L.T. Rich Products, Inc.

# OWNERS MANUAL

## *JR36R / ZS-3620R* Z-Spray

920 Hendricks Drive Lebanon, IN 46052 (877) 482-2040 www.ZSPRAY.com

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# SECTION 1 TO THE OWNER

## 1.1 Read this manual entirely BEFORE operating the Z-Spray

The information presented herein will prepare you to operate the L.T. Rich Z-Spray in a safe and knowledgeable manner. Operating the Z-Spray 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 Z-Spray is dependent upon its operations within the guidelines and limitations outlined in this manual. Operating the Z-Spray 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 Z-Spray 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 Z-Spray are warranted by their respective manufactures. These parts are:
Hydro-Gear Pumps/Motors
Parker Wheel Motors
Subaru Engine
Delevan 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 Z-Spray. Read and understand this entire manual before attempting to set-up, operate, adjust, perform maintenance on, or store the Z-Spray. This manual provides essential information and instructions, which will help you enjoy years of dependable performance from the Z-Spray.

The designed and tested safety of the Z-Spray 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 Z-Spray, 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 Z-Spray may vary slightly due to ongoing engineering changes. L. T. Rich Products, Inc reserves the right to implement engineering and design changes to the Z-Spray 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 Z-Spray, hazard control and accidents prevention are also dependent upon the awareness, condition, maintenance, and storage of the Z-Spray. THE BEST SAFETY PRACTICE IS AN INFORMED, CAREFUL OPERATOR!!

Safety guards are mounted on the backside of the Hydro-Gear Pumps (at the shin level of the operator). These guards are designed to cover the hydraulic belt under the base and protect the operator. Removing this guard could cause injury to an operator and could void the Z-Spray's warranty. Remove this guard ONLY when unit is turned off to do preventative maintenance.

## 2.3 Operational Safety Rules

***Never*** operate the Z-Spray without all covers, shields, and safety devices installed and secured.

***Never*** permit any person other than the operator to ride or board the Z-Spray 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.

Operate only in daylight or good artificial light (min 200 lux).

***Never*** allow anyone near the Z-Spray 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 exceeding 15 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 Z-Spray when children are present.

Never allow anyone near the operation controls while performing service or maintenance to the Z-Spray.

Keep the Z-Spray 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 Z-Spray is in safe operating condition.

Never perform maintenance on the Z-Spray while parking brake is disengaged.

## 2.5 Storage Safety Rules

Never store the Z-Spray in any area accessible by children.

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

Allow the Z-Spray engine to cool before storing in an enclosed area.

Lubricate all moving parts of the Z-Spray to prevent rust during storage.

Remove all accumulated debris from the Z-Spray and attachments before storing.

# SECTION 3 MAINTENANCE

## 3.1 Engine Maintenance (9.5 HP to 13 HP electric and pull start engine)

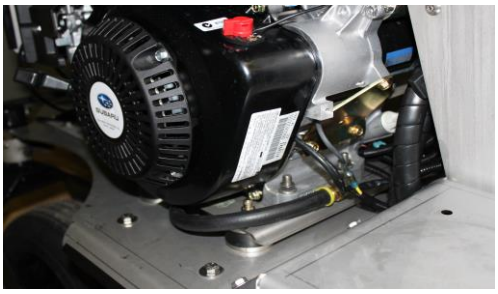
*****USE COMPRESSED AIR (NOT WATER) WHEN CLEANING ENGINE*****

**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

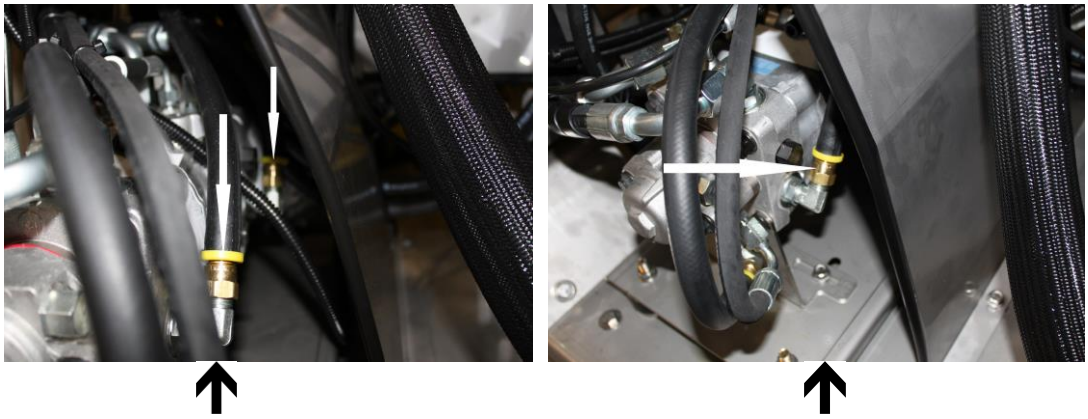
**Full Maintenance Information Can Be Located In the Engine Manual Provided**

## 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 2/3$^{rd}$ to the top of tank) and re-install Tank Cap. Using a Floor Jack or equivalent, lift the rear tires off the ground so that you can run the tires in the forward and reverse positions without the unit moving (chock both the front and the back of the front traction unit tires and if desired, block the frame for safety). 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.

Turn off the unit, apply the parking brake and bring the unit back down to the surface. Remove any chocks securing the front wheels and Floor Jack or equivalent out from under the backside of the unit. Turn unit on, release parking brake and move the unit forward and backward a few times. Hydraulic oil change completed.

## 3.3 Traction Unit Maintenance

The Z-Spray has 4 grease fittings that require periodic greasing. These locations can be found on the wheel assembly (1 on each front wheel assembly) and on the caster assembly (1 on each front caster assembly).

Inspect wheel and caster assembly every 25 hours for bearing wear, damage, debris, and proper installation.

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

## 3.4 Spray System Maintenance

The Z-Spray has both a granular spreader system as well as a liquid spray system. Maintaining these two systems 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 Z-Spray 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

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

The ***JR36R / ZS-ZS3620*** Z-Spray come equipped with a 120 lb 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 Z-SPRAY OPERATIONS

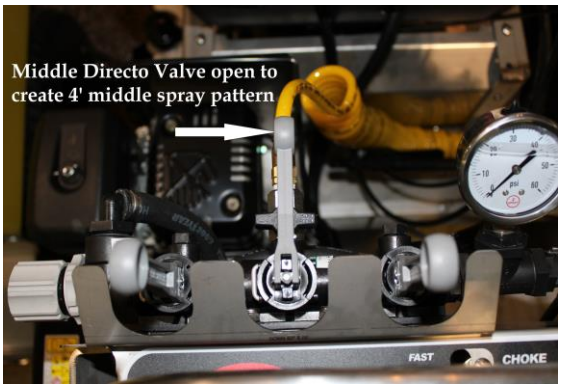
## 4.1 Operations

Upon turning the key on to start the unit, apply full choke. Once unit has started, release first the choke and then the brake. Push Joy Sticks forward (equally) to have the unit move straight. Should you want to unit to backup 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.

## 4.2 SPRAYING OPERATIONS

The spray system has the ability to spray in 4 different spray patterns. The wing booms (left or right) each have their own nozzles creating a 48" liquid path on either side. The middle boom is equipped with a single nozzle covering a 48" middle pattern **(NEVER SPRAY WILL ALL 3 DIRECTO VALVES IN THE ON POSITION)**. Using both the left **AND** the right Directo Valves (**pictured # 1**), the unit is spraying 8' wide. If **JUST** the middle Directo Valve is on (**picture # 2**), the unit is spraying 4' wide directly in the middle. If an operator needs to spray 4' wide and offset the pattern, use **EITHER** the left nozzle (**picture # 3**) or the right nozzle (**picture # 4**) depending on what side of an offset you are attempting to accomplish.

(picture # 1)

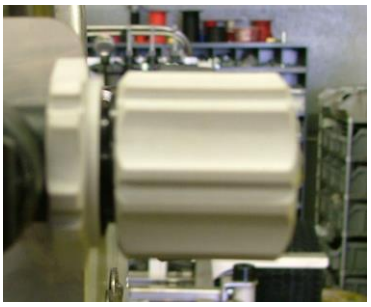


(picture # 2)

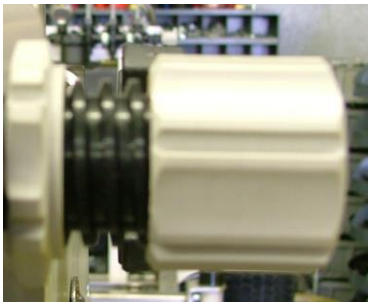
(picture # 3)

(picture # 4)

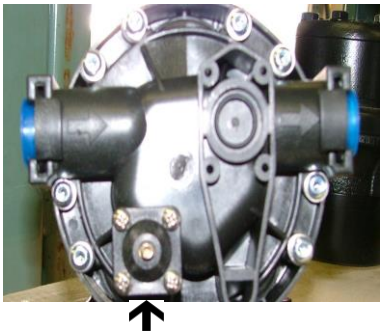
Creating pressure to these nozzles is done through the Throttle Valve. Threading the Throttle Valve in (**picture # 1**) will create pressure to either the boom nozzles or the hose reel. Threading the Throttle Valve out (**picture # 2**) will bring pressure to the tank(s) and create agitation. If threading the Throttle Valve in does not create the desired pressure, check your In-line filter housing and make sure that the O-Ring is present and the housing is screwed on tight. If desired pressure is still not achieved, pressure adjustments can be made at the pump (**pictured far right**). Clockwise turns create more pressure and counter-clockwise turns decrease pressure.



(picture # 1)
**Throttle Valve in to prepare spray**



(picture # 2)
**Throttle Valve out to create agitation**



**Pressure adjust on pump**

If optimum pressure is achieved but boom nozzles are dripping, look at either your O-Rings in your boom nozzles (may not be present or if present may not be seated properly) or the hose reel valve may be open. Leaving the coil hose valve in the open position will not allow the 5 psi check ball valves to close immediately when the pump is turned off. This will create the nozzles to leak and drip for a short period of time upon shutting the pump off, so make sure that your coil hose valve is turned to the off position if not in use.

Turning on the spray system can be done one of two ways. Your first option would be the On/Off switch located on the control panel. This would be located on the lower/right side of the control panel. The second way to turn the spray system on is the foot switch located on the left side on the Foot Pan. This is the most common way to turn on the spray system because it allows the operator to keep both hands on the control arms and drive the unit. By applying pressure on the foot switch with your left foot, the spray system is turned on. Releasing the foot switch will turn the spray system off.

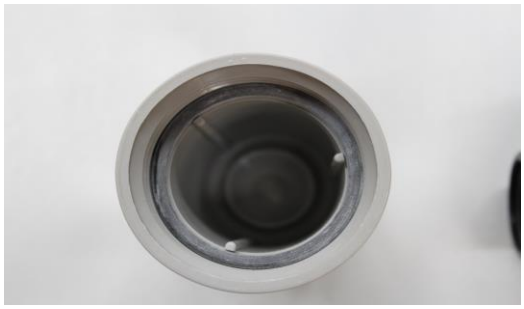
There is a chrome valve that allows the 25’ Coil Hose to be opened. This is located on the middle Directo Valve of you sprayer **(pictured on opposite page)**. If not using the Coil Hose for any applications, leaving the valve in the closed position will help the boom spray nozzles close (stop spraying) quicker. This will alleviate any dripping from the tips and potential turf damage (burning turf).

**(Hose reel Chrome Valve in closed position)**

**(Hose reel Chrome Valve in open position)**

Periodically check the in-line filter for any debris in the screen. If debris is present, this can create erratic pressure spikes and/or not allow the proper flow through system. After clearing any debris, ensure that rubber seal remains intact and tighten In-line filter cap (if not installed properly, this will allow air to get in the system and system will lose or not create pressure).

(In-line filter housing, screen & O-Ring)



(In-line filter cap & O-Ring)

The On/Off pump switch located on the control panel turns on the spray system pump as well as the spot spray Foot Switch on the left side of the foot pan. Once the pump is turned on, the throttle valve is turned clockwise to increase pressure and/or counter-clockwise to release pressure (and create agitation if the pump is on). The pressure can be read on the gauge (decreasing pressure from gauge will increase agitation in the tank).

## 4.3 Spray Calibration/Tip Chart/Liquid Quantities

The Z-Spray liquid system comes standard with Red colored Turbo FloodJet tips which will apply liquid material @ .32 (1/3) gallons per 1,000 sq. ft. @ 5 mph and 40 psi. Different tips will be calibrated differently, so refer to the Calibration Chart for proper spray volumes.

Your machine is capable of using tips from ¼ to 1 + gallons in size. See chart for your desired drop rate.

The following are some general guidelines for sprayer calibration. Please refer to the spray chart provided for complete calibration or use the given “Useful Formulas” section to come up with your own calibration.

**Useful Formulas**

| | | |
|---|---|---|
| **GPM (Per Nozzle)** | **=** | **$\frac{\text{GPA x MPH x W}}{\text{5,940}}$** |

| | | |
|---|---|---|
| **GPM (Per Nozzle)** | **=** | **$\frac{\text{GAL/1,000sq ft x MPH x W}}{\text{136}}$** |

| | | |
|---|---|---|
| **GPA** | **=** | **$\frac{\text{5,940 x GPM (Per Nozzle)}}{\text{MPH x W}}$** |

| | | |
|---|---|---|
| **GAL/1,000sq ft** | **=** | **$\frac{\text{136 x GPM (Per Nozzle)}}{\text{MPH x W}}$** |

| | | |
|---|---|---|
| GPM | - | Gallons Per Minute |
| GPA | - | Gallons Per Acre |
| GAL/1,000sq ft | - | Gallons Per 1,000 Square Feet |
| MPH | - | Miles Per Hour |
| W | - | Nozzle Spacing (in inches) for broadcast spraying |
| | - | Spray width (in inches) for single nozzle, band spraying |
| | - | Row spacing (in inches) divided by the number of nozzles per row |

The throttle valve adjusts pressure. The throttle valve is located just before the return valves near the left side control panel. Turn clockwise to increase pressure, counter clockwise to decrease pressure **(pictured on page 8)**. Pressure will be displayed on the gauge near the control panel. Once the nozzles are opened, you will notice a slight decrease in pressure (adjust accordingly), so quick adjustments will need to be made.

To determine liquid quantities per tank, understand what tips you have on your machine (factory set is 1/3 gallon per 1,000 sq. ft. through the Red tips). For instance some products call for 1.1 to 1.5 oz per 1,000 sq. ft. We would recommend using 1.3 (median value of 1.1 to 1.5). Since you are using a 1/3-gallon tip, you need to multiply by 3, and then multiply that number of gallons you need to put in your tank.

1.3 (median value of 1.1 to 1.5) X 3 (1/3 gallon tips) X gallons needed. If you were filling a 20-gallon tank your equation would look like this:

1.3 X 3 X 20 = 78 ounces to 20 gallons of water.

## *Turbo FloodJet Tips used ***ONLY*** on boom less units*

**ALERT!!! Never operate all 3 nozzles at the same time (refer to manual for examples)**

|  | | Drop Size | CAPACITY ONE NOZZLE IN GPM | CAPACITY ONE NOZZLE IN OZ./MIN | SPACING /\ 34" /\ GALLONS PER 1,000 SQ. FT. | | |
|---|---|---|---|---|---|---|---|
| | | | | | 3 MPH | 4 MPH | 5 MPH |
| STF-VS2 | 10 | XC | 0.20 | 26 | 0.27 | 0.20 | 0.16 |
| | 20 | XC | 0.28 | 36 | 0.37 | 0.28 | 0.22 |
| | 30 | XC | 0.35 | 45 | 0.47 | 0.35 | 0.28 |
| | 40 | XC | 0.40 | 51 | 0.53 | 0.40 | 0.32 |
| STF-VS2.5 | 10 | XC | 0.25 | 32 | 0.33 | 0.25 | 0.20 |
| | 20 | XC | 0.35 | 45 | 0.47 | 0.35 | 0.28 |
| | 30 | XC | 0.43 | 55 | 0.57 | 0.43 | 0.34 |
| | 40 | XC | 0.50 | 64 | 0.67 | 0.50 | 0.40 |
| STF-VS3 | 10 | XC | 0.30 | 38 | 0.40 | 0.30 | 0.24 |
| | 20 | XC | 0.42 | 54 | 0.56 | 0.42 | 0.34 |
| | 30 | XC | 0.52 | 67 | 0.69 | 0.52 | 0.42 |
| | 40 | XC | 0.60 | 77 | 0.80 | 0.60 | 0.48 |
| STF-VS4 | 10 | XC | 0.40 | 51 | 0.53 | 0.40 | 0.32 |
| | 20 | XC | 0.57 | 73 | 0.76 | 0.57 | 0.46 |
| | 30 | XC | 0.69 | 88 | 0.92 | 0.69 | 0.55 |
| | 40 | XC | 0.80 | 102 | 1.07 | 0.80 | 0.64 |
| STF-VS5 | 10 | XC | 0.50 | 64 | 0.67 | 0.50 | 0.40 |
| | 20 | XC | 0.71 | 91 | 0.95 | 0.71 | 0.57 |
| | 30 | XC | 0.87 | 111 | 1.16 | 0.87 | 0.70 |
| | 40 | XC | 1.00 | 128 | 1.33 | 1.00 | 0.80 |
| STF-VS7.5 | 10 | XC | 0.75 | 96 | 1.00 | 0.75 | 0.60 |
| | 20 | XC | 1.06 | 136 | 1.41 | 1.06 | 0.85 |
| | 30 | XC | 1.30 | 166 | 1.73 | 1.30 | 1.04 |
| | 40 | XC | 1.50 | 192 | 2.00 | 1.50 | 1.20 |
| STF-VS10 | 10 | XC | 1.00 | 128 | 1.33 | 1.00 | 0.80 |
| | 20 | XC | 1.41 | 180 | 1.88 | 1.41 | 1.13 |
| | 30 | XC | 1.73 | 221 | 2.31 | 1.73 | 1.38 |
| | 40 | XC | 2.00 | 256 | 2.67 | 2.00 | 1.60 |

***Boomless units include Junior 36 units built prior to 2009 and JR36R units***

## 4.4 Spreader Operation

The ***JR36R / ZS-3630*** Z-Spray unit is equipped with a 120 lb spreader. The hydraulic 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 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

## 5.1Spreader Calibration/Layout

The Spreader Motor Control determines the speed of the impeller in the front on the machine. The flow is controlled by increasing or de-creasing fluid flow to the hopper motor. Your machine is capable of varying its spread pattern from 3 – 25 feet with this control. Being hydraulically driven, the spread pattern is ***independent*** of the ground speed.

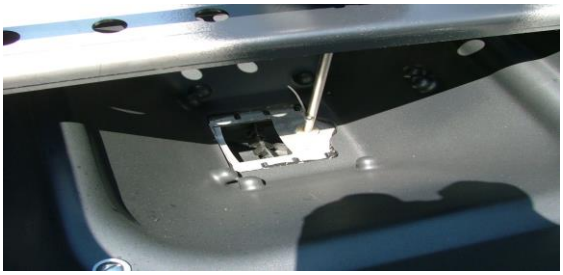
The hopper control cable opens and closes the door inside the base of the hopper. The maximum size of the opening will be determined by the rate adjustment on the knob dial. This will set your rate gate linkage bar to limit and stop the rate the door can open.

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


(Diffuser, Deflector & Hopper cable)

(Hydraulic hopper motor)

(Rate Dial)

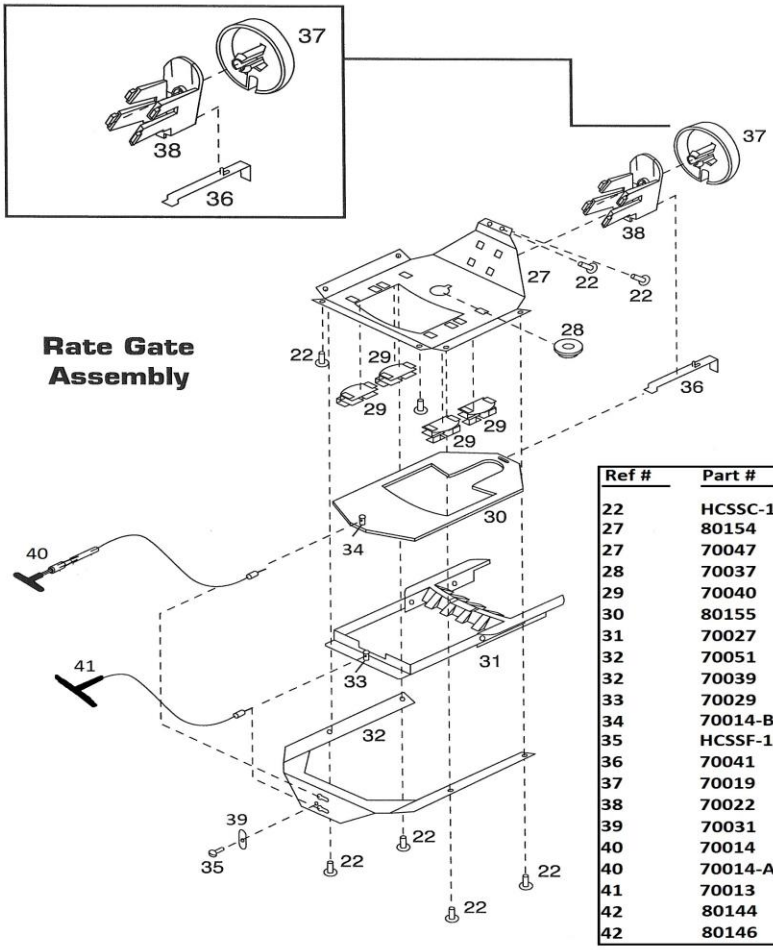


(Diffuser shown on underside of opening)

## SECTION 5 PARTS

### 5.1 Part Number / Pictorial

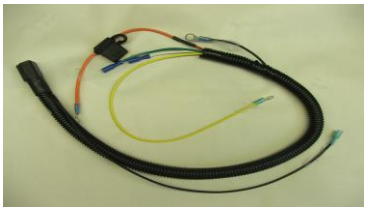
*Exploded View*



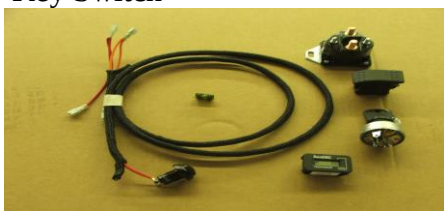

| Ref # | Part # | Description |
|---|---|---|
| 22 | HCSSC-1412 | Hex Head 1/2" Bolt |
| 27 | 80154 | 220lb Hopper Bottom Plate |
| 27 | 70047 | 120lb Hopper Bottom Plate |
| 28 | 70037 | Hopper Bottom Bearing |
| 29 | 70040 | Rate Gate & Diffuser Guides |
| 30 | 80155 | Hopper Door |
| 31 | 70027 | Diffuser |
| 32 | 70051 | 220lb Cable Mount Bracket |
| 32 | 70039 | 120lb Cable Mount Bracket |
| 33 | 70029 | Cable Wire Screw & Retainer |
| 34 | 70014-B | SS Ball Joint |
| 35 | HCSSF-1034 | Hex Bolt |
| 36 | 70041 | Rate Gate Linkage |
| 37 | 70019 | Hopper Rate Dial |
| 38 | 70022 | Rate Dial Holder |
| 39 | 70031 | Cable Retainer Plate |
| 40 | 70014 | 220lb Premium Hopper Cable |
| 40 | 70014-A | 120lb Hopper Cable |
| 41 | 70013 | Diffuser Cable |
| 42 | 80144 | 220lb Hopper Screen (Not Shown) |
| 42 | 80146 | 120lb Hopper Screen (Not Shown) |

## Electric Parts

| *Part #* | *Description* | *Qty* |
|---|---|---|
| 80202 | Pump on-off switch | 1 |
| 80204-2010 | Spot Spray Switch (foot switch only) | 1 |
| 80205 | Wiring Harness | 1 |
| 80206 | 30 AMP Fuse | 1 |
| 80207 | Starter Solenoid | 1 |
| 80208 | Battery Box | 1 |
| 80120-2010 | 12 Volt Battery (*cannot ship, local pickup only*) | 1 |
| 80214-A | Tach/Hour Meter | 1 |
| 80215 | Key Switch | 1 |



(wiring harness)

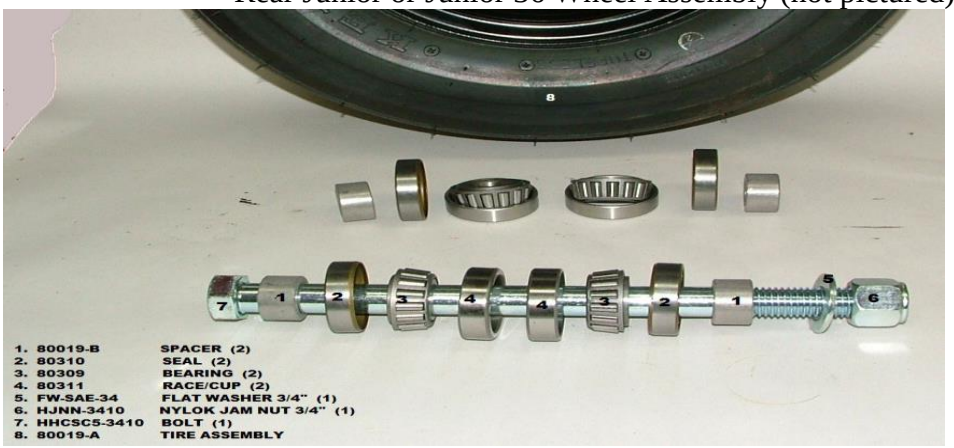


(foot switch, tach/hour meter, etc)

(battery box)

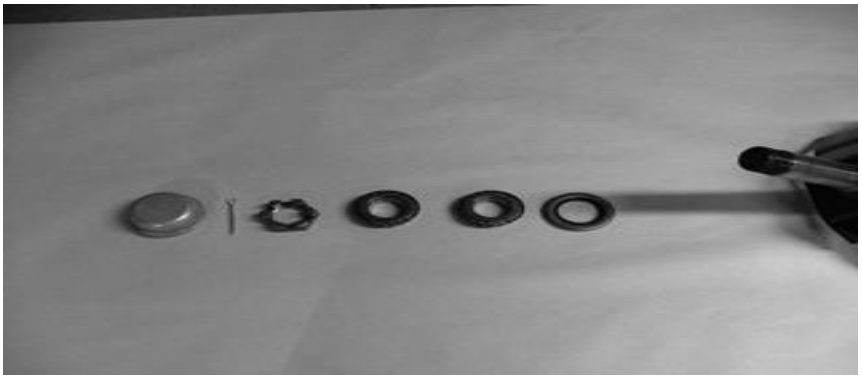
## Wheel Parts (front and rear)

| *Part #* | *Description* | *Qty* |
|---|---|---|
| 80019-MM | Front 13” Wheel Assembly | 1 |
| 80019-B | Front Wheel Spacers | 2 |
| 80309 | Front Wheel Cone Bearings | 2 |
| 80311 | Front Wheel Bearing Cup (for replacement only) | 2 |
| 80020 | DM-808 Rear Wheel Assembly | 1 |
| 80310 | Rim Seal | 2 |
| HHCSC5-3410 | Front Wheel Bolt | 1 |
| NNC-34 | Front Wheel Nut | 1 |
| FW-SAE-34 | Front Wheel Washer | 1 |
| 80021 | Rear Wheel Assembly (not pictured) | 1 |
| 80020 | Rear Junior or Junior 36 Wheel Assembly (not pictured) | 1 |



## Caster Parts

| *Part #* | *Description* | *Qty* |
|---|---|---|
| NS-10061-L | Left Side Locking Caster | 1 |
| NS-10061-R | Right Side Locking Caster | 1 |
| 80306 | Dust Cap | 1 |
| 80308 | Caster Bearing | 2 |
| 80009 | Castle Nut | 1 |
| 80302 | Caster Bearing Seal | 2 |
| CP18X112 | Cotter Pin | 1 |



## Spot Spray Gun

| *Part #* | *Description* | *Qty* |
|---|---|---|
| 60040 | Spot Spray Gun | 1 |
| 60041 | Spot Spray Tip | 1 |
| 60029 | ¼” MPT X 3/8” Barb | 1 |

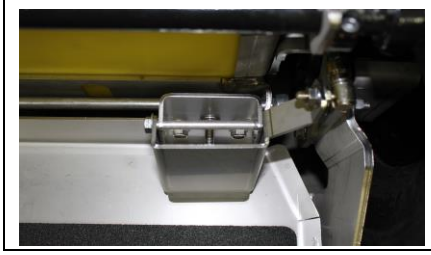
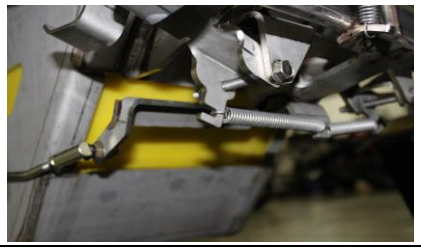
## Manifold Assembly

| *Part #* | *Description* | *Qty* |
|---|---|---|
| 60049 | ½ MPT X ¾ HOSE BARD 90 DEGREE | 1 |
| 60023 | ½ TO ¼ BUSHING | 1 |
| 60022 | ½ FPT TEE | 1 |
| 60058 | ¾ MPT X ½ MPT REDUCING NIPPLE | 1 |
| 60032 | GAUGE, 60PSI | 1 |
| 60010 | DIRECTO VALVE \ AA6B | 3 |
| 60027 | ½ MPT X ½ HB 90 | 3 |
| 60026 | ¾ MPT X ½ HB 90 | 1 |
| 60012 | THROTTLE VALVE | 1 |
| 60042 | ¼ TO 3/8 BARB 90 | 1 |
| 60009 | ¼ CHROME VALVE | 1 |
| 60020 | ¾ MPT CLOSE NIPPLE | 2 |


***(Picture from the front of the unit. When standing on the unit, part #60012 will be on the left side)***

## Locking Caster System

| *Part #* | *Description* | *Qty* |
|---|---|---|
| NS-10136-L | Locking Caster Locks left ***(2015 to current)*** | 1 |
| NS-10136-R | Locking Caster Locks right ***(2015 to current)*** | 1 |
| NS-10153A | Locking Caster front T Bar ***(2015 to current)*** | 1 |
| NS-10061-R | Locking Caster Right ***(2015 to current)*** | 1 |
| NS-10061-L | Locking Caster Left ***(2015 to current)*** | 1 |
| NS-10157 | Locking Caster Pedal ***(2015 to current)*** | 1 |
| NS-10156 | Locking Caster Pedal Bracket ***(2015 to current)*** | 1 |
| 80022-24.5 | Locking Caster Linkage ***(2015 to current)*** | 1 |


# Parts List

| | | | |
|---|---|---|---|
| 80020 | JUNIOR REAR WHEEL ASSY 20X8X8 | 2 | ea |
| 80019-MM | FRONT ZPLUG WHEEL ASSY. 13X6.5X6 | 2 | ea |
| 80200-Striker | Trail Tech Striker Speedometer | 1 | ea |
| 80202 | PUMP ON-OFF SWITCH\nCH-M-58031-01 | 1 | ea |
| 80204-FOOT SWITCH ASSY. | FOOT SPOT SPRAY SWITCH ASSY. 2010FS-01 | 1 | ea |
| 80210 | 12 VOLT BATTERY\nSS11UL1 CCA350 | 1 | ea |
| 80215 | KEY SWITCH\n4F463 | 1 | ea |
| 80214-A | TACH/HOUR METER | 1 | ea |
| 80301 | CUP BEARING CASTER YOKE\nL44610 (RACE) | 4 | ea |
| 80305 | RELIABLE # SA-1350 (CASTER SPINDLE) | 2 | ea |
| 80305-6.5 | Spindle 6-1/2 long | 2 | ea |
| 80306-R | DUST CAP, RUBBER | 2 | ea |
| 80308 | L44649 BEARING CONE | 4 | ea |
| 80352-36R | JR 36R WHEEL HUB-4 HOLE (r only) | 2 | ea |
| 80403-P | 2 QT Flambeau Hydro Tank | 1 | ea |
| 80404 | HYDRAULIC FILTER\nAA0513 ***(SINGLE filter from May 2011 to present)*** | 1 | ea |
| 80420 | 1/2' PUMP FITTING (4)\n6802-08-08-4 | 4 | ea |
| 80430-PV | HOPPER MOTOR FLOW CONTROL VALVE | 1 | ea |
| 70008 | SMALL HOPPER COVER 120 | 1 | ea |
| 70013 | DIFFUSER/DEFLECTOR SHIELD CABLE (LOCKING) | 2 | ea |
| 70014-A | 120LB HOPPER CABLE | 1 | ea |
| 70052-120 | 120 LB HOPPER KIT n/KSp01-LTR1 | 1 | ea |
| 60010 | DIRECTO VALVE AA6B | 3 | 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 |
| 80205-36R | JR36R IGNITION HARNESS | 1 | ea |
| 87001 | KOHLER REMOTE CHOKE 17 755 16-S | 1 | ea |
| 87000 | KOHLER 9HP CH395 ENGINE ***(2015 and current)*** | 1 | ea |
| 80500-Robin | 9HP Subaru Engine ***(2011 to 2014)*** | 1 | ea |
| 70024-B | SHAFT COUPLER, MTE | 1 | ea |
| 80313 | MTE HOPPER MOTOR CAP | 1 | ea |
| 80316 | 3/8 Flange Bearing (Hopper shaft) | 1 | ea |
| 80620 | JR36R WHEEL MOTOR RIGHT | 1 | ea |
| 80621 | JR36R WHEEL MOTOR LEFT | 1 | ea |
| 80510 | Throttle Cable | 1 | ea |
| 86141 | JUNIOR 36R T-HOSE ASSY | 1 | ea |
| 70029 | CABLE WIRE SCREW AND RETAINER | 1 | ea |
| S5DFA12 | PUMP FITTING\n5DFA12 straight | 1 | ea |
| S5DFE12 | PUMP FITTING\n5DFE12 90 degree | 1 | ea |
| 10058 | bulkhead, 1/2" (hole requirement 1 1/4") ***(2015 and current)*** | 2 | ea |
| 60122 | 36R 20 Gallon Tank ***(2015 and current)*** | 1 | ea |
| 60078 | 1/2 CPVC MIP Adapter | 2 | ea |
| 87002 | Kohler Exhaust Deflector | 1 | ea |
| STF-VS2 | TURBO FLOOD RED | 3 | ea |
| 80064 | SS- FRONT CASTER TUBE | 2 | ea |
| 80303 | JOY STICK BUSHING\nKAMAN# EF 0812-12 | 4 | ea |
| 60050 | 3/8" SINGLE BRAID HOSE\n000612 | 17 | ft |
| 80023 | LOWER LINKAGE ROD END\n367-QI312 | 2 | ea |
| 30700 | DASH PANEL DECAL | 1 | ea |
| 30707 | Hopper Cable Decal | 1 | ea |
| 30400 | VIBRATION ISOLATOR 2NPC5 JR36R | 4 | ea |
| 30705-JR36R | SPRAY CHART JR36R | 1 | ea |

| | | | |
|---|---|---|---|
| HZ200BLK-06-47 | 47" BOOM HOSE JR36R | 1 | ea |
| HZ200BLK-06-62 | 62" BOOM HOSE JR36R | 1 | ea |
| HZ200BLK-06-79 | 79" BOOM HOSE JR36R | 1 | ea |
| IGJCFXXX0606-8 | JR36R 8" RETURN HOSE ASSEMBLY | 1 | ea |
| 80440 | HYDRAULIC SPREADER MOTOR\nMTE 207 | 1 | ea |
| 60035 | STRAINER 50mesh W/ CHECK VALVE | 3 | ea |
| 60038 | BOOM ELBOWS\n3NTL38 | 3 | ea |
| 60061 | INLINE STRAINER ASSEMBLY50 MESH\n122-3/4/PP-50 | 1 | ea |
| 60023 | 1/2' TO 1/4' BUSHING\n3RB1214 | 1 | ea |
| 80511 | CHOKE CABLE | 1 | ea |
| 60040 | SPOT SPRAY GUN | 1 | ea |
| 30678 | SPEED BAR KNOB | 2 | ea |
| 60041 | SPOT SPRAY TIP #12 | 1 | ea |
| 30676 | BRAKE HANDLE GRIP | 1 | ea |
| 83049 | Locking Caster/Brake Spring\n80706S | 5 | ea |
| 60020 | 3/4' MPT CLOSE NIPPLE\n3M34 | 2 | ea |
| 60058 | 3/4' X 1/2'MPT RED. NIPPLE | 1 | ea |
| 60024 | 1/2'MPT X 3/8' HB 90\n3EL1238 | 3 | ea |
| 30708 | FOOT PLATE DECAL | 1 | ea |
| 60027 | 1/2'MPT X 1/2' HB 90\n3EL12 | 1 | ea |
| 80422 | 3/8 PUSH-ON SWIVEL (6)\n288-06-06 | 8 | ea |
| 60026 | 3/4'MPT X 1/2' HB 90\n3EL3412 | 1 | ea |
| 80425 | 3/8 PIPE TO 3/8 PUSH-ON BRASS | 1 | ea |
| 60022 | 1/2' FPT TEE\n3TT12 | 1 | ea |
| 60009 | 1/4" CHROME VALVE\n90FMB14 | 1 | ea |
| 80405 | HYDRAULIC FILTER HOUSING\nAA0530 | 1 | ea |
| 70014-B | 10-32 SS BALL JOINT\n367-SSE-187 | 1 | ea |
| 83067 | Compression Foot Plate Spring | 4 | ea |
| 80019-B | SPACER HSS-34 | 4 | ea |
| 60051 | 1/2" SINGLE BRAID HOSE\n000812 | 7 | ft |
| 80050 | PLASTIC DECK WHEEL | 2 | ea |
| 30675 | JOY STICK GRIP | 2 | ea |
| LTBC-22B | 22" BLACK BATTERY CABLE | 1 | ea |
| LTBC-32R | 32" RED BATTERY CABLE | 1 | ea |
| 80402-Tandem | 6cc Tandem Pump with Aux 36R | 1 | ea |
| 80903 | COIL HOSE | 1 | ea |
| 86020 | 20" JR36R HYDRO HOSE | 1 | ea |
| 86024 | 23" JR36R HYDRO HOSE | 1 | ea |
| 86025 | 26.5" JR36R HYDRO HOSE | 1 | ea |
| 86044 | HOPPER HYDRO HOSE 44" ALL SPRAYERS | 1 | ea |
| 86036 | 36" JR36R HYDRO HOSE | 1 | ea |
| 30401 | LOVEJOY BUNA INSERT 68514411070 | 1 | ea |
| 30403 | LOVEJOY L095 1/2" COUPLER | 1 | ea |
| 80421 | 3/8' 90 DEG HYDRO PUMP FITTING(6)\n6801-06-06-4 | 2 | ea |
| 80302 | CASTER BEARING SEAL\nSL-122 | 2 | ea |
| 80484 | 3/8 Bulkhead Union 90 | 2 | ea |
| 30402 | LOVEJOY L095 1" COUPLER | 1 | ea |
| 86149 | 25" 36R Return Hose | 1 | ea |
| 80208 | BATTERY BOX \nPART#03188 | 1 | ea |
| 30677-Sprayer | PAD | 1 | ea |
| NS-10061-L | LEFT LOCKING CASTER ***(2015 and current)*** | 1 | ea |
| NS-10061-R | RIGHT LOCKING CASTER ***(2015 and current)*** | 1 | ea |
| NS10136-L | LOCKING CASTER LOCKS LEFT SIDE ***(2015 and current)*** | 1 | ea |
| NS10136-R | LOCKING CASTER LOCKS RIGHT SIDE ***(2015 and current)*** | 1 | ea |
| NS10153A | T BAR ASSEMBLY ***(2015 and current)*** | 1 | ea |

## SECTION 6 TROUBLE SHOOTING

## 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 foul 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 busing 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:

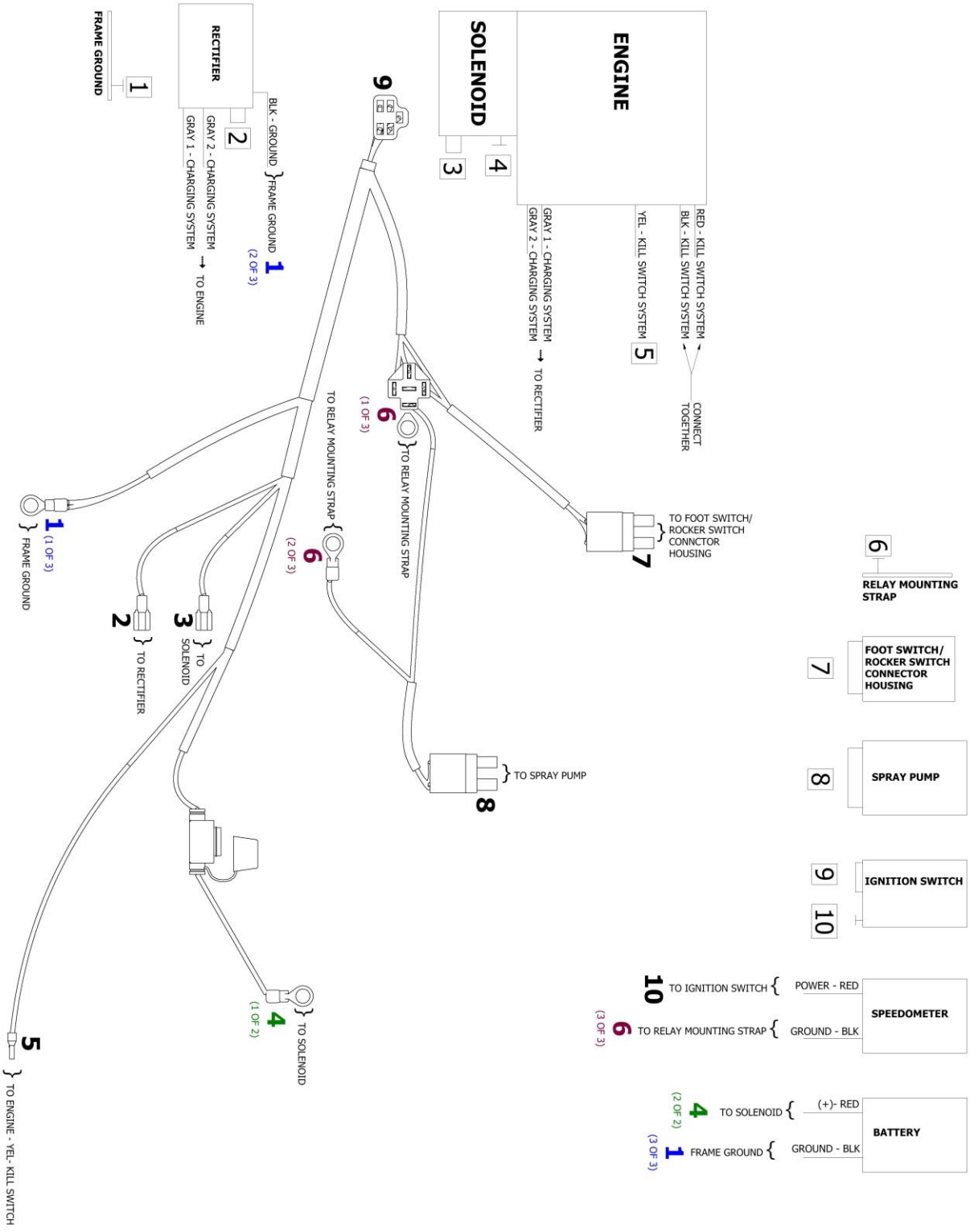
- Liquid is dribbling from the tips. This affect is potentially caused by a few things. If the nozzle body O-Ring is missing, the O-Ring in the In-line filter is missing, In-line filter housing not tight or the hose reel valve is open.

- 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.

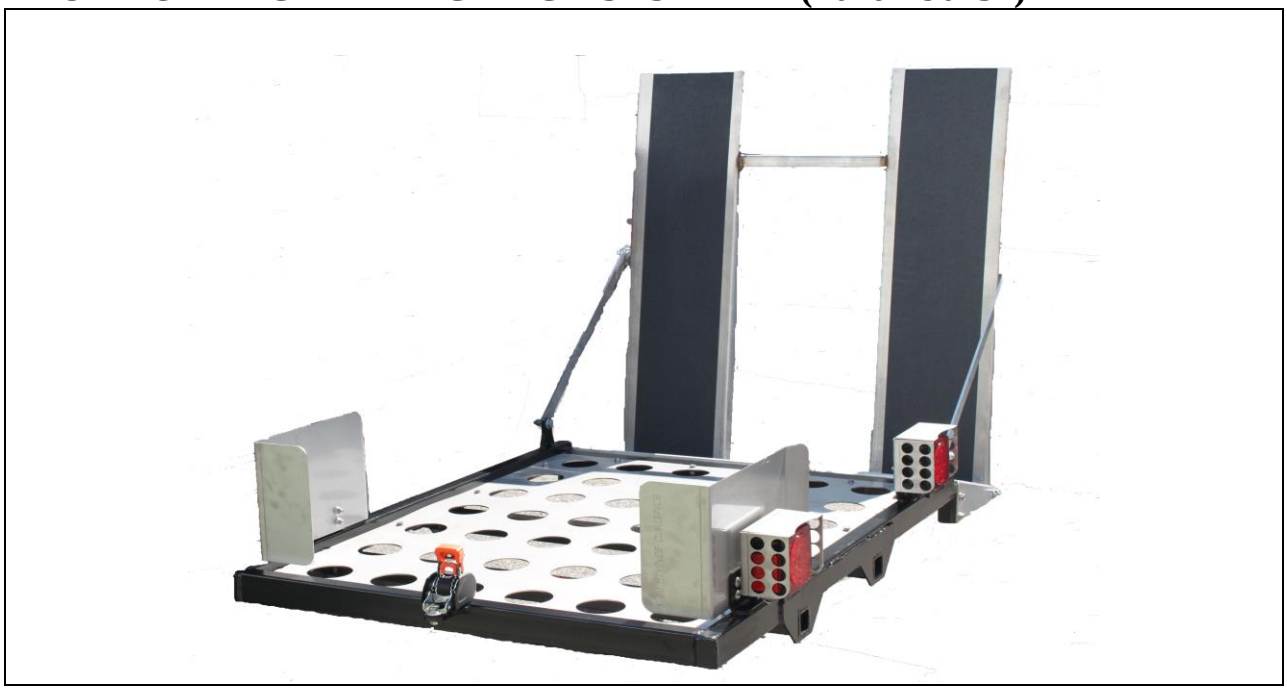
## Wiring Harness: (9.5 HP Subaru Engine)

- 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



****OPTIONAL CARRYING RACK SYSTEM** (Part # 90131)**



- **Ideal for transporting the Ride-On to and from the jobsite**
- **Rugged Stainless Steel Construction**
- **Ramps easily fold into an upright position**
- **Fits any class 4 or 5, 2-inch Receiver (must be rated for 600 lbs. minimum)**
- **Distance between the rails and bumper are adjustable**
- **Approx. Shipping Wt.: 225 lbs. (with pallet)**
- **Carrying Capacity: 700 lbs.**
- **Length of carrier rack: 40 in.**
- **Width of carrier rack (with ramps folded up) 66 in.**
- **Length of ramps: 46 in. (with 24" Dovetail)**

*****MUST REVERSE UNIT WHEN LOADING*****

***(Rear Wheels up ramps first)***

# *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*

**920 Hendricks Drive Lebanon, IN 46052 (877) 482-2040 www.ZSPRAY.com**

# ***Maintenance Chart***

| SERVICE ACTION(S) | *Daily* | *Weekly* | *Bi-Weekly* | *Monthly* | *Yearly* | *Hours* |
|---|---|---|---|---|---|---|
| | | | | | | |
| **Front Caster Wheels (grease)** | | | **X** | | | |
| **Front Caster Yokes (grease)** | | | **X** | | | |
| **Front Tire Pressure (22 PSI)** | | **X** | | | | |
| | | | | | | |
| **Rear Tire Pressure (18 PSI)** | | **X** | | | | |
| **Rear Rim Nut Torque (75lbs)** | | | | **X** | | |
| **Rear Hub Castle Nut (check cotter pin)** | | | | **X** | | |
| | | | | | | |
| **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** | | | | | |
| | | | | | | |
| **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 Valves (check)** | | | | **X** | | |
| **Spot Spray Gun (check)** | | | **X** | | | |
| **Spot Spray Gun Tip (check)** | | | **X** | | | |
| | | | | | | |
| ****BLOW OFF FERTILIZER DAILY**** | **X** | | | | | |
| | | | | | | |