

**OPERATORS MANUAL**



5010  
5016

**NITRO-GRO  
PRECISION APPLICATOR**



Rev. 10.10. 2016

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## To The Dealer

Read manual instructions and safety rules. Make sure all items on the Dealer's Pre-Delivery and Delivery Check Lists are completed before releasing equipment to the owner.

The dealer must complete the Warranty Registration found on the Dealer Portal website located at dealer.jm-inc.com and return it to J. & M. Mfg. Co., Inc. at the address indicated on the form. Warranty claims will be denied if the Warranty Registration has not been submitted.

### **EXPRESS WARRANTY:**

J. & M. Mfg. Co. Inc. warrants against defects in construction or materials for a period of ONE year. We reserve the right to inspect and decide whether material or construction was faulty or whether abuse or accident voids our guarantee.

Warranty service must be performed by a dealer or service center authorized by J. & M. Mfg. Co., Inc. to sell and/or service the type of product involved, which will use only new or remanufactured parts or components furnished by J. & M. Mfg. Co., Inc. Warranty service will be performed without charge to the purchaser for parts or labor based on the Warranty Labor Times schedule. Under no circumstance will allowable labor times extend beyond the maximum hours indicated in the Warranty Labor Times schedule for each warranty procedure. The purchaser will be responsible, however, for any service call and/or transportation of the product to and from the dealer or service center's place of business, for any premium charged for overtime labor requested by the purchaser, and for any service and/or maintenance not directly related to any defect covered under the warranty. Costs associated with equipment rental, product down time, or product disposal are not warrantable and will not be accepted under any circumstance.

Each warranty term begins on the date of product delivery to the purchaser. Under no circumstance will warranty be approved unless (i) the product warranty registration card has been properly completed and submitted to the equipment manufacturer, and (ii) a warranty authorization number has been issued by the equipment manufacturer. This Warranty is effective only if the warranty registration card is returned within 30 days of purchase.

This warranty does not cover a component which fails, malfunctions or is damaged as a result of (i) improper modification or repair, (ii) accident, abuse or improper use, (iii) improper or insufficient maintenance, or (iv) normal wear or tear. This warranty does not cover products that are previously owned and extends solely to the original purchaser of the product. Should the original purchaser sell or otherwise transfer this product to a third party, this implied, with respect to tires or other parts or accessories not manufactured by J. & M. Mfg. Co., Inc. Warranties for these items, if any, are provided separately by their respective manufacturers.

**THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS, IMPLIED OR STATUTORY, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE.**

In no event shall J. & M. Mfg. Co., Inc. be liable for special, direct, incidental or consequential damages of any kind. The exclusive remedy under this Warranty shall be repair or replacement of the defective component at J. & M. Mfg. Co., Inc's. option. This is the entire agreement between J. & M. Mfg. Co., Inc. and the Owner about warranty and no J. & M. Mfg. Co., Inc. employee or dealer is authorized to make any additional warranty on behalf of J. & M. Mfg. Co., Inc.

The manufacturer reserves the right to make product design and material changes at any time without notice. They shall not incur any obligation or liability to incorporate such changes and improvements in products previously sold to any customer, nor shall they be obligated or liable for the replacement of previously sold products with products or parts incorporating such changes.

### **SERVICE:**

The equipment you have purchased has been carefully manufactured to provide dependable and satisfactory use. Like all mechanical products, it will require cleaning and maintenance. Lubricate the unit as specified. Observe all safety information in this manual and safety signs on the equipment.

For service, your authorized J. & M. dealer has trained mechanics, genuine J. & M. service parts, and the necessary tools and equipment to handle all your needs.

Use only genuine J. & M. service parts. Substitute parts may void warranty and may not meet standards required for safety and satisfactory operation. Record the model number and serial number of your equipment in the spaces provided:

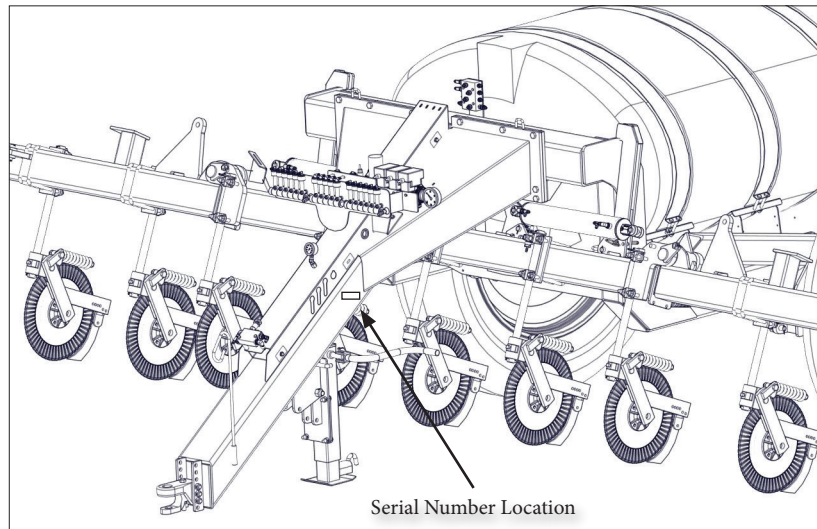
**Model No:** 5010-5016 NitroGro Applicator **Serial No:** \_\_\_\_\_ **Date of Purchase:** \_\_\_\_\_

**Purchased From:** \_\_\_\_\_

Provide this information to your dealer to obtain correct repair parts.



## Serial Number



Serial Number \_\_\_\_\_

Model Number \_\_\_\_\_

Standard practice when ordering parts or obtaining information from your dealer requires the serial number and model number. Have numbers available before making contact.

## Dealer Set-Up


- Adjust wheels to desired width. (page 18)
- Move light brackets so that the amber light sticks out past the wheels.(page 18)
- Slide coulters down and reattach hoses
- Run water into the tank, turn pump on and check for leaks
- See set-up instructions in the ACE Pump Manual
- See set-up instructions in the ACE Pump Manual
- Turn on 3-section valves and check for flow to each row
- Inspect the unit for loose nuts, bolts, etc.
- Check all bearings and grease fittings for proper lubrication.
- Make sure that working parts move freely and function as intended.
- Check the hydraulic cylinders, hydraulic hoses, fertilizer fittings, and seals for leaks.  
**⚠ WARNING - Use cardboard or wood to check for leaks.**
- Make sure that the lug nuts are tightened and all tires are inflated properly.
- Check that all of the safety decals, reflective decals, and the slow moving vehicle sign are properly located.
- Make sure that all the lights function properly.


### TO THE OWNER:


The purpose of this manual is to assist you in operating and maintaining your nitrogen applicator in a safe manner. Read it carefully. It furnishes information and instructions that will help you achieve years of dependable performance and help maintain safe operating conditions. If this machine is used by an employee or is loaned or rented, make certain that the operator(s), prior to operating:


1. Is instructed in safe and proper use.
2. Reviews and understands the manual(s) pertaining to this machine.

Throughout this manual, the term **IMPORTANT** is used to indicate that failure to observe can cause damage to equipment. The terms **CAUTION**, **WARNING** and **DANGER** are used in conjunction with the Safety-Alert Symbol (a triangle with an exclamation mark) to indicate the degree of hazard for items of personal safety. When you see this symbol, carefully read the message that follows and be alert to the possibility of personal injury or death.

 This Safety-Alert symbol indicates a hazard and means **ATTENTION!**  
**BECOME ALERT! YOUR SAFETY IS INVOLVED!**

 **DANGER** Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.

 **WARNING** Indicates a potentially hazardous situation that, if not avoided, will result in death or serious injury, and includes hazards that are exposed when guards are removed.

 **CAUTION** Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury.

**IMPORTANT** Indicates that failure to observe can cause damage to equipment.

**NOTE** Indicates helpful information.

Note: The right and the left hand sides of the implement are determined by facing the same direction that the applicator will travel when moving forward.

## Bolt Torque Chart

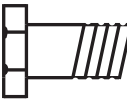
Always tighten hardware to these values unless a different torque or tightening procedure is listed for specific application.

Fasteners must always be replaced with the same grade as specified in the manual parts list.


Always use the proper tool for tightening hardware: SAE for SAE hardware and Metric for Metric hardware.

Make sure fastener threads are clean and you start thread engagement properly.

All torque values are given to specifications used on hardware defined by SAE J1701 & J1701M (JUL 96)




**SAE SERIES TORQUE CHART**




SAE Bolt Head Identification

SAE Grade 2  
(No Dashes)

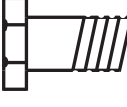


SAE Grade 5  
3 Radial Dashes




SAE Grade 8  
6 Radial Dashes

A Diameter (Inches)	Wrench Size	MARKING ON HEAD					
		SAE 2		SAE 5		SAE 8	
		LBS.-FT.	N-m	LBS.-FT.	N-m	LBS.-FT.	N-m
1/4	7/16"	6	8	10	13	14	18
5/16	1/2"	12	17	19	26	27	37
3/8	9/16"	23	31	35	47	49	67
7/16	5/8"	36	48	55	75	78	106
1/2	3/4"	55	75	85	115	120	163
9/16	13/16"	78	106	121	164	171	232
5/8	15/16"	110	149	170	230	240	325
3/4	1-1/8"	192	261	297	403	420	569
7/8	1-5/16"	306	416	474	642	669	907
1	1-1/2"	467	634	722	979	1020	1383




**METRIC SERIES TORQUE CHART**



Metric Bolt Head Identification

Metric Grade 8.8



Metric Grade 10.9

Diameter & (Millimeters) Thread Pitch	Wrench Size	COARSE THREAD				FINE THREAD				Diameter & (Millimeters) Thread Pitch
		MARKING ON THREAD				MARKING ON THREAD				
		Metric 8.8		Metric 10.9		Metric 8.8		Metric 10.9		
6 x 1.0	10 mm	8	6	11	8	8	6	11	8	6 x 1.0
8 x 1.25	13 mm	20	15	27	20	21	16	29	22	8 x 1.0
10 x 1.5	16 mm	39	29	54	40	41	30	57	42	10 x 1.25
12.1.75	18 mm	68	50	94	70	75	55	103	76	12.1.25
14 x 2.0	21 mm	109	80	151	111	118	87	163	120	14 x 1.5
16 x 2.0	24 mm	169	125	234	173	181	133	250	184	16 x 1.5
18 x 2.5	27 mm	234	172	323	239	263	194	363	268	18 x 1.5
20 x 2.5	30 mm	330	244	457	337	367	270	507	374	20 x 1.5
22 x 2.5	34 mm	451	332	623	460	495	365	684	505	22 x 1.5
24 x 3.0	36 mm	571	421	790	583	623	459	861	635	24 x 2.0
30 x 3.0	46 mm	1175	867	1626	1199	1258	928	1740	1283	30 x 2.0

### TIGHTENING WHEEL NUTS

Standard 3/4" wheel bolts should be tightened to torque 500 Ft.-Lbs. During initial operation of the applicator and then checked for proper torque after every 1 hour of use. Failure to do so may damage wheel nut seats. Once seats are damaged, it will become impossible to keep nuts tight. The correct tire pressure for the 380-90R46 tire is 64 PSI.

## Specifications

<b>SPECIFICATIONS</b>		
<b>5000 Series Applicators</b>		
<b>Tank Size</b>	<b>1,000 Gallon</b>	<b>1,600 Gallon</b>
<b>Base Width</b>	<b>30'-0"</b>	<b>40'-0"</b>
<b>Ground Clearance</b>	<b>34"</b>	<b>34"</b>
<b>Row Spacing*</b>	<b>20", 30"</b>	<b>20", 30"</b>
<b>Number of Coulters</b>	<b>11, 13, 15, 17, 23, 25</b>	<b>11, 13, 15, 17, 23, 25</b>
<b>Coulter Style</b>	<b>Grove Engineered Products (GEP)</b>	<b>Grove Engineered Products (GEP)</b>
<b>Fertilizer Delivery</b>	<b>Knife or Injection</b>	<b>Knife or Injection</b>
<b>Wing Flex</b>	<b>Standard 8° Flex Up - 6° Flex Down Can be operated rigidly</b>	<b>Standard 8° Flex Up - 6° Flex Down Can be operated rigidly</b>
<b>Wing Kick</b>	<b>Standard</b>	<b>Standard</b>
<b>Coulter Frame Tubing</b>	<b>7" x 7" Toolbar</b>	<b>7" x 7" Toolbar</b>
<b>Hydraulic Down Pressure</b>	<b>Standard</b>	<b>Standard</b>
<b>Standard Hydraulic Driven Pump</b>	<b>Ace Pump</b>	<b>Ace Pump</b>
<b>Optional Ground Driven Pump</b>	<b>John Blue</b>	<b>John Blue</b>
<b>Wheels</b>	<b>46" w/IF380/90R46 Firestone Tires</b>	<b>46" w/IF380/90R46 Firestone Tires</b>
<b>Transport Width</b>	<b>15'-0"</b>	<b>15'-0"</b>
<b>Transport Height</b>	<b>12'-6"</b>	<b>12'-6"</b>
<b>Transport Length</b>	<b>16'-8"</b>	<b>20'-8"</b>
<b>Pin To Axle</b>	<b>12'-0"</b>	<b>14'-0"</b>
<b>Flow Monitors</b>	<b>Optional</b>	<b>Optional</b>
<b>Depth Control Spools</b>	<b>Optional</b>	<b>Optional</b>
<b>Quick Fill</b>	<b>2" Fill Standard - 3" Fill Optional</b>	<b>2" Fill Standard - 3" Fill Optional</b>
<b>Wash Tank</b>	<b>Standard 9 Gallon Wash Tank</b>	<b>Standard 9 Gallon Wash Tank</b>
<b>Empty Weight</b>	<b>10,500 lbs.</b>	<b>10,900 lbs.</b>
<b>Tongue Weight Empty</b>	<b>2,700 lbs.</b>	<b>2,800 lbs.</b>
<b>Tongue Weight Loaded</b>	<b>2,900 lbs.</b>	<b>3,000 lbs.</b>

\* Other Row Spacing Available Upon Request

### **⚠ ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! ⚠**

Safety is a primary concern in the design and manufacture of our products. Unfortunately, our efforts to provide safe equipment can be erased by an operator's single careless act. In addition, hazard control and accident prevention are dependent upon the awareness, concern, judgment, and proper training of personnel involved in the operation, transport, maintenance and storage of equipment.

Make certain that the operator(s), prior to operating is instructed in safe and proper use and reviews and understands the manual(s) pertaining to this machine.

Read this manual before you operate this machine. If you do not understand any part of this manual, or need more information, contact the manufacturer or your authorized dealer.

### **⚠ SAFETY ⚠**

Understand that your safety and the safety of other persons is measured by how you service, and operate this machine. Know the positions and functions of all controls before you try to operate them. Make sure to check all controls in a safe area before starting your work.

The safety information given in this manual does not replace safety codes, federal, state or local laws. Make certain your machine has the proper equipment as designated by local laws and regulations.

A frequent cause of personal injury or death is from persons falling off equipment and being run over. Do not permit persons to ride on this machine.

Travel speeds should be such that complete control and machine stability is maintained at all times. Where possible, avoid operating near ditches, embankments and holes. Reduce speed when turning, crossing slopes and rough, slick or muddy surfaces.

Collision of high speed road traffic and slow moving machines can cause personal injury or death. On roads, use flasher lights according to local laws. Keep slow-moving-vehicle emblem visible. Pull over to let faster traffic pass.

Keep all safety shields in place.

Keep hands, feet, hair and clothing away from moving parts while unit is in operation.

Make sure that everyone is clear of equipment before applying power or moving the machine.

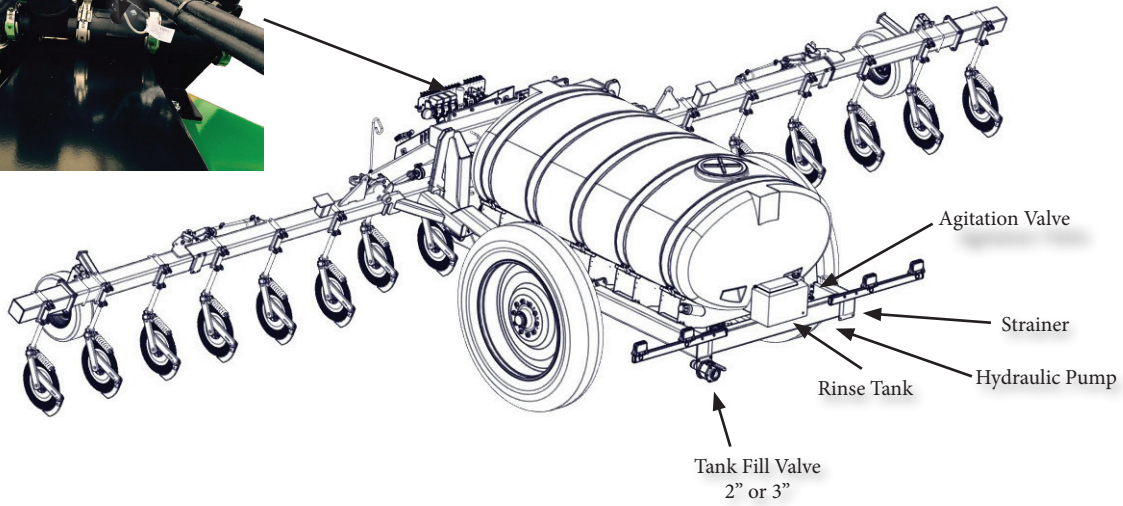
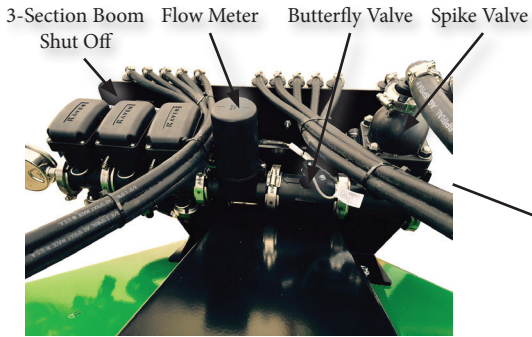
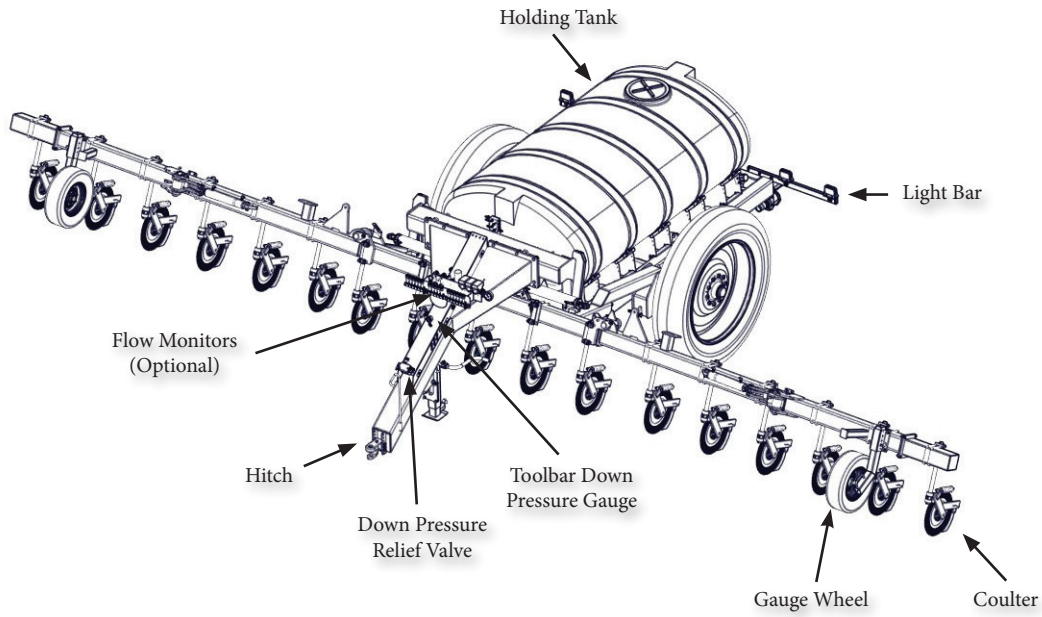
Make sure that the implement is fastened securely to the tractor by using the proper hitch pin, clip and safety chains.

Do NOT exceed speeds in excess of 20 MPH. Also be sure slow moving vehicle emblem is attached to rear of transport.

Before unhooking the implement from the towing unit, be sure to properly block the wheels to prevent the implement from moving. Be sure the jack assembly is positioned in the park position and the weight has been transferred to the jack assembly before unhooking the implement.

Avoid high pressure fluids. Escaping fluid under pressure can penetrate the skin causing serious injury. Always relieve pressure before disconnecting hydraulic lines. Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands. Keep all components in good repair.

# NitroGro Components





## Flow Monitors

Optional Flow Monitors are available to allow the operator to see the rate of flow to each coulter through a floating ball located inside the transparent inspection tube. Each coulter is connected with a separate supply hose.



## Down Pressure Relief Valve

The Down Pressure Relief Valve provides adjustable hydraulic pressure to force the coulters on the wings into the ground while allowing the wing to flex up and down as needed to follow the contour of the ground.

Clockwise = Increased Pressure



## Tool Bar Down Pressure Gauge

**IMPORTANT - Do Not Exceed 1,350 PSI on the Down Pressure Gauge.**

It is **VERY IMPORTANT NOT TO EXCEED 1,350 PSI** of pressure on the Down Pressure Gauge. Doing so may cause damage to the inner wing fold cylinders. (See the Toolbar Down Pressure Gauge)

Counter Clockwise = Decreased Pressure



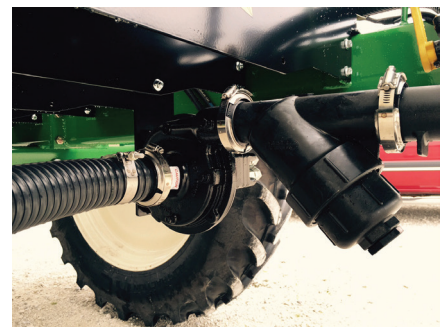
## Hydraulic Pump

**IMPORTANT - Do Not Exceed 7 Gallons Per Minute Max Hydraulic Fluid Input.**

The Nitro-Gro Applicator is equipped with the Ace FMC-150-HYD-206 pump. This pump requires 7 GPM maximum hydraulic fluid input.

The Hydraulic Pump is located at the rear of the unit below the tank and near the tank outlet to provide faster pump priming and prevent cavitation.

Turn the hydraulic flow of the tractor all the way down before you put the hydraulic fertilizer pump into use. The applicator pump only requires 7 GPM of hydraulic flow to make 120 GPM of fertilizer flow. If you don't turn down the tractor hydraulic flow to the pump, damage will occur. (See Set-Up Instructions in the pump manual.)



## Coulter

The number of coulters is determined by the number of rows (usually one less or one more). So the number of rows will be even, and the number of coulters will be odd, since you are placing the nitrogen between the rows. Example, a 16 row unit will have either 15 or 17 coulters. A 16 row applicator with 15 coulters is considered a "one-down" unit. Similarly, a 16 row applicator with 17 coulters is considered a "one-up" unit.



## Hand Wash Tank

Hand Wash Tank allows user to clean chemicals spills from their hands quickly and easily.





## Transport Latches



The Transport Latches are designed for safe transport. When the Transport Latches are resting on the Main Frame and the pins are installed, the Nitro Gro Applicator can not lower.

## Shut-Off & Fill Valve

The Nitro-Gro Applicator is standard equipped with a 2" Shut-Off and Fill Valve. There is an upgrade option for a 3" Shut-Off and Fill Valve. The 3" Valve will allow a quicker fill.



## Strainer

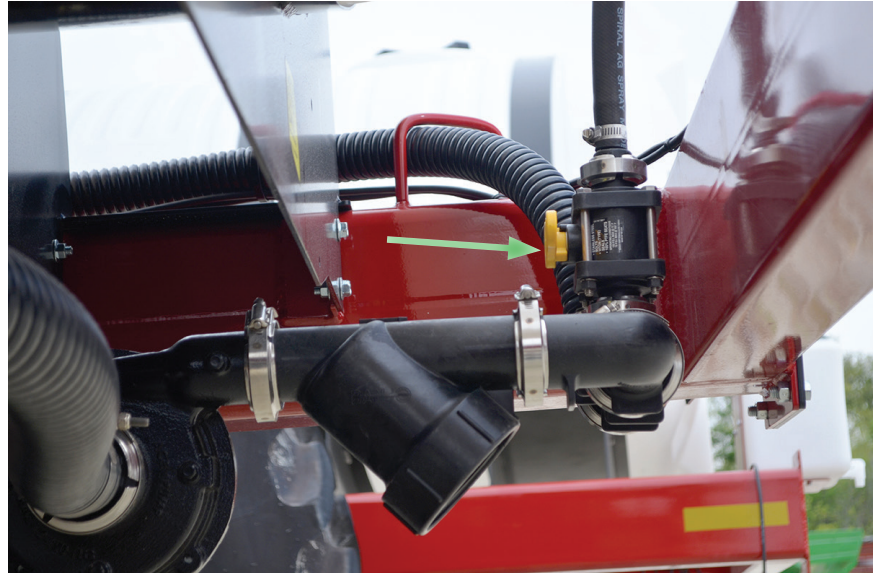
The Nitro-Gro Applicator is standard equipped with a strainer designed to remove dirt and debris from the fertilizer to prevent downstream clogs.



## Agitation Valve (Hydraulic Pump Units Only)

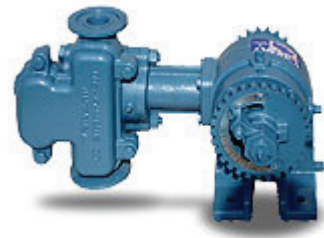
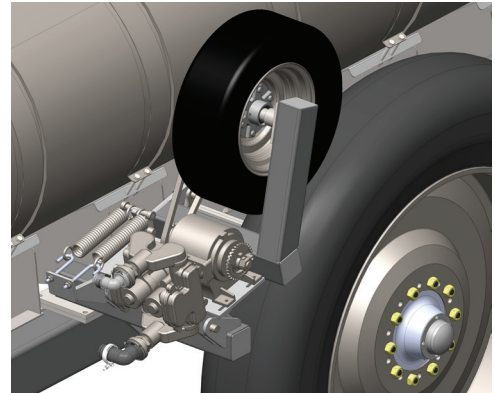
The Agitation Valve is designed to allow air to escape from the pump so it can easily prime. When you're running in the field, a little liquid runs through the Agitation valve back to the tank. (You will need to adjust the amount of agitation.)

The Agitation Valve can also be used to evenly mix additives by running the pump with the electronic control valves closed.



## Optional Ground Drive Pump

The John-Blue Ground Drive pump comes in either single or double piston configuration. It does not require any control valves. The rate is controlled by an adjustment on the pump and it naturally compensates for different speeds since it is driven off of the main frame wheel.



PREPARING THE NITRO-GRO APPLICATOR:

**IMPORTANT - Before putting the applicator into operation, check the machine for damaged or worn parts and replace as necessary.**

Only use a tractor with sufficient power and weight to operate the applicator. (For 16 Row 170 HP, 12 Row 130HP) Be sure the applicator is properly attached to the tractor, the pin is properly secured, and (if equipped) the safety chain(s) are properly installed. Inspect all safety decals for visibility and remove any debris.

***Lights and SMV:***

The SMV Emblem has to be positioned with a point of the triangle upward and as near to the rear and centered or as near to the left of center of the unit as practicable. Also the SMV emblem needs to be located two to ten feet above the ground measured from the lower edge of the emblem. Before transporting make sure that all of the lights, reflectors and the SMV emblem are clean and visible.

***Hardware:***

Make sure all hardware is properly fastened according to the Bolt Torque chart found in this manual. Recheck all hardware for tightness after the unit has been operated for several hours. Check that all pins and retaining rings are in good condition. Replace any pins or retaining rings that are worn, damaged or missing.

***Hydraulic Hoses:***

Check the hydraulic hoses to make sure they are not rubbing against sharp edges, are not kinked and not twisted. Hoses should be secured to the applicator with nylon tie straps. Check hoses and fittings for hydraulic leaks. Tighten or replace as necessary.

***Lubrication:***

Lubricate the Nitro-Gro applicator according to the Lubrication Schedule outlined in the SERVICE section of this manual. (page 18)

***Tires and Wheels:***

Check the tire pressure in the transport tires and make sure the tire pressure is equal. The recommended tire pressure is 64 PSI. Make sure the wheel lug nuts are tightened to 500 Ft. Lbs. Check the wheel lug nuts before initial operation and after the unit has been operated for several hours to ensure the lug nuts remain tight. Make sure the pressure of the Gauge Wheels is 45 PSI and the (optional) Ground Drive Pump Tire is 15PSI. Tighten the Gauge Wheel and Drive Pump Tire lug nuts to 121 Ft.Lbs.

***Filling the tank:***

Make sure the area is clear of bystanders when filling the tank. Always wear protective clothing, gloves, and masks when handling fertilizer/chemicals. Follow the fertilizer/chemical manufacturers instructions exactly when filling the tank. Keep the lid on at all time to keep debris out of the tank.

***Fertilizer Pump:***

Raise the toolbar with wings unfolded and turn on the fertilizer pump. Check that there is liquid coming out of each injector. Clean injectors if necessary. Replace injectors accordingly. (If equipped with Ground Driven Pump, raise coulters out of the ground and spin the drive wheel by hand.)

***Unfolding the Wings:***

It is recommended unfolding the side wings in the field. Keep all bystanders away while unfolding the wings.

## Hitching and Unhitching the Applicator

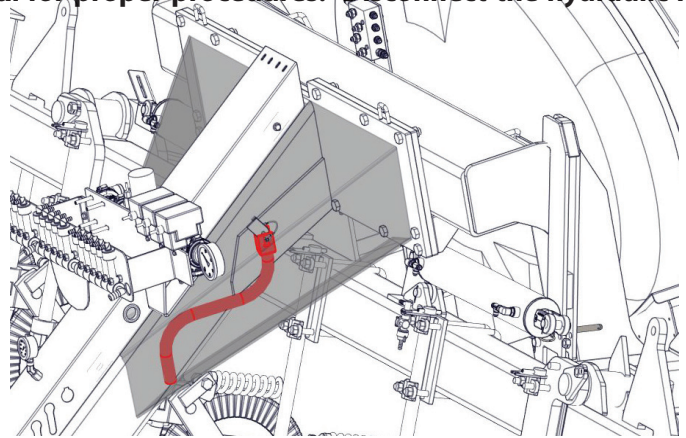
Connect the applicator to the tow vehicle using a hitch pin and make sure a retaining pin is secured in the hitch pin. Always attach the safety chains to the applicator and the tow vehicle.

**⚠️ WARNING – Before unhooking the applicator, unpin the jack from storage position, and lock it in the usage position lower the jack stand to the ground until weight of the applicator is transferred to the jack. Keep hands and feet away from the jack stand when lowering.**

Remove the Hitch Pin and unhook the safety chains.

**⚠️ WARNING – Always relieve hydraulic system pressure before disconnecting hoses from tractor or servicing hydraulic system. See the tractor's operators manual for proper procedures. Disconnect the hydraulic hoses. Install dust covers over the hose plugs and outlets.**

When not in use the jack handle is stored under the tongue.



## Connecting the Hydraulic Hoses

Connect the hoses so that the toolbar raises when the tractor control lever is pulled back and lowered when the control is pushed forward.

Hook up hydraulic lines.

**Set #1 - Green Hoses** - Raise & Lower/ Wing Kick/ Down-pressure

**Set#2 Red Hoses** -Wing Fold

**Set#3 - Black Hoses** - Hydraulic Pump (Hook the return hose to low pressure return port at the tractor)

## Transporting

Comply with ALL state and local laws governing highway safety and regulations when moving machinery on public roads. Be sure an SMV (Slow Moving Vehicle) emblem is in place and clearly visible on the rear of the applicator. The SMV Emblem has to be positioned with a point of the triangle upward and as near to the rear and centered or as near to the left of center of the unit as practicable. Also the SMV emblem needs to be located two to ten feet above the ground measured from the lower edge of the emblem. Make sure all lights are clearly visible and working properly BEFORE highway travel. Be sure the amber, red and orange retro-reflective tape on the implement is in place and clearly visible.

The transport speed should not exceed 10 MPH in the field or over rough terrain. Highway transportation speed should not exceed 20 MPH Reduce transport speed when necessary to maintain full control of the implement at all times.

The ground drive pump transport lock should be in place before transporting the Nitro-Gro.

The toolbar transport locks should have the locking pins in place before transport.



## Fertilizer Pump

Your Nitro-Gro Applicator is equipped with the Ace FMC-150-HYD-206 pump.

**Note: Refer to the pump's owners manual to regulate the hydraulic flow to the pump.**

Attach the pump hydraulic hoses to the tractor so the pump operates in the lower/retract position. The pump can then be turned off in the forward "float" position. Turning the pump off in "float" instead of "neutral" allows the hydraulic system pressure to equalize and prevents the occurrence of damaging pressure spikes.

The return line should be connected to a low pressure return port if available. The low pressure return port routes oil directly to the reservoir minimizing return line pressure. Low return line pressure extends the motor seal life and increases operating efficiency.

**⚠ WARNING- Failure to regulate oil flow will cause motor failure.**

**Note: Refer to the pump's owners manual to locate your tractor model and follow the appropriate setup instructions.**

**⚠ WARNING- Not a suitable pump for flammable liquids.**

## Folding & Unfolding

- Raise the toolbar to take the weight off of the transport latches and unpin the transport latch/wing
- Unfold the wing assemblies. On 40ft units, one cylinder will unfold the inner wing section and another cylinder will unfold the outer wing section. The inner wing will automatically fold to the wing "kick-up" position, then unfold the outer wing section until it is in alignment with the inner wing section
- (Pre 2017 Models) After the outside wing is unfolded, to lower the center toolbar to the ground. The center section will lower first until the toolbar raise/lower cylinders reach the cylinders stops which sets your depth. As soon as the cylinder stops against the cylinder spacers, pressure will build and allow the wing kick cylinder to fold the wings down parallel with the center section.
- (2017 & Newer) After the outside wing is unfolded, lower the toolbar to the ground, adjust the flow control on the down pressure cylinder so the wing coulters come into contact with the ground at the same time as the center coulters.
- When you raise the unit up, the entire toolbar raises up until the toolbar raise/lower cylinders are fully extended, then the wings will start to fold to the kick-up wing position.
- Once the wings are in the kick-up position the outside wing section can be folded against the inside wing section. After the inside and outside wing sections are folded together, the wings can continue to be folded until the transport Latch/Wing Rest is engaged against the center base weldment.
- Slightly lower the toolbar to allow weight to the Transport Latches/ Wing Rest. (Note: If you lower the toolbar too far the wing -kick cylinder will begin to extend and the wings will begin to unfold.)

## Adjusting the Feild

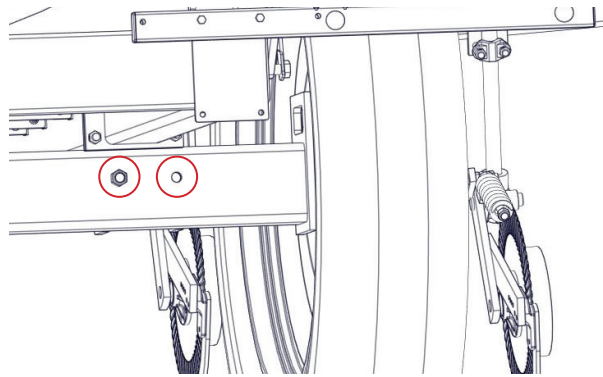
- The center section of coulters should be set first. The Toolbar Cylinders have spacers included. Add or remove spacers until the center section is positioned at the appropriate depth. Lower the unit until the lift cylinders bottom out on the stroke control spacers. Add or remove stroke control spacers until the center toolbar section reaches desired application depth. It is a good idea to be moving forward when lowering the toolbar. When the center section of the toolbar is set to proper depth.
- After the toolbar is set with the cylinder spacers, adjust the wing gauge wheel setting until the wings are level with the base section and the entire toolbar is flat and even. Once the toolbar is set and leveled, further adjustment is typically not necessary.

## Down Pressure

- Set the down pressure just high enough to keep the gauge wheels in contact with the ground. Excessive pressure can cause premature wear on wing pivots and gauge wheels.

## Wheel Spacing

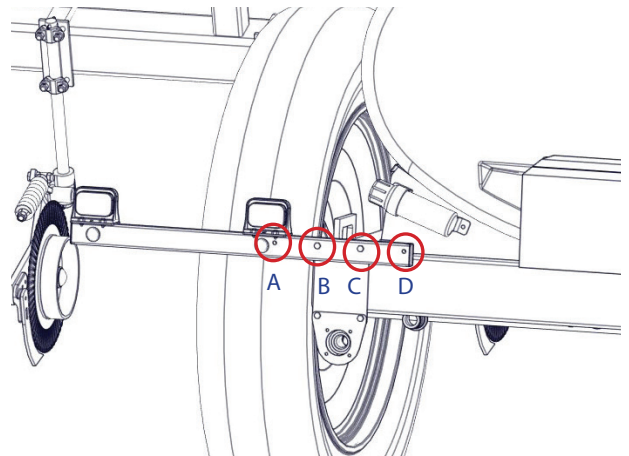
- To set up the Applicator for 20" or 30" rows use the inside hole. This will set the wheel spacing at 120".
- To set up the Applicator for 22" rows use the outside hole. This will set the wheel spacing at 132".



When shipped the light bar will be attached using holes A and B. The light bracket needs to be positioned so that the Amber light is out past the wheel.

**NOTE - When changing the wheel spacing it may be necessary to move the Light Brackets so the Amber Light is out past the wheel.**

- For 20" and 30" row spacing use holes B and C.
- For 22" rows use holes C and D.



## Operation

1) Hook tractor to Nitro-Gro and adjust hitch so that frame on applicator is level or tilting back slightly.

2) Hook up hydraulic lines.

**Set #1 - Green Hoses - Raise & Lower/ Wing Kick/ Down-pressure**

**Set#2 - Red Hoses - Wing Fold**

**Set#3 - Black Hoses - Hydraulic Pump**

**IMPORTANT - For the black hoses hook the return hose to a low pressure return port at the tractor.**

3) Raise the unit to relieve pressure on transport latches and wing rests. Remove transport latch pins and place in storage holes next to the lock holes.

4) Unfold the unit.

3) Lower the unit until the lift cylinders bottom out on the stroke control spacers. Add or remove stroke control spacers until the center toolbar section reaches desired application depth. It is a good idea to be moving forward when lowering the toolbar.

6) Adjust the wing Gauge wheels so that the coulters on the wings are at the same depth and the toolbar is level when lowered.

5) Using the desired rate of application (GPA) and speed of application (MPH), use the supplied orifice sizing chart on pages 50-51 of this manual to determine which orifices will provide optimal application pressure. Install the orifices in the check valve unit above each row unit that is mounted on the coulters shaft.

**NOTE - The unit will be either be set up to skip a row, "One Down", or re-apply the outside row, "One Up".**

**-If the unit is set up as "One Down" (11 or 15 coulters) then the outside coulters on each end of the unit will need to be 1.5x rate of the other coulters.**

**-If the unit is set up as "One Up" (13 or 17 coulters) then the outside coulters on each end of the unit will need to be 0.5x rate of the other coulters.**

7) Put some water in the tank and check for leaks.

**IMPORTANT - Before proceeding to the next step make sure that the valve is open to the pump. NEVER run the pump dry.**

6) With the valve to the pump open perform the initial setup of the pump as outlined in the pump owners manual. After the pump is set up recheck the applicator for leaks.

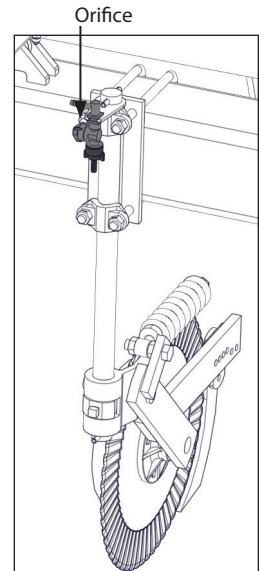
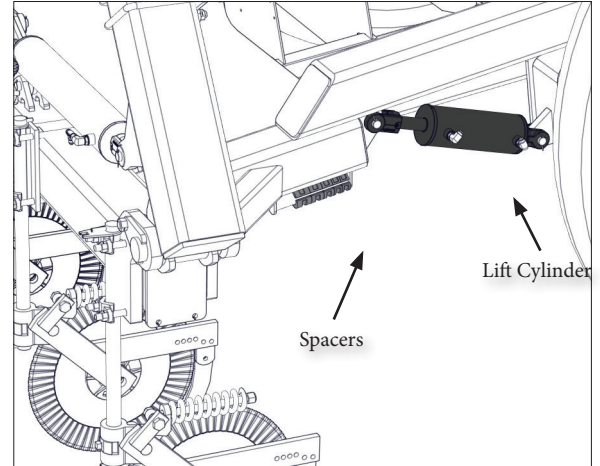
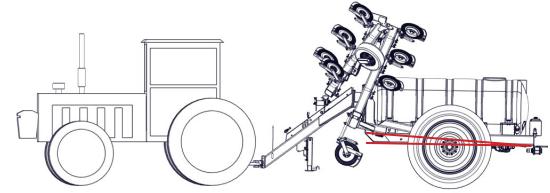
7) In-field adjustment of hydraulic down-pressure: Adjust so that the coulters are staying at desired depth with the least amount of hydraulic pressure necessary.

**IMPORTANT - DO NOT exceed 1,350 PSI.**

8) Adjust tractor hydraulic flow on the Raise and Lower/Wing Kick/Down-pressure circuit as low as possible while maintaining a reasonable toolbar raise and lower speed. This will help prevent creating excess heat in the hydraulic system as this circuit provides continuous toolbar down-pressure.

9) Fold the wings up for transport.

**IMPORTANT - Be sure to have the toolbar fully raised before folding the wings up! Failure to do so will result in damage to the unit.**

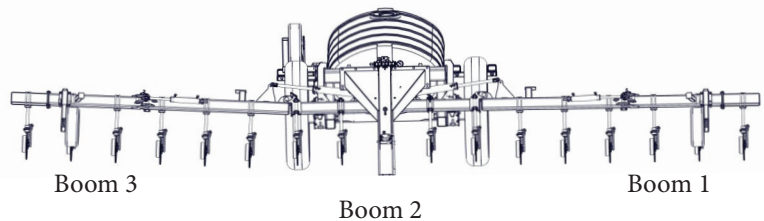


## Initial Console Programming

**HINT: If you enter the wrong value when entering your data press "ENTER" then press "ENTER" again and re-enter your value again.**

- Select the unit of measure by pressing the CE button until the desired unit of measure appears in the display and press "ENTER"  
**NOTE - The unit of measure for the United States is Volume per Acre.**
- Select the type of sensor being used (SP2) by pressing the CE button until the desired sensor type appears in the display and press "ENTER"
- The message "CAL C-SD STANDARD VALVE" will appear in the console's display. Press "ENTER"
- The message "CAL SELF TEST 00" will appear in the console's display. Press the BOOM CAL 1 button and enter the value shown in the table. To store the values press "ENTER" (the enter button will light up) input the value and then press "ENTER". Your value is now stored. Repeat for Boom 2 and 3. Use the arrow keys to advance to the remaining booms.

Boom #	12 Row	16 Row
Boom 1	105	165
Boom 2	150	150
Boom 3	105	165



- Press the "SPEED CAL" button and input the appropriate speed cal. value for the type of sensor being used and press "ENTER"  
**NOTE - For the PHOENIX 10 the speed cal. is 785.**
- Press the "METER CAL" button and enter the meter cal. value stamped on the flow meter's identification tag.  
**NOTE - The meter cal. value is 720 gallons.**
- Press the "VALVE CAL" button and input the calibration number that corresponds with the control valve being used and press "ENTER".  
**NOTE - For this unit the valve cal. is 2123.**
- Press the "RATE 1 CAL" button and "ENTER" the Rate 1 value. Refer to the "Calculate the Rate 1 and Rate 2 Cal Values" section of the Raven SCS 440 manual and press "ENTER".
- Press the "RATE 2 CAL" button and "ENTER" the Rate 2 value. Refer to the "Calculate the Rate 1 and Rate 2 Cal Values" section of the Raven SCS 440 manual and press "ENTER".
- The initial console programming is now complete, and the flashing "CAL" in the console's display should turn off. If it does not, repeat the procedure starting from the first step above.
- These settings will be stored and the previous steps do not need to be repeated after powering OFF/ON.

**RESET:** If an entry or selection error is made during any steps of this procedure, turn the POWER switch to the OFF position, press CE and hold while turning the POWER switch to the ON position to reset the console.

**HINT: If you enter the wrong value when entering your data press "ENTER" then press "ENTER" again and re-enter your value again.**



## Break In Period

First 30 minutes of operation:

1. Check that all coulters and nozzles are clean and working properly. Clean and adjust accordingly.
2. Check all hydraulic and chemical lines. Be sure none of them are kinked, pinched or leaking. Adjust lines accordingly.
3. Re-torque all of the wheel bolts.
4. Check all other fasteners and hardware. Adjust accordingly.
5. Lubricate all grease fittings.

After 4 hours of operation:

1. Check that all coulters and nozzles are clean and working properly. Clean and adjust accordingly.
2. Check all hydraulic and chemical lines. Be sure none of them are kinked, pinched or leaking. Adjust lines accordingly.
3. Re-torque all of the wheel bolts.
4. Check all other fasteners and hardware. Adjust accordingly.

After 10 hours of operation:

1. Check that all coulters and nozzles are clean and working properly. Clean and adjust accordingly.
2. Check all hydraulic and chemical lines. Be sure none of them are kinked, pinched or leaking. Adjust lines accordingly.
3. Re-torque all of the wheel bolts.
4. Check all other fasteners and hardware. Adjust accordingly.

After the 10 hours of operation break in period check, begin the standard maintenance schedule as described in the service section of this manual.

## Troubleshooting

**⚠ WARNING - MAKE SURE THAT ALL POWER IS SHUT OFF BEFORE SERVICING THE APPLICATOR. MAINTENANCE AND REPAIR SERVICE WORK TO BE PERFORMED BY QUALIFIED SERVICEMEN ONLY.**

Trouble...	Possible Cause...	Possible Remedy...
Wings only partially unfold	<ul style="list-style-type: none"> <li>Actuating raise/lower remote instead of fold/unfold remote</li> </ul>	<ul style="list-style-type: none"> <li>Use fold/unfold remote</li> </ul>
Toolbar will not lower	<ul style="list-style-type: none"> <li>Transport latch pins still in transport position</li> <li>Pressure still on transport latches</li> </ul>	<ul style="list-style-type: none"> <li>Remove and place field use position</li> <li>Raise toolbar to relieve pressure on transport latches before lowering</li> </ul>
Toolbar will not raise or lower	<ul style="list-style-type: none"> <li>Faulty hydraulic coupler</li> </ul>	<ul style="list-style-type: none"> <li>Replace with new coupler</li> </ul>
Wings will not fold out or unfold		
Center toolbar section too deep or too shallow	<ul style="list-style-type: none"> <li>Lift cylinders have improper combination of cylinder spacers</li> </ul>	<ul style="list-style-type: none"> <li>Add or remove spacers as necessary</li> </ul>
Wings are tilted up from center toolbar section	<ul style="list-style-type: none"> <li>Gauge wheels set too low</li> <li>Hydraulic down pressure not set high enough</li> <li>Center toolbar section set too deep</li> </ul>	<ul style="list-style-type: none"> <li>Move gauge wheels up</li> <li>Increase pressure before turning adjustment knob clockwise</li> <li>Add cylinder spacers to lift cylinders</li> </ul>
Wings are tilted down from center toolbar section	<ul style="list-style-type: none"> <li>Gauge wheels set too high</li> <li>Center toolbar section set too shallow</li> </ul>	<ul style="list-style-type: none"> <li>Move gauge wheels down</li> <li>Remove cylinder spacers from lift cylinders</li> </ul>
Fertilizer pressure gauge showing high pressure when applying fertilizer	<ul style="list-style-type: none"> <li>Orifices too small</li> <li>Plugged knives</li> <li>Kinked hoses</li> <li>Speed too fast</li> </ul>	<ul style="list-style-type: none"> <li>Install larger orifices</li> <li>Clear debris</li> <li>Adjust hoses as necessary</li> <li>Slow down</li> </ul>
Unable to maintain set application rate	<ul style="list-style-type: none"> <li>Clogged Strainer</li> <li>Orifices too small</li> <li>Agitation valve too far open</li> </ul>	<ul style="list-style-type: none"> <li>Clean strainer</li> <li>Install larger orifices</li> <li>Adjust valve as necessary</li> </ul>
Hydraulic pump will not prime	<ul style="list-style-type: none"> <li>Tank valve clogged</li> <li>Agitation valve closed</li> </ul>	<ul style="list-style-type: none"> <li>Unclog valve</li> <li>Open valve</li> </ul>

\*Refer to the ACE hydraulic pump manual, raven controller manual, and CDS-John Blue pump manual for additional trouble shooting information.

## Service

To prolong the life of your Nitro-Gro applicator, perform the following on a regular basis:

1. Grease coulters, 2 pumps every 50 hours.
2. Check lighting before over the road transport. Make sure lights and SMV emblem are clean from dirt and field debris.
3. Check implement for damage, cracked welds, loosened hardware, etc. After the unit is repaired promptly repaint to prevent further damage.
4. Check hydraulic system for leaks and hose damage, twists or kinks and repair as needed.
5. Check fertilizer handling system for leaks and hose damage, twists or kinks and repair as needed.
6. Check tire pressures and lug nuts periodically and adjust as required.
7. Grease Wheel Hubs.
8. Grease jack.

## Storage

To prolong the life of your Nitro-Gro applicator, perform the following before placing the implement in storage:

1. Remove dirt and debris that may cause rusting.
2. Repaint any areas where the paint has been chipped, scratched or worn away.
3. Coat all earth moving surfaces with a suitable rust preventative.
4. Inspect for damaged or worn parts and replace before next use.
5. Lubricate coulters.
6. Replace all worn, torn and faded decals and reflectors.
7. Store the implement inside away from inclement weather.
8. Flush all fertilizer from the system.
9. Cover Flow Monitors from the sunlight. If the Flow Monitors are exposed to the sun for a long period of time they will turn cloudy and hard to see through.
10. To winterize your Nitro-Gro you need to drain the tank and all fertilizer hoses. Once the system is drained add Marine RV Anti Freeze. Run the Anti Freeze thru the strainer, valves, check valves, and the orifices.

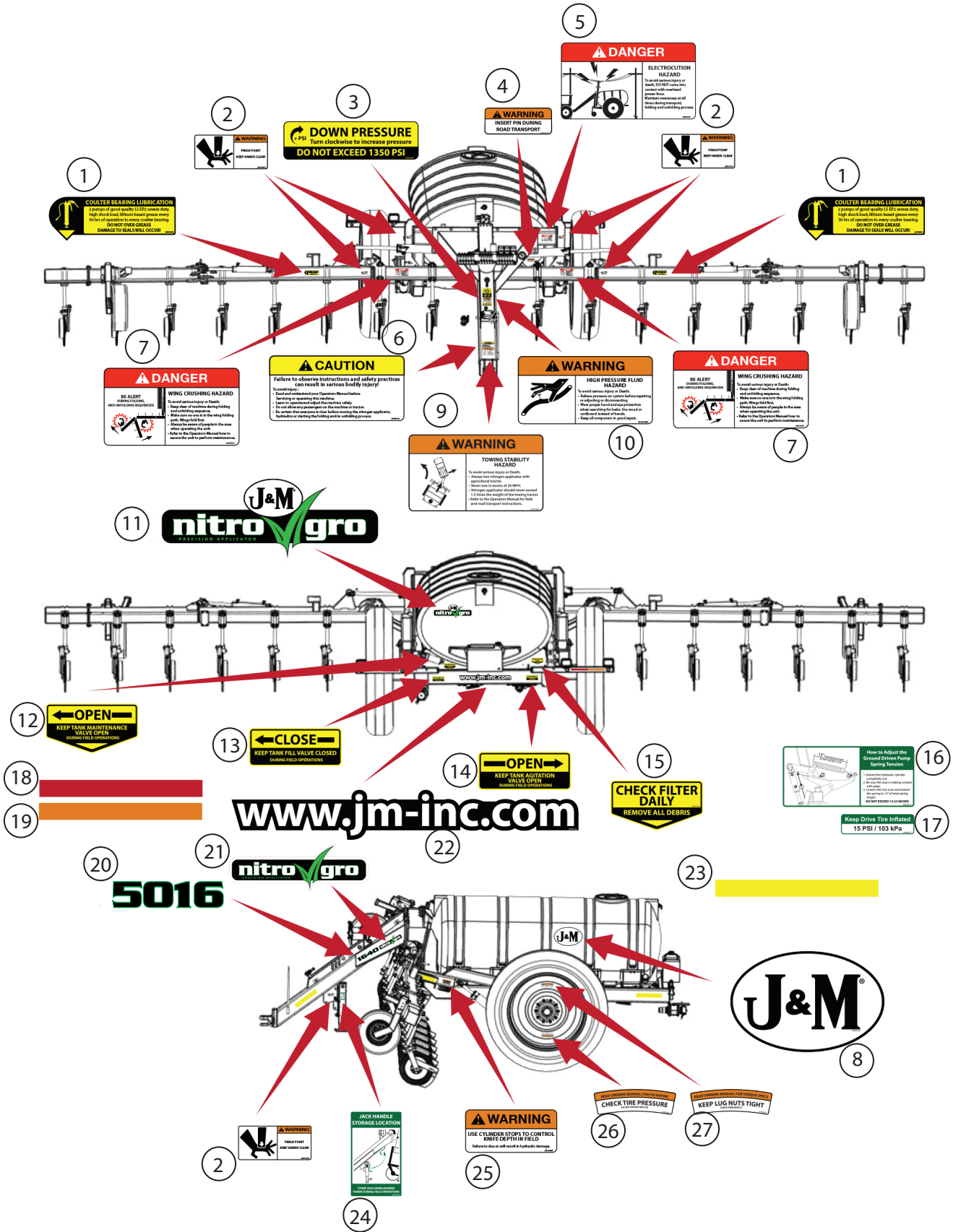
## Safety Signs

**⚠ ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED! ⚠**

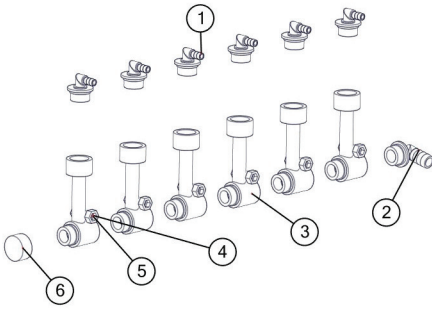
**Replace Immediately If Damaged or Missing**

#	Description: Decals	Part. No.
1	Grease Decal	JM0015104
2	Warning - Pinch Point	JM0014994
3	Down Pressure Decal	JM0035892
4	Warning - Insert Pin Be For Road Transport	JM0038103
5	Danger - Electrocutation Hazard	JM0035887
6	Caution - Observe Instructions	JM0035881
7	Danger - Crushing Hazard	JM0035883
8	J&M Oval	JM0038110
9	Warning - Towing Stability	JM0035882
10	Warning - High Pressure Fluid	JM0035880
11	NitrGro with J&M Decal	JM0039474
12	Open Tank Maintenance Valve	JM0039478
13	Close Tank Fill Valve	JM0035891
14	Open Agitation Valve	JM0039479
15	Check Filter Daily	JM0035884
16	Ground Drive Adjustment	JM0038102
17	Ground Drive Tire Pressure	JM0038101
18	2.0 x 9.0 Red Reflective Strip	JM0009945
19	2.0 x 9.0 Fluorescent Orange Strip	JM0009944
20	Nitrgro Logo5010L	JM0038114
20	Nitrogro Logo5010R	JM0038116
20	Nitrogro Logo5016L	JM0038117
20	Nitrogro Logo5016R	JM0038118
21	NitroGro Decal	JM0039473
22	J&M Website	JM0038108
23	2.0 x 9.0 Reflective Amber Strip	JM0009946
24	Jack Handle Storage	JM0038105
25	Warning - Cylinder Stops	JM0035890
26	Check Tire Pressure	JM0038097
27	Tighten Lug Nuts	JM0035885

# Safety Signs



## 5000 Flow Monitor

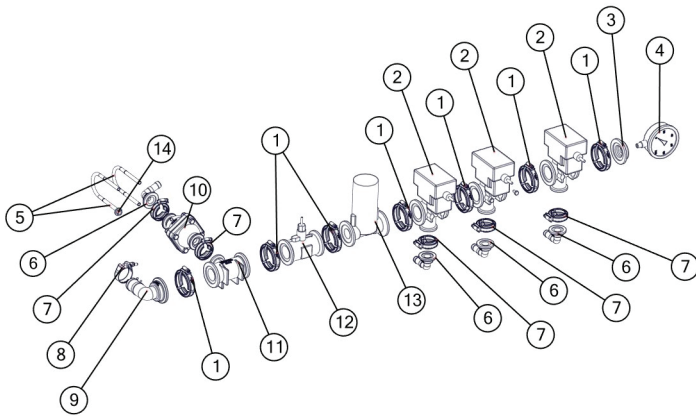


**6 Row Flow Indicator Manifold**

#	Description	Part. No.
1	20511-00 O-Ring x .38in Hose Barb 90 Deg	JM0024469
1	3/8 Hose Clamp (Not Shown)	JM0039206
2	20513-00 O-Ring x .75in Hose Barb 90 Deg	JM0024468
2	3/4 Hose Clamp (Not Shown)	JM0039205
3	20460-00 Flow Indicator	JM0021569
4	1/4"-20 Gr5 Z Centerlock Hex Nut	JM0001505
5	1/4"-20 x 2" Gr5 Z Hex Bolt	JM0001591
6	20521-00 O-Ring Cap - Flow Indicator	JM0021579

\*Same parts for the 3,4, 5 Row Flow Indicator Manifold

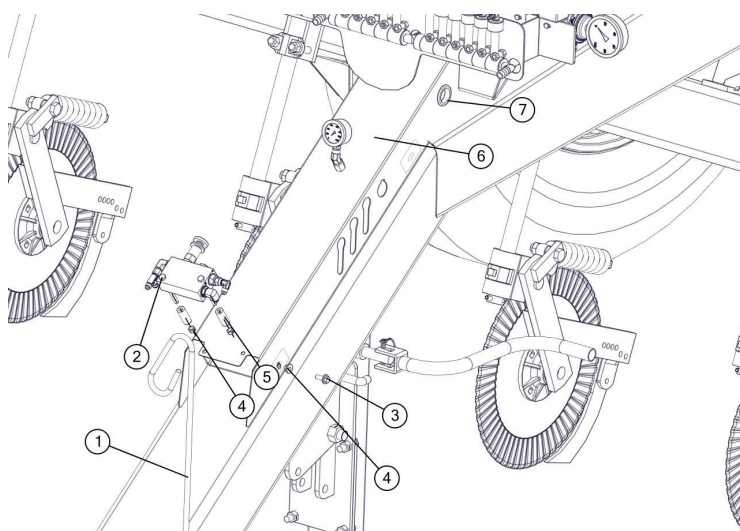
## 5000 Manifold (Hydraulic Pump Only)



Note: Each Flange Clamp requires a Gasket. The Gaskets are not shown. The Gaskets are listed below the Clamps.

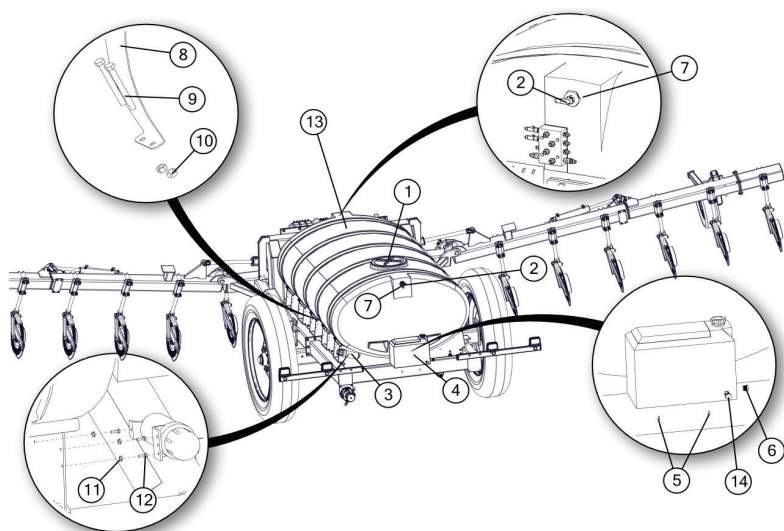
#	Description	Part. No.
1	2" Manifold Flange Clamp	JM0035251
1	2" Manifold Gasket (Not Shown)	JM0021145
2	Raven Boom Valve	JM0032478
3	Banjo 2" Manifold Plug With 1/4" NPT for Gauge	JM0021147
4	Pressure Gauge Stainless Steel 0-100psi, 4"	JM0036636
5	3/8" Round U-Bolt 2" Pipe Size Extended	JM0018627
6	1" Flange x 90 deg. 3/4" Hose Barb	JM0032501
6	3/4 Hose Clamp (Not Shown)	JM0039205
7	1" Manifold Flange Clamp	JM0032496
7	1" Manifold Gasket (Not Shown)	JM0035239
8	Hose Clamp - 1 1/2" Hose	JM0021189
9	2" Manifold Flange x 90 deg. 1-1/2" Hose Barb	JM0034352
10	100psi Spike Valve With 1" Manifold Flanges	JM0032499
11	2" Manifold Tee X 1" Manifold	JM0035116
12	Raven Flow Meter RFM60P	JM0032488
13	Raven Control Valve	JM0032490
14	3/8 -16 Gr5 Z SF Hex Nut	JM0002152

## 5000 Pressure Gauge & Shroud



#	Description	Part. No.
1	1/2" Hose Holder	JM0027120
2	3/8"-16 x 4" Gr5 Z Hex Bolt	JM0002098
3	3/8"-16 x 1" Gr5 Z SF Hex Bolt	JM0002092
4	3/8"-16 Gr5 Z Centerlock Hex Nut	JM0001512
5	3/4 DIA x .385 x 2.0	JM0002444
6	Hose Shroud - Tongue	JM0034836
7	1 1/2 ID x 0.188 GW x 1 3/4 GD Grommet	JM0016924

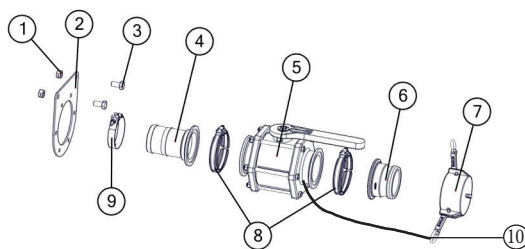
## 5000 Tank



#	Description	Part. No.
1	16in Fertilizer Tank Lid With Vent	JM0037949
2	3/4" Hose Barb X 3/4 Male NPT 90 Deg(Hyd Pump)	JM0035226
2	3/4" Hose Clamp (Not Shown)	JM0039205
3	Manual Canister	JM0010115
4	9 Gallon Safety/Fresh Water Tank	JM0030587
5	1/4"-20 x 1/2" Gr5 Z Hex Bolt	JM0001481
6	3/4" NPT PVC Threaded Plug Schedule 40	JM0037251
7	3/4" NPT Bulkhead Tank Flange ASM(Hyd Pump)	JM0035222
8	Band For Elliptical Norwesco Tank	JM0030208
9	1/2"-13 X 4.5 Gr5 Z Hex Bolt	JM0008548
10	1/2"-13 Gr5 Z Centerlock Hex Nut	JM0001511
11	1/4"-20 Gr5 Z SF Hex Nut	JM0001630
12	1/4"-20 x 3/4" Gr5 Z Hex Bolt	JM0001507
13	Norwesco Elliptical Tank 1,000 Gallon	JM0027371
13	Norwesco Elliptical Tank 1,600 Gallon With Sump	JM0027372
14	Drum Faucet - 3/4" NPT	JM0039066



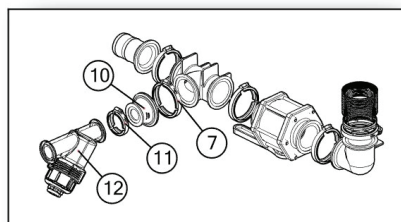
## 5000 Fill Valve 2" & 3"



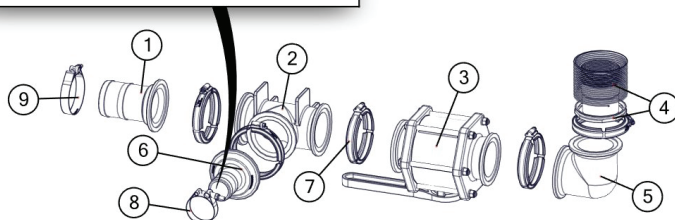
#	Description (3" Quick Fill)	Part. No.
1	1/2"-13 Gr5 Z Centerlock Hex Nut	JM0001511
2	Ball Valve Mount Plate 3" Banjo	JM0034894
3	1/2-20 x 1 Gr5 Z Hex Bolt	JM0028442
4	3" Manifold Flange to 3" Hose Barb	JM0021244
5	Ball Valve - 3" Full Port Flange Manifold	JM0021230
6	3" Manifold Flange x 3" QDC Male	JM0035205
7	3" Poly Cam Lever Cap	JM0035206
8	3" Manifold Flange Clamp	JM0035237
8	3" Manifold Gasket(Not Shown)	JM0021239
9	T-Bolt Hose Clamp 3" Hose	JM0035248
10	Lanyard	JM0039282

#	Description (2" Quick Fill)	Part. No.
1	1/2"-13 Gr5 Z Centerlock Hex Nut	JM0001511
2	Ball Valve Mount Plate 2"FP Banjo	JM0034889
3	1/2-20 x 1 Gr5 Z Hex Bolt	JM0028442
4	2"FP Manifold Flange to 2" Hose Barb	JM0033796
5	Ball Valve - 2"FP Flange Manifold	JM0031370
6	2"FP Manifold Flange x 2" QDC Male	JM0035249
7	2" Poly Cam Lever Cap	JM0035250
8	2"FP Manifold Flange Clamp	JM0035251
8	2"FP Manifold Gasket(Not Shown)	JM0021145
9	T-Bolt Hose Clamp 2" Hose	JM0035247
10	Lanyard	JM0039282

## 5000 Tank Fittings for 2" & 3"



Shown as 3" tank fittings

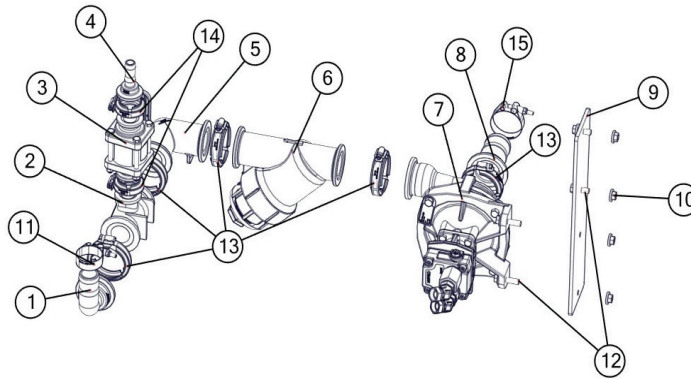


#	Description (3" Quick Fill)	Part. No.
1	3" Manifold Flange to 3" Hose Barb	JM0021244
2	Manifold Tee - 3"	JM0021232
3	Ball Valve - 3" Full Port Flange Manifold	JM0021230
4	3" x 3" Manifold EPDM Flange Bulkhead Fitting	JM0035114
5	90 Deg Coupling, 3" Manifold Flange	JM0033979
6	3" Manifold Flange x 2" Hose Barb	JM0034333
7	3" Manifold Flange Clamp	JM0035237
7	3" Manifold Gasket(Not Shown)	JM0021239
8	T-Bolt Hose Clamp 2" Hose	JM0035247
9	T-Bolt Hose Clamp 3" Hose	JM0035248
10	3" Manifold X 2" Manifold Flange Reducer Coupling	JM0035130
11	2"FP Manifold Flange Clamp	JM0035251
11	2"FP Manifold Gasket(Not Shown)	JM0021145
12	Manifold Y Strainer - 2" Flange, 30 Mesh	JM0033803

#	Description (2" Quick Fill)	Part. No.
1	2"FP Manifold Flange to 2" Hose Barb	JM0033796
2	Manifold Tee - 2"FP	JM0033797
3	Ball Valve - 2"FP Flange Manifold	JM0031370
4	2" x 2"FP Manifold EPDM Flange Bulkhead Fitting	JM0033793
5	90 Deg Coupling, 2"FP Manifold Flange	JM0033795
6	2"FP Manifold Flange x 2" Hose Barb	JM0033796
7	2"FP Manifold Flange Clamp	JM0035251
7	2"FP Manifold Gasket(Not Shown)	JM0021145
8	T-Bolt Hose Clamp 2" Hose	JM0035247
9	T-Bolt Hose Clamp 2" Hose	JM0035247

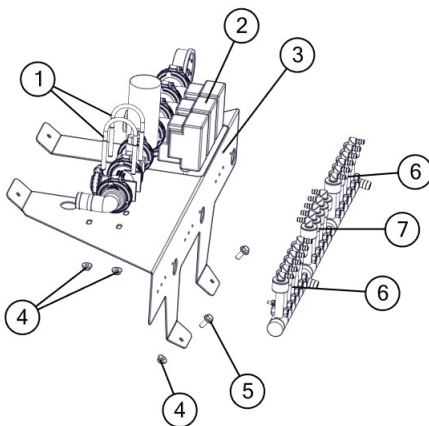


## 5000 Strainer & Hydraulic Pump



#	Description	Part. No.
1	2" Manifold Flange x 90 deg 1-1/2" Hose Barb	JM0034352
2	2" Manifold Tee x 1" Manifold	JM0035116
3	Ball Valve - 1" Manifold Flange	JM0033824
4	1" Flange x 3/4" Hose Barb	JM0021401
4	3/4" Hose Clamp(Not Shown)	JM0039205
5	90 Deg Coupling - 2" Manifold Flange	JM0033991
6	Manifold Y Strainer - 2" Flange, 30 Mesh	JM0033803
7	Pump - Centrifugal	JM0033798
8	2" Hose Barb x 2" Full Port Manifold Flange	JM0033796
9	Plate - Hyd Fertilizer Pump Mounting	JM0034960
10	3/8-16 Gr5 Z SF Hex Nut	JM0002152
11	T-Bolt Hose Clamp 1 1/2" Hose	JM0021189
12	3/8"-16 x 1-1/2" Gr5 Z SF Hex Bolt	JM0001633
13	2" Manifold Flange Clamp	JM0035251
13	2" Manifold Gasket (Not Shown)	JM0021145
14	1" Flange Clamp	JM0032496
14	1" Manifold Gasket (Not Shown)	JM0035239
15	T-Bolt Hose Clamp 2" Hose	JM0035247
15	T-Bolt Hose Clamp 3" Hose	JM0035248

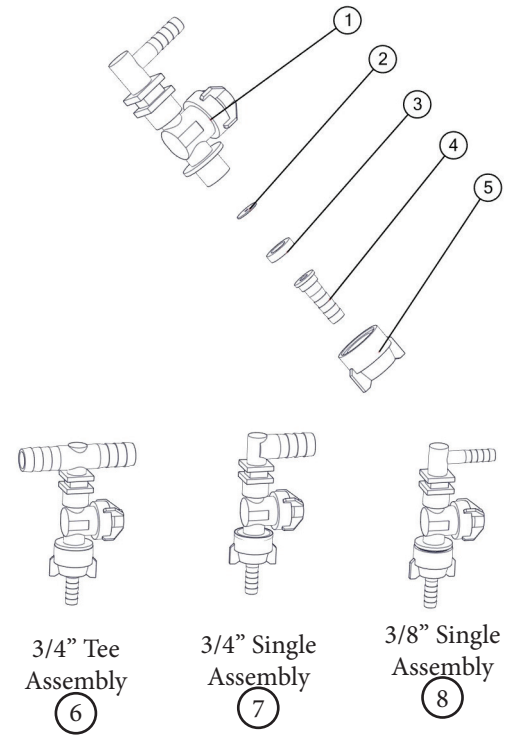
## 5000 Flow Control Mount (Hydraulic Pump Only)



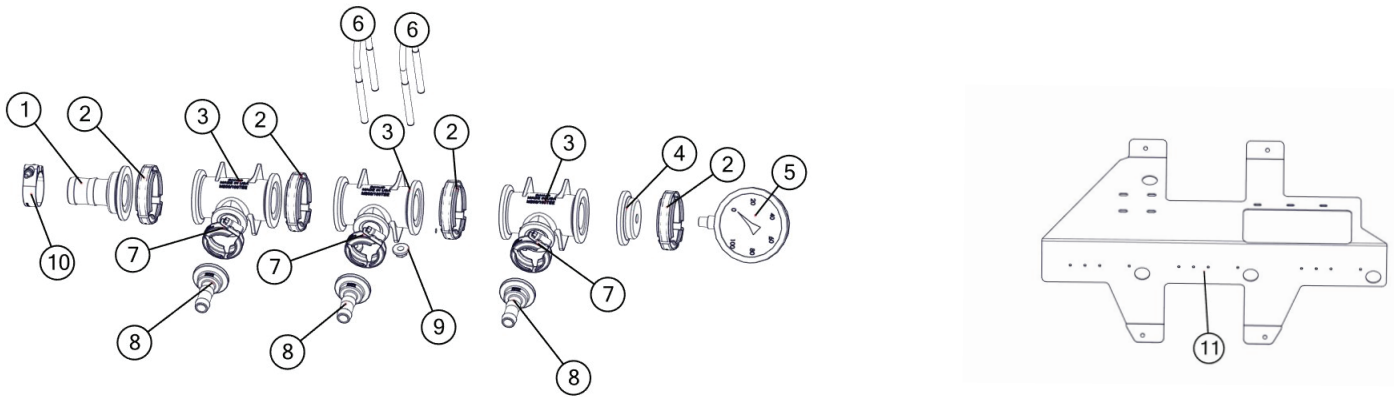
#	Description	Part. No.
1	3/8" Round U-Bolt 2" Pipe Size Extended	JM0018627
2	Raven FC CV SV ASM W-Fittings (Assembly)	JM0038228
3	Mount for Flow Control Valves	JM0040083
4	3/8"-16 Gr5 Z SF Hex Nut	JM0002152
5	3/8"-16 x 1" Gr5 Z SF Hex Bolt	JM0002092
6	Flow Indicator Manifold - 6 row with 3/4" inlet and 3/8" outlets	JM0024470
7	Flow Indicator Manifold - 5 row with 3/4" inlet and 3/8" outlets	JM0021591
7	Flow Indicator Manifold - 4 row with .75 inlet and .38 outlets(Not Shown)	JM0039279
7	Flow Indicator Manifold - 3 row with .75 inlet and .38 outlets(Not Shown)	JM0039280

## 5000 Check Valve

#	Description	Part. No.
1	Diaphragm Check Valve 3/8" Hose Single	JM0036383
1	Diaphragm Check Valve 3/4" Hose Tee	JM0036379
1	Diaphragm Check Valve 3/4" Hose Single	JM0036381
1a	3/8" Hose Clamp (Not Shown)	JM0039206
1b	3/4" Hose Clamp (For the 3/4" Diaphragm Check Valve)	JM0039205
2	Orifice	Specify pg 51
3	Seat Gasket	JM0036372
4	Outlet Hose Barb, 3/8" Poly	JM0036368
4	3/8" Hose Clamp (Not Shown)	JM0039206
5	Quickjet Cap, Black	JM0036371
6	Diaphragm Check Valve 3/4" Hose Tee Assembly	JM0041782
7	Diaphragm Check Valve 3/4" Hose Single Assembly	JM0041783
8	Diaphragm Check Valve 3/8" Hose Single Assembly	JM0037890

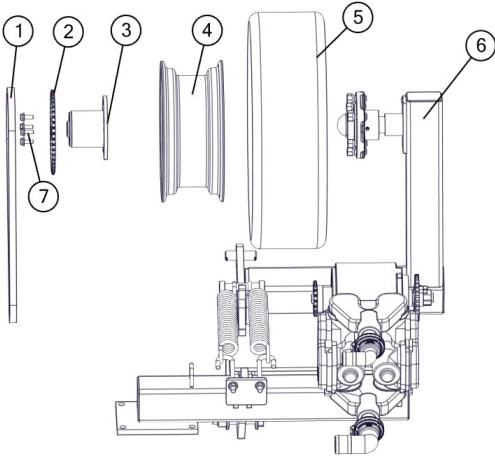


## 5000 Ground Driven Pump Manifold



#	Description	Part. No.
1	2" Manifold X 1-1/2" Barb	JM0021161
2	2" Manifold Flange Clamp	JM0035251
2	2" Manifold Gasket(Not Shown)	JM0021145
3	2" Manifold Tee x 1" Manifold	JM0035116
4	2" Manifold Plug With 1/4" NPT for Gauge	JM0021147
5	Pressure Gauge Stainless Steel 0-100psi, 4", 1/4" NPT	JM0036636
6	3/8 x 16 Round U-Bolt 2in Pipe Size Extended	JM0018627
7	1" Manifold Flange Clamp	JM0032496
7	1" Manifold Gasket With Rib EPDM(Not Shown)	JM0035239
8	1" Flange x 3/4" Hose Barb	JM0021401
8	3/4" Hose Clamp(Not Shown)	JM0039205
9	3/8-16 Gr5 Z SF Hex Nut	JM0002152
10	1" T-Bolt Clamp	JM0021189
11	Flow Monitor Mount	JM0034846

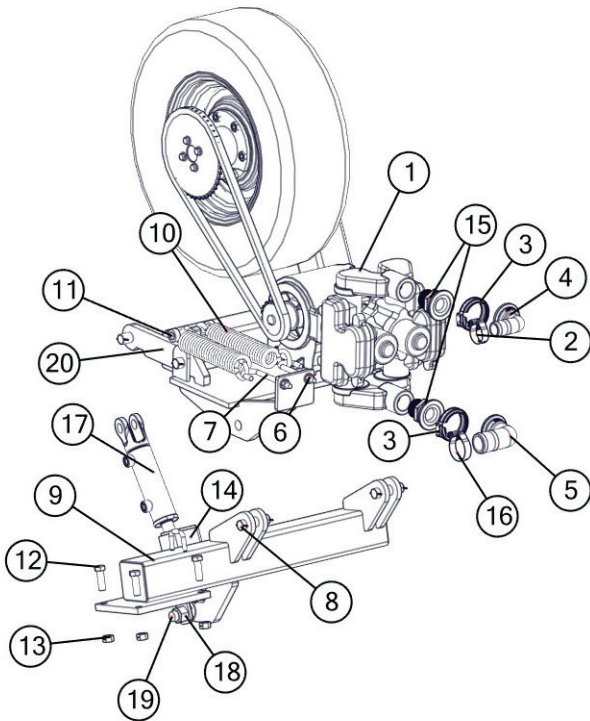
## 5000 Ground Drive Pump



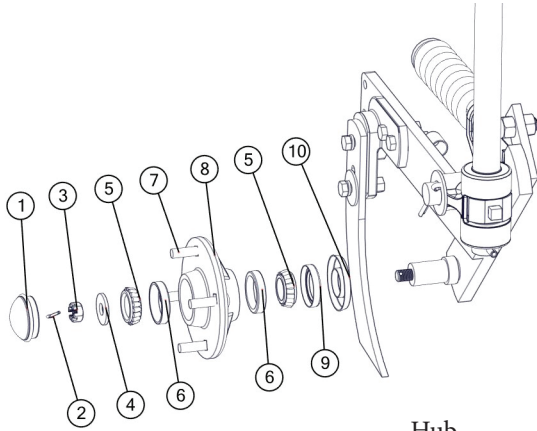
#	Description	Part. No.
1	Roller Chain #50	JM0034463
2	50A45 Sprocket #50 Roller Chain	JM0034459
3	Sprocket Mount "Ground Drive Pump"	JM0034442
4	14 x 6 Wheel 1 1/8 Inset	JM0019535
5	ST215-75D14 Tire Carlisle Sport Trail	JM0019529
6	Ground Drive Pump Pivot	JM0036063
7	3/8"-16 x 1" Gr5 Z SF Hex Bolt	JM0002092

See wing wheel section of manual for hub components pg. 37

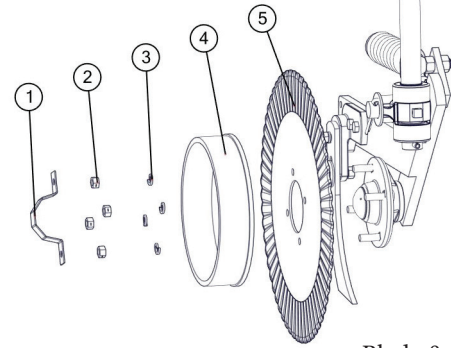
## 5000 Ground Driven Pump



#	Description	Part. No.
1	John Blue NGP-9055 Dual Piston Pump	JM0035142
1	John Blue NGP 7055-F Single Piston Pump	JM0034503
2	T-Bolt Hose Clamp 1-1/2"	JM0021189
3	2" Manifold Gasket(Not Shown)	JM0021145
3	2" Manifold Flange Clamp	JM0035251
4	2" Manifold Flange x 90 deg 1-1/2" Hose Barb	JM0034352
5	2" Manifold x 2" Hose Barb 90 Deg	JM0035141
6	1/2"-13 Gr5 Z Hex Nut	JM0001624
7	1/2"-13 Gr5 Z J-Bolt	JM0002168
8	1 x 3-1/2" Clevis Pin with Cotter Pins	JM0001817
9	Ground Drive Pump Mount	JM0036062
10	Tongue Spring (24T,HT) 3/8 x 1 3/4 x 12 1/2	JM0014200
11	Shaft Collar - Set Screw 3/4"	JM0025216
12	5/8"-11 x 2" Gr5 Z Hex Bolt	JM0002104
13	5/8"-11 Gr5 Z Centerlock Hex Nut	JM0002146
14	Cylinder Lock Latch	JM0036330
15	1 1/2" Male MPT X 2" Manifold Flange(Dual Piston Pump)	JM0035124
16	T-Bolt Hose Clamp 2" Hose	JM0035247
17	Lion 2 bore x 4 stroke WH series	JM0034861
18	1-8 Gr5 Z Nylon Locking Hex Nut	JM0002161
19	1"-8 X 5" Gr5 Z Pn Hex Bolt	JM0001558
20	Linkage Weldment	JM0037580
	John Blue Dual Piston repair kit (Not Shown)	JM0038496



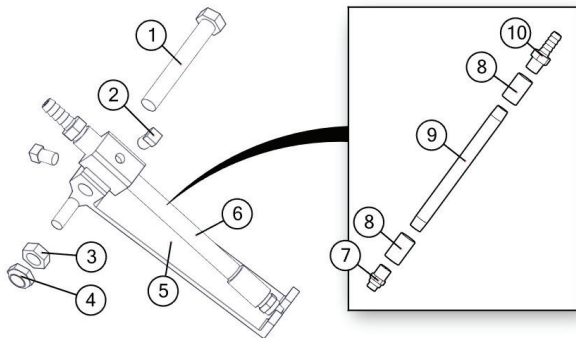
Hub Assembly



Blade & Depth Control Spool

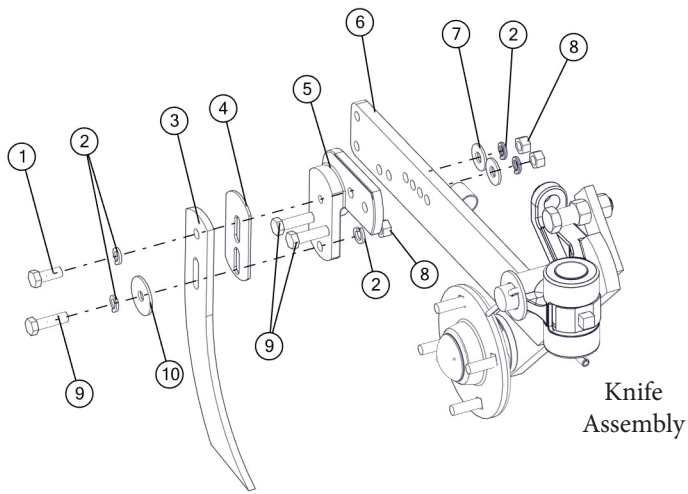
#	Description	Part. No.
1	Dust Cap	JM0038288
2	1/8" Cotter Pin	JM0004177
3	1/2" castle nut	JM0038277
4	Hub Washer	JM0038278
5	Tapered Single - LM67048	JM0019564
6	Cup LM67010	JM0026564
7	1/2"-13 x 2" Gr2 Z Stud	JM0038410
8	Hub	JM0038285
9	Grease Seal	JM0038287
10	Seal Protector	JM0038267

#	Description	Part. No.
1	Dust Cap Keeper	JM0038391
2	1/2"-13 Gr5 Z Hex Nut	JM0002124
3	1/2" Zinc Finish Lock Washer	JM0019021
4	Depth Control Spool	JM0031281
5	20" Ripple Blades	JM0031269
5	20" Wavy Blade	JM0038506

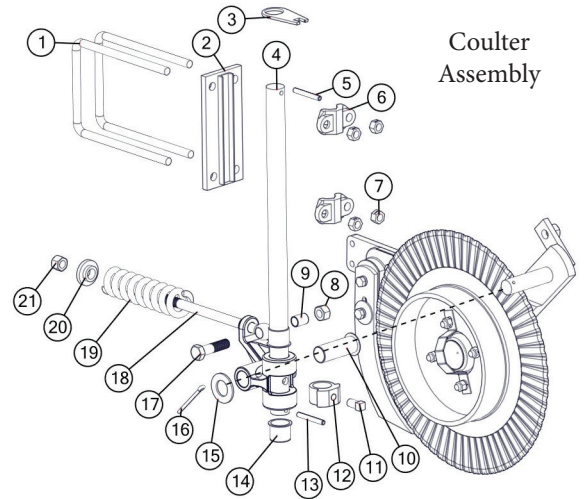


#	Description	Part. No.
1	1/2"-13 x 3-1/2" SS Hex Bolt	JM0041790
2	3/8"-16 x 1/2" Square Head SS Bolt	JM0041793
3	1/2"-13 SS Hex Jam Nut	JM0041791
4	1/2"-13 SS Nylon Locking Hex Jam Nut	JM0041792
5	GC3205 Injection Mount	JM0035055
6	Fertilizer Injector With Fittings	JM0041788
7	Stream Jet	see pg 55
8	1/4" NPT Merchant Coupling SS	JM0036441
9	1/4" NPT x 6 Pipe Nipple SS	JM0036445
10	Hose Barb 3/8" x 1/4" MPT Stainless Steel	JM0036419

## 5000 GEP Coulters

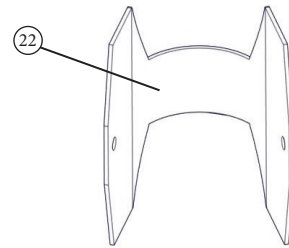


Knife  
Assembly



Coulters  
Assembly

#	Description	Part. No.
1	1/2" -13 x 1-1/4" Gr5 Z Hex Bolt	JM0001513
2	1/2" Zinc Finish Lock Washer	JM0019021
3	Wiese Knife	JM0031273
4	Shims- 1/8"	JM0038415
5	Knife Bracket	JM0038279
6	Coulters Arm	JM0038397
7	1/2" USS Flat Washer	JM0003082
8	1/2"-13 Gr5 Z Hex Nut	JM0002124
9	1/2"-13 x 1-3/4" Gr5 Z Hex Bolt	JM0002101
10	1/2" ID x 2" OD Flat Washer - 1/8" Thick	JM0026973

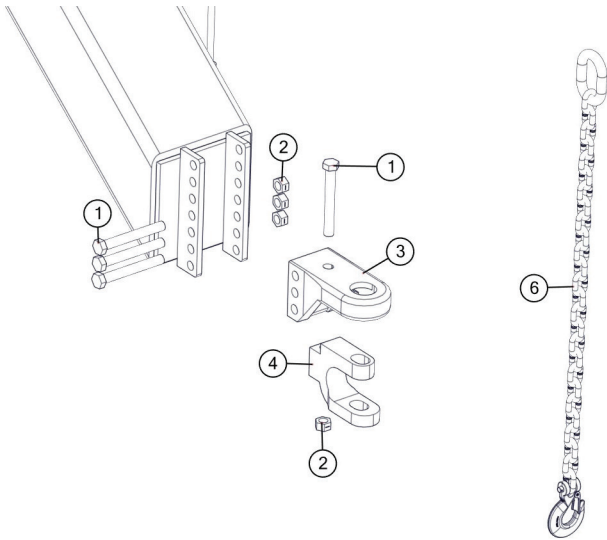


Description	Part. No.
Coulters Knife Bracket Package (Knife Assembly) Item: 1,2,4,5,7,8,9,& 11	JM0041705
Coulters Assembly (Hub Assembly Item: 1-10) (Blade & Depth Control Spool Item: 1) (Knife Assembly Item: 6) (Coulters Assembly Item: 8-21)	JM0031265
Coulters Bracket Package, (Coulters Assembly) Item: 1,2,6,& 7	JM0035053

#	Description	Part. No.
1	5/8" x 7" x 10-1/4" U-Bolt	JM0030958
2	Channel Bracket Plate	JM0030954
3	QJ Mounting Tab	JM0036048
4	28" Shaft - Coulters Mount	JM0030959
5	3/8" x 3" SS Roll Pin	JM0037162
6	Channel Bracket Casting	JM0030956
7	5/8"-11 Gr5 Z Hex Nut	JM0001522
8	3/4-10 Hex Nut	JM0002125
9	Nylon Spring Bushing	JM0038264
10	Nylon Bushing	JM0038259
11	5/8"-11 x 1" Square Head Bolt	JM0037259
12	Lock Collar, 30° Rotation	JM0031280
12	Lock Collar, 45° Rotation	JM0038604
13	3/8" x 3" SS Roll Pin	JM0037162
14	Shaft Nylon Bushing	JM0038258
15	Washer	JM0038272
16	Cotter Pin	JM0038414
17	3/4-10 G5 Z Bolt 3"Lg	JM0038263
18	Spring Rod	JM0038265
19	Spring	JM0038269
20	Spring Alignment Cast	JM0038270
21	Nylon Lock Nut	JM0026756
22	Nitrogen Sealer Cable Closer	JM0038176

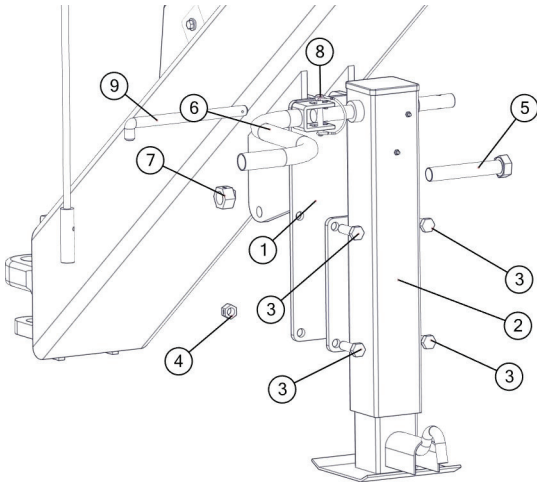


## 5000 Hitch



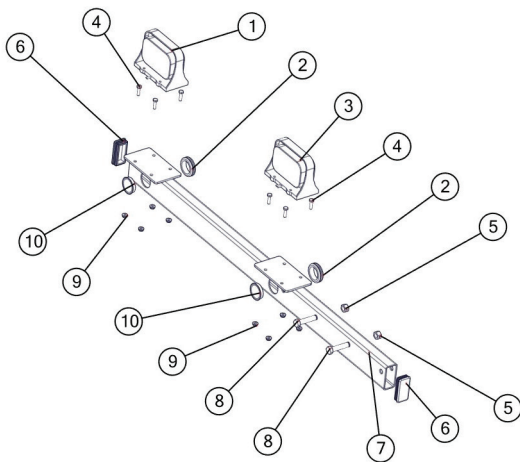
#	Description	Part. No.
1	3/4"-10 x 6" Gr8 Z Hex Bolt	JM0037185
2	3/4"-10 Gr5 Z Centerlock Hex Nut	JM0002147
3	CTD Perfect Hitch Base PP23XLR	JM0037174
4	CTD Perfect Hitch Clevis 1-1/4" x 1-3/4" Slot	JM0037173
5	Hitch Assembly (Items 1 through 4)	JM0037177
6	Safety Chain	JM0027440

## 5000 Jack Weldment



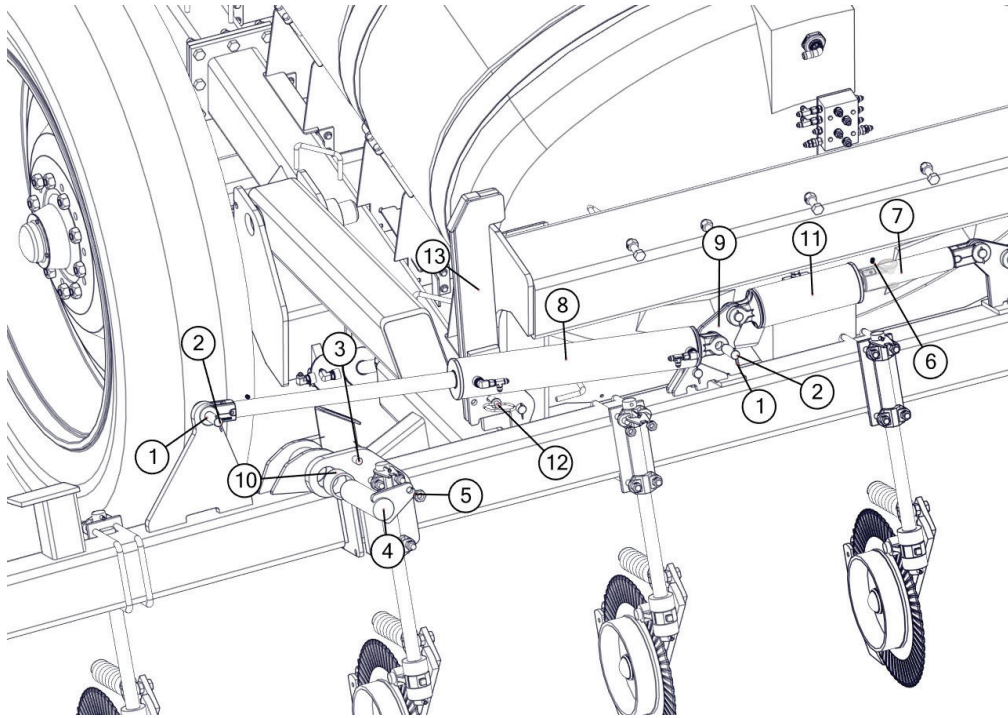
#	Description	Part. No.
1	Jack Mounting Bracket	JM0031545
2	Jack Assembly (NitroGro & 510ST)	JM0030054
3	5/8"-11 x 2" Gr8 Z Hex Bolt	JM0001771
4	5/8"-11 Gr5 Z Centerlock Hex Nut	JM0002146
5	1"-8 x 6" Gr5 Z Hex Bolt	JM0002111
6	Jack Handle	JM0037953
7	1"-8 Gr5 Z Centerlock Hex Nut	JM0002149
8	Lynch Pin 3/8" x 2-1/2"	JM0014929
9	3/4" L Pin	JM0003076

## 5000 Light Bar



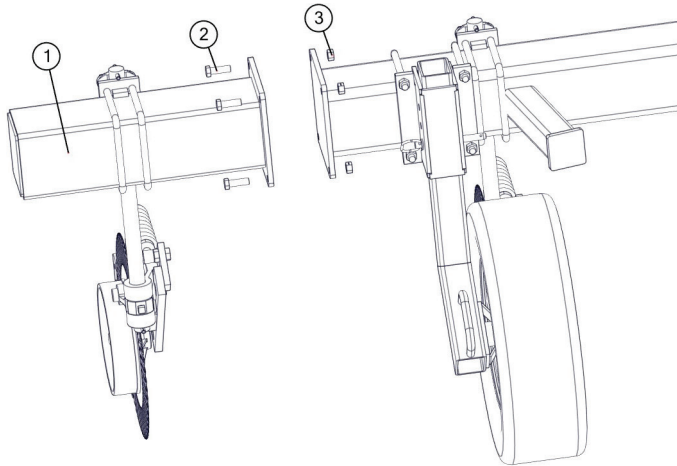
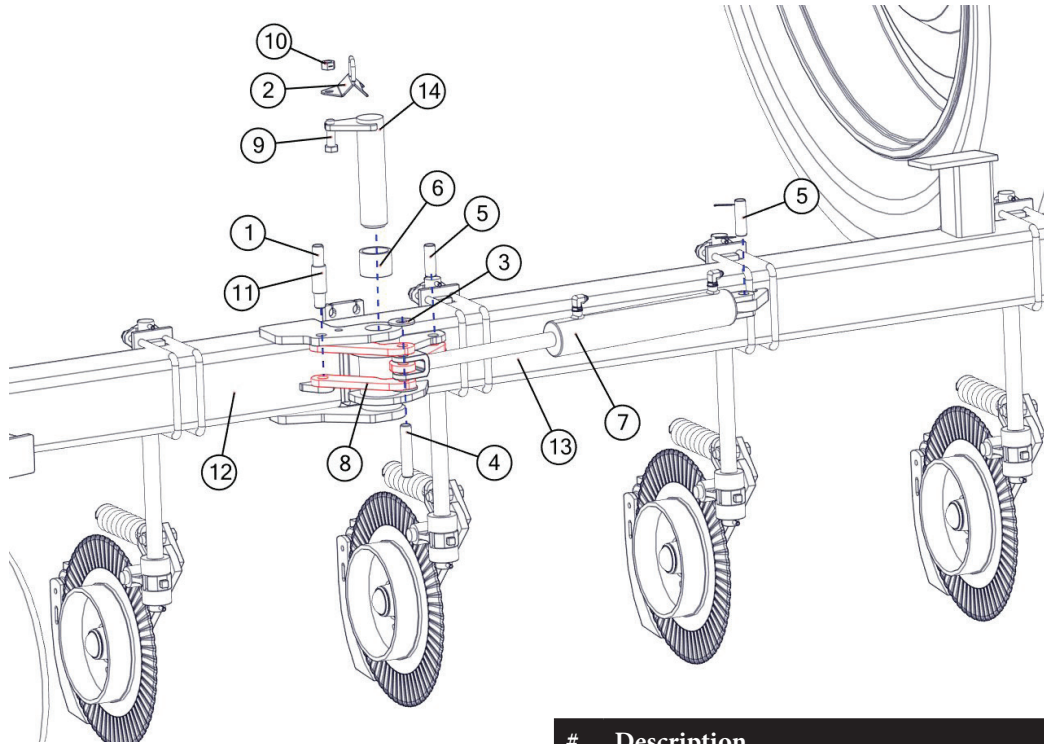
#	Description	Part. No.
1	Amber Light	JM0009975
2	1-1/2" ID x 0.188 GW x 1-3/4" GD Grommet	JM0016924
3	Red Light	JM0009976
4	1/4"-20 x 1" Gr5 Z Hex Bolt	JM0002095
5	1/2"-13 Gr5 Z Centerlock Hex Nut	JM0001511
6	1-1/2" x 3" Rectangular Tubing Plug	JM0037249
7	Light Bar Weldment	JM0036071
8	1/2"-13 x 2-1/4" Gr5 Z Hex Bolt	JM0016677
9	1/4"-20 Gr5 Z SF Hex Nut	JM0001630
10	Plastic Plug for 1-3/4" Hole	JM0037250

## Wings



#	Description	Part. No.
1	1" x 3.4 Clevis Pin	JM0001816
2	Cotter Pin	JM0003064
3	3/4"-10 x 3.0 Gr5 Z Hex Bolt	JM0027464
4	Pivot Pin - 2-1/2 Dia With Bolt Retainer	JM0031502
5	3/4"-10 Gr5 Z Centerlock Hex Nut	JM0002147
6	3/8"-16 x 0.5 Socket Set Screw Nylon Tip	JM0037255
7	Shaft - Down pressure Cylinder	JM0032428
8	Lion 4 Bore x 24 Stroke Welded WH Series	JM0030730
9	Linkage - Down pressure Cylinder	JM0034014
10	Sleeve Composite Bearing	JM0020546
11	JD 4 Bore x 8 Stroke Welded Cyl	JM0030757

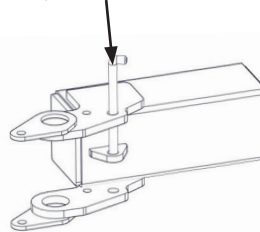
# Wings



#	Description	Part. No.
1	Mounting Bracket	JM0020472
2	5/8"-11 x 2" Gr8 Z Hex Bolt	JM0001771
3	5/8"-11 Gr5 Z Centerlock Hex Nut	JM0002146

#	Description	Part. No.
1	Pin - 1" x 6 LG	JM0031495
2	Hose Mount	JM0036703
3	1.0 USS Flat Washer	JM0003063
4	Pin - 1" x 5 LG	JM0031496
5	1 x 3-1/2" Clevis Pin with Cotter Pins	JM0001817
6	Sleeve Composite Bearing	JM0020546
7	3 x 14 Welded JD Cylinder	JM0035057
8	Linkage - Outside Wing	JM0030333
9	3/4" - 10 x 3.0 Gr5 Z Hex Bolt	JM0027464
10	3/4" - 10 Gr5 Z Centerlock Hex Nut	JM0002147
11	Spacer - Linkage	JM0031494
12	Outside Wing (Right Side)	JM0034129
12	Outside Wing (Left Side)	JM0034107
13	Mid Wing (Right Side, 2016)	JM0034131
13	Mid Wing (Left Side, 2016)	JM0034130
14	Pivot Pin - 2-1/2 Dia With Bolt Retainer	JM0031502

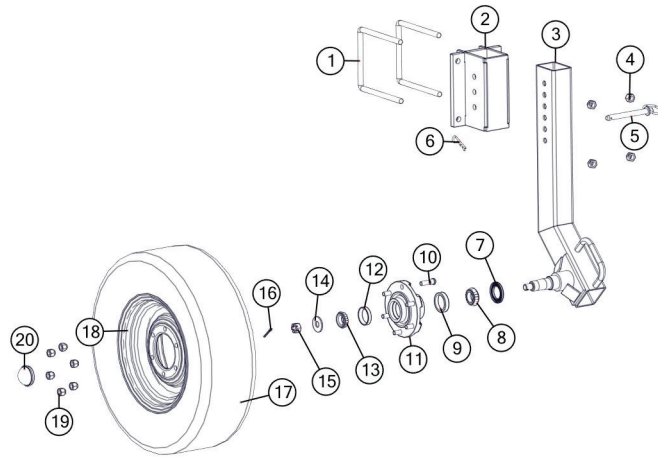
Lock Pin  
JM0003076



30' Wing  
Extension  
JM0035008

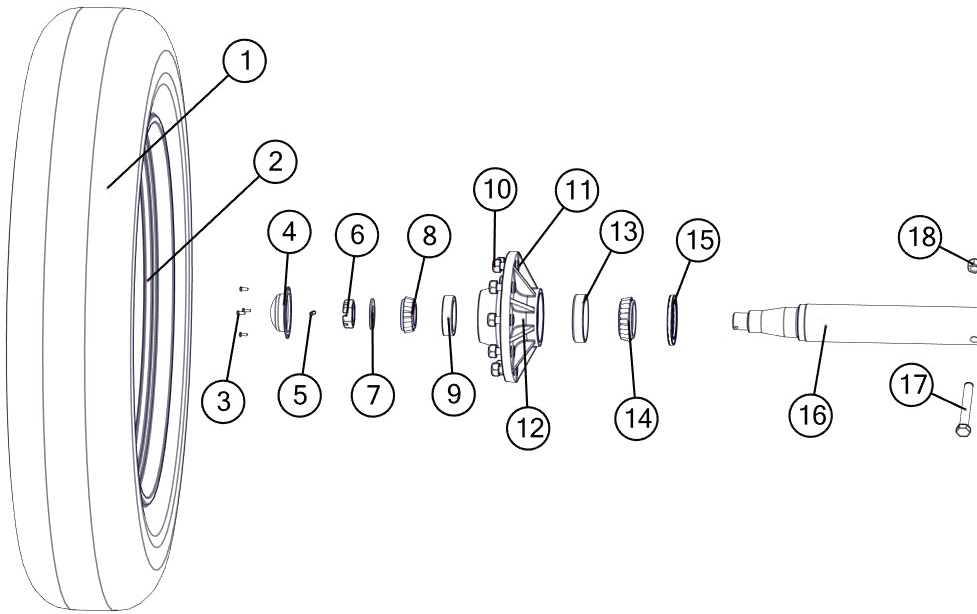


## 5000 Wing Wheel



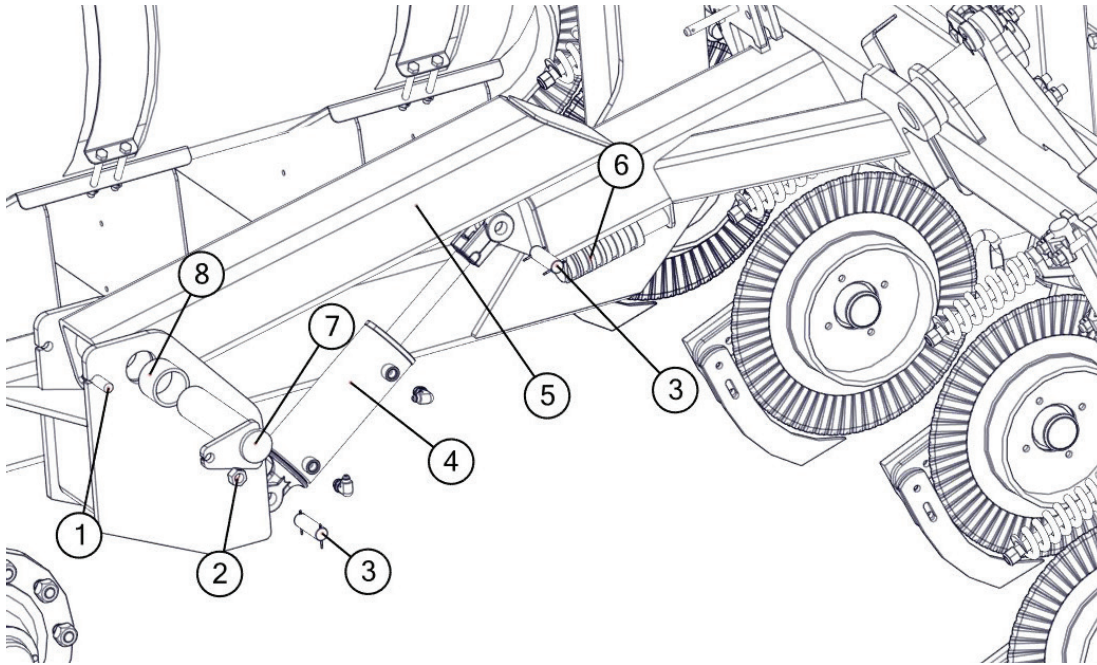
#	Description	Part. No.
1	Square U-Bolt 7-1/8" Inside Width x 9" Length, 5/8"-11	JM0020901
2	Gauge Wheel Mount	JM0031518
3	Gauge Wheel Assembly (Right Hand)	JM0031511
3	Gauge Wheel Assembly (Left Hand)	JM0031520
4	5/8"-11 Gr5 Z Centerlock Hex Nut	JM0002146
5	5/8" x 7" Hitch Pin	JM0003079
6	3/16" x 2-1/2" Hair Clip Pin	JM0001657
7	Grease Seal, 6-8 Ton	JM0026572
8	Large Inner Bearing for 6-8 Ton	JM0019563
9	Large Cup for 6-8 Ton	JM0026565
10	Wheel Stud for Hub, 6-8 Ton (1/2"-20 x 1-7/8")	JM0019559
11	Hub with Races, Studs and Nuts, 7-8 Ton	JM0026566
12	Small Cup for 6-10 Ton	JM0026564
13	Small Outer Cone for 6-10 Ton	JM0019564
14	3/4" Z Flat Washer (2" OD)	JM0010006
15	3/4"-10 Gr5 Z Castle Hex Nut	JM0002130
16	3/16" x 1 1/2" Cotter Pin, 6-10 Ton	JM0014348
17	Tire ST215-75D14	JM0019529
18	Wheel Rim, 6 hole 14" x 6"	JM0019535
19	1/2"-20 Lug Nut, 6-8 Ton	JM0003062
20	Dust Cap, 6-10 Ton	JM0026567

## Spindle



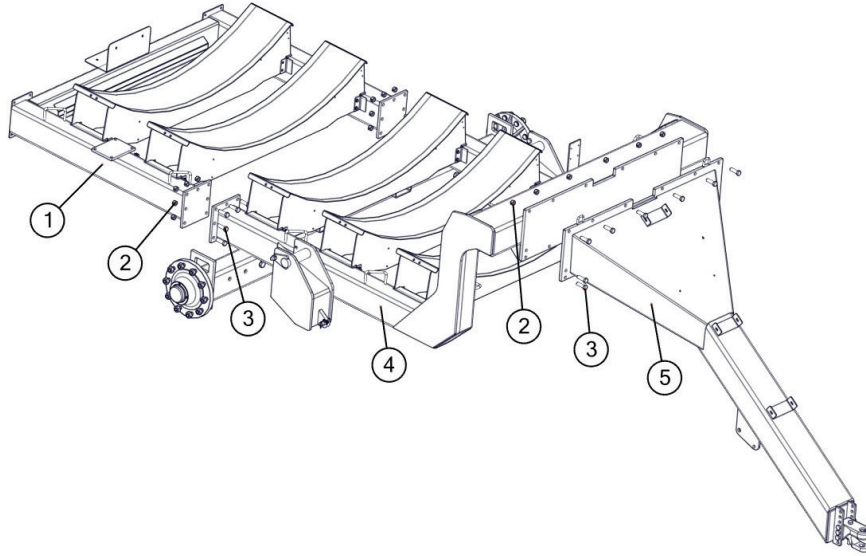
#	Description	Part. No.
1	480/80R42 Tire Firestone	JM0020038
1	380/90R46 Tire Firestone	JM0016170
2	Wheel, 46 x 12 10 Holes	JM0029935
2	Wheel, 42 x 16 10 Holes	JM0020015
3	1/4"-20 x 3/4" Gr5 Z Hex Bolt	JM0001507
4	Dust Cap	JM0018954
5	3/8 x 2 3/4 Z Roll Pin	JM0018956
6	2.0-12 Gr5 Z Castle Hex Nut	JM0015899
7	2 1/8 ID x 3 3/4 OD Flat Washer - 3/16" Thick	JM0015900
8	Tapered Single	JM0018852
9	Sm Race	JM0018854
10	3/4 -16 Lugnut	JM0018958
11	3/4 -16 x 1 3/4" Stud	JM0018957
12	Hub with Races, Lugs, Studs, and Nuts	JM0020510
13	Lg. Race	JM0018848
14	Tapered Single	JM0018849
15	Grease Seal	JM0018955
16	4.5 Spindle	JM0018794
17	1.0-8 x 7.0 Gr5 Z Hex Bolt	JM0016689
18	1-8 Gr5 Z Nylon Locking Hex Nut	JM0002161

## Tool Bar



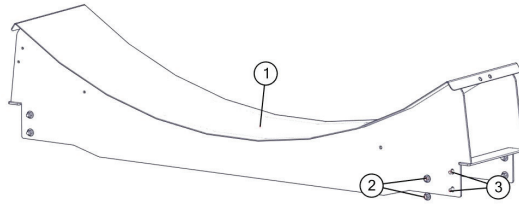
#	Description	Part. No.
1	3/4"-10 x 3.0 Gr5 Z Hex Bolt	JM0027464
2	3/4"-10 Gr5 Z Centerlock Hex Nut	JM0002147
3	1 x 3-1/2" Clevis Pin with Cotter Pins	JM0001817
4	JD 4 Bore x 8 Stroke Welded Cyl	JM0030757
5	Toolbar Base Section (2016)	JM0034136
5	Toolbar Base Section ( After 2017)	JM0039525
6	1 1/2" in Dia Cyl Spacer, Kit	JM0037182
7	Pivot Pin - 2-1/2 Dia With Bolt Retainer	JM0031502
8	Sleeve Composite Bearing	JM0020546

## Frame



#	Frame 2016	Part. No.
1	Rear Frame 5016	JM0033742
1	Rear Frame 5010	JM0033744
2	3/4"-10 Gr5 Z Centerlock Hex Nut	JM0002147
3	3/4"-10 x 3.0 Gr5 Z Hex Bolt	JM0027464
4	Base Frame 5016	JM0033657
4	Base Frame 5010	JM0033744
5	Tongue	JM0033656

#	Frame After 2017	Part. No.
1	Rear Frame 5016	JM0039435
1	Rear Frame 5010	JM0033744
2	3/4"-10 Gr5 Z Centerlock Hex Nut	JM0002147
3	3/4"-10 x 3.0 Gr5 Z Hex Bolt	JM0027464
4	Base Frame (All)	JM0036468
5	Tongue	JM0033656

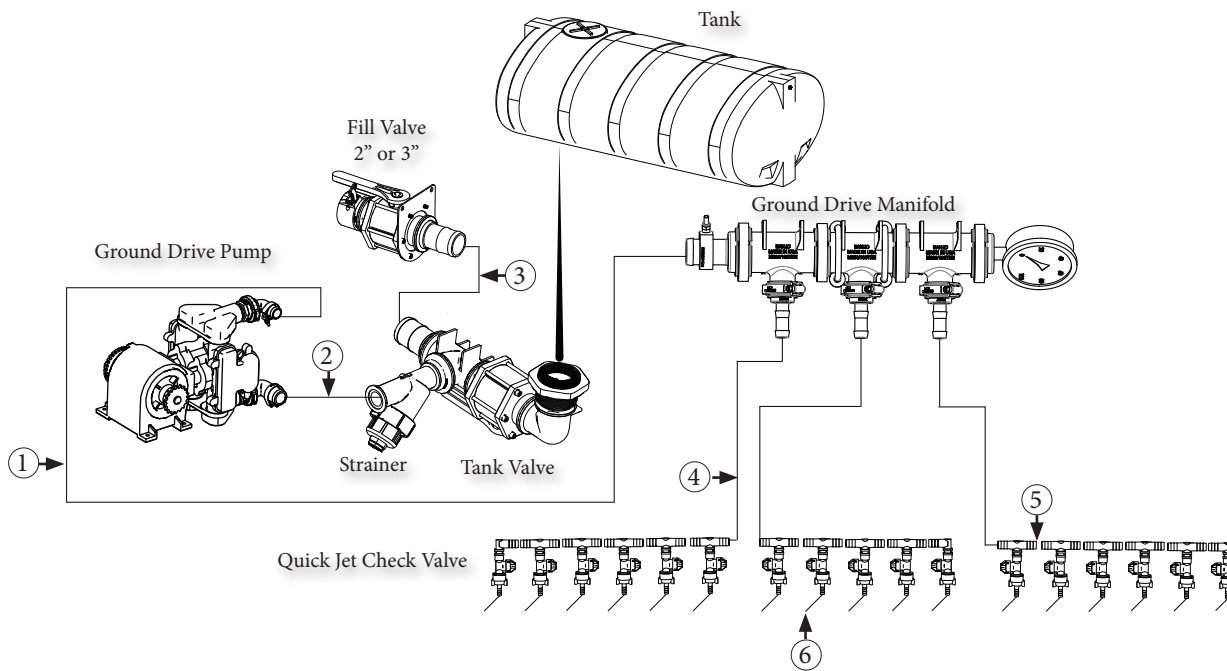


#	Description (Tank Saddle)	Part. No.
1	Saddle - Tank (2016)	JM0034199
1	Saddle - Tank ( After 2016)	JM0036718
2	3/8 -16 Gr5 Z SF Hex Nut	JM0002152
3	3/8"-16 x 1" Gr5 Z SF Hex Bolt	JM0002092



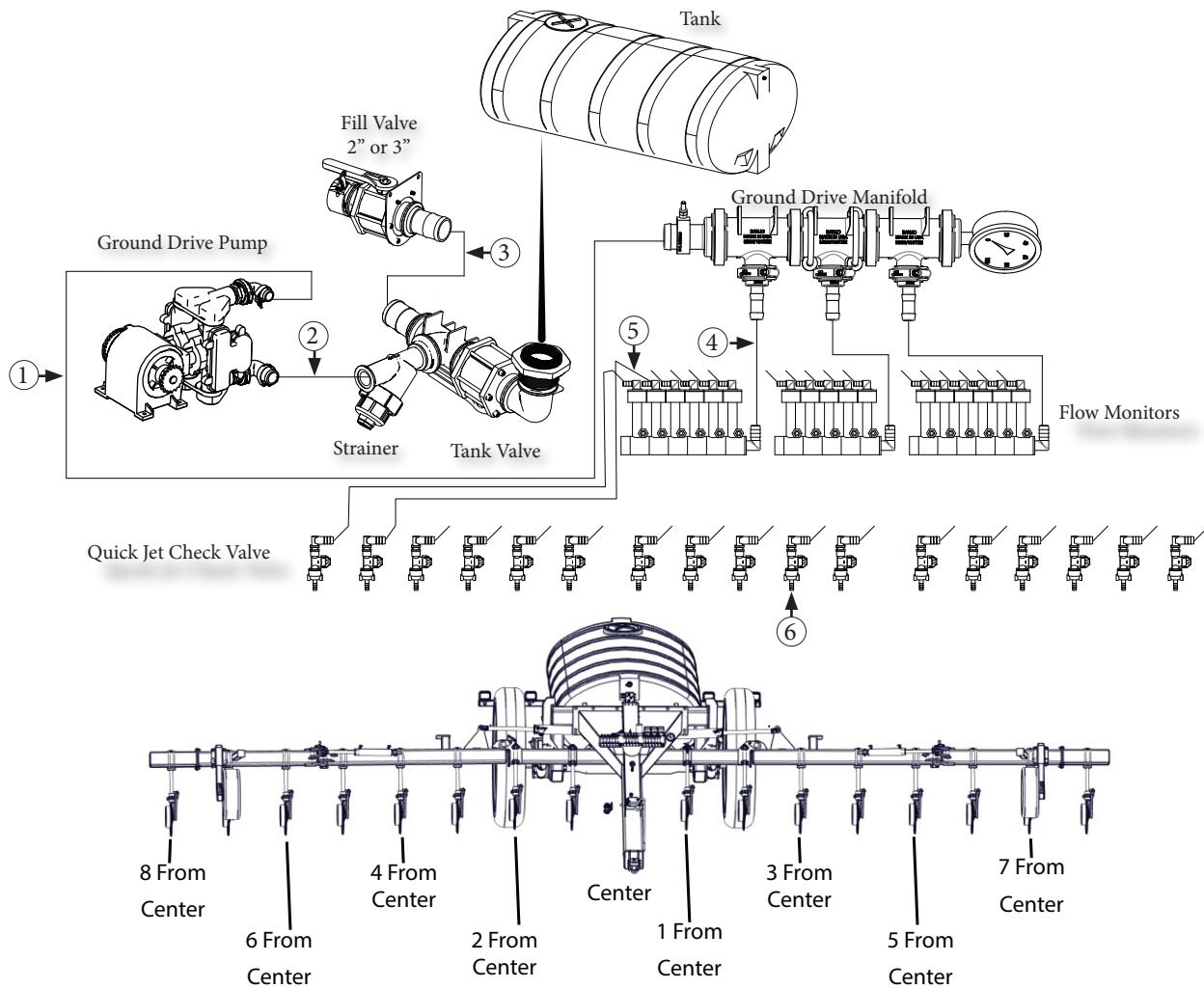


# Fertilizer Hose Routing - Ground Drive Pump without Flow Monitors



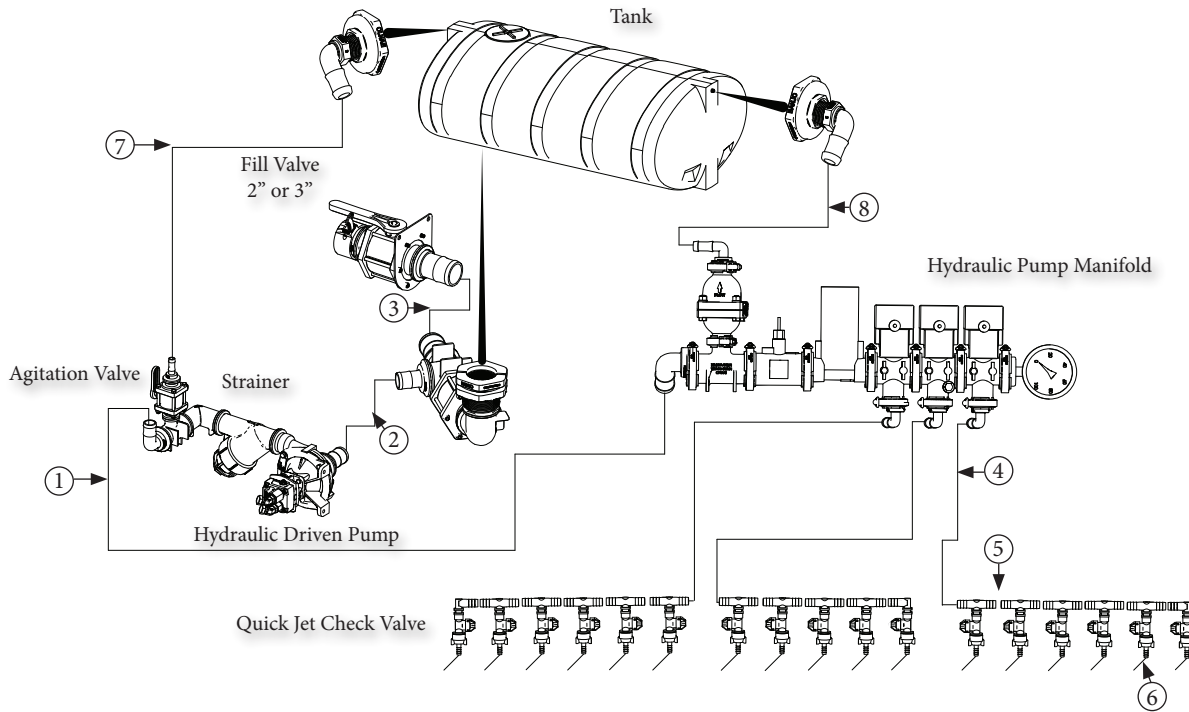
#	Description	Part. No.
1	19' x 1-1/2" Hose from Pump to Manifold (1600 Gal.)	JM0040211
1	15' x 1-1/2" Hose from Pump to Manifold (1000 Gal.)	JM0040330
2	48" x 2" Hose from Ground Drive Pump to Strainer	JM0040214
3	36" x 2" Hose from Fill Valve to Tee	JM0040215
3	38" x 3" Hose from Fill Valve to Tee	JM0040216
4	210" x 3/4" Hose from Manifold to Quick Jet Check Valve	JM0040217
5	30" x 3/4" Hose Quick Jet Check Valve to next Quick Jet Check Valve	JM0040218
6	52" x 3/8" Hose from Quick Jet Check Valve to Coulter	JM0040219

## Fertilizer Hose Routing - Ground Drive Pump with Flow Monitors



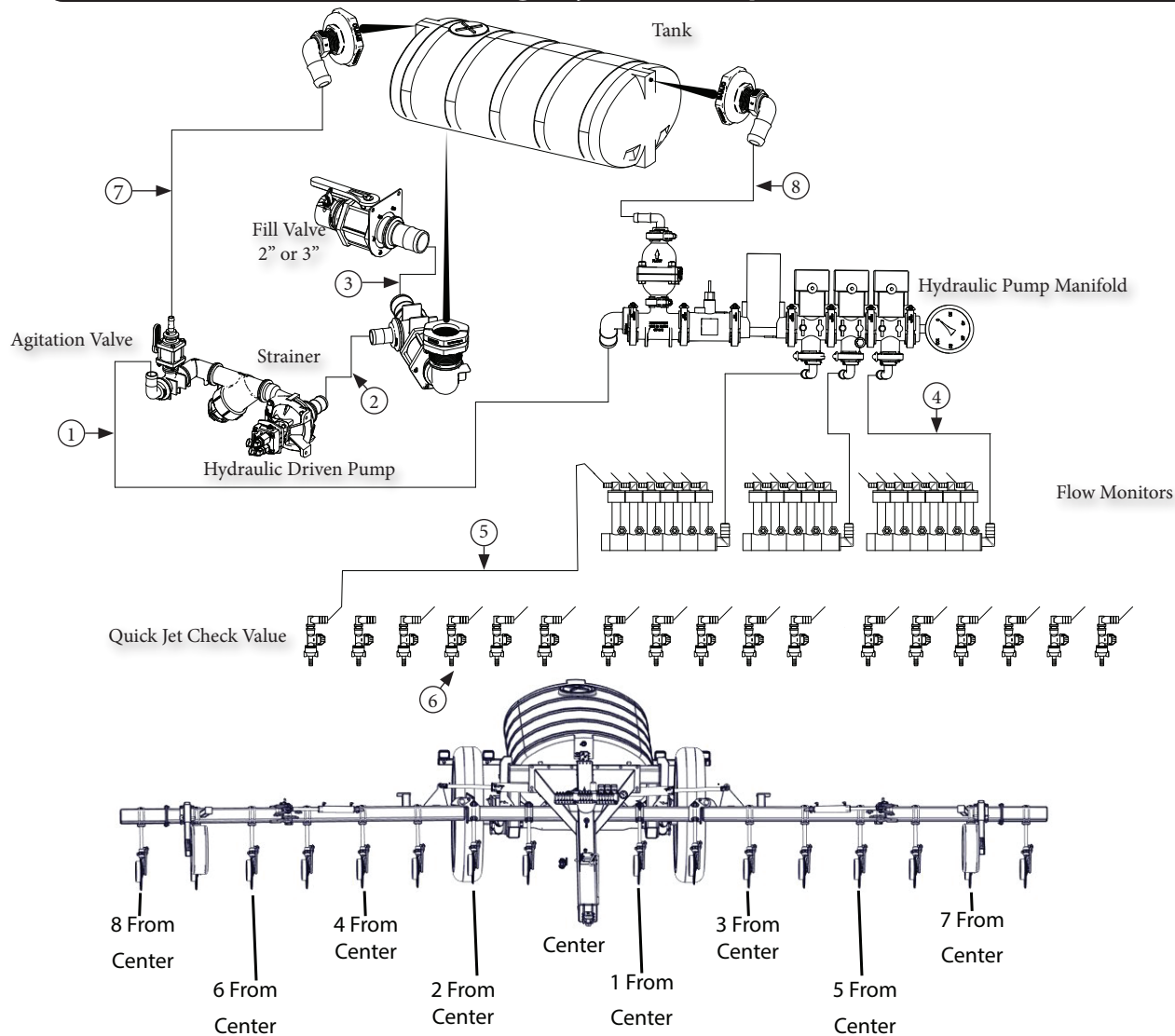
#	Description	Part. No.
1	19' x 1-1/2" Hose from Pump to Manifold (1600 Gal.)	JM0040211
1	15' x 1-1/2" Hose from Pump to Manifold (1000 Gal.)	JM0040330
2	48" x 2" Hose from Ground Drive Pump to Strainer	JM0040214
3	36" x 2" Hose from Fill Valve to Tee	JM0040215
3	38" x 3" Hose from Fill Valve to Tee	JM0040216
4	30" x 3/4" Hose from Manifold to Flow Monitors	JM0040217
5	Center Coulter 3/8" Hose 112" Lg	JM0041658
5	1 From Center Coulter 3/8" Fertilizer Hose 142" Lg	JM0041659
5	2 From Center Coulter 3/8" Fertilizer Hose 172" Lg	JM0041660
5	3 From Center Coulter 3/8" Fertilizer Hose 145" Lg	JM0041661
5	4 From Center Coulter 3/8" Fertilizer Hose 175" Lg	JM0041662
5	5 From Center Coulter 3/8" Fertilizer Hose 205" Lg	JM0041663
5	6 From Center Coulter 3/8" Fertilizer Hose 245" Lg	JM0041664
5	7 From Center Coulter 3/8" Fertilizer Hose 275" Lg	JM0041665
5	8 From Center Coulter 3/8" Fertilizer Hose 305" Lg	JM0041666
6	52" x 3/8" Hose from Quick Jet Check Valve to Coulter	JM0040219

## Fertilizer Hose Routing - Hydraulic Pump without Flow Monitors



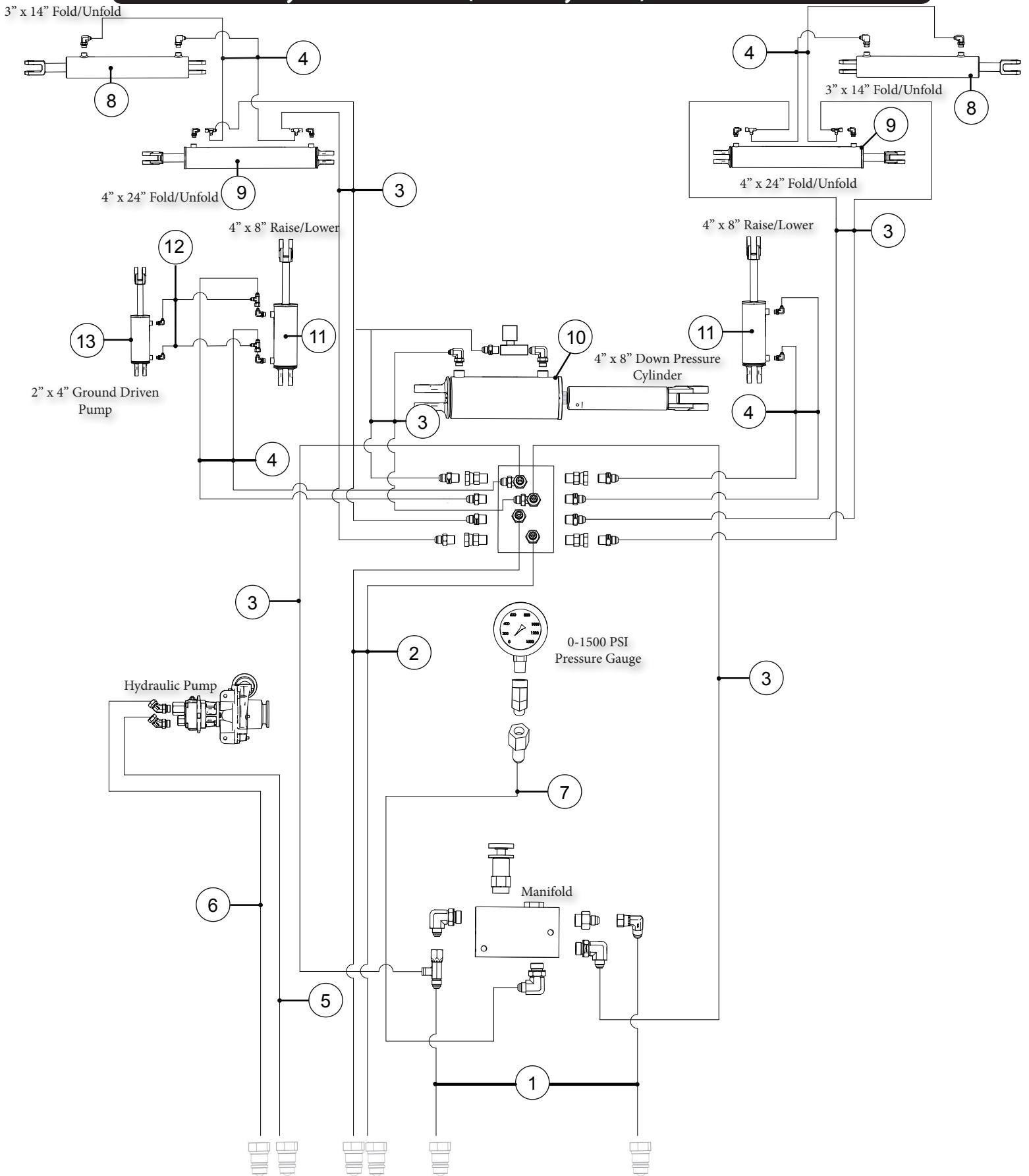
#	Description	Part. No.
1	1-1/2" x 228"; Hose from Hydraulic Pump to Manifold (1600 Gal.)	JM0040211
1	1-1/2" x 180"; Hose from Hydraulic Pump to Manifold (1000 Gal.)	JM0040330
2	2" x 32"; Hose from Tank to Pump	JM0040224
3	2" x 36" Hose from Fill Valve to Tee	JM0040215
3	3" x 38" Hose From Fill Valve to Tee	JM0040216
4	3/4" x 210" Fertilizer Hose from Manifold to Quick Jet Check Valve	JM0040217
5	3/4" x 30" From Quick Jet Check Valve to next Quick Jet Check Valve Hose	JM0040218
6	3/8" x 52" Hose From Quick Jet Check Valve to Coulter	JM0040219
7	3/4" x 55" Agitation Valve to Tank Fertilzer Hose	JM0040332
8	3/4" x 55" Spike Valve to Tank Fertilzer Hose	JM0040332

## Fertilizer Hose Routing - Hydraulic Pump with Flow Monitors



#	Description	Part. No.
1	1-1/2" x 228"; Hose from Pump to Manifold (1600 Gal.)	JM0040211
1	1-1/2" x 180"; Hose from Pump to Manifold (1000 Gal.)	JM0040330
2	2" x 32"; Hose from Tank to Pump	JM0040224
3	36" x 2" Hose from Fill Valve to Tee	JM0040215
3	38" x 3" Hose from Fill Valve to Tee	JM0040216
4	3/4" x 30"; Hose from Manifold to Flow Monitors	JM0040218
5	Center Coulters 3/8" hose 112" Lg	JM0041658
5	1 From Center Coulters 3/8" Fertilizer Hose 142" Lg	JM0041659
5	2 From Center Coulters 3/8" Fertilizer Hose 172" Lg	JM0041660
5	3 From Center Coulters 3/8" Fertilizer Hose 145" Lg	JM0041661
5	4 From Center Coulters 3/8" Fertilizer Hose 175" Lg	JM0041662
5	5 From Center Coulters 3/8" Fertilizer Hose 205" Lg	JM0041663
5	6 From Center Coulters 3/8" Fertilizer Hose 245" Lg	JM0041664
5	7 From Center Coulters 3/8" Fertilizer Hose 275" Lg	JM0041665
5	8 From Center Coulters 3/8" Fertilizer Hose 305" Lg	JM0041666
6	3/8" x 52"; Hose from Quick Jet Check Valve to Coulters	JM0040219
7	3/4" x 55"; Agitation valve to Tank	JM0040332
8	3/4" x 55"; Spike Valve to Tank	JM0040332

# Hydraulic Schematic (Hoses & Cylinders) After Serial #



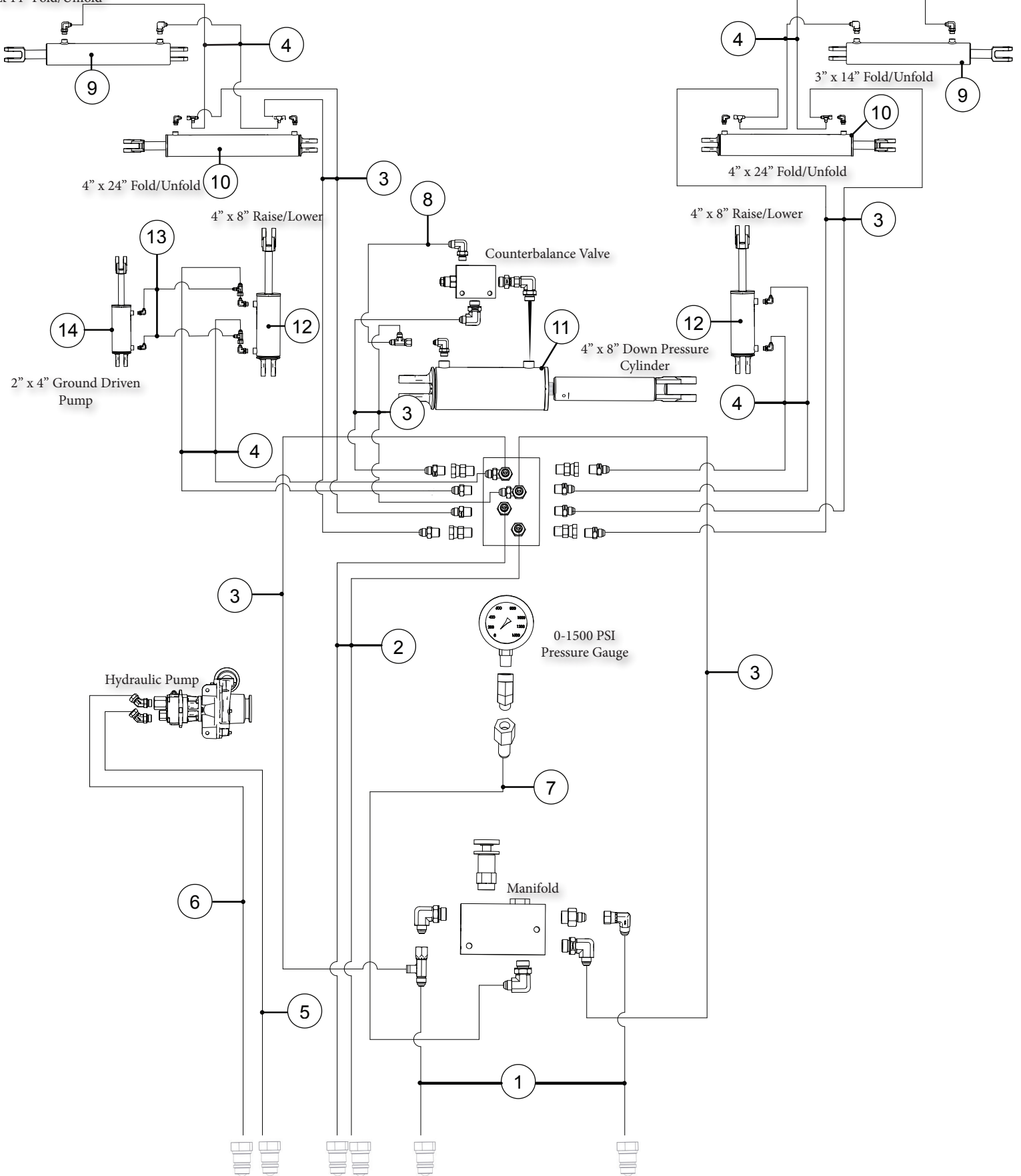


## Hydraulic Schematic (Hoses & Cylinders) After Serial #

#	Description	Part. No.
1	3/8" Hose 80"; 1/2" MPT Rigid #6 Female Swivel JIC	JM0041604
2	3/8" Hose 160"; 1/2" MPT Rigid x 10 x #6 Female Swivel JIC	JM0041612
3	3/8 Hose 80"; #6 Female Swivel JIC; Both Ends	JM0041613
4	3/8" Hose 104"; #6 Female Swivel JIC Both Ends	JM0041615
5	1/2" Hose 336"; 1/2" MPT Rigid, 3/8" MPT Rigid (Model 5016 28')	JM0041617
5	1/2" Hose 300"; 1/2" MPT Rigid, 3/8" MPT Rigid (Model 5010 25')	JM0041618
6	3/8" Hose 336"; 1/2" MPT Rigid, 3/8" MPT Rigid (Model 5016 28')	JM0041677
6	3/8" Hose 300"; 1/2" MPT Rigid, 3/8" MPT Rigid (Model 5010 25')	JM0041678
7	3/8" Hose 32"; 3/8 Female JIC Swivel, both ends	JM0041687
8	3 x 14 Welded JD Cylinder	JM0035057
8	Seal Kit for 3 x 14 Hydraulic Cylinder	JM0039240
9	JD 4 Bore x 24 Stroke Welded WH Series	JM0030730
9	Seal Kit for 4 x 24 Hydraulic Cylinder	JM0039242
10	JD 4 Bore x 8 Stroke Welded Cyl	JM0030757
10	Seal Kit for 4 x 8 Hydraulic Cylinder	JM0039241
11	JD 4 Bore x 8 Stroke Welded Cyl	JM0030757
11	Seal Kit for 4 x 8 Hydraulic Cylinder	JM0039241
12	3/8" Hose 94"; 3/8" Female NPT Swivel, 3/8" Female JIC Swivel 5010	JM0041680
12	3/8" Hose 118"; 3/8" Female NPT Swivel, 3/8" Female JIC Swivel 5016	JM0041681
13	lion 2 bore x 4 stroke WH series	JM0034861
13	Seal Kit for 2 x 4 Hydraulic Cylinder	JM0039239

# Hydraulic Schematic (Hoses & Cylinders) 2016

3" x 14" Fold/Unfold



## Hydraulic Schematic (Hoses & Cylinders) Before Serial #

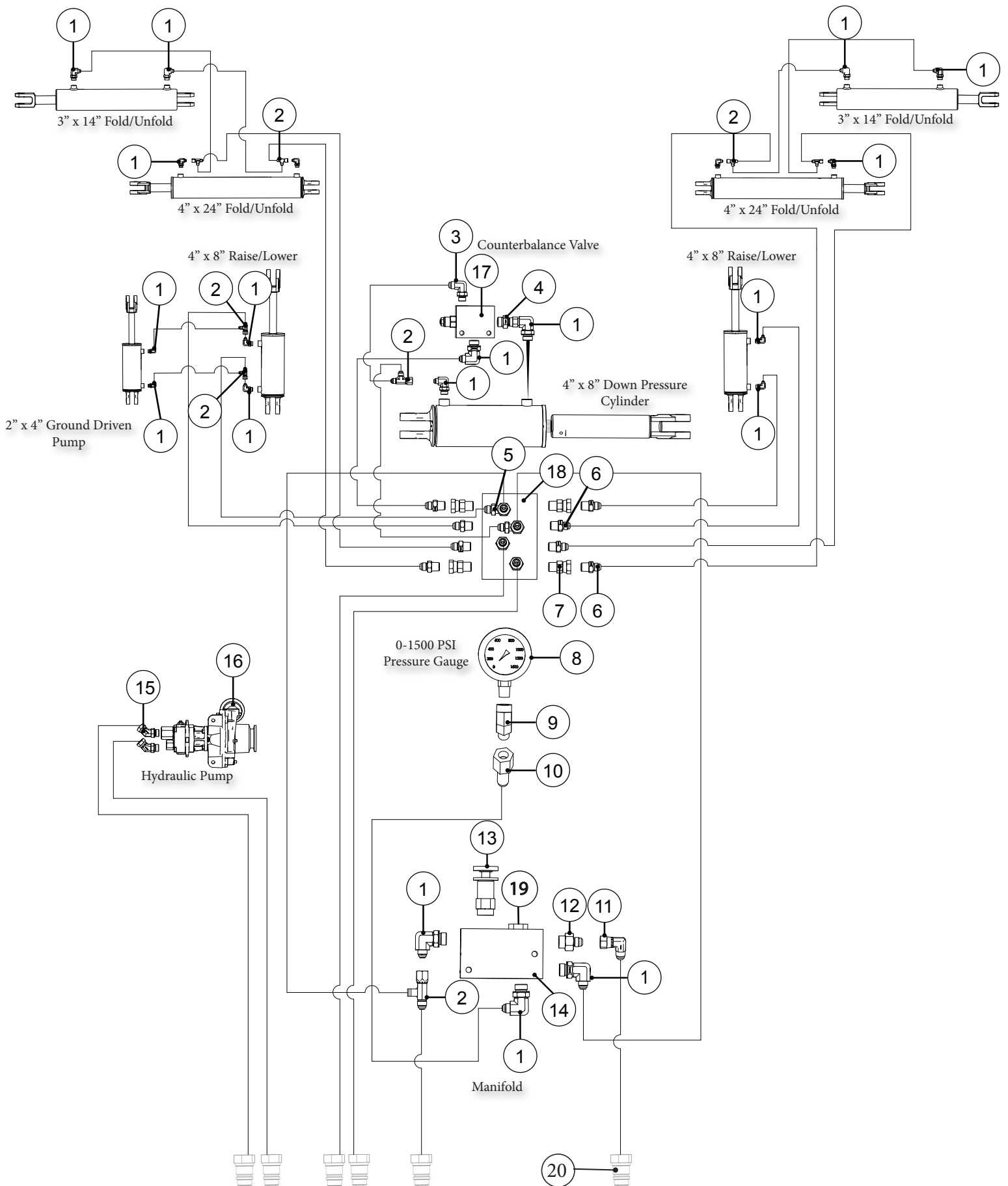
#	Description	Part. No.
1	3/8" Hose 80"; 1/2" MPT Rigid x #6 Female Swivel JIC	JM0041604
2	3/8" Hose 160"; 1/2" MPT Rigid x 10 x #6 Female Swivel JIC	JM0041612
3	3/8" Hose 80"; #6 Female Swivel JIC; Both Ends	JM0041613
4	3/8" Hose 104"; #6 Female Swivel JIC Both Ends	JM0041615
5	1/2" Hose 336"; 1/2" MPT Rigid, 3/8" MPT Rigid (Model 5016)	JM0041617
5	1/2" Hose 300"; 1/2" MPT Rigid, 3/8" MPT Rigid (Model 5010)	JM0041618
6	3/8" Hose 336"; 1/2" MPT Rigid, 3/8" MPT Rigid (Model 5016)	JM0041677
6	3/8" Hose 300"; 1/2" MPT Rigid, 3/8" MPT Rigid (Model 5010)	JM0041678
7	3/8" Hose 32"; 3/8 Female JIC Swivel, 3/8" Female JIC Swivel	JM0041687
8	3/8" Hose 16"; 3/8 Female NPT Swivel Both Ends	JM0041679
9	3 x 14 Welded JD Cylinder	JM0035057
9	Seal Kit for 3 x 14 Hydraulic Cylinder	JM0039240
10	JD 4 Bore x 24 Stroke Welded WH Series	JM0030730
10	Seal Kit for 4 x 24 Hydraulic Cylinder	JM0039242
11	JD 4 Bore x 8 Stroke Welded Cyl	JM0030757
11	Seal Kit for 4 x 8 Hydraulic Cylinder	JM0039241
12	JD 4 Bore x 8 Stroke Welded Cyl	JM0030757
12	Seal Kit for 4 x 8 Hydraulic Cylinder	JM0039241
13	3/8" Hose 94"; 3/8" Female NPT Swivel, 3/8" Female JIC Swivel 5010	JM0041680
13	3/8" Hose 118"; 3/8" Female NPT Swivel, 3/8" Female JIC Swivel 5016	JM0041681
14	lion 2 bore x 4 stroke WH series	JM0034861
14	Seal Kit for 2 x 4 Hydraulic Cylinder	JM0039239



#	Description	Part. No.
1	#6 Male JIC x #8 Male O-Ring; 90 Degree Elbow	JM0037159
2	#6 Male JIC x #6 Female JIC Swivel x #6 Male JIC Tee	JM0037163
3	#8 Male O-Ring x 3/8 Male NPT; 90 Degree Elbow	JM0041630
4	Parker Flow Control Valve	JM0041626
5	#6 Male JIC X 0.5" Male NPT X #6 Male JIC; Tee	JM0010291
6	#6 male JIC x 3/8 Male NPT; Straight	JM0037167
7	3/8 male NPT X 3/8 female NPT swivel; straight	JM0018231
8	Pressure Gauge 0-1500psi, 2", 1/4" NPT Bottom Mount Donaldson	JM0037152
9	1/4 male NPT x 1/4 female NPT rigid; 45 degree elbow	JM0037156
10	1/4 Female NPT x 3/8 Compression Bulk Head Fitting	JM0037155
11	#6 Male JIC x #6 Female JIC Swivel; 90 Degree Elbow	JM0010295
12	#6 male JIC x #8 male o-ring; straight	JM0010302
13	Hydraforce Pressure Reducing/Relieving Valve	JM0034800
14	SFP26157 Manifold w/#8 O-Ring Ports for PRV and CV	JM0034773
15	#10 Male O-Ring x #8 Female Pipe Swivel; 45 Degree Elbow	JM0037253
16	Pump - Centrifugal	JM0033798
17	Manifold Block - 1/2 NPT X (2) 3/8 NPT	JM0028902
18	Check Valve	JM0034805
19	Male Pioneer End W/ Ball	JM0039220



# Hydraulic Schematic (Fittings) 2016



## Hydraulic Schematic (Fittings) 2016

#	Description	Part. No.
1	#6 Male JIC x #8 Male O-Ring; 90 Degree Elbow	JM0037159
2	#6 Male JIC x #6 Female JIC Swivel x #6 Male JIC Tee	JM0037163
3	#6 male JIC x #6 male o-ring – 90 degree elbow	JM0026121
4	#8 Male O-Ring x #6 Female JIC Swivel; Straight	JM0037165
5	#6 Male JIC X 0.5" Male NPT X #6 Male JIC; Tee	JM0010291
6	#6 male JIC x 3/8 Male NPT; Straight	JM0037167
7	3/8 male NPT X 3/8 female NPT swivel; straight	JM0018231
8	Pressure Gauge 0-1500psi, 2", 1/4" NPT Bottom Mount Donaldson	JM0037152
9	1/4 male NPT x 1/4 female NPT rigid; 45 degree elbow	JM0037156
10	1/4 Female NPT x 3/8 Compression Bulk Head Fitting	JM0037155
11	#6 Male JIC x #6 Female JIC Swivel; 90 Degree Elbow	JM0010295
12	#6 male JIC x #8 male o-ring; straight	JM0010302
13	Hydraforce Pressure Reducing/Relieving Valve	JM0034800
14	SFP26157 Manifold w/#8 O-Ring Ports for PRV and CV	JM0034773
15	#10 Male O-Ring x #8 Female Pipe Swivel; 45 Degree Elbow	JM0037253
16	Pump - Centrifugal	JM0033798
17	ECJ Manifold with CBBC-LBN CBalance Cartridge	JM0035030
18	Manifold Block - 1/2 NPT X (2) 3/8 NPT	JM0028902
19	Check Valve	JM0034805
20	Male Pioneer End W/ Ball	JM0039220

## Injector Tip Size

**NOTE - The highlighted values indicate pressures that are in the optimal pressure range of 20 - 50 psi. The row spacing is 30 inches.**

Rate (GPA)	20					25					30					35				
Speed (MPH)	4	6	8	10	12	4	6	8	10	12	4	6	8	10	12	4	6	8	10	12
#10 Injector	6	15	26	40	58	10	23	40	63	91	15	33	58	91	131	20	45	79	124	178
#15 Injector	3	7	12	18	26	5	10	18	28	41	7	15	26	41	59	9	20	35	55	80
#20 Injector	2	4	7	10	15	3	6	10	16	23	4	8	15	23	33	5	11	20	31	45
#30 Injector	1	2	3	5	7	1	3	5	7	10	2	4	7	10	15	2	5	9	14	20
#40 Injector	0	1	2	3	4	1	1	3	4	6	1	2	4	6	8	1	3	5	8	11

Rate (GPA)	40					45					50					55				
Speed (MPH)	4	6	8	10	12	4	6	8	10	12	4	6	8	10	12	4	6	8	10	12
#10 Injector	26	58	104	162	233	33	74	131	205	295	40	91	162	253	364	49	110	196	306	440
#15 Injector	12	26	46	72	104	15	33	59	92	132	18	41	72	113	163	22	49	88	137	197
#20 Injector	7	15	26	41	59	8	19	33	52	75	10	23	41	64	92	12	28	49	77	111
#30 Injector	3	7	12	18	26	4	8	15	23	33	5	10	18	28	41	5	12	22	34	49
#40 Injector	2	4	7	10	15	2	5	8	13	19	3	6	10	16	23	3	7	12	19	28

- With #10 on the center, use #15 for one and a half rate outside, (11 or 15 knife).
- With #15 on the center, use #8 for half rate outside, (13 or 17 knife), and #20 for one and a half rate outside, (11 or 15 knife).
- With #20 on the center, use #10 for half rate outside, (13 or 17 knife), and #30 for one and a half rate outside, (11 or 15 knife).
- With #30 on the center, use #15 for half rate outside, (13 or 17 knife).
- With #40 on the center, use #20 for half rate outside, (13 or 17 knife), and #60 for one and a half rate outside, (11 or 15 knife).

## Orifice Size

Description	Part. No.
.054 Orifice	JM0036373
.075 Orifice	JM0036374
.093 Orifice	JM0036375
.107 Orifice	JM0036376
.132 Orifice	JM0036377
.162 Orifice	JM0036378

## Orifice Kits

Kit	Orifice Size					
	0.054	0.075	0.093	0.107	0.132	0.162
11 Knife	0	9	2	9	9	2
13 Knife	2	11	2	11	11	0
15 Knife	0	13	2	13	13	2
17 Knife	2	15	2	15	15	0

**NOTE - The highlighted values indicate pressures that are in the optimal pressure range of 20 - 50 psi. The row spacing is 30 inches.**

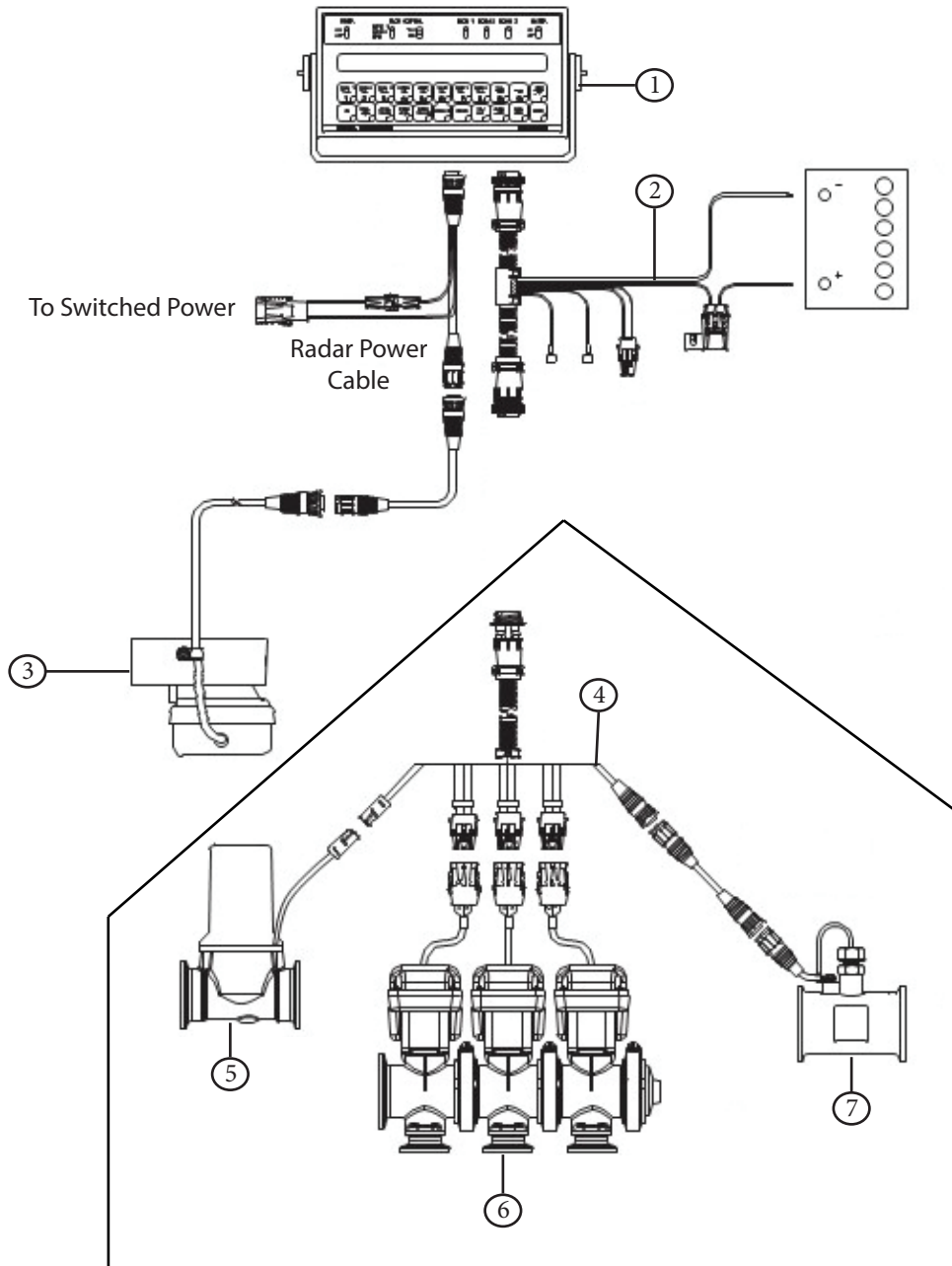
Rate (GPA)	20					25					30					35				
	4	6	8	10	12	4	6	8	10	12	4	6	8	10	12	4	6	8	10	12
Speed (MPH)	4	6	8	10	12	4	6	8	10	12	4	6	8	10	12	4	6	8	10	12
.075 Orifice Pressure (psi)	14	31	54	85	122	21	48	85	132	191	31	69	122	191	275	42	93	166	260	374
.107 Orifice Pressure (psi)	3	7	12	19	27	5	11	19	30	42	7	15	27	42	61	9	21	37	58	83
.132 Orifice Pressure (psi)	1	3	5	9	12	2	5	9	13	19	3	7	12	19	28	4	9	17	26	38

Rate (GPA)	40					45					50					55				
	4	6	8	10	12	4	6	8	10	12	4	6	8	10	12	4	6	8	10	12
Speed (MPH)	4	6	8	10	12	4	6	8	10	12	4	6	8	10	12	4	6	8	10	12
.075 Orifice Pressure (psi)	54	122	217	339	488	69	154	275	429	618	85	191	339	530	763	103	231	410	641	923
.107 Orifice Pressure (psi)	12	27	48	76	109	15	34	61	96	138	19	42	76	118	170	23	51	91	143	206
.132 Orifice Pressure (psi)	5	12	22	34	49	7	16	28	43	62	9	19	34	53	77	10	23	41	64	93

- With .075 on the center, use .054 for half rate outside (13 or 17 knife), and .093 for one and a half rate outside, (11 or 15 knife).
- With .107 on the center, use .075 for half rate outside (13 or 17 knife), and .132 for one and a half rate outside, (11 or 15 knife).
- With .132 on the center, use .093 for half rate outside (13 or 17 knife), and .161 for one and a half rate outside, (11 or 15 knife).

## SCS 440 Liquid Control System

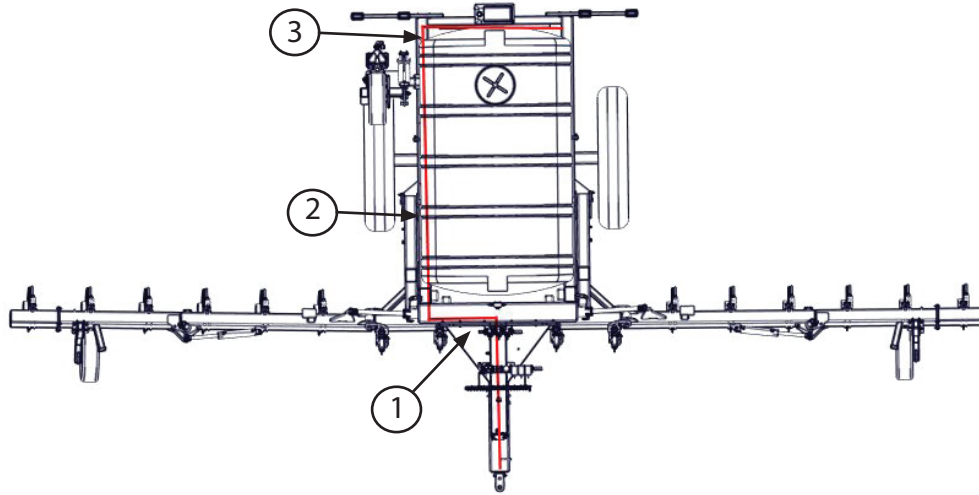
#	Light Harness	Part. No.
1	Control Console	JM0039335
2	Console Cable	JM0039337
3	Phoenix GPS Speed Sensor	JM0039338
4	Flow Cable*	JM0039336
5	Controls Valve*	JM0032490
6	Boom Valves*	JM0032484
7	Flow Meter*	JM0032488
8	ISO Kit (Not Shown)	JM0039339
9	ISO Cable (Not Shown)	JM0039341



\*Components Included In Standard Hydraulic Pump Packages.



## Wire Harness



#	Light Harness	Part. No.
1	Main Wiring Harness with 7 Prong Connector	JM0027077
2	Soil Conditioner Light Wiring Harness	JM0027080
3	Light Enhancer and Adaptr Kit (3 wires)	JM0010566