



Spray Star 1200

Truck Model 20-500-D

Manual System 1201
TeeJet Radion[®] 8140 1202
TeeJet[®] 744 1204
TeeJet Radion/DynaJet[®] 1207/1208
Ag Leader[®] 1215/1218/1220

SN: 12305

Product Support:

Hwy 55 & Poplar Ave; Cameron WI 54822

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

Read this manual and all other manuals pertaining to the Spray Star 1200 carefully as they have safety, operating, assembly and maintenance instructions. Failure to do so could result in personal injury or equipment damage.

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

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 1200 is located on right mainframe behind exhaust. 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.

Model Number: _____

Serial Number: _____

Date of Purchase: _____

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SAFE PRACTICES

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

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 1200

WEIGHTS AND DIMENSIONS

Length	127" (323 cm)
Width	65" (165 cm)
Width With 18' Boom Open	240" (610 cm)
Height w/ Roll Bar	78" (195 cm)
Height w/ 18' Booms Folded	110" (279 cm)
Wheel Base	68" (173 cm)
Weight Empty	1877 lbs (851 kg)
Weight Full	3626 lbs (1645 kg)

SOUND LEVEL (DBA)

At ear level	92 dBA
At 3 ft. (0.914 m)	98 dBA
At 30 ft. (9.14 m)	88 dBA

ENGINE

Make	Briggs & Stratton
Model#	613477
Type / Spec#	4246-J1
Horsepower	35 hp (26 kW)
Fuel	Unleaded 87 Octane Gasoline Minimum
Cooling System	Air Cooled
Lubrication System	Full Pressure
Alternator	20 Amp

WHEELS & TIRE

Front: Two 20 x 10.00 x 10 NHS Multi-Rib; 20 psi (1.4 bar)
Rear: Two 24 x 13.00 x 12 NHS Multi-Trac; 20 psi (1.4 bar)

SPEED

Infinitely Variable 0-9 m.p.h. (0-14.5 kph)

BATTERY

	Automotive type 24F - 12 volt
BCI Group	Size 24
Cold Cranking Amps	900 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	10 gallon (45.46 liters)
Hydraulic Fluid	5 gallon (19 liters)
Grade of Hydraulic Fluid	SAE 10W-40 API Service SJ or higher Motor Oil

OPTIONAL EQUIPMENT

20-815	Water Meter Kit (Gallons)	15-835 Tank Rinsing System
15-619	Chemical Clean-load	
20-860	Sun Shade	30-006 Fresh Water Wash Tank
15-965	Foam Marker	15-968 20 Gal. Rinse Tank
17-601	15' HD Boom	17-585 18' HD Boom
17-580	20' HD Boom	15-967 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.

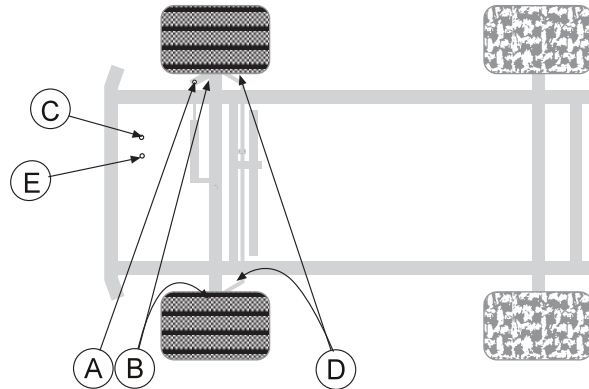
IMPORTANT

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 1200 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.

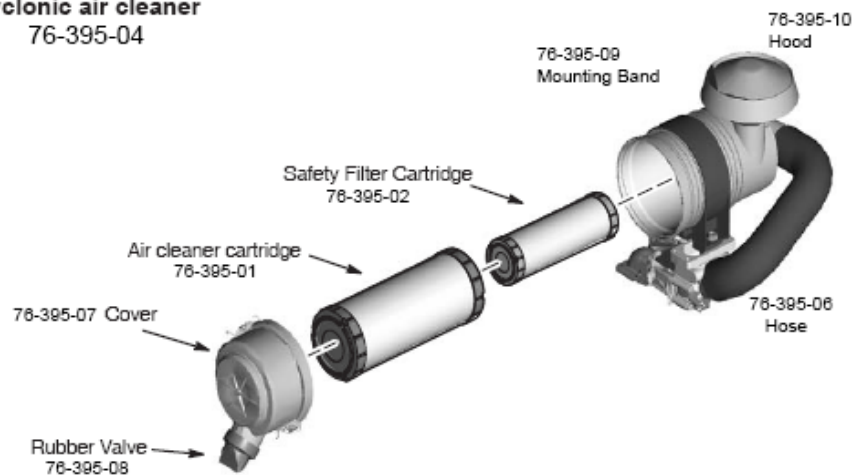
AIR CLEANER ON ENGINE

- Unclip the two clips, remove the cover and pull out the element.
- To service, clean by tapping gently on flat surface. Do not oil. Replace if very dirty or damaged.
- Clean out the inside of the body and cover.
- Place the element into the body and put the cover back on..

IMPORTANT

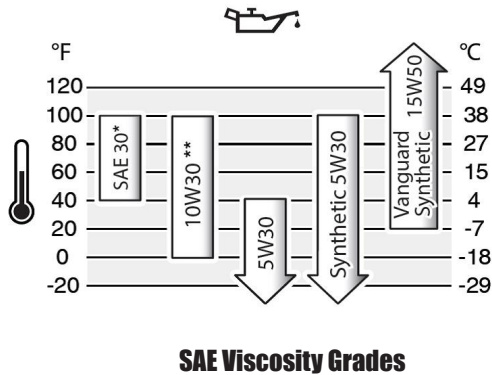
Do not use petroleum solvents, e.g., kerosene, which will cause cartridge to deteriorate. Do not use pressurized air to clean cartridge. Pressurized air can damage cartridge.

Cyclonic air cleaner 76-395-04



ENGINE OIL

Change and add oil according to chart below based on air temperature at the time of operation. Do not overfill. Use a high-quality detergent oil classified for service SF, SG, SH, SJ or higher. Use no special additives with recommended oils. Do not mix oil with gasoline.



SAE Viscosity Grades

A quick twist and pull motion to open, push to close. Allows a quick and easy way to change oil without the mess



Engine Oil Drain Valve

HYDRAULIC OIL

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

TIRE PRESSURE

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

WHEEL MOUNTING PROCEDURE

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

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.

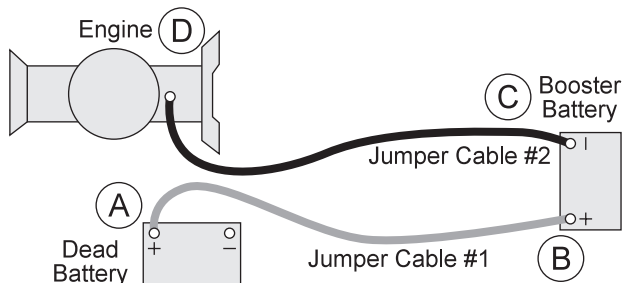
⚠ WARNING

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.

⚠ 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.

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

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&2} 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.. Service exhaust system. 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 Replace air filter ² Replace fuel filter Clean air cooling system. ¹ Check safety filter in remote air cleaner.

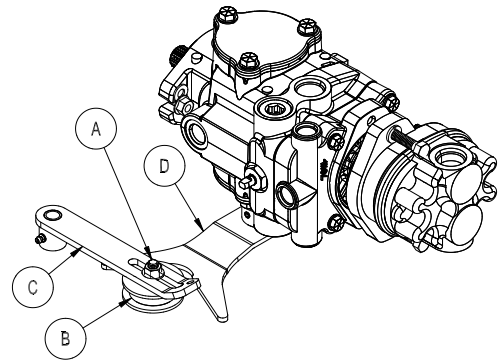
¹ In dusty conditions or when airborne debris is present, clean more often.

² Every third air filter change, replace the inner safety filter.

WHEEL CREEP

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

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



SPRAY PUMP WITH BELT

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

PARK BRAKE

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

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 spray systems. By pushing down it will turn on/off the booms.

GROUND SPEED CONTROL (FOOT SWITCH)

The ground speed control does not work the same as an automotive type cruise. The ground speed control is located on the left floorboard and is used to lock forward speed.

TO ENGAGE:

1. Flip rocker switch 'On' (green light).
2. Obtain desired speed with foot pedal.
3. Step on foot switch to lock speed.
4. Push foot switch again to disengage.

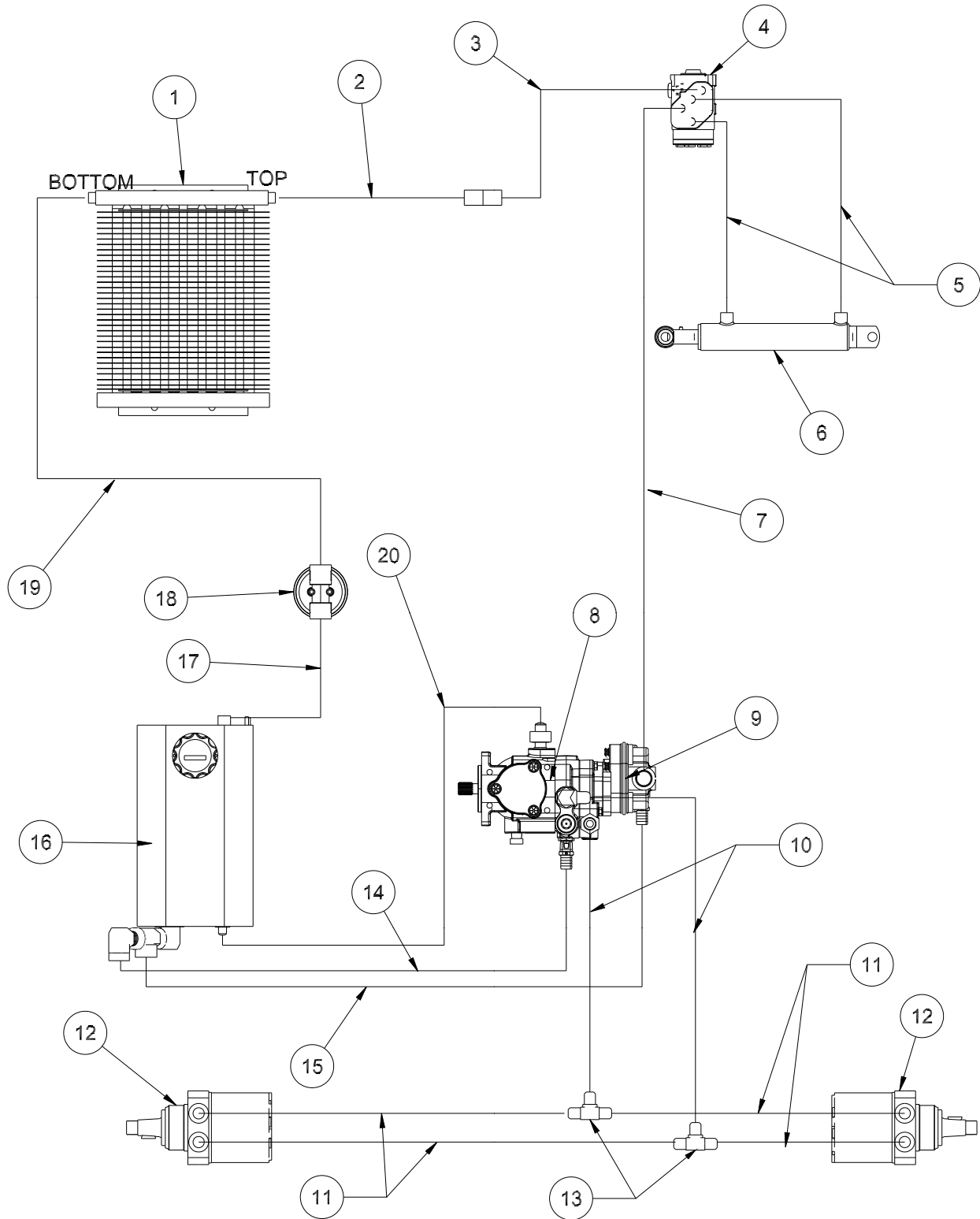
SPRAY BOSS CONTROL - ORANGE

Engages and disengages 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 PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	30-356	GPS Speedometer	1
2	12-804	Hour Meter	1
3	20-912	LED Light	1
4	Lights		
	15-782	Non-Lighted Switch, On-None-Off	1
	15-727	Rocker - No light	1
5	Cruise		
	15-726	Lighted Switch	1
	15-732	Rocker - Green	1
6	Pump		
	15-726	Lighted Switch	1
	15-731	Rocker - Amber	1
7	Left Boom		
	15-727	Rocker - No light	1
	15-728	Centering Switch, Momentary, On-Off-On	1
8	Right Boom		
	15-728	Centering Switch, Momentary, On-Off-On	1
	15-727	Rocker - No light	1
9	30-214	Boom Actuator	2
10	15-970	Spray Pump	1
11	33-480	Pressure Switch	1
12	77-207	Buzzer	1
	8874	Female Bullet	1
	8875	Male Bullet	2
	8963	Heat Shrink	2
13	33-084	Magnetic Coil	1
14	76-749	Briggs & Stratton 35 HP Engine	1
15	76-327	Negative Battery Cable	1
16		Solenoid	1
17	75-518	Red Battery Cable	1
18	33-216	Battery	1
19	77-261	40 Amp Circuit Breaker	1
	8977	Red Circuit Breaker Boot	1
20	14-292	Seat Switch	1
21	13-488	Key Switch	1
	8-709	Key Set	1
22	20-730-01	GPS Antenna (part of speedometer)	1
23	32-576	Dual USB Power Charger	1
24	50-359	Oil Temperature Light	1
25	30-042-06	Relay	1
26	33-509	Master Boom Switch	1
28	8931	10GA White Wire	20"
	8928	⁵ / ₁₆ Ring Terminal	1
	8912	³ / ₁₆ Ring Terminal	1
	8963	Heat Shrink	2
29	8919	10GA Red Wire	26"
	8928	⁵ / ₁₆ Ring Terminal	1
	8912	³ / ₁₆ Ring Terminal	1
	8963	Heat Shrink	2
30	33-271	Fuse Panel	1
	15-941	Wire Harness	1
	15-966	8-Pin Connector	1

HYDRAULIC DIAGRAM



Diagrams

HYDRAULIC DIAGRAM PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	15-624	Cooler	1
2	15-982	Hydraulic Hose, 35"	1
3	15-946	Hydraulic Hose, 74"	1
4	15-301	Orbital	1
5	10-671	Hydraulic Hose, 65"	2
6	15-839	Hydraulic Cylinder	1
	15-839-01	Seal Kit	1
7	15-945	Hydraulic Hose, 76.5"	1
8	76-638	Hydrostatic Pump	1
9	76-197	Gear Pump	1
10	15-682	Hydraulic Hose, 46 ³ / ₄ "	2
11	20-656	Tube Assembly	4
12	76-238	Wheel Motor	2
13	34-057	Tee	2
14	8832	³ / ₄ " Suction Hose x 29"	29"
	18-040	Hose Clamp	2
15	8832	³ / ₄ " Suction Hose x 30"	30"
	18-040	Hose Clamp	2
16	60-473	Hydraulic Oil tank	1
17	8917	³ / ₈ " Suction Hose x 16"	16"
	18-040	Hose Clamp	2
18	26-016	Oil Filter	1
	23-031	Replacement Filter	1
19	15-948	Hydraulic Hose, 16.5"	1
20	15-981	Hydraulic Hose, 32"	1

PUMP DISPLACEMENT

76-638 Hydrostatic Pump

Displacement	Variable to 1.44 in ³ /R (23.6 cm ³ /R) 22.44 gpm (84.94 lpm) at 3600 rpm
Max Operating Speed	3600 rpm
Rated Pressure	3000 psi (206.8 bar)
Max Pressure	5000 psi (344.7 bar)
Max Inlet Vacuum	6 in Hg (.203 bar)
Max Inlet Temperature	225°F (107°C)
Max Allowable Case Pressure	25 psi (1.72 bar)

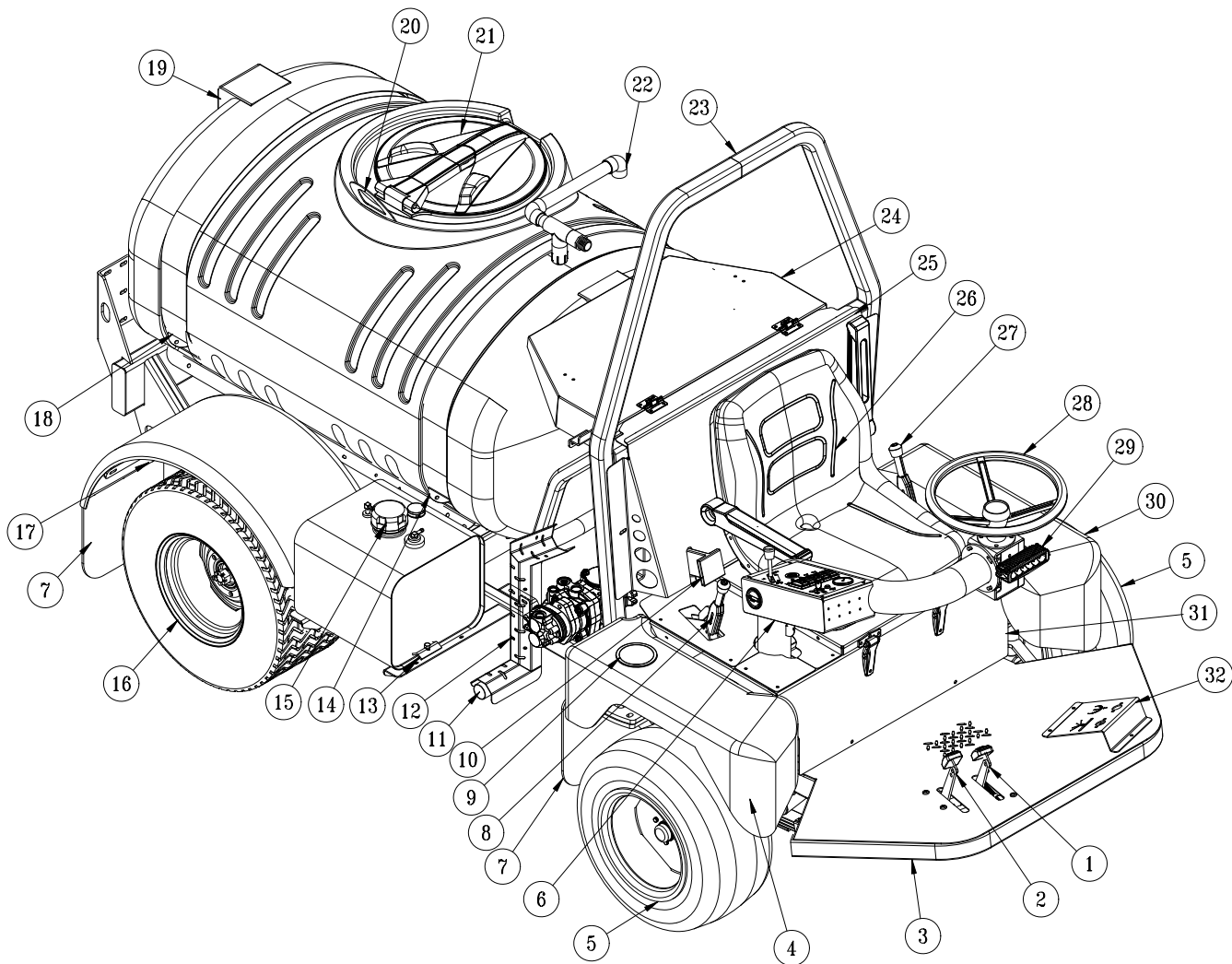
76-197 Gear Pump

Displacement	.40 in ³ /R (6.6 cm ³ /R) 6.23 gpm (25.39 lpm)
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CAUTION

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

MAIN DRAWING



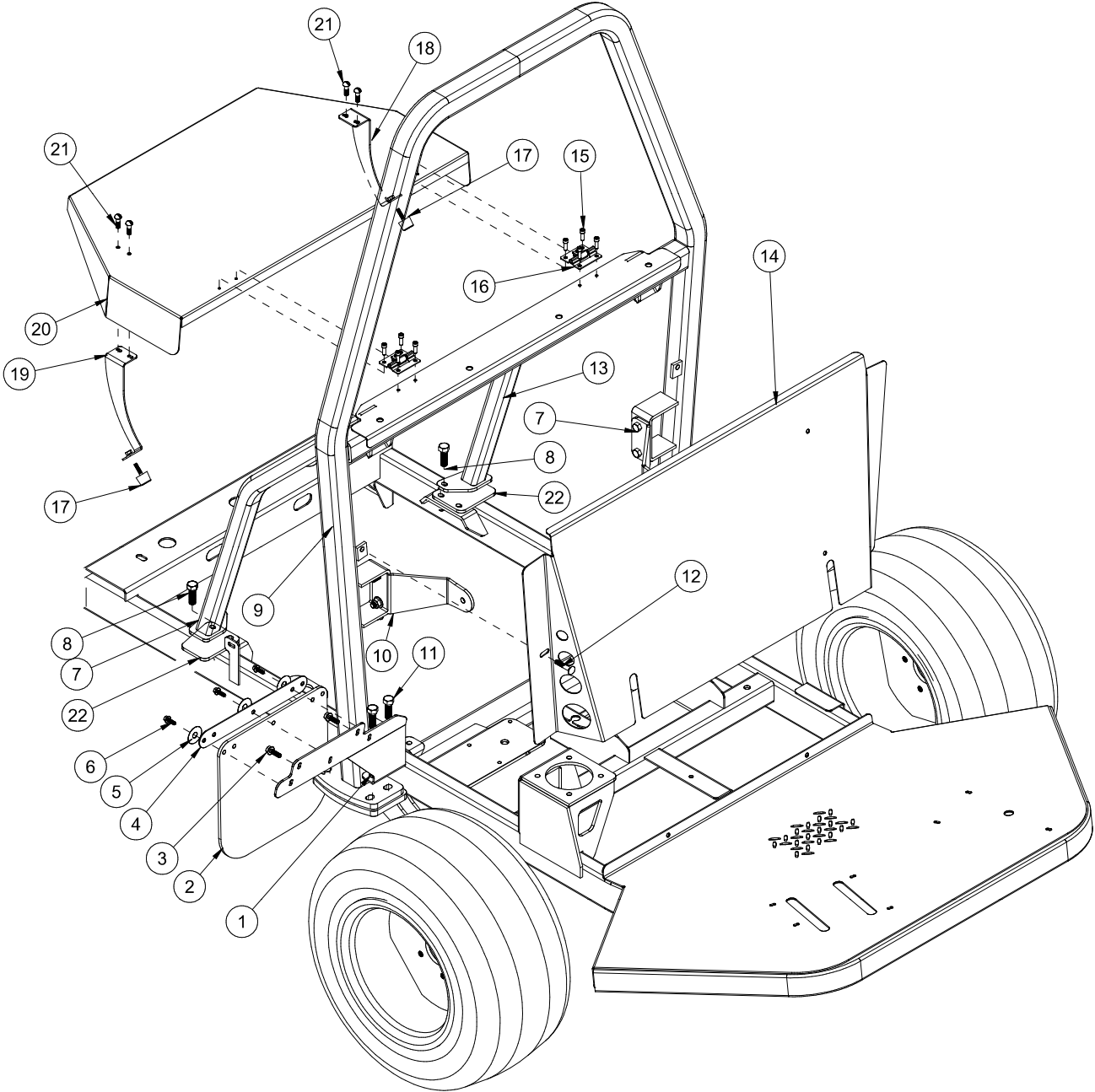
Parts

BODY & FRAME PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	10-678	Reverse Pedal	1
2	10-677	Forward Pedal	1
3	20-875	Main Frame	1
4	30-404	RH Front Fender	1
5	16-857	Front Tire and Wheel	2
	16-857-01	Tire, 20 x 10.00 - 10NHS 4 Ply	2
	42-161-02	Wheel	2
6	10-683	Side Control Arm	1
	10-684	Control Panel	1
7	20-659	Mud Flap	4
8	60-106	Park Brake Handle	1
9	15-781	Drink Cup Holder	1
10	76-198-03	Seat Belt	1
11	15-962	Tailpipe	1
12	15-963	Tailpipe Guard	1
13	75-792	Tank Hold Down	2
14	20-812	Front Tank Strap	1
15	20-692	10 Gallon Fuel Tank	1
	20-694	Fuel Cap	1
16	16-225	Rear Tire and Wheel	2
	16-225-01	Tire, 24 x 13.00 - 12NHS 4 Ply	2
	16-225-02	Wheel	2
17	10-168	Rear Fender	2
18	20-811	Rear Tank Strap	1
19	20-802	200 Gallon Spray Tank	1
	16-169	Strainer Basket	1
20	10-639	Lid Stop	1
21	16-953	Lid	1
	16-953-01	Gasket for Lid	1
22	15-964	Air Gap Filler	1
23	20-886	Roll Bar	1
	20-888	RH Roll Bar Leg	1
	20-890	LH Roll Bar Leg	1
24	15-936	Engine Hood	1
25	15-934	Back Panel	1
26	14-294	Seat kit	1
	10-706	Arm Rests	1
27	10-120	Speed Boss Handle	1
28	20-057	Steering Wheel	1
	20-129	Center Steering Wheel Cap	1
29	20-912	LED Head Light	1
30	30-405	LH Front Fender	1
31	10-680	Seat Frame	1
32	10-705	Foot Rest	1



ENGINE HOOD & ROLL BAR DRAWING

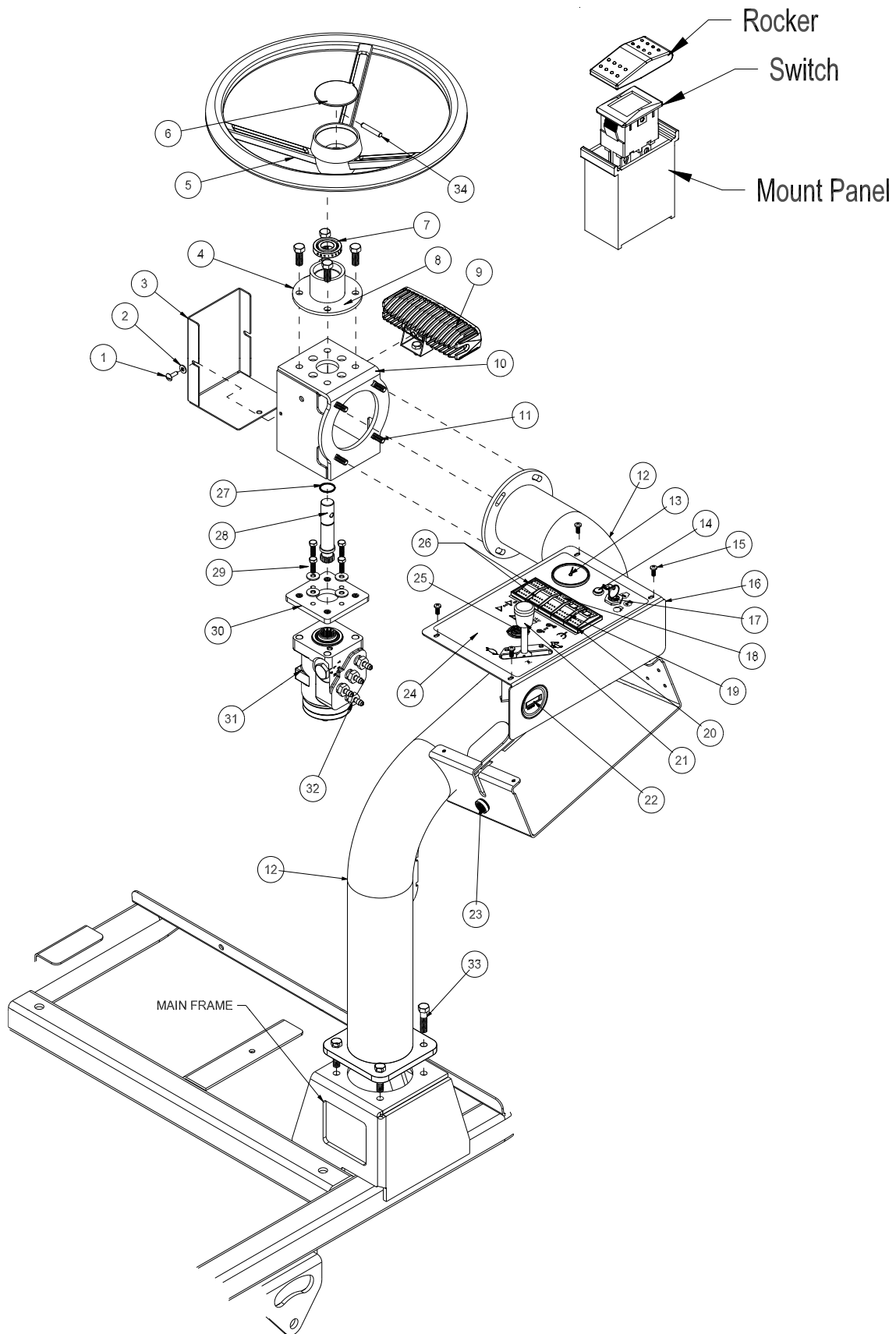


PARTS

ENGINE HOOD AND ROLL BAR PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	15-940	RH Fender Brace	1
	15-939	LH Fender Brace (not shown)	1
2	20-659	Mud Flap	2
3	HBCL-516-18-100	Carriage Bolt, $\frac{5}{16}$ -18 x 1	4
	HNFL-516-18	Flange-Loc Nut, $\frac{5}{16}$ - 18	4
4	20-660	Mud Flap Strap	2
5	HWF-14-150	Fender Washer, $\frac{1}{4}$ x $1\frac{1}{2}$	6
6	HB-14-20-075	Hex Bolt, $\frac{1}{4}$ -20 x $\frac{3}{4}$	6
	HNFL-14-20	Flange-Loc Nut, $\frac{1}{4}$ - 20	6
7	20-888	RH Roll Bar Leg	1
8	HB-38-16-150	Hex Bolt, $\frac{3}{8}$ - 16 x $1\frac{1}{2}$	2
	HNTL-38-16	Lock Nut, $\frac{3}{8}$ - 16	2
9	20-886	Roll Bar	1
10	15-935	Seat Belt Bracket	2
	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
11	HB-12-13-175	Hex Bolt, $\frac{1}{2}$ - 13 x $1\frac{3}{4}$	10
	HW-12	Flat Washer, $\frac{1}{2}$	10
	HNTL-12-13	Lock Nut, $\frac{1}{2}$ - 13	10
12	HB-38-16-075	Hex Bolt, $\frac{3}{8}$ -16 x $\frac{3}{4}$	2
	HNFL-38-16	Flange-Loc Nut, $\frac{3}{8}$ -16	2
13	20-890	LH Roll Bar Leg	1
14	15-934	Back Panel	1
	9023	Heat Reflective Matting (18 x 25.5)	1 Sheet
15	HSM-10-32-063	Machine Screw, 10-32 x $\frac{5}{8}$	8
	HNFL-10-32	Flange-Loc Nut, 10 - 32	8
16	32-695	Adjustable Hinge	2
17	15-013	Rubber Bumper	2
	HNFL-14-20	Flange-Loc Nut, $\frac{1}{4}$ - 20	2
18	20-879	LH Hood Stand	1
19	20-880	RH Hood Stand	1
20	15-936	Engine Hood	1
21	HSTP-516-18-075	Truss Head Screw, $\frac{5}{16}$ -18 x $\frac{3}{4}$	4
	HNFL-516-18	Flange-Loc Nut, $\frac{5}{16}$ - 18	4
22	20-913	Roll Bar Spacer	2

CONTROL PANEL AND STEERING DRAWING

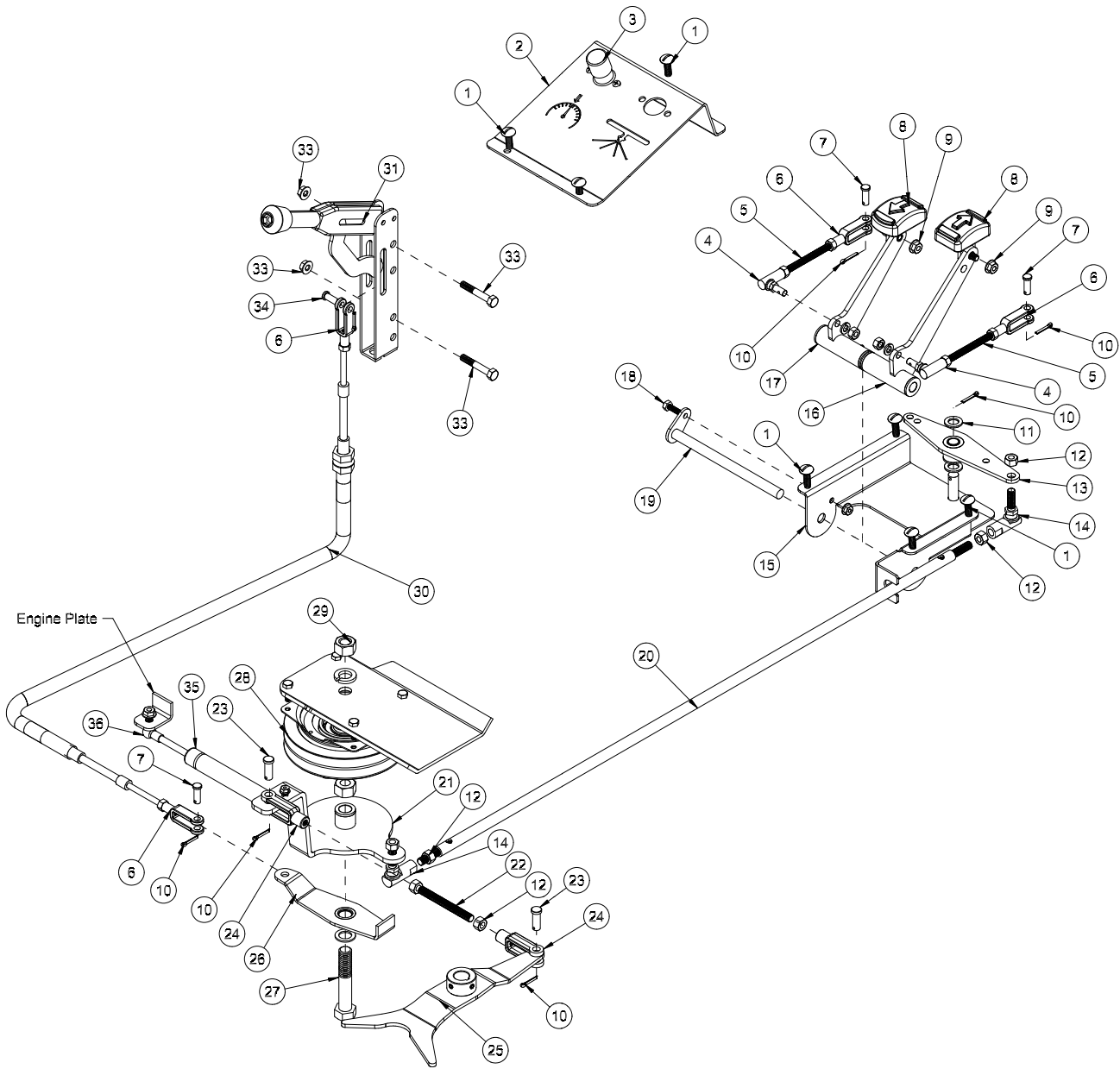


PARTS

CONTROL PANEL AND STEERING 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	20-912	LED Head Light	1
	HSM-10-32-063	Machine Screw, #10-32 x 5/8	2
	HW-10		
	HNFL-10-32	Flange Whiz-loc Nut, #10-32	2
10	10-682	Steering Box	1
11	HBCL-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	Key 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	Cruise Control		
	15-732	Green Rocker	1
	15-726	Lighted Switch	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
	8963	Heat Shrink	2
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-6-1-20	Metric Bolt, #6 - 1 x 20	4
30	10-689	Orb Adapter	1
31	15-301	Orbtiro	1
32	18-169	3/8 Adapter Fitting	4
33	HB-38-16-100	Hex Bolt, 3/8-16-100	4
	HWL-38-16	Lock Washer, 3/8	4
34	HRP-14-150	Roll Pin, 1/4 x 1 1/2	1

FOOT PEDAL LINKAGE DRAWING

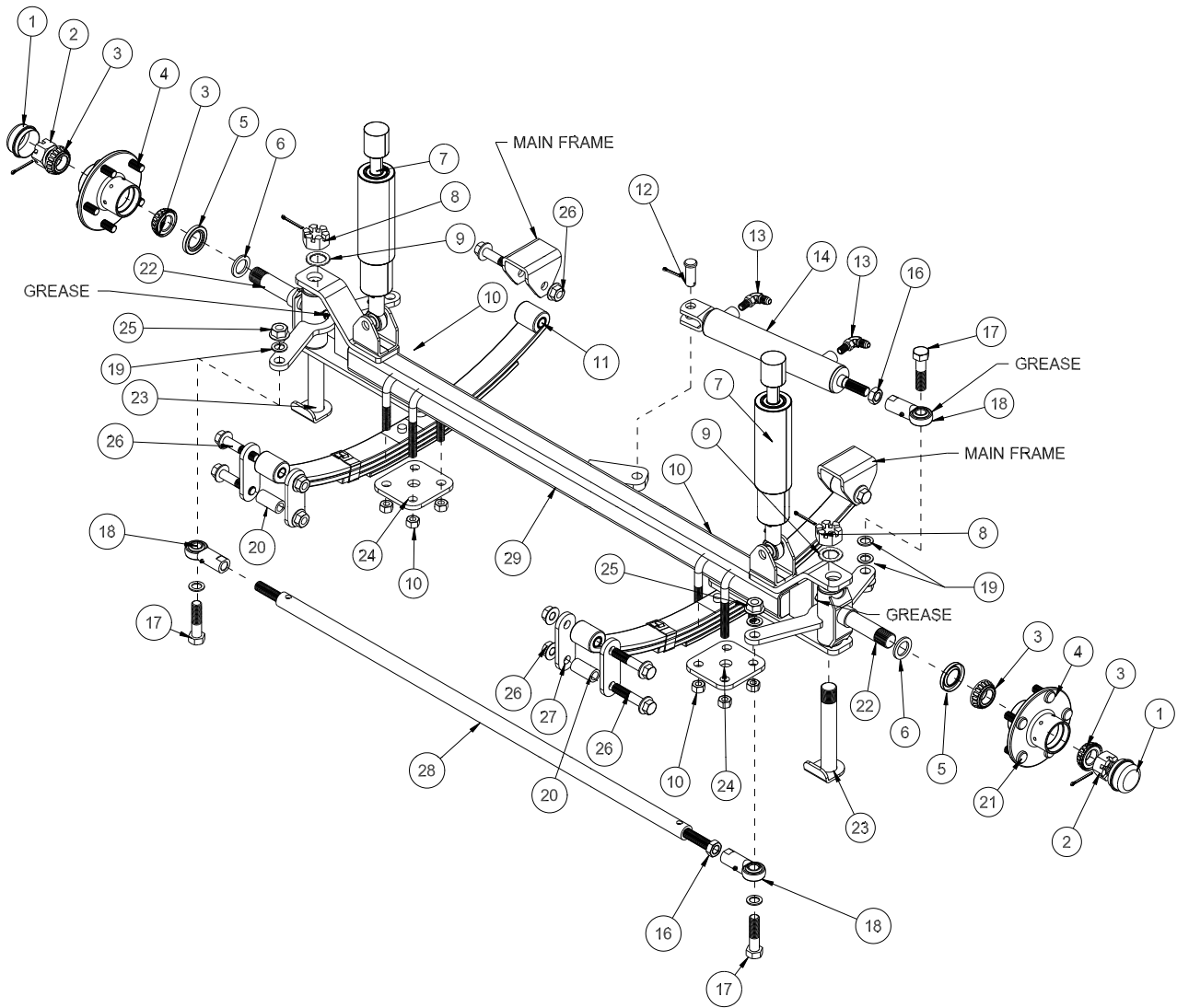


FOOT PEDAL LINKAGE PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	HSTP-516-18-100	Truss Head Screw, ⁵ / ₁₆ - 18 x 1	7
	HNTL-516-18	Lock Nut ⁵ / ₁₆ - 18	7
2	10-705	Foot Rest	1
3	33-509	Cruise Control Foot Switch	1
4	21-462	Ball Joint, ⁵ / ₁₆ -24	2
	HN-516-24	Hex Nut, ⁵ / ₁₆ - 24	2
	HWL-516	Lock Washer, ⁵ / ₁₆	2
5	10-598	Connector Rod	2
	HN-516-24	Hex Nut, ⁵ / ₁₆ - 24	4
6	11-100	Yoke, ⁵ / ₁₆ - 24	4
7	HCP-516-100	Clevis Pin, ⁵ / ₁₆ x 1	4
8	45-022	Molded Foot Pedal	2
9	HBFL-516-18-075	Flange Whiz-loc Bolt, ⁵ / ₁₆ -18 x ³ / ₄	2
	HNFL-516-18	Flange Whiz-loc Nut, ⁵ / ₁₆ -18	2
10	HP-18-100	Cotter Pin, ¹ / ₈ x 1	5
11	HMB-12-14	Machine Bushing, ¹ / ₂ x 14GA	2
12	HN-38-24	Hex Nut, ³ / ₈ - 24	6
13	15-924	Pedal Relay	1
14	21-173	Ball Joint, ³ / ₈ -24	2
15	10-674	Pedal Mount	1
16	10-677	Forward Pedal Assembly	1
	76-128	Bushing	2
	HG-14-28-180	Grease Zerk	1
17	10-678	Reverse Pedal Assembly	1
	76-128	Bushing	2
	HG-14-28-180	Grease Zerk	1
18	HB-14-20-075	Hex Bolt, ¹ / ₄ - 20 x ³ / ₄	1
	HNFL-14-20	Flange Whiz-loc Nut, ¹ / ₄ - 20	1
19	10-673	Pedal Pivot	1
20	15-926	Control Link	1
21	15-923	Control Relay	1
22	52-133	Brake Rod	1
23	HCP-38-113	Clevis Pin, ³ / ₈ x ¹ / ₈	2
24	21-351	Linkage Yoke, ³ / ₈ -24	2
25	20-652	Shift Arm	1
26	15-927	Speed Boss Arm	1
27	HB-58-11-400	Hex Bolt, ⁵ / ₈ -11x 4	1
	HMB-58-14	Machine Bushing, ⁵ / ₈ x 14GA	3
28	33-084	Magnetic Coil	1
29	HN-58-11	Hex Nut, ⁵ / ₈ -11	2
	HWL-58	Lock Washer, ⁵ / ₈	1
30	10-658	Speed Boss Cable	1
31	10-120	Spray Boss Handle	1
33	HB-516-18-200	Hex Bolt, ⁵ / ₁₆ -18 x 2	2
	HNTL-516-18	Lock Nut, ⁵ / ₁₆ - 18	2
34	HCP-14-075	Clevis Pin, ¹ / ₄ x ³ / ₄	1
	HP-18-100	Cotter Pin, ¹ / ₈ x 1	1
35	20-649	Dampner	1
36	26-034	Ball Stud	1
	HNFL-10-32	Flange Whiz-loc Nut, #10- 32	1



FRONT AXLE DRAWING



PARTS

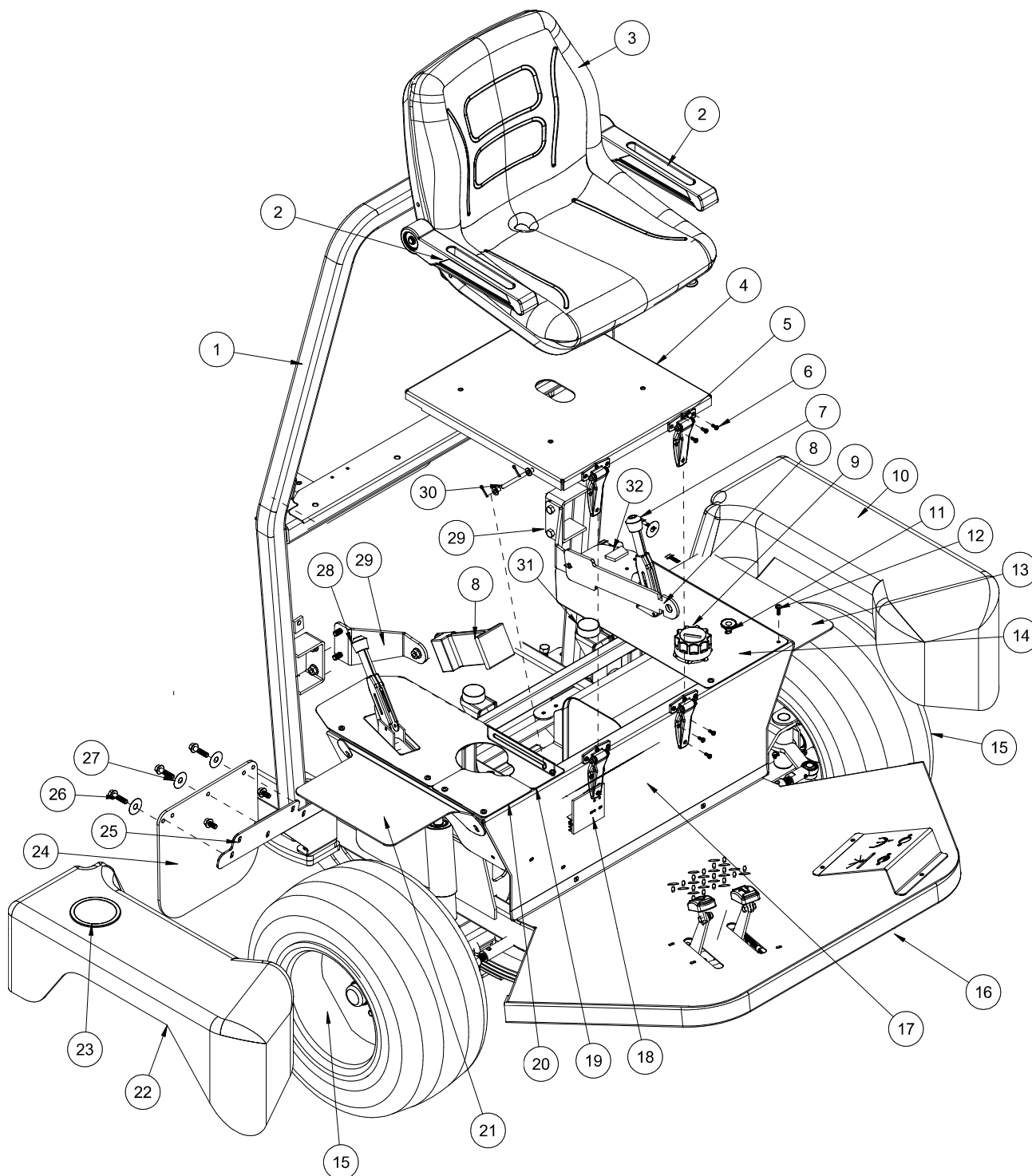
FRONT AXLE PARTS LIST

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	15-839	Hydraulic Cylinder	1
	15-839-01	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	30-251	Bushing (pressed in mainframe)	2
21	60-268	Stud, 1/2 - 20 x 1 5/16	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	3
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	15-930	Shackle	4
28	10-583	Steering Link	1
29	10-629	Front Axle	1

OIL AND FUEL TANK PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	60-213	Strainer	1
2	18-140	Street Elbow	2
3	18-249	Barb Fitting	2
4	18-093	Straight Tee	1
5	60-473	Oil Tank	1
6	75-792	Tank Hold Down	3
7	HB-516-18-150	Hex Bolt, $\frac{5}{16}$ - 18 x $1\frac{1}{2}$	3
	HW-516	Flat Washer, $\frac{5}{16}$	6
	HNFL-516-18	Flange Whiz-loc Nut, $\frac{5}{16}$ - 18	3
8	13-747	Filler Breather	1
9	13-586-01	Cap Gasket	1
10	13-586-03	Filler Neck	1
	HSM-10-32-063	Machine Screw, 10-32 x $\frac{5}{8}$	6
	HWL-10	Lock Washer, #10	6
11	8-603	Battery Hold Down - Rubber Strap	1
12	13-586-02	Bottom Gasket	1
13	33-216	Battery	1
14	HB-14-20-075	Hex Bolt, $\frac{1}{4}$ - 20 x $\frac{3}{4}$	2
	HW-14	Flat Washer, $\frac{1}{4}$	2
	HWL-14	Lock Washer, $\frac{1}{4}$	2
15	20-721	1.8l Carbon Canister	1
16	20-875	Main Frame	1
17	23-143	Connector	1
18	18-008	Pipe Thread Reducer	1
19	26-016	Oil Filter	1
	23-031	Replacement Filter	1
20	18-243	Male Connector	1
21	23-142	Connector	1
22	23-184	Fitting	1
23	8800	Fuel Line, $\frac{1}{4}$ "	48"
	18-186	Hose Clamp	2
24	20-692	10 Gallon Gas Tank	1
25	42-814-05	Rollover Valve	1
	42-814-06	Valve Grommet	1
26	20-694	Cap	1
27	20-692-01	Top Draw	1
	42-814-07	Top Draw Grommet	1
28	20-692-02	Fuel Gauge	1
	20-692-03	Grommet	1
29	8800	Fuel Line, $\frac{1}{4}$ "	76 "
	18-186	Hose Clamp	2
30	8800	Fuel Line, $\frac{1}{4}$ "	46 "
	18-186	Hose Clamp	2
31	8800	Fuel Line, $\frac{1}{4}$ "	10"
32	50-403	In-line Fuel Filter	1

SEAT PANEL DRAWING

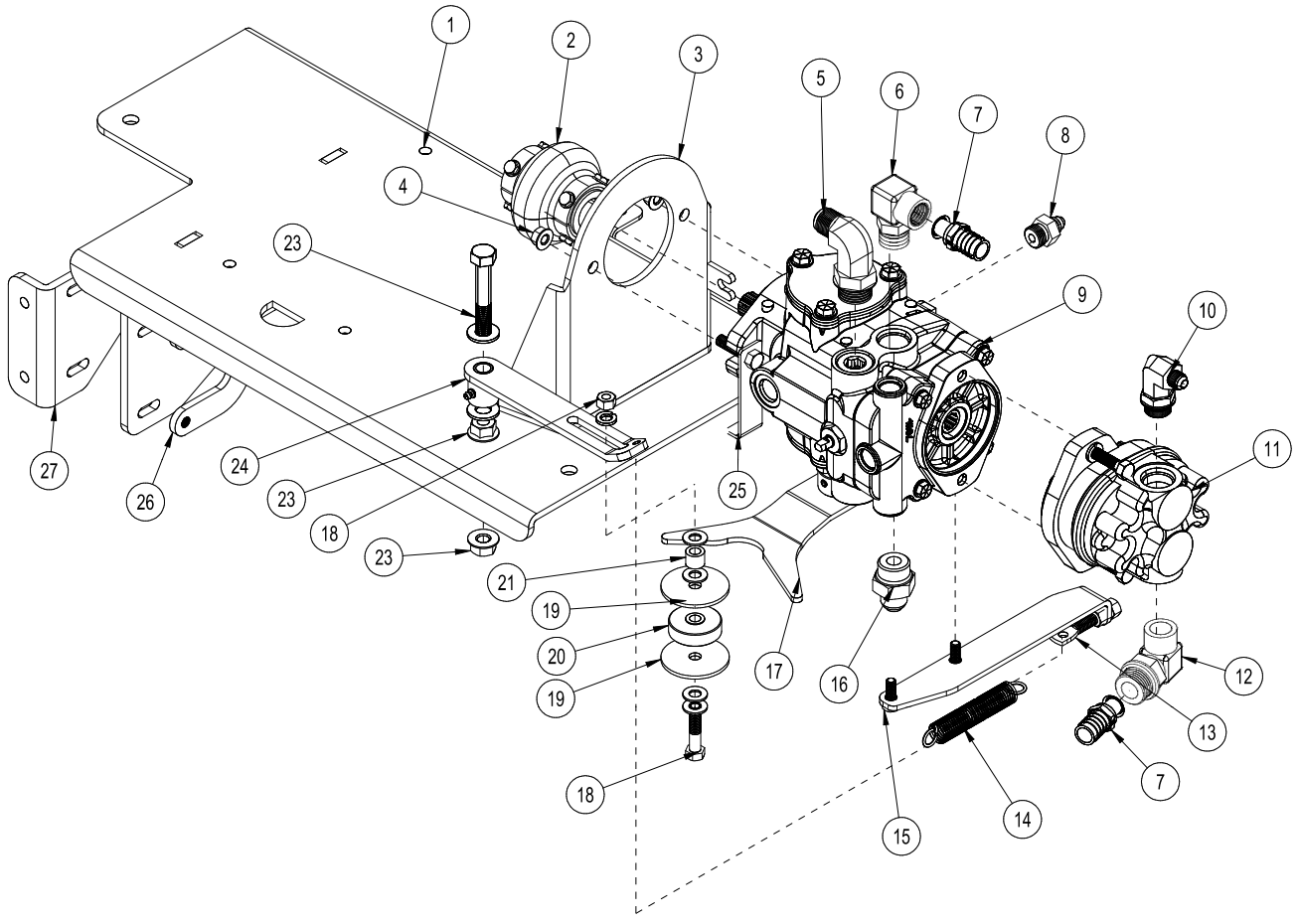


PARTS

SEAT PANEL PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	20-886	Roll Bar	1
	HB-12-13-200	Hex Bolt, 1/2 - 13 x 2	8
	HW-12	Flat Washer, 1/2	8
	HNFL-12-13	Flange Whiz-loc Nut, 1/2 - 13	4
2	10-706	Arm Rest Kit	1
3	14-294	Seat Kit	1
	14-292	Seat Switch	1
	14-800	Seat Rail	1
	HB-516-18-125	Hex Bolt, 5/16 - 18 x 1 1/4	4
	HW-516	Flat Washer, 5/16	4
	HWL-516	Lock Washer, 5/16	4
	HN-516-18	Hex Nut, 5/16 - 18	4
4	10-714	Seat Panel	1
5	27-055	Hinge	2
6	HSMFCS-10-32-050	Machine Screw, #10-32-1/2	12
	HNFL-10-32	Flange-Loc Nut, #10-32	12
7	10-120	Speed Boss Handle	1
8	76-198-03	Seat Belt	1
9	13-747	Filler Breather	1
	60-473	Oil Tank	1
10	30-405	LH Front Fender	1
11	80-020	Choke Cable	1
12	HSDPS-14-100	Pan Head Drill Screw, 1/4 x 1	8
13	10-823	LH Fender Bracket	1
14	15-954	LH Control Panel	1
15	16-857	Tire and Wheel	2
	16-857-01	Tire, 20 x 10 - 10NHS 4 Ply	2
	42-161-02	Wheel	2
16	20-875	Main Frame	1
17	10-680	Seat Frame	1
18	33-271	Fuse Panel	1
19	15-953	RH Control Panel	1
20	10-694	RH Panel Cover	1
21	10-824	RH Fender Bracket	1
22	30-404	RH Front Fender	1
23	15-781	Drink Cup Holder	1
24	20-659	Mud Flap	2
25	15-940	RH Fender Brace	1
	15-939	LH Fender Brace (not shown)	1
	HBCL-516-18-100	Carriage Bolt, 5/16 - 18 x 1	8
	HNFL-516-18	Flange-Loc Nut, 5/16 - 18	8
26	HB-14-20-075	Hex Bolt, 1/4 - 20 x 3/4	6
	HNFL-14-20	Flange-Loc Nut, 1/4 - 20	6
27	HWF-14-150	Fender Washer, 1/4 x 1 1/2	6
28	60-106	Park Brake Handle	1
29	15-935	Seat Belt Bracket	2
	HB-12-13-125	Hex Bolt, 1/2 - 13 x 1 1/4	4
	HNTL-12-13	Lock Nut, 1/2 - 13	4
30	10-697	Seat Prop Rod	1
	HW-38	Flat Washer, 3/8	2
	HP-18-075	Cotter Pin, 1/8 x 3/4	2
31	50-081	Rubber Bumper	2
	HNTL-38-16	Lock Nut, 3/8 - 16	2
32	20-730-01	Speedometer Speed Sensor	1

PUMP DRAWING

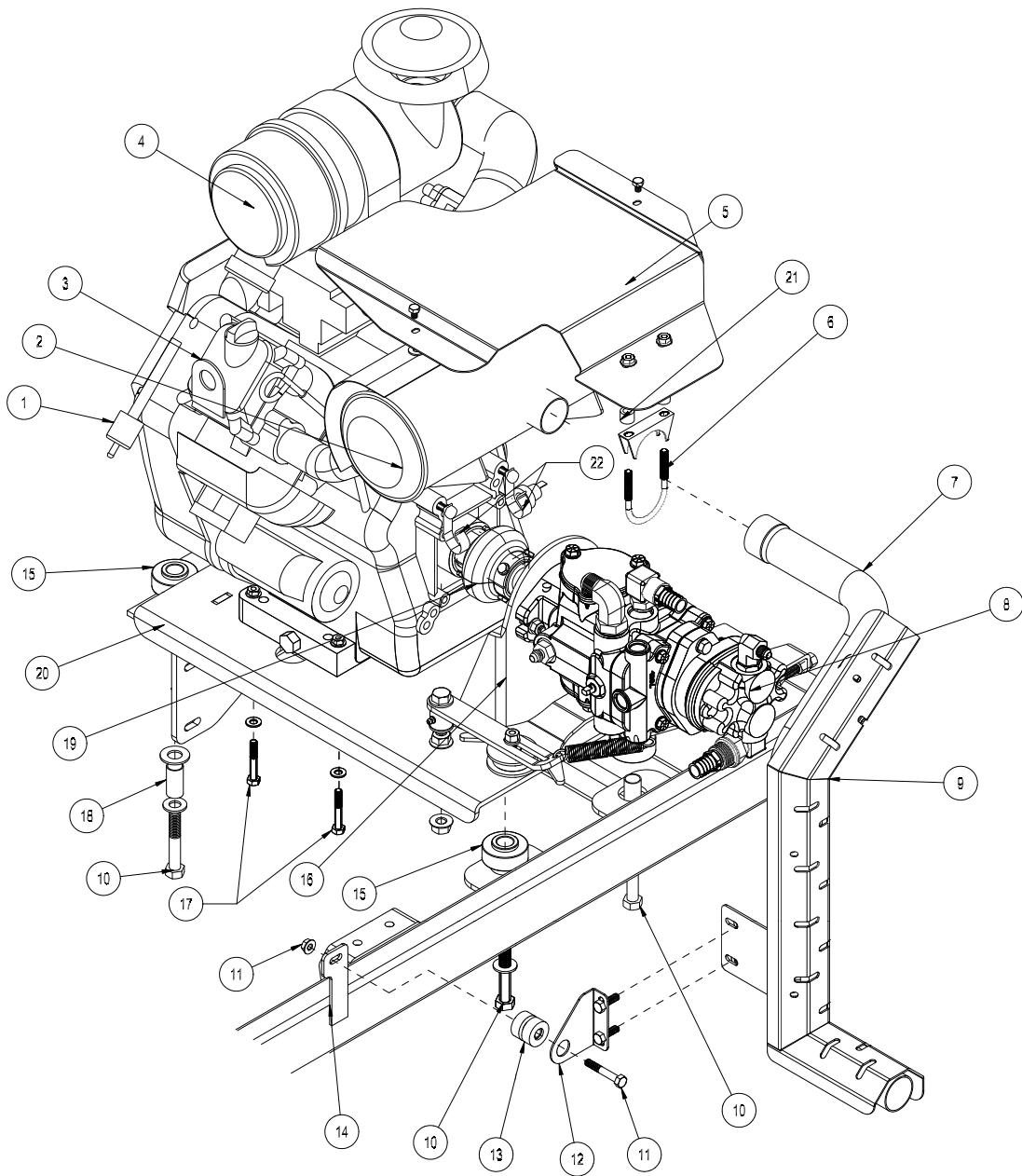


PARTS

PUMP PARTS LIST

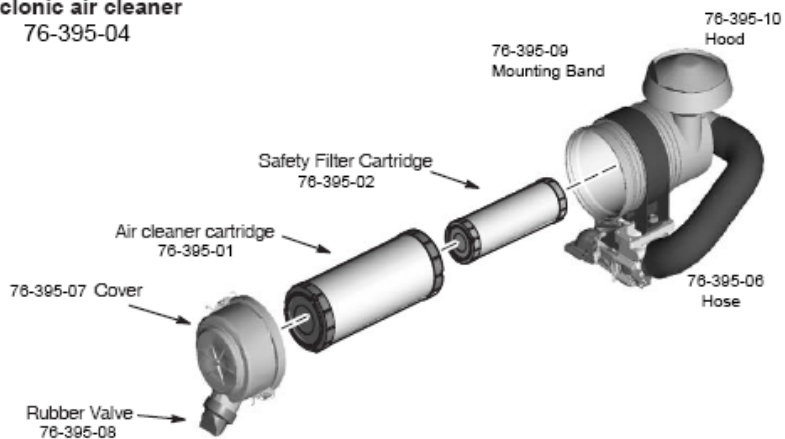
REF#	PART#	DESCRIPTION	QUANTITY
1	15-944	Engine Plate	1
2	76-465	Pump Coupling Complete	1
	76-466	7/8 Coupling Half	1
	76-467	1 1/8 Coupling Half	1
	76-468	Sleeve M42	1
3	15-774	Pump Mount	1
	HB-38-16-125	Hex Bolt, 3/8 - 16 x 1 1/4	2
	HW-38	Flat Washer, 3/8	2
	HNTL-38-16	Nylon Lock Nut, 3/8 -16	2
4	HB-38-16-150	Hex Bolt, 3/8 - 16 x 1 1/2	2
	HW-516	Flat Washer, 5/16	2
	HNTL-38-16	Nylon Lock Nut, 3/8 - 16	2
5	18-204	Elbow	1
6	23-130	Elbow	1
7	18-133	Hose Barb	2
8	18-241	Straight Thread Connector	1
9	76-638	Hydrostat Pump	1
	23-145	O-ring	1
10	18-458	Straight Thread Elbow	1
11	76-197	Gear Pump	1
	HB-38-16-125	Hex Bolt 3/8 - 16 X 1 1/4	2
	HNFL-38-16	Flange Whiz-loc Nut, 3/8 - 16	2
12	23-133	Adjustable Elbow, 90°	1
13	42-537	Spade Hex Bolt, 3/8"	1
14	21-445	Spring	1
15	15-876	Spring Mount	1
16	15-702	Adapter	1
17	20-652	Shift Arm	1
	HSSHS-14-20-025	Set Screw, 1/4 - 20 x 1/4	1
18	HB-38-16-175	Hex Bolt, 3/8 - 16 x 1 3/4	1
	HW-38	Flat Washer, 3/8	5
	HN-38-16	Hex Nut, 3/8 - 16	1
	HWL-38	Lock Washer, 3/8	1
19	20-594	Guide Disc	2
20	14-266	Ball Bearing	1
	18-270	Oilite Bushing	1
21	76-273	Spacer	1
23	HB-12-13-300	Hex Bolt, 1/2 - 13 x 3	1
	HN-12-13	Hex Nut, 1/2 - 13	2
	HMB-12-14	Machine Bushing, 1/2 x 14GA	2
	HWL-12	Lock Washer, 1/2	1
24	15-854	Tensioner Arm	1
	HG-14-28-180	Grease Fitting, 1/4 - 28 x 180°	1
25	15-928	Cable Support	1
26	15-938	Spray Pump Adjuster (threaded)	1
27	15-943	Spray Pump Mount	1

ENGINE AND EXHAUST DRAWING



PARTS

Cyclonic air cleaner
76-395-04



ENGINE AND EXHAUST PARTS LIST

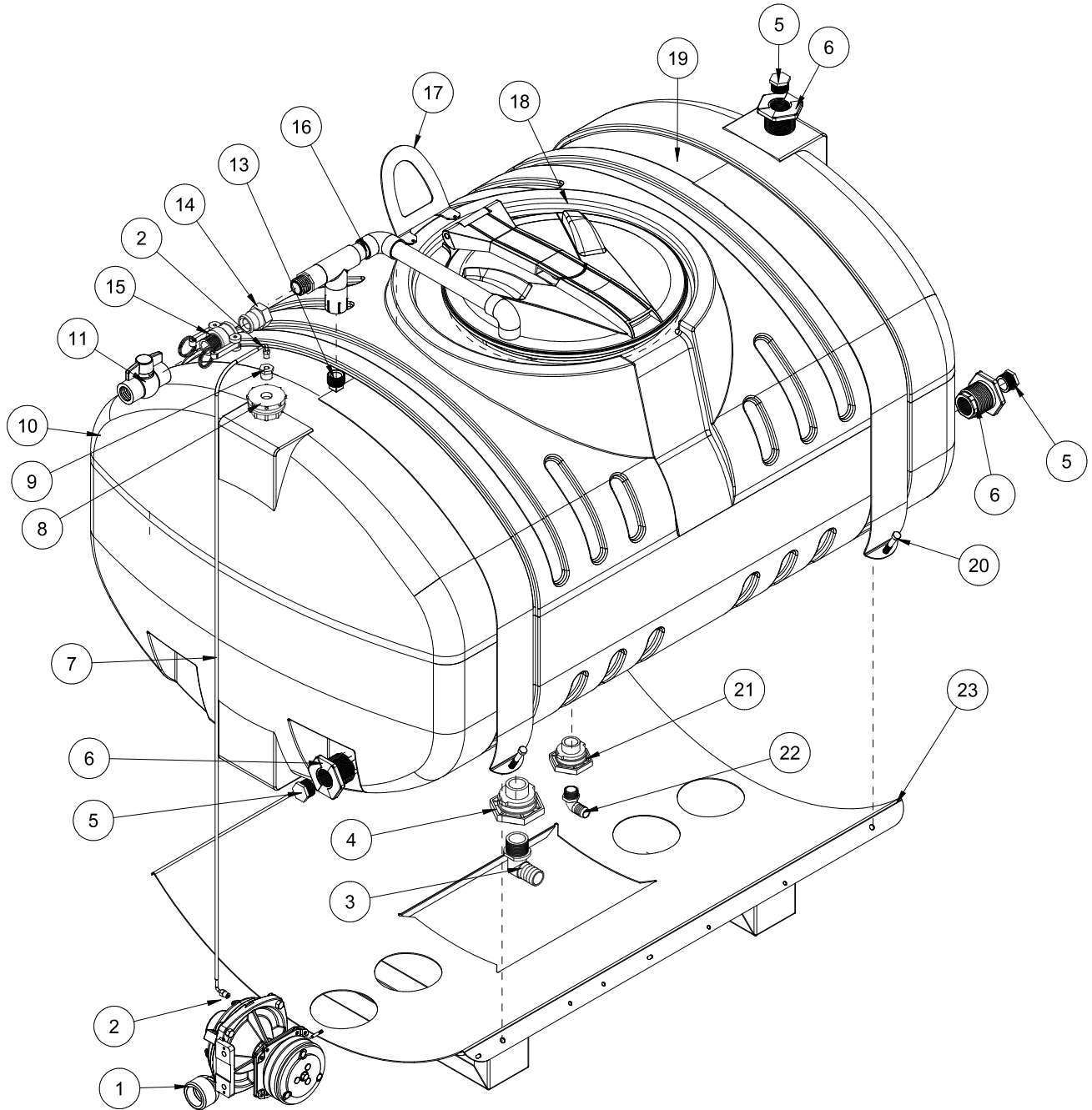
REF#	PART#	DESCRIPTION	QUANTITY
1	50-403	In-line Fuel Filter	1
2	76-447	Muffler	1
	HB-14-20-038	Hex Bolt, $\frac{1}{4}$ - 20 x $\frac{3}{8}$	2
	HW-14	Flat Washer, $\frac{1}{4}$	2
	HNFL-14-20	Flange Whiz-loc Nut, $\frac{1}{4}$ - 20	2
3	76-749	Engine, Briggs & Stratton 35HP	1
	76-487	Engine Oil Filter	1
	21-161	Wire Block	1
	18-118	Pipe Plug	1
4	76-395-04	Cyclonic Air Cleaner	1
	76-395-01	Air Cleaner Cartridge	1
	76-395-02	Safety Filter Cartridge	1
5	15-955	Heat Shield	1
6	50-394	Muffler Clamp	1
7	15-962	Tailpipe	1
	HB-516-18-200	Hex Bolt, $\frac{5}{16}$ - 18 x 2	1
	HNFL-516-18	Flange Whiz-loc Nut $\frac{5}{16}$ - 16	1
8	76-638	Hydrostat Pump	1
	76-197	Gear Pump	1
9	15-963	Tailpipe Guard	1
	HB-516-18-075	Hex Bolt, $\frac{5}{16}$ - 18 x $\frac{3}{4}$	4
	HNTL-516-18	Nylon Lock Nut, $\frac{5}{16}$ - 18	4
10	HB-12-13-300	Hex Bolt, $\frac{1}{2}$ - 13 x 3	3
	HW-58	Flat Washer, $\frac{5}{8}$	3
	HW-12	Flat Washer, $\frac{1}{2}$	3
11	HB-516-18-200	Hex Bolt, $\frac{5}{16}$ - 18 x 2	1
	HNFL-516-18	Flange Whiz-loc Nut $\frac{5}{16}$ - 16	1
12	15-961	Insulator Mount	1
13	52-124	Rubber Insulator	1
14	20-875	Main Frame	1
15	60-107	Rubber Insulator	6
16	15-774	Pump Mount	1
17	HB-516-18-200	Hex Bolt, $\frac{5}{16}$ - 18 x 2	4
	HW-516	Flat Washer, $\frac{5}{16}$	4
	HNTL-516-18	Nylon Lock Nut, $\frac{5}{16}$ - 18	4
18	60-168	Spacer	3
19	76-465	Pump Coupling Complete	1
20	15-944	Engine Plate	1
21	45-154	Spacer	2
22	HLC-A-58	Loom Clamp	2
	HB-516-24-075	Hex Bolt, $\frac{5}{16}$ -24 x $\frac{3}{4}$	2
	HWL-516	Lock Washer, $\frac{5}{16}$	2
NS	76-446-01	Engine, Shaft	1
	76-446-02	Engine, Oil Sender	1
	76-446-03	Engine, Screen	



SPRAY PUMP PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	16-935	Quick Coupler Cap	1
2	16-180	Quick Coupler Male	1
3	16-972	Elbow	3
4	18-372	3-Way Valve	1
	18-372-01	T-Handle	1
5	16-161	Fitting	2
6	8897	Discharge Hose, 1 1/4"	24"
	18-222	Hose Clamp	2
7	16-973	Hex Bushing	1
8	33-480	Pressure Switch	1
9	15-970	Spray Pump	1
	18-475	Elbow	1
10	18-509	Straight Thread Connector	2
11	15-624	Oil Cooler	1
12	15-929	Upper Cooler Mount	1
13	HB-14-20-075	Hex Bolt, 1/4 - 20 x 3/4	6
	HW-14	Flat Washer, 1/4	6
	HNFL-14-20	Flange Lock Nut, 1/4 - 20	6
14	18-390	Tee	2
15	15-703	Pulley	1
16	15-943	Pump Mount	1
17	HB-38-16-125	Hex Bolt, 3/8 - 16 x 1 1/4	2
	HW-38	Flat Washer, 3/8	2
18	15-944	Engine Plate	1
19	76-466-01	Stub Shaft	1
	76-446-03	Screen	1
20	76-749	Briggs & Stratton 35 HP Engine	1
	76-446-02	Oil Sender	1
	76-487	Engine Oil Filter	1
21	10-389	Plug	2
22	16-869	Belt	1
23	16-880	Nipple	2
24	HB-38-16-150	Hex Bolt, 3/8 - 16 x 1 1/2	2
	HW-38	Flat Washer, 3/8	2
	HNTL-38-16	Nylon Lock Nut, 3/8 - 16	2
25	15-938	Spray Pump Adjuster (threaded)	1

SPRAY TANK DRAWING



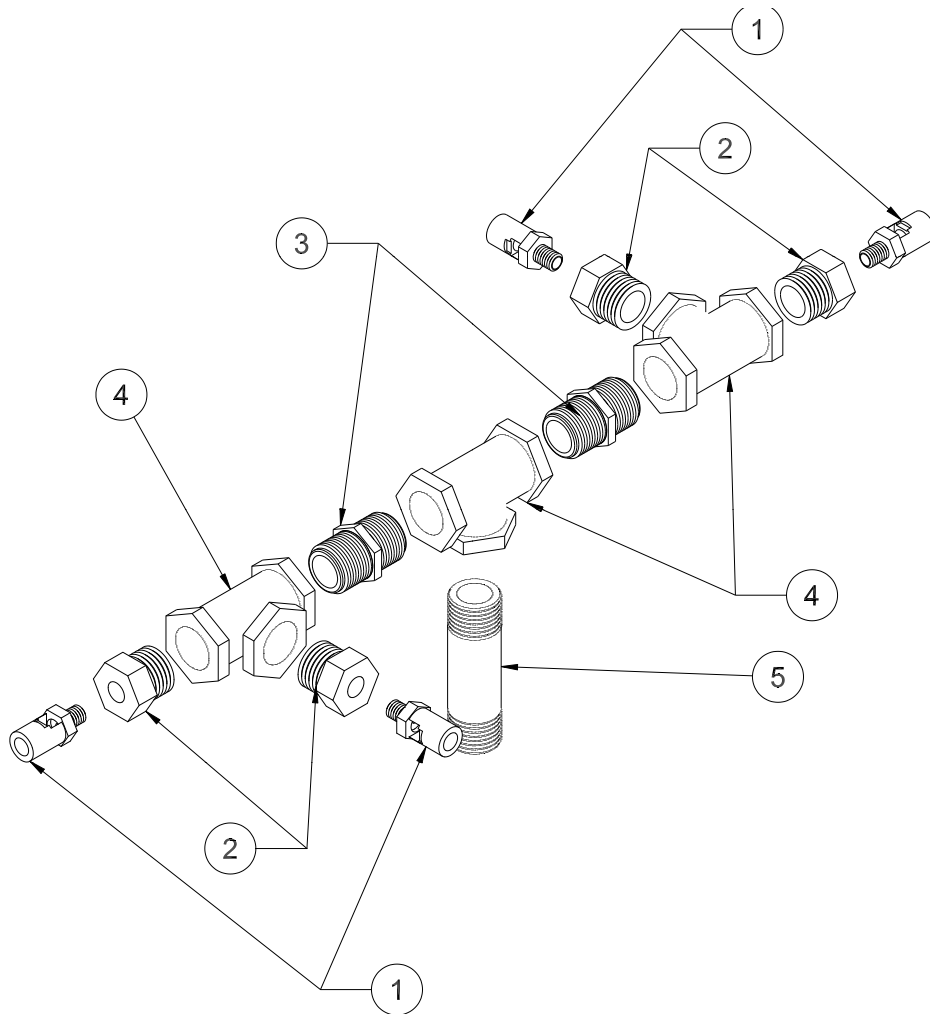
PARTS

SPRAY TANK PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	15-970	Hypro Pump	1
2	18-475	Male Elbow	2
3	16-156	Elbow	1
4	16-194	1 ¹ / ₄ Anti Vortex Fitting (part of tank)	1
5	16-162	1" Hex Plug	3
6	16-945	1" Double Thread Fitting	3
7	9038	Tubing, 1/4"	46"
8	33-495	Bulkhead Fitting	1
9	33-496	Reducer Bushing, 1/2 to 1/8	1
10	20-802	200 Gallon Spray Tank	1
11	18-448	1" Ball Valve	1
13	20-812	Tank Strap with plug	1
14	16-961	1" Adapter	1
15	16-962	1" Coupler	1
	16-962-01	Buna-N Gasket (for 16-962)	1
16	15-964	Air Gap Filler	1
17	10-639	Lid Stop	1
18	16-953	16" Hinged Lid Well with Gasket	1
	16-953-01	Gasket (for Lid)	1
	16-169	Strainer Basket	1
19	20-811	Tank Strap	1
20	HB-38-16-250	Hex Bolt, 3/8 - 16 x 2 1/2	4
	HW-38	Flat Washer, 3/8	8
	HNTL-38-16	Nylon Lock Nut, 3/8 - 16	4
21		1/2" Double Thread Fitting (part of tank)	1
22	16-155	Elbow	1
23	15-932	Tank Carrier	1



TURBO-QUAD AGITATOR DRAWING



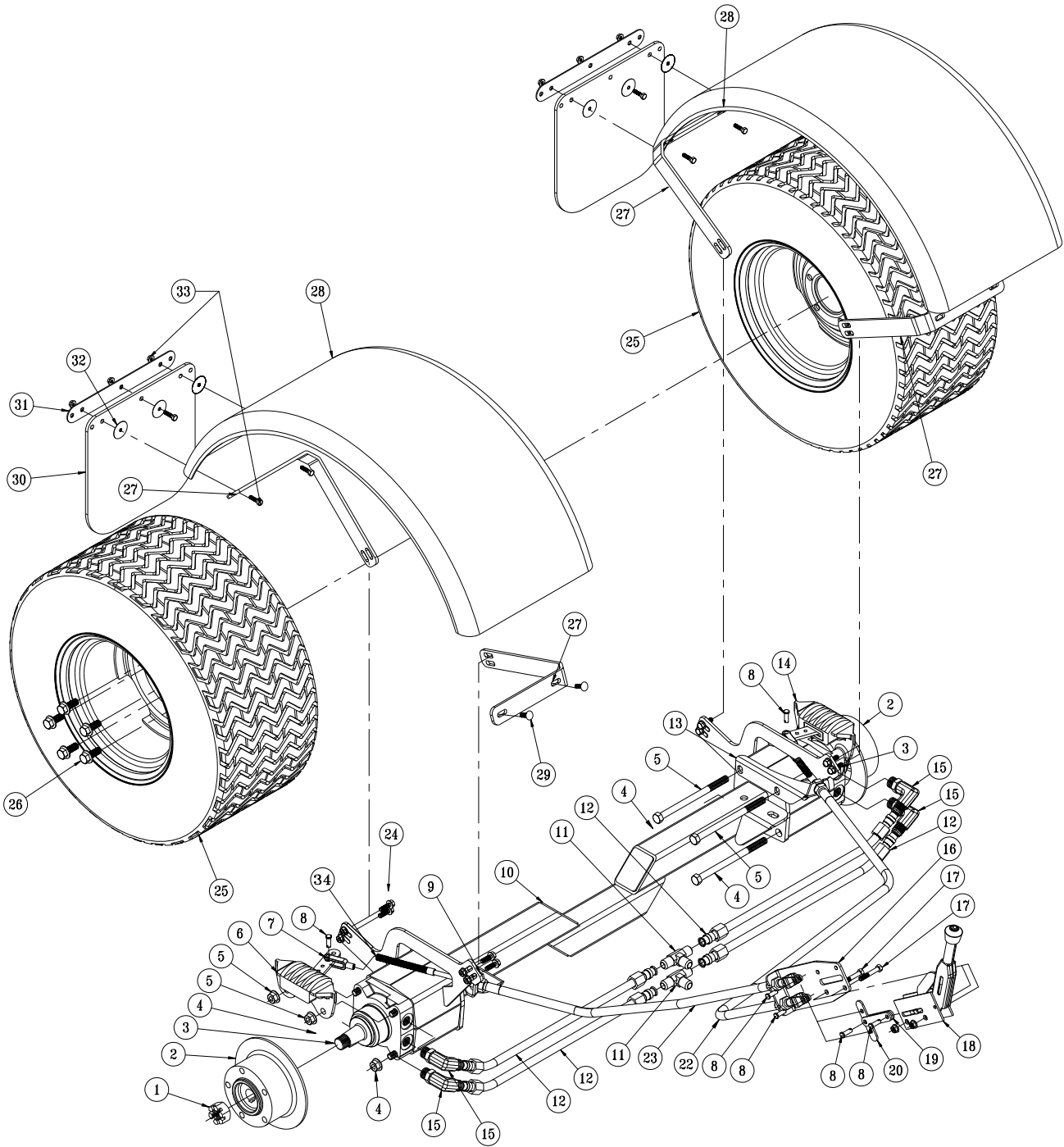
PARTS

TURBO-QUAD AGITATOR PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	18-510	Mini Eductor	4
2	16-288	Reducer, $\frac{3}{4}$ x $\frac{1}{4}$	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

PARK BRAKE AND REAR AXLE DRAWING

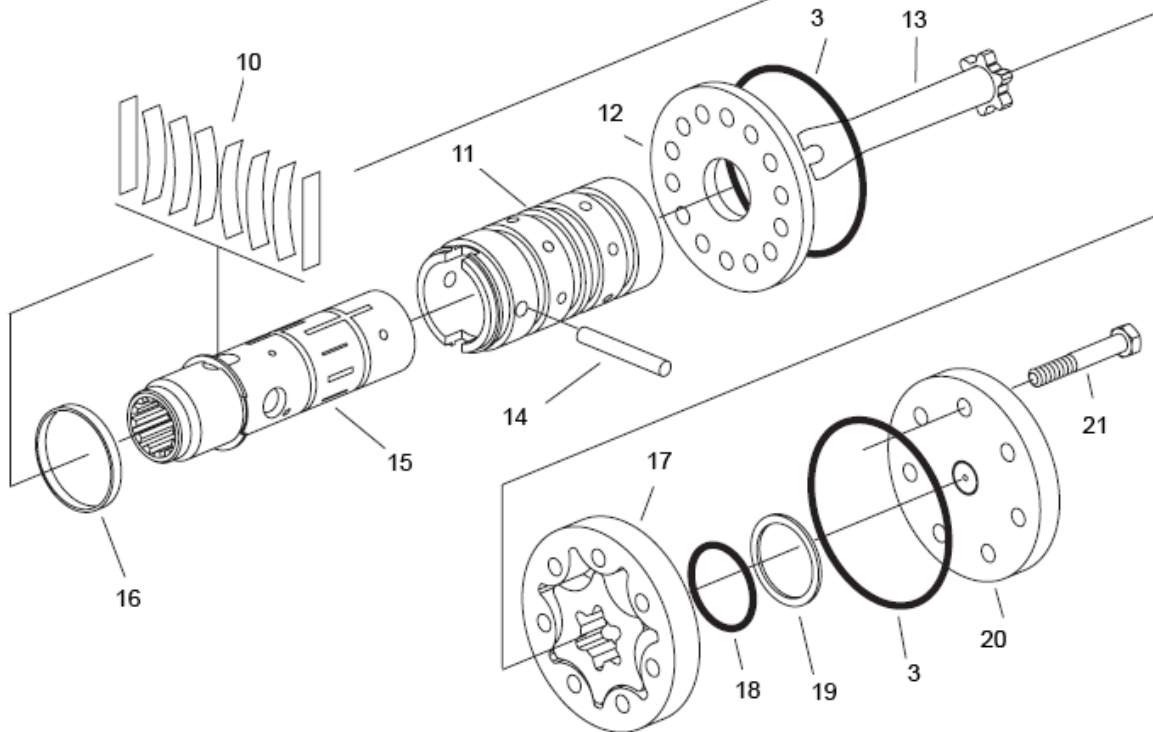
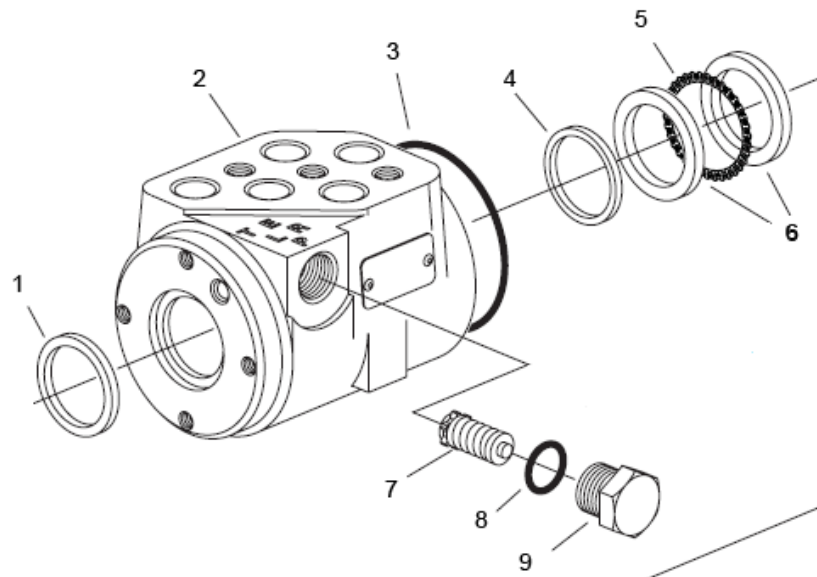
PARTS



PARK BRAKE AND REAR AXLE PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	14-265	Lug Nut (comes with wheel motor)	2
2	76-239	Brake Disc, 5-hole	2
3	76-238	Wheel Motor	2
	HMB-100-14	Machine Bushing, 1 x 14GA	1
	HWK-516-100	Woodruff Key, $\frac{5}{16}$ x 1 (comes with wheel motor)	2
4	HB-12-13-750	Hex Bolt, $\frac{1}{2}$ - 13 x $7\frac{1}{2}$	4
	HNFL-12-13	Flange Whiz-loc Nut, $\frac{1}{2}$ -13	4
5	HB-12-13-800	Hex Bolt, $\frac{1}{2}$ - 13 x 8	4
	HNFL-12-13	Flange Whiz-loc Nut, $\frac{1}{2}$ - 13	8
6	76-241	Right Caliper CW	1
	34-101-02	Pad Kit	1
7	11-100	Linkage Yoke, $\frac{5}{16}$ "	2
	HN-516-24	Hex Nut, $\frac{5}{16}$ - 24	2
8	HCP-516-100	Clevis Pin, $\frac{5}{16}$ x 1	6
	HP-18-075	Cotter Pin, $\frac{1}{8}$ x $\frac{3}{4}$	6
9	10-589	RH Brake Cable Bracket	1
10	20-891	Rear Axle	1
11	34-057	Tee	2
12	20-656	Hydraulic Tube	4
13	10-588	LH Brake Cable Bracket	1
14	76-240	Left Caliper CCW	1
	34-101-02	Pad Kit	1
15	34-122	Short Elbow	4
16	15-942	Cable Bracket	1
17	HB-516-18-200	Hex Bolt, $\frac{5}{16}$ -18 x 2	2
	HNTL-516-18	Lock Nut, $\frac{5}{16}$ - 18	2
18	60-106	Park Brake Lever Kit	1
19	45-074	Park Brake Link	2
20	10-591	Brake Equalizer	1
22	15-913	LH Brake Cable	1
23	15-914	RH Brake Cable	1
24	HBFL-516-18-075	Flange Whiz-loc Bolt, $\frac{5}{16}$ - 18 x $\frac{3}{4}$	8
	HNFL-516 - 18	Flange Whiz-loc Nut, $\frac{5}{16}$ - 18	8
25	16-225	Rear Tire and Wheel	2
	16-225-01	Tire, 24 x 13.00 - 12NHS 4 Ply	2
	16-225-02	Wheel	2
26	60-268	Lug Bolt, $\frac{1}{2}$ -20 x $1\frac{5}{16}$	10
27	10-466	Rear Fender Brackets	4
28	10-168	Rear Fender	2
29	HBCL-516-18-100	Carriage Hex Bolt, $\frac{5}{16}$ - 18 x 1	8
	HNFL-516-18	Flange Whiz-loc Nut, $\frac{5}{16}$ - 18	8
30	20-659	Mud Flap	2
31	20-660	Mud Flap Strap	2
32	HWF-14-150	Fender Washer, $\frac{1}{4}$ x $1\frac{1}{2}$	6
33	HB-14-20-075	Hex Bolt, $\frac{1}{4}$ - 20 x $\frac{3}{4}$	6
	HNFL-14-20	Flange Whiz-loc Nut, $\frac{1}{4}$ - 20	6
34	15-949	Compression Spring	2
	HW-14	Flat Washer, $\frac{1}{4}$	2

15-301 ORBITROL DRAWING



PARTS

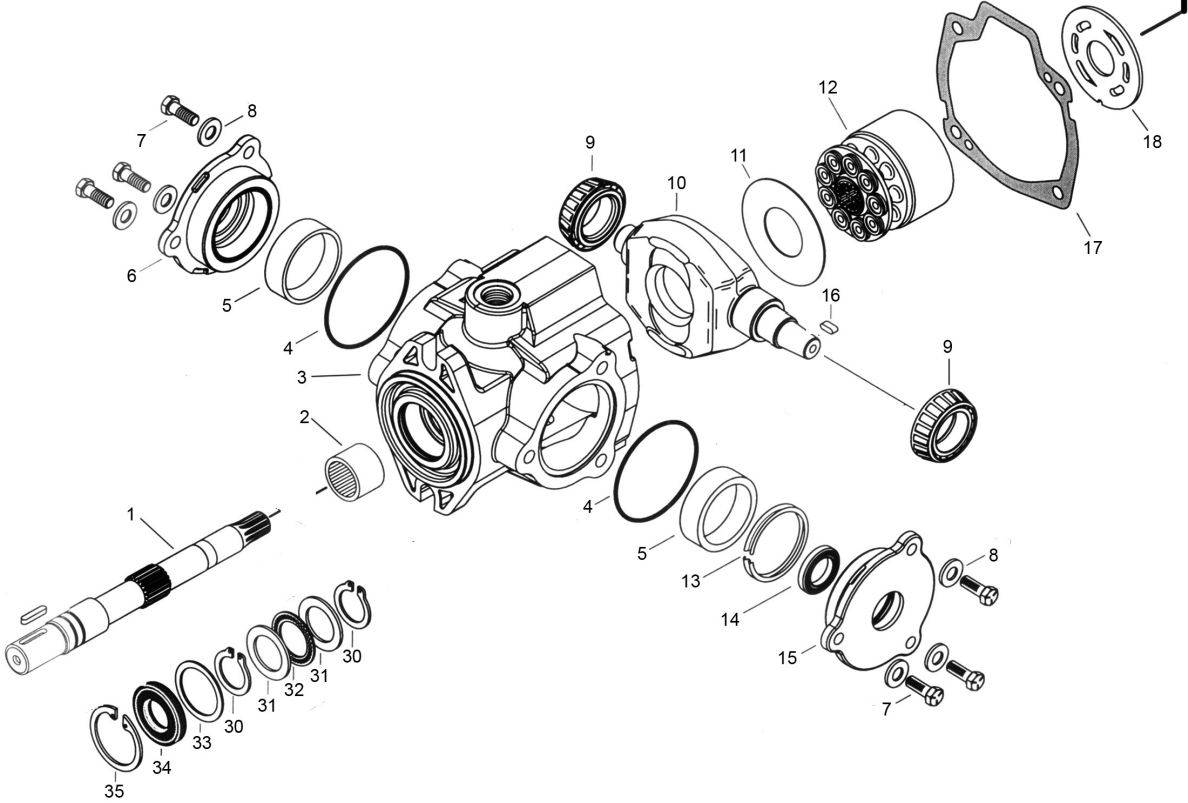
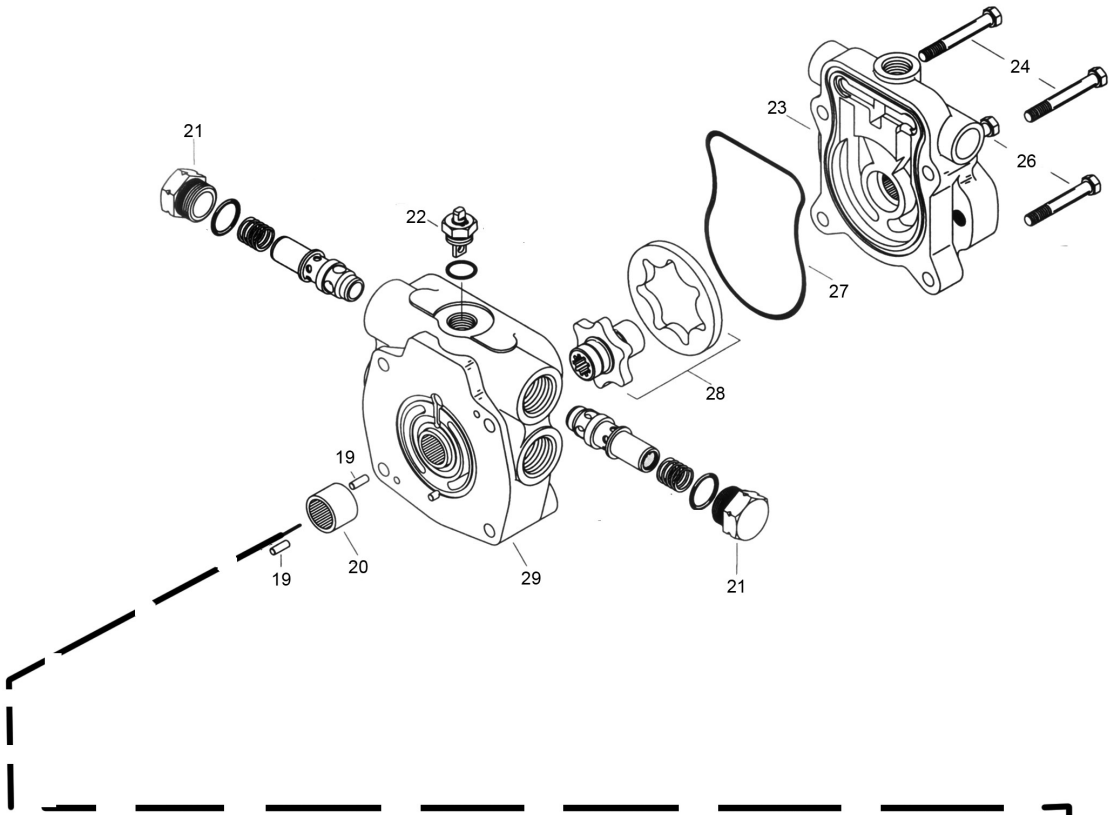
15-301 ORBITROL PARTS LIST

REF #	PART #	DESCRIPTION	QUANTITY
1**	10-576-04	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 ORBITROL 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	9/16 - 18 SAE O-Ring 4 Ports

76-638 HYDROSTATIC PUMP DRAWING

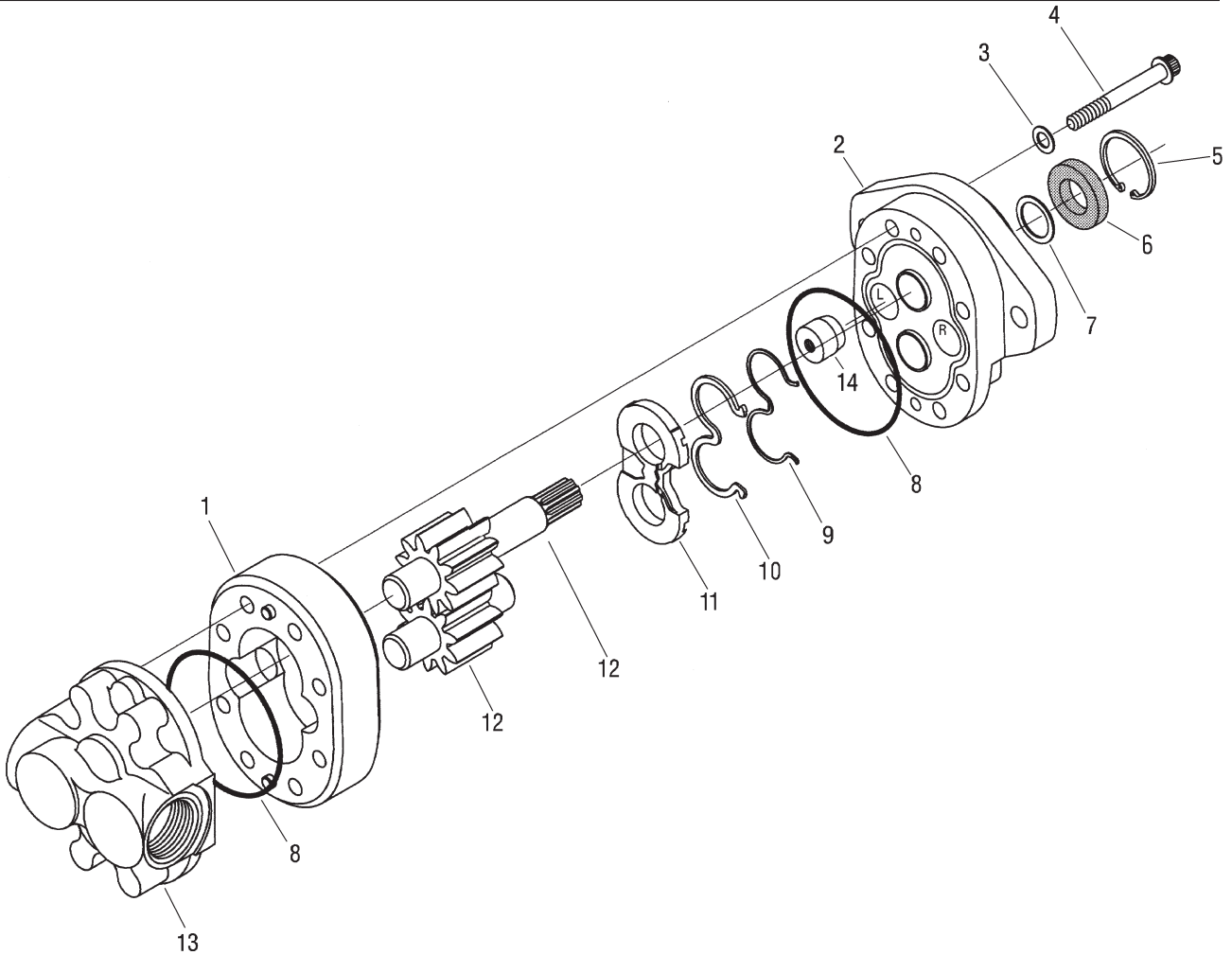


PARTS

76-638 HYDROSTATIC PUMP PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	76-398-01	Drive Shaft (splined)	1
2		Needle Bearing (with housing)	1
3	77-239-01	Housing	1
4	77-239-02	O-Ring	1
5	77-239-03	Thrust Bearing	2
6	77-239-04	Trunnion Cover	1
7	77-239-05	Pan Head Screw	2
8	77-239-06	Washer	6
9	77-239-07	Cone Bearing	2
10	77-239-08	Swash Plate	1
11	77-239-09	Swash Plate Insert	1
12	60-343-21	Rotating Kit	1
13	77-239-10	Crush Ring	1
14*	60-343-12	Shaft Seal	1
15	77-239-11	Seal Cover	1
16		Key	1
17*	77-239-13	Gasket	1
18	76-482-01	Back Plate	1
19		Dowel Pin	2
20		Bearing	1
21	77-239-15	Relief Valve	2
22	77-239-16	Tow Valve Assembly	1
23		Charge Pump Adapter	1
24	77-239-17	Cap Screw	2
26	77-239-18	Cap Screw	2
27*	77-239-19	O-Ring	1
28	60-343-43	Gerotor and Coupler	1
29		End Cover Assembly	1
30*	77-239-21	Retaining Ring	2
31	60-343-05	Bearing Race	1
32	60-343-06	Thrust Bearing	1
33	60-343-03	Washer	2
34*	60-343-02	Shaft Seal	1
35*	60-343-01	Retaining Ring	1
* 	77-239-23	Seal Repair Kit	

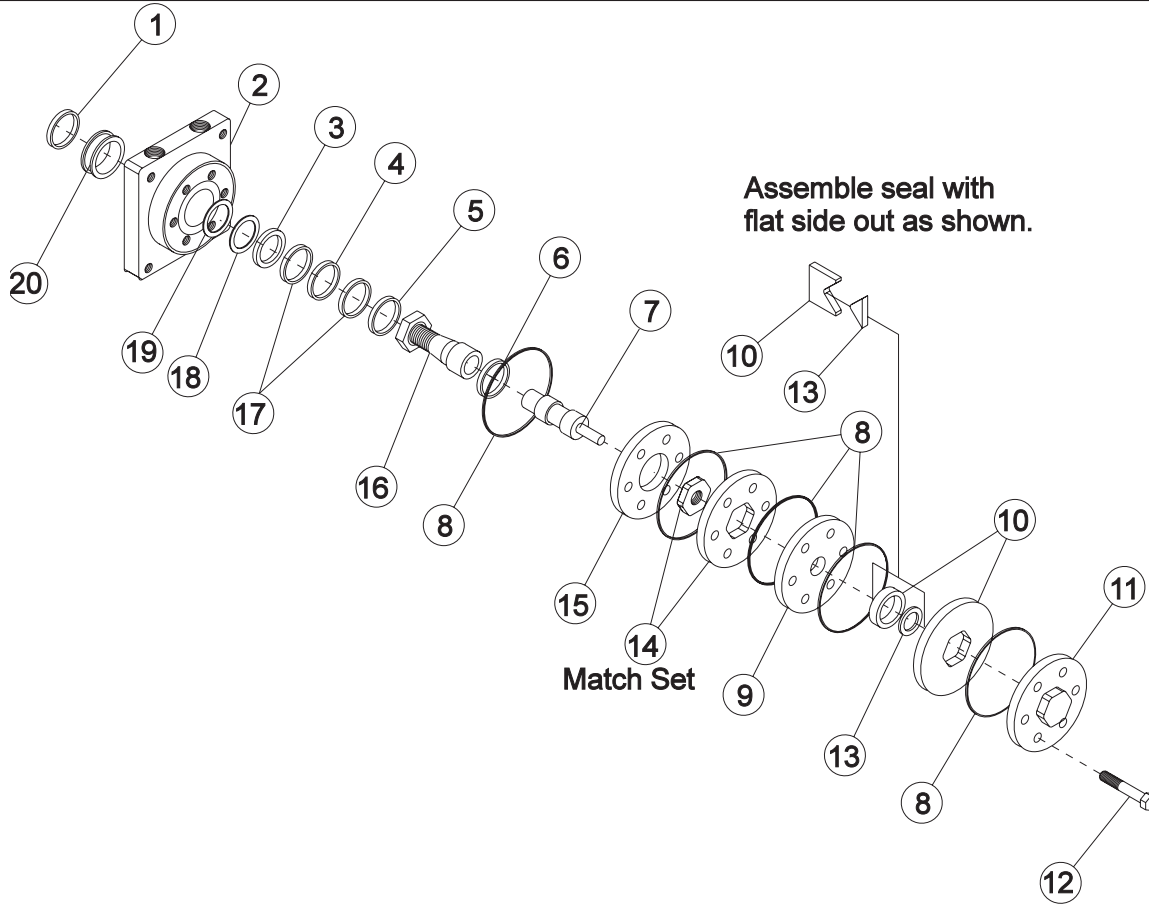
76-197 EATON GEAR PUMP DRAWING



PARTS

REF#	PART#	DESCRIPTION	QUANTITY
1		Body	1
2	76-197-01	Front Plate	1
3*		Washer	4
4	76-197-06	Cap Screw	8
5	76-197-07	Retaining Ring	1
6*		Shaft Seal	1
7	33-061-15	Washer	1
8*		O-Ring	2
9*		Backup Gasket	1
10*		Seal	1
11*		Wear Plate	1
12	76-197-04	Shaft (comes with Idler Gear)	1
13	76-197-02	Back Plate	1
14*		Plug	1
*	76-197-08	Seal Kit	

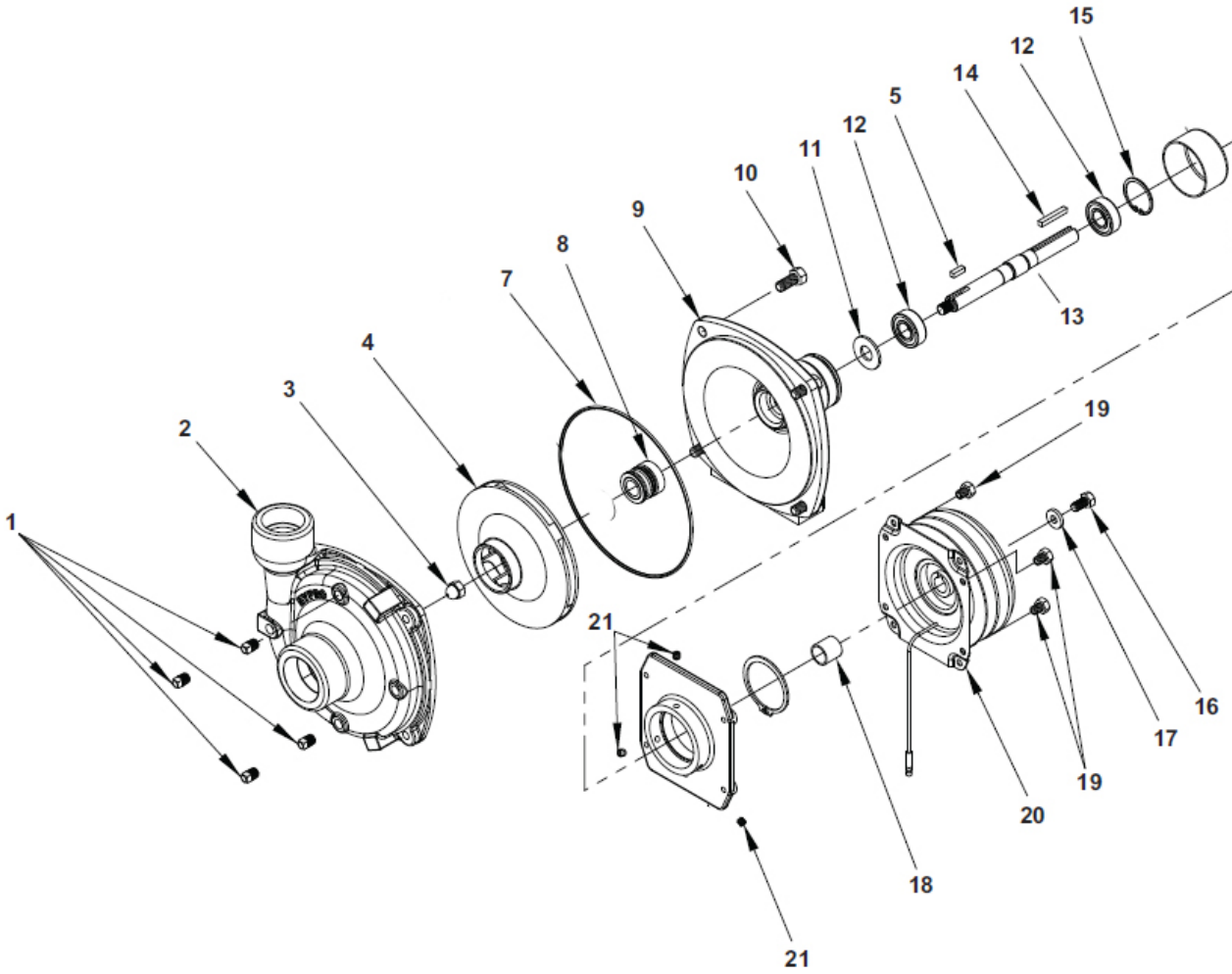
76-238 REAR WHEEL MOTOR DRAWING (14.5 CI)



REF#	PART#	DESCRIPTION	QUANTITY
1*		Water & Dirt Seal	1
2†	13-615-05	Service Housing Assembly	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	76-238-03	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	76-238-01	Hex Bolt	7
13*		Commutator Seal (matches with #10)	1
14	76-238-02	Rotor Set (matched set)	1
15	13-032-35	Plate Wear	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 Washer	1
20†	13-032-38	Outer Bearing	1
*	14-080	Seal Kit	1
†	Included in 13-615-05 Service Housing Assembly		

Parts

15-970 HYPRO PUMP DRAWING



PARTS

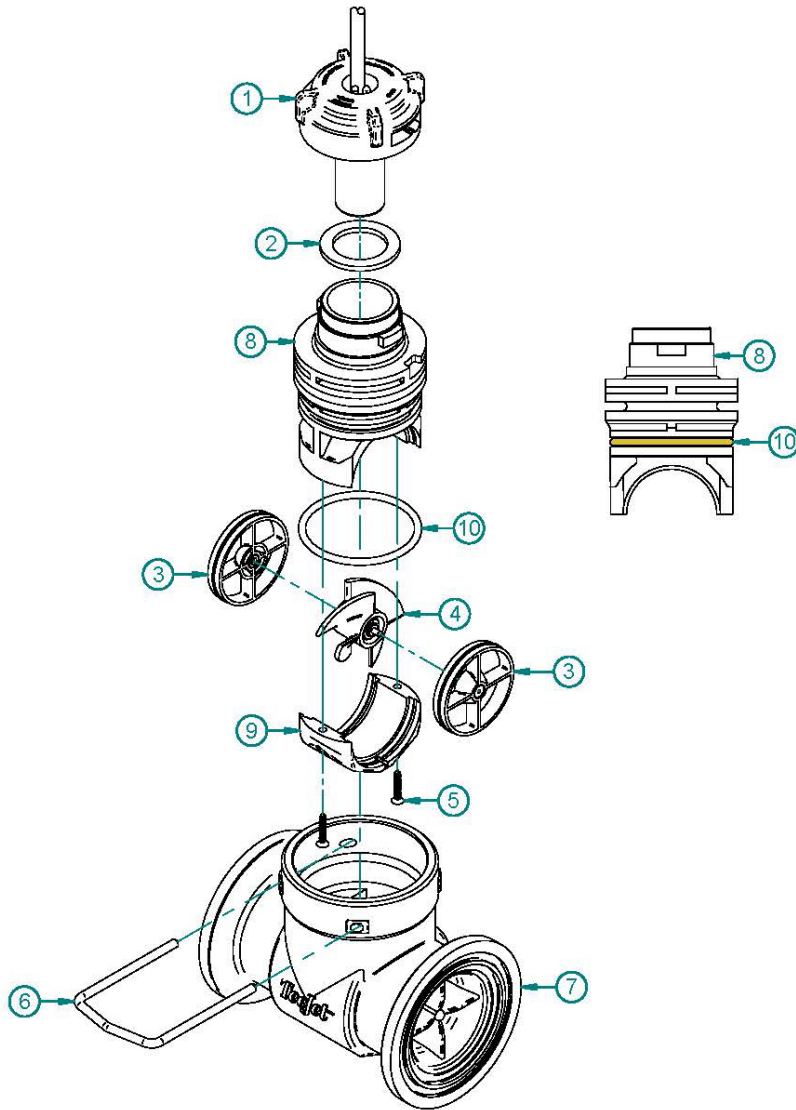
15-970 HYPRO® PUMP PARTS LIST

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	

⚠ IMPORTANT

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

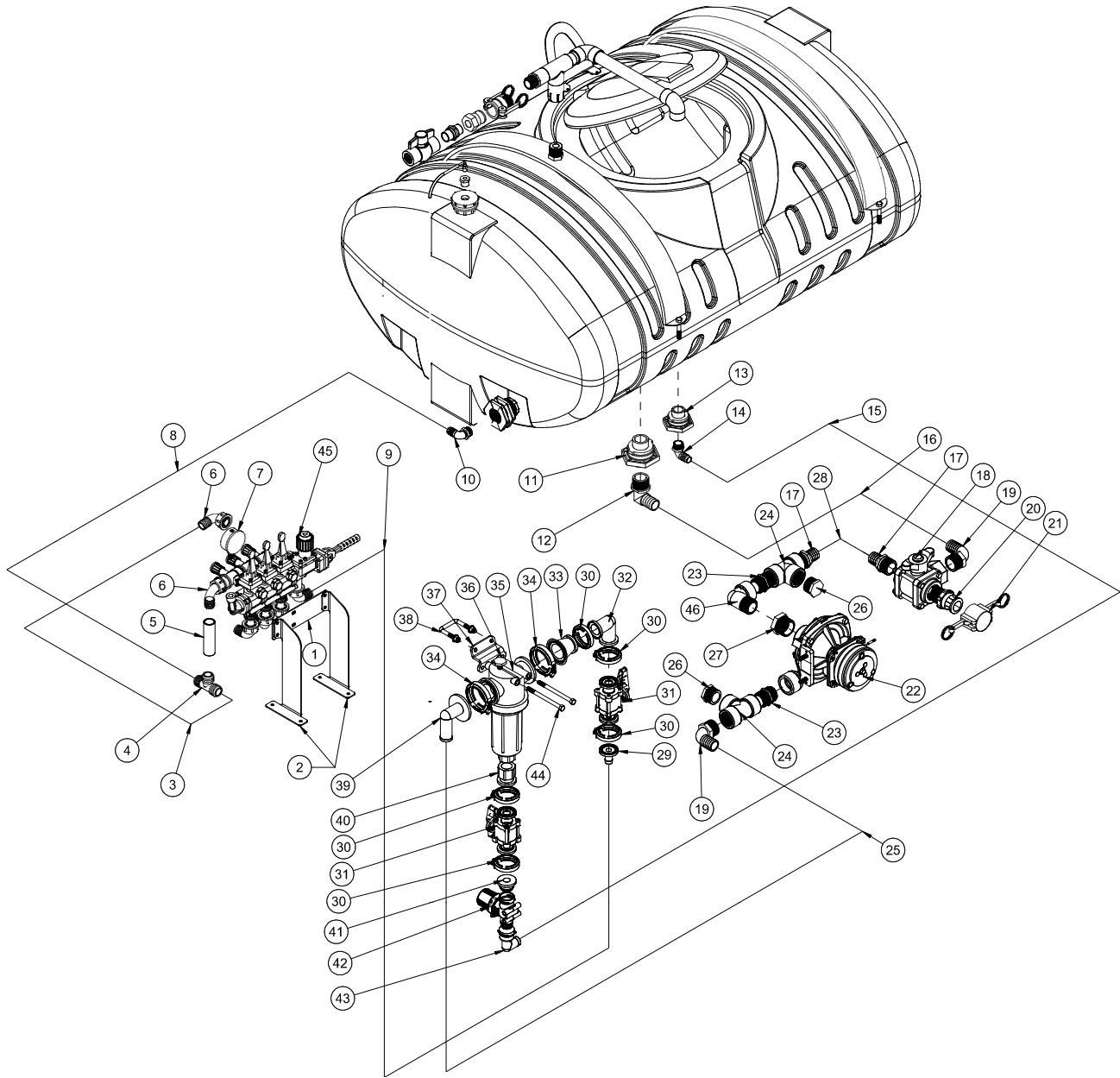
20-684-P FLOW METER



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*		End cap	1
10*	20-684-02	Oring	1
*	20-684-03	802 Flow-meter Repair Kit (includes all * items)	

1201 PLUMBING DRAWING (MANUAL SYSTEM)



REF#	PART#	DESCRIPTION	QUANTITY
1	10-647	Mount Plate	1
2	10-646	Ball Valve Mount Bracket	2
3	8896	1" Discharge Hose	12"
	18-222	Hose Clamp	2
4	10-269	Plastic Tee	1
5	8896	1" Discharge Hose	4"
	18-222	Hose Clamp	2
6	10-268-13	90° Elbow (comes with 10-648)	3
	18-040	Hose Clamp	6
7	16-281	Liquid Filled Gauge	1
8	8896	Discharge Hose 1"	22"
	18-222	Hose Clamp	2
9	8896	Discharge Hose 1"	40"
	18-222	Hose Clamp	2
10	16-164	Elbow, 1 x 1HB	1

Accessories

1201 PLUMBING DRAWING (MANUAL SYSTEM)

REF#	PART#	DESCRIPTION	QUANTITY
11	16-194	Anti-Vortex Fitting	1
12	16-156	Elbow	1
13		1/2" Double Thread Fitting (part of tank)	1
14	16-155	Elbow	1
15	8896	Discharge Hose 1"	56"
	18-222	Hose Clamp	2
16	8897	Discharge Hose 1 1/4"	26"
	18-116	Hose Clamp	2
17	16-161	Fitting 1 1/4 NPT x 1 1/4 HB	2
18	18-372	3-Way Ball Valve	1
	18-372-01	T-Handle	1
19	16-156	Elbow 1 1/4 MPT x 1 1/4 HB	2
20	16-180	Quick Coupler 1 1/4 Male	1
21	16-935	Quick Coupler 1 1/4 Cap	1
22	15-970	Hypro® Pump	1
23	16-880	Nipple	2
24	18-390	Pipe Tee 1 1/4	2
25	8897	Discharge Hose 1 1/4"	57"
	18-116	Hose Clamp, HS-24	2
26	10-389	Plug 1 1/4	2
27	16-825	Reducer	1
28	8897	Discharge Hose 1 1/4	24"
	18-116	Hose Clamp	2
29	15-808	Hose Barb Flange	1
30	15-740	50 Series Clamp	5
31	15-738	Flanged Ball Valve	2
32	15-736	50 Series Elbow Coupling	1
33	15-748	Reducer Coupling	1
34	15-741	75 Series Clamp	2
35	15-737	Flanged Strainer	1
36	15-780	1/4" Poly Plug	1
37	30-551	Filter Mount	1
38	17-537	U-Bolt	1
39	15-739	75 Series 90° x 1 1/4 Hose Barb	1
40	15-735	50 Series 1 FPT	1
41	15-825	QC Flange Adapter	1
42	14-801	Agitation Strainer, 50 mesh	1
	14-802	50 Mesh Screen	
	14-803	Decal, Clean Strainer	1
43	14-671	90° - 1" Hose Barb	1
44	HB-38-16-500	Bolt, 3/8 - 16 x 5	2
	HNFL-38-16	Flange Lock Nut, 3/8 - 16	2
45	10-648	Valve 3-Way	1
46	16-972	Elbow	1

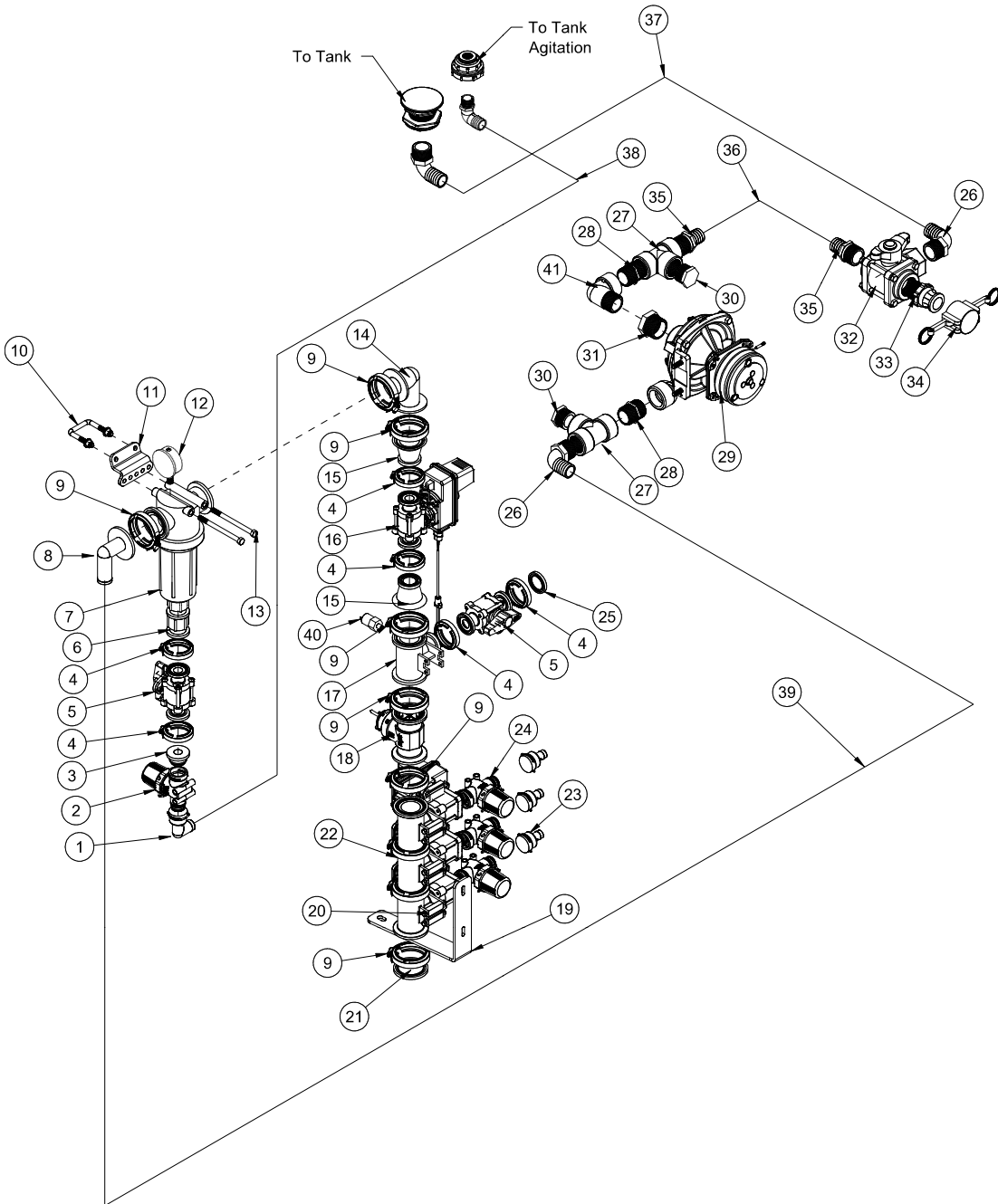
BOOM	LEFT HOSE	CENTER HOSE	RIGHT HOSE
15"	9032-153	9032-114	9032-153
18'	9032-153	9032-114	9032-153

1202 PLUMBING DRAWING (RADION® 8140)

15-818 #75 Fitting Oring

15-817 #50 Fitting Oring

BOOM	LEFT HOSE	CENTER HOSE	RIGHT HOSE
15"	9032-125	9032-90	9032-136
18'	9032-125	9032-90	9032-136
20'	9032-135	9032-90	9032-146



▲ IMPORTANT

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

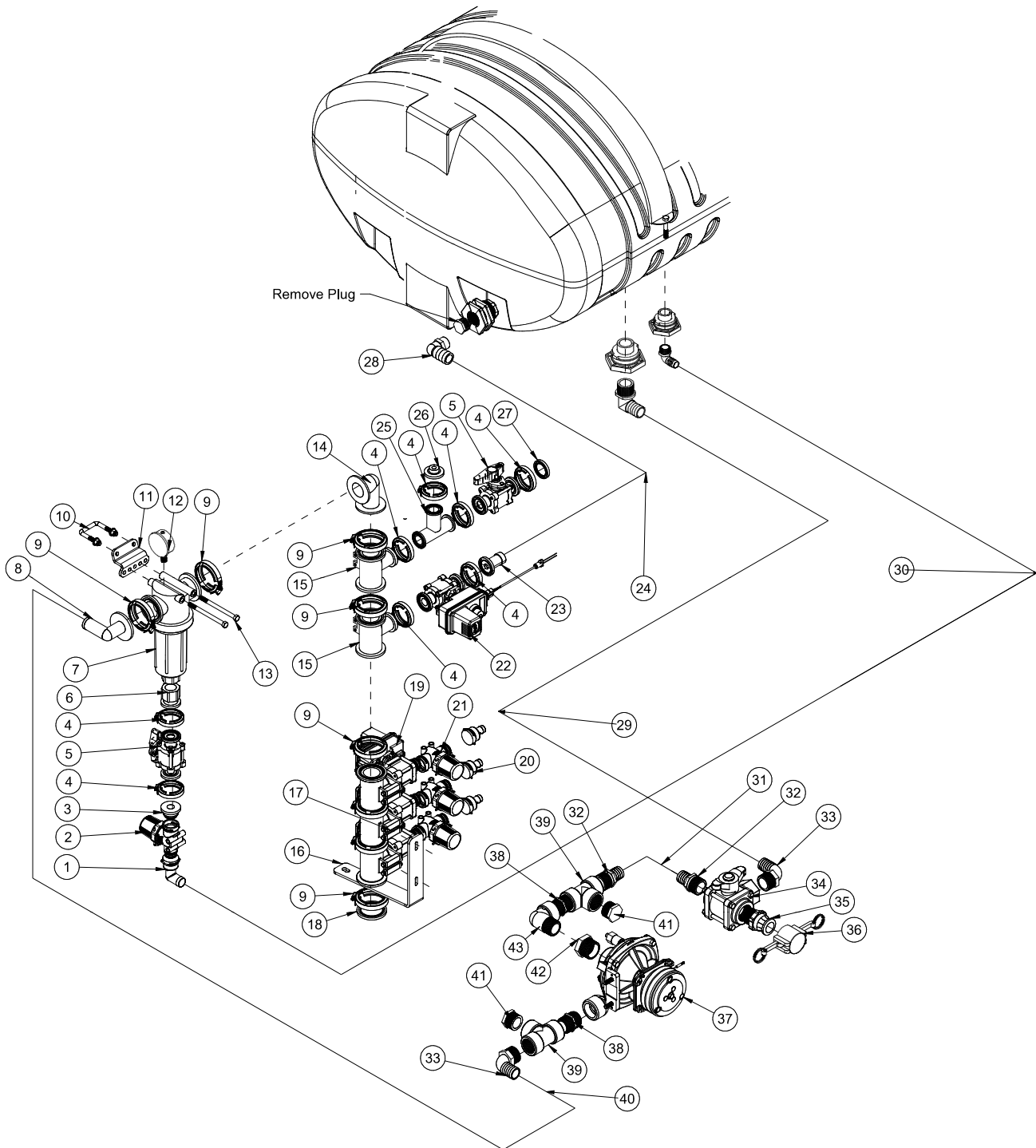
1202 PLUMBING PARTS LIST (RADION® 81401)

REF#	PART#	DESCRIPTION	QUANTITY
1	14-671	Elbow	1
2	14-801	Agitator Line Strainer, 50 Mesh	1
	14-802	Replacement 50 Mesh Screen	
	14-803	Decal, Clean Strainer	1
3	15-825	#50 Male Quick Coupler	1
4	15-740	#50 Series Clamp	6
5	15-738	Flanged Ball Valve	2
6	15-735	#50 x 1 FTP Fitting	1
7	15-737	Flanged Strainer	1
	16-968-03	Screen (50 mesh)	1
8	15-739	#75 90° Hose Barb	1
9	15-741	#75 Series Clamp	7
10	17-537	Square U-bolt	1
11	30-551	Filter Mount	1
12	16-281	Liquid Filled Gauge	1
13	HB-38-16-500	Hex Bolt, 3/8 - 16 x 5	2
	HNFL-38-16	Flange Whiz-loc Nut, 3/8 - 16	2
14	15-734	#75 Elbow Coupling	1
15	15-748	Reducer Coupling (#75 to #50)	2
16	20-785	Regulator Valve	1
17	30-164	Tapped Reducer Tee	1
18	20-684	#802 Flow Meter	1
19	20-915	Valve Brace	1
20	15-743-03	Mounting Rail	2
	15-743-06	Screw, SS	8
21	15-742	#75 Inlet Cover	1
22	15-743	Manifold Valve	1
23	14-660	3/4 Quick Connect Hose Barb	3
24	14-607	Strainer, QC 100 Mesh	3
25	15-778	Blank Gauge Port Flange	1
26	16-156	Elbow	2
27	18-390	Tee	2
28	16-880	Nipple	2
29	15-970	Pump	1
30	10-389	Plug	2
31	16-973	Hex Bushing	1
32	18-372	3-Way Valve	1
	18-372-01	T-Handle	1
33	16-180	Quick Coupler Male	1
34	16-935	Quick Coupler Cap	1
35	16-161	Fitting	2
36	8897	1 1/4" Discharge Hose	24"
	18-116	Hose Clamp	2
37	8897	1 1/4" Discharge Hose	26"
	18-116	Hose Clamp	2
38	8896	1" Suction Hose	56"
	18-222	Hose Clamp	2
39	8897	1 1/4" Discharge Hose	57"
	18-116	Hose Clamp	2
40	20-670-04	Radion Pressure Sensor	1
41	16-972	Elbow	1

1204 PLUMBING DRAWING (TEEJET® 744)

15-818 #75 Fitting Oring
 15-817 #50 Fitting Oring

BOOM	LEFT HOSE	CENTER HOSE	RIGHT HOSE
15"	9032-125	9032-90	9032-136
18'	9032-125	9032-90	9032-136
20'	9032-135	9032-90	9032-146

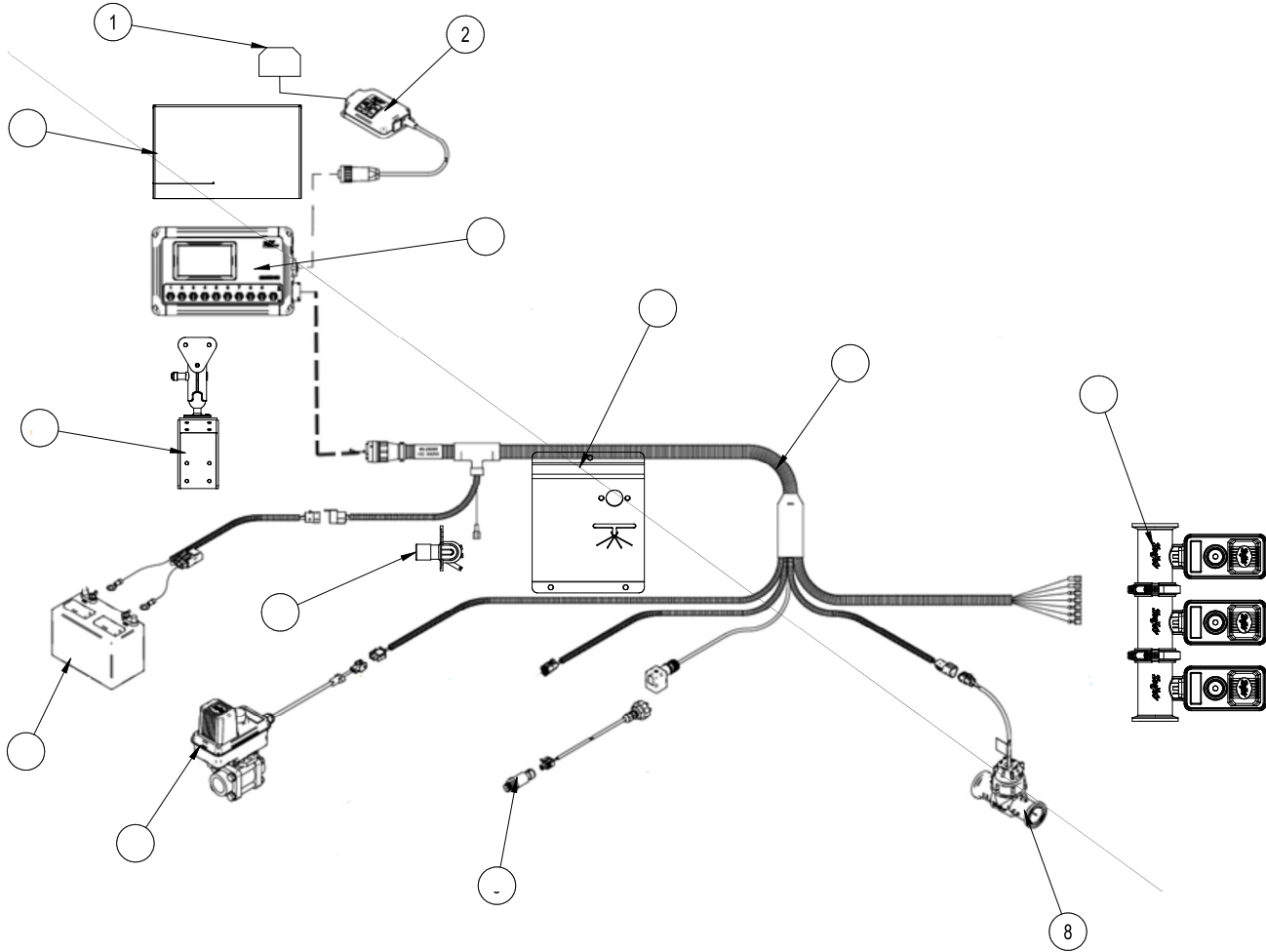


Accessories

1204 PLUMBING PARTS LIST (TEEJET® 744)

REF#	PART#	DESCRIPTION	QUANTITY
1	14-671	Elbow	1
2	14-801	Agitator Line Strainer, 50 Mesh	1
	14-802	Replacement 50 Mesh Screen	
	14-803	Decal, Clean Strainer	1
3	15-825	#50 Male Quick Coupler	1
4	15-740	#50 Series Clamp	8
5	15-738	Flanged Ball Valve	2
6	15-735	#50 x 1 FTP Fitting	1
7	15-737	Flanged Strainer	1
	16-968-03	Screen (50 mesh)	1
8	15-739	#75 90° Hose Barb	1
9	15-741	#75 Series Clamp	6
10	17-537	Square U-bolt	1
11	30-551	Filter Mount	1
12	16-281	Pressure Gauge	1
13	HB-38-16-500	Hex Bolt, 3/8 - 16 x 5	2
	HNFL-38-16	Flange Whiz-loc Nut, 3/8 - 16	2
14	15-734	#75 Elbow Coupling	1
15	15-775	Reducer Tee	2
16	20-916	Valve Brace	1
17	15-743-03	Mounting Rail	2
	15-743-06	Screw, SS	8
18	15-742	#75 Inlet Cover	1
19	15-743	Manifold Ball Valve	1
20	14-660	3/4 Quick Connect Hose Barb	3
21	14-607	Strainer, QC 100 Mesh	3
22	20-817	Regulating Valve	1
23	15-870	#50 1 1/4 Hose Barb	1
24	8897	1 1/4" Discharge Hose	30"
	18-116	Hose Clamp	2
25	15-776	#50 Tee	1
26	15-777	Gauge Port Flange	1
27	15-778	Blank Gauge Port Flange	1
28	15-779	Hose Barb (remove plug)	1
29	8897	1 1/4" Discharge Hose	26"
	18-116	Hose Clamp	2
30	8896	1" Suction Hose	56"
	18-220	Hose Clamp	2
31	8897	1 1/4" Discharge Hose	24"
	18-116	Hose Clamp	2
32	16-161	Fitting	1
33	16-156	Elbow	2
34	18-372	3-Way Valve	1
	18-372-01	T-Handle	1
35	16-180	Quick Coupler Male	1
36	16-935	Quick Coupler Cap	1
37	15-970	Pump	1
38	16-880	Nipple	2
39	18-390	Tee	2
40	8897-57	1 1/4" Discharge Hose	57"
	18-116	Hose Clamp	2
41	10-389	Plug	2
42	16-973	Hex Bushing	1
43	16-972	Elbow	1

1202 SYSTEM WIRING IRADION® 8140I

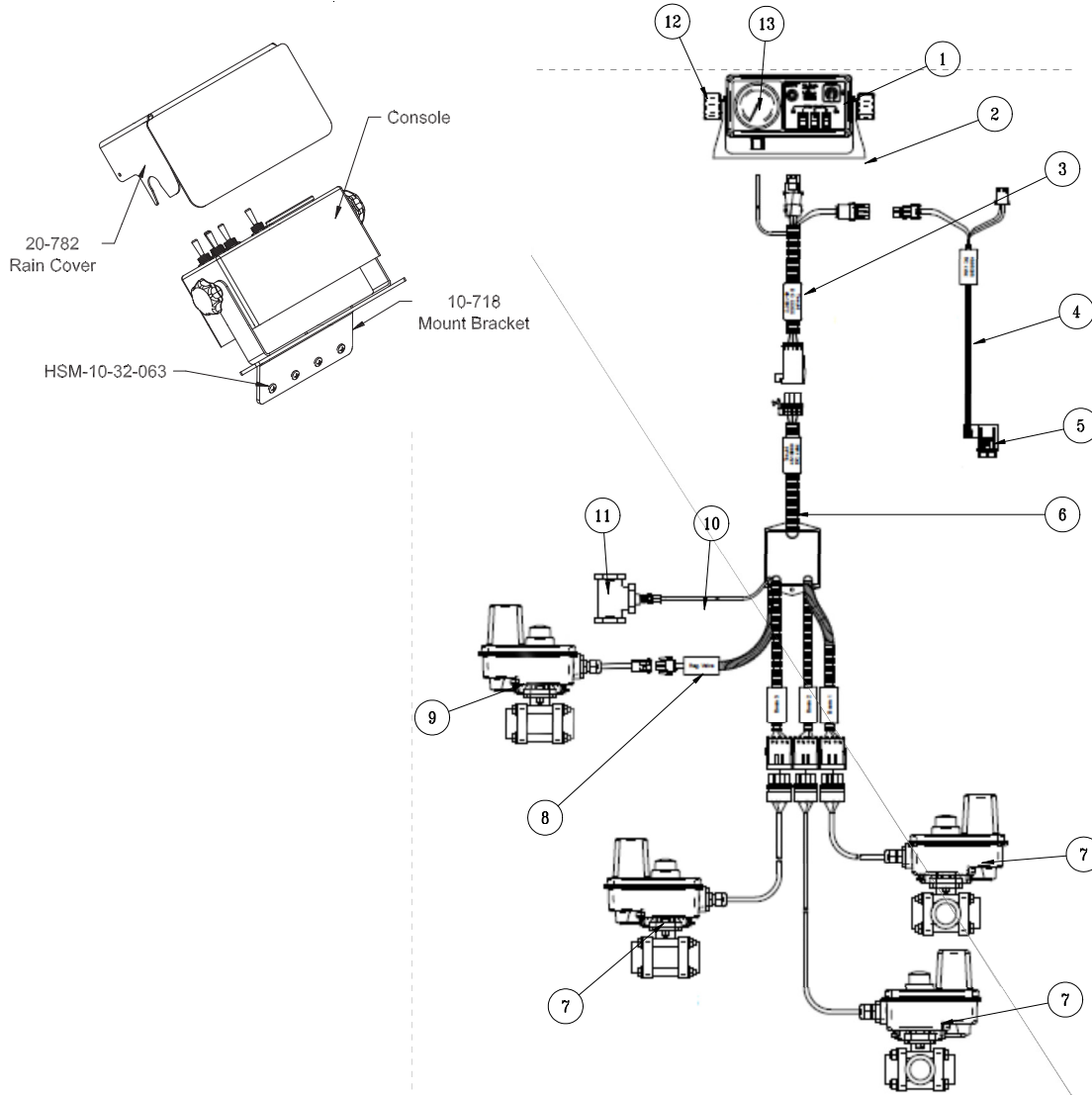


⚠ IMPORTANT

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

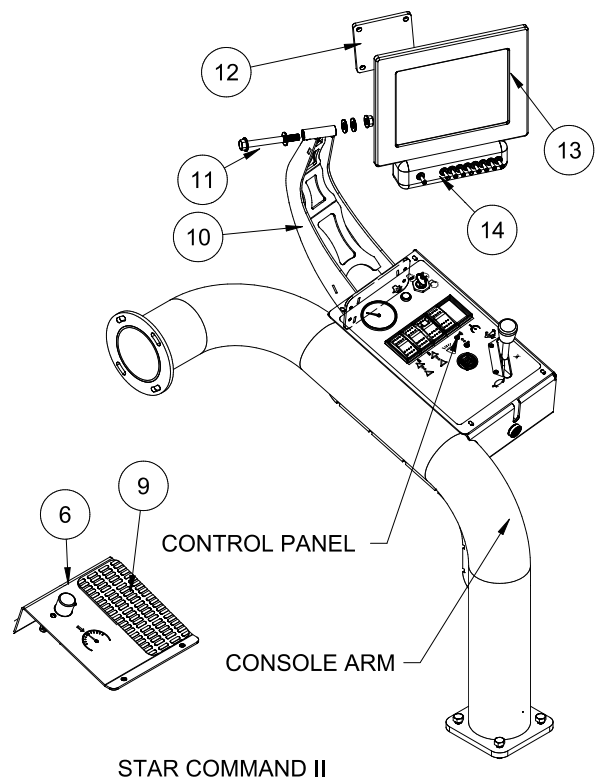
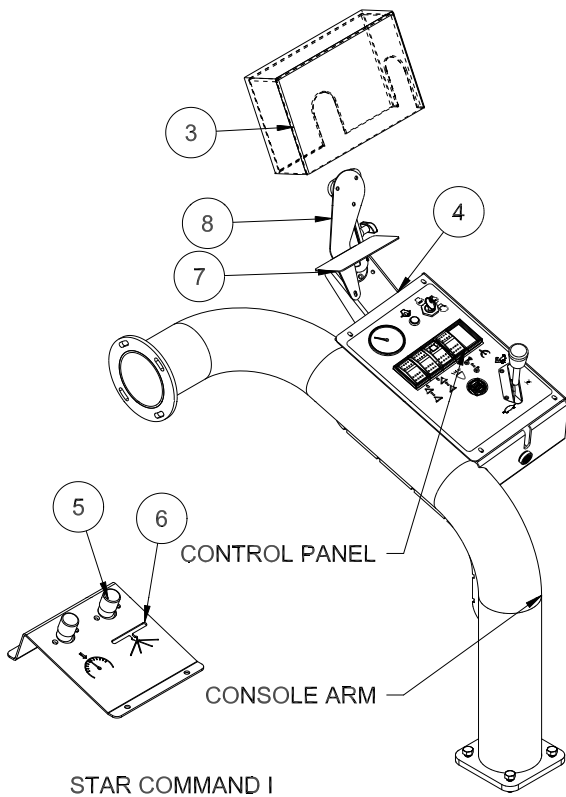
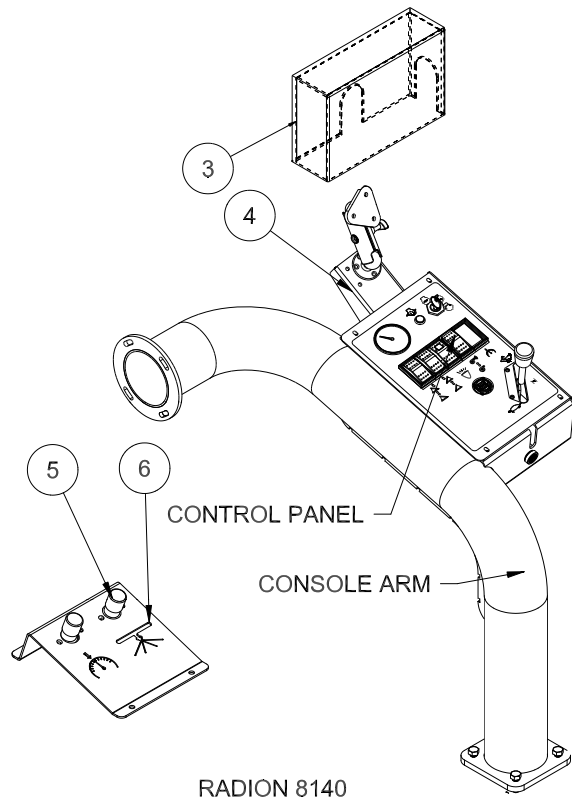
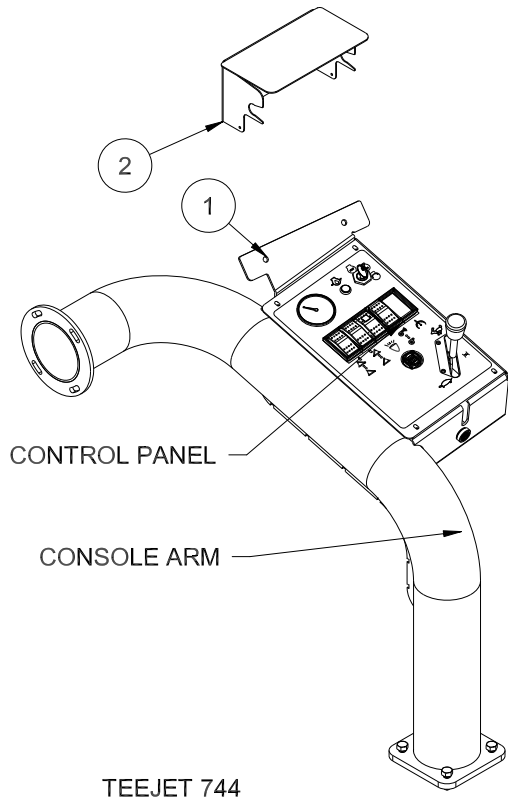
REF#	PART#	DESCRIPTION	QUANTITY
1*		Antenna	1
2*	20-687-02	GPS Speed Sensor	1
3*	20-697-01	Radion 8140 Console	1
4	10-705	Foot Plate	1
5	10-721	Mount Bracket	1
6*		Wire Harness	1
7	15-743	Manifold Valve	1
8	20-684	Flow Meter	1
9*	20-670-04	Pressure Sensor	1
10	20-785	Regulator Valve	1
11	33-216	Battery	1
12	33-509	Master Boom Control	1
13	20-781	Plastic Radion Cover	1
*	20-697	TeeJet® Radion Kit (includes * items)	1
NS	33-508	Auto Blade Fuse 15AMP	1
NS	33-562	Auto Blade Fuse 40AMP	1

1204 SYSTEM WIRING [TEEJET 744®]



REF#	PART#	DESCRIPTION	QUANTITY
1*	20-688-02	744A Console	1
	20-688-07	Circuit Board	1
	20-688-08	Gauge Elbow	1
	15-314	Replacement Master Switch	
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*	20-688-04	Tubing	1
11	15-776	Tee	1
12*	20-688-09	Mounting Knob	2
13*	20-688-01	PSI Liquid Gauge	1
*	20-688	744A Kit Complete (includes * items)	

CONTROL MOUNTS



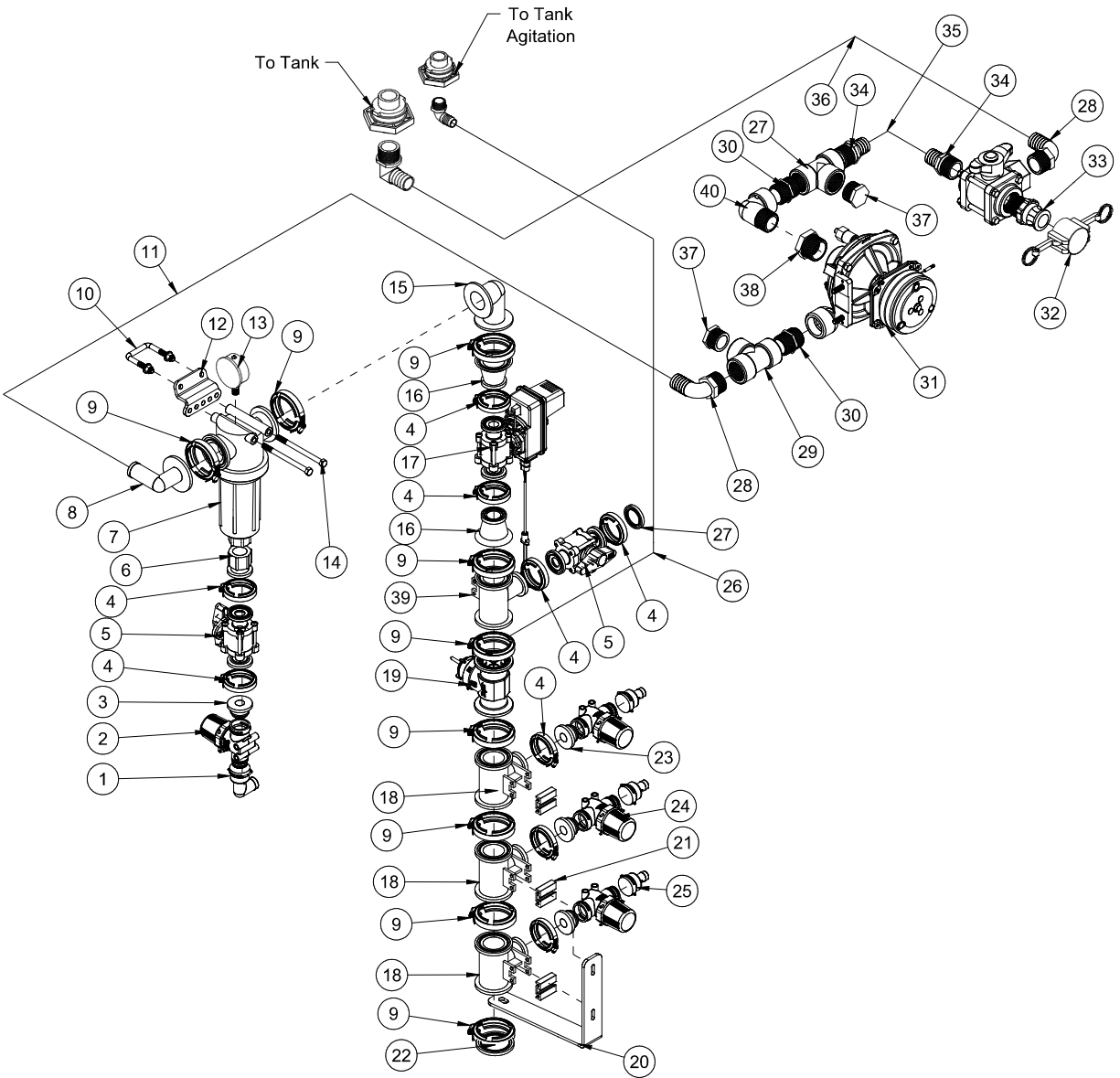
Accessories

CONTROL MOUNTS

REF#	PART#	DESCRIPTION	QUANTITY
1	10-718	744 Control Mount	1
2	20-782	Rain Cover	1
3	20-781	Cover for Radion Control	1
4	10-721	Short Ram Mount	1
5	33-509	Master Boom Switch	1
6	10-705	Switch Foot Plate	1
7	10-716	DynaJet Control Cover	1
8	10-719	Radion/ DynaJet Control Mount	1
9	45-132	Foot Grip	1
10	20-939	Screen Mount Arm	1
	HSM-10-32-063	Machine Screw, #10 -32 x 5/8	4
	HNFL-10-32	Flange Whiz-loc Nut, 10-32	4
11	HB-38-16-350	Hex Bolt, 3/8 - 16 x 3 1/2	1
	HW-516	Flat Washer, 5/16	4
	HNTL-38-16	Lock Nut, 3/8 - 16	1
12	20-940	Screen Mount	1
13	20-935	Ag Leader® Console	1
14		Ag Leader® Switch	1

1207/1208 PLUMBING DRAWING

<u>BOOM</u>	<u>LEFT HOSE</u>	<u>CENTER HOSE</u>	<u>RIGHT HOSE</u>
15"	9032-115	9032-90	9032-126
18'	9032-125	9032-90	9032-136
20'	9032-135	9032-90	9032-146

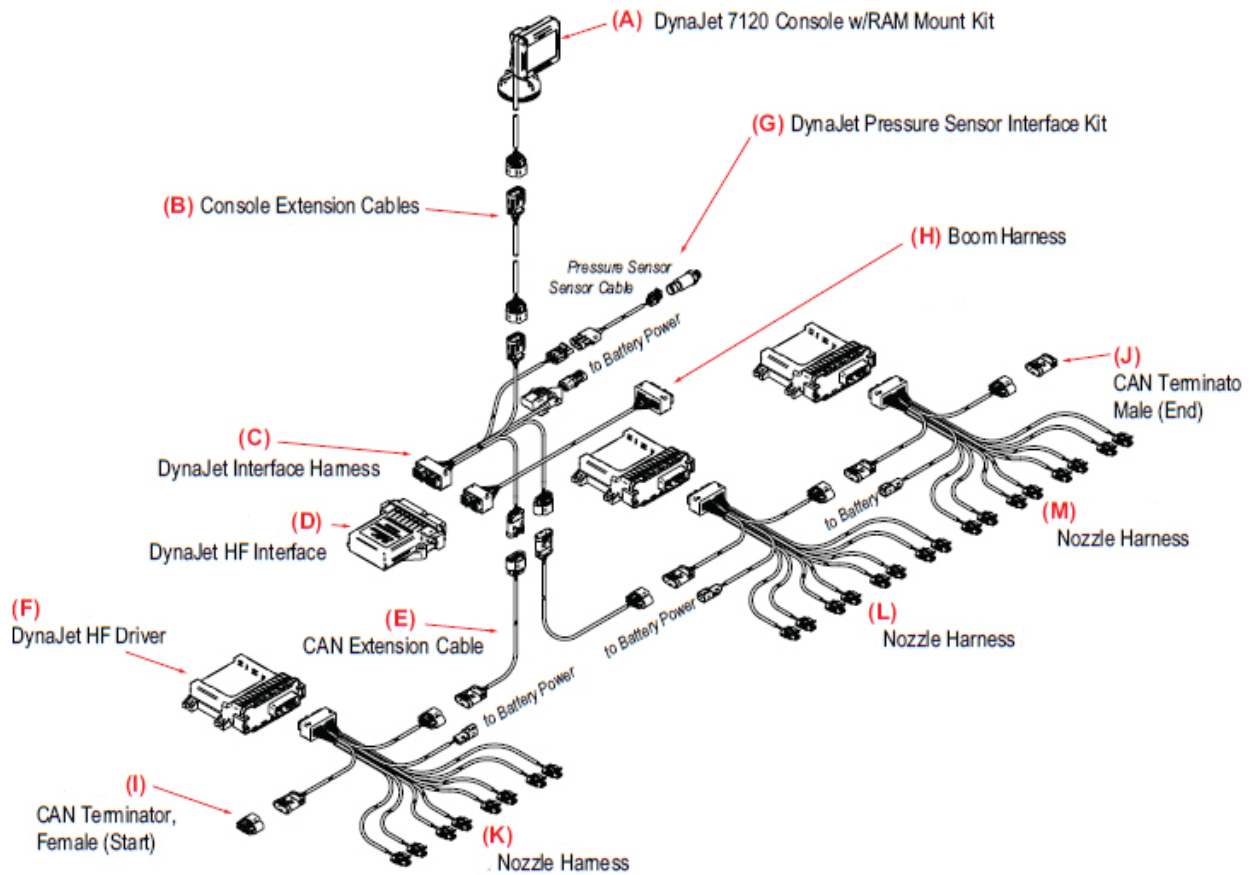


Accessories

1207/1208 PLUMBING PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	14-671	Elbow	1
2	14-801	Agitator Line Strainer, 50 Mesh	1
	14-802	Replacement 50 Mesh Screen	
	14-803	Decal, Clean Strainer	1
3	15-825	#50 Male Quick Coupler	1
4	15-740	#50 Series Clamp	9
5	15-738	Flanged Ball Valve	2
6	15-735	#50 x 1 FTP Fitting	1
7	14-628	Flanged Strainer with 80 Mesh screen	1
	16-968-03	Screen (50 mesh)	1
8	15-739	#75 90° Hose Barb	1
9	15-741	#75 Series Clamp	9
10	17-537	Square U-bolt	1
11	8897	1 ¹ / ₄ " Discharge Hose	57"
	18-116	Hose Clamp	2
12	30-551	Filter Mount	1
13	16-281	Liquid Filled Gauge	1
14	HB-38-16-500	Hex Bolt, ³ / ₈ - 16 x 5	2
	HNFL-38-16	Flange Whiz-loc Nut, ³ / ₈ - 16	2
15	15-734	#75 Elbow Coupling	1
16	15-748	Reducer Coupling (#75 to #50)	2
17	20-785	Regulator Valve	1
18	15-775	Reducer Tee	3
19	20-684	#802 Flow Meter	1
20	20-915	Valve Brace	1
21	15-743-03	Mounting Rail	2
	15-743-06	SS Screw	8
22	15-742	#75 Inlet Cover	1
23	15-825	#50 Male Quick Coupler	3
24	14-607	QC Strainer 100 Mesh	3
	14-609	Replacement 100 Mesh Screen	
25	14-660	³ / ₄ Quick Connect Hose Barb	3
26	8896	1" Suction Hose	56"
	18-220	Hose Clamp	2
27	15-778	Blank Gauge Port Flange	1
28	16-156	Elbow	2
29	18-390	Tee	2
30	16-880	Nipple	2
31	15-970	Pump	1
32	16-935	Quick Coupler Cap	1
33	16-180	Quick Coupler Male	1
34	16-161	Fitting	2
35	8897	1 ¹ / ₄ " Discharge Hose	24"
	18-116	Hose Clamp	2
36	8897	1 ¹ / ₄ " Discharge Hose	26"
	18-116	Hose Clamp	2
37	10-389	Plug	2
38	16-973	Hex Bushing	1
39	30-164	Tapped Reducer Tee	1
	20-670-04	Pressure Sensor	1
40	16-972	Elbow	1

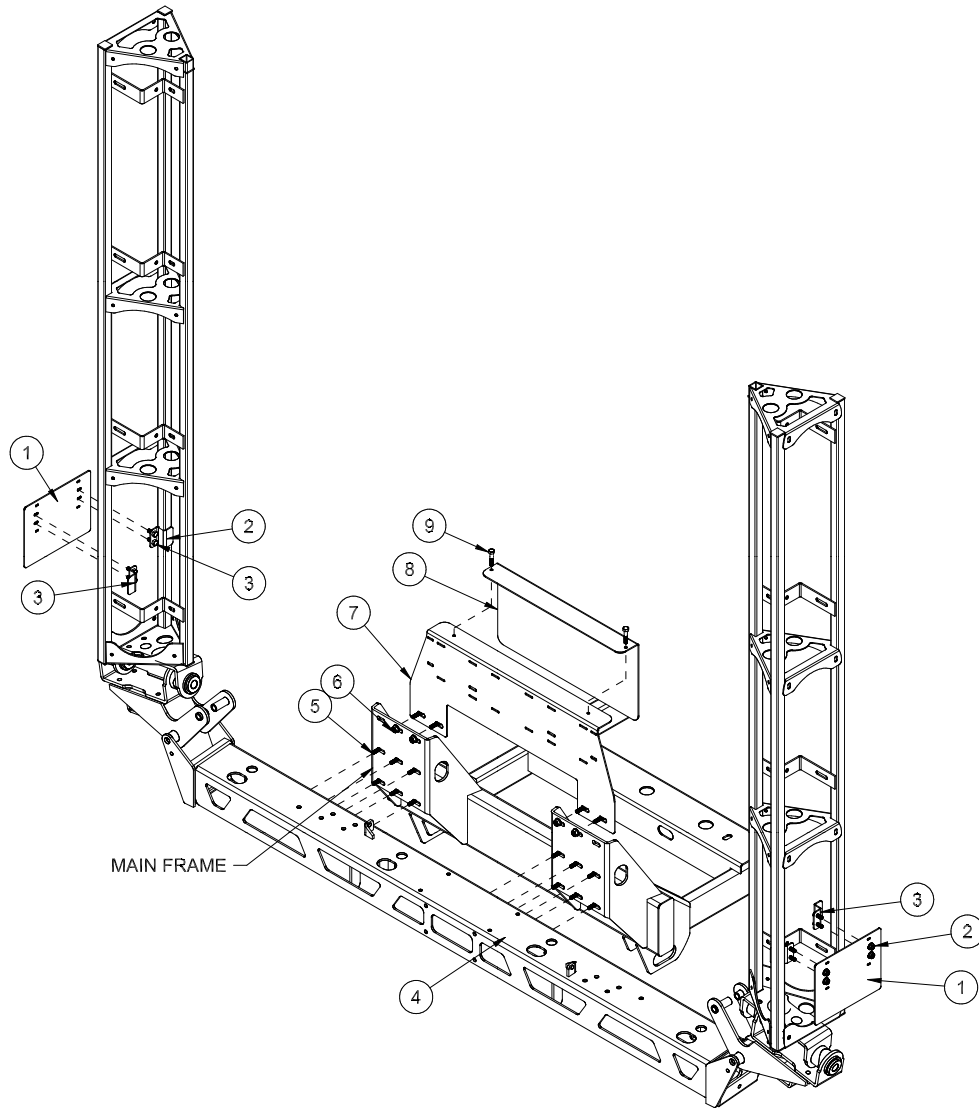
1207/1208 DYNAJET WIRING



REF#	PART#	DESCRIPTION	QUANTITY
A	20-670-06	DynaJet 7120 Console	1
B		Console Extension Cable	1
C		DynaJet Interface Harness	1
D	20-670-07	DynaJet HF Interface	1
E		CAN Extension Cables	1
F	20-670-05	DynaJet HF Driver	3
G	20-670-04	Pressure Sensor Pressure Sensor Cable	1 1
H		Boom Harness	1
I	20-670-09	Terminator, Female (Start)	1
J	20-670-08	Terminator, Male (End)	1
K	20-670-01	Left Nozzle Harness	1
L	20-670-02	Center Nozzle Harness	1
M	20-670-03	Right Nozzle HArness	1

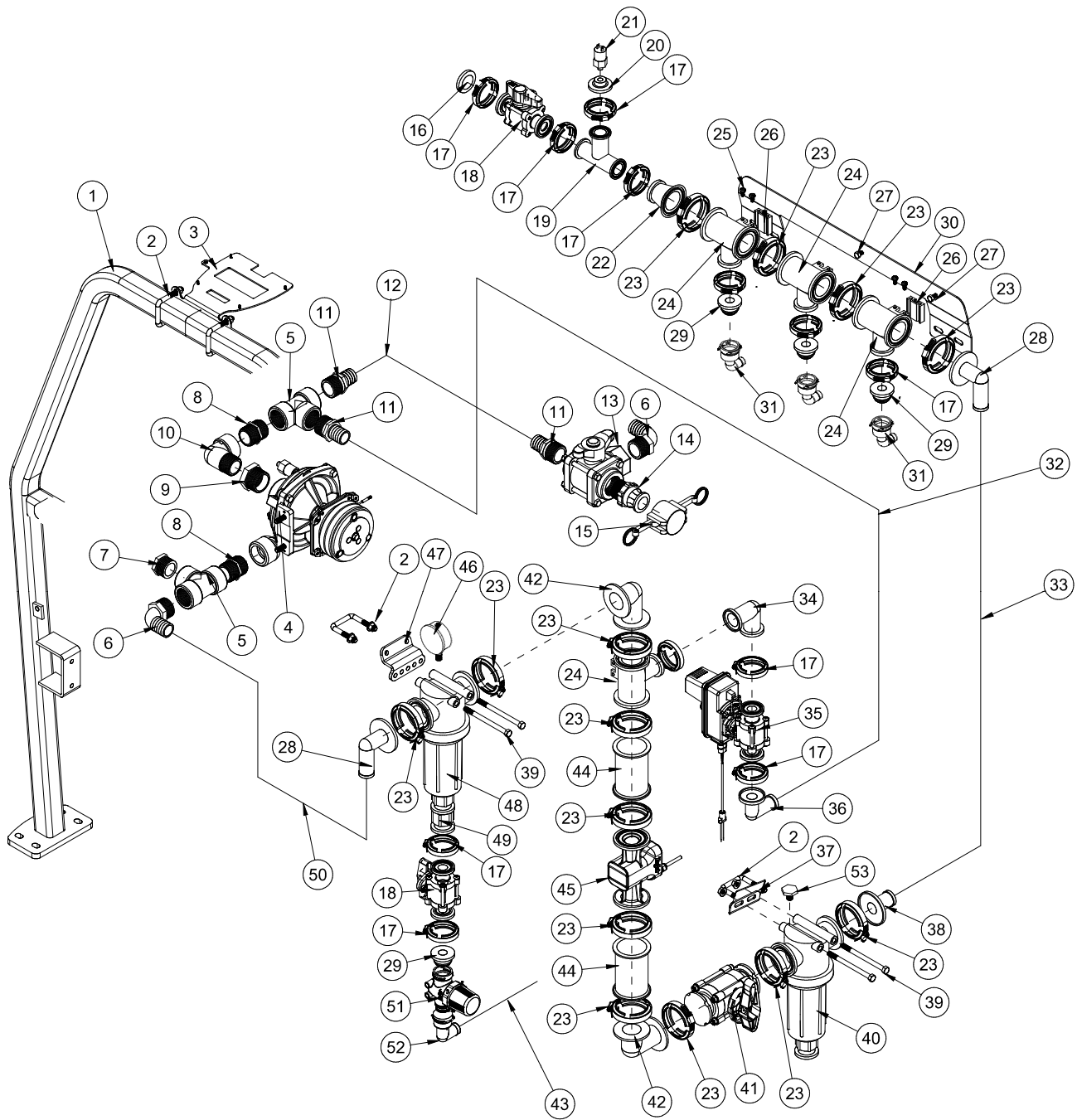
NOTE: This is for 20" spacing used with the Radion system.

1207/1208 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 Lock Nut, $\frac{1}{4}$ - 2	10
4		Center Boom Mount	1
5	HB-38-16-125	Bolt, $\frac{3}{8}$ - 16 x $1\frac{1}{4}$	12
	HW-38	Flat Washer, $\frac{3}{8}$	12
	HW-5/16	Flat Washer, $\frac{5}{16}$	12
	HNFL-516-18	Flange Whiz Lock Nut, $\frac{3}{8}$ -16	12
6	HB-38-16-125	Bolt, $\frac{3}{8}$ - 16 x $1\frac{1}{4}$	4
	HW-3/8	Flat Washer. $\frac{3}{8}$	4
	HNFL-516-18	Flange Whiz Lock Nut, $\frac{3}{8}$ -16	4
7	30-577	Module Mount Bracket	1
8	20-920	Module Cover Bracket	1
9	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

1215/1218/1220-AG PLUMBING DRAWING

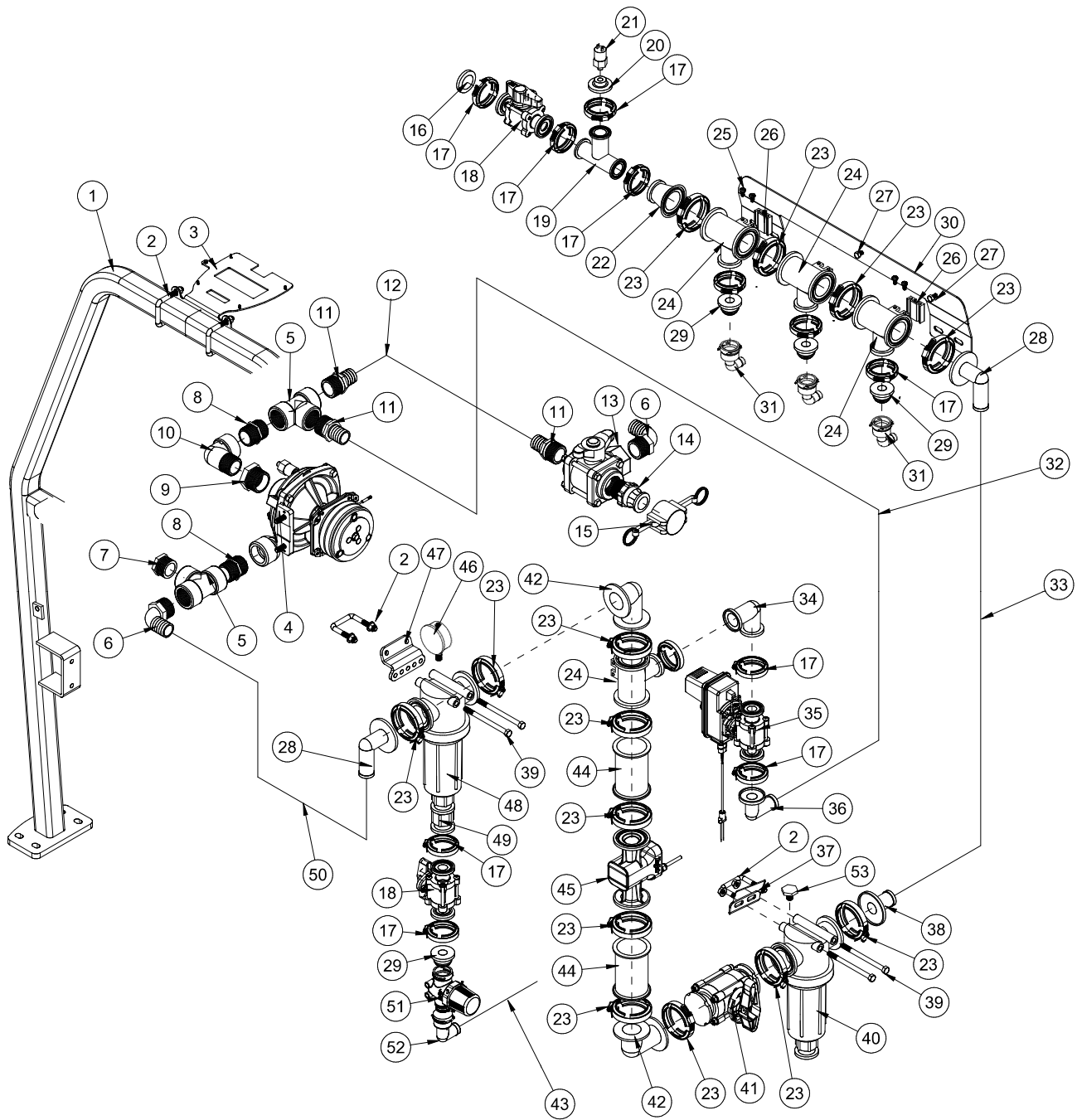


Accessories

1215/1218/1220-AG PLUMBING PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	20-886	Roll Bar	1
2	17-537	Square U-bolt	4
	HNFL-38-16	Flange Whiz-loc Nut, 3/8 - 16	8
3	20-770	Antenna Mount	1
	HBM-4-.7-10	Metric Hex Bolt, M4-.7x10	4
4	15-970	Pump	1
5	18-390	Tee	2
6	16-156	Elbow	2
7	10-389	Plug	12
8	16-880	Nipple	2
9	16-973	Hex Bushing	1
10	16-972	Elbow	1
11	16-161	Fitting	3
12	8897	1 1/4" Discharge Hose	24"
	18-116	Hose Clamp	2
13	18-372	3-Way Valve	1
	18-372-01	T-Handle	1
14	16-180	Quick Coupler Male	1
15	16-935	Quick Coupler Cap	1
16	15-778	Blank Gauge Port Flange	1
17	15-740	#50 Series Clamp	12
18	15-738	Flanged Ball Valve	2
19	15-776	#50 Tee	1
20	15-777	Gauge Port Flange	1
21		Pressure Sensor	1
22	15-748	Reducer Coupling (#75 to #50)	1
23	15-741	#75 Series Clamp	14
24	15-775	Reducer Tee	4
25	15-743-06	SS Screw	8
26	15-743-03	Mounting Rail	2
27	HB-516-18-075	Hex Bolt, 5/16 - 18 x 3/4	2
	HNFL-516-18	Flange WHiz-loc Nut, 5/16 - 18	2
28	15-739	#75 90° Hose Barb	2
29	15-825	#50 Male Quick Coupler	4
30	20-941	Manifold Mount	1
31	15-553	3/4 - 90° Quick Connect Hose Barb	3
32	8897	1 1/4" Discharge Hose	39"
	18-116	Hose Clamp	2
33	8897	1 1/4" Discharge Hose	73"
	18-116	Hose Clamp	2
34	15-736	#50 Flange Coupling	1
35	20-785	Regulator Valve	1
36	15-976	#50 x 90° x 1 1/4 Hose Barb	1
37	20-948	Filter Bracket	1
38	15-744	#75 x 1 1/4 Hose Barb	1
39	HB-38-16-500	Hex Bolt, 3/8 - 16 x 5	4
	HNFL-38-16	Flange Whiz-loc Nut, 3/8 - 16	4

1215/1218/1220-AG PLUMBING DRAWING

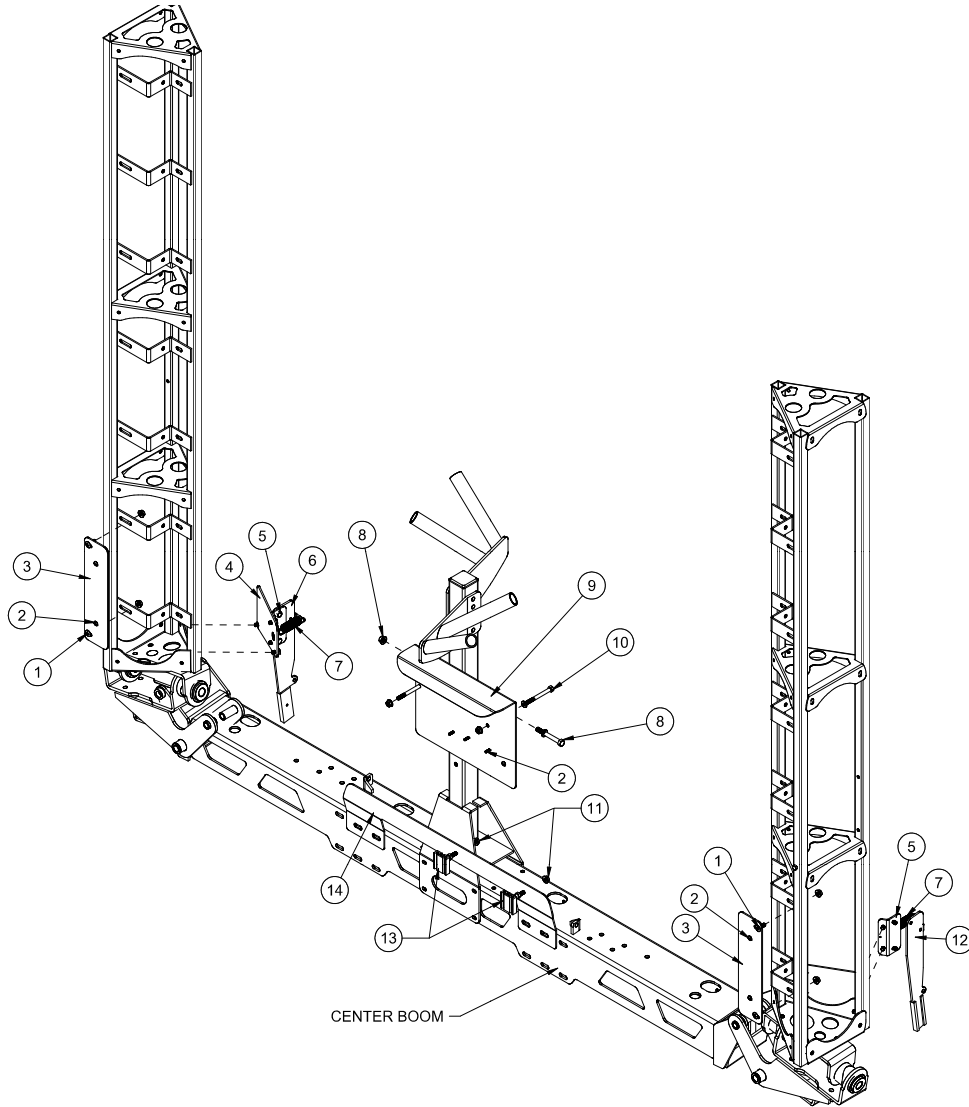


Accessories

1215/1218/1220-AG PLUMBING PARTS LIST

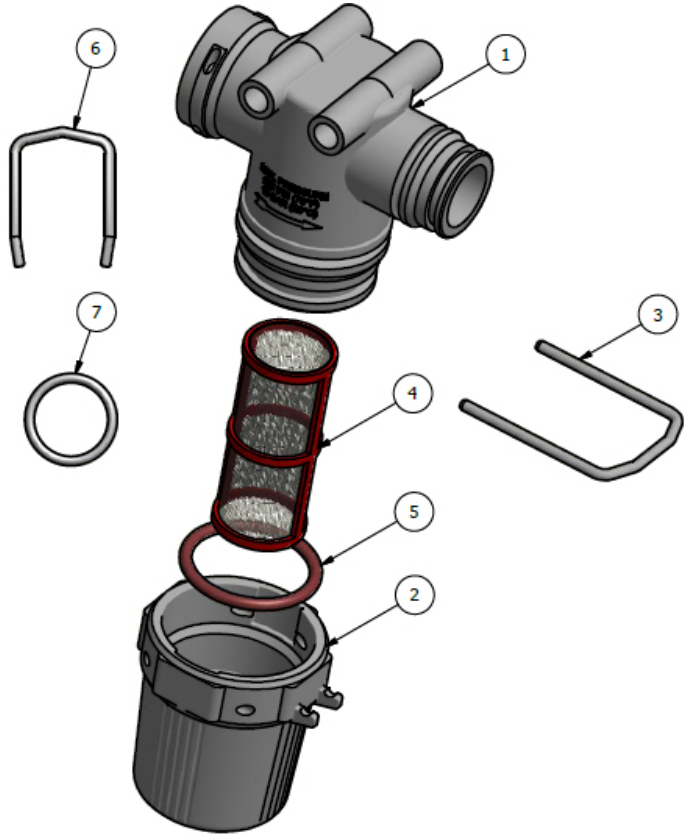
REF#	PART#	DESCRIPTION	QUANTITY
40	14-805	Flanged Strainer with 100 Mesh screen	1
	16-968-06	Screen (100 Mesh)	
41	14-806	2-Way Shut Off Valve	1
42	15-734	#75 Elbow Coupling	2
43	8896	1" Suction Hose (to agitation on tank)	56"
	18-222	Hose Clamp	2
44	15-881	#75 Straight Coupling	2
45	30-590	EM Flowmeter	1
46	16-281	Liquid Filled Gauge	1
47	30-551	Filter Mount	1
48	14-628	Flanged Strainer with 80 Mesh screen	1
	16-968-03	Screen (50 mesh)	1
49	15-735	#50 x 1 FTP Fitting	1
50	8897	1 1/4" Discharge Hose	57"
	18-116	Hose Clamp	2
51	14-801	Agitator Line Strainer, 50 Mesh	1
	14-802	Replacement 50 Mesh Screen	
	14-803	Decal, Clean Strainer	1
52	14-671	Elbow	1
53	15-780	1/4 Plastic Plug	1

1215/1218/1220-AG MODULE MOUNTS



REF#	PART#	DESCRIPTION	QUANTITY
1	HSTP-516-18-075	Truss Head Screw, $\frac{5}{16}$ -18 x $\frac{3}{4}$	4
	HNFL-516-18	Flange Whiz-loc Nut, $\frac{5}{16}$ -18	4
2	HSM-10-32-063	Machine Screw, #10 -32 x $\frac{5}{8}$	4
	HNFL-10-32	Flange Whiz-loc Nut, #10-32	4
3	20-942	Boom Controller Mount	2
4	17-559	Break-Away Mount	2
5	17-560	Hinge Mount	2
6	17-562	LH Break-Away Arm	1
	8946-3.5	Plastic Wear Strip	2
	HRS-316-050	Rivet, $\frac{3}{16}$ x $\frac{1}{2}$	2
7	11-050	Spring	2
8	HB-38-16-300	Hex Bolt, $\frac{3}{8}$ - 16 x 3	1
	HW-516	Flat Washer, $\frac{5}{16}$	1
	HNFL-38-16	Flange Whiz-loc Nut, $\frac{3}{8}$ - 16	1
9	20-943	Module Mount	1
10	HB-516-18-300	Hex Bolt, $\frac{5}{16}$ -18 x 3	2
	HW-14	Flat Washer, $\frac{1}{4}$	4
	HNFL-516-18	Flange Whiz-loc Nut, $\frac{5}{16}$ -18	2
11	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
12	17-561	RH Break-Away Arm	1
13	15-743-03	Mounting Rail	2
14	20-941	Manifold Mount	1

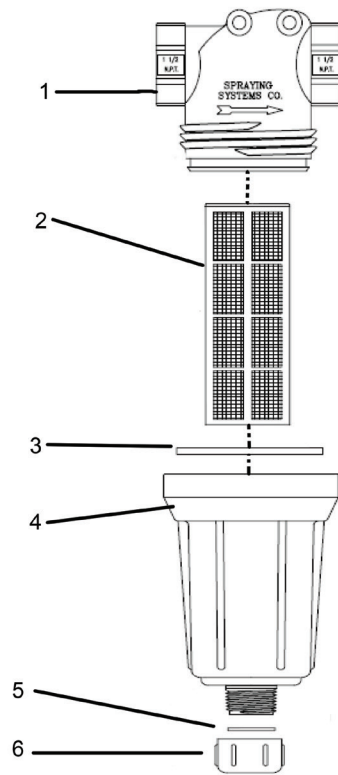
14-801/14-607 STRAINER



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
**	14-609	100 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
*	14-801	Agitation Strainer Assembly with 50 Mesh Screen	
**	14-607	QC Strainer Assembly with 100 Mesh Screen	

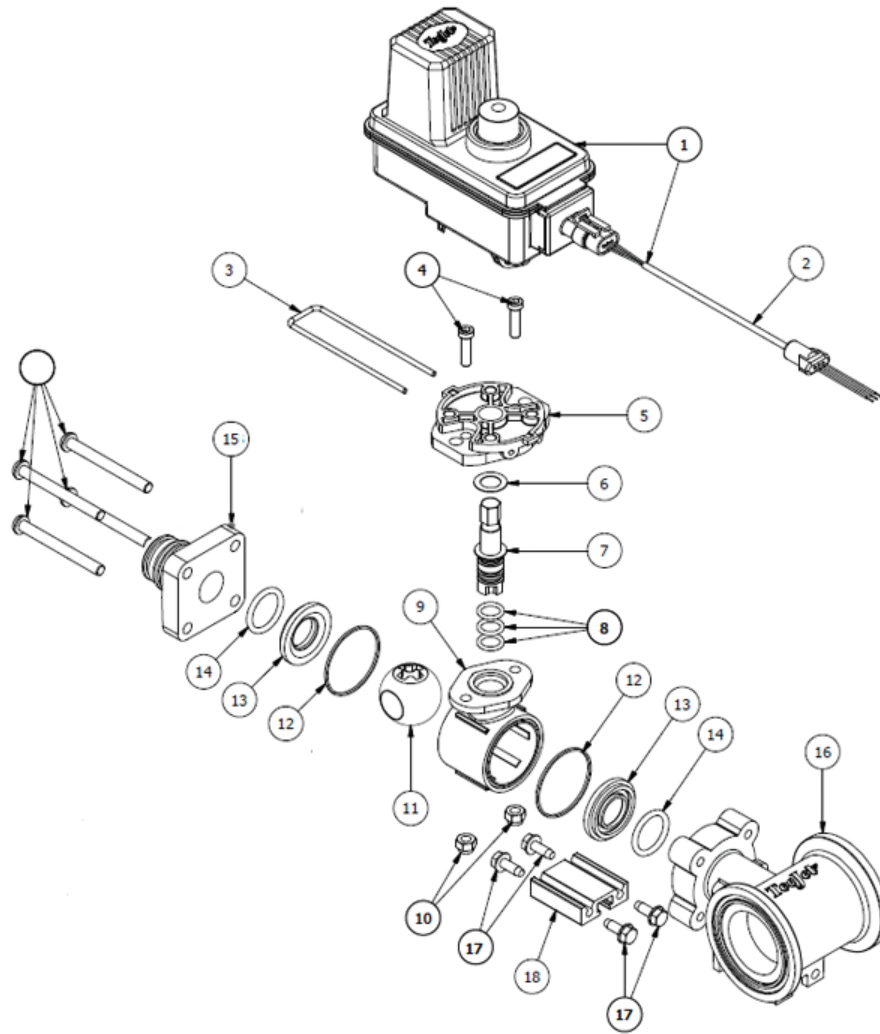
Accessories

15-737/ 14-628/14-805 FLANGED STRAINER DRAWING



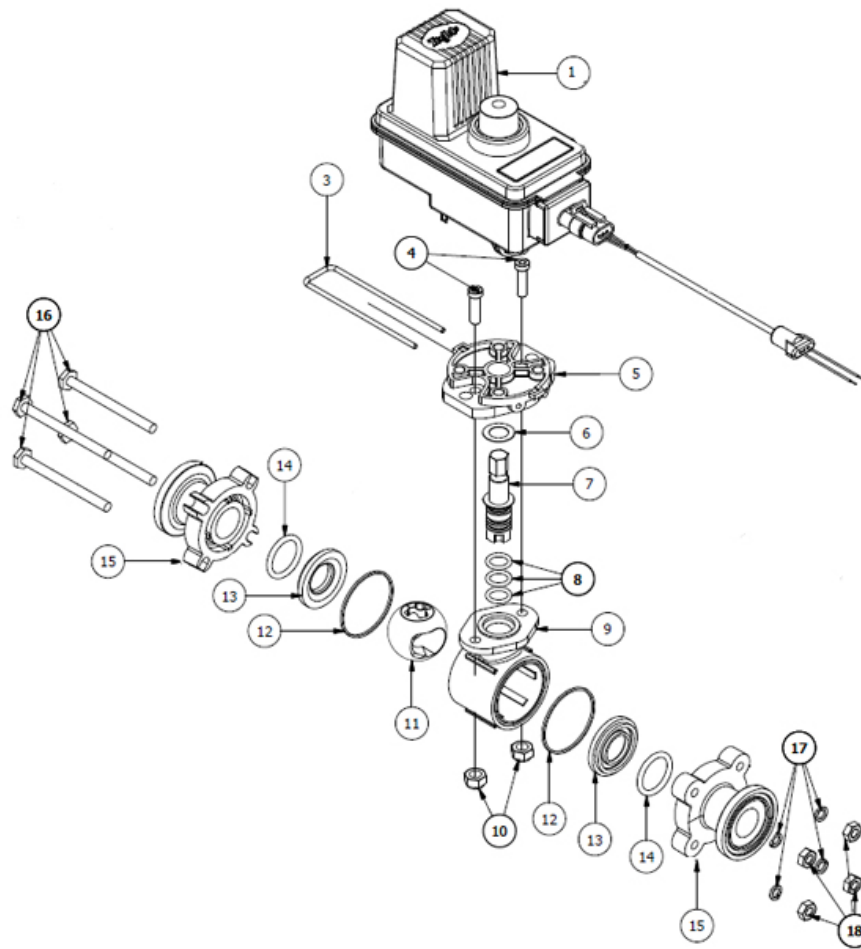
REF#	PART#	DESCRIPTION	QUANTITY
1	15-737-01	Strainer Head 75 Series	1
2*	16-968-03	50 Mesh Screen	1
**	16-968-05	80 Mesh Screen	1
***	16-968-06	100 Mesh Screen	1
3	14-521-02	EPDM Gasket	1
4	14-521-03	Bowl 1" NPT	1
5	14-521-04	EPDM Rubber gasket	1
6	14-521-05	Cap	1
*	15-737	Flanged Strainer Assembly with 50 Mesh Screen	
**	14-628	Flanged Strainer Assembly with 80 Mesh Screen	
***	14-805	Flanged Strainer Assembly with 100 Mesh Screen	

15-743 MANIFOLD VALVE DRAWING



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 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)	

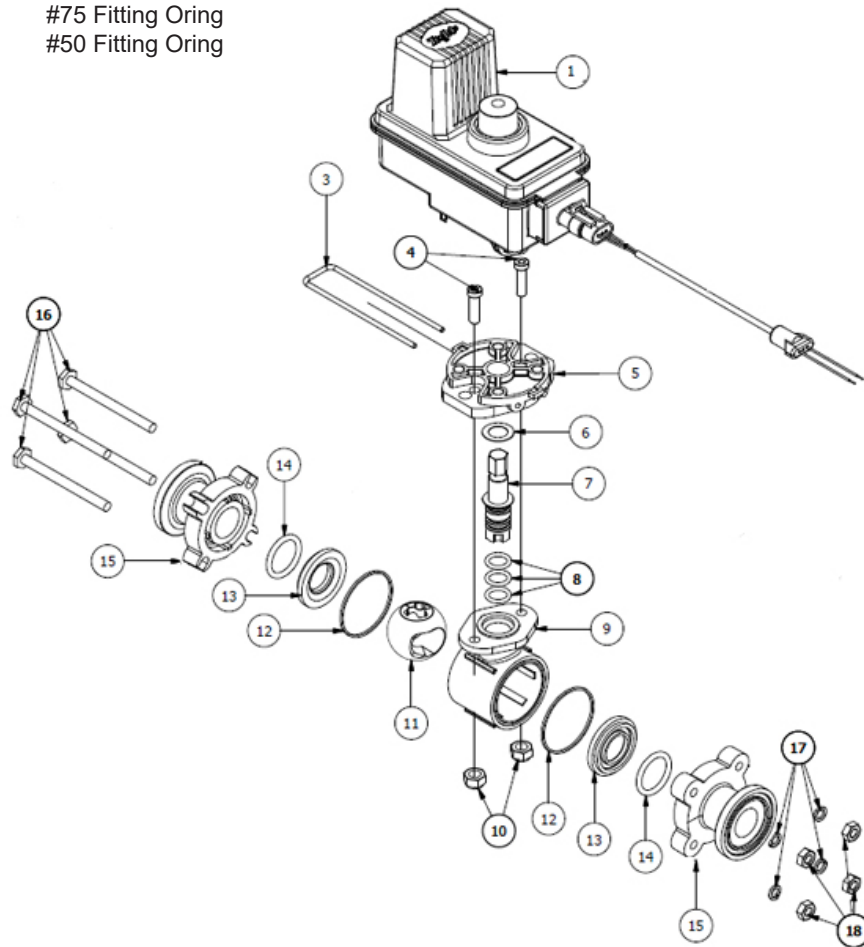
20-817 REGULATOR VALVE



REF#	PART#	DESCRIPTION	QUANTITY
1	20-817-01	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	

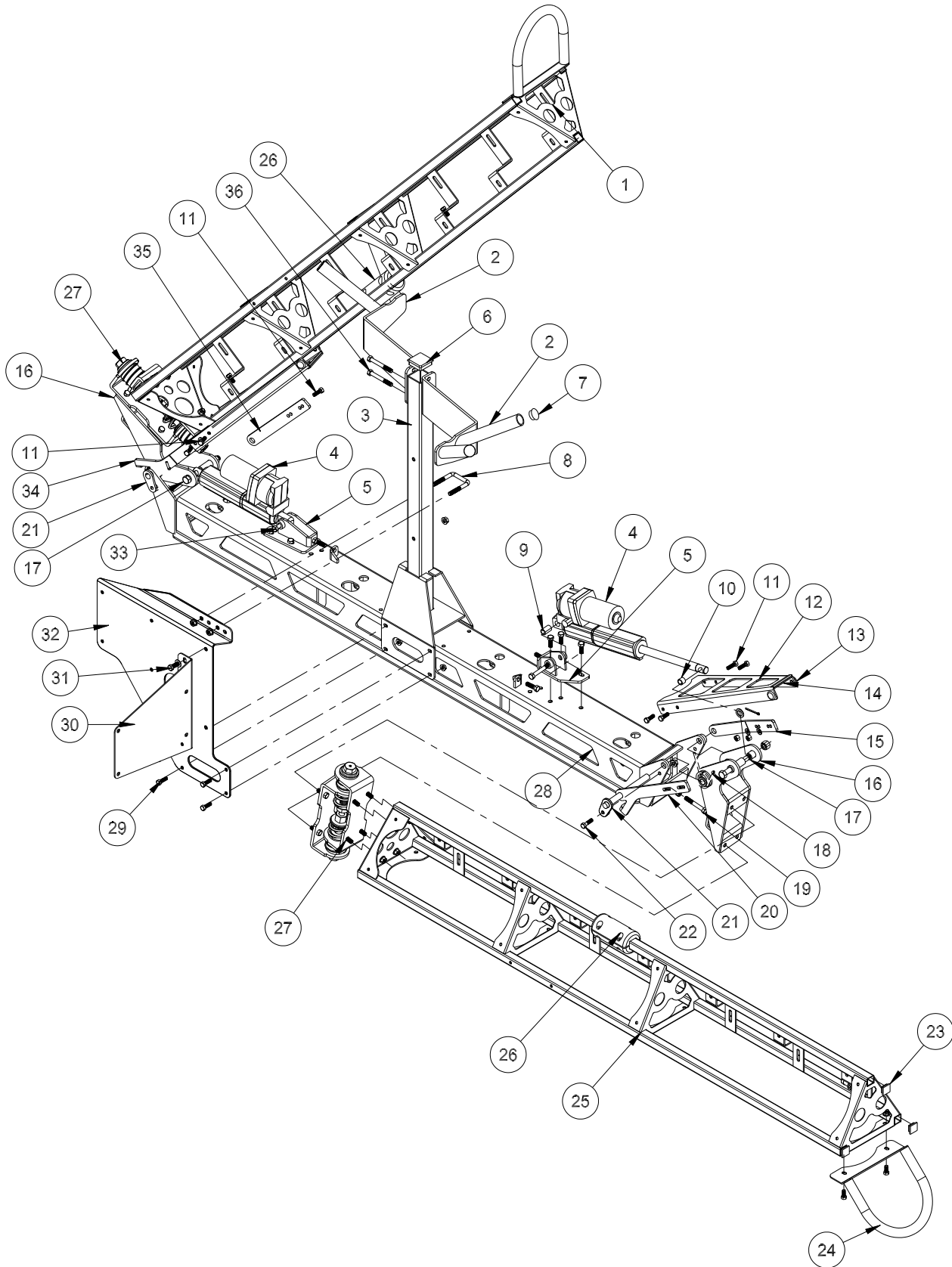
20-785 REGULATOR VALVE

15-818 #75 Fitting Oring
 15-817 #50 Fitting Oring



REF#	PART#	DESCRIPTION	QUANTITY
1	20-785-01	Motor, 6RPM	
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	
	20-785	Complete Regulator Valve	

17-580 20' BOOM DRAWING



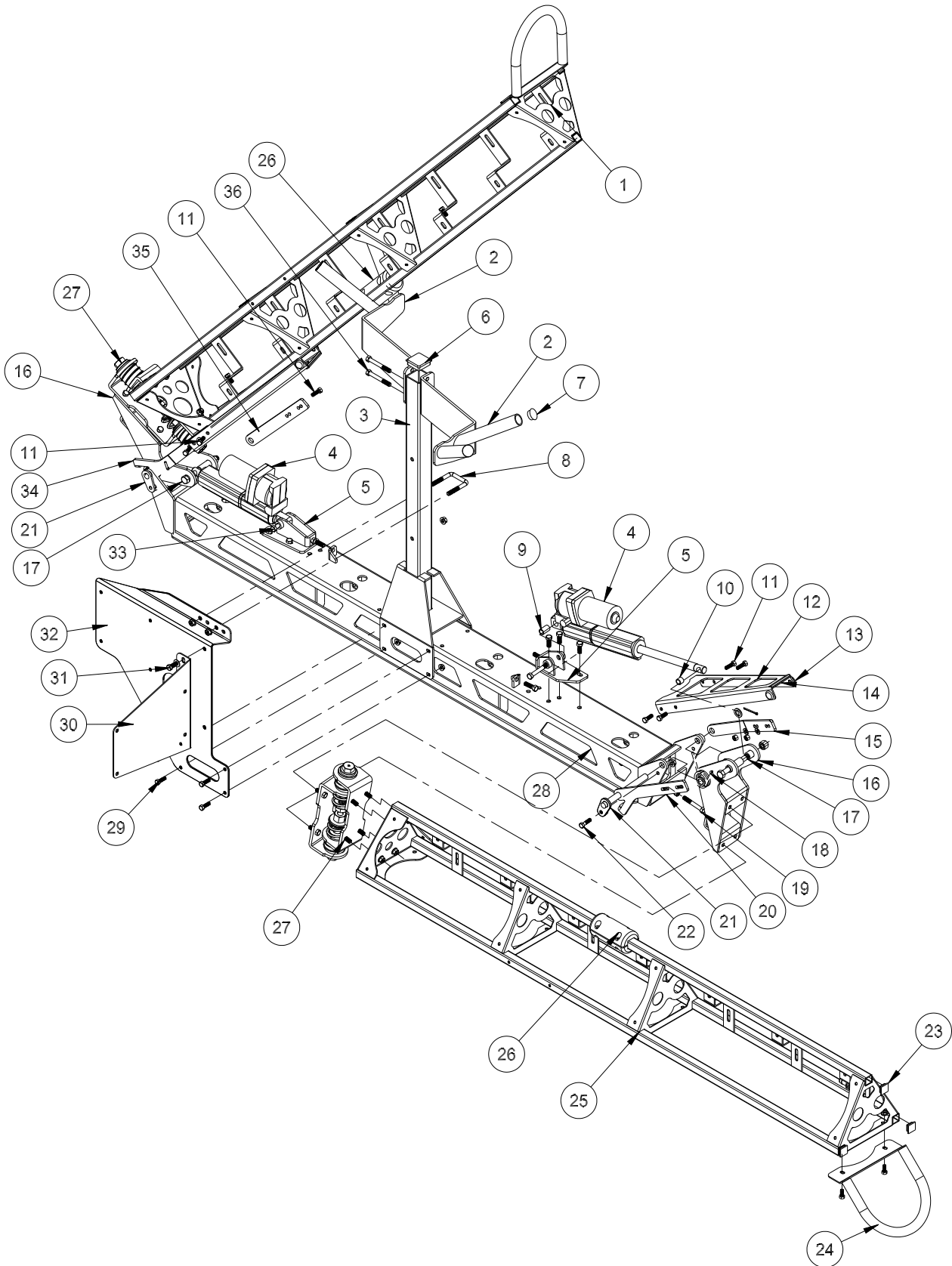
Accessories

17-580 20' BOOM PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
1	17-652	Left Boom Arm	1
2	17-631	V-Boom Nest	2
3	17-578	Boom Nest Post	1
4	30-214	10" Electric Hydraulic Actuator	2
5	30-184	Actuator Mount	2
	HN-38-16	Hex Nut, $\frac{3}{8}$ - 16 (adjustment Hex Bolt)	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
6	18-297	Cap Plug	1
7	17-619	Push in Plug	4
8	17-537	Square U-Hex Bolt	1
9	18-036	1" Bushing (part of 30-214)	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	Nylon Lock Nut, $\frac{5}{16}$ - 18	8
12	32-564	Boom Lock	2
13	8803-2.75	Trim Lace, $2\frac{3}{4}$	2
14	42-116	Rubber Insert	4
15	17-588	Lock Hinge, RH	1
16	30-185	Arm Pivot Hinge	2
	HG-14-28-180	Grease Fitting, $\frac{1}{4}$ - 28 x 180°	2
	76-128	Bushing	4
17	HB-12-13-500	Hex Bolt, $\frac{1}{2}$ - 13 x 5	2
	HNTL-12-13	Nylon Lock Nut, $\frac{1}{2}$ - 13	2
18	17-597	Torsion Spring, RH	1
19	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
20	17-589	Limit Hinge, RH	1
21	17-596	Hinge Pin w/Spacer	2
	HP-18-100	Cotter Pin, $\frac{1}{8}$ x 1	2
22	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
23	30-258	1" 10-14ga Ribbed Plug	10
24	17-541	Boom End Guard	2
	HBFL-516-18-075	Flange Whiz-loc Bolt, $\frac{5}{16}$ - 18 x $\frac{3}{4}$	4
	HNFL-516-18	Flange Whiz-loc Nut, $\frac{5}{16}$ - 18	4
25	17-653	Right Boom Arm	1
26	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
27	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
28	17-651	Boom Center	1
29	HB-516-18-075	Hex Bolt, $\frac{5}{16}$ - 18 x $\frac{3}{4}$	8
	HW-516	Flat Washer, $\frac{5}{16}$	8
	HNFL-516-18	Flange Whiz-loc Nut, $\frac{5}{16}$ - 18	8

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17-580 20' BOOM DRAWING



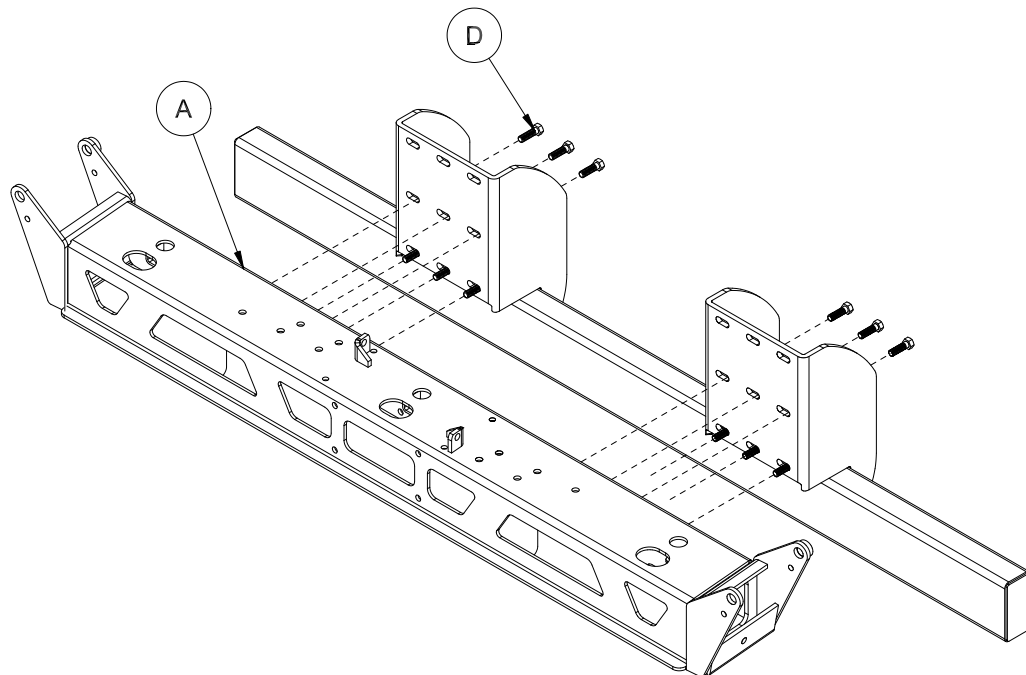
Accessories

17-580 20' BOOM PARTS LIST

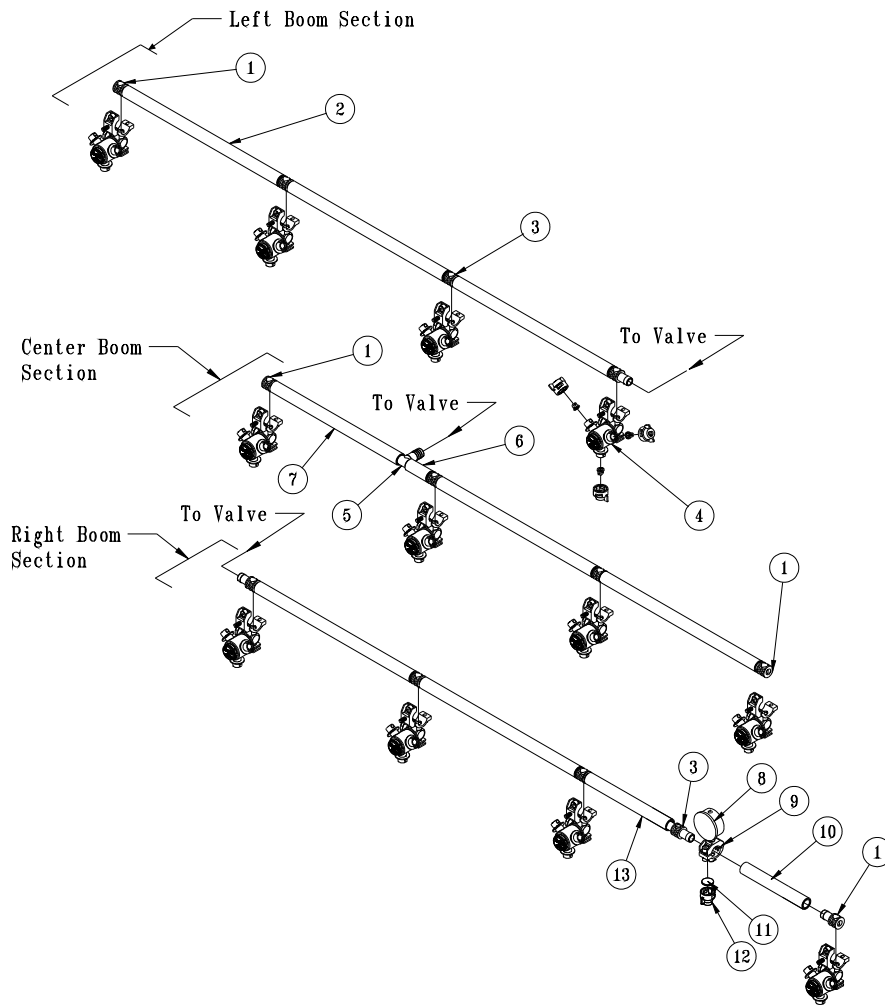
REF#	PART#	DESCRIPTION	QUANTITY
30	17-636	Fresh Water Tank Mount	1
31	HB-38-16-100	Hex Bolt, $\frac{3}{8}$ - 16 x 1	2
	HNFL-38-16	Flange Whiz-loc Nut, $\frac{3}{8}$ - 16	2
	HW-38	Flat Washer, $\frac{3}{8}$	2
32	17-660	Clean Load Mount	1
	8803-13	Black Trim, 13"	1
33	HB-12-13-300	Hex Bolt, $\frac{1}{2}$ - 13 x 3	2
	HNTL-12-13	Nylon Lock Nut, $\frac{1}{2}$ - 13	2
34	17-593	Limit Hinge, LH	1
	17-598	Torsion Spring, LH	1
35	17-592	Lock Hinge, LH	1
36	HB-38-16-300	Hex Bolt, $\frac{3}{8}$ - 16 x 3	2
	HNTL-38-16	Nylon Lock Nut, $\frac{3}{8}$ - 16	2

BOOM MOUNT TO TRUCK

REF#	PART#	DESCRIPTION	QUANTITY
A		Center Boom Mount	1
D	HB-38-16-125	Bolt, $\frac{3}{8}$ - 16 x $1\frac{1}{4}$	12
	HNFL-38-16	Flange Lock Nut, $\frac{3}{8}$ -16	12
	HW-38	Flat Washer, $\frac{3}{8}$	12
	HW-516	Flat Washer, $\frac{5}{16}$	12

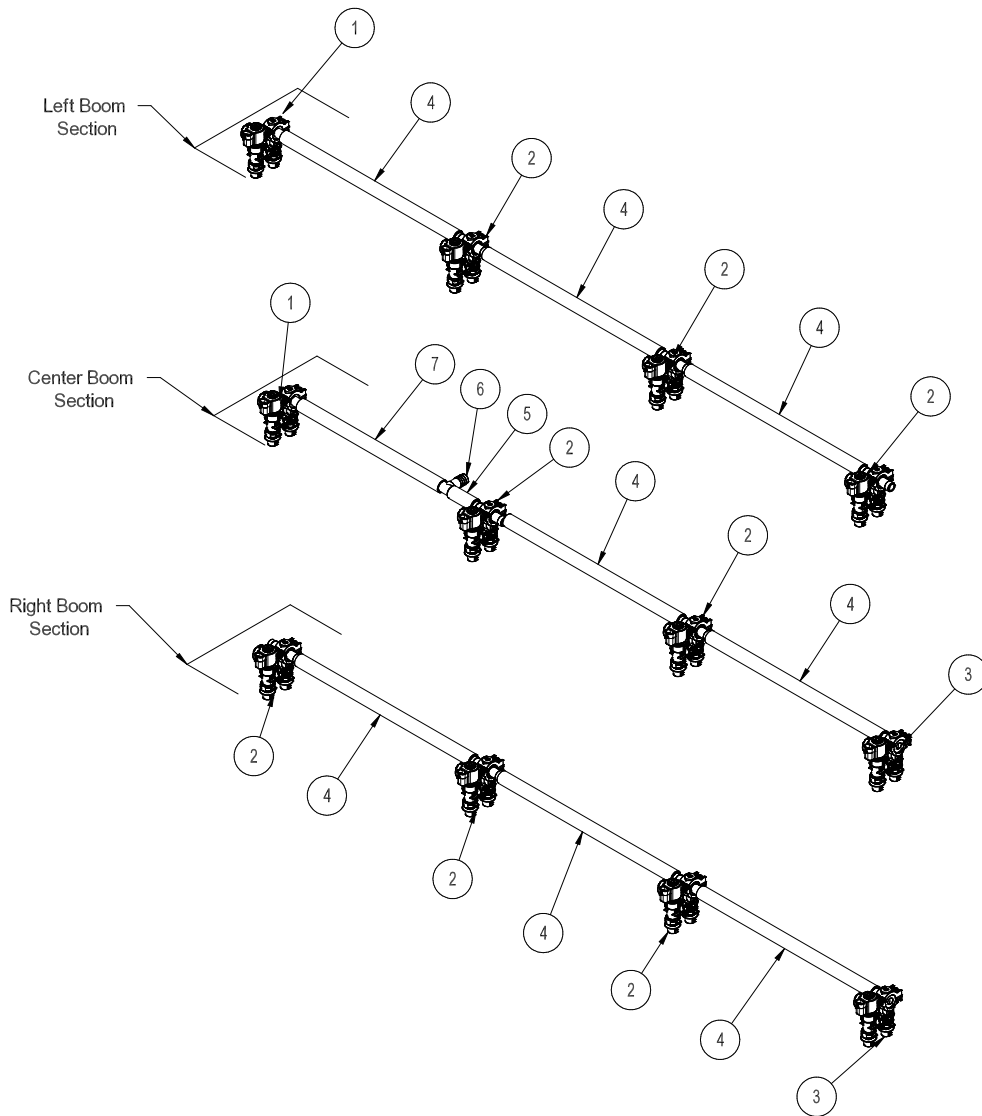


17-580 20' BOOM 1202/1204 PLUMBING



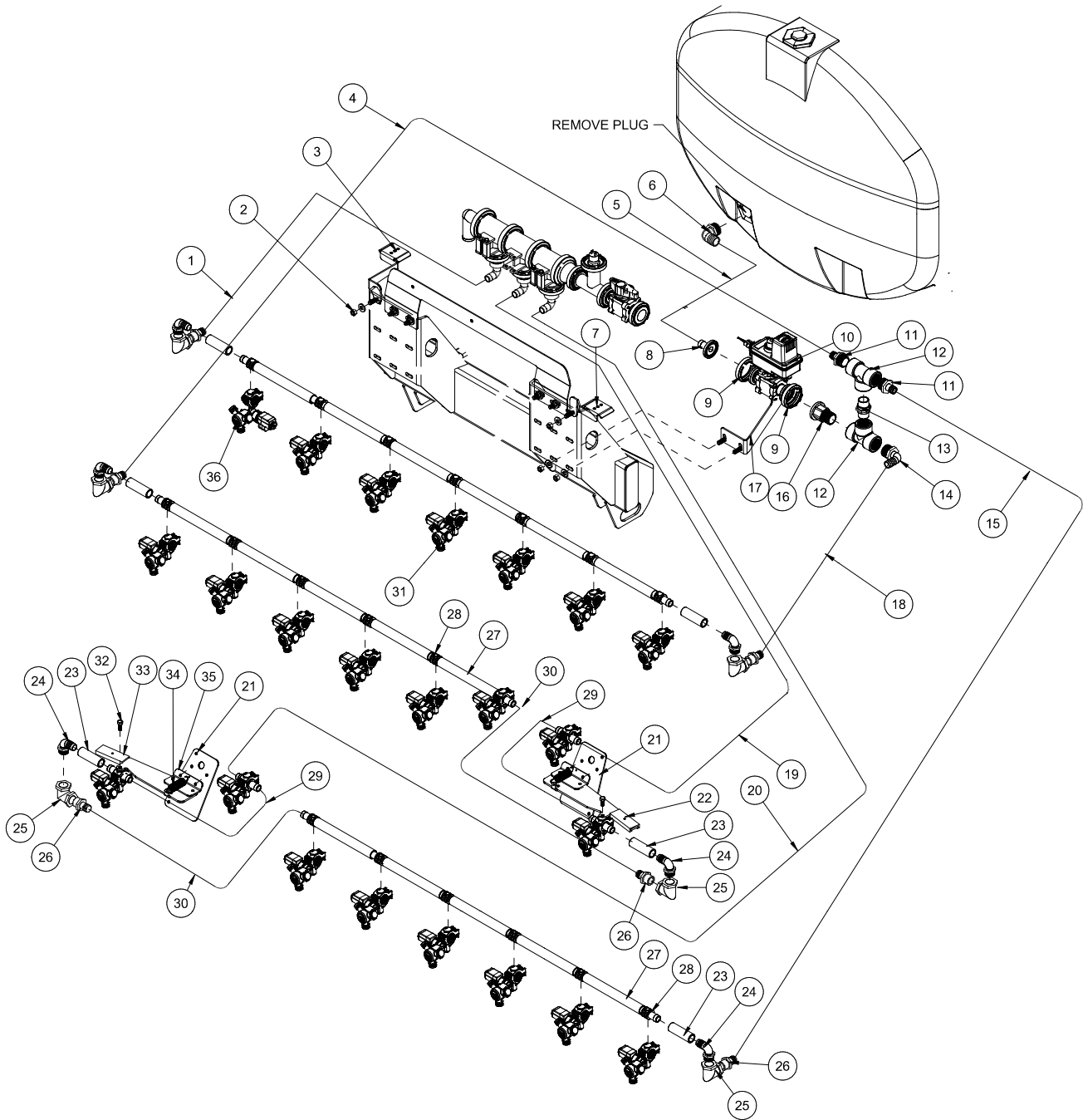
REF#	PART#	DESCRIPTION	QUANTITY
1	18-417	Single Barb	4
2	9032-19	Black Hose, $\frac{3}{4}$ " x 19"	7
	18-040	Hose Clamp	14
3	18-416	Double Barb	9
4	33-563	Nozzle body (see nozzle drawing)	12
5	18-415	$\frac{3}{4}$ " Hose Barb	1
6	9032-2.5	Black Hose $\frac{3}{4}$ " x 2 $\frac{1}{2}$ "	1
	18-040	Hose Clamp	2
7	9032-15.5	Black 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	9032-5	Black Hose $\frac{3}{4}$ " x 5"	1
	18-040	Hose Clamp	2
11	16-800	Gasket	1
12	16-921	Cap	1
13	9032-13	Black Hose $\frac{3}{4}$ " x 13"	1
	18-040	Hose Clamp	2

17-580 20' BOOM 1207 PLUMBING



REF#	PART#	DESCRIPTION	QUANTITY
1	20-675	Single Hose Barb - Right Orientation	2
2	20-673	Single Hose Barb	8
3	20-674	Single Hose Barb - Left Orientation	2
4	9032-19	Black Hose, $\frac{3}{4}$ " x 19"	8
	18-040	Hose Clamp	16
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

17-580 20' BOOM 1220-AG PLUMBING

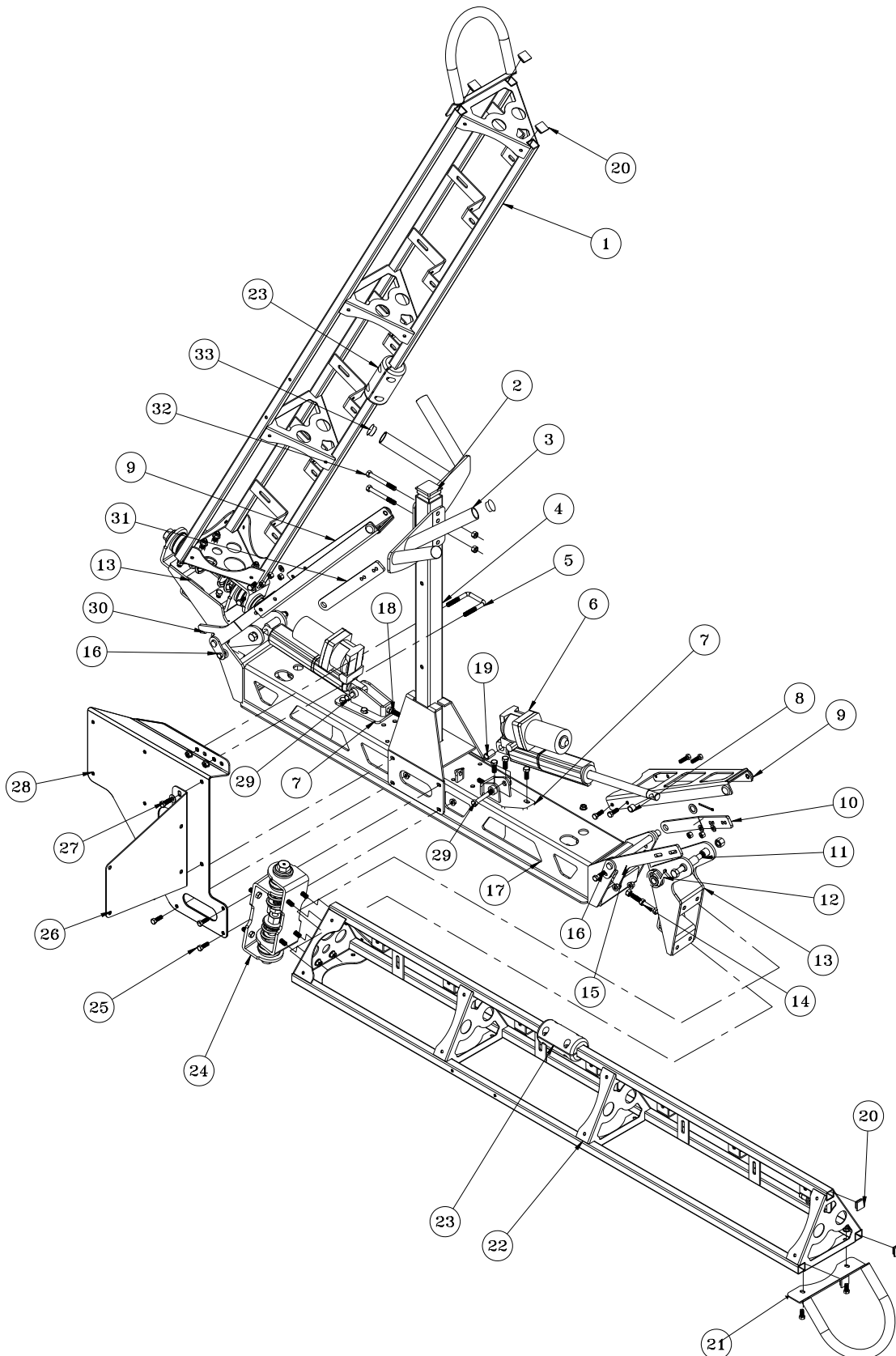


REF#	PART#	DESCRIPTION	QUANTITY
1	9032	Black Hose, 3/4"	22"
	18-040	Hose Clamp	2
2	HB-38-16-125	Hex Bolt, 3/8 -16 x 1 1/4	4
	HW-38	Flat Washer, 3/8	4
	HNFL-38-16	Flange Whiz-loc Nut, 3/8-16	4
3	20-951	LH Hose Bracket	1
	22-131	Double Loop Cable Tie	1
4	9032	Black Hose, 3/4"	143"
	18-040	Hose Clamp	2

17-580 20' BOOM 1220-AG PLUMBING PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
5	8896	1" Discharge Hose	19.5"
	18-220	Hose Clamp	2
6	16-164	Elbow, 1MPT x 1HP	1
7	20-953	RH Hose Bracket	1
	22-131	Double loop Cable Tie	1
8	15-808	#50 x 1" HB	1
9	15-740	#50 Clamp	2
10	14-673	Shutoff Valve	1
11	20-834	Adapter, 1" MPT x 3/4" HB	2
12	18-515	Tee, 1" FTP	2
13	18-514	Black Close Nipple, 1"	1
14	16-174	Elbow, 1" MPT x 3/4" HB	1
15	9032	Black Hose 3/4"	99"
	18-040	Hose Clamp	2
16	15-987	Fitting, #50 x 1" MPT	1
17	20-955	Valve Mount Bracket	1
18	9032	Black Hose, 3/4"	15.5"
	18-040	Hose Clamp	2
19	9032	Black Hose, 3/4"	53.5"
	18-040	Hose Clamp	2
20	9032	Black Hose, 3/4"	58"
	18-040	Hose Clamp	2
21	17-559	Break-A-Way Mount	2
22	17-562	LH Break-A-Way Arm	1
	8946-3.5	Plastic Wear Strip	1
	HRS-316-050	Rivet, 3/16 x 1/2	1
23	9032-3	Black Hose, 3/4"	6
	18-040	Hose Clamp	12
24	16-153	Elbow, 3/4" MPT x 3/4" HP	6
25	16-151	Elbow, 3/4" FPT	6
26	16-154	Fitting, 3/4"	6
27	9032-8.5	Black Hose 3/4"	16
	18-040	Hose Clamp	32
28	18-416	Double Barb	23
29	9032-25	Black Hose 3/4"	2
	18-040	Hose Clamp	4
30	9032-24	Black Hose 3/4"	2
	18-040	Hose Clamp	4
31	20-946	LH Nozzle Body	22
32	HB-516-18-075	Hex Bolt, 5/16 -18 x 1/4	23
	HNFL-516-18	Flange Whiz-loc Nut, 5/16-18	23
33	17-561	RH Break-A-Way Arm	1
	8946-3.5	Plastic Wear Strip	1
	HRS-316-050	Rivet, 3/16 x 1/2	1
34	11-050	Spring	2
35	17-560	Hinge Mount	2
36	20-954	RH Nozzle Body	1

17-585 18' BOOM DRAWING



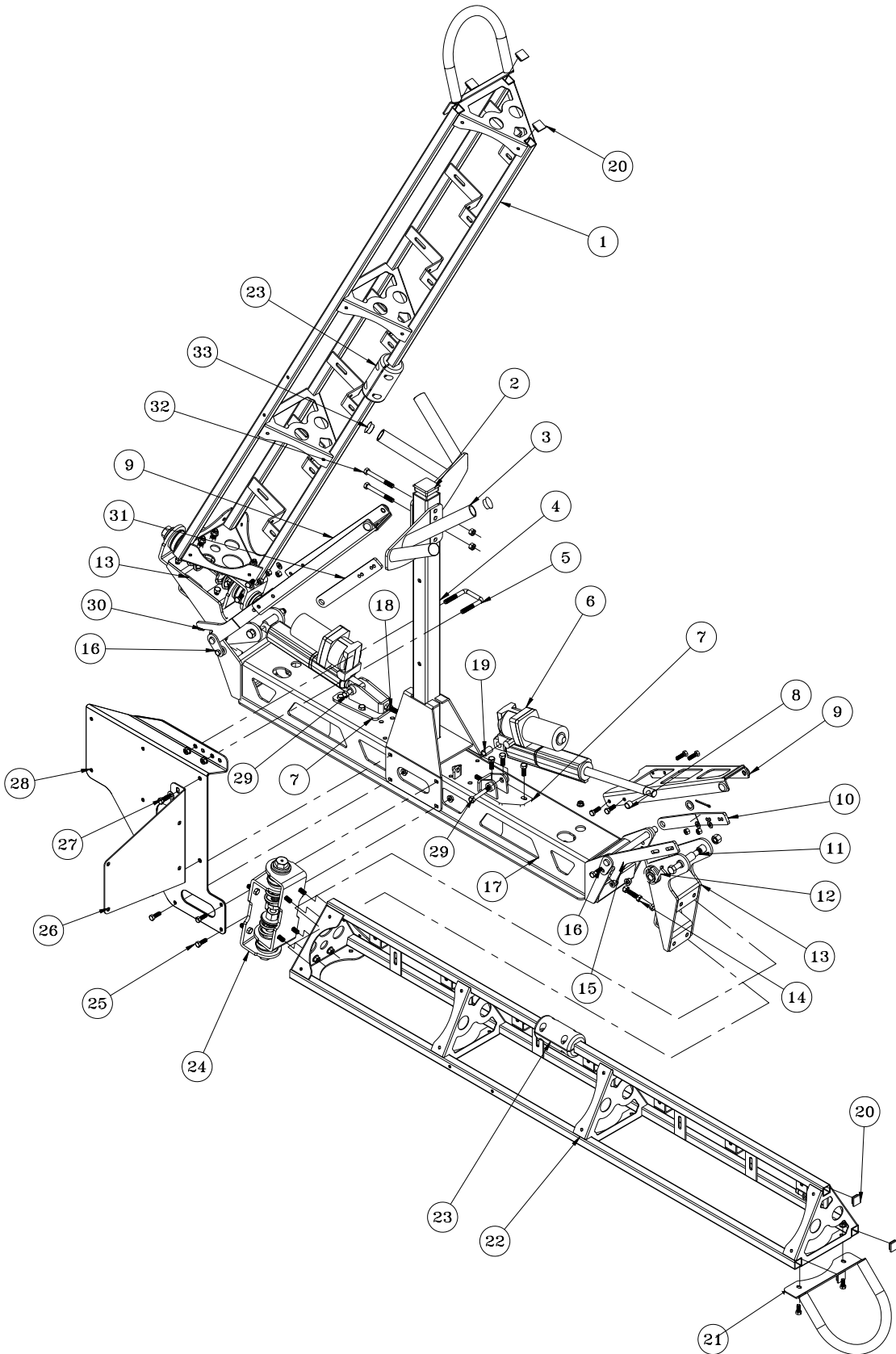
Accessories

17-585 18' 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	32-564	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	Hex 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

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17-585 18' BOOM DRAWING



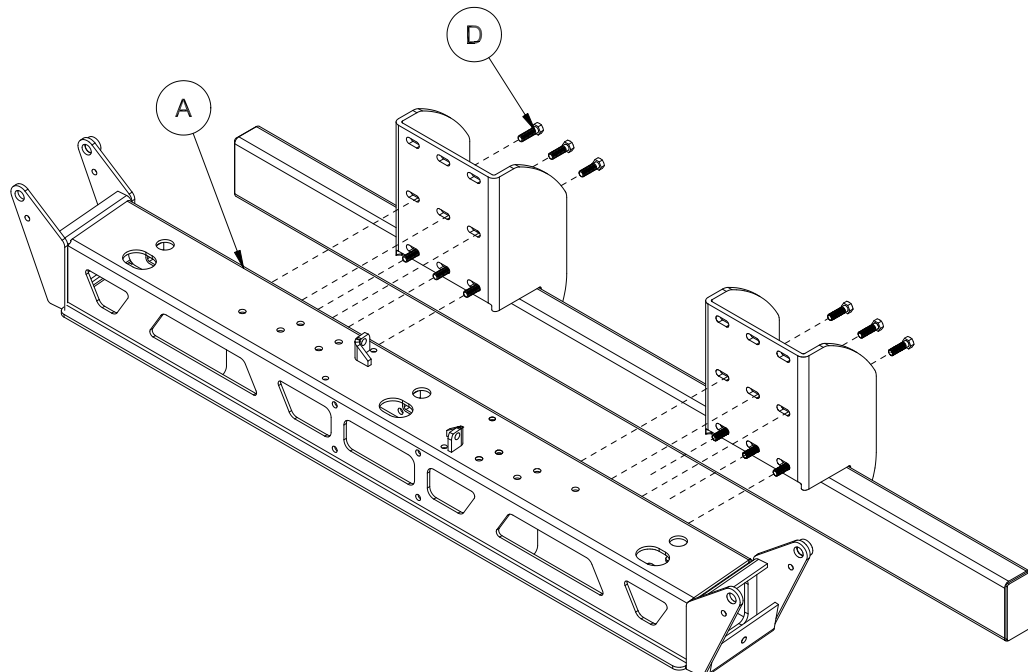
Accessories

17-585 18' BOOM PARTS LIST

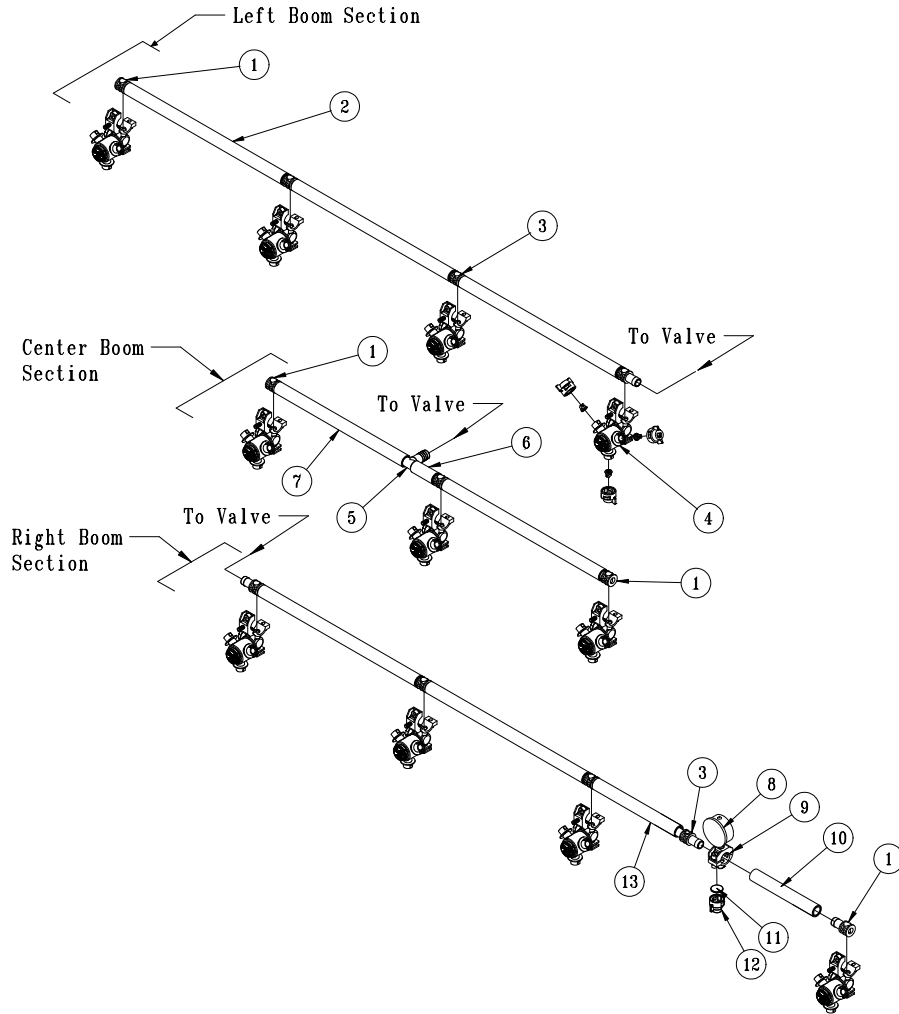
REF#	PART#	DESCRIPTION	QUANTITY
26	17-636	Fresh Water Tank Mount	1
27	HB-38-16-100	Hex Bolt, $\frac{3}{8}$ - 16 x 1	2
	HNFL-38-16	Flange Whiz-loc Nut, $\frac{3}{8}$ - 16	2
	HW-38	Flat Washer, $\frac{3}{8}$	2
28	17-660	Clean Load Mount	1
	8803-13	Black Trim x 13"	1
29	HB-12-13-300	Hex Bolt, $\frac{1}{2}$ - 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
D	HB-38-16-125	Bolt, $\frac{3}{8}$ - 16 x $1\frac{1}{4}$	12
	HNFL-38-16	Flange Lock Nut, $\frac{3}{8}$ -16	12
	HW-38	Flat Washer, $\frac{3}{8}$	12
	HW-516	Flat Washer, $\frac{5}{16}$	12



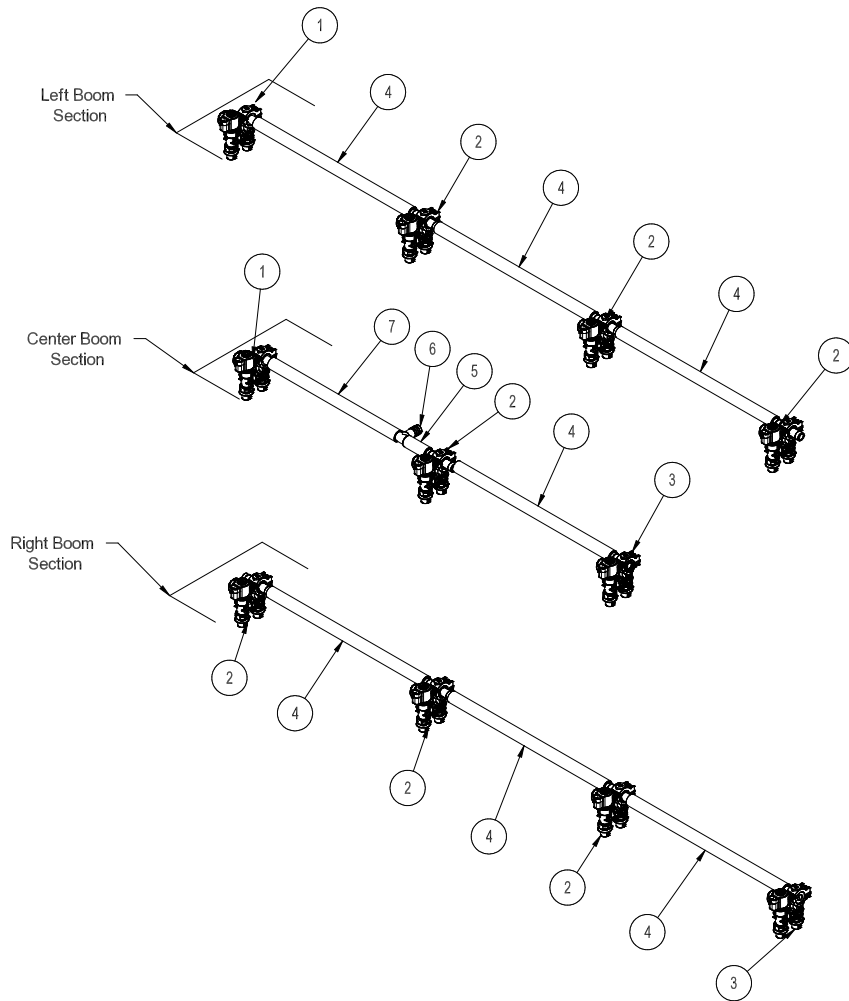
17-585 18' BOOM 1202/1204 PLUMBING



REF#	PART#	DESCRIPTION	QUANTITY
1	18-417	Single Barb	4
2	9032-19	Black Hose, 3/4" x 19"	6
	18-040	Hose Clamp	12
3	18-416	Double Barb	8
4	33-563	Nozzle body (see nozzle drawing)	11
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	Gasket	1
12	16-921	Cap	1
13	9032-13	Black Hose, 3/4" x 13"	1
	18-040	Hose Clamp	2

Accessories

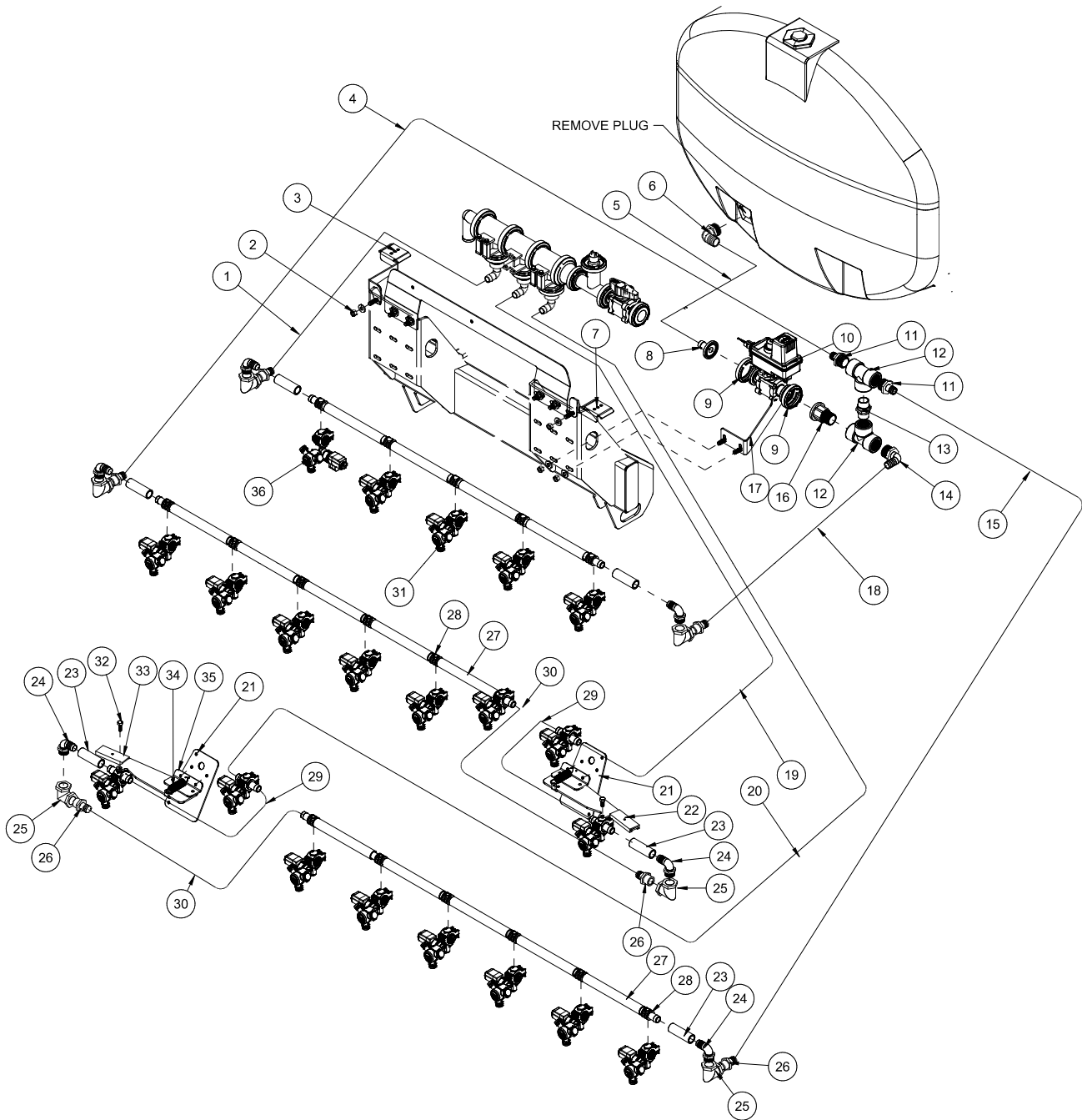
17-585 18' BOOM 1208 PLUMBING



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	9032-19	Black Hose, $\frac{3}{4}$ " x 19"	7
	18-040	Hose Clamp	14
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

17-585 18' BOOM 1218-AG PLUMBING



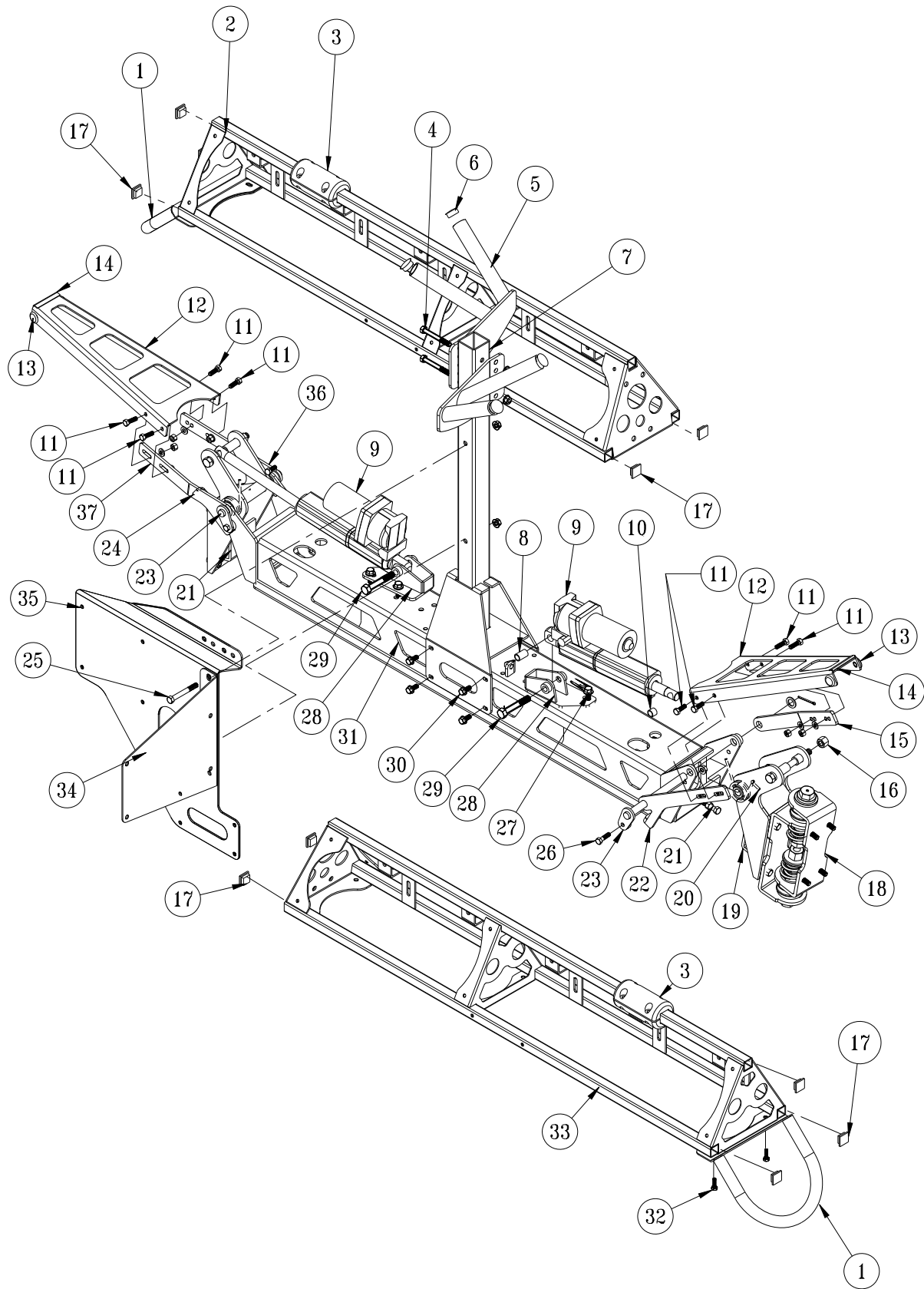
Accessories

REF#	PART#	DESCRIPTION	QUANTITY
1	9032	Black Hose, 3/4"	12"
	18-040	Hose Clamp	2
2	HB-38-16-125	Hex Bolt, 3/8 -16 x 1 1/4	4
	HW-38	Flat Washer, 3/8	4
	HNFL-38-16	Flange Whiz-loc Nut, 3/8-16	4
3	20-951	LH Hose Bracket	1
	22-131	Double Loop Cable Tie	1
4	9032	Black Hose, 3/4"	133"
	18-040	Hose Clamp	2

15-785 18' BOOM 1218-AG PLUMBING PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
5	8896	1" Discharge Hose	19.5"
	18-220	Hose Clamp	2
6	16-164	Elbow, 1MPT x 1HP	1
7	20-953	RH Hose Bracket	1
	22-131	Double loop Cable Tie	1
8	15-808	#50 x 1" HB	1
9	15-740	#50 Clamp	2
10	14-673	Shutoff Valve	1
11	20-834	Adapter, 1" MPT x 3/4 HB	2
12	18-515	Tee, 1" FTP	2
13	18-514	Black Close Nipple, 1"	1
14	16-174	Elbow, 1" MPT x 3/4 HB	1
15	9032	Black Hose 3/4"	89"
	18-040	Hose Clamp	2
16	15-987	Fitting, #50 x 1" MPT	1
17	20-955	Valve Mount Bracket	1
18	9032	Black Hose, 3/4"	5.5"
	18-040	Hose Clamp	2
19	9032	Black Hose, 3/4"	43.5"
	18-040	Hose Clamp	2
20	9032	Black Hose, 3/4"	48"
	18-040	Hose Clamp	2
21	17-559	Break-A-Way Mount	2
22	17-562	LH Break-A-Way Arm	1
	8946-3.5	Plastic Wear Strip	1
	HRS-316-050	Rivet, 3/16 x 1/2	1
23	9032-3	Black Hose, 3/4"	6
	18-040	Hose Clamp	12
24	16-153	Elbow, 3/4" MPT x 3/4" HP	6
25	16-151	Elbow, 3/4" FPT	6
26	16-154	Fitting, 3/4"	6
27	9032-8.5	Black Hose 3/4"	14
	18-040	Hose Clamp	28
28	18-416	Double Barb	21
29	9032-25	Black Hose 3/4"	2
	18-040	Hose Clamp	4
30	9032-24	Black Hose 3/4"	2
	18-040	Hose Clamp	4
31	20-946	LH Nozzle Body	20
32	HB-516-18-075	Hex Bolt, 5/16 -18 x 1/4	21
	HNFL-516-18	Flange Whiz-loc Nut, 5/16-18	21
33	17-561	RH Break-A-Way Arm	1
	8946-3.5	Plastic Wear Strip	1
	HRS-316-050	Rivet, 3/16 x 1/2	1
34	11-050	Spring	2
35	17-560	Hinge Mount	2
36	20-954	RH Nozzle Body	1

17-60115' BOOM DRAWING



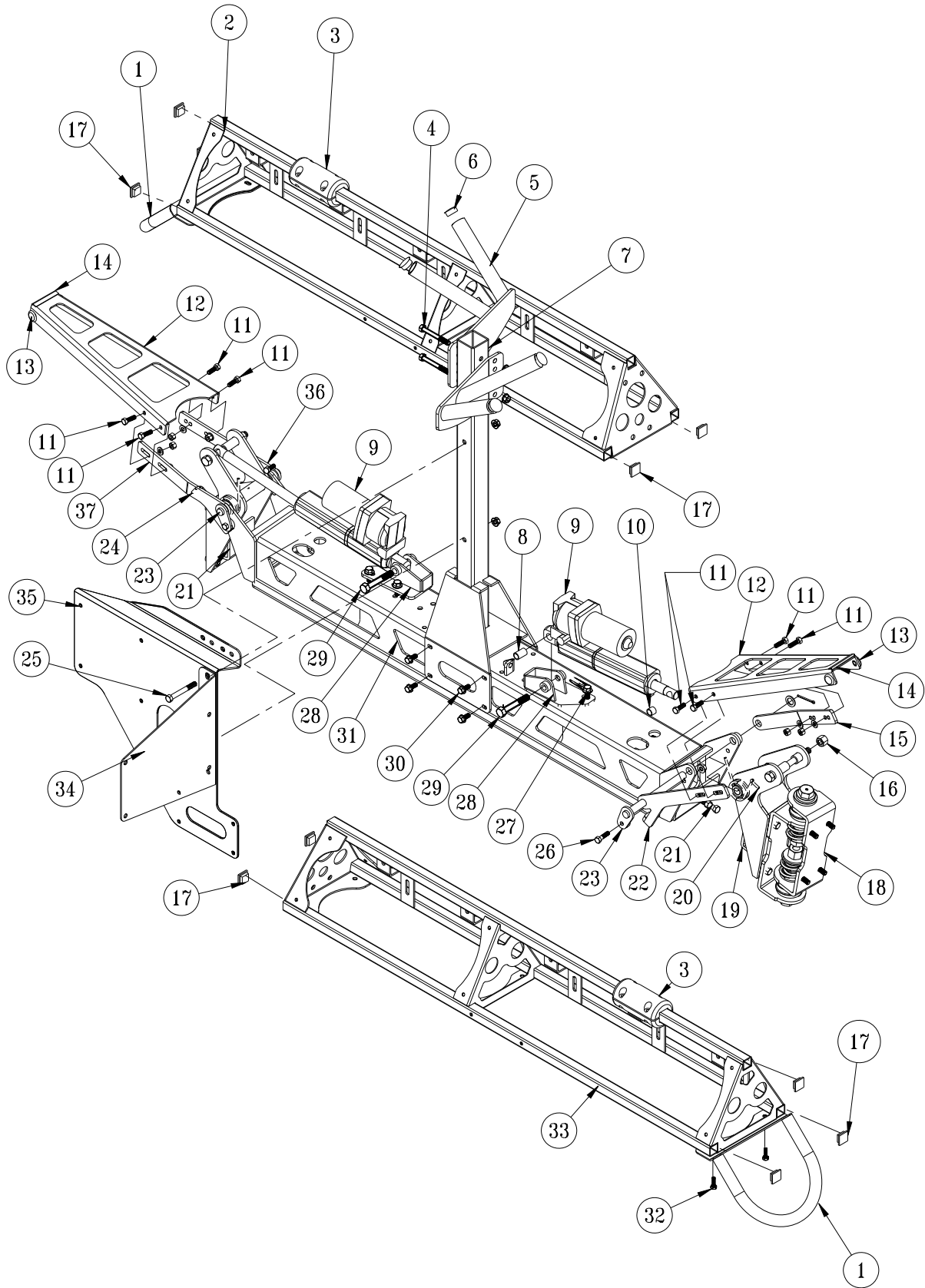
Accessories

17-601 15' 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	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	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	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	32-564	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	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	Bolt, $\frac{3}{8}$ - 16 x 1	16
	HNFL-38-16	Lock 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	Bolt, $\frac{3}{8}$ - 16 x $1\frac{3}{4}$	2
	HNFL-38-16	Flange Lock 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	Bolt, $\frac{3}{8}$ - 16 x 1	2
	HW-38	Washer, $\frac{3}{8}$	2
	HNFL-38-16	Flange Lock Nut, $\frac{3}{8}$ - 16	2
26	HB-516-18-100	Bolt, $\frac{5}{16}$ -16 x 1	2
	HNFL-516-18	Flange Lock Nut, $\frac{5}{16}$ - 18	2
27	HB-38-16-100	Bolt, $\frac{3}{8}$ - 16 x 1	6
	HW-38	Washer, $\frac{3}{8}$	6
	HNFL-38-16	Flange Lock 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	Bolt, $\frac{1}{2}$ - 13 x 3	2
	HNTL-12-13	Lock Nut, $\frac{1}{2}$ - 13	2
30	HB-516-18-100	Bolt, $\frac{5}{16}$ - 18 x 1	8
	HW-516	Washer, $\frac{5}{16}$	8
	HNFL-516-18	Flange Lock Nut, $\frac{5}{16}$ - 18	8

(Continued on next page)

17-601 15' BOOM DRAWING



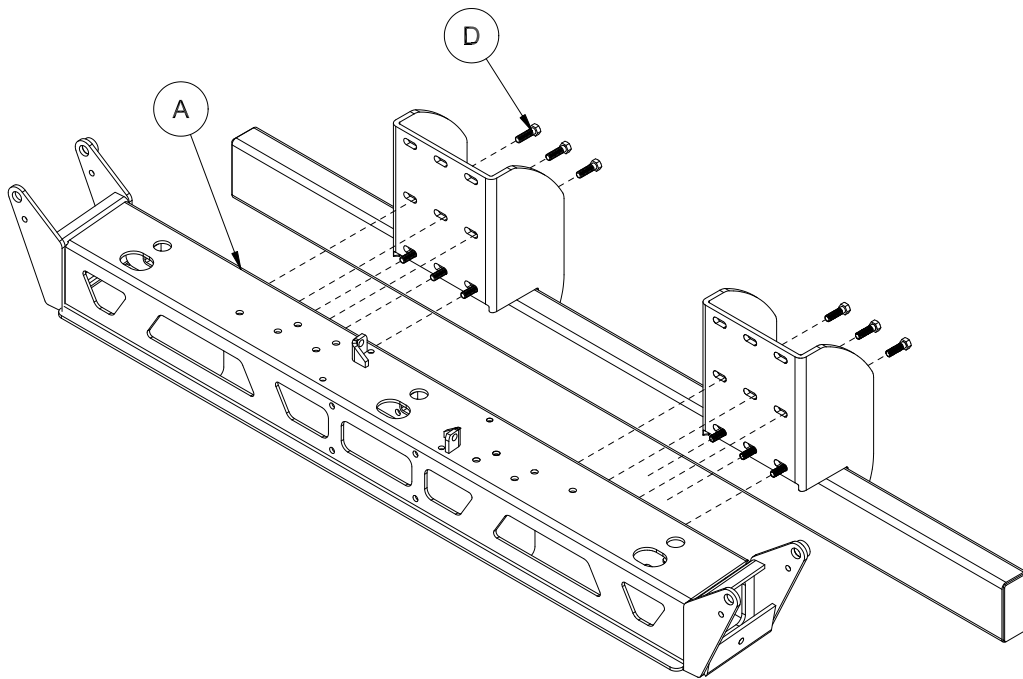
Accessories

17-601 15' BOOM PARTS LIST

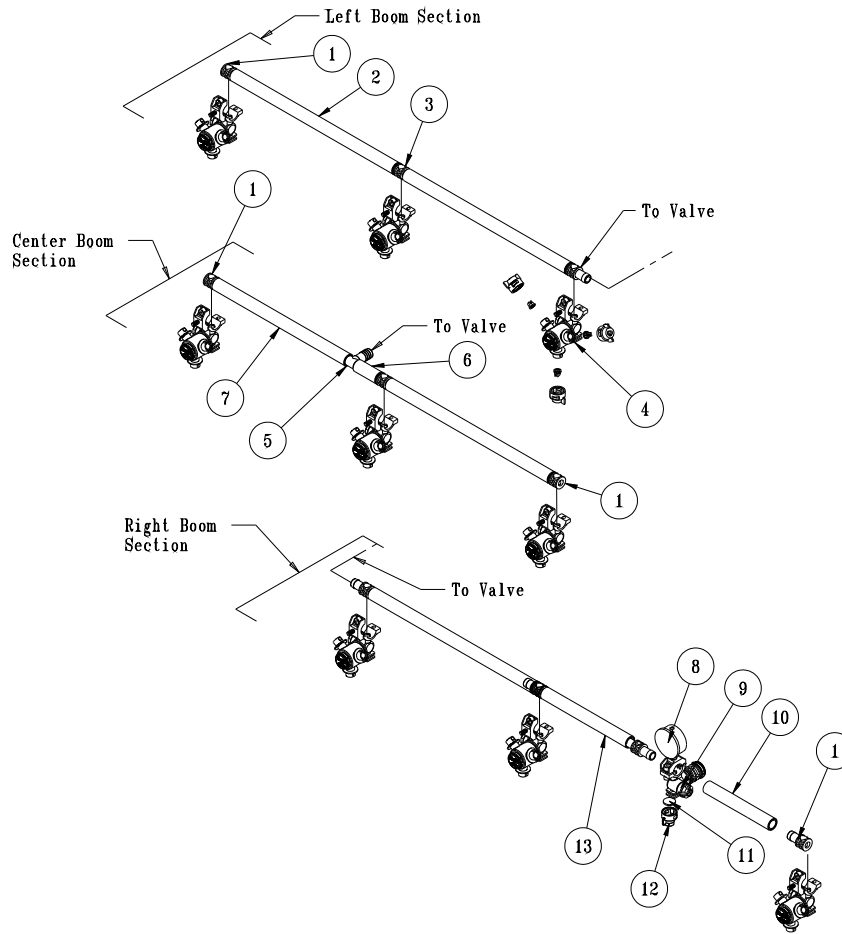
REF#	PART#	DESCRIPTION	QUANTITY
31	17-528	Boom Center	1
	25-334	Decal, Serial Tag	1
32	HBFL-516-18-075	Bolt, $\frac{5}{16}$ - 18 x $\frac{3}{4}$	4
	HNFL-516-18	Flange Lock Nut, $\frac{5}{16}$ - 18	4
33	17-552	Right Boom Arm	1
34	17-636	Freshwater Mount	1
35	17-660	Clean Load Mount	1
	8803-13	Black Trim, 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
	HW-34	Flat Washer, $\frac{3}{4}$	4

BOOM MOUNT TO TRUCK

REF#	PART#	DESCRIPTION	QUANTITY
A		Center Boom Mount	1
D	HB-38-16-125	Bolt, $\frac{3}{8}$ - 16 x $1\frac{1}{4}$	12
	HNFL-38-16	Flange Lock Nut, $\frac{3}{8}$ -16	12
	HW-38	Flat Washer, $\frac{3}{8}$	12
	HW-516	Flat Washer, $\frac{5}{16}$	12

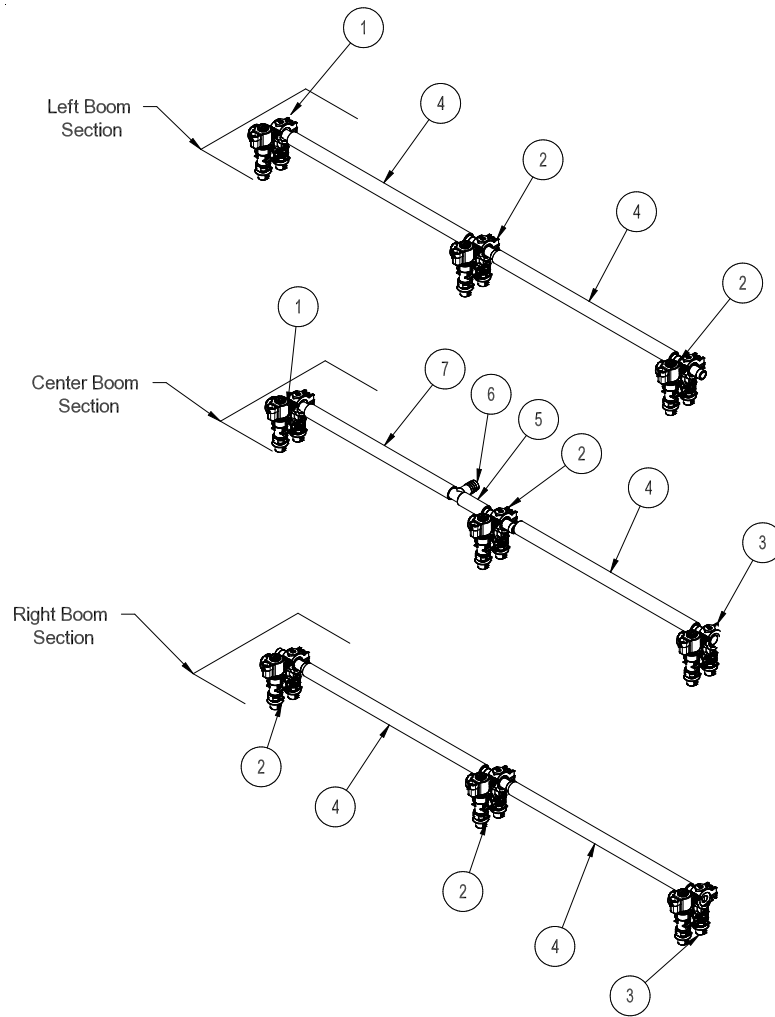


17-601 15' SUPER BOOM 1202/1204 PLUMBING



REF#	PART#	DESCRIPTION	QUANTITY
1	18-417	Single Barb	4
2	9032-19	Black Hose $\frac{3}{4}$ " x 19"	4
	18-040	Hose Clamp	8
3	18-416	Double Barb	6
4	33-563	Nozzle body (see nozzle drawing)	9
5	18-415	$\frac{3}{4}$ " Hose Barb	1
6	9032-2.5	Black Hose $\frac{3}{4}$ " x 2 $\frac{1}{2}$ "	1
	18-040	Hose Clamp	2
7	9032-15.5	Black 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	9032-5	Black Hose $\frac{3}{4}$ " x 5"	1
	18-040	Hose Clamp	2
11	16-800	Gasket	1
12	16-921	Cap	1
13	9032-13	Black Hose $\frac{3}{4}$ " x 13"	1
	18-040	Hose Clamp	2

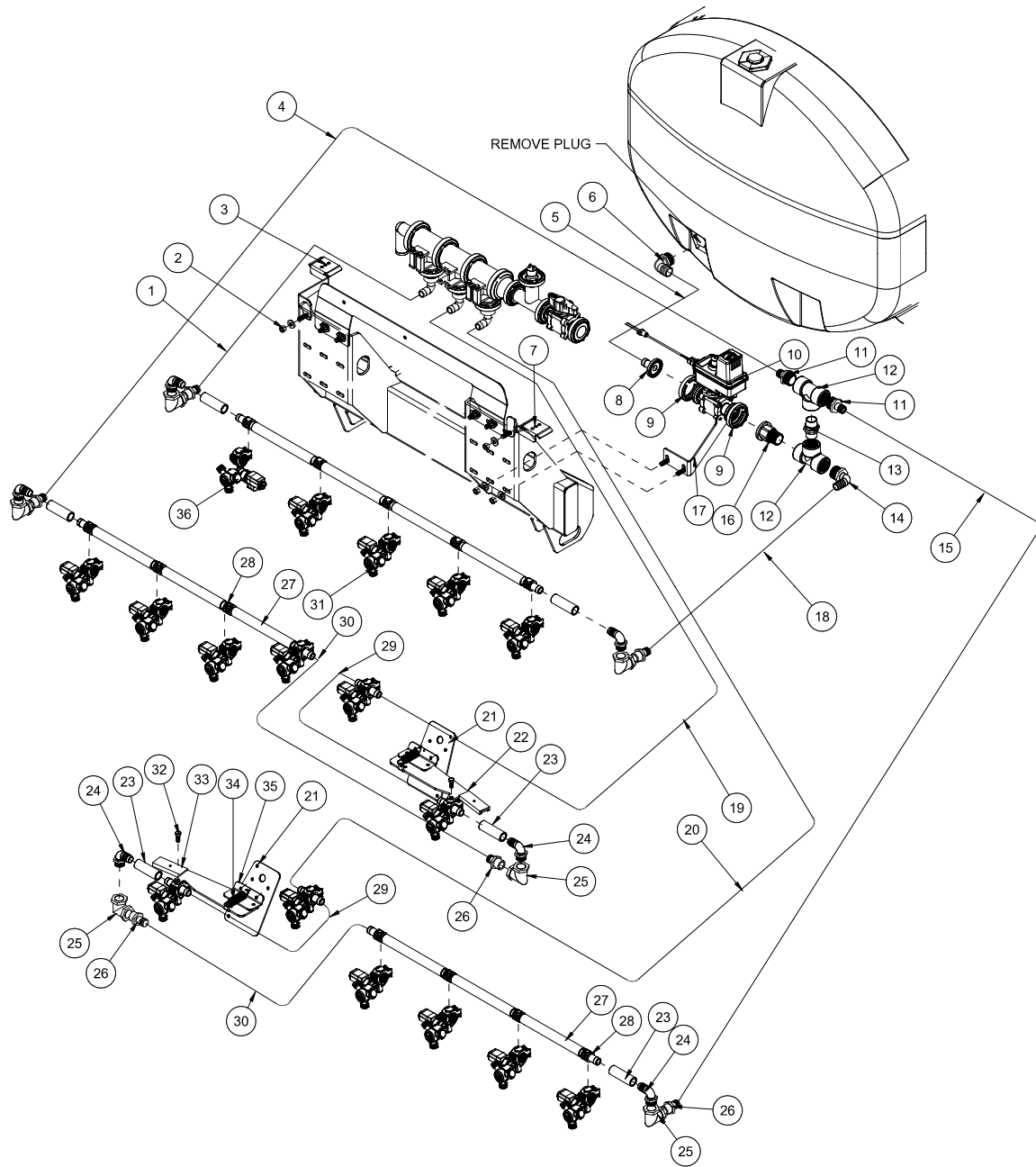
17-835 15' BOOM 1205 PLUMBING



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

17-835 15' BOOM 1215-AG PLUMBING



Accessories

REF#	PART#	DESCRIPTION	QUANTITY
1	9032	Black Hose, 3/4"	12"
	18-040	Hose Clamp	2
2	HB-38-16-125	Hex Bolt, 3/8 -16 x 1 1/4	4
	HW-38	Flat Washer, 3/8	4
	HNFL-38-16	Flange Whiz-loc Nut, 3/8-16	4
3	20-951	LH Hose Bracket	1
	22-131	Double Loop Cable Tie	1
4	9032	Black Hose, 3/4"	116"
	18-040	Hose Clamp	2

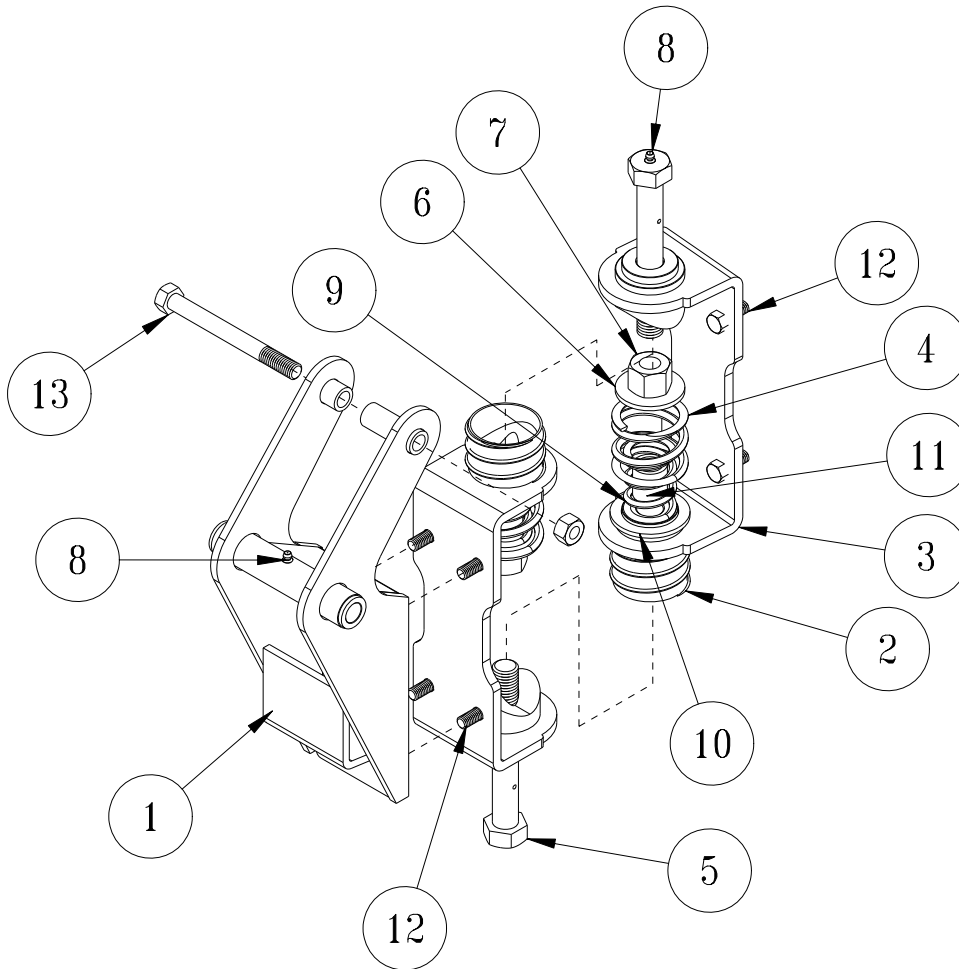
17-835 15' BOOM 1215-AG PLUMBING PARTS LIST

REF#	PART#	DESCRIPTION	QUANTITY
5	8896	1" Discharge Hose	19.5"
	18-220	Hose Clamp	2
6	16-164	Elbow, 1MPT x 1HP	1
7	20-953	RH Hose Bracket	1
	22-131	Double Loop Cable Tie	1
8	15-808	#50 x 1" HB	1
9	15-740	#50 Clamp	2
10	14-673	Shutoff Valve	1
11	20-834	Adaper, 1" MPT x 3/4 HB	2
12	18-515	Tee, 1" FP	2
13	18-514	Black Close Nipple, 1"	1
14	16-174	Elbow, 1" MPT x 3/4 HB	1
15	9032	Black Hose, 3/4"	69"
	18-040	Hose Clamp	2
16	15-987	Fitting, #50 x 1" MPT	1
17	20-955	Valve Mount Bracket	1
18	9032	Black Hose, 3/4"	5.5"
	18-040	Hose Clamp	2
19	9032	Black Hose, 3/4"	43.5"
	18-040	Hose Clamp	2
20	9032	Black Hose, 3/4"	48"
	18-040	Hose Clamp	2
21	17-559	Break-A-Way Mount	2
22	17-562	LH Break-A-Way Arm	1
	8946-3.5	Plastic Wear Strip	1
	HRS-316-050	Rivet, 3/16 x 1/2	1
23	9032-3	Black Hose, 3/4"	6
	18-040	Hose Clamp	12
24	16-153	Elbow, 3/4 "MPT x 3/4" HP	6
25	16-151	Elbow, 3/4" FPT	6
26	16-154	Fitting, 3/4"	6
27	9032-8.5	Black Hose, 3/4"	10
	18-040	Hose Clamp	20
28	18-416	Double Barb	17
29	9032-25	Black Hose, 3/4"	2
	18-040	Hose Clamp	4
30	9032-24	Black Hose, 3/4"	2
	18-040	Hose Clamp	4
31	20-946	LH Nozzle Body	16
32	HB-516-18-075	Hex Bolt, 5/16 -18 x 1 1/4	17
	HNFL-516-18	Flange Whiz-loc Nut, 5/16-18	17
33	17-561	RH Break-A-Way Arm	1
	8946-3.5	Plastic Wear Strip	1
	HRS-316-050	Rivet, 3/16 x 1/2	1
34	11-050	Spring	2
35	17-560	Hinge Mount	2
36	20-954	RH Nozzle Body	1

BOOM HINGE ASSEMBLED

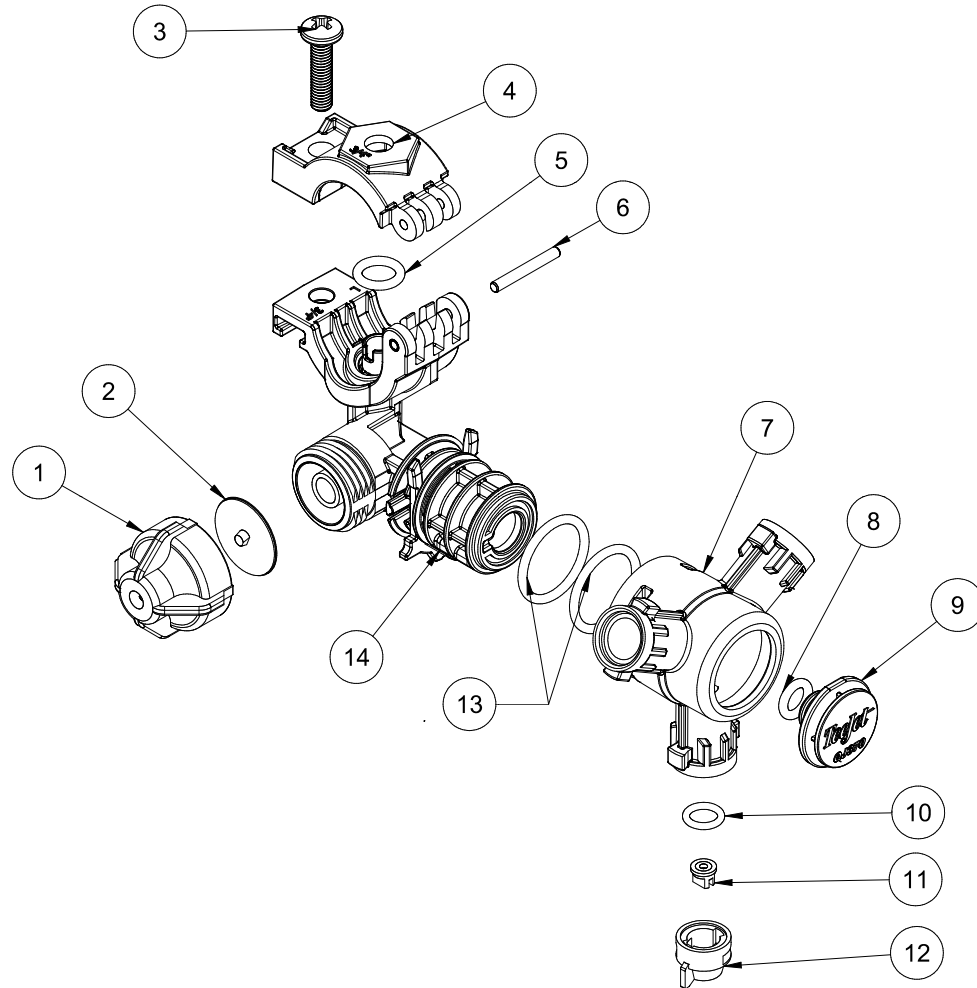
2 HINGE ASSEMBLIES PER BOOM

*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 Zerck (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, 3/4	2
7*	HNCL-34-10	Center Lock Nut, 3/4 - 10	2
8*	HG-14-28-180	Grease Zerck	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, 3/8 - 16 x 1	8
	HNFL-38-16	Flange Lock Nut, 3/8 - 16	8
13	HB-12-13-500	Hex Bolt, 1/2 - 13 x 5	1
	HNTL-12-13	Lock Nut, 1/2 - 13	1

33-563 STANDARD NOZZLE ASSEMBLY



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
12	33-538	Cap - White	1
11	33-554	Nozzle Tip - White (XR11008-VS)	1
10	16-800	Viton Gasket	1
13*		O-ring, Teflon	2
14*	33-563	Nozzle Body (includes all * items)	1

Quantity is per nozzle body. For 20' booms multiply quantity by 12.

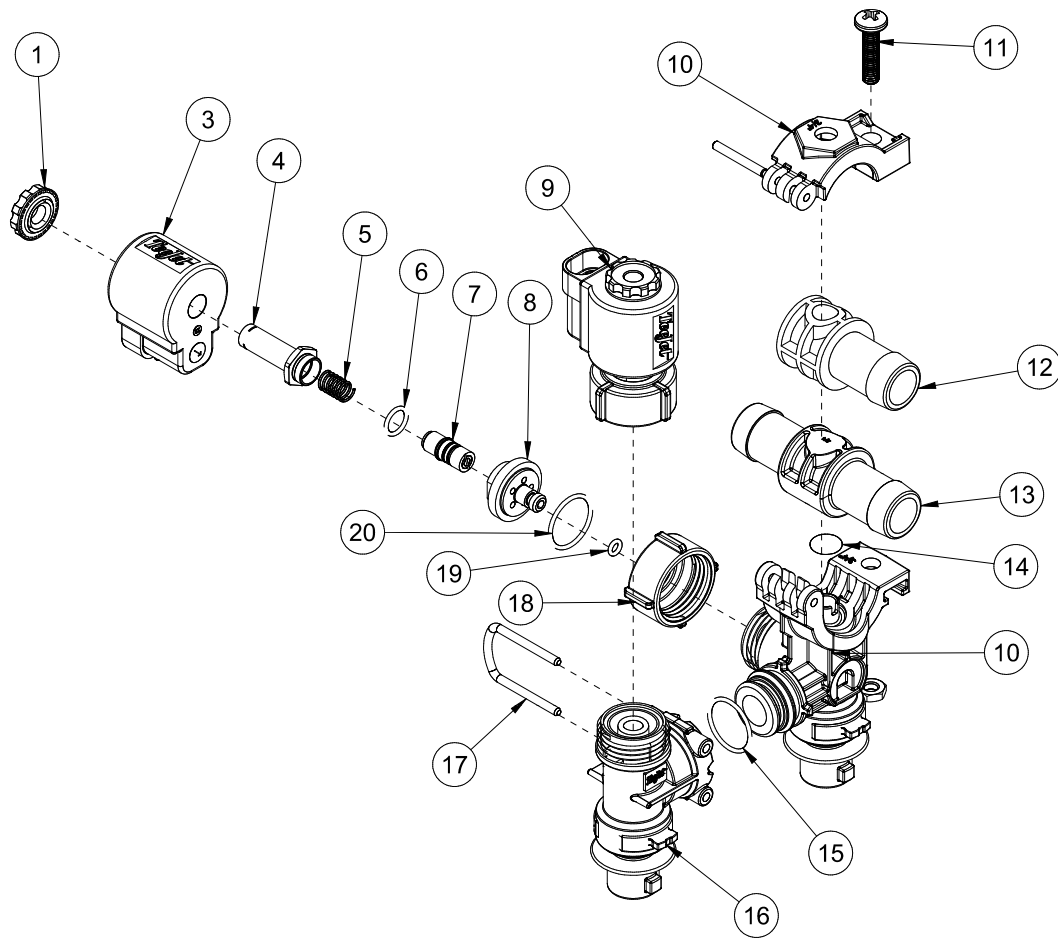
Quantity is per nozzle body. For 18' booms multiply quantity by 11.

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

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

Nozzles are 20" high off ground.

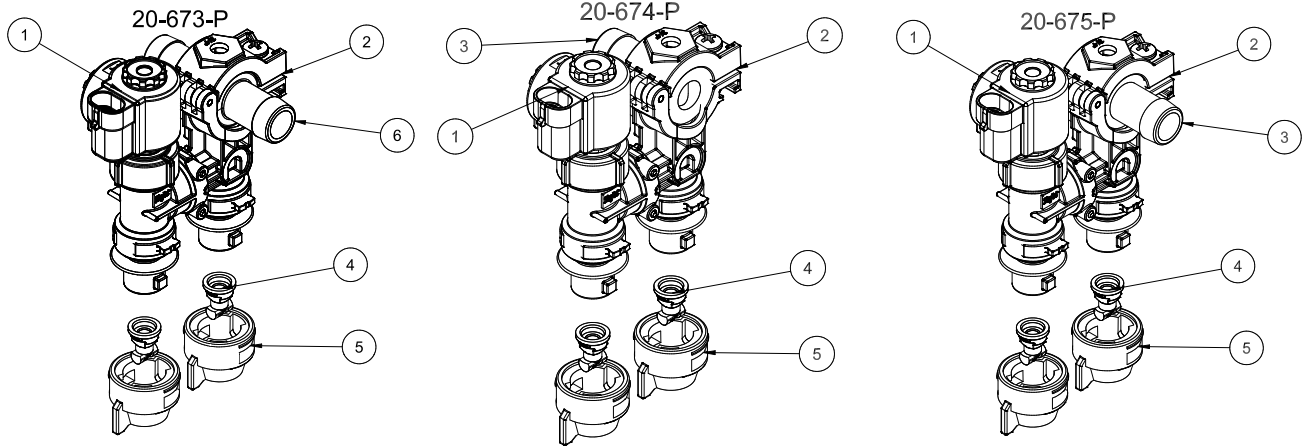
1207/1208 NOZZLE DRAWING



REF#	PART#	DESCRIPTION	QUANTITY
1†		Nylon Black Nut	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	
†	20-673-12	Field Repair Kit	

Accessories

1207/1208 NOZZLE ASSEMBLY

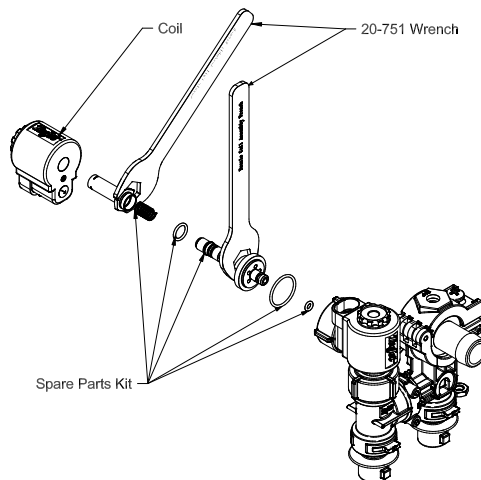


REF#	PART#	DESCRIPTION	QUANTITY
1*	20-673-02	E-Chemsaver®	1
2*	20-673-04	3/4" Bottom Mount Nozzle Body	1
3†	18-417	Single Barb	1
4	20-676	Turbo TeeJet Tip	2
5	20-677	QT White Cap and Washer	2
6‡	18-416	Double Hose Barb	1

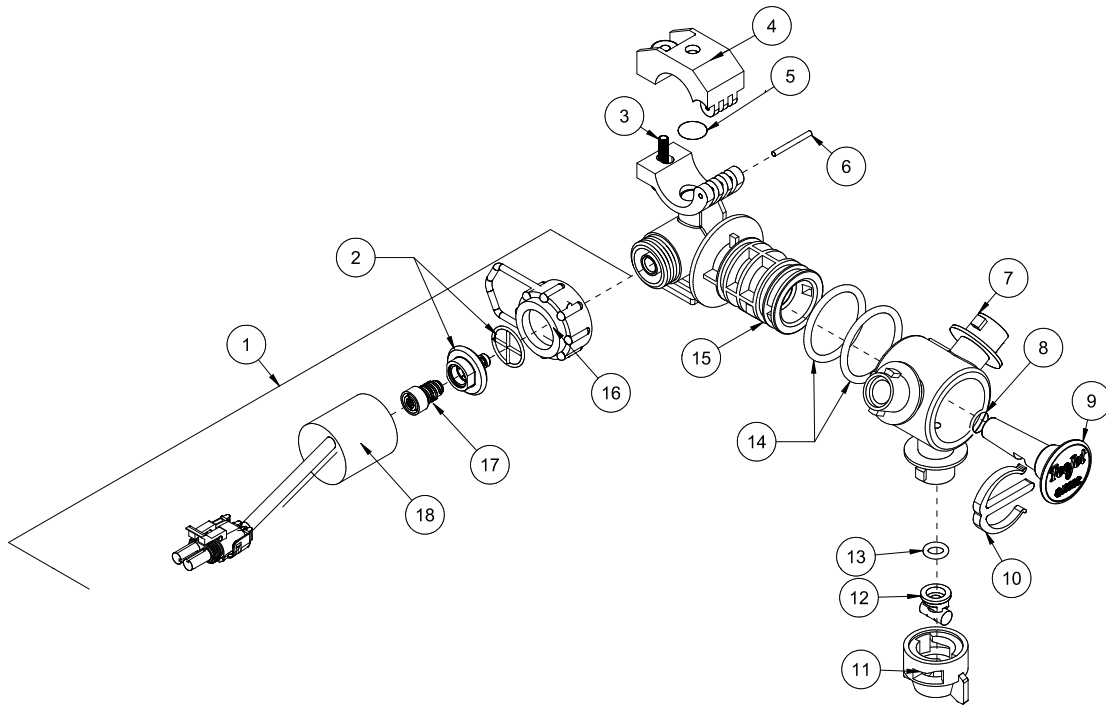
Quantity is per nozzle body. For 18' booms multiply quantity by 11.
 Quantity is per nozzle body. For 20' booms multiply quantity by 12.

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.



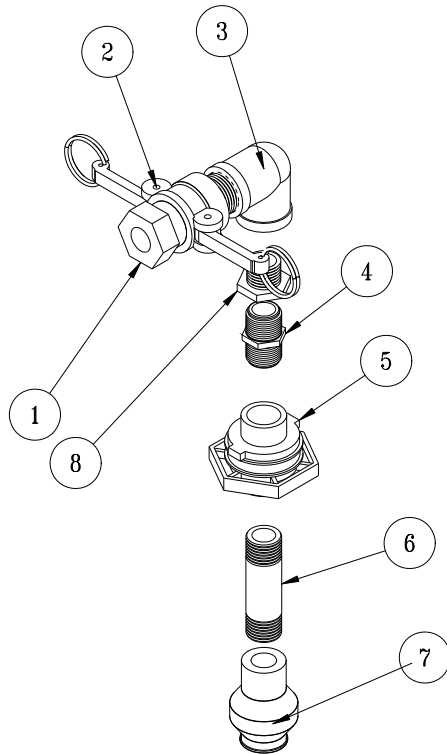
20-946/20-954 NOZZLE DRAWING



REF#	PART#	DESCRIPTION	QUANTITY
1	20-934	Valve Assembly Solenoid(includes all ** items)	1
2**	20-934-01	Orifice Insert Service Kit (diaphragm , cap, o-ring)	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	20-946	LH Body Assembly (includes all * items)	1
	20-954	RH Body Assembly (includes all * items)	1
16**	20-934-03	Locking Ring and Clip	1
17**	20-934-02	Plunger with spring	1
18**	20-934-04	12W Coil	1
NS	20-944	Drop harness, Solenoid (6 drops per harness) (15' boom takes 3. 18' & 20' boom takes 4)	3or4

Quantity is per nozzle body. For 20' booms multiply quantity by 23. For 18' booms multiply quantity by 21.
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.

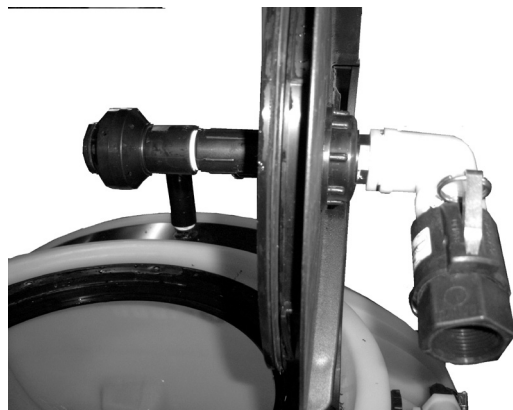
15-835 TANK RINSING SYSTEM



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

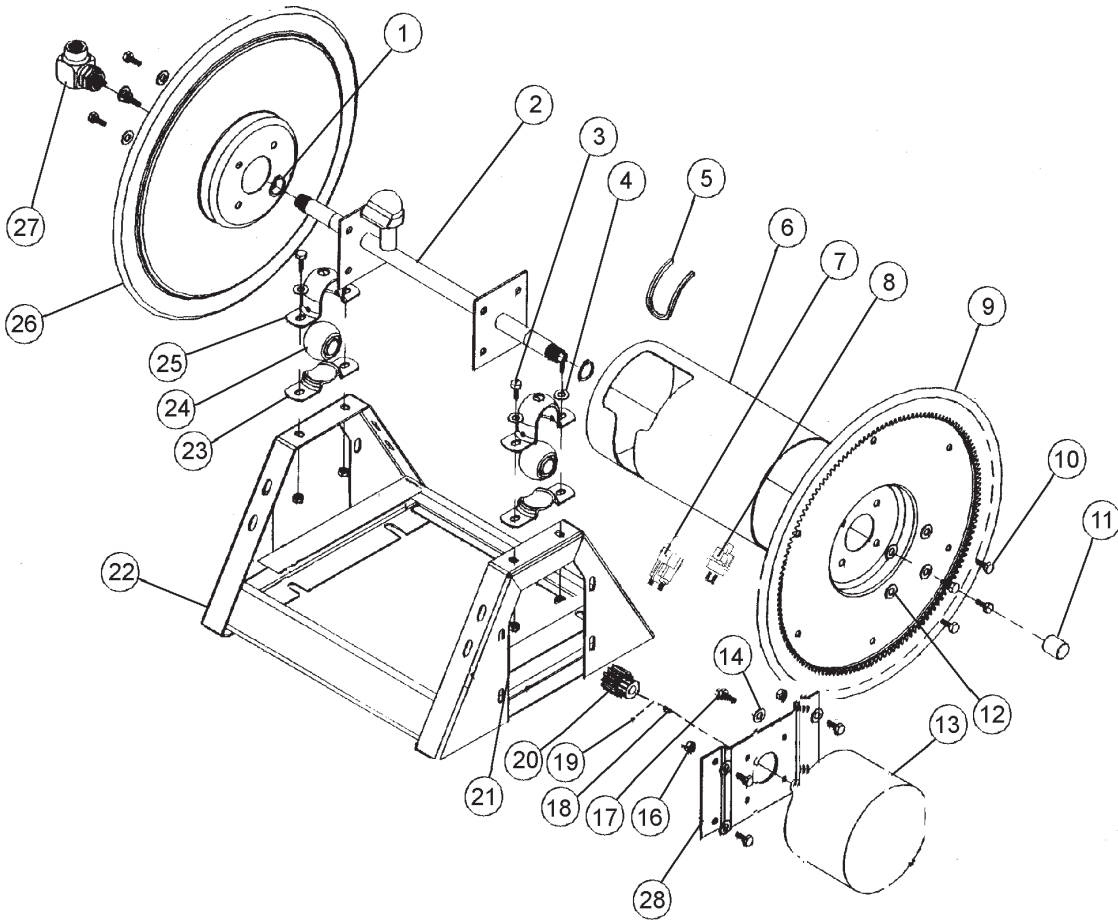
Drill 1³/₄" hole 5" from outside edge of cover.
 Install Tank Rinsing kit as shown, with the Double Thread Fitting (Ref 5) going into the cover.

Basket Must be removed During Use.



Accessories

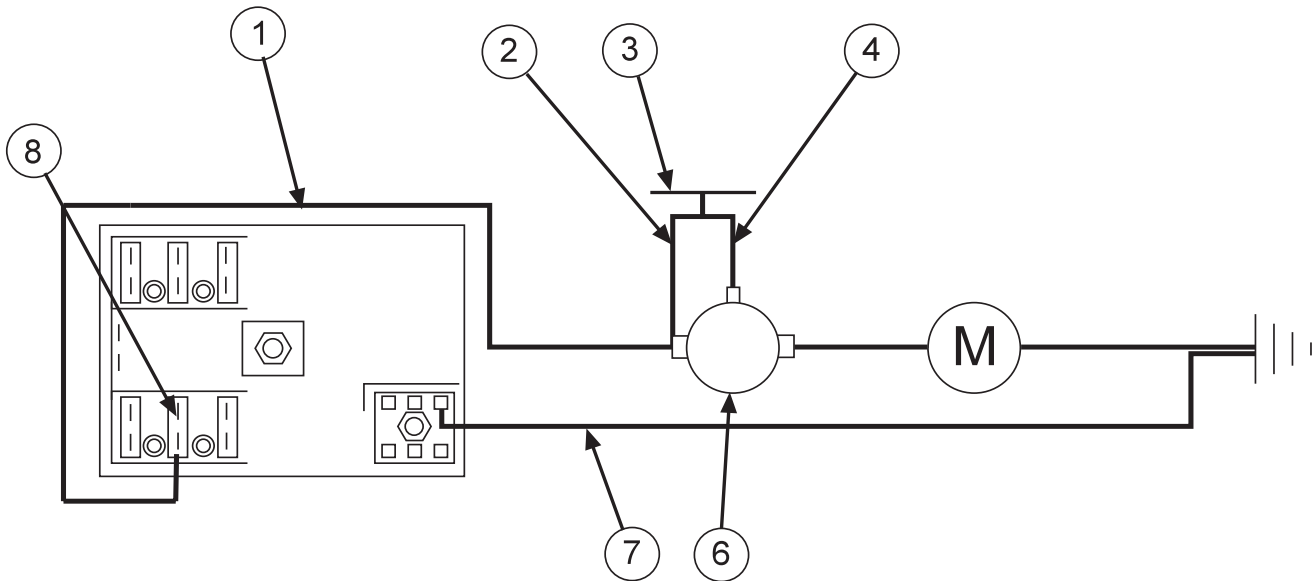
16-906 ELECTRIC HOSE REEL DRAWING



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	Lock Washer, $\frac{1}{4}$	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	Lock Washer, $\frac{5}{16}$	8
13	16-906-15	$\frac{1}{3}$ HP Motor 12VDC	1
14	HW-516	Flat Washer, $\frac{5}{16}$	4
16	HNTL-516-18	Nylon 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	Nylon 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

ELECTRIC HOSE REEL WIRING DIAGRAM



REF#	PART#	DESCRIPTION	QUANTITY
1	8843-132	Flex-guard $\frac{3}{8}$ ID	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	13-750	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

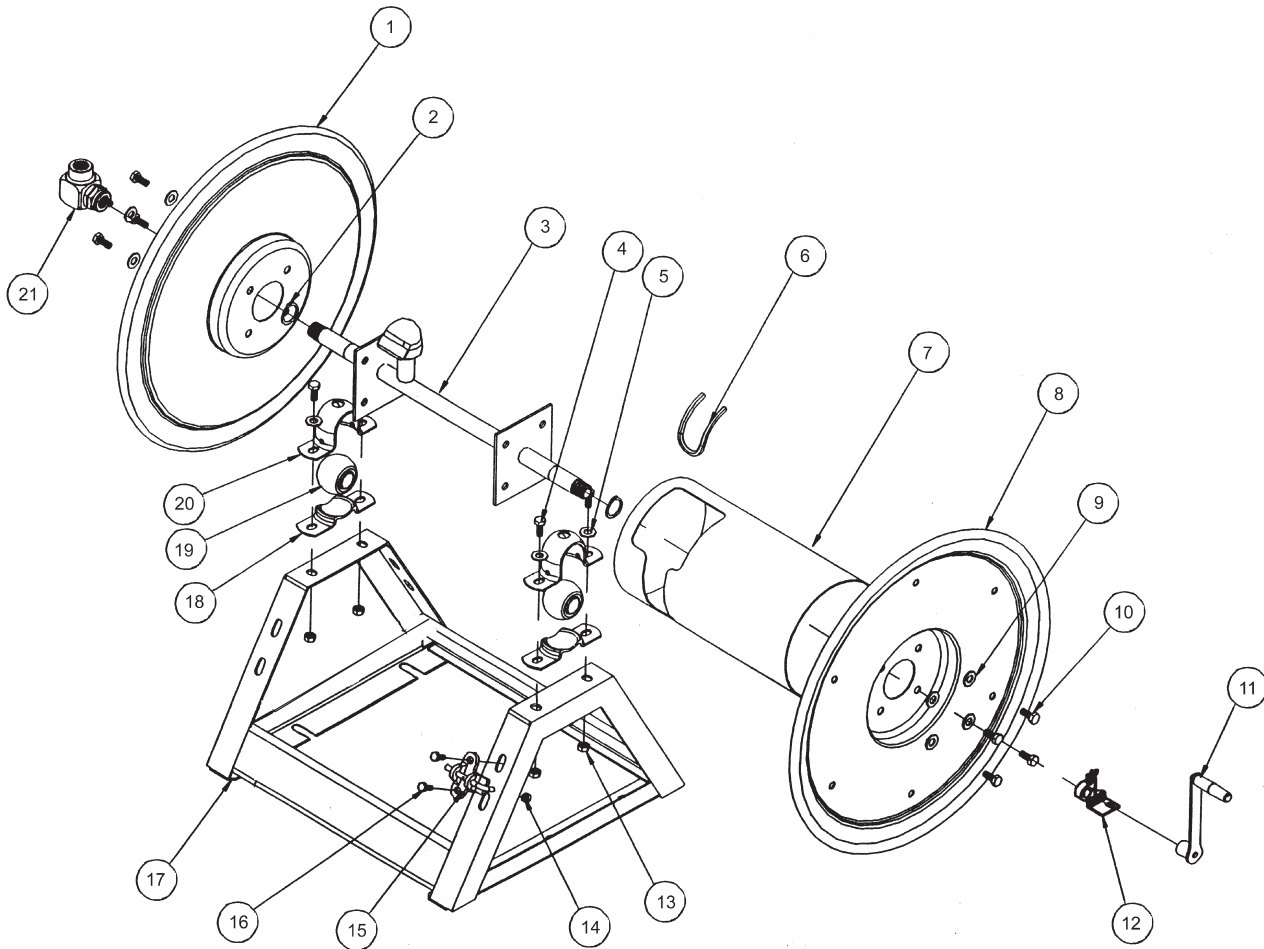
OPERATIONAL CHECK:

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:

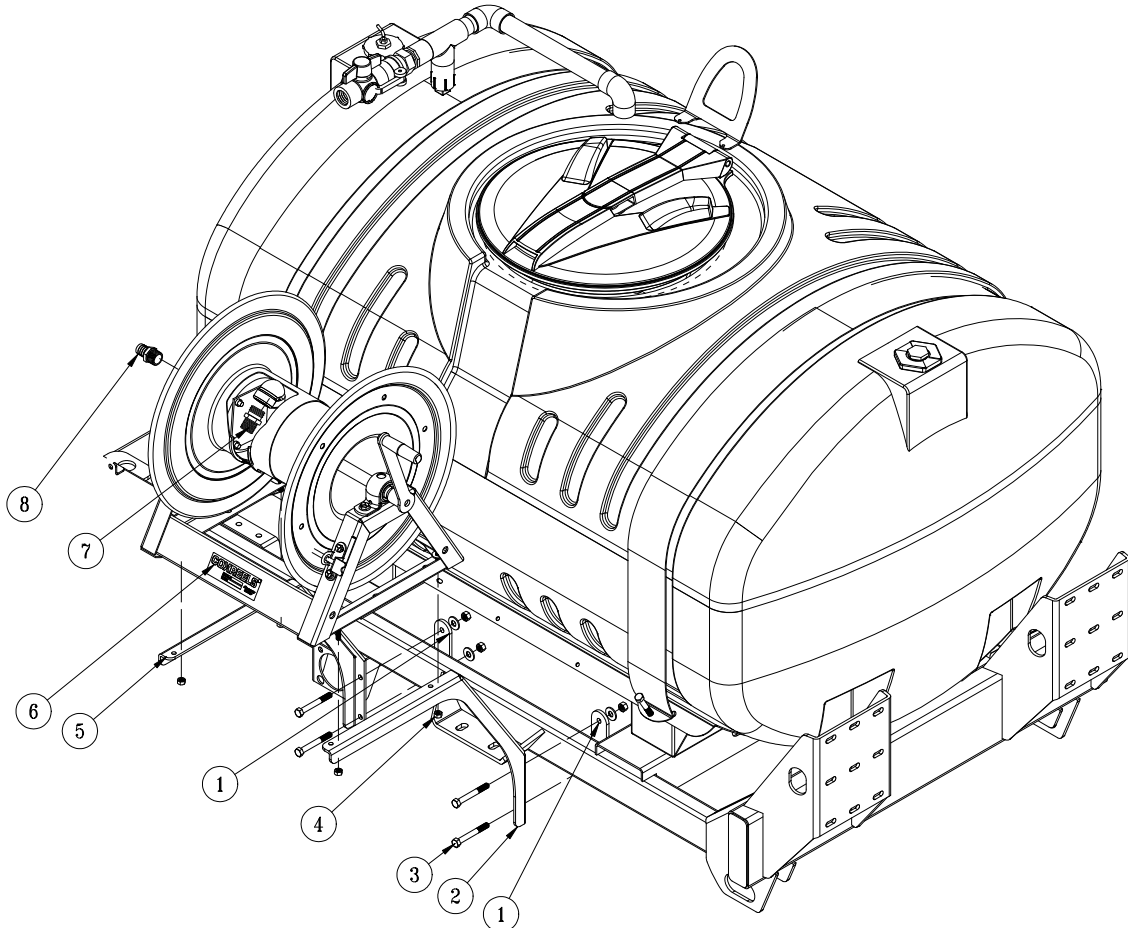
1. Facing swivel, turn the hose drum clockwise until all of the hose is removed from the drum and the drum is held by locking mechanism. Make sure spring is locked.
2. Remove hose clamps and disconnect hose from swivel. Remove old hose.
3. Insert new hose through roller guide, connect to swivel and reinstall 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.

16-129 MANUAL HOSE REEL DRAWING



REF#	PART#	DESCRIPTION	QUANTITY
1	16-129-11	Disc 17 $\frac{1}{2}$	1
2	16-906-25	Retaining Ring	2
3	16-906-22	Axle Assembly $\frac{3}{4}$	1
4	HB-38-16-100	Hex Bolt $\frac{3}{8}$ - 16 x 1	4
5	HW-38	Washer $\frac{3}{8}$	4
6	16-906-27	Trim, Drum Edge	1
7	16-906-21	Drum Center	1
8	16-906-20	Disc 17 $\frac{1}{2}$, Crank Side	1
9	HWL-516	Lockwasher $\frac{5}{16}$	8
10	HB-516-18-075	Hex Bolt $\frac{5}{16}$ - 18 x $\frac{3}{4}$	8
11	16-129-09	Crank Assembly $\frac{3}{4}$	1
12	16-129-10	Brake Assembly $\frac{3}{4}$	1
13	HNTL-38-16	Nylon Lock Nut $\frac{3}{8}$ - 16	4
14	HNTL-516-18	Nylon Lock Nut $\frac{5}{16}$ - 18	2
15	16-129-03	Lock Pin Assembly	1
16	HB-516-18-075	Hex Bolt $\frac{5}{16}$ - 18 x $\frac{3}{4}$	2
	HW-516	Washer $\frac{5}{16}$	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 $\frac{3}{4}$	1
	16-906-30	Seal Kit (For 16-906-23)	1

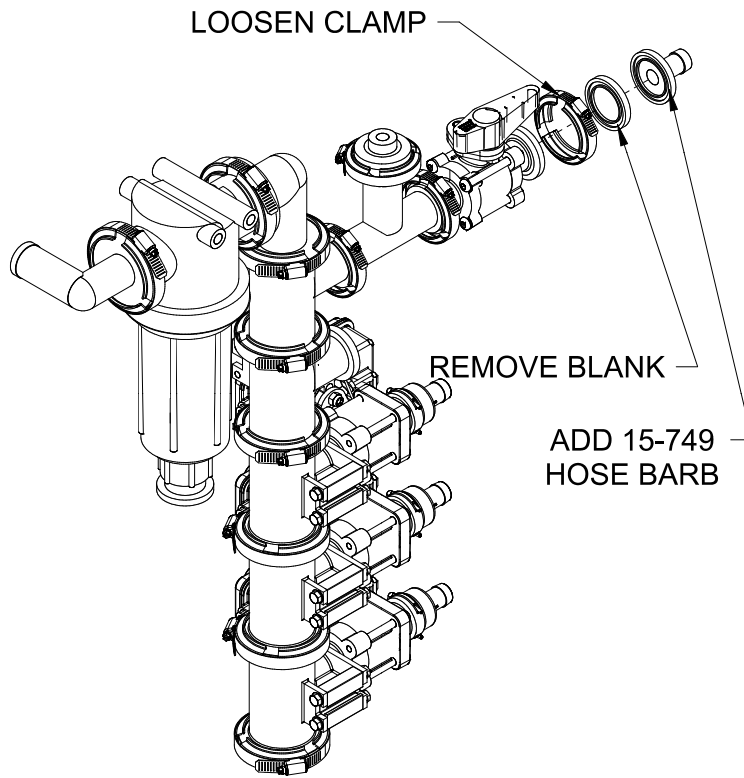
15-967 HOSE REEL MOUNT



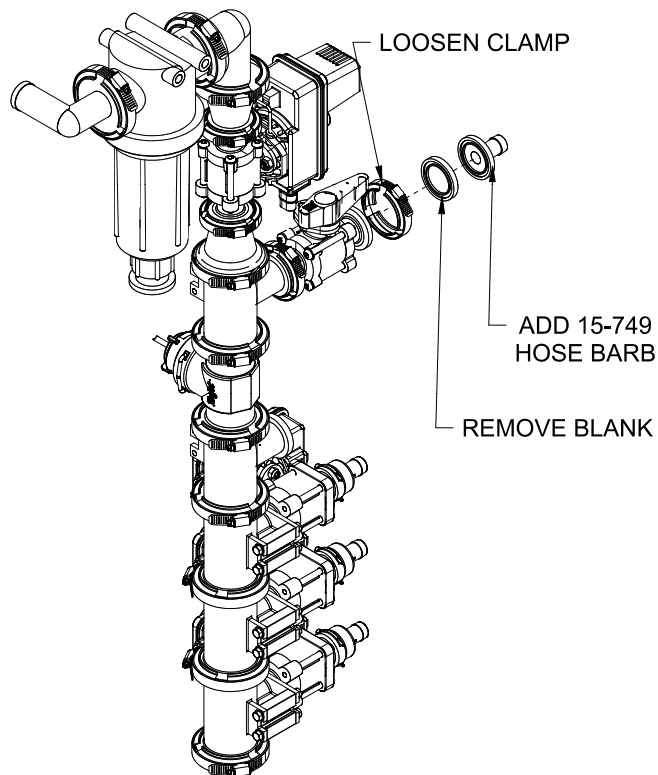
REF#	PART#	DESCRIPTION	QUANTITY
1	20-799	Backing Plate	2
2	20-788	Rear Hose Reel Mount	1
3	HB-38-16-300	Hex Bolt, $\frac{3}{8}$ - 16 x 3	4
	HNTL-38-16	Nylon Lock Nut, $\frac{3}{8}$ - 16	4
	HW-38	Flat Washer, $\frac{3}{8}$	4
4	HB-516-18-150	Hex Bolt, $\frac{5}{16}$ - 18 x 1 $\frac{1}{2}$	4
	HNTL-516-18	Nylon Lock Nut, $\frac{5}{16}$ - 18	4
	HW-516	Flat Washer, $\frac{5}{16}$	4
5	20-789	Front Hose Reel Mount	1
6	16-906	Electric Hose Reel	1
	16-129	Manual Hose Reel	1
7	16-295	Hose Fitting	1
8	18-249	Brass Fitting, $\frac{3}{4}$ MPT x $\frac{3}{4}$ HB	1

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 ensuring that no chemical or water remain in tank as you will be taking apart lines.
3. Turn off machine, set park brake, remove key from ignition and block wheels.
4. Install front mount(Ref. 2) using backing plate(Ref. 1) and two $\frac{3}{8}$ x 3 hex bolts, nuts and washers. Repeat with rear mount(Ref. 5). Leave loose to reposition.
5. Position hose reel on mounts. Use four hex bolts $\frac{5}{16}$ - 18 x 1 $\frac{1}{2}$ and four $\frac{5}{16}$ - 18 nylon lock nuts to hold in place. Tighten hex bolts.
6. Tighten mount bolts(Ref 3).
7. Put 18-249 barb fitting(Ref. 8) into hose reel end and 16-295 hose fitting(Ref 7) into center of hose reel.

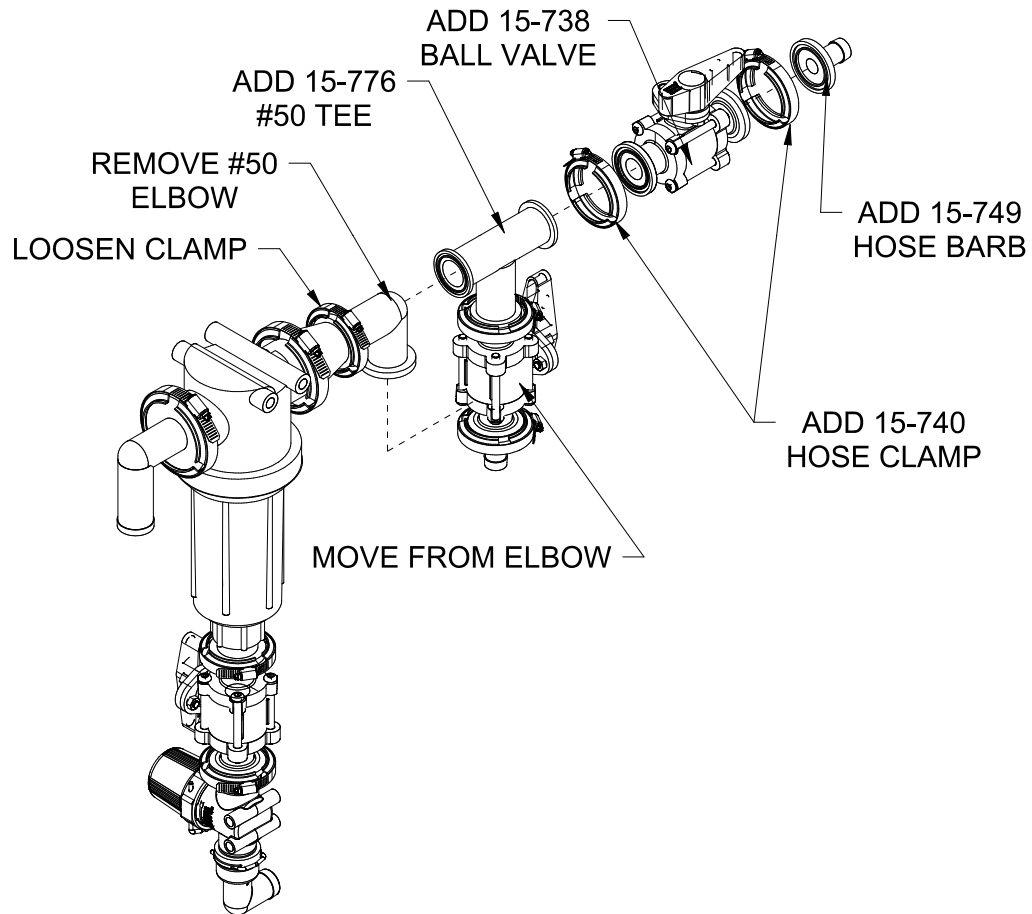
1204 HOSE REEL PLUMBING DRAWING



1202 & STAR COMMAND HOSE REEL PLUMBING DRAWING



1201 MANUAL HOSE REEL PLUMBING DRAWING



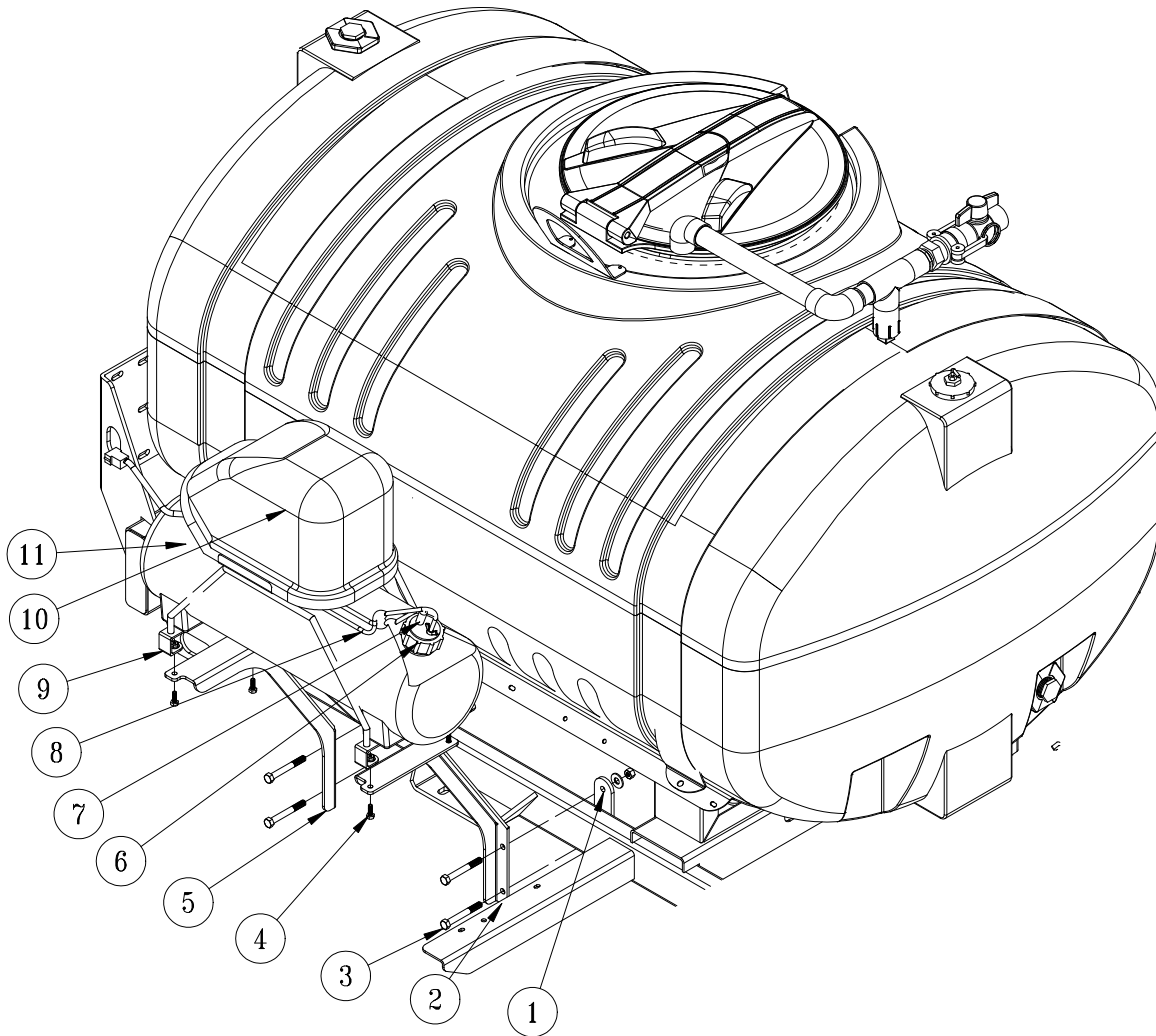
INSTALLATION INSTRUCTIONS MANUAL SYSTEM

1. The hose reel is plumbed just off the filter.
2. Remove the ball valve assembly from the elbow on the filter.
3. Remove the elbow from the filter and replace it with the #50 tee as shown.
4. Place the ball valve assembly, from the elbow, onto the bottom of the tee. Tighten all clamps.
5. Install the ball valve and the hose barb to the other end of the tee. Tighten all clamps.
6. Route the $\frac{3}{4}$ " hose from the hose barb you just installed to the hose barb on the hose reel. We provide 90" of hose. You may cut the hose to desired length to make a good fit. Secure with an 18-140 hose clamp on each end. There are plastic clamp covers to put on end of the hose clamps.
7. Secure hose to machine with nylon ties.

INSTALLATION INSTRUCTIONS COMPUTER SPRAY SYSTEMS

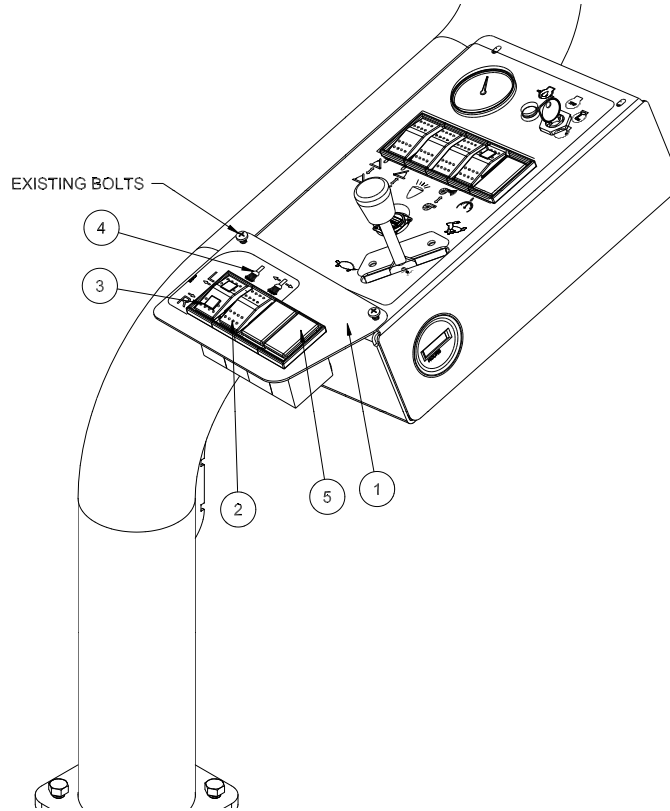
1. The ball valve is already installed. Loosen the clamp holding the blank cover on. Remove the blank cover from the ball valve. Install the hose barb as shown. Tighten all clamps
2. Route the $\frac{3}{4}$ " hose from the hose barb on the ball valve to the hose barb on the hose reel. We provide 90" of hose. You may cut the hose to desired length to make a good fit. Secure with a 18-040 hose clamp on each end. There are plastic clamp covers to put on end of the hose clamps.
3. Secure the hose to the machine with a nylon ties.
4. There may be parts left over that you will not need.

15-965 FOAM MARKER DRAWING



REF#	PART#	DESCRIPTION	QUANTITY
1	20-799	Backing Plate	2
2	20-791	Front Foamer Mount	1
3	HB-38-16-300	Hex Bolt, $\frac{3}{8}$ - 16 x 3	4
	HNFL-38-16	Nylon Lock Nut, $\frac{3}{8}$ - 16	4
	HW-38	Flat Washer, $\frac{3}{8}$	4
4	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
5	20-790	Rear Foamer Mount	1
6	14-284-02	Cap Assembly	1
7		Clear Tube	1
8		Blue Tube	1
9	14-291-04	Tank Bracket	2
10	14-291-03	Compressor Only	1
	14-291-01	Black Cover	1
11	14-291-02	Foamer Tank	1
6-11	14-291	Foamer (includes parts 6-11)	1

15-965 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

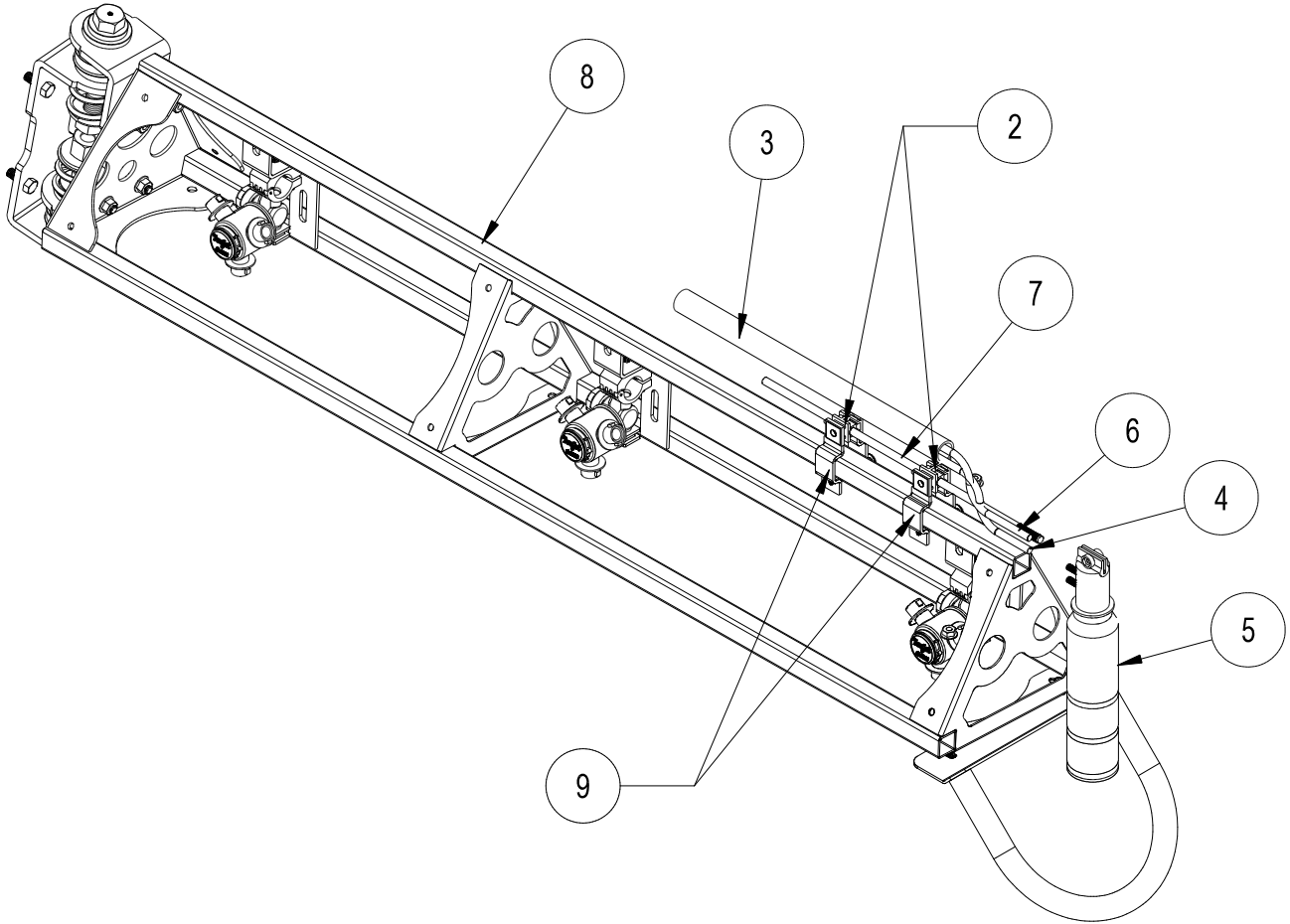
Safety: Before working on machine: stop engine, set park brake, remove key from ignition and block wheels. Disconnect negative (-) battery terminal.

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 front foamer mount(Ref 2) and one backing plate (Ref 1) on the right hand side of the mainframe ahead of the rear axle, secure using two $\frac{3}{8}$ x 3 bolts, flat washers and lock nuts. Repeat with the Rear Foamer Mount(Ref 5). *Leave loose enough to reposition when mounting the Foamer(Refs 6-11).*
4. Place Foamer unit(Refs 6-11) onto the front and rear mounts. Using the $\frac{1}{4}$ x $\frac{3}{4}$ bolts and $\frac{1}{4}$ flange Lock nuts. Fasten foamer to mounts. Tighten hardware.
5. Tighten hardware securing foamer mounts to the mainframe.

FOAMER NOZZLE MOUNT



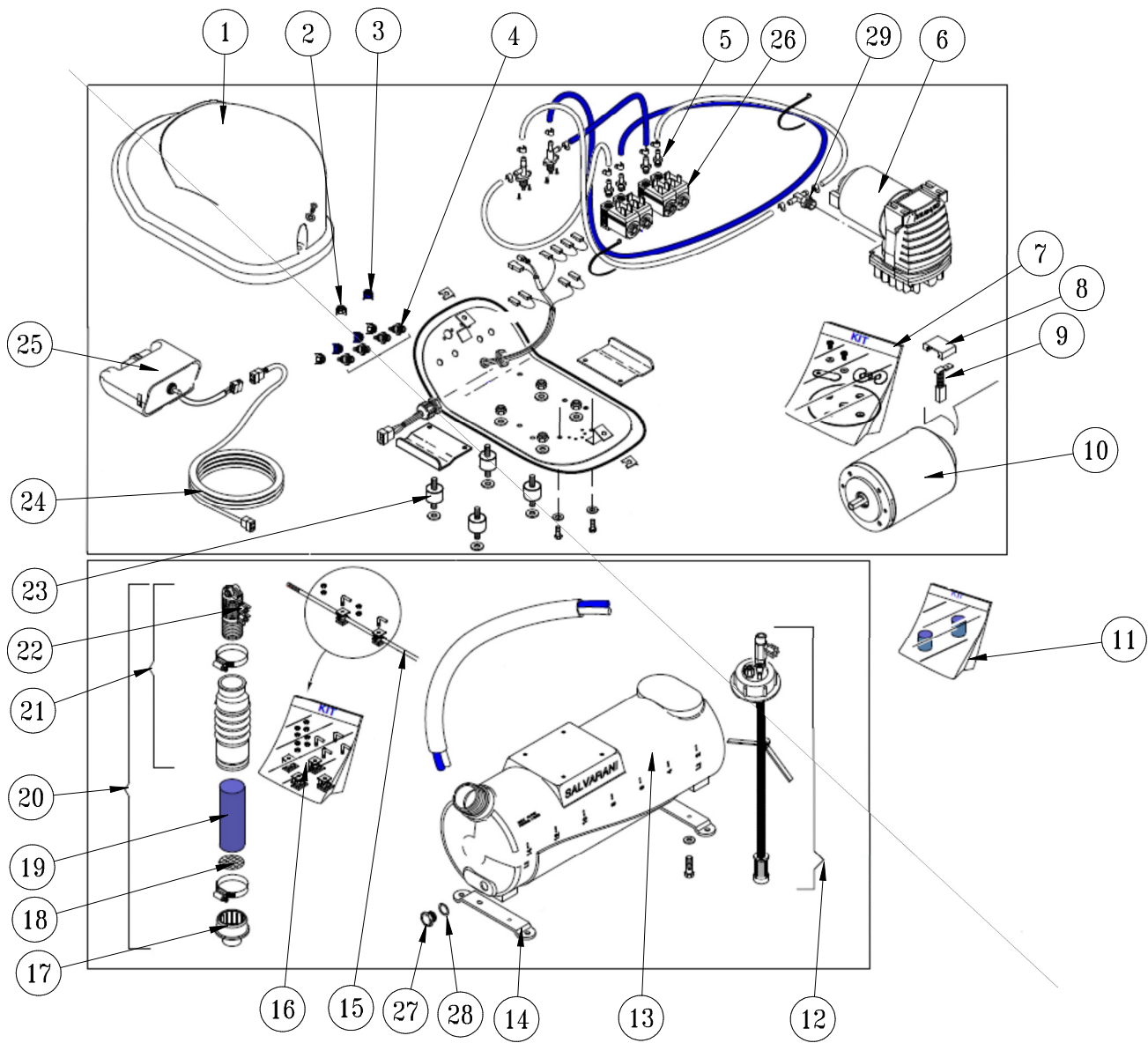
Accessories

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

INSTRUCTIONS

1. Slide hose clamp onto drop tube of foam nozzle and attach restricter 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 oversleeve 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 oversleeve approximately 2" (5 cm) and inserting blue and clear tubes for the left boom section into the tubing connectors (Ref A) 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 on bottom of the boom square tubing.
10. Install hose guard using 2 drill screws (you may want to drill a $\frac{3}{16}$ pilot hole first).
11. Place another hose guard against first and install in same manner.
12. Repeat process for other boom side.
13. Connect small plastic electrical plug under compressor to electrical extension cable.
14. Cut cable and strip casing, allowing enough length to connect to fuse block.
15. Strip and connect slide on connectors to each wire and use the heat shrink.
16. Connect black negative (-) wire to the ground and connect red wire to the positive (+).
17. Insert 10 amp fuse into slot which red wire was attached to.

14-291 FOAMER REPLACEMENT PARTS

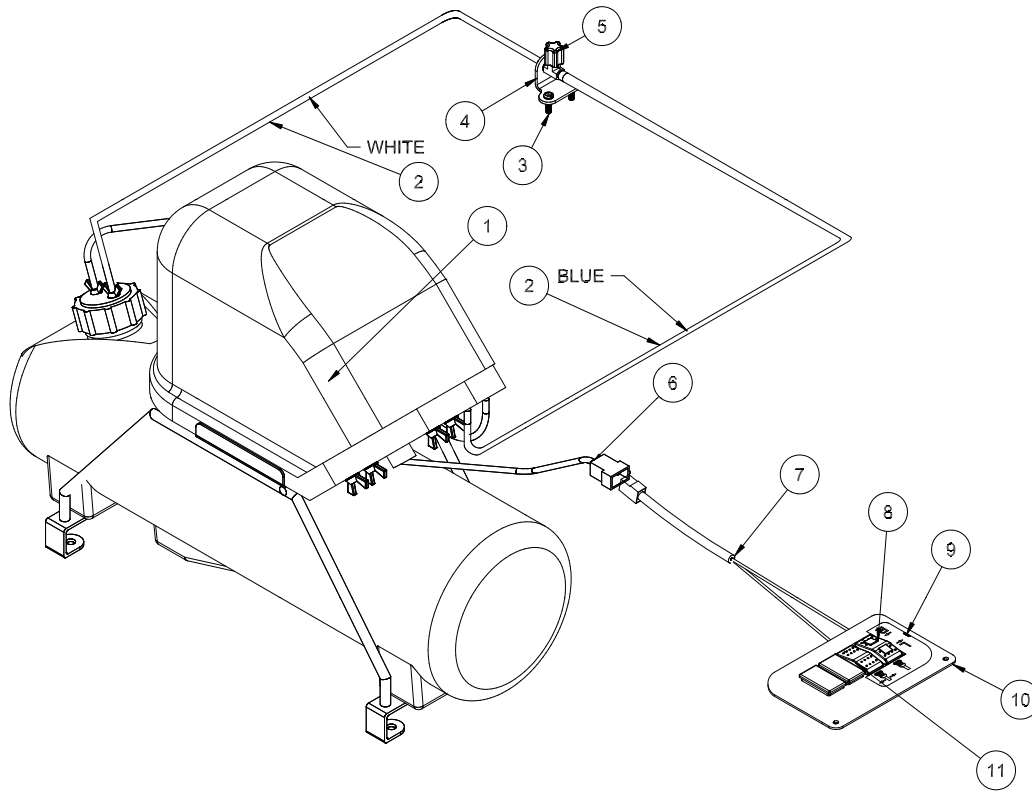


Accessories

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
NS	15-507	16M Blue & White Tubing	

FOAM MARKER WIRING

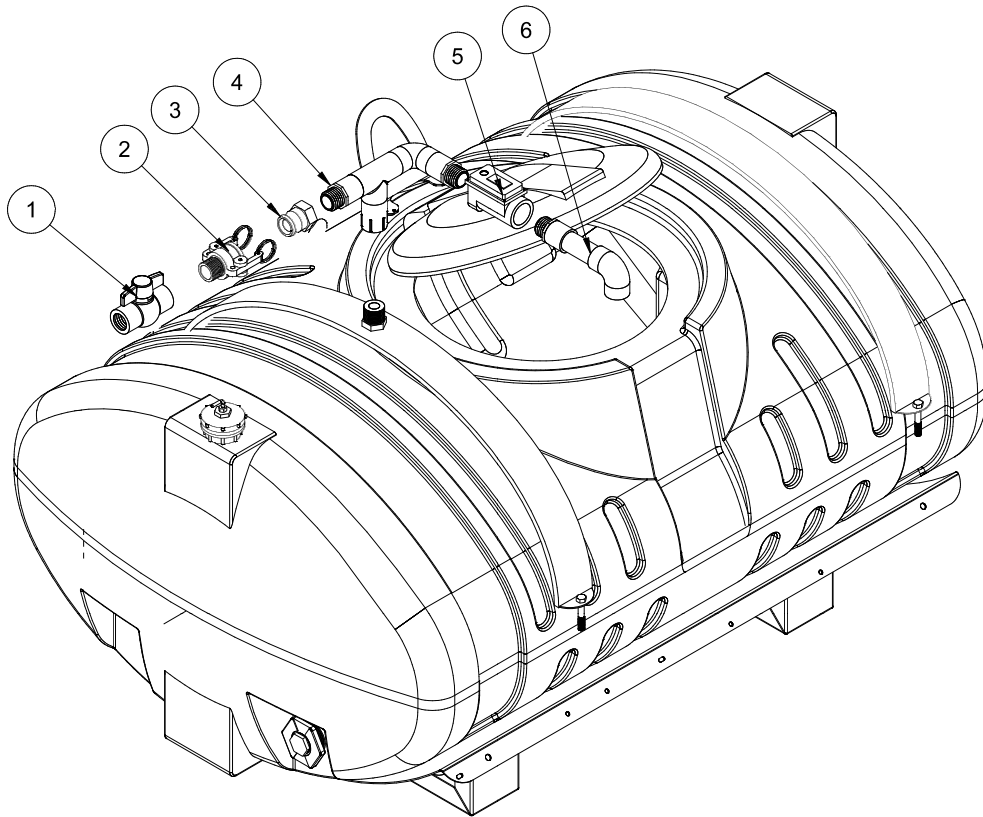


REF#	PART#	DESCRIPTION	QUANTITY
1	14-291-03	Compressor	1
2	15-507	Tubing -Blue and white	1
3	HSM-10-32-075	Machine Screw, #10-32 x 3/4	2
	HNFL-10-32	Flange Whiz-loc Nut, #10-32	2
4	20-769	Mount Bracket	1
5	14-699	Male Coupler	1
	14-291-09	Blue Fly Nut	1
	14-702	Red Washer	1
6	15-504-04	Foam Marker Wiring 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(-).

20-815 WATER METER KIT



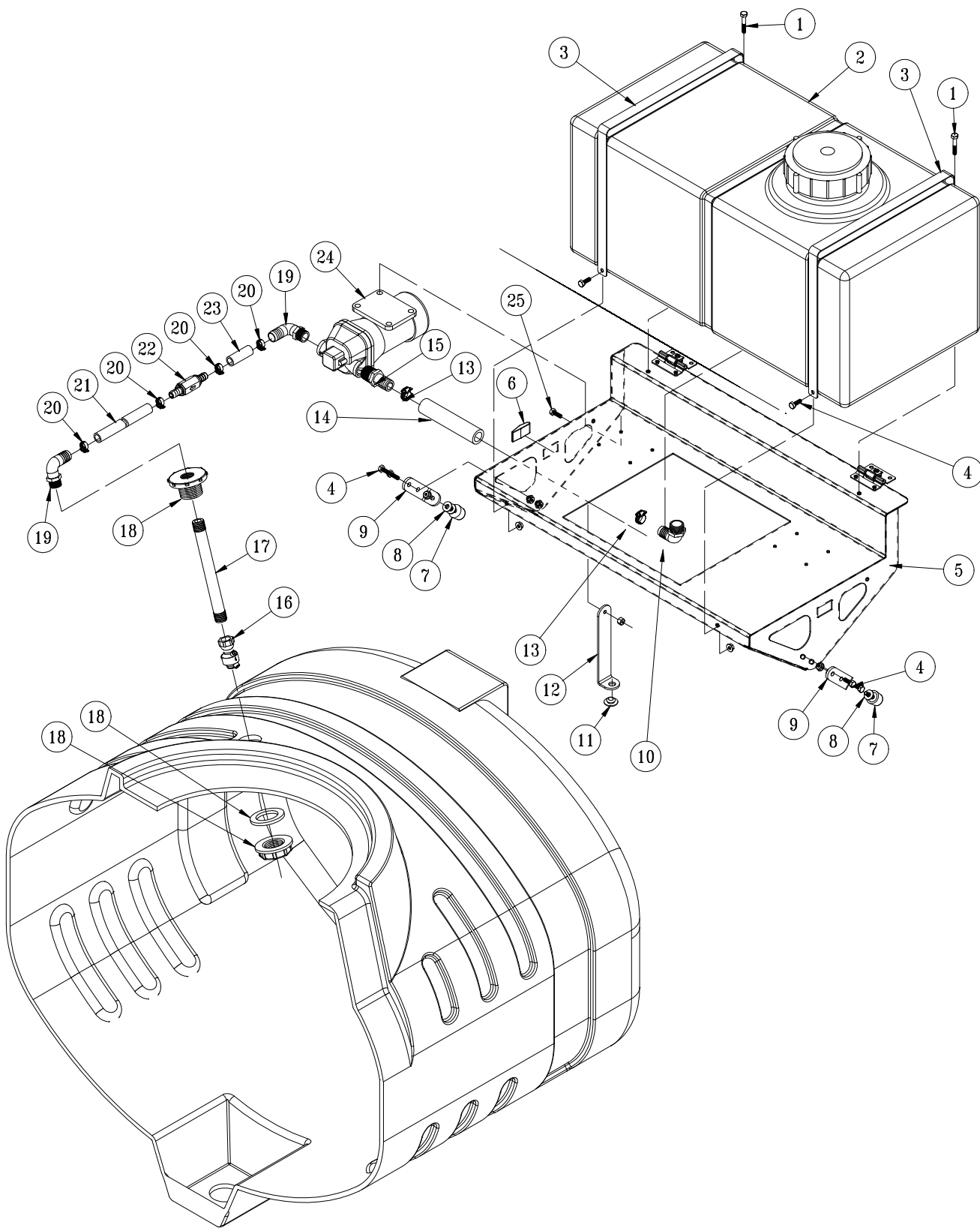
REF #	PART #	DESCRIPTION	QUANTITY
1	18-448	1" Ball Valve (already on machine)	1
2	16-962	1" Quick Coupler (already on machine)	1
3	16-961	1" Adapter Quick Coupler (already on machine)	1
4	20-813	Filler Inlet	1
5	14-804	Water Meter	1
6	20-814	Filler Outlet	1

11. 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. Smithco recommends the 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.

NOTE

The meter display will automatically turn off after 30 seconds of inactivity to conserve batteries. It will turn on when flow resumes or any button is pushed. No data is lost during periods of inactivity.

15-968 20 GALLON RINSE TANK PARTS LIST



Accessories

15-968 20 GALLON RINSE TANK PARTS LIST

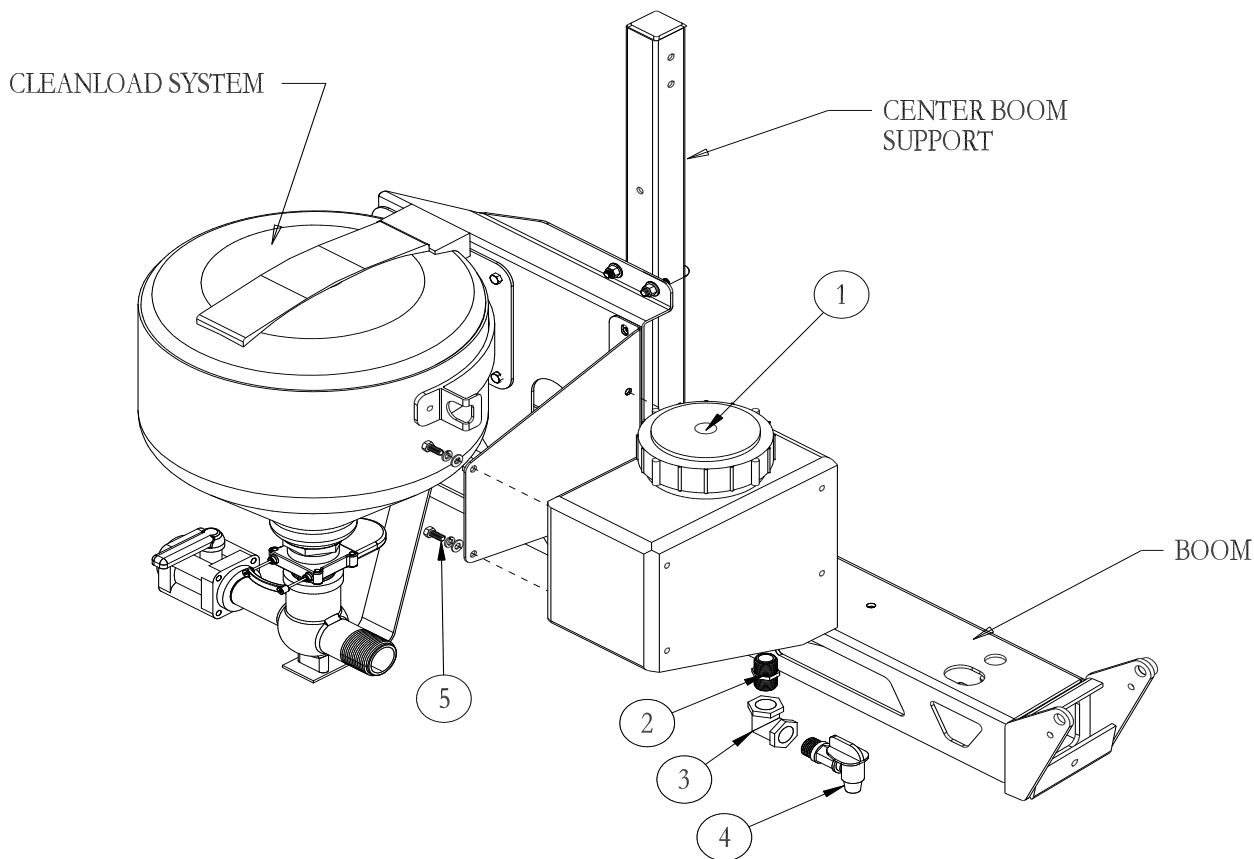
REF#	PART#	DESCRIPTION	QUANTITY
1	HB-14-20-150	Hex Bolt, 1/4 - 20 x 1 1/2	2
	HNFL-14-20	Flange Lock Nut, 1/4 - 20	2
2	20-797	20 Gallon Tank	1
	10-234-01	Replacement Cover	
3	20-800	Tank Strap	2
4	HB-14-20-075	Hex Bolt, 1/4 - 20 x 3/4	6
	HNFL-14-20	Flange Lock Nut, 1/4 - 20	6
5	20-792	Rinse Tank Mount	1
6	15-726	Lighted Rocker Switch	1
	15-917	Red Rocker	1
7	15-013	Rubber Bumper	2
	HNFL-14-20	Flange Lock Nut, 1/4 - 20	2
8	HW-14	Flat Washer, 1/4	4
9	20-801	Bumper Mount	2
10	16-153	Elbow	1
11	42-116	Rubber Pad	1
12	15-933	Prop Strap	1
13	18-040	Hose Clamp, HS12	2
14	9032	Black Hose, 3/4	5.5"
15	18-489	Connector, 1/2 NPT x 3/4 Barb	1
16	30-246	Rinse Nozzle	1
17	30-247	PVC Nipple	1
18	33-495	Bulkhead Fitting	1
19	16-186	Elbow, 1/2 NPT x 3/4 Barb	2
20	18-077	Hose Clamp, HS10	3
21	9050	Nylon Clear Tubing, 1/2	60"
22	18-497	Check Valve	1
23	9050	Nylon Clear Tubing, 1/2	2"
24	20-798	Pump, 4 GPM	1
25	HB-14-20-075	Hex Bolt, 1/4 - 20 x 3/4	1
	HNTL-14-20	Nylon Lock Nut, 1/4 - 20	1

⚠ WARNING

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



30-006 FRESH WATER WASH TANK -REAR MOUNT



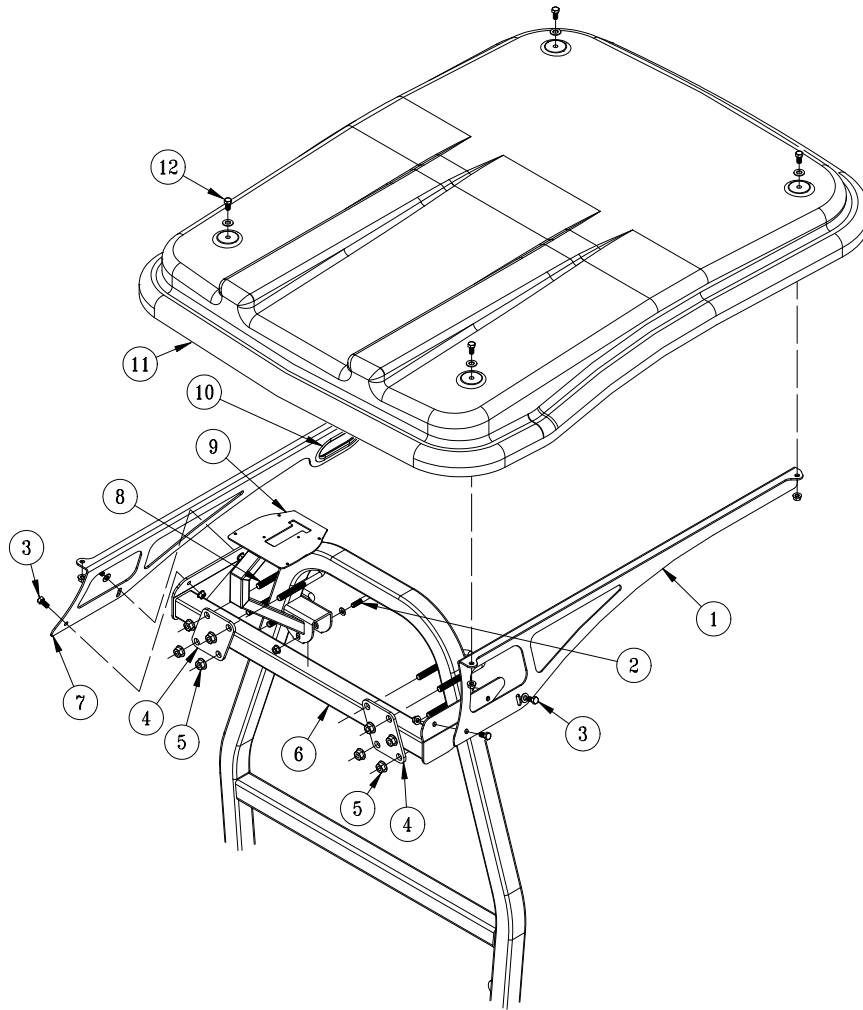
REF#	PART#	DESCRIPTION	QUANTITY
1	10-234	Wash Tank	1
2	16-158	Close Nipple	1
3	16-151	Elbow	1
4	16-960	Spigot	1
5	HB-516-18-075	Hex Bolt, $\frac{5}{16}$ - 18 x $\frac{3}{4}$	4
	HWL-516	Lockwasher, $\frac{5}{16}$	4
	HW-516	Flat Washer, $\frac{5}{16}$	4

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

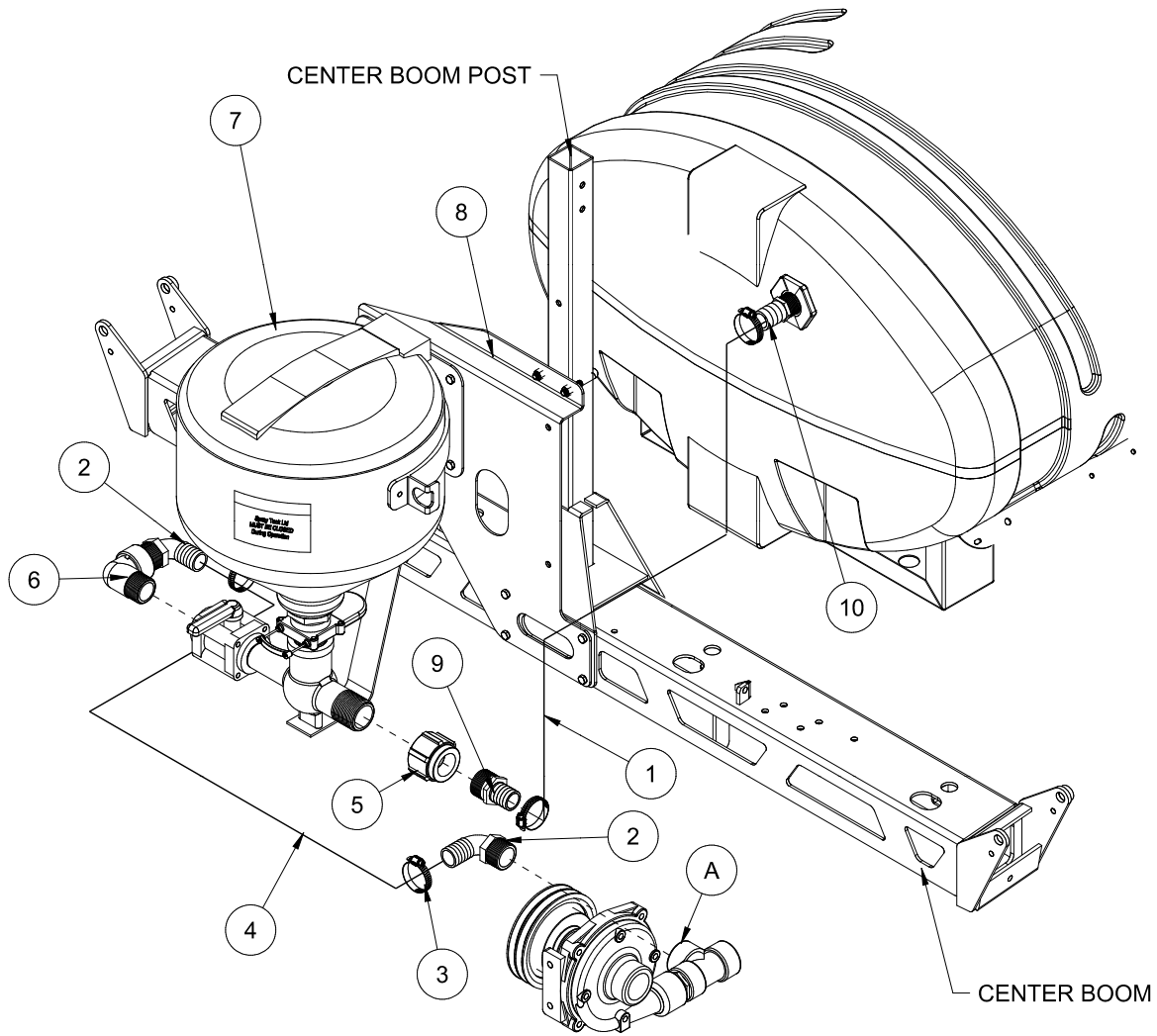
This tank is for fresh clear water ONLY. Do not put chemicals in this tank.

20-860 PLASTIC SUN SHADE



REF#	PART#	DESCRIPTION	QTY
1	20-863	RH Sunshade Beam	1
2	HB-38-16-275	Bolt, $\frac{3}{8}$ - 16 x $2\frac{3}{4}$	1
	HNFL-38-16	Flange Lock Nut, $\frac{3}{8}$ - 16	1
	HW-516	Flat Washer, $\frac{5}{16}$	1
3	HB-38-16-075	Hex Bolt, $\frac{3}{8}$ - 16 x $\frac{3}{4}$	4
	HW-38	Flat Washer, $\frac{3}{8}$	2
	HNFL-38-16	Flange Lock Nut, $\frac{3}{8}$ - 16	4
4	20-859	Frame Clamp Plate	2
5	HNFL-12-13	Flange Whiz-Loc Nut, $\frac{1}{2}$ - 13	8
6	20-861	Sunshade Mount Frame	1
7	20-862	LH Sunshade Beam	1
8	30-249	U-Bolt	4
9	20-864	Antenna Mount	1
10	8803	Black Trim	13
11	20-858	Plastic Sunshade	1
12	HB-38-16-075	Hex Bolt, $\frac{3}{8}$ - 16 x $\frac{3}{4}$	4
	HNFL-38-16	Flange Lock Nut, $\frac{3}{8}$ - 16	4
	HW-716	Flat Washer, $\frac{7}{16}$	4

15-619 CHEMICAL CLEAN-LOAD SAFE FILL SYSTEM



REF#	PART #	DESCRIPTION	QUANTITY
1	8897-46	1 1/4" Discharge Hose 46"	1
2	16-156	90° Hose Barb	2
3	18-116	Hose Clamp	4
4	8897-113	1 1/4" Discharge Hose 113"	1
5	18-391	Coupling	1
6	16-972	Street Elbow	1
7	15-620	Cleanload Assembly	1
	25-389	Decal, Tank Lid	1
	HBFL-516-18-075	Flange Bolt, 5/16 - 18 x 3/4	4
	HNFL-516-18	Flange Lock Nut, 5/16 - 18	4
8	17-660	Clean Load Mount (comes with boom)	1
9	16-161	Straight Fitting	1
10	16-159	Fitting	1

15-619 CHEMICAL CLEAN-LOAD INSTALLATION INSTRUCTIONS

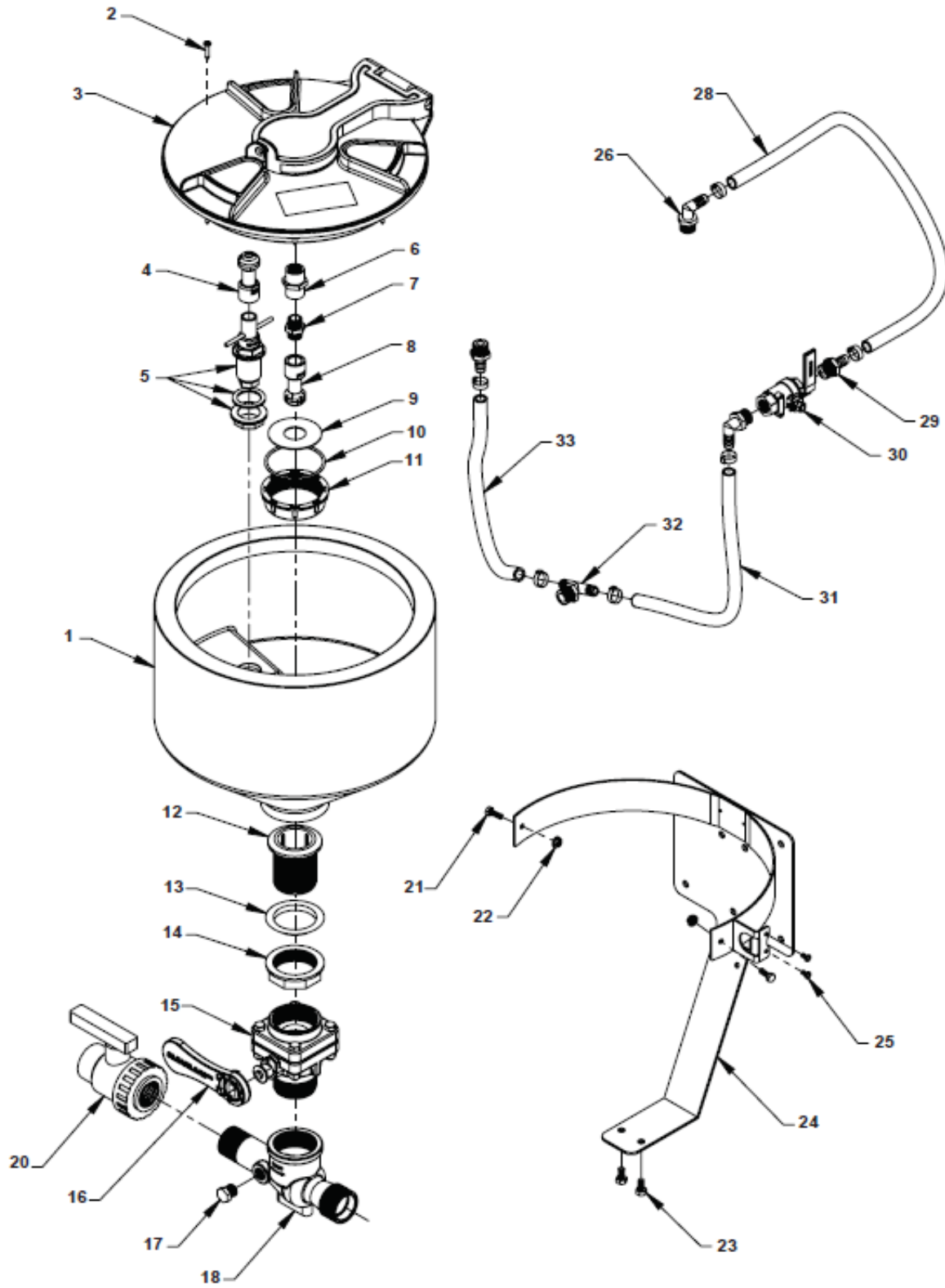
1. Make sure sprayer tank is empty and flush all chemical residue from sprayer. Always wear protective clothing, goggles and gloves.
2. Remove plug from tee on spray pump (Ref A).
3. Install one of the 90° fittings (Ref 2), should point to the back of the machine.
4. Install 113" of 1 1/4" discharge hose (Ref 4) onto the elbow on the pump that points back and tighten hose clamp (Ref 3).
5. Route the 113" hose to the back of the sprayer so it connects over the top of the left boom support tube.
6. Mixer Mount (Ref 8) is already installed on boom center post.
7. Mount Cleanload Assembly (Ref 5) onto mixer mount using 5/16 x 3/4 flange bolts and flange nuts. Tighten.
8. Install 18-391 reducer coupling (Ref 4) onto outlet side. Then a 16-161 fitting (Ref 9) into the coupling. Tighten fittings so that the elbow in the valve is pointing up and forward.
9. Remove the plug from the top back of the spray tank and install a 16-159 hose barb (Ref 10) and tighten.
10. Now the 46" hose (Ref 1) can be installed from the tank to the outlet fitting. Tighten with hose clamps.
11. The hose from the spray pump can be connected to the inlet fitting and tightened with hose clamps.
12. Make sure all hardware, fittings and clamps are tight. Add about 25 gallons of water to the spray tank. Start sprayer and circulate water through system to check for leaks.
13. Be sure to read start up, loading and shutdown instructions for Cleanload Assembly before using with chemicals. When working with chemicals **Always** wear protective clothing, goggles and gloves.

SPRAY TANK LID MUST BE CLOSED WHEN USING CLEANLOAD.

TROUBLE SHOOTING

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

15-620 CHEMICAL CLEAN-LOAD® PARTS DRAWING



Accessories

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	HB, 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	HB Tee, 1/2 MNPT to 1/2 HB	1
33	15-620-07	Hose, Bottle Rinse, 1/2" EPDM	1

OPERATING INSTRUCTION

STARTUP

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 eduction 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.

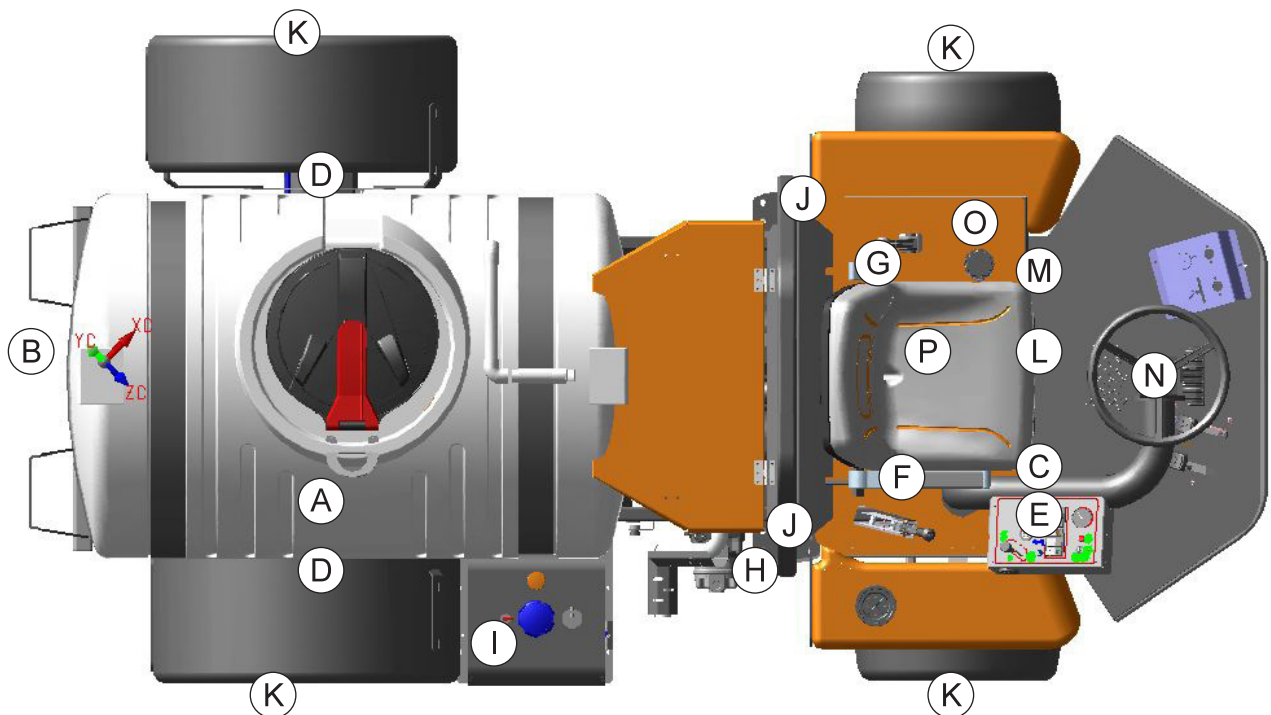
DECAL LOCATION

⚠ WARNING

If Safety Decals** have been damaged, removed, become illegible or parts replaced without decals, new decals must be applied. New decals are available from your authorized distributor.

This is a list of decals located on the Spray Star 1200. Part number, description and location will help in re-ordering decals.

A	20-705	Decal, Tank Volume
B	20-707	Decal, Rear Tank Volume
C**	15-463	Decal, Spray Pump
D	20-706	Decal, Spray Star 1200
E**	10-657	Decal, Control Panel
F**	51-184	Decal, Park Brake
G**	15-719	Decal, Speed Control
H**	25-298	Decal, Warning Hot
I**	25-307	Decal, Gas
J*	25-286	Decal, Pinch Point
K	25-356	Decal, Tire Pressure
L	25-373	Decal, Smithco
M	25-381	Decal, 96 dBA
N	27-077	Decal, Smithco
O**	27-093	Decal, Hydraulic Oil
P**	25-277	Decal, Battery



Accessories

QUICK REFERENCE REPLACEMENT PARTS

REPLACEMENT FILTERS

23-031	Hydraulic Oil Filter	
13-531	Engine Oil Filter	Briggs # 842921
76-395-01	Air Cleaner Cartridge	Briggs # 841497
76-395-02	Safety Filter Cartridge	Briggs # 821136
13-488	Key Switch	
8-709	Key Set	
50-403	Fuel Filter	

REPLACEMENT BELTS

16-869	Spray Pump Belt
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SEAL KITS

15-301	Power Steering Orbital Motor
15-301-01	Seal Kit
15-839	Hydraulic Cylinder
15-839-01	Seal Kit
76-238	Wheel Motors
14-080	Seal Kit
76-638	Hydrostatic Pump
77-239-23	Seal Kit
76-197	Gear Pump
76-197-08	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

16-953	Hinged Cover On Tank with Gasket	
16-953-01	Gasket For Cover	
16-169	Strainer Basket	
15-818	#75 Fitting Oring	
15-817	#50 Fitting Oring	
	Spark Plugs	Champion type RC12YC (Gap 0.040 inch (1.02mm))

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.

