

Parts & Operation Manual

Model: MT300, MT600, MU600, MU1000

Covers Serial Number Range:

803-M-T3-GP-Y--2803 to _____
816-M-T6-GK-*02816 to _____
254-I-P6-GS-Y-*-02254 to _____
869-W-P*I***S**0469 to _____

Sold & Serviced By:

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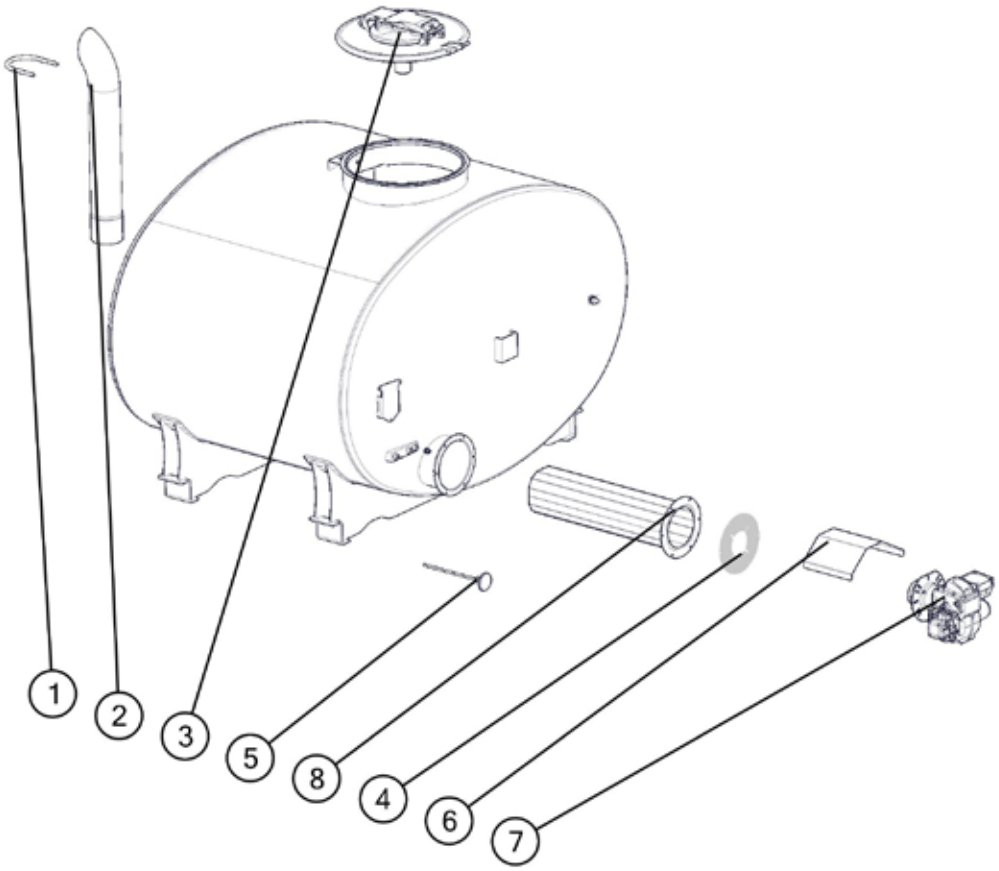
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1. Parts Manual

1.1 Tank Assembly

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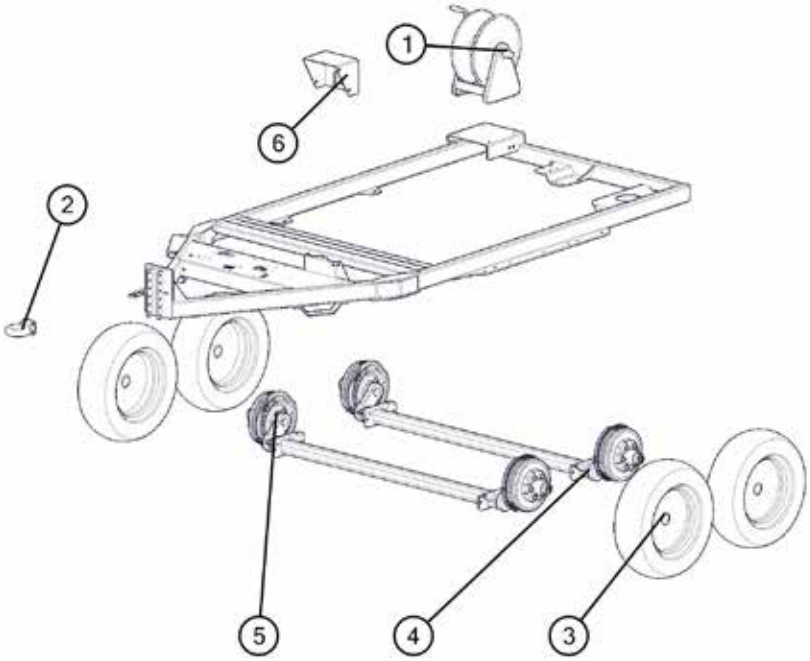


Tank Assembly

BOM ID	Part Number	Description	Qty
1	050-0466	U BOLT CLAMP	1
2	010-0694	EXHAUST PIPE	1
3	123305	MANHOLE LID	1
4	123-308056	BURNER MOUNT PLATE	1
5	123480	THERMOMETER	1
6	123-310910	DIESEL BURNER SHROUD	1
7	130320	DIESEL BURNER ASSEMBLY	1
7.01	130320-1	KIT BLOWER MTR SMALL ADC BURN	
7.02	130320-2	WHEEL BLOWER	
7.03	130320-3	COUPLING MTR DC	
7.04	130320-4	GUIDE AIR ADC BURNER	
7.05	130320-5	GASKET FELT	
7.06	130320-6	BAND AIR	
7.07	130320-7	SHUTTER AIR 4 SLOT	
7.08	130320-7-A	SHUTTER AIR -8 SLOT	
7.09	130320-9	PUMP CLEAN CUT FUEL	
7.1	130320-9-SUNTEC	PUMP FUEL SUNTEC	
7.11	130320-10	KIT VALVE STEM	
7.12	130320-11	COIL 12 VOLT	
7.13	130320-15	ASSEMBLY IGNITOR	
7.14	130320-16	CAD CELL DETECTOR	
7.15	130320-17	KIT GASKET IGNITER	
7.16	130320-19	KIT CONTROL ADC BURNER	
7.17	130320-20	IGNITOR ASSEMBLY W/ ICB	
7.18	130320-22	IGNITER ONLY	
7.19	130320-23-24	ASSEMBLY AIR TUBE	
7.2	130320-25	NOZZLE	
7.21	130320-30	KIT ELECTRODE OVER 3- 5/8	
7.22	130320-INSERTION	INSERTION WELDED TUBE	
8	122-123380	FLUE TUBE	1

1.2 Trailer Frame

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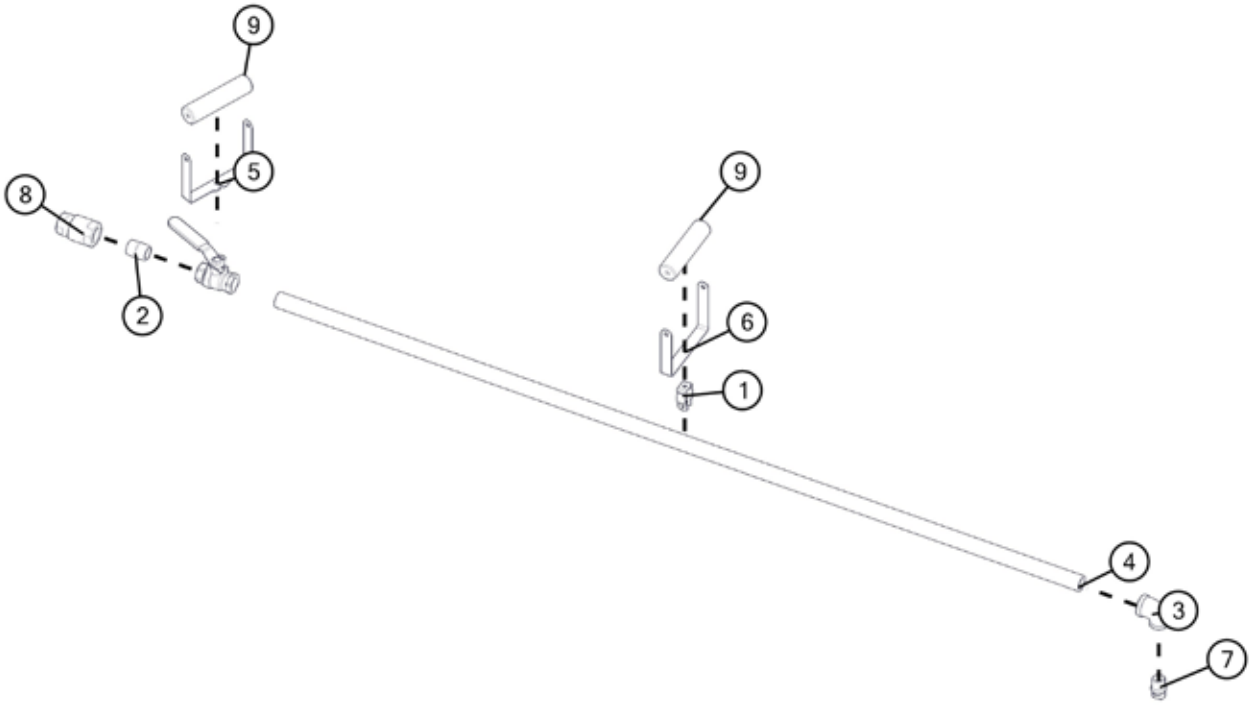


Trailer Frame

BOM ID	Part Number	Description	Qty
1	050-0723	HOSE REEL	1
1.1	050-0723-1	HOSE	1
2	050-0248	PINTEL HOOK RING	1
3	050-0754	TRAILER WHEEL/TIRE ASSEMBLY	4
4	050-0773B	AXLE ASSEMBLY WITH OUT BRAKE	1
5	050-0773	AXLE ASSEMBLY W/ ELEC BRAKE	1
6	122-212530	WELDEMENT BATTERY COVER	1

1.3 Hand Wand Assmebly

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Hand Wand Assembly

BOM ID	PART NUMBER	PART NAME	Qty
1	015-0303	CLAMP CONDUIT	1
2	019-0010	NIPPLE, CLOSE, 3/4”	1
3	019-0109	ELBOW, 90DEG	1
4	123-123252	SHAFT	1
5	123-123255	HANDLE. BALL VALVE	1
6	123-123255	HANDLE, WAND, FRONT	1
7	123484	SPRAY NOZZLE	1
8	123-123445	SWIVEL COUPLER	1
9	123-308310	WOODEN HANDLE	2
10	017-123458	BALL VALVE	1
11	121-123250	COMPLETE HANDWAND ASSEMBLY	

1.4 Engine and Hydraulic Pump Assembly

1.4.1 MT Engine and Hydraulic Pump Assembly

MT Only

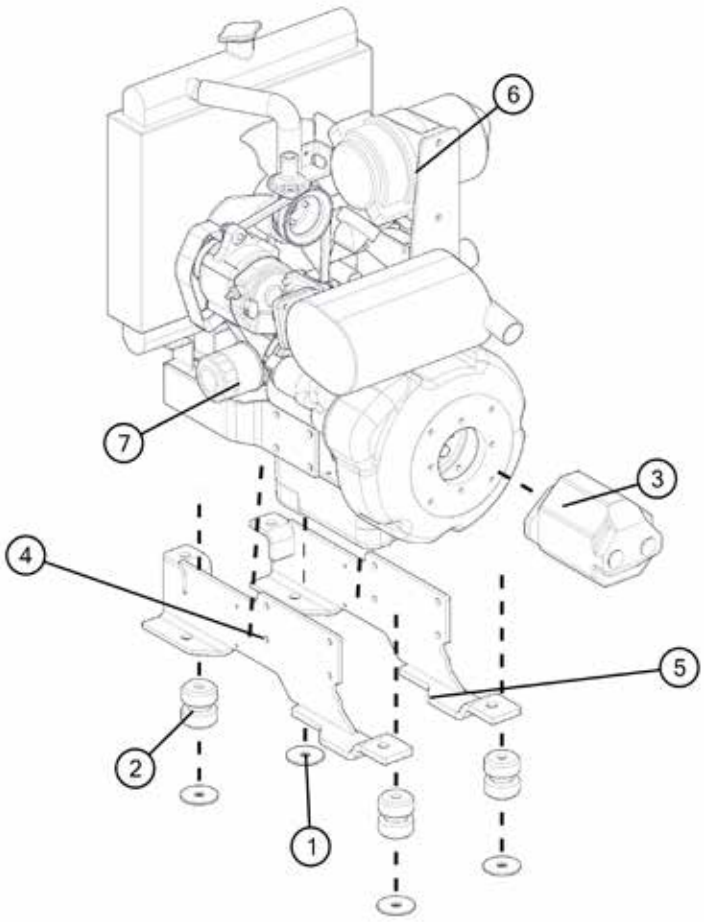
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Engine and Hydraulic Pump Assmbley

BOM ID	PART NUMBER	DESCRIPTION	QTY
1	010-0541	ENG KOHLER 9.5 HP	1
1.01	010-0541-3	STARTER COMPLETE	
1.02	010-0541-4	CAP FUEL	
1.03	010-0541-5	SWITCH IGNITION ASSEMBLY	
1.04	010-0541-6	FILTER AIR 9.5HP	
1.05	010-0541-7	FILTER PRE CLEANER AIR KOHLER 9.5HP	
1.06	010-0541-8	COVER AIR FILTER KOHLER 9.5HP	
1.07	010-0541-10	STARTER RECOIL ASSEMBLY	
1.08	010-0541-11	GASKET AIR CLEANER	
1.09	010-0541-12	BASE AIR FILTER	
1.1	010-0541-13	COVER BASE A/C	
1.11	010-0541-14	FILTER FUEL TANK	
1.12	010-0541-15	SOLENOID STARTER	
1.13	010-0541-16	LEVER FUEL SHUT OFF	
1.14	010-0541-17	CARBURETOR	
1.15	010-0541-18	SWITCH IGNITION ONLY CH395 KOHLER ENGINE	
1.16	010-0541-19	HARNESS TO VOLTAGE REGULATOR	
1.17	010-0541-20	COVER AIR FILTER BASE CARBURATOR	
1.18	010-0541-21	LINE FUEL CUT TO LENGTH	
1.19	010-0541-KEY	KEY SPARE KOHLER	
1.2	010-0541-SPA	ASSEMBLY SPARK PLUG	
1.21	010-0541-VR	REGULATOR VOLTAGE KOHLER 9.5 HP ENG	
2	013-0007	PUMP HYDRAULIC	1
3	015-0119	SPROCKET PUMP SIDE	1
4	015-0033	SPROCKET ENGINE SIDE	1
5	015-0044	COUPLING CHAIN	1
6	092-0516	PUMP MOUNT	1
7	123-212618	MOUNT COVER PLATE	1

1.4.2 MU Engine and Hydraulic Pump Assembly

MU Only

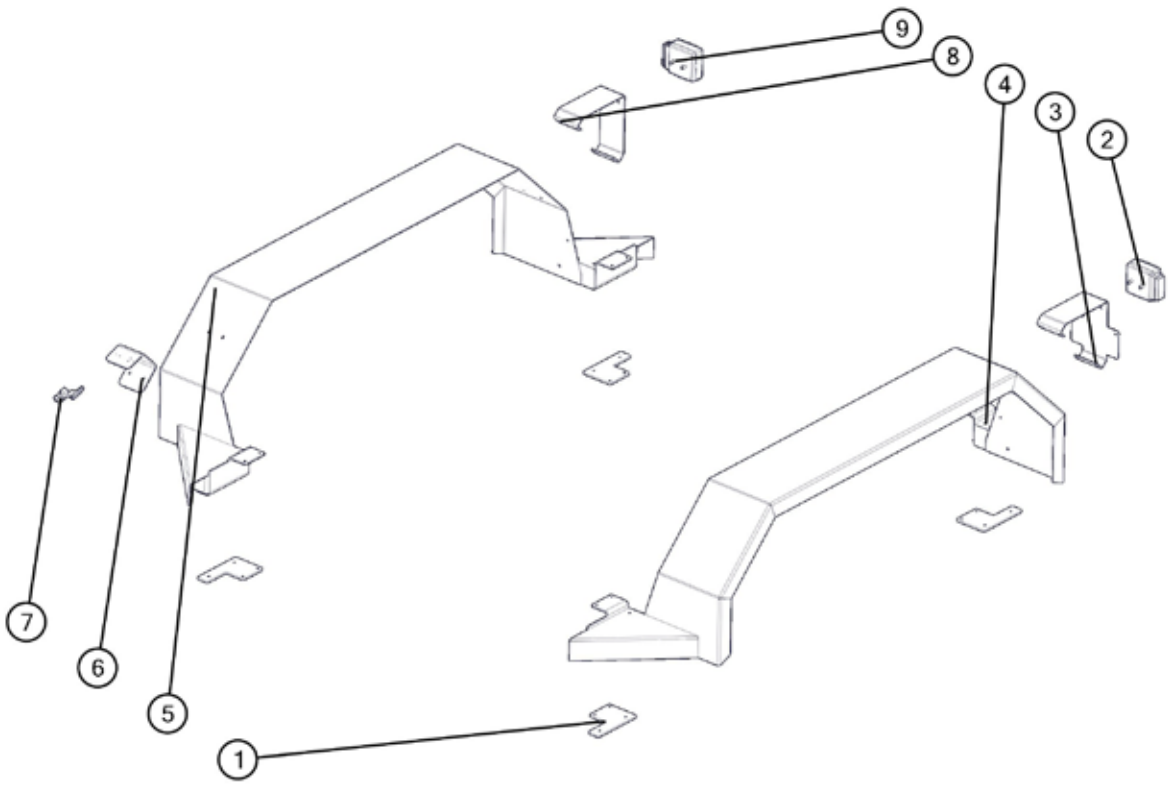


MU Engine and Hydraulic Pump Assembly

BOM ID	PART NUMBER	DESCRIPTION	Qty
1	030-0499	WASHER, FENDER	4
2	050-0260	RUBBER ISOLATOR	4
3	011-0140	HYDRUALIC PUMP	1
4	082-104032	DIESEL ENGINE MT'G PLATE, LEFT	1
5	082-104033	DIESEL ENGINE MT'G PLATE, RIGHT	1
6	021-0211	FILTER OIL ENGINE	1
7	021-0236	FILTER AIR PRIMARY	1
7.1	021-0237	FILTER AIR SECONDAY	1
8 (Not Shown)	010-0816	PANEL ENGINE GAUGES	1

1.5 Fender Assemblies

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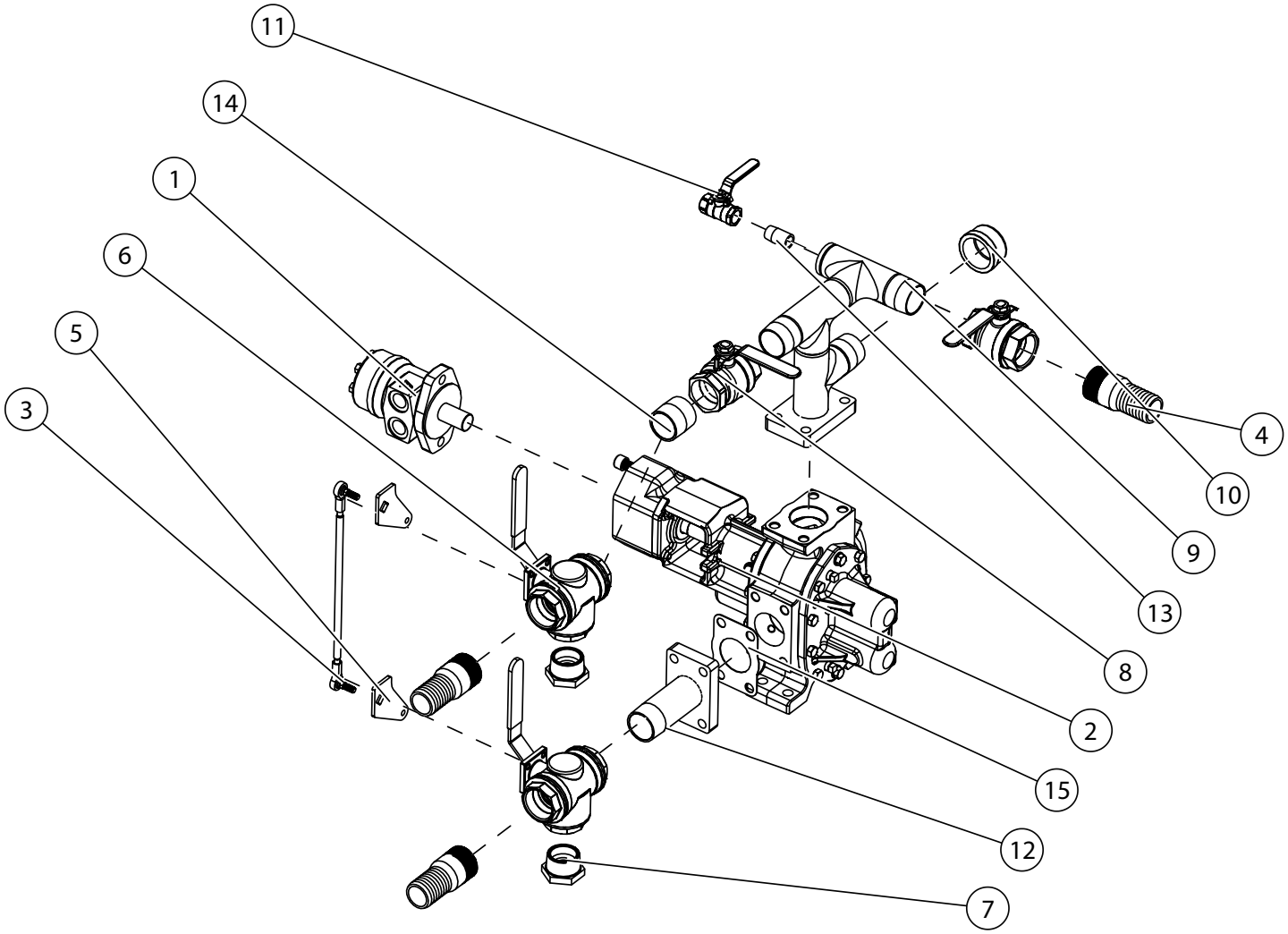
Fender Assemblies

BOM ID	Part Number	Description	Qty
1	123-212548	Bracket Fender Mounting	4
2	020-0243A	Brake Light wo/ License Light	1
3	123-212550	Brake Light Bracket w/ License Plate	1
4	122-212561	Fender Weldment LH	1
5	122-212560	Fender Weldment RH	1
6	123-127534	Bracket Mount Hand Wand	1
7	050-0137	Rubber Latch Kit	1
8	123-212550	Brake Light Bracket	1
9	020-0243	Brake Light	1

1.6 Material Pump

1.6.1 MT Material Pump

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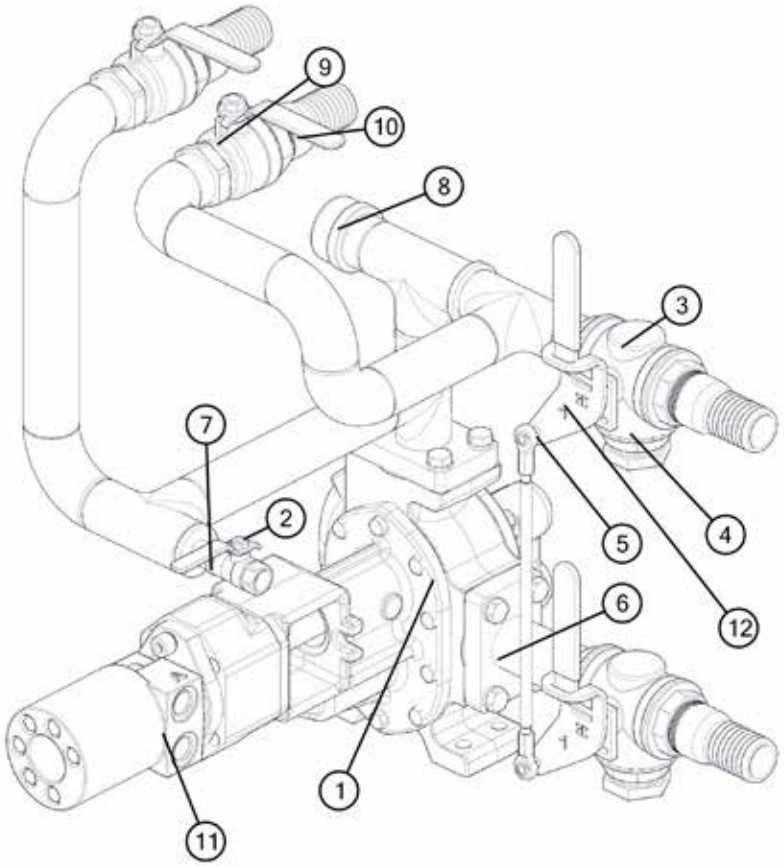


MT Material Pump

BOM ID	Part Number	Description	Qty
1	013-0100	Motor Hydraulic	1
2	011-0252	Material Pump	1
3	121-212056	Clean out Linkage Assembly	1
4	019-0190	Nipple 1.50in	3
5	123-212054	Bracket Clean out Valve	2
6	130312	Ball Valve 3-Way 1.5in	2
7	019-0114	Bushing Reducer	2
8	050-0729	Ball Valve	2
9	122-212052	Piping Weldment	1
10	014-0480	Cap Black Iron 1.5in	1
11	017-0043	Ball Valve Spray Wand	1
12	122-212058	Pump Inlet Weldment	1
13	123-312072	Nipple .5 in	1
14	019-0113	Nipple Close 1.5in	1
15	022-0237	Gasket Asphalt Pump	2

1.6.2 MU Material Pump

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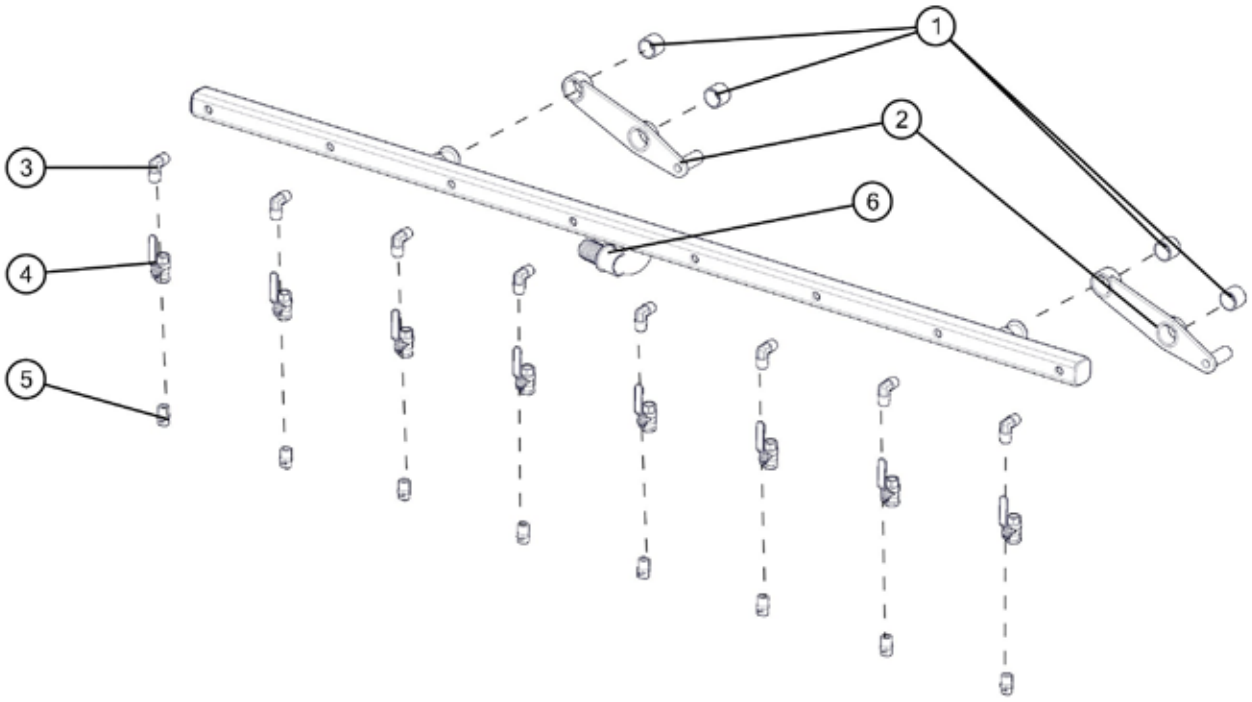
MU Material Pump

BOM ID	PART NUMBER	DESCRIPTION	Qty
1	011-0252	Asphalt Pump	1
2	017-0043	1/2” Ball Valve	1
3	130312	1 1/2” 3 Way Ball Valve	2
4	019-0114	Bushing Reducer 1 1/2”	2
5	121-212056	Linkage Asphalt Valve	1
6	122-212058	Mu Asphalt Pump Inlet Weldment	1
7	122-312060	MU Asphalt Pump Outlet Weldment	1
8	014-0480	Cap 1 1/2”	1
9	050-0729	1 1/2” Ball Valve	2
10	019-0189	1 1/2” Threaded Hose Barb	4
11	013-0100	Hydraulic Motor	1
12	123-212054	Ball Valve Linkage Bracket	2
13 (Not Shown)	022-0237	Gasket Asphalt Pump Small	2

1.7 Spray Bars

1.7.1 MT Spray Bar Assembly

MT Only



MT Spray Bar Assembly

BOM ID	Part Number	Description	Qty
1	018-0120	Brass Bushing	4
2	122-212534	Pivot Arm	2
3	019-0194	Brass Elbow	8
4	017-0043	Brass Ball Valve	8
5	123484	Nozzle	8
6	122-212520	Spray Bar Weldment	1

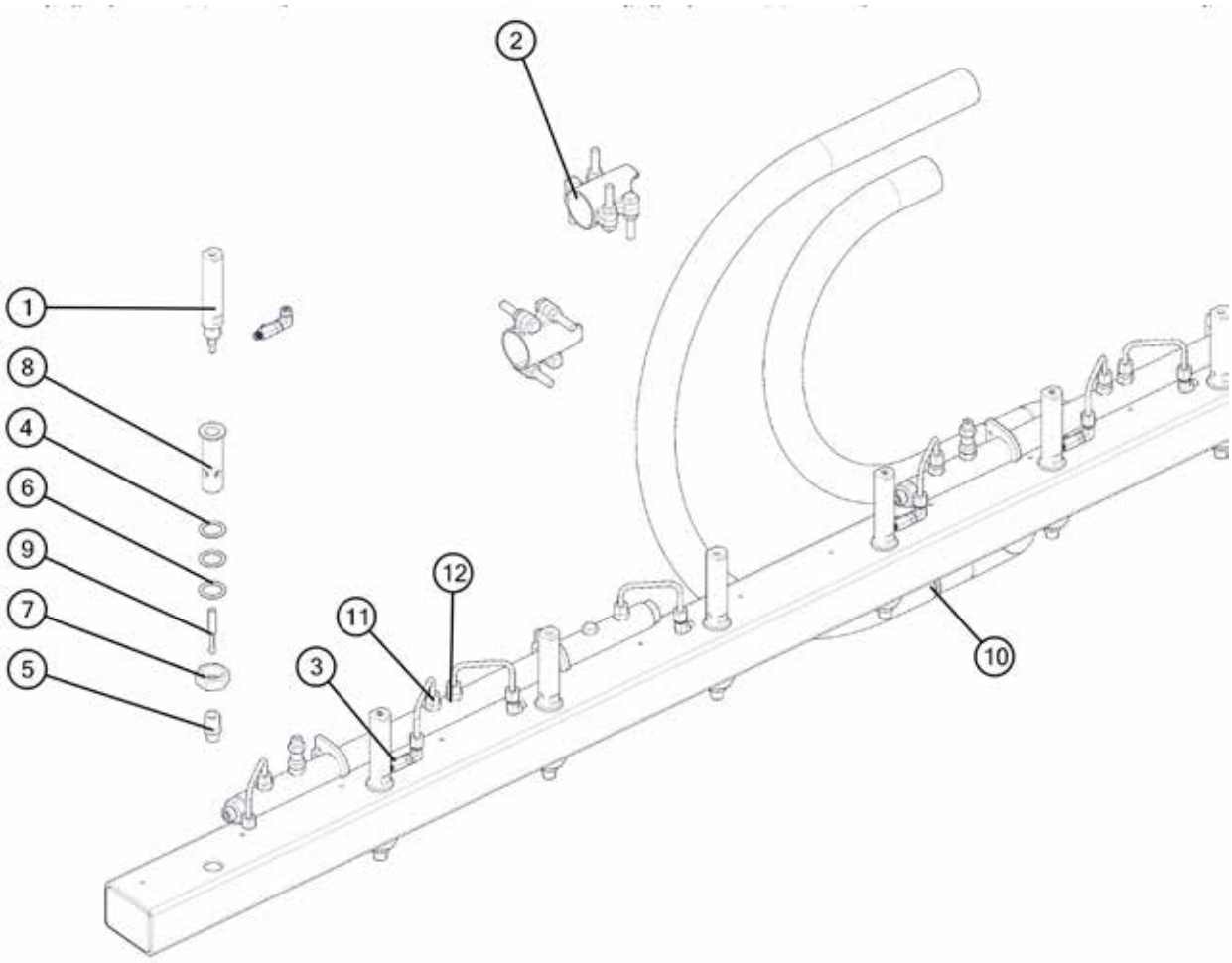
1.7.2 Additional Nozzle Sizes

MU & MT

Additional Nozzle Sizes				
Nozzle Size	**Stamped Marking**	**Recommended Flow GPM **Based on 35psi****	**Application Rate GAL / SQ YD**	**Mauldin Part #**
0	15/95	1.2	.03-.08	123484-1
0	30/95	3	.05-.20	123484-0
1	50/95	4	.10-.30	123484
1.5	60/95	6	.15-.40	123484-15
2	80/95	8.5	.25-.55	123484-2

1.7.3 MU Spray Bar Assembly

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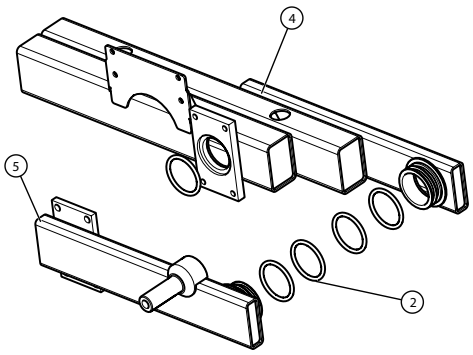


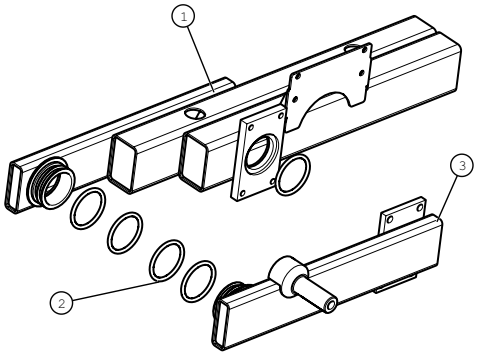
MU Spray Bar Assembly

BOM ID	PART NUMBER	DESCRIPTION	Qty
1	124400	AIR CYLINDER	8
2	015-0331	ASPHALT HOSE CLAMP	2
3	017-0308	BALL VALVE NOZZLE	4
4	022-123494	PAPER GASKET	16
5	123-123484	SPRAY NOZZLE, 50/95	8
6	123-123492	STEEL GASKET WASHER	8
7	123-123555	SPRAY NOZZLE SLEEVE RETAINING NUT	8
8	123-123581	SPRAY BAR NOZZLE SLEEVE	8
9	123-123582	SPRAY CYLINDER POPPET	8
10	122-312520	RECIRCULATING SPRAY BAR WELDMENT	1
11	014-312210	HYDRAULIC TUBE, CYLINDER TO MANIFOLD	8
12	122-312220	HYDRAULIC MANIFOLD TUBE WELDMENT	2
13	022-0123 (Not Shown)	O-RING BAR WING EXTENSION	4

1.7.4 MU Spray Bar Extension Assemblys

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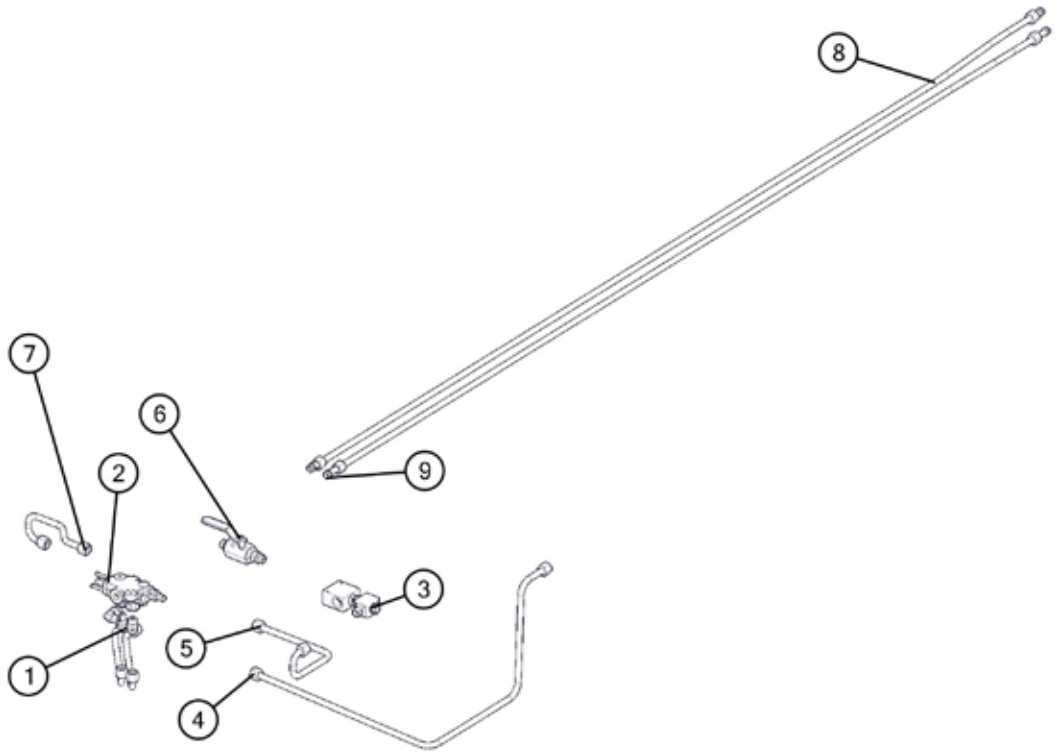
BOM ID	PART NUMBER	DESCRIPTION	Qty
1	122-129365*	WELDMENT EXTENSION LEFT BAR	1
2	022-0123-	ORING	10
3	122-129358*	WELDEMENT EXTENSION LEFT SUB	1
4	122-129366*	WELDMENT EXTENSION RIGHT BAR	1
5	122-129359*	WELDEMENT EXTENSION RIGHT SUB	1
6 (Not Shown)	020-0036	MERCURY SWITCH	2
7 (Not Shown)	122-310320	WELDMENT WING ADJUSTMENT ARM	2
8 (Not Shown)	122-310324	WELDMENT WING ARM THREADED ROD	2
9 (Not Shown)	121-129460	ASSEMBLY COLD HANDLE WING	2
10 (Not Shown)	123-308310	HANDLE WOODEN REPLACEMENT	2

*For one nozzle per foot spacing. Please call for different nozzle spacing

1.8 Hydraulic Components

1.8.1 MT Hydraulic Components

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Hydraulic Components

BOM ID	Part Number	Description	Qty
1	014-212142	TUBE ASSY TACK TANK SELECTOR VALVE OUTPUT	2
2	017-0210	VALVE FORWARD REVERSE	1
3	017-0233	ELECTRIC VALVE ASSEMBLY	1
4	014-212148	TUBE ASSEMBLY TANK RETURN	1
5	014-212146	TUBE ASSEMBLY BALL VALVE BYPASS LONG	1
6	017-0223	BALL VALVE HYDRAULIC	1
7	014-212144	TUBE ASSEMBLY BYPASS SHORT	1
8	014-212140	ASPHALT PUMP MOTOR TUBING, LONG	1
9	014-212141	ASPHALT PUMP MOTOR TUBING, SHORT	1

1.8.2 MU Hydraulic Components

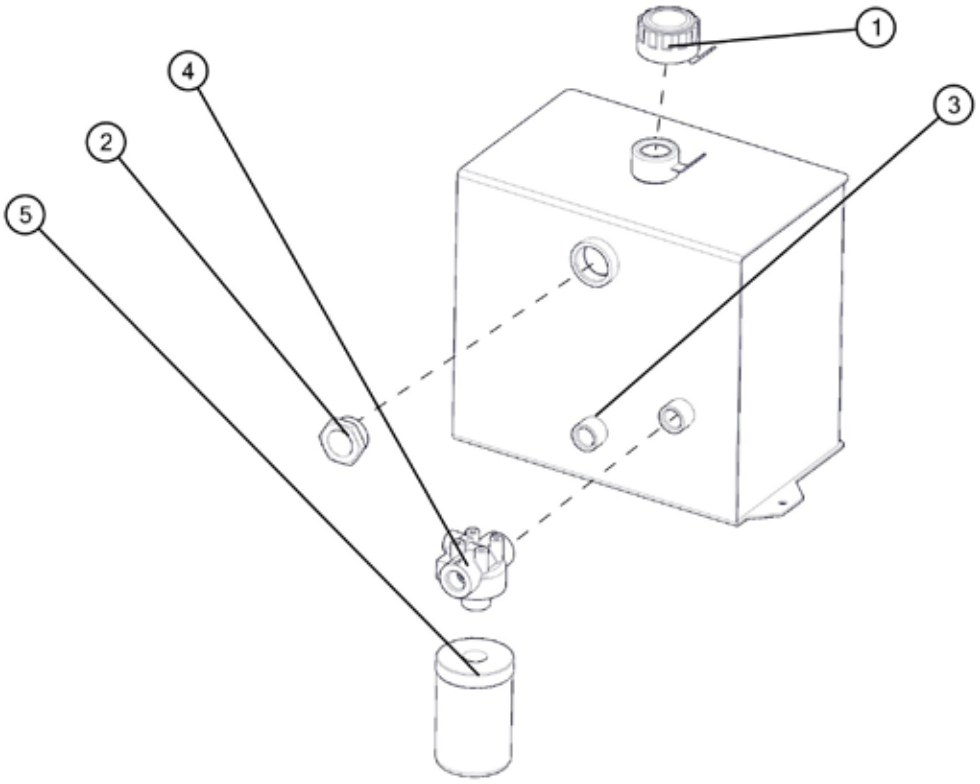
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BOM ID	PART NUMBER	DESCRIPTION	QTY
1	017-0269	BLOCK HYDRAULIC BODY	1
2	017-0206	VALVE HYD ELECTRONIC	1
3	017-0220	VALVE PRESSURE REDUCING	1
4	017-0221	VALVE PRESSURE REDUCING ADJUSTABLE	1
5	014-212140	ASPHALT PUMP MOTOR TUBING, LONG	1
6	014-212141	ASPHALT PUMP MOTOR TUBING, SHORT	1
7	014-312056	TUBE ASSY SUPPLY BULKHEAD	
8	014-312058	TUBE ASSY RETURN	

1.9 Hydraulic Tank

MT & MU

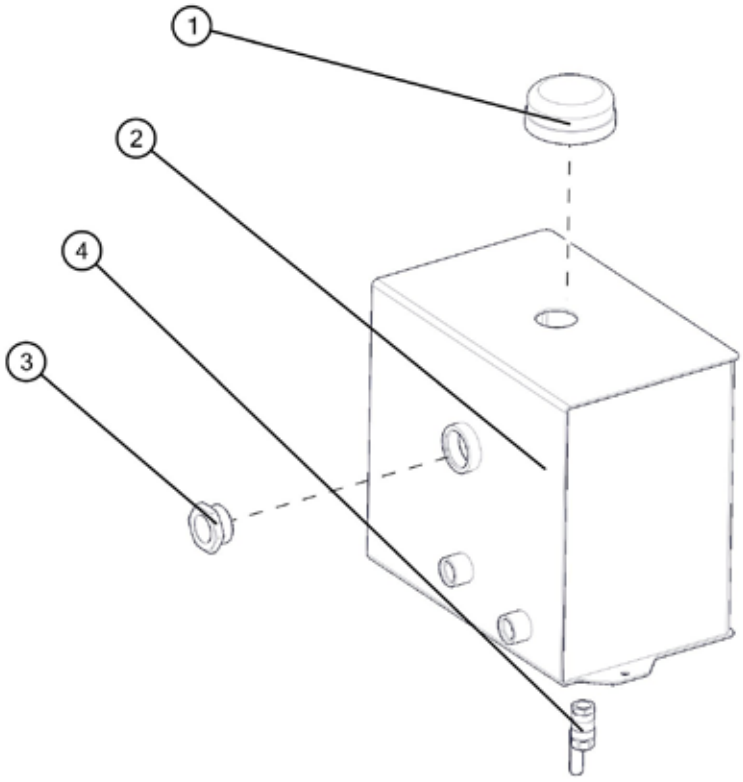


Hydraulic Tank

BOM ID	Part Number	Description	Qty
1	060-0069	Cap Locking	1
2	060-0066	Sight Gauge	1
3	122-212070	Hydraulic Tank	1
4	021-0192	Filter Head	1
5	021-0169	Filter Element	1

1.10 Wash-down Tank

MT & MU

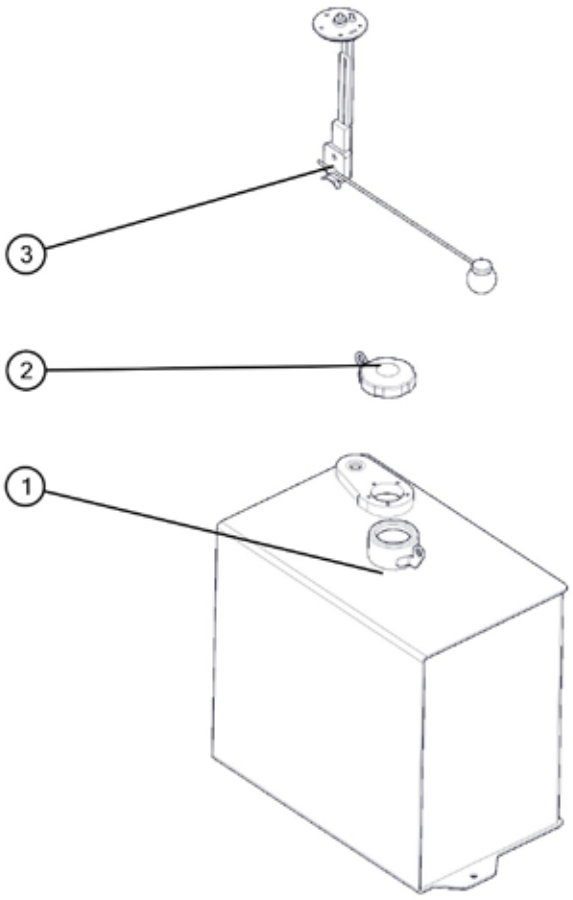


Wash-down Tank

BOM ID	Part Number	Description	Qty
1	019-0195	Cap Wash-down Tank	1
2	122-212080	Tank Wash Down Weldment	1
3	060-0066	Sight Gauge	1
4	050-0713	Ball Valve	1

1.11 Diesel Burner Fuel Tank

MT & MU

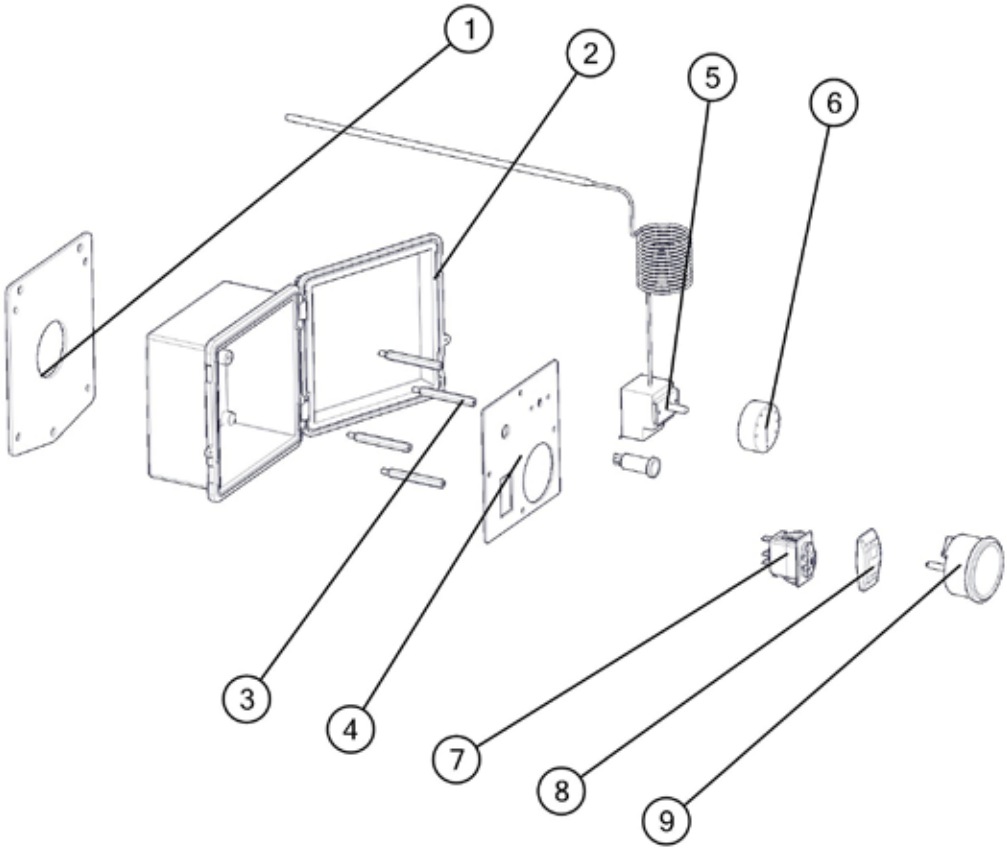


Diesel Burner Fuel Tank

BOM ID	Part Number	Description	Qty
1	122-212070	Fuel Tank Weldment	1
2	050-0522	Fuel Cap	1
3	020-0174	Sender Fuel Level	1

1.12 Diesel Burner Control Box

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Diesel Burner Control Box

BOM ID	Part Number	Description	Qty
1	123-212790	Burner Control Mount Bracket	1
2	130112	Enclosure	1
3	020-109056	Standoff Male-Female M4	4
4	123-130111	Plate Control Box TP	1
5	123716	thermostat	1
6	123716A	Knob Thermostat	1
7	122428	Rocker Switch	2
8	020-0236A	Rocker Switch Acuator	1
9	020-0170	Fuel Gauge	1

1.13 Optional Overnight Temperature Monitor

MT & MU

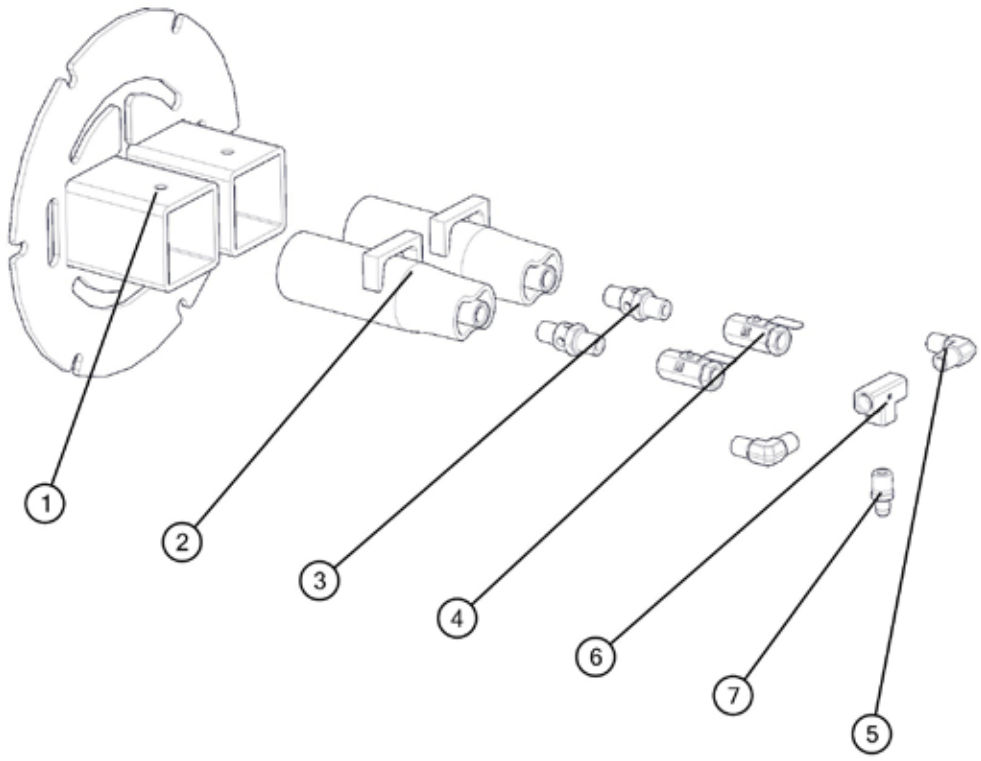
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Overnight Temperature Monitor

BOM ID	PART NUMBER	DESCRIPTION	QTY
1	123-212860	HANGER BRACKET	2
2	020-0253	HEAT STRIP	3
3	121-212866	CONTROL BOX OVER NIGHT HEAT	1
3.1	123715	THERMOSTAT	1
4	020-0639	CORD GRIP	3

1.14 Propane Burner Assembly

MT Only



Propane Burner Assembly

BOM ID	Part Number	Description	Qty
1	122-130190	Bracket Dual Burner	1
2	093-0217	Propane Burner	2
3	050-0499	Orifice	2
4	050-0159	Ball Valve	2
5	019-0235	Elbow	2
6	019-0030	T Fitting	1
7	014-1046	Adapter	1

2. Important Safety Information

Operating personnel must perform service checks regularly to be sure systems are in good operating condition. If abnormal conditions are detected, inform maintenance personnel immediately.

Check all systems for proper operation. Check chassis and all components for physical damage and security of all fasteners and connectors.

Most accidents involving construction maintenance are caused by failure to observe basic safety rules or precautions. An accident can often be avoided by recognizing potentially hazardous situations before an accident occurs.

2.1.1 Safety Alert And Signal Words

The safety information in this manual is denoted by the safety alert symbol: This symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

⚠ DANGER

Indicates a hazardous condition that will result in serious injury or death if not performed appropriately.

⚠ WARNING

Indicates a hazardous condition that could result in serious injury or death if not performed appropriately.

⚠ CAUTION

Indicates a hazardous condition that could result in serious injury if not performed appropriately.

NOTICE

Indicates a situation that could result in damage to the machine or other property.

2.2 Operation Hazards

The following hazards are possible during the operation of the machine. All operators, maintenance and service personal, or any one working with or near the machine must be familiar all hazards.

⚠ WARNING

Do not operate this machine until you read and understand the instructions in the operation section of this manual.

⚠ WARNING

Do not operate, work on or around machine while under the influence of alcohol, drugs or if feeling ill.

⚠ WARNING

Explosion, fire, or property damage hazard.

Do not use starting fluid with this engine.

Use of starting fluid can cause an explosion, fire, personal injury or damage to the engine and other property.

⚠ WARNING

Loud noise hazard.

Prolonged exposure to loud noise can cause impairment or loss of hearing.

Operators, workers and bystanders must use ear protection while machine is in operation.

⚠ WARNING

Entanglement hazard.

Do not wear loose fitting clothing.

Loose fitting clothing and long hair can become entangled in moving or rotating parts. Keep all personnel clear of moving parts when engine is running or about to be started.

Long hair must be tied back or netted.

Keep clear of moving components.

Never operate machine with open or missing guards or shields.

⚠ WARNING

Fire, burns or property damage hazard.

Exhaust and exhaust components can remain hot after engine has been stopped.

To avoid risk of fire, burns and property damage or personal injury, allow the exhaust system to cool before service or repairs.

Be sure there are no combustible materials located where they are likely to come in contact with hot material or exhaust components.

Operator shall keep machine clear of sparks, open flames and incandescent material. Some bitumen fumes are flammable and can explode.
Operator shall never load machine when water is present in the bottom of the tank. Hot material can cause the water to steam and burst the tank.

Operator shall never mix material in the tank of the tank. Not all asphalt products mix and problems will occur. Always contact material handler before changing tank products to ensure compatibility or arrange for offload of material first.

DO NOT SMOKE

⚠ WARNING

Explosion, fire, or personal injury.

Operator shall never operate the burner assemblies while truck is in motion or being loaded.

Operator shall be present during entire heating cycle.

Operator shall be sure burner tubes are covered by a minimum of 8” of material before burner operation. Uncovered tubes can cause explosion in tank.

Operator is responsible for safe heating temperatures of the material and not exceeding the “flash point”.

Operator shall begin tank circulation of material as soon as possible for safe heating of product.

Operator shall always wear protective gear for face, hands, feet, eyes, and body while working with hot bituminous products.

Operator shall always have proper knowledge and carry in truck proper MSDS of material on board.

When hot asphalt touches the skin, flush area completely according to MSDS. Remember if you are not using emulsions, cool water may not be the best solution. Get medical attention.

NOTICE

Dispose of waste properly.

Improper disposal of waste can harm the environment.

Use leak proof container when draining fluids. Do not use food or beverage containers.

Contact your local environmental or recycling center for the proper way to recycle or dispose of waste.

2.2.1 ⚠Pressurized Fluids

Hydraulic oil and grease injected into your skin can cause serious injury or death. Keep your hands and body away from any pressurized leak. Tighten connections before applying pressure. Never use your hand to check for leaks; use a piece of wood or cardboard. If fluid is injected into the skin, it must be surgically removed within a few hours or gangrene may result. Get immediate medical attention.

2.2.2 ⚠ Hazardous Chemicals

Lubricants and coolants can be hazardous. Before operating, check the Material Safety Data Sheet (MSDS) to understand each product, safe handling procedures, and first aid measures relating to the product. Clean up spilled fluids immediately.

Do not drain or pour any fluids or lubricants on the ground. Check with local environmental agencies or recycling centers for proper disposal information.

2.2.3 California Proposition 65 Warnings

⚠ WARNING

Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Always start and operate the engine in a well-ventilated area.

If in an enclosed area, vent the exhaust to the outside.

Do not modify or tamper with the exhaust system.

Do not idle the engine except as necessary.

For more information go to www.P65Warnings.ca.gov/diesel.

⚠ WARNING

Batteries, battery posts, battery terminals, and related accessories can expose you to chemicals including lead and lead compounds, which are known to the State of California to cause cancer and birth defects or other reproductive harm.

For more information go to www.P65Warnings.ca.gov.

2.2.4 Hazards From Modifying Equipment

Do not make any alterations to your machine. Altering may cause your equipment to be unsafe and may void the manufacturers' warranty.

2.3 Maintenance Hazards

The following maintenance hazards are in additional to those found while operating the machine. All maintenance and service personal must be familiar with all hazards before working on the machine.

Most accidents are caused by failure to observe basic safety rules or precautions.

An accident can often be avoided by recognizing potentially hazardous situations before an accident occurs.

⚠ WARNING

Improper operation, lubrication or maintenance of this machine can be dangerous and could result in injury or death.

⚠ WARNING

Do not perform any lubrication and maintenance on this machine until you read and understand the instructions in the maintenance section of this manual.

2.3.2 ⚠ Fire Or Explosion Prevention

⚠Engine fuel can cause an explosion or fire. Do not service fuel system with engine running or near open fire. Do not weld or smoke near fuel system. Do not spill fuel or hydraulic oil on hot machine components. Clean up spilled fuel or oils immediately.

⚠Keep sparks and flames away from batteries to prevent explosion of hydrogen gas in and near a battery. Other precautions include:

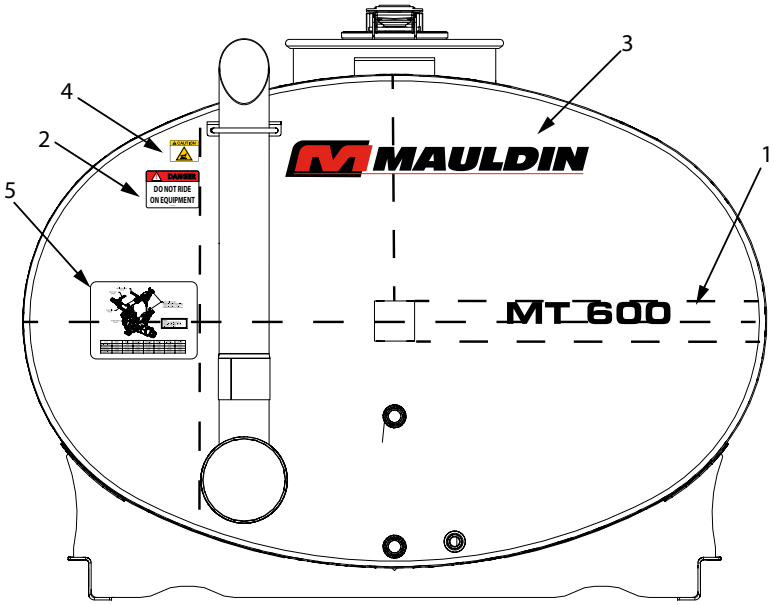
- When disconnecting battery cables, disconnect negative (-) cable first.
- When connecting battery cables, connect negative (-) cable last.
- Do not short circuit battery posts with metal items.

2.4 General Machine Safety

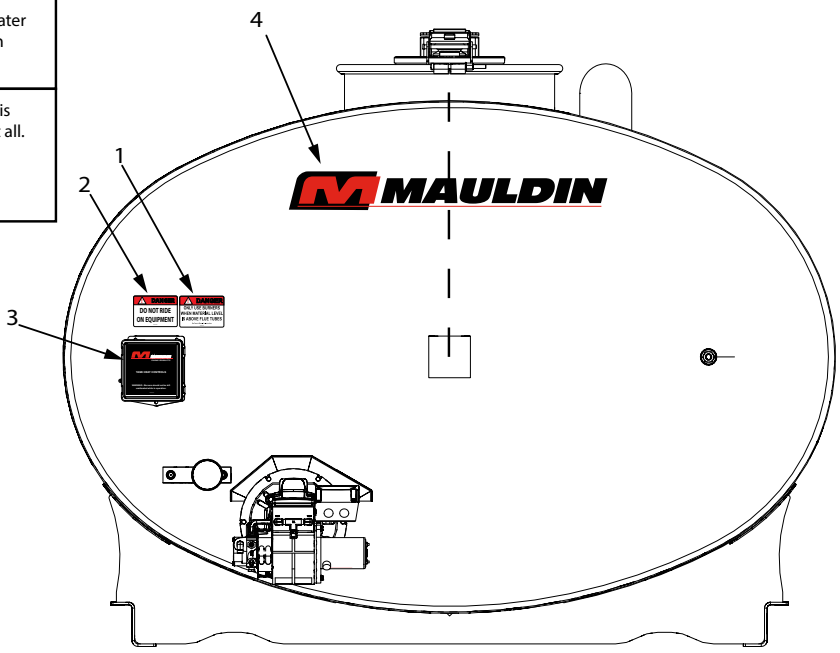
- Have first aid kit ready and available.
- Proper clothing should be worn at all times. Long sleeved shirts and pants are recommended.
- Always use safety glasses and proper gloves when performing functions on the machine.
- A clean work station is a safe work station. This also aids in proper visual inspection of the machine daily, and ensures proper daily maintenance.
- Operator shall bear the responsibility that when maintenance is complete proper safety guards, and decals have been returned to the machine.
- Operating personnel must perform service checks regularly to be sure systems are in good operating condition. If abnormal conditions are detected, inform maintenance personnel immediately
- Operator shall obey all laws.

2.4.1 Safety Decals Explained

1	MT 600 Centered horizontally between square channel and side of tank. Justified with Top of Square Channel	
2	DANGER DO NOT RIDE ON EQUIPMENT	Danger - Do not Ride on Equipment. This equipment is not intended to ride on at all.
3	MAULDIN	
4	CAUTION	Caution - Hot surfaces. Surfaces will be hot from being exhaust to hot materials. Use caution when touching.
5		



1	DANGER ONLY USE BURNERS WHEN MATERIAL LEVEL IS ABOVE FLUE TUBES	Danger - Do not use Burners unless the flue tubes are completely submerged. Exposed heated flue tubes will cause water to steam and combust likely resulting in injury or death.
2	DANGER DO NOT RIDE ON EQUIPMENT	Danger - Do not Ride on Equipment. This equipment is not intended to ride on at all.
3		
4	MAULDIN	



3. Operation Instructions

⚠ WARNING

To avoid possibly injury or death do NOT load tank with hot material when condensation or water is present in tank. Hot material and water will have a violent reaction producing steam and pressure resulting product damage and potential injury or death may occur.

⚠ WARNING

Never exceed the recommended temperature for the specific material being used. If the required temperature is not known, please contact the material manufacturer.

3.1 Heating instruction

3.1.1 Propane

1. Open propane tank and set regulator to @5 PSI.
2. Open valve at propane burner(s) on rear of tank while using a striker to light gas.
3. After the burner is going return the front of the tank and turn the regulator up to 8-12 PSI.
4. Burners shall not be left un-attended! You are responsible to turn them off when desired temperature is achieved. (This is usually 120 –140 degrees F.)

3.1.2 Diesel

1. Flip the burner blower controls to the on position.
2. Turn the Thermostat dial to the desired spray temperature.
3. Flip the burner fuel switches to the on position and the burners will light.
4. After burners start to warm, the material must be circulated.
5. When set temperature is reached the burners will turn off, and the material is ready to spray

Burner Safety

- Operator shall never operate the burner assemblies while truck is in motion or being loaded.
- Operator shall be present during entire heating cycle.
- Operator shall be sure burner tubes are covered by a minimum of 8” of material before burner operation. Uncovered tubes can cause explosion in tank.
- Operator is responsible for safe heating temperatures of the material and not exceeding the “flash point”.
- Operator shall begin tank circulation of material as soon as possible for safe heating of product.

3.2 Hand Spray Instruction

1. Partially open the recirculating tank valve to feather to minimize hydraulic system going over relief. You may use the tank valve to regulate spray wand spray pattern.
2. At the front of the unit move the pump direction lever into the “Forward.”
3. At the back of machine open hand spray wand valve and use your hand spray wand.
4. When finished spraying close the recirculating tank valve and switch the pump direction to “Reverse” this will

return the unused material from the spray wand and lines to the material tank.

5. Close and open the hand spray “wand valve” a few times to ensure as much material is removed as possible.
6. After the material has been returned and you can hear “sucking” noises from the wand move the pump direction lever to “Neutral” and close Spray wand valves.

3.3 Spray bar Instructions

3.3.1 MT Spray Bar Operation

On units equipped with spray bar

In cab control:

1. At the front of the machine (with the engine @ idle) pull the pump direction lever to the “Forward” position.
2. Turn the ball valve to the “In Cab”
3. At the rear of the machine open the spray bar valve.
4. To spray – Position the trailer to the area you wish to spray, turn your headlight switch to on and the spray bar will began to spray. (you should try to maintain a vehicle speed of 2-3 MPH while spraying.) to end the spray shut headlights off.
5. If you desire to test or manually run the spray bar:
6. At the front of the machine (with the engine @ idle). Turn the ball valve handle to “Manual”.Leave the pump direction lever in Neutral until you’re ready to spray.
7. At the rear of the machine open the spray nozzel valves and the main spray bar valve.
8. Position the trailer where you want to spray. Push the pump direction level to forward.

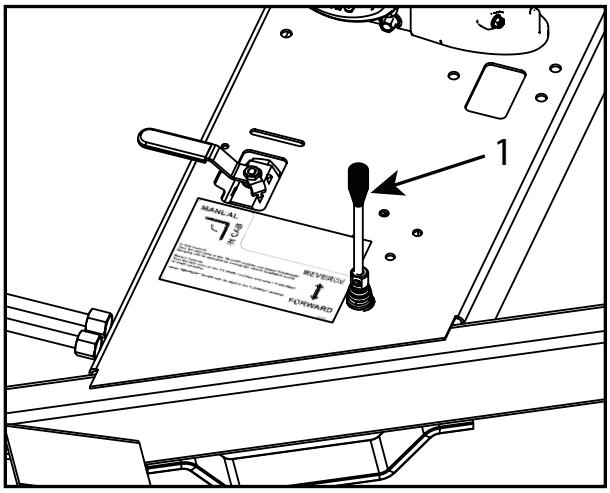
Please note that any vehicle equipped with daytime running lights you need to check that taillights are not on until the headlight switch is on. (Standard daytime running lights equipped on most new vehicles turns only the headlights only. The taillight on wire controls the spray bar.)

3.3.2 MU Spray Bar Operation

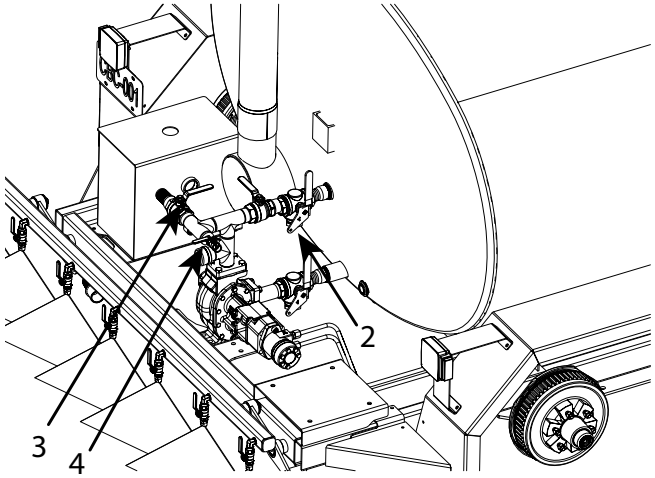
Key Fob Spray Control

1. At the front of the machine make sure the switches on the control box are in the spraying function positions. Pump direction and Nozzels should both be set to “Remote”.
2. At the rear of the machine make sure all the valves are in the correct position. See back of machine or section 5.2.3.
3. To spray – Position the trailer before the area you wish to spray and begin driving. When the trailer is overtop of the desired area push the button labeled “1” on the key fob to begin spraying.
4. When you are done spraying press the button labeled “2” and the nozzels will shut off.

3.4 Clean Out Instruction



1. At the front of the machine push the hydraulic direction selector handle (1) (toggle switch for MU) to the reverse position.
2. At the rear of the machine open and close the spray bar valve (3) and/or the spray wand valve (4) to reclaim as much material as possible into the asphalt tank.
3. Once you have gotten as much material out as possible, return the hydraulic direction selector (1) (toggle switch for MU) to neutral.
4. Back at the rear of the machine turn the wash-down valve to the wash down position (2)(two three way valves linked together).
5. At the front of the machine select “Forward” with the hydraulic direction selector (1) (toggle switch for MU). This will run wash-down solvent through the asphalt pump and return it to the wash-down tank. Run the asphalt pump in forward for 3-5 minutes.
6. To get wash-down solvent to the spray bar and/or to the spray wand slightly open the spray bar valve (3) or the spray wand valve (4) just until solvent reaches the nozzles.
7. Close the spray bar and/or wand valve (3 & 4).
8. At the front of the machine use the hydraulic direction selector handle (1) (toggle switch for MU) to the “Reverse” positon. This will reclaim all of the wash down solvent into the wash-down tank.
9. If you have solvent in the spray bar or wand open the valves to reclaim the solvent to the wash-down tank.



Note: you can leave solvent in the asphalt pump while the unit is not being used. Remember to reclaim solvent before next use.

For any further questions please contact your Dealer or Mauldin representative

4. Guideline Temperatures for common liquid Asphalts

Type & Grade	Spraying Temperature		Type & Grade	Spraying Temperature	
Asphalt Cements	Deg. C	Deg. F	Cutback Asphalts	Deg. C	Deg. F
AC-2.5	130	270	MC-30	30	80

AC-5	140	280	MC-70	50	120
AC-10	140	280	MC-250	75	165
AC-20	145	295	MC-800	95	200
AC-40	150	300	MC-3000	110	230
AR-1000	135	275	RC-70	50	120
AR-2000	140	285	RC-250	75	195
AR-4000	145	290	RC-800	95	200
AR-8000	145	290	RC-3000	110	230
			SC-70	50	120
PEN 40-50	150	300	SC-250	75	160
PEN 60-70	145	295	SC-800	95	200
PEN 85-100	140	280	SC-3000	110	230
PEN 120-150	130	270			
PEN 200-300	130	270			

Emulsified Asphalts	Spraying Deg. C	Spraying Deg. F
RS-1	20-60	70-140
RS-2	50-85	125-185
HFRS-2	50-85	125-185
MS-1	20-70	70-160
MS-2	20-70	70-160
MS-2h	20-70	70-160
HFMS-1	20-70	70-160
HFMS-2	20-70	70-160

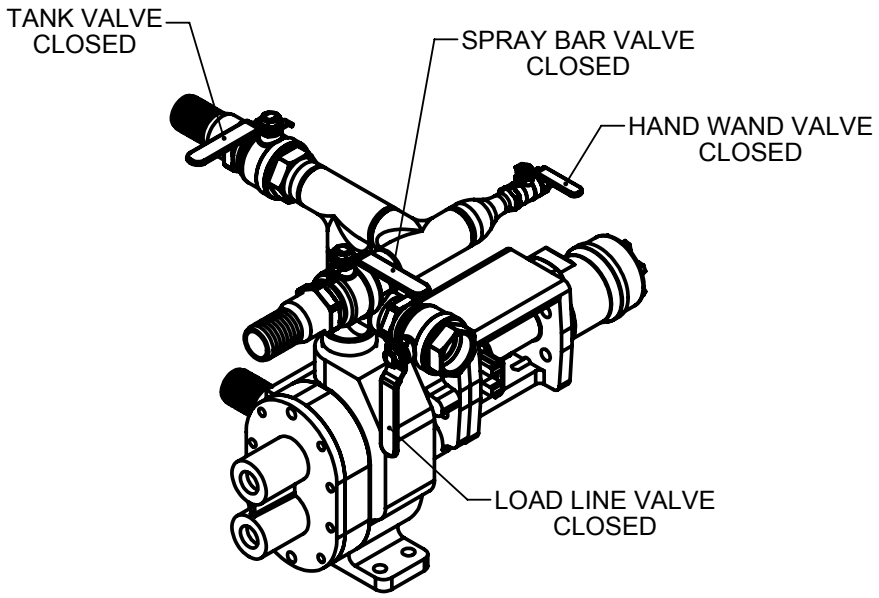
HFMS-2h	20-70	70-160
HFMS-2s	20-70	70-160
SS-1	20-70	70-160
SS-1h	20-70	70-160
CRS-1	50-85	125-185
CRS-2	50-85	125-185
CMS-2	20-70	70-160
CMS-2h	20-70	70-160
CSS-1	20-70	70-160
CSS-1h	20-70	70-160

These recommendations are provided by “The Asphalt Institute” and advise the minimum spray temperatures for safety.

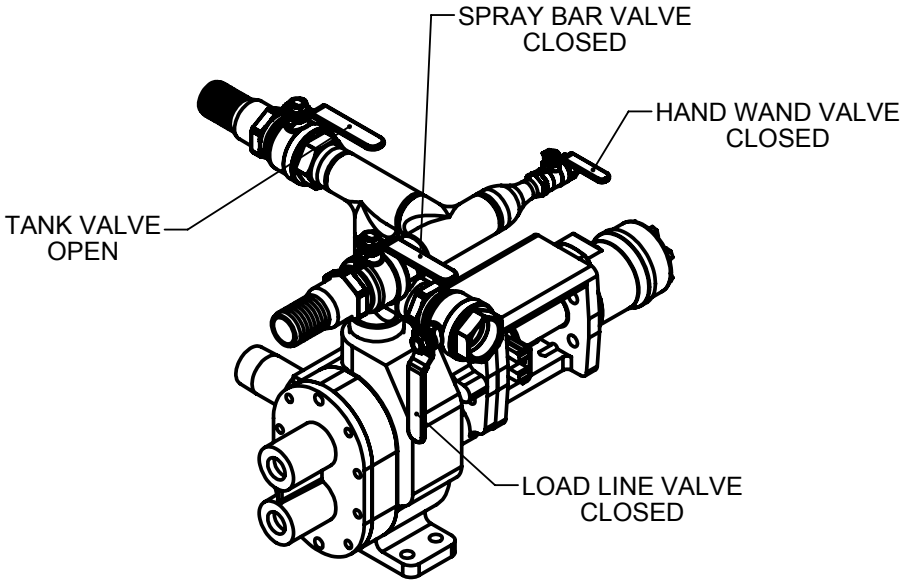
5. Tank Valve Operation

5.1 MT Tank Valve Operation

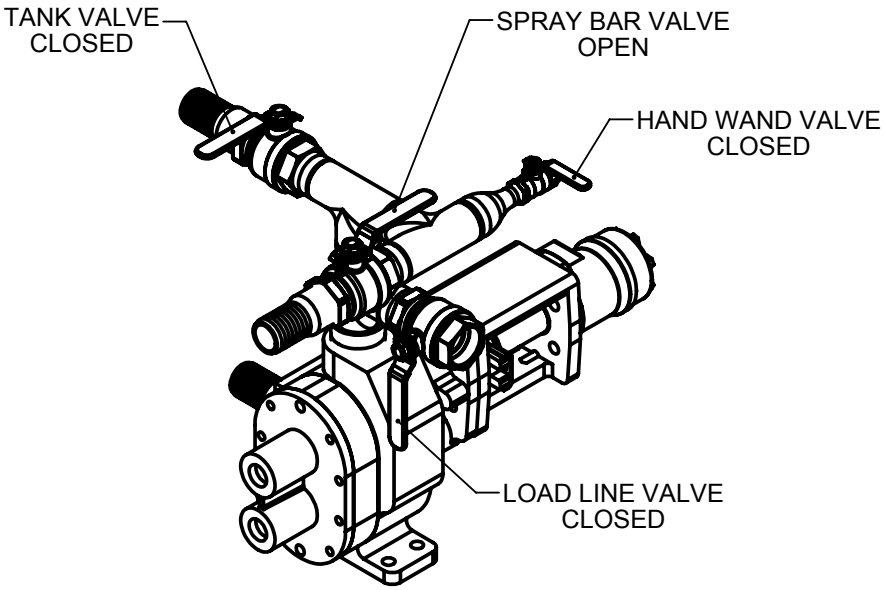
5.1.1 Off Duty or Travel Mode



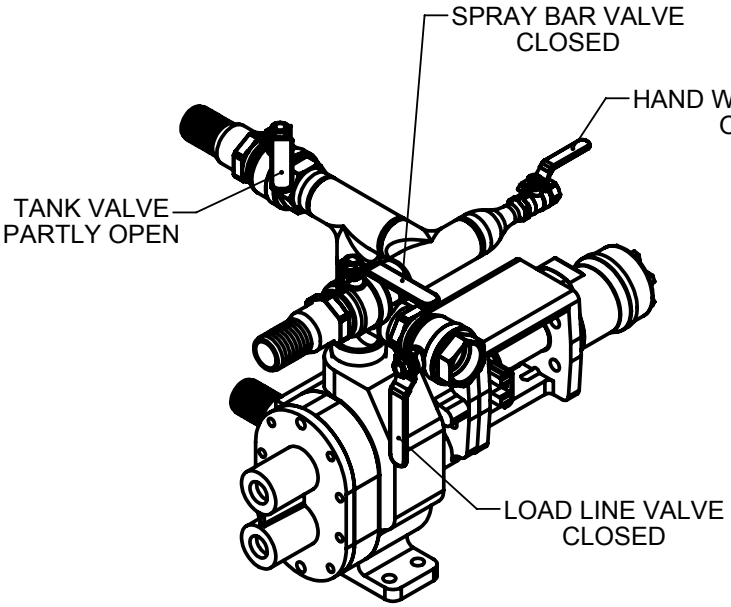
5.1.2 Recirculation - Heating Operation



5.1.3 Spray Bar Spraying

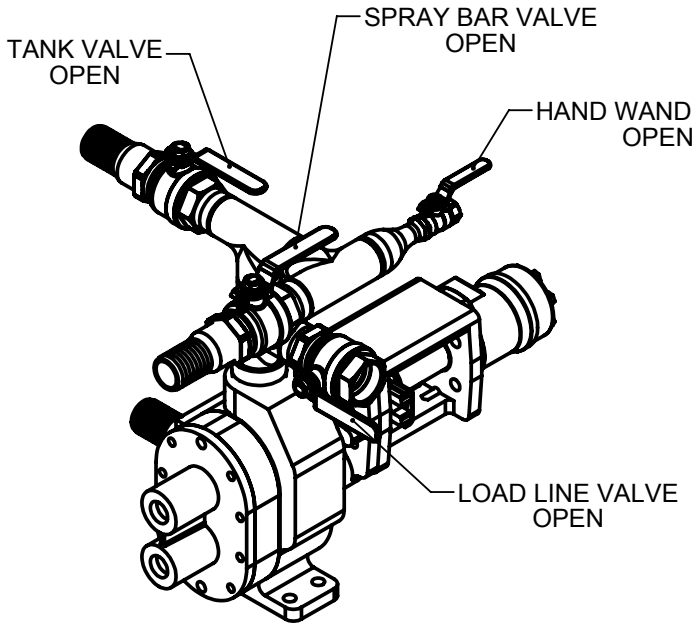


5.1.4 Hand Wand Spraying



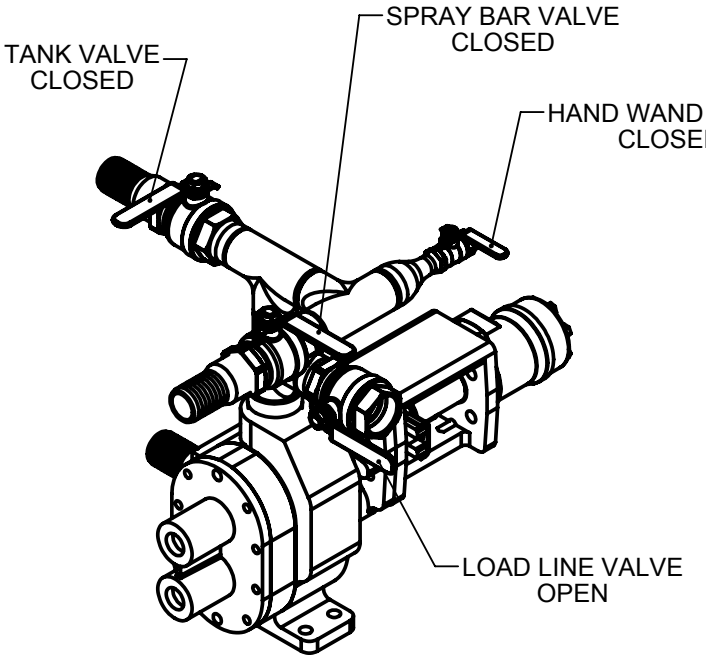
NOTES:
1. TO MINIMIZE HYDUALIC SYSTEM GOING OVER RELIEF, THE TANK VALVE MAY BE OPEN PART WAY. USE THE SPRAY WAND FAN SPRAY TO DETERMINE OPTIMUM SPRAY PATTERN.

5.1.5 Clean-Out



NOTES:
1. SHUT OFF ALL SPRAY NOZZLE VALVES.
2. BE SURE THAT THE LOAD LINE HOSE PLUG IS SECURE.
3. SPRAY HOSE WAND INTO FILL NECK OF THE CLEAN-OUT TANK.
4. CYCLE NOZZLE VALVES ONE AT A TIME TO PURGE MATERIAL OUT INTO A SUITABLE CONTAINER.

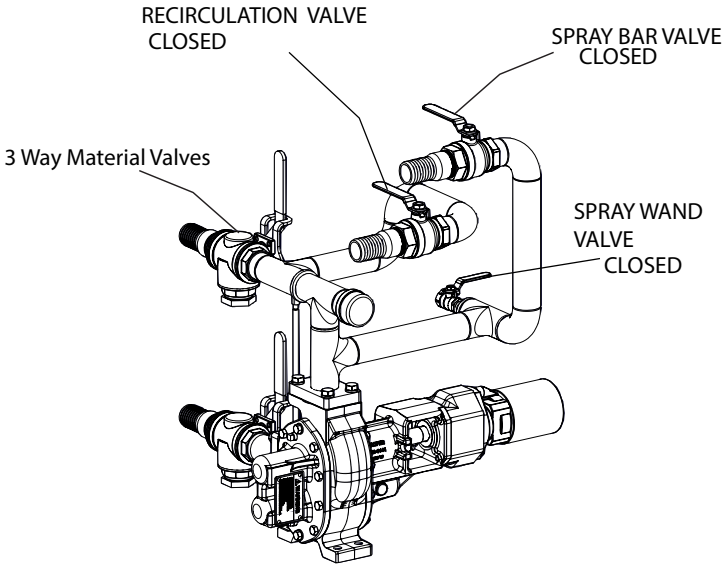
5.1.6 Load line Operation (Option)



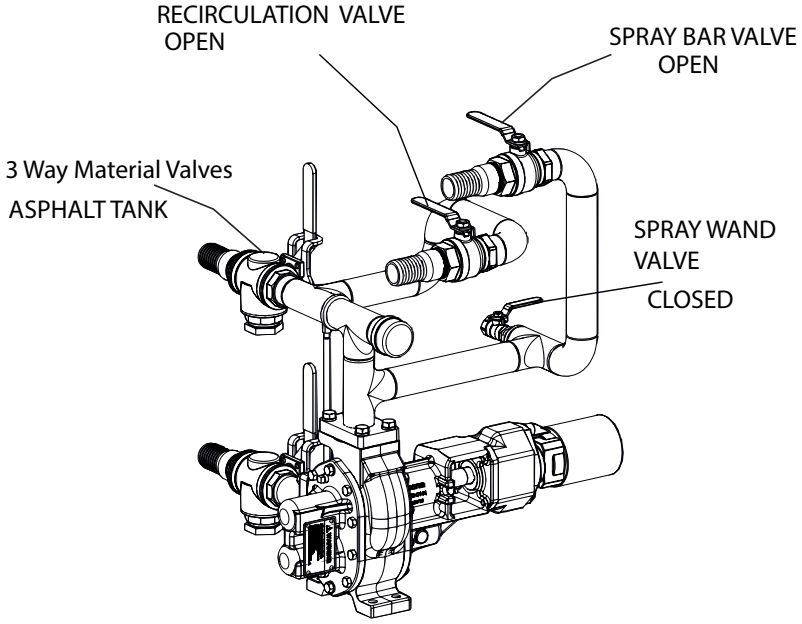
NOTES:
1. BEFORE CHANGING ANY OF THE VALVE POSITIONS FROM CLOSED POSITION, BE SURE TO TURN OFF ASPHALT PUMP.
2. REMOVE THE PLUG FROM THE LOAD LINE AND MOUNT THE TRANSFER HOSE.
3. MOUNT THE OTHER END OF THE HOSE TO THE INTENDED TRANSFER TANK.
4. OPEN THE LOAD LINE VALVE AND RUN THE PUMP; FORWARD TO TRANSFER OUT OF THE TANK, OR REVERSE TO TRANSFER INTO THE TANK.

5.2 MU Tank Valve Operation

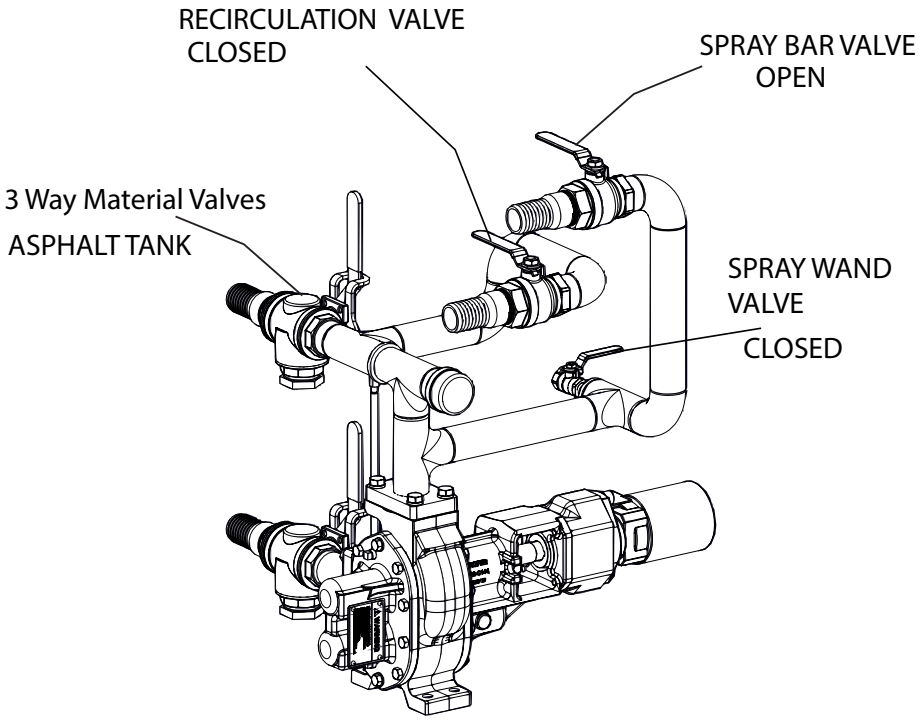
5.2.1 Parked/Travel



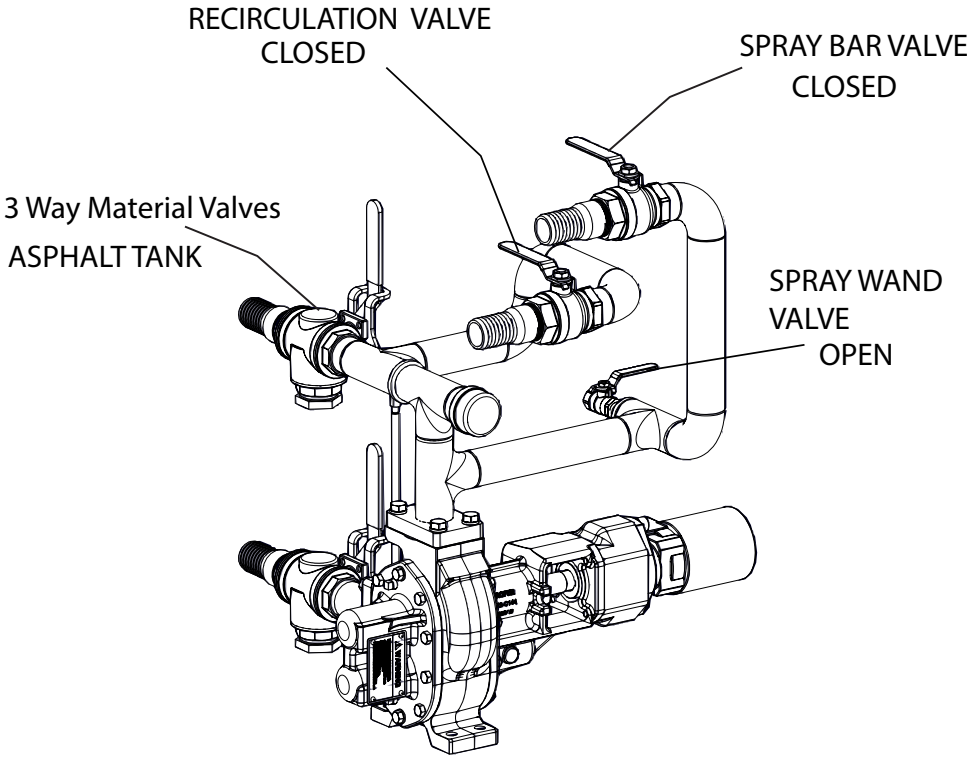
5.2.2 Recirculation - Heating Operation



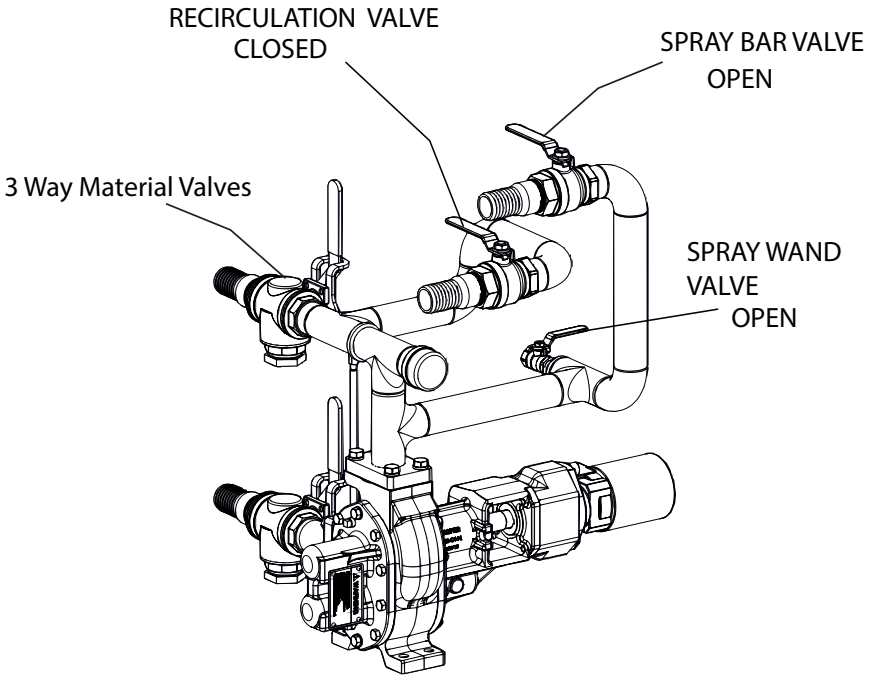
5.2.3 Spray Bar Spraying



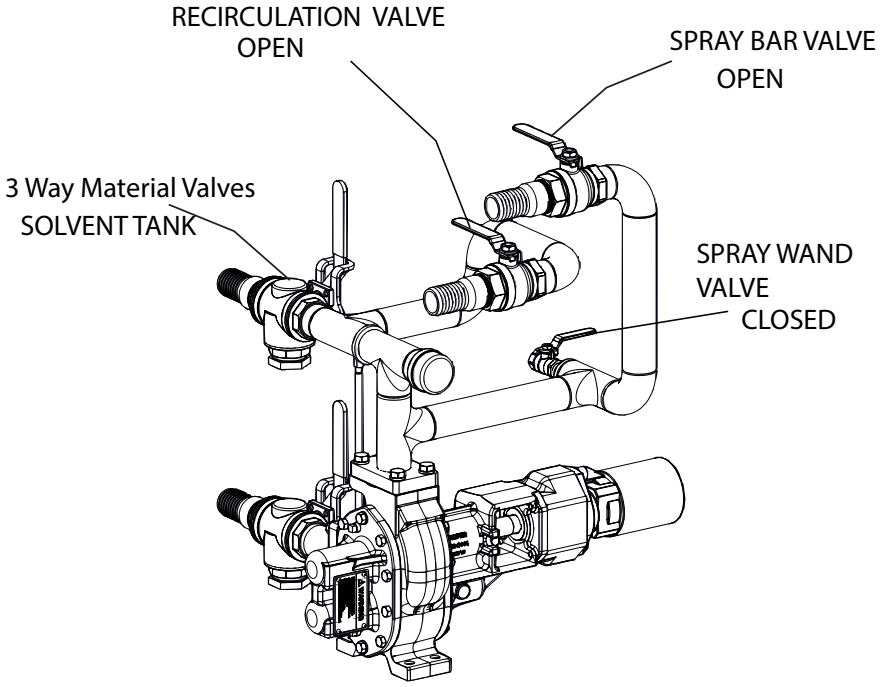
5.2.4 Hand Wand Spraying



5.2.5 Reverse Suction



5.2.6 Solvent Circulation



6. Maintenance

6.1 Prepare Trailer For Inspections And Maintenance

⚠ WARNING

Verify all guards are in place.

Follow lockout/tag out procedure before performing inspections or maintenance.

Before performing inspections, service or maintenance:
Ensure trailer is parked on level firm ground
Turn engine off and remove ignition key.
Attach a Do Not Operate tag or similar warning tag to the ignition switch.
Follow lockout/tag out procedure as defined by your company.

After performing inspections, service or maintenance, verify all guards have been reinstalled and all safety devices are functional.

Wear personal protective equipment appropriate for the task.

Use Mauldin replacement parts.

6.2 Daily Before Use

6.2.1 Check Engine Oil Level

Push dipstick down fully and pull out. If oil level is below add mark, add proper grade and viscosity of oil through filler tube to raise oil level to full mark. Do not overfill. Refer to engine OEM manual for oil specifications.

6.2.2 Check Engine and Burner Fuel Levels

⚠ WARNING

Breathing diesel engine exhaust exposes you to chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

- **Always start and operate the engine in a well-ventilated area.**
- **If in an enclosed area, vent the exhaust to the outside.**
- **Do not modify or tamper with the exhaust system.**
- **Do not idle the engine except as necessary.**

For more information go to www.P65Warnings.ca.gov/diesel

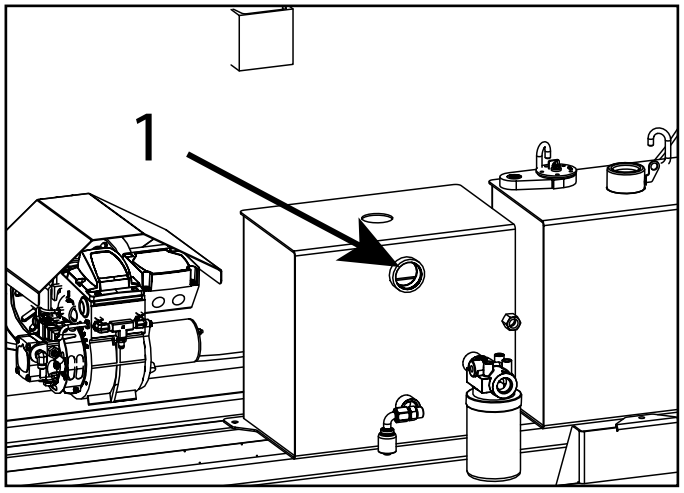
In case of contact with eyes, immediately flush eyes with water. Obtain medical attention immediately.

In case of skin contact, wash all exposed skin area with mild soap and water, followed by warm water rinse.

If ingested, obtain medical attention immediately.

1. Check engine fuel tank.
2. Check burner fuel tank gauge located on heater control box.

6.2.3 Check Hydraulic Oil Level



3. Hydraulic oil level must be visible in sight gauge (1) with engine stopped.
4. Add proper hydraulic oil if necessary.

6.2.4 Verify Lights Are Operable

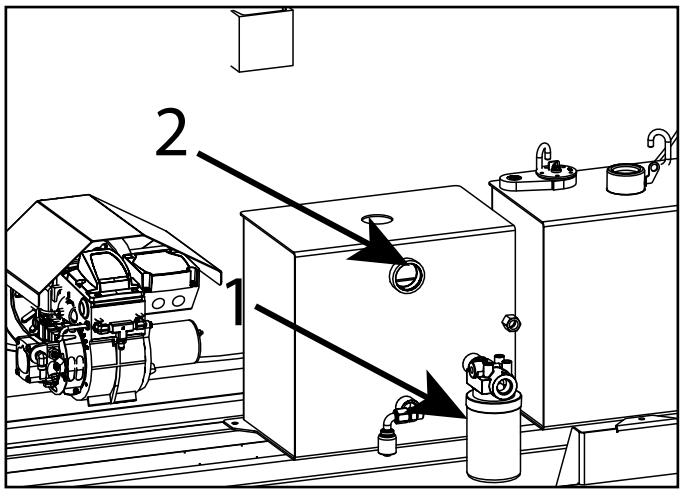
Verify that all lights installed on the trailer are operational. Do not operate if any lights are not operational.

6.2.5 Check Safety Decals

All safety decals are in place and legible. If the safety decal is no longer legible, replace it with a new one. Contact your dealer for new decals.

6.3 After Initial 50 Hours

6.3.1 Change Hydraulic Filters



1. Place catch pan under filter.
2. Remove and replace spin on filter (1)
3. Check hydraulic oil level in sight glass (2). Add hydraulic oil if necessary.
4. Dispose of hydraulic oil in an environmentally safe manner.

6.3.2 Change Engine Oil And Oil Filter

1. See OEM engine operators manual for oil and filter specification.
2. Allow engine and surrounding parts to cool before proceeding.
3. Position an adequate drain pan under plug (1).
4. Remove plug (1) to drain engine oil. Install plug after all oil has drained.
5. Remove and discard existing oil filter.
6. Fill new filter with clean engine oil.
7. Lightly coat filter sealing ring with oil.
8. Install filter until seals contacts flange. Tighten an additional 1/2 - 3/4 turn by hand. Do not over tighten.
9. Fill crankcase to correct level.
10. Start engine and run at low idle.

11. Stop engine and check for leaks.
12. Check engine oil level.
13. Install cover (2).
14. Dispose of oil and filter in an environmentally safe manner.

6.4 Battery

⚠ WARNING

Batteries, battery posts, battery terminals, and related accessories can expose you to chemicals including lead and lead compounds, which are known to the State of California to cause cancer and birth defects or other reproductive harm.

For more information go to www.P65Warnings.ca.gov

⚠ WARNING

Avoid injury. Battery electrolyte contains sulfuric acid. It is poisonous and can cause serious burns.

- **Wear eye protection and gloves.**
- **Keep skin protected.**
- **If electrolyte is swallowed, get medical attention immediately.**
- **If electrolyte is splashed into eyes, flush immediately with water for 15-30 minutes and get medical attention.**
- **If electrolyte is splashed onto skin, flush immediately with water and get medical attention if necessary.**

⚠ WARNING

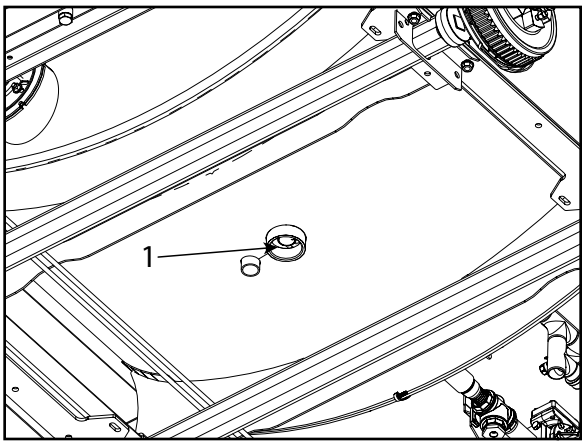
The battery produces a flammable and explosive gas.

- **Do not smoke near battery.**
- **Do not allow direct metal contact across battery posts.**
- **Remove negative cable first when disconnecting.**
- **Install negative cable last when connecting.**

1. Disconnect negative (-) cable from battery terminal.
2. Disconnect positive (+) cable from battery terminal.
3. Thoroughly clean terminals with a battery cleaning tool.
4. Connect positive (+) cable to positive battery terminal.
5. Connect negative (-) cable to negative battery terminal.

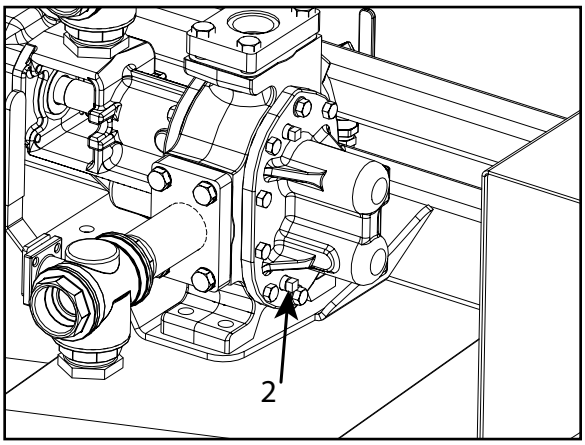
6.5 Winterizing

6.5.1 MT Winterizing Process

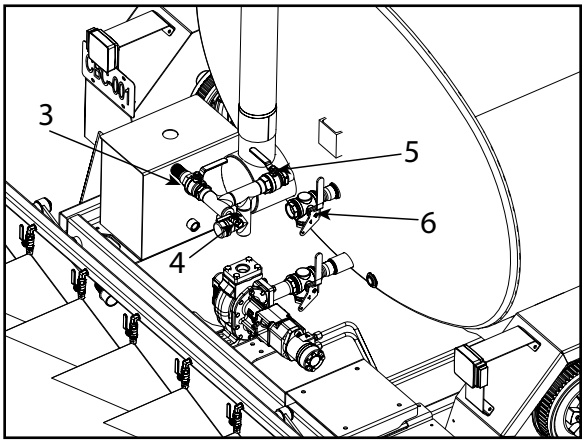


The reason to winterize the tack trailer is to help prevent the inner surfaces from rusting. Especially if a machine is new without material through it or has been used to test spray water you must clean out and winterize the machine.

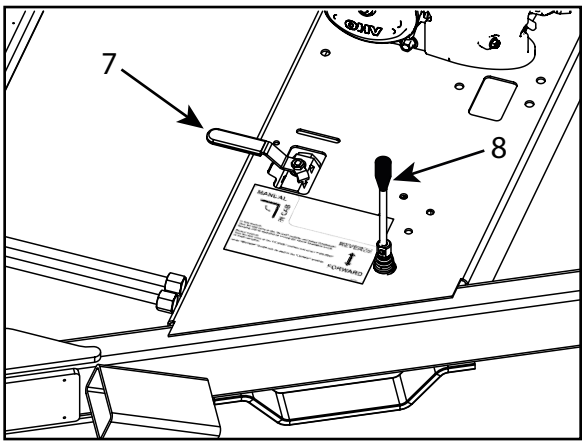
If applicable start by removing any water from the material tank.



1. Spray out the remaining water, or use the drain plug on the bottom of the material tank (1)
2. Reinstall the tank drain plug if removed
3. Remove the pump drain plug (2) located at the bottom of the material pump and drain any excess water out of the material pump
4. Reinstall the material pump drain plug
5. Close the spray bar valve (3) and the hand wand valve (4)
6. Open the tank recirculate valve (5)
7. Position the 3-way material valve (6) to the wash down position
8. Fill the wash down tank with oil (used/waste oil is great for this)
9. Turn on the engine
10. Put the control valve to manual (7)
11. Push the direction lever (8) to the forward position and run it for thirty seconds
12. Then put the direction lever (8) in reverse for a few seconds
13. You can repeat steps 11-12 to ensure great oil coverage
14. With the direction lever (8) in forward at the rear of the machine make sure all of the nozzle spray valves are closed.
15. Open the spray bar valve (3)
16. With a bucket underneath open each spray nozzle one by one for one to two seconds each (leaving the recirculate valve open will reduce the nozzle pressure)
17. Once you've sprayed each nozzle, close the spray bar valve (3)
18. Return the direction level (8) to neutral
19. Slightly open the 3-way material valve (6) to the main tank position (1/16th- 1/8th of a turn)
20. Put the direction lever (8) to forward for a few seconds (this puts oil into the main tank to sit in the sump to prevent any condensation from rusting the bottom of the material tank)



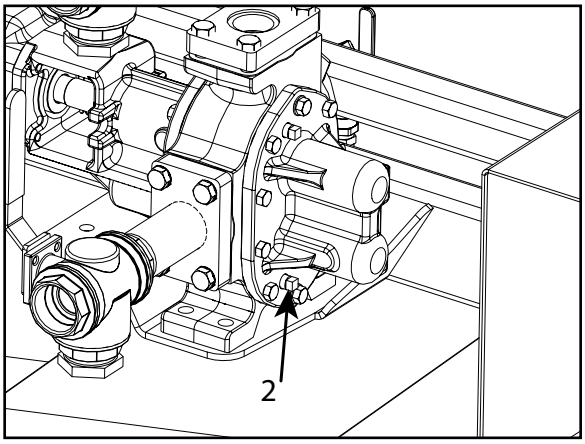
21. After a few seconds put the direction lever (8) back to neutral
22. Put the 3-way material valve (6) completely to wash down tank position
23. Put the direction lever (8) to reverse to make sure all the oil is back in the wash down tank.
24. Once complete you can drain the used oil out of the wash down tank. (If the machine will sit for a longer period of time you can leave the oil in the tank and drain next season)

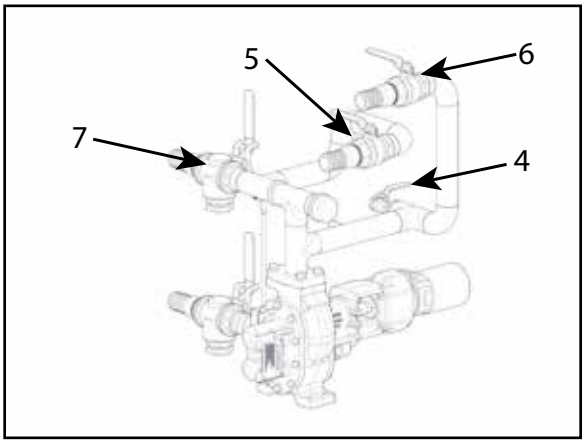


6.5.2 MU Winterization

The MU winterization is a similar process to the MT. There is an added valve in the process. There is a designed blockage in the pump valve assembly to ensure all the material flows through the spray bar then to the recirculation valve to the tank.

1. Spray out the remaining water, or use the drain plug on the bottom of the material tank (1)
2. Reinstall the tank drain plug if removed
3. Remove the pump drain plug (2) located at the bottom of the material pump and drain any excess water out of the material pump
4. Reinstall the material pump drain plug
5. Close the hand wand valve (4)
6. Open the recirculate valve (5) and the spray bar valve (6)
7. Position the 3-way material valve (7) to the wash down position
8. Fill the wash down tank with oil (used/waste oil is great for this)
9. Turn on the engine
10. Put the Nozzle toggle switch (9) to the remote position
11. Put the direction toggle (8) to the forward position and run it for thirty seconds
12. Then put the direction lever (8) in reverse for a few seconds
13. You can repeat steps 11-12 to ensure great oil coverage
14. Once you've sprayed each nozzle, close the spray bar valve (3)
15. Return the direction toggle (8) to remote (off)
16. Slightly open the 3-way material valve (7) to the main tank position (1/16th- 1/8th of a turn)





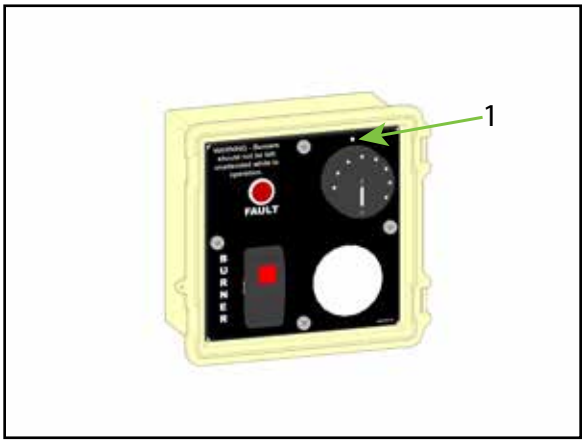
17. Put the direction toggle switch (8) to forward for a few seconds (this puts oil into the main tank to sit in the sump to prevent any condensation from rusting the bottom of the material tank)
18. After a few seconds put the direction toggle switch (8) back to remote (off)
19. Put the 3-way material valve (7) completely to wash down tank position
20. Put the direction toggle switch (8) to reverse to make sure all the oil is back in the wash down tank.
21. Once complete you can drain the used oil out of the wash down tank (If the machine will sit for a longer period of time you can leave the oil in the tank and drain next season)

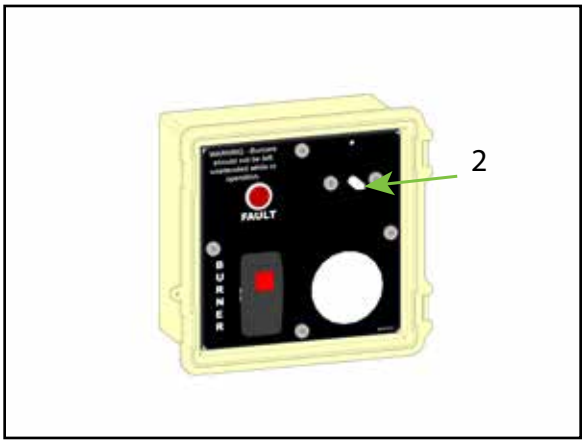


6.6 Thermostat Dial Calibration

The purpose of calibrating the thermometer is to have the set temperature aligned with the set temp dot on the heating controls decal. To adjust the set temp you will need a small flat end screwdriver, similar to whats needed for glasses.

1. First you must know what the current temperature the bulb (temperature probe) for the thermostat is.
2. Turn the thermostat dial until the current temperature of the bulb is aligned with the white dot (1) above the thermostat.
3. Remove the thermostat dial by pulling it straight off.
4. Use your fingers or small pliers to hold the dial shaft (2) still, do not turn the shaft at all.
5. Use the small screw driver to turn the set screw in the middle of the shaft (2) until you hear a faint click (similar to a relay click).
6. Reinstall the dial on to the shaft.





6.7 Tires

6.7.1 Tire inflation

Always consult tire manufacturer for proper tire inflation PSI. Trailers with factory size and ply tires inflate tires to 50 PSI.

6.7.2 Lug nut torque spec

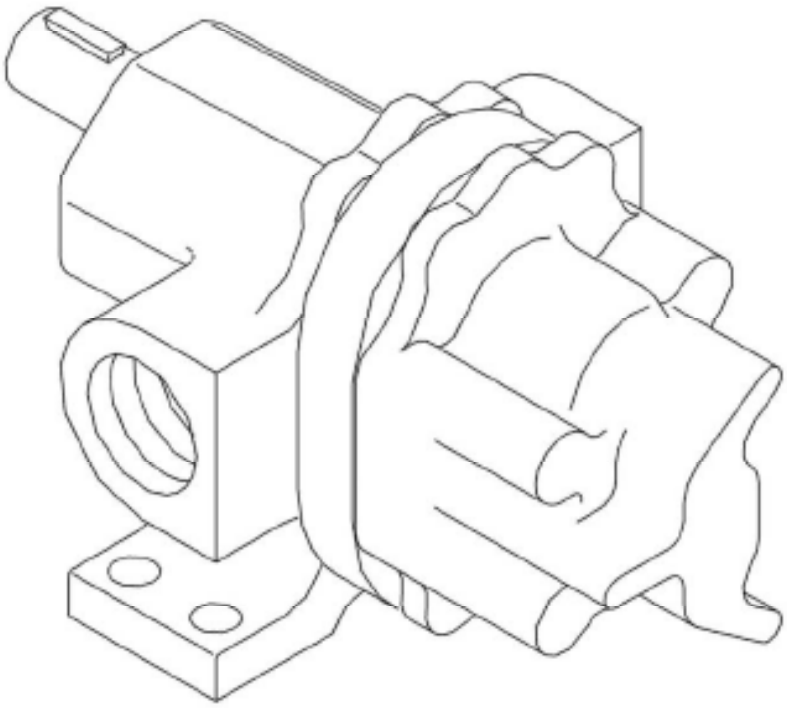
Axles with 5/8 lug nut require 75ft lb of torque. Torque lug nuts in a star pattern. Retorque after 20 miles of applying torque.

7. Material Pump Manual

ROPER PUMPS

AM, AP & AL SERIES PUMPS OWNERS MANUAL

G12-207
2/2/04



SAFETY INSTRUCTIONS

This is an industrial component. Only a qualified systems integrator should be allowed to design it into a system. The integrator must determine proper plumbing, mounting, driveline and guard components.

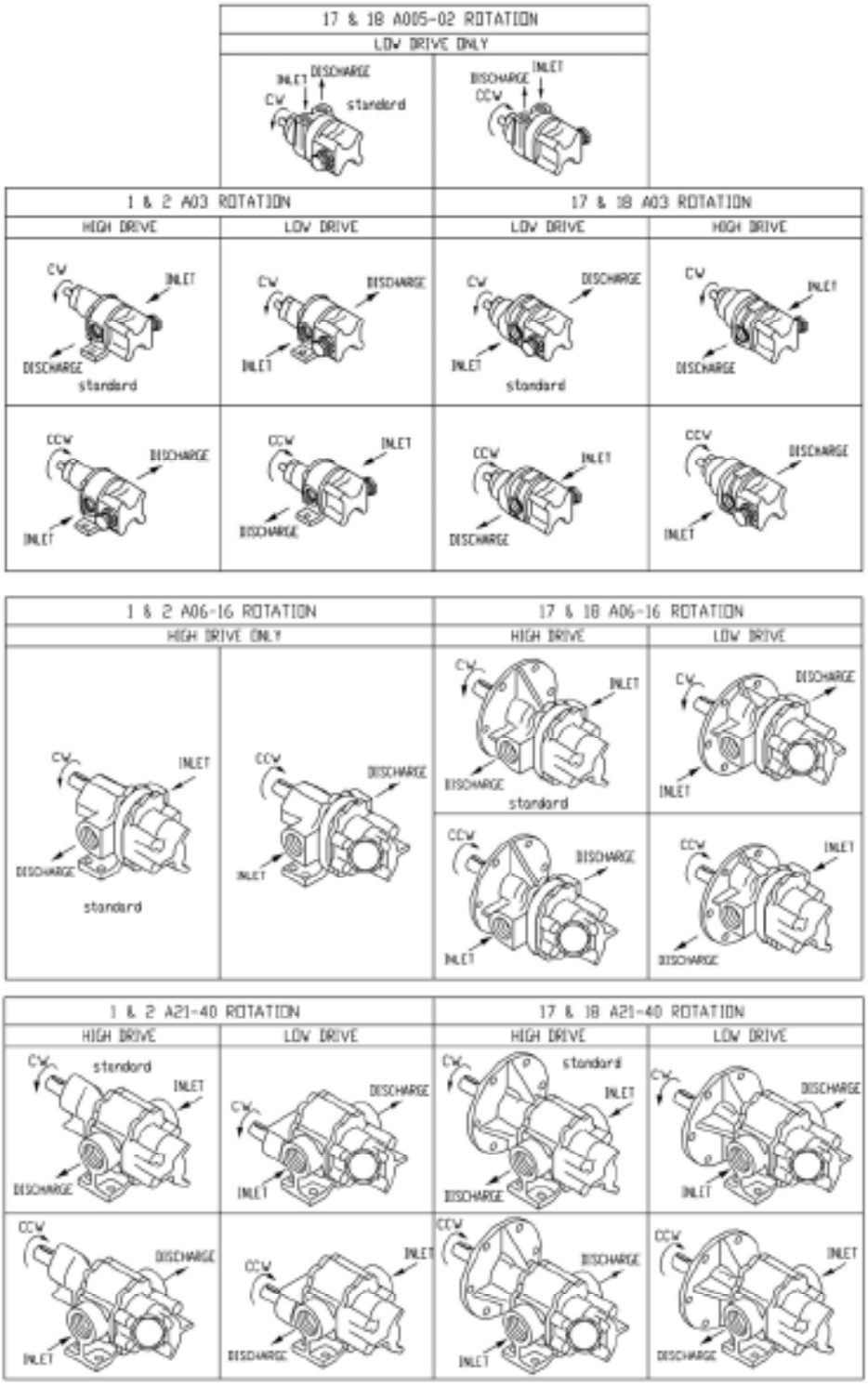
Improper installation or use could lead to a serious, even fatal, accident. The system integrator must communicate all safe operation procedures to the end user(s).

Before operation, fully understand and follow the instructions shown in this manual and any instructions communicated by the system integrator. No one should be allowed to operate or maintain this pump who has not been fully trained to work safely according to the configuration of the pump system and in accordance with all applicable government and industry regulations.

INSTALLATION

Check Ports Versus Rotation:

Make sure the inlet and outlet ports have been correctly plumbed corresponding to the direction of rotation. See figure below for various configurations.



Good Practice

NOTE: These are general guidelines and do not cover all possible situations.
It is the responsibility of the system integrator to apply this product properly.

Plumbing

1. The inlet pipe should be as short and straight as possible to minimize suction pressure losses. Excessive restrictions at the inlet can cause cavitation resulting in poor performance, noise, vibration, or pump damage.
2. Slope the inlet plumbing appropriately to avoid air pockets.
3. Plumbing weight, misalignment with the ports or thermal expansion can exert excessive force on the pump. Plumbing must be properly supported and aligned with expansion joints, if required, to minimize these forces.
4. To prevent over pressure situations, install a relief valve as close to the pump outlet as possible. Install the relief valve before any shut-off valves.



Over-pressure may burst pump or system components. Always include a relief valve in installation. Do not over pressurize pump or block discharge line while running.

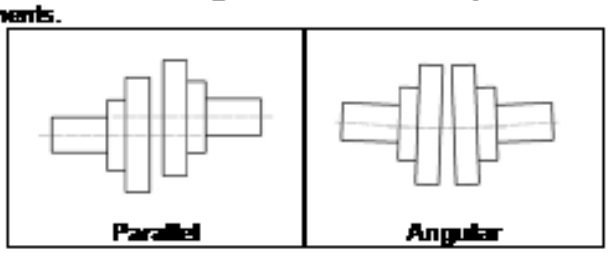
Separate Pump and Drive Assemblies

Driveline Guards

1. Assure adequate guards have been installed to prevent personnel contacting moving components.
2. Follow all OSHA, Federal, state and local codes.

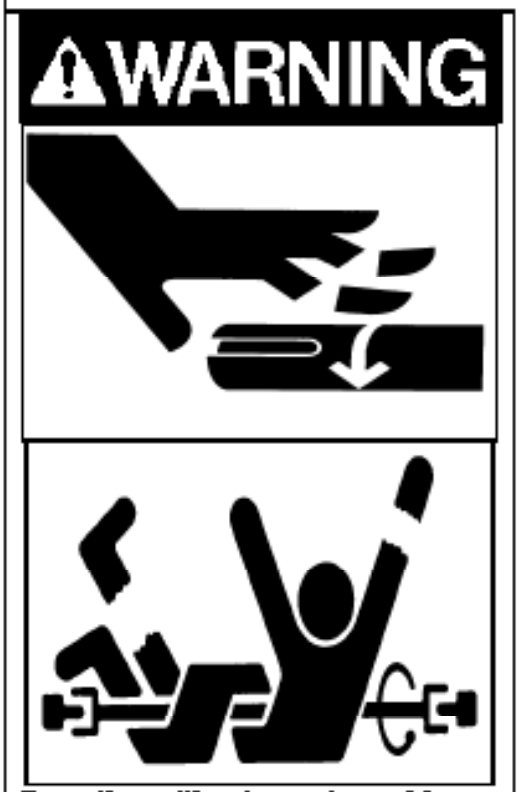
Check Alignment of Pump to Driveline

Excessive misalignment can overload the pump input shaft and cause premature failure. The figures below show parallel and angular misalignments.



Mounting Base

1. Mount the unit on a rigid, heavy base to provide support and absorb shock. Bases should be designed for high rigidity, not just strength.
2. The pump feet were not designed for mounting to concrete and do not have enough contact area to prevent concrete from failing. When mounting to cement or concrete, use a steel base plate (supplied by others) to distribute the mounting stress over an area large enough to prevent the cement from failing. The base plate should be at least as thick as the pump feet. Grout it in place.



Operating without guards could result in serious injury or death. Machinery in operation can grab, crush, cut, mangle and dismember. Do not operate without adequate guards in place.

Roper Pumps' Close Coupled Drives

Units where the drive mounts directly to the pump

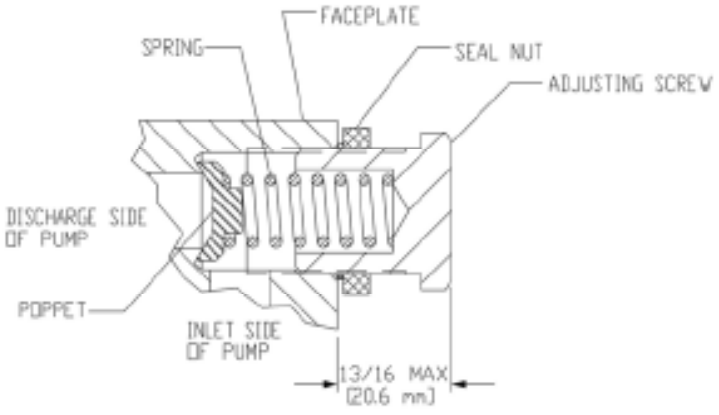
- Exposed drivelines require guards.
- Alignment between pump and drive line is maintained by the assembly.
- Because the assembly absorbs reaction forces of the driveline, the mounting base does not need to be as robust. The level of rigidity and strength is determined by the piping stresses from the system.

PUMP RATINGS

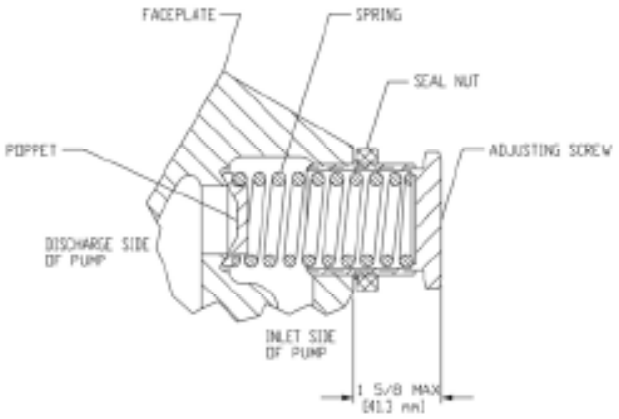
Maximum Ratings				
Pump Size	Flow Rate GPM	Pressure PSI	Temperature °F	Input Speed RPM
005	1.8	300	212	3600
01	3.6	300	212	3600
02	7.6	300	212	3600
03	11.8	300	212	3600
06	11.2	150	212	1800
08	16.3	150	212	1800
12	23.5	150	212	1800
16	30.8	150	212	1800
21	40.2	150	212	1800
27	49.8	150	212	1800
32	59.1	150	212	1800
40	75.8	150	212	1800

RELIEF VALVE

SIZES 005 thru 03



SIZES 06 thru 40



The relief valve must be positioned as shown in instructions for direction of rotation – otherwise the valve is inoperable, discharge pressure will not be working against the relief valve.

If the built-in relief valve is used, it is mandatory that the relief valve be set BY THE USER, since maximum relief valve pressure depends upon the viscosity and specific gravity of the liquid, the flow rate (pump RPM), and also the initial relief valve setting.

NOTE: The fact that the pump has the correct rotation and discharges liquid thru the desired port does NOT insure that the relief valve is installed in the correct position, or that it has the correct setting for the application.

TO ADJUST RELIEF VALVE

Warning: Take precautions necessary to prevent personal injury or physical damage that could be caused by any loss of the product being pumped while adjusting relief valve.
DO NOT adjust relief valve without all guards in place.

Relief valve must be adjusted under conditions identical to the operating conditions (Viscosity, RPM, etc.)

1. Connect a pressure gauge near the pump in the discharge line between the pump and the point where the discharge line will be closed. (Some pumps have tapped and plugged holes in the case near the outlet which may be used for this connection.)
2. Loosen the sealing nut on the adjusting screw.
3. Back the adjusting screw out to the point where the end of the adjusting screw will be as shown on the Relief Valve drawing.
4. Start pump and close discharge line slowly. Do not exceed pressure rating of pump or other equipment between pump and discharge line valve. If this pressure is reached while closing the discharge valve, do not close any further. (This might occur with very high viscosity liquids.) It would then be necessary to install a separate relief valve in the system for protection. Do not run pump with closed discharge line for more than two minutes at a time.
5. With discharge valve closed, turn adjusting screw clockwise in ½ turn increments until the pressure gauge shows the desired pressure setting.
6. Tighten sealing nut.
7. Open discharge line, and turn pump off.

Relief valve is now set.

To replace spring and/or poppet, shut pump off, decrease the pressure on the spring and remove the plug cap by unscrewing it from the faceplate. After inspecting parts and replacing those required, reassemble the parts in reverse order to which they were removed, making sure the spring is centered on poppet and guide. Replace gasket and screw the plug cap into position and adjust pressure to desired setting. Tighten sealing nut.

A built-in relief valve should not be used on applications where the discharge must be closed for more than a few minutes. Prolonged operation with the relief valve fully by-passing will cause heating of the liquid circulating thru the valve, thus resulting in possible damage.

MECHANICAL SEAL (AM) PUMPS

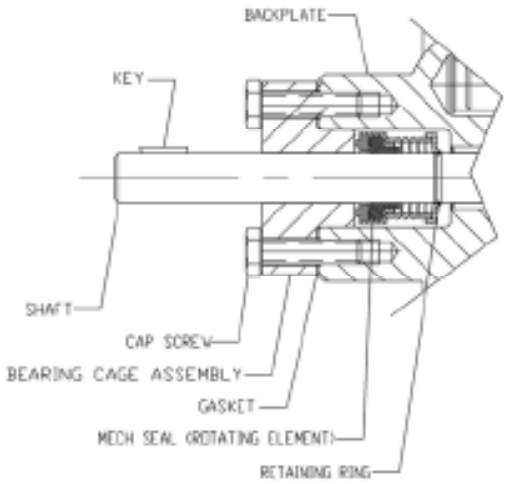
Mechanical seals do not require adjustment. Leakage developed at the seal may be due to one of the following conditions: worn, marred, or cracked rotating or stationary seal face, or bellows that have become hard, soft, cracked, expanded or extruded.

When replacing or servicing a mechanical seal, take particular care not to mar or scratch the sealing surfaces or injure the bellows. If the seal has been used, do not put it back into service unless both sealing surfaces are perfectly flat and smooth or else replaced.

To replace the mechanical seal, remove the key, cap screws, and bearing cage assembly (AM005 thru AM03) or seal retainer (AM06 thru AM40). Remove burrs and sharp edges from the end of shaft and keyway and clean the shaft. Next, the seal rotating parts may be removed from the shaft.

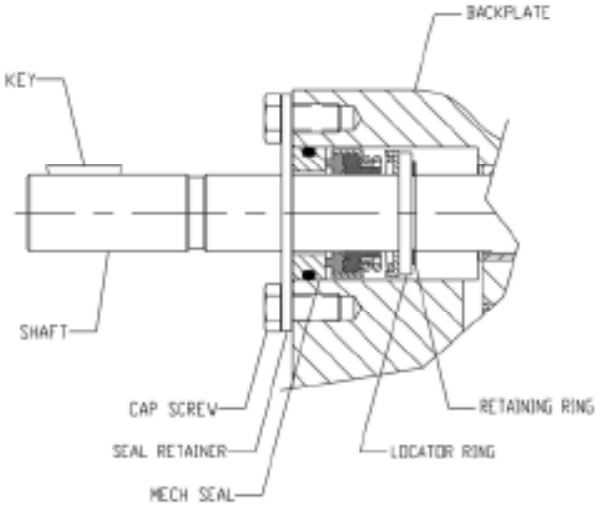
AM005-AM03

To reassemble the mechanical seal on pump sizes AM005 thru AM03, lubricate with light machine oil the section of the shaft over which the seal is to be mounted. Slide the rotating element onto the shaft. Be sure it is properly positioned against the retaining ring. After checking the bearing cage and replacing, if required, coat the sealing surfaces with light machine oil. Install bearing cage and gasket and secure with cap screws.



AM06-AM40

To reassemble the mechanical seal on pump sizes AM06 thru AM40, lubricate with light machine oil the section of the shaft over which the seal is to be mounted. Slide the locator ring over the shaft and back against the retaining ring. Slide the rotating element onto the shaft. Be sure it is properly positioned against the locator ring. After checking the stationary seal face and o-ring and replacing, if required, coat the sealing surface with light machine oil. Install stationary seal face and retainer plate and secure with cap screws.



CHANGING FROM PACKED BOX TO MECHANICAL SEAL

When it is desirable to change from packed box to mechanical seal, remove the key, cap screws, packing plate, packing gland, packing rings and washer (AM06-AM40 only). The exposed surface of the shaft should be free from burrs and sharp edges. Clean the shaft and apply a film of light machine oil. Install the retaining ring. Refer above to install the seal.

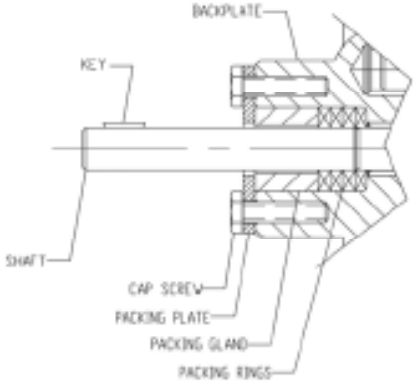
LIP SEAL (AL) PUMPS

AL pumps with lip seals must be run in the clockwise direction of rotation only. Maximum discharge pressure is 100 PSIG (6.9 BAR) and maximum inlet pressure is 5 PSIG (3 BAR). For a pump equipped with a lip seal, follow these instructions. Leaking lip seals should be replaced. Note the direction of the lip on the old seal. Carefully pry the defective seal from the bore, making certain that the bore is not scored or damaged. Clean the shaft and bore. Inspect the shaft for wear. If worn or scored, replace. The exposed surface of the shaft should be free from burrs and sharp edges. Lightly oil shaft and bore into which the lip seal is to be fitted. Be careful not to damage the sealing lip and be certain that the lip on the new seal is turned the same direction as the old seal. Slide the seal onto the shaft and press into the bore.

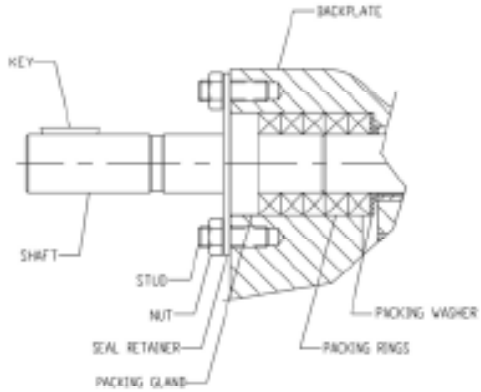
PACKED BOX (AP) PUMPS

Operate the pump under normal conditions and, after a short run-in period, examine the packing for leakage. If leakage is excessive, stop the pump and follow the procedure described below. A slight leakage is a necessary and normal condition for packing and allows for expansion and proper seating.

SIZES 005 THRU 03



SIZES 06 THRU 40



To replace packing, remove the key, cap screws or nuts, packing plate, packing gland, and packing rings. (Packing hooks are commercially available to assist in removing the packing rings.)

Clean the shaft and adjacent parts. Examine the shaft. If it is excessively worn or scored, replace shaft and gear assembly. It is generally not recommended to reuse old packing rings. When installing packing, use formed packing rings. DO NOT use a one-piece spiral wrap of packing. Before installing packing, carefully clean the stuffing box and shaft.

Packing rings should be installed one ring at a time, with the joints of adjacent rings staggered approximately 180°. Each ring should be seated firmly before the next ring is installed.

The packing gland cap screws or nuts should first be evenly tightened with a wrench to seat the packing firmly in the stuffing box and against the shaft. DO NOT over-tighten the packing. The gland cap screws or nuts should then be backed off until finger-tight. After the pump is started, visually examine the stuffing box for excessive leakage. If the packing leakage exceeds ten drops per minute, stop the pump and adjust the gland nuts. The gland cap screws or nuts should be adjusted evenly in 1/6 to 1/3 turn (1 to 2 flats on the nut) increments. Start the pump and allow it to operate for several minutes. Again, visually examine the stuffing box for excessive leakage. Repeat the above procedure until the stuffing box leakage is between five to ten drops per minute.

DO NOT over-tighten the packing. Slight leakage is a necessary requirement for proper packing operation. Leakage of five to ten drops per minute when the pump is operating is desirable, as it will preserve the packing and avoid scoring of the shaft. Over-tight packing may score shafts, increase torque requirements of the pump, damage couplings and drives, and generate excessive heat.

The packing gland should be adjusted whenever leakage exceeds ten drops per minute. The condition of the packing should be checked at regular intervals, the frequency depending on the type of service. Experience will dictate how frequently the inspections should be made.

8. Warranty

MAULDIN
PAVING PRODUCTS

CALDER BROTHERS CORPORATION

(LIMITED) PRODUCT WARRANTY

Calder Brothers Corporation warrants that the Paver, Roller, Tank or Grader under this program will be free from defects in material and workmanship for a period of(12) twelve months from the date of installation. Written notice of any claimed defect must be given to Calder Brothers Corporation within the warranty period and within (30) thirty days after such defect is discovered. Liability under this warranty is limited to replacing or repairing at Calder Brothers Corporation election, any part or parts deemed defective after examination by Calder Brothers Corporation or an Authorized Service Representative via prepaid transportation for which is found to be defective, will be repaired or replaced and returned to the customer via prepaid surface transportation within the United States. Should any part be found not defective, inspection and handling may be charged to the customer by Mauldin or an Authorized Service Representative.

EXCLUSIONS:
This warranty does not apply to routine wearable parts of the Mauldin machine such as seals, points, plugs, hoses or similar items. This warranty does not extend to any machine or part replaced or repaired under this warranty. This warranty does not cover any repair or replacement labor or any part of parts found defective after examination by Mauldin or an Authorized Service Representative. This warranty does not apply to defects caused by casualty or unreasonable use, including faulty repairs by others and failure to provide reasonable and necessary maintenance.

THIS WARRANTY SET FORTH HEREIN IS IN LIEU OF AND EXCLUDES ANY AND ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, ARISING BY OPERATION OF LAW OR OTHERWISE, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND CUSTOMER WAIVES ANY OBLIGATION OF LIABILTY OF MAULDIN ARISING IN TORT OR STRICT LIABILITY IN TORT, OR FOR LOSS OR USE, REVENUE OR PROFIT WITH RESPECT TO MAULDIN MACHINE AND/OR PARTS FOR ANY LIABILTY OF CUSTOMER TO ANY THIRD PARTY, OR FOR OTHER DIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES.

I have read and fully understand the warranty policy above.

_____ _____
Customer Witness
CALDER BROTHERS CORPORATION