

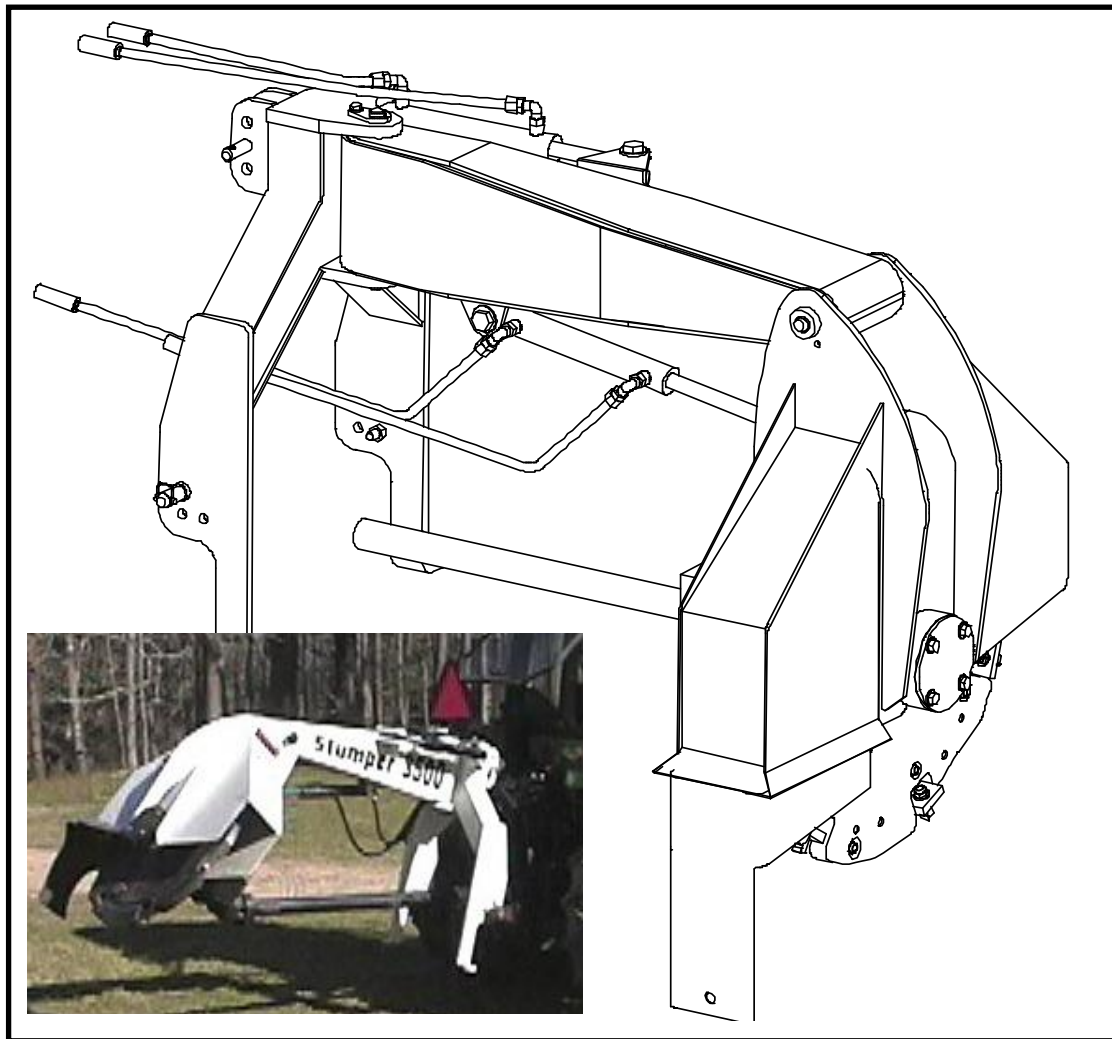
# STUMPER 3500

\*Patent pending

3/1/07

*Fast – Efficient – Economical*  
**Stump Removal**

## OPERATION & PARTS MANUAL



*Bay Engineering, Inc*

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Calumet, MI 49913

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# SAFETY

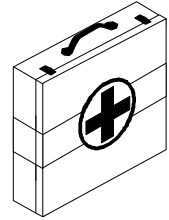


## WARNING

**DO NOT** operate the Stumper 3500 if any of the safety guards are not in place.

## PREPARE FOR EMERGENCIES

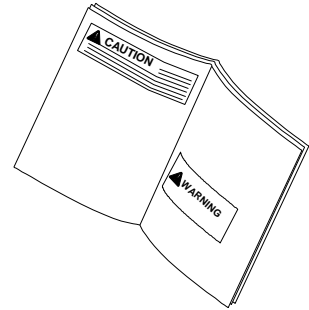
Keep a first aid kit readily available. Keep emergency phone numbers for doctors, Ambulance, hospital and fire with you at all times.



## READ THIS MANUAL AND FOLLOW SAFETY INSTRUCTIONS BEFORE OPERATING THE STUMPER 3500

Learn to operate the stump cutter and its controls properly. Never let anyone operate without instruction.

Read the safety messages in this manual and on your stump cutter safety signs. Keep safety signs clean and in good condition. Replace damaged safety signs.



## RECOGNIZE SAFETY INFORMATION AND SIGNAL WORDS

A safety symbol is used with the signal words DANGER, WARNING and CAUTION.

DANGER denotes the most serious hazard.

WARNING is intermediate between DANGER and CAUTION.

CAUTION denotes the least serious hazard.

 **DANGER**

 **WARNING**

 **CAUTION**

## WEAR PROTECTIVE CLOTHING

Wear close fitting clothing, safety glasses and safety equipment appropriate to the job.



## AVOID HIGH-PRESSURE FLUIDS

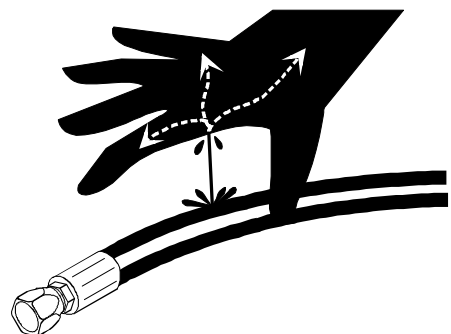
Escaping fluid under pressure can penetrate the skin and cause serious injury.

Relieve pressure before disconnecting hydraulic lines.

Tighten all connections before applying pressure.

**IF AN ACCIDENT OCCURS, SEE A DOCTOR IMMEDIATELY.**

Any fluids injected into the skin must be surgically removed within a few hours or gangrene may result.



## SPECIFICATIONS

1,100 lbs. Approximate Net Weight  
1,200 lbs. Approximate Shipping Weight  
72" Length  
44" Width  
51" Height  
540 RPM P.T.O. Speed  
40-90 Horsepower Recommended

37" Cutting Wheel Diameter  
Carbide-tipped Cutting Teeth  
24" Below Ground Cutting Depth  
60 Degree Swing Angle  
48" Above Ground Stump Height  
38" Feed Travel (Hydraulically Controlled)

## GREASE FITTINGS

There are 6 Grease Fittings on the Stumper 3500. See driveshaft drawing for grease interval.



Grease Drive Shaft center daily.  
Drive Shaft must be fully retracted  
then spin and line up holes.



# STUMPER 3500 INSTALLATION INSTRUCTIONS

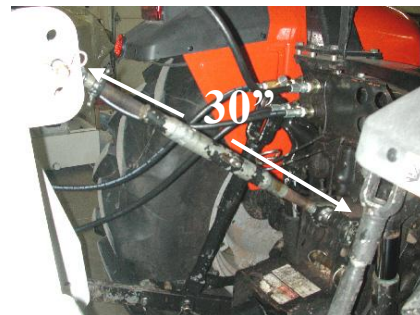
1. Slowly back tractor up to Stumper 3500.



2. Insert hitch pins through the tractors lift arm on left and right side. Insert snap pins through the hitch pins on each side.



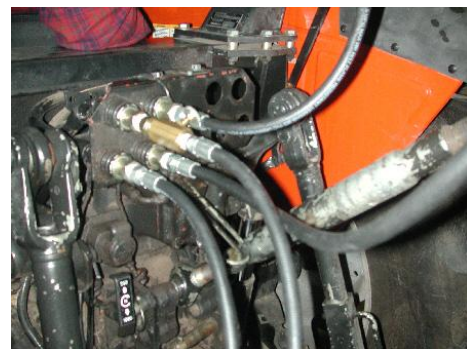
3. Set the third link at 30°+ for optimal drive line angle. (Set third link shorter if going over a high stump.) Attach the third link from tractor to Stumper 3500 with the hitch pin.



4. Slide collar back on drive shaft and attach to PTO on tractor. Slide collar forward until it clicks into place.



5. Attach hydraulic hoses from the bottom feed cylinder to the proper ports on the tractor. Attach the hydraulic hoses from the top swing cylinder to the proper ports on the tractor. Stumper 3500 movement is controlled by hydraulic controls on your tractor.



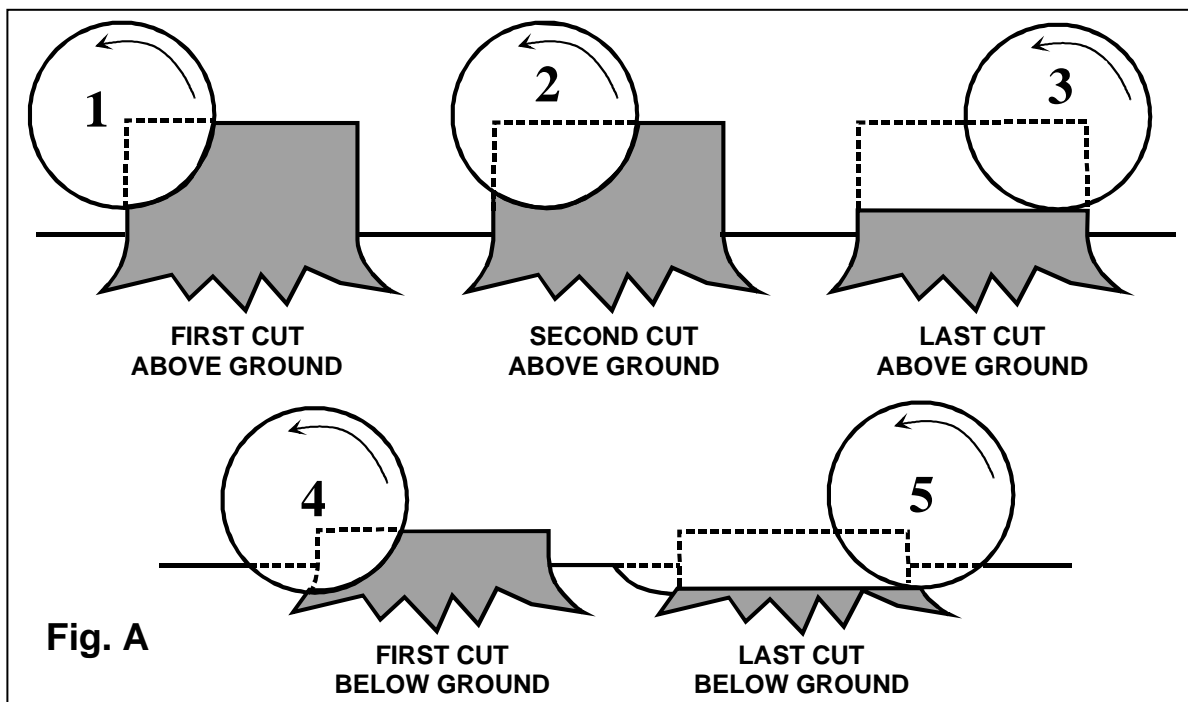
# HOW TO GRIND STUMPS

Move the cutting wheel back, swing the machine to the left side of the stump (viewed from the tractor control area) and position the machine so that it will cut about 8 or 10 inches off the top of the stump and 12-14 inches from the left side of the stump. See **Figure A**.

Run the cutting wheel at 540 RPM (speed while under no load). The rate of cut will depend on the type of tree, condition of the wood, and the condition of the cutters. Excessive feed rates will either stall the engine or the clutch will slip and too light a feed will produce sawdust. The ideal feeding rate produces heavy wood-chips, some of which may be about 1/16" thick by approximately 6 to 8 inches long as well as chunks of wood. See **Figure B** for typical wood-chips and debris. After completing the first cut through the stump, return the wheel, and swing the machine to the right (again as viewed from the control area) so the wheel can cut another 12-14 inches. See **Figure C**. Proceed with another cut. Additional passes, when the tree stump is very large, are made in the same manner as described above. Repeat the procedure until the stump is cut to ground level.

Before cutting below the ground level, make certain that all rock or stone are removed from the immediate area of the cutting wheel. When you are cutting below the ground level, the feed rate should be reduced and the operator should be alert to the possibility of cutting hidden rock. Extra care used in this part of the operation can avoid costly tooth damage. See **Figures A4** and **A5** for positioning and **Figure D** for typical below ground cut.

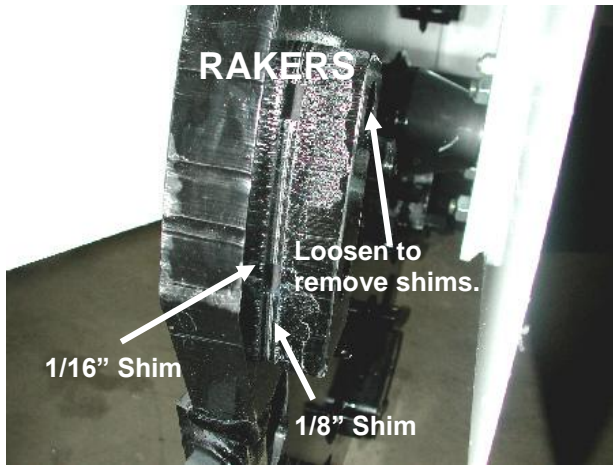
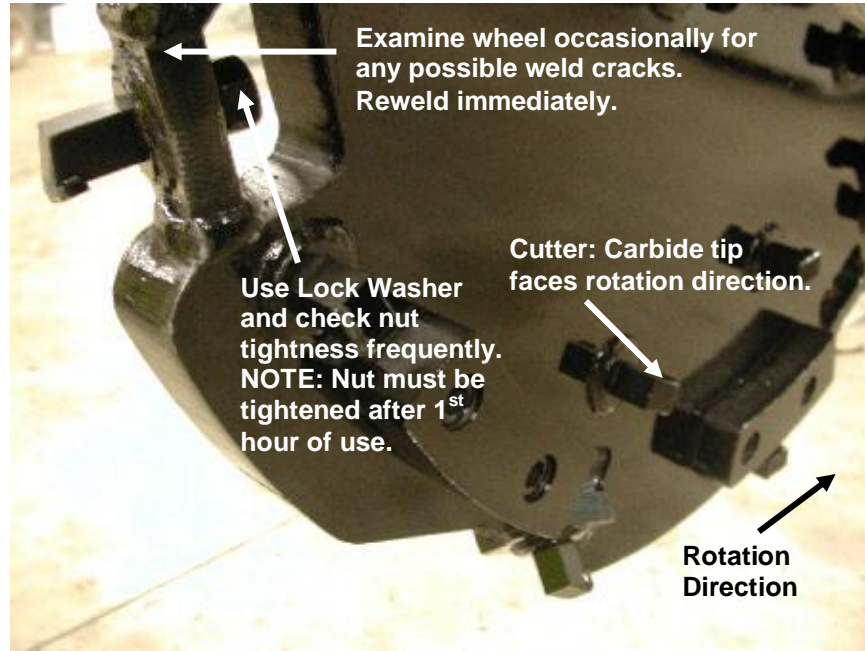
The wheel is so designed that it can "saw" or cut its way into solid wood by dropping straight down on it. This operation works well for cutting off large roots and where the entire stump cannot be reached with one tractor position. See **Figure E** for a typical plunge cut to cut runner roots off.



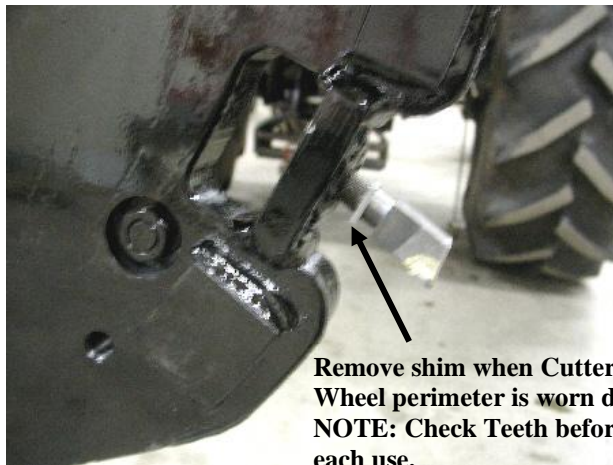
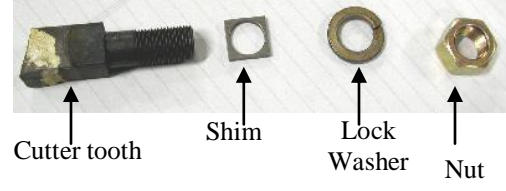


NOTE: Driveshaft guards removed to show driveline simplicity.  
DO NOT operate Stumper 3500 with safety guards removed.

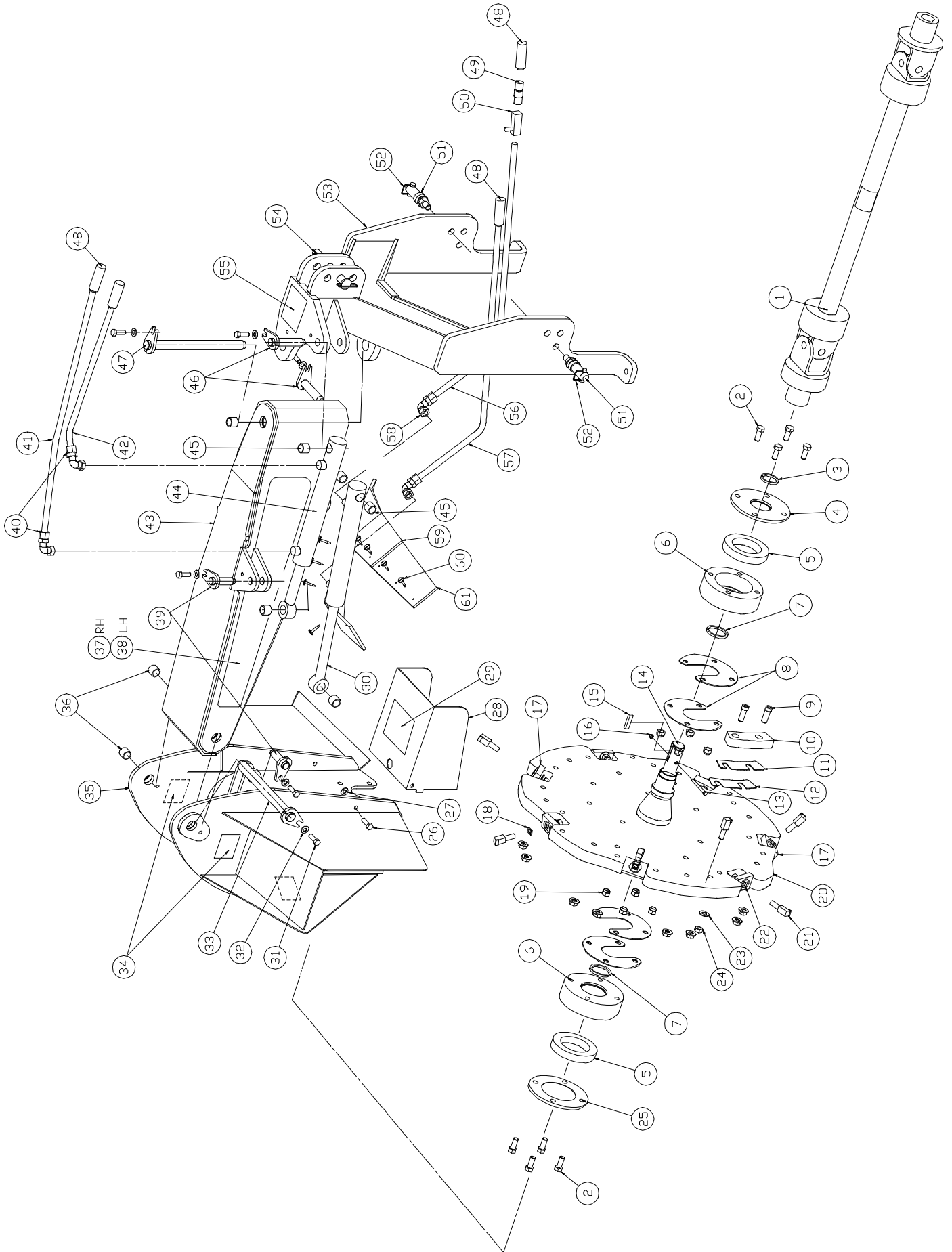
# CUTTER WHEEL



There are 4 Cutter Teeth with shims located on the perimeter of the Cutter Wheel. (2 Teeth at 15 Degrees and 2 Straight.)  
NOTE: Teeth at 45 Degree angles do not have shims.



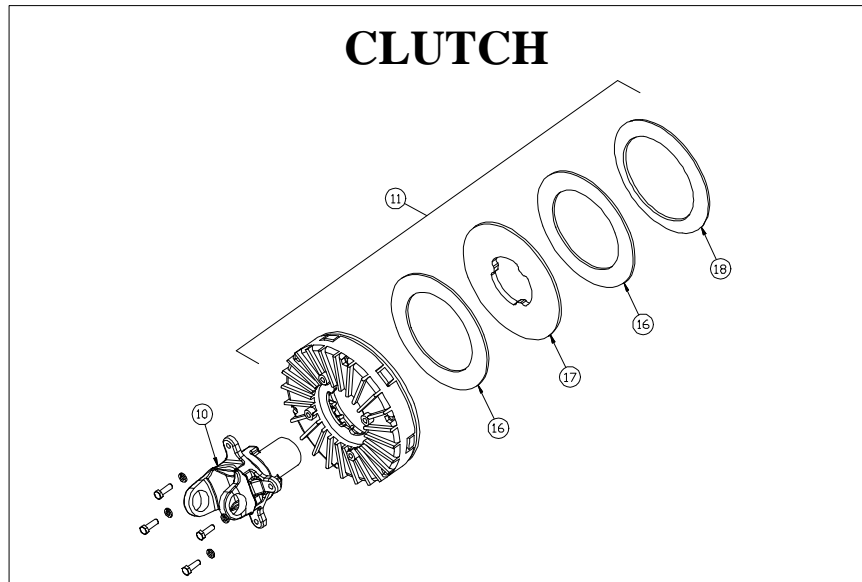
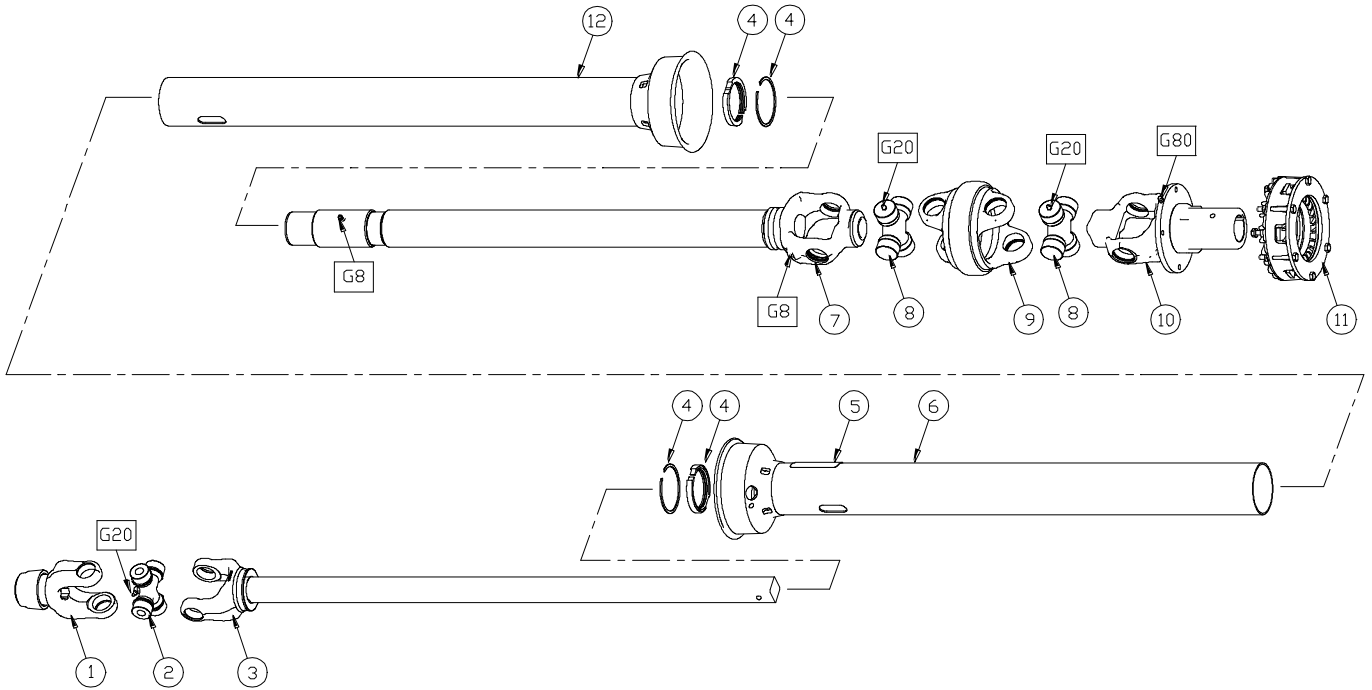
# STUMPER 3500 ASSEMBLY



# ASSEMBLY PART NUMBERS

Item No.	Description	Part No.	Qty				
1	Driveshaft Assembly	2000	1	31	1/2" NC x 1.25" lg Gr 8 Capscrew	4021	6
2	5/8" NF x 3.75" lg Capscrew	4023	8	32	1/2" Lockwasher	4019	6
3	Outer Seal	4001	1	33	Shroud Pivot Pin	1075	1
4	Front Bearing Cover	1001	1	34	Decal - Stay Back 25 Feet...	4034	3
5	Spherical Roller Bearing	4004	2	35	Shroud Weldment	1217	1
6	Bearing Housing	1218	2	36	1.25" ID Spring Steel Bushing	1018	8
7	Inner Seal	4002	2	37	Decal - Model RH	4032	1
8	Seal Guard	1230	4	38	Decal - Model LH	4033	1
9	5/8" NF x 2.50" lg Sock. Hd Capscrew	4027	14	39	Cylinder Shaft Pin	1208	2
10	Raker	1233	7	40	Restrictor Fitting	4013	2
11	Raker Shim - .10" thick	1236	7	41	Hose - Swing Cyl Head - 54"	4006	1
12	Raker Shim - .06" thick	1237	7	42	Hose - Swing Cyl Base - 43"	4005	1
13	5/16" NF x 3.25" lg Capscrew	4017	1	43	Swing Arm Weldment	1200	1
14	Cutter Wheel Shaft	1229	1	44	Swing Cylinder	1091	1
15	Shaft Key - .38 x .38 x 2.75"	4018	1	45	1.00" ID Spring Steel Bushing	1019	6
16	5/16" NF Nylock Nut	4016	1	46	Cylinder Base Pin	1207	2
17	Cutter Tooth Mounting Plate	1052	7	47	Swing Arm Pin	1069	1
18	Cutter Tooth Shim	1234	4	48	Male Hydraulic Quick Disconnect	4014	4
19	5/8" NF Toplock Nut	4024	8	49	Adapter - 6 NPTM - 8 NPTM	4011	1
20	Cutter Wheel Weldment	1232	1	50	Adjustable Restrictor Valve	4000	1
21	Cutter Teeth	750122	25	51	Lower Hitch Pin	4039	2
22	Square Hole Washer	1038	25	52	Retaining Pin	4038	2
23	5/8" Lockwasher	4026	39	53	Tractor Mount Frame Weldment	1214	1
24	5/8" NF Nut Grade C	4025	39	54	Upper Hitch Pin	4037	1
25	Rear Bearing Cover	1000	1	55	Decal - Safety Glasses...	4035	1
26	1/2" NC x 1.50" lg Gr 8 Capscrew	4022	2	56	Hose - Feed Cyl Base - 61"	4007	1
27	1/2" NC Nylock Nut	4020	2	57	Hose - Feed Cyl Head - 76"	4008	1
28	Clutch Guard	1221	1	58	90° Fitting, 6 ORB - 6 JIC	4012	4
29	Decal - Driveline Warning	4036	1	59	Side Chip Deflector, Rubber	1097	1
30	Feed Cylinder	1090	1	60	1/4 x 1.44" lg Tek Screw	4031	10
				61	Front Chip Deflector, Rubber	1098	1

# DRIVESHAFT ASSEMBLY



Item No.	Description	Part No.	Weasler No.	Qty
1	Yoke	2007	44011-1006	1
	Safety Slide Lok/Auto-lock Repair Kit	2012	26-15120	1
2	44R Cross & Bearing Kit	2010	03-10089	1
3	Yoke & Shaft	2006	99-21440	1
4	Nylon Repair Kit	2013	19-11106	2
5	Safety Sign	2014	13-10021	2
6	Outer Guard, Plastic	2004	97-21440	1
7	Yoke, Tube and Slip Sleeve	2005	98-21440	1
8	55RBL Cross & Bearing Kit	2011	03-14298	2
9	Center Housing	2008	55251-1599	1
10	Yoke & Free Motion Hub (50 deg CV)	2024	38-60032	1
11	Clutch Assembly	2025	38-50038	1
12	Inner Guard, Plastic	2003	96-21440	1

13	Joint & Shaft Half Assembly w/ guard (Items 1 - 6)	2001	93-21440	1
14	Joint & Tube Half Assembly w/ guard (Items 4, 7 - 12)	2002	92-21440	1
15	Driveshaft Assembly	2000	240-21440	1
16	Friction Disc	2019	11-11167	2
17	Separator Plate, Non-Free Motion	2016	20-15143	1
	Separator Plate, Heavy Duty	1238		
18	6000 in-lb Clutch Spring (Black)	2017	23-15040	1
	9000 in-lb Clutch Spring (Blue)	2018	23-15039	
	12000 in-lb Clutch Spring (Green)	2020	23-15038	

# STUMP CUTTER VENDORS

Qty/Mach	P/N	Description	Vendor	Contact
25	750122	Cutter Teeth	Border City Tool	800-421-5985
1	250-21440	Driveshaft	Weasler Engineering	262-338-2161
8	150125100	1.25 ID Steel Bushing	Connex	814-833-4161
6	125100100	1" ID Steel Bushing	Connex	
1	2056-B968	Flow Control Valve (NPT Ports)	Motion Industries	800-232-7464
1	22325	Seal, Outboard, Hub	Motion Industries	
2	29850	Seal, Inboard, Hub	Motion Industries	
2	22312EAE4C3	NSK Bearing	Motion Industries	
		Hoses & Fittings	Motion Industries	
4	8010-4	Male Quick Coupling	Motion Industries	
		Grade 8 Fasteners	Fastenal	<a href="http://www.fastenal.com">www.fastenal.com</a>
		Decals	Homestead Graphics	906-353-6741