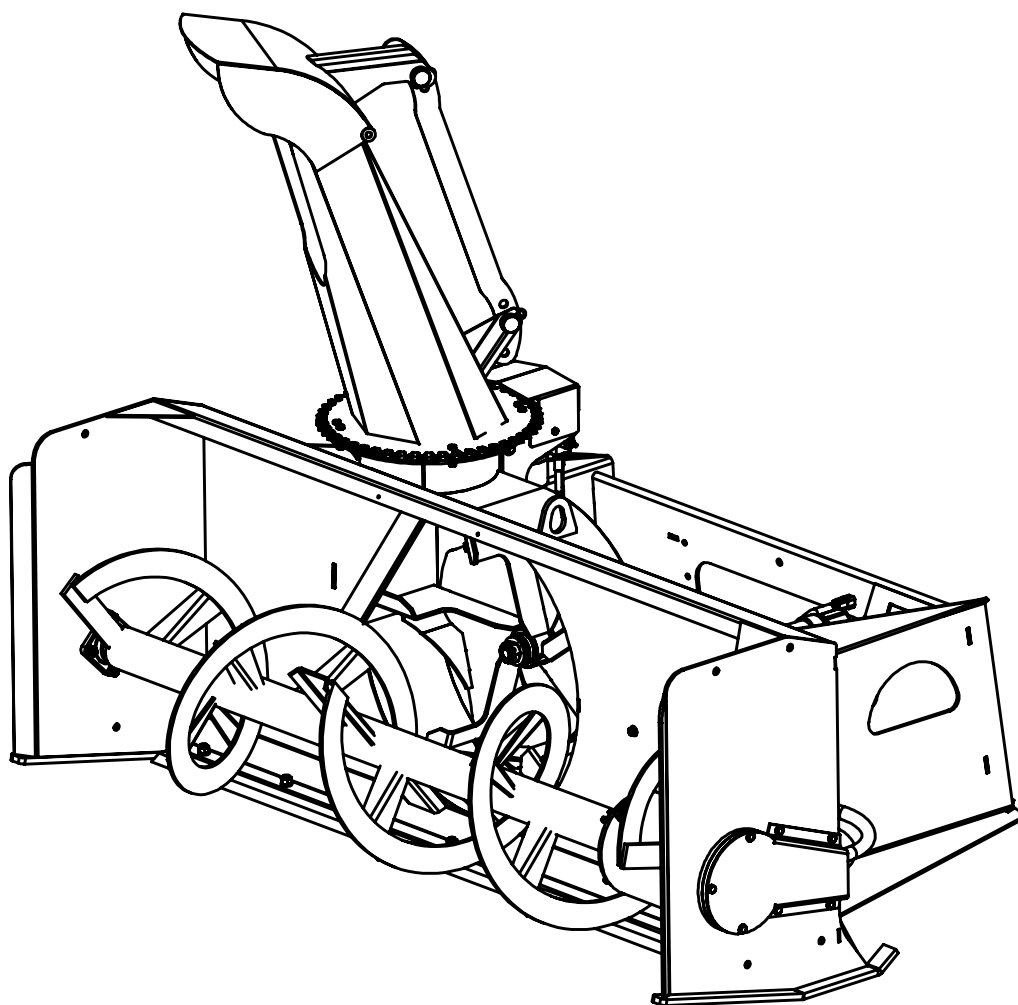




Skid Steer Meteor Snowblower Operator's / Parts Manual



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

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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

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

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**

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 covered 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 all those working with you follow them as well.

The Meteor Snowblower has a shield covering the auger motor and the hydraulic lines leading to the motor. Do not use with cover loose or missing.

Replace any decals that maybe 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.

This equipment should not be operated by children: or those unfamiliar with the operation of the Meteor Snowblower. **Do not allow persons to operate this machine until they have read this manual and/or where instructed by a qualified person.**

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



When removing ice and snow from the machine; **Stop the engine and re-move the keys on the Loader and disconnect the chute control wire!** 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.

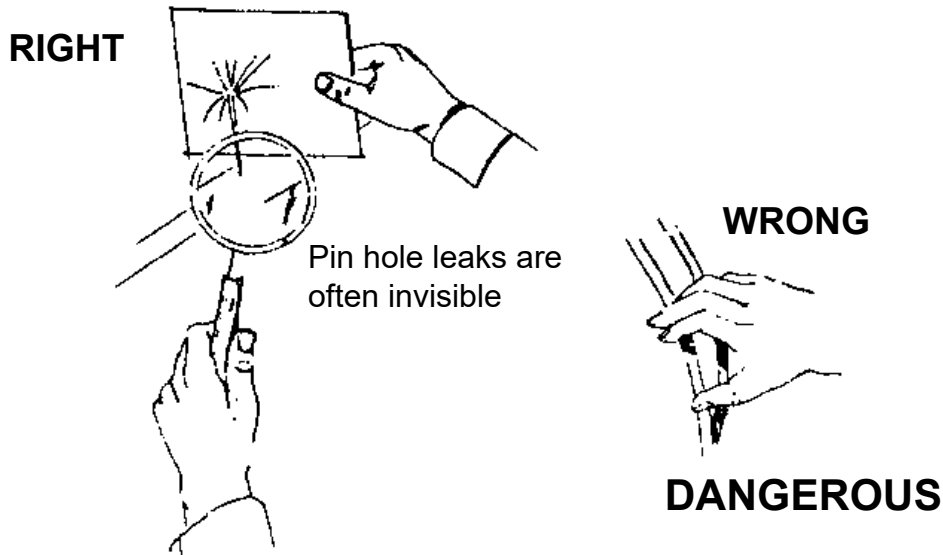


Figure 1. Detecting pinhole leaks in a hydraulic system.



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.



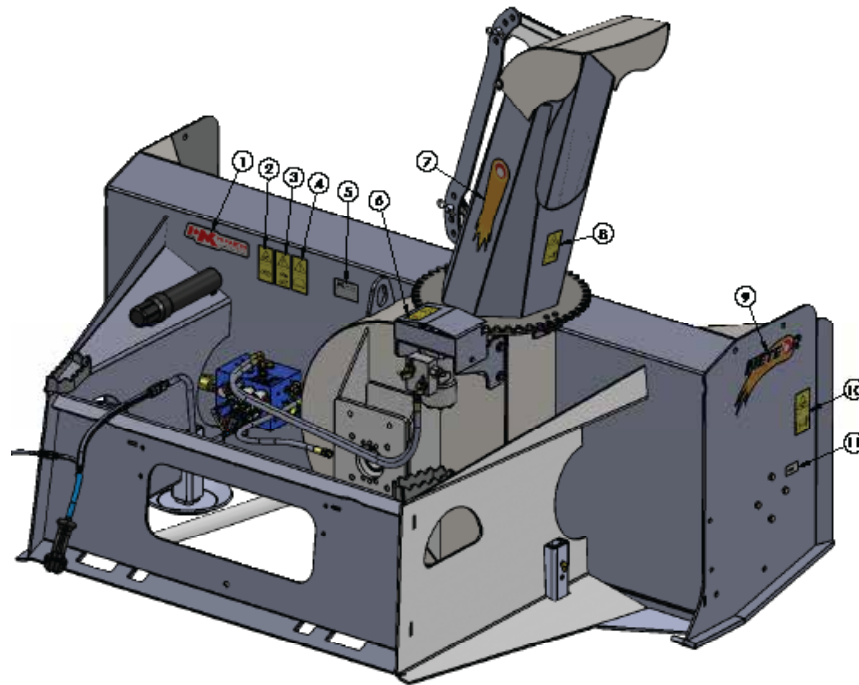
Always relieve pressure before disconnecting or working on hydraulic system.













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.

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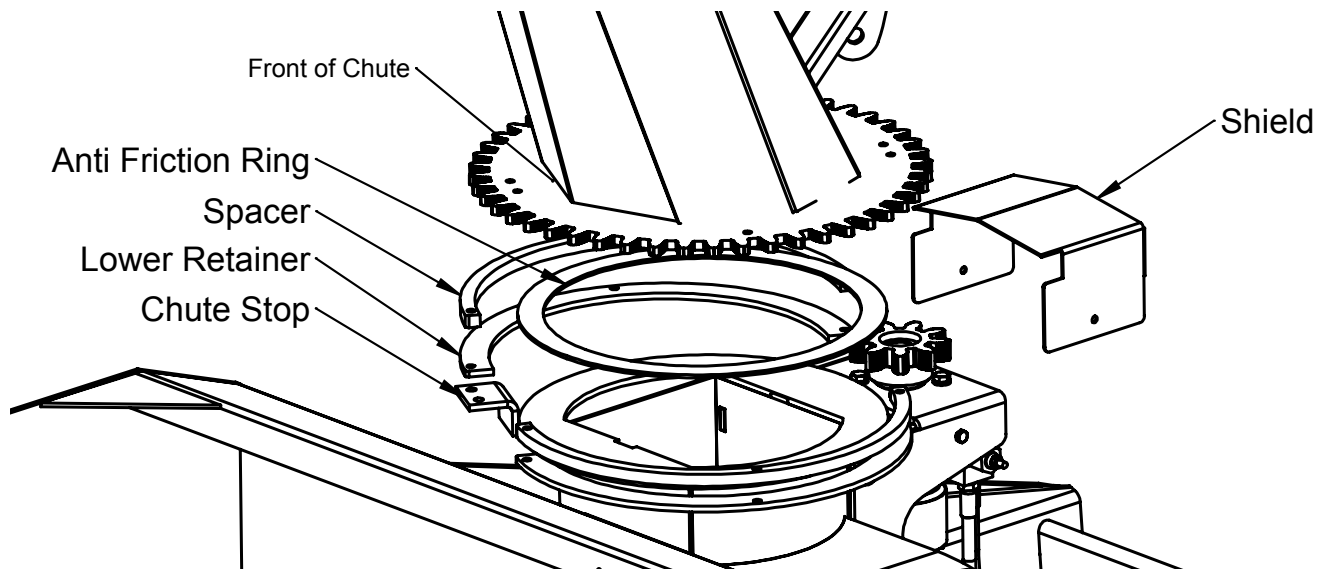
Skid Steer Decal Location



	1- MK logo decal Made in Canada small. 1 piece		7- Meteor chute decal. 2 pieces
	2- 244 Avoid fluid escaping under pressure. Consult technical manual for service procedures. 1 piece		8- 224 Keep a safe distance from this machine. 1 piece
	3- 226 Shut off engine and remove key before performing maintenance or repair work. 1 piece		9- Meteor small decal. 2 pieces
	4- F9 Read operators manual. 1 piece		10- 236 Stay clear of rotating auger. 2 pieces
	5- Serial number plate. 1 piece		11- Grease gun decal. Lubrication points. 2 pieces
	6- 213 Do not open or remove safety shields while engine is running. 1 piece		

Skid Steer Meteor Snowblower Assembly

For shipping the chute is not installed on the Snowblower.
After receiving the blower unpack the chute and attach it to the blower as shown below.



Apply a light coat of grease to both sides of the plastic Anti Friction Ring and center on top of the fan outlet.

Next place Chute on top of plastic ring.

Position the Lower Retainer below the flange of the fan outlet -- place the Spacer on top of the Lower Retainer and bolt it to the Chute with 5/16x1 1/2 bolts.

Operation of the Skid Steer Meteor Snowblower

This blower is designed to blow snow with a Skid Steer Loader using the hydraulics to power the fan and auger. The chute is controlled with the loader electrics.

The blower is a loader attachment and is mounted the same way as all loader attachments. Make sure that the latches are locked in position after attaching the blower.

The chute is controlled with the loader electrics. The controller consists of a battery wire, a control handle and control wire to the blower. The handle has 2 switches, one for the rotation and the other for the optional powered deflector adjuster. The battery wire has battery clamps for the battery and a plug on the other end to plug into the handle. The clamp with the red sleeve on the wire goes to the positive battery- terminal. Inside the battery wire is a 20 amp breaker to protect the circuits. The switches are momentary rocker switches and will return to off when the switch is let go.

Attach the blower to the loader including both the electrics and hydraulic line. Start the loader engine and check to see if the blower is turning in the right direction. It may not be turning at all, as we use a check valve to allow overrunning. If the fan is not turning move the hydraulic control the other way or switch the hydraulic lines at the loader coupling. This will reverse the hydraulic flow.

If the chute or deflector buttons are reversed according to your preference you may switch the plugs at the valve block on the blower.

Operating the Skid Steer Meteor Snowblower

When starting the blower, gradually bring it to full speed. Do not have the engine running at full speed and suddenly open the hydraulic valve. This puts a tremendous strain on all drive components. Have the engine running at full speed while blowing snow. This will turn the fan at maximum speed and provide best performance. Try to keep the blower from becoming overloaded as this will slow the fan speed and a resulting drop in performance.

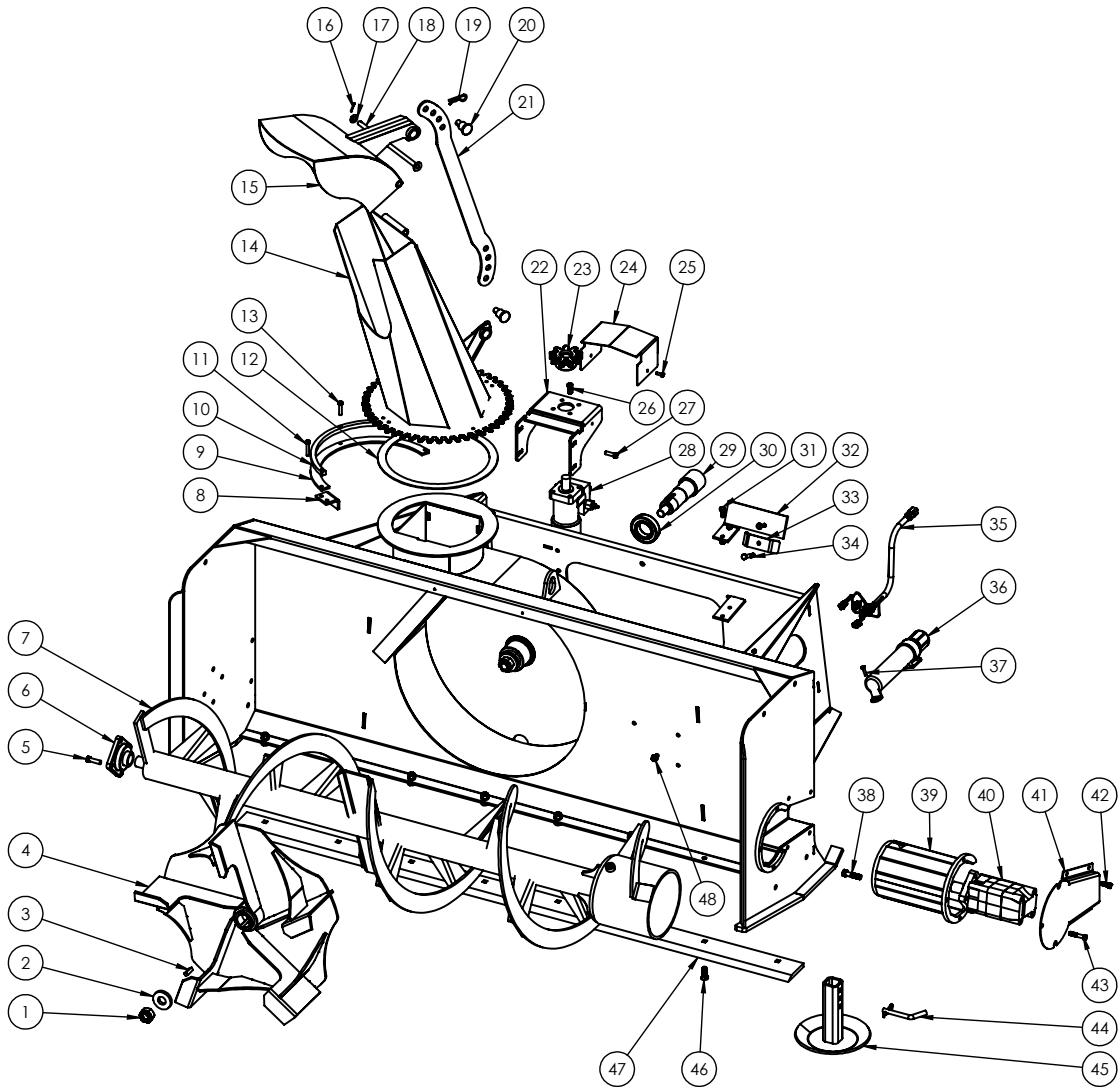
Note: light powder snow will blow better than heavy wet snow.

Try to keep the blower level to the ground while blowing. If it seems to ride up over the hard packed surface, tilt the blower ahead slightly. With the loader it is possible to tilt the blower ahead until the auger digs into the surface. **Be very careful when doing this as the auger and the machine could be damaged.**



While blowing snow be aware where the stream of snow is going. Do not direct it toward windows, vehicles, objects that could be damaged, or people that could be injured.

Skid Steer Meteor Snowblower Parts



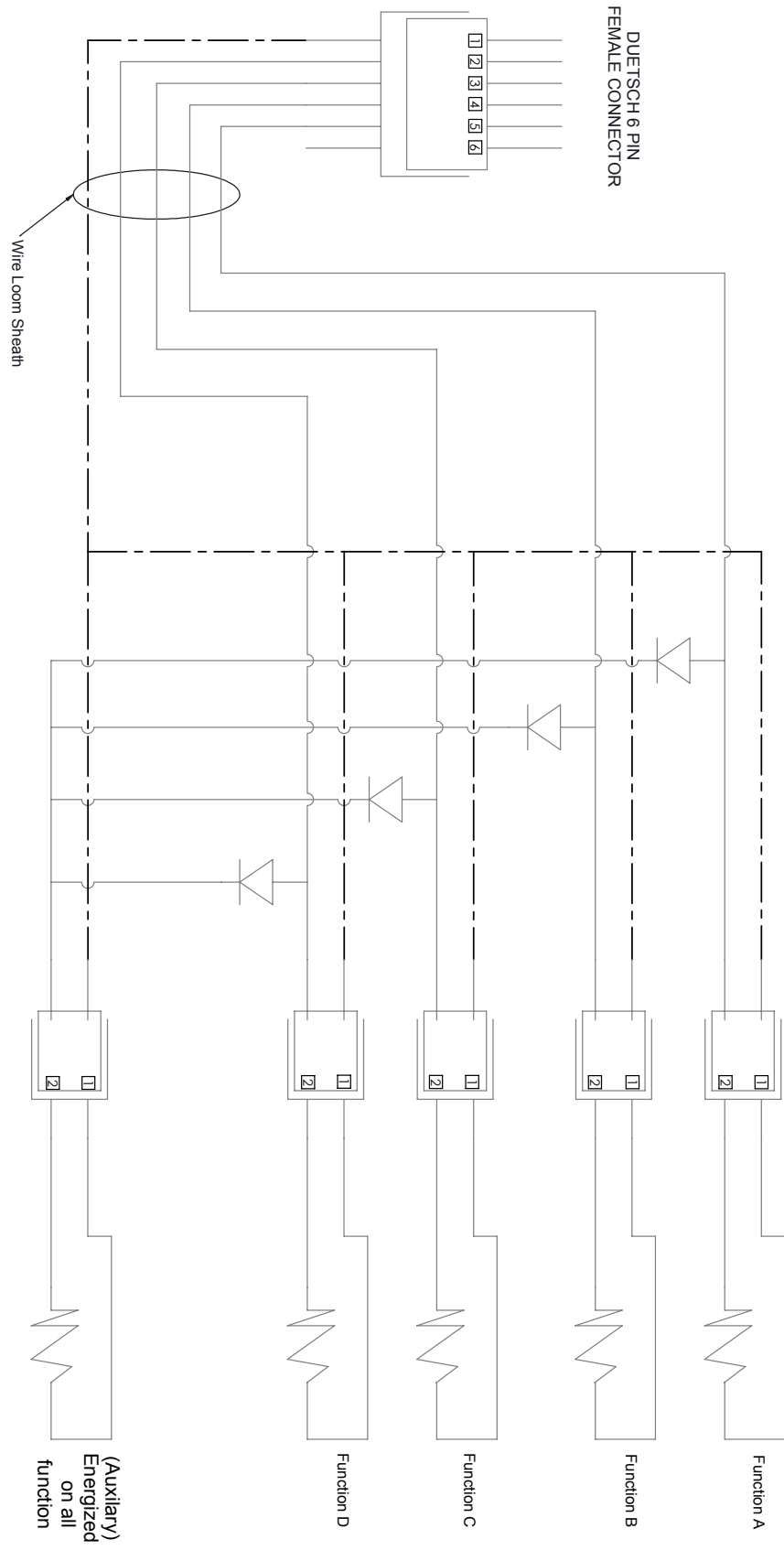
Item#	Part#	Description	Qty SSB 62	Qty SSB 66	Qty SSB 76	Qty SSB 86	Qty SSB 96
1	52770	Nut	1	1	1	1	1
2	22556	Washer	1	1	1	1	1
3	21181	Fan Key	1	1	1	1	1
4	21131	Fan	1	1	1	1	1
5	OL	Bolt 7/16 x 1 1/2 c/w lw,n	4	4	4	4	4
6	52730	Bearing	1	1	1	1	1
7	34955	62" Auger	1				
	34953	66" Auger		1			
	34951	76" Auger			1		
	34845	86" Auger				1	
	34949	96" Auger					1
8	34811	Chute Stop	1	1	1	1	1
9	21155	Lower Chute Clamp	2	2	2	2	2
10	21154	Chute Clamp Spacer	2	2	2	2	2
11	OL	Bolt 5/16 x 1 3/4 c/w lw,n	2	2	2	2	2

Skid Steer Meteor Snowblower Parts

Item#	Part#	Description	Qty SSB 62	Qty SSB 66	Qty SSB 76	Qty SSB 86	Qty SSB 96
12	52731	Anti Friction Ring	1	1	1	1	1
13	OL	Bolt 5/16 x 1 1/2 c/w lw,n	4	4	4	4	4
14	34640	Chute	1	1	1	1	1
15	34643	Deflector	1	1	1	1	1
16	OL	Cotter Pin 1/8 x 1	1	1	1	1	1
17	OL	SAE Flatwasher 1/2"	1	1	1	1	1
18	21139	Deflector Hinge pin	1	1	1	1	1
19	OL	Hair Pin 5/16	2	2	2	2	2
20	21773	Deflector Adjuster Pin	2	2	2	2	2
21	10701	Deflector Adjuster Bar	1	1	1	1	1
22	34806	Chute Rotator Mount	1	1	1	1	1
23	52732	Chute Rotator Gear	1	1	1	1	1
24	34809	Chute Rotator Cover	1	1	1	1	1
25	OL	Bolt 1/4 x 3/4 c/w lw,n	2	2	2	2	2
26	OL	Bolt 3/8 x 1 c/w lw	4	4	4	4	4
27	OL	Bolt 3/8 x 1 1/4 c/w fw,fw,lw,n	4	4	4	4	4
28		See page 14-17	1	1	1	1	1
29	22590	Drive Spindle	1	1	1	1	1
30	52733	Fan Bearing	2	2	2	2	2
31	OL	Bolt 3/8 x 1 c/w lw	2	2	2	2	2
32	34654	Hose Bracket	1	1	1	1	1
33	34655	Hose Clamp	1	1	1	1	1
34	OL	Bolt 3/8 x 2 1/2 c/w In	1	1	1	1	1
35	52715	Blower Wiring Harness (Diagram on page 12)	1	1	1	1	1
36	52649	Operator Manual Tube	1	1	1	1	1
37	OL	Flange Bolt 1/4 x 1 c/w Flange nut	2	2	2	2	2
38	OL	Bolt 1/2 x 2 c/w In	2	2	2	2	2
39	21150	Auger Motor Mount	1	1	1	1	1
40		See Page 14-17	1	1	1	1	1
41	21152	Auger Motor Cover	1	1	1	1	1
42	OL	Bolt 3/8 x 1 c/w lw,n	4	4	4	4	4
43	OL	Bolt 3/8 x 1 c/w lw,n	3	3	3	3	3
44	OL	1/2" Bent pin	2	2	2	2	2
45	21592	Skid Shoe	2	2	2	2	2
46	OL	Plow Bolt 1/2 x 1 1/2 c/w lw, n	7	7	8	9	10
47	52735	62" Cutting Edge	1				
	52736	66" Cutting Edge		1			
	52734	76" Cutting Edge			1		
	52737	86" Cutting Edge				1	
	53738	96" Cutting Edge					1
48	OL	Flange Bolt 3/8 x 3/4	3	3	3	3	3

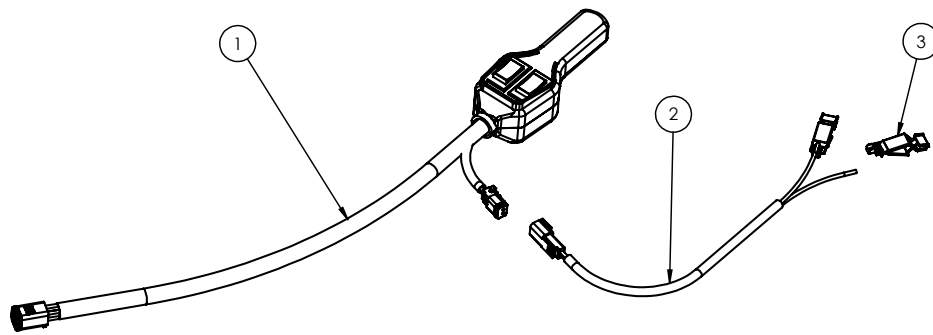
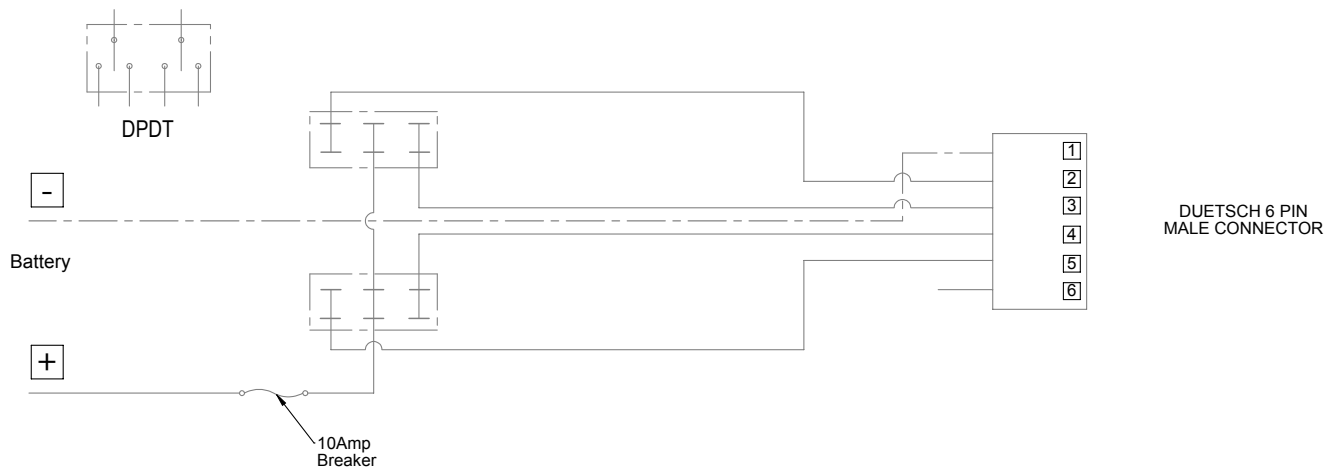
Valve Wires

Blower Wiring Diagram



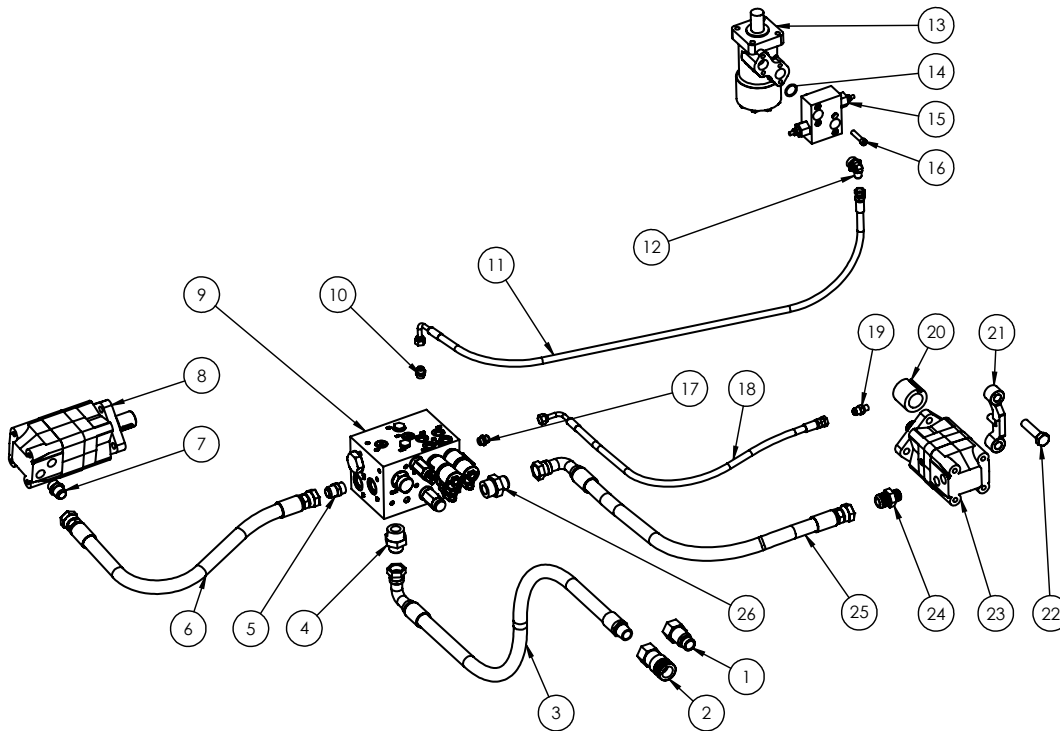
Hand Controller Wires

Controller Wiring Diagram



Item#	Part#	Description	Qty
1	52739	Controller	1
2	52743	Battery Wire	1
3	52769	Battery Clamps	2

A - B - B+ Hydraulic Parts



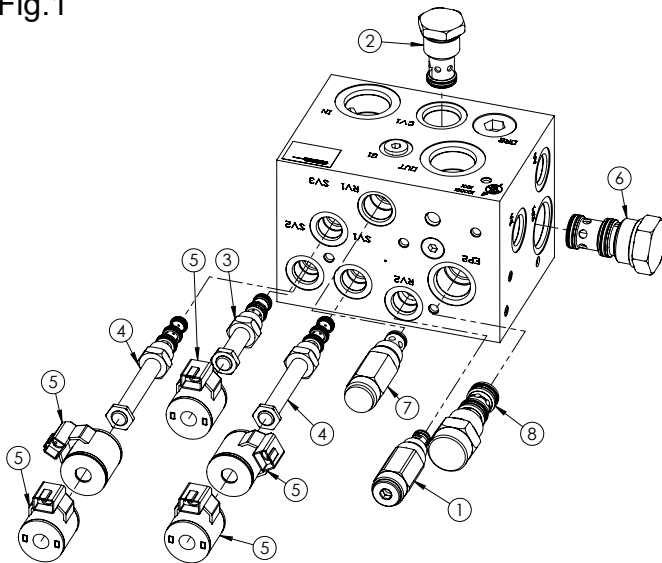
Item#	Part#	Description	A	B	B +
1	FF3-4 Male	Male Flat Face Coupler	1	1	1
2	FF3-4 Female	Female Flat Face Coupler	1	1	1
3	34648	Main Hyd Hose	2	2	2
4	6400-1216	Hyd Adapter	2	2	2
5	6400-1010	Hyd Adapter	2	2	2
6	34660	62" Auger Motor Hose	2	2	2
	34660	66" Auger Motor Hose	2	2	2
	34653	76" Auger Motor Hose	2	2	2
	34658	86" Auger Motor Hose	2	2	2
	34659	96" Auger Motor Hose	2	2	2
7	6400-1010	Hyd Adapter	2	2	2
8	23999	Auger Motor	1	1	1
9	52759	Valve Block Fig.1	1	1	1
10	6400-0606	Hyd Adapter	2	2	2
11	34650	Rotator Motor Hose	2	2	2
12	6801-0610	Hyd Adapter	2	2	2
13	52760	Rotator Motor	1	1	1
14	OL	O Ring 3/32 x .75 id	2	2	2
15	52761	Relief Valve	1	1	1
16	OL	Socket Head Cap Screw 5/16 x 1 1/2	4	4	4
17	6400-0606	Hyd Adapter	1	1	1
18	34661	Case Drain Hose	1	1	1

A - B - B+ Hydraulic Parts

Item#	Part#	Description	A	B	B +
19	6400-0604	Hyd Adapter	1	1	1
20	52762	Coupler 1 1/4" - 14	1	1	1
21	10410	Motor Clamp	2	2	2
22	OL	Bolt 5/8-18 x 2 1/2 c/w lw, n	4	4	4
23	52763	Fan Motor A package	1		
	52764	Fan Motor B package		1	
	24004	Fan Motor B + package			1
24	6400-1210	Hyd Adapter	2	2	2
25	34647	Fan Motor Hose	2	2	2
26	6400-1216	Hyd Adapter	2	2	2

Valve Parts

Fig.1



Item#	Part#	Description	Qty
1	53608	Relief	1
2	53609	Check	1
3	53610	Solenoid	1
4	53611	Solenoid	2
5	53612	Coil	5
6	53613	Logic	1
7	53614	Relief	1
8	53615	Logic	1
9	53616	Seal Kit	1

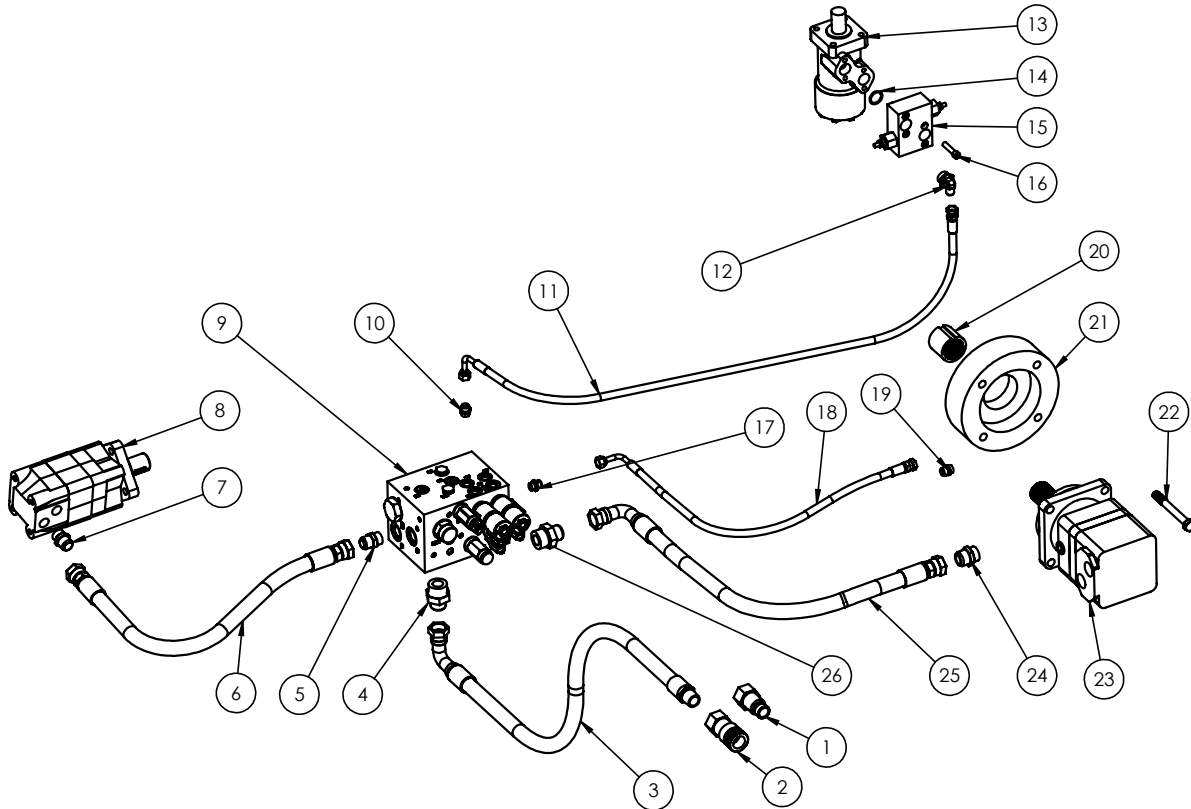
hydraulic Drive Parts

The following pages have the parts and part numbers for the various drive packages.

Please note that though the fittings and the hydraulic lines appear similar they are not necessarily the same.

When ordering parts please order from the proper drive package page.

C - C+ - D Hydraulic Parts



Item#	Part#	Description	C	C+	D
1	FF3-4 Male	Male Flat Face Coupler	1	1	
	FF 1 Male	Male Flat Face Coupler			1
2	FF3-4 Female	Female Flat Face Coupler	1	1	
	FF 1 Female	Female Flat Face Coupler			1
3	34648	C - C+ package Main Hyd Hose	2	2	
	34819	D package Main Hyd Hose			2
4	6400-1216	Hyd Adapter	2	2	
	6400-1616	Hyd Adapter			2
5	6400-1010	Hyd Adapter	2	2	2
6	34660	62" Auger Motor Hose	2	2	2
	34660	66" Auger Motor Hose	2	2	2
	34653	76" Auger Motor Hose	2	2	2
	34658	86" Auger Motor Hose	2	2	2
	34659	96" Auger Motor Hose	2	2	2
7	6400-1010	Hyd Adapter	2	2	2
8	23999	Auger Motor	1	1	1
9	52759	Valve Block Fig.1	1	1	1
10	6400-0606	Hyd Adapter	2	2	2
11	34650	Rotator Motor Hose	2	2	2
12	6801-0610	Hyd Adapter	2	2	2

C - C+ - D Hydraulic Parts

Item#	Part#	Description	C	C+	D
13	52760	Rotator Motor	1	1	1
14	OL	O Ring 3/32 x .75 id	2	2	2
15	52761	Relief Valve	1	1	1
16	OL	Socket Head Cap Screw 5/16 x 1 1/2	4	4	4
17	6400-0606	Hyd Adapter	1	1	1
18	34661	Case Drain Hose	1	1	1
19	6400-0606	Hyd Adapter	1	1	
	6400-0604	Hyd Adapter			1
20	52765	Coupler 1 1/2" - 17	1	1	1
21	10319	Motor Spacer	1	1	
	20253	Motor Spacer			1
22	OL	Bolt 1/2 x 4 1/2 c/w lw, n	4	4	
	OL	Bolt 1/2 x 3 c/w lw, n			4
23	24001	Fan Motor C package	1		
	24003	Fan Motor C+ package		1	
	24006	Fan Motor D package			1
24	6400-1212	Hyd Adapter	2	2	
	6400-1616	Hyd Adapter			2
25	34647	C - C+ Fan Motor Hose	2	2	
	34820	D Fan Motor Hose			2
26	6400-1216	Hyd Adapter	2	2	
	6400-1616	Hyd Adapter			2

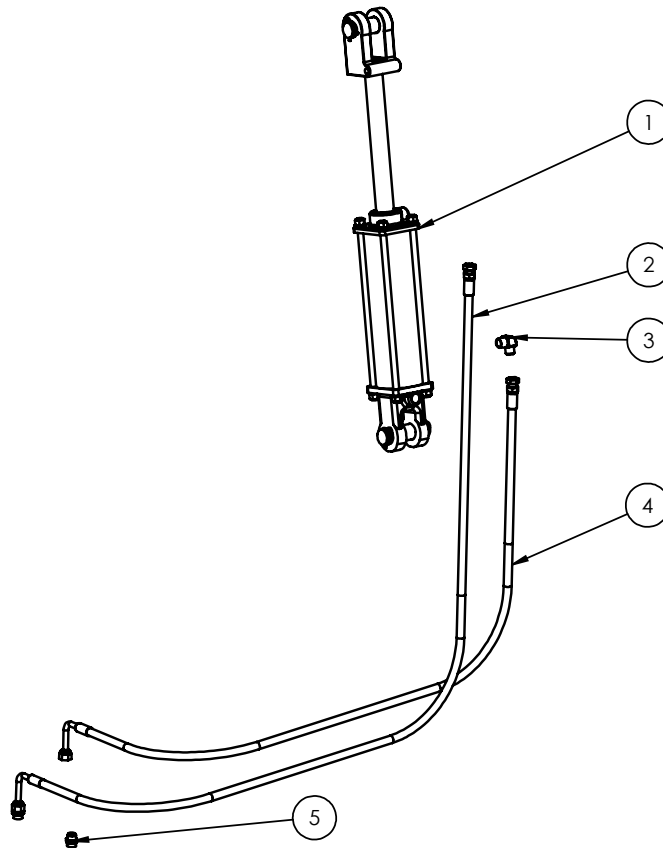
hydraulic Drive Parts

The following pages have the parts and part numbers for the various drive packages.

Please note that though the fittings and the hydraulic lines appear similar they are not necessarily the same.

When ordering parts please order from the proper drive package page.

Hydraulic Deflector Parts



Item#	Part#	Description	Qty.
1	52766	Hydraulic cylinder 2 1/2 x 8	1
2	34652	Long Deflector Hose	1
3	2501-0606	Hyd. Adapter	2
4	34651	Short Deflector Hose	1
5	6400-0606	Hyd. Adapter	2

Note:

Abbreviations used

OL - Obtain Locally
c/w - Complete With
lw- Lockwasher
fw - Flatwasher
n - Nut
ln - Locknut

Meteor Skid Steer Blower General Maintenance

- Check hydraulic lines periodically to ensure that they are not rubbing on the frame
- Be on the lookout for loose nuts and bolts, *tighten as required*
- The electric chute control should not need a lot of attention. Check for wires that may be rubbing or catching on the frame

Lubrication

- Auger Bearing - grease sparingly every 20-40 hours. *By using too much grease the seals will be forced off the bearing and allow dirt and debris to contaminate the bearing*
- Auger -- drive end -- there is a grease fitting on the auger core to lubricate the drive spline. Grease 1 shot every 50-100 hours. This avoids undue wear of the splines in the coupler.

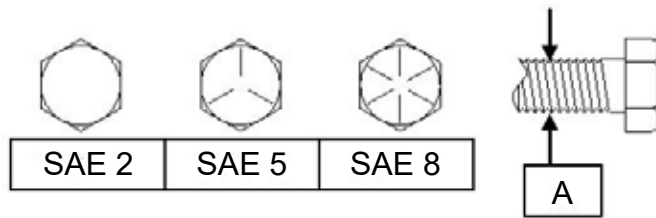
Bolt Torque

As used on this machine

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

Torque Specifications. Torque values are identified by their head markings.

Diameter	SAE 2		SAE 5		SAE 8	
"A"	<i>ft-lb</i>	<i>N.m</i>	<i>ft-lb</i>	<i>N.m</i>	<i>ft-lb</i>	<i>N.m</i>
1/4	6	(8)	8	(11)	12	(16)
5/16	11	(15)	17	(24)	25	(33)
3/8	20	(27)	31	(42)	44	(59)
7/16	32	(43)	49	(67)	70	(95)
1/2	49	(66)	76	(105)	105	(145)
5/8	97	(130)	150	(205)	210	(285)
3/4	144	(195)	265	(360)	375	(510)
7/8	165	(225)	430	(585)	605	(820)
1	250	(340)	645	(875)	910	(1230)
1 1/8	355	(480)	795	(1080)	1290	(1750)
1 1/4	500	(680)	1120	(1520)	1820	(2460)
1 1/2	870	(1180)	1950	(2640)	3160	(4290)



Allen head cap screw are similar to SAE 8 quality

These torques are for 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.



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