1/2	9.5000	241.300
9-9/16	9.5625	242.888
9-5/8	9.6250	244.475
9-11/16	9.6875	246.063
9-3/4	9.7500	247.650
9-13/64	9.8125	249.238
9-7/8	9.8750	250.825
9-15/16	9.9375	252.413
10	10.0000	254.000
10-1/32	10.03125	254.794
10-1/16	10.0625	255.588
10-1/8	10.1250	257.175
10-3/16	10.1875	258.763
10-1/4	10.2500	260.350
10-5/16	10.3125	261.938
10-3/8	10.3750	263.525
10-7/16	10.4375	265.113
10-1/2	10.5000	266.700
10-9/16	10.5625	268.288
10-5/8	10.6250	269.875
10-11/16	10.6875	271.463
10-3/4	10.7500	273.050
10-13/16	10.8125	274.638
10-7/8	10.8750	276.225
10-15/16	10.9375	277.813
11	11.0000	279.400
11-1/32	11.03125	280.194
11-1/16	11.0625	280.988
11-1/8	11.1250	282.575
11-3/16	11.1875	284.163
11-1/4	11.2500	285.750

By moving the decimal point one digit to left, the millimeter column will read in centimeters.
By moving the decimal point three digits to the left, and with the addition of zeros when necessary, the same column will read in meters.

CONVERSION TABLES
INCHES AND FEET TO DECIMALS AND MILLIMETERS

Inch	Decimal	mm
11-5/16	11.3125	287.338
11-3/8	11.3750	288.925
11-7/16	11.4375	290.513
11-1/2	11.5000	292.100
11-9/16	11.5625	293.688
11-5/8	11.6250	295.275
11-11/16	11.6875	296.863
11-8/4	11.7500	298.450
11-13/16	11.8125	300.038
11-7/8	11.8750	301.625
11-15/16	11.9375	303.213
12	12.0000	304.800
12-1/32	12.03125	305.594
12-1/16	12.0625	306.388
12-1/8	12.1250	307.975
12-3/16	12.1875	309.563
12-1/4	12.2500	311.150
12-5/16	12.3125	312.738
12-3/8	12.3750	314.325
12-7/16	12.4375	315.913
12-1/2	12.5000	317.500
12-9/16	12.5625	319.088
12-5/8	12.6250	320.675
12-11/16	12.6875	322.263
12-3/4	12.7500	323.850
12-13/16	12.8125	325.438
12-7/8	12.8750	327.025
12-15/16	12.9375	328.613
13	13.0000	330.200
13-1/32	13.03125	330.994
13-1/16	13.0625	331.788
13-1/8	13.1250	333.375
13-3/16	13.1875	334.963
13-1/4	13.2500	336.550
13-5/16	13.3125	338.138
13-3/8	13.3750	339.725
13-7/16	13.4375	341.313
13-1/2	13.5000	342.900
13-9/16	13.5625	344.488
13-5/8	13.6250	346.075
13-11/16	13.6875	347.663
13-3/4	13.7500	349.250
13-13/16	13.8125	350.838
13-7/8	13.8750	352.425
13-15/16	13.9375	354.013
14	14.0000	355.600
14-1/32	14.03125	356.394
14-1/16	14.0625	357.188

Inch	Decimal	mm
14-1/8	14.1250	358.775
14-3/16	14.1875	360.363
14-1/4	14.2500	361.950
14-5/16	14.3125	363.538
14-3/8	14.3750	365.125
14-7/16	14.4375	366.713
14-1/2	14.5000	368.300
14-9/16	14.5625	369.888
14-5/8	14.6250	371.475
14-11/16	14.6875	373.063
14-8/4	14.7500	374.650
14-13/16	14.8125	376.238
14-7/8	14.8750	377.825
14-15/16	14.9375	379.413
15	15.0000	381.000
15-1/32	15.03125	381.794
15-1/16	15.0625	382.588
15-1/8	15.1250	384.175
15-3/16	15.1875	385.763
15-1/4	15.2500	387.350
15-5/16	15.3125	388.938
15-3/8	15.3750	390.525
15-7/16	15.4375	392.113
15-1/2	15.5000	393.700
15-9/16	15.5625	395.288
15-5/8	15.6250	396.875
15-11/16	15.6875	398.463
15-3/4	15.7500	400.050
15-13/64	15.8125	401.638
15-7/8	15.8750	403.225
15-15/16	15.9375	404.813
16	16.0000	406.400
16-1/32	16.03125	407.194
16-1/16	16.0625	407.988
16-1/8	16.1250	409.575
16-3/16	16.1875	411.163
16-1/4	16.2500	412.750
16-5/16	16.3125	414.338
16-3/8	16.3750	415.925
16-7/16	16.4375	417.513
16-1/2	16.5000	419.100
16-9/16	16.5625	420.688
16-5/8	16.6250	422.275
16-11/16	16.6875	423.863
16-3/4	16.7500	425.450
16-13/16	16.8125	427.038
16-7/8	16.8750	428.625
16-15/16	16.9375	430.213

By moving the decimal point one digit to left, the millimeter column will read in centimeters.
By moving the decimal point three digits to the left, and with the addition of zeros when necessary, the same column will read in meters.

CONVERSION TABLES
INCHES AND FEET TO DECIMALS AND MILLIMETERS

Inch	Decimal	mm
17	17.0000	431.800
17-1/32	17.03125	432.594
17-1/16	17.0625	433.388
17-1/8	17.1250	434.975
17-3/16	17.1875	436.563
17-1/4	17.2500	438.150
17-5/16	17.3125	439.738
17-3/8	17.3750	441.325
17-7/16	17.4375	442.913
17-1/2	17.5000	444.500
17-9/16	17.5625	446.088
17-5/8	17.6250	447.675
17-11/16	17.6875	449.263
17-8/4	17.7500	450.850
17-13/16	17.8125	452.438
17-7/8	17.8750	454.025
17-15/16	17.9375	455.613
18	18.0000	457.200
18-1/32	18.03125	457.994
18-1/16	18.0625	458.788
18-1/8	18.1250	460.375
18-3/16	18.1875	461.963
18-1/4	18.2500	463.550
18-5/16	18.3125	465.138
18-3/8	18.3750	466.725
18-7/16	18.4375	468.313

Inch	Decimal	mm
18-1/2	18.5000	469.900
18-9/16	18.5625	471.488
18-5/8	18.6250	473.075
18-11/16	18.6875	474.663
18-3/4	18.7500	476.250
18-13/16	18.8125	477.838
18-7/8	18.8750	479.425
18-15/16	18.9375	481.013
19	19.0000	482.600
19-1/32	19.03125	457.994
19-1/16	19.0625	458.788
19-1/8	19.1250	460.375
19-3/16	19.1875	461.963
19-1/4	19.2500	463.550
19-5/16	19.3125	490.538
19-3/8	19.3750	492.125
19-7/16	19.4375	493.713
19-1/2	19.5000	495.300
19-9/16	19.5625	496.888
19-5/8	19.6250	498.475
19-11/16	19.6875	500.063
19-3/4	19.7500	501.650
19-13/64	19.8125	503.238
19-7/8	19.8750	504.825
19-15/16	19.9375	506.413
20	20.0000	508.000

By moving the decimal point one digit to left, the millimeter column will read in centimeters.
By moving the decimal point three digits to the left, and with the addition of zeros when necessary, the same column will read in meters.

CONVERSION TABLES

INCHES AND FEET TO CENTIMETERS AND METERS

Move decimal point two digits to left to determine meters.

Feet-Inches	Inches	Centimeters
…	1	2.540
…	2	5.080
…	3	7.620
…	4	10.160
…	5	12.700
…	6	15.240
…	7	17.780
…	8	20.320
…	9	22.860
…	10	25.400
…	11	27.940
1	12	30.480
1-1	13	33.020
1-2	14	35.560
1-3	15	38.100
1-4	16	40.640
1-5	17	43.180
1-6	18	45.720
1-7	19	48.260
1-8	20	50.800
1-9	21	53.340
1-10	22	55.880
1-11	23	58.420
2	24	60.960
2-1	25	63.500
2-2	26	66.040
2-3	27	68.580
2-4	28	71.120
2-5	29	73.660
2-6	30	76.200
2-7	31	78.740
2-8	32	81.280
2-9	33	83.820
2-10	34	86.360
2-11	35	88.900
3	36	91.440
3-1	37	93.980
3-2	38	96.520
3-3	39	99.060
3-4	40	101.600
3-5	41	104.140
3-6	42	106.680
3-7	43	109.220
3-8	44	111.760
3-9	45	114.300
3-10	46	116.840
3-11	47	119.380
4	48	121.920

Feet-Inches	Inches	Centimeters
4-1	49	124.460
4-2	50	127.000
4-3	51	129.540
4-4	52	132.080
4-5	53	134.620
4-6	54	137.160
4-7	55	139.700
4-8	56	142.240
4-9	57	144.780
4-10	58	147.320
4-11	59	149.860
5	60	152.400
5-1	61	154.940
5-2	62	157.480
5-3	63	160.020
5-4	64	163.560
5-5	65	165.100
5-6	66	167.640
5-7	67	170.180
5-8	68	172.720
5-9	69	175.260
5-10	70	177.800
5-11	71	180.340
6	72	182.880
6-1	73	185.420
6-2	74	187.960
6-3	75	190.500
6-4	76	193.040
6-5	77	195.580
6-6	78	198.120
6-7	79	200.660
6-8	80	203.200
6-9	81	205.740
6-10	82	208.280
6-11	83	210.820
7	84	213.360
7-1	85	215.900
7-2	86	218.440
7-3	87	220.980
7-4	88	223.520
7-5	89	226.060
7-6	90	228.600
7-7	91	231.140
7-8	92	233.680
7-9	93	236.220
7-10	94	238.760
7-11	95	241.300
8	96	243.840

Feet-Inches	Inches	Centimeters
8-1	97	246.380
8-2	98	248.920
8-3	99	251.460
8-4	100	254.000
8-5	101	256.540
8-6	102	259.080
8-7	103	261.620
8-8	104	264.160
8-9	105	266.700
8-10	106	269.240
8-11	107	271.780
9	108	274.320
9-1	109	276.860
9-2	110	279.400
9-3	111	281.940
9-4	112	284.480
9-5	113	287.020
9-6	114	289.560
9-7	115	292.100
9-8	116	294.640
9-9	117	297.180
9-10	118	299.720
9-11	119	302.260
10	120	304.800
10-1	121	307.340
10-2	122	309.880
10-3	123	312.420
10-4	124	314.960
10-5	125	317.500
10-6	126	320.040
10-7	127	322.580
10-8	128	325.120
10-9	129	327.660
10-10	130	330.200
10-11	131	332.740
11	132	335.280
11-1	133	337.820
11-2	134	340.360
11-3	135	342.900
11-4	136	245.440
11-5	137	347.980
11-6	138	350.520
11-7	139	358.060
11-8	140	355.600
11-9	141	358.140
11-10	142	360.680
11-11	143	363.220
12	144	365.760

NOTES

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