



OCI Sidewinder

Make-Up / Break-Out Hydraulic Wrench Operation and Parts Manual



Serial #



OCI Sidewinder

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1. INTRODUCTION

Thank you for choosing the OCI Sidewinder Make-Up/Break-Out Hydraulic Wrench, Serial # _____.

Please read this manual carefully before using the Sidewinder in the interests of safety, warranty and best operational care. With correct care your Sidewinder should provide you with top performance, reliability and long service life.

- Warranty is provided by OCI as per the warranty section 2.
- Please keep this instruction manual as a permanent part of your Hydraulic Chain Tong.
- The specifications and instructions contained in this manual are based on the up-to-date information as at publication date.



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2. WARRANTY

a) Seller warrants Equipment of Seller for (1) manufacturing defects in material or workmanship and (2) assembly defects in workmanship, that develop under normal use within the period of ninety (90) days, from first use or delivery, whichever comes first. The Purchaser shall give written notice of defects and in any event, this may not be later than six (6) months from date equipment was shipped. This warranty shall apply only to new Equipment manufactured by the Seller which has not been altered, changed or repaired in any manner. Any burning, heating, welding or structural changes to the equipment void this warranty. Equipment components manufactured by other than the Seller shall carry only that such manufacturer's standard warranty.

(b) Seller's sole responsibility for any breach of the warranty contained in paragraph (a) is at its option, (1) repair or replace the Equipment not conforming to the warranty or description contained in the invoice upon the return of the Equipment F.O.B Seller's factory to Brookville, PA or at a point designated by Seller, within the period stipulated in paragraph (c) or (2) to remove the equipment at its expense and refund to Purchaser all payments made on the equipment, without interest.

(c) Except with respect to the warranty provisions contained in paragraph (a) Purchaser agrees to defend, release, indemnify and hold Seller harmless from and against all claims of loss or harm arising from or related to Purchaser's use of Equipment under our invoice. "Claims of loss or harm" shall include any and all actions, manners of actions, causes of actions, suits, debts, dues, expenses, fees cost, judgments, contracts, obligations, liabilities, agreements and all other claims and demands of any nature whatsoever, whether at law or in equity, whether resulting in personal injury, death or property damages and whether arising as the result of the prior or contemporaneous negligence of the Seller, and all rights of and claims for contributions and indemnification from the Seller as a result thereof.

(d) If the Equipment is described on our invoice as used and not as reconditioned, it is sold "as is and where is", and the warranty contained in paragraph (a) shall not be applicable. If the Equipment is not owned by Seller at this date, it is sold subject to Seller's acquisition of possession and title.

(e) EXCEPT AS SET FORTH HEREIN, SELLER MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES AS TO MERCHANTABILITY OR AS TO THE FITNESS OF THE EQUIPMENT FOR ANY PARTICULAR USE OR PURPOSE FOR THE EQUIPMENT, AND SHALL NOT BE LIABLE FOR ANY LOSS OR DAMAGE DIRECTLY OR INDIRECTLY ARISING FROM THE USE OF SUCH EQUIPMENT OR LOSS CONSEQUENTIAL DAMAGES INCLUDING WITHOUT LIMITATION, LOSS OF USE, LOSS OF TIME, LOSS OF PROFIT, OR LOSS OF INCOME.



3. GENERAL INFORMATION

The OCI Sidewinder Hydraulic Breakout Wrench is designed for breaking loose or tightening drill tooling or any cylindrical object. The Sidewinder has two operational positions providing power for vertical or horizontal breakout or tightening. Chains and arms are positioned horizontally for attaching to vertical drill strings. In this position the Balance Arm can be used to lift the entire Sidewinder with a winch to achieve correct height for jaw location.

By rotating the main frame of the Sidewinder 90 degrees, the machine is now available for use with your work piece in the horizontal position or parallel to the ground. The chains on both arms are tightened by hydraulic cylinders. Links should be added or removed to allow the hydraulic cylinder to be almost retracted when the chain is tight.

The lower arm or the arm on the left side when holding the transport handle is referred to as the **FIXED ARM**. The other arm is referenced as the **MOVEABLE WRENCH ARM**. It is possible to slide the fixed arm away from the moveable wrench arm (by removing spacer) but care must be taken to have the jaws/chains as close as possible together under high torque breakouts. Keeping the arm close and the cylinder's rods retracted lessen the likelihood that the unit will bend, or the cylinder arms be damaged. A word of caution: This unit develops high pressure and high torque.

The operator must be aware that harm can be caused by flying or broken parts. The operator and assisting personnel should stand well away from the tool when breaking joints. Safety protection, including safety glasses, must be worn by all persons in the immediate area.



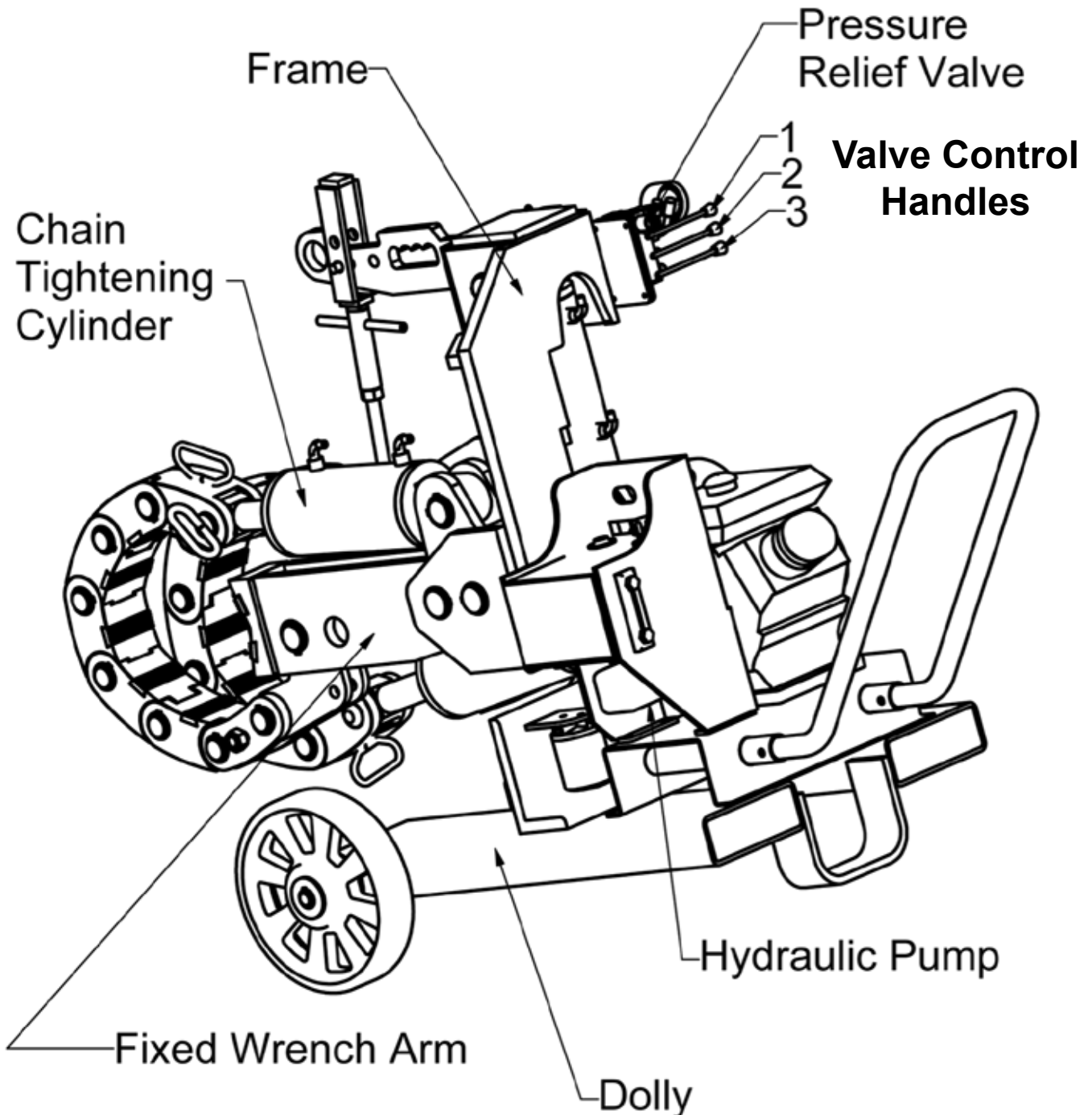
OCI Sidewinder

4. SIDEWINDER FEATURES

- Compact and Portable, Self-maintained Unit
- No Extra Backup or Lifting Equipment Required
- Handles a Wide Diameter Range with Same Setup
- Instantly Changes from Break Out to Make Up Mode
- Safe to Operate and Easy to Handle
- Operates in Vertical or Horizontal Position in Limited Space
- Chain Design Safely Enables Tong to Handle Tools
- Portable and Designed with Two Hydraulic Chain Tongs in One Unit, with One Being the Built-in Backup
- Powered by Gasoline Engine/Hydraulic Pump
- The “Hydraulic Chains” are Designed to Grab Any Shape with Different O.D. Sizes at the Same Time
- More Torque
- Faster Speeds
- Two Stage Pump
- Alloy Steel Chain Links
- Allows Wide Forks
- Heavier Pivot Pin and Supports
- Easier Winter Starting
- Honda Engine
- Frame Less Likely to Bend
- Oil Tank Thicker Steel
- Fill – Breather Cap Shrouded
- Accessible Return Line Filter
- Made in the USA
- Extensively Field Tested

5. SIDEWINDER SCHEMATICS

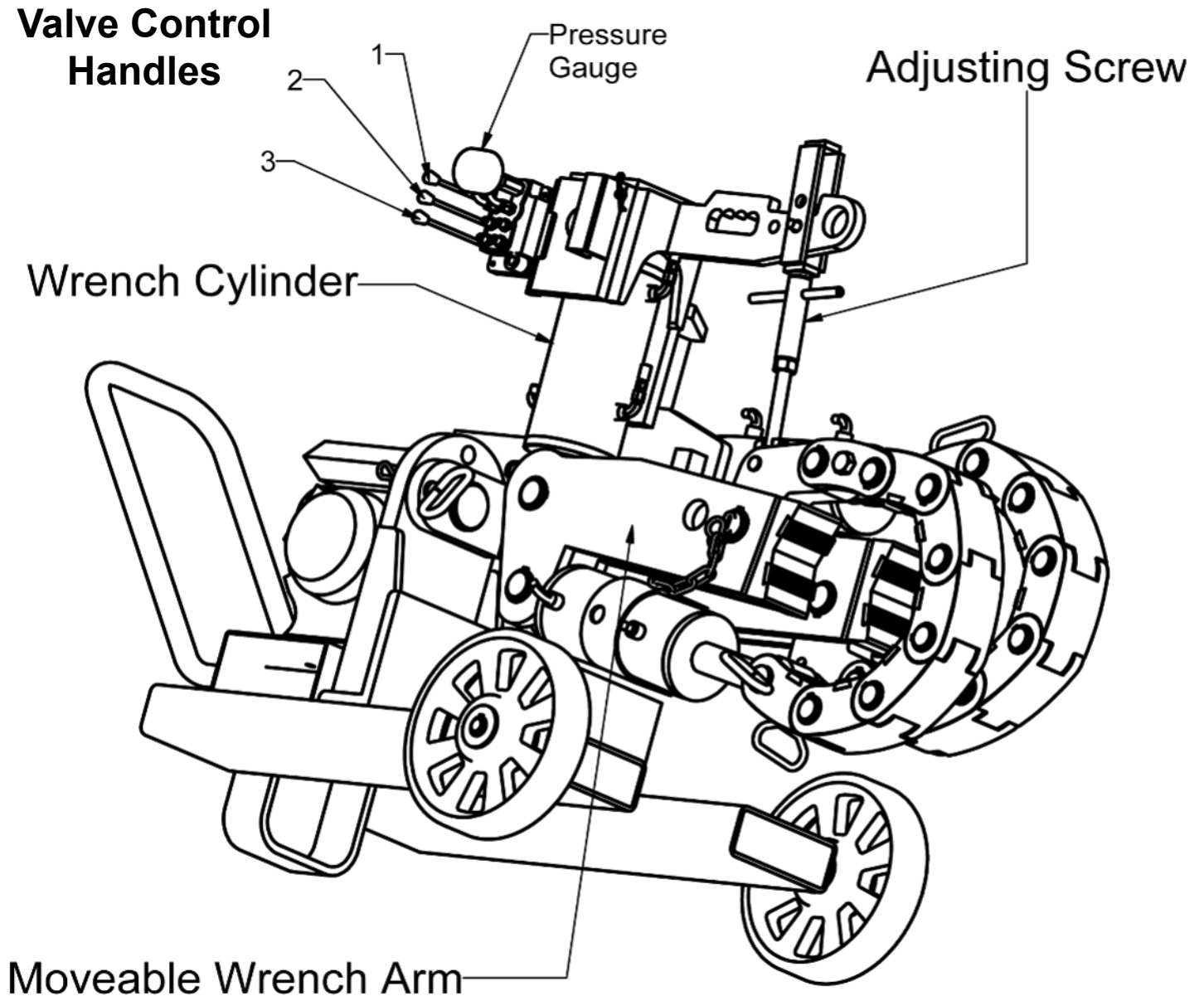
5.1 Major Components of OCI Sidewinder Fixed Arm Side





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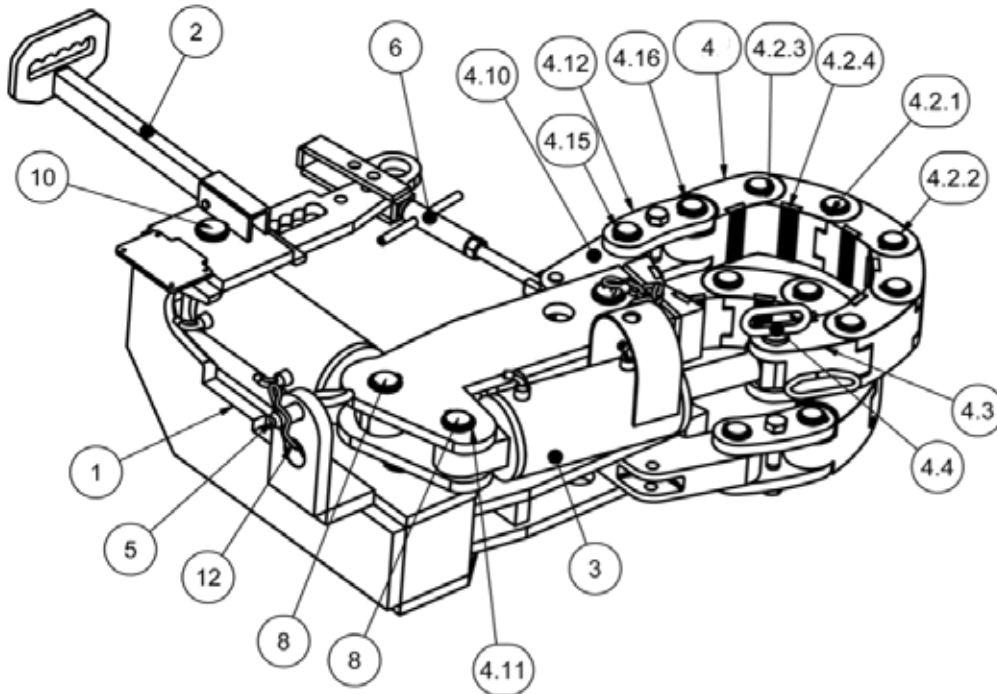
5.2 Major Components of OCI Sidewinder Moveable Wrench Arm Side



OCI Sidewinder



5.3 Main Frame Details

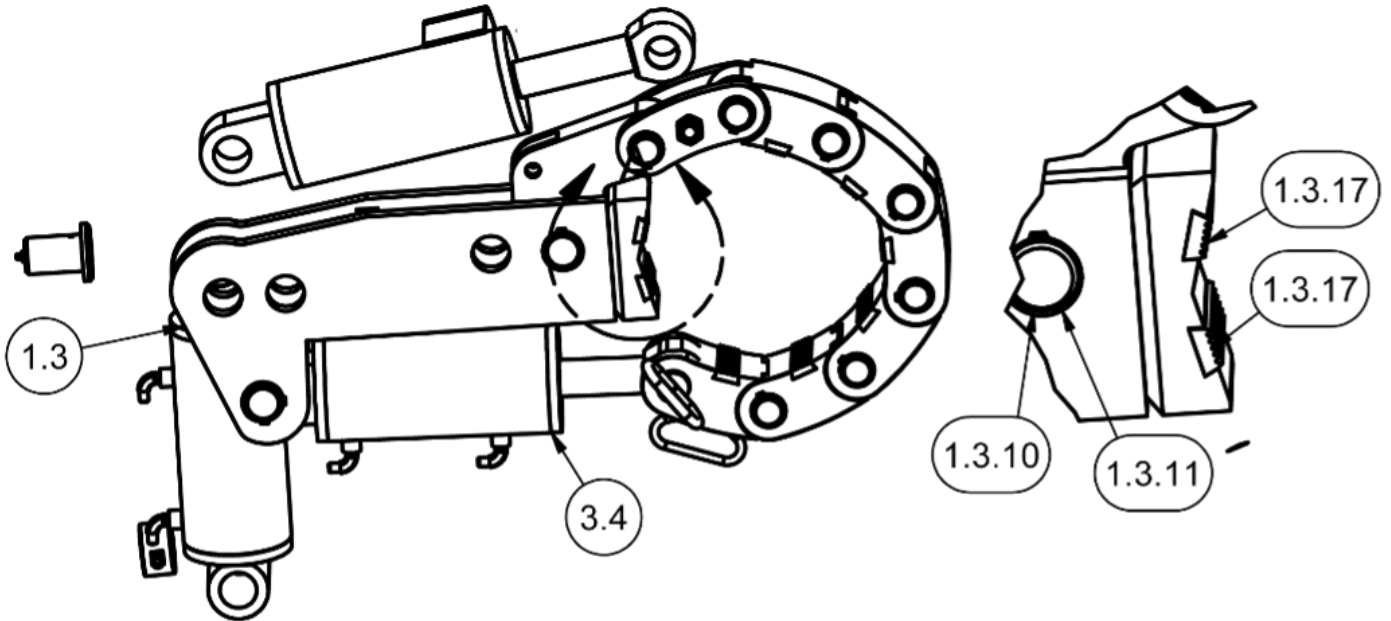


ITEM	PART NUMBER
1	HPT-07-00
2	HPT-01-05
3	HPT-04-00
4	HPT-06-01
4.2.1	HPT-06-02
4.2.2	HPT-06-03
4.2.3	HPT-06-04
4.2.4	HPT-06-01D
4.3	HPT-06-14
4.4	HPT-06-08
4.10	HPT-06-12
4.11	HPT-01-18
4.12	HPT-06-02
4.15	HPT-06-03
4.16	HPT-02-15
5	HPT-07-00
6	HPT-01-17
8	HPT-06-13
10	HPT-02-16
12	HPT-02-16

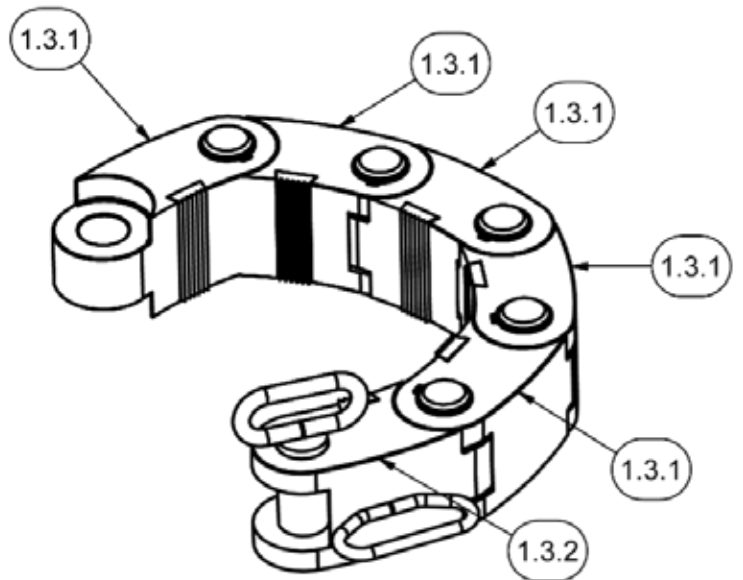


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5.4 Fixed Arm Assembly



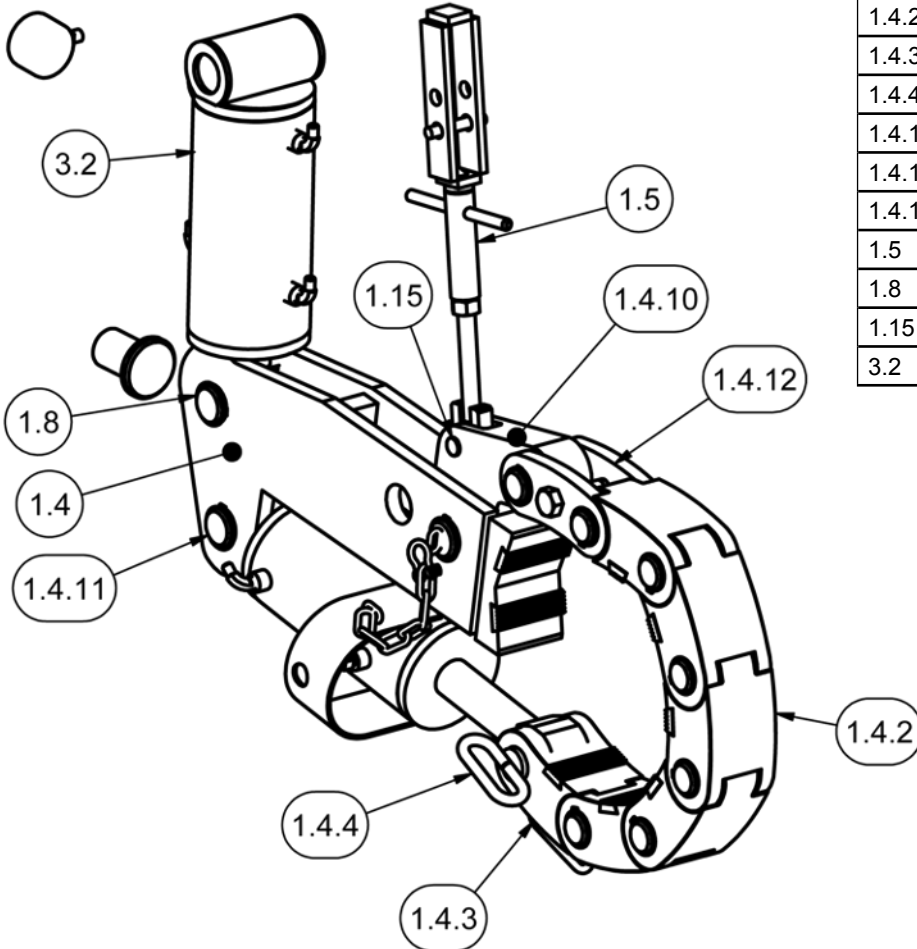
ITEM	PART NUMBER
1.3	HPT-05-00
1.3.1	HPT-06-01A
1.3.2	HPT-06-01D
1.3.10	HPT-06-13
1.3.11	HPT-01-18
1.3.17	HPT-06-04
1.20	HPT-13-00
3.4	HPT-11-00
3.18	HPT-06-55



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5.5 Moveable Wrench Arm Assembly

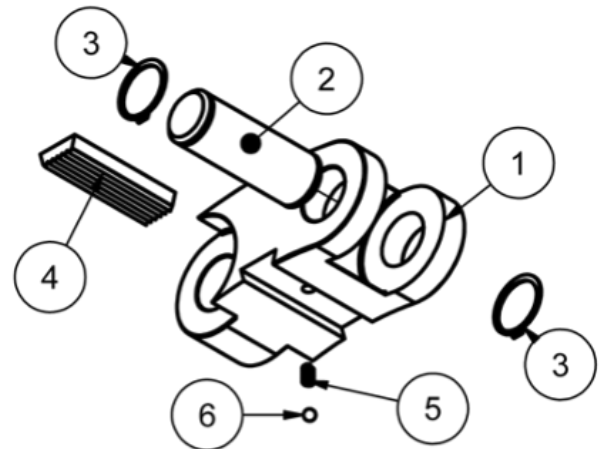


ITEM	PART NUMBER
1.4	HPT-04-00
1.4.2	HPT-06-01A
1.4.3	HPT-06-01D
1.4.4	HPT-06-14
1.4.10	HPT-06-12
1.4.11	HPT-01-18
1.4.12	HPT-06-08
1.5	HPT-07-00
1.8	HPT-06-13
1.15	HPT-07-11
3.2	HTP-13-00

5.6 Assembly Breakdowns

HPT-06-01A Shown Previously as 1.3.1 in Fixed Arm Assembly and 1.4.2 in Moveable Wrench Arm Assembly

ITEM	PART NUMBER
1	HPT-06-01
2	HPT-06-02
3	HPT-06-03
4	HPT-06-04
5	HPT-06-05
6	HPT-06-06

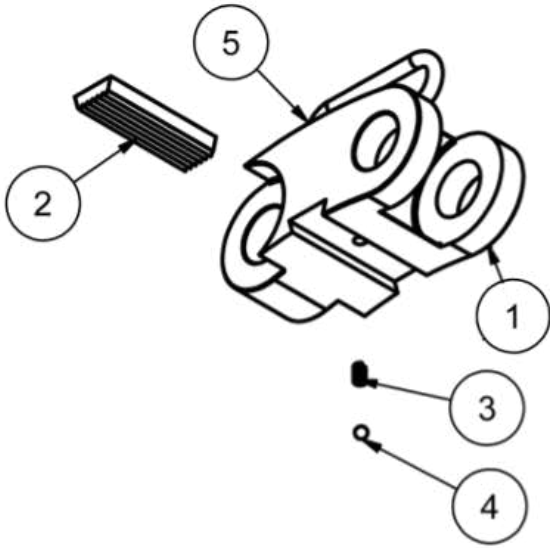




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5.6 Assembly Breakdowns

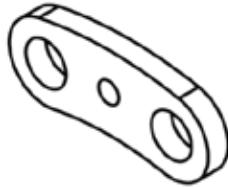
HPT-06-01D Shown Previously as 1.3.2 in Fixed Arm Assembly and 1.4.3 in Moveable Wrench Arm Assembly



ITEM	PART NUMBER
1	HPT-06-01
2	HPT-06-04
3	HPT-06-05
4	HPT-06-06
5	HPT-06-07

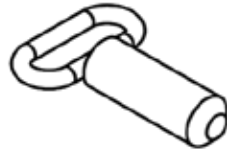
Connector Link HPT-06-08 Shown Above as 1.4.12 in Moveable Wrench Arm Assembly

4 Links required per Chain



Pull Pin HPT-06-14 Shown Above as 1.4.4 in Moveable Wrench Arm Assembly

1 Required per Chain at Cylinder Rod



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5.7 Standard Chain Link Breakdown

	QUANTITY	PART NUMBER	DESCRIPTION
	1	HPT-06-01A	Link, Standard Assembly
	1	HPT-06-01	Link Only
	1	HPT-06-02	Pin
	2	HPT-06-03	Snap Ring
	1	HPT-06-04	Die
	1	HPT-06-05	Spring
	1	HPT-06-06	Ball



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5.8 Chain Link with Handle Breakdown

	QUANTITY	PART NUMBER	DESCRIPTION
	1	HPT-06-01D	Link with Handle Assembly
	1	HPT-06-01	Link Only
	1	HPT-06-04	Die
	1	HPT-06-05	Spring
	1	HPT-06-06	Ball

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5.8 Chain Link with Handle Breakdown

	QUANTITY	PART NUMBER	DESCRIPTION
	1	HPT-06-08A	Connector Link Assembly (one assembly on each arm)
	1	HPT-06-08	Link Plate Only
	1	HPT-06-02	Pin
	2	HPT-06-03	Snap Ring
	1	HPT-06-09	Hex Bolt
	1	HPT-06-10	Lock Nut

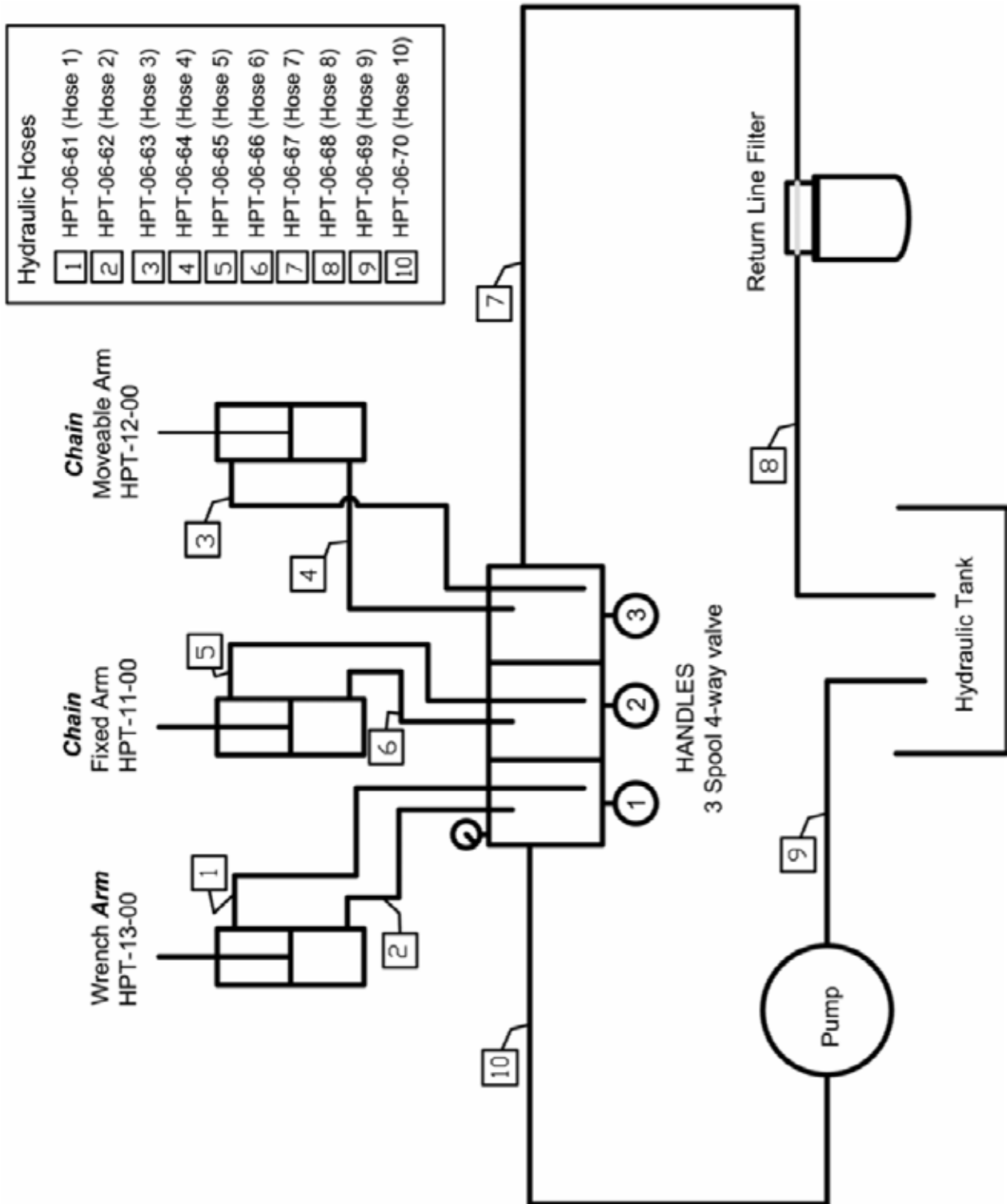


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5.10 Hydraulic System Parts

	PART NUMBER	DESCRIPTION
	HPT-03-05	Oil Tank Assembly
	HPT-03-06	Filler Breather Cap Assembly
	HPT-03-07	Sight Glass
	HPT-03-11	Oil Filter Element
	HPT-03-17A	Shaft Coupling Assembly
	HPT-03-29	Motor-Pump Adaptor Bracket
	HPT-03-19	Two Stage Hi-Low Hydraulic Pump
	HPT-03-50	3 Spool – 4 Way Hydraulic Valve
	HPT-03-55	5000 PSI Pressure Gauge
	HPT-11-00	Chain Fixed Arm Cylinder
	HPT-12-00	Chain Movable Wrench Arm Cylinder
	HPT-13-00	Wrench Arm Breakout Cylinder

5.11 Hydraulic System Schematic





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6. OPERATION OF THE SIDEWINDER

6.1 Safety

Be sure to work safely at all times. Wear protective clothing and safety equipment and observe all safety regulations as prescribed by your employer, Government, or the site on which you work. Do not wear loose clothing that may get caught in moving parts and cause serious personal injury.

Hammers and drill pipe can be heavy – Always use proper and approved lifting equipment and take every precaution to safeguard yourself against injury. Keep hands clear at all times – Beware of getting fingers trapped between the wrench arms and equipment being worked on.

6.2 Operation

Please be sure to read and follow all instructions for the Honda GX160 engine that are given in that Manual supplied with your OCI Sidewinder. Failure to do so may result in serious injury or death. Voiding of warranty may also occur.

Determine the correct number of links required based on the diameter to be gripped by each jaw assembly. Links can be removed or added as shown below.



1. Remove handled link pins from link with handle on both the fixed arm and moveable arm and lay on ground.



2. Remove cotter pin from the appropriate link pin.



3. Remove link pin from link.

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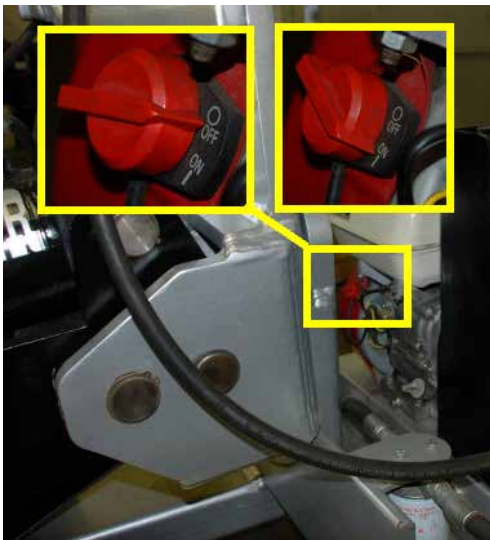
4. Remove the cotter pin from the link with handle on both the fixed arm and moveable arm.



5. Remove the link pin from the link with handle.



6. Secure the link with handle onto the end of the remaining links on both the fixed arm and moveable arm.



7. Turn engine switch from the off position to the on position.



8. Turn the fuel switch fully on.



9. Set the choke to full.



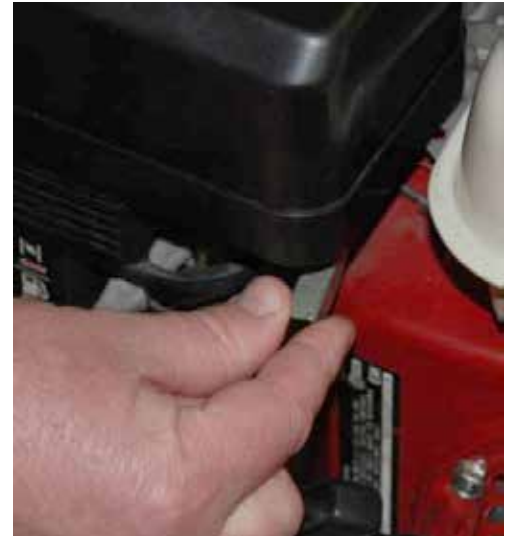
OCI Sidewinder



10. Set the throttle at halfway.



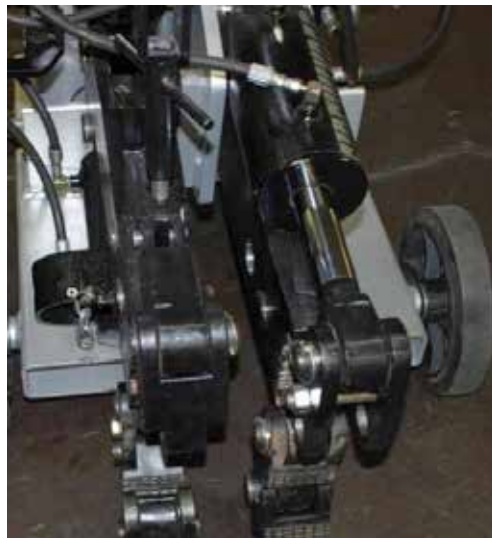
11. Start the engine with the starter grip.



12. Set the choke back to off. Set the throttle back to idle at minimum.



13. Push handle 2 so that the fixed arm cylinder extends fully.



14. Fully extend the fixed arm cylinder.



15. Use appropriate lifting equipment and position the hammer so that the wear sleeve is centralized with the V of the fixed arm.

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16. Lift the link with handle around the hammer and secure it with the pin with handle.



17. Align the hammer so that the chuck or backhead is in line with the moveable arm jaw, and the joint is outside the grip of the jaw.



18. Set the throttle to half and pull valve 2 to close the fixed jaw cylinder. Stop when the gauge reaches 1000 psi. Valve handle 2 will not be used again until the hammer is open unless slippage occurs at the fixed arm jaw.



19. Use valve handle 3 to fully extend the wrench chain cylinder on the moveable arm.



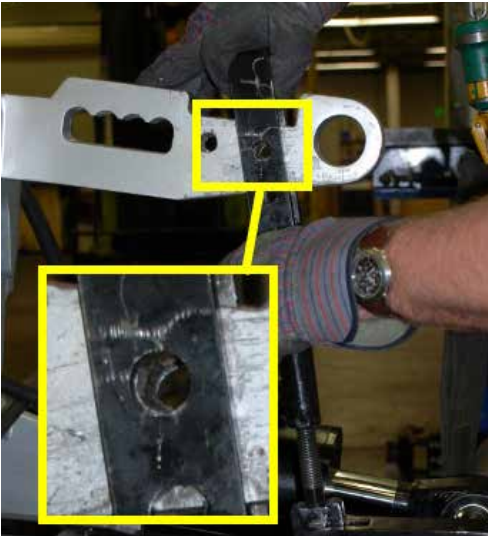
20. With the cylinder fully extended, lift the chain using the link with handle and secure it in place with the pin with handle.



21. Hammer it in place after the last stage.



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22. Lift the adjusting handle up and rotate it to align the holes as shown above.



23. Insert the pin to secure it in place temporarily.



24. Rotate the adjusting screw to align the jaw of the moveable arm with the work piece.



25. Use valve handle 3 to close the wrench chain cylinder on the moveable arm, stopping when the pressure gauge reads 1000 psi.



26. Remove the pin from the adjusting screw so that it is loose.



27. Use valve handle 1 to extend the wrench breakout cylinder and open the hammer joint. If the hammer slips in the jaws use both valve handles 2 and 3 to increase the hold pressure. Increase this by about 250-500 psi.

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28. When the wrench breakout cylinder has been fully extended, use valve handle 3 to loosen the chain on the moveable arm. Once this is done, the jaw may be out of alignment. The adjustment handle can be lifted to realign. Use valve handle 1 to fully retract the wrench breakout cylinder.



29. Sometimes the moveable arm may be difficult to lift up. In this case a bar can be used to lever it up or the previous procedure can be used whereby the adjustable arm is rotated so that it can be pinned in place and adjusted to the correct position.



30. Use valve handle 3 to tighten the wrench chain cylinder again, stopping at the pressure that does not allow slippage. Again use valve handle 1 to extend the wrench breakout cylinder and further open the hammer joint.



31. Once the hammer has been opened, loosen the wrench chain cylinder and remove the pin with handle.



32. Loosen the fixed arm chain cylinder and remove the pin with handle.



33. Remove the hammer from the OCI Sidewinder and use all valve handles to make sure all cylinders are fully retracted.



OCI Sidewinder

DIESEL MODEL

The system relief valve is set at 2600 PSIG.

When tightening smaller hammers or tool joint it is possible to over torque these joints.

With a little practice, you will find by moving the control handles slowly, while at the same time watching the pressure gauge, that it is possible to apply desired pressure.

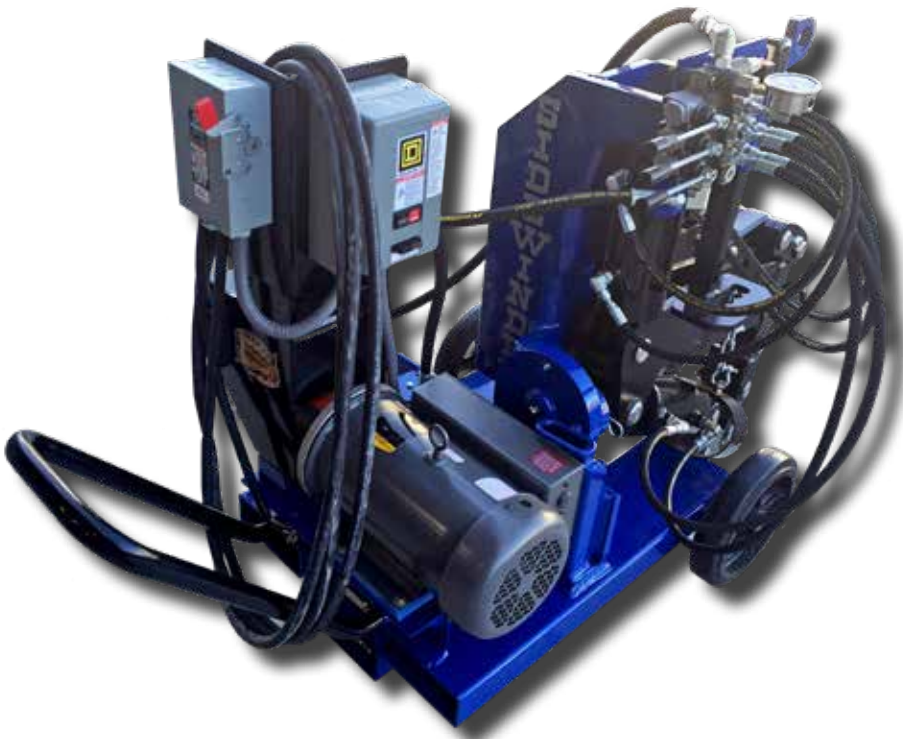
If you jerk the handle the pressure will increase quickly.

By watching the pressure you have the ability to torque to the manufacturers specified range for most hammers.

Section 7.2 in the Appendix shows some popular tool joints and their tightening ranges.



ELECTRIC MODEL





7. APPENDIX

7.1 Sidewinder Torque Calculations

Gauge Pressure	Breakout	Tighten	DTH Model	Make-Up Torque	
				Minimum	Maximum
100 PSI	2,651 Foot/lbs	2,127 Foot/lbs			
200 PSI	5,301 Foot/lbs	4,254 Foot/lbs	SD-4	3500	4000
300 PSI	7,952 Foot/lbs	6,381 Foot/lbs	SD-5	5500	6000
400 PSI	10,603 Foot/lbs	8,508 Foot/lbs			
500 PSI	13,254 Foot/lbs	10,636 Foot/lbs	SD-6	9000	10000
600 PSI	15,904 Foot/lbs	12,763 Foot/lbs			
700 PSI	18,555 Foot/lbs	14,890 Foot/lbs			
800 PSI	21,206 Foot/lbs	17,017 Foot/lbs			
900 PSI	23,856 Foot/lbs	19,144 Foot/lbs			
1000 PSI	26,507 Foot/lbs	21,271 Foot/lbs	SD-8	19000	21000
1100 PSI	29,158 Foot/lbs	23,398 Foot/lbs			
1200 PSI	31,809 Foot/lbs	25,525 Foot/lbs			
1300 PSI	34,459 Foot/lbs	27,653 Foot/lbs			
1400 PSI	37,110 Foot/lbs	29,780 Foot/lbs			
1500 PSI	39,761 Foot/lbs	31,907 Foot/lbs			
1600 PSI	42,412 Foot/lbs	34,034 Foot/lbs			
1700 PSI	45,062 Foot/lbs	36,161 Foot/lbs			
1800 PSI	47,713 Foot/lbs	38,288 Foot/lbs	SD-10	37000	40000
1900 PSI	50,364 Foot/lbs	40,415 Foot/lbs			
2000 PSI	53,014 Foot/lbs	42,542 Foot/lbs			
2100 PSI	55,665 Foot/lbs	44,670 Foot/lbs	SD-12	42000	46000
2200 PSI	58,316 Foot/lbs	46,797 Foot/lbs			
2300 PSI	60,967 Foot/lbs	48,924 Foot/lbs			
2400 PSI	63,617 Foot/lbs	51,051 Foot/lbs			
2500 PSI	66,268 Foot/lbs	53,178 Foot/lbs			
2600 PSI	68,919 Foot/lbs	55,305 Foot/lbs			
2700 PSI	71,569 Foot/lbs	57,432 Foot/lbs			
2800 PSI	74,220 Foot/lbs	59,559 Foot/lbs			
2900 PSI	76,871 Foot/lbs	61,686 Foot/lbs			
3000 PSI	79,522 Foot/lbs	63,814 Foot/lbs			
3100 PSI	82,172 Foot/lbs	65,941 Foot/lbs			
3200 PSI	84,823 Foot/lbs	68,068 Foot/lbs			
3300 PSI	87,474 Foot/lbs	70,195 Foot/lbs			
3400 PSI	90,124 Foot/lbs	72,322 Foot/lbs			
3500 PSI	92,775 Foot/lbs	74,449 Foot/lbs			
3600 PSI	95,426 Foot/lbs	76,576 Foot/lbs			
3700 PSI	98,077 Foot/lbs	78,703 Foot/lbs			
3800 PSI	100,727 Foot/lbs	80,831 Foot/lbs			



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7.2 Tool Joints and Torque Ranges

SIZE	TYPE OF CONNECTION	OUTSIDE DIAMETER		INSIDE DIAMETER		TORQUE RANGE	
		inches	mm	inches	mm	ft-lbs	kg/m
2-3/8"	Reg.	3-1/8	79	1	25	3000 - 3500	415 - 485
	I.F.	3-3/8	86	1-3/4	44	3000 - 3500	415 - 485
2-7/8"	Reg.	3-3/4	95	1-1/4	32	6000 - 7000	830 - 970
	I.F.	4-1/8	105	2-1/8	54	5000 - 7000	690 - 970
3-1/2"	Reg.	4-1/4	108	1-1/2	38	7000 - 9500	970 - 1315
	F.H.	4-5/8	117	2-7/16	62	7000 - 9000	970 - 1245
	I.F.	4-3/4	121	2-11/16	68	7500 - 10000	1035 - 1385
4"	F.H.	4-1/4	108	2-13/16	71	9000 - 12000	1245 - 1660
	I.F.	5-3/4	146	3-1/4	83	12500 - 16500	1730 - 2280
4-1/2"	Reg.	5-1/2	140	2-1/4	57	12000 - 16000	1660 - 2215
	F.H.	5-3/4	146	3	76	13500 - 17500	1865 - 2420
	F.H.	5-3/4	146	3-5/32	80	12000 - 16000	1660 - 2215
	I.F.	6-1/8	156	3-3/4	95	13000 - 17000	1795 - 2350
5-1/2"	Reg.	6-3/4	171	2-3/4	70	23000 - 27000	3180 - 3735
	F.H.	7	178	3-13/16	97	21500 - 25500	2975 - 3525
	F.H.	7	178	4	102	19000 - 23000	2625 - 3180
	I.F.	7-3/8	187	4-13/16	122	20000 - 24000	2765 - 3320
6-5/8"	Reg.	7-3/4	197	3-1/2	89	29000 - 33000	4010 - 4565
	F.H.	8	203	5	127	22500 - 26500	3110 - 3665
	I.F.	8-1/2	216	5-29/32	150	23000 - 27000	3180 - 3735

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7.3 Hydraulic Oil for System

As shipped the Sidewinder is filled and tested with Valvoline AW32 Hydraulic Oil. The capacity of the unit is about 2.4 US Gallons. After all cylinders have been cycled the oil level should be on the upper 1/3 of the sight glass.

Product Information



A PRODUCT OF THE VALVOLINE COMPANY A DIVISION OF ASHLAND INC.

Valvoline® AW Hydraulic Oils

Valvoline AW (Anti-Wear) Hydraulic Oils are formulated for use in hydraulic systems employing high performance pumps. They are non-detergent oils with excellent oxidation and demulsibility characteristics and contain rust and foam inhibitors. Valvoline AW Hydraulic Oils maintain a typical viscosity index of 95 throughout the line. They incorporate highly effective zinc antiwear chemistry with premium basestocks. All have passed the Rust Test ASTM D-665 Procedure A&B.

The excellent demulsibility of Valvoline AW Hydraulic Oils proves highly useful in mobile equipment applications. Other suitable applications (of proper grades) include lubrication of machine tools, servo controls, metalworking equipment, as light duty crankcase oils, circulating systems, bearings/journal (anti friction) and gear cases.

Do not use in ammonia compressors, as heat transfer oils, with silver bearings or at prolonged temperatures above 200° F.

Approvals	Viscosity Grade/Other						
Cincinnati Milacron P-68	AW32						
Cincinnati Milacron P-70		AW46					
Cincinnati Milacron P-69			AW68				
Sperry Vickers I-286-S & M2950-S	AW32	AW46	AW68	AW100	AW150	AW220	AW320
Denison HF-1/HF-2/HF-0	AW32	AW46	AW68	AW100	AW150	AW220	AW320
Racine variable volume vane pumps	AW32	AW46	AW68	AW100	AW150	AW220	AW320
Lee Norse 100-1	AW32	AW46	AW68	AW100	AW150	AW220	AW320
ASLE 150-215-315 AW	AW32	AW46	AW68	AW100	AW150	AW220	AW320
U.S. Steel 136/127	AW32	AW46	AW68	AW100	AW150	AW220	AW320
DIN 51524, Part 2	AW32	AW46	AW68	AW100	AW150	AW220	AW320
Jeffery 87	AW32	AW46	AW68	AW100	AW150	AW220	AW320
Ford M-6C32	AW32	AW46	AW68	AW100	AW150	AW220	AW320
B.F. Goodrich 0152	AW32	AW46	AW68	AW100	AW150	AW220	AW320
AFNOR E 48-603	AW32	AW46	AW68	AW100	AW150	AW220	AW320
General Motors LH-04-1, LH-06-1, LH-15-1	AW32	AW46	AW68	AW100	AW150	AW220	AW320
Joy Mining Machinery HO-T, HO-S, HO-T2.	AW32	AW46	AW68	AW100	AW150	AW220	AW320

Typical Properties	AW32	AW46	AW68	AW100	AW150	AW220	AW320
API Gravity @ 60° F	30.4	30.2	28.3	28.3	27.6	27.3	26.9
Viscosity @ 40° C cSt	32.5	46.0	69.8	100	143.3	208	320
Viscosity @ 100° C cSt	5.2	6.6	8.3	11.2	14.3	18.4	24.0
Color	1.5	1.5	2.0	5.0	7.0	7.0	8.0
Pour Point °F	-25	-20	-10	-5	-5	0	+5
Flash Point - COC °F	390	400	480	490	510	500	252
Fire Point - COC °F	440	450	515	530	540	535	570
Oxidation Test ASTM D-943 to a 2.0 Neut., No. Hrs.	2500	2500	2500	2000	1500	1000	1000

In a clean, dry condition, this oil will typically exceed 30 kv when tested by ASTM D-877 Dielectric Breakdown Voltage of Insulating Liquids.

Refer to Valvoline Inc.'s Material Safety Data Sheet for health and safety information.

This information only applies to products manufactured in the following location(s): USA, Canada.

Effective Date:	Expiration Date:	Replaces:	Author's Initials:	Code
07-05-01	07-31-03	08-07-98	WAR	PI 2013



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