

Excavator / Backhoe Brush Cutters

Owner / Operator Instruction & Maintenance Manual

Model Series:

4200X & 4800X

Before operation of your Brush Wolf attachment read the entire contents of this manual

Thank you for your purchase of the Brush Wolf rotary brush cutter. At Cross-Tech Manufacturing we take great pride in the design and manufacturing of our products and we appreciate your business. We are confident your Brush Wolf will provide many years of reliable service. Welcome to the Brush Wolf family.

For your safety and the safety of others, please read the entire contents of this manual prior to the operation of the Brush Wolf brush cutter.

If you have questions regarding your Brush Wolf, contact your dealer.

Please take the time to fill out the Warranty Registration Form contained in this manual or go on-line at **Brushwolf.com**. A Warranty Registration Form (page 19) must be on file within thirty days of the purchase date in order for warranty claims to be valid. A full description of the warranty and process for submittal can be found on page 20.

To ensure prompt and accurate information when working with your dealer regarding your Brush Wolf Brush Cutter please complete the Owner Reference Information below. The information will be vital for service, repair and warranty inquiries.

OWNER REFERENCE INFORMATION			
Date Purchased:			
Dealer Name:			
Dealer Phone:			
Model Number:			
Serial Number:			
Thank you for your business!			



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Safety Instructions



The following safety instructions are provided to alert you to precautions which, if not followed, may cause serious injury to yourself or others. Please read these instructions completely. Cross-Tech Manufacturing can not cover every incident that might be a hazard. Extreme caution should be used at all times. Only use Brush Wolf brush cutters for the purpose for which it has been designed. Always operate an excavator/backhoe with a forestry rated door and cab. Safety goggles and hearing protection must be worn at all times.

Site Inspection: Before operation of your Brush Wolf, carefully inspect the area to be cleared. Remove any items which may be picked up and thrown by the cutting blades; wire, pipes, or rocks. Mark any object too large to move. This is an important step to help avoid damage to property, the Brush Wolf brush cutter, your excavator/backhoe or personal injury. If an object is struck when operating the Brush Wolf, immediately shut down power to both the attachment and the excavator/backhoe. Any damage should be corrected and tested before continuation of cutting.

Equipment Inspection: Prior to inspection, disconnect the unit from the excavator/backhoe. To inspect or to make repairs under the Brush Wolf cutter deck always block the unit securely in order to prevent accidental release of the lift mechanism. Inspect all hydraulic hoses and shields to ensure they are in good condition and without holes before pressurizing. Hydraulic fluid can escape under pressure and may cause serious injury or death. Wear safety goggles, ear protection, hard hat, and only operate the excavator behind a shatter proof forestry rated door and cab.

Excavator / Backhoe Auxiliary Hydraulic Flow: Check the specifications of the Brush Wolf models rated GPM to correctly match the hydraulic flow of your excavator/backhoe to ensure proper operation.

Do Not operate near bystanders, vehicles, pets, livestock or buildings. Objects may discharge while cutting with the Brush Wolf and has the potential to cause serious injury.

Do Not place hands, feet or other objects under the deck while the Brush Wolf is in operation. To inspect or perform maintenance under the deck, always shut down the power to the Brush Wolf, shut-off the excavator/backhoe engine, disconnect hydraulic hoses, and block the unit securely.

Do Not allow children to operate a rotary brush cutter. Only individuals with excavator/backhoe experience who are well acquainted with the rules of safe operation should be allowed to operate the Brush Wolf.

Do Not operate the Brush Wolf in conditions with poor visibility.



Safety Instructions

Do Not expose the underside of the blades towards the cab.

Do Not operate while intoxicated or if taking medications that may impair your senses or reactions.

Do Not attempt to straighten blades. Order replacement blades if blades are bent, cracked or damaged.

Do Not leave the Brush Wolf unattended while in a raised position. Always make sure both the runners are placed firmly on the ground and shut down the excavator/backhoe.

Do Not continue operation if an unexpected object is struck. **IMMEDIATELY** shut down power to both the attachment and the excavator/backhoe. Disconnect the hydraulic couplers from the power source. Evaluate the damage, repair and the test unit before operation.

Do Not allow anyone or any item on top of the mower deck when in operation.



Make sure all hydraulic connections are tight and hoses and shields are in good condition before applying pressure.

Hydraulic fluid escaping under pressure can penetrate skin and cause serious injury. If this type of injury occurs, **seek medical attention immediately.**

Operation Instructions

- 1. Prior to operation check the blades and replace if cracked or damaged. All blades must be replaced at the same time. Tighten the blade carrier to the gearbox, blade bolts/nuts, and hydraulic motor mount nuts. Check the hydraulic fluid. A low level could indicate a leak and require a closer inspection of your unit.
- 2. Ensure pins or quick couplers are properly connected from the Brush Wolf to your excavator/backhoe.
- 3. Verify the auxiliary hydraulic flow available at the stick of your excavator/backhoe is within the range of the Brush Wolf rating of GPM Gallons Per Minute.
- 4. Inspect the hydraulic couplers and wipe off water, dust or any debris. Dirt and debris can damage hydraulic components. Once cleaned, connect the couplers from the cutter to the auxiliary hydraulic system on the excavator/backhoe.
- 5. Connect the auxiliary hydraulic lines for the brush cutter to the excavator/backhoe. If you have a High Flow excavator/backhoe and brush cutter attach the case drain to the excavator/backhoe. Twist the collars of the quick connect couplers to secure the hydraulic connections. Do not operate the brush cutter on High Flow hydraulics unless the brush cutter is equipped with a High Flow motor and case drain this may cause damage to the motor and void the warranty.
- 6. Confirm all safety measures have been completed per the Safety Instructions. Most importantly make sure the area is clear of personnel and pets.
- 7. Enter shatter-proof cab door, engage seat belt, release brake and start engine. The runners of the Brush Wolf should be as close to the ground as possible.
- 8. Slowly apply hydraulics to the Brush Wolf and increase the engine speed to high idle. Make sure the unit is operating smoothly before moving the excavator/backhoe forward. When temperatures are below zero allow additional time for hydraulic fluids to warm-up.
- 9. Maintain a speed to handle the volume of brush and to prevent stalling.
- 10. Stay alert for drop-offs, rocks, holes, abandoned wells and septic tanks. Do not operate or drive across a steep embankment as this may cause a rollover and possible injuries or death.
- 11. To cut large diameter brush and trees, move forward slowly to make the cut.
- 12. When finished cutting, make sure the cutter is placed flat on the ground, throttle down the excavator/backhoe and shut off the hydraulic flow to the unit, stop engine, and engage parking brake prior to leaving the cab. **Noise at shut down is normal.**
- 13. To disconnect hoses use proper hand protection as the couplers may be hot.



Maintenance

Your new Brush Wolf is a precisely engineered attachment and requires little maintenance. The Brush Wolf is built to strict standards and will deliver years of dependable service by following these maintenance guidelines:

1. Perform maintenance on level surface with the unit firmly on the ground and blocked. Shut off the hydraulic power supply and disconnect hydraulic couplers.

Before operation, check the gearbox for proper lubricant and hydraulic hoses for any leaks. To check lubricant level, remove pipe plug from the side of the gearbox. Lubricant should be the same level as the plug. See diagram on page 8. **IMPORTANT:** Do not overfill, as too much lubricant may rupture the gearbox seals.

- 2. Check all nuts and bolts for proper tightness. See Maintenance Schedule on page 8.
- 3. Every Brush Wolf is tested at the factory and all nuts and bolts have been tightened to specifications. We recommend you check them after the first 4 to 6 hours of operation and at regular intervals as defined in the Maintenance Schedule.
- 4. Tighten all the nuts which secure the blades to the blade carrier every eight (8) hours. Torque the nuts to 775 ft lbs with a 1-11/16" socket wrench. The nuts are located under the access plate on the top of the blade carrier. Also, tighten the castle nut holding the blade or bar carrier to the output shaft of the gearbox, torque to 450 ft lbs with a 1-1/2" socket wrench.
- 5. Inspect blades regularly to ensure they are sharp, tightened correctly and intact. Blades must be replaced as a set and never try to weld or straighten damaged blades, as loss of blade integrity will result.
- 6. Inspect hydraulic hoses daily or each use for damage, wear or leaks.
- 7. Shear bolt protection at the motor coupler. It is recommended to carry additional shear bolts GRD 2 obtained at most hardware stores. Only use grade 2 when replacing.



CAUTION: Always replace the entire set of blades. Never weld or straighten damaged blades, as loss of blade integrity may result.

CAUTION: Replace missing or illegible safety decals immediately. Decals are available at your Brush Wolf dealer.

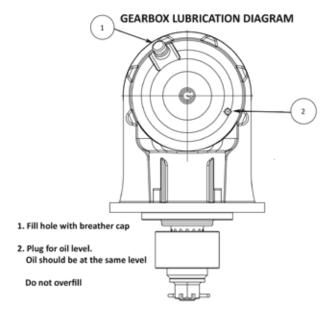
Maintenance Schedule / Checklist



CAUTION: Perform maintenance on a level surface with the unit firmly on the ground and blocked. Shut off the hydraulic power supply and disconnect hydraulic couplers.

Do Not loan your brush cutter to another excavator/back hoe owner. The potential exists for hydraulic contamination and could shorten the life of your operating equipment or the hydraulic motor on your Brush Wolf brush cutter.

ITEM	TYPE OF MAINTENANCE	FREQUENCY
Gearbox mounting bolts	Torque to 275 ft - lbs	Daily or every 8 hours
Hydraulic motor mount bolts	Torque to 75 ft - Ibs.	Daily or every 8 hours
Block - High Flow units only	Torque to 420 in - lbs.	Daily or every 8 hours
Shear bolt Grade 2	Torque to 75 ft - Ibs.	Daily or every 8 hours
Blade Bolt/nuts	Torque to 775 ft - lbs.	Daily or every 8 hours
Blade Inspection	Check for damage, dullness or cracks. Blades should rotate freely and be clear of obstructions. Replace entire set of blades if damaged.	Daily or every use
Gearbox castle nut	Torque to 450 ft - lbs.	Daily or every 8 hours
Hoses and hose safety shield	Check for wear, damage or leaks. Replace if damaged.	Daily or every 8 hours
Gearbox lubricant	Check oil - add 85 W 140 gear lube. See diagram below. DO NOT overfill	Once per week
Gearbox shaft	Inspect shaft and remove foreign material.	Inspect each use
Brush Wolf machine	Clean the unit to view potential damage or obstructions that could result in poor performance.	As needed



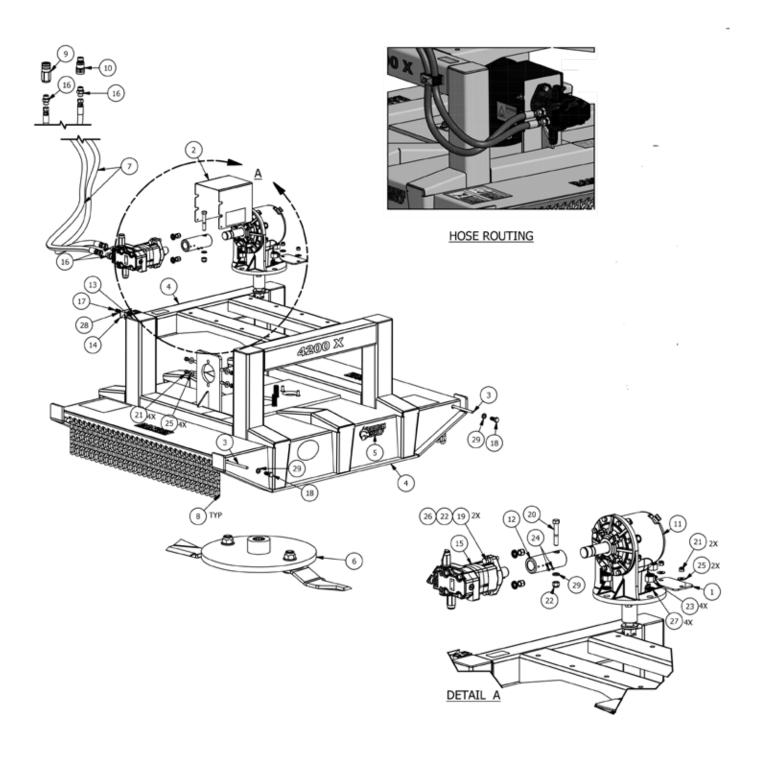


Troubleshooting

Note: When performing maintenance, shut down the excavator/backhoe and remove hydraulic hoses from the power source.

Problem	Check
Loss of Power	Low hydraulic fluid level Overheated hydraulic fluid* Contaminated hydraulic fluid*
	*May damage hydraulic motor
	Low gearbox lubricant level Broken gearbox /motor shear pin Missing input shaft key
Excessive Unit Vibration	Dull, broken or damaged blades Bent gearbox shaft Blade carrier out of balance Loose nuts and bolts New blade or bolts matched with worn blade or bolts Wire or rope wrapped around blades
Leaking Oil	Loose hydraulic connections Ruptured hydraulic motor seals Bent gearbox shaft Loose or missing motor drain plug Ruptured hydraulic motor seals

4200X Parts Diagram





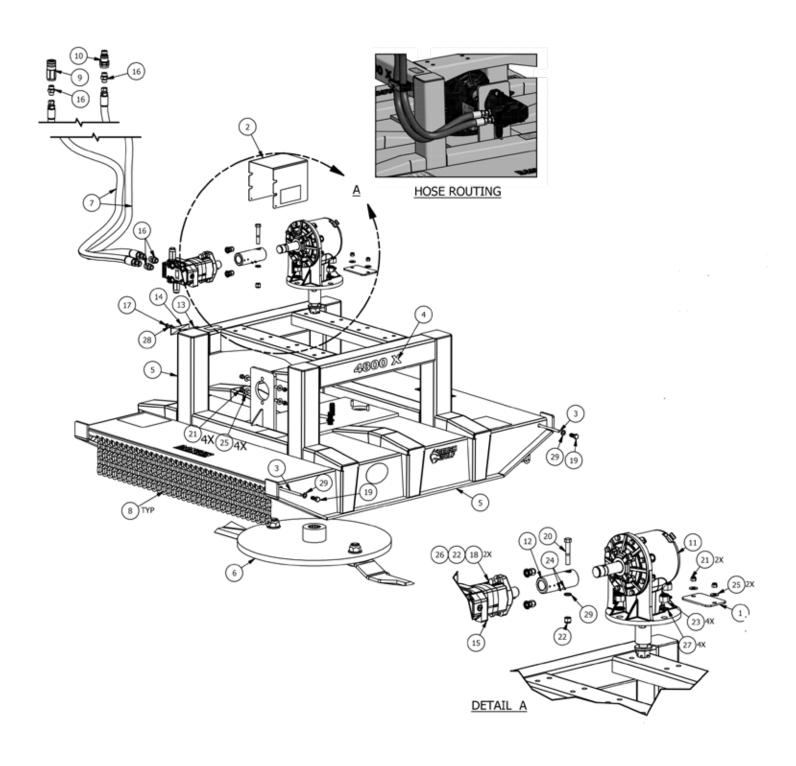
4200X Model Parts List

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	15054	PLATE, ACCESS, 2 HOLE, 5.250 X 3.250 X 0.250
2	1	15103	GAURD, COUPLING, BW, X MODEL, STD
3	2	15108	ROD, ROUND, 0.375 X 41.000
4	1	15151	WELDMENT, FRAME, BW 4200X
5	1	15132	DECAL KIT, BW 4200X
6	1	15184	ASSEMBLY, BLADE CARRIER, BW 4200X
7	2	15595	HOSE WHIP ASSEMBLY, -8 ORFS, FEMALE SWIVEL COUPLINGS, 0.500 X 90.000 HOSE
8	62	15068	CHAIN, 0.313, 5 LINK, PROOF COIL
9	1	15078	COUPLER, FLAT FACED, 1/2 FEMALE, 7/8-14, O-RING BOSS
10	1	15079	COUPLER , FLAT FACED, 1/2 MALE, 7/8-14, O-RING BOSS
11	1	15093	GEARBOX, 62HP, 1:1.93 RATIO
12	1	15123	COUPLING, STD, 1.250 MOTOR, 1.375 GB, 5.500
13	1	15263	CLAMP, BODY, TWO PIECE, 22MM, TWO HOSE
14	1	15264	COVER PLATE, CLAMP, 22MM, TWO HOSE
15	1	15352	MOTOR, 4.9 CU IN, SAE "A" 2 BOLT, 7/8-14 SAE O-RING PORTS, 1.250 DIA X 1.250 KEYED SHAFT, 3500/750 RELIEF, EATON
16	4	15584	ADAPTER, STRAIGHT, #8 MORFS, #10 MORB
17	1	30052	BOLT, HH, 5/16-18 X 1 3/4, GRD 5, ZINC
18	2	30024	BOLT, HH, 1/2-13 X 1 1/4 UNC, GRD 5, ZINC
19	2	30026	BOLT, HH, 1/2-13 X 2 UNC, GRD 5, ZINC
20	1	30029*	BOLT, HH, 1/2-13 X 3, GRD 2, ZINC
21	6	30065	NUT, NYLOCK, 3/8-16, ZINC
22	3	30062	NUT, NYLOCK, 1/2-13, ZINC
23	4	30064	NUT, NYLOCK, 3/4-10, ZINC
24	2	30078	SET SCREW_CP_1_4-20X3_8 UNC
25	6	30083	WASHER, FLAT, 3/8, ZINC
26	2	15381	WASHER, NORD-LOCK, 0.500 X 1.000 OD, ZINC
27	4	15379	WASHER, NORD-LOCK, 0.750 X 1.210 OD, ZINC
28	1	30091	WASHER, SPRING LOCK, 5/16, ZINC
29	3	30093	WASHER, SPRING LOCK, .500, ZINC

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^{*} SHEAR BOLT

4800X Parts Diagram - Standard & Low Flow (LF)





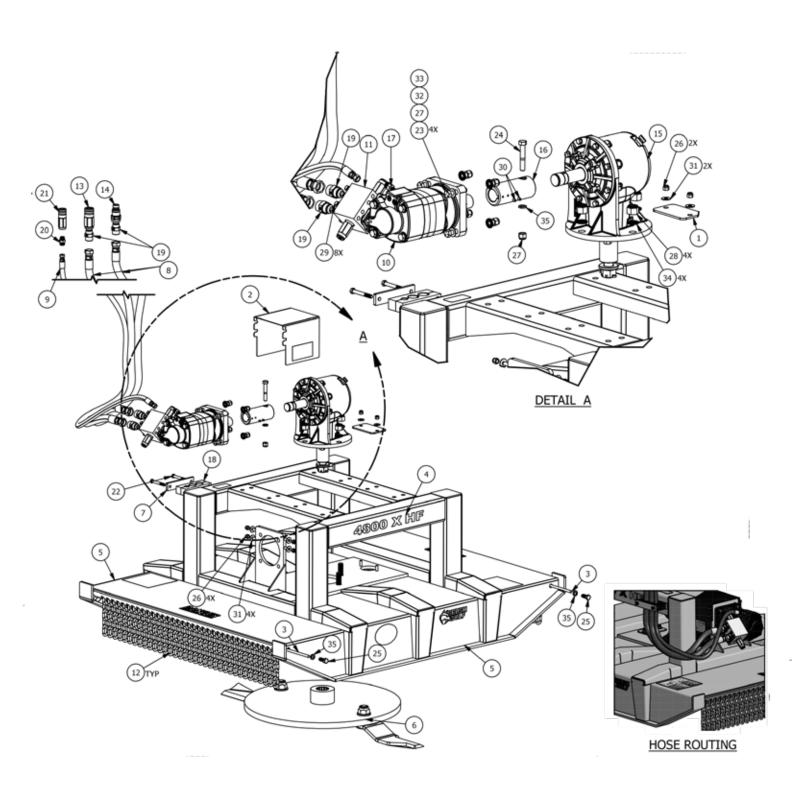
4800X Model Parts List - Standard & Low Flow (LF)

ITEM	QTY	PART NUMBER	DESCRIPTION	
1	1	15054	PLATE, ACCESS, 2 HOLE, 5.250 X 3.250 X 0.250	
2	1	15103	GAURD, COUPLING, BW, X MODEL, STD	
3	2	15109	ROD, ROUND, 0.375 X 47.000	
4	1	15134	DECAL KIT, BW 4800X	
5	1	15376	DECAL KIT, BW 4800X LF	
5	1	15171	WELDMENT, FRAME, BW 4800X	
6	1	15287	ASSEMBLY, BLADE CARRIER, BW 4800X	
7	2	15593	HOSE WHIP ASSEMBLY, -8 ORFS, FEMALE SWIVEL COUPLINGS, 0.750 X 90.000 HOSE	
8	70	15068	CHAIN, 0.313, 5 LINK, PROOF COIL	
9	1	15078	COUPLER, FLAT FACED, 1/2 FEMALE, 7/8-14, O-RING BOSS	
10	1	15079	COUPLER , FLAT FACED, 1/2 MALE, 7/8-14, O-RING BOSS	
11	1	15093	GEARBOX, 62HP, 1:1.93 RATIO	
12	1	15123	COUPLING, STD, 1.250 MOTOR, 1.375 GB, 5.500	
13	1	15248	CLAMP, BODY, TWO PIECE, 30MM, TWO HOSE	
14	1	15249	COVER PLATE, CLAMP, 30MM, TWO HOSE	
15	1	15352*	LOW FLOW BRUSH CUTTER - MOTOR, 4.9 CU IN, SAE "A" 2 BOLT, 7/8-14 SAE O-RING PORTS, 1.250 DIA X 1.250 KEYED SHAFT, 3500/750 RELIEF, EATON	
15	1	1 15252*	STANDARD FLOW BRUSH CUTTER - MOTOR, 6.2 CU IN, SAE "A" 2 BOLT, 7/8-14-12 SAE O-RING PORTS, 1.250 DIA X 1.250 KEYED SHAFT, 3500/750 RELIEF, EATON	
16	4	15584	ADAPTER, STRAIGHT, #8 MORFS, #10 MORB	
17	1	30053	BOLT, HH, 5/16-18 X 2 1/2, GRD 5, ZINC	
18	2	30026	BOLT, HH, 1/2-13 X 2 UNC, GRD 5, ZINC	
19	2	30024	BOLT, HH, 1/2-13 X 1 1/4 UNC, GRD 5, ZINC	
20	1	30029**	BOLT, HH, 1/2-13 X 3, GRD 2, ZINC	
21	6	30065	NUT, NYLOCK, 3/8-16, ZINC	
22	3	30062	NUT, NYLOCK, 1/2-13, ZINC	
23	4	30064	NUT, NYLOCK, 3/4-10, ZINC	
24	2	30078	SET SCREW_CP_1_4-20X3_8 UNC	
25	6	30083	WASHER, FLAT, 3/8, ZINC	
26	2	15381	WASHER, NORD-LOCK, 0.500 X 1.000 OD, ZINC	
27	4	15379	WASHER, NORD-LOCK, 0.750 X 1.210 OD, ZINC	
28	1	30091	WASHER, SPRING LOCK, 5/16, ZINC	
29	3	30093	WASHER, SPRING LOCK, .500, ZINC	

^{*}DEPENDS ON THE MODEL OF BRUSH CUTTER

^{**}SHEAR BOLT

4800X HF Parts Diagram - High Flow



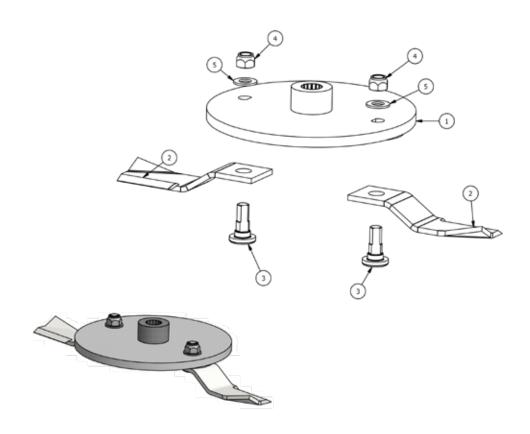


4800X HF Model Parts List

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	15054	PLATE, ACCESS, 2 HOLE, 5.250 X 3.250 X 0.250
2	1	15104	GUARD, COUPLING, BW, X MODEL, HF
3	2	15109	ROD, ROUND, 0.375 X 47.000
4	1	15350	DECAL KIT, BW 4800X HF
5	1	15311	WELDMENT, FRAME, BW 4800X HF
6	1	15287	ASSEMBLY, BLADE CARRIER, BW 4800X
7	1	15418	PLATE, STAUFF, 3 HOLE COVER, 1.25 X 5.875
8	2	15590	HOSE WHIP ASSEMBLY, -12 ORFS, FEMALE SWIVEL COUPLINGS, 0.750 X 90.000 HOSE
9	1	15591	HOSE WHIP ASSEMBLY, -6 ORFS, FEMALE SWIVEL COUPLINGS, 0.375 X 96.000 HOSE
10	1	15149	MOTOR, 11.9 CU IN, SAE "CC" 4 BOLT, 0.750 DIA SPLIT FLANGE STAGGERED PORTS, 1.500 DIA X 1.625 KEYED SHAFT BW
11	1	15125	BLOCK, CROSSOVER RELIEF MANIFOLD, 6K MOTOR, ALUMINUM
12	70	15068	CHAIN, 0.313, 5 LINK, PROOF COIL
13	1	15114	COUPLER, 5/8 FEMALE, SIZE 16, 1 1/6-12, O-RING BOSS
14	1	15115	COUPLER, 5/8 MALE, SIZE 16, 1 1/6-12, O-RING BOSS
15	1	15092	GEARBOX, 62HP, 1:1.93 RATIO
16	1	15053	COUPLING, HF, 1.500 MOTOR, 1.375 GB, 5.500
17	1	15407	ADAPTER, STRAIGHT, #6 MORFS, #4 MORB
18	1	15401	CLAMP, BODY, TWO PIECE, 30-30-18, THREE HOSE, BLACK
19	4	15405	ADAPTER, STRAIGHT, #12 MORF, #12 MORB
20	1	15408	ADAPTER, STRAIGHT, #6 MORFS, #8 MORB
21	1	15414	COUPLER, FLAT FACED, 3/8 FEMALE, 3/4-16, O-RING BOSS
22	2	30044	BOLT, HH, 3/8-16 X 3, GRD 5, ZINC
23	4	30025	BOLT, HH, 1/2-13 X 2 1/2 UNC, GRD 5, ZINC
24	1	30029*	BOLT, HH, 1/2-13 X 3, GRD 2, ZINC
25	2	30024	BOLT, HH, 1/2-13 X 1 1/4 UNC, GRD 5, ZINC
26	6	30065	NUT, NYLOCK, 3/8-16, ZINC
27	5	30062	NUT, NYLOCK, 1/2-13, ZINC
28	4	30064	NUT, NYLOCK, 3/4-10, ZINC
29	8	300076	SCREW_ CAP_SH_ 3_8-16X3 1_2 GRD8
30	2	30078	SET SCREW_CP_1_4-20X3_8 UNC
31	6	30083	WASHER, FLAT, 3/8, ZINC
32	4	30084	WASHER, FLAT, 1/2, ZINC
33	4	15381	WASHER, NORD-LOCK, 0.500 X 1.000 OD, ZINC
34	4	15379	WASHER, NORD-LOCK, 0.750 X 1.210 OD, ZINC
35	3	30093	WASHER, SPRING LOCK, .500, ZINC

^{*}SHEAR BOLT

Blade Carrier & Parts Diagram - 4200X & 4800X Series



ITEM	ITEM QTY	MODEL SERIES	PART NUMBER	DESCRIPTION
1	1	4200X	15167	WELDMENT, BLADE CARRIER, 20.000 DIA X 1.000 SPUN FORMED PAN
1	1	4800X	15287	WELDMENT, BLADE CARRIER, 26.000 DIA X 1.000
2	1	4200X	15265	SET OF 2 - BLADE, 14.750 X 4.000 X .500
2	1	4800X	15266	SET OF 2 - BLADE, 14.750 X 4.000 X .500
3	2	ALL	15066	BOLT, D-BOLT, 1 1/8-12, BW
4	2	ALL	15148	NUT, TOP LOCK, 1 1/8-12, GRADE C, PLAIN
5	2	ALL	30089	WASHER, FLAT, 1 1/8, F436, ZINC



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Dealer Instructions / Purchaser

Checklist

The checklist below is important information for the Dealer to review with the Purchaser.

Mail, email, or fax a copy to:

Cross-Tech Manufacturing, Inc. 33877 Gendreau Road Crosslake, MN 56442-9303 email: info@brushwolf.com

Also available to fill out on-line: www.brushwolf.com

SAFETY OPERATIONS CHECKLIST

City	 A (DD) IS	State/Province/ Region			
	nician	Name			
Dealer Company Name					
Dealer Information					
	Ш	Advise buyer that all safety decals are available upon request.			
	Ιμ	Alert buyer not to remove safety devices or decals.			
		Review the Owner/Operator Manual Safety Instructions.			
		Explain and demonstrate inspection points and frequency; including nuts, bolts, blades, hoses, etc.			
		Explain and demonstrate operation of the Brush Wolf attachment.			
	ш	Explain and alert buyer of High Flow motor and case drain - if applicable.			



Warranty Registration Form

Thank you for choosing Brush Wolf. Please complete the form below to register your Brush Wolf product. There is a form available to fill out on-line at www.brushwolf.com. Please complete the Warranty Registration form within 30 days of purchase date to qualify for warranty.

Purchaser Information

Company				
Contact Name				
Phone				
Email				
Address 1				
Address 2				
City	State/Province/Region			
Zip/Postal Code	Country			
Model Number:	Serial Number:			
Date of purchase MM DD YYYY				
Would you recommend this product? Excelle				
Cross-Tech Manufacturing, Inc. 33877 Gendreau Road				
Crosslake, MN 56442-9303 email: info@brushwolf.com				
Also available to fill out on-line: www.brushwolf.com				

WARRANTY INFORMATION:

The Warranty Claim Form must be completed in full detail and received in good condition. Cross-Tech Manufacturing, Inc. limits it warranty to the hydraulic motor for eighteen (18) months and the gearbox for a period of one (1) year from the original date of sale. A three (3) year warranty is included on the structural steel from the date of sale.

A Warranty Registration Form for this equipment must exist before warranty claims will be valid. If a defect in a Cross-Tech Manufacturing product is discovered during the applicable warranty period, Cross-Tech will repair or replace, at its option the motor, gearbox or defective part. Cross-Tech Manufacturing, Inc. purchased components are subject to the original manufacturer's warranty.

The Equipment owner is responsible for proper maintenance. If the product is not maintained, all warranties by Cross-Tech Manufacturing will be null and void. Any modification to the product other than those made by Cross-Tech Manufacturing will cause this warranty to be void; including any modification or disassembly of motors, gearbox, etc.

This warranty does not extend to repairs, adjustments, or replacement of a Cross-Tech product or part that results from misuse, negligence, alteration, modification tampering, improper maintenance or improper operation of the product. Claims submitted must be legible and in good condition. Cross-Tech does not cover service mileage, downtime or replacement of the attachment.

If a problem arises during the warranty period please contact your local dealer. The warranty is null and void if the product is modified or repaired without written consent from Cross-Tech Manufacturing. Cross-Tech units used in rental fleets are covered with a ninety (90) day warranty on the hydraulic motor, gearbox, and structural steel with a valid warranty registration on file within thirty (30) days of the purchase date.

To file a warranty claim, please contact your dealer or Cross-Tech Manufacturing.



Cross-Tech Manufacturing, Inc. 33877 Gendreau Road Crosslake, MN 56442 218-692-1050 www.brushwolf.com