

**SMITHCO**

Wayne, Pennsylvania 19087

# **PARTS & SERVICE MANUAL**

**Spray Star  
Model 1000**

**PRIME MOVER**

**Spray Star 10-100-B  
Starting Serial #100179**

**July, 1999**

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Reference



Thank you for purchasing a **SMITHCO** product.

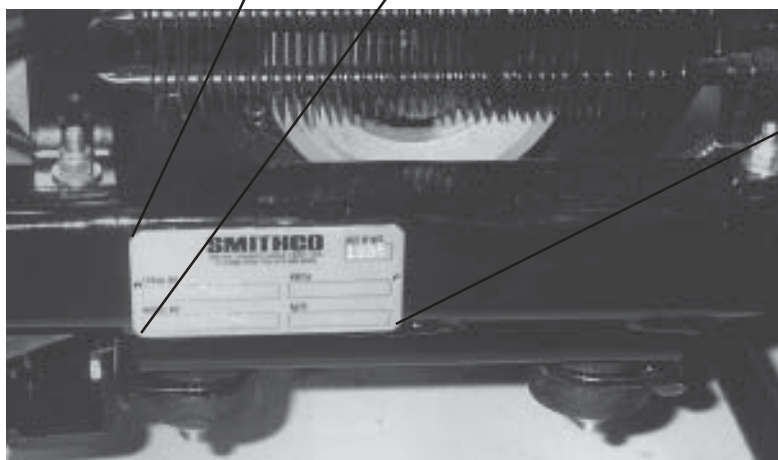
Read this manual and all other manuals pertaining to the Spray Star 1000 carefully as they have safety, operating, assembly and maintenance instructions. Failure to do so could result in personal injury or equipment damage.

Keep manuals in a safe place after operator and maintenance personnel have read them. Right and left sides are from the operator's seat, facing forward.

All **SMITHCO** machines have a Serial Number and Model Number. Both numbers are needed when ordering parts. The serial number plate on the Spray Star 1000 is located on the right main frame, in front of the oil tank. Refer to engine manual for placement of engine serial number.

For easy access record your Serial and Model numbers here.

|  |                      |                      |
|--|----------------------|----------------------|
| <b>SMITHCO</b>   |                      | DATE OF MFG.         |
| WAYNE, PENNSYLVANIA 19087 USA<br>610-688-4009 Fax 610-688-6069 |                      | <input type="text"/> |
| SERIAL NO.   | kW/hp                |                      |
| <input type="text"/>   | <input type="text"/> |                      |
| MODEL NO.  | kg/lb                |                      |
| <input type="text"/>   | <input type="text"/> |                      |



Information needed when ordering replacement parts:

1. Model Number of machine
2. Serial Number of machine
3. Name and Part Number of part
4. Quantity of parts



## SAFE PRACTICES

1. It is your responsibility to read this manual and all publications associated with this machine.
2. Never allow anyone to operate or service the machine or its optional equipment without proper training and instructions. Never allow minors to operate any equipment.
3. Learn the proper use of the machine, the location and purpose of all the controls and gauges before you operate the equipment. Working with unfamiliar equipment can lead to accidents.
4. Wear all the necessary protective clothing and personal safety devices to protect your head, eyes, ears, hands and feet. Operate the machine only in daylight or in good artificial light.
5. Inspect the area where the equipment will be used. Pick up all debris you can find before operating. Beware of overhead obstructions and underground obstacles. Stay alert for hidden hazards.
6. Never operate equipment that is not in perfect working order or without decals, guards, shields, or other protective devices in place.
7. Never disconnect or bypass any switch.
8. Carbon monoxide in the exhaust fumes can be fatal when inhaled, never operate a machine without proper ventilation.
9. Fuel is highly flammable, handle with care.
10. Keep engine clean. Allow the engine to cool before storing and always remove the ignition key.
11. Disengage all drives and set park brake before starting the engine.
12. Never use your hands to search for oil leaks. Hydraulic fluid under pressure can penetrate the skin and cause serious injury.
13. This machine demands your attention. To prevent loss of control or tipping of the vehicle:
  - A. Use extra caution in backing up the vehicle. Ensure area is clear.
  - B. Do not stop or start suddenly on any slope.
  - C. Reduce speed on slopes and in sharp turns. Use caution when changing directions on slopes.
  - D. Stay alert for holes in the terrain and other hidden hazards.
14. Before leaving operator's position:
  - A. Disengage all drives.
  - B. Set park brake.
  - C. Shut engine off and remove the ignition key.
  - D. If engine has to run to perform any maintenance keep hands, feet, clothing and all other parts of body away from moving parts.
15. Keep hands, feet and clothing away from moving parts. Wait for all movement to stop before you clean, adjust or service the machine.
16. Keep the area of operation clear of all bystanders.
17. Never carry passengers.
18. Stop engine before making repairs/adjustments or checking/adding oil to the crankcase.
19. Use parts and materials supplied by **SMITHCO** only. Do not modify any function or part.
20. Use caution when booms are down as they extend out beyond the center line of the machine.
21. The tank is a confined space, take precaution.

***This machine is intended for turf maintenance. Other use is forbidden.***



## WEIGHTS AND DIMENSIONS

|                      |                   |
|----------------------|-------------------|
| Length               | 112" (285 cm)     |
| Width                | 70" (178 cm)      |
| Width With Boom Open | 180" (457 m)      |
| Height               | 48" (122 cm)      |
| Wheel Base           | 53" (135 cm)      |
| Weight Empty         | 1283 lbs (582 kg) |
| Weight Full          | 2200 lbs (998 kg) |

## SOUND LEVEL (DBA)

|                   |        |
|-------------------|--------|
| At ear level      | 88 dba |
| At 3 ft (0.914 m) | 84 dba |
| At 30 ft (9.14 m) | 72 dba |

## ENGINE

|                    |                                     |
|--------------------|-------------------------------------|
| Make               | Kohler                              |
| Model#             | Command CH25S                       |
| Type / Spec#       | PA 68620                            |
| Horsepower         | 25HP (18 kw)                        |
| Fuel               | Unleaded 87 Octane Gasoline Minimum |
| Cooling System     | Air Cooled                          |
| Lubrication System | Full Pressure                       |
| Alternator         | 25 Amp                              |

## WHEELS & TIRE

Front: Two 20 x 10.00 x 10 NHS Multi-Rib; 20psi (1.4 bar)  
Rear: Two 24 x 12.00 x 12 NHS Multi-Trac; 20 psi (1.4 bar)

## BRAKES

Dynamic Through Hydrostat

## PARK BRAKE

Hand Operated Lever, Discs on Rear Axle

## SPEED

|               |                      |
|---------------|----------------------|
| Forward Speed | 0-8 mph (0-12.8 kph) |
| Reverse Speed | 0-3 mph (0-4.8 kph)  |

## BATTERY

|                          |                             |
|--------------------------|-----------------------------|
|                          | Automotive type 24F-12 Volt |
| BCI Group                | Size 24                     |
| Cold Cranking Amps       | 575 minimum                 |
| Ground Terminal Polarity | Negative (-)                |
| Maximum Length           | 10.25" (26 cm)              |
| Maximum Width            | 6.88" (17 cm)               |
| Maximum Height           | 10" (25 cm)                 |

## FLUID CAPACITY

|                          |   |
|--------------------------|---|
| Crankcase Oil            | See Engine Manual                             |
| Fuel                     | 5 gallon (19 liters)                          |
| Hydraulic Fluid          | 5 gallon (19 liters)                          |
| Grade of Hydraulic Fluid | SAE 10W-40 API Service SJ or higher Motor Oil |

# OPTIONAL EQUIPMENT

|        |   |        |                                     |
|--------|---|--------|-------------------------------------|
| 10-108 | Speedometer Kit   | 10-260 | 203 Spray System (1002)             |
| 10-106 | Fresh Water Tank  | 10-102 | Manual Spray System (1004)          |
| 10-103 | Electric Actuator Lift Kit  | 10-101 | 834 Spray System (1006)             |
| 10-297 | Hydraulic Actuator Lift Kit   | 10-110 | 440 Spray System (1008)             |
| 10-105 | Foam Marker   | 10-270 | 3-Way Manual System (1010)          |
| 10-160 | 15' Stainless Steel Boom - manual   | 15-577 | 18' Stainless Steel Boom - manual   |
| 10-301 | 15' Terrain Following Boom  | 10-300 | 18' Terrain Following Boom          |
| 10-107 | Hose Reel Mounting Kit  | 33-216 | Battery Automotive Type 24F-12 volt |
| 16-129 | Hose Reel 200' (61 m) capacity (to be used with 10-107)                         |        |                                     |
| 16-906 | Hose Reel 12 volt electric rewind 200' (61 m) capacity (to be used with 10-107) |        |                                     |



## MAINTENANCE



Before servicing or making adjustments to machine, stop engine and remove key from ignition.

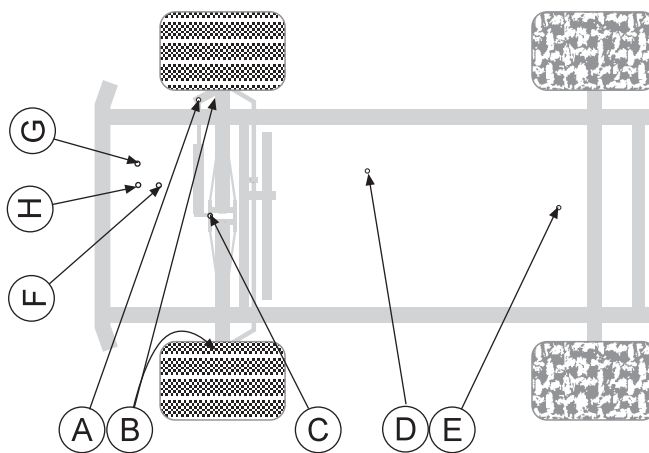
### NOTE:

Use all procedures and parts prescribed by the manufacturer's. Read the engine manual before operation.

#### LUBRICATION

Use No. 2 General purpose lithium base grease and lubricate every 100 hours. The Spray Star 1000 has 9 grease fittings.

- A. One on the rod end of hydraulic cylinder.
- B. One on each the right and left spindles.
- C. One on the center front pivot.
- D. One on the pump pivot.
- E. One on the brake relay.
- F. One on the pedal relay.
- G. One on the reverse pedal.
- H. One on the forward pedal.



Every 500 hours of operation, separate the hydrostatic pump and the engine, clean the splined areas and lightly grease the male portion of the pump spline. Use either Dow Corning® G-N Metal Assembly Paste or #77 Assembly Paste (Kohler# 25 357 12-s).

As you mount the pump back onto the engine, be certain the mating surfaces are clean and free of any foreign material and that the pump is correctly aligned.

#### ELECTRICAL CONNECTIONS

Use dielectric grease on all electrical connections.

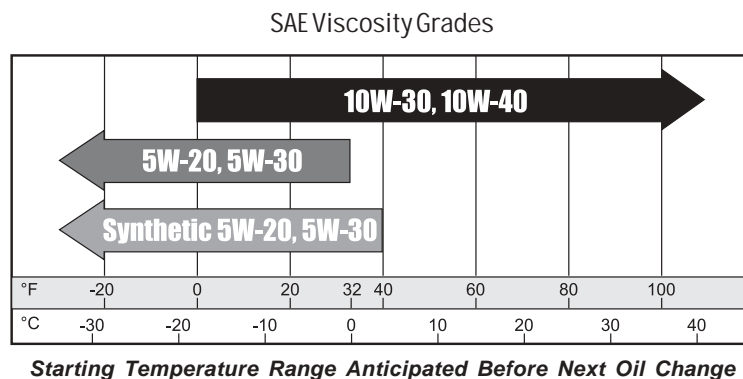


# AIR CLEANER

1. Loosen cover retaining knob and remove cover.
2. Remove pre-cleaner from paper element.
3. Check paper element. Replace element as necessary.
4. Wash pre-cleaner in warm water with detergent. Rinse pre-cleaner thoroughly until all traces of detergent are eliminated. Squeeze out excess water (do not wring). Allow pre-cleaner to air dry.
5. Saturate pre-cleaner with new engine oil. Squeeze out all excess oil.
6. Reinstall pre-cleaner over paper element.
7. Reinstall air cleaner cover. Secure cover with cover retaining knob.

# ENGINE OIL

Change and add oil according to chart below based on air temperature at the time of operation. Do not overfill. Use a high quality detergent oil classified "For Service SJ or higher" oil. Use no special additives with recommended oils. Do not mix oil with gasoline.



# HYDRAULIC OIL

1. Use SAE 10W-40 API Service SJ or higher motor oil.
2. For proper warranty, change oil every 500 hours or annually, which ever is first.
3. Oil level should be 2-2½" (5-6.4cm) from top of the tank when fluid is cold. Do not overfill.
4. After changing oil, run the machine for a few minutes. Check oil level and for leaks.
5. Always use extreme caution when filling hydraulic oil tank or checking level to keep system free of contaminants. Check and service more frequently when operating in extremely cold, hot or dusty conditions.
6. If the natural color of the fluid has become black or smells burnt, it is possible that an overheating problem exists.
7. If fluid becomes milky, water contamination may be a problem.
8. If either of the above conditions happen, change oil immediately after fluid is cool and find the cause. Take fluid level readings when the system is cold.
9. In extreme temperatures you can use straight weight oil. We recommend SAE 30W API Service SG when hot (above 90°F (33°C)) and SAE 10W API Service SJ or higher when cold (below 32°F (0°C) ambient temperature. Use either motor oil or hydraulic oil, but do not mix.
10. Oil being added to the system must be the same as what is already in the tank. Mark the tank fill area as to which type you put in.

# DIRECTO VALVES

Directo Valves should be disassembled, cleaned, inspected, and a service kit installed annually. More often depending on the chemicals being used and the frequency of use. In most cases this can be done without removing the valve from the sprayer.



## MAINTENANCE

### TIRE PRESSURE

Caution must be used when inflating a low tire to recommended pressure. Over inflating can cause tires to explode. All tires should be 20 psi (1.4bar). Improper inflation will reduce tire life considerably.

### WHEEL MOUNTING PROCEDURE

1. Set park brake. Turn machine off and remove key.
2. Block wheel on opposite corner.
3. Loosen nuts slightly on wheel to be removed.
4. Jack up machine being careful not to damage underside of machine.
5. Place wheel on hub lining up bolt holes.
6. Torque to 64-74 ft/lb (87-100Nm) using a cross pattern. Retorque after first 10 hours and every 200 hours thereafter.
7. Lower machine to ground and remove blocks and jack.

### BATTERY

Batteries normally produce explosive gases which can cause personal injury. Do not allow flames, sparks or any ignited object to come near the battery. When charging or working near battery, always shield your eyes and always provide proper ventilation.

Battery cable should be disconnected before using "Fast Charge".

Charge battery at 15 amps for 10 minutes or 7 amps for 30 minutes. Do not exceed the recommended charging rate. If electrolyte starts boiling over, decrease charging.

Always remove grounded (-) battery clamp first and replace it last. Avoid hazards by:

1. Filling batteries in well-ventilated areas.
2. Wear eye protection and rubber gloves.
3. Avoid breathing fumes when electrolyte is added.
4. Avoid spilling or dripping electrolyte.



**WARNING**

**Battery Electrolyte is an acidic solution and should be handled with care. If electrolyte is splashed on any part of your body, flush all contact areas immediately with liberal amounts of water. Get medical attention immediately.**

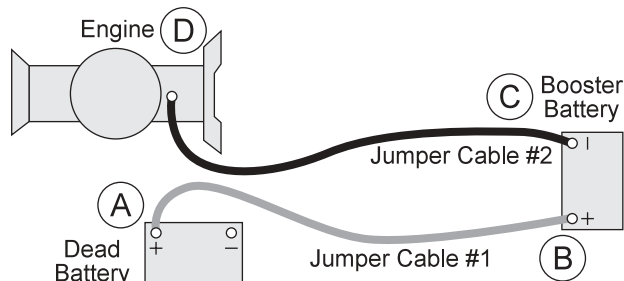


**WARNING**

**Use of booster battery and jumper cables. Particular care should be used when connecting a booster battery. Use proper polarity in order to prevent sparks.**

### TO JUMP START (NEGATIVE GROUNDED BATTERY):

1. Shield eyes.
2. Connect ends of one cable to positive (+) terminals of each battery, first (A) then (B).
3. Connect one end of other cable to negative (-) terminal of "good" battery (C).
4. Connect other end of cable (D) to engine block on unit being started (NOT to negative (-) terminal of battery)



To prevent damage to other electrical components on unit being started, make certain that engine is at idle speed before disconnecting jumper cables.



## SERVICE CHART KOHLER COMMAND 25HP



Before servicing or making adjustments to the machine, stop engine, set park break, block wheels and remove key from ignition.



Follow all procedures and **ONLY** use parts prescribed by the manufacturer. Read the engine manual before maintenance.

|  | Daily           | As Required | 100 Hours | 200 Hours | 250 Hours | 300 Hours | 400 Hours | Every 500 Hours/Yearly |
|--|-----------------|-------------|-----------|-----------|-----------|-----------|-----------|------------------------|
| ⌘ Engine Oil w/ Filter 2.1qt. (2 l)        | C               |             | R         | R         |           | R         | R         | R                      |
| ⌘ Engine Oil Filter                        |                 |             |           | R         |           |           | R         | R                      |
| Engine for Leaks and Loose Parts           | C               |             | C         | C         |           | C         | C         | C                      |
| ‡ Air Cleaner (Paper Element)              |                 | C           | C         | C         |           | C         | C         | R                      |
| ‡ Pre-Cleaner (Every 25 hours)             |                 | C           | C         | C         | C         | C         | C         | R                      |
| Spark Plugs                                |                 | R           |           | C         |           |           | C         | R                      |
| Idle Speed (1200 RPM)                      |                 |             |           |           | C         |           |           | C                      |
| ‡ Cooling System                           |                 | C           | C         | C         |           | C         | C         | C                      |
| Belts and Hoses                            | C               |             |           |           | C         |           |           | C                      |
| * Tire Pressure                            | C               |             | C         | C         |           | C         | C         | C                      |
| Visual Inspection of Tires                 | C               |             | C         | C         |           | C         | C         | C                      |
| Fuel Level                                 | C               | C           |           |           |           |           |           |                        |
| Fuel Filter                                |                 | R           |           |           |           |           |           | R                      |
| Hydraulic Oil                              | C               |             | C         | C         |           | C         | C         | R                      |
| † Hydraulic Oil Filter                     |                 |             |           |           | R         |           |           | R                      |
| Hydraulic System for Leaks and Loose Parts | C               |             | C         | C         |           | C         | C         | C                      |
| Battery Electrolyte Level                  |                 |             | C         | C         |           | C         | C         | C                      |
| Clean Battery Terminals                    |                 |             |           |           | C         |           |           | C                      |
| § Torque Lug Nuts                          |                 |             |           | C         |           |           | C         | C                      |
| Lubricate                                  |                 |             | C         | C         |           | C         | C         | C                      |
| Lubricate Splines on Hydrostatic Pump      | Every 500 hours |             |           |           |           |           |           |                        |

C=Check or Clean at specified intervals

R=Replace at specified intervals

\* Tire pressure: 20 psi (1.4 bar) Front and Rear.

† Replace hydraulic filter after the first 20, 100, and every 250 there after.

§ Torque tire nuts after the first 10 hours and every 200 hours there after (64 to 74 ft/lb (87-100Nm))

⌘ Change Oil and Filter after first 5 hours.

‡ Clean more often under dusty conditions or when airborne debris is present, replace air cleaner parts, if very dirty.

The suggested maintenance checklist is not offered as a replacement for the manufacturer's engine manual but as a supplement. You must adhere to the guidelines established by the manufacturer for warranty coverage. In adverse conditions such as dirt, mud or extreme temperatures, maintenance should be more frequent.





## END USER'S SERVICE CHART

|  | Daily | As Required | 100 Hours | 200 Hours | 250 Hours | 300 Hours | 400 Hours | Every 500 Hours/Yearly |
|--|-------|-------------|-----------|-----------|-----------|-----------|-----------|------------------------|
| α Engine Oil w/ Filter 2.1qt. (2 l)        |       |             |           |           |           |           |           |                        |
| α Engine Oil Filter                        |       |             |           |           |           |           |           |                        |
| Engine for Leaks and Loose Parts           |       |             |           |           |           |           |           |                        |
| ‡ Air Cleaner (Paper Element)              |       |             |           |           |           |           |           |                        |
| ‡ Pre-Cleaner (Every 25 hours)             |       |             |           |           |           |           |           |                        |
| Spark Plugs                                |       |             |           |           |           |           |           |                        |
| Idle Speed (1200 RPM)                      |       |             |           |           |           |           |           |                        |
| ‡ Cooling System                           |       |             |           |           |           |           |           |                        |
| Belts and Hoses                            |       |             |           |           |           |           |           |                        |
| * Tire Pressure                            |       |             |           |           |           |           |           |                        |
| Visual Inspection of Tires                 |       |             |           |           |           |           |           |                        |
| Fuel Level                                 |       |             |           |           |           |           |           |                        |
| Fuel Filter                                |       |             |           |           |           |           |           |                        |
| Hydraulic Oil                              |       |             |           |           |           |           |           |                        |
| †Hydraulic Oil Filter                      |       |             |           |           |           |           |           |                        |
| Hydraulic System for Leaks and Loose Parts |       |             |           |           |           |           |           |                        |
| Battery Electrolyte Level                  |       |             |           |           |           |           |           |                        |
| Clean Battery Terminals                    |       |             |           |           |           |           |           |                        |
| § Torque Lug Nuts                          |       |             |           |           |           |           |           |                        |
| Lubricate                                  |       |             |           |           |           |           |           |                        |
| Lubricate Splines on Hydrostatic Pump      |       |             |           |           |           |           |           |                        |

C=Check or Clean at specified intervals

R=Replace at specified intervals

\* Tire pressure: 20 psi (1.4 bar) Rear. 22 psi (1.5 bar) Front.

† Replace hydraulic filter after the first 20, 100, and every 250 there after.

§ Torque tire nuts after the first 10 hours and every 200 hours there after (64 to 74 ft/lb (87-100Nm))

α Change Oil and Filter after first 5 hours.

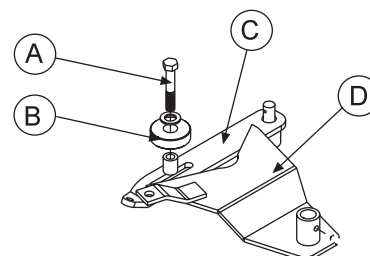
‡ Clean more often under dusty conditions or when airborne debris is present , replace air cleaner parts, if very dirty.



## WHEEL CREEP

"Creep" is when the engine is running and hydrostatic transmission is in neutral, but due to inadequate alignment, wheels still move. Do the following procedure to stop this motion.

1. Lift up and support machine so rear wheels are off the ground and can turn freely.
2. In the engine compartment, the hydrostatic transmission is on the left side. The swash plate(D) is under the transmission and comes out forward. The idler arm(B) has a bearing that runs in the notch of the swash plate. Loosen bolt (A).
3. With engine running, move bearing(B) so it centers on the swash plate(D) and 'wheel creep' stops.
4. Tighten all fasteners and test by using foot pedal linkage to see that 'creep' is removed.
5. Turn engine off and lower machine.



## SPRAY PUMP WITH ELECTRIC CLUTCH BELT

Located to the rear and right of the engine. Should have approximately  $\frac{1}{2}$ " (13mm) of deflection in the center of the top strand. Loosen and tighten the  $\frac{5}{16}$  -18 x  $1\frac{1}{4}$  set screw located on the foot of the pump mount.

## PARK BRAKE

Turn knob clockwise on end of park brake to tighten. Turn it counter clockwise to loosen. If finer adjustment is needed turn clevis on brake cable to adjust length of cable.

## SPEED CALIBRATION NUMBERS

The speed calibration numbers for the Spray Star 1006 is 120.

The speed calibration numbers for Spray Star 1008 is 612.

# STORAGE

If the engine will be out of service for two or more months, use the following storage procedure.

1. Clean the exterior surfaces of the engine.
2. Change the oil and filter while the engine is still warm from operation.
3. The fuel system must be completely emptied, or the gasoline must be treated with a stabilizer to prevent deterioration.

If you choose to use a stabilizer, follow manufacturers recommendations, and add the correct amount for the capacity of fuel system. Fill fuel tank with clean, fresh gasoline. Run engine for 2-3 minutes to get stabilized fuel into carburetor. Close fuel shut-off valve when unit is being stored or transported.

To empty the system, drain fuel tank and carburetor, or run engine until tank and system are empty.

4. Remove the spark plugs. Add one tablespoon of engine oil into each spark plug hole. Install plugs, but do not connect the plug leads. Crank the engine two or three revolutions.
5. Store machine in a clean, dry place.



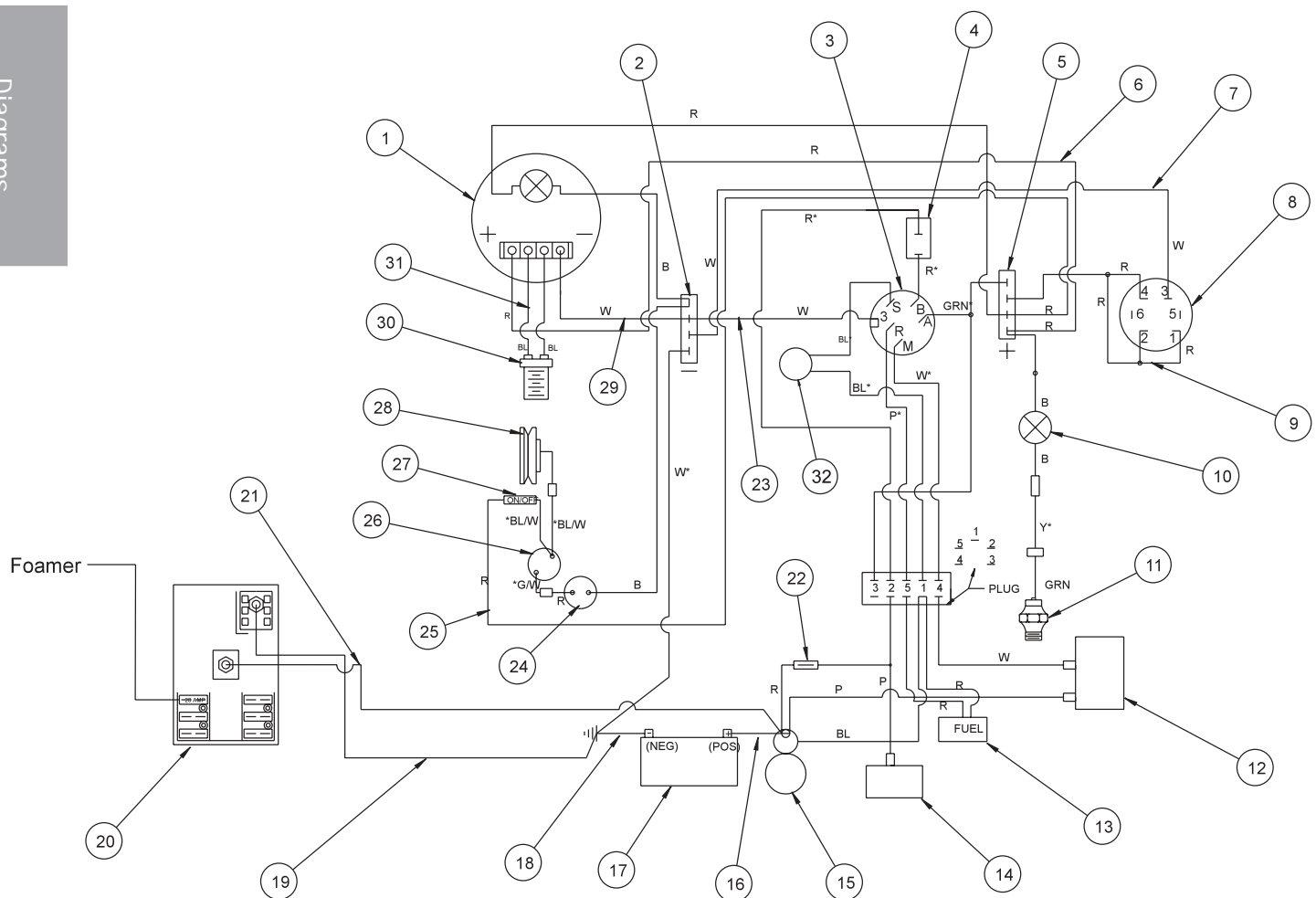
# WIRING DIAGRAM

## FUSES

|                |        |        |
|----------------|--------|--------|
| Boom Lift      | 20 AMP | 33-272 |
| Manifold Valve | 5 AMP  | 33-284 |
| Spray Systems  | 15 AMP | 33-508 |
| Foamer         | 10 AMP | 33-507 |
| Hose Reel      | 30 AMP | 33-273 |

## Color Code Chart

|     |        |
|-----|--------|
| Bl  | Blue   |
| Br  | Brown  |
| Y   | Yellow |
| Grn | Green  |
| O   | Orange |
| R   | Red    |
| B   | Black  |
| P   | Purple |
| W   | White  |



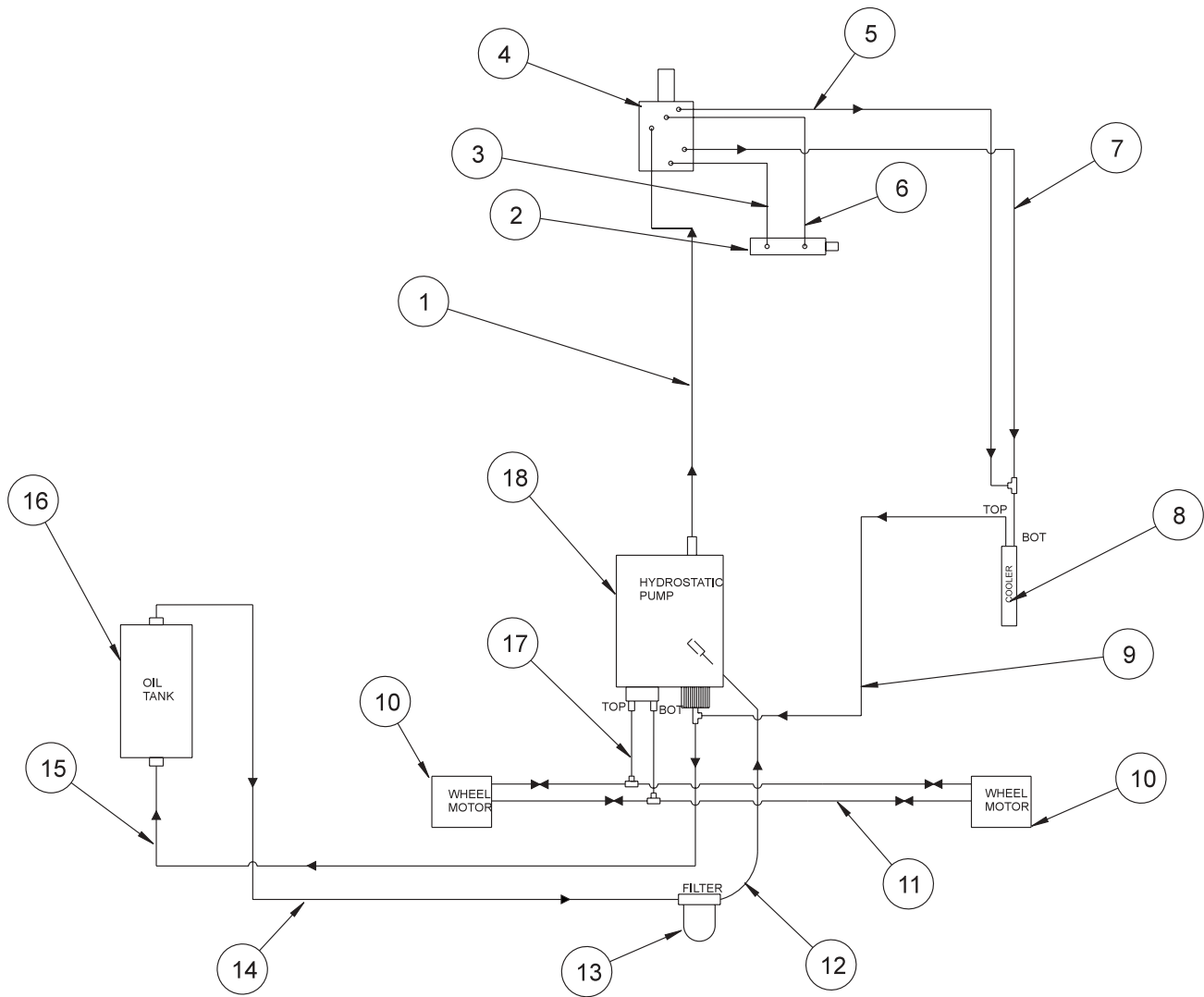
**Use dielectric grease on all electrical connections.**



| REF# | PART#    | DESCRIPTION                                    | QUANTITY |
|------|----------|--|----------|
| 1†   | 10-202   | Speedometer                                    | 1        |
|      | 8859     | Ring Terminal <sup>3</sup> / <sub>16</sub>     | 2        |
|      | 8962     | Heat Shrink                                    | 2        |
| 2    | 8935     | Buss Bar (-)                                   | 1        |
| 3    | 13-288   | Ignition Switch (Kohler 25 099 04)             | 1        |
|      | 76-310   | Key Set  | 1        |
| 4    | 34-146   | Panel Mounted Circuit Breaker                  | 1        |
|      | 34-145   | Circuit Breaker Boot                           | 1        |
| 5    | 8935     | Buss Bar(+)                                    | 1        |
| 6§   |          | Speedometer To (+) Buss Bar                    |          |
| 7§   |          | (-) Buss Bar to Hour / Voltmeter               |          |
| 8    | 42-064   | Hour / Voltmeter Combo                         | 1        |
| 9    | 10-182   | Hot Wire Hour / Voltmeter                      | 1        |
| 10   | 50-359   | Oil Warning Light                              | 1        |
|      | 8849-2   | Black Wire                                     | 1        |
|      | 8860     | String Connector                               | 1        |
|      | 8859     | Ring Terminal <sup>3</sup> / <sub>16</sub>     | 1        |
|      | 8853     | Slide On Connector                             | 1        |
|      | 8962     | Heat Shrink <sup>3</sup> / <sub>16</sub>       | 3        |
| 11   |          | Oil Sender (Part Of Engine)                    |          |
| 12   |          | Ignition Module (Part Of Engine)               |          |
| 13   |          | Fuel Shut-Off Solenoid (Part Of Engine)        |          |
| 14   |          | Rectifier (Part Of Engine)                     |          |
| 15   |          | Starter (Part Of Engine)                       |          |
| 16   | 10-167   | Red Battery Cable                              | 1        |
| 17   | 22-073   | Battery (Optional)                             | 1        |
| 18   | 76-327   | Ground Battery Cable                           | 1        |
| 19   | 10-204   | Fuse Block Ground Wire                         | 1        |
| 20   | 33-271   | Fuse Block                                     | 1        |
| 21   | 10-203   | Fuse Block Hot Wire                            | 1        |
| 22   |          | Wire With Fuse (Part Of Engine)                |          |
|      |          | Fuse AGC 30                                    |          |
| 23§  |          | (-) Buss Bar to Ignition Switch                |          |
| 24   | 77-207   | Buzzer   | 1        |
|      | 8845-3.5 | White Wire                                     | 1        |
|      | 8860     | String Connector                               | 1        |
|      | 8859     | Ring Terminal <sup>3</sup> / <sub>16</sub>     | 1        |
|      | 8853     | Slide On Connector                             | 1        |
|      | 8962     | Heat Shrink                                    | 3        |
| 25§  |          | Wire Toggle Switch To (+) Buss Bar             |          |
| 26   | 33-480   | Pressure Switch                                | 1        |
| 27   | 15-314   | Toggle Switch                                  | 1        |
|      | 15-472   | Switch Boot                                    | 1        |
| 28   | 16-966   | Hypro Pump With Electric Clutch                | 1        |
| 29†  | 10-183   | Wire Speedometer Ground                        | 1        |
| 30†  | 16-883   | Magnetic Sensor                                | 1        |
| 31†  | 10-209   | Speedometer Wire Harness                       | 1        |
| 32   | 14-272   | Seat Switch                                    | 1        |
|      | 10-262   | Wire Harness (Includes all wire colors with *) | 1        |
| §    | 10-224   | Console Wire Harness                           | 1        |
| †    | 10-108   | Speedometer Kit (optional)                     |          |



# HYDRAULIC DIAGRAM





## HYDRAULIC DIAGRAM PARTS LIST

| REF# | PART#   | DESCRIPTION           | QUANTITY |
|------|---------|-----------------------|----------|
| 1    | 10-143  | Hydraulic Hose        | 2        |
| 2    | 10-135  | Hydraulic Cylinder    | 1        |
| 3    | 10-141  | Hydraulic Hose        | 1        |
| 4    | 34-103  | Orbitrol Motor        | 1        |
| 5    | 10-144  | Hydraulic Hose        | 1        |
| 6    | 10-142  | Hydraulic Hose        | 1        |
| 7    | 18-190  | Tee                   | 1        |
| 8    | 34-105  | Oil Cooler            | 1        |
| 9    | 10-145  | Hydraulic Hose        | 1        |
| 10   | 10-116  | Wheel Motor           | 2        |
| 11   | 10-123  | Hydraulic Hose        | 4        |
| 12   | 8832-12 | Hose $\frac{3}{4}$ ID | 1        |
|      | 18-222  | Hose Clamp            | 2        |
| 13   | 23-006  | Oil Filter            | 1        |
|      | 23-031  | Replacement Filter    |          |
| 14   | 8832-14 | Hose $\frac{3}{4}$ ID | 1        |
|      | 18-222  | Hose Clamp            | 2        |
| 15   | 10-196  | Hydraulic Hose        | 1        |
| 16   | 48-135  | Oil Tank              | 1        |
| 17   | 10-140  | Hydraulic Hose        | 2        |
| 18   | 10-117  | Hydrostatic Pump      | 1        |

## FITTING TORQUE CHARTS

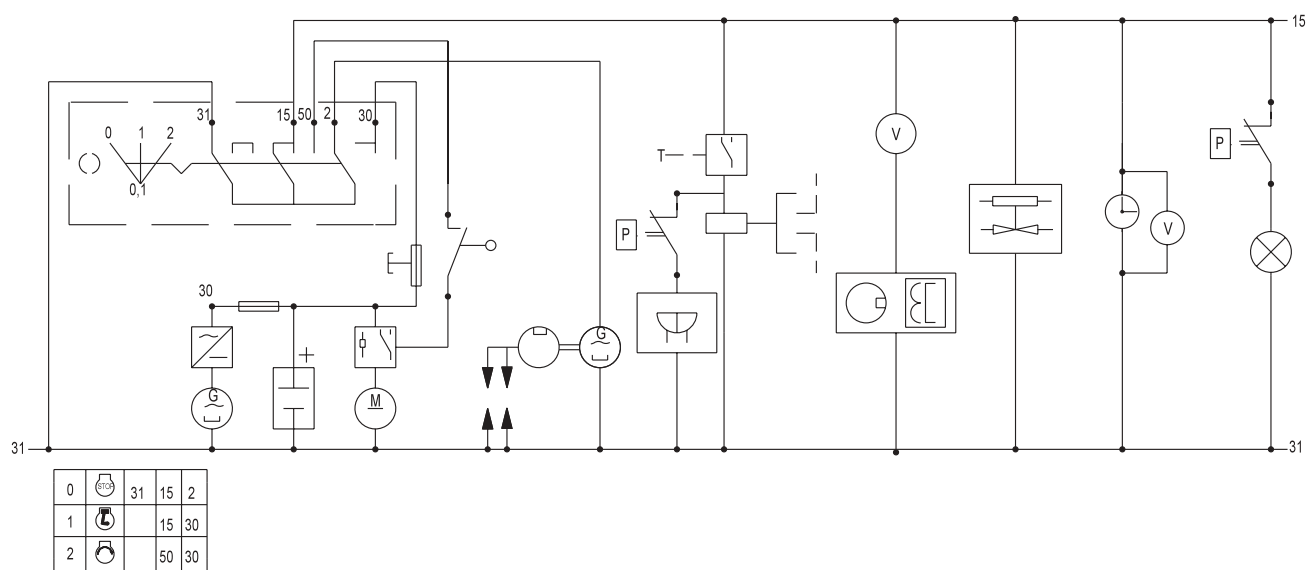
| SAE Straight Thread O-ring Plugs<br>(Steel) |                    |  |          |   |          |
|---|--------------------|--|----------|---|----------|
| Fitting<br>Size                             | SAE Port<br>Thread | Hollow Hex Head Plug<br>(HP50N) Assembly<br>Torque |          | Hex Head Plug (P50N)<br>Assembly Torque |          |
|   |                    | in. lbs.   | ft. lbs. | in. lbs.                                | ft. lbs. |
| 2   | 5/16 - 24          | 35 ± 5   | 3 ± .5   | 90 ± 5                                  | 7.5 ± .5 |
| 3   | 3/8 - 24           | 60 ± 5   | 5 ± .5   | 170 ± 10                                | 14 ± 1   |
| 4   | 7/16 - 20          | 135 ± 10   | 11 ± 1   | 220 ± 15                                | 18 ± 1   |
| 5   | 1/2 - 20           | 180 ± 10   | 15 ± 1   | 260 ± 15                                | 22 ± 1   |
| 6   | 9/16 - 18          | 220 ± 10   | 18 ± 1   | 320 ± 20                                | 27 ± 2   |
| 8   | 3/4 - 16           | 550 ± 20   | 46 ± 2   | 570 ± 25                                | 48 ± 2   |
| 10  | 7/8 - 14           | 900 ± 50   | 75 ± 5   | 1060 ± 50                               | 90 ± 5   |
| 12  | 1 1/16 - 12        | 1020 ± 50  | 85 ± 5   | 1300 ± 50                               | 110 ± 5  |
| 14  | 1 3/16 - 12        | 1550 ± 75  | 130 ± 6  | 1750 ± 75                               | 145 ± 6  |
| 16  | 1 5/16 - 12        | 1600 ± 75  | 135 ± 6  | 1920 ± 75                               | 160 ± 6  |
| 20  | 1 5/8 - 12         | 2700 ± 150   | 225 ± 12 | 2700 ± 150                              | 225 ± 12 |
| 24  | 1 7/8 - 12         | 3000 ± 150   | 250 ± 12 | 3000 ± 150                              | 250 ± 12 |
| 32  | 2 1/2 - 12         | 3900 ± 200   | 325 ± 15 | 3900 ± 200                              | 325 ± 15 |

| Seal-Lok Straight and Adjustable Fitting<br>(Steel) |                            |                     |            |
|---|----------------------------|---------------------|------------|
| Fitting<br>Size                                     | SAE Port<br>Thread<br>Size | Assembly Torque (2) |            |
|   |                            | in. lbs.            | ft. lbs.   |
| 4   | 7/16 - 20                  | 190 ± 10(1)         | 16 ± 1.0   |
| 6   | 9/16 - 18                  | 420 ± 15            | 35 ± 1.0   |
| 8   | 3/4 - 16                   | 720 ± 25            | 60 ± 2.0   |
| 10  | 7/8 - 14                   | 1260 ± 50           | 105 ± 5.0  |
| 12  | 1 1/16 - 12                | 1680 ± 75           | 140 ± 6.0  |
| 16  | 1 5/16 - 12                | 2520 ± 100          | 210 ± 8.0  |
| 20  | 1 5/8 - 12                 | 3100 ± 150          | 260 ± 12.0 |
| 24  | 1 7/8 - 12                 | 3800 ± 150          | 315 ± 12.0 |

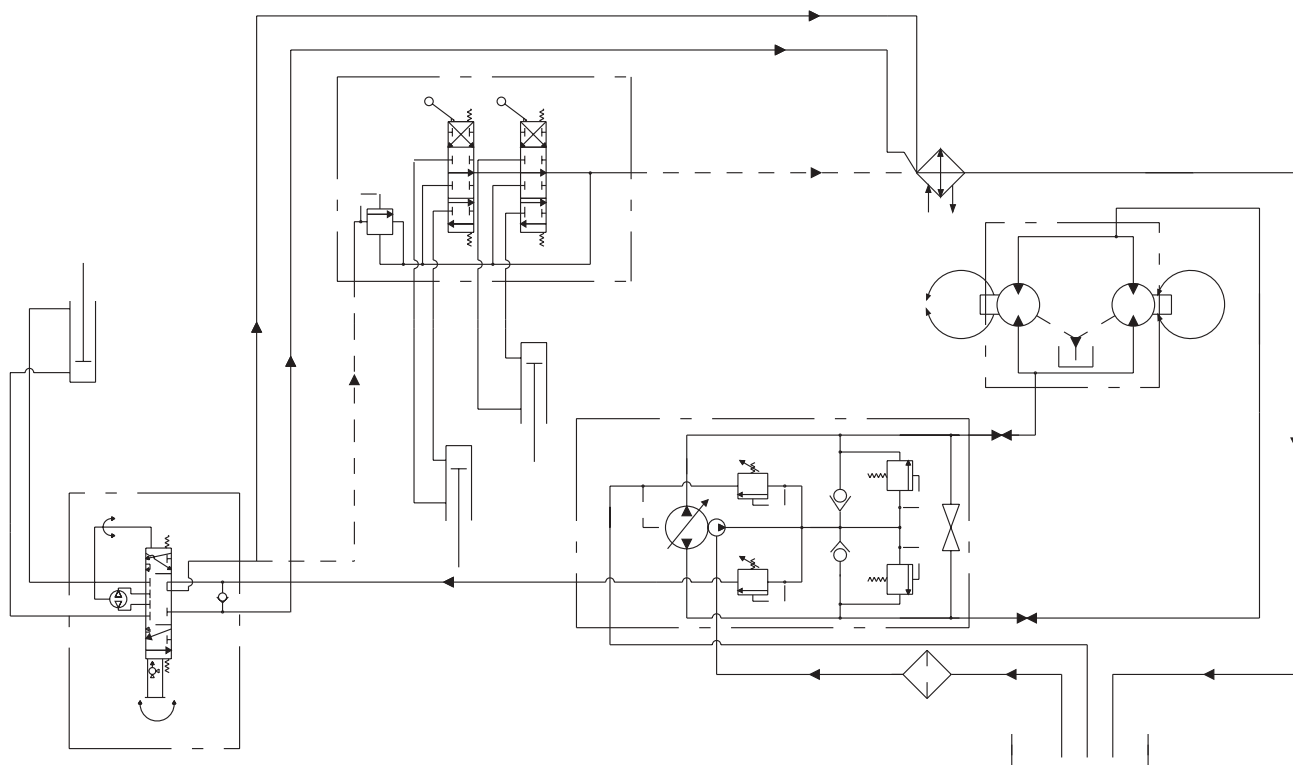
Over tightened fittings will result in crushing the cone which will create a leak.  
Charts Developed by Parker Hennipin



## WIRING SCHEMATIC



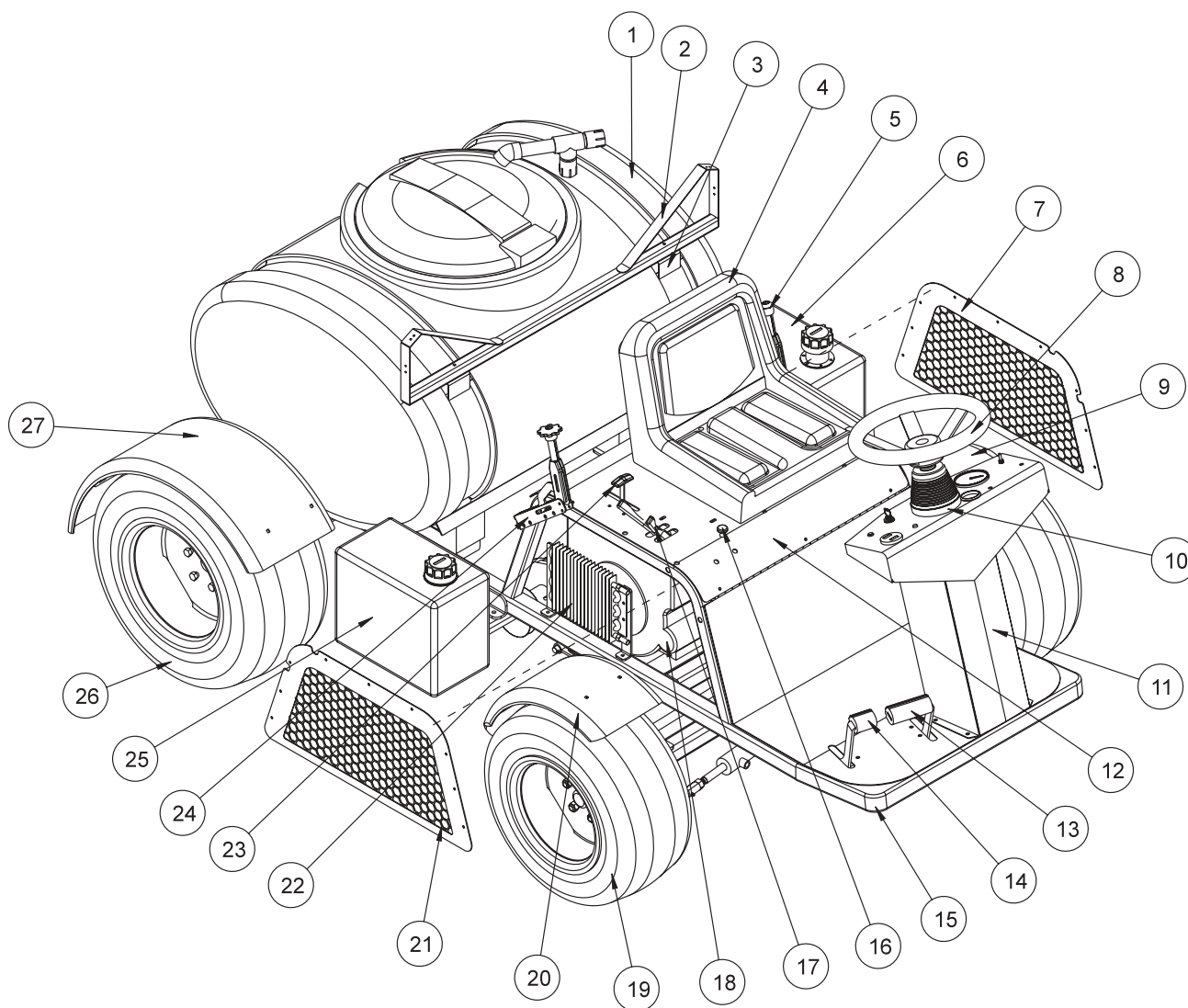
## HYDRAULIC SCHEMATIC













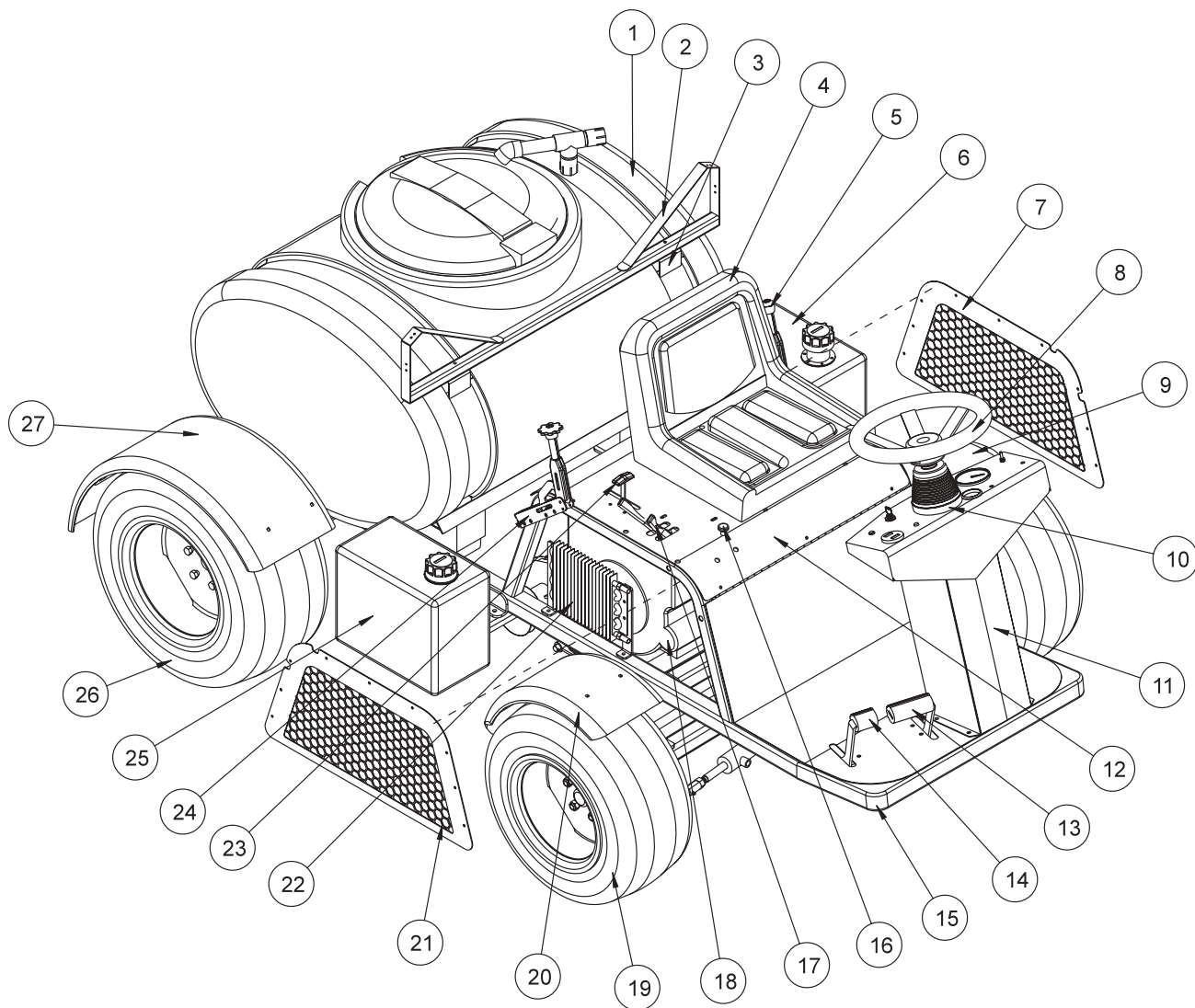
## BODY & FRAME PARTS LIST

| REF# | PART#          | DESCRIPTION  | QUANTITY |
|------|----------------|--|----------|
| 1    | 10-111         | 110 Gallon Poly Tank   | 1        |
| 2    | 10-193         | Horizontal Boom Support                                      | 1        |
| 3    | 10-191         | Tank Strap   | 2        |
| 4    | 14-269         | Seat   | 1        |
|      | 14-272         | Seat Switch  | 1        |
|      | 42-098         | Plastic Spacer   | 4        |
|      | HB-516-18-125  | Bolt $\frac{5}{16}$ - 18 x $1\frac{1}{4}$                    | 4        |
|      | HW-516         | Washer $\frac{5}{16}$  | 4        |
|      | HWL-516        | Lock Washer $\frac{5}{16}$                                   | 4        |
|      | HN-516-18      | Nut $\frac{5}{16}$ - 18                                      | 4        |
| 5    | 10-120         | Park Brake Handle  | 1        |
| 6    | 48-135         | Oil Tank   | 1        |
|      | 23-095         | Filler Breather  | 1        |
| 7    | 10-257         | Left Side Panel  | 1        |
|      | HSDPS-14-075   | Stainless Pan Head Drill Screw $\frac{1}{4}$ x $\frac{3}{4}$ | 9        |
| 8    | 15-030         | Steering Wheel   | 1        |
| 9    | 10-180         | Left Front Fender  | 1        |
|      | HBC-516-18-100 | Carriage Bolt $\frac{5}{16}$ - 18 x 1                        | 4        |
|      | HW-516         | Washer $\frac{5}{16}$  | 4        |
|      | HWL-516        | Lock Washer $\frac{5}{16}$                                   | 4        |
|      | HN-516-18      | Nut $\frac{5}{16}$ - 18                                      | 4        |
| 10   | 76-299         | Black Boot   | 1        |
| 11   | 10-113         | Console  | 1        |
| 12   | 10-239         | Seat Panel   | 1        |
| 13   | 10-163         | Forward Foot Pedal   | 1        |
| 14   | 10-164         | Reverse Foot Pedal   | 1        |
| 15   | 10-137         | Main Frame   | 1        |
| 16   | 11-086         | Choke  | 1        |
| 17*  | 10-238         | Two Bank Valve 900 PSI                                       | 1        |
|      | 10-248         | Valve Handles  | 2        |
| 18   | 10-118         | Kohler 25 hp Engine  | 1        |
| 19   | 16-857         | Tire and Wheel   | 2        |
|      | 16-857-01      | Tire 20 x 10 - 10NHS 4 Ply                                   | 2        |
|      | 16-857-02      | Wheel  | 2        |
| 20   | 10-159         | Right Front Fender   | 1        |
|      | HBC-516-18-100 | Carriage Bolt $\frac{5}{16}$ - 18 x 1                        | 4        |
|      | HW-516         | Washer $\frac{5}{16}$  | 4        |
|      | HWL-516        | Lock Washer $\frac{5}{16}$                                   | 4        |
|      | HN-516-18      | Nut $\frac{5}{16}$ - 18                                      | 4        |
| 21   | 10-258         | Right Side Panel   | 1        |
|      | HSDPS-14-075   | Stainless Pan Head Drill Screw $\frac{1}{4}$ x $\frac{3}{4}$ | 9        |
| 22   | 34-105         | Oil Cooler   | 1        |
|      | HB-14-20-100   | Bolt $\frac{1}{4}$ - 20 x 1                                  | 4        |
|      | HWL-14         | Lock Washer $\frac{1}{4}$                                    | 4        |
|      | HN-14-20       | Nut $\frac{1}{4}$ - 20                                       | 4        |
|      | 10-129         | Front Cooler Mount   | 1        |
|      | 10-130         | Rear Cooler Mount  | 1        |
| *    | 10-297         | Hydraulic Lift Kit   | 1        |

(Continued on Next Page)



## BODY & FRAME DRAWING



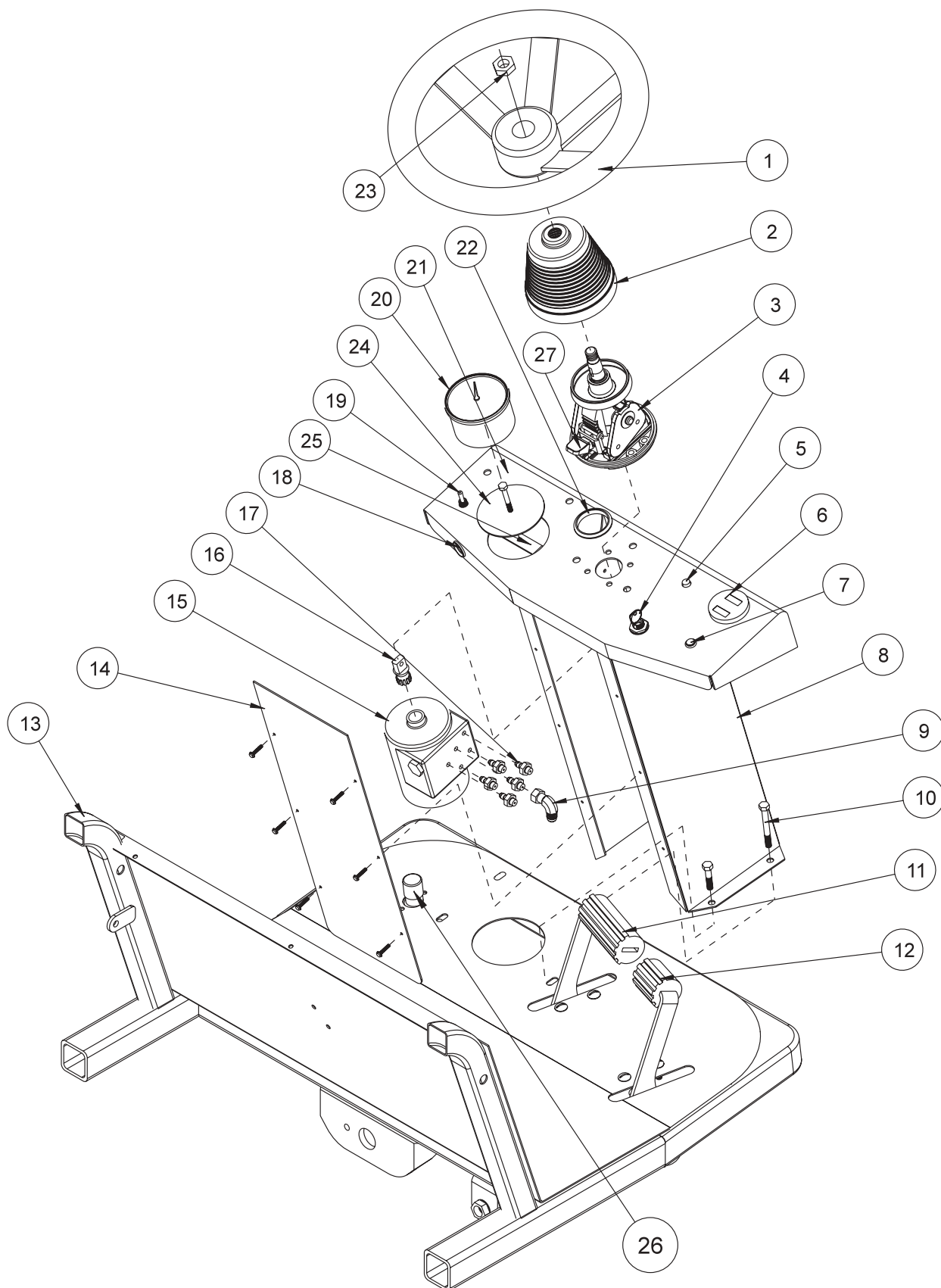


## BODY & FRAME PARTS LIST

| REF# | PART#          | DESCRIPTION                           | QUANTITY |
|------|----------------|---------------------------------------|----------|
| 23   | 34-160         | Throttle Control with Cable           | 1        |
| 24   | 10-228         | Spray Boss Control                    | 1        |
| 25   | 10-115         | Gas Tank                              | 1        |
|      | 10-220         | Gas Cap                               | 1        |
| 26   | 10-114         | Tire and Wheel                        | 2        |
|      | 10-114-01      | Tire 24-12-12NHS                      | 2        |
|      | 10-114-02      | Wheel                                 | 2        |
| 27   | 10-168         | Rear Fender                           | 2        |
|      | HBC-516-18-100 | Carriage Bolt $\frac{5}{16}$ - 18 x 1 | 8        |
|      | HW-516         | Washer $\frac{5}{16}$                 | 8        |
|      | HWL-516        | Lock Washer $\frac{5}{16}$            | 8        |
|      | HN-516-18      | Nut $\frac{5}{16}$ - 18               | 8        |



# NOSE CONE DRAWING





# NOSE CONE PARTS LIST

| REF# | PART#         | DESCRIPTION  | QUANTITY |
|------|---------------|--|----------|
| 1    | 15-030        | Steering Wheel with Cap                                    | 1        |
|      | 15-031        | Steering Wheel Cap (Replacement Only)                      |          |
| 2    | 76-294        | 90° Black Boot   | 1        |
| 3    | 76-293        | Tilt Steering Mechanism                                    | 1        |
|      | HB-516-18-150 | Bolt $\frac{5}{16}$ - 18 x $1\frac{1}{2}$                  | 3        |
|      | HNTL-516-18   | Lock Nut $\frac{5}{16}$ - 18                               | 3        |
|      | HWK-316-075   | Woodruff Key $\frac{3}{16}$ - $\frac{3}{4}$                | 1        |
| 4    | 13-288        | Key Switch (with hardware Kohler 25 099 04)                | 1        |
|      | 76-310        | Key Set  | 1        |
| 5    | 34-146        | Circuit Breaker  | 1        |
|      | 34-145        | Circuit Breaker Boot                                       | 1        |
| 6    | 42-064        | Hour / Voltmeter   | 1        |
| 7    | 50-359        | Oil Warning Indicator Light                                | 1        |
| 8    | 10-113        | Console  | 1        |
| 9    | 18-309        | $\frac{11}{16}$ Swivel Nut 90° Elbow                       | 1        |
| 10   | HB-516-18-150 | Bolt $\frac{5}{16}$ - 18 x $1\frac{1}{2}$                  | 2        |
|      | HB-516-18-275 | Bolt $\frac{5}{16}$ - 18 x $2\frac{3}{4}$                  | 2        |
|      | HNTL-516-18   | Lock Nut $\frac{5}{16}$ - 18                               | 4        |
| 11   | 10-163        | Forward Foot Pedal   | 1        |
|      | 48-066        | Pedal Pad  | 1        |
| 12   | 10-164        | Reverse Pedal  | 1        |
|      | 48-132        | Short Pedal Pad  | 1        |
| 13   | 10-137        | Main Frame   | 1        |
| 14   | 10-200        | Tower Plate  | 1        |
|      | HSA-8-075     | Tapping Screw #8 x $\frac{3}{4}$                           | 6        |
| 15   | 34-103        | Orbitrol   | 1        |
|      | HBM-6-1-16    | Metric Bolt M6-1 x 16                                      | 4        |
|      | HWLM-6        | Metric Lock Washer M6                                      | 4        |
| 16   | 34-167        | Stub Shaft   | 1        |
| 17   | 18-306        | $\frac{11}{16}$ x $\frac{9}{16}$ Straight Thread Connector | 5        |
| 18   | 77-207        | Buzzer   | 1        |
| 19   | 15-314        | Toggle Switch  | 1        |
|      | 15-472        | Switch Boot  | 1        |
| 20*  | 10-202        | Speedometer (Optional)                                     | 1        |
| 21   | 25-347        | Decal, Console   | 1        |
| 22   | 50-400        | Rubber Grommet   | 1        |
| 23   | HNJ-58-18     | Jam Nut $\frac{5}{8}$ - 18                                 | 1        |
| 24   | 10-235        | Speedometer Plug Button                                    | 1        |
|      | HSM-8-32-075  | Machine Screw #8-32 x $\frac{3}{4}$                        | 1        |
|      | HWL-8         | Lock Washer #8   | 1        |
|      | HN-8-32       | Nut #8-32  | 1        |
| 25   | 10-236        | Strong Back  | 1        |
| 26   | 33-509        | Master Boom Switch   | 1        |
|      |               |  |          |
| *    | 10-108        | Speedometer Kit  | 1        |



FRONT AXLE DRAWING



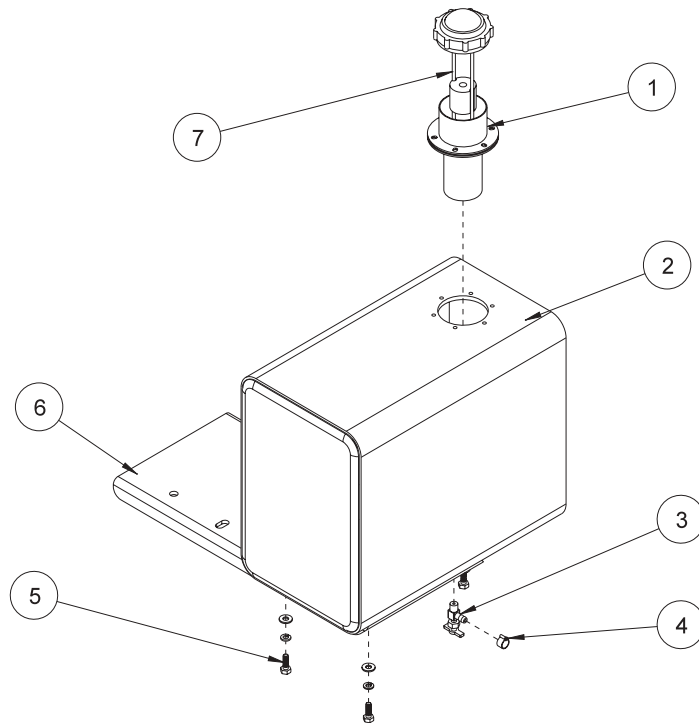


# FRONT AXLE PARTS LIST

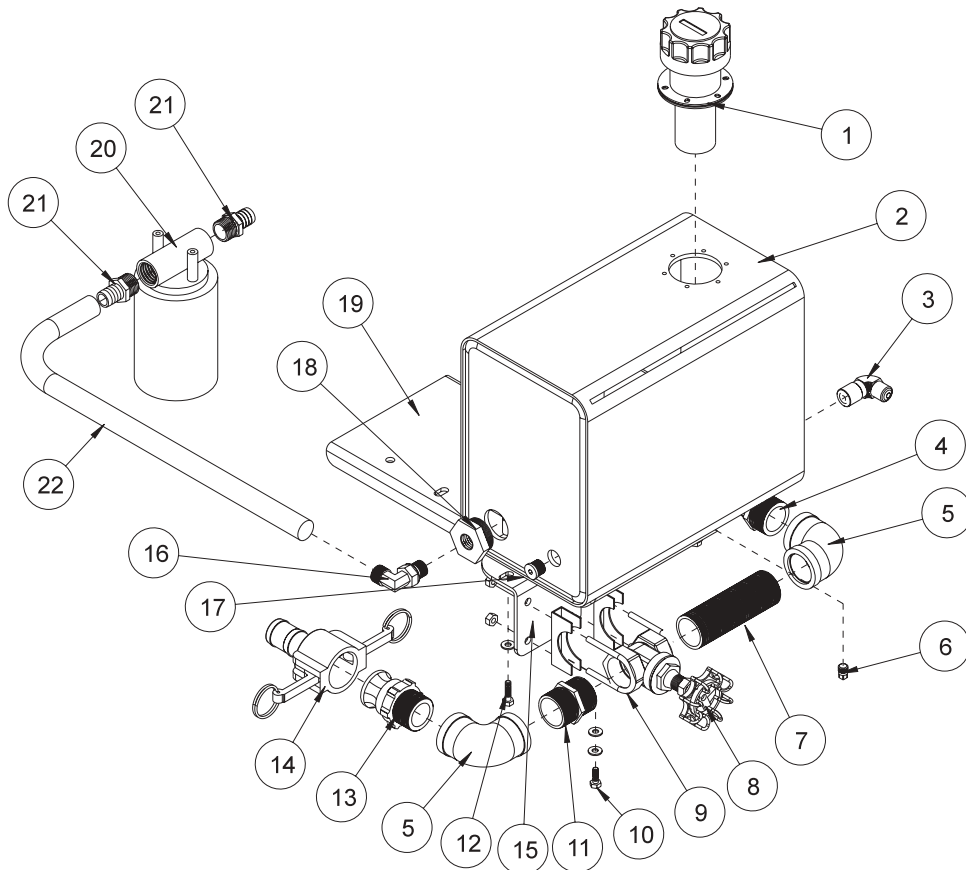
| REF# | PART#            | DESCRIPTION  | QUANTITY |
|------|------------------|--|----------|
| 1    | 80-167           | Dust Cap   | 2        |
| 2    | HNAR-100-14      | Slotted Jam Nut 1 - 14                                     | 2        |
| 3    | 11-043           | Bearing  | 4        |
| 4    | 80-019           | Hub (includes Ref# 1,3,6,38 & 39)                          | 2        |
| 5    | 10-265           | Hub with Sprocket  | 1        |
|      | HSSHS-516-18-038 | Socket Head Set Screw $\frac{5}{16}$ - 18 x $\frac{3}{8}$  | 1        |
| 6    | 11-041           | Oil Seal   | 2        |
| 7    | 11-042           | Spacer   | 2        |
| 8    | 10-294           | Left Spindle   | 1        |
|      | HG-14-28-180     | Grease Fitting $\frac{1}{4}$ - 28 x 180°                   | 1        |
| 9    | 33-086           | Bushing  | 4        |
| 10   | HNA-100-14       | Slotted Nut 1 - 14   | 2        |
| 11   | HP-18-150        | Cotter Pin $\frac{1}{8}$ - $1\frac{1}{2}$                  | 5        |
| 12   | HMB-100-14       | Machine Bushing 1 x 14GA                                   | 2        |
| 13   | 10-158           | Left Front Fender Bracket - Front                          | 1        |
| 14   | 50-081           | Rubber Insulator   | 2        |
| 15   | HCP-58-175       | Clevis Pin $\frac{5}{8}$ - $1\frac{3}{4}$                  | 1        |
| 16   | 18-153           | Bushing  | 2        |
| 17   | 10-138           | Axle Pin   | 1        |
| 18   | HP-18-100        | Cotter Pin $\frac{1}{8}$ x 1                               | 1        |
| 19   | 18-307           | $1\frac{1}{16}$ x $\frac{9}{16}$ 45° Straight Thread Elbow | 1        |
| 20   | 10-135           | Hydraulic Cylinder   | 1        |
|      | 14-267           | Seal Kit   | 1        |
| 21   | 18-310           | $1\frac{1}{16}$ x $\frac{9}{16}$ 90° Straight Thread Elbow | 1        |
| 22   | HNJ-58-18        | Jam Nut $\frac{5}{8}$ - 18                                 | 1        |
| 23   | HB-58-11-250     | Bolt $\frac{5}{8}$ - 11 x $2\frac{1}{2}$                   | 1        |
| 24   | 18-154           | Rod End  | 1        |
| 25   | 10-156           | Right Front Fender Bracket - Front                         | 1        |
| 26   | HMB-58-14        | Machine Bushing $\frac{5}{8}$ x 14GA                       | 2        |
| 27   | 10-295           | Right Spindle  | 1        |
|      | HG-14-28-180     | Grease Fitting $\frac{1}{4}$ - 28 x 180°                   | 1        |
| 28   | HNTL-58-11       | Lock Nut $\frac{5}{8}$ - 11                                | 1        |
| 29   | 16-076           | King Pin   | 2        |
| 30   | 16-565           | Rod End  | 2        |
| 31   | HNM-12-125       | Metric Nut M12 - 1.25                                      | 2        |
| 32   | 10-155           | Right Front Fender Bracket - Back                          | 1        |
| 33   | 10-131           | Front Axle   | 1        |
|      | HG-14-28-180     | Grease Fitting $\frac{1}{4}$ - 28 x 180°                   | 1        |
| 34   | 10-139           | Tie Rod  | 1        |
| 35   | HNAT-114-12      | Thick Slotted Nut $1\frac{1}{4}$ - 12                      | 1        |
| 36*  | 16-883           | Magnetic Sensor (Optional)                                 | 1        |
|      | HNJ-34-16        | Jam Nut $\frac{3}{4}$ - 16                                 | 1        |
| 37   | 10-157           | Left Front Fender Bracket - Back                           | 1        |
| 38   | 27-022-02        | Stud $\frac{1}{2}$ - 20                                    | 10       |
| 39   | HNL-12-20        | Lug Nut $\frac{1}{2}$ - 20                                 | 10       |
| 40   | HMB-100-10       | Machine Bushing 1 x 10GA                                   | 2        |
| *    | 10-108           | Speedometer Kit  | 1        |



## FUEL TANK DRAWING



## OIL TANK & OIL FILTER DRAWING





## FUEL TANK PARTS LIST

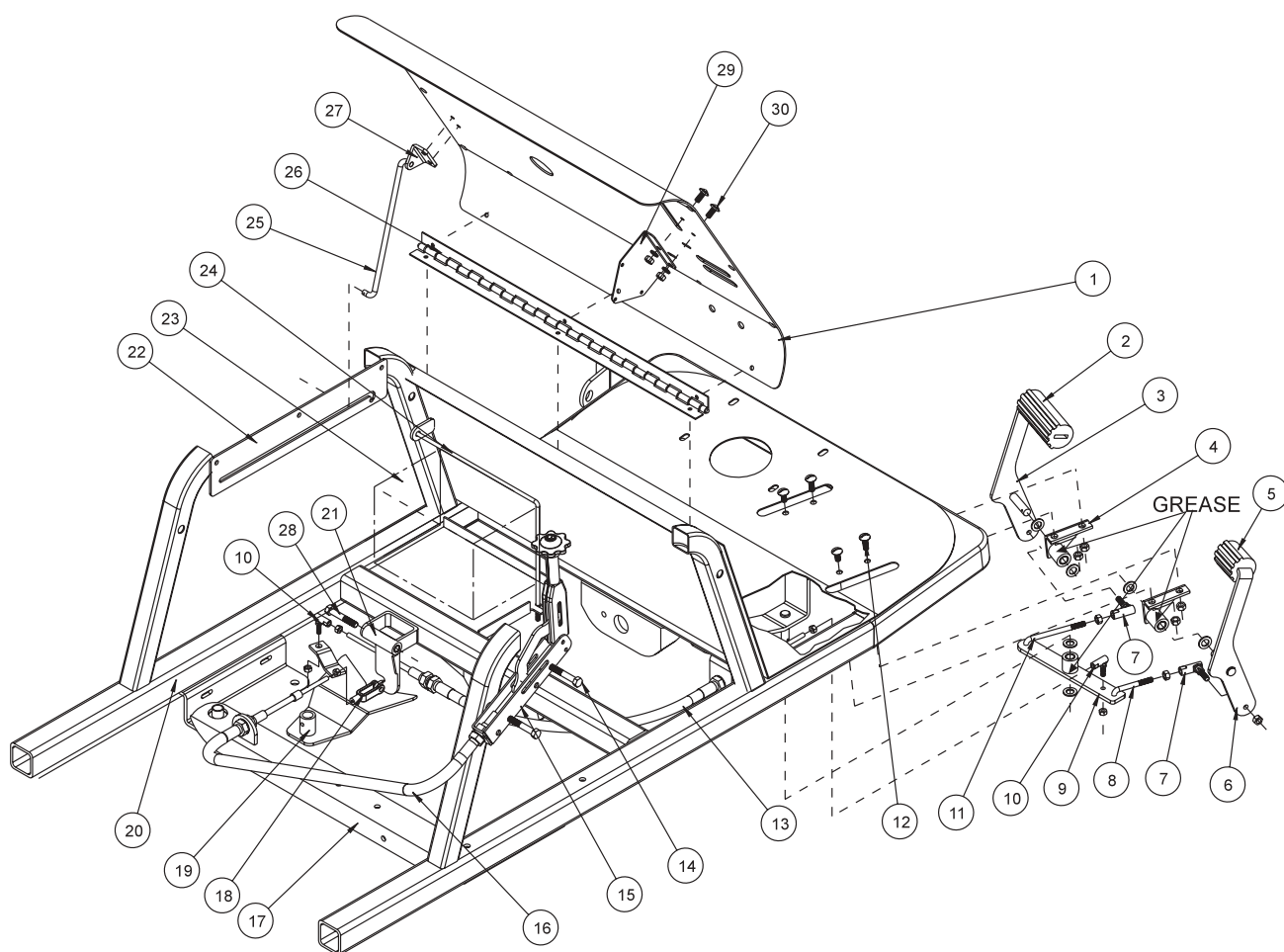
| REF# | PART#        | DESCRIPTION               | QUANTITY |
|------|--------------|---------------------------|----------|
| 1    | 10-231       | Gas Tank Neck             | 1        |
|      | HMS-8-32-050 | Machine Screw #8-32 x 1/2 | 6        |
|      | HWS-8        | Star Washer #8            | 6        |
| 2    | 10-115       | Gas Tank                  | 1        |
| 3    | 15-039       | Fuel Valve                | 1        |
| 4    | 18-186       | Hose Clamp 1/4            | 2        |
|      | 8800-28      | Fuel Hose 1/4             | 1        |
| 5    | HB-14-20-075 | Bolt 1/4 - 20 x 3/4       | 4        |
|      | HW-14        | Washer 1/4                | 4        |
|      | HWL-14       | Lock Washer 1/4           | 4        |
| 6    | 10-127       | Tank Mount                | 1        |
| 7    | 10-220       | Gas Cap with Gauge        | 1        |

## OIL TANK & OIL FILTER PARTS LIST

| REF# | PART#        | DESCRIPTION                                  | QUANTITY |
|------|--------------|--|----------|
| 1    | 23-095       | Breather                                     | 1        |
|      | HMS-8-32-050 | Machine Screw #8-32 x 1/2                    | 6        |
|      | HWS-8        | Star Washer #8                               | 6        |
| 2    | 15-627       | Oil Tank                                     | 1        |
| 3    | 10-305       | Male Elbow                                   | 1        |
|      | 10-275       | Hydraulic Hose                               | 1        |
| 4    | 16-161       | Fitting 1 1/4 NPT x 1 1/4 HB (to spray tank) | 1        |
| 5    | 16-182       | Elbow  | 2        |
| 6    | 18-118       | 1/8 Pipe Plug                                | 1        |
| 7    | 18-296       | Black Pipe Nipple 1 1/4 x 5                  | 1        |
| 8    | 16-170       | Gate Valve 1 1/4                             | 1        |
| 9    | 50-394       | Muffler Clamp 1 3/4                          | 2        |
| 10   | HB-14-20-075 | Bolt 1/4 - 20 x 3/4                          | 2        |
|      | HW-14        | Washer 1/4                                   | 2        |
|      | HWL-14       | Lock Washer 1/4                              | 2        |
| 11   | 16-880       | Close Nipple 1 1/4                           | 1        |
| 12   | HB-14-20-100 | Bolt 1/4 - 20 x 1                            | 2        |
|      | HW-14        | Washer 1/4                                   | 2        |
|      | HWL-14       | Lock Washer 1/4                              | 2        |
| 13   | 16-180       | Quick Coupler, 1 1/4 Male                    | 1        |
| 14   | 16-181       | Quick Coupler, 1 1/4 Female (to pump intake) | 1        |
| 15   | 10-128       | Valve Mount                                  | 1        |
| 16   | 18-305       | 1 3/16 x 3/4 90° Straight Thread Elbow       | 1        |
| 17   | 18-228       | Hollow Hex Plug                              | 1        |
| 18   | 18-315       | Reducer Bushing                              | 1        |
| 19   | 10-127       | Tank Mount                                   | 1        |
| 20   | 15-626       | Oil Filter                                   | 1        |
|      | 23-031       | Relacement Filter                            |          |
| 21   | 18-311       | 1 3/16 x 1 1/16 Straight Thread Connector    | 2        |
| 22   | 18-281       | Hydraulic Hose                               | 1        |



# FOOT PEDAL LINKAGE DRAWING



Parts



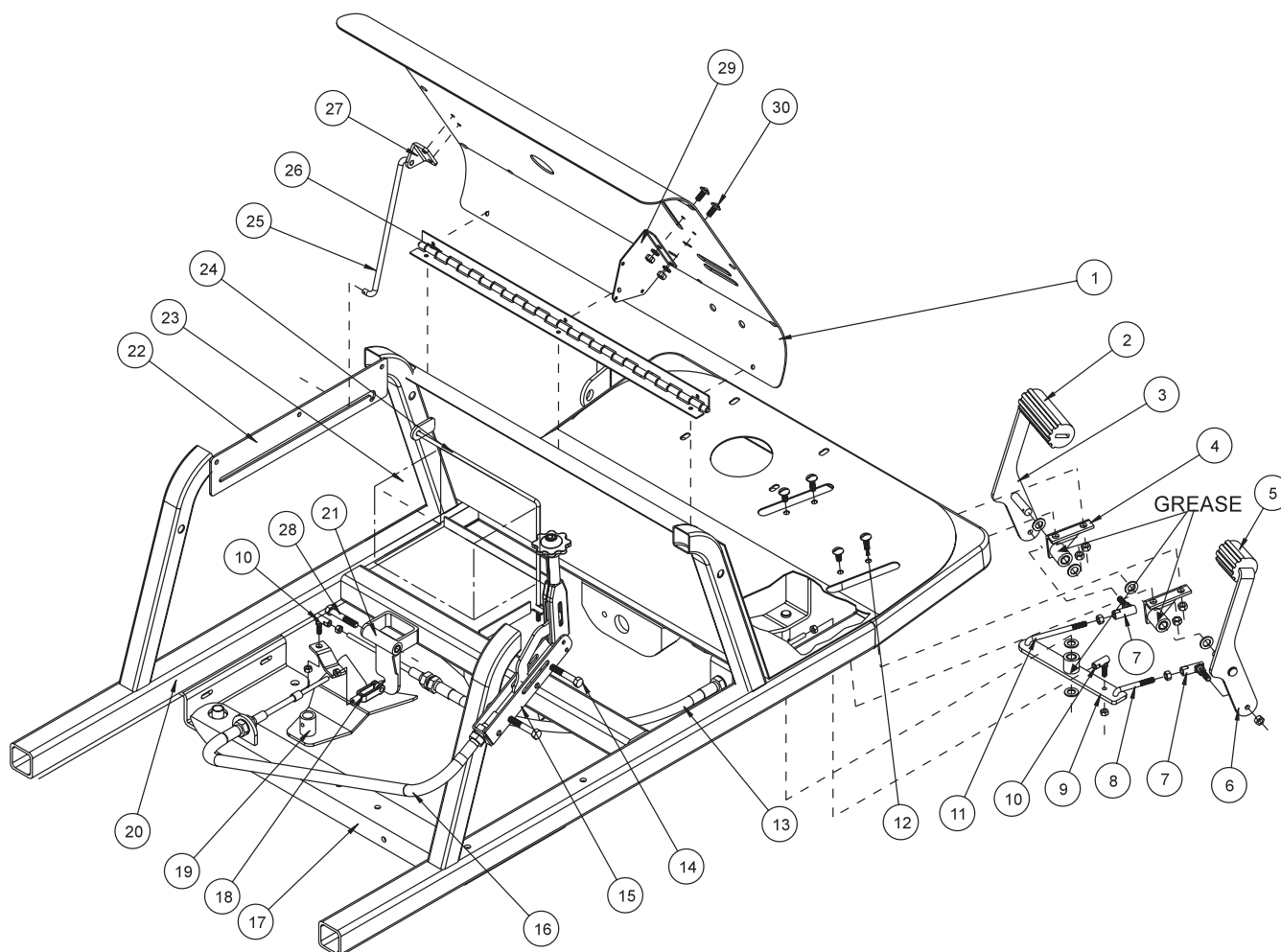
## FOOT PEDAL LINKAGE PARTS LIST

| REF# | PART#          | DESCRIPTION   | QUANTITY |
|------|----------------|---|----------|
| 1    | 10-239         | Seat Panel  | 1        |
|      | 10-244         | Decal, Control Panel  | 1        |
|      | 42-116         | Rubber Insert   | 6        |
| 2    | 48-066         | Pedal Pad   | 1        |
| 3    | 10-163         | Forward Foot Pedal  | 1        |
|      | HMB-12-14      | Machine Bushing $\frac{1}{2} \times 14GA$                       | 2        |
|      | HP-18-075      | Cotter Pin $\frac{1}{8} \times \frac{3}{4}$                     | 1        |
| 4    | 76-296         | Pedal Mount   | 2        |
|      | 18-234         | Bushing   | 4        |
|      | HG-14-28-180   | Grease Fitting $\frac{1}{4} - 28 \times 180^\circ$              | 2        |
| 5    | 48-132         | Short Pedal Pad   | 1        |
| 6    | 10-164         | Reverse Foot Pedal  | 1        |
|      | HMB-12-14      | Machine Bushing $\frac{1}{2} \times 14GA$                       | 2        |
|      | HP-18-075      | Cotter Pin $\frac{1}{8} \times \frac{3}{4}$                     | 1        |
| 7    | 21-462         | Ball Joint  | 2        |
|      | HN-516-24      | Nut $\frac{5}{16} - 24$   | 2        |
| 8    | 10-148         | Reverse Linkage   | 1        |
|      | HN-516-24      | Nut $\frac{5}{16} - 24$   | 1        |
|      | HP-18-075      | Cotter Pin $\frac{1}{8} \times \frac{3}{4}$                     | 1        |
| 9    | 10-178         | Relay   | 1        |
|      | 18-234         | Bushing   | 2        |
|      | HG-14-28-180   | Grease Fitting $\frac{1}{4} - 28 \times 180^\circ$              | 1        |
|      | HMB-12-14      | Machine Bushing $\frac{1}{2} \times 14GA$                       | 2        |
|      | HP-18-075      | Cotter Pin $\frac{1}{8} \times \frac{3}{4}$                     | 1        |
| 10   | 18-115         | Ball Joint $\frac{1}{4} NF$                                     | 2        |
|      | HWL-14         | Lock Washer $\frac{1}{4}$                                       | 2        |
|      | HN-14-28       | Nut $\frac{1}{4} - 28$  | 4        |
| 11   | 10-149-M       | Forward Linkage   | 1        |
|      | HN-516-24      | Nut $\frac{5}{16} - 24$   | 1        |
|      | HP-18-075      | Cotter Pin $\frac{1}{8} \times \frac{3}{4}$                     | 1        |
| 12   | HST-516-18-075 | Truss Head Machine Screw $\frac{5}{16} - 18 \times \frac{3}{4}$ | 4        |
|      | HNTL-516-18    | Lock Nut $\frac{5}{16} - 18$                                    | 4        |
| 13   | 42-063         | Cable with Nuts   | 1        |
| 14   | HB-516-18-400  | Bolt $\frac{5}{16} - 18 \times 4$                               | 2        |
|      | HNTL-516-18    | Lock Nut $\frac{5}{16} - 18$                                    | 2        |
| 15   | 10-228         | Spray Boss Control  | 1        |
|      | 10-134         | Spacer  | 2        |
| 16   | 10-190         | Cable, Spray Boss Control                                       | 1        |
| 17   | 10-166         | Rear Engine Mount   | 1        |
| 18   | 11-100         | Yoke $\frac{5}{16}$   | 2        |
|      | HN-516-24      | Nut $\frac{5}{16} - 24$   | 2        |
|      | HCP-516-100    | Clevis Pin $\frac{5}{16} \times 1$                              | 2        |
|      | HP-18-100      | Cotter Pin $\frac{1}{8} \times 1$                               | 2        |
| 19   | 10-151         | Swash Plate   | 1        |
| 20   | 10-137         | Main Frame  | 1        |
| 21   | 10-189         | Speed Boss  | 1        |
|      | 18-289         | Bushing   | 2        |
| 22   | 10-206         | Hood Rod Bracket  | 1        |
| 23   | 33-216         | Battery (Optional)  | 1        |

(Continued on next page)



# FOOT PEDAL LINKAGE DRAWING

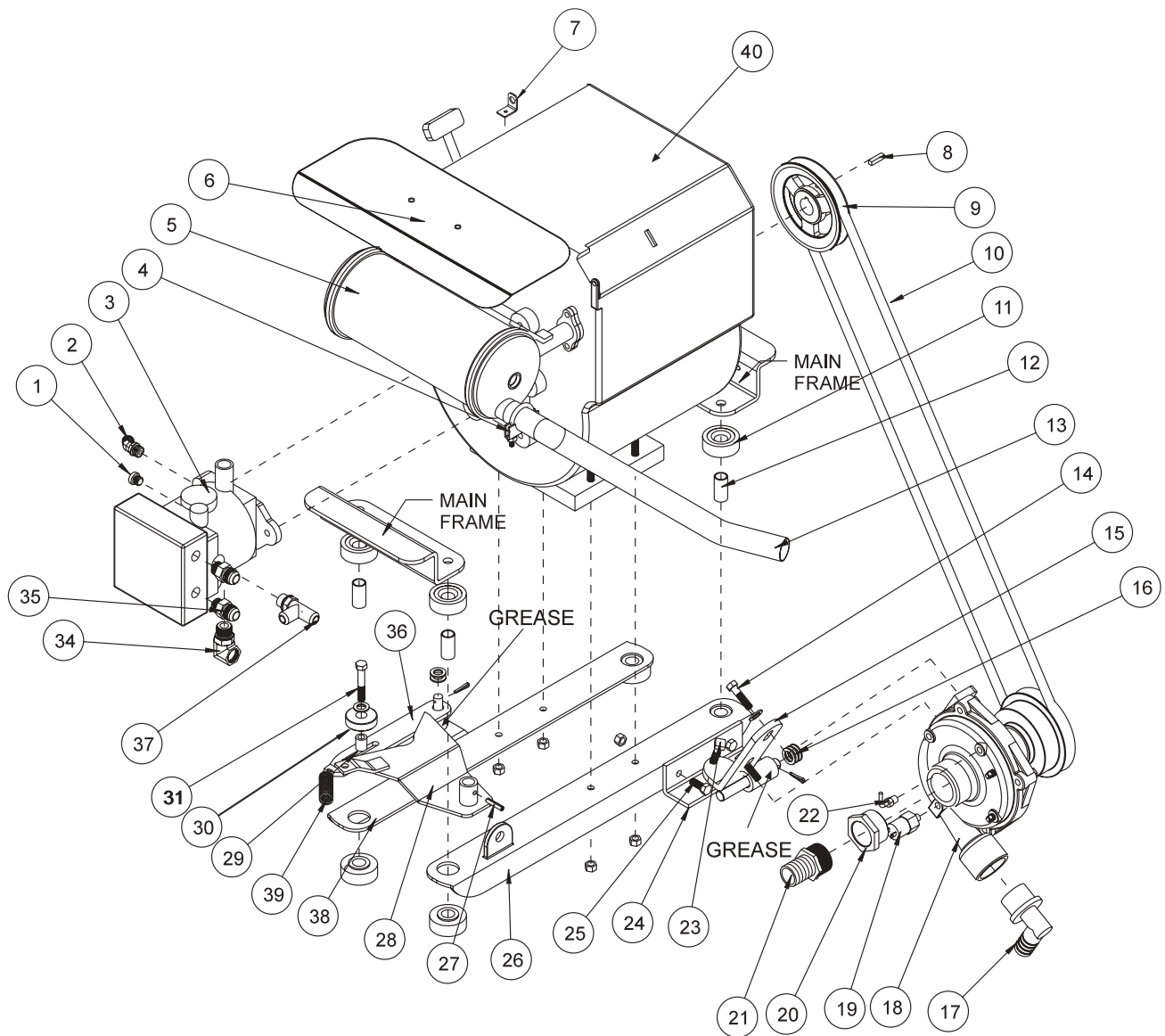




## FOOT PEDAL LINKAGE PARTS LIST

| REF# | PART#         | DESCRIPTION   | QUANTITY |
|------|---------------|---|----------|
| 24   | 10-150        | Battery Hold Down   | 1        |
|      | HN-14-20      | Nut $\frac{1}{4}$ - 20                                      | 1        |
| 25   | 10-195        | Hood Rod  | 1        |
|      | HW-516        | Washer $\frac{5}{16}$                                       | 2        |
|      | HP-18-100     | Cotter Pin $\frac{1}{8}$ x 1                                | 2        |
| 26   | 8929-26       | Seat Hinge  | 1        |
|      | HST-14-20-075 | Truss Head Machine Screw $\frac{1}{4}$ - 20 x $\frac{3}{4}$ | 6        |
|      | HW-14         | Washer $\frac{1}{4}$  | 6        |
|      | HWL-14        | Lock Washer $\frac{1}{4}$                                   | 6        |
|      | HN-14-20      | Nut $\frac{1}{4}$ - 20                                      | 6        |
| 27   | 10-211        | Hood Rod Mount  | 1        |
|      | HST-14-20-075 | Truss Head Machine Screw $\frac{1}{4}$ - 20 x $\frac{3}{4}$ | 2        |
|      | HWL-14        | Lock Washer $\frac{1}{4}$                                   | 2        |
|      | HN-14-20      | Nut $\frac{1}{4}$ - 20                                      | 2        |
| 28   | HB-516-18-350 | Bolt $\frac{5}{16}$ - 18 x $1\frac{1}{2}$                   | 1        |
|      | HNTL-516-18   | Lock Nut $\frac{5}{16}$ - 18                                | 1        |
| 29   | 34-162        | Throttle Bracket  | 1        |
|      | HSM-10-32-063 | Machine Screw #10 - 32 x $\frac{5}{8}$                      | 4        |
|      | HWL-10        | Lock Washer #10   | 4        |
|      | HN-10-32      | Nut #10 - 32  | 4        |
| 30   | HST-14-20-075 | Truss Head Machine Screw $\frac{1}{4}$ - 20 x $\frac{3}{4}$ | 2        |
|      | HWL-14        | Lock Washer $\frac{1}{4}$                                   | 2        |
|      | HN-14-20      | Nut $\frac{1}{4}$ - 20                                      | 2        |





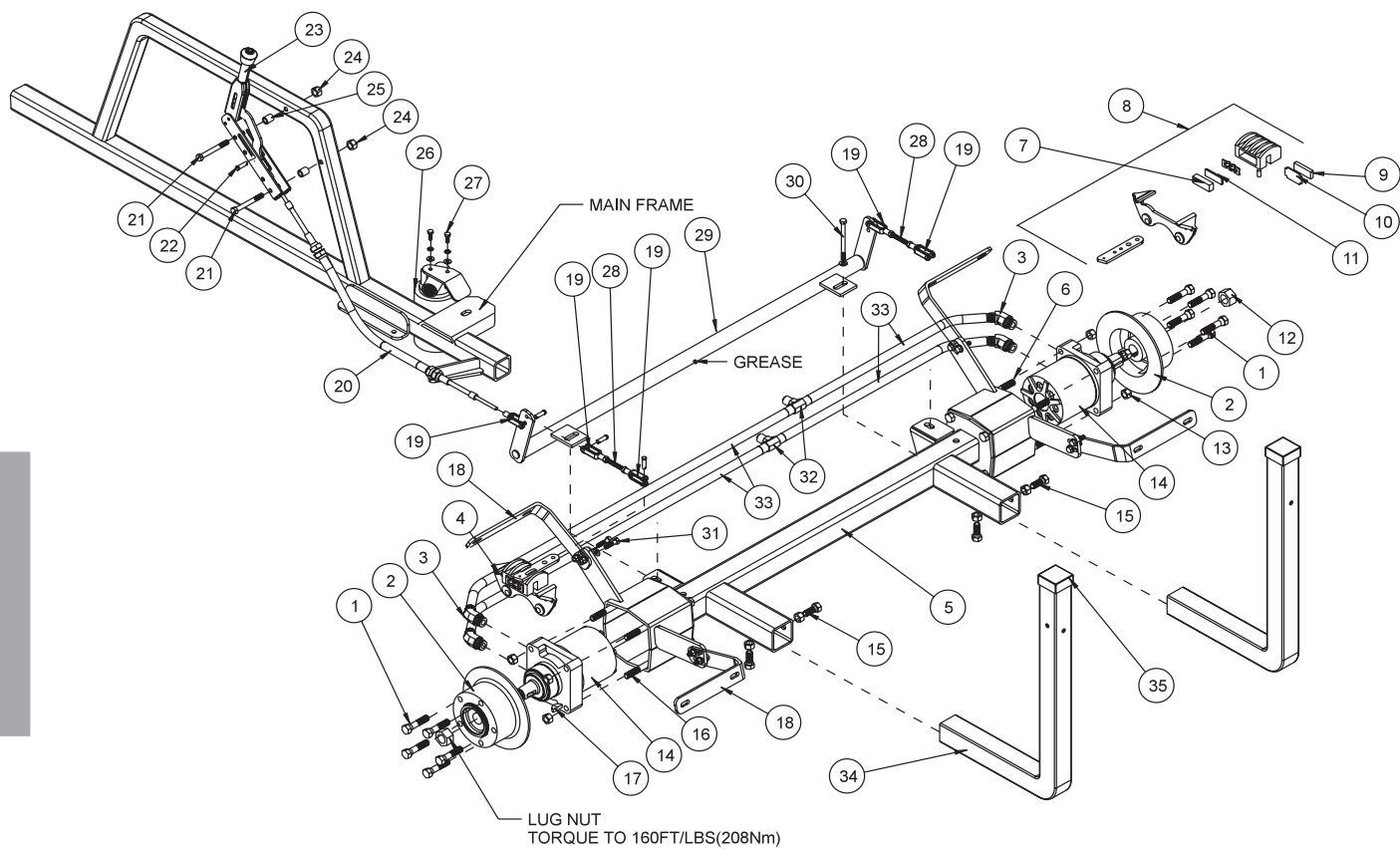


## ENGINE, PUMPS AND EXHAUST PARTS LIST

| REF# | PART#          | DESCRIPTION   | QUANTITY |
|------|----------------|---|----------|
| 1    | 23-126         | O-Ring Plug   | 1        |
| 2    | 18-307         | 45° Straight Thread Elbow $1\frac{1}{16} \times \frac{9}{16}$     | 1        |
| 3    | 10-117         | Hydrostatic Pump  | 1        |
|      | HSSH-12-13-175 | Socket Screw $\frac{1}{2}$ - 13 x $1\frac{3}{4}$                  | 2        |
| 4    | 18-220         | Muffler Clamp $1\frac{1}{4}$                                      | 1        |
| 5    | 10-118-01      | Muffler (Kohler 24 786 11)  | 1        |
| 6    | 10-229         | Heat Shield   | 1        |
| 7    | 34-163         | Cable Bracket   | 1        |
| 8    | HKSQ-14-100    | Machine Key $\frac{1}{4} \times \frac{1}{4} \times 1$             | 1        |
| 9    | 10-212         | Pulley BK57   | 1        |
| 10   | 10-179         | Belt  | 1        |
| 11   | 60-107         | Rubber Bushing  | 8        |
| 12   | 60-168         | Spacer  | 4        |
| 13   | 10-197         | Exhaust Pipe  | 1        |
| 14   | HB-38-16-150   | Bolt $\frac{3}{8}$ - 16 x $1\frac{1}{2}$                          | 2        |
|      | HW-38          | Washer $\frac{3}{8}$  | 2        |
|      | HNTL-38-16     | Lock Nut $\frac{3}{8}$ - 16                                       | 2        |
| 15   | 10-245         | Pump Mount  | 1        |
| 16   | HMB-58-14      | Machine Bushing $\frac{5}{8} \times 14GA$                         | 3        |
|      | HP-18-100      | Cotter Pin $\frac{1}{8} \times 1$                                 | 1        |
| 17   | 16-168         | Elbow $1\frac{1}{4}MPT \times 1 HB$                               | 1        |
| 18   | 16-966         | Hypro® Pump   | 1        |
| 19   | 33-480         | Pressure Switch   | 1        |
| 20   | 16-825         | Reducer Bushing $1\frac{1}{2} \times 1\frac{1}{4}$                | 1        |
| 21   | 16-161         | Fitting $1\frac{1}{4}MPT \times 1\frac{1}{4}HB$                   | 1        |
| 22   | 33-494         | Male Elbow  | 1        |
| 23   | HSSQ-38-16-150 | Adjustment Screw $\frac{3}{8}$ - 16 x $1\frac{1}{2}$              | 1        |
|      | HN-38-16       | Nut $\frac{3}{8}$ - 16  | 1        |
| 24   | 10-133         | Pivot   | 1        |
|      | HG-14-28-180   | Grease Fitting $\frac{1}{4}$ - 28 x 180°                          | 1        |
|      | 18-268         | Bushing   | 2        |
| 25   | HB-38-16-100   | Bolt $\frac{3}{8}$ - 16 x 1                                       | 2        |
|      | HNTL-38-16     | Lock Nut $\frac{3}{8}$ - 16                                       | 2        |
| 26   | 10-166         | Rear Engine Mount   | 1        |
| 27   | HRP-14-100     | Roll Pin $\frac{1}{4} \times 1$                                   | 1        |
| 28   | 10-151         | Swash Plate   | 1        |
| 29   | 10-134         | Spacer  | 1        |
| 30   | 14-266         | Ball Bearing $1\frac{3}{4} OD \times \frac{5}{8} ID$              | 1        |
|      | 18-270         | Oilite Bushing $\frac{5}{8} OD \times \frac{3}{8} ID$             | 1        |
| 31   | HB-38-16-225   | Bolt $\frac{3}{8}$ - 16 x $2\frac{1}{4}$                          | 1        |
|      | HNTL-38-16     | Lock Nut $\frac{3}{8}$ - 16                                       | 1        |
| 34   | 18-313         | 90° Straight Thread Elbow $1\frac{3}{16} \times \frac{3}{4}$      | 1        |
| 35   | 18-303         | Straight Thread Connector 1 x $\frac{3}{4}$                       | 2        |
| 36   | 10-136         | Idler Arm   | 1        |
|      | 18-234         | Oilite Bushing  | 2        |
|      | HG-14-28-180   | Grease Fitting $\frac{1}{4}$ - 28 x 180°                          | 1        |
|      | HMB-12-14      | Machine Bushing $\frac{1}{2}$ - 14GA                              | 2        |
|      | HP-18-100      | Cotter Pin $\frac{1}{8} \times 1$                                 | 1        |
| 37   | 18-304         | Union Tee $\frac{13}{16} \times \frac{3}{4} \times \frac{13}{16}$ | 1        |
| 38   | 10-177         | Front Engine Mount  | 1        |
| 39   | 21-212         | Spring  | 1        |
| 40   | 10-118         | Engine Kohler 25 hp   | 1        |
|      | 76-324-03      | Crankshaft Splined Insert (part of engine)                        | 1        |



# PARK BRAKE AND REAR AXLE DRAWING



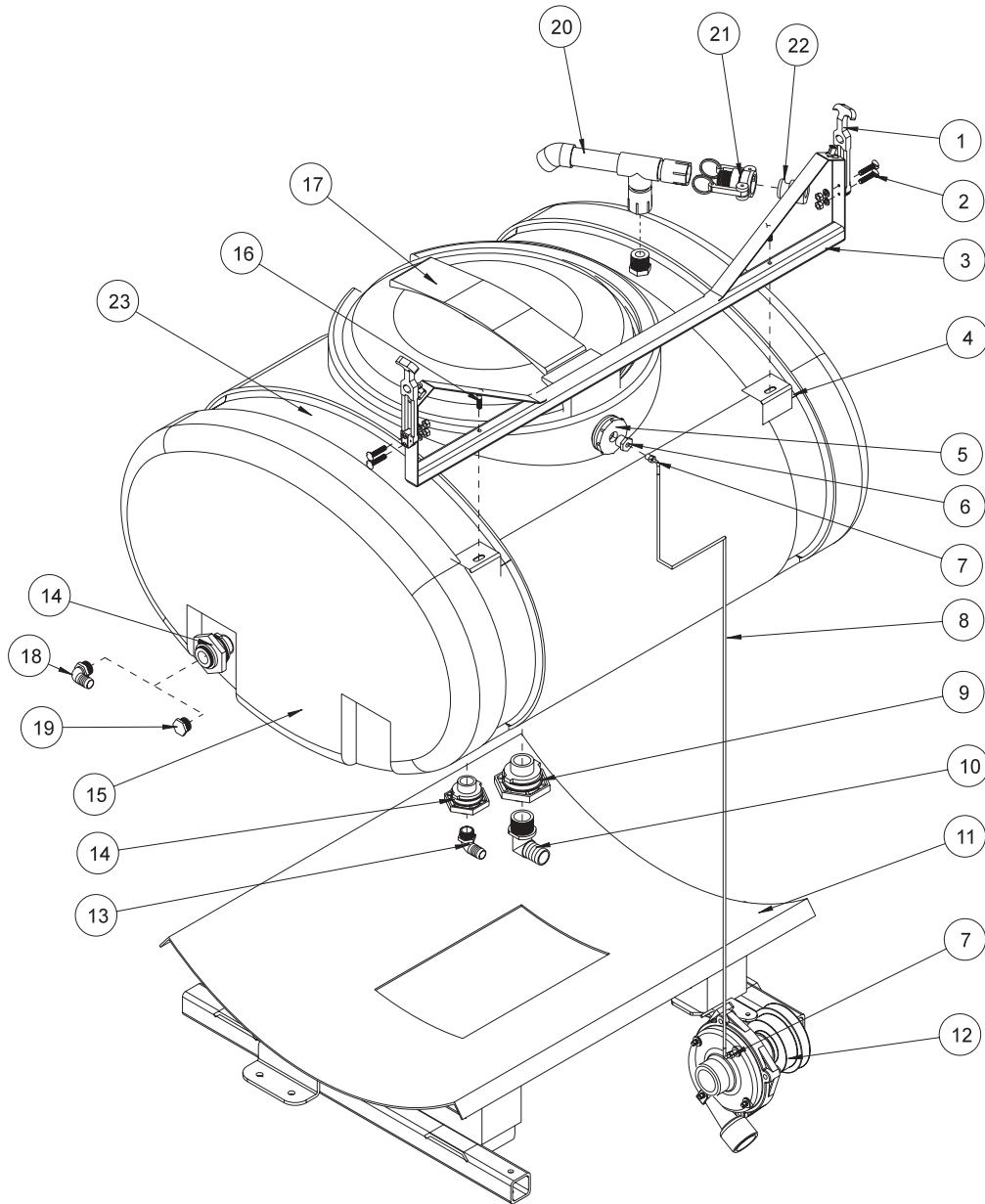


## PARK BRAKE AND REAR AXLE PARTS LIST

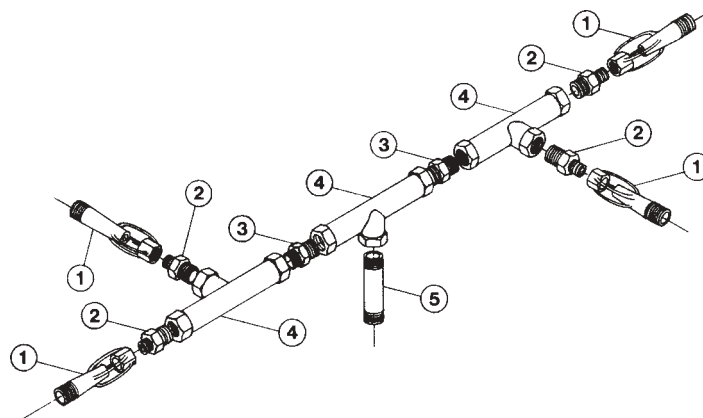
| REF# | PART#         | DESCRIPTION   | QUANTITY             |
|------|---------------|---|----------------------|
| 1    | 60-268        | Lug Bolt $\frac{1}{2}$ - 20 x $\frac{5}{16}$            | 10                   |
| 2    | 76-239        | 8" Brake Disk (5 hole)                                  | 2                    |
| 3    | 18-301        | 45° Straight Thread Elbow 1" x $\frac{7}{8}$            | 4                    |
| 4    | 76-240        | Left Caliper (CCW)                                      | 1                    |
| 5    | 10-124        | Rear Axle   | 1                    |
| 6    | HB-12-13-800  | Bolt $\frac{1}{2}$ - 13 x 8                             | 4                    |
| 7*   |               | Cam Side Pad  | 1                    |
| 8    | 76-241        | Right Caliper (CW)                                      | 1                    |
| 9*   |               | Carrier Side Pad  | 1                    |
| 10*  |               | Carrier Side Pad Support                                | 1                    |
| 11*  |               | Cam Side Pad Support                                    | 1                    |
| 12   | 14-265        | Nut 1 - 20 (included with Ref# 14)                      | 2                    |
| 13   | HNTL-12-13    | Lock Nut $\frac{1}{2}$ - 13                             | 8                    |
| 14   | 10-116        | Wheel Motor (includes Ref# 12 & 17)                     | 2                    |
| 15   | HB-12-13-125  | Bolt $\frac{1}{2}$ - 13 x $1\frac{1}{4}$                | 4                    |
|      | HNJ-12-13     | Jam Nut $\frac{1}{2}$ - 13                              | 4                    |
| 16   | HB-12-13-750  | Bolt $\frac{1}{2}$ - 13 x $7\frac{1}{2}$                | 4                    |
| 17   | HWK-516-100   | Woodruff Key $\frac{5}{16}$ x 1 (included with Ref# 14) | 2                    |
| 18   | 10-154        | Fender Brackets   | 4                    |
| 19   | 11-100        | Linkage Yokes $\frac{5}{16}$                            | 6                    |
|      | HN-516-24     | Nut $\frac{5}{16}$ - 24                                 | 12                   |
|      | HCP-516-100   | Clevis Pin $\frac{5}{16}$ x 1                           | 5                    |
|      | HP-18-100     | Cotter Pin $\frac{1}{8}$ x 1                            | 5                    |
| 20   | 10-121        | Brake Cable with Nuts                                   | 1                    |
| 21   | HB-516-18-400 | Bolt $\frac{5}{16}$ - 18 x 4                            | 2                    |
| 22   | HCP-516-138   | Clevis Pin $\frac{5}{16}$ x $1\frac{3}{8}$              | 1                    |
|      | HP-18-100     | Cotter Pin $\frac{1}{8}$ x 1                            | 1                    |
| 23   | 10-120        | Park Brake Handle                                       | 1                    |
| 24   | HN-516-18     | Nut $\frac{5}{16}$ - 16                                 | 2                    |
| 25   | 10-134        | Spacer  | 2                    |
| 26   | 15-626        | Oil Filter  | 1                    |
|      | 23-031        | Replacement Filter                                      |                      |
| 27   | HB-14-20-075  | Bolt $\frac{1}{4}$ - 20 x $\frac{3}{4}$                 | 2                    |
|      | HW-14         | Washer $\frac{1}{4}$                                    | 2                    |
|      | HWL-14        | Lock Washer $\frac{1}{4}$                               | 2                    |
| 28   | 10-126        | Brake Rod $\frac{5}{16}$ - 24                           | 2                    |
| 29   | 10-125        | Brake Relay   | 1                    |
|      | HG-14-28-180  | Grease Fitting $\frac{1}{4}$ - 28 x 180°                | 1                    |
| 30   | HB-12-13-150  | Bolt $\frac{1}{2}$ - 13 x $1\frac{1}{2}$                | 2                    |
|      | HW-12         | Washer $\frac{1}{2}$                                    | 4                    |
|      | HNTL-12-13    | Lock Nut $\frac{1}{2}$ - 13                             | 2                    |
| 31   | HB-516-18-125 | Bolt $\frac{5}{16}$ - 18 x $1\frac{1}{4}$               | 8                    |
|      | HW-516        | Washer $\frac{5}{16}$                                   | 16                   |
|      | HNTL-516-18   | Lock Nut $\frac{5}{16}$ - 18                            | 8                    |
| 32   | 18-302        | Union Tee 1"  | 2                    |
| 33   | 18-273        | Hydraulic Hose  | 4                    |
| 34   | 10-205        | Boom Carrier  | 2                    |
| 35   | 16-557        | Square Cap  | 2                    |
| *    | 34-101-02     | Pad Kit with 2 Pads and Steel Backing Plates            | 2 Kits<br>Req'd/Axle |



## TANK DRAWING



## TURBO-QUAD AGITATOR DRAWING





## TANK PARTS LIST

| REF# | PART#        | DESCRIPTION   | QUANTITY |
|------|--------------|---|----------|
| 1    | 15-437       | Latch   | 2        |
| 2    | HSM-8-32-100 | Machine Screw #8 - 32 x 1                           | 6        |
|      | HWL-8        | Lock Washer #8                                      | 6        |
|      | HN-8-32      | Nut #8 - 32   | 6        |
| 3    | 10-193       | Horizontal Boom Support                             | 1        |
| 4    | 10-253       | Right Tank Strap                                    | 1        |
|      | HB-38-16-400 | Bolt $\frac{3}{8}$ - 16 x 4                         | 1        |
|      | HB-38-16-100 | Bolt $\frac{3}{8}$ - 16 x 1                         | 1        |
|      | HNTL-38-16   | Lock Nut $\frac{3}{8}$ - 16                         | 2        |
| 5    | 33-495       | Bulkhead Fitting                                    | 1        |
|      | 16-937       | Elbow (inside tank)                                 | 1        |
| 6    | 33-496       | Reducer Bushing $\frac{1}{2}$ x $\frac{1}{8}$       | 1        |
| 7    | 33-494       | Male Elbow  | 1        |
| 8    | 8954-30      | Clear Hose $\frac{3}{16}$ ID                        | 1        |
| 9*   | 16-194       | Anti-Vortex Fitting $1\frac{1}{4}$                  | 1        |
| 10   | 16-156       | Elbow $1\frac{1}{4}$ MPT x $1\frac{1}{4}$ HB        | 1        |
| 11   | 10-112       | Tank Carrier  | 1        |
| 12   | 16-966       | Hypro Pump  | 1        |
| 13   | 16-153       | Elbow $\frac{3}{4}$ MPT x $\frac{3}{4}$ HB          | 1        |
| 14*  | 16-150       | Double Threaded Fitting $\frac{3}{4}$               | 2        |
| 15*  | 10-111       | 110 Gallon Poly Tank                                | 1        |
| 16   | HB-38-16-200 | Bolt $\frac{3}{8}$ - 16 x 2                         | 2        |
|      | HW-38        | Washer $\frac{3}{8}$                                | 2        |
|      | HWL-38       | Lock Washer $\frac{3}{8}$                           | 2        |
|      | HN-38-16     | Nut $\frac{3}{8}$ - 16                              | 2        |
| 17*  | 16-953       | 16" Hinged Lid/Well with Gasket                     | 1        |
|      | 16-953-01    | Gasket for 16-953                                   | 1        |
|      | 16-169       | Strainer Basket 16"                                 | 1        |
| 18   | 16-155       | Elbow $\frac{3}{4}$ MPT x 1 HB (use on 1004 & 1006) | 1        |
| 19   | 16-166       | $\frac{3}{4}$ Plug (use on 1008)                    | 1        |
| 20   | 10-254       | Air Gap Filler                                      | 1        |
| 21   | 16-962       | Aluminum Coupler 1" Male Thread                     | 1        |
| 22   | 16-961       | Aluminum Adapter 1" Female Thread                   | 1        |
| 23   | 10-191       | Left Tank Strap                                     | 1        |
|      | HB-38-16-400 | Bolt $\frac{3}{8}$ - 16 x 4                         | 1        |
|      | HB-38-16-100 | Bolt $\frac{3}{8}$ - 16 x 1                         | 1        |
|      | HNTL-38-16   | Lock Nut $\frac{3}{8}$ - 16                         | 2        |

\* Comes with 110 Gallon Poly Tank (only one 16-150 Double Threaded Fitting in bottom of tank)

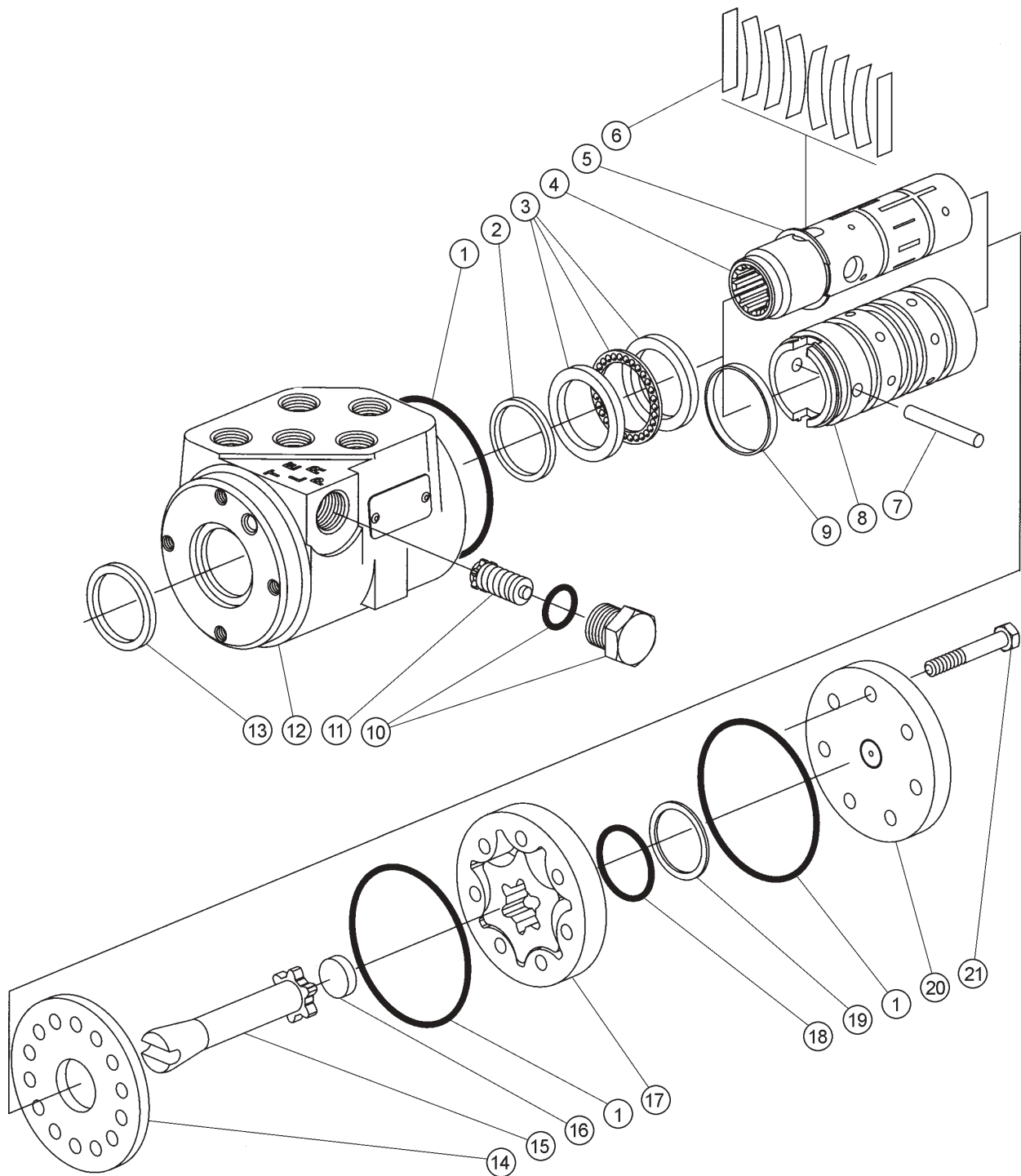
## TURBO-QUAD AGITATOR PARTS LIST

| REF# | PART#     | DESCRIPTION   | QUANTITY |
|------|-----------|---|----------|
| 1    | 16-036    | Agitator Jet (Includes one each $\frac{1}{8}$ ", $\frac{5}{32}$ ", and $\frac{3}{16}$ " orifices) | 4        |
|      | 16-036-01 | Interchangeable Orifices $\frac{1}{8}$  | 1        |
|      | 16-036-02 | Interchangeable Orifices $\frac{5}{32}$   | 1        |
|      | 16-036-03 | Interchangeable Orifices $\frac{3}{16}$   | 1        |
| 2    | 16-173    | Reducer $\frac{3}{4}$ x $\frac{1}{2}$   | 4        |
| 3    | 16-158    | Close Nipple $\frac{3}{4}$ x $\frac{3}{4}$  | 2        |
| 4    | 16-157    | Female Pipe Thread Tee $\frac{3}{4}$ x $\frac{3}{4}$ x $\frac{3}{4}$                              | 3        |
| 5    | 16-172    | Nylon Nipple $\frac{3}{4}$ NPT x $3\frac{1}{2}$   | 1        |



34-103 ORBITROL DRAWING

Parts





## 34-103 ORBITROL PARTS LIST

| REF # | PART #    | DESCRIPTION                            | QUANTITY |
|-------|-----------|--|----------|
| 1*    |           | O-Ring Seal                            | 3        |
| 2*    |           | Quad Seal                              | 1        |
| 3     | 15-301-14 | Bearing Kit                            | 1        |
|       |           | Bearing Race                           | 2        |
|       |           | Bearing                                | 1        |
| 4     |           | Spool                                  | 1        |
| 5     | 15-301-13 | External Retaining Ring                | 1        |
| 6     | 15-301-15 | Spring Centering Kit (Includes Ref# 9) | 1        |
|       |           | Spring Spacer                          | 2        |
|       |           | Centering Spring                       | 6        |
|       |           | Spring Retaining Ring                  | 1        |
| 7     | 15-301-08 | Pin                                    | 1        |
| 8     |           | Sleeve                                 | 1        |
| 9     |           | Retainer                               | 1        |
| 10    | 15-301-11 | Plug and O-ring                        | 1        |
| *     |           | O-Ring Seal                            | 1        |
|       |           | Plug                                   | 1        |
| 11    | 15-301-12 | Relief Valve/Check (1015 psi (70bar))  | 1        |
| 12    |           | Housing                                | 1        |
| 13*   |           | Dust Seal                              | 1        |
| 14    | 15-301-06 | Wear Plate                             | 1        |
| 15    | 15-301-07 | Drive                                  | 1        |
| 16    | 15-301-05 | Spacer                                 | 1        |
| 17    | 15-301-04 | Gerotor                                | 1        |
| 18*   |           | O-Ring                                 | 1        |
| 19*   |           | Seal                                   | 1        |
| 20    | 15-301-03 | End Cap                                | 1        |
| 21    | 15-301-02 | Cap Screw                              | 7        |
| *     | 15-301-01 | Seal Kit                               |          |

### 15-301 ORBITOR SPECIFICATIONS

|  |  |
|--|--|
| Maximum System Pressure  | 1015 psi (70 bar)                                    |
| Maximum Back Pressure  | 150 psi (10 bar)                                     |
| Maximum System Operating Temperature.                              | 200°F (93°C)   |
| Maximum Flow   | 4 gpm (15 lpm)                                       |
| Maximum Temperature Differential between Steering Unit and System. | 50°F (28°C)  |
| Input Torque Powered   | 15-25 lb/in @ 100 psi tank pressure (2-3 Nm @ 7 bar) |
| Input Torque Maximum Non-powered                                   | 60 lb/ft (81 Nm)                                     |
| Rotation Limits  | None   |
| Fluid  | SAE 10W-40 API Service SG                            |
| Check Valve for Manual Steering                                    | Yes  |
| Relief Valve Setting   | 1015 psi (70 bar)                                    |
| Ports  | 9/16 - 18 SAE O-Ring five                            |
| Displacement   | 61 cu. in/ R (100 cu cm/R)                           |



## 10-117 HYDRAULIC PUMP DRAWING





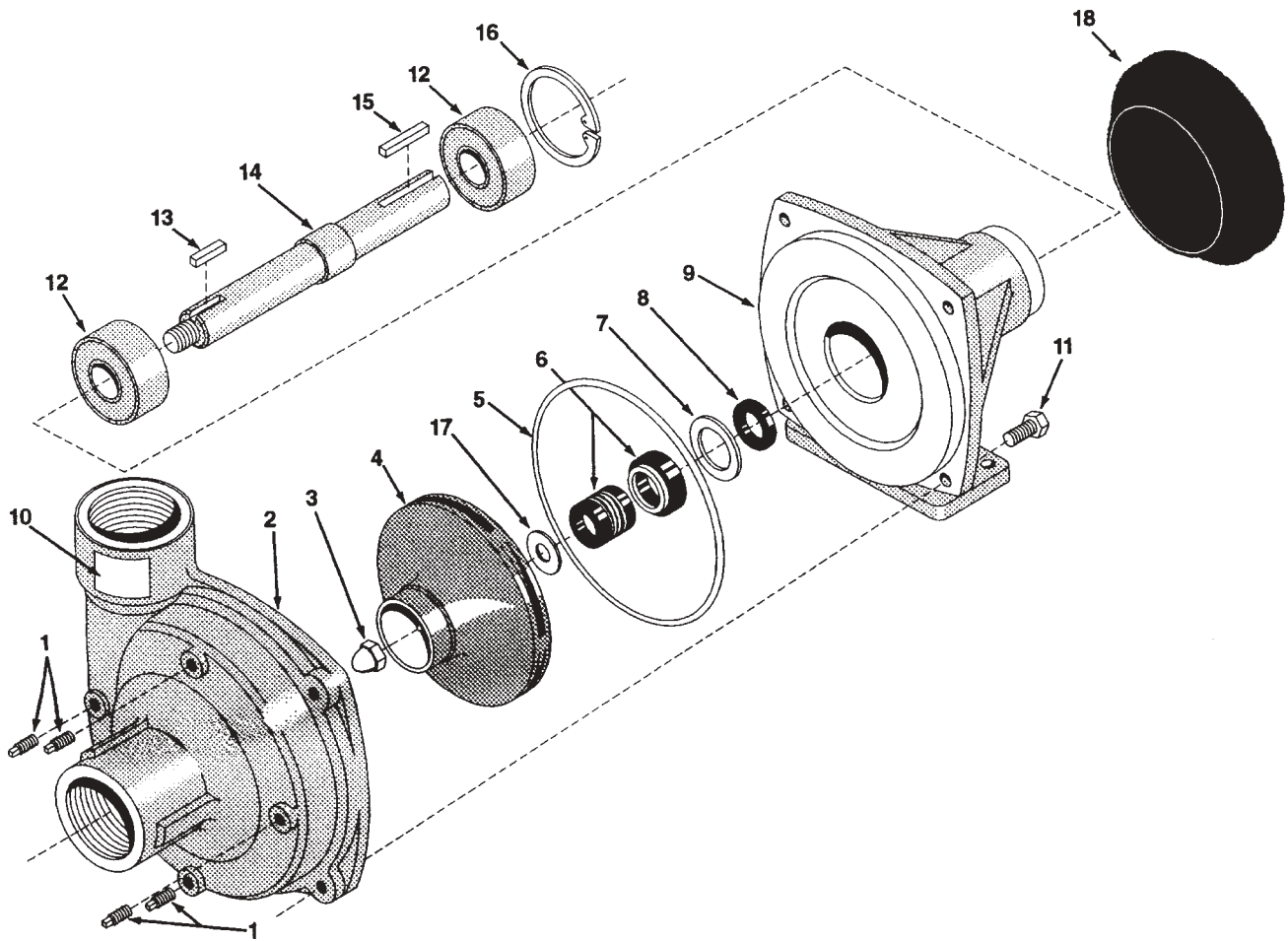
## 10-117 HYDRAULIC PUMP PARTS LIST

| REF# | PART#     | DESCRIPTION                         | QUANTITY |
|------|-----------|-------------------------------------|----------|
| 1*   | 42-003-01 | O-Ring                              | 1        |
| 2    | 14-130    | Ring                                | 1        |
| 3    | 13-110-01 | By-Pass Valve                       | 1        |
| 4    | 14-115    | Valve Plate                         | 1        |
| 5    | 42-003-16 | Cylinder Block Kit                  | 1        |
| 6    | 42-003-02 | Pump Shaft                          | 1        |
| 7    | 42-003-03 | Plug                                | 2        |
| 8    | 13-110-05 | Pipe Plug                           | 2        |
| 9    | 14-069    | Needle Bearing                      | 2        |
| 10*  | 42-003-04 | Lip Seal                            | 2        |
| 11   | 42-003-05 | Washer                              | 2        |
| 12   | 14-220    | Truncated Shaft (long 2 holes)      | 1        |
| 13   | 14-105    | Retaining Ring                      | 2        |
| 14   | 13-110-10 | Plug                                | 1        |
| 15*  |           | O-Ring                              | 1        |
| 16   | 10-117-02 | Shim Pack Kit                       | 1        |
| 17   | 14-234    | Release Valve Spring                | 1        |
| 18   | 14-235    | Release Valve Cone                  | 1        |
| 19C  | 13-110-14 | Hex Head Screw                      | 4        |
| 20C  | 42-003-07 | Needle Bearing                      | 1        |
| 21*C | 14-054    | Lip Seal                            | 1        |
| 22C  | 13-110-13 | Charge Pump Housing                 | 1        |
| 24C  | 42-003-08 | Geroter                             | 1        |
| 25*C |           | O-Ring                              | 1        |
| 29*  |           | O-Ring                              | 1        |
| 30   | 13-110-10 | Plug                                | 1        |
| 31   | 14-212    | Truncated Shaft (short 1 hole)      | 1        |
| 32   | 42-003-09 | Retaining Ring                      | 1        |
| 33   | 42-003-10 | Ball Bearing                        | 1        |
| 34   | 14-132    | Retaining Ring                      | 1        |
| 35   | 14-221    | Variable Swash Plate                | 1        |
| 36   | 14-216    | Spring Pin                          | 4        |
| 37   | 14-114    | Thrust Plate                        | 1        |
| 38   | 14-215    | Pin                                 | 1        |
| 39   | 14-217    | Roller Bearing                      | 1        |
| 40*  | 14-107    | Gasket                              | 1        |
| 41   | 10-117-01 | Pump End Cap                        | 1        |
| 42*  |           | O-Ring                              | 2        |
| 43   | 42-003-11 | Hex Head Screw                      | 4        |
| 44   | 10-117-04 | Valve                               | 2        |
| 45   | 10-117-05 | Relief Valve Spring                 | 2        |
| 46*  |           | O-Ring                              | 2        |
| 47   | 10-117-03 | Relief Valve Plug                   | 2        |
| 48   | 42-003-12 | Plug                                | 2        |
| 49   | 42-003-13 | Washer                              | 1        |
| 50   | 42-003-17 | Housing Assembly (includes #9 & 10) | 1        |
|      |           |                                     |          |
| *    | 14-098    | Seal Kit                            | 1        |
| C    | 42-003-14 | Charge Pump                         | 1        |



# 16-966 HYPRO® PUMP DRAWING

Parts





## 16-966 HYPRO® PUMP PARTS LIST

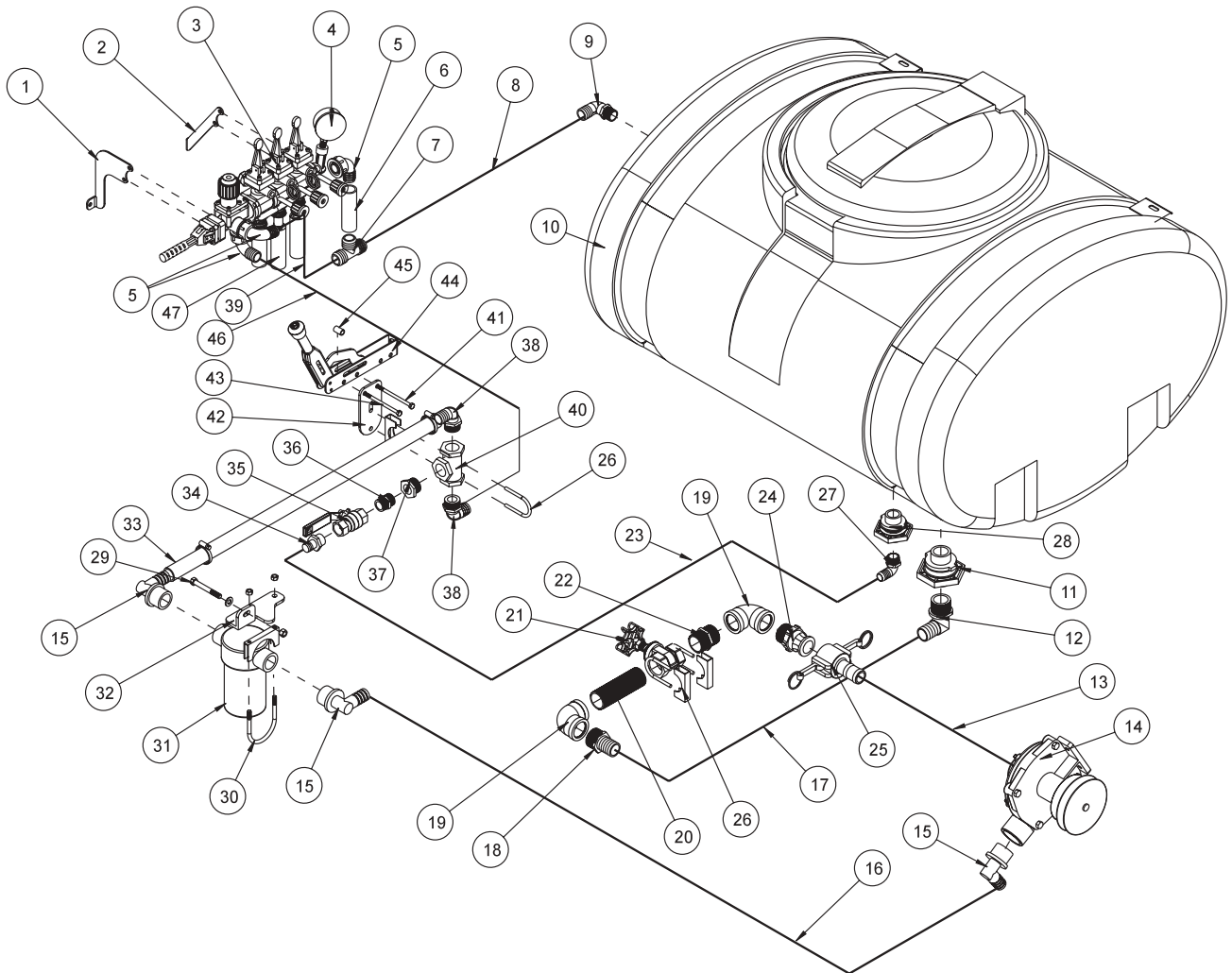
| REF# | PART#      | DESCRIPTION                       | QUANTITY |
|------|------------|-----------------------------------|----------|
| 1    | 16-966-01  | Drain Plug                        | 4        |
| 2    | 16-966-02  | Pump Casing                       | 1        |
| 3    | 16-966-03  | Impeller Nut                      | 1        |
| 4    | 16-966-16  | Impeller                          | 1        |
| 5    | *          | O-Ring                            | 1        |
| 6    | *          | Mechanical Seal (Silicon Carbide) | 1        |
| 7    | 16-966-05  | Seal Retainer                     | 1        |
| 8    | *16-966-06 | Slinger Ring                      | 1        |
| 9    | 16-966-07  | Mounting Flange                   | 1        |
| 10   | 16-966-08  | Name Plate                        | 1        |
| 11   | 16-966-09  | Bolt                              | 4        |
| 12   | 16-966-10  | Ball Bearing                      | 2        |
| 13   | 16-966-11  | Key                               | 1        |
| 14   | 16-966-12  | Pump Shaft                        | 1        |
| 15   | 16-822-20  | Key                               | 1        |
| 16   | 16-966-13  | Bearing Retainer                  | 1        |
| 17   | *          | Gasket                            | 1        |
| 18   | 16-966-14  | Clutch                            | 1        |
| *    | 16-967     | Silicone - Carbon Seal Kit        |          |
|      | 16-966-15  | Pump Only                         |          |

### NOTE:

When servicing the spray pump or filter, all control valves must be shut off if there is liquid in the tank.



# 1010 (3-WAY MANUAL) PLUMBING DRAWING





## 1010 (3-WAY MANUAL) PLUMBING PARTS LIST

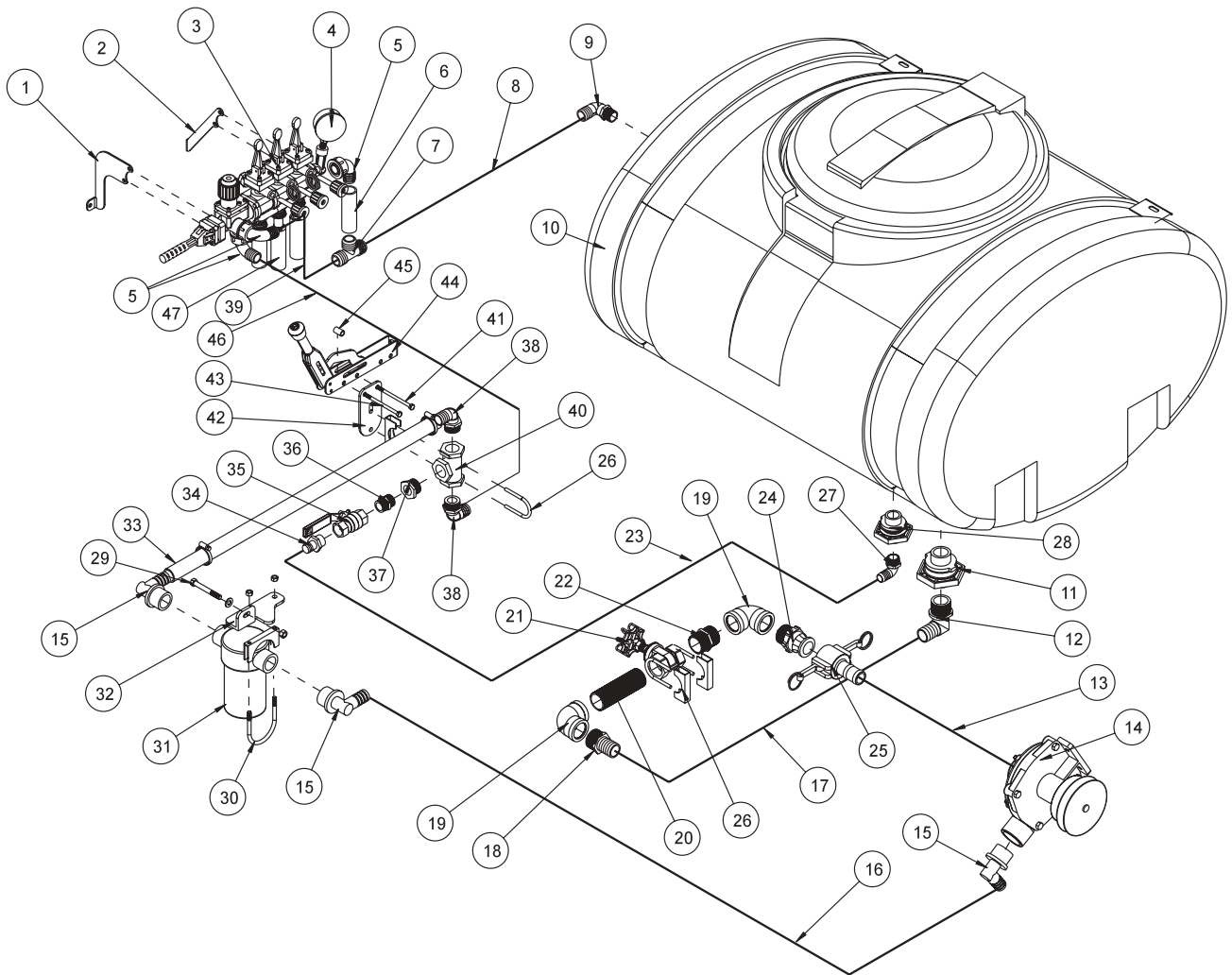
| REF# | PART#         | DESCRIPTION                                      | QUANTITY |
|------|---------------|--|----------|
| 1    | 10-263        | Front Valve Bracket                              | 1        |
|      | HB-516-18-200 | Bolt $\frac{5}{16}$ - 18 x 2                     | 1        |
|      | HNTL-516-18   | Lock Nut $\frac{5}{16}$ - 18                     | 1        |
| 2    | 10-264        | Rear Valve Bracket                               | 1        |
|      | HB-516-18-200 | Bolt $\frac{5}{16}$ - 18 x 2                     | 1        |
|      | HNTL-516-18   | Lock Nut $\frac{5}{16}$ - 18                     | 1        |
| 3    | 10-268        | Valve 3-Way                                      | 1        |
| 4    | 16-281        | Liquid Filled Gauge                              | 1        |
| 5    | 10-268-13     | 90° Elbow (comes with 10-268)                    | 3        |
| 6    | 8896-4        | Discharge Hose 1" x 4"                           | 1        |
|      | 18-222        | Hose Clamp                                       | 2        |
| 7    | 10-269        | Plastic Tee                                      | 1        |
| 8    | 8896-22       | Discharge Hose 1" x 22"                          | 1        |
|      | 18-222        | Hose Clamp                                       | 2        |
| 9    | 16-155        | Elbow $\frac{3}{4}$ MPT x 1 HB                   | 1        |
| 10†  | 10-111        | 110 Gallon Poly Tank                             | 1        |
| 11†  | 16-194        | Anti-Vortex Fitting $1\frac{1}{4}$               | 1        |
| 12   | 16-156        | Elbow $1\frac{1}{4}$ MPT x $1\frac{1}{4}$ HB     | 1        |
| 13   | 8889-24       | Suction Hose $1\frac{1}{4}$ x 24"                | 1        |
|      | 18-116        | Hose Clamp                                       | 2        |
| 14   | 16-966        | Hypro® Pump                                      | 1        |
| 15   | 16-168        | Elbow $1\frac{1}{4}$ MPT x $1\frac{1}{4}$ HB     | 1        |
| 16   | 8896-51       | Discharge Hose 1" x 51"                          | 1        |
|      | 18-222        | Hose Clamp                                       | 2        |
| 17   | 8889-26       | Suction Hose $1\frac{1}{4}$                      | 1        |
|      | 18-116        | Hose Clamp                                       | 2        |
| 18   | 16-161        | Fitting $1\frac{1}{4}$ NPT x $1\frac{1}{4}$ HB   | 1        |
| 19   | 16-182        | Elbow  | 2        |
| 20   | 18-296        | Black Pipe Nipple $1\frac{1}{4}$ x 5             | 1        |
| 21   | 16-170        | Gate Valve $1\frac{1}{4}$                        | 1        |
| 22   | 16-880        | Close Nipple $1\frac{1}{4}$                      | 1        |
| 23   | 8887-33       | $\frac{3}{4}$ Orange PVC Hose $\frac{3}{4}$ x 33 | 1        |
|      | 18-040        | Hose Clamp                                       | 2        |
| 24   | 16-180        | Quick Coupler $1\frac{1}{4}$ Male                | 1        |
| 25   | 16-181        | Quick Coupler $1\frac{1}{4}$ Female              | 1        |
| 26   | 50-394        | Muffler Clamp $1\frac{3}{4}$                     | 2        |
| 27   | 16-153        | Elbow $\frac{3}{4}$ MPT x $\frac{3}{4}$ HB       | 1        |
| 28†  | 16-150        | Double Thread Fitting                            | 1        |
| 29   | HB-38-16-300  | Bolt $\frac{3}{8}$ - 16 x 3                      | 1        |
|      | HNTL-38-16    | Lock Nut $\frac{3}{8}$ - 16                      | 1        |
| 30   | 10-147        | Muffler Clamp $2\frac{1}{2}$                     | 1        |
| 31   | 16-968        | Strainer 50 Mesh                                 | 1        |
| 32   | 10-210        | Strainer Mount                                   | 1        |
| 33   | 8896-48       | Discharge Hose 1" x 48"                          | 1        |
|      | 18-222        | Hose Clamp                                       | 2        |

† Comes with 110 Gallon Poly Tank

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## 1010 (3-WAY MANUAL) PLUMBING DRAWING



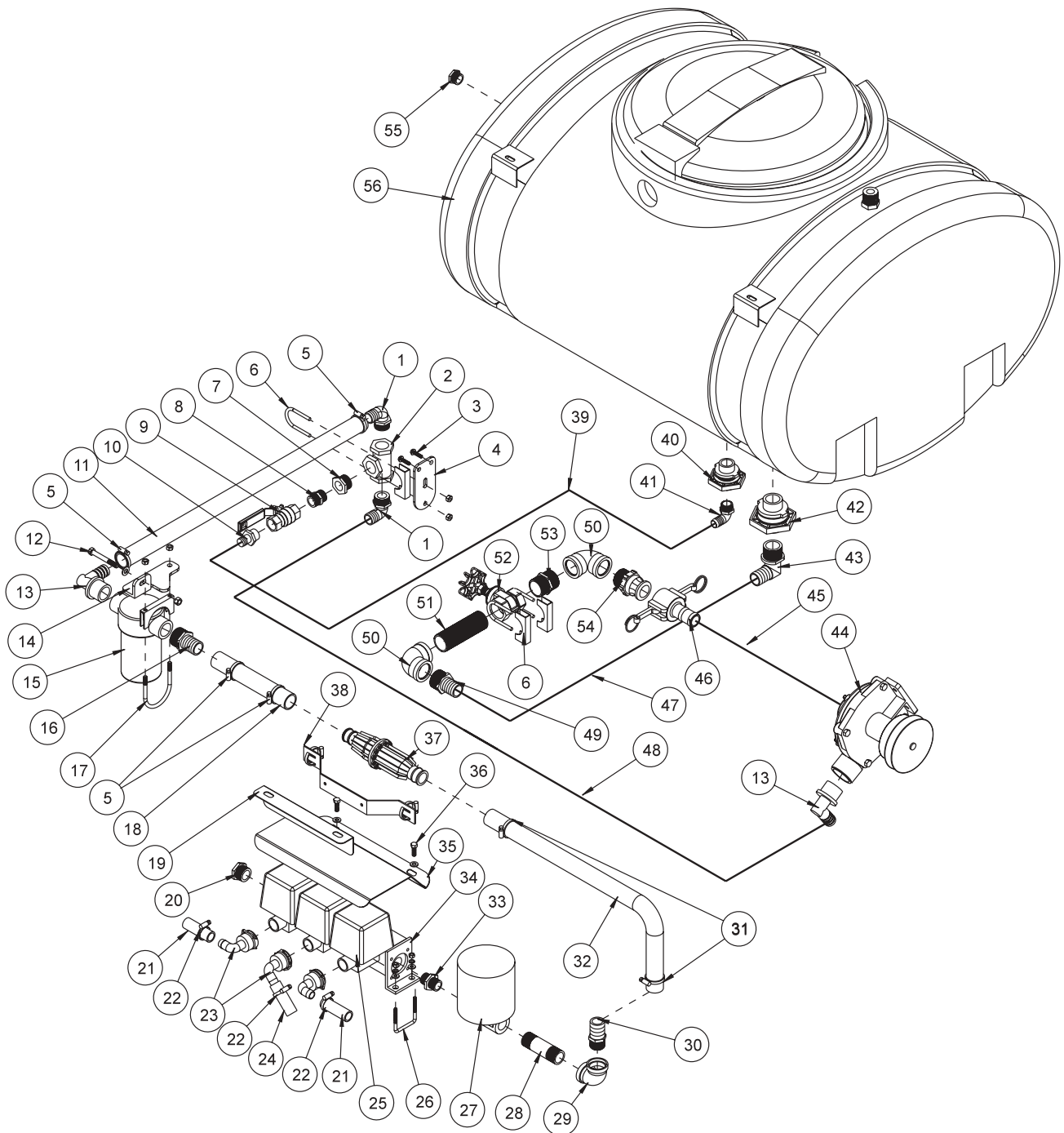


## 1010 (3-WAY MANUAL) PLUMBING PARTS LIST

| REF# | PART#         | DESCRIPTION                                      | QUANTITY |
|------|---------------|--|----------|
| 34   | 16-154        | Fitting $\frac{3}{4}$ MPT x $\frac{3}{4}$ HB     | 1        |
| 35   | 16-859        | Ball Valve $\frac{3}{4}$ Brass                   | 1        |
| 36   | 16-158        | Close Nipple $\frac{3}{4}$ x $\frac{3}{4}$       | 1        |
| 37   | 16-163        | Reducer Bushing 1 x $\frac{3}{4}$                | 1        |
| 38   | 16-164        | Elbow 1 MPT X 1 HB                               | 2        |
| 39   | 8896-10       | Discharge Hose 1" x 10                           | 1        |
|      | 18-222        | Hose Clamp                                       | 2        |
| 40   | 16-183        | Tee FPT 1 x 1 x 1                                | 1        |
| 41   | HB-516-18-175 | Bolt $\frac{5}{16}$ - 18 x $1\frac{3}{4}$        | 1        |
|      | HNTL-516-18   | $\frac{5}{16}$ - 18                              | 1        |
| 42   | 10-226        | Valve Mount                                      | 1        |
| 43   | HB-516-18-225 | Bolt $\frac{5}{16}$ - 18 x $2\frac{1}{4}$        | 1        |
|      | HNTL-516-18   | Lock Nut $\frac{5}{16}$ - 18                     | 1        |
| 44   | 10-120        | Park Brake Handle                                | 1        |
| 45   | 10-271        | Spacer   | 1        |
| 46   | 8896-10.5     | Discharge Hose 1" x $10\frac{1}{2}$ "            | 1        |
|      | 18-222        | Hose Clamp                                       | 2        |
| 47   | 8887-106      | Orange PVC Hose $\frac{3}{4}$ " (to right boom)  | 1        |
|      | 8887-93.50    | Orange PVC Hose $\frac{3}{4}$ " (to center boom) | 1        |
|      | 8887-106      | Orange PVC Hose $\frac{3}{4}$ " (to left boom)   | 1        |
|      | 18-040        | Hose Clamp                                       | 3        |



# 1008 (440) PLUMBING DRAWING





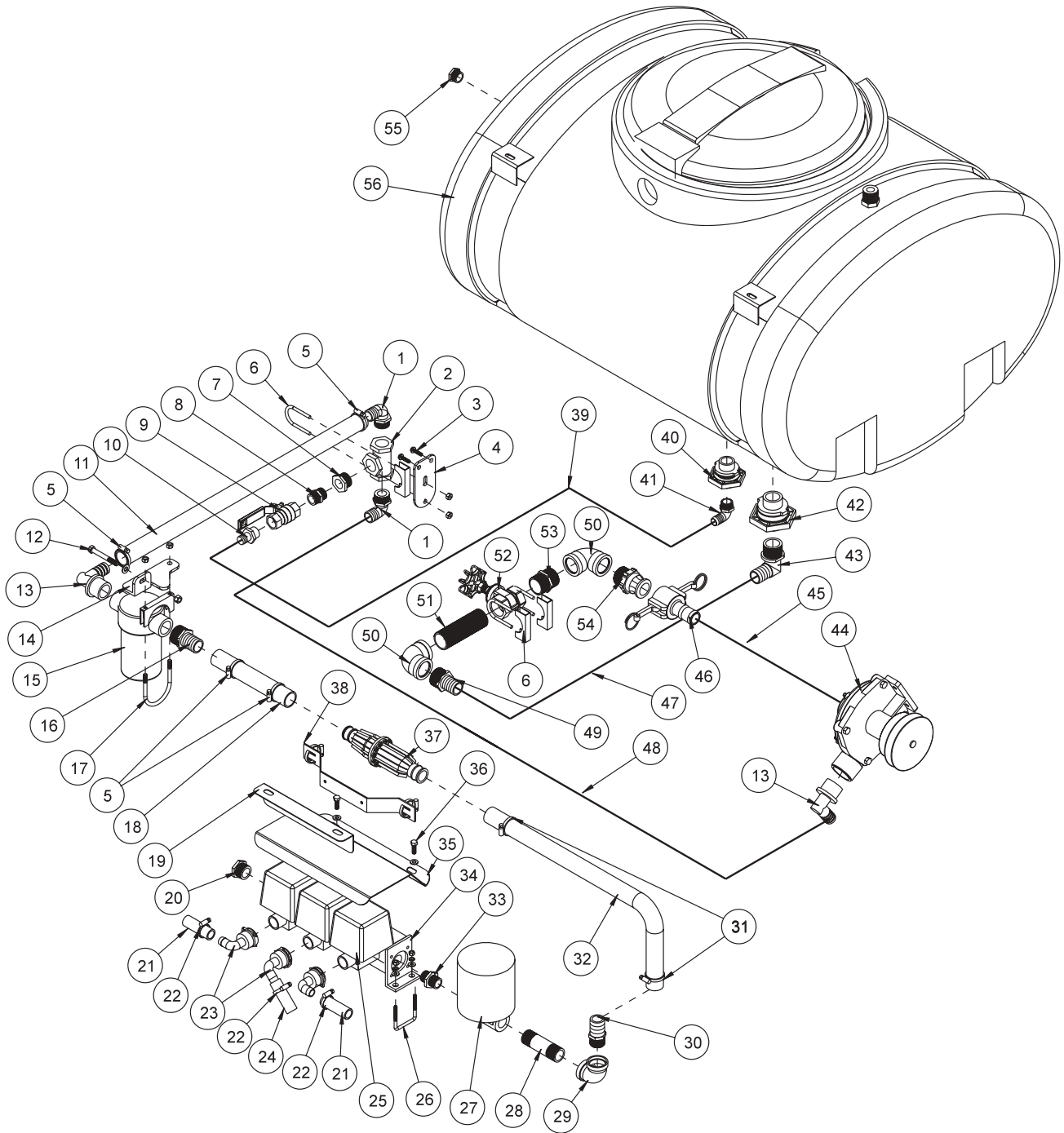
## 1008 (440) PLUMBING PARTS LIST

| REF# | PART#                           | DESCRIPTION                                   | QUANTITY |
|------|---------------------------------|---|----------|
| 1    | 16-164                          | Elbow 1" MPT x 1" HB                          | 2        |
| 2    | 16-183                          | Tee, FPT 1 x 1 x 1                            | 1        |
| 3    | HSDPS-14-100                    | Stainless Steel Pan Head Drill Screw 1/4 x 1  | 2        |
| 4    | 10-226                          | Valve Mount                                   | 1        |
| 5    | 18-222                          | Hose Clamp                                    | 4        |
| 6    | 50-394                          | Muffler Clamp 1 3/4                           | 3        |
| 7    | 16-163                          | Reducer Bushing 1 x 3/4                       | 1        |
| 8    | 16-158                          | Close Nipple 3/4 x 3/4                        | 1        |
| 9    | 16-859                          | Ball Valve 3/4 Brass                          | 1        |
| 10   | 16-154                          | Fitting 3/4 MPT x 3/4 HB                      | 1        |
| 11   | 8896-62                         | Discharge Hose 1"                             | 1        |
| 12   | HB-38-16-300                    | Bolt 3/8 - 16 x 3                             | 1        |
|      | HW-38                           | Washer 3/8                                    | 1        |
|      | HNTL-38-16                      | Lock Nut 3/8 - 16                             | 1        |
| 13   | 16-168                          | Elbow 1 1/4 MPT x 1HB                         | 2        |
| 14   | 10-210                          | Strainer Mount                                | 1        |
| 15   | 16-968                          | Strainer 50 Mesh                              | 1        |
| 16   | 16-161                          | Fitting 1 1/4 MPT x 1 1/4 HB                  | 1        |
| 17   | 10-147                          | Muffler Clamp 2 1/2                           | 1        |
| 18   | 8897-9.5                        | Discharge Hose 1 1/4"                         | 1        |
| 19   | 10-249                          | Flow Meter Bracket                            | 1        |
|      | HB-14-20-075                    | Bolt 1/4 - 20 x 3/4                           | 2        |
|      | HWL-14                          | Lock Washer 1/4                               | 2        |
|      | HNTL-14-20                      | Lock Nut 1/4 - 20                             | 2        |
| 20   | 16-162                          | Hex Plug 1"                                   | 1        |
| 21   | 8887-40                         | Orange PVC Hose 3/4" (to right and left boom) | 2        |
| 22   | 18-040                          | Hose Clamp                                    | 3        |
| 23   | 15-553                          | 3/4 -90° Hose Barb (comes with Ref# 25)       | 3        |
|      | 15-553-01                       | Clip  | 3        |
|      | 15-553-02                       | O-Ring  | 3        |
| 24   | 8887-35                         | Orange PVC Hose 3/4" (to center boom)         | 1        |
| 25   | 15-552                          | Manifold Ball Valve                           | 1        |
| 26   | 10-194                          | U-bolt  | 2        |
|      | HW-14                           | Washer 1/4                                    | 4        |
|      | HWL-14                          | Lock Washer 1/4                               | 4        |
|      | HN-14-20                        | Nut 1/4 - 20                                  | 4        |
| 27*  | 16-524                          | Motorized Control Valve                       | 1        |
| 28   | 18-293                          | Pipe Nipple 1" x 4"                           | 1        |
| 29   | 18-050                          | Black Elbow 1 NPT x 90°                       | 1        |
| 30   | 16-159                          | Fitting 1 MPT x 1 1/4 HB                      | 1        |
| 31   | 18-116                          | Hose Clamp                                    | 2        |
| 32   | 8897-20                         | Discharge Hose 1 1/4"                         | 1        |
| 33   | 16-851                          | Close Nipple 1"                               | 1        |
| 34   | 15-552-07                       | Steel Mounting Bracket (comes with Ref# 25)   | 2        |
| 35   | 10-199                          | Shield  | 1        |
|      |                                 |   |          |
| *    | 10-252                          | 440 Sprayer Control Kit                       | 1        |
| †    | Comes with 110 Gallon Poly Tank |   |          |

(Continued on next page)



# 1008(440) PLUMBING DRAWING



Accessories

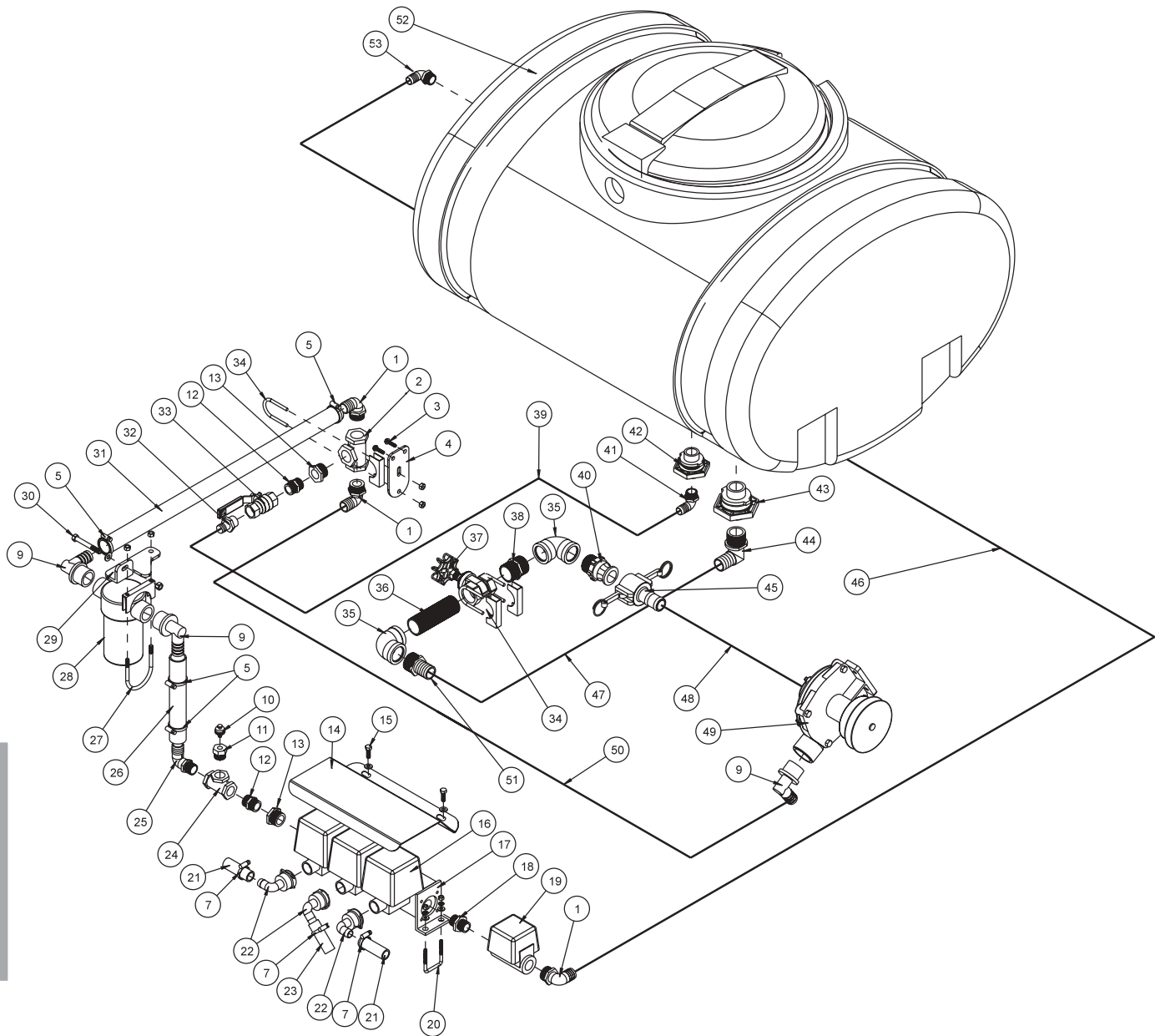


## 1008(440) PLUMBING PARTS LIST

| REF# | PART#                           | DESCRIPTION                                    | QUANTITY |
|------|---------------------------------|--|----------|
| 36   | HB-516-18-100                   | Bolt $\frac{5}{16}$ - 18 x 1                   | 2        |
|      | HW-516                          | Washer $\frac{5}{16}$                          | 2        |
|      | HNTL-516-18                     | Lock Nut $\frac{5}{16}$ - 18                   | 2        |
| 37*  | 16-456                          | Flow Meter                                     | 1        |
| 38*  | 16-456-08                       | Mounting Bracket                               | 1        |
|      | 18-116                          | Hose Clamp                                     | 2        |
| 39   | 8887-37                         | Orange PVC Hose $\frac{3}{4}$ "                | 1        |
|      | 18-040                          | Hose Clamp                                     | 2        |
| 40†  | 16-150                          | Double Thread Fitting $\frac{3}{4}$ "          | 1        |
| 41   | 16-153                          | Elbow $\frac{3}{4}$ MPT x $\frac{3}{4}$ HB     | 1        |
| 42†  | 16-194                          | Anti Vortex Fitting                            | 1        |
| 43   | 16-156                          | Elbow $1\frac{1}{4}$ MPT x $1\frac{1}{4}$ HB   | 1        |
| 44   | 16-966                          | Hypro® Pump                                    | 1        |
| 45   | 8889-24                         | Suction Hose $1\frac{1}{4}$                    | 1        |
|      | 18-116                          | Hose Clamp                                     | 2        |
| 46   | 16-181                          | Quick Coupler $1\frac{1}{4}$ Female            | 1        |
| 47   | 8889-26                         | Suction Hose $1\frac{1}{4}$                    | 1        |
|      | 18-116                          | Hose Clamp                                     | 2        |
| 48   | 8896-45                         | Discharge Hose 1"                              | 1        |
|      | 18-222                          | Hose Clamp                                     | 2        |
| 49   | 16-161                          | Fitting $1\frac{1}{4}$ NPT x $1\frac{1}{4}$ HB | 1        |
| 50   | 16-182                          | Elbow  | 2        |
| 51   | 18-296                          | Black Pipe Nipple $1\frac{1}{4}$ x 5           | 1        |
| 52   | 16-170                          | Gate Valve $1\frac{1}{4}$                      | 1        |
| 53   | 16-880                          | Close Nipple $1\frac{1}{4}$                    | 1        |
| 54   | 16-180                          | Quick Coupler $1\frac{1}{4}$ Male              | 1        |
| 55   | 16-166                          | Hex Plug $\frac{3}{4}$ "                       | 1        |
| 56†  | 10-111                          | 110 Gallon Poly Tank                           | 1        |
|      | 16-953                          | 16" Hinged Lid/Well with Gasket                | 1        |
|      | 16-953-01                       | Gasket for 16-953                              | 1        |
|      | 16-169                          | Strainer Basket 16"                            | 1        |
| *    | 10-252                          | 440 Sprayer Control Kit                        | 1        |
| †    | Comes with 110 Gallon Poly Tank |  |          |



# 1006 (834) PLUMBING DRAWING



Accessories



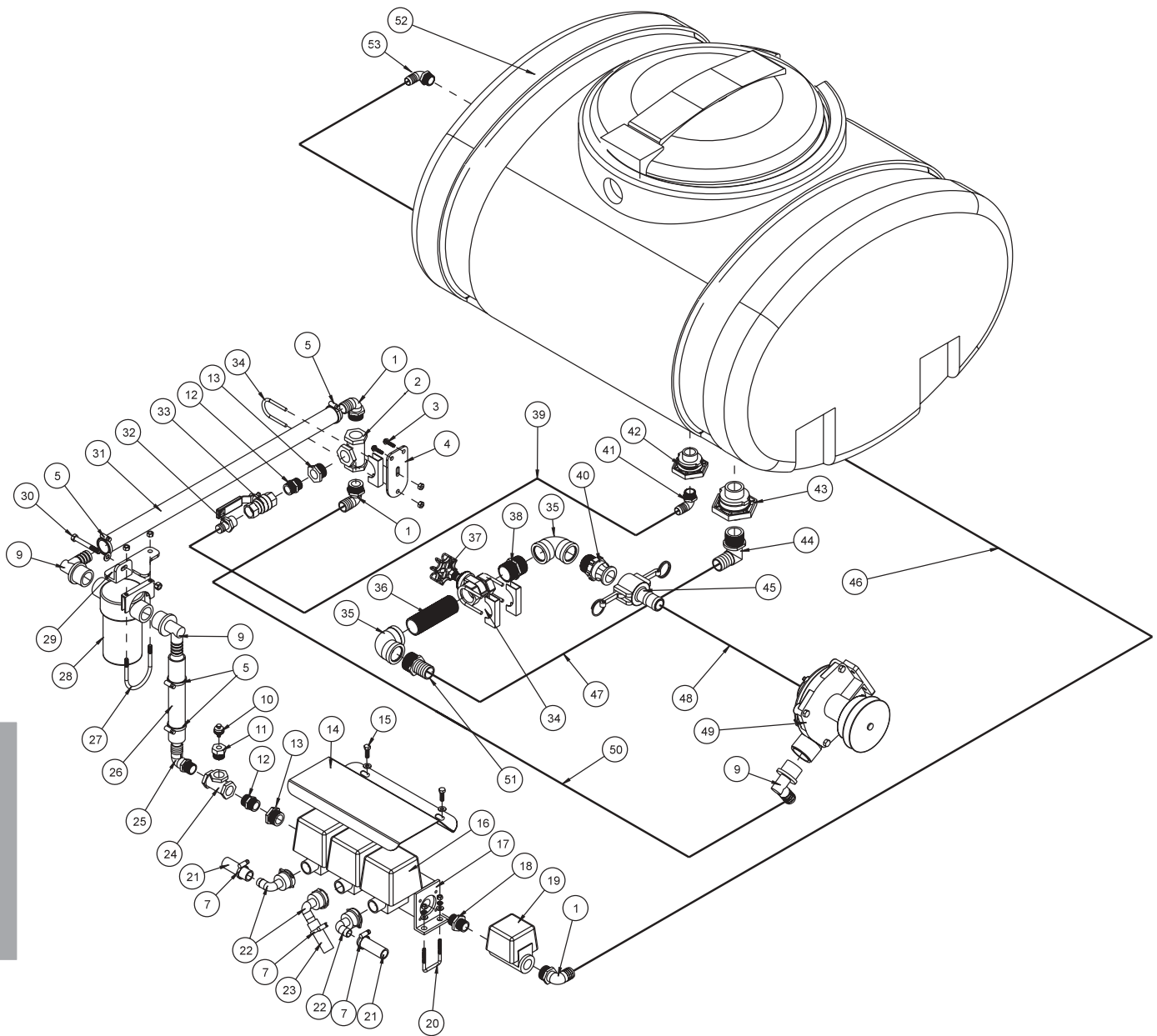
## 1006 (834) PLUMBING PARTS LIST

| REF# | PART#                           | DESCRIPTION                                   | QUANTITY |
|------|---------------------------------|---|----------|
| 1    | 16-164                          | Elbow 1" MPT x 1" HB                          | 3        |
| 2    | 16-183                          | Tee, FPT 1 x 1 x 1                            | 1        |
| 3    | HSD-14-100                      | Drill Screw 1/4 x 1                           | 2        |
| 4    | 10-226                          | Valve Mount                                   | 1        |
| 5    | 18-222                          | Hose Clamp                                    | 4        |
| 7    | 18-040                          | Hose Clamp                                    | 3        |
| 9    | 16-168                          | Elbow 1 1/4 MPT x 1 HB                        | 3        |
| 10*  | 15-569                          | Pressure Transducer                           | 1        |
| 11   | 16-288                          | Reducer Bushing 3/4 x 1/4                     | 1        |
| 12   | 16-158                          | Close Nipple 3/4 x 3/4                        | 2        |
| 13   | 16-163                          | Reducer Bushing 1 x 3/4                       | 2        |
| 14   | 10-199                          | Shield  | 1        |
| 15   | HB-516-18-100                   | Bolt 5/16 - 18 x 1                            | 2        |
|      | HW-516                          | Washer 5/16                                   | 2        |
|      | HNTL-516-18                     | Lock Nut 5/16 - 18                            | 2        |
| 16   | 15-552                          | Manifold Ball Valve                           | 1        |
| 17   | 15-552-07                       | Steel Mounting Bracket (comes with Ref# 16)   | 2        |
| 18   | 16-851                          | Close Nipple 1"                               | 1        |
| 19   | 15-531                          | Pressure Regulating Valve                     | 1        |
| 20   | 10-194                          | U-bolt  | 2        |
|      | HW-14                           | Washer 1/4                                    | 4        |
|      | HWL-14                          | Lock Washer 1/4                               | 4        |
|      | HN-14-20                        | Nut 1/4 - 20                                  | 4        |
| 21   | 8887-40                         | Orange PVC Hose 3/4" (to right and left boom) | 2        |
| 22   | 15-553                          | 3/4 - 90° Hose Barb (comes with Ref# 16)      | 3        |
|      | 15-553-01                       | Clip  | 3        |
|      | 15-553-02                       | O-Ring  | 3        |
| 23   | 8887-35                         | Orange PVC Hose 3/4" (to center boom)         | 1        |
| 24   | 16-157                          | Tee, FPT 3/4 x 3/4 x 3/4                      | 1        |
| 25   | 16-155                          | Elbow 3/4 MPT x 1 HB                          | 1        |
| 26   | 8896-9                          | Discharge Hose 1"                             | 1        |
| 27   | 10-147                          | Muffler Clamp 2 1/2                           | 1        |
| 28   | 16-968                          | Strainer 50 Mesh                              | 1        |
| 29   | 10-210                          | Strainer Mount                                | 1        |
| 30   | HB-38-16-300                    | Bolt 3/8 - 16 x 3                             | 1        |
|      | HW-38                           | Washer 3/8                                    | 1        |
|      | HNTL-38-16                      | Lock Nut 3/8 - 16                             | 1        |
| 31   | 8896-62                         | Discharge Hose 1"                             | 1        |
| 32   | 16-154                          | Fitting 3/4 MPT x 3/4 HB                      | 1        |
| 33   | 16-859                          | Ball Valve 3/4 Brass                          | 1        |
| 34   | 50-394                          | Muffler Clamp 1 3/4                           | 3        |
| 35   | 16-182                          | Elbow   | 2        |
| 36   | 18-296                          | Black Pipe Nipple 1 1/4 x 5                   | 1        |
| 37   | 16-170                          | Gate Valve 1 1/4                              | 1        |
| 38   | 16-880                          | Close Nipple 1 1/4                            | 1        |
| 39   | 8887-37                         | Orange PVC Hose 3/4"                          | 1        |
|      | 18-040                          | Hose Clamp                                    | 2        |
|      |                                 |   |          |
| *    | 10-227                          | 834 Sprayer Control Kit                       | 1        |
| †    | Comes with 110 Gallon Poly Tank |   |          |

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## 1006 (834) PLUMBING DRAWING

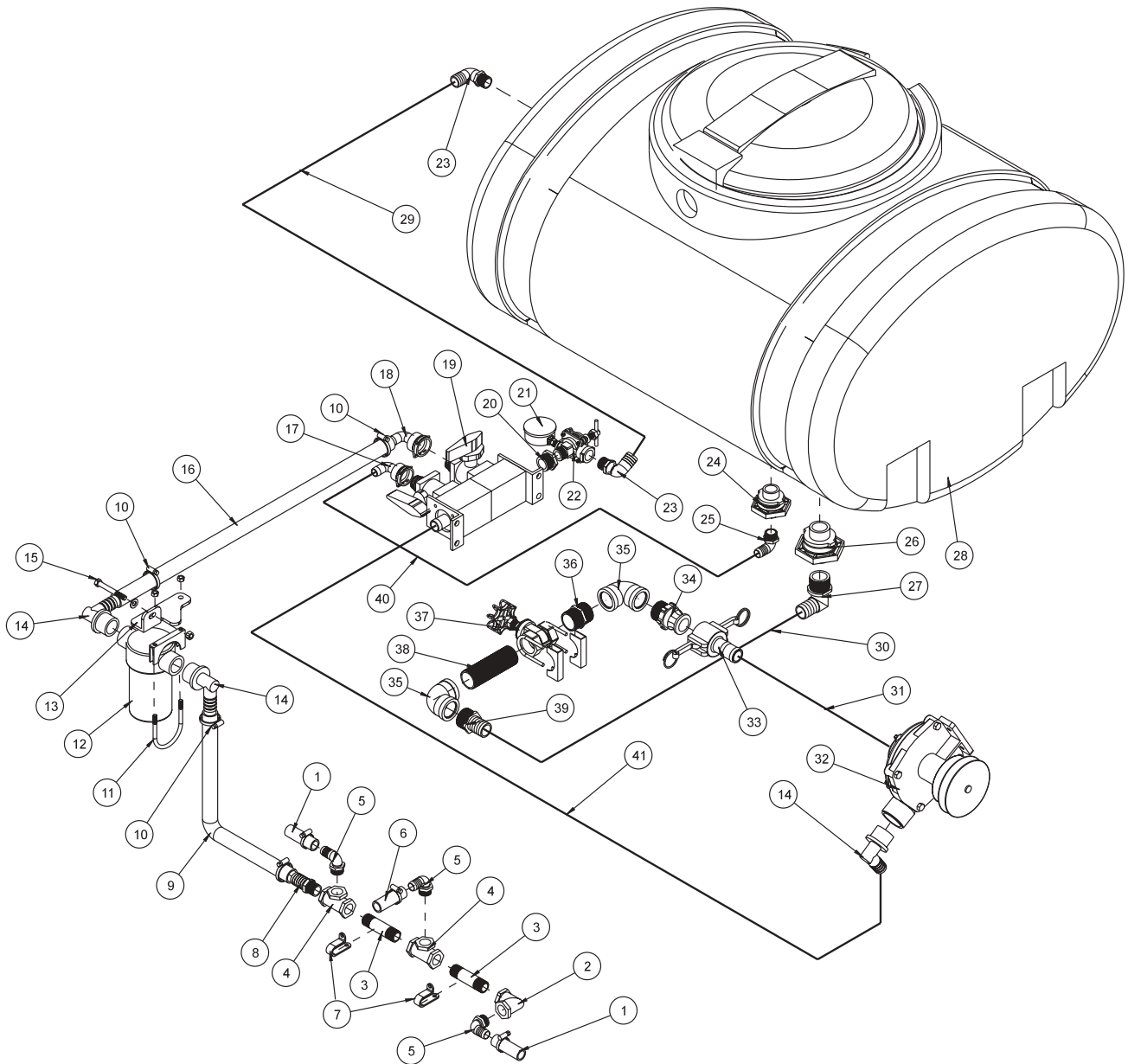




## 1006 (834) PLUMBING PARTS LIST

| REF# | PART#                           | DESCRIPTION  | QUANTITY |
|------|---------------------------------|--|----------|
| 40   | 16-180                          | Quick Coupler, 1 <sup>1</sup> / <sub>4</sub> Male                            | 1        |
| 41   | 16-153                          | Elbow <sup>3</sup> / <sub>4</sub> MPT x <sup>3</sup> / <sub>4</sub> HB       | 1        |
| 42†  | 16-150                          | Double Threaded Fitting <sup>3</sup> / <sub>4</sub>                          | 1        |
| 43†  | 16-194                          | Anti-Vortex Fitting 1 <sup>1</sup> / <sub>4</sub>                            | 1        |
| 44   | 16-156                          | Elbow 1 <sup>1</sup> / <sub>4</sub> MPT x 1 <sup>1</sup> / <sub>4</sub> HB   | 1        |
| 45   | 16-181                          | Quick Coupler, 1 <sup>1</sup> / <sub>4</sub> Female                          | 1        |
| 46   | 8896-65                         | Discharge Hose 1"  | 1        |
|      | 18-222                          | Hose Clamp   | 2        |
| 47   | 8889-27                         | Suction Hose 1 <sup>1</sup> / <sub>4</sub>                                   | 1        |
|      | 18-116                          | Hose Clamp   | 2        |
| 48   | 8889-24                         | Suction Hose 1 <sup>1</sup> / <sub>4</sub>                                   | 1        |
|      | 18-116                          | Hose Clamp   | 2        |
| 49   | 16-966                          | Hypro® Pump  | 1        |
| 50   | 8896-45                         | Discharge Hose 1"  | 1        |
|      | 18-222                          | Hose Clamp   | 2        |
| 51   | 16-161                          | Fitting 1 <sup>1</sup> / <sub>4</sub> NPT x 1 <sup>1</sup> / <sub>4</sub> HB | 1        |
| 52†  | 10-111                          | 110 Gallon Poly Tank   | 1        |
|      | 16-953                          | 16" Hinged Lid/Well with Gasket  | 1        |
|      | 16-953-01                       | Gasket for 16-953  | 1        |
|      | 16-169                          | Strainer Basket 16"  | 1        |
| 53   | 16-155                          | Elbow <sup>3</sup> / <sub>4</sub> MPT x 1 HB                                 | 1        |
|      |                                 |  |          |
| *    | 10-227                          | 834 Sprayer Control Kit  | 1        |
| †    | Comes with 110 Gallon Poly Tank |  |          |







# 1004 MANUAL PLUMBING PARTS LIST

| REF# | PART#        | DESCRIPTION  | QUANTITY |
|------|--------------|--|----------|
| 1    | 8887-40      | Orange PVC Hose $\frac{3}{4}$ "(to right and left boom)            | 2        |
|      | 18-040       | Hose Clamp   | 4        |
| 2    | 16-151       | Elbow FPT $\frac{3}{4}$ x $\frac{3}{4}$                            | 1        |
| 3    | 16-172       | Nylon Nipple $\frac{3}{4}$ x $3\frac{1}{2}$                        | 2        |
| 4    | 16-157       | Tee FPT $\frac{3}{4}$ x $\frac{3}{4}$ x $\frac{3}{4}$              | 2        |
| 5    | 16-153       | Elbow $\frac{3}{4}$ MPT x $\frac{3}{4}$ HB                         | 3        |
| 6    | 8887-35      | Orange PVC Hose $\frac{3}{4}$ "(to center boom)                    | 1        |
|      | 18-040       | Hose Clamp   | 2        |
| 7    | HLC-100      | Loom Clamp 1"  | 2        |
|      | HSDPS-14-075 | Stainless Steel Pan Head Drill Screw $\frac{1}{4}$ x $\frac{3}{4}$ | 2        |
| 8    | 16-196       | Hose Barb $\frac{3}{4}$ MPT x 1 HB                                 | 1        |
| 9    | 8896-16      | Discharge Hose 1"  | 1        |
| 10   | 18-222       | Hose Clamp   | 4        |
| 11   | 10-147       | Muffler Clamp $2\frac{1}{2}$                                       | 1        |
| 12   | 16-968       | Strainer 50 Mesh   | 1        |
| 13   | 10-210       | Strainer Mount   | 1        |
| 14   | 16-168       | Elbow $1\frac{1}{4}$ MPT x 1 HB                                    | 3        |
| 15   | HB-38-16-300 | Bolt $\frac{3}{8}$ - 16 x 3  | 1        |
|      | HNTL-38-16   | Lock Nut $\frac{3}{8}$ -16   | 1        |
| 16   | 8896-65      | Discharge Hose 1"  | 1        |
| 17*  | 15-553       | $\frac{3}{4}$ - 90° Hose Barb                                      | 1        |
|      | 15-553-01    | Clip   | 1        |
|      | 15-553-02    | O-Ring   | 1        |
| 18*  | 10-208       | 1 - 90° Hose Barb  | 1        |
|      | 15-553-01    | Clip   | 1        |
|      | 15-553-02    | O-Ring   | 1        |
| 19*  | 10-207       | Manual Ball Valve  | 1        |
|      | HB-14-20-250 | Bolt $\frac{1}{4}$ - 20 x $2\frac{1}{2}$                           | 2        |
|      | HNTL-14-20   | Lock Nut $\frac{1}{4}$ - 20  | 2        |
| 20   | 16-163       | Reducer Bushing 1 x $\frac{3}{4}$                                  | 1        |
| 21   | 16-281       | Liquid Filled Gauge  | 1        |
| 22   | 16-034       | Throttling Valve   | 1        |
| 23   | 16-155       | Elbow $\frac{3}{4}$ MPT x 1 HB                                     | 2        |
| 24†  | 16-150       | Double Threaded Fitting  | 1        |
| 25   | 16-153       | Elbow $\frac{3}{4}$ MPT x $\frac{3}{4}$ HB                         | 1        |
| 26†  | 16-194       | Anti-Vortex Fitting $1\frac{1}{4}$                                 | 1        |
| 27   | 16-156       | Elbow $1\frac{1}{4}$ MPT x $1\frac{1}{4}$ HB                       | 1        |
| 28†  | 10-111       | 110 Gallon Poly Tank   | 1        |
|      | 16-953       | 16" Hinged Lid/Well with Gasket                                    | 1        |
|      | 16-953-01    | Gasket for 16-953  | 1        |
|      | 16-169       | Strainer Basket 16"  | 1        |
| 29   | 8896-35      | Discharge Hose 1"  | 1        |
|      | 18-222       | Hose Clamp   | 2        |

\*

Comes with 10-207 Manual Ball Valve

†

Comes with 10-111 110 Gallon Poly Tank

(Continued on next page)



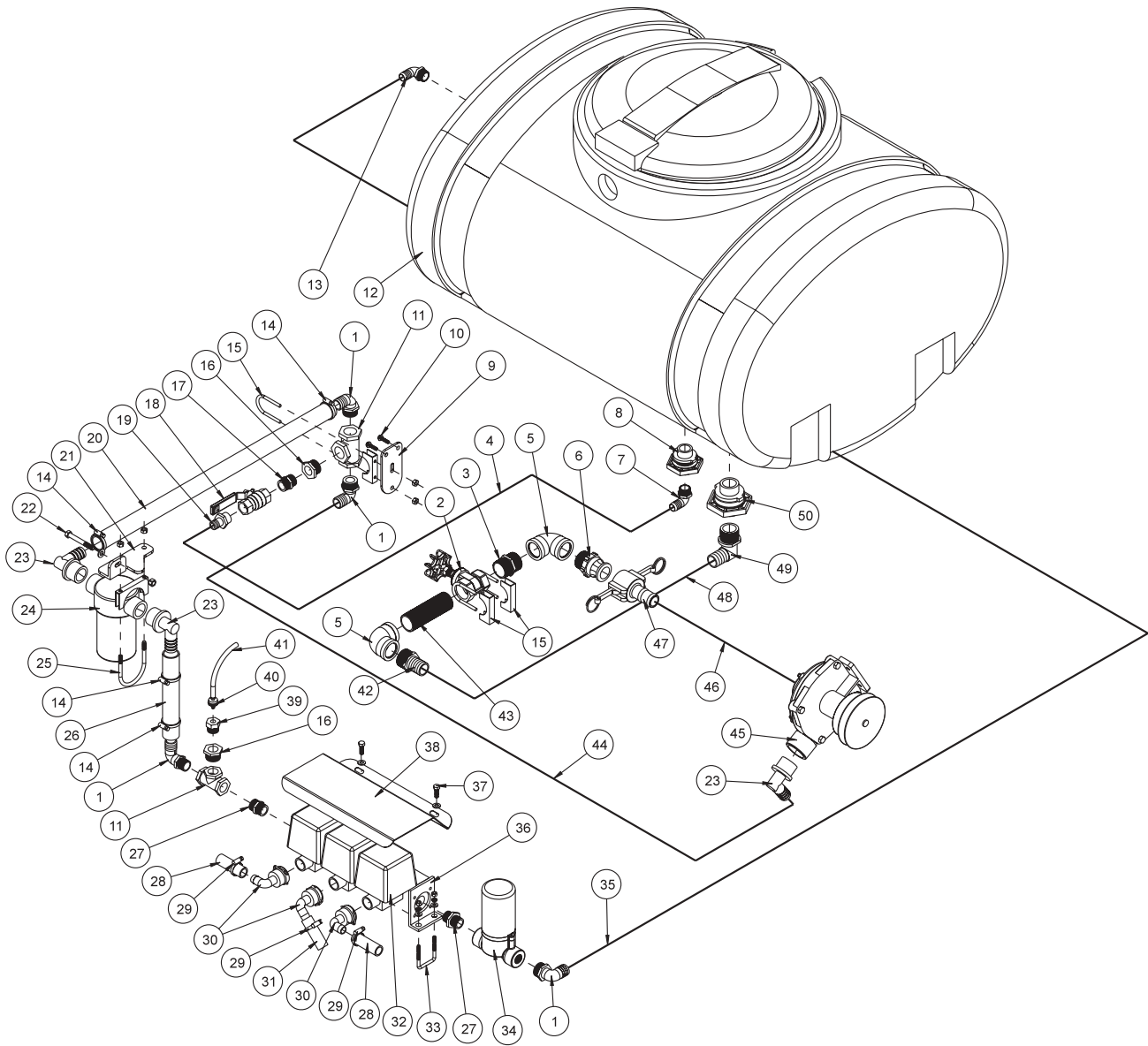




## 1004 MANUAL PLUMBING PARTS LIST

| REF# | PART#                                  | DESCRIPTION  | QUANTITY |
|------|--|--|----------|
| 30   | 8889-26                                | Suction Hose 1 <sup>1</sup> / <sub>4</sub> "                                 | 1        |
|      | 18-116                                 | Hose Clamp   | 2        |
| 31   | 8889-24                                | Suction Hose 1 <sup>1</sup> / <sub>4</sub> "                                 | 1        |
|      | 18-116                                 | Hose Clamp   | 2        |
| 32   | 16-966                                 | Hypro® Pump  | 1        |
| 33   | 16-181                                 | Quick Coupler 1 <sup>1</sup> / <sub>4</sub> Female                           | 1        |
| 34   | 16-180                                 | Quick Coupler 1 <sup>1</sup> / <sub>4</sub> Male                             | 1        |
| 35   | 16-182                                 | Elbow  | 2        |
| 36   | 16-880                                 | Close Nipple 1 <sup>1</sup> / <sub>4</sub>                                   | 1        |
| 37   | 16-170                                 | Gate Valve 1 <sup>1</sup> / <sub>4</sub>                                     | 1        |
| 38   | 18-296                                 | Black Pipe Nipple 1 <sup>1</sup> / <sub>4</sub> x 5                          | 1        |
| 39   | 16-161                                 | Fitting 1 <sup>1</sup> / <sub>4</sub> NPT x 1 <sup>1</sup> / <sub>4</sub> HB | 1        |
| 40   | 8887-44                                | Orange PVC Hose <sup>3</sup> / <sub>4</sub>                                  | 1        |
|      | 18-040                                 | Hose Clamp   | 2        |
| 41   | 8896-45                                | Discharge Hose 1"  | 1        |
|      | 18-222                                 | Hose Clamp   | 2        |
| *    | Comes with 10-207 Manual Ball Valve    |  |          |
| †    | Comes with 10-111 110 Gallon Poly Tank |  |          |





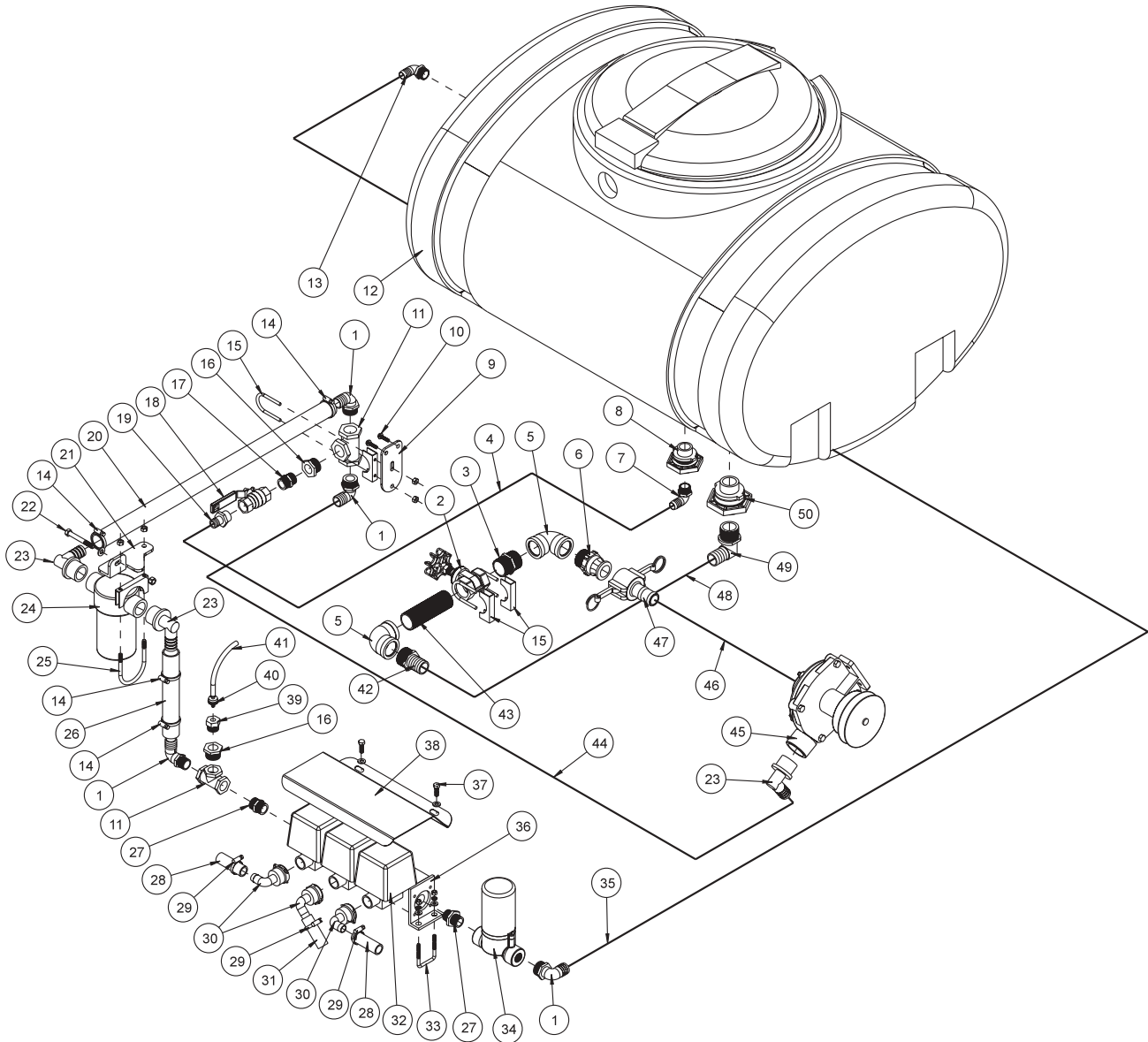


## 1002 (203) PLUMBING PARTS LIST

| REF# | PART#                           | DESCRIPTION  | QUANTITY |
|------|---------------------------------|--|----------|
| 1    | 16-164                          | Elbow 1" MPT x 1" HB   | 4        |
| 2    | 16-170                          | Gate Valve 1 <sup>1</sup> / <sub>4</sub>                                     | 1        |
| 3    | 16-880                          | Close Nipple 1 <sup>1</sup> / <sub>4</sub>                                   | 1        |
| 4    | 8887-37                         | Orange PVC Hose 3 <sup>3</sup> / <sub>4</sub> "                              | 1        |
|      | 18-040                          | Hose Clamp   | 2        |
| 5    | 16-182                          | Elbow FPT 1 <sup>1</sup> / <sub>4</sub> x 1 <sup>1</sup> / <sub>4</sub>      | 2        |
| 6    | 16-180                          | Quick Coupler, 1 <sup>1</sup> / <sub>4</sub> Male                            | 1        |
| 7    | 16-153                          | Elbow 3 <sup>3</sup> / <sub>4</sub> MPT x 3 <sup>3</sup> / <sub>4</sub> HB   | 1        |
| 8†   | 16-150                          | Double Threaded Fitting 3 <sup>3</sup> / <sub>4</sub>                        | 1        |
| 9    | 10-226                          | Valve Mount  | 1        |
| 10   | HSD-14-100                      | Drill Screw 1 <sup>1</sup> / <sub>4</sub> x 1                                | 2        |
| 11   | 16-183                          | Tee FPT 1 x 1 x 1  | 2        |
| 12†  | 10-111                          | 110 Gallon Poly Tank   | 1        |
|      | 16-953                          | 16" Hinged Lid/Well with Gasket  | 1        |
|      | 16-953-01                       | Gasket for 16-953  | 1        |
|      | 16-169                          | Strainer Basket 16"  | 1        |
| 13   | 16-155                          | Elbow 3 <sup>3</sup> / <sub>4</sub> MPT x 1 HB                               | 1        |
| 14   | 18-222                          | Hose Clamp   | 4        |
| 15   | 50-394                          | Muffler Clamp 1 <sup>3</sup> / <sub>4</sub>                                  | 3        |
| 16   | 16-163                          | Reducer Bushing 1 x 3 <sup>3</sup> / <sub>4</sub>                            | 2        |
| 17   | 16-158                          | Close Nipple 3 <sup>3</sup> / <sub>4</sub> x 3 <sup>3</sup> / <sub>4</sub>   | 1        |
| 18   | 16-859                          | Ball Valve 3 <sup>3</sup> / <sub>4</sub> Brass                               | 1        |
| 19   | 16-154                          | Fitting 3 <sup>3</sup> / <sub>4</sub> MPT x 3 <sup>3</sup> / <sub>4</sub> HB | 1        |
| 20   | 8896-62                         | Discharge Hose 1"  | 1        |
| 21   | 10-210                          | Strainer Mount   | 1        |
| 22   | HB-38-16-300                    | Bolt 3 <sup>3</sup> / <sub>8</sub> - 16 x 3                                  | 1        |
|      | HW-38                           | Washer 3 <sup>3</sup> / <sub>8</sub>   | 1        |
|      | HNTL-38-16                      | Lock Nut 3 <sup>3</sup> / <sub>8</sub> - 16                                  | 1        |
| 23   | 16-168                          | Elbow 1 <sup>1</sup> / <sub>4</sub> MPT x 1HB                                | 3        |
| 24   | 16-968                          | Strainer 50 Mesh   | 1        |
| 25   | 10-147                          | Muffler Clamp 2 <sup>1</sup> / <sub>2</sub>                                  | 1        |
| 26   | 8896-9                          | Discharge Hose 1"  | 1        |
| 27   | 16-851                          | Close Nipple 1"  | 1        |
| 28   | 8887-40                         | Orange PVC Hose 3 <sup>3</sup> / <sub>4</sub> " (to right and left boom)     | 2        |
| 29   | 18-040                          | Hose Clamp   | 3        |
| 30   | 15-553                          | 3 <sup>3</sup> / <sub>4</sub> - 90° Hose Barb (comes with 15-552 ball valve) | 3        |
| 31   | 8887-35                         | Orange PVC Hose 3 <sup>3</sup> / <sub>4</sub> " (to center boom)             | 1        |
| 32   | 15-552                          | Manifold Ball Valve  | 1        |
| 33   | 10-194                          | U-Bolt   | 2        |
|      | HW-14                           | Washer 1 <sup>1</sup> / <sub>4</sub>   | 4        |
|      | HWL-14                          | Lock Washer 1 <sup>1</sup> / <sub>4</sub>                                    | 4        |
|      | HN-14-20                        | Nut 1 <sup>1</sup> / <sub>4</sub> - 20                                       | 4        |
| 34*  | 16-866                          | Motorized Control Valve  | 1        |
| 35   | 8896-65                         | Discharge Hose 1"  | 1        |
|      | 18-222                          | Hose Clamp   | 2        |
| 36   | 15-552-07                       | Steel Mounting Bracket (comes with Ref# 16)                                  | 2        |
| *    | 16-852                          | 203 Spray Controller   | 1        |
| †    | Comes with 110 Gallon Poly Tank |  |          |

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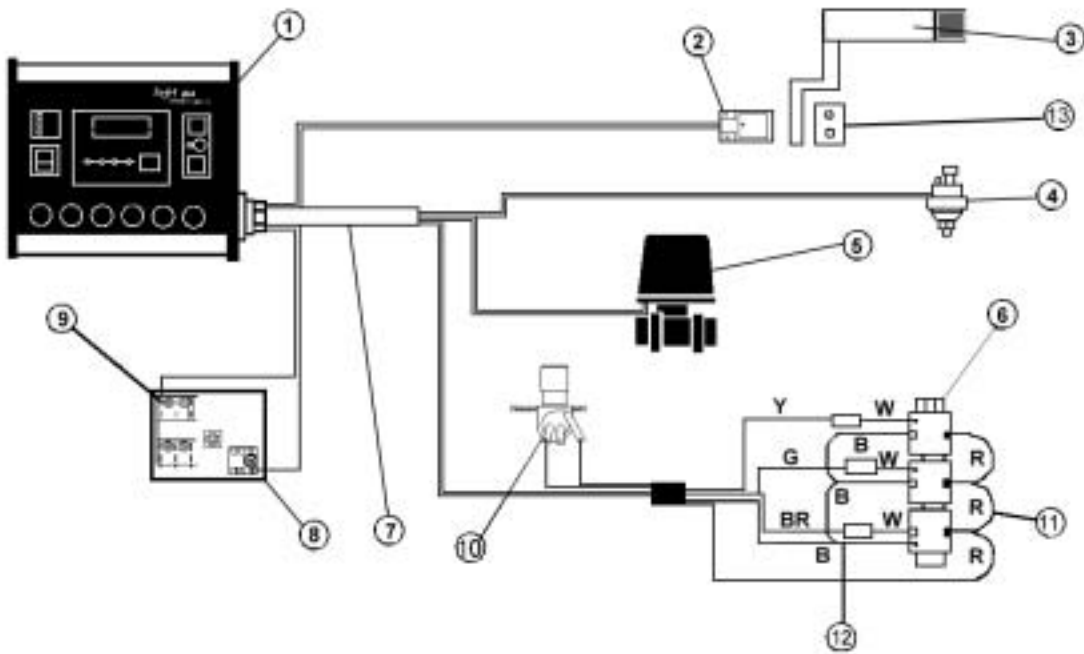


## 1002 (203) PLUMBING PARTS LIST

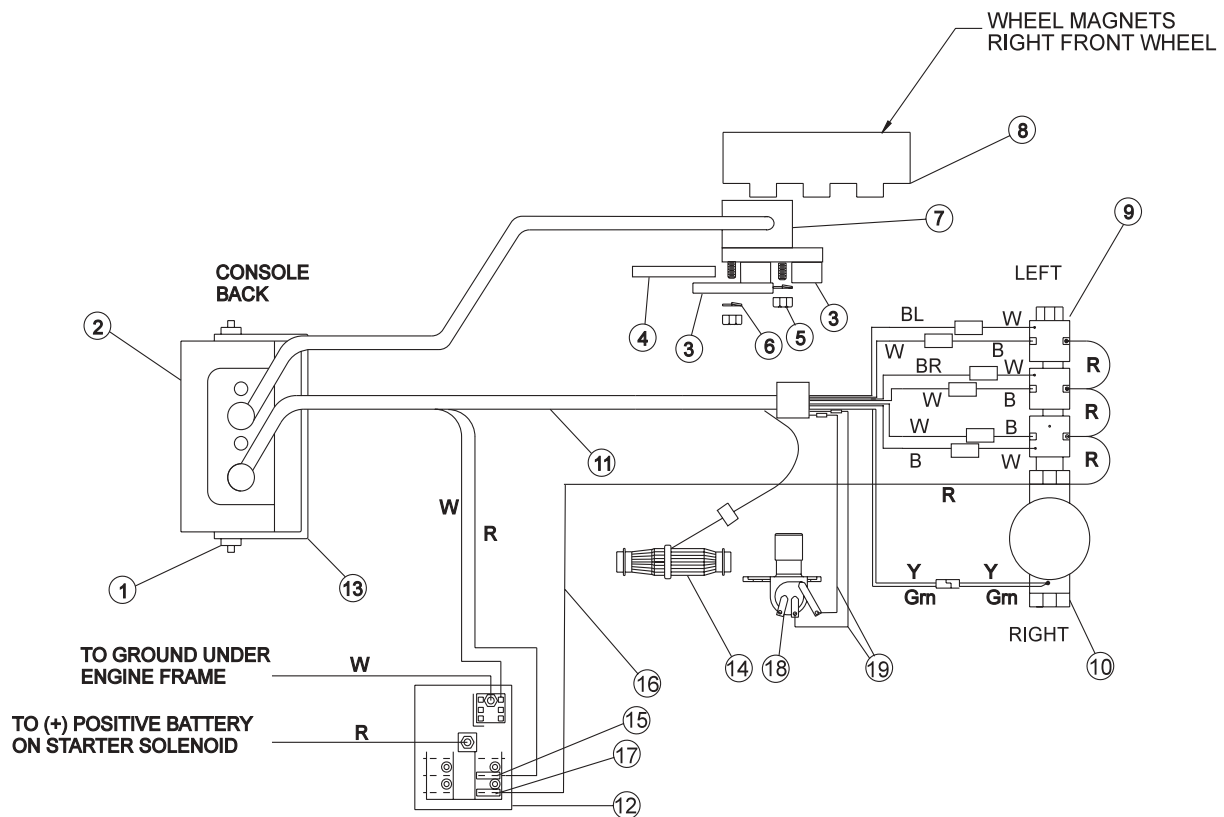
| REF# | PART#                           | DESCRIPTION                                    | QUANTITY |
|------|---------------------------------|--|----------|
| 37   | HB-516-18-100                   | Bolt $\frac{5}{16}$ - 18 x 1                   | 2        |
|      | HW-516                          | Washer $\frac{5}{16}$                          | 2        |
|      | HNTL-516-18                     | Lock Nut $\frac{5}{16}$ - 18                   | 2        |
| 38   | 10-199                          | Shield   | 1        |
| 39   | 16-288                          | Reducer Bushing $\frac{3}{4}$ x $\frac{1}{4}$  | 1        |
| 40*  | 16-958-07                       | Male Fitting                                   | 1        |
| 41*  | 16-955                          | Tube   | 1        |
| 42   | 16-161                          | Fitting $1\frac{1}{4}$ NPT x $1\frac{1}{4}$ HB | 1        |
| 43   | 18-296                          | Black Pipe Nipple $1\frac{1}{4}$ x 5           | 1        |
| 44   | 8896-45                         | Discharge Hose 1"                              | 1        |
|      | 18-222                          | Hose Clamp                                     | 2        |
| 45   | 16-966                          | Hypro® Pump                                    | 1        |
| 46   | 8889-24                         | Suction Hose $1\frac{1}{4}$                    | 1        |
|      | 18-116                          | Hose Clamp                                     | 2        |
| 47   | 16-181                          | Quick Coupler, $1\frac{1}{4}$ Female           | 1        |
| 48   | 8889-27                         | Suction Hose $1\frac{1}{4}$                    | 1        |
|      | 18-116                          | Hose Clamp                                     | 2        |
| 49   | 16-156                          | Elbow $1\frac{1}{4}$ MPT x $1\frac{1}{4}$ HB   | 1        |
| 50†  | 16-194                          | Anti-Vortex Fitting $1\frac{1}{4}$             | 1        |
|      |                                 |  |          |
| *    | 16-852                          | 203 Spray Controller                           | 1        |
| †    | Comes with 110 Gallon Poly Tank |  |          |



## CONTROL 1006 (834) SYSTEM DRAWING



## CONTROL 1008 (440) SYSTEM DRAWING





## CONTROLS 1006 (834) SYSTEM PARTS LIST

| REF# | PART#   | DESCRIPTION                 | QUANTITY |
|------|---------|-----------------------------|----------|
| 1*   | 10-233  | 834 Console (only)          | 1        |
| 2    | 10-232  | Speed Sensor                | 1        |
| 3    | 10-152  | Left Spindle                | 1        |
| 4*   | 15-569  | Pressure Transducer         | 1        |
| 5    | 15-531  | Pressure Regulating Valve   | 1        |
| 6    | 15-552  | Manifold Ball Valve         | 1        |
| 7    | 10-286  | Power Cord                  | 1        |
| 8    | 33-271  | Fuse Block                  | 1        |
| 9    | 33-508  | Auto Blade Type Fuse 15 AMP | 2        |
| 10   | 33-509  | Master Boom Control         | 1        |
|      | 8851-72 | Brown Wire, 14Ga            | 2        |
|      | 8854    | Ring Terminal               | 2        |
|      | 8860    | String Connector            | 2        |
| 11   | 33-284  | Auto Blade Type Fuse 5 AMP  | 1        |
| 12   | 10-225  | Ball Valve Power Wire       | 1        |
| 13   | 10-266  | Speed Sensor Bracket        | 1        |
| *    | 10-227  | 834 Sprayer Control Kit     | 1        |

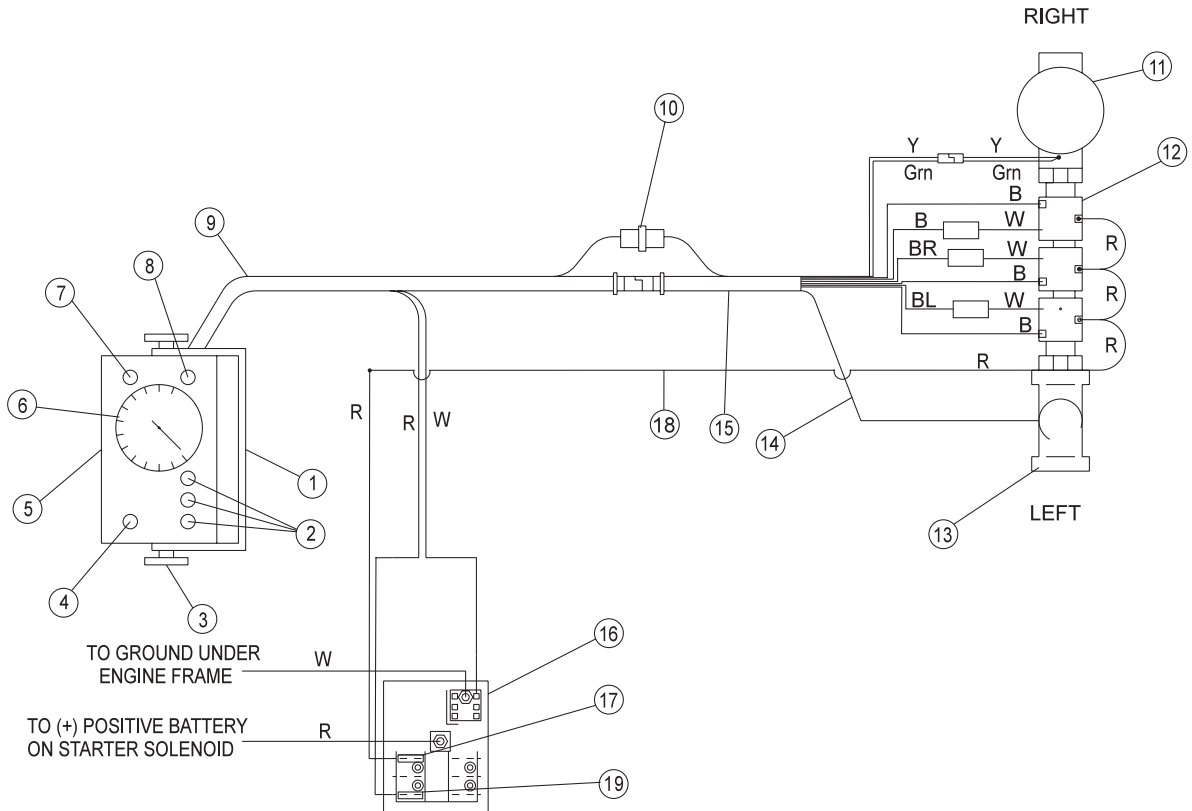
NOTE: White wire on manifold ball valve may be red/yellow  
Use dielectric grease on all electrical connections

## CONTROL 1008 (440) SYSTEM PARTS LIST

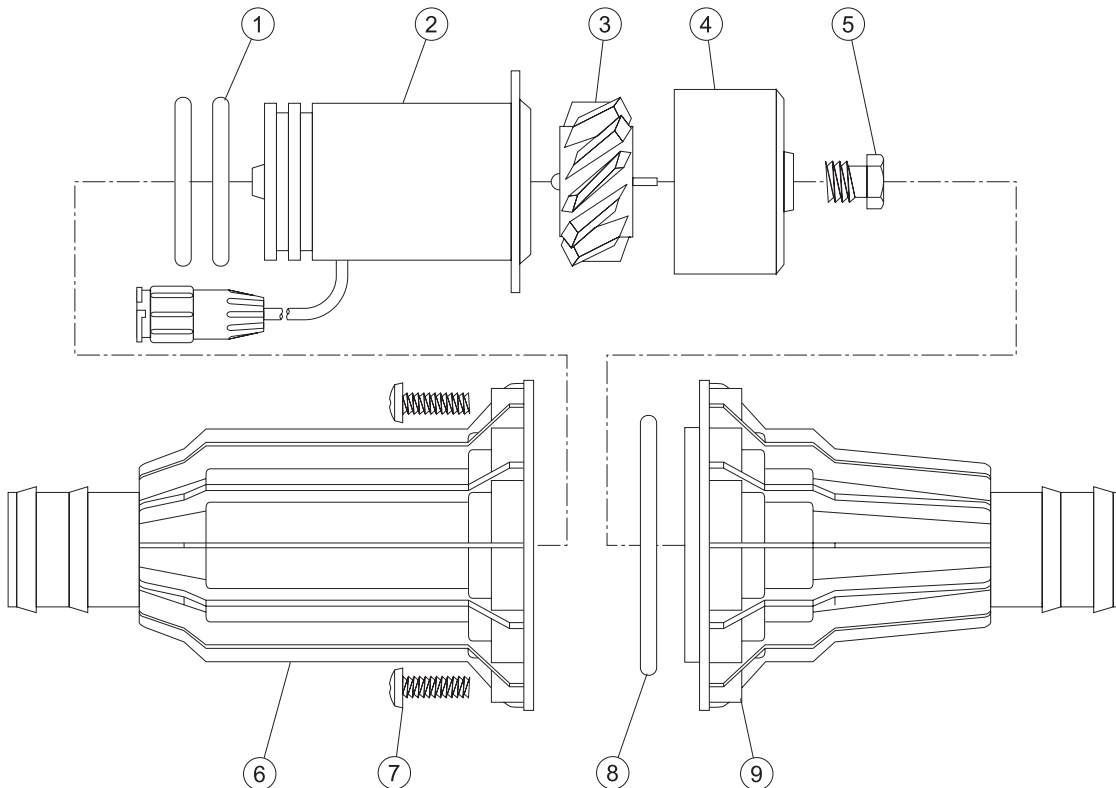
| REF# | PART#     | DESCRIPTION                                    | QUANTITY |
|------|-----------|--|----------|
| 1*   | 16-558    | Mounting Knob                                  | 2        |
| 2*   | 16-525    | Console (only)                                 | 1        |
| 3*   | 15-370-03 | Turret Assembly                                | 2        |
| 4*   | 10-252-01 | Speed Sensor Rod                               | 1        |
| 5    | HN-14-20  | Nut, 1/4 - 20                                  | 2        |
| 6    | HWL-14    | Lockwasher, 1/4                                | 2        |
| 7*   | 16-139    | Sensor Assembly                                | 1        |
| 8*   | 33-059-04 | Red Magnet Assembly                            | 2        |
|      | 33-059-05 | Black Magnet Assembly                          | 2        |
| 9    | 15-552    | Manifold Ball Valve                            | 1        |
| 10*  | 16-524    | Motorized Control Valve                        | 1        |
| 11*  | 33-089-01 | Console Control Cable                          | 1        |
| 12   | 33-271    | Fuse Block                                     | 1        |
| 13   | 10-237    | Mounting Bracket                               | 1        |
| 14*  | 16-456    | Flow Meter                                     | 1        |
| 15   | 33-284    | Auto Blade Type Fuse 5 amp                     | 1        |
| 16   | 10-225    | Ball Valve Power Wire                          | 1        |
| 17   | 33-508    | Auto Blade Type Fuse 15 AMP                    | 1        |
| 18   | 33-509    | Master Boom Control Switch                     | 1        |
| 19   | 8851-72   | 14GA Brown Wire                                | 2        |
|      | 8854      | Fork Terminal                                  | 2        |
|      | 8860      | String Connector                               | 2        |
|      | 8962      | Heat Shrink                                    | 4        |
| *    | 10-252    | 440 Sprayer Control Kit (includes all * items) |          |



## CONTROL 1002 (203) SYSTEM DRAWING



## 16-456 FLOW METER DRAWING





## CONTROL 1002 (203) SYSTEM PARTS LIST

| REF# | PART#     | DESCRIPTION                                 | QUANTITY |
|------|-----------|---|----------|
| 1    | 10-259    | Mounting Bracket                            | 1        |
| 2    | 16-898    | Boom Switch                                 | 3        |
| 3    | 16-900    | Mounting Knob                               | 2        |
| 4    | 16-899    | Master Switch                               | 1        |
| 5    | 16-958    | Console (only)                              | 1        |
| 6    | 33-090-02 | Liquid Filled Pressure Gauge                | 1        |
| 7    | 16-958-02 | Fuse Holder                                 | 1        |
|      | 16-525-03 | Fuse 15 AMP                                 | 1        |
| 8    | 16-895    | Pressure Switch                             | 1        |
| 9    | 16-958-04 | Cable Assembly 8ft Enclosure Hook-Up        | 1        |
| 10   | 16-958-05 | Union Fitting                               | 1        |
| 11   | 16-866    | Motorized Control Valve                     | 1        |
| 12   | 15-552    | Manifold Ball Valve                         | 1        |
| 13   | 16-183    | Tee FPT 1 x 1 x 1                           | 1        |
| 14   | 16-955    | Tubing                                      | 1        |
| 15   | 16-902    | Cable Assembly 72" Solenoid Hook-Up         | 1        |
| 16   | 33-271    | Fuse Block                                  | 1        |
| 17   | 33-284    | Auto Blade Type Fuse 5 amp                  | 1        |
| 18   | 10-225    | Wire Harness (fuse block to electric valve) | 1        |
| 19   | 33-508    | Auto Blade Type Fuse 15 Amp                 | 1        |

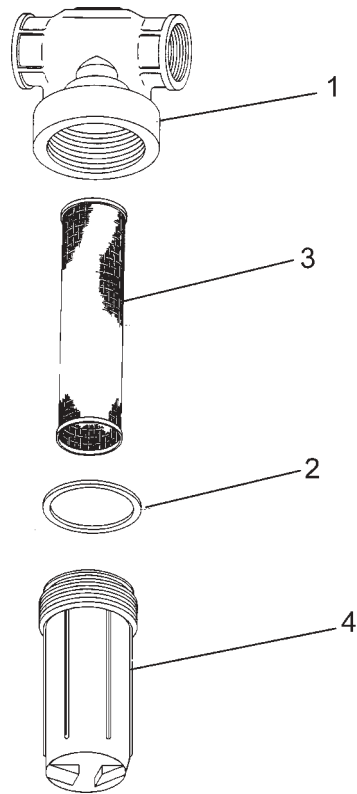
*Use Dielectric Grease On All Electrical Connections*

## 16-456 FLOWMETER PARTS LIST

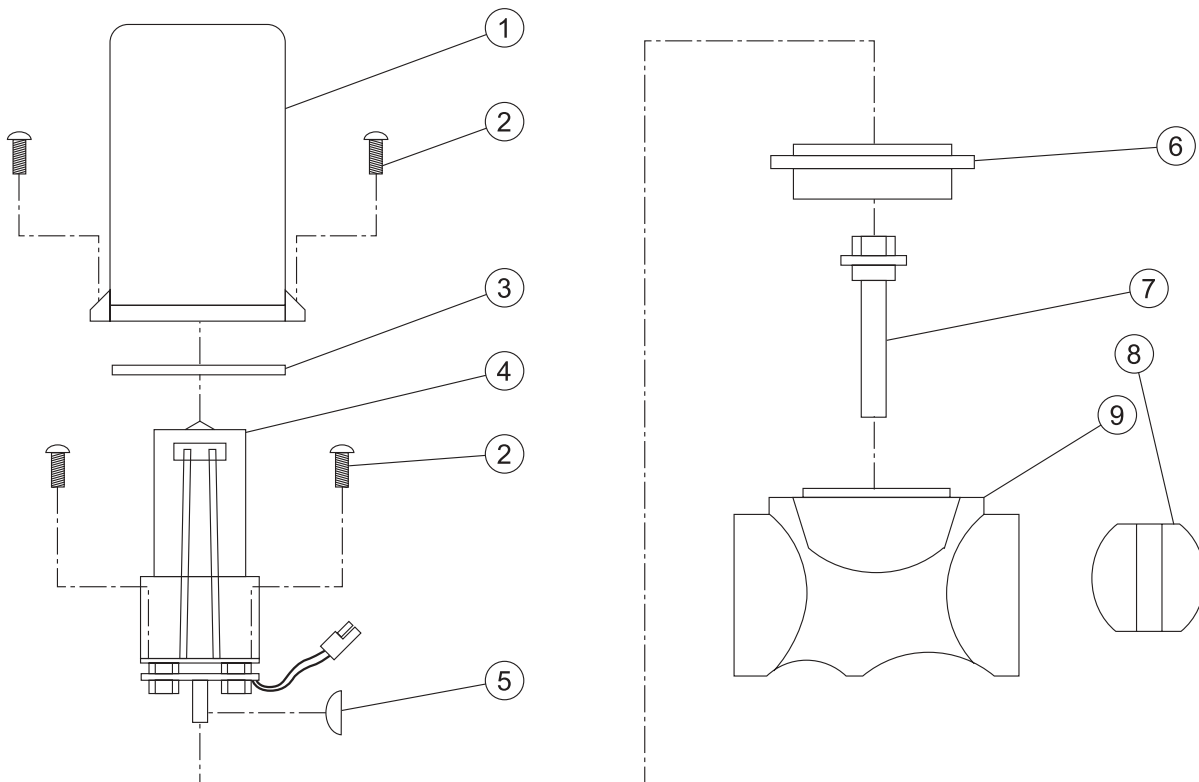
| REF# | PART#     | DESCRIPTION                        | QUANTITY |
|------|-----------|------------------------------------|----------|
| 1*   | 16-456-03 | O-Ring Viton                       | 2        |
| 2*   | 16-456-04 | RFM55 dual O-Ring XDCR assembly    | 1        |
| 3    | 16-456-05 | RFM55 turbine                      | 1        |
| 4    | 16-456-06 | Turbine hub/bearing assembly       | 1        |
| 5    | 16-143    | Turbine stud assembly              | 1        |
| 6    | 16-456-01 | Sensor housing                     | 1        |
| 7    | 16-456-02 | #10-32 x 3/4 stainless steel screw | 12       |
| 8    | 16-144    | O-Ring Viton                       | 1        |
| 9    | 16-456-07 | Hub housing with inserts           | 1        |
|      | 16-456-08 | Mounting bracket RFM 55            | 1        |
|      | 16-456-09 | Thread sealer                      | 1        |
| *    | 16-456-10 | O-Ring Transducer Kit              |          |



## 16-968 STRAINER DRAWING



## 16-524 AND 16-866 MOTORIZED CONTROL VALVE DRAWING





## 16-968 STRAINER PARTS LIST

| REF# | PART#     | DESCRIPTION                        | QUANTITY |
|------|-----------|------------------------------------|----------|
| 1    | 16-968-01 | Head 1 <sup>1</sup> / <sub>4</sub> | 1        |
| 2    | 16-968-02 | Gasket                             | 1        |
| 3    | 16-968-03 | Screen                             | 1        |
| 4    | 16-968-04 | Bowl                               | 1        |

## 16-524 AND 16-866 MOTORIZED CONTROL VALVE PARTS LIST

| REF# | PART#     | DESCRIPTION  | QUANTITY |
|------|-----------|--|----------|
| 1    | 16-870    | Valve Cover  | 1        |
| 2*   | 16-524-01 | #6 Self Tapping Screw <sup>3</sup> / <sub>4</sub> " Long | 6        |
| 3    | 16-897    | Seal Tetraseal   | 1        |
| 4*   | 16-875    | Motor Assembly (For 16-524 on 1602)                      | 1        |
| 4*   | 16-866-01 | Motor Assembly (For 16-866 on 1604)                      | 1        |
| 5*   | 16-957    | Woodruff Key   | 1        |
| 6    | 16-524-04 | Isolation Flange Assembly                                | 1        |
| 7    | 16-524-02 | Coupler Shaft  | 1        |
| 8*   | 16-956    | Butterfly  | 1        |
| 9*   | 16-524-03 | Valve Body Mod.  | 1        |
| *    | 16-524-05 | 1" Valve ISO-Body Kit                                    |          |

### WHEN SERVICING VALVE:

Replace valve body with iso-body kit (16-524-05) if valve has been leaking internally.

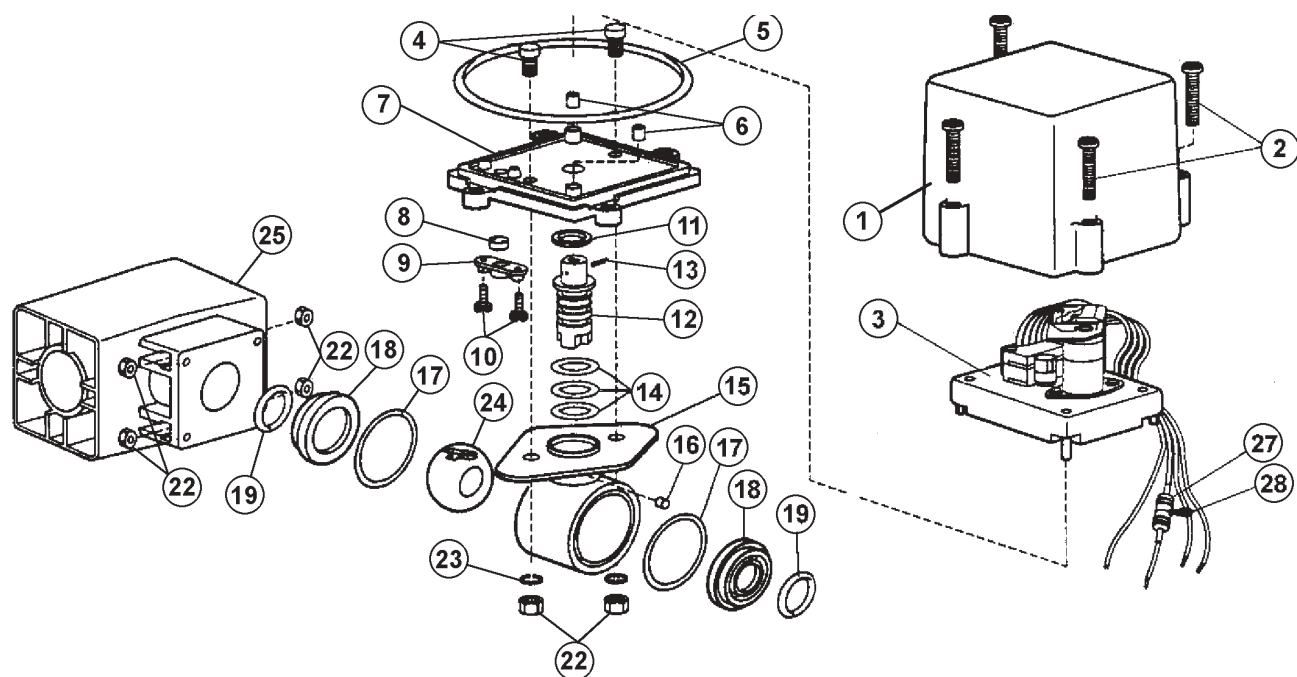
Replace motor assembly if the motor will not run or if the printed circuit board is corroded.

Before reassembling valve, remove the coupler shaft from the valve body. Apply Loctite to coupler shaft and woodruff key. Place the coupler shaft (Ref# 7) and the woodruff key (Ref# 5) onto the motor shaft. Plug motor into the valve connector coming from Sprayer Control Console. Check that the motor rotates in both directions. Motor must stop when coupler cam releases printed circuit board switch button.

When reassembling valve, grease both sealing surfaces of coupler shaft. Insert coupler shaft into Iso-flange and be sure seal properly seats on shaft. Install on valve body and apply RTV 738 to mounting holes. Reassemble remaining items as shown in parts diagram on opposite side.



15-552 MANIFOLD BALL VALVE (3 UNIT) DRAWING





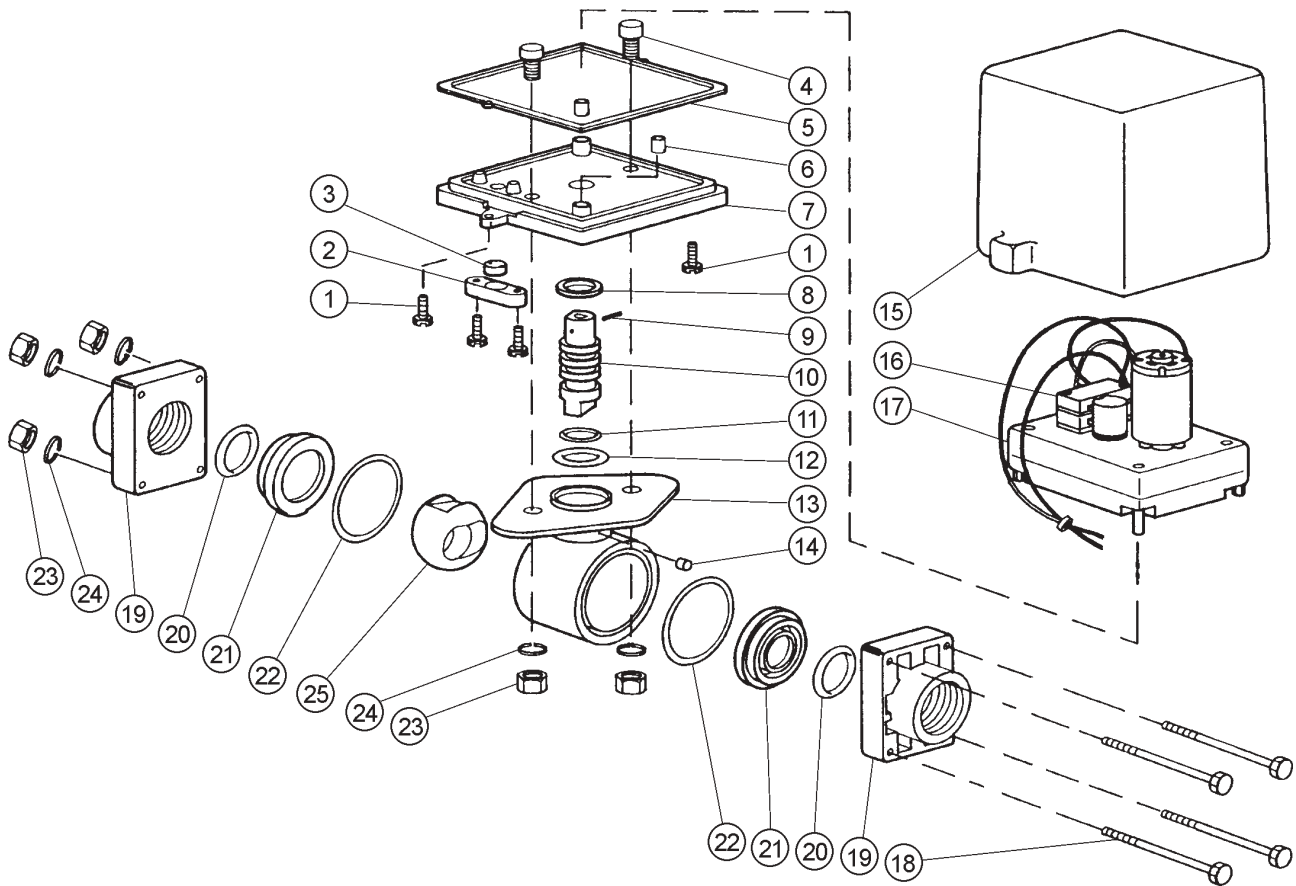
## 15-552 MANIFOLD BALL VALVE (3 UNIT) PARTS LIST

| REF# | PART#     | DESCRIPTION                                    | QUANTITY |
|------|-----------|--|----------|
| 1    | 15-531-06 | Polypropylene Cover                            | 1        |
| 2    | 15-552-12 | Stainless Steel Phillips/Square Pan Head Screw | 4        |
| 3    | 15-552-06 | Motor Sub Assembly                             | 1        |
| 4    | 15-517-04 | Stainless Steel Self Cinching Stud             | 2        |
| 5    | 15-552-03 | Cell Sponge Rubber Gasket                      | 1        |
| 6    | 15-517-06 | Neoprene Motor Mount                           | 2        |
| 7    | 15-517-07 | Nylon Mounting Plate                           | 1        |
| 8    | 15-552-02 | EPDM Rubber Grommet                            | 1        |
| 9    | 15-517-09 | Polypropylene Grommet Retainer                 | 1        |
| 10   | 15-517-10 | Stainless Steel Slotted Hex Washer Screw       | 2        |
| 11*  | 15-517-11 | Teflon Thrust Washer                           | 1        |
| 12*  | 15-552-04 | Nylon Ball Valve Stem                          | 1        |
| 13   | 15-517-13 | Stainless Steel Spring Pin                     | 1        |
| 14*  | 15-552-05 | Teflon Coated Viton O-ring                     | 1        |
| 15   | 15-517-16 | Nylon Body                                     | 1        |
| 16*  | 15-517-17 | Dense Felt Dust Plug                           | 1        |
| 17*  | 15-552-13 | Viton Gasket                                   | 2        |
| 18*  | 15-517-19 | Carbon Filled Teflon Seal                      | 2        |
| 19*  | 15-517-20 | Viton O-ring                                   | 2        |
| 20   | 15-552-08 | Nylon End Cap                                  | 1        |
| 21   | 15-517-22 | Stainless Steel Hex Head Cap Screw             | 4        |
| 22   | 15-517-23 | Stainless Steel Hex Nut                        | 6        |
| 23   | 15-517-24 | Stainless Steel Lockwasher                     | 2        |
| 24*  | 15-552-09 | Polypropylene Ball                             | 1        |
| 25   | 15-552-11 | Manifold Body, Nylon                           | 1        |
| 27   | 15-517-31 | Fuse Holder                                    | 1        |
| 28   | 15-517-32 | Glass Fuse                                     | 1        |
| 29   | 15-552-07 | Steel Mounting Bracket                         | 2        |
| .    | 15-552-10 | Spare Parts Kit                                |          |
|      | 15-552-01 | Single Unit                                    |          |

*Comes with three 15-553 3/4 - 90° Hose Barbs*



## 15-531 CONTROL VALVE DRAWING



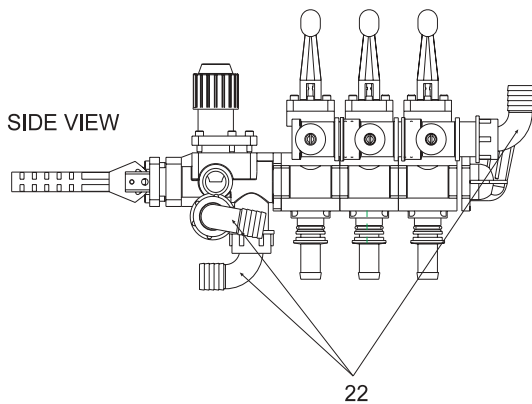
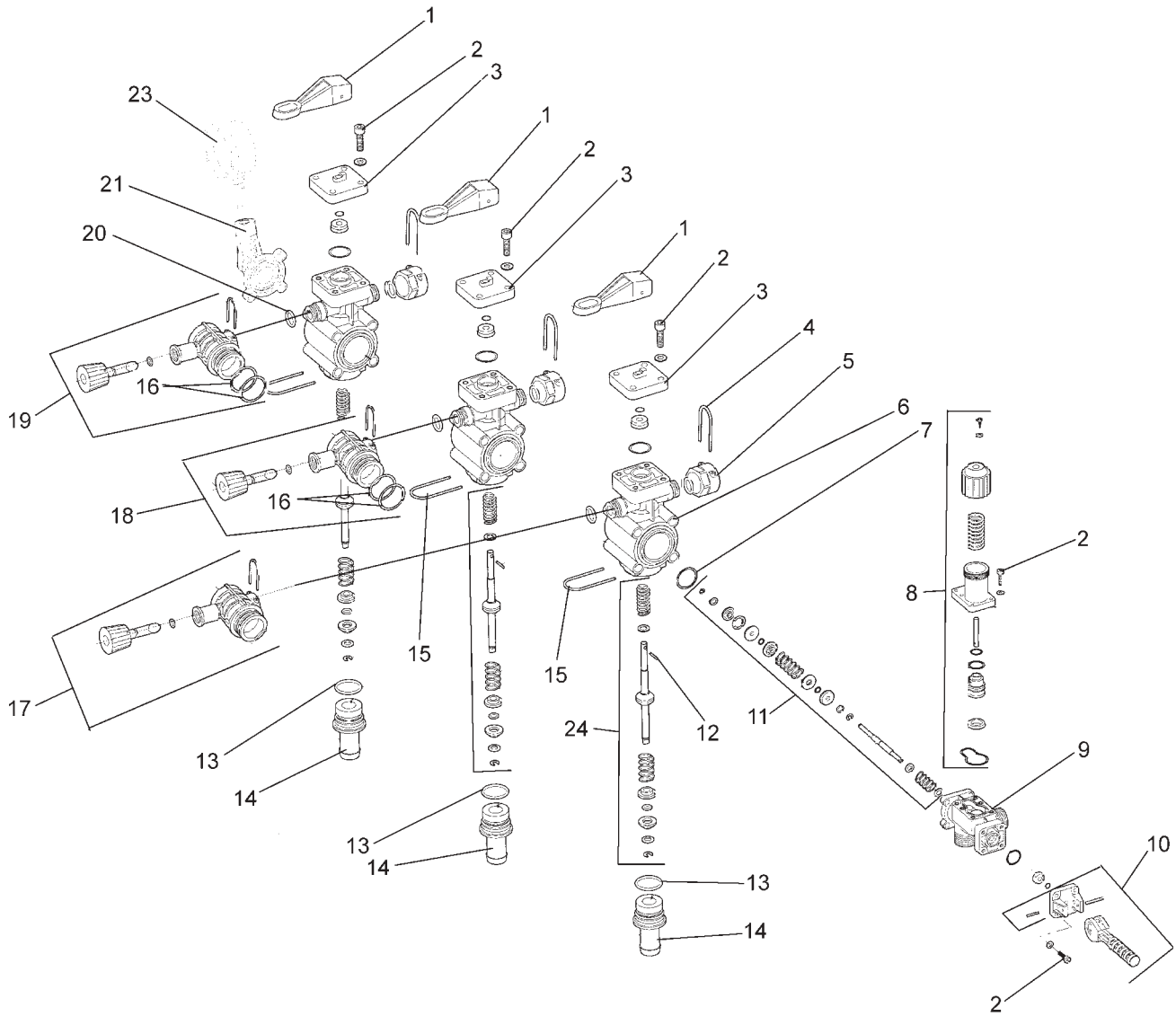


## 15-531 CONTROL VALVE PARTS LIST

| REF# | PART#     | DESCRIPTION                              | QUANTITY |
|------|-----------|--|----------|
| 1    | 15-517-10 | Stainless Steel Slotted Hex Washer Screw | 4        |
| 2    | 15-517-09 | Polypropylene Grommet Retainer           | 1        |
| 3    | 15-517-08 | EPDM Rubber Grommet                      | 1        |
| 4    | 15-517-04 | Stainless Steel Self Cinching Stud       | 2        |
| 5    | 15-517-05 | Cell Sponge Rubber Gasket                | 1        |
| 6    | 15-517-06 | Neoprene Motor Mount                     | 2        |
| 7    | 15-517-07 | Nylon Mounting Plate                     | 1        |
| 8*   | 15-517-11 | Teflon Thrust Washer                     | 1        |
| 9    | 15-517-13 | Stainless Steel Spring Pin               | 1        |
| 10*  | 15-531-04 | Nylon Ball Valve Stem                    | 1        |
| 11*  | 15-517-14 | Viton O-ring                             | 1        |
| 12*  | 15-517-15 | Teflon Coated Viton O-ring               | 1        |
| 13   | 15-517-16 | Nylon Body                               | 1        |
| 14*  | 15-517-17 | Dense Felt Dust Plug                     | 1        |
| 15   | 15-531-06 | Polypropylene Cover                      | 1        |
| 16   | 15-517-26 | Phenolic Limit Switch                    | 1        |
| 17   | 15-531-05 | Motor Sub Assembly                       | 1        |
| 18   | 15-517-22 | Stainless Steel Hex Head Cap Screw       | 4        |
| 19   | 15-531-03 | Nylon End Cap                            | 2        |
| 20*  | 15-517-20 | Viton O-ring                             | 2        |
| 21*  | 15-517-19 | Carbon Filled Teflon Seal                | 2        |
| 22*  | 15-517-18 | Viton O-ring                             | 2        |
| 23   | 15-517-23 | Stainless Steel Hex Nut                  | 6        |
| 24   | 15-517-24 | Stainless Steel Lockwasher               | 6        |
| 25*  | 15-531-02 | Polypropylene Ball                       | 1        |
| *    | 15-531-01 | Spare Parts Kit                          |          |



# 10-268 3-WAY MANUAL VALVE DRAWING



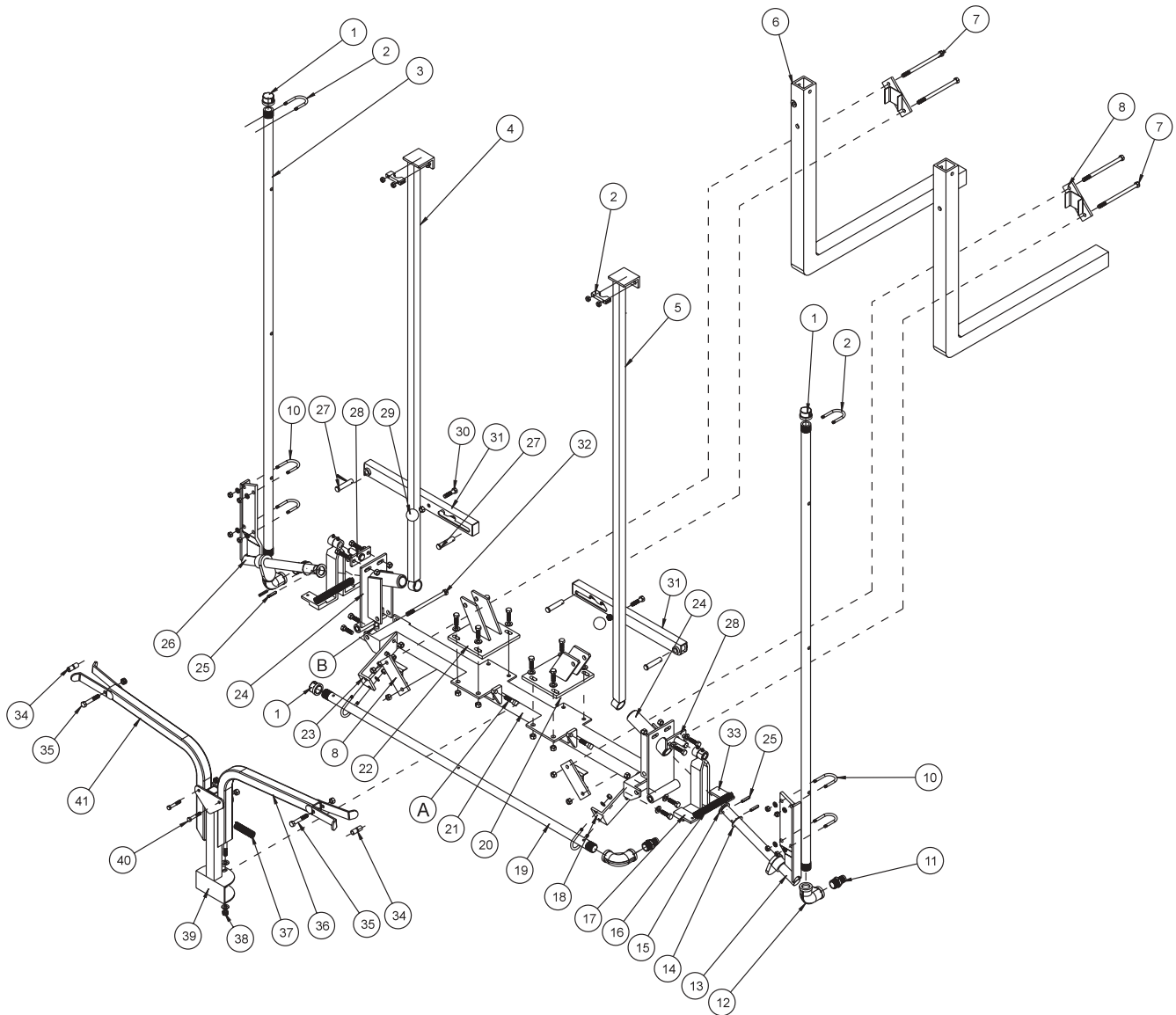


## 10-268 3-WAY MANUAL VALVE PARTS LIST

| REF#      | PART#     | DESCRIPTION                                    | QUANTITY   |
|-----------|-----------|--|------------|
| 1         | 10-268-07 | Boom Lever                                     | 3          |
| 2         | 10-268-16 | Bolt and Washer                                | 22         |
| 3         | 10-268-17 | Boom Lever Plate                               | 3          |
| 4         | 10-268-06 | Spring Clip <sup>5</sup> / <sub>8</sub>        | 6          |
| 5         | 10-268-05 | Cap  | 3          |
|           | 10-268-21 | O-Ring (included with 10-268-19 Seal Kit)      | 3          |
| 6         | 10-268-02 | Main Body                                      | 3          |
|           | 10-268-19 | Seal Kit                                       | 1 per body |
| 7         | 10-268-24 | O-Ring for Main Body                           | 3          |
| 8         | 10-268-08 | Main Pressure Adjust                           | 1          |
|           | 10-268-20 | Seal Kit                                       | 1          |
| 9         | 10-268-10 | Pressure Adjust Body                           | 1          |
| 10        | 10-268-09 | Main Boom Lever                                | 1          |
| 11        | 10-268-18 | Master Boom Lever Guts                         | 1          |
| 12        | 10-268-25 | Boom Lever Pin                                 | 3          |
| 13        | 10-268-22 | O-Ring (included with 10-268-19 Seal Kit)      | 3          |
| 14        | 10-268-03 | Hose Barb <sup>3</sup> / <sub>4</sub>          | 3          |
| 15        | 10-268-04 | Spring Clip <sup>7</sup> / <sub>8</sub>        | 3          |
| 16        | 10-268-23 | O-Ring (included with 10-268-12 and 10-268-14) | 4          |
| 17        | 10-268-11 | Boom Pressure Adjust (threaded end)            | 1          |
| 18        | 10-268-12 | Boom Pressure Adjust (middle)                  | 1          |
| 19        | 10-268-14 | Boom Pressure Adjust (capped)                  | 1          |
| 20        | 10-268-21 | O-Ring   | 3          |
| 21        | 10-268-01 | Gage Elbow                                     | 1          |
| 22        | 10-268-13 | Elbow 90° 1" Hose Barb w/ Nut                  | 3          |
| 23        | 16-281    | Liquid Filled Gauge (not part of 10-268)       | 1          |
| 24        | 10-268-26 | Boom Lever Guts                                | 3          |
| Not Shown | 10-268-15 | Tie Rod with Nuts and Washer                   | 4          |



# 10-160 STAINLESS STEEL 15' MANUAL BOOM DRAWING



Accessories



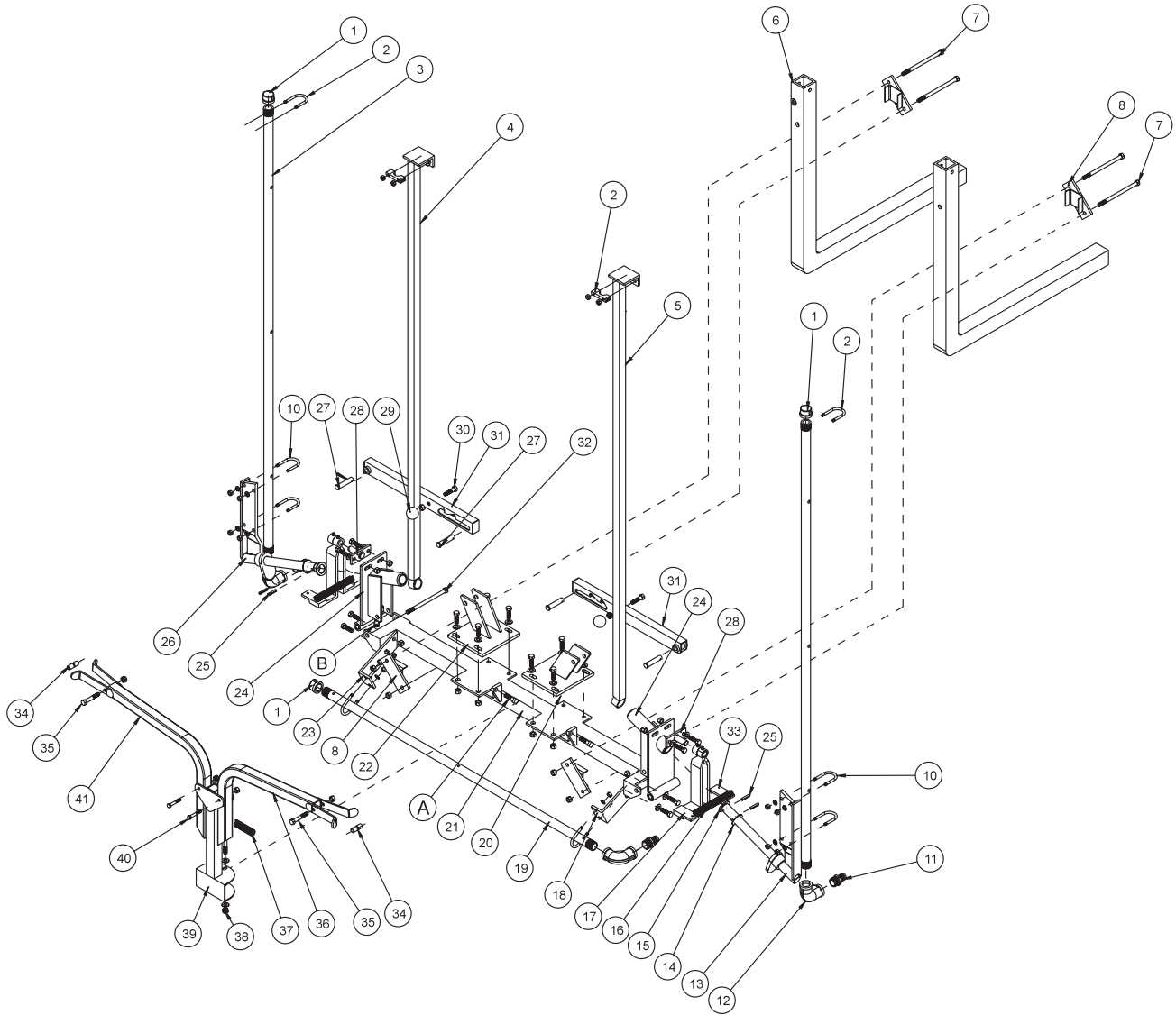
# 10-160 STAINLESS STEEL 15' MANUAL BOOM PARTS LIST

| REF# | PART#           | DESCRIPTION  | QUANTITY |
|------|-----------------|--|----------|
| 1    | 16-926          | Stainless Steel Cap $\frac{3}{4}$  | 3        |
| 2    | 13-498          | U-Bolt Kit $1\frac{1}{8}$  | 2        |
| 3    | 15-562          | Right and Left Boom Tube   | 2        |
| 4    | 15-565          | Left Brush Guard   | 1        |
| 5    | 15-564          | Right Brush Guard  | 1        |
| 6    |                 | Boom Carrier (part of the truck)   |          |
| 7    | HBS-38-16-550   | Stainless Steel Bolt $\frac{3}{8}$ - 16 x $5\frac{1}{2}$                       | 4        |
|      | HNTL-38-16      | Lock Nut $\frac{3}{8}$ - 16  | 4        |
| 8    | 16-761          | Boom Brackets  | 4        |
| 10   | 16-024          | U-Bolt $\frac{5}{16}$ - 24   | 6        |
|      | HWS-516         | Stainless Steel Washer $\frac{5}{16}$  | 12       |
|      | HNS-516-24      | Stainless Steel Nut $\frac{5}{16}$ - 24  | 12       |
| 11   | 18-249          | Barb Fitting   | 3        |
|      | 18-040          | Hose Clamp   | 3        |
| 12   | 16-925          | Stainless Steel Pipe Elbow $\frac{3}{4}$ x 90°                                 | 3        |
| 13   | 33-301          | Right Pivot Bracket  | 1        |
| 14   | HMBS-100-14     | Stainless Steel Machine Bushing 1 x 14GA                                       | 4        |
| 15   | HMBS-100-10     | Stainless Steel Machine Bushing 1 x 10GA                                       | 2        |
| 16   | 15-495          | Extension Spring   | 2        |
| 17   | 33-306          | Right Cam Stop (must also order 33-307)  | 2        |
|      | 18-268          | Oilite Bushing   | 2        |
| 18   | 33-308          | Right, Center Tube Bracket   | 1        |
|      | HBS-38-16-125   | Stainless Steel Bolt $\frac{3}{8}$ - 16 x $1\frac{1}{4}$                       | 2        |
|      | HWS-38          | Stainless Steel Washer $\frac{3}{8}$   | 2        |
|      | HNTL-38-16      | Lock Nut $\frac{3}{8}$ - 16  | 2        |
| 19   | 16-927          | Center Tube  | 1        |
| 20   | 33-330          | Right Actuator Bracket   | 1        |
|      | HBS-38-16-125   | Stainless Steel Bolt $\frac{3}{8}$ - 16 x $1\frac{1}{4}$                       | 4        |
|      | HWS-38          | Stainless Steel Washer $\frac{3}{8}$   | 4        |
|      | HNTL-38-16      | Lock Nut $\frac{3}{8}$ - 16  | 4        |
| 21   | 33-329          | Center Mount   | 1        |
| A    | HSSQS-38-16-150 | Stainless Steel Set Screw $\frac{3}{8}$ - 16 x $1\frac{1}{2}$ (part of 33-329) | 2        |
| 22   | 33-331          | Left Actuator Bracket  | 1        |
|      | HB-38-16-125    | Bolt $\frac{3}{8}$ - 16 x $1\frac{1}{4}$                                       | 4        |
|      | HW-38           | Washer $\frac{3}{8}$   | 4        |
|      | HNTL-38-16      | Lock Nut $\frac{3}{8}$ - 16  | 4        |
| 23   | 33-309          | Left Center Tube Bracket   | 1        |
|      | HBS-38-16-125   | Stainless Steel Bolt $\frac{3}{8}$ - 16 x $1\frac{1}{4}$                       | 2        |
|      | HWS-38          | Stainless Steel Washer $\frac{3}{8}$   | 2        |
|      | HNTL-38-16      | Lock Nut $\frac{3}{8}$ - 16  | 2        |
| 24   | 33-295          | Pivot Bracket  | 2        |
|      | 15-494          | Nylon Flange Bushing   | 4        |
|      | 18-036          | Oilite Bushing   | 4        |
| B    | HSSQS-38-16-150 | Stainless Steel Set Screw $\frac{3}{8}$ - 16 x $1\frac{1}{2}$ (part of 33-295) | 2        |
|      | HNS-38-16       | Stainless Steel Nut $\frac{3}{8}$ - 16 (part of 33-295)                        | 2        |
| 25   | HRPS-14-150     | Stainless Steel Roll Pin $\frac{1}{4}$ x $1\frac{1}{2}$                        | 4        |
| 26   | 33-302          | Left Pivot Bracket   | 1        |
| 27   | HCPS-12-225     | Stainless Steel Clevis Pin $\frac{1}{2}$ x $2\frac{1}{4}$                      | 4        |
|      | HPS-18-100      | Stainless Steel Cotter Pin $\frac{1}{8}$ x 1                                   | 4        |
| 28   | 33-305          | Pivot  | 2        |
|      | HMBS-58-14      | Stainless Steel Machine Bushing $\frac{5}{8}$ x 14GA                           | 8        |
|      | HPS-18-100      | Cotter Pin $\frac{1}{8}$ x 1   | 2        |
|      | HBS-38-16-125   | Stainless Steel Bolt $\frac{3}{8}$ - 16 x $1\frac{1}{4}$                       | 4        |
|      | HWS-38          | Stainless Steel Washer $\frac{3}{8}$   | 4        |
|      | HNTL-38-16      | Lock Nut $\frac{3}{8}$ - 16  | 4        |

(Continued on next page)



# 10-160 STAINLESS STEEL 15' MANUAL BOOM DRAWING (CONTINUED)



Accessories



## 10-160 STAINLESS STEEL 15' MANUAL BOOM PARTS LIST (CONTINUED)

| REF# | PART#         | DESCRIPTION   | QUANTITY |
|------|---------------|---|----------|
| 29   | 15-014        | Shift Knob  | 2        |
| 30   | HB-38-16-175  | Bolt $\frac{3}{8}$ - 16 x $1\frac{3}{4}$                    | 2        |
|      | HN-38-16      | Nut $\frac{3}{8}$ - 16                                      | 2        |
| 31   | 15-561        | Boom Lift   | 2        |
| 32   | HBS-12-13-550 | Stainless Steel Bolt $\frac{1}{2}$ - 13 x $5\frac{1}{2}$    | 2        |
|      | HNTL-12-13    | Lock Nut $\frac{1}{2}$ - 13                                 | 2        |
| 33   | 33-307        | Left Cam Stop (must also order 33-306)                      | 2        |
|      | 18-268        | Oilite Bushing  | 2        |
| 34   | 18-289        | Bushing $\frac{3}{8}$ ID - $\frac{1}{2}$ OD x $\frac{5}{8}$ | 4        |
| 35   | HB-38-16-225  | Bolt $\frac{3}{8}$ - 16 x $2\frac{1}{4}$                    | 2        |
|      | HNTL-38-16    | Lock Nut $\frac{3}{8}$ - 16                                 | 2        |
| 36   | 10-247        | Right Boom Stabilizer                                       | 1        |
| 37   | 21-212        | Extension Spring  | 1        |
| 38   | HB-38-16-300  | Bolt $\frac{3}{8}$ - 16 x 3                                 | 1        |
|      | HW-38         | Washer $\frac{3}{8}$  | 2        |
|      | HNTL-38-16    | Lock Nut $\frac{3}{8}$ - 16                                 | 1        |
| 39   | 10-162        | Boom Support  | 1        |
| 40   | HB-516-18-225 | Bolt $\frac{5}{16}$ - 18 x $2\frac{1}{4}$                   | 2        |
|      | HNTL-516-18   | Lock Nut $\frac{5}{16}$ - 18                                | 2        |
| 41   | 10-246        | Left Boom Stabilizer  | 1        |

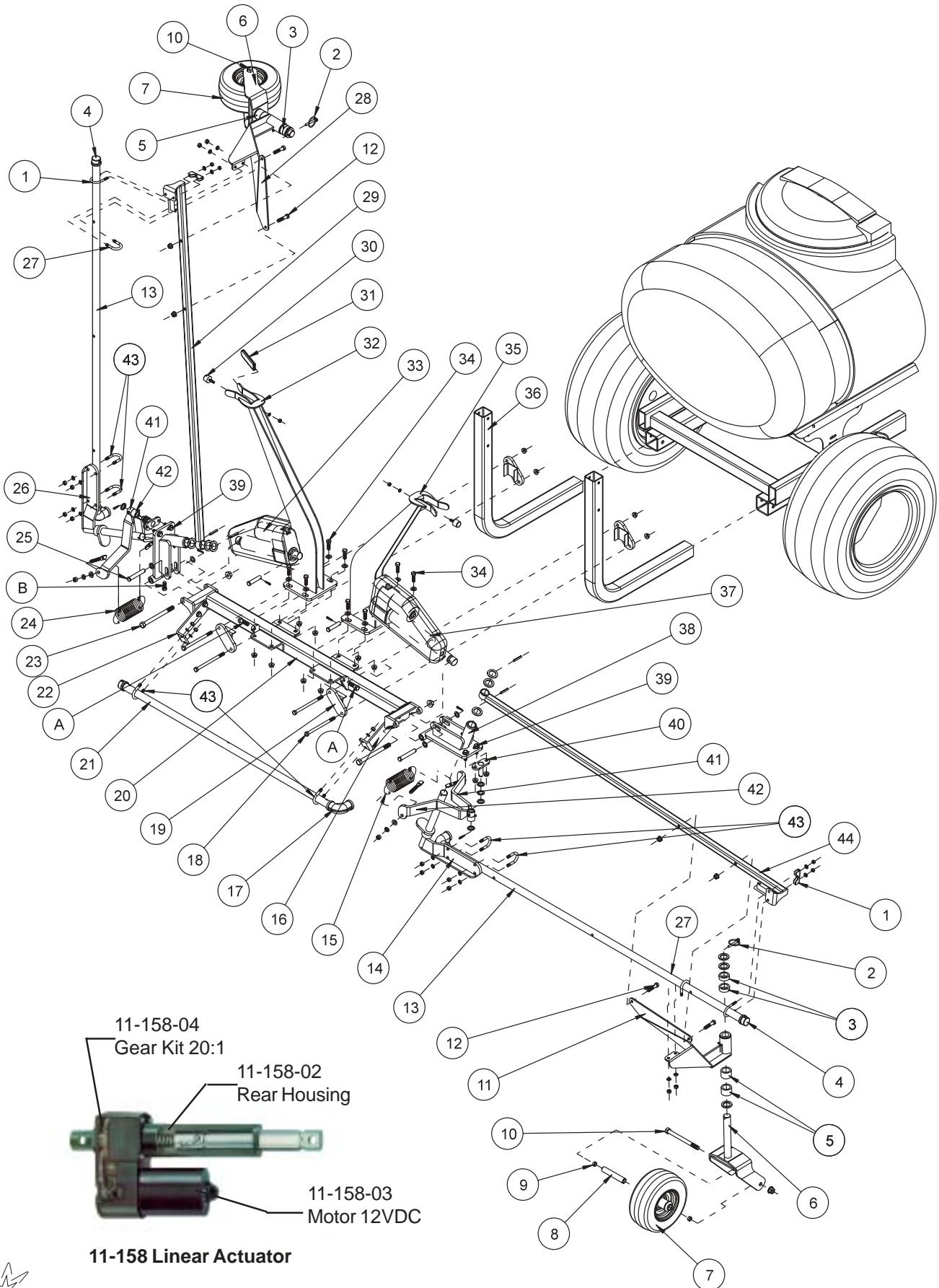
## INSTALLATION INSTRUCTIONS

For best result use Teflon® tape on all fittings.

1. The three boom assemblies are not on the packing list but are in the carton. The long boom assemblies are the right and left booms. The labels are located on the pivot brackets (Ref 13 and 26). The small boom assembly is the center boom. You can NOT order these boom assemblies as one unit. Please refer to parts drawing for individual parts.
2. Mount small boom assembly to the boom carriers on sprayer using four boom brackets (Ref 8), four bolts,  $\frac{3}{8}$  - 16 x  $5\frac{1}{2}$  and four lock nuts,  $\frac{3}{8}$  - 16 (Ref 7). One boom bracket should go on boom assembly and one on boom carrier. Do the same for right and left side. Place boom at desired level (approximately 20" (51 cm) nozzle height) and center. Tighten bolts.
3. Put the actuator brackets (Ref 20 and 22) on the center mount (Ref 21) using  $\frac{3}{8}$  - 16 x  $1\frac{1}{4}$  bolts, washers and lock nuts, with washers next to the slots. Snug up the bolts so that you can adjust actuator brackets with the set screws (Ref A) on the center mount after booms have been mounted.
4. Take right boom and slide pivot bracket (Ref 24) in center mount (Ref 21) and hold in place with  $\frac{1}{2}$  - 13 x  $5\frac{1}{2}$  bolt and  $\frac{1}{2}$  - 13 center lock nut (Ref 32). Do not over tighten, boom must be able to move up and down. Repeat for left boom.
5. Install boom lifts (Ref 31) using clevis pin and cotter pin (Ref 27) so the bushing end hooks to the pivot bracket (Ref 24) and the slotted end hooks to the actuator bracket (Ref 20 and 22).
6. Hook hoses to respective fittings using hose clamps (18-040). The hose coming from right side of sprayer goes to straight fitting on right boom. Center hose from sprayer goes to straight fitting on center boom. The left hose from sprayer goes to straight fitting on left boom. Be sure all clamps are tight.
7. Use the adjustment slots on the boom lifts to completely lift and lower booms.
8. Using set screws (Ref A) adjust actuator brackets so nozzles of booms are at same height with nozzles of center section. Tighten bolts holding actuator brackets to center mount and locknuts on set screws.
9. Rubber boom carrier and latch are located on the horizontal boom support on top of tank.
10. Put the viton gaskets (16-800), Raindrop tips (16-805) and quick TeeJet caps (16-921) on nozzle bodies (16-920) on the three boom sections.
11. Make certain set screws (B) on both sides are completely screwed in and locked with the lock nut.



# 10-301 15' TERRAIN FOLLOWING BOOM DRAWING





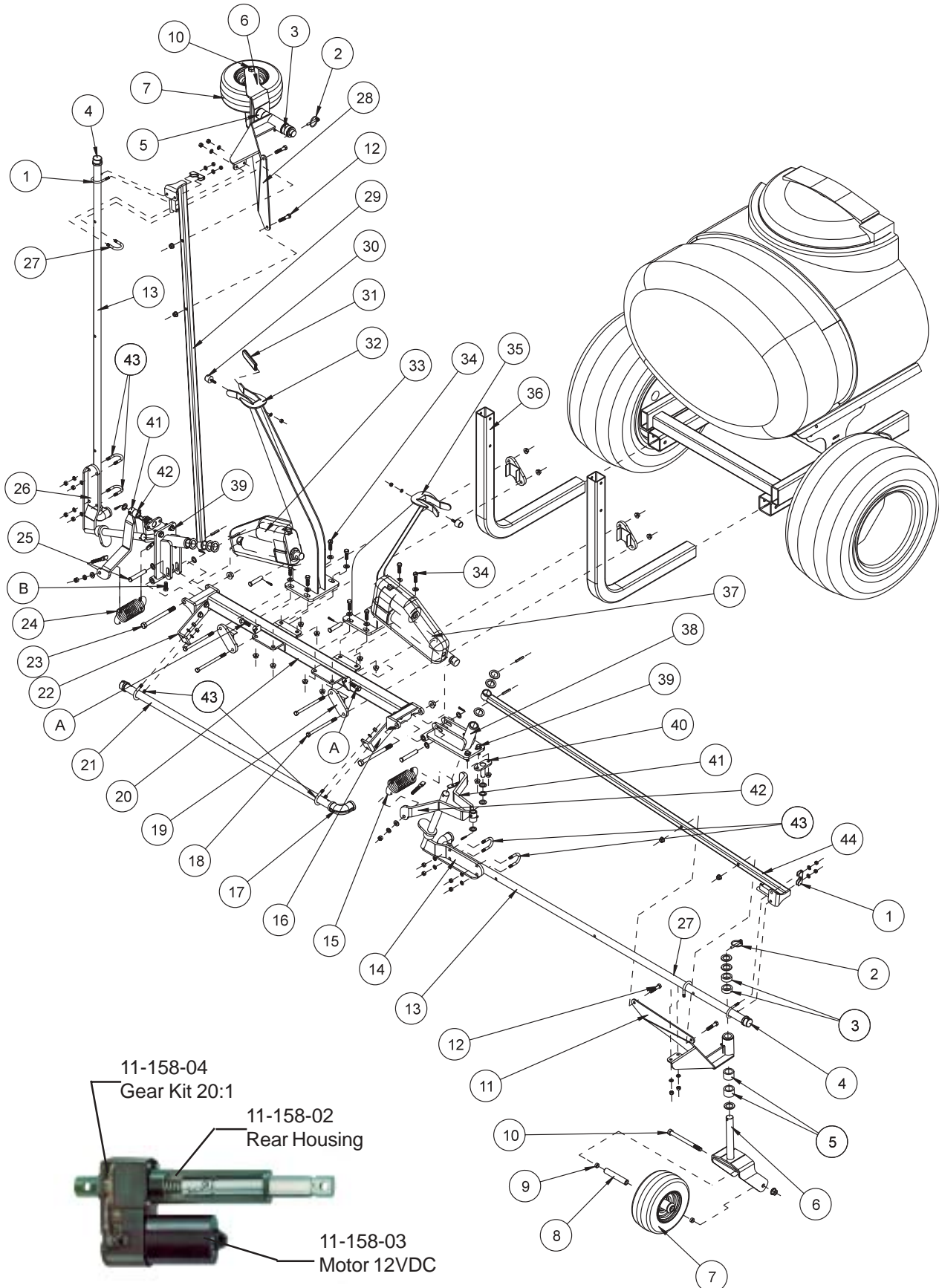
# 10-301 15' TERRAIN FOLLOWING BOOM PARTS LIST

| REF# | PART#           | DESCRIPTION   | QUANTITY |
|------|-----------------|---|----------|
| 1    | 13-498          | Muffler Clamp 1 <sup>1</sup> / <sub>8</sub>   | 2        |
|      | HWL-516         | Lockwasher 5 <sup>5</sup> / <sub>16</sub>   | 4        |
|      | HN-516-18       | Nut 5 <sup>5</sup> / <sub>16</sub> - 18 (part of 13-498)  | 4        |
| 2    | 42-539          | Lynch Pin 1 <sup>1</sup> / <sub>4</sub>   | 2        |
| 3    | 29-584          | 1 <sup>1</sup> / <sub>2</sub> " Spacer  | 4        |
| 4    | 16-926          | Stainless Steel Cap   | 3        |
| 5    | 29-585          | 1" Spacer   | 4        |
| 6    | 10-312          | Castor Fork   | 2        |
|      | HMB-100-10      | Machine Bushing 1 x 10GA (3 per fork)   | 6        |
| 7    | 42-202          | Tire and Wheel  | 2        |
|      | 42-202-01       | Tire  | 2        |
|      | 42-202-02       | Wheel   | 2        |
| 8    | 42-213          | Axle Bearing  | 2        |
| 9    | 42-212          | Castor Wheel Spacer   | 4        |
| 10   | HBS-12-13-600   | Stainless Steel Bolt 1 <sup>1</sup> / <sub>2</sub> - 13 x 6   | 2        |
|      | HNTL-12-13      | Lock Nut 1 <sup>1</sup> / <sub>2</sub> - 13   | 2        |
| 11   | 10-310          | Right Castor Wheel Bracket  | 1        |
|      | 18-035          | Bushing (part of 10-310)  | 2        |
|      | HG-14-28-180    | Grease Fitting 1 <sup>1</sup> / <sub>4</sub> - 28 x 180° (part of 10-310)                                     | 1        |
| 12   | HBS-38-16-175   | Stainless Steel Bolt 3 <sup>3</sup> / <sub>8</sub> - 16 x 1 <sup>3</sup> / <sub>4</sub>                       | 4        |
|      | HNTL-38-16      | Lock Nut 3 <sup>3</sup> / <sub>8</sub> - 16   | 4        |
| 13   | 15-562          | Right and Left Tube   | 2        |
| 14   | 33-301          | Right Pivot Bracket   | 1        |
|      | HMBS-100-10     | Stainless Steel Machine Bushing 1 x 10GA  | 1        |
|      | HMBS-100-14     | Stainless Steel Machine Bushing 1 x 14GA  | 2        |
|      | HRPS-14-150     | Stainless Steel Roll Pin 1 <sup>1</sup> / <sub>4</sub> x 1 <sup>1</sup> / <sub>2</sub>                        | 2        |
| 15   | 42-537          | Spade Bolt 3 <sup>3</sup> / <sub>8</sub> - 16   | 4        |
|      | HW-38           | Washer 3 <sup>3</sup> / <sub>8</sub>  | 4        |
|      | HWL-38          | Lockwasher 3 <sup>3</sup> / <sub>8</sub>  | 4        |
|      | HN-38-16        | Nut 3 <sup>3</sup> / <sub>8</sub> - 16  | 4        |
| 16   | 33-308          | Right Center Tube Mount   | 1        |
|      | HBS-38-16-125   | Stainless Steel Bolt 3 <sup>3</sup> / <sub>8</sub> - 16 x 1 <sup>1</sup> / <sub>4</sub>                       | 2        |
|      | HWS-38          | Stainless Steel Washer 3 <sup>3</sup> / <sub>8</sub>  | 2        |
|      | HNTL-38-16      | Lock Nut 3 <sup>3</sup> / <sub>8</sub> - 16   | 2        |
| 17   | 16-925          | Stainless Steel Pipe Elbow 3 <sup>3</sup> / <sub>4</sub> x 90°  | 3        |
|      | 18-249          | Barb Fitting  | 3        |
|      | 18-040          | Hose Clamp HS-12  | 3        |
| 18   | HBS-38-16-550   | Stainless Steel Bolt 3 <sup>3</sup> / <sub>8</sub> - 16 x 5 <sup>1</sup> / <sub>2</sub>                       | 4        |
|      | HNTL-38-16      | Lock Nut 3 <sup>3</sup> / <sub>8</sub> - 16   | 4        |
| 19   | 10-304          | Boom Bracket  | 4        |
| 20   | 10-305          | Center Boom Mount   | 1        |
| 21   | 16-927          | Center Tube   | 1        |
| A    | HSSQS-38-16-150 | Stainless Steel Set Screw 3 <sup>3</sup> / <sub>8</sub> - 16 x 1 <sup>1</sup> / <sub>2</sub> (part of 10-305) | 2        |
|      | HNS-38-16       | Stainless Steel Nut 3 <sup>3</sup> / <sub>8</sub> - 16 (part of 10-305)                                       | 2        |
| 22   | 33-309          | Left Center Tube Mount  | 1        |
|      | HBS-38-16-125   | Stainless Steel Bolt 3 <sup>3</sup> / <sub>8</sub> - 16 x 1 <sup>1</sup> / <sub>4</sub>                       | 2        |
|      | HWS-38          | Stainless Steel Washer 3 <sup>3</sup> / <sub>8</sub>  | 2        |
|      | HNTL-38-16      | Lock Nut 3 <sup>3</sup> / <sub>8</sub> - 16   | 2        |
| 23   | HBS-12-13-550   | Stainless Steel Bolt 1 <sup>1</sup> / <sub>2</sub> - 13 x 5 <sup>1</sup> / <sub>2</sub>                       | 2        |
|      | HNTL-12-13      | Lock Nut 1 <sup>1</sup> / <sub>2</sub> - 13   | 2        |
| 24   | 10-313          | Extension Spring  | 2        |

(Continue on Next Page)



# 10-301 15' TERRAIN FOLLOWING BOOM DRAWING



**11-158 Linear Actuator**

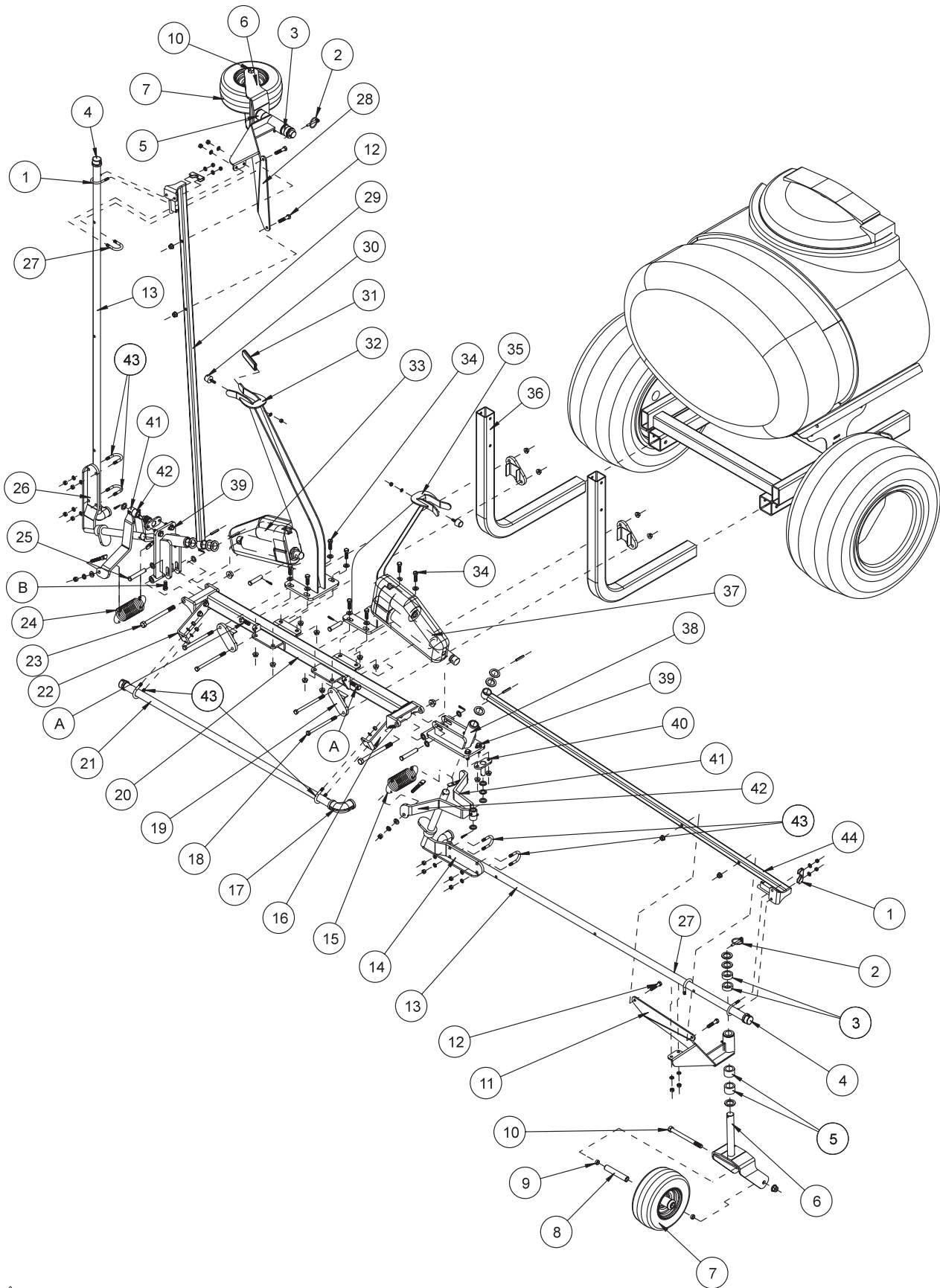


# 10-301 15' TERRAIN FOLLOWING BOOM PARTS LIST

| REF# | PART#           | DESCRIPTION   | QUANTITY |
|------|-----------------|---|----------|
| 25   | HCPS-12-275     | Stainless Steel Clevis Pin 1/2 x 2 3/4                    | 2        |
|      | HMB-12-14       | Machine Bushing 1/2 x 14GA                                | 4        |
|      | HPS-18-100      | Stainless Steel Cotter Pin 1/8 x 1                        | 2        |
| 26   | 33-302          | Left Pivot Bracket  | 1        |
|      | HMBS-100-10     | Stainless Steel Machine Bushing 1 x 10GA                  | 1        |
|      | HMBS-100-14     | Stainless Steel Machine Bushing 1 x 14GA                  | 2        |
|      | HRPS-14-150     | Stainless Steel Roll Pin 1/4 x 1 1/2                      | 2        |
| 27   | 16-024          | U-Bolt 5/16 - 24  | 2        |
|      | HWLS-516        | Stainless Steel Lockwasher 5/16                           | 4        |
|      | HNS-516-24      | Stainless Steel Nut 5/16 - 24                             | 4        |
| 28   | 10-311          | Left Castor Wheel Bracket                                 | 1        |
|      | 18-035          | Bushing (part of 10-311)                                  | 2        |
|      | HG-14-28-180    | Grease Fitting 1/4 - 2 8 x 180° (part of 10-311)          | 1        |
| 29   | 10-315          | Left Brush Guard  | 1        |
| 30   | 15-013          | Rubber Bumper   | 2        |
|      | HWL-14          | Lockwasher 1/4  | 2        |
|      | HN-14-20        | Nut 1/4 - 20  | 2        |
| 31   | 10-318          | Grip Pad  | 4        |
| 32   | 10-316          | Left Boom Holder  | 1        |
| 33   | 11-158          | Linear Actuator   | 2        |
|      | HCPS-12-200     | Stainless Steel Clevis Pin 1/2 x 2                        | 2        |
|      | HPS-18-100      | Stainless Steel Cotter Pin 1/8 x 1                        | 2        |
| 34   | HBS-38-16-125   | Stainless Steel Bolt 3/8 - 16 x 1 1/4                     | 8        |
|      | HWS-38          | Stainless Steel Washer 3/8                                | 8        |
|      | HNTL-38-16      | Lock Nut 3/8 - 16   | 8        |
| 35   | 10-317          | Right Boom Holder   | 1        |
| 36   |                 | Boom Carrier (part of machine)                            |          |
| 37   | 10-319          | Actuator Cover  | 2        |
| 38   | 10-302          | Pivot Bracket   | 2        |
|      | 15-494          | Nylon Flange Bushing 1" ID (2 per 10-302)                 | 4        |
|      | 18-036          | Oilite Bushing 1/2 ID (2 per 10-302)                      | 4        |
|      | HG-14-28-180    | Grease Fitting 1/4 - 28 x 180° (2 per 10-302)             | 4        |
|      | HNS-38-16       | Stainless Steel Nut 3/8 - 16 (1 per 10-302)               | 2        |
| B    | HSSQS-38-16-150 | Stainless Steel Set Screw 3/8 - 16 x 1 1/2 (1 per 10-302) | 2        |
| 39   | HBS-38-16-125   | Stainless Steel Bolt 3/8 - 16 x 1 1/4                     | 4        |
|      | HWS-38          | Stainless Steel Washer 3/8                                | 4        |
|      | HNTL-38-16      | Lock Nut 3/8 - 16   | 4        |
| 40   | 10-303          | Pivot   | 2        |
|      | HMBS-58-14      | Stainless Steel Machine Bushing 5/8 x 14GA                | 8        |
|      | HPS-18-100      | Stainless Steel Cotter Pin 1/8 x 1                        | 2        |
| 41   | 10-309          | Left Cam Stop (must also order 10-308)                    | 2        |
|      | 18-268          | Oilite Bushing (part of 10-309)                           | 2        |
|      | HG-14-28-180    | Grease Fitting 1/4 - 28 x 180° (part of 10-309)           | 2        |
| 42   | 10-308          | Right Cam Stop (must also order 10-309)                   | 2        |
|      | 18-268          | Oilite Bushing (part of 10-308)                           | 2        |
|      | HG-14-28-180    | Grease Fitting 1/4 - 28 x 180° (part of 10-308)           | 2        |
| 43   | 16-024          | U-Bolt 5/16 - 24  | 6        |
|      | HWLS-516        | Stainless Steel Lockwasher 5/16                           | 12       |
|      | HNS-516-24      | Stainless Steel Nut 5/16 - 24                             | 12       |
| 44   | 10-314          | Right Brush Guard   | 1        |



# 10-301 15' TERRAIN FOLLOWING BOOM DRAWING





For best results use Teflon® Tape on all fittings.

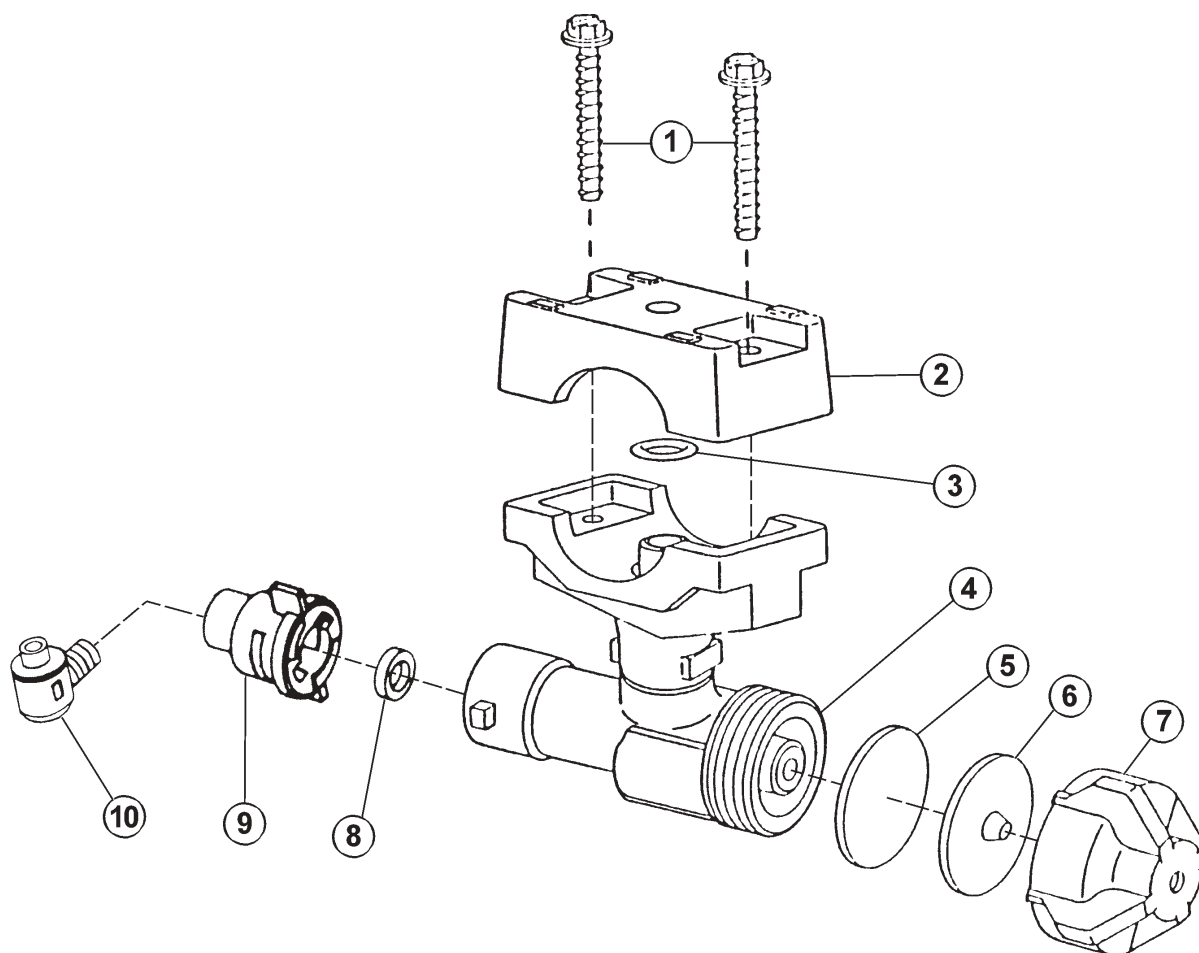
1. The three boom assemblies are not on the packing list but are in carton. You can NOT order these boom assemblies as one unit. Please refer to parts drawing for individual parts. The long boom assemblies are the right and left booms. The labels are located on right and left pivot brackets (Ref 14 and 26). The small boom assembly is the center boom. Each assembly is shipped with the nozzle bodies (16-920). The remainder parts of the nozzles need to be installed.
2. Mount small boom assembly to the boom carriers on sprayer, using the four boom brackets (Ref 19), four  $\frac{3}{8}$  - 16 x 5 $\frac{1}{2}$  bolts and lock nuts (Ref 18). One boom bracket should go on boom assembly and one on boom carrier. Do the same for right and left side. Place boom at desired level (approximately 20" (51 cm). Tighten bolts.
3. Put the boom holders (Ref 32 and 35) on the center mount (Ref 20) using  $\frac{3}{8}$  - 16 x 1 $\frac{1}{4}$  bolts, washers and lock nuts (Ref 34), with washers next to slots. Center the bolts in the slots and tighten. The set screws (Ref A) on the center mount should be tightened to the stop. It is used to set the up and down movement of the boom at the castor wheel. **The range of the boom is approximately 25" total (12.5" up and 12.5" down).** This can be adjusted by moving the boom holders. In will increase the up range. Out will increase the down range.
4. Take right boom and slide pivot bracket (Ref 38) in the center mount (Ref 20) and hold in place with  $\frac{1}{2}$  - 13 x 5 $\frac{1}{2}$  bolt and lock nut (Ref 23). Do not over tighten, boom must be able to move up and down. Repeat for left boom.
5. Actuator cover (Ref 37) has a velcro opening on the bottom. Place each actuator (Ref 33) into the actuator covers with both rod ends coming out the holes in the cover. Fasten velcro in place.
6. Mount the actuator (Ref 33) with the fixed end to the right and left boom holders (Ref 35 and 32) using  $\frac{1}{2}$  x 2 clevis pin and cotter pin. Mount the ram end to the pivot brackets (Ref 38) using  $\frac{1}{2}$  x 2 $\frac{3}{4}$  clevis pin and cotter pin (Ref 25) with the  $\frac{1}{2}$  x 14GA machine bushing on the outside of the pivot brackets.
7. Hook hoses to the respective fittings using hose clamps (18-040). The hose coming from the right side of the sprayer goes to the straight fitting on the right boom. The center hose from the sprayer goes to the straight fitting on the center boom. The left hose from the sprayer goes to the straight fitting on the left boom. Be sure all hose clamps are tight.
8. Now install the wiring harness. Refer to the wiring diagram.
9. Lower the booms so that the ends are at a height that you can work at.
10. Put the left castor wheel bracket (Ref 28) onto the left boom as shown. Using two  $\frac{3}{8}$  - 16 x 1 $\frac{3}{4}$  bolts and lock nuts (Ref 12) and one u-bolt, two  $\frac{5}{16}$  stainless steel lockwashers and stainless steel  $\frac{5}{16}$  - 24 nuts (Ref 27). Repeat for the right boom with the right castor wheel bracket (Ref 11) using the same hardware.
11. Put the assembled castor forks into the castor wheel brackets, adjusting the spacers to get the boom height you desire.
12. Make certain set screws (Ref B) on both sides are completely screwed in. Raise booms with boom switches all the way up. Adjust set screws (Ref B) so they contact the stop and lock.

## NOTE:

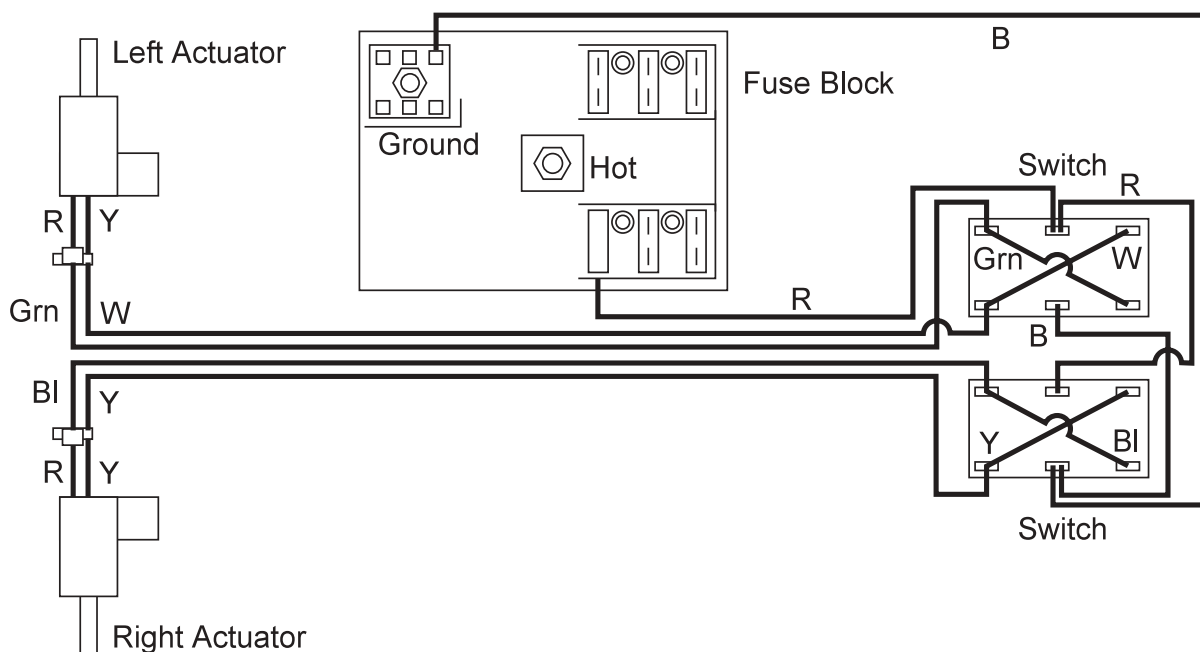
We do not recommend putting these booms into the forward position.



## NOZZLE ASSEMBLY DRAWING



## BOOM WIRING DIAGRAM (for 10-301 Boom)





## NOZZLE ASSEMBLY PARTS LIST

| REF# | PART#     | DESCRIPTION                      | QUANTITY |
|------|-----------|----------------------------------|----------|
| 1*   | 16-920-01 | Screw                            | 2        |
| 2*   | 16-920-02 | Upper Clamp                      | 1        |
| 3*   | 16-920-03 | O-Ring                           | 1        |
| 4*   | 16-920-04 | Body with Lower Clamp            | 1        |
| 5*   | 16-920-05 | Diaphragm Teflon (Optional)      | 1        |
| 6*   | 16-920-06 | Diaphragm EPDM Rubber (Standard) | 1        |
| *    | 16-920-07 | Diaphragm Viton (Optional)       | 1        |
| 7*   | 16-798    | Chemsaver End Cap                | 1        |
| 8    | 16-800    | Gasket Viton                     | 1        |
| 9    | 16-921    | Cap                              | 1        |
| 10   | 16-805    | Raindrop Tip 1/4 RA8             | 1        |
| *    | 16-920    | Body                             | 1        |

**NOTE:** When the 16-920-05 Teflon Diaphragm is used, it is placed in the assembly in front of the 16-920-06 EPDM Rubber Diaphragm. Nozzles are located 20" (51 cm) apart on the right, left, and center tubes. There are predrilled holes in all tubes. The Nozzle should be at a 45° angle to the ground for proper application.

**NOTE:** For all 18' Booms: The eleven 16-920 bodies are installed on the boom sections. The eleven 16-800 viton gasket, 16-805 Raindrop tip and 16-921 cap are in the small parts bag.

**NOTE:** For all 15' Booms: The nine 16-920 bodies are installed on the boom sections. The nine 16-800 viton gasket, 16-805 Raindrop tip and 16-921 cap are in the small parts bag.

## (for 10-301 Booms) BOOM WIRING PARTS LIST

| PART#  | DESCRIPTION                    | QUANTITY |
|--------|--------------------------------|----------|
| 8853   | Slide on Connectors            | 2        |
| 8963   | Heat Shrink 1/4"               | 2        |
| 15-472 | Switch Boot                    | 2        |
| 11-158 | Linear Actuator with 4" stroke | 2        |
| 16-755 | Switch                         | 2        |
| 16-810 | Wiring Harness                 | 1        |
| 22-075 | Nylon Tie                      | 12       |
| 33-272 | Fuse 20 amp                    | 1        |

*Use Dielectric Grease On All Electrical Connections*

### WIRING INSTRUCTIONS

1. Mount the two switches on the control on the right hand side of the machine. Connect the wiring harness (16-810) to the switches (16-755) and fuse block as shown in the boom wiring diagram. Put 20 amp fuse (33-272) into the fuse block as shown.
2. Run the wire harness back to the boom along the main frame keeping it away from hot or moving parts. Use the nylon tie (22-075) to hold it in place.
3. Connect the wiring harness to the linear actuator (11-158) as shown. Use a nylon tie on each actuator to hold the wires to the fixed end of actuators.



## RA RAINDROP® TIPS

This is a wide-angle (120°), hollow-cone, drift-reduction nozzle. Replaces conventional flooding nozzles in broadcast applications.

### FEATURES:

- Color-coding makes it easy to match nozzle flow rates for easy identification.
- Color-coding is available in sizes 1/4 RA2 - 1/4 RA15.
- Uniform spray distribution.
- A large orifice opening and passages minimize clogging.
- The Raindrop nozzle's patented design element, a secondary swirl chamber in the nozzle cap, alters the swirling action of the liquid so that the fewer driftable lines are discharged from the secondary orifice.
- Maximum recommended pressure for Nylon is 100 psi (70 bar).
- Maximum recommended temperature is 120°F (50°C).

### NOZZLE TILT

Delavan's extensive research on spray patterns has proven that a tilt of about 45° for flood Nozzles or tips, RA Raindrop® and WRW Whirl-Rain® nozzles will significantly improve the spray pattern uniformity.

The nozzle tilt reduces the effect of boom height variation and allows the spray nozzle to maintain a more fully developed pattern even when the nozzle outlet is below the recommended height for the best spray pattern uniformity.

### RECOMMENDED OVERLAP AND NOZZLE HEIGHT

100% overlap of spray pattern is recommended for RA Raindrop® and WRW Whirl-Rain® Nozzles for uniform coverage. Nozzle height is determined by measuring the width of the spray pattern as it hits the ground. This width should be 100% greater or twice as wide as the nozzle spacing. Adjust nozzle height until this is achieved. If a decision to tilt the nozzle is made, do it before measuring the width of the spray on the ground and adjusting nozzle height. See example below.

### NOZZLE TYPE DROPLET SIZE COMPARISONS

(Volume median diameter in microns)

| For Nozzles with a 0.5 gpm Output   | Spraying Pressure |        |
|-------------------------------------|-------------------|--------|
|                                     | 20 psi            | 40 psi |
| RA Raindrop® Drift Reduction Nozzle | 810               | 810    |
| LF Flat Fan Tip                     | 510               | 400    |
| D Flooding Tip                      | 450               | 315    |
| WRW Whirl-Rain® Cone Spray Nozzle   | 350               | 2251   |

### DRIFTABLE FINES PRODUCED

(0.5 gpm at 40 psi)

| Nozzle<br>(.5 gpm Output)              | Percent of Spray Volume<br>less than 200 microns |
|--|--|
| RA Raindrop®<br>Drift Reduction Nozzle | <b>0.7%</b>                                      |
| LF Flat Fan Tip                        | <b>7-20%</b><br>(depending on spray angle)       |



This is an extended range flat spray tip. It is excellent for Contact Pesticides and Growth Regulators and good for Systemic Pesticides.

**Contact Pesticides and Growth Regulators** - At medium pressures (20-30 psi) provides medium size droplets for good surface coverage and less drift. At higher pressures (30-60 psi) produces smaller droplets for better coverage. Wide angle 110° tips produce slightly smaller droplets than 80° tips at equal pressures.

**Systemic Pesticides** - At lower pressures (15-20 psi) produces larger spray droplets and reduces drift while still providing uniform coverage along the boom.

#### FEATURES:

- Excellent spray distribution over a wide range of pressures (15-60 psi).
- Ideal for rigs equipped with sprayer controllers.
- Reduces drift at lower pressures, better coverage at higher pressures.
- Available in stainless steel and hardened stainless steel in 80° and 110° tip spray angles with VisiFlo color coding.

#### RECOMMENDED OVERLAP

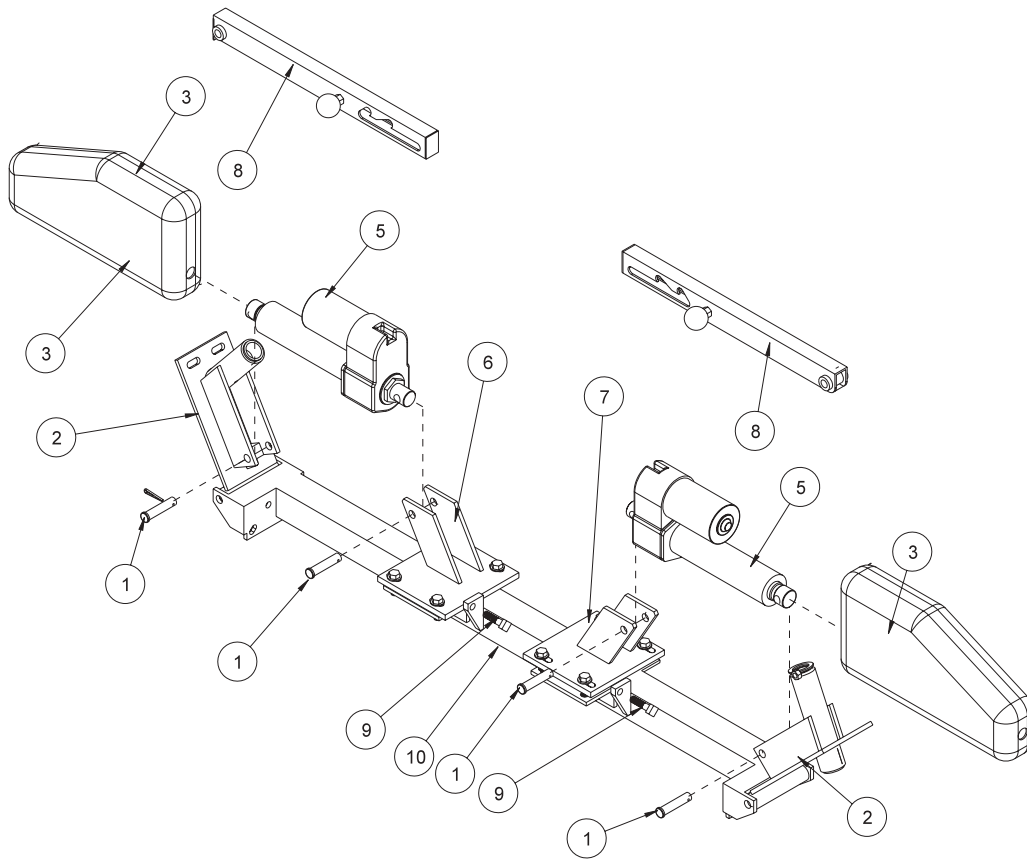
Adjust nozzle spray height to overlap 30% of each edge of pattern.

#### NOZZLE HEIGHT

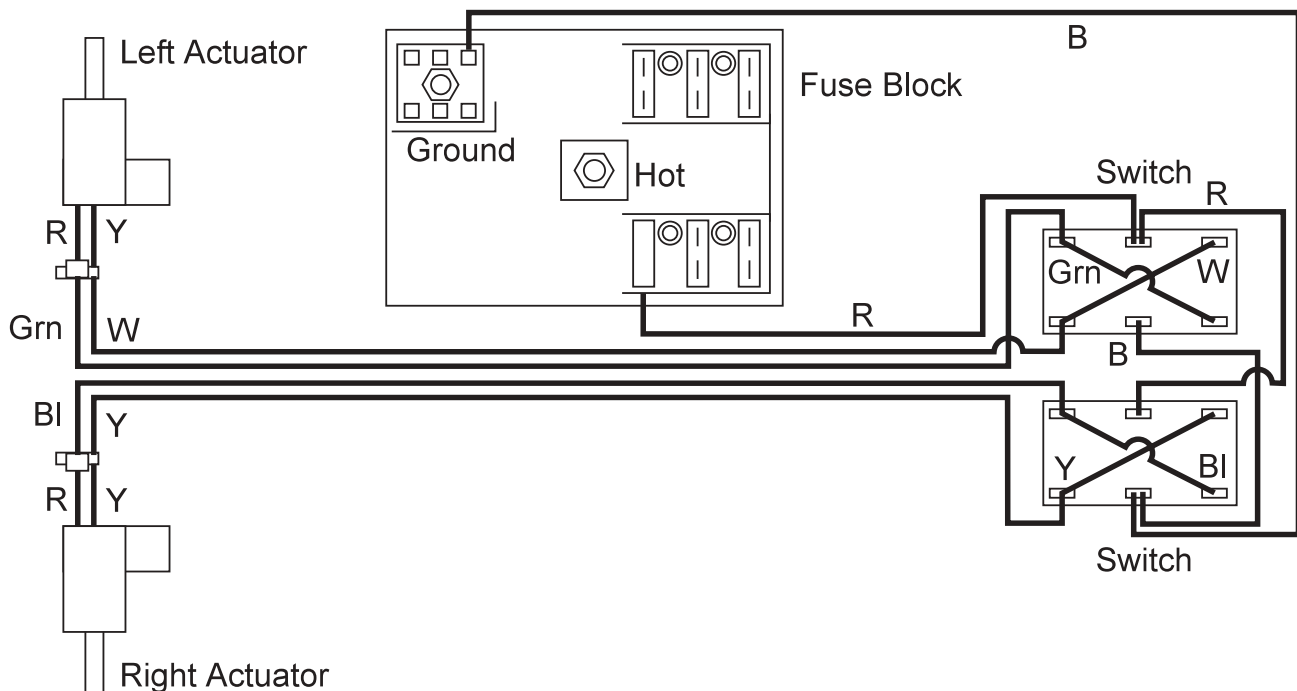
Suggested spray nozzle height with 20" spacing, tip spray angle of 80° should be 17-19", tip spray angle of 110° should be 12-14".



## 10-103 ELECTRIC LIFT KIT DRAWING



## 10-103 ELECTRIC LIFT WIRING





## 10-103 ELECTRIC LIFT KIT PARTS LIST

| REF# | PART#               | DESCRIPTION  | QUANTITY |
|------|---------------------|--|----------|
| 1*   | HCPS-12-225         | Stainless Steel Clevis Pin $\frac{1}{2} \times 2\frac{1}{4}$ | 4        |
|      | HPS-18-100          | Stainless Steel Cotter Pin $\frac{1}{8} \times 1$            | 4        |
| 2*   | 33-295              | Pivot Bracket  | 2        |
| 3    | 10-319              | Actuator Cover   | 2        |
| 5    | 11-158              | Linear actuator  | 2        |
|      | 11-158-01           | Seal Kit   | 1 per    |
| 6*   | 33-331              | Left Actuator Bracket  | 1        |
| 7*   | 33-330              | Right Actuator Bracket                                       | 1        |
| 8*   | 15-561              | Boom Lift  | 2        |
|      | 15-014              | Shift Knob   | 2        |
|      | HB-38-16-175        | Bolt $\frac{3}{8}$ - 16 x $1\frac{3}{4}$                     | 2        |
|      | HN-38-16            | Nut $\frac{3}{8}$ - 16                                       | 2        |
| 9*   | HSSQ-38-16-150      | Square Head Set Screw $\frac{3}{8}$ - 16 x $1\frac{1}{2}$    | 2        |
|      | HN-38-16            | Nut $\frac{3}{8}$ - 16                                       | 2        |
| 10*  | 33-329              | Center Mount   | 1        |
| *    | Part of 10-160 Boom |  |          |

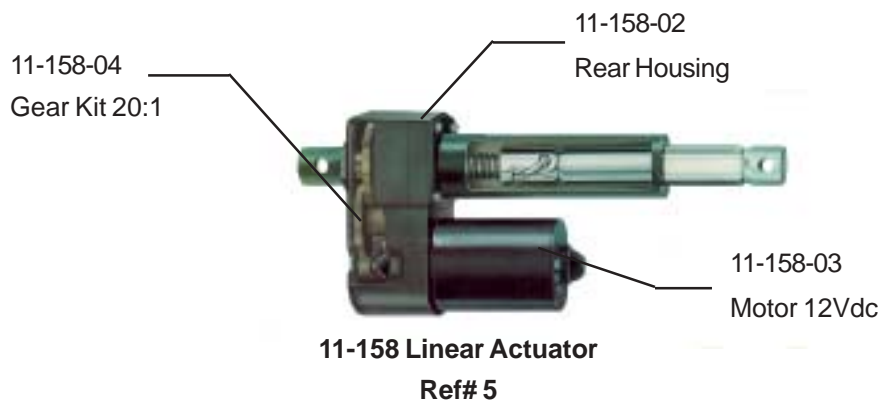
### INSTALLATION INSTRUCTIONS

Remove Boom Lift (Ref 8) from boom and replace with the Linear Actuators (Ref 5). Use the existing hardware. Refer to the wiring diagram below to hook up the wire harness. The switches mount in the seat panel on the right side. Refer to the decal for correct placement. Use the  $14\frac{1}{2}$  Nylon Ties to bind wire harness to main frame so that it does not drag.

*Use dielectric grease on all electrical connections.*

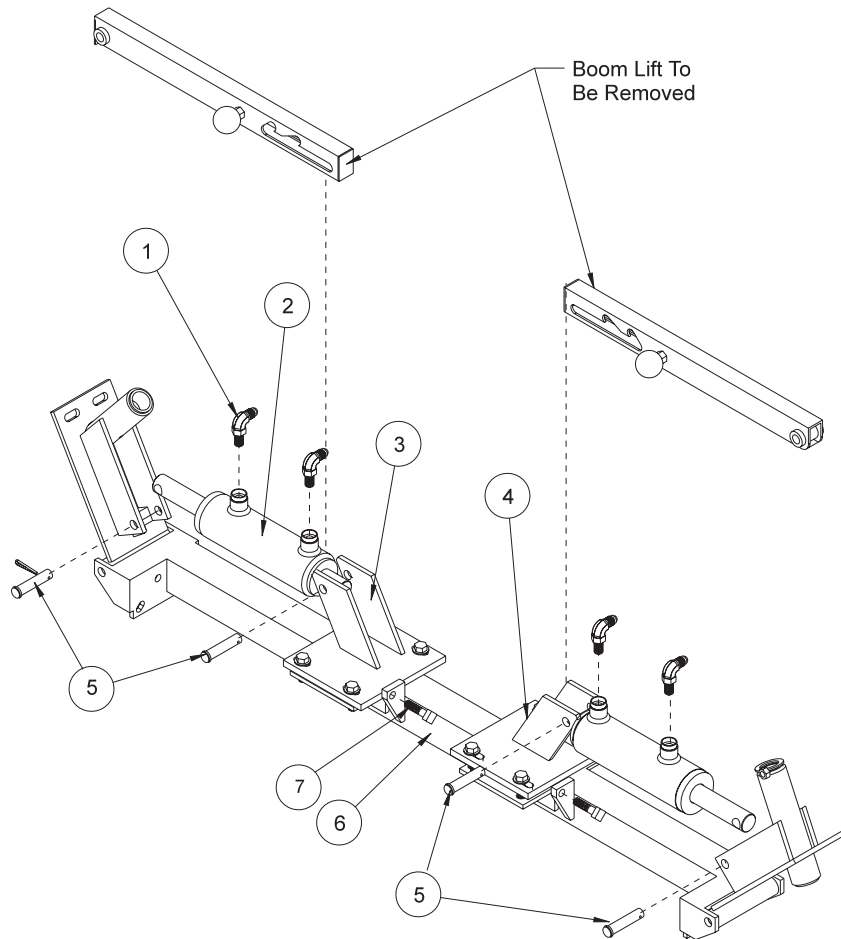
## 10-103 ELECTRIC LIFT WIRING PARTS LIST

| PART#  | DESCRIPTION                    | QUANTITY |
|--------|--------------------------------|----------|
| 8853   | Slide on Connectors            | 2        |
| 8963   | $\frac{1}{4}$ " Heat Shrink    | 2        |
| 15-472 | Switch Boot                    | 2        |
| 11-158 | Linear Actuator with 4" stroke | 2        |
| 16-755 | Switch                         | 2        |
| 16-810 | Wiring Harness                 | 1        |
| 22-075 | Nylon Tie $14\frac{1}{2}$      | 12       |
| 33-272 | Fuse 20 amp                    | 1        |

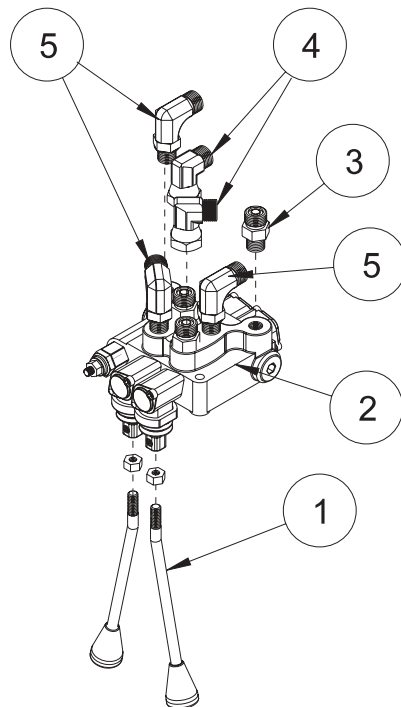




## 10-297 HYDRAULIC LIFT KIT DRAWING



## 10-238 HYDRAULIC VALVE 900 PSI DRAWING





## 10-297 HYDRAULIC LIFT KIT PARTS LIST

| REF# | PART#               | DESCRIPTION  | QUANTITY |
|------|---------------------|--|----------|
| 1†   | 18-310              | <sup>11</sup> / <sub>16</sub> x <sup>9</sup> / <sub>16</sub> Straight Thread 90° Elbow | 4        |
| 2    | 10-187              | Hydraulic Cylinder   | 2        |
|      | 14-273              | Seal Kit   | 1 per    |
| 3*   | 33-331              | Left Actuator Bracket  | 1        |
| 4*   | 33-330              | Right Actuator Bracket   | 1        |
| 5*   | HCPS-12-225         | Stainless Steel Clevis Pin <sup>1</sup> / <sub>2</sub> x 2 <sup>1</sup> / <sub>4</sub> | 4        |
|      | HPS-18-100          | Stainless Steel Cotter Pin <sup>1</sup> / <sub>8</sub> x 1                             | 4        |
| 6*   | 33-329              | Center Mount   | 1        |
| 7*   | HSSQ-38-16-150      | Square Head Set Screw <sup>3</sup> / <sub>8</sub> - 16 x 1 <sup>1</sup> / <sub>2</sub> | 2        |
|      | HN-38-16            | Nut <sup>3</sup> / <sub>8</sub> - 16   | 2        |
| *    | Part of 10-160 Boom |  |          |
| †    | 10-293              | Boom Lift Kit  | 1        |

### INSTALLATION INSTRUCTIONS

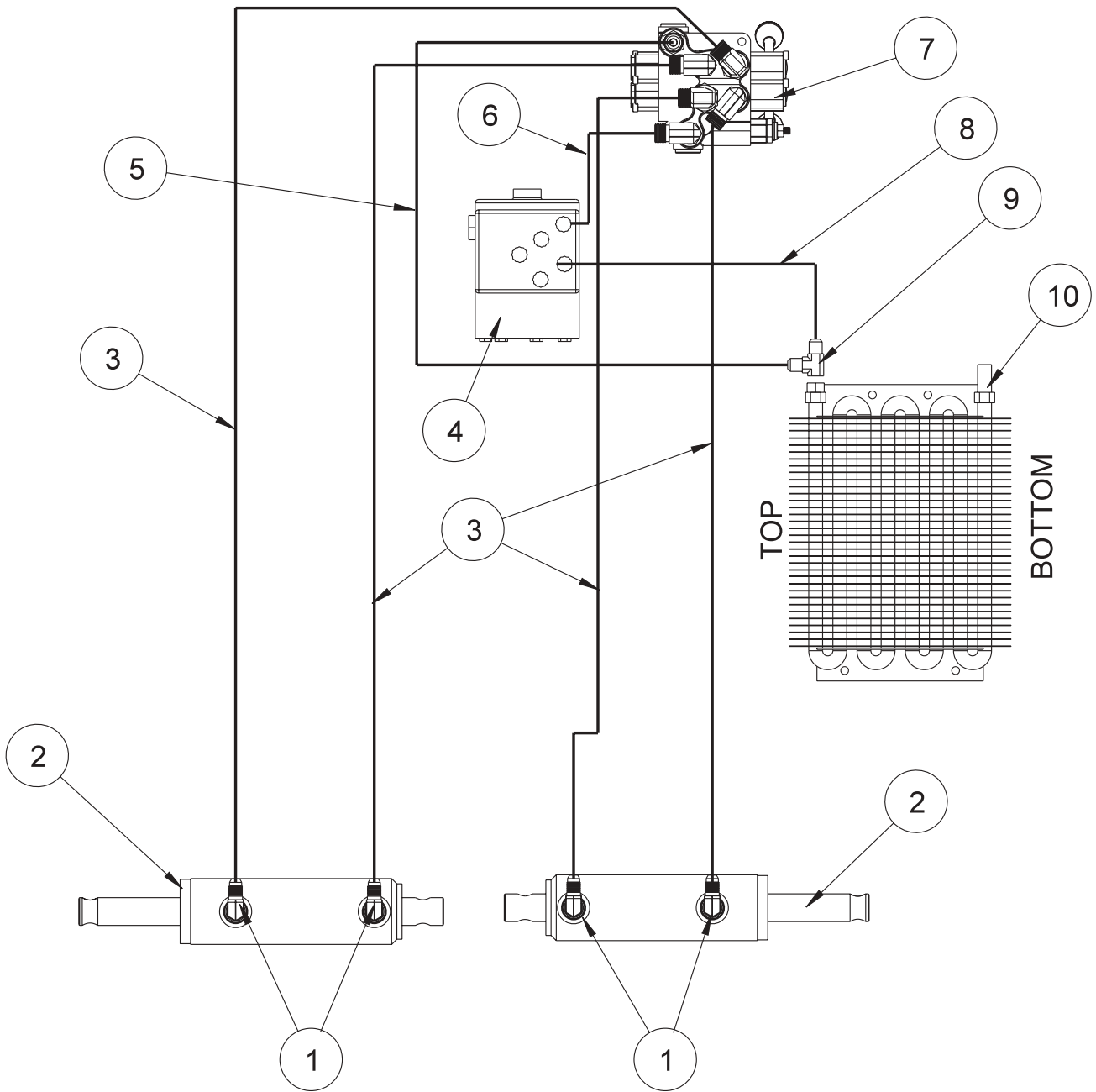
1. Shut machine off. Set park brake. Allow system to cool down.
2. Remove the boom lifts from boom and replace with hydraulic cylinder (Ref 2). Use the existing hardware.
3. Refer to the valve drawing for placement of fittings. The valve mounts in the seat panel on the right side. Use two <sup>1</sup>/<sub>4</sub> - 20 x 2 bolts, washers, lock washers and nuts. Refer to the decal for correct placement.
4. Remove the hose from the bottom of the oil cooler that comes out of the top of the tee. This hose traces back to the top of the orbitrol. Place that hose to the inlet side of the hydraulic valve.
5. Use the short hose 10-146 (Ref 3) to connect the outlet side of the valve to the tee on the oil cooler.
6. Use the four other hoses to connect the valve to the hydraulic cylinders. Refer to the hydraulic drawing.

## 10-238 HYDRAULIC VALVE PARTS LIST

| REF# | PART#     | DESCRIPTION  | QUANTITY   |
|------|-----------|--|------------|
| 1    | 10-248    | Valve Handles  | 2          |
| 2    | 10-238    | Hydraulic Valve 900 PSI  | 1          |
| 3*   | 18-306    | <sup>11</sup> / <sub>16</sub> x <sup>9</sup> / <sub>16</sub> Straight Thread Connector | 3          |
| 4*   | 18-309    | <sup>11</sup> / <sub>16</sub> Swivel Nut 90° Elbow                                     | 2          |
| 5*   | 18-310    | <sup>11</sup> / <sub>16</sub> x <sup>9</sup> / <sub>16</sub> Straight Thread 90° Elbow | 3          |
|      | 10-238-01 | Spool Seal Kit   | 1 per bank |
| *    | 10-293    | Boom Lift Kit  | 1          |

(Continued On Next Page)







## 10-297 HYDRAULIC DRAWING PARTS LIST

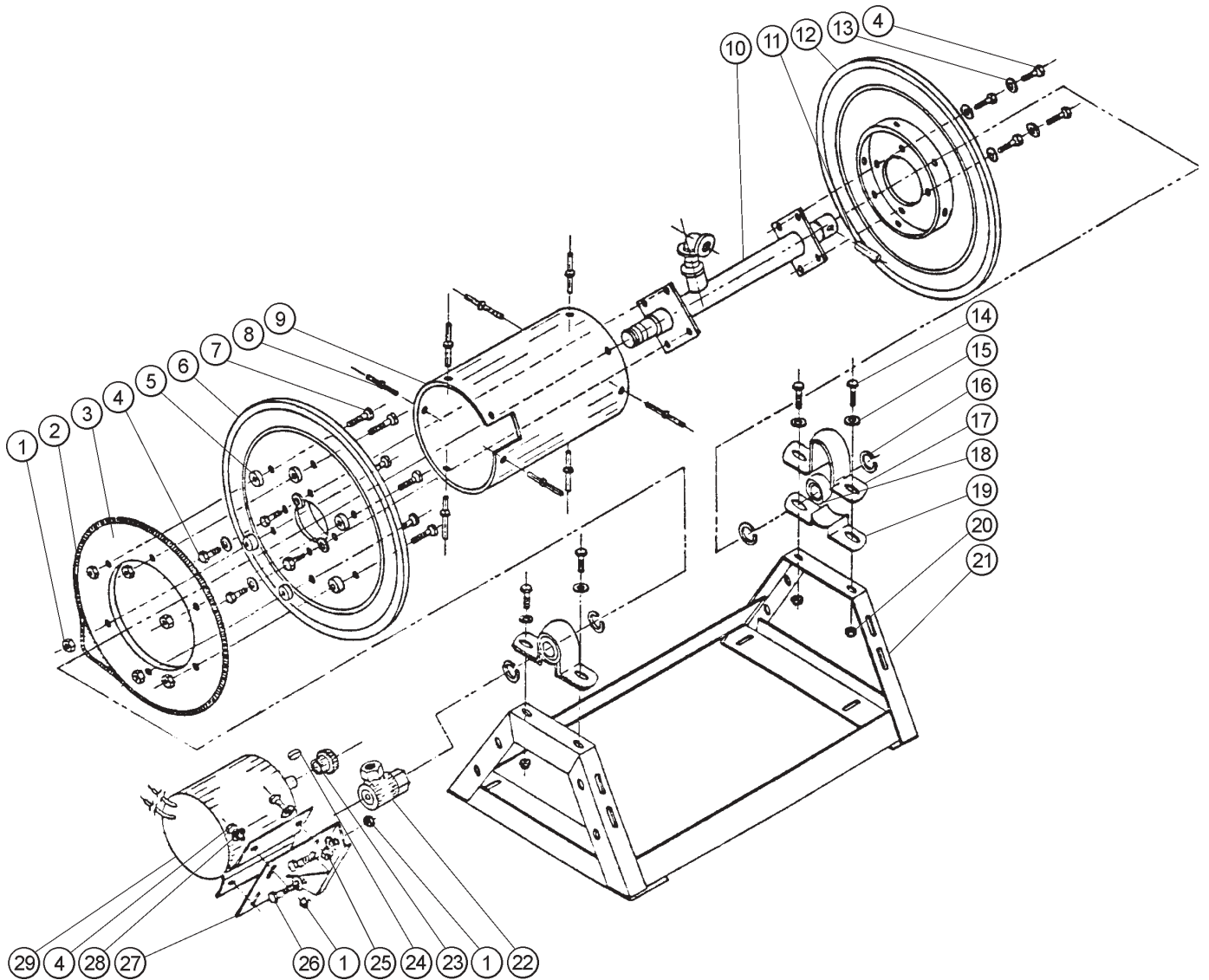
| REF# | PART#  | DESCRIPTION   | QUANTITY |
|------|--------|---|----------|
| 1†   | 18-310 | $^{11}/_{16} \times ^{9}/_{16}$ Straight Thread 90° Elbow                 | 2        |
| 2*   | 10-187 | Hydraulic Cylinder  | 2        |
|      | 14-273 | Seal Kit  | 1 per    |
| 3*†  | 10-280 | Hydraulic Hose 108"   | 4        |
| 4    | 34-103 | Orbitrol  | 1        |
| 5*†  | 10-284 | Hose 28"  | 1        |
| 6    | 10-279 | Hydraulic Hose  | 1        |
| 7*   | 10-238 | Hydraulic Valve 900 PSI   | 1        |
|      | 10-248 | Valve Handle  | 2        |
| 8    | 10-276 | Hydraulic Hose  | 1        |
| 9    | 18-304 | $^{13}/_{16} \times ^{3}/_{4} \times ^{13}/_{16}$ Straight Thread Run Tee | 1        |
| 10   | 10-272 | Oil Cooler  | 1        |
| *    | 10-297 | Hydraulic Lift Kit  |          |
| †    | 10-293 | Boom Lift Kit   | 1        |

## INSTALLATION INSTRUCTIONS

1. Shut machine off. Set park brake. Allow system to cool down.
2. Remove the boom lifts from boom and replace with hydraulic cylinder (Ref 2). Use the existing hardware.
3. Refer to the valve drawing for placement of fittings. The valve mounts in the seat panel on the right side. Use two  $^{1}/_{4}$  - 20 x 2 bolts, washers, lock washers and nuts. Refer to the decal for correct placement.
4. Remove the hose from the top of the oil cooler that comes out of the top of the tee. This hose traces back to the top of the orbital. Place that hose to the inlet side of the hydraulic valve.
5. Use the short hose 10-284 (Ref 5) to connect the outlet side of the valve to the tee on the oil cooler.
6. Use the four other hoses to connect the valve to the hydraulic cylinders. Refer to the hydraulic drawing.



# 16-906 ELECTRIC HOSE REEL DRAWING



Accessories

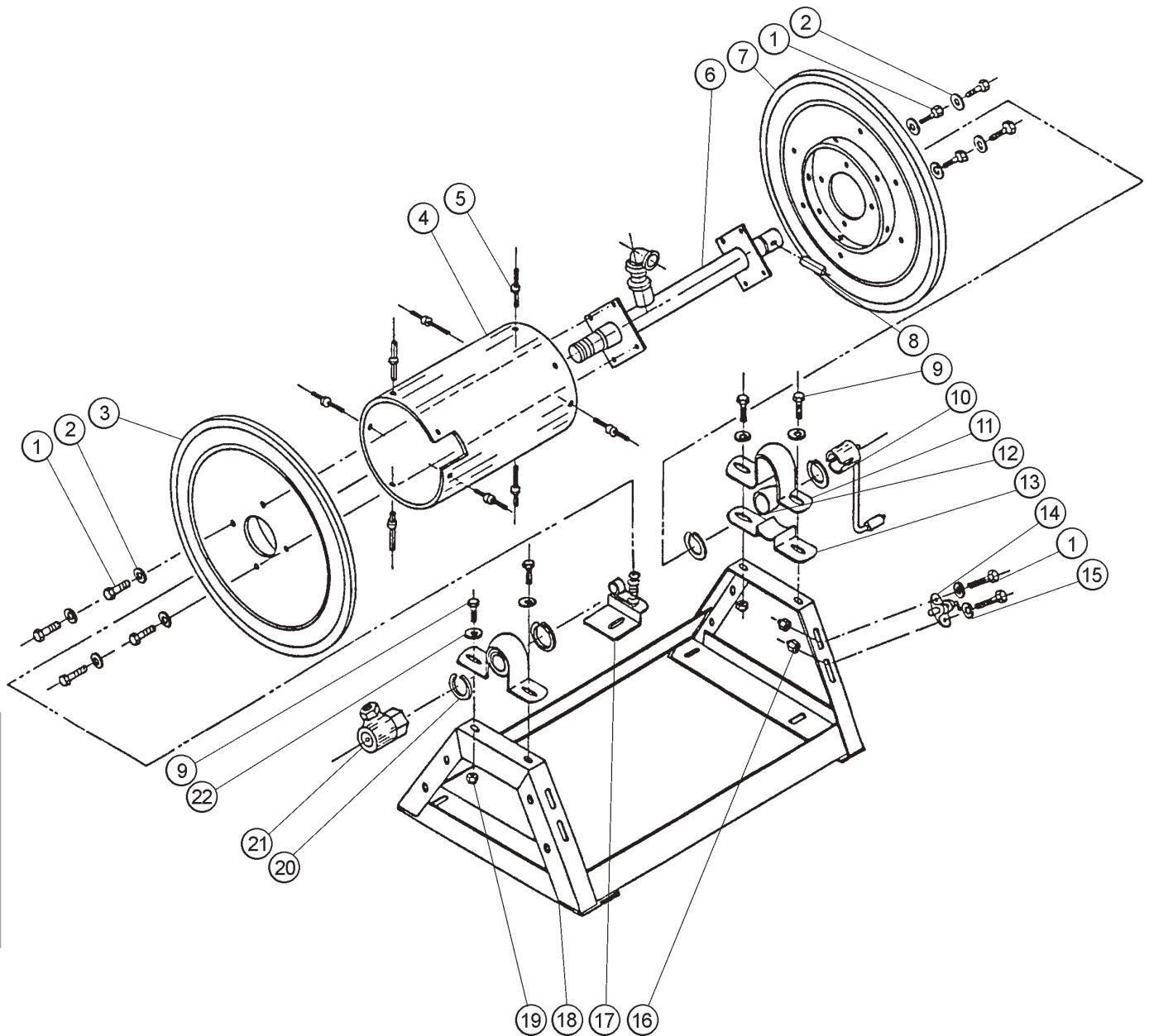


## 16-906 ELECTRIC HOSE REEL PARTS LIST

| REF# | PART#         | DESCRIPTION                               | QUANTITY |
|------|---------------|---|----------|
| 1    | HNCL-516-18   | Lock Nut $\frac{5}{16}$ - 18              | 12       |
| 2    | 16-906-12     | Chain Assembly                            | 1        |
| 3    | 16-906-11     | Sprocket                                  | 1        |
| 4    | HB-516-18-075 | Bolt $\frac{5}{16}$ - 18 x $\frac{3}{4}$  | 12       |
| 5    | 16-906-13     | Spacer                                    | 6        |
| 6    | 16-906-03     | Disc Assembly                             | 1        |
| 7    | HB-516-18-125 | Bolt $\frac{5}{16}$ - 18 x $1\frac{1}{4}$ | 6        |
| 8    |               | Pop Rivet                                 | 8        |
| 9    | 16-906-04     | Drum Center                               | 1        |
| 10   | 16-906-05     | Axle Assembly                             | 1        |
| 11   | HRP-25-200    | Roll Pin $\frac{1}{4}$ x 2                | 1        |
| 12   | 16-906-02     | Disc Assembly                             | 1        |
| 13   | HW-516        | Lockwasher $\frac{5}{16}$                 | 8        |
| 14   | HB-38-16-100  | Bolt $\frac{3}{8}$ - 16 x 1               | 4        |
| 15   | HW-38         | Washer $\frac{3}{8}$                      | 4        |
| 16   | 16-906-10     | Retaining Ring                            | 4        |
| 17   | 16-906-07     | Mounting Pillow Block (Top)               | 2        |
| 18   | 16-906-09     | Bearing                                   | 2        |
| 19   | 16-906-08     | Mounting Pillow Block (Bottom)            | 2        |
| 20   | HNCL-38-16    | Lock Nut $\frac{3}{8}$ - 16               | 4        |
| 21   | 16-906-01     | Frame Assembly                            | 1        |
| 22   | 16-906-06     | Swivel                                    | 1        |
|      | 16-129-06     | Seal Kit (for swivel)                     | 1        |
| 23   | 16-906-16     | Sprocket                                  | 1        |
| 24   | 16-906-17     | Key                                       | 1        |
| 25   | HW-516        | Washer $\frac{5}{16}$                     | 6        |
| 26   | HB-516-18-100 | Bolt $\frac{5}{16}$ - 18 x 1              | 2        |
| 27   | 16-906-14     | Mounting Bracket                          | 1        |
| 28   | HB-516-18-075 | Bolt $\frac{5}{16}$ - 18 x $\frac{3}{4}$  | 4        |
| 29   |               | Electric Motor 12VDC                      | 1        |



## 16-129 HOSE REEL DRAWING



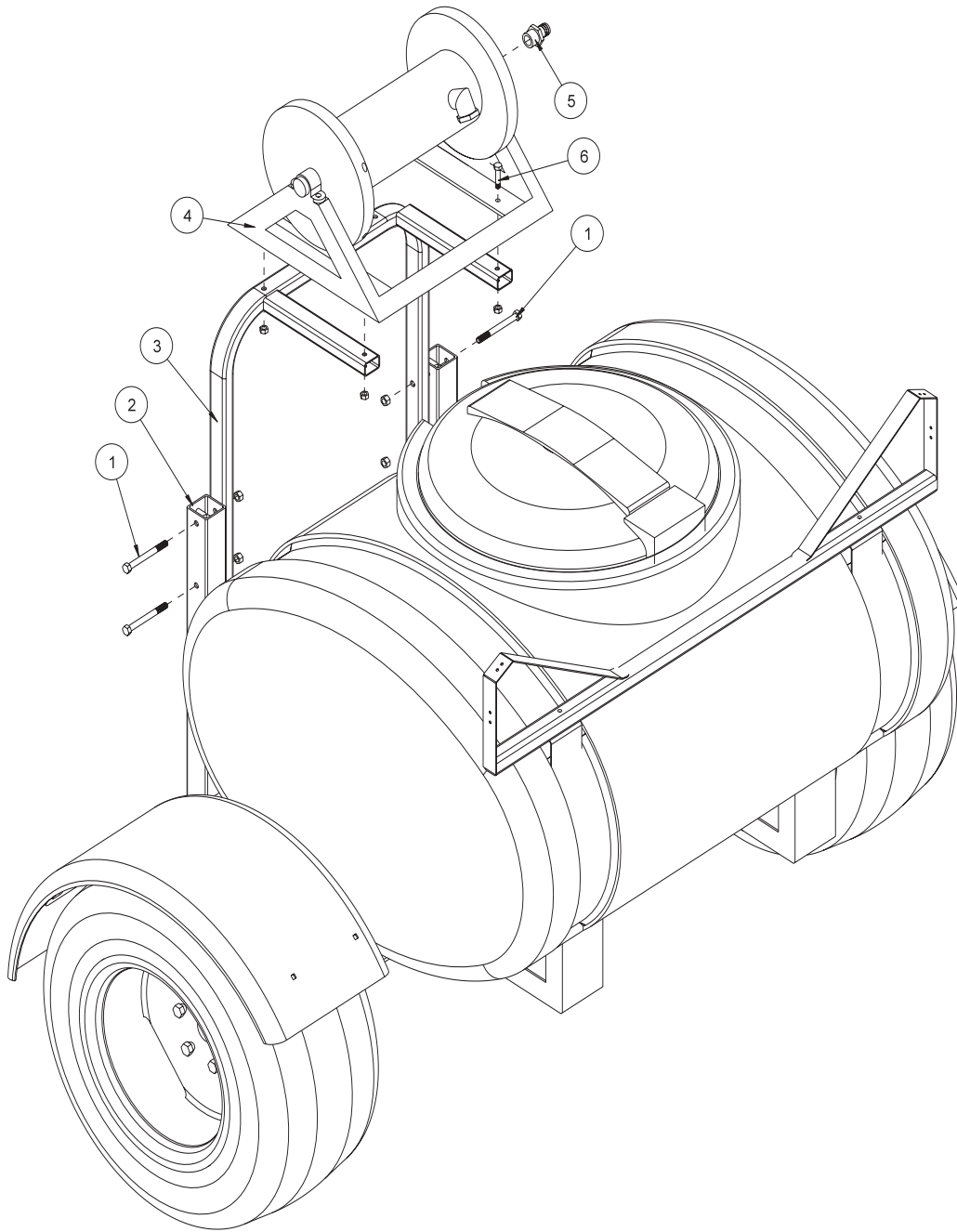


## 16-129 HOSE REEL PARTS LIST

| REF# | PART#         | DESCRIPTION                              | QUANTITY |
|------|---------------|--|----------|
| 1    | HB-516-18-075 | Bolt $\frac{5}{16}$ - 18 x $\frac{3}{4}$ | 10       |
| 2    | HWL-516       | Lockwasher $\frac{5}{16}$                | 8        |
| 3    | 16-129-01     | Disc Assembly                            | 1        |
| 4    | 16-906-04     | Drum center                              | 1        |
| 5    |               | Pop Rivet                                | 8        |
| 6    | 16-906-05     | Axle Assembly                            | 1        |
| 7    | 16-906-02     | Disc Assembly                            | 1        |
| 8    | HRP-25-200    | Roll Pin $\frac{1}{4}$ x 2               | 1        |
| 9    | HB-38-16-100  | Bolt $\frac{3}{8}$ - 16 x 1              | 4        |
| 10   | 16-129-04     | Hand Crank                               | 1        |
| 11   | 16-906-07     | Mounting Pillow Block (Top)              | 2        |
| 12   | 16-906-09     | Bearing                                  | 2        |
| 13   | 16-906-08     | Mounting Pillow Block (Bottom)           | 2        |
| 14   | 16-129-03     | Lock Pin Assembly                        | 1        |
| 15   | HW-516        | Washer $\frac{5}{16}$                    | 2        |
| 16   | HNCL-516-18   | Lock Nut $\frac{5}{16}$ - 18             | 2        |
| 17   | 16-129-05     | Brake Assembly                           | 1        |
| 18   | 16-906-01     | Frame Assembly                           | 1        |
| 19   | HNCL-38-16    | Lock Nut $\frac{3}{8}$ - 16              | 4        |
| 20   | 16-906-10     | Retaining Ring                           | 4        |
| 21   | 16-129-02     | Swivel                                   | 1        |
|      | 16-129-06     | Seal Kit (for swivel)                    | 1        |
| 22   | HW-38         | Washer $\frac{3}{8}$                     | 4        |



## 10-107 HOSE REEL MOUNT DRAWING





## HOSE REEL MOUNT PARTS LIST

| REF# | PART#         | DESCRIPTION  | QUANTITY |
|------|---------------|--|----------|
| 1    | HB-38-16-375  | Bolt $\frac{3}{8}$ - 16 x $\frac{3}{4}$            | 4        |
|      | HNTL-38-16    | Lock Nut $\frac{3}{8}$ - 16                        | 4        |
| 2    | 10-205        | Boom Carrier                                       | 2        |
| 3    | 10-221        | Hose Reel Mount                                    | 1        |
| 4    | 16-906        | Electric Hose Reel                                 | 1        |
|      | 16-129        | Manual Hose Reel                                   | 1        |
| 5    | 18-249        | Brass Fitting $\frac{3}{4}$ MPT x $\frac{3}{4}$ HB | 1        |
| 6    | HB-516-18-150 | Bolt $\frac{5}{16}$ - 18 x $1\frac{1}{2}$          | 4        |
|      | HNTL-516-18   | Lock Nut $\frac{5}{16}$ - 18                       | 4        |

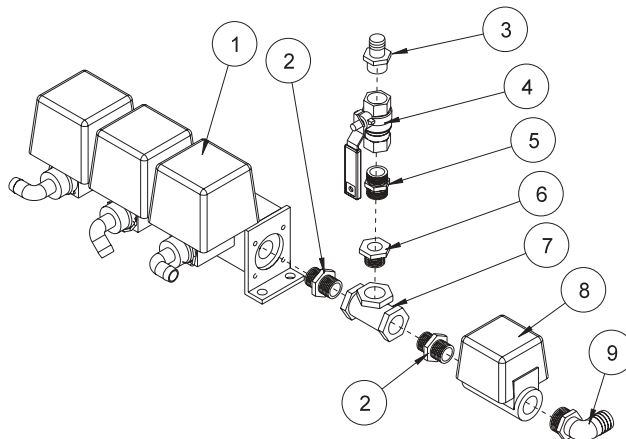
## HOSE REEL MOUNTING INSTRUCTIONS

1. Wear protective clothing when draining the tank and taking apart the lines.
2. Drain tank and spray system in a safe and approved method insuring that no chemical or water remain in tank as you will be taking apart lines.
3. Remove key from ignition, set park brake and block wheels.
4. Remove square rubber covers on boom carriers. Cut a notch into the covers to clear the top bolt then put them back in.
5. Place hose reel bracket inside the boom carrier tubes with arms pointing toward front of machine.
6. Lower bracket until top hole in bracket lines up with hole in upright. Use four  $\frac{3}{8}$  - 16 x  $\frac{3}{4}$  bolts and four  $\frac{3}{8}$  - 16 lock nuts with nuts on inside of uprights.
7. Put hose reel on hose reel bracket with fitting on left side of machine. Use four bolts  $\frac{5}{16}$  - 18 x  $1\frac{1}{2}$  and four  $\frac{5}{16}$  - 18 lock nuts to hold in place. Tighten bolts.
8. To put handle on, drive roll pin out of the shaft on right side, put handle over shaft and line up holes and replace the roll pin.
9. Put 18-249 fitting into hose reel.
10. *For 1006 System:* Remove pressure regulating valve from manifold ball valve . Use a 1" close nipple on each side of the tee. Place reducer bushing ,  $\frac{3}{4}$  close nipple, ball valve, and hose barb into tee pointing upward.
11. *For 1004 System:* From the back of the machine remove the two elbows at the end of the spray fittings. Insert the  $\frac{3}{4}$ " tee pointing toward the back of the machine. Insert the  $\frac{3}{4}$ " hose barb elbow into the top of the tee. This goes the right boom section. Place a  $\frac{3}{4}$ " close nipple into the open end of the tee and add the  $\frac{3}{4}$ " FPT elbow pointing upward. Insert the  $\frac{3}{4}$ " reducer bushing, ball valve, and hose barb.
12. Use 8887-46 hose to connect reel to ball valve, clamp with 18-040 hose clamps.
13. Use 22-075 cable ties to tie hose to main feed hose.

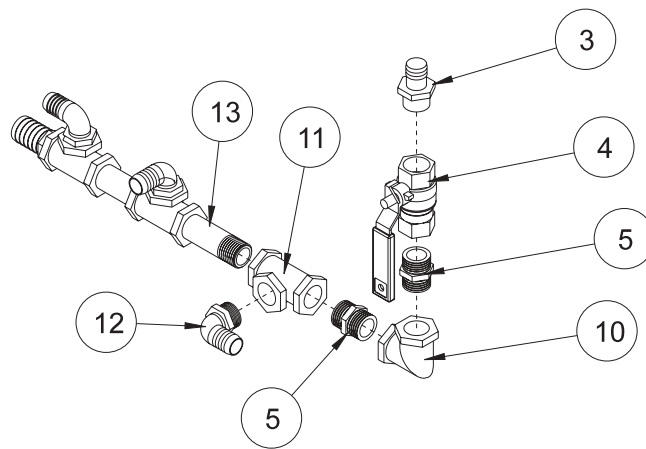
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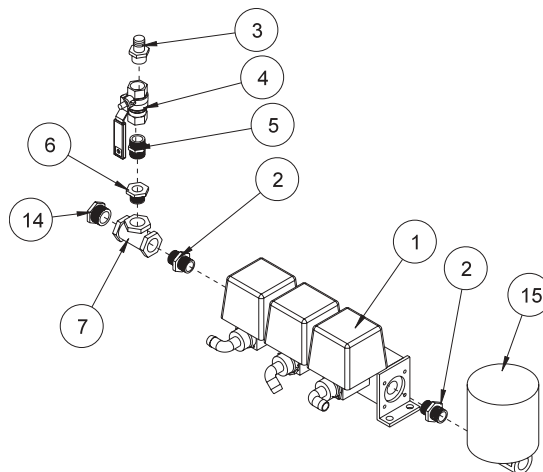
## 1006 & 1002 (834 & 203) HOSE REEL PLUMBING DRAWING



## 1004 (MANUAL) HOSE REEL PLUMBING DRAWING



## 1008 (440) HOSE REEL PLUMBING DRAWING





## HOSE REEL PLUMBING PARTS LIST

| REF# | PART#  | DESCRIPTION   | QUANTITY |
|------|--------|---|----------|
| 1    | 15-552 | Manifold Ball Valve   | 1        |
| 2*   | 16-851 | Close Nipple 1" (1006 and 1008 only)                                    | 2        |
| 3*   | 16-154 | Fitting $\frac{3}{4}$ " MPT x $\frac{3}{4}$ " HB                        | 1        |
| 4*   | 16-859 | Ball Valve $\frac{3}{4}$ " Brass  | 1        |
| 5*   | 16-158 | Close Nipple $\frac{3}{4}$ "  | 2        |
| 6*   | 16-163 | Reducer Bushing 1 x $\frac{3}{4}$ " (1006 and 1008 only)                | 1        |
| 7*   | 16-183 | Tee FPT 1 x 1 x 1 (1006 and 1008 only)                                  | 1        |
| 8    | 15-531 | Pressure Regulating Valve (1006)  | 1        |
|      | 16-886 | Motorized Control Valve (1002)  | 1        |
| 9    | 16-164 | Elbow 1" MPT x 1" HB  | 1        |
| 10   | 16-151 | Elbow FPT $\frac{3}{4}$ " x $\frac{3}{4}$ "                             | 1        |
| 11*  | 16-157 | Tee FPT $\frac{3}{4}$ " x $\frac{3}{4}$ " x $\frac{3}{4}$ " (1004 only) | 1        |
| 12   | 16-153 | Elbow $\frac{3}{4}$ " MPT x $\frac{3}{4}$ " HB                          | 1        |
| 13   | 16-172 | Nylon Nipple $\frac{3}{4}$ " x $3\frac{1}{2}$ "                         | 1        |
| 14   | 16-162 | Hex Plug  | 1        |
| 15   | 16-524 | Motorized Control Valve   | 1        |
| *    | 10-107 | Hose Reel Mounting Kit (includes only (1) 16-851 Close Nipple)          |          |

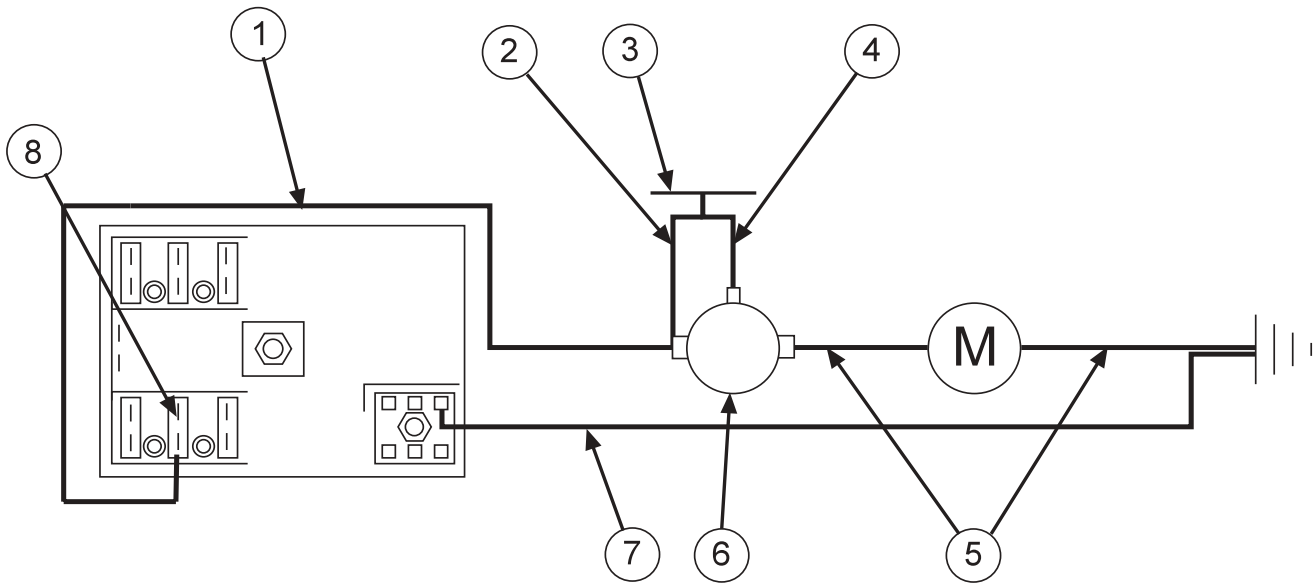
## HOSE REEL MOUNTING INSTRUCTIONS

1. Wear protective clothing when draining the tank and taking apart the lines.
2. Drain tank and spray system in a safe and approved method insuring that no chemical or water remain in tank as you will be taking apart lines.
3. Remove key from ignition, set park brake and block wheels.
4. Remove square rubber covers on boom carriers.
5. Place hose reel bracket inside the boom carrier tubes with arms pointing toward front of machine..
6. Lower bracket until top hole in bracket lines up with hole in upright. Use four  $\frac{3}{8}$ " - 16 x  $3\frac{3}{4}$ " bolts and four  $\frac{3}{8}$ " - 16 lock nuts with nuts on inside of uprights.
7. Put hose reel on hose reel bracket with fitting on left side of machine. Use four bolts  $\frac{5}{16}$ " - 18 x  $1\frac{1}{2}$ " and four  $\frac{5}{16}$ " - 18 lock nuts to hold in place. Tighten bolts.
8. To put handle on, drive roll pin out of the shaft on right side, put handle over shaft and line up holes and replace the roll pin.
9. Put 16-153 elbow into hose reel.
10. *For 1006 & 1002 System:* Remove pressure regulating valve or motorized control valve from manifold ball valve . Use a 1" close nipple on each side of the tee. Place reducer bushing ,  $\frac{3}{4}$ " close nipple, ball valve, and hose barb into tee pointing upward.
11. *For 1004 System:* From the back of the machine remove the two elbows at the end of the spray fittings. Insert the  $\frac{3}{4}$ " tee pointing toward the back of the machine. Insert the  $\frac{3}{4}$ " hose barb elbow into the middle of the tee. This goes the right boom section. Place a  $\frac{3}{4}$ " close nipple into the open end of the tee and add the  $\frac{3}{4}$ " FPT elbow pointing upward. Insert the  $\frac{3}{4}$ " close nipple, ball valve, and hose barb.
12. Use 8887-46 hose to connect reel to ball valve, clamp with 18-040 hose clamps.
13. Use 22-075 cable ties to tie hose to main feed hose.

(Continued on next page)



## ELECTRIC HOSE REEL WIRING DIAGRAM



## HOSE REEL ADJUSTMENTS

### OPERATIONAL CHECK:

1. Pull hose off drum at least on full revolution. A clicking noise should be heard from locking mechanism.
2. Let the hose retract.
3. Pull the hose off until the first click is heard. Drum should lock when the hose tension is removed.
4. Continue pulling the hose, no more than one revolution, until no clicking is heard. Hose should rewind when tension is removed.

### SPRING TENSION ADJUSTMENT:

Reels are shipped with three winds of tension adequate for most application. However, if your usage requires either more or less initial tension, perform the following:

1. Make sure spring is locked.
2. Disconnect inlet hose to permit the hose to go around the drum.
3. To adjust the spring tension, add or remove the wraps of the hose from the drum, one wrap at a time, until the desired tension is obtained.

### ROLLER BRACKET ADJUSTMENT:

All hose reels are shipped with the roller bracket in the ceiling mount position. For either floor or wall mount, simply remove the guide arm that is attached to the support frame and rotate it 90°, then reinstall.

### HOSE REPLACEMENT PROCEDURE:

1. Facing swivel, turn the hose drum clockwise until all of the hose is removed from the drum and the drum is held by locking mechanism. Make sure spring is locked.
2. Remove hose clamps and disconnect hose from swivel. Remove old hose.
3. Insert new hose through roller guide, connect to swivel and reinstall hose clamps. Use spring guard over hose to protect the hose from being cut by the drum.
4. Remove check ball from old hose and install on replacement hose.
5. Carefully, keeping the tension on the hose, pull the hose to release the locking mechanism. Let the hose wind on the drum.



## ELECTRIC HOSE REEL WIRING PARTS LIST

| REF#                      | PART#      | DESCRIPTION                                   | QUANTITY |
|---------------------------|------------|---|----------|
| 1                         | 8843-132   | Flexguard $\frac{3}{8}$ ID                    | 1        |
|                           | 8919-144   | 10GA Red Wire 144"                            | 1        |
|                           | 8928       | $\frac{5}{16}$ Wire Terminal                  | 1        |
|                           | 8901       | Slide-On Connector                            | 1        |
| 2                         | 8850-24    | 14GA Red Wire 24"                             | 1        |
|                           | 8859       | $\frac{3}{16}$ Wire Terminal                  | 2        |
| 3                         | 33-251     | Push Button Switch                            | 1        |
| 4                         | 8850-24    | 14GA Red Wire 24"                             | 1        |
|                           | 8859       | $\frac{3}{16}$ Wire Terminal                  | 1        |
|                           | 8857       | $\frac{5}{16}$ Wire Terminal                  | 1        |
| 5                         | 8928       | $\frac{5}{16}$ Wire Terminal (On Motor Leads) | 2        |
| 6                         | 12-015     | Solenoid                                      | 1        |
| <b>SOLENOID TERMINALS</b> |            |   |          |
| 7                         | HN -516-24 | $\frac{5}{16}$ - 24 Hex Nut                   | 2        |
|                           | HW-516     | $\frac{5}{16}$ Lockwasher                     | 2        |
|                           | HN -10-32  | 10 - 32 Hex Nut                               | 1        |
|                           | HWL-10     | #10 Lockwasher                                | 1        |
|                           | 8931-144   | 10GA White Wire 144"                          | 1        |
| 8                         | 8928       | $\frac{5}{16}$ Wire Terminal                  | 1        |
|                           | 8901       | Slide-On Connector                            | 1        |
|                           | 33-273     | Auto Blade Type Fuse 30 amp                   | 1        |

### CONNECTION INSTRUCTIONS

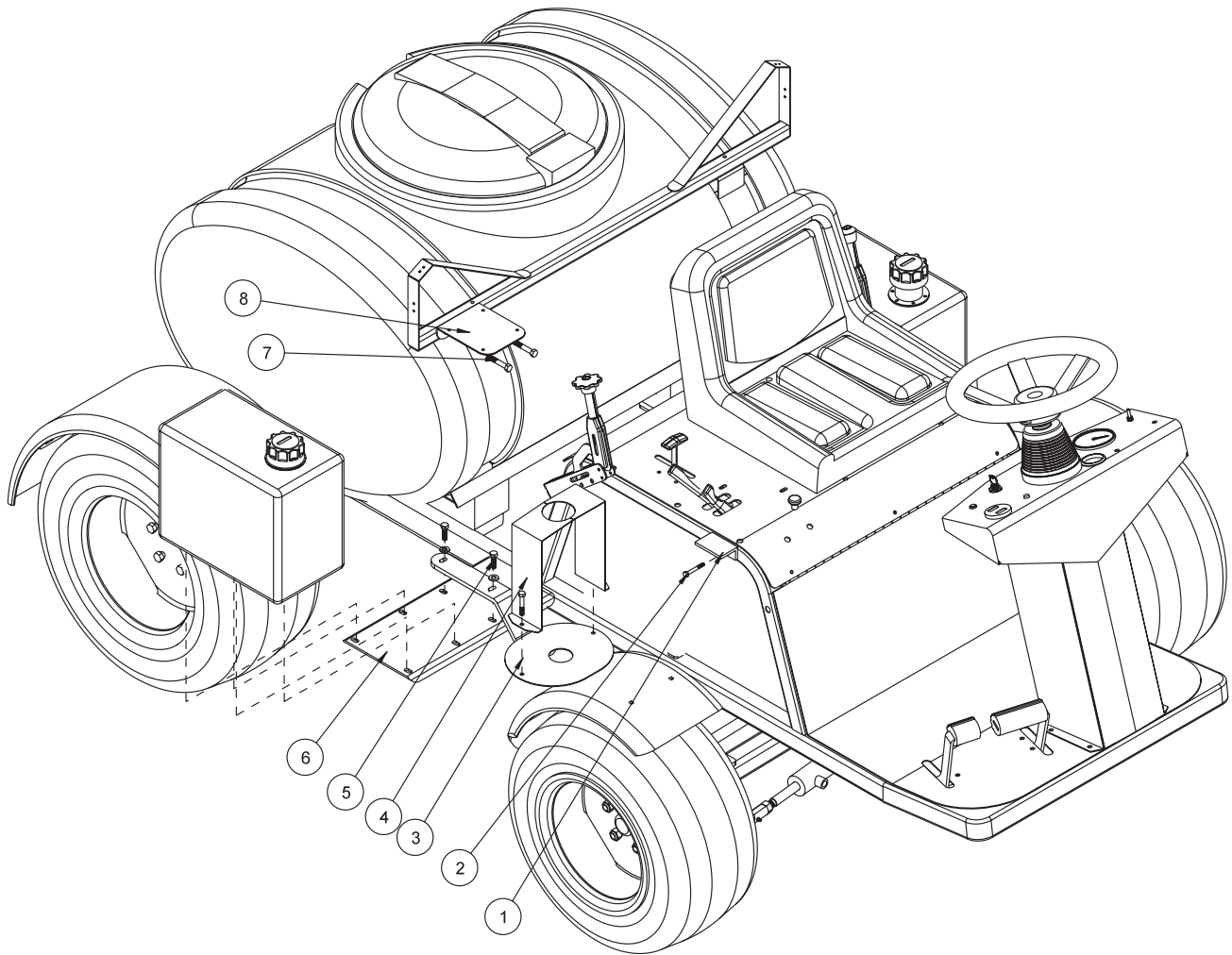
Route wire harness along side of tank and over to battery taking care to stay clear of moving parts or hot engine components. Cut off excess wire and strip back  $\frac{3}{8}$ ". Place one 8901 slide-on yellow connector on red wire and one on the white wire. Connect the two wires to the fuse block first the red to the (+) positive and the white to the (-) negative. Use dielectric grease on all electrical connections.



**Make certain you are connecting positive (+) to positive; negative (-) to negative while attaching power leads. If you do not observe polarity, damage will result to electrical components.**



## 10-105 FOAM MARKER MOUNTING DRAWING





## 10-105 FOAM MARKER PARTS LIST

| REF# | PART#         | DESCRIPTION                              | QUANTITY |
|------|---------------|--|----------|
| 1    |               | Control Box Bracket                      | 1        |
| 2    | HB-14-20-225  | Bolt $\frac{1}{4}$ - 20 x $2\frac{1}{4}$ | 1        |
|      | HNTL-14-20    | Lock Nut $\frac{1}{4}$ - 20              | 1        |
| 3    | 10-198        | Foamer Tank Bracket                      | 1        |
| 4    | 16-939        | Tank Strap                               | 1        |
|      | HB-516-18-200 | Bolt $\frac{5}{16}$ - 18 x 2             | 2        |
|      | HNTL-516-18   | Lock Nut $\frac{5}{16}$ - 18             | 2        |
| 5    | HB-38-16-125  | Bolt $\frac{3}{8}$ - 16 x $1\frac{1}{4}$ | 2        |
|      | HW-38         | Washer $\frac{3}{8}$                     | 2        |
|      | HNTL-38-16    | Lock Nut $\frac{3}{8}$ - 16              | 2        |
| 6    | 10-127        | Tank Mount                               | 1        |
| 7    | HB-38-16-225  | Bolt $\frac{3}{8}$ - 16 x $2\frac{1}{4}$ | 2        |
|      | HNTL-38-16    | Lock Nut $\frac{3}{8}$ - 16              | 2        |
| 8    | 10-213        | Foamer Compressor Bracket                | 1        |

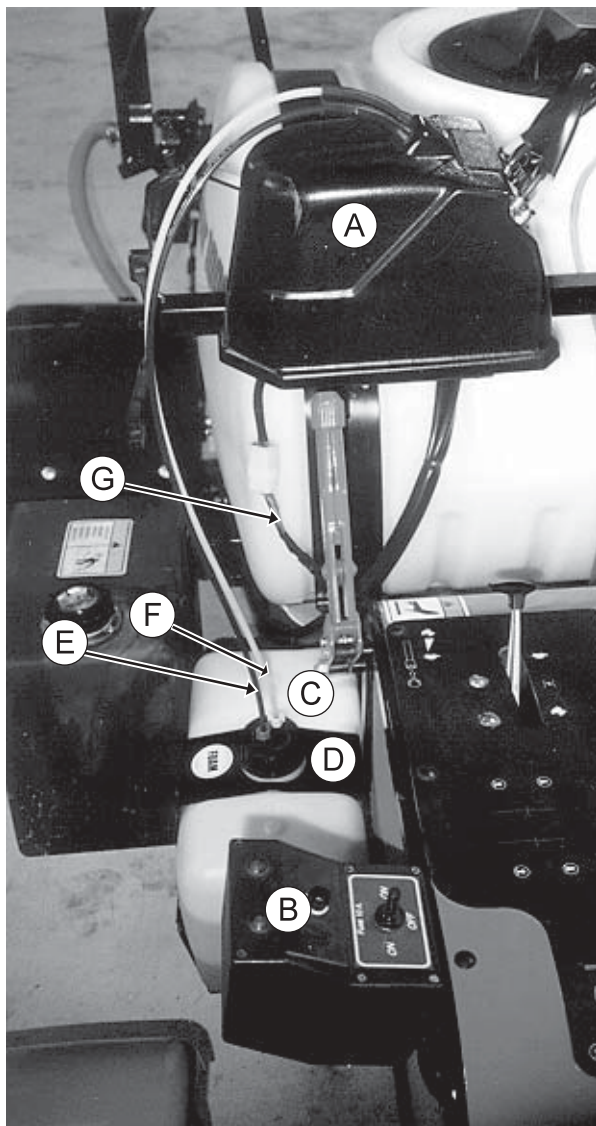
## FOAM MARKER INSTALLATION

- Before working on machine stop engine, set park brake, remove key from ignition and block wheels. Disconnect negative (-) battery terminal.
- To mount the control box on the right side tube, you need to drill a  $\frac{9}{32}$  hole in the center of the tube even with the seat. Use a  $\frac{1}{4}$  - 20 x  $2\frac{1}{4}$  bolt and lock nut to bolt the bracket (Ref 1) that comes with the control box to the side panel.
- Now mount the foamer compressor bracket (Ref# 8) to the horizontal boom support. Use two  $\frac{3}{8}$  - 16 x  $2\frac{1}{4}$  bolts and lock nuts.
- Remove the original mounting bracket from the compressor, saving the hardware, and mount the compressor on the bracket you just put on the boom support. Use existing hardware.
- Use the extension wire (10-222) to connect the compressor to the control box.
- Between the gas tank and the machine there are extra holes in the gas tank mount (Ref 6). Place the foamer tank bracket (Ref 3) on top of the gas tank mount and bolt down with  $\frac{3}{8}$  - 16 x  $1\frac{1}{4}$  bolts, washers, and lock nuts.
- Place the foamer tank (21-464) on the foamer tank bracket (Ref# 3) and hold in place with the tank strap (Ref 4) using two  $\frac{5}{16}$  - 18 x 2 bolts and lock nuts.

(Continued On Next Page)



## 10-105 FOAM MARKER INSTALLATION



- A. 15-504 Compressor Sub-Assembly
- B. 15-506 Switch Box
- C. 21-464 Foamer Tank
- D. 16-939 Tank Strap
- E. Blue Tube
- F. Clear Tube
- G. 10-222 Extension Wire

### CONNECTING THE CAP ASSEMBLY

Connect the blue tube to the tank cap connector which is also connected to the large blue tube which hangs below the cap. This is the soap outlet tube. Connect the clear tube to the other connector on the tank cap. This is the air input tube. Tighten connectors hand tight, assembly tank cap onto tank.

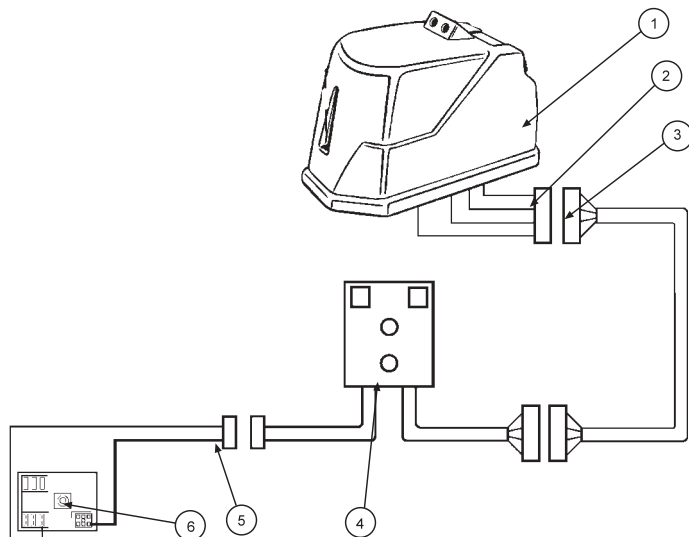
### HOSES

Being careful not to cut the tubing, cut the oversleeve back approximately 2" (5 cm) to expose blue and clear tubing. Remove blue wing nut from top connector of foam nozzle and slide it on the blue tube with the threads facing toward end of tube. Slide blue tube all the way over the top of the small tube on foam nozzle. Slide wing nut back to the threads and hand tighten. Follow the same steps for the clear tube and tube nut.

Route the tubing along underside of main frame using tie downs as necessary.

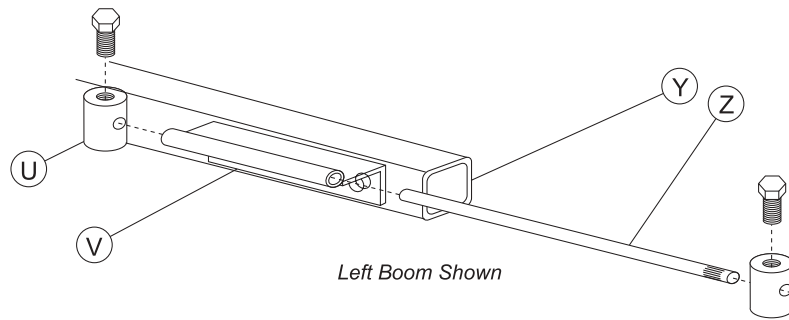
Install opposite ends of air-liquid tubes to compressor, again cutting back the oversleeve approximately 2" (5 cm) and inserting blue and clear tubes for the left boom section into the tubing connectors on the right side of compressor as far as possible. Follow the same steps for the right boom tubing. Notice the right boom is inserted into left side of compressor. To release tubing from compressor, hold black ring around tubing, and pull tube out.

## 10-105 FOAM MARKER WIRING DRAWING





## 10-105 FOAM MARKER INSTALLATION



### FOAMER NOZZLE ASSEMBLY

Slide hose clamp onto drop tube and attach restrictor bell.

### FOAMER NOZZLE MOUNTING

Place splined end of rod (Z) into top of foam nozzle assembly. Slide one locking collar (U) onto rod. Slide rod into mounting bracket (V) on boom. Slide second locking collar onto rod. Adjust locking collars and rod so nozzle assembly will clear end of boom. Tighten lock collar bolts to prevent side to side movement.

### HOSE GUARD

Hose's must be routed on bottom of square tubing.

Mark 8 1/2 inches in from cap on end of square tubing (front side).

Clamp hose guard flush with top of square tubing with edge on previous mark. The channel covers hoses.

Install using 3 drill screws (you may drill a 3/16 pilot hole first).

Place another hose guard against first and install in same manner.

Repeat process for other boom.

### WIRING

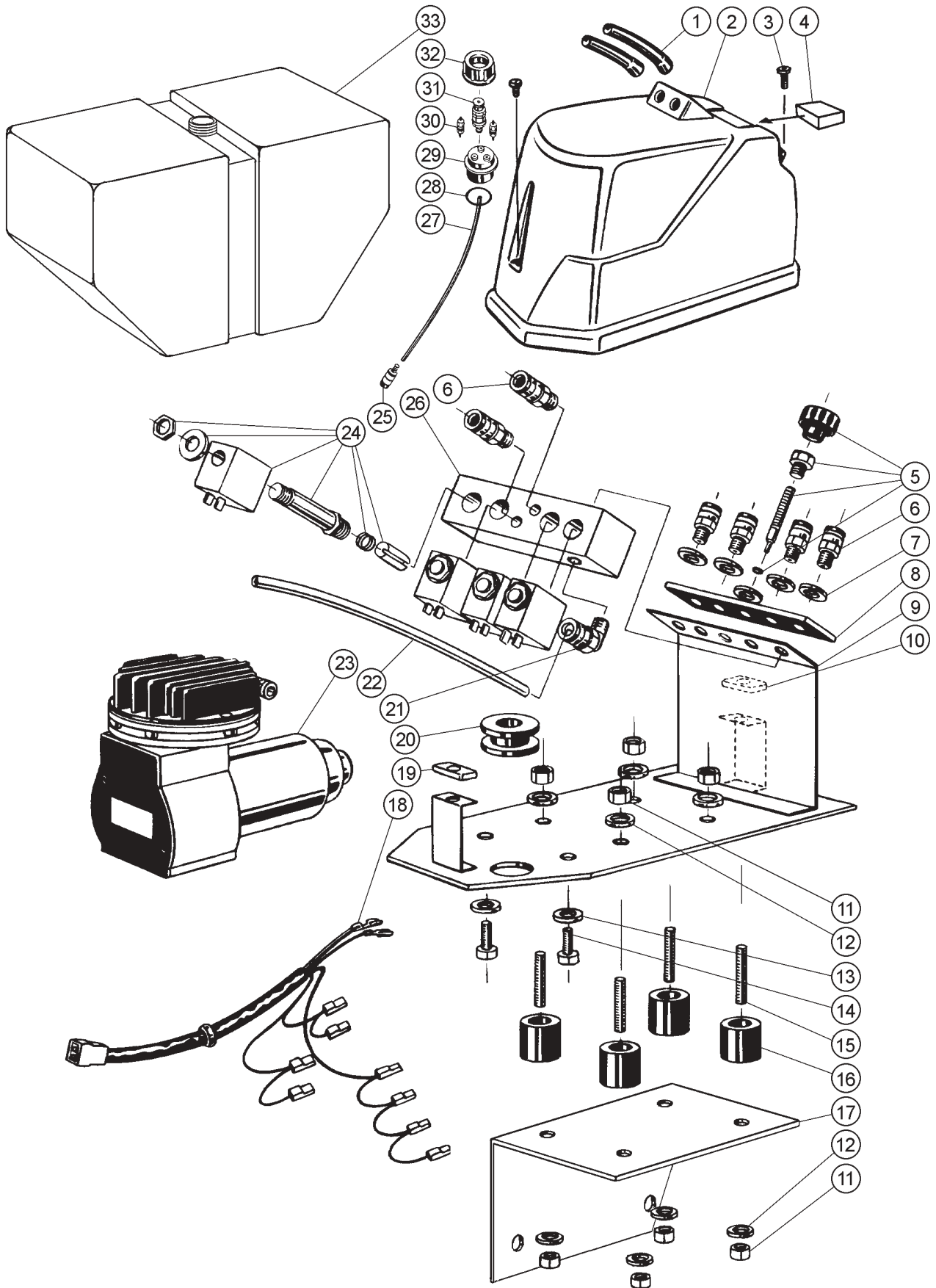
Use dielectric grease on all electrical connections. Connect extension wire (10-222) to the pig tail on the switch box and compressor. Connect power cable (15-509) to the switch box. Turn the switch off. Route the power wire to the fuse block (on the inside of the engine cover) out of the way of any heat or moving parts. Use nylon ties as needed. Cut the power wire with enough length to connect the fuse block. Put the slide on terminal with heat shrink onto the wire ends and connect to fuse block. Red to positive(+), black to negative(-). Insert 10 amp fuse into slot which has red wire attached to it.

## 10-105 FOAM MARKER WIRING PARTS LIST

| REF# | PART#     | DESCRIPTION                 | QUANTITY |
|------|-----------|-----------------------------|----------|
| 1    | 15-504    | Compressor                  | 1        |
| 2    | 15-504-04 | Wiring Harness              | 1        |
| 3    | 10-222    | Extension Wire              | 1        |
| 4    | 15-506    | Switch Box                  | 1        |
|      | 15-506-01 | Fuse (F10A 250V)            | 1        |
|      | 15-506-02 | Switch                      | 1        |
| 5    | 15-509    | Power Cable                 | 1        |
| 6    | 33-271    | Fuse Block                  | 1        |
|      | 33-507    | Auto Blade Type Fuse 10 amp | 1        |



# 15-504 COMPRESSOR SUB ASSEMBLY DRAWING



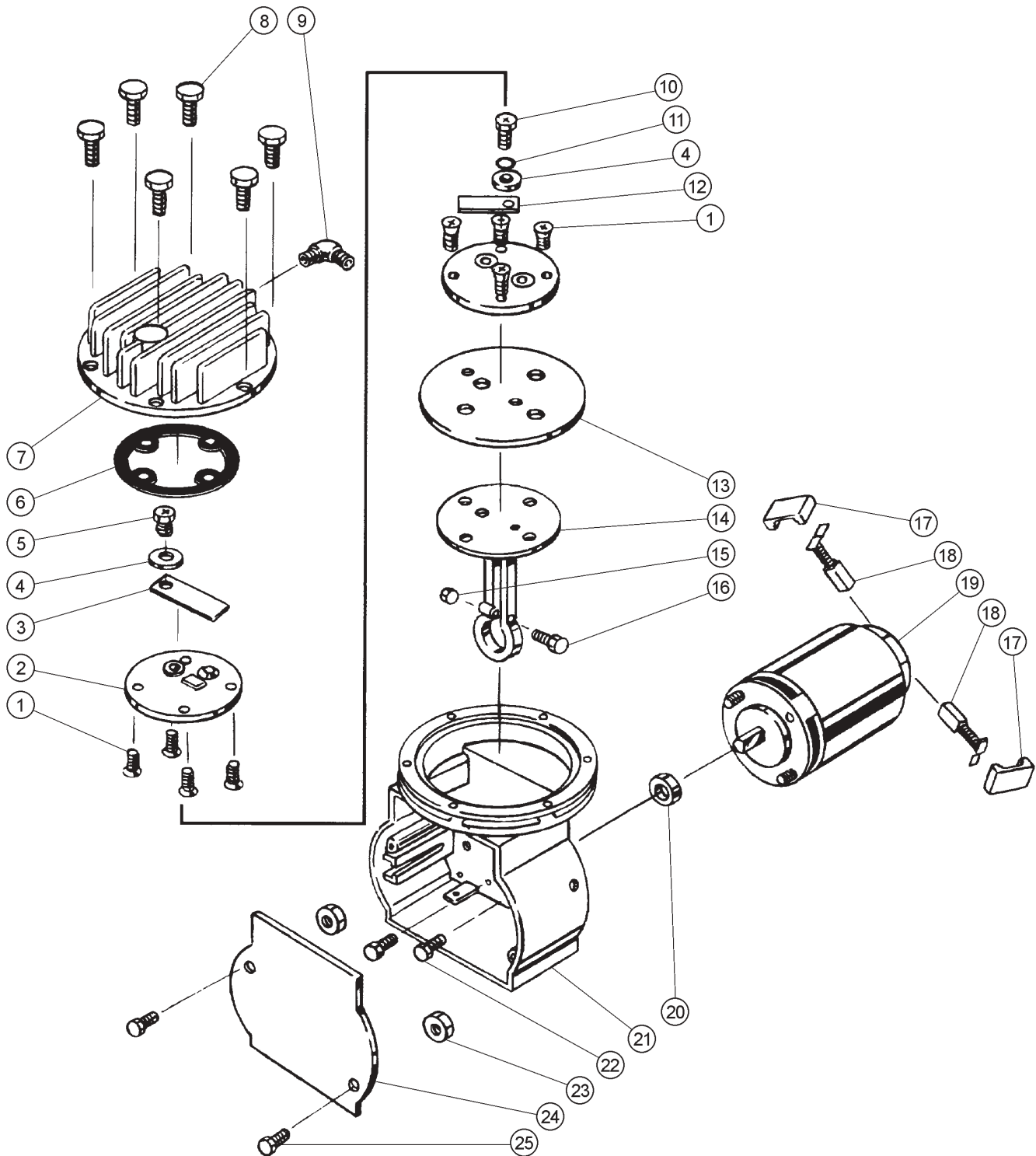


## 15-504 COMPRESSOR SUB ASSEMBLY PARTS LIST

| REF# | PART#     | DESCRIPTION  | QUANTITY |
|------|-----------|--|----------|
| 1*   |           | Tubing Cover Seal  | 2        |
| 2*   | 15-504-01 | Compressor Cover   | 1        |
| 3*   |           | Cover Screw  | 2        |
| 4*   | 15-504-03 | Air Filter   | 1        |
| 5†   | 15-504-07 | Needle Valve Sub Assembly  | 1        |
| 6†   | 15-504-11 | Tubing Connectors  | 6        |
| 7    |           | Gasket   | 4        |
| 8    |           | Manifold Cover Gasket  | 1        |
| 9    |           | Mounting Plate   | 1        |
| 10   |           | Front Foam Pad   | 1        |
| 11   |           | Nut  | 8        |
| 12   |           | Washer   | 8        |
| 13   |           | Washer   | 2        |
| 14   |           | Bolt   | 2        |
| 15   |           | Threaded Rod   | 4        |
| 16   |           | Bushing  | 4        |
| 17   |           | Bracket (Discard Original Bracket Use 15-524)  | 1        |
|      | 15-525    | Switch Box Mount   | 1        |
| 18   | 15-504-04 | Wiring Harness   | 1        |
| 19   |           | Rear Foam Pad  | 1        |
| 20   |           | Grommet  | 1        |
| 21†  |           | L-Tubing Connector   | 1        |
| 22†  |           | Tube 4"  | 1        |
| 23   | 15-505    | Motor Sub Assembly   | 1        |
| 24†  | 15-504-06 | Solenoid Valve Sub Assembly  | 4        |
| 25   | 15-512-02 | Strainer   | 1        |
| 26†  |           | Manifold Block   | 1        |
| 27   |           | Tube   | 1        |
| 28   | 15-512-01 | O-ring EPR Rubber  | 1        |
| 29   | 15-504-10 | Body   | 1        |
| 30   | 15-504-09 | Tubing Connector   | 2        |
| 31   | 15-504-08 | Pressure Relief Valve  | 1        |
| 32   | 15-512    | Cap  | 1        |
| 33   | 21-464    | Tank (includes 26-054 Bushing & 26-055 Shut off Valve)   | 1        |
|      | 15-506    | Switch Box   |          |
|      | 15-506-01 | Fuse (F10A 250V)   |          |
|      | 15-506-02 | Switch   |          |
|      | 15-507    | Tubing   |          |
|      | 15-508    | Compressor Extension Cable (Optional)  |          |
|      | 15-509    | Power Cable (Also Order Two 8853 Female Connectors)  |          |
|      | 15-510    | Boom Mounting Bracket Accessories (Includes Two 15-510-01 Nozzle Mounting Rods and Four Lock Collars with Bolts) |          |
| *    | 15-504-01 | Cover Sub Assembly   |          |
| †    | 15-504-05 | Valve Manifold Sub Assembly  |          |



# 15-505 MOTOR SUB ASSEMBLY DRAWING



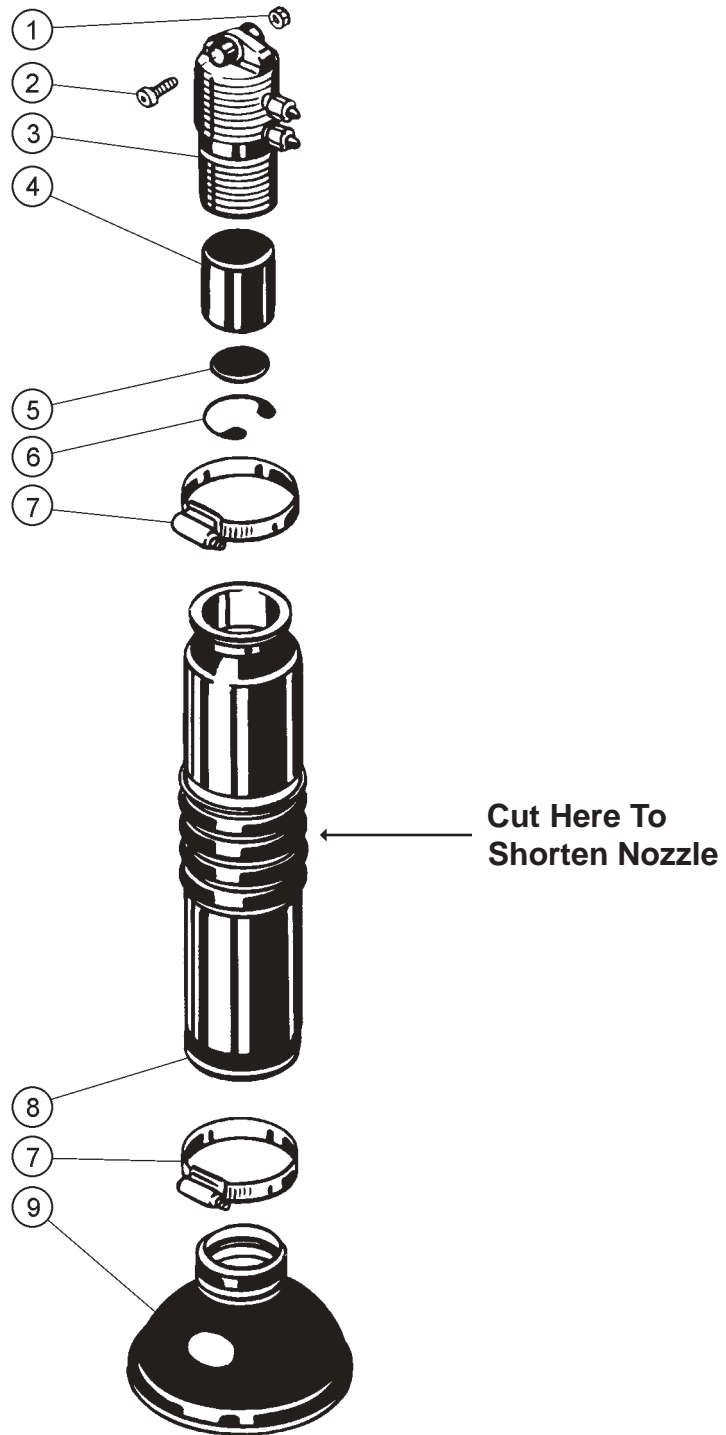


## 15-505 MOTOR SUB ASSEMBLY PARTS LIST

| REF# | PART#     | DESCRIPTION                       | QUANTITY |
|------|-----------|-----------------------------------|----------|
| 1†   |           | Manifold Screw                    | 8        |
| 2    |           | Exhaust Manifold                  | 1        |
| 3*   |           | Exhaust Reed Valve                | 1        |
| 4*†  |           | Washer                            | 2        |
| 5*   |           | Exhaust Valve Screw               | 1        |
| 6    | 15-505-01 | Exhaust Manifold Gasket           | 1        |
| 7    |           | Head                              | 1        |
| 8    |           | Bolt                              | 6        |
| 9    |           | L-Tubing Connector                | 1        |
| 10*† |           | Intake Valve Screw                | 1        |
| 11*† |           | Split Lockwasher                  | 1        |
| 12*† |           | Intake Reed Valve                 | 1        |
| 13†  | 15-505-03 | Diaphragm                         | 1        |
| 14†  |           | Piston                            | 1        |
| 15†  |           | Connecting Rod Nut                | 1        |
| 16†  |           | Connecting Rod Bolt               | 1        |
| 17   |           | Brush Retainer                    | 2        |
| 18   | 15-505-06 | Brush                             | 2        |
| 19   |           | 12 Volt Electric Motor            | 1        |
| 20   | 15-505-05 | Stainless Steel Bearing           | 1        |
| 21   |           | Block                             | 1        |
| 22   |           | Motor Bolt                        | 2        |
| 23   |           | Motor Nut                         | 2        |
| 24   |           | Cover                             | 1        |
| 25   |           | Cover Screw                       | 2        |
| *    | 15-505-02 | Intake Exhaust Valve Sub Assembly |          |
| †    | 15-505-04 | Intake Piston Sub Assembly        |          |



## 15-511 FOAM NOZZLE SUB ASSEMBLY DRAWING



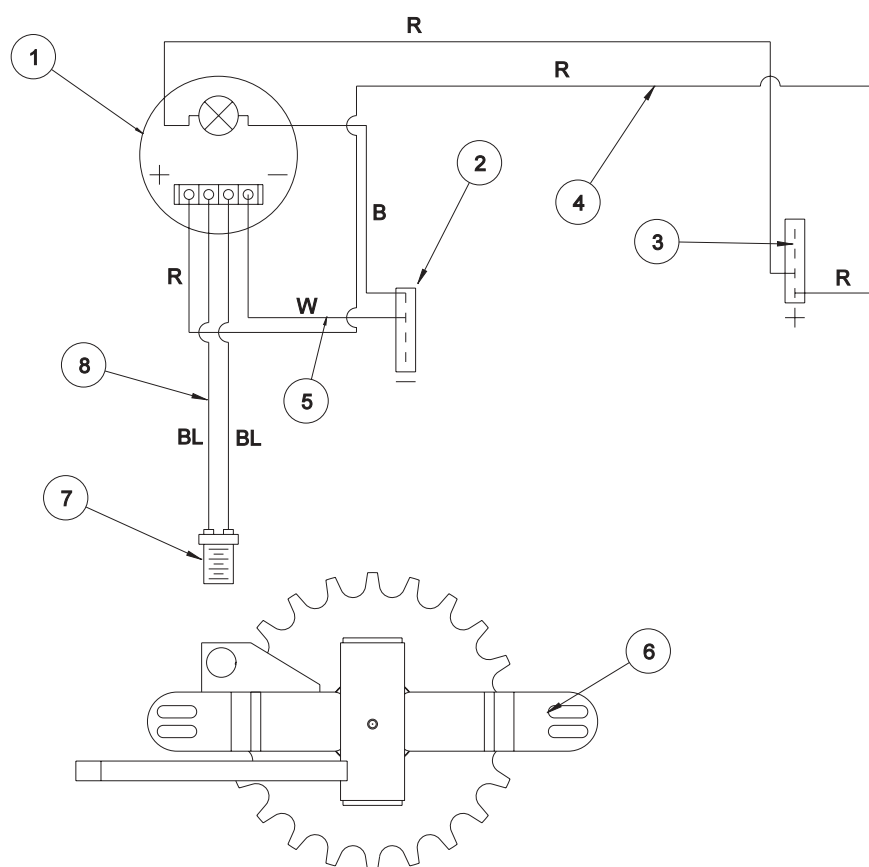


## 15-511 FOAM NOZZLE SUB ASSEMBLY PARTS LIST

| REF# | PART#     | DESCRIPTION                    | QUANTITY |
|------|-----------|--------------------------------|----------|
| 1†   |           | Nut                            | 1        |
| 2†   |           | Screw                          | 1        |
| 3†   |           | Foam Nozzle Inlet Body         | 1        |
|      | 15-510-01 | Nozzle Mounting Rods           | 2        |
| 4†   | 15-511-02 | Foam Sponge                    | 1        |
| 5†   | 15-511-03 | Stainless Steel Screen         | 1        |
| 6†   | 15-511-04 | Stainless Steel Snap Ring      | 1        |
| 7    | 18-123    | Hose Clamp                     | 2        |
| 8    |           | Drop Tube                      | 1        |
| 9    | 15-511-05 | Restrictor Bell                | 1        |
| †    | 15-511-01 | Foam Nozzle Inlet Sub Assembly |          |

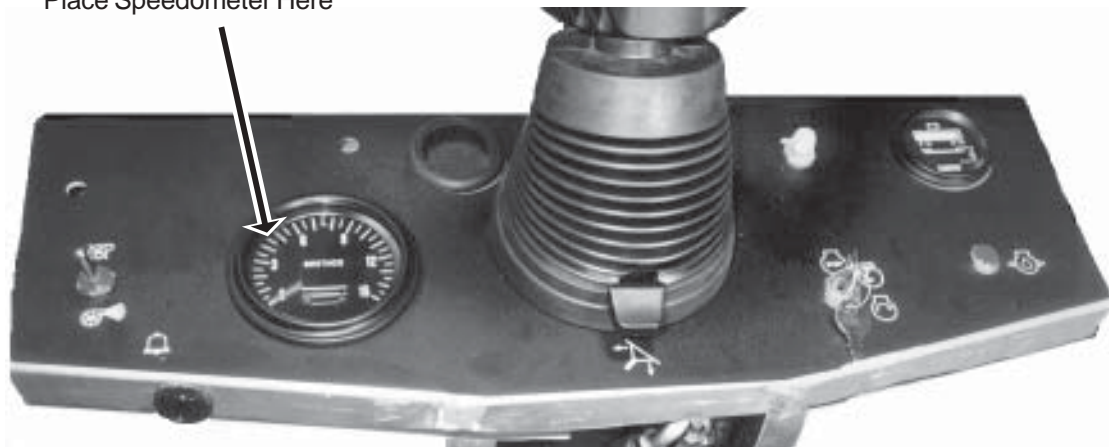


## 10-108 SPEEDOMETER KIT DRAWING



## SPEEDOMETER LOCATION

Place Speedometer Here





## 10-108 SPEEDOMETER KIT PARTS LIST

| REF# | PART#  | DESCRIPTION  | QUANTITY |
|------|--------|--|----------|
| 1*   | 10-202 | Speedometer  | 1        |
|      | 8854   | Fork Terminal  | 2        |
|      | 8962   | Heat Shrink  | 2        |
| 2    | 8935   | Buss Bar(-)  | 1        |
| 3    | 8935   | Buss Bar(+)  | 1        |
| 4    |        | Speedometer to Buss Bar(+) (Part of console wire harness 10-224) |          |
| 5*   | 10-183 | Speedometer Ground Wire  | 1        |
| 6    | 10-152 | Left Spindle   | 1        |
| 7*   | 16-883 | Magnetic Sensor  | 1        |
| 8*   | 10-209 | Speedometer Wire Harness   | 1        |

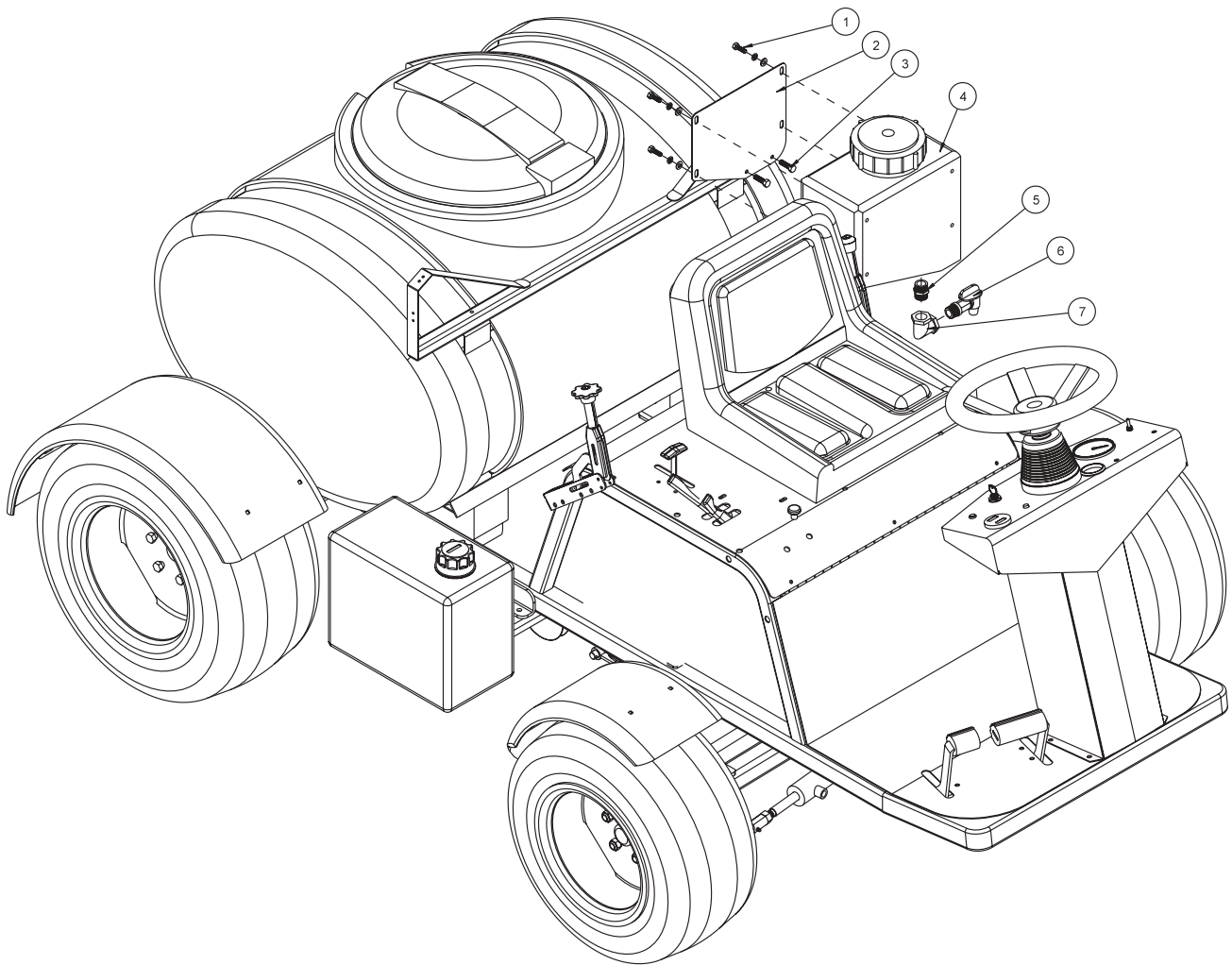
\* Part of 10-108 Speedometer Kit

## SPEEDOMETER KIT INSTALLATION

1. Shut off machine, remove key, set park brake, remove negative(-) battery cable from battery.
2. Using a utility knife, cut out decal covering hole on left side of dashboard. Remove plug from speedometer hole.
3. Put the heat shrink on the red and black wires on speedometer. Put the fork terminals on the wires, slide heat shrink over the ends of terminals and apply heat to shrink. Connect the ground wire 10-183 to the negative (-) terminal on the speedometer using the fork terminal. Use dielectric grease on all electrical connections.
4. Turn the steering wheel all the way to the right. On the inside of the left front wheel there is a sprocket. From the rear of the machine, place the magnetic sensor into the hole on the bracket of the spindle that lines up with the teeth on the sprocket. Adjust the magnetic sensor so that it is between  $\frac{1}{8}$  and  $\frac{3}{16}$  inch away from the sprocket.
5. Connect the ring terminals on the wire harness to the terminals on the magnetic sensor. Run the wire harness to the center of the machine, along the front axle, up through the hole in the floorboard, up the console and through the hole for the speedometer. Use the nylon ties to tie the wire harness to the axle so that it will not hang loose or rub on anything. Cut off the excess ties.
6. Bring the speedometer up to the dashboard. Connect the speedometer wire harness to the center terminal of the speedometer.
7. Under the dashboard there is a red wire with a fork terminal that is not connected to anything. Bring it up to the speedometer and connect it to the positive(+) terminal.
8. Remove the hold down from the speedometer and slide the speedometer through the hole. Make sure that the speedometer is straight. Put the hold-down back on, keeping the speedometer straight and not touching any of the wires.
9. Connect the white ground wire from the speedometer to the ground (-) buss bar on the left hand side of the steering column.
10. Reconnect the negative (-) battery cable. Speedometer should work. If not, check sensor clearing.



## 10-106 FRESH WATER WASH TANK DRAWING





## 10-106 FRESH WATER WASH TANK PARTS LIST

| REF# | PART#         | DESCRIPTION                                | QUANTITY |
|------|---------------|--|----------|
| 1    | HB-516-18-075 | Bolt $\frac{5}{16}$ - 18 x $\frac{3}{4}$   | 4        |
|      | HWL-516       | Lock Washer $\frac{5}{16}$                 | 4        |
|      | HW-516        | Washer $\frac{5}{16}$                      | 4        |
| 2    | 10-216        | Fresh Water Tank Bracket                   | 1        |
| 3    | HB-38-16-200  | Bolt $\frac{3}{8}$ -16 x 2                 | 2        |
|      | HNTL-38-16    | Lock Nut $\frac{3}{8}$ -16                 | 2        |
| 4    | 10-234        | 3 Gallon Rectangular Tank                  | 1        |
| 5    | 16-158        | Close Nipple $\frac{3}{4}$ x $\frac{3}{4}$ | 1        |
| 6    | 16-960        | Spigot $\frac{3}{4}$ NPT                   | 1        |
| 7    | 16-151        | Elbow FPT $\frac{3}{4}$ x $\frac{3}{4}$    | 1        |

## INSTALLATION INSTRUCTIONS

1. Fresh Water Wash Tank mounts on the left side of the horizontal boom support.
2. Insert the close nipple into the bottom of the tank. Then place the elbow on the close nipple so it is pointing away from the machine. Place the spigot into the elbow. For best results use plumbers tape on all fittings.
3. Place the mount bracket onto the boom support using the two  $\frac{3}{8}$  bolts and lock nuts.
4. Line holes on the tank with holes on the mount bracket and use the  $\frac{5}{16}$  bolts to fasten tank to mount bracket.
5. Rinse tank with clear water and check for leaks around fittings.



**This tank is for fresh clear water ONLY. Do not put chemicals in this tank.**

**WARNING**







This is a list of decals located on the Spray Star 1000. Part number, description and location will help in reordering a decals.

|        |                        |                              |
|--------|------------------------|------------------------------|
| 25-344 | Decal, 3" Star         | Front Nose Cone              |
| 25-342 | Decal, Smithco         | Front Nose Cone              |
| 25-347 | Decal, Dash            | Dashboard                    |
| 10-244 | Decal, Control Panel   | Control Panel                |
| 13-063 | Decal, Warnings        | In Front of Seat             |
| 25-298 | Decal, Warning Hot     | Hood - Back Edge, Both Sides |
| 27-092 | Decal, Lift Hood       | Hood - Back Edge, Middle     |
| 16-231 | Decal, Computer Cables | Front Edge                   |
| 25-308 | Decal, Engine RPM      | Engine                       |
| 76-304 | Decal, Crush Pinch     | Front Side of Tank           |
| 25-345 | Decal, Spray Star 1000 | Right and Left Tank Sides    |
| 25-307 | Decal, Gas             | Gas Tank                     |
| 25-352 | Decal, Bypass Valve    | Hang Tag                     |
| 25-353 | Decal, Spray Boss      | Hang Tag                     |
| 25-356 | Decal, Tire Pressure   | All Wheels                   |



## QUICK REFERENCE REPLACEMENT PARTS

### REPLACEMENT FILTERS

|        |                      |                    |
|--------|----------------------|--------------------|
| 23-031 | Hydraulic Oil Filter |                    |
| 78-090 | Oil Filter           | Kohler # 12 050 01 |
| 76-311 | Air Filter Element   | Kohler # 24 083 03 |
| 76-312 | Pre-Cleaner          | Kohler # 24-083-05 |
| 13-288 | Key Switch           |                    |

### REPLACEMENT BELTS

|        |      |
|--------|------|
| 10-179 | Belt |
|--------|------|

### SEAL KITS

|           |                    |
|-----------|--------------------|
| 34-103    | Orbital            |
| 15-315-01 | Repair Kit         |
| 10-135    | Hydraulic Cylinder |
| 14-267    | Seal Kit           |
| 10-116    | Wheel Motor        |
| 10-117    | Pump               |
| 10-187    | Hydraulic Cylinder |
| 14-273    | Seal Kit           |

### FLUIDS

|                 |   |
|-----------------|---|
| Brake Fluid     | Dot 3   |
| Engine Oil      | SAE 10W-40 API Service SJ or higher Motor Oil |
| Hydraulic Fluid | SAE 10W-40 API Service SJ or higher Motor Oil |
| Rear Axle Fluid | SAE 80W-90 Gear Lube API Service GL-5, GL-4   |

### OTHER PARTS

|               |   |  |
|---------------|---|--|
| 16-953        | Hinged Cover On Tank with Gasket          |  |
| 16-953-01     | Gasket For Cover                          |  |
|               | Spark Plugs                               | Champion type RC12YC (Gap 0.030 inch (.76 mm)) |
| Spline Grease | #77 Assembly Paste (Kohler # 25 357 12-s) |  |



## LIMITED WARRANTY

SMITHCO warrants this product to be free from defects in material and workmanship under normal use for one year from the date of purchase by the original user. (60 days if product is used for rental purposes.) All warranty claims must be handled through a SMITHCO authorized dealer or by SMITHCO, INC. All transportation charges must be paid by the purchaser.

There is no further express warranty. All implied warranties, including those of merchantability and fitness for a particular purpose, are limited to one year, (60 days if product is used for rental purposes) from the date of purchase by the original user, and to the extent permitted by law any and all implied warranties are excluded and disclaimed after the expiration of such period.

All incidental and consequential damages, including pickup and delivery of the unit, communication, mileage charges and/or rental of a replacement unit during repair, are not covered under this warranty, nor is any loss of income and/or other loss resulting from the failure of the product to function due to a warranty defect.

The following items are not covered under the SMITHCO warranty, and are warranted by their respective manufacturer.

- (a) Engine and engine parts, including starters, generators, alternators and filters.
- (b) Transaxle, differentials, gear boxes and mechanical pumps.
- (c) Hydrostatic transmissions, hydraulic pumps and motors.
- (d) Batteries.
- (e) Wheels and tires.

A copy of the warranty for the above items is furnished if necessary with each SMITHCO product.

Some states do not allow limitations on how long an implied warranty lasts, or the exclusion or limitations of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights, which may vary from state to state.

Federal law now requires disclosure of the warranty which applies to this product prior to the sale to a customer. Please leave this statement attached to the product and allow the buyer to remove it after purchase.

# **SMITHCO**

Wayne, Pennsylvania 19087



