



L.T. Rich Products, Inc.

OWNERS MANUAL

Snowrator Zx4



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SECTION 1

TO THE OWNER

1.1 Read this manual entirely **BEFORE** operating the Snowrator

The information presented herein will prepare you to operate the L.T. Rich Snowrator in a safe and knowledgeable manner. Operating the Snowrator in a proper manner will provide a safer working environment, create more efficient results and promote higher quality.

Keep this manual on hand at all times for ready reference. The tested safety and design(s) of the Snowrator is dependent upon its operations within the guidelines and limitations outlined in this manual. Operating the Snowrator outside of the stated safety guidelines presented in this manual run the risk of injury and a void in the warranty.

1.2 Product Registration

Immediately record the model and serial number of your Snowrator in the spaces below. These numbers can be found affixed to the cross bar under the kneepad of the unit. Providing this information to departments within L.T. Rich products will help assure that you get the correct parts, informed about any updates or product reviews.

Serial Number: _____

1.3 L.T. Rich Products, Inc Warranty

L.T. Rich Products, Inc warrants its line of equipment to be free of defects in material and factory workmanship for a period of 12 months of purchase. Any exception to this will be explicitly stated in an individual warranty agreement in the operator's manual of that stated piece of equipment. This statement does not limit engine warranties in which the engine manufactures carry extended time periods beyond the 12 months.

Replacement parts that carry 90-day warranty and are reimbursed to the dealer, net of prompt payment. All electrical and hydraulic parts are limited by this policy and will only be covered upon approval by L. T. Rich Products Service Department after inspection of part(s). The installation and removal of part will automatically place the part under the replacement parts warranty.

This guarantee is limited exclusively to equipment manufactured or supplied by L.T. Rich Products and is subject to the inspection and analysis by the company to conclusively identify or confirm the nature and cause of the failure.

L.T. Rich Products, Inc reserves the right to incorporate improvements in the material and design of its products without notice and is not obligated to make the same improvements to equipment previously manufactured.

L.T. Rich Products, Inc is not obligated under any warranty different from the warranty as published above.

1.4 Component Manufactures' Warranty

Some of the component parts of the Snowrator are warranted by their respective manufactures. These parts are:

Hydro-Gear Pump
Parker Wheel Motors
Honda Engine
Delevan Liquid Pump

The complete manufactures' warranty information for these components is located in the back of this manual. Contact L. T. Rich Products, Inc if you have any questions concerning warranties on these component parts.

1.5 Conditions Which Void Warranty

This warranty shall not apply to equipment which:

- Has had repairs of modifications not authorized by L. T. Rich Products, Inc
- Has been subject to abuse, improper maintenance, or improper applications

1.6 Warranty Exceptions

This warranty shall not apply to the following items:

- Wear items including sparks plugs, points & condensers, fuses, batteries, belts, filters, bearings, tires, lubricants, fluids and hopper implements.
- Damages to engine/drive systems caused by a lack of/or improper lubricants and/or fluids.
- Damages to engine/drive system caused by improper operations and/or maintenance.

SECTION 2 SAFETY INFORMATION

2.1 About This Manual

The purpose of this manual is to assist you in properly and safely operating and maintaining the Snowrator. Read and understand this entire manual before attempting to set-up, operate, adjust, perform maintenance on, or store the Snowrator. This manual provides essential information and instructions, which will help you enjoy years of dependable performance from the Snowrator.

The designed and tested safety of the Snowrator is dependent upon its operations within the parameters and limitations explained in this manual. Be familiar with and follow all safety rules in this manual as well all safety rules for any related equipment.

Although these instructions have been complied through extensive field experience and engineering data, some information presented herein may be generated in the nature due to unknown and/or varying operating conditions. However, these instructions, combined with your increased experience with the Snowrator, will enable you to develop procedures suitable to your particular application.

The illustrations and data used in the manual were current at the time of printing, but the Snowrator may vary slightly due to ongoing engineering changes. L. T. Rich Products, Inc reserves the right to implement engineering and design changes to the Snowrator as may be necessary without prior notification.

2.2 Safety Guards and Covers

Safety is a primary concern in the design and manufacturing of all L. T. Rich Products. Unfortunately, our extensive efforts to provide safe equipment can be negated by a single careless act of an operator. In addition to the design and configuration of the Snowrator, hazard control and accidents prevention are also dependent upon the awareness, condition, maintenance, and storage of the Snowrator. ***THE BEST SAFETY PRACTICE IS AN INFORMED, CAREFUL OPERATOR!!***

Safety guards are mounted around the engine and Hydro-Gear Pump coupler. These guards are designed to cover the hydro coupler and the engine to protect the operator. Removing these guards could cause injury to an operator and could void the Z-Spray's warranty. Remove these guards **ONLY** when unit is turned off to do preventative maintenance.

2.3 Operational Safety Rules

Never operate the Snowrator without all covers, shields, and safety devices installed and secured.

Never permit any person other than the operator to ride or board the Snowrator at any time. ***NEVER ALLOW RIDERS!!!***

Use extreme care and maintain minimum ground speed when transporting on a hillside or over rough ground, and when operating close to ditches, fences, or water.

The owner/user can prevent and is responsible for accidents or injuries occurring to himself or herself, other people.

Never allow anyone near the Snowrator while in operation.

Only operate machine from the operator's platform (Foot Pan), ***never*** operate machine when standing on the ground.

Be alert for holes in the terrain as well as any other hidden hazards. Always drive slowly over rough ground.

Never operate this machine on slopes or grades exceeding 10 degrees in any direction.

NOTE: To operate on terrain that exceeds these limits constitutes misuse of the equipment and as such, any and all injuries as a result of said use are expressly disclaimed.

2.4 Maintenance Safety Rules

Never perform maintenance on the Snowrator when children are present.

Never allow anyone near the operation controls while performing service or maintenance to the Snowrator.

Keep the Snowrator engine area free of accumulated debris, fuel, or excess grease and oil to prevent fire hazard.

Periodically tighten all nuts, bolts and screws and check that all fasteners are properly installed to ensure that the Snowrator is in safe operating condition.

2.5 Storage Safety Rules

Never store the Snowrator in any area accessible by children.

Never store the Snowrator with fuel in the tank inside a building where fumes could reach an open flame or spark.

Allow the Snowrator engine to cool before storing in an enclosed area.

Lubricate all moving parts of the Snowrator to prevent rust during storage.

Remove all accumulated debris from the Snowrator and attachments before storing.

Always shut the fuel “**OFF**” when not in use and storing

SECTION 3 MAINTENANCE

3.1 Engine Maintenance (13 HP electric and pull start engine)

****USE COMPRESSED AIR (NOT WATER) WHEN CLEANING ENGINE****

Use only original equipment replacement parts. Other parts may not perform as well, may damage unit, and may result in injury (Engine Manual)

Oil Recommendations: Manufacturer recommends the use of certified oils for best performance. Use 4-Stroke automotive detergent oil of API service class SE or higher grade

Outdoor temperatures determine the proper oil viscosity for the engine. Use the chart to select the best viscosity for the outdoor temperature range expected.

If the oil level is below the ADD mark, add oil until it reaches the FULL mark. Start the engine and check for proper pressure before continuing to operate.



(oil drain hose located on left side)



(pull drain plug to side of frame)

Fuel Recommendations: Fuel must meet these requirements

- Clean, fresh, unleaded gasoline.
- A minimum of 87 octane/87 AKI (91 RON).
- DO NOT FILL above the top of the fuel filter screen or the fuel may overflow when it heats up later and expands

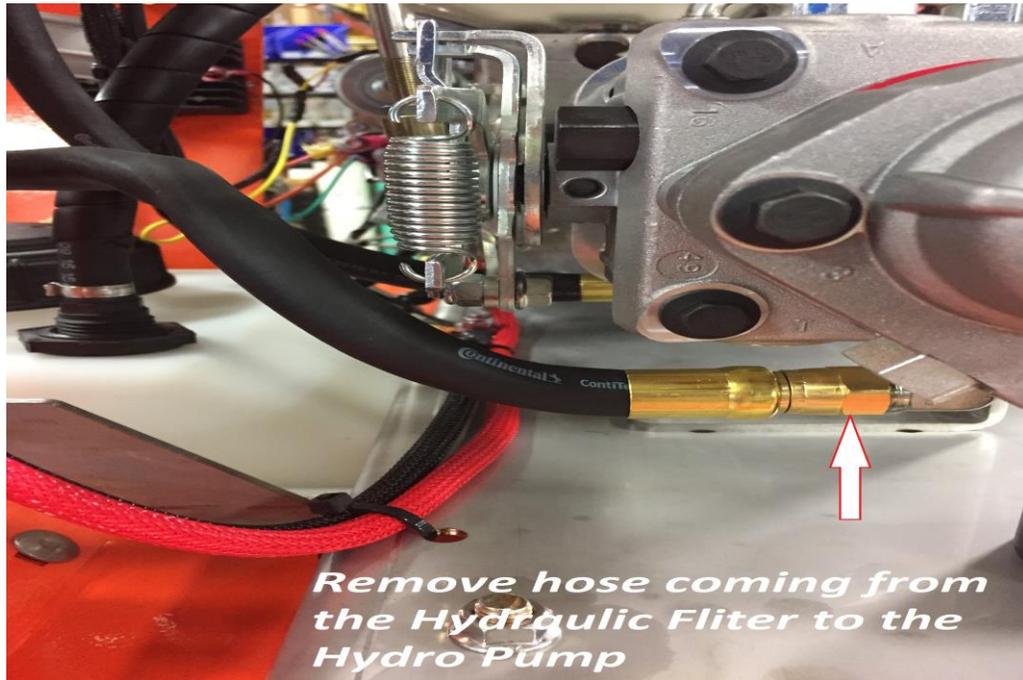
Full Maintenance Information Can Be Located In the Engine Manual Provided

3.2 Hydraulic System Maintenance

Hydro-Gear recommends that the fluid and filter(s) be changed every 500 hours. Use any type of motor oil in a **5W-40 Synthetic or equivalent**.

Hydraulic system requires 25 micron hydraulic filters (part # 80404) or equivalent to be used.

Check for hydraulic leaks daily to ensure proper fluid levels.



****Remove line(s) coming from the filters (at hydro pump end) to drain fluids****

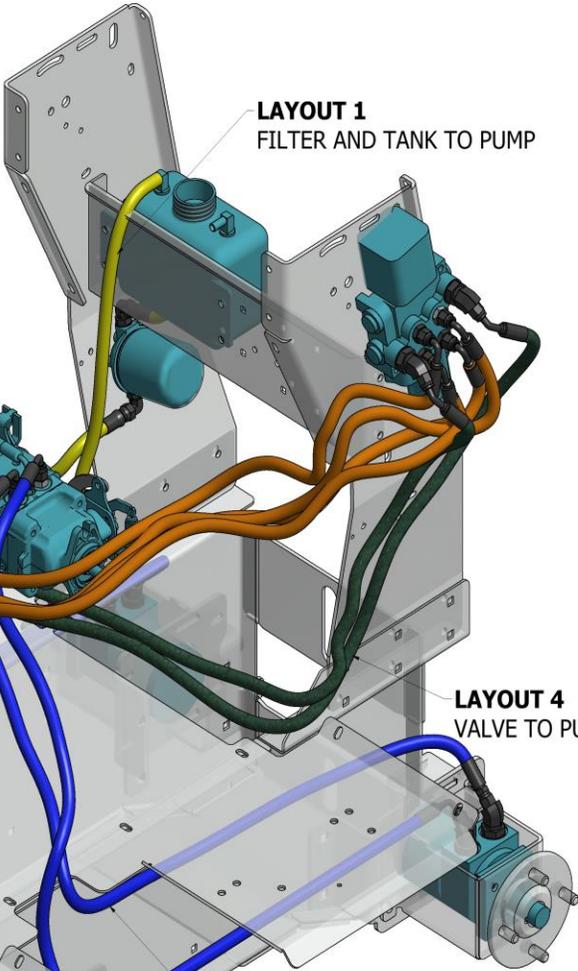
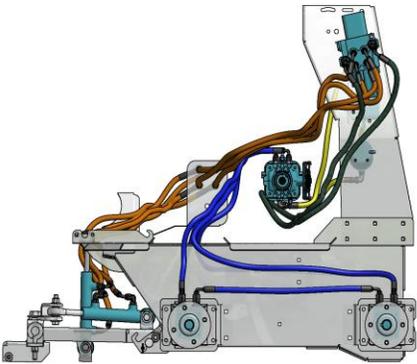
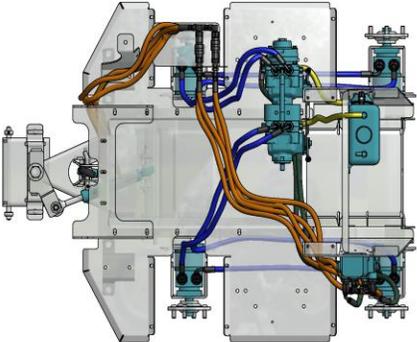
After draining fluids, re-install hydraulic lines and tighten. Remove Hydraulic Filter and replace with part # 80404 or equivalent. Tighten down and mark the hours the unit currently has on the filter (with permanent marker). Remove Hydraulic Tank cap and fill to mark (approximately 2/3rd to the top of tank) and re-install Tank Cap. Lift the unit completely (all 4 wheels) off the ground so that you can run the tires in the forward and reverse positions without the unit moving to bleed any air from the lines. Turn the unit on and slowly run the rear wheels forward and then backward (repeating this process a few times). This will purge any unwanted and unneeded air out of the system.



(unit wheels off the ground)

Turn off the unit and bring the unit back down to the ground. Turn unit on and move the unit forward and backward a few times. Hydraulic oil change completed.

SNOWRATOR HYDRAULICS



LAYOUT 1
FILTER AND TANK TO PUMP

LAYOUT 3
VALVE TO CYLINDER

LAYOUT 4
VALVE TO PUMP

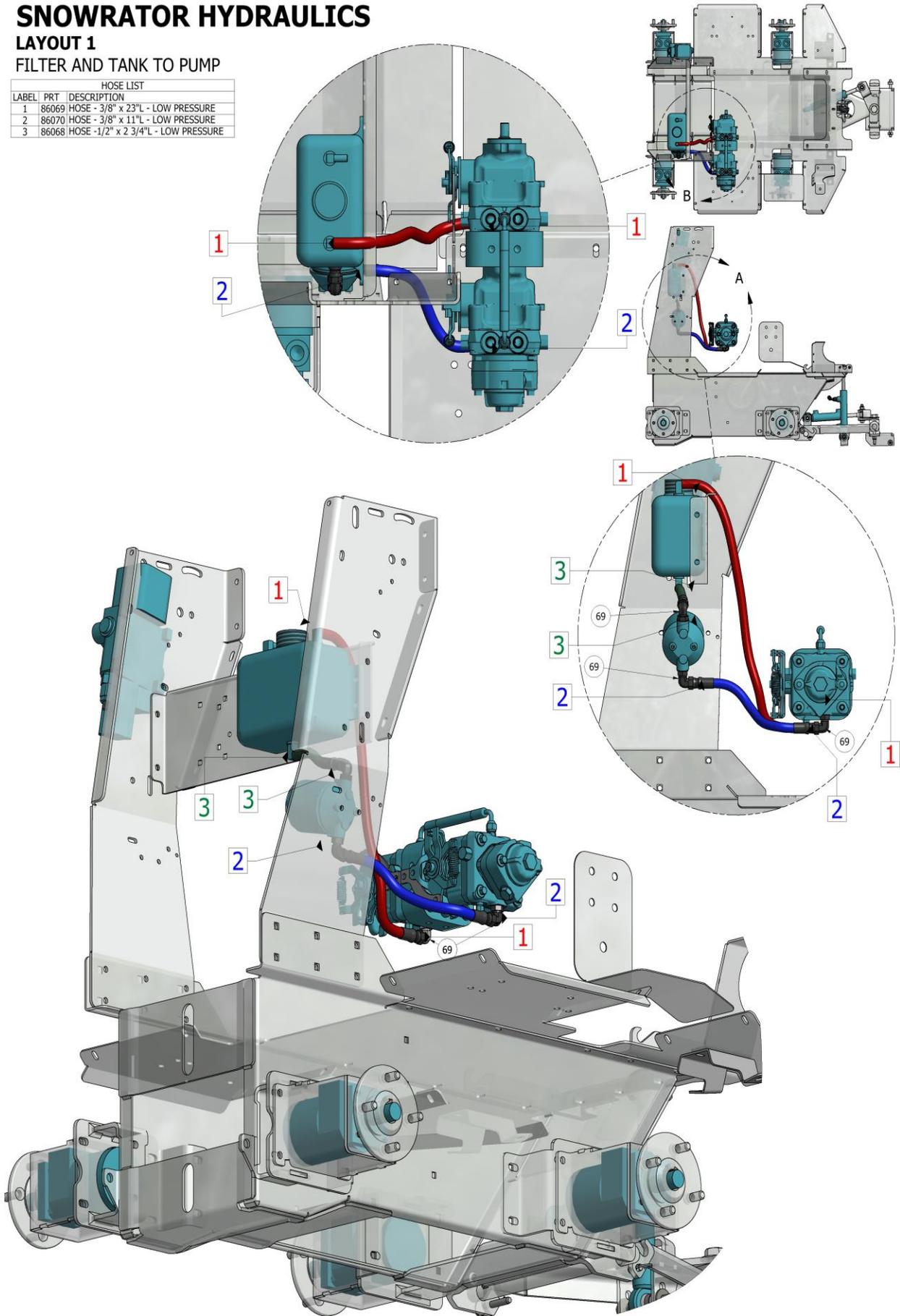
LAYOUT 2
PUMP TO WHEEL MOTORS

SNOWRATOR HYDRAULICS

LAYOUT 1

FILTER AND TANK TO PUMP

HOSE LIST		
LABEL	PRT	DESCRIPTION
1	86069	HOSE - 3/8" x 23"L - LOW PRESSURE
2	86070	HOSE - 3/8" x 11"L - LOW PRESSURE
3	86068	HOSE - 1/2" x 2 3/4"L - LOW PRESSURE

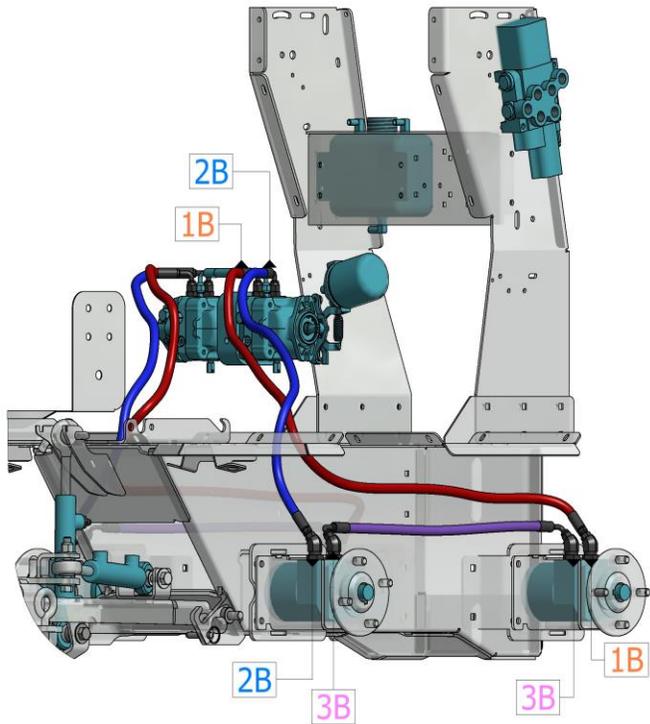
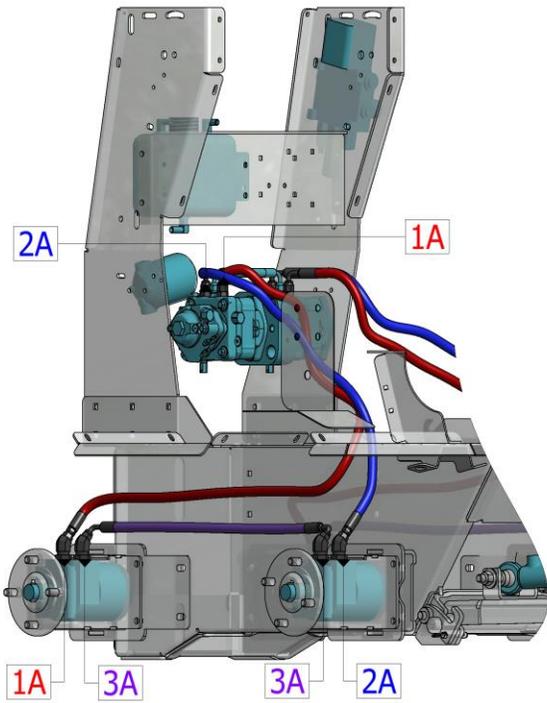
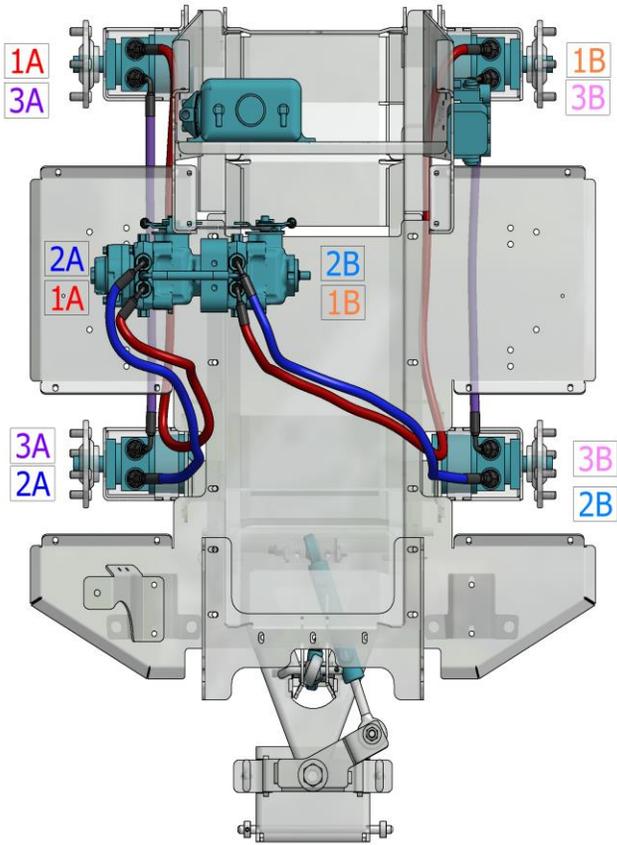


SNOWRATOR HYDRAULICS

LAYOUT 2

PUMP TO WHEEL MOTORS

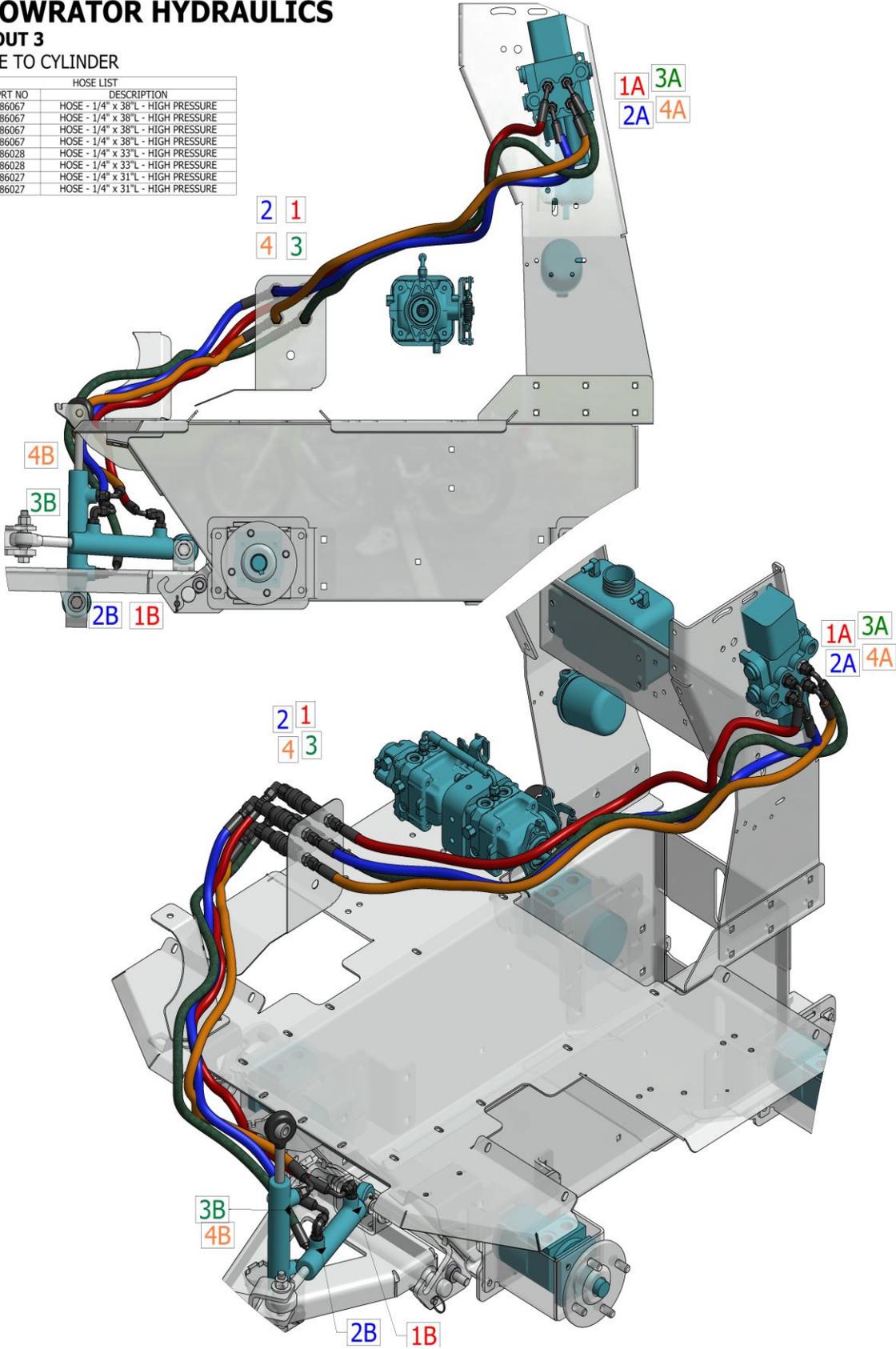
HOSE LIST		
LABEL	PRT NO	DESCRIPTION
1A	86062	HOSE - 3/8" x 48" L - HIGH PRESSURE
2A	86061	HOSE - 3/8" x 26" L - HIGH PRESSURE
3A	86060	HOSE - 3/8" x 21" L - HIGH PRESSURE
1B	86064	HOSE - 3/8" x 50" L - HIGH PRESSURE
2B	86063	HOSE - 3/8" x 28" L - HIGH PRESSURE
3B	86060	HOSE - 3/8" x 21" L - HIGH PRESSURE



SNOWRATOR HYDRAULICS

LAYOUT 3 VALVE TO CYLINDER

HOSE LIST		
LABEL	PRT NO	DESCRIPTION
1A	86067	HOSE - 1/4" x 38"L - HIGH PRESSURE
2A	86067	HOSE - 1/4" x 38"L - HIGH PRESSURE
3A	86067	HOSE - 1/4" x 38"L - HIGH PRESSURE
4A	86067	HOSE - 1/4" x 38"L - HIGH PRESSURE
1B	86028	HOSE - 1/4" x 33"L - HIGH PRESSURE
2B	86028	HOSE - 1/4" x 33"L - HIGH PRESSURE
3B	86027	HOSE - 1/4" x 31"L - HIGH PRESSURE
4B	86027	HOSE - 1/4" x 31"L - HIGH PRESSURE



3.3 Traction Unit Maintenance

Inspect wheels every 25 hours for damage, debris, and proper installation.

Inspect all bolts, washers, nuts, pins and other mounting hardware of Snowrator once a week to ensure that hardware pieces are properly tightened.

3.4 Snowrator System Maintenance

The Snowrator has a liquid spray system designed for both liquid de-icing and turf application. Maintaining this system properly will ensure you years of use, proper calibration and limit premature wear.

The spray system has a liquid storage tank of 20 gallons that can disperse a host of liquid and/or wettable powder. To get maximum life and performance out of the spray system, it is recommended that the tank, nozzles and hoses be flushed of all products after each use. Storing product in system for an extended time may cause build up in hoses, premature cracking on hoses, creating leaks in the hoses, clogged nozzles and filters, and a host of other potential liquid system challenges (depending on your water source, not draining the water out of the system and storing the Snowrator dry can create algae build up).

Make sure that both In-line filter screen and nozzle tip screens are checked daily and cleaned if needed. Clogged filters can lead to improper liquid dispersal and will create inaccurate spray rates.

Keep hose reel valve in closed position when not in use. This will prevent the boom nozzles from dripping due to pressure build-up in the coil hose.

Check 5 psi check ball screens daily. Build up on screen will create clogging and inaccurate spray rates. Clogged screens can damage or hinder screens from working properly.

Check spray system In-line filter rubber seal daily. Improper seal placement, missing seal or filter not tightened down can create lose in pump pressure.

Check spray tips daily for any clogging of materials or foreign objects.

Clean out tank on daily basis for proper storing.

3.5 Spreader Maintenance (optional attachment)

****USE COMPRESSED AIR (NOT WATER) WHEN CLEANING HOPPER****

The *Snowrator Zx4* can be equipped with a granular/salt spreader. Recommended maintenance suggestions are as follows:

Lubricate (Silicone Spray) Hopper, Deflector and Diffuser cables weekly.

Clean debris and product from Hopper daily to eliminate build up.

Keep hydraulic hose fittings tight and free of leaks.

Be sure that guides (4) are not damaged to allow the hopper door to slide freely

Check agitator wire on a daily basis. If wire is not present, product will run the risk of building up prior to reaching hopper door and not spreading evenly.

SECTION 4 SNOWRATOR OPERATIONS

4.1 Operations

Upon turning the key on to start the unit, apply full choke. The manual Choke is located just above the “Fuel Shut Off” on the engine (picture # 1). Push Choke lever away from the operator and toward the front of the machine. Once the unit is started, push the Choke lever back toward the operator to shut choke off (picture #2) . Once unit has started, move the Throttle lever (***always turn down Throttle to the lowest position before starting and before turning off the unit***) to a desired position for operations.

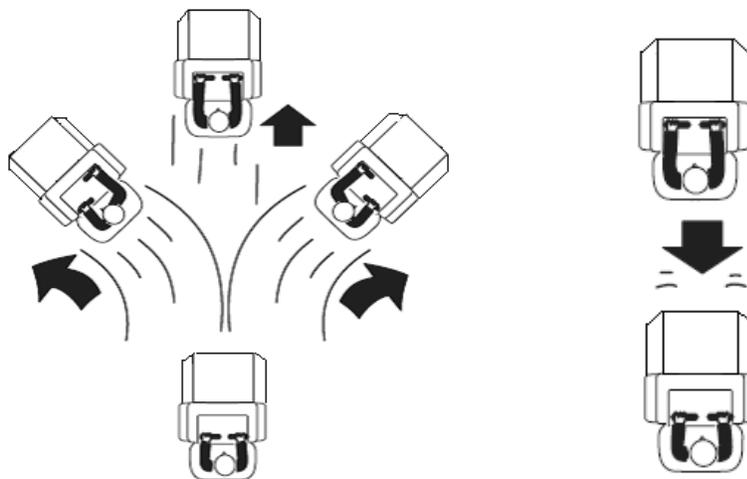


(picture #1)

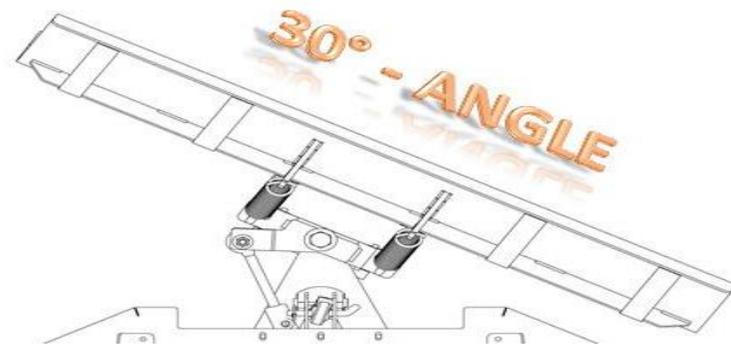
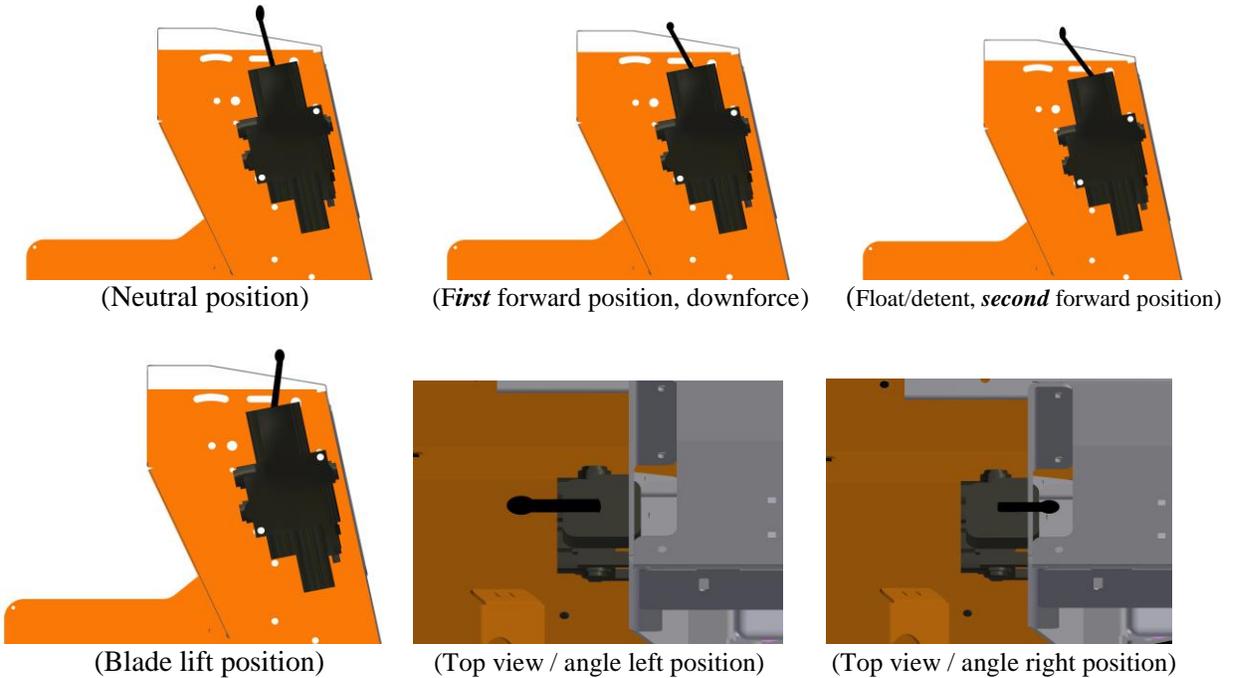


(picture #2)

Push Joy Sticks forward (equally) to have the unit move straight. Should you want to unit to back up in the reverse direction, pull back on the Joy Sticks. If a turn is desired, push opposite Joy Stick of the direction you want the unit to head forward (if wanting to turn left, push the right lever forward while keeping the left lever slightly back of the right thus allowing the right tire to turn more than the left. Push more on the left lever if you desire to turn the unit to the right). Be cautious as turn radiuses change with the speed you are going and the amount each Joy Stick is positioned forward or backward positions.



The blade control *Joystick Valve* has 5 positions of operation. Pulling back on the Joystick Valve will raise the blade to the up position (off the ground for transport or transition). Pulling the Joystick Valve to the left tilts the blade to the left allowing to angle the snow to the left. Pulling the Joystick Valve to the right tilts the blade to the right allowing to angle the snow to the right. Pushing the Joystick Valve forward to the *FIRST* forward position from center lowers the blade with down-force pressure for plowing. Pushing the Joystick Valve forward to the *SECOND* position gives *FLOAT* to the blade.



Always turn fuel "OFF" when transporting or storing Snworator



4.2 SPRAYING OPERATIONS

The *Snowrator* spray system has a liquid storage tank of 20 gallons that can disperse a host of liquid and/or wettable powder. To get maximum life and performance out of the spray system, it is recommended that the tank, nozzles and hoses be flushed of all products after each use. Storing product in system for an extended time may cause build up in hoses, premature cracking on hoses, creating leaks in the hoses, clogged nozzles and filters, and a host of other potential liquid system challenges (depending on your water source, not draining the water out of the system and storing the Snowrator dry can create algae build up).

Make sure that both In-line filter screen and nozzle tip screens are checked daily and cleaned if needed. Clogged filters can lead to improper liquid dispersal and will create inaccurate spray rates.

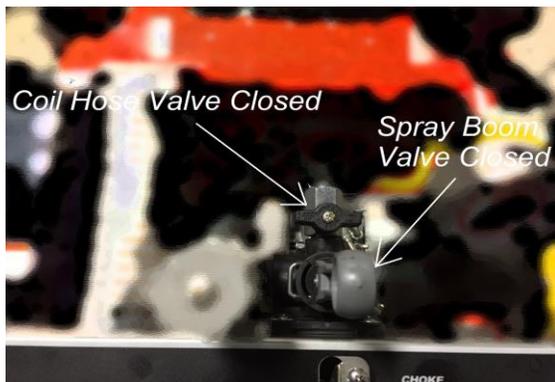
Keep hose reel valve in closed position when not in use. This will prevent the boom nozzles from dripping due to pressure build-up in the coil hose.

Check 5 psi check ball screens daily. Build up on screen will create clogging and inaccurate spray rates. Clogged screens can damage or hinder screens from working properly.

Check spray system In-line filter rubber seal daily. Improper seal placement, missing seal or filter not tightened down can create lose in pump pressure.

Check spray tips daily for any clogging of materials or foreign objects.

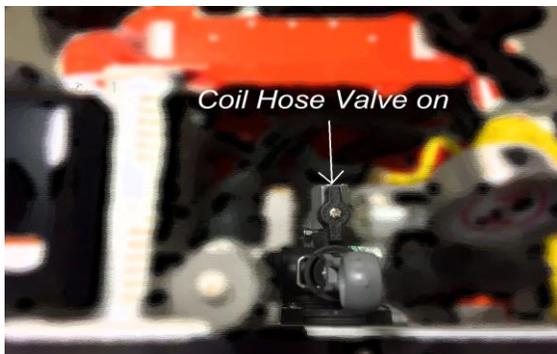
Clean out tank on daily basis for proper storing.



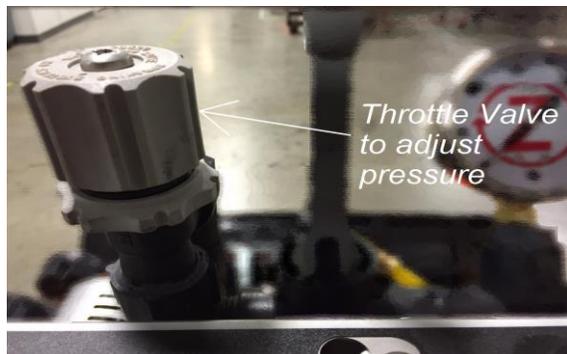
(Spray System shut off)



(Spray Boom Valve on)



(Coil Hose Valve ON)



(Throttle Valve to adjust pressure)

4.3 Spreader Operation (Optional)

The *Snowrator* unit has an optional 120 lb. spreader that can be mounted to the machine. This electric hopper motor with the spreader control rate knob allows variable spread widths from 3 to 25 feet. This depends on volume/density, particle size and rate of travel, and weather conditions. The pattern can be increased or decreased while spreading depending on needs. The spread thins or feathers at the outer edges, eliminating sharp “*edge of spread*” lines, which cause stripes and streaks. Determine a dial setting on the low side. If setting is too low, cover the area more than one time. A higher setting can be used when a proven dial setting is established. Travel at a constant speed for consistent results. **Remember-Published dial settings are *approximate* only. Open the hopper door after the spreader is turned on at operating speed.**

Using the spreader system, there are 3 cables to operate the hopper door (far left cable), the diffuser (middle cable) and the deflector shield (lower right cable). By pulling on the far left hopper door cable, this will open the door and allow product to fall on the spinner.

Adjustments as to how wide the door opens are made on the front on the hopper with the white knob (Rate Dial). This limits how wide the door will open and how much granular product will be coming out. The diffuser cable (middle cable) controls the spread pattern. Turning the cable knob counter-clockwise will loosen the cable lock and allow you to adjust (pull further out or push further in) this cable. Doing this will allow you to spread salt/granular product heavier to the left, consistent in the middle or heavier to the right. Once you have adjusted to your desired pattern, turn the knob clockwise to lock in position.

The lower cable on the far right hand side is the deflector shield cable. This cable allows you to lift and lower the deflector shield accordingly. During normal spreading applications, the deflector shield would stay in the up position and cable would be extended out all the way. When wanting to close off the left side and use the deflector shield, push in the cable and the shield will drop down blocking off granular product on the left side. This cable is identical to the middle diffuser cable so needs to be turned counter-clockwise to loosen and then clockwise to lock in position

4.4 Spreader Calibration/Layout

The Spreader Motor Control determines the speed of the impeller in the front on the machine. The spreader is capable of varying its spread pattern from 3 – 25 feet with this control. Being electrically driven, the spread pattern is *independent* of the ground speed.

The hopper control cable opens and closes the door inside the base of the hopper. The maximum size of the opening will be determined by the rate adjustment on the knob dial. This will set your rate gate linkage bar to limit and stop the rate the door can open.

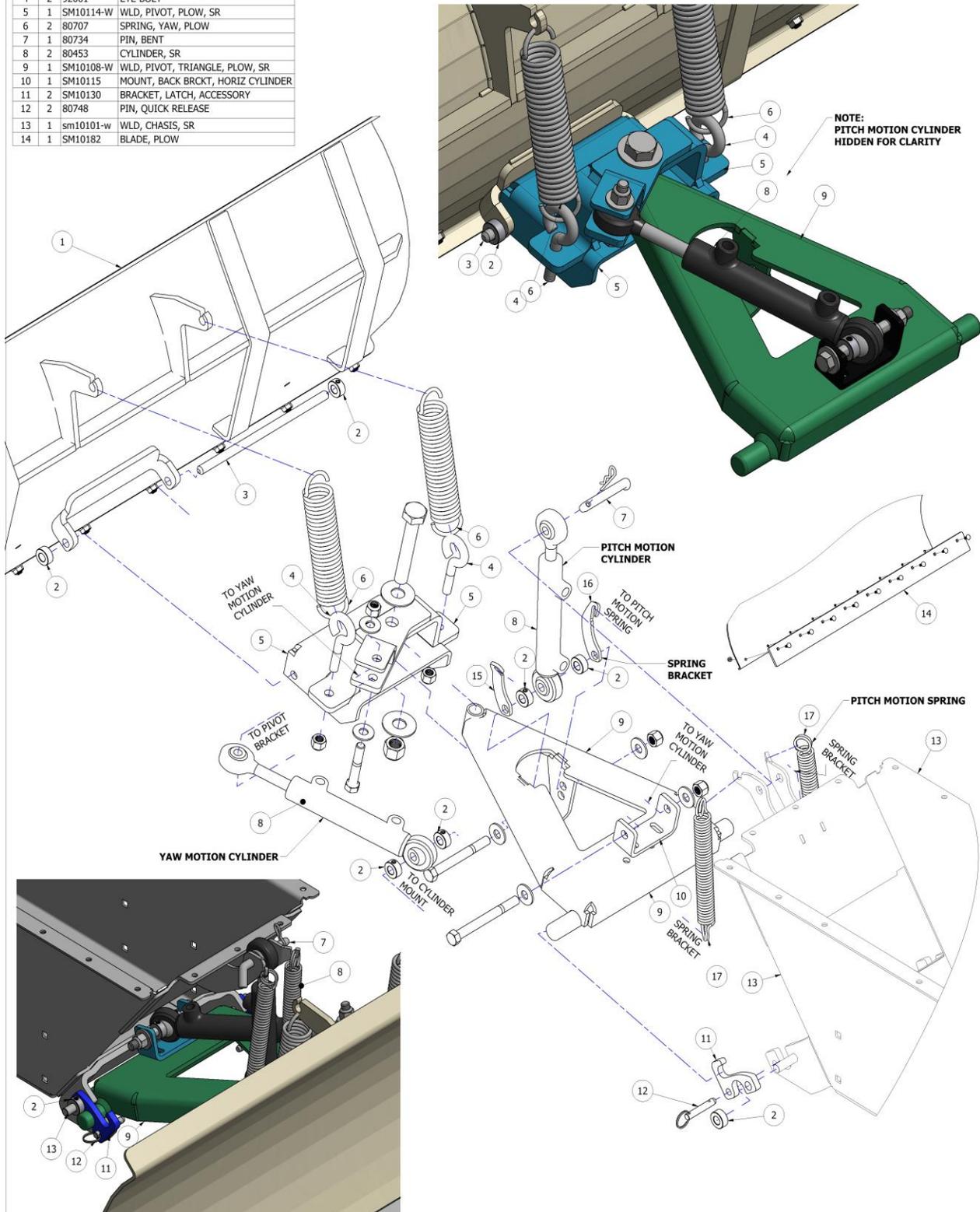
The Diffuser adjustment allows the user to adjust the intensity of the spread pattern (heavier left or heavier right). A small pull of the cable shifts the product placement on the impeller. This in turn balances the spread pattern heavier to the left (back side ramp) or heavier to the right (front side ramp). *FOR MORE DETAILED INFORMATION, GO TO WWW.SPYKER.COM

SECTION 5

PARTS

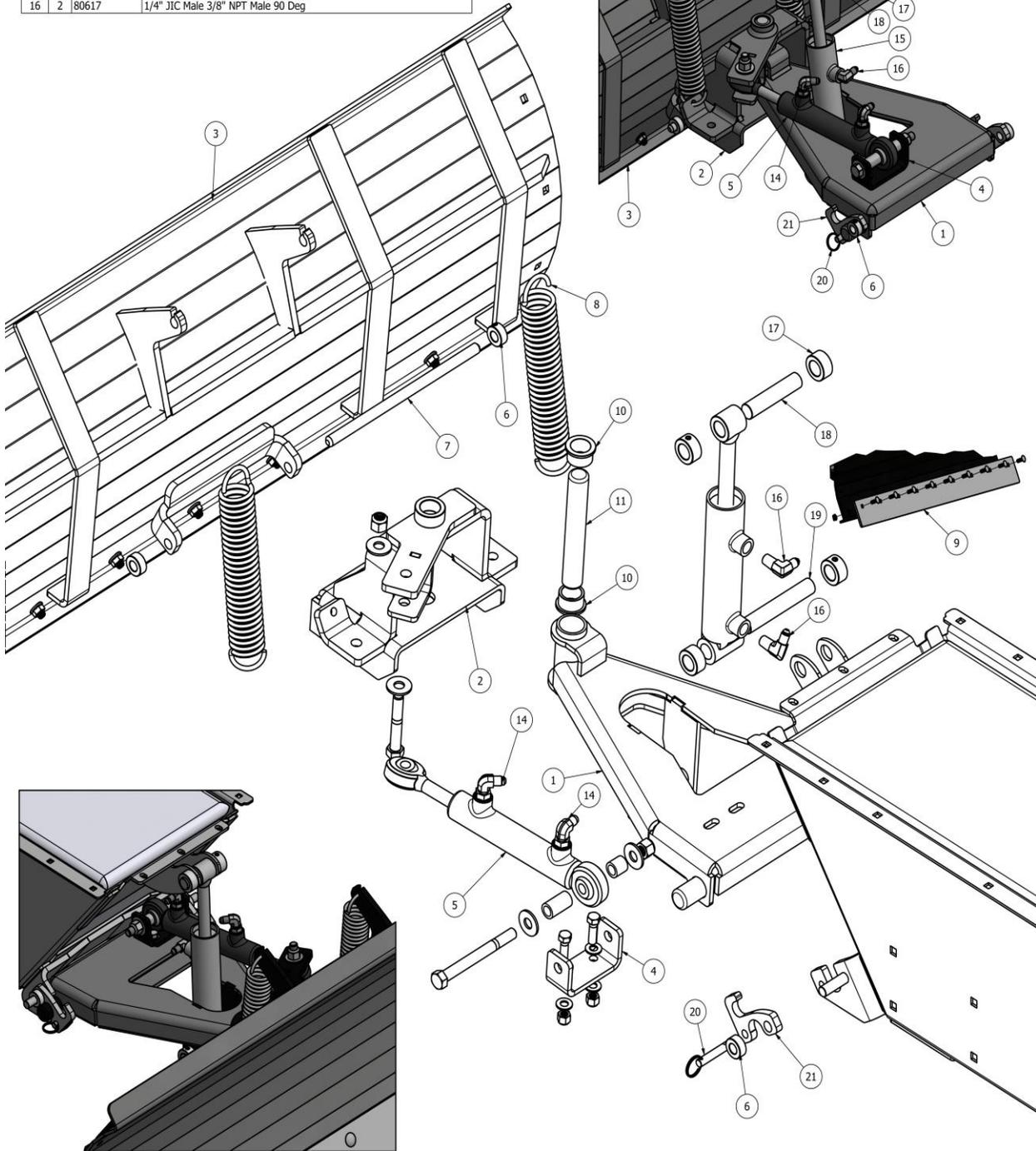
5.1 Part Number / Pictorial (Serial # SR4320-2015-001 to SR3620-2016-085)

SNOWRATOR PLOW - PARTS LIST				SNOWRATOR PLOW - PARTS LIST			
ITEM	QTY	PART NUMB	DESCRIPTION	ITEM	QTY	PART NUMB	DESCRIPTION
1	1	SM10180-W	PLOW, SR	15	1	SM10204	BRACKET, SPRING, SR, SS, 0.188
2	8	92002	COLLAR, SHAFT, 1"ID	16	1	SM10204-R	BRACKET, SPRING, SR, SS, 0.188
3	1	SM10200	ROD, PITCH PIVOT, PLOW	17	2	90416	SPRING, PITCH, PLOW
4	2	92001	EYE BOLT				
5	1	SM10114-W	WLD, PIVOT, PLOW, SR				
6	2	80707	SPRING, YAW, PLOW				
7	1	80734	PIN, BENT				
8	2	80453	CYLINDER, SR				
9	1	SM10108-W	WLD, PIVOT, TRIANGLE, PLOW, SR				
10	1	SM10115	MOUNT, BACK BRCKT, HORIZ CYLINDER				
11	2	SM10130	BRACKET, LATCH, ACCESSORY				
12	2	80748	PIN, QUICK RELEASE				
13	1	sm10101-w	WLD, CHASIS, SR				
14	1	SM10182	BLADE, PLOW				



5.1 Part Number / Pictorial (Serial # SR3620-2016-086 to current)

PARTS LIST				PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	SM10108-W	WLD, PIVOT, TRIANGLE, PLOW, SR	17	4	.750 COLLAR	3/4"ID, SHAFT COLLAR
2	1	SM10114-W	WLD, PIVOT, PLOW, SR	18	1	SM10257	Lift Cylinder top rod 3/4" Diam. SS 3.5 in. L
3	1	SM10180-W	PLOW, SR, MS, 0.188	19	1	SM10258	Lift Cylinder bottom rod 3/4" Diam. SS 4.5 in. L
4	1	SM10115	MOUNT, BACK BRACKET, HORIZ CYLINDER, SR, MS, 0.25	20	2	80748	PIN, QUICK RELEASE
5	1	80453	1 in diam blade rotate cylinder	21	2	SM10130	BRACKET, LATCH, ACCESSORY, SR, MS, 0.375
6	4	92002	COLLAR, SHAFT, 1/2"ID				
7	1	SM10200	Plow Spring pivot Rod 1/2" Diam. 10.5" Long SS				
8	2	80707-Plow	SPRING, PLOW				
9	1	SM10182	BLADE, PLOW, SR, AR400, 0.250				
10	2	80304	FL BUSHING, 1 ID, 1.25 OD, 1.5 FL OD, .188 FL THK				
11	1	SM10214	ROD, PIVOT, PLOW, SR, MS, RND BAR, 1 OD x 6.25L				
12	1	SM10216	SPACER, SHRT, CYLINDER, SR, MS RND TUBE, .75 x .125 WALL x .75L				
13	1	SM10217	SPACER, LNG, CYLINDER, SR, MS RND TUBE, .75 x .125 WALL x .1.375L				
14	2	80441	1/4" JIC Male, 3/8 ORB Male 90 deg				
15	1	80454	1.5 in diam. Lift Cylinder				
16	2	80617	1/4" JIC Male 3/8" NPT Male 90 Deg				



Spot Spray Gun

<i>Part #</i>	<i>Description</i>	<i>Qty</i>
60040	Spot Spray Gun	1
60041	Spot Spray Tip	1
60029	¼" MPT X 3/8" Barb	1



5.2 Parts List

Parts List

80202	PUMP ON-OFF SWITCH\nCH-M-58031-01	1	ea
80210	12 VOLT BATTERY\nSS11U1L CCA350	1	ea
80215	KEY SWITCH\n4F463	1	ea
80214-A	TACH/HOUR METER	1	ea
80352-36R	JR 36R WHEEL HUB-4 HOLE (r only)	4	ea
80404	HYDRAULIC FILTER\nAA0513	1	ea
60010	DIRECTO VALVE AA6B	1	ea
60012	THROTTLE VALVE\n23520-3/4-PP	1	ea
60032	GAUGE\nRICH 60-25	1	ea
60014-A	4.0 GPM PUMP\n5940-111C W/BUTT CONNECTORS	1	ea
60061	INLINE STRAINER ASSEMBLY50 MESH\n122-3/4-PP-50	1	ea
60009	1/4" CHROME VALVE\n90FMB14	1	ea
80303	JOY STICK BUSHING\nKAMAN# EF 0812-12	4	ea
60050	HOSE 3/8"	17	ft
30675	JOY STICK GRIP	2	ea
30712	STRAINER CAP DECAL	1	ea
30400	VIBRATION ISOLATOR 2NPC5 JR36R	4	ea
80903	COIL HOSE	1	ea
80510	Throttle Cable	1	ea
80511	CHOKE CABLE	1	ea
30678	SPEED BAR KNOB	2	ea
60058	3/4' X 1/2'MPT RED. NIPPLE	1	ea
60024	1/2'MPT X 3/8' HB 90\n3EL1238	4	ea
60027	1/2'MPT X 1/2' HB 90\n3EL12	1	ea
60026	3/4'MPT X 1/2' HB 90\n3EL3412	1	ea
60022	1/2' FPT TEE\n3TT12	2	ea
60023	1/2' TO 1/4' BUSHING\n3RB1214	2	ea
60040	SPOT SPRAY GUN	1	ea
60041	SPOT SPRAY TIP #12	1	ea
30711	Oil Decal	1	ea
30706	SERIAL NUMBER DECAL	1	ea
30708	FOOT PLATE DECAL - JR36/36R	1	ea
80422	3/8 PUSH-ON SWIVEL (6)\n288-06-06	8	ea
80425	3/8 PIPE TO 3/8 PUSH-ON BRASS	1	ea
80405	HYDRAULIC FILTER HOUSING\nAA0530	1	ea
83067	Compression Foot Plate Spring W/HDWR	4	ea
60051	HOSE 1/2"	7	ft
S5DFA12	PUMP FITTING\n5DFA12 straight	1	ea
S5DFE12	PUMP FITTING\n5DFE12 90 degree	1	ea
80421	3/8' 90 DEG HYDRO PUMP FITTING(6)\n6801-06-06-4	2	ea
30402	LOVEJOY L095 1" COUPLER	1	ea
30401	LOVEJOY BUNA INSERT 68514411070	1	ea
30403	LOVEJOY L095 1/2" COUPLER	1	ea
80050	PLASTIC DECK WHEEL	2	ea

80205-36R	JR36R IGNITION HARNESS	1	ea
86036	36" JR36R HYDRO HOSE	1	ea
86024	23" JR36R HYDRO HOSE	1	ea
10058	bulkhead, 1/2" (hole requirement 1 1/4")	2	ea
60078	1/2 CPVC MIP Adapter	2	ea
EGB716-Black	7/16 Trim Lok Edging	3	ft
80620	JR36R WHEEL MOTOR RIGHT	2	ea
80621	JR36R WHEEL MOTOR LEFT	2	ea
80402-Tandem-REVBB	Pump, Axial Tandem Piston, w Aux Pump, 6cc	1	ea
80403-B	Tank, Hydro, 2QT, 36R, SR	1	ea
83390	11HP Honda Engine, 390cc ELECTRIC START, WITH KEY PANEL REGULATOR AND 18 AMP CHARGING	1	ea
83391	Remote Choke Attachment for Honda 11 HP Engine 390cc	1	ea
JCM06-OBM06-90-XL	JIC 37 MALE OR BOSS MALE 90 ELBOW EXTRA LONG	1	ea
86026	Hose Assembly 3/8" JIC Female Straight and JIC Female 90 - (Cut Length is 26") J36R Wheel Hose	1	ea
70101	1/2" CPVC Pipe	2.2	ft
86141-HT	JUNIOR 36R HOSE ASSEMBLY 7" X 30" X 40 CRIMPED ENDS, GOODYEAR INSTA-GRIP HOSE	1	ea
LTBC-27B	27" BLACK bATTERY CABLE	1	ea
JCF06-JCMRE08	JIC37 FEMALE X JIC MALE 3/8X1/2	1	ea
60123	TANK, WHITE, 20GAL, SR	1	ea
LTBC-33R	33" RED BATTERY CABLE	1	ea
80018	18X8.50-10 4x4" bolt pattern rim centered - BLACK	4	ea
80453	1' BORE X 4" STROKE, 5/8" ROD MAXIM WSB CYLINDER	2	ea
80748	3/8X1-1/2 SS COTTERLESS HITCH PIN	2	ea
30677-Snowrator	knee pad -snowrator	1	ea
20GAL SNOWRATOR STEEL KIT	20GAL SNOWRATOR STEEL KIT	1	ea
30727	ENGINE OIL DECAL	1	ea
30700-SNOW	DASH PANEL DECAL - SNOWRATOR	1	ea
70100-BLACK	TOOL HOLDER CLIP - BLACK VINYL COATED	2	ea
30726	Warning Tag - engine oil and fuel valve	1	ea
86006-A	hose assembly (cut length on hose is 7.375")	1	ea
86042-A	hopper 8.5" low pressure hose assembly	1	ea
100126s	Fuel treatment	1	ea
80449-4	CHIEF G SERIES WITH JOYSTICKS: 10 GPM; SAE 10 PORTS, 2 SPOOL 3625 PSI 1500-3625 PSI RELIEF	1	ea
86061	HOSE ASSEMBLY 3/8" JIC FEMALE STRAIGHT AND JIC FEMALE 90 (CUT LENGTH 26")	1	ea
86062	HOSE ASSEMBLY 3/8" JIC FEMALE STRAIGHT AND JIC FEMALE 90 (CUT LENGTH 48")	1	ea
86063	HOSE ASSEMBLY 3/8" JIC FEMALE STRAIGHTAND JIC FEMALE 90 (CUT LENGTH 28")	1	ea
86064	HOSE ASSEMBLY 3/8" JIC FEMALE STRAIGHT AND JIC FEMALE 90 (CUT LNGTH 50)	1	ea
86065	HOSE ASSEMBLY (CUT TO 44")	1	ea
86066	HOSE ASSEMBLY (CUT TO 40")	1	ea
86067	HOSE ASSEMBLY 1/4" JIC FEMALE STRAIGHT AND JIC FEMALE 90 (CUT LENGTH 38)	4	ea
86068	1/2" RETURN HOSE ASSEMBLY 2.75" CRIMPED JIC FEMALE SWIVEL ONE END, GOOD YEAR INSTA-GRIP HOSE	1	ea
86069	RETURN HOSE ASSEMBLY 23" CRIMPED JIC FEMALE	1	ea

	SWIVEL ONE END, GOODYEAR INSTA GRIP HOSE		
86070	RETURN HOSE ASSEMBLY 11" CRIMPED JIC FEMALE SWIVEL BOTH ENDS, GOODYEAR INSTA GRIP HOSE	1	ea
QD-FF-F-04-NPF04-S	F. FIRG 14NPT	5	ea
QD-FF-M-04-NPF04-S	M. FIRG 14 NPT	5	ea
80707-plow	Plow Spring Century # 614	2	ea
80213	SWITCH, ON/OFF, WITH LIGHT, SR	1	ea
90116	LIGHT, LED ROUND, SR	3	ea
3E4511	UMBRELLA KEY	1	ea
A83020	KEY SWITCH NUT A83020	1	ea
60062	1/2' CROSS \nCR050	1	ea
S3M12	NIPPLE 1/2'	1	ea
60029	1/4' MPT TO 3/8' BARB \n3A 1438	1	ea
80205-EXT	12" extension cable	1	ea
86060	HOSE ASSEMBLY 3/8" W/2 JIC FEMALE 90S-LONG (CUT LENGTH 21")	2	ea
LTRDRAIN2	11" ENGINE OIL DRAIN	1	ea
SJ3-04-VP	TIP, SJ3 STREAM JET RED	4	ea
SL025-90	STREET ELBOW, 1/4"	1	ea
2706LN-04-04	MP X BH MJ-MALE BULKHEAD CONNECTOR	4	ea
80432	AUX PUMP FITTING (2)\n6400-04-04	2	ea
80432-B	AUX PUMP FITTING (1)\n6500-06-04-4	2	ea
80489-45	3/8 JIC X 5/8ORB 45	10	ea
JCM06-MPM12-90	JIC 37 MALE X90	1	ea
80437	1/4 X 1/2 STRAIGHT FTG	4	ea
80441	HYD CYL FITTING (2)\n6801-04-06-4	1	ea
80430	PROPORTIONAL VALVE FITTING 2 (1)\n6400-06-06	1	ea
80435	LIFT VALVE ELBOW(3)\n2501-04-04-4	1	ea

6.1 Troubleshooting

Engine:

- Not starting. There are a few reasons as to why your engine fails to start. If the engine does not turn over, then the battery could be dead, bad connection to the battery wires, key switch may be bad, 30 AMP fuse on the wiring harness (orange wire) may be blown or the starter solenoid may be bad (you will hear the starter solenoid trying to click on, but nothing is happening). Another common reason for a unit not starting is after unit has been washed. Water gets into the spark plug boot and gets the spark plug wet. Pull spark plug boot and dry (spray WD-40).
- Engine turns over but doesn't start. There are a few reasons as to why your engine will turn over but not start. If the fuel valve is turned off (under fuel tank), loose or bad spark plug, water in fuel, choke partially closed or wet and/or fouled plugs.
- Engine won't stay running. Few things to look for if your engine does not stay running are clogged fuel filter, clogged and/or dirty air filter, fuel valve partially closed or water in fuel.

Hydraulics:

- Hydraulic system making loud noise when running. This could be caused by a couple of things. The most common is if there is air in the system. This can be caused when changing out a hydro pump, replacing a hydraulic hose or having a loose fitting on the intake lines. If air is not present, check for low levels in the system. This happens when there is a leak in the hydraulic system somewhere or hydraulic fluids were just changed and did not get back to the proper fill level.
- Need to tow my unit; what do I need to do in order to not ruin my hydro pumps?? There are Tow Valves on each of the hydro pumps (hex head with hole running through it on the left side rear of the hydraulic pump) that needs to be turn at least 1 ½ revolutions counter-clockwise to open the hydraulic system. Once the unit is brought to a desired location, remember to tighten the tow valves back tight (clockwise).

Tracking:

- Unit not tracking straight when pushing both control arms to the speed bar. This is caused when the linkage to the hydraulic pump is not even or a hydraulic pump is going bad. Traditionally the linkage needs to be adjusted so that they both have the same amount of pull. If it is pulling to the left, the left hydraulic pump linkage is longer than the right; you can either adjust the right to a longer linkage, or adjust the left to a shorter linkage to match the right.

Granular:

- There are numerous potential challenges that can happen on the granular side due to the amount of use this portion of the unit sees. If product is not spreading evenly or consistently, then look for a few things with your hopper impeller or hopper diffuser. If there is build up at the end of the Impeller tips or the tips are worn, this will cause an un-even and/or inconsistent spread pattern. Another factor in the spread pattern not being even is if your diffuser is not at factor position (in front of the hopper door opening so that the pattern is spreading evenly left to right).
- If granular product is leaking out from the hopper, determine where it is coming from and look at this repair options. If the granular product is leaking through the hopper shaft area, then your hopper bushing is worn. This will allow product to get in between the shaft and the hopper bushing. If granular product is leaking through the hopper door area, then door guides are loose or worn allowing a gap between the door and the hopper base. Also a potential factor is if the hopper cable is not completely closing the hopper door.
- When your hopper door cannot open, there are typically 3 things to look at. One is that your hopper cable may be frozen and locked up, the ball joint end may have broken off or there may be product jammed between the hopper door and the base (due to loose door guides).

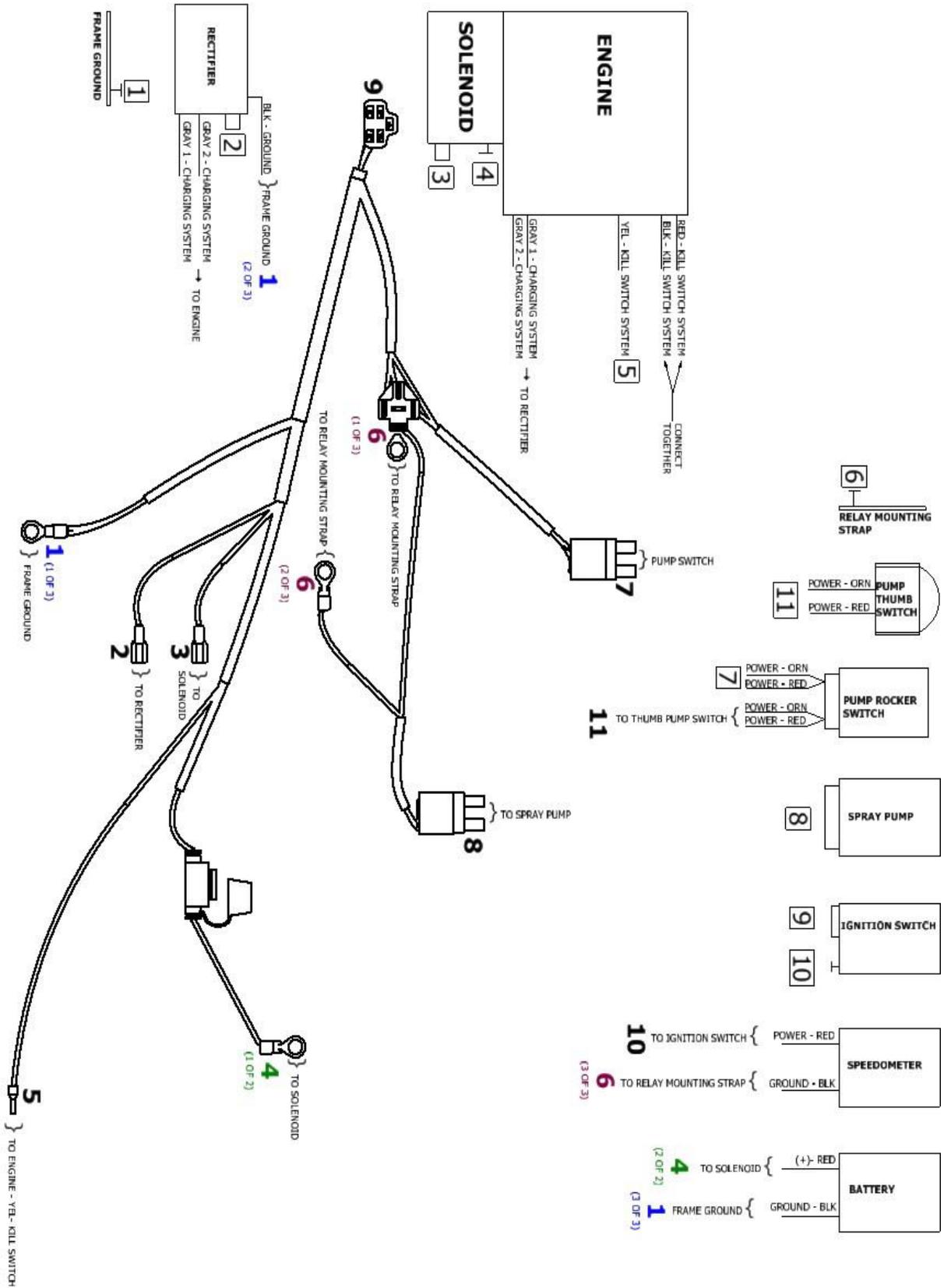
Spray System:

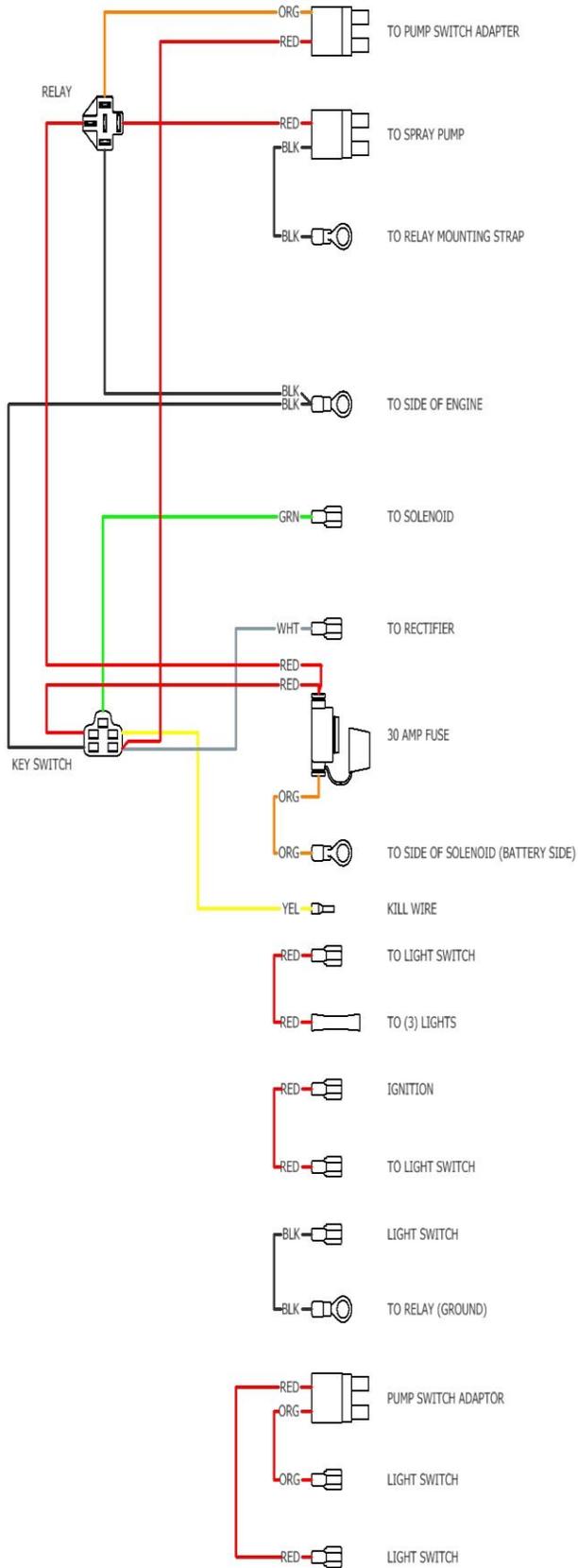
- Liquid is dribbling from the tips. This affect is potentially caused by a few things. If the nozzle body O-Ring is missing, the O-Ring in the In-line filter is missing, In-line filter housing not tight or the hose reel valve is open.
- Pressure not staying consistent. This is normally caused due to air being introduced to the system. Air is introduced in a few ways through the system. Air can come through one of the hose connections, the In-line filter housing not being tight or not having an O-Ring to seal housing, sucking air from an auxiliary tank or liquid level is too low.

Wiring Harness: (9.5 HP Subaru Engine)

- Wire Colors and Description
 - Green Wire (Starter Solenoid)
 - Yellow Wire (Engine Shut Off)
 - White Wire (Fuel Solenoid / Accessories)
 - Black Wire (Ground)
 - Orange Wire (Key Switch Power)
 - Red Wire (Charging System)

Honda Engine Wiring Harness Schematics







L. T. Rich Products Inc.

Warranty Registration Card

Serial #: _____	Company Name: _____
Company Address: _____	City / State: _____
Company Phone: _____	Company Fax: _____
Company Contact: _____	Company Email: _____

Please circle what most accurately describes your business

Commercial Sports Complex School Municipal
Cemetery Home Owner Other

Dealer Name: _____	Dealer Address: _____
Dealer City / State: _____	Dealer Phone: _____
Dealer Salesman: _____	Date of Purchase: _____

L. T. Rich Products warrants its line of equipment to be free from defects in material and factory workmanship for a period of 12 months. Any exceptions to this will be explicitly stated in an individual warrant agreement in the operator's manual of that piece of equipment

Fax to: 765-680-0047 or email to sbell@z-spray.com

Maintenance Chart

SERVICE ACTION(S)	Daily	Weekly	Bi-Weekly	Monthly	Yearly	Hours
Tire Pressure (18 PSI)		X				
Rim Nut Torque (75lbs)				X		
Hub Castle Nut (check cotter pin)				X		
Engine Oil (check)	X					
Engine Oil Change						50 hrs
Engine Air Filter Check (change if needed)			X		replace	
Engine Air Pre-Filter Check (change if needed)						25 hrs
Engine Fuel Filter Check (change if needed)				X	replace	
Engine Spark Plugs						100 hrs
Hydraulic Oil (change)						500 hrs
Hydraulic Oil Filter (change)						500 hrs
Hydraulic Oil Level (check)	X					
Hydro System Fittings (check for leaks)		X				
Spray Nozzles (tip) (check)			X			
Spray Nozzle (tip) Screens (check)		X				
Spray Nozzle Gasket (check)			X			
Spray System Hoses (check)		X				
In-Line Filter (check)		X				
In-Line Filter Gasket (check)		X				
DIRECTO Valve (check)				X		
Spot Spray Gun (check)			X			
Spot Spray Gun Tip (check)			X			
OPTIONAL ATTACHMENT						
Hopper Cables (lubricate w/ Silicone Spray)		X				
Accuway Cable (lubricate w/ Silicone Spray)		X				
Deflector Shield Cable (if applicable) (lubricate w/ Silicone Spray)		X				
Bottom of Hopper Tub (wire brush cleaning)			X			
Hopper Bottom Bushing (change if needed)				X	replace	
Impeller (change if needed)			X			
Agitator wire (check)	X					
BLOW OFF SALT / FERT DAILY	X					
FLUSH OUT SPRAY SYSTEM DAILY	X					