HYDRAULIC HAND SAW

OPERATOR'S MANUAL

www.WolverineEquipment.com

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SAFETY

Your hydraulic hand saw has been designed to be as safe and efficient as possible. However, hand sawing can be hazardous if proper safety precautions are not taken and operating instructions are not followed carefully. Study this manual and remember all warnings, cautions and tips. Keep a copy of the manual near the job site to review any section as needed.

SAFETY WARNINGS

PERSONAL SAFETY

- Read and understand instructions before operating saw.
- Wear proper safety clothing, including hardhat, gloves and safety glasses. Avoid loose fitting clothes.
- Sturdy boots with non-skid soles aid in providing proper footing. Steel-toed safety boots are recommended.
- Cutting steel reinforcing bar produces sparks; avoid clothing of flammable material.
- Know how to stop the saw quickly in an emergency.
- Noise levels are very high. Wear OSHA-approved hearing protection at all times while the saw is operating.
- Keep all parts of your body away from the blade and all other moving parts.
- Do not operate the hand saw under the influence of drugs or alcohol.
- Do not use hands to search for hydraulic fluid leaks. Fluid escaping under pressure can penetrate the skin and cause severe injury. If any fluid gets into the skin, seek medical attention immediately.
- Wear protective work gloves to avoid contact with concrete slurry that can cause serious skin irritation.

BLADE SAFETY

- Inspect the blade carefully before use. The blade should have no cracks, nicks or flaws. The arbor hole should be undamaged. Use only steel centered wet cutting diamond blades manufactured for use on concrete hand saws.
- **Do Not** use dry cutting diamond blades, high-speed steel blades, carbide tipped blades, or abrasive blades.
- Only use blades marked with a maximum operating speed higher than the blade shaft speed of 2500 rpm.
- Ensure the hydraulic power pack is set at a flow rate appropriate to the hydraulic motor displacement.
- Cut only stone, concrete, reinforced concrete, and masonry materials. **Do Not** cut materials such as wood, glass, or plastic.

- Inspect flanges for damage, excessive wear and cleanliness before mounting the blade. The blade should fit snug on a clean, undamaged surface.
- Hydraulic power units are designed with the ability to vary the blade speed. **Never** operate the saw at a speed higher than the maximum safe allowable speed indicated for the blade. If you are unsure of the operating speed, contact your local distributor or blade manufacturer.
- Avoid getting in direct line with the blade.

GENERAL SAW SAFETY

- Never leave the saw unattended, while running.
- Do not exceed the rated pressure of hydraulic components. If you are unsure, contact Wolverine Equipment.
- Verify that the saw is operating properly before cutting.
- Never operate the saw without sufficient water flow to cool the blade and flush out cutting debris.
- Always disconnect the power unit before servicing the saw.
- Never try to connect or disconnect the power unit while the power unit is running. All hoses will be under pressure.
- Before cutting, be sure that there are no electric, water or gas lines in the area you are working. Do not saw if you are unsure of the presence of utility lines in the work area.
- Keep both hands on the saw while it is in operation.

CUTTING / WORK AREA SAFETY

- Never operate the saw in any application or job where you are not properly trained or supervised.
- Operate gas / diesel power packs only in well-ventilated areas.
- Place barricades or tape to block off the work area. Keep bystanders, animals and unnecessary equipment out of the work area.
- Do not operate the saw near combustible materials or fumes. Sparks that occur during sawing may cause a fire or explosion.

WARNING!

Spinning the blade faster than the manufacturer's recommended speed can damage the blade and cause serious personal injury.

FAILURE TO COMPLY WITH THE PRECEDING WARNINGS COULD RESULT IN SERIOUS BODILY INJURY.

HYDRAULIC HAND SAW SET UP INSTRUCTIONS

HYDRAULIC LINE CONNECTIONS

WARNING!

Never try to connect or disconnect the hose while the power unit is running and / or while the hoses are under pressure.

1. Connect the hydraulic lines to the hand saws quick disconnects and the waterline to the water hose whip.
2. Ensure the lines are located such that they will not interfere with travel or be cut by the blade.
3. Before mounting the blade, be sure the blade shaft turns freely. Incorrect blade rotation will cause increased wear, or may damage the blade.

MOUNTING A STANDARD BLADE

1. Be sure you have the correct diamond blade. Using a blade not manufactured for hand saw use could result in serious bodily injury.
2. Inspect the flanges and clean or replace if necessary. Inspect the blade for damage to the arbor hole before mounting the blade.
3. Place the blade over the arbor on the inner flange. Be sure the blade rotation matches the rotation of the saw. Reversing the blade will cause higher blade wear. The drive pin on the inner flange must go completely through the corresponding hole in the blade.
4. Place the outer flange over the arbor. Ensure that the drive pin from the inner flange aligns with the corresponding hole in the outer flange.
5. Tighten the flange nut to lock the blade in place.

SETUP

1. Never use conventional (wet) diamond blades without cooling water. 2 ½ to 5 gallons per minute of water flowing across the blade is required to maintain proper cooling and attain maximum blade life.
2. Make sure water is flowing unobstructed from the water source though to the blade-collar providing adequate water flow to the blade.

WARNING!

3. Before marking the cut line, ensure there are no electric, gas, or water lines in the work area. Cutting into a utility line could cause electrocution, injury or death.
4. Mark the cutting line clearly so that the saw operator can follow the line without difficulty.

OPERATING THE SAW

NOTE

Ensure the saw is properly set up and ready for operation in accordance with Part 3 of this manual.

STANDARD CUTTING

WARNING!

Never stand directly in line with a spinning blade. Severe injury could result if a segment breaks off or the blade fractures.

1. Before starting any cut, make sure there is enough hydraulic and water hose length to complete the cut without creating a safety hazard.
2. Start the water flow to the blade.
3. With the saw blade above the cut, squeeze the trigger and allow the saw blade to reach operating speed before the blade contacts the surface for the material to be cut.
4. Pivot the saw on the front edge or set your depth cut attachment (purchased separately) to approximately 2”-3” and slowly lower the blade into the cut line.
5. Run the saw along the cut line until the end of the cut.
6. At the end of the cut, pivot the saw on the front edge and raise the blade until it clears the cut, then release the trigger.
7. Allow the blade to come to a complete stop before setting the saw down.
8. All cuts must be made in 2”-3” increments until the desired depth of cut is attained.
    - If the cut runs lengthwise through a reinforced bar, cut completely through it in one pass to prevent the blade from deviating in the cut and jamming.
    - Attempting to cut too deep in one pass will result in a poor quality cut and may cause the blade to jam.
9. When the final cut is complete, turn off the power unit and water supply, relieve the pressure in the hoses, and disconnect the hoses from the saw. Wash down the saw to remove all concrete slurry. Remove the blade and store everything in a secure location.

CORRECTING A WANDERING CUT

1. If the cut starts to wander, stop sawing and correct the cut by plunging a straight and deeper cut before and after the error.
2. After this go back with the blade, cutting twice the depth of the error, and cut between the two new cuts using the blade to guide past the error.

MAINTENANCE

Proper preventive maintenance is essential to ensure a long service life, minimize downtime for repair and provide for safe, efficient operation. We recommend the following service schedule.

WARNING!

Disconnect the power unit before servicing the saw. Ensure all line pressure is relieved prior to disconnecting the hose.

BEFORE EACH USE

- Check all hydraulic hoses and connections.
- Check for proper water flow.
- Check blade guard liner and flanges for wear and damage. Replace as necessary.
- Check fasteners to ensure tightness. Nuts and bolts may become loose particularly after the first few hours of use.

AFTER EACH USE

- Wash down the saw to remove all concrete slurry. Remove the blade and store everything in a secure location.

ANNUALLY

- Major service to be carried out by Wolverine Equipment or an authorized service representative.

MISCELLANEOUS

When replacing hydraulic components, use only parts with the proper pressure rating.

BLADE COLLAR REMOVAL PROCEDURE

How to remove the blade collar assembly:

1. Remove collar nut and spacer for the collar assembly.
2. Apply heat to set screws location for one continuous minute.
   NOTE: PART WILL BE VERY HOT – DO NOT TOUCH
3. Place a metal bar between the dowel pin and the threaded portion of the cone-washer (where the blade slips over) to hold the collar from turning. Place an allen key wrench in screw and turn counter clock wise, while holding collar from turning. Remove screw.
4. Attach three prong puller to collar assembly and remove collar.

How to re-attach blade collar assembly to motor shaft:

1. Clean inside bore hole of collar center area with a wire brush or knife blade to remove any old Loctite. Take a cotton swab or clean cloth and clean inside of bore **thoroughly** with PVC cleaner (clear) or Acetone.
2. Tilt hand saw at a slight angle down, so cleaner will not run back into motor shaft seal, clean shaft on hydraulic motor with shaft key in place, with a clean cloth and PVC cleaner (clear) or Acetone.
3. Place a small bead of Loctite around the back inside bore of collar. Keep collar facing down, wipe any excess Loctite off back of collar. Make sure the key is installed on the motor shaft, then install collar, onto motor shaft **quickly**.
4. Set saw upright, so that the collar shaft is facing you. (This keeps any excess Loctite from running back into the motor shaft seal). Wipe out any excess Loctite from the inside of the collar bore.
5. Place cone-washer over the shaft of screw, (**MAKE SURE SCREW IS CLEAN**). Add one drop of Loctite to end of threads on screw. Install **quickly** to the end of the motor shaft. Hold collar assembly fast while tightening screw in place.
6. Install two allen set screws in to side of collar shaft. **Do not put Loctite on these screws**.
7. Install blade on collar, place spacer over collar shaft, place nut on collar shaft and tighten.

HYDRAULIC MOTOR SHAFT SEAL REPLACEMENT PROCEDURE

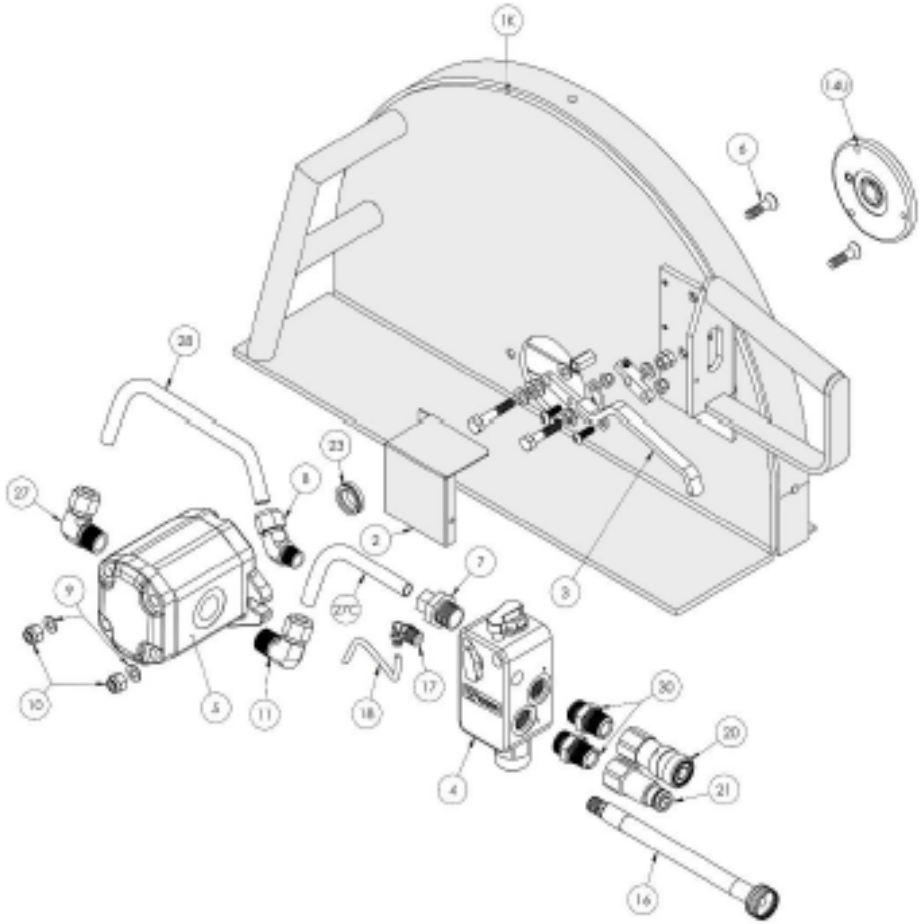
1. Determine the type of motor on your hand saw (Casappa, Marzocchi or Czech hydraulic motor) and the seal needed:
    - ALM Seal — Aluminum (not re-usable)
    - Gold Seal (H126) — Marine Bronze (reusable with seal kit HYSKG)

2. Follow the procedures to remove the blade collar assembly.
3. Remove snap ring, which holds shaft seal in motor housing.
4. Face hydraulic motor shaft down in a large bucket. Attach hydraulic pump or air pressure system to hydraulic motor. Start hydraulic pump (idle only) and begin to open flow valve. Shaft seal will be forced out into the bucket (on a hand saw, you may have to pull the trigger briefly to pop the seal). Turn off the power source quickly once the seal has dislodged from the housing.
5. Inspect cavity where shaft seal sits, make sure all debris (dirt, parts of O-ring or shaft seal) are removed before installing new shaft seal.
6. Apply a light coating of grease to the oil seal and the inside and outside O-ring on the new shaft seal.
7. **Begin to rotate** the shaft seal as you begin to place seal on the motor shaft (install shaft seal with the seal face down) over the motor shaft.
8. Continue to apply **light** pressure to the shaft seal as you **rotate** it down the motor shaft. **Only** after the oil seal and the inside O-ring has **passed the lip** on the motor shaft should more pressure be applied to seat the shaft seal.
9. Once the seal has passed the shaft lip a deep socket can be used to completely seat the seal in the motor plate cavity.
10. Install a new snap ring, once the snap ring is in place take a small ring punch and tap lightly around the snap ring to insure it has fully seated into ring groove.
11. Install the blade collar assembly per instructions, and go back to work.

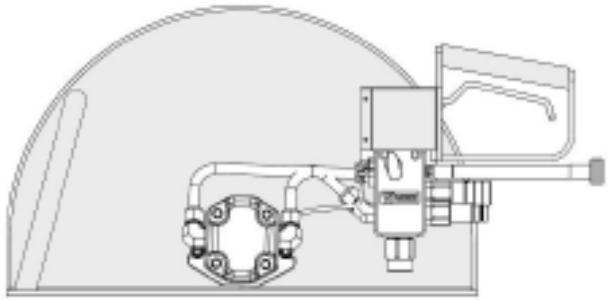
TROUBLESHOOTING

1. If your saw does not operate properly, the following table may be used as a guide in diagnosing and eliminating the problem. If you cannot fix it using the table, call your service representative.
2. Before calling, be sure you can describe the problem clearly so your representative can help you; please have this manual at hand.

TROUBLE	CAUSE	REMEDY
Blade rotates, but power fluctuates.	1. Speed of motor is too low. 2. Power unit is defective.	1. Check power unit. 2. Change to a smaller motor or increase GPM.
Blade does not rotate when trigger is engaged.	1. Blade is jammed in cut. 2. Blade shaft key is sheared or missing. 3. Power unit is defective.	1. Remove blade from cut and try again. 2. Replace blade shaft key. 3. Check power unit.
Blade continues to rotate after trigger is released.	1. Check control valve.	1. Adjust trigger adjustment screw.
Saw motor leaks.	1. Motor seals are defective.	1. Replace motor or motor seal.
Coupling leaks.	1. Coupling is defective.	1. Replace coupling or coupling seal.
No water at blade.	1. Water valve is shut. 2. Water hose not connected properly. 3. Low water pressure.	1. Check water supply. 2. Check hose connections. 3. Check water pressure. (Min. 15 psi).

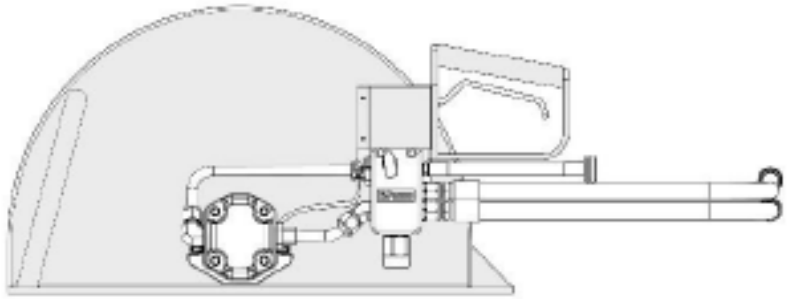


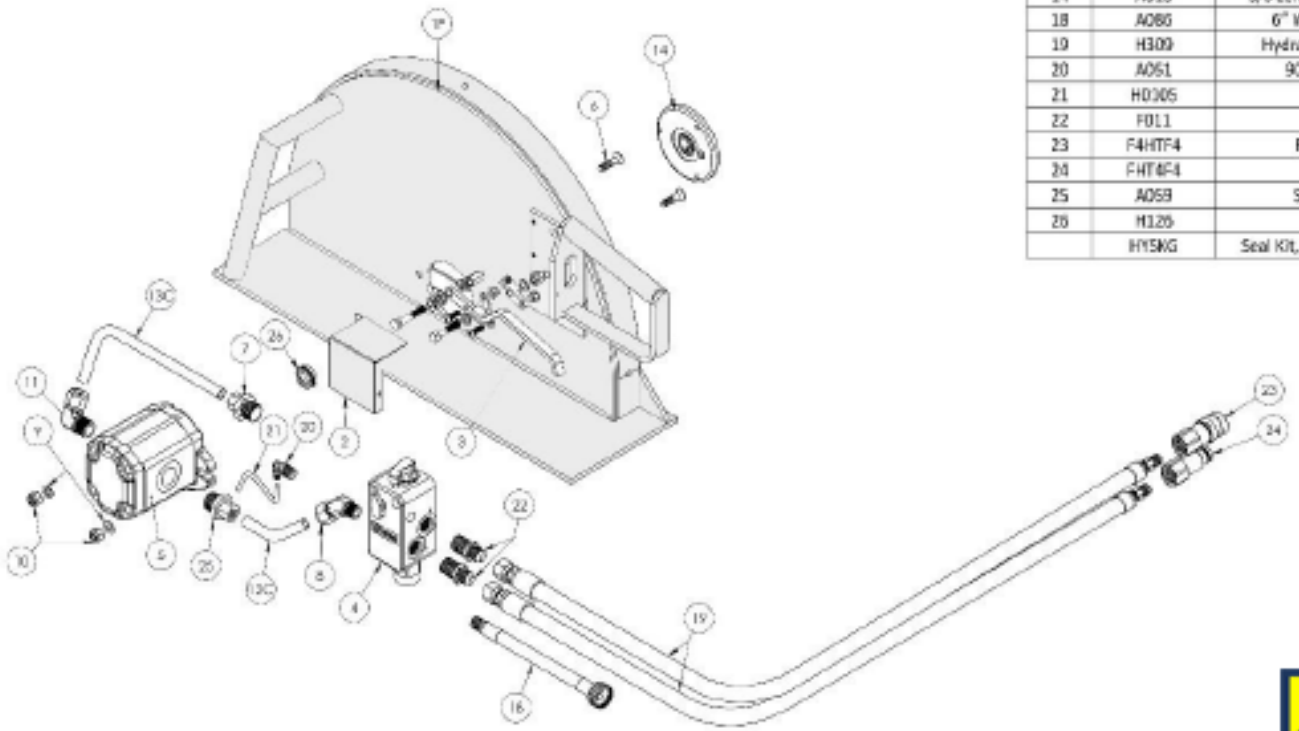
Upcut Standard Parts List			
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1K	FRAME	Upcut Standard Frame	1
2	H218	Cover, Trigger	1
3	H00215	Trigger Assembly	1
4	W3000	Hydraulic Valve	1
5	MOTOR	Hydraulic Motor	1
6	FS38141145F	Hexagon Socket Flat Countersunk Head Cap Screw- 3/8-14 x 1 1/4	2
7	A048	Straight Fitting	1
8	A047	45° fitting	1
9	F38SFW	3/8 Flat Washer	2
10	FS3814SLY	3/8 Nylock Nut	2
11	A045	90° Reduction Fitting	1
14U	H2100	S/S Right Hand Collar Set w/ Set Screws	1
16	A086	6" Water Hose Whip w/ Fittings	1
17	A051	90° Push Lock Water Fitting	1
18	H0105	1/4" Plastic Water Tube	1
20	F4HTF4	Female Quick Disconnect	1
21	FHT4F4	Male Quick Disconnect	1
23	H126	Seal, Gold Complete	1
	HYSKG	Seal Kit, Gold (H103, H53447 & H53448)	
27	A046	90° Reduction Fitting	1
27C	M015 Per Inch	S/S Tubing Upcut Compact HS Pressure	1
28	M015 Per Inch	S/S Tubing Upcut Compact HS Return	1
30	FB812MP	Straight Fitting	2



WOLVERINE EQUIPMENT

Upcut Standard Handsaw

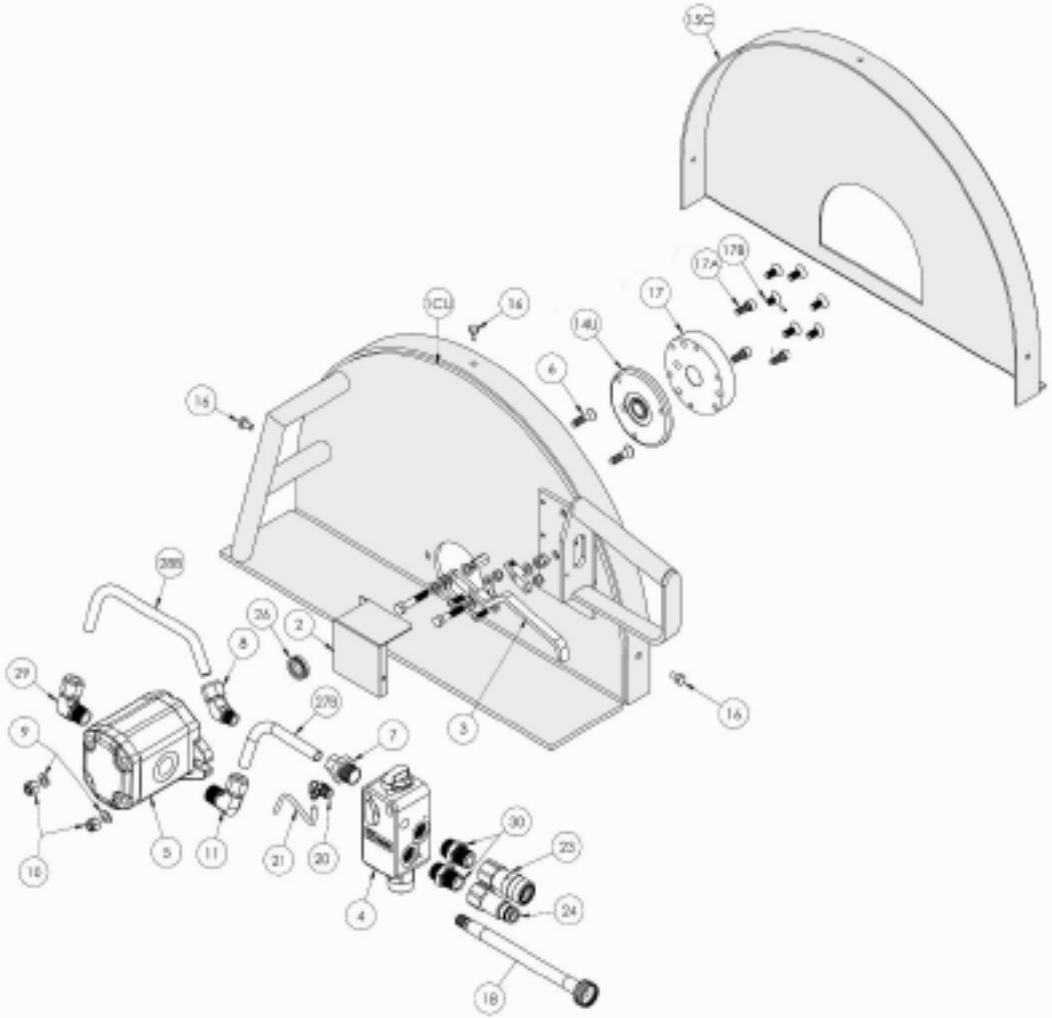




Downcut Standard Parts List			
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1F	FRAME	Downcut Standard Frame	1
2	H218	Cover, Trigger	1
3	H00215	Trigger Assembly	1
4	W3000	Hydraulic Valve	1
5	MOTOR	Hydraulic Motor	1
6	FS38141140SF	Hexagon Socket Flat Countersunk Head Cap Screw- 3/8-24 x 1 1/4	2
7	A048	Straight Fitting	1
8	A047	45° Fitting	1
9	F385FW	3/8 Flat Washer	2
10	FS38145LY	3/8 Nylock Nut	2
11	A045	90° Reduction Fitting	1
12C	M015 Per Inch	S/S Tubing Downcut 45° HS Pressure	1
13C	M015 Per Inch	S/S Tubing Downcut 90° HS Return	1
14	A018	S/S Left Hand Collar Set w/ Set Screws	1
18	A080	6' Water Hose Whip w/ Fittings	1
19	H309	Hydraulic Hose Whip 6' w/ Fittings	2
20	A061	90° Push Lock Water Fitting	1
21	HD305	1/4" Plastic Water Tube	1
22	F0L1	Straight Fitting	2
23	F4HTF4	Female Quick Disconnect	1
24	F4HTM4	Male Quick Disconnect	1
25	A059	Straight Reduction Fitting	1
26	H126	Seal, Gold Complete	1
	HY5KG	Seal Kit, Gold (H103, H53447 & H53448)	

WOLVERINE EQUIPMENT

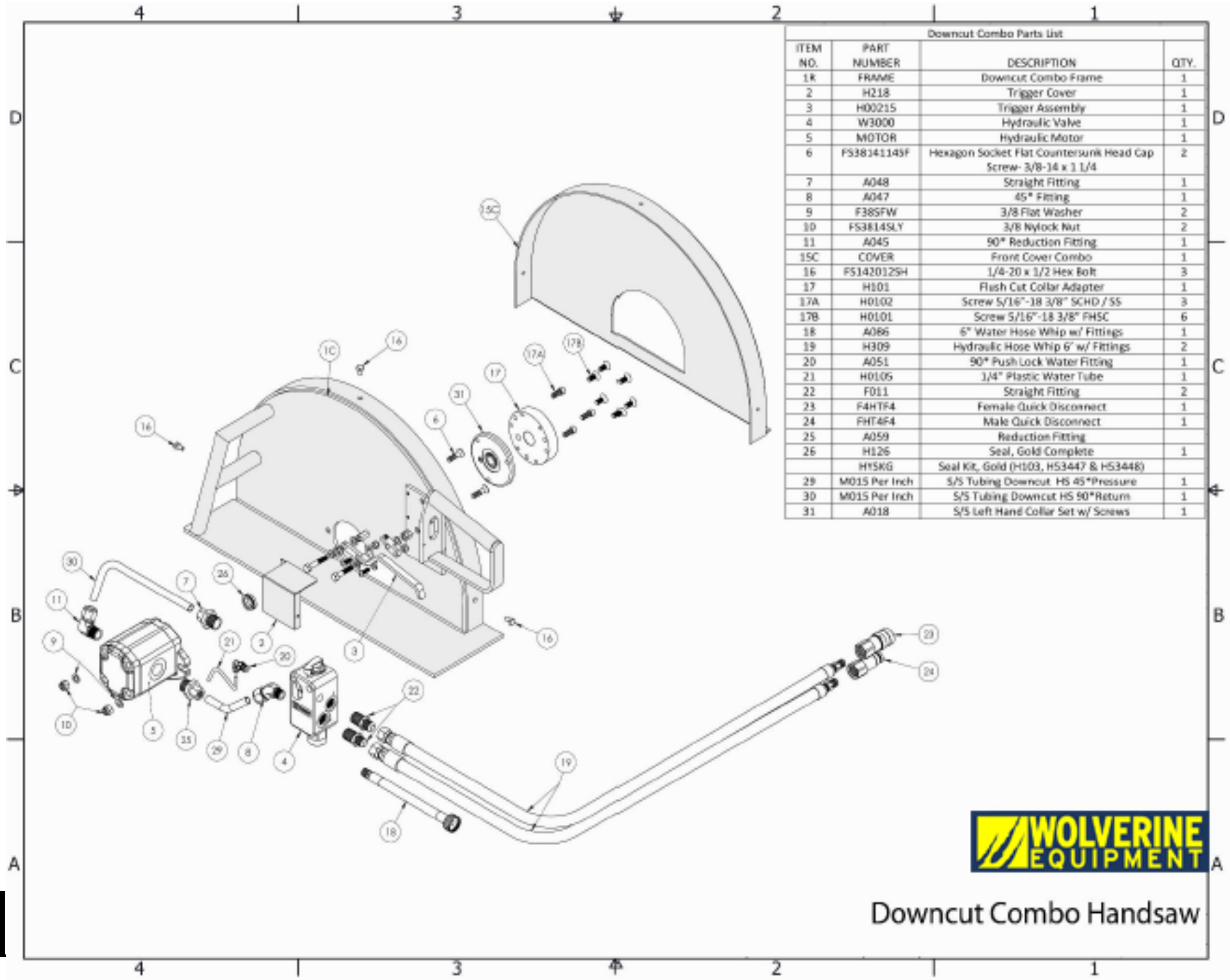
Standard Downcut Handsaw



Upcut Combo Parts List			
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1R	FRAME	Upcut Combo Frame	1
2	H218	Trigger Cover	1
3	H00215	Trigger Assembly	1
4	W3000	Hydraulic Valve	1
5	MOTOR	Hydraulic Motor	1
6	FS3B14114SF	Hexagon Socket Flat Countersunk Head Cap Screw- 3/8-14 x 1 1/4	2
7	A048	Straight Fitting	1
8	A047	45° Fitting	1
9	F3BSFW	3/8 Flat Washer	2
10	FS3B14SLY	3/8 Nylock Nut	2
11	A045	90° Reduction Fitting	1
14U	A018	S/S Left Hand Collar Set w/ Screws	
15C	COVER	Front Cover Combo	1
16	FS142012SH	1/4-20 x 1/2 Hex Bolt	3
17	H101	Flush Cut Collar Adapter	1
17A	H0102	Screw 5/16"-18 3/8" SCHD / SS	3
17B	H0101	Screw 5/16"-18 3/8" FHSC	6
18	A086	6" Water Hose Whip w/ Fittings	1
20	A051	90° Push Lock Water Fitting	1
21	H0105	1/4" Plastic Water Tube	1
23	F4HTF4	Female Quick Disconnect	1
24	FHT4M4	Male Quick Disconnect	1
25	A059	Reduction Fitting	
26	H126	Seal, Gold Complete	1
	HYSKG	Seal Kit, Gold (H103, H53447 & H53448)	
27B	M015 Per Inch	S/S Tubing Upcut HS 45°Pressure	1
28B	M015 Per Inch	S/S Tubing Upcut HS 90°Return	1
29	A046	90° Reduction Fitting	1
30	F8B12MP	Straight Fitting	2

WOLVERINE EQUIPMENT

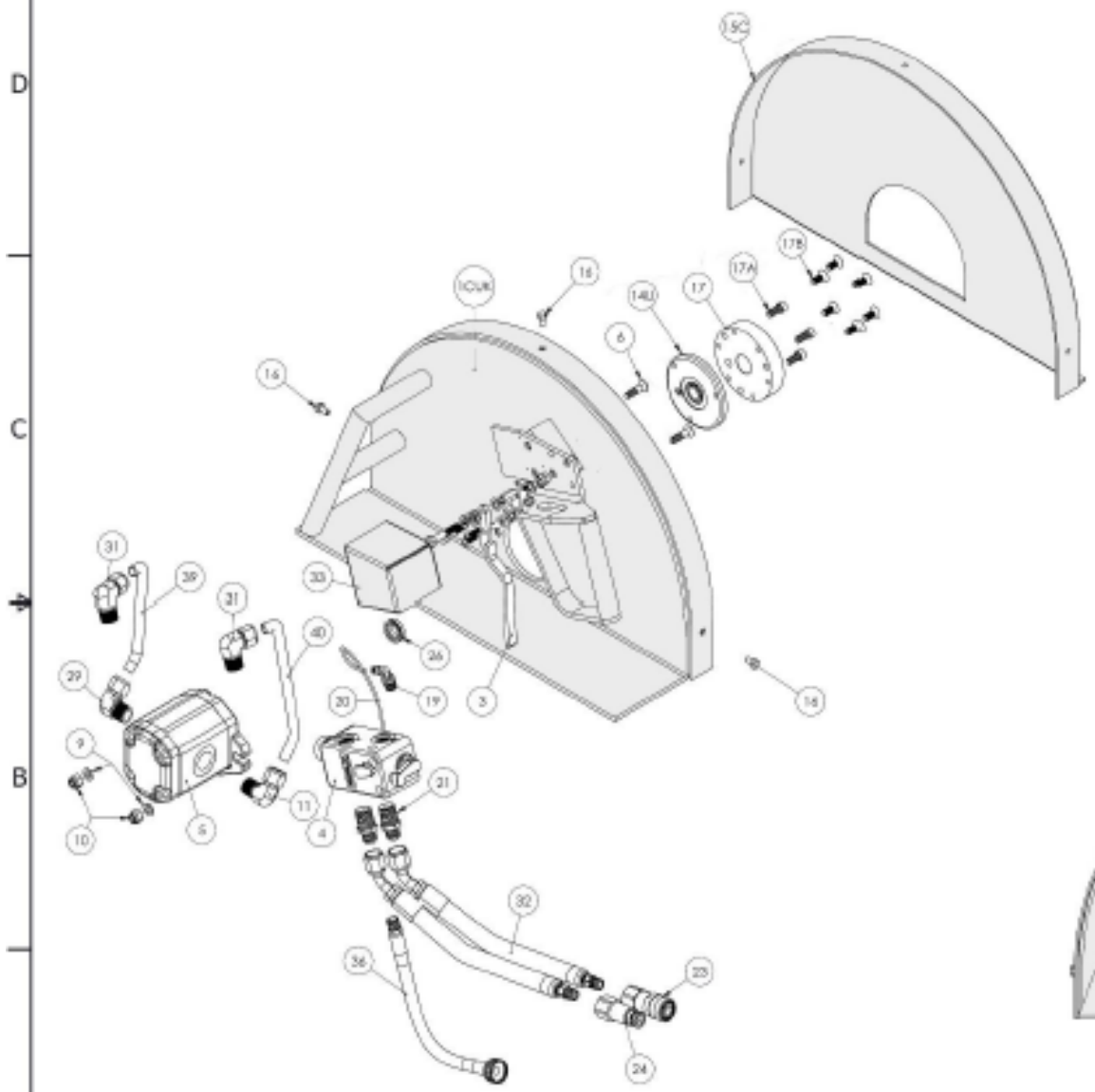
Upcut Combo Handsaw



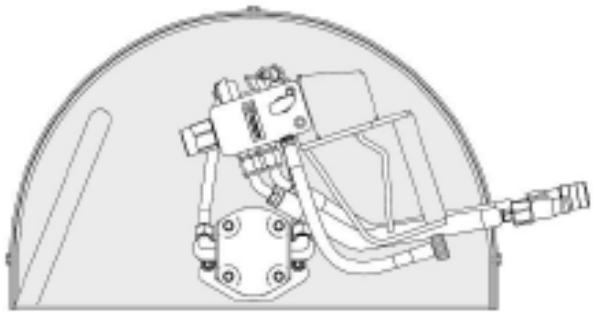
Downcut Combo Parts List			
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1R	FRAME	Downcut Combo Frame	1
2	H218	Trigger Cover	1
3	H00215	Trigger Assembly	1
4	W3000	Hydraulic Valve	1
5	MOTOR	Hydraulic Motor	1
6	FS38141145F	Hexagon Socket Flat Countersunk Head Cap Screw- 3/8-14 x 1 1/4	2
7	A048	Straight Fitting	1
8	A047	45° Fitting	1
9	F38SFW	3/8 Flat Washer	2
10	FS3814SLY	3/8 Nylock Nut	2
11	A045	90° Reduction Fitting	1
15C	COVER	Front Cover Combo	1
16	FS142012SH	1/4-20 x 1/2 Hex Bolt	3
17	H101	Flush Cut Collar Adapter	1
17A	H0102	Screw 5/16"-18 3/8" SCHD / SS	3
17B	H0101	Screw 5/16"-18 3/8" FHSC	6
18	A086	6" Water Hose Whip w/ Fittings	1
19	H309	Hydraulic Hose Whip 6' w/ Fittings	2
20	A051	90° Push Lock Water Fitting	1
21	H0105	1/4" Plastic Water Tube	1
22	F011	Straight Fitting	2
23	F4HTF4	Female Quick Disconnect	1
24	FHT4F4	Male Quick Disconnect	1
25	A059	Reduction Fitting	
26	H126	Seal, Gold Complete	1
	H15KG	Seal Kit, Gold (H103, HS3447 & HS3448)	
29	M01S Per Inch	S/S Tubing Downcut HS 45°Pressure	1
30	M01S Per Inch	S/S Tubing Downcut HS 90°Return	1
31	A018	S/S Left Hand Collar Set w/ Screws	1

WOLVERINE EQUIPMENT

Downcut Combo Handsaw



Upcut Compact Parts List			
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1CUK	FRAME	Upcut Compact Combo Frame	1
3	H00215	Trigger Assembly	1
4	W3000	Hydraulic Valve	1
5	MOTOR	Hydraulic Motor	1
6	FS38114114SF	Hexagon Socket Flat Countersunk Head Cap Screw- 3/8-14 x 1 1/4	2
9	F38SFW	3/8 Flat Washer	2
10	FS38L4SLY	3/8 Nylock Nut	2
11	A045	90° Reduction Fitting	1
14U	H2100	S/S Right Hand Collar Set w/ Set Screws	1
15C	Cover	Front Cover Combo	1
16	FS142012SH	Hex Bolt ¼-20 x 1/2	3
17	H101	Flush Cut Collar Adapter	1
17A	H0102	Screw 5/16"-18 x ¾" SCHD/SS	1
17B	H0101	Screw 5/16"-18 x ¾"FHSC	6
19	A051	90° Push Lock Water Fitting	1
20	H0105	1/4" Plastic Water Tube	1
21	F011	Straight Fitting	2
23	F4HTF4	Female Quick Disconnect	1
24	FHT4F4	Male Quick Disconnect	1
26	H126	Seal, Gold Complete	1
	HYSKG	Seal Kit, Gold (H103, H53447 & H53448)	
29	A046	90° Reduction Fitting	1
31	A049	90° Straight Fitting	2
32	H300	Hydraulic Hose Whip 12" w/ Fittings	2
33	H218K	Trigger Cover Compact	1
36	A123	18" Water Hose Whip w/ Fittings	1
39	M015 Per Inch	S/S Tubing Upcut Compact HS Return	1
40	M015 Per Inch	S/S Tubing Upcut Compact HS Pressure	1



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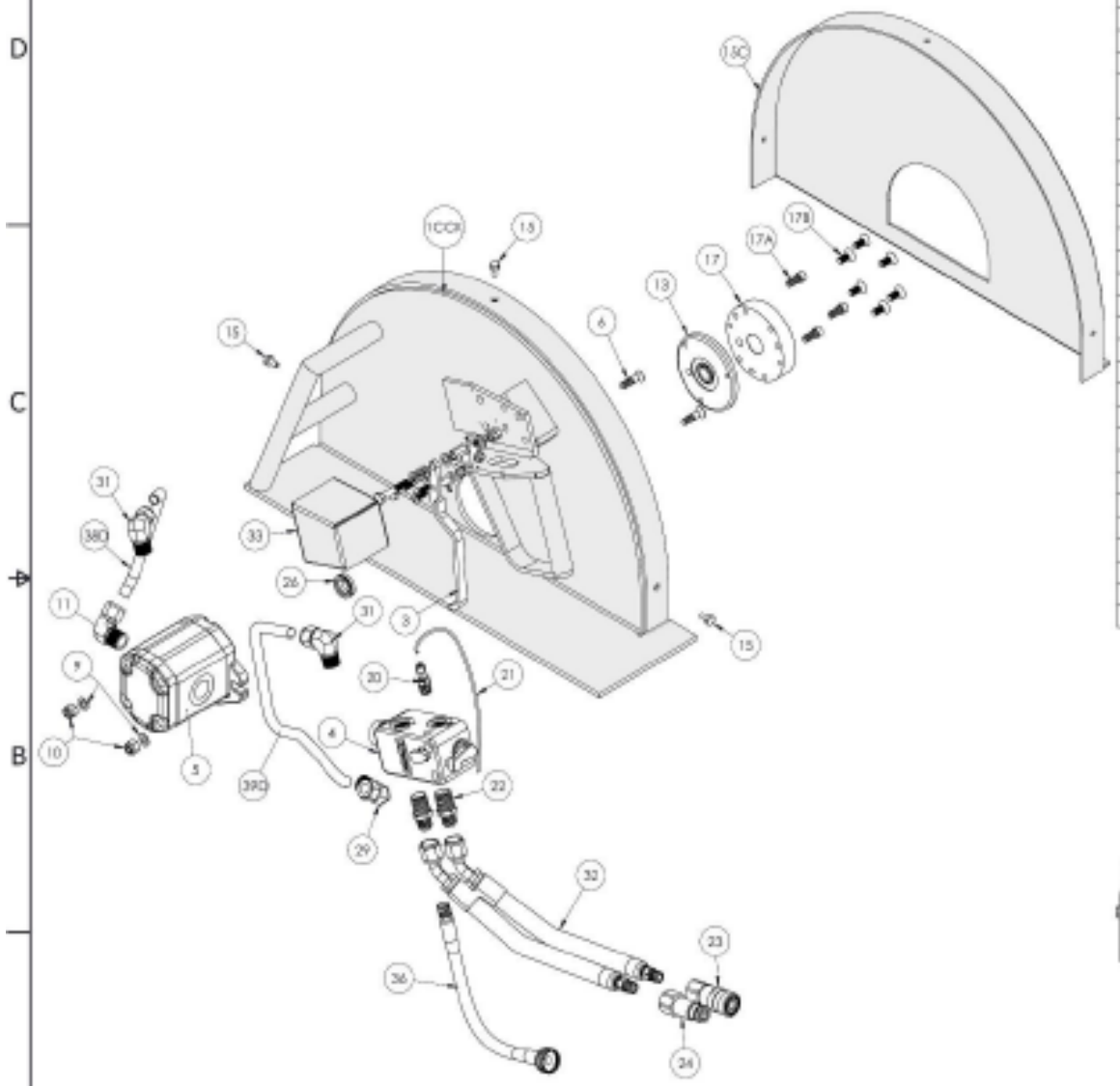
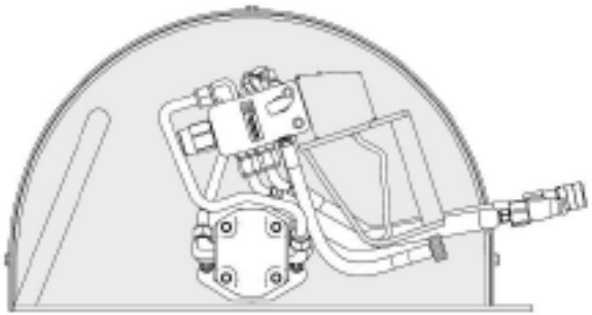
Upcut Compact Combo Handsaw



Downcut Compact Parts List			
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1CDC	FRAME	Downcut Compact Combo Frame	1
3	H00215	Trigger Assembly	1
4	W3000	Hydraulic Valve	1
5	MOTOR	Hydraulic Motor	1
6	FS3B141145F	Hexagon Socket Flat Countersunk Head Cap Screw- 3/8-14 x 1 1/4	2
9	F38SFW	3/8 Flat Washer	2
10	FS3814SLY	3/8 Nylock Nut	2
11	A045	90° Reduction Fitting	1
13	A018	S/S Left Hand Collar Set w/ Set Screws	1
15C	Cover	Front Cover Combo	1
15	FS1420125H	Hex Bolt ¼-20 x 1/2	3
17	H101	Flush Cut Collar Adapter	1
17A	H0102	Screw 5/16"-18 x ¾" SCHD/SS	1
17B	H0101	Screw 5/16"-18 x ¾"FHSC	6
20	A051	90° Push Lock Water Fitting	1
21	H0105	1/4" Plastic Water Tube	1
22	F011	Straight Fitting	2
23	F4HTF4	Female Quick Disconnect	1
24	FHT4F4	Male Quick Disconnect	1
26	H126	Seal, Gold Complete	1
	HYSKG	Seal Kit, Gold (H103, H53447 & H53448)	
29	A046	90° Reduction Fitting	1
31	A049	90° Straight Fitting	2
32	H300	Hydraulic Hose Whip 12" w/ Fittings	2
33	H218K	Trigger Cover Compact	1
36	A123	18" Water Hose Whip w/ Fittings	1
38O	M015 Per Inch	S/S Tubing Downcut Compact HS Pressure	1
39O	M015 Per Inch	S/S Tubing Downcut Compact HS Return	1



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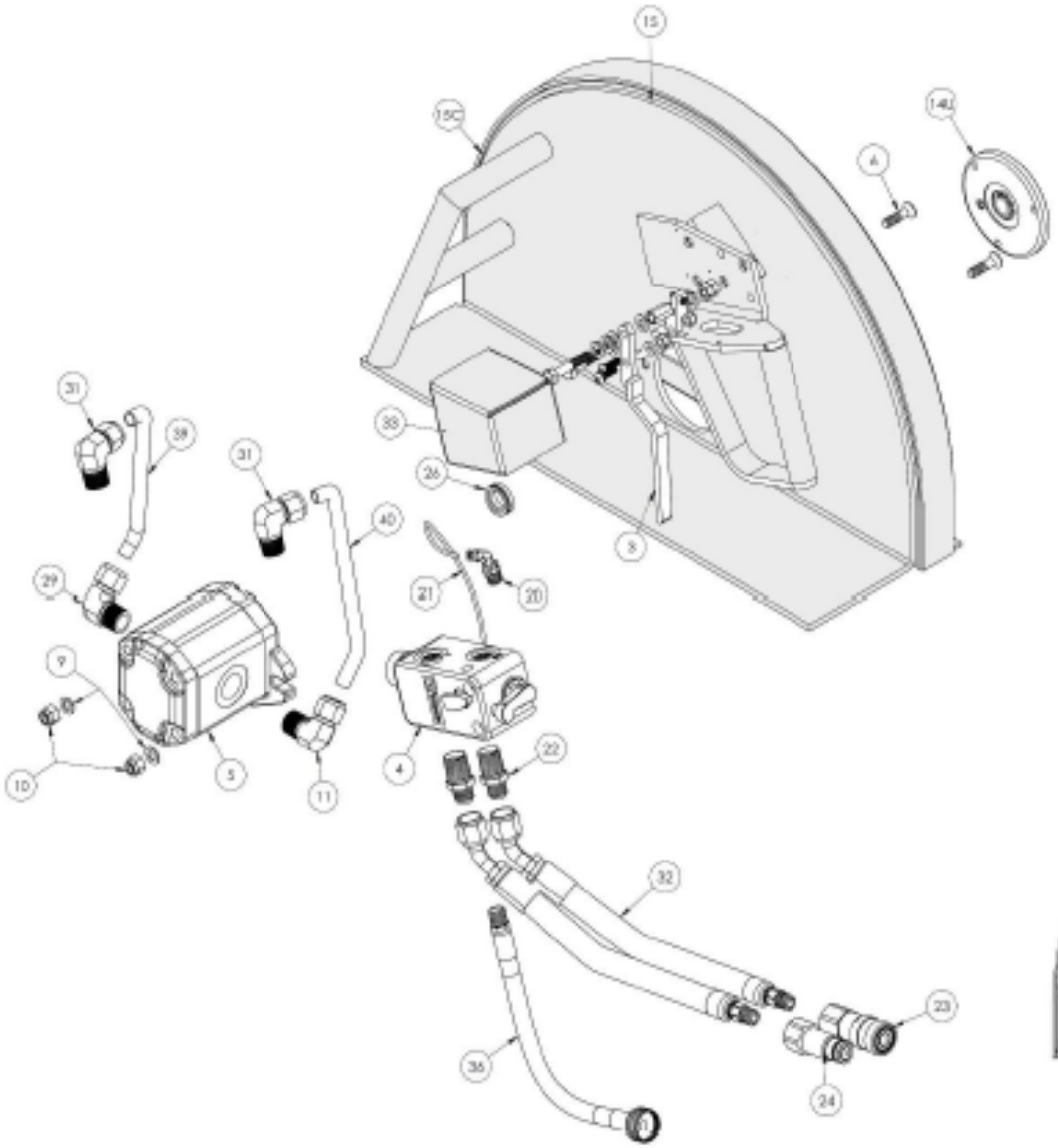
Downcut Compact Combo Handsaw



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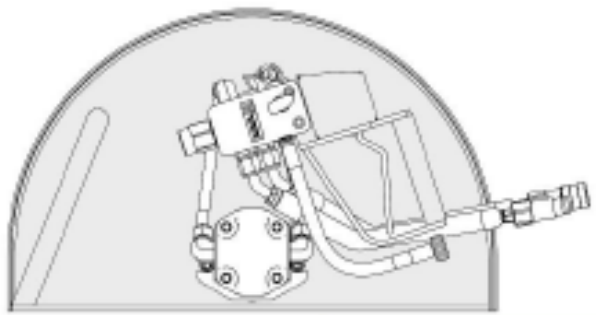
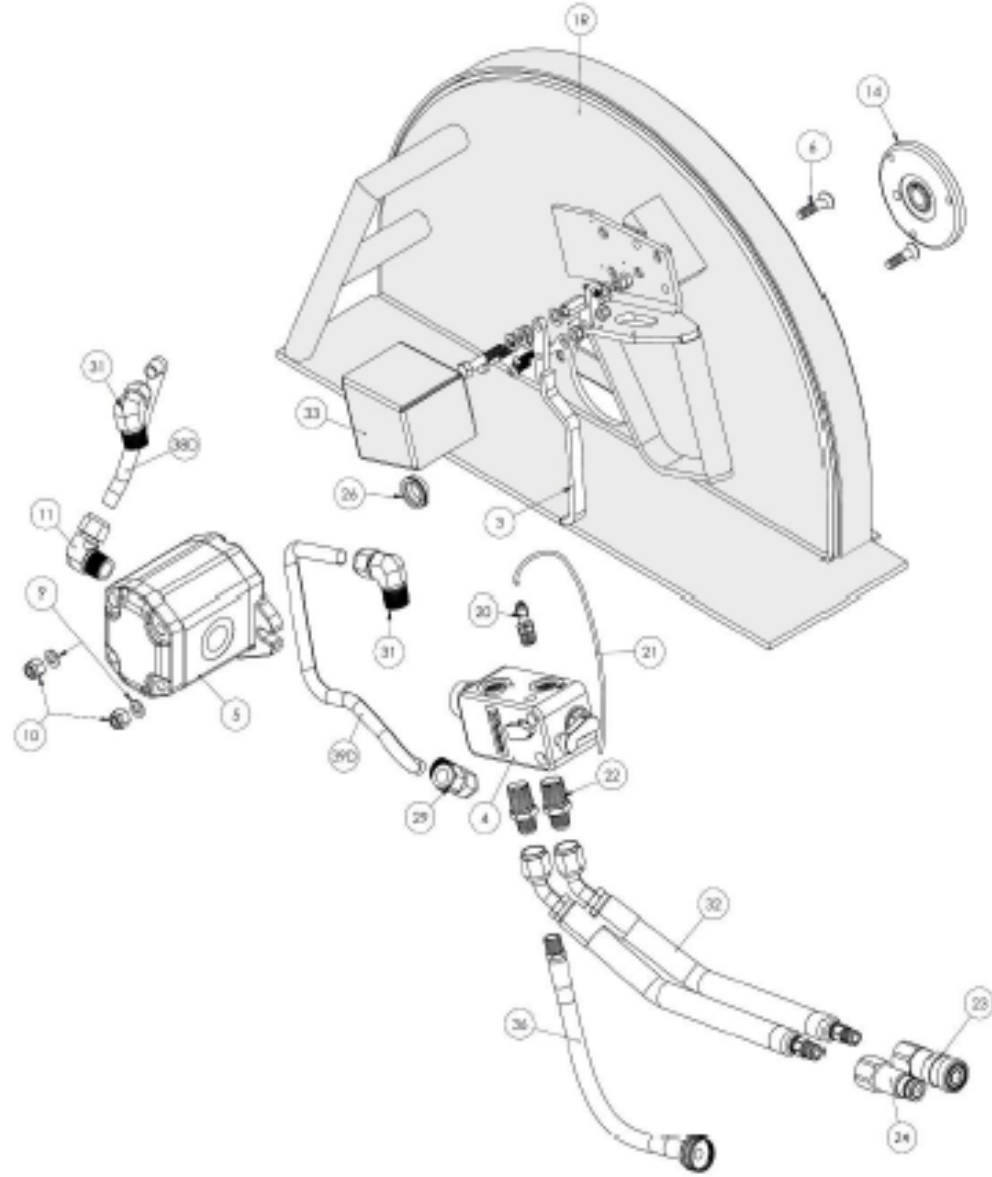
4	W3000	Hydraulic Valve	1
5	MOTOR	Hydraulic Motor	1
6	FS3814114SF	Hexagon Socket Flat Countersunk Head Cap Screw- 3/8-14 x 1 1/4	2
9	F38SFW	3/8 Flat Washer	2
10	FS38145LY	3/8 Nylock Nut	2
11	A045	90° Reduction Fitting	1
14U	H2100	S/S Right Hand Collar Set w/ Set Screws	1
20	A051	90° Push Lock Water Fitting	1
21	H0105	1/4" Plastic Water Tube	1
22	F011	Straight Fitting	2
23	F4HTF4	Female Quick Disconnect	1
24	FHT4F4	Male Quick Disconnect	1
26	H126	Seal, Gold Complete	1
	HY5KG	Seal Kit, Gold (H103, H53447 & H53448)	
29	A046	90° Reduction Fitting	1
31	A049	90° Straight Fitting	2
32	H300	Hydraulic Hose Whip 12" w/ Fittings	2
33	H218K	Trigger Cover Compact	1
36	A123	18" Water Hose Whip w/ Fittings	1
39	M015 Per Inch	S/S Tubing Upcut Compact HS Return	1
40	M015 Per Inch	S/S Tubing Upcut Compact HS Pressure	1

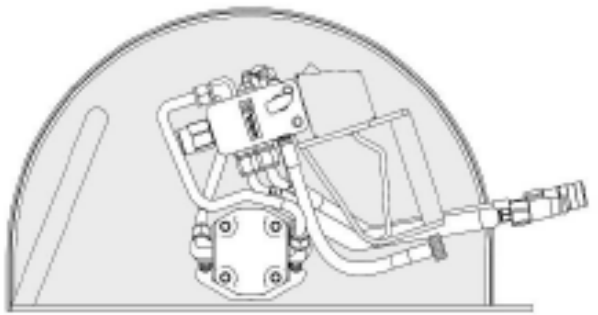


WOLVERINE EQUIPMENT

Upcut Compact Handsaw



Downcut Compact Parts List			
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1R	FRAME	Downcut Compact Frame	1
3	H00215	Trigger Assembly	1
4	W3000	Hydraulic Valve	1
5	MOTOR	Hydraulic Motor	1
6	FS38114114SF	Hexagon Socket Flat Countersunk Head Cap Screw- 3/8-14 x 1 1/4	2
9	F385FW	3/8 Flat Washer	2
10	FS3814SLY	3/8 Nylock Nut	2
11	A045	90° Reduction Fitting	1
14	A018	S/S Left Hand Collar Set w/ Set Screws	1
20	A051	90° Push Lock Water Fitting	1
21	H0105	1/4" Plastic Water Tube	1
22	F011	Straight Fitting	2
23	F4HTF4	Female Quick Disconnect	1
24	FHT4F4	Male Quick Disconnect	1
26	H126	Seal, Gold Complete	1
	HYSKG	Seal Kit, Gold (H103, HS3447 & HS3448)	
29	A046	90° Reduction Fitting	1
31	A049	90° Straight Fitting	2
32	H300	Hydraulic Hose Whip 12" w/ Fittings	2
33	H218K	Trigger Cover Compact	1
36	A123	18" Water Hose Whip w/ Fittings	1
38D	M015 Per Inch	S/S Tubing Downcut Compact HS Pressure	1
39D	M015 Per Inch	S/S Tubing Downcut Compact HS Return	1



WOLVERINE EQUIPMENT

Downcut Compact Handsaw

Wolverine Equipment Limited Warranty:

Wolverine Equipment warrants major equipment manufactured by it against defects in material and workmanship under normal use and service for a period of 1 year from thedate of purchase from Wolverine Equipment. Wolverine Equipment obligation under this warranty is limited to replacement or repair of parts at Wolverine's Kent, Washington plant or a facility designated by Wolverine Equipment, should such parts appear to be defective upon inspection by Wolverine Equipment. This warranty does not cover any products which Wolverine Equipment determines to have been abused, used in an improper manner or application, altered or otherwise damaged. Further, this warranty does not apply to equipment that has been improperly repaired by others or that has not received reasonable maintenance. In no event shall Wolverine Equipment be liable for incidental or consequential damages of any kind. Integral components such as engines, motors, tires, etc. are excluded from this warranty and are subject to the original manufacturer's warranty.

WolverineEquipment.com
6819 S. 220th Street, Kent, WA 98032
Phone: (253) 277-4695