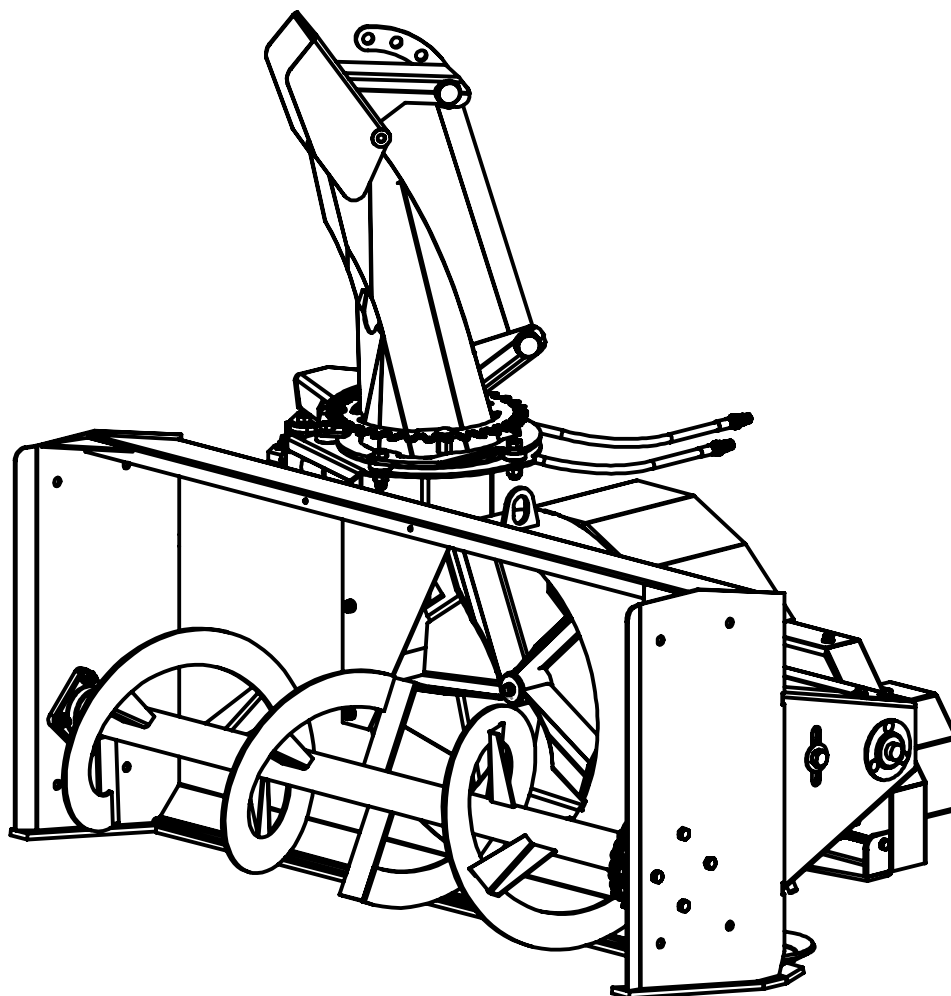




Steiner - Ventrac Operator's / Parts Manual



MK Martin Enterprise Inc.
3950 Steffler Rd Elmira, ON, Canada N3B 2Z3

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Rev:16-1

Table of Contents

• Warranty	2
• Registration page	3-4
• Safety	5-7
• Blower Setup	8
• Decal Location	8
• Operation	9
• Sign off sheet	10
• Bolt Torque	11
• Main Blower Parts	12-14
• Hydraulic Chute Rotator Installation	15-16
• Hydraulic Chute Rotator Parts	17
• Electric Chute Rotator Installation	18-20
• Electric Chute Rotator Parts	21
• Gearbox Parts	22
• Maintenance	23

Warranty and Limitations of Liability

All equipment is sold subject to mutual agreement that it is warranted by M K Martin Inc. (Hereafter called the company) to be free of any defects in material and workmanship. The company shall not be liable for special, indirect or consequential damage of any kind under this contract or otherwise. The company's liability shall be limited exclusively to replacement or repair without charge at it's factory or elsewhere, at it's discretion, any materials or defects, which become apparent within one year from the date of purchase. In no event shall M K Martin Enterprise Inc. be liable for special, direct or incidental or consequential damages of any kind. The purchaser by acceptance of the equipment will assume all liability for damage which may result from use or misuse by the operator. The purchaser shall maintain and service the equipment as recommended in the Operator's Manual.

This warranty does not cover **Rental/Commercial or Industrial** use of the equipment. This equipment is rated as agricultural.

For **Rental/Commercial or Industrial** use, Warranty is for defective material and workmanship for a period of 90 days from the date of purchase.

Warranty is null and void unless the Warranty Registration form has been completed and on file at

M K Martin Enterprise Inc
3950 Steffler Rd
Elmira On Ca N3B 2Z3

For your Record

Purchase Date _____

Model # _____

Serial # _____

Please contact your retailer

Manufactured by
M K Martin Enterprise Inc
3950 Steffler Rd
Elmira On Ca N3B 2Z3
Tel: (519)-664-2752
(855)-664-2752
Fax: (519)-664-3695
E-mail: sales@mkmartin.ca

www.mkmartin.ca

Warranty Registration

Please Cut and Return to M K Martin Enterprise Inc

Fold And Tape here *Do not tape all edges or use staples*

Fold Here

Postage
Stamp

M K Martin Enterprise Inc
3950 Steffler Rd
Elmira ON CA N3B 2Z3

M K Martin Enterprise Inc
3950 Steffler Rd
Elmira ON CA N3B 2Z3

Purchaser's warranty protection is valid only when this completed form or a copy of this form is on file at M K Martin Enterprise Inc. By filling out this form the purchaser has acknowledged delivery of equipment and owner's / operator's manual and has accepted the condition of the equipment.

Date of delivery to purchaser -----

Type of Equipment -----

Model # ----- **Serial #** -----

Retailer's Signature Indicates

- *Equipment was properly assembled as directed by manufacturer*
- *Equipment was tested for functionality and operates properly*
- *Purchaser was instructed in safe and proper operating procedures*
- *Warranty was explained to purchaser*
- *Purchaser was given the operators manual*

Retailer

Signature -----

Company -----

Address -----

Purchaser's signature indicates

- *Acceptance of equipment fully assembled*
- *Received operator's manual*
- *Clearly understands conditions of warranty*
- *Received instructions of safe and proper operation of equipment*

Purchaser

Signature -----

Company -----

Mailing address -----

City ----- **Prov/State** ----- **Postal Code/Zip** -----

Available phone number -----

Warranty is valid only when it has been received by manufacturer at address above

Safety

Take Note! This safety symbol is found throughout this manual to call your attention to instructions involving yourself and others working around the machine.

- **Failure to follow these instructions can result in injury or death**



This symbol means

-- Attention!
-- Become Alert!
-- Your Safety is involved!

Signal words are used in this manual.

Caution: Indicates a potentially hazardous situation that may result in injury.

Warning: Indicates a hazardous situation that could result in serious injury or death.

Danger: Indicates a hazardous situation that needs to be avoided. It is you the operator that needs to be aware of these dangers.

If you have any questions not answered in this manual please contact your dealer or

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Safety -- It's in your interest.



Safety Guidelines

Safety of operation is one of our main concerns, however it is up to the operator to practice caution.

To avoid personal injury, study the following precautions and insist that those working with you follow them.

Do not use the blower with the auger drive cover or Belt cover removed as it is unsafe to do so.

Replace any decals that may be missing or not readable. Location of decals are indicated elsewhere in this manual.

Do not use this machine while under the influence of drugs or alcohol.

Review the safety instructions with all users annually.

This equipment should not be operated by those unfamiliar with the operation of the Meteor Blower.

Do not allow persons to operate this machine until they have read this manual and/or were instructed by a qualified person,

Do not use this machine to push snow as this can result in the auger being broken or bent.



Please be careful with the extra weight on the front of the tractor. It may be necessary to add weights on the back of the tractor to keep it balanced properly.



When changing shearbolts or removing ice or snow from the machine **Please stop the engine and remove the key on the tractor!** This will reduce the possibility of the blower being started and causing personal injury.

Hydraulic Leak Test



Warning! Do not check for high pressure leaks with your hands or fingers. Use a piece of cardboard or a thin piece of wood to detect the leak.

A high pressure stream of fluid from a pin hole can penetrate the skin and inject hydraulic fluid into your blood veins.

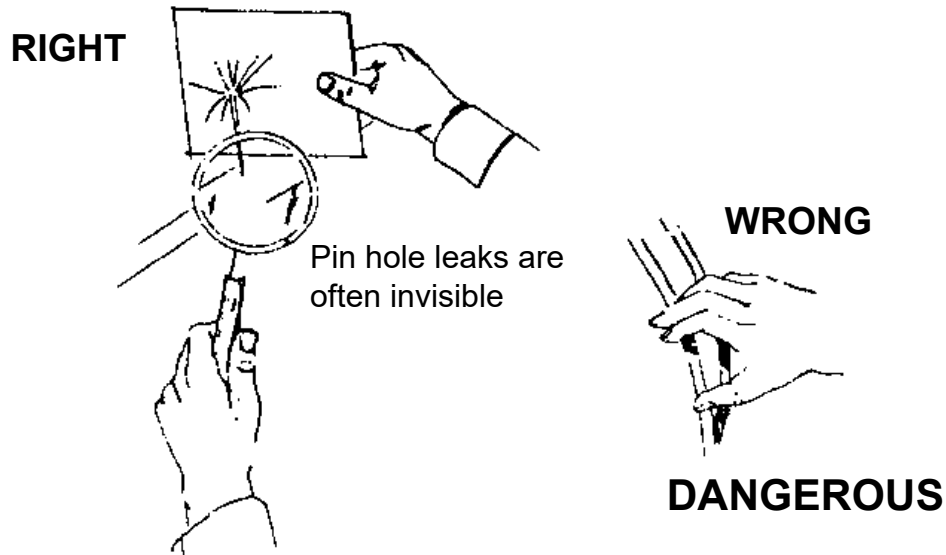


Figure 1. Detecting pinhole leaks in a hydraulic system.



IF THE SKIN HAS BEEN PENETRATED GET MEDICAL ATTENTION IMMEDIATELY!



Hydraulic lines may have high pressure fluid in the lines, even when the lines are disconnected.

Remember a small leak at high pressure may be invisible yet can penetrate the skin. If this happens get medical attention immediately, serious infection or toxic reaction can develop when hydraulic fluid pierces the skin.

Use caution when working with hydraulic components. Ensure there are no leaks, all fittings are tight and all components are in good repair.



Use a piece of wood or cardboard as a backstop when searching for leaks, **NEVER** your hand or fingers.



Always relieve pressure before disconnecting or working on hydraulic system.

Steiner & Ventrac Snowblower Setup

This Blower is ideal for Steiner & Ventrac tractors. Attaching the Meteor® Blower for the first time. Set the blower on a level surface and drive the tractor up to it.

1. Place the lower arms of the tractor out side the lower hitch plates on the blower.
2. Mount the Blower the same way as your other front mount attachments as suggested by the tractor manufacturer. Please Note that the drive belt from the tractor goes around the blower arm, therefore loop the drive belt around the left side arm before attaching the blower.
3. After the blower is secured on the tractor, mount the belts on the drive and driven pulley as recommended by tractor manufacturer.
4. Plug the hydraulic hoses to the quick couples on the tractor, If the action of the hood seems backward, plug the hoses in the opposite couplers.
5. The discharge deflector has a manual adjuster bar that is fastened with a lock pin and can be set to various angles.
6. After it has been determined that the Blower is mounted properly, make sure any bystanders are well away from the machine.
7. Lower the blower to ground level, engage the PTO and slowly start the blower. To make sure that everything is turning freely.

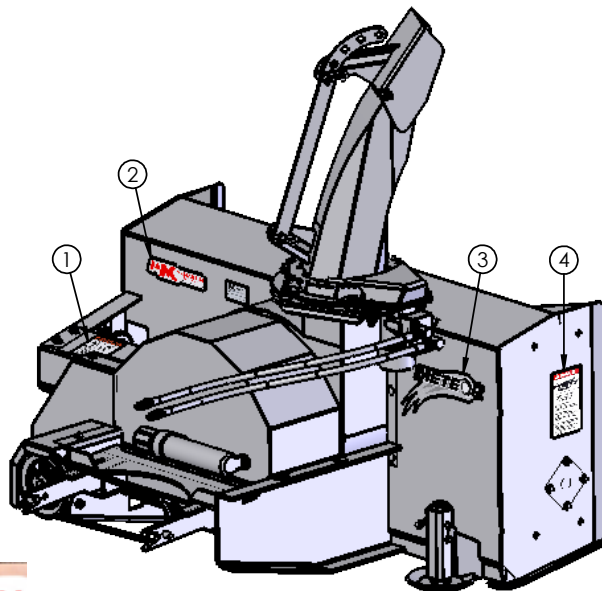
Steiner & Ventrac Snowblower Decals



1- Part # 404



3- Part #
decalmeteorlarge2012



2- Part #
decalmkmadeincanada



4- Part # 101

Operating the Meteor® Snowblower



Stay in the seat of the tractor all the time that the blower is running.

Make sure the area is clear of people and pets while blowing snow.

Do not direct discharged snow toward people, cars or buildings as stones or bits of ice can go a long distance.

When you get to the place that you want to clear snow, lower the blower to the ground and turn the chute to discharge the snow in the direction you want the snow to go.

Engage the PTO and Slowly increase the speed until you have reached 2000 - 2500 engine RPM, This is the speed that this blower was designed for. If it turns faster the fan could be going dangerously fast. If it turns slower it will not perform very well as the snow will not be blown very far.

The chute can be rotated from the tractor seat while blowing snow.

In areas where the gravel is not frozen most of the time use skid shoes to raise the blower a few inches above the gravel. This blower is designed to blow snow, but will blow loose gravel if care is not taken.

After the job is finished: Disengage the PTO to stop the blower before driving away or getting off the tractor.

The auger is protected with a safety shear bolt that will shear off if the auger becomes jammed. The fan is also protected with the belts.

When replacing the shear bolts STOP the engine and remove the key before attempting to replace them!

There is a hydraulic hood turner available that couples into the tractor hydraulic remotes if your tractor is so equipped.

Snowblower performance will vary greatly due to ambient temperature and type of snow.

Sign Off Form

M K Martin Enterprise Inc. follows the general Safety Standards specified by the American Society of Agricultural Engineers (ASAE) and the Occupational Health and Safety Administration (OSHA). Anyone who will be operating and/or maintaining the equipment must read and clearly understand ALL Safety Operating and Maintenance instructions presented in this manual. Do not operate or allow anyone else to operate this equipment until such information has been reviewed. Annually review this information before the season start-up. Make these reviews of SAFETY and OPERATION annually as a standard practice for all your equipment. We feel that an untrained operator is unqualified to operate this machine. A sign-off sheet is provided for your record keeping to show that all personnel who will be working with the equipment have read and understood the information in the operator's manual and have been instructed in the operation of the equipment.

[illegible]

Bolt Torque

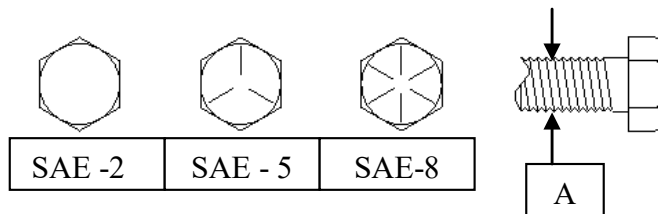
As used on this equipment

Bolt torque table shown below gives torque values for the various bolts used. This chart is for non-lubricated threads. Replace with the same strength bolt.

Torque Specifications. Torque values are identified by their head markings

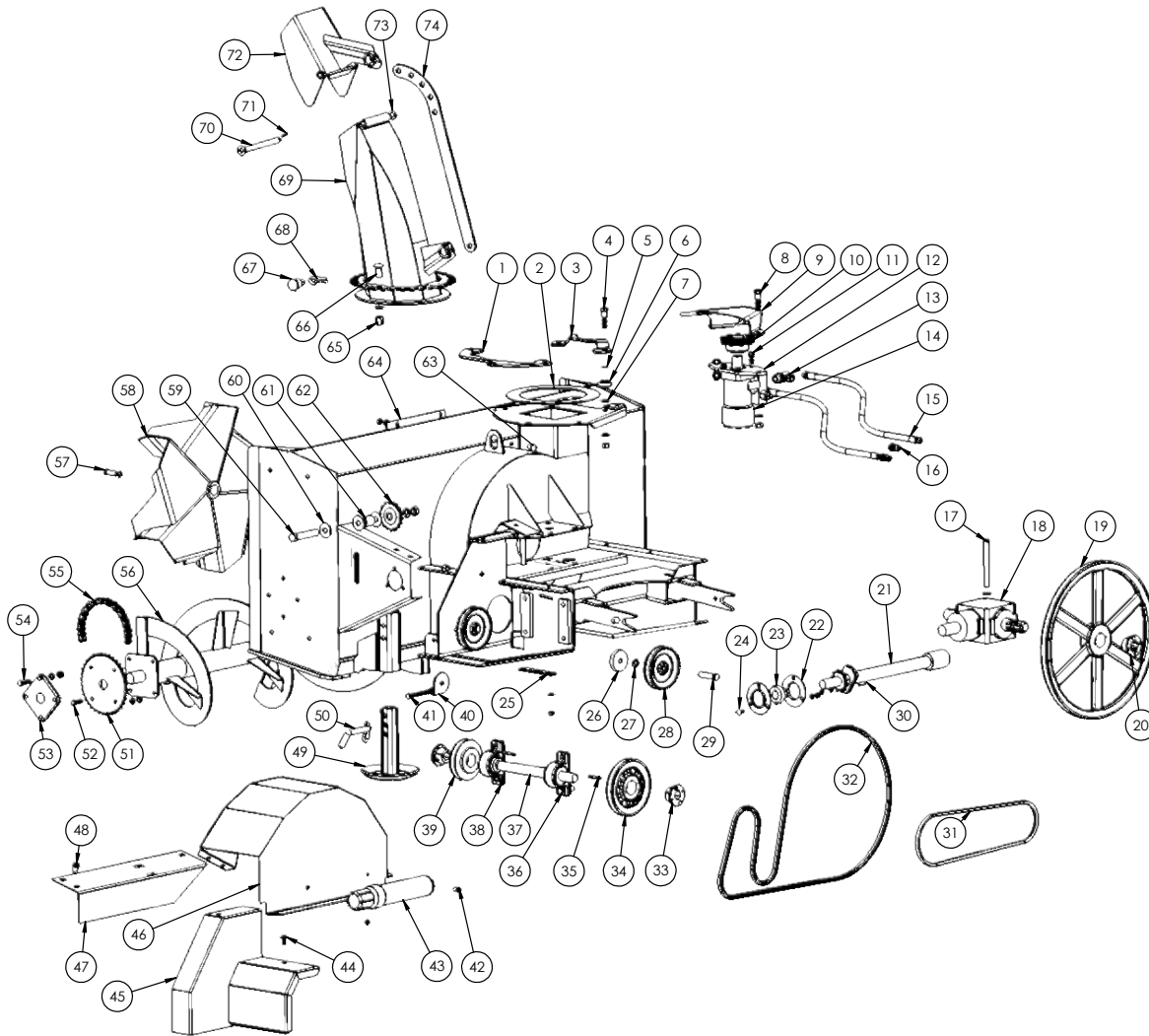
Diameter	SAE 2		SAE 5		SAE 8	
"A"	Lb-ft	N.m	Lb-ft	N.m	Lb-ft	N.m
1/4	6	(8)	9	(12)	12	(17)
5/16	10	(13)	19	(25)	27	(36)
3/8	20	(27)	33	(45)	45	(63)
7/16	30	(41)	53	(72)	75	(100)
1/2	45	(61)	80	(110)	115	(155)
5/8	95	(128)	160	(215)	220	(305)
3/4	165	(225)	290	(390)	400	(540)
1	225	(345)	630	(850)	970	(1320)

Allen head cap screws are similar to SAE 8 quality.



These torques are for a reference only. Not all these sizes and grades are necessarily used in this machine. Bolts that are used as a pivot or hinge have to be used with a locknut, therefore only tighten enough to secure the bolt and still allowing the part to rotate freely.

Steiner & Ventrac Snowblower Parts



Item #	Part #	Description	48" Qty	54" Qty
1	10730	Large hood clamp	1	1
2	53739	Anti friction ring	1	1
3	10731	Small hood clamp	1	1
4	OL	Bolt 1/2-20 x 2 gr5 c/w lw,n	5	5
5	52712	Spring tension washer	5	5
6	52711	Hood bearing	5	5
7	OL	SAE flatwasher 1/2	5	5
8	OL	Bolt 1/2-20 x 2 gr5 c/w lw,n	2	2
9	23931	Hyd rotator shield	1	1
10	52732	Rotator gear	1	1
11	OL	Bolt 3/8 x 1 c/w lw	4	4
12	31232	Rotator mount	1	1
13	9515-10-06	Hyd fitting	2	2
14	31233	Rotator motor	1	1
15	52163	Hyd hose	2	2
16	53740	Quick coupler	2	2

Steiner & Ventrac Snowblower Parts

Item #	Part #	Description	48" Qty	54" Qty
17	OL	Bolt 3/8 x 5 1/2 c/w fw,lw,n	4	4
18	519-681186	Gear box	1	1
19	53741	Large pulley	1	1
20	53742	H spline bushing	1	1
21	52155	48 Auger drive shaft	1	
	52159	54 Auger drive shaft		1
22	52708	Bearing flange	2	2
23	52654	Bearing	1	1
24	OL	Carriage bolt 5/16 x 3/4 c/w lw,n	3	3
25	34213	Keeper plate	2	2
26	53125	Spacer disk	2	2
27	OL	SAE flatwasher 1/2	2	2
28	53743	Idler pulley	2	2
29	OL	Bolt 1/2 x 2 1/2 c/w ln	2	2
30	OL	Bolt 1/4-20 x 1 Gr2 c/w lw, n	1	1
31	BeltA46	V belt	1	1
32	BeltAA96	Double V belt hex	1	1
33	53744	H bushing	2	2
34	53745	Mid. pulley	1	1
35	31091	Key	3	3
36	OL	Bolt 7/16 x 2 c/w fw, ln	4	4
37	52122	Jack shaft	1	1
38	53746	Pillow block bearing	2	2
39	53747	Small pulley	1	1
40	52176	Pulley tightener	1	1
41	OL	Bolt 3/8 x 5 1/2 full thread	1	1
42	OL	Flange bolt 1/4 x 3/4 c/w ln	2	2
43	52649	Manual tube	1	1
44	OL	Flange bolt 5/16 x 3/4	5	5
45	52136	Small pulley cover	1	1
46	52138	Big pulley cover	1	1
47	52157	48 Cross drive shield	1	
	52140	54 Cross drive shield		1
48	OL	Flange bolt 3/8 x 3/4	3	3
49	21569	Skid shoe	2	2
50	53748	Bent pin	2	2
51	53749	Auger sprocket	1	1
52	OL	Bolt 3/8 x 1 1/4 c/w lw,n	4	4
53	52730	Flange bearing	2	2
54	OL	Bolt 7/16 x 1 1/2 c/w lw,n	8	8

Steiner & Ventrac Snowblower Parts

Item #	Part #	Description	48" Qty	54" Qty
55	OL	Chain #50		
56	52151	48 Auger	1	
	33182	54 Auger		1
57	OL	Bolt 3/8 x 1 1/2 c/w lw	1	1
58	52141	Fan	1	1
59	OL	Bolt 5/8 x 4 c/w lw,n	1	1
60	OL	Flatwasher 5/8	3	3
61	31102	Idler spacer	1	1
62	52710	Idler sprocket	1	1
63	OL	Carriage bolt 3/8 x 3/4 c/w lw,n	4	4
64	20840	Fan cover	1	1
65	20852	Stop nut	1	1
66	OL	Carriage bolt 1/2 x 1 1/4 c/w lw	1	1
67	21773	Adjuster pin	2	2
68	OL	Hair pin	2	2
69	10683	Chute	1	1
70	20833	Deflector pin	1	1
71	OL	1/8 x 1 Cotter pin	1	1
72	10684	Deflector	1	1
73	OL	SAE flatwasher 1/2	1	1
74	10680	Adjuster bar	1	1

Note:

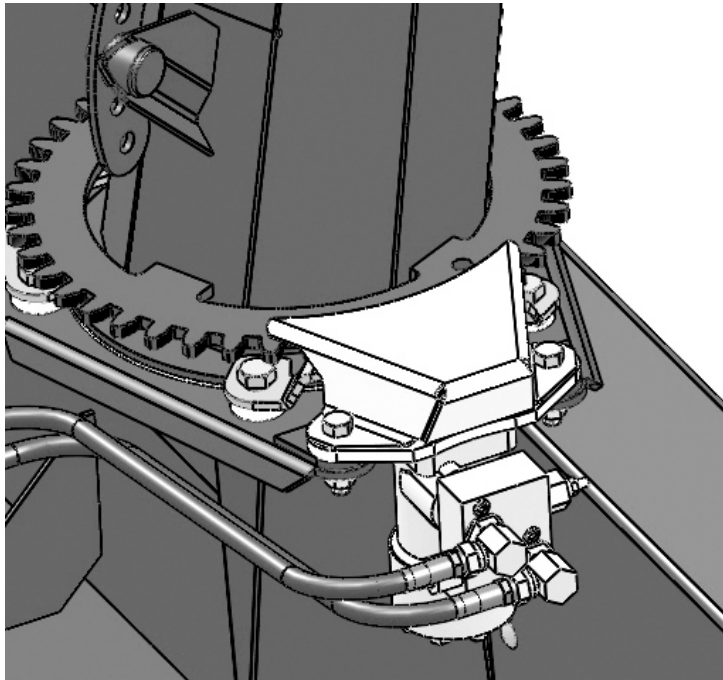
OL = Obtain Locally
c/w = complete with
fw = Flatwasher
lw = Lockwasher
ln = Locknut
n = Nut

Motor Hydraulic Rotator Installation

The Hydraulic Chute Rotator uses a hydraulic motor, controlled by the tractor hydraulics to rotate the chute. The kit includes a safety shield, 2 pc 1/2-20 UNF bolts, hydraulic fittings, hoses and tractor couplings. When installing the hydraulic elbows, turn them in “**no more than 4 rounds**” then tighten the jam-nut to secure the elbow in the direction that you want the hoses to go *as shown*.

The relief valves are factory preset at 900 PSI.

Route the hoses and tie them to the top “A” frame support, away from moving parts, Ensure that the hoses do not get too tight or rub on the frame when the blower is raised or lowered.



First set the motor with the bracket on top of the Chute Plate and then place the shield on top of the motor bracket and secure with 1/2-20 UNF bolts

Please ensure that the gear does not jam or bind during the rotation of the chute. The bolt holes are slightly oversize, allowing you to adjust the clearance somewhat. You should be able to move the chute back and forth slightly.

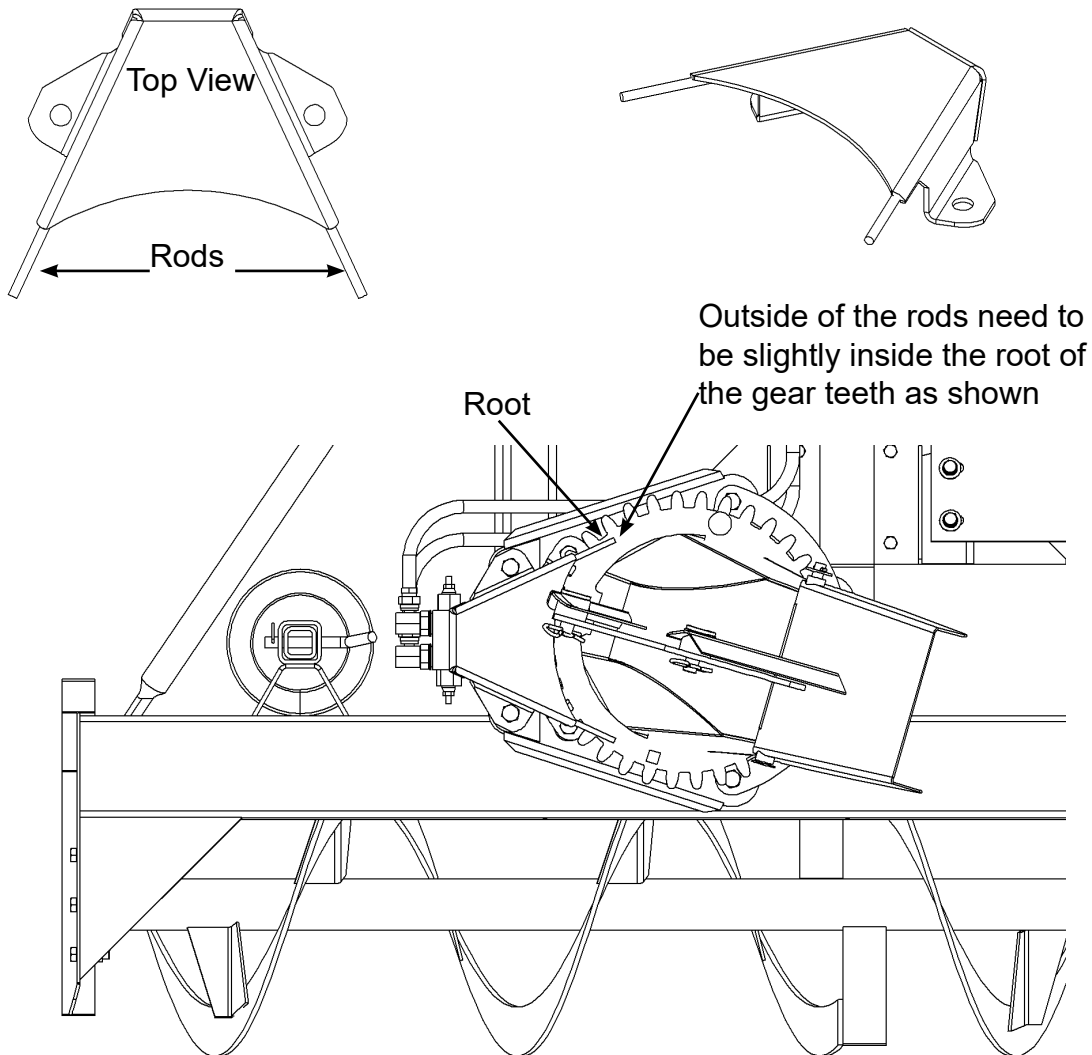
Snowblower Hydraulic Rotator

Installing the Hydraulic Chute Rotator Safety Shield with Hose Guide

The Hydraulic Chute Rotator has rods that act as guides to guide the Deflector Hydraulic Hose (if used) to the outside of the shield.

All Shields are manufactured with the Rods straight.

They may need to be bent in or out for smaller or larger blowers.



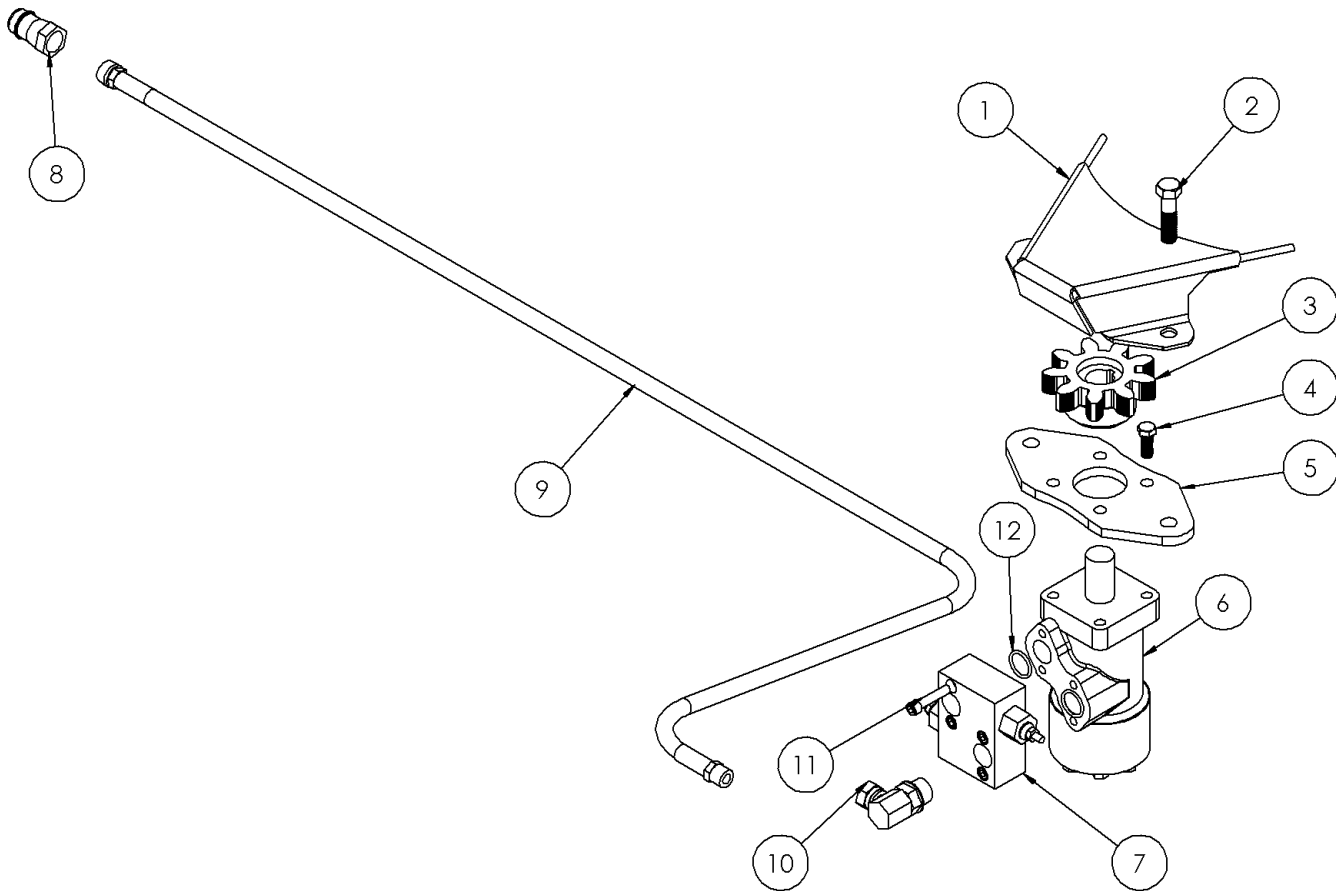
To bend the rod, you can use a short piece of 3/8 pipe for a lever, or an adjustable wrench to bend the rod.

Do not use a hammer as it has less control of the bend.

Keep the height of the rod the same, only bend it in or out.

After installation carefully rotate the chute to ensure that there is no interference or binding.

Hydraulic Chute Rotator Parts



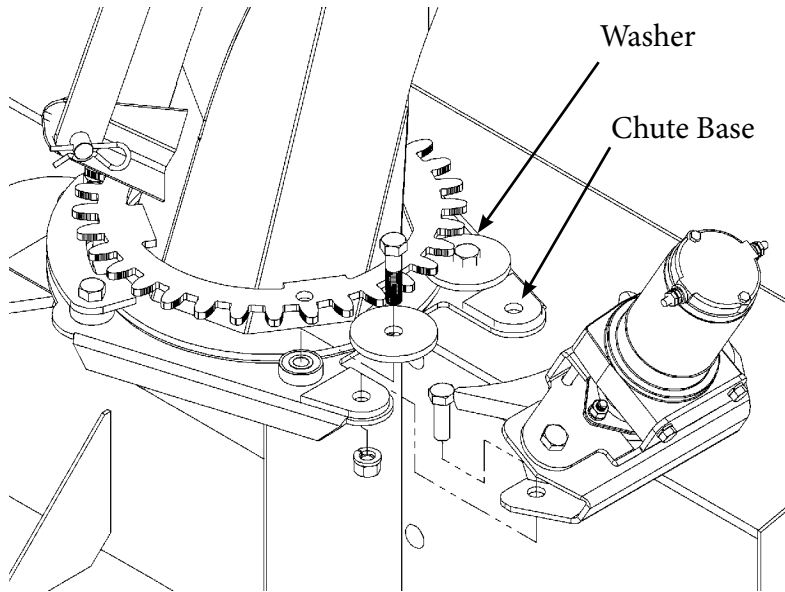
Item #	Part #	Description	Qty
1	23931	Shield	1
2	Bolt 1/2-20x2 c/w lw, n	OL*	2
3	519-511706	Small Gear	1
4	Bolt 3/8x1 c/w lw	OL*	4
5	519-511703	Motor Bracket	1
6	519-511704	Motor	1
7	519-511705	Crossover Relief Valve	1
8	S71-4	Tractor Adapter	2
9	23895	Hydraulic Hose	2
10	519-9515-10-6	Hydraulic Elbow	2
11	Socket Head Cap Screw 5/16x1 1/2	OL*	4
12	(O Ring 3/32x.75id	OL	2

Note*

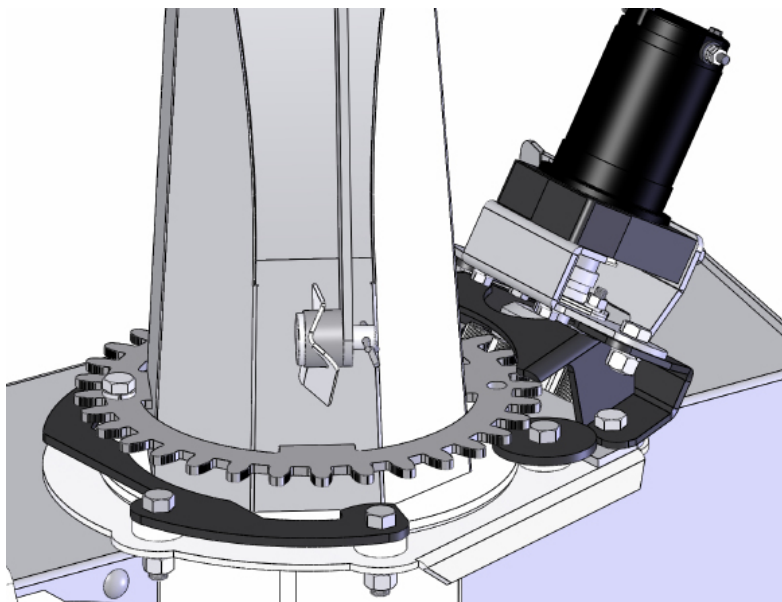
OL -- Obtain Locally

Electric Chute Rotator Installation Instructions

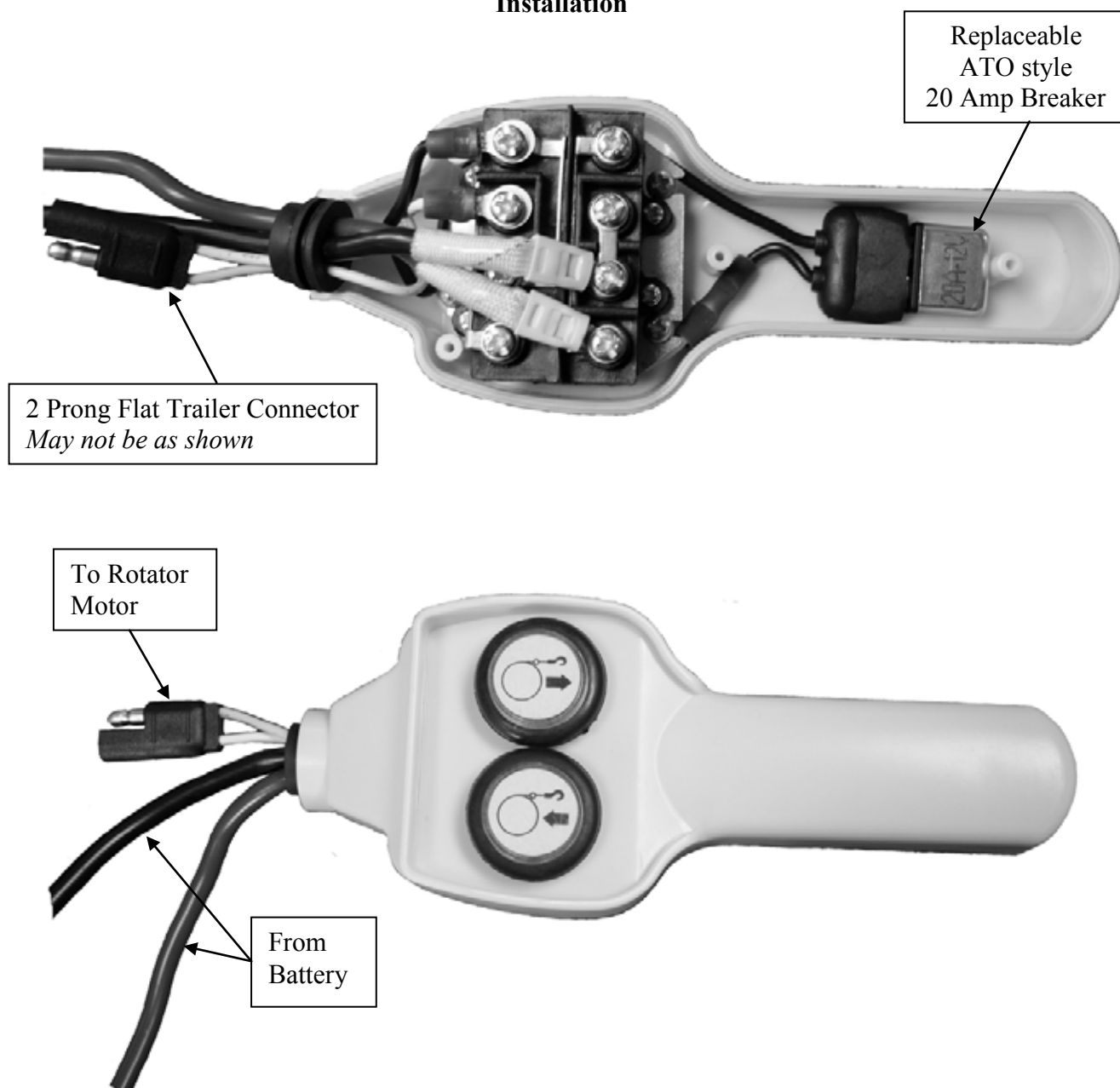
1. Replace The 2 hole Chute Clamp with the appropriate washer. (54-68 has 1/2" hole, 75- has 5/8" hole.
Please Note: the chute bearing is between 2 washers. An SAE Washer on bottom and a thin Wave Washer on top
2. Bolt Electric Motor unit on top of Chute Base.
3. Before tightening the bolts, check for binding gears or excessive clearance that may cause the gears to jam.
4. Finish by tightening the bolts



By pulling out the knob on the end of the gear shaft and giving it a 1/4 turn, the chute can be manually rotated to check for jamming.



Electric Rotator Control Handle Installation



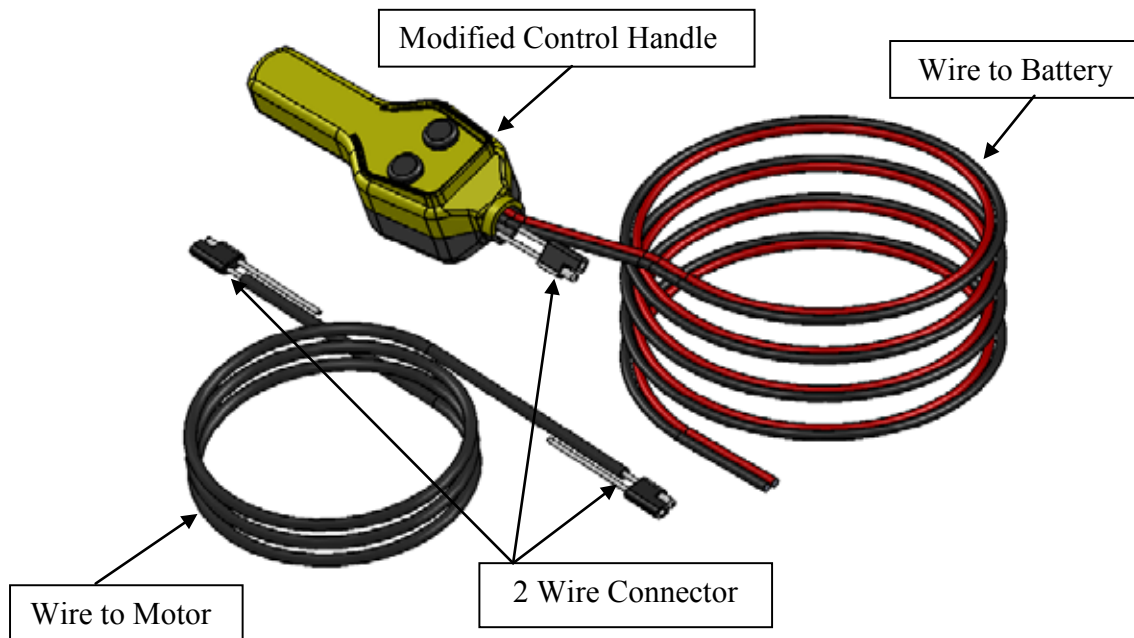
See SuperWinch Owners Guide for Instructions for battery hookup.

Use the 50 amp breaker as shown to protect the primary wires in case of a short circuit. The 20 amp breaker is added inside the handle to prevent the rotator motor from damaging the chute.

Note:

The symbol on the buttons may describe a cable winch, one button will still cause the motor to turn one way and the other button will turn the motor the other way. If you want to reverse the functions of the buttons, reverse the wires on the motor terminals.

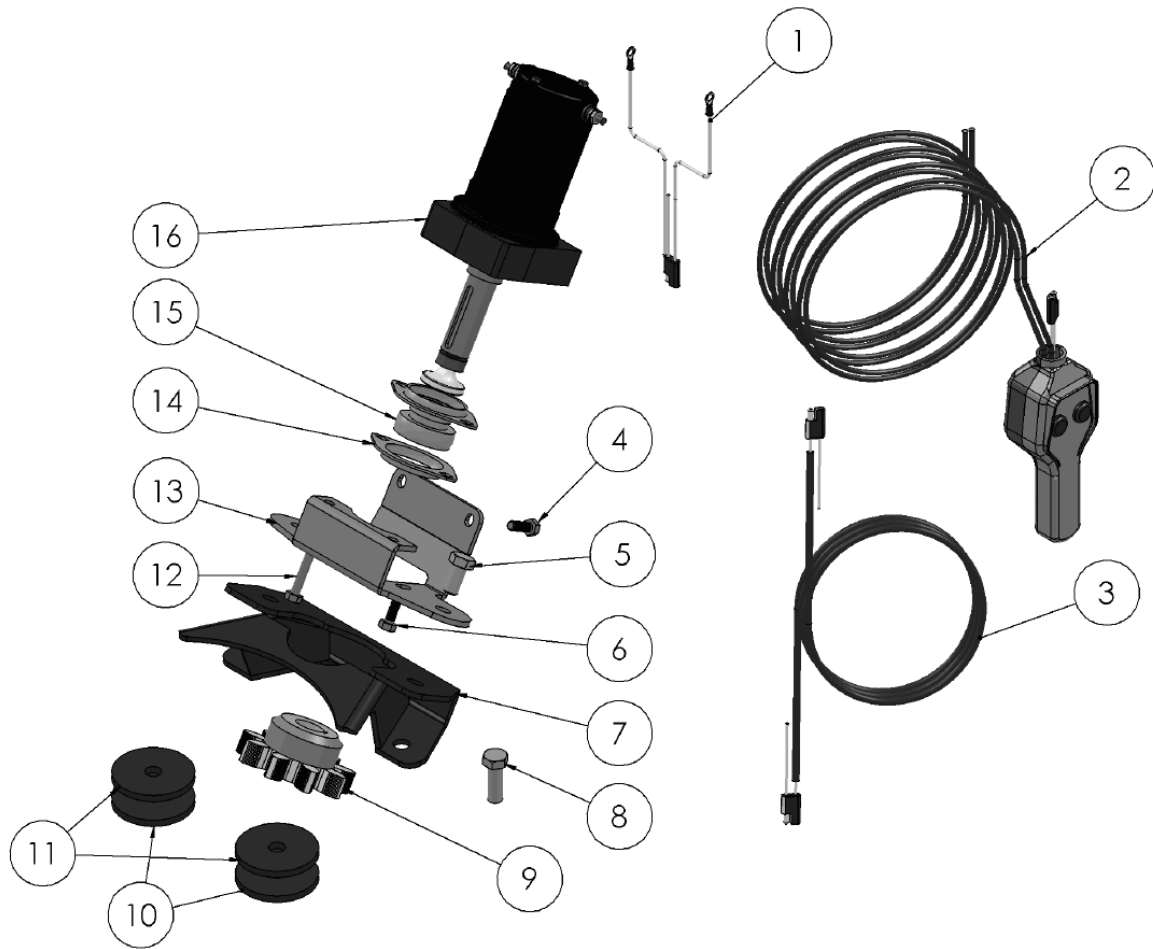
Modified 2 Button 12 Volt Winch Control Installation



Hooking up Remote Cable

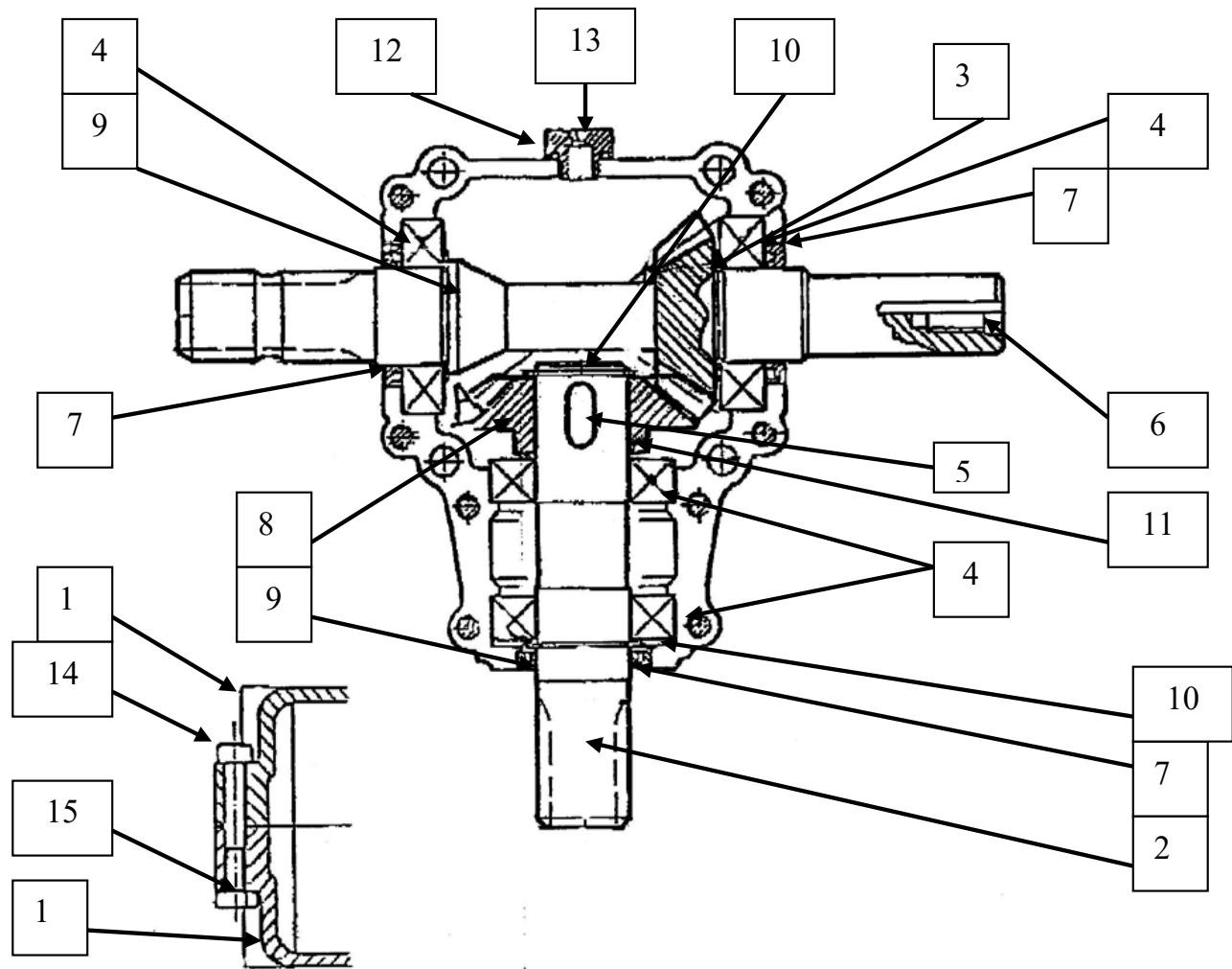
1. Refer to page 5 in Superwinch® Owner's Guide and note the wire to the battery. The inline breaker is to protect the primary wires and the handle circuit. We have added an additional breaker inside the handle to limit the power to the motor. This should be trouble free and need minimal attention.
2. Plug one end of the Motor wire into the Motor Connector and secure the wire along the blower top brace. Plug the other end into the Control Handle, with the handle located at a comfortable place, ensure that the unsecured wire won't get entangled or pinched during the operation of the machine.
3. Depressing a button on the handle will cause the motor to turn in one direction, depressing the other button will reverse the rotation. To switch the orientation of the buttons, reverse the leads on the motor rather than the battery connections.
4. When unhooking the machine; unplug the motor wire form the handle. The handle can stay wired on the tractor. In the off season you can remove it and store it in a dry place until the next season.

46-75 Electric Chute Rotator Parts



Item #	Part #	Description	Qty
1	519-6232053	Motor Connector	1
2	23589	Control Handle	1
3	10581	Control-Motor Wire	1
4	OL	Bolt 5/16x1 c/w lw,fw	2
5	OL	Bolt 1/2x1 c/w lw,fw, n	2
6	OL	Bolt 5/16x1 c/w lw, n	2
7	10669	Rotator Base	1
8	OL	Bolt 1/2x1 1/2 c/w lw, n	2
9	51376	Small Gear Modified	1
10	23612	Large Clamp Washer 5/8"	2
11	23584	Large Clamp Washer 1/2"	2
12	OL	Bolt 5/16x3 c/w lw,fw	2
13	31149	Motor Bracket	1
14	519-511712	Bearing Flange	2
15	519-511175	Bearing	1
16	23899	Electric Motor	1

54-60 Snowblower Main Gearbox (Comer)



T281 Gearbox

Item	Description	Part #	Req
1	Casting	519-1.281.0300.00	2
2	Shaft 1 ¼	519-0.281.2207.00	1
3	Shim 48.0	519-0.259.7500.00	1
4	Bearing 6207	519-8.0.1.00025	4
5	Parallel Key 10x8x30	519-8.4.1.00057	1
6	Pinion Shaft Z13MS	519-0.281.6200.00	1
7	Oil Seal 35x52x7	519-8.7.3.00028	3
8	Gear Z19 MS	519-0.259.6000.00	1
9	Shim 35.3x0.5	519-0.259.7505.00	2
10	Snap Ring 35 UN17435	519-8.5.1.00005	2
11	Shim 35.3x0.6	519-0.259.7506.00	1
12	O-Ring OR-3062	519-8.7.6.00191	1
13	Plug	519-0.281.7100.00	1
14	Bolt M8x55	519-8.1.2.01174	8
15	Hex Nut M8	519-8.2.1.00382	8

Steiner & Ventrac Snowblower Maintenance

Good maintenance is your responsibility. Poor maintenance is an invitation for trouble.

Replace any Caution, Warning, Danger or Instruction safety decal that is not readable or is missing.

Auger Shearbolt - 1/4 x 1" Gr#2

Auger Drive Chain - tighten chain allowing 1/4" sag in the bottom span of chain.
(between drive and driven sprocket)

Main Belt Tension - Check every 10 hours and tighten as suggested. (bottom of page)

Gearbox - Check oil level every 50 hours. Fill to oil level plug (middle of gearbox) with SAE 90 gear oil. SAE 80W90 gear oil may also be used.

Auger And Shear Sprocket Bearings - Grease sparingly every 50 hours. (by using too much grease you may push the seals off the bearings)

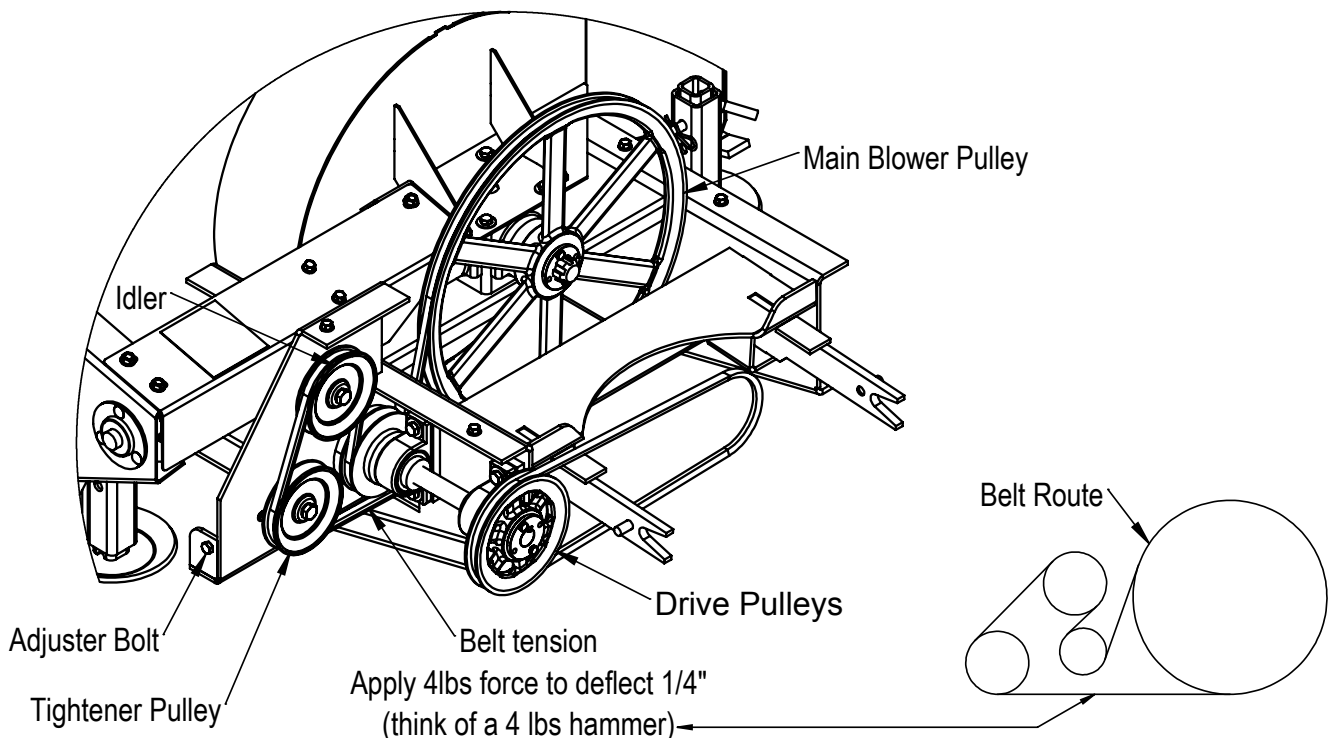
Discharge Chute Mount - Slides on a plastic ring and roller bearings retain side play. If lubrication is desired oil can be applied to plastic ring to prevent sticking.

Auger Chain - Apply oil on a regular basis especially after using the snowblower.

Storing the Snowblower in the Off Season

Check for missing paint and scratches, prime and paint to keep metal from rusting.

At end of season lubricate the bearings, discharge chute and auger chain before storing.



To adjust belt tension loosen tightener pulley bolt then adjust belt tightness with adjuster bolt and retighten tightener pulley bolt.

Notes



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