

Parts & Service



Spray Star 1110

Truck Model 10-000-F

Manual System 1101
TeeJet Radion[®] 8140 1102
TeeJet[®] 744 1104
TeeJet Aeros/DynaJet[®] 1115/1118
TeeJet Radion/DynaJet[®] 1105/1108

SN: 100684

Product Support:

Hwy 55 & Poplar Ave; Cameron WI 54822

1-800-891-9435 productsupport@smithco.com

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

Read this manual and all other manuals pertaining to the Spray Star 1110 carefully as they contain 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.

 **WARNING:**

Engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

For more information visit www.P65Warning.ca.gov

WARNING

Failure to follow cautious operating practices can result in serious injury to the operator or other persons. The owner must understand these instructions, and must allow only trained persons who understand these instructions to operate this vehicle.


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 1110 is located on the right front bumper. Refer to engine manual for placement of engine serial number. Refer to engine manual for placement of engine serial number.

For product and accessory information, help finding a dealer, or to register your product please contact us at www.Smithco.com.

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

For easy access record your Serial and Model numbers here.

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

SMITHCO CUSTOMER SERVICE 1-800-891-9435

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 gages 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.

These machines are intended for professional maintenance on golf courses, sports turf, and any other area maintained turf and related trails, paths and lots. No guaranty as to the suitability for any task is expressed or implied.



SPECIFICATIONS SPRAY STAR 1110

WEIGHTS AND DIMENSIONS

| | |
|----------------------|--------------------|
| Length | 112" (285 cm) |
| Width | 70" (178 cm) |
| Height With 18' Boom | 110" (240 cm) |
| Height | 75" (191 cm) |
| Wheel Base | 53" (135 cm) |
| Weight Empty | 1676lbs (760 kg) |
| Weight Full | 2592 lbs (1175 kg) |

SOUND LEVEL (DBA)

| | |
|-------------------|--------|
| At ear level | 85 dba |
| At 3 ft (0.914 m) | 83 dba |
| At 30 ft (9.14 m) | 72 dba |

ENGINE

| | |
|--------------------|-------------------------------------|
| Make | Briggs & Stratton |
| Model# | 386447 |
| Type / Spec# | 0058 G1 |
| Horsepower | 23HP (17 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 Smooth; 20psi (1.4 bar) |
| Rear: | Two 24 x 13.00 x 12 NHS Multi-Trac; 20 psi (1.4 bar) |
| | Hand Operated Lever, Discs on Rear Axle |

PARK BRAKE

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 | 6 gallon (22.7 liters) |
| Hydraulic Fluid | 5 gallon (19 liters) |
| Grade of Hydraulic Fluid | SAE 10W-40 API Service SJ or higher Motor Oil |

OPTIONAL EQUIPMENT

| | | | |
|--------|---|-----------|-----------------------------|
| 10-417 | Chemical Clean-load Safe Fill System | 15-601 | 15' Heavy Duty Boom |
| 10-734 | 16 Gal. Wash System | 17-585 | 18' Heavy Duty Boom |
| 10-653 | Fresh Water Tank - Front Mount | 1104 | TeeJet 744 Spray System |
| 30-006 | Fresh Water Tank - Rear mount | 1102 | Radion 8140 Spray System |
| 15-835 | Tank Rinsing System | 1101 | 3-Way Manual System |
| 10-370 | Water Meter Kit (liters) | 1105/1108 | DynaJet/Radion Spray System |
| 10-365 | Water Meter Kit (gallons) | 1115/1118 | DynaJet/Aeros Spray System |
| 10-740 | Foam Marker | 15-622 | Canopy |
| 10-422 | Hose Reel Mount Kit | | |
| 16-129 | Manual Rewind Hose Reel, 200-foot/61-meter capacity | | |
| 16-906 | Electric Rewind Hose Reel, 200-foot/61-meter capacity | | |



MAINTENANCE

⚠ CAUTION

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

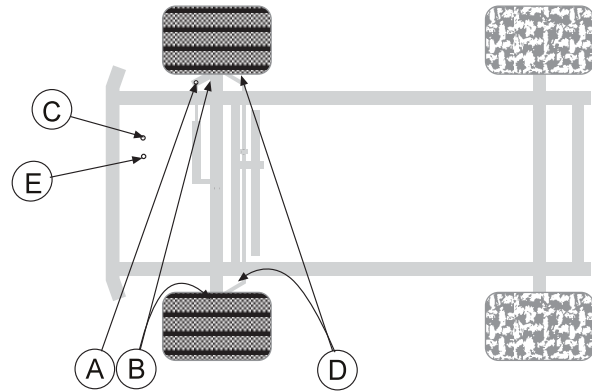
⚠ IMPORTANT

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 1110 has 7 lube points.

- One on the rod end of hydraulic cylinder.
- One on each the right and left spindles.
- One on the reverse pedal.
- One on each end of tie rod.
- One on the forward pedal.



ELECTRICAL CONNECTIONS

Use dielectric grease on all electrical connections.

AIR CLEANER

- Loosen cover retaining snaps and remove cover.
- Remove pre-cleaner from paper element.
- Check paper element. Replace element as necessary.
- 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.
- Saturate pre-cleaner with new engine oil. Squeeze out all excess oil.
- Reinstall pre-cleaner over paper element.
- Reinstall air cleaner cover. Secure cover with cover retaining knob.

WHEEL MOUNTING PROCEDURE

- Set park brake. Turn machine off and remove key.
- Block wheel on opposite corner.
- Loosen nuts slightly on wheel to be removed.
- Jack up machine being careful not to damage underside of machine.
- Place wheel on hub lining up bolt holes.
- Torque to 64-74 ft/lb (87-100Nm) using a cross pattern. Re-torque after first 8 hours and every 250 hours thereafter.
- Lower machine to ground and remove blocks and jack.

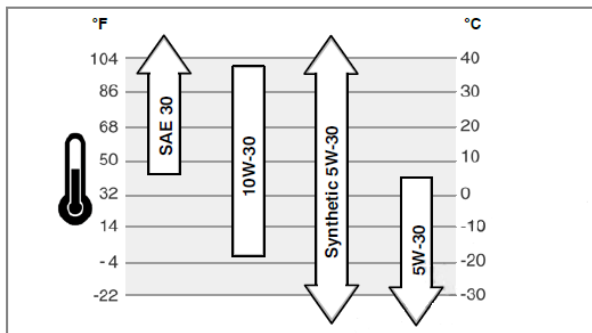
TIRE PRESSURE

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.

ENGINE OIL

Change and add oil according to chart below. Do not overfill. Engine oil capacity is 2 quarts. We recommend high-quality detergent oils classified for service SF, SG, SH, SJ or higher. Do not use special additives. Outdoor temperatures determine the proper oil viscosity for the engine. Use the chart to select the best viscosity for the outdoor temperature range expected

SAE VISCOSITY GRADES



Use of multi-viscosity oils (10W-30, etc.) above 80° F (27° C) will result in high oil consumption and possible engine damage. Check oil level more frequently if using these types of oils.

SAE 30 oil, if used below 40° F (4° C), will result in hard starting and possible engine bore damage due to inadequate lubrication.

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, whichever ever is first. Change the filter after the first 50 hours, then every 250 hours thereafter.
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.

MAINTENANCE

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

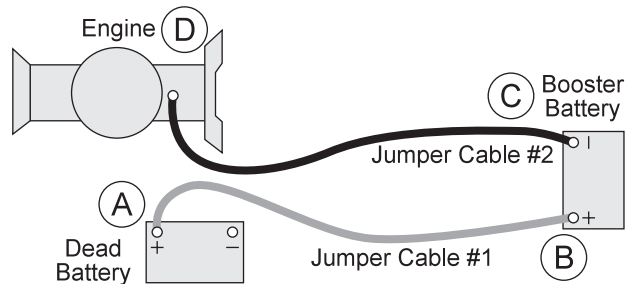
Battery Electrolyte is an acidic solution and should be handled with care. If electrolyte is splashed on any part of your body, flush all contact areas immediately with liberal amounts of water. Get medical attention immediately.

⚠ 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.

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.

SERVICE CHART

⚠ CAUTION

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

⚠ IMPORTANT

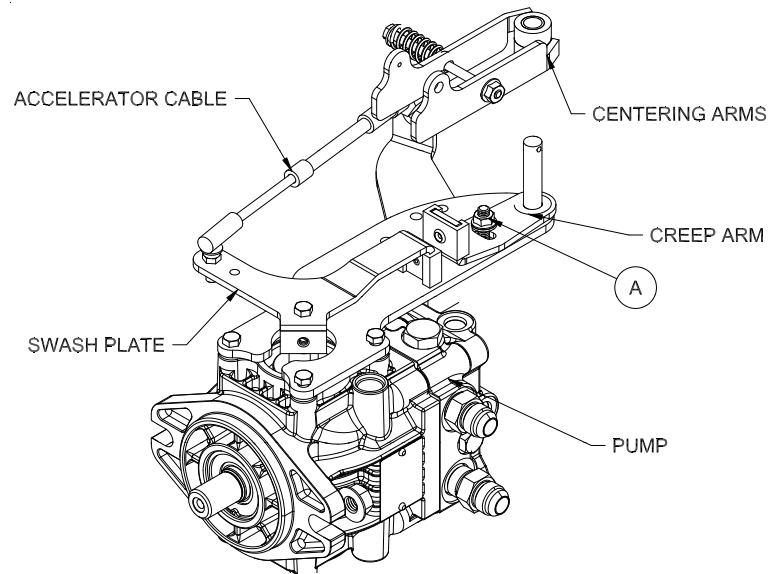
Follow all procedures and **ONLY** use parts prescribed by the manufacturer. Read the engine manual before maintenance.

| Maintenance Service Interval | Maintenance Procedure |
|---|---|
| After the first 8 operating hours | Torque the wheel lug nuts. (64-74 ft/lb (87-100 Nm)) |
| | Change the engine oil filter. |
| Before each use daily | Check the engine oil level. |
| | Clean area around muffler and controls. |
| | Check the hydraulic fluid level. |
| | Check the tire pressure. |
| | Check condition of hydraulic hoses and fittings. |
| | Inspect and clean the machine. |
| After the first 50 hours | Change Hydraulic Oil Filter. |
| Every 100 hours | Clean or change air filter. ¹ |
| | Clean pre-cleaner. ¹ |
| | Change engine oil and filter. |
| | Replace spark plug . |
| | Lubricate machine. |
| | Clean or change remote air cleaner. |
| | Check the battery fluid level and cable connections.. |
| | Check muffler and spark arrestor. |
| Check belt tension . | |
| Every 250 hours | Check engine valve clearance and adjust if necessary. |
| | Check idle speed. |
| | Clean battery terminals. |
| | Change hydraulic oil filter. |
| | Torque the wheel lug nuts. (64-74 ft/lb (87-100 Nm)) |
| Every 500 hours or yearly | Change fuel filter. |
| | Change hydraulic oil and filter. |
| | Clean oil cooler fins. ¹ |
| | Clean air cooling system. ¹ |
| | Check safety filter in remote air cleaner. |
| 1 In dusty conditions or when airborne debris is present, clean more often. | |

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. On top of the pump there is a Creep arm. Loosen bolt (Ref A) on creep arm.
3. With engine running, adjust the 'creep arm' side to side so centering arm centers on the swash plate.
4. Tighten all fasteners and test by using foot pedal linkage to see that 'creep' is removed.
5. Turn engine off and lower machine.



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.

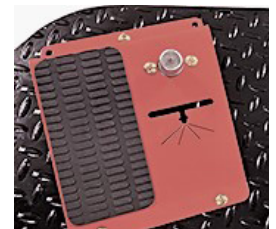


SPRAY PUMP

Located to the rear and right of the engine. Should have approximately $1/2$ " (13mm) of deflection in the center of the top strand. Loosen two $9/16$ x $1 3/4$ bolts. Slide pump to the rear to desired tension. Tighten two $3/8$ x $1 1/2$ bolts.

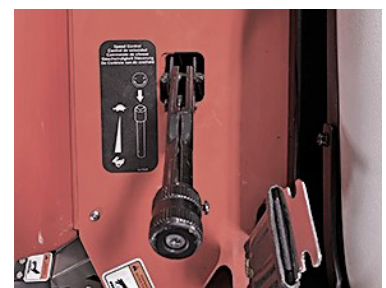
MASTER BOOM SWITCH (FOOT SWITCH)

The master boom switch, located on the left floorboard is used to override the master switch on the computer console of the Radion 8140 spray system. By pushing down it will turn on/off the booms.



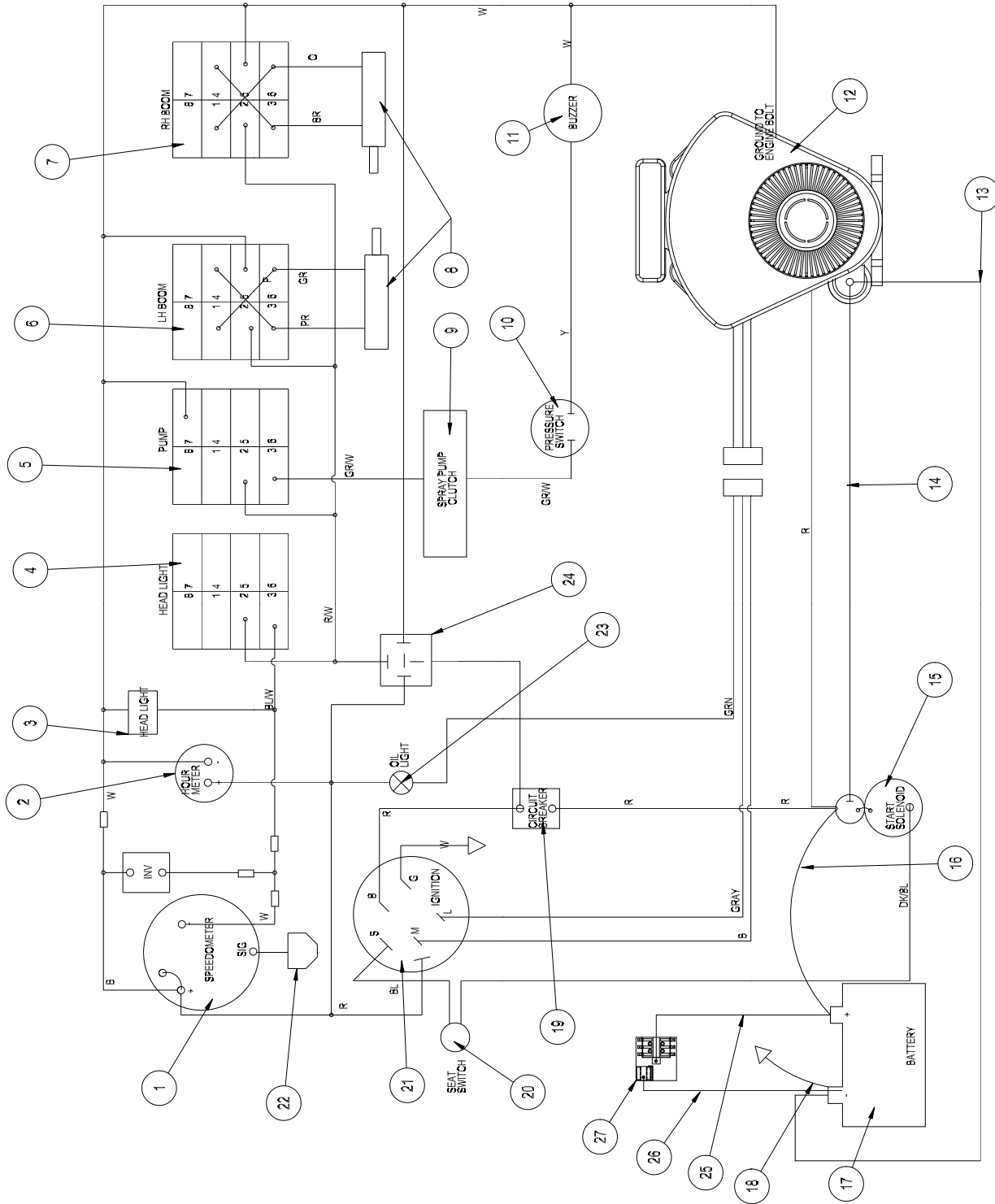
SPRAY BOSS CONTROL HANDLE (ORANGE)

This lever located on the left side of the seat engages and disengages the speed boss. Forward is engage and all the way back is disengage. When the lever is engaged it sets a stop for the accelerator. The accelerator pedal must be used to maintain this speed. To adjust speed use the knob on the end of the lever, counter clockwise increases speed and clockwise decreases speed. Disengage the lever and you will have full accelerator pedal range.



WIRING DIAGRAM

Use dielectric grease on all electrical connections.

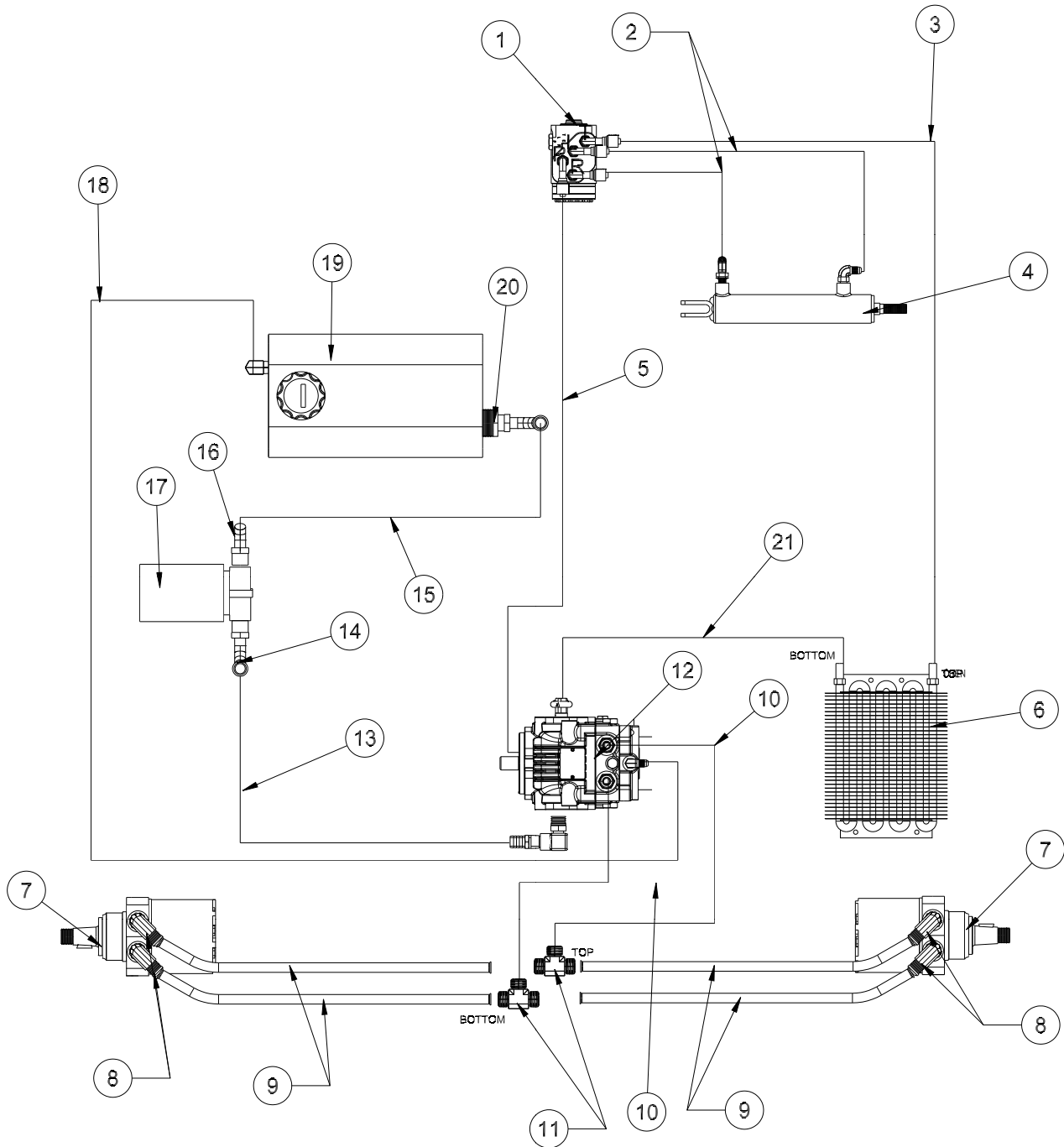


WIRING PARTS LIST

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|------------|--|----------|
| 1 | 20-730 | GPS Speedometer | 1 |
| | 8874 | Female Bullet | 1 |
| | 8875 | Male Bullet | 2 |
| | 8963 | Heat Shrink | 3 |
| 2 | 12-804 | Hour Meter | 1 |
| 3 | 10-732 | LED Head Light | 2 |
| 4 | Head Light | | |
| | 15-725 | Mount Panel End | 1 |
| | 15-727 | Rocker, No Light | 1 |
| | 15-782 | Non-Lighted Switch | 1 |
| 5 | Pump | | |
| | 15-729 | Mount Panel Middle | 1 |
| | 15-726 | Lighted Switch | 1 |
| | 15-731 | Rocker, Amber | 1 |
| 6 | Left Boom | | |
| | 15-729 | Mount Panel Middle | 1 |
| | 15-727 | Rocker, No Light | 1 |
| | 15-728 | Centering Switch Momentary, On-Off-On | 1 |
| 7 | Right Boom | | |
| | 15-725 | Mount Panel End | 1 |
| | 15-727 | Rocker, No Light | 1 |
| | 15-728 | Centering Switch Momentary, On-Off-On | 1 |
| 8 | 30-214 | KYB Electric/Hydraulic Actuators | 2 |
| 9 | 16-998 | Hypro Pump With Electric Clutch | 1 |
| 10 | 33-480 | Pressure Switch | 1 |
| 11 | 77-207 | Buzzer | 1 |
| | 8874 | Female Bullet | 1 |
| | 8875 | Male Bullet | 1 |
| | 8963 | Heat Shrink | 2 |
| 12 | 10-575 | Briggs, 23HP Engine | 1 |
| 13 | | Black Cable | 1 |
| 14 | 22-017 | Starter Cable | 1 |
| 15 | 13-750 | Solenoid w/ Connector | 1 |
| 16 | 75-518 | Red Battery Cable | 1 |
| 17 | 33-216 | Battery | 1 |
| 18 | 76-327 | Ground Battery Cable | 1 |
| 19 | 77-261 | Circuit Breaker | 1 |
| | 8977 | Circuit Breaker Boot | 1 |
| 20 | 14-292 | Seat Switch | 1 |
| 21 | 13-488 | Ignition Switch | 1 |
| 22 | 20-730-01 | Antenna (comes with Speedometer) | 1 |
| 23 | 50-359 | Oil Warning Light | 1 |
| | 8853 | Slide On Connector | 1 |
| | 8958 | Male Spade | 1 |
| | 8963 | Heat Shrink | 2 |
| 24 | 9016 | Weather Pack | 1 |
| | 9017 | Terminal | 2 |
| | 9018 | Seal | 2 |
| 25 | 8919-39 | 10GA Red Wire | 1 |
| | 8928 | ⁵ / ₁₆ Ring terminal | 1 |
| | 8912 | ³ / ₁₆ Ring Terminal | 1 |
| | 8963 | Heat Shrink | 2 |
| 26 | 8931-46 | 10GA White Wire | 1 |
| | 8928 | ⁵ / ₁₆ Ring terminal | 1 |
| | 8912 | ³ / ₁₆ Ring Terminal | 1 |
| | 8963 | Heat Shrink | 2 |
| 27 | 33-271 | Fuse Panel | 1 |
| | 10-665 | Wire Harness | 1 |

To reset circuit breaker on ball valve, you must disconnect power to computer.

HYDRAULIC DIAGRAM



HYDRAULIC PRESSURES

Piston Pump Displacement .913 in³
 Pump Input Speed (up to) 3600 rpm
 Max. Operating Pressure 3000 peak psi
 Implement Setting 345 psi
 13-729 Hydraulic Valve (2 bank) 900 psi

Charge Pump Displacement .33 in³/rev
 Max. Inlet Vacuum 5 in. Hg
 Max. Case Pressure 25 psi
 Relief Valve Pressure (set at) 1200 psi

HYDRAULIC DIAGRAM PARTS LIST

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|---------|---------------------------|----------|
| 1 | 15-301 | Orbital | 1 |
| | 18-169 | 3/8 Adapter Fitting | 4 |
| 2 | 10-671 | Hydraulic Hose x 65" | 2 |
| 3 | 10-669 | Hydraulic Hose x 59" | 1 |
| 4 | 77-263 | Hydraulic Cylinder | 1 |
| | 18-168 | 3/8 Street Elbow | 2 |
| 5 | 10-670 | Hydraulic Hose x 102" | 1 |
| 6 | 45-382 | Oil Cooler | 1 |
| 7 | 10-510 | Wheel Motor | 2 |
| 8 | 34-122 | Short Elbow | 4 |
| 9 | 20-656 | Hydraulic Tube Assembly | 4 |
| 10 | 10-667 | Hydraulic Hose x 20.5" | 2 |
| 11 | 34-057 | Tee, 1" | 2 |
| 12 | 45-373 | DDC Piston Pump | 1 |
| 13 | 8832-24 | 3/4" Suction Hose x 24" | 1 |
| | 18-040 | Hose Clamp | 2 |
| 14 | 34-123 | Elbow | 1 |
| 15 | 8832-22 | 3/4" Suction Hose x 22" | 1 |
| | 18-040 | Hose Clamp | 2 |
| 16 | 18-508 | 45° Barb Elbow | 1 |
| 17 | 23-006 | Oil Filter | 1 |
| | 23-031 | Filter Element, 25 Micron | 1 |
| 18 | 10-668 | Hydraulic Hose x 39" | 1 |
| 19 | 60-473 | Oil Tank | 1 |
| 20 | 60-213 | Strainer | 1 |
| 21 | 10-672 | Hydraulic Hose x 35.5" | 1 |

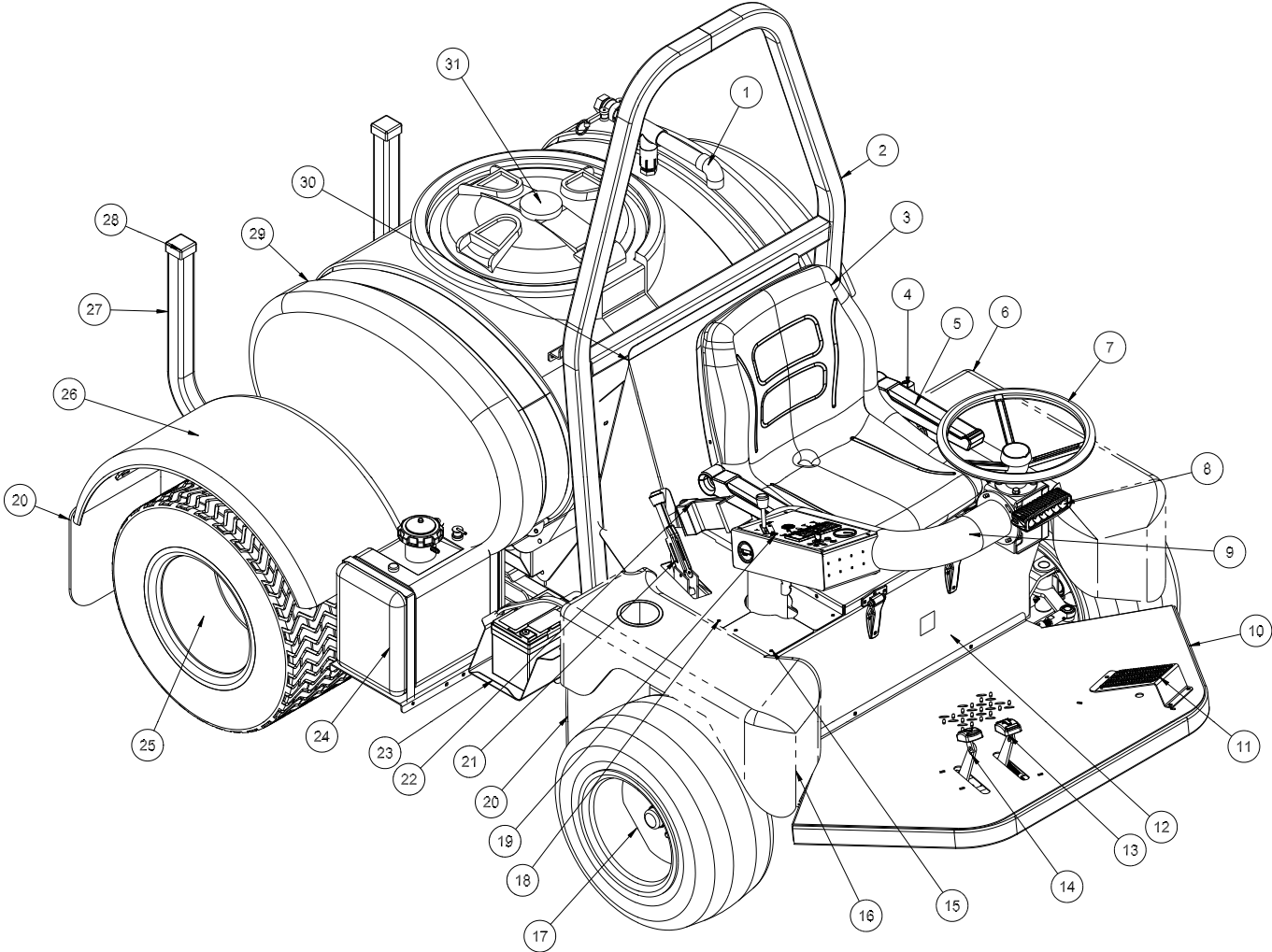
FITTING TORQUE CHARTS

| SAE Straight Thread O-ring Plugs (Steel) | | | | | | Seal-Lok Straight and Adjustable Fitting (Steel) | | | |
|---|--------------------|--|----------|---|----------|---|----------------------------|---------------------|------------|
| Fitting Size | SAE Port Thread | Hollow Hex Head Plug (HP50N) Assembly Torque | | Hex Head Plug (P50N) Assembly Torque | | Fitting Size | SAE Port Thread Size | Assembly Torque (2) | |
| | | in. lbs | ft. lbs | in. lbs | ft. lbs | | | in. lbs | ft. lbs |
| 2 | 5/16 - 24 | 35 ± 5 | 3 ± .5 | 90 ± 5 | 7.5 ± .5 | 4 | 7/16 - 20 | 190 ± 10(1) | 16 ± 1.0 |
| 3 | 3/8 - 24 | 60 ± 5 | 5 ± .5 | 170 ± 10 | 14 ± 1 | 6 | 9/16 - 18 | 420 ± 15 | 35 ± 1.0 |
| 4 | 7/16 - 20 | 135 ± 10 | 11 ± 1 | 220 ± 15 | 18 ± 1 | 8 | 3/4 - 16 | 720 ± 25 | 60 ± 2.0 |
| 5 | 1/2 - 20 | 180 ± 10 | 15 ± 1 | 260 ± 15 | 22 ± 1 | 10 | 7/8 - 14 | 1260 ± 50 | 105 ± 5.0 |
| 6 | 9/16 - 18 | 220 ± 10 | 18 ± 1 | 320 ± 20 | 27 ± 2 | 12 | 1 1/16 - 12 | 1680 ± 75 | 140 ± 6.0 |
| 8 | 3/4 - 16 | 550 ± 20 | 46 ± 2 | 570 ± 25 | 48 ± 2 | 16 | 1 5/16 - 12 | 2520 ± 100 | 210 ± 8.0 |
| 10 | 7/8 - 14 | 900 ± 50 | 75 ± 5 | 1060 ± 50 | 90 ± 5 | 20 | 1 5/8 - 12 | 3100 ± 150 | 260 ± 12.0 |
| 12 | 1 1/16 - 12 | 1020 ± 50 | 85 ± 5 | 1300 ± 50 | 110 ± 5 | 24 | 1 7/8 - 12 | 3800 ± 150 | 315 ± 12.0 |
| 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 | | | | |

Over tightened fittings will result in crushing the cone which will create a leak.

Charts Developed by Parker Hennipin

MAIN BODY DRAWING



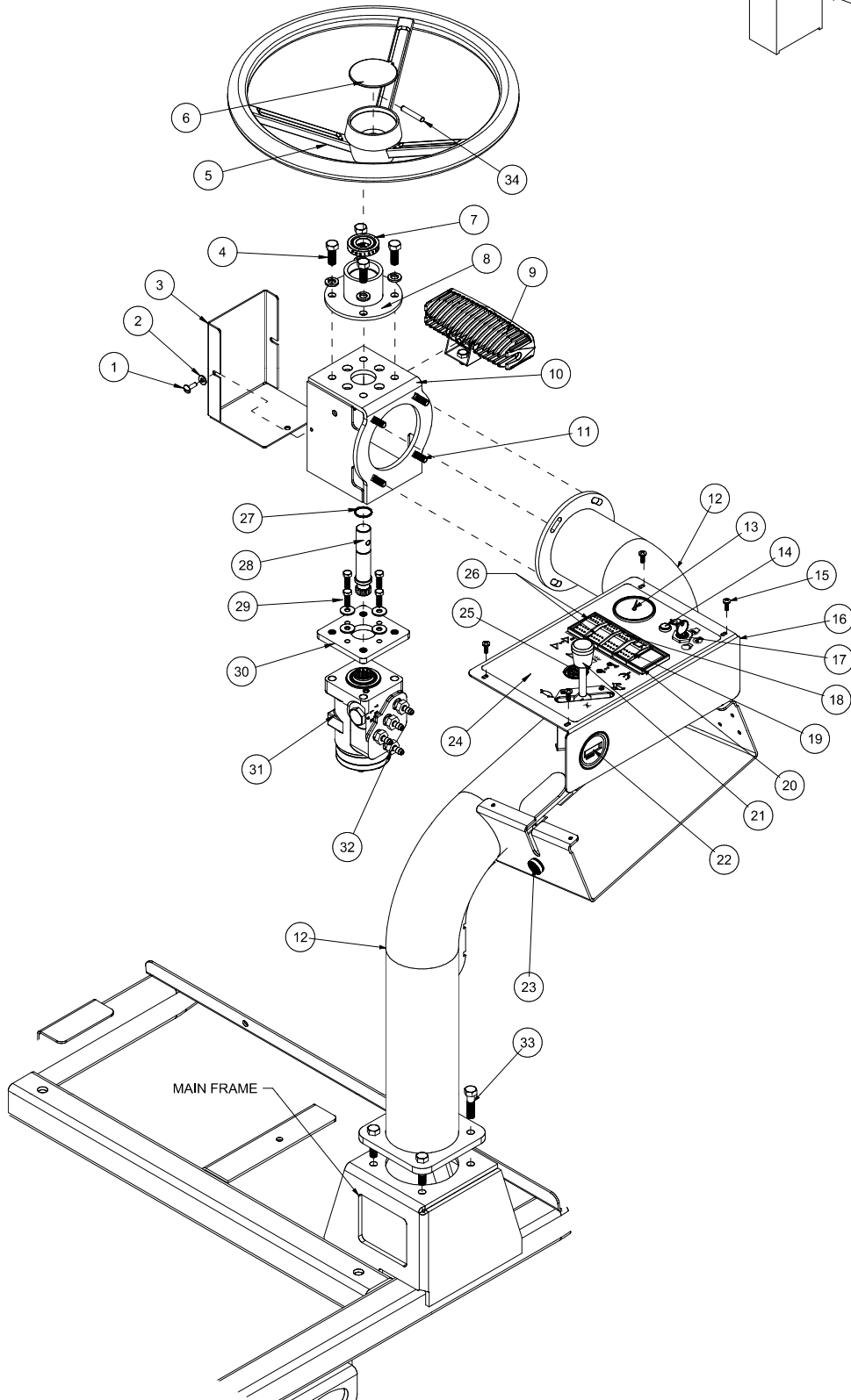
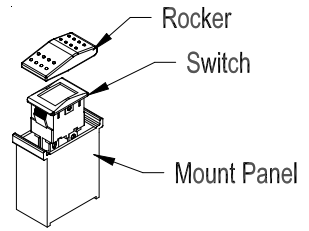
PARTS

MAIN BODY PARTS LIST

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------------|---|----------|
| 1 | 10-254 | Air Gap Filler | 1 |
| 2 | 10-700 | Roll Bar | 1 |
| 3 | 14-294 | Seat Kit | 1 |
| | 14-292 | Seat Switch | 1 |
| | HB-516-18-125 | Hex Bolt, $\frac{5}{16}$ - 18 x 1 $\frac{1}{4}$ | 4 |
| | HW-516 | Flat Washer, $\frac{5}{16}$ | 4 |
| | HWL-516 | Lock Washer, $\frac{5}{16}$ | 4 |
| | HN-516-18 | Hex Nut, $\frac{5}{16}$ - 18 | 4 |
| 4 | 10-120 | Spray Boss Handle | 1 |
| 5 | 10-706 | Arm Rest Kit | 1 |
| 6 | 10-662 | Left Front Fender | 1 |
| 7 | 20-057 | Steering Wheel | 1 |
| | 20-129 | Center Cap | 1 |
| 8 | 10-732 | LED Head Light | 1 |
| 9 | 10-683 | Side Console Arm | 1 |
| 10 | 10-675 | Main Frame | 1 |
| 11 | 45-047 | Foot Rest (part of Spray System) | 1 |
| | 45-132 | Foot Rest Grip | 1 |
| 12 | 10-680 | Seat Frame | 1 |
| | 20-730-01 | GPS Speedometer Antenna | 1 |
| 13 | 10-678 | Reverse Pedal | 1 |
| | 45-022 | Molded Foot Pedal | 1 |
| 14 | 10-677 | Forward Pedal | 1 |
| | 45-022 | Molded Foot Pedal | 1 |
| 15 | 10-694 | RH Panel Cover | 1 |
| 16 | 10-663 | RH Front Fender | 1 |
| | 15-781 | Drink Cup Holder | 1 |
| 17 | 10-745 | Tire and Wheel | 2 |
| | 10-745-01 | Tire, 20 x 10 - 10 | 2 |
| | 16-857-02 | Wheel | 2 |
| 18 | 10-695 | RH Control Panel | 1 |
| 19 | 10-684 | Control Panel | 1 |
| 20 | 20-659 | Mud Flap | 4 |
| 21 | 60-106 | Park Brake Handle | 1 |
| 22 | 76-198-03 | Seat Belt | 1 |
| 23 | 10-679 | Battery Box | 1 |
| | 33-216 | Battery | 1 |
| 24 | 15-838 | Fuel Tank | 1 |
| | 78-456 | Gas Tank Strap | 2 |
| | 10-400 | Gas Tank Bracket | 1 |
| 25 | 78-221 | Tire and Wheel | 2 |
| | 16-225-01 | Tire, 24-13-12NHS | 2 |
| | 78-221-02 | Wheel | 2 |
| 26 | 10-168 | Rear Fender | 2 |
| | HBCL-516-18-100 | Low Carriage Bolt, $\frac{5}{16}$ - 18 x 1 | 8 |
| | HNFL-516-18 | Flange-Loc Nut, $\frac{5}{16}$ - 18 | 8 |
| 27 | 17-615 | Universal Boom Tube | 2 |
| 28 | 16-557 | Square Caps | 2 |
| 29 | 10-111 | 110 Gallon Poly Tank | 1 |
| 30 | 10-699 | Back Panel | 1 |
| | 9023 | Heat Reflective Matting (18 x 25.5) | 1 Sheet |
| 31 | 14-532 | Lid (comes with tank) | 1 |
| | 16-169 | Strainer Basket | 1 |



CONTROL PANEL DRAWING

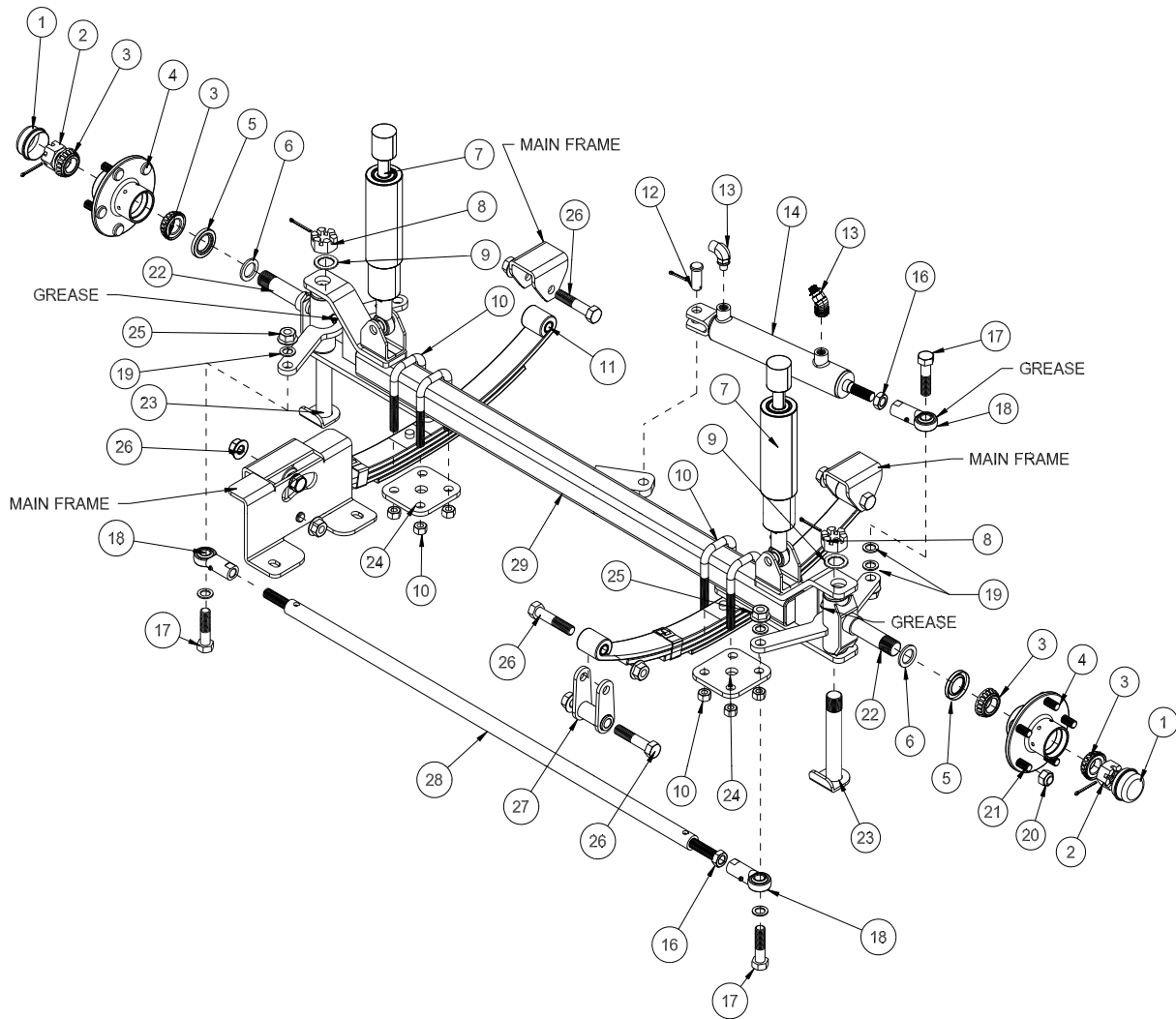


PARTS

CONTROL PANEL PARTS LIST

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------------|------------------------------|----------|
| 1 | HSM-10-32-063 | Machine Screw, #10 -32 x 5/8 | 2 |
| 2 | HW-10 | Flat Washer, #10 | 2 |
| 3 | 10-704 | Steering Box Cover | 1 |
| 4 | HB-38-16-100 | Hex Bolt, 3/8 -16 x 1 | 4 |
| | HWL-38 | Lock Washer, 3/8 | 4 |
| 5 | 20-057 | Steering Wheel | 1 |
| 6 | 20-129 | Steering Wheel Cap | 1 |
| 7 | 10-711 | Ball Bearing | 1 |
| 8 | 10-698 | Steering Column | 1 |
| 9 | 10-732 | LED Head Light | 1 |
| 10 | 10-682 | Steering Box | 1 |
| 11 | HBC-516-18-100 | Carriage Bolt, 5/16 - 18 x 1 | 4 |
| | HNFL-516-18 | Flange-Loc Nut, 5/16 - 18 | 4 |
| 12 | 10-683 | Side Control Arm | 1 |
| 13 | 30-356 | GPS Speedometer w/Connectors | 1 |
| 14 | 50-359 | Oil Warning Indicator Light | 1 |
| | 8853 | Female Spade Connector | 1 |
| | 8958 | Male Spade Connector | 1 |
| 15 | HSM-10-32-100 | Machine Screw, #10 -32 x 1 | 4 |
| | HNFL-10-32 | Flange-Loc Nut, #10- 32 | 4 |
| 16 | 10-684 | Control Panel | 1 |
| 17 | 13-488 | Ignition Switch | 1 |
| | 8-709 | Ket Set | 1 |
| 18 | LED Head Light | | |
| | 15-727 | Rocker | 1 |
| | 15-729 | Panel Mount Middle | 1 |
| | 15-782 | Switch, On-None-Off | 1 |
| 19 | Spray Pump | | |
| | 15-731 | Amber Rocker | 1 |
| | 15-729 | Panel Mount Middle | 1 |
| | 15-726 | Lighted Switch | 1 |
| 20 | 15-730 | Panel Mount Plug | 1 |
| | 15-725 | Panel Mount End | 1 |
| 21 | 45-118 | Throttle Cable | 1 |
| 22 | 12-804 | Hour Meter | 1 |
| 23 | 77-207 | Buzzer | 1 |
| | 8875 | Male Bullet | 1 |
| | 8874 | Female Bullet | 1 |
| 24 | 10-657 | Decal, Control Panel | 1 |
| 25 | 32-576 | Dual USB Power Charger | 1 |
| 26 | RH and LH Booms | | |
| | 15-725 | Panel Mount End | 1 |
| | 15-729 | Panel Mount Middle | 1 |
| | 15-727 | Rocker | 2 |
| | 15-728 | Centering Switch, On-Off-On | 2 |
| 27 | HRR-075 | Retaining Ring, 3/4" | 1 |
| 28 | 10-708 | Splined Steering Shaft | 1 |
| 29 | HBM-6-1-16 | Metric Bolt, #6 - 1 x 16 | 4 |
| | HWLM-6 | Metric Lock Washer, M6 | 4 |
| 30 | 10-689 | Orb Adapter | 1 |
| 31 | 15-301 | Orbital | 1 |
| 32 | 18-169 | 3/8 Adapter Fitting | 4 |
| 33 | HB-38-16-100 | Hex Bolt, 3/8-16-100 | 4 |
| | HNFL-38-16 | Flange-Loc Nut, 3/8 -16 | 4 |
| 34 | HRP-14-150 | Roll Pin, 1/4 x 1 1/2 | 1 |

FRONT AXLE DRAWING

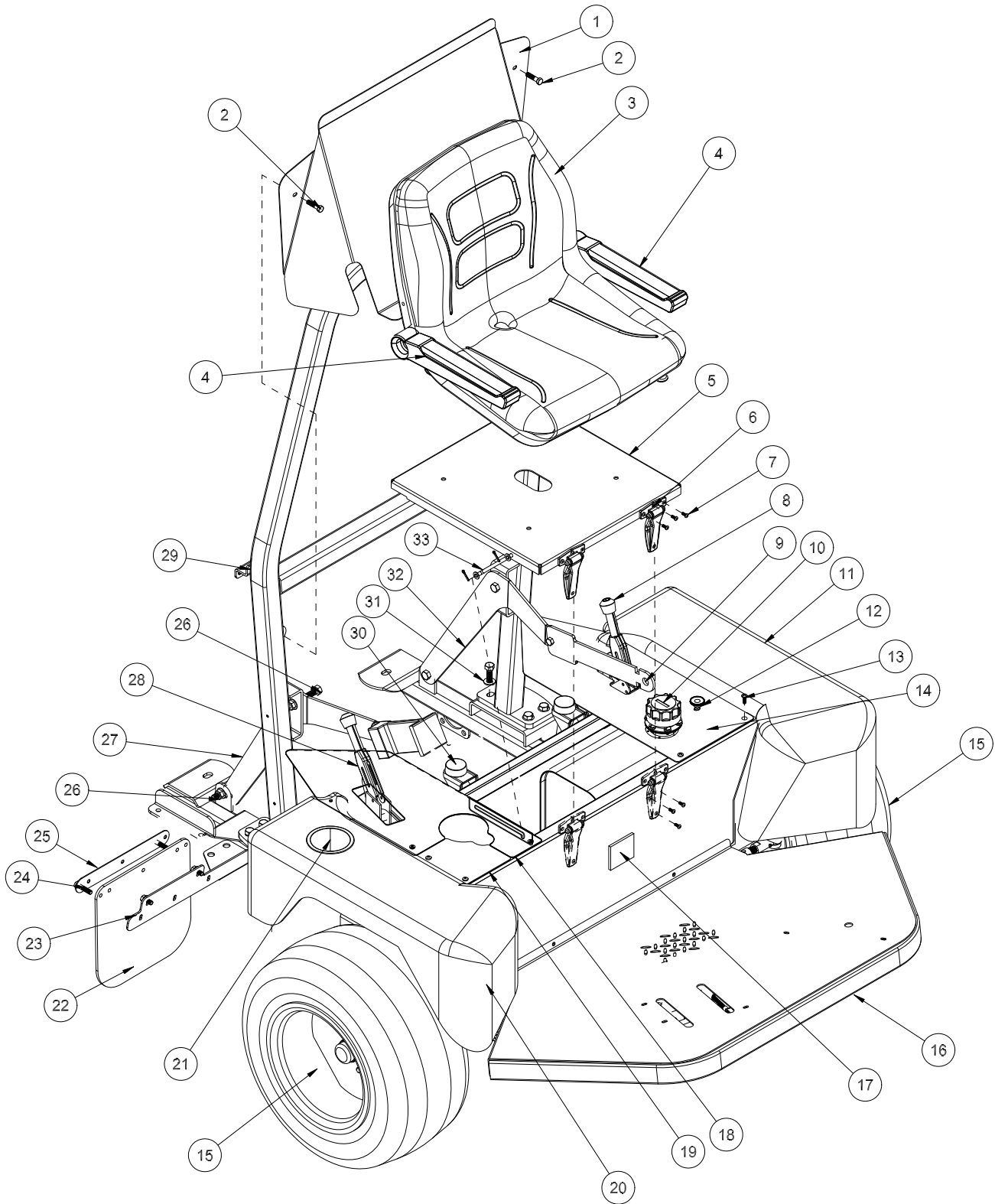


PARTS

FRONT AXLE PARTS LIST

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|---------------|----------------------------------|----------|
| 1* | 33-073-02 | Dust Cap | 2 |
| 2 | HNAR-100-14 | Slotted Jam Nut, 1 - 14 | 2 |
| | HP-18-150 | Cotter Pin, 1/8 - 1 1/2 | 2 |
| 3* | 11-043 | Bearing | 4 |
| 4 | 80-019 | Hub (includes * items) | 2 |
| 5* | 11-041 | Oil Seal | 2 |
| 6 | HMB-100-10 | Machine Bushing, 1 x 10GA | 2 |
| 7 | 20-617 | Shock Absorbers | 2 |
| 8 | HNA-100-14 | Slotted Nut, 1 - 14 | 2 |
| | HP-18-150 | Cotter Pin, 1/8 - 1 1/2 | 2 |
| 9 | HMB-100-14 | Machine Bushing, 1 x 14GA | 2 |
| 10 | 20-555 | U-bolt | 4 |
| | HNTL-12-13 | Lock Nut, 1/2 - 13 | 8 |
| 11 | 20-740 | Leaf Spring | 2 |
| 12 | HCP-58-175 | Clevis Pin, 5/8 - 1 3/4 | 1 |
| | HP-18-100 | Cotter Pin, 1/8 x 1 | 1 |
| 13 | 18-168 | 90° Elbow | 2 |
| 14 | 77-263 | Hydraulic Cylinder | 1 |
| | 14-530 | Seal Kit | 1 |
| 16 | HNJ-58-18 | Jam Nut, 5/8 - 18 | 3 |
| 17 | HB-58-11-250 | Bolt, 5/8 - 11 x 2 1/2 | 3 |
| 18 | 18-154 | Rod End | 3 |
| | HG-14-28-180 | Grease Fitting, 1/4 - 28 x 180° | 3 |
| 19 | HMB-58-14 | Machine Bushing, 5/8 x 14GA | 6 |
| 20* | HNL-12-20 | Lug Nut, 1/2 - 20 | 10 |
| 21* | 27-022-02 | Stud, 1/2 - 20 1 7/16 | 10 |
| 22 | 10-582 | Spindle | 2 |
| | 18-035 | Bushing (part of Spindle; 2 per) | 4 |
| | HG-14-28-45 | Grease Fitting, 1/4 - 28 x 45° | 2 |
| 23 | 16-076 | King Pin | 2 |
| 24 | 20-538 | Spring Mount | 2 |
| 25 | HNTL-58-11 | Lock Nut, 5/8 - 11 | 7 |
| 26 | HB-916-18-325 | Hex Bolt, 9/16 - 18 x 3 1/4 | 6 |
| | HNTL-916-18 | Lock Nut, 9/16 - 18 | 6 |
| 27 | 10-634 | Shackle | 2 |
| 28 | 10-583 | Steering Link | 1 |
| 29 | 10-629 | Front Axle | 1 |

SEAT CONSOLE DRAWING



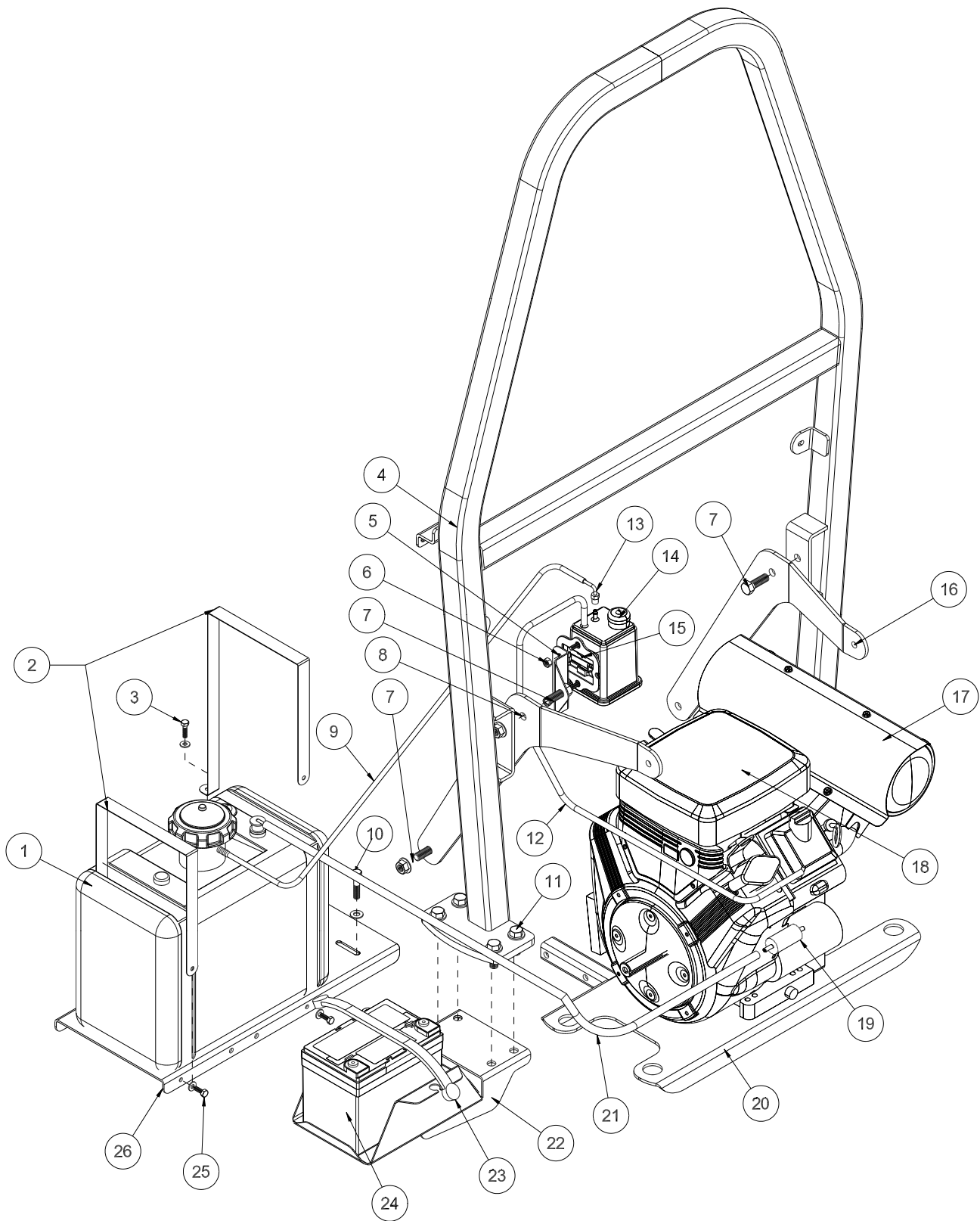
PARTS

SEAT CONSOLE PARTS LIST

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|------------------|--|----------|
| 1 | 10-699 | Back Panel | 1 |
| | 9023 | Heat Reflective Matting | 1 Sheet |
| 2 | HSTP-516-18-075 | Truss Head Screw, $\frac{5}{16}$ -18 x $\frac{3}{4}$ | 2 |
| | HNFL-516-18 | Flange-Loc Nut, $\frac{5}{16}$ - 18 | 2 |
| 3 | 14-294 | Seat Kit | 1 |
| | 14-292 | Seat Switch | 1 |
| | 14-800 | Seat Rail | 1 |
| | HB-516-18-125 | Hex Bolt, $\frac{5}{16}$ - 18 x $1\frac{1}{4}$ | 4 |
| | HW-516 | Flat Washer, $\frac{5}{16}$ | 4 |
| | HWL-516 | Lock Washer, $\frac{5}{16}$ | 4 |
| | HN-516-18 | Hex Nut, $\frac{5}{16}$ - 18 | 4 |
| 4 | 10-706 | Arm Rest Kit | 1 |
| 5 | 10-714 | Seat Panel | 1 |
| 6 | 27-055 | Hinge | 2 |
| 7 | HSMFCS-10-32-050 | Machine Screw, #10-32- $\frac{1}{2}$ | 12 |
| | HNFL-10-32 | Flange-Loc Nut, #10-32 | 12 |
| 8 | 10-120 | Speed Boss Handle | 1 |
| 9 | 76-198-03 | Seat Belt | 1 |
| 10 | 13-747 | Filler Breather | 1 |
| | 60-473 | Oil Tank | 1 |
| 11 | 10-662 | LH Front Fender | 1 |
| 12 | 80-020 | Choke Cable | 1 |
| 13 | HSDPS-14-100 | Pan Head Drill Screw, $\frac{1}{4}$ x 1 | 8 |
| 14 | 10-696 | LH Control Panel | 1 |
| 15 | 10-745 | Tire and Wheel | 2 |
| | 10-745-01 | Tire, 20 x 10 - 10 | 2 |
| | 16-857-02 | Wheel | 2 |
| 16 | 10-675 | Main Frame | 1 |
| 17 | 10-680 | Seat Frame | 1 |
| | 20-730-01 | GPS Speedometer Antenna | 1 |
| 18 | 10-695 | RH Control Panel | 1 |
| 19 | 10-694 | RH Panel Cover | 1 |
| 20 | 10-663 | RH Front Fender | 1 |
| 21 | 15-781 | Drink Cup Holder | 1 |
| 22 | 20-659 | Mud Flap | 2 |
| 23 | 10-735 | RH Fender Brace | 1 |
| | 10-736 | LH Fender Brace (not shown) | 1 |
| | HBCL-516-18-075 | Carriage Bolt, $\frac{5}{16}$ -18 x $\frac{3}{4}$ | 4 |
| | HNFL-516-18 | Flange-Loc Nut, $\frac{5}{16}$ - 18 | 4 |
| 24 | HB-14-20-075 | Hex Bolt, $\frac{1}{4}$ -20 x $\frac{3}{4}$ | 6 |
| | HWF-14-150 | Fender Washer, $\frac{1}{4}$ x $1\frac{1}{2}$ | 6 |
| | HNFL-14-20 | Flange-Loc Nut, $\frac{1}{4}$ - 20 | 6 |
| 25 | 20-660 | Mud Flap Bracket | 2 |
| 26 | HB-12-13-150 | Hex Bolt, $\frac{1}{2}$ - 13 x $1\frac{1}{2}$ | 4 |
| | HNTL-12-13 | Lock Nut, $\frac{1}{2}$ - 13 | 4 |
| 27 | 10-701 | RH Seat Belt Mount | 1 |
| 28 | 60-106 | Park Brake Handle | 1 |
| 29 | 10-700 | Roll Bar | 1 |
| 30 | 50-081 | Rubber Bumper | 2 |
| | HNTL-38-16 | Lock Nut, $\frac{3}{8}$ - 16 | 2 |
| 31 | HB-12-13-175 | Hex Bolt, $\frac{1}{2}$ - 13 x $1\frac{3}{4}$ | 8 |
| | HW-12 | Flat Washer, $\frac{1}{2}$ | 8 |
| | HNTL-12-13 | Lock Nut, $\frac{1}{2}$ - 13 | 4 |
| 32 | 10-702 | LH Seat Belt Mount | 1 |
| 33 | 10-697 | Seat Prop Rod | 1 |
| | HW-38 | Flat Washer, $\frac{3}{8}$ | 2 |
| | HP-18-075 | Cotter Pin, $\frac{1}{8}$ x $\frac{3}{4}$ | 2 |

FUEL TANK DRAWING

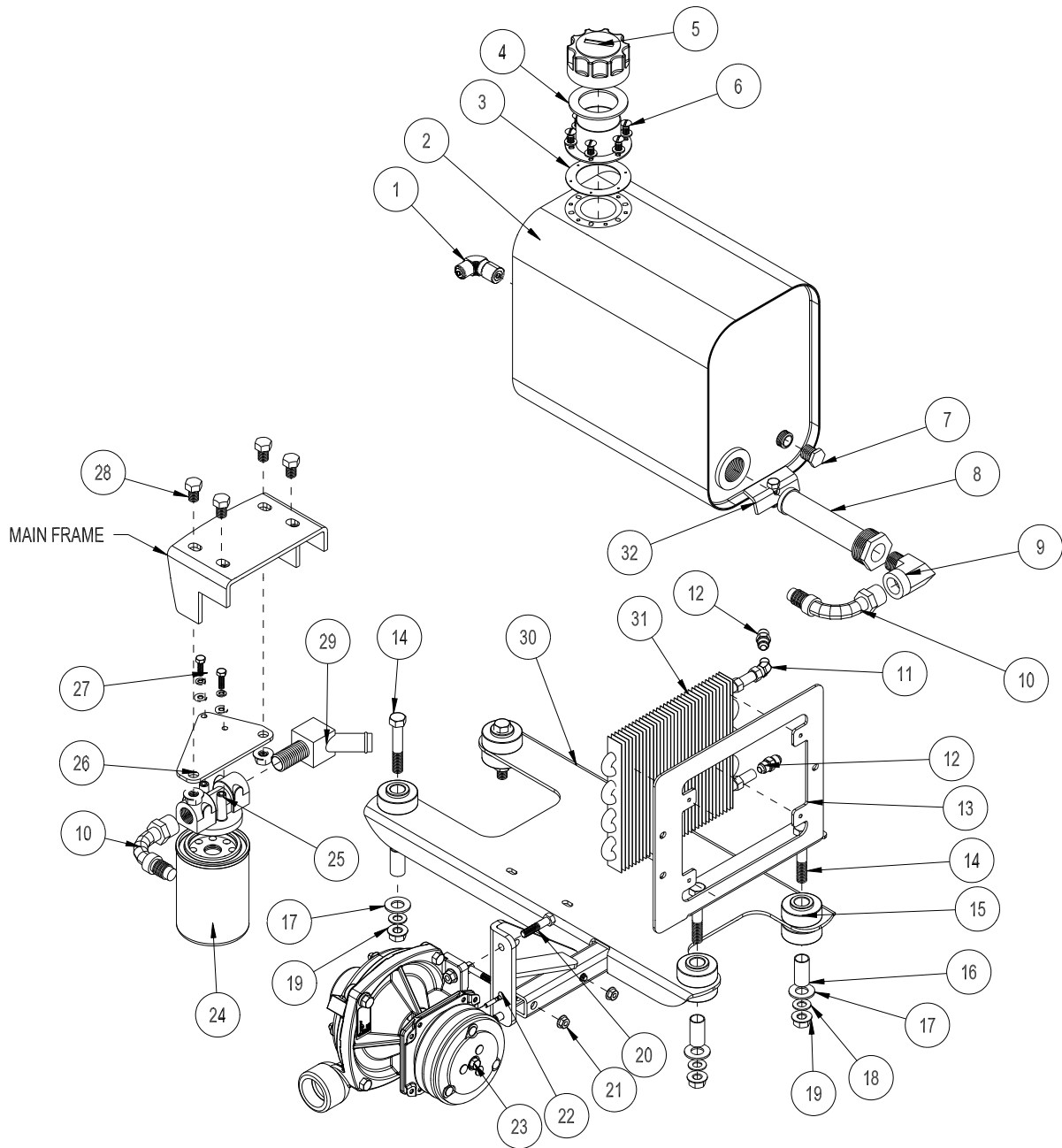
PARTS



FUEL TANK PARTS LIST

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|--------------|-------------------------------------|----------|
| 1 | 15-838 | CARB Gas Tank | 1 |
| | 15-838-01 | Dial Fuel Level Gauge (replacement) | 1 |
| | 42-814-02 | Vented Cap with Gauge (replacement) | 1 |
| 2 | 78-456 | Tank Strap | 2 |
| 3 | HB-14-20-100 | Hex Bolt, 1/4 - 20 x 1 | 2 |
| | HNTL-14-20 | Lock Nut, 1/4 - 20 | 2 |
| 4 | 10-700 | Roll Bar | 1 |
| 5 | 10-681 | Canister Mount | 1 |
| 7 | HB-12-13-150 | Hex Bolt, 1/2 - 13 x 1 1/2 | 4 |
| | HNTL-12-13 | Lock Nut, 1/2 - 13 | 4 |
| 8 | 10-701 | RH Seat Belt Mount | 1 |
| 9 | 8800-26 | 1/4" Fuel Hose x 26" | 1 |
| | 18-186 | Hose Clamp | 2 |
| 10 | HB-12-13-125 | Hex Bolt, 1/2 - 13 x 1 1/4 | 2 |
| | HW-12 | Flat Washer, 1/2 | 2 |
| | HNFL-12-13 | Flange-Loc Nut, 1/2 - 13 | 2 |
| 11 | HB-12-13-175 | Hex Bolt, 1/2 - 13 x 1 3/4 | 8 |
| | HW-12 | Flat Washer, 1/2 | 8 |
| | HNTL-12-13 | Lock Nut, 1/2 - 13 | 8 |
| 12 | 9025-28 | 3/16" Fuel Hose x 28" | 1 |
| | 18-186 | Hose Clamp | 2 |
| 13 | 8-693 | Hose Connector (comes with engine) | 1 |
| 14 | 8-738 | Carbon Canister | 1 |
| 15 | 8-688 | Carbon Canister Mount | 1 |
| 16 | 10-702 | LH Seat Belt Mount | 1 |
| 17 | 10-575-01 | Muffler | 1 |
| 18 | 10-575 | Engine, B&S, 23HP | 1 |
| | 10-575-02 | Air Filter | 1 |
| | 10-575-03 | Air Filter Pre-Cleaner | 1 |
| | 10-575-04 | Engine Oil Filter | 1 |
| 19 | 50-403 | In-line Gas Filter (replacement) | 1 |
| | 18-186 | Hose Clamp | 1 |
| 20 | 10-580 | Engine Plate | 1 |
| 21 | 8800-46 | 1/4" Fuel Hose 46" | 1 |
| | 18-186 | Hose Clamp | 2 |
| 22 | 10-679 | Battery Box | 1 |
| 23 | 8-603 | Strap | 1 |
| 24 | 33-216 | Battery | 1 |
| 25 | HB-14-20-075 | Hex Bolt, 1/4 - 20 x 3/4 | 2 |
| | HNTL-14-20 | Lock Nut, 1/4 - 20 | 2 |
| 26 | 10-400 | Gas Tank Bracket | 1 |

OIL TANK -OIL FILTER-OIL COOLER DRAWING



MAIN FRAME

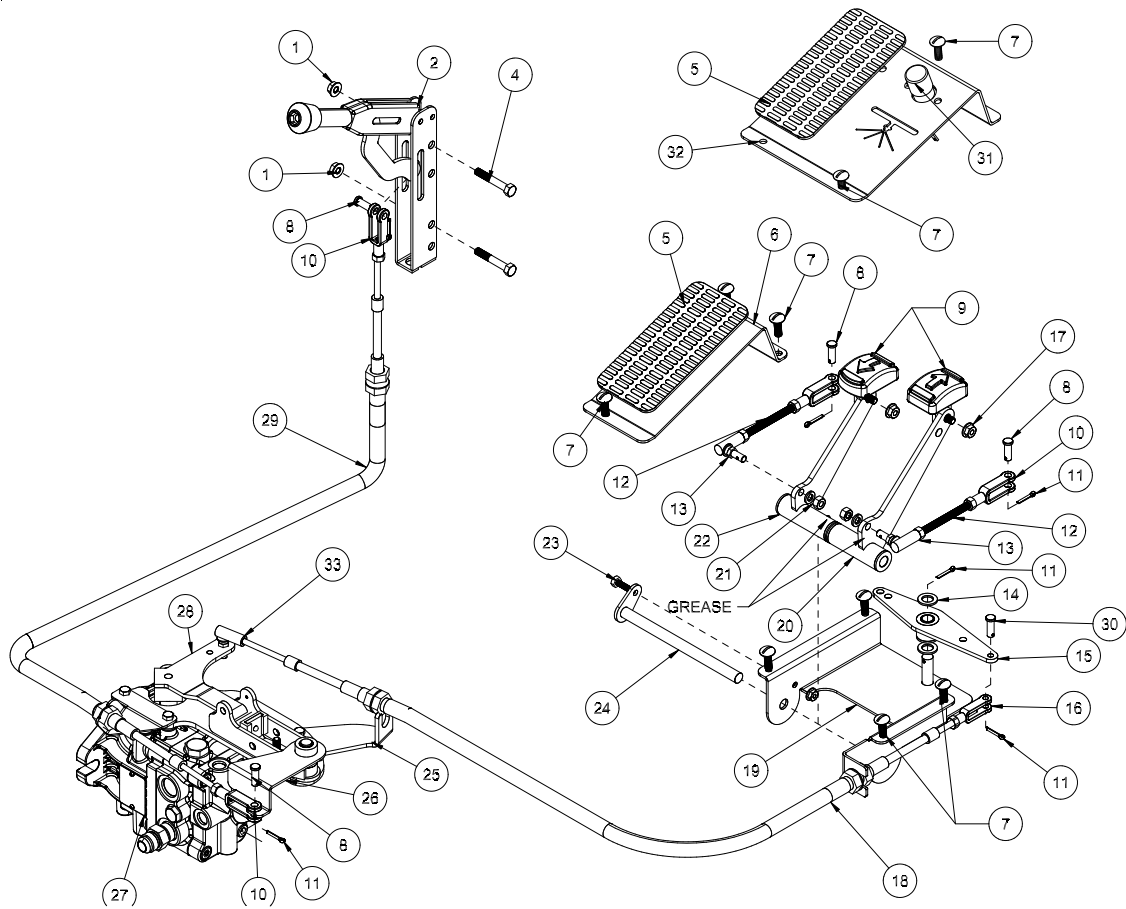
PARTS

OIL TANK -OIL FILTER-OIL COOLER PARTS LIST

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|---------------|---------------------------------------|----------|
| 1 | 18-246 | Male Elbow | 1 |
| 2 | 60-473 | Hydraulic Oil Tank | 1 |
| 3* | 13-586-02 | Bottom Gasket | 1 |
| 4 | 13-586-03 | Neck | 1 |
| 5 | 13-747 | Filler Breather (includes * items) | 1 |
| * | 13-586-01 | Cap Gasket | 1 |
| 6 | HSM-10-32-063 | Machine Screw, 10 - 32 x 5/8 | 6 |
| | HWL-10 | Lock Washer, #10 | 6 |
| 7 | 18-069 | Replacement Plug | 1 |
| 8 | 60-213 | Strainer | 1 |
| 9 | 18-140 | Street Elbow | 1 |
| 10 | 34-123 | Elbow | 2 |
| 11 | 18-214 | 45° Elbow | 1 |
| 12 | 18-410 | Adapter | 2 |
| 13 | 10-733 | Cooler Mount | 1 |
| 14 | HB-12-13-300 | Hex Bolt, 1/2 - 13 x 3 | 4 |
| 15 | 60-107 | Rubber Bushing | 8 |
| 16 | 60-168 | Spacer | 4 |
| 17 | HW-58 | Flat Washer, 5/8 | 4 |
| 18 | HW-716 | Flat Washer, 7/16 | 4 |
| 19 | HNFL-12-13 | Flange-Loc Nut, 1/2 - 13 | 4 |
| 20 | HB-38-16-175 | Hex Bolt, 3/8 - 16 x 1 3/4 | 2 |
| | HW-38 | Flat Washer, 3/8 | 2 |
| | HNTL-38-16 | Lock Nut, 3/8 - 16 | 2 |
| 21 | HB-516-18-175 | Hex Bolt, 5/16 -18 x 1 3/4 | 2 |
| | HW-516 | Flat Washer, 5/16 | 2 |
| 22 | 10-593 | Hypro Pump Mount | 1 |
| 23 | 16-998 | Hypro® Pump | 1 |
| 24 | 23-031 | Replacement Filter Element, 25 Micron | 1 |
| 25 | 23-006 | Oil Filter Assembly | 1 |
| 26 | 10-687 | Oil Filter Mount | 1 |
| 27 | HB-14-20-075 | Hex Bolt, 1/4 - 20 x 3/4 | 2 |
| | HW-14 | Flat Washer, 1/4 | 2 |
| | HWL-14 | Lock Washer, 1/4 | 2 |
| 28 | HB-12-13-175 | Hex Bolt, 1/2 - 13 x 1 3/4 | 8 |
| | HW-12 | Flat Washer, 1/2 | 8 |
| | HNTL-12-13 | Lock Nut, 1/4 - 13 | 8 |
| 29 | 18-508 | Barb Elbow | 1 |
| 30 | 10-580 | Engine Plate | 1 |
| 31 | 45-382 | Oil Cooler w/ Mount Kit | 1 |
| 32 | 75-792 | Tank Hold-down | 1 |
| | HB-516-18-150 | Hex Bolt, 5/16 -18 x 1 1/2 | 1 |
| | HW-516 | Flat Washer, 5/16 | 1 |
| | HNTL-516-18 | Lock Nut, 5/16 -18 | 1 |



FOOT PEDAL LINKAGE DRAWING



PARTS

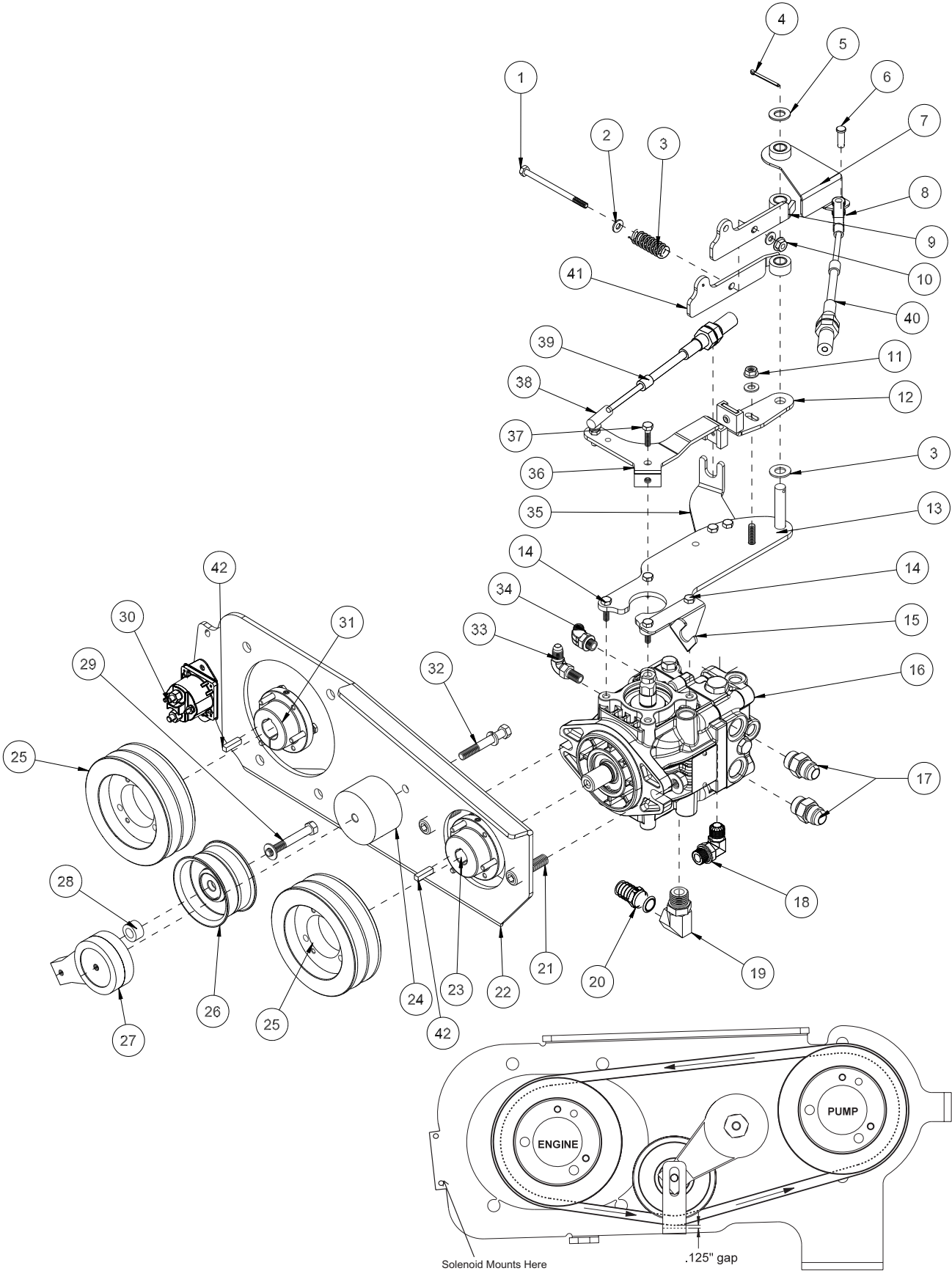
FOOT PEDAL LINKAGE PARTS LIST

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------------|--|----------|
| 1 | HNTL-516-18 | Lock Nut, $\frac{5}{16}$ - 18 | 2 |
| 2 | 10-120 | Spray Boss Handle | 1 |
| 4 | HB-516-18-200 | Hex Bolt, $\frac{5}{16}$ -18 x 2 | 2 |
| 5* | 45-132 | Foot Rest Grip | 1 |
| 6* | 45-047 | Foot Rest | 1 |
| 7* | HSTP-516-18-075 | Truss Head Screw, $\frac{5}{16}$ - 18 x $\frac{3}{4}$ | 7 |
| | HNTL-516-18 | Lock Nut $\frac{5}{16}$ - 18 | 7 |
| 8 | HCP-516-100 | Clevis Pin, $\frac{5}{16}$ x 1 | 4 |
| 9 | 45-022 | Molded Foot Pedal | 2 |
| 10 | 11-100 | Yoke, $\frac{5}{16}$ - 24 | 4 |
| 11 | HP-18-100 | Cotter Pin, $\frac{1}{8}$ x 1 | 5 |
| 12 | 10-598 | Connector Rod | 2 |
| | HN-516-24 | Hex Nut, $\frac{5}{16}$ - 24 | 4 |
| 13 | 21-462 | Ball Joint, $\frac{5}{16}$ -24 | 2 |
| 14 | HMB-12-14 | Machine Bushing, $\frac{1}{2}$ x 14GA | 2 |
| 15 | 10-676 | Pedal Relay | 1 |
| 16 | 11-103 | Yoke, $\frac{1}{4}$ - 28 | 1 |
| 17 | HBFL-516-18-075 | Flange Whiz-loc Bolt, $\frac{5}{16}$ -18 x $\frac{3}{4}$ | 2 |
| | HNFL-516-18 | Flange Whiz-loc Nut, $\frac{5}{16}$ -18 | 2 |
| 18 | 10-565 | Cable | 1 |
| 19 | 10-674 | Pedal Mount | 1 |
| 20 | 10-677 | Forward Pedal Assembly | 1 |
| | 76-128 | Bushing | 2 |
| | HG-14-28-180 | Grease Zerk | 1 |
| 21 | HWL-516 | Lock Washer, $\frac{5}{16}$ | 2 |
| | HN-516-24 | Hex Nut, $\frac{5}{16}$ - 18 | 2 |
| 22 | 10-678 | Reverse Pedal Assembly | 1 |
| | 76-128 | Bushing | 2 |
| | HG-14-28-180 | Grease Zerk | 1 |
| 23 | HB-14-20-075 | Hex Bolt, $\frac{1}{4}$ - 20 x $\frac{3}{4}$ | 1 |
| | HN-14-20 | Hex Nut, $\frac{1}{4}$ - 20 | 1 |
| 24 | 10-673 | Pedal Pivot | 1 |
| 25 | 10-686 | Control Cable Mount | 1 |
| 26 | 10-693 | Spray Boss Arm | 1 |
| 27 | 45-373 | DDC Piston Pump | 1 |
| 28 | 10-703 | Swash Arm | 1 |
| 29 | 10-658 | Spray Boss Cable | 1 |
| 30 | HCP-14-075 | Clevis Pin, $\frac{1}{4}$ x $\frac{3}{4}$ | 1 |
| 31* | 33-509 | Spray Switch (Radion System only) | 1 |
| 32* | 10-705 | Foot Rest (Radion System only) | 1 |
| 33 | 18-115 | Ball Joint, $\frac{1}{4}$ -28 | 1 |

* Comes with Spray Systems.

PUMP DRAWING

PARTS



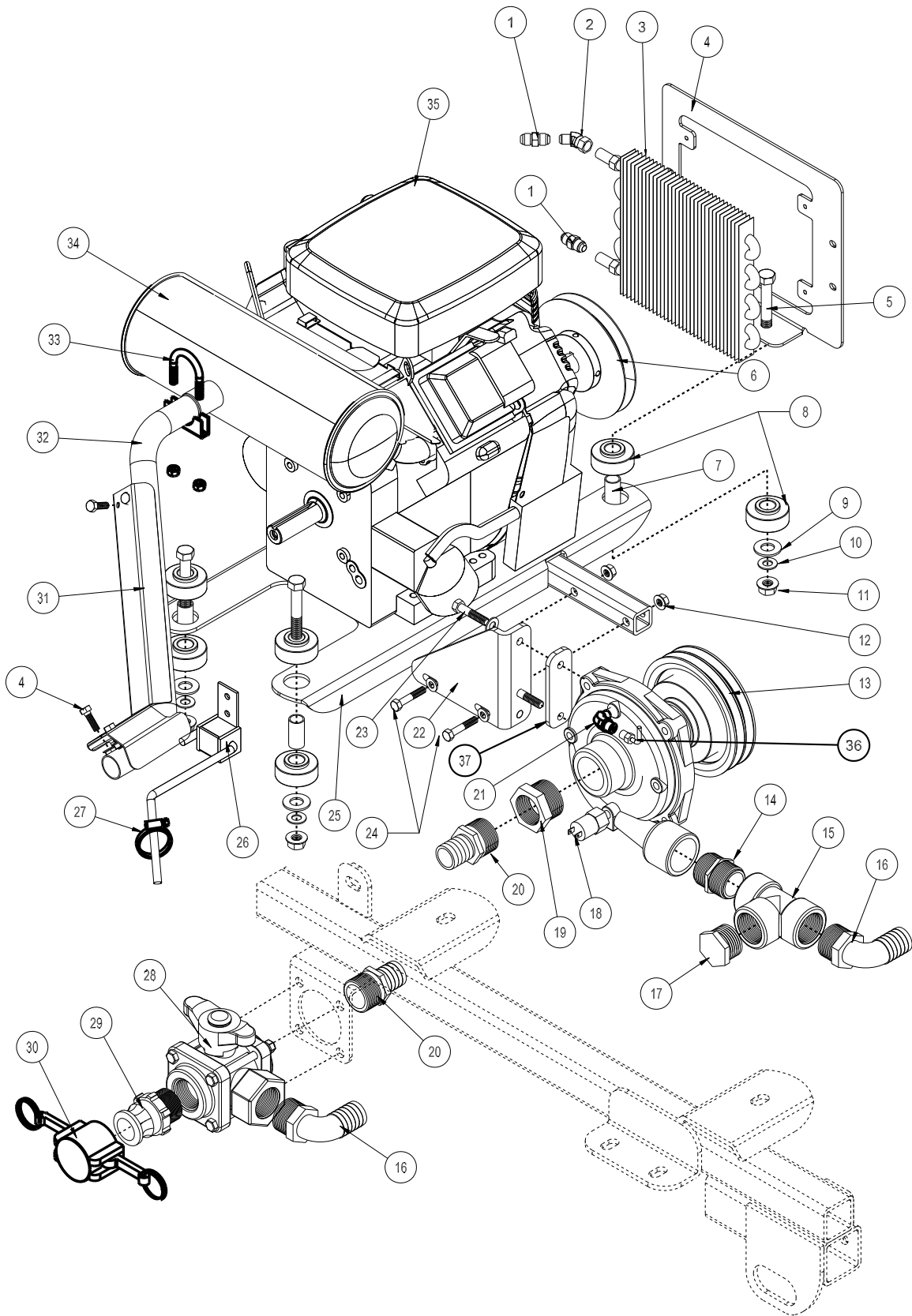
Belt Routing

PUMP PARTS LIST

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|----------------|----------------------------------|----------|
| 1 | HB-14-20-400 | Hex Bolt, 1/4 - 20 x 4 | 1 |
| 2 | HW-14 | Flat Washer, 1/4 | 2 |
| 3 | 10-477 | Compression Spring | 1 |
| 4 | HP-18-075 | Cotter Pin, 1/8 x 3/4 | 1 |
| 5 | HMB-12-14 | Machine Bushing, 1/2 x 14GA | 2 |
| 6 | HCP-516-100 | Clevis Pin, 5/16 x 1 | 1 |
| 7 | 10-693 | Spray Boss Arm | 1 |
| 8 | 11-100 | Yoke, 5/16 - 24 | 1 |
| 9 | 45-368 | Top Centering Arm | 1 |
| 10 | HNTL-14-20 | Lock Nut, 1/4 - 20 | 1 |
| 11 | HNTL-516-18 | Lock Nut, 5/16 - 18 | 1 |
| | HW-516 | Washer, 5/16 | 1 |
| 12 | 45-327 | Wheel Creep Arm | 1 |
| | 8946-1 | Wear Strip 1" | 1 |
| | HR-316-100 | Rivet | 1 |
| | HRW-316 | Rivet Washer, 3/16 | 1 |
| 13 | 10-710 | Control Mount | 1 |
| 14 | HB-38-16-100 | Hex Bolt, 3/8 - 16 x 1 | 6 |
| | HNTL-38-16 | Lock Nut, 3/8 - 16 | 6 |
| 15 | 10-685 | Spray Boss Cable Mount | 1 |
| 16 | 45-373 | DDC20 Piston Pump | 1 |
| 17 | 18-505 | Adapter | 2 |
| 18 | 18-174 | 1/2" Straight Elbow | 1 |
| 19 | 23-127 | Elbow | 1 |
| 20 | 18-133 | Barb Fitting, 1/2 MPT x 3/4 Barb | 1 |
| 21 | HSSH-12-13-175 | Socket Screw, 1/2 - 13 x 1 3/4 | 2 |
| | HNFL-12-13 | Flange-Loc Nut, 1/2 - 13 | 2 |
| 22 | 10-709 | Pump Mount | 1 |
| 23 | 45-376 | Hub, 7/8" | 1 |
| 24 | 42-361 | Tensioner Spacer | 1 |
| 25 | 42-331 | Pulley | 2 |
| 26 | 42-358 | Idler Pulley | 1 |
| 27 | 42-327 | Belt Tensioner | 1 |
| 28 | 16-990 | Spacer | 1 |
| 29 | HB-38-16-275 | Hex Bolt, 3/8 - 16 x 2 3/4 | 1 |
| | HW-38 | Flat Washer, 3/8 | 1 |
| | HNTL-38-16 | Lock Nut, 3/8 - 16 | 1 |
| 30 | 13-750 | Solenoid w/ Connector | 1 |
| | 22-017 | Starter Cable | 1 |
| 31 | 42-245 | Hub 1" | 1 |
| 32 | HB-38-16-250 | Hex Bolt, 3/8 - 16 x 2 1/2 | 1 |
| | HWL-38 | Lock Washer, 3/8 | 1 |
| 33 | 18-506 | Elbow | 1 |
| 34 | 18-188 | 45° Elbow | 1 |
| 35 | 10-686 | Control Cable Mount | 1 |
| 36 | 10-703 | Swash Arm | 1 |
| | 8946-1 | Wear Strip 1" | 1 |
| | HR-316-100 | Rivet | 1 |
| | HRW-36 | Rivet Washer | 1 |
| 37 | HBM-8-1.25-25 | Metric Hex Bolt, #8 - 1.25 x 25 | 1 |
| | HWL-8 | Metric Lock Washer. #8 | 1 |
| 38 | 18-115 | Ball Joint, 1/4 - 28 | 1 |
| 39 | 10-565 | Cable | 1 |
| 40 | 10-658 | Spray Boss Cable | 1 |
| 41 | 45-367 | Bottom Centering Arm | 1 |
| 42 | HNSQ-14-100 | Square Key, 1/4 x 1 | 2 |
| NS | 42-359 | Belt | 1 |



ENGINE AND SPRAY PUMP DRAWING



PARTS

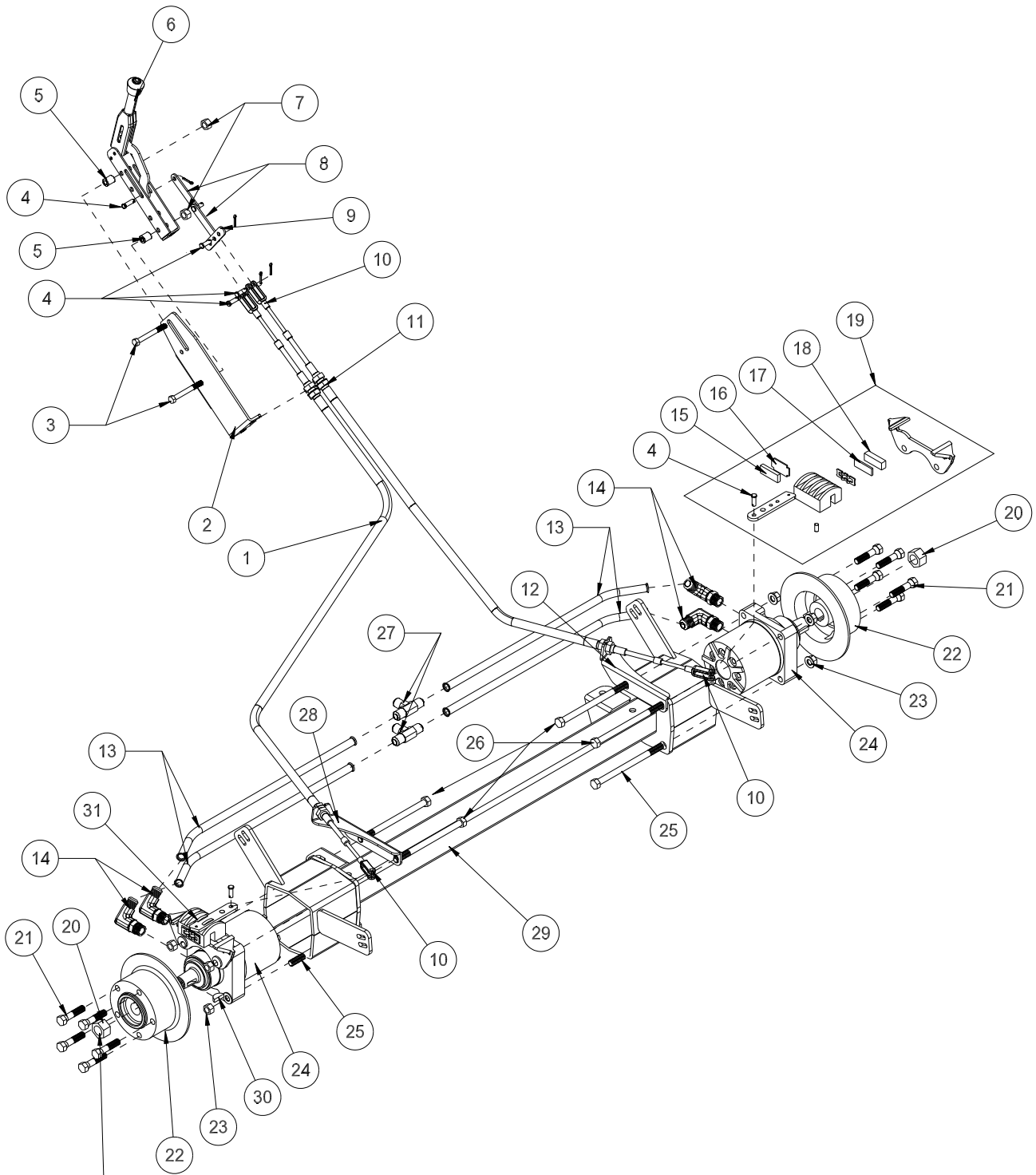
ENGINE AND SPRAY PUMP PARTS LIST

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|---------------|-------------------------------|----------|
| 1 | 18-410 | Adapter | 2 |
| 2 | 18-214 | 45° Elbow | 1 |
| 3 | 45-382 | Oil Cooler w/ mount kit | 1 |
| 4 | 10-733 | Oil Cooler Mount Bracket | 1 |
| 5 | HB-12-13-300 | Hex Bolt, 1/2 - 13 x 3 | 4 |
| 6 | 10-578 | Pulley | 1 |
| 7 | 60-168 | Spacer | 4 |
| 8 | 60-107 | Rubber Bushing | 8 |
| 9 | HW-58 | Flat Washer, 5/8 | 4 |
| 10 | HW-716 | Flat Washer, 7/16 | 4 |
| 11 | HNFL-12-13 | Flange-Loc Nut, 1/2- 13 | 4 |
| 12 | HNFL-516-18 | Flange-Loc Nut, 5/16 - 18 | 2 |
| 13 | 16-998 | Hypro® Pump | 1 |
| 14 | 16-880 | Close Nipple, 1 1/4" | 1 |
| 15 | 18-390 | Pipe Tee, 1 1/4" | 1 |
| 16 | 16-156 | Elbow, 1 1/4 MPT x 1 1/4 HB | 2 |
| 17 | 10-389 | Plug, 1 1/4" | 1 |
| 18 | 33-480 | Pressure Switch | 1 |
| 19 | 16-825 | Hex Bushing, 1 1/2 x 1 1/4 | 1 |
| 20 | 16-161 | Fitting, 1 1/4 MPT x 1 1/4 HB | 2 |
| 21 | 18-044 | 1/8" Street Elbow | 1 |
| 22 | 10-593 | Hypro Pump Mount | 1 |
| 23 | HB-38-16-175 | Hex Bolt, 3/8 - 16 x 1 3/4 | 2 |
| | HW-38 | Flat Washer, 3/8 | 2 |
| | HNTL-38-16 | Lock Nut, 3/8 - 16 | 2 |
| 24 | HB-516-18-175 | Hex Bolt, 5/16 -18 x 3/4 | 2 |
| | HW-516 | Flat Washer, 5/16 | 2 |
| 25 | 10-580 | Engine Plate | 1 |
| 26 | 10-622 | Exhaust Hanger | 1 |
| 27 | 18-222 | Hose Clamp | 1 |
| 28 | 18-372 | 3-Way Valve | 1 |
| 29 | 16-180 | Quick Coupler, 1 1/4" Male | 1 |
| 30 | 16-935 | Quick Coupler Cap | 1 |
| 31 | 10-476 | Exhaust Shield | 1 |
| 32 | 10-585 | Exhaust | 1 |
| 33 | 18-220 | Muffler Clamp, 1 1/4" | 1 |
| 34 | 10-575-01 | Muffler (comes with engine) | 1 |
| | 10-575-05 | Exhaust Gasket | 2 |
| 35 | 10-575 | Briggs, 23HP Engine | 1 |
| | 10-575-02 | Air Filter | 1 |
| | 10-575-03 | Air Filter Pre-Cleaner | 1 |
| | 10-575-04 | Engine Oil Filter | 1 |
| | 13-750 | Solenoid | 1 |
| 36 | 18-475 | Male Elbow | 1 |
| 37 | 10-618 | Pump Mount Spacer | 1 |
| NS | 15-704 | Belt | 1 |



PARK BRAKE DRAWING

PARTS



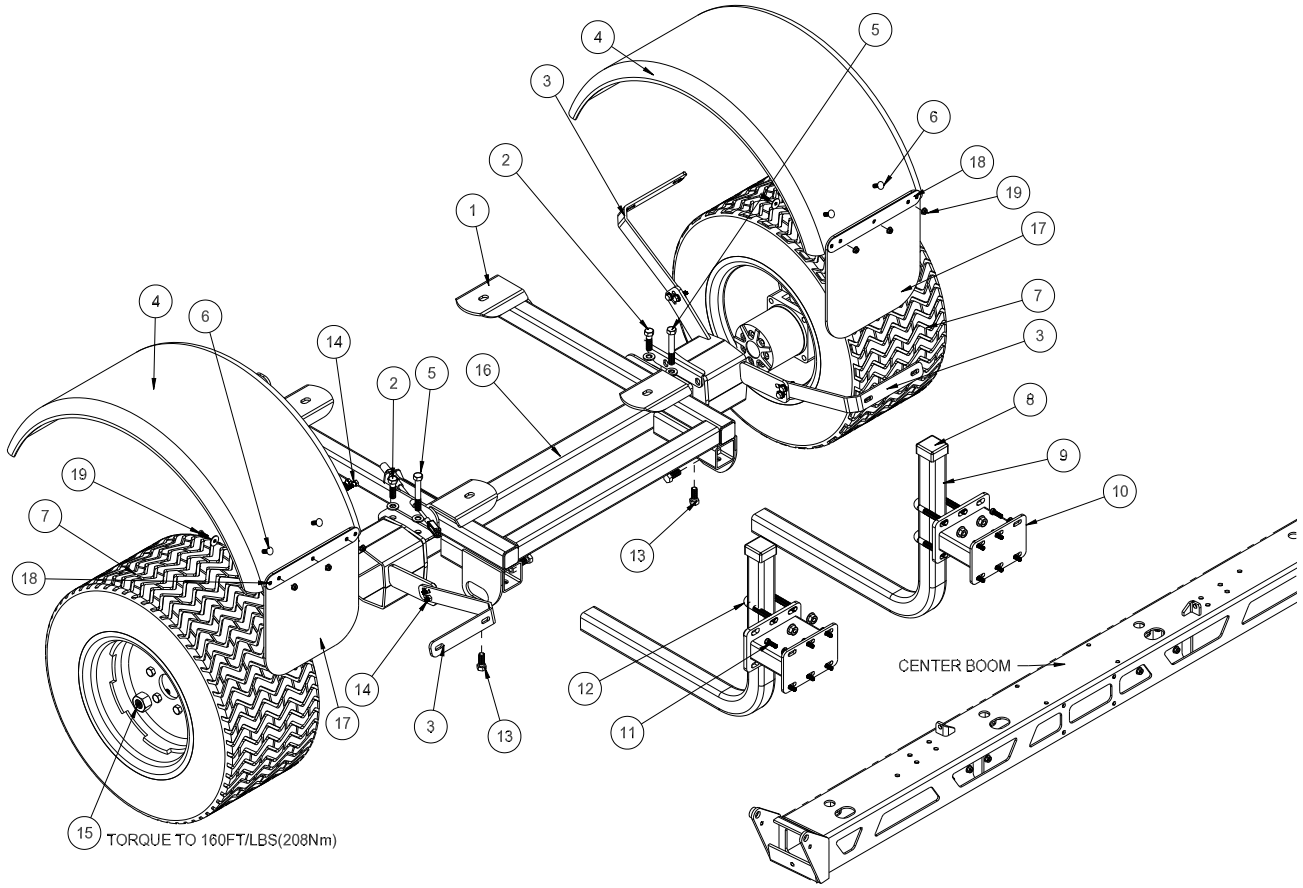
HUB NUT
TORQUE TO 160FT/LBS(208Nm)

PARK BRAKE PARTS LIST

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|---------------|--|----------|
| 1 | 10-660 | LH Brake Cable | 1 |
| 2 | 10-590 | Brake Lever Mount | 1 |
| 3 | HB-516-18-200 | Hex Bolt, $\frac{5}{16}$ - 18 x 2 | 2 |
| 4 | HCP-516-100 | Clevis Pin, $\frac{5}{16}$ x 1 | 6 |
| | HP-18-100 | Cotter Pin, $\frac{1}{8}$ x 1 | 6 |
| 5 | 10-134 | Spacer | 2 |
| 6 | 60-106 | Park Brake Handle | 1 |
| 7 | HNFL-516-18 | Flange-Loc Nut, $\frac{5}{16}$ - 16 | 2 |
| 8 | 45-074 | Park Brake Link | 2 |
| 9 | 10-591 | Brake Equalizer | 1 |
| 10 | 11-100 | Linkage Yokes, $\frac{5}{16}$ | 4 |
| | HN-516-24 | Hex Nut, $\frac{5}{16}$ - 24 | 8 |
| 11 | 10-659 | RH Brake Cable | 1 |
| 12 | 10-589 | RH Brake Cable Bracket | 1 |
| 13 | 20-656 | Hydraulic Tube Assembly | 4 |
| 14 | 34-122 | Short Elbow | 4 |
| 15* | | Carrier Side Pad | 1 |
| 16* | | Carrier Side Pad Support | 1 |
| 17* | | Cam Side Pad Support | 1 |
| 18* | | Cam Side Pad | 1 |
| 19 | 76-241 | Right Caliper (CW) | 1 |
| 20 | 14-265 | Nut, 1 - 20 (included with Ref# 24) | 2 |
| 21 | 60-268 | Lug Bolt, $\frac{1}{2}$ - 20 x $1\frac{5}{16}$ | 10 |
| 22 | 76-239 | 8" Brake Disk (5 hole) | 2 |
| 23 | HNFL-12-13 | Flange-Loc Nut, $\frac{1}{2}$ - 13 | 8 |
| 24 | 10-510 | Wheel Motor | 2 |
| 25 | HB-12-13-750 | Hex Bolt, $\frac{1}{2}$ - 13 x $7\frac{1}{2}$ | 4 |
| 26 | HB-12-13-800 | Hex Bolt, $\frac{1}{2}$ - 13 x 8 | 4 |
| 27 | 34-057 | Tee 1" | 2 |
| 28 | 10-588 | LH Brake Cable Bracket | 1 |
| 29 | 10-473 | Rear Axle | 1 |
| 30 | HWK-516-100 | Woodruff Key, $\frac{5}{16}$ x 1 (included with Ref# 24) | 2 |
| 31 | 76-240 | Left Caliper (CCW) | 1 |

* 34-101-02 Pad Kit with 2 Pads and Steel Backing Plates 2 Kits

REAR AXLE DRAWING



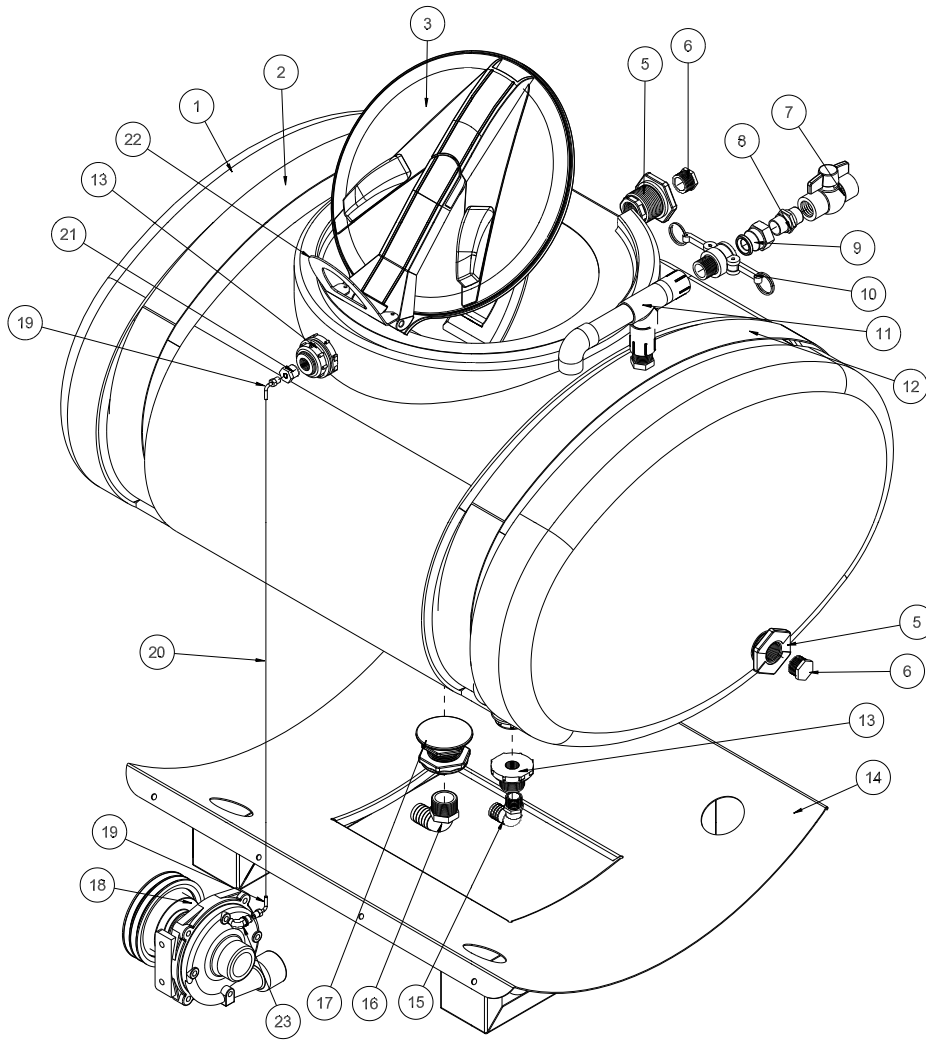
PARTS

REAR AXLE PARTS LIST

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------------|--|----------|
| 1 | 10-675 | Main Frame | 1 |
| 2 | HB-12-13-175 | Hex Bolt, $\frac{1}{2}$ - 13 x $1\frac{3}{4}$ | 2 |
| | HW-12 | Flat Washer, $\frac{1}{2}$ | 2 |
| | HNTL-12-13 | Lock Nut, $\frac{1}{2}$ -13 | 2 |
| 3 | 10-466 | Rear Fender Bracket | 4 |
| 4 | 10-168 | Rear Fender | 2 |
| 5 | HB-12-13-350 | Hex Bolt, $\frac{1}{2}$ - 13 x $3\frac{1}{2}$ | 2 |
| | HW-12 | Flat Washer, $\frac{1}{2}$ | 2 |
| | HNTL-12-13 | Lock Nut, $\frac{1}{2}$ -13 | 2 |
| 6 | HBCL-516-18-075 | Carriage Bolt, $\frac{5}{16}$ - 18 - $\frac{3}{4}$ | 8 |
| | HNFL-516-18 | Flange-Loc Nut, $\frac{5}{16}$ - 18 | 8 |
| 7 | 78-221 | Rear Tire and Wheel | 2 |
| | 16-225-01 | Tire | 2 |
| | 78-221-02 | Wheel | 2 |
| 8 | 16-557 | Square Cap | 2 |
| 9 | 17-615 | Boom Carrier | 2 |
| 10 | 17-614 | Boom Spacer | 2 |
| 11 | HB-516-18-100 | Hex Bolt, $\frac{5}{16}$ - 18 x 1 | 12 |
| | HW-516 | Flat Washer, $\frac{5}{16}$ | 12 |
| | HNFL-516-18 | Flange-Loc Nut, $\frac{5}{16}$ - 18 | 12 |
| 12 | 20-555 | U-bolt | 4 |
| | HNFL-12-13 | Flange-Loc Nut, $\frac{1}{2}$ - 13 | 8 |
| 13 | HB-12-13-125 | Hex Bolt, $\frac{1}{2}$ - 13 x $1\frac{1}{4}$ | 4 |
| | HN-12-13 | Hex Nut, $\frac{1}{2}$ - 13 | 4 |
| 14 | HB-516-18-125 | Hex Bolt, $\frac{5}{16}$ - 18 x $1\frac{1}{4}$ | 8 |
| | HW-516 | Flat Washer, $\frac{5}{16}$ | 16 |
| | HNTL-516-18 | Lock Nut, $\frac{5}{16}$ - 18 | 8 |
| 15 | 14-265 | Hex Nut, 1 - 20 | 2 |
| 16 | 10-473 | Rear Axle | 1 |
| 17 | 20-659 | Mud Flap | 2 |
| 18 | 20-660 | Mud Flap Strap | 2 |
| 19 | HB-14-20-075 | Hex Bolt, $\frac{1}{4}$ -20 x $\frac{3}{4}$ | 6 |
| | HWF-14-150 | Fender Washer, $\frac{1}{4}$ x $1\frac{1}{2}$ | 6 |
| | HNFL-14-20 | Flange-Loc Nut, $\frac{1}{4}$ - 20 | 6 |

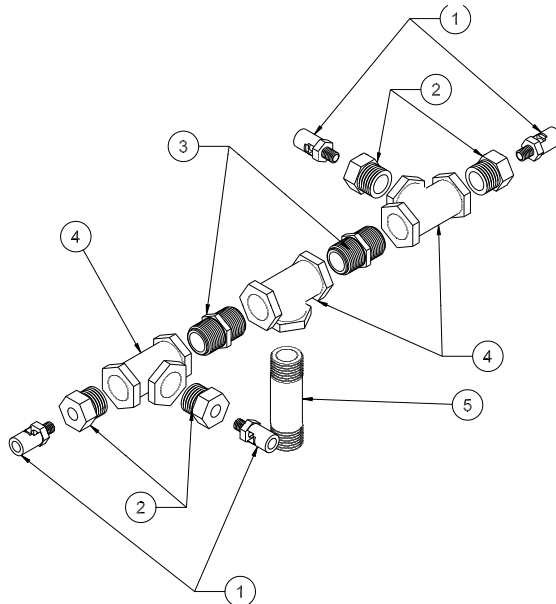


TANK DRAWING



PARTS

TURBO-QUAD AGITATOR DRAWING



TANK PARTS LIST

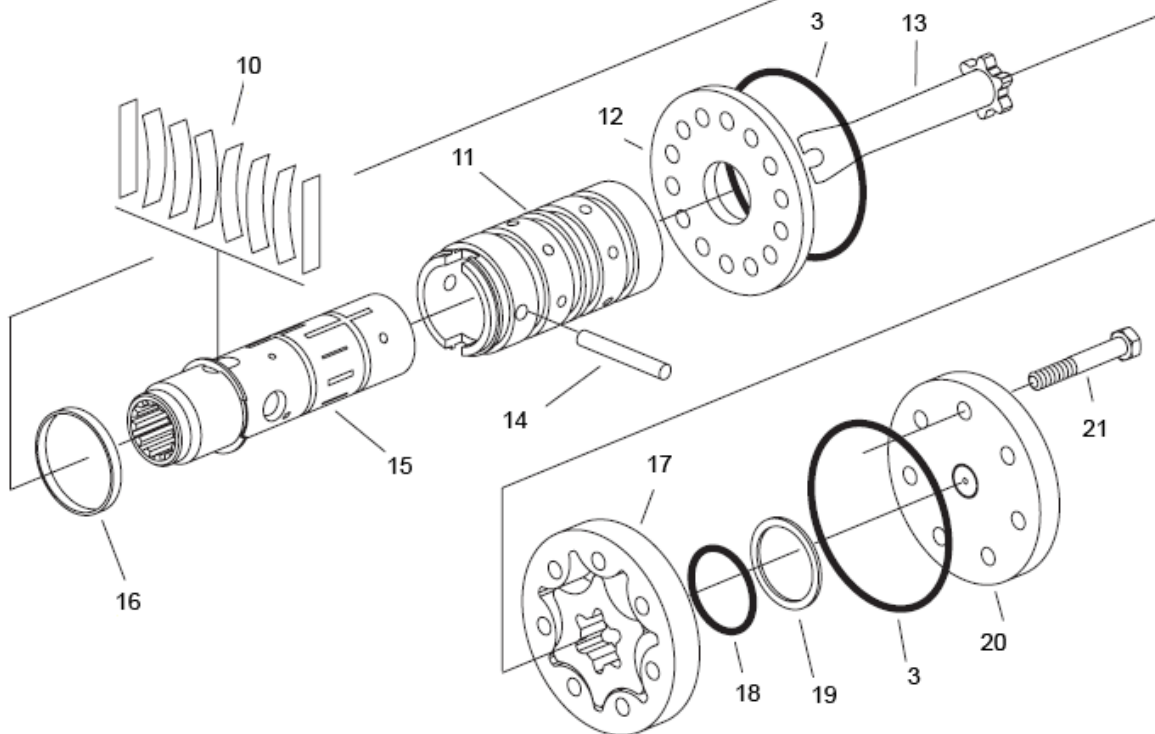
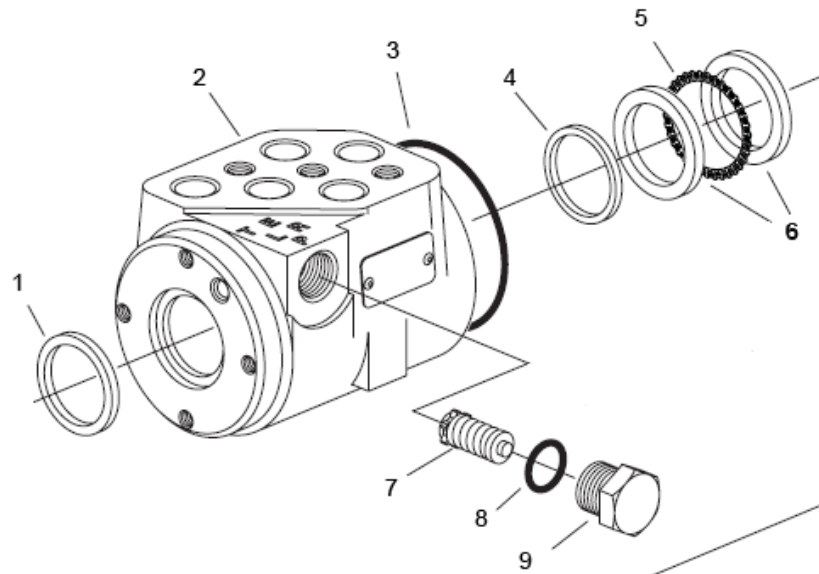
| REF# | PART# | DESCRIPTION | QUANTITY |
|------|--------------|--|----------|
| 1 | 10-111 | 110 Gallon Poly Tank | 1 |
| | 16-169 | Strainer Basket 16" | 1 |
| 2 | 10-410 | Left Tank Strap | 1 |
| | HB-38-16-400 | Hex Bolt, $\frac{3}{8}$ - 16 x 4 | 1 |
| | HB-38-16-100 | Hex Bolt, $\frac{3}{8}$ - 16 x 1 | 1 |
| | HNTL-38-16 | Lock Nut, $\frac{3}{8}$ - 16 | 2 |
| 3* | 14-532 | 16" Hinged Lid/Well with Gasket | 1 |
| 5 | 16-945 | Double Head Fitting | 2 |
| 6 | 16-162 | Hex Plug 1" | 2 |
| 7 | 18-448 | 1" Ball Valve | 1 |
| 8 | 16-851 | 1" Nipple | 1 |
| 9 | 16-961 | Aluminum Adapter 1" Female Thread | 1 |
| 10 | 16-962 | Aluminum Coupler 1" Male Thread | 1 |
| 11 | 10-254 | Air Gap Filler | 1 |
| 12 | 22-528 | Right Tank Strap | 1 |
| | HB-38-16-400 | Hex Bolt, $\frac{3}{8}$ - 16 x 4 | 1 |
| | HB-38-16-100 | Hex Bolt, $\frac{3}{8}$ - 16 x 1 | 1 |
| | HNTL-38-16 | Lock Nut, $\frac{3}{8}$ - 16 | 2 |
| 13* | 16-150 | Double Threaded Fitting, $\frac{3}{4}$ | 2 |
| 14 | 10-112 | Tank Carrier | 1 |
| 15 | 16-155 | Elbow, $\frac{3}{4}$ MPT x 1 HB | 1 |
| 16 | 16-156 | Elbow $1\frac{1}{4}$ MPT x $1\frac{1}{4}$ HB | 1 |
| 17* | 16-194 | Anti-Vortex Fitting $1\frac{1}{4}$ | 1 |
| 18 | 16-998 | Hypro® Pump | 1 |
| 19 | 18-475 | Male Elbow | 2 |
| 20 | 9038-30 | $\frac{1}{4}$ " Tubing | 1 |
| | 18-116 | Hose Clamp | 2 |
| 21 | 10-390 | Reducer | 1 |
| 22 | 10-639 | Lid Stop | 1 |
| | HRS-36-100 | Rivet, $\frac{3}{16}$ x 1 | 2 |
| | HW-316 | Flat Washer, $\frac{3}{16}$ | 2 |
| 23 | 18-044 | $\frac{1}{8}$ " Street Elbow | 1 |

* 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 | 18-510 | Mini Eductor | 4 |
| 2 | 16-288 | Reducer, $\frac{3}{4}$ x $1\frac{1}{4}$ | 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 |

15-301 ORBITAL DRAWING



PARTS

15-301 ORBITAL PARTS LIST

| REF # | PART # | DESCRIPTION | QUANTITY |
|-------|-----------|-----------------------------------|----------|
| 1** | | Dust Seal | 1 |
| 2 | | Housing | 1 |
| 3** | | O-Ring Seal | 3 |
| 4** | | Quad Seal | 1 |
| 5 | 10-576-03 | Thrust Bearing | 1 |
| 6 | 10-576-02 | Bearing Race | 2 |
| 7 | | Manual Steering Relief Valve | 1 |
| 8** | | O-ring | 1 |
| 9 | | Plug | 1 |
| 10‡ | | Standard Torque Centering Springs | 1 |
| 11 | | Sleeve | 1 |
| 12 | 15-301-06 | Wear Plate | 1 |
| 13 | 10-576-01 | Drive | 1 |
| 14 | 15-301-08 | Drive Pin | 1 |
| 15 | | Spool | 1 |
| 16‡ | | Spring Retaining Ring | 1 |
| 17 | 10-576-05 | Gerotor | 1 |
| 18** | | O-Ring | 1 |
| 19** | | Seal Ring | 1 |
| 20 | 15-301-03 | End Cap | 1 |
| 21 | 10-576-06 | Cap Screw | 7 |
| ** | 15-301-01 | Seal Kit | 1 |
| ‡ | 15-301-15 | Centering Spring Kit | 1 |

15-301 ORBITAL SPECIFICATIONS

Inlet Relief Valve Setting 1020 psi (70 bar)
 Nominal Flow 3 gpm (11 lpm)
 Displacement 4.50 cu. in/ R (73.8 cu cm/R)
 Check Valve for Manual Steering Yes
 Inlet Pressure Rating 2030 psi (140 bar)
 Return Pressure Rating 145 psi (10 bar) Maximum
 Fluid SAE 10W-40 API Service SJ or higher Motor Oil
 Ports $\frac{9}{16}$ - 18 SAE O-Ring 4 Ports

15-301 REPAIR DISASSEMBLY INSTRUCTIONS

Disassembly

Cleanliness is extremely important when repairing hydraulic Steering Control Units (SCU). Work in a clean area. Before disconnecting the hydraulic lines, clean the port area of the SCU. Before disassembly, drain the oil, then plug the ports and thoroughly clean the exterior of the SCU. During repairs, always protect machined surfaces.

1. Remove the seven cap screws and disassemble the SCU as shown in figure 1.

2. Remove the plug and manual steering check as shown in figure 1. **Note:** The manual steering check may be a check ball or a check/relief valve.
3. Slide the spool and sleeve from the housing, see figure 2.
4. Remove the thrust bearing and bearing races.
5. Remove the quad seal.

6. Using a small blade screwdriver, carefully pry the dust seal from the housing. **Important:** Do not damage the dust seal seat.
7. Remove the pin that holds the spool and sleeve together, see figure 3.
8. Carefully slide the spool out of the sleeve. The springs and retaining ring will stay with the spool as it's removed.

9. Remove the retaining ring and springs. **Caution:** The centering springs are under tension; remove the retaining ring carefully.

Figure 1

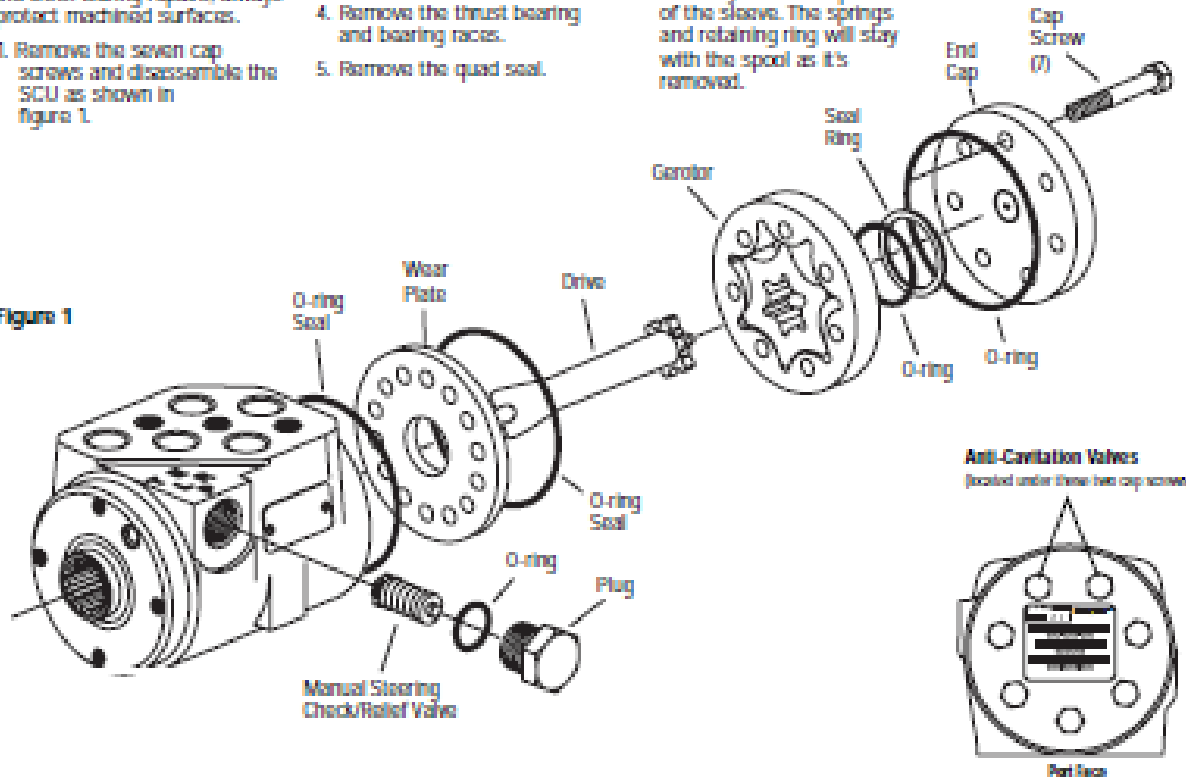
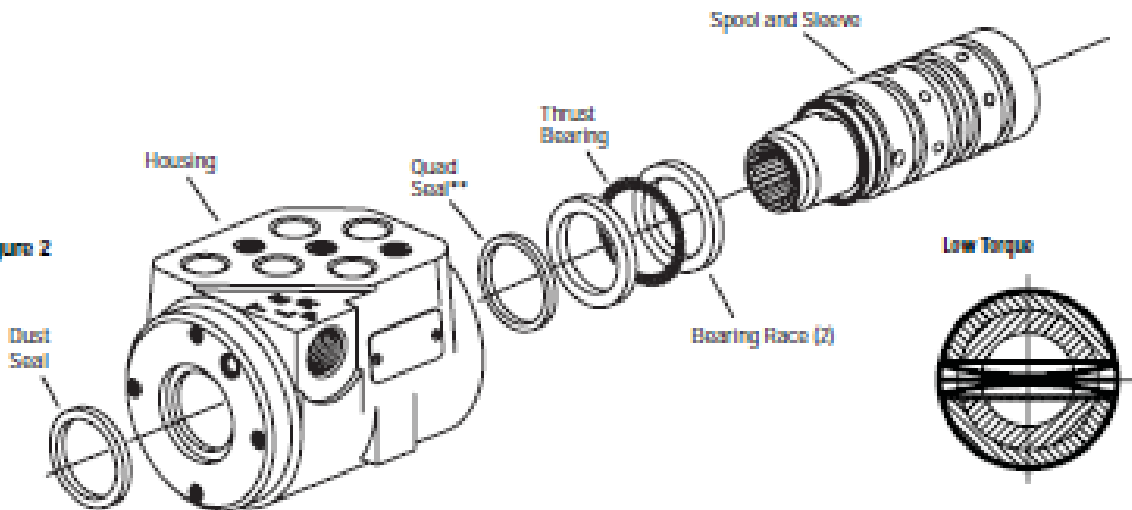


Figure 2



15-301 REPAIR REASSEMBLY INSTRUCTIONS

Reassembly

Check all mating surfaces. Replace any parts with scratches or burrs that could cause leakage. Wash all metal parts in clean solvent. Blow them dry with pressurized air. Do not wipe parts dry with paper towels or cloth as lint in a hydraulic system will cause damage.

Note: Always use new seals when reassembling hydraulic steering control units. Refer to page 5 for seal kit part numbers.

Important: During reassembly lubricate the new seals with a petroleum jelly such as Vaseline®. Also lubricate machined surfaces and bearings with clean hydraulic fluid.

10. Install the quad seal (see page 12 for 2-piece seal installations):

- Put one of the bearing races and sleeve into the housing.
 - Together, the housing and bearing race create a groove into which the quad seal will be installed.
 - Hold the bearing race tightly against the input end of the housing by pushing on the gerotor end of the sleeve.
 - Fit the quad seal into its seat through the input end of the housing. Be sure the seal is not twisted.
 - Remove the sleeve and bearing race.
11. Lubricate and install the dust seal (see Figure 4 for correct seal orientation).

Figure 4

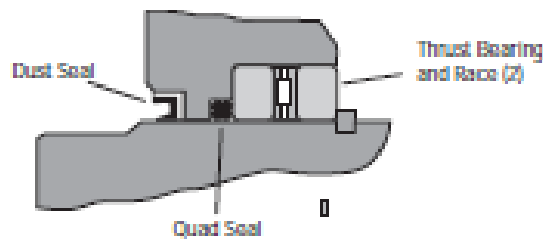
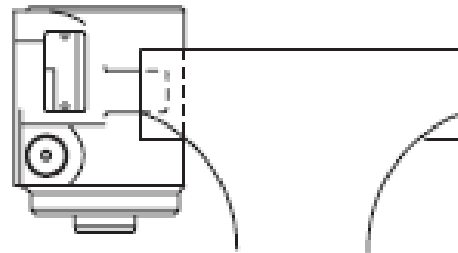


Figure 5



12. Install the centering springs in the spool. It is best to install the two flat pieces first. Next, install the curved pieces, three at a time.
13. Fit the retaining ring over the centering springs.
14. Apply a light coating of clean hydraulic fluid to the spool and slide it into the sleeve. Be sure the centering springs fit into the notches in the sleeve.

15. Install the drive, be sure the slot in the drive engages the pin.
16. Install the pin (see Figure 3).
17. Apply a light coating of petroleum jelly to the inner edge of the dust and quad seals.
18. Put the thrust bearing and races into the housing. The thrust bearing goes between the two races (see Figure 2).

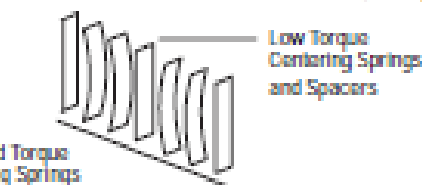
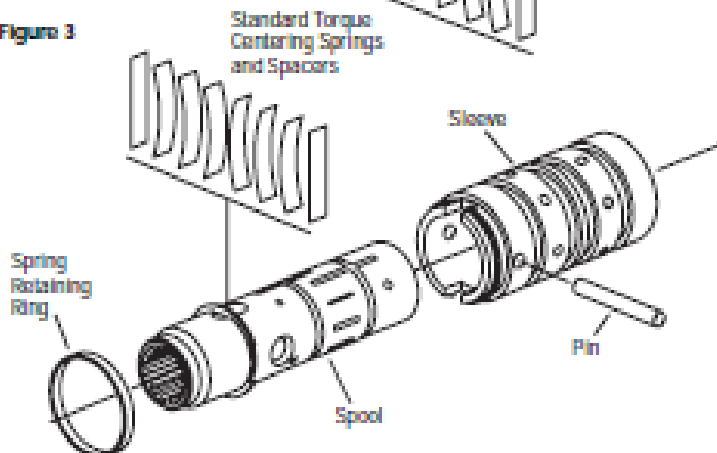


Figure 3



19. Apply a light coating of clean hydraulic fluid to the spool and sleeve assembly and slide it into the housing. **Important:** Do not damage the dust or quad seals.
20. Clamp the housing in a vise as shown in Figure 5. Use just enough clamping force to hold the housing securely.
21. Lubricate and install a new o-ring seal in the groove in the housing.
22. Install the wear plate and align the holes in the wear plate with threaded holes in the housing. **Note:** The holes in the wear plate are symmetrical.
23. Lubricate and install a new o-ring seal in the groove in the wear plate.
24. Install the gerotor and align the screw holes.
25. Lubricate and install a new o-ring seal in the groove in the gerotor ring.
26. Lubricate and install a new o-ring and seal ring in the groove in the gerotor star.
27. Install and cap and seven cap screws. Tighten cap screws, in a crisscross pattern, to 16 -18 Nm [140 -160 lb-in].
28. Remove the SCU from the vise.
29. Install the relief valve/check or check ball and plug. Use a new o-ring and tighten the plug to 17 Nm [150 lb-in].

15-301 2-PIECE SHAFT SEAL INSTRUCTIONS

2-Piece Shaft Seal Installation

For installation of
O-Ring 4999650-001 and
Seal 4998312-001

1. Place housing on a flat work area as shown in figure 13.
2. Lubricate seal and o-ring with hydraulic oil before installation.
3. Align sleeves with housing bore (figure 13).
4. Insert sleeve into housing bore (figure 14).
5. Place o-ring on plunger (figure 15).
6. Align seal with plunger cross section "L" shape of seal should be upside down (figure 16).
7. Push seal onto plunger. Lip of seal should be between o-ring and plunger. No gap should exist between o-ring and seal (figure 17).
8. Align plunger into sleeves until it bottoms out, rotate 1/4 turn (figure 18).
9. While holding sleeves in housing, withdraw plunger.
10. Withdraw sleeves.
11. Inspect seal installation. Seal and o-ring must both be within shaft seal counter bore of housing.



Figure 13



Tool No. 600801-001

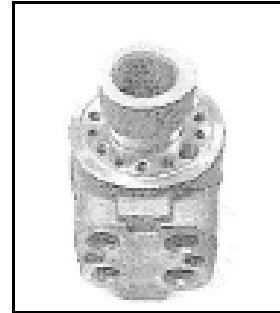


Figure 14



Figure 15

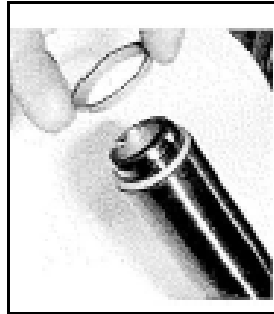


Figure 16



Figure 17

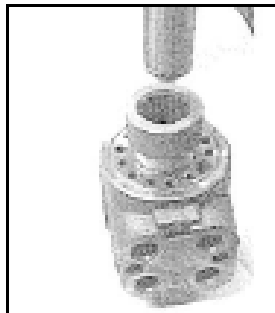


Figure 18



Figure 19

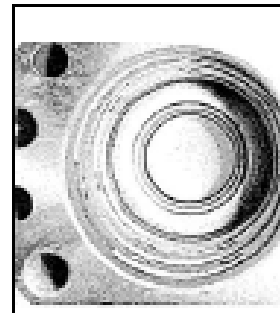
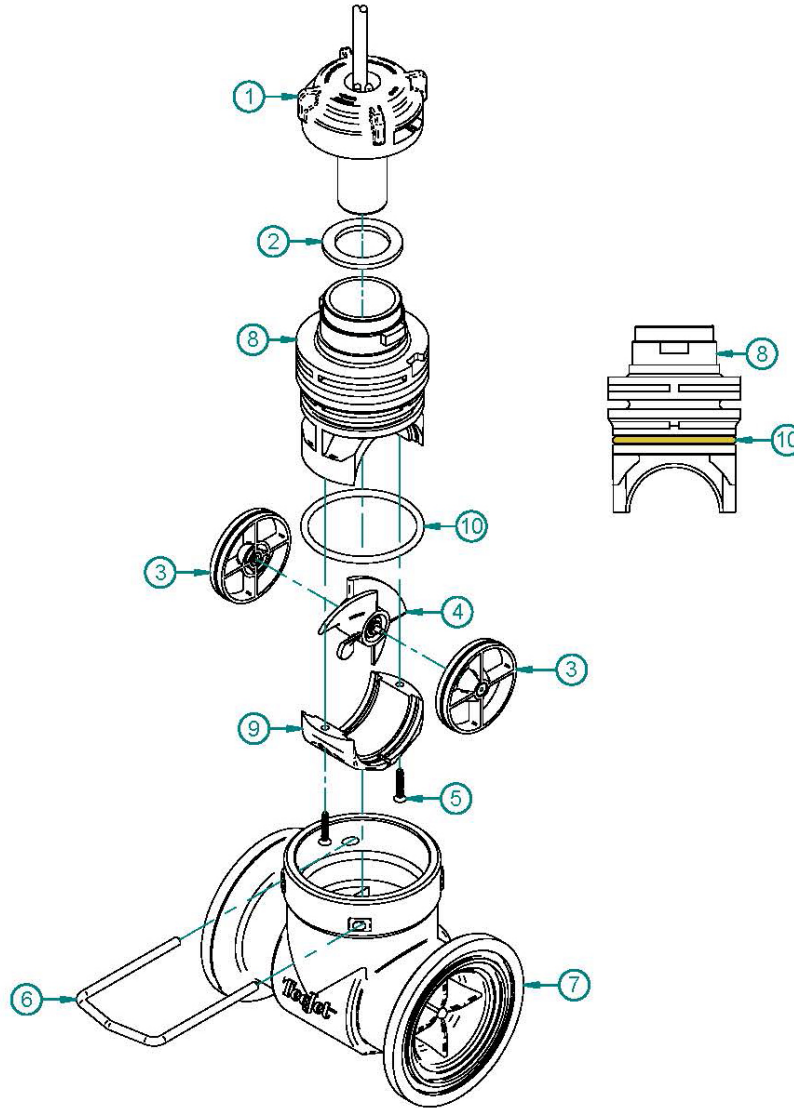


Figure 20

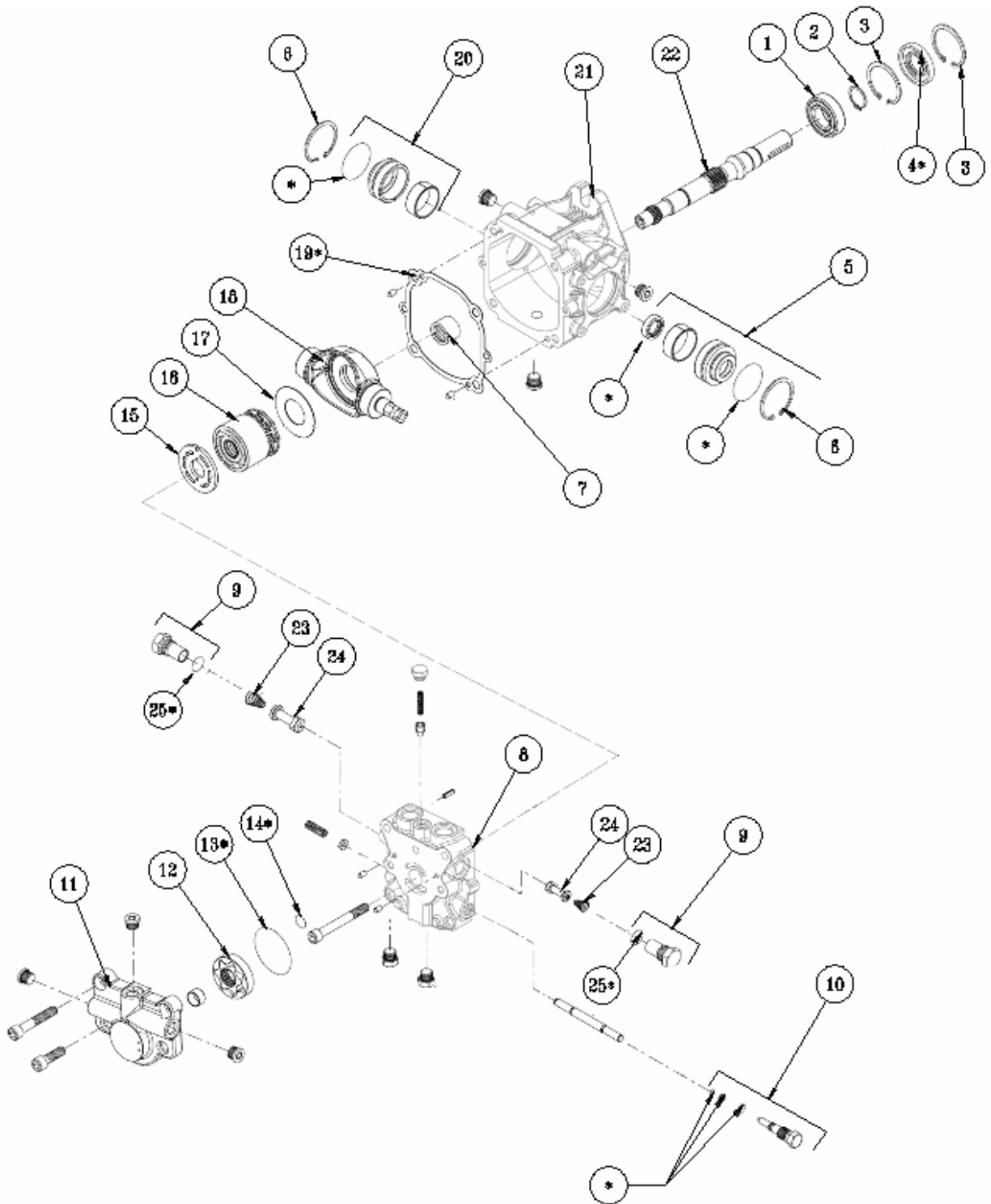
20-684-P FLOW METER



Parts

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------|---|----------|
| 1 | 20-684-01 | Sensor, PCB Assembly | 1 |
| 2 | | Washer, Seal | 1 |
| 3* | | Guide Vane Bearing | 2 |
| 4* | | Turbine Assembly | 1 |
| 5* | | Flat Head Screw, #6 - 5/8 | 2 |
| 6 | | Pin, Retaining | 1 |
| 7 | 20-684-04 | Body | 1 |
| 8* | | Insert, Body | 1 |
| 9* | | Endcap | 1 |
| 10* | 20-684-02 | Oring | 1 |
| * | 20-684-03 | 802 Flowmeter Repair Kit (includes all * items) | |

45-373 DDC20 PISTON PUMP DRAWING



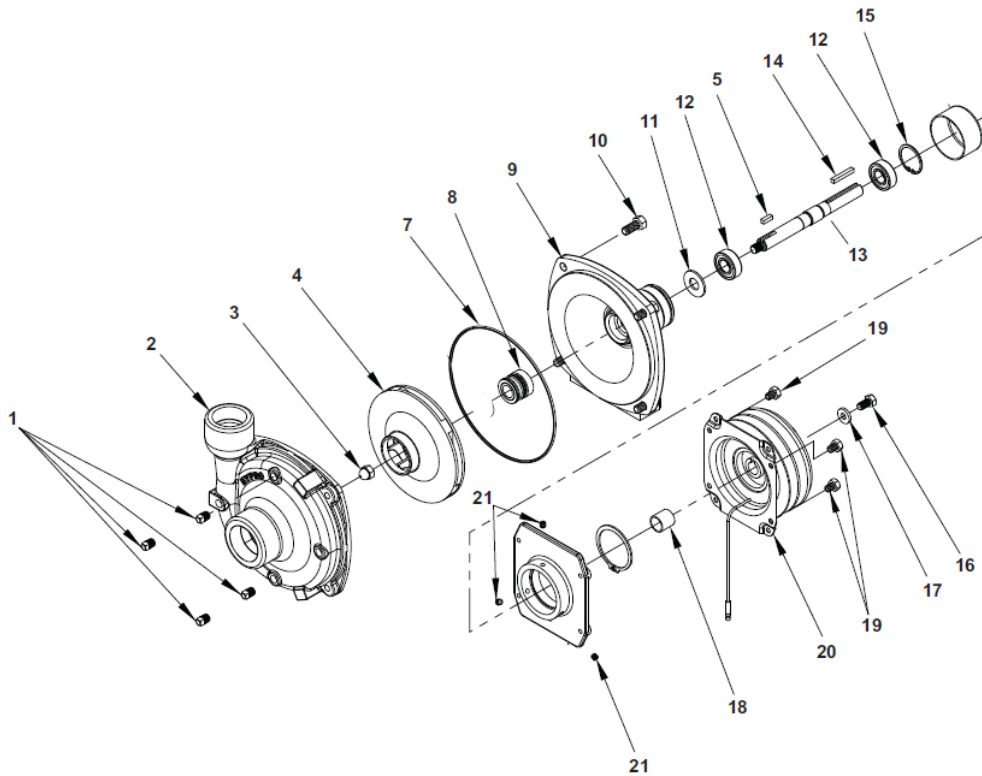
PARTS

C

45-373 DDC PISTON PUMP PARTS LIST

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------|----------------------------------|----------|
| 1 | 45-373-02 | Ball Bearing | 1 |
| 2 | 45-373-03 | Retaining Ring | 1 |
| 3 | 45-373-04 | Retaining Ring | 2 |
| 4* | | Lip Seal | 1 |
| 5 | 45-373-05 | Journal Bearing Carrier Assembly | 1 |
| 6 | 45-373-06 | Retaining Ring | 1 |
| 7 | 45-373-07 | Needle Bearing | 1 |
| 8 | 45-373-08 | End Cap | 1 |
| 9 | 45-373-09 | Plug Assembly | 2 |
| 10 | 45-373-10 | By-Pass Valve Assembly | 1 |
| 11 | 45-373-11 | Charge Pump Housing | 1 |
| 12 | 45-373-12 | Gerotor Assembly | 1 |
| 13* | | O-ring | 1 |
| 14* | | O-ring | 1 |
| 15 | 45-373-13 | Valve Plate CCW | 1 |
| 16 | 45-373-14 | Cylinder Block kit | 1 |
| 17 | 45-373-15 | Thrust Plate | 1 |
| 18 | 45-373-16 | Swash Plate, Axial Offset | 1 |
| 19* | | Gasket | 1 |
| 20 | 45-373-17 | Journal Bearing Carrier Assembly | 1 |
| 21 | 45-373-19 | Housing | 1 |
| 22 | 45-373-18 | Pump Shaft | 1 |
| * | 45-373-01 | Overhaul Kit | |

16-998 HYPRO PUMP DRAWING

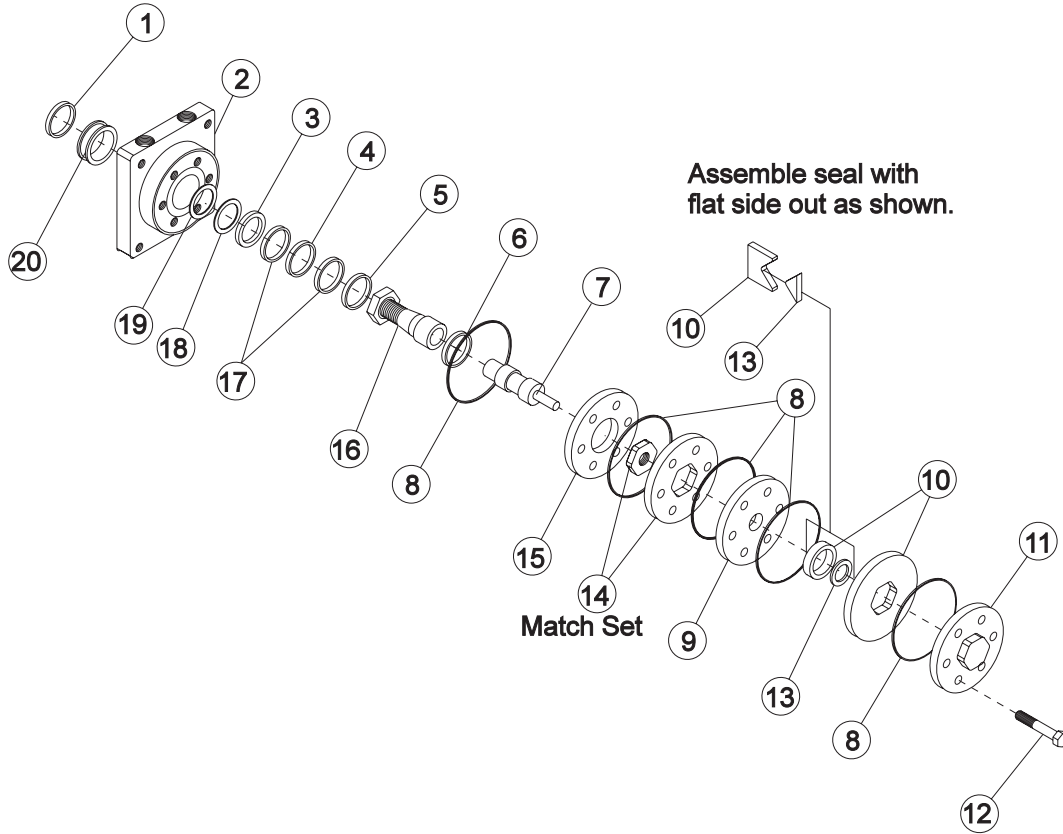


▲ IMPORTANT

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

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------|-----------------------------------|----------|
| 1 | 16-998-01 | Drain Plug | 4 |
| 2 | 16-998-02 | Pump Casing | 1 |
| 3 | 16-998-03 | Impeller Nut | 1 |
| 4 | 16-966-16 | Impeller | 1 |
| 5 | 16-966-11 | Key | 1 |
| 7* | 16-998-04 | O-Ring | 1 |
| 8* | 16-967 | Mechanical Seal (Silicon Carbide) | 1 |
| 9 | 16-998-06 | Mounting Flange | 1 |
| 10 | 16-998-07 | Bolt | |
| 11 | 16-966-06 | Slinger Ring | 1 |
| 12 | 16-966-10 | Ball Bearing | 2 |
| 13 | 16-966-12 | Pump Shaft | 1 |
| 14 | 16-822-20 | Key | 1 |
| 15 | 16-966-13 | Bearing Retainer | 1 |
| 16 | 16-994-05 | Bolt | 1 |
| 17 | 16-994-06 | Retaining Washer | 1 |
| 18 | 16-994-03 | Spacer | 1 |
| 19 | | Bolt | 4 |
| 20 | 16-994-01 | Clutch | 1 |
| 21 | 16-994-04 | Set Screw | 3 |
| | 16-998-12 | Pump Only | |
| * | 16-967 | Silicone - Carbon Seal Kit | |

10-510 WHEEL MOTOR DRAWING



| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-------------|--|----------|
| 1* | 13-032-39 | Water & Dirt Seal | 1 |
| 2 | 13-615-05 | Service Housing Assembly (Includes Ref 4, 5, 17(2 req'd) and 20) | 1 |
| 3* | | Inner Seal | 1 |
| 4 | 13-032-27 | Thrust Bearing | 1 |
| 5 | 13-032-28 | Inner Bearing | 1 |
| 6 | 13-032-29 | Thrust Bearing | 1 |
| 7 | 10-510-01 | Drive Link | 1 |
| 8* | | Ring Seal | 5 |
| 9 | 13-032-31 | Manifold | 1 |
| 10 | 13-032-32 | Commutator Assembly (matched set) | 1 |
| 11 | 13-032-33 | End Cover | 1 |
| 12 | 10-510-02 | Special Bolt | 7 |
| 13* | | Commutator Seal (matches with #10) | 1 |
| 14 | 10-510-03 | Rotor Set (matched set) | 1 |
| 15 | 10-510-04 | Wear Plate | 1 |
| 16 | 13-615-04 | Coupling Shaft | 1 |
| | HWK-516-100 | Woodruff Key $\frac{5}{16} \times 1$ | 1 |
| | 14-265 | Nut 1 - 20 | 1 |
| 17 | 13-032-37 | Thrust Washer | 2 |
| 18* | | Backup Washer | 1 |
| 19* | | Backup Ring | 1 |
| 20 | 13-032-38 | Outer Bearing | 1 |
| * | 14-080 | Seal Kit | 1 |

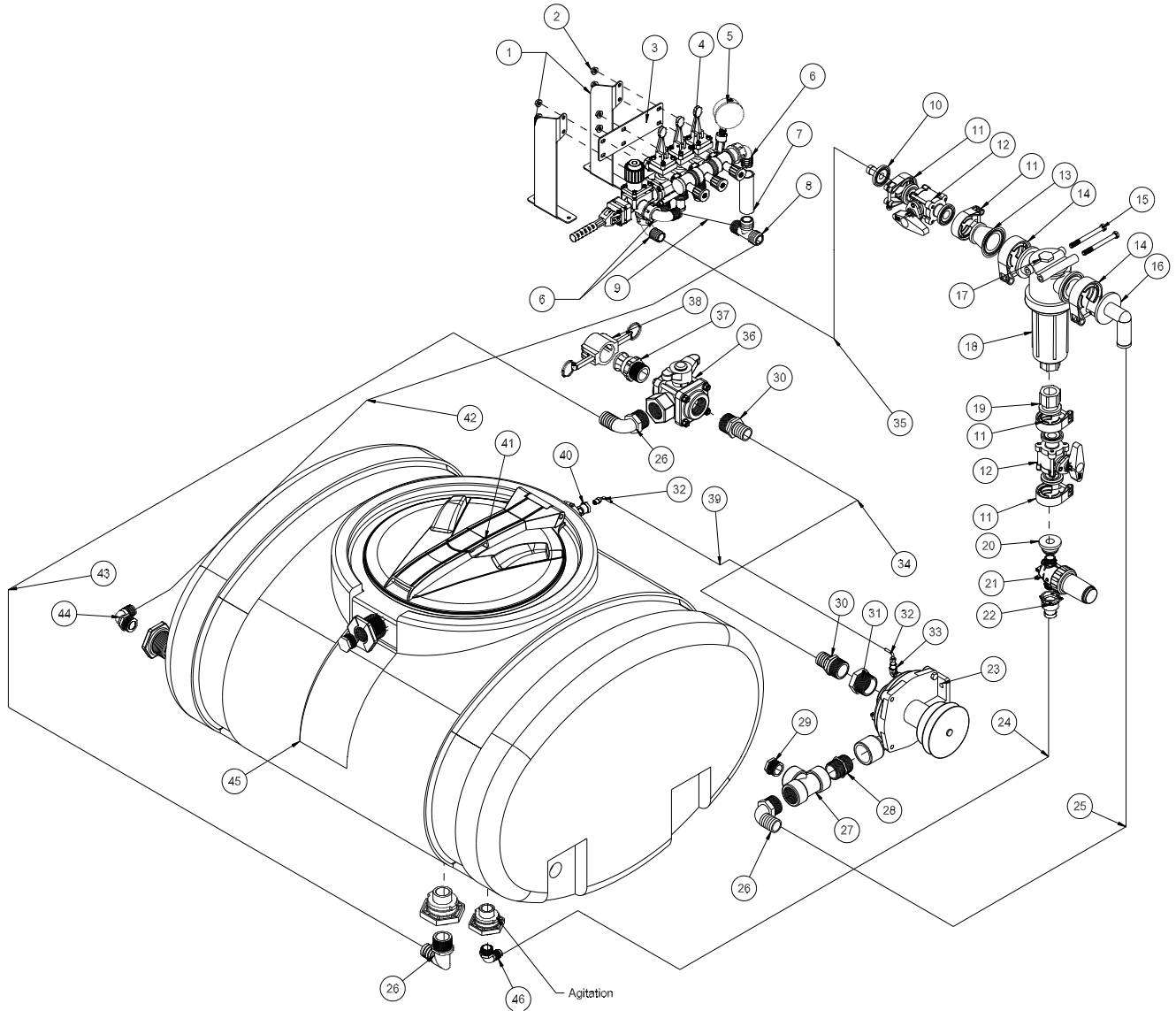
Parts

1101 PLUMBING DRAWING (3-WAY MANUAL)

15-817 O-ring for 50 Series Clamp

15-818 O-ring for 75 Series Clamp

| BOOM | LEFT HOSE | CENTER HOSE | RIGHT HOSE |
|-------------|------------------|--------------------|-------------------|
| 15' OR 18' | 9032-108 | 9032-72 | 9032-118 |



| REF# | PART# | DESCRIPTION | QUANTITY |
|-------------|---------------|---|-----------------|
| 1 | 10-646 | Ball Valve Mount | 2 |
| 2 | HB-516-18-075 | Hex Bolt, $\frac{5}{16}$ - 18 x $\frac{3}{4}$ | 6 |
| | HNFL-516-18 | Flange-Loc Nut, $\frac{5}{16}$ - 18 | 6 |
| 3 | 10-647 | Mount Plate | 1 |
| 4 | 10-648 | Manual Valve 3-Way | 1 |
| | 9032-90 | Center Black Hose $\frac{3}{4}$ " x 90" | 1 |
| | 9032-100 | Left Black Hose, $\frac{3}{4}$ " x 100" | 1 |
| | 9032-160 | Right Black Hose, $\frac{3}{4}$ " x 160" | 1 |
| | 18-040 | Hose Clamp, HS-12 | 3 |
| 5 | 16-281 | Liquid Filled Gauge | 1 |
| 6 | 10-268-13 | 90° Elbow (comes with 10-268) | 3 |
| 7 | 8896-4 | Discharge Hose 1" | 1 |
| | 18-222 | Hose Clamp | 2 |

1101 PLUMBING PARTS LIST (3-WAY MANUAL)

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|--------------|---|----------|
| 8 | 10-269 | Plastic Tee | 1 |
| 9 | 8896-12 | Discharge Hose 1" x 12" | 1 |
| | 18-222 | Hose Clamp | 2 |
| 10 | 15-808 | Hose Barb Flange | 1 |
| 11 | 15-740 | 50 Series Clamp | 4 |
| 12 | 15-738 | Flanged Ball Valve | 2 |
| 13 | 15-748 | Reducer Coupling | 1 |
| 14 | 15-741 | 75 Series Clamp | 2 |
| 15 | HB-38-16-550 | Hex Bolt, $\frac{3}{8}$ - 16 x 5 $\frac{1}{2}$ | 2 |
| | HNFL-38-16 | Flange Whiz-Loc nut, $\frac{3}{8}$ - 16 | 2 |
| 16 | 15-739 | 75 Series 90° x 1 $\frac{1}{4}$ Hose Barb | 1 |
| 17 | 15-780 | $\frac{1}{4}$ " Poly Plug | 1 |
| 18 | 15-737 | Flanged Strainer | 1 |
| 19 | 15-735 | 50 Series x 1 FPT | 1 |
| 20 | 15-825 | 50 Series Male Quick Coupler | 1 |
| 21 | 14-801 | Agitator Line Strainer, 50 Mesh | 1 |
| | 14-802 | Replacement 50 Mesh Screen | |
| 22 | 15-869 | 1" Hose Barb Outlet | 1 |
| | 15-553-01 | Clip | 1 |
| | 15-553-02 | O-ring | 1 |
| 23 | 16-998 | Hypro® Pump | 1 |
| 24 | 8896-38 | Discharge Hose 1" x 38" | 1 |
| | 18-040 | Hose Clamp | 2 |
| 25 | 8897-50 | Discharge Hose 1 $\frac{1}{4}$ " x 50" | 1 |
| | 18-116 | Hose Clamp, HS-24 | 2 |
| 26 | 16-156 | Elbow 1 $\frac{1}{4}$ MPT x 1 $\frac{1}{4}$ HB | 3 |
| 27 | 10-390 | Reducer | 1 |
| 28 | 16-880 | Close Nipple | 1 |
| 29 | 10-389 | Plug 1 $\frac{1}{4}$ | 1 |
| 30 | 16-161 | Fitting 1 $\frac{1}{4}$ MPT x 1 $\frac{1}{4}$ HB | 2 |
| 31 | 16-825 | Stainless Steel Reducer Bushing 1 $\frac{1}{2}$ x 1 $\frac{1}{4}$ | 1 |
| 32 | 18-475 | Male Elbow | 2 |
| 33 | 18-044 | Street Elbow | 1 |
| 34 | 8897-52 | Discharge Hose 1 $\frac{1}{4}$ " x 52" | 1 |
| | 18-040 | Hose Clamp, HS-12 | 2 |
| 35 | 8896-40 | Discharge Hose 1" x 40" | 1 |
| | 18-040 | Hose Clamp | 2 |
| 36 | 18-372 | 3-Way Valve | 1 |
| | 18-372-01 | T-handle | 1 |
| 37 | 16-180 | Quick Coupler 1 $\frac{1}{4}$ Male | 1 |
| 38 | 16-935 | Quick Coupler 1 $\frac{1}{4}$ Cap | 1 |
| 39 | 9038-30 | $\frac{1}{4}$ " Tubing x 30" | 1 |
| | 18-186 | Hose Clamp | 2 |
| 40 | 10-390 | Reducer | 1 |
| 41 | 14-532 | 16" Hinged Lid/Well with Gasket | 1 |
| | 16-953-01 | Gasket | 1 |
| 42 | 8896-48 | Discharge Hose 1" x 48" | 1 |
| | 18-222 | Hose Clamp | 2 |
| 43 | 8897-38 | Discharge Hose 1 $\frac{1}{4}$ " x 38" | 1 |
| | 18-040 | Hose Clamp, HS-12 | 2 |
| 44 | 16-164 | Elbow 1 MPT x 1 HB | 1 |
| 45 | 10-111 | 110 Gallon Poly Tank | 1 |
| | 16-169 | Strainer Basket 16" | 1 |
| 46 | 16-155 | Elbow $\frac{3}{4}$ " MPT x 1" HB | 1 |

1104 PLUMBING DRAWING (TEEJET® 744)

15-817 O-ring for 50 Series Clamp

15-818 O-ring for 75 Series Clamp

BOOM

LEFT HOSE

CENTER HOSE

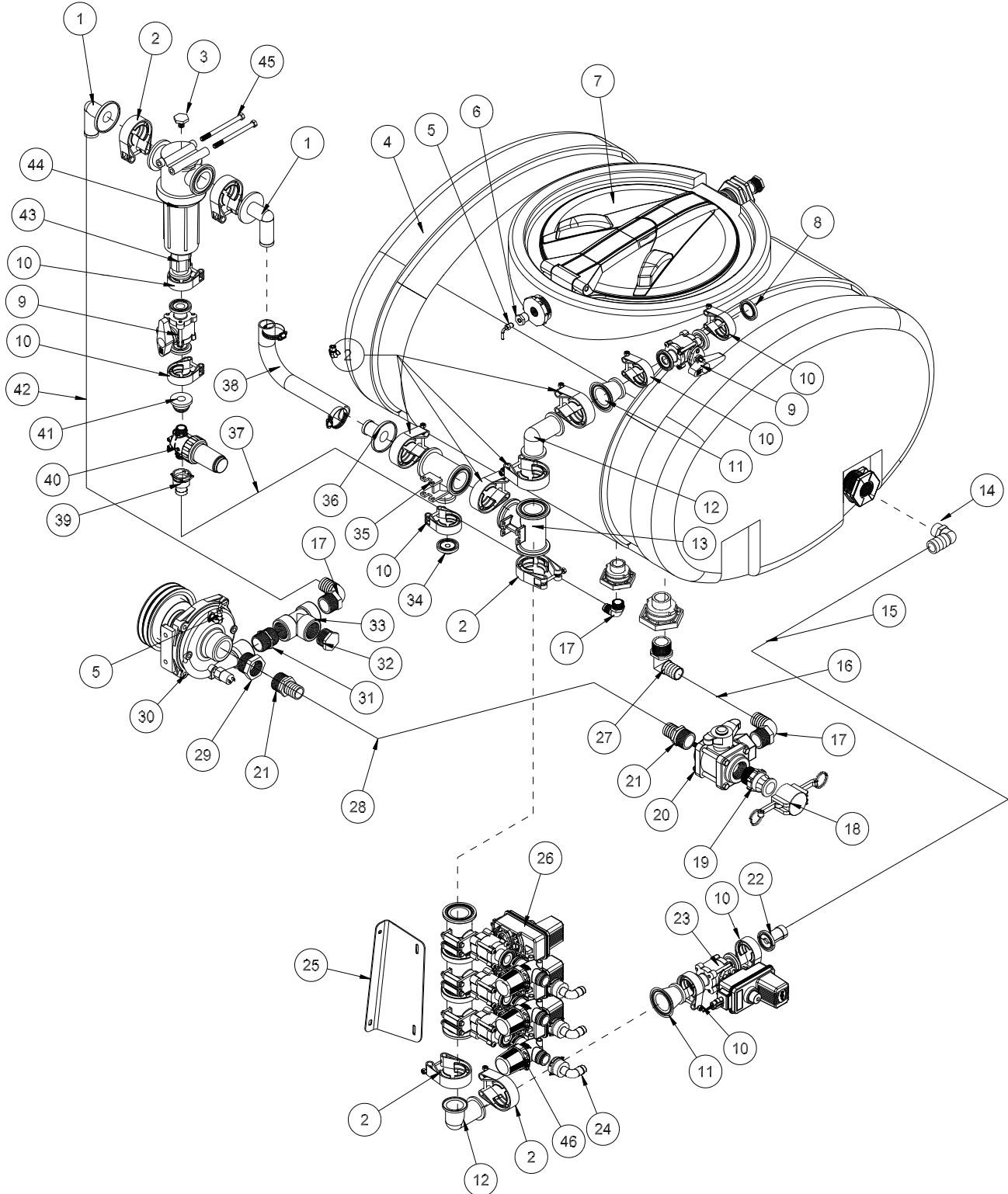
RIGHT HOSE

15' OR 18'

9032-108

9032-72

9032-118



Accessories

1104 PLUMBING PARTS LIST (TEEJET® 744)

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|--------------|---|----------|
| 1 | 15-739 | 75 Series 90° x 1 1/4 Hose Barb | 2 |
| 2 | 15-741 | 75 Series Clamp | 9 |
| 3 | 15-780 | 1/4 Poly Plug | 1 |
| 4 | 10-111 | 110 Gallon Poly Tank | 1 |
| | 16-169 | Strainer Basket 16" | 1 |
| 5 | 18-475 | Male Elbow | 2 |
| 6 | 10-390 | Reducer | 1 |
| 7 | 14-532 | 16" Hinged Lid/Well with Gasket | 1 |
| | 16-953-01 | Gasket | 1 |
| 8 | 15-778 | Blank Gauge Port Flange | 1 |
| 9 | 15-738 | Flanged Ball Valve | 2 |
| 10 | 15-740 | 50 Series Clamp | 7 |
| 11 | 15-748 | Reducer Coupling | 2 |
| 12 | 15-734 | 75 Series Elbow Coupling | 2 |
| 13 | 10-574 | Tee | 1 |
| 14 | 15-779 | Hose Barb | 1 |
| 15 | 8897-18 | Discharge Hose 1 1/4" x 18" | 1 |
| | 18-116 | Hose Clamp, HS-24 | 2 |
| 16 | 8897-38 | Discharge Hose 1 1/4" x 38" | 1 |
| | 18-116 | Hose Clamp, HS-24 | 2 |
| 17 | 16-156 | Elbow 1 1/4 MPT x 1 1/4 HB | 3 |
| 18 | 16-935 | Quick Coupler 1 1/4 Cap | 1 |
| 19 | 16-180 | Quick Coupler 1 1/4 Male | 1 |
| 20 | 18-372 | 3-Way Valve | 1 |
| | 18-372-01 | T-Handle | 1 |
| 21 | 16-161 | Fitting 1 1/4 MPT x 1 1/4 HB | 2 |
| 22 | 15-870 | Hose Barb | 1 |
| 23 | 20-817 | Regulator Valve | 1 |
| 24 | 15-743 | Manifold Valve | 1 |
| 25 | 10-480 | Valve Mount | 1 |
| 26 | 15-553 | 3/4 -90° Hose Barb | 3 |
| | 15-553-01 | Clip | 3 |
| | 15-553-02 | O-Ring | 3 |
| 27 | 16-155 | Elbow 3/4" MPT x 1" HB | 1 |
| 28 | 8897-15 | Discharge Hose 1 3/4" x 15" | 1 |
| | 18-116 | Hose Clamp, HS-24 | 2 |
| 29 | 16-825 | Stainless Steel Reducer Bushing 1 1/2 x 1 3/4 | 1 |
| 30 | 16-998 | Hypro® Pump | 1 |
| 31 | 16-880 | Close Nipple | 1 |
| 32 | 10-389 | Plug 1 3/4 | 1 |
| 33 | 18-390 | Pipe Tee 1 3/4 | 1 |
| 34 | 15-777 | Gauge Port Flange | 1 |
| 35 | 15-775 | Reducer Tee | 1 |
| 36 | 15-744 | 75 Series 1 3/4 Hose Barb | 1 |
| 37 | 8896-38 | Discharge Hose 1" x 38" | 1 |
| | 18-222 | Hose Clamp, 1 3/16 to 1 1/2 | 2 |
| 38 | 8897-33 | Discharge Hose 1 1/4" x 33" | 1 |
| | 18-116 | Hose Clamp, HS-24 | 2 |
| 39 | 15-869 | 1" Hose Barb Outlet | 1 |
| | 15-553-01 | Clip | 1 |
| | 15-553-02 | O-ring | 1 |
| 40 | 14-801 | Agitator Line Strainer, 50 Mesh | 1 |
| | 14-802 | Replacement 50 Mesh Screen | |
| 41 | 15-825 | 50 Series Male Quick Coupler | 1 |
| 42 | 8897-51 | Discharge Hose 1 3/4" x 51" | 1 |
| | 18-116 | Hose Clamp, HS-24 | 2 |
| 43 | 15-735 | 50 Series 1" FPT | 1 |
| 44 | 15-737 | Flanged Strainer | 1 |
| 45 | HB-38-16-550 | Hex Bolt, 3/8-16 x 5 1/2 | 2 |
| | HNFL-38-16 | Flange Whiz-loc Nut, 3/8- 16 | 2 |
| 46 | 14-607 | Strainer, QC 100 Mesh | 3 |

1102 PLUMBING DRAWING (TEEJET® RADION 8140)

15-817

O-ring for 50 Series Clamp

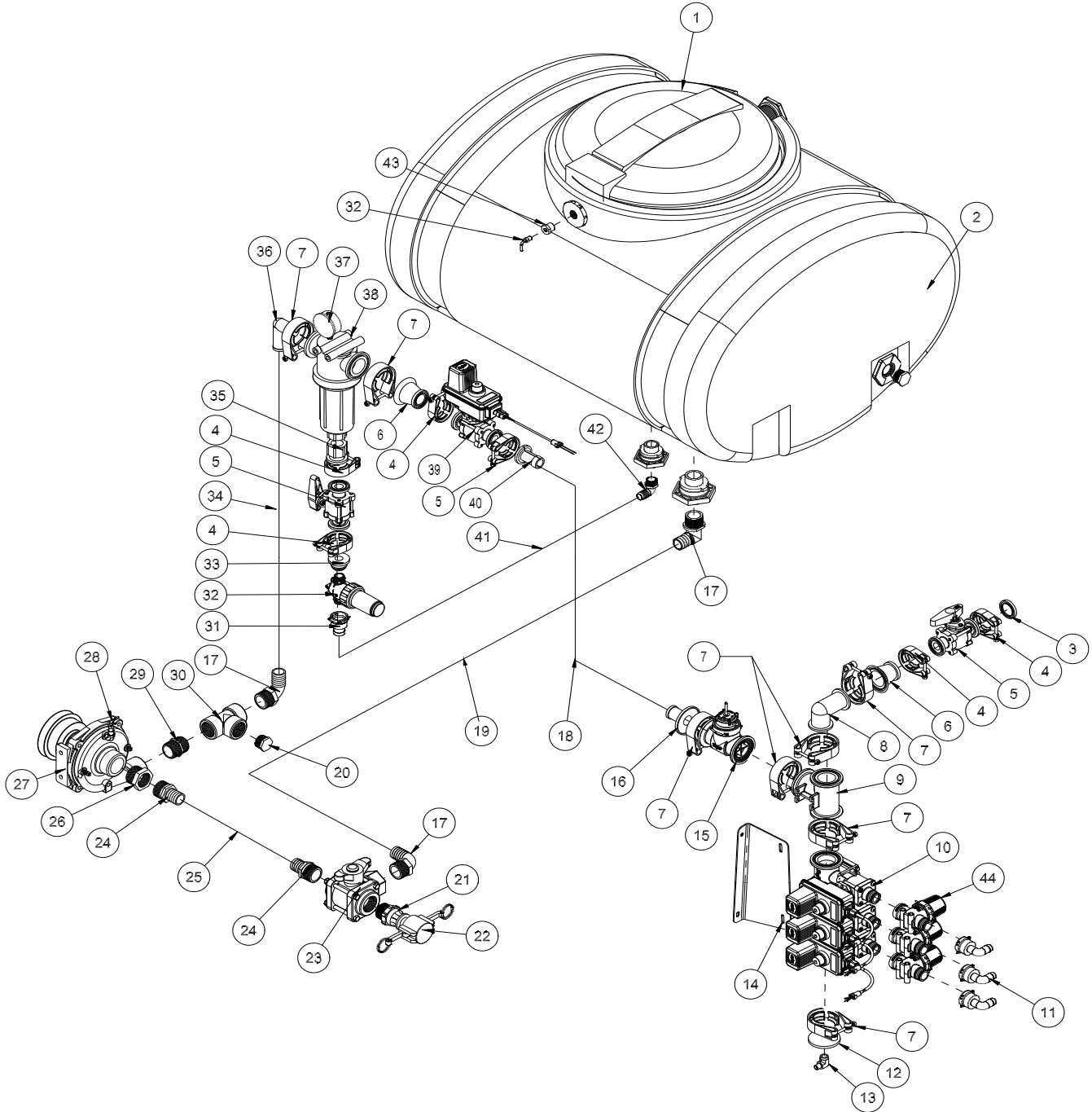
15-818 O-ring for 75 Series Clamp

BOOM
15' OR 18'

LEFT HOSE
9032-108

CENTER HOSE
9032-72

RIGHT HOSE
9032-118



IMPORTANT

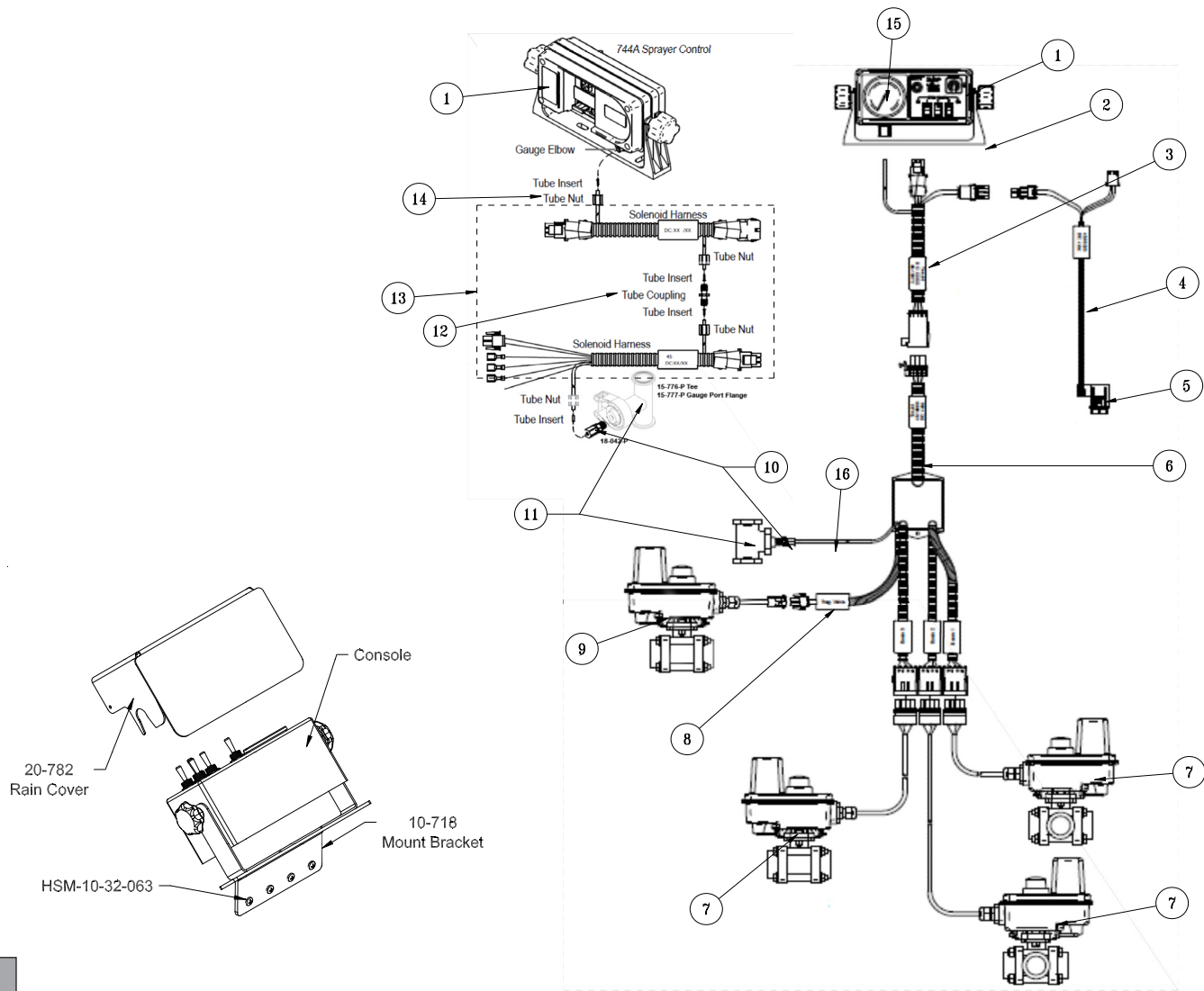
If using Simulated Speed with a Radion 8140, one needs to change back to Ground Speed for proper rate control when spraying.

Accessories

1102 PLUMBING PARTS LIST (TEEJET® RADION 8140)

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------|---|----------|
| 1 | 14-532 | 16" Hinged Lid/Well with Gasket | 1 |
| | 16-953-01 | Gasket | 1 |
| 2 | 10-111 | 110 Gallon Poly Tank (includes † items) | 1 |
| | 16-169 | Strainer Basket 16" | 1 |
| 3 | 15-778 | Blank Gauge Port Flange | 1 |
| 4 | 15-740 | 50 Series Clamp | 8 |
| 5 | 15-738 | Flanged Ball Valve | 2 |
| 6 | 15-748 | Reducer Coupling | 2 |
| 7 | 15-741 | 75 Series Clamp | 6 |
| 8 | 15-734 | 75 Series Elbow Coupling | 1 |
| 9 | 10-574 | Tee | 1 |
| 10 | 15-743 | Manifold Valve | 1 |
| 11 | 15-553 | 3/4-90° Hose Barb | 3 |
| | 15-553-01 | Clip | 3 |
| | 15-553-02 | O-Ring | 3 |
| 12 | 15-882 | 75 Series Gauge Port | 1 |
| 13 | 18-007 | Street Elbow | 1 |
| 14 | 10-480 | Valve Mount | 1 |
| 15 | 20-684 | #802 Flow Meter | 1 |
| 16 | 15-744 | 75 Series 1 1/4" Hose Barb | 1 |
| 17 | 16-156 | Elbow 1 1/4" MPT x 1 1/4" HB | 1 |
| 18 | 8897-23 | Discharge Hose 1 1/4" x 23" | 1 |
| | 18-116 | Hose Clamp, HS-24 | 2 |
| 19 | 8897-19 | Discharge Hose 1 1/4" x 19" | 1 |
| | 18-040 | Hose Clamp, HS-12 | 2 |
| 20 | 10-389 | Plug 1 1/4" | 1 |
| 21 | 16-180 | Quick Coupler 1 1/4" Male | 1 |
| 22 | 16-935 | Quick Coupler 1 1/4" Cap | 1 |
| 23 | 18-372 | 3-Way Valve | 1 |
| | 18-372-01 | T-handle | 1 |
| 24 | 16-161 | Fitting 1 1/4" MPT x 1 1/4" HB | 2 |
| 25 | 8897-15 | Discharge Hose 1 1/4" x 15" | |
| | 18-040 | Hose Clamp, HS-12 | 2 |
| 26 | 16-825 | Stainless Steel Reducer Bushing 1 1/2" x 1 1/4" | 1 |
| 27 | 16-998 | Hypro® Pump | 1 |
| 28 | 18-475 | Male Elbow | 2 |
| | 9038-30 | 1/4" Tubing | 1 |
| | 18-116 | Hose Clamp, HS-24 | 2 |
| 29 | 16-880 | Close Nipple | 1 |
| 30 | 18-390 | Pipe Tee 1 1/4" | 1 |
| 31 | 15-869 | 1" Hose Barb Outlet | 1 |
| | 15-553-01 | Clip | 1 |
| | 15-553-02 | O-ring | 1 |
| 32 | 14-801 | Agitator Line Strainer, 50 Mesh | 1 |
| | 14-802 | Replacement 50 Mesh Screen | |
| 33 | 15-825 | 50 Series Male Quick Coupler | 1 |
| 34 | 8897-50 | Discharge Hose 1 1/4" x 50" | 1 |
| | 18-116 | Hose Clamp, HS-24 | 2 |
| 35 | 15-735 | 50 Series 1" FPT | 1 |
| 36 | 15-739 | 75 Series 90° x 1 1/4" Hose Barb | 1 |
| 37 | 16-281 | Liquid Filled Gauge | 1 |
| 38 | 15-737 | Flanged Strainer | 1 |
| | 16-968-05 | Screen (80 mesh) | 1 |
| 39 | 20-785 | Regulator Valve | 1 |
| 40 | 15-870 | 50 Series 1 1/4" Hose Barb | 1 |
| 41 | 8896-38 | Discharge Hose 1" x 40" | 1 |
| | 18-222 | Hose Clamp, 1 3/16" to 1 1/2" | 2 |
| 42 | 16-155 | Elbow, 3/4" MPT x 1" Hose Barb | 1 |
| 43 | 10-390 | Reducer | 1 |
| 44 | 14-607 | Strainer, QC 100 Mesh | 3 |

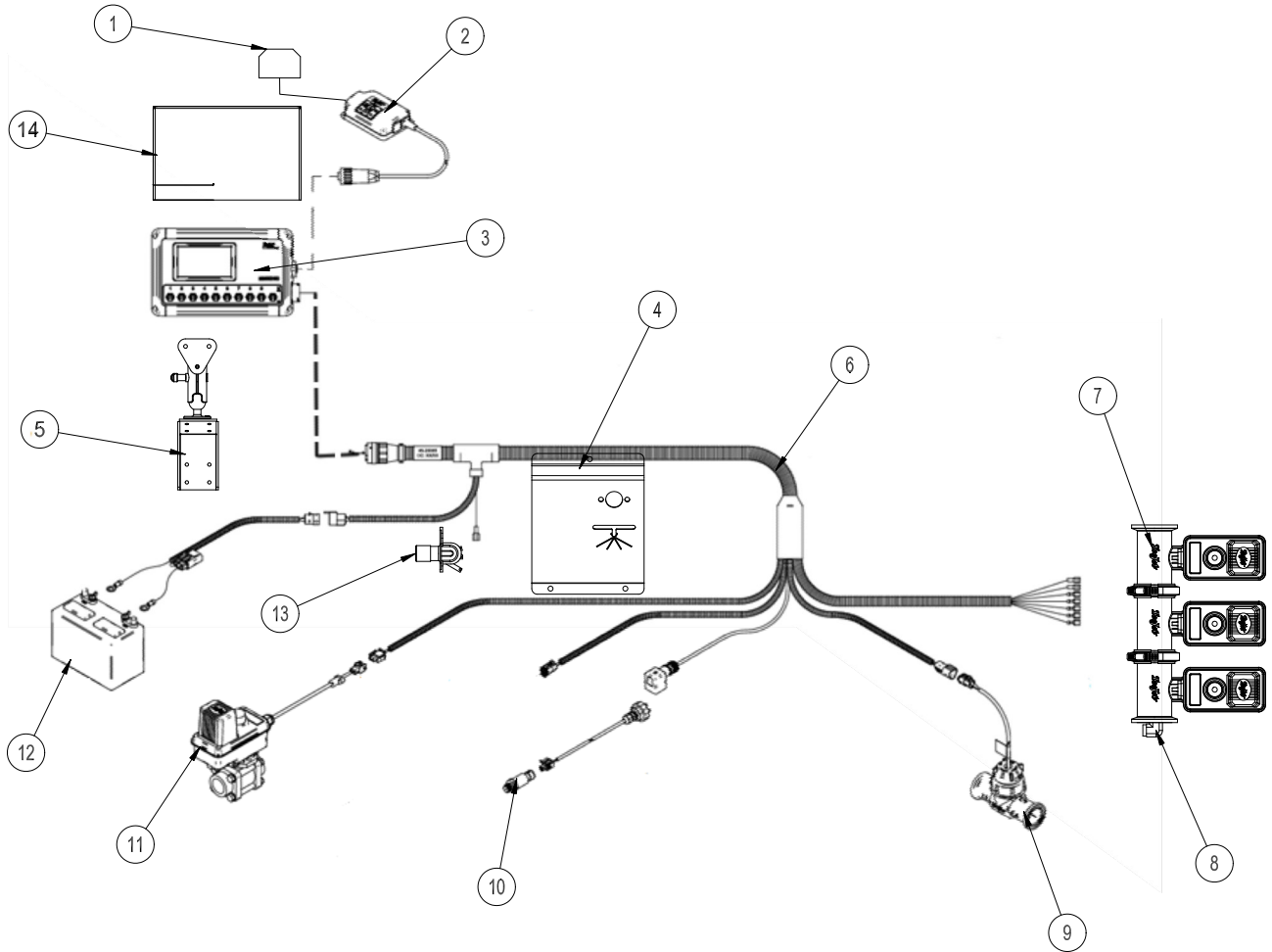
1104 SYSTEM WIRING (TEEJET® 744)



| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------|-------------------------|----------|
| 1* | 20-688-02 | 744 Console | 1 |
| | 20-688-01 | 200PSI Gauge | 1 |
| | 20-688-07 | Circuit Board | 1 |
| | 20-688-08 | Gauge Elbow | 1 |
| 2 | 10-718 | Mount Bracket | 1 |
| 3* | | Console harness | 1 |
| 4* | | Fused Power Cable | 1 |
| 5 | 33-271 | Fuse Block | 1 |
| 6* | | Ball Valve Wire Harness | 1 |
| 7 | 15-743 | Manifold Ball Valve | 1 |
| 8* | | Regulator Valve Adapter | 1 |
| 9 | 20-817 | Regulating Valve | 1 |
| 10 | 18-042 | Reducer Bushing | 1 |
| 11 | 15-775 | Tee, 50 Series | 1 |
| | 15-777 | Gauge Port Flange | 1 |
| 12* | 20-688-05 | Tube Coupling | 1 |
| 13* | | Tube Nut Kit | 1 |
| 14* | 20-688-06 | Tube Nut | 1 |
| 15* | 20-688-01 | PSI Liquid Gauge | 1 |
| 16* | 20-688-04 | Tubing | 1 |

* 20-688 744 Kit Complete (includes * items)

1102 SYSTEM WIRING (TEEJET® RADION)



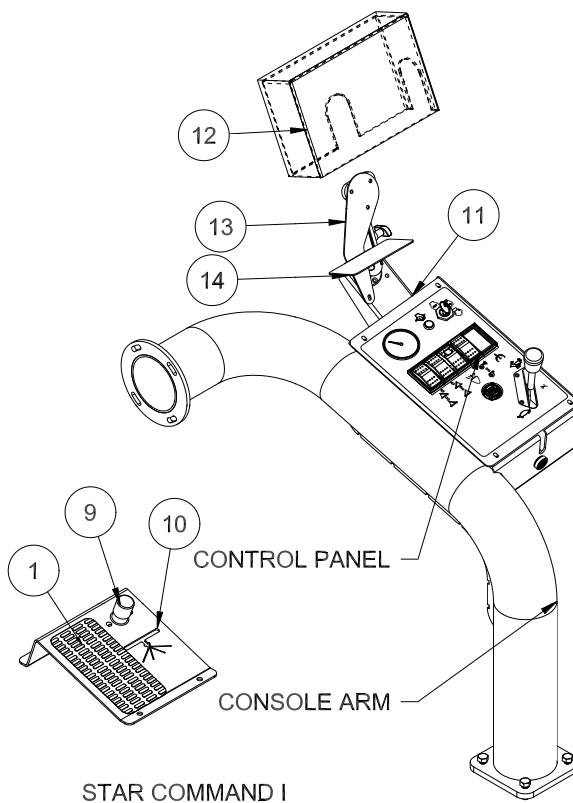
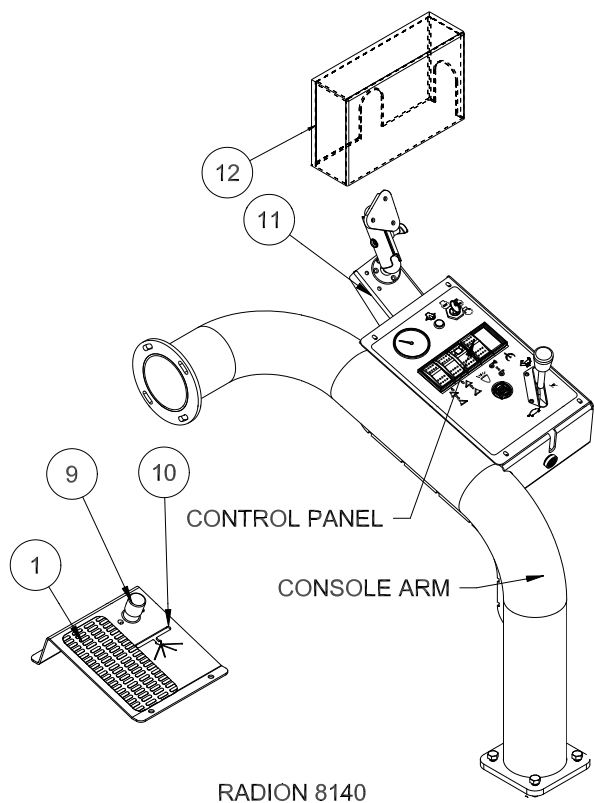
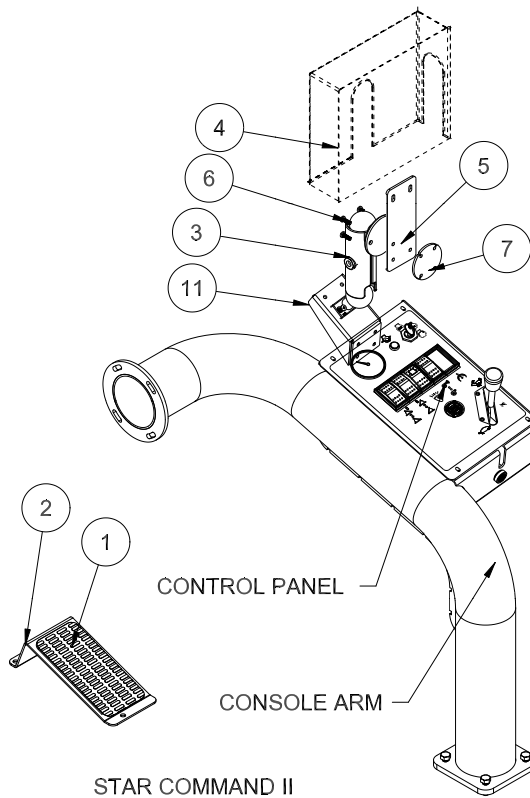
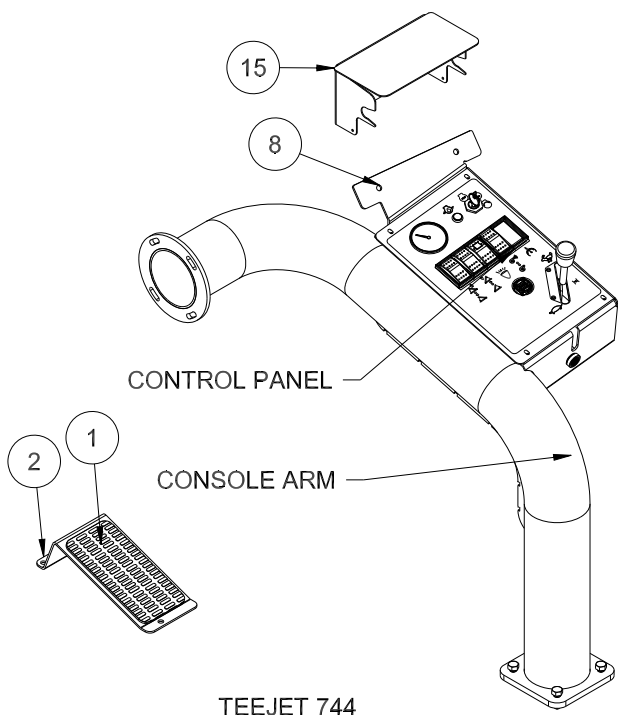
▲ IMPORTANT

If using Simulated Speed with a Radion 8140, one needs to change back to Ground Speed for proper rate control when spraying.

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------|---------------------------------------|----------|
| 1* | | Antenna | 1 |
| 2* | 20-687-02 | GPS Speed Sensor | 1 |
| 3* | 20-697-01 | Radion 8140 Console | 1 |
| 4 | 10-705 | Foot Plate | 1 |
| 5 | 10-721 | Mount Bracket | 1 |
| 6* | | Wire Harness | 1 |
| 7 | 15-743 | Manifold Valve | 1 |
| 8 | 18-007 | Elbow | 1 |
| 9 | 20-684 | Flow Meter | 1 |
| 10* | 20-670-04 | Pressure Sensor | 1 |
| 11 | 20-785 | Regulator Valve | 1 |
| 12 | 33-216 | Battery | 1 |
| 13 | 33-509 | Master Boom Control | 1 |
| 14 | 20-781 | Plastic Radion Cover | 1 |
| * | 20-697 | TeeJet® Radion Kit (includes * items) | 1 |

Use Dielectric Grease On All Electrical Connections

CONTROL MOUNTS



CONTROL MOUNTS

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|---------------|--|----------|
| 1 | 45-132 | Foot Rest Grip | 1 |
| 2 | 45-047 | Foot Rest | 1 |
| 3 | | Star Command II RAM Mount | 1 |
| 4 | 20-836 | Star Command II Cover | 1 |
| 5 | 32-691 | Control Mount Spacer | 1 |
| 6 | 32-690 | Aeros Control Mount | 1 |
| 7 | HSM-10-32-075 | Machine Screw, 10-32 x ³ / ₄ | 6 |
| 8 | 10-718 | 744 Control Mount | 1 |
| 9 | 33-509 | Master Boom Switch | 1 |
| 10 | 10-705 | Switch Foot Plate | 1 |
| 11 | 10-721 | Short Ram Mount | 1 |
| 12 | 20-781 | Cover for Radion Control | 1 |
| 13 | 10-719 | Star Command I Control Mount | 1 |
| 14 | 10-716 | DynaJet Control Cover | 1 |
| 15 | 10-782 | 744 Cover | 1 |

1105/1108/1115/1118 DRAWING

15-817 O-ring for 50 Series Clamp

15-818 O-ring for 75 Series Clamp

BOOM

LEFT HOSE

CENTER HOSE

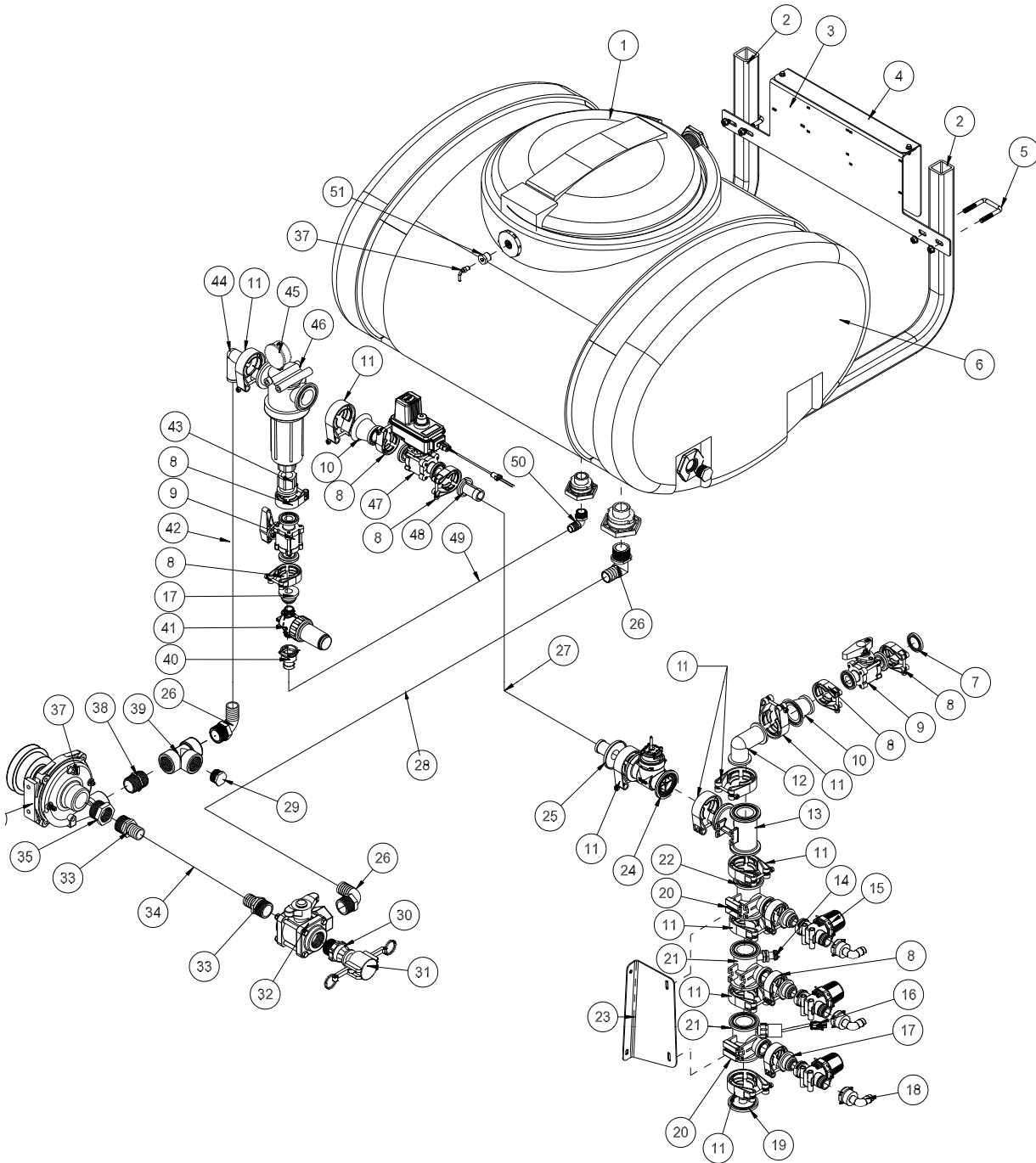
RIGHT HOSE

15' OR 18'

9032-108

9032-72

9032-118



Accessories

1105/1108/1115/1118 PARTS LIST

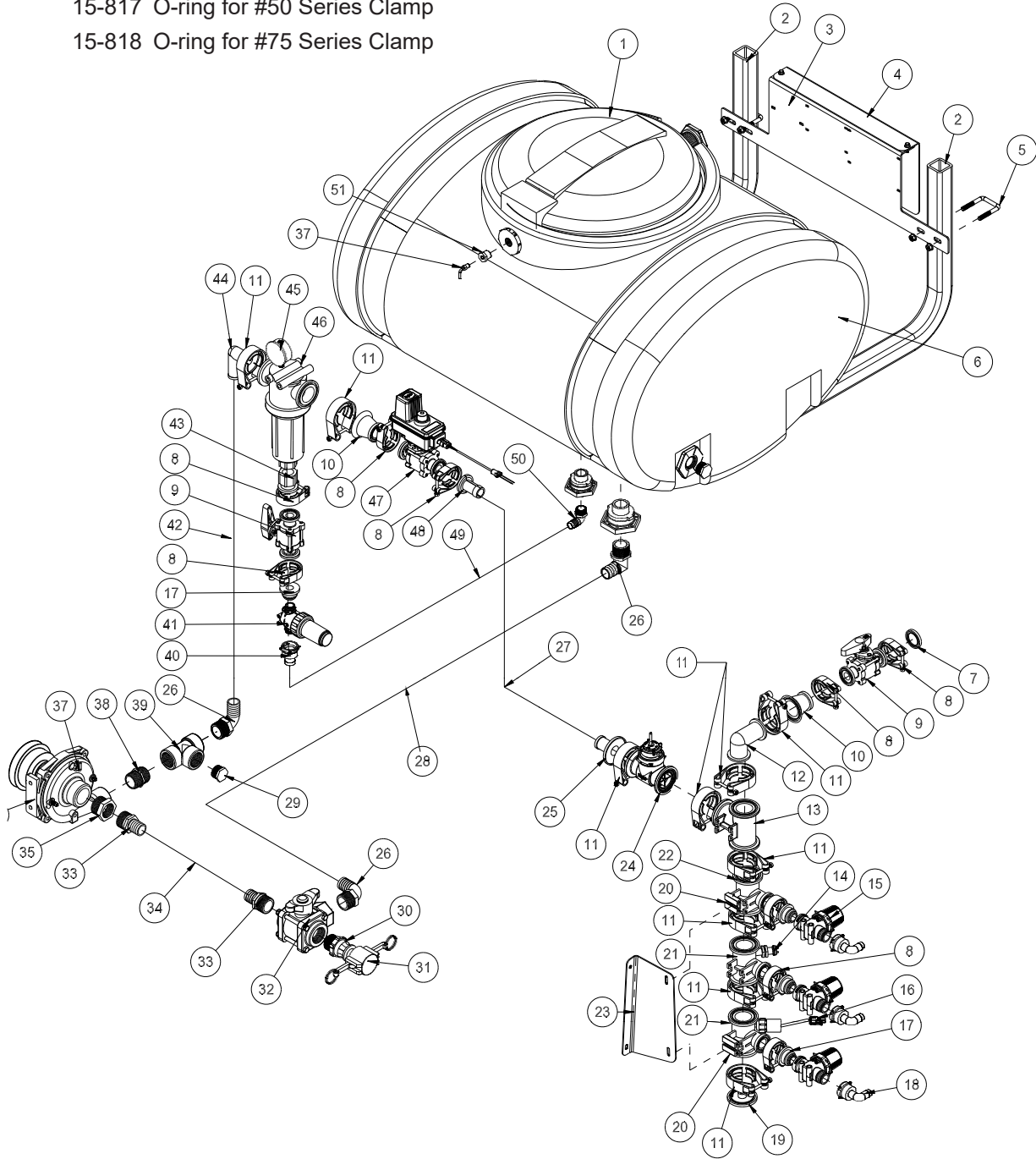
| REF# | PART# | DESCRIPTION | QUANTITY |
|------|------------|---|----------|
| 1 | 14-532 | 16" Hinged Lid/Well with Gasket | 1 |
| | 16-953-01 | Gasket | 1 |
| 2 | 17-615 | Boom Mounts | 2 |
| 3 | 10-625 | Module Mount Bracket | 1 |
| 4 | 20-666 | Module Cover Bracket | 1 |
| 5 | 17-537 | Square U-Bolt | 2 |
| | HNTL-38-16 | Lock Nut, 3/8- 16 | 4 |
| 6 | 10-111 | 110 Gallon Poly Tank | 1 |
| | 16-169 | Strainer Basket 16" | 1 |
| 7 | 15-778 | Blank Gauge Port Flange | 1 |
| 8 | 15-740 | 50 Series Clamp | 9 |
| 9 | 15-738 | Flanged Ball Valve | 2 |
| 10 | 15-748 | Reducer Coupling | 2 |
| 11 | 15-741 | 75 Series Clamp | 10 |
| 12 | 15-734 | 75 Series Elbow Coupling | 1 |
| 13 | 10-574 | Tee | 1 |
| 14 | 20-670-04 | Pressure Sensor | 1 |
| 15 | 14-607 | Strainer 100 Mesh | 3 |
| | 14-609 | Replacement Filter 100 mesh | |
| 16 | | Pressure Transducer | 1 |
| 17 | 15-825 | QC Flange Adapter | 4 |
| 18 | 15-553 | 3/4-90° Hose Barb | 3 |
| | 15-553-01 | Clip | 3 |
| | 15-553-02 | O-Ring | 3 |
| 19 | 15-742 | 75 Series Inlet Cover | 1 |
| 20 | 15-743-03 | Alum Mount Rail | 2 |
| | 15-743-06 | SS Screws | 8 |
| 21 | 30-164 | Tapped Reducer Tee | 2 |
| 22 | 15-775 | Reducer Tee | 1 |
| 23 | 10-480 | Valve Mount | 1 |
| 24 | 20-684 | #802 Flow Meter | 1 |
| 25 | 15-744 | 75 Series 1 1/4" Hose Barb | 1 |
| 26 | 16-156 | Elbow 1 1/4" MPT x 1 1/4" HB | 3 |
| 27 | 8897-23 | Discharge Hose 1 1/4" x 23" | 1 |
| | 18-116 | Hose Clamp, HS-24 | 2 |
| 28 | 8897-19 | Discharge Hose 1 1/4" x 19" | 1 |
| | 18-040 | Hose Clamp, HS-12 | 2 |
| 29 | 10-389 | Plug 1 1/4" | 1 |
| 30 | 16-180 | Quick Coupler 1 1/4" Male | 1 |
| 31 | 16-935 | Quick Coupler 1 1/4" Cap | 1 |
| 32 | 18-372 | 3-Way Valve | 1 |
| | 18-372-01 | T-handle | 1 |
| 33 | 16-161 | Fitting 1 1/4" MPT x 1 1/4" HB | 2 |
| 34 | 8897-15 | Discharge Hose 1 1/4" x 15" | 1 |
| | 18-040 | Hose Clamp, HS-12 | 2 |
| 35 | 16-825 | Stainless Steel Reducer Bushing 1 1/2" x 1 1/4" | 1 |
| 36 | 16-998 | Hypro® Pump | 1 |

(Continued on next page)

1105/1108/1115/1118 DRAWING

15-817 O-ring for #50 Series Clamp

15-818 O-ring for #75 Series Clamp

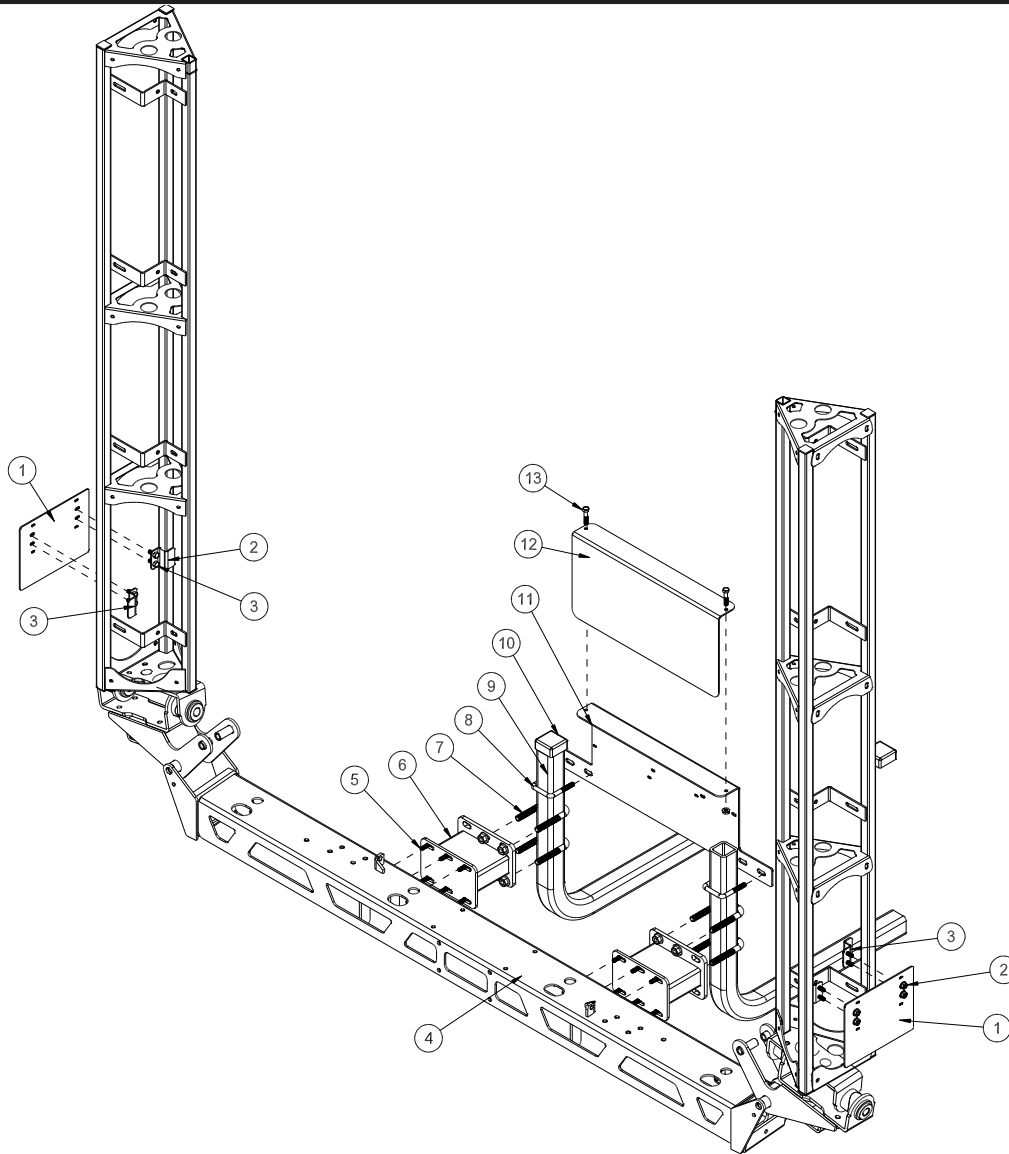


Accessories

1105/1108/1115/1118 PARTS LIST

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------|--------------------------------------|----------|
| 37 | 18-475 | Male Elbow | 2 |
| | 9038-30 | 1/4 Tubing x 30" | 1 |
| | 18-116 | Hose Clamp, HS-24 | 2 |
| 38 | 16-880 | Close Nipple | 1 |
| 39 | 18-390 | Pipe Tee 1 1/4" | 1 |
| 40 | 15-869 | 1" Hose Barb Outlet | 1 |
| | 15-553-01 | Clip | 1 |
| | 15-553-02 | O-ring | 1 |
| 41 | 14-801 | Agitator Line Strainer, 50 Mesh | 1 |
| | 14-802 | Replacement 50 Mesh Screen | |
| 42 | 8897-51 | Discharge Hose 1 1/4" x 51" | 1 |
| | 18-116 | Hose Clamp, HS-24 | 2 |
| 43 | 15-735 | 50 Series 1" FPT | 1 |
| 44 | 15-739 | 75 Series 90° x 1 1/4" Hose Barb | 1 |
| 45 | 16-281 | Liquid Filled Gauge | 1 |
| 46 | 4-628 | Flanged Strainer with 80 Mesh Screen | 1 |
| 47 | 20-785 | Regulator Valve | 1 |
| 48 | 15-870 | 50 Series 1 1/4" Hose Barb | 1 |
| 49 | 8896-38 | Discharge Hose 1" 38" | 1 |
| | 18-222 | Hose Clamp, 13/16 to 1 1/2" | 2 |
| 50 | 16-155 | Elbow 3/4" MPT x 1" HB | 1 |
| 51 | 10-390 | Reducer | 1 |

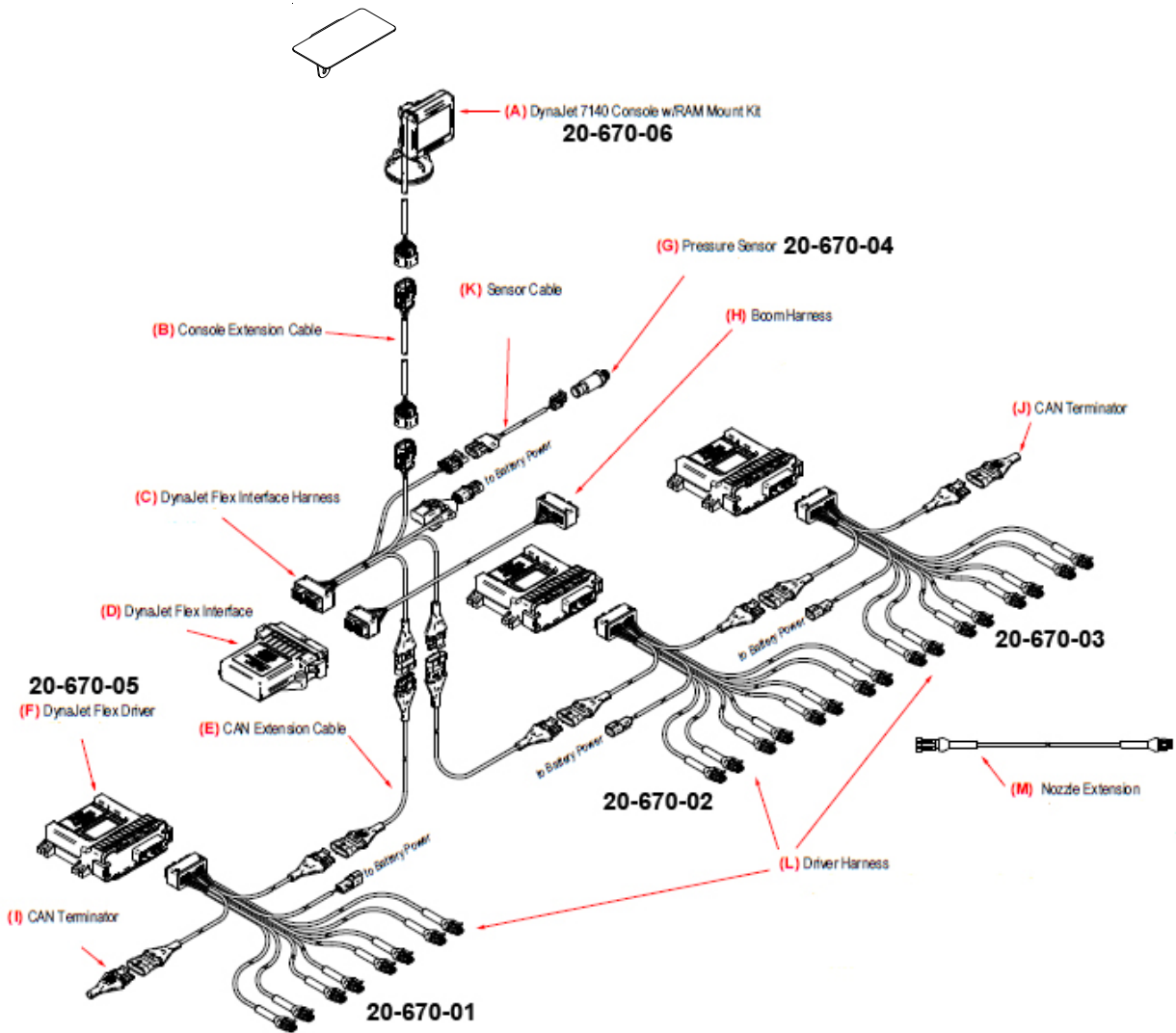
1105/1108 MODULE MOUNTS



| REF# | PART# | DESCRIPTION | QUANTITY |
|------|----------------|---|----------|
| 1 | 20-665 | Drive Module Bracket | 2 |
| 2 | 20-664 | Z Bracket | 4 |
| 3 | HSTP-14-20-075 | Machine Screw, $\frac{1}{4}$ - 20 x $\frac{3}{4}$ | 10 |
| | HNFL-14-20 | Flange Whiz-Loc Nut, $\frac{1}{4}$ - 2 | 10 |
| 4 | | Center Boom Mount | 1 |
| 5 | HB-516-18-100 | Hex Bolt, $\frac{5}{16}$ - 18 x 1 | 12 |
| | HNTL-516-18 | Lock Nut, $\frac{5}{16}$ - 18 | 12 |
| 6 | 17-614 | Boom Spacer | 2 |
| 7 | 20-555 | U-Bolt | 4 |
| | HNFL-12-13 | Flange Whiz-Loc Nut, $\frac{1}{2}$ - 13 | 8 |
| 8 | 17-537 | Square U-bolt | 2 |
| 9 | 17-615 | Boom Carrier | 2 |
| 10 | 16-557 | Square Cap | 2 |
| 11 | 10-625 | Module Mount Bracket | 1 |
| 12 | 20-666 | Module Cover Bracket | 1 |
| 13 | HB-516-18-150 | Hex Bolt, $\frac{5}{16}$ - 18 x $1\frac{1}{2}$ | 2 |
| | HNTL-516-18 | Lock Nut, $\frac{5}{16}$ - 18 | 2 |

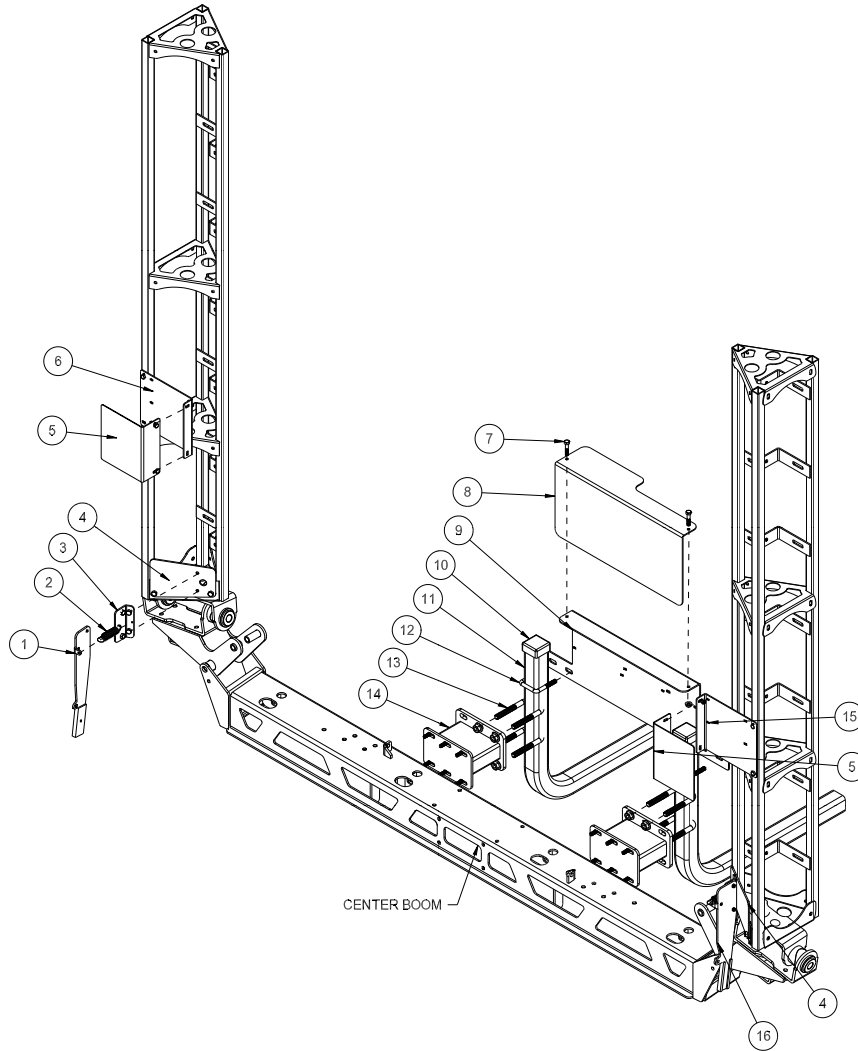
1105/1108 DYNAJET WIRING

10-716-M



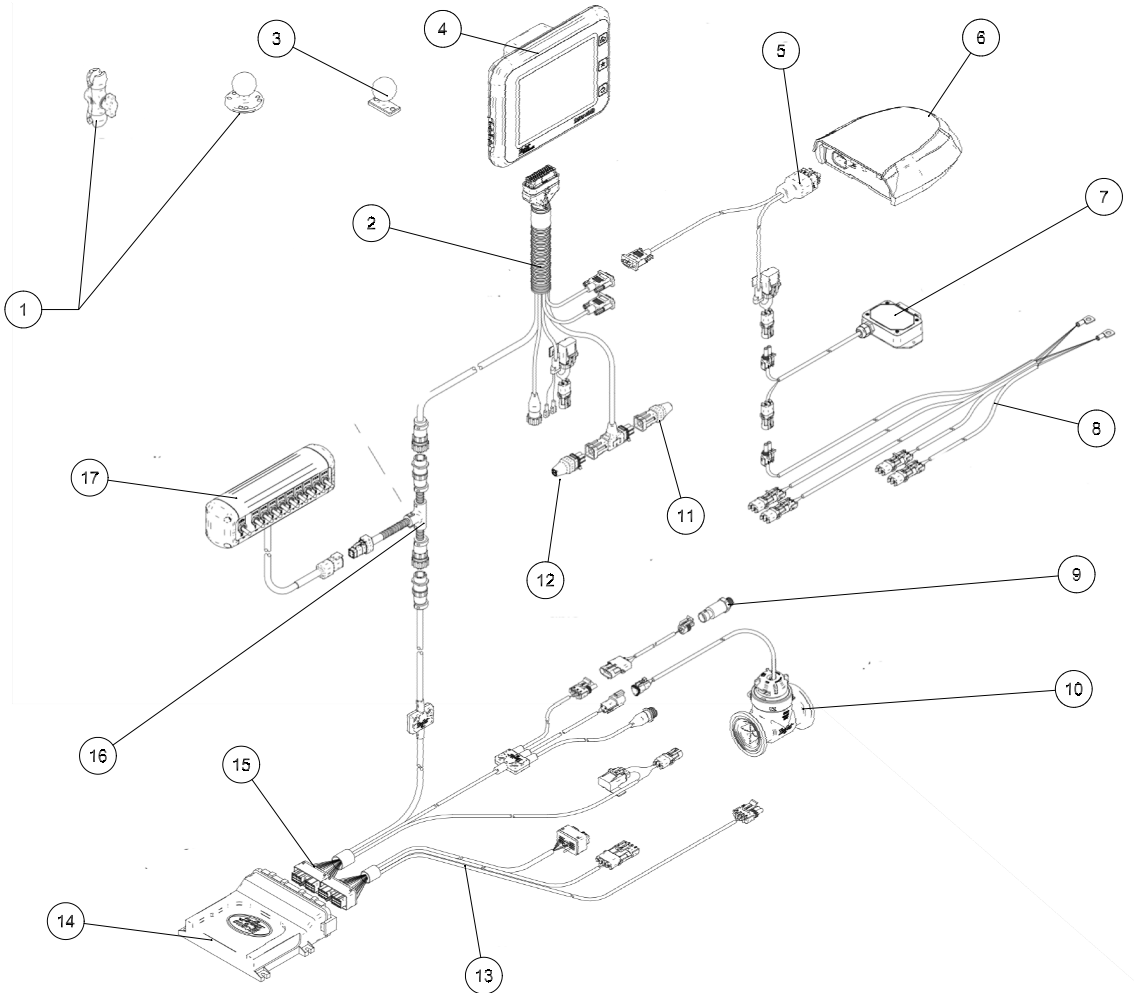
Accessories

1115/1118 MODULE MOUNTS



| REF# | PART# | DESCRIPTION | QUANTITY |
|------|---------------|---|----------|
| 1 | 17-562 | LH Break-Away Arm | 1 |
| 2 | 11-050 | Spring | 2 |
| 3 | 17-560 | Hinge Mount | 2 |
| 4 | 17-559 | Break-Away Mount | 2 |
| 5 | 20-796 | Bracket Cover | 2 |
| 6 | 20-795 | LH Driver Module Bracket | 1 |
| 7 | HB-516-18-150 | Hex Bolt, $\frac{5}{16}$ -18 x $1\frac{1}{2}$ | 2 |
| | HNFL-516-18 | Flange Whiz-loc Nut, $\frac{5}{16}$ -18 | 2 |
| 8 | 20-794 | Module Cover Bracket | 1 |
| 9 | 10-625 | Module Mount Bracket | 1 |
| 10 | 16-557 | Square Cap | 2 |
| 11 | 17-615 | Boom Carrier | 2 |
| 12 | 17-537 | Square U-bolt | 1 |
| 13 | 20-555 | U-Bolt | 4 |
| | HNFL-12-13 | Flange Whiz-loc Nut, $\frac{1}{2}$ -13 | 8 |
| 14 | 17-614 | Boom Spacer | 2 |
| 15 | 20-793 | RH Driver Module Bracket | 1 |
| 16 | 17-561 | RH Break-Away Arm | 1 |

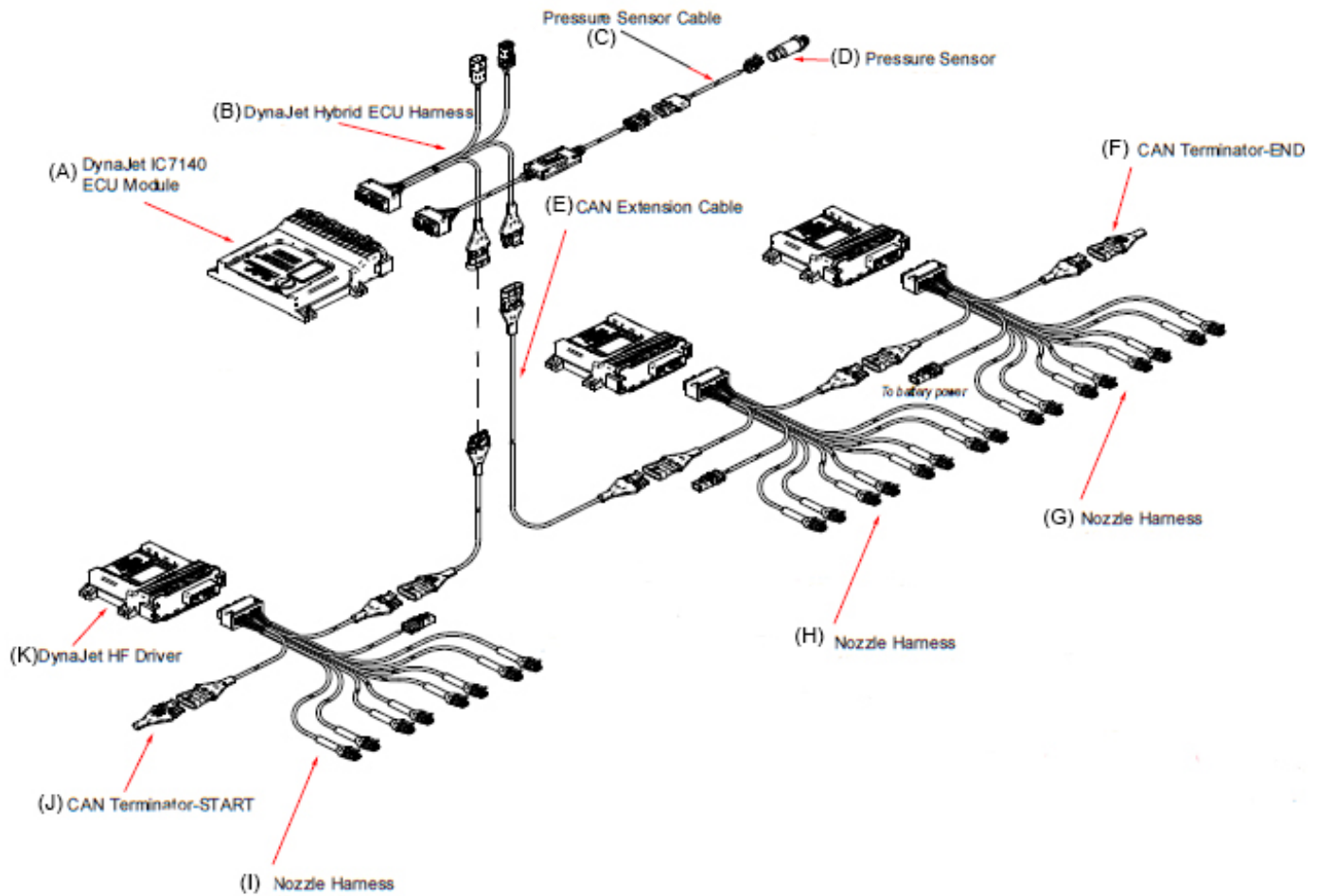
1115/1118 AEROS WIRING



| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------|---|----------|
| 1 | 20-540 | Ram Mount | 1 |
| 2 | | Aeros Harness w/ ISO CAN | 1 |
| 3 | | RAM Base | 1 |
| 4 | | Aeros Console | 1 |
| 5 | 20-736-01 | Antenna Cable | 1 |
| 6 | 20-767 | RX720 Receiver | 1 |
| 7 | | Switch box | 1 |
| 8 | | Power Cable | 1 |
| 9 | 20-670-04 | Pressure Sensor | 1 |
| 10 | 20-684 | Flow Meter | 1 |
| 11 | | Terminator | 1 |
| 12 | | Terminator | 1 |
| 13 | | DynaJet Interface Boom Harness | 1 |
| 14 | | IC18 Sprayer Module | 1 |
| 15 | | IC18 Harness | 1 |
| 16 | | TeeJet In-Cab Cable | 1 |
| 17 | 20-686-01 | Switch Box | 1 |
| NS | 17-647 | E-chemsaver Extensin Cable for 15' Boom | |

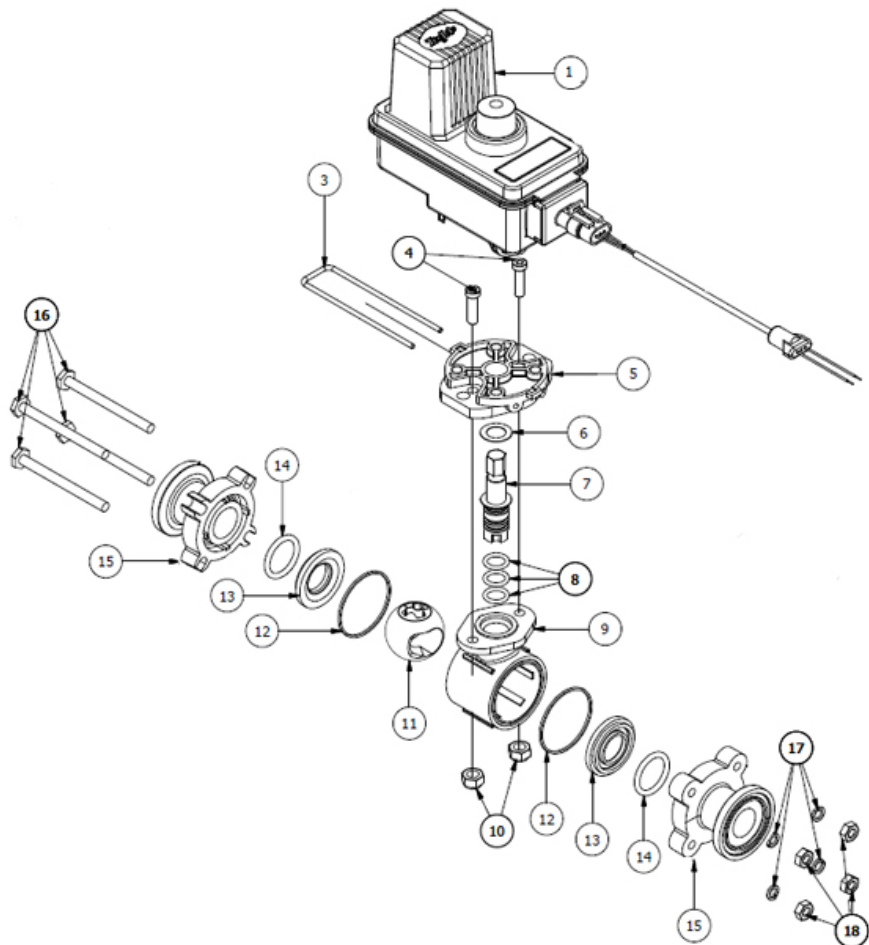
Accessories

1115/1118 DYNAJET WIRING



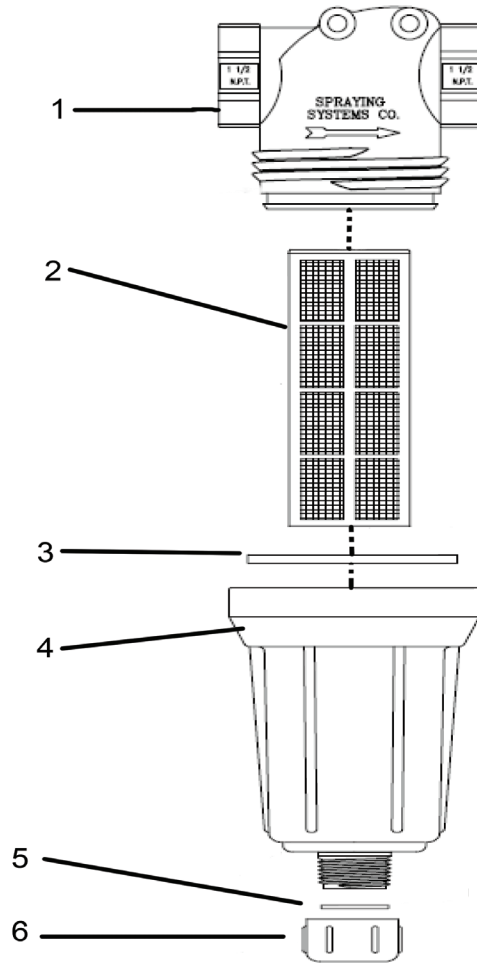
| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------|---------------------------|----------|
| A | | DynaJet IUC7140 Module | 1 |
| B | | Harness, IC7140 to IC35 | 1 |
| C | | Cable, Pressure Sensor | 1 |
| D | 20-670-04 | Pressure Sensor | 1 |
| E | | CAN Extension Cable | 1 |
| F | 20-670-08 | CAN Terminator End | 1 |
| G | 20-806-03 | Right Harness, DJ Driver | 1 |
| H | 20-806-02 | Center Harness, DJ Driver | 1 |
| I | 20-806-01 | Left Harness, DJ Driver | 1 |
| J | | CAN Terminator Start | 1 |
| K | 20-670-05 | DynaJet Driver | 3 |

20-817 REGULATOR VALVE DRAWING



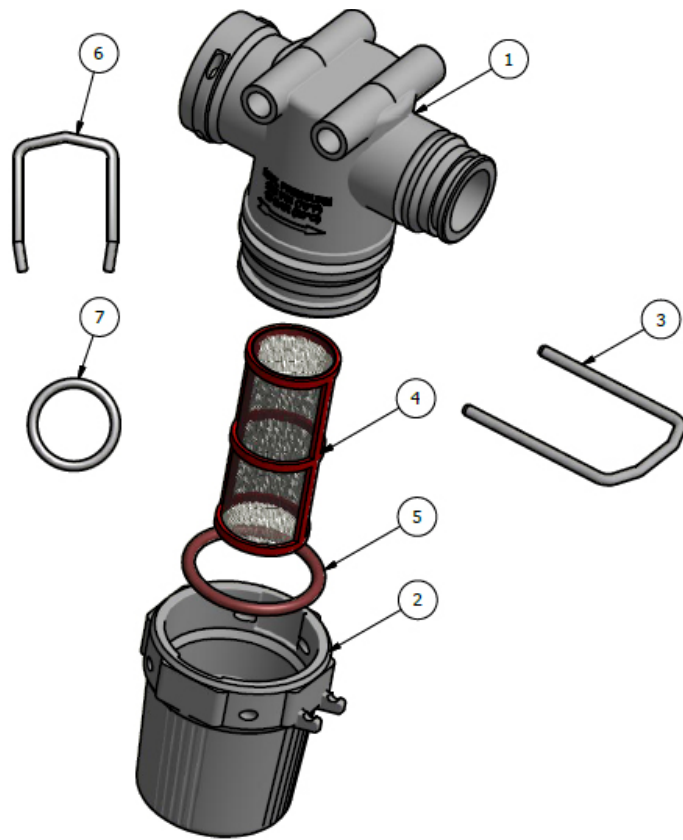
| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------|--|----------|
| 1 | | Motor, | 1 |
| 3 | 15-552-24 | Retaining Clip | 1 |
| 4 | | Socket Head Cap Screw, Stainless Steel | 2 |
| 5 | 15-552-26 | Motor Adapter, Polypropylene | 1 |
| 6* | 15-517-11 | Thrust Washer, Teflon | 1 |
| 7 | 15-552-27 | Stem, Stainless Steel | 1 |
| 8 | 15-552-05 | O-ring, Viton | 3 |
| 9 | 15-517-16 | Body, Nylon | 1 |
| 10 | | Nylon Lock Nut, Stainless Steel | 2 |
| 11 | | Ball, Polypropylene | 1 |
| 12* | 15-552-13 | Gasket, Viton | 2 |
| 13* | 15-517-19 | Seal, Teflon | 2 |
| 14* | 15-517-20 | O-ring, Viton | 2 |
| 15 | 15-743-01 | End Cap | 1 |
| 16 | | SS Hex Bolt, 1/4 - 20 x 3 | 4 |
| 17 | | SS Lock Washer, 1/4 | 4 |
| 18 | 15-517-23 | SS Nut, 1/4 - 20 | 4 |
| * | 15-552-10 | Spare Parts Kit | |
| | 20-817 | Complete Regulator Valve | |

15-737/ 14-628 FLANGED STRAINER DRAWING



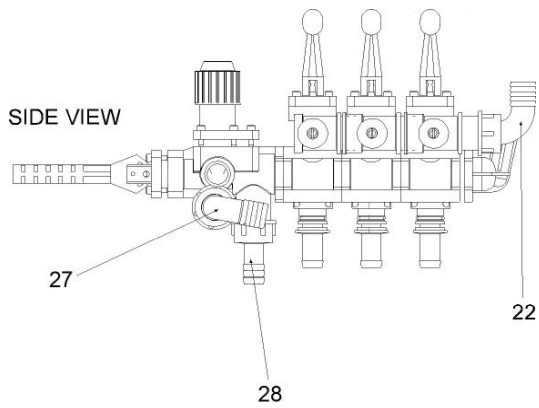
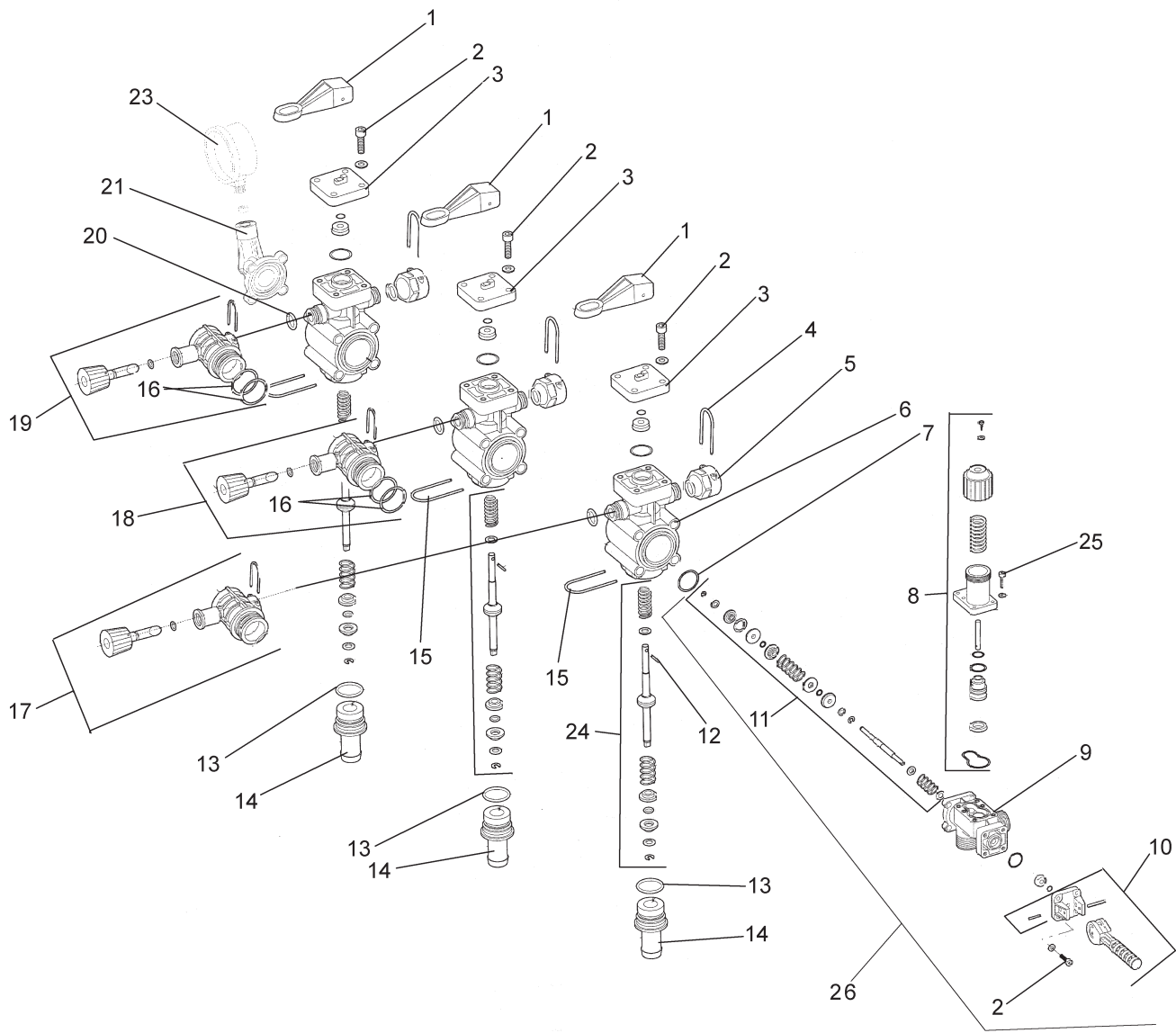
| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------|---|----------|
| 1 | 15-737-01 | Strainer Head 75 Series | 1 |
| 2* | 16-968-03 | 50 Mesh Screen | 1 |
| ** | 16-968-05 | 80 Mesh Screen | |
| 3 | 14-521-02 | EPDM Gasket | 1 |
| 4 | 14-521-03 | Bowl 1" NPT | 1 |
| 5 | 14-521-04 | EPDM Rubber gasket | 1 |
| 6 | 14-521-05 | Cap | 1 |
| * | 15-737 | Flanged Strainer Assembly with 50 Mesh Screen | |
| ** | 14-628 | Flanged Strainer Assembly with 80 Mesh Screen | |

14-801 AGITATION STRAINER - 50 MESH



| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------|----------------------------|----------|
| 1 | | QC Strainer Head | 1 |
| 2 | 14-801-01 | Bowl | 1 |
| 3 | | Strainer QC Retaining Clip | 1 |
| 4 | 14-802 | 50 Mesh Screen | 1 |
| 5 | 14-801-02 | Viton O ring | 1 |
| 6 | 15-553-01 | Retaining Clip | 1 |
| 7 | 15-553-02 | Viton O ring | 1 |

10-648 3-WAY MANUAL VALVE DRAWING



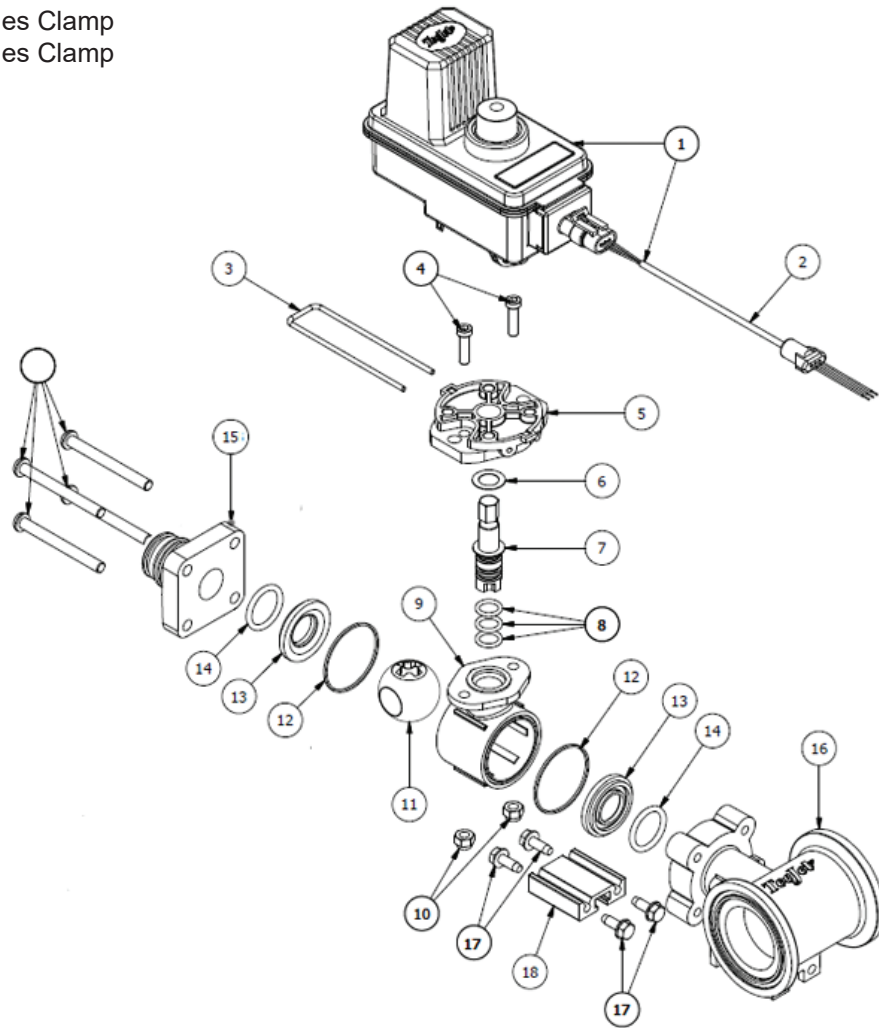
ACCESSORIES

10-648 3-WAY MANUAL VALVE PARTS LIST

| REF# | PART# | DESCRIPTION | QUANTITY |
|-----------|-----------|--|------------|
| 1 | 10-268-07 | Boom Lever | 3 |
| 2 | 10-268-28 | Bolt and Washer | 18 |
| 3 | 10-268-17 | Boom Lever Plate | 3 |
| 4 | 10-268-06 | Spring Clip $\frac{5}{8}$ | 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 | 10-268-27 | Main Pressure Adjust | 1 |
| 9 | 10-268-29 | Pressure Adjust Body | 1 |
| 10 | 10-268-09 | Main Boom Lever | 1 |
| 11 | 10-268-30 | 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 $\frac{3}{4}$ | 3 |
| 15 | 10-268-04 | Spring Clip $\frac{7}{8}$ | 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 | Gauge Elbow | 1 |
| 22 | 10-268-13 | Elbow 90° 1" Hose Barb with Nut | 3 |
| 23 | 16-281 | Liquid Filled Gauge (not part of 10-268) | 1 |
| 24 | 10-268-26 | Plunger Assembly | 3 |
| 25 | 10-268-28 | Bolt & Washer | 6 |
| 26 | 10-168-31 | Manual Control Valve | 1 |
| 27 | 10-268-32 | 1" Elbow | 1 |
| | 10-268-33 | Clip | 1 |
| 28 | | 1" Hose Barb | 1 |
| Not Shown | 10-268-15 | Tie Rod with Nuts and Washer | 4 |

15-743 MANIFOLD VALVE DRAWING

15-817 O-ring for #50 Series Clamp
 15-818 O-ring for #75 Series Clamp

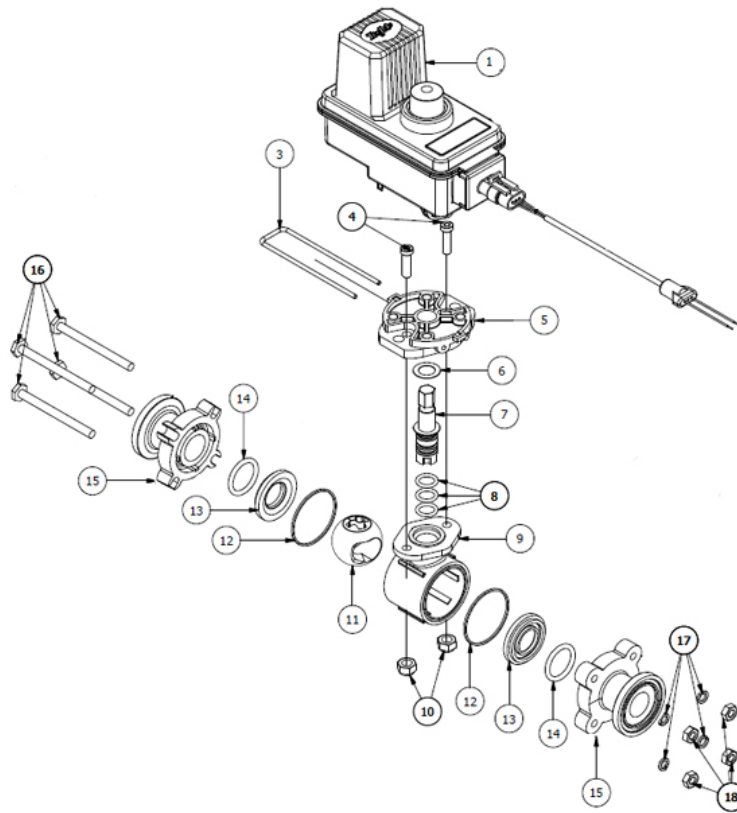


| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------|--|----------|
| 1 | 15-552-23 | Motor | |
| 2 | 15-878 | Metri-Pack Cable (comes with motor) | 1 |
| 3 | 15-552-24 | Retaining Clip | 1 |
| 4 | 15-552-25 | Socket Head Cap Screw, Stainless Steel | 2 |
| 5 | 15-552-26 | Motor Adapter, Polypropylene | 1 |
| 6* | 15-517-11 | Thrust Washer, Teflon | 1 |
| 7 | 15-552-27 | Stem, Stainless Steel | 1 |
| 8* | 15-552-05 | O-ring, Viton | 3 |
| 9 | 15-517-16 | Body, Nylon | 1 |
| 10 | | Lock Nut, Stainless Steel | 2 |
| 11 | 15-743-04 | Ball, Polypropylene | 1 |
| 12* | 15-552-13 | Gasket, Viton | 2 |
| 13* | 15-517-19 | Seal, Teflon | 2 |
| 14* | 15-517-20 | O-ring, Viton | 2 |
| 15 | 15-743-01 | End Cap | 1 |
| 16 | 15-743-02 | 75 Series Tee Body | 1 |
| 17 | 15-743-06 | Screw, SS | 4 |
| 18 | 15-743-03 | Mounting Rail Aluminum | 1 |

* 15-552-10 Spare Parts Kit (includes all * items)
 15-743-05 Single Valve (shown)

20-785 REGULATOR VALVE

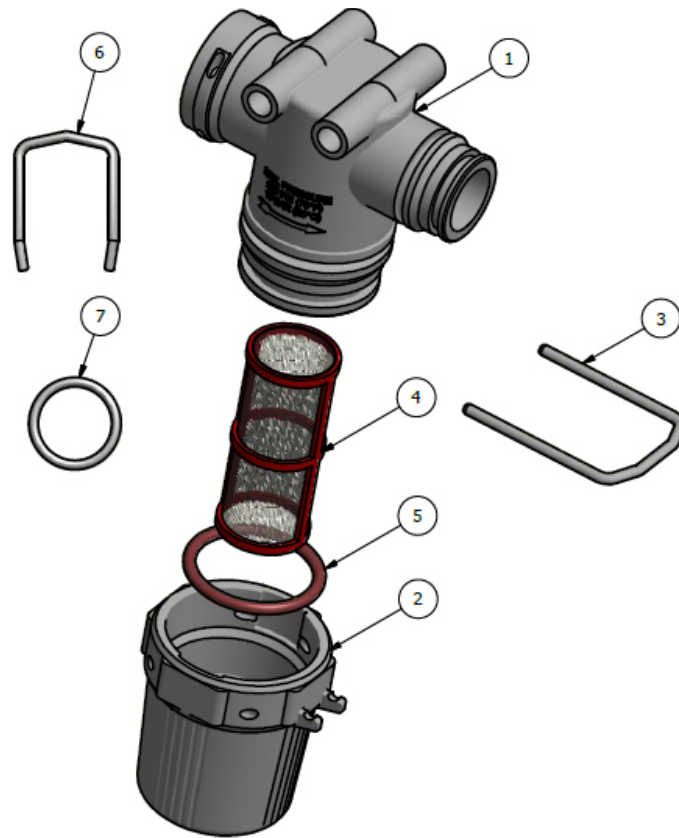
- 15-817 O-ring for #50 Series Clamp
- 15-818 O-ring for #75 Series Clamp



| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------|--|----------|
| 1 | 20-785-01 | Motor,6 RPM | 1 |
| 3 | 15-552-24 | Retaining Clip | 1 |
| 4 | 15-552-25 | Socket Head Cap Screw, Stainless Steel | 2 |
| 5 | 15-552-26 | Motor Adapter, Polypropylene | 1 |
| 6 | 15-517-11 | Thrust Washer, Teflon | 1 |
| 7 | 15-552-27 | Stem, Stainless Steel | 1 |
| 8* | 15-552-05 | O-ring, Viton | 3 |
| 9 | 15-517-16 | Body, Nylon | 1 |
| 10 | | Lock Nut, Stainless Steel | 2 |
| 11 | 20-685-02 | Ball, Polypropylene | 1 |
| 12 | 15-552-13 | Gasket, Viton | 2 |
| 13 | 15-517-19 | Seal, Teflon | 2 |
| 14 | 15-517-20 | O-ring, Viton | 2 |
| 15 | 15-743-01 | End Cap | 1 |
| 16 | | SS Bolt, 1/4 - 20 x 3 | 4 |
| 17 | | SS Lock Washer, 1/4 | 4 |
| 18 | | SS Nut, 1/4 - 20 | 4 |

20-685 Complete Regulator Valve

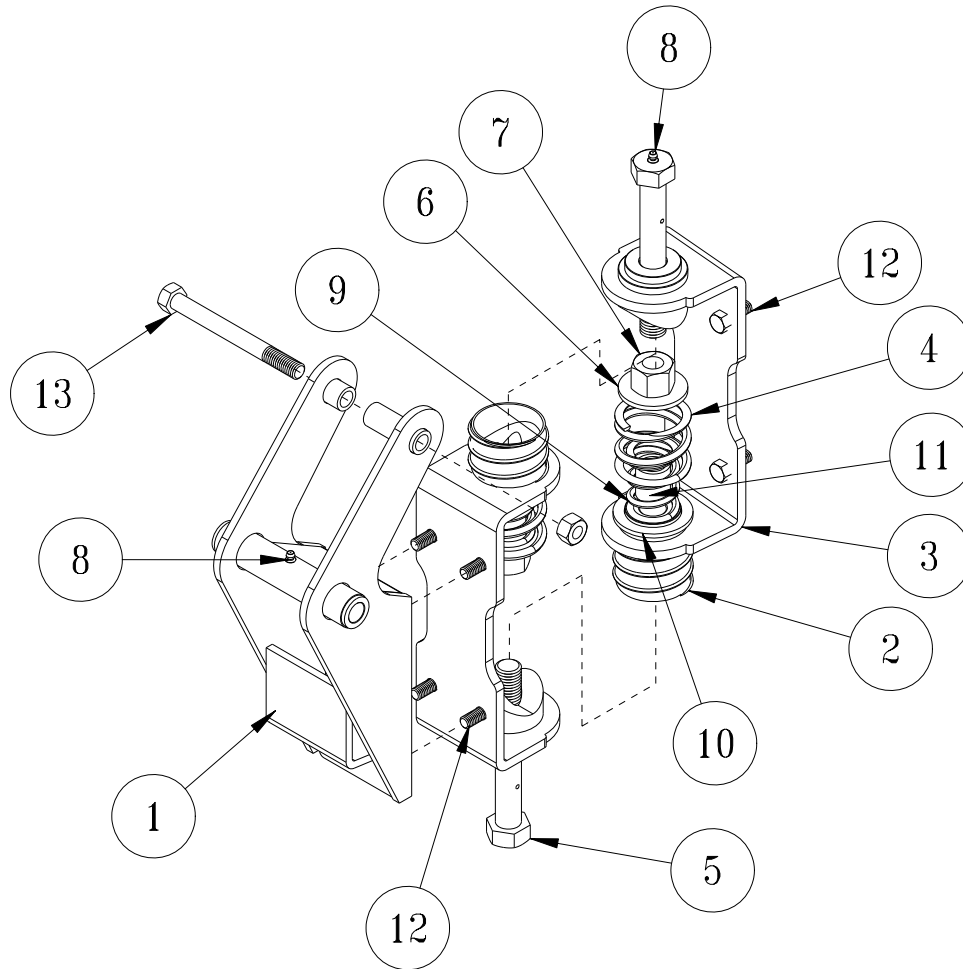
14-801 AGITATION STRAINER - 50 MESH



| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------|----------------------------|----------|
| 1 | | QC Strainer Head | 1 |
| 2 | 14-801-01 | Bowl | 1 |
| 3 | | Strainer QC Retaining Clip | 1 |
| 4 | 14-802 | 50 Mesh Screen | 1 |
| 5 | 14-801-02 | Viton O ring | 1 |
| 6 | 15-553-01 | Retaining Clip | 1 |
| 7 | 15-553-02 | Viton O ring | 1 |

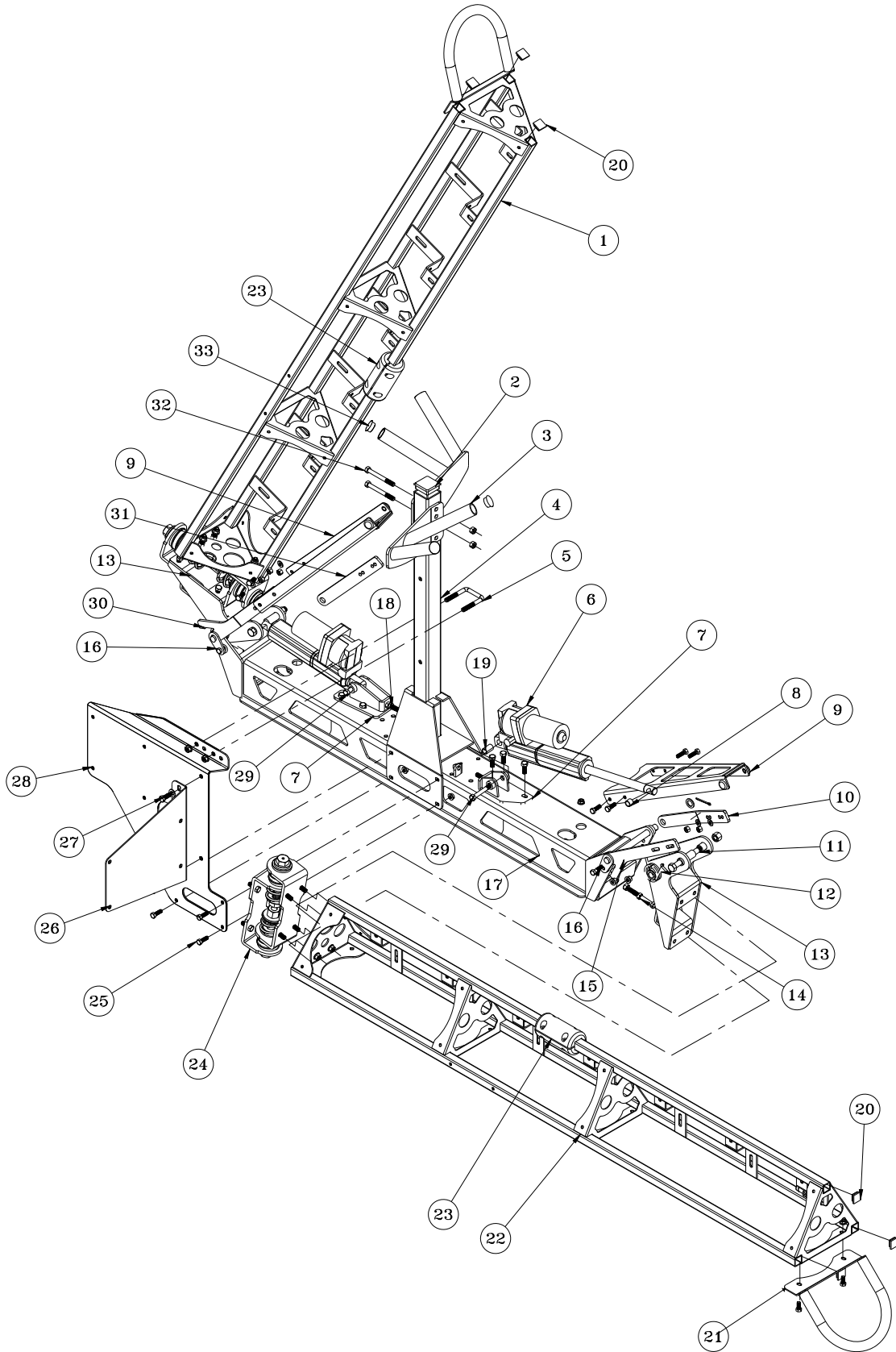
2 HINGE ASSEMBLIES PER BOOM

*17-632-K Boom Hinge Complete



| REF# | PART# | DESCRIPTION | QUANTITY |
|------|--------------|-------------------------------------|----------|
| 1 | 30-185 | Arm Pivot Hinge (part of boom) | 1 |
| | HG-14-28-180 | Grease Zerk (part of boom) | 1 |
| 2* | 9026-2 | Rubber Duct Hose, 2" | 2 |
| 3* | 17-527 | Boom Hinge | 1 |
| 4* | 17-539 | Compression Spring | 2 |
| 5* | 17-540 | Tapped Bolt | 2 |
| 6* | HW-34 | Flat Washer, $\frac{3}{4}$ | 2 |
| 7* | HNCL-34-10 | Center Lock Nut, $\frac{3}{4}$ - 10 | 2 |
| 8* | HG-14-28-180 | Grease Zerk | 2 |
| 9* | 17-591 | Compression Spring | 2 |
| 10* | 17-599 | Spring Shim | 2 |
| 11* | 17-594 | Spring Sleeve | 2 |
| 12* | HB-38-16-100 | Hex Bolt, $\frac{3}{8}$ - 16 x 1 | 8 |
| | HNFL-38-16 | Flange Lock Nut, $\frac{3}{8}$ - 16 | 8 |
| 13 | HB-12-13-500 | Hex Bolt, $\frac{1}{2}$ - 13 x 5 | 1 |
| | HNTL-12-13 | Lock Nut, $\frac{1}{2}$ - 13 | 1 |

17-585 18' HD BOOM DRAWING



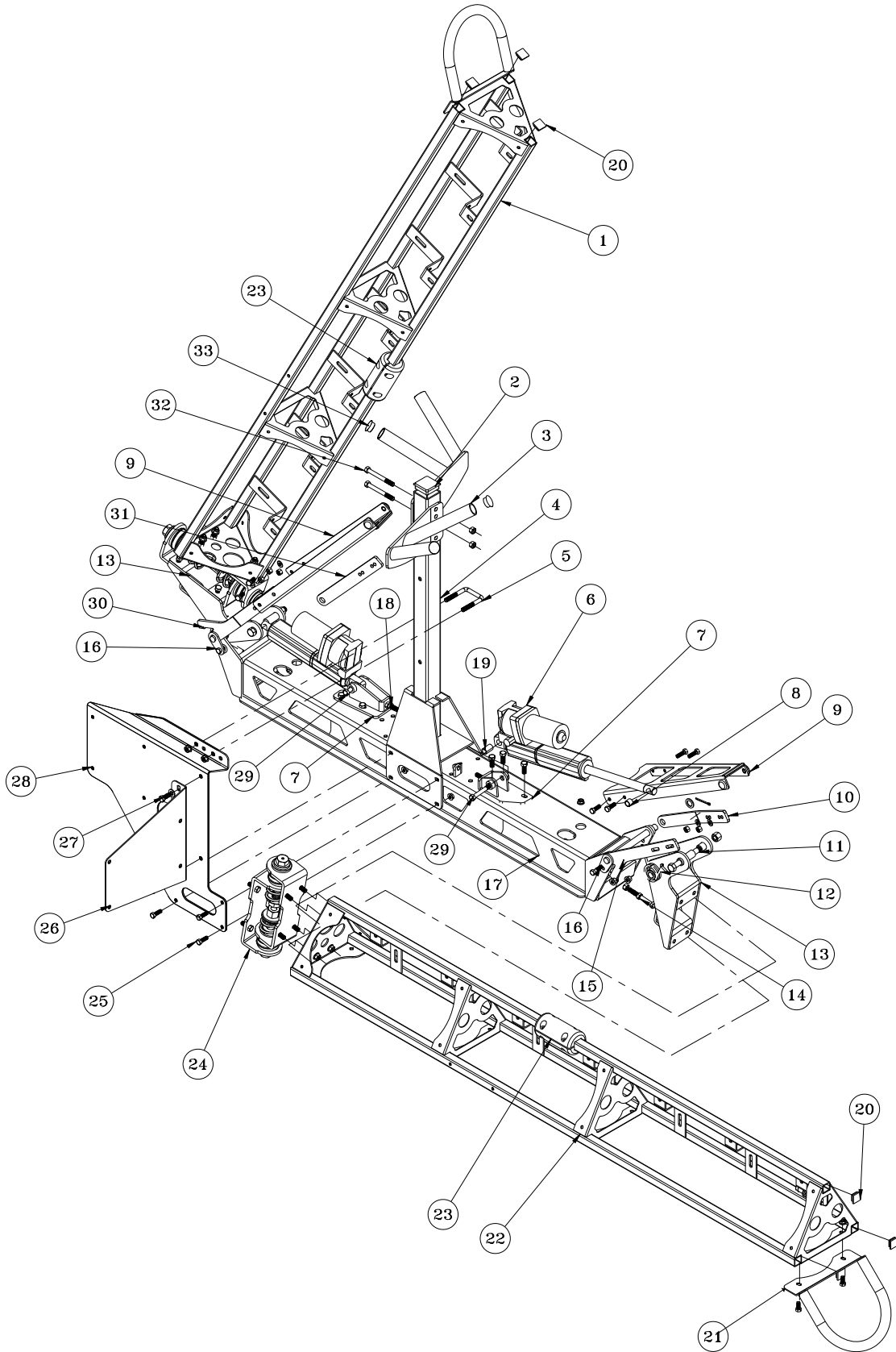
ACCESSORIES

17-585 18' HD BOOM PARTS LIST

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------------|---|----------|
| 1 | 17-652 | Left Boom Arm | 1 |
| 2 | 18-297 | Cap Plug | 1 |
| 3 | 17-617 | Boom Nest | 2 |
| 4 | 17-578 | Boom Nest Post | 1 |
| 5 | 17-537 | Square U-Hex Bolt | 1 |
| 6 | 30-214 | KYB Electric/ Hydraulic Actuator (includes * items) | 2 |
| 7 | 30-184 | Ram Mount | 2 |
| | HN-38-16 | Hex Nut, $\frac{3}{8}$ - 16 (for adjustment Hex Bolts) | 4 |
| | HB-38-16-100 | Hex Bolt, $\frac{3}{8}$ - 16 x 1 | 6 |
| | HW-38 | Flat Washer, $\frac{3}{8}$ | 6 |
| | HNFL-38-16 | Flange Whiz-loc Nut, $\frac{3}{8}$ -16 | 6 |
| 8* | 18-036 | $\frac{1}{2}$ " Bushing (part of 30-214) | 2 |
| 9 | 17-587 | Boom Lock | 2 |
| | HB-516-18-100 | Hex Bolt, $\frac{5}{16}$ - 18 x 1 | 8 |
| | HW-516 | Flat Washer, $\frac{5}{16}$ | 4 |
| | HNTL-516-18 | Nylon Lock Nut, $\frac{5}{16}$ -18 | 8 |
| | 42-116 | Rubber Insert | 4 |
| | 8803-2.75 | Trim Lace, 2.75" | 2 |
| 10 | 17-588 | Lock Hinge, RH | 1 |
| 11 | HB-12-13-500 | Hex Bolt, $\frac{1}{2}$ - 13 x 5 | 2 |
| | HNTL-12-13 | Nylon Lock Nut, $\frac{1}{2}$ - 13 | 2 |
| 12 | 17-597 | Torsion Spring, RH | 1 |
| 13 | 30-185 | Arm Pivot Hinge | 2 |
| | HG-14-28-180 | Grease Fitting, $\frac{1}{4}$ - 28 x 180° | 2 |
| | 76-128 | Bushing (part of 30-185) | 4 |
| 14 | HB-38-16-175 | Hex Bolt, $\frac{3}{8}$ - 16 x $1\frac{3}{4}$ | 2 |
| | HNFL-38-16 | Flange Whiz-loc Nut, $\frac{3}{8}$ - 16 | 4 |
| 15 | 17-589 | Limit Hinge, RH | 1 |
| 16 | 17-596 | Hinge Pin w/ Spacer | 2 |
| | HP-18-100 | Cotter Pin $\frac{1}{8}$ x 1 | 2 |
| | HB-516-18-100 | Hex Bolt, $\frac{5}{16}$ - 18 x 1 | 2 |
| | HNFL-516-18 | Flange Whiz-loc Nut, $\frac{5}{16}$ -18 | 2 |
| 17 | 17-650 | Boom Center | 1 |
| 18 | HB-38-16-100 | Hex Bolt, $\frac{3}{8}$ - 16 x 1 | 2 |
| | HNFL-38-16 | Flange Whiz-loc Nut, $\frac{3}{8}$ - 16 | 4 |
| 19* | 18-234 | 1" Bushing (part of 30-214) | 2 |
| 20 | 30-258 | Ribbed 1" Plug | 10 |
| 21 | 17-541 | Boom End Guard | 2 |
| | HBFL-516-18-075 | Hex Bolt, $\frac{5}{16}$ - 18 x $\frac{3}{4}$ | 4 |
| | HNFL-516-18 | Flange Whiz-loc Nut, $\frac{5}{16}$ - 18 | 4 |
| 22 | 17-653 | Right Boom Arm | 1 |
| 23 | 17-573 | Guide Block Set | 2 |
| | HB-14-20-125 | Hex Bolt, $\frac{1}{4}$ - 20 x $1\frac{1}{4}$ | 8 |
| | HNTL-14-20 | Nylon Lock Nut, $\frac{1}{4}$ - 20 | 8 |
| 24 | 17-632 | Boom Hinge Complete | 2 |
| | HB-38-16-100 | Hex Bolt, $\frac{3}{8}$ - 16 x 1 | 16 |
| | HNFL-38-16 | Flange Whiz-loc Nut, $\frac{3}{8}$ - 16 | 16 |
| 25 | HB-516-18-100 | Hex Bolt, $\frac{5}{16}$ - 18 x 1 | 8 |
| | HW-516 | Flat Washer, $\frac{5}{16}$ | 8 |
| | HNFL-516-18 | Flange Whiz-loc Nut, $\frac{5}{16}$ - 18 | 8 |

(Continue on next page)

17-585 18' HD BOOM DRAWING



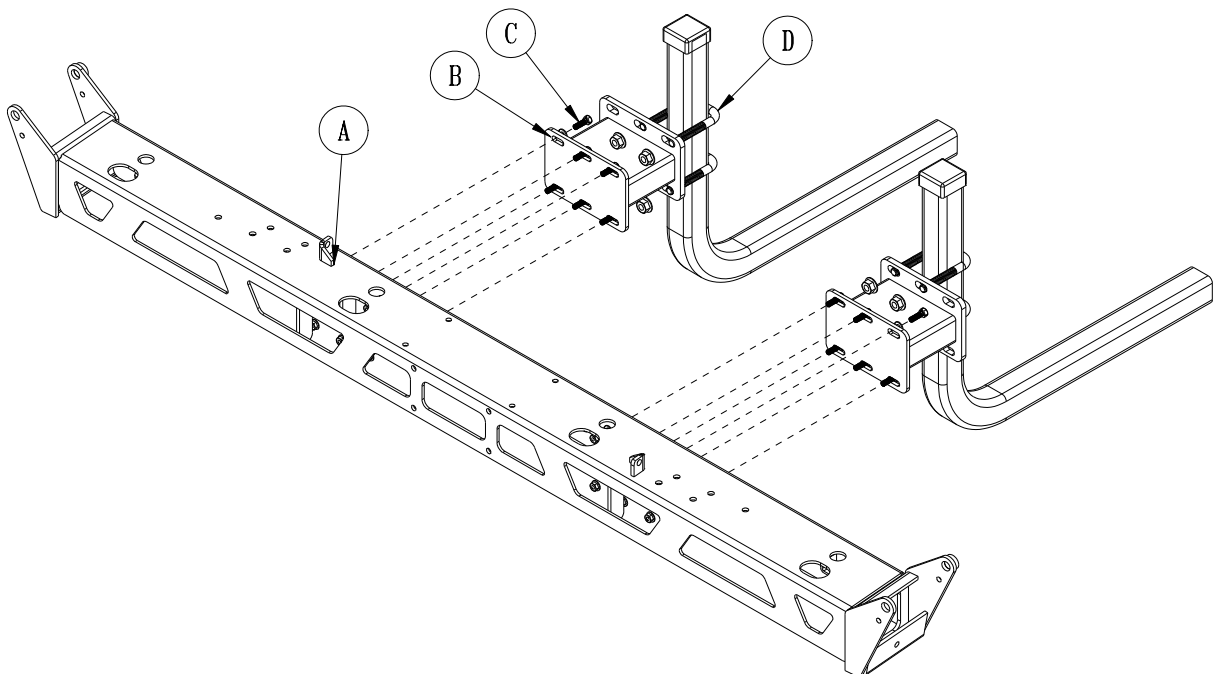
Accessories

17-585 18' HD BOOM PARTS LIST

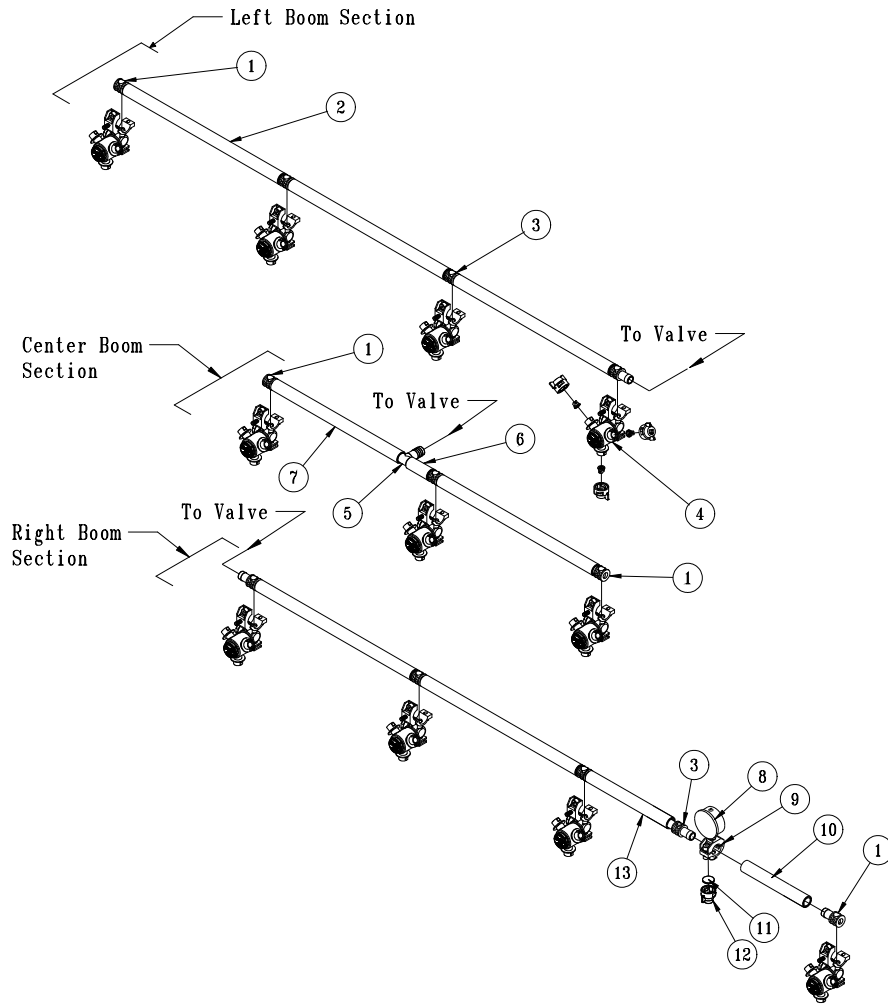
| REF# | PART# | DESCRIPTION | QUANTITY |
|------|--------------|---|----------|
| 26 | 17-636 | Fresh Water Tank Mount | 1 |
| 27 | HB-38-16-100 | Hex Bolt, $\frac{3}{8}$ - 16 x 1 | 2 |
| | HNFL-38-16 | Flange Whiz-loc Nut, $\frac{3}{8}$ - 16 | 2 |
| | HW-38 | Flat Washer, $\frac{3}{8}$ | 2 |
| 28 | 17-660 | Clean Load Mount | 1 |
| | 8803-13 | Black Trim x 13" | 1 |
| 29 | HB-12-13-300 | Hex Bolt, $\frac{1}{2}$ - 13 x 3 | 2 |
| | HNTL-12-13 | Nylon Lock Nut, $\frac{1}{2}$ - 13 | 2 |
| 30 | 17-593 | Limit Hinge, LH | 1 |
| | 17-598 | Torsion Spring, LH | 1 |
| 31 | 17-592 | Lock Hinge, LH | 1 |
| 32 | HB-38-16-300 | Hex Bolt, $\frac{3}{8}$ - 16 x 3 | 2 |
| | HNTL-38-16 | Nylon Lock Nut, $\frac{3}{8}$ - 16 | 2 |
| 33 | 17-619 | Tube Cap | 4 |

BOOM MOUNT TO TRUCK

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|---------------|---|----------|
| A | | Center Boom Mount | 1 |
| B | 17-614 | Boom Spacer | 2 |
| C | HB-516-18-100 | Hex Bolt, $\frac{5}{16}$ -18 x 1 | 12 |
| | HNTL-516-18 | Lock Nut, $\frac{5}{16}$ -18 | 12 |
| D | 20-555 | U-Bolt | 4 |
| | HNFL-12-13 | Flange Whiz-loc Nut, $\frac{1}{2}$ - 13 | 8 |

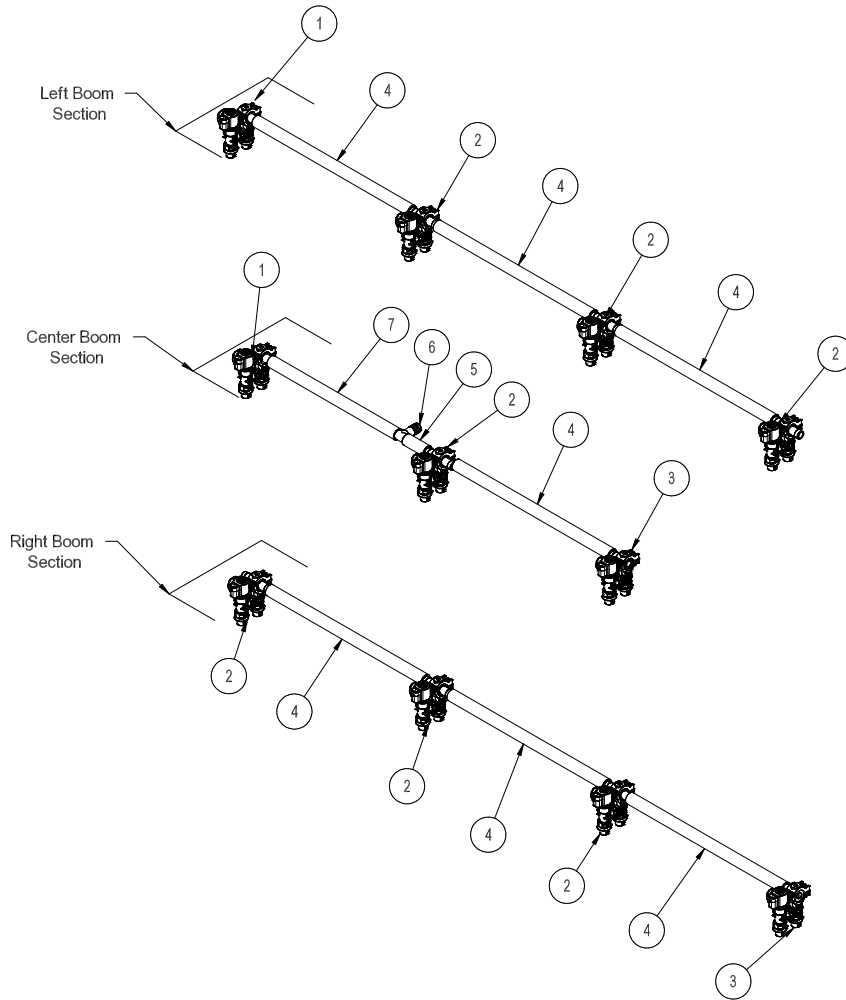


17-585 18' HD BOOM 1102/1104 PLUMBING



| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------|--|----------|
| 1 | 18-417 | Single Barb | 4 |
| 2 | 8887-19 | Orange PVC Hose $\frac{3}{4}$ " x 19" | 6 |
| | 18-040 | Hose Clamp | 12 |
| 3 | 18-416 | Double Barb | 8 |
| 4 | 33-506 | Nozzle body (see nozzle drawing) | 11 |
| 5 | 18-415 | $\frac{3}{4}$ " Hose Barb | 1 |
| 6 | 8887-2.5 | Orange PVC Hose $\frac{3}{4}$ " x 2 $\frac{1}{2}$ " | 1 |
| | 18-040 | Hose Clamp | 2 |
| 7 | 8887-15.5 | Orange PVC Hose $\frac{3}{4}$ " x 15 $\frac{1}{2}$ " | 1 |
| | 18-040 | Hose Clamp | 2 |
| 8 | 16-281 | Gauge | 1 |
| 9 | 17-602 | Nozzle Body | 1 |
| 10 | 8887-5 | Orange PVC Hose $\frac{3}{4}$ " x 5" | 1 |
| | 18-040 | Hose Clamp | 2 |
| 11 | 16-800 | Strainer | 1 |
| 12 | 16-921 | Nozzle | 1 |
| 13 | 8887-13 | Orange PVC Hose $\frac{3}{4}$ " x 13" | 1 |
| | 18-040 | Hose Clamp | 2 |

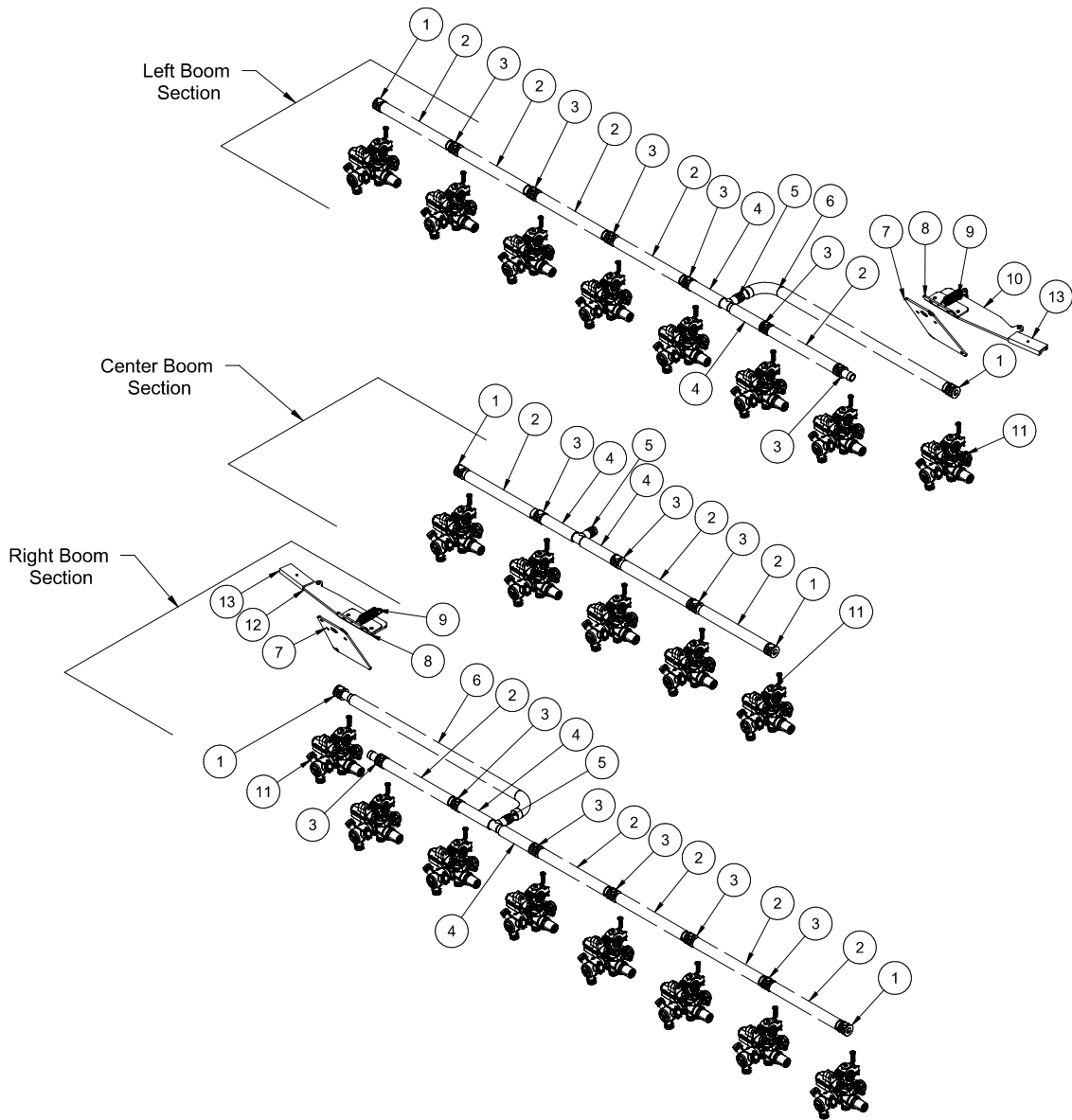
17-585 18' HD BOOM 1108 PLUMBING



| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------|--------------------------------------|----------|
| 1 | 20-675 | Single Hose Barb - Right Orientation | 2 |
| 2 | 20-673 | Single Hose Barb | 7 |
| 3 | 20-674 | Single Hose Barb - Left Orientation | 2 |
| 4 | 8887-19 | Orange PVC Hose 3/4" x 19" | 7 |
| | 18-040 | Hose Clamp | 14 |
| 5 | 8887-2.5 | Orange PVC Hose 3/4" x 2 1/2" | 1 |
| | 18-040 | Hose Clamp | 2 |
| 6 | 18-415 | 3/4" Hose Barb | 1 |
| 7 | 8887-15.5 | Orange PVC Hose 3/4" x 15 1/2" | 1 |
| | 18-040 | Hose Clamp | 2 |

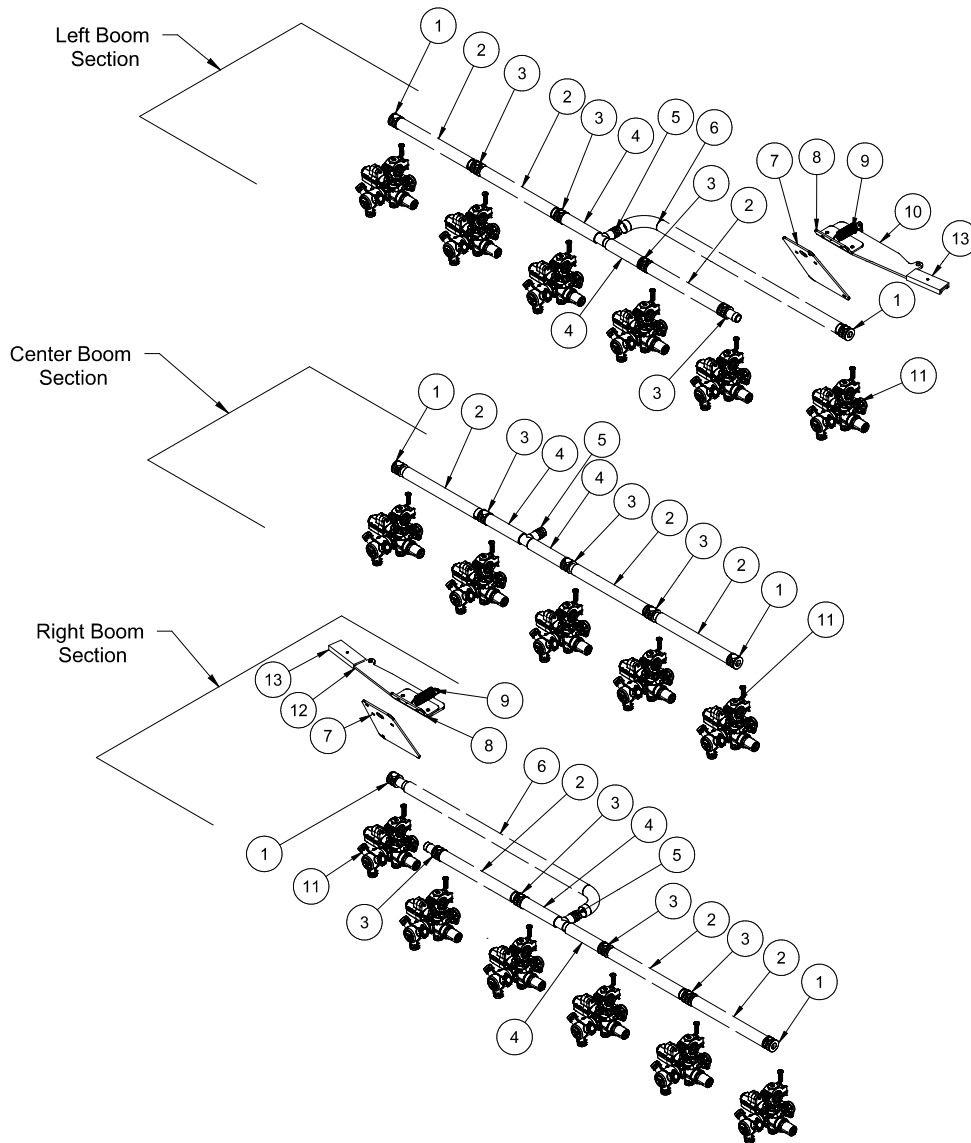
Accessories

17-585 18' HD BOOM 1118 PLUMBING



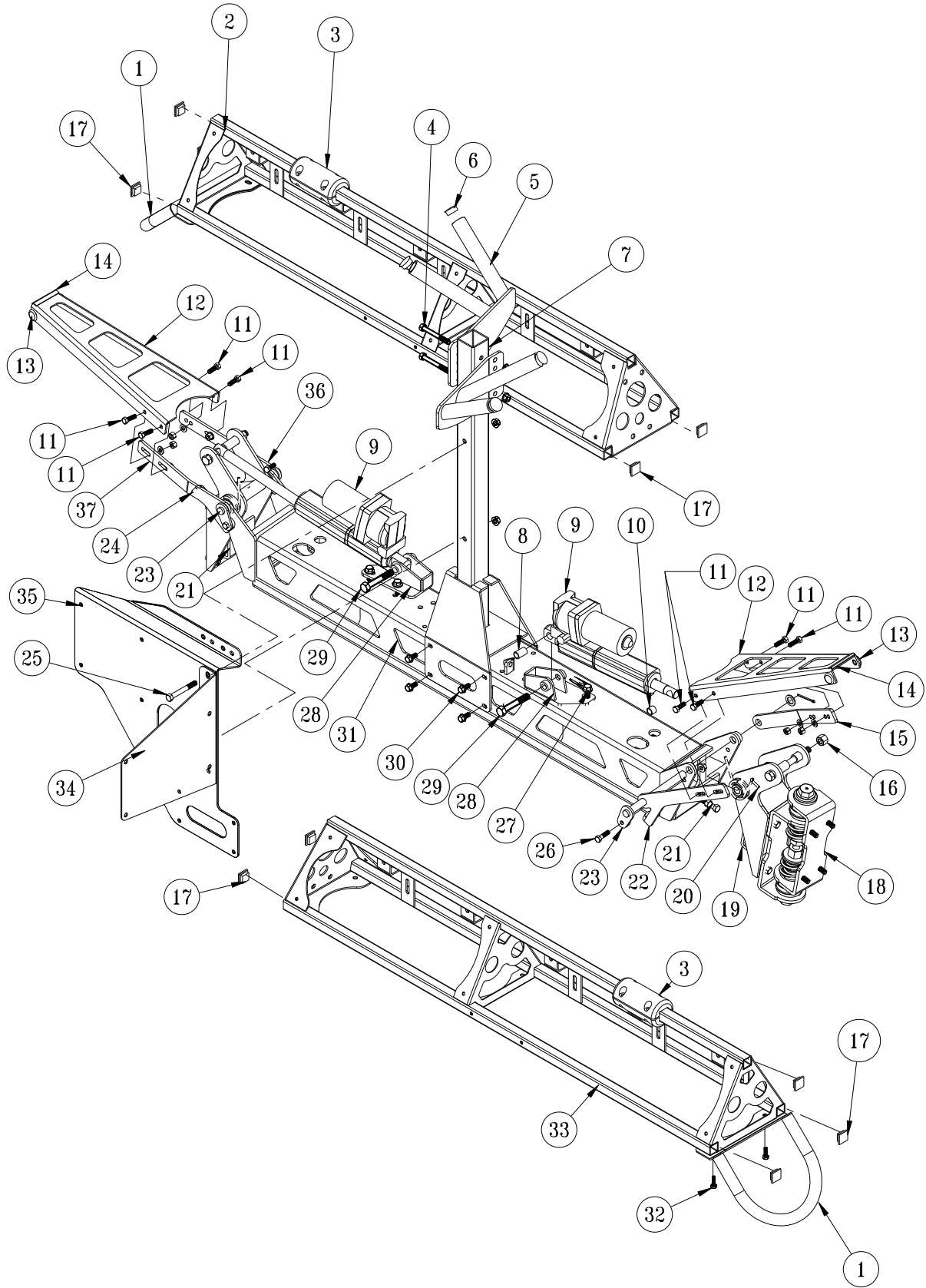
| REF# | PART# | DESCRIPTION | QUANTITY |
|------|----------|---|----------|
| 1 | 18-417 | Single Barb | 6 |
| 2 | 9032-8.5 | Black Hose, $\frac{3}{4}$ " x 8.5" | 13 |
| | 18-040 | Hose Clamp | 26 |
| 3 | 18-416 | Double Barb | 15 |
| 4 | 9032-4 | Black Hose $\frac{3}{4}$ " x 4" | 6 |
| | 18-040 | Hose Clamp | 12 |
| 5 | 18-415 | $\frac{3}{4}$ " Hose Barb | 3 |
| 6 | 9032-28 | Black Hose $\frac{3}{4}$ " x 15 $\frac{1}{2}$ " | 2 |
| | 18-040 | Hose Clamp | 4 |
| 7 | 17-559 | Break-Away Mount | 2 |
| 8 | 17-560 | Hinge Mount | 2 |
| 9 | 11-050 | Spring | 2 |
| 10 | 17-562 | LH Break-Away Arm | 1 |
| 11 | 20-807 | Nozzle Body | 21 |
| 12 | 17-561 | RH Break-Away Arm | 1 |

17-601 15' HD BOOM 1115 PLUMBING



| REF# | PART# | DESCRIPTION | QUANTITY |
|------|----------|---|----------|
| 1 | 18-417 | Single Barb | 6 |
| 2 | 9032-8.5 | Black Hose, $\frac{3}{4}$ " x 8.5" | 9 |
| | 18-040 | Hose Clamp | 18 |
| 3 | 18-416 | Double Barb | 11 |
| 4 | 9032-4 | Black Hose $\frac{3}{4}$ " x 4" | 6 |
| | 18-040 | Hose Clamp | 12 |
| 5 | 18-415 | $\frac{3}{4}$ " Hose Barb | 3 |
| 6 | 9032-28 | Black Hose $\frac{3}{4}$ " x 15 $\frac{1}{2}$ " | 2 |
| | 18-040 | Hose Clamp | 4 |
| 7 | 17-559 | Break-Away Mount | 2 |
| 8 | 17-560 | Hinge Mount | 2 |
| 9 | 11-050 | Spring | 2 |
| 10 | 17-562 | LH Break-Away Arm | 1 |
| 11 | 20-807 | Nozzle Body | 17 |
| 12 | 17-561 | RH Break-Away Arm | 1 |

17-601 15' HD BOOM DRAWING



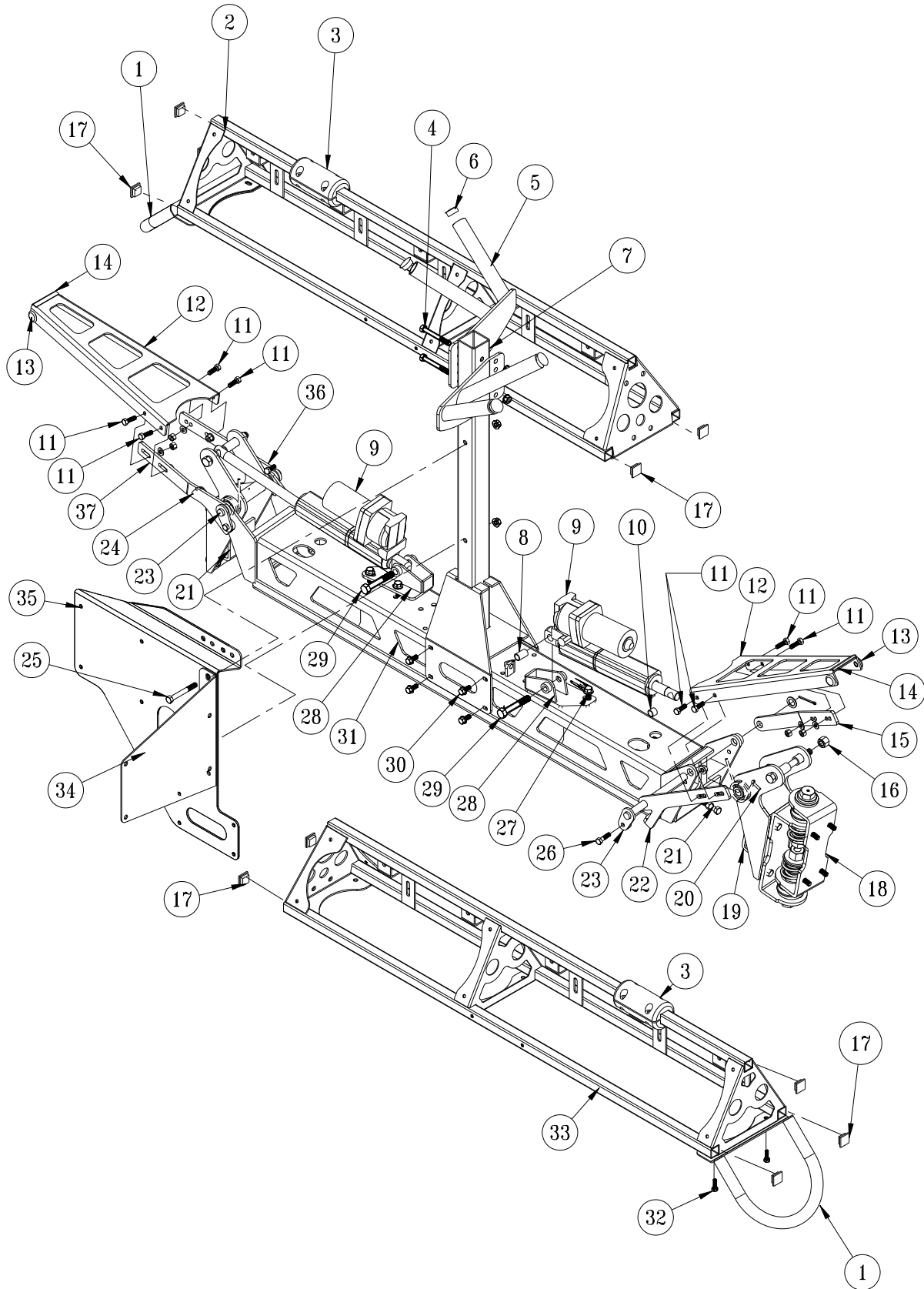
Accessories

17-601 15' HD BOOM PARTS LIST

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|---------------|---|----------|
| 1 | 17-541 | Boom End Guard | 2 |
| 2 | 17-551 | Left Boom Arm | 1 |
| 3 | 17-573 | Guide Block Set | 2 |
| | HB-14-20-125 | Hex Bolt, $\frac{1}{4}$ -20 x $1\frac{1}{4}$ | 8 |
| | HNTL-14-20 | Lock Nut, $\frac{1}{4}$ - 20 | 8 |
| 4 | HB-38-16-300 | Hex Bolt, $\frac{3}{8}$ - 16 x 3 | 2 |
| | HNTL-38-16 | Lock Nut, $\frac{3}{8}$ - 16 | 2 |
| 5 | 17-617 | V-Boom Nest | 2 |
| 6 | 17-619 | Push-In Rounds | 4 |
| 7 | 17-578 | Boom Nest Post | 1 |
| | 18-297 | Cap Plug | 1 |
| 8 | 18-036 | 1" Bushing (part of 30-214) | 2 |
| 9 | 30-214 | 10" Electric/Hydraulic Actuator | 2 |
| 10 | 18-234 | $\frac{1}{2}$ " Bushing (part of 30-214) | 2 |
| 11 | HB-516-18-100 | Hex Bolt, $\frac{5}{16}$ -16 x 1 | 8 |
| | HW-516 | Flat Washer, $\frac{5}{16}$ | 4 |
| | HNTL-516-18 | Lock Nut, $\frac{5}{16}$ - 18 | 8 |
| 12 | 17-587 | Boom Lock | 2 |
| 13 | 42-116 | Rubber Insert | 4 |
| 14 | 8803-2.75 | Trim Lace, $2\frac{3}{4}$ | 2 |
| 15 | 17-588 | Lock Hinge, RH | 1 |
| 16 | HB-12-13-500 | Hex Bolt, $\frac{1}{2}$ - 13 x 5 | 2 |
| | HNTL-12-13 | Lock Nut, $\frac{1}{2}$ -13 | 2 |
| 17 | 30-258 | 1" 10-14ga Ribbed Plug | 10 |
| 18 | 17-632 | Boom Hinge Complete | 2 |
| | HB-38-16-100 | Hex Bolt, $\frac{3}{8}$ - 16 x 1 | 16 |
| | HNFL-38-16 | Flange Whiz-loc Nut, $\frac{3}{8}$ - 16 | 16 |
| 19 | 30-185 | Arm Pivot Hinge | 2 |
| | HG-14-28-180 | Grease Fitting, $\frac{1}{4}$ - 28 x 180° | 2 |
| | 76-128 | Bushing (part of 30-185) | 4 |
| 20 | 17-597 | Torsion Spring, RH | 1 |
| 21 | HB-38-16-175 | Hex Bolt, $\frac{3}{8}$ - 16 x $1\frac{3}{4}$ | 2 |
| | HNFL-38-16 | Flange Whiz-loc Nut, $\frac{3}{8}$ - 16 | 4 |
| 22 | 17-589 | Limit Hinge, RH | 1 |
| 23 | 17-596 | Hinge Pin w/Spacer | 2 |
| | HP-18-100 | Cotter Pin, $\frac{1}{8}$ x 1 | 2 |
| 24 | 17-598 | Torsion Spring, LH | 1 |
| 25 | HB-38-16-100 | Hex Bolt, $\frac{3}{8}$ - 16 x 1 | 2 |
| | HW-38 | Flat Washer, $\frac{3}{8}$ | 2 |
| | HNFL-38-16 | Flange Whiz-loc Nut, $\frac{3}{8}$ - 16 | 2 |
| 26 | HB-516-18-100 | Hex Bolt, $\frac{5}{16}$ -16 x 1 | 2 |
| | HNFL-516-18 | Flange Whiz-loc Nut, $\frac{5}{16}$ - 18 | 2 |
| 27 | HB-38-16-100 | Hex Bolt, $\frac{3}{8}$ - 16 x 1 | 6 |
| | HW-38 | Flat Washer, $\frac{3}{8}$ | 6 |
| | HNFL-38-16 | Flange Whiz-loc Nut, $\frac{3}{8}$ -16 | 6 |
| 28 | 30-184 | Ram Mount | 2 |
| | HN-38-16 | Nut, $\frac{3}{8}$ - 16 (on adjustment nuts) | 4 |
| 29 | HB-12-13-300 | Hex Bolt, $\frac{1}{2}$ - 13 x 3 | 2 |
| | HNTL-12-13 | Lock Nut, $\frac{1}{2}$ - 13 | 2 |
| 30 | HB-516-18-100 | Hex Bolt, $\frac{5}{16}$ - 18 x 1 | 8 |
| | HW-516 | Flat Washer, $\frac{5}{16}$ | 8 |
| | HNFL-516-18 | Flange Whiz-loc Nut, $\frac{5}{16}$ - 18 | 8 |

(Continued on next page)

17-601 15' HD BOOM DRAWING



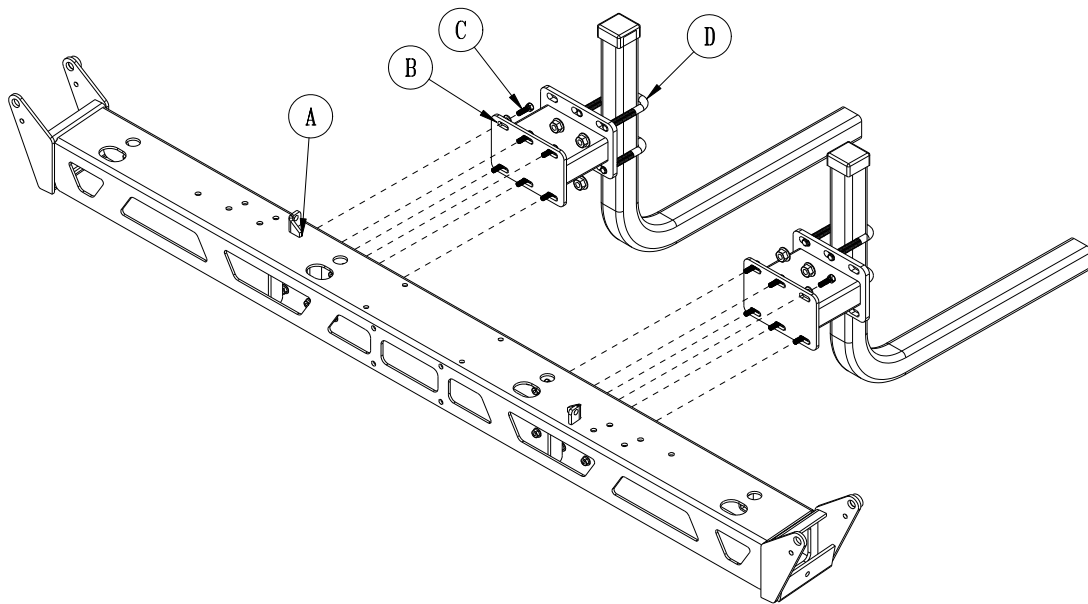
Accessories

17-601 15' HD BOOM PARTS LIST

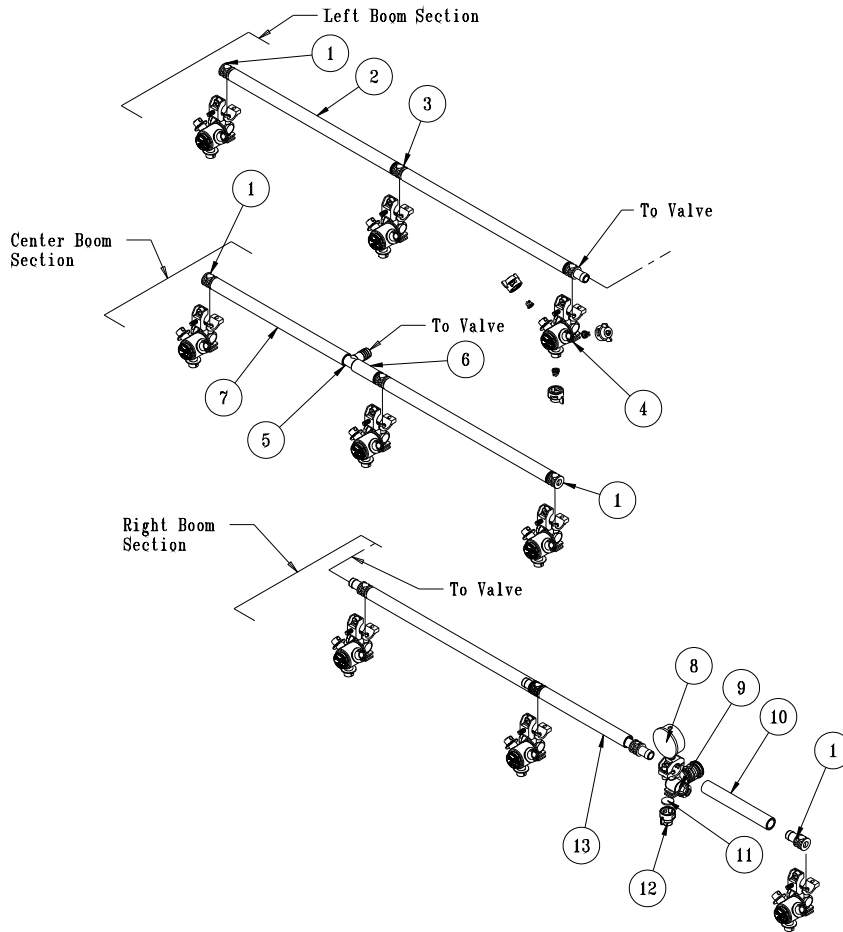
| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------------|---|----------|
| 31 | 17-528 | Boom Center | 1 |
| | 25-334 | Decal, Serial Tag | 1 |
| 32 | HBFL-516-18-075 | Hex Bolt, $\frac{5}{16}$ - 18 x $\frac{3}{4}$ | 4 |
| | HNFL-516-18 | Flange Whiz-loc Nut, $\frac{5}{16}$ - 18 | 4 |
| 33 | 17-552 | Right Boom Arm | 1 |
| 34 | 17-636 | Freshwater Mount | 1 |
| 35 | 17-660 | Clean Load Mount | 1 |
| | 8803-13 | Black Trim, 13" | |
| 36 | 17-592 | Lock Hinge, LH | 1 |
| 37 | 17-593 | Limit Hinge, LH | 1 |
| 38 | 17-537 | Square U-bolt | 1 |
| | HNCL-34-10 | Center Lock Nut, $\frac{3}{4}$ -10 | 4 |

BOOM MOUNT TO TRUCK

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|---------------|---|----------|
| A | | Center Boom Mount | 1 |
| B | 17-614 | Boom Spacer | 2 |
| C | HB-516-18-100 | Hex Bolt, $\frac{5}{16}$ -18 x 1 | 12 |
| | HNTL-516-18 | Lock Nut, $\frac{5}{16}$ -18 | 12 |
| D | 20-555 | U-Bolt | 4 |
| | HNFL-12-13 | Flange Whiz-loc Nut, $\frac{1}{2}$ - 13 | 8 |

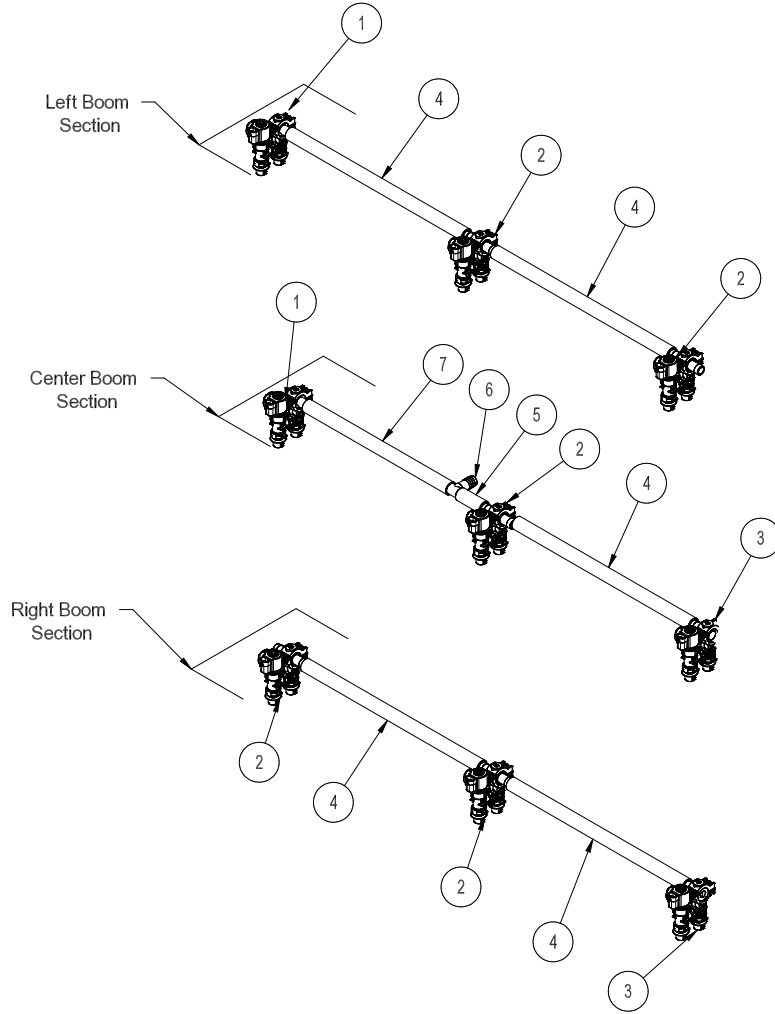


17-601 15' HD SUPER BOOM 1102/1104 PLUMBING



| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------|----------------------------------|----------|
| 1 | 18-417 | Single Barb | 4 |
| 2 | 9032-19 | Black Hose 3/4" x 19" | 4 |
| | 18-040 | Hose Clamp | 8 |
| 3 | 18-416 | Double Barb | 6 |
| 4 | 33-506 | Nozzle body (see nozzle drawing) | 9 |
| 5 | 18-415 | 3/4" Hose Barb | 1 |
| 6 | 9032-2.5 | Black Hose 3/4" x 2 1/2" | 1 |
| | 18-040 | Hose Clamp | 2 |
| 7 | 9032-15.5 | Black Hose 3/4" x 15 1/2" | 1 |
| | 18-040 | Hose Clamp | 2 |
| 8 | 16-281 | Gauge | 1 |
| 9 | 17-602 | Nozzle Body | 1 |
| 10 | 9032-5 | Black Hose 3/4" x 5" | 1 |
| | 18-040 | Hose Clamp | 2 |
| 11 | 16-800 | Strainer | 1 |
| 12 | 16-921 | Nozzle | 1 |
| 13 | 9032-13 | Black Hose 3/4" x 13" | 1 |
| | 18-040 | Hose Clamp | 2 |

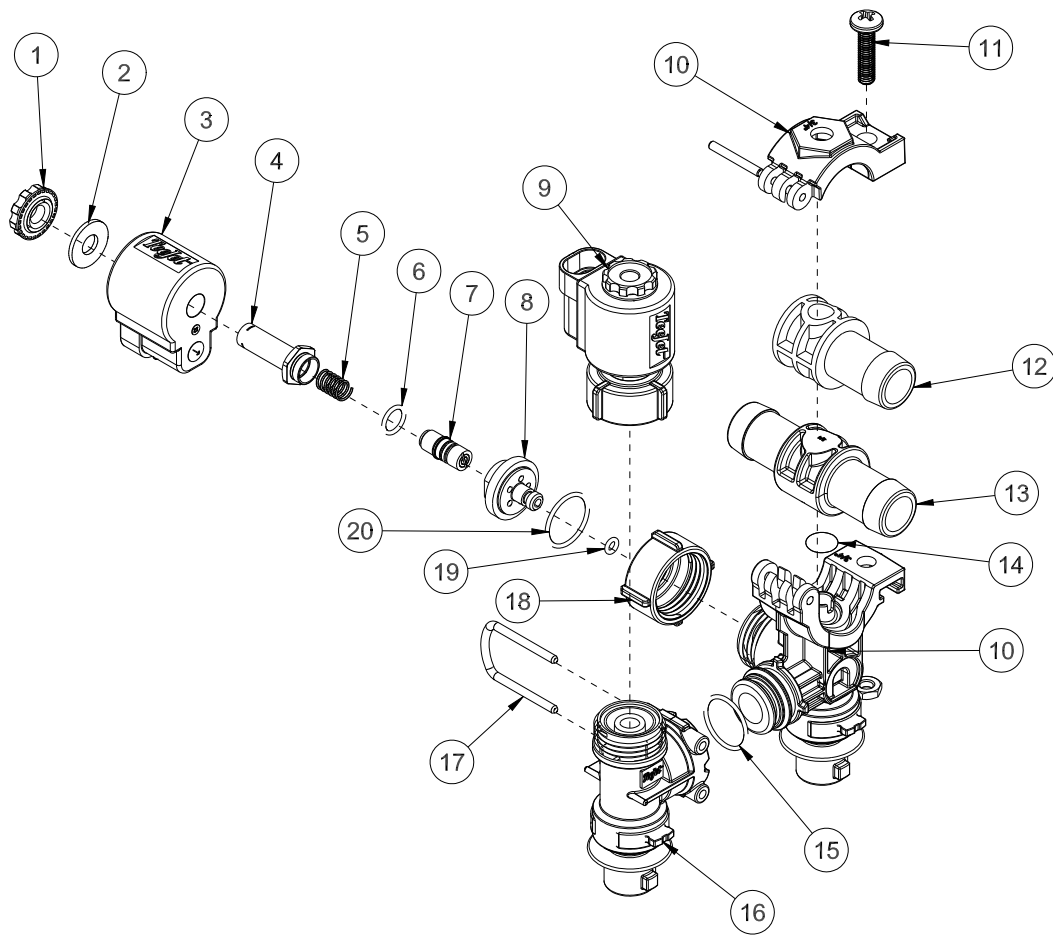
17-601 15' HD SUPER BOOM 1105 PLUMBING



| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------|---|----------|
| 1 | 20-675 | Single Hose Barb - Right Orientation | 2 |
| 2 | 20-673 | Single Hose Barb | 5 |
| 3 | 20-674 | Single Hose Barb - Left Orientation | 2 |
| 4 | 9032-19 | Black Hose $\frac{3}{4}$ " x 19" | 5 |
| | 18-040 | Hose Clamp | 10 |
| 5 | 9032-2.5 | Black Hose $\frac{3}{4}$ " x 2 $\frac{1}{2}$ " | 1 |
| | 18-040 | Hose Clamp | 2 |
| 6 | 18-415 | $\frac{3}{4}$ " Hose Barb | 1 |
| 7 | 9032-15.5 | Black Hose $\frac{3}{4}$ " x 15 $\frac{1}{2}$ " | 1 |
| | 18-040 | Hose Clamp | 2 |

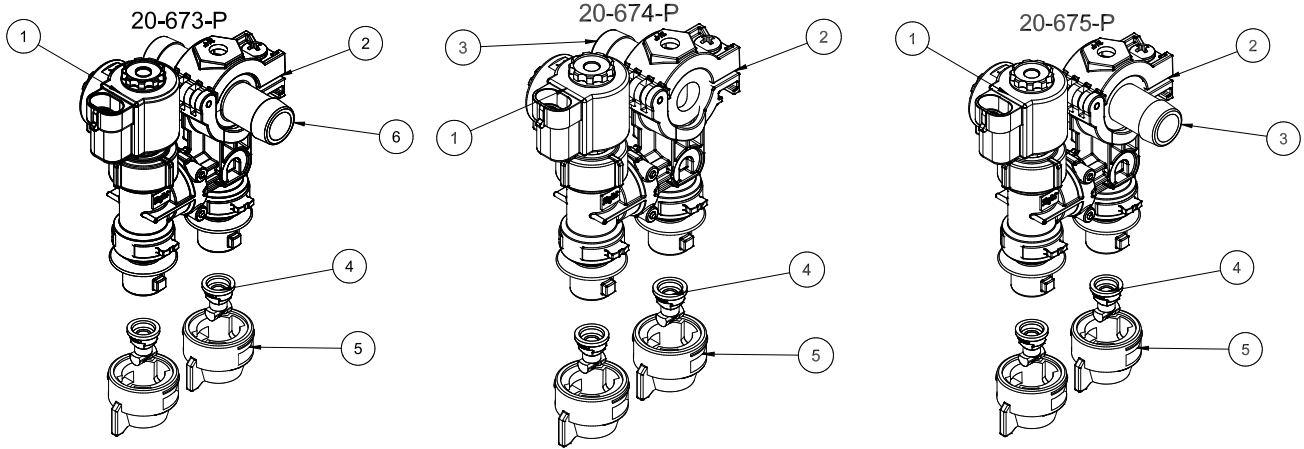
Accessories

1105/1108 NOZZLE DRAWING



| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------|---|----------|
| 1 | | Nylon Black Nut | 1 |
| 2 | | 303 Stainless Steel Washer | 1 |
| 3 | 20-673-09 | 12V Coil Assembly | 1 |
| 4 | | Tube Sub Assembly | 1 |
| 5* | | 302 Stainless Steel Spring | 1 |
| 6* | | Viton O ring | 1 |
| 7* | | Plunger | 1 |
| 8 | | 303 Stainless Steel Cap | 1 |
| 9 | 20-673-02 | E-Chemsaver Solenoid | 1 |
| 10 | 20-673-04 | 3/4" Mount Assembly | 1 |
| 11 | | Pan Head Screw | 1 |
| 12 | 18-417 | Single Barb (part of 20-674-P and 20-675-P) | 1 |
| 13 | 18-416 | Double Barb (part of 20-673-P) | 1 |
| 14 | 16-920-03 | O ring | 1 |
| 15 | 20-673-11 | O ring | 1 |
| 16 | 20-673-05 | End Body Sub-assembly | 1 |
| 17 | 20-673-08 | Retaining Clip | 1 |
| 18 | | Locking Ring | 1 |
| 19* | 20-673-07 | Viton O ring | 1 |
| 20* | 20-673-06 | Viton Gasket | 1 |
| * | 20-673-01 | Spare Parts Kit | |

1105/1108 NOZZLE ASSEMBLY

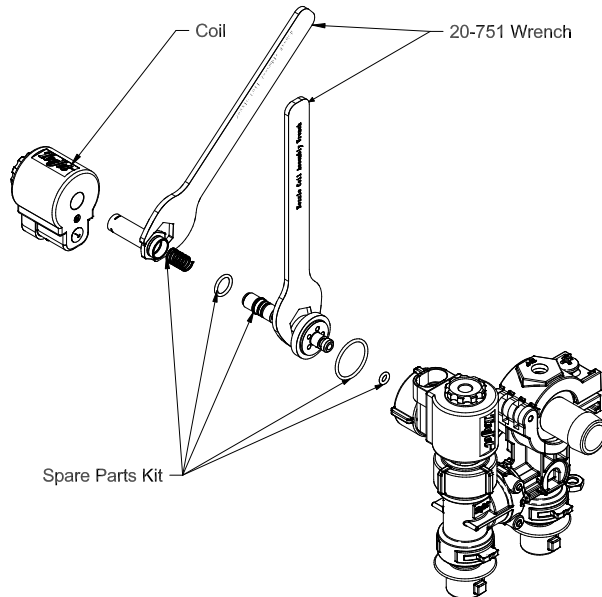


| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------|-------------------------------|----------|
| 1* | 20-673-02 | E-Chemsaver® | 1 |
| 2* | 20-673-04 | 3/4" Bottom Mount Nozzle Body | 1 |
| 3† | 18-417 | Single Barb | 1 |
| 4 | 20-676 | Turbo TeeJet Tip | 2 |
| 5 | 20-677 | QT White Cap and Washer | 2 |
| 6‡ | 18-416 | Double Hose Barb | 1 |

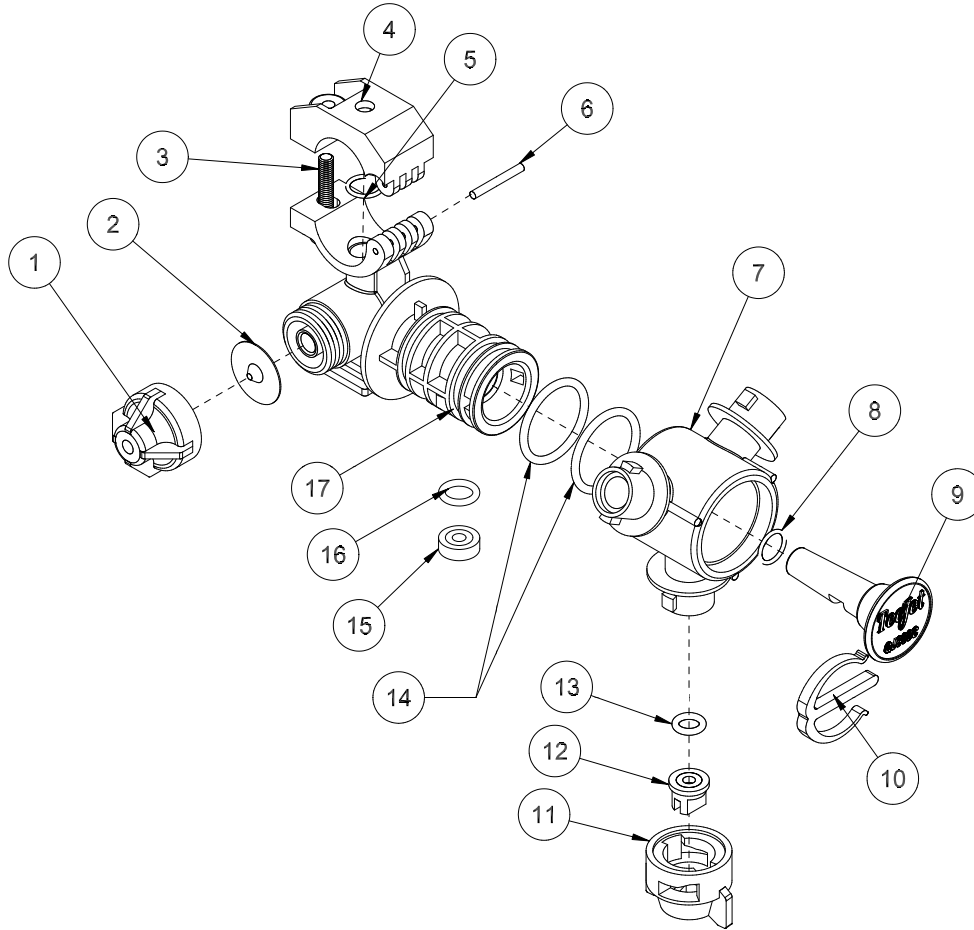
Quantity is per nozzle body. For 15' booms multiply quantity by 9.
 Quantity is per nozzle body. For 18' booms multiply quantity by 11.

| | | |
|--------|--|--------|
| 20-673 | Double Hose Barb Nozzle (includes * and ‡ item) | 8 or 9 |
| 20-674 | Single Hose Barb Left Orientation (includes * and † item) | 2 |
| 20-675 | Single Hose Barb - Right Orientation (includes * and † item) | 2 |

Nozzles are located 20" (51 cm) apart on the right, left, and center tubes. Nozzles are 20" high off ground.



33-506 STANDARD NOZZLE DRAWING



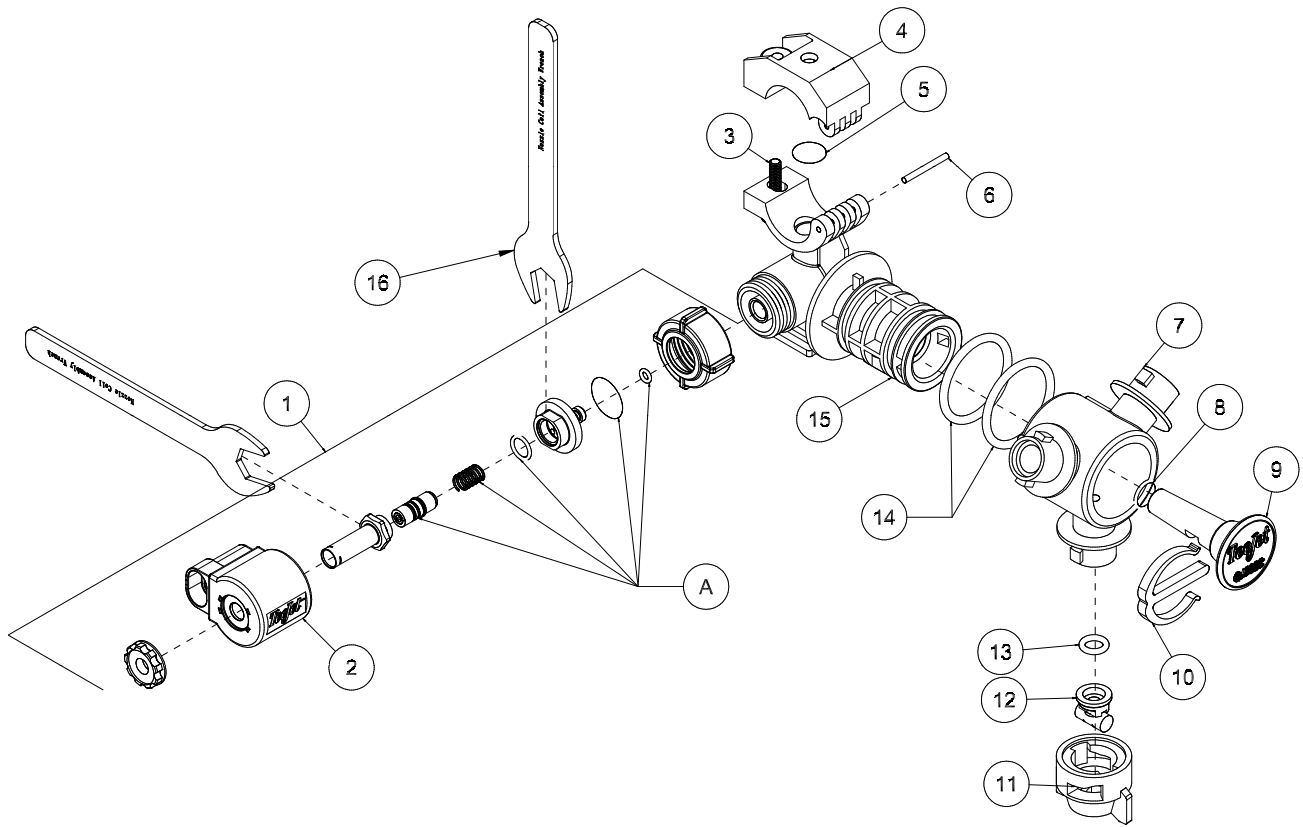
| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------|--------------------------------------|----------|
| 1* | 16-988 | Cap Assembly | 1 |
| 2* | 16-920-06 | Diaphragm, EPDM | 1 |
| 3* | | Stainless Steel Screw | 1 |
| 4* | | Upper Clamp | 1 |
| 5* | 16-920-03 | O-ring | 1 |
| 6* | | Pivot Pin, Stainless Steel | 1 |
| 7* | | Turret, 3-Outlet, Nylon | 1 |
| 8* | | O-ring, EPDM | 1 |
| 9* | | Plug | 1 |
| 10* | | E-clip | 1 |
| 11 | 33-538 | Cap - White | 1 |
| 12 | 33-554 | Nozzle Tip - White (XR11008-VS) | 1 |
| 13 | 16-800 | Viton Gasket | 1 |
| 14* | | O-ring, Teflon | 2 |
| 15* | | O-ring, Viton | 1 |
| 16* | | Seal, Viton Teflon Filled | 1 |
| 17* | 33-506 | Body Assembly (includes all * items) | 1 |

Quantity is per nozzle body. For 15' booms multiply quantity by 9.

Quantity is per nozzle body. For 18' booms multiply quantity by 11.

Nozzles are located 20" (51 cm) apart on the right, left, and center tubes. Nozzles are 20" high off ground.

20-807 NOZZLE 1115/1118 DRAWING



| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------|---|----------|
| 1 | 20-807-01 | e-Chemsaver | 1 |
| 2 | 20-673-09 | 12V Coil | 1 |
| 3* | | Stainless Steel Screw | 1 |
| 4* | | Upper Clamp | 1 |
| 5 | 16-920-03 | O-ring | 1 |
| 6* | | Pivot Pin, Stainless Steel | 1 |
| 7* | | Turret, 3-Outlet, Nylon | 1 |
| 8* | | O-ring, EPDM | 1 |
| 9* | | Plug | 1 |
| 10* | | E-clip | 1 |
| 11 | 20-838 | Cap - Gray | 1 |
| 12 | 20-837 | Turbo Twinjet Nozzle Tip, Cap & Gasket - Gray | 1 |
| 13 | 16-800 | Viton Gasket | 1 |
| 14* | | O-ring, Teflon | 2 |
| 15* | 33-506 | Body Assembly (includes all * items) | 1 |
| A | 20-807-02 | Spare Parts Kit | |

Quantity is per nozzle body. For 20' booms multiply quantity by 23.

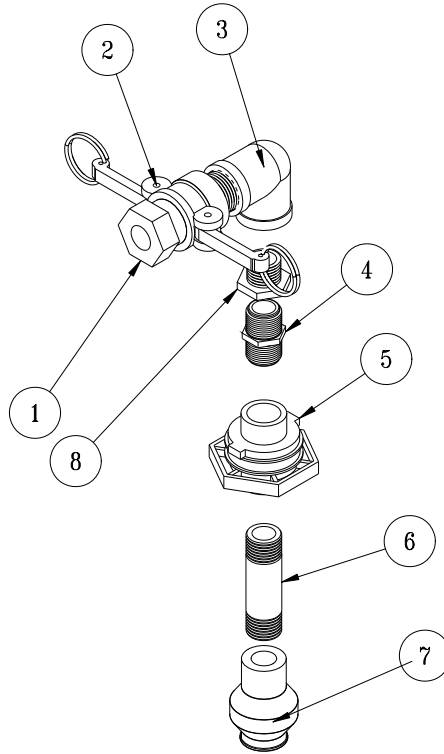
Quantity is per nozzle body. For 18' booms multiply quantity by 21.

Quantity is per nozzle body. For 15' booms multiply quantity by 17.

Nozzles are located 10" (25 cm) apart on the right, left, and center tubes.

Nozzles are 20" high off ground.

15-835 TANK RINSING DEVICE

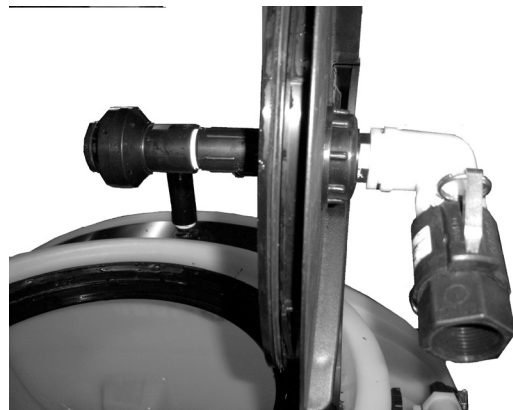


| REF# | PART# | DESCRIPTION | QUANTITY |
|------|--------|-----------------------|----------|
| 1 | 16-961 | 1" Adapter | 1 |
| 2 | 16-962 | 1" Coupler | 1 |
| 3 | 16-864 | 1" FTP Elbow | 1 |
| 4 | 16-158 | Close Nipple | 1 |
| 5 | 16-150 | Double Thread Fitting | 1 |
| 6 | 16-172 | 4" Nipple | 1 |
| 7 | 15-834 | Tank Rinsing Nozzle | 1 |
| 8 | 16-163 | Reducer Bushing | 1 |

Drill 1 3/4" hole 5" from outside edge of cover.

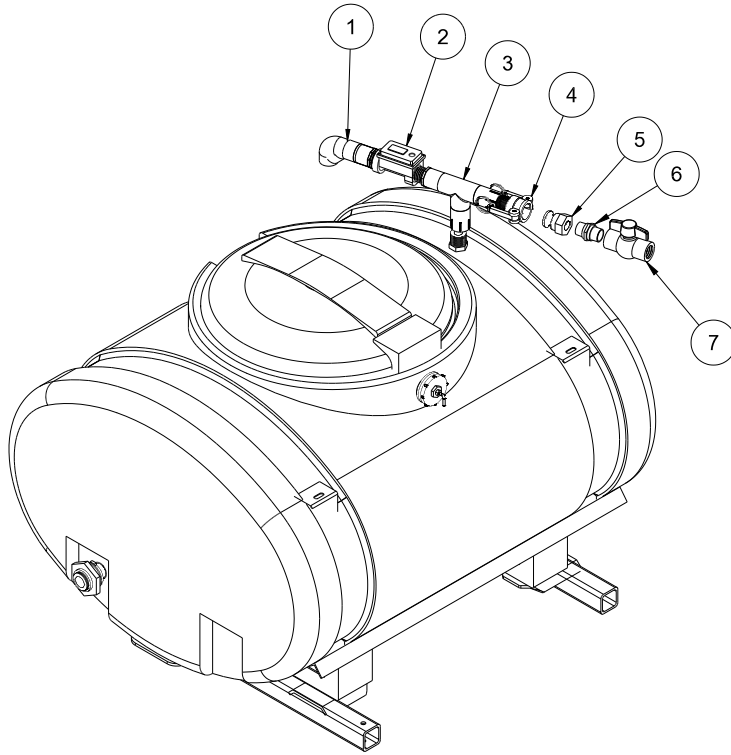
Install Tank Rinsing kit as shown, with the Double Thread Fitting (Ref 5) going into the cover.

Basket Must be removed During Use.



10-370 WATER FILL METER KIT - LITERS

10-365 WATER FILL METER KIT -GALLONS



| REF # | PART # | DESCRIPTION | QUANTITY |
|-------|--------|------------------------------------|----------|
| 1 | 14-524 | Filler Outlet | 1 |
| 2 | 14-514 | Water Meter - Gallons | 1 |
| | 14-527 | Water meter - Liters | 1 |
| 3 | 10-364 | Filler Inlet | 1 |
| 4 | 16-962 | Quick Coupler (already on machine) | 1 |
| 5 | 16-961 | Quick Coupler (already on machine) | 1 |
| 6 | 16-851 | 1" Nipple (already on machine) | 1 |
| 7 | 18-448 | 1" Ball Valve (already on machine) | 1 |

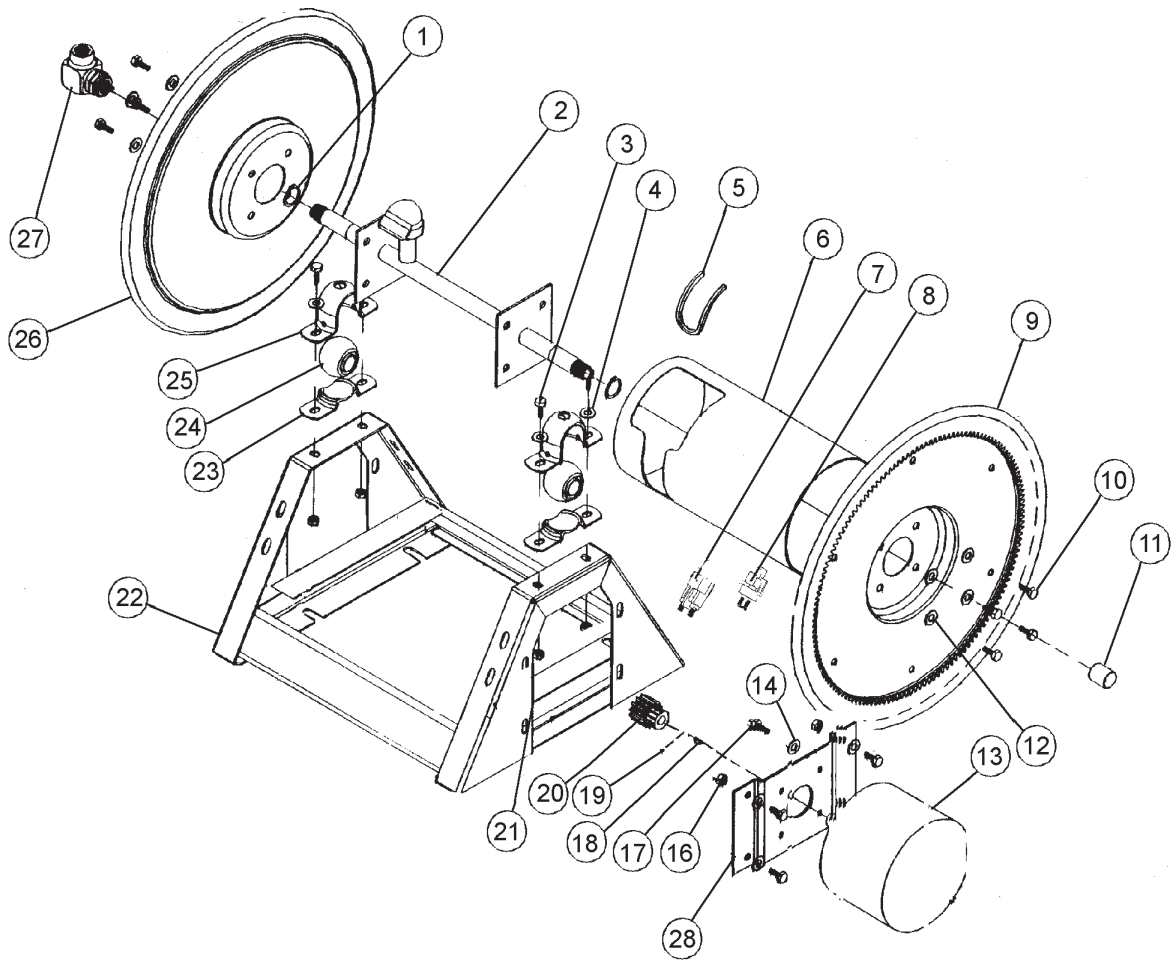
1. Thoroughly flush the service line upstream of the meter to remove dirt and debris.
2. Set meter in-line.
3. Make sure the water flow follows the arrow cast on the meter body.
4. The DLJ Meter is for use **only** with **COLD WATER** up to 122°F (50°C)
5. Slowly open any upstream valves to prevent damage to the meter.

Gallons to Cubic feet Conversion :

Multiply gallons reading by 0.1337 to get cubic feet.

There are 7.48052 gallon per cubic foot.

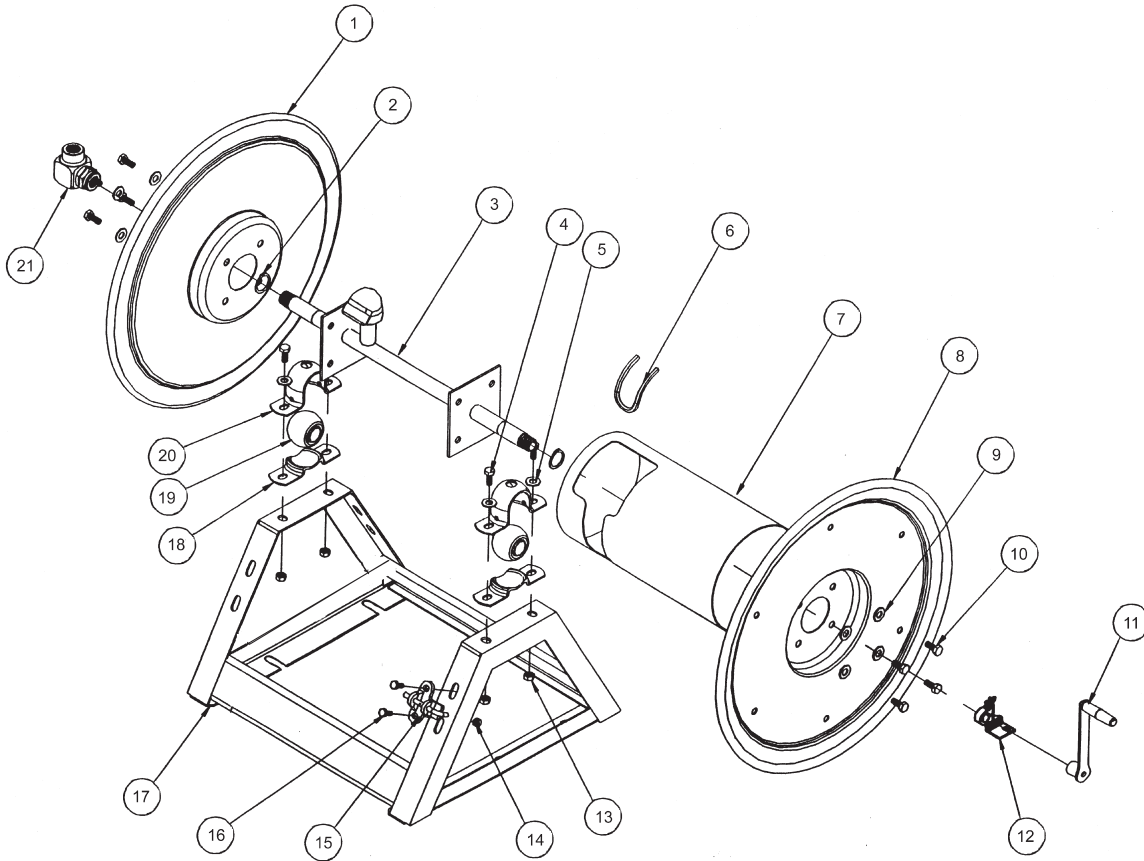
16-906 ELECTRIC HOSE REEL DRAWING



16-906 ELECTRIC HOSE REEL PARTS LIST

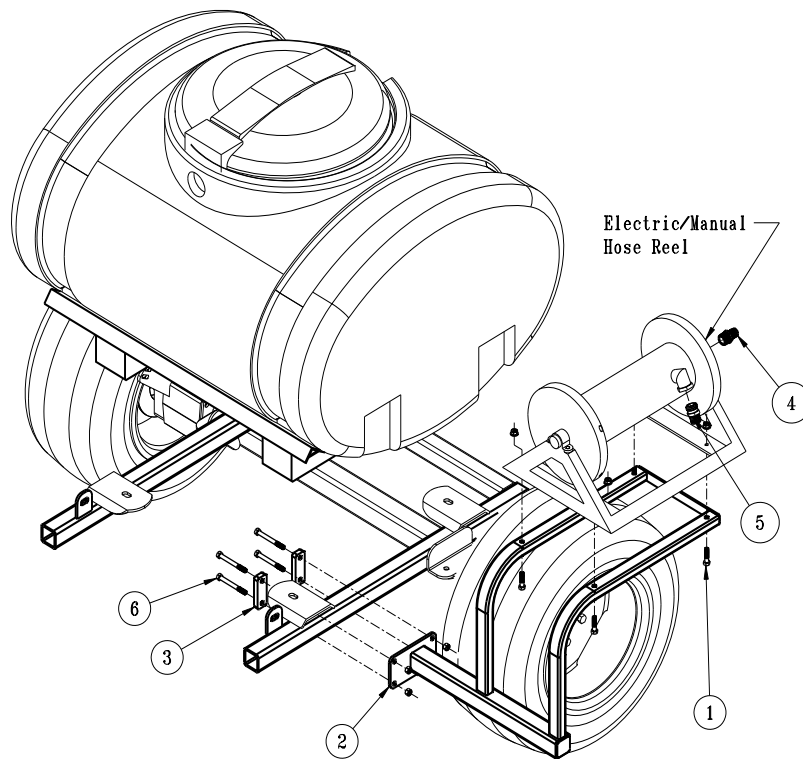
| REF# | PART# | DESCRIPTION | QUANTITY |
|------|---------------|---|----------|
| 1 | 16-906-25 | Retaining Ring | 2 |
| 2 | 16-906-22 | Axle Assembly | 1 |
| 3 | HB-38-16-100 | Hex Bolt, $\frac{3}{8}$ - 16 x 1 | 4 |
| 4 | HW-38 | Flat Washer, $\frac{3}{8}$ | 4 |
| 5 | 16-906-27 | Trim, Drum Edge | 1 |
| 6 | 16-906-21 | Drum Center | 1 |
| 7 | 13-750 | Solenoid | 1 |
| | HB-14-20-075 | Hex Bolt, $\frac{1}{4}$ - 20 x $\frac{3}{4}$ | 2 |
| | HWL-14 | Lockwasher, $\frac{1}{4}$ | 2 |
| | HN-14-20 | Hex Nut, $\frac{1}{4}$ - 20 | 2 |
| 8 | 33-251 | Switch | 1 |
| 9 | 16-906-19 | Disc and Gear Assembly | 1 |
| 10 | HB-516-18-075 | Hex Bolt, $\frac{5}{16}$ - 18 x $\frac{3}{4}$ | 8 |
| 11 | 16-906-26 | Pipe Cap, $\frac{3}{4}$ | 1 |
| 12 | HWL-516 | Lockwasher, $\frac{5}{16}$ | 8 |
| 13 | 16-906-15 | Motor 12VDC | 1 |
| 14 | HW-516 | Flat Washer, $\frac{5}{16}$ | 4 |
| 16 | HNTL-516-18 | Lock Nut, $\frac{5}{16}$ - 18 | 4 |
| 17 | HB-516-18-100 | Hex Bolt, $\frac{5}{16}$ - 18 x 1 | 4 |
| 18 | 16-906-17 | Key | 1 |
| 19 | | Set Screw | 2 |
| 20 | 16-906-29 | Pinion | 1 |
| 21 | HNTL-38-16 | Lock Nut, $\frac{3}{8}$ - 16 | 4 |
| 22 | 16-906-18 | Frame Assembly | 1 |
| 23 | 16-906-08 | Mounting Pillow Block (Bottom) | 2 |
| 24 | 16-906-24 | Bearing | 2 |
| 25 | 16-906-07 | Mounting Pillow Block (Top) | 2 |
| 26 | 16-906-20 | Disc, 17 $\frac{1}{2}$ | 1 |
| 27 | 16-906-23 | Swivel Assembly, $\frac{3}{4}$ | 1 |
| | 16-906-30 | Seal Kit (For 16-906-23) | 1 |
| 28 | 16-906-28 | Bracket 12VDC | 1 |
| | 16-982 | Electric Hose Reel (only) | 1 |

16-129 MANUAL HOSE REEL DRAWING



| REF# | PART# | DESCRIPTION | QUANTITY |
|------|---------------|---|----------|
| 1 | 16-129-11 | Disc, 17 ¹ / ₂ | 1 |
| 2 | 16-906-25 | Retaining Ring | 2 |
| 3 | 16-906-22 | Axle Assembly, ³ / ₄ | 1 |
| 4 | HB-38-16-100 | Hex Bolt, ³ / ₈ - 16 x 1 | 4 |
| 5 | HW-38 | Flat Washer, ³ / ₈ | 4 |
| 6 | 16-906-27 | Trim, Drum Edge | 1 |
| 7 | 16-906-21 | Drum Center | 1 |
| 8 | 16-906-20 | Disc, 17 ¹ / ₂ Crank Side | 1 |
| 9 | HWL-516 | Lockwasher, ⁵ / ₁₆ | 8 |
| 10 | HB-516-18-075 | Hex Bolt, ⁵ / ₁₆ - 18 x ³ / ₄ | 8 |
| 11 | 16-129-09 | Crank Assembly, ³ / ₄ | 1 |
| 12 | 16-129-10 | Brake Assembly, ³ / ₄ | 1 |
| 13 | HNTL-38-16 | Lock Nut, ³ / ₈ - 16 | 4 |
| 14 | HNTL-516-18 | Lock Nut, ⁵ / ₁₆ - 18 | 2 |
| 15 | 16-129-08 | Lock Pin Assembly | 1 |
| 16 | HB-516-18-075 | Hex Bolt, ⁵ / ₁₆ - 18 x ³ / ₄ | 2 |
| | HW-516 | Flat Washer, ⁵ / ₁₆ | 2 |
| 17 | 16-129-07 | Frame Assembly | 1 |
| 18 | 16-906-08 | Mounting Pillow Block (Bottom) | 2 |
| 19 | 16-906-24 | Bearing | 2 |
| 20 | 16-906-07 | Mounting Pillow Block (Top) | 2 |
| 21 | 16-906-23 | Swivel Assembly, ³ / ₄ | 1 |
| | 16-906-30 | Seal Kit (For 16-906-23) | 1 |

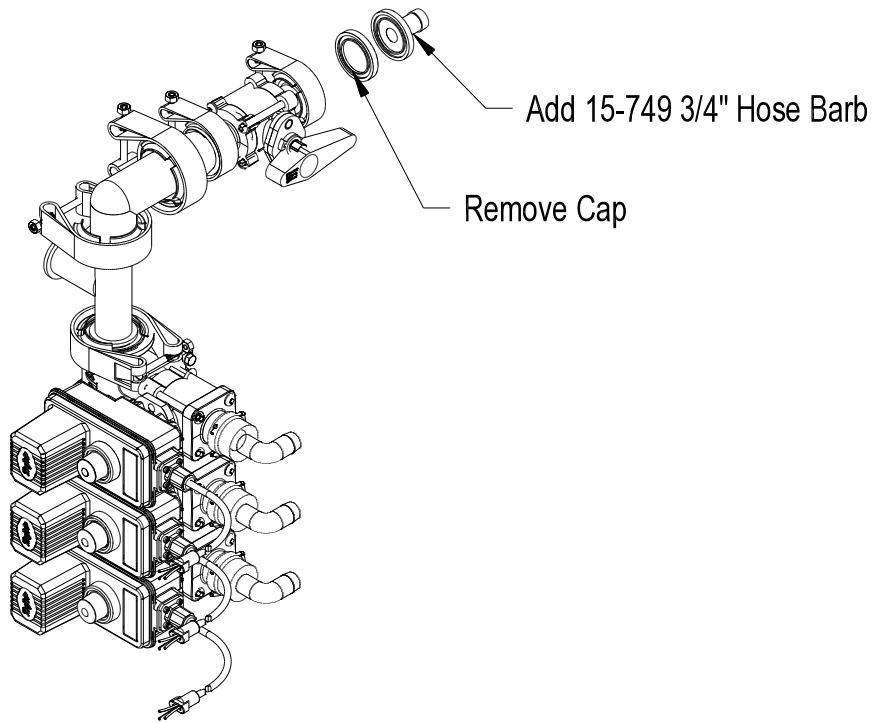
10-422 HOSE REEL MOUNT



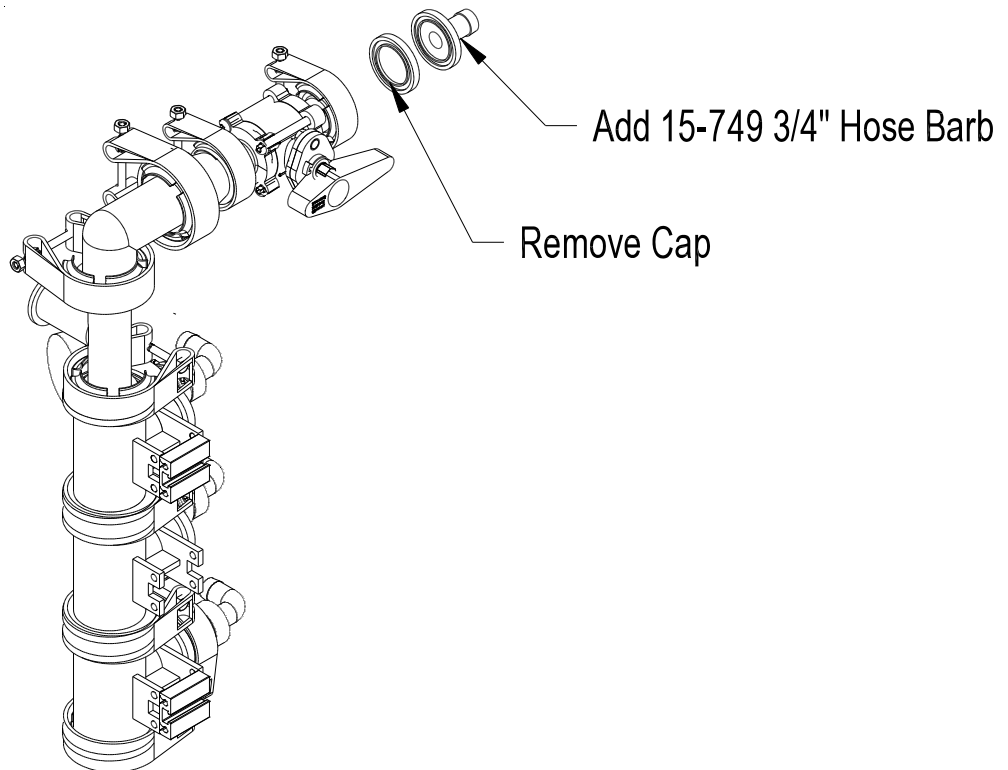
| REF# | PART# | DESCRIPTION | QUANTITY |
|------|---------------|--|----------|
| 1 | HB-516-18-150 | Hex Bolt, $\frac{5}{16}$ - 18 x $1\frac{1}{2}$ | 4 |
| | HNTL-516-18 | Lock Nut, $\frac{5}{16}$ - 18 | 4 |
| 2 | 10-423 | Hose Reel Mount | 1 |
| 3 | 10-559 | Support | 2 |
| 4 | 18-249 | Barb Fitting | 1 |
| 5 | 16-295 | Hose Fitting | 1 |
| 6 | HB-38-16-350 | Hex Bolt, $\frac{3}{8}$ - 16 x $3\frac{1}{2}$ | 4 |
| | HNTL-38-16 | Lock Nut, $\frac{3}{8}$ - 16 | 4 |

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. Install hose reel mount on the left side of the machine in front of the rear wheel. Mount arms pointing to the rear of the machine.
5. Use the four(4) $\frac{3}{8}$ Hex Bolts and Lock Nuts to secure the mount to the machine.
6. Put hose reel on hose reel bracket with fitting to the rear 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.
7. Put 18-249 barb fitting into side of hose reel. Place 16-295 Fitting into center of hose reel. Run 55" hose from the 18-249 to the 15-749 hose barb.

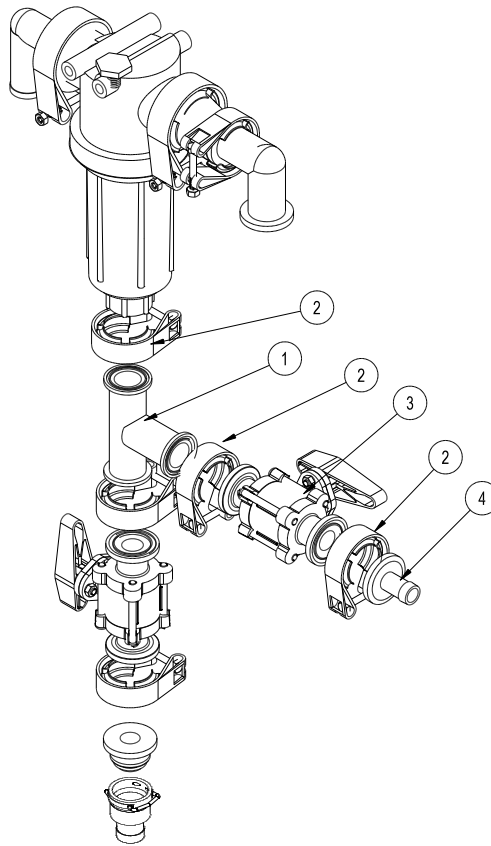
1102 & 1104 HOSE REEL PLUMBING DRAWING



STAR COMMAND I & II HOSE REEL PLUMBING DRAWING



1101 MANUAL HOSE REEL PLUMBING DRAWING

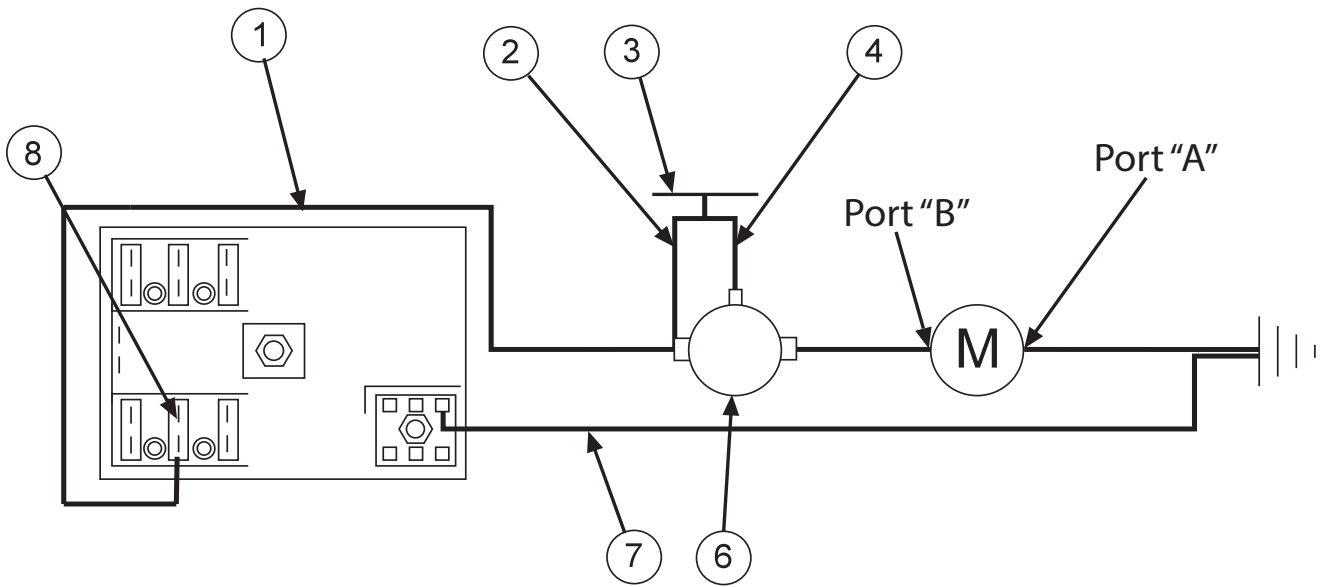


| REF# | PART# | DESCRIPTION | QUANTITY |
|------|--------|-----------------|----------|
| 1 | 15-776 | Tee | 1 |
| 2 | 15-740 | 50 Series Clamp | 3 |
| 3 | 15-738 | Ball Valve | 1 |
| 4 | 15-749 | Hose Barb | 1 |

INSTALLATION INSTRUCTIONS

1. Disconnect the ball valve from the bottom of the filter assembly. Install tee fitting (15-776) between the ball valve and the elbow. Use the clamp that was removed and one of the new ones provided. Only tighten clamps enough so it can be rotated.
2. Install hose barb (15-749) onto the ball valve (15-738) using a 50 series clamp (15-740) Tighten clamp. Install the ball valve/hose barb to the tee (15-776) that was installed in step 1 using a 50 series clamp (15-740).
3. Rotate the tee fitting so the valve points toward the outside of the machine. Tighten all clamps.
4. Route the 3/4" Black hose from the hose barb you installed in step 2 to the hose barb on the hose reel. Secure with 18-040 Hose clamps.
5. When installing the hose reel with a manual spray system you will have parts left over that you will not need.

ELECTRIC HOSE REEL WIRING DIAGRAM



| REF# | PART# | DESCRIPTION | QUANTITY |
|---------------------------|------------|---|----------|
| | 8843-132 | Flex guard $\frac{3}{8}$ ID | 1 |
| 1 | 8919-144 | 10GA Red Wire 144" | 1 |
| | 8901 | Slide-On Connector | 1 |
| 2 | 16-979 | Wire, Switch to Solenoid Hot Terminal | 1 |
| 3 | 33-251 | Push Button Switch | 1 |
| 4 | 16-978 | Wire, Switch to Solenoid Start Terminal | 1 |
| 6 | 12-015 | Solenoid | 1 |
| SOLENOID TERMINALS | | | |
| | HN -516-24 | $\frac{5}{16}$ - 24 Hex Nut | 2 |
| | HN -10-32 | 10 - 32 Hex Nut | 1 |
| 7 | 8931-144 | 10GA White Wire 144" | 1 |
| | 8901 | Slide-On Connector | 1 |
| 8 | 33-273 | Auto Blade Type Fuse 30Amp | 1 |

CONNECTION INSTRUCTIONS

Route wire harness along side of tank and over to fuse block taking care to stay clear of moving parts or hot engine components. Cut off excess wire and strip back $\frac{3}{8}$ ". Place one 8963 heat shrink ($\frac{1}{4} \times 1\frac{1}{4}$) on each wire before crimping 8901 slide on connectors to the red and white wires. Connect the two wires to the fuse block first the red to the (+) positive and the white to the (-) negative. Put the 33-273 auto blade type fuse (30 amp) into fuse block.

WARNING

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.

Use Dielectric Grease On All Electrical Connections

HOSE REEL ADJUSTMENTS

OPERATIONAL CHECK:

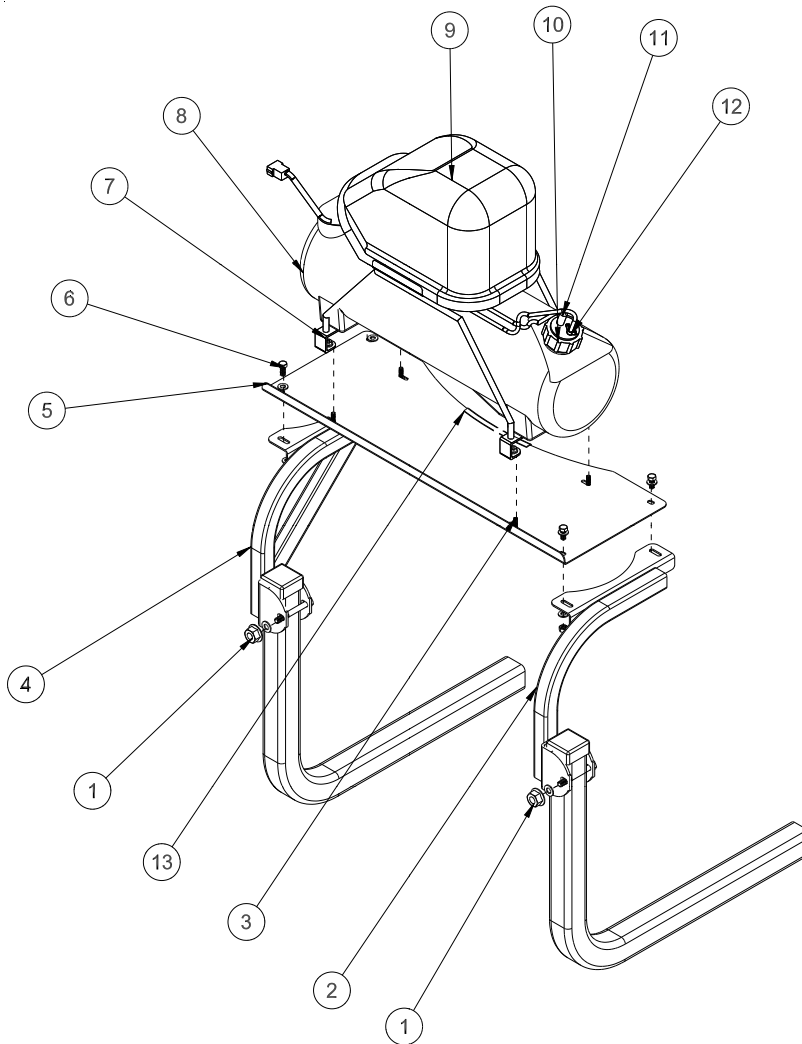
1. Pull hose off drum at least one full revolution. A clicking noise should be heard from locking mechanism.
2. Let the hose retract.
3. Pull the hose off until the first click is heard. Drum should lock when the hose tension is removed.
4. Continue pulling the hose, no more than one revolution, until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

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.

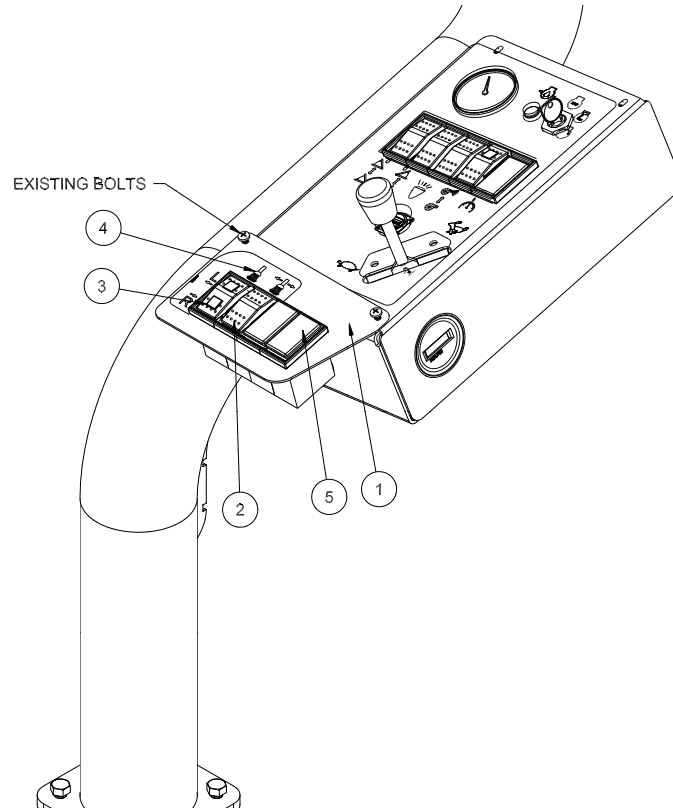
Use Dielectric Grease On All Electrical Connections

10-740 FOAM MARKER TANK MOUNT



| REF# | PART# | DESCRIPTION | QUANTITY |
|------|---------------|---|----------|
| 1 | HNTL-38-16 | Lock Nut, $\frac{3}{8}$ - 16 | 2 |
| | HW-38 | Flat Washer, $\frac{3}{8}$ | 4 |
| | HB-38-16-300 | Hex Bolt, $\frac{3}{8}$ - 16 x 3 | 2 |
| 2 | 20-723 | RH Bracket | 1 |
| 3 | HB-14-20-075 | Hex Bolt, $\frac{1}{4}$ -20 x $\frac{3}{4}$ | 4 |
| | HNFL-14-20 | Flange Whiz-loc Nut, $\frac{1}{4}$ -20 | 4 |
| 4 | 20-726 | LH Bracket | 1 |
| 5 | 10-645 | Foamer Plate | 1 |
| 6 | HB-516-18-075 | Hex Bolt, $\frac{5}{16}$ - 18 x $\frac{3}{4}$ | 4 |
| | HW-516 | Flat Washer, $\frac{5}{16}$ | 4 |
| | HNFL-516-18 | Flange Whiz-loc Nut, $\frac{5}{16}$ - 18 | 4 |
| 7* | 14-291-04 | Tank Bracket | 2 |
| 8* | 14-291-02 | Foamer Tank | 1 |
| 9* | 14-291-03 | Compressor Only | 1 |
| | 14-291-01 | Black Cover | 1 |
| 10* | 14-284-02 | Cap Assembly | 1 |
| 11* | | Clear Tube | 1 |
| 12* | | Blue Tube | 1 |
| 13 | 8803-6 | Black Trim | 1 |
| * | 14-291 | Foamer (includes parts 7-13) | 1 |

10-740 FOAM MARKER CONTROL PANEL



| REF# | PART# | DESCRIPTION | QUANTITY |
|------|--------|----------------------|----------|
| 1 | 10-739 | Switch Mount Plate | 1 |
| | 15-725 | Panel Mount End | 2 |
| 2 | 15-782 | Switch, Unlit | 1 |
| | 15-727 | Rocker, No Light | 1 |
| 3 | 15-918 | Switch, 2 Red LED | 1 |
| | 15-917 | Rocker, 2 Red Lenses | 1 |
| 4 | 30-374 | Decal, Foamer | 1 |

⚠ WARNING

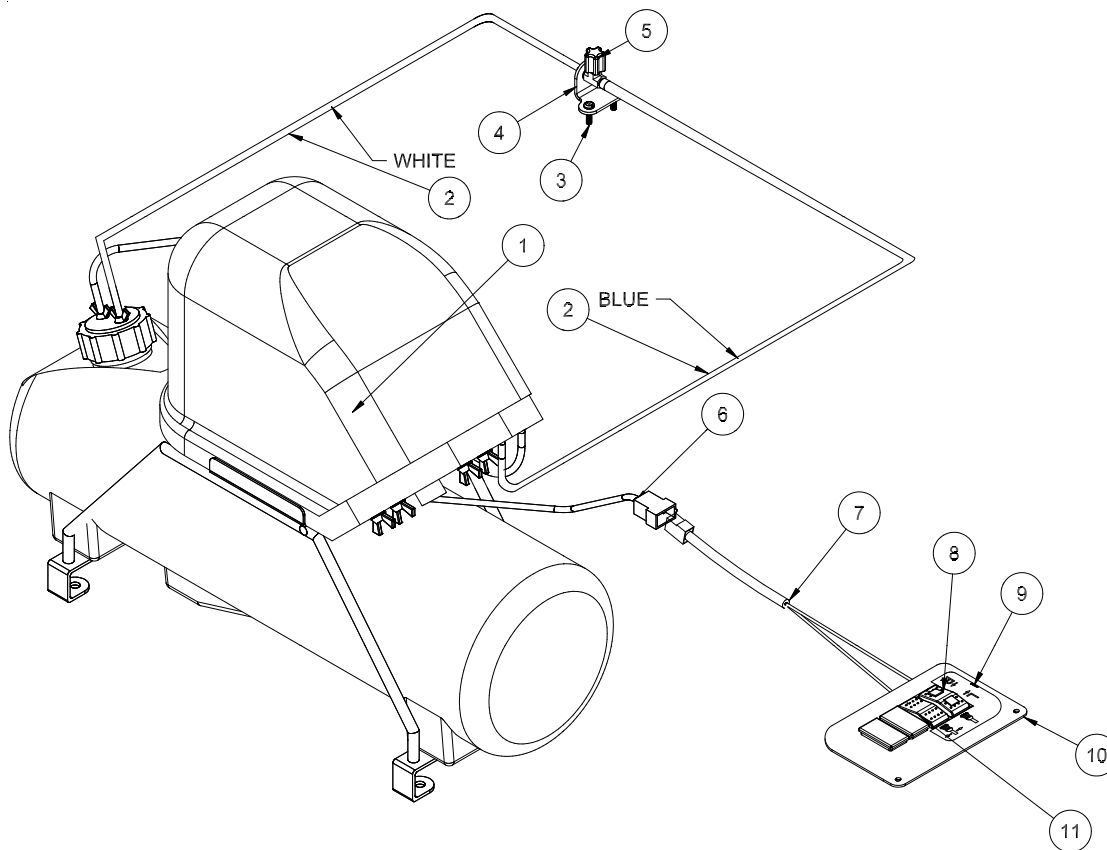
Safety: Before working on machine stop engine, set park brake, remove key from ignition and block wheels. Disconnect negative (-) battery terminal.

1. Place decal(Ref 4) on Switch mount plate. Place panel mount ends in mount plate.
2. Mount switches (Ref 2 & 3) to switch mount plate (Ref 1) as shown above. Mount the switch mount plate(Ref 1) on the side control panel using existing bolts.

Tank Mount Drawing

3. Position the right and left hand mount brackets(Ref 2 and 4) on the boom tubes facing the front of the machine, using two $\frac{5}{16}$ x 3 bolts. Install the foamer plate (Ref 5) on the right and left bracket with curve towards poly spray tank.
4. Place the piece of trim (Ref 13) on the foamer bracket to prevent rubbing of hoses for a cleanload system.
5. Place foamer unit onto mount plate, with cap facing to the right side of machine. Using $\frac{1}{4}$ bolts and flange nuts, bolt foam marker to mount plate. The left rear mount of the foamer will bolt through the mount plate and brace. Tighten all hardware.
6. Make sure all bolts are tightened.

FOAM MARKER WIRING



| REF# | PART# | DESCRIPTION | QUANTITY |
|------|---------------|-----------------------------|----------|
| 1 | 14-291-03 | Compressor | 1 |
| 2 | 15-507 | Tubing -Blue and white | 1 |
| 3 | HSM-10-32-075 | Machine Screw, #10-32 x 3/4 | 2 |
| | HNFL-10-32 | Flange Whiz-loc Nut, #10-32 | 2 |
| 4 | 20-769 | Mount Bracket | 1 |
| 5 | 14-699 | Male Coupler | 1 |
| | 14-291-09 | Blue Fly Nut | 1 |
| | 14-702 | Red Washer | 1 |
| 6 | 15-504-04 | Foam Marker Wiring Harness | 1 |
| 7 | 32-574 | Foamer Wire Harness | 1 |
| 8 | 15-918 | Switch, 2 Red LED | 1 |
| | 15-917 | Rocker, 2 Red Lenses | 1 |
| 9 | 30-374 | Decal, Foamer | 1 |
| 10 | 10-739 | Switch Mount Plate | 1 |
| 11 | 15-782 | Switch, Unlit | 1 |
| | 15-727 | Rocker, No Light | 1 |

INSTALLATION

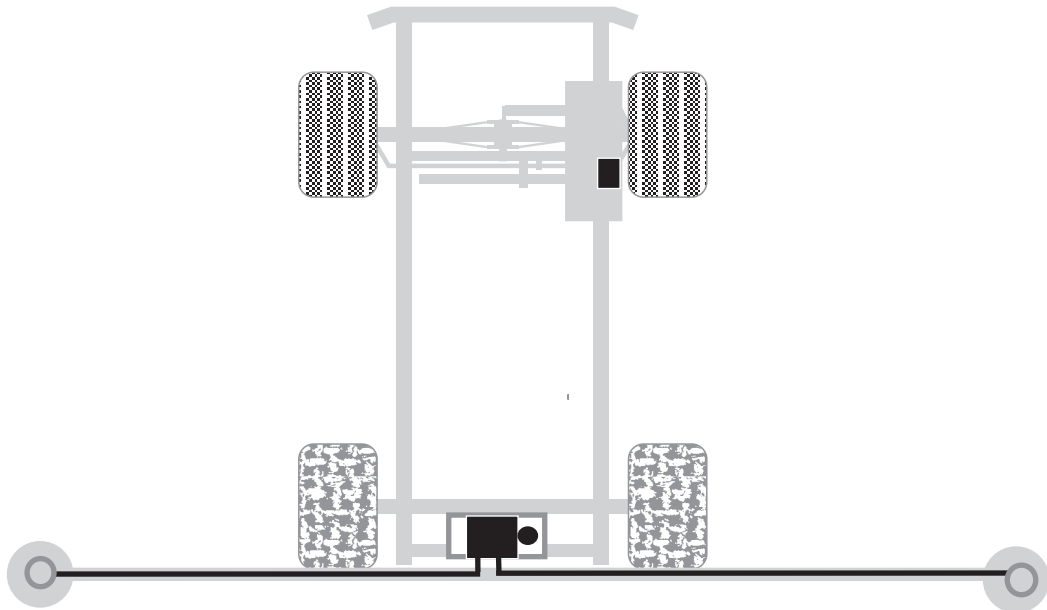
1. Connect the compressor wire harness (Ref 6) to the switches using the wire harness (Ref 7).
2. Use dielectric grease on all electrical connections. Route the wire harness to the battery and out of the way of any heat or moving parts. Use nylon ties as needed. Connect the wire harness to the battery. Red to positive(+), black to negative(-).

HOSES

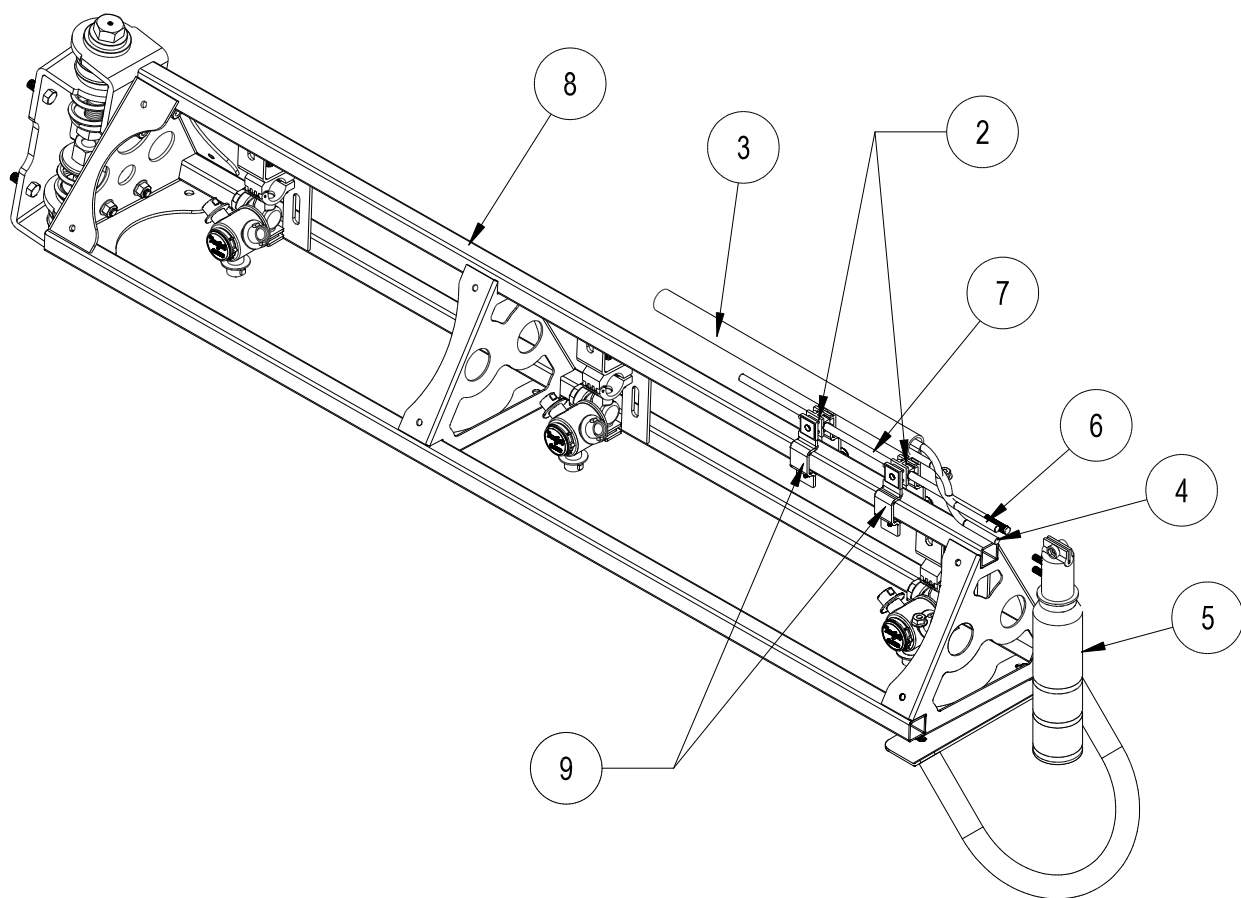
Being careful not to cut the tubing, cut the over-sleeve back approximately 2" (5 cm) to expose blue and clear tubing. Remove blue wing nut from top connector of foam nozzle and slide it on the blue tube with the threads facing toward end of tube. Slide blue tube all the way over the top of the small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

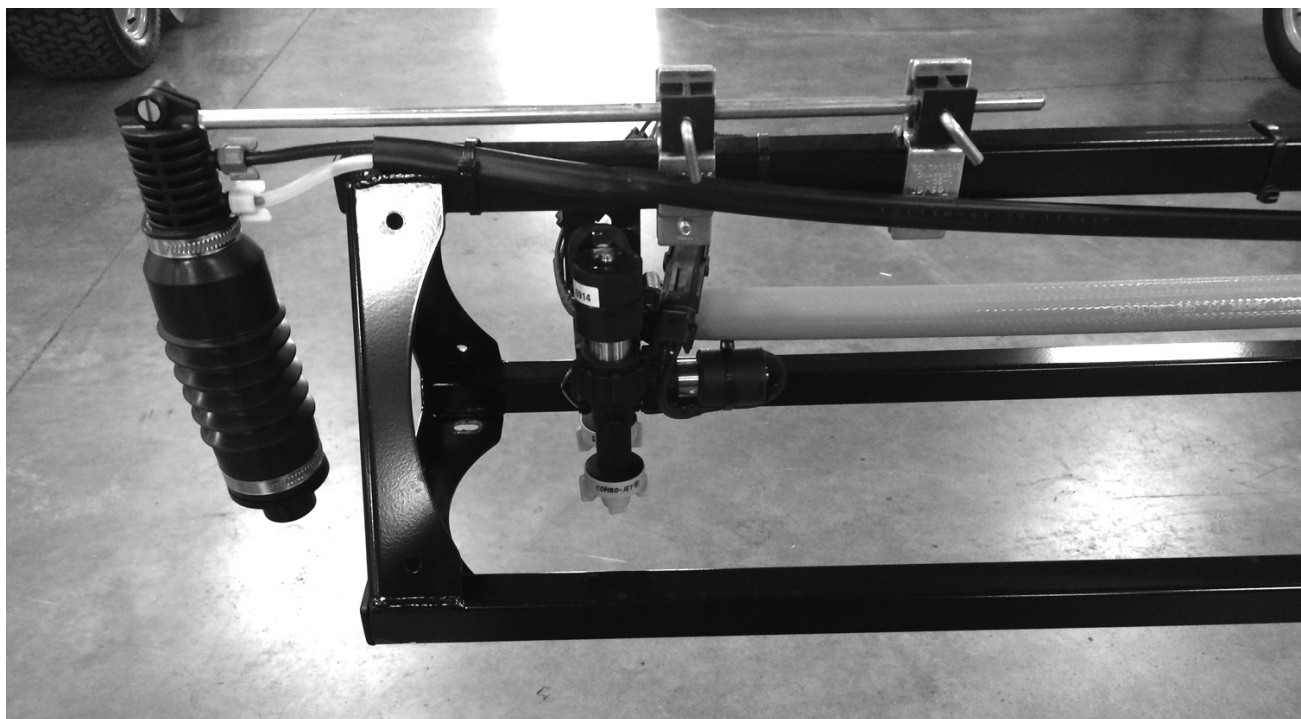
Install opposite ends of air-liquid tubes to compressor, again cutting back the oversleeve approximately 2" (5 cm) and inserting blue and clear tubes for the left boom section into the tubing connectors on the right side of compressor as far as possible. Follow the same steps for the right boom tubing. 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.



FOAMER NOZZLE MOUNT DRAWING



Accessories

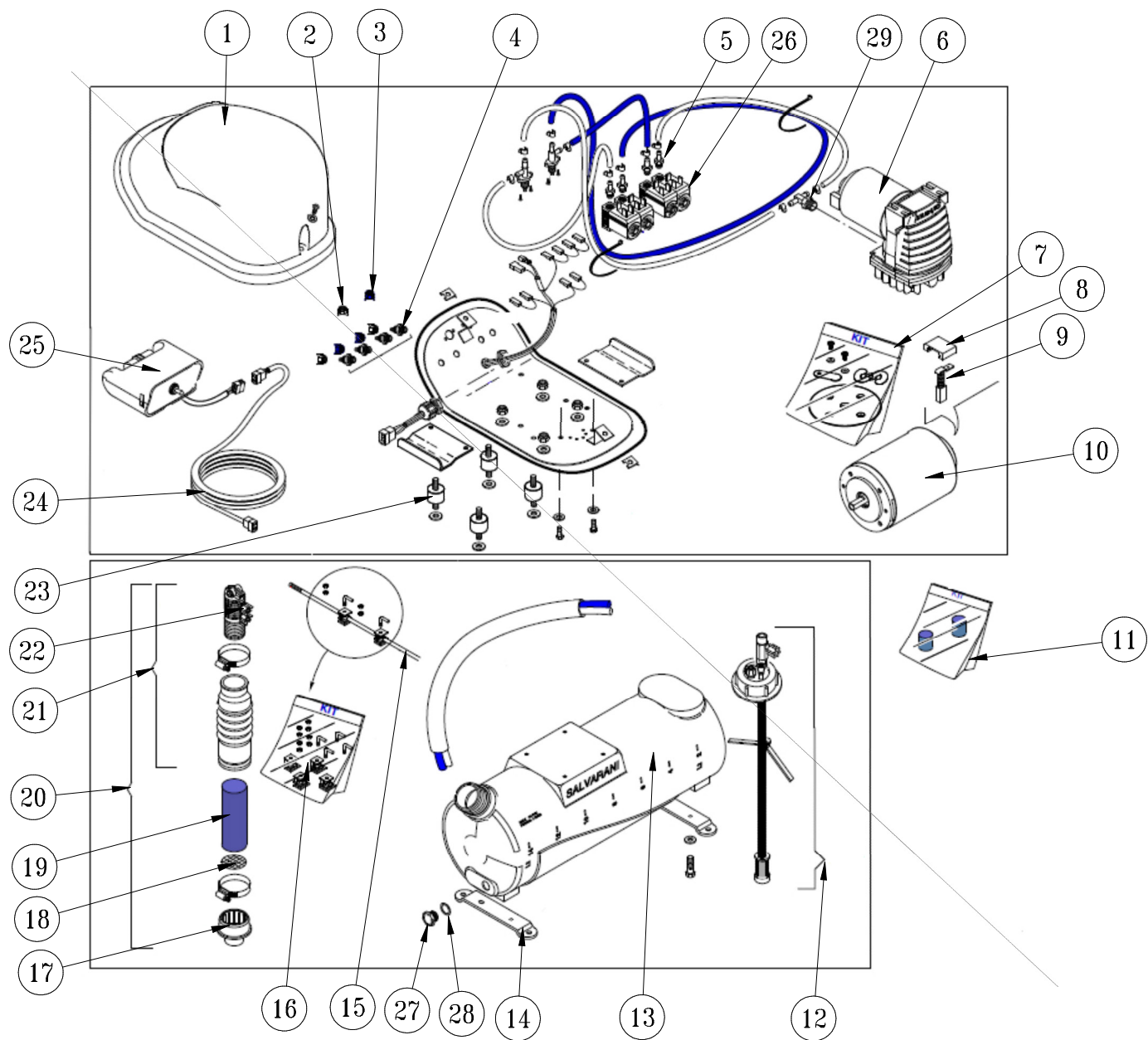


10-378 FOAM MARKER PARTS LIST

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------|--------------------------|------------|
| 2 | 16-987 | Foam Nozzle Mounting Kit | 1 per boom |
| 3 | 15-507 | Foamer Tubing | 1 |
| 4 | | Clear Tubing | |
| 5 | 15-511 | Foam Nozzle | 2 |
| 6 | | Blue Tubing | |
| 7 | 15-510-01 | Nozzle Mounting Rod | 2 |
| 8 | | Boom | |
| 9 | 16-795 | Square Clamp | 4 |

1. Slide hose clamp onto drop tube of foam nozzle and attach restrictor bell.
2. Place splined end of Nozzle mounting rod (Ref 7) into top of foam nozzle (Ref 5). Tighten screw.
3. Slide two foam nozzle mounts (Ref 2) onto the rod. Place square clamps (Ref 9) on foam nozzle mounts and mount the square clamps to the boom (Ref 8). Adjust foam nozzle mounts and clamps so nozzle assembly will clear end of boom. Tighten foam nozzle mounts and square clamps to prevent side to side movement. Do the same to the other side.
4. Being careful not to cut the tubing (Ref 3), cut the over-sleeve back approximately 2" (5 cm) to expose blue (Ref 6) and clear tubing (Ref 4).
5. 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.
6. Route the tubing along underside of main frame using tie downs as necessary.
7. Install opposite ends of air-liquid tubes to compressor, again cutting back the over-sleeve 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.
8. 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.
9. Hose's must be routed along the side of the boom square tubing.
10. Mark 6 inches in from inside edge of foamer nozzle mounting bracket on square boom tubing.
11. Cut cable and strip casing, allowing enough length to connect to fuse block.
12. Strip and connect slide on connectors to each wire and use the heat shrink.
13. Connect black negative (-) wire to the ground and connect red wire to the positive (+).
14. Insert 10 amp fuse into slot which red wire was attached to.

14-291 FOAMER REPLACEMENT PARTS

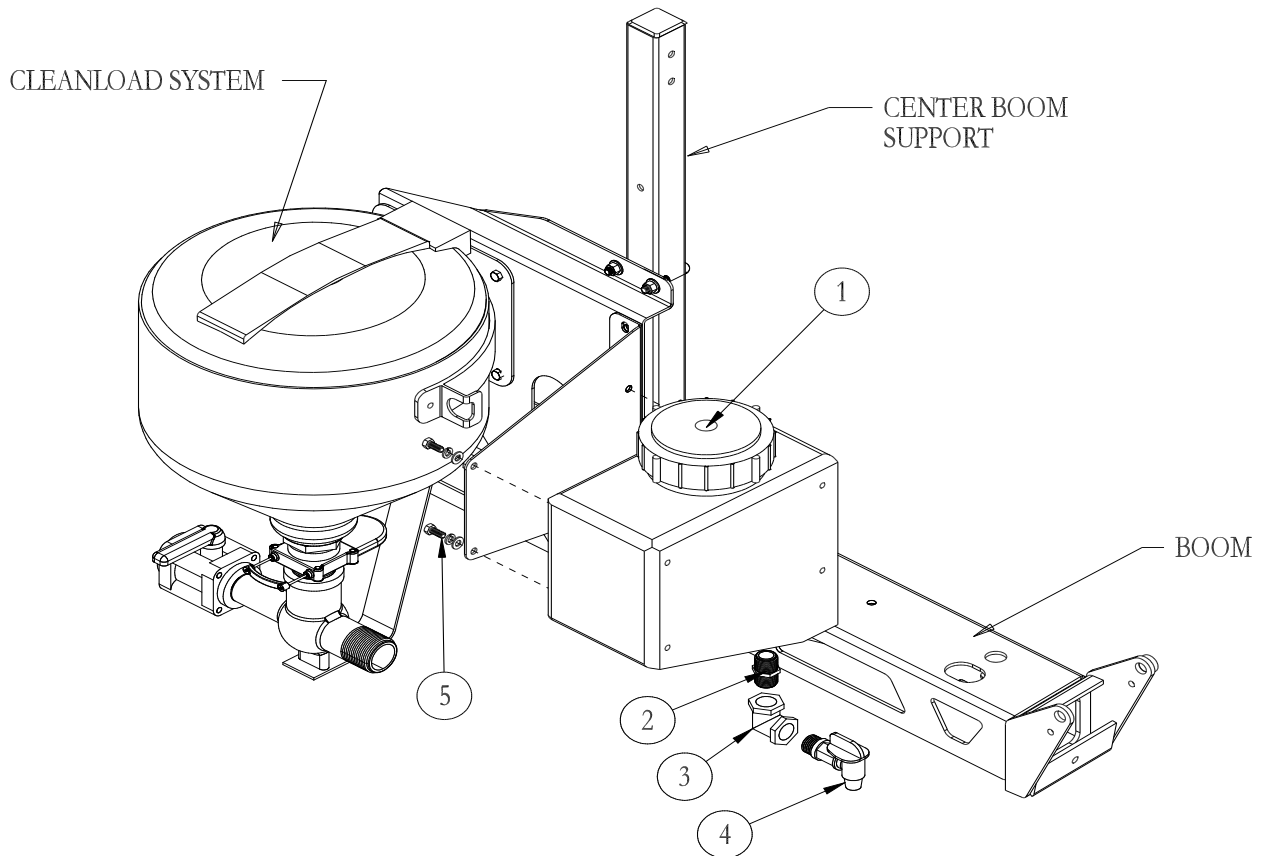


Accessories

14-291 FOAMER REPLACEMENT PARTS

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------|---------------------------|----------|
| 1 | 14-291-01 | Black Cover | 1 |
| 2 | 14-291-08 | White Fly Nut | 1 |
| 3 | 14-291-09 | Blue Fly Nut | 1 |
| 4 | 14-284-10 | Tubing Connector | 1 |
| 5 | 14-291-17 | M6 Tubing Connector | 1 |
| 6 | 14-536 | Compressor Complete | 1 |
| 7 | 14-291-11 | Diaphragm Replacement Kit | 1 |
| 8 | 15-505-08 | Brush Retainer | 1 |
| 9 | 15-505-06 | Brush | 1 |
| 10 | 15-505-07 | 12V Electric Motor | 1 |
| 11 | 15-511-02 | Foam Sponge | 1 |
| 12 | 14-284-02 | Cap Assembly | 1 |
| 13 | 14-291-02 | Foamer Tank | 1 |
| 14 | 14-291-04 | Tank Brackets | 2 |
| 15 | 15-510-01 | Nozzle Mounting Rod | 2 |
| 16 | 16-987 | Foam Nozzle Mounting Kit | 1 |
| 17 | 14-284-09 | Foam Nozzle Reducer | 2 |
| 18 | 15-511-09 | Stainless Steel Screen | 2 |
| 19 | 15-511-08 | Long Foam Sponge | 2 |
| 20 | 15-511 | Foam Nozzle | 2 |
| 21 | 15-511-07 | Foam Nozzle Assembly | 1 |
| 22 | 15-511-01 | Foam Nozzle Sub Assembly | 1 |
| 23 | 14-291-15 | Shock Absorber | 4 |
| 24 | 14-284-05 | Extension Wire | 1 |
| 25 | 14-291-05 | Switch Box | 1 |
| | 15-506-02 | Switch | 1 |
| 26 | 14-284-11 | Solenoid Valve | 4 |
| 27 | 14-291-19 | Drain Plug | 1 |
| 28 | 14-291-18 | Drain Plug Seal | 1 |
| 29 | 14-291-21 | Tee, Hose Connector | 1 |

30-006 FRESH WATER WASH TANK - REAR MOUNT



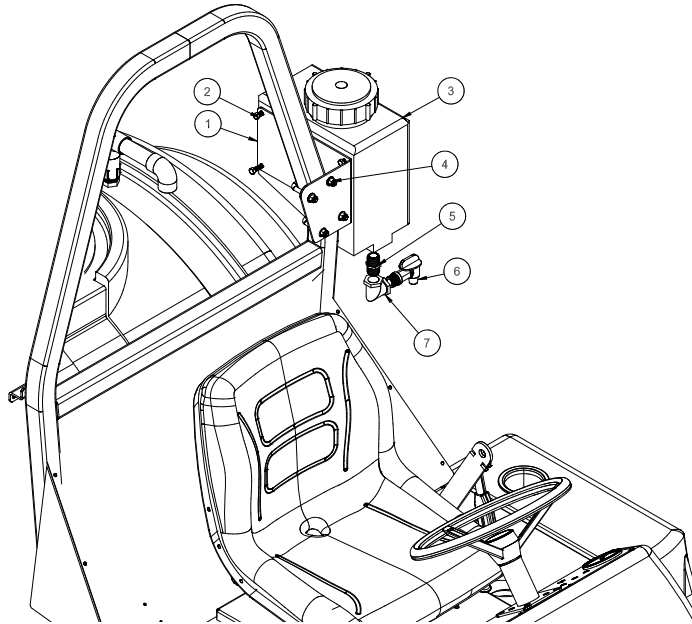
| REF# | PART# | DESCRIPTION | QUANTITY |
|------|---------------|---|----------|
| 1 | 10-234 | Wash Tank | 1 |
| 2 | 16-158 | Close Nipple | 1 |
| 3 | 16-151 | Elbow | 1 |
| 4 | 16-960 | Spigot | 1 |
| 5 | HB-516-18-075 | Hex Bolt, $\frac{5}{16}$ - 18 x $\frac{3}{4}$ | 4 |
| | HWL-516 | Lockwasher, $\frac{5}{16}$ | 4 |
| | HW-516 | Flat Washer, $\frac{5}{16}$ | 4 |

1. Fresh Water Wash Tank mounts on the rear of all the machines.
2. The Bracket is already attached to the Super Boom center boom post.
3. Install the nipple (Ref 2), elbow (Ref 3) and spigot (Ref 4) into the bottom of wash tank (Ref 1). Use thread tape on all threads.
4. Mount the tank onto the mount bracket using four $\frac{5}{16}$ x $\frac{3}{4}$ bolts, washers and lockwashers. Tighten.
5. Rinse tank with clear water and check for leaks around fittings.

WARNING

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

10-653 FRESH WATER WASH TANK -FRONT MOUNT



| REF# | PART# | DESCRIPTION | QUANTITY |
|------|---------------|---|----------|
| 1 | 10-652 | Mount Plate | 1 |
| 2 | HB-516-18-075 | Hex Bolt, $\frac{5}{16}$ - 18 x $\frac{3}{4}$ | 4 |
| | HWL-516 | Lock Washer, $\frac{5}{16}$ | 4 |
| | HW-516 | Flat Washer, $\frac{5}{16}$ | 4 |
| 3 | 10-234 | Wash Tank | 1 |
| 4 | 17-537 | Square U-Bolt | 2 |
| 5 | 16-158 | Close Nipple | 1 |
| 6 | 16-151 | Elbow | 1 |
| 7 | 16-960 | Spigot | 1 |

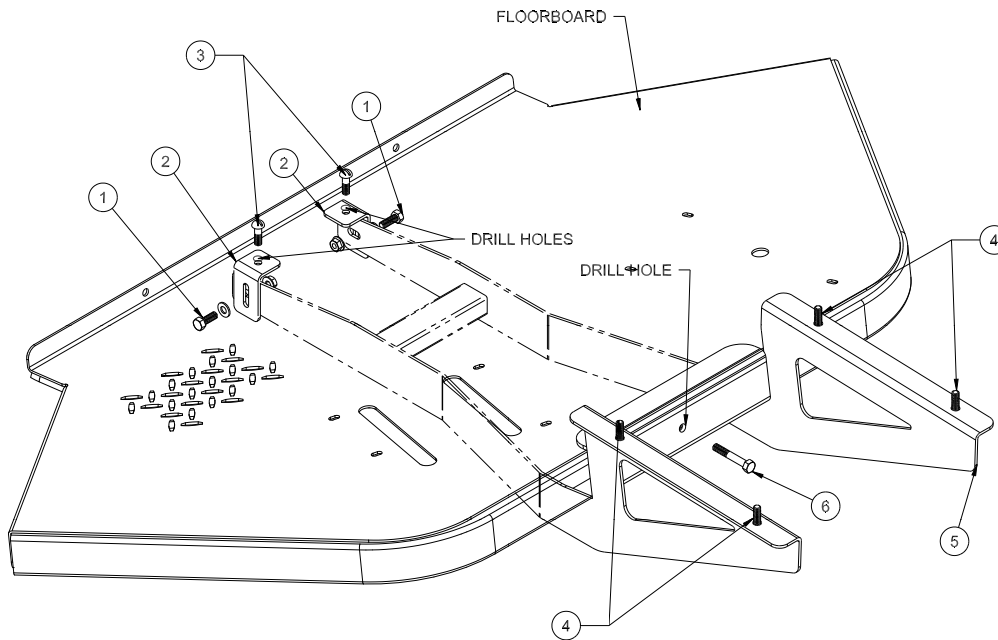
1. Fresh Water Wash Tank mounts on the left side Roll Bar.
2. Mount the wash tank (Ref 3) onto the mount bracket (Ref 1) using four $\frac{5}{16}$ x $\frac{3}{4}$ bolts, washers and lock-washers (Ref 2). Tighten.
3. Install the nipple (Ref 5), elbow (Ref 6) and spigot (Ref 7) into the bottom of wash tank (Ref 1). Use thread tape on all threads.
4. Mount the tank assembly to the left side Roll Bar with u-bolts (Ref 4). Tighten.
5. Rinse tank with clear water and check for leaks around fittings.



WARNING

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

10-734 16 GALLON RINSE TANK



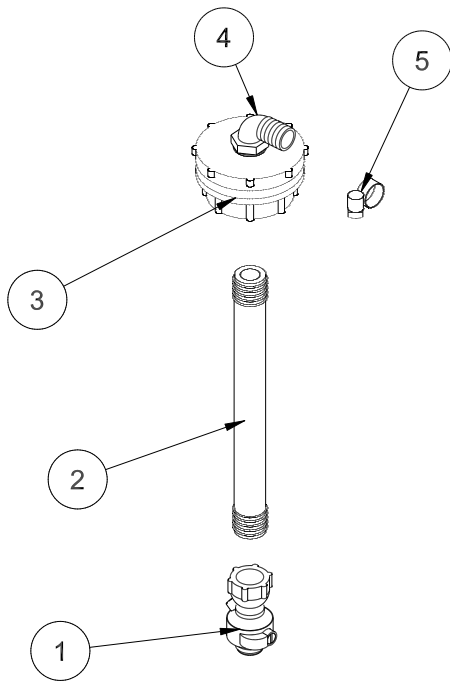
| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------------|--|----------|
| 1 | HB-516-18-075 | Hex Bolt, $\frac{5}{16}$ -18 x $\frac{3}{4}$ | 2 |
| | HW-516 | Flat Washer, $\frac{5}{16}$ | 2 |
| | HNFL-516-18 | Flange Whiz-loc Nut, $\frac{5}{16}$ - 18 | 2 |
| 2 | 10-738 | Mounting Bracket | 2 |
| 3 | HSTP-516-18-100 | Truss HEad Screw, $\frac{5}{16}$ -18 x 1 | 2 |
| | HNFL-516-18 | Flange Whiz-loc Nut, $\frac{5}{16}$ - 18 | 2 |
| 4 | HB-516-18-075 | Hex Bolt, $\frac{5}{16}$ -18 x $\frac{3}{4}$ | 2 |
| | HNFL-516-18 | Flange Whiz-loc Nut, $\frac{5}{16}$ - 18 | 2 |
| 5 | 10-737 | Rinse Tank Mount | 1 |
| 6 | HB-516-18-200 | Hex Bolt, $\frac{5}{16}$ -18 x 2 | 1 |
| | HNTL-516-18 | Lock Nut, $\frac{5}{16}$ - 18 | 1 |

You will have to drill 2 holes in the Floorboard of your Sprayer.

2. Mount the two mounting brackets (Ref 2) on the rinse tank mount(Ref 5) using $\frac{3}{4}$ " bolts and flange whiz-loc nuts (Ref 2).
1. Center the rinse tank mount on the front bumper and mark one $\frac{5}{16}$ hole on the front tubing and 2 on the rear of the floorboard where the mounting bracket lines up
3. Drill through the front tubing.
4. Place the 2" bolt (Ref 6) and fasten with a lock nut.
5. Drill the two holes in the floorboard. Using the 2 truss head screws and flange whiz-loc nuts(Ref3) secure the back of the rinse tank mount to the bottom of the floorboard.
6. Use the slots in the mounting brackets to adjust and tighten mount to main frame. Tighten all bolts.
7. Mount the 16 gallon tank on the rinse tank mount (Ref 5) using the $\frac{5}{16}$ hardware.
8. Make sure bolts are all tightened.

10-734 16 GALLON RINSE TANK

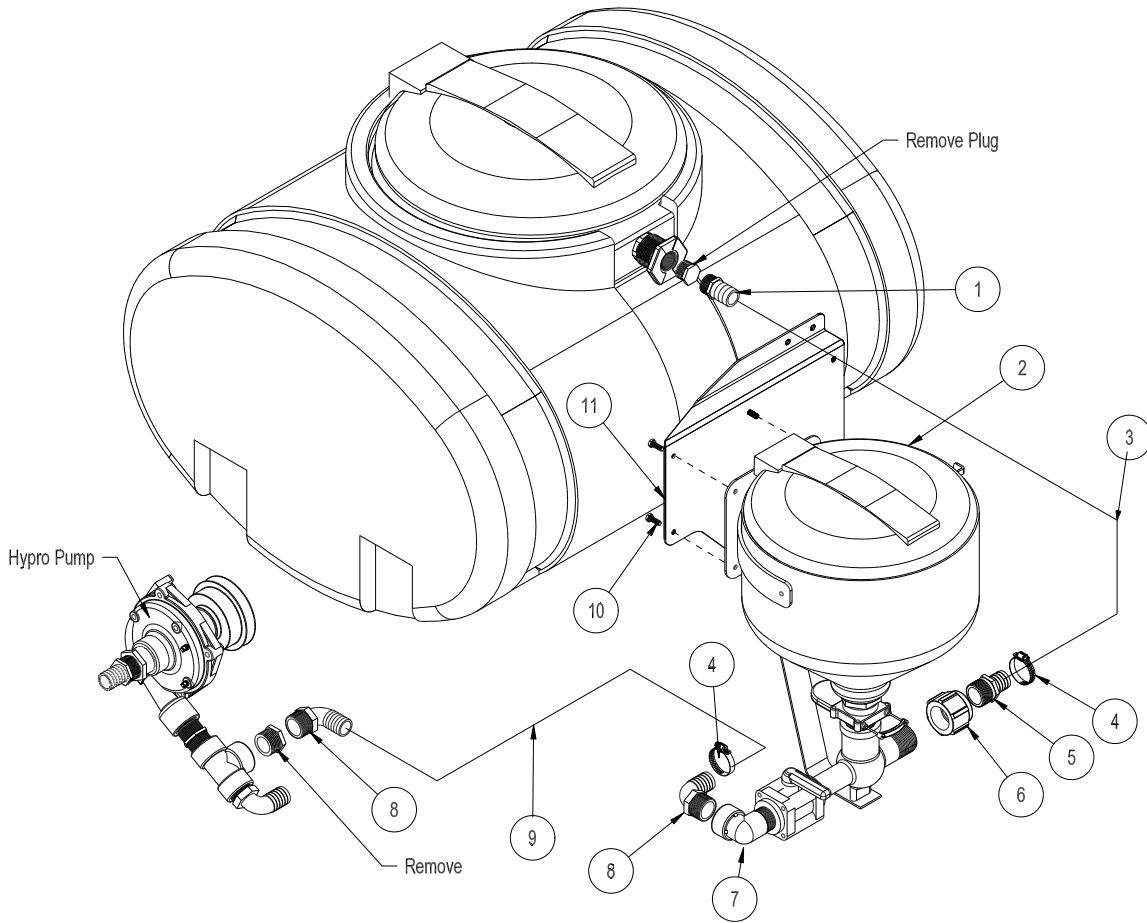
9. With wire cutter. Remove the alligator clamps from the ends of the pump wiring.
10. Strip about 1" on both ends of the black and red wires. Figure 1.
11. Slide on heat shrink and connectors. Figure 2.
12. Connect the 12' red wire to the red wire on the electric pump using the connector. Crimp the wires together. Figure 3 & 4.
13. Slide heat shrink over the connector. Figure 5.
14. Heat in place with just enough heat to melt shrink over connection. Do not over heat. Figure 6.
15. On the opposite end of the 12' black and red wire place a heat shrink and the slide on connector. Crimp the connector into place and place the heat shrink over the end of the wire. Heat the shrink into place. Figure 7.
16. Run the wire below the floorboard to the fuse box. Plug slide on connectors into fuse block.
17. Follow the instructions in the Spray Tanks Owner Manual for proper operation.



| REF# | PART# | DESCRIPTION | QUANTITY |
|------|--------|---------------------|----------|
| 1 | 30-246 | Tank Rinsing Nozzle | 1 |
| 2 | 30-247 | 8" Nipple | 1 |
| 3 | 33-495 | Bulk Head Fitting | 1 |
| 4 | 16-937 | Elbow | 1 |
| 5 | 18-186 | Clamp | 1 |

The rinsing system can be placed on any flat surface on the top of the spray tank as long as the hose from the 16 gallon spray tank will reach the elbow in the bulkhead. 1-5/8 " hole saw will be needed.

10-417 CHEMICAL CLEAN-LOAD®



TROUBLE SHOOTING

| Symptom | Corrective Action |
|--|--|
| Low education rate | <p>Check pump pressure and flow. Cleanload Eductor performance is based on flow and pressure to the system. Note requirements for high education rates.</p> <p>Increase outlet hose size back to tank.</p> |
| Plugged or clogged bottle rinse nozzle | <p>Disassemble rotary portion of nozzle from lower valve assembly and back flush until nozzle ports are clear of debris.</p> |
| Plugged or clogged tank rinse nozzle | <p>Disassemble rotary portion of nozzle from NPT hose barb and back flush until nozzle ports are clear of debris. Remove screen and flush with water to clear away foreign material.</p> |
| Fitting leaks | <p>Check for cracks in fitting. Replace fitting if necessary.</p> <p>Disassemble and add more joint seal in compound if leak occurs on threads.</p> |

10-417 CHEMICAL CLEAN-LOAD® PART LIST

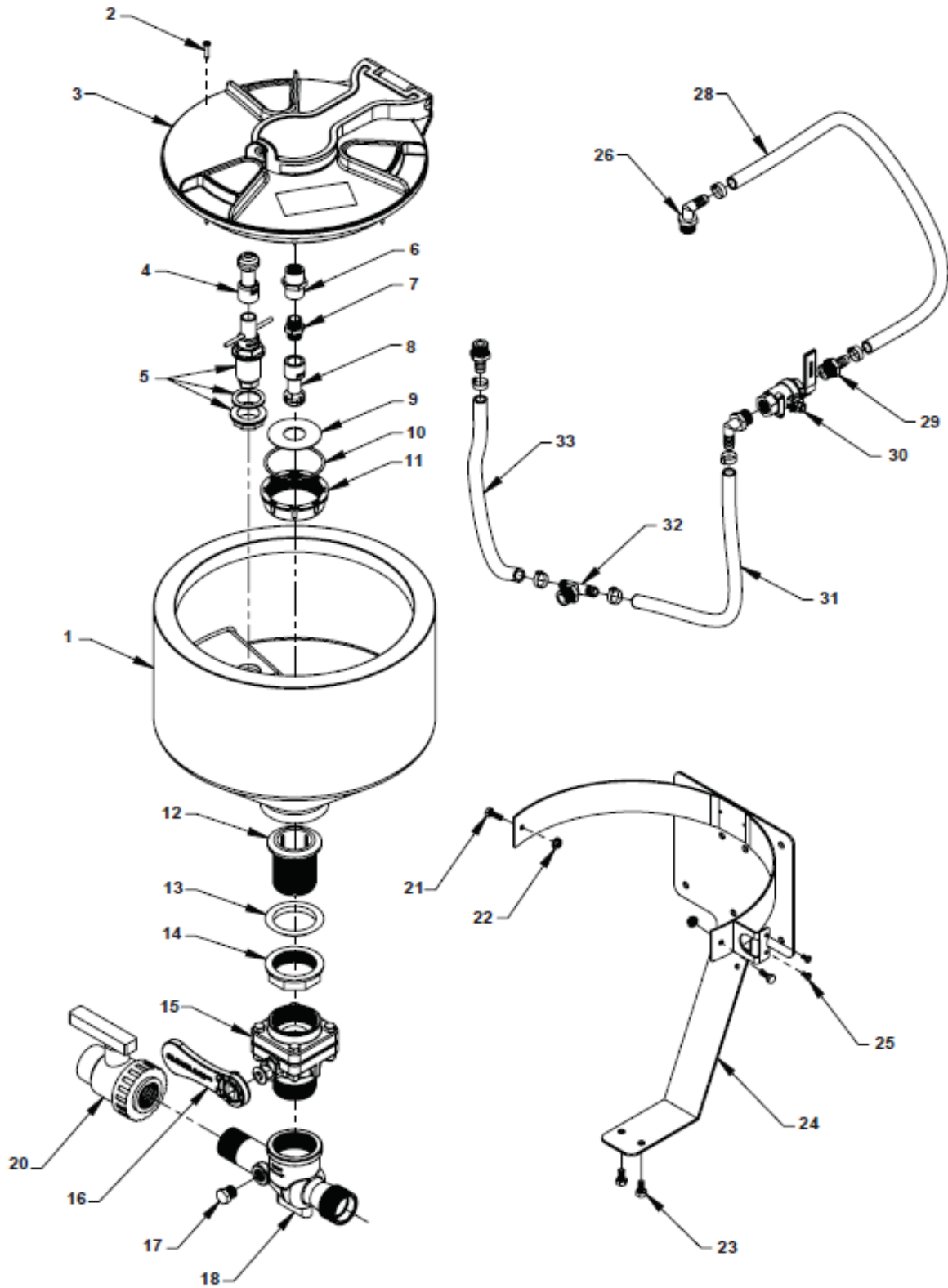
| REF# | PART # | DESCRIPTION | QUANTITY |
|------|-----------------|--|----------|
| 1 | 16-159 | Tank Fitting | 1 |
| 2 | 15-620 | Cleanload Eductor | 1 |
| 3 | 8897-41 | Hose to fitting on Back of Tank | 1 |
| 4 | 18-116 | Hose Clamps | 4 |
| 5 | 18-161 | Fitting | 1 |
| 6 | 18-391 | Reducer Coupling | 1 |
| 7 | 16-972 | Elbow | 1 |
| 8 | 16-156 | 90° Hose Barb | 2 |
| 9 | 8897-83 | Hose to Tee by Valve | 1 |
| 10 | HBFL-516-18-075 | Flange Bolt $\frac{5}{16}$ -18 x $\frac{3}{4}$ | 4 |
| | HNFL-516-18 | Flange Lock Nut $\frac{5}{16}$ -18 | 4 |
| 11 | 17-660 | Mount Bracket SOLD SEPERATELY | 1 |

INSTALLATION INSTRUCTIONS

1. Make sure all chemicals have been flushed out of spray system, as you will be disconnecting fittings from the pump. Remember to use threaded tape on all new fitting connections.
2. Remove the 1 $\frac{1}{4}$ " plug from the tee on the outlet side of the pump and install one hose barb (16-156). Then tighten so it points to the left side of the machine.
3. Install mounting brackets onto left side of center boom between boom pivot and vertical boom support. Secure with $\frac{3}{8}$ x 3 bolt, flatwasher (top and bottom) and lock nut.
4. Bolt cleanload assembly onto mounting bracket using four flange bolts $\frac{5}{16}$ -18-x $\frac{3}{4}$ and flange nuts. Install 90° fitting (16-972) into inlet side of Cleanload (valve with yellow handle). Install 90° hose barb (16-156) into the 16-972 then tighten.
5. Install one reducer coupling (18-391) and one straight Barb (16-161) onto the outlet side of Cleanload. Tighten.
6. Remove plug from top rear center of spray tank and discard. Install one hose barb (16-159) into tank fitting and tighten.
7. Route 80" hose from the 90° hose barb on spray pump to the inlet side of the Cleanload and secure with hose clamps (18-116).
8. Route 41" hose form 90° hose barb on outlet side on Cleanload to the hose barb on the top rear of the tank.
9. Make sure all hardware, fittings, and clamps are tight. Add about 25 gallons of water to the spray tank. **CLOSE** tank lid. Start Sprayer and circulate water through system and check for leaks.
10. Be sure to read start up and shutdown instructions for Cleanload assembly before using it with chemicals. When working with chemicals always wear protective clothing, goggles and gloves.

SPRAY TANK LID MUST BE CLOSED WHEN USING CLEANLOAD.

15-620 CHEMICAL CLEAN-LOAD® DRAWING



15-620 CHEMICAL CLEAN-LOAD® PARTS LIST

| REF# | PART# | DESCRIPTION | QUANTITY |
|------|-----------|--------------------------------|----------|
| 1 | 15-620-21 | Tank | 1 |
| 2 | | Screw, #6 x 1" | 8 |
| 3 | 15-620-02 | Tank Lid | 1 |
| 4 | 15-620-22 | ProClean Container Nozzle | 1 |
| 5 | 15-620-23 | ProClean Push Valve Assembly | 1 |
| | 15-620-19 | Tank Rinse | 1 |
| | 15-620-20 | Gasket, 1" | 1 |
| 6 | | 1/2 x 1/2 FNPT Coupler | 1 |
| 7 | | 1/2 x 1/2 Thread Nipple | 1 |
| 8 | | ProClean Tank Wash Nozzle | 1 |
| 9 | | Splash Retainer | 1 |
| 10 | | O-ring Breather | 1 |
| 11 | | Nut, Breather | 1 |
| 12 | 15-620-18 | Drain Head, 2" | 1 |
| 13 | 15-620-17 | Gasket: 2", Tapered | 1 |
| 14 | 15-620-16 | Locking Ring, 2" | 1 |
| 15 | 15-620-12 | Ball Valve | 1 |
| | 15-620-15 | Gasket: 2" BSP | 1 |
| 16 | 15-620-13 | Handle, Clean-load | 1 |
| 17 | | 1/2 MNPT PP Hex Plug | 1 |
| 18 | 15-620-04 | Clean-load Eductor | 1 |
| 20 | 15-620-14 | Ball Valve, 1 1/4 Single Union | 1 |
| 21 | | Screw | 2 |
| 22 | | Flange Nut | 2 |
| 23 | | Hex Head Screw | 2 |
| 24 | 15-620-01 | Frame, Back Mount | 1 |
| 25 | | Phillips Head Screw | 2 |
| 26 | 15-620-11 | Elbow 1/2" | 2 |
| 28 | 15-620-08 | Hose, Tank Rinse, 1/2" EPDM | 1 |
| 29 | 15-620-09 | Hose Barb 1/2 MNPT x 1/2 HB | 2 |
| 30 | 15-620-10 | Valve, SS Tank Rinse | 1 |
| 31 | 15-620-06 | Hose, Valve Feeder, 1/2" EPDM | 1 |
| 32 | 15-620-05 | Tee, 1/2 MNPT to 1/2 HB | 1 |
| 33 | 15-620-07 | Hose, Bottle Rinse, 1/2" EPDM | 1 |

10-417 CHEMICAL CLEAN-LOAD® OPERATING INSTRUCTIONS

START-UP

1. All Clean-load valves must be closed prior to starting: inlet ball valve, knife valve and hopper rinse ball valve.
2. Open lid to check for foreign objects which may hinder performance or contaminate the system.
3. Close and lock lid by turning cover clockwise.
4. Divert pump flow to Clean-load inlet line. A pressure of 30 PSI minimum and 150 PSI maximum must be used. Highest pressures increase education rate and available wand suction.
5. Turn inlet ball valve on (yellow handle).
6. Open knife valve, located on the bottom of hopper, by pushing handle in (red handle).
7. Unlock and open lid slowly by turning cover counterclockwise.

LOADING LIQUID OR POWDERED CHEMICAL INTO HOPPER

8. Pour required amount of chemical into hopper. Avoid splashing liquids or powdered chemicals outside of hopper.
9. Rinse empty chemical containers if applicable. Place container opening over container rinse valve and press down. This will activate the rinse valve and rinse container.
10. Rinse Clean-load hopper. Close and lock lid by turning cover clockwise. Release the safety locking band on the hopper rinse ball valve and turn on for 20 seconds. Close ball valve and return locking band to locked position.
11. Open lid and inspect for chemical residue. Repeat step 10 as necessary.
12. Close knife valve by pulling red handle out towards you. Turn inlet (yellow handle) off.

LOADING LIQUID AND/OR POWDERED CHEMICAL WITH SUCTION LANCE

Note: Lance suction is dependent upon eductor pressure and flow. For best results, use highest pressure available up to 150 PSI maximum.

8. Insert lance body with o-ring into eductor until the o-ring is sealed.
9. Use the free end of the lance to pierce bag or container to vacuum powdered or liquid chemical.
10. Rinse lance. Place lance end into a clean container of water to rinse lance assembly.
11. Remove lance body from eductor and drain any remaining fluid into hopper.
12. Close knife valve (red handle). Turn inlet valve (yellow handle) off.

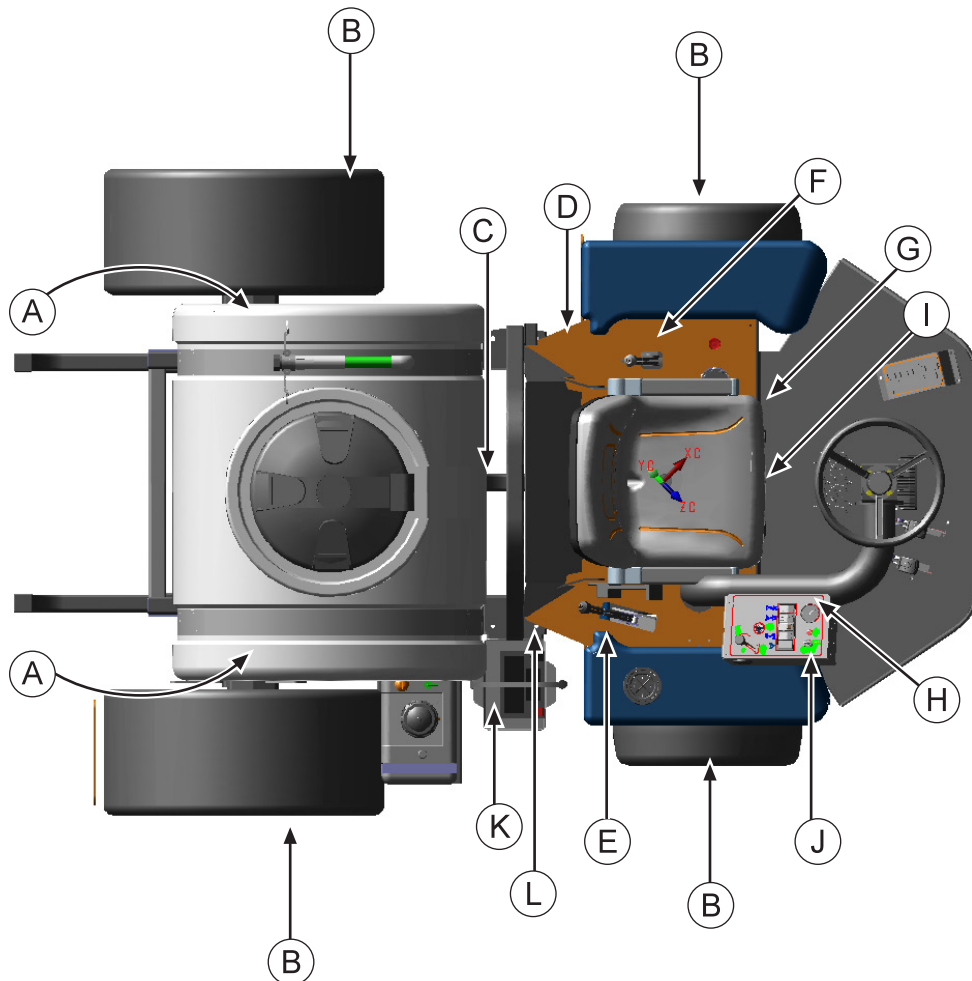
SHUTDOWN

1. Ensure that:
 - All valves are closed. Be sure to close knife valve first. (Close by pulling red handle out towards you.)
 - Chemical residue has been cleaned.
 - Hopper lid is closed and locked by turning cover clockwise.
2. Divert pump flow back to normal operation.

DECAL LIST

This is a list of decals located on the Spray Star 1110. Part number, description and location will help in reordering a decals.

| | | |
|---|--------|---------------------------------|
| A | 10-743 | Decal, Spray Star 1110 |
| B | 25-356 | Decal, Tire Pressure 20psi |
| C | 25-352 | Decal, Bypass Valve |
| D | 25-298 | Decal, Warning Hot |
| E | 15-719 | Decal, Speed Control |
| F | 27-093 | Decal, Oil Level |
| G | 25-370 | Decal, 88 dba |
| H | 15-463 | Decal, Spray Pump |
| I | 25-373 | Decal, Smithco |
| J | 10-657 | Decal, Control Panel |
| K | 25-277 | Decal, Battery Warning |
| L | 14-803 | Decal, Clean Agitation Strainer |



Reference

QUICK REFERENCE REPLACEMENT PARTS

REPLACEMENT FILTERS

| | | |
|-----------|--|----------------|
| 23-031 | Hydraulic Oil Filter Element 25 Micron | |
| 10-575-04 | Engine Oil Filter | Briggs# 492932 |
| 10-575-02 | Air Filter | Briggs# 692519 |
| 10-575-03 | Air Filter Pre-Cleaner | Briggs# 692520 |
| 50-403 | In-Line Fuel Filter | |

REPLACEMENT BELTS

| | |
|--------|---------------------------------|
| 42-359 | Belt (engine to hydrostat pump) |
| 15-704 | Belt (engine to Hypro® Pump) |

SEAL KITS

| | |
|-----------|----------------------------|
| 15-301 | Orbital |
| 15-301-01 | Repair Kit |
| 77-263 | Hydraulic Cylinder |
| 14-530 | Seal Kit |
| 10-510 | Wheel Motor |
| 14-080 | Seal Kit |
| 45-373 | DDC20 Piston Pump |
| 45-373-01 | Overhaul Kit |
| 16-998 | Hypro® Pump |
| 16-967 | Silicone - Carbon Seal Kit |

FLUIDS

| | |
|-----------------|---|
| Engine Oil | SAE 10W-40 API Service SJ or higher Motor Oil |
| Hydraulic Fluid | SAE 10W-40 API Service SJ or higher Motor Oil |

OTHER PARTS

| | |
|-------------|--|
| 13-488 | Key Switch |
| 8-709 | Key Set |
| 14-532 | Hinged Cover On Tank with Gasket |
| 16-953-01 | Gasket For Cover |
| 16-169 | Strainer Basket |
| 15-818 | #75 Fitting O-ring |
| 15-817 | #50 Fitting O-ring |
| Spark Plugs | Champion type RC12YC (Gap 0.030 inch (.76 mm)) |

The Smithco Commercial Products Two-Year Limited Warranty

Smithco, Inc. (Smithco) warrants your 2016 or newer Smithco Commercial Product (“Product”) purchased after October 1, 2016 to be free from defects in materials or workmanship for the period of time listed below. Where a warrantable condition exists, Smithco will repair the Product at no cost to you including diagnosis, labor (at the Smithco standard labor rate, subject to the Smithco flat rate schedule), and parts.

Warranty Duration is:

- (1) Two years, 1500 operational hours* from the date of delivery to the original purchaser or Five years from the date of original manufacturer of the product, whichever occurs first. (*Products equipped with hour meter).
- (2) Products used in rental situations are covered for 90 days from date of delivery to original user/renter.

Owner Responsibilities:

As the Product owner, you are responsible for required maintenance and adjustments stated in your Owner’s Manual. Failure to perform required maintenance and adjustments can be grounds for disallowing a warranty claim. **You are particularly responsible to train all present and future operators of this product on the safe operation of this product at your location.**

Instructions for Obtaining Warranty Service:

You are responsible for notifying the Authorized Smithco Products Distributor from whom you purchased the Product as soon as you believe a warrantable condition exists and not later than 30 days from discovery of the condition.

If you need help locating an Authorized Smithco Distributor, or if you have questions regarding your warranty rights or responsibilities, you may contact us at:

Smithco Product Support Department
200 West Poplar Ave.
Cameron, Wisconsin 54822
Telephone: 800-891-9435 E-Mail: ProductSupport@Smithco.com

Maintenance Parts:

Parts scheduled for replacement as required maintenance (“Maintenance Parts”), are warranted for the period of time up to the scheduled replacement time for that part.

Items/Conditions Not Covered:

Not all product failures or malfunctions that occur during the warranty period are defects in materials or workmanship. The items/conditions listed below are not covered by this warranty:



Product failures which result from the use of non-Smithco replacement parts, or from installation and use of add-on, modified, or unapproved accessories are not covered.



Product failures which result from failure to perform required maintenance and/or adjustments are not covered.



Product failures that result from operating the Product in an abusive, negligent or reckless manner are not covered.



This warranty does not apply to parts subject to consumption through use, unless found to be defective. Examples of parts which are consumed, or used up, during normal Product operation include, but are not limited to: blades, tines, teeth, scarifiers, rakes, plates, wear plates, castor wheels, tires, batteries, filters, belts, nozzles, etc.



This warranty does not apply to failures caused by outside influence. Items considered to be outside influence include, but are not limited to, weather, storage practices, contamination, use of unapproved coolants, lubricants, additives, or chemicals, etc.



This warranty does not apply to normal “wear and tear” items. Normal “Wear and Tear” includes, but is not limited to, damage to seats due to wear or abrasion, worn painted surfaces, scratched decals or windows, etc.



Smithco may require the return of failed parts or components in order to determine the validity of any warranty claim.



Smithco will not be obligated to replace components of other manufacturers if inspection by the original component manufacturer indicates that failure was due to normal wear and tear, expected consumption through use or improper care or service.

Other Legal Disclaimers:

The above remedy for product defects through repair or replacement by an authorized Smithco distributor or dealer is the purchaser’s sole remedy for any defect. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

THERE ARE NO OTHER EXPRESS WARRANTIES OTHER THAN THOSE SET FORTH ABOVE. ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR USE ARE LIMITED TO THE DURATION OF THE LIMITED WARRANTIES CONTAINED HEREIN.

Some states may not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

THE SMITHCO COMPANY IS NOT LIABLE FOR INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH THE USE OF THE PRODUCT, INCLUDING ANY COST OR EXPENSE OF PROVIDING A SUBSTITUTE PRODUCT OR SERVICE DURING PERIODS OF MALFUNCTION OR NON-USE.

Some states may not allow the exclusion of indirect, incidental or consequential damages, so the above exclusion may not apply to you.

Smithco neither assumes, nor authorizes any person to assume for it, any other liability in connection with the sale or use of this product.

