



OPERATION & PARTS MANUAL

Bentonite & Lubrication Pump 2325B/D - 2325B/E

Pump S/N: 2325B/D (FA48800F) & 2325B/E (FA48835F)

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SERVICE • RELIABILITY • INNOVATION

Introduction

This manual contains important safety, operation, maintenance, and parts information for your Akkerman 2325B/D and 2325B/E Bentonite & Lubrication Pump. You must read and understand this manual, the engine operation manual and any additional equipment manuals before you operate and maintain this equipment. Keep this manual with your 2325B/D or 2325B/E Bentonite & Lubrication Pump at all times. Additional copies of this manual may be purchased from the Akkerman Aftermarket Support Department, or downloaded from the Akkerman web site at www.akkerman.com.

The contractor is responsible for the overall safety program on the job site. Use this manual as a part of the safety program.

The use of second rate parts could affect the efficient performance of the 2325B/D & 2325B/E Bentonite & Lubrication Pump. ALWAYS use genuine Akkerman parts.

Understand safety signal words, DANGER, WARNING, CAUTION, SAFETY INSTRUCTIONS, and NOTICE. When you see these words in this manual or on safety decals mounted on your equipment, follow the safety message to avoid personal injury and/or property damage.

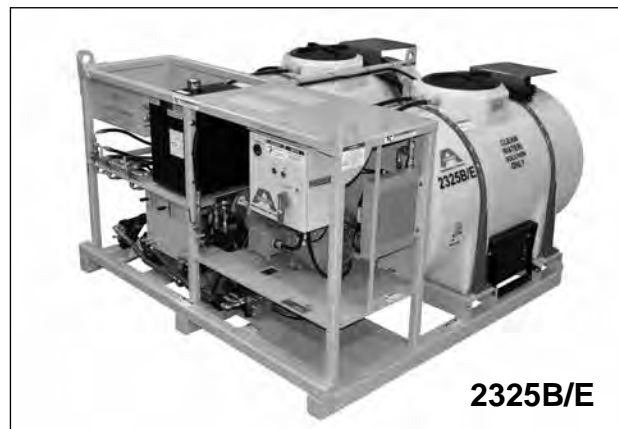
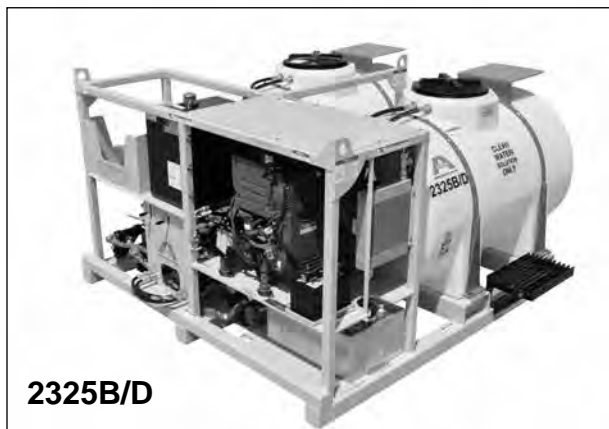
▲ DANGER Indicates an extremely hazardous situation which, if not avoided, WILL result in death or serious injury.

▲ WARNING Indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.

▲ CAUTION Indicates a potentially hazardous situation, which, if not avoided, MAY result in minor or moderate injury. It may also be used to alert against unsafe practices.

SAFETY INSTRUCTIONS Usually consists of individual messages stating procedures or actions that must be followed for the safe operation of a product.

NOTICE Identifies potential property damage and important installation, operator, or maintenance information.



Akkerman Bentonite & Lubrication Pumps

The 2325B/D & 2325B/E Bentonite & Lubrication Pumps are designed for the GBM lubrication system though it can be used in other lubrication applications. In the GBM jetting application, the pump system aids the GBM cutting process by lubricating the cutter bits and spoils during excavation. In the GBM lubrication application, the pump system assists with lubricating the pilot tubes, casing and augers and product pipe by reducing friction and easing the jacking process. The unit is capable of displacing a viscosity (Marsh Funnel) as high as 50 seconds.

If you find any errors with this manual or have any suggestions for improvement, please let us know. Email your comments via the Akkerman web site (Contact Us web page), or mail your suggestions to: Akkerman Inc, ATTN: Technical Publications, 58256 266th Street, Brownsdale, MN 55918.

Akkerman Inc. reserves the right to improve its product without notice or obligation.

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Safety

BE ALERT FOR SAFETY INFORMATION

When you see this safety alert symbol on your equipment or in this manual, be alert to the possibility of personal injury or property damage.

Read all safety information.

Keep safety decals clean and in good condition.
Replace missing or damaged safety decals.



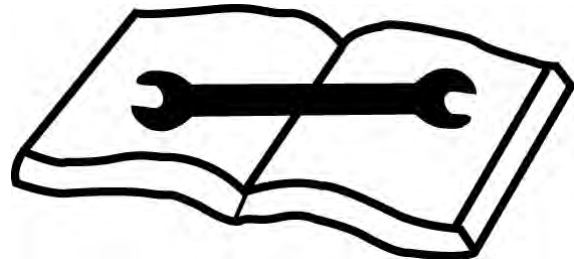
**ATTENTION!
BECOME ALERT!
YOUR SAFETY IS INVOLVED!**

READ OPERATOR'S MANUAL

⚠ WARNING Unsafe operation or maintenance can cause severe injury or death.

Read and understand the Operator's Manual before operating or servicing this equipment.

Any unauthorized modifications will void the warranty.



WEAR PROTECTIVE CLOTHING

Wear OSHA approved protective clothing, such as hard hat, gloves, safety goggles, earmuffs or ear plugs, face shield, and steel-toed boots, when operating and servicing this equipment.

Wear reasonably close fitting clothing and remove jewelry before working on or near this equipment. This will help prevent the danger of catching them in moving parts or controls.



HYDRAULIC OIL/FLUIDS UNDER PRESSURE

⚠ WARNING Escaping oil or other fluids under pressure can penetrate your skin causing serious injury.

Release all pressure before performing maintenance or repairs. Never weld near pressurized fluid lines.

DO NOT use your hands to check for leaks. When searching for leaks, use a piece of wood or cardboard.

Contact medical help immediately if any oil or fluid is injected into your skin. A serious infection or reaction can emerge without proper medical treatment.



LOCKOUT/TAGOUT POWER BEFORE SERVICING

⚠ DANGER Failure to lockout power before servicing will cause severe personal injury or death.

LOCKOUT/TAGOUT power before attempting to make repairs or adjustments to this equipment, unless otherwise indicated. Proper lockout will prevent accidents and save lives. Performing the lockout will also prevent the equipment from moving or operating unexpectedly.

The 2325B/E Bentonite & Lubrication Pump is powered by high voltage electricity. LOCKOUT/TAGOUT main power supply before servicing. Electrical repairs must be performed only by a certified electrician.



INSPECT ELECTRICAL CONNECTIONS - 2325B/E

⚠ WARNING Regularly inspect electrical connections to be sure they are secure. Failure to do so could cause an explosion if moisture enters a unsecured electrical connection.



BEWARE OF SUSPENDED LOADS

⚠ WARNING Suspended loads may fall and cause severe personal injury or death.

If a hydraulic hose, chain, or cable from the boom of a crane or excavator breaks, the boom and/or load can fall instantly.

Do not enter area under or around a load.



MAINTAIN BATTERY SAFELY - 2325B/D

⚠ WARNING Batteries produce explosive gases.

Wear eye protection and protective clothing during battery service.

Keep sparks, flames, and cigarettes away from batteries.

Contact with battery acid can cause severe burns. Flush immediately and thoroughly with clean water. Get medical attention immediately.

Charge a battery only in a well-ventilated area.

Never charge a frozen battery.



REFUELING - 2325B/D

⚠ WARNING Fires and explosions can cause serious injury or death.

Handle fuel with care. It is highly flammable.

DO NOT refuel while smoking or when near open flame or sparks.

Always stop engine before refueling.



AVOID CONTACT WITH MIXER SHAFT & PROPELLER

⚠ WARNING Contacting shaft or propeller may cause serious injury.

Keep ALL parts of body and foreign objects from coming in contact with mixer shaft or propeller during operation.

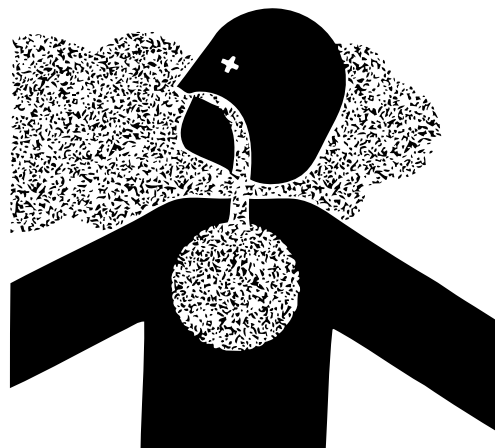


EXPOSURE TO DANGEROUS CHEMICALS

⚠ WARNING Exposure to chemicals may cause serious injury or death.

BEFORE mixing chemicals or other agents in the jetting and/or lubrication tanks, be sure the area is well ventilated and other personnel removed from the area.

Use proper personal protective equipment per the chemical manufacturer's instructions.



USING A PRESSURE WASHER WAND

⚠ WARNING Using the jetting pump with a pressure washer wand can generate enough fluid pressure and velocity to penetrate skin resulting in serious personal injury.

Contact medical help immediately if fluid is injected into your skin. A serious infection or reaction can emerge without proper medical treatment.

NEVER point the wand towards a person or animal.

Be sure to release pressure after use and before performing maintenance to prevent accidental fluid injection.

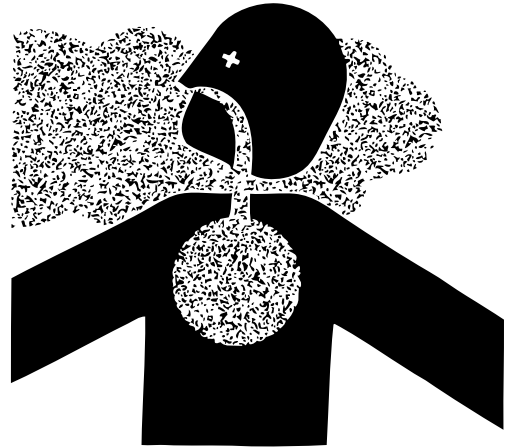
Wear safety glasses and gloves, and depending on the wand use, a particle mask may be necessary.



BEWARE OF EXHAUST FUMES - 2325B/D

⚠ WARNING Exposure to engine exhaust fumes can cause severe injury or death. Always work in a properly ventilated area.

If it is necessary to run an engine in an enclosed area, use the proper equipment to safely remove the exhaust fumes from the working area.



AVOID PINCH POINTS

⚠ WARNING Moving parts or the mishandling of parts can cause severe personal injury.

Keep hands away from moving parts.

Watch your fingers, hands, and legs while equipment is in operation.

Handle parts carefully to avoid crushing and pinch point hazards.



FIRE PREVENTION

⚠ CAUTION Fires can cause injury or property damage.

Keep equipment clean. Remove all debris from equipment.

Have a fire extinguisher available at all times. Keep the fire extinguisher fully charged.



BE CAUTIOUS OF OIL COOLER FINS

⚠ WARNING Oil cooler fins are SHARP and may cause injury if touched.

Oil cooling system may be HOT and cause severe burns if contacted.

Always use gloves when near the oil cooler.
Perform service on oil cooler only when cool.



UNAUTHORIZED WELDING

⚠ WARNING Unauthorized welding can cause structural failure resulting in possible injury or death.

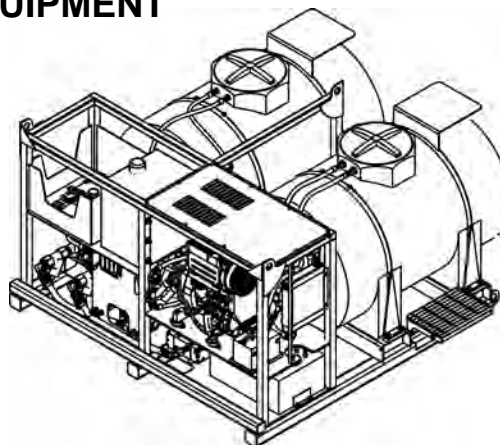
Do not weld on any structural member.
Unauthorized welding or repair will void the warranty.



REGULARLY CLEAN AND INSPECT EQUIPMENT

Remove any grease, oil, or debris buildup to avoid potential injury or equipment damage.

Inspect equipment for damage. If damaged, repair or replace immediately.



PRACTICE SAFE MAINTENANCE

⚠ WARNING Unexpected movement may cause serious personal injury.

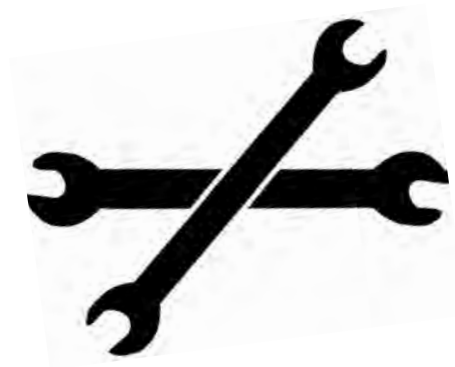
Shutdown engine before performing any maintenance, adjustments, or removing obstructions.

Only trained and qualified personnel should perform any maintenance or repairs.

Keep the area around the equipment clean and dry when performing maintenance.

Do not service the machine while it is in operation.

Replace worn or damaged parts. Remove grease, oil, or debris buildup.



SLIPPERY WHEN WET

⚠ WARNING Slips and falls can cause serious personal injury.

Ensure firm footing in wet or slippery conditions.

Replace skid-resistant material if it is damaged or missing to prevent slips and falls.

Remove any buildup of grease, oil, or debris.



KEEP JOB SITE CLEAN AND ORGANIZED

⚠ WARNING Tripping can cause serious personal injury.

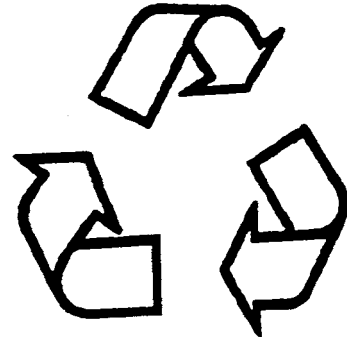
Be sure to keep job site clean and organized.



RECYCLE WASTE

Follow local, state, federal, and international regulations when recycling or disposing of waste. Waste includes fluids/oil, fuel, filters, coolant, and batteries.

Use leakproof containers when draining fluids/oil. Do not pour waste on the ground, down a drain, or into any water source.

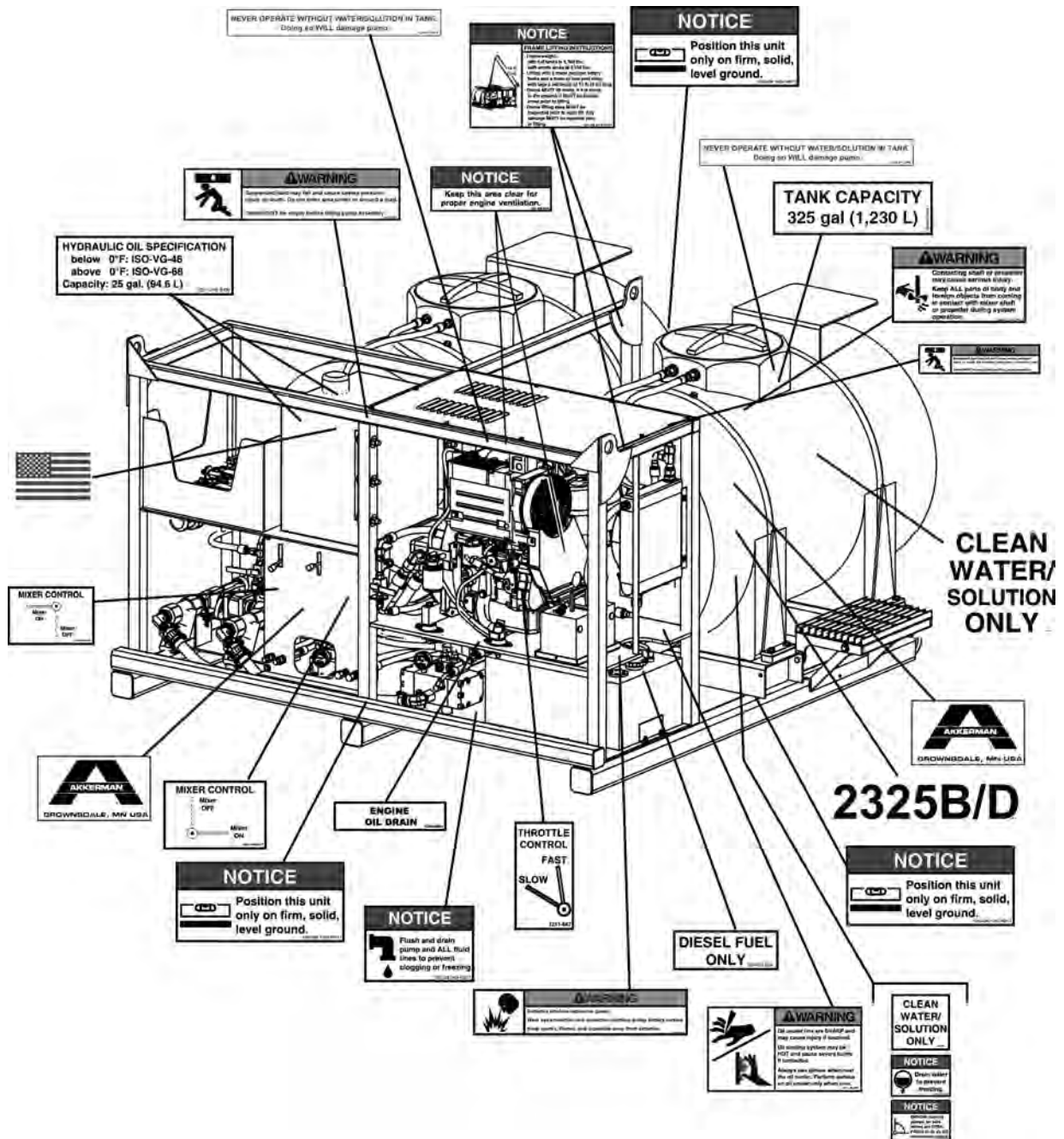


Decals

Keep all decals clean and readable. Use soft cloth, water, and a mild soap to clean the decals if they are too dirty to read. DO NOT clean decals with solvent. Solvent can damage them. Replace safety decals immediately if they are damaged, missing, or hard to read.

Serious injury or property damage can occur if safety instructions are not followed. Contact your Akkerman Aftermarket Support representative for free replacement safety decals.

If a part is replaced that has a decal on it, apply a new decal to the replacement part. Before applying a new decal, be sure the surface is clean and dry.

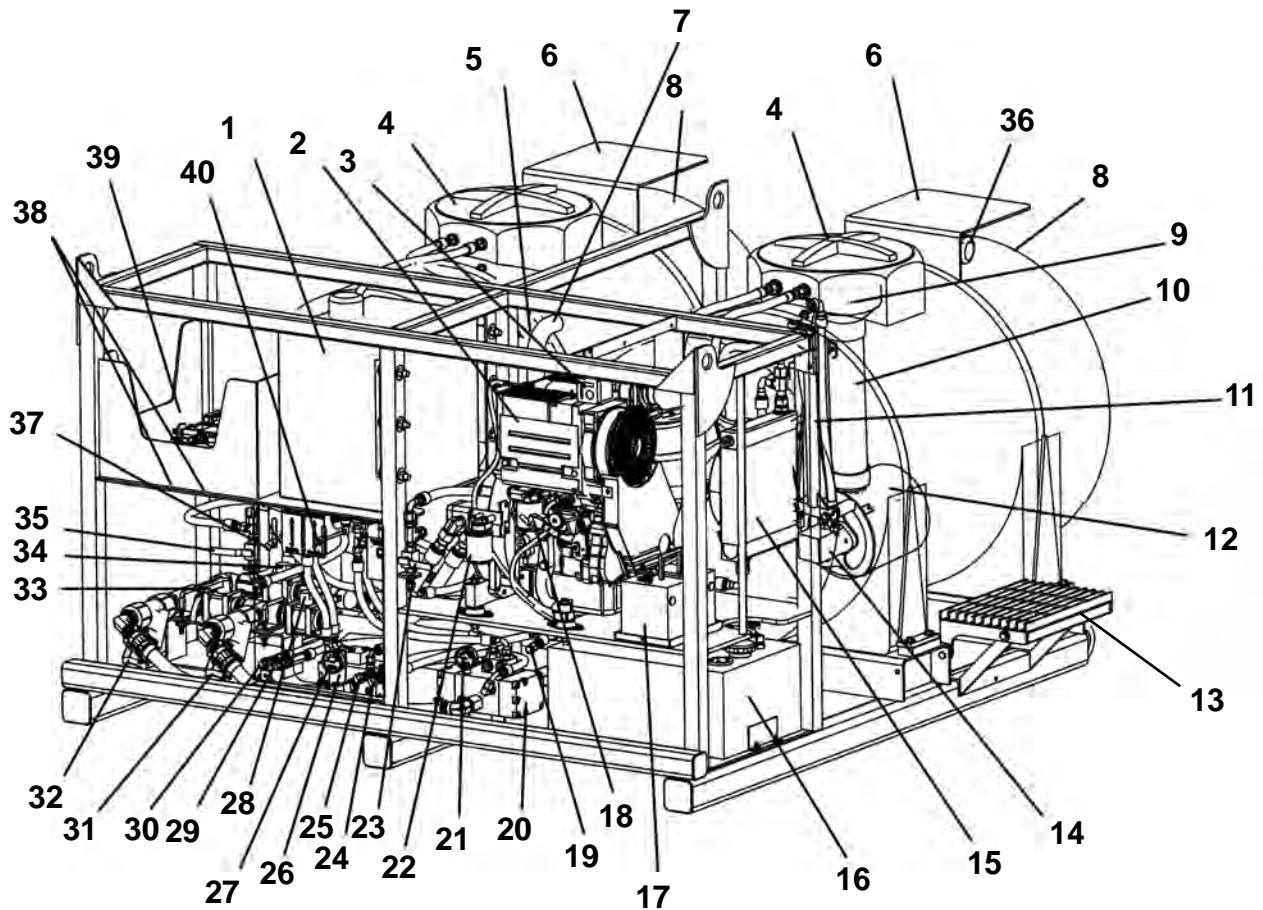


Model 2325B/D Shown

NOTES

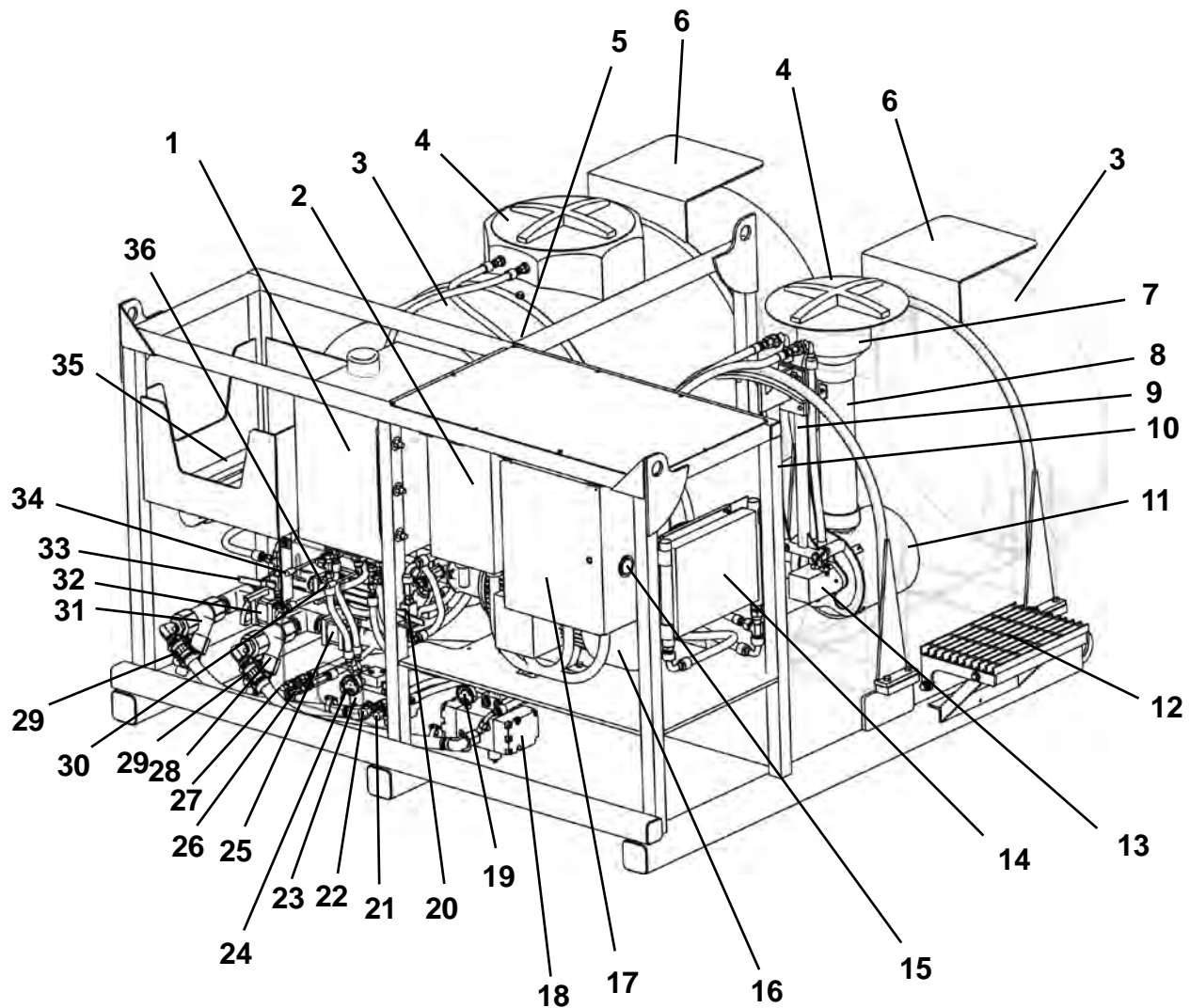
Terminology

BENTONITE & LUBRICATION PUMP - 2325B/D



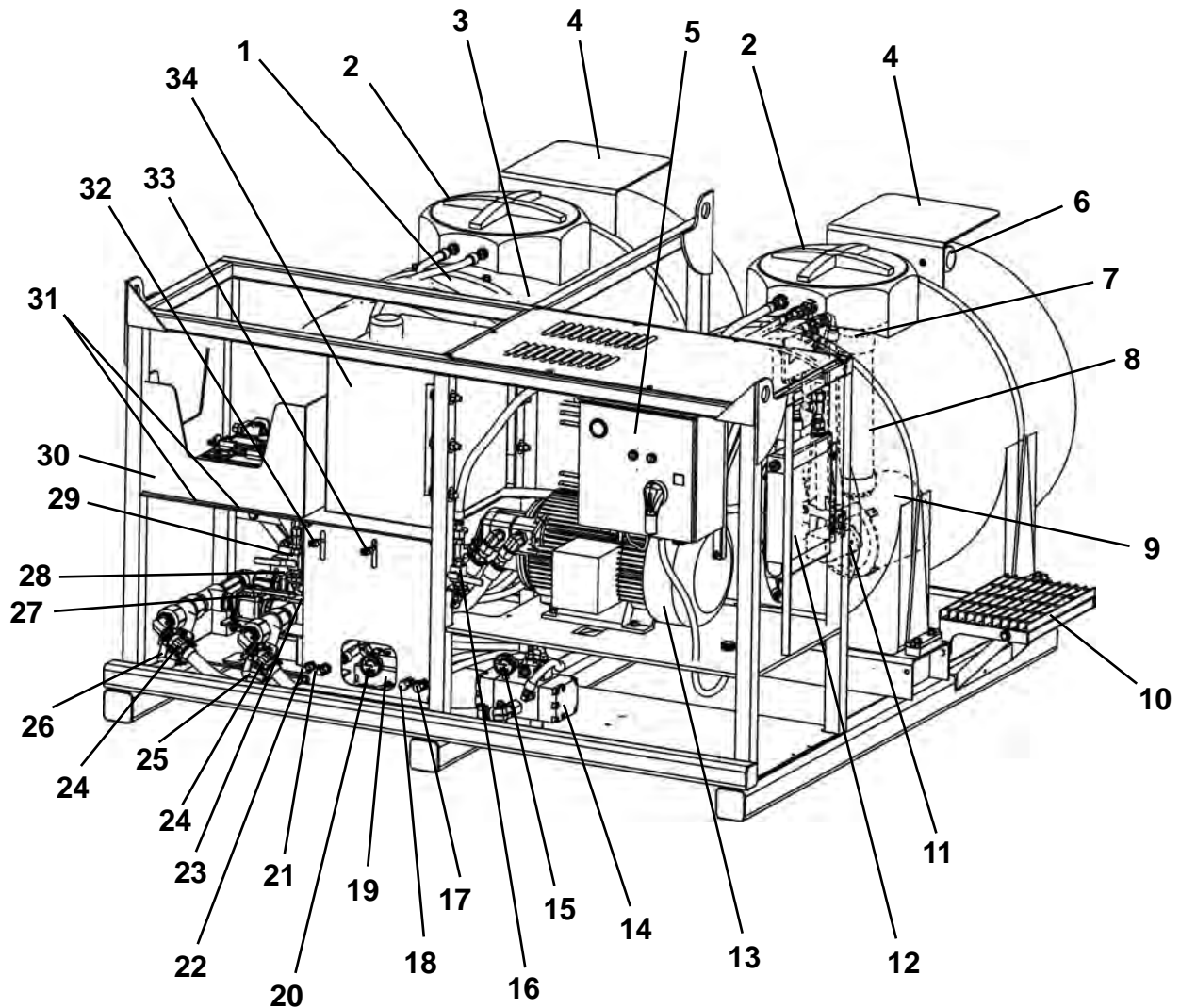
- | | | |
|--------------------------------|-------------------------------------|--|
| 1. Hydraulic Tank (25 gal.) | 17. Battery | 28. Tank Shutoff Valve - Right Tank |
| 2. Diesel Engine | 18. Throttle Control | 29. Hose Connection 6 Gal Return |
| 3. Engine System Control | 19. Engine Drain Hose | 30. Hose Connection 6 Gal Press. |
| 4. Tank Lid | 20. Piston Pump 10 GPM | 31. Strainer & Element - Right Tank |
| 5. Hydraulic Pressure Filter | 21. Piston Pump Fluid | 32. Strainer & Element - Left Tank |
| 6. Shelf | 22. Fuel Filter | 33. Bypass Shutoff Valve |
| 7. Exhaust | 23. Mixer Control - Right Tank | 34. Tank Shutoff Valve - Left Tank |
| 8. Lubrication Tank (325 gal.) | 24. Hose Connection 10 Gal Return | 35. Mixer Control - Left Tank |
| 9. Removable Reducer Coupling | 25. Hose Connection 10 Gal Pressure | 36. Manual Storage Tube |
| 10. Mix Tube | 26. Piston Pump 6 GPM | 37. Pump/Mixer Selector 6 Gal. |
| 11. Mixer/Agitator Mount | 27. Piston Pump Fluid | 38. Fluid Return Valves (SN 3 & After) |
| 12. Agitator Chamber | Pressure Gauge 6 Gal. | 39. Storage Basket |
| 13. Step | | 40. Pump/Mixer Selector 10 Gal. |
| 14. Mixer Motor With Propeller | | |
| 15. Oil Cooler | | |
| 16. Diesel Fuel Tank (18 gal.) | | |

BENTONITE & LUBRICATION PUMP - 2325B/E (SN FA48835F-01)



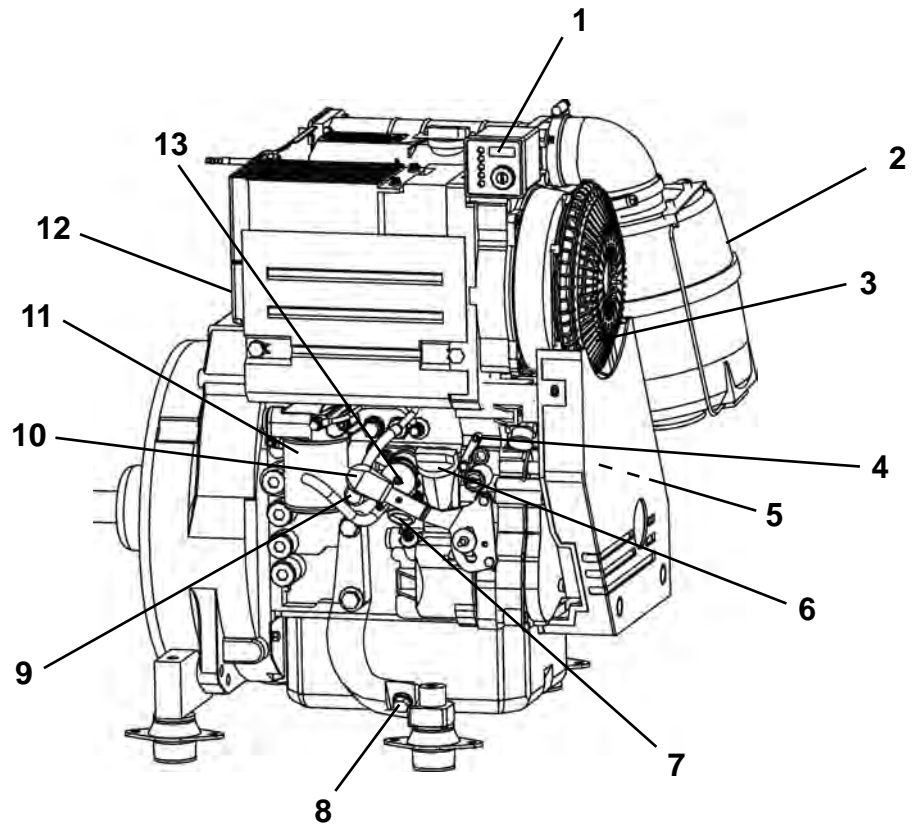
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| 1. Hydraulic Tank (25 gal.) | 15. Hourmeter | 25. Tank Shutoff Valve - Right Tank |
| 2. Main Power Disconnect Switch | 16. Electric Motor 30 HP | 26. Hose Connection 6 Gal Return |
| 3. Tank (325 gal.) | 17. Control Panel | 27. Hose Connection 6 Gal Press. |
| 4. Tank Lid | 18. Piston Pump 10 GPM | 28. Strainer & Element - Right Tank |
| 5. Hydraulic Pressure Filter | 19. Piston Pump Fluid Pressure Gauge 10 Gal. | 29. Cam Lock Hose Assembly |
| 6. Shelf | 20. Mixer Control - Right Tank | 30. Pump/Mixer Selector 10 Gal. |
| 7. Removable Reducer Coupling | 21. Hose Connection 10 Gal Return | 31. Strainer & Element - Left Tank |
| 8. Mix Tube | 22. Hose Connection 10 Gal Pressure | 32. Bypass Shutoff Valve |
| 9. Mixer/Agitator Mount | 23. Piston Pump 6 GPM | 33. Mixer Control - Left Tank |
| 10. Manual Storage Tube | 24. Piston Pump Fluid Pressure Gauge 6 Gal. | 34. Pump/Mixer Selector 6 Gal. |
| 11. Agitator Chamber | | 35. Storage Basket |
| 12. Step | | 36. Tank Shutoff Valve - Left Tank |
| 13. Mixer Motor With Propeller | | |
| 14. Oil Cooler | | |

BENTONITE & LUBRICATION PUMP - 2325B/E (SN FA48835F-02 & AFTER)



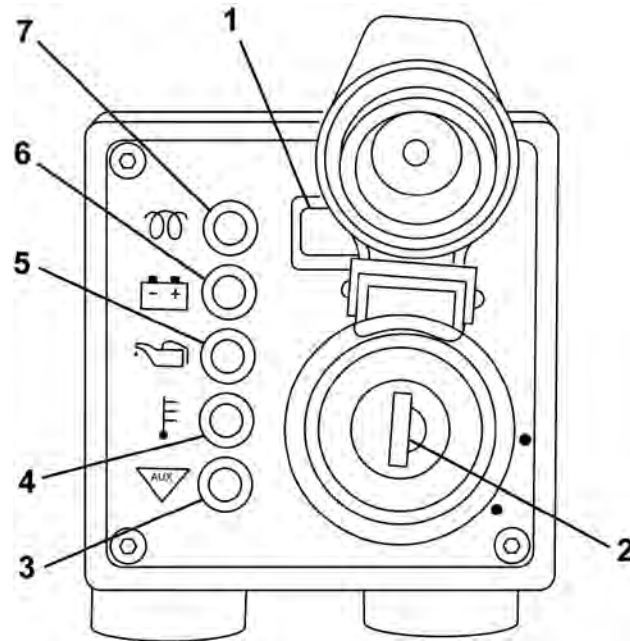
- | | | |
|--------------------------------|--|--|
| 1. Tank (325 gal.) | 15. Piston Pump Fluid Pressure Gauge 10 Gal. | 23. Tank Shutoff Valve - Right Tank |
| 2. Tank Lid | 16. Mixer Control - Right Tank | 24. Cam Lock Hose Assembly |
| 3. Hydraulic Pressure Filter | 17. Hose Connection 10 Gal Return | 25. Strainer & Element - Right Tank |
| 4. Shelf | 18. Hose Connection 10 Gal Pressure | 26. Strainer & Element - Left Tank |
| 5. Control Panel | 19. Piston Pump 6 GPM | 27. Bypass Shutoff Valve |
| 6. Manual Storage Tube | 20. Piston Pump Fluid Pressure Gauge 6 Gal. | 28. Mixer Control - Left Tank |
| 7. Removable Reducer Coupling | 21. Hose Connection 6 Gal Return | 29. Tank Shutoff Valve - Left Tank |
| 8. Mix Tube | 22. Hose Connection 6 Gal Pressure | 30. Storage Basket |
| 9. Agitator Chamber | | 31. Fluid Return Valves (SN 2 & After) |
| 10. Step | | 32. Pump/Mixer Selector 6 Gal. |
| 11. Mixer Motor With Propeller | | 33. Pump/Mixer Selector 10 Gal. |
| 12. Oil Cooler | | 34. Hydraulic Tank (25 gal.) |
| 13. Electric Motor 30 HP | | |
| 14. Piston Pump 10 GPM | | |

ENGINE - 2325B/D DEUTZ ENGINE



- | | |
|--------------------------|----------------------------------|
| 1. Engine System Control | 8. Engine Oil Drain Plug |
| 2. Air Cleaner | 9. Diesel Fuel Primer |
| 3. Engine Cooling Fan | 10. Throttle Control |
| 4. Stop Lever | 11. Engine Oil Filter |
| 5. V-Belt | 12. Muffler |
| 6. Engine Oil Fill | 13. Fuel Pump With Screen Filter |
| 7. Engine Oil Dipstick | |

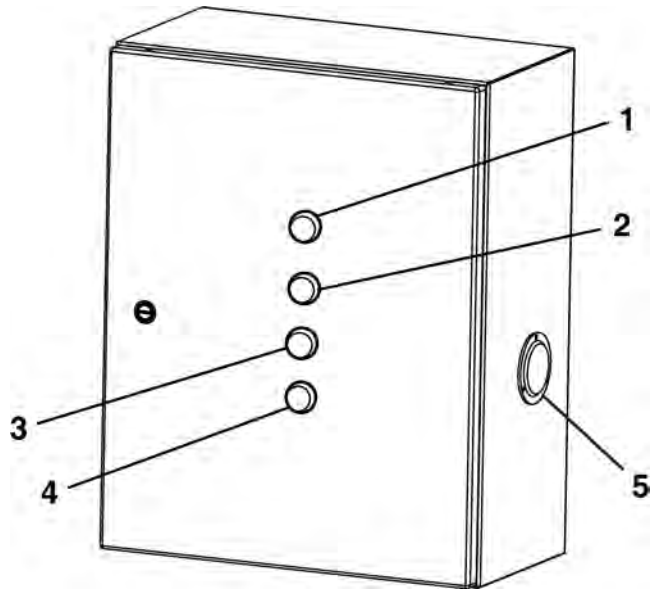
ENGINE SYSTEM CONTROL - 2325B/D DEUTZ ENGINE



1. Hourmeter
2. Key Switch
3. Auxiliary
4. Engine Coolant Temperature

5. Engine Oil Pressure
6. Battery Charging
7. Pre-Heat

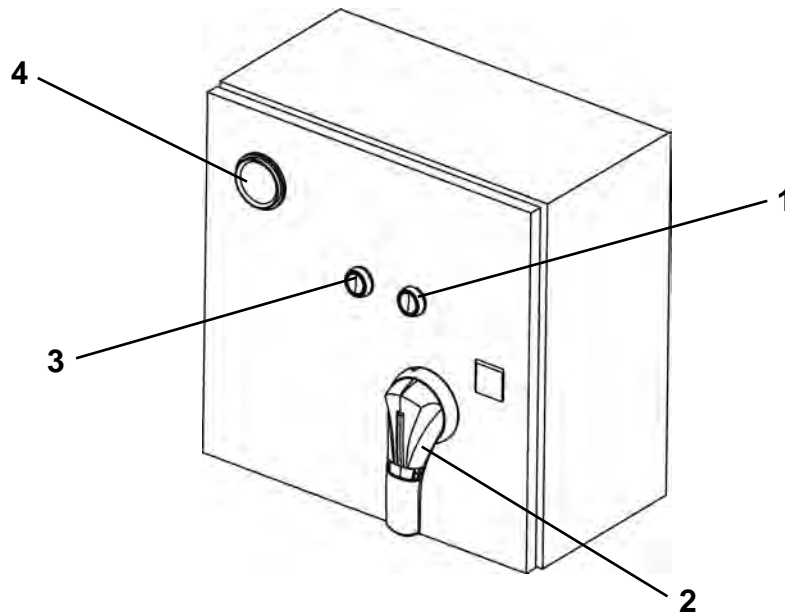
CONTROL PANEL - 2325B/E (SN FA48835F-01)



- 1. Fault Light
- 2. Start Switch
- 3. Stop Switch

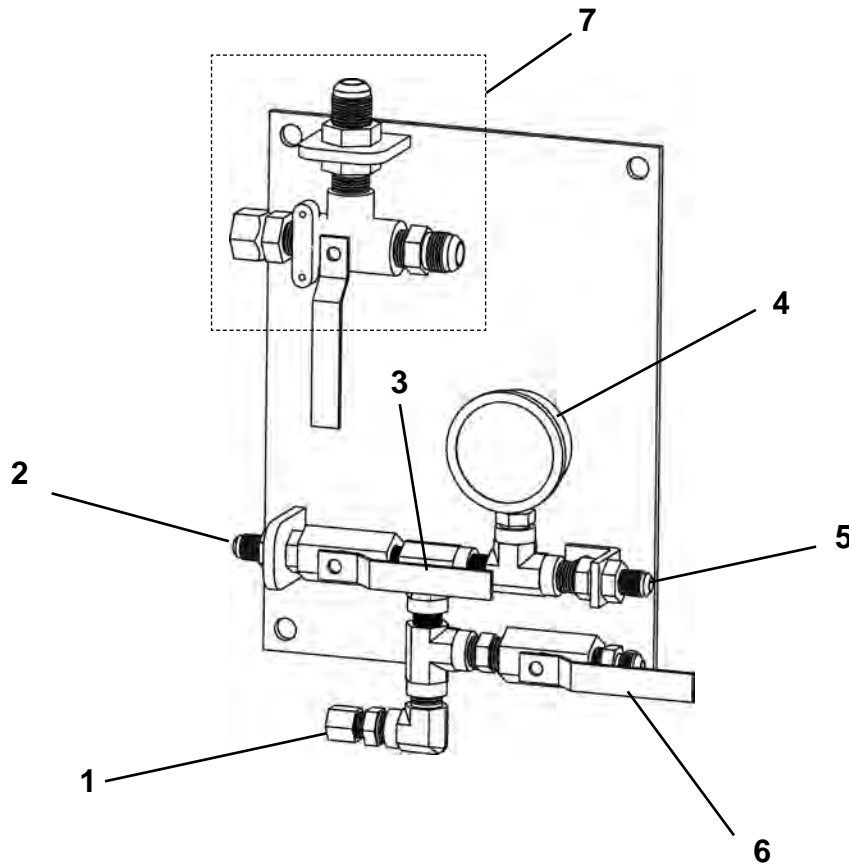
- 4. Reset Switch
- 5. Hourmeter

CONTROL PANEL - 2325B/E (SN FA48835F-02 & AFTER)



- 1. Stop Switch
- 2. Master Disconnect Switch
- 3. Start Switch
- 4. Hourmeter

PUMP SHAFT CONTROL



- 1. Washer Wand or Auxiliary Jetting Pressure OUT
- 2. Tooling Pressure OUT
- 3. Pressure Shutoff Valve

- 4. Pressure Gauge 2500 psi Max.
- 5. Pressure IN
- 6. Return Shutoff Valve
- 7. Circuit Control

Controls & Instruments

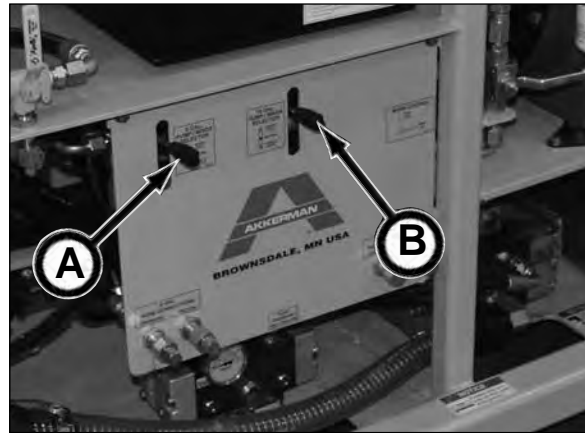
PUMP/MIXER SELECTORS

The Pump/Mixer Selectors (A - 6 Gal., B - 10 Gal.) are used to regulate the fluid for motor startup, tank recirculation, solution mixing and tooling lubrication by controlling the fluid pump and the in-tank agitator (mixer) functions as follows:

Mixer Only*	- Up Position
Neutral	- Middle Position
Pump & Mixer	- Down Position

Before starting pump motor, there must be enough water/solution in each tank to cover inlet and the pump/mixer selector **MUST** be in the neutral position.

* The Mixer Control must be at the ON position.

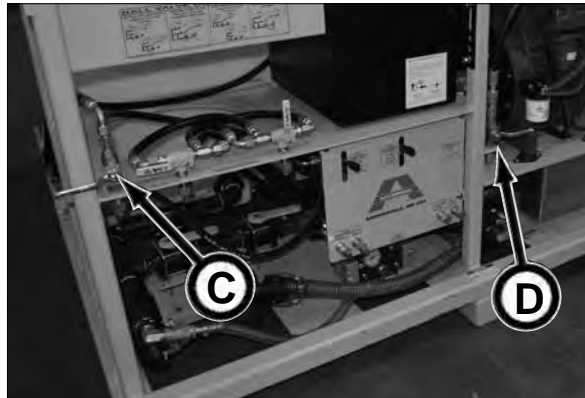


MIXER CONTROLS

The mixer controls (C - Left Tank, D - Right Tank) regulate the hydraulic oil to the mixer motor.

With the mixer control in the ON position, the hydraulic oil will flow to the mixer motor and then return to tank. If the Pump/Mixer selector is at the Mixer only position, the Mixer control must be at the ON position, otherwise the mixer will not operate.

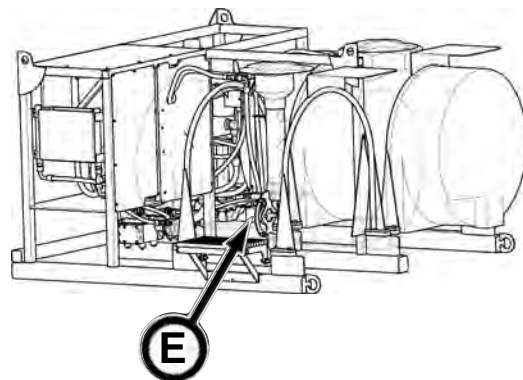
With the mixer control in the OFF position (9 o'clock), the hydraulic oil will flow back to tank thus bypassing the mixer. If the Pump/Mixer selector is at the Pump & Mixer position, only the pump will operate, no mixing.



IN-TANK AGITATOR (MIXER)

The in-tank agitator system (E) aggressively mixes liquid based polymers and bentonite up to a viscosity (Marsh Funnel) of 50 seconds to prevent fluid settlement during mixer only or pump & mixer control functions. The agitator is controlled with the Pump/Mixer Selector. The Mixer control must be in the Mixer On position.

Before starting pump, be sure the Pump/Mixer Selector is in the neutral position.



SHUTOFF VALVES

TANK SHUTOFF VALVES

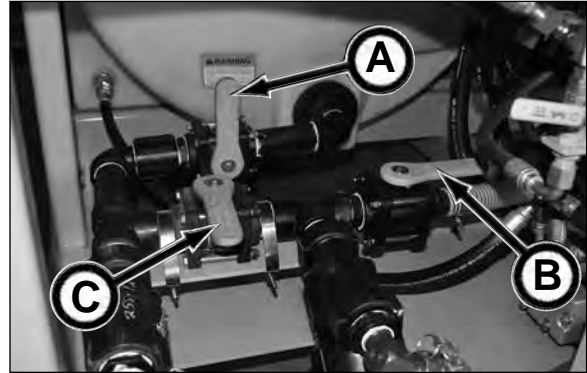
The tank shutoff valves (A - left tank, B - right tank) are used to open and close the tank supply outlets.

NOTICE

The tank shutoff valves **MUST** be open before starting the pump. Failure to do so could cause damage to pump and cause the hydraulic oil to heat up.

BYPASS VALVE

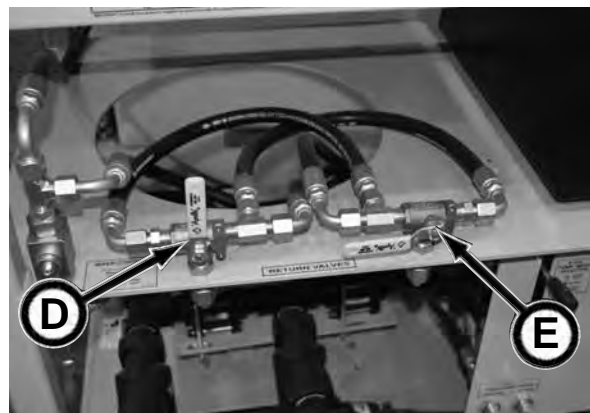
The bypass shut off valve (C) is used to divert fluid from one or both tanks to one pump or both pumps.



FLUID RETURN VALVES (LATER MODELS)

The 6 (D) and 10 (E) gallon fluid return valves allow the operator to control the return fluid to a specific (right or left) tank.

Refer to decal for valve operation.



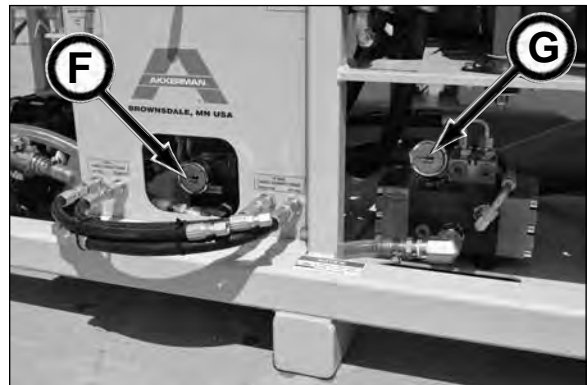
PRESSURE GAUGES

Piston Pump Pressure Gauge

The piston pump pressure gauges display the hydraulic oil pressure of the piston pump.

- 6 Gal. Pump Pressure Gauge (F)
- 10 Gal. Pump Pressure Gauge (G)

Maximum pressure is 2,500 psi (17,237 kPa)



HYDRAULIC TANK

The hydraulic tank provides hydraulic oil for the fluid pumps and mixer motors. The tank includes a temperature and sight gauge (A).

Fill oil until fluid reaches high mark on sight gauge.

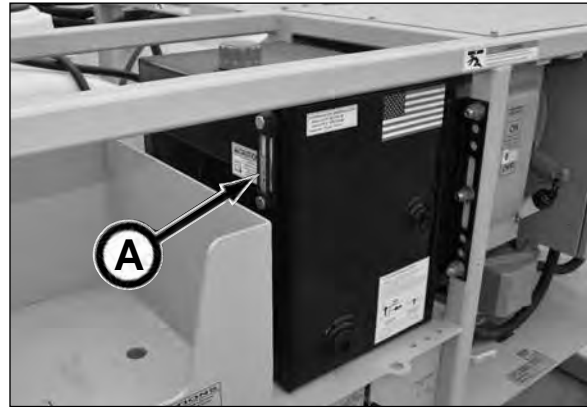
Recommended hydraulic oil:

Ambient Temp.	Hydraulic Oil
below 70°F (21°C)	ISO 46
above 70°F (21°C)	ISO 68

NOTICE

Do not mix oil manufacturers or grades.

Hydraulic oil tank capacity is 25 gal. (94.6 L).



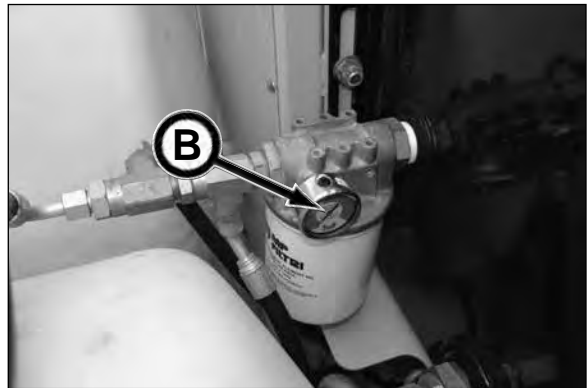
HYDRAULIC RETURN FILTER INDICATOR

To prevent over or under servicing of the hydraulic return filter, a filter indicator (B) has been installed on the return filter housing.

The green OK zone indicates that the filter is functioning properly.

The yellow zone indicates that the filter will soon require replacement.

When the needle on the gauge is in the red CHANGE zone, replace filter as soon as possible to prevent component damage (for more information, refer to Check Hydraulic Return Filter in section 9, Periodic Maintenance.



KEY START SWITCH - 2325B/D

NOTICE

For additional engine information, refer to your engine operation manual.

The three-position key start switch controls the engine electrical system. When the key switch is turned clockwise to START, the engine will crank. When the engine starts, release the key and it will automatically return to the ON position.

OFF - Electric current to the gauges and indicators is shut off. The key can be inserted and removed in this position. When shutting down the engine, allow engine to idle, without load for 5 minutes. This will allow engine components to slightly cool before the engine is shut down.

ON - This is the position the key will be in when the engine is running. When the engine is not running, use this position to energize the gauges, indicators, electric fuel pump and auxiliary devices.

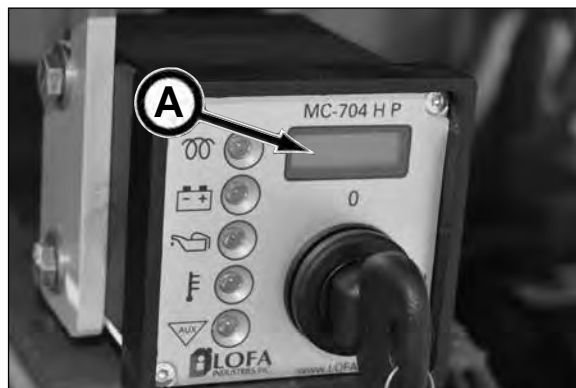
START - Turn the key to this position to start the engine. NEVER hold the key in the START position for longer than 15 seconds or the starter motor will overheat.



HOURMETER

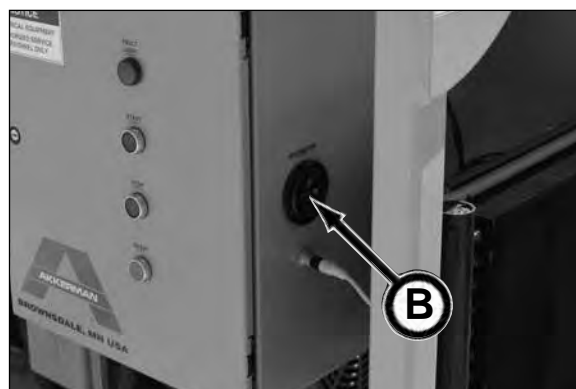
2325B/D

The hourmeter display (A) shows the total number of hours the engine has run.



2325E

The hourmeter (B) registers in full and 1/10ths hours.



2325B/E FA48835F-01



2325B/E FA48835F-02 & After

ENGINE SYSTEM CONTROL - 2325B/D WITH DEUTZ ENGINE

NOTICE

For additional engine information, refer to your engine operation manual.

The Engine System Control monitors critical engine and auxiliary functions with shutdown capabilities. It will automatically shutdown the engine due to failure and informs the operator what caused the malfunction via LED lights.

Preheat/OK LED (Green) Indicator (A)

A flashing green LED illuminates during engine preheat procedure. When the LED changes to solid green LED, the preheat period is complete and the engine may now be started (cranked). The LED will continue to illuminate while the engine is running.

NOTICE

If conditions do not warrant preheat, the engine may be started by turning the key switch to the start position without waiting for the preheat time to expire.

Battery LED (Red) Indicator (B)

A solid LED light illuminates when a battery charge failure has occurred. A flashing LED may indicate a failing charge circuit. Once the engine is started, the LED will no longer illuminate unless there is a problem with the charging circuit.

Oil Pressure (Red) Indicator (C)

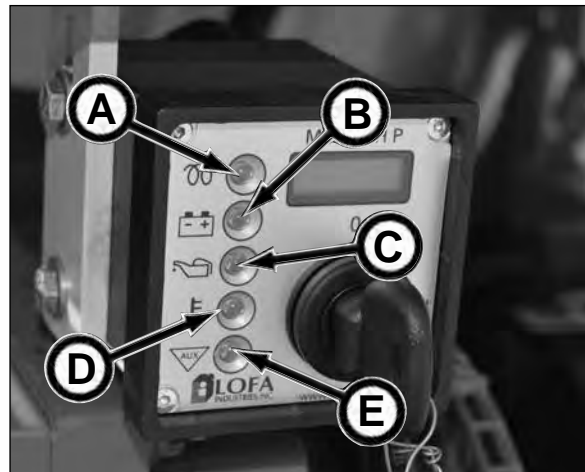
Illuminates when oil pressure is low. **The engine will shutdown.** Once the engine is started, the LED will no longer illuminate unless there is a problem with the oil pressure. **IMPORTANT:** Low oil pressure is NOT an indication of low oil level.

Temperature LED (Red) Indicator (D)

Illuminates when the engine temperature is above safety level. **The engine will shutdown.** This LED will briefly illuminate when key switch is turned to the on position.

Aux LED (Red) Indicator (E)

A solid LED light indicates an auxiliary failure. This LED will briefly illuminate when key switch is turned to the on position. Used for special applications (refer to your engine operation manual).



ENGINE THROTTLE - 2325D WITH DEUTZ ENGINE

NOTICE For additional engine information, refer to your engine operation manual.

Use the engine throttle lever (A) to increase or decrease the engine speed.

Increase Speed: Move throttle lever to the right to the desired speed.

Decrease Speed: Move throttle lever to the left to the desired speed.



MAIN POWER DISCONNECT SWITCH - 2325B/E

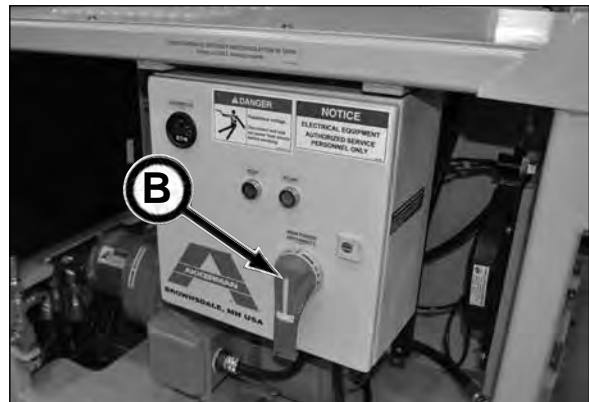
⚠ DANGER Hazardous voltage. Disconnect and lock out power from source before servicing.

The main power disconnect switch (B) controls the ON/OFF power of the 2325B/E Bentonite and Lubrication Pump.

NOTICE The main power disconnect switch must be ON to start up the electric motor.



2325B/E FA48835F-01



2325B/E FA48835F-02 & After

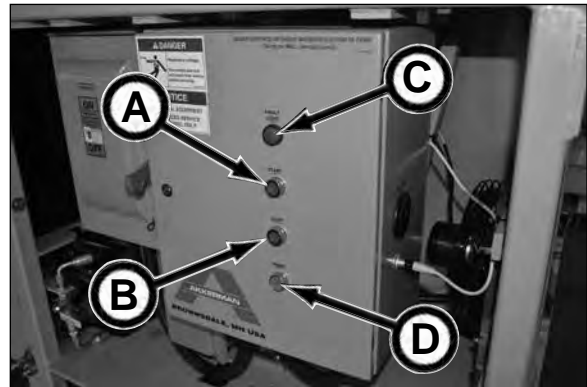
CONTROL PANEL - 2325B/E (SN FA48835F-01)

The 2325B/E (SN FA48835F-01) control panel consists of the start (A) and stop (B) switches, the fault light (C) and fault reset (D) switch.

With the main power disconnect switch ON, start and stop the electric motor by depressing the Start and Stop switches.

The control panel is also equipped with a Soft Start System to protect the 30 HP electric drive motor. The Soft Start system eliminates the hard starting and stopping of the electric drive motor. This system is pre-programmed at the factory. In the event that a fault occurs in the Soft Start System, the fault light illuminates and the soft start system prevents the electric drive motor from starting. The soft start system will require troubleshooting. Once the fault is resolved, the reset switch must be depressed before the motor will restart.

IMPORTANT: Electrical repairs and/or troubleshooting must be performed only by a certified electrician.



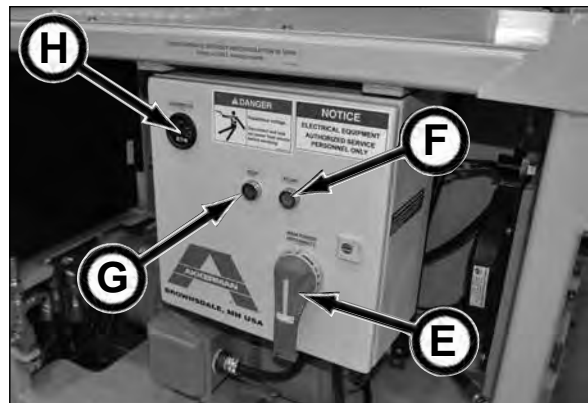
CONTROL PANEL - 2325B/E (SN FA48835F-02 & AFTER)

The 2325B/E (SN FA48835F-02 & After) control panel consists of the start button, stop button, hourmeter and the main power disconnect switch.

Flip the main power disconnect switch (E) to the ON position.

Start and stop the electric motor by depressing the Start button (F) and the Stop button (G).

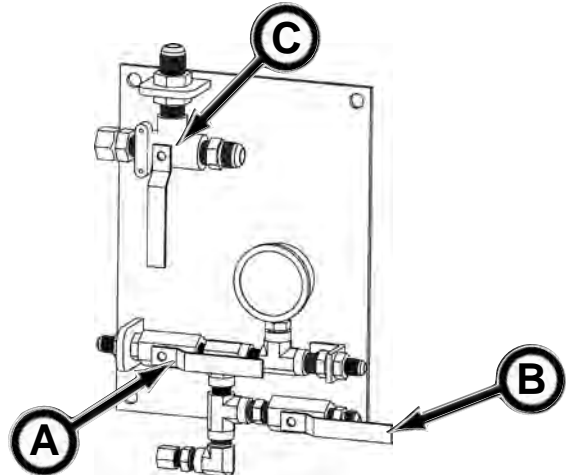
The hourmeter (H) registers in full and 1/100ths hours.



FLUID VOLUME CONTROL

Use the pressure (A) and return (B) shutoff valves on the pump shaft control to adjust the fluid volume.

Using the auxiliary shutoff valve (C) on the pump shaft control, allows the 2325B series to pump additional/different fluid to the pipeline.



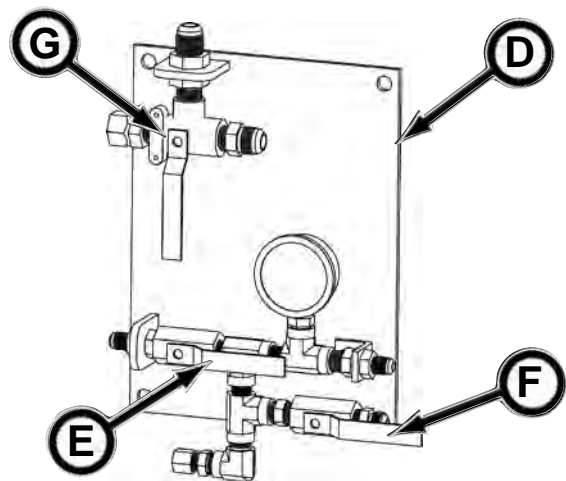
PUMP SHAFT CONTROL

The shaft control (D) allows the operator to control the jetting/lubrication from the launch or reception shafts. The control is connected directly to the 2325B/D and 2325B/E pump pressure and return ports.

Use a combination of the circuit ball valves (E and F) to control water/solution to component, washer wand or auxiliary, or to tank (Bypass Mode).

The control provides lubrication to:

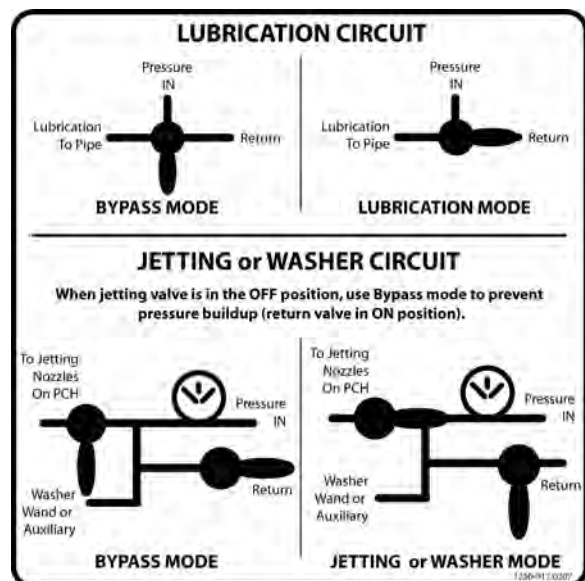
- steering head for lubrication to outside of pilot tubes
- pilot tube adapter for lubrication to spoils for reaming head or open cutter head
- jetting on Powered Reaming Head
- washer wand or auxiliary



NOTICE

The washer wand or auxiliary is available in either the Jetting/Washer Mode or Bypass Mode.

Use the auxiliary shutoff valve (G) on the pump shaft control, to pump additional/different fluid to the pipeline.



Pre-Start Inspection

⚠ WARNING

Do not operate this equipment until you read, study, and understand this manual, the engine operation manual, and any other equipment manuals that may be used. A daily inspection of the equipment must be performed to prevent severe personal injury or death and equipment damage.

The contractor is fully responsible for the safety of all personnel on the job site. Check with the contractor that all site preparation requirements are in place. Be sure to comply with all MSHA and OSHA regulations, such as: an active safety program is in practice, a confined space permit (if needed) is issued, personal protective equipment is being worn; flammable, combustible, and hazardous materials are properly stored; and a lockout/tagout procedure is in place.

Use the following checklist ✓ as a guide for your daily pre-start inspection.

	1. Follow the MSHA (Mining Safety & Health Administration) and OSHA (Occupational Safety & Health Administration) regulations.
	2. Contractor is responsible for all personnel to wear proper protective equipment on the job site. Replace equipment if defective.
	3. Combustible, toxic and oxygen deficiency detectors MUST be in place, tested, and in proper working condition.
	4. A qualified electrician must check that all electrical connections are properly secured and grounded prior to operation.
	5. (2325B/E) BEFORE connecting to 480V power source, be sure the Main Power Disconnect switch is in the OFF position.
	6. (2325B/E) Once power is properly connected, flip main power disconnect switch ON and check for proper motor rotation. If not, lock out power and switch phase connections and retest.
	7. Water/solution must be in tanks prior to start up.
	8. Be sure Pump/Mixer Selectors are in neutral position and Mixer Controls are in OFF position.
	9. Be sure pump shaft control shutoff valves are in Bypass position.
	10. The tank shutoff valve(s) MUST be open prior to starting the pump(s).
	11. All pump connections must be secure to prevent cavitation.
	12. Clean strainer(s) before operating pump(s).
	13. USE ONLY CLEAN WATER SOURCE.
	14. Check controls and switches for proper operation. Repair or replace if damaged or worn.
	15. Remove combustible or flammable materials from equipment. Store materials properly.
	16. Check engine diesel fuel level. Add as needed.
	17. (2325B/D) Check engine oil level. Add as needed.
	18. Check hydraulic oil level. Add as needed.
	19. Check belt tension. Tighten as needed.
	20. Check controls and switches for proper operation. Repair or replace if damaged or worn.
	21. Inspect equipment for damage. Repair or replace as needed.
	22. Thoroughly clean equipment of mud and dirt.
	23. Be sure all shrouds, covers and guards are in place and securely fastened before operation.
	24. Check for loose or missing hardware. Replace damaged or missing hardware.
	25. Check for worn, loose, or damaged wire connections. Repair or replace wiring connections.
	26. Tighten loose clamps or fittings.
	27. Check for fluid leaks. Repair leak or replace components.
	28. If operating in freezing weather, be sure to constantly circulate water/solution to prevent freezing.
	29. Keep job site clean and organized.

NOTES

Operation

OPERATING GUIDELINES

⚠ WARNING

Do not operate this equipment until you read, study, and understand this manual, your engine manual and any additional equipment manuals before you operate this equipment. Failure to do so, could result in severe personal injury or death.

1. Before operating, read and understand the Safety, Pre-Start Inspection, and Operation sections.
2. Do not operate this equipment while under the influence of alcohol, drugs, or medication.
3. Follow all Federal, State, and Local safety regulations and procedures.
4. Be sure OSHA prescribed safety protective equipment is being worn by all personnel.
5. Be sure the area is safe for operation. Keep work site clean and orderly.
6. Have a fully charged fire extinguisher on the job site at all times.
7. Before operating, inspect equipment and conduct repairs as needed.
8. (2325B/E) Test the electrical motor for proper rotation prior to operating the bentonite & lubrication pump.
9. Test air monitoring and ventilation detectors for proper operation. Never enter a tunnel or shaft without combustible gas detectors and oxygen deficient detectors.
10. Never walk or work under any part of the excavator or crane and suspended loads.
11. Do not make any modifications to any Akkerman products. Doing so could cause structural failure and will void the warranty.
12. Check shields and guards. They must be in place and undamaged prior to operation.
13. The tank shutoff valves **MUST** be open and the tanks filled with water/solution prior to starting the engine/motor. Failure to do so will cause damage to pump after prolonged use without water/solution.
14. Check all fluid levels (fuel, hydraulic, engine oil) before operating. Add as necessary.
15. Remove combustible or flammable materials from equipment.
16. Test all controls and switches to make sure they operate properly.
17. Place all controls in neutral before start up.
18. Stop engine/electric motor before making repairs, adjustments, or removing obstructions from mixing tanks.
19. Eye, ear and respiratory protection **MUST** be worn by operator while filling tanks with chemicals such as wetting agents, polymer, etc.
20. Never dry run or operate pump(s) with tank shutoff valve(s) closed.
21. In cold weather operation, constantly circulate water/solution to prevent freezing.
22. At daily shutdown or if pump will not be operated for a prolonged period of time in freezing weather, flush and drain pump and ALL fluid lines to prevent clogging or freezing.
23. Keep ALL parts of the body and foreign objects from coming in contact with mixer shaft or propeller during pump operation.
24. If using a pressure washer wand, **NEVER** point the wand towards a person or animal. Also, be sure to release pressure after use and before performing maintenance to prevent accidental fluid injection.
25. If repairs are necessary to equipment, before making repairs, be sure to lockout tagout power source to prevent accidental starting of equipment.
25. If this manual is lost, contact your Akkerman Aftermarket Support Representative for a new manual or download this manual from the Akkerman web site at www.akkerman.com.

LUBRICATION GUIDELINES

The lubrication type or mixture is based on soil conditions, consistency, clay, sand, cobble, etc. Your polymer supplier can help you with the proper lubrication mixture based on your Geotech report for the project.

Displaceable Ground:

- Control the flow so there is no lubrication flowing out of the pilot tubes in the launch shaft.
- As a guideline, typical usage of lubricant in pilot tube annular space is approximately 1 gal per foot. For example, on a 300 ft drive, approximately 300 gallons will be required.

Soft Rock With Tri-Hawk® Drill Bit

- Control the flow so there is lubrication flowing (flush cuttings) out of the pilot tubes in the launch shaft.
- As a guideline, use up to 4 gpm of lubricant to flush cuttings to launch shaft and for cooling of tool.



Before shutting down the lubrication pump, loosening pilot tube joints or adding additional pilot tubes, vent the fluid into a catch pan to relieve pressure and prevent the fluid from entering the inner tube of the pilot tube.

If using a lubricant other than clean water during pilot tube installation, the lubricant in the pilot tubes **MUST** be flushed with clean water before removing pilot tubes from the reception shaft. Remove the steering head, and use clean water to flush the pilot tubes until the water is clear and free of sediment. Failure to do so will result in the clogging of the fluid and/or sight path of the pilot tubes.

Use of polymers and bentonite with fluid mixtures up to 50 seconds (Marshall Funnel) viscosity can be used in the 2325B series Bentonite & Lubrication Pump.

As a guideline, typical usage of lubricant in overcut annular space is approximately:

<i>Casing/PRH/PCH Size</i>	<i>Lubricant Per Ft</i>	<i>Lubricant Per 300 Ft Drive</i>
11" Casing	1.5 gal.	450 gal.
14"/16" Casing/PRH 14/16	2.0 gal.	600 gal.
20" Casing/PRH 20/PCH 20	2.5 gal.	750 gal.
PCH 22.5	3.0 gal.	900 gal.
PCH 28.5	4.0 gal.	1,200 gal.
PCH 36	4.5 gal.	1,350 gal.
PCH 44	5.5 gal.	1,650 gal.

SETTING UP BENTONITE & LUBRICATION PUMP

1. Position the 2325B series Bentonite & Lubrication Pump on firm, level ground near desired area of use.

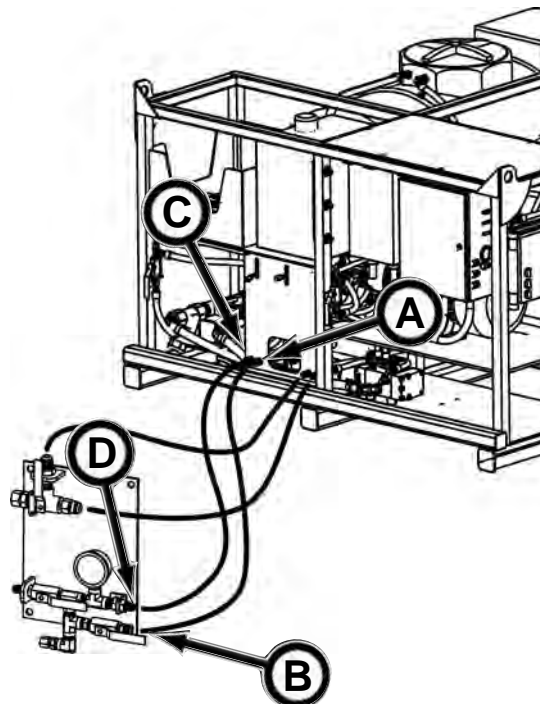
⚠ WARNING Do not position the pump near the edge of shaft where the ground may be unstable and cause a slide or cave-in. Doing so could cause severe injury or death.



2. Connect the 3/8 in. and 5/8 in. (if required) lubrication hoses to the pump and shaft control as follows:

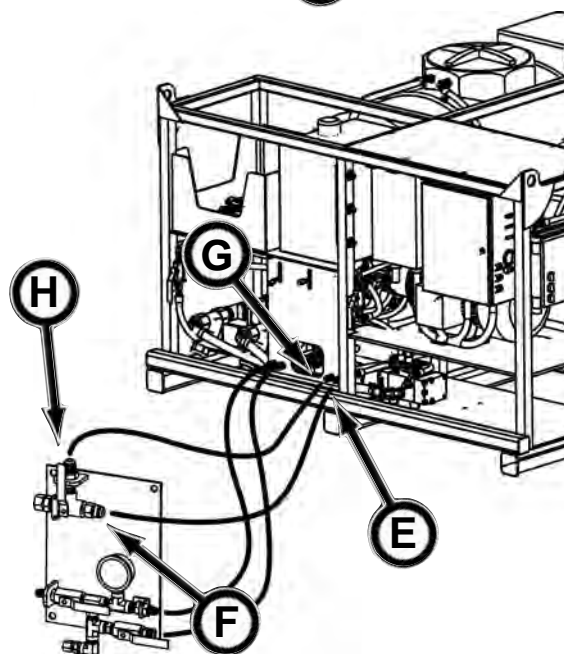
6 GPM LUBRICATION CIRCUIT (3/8 in. Hoses)

- a. Connect the 3/8 in. hose to pump return connection (A) and return connection (B) on shaft control.
- b. Connect the 3/8 in. hose to pump pressure connection (C) and Pressure IN connection (D) on shaft control.



10 GPM LUBRICATION CIRCUIT (5/8 in. Hoses)

- c. Connect the 5/8 in. hose to pump return connection (E) and return connection (F) on shaft control.
- d. Connect the 5/8 in. hose to pump pressure connection (G) and Pressure IN connection (H) on shaft control.



3. Once the jetting and lubrication hoses are properly connected, proceed to Jetting Circuit Hookup and/or Lubrication Circuit Hookup in the next few pages.

LUBRICATION 6 GPM CIRCUIT HOOKUP

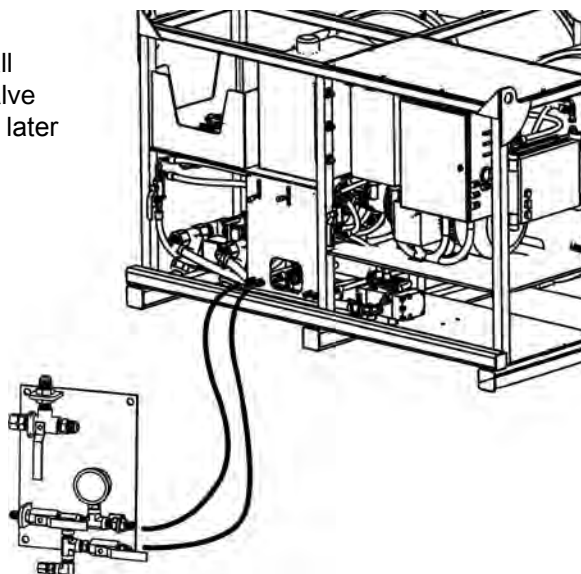
NOTICE

For information on how to arrange ball valves on pump and shaft control, refer to Pump Ball Valve Configurations and Using Shaft Control For Lubrication, later in this section.

The lubrication circuit provides lubrication/bentonite to:

- steering head for lubrication to outside of pilot tubes
- pilot tube adapter and reaming head for lubricating the outside of the casings
- lubrication ports on Powered Reaming Head
- lubrication ports on Powered Cutter Head
- washer wand or auxiliary

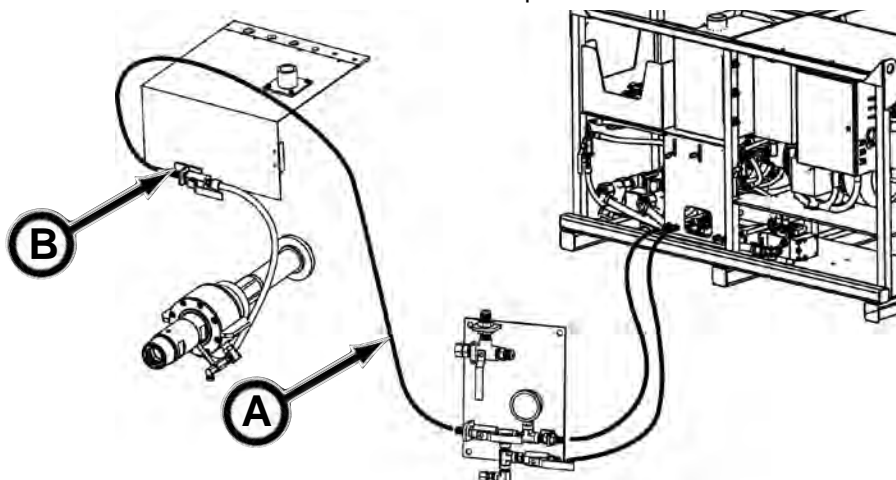
Hookup hoses based on the jetting/lubrication requirement as follows:



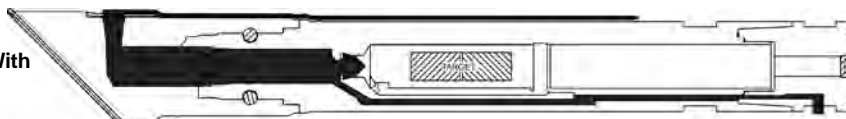
1. Lubricating Outside Of Pilot Tubes

Connect the lubrication hose (A) from the shaft control to the lube control valve (B) on the GBM. The lube control on the GBM is connected to the drive swivel which allows the lubricant to flow through the dual walled pilot tube annular space and out the steering head/Tri-Hawk® drill bit port.

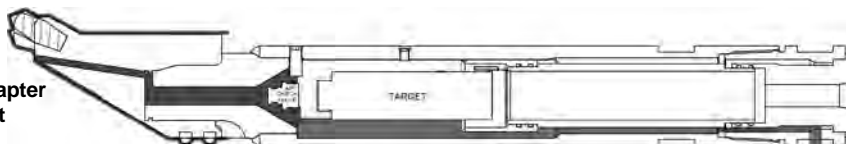
- (Displaceable Ground) control the lubrication flow so there is no lubrication flowing out of the pilot tubes in the launch shaft.
- (Soft Rock With Tri-Hawk® drill bit) control the lubrication flow so there is lubrication flowing (flush cuttings) out of the pilot tubes in the launch shaft.
- before loosening pilot tube joints, vent the fluid into a catch pan to relieve pressure and prevent the fluid from entering the inner tube of the pilot tube.
- Use of polymers and bentonite with fluid mixtures up to 50 seconds (Marshall Funnel) viscosity can be used in the 2325B series Bentonite & Lubrication Pump.



Steering Head Adapter With Steering Head Bit Fluid Path



Pilot Tube To TriHawk Adapter With Tri-Hawk Drill Bit Fluid Path



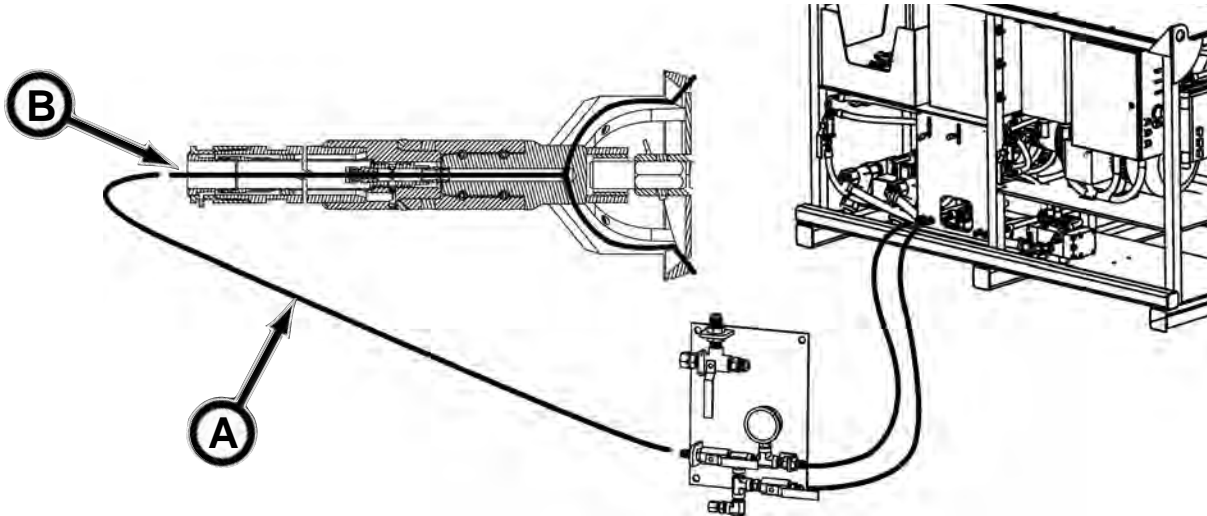
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Lubrication 6 GPM Circuit Hookup (continued)

2. Lubricating Outside Of Casing Using Reaming Head Lubrication Ports

Connect the lubrication hose (A) from the shaft control to the supply hose (B) connected to the fluid connector in the reaming head.

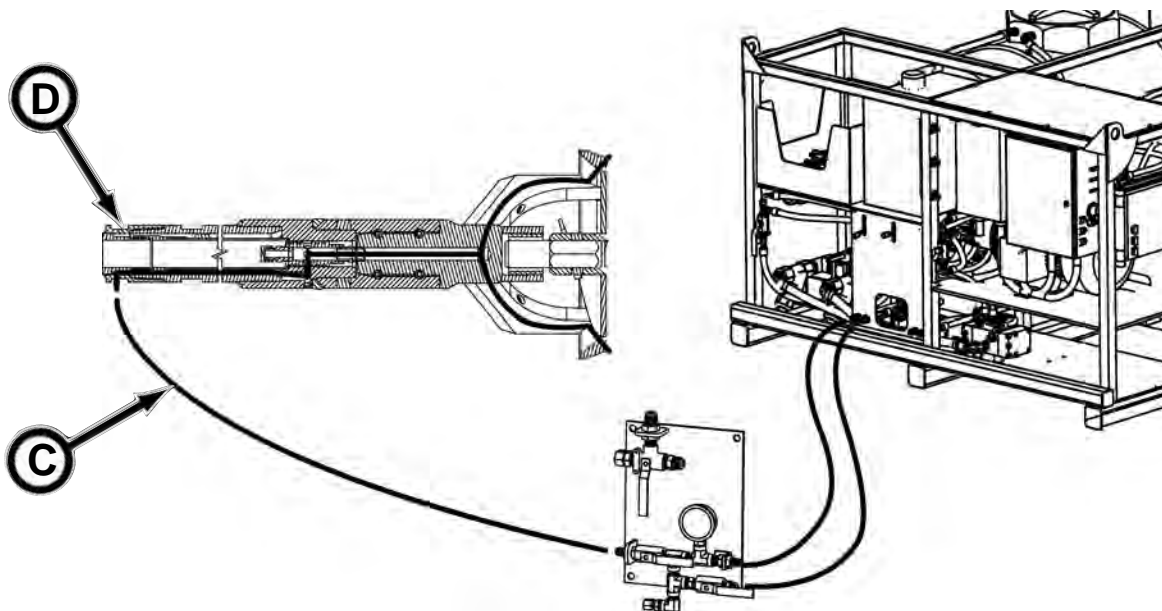
- the lubricant will flow through the supply hose into the reaming head fluid connector and out the lubrication ports of the reaming head arms to lubricate the outside of casings.



3. Lubricating Outside Of Casing With Reaming Head Assembly

Connect the lubrication hose (C) from the shaft control to the fluid connector (D) in reception shaft.

- the lubricant flows through the dual walled pilot tubes, pilot tube adapter, and out the lubrication ports on the reaming head arms to lubricate the outside of casings.

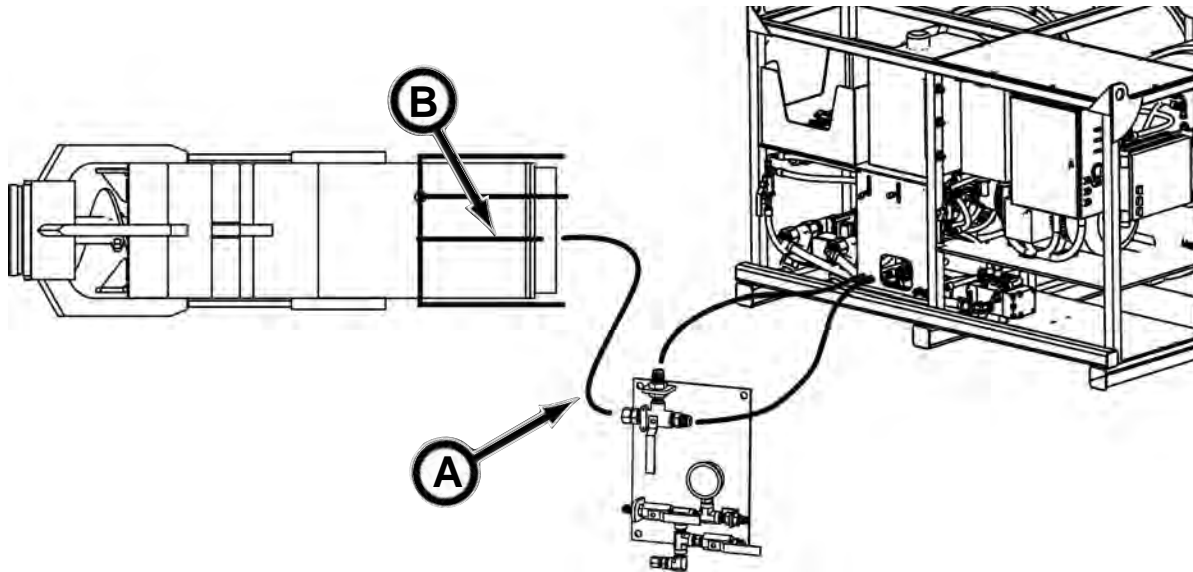


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Lubrication 6 GPM Circuit Hookup (continued)

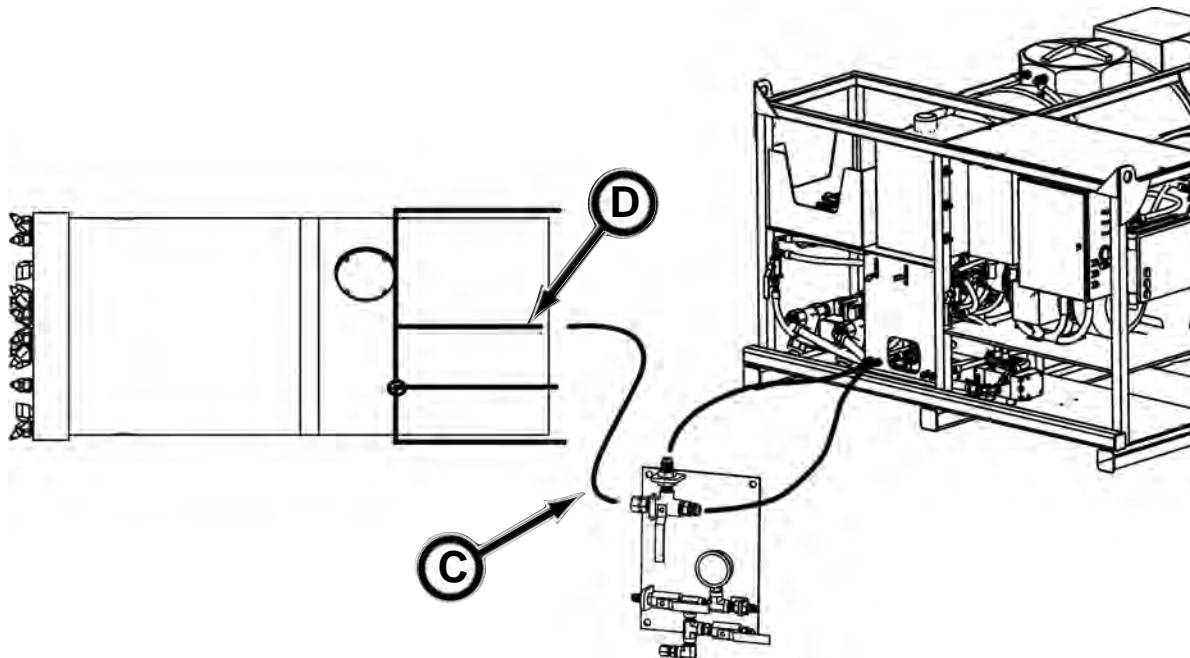
4. Lubricating Outside Of Product Pipe Using Powered Reaming Head Lubrication Ports

Connect the lubrication hose (A) from the shaft control to the lubrication hose (B) in the rear of the Powered Reaming Head.



5. Lubricating Outside Of Product Pipe Using Powered Cutter Head Lubrication Ports

Connect the lubrication hose (C) from the shaft control to the lubrication hose (D) in the rear of the Powered Cutter Head.



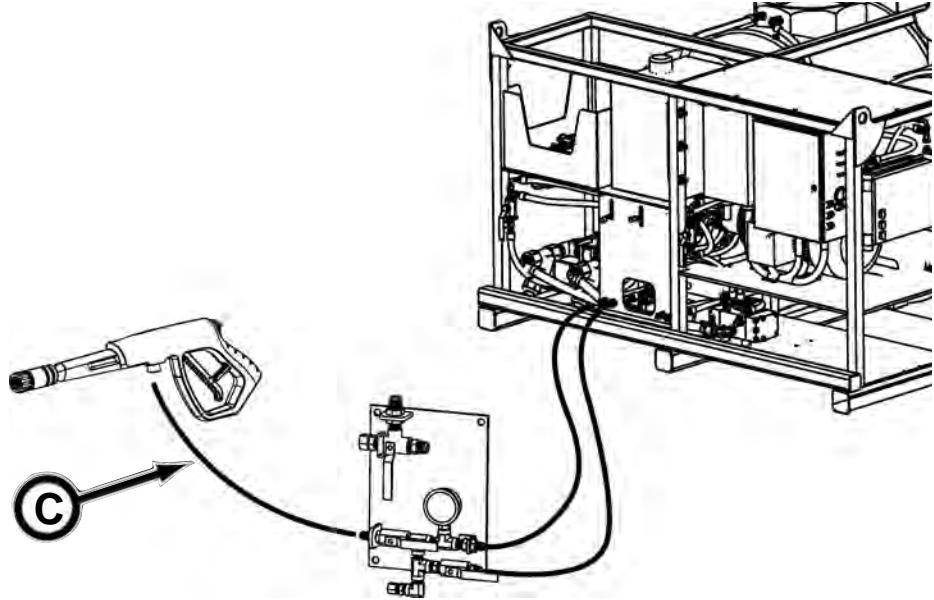
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Lubrication 6 GPM Circuit Hookup (continued)

6. Using Pressure Washer Wand or Auxiliary

Connect the jetting hose (C) from the shaft control to the washer wand or other auxiliary device.

- refer to the wand or auxiliary device operation manual for the proper safe operation.



WARNING Using the lubrication pump with a pressure washer wand can generate enough fluid pressure and velocity to penetrate skin resulting in serious personal injury.



Contact medical help immediately if fluid is injected into your skin. A serious infection or reaction can emerge without proper medical treatment.

NEVER point the wand towards a person or animal.

Be sure to release pressure after use and before performing maintenance to prevent accidental fluid injection.

Wear safety glasses and gloves, and depending on the wand use, a particle mask may be necessary.

LUBRICATION 10 GPM CIRCUIT HOOKUP

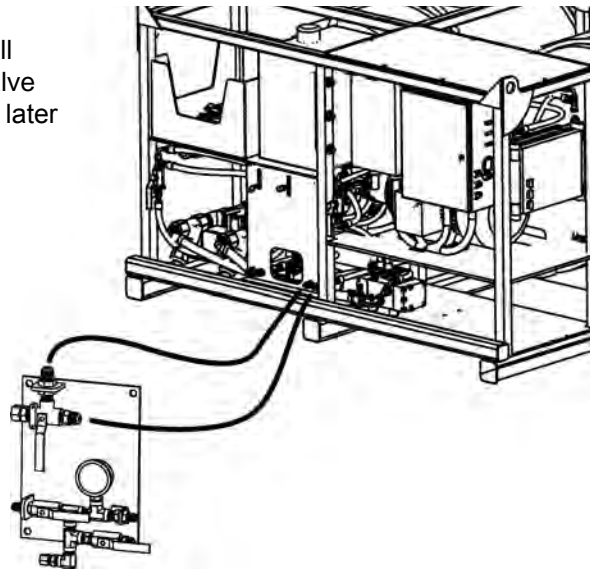
NOTICE

For information on how to arrange ball valves on pump and shaft control, refer to Pump Ball Valve Configurations and Using Shaft Control For Lubrication, later in this section.

The lubrication circuit provides lubrication/bentonite to:

- pilot tube adapter for lubrication to spoils for reaming head or open cutter head
- jetting on Powered Reaming Head
- jetting on Powered Cutter Head
- lubricate TBM/MTBM product pipe
- washer wand or auxiliary

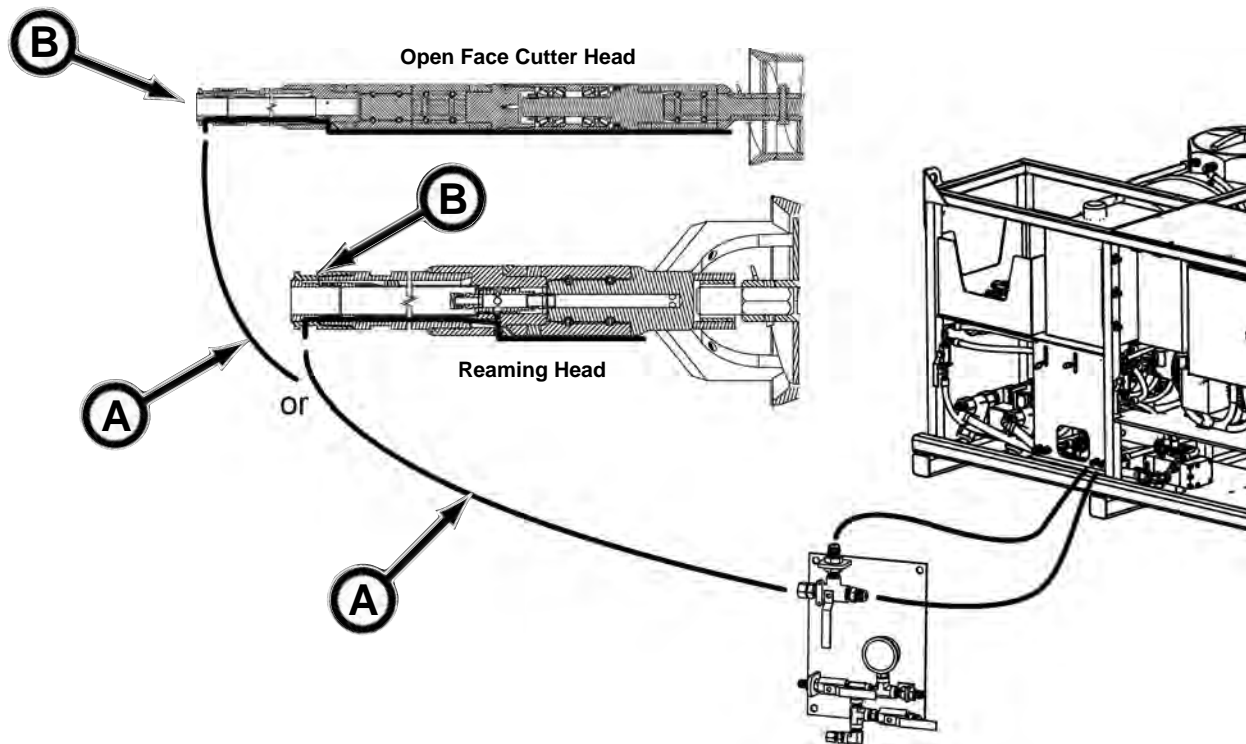
Hookup hoses based on the lubrication requirement as follows:



1. Lubricating Spoils For Reaming Head or Open Cutter Head

Connect the lubrication hose (A) from the shaft control to the fluid connector (B) in reception shaft.

- the lubricant flows through the dual walled pilot tubes and out the lubrication port on the pilot tube adapter to lubricate the spoils for the reaming head or open face cutter head.

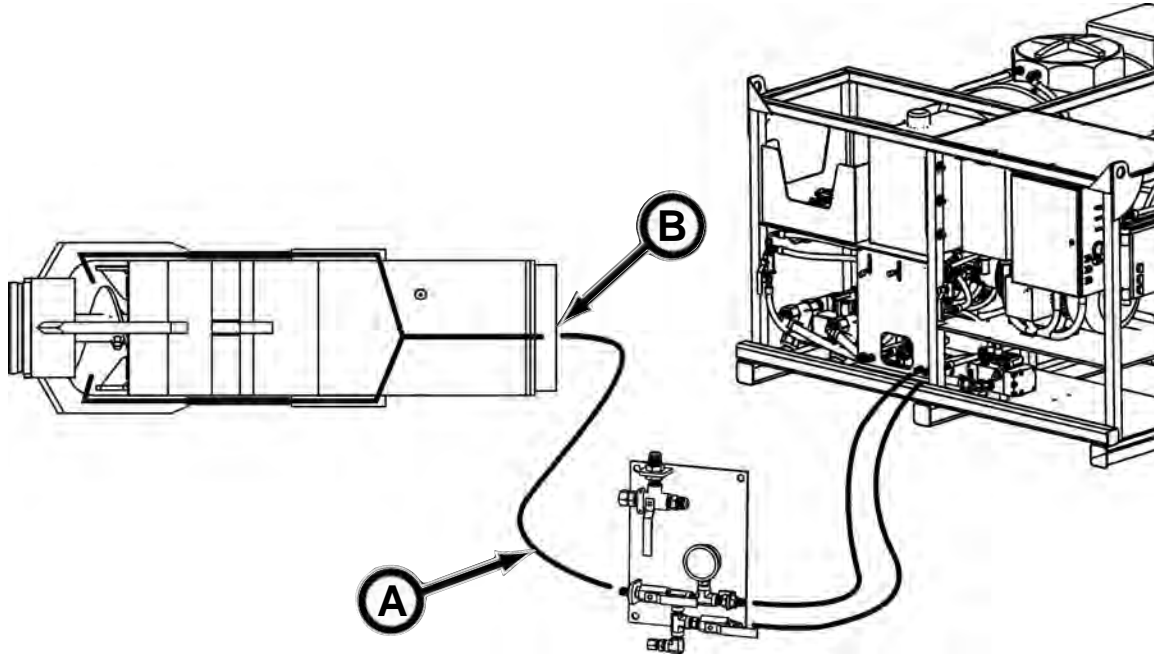


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Lubrication 10 GPM Circuit Hookup (continued)

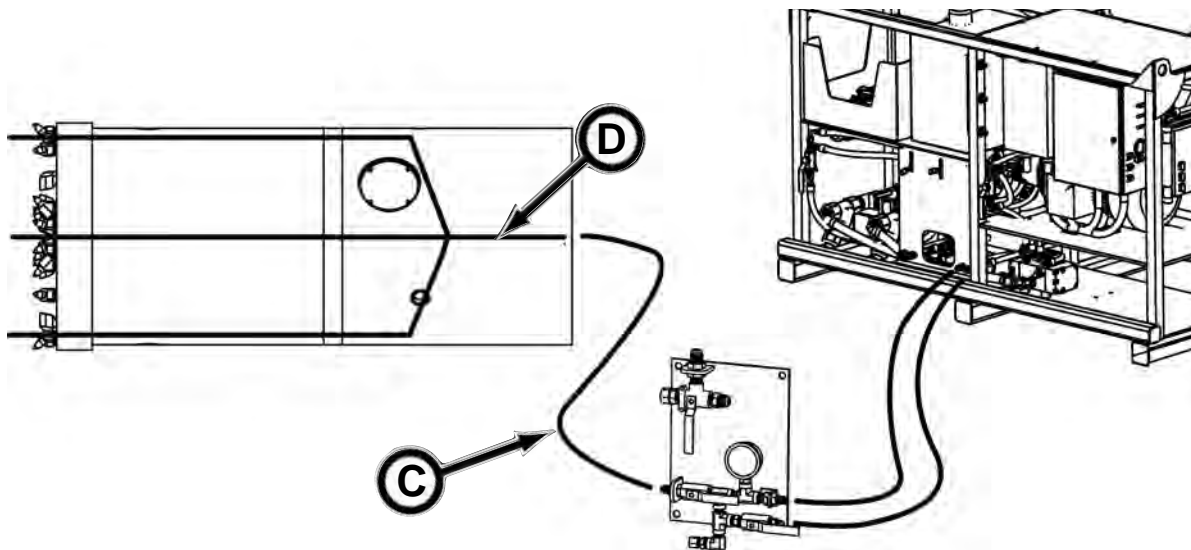
2. Powered Reaming Head Jetting Nozzles

Connect the lubrication hose (A) from the shaft control to the lubrication hose (B) in the rear of the Powered Reaming Head in the launch shaft.



3. Powered Cutter Head Jetting Nozzles

Connect the jetting hose (C) from the shaft control to the jetting hose (D) in the rear of the Powered Cutter Head.

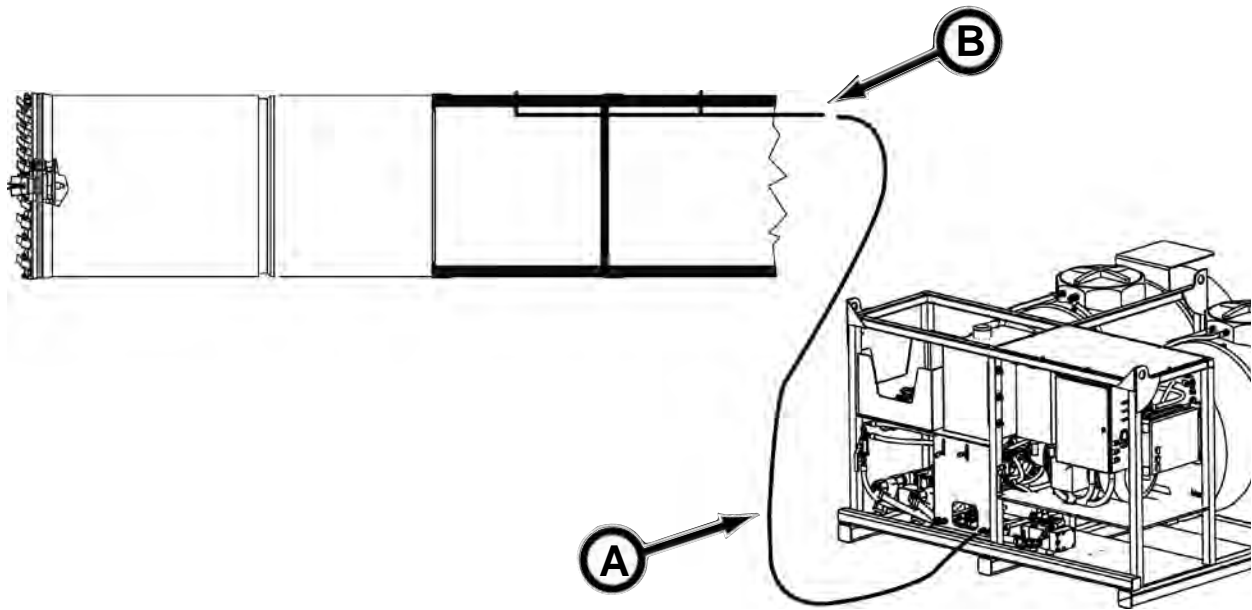


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Lubrication 10 GPM Circuit Hookup (continued)

4. TBM & MTBM Product Pipe (30" to 60" OD) Lubrication

Connect the lubrication hose (A) from the pump pressure port to the TBM/MTBM bentonite port system (B).



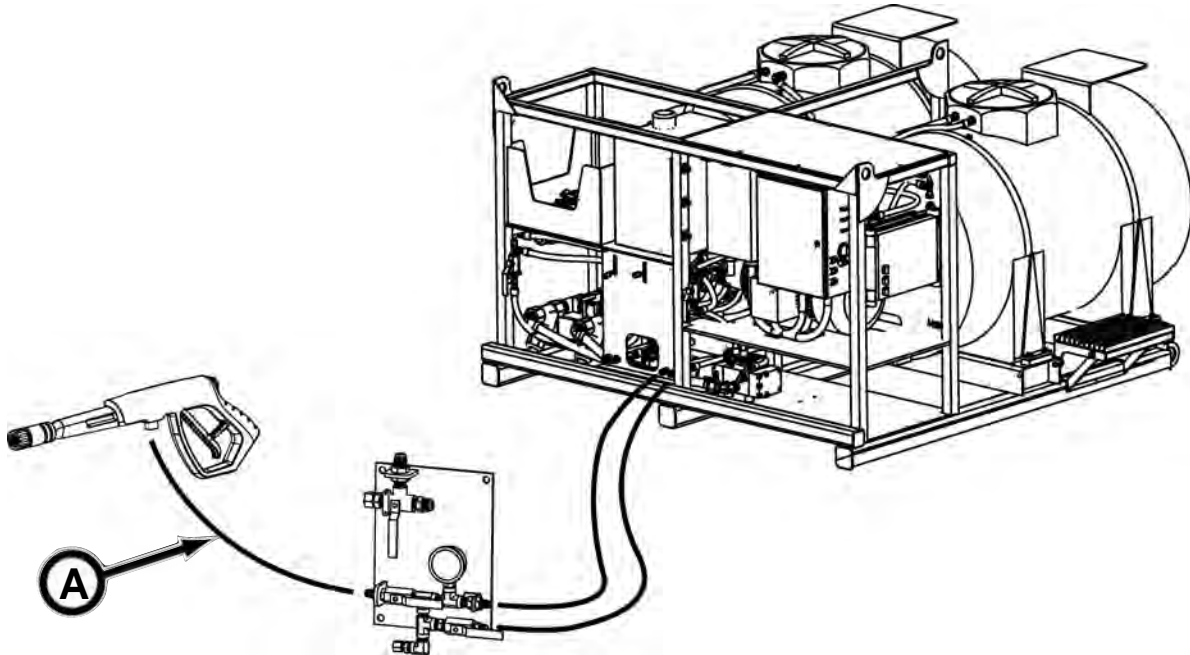
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Lubrication 10 GPM Circuit Hookup (continued)

5. Using Pressure Washer Wand or Auxiliary

Connect the jetting hose (A) from the shaft control to the washer wand or other auxiliary device.

- refer to the wand or auxiliary device operation manual for the proper safe operation.



⚠ WARNING Using the lubrication pump with a pressure washer wand can generate enough fluid pressure and velocity to penetrate skin resulting in serious personal injury.



Contact medical help immediately if fluid is injected into your skin. A serious infection or reaction can emerge without proper medical treatment.

NEVER point the wand towards a person or animal.

Be sure to release pressure after use and before performing maintenance to prevent accidental fluid injection.

Wear safety glasses and gloves, and depending on the wand use, a particle mask may be necessary.

LUBRICATION 16 GPM CIRCUIT HOOKUP

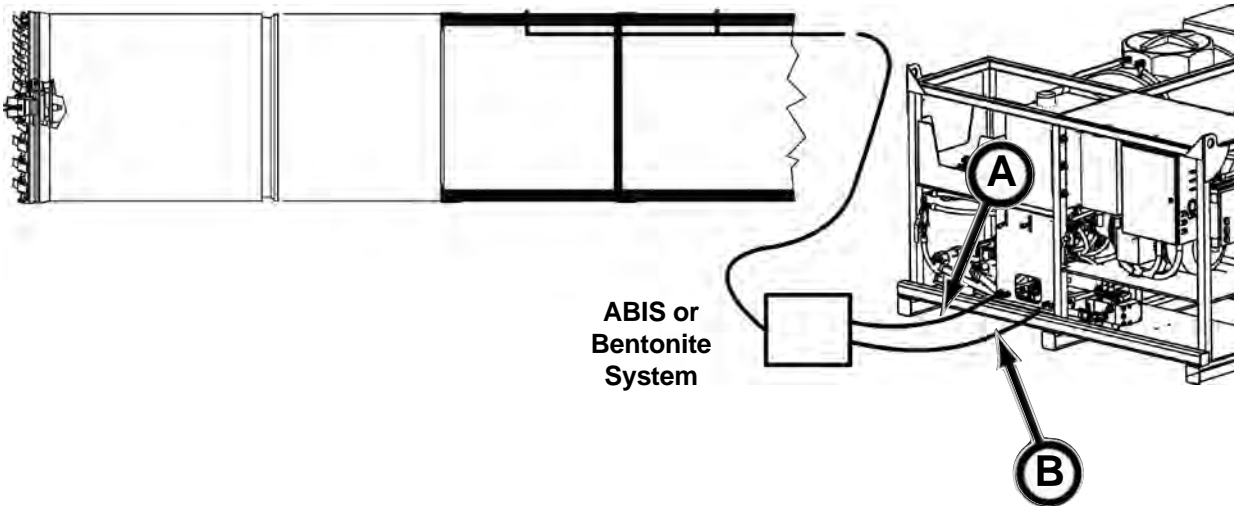
NOTICE For information on how to arrange ball valves on pump, refer to Pump Ball Valve Configurations later in this section.

The lubrication circuit provides lubrication/bentonite to:

- TBM & MTBM pipe lubrication for product pipe 60" OD and greater.
- lubricate with 6 GPM and 10 GPM supply independently or combined for 16 GPM to meet lubrication requirements.

Hookup hoses based on the lubrication requirement as follows:

Connect the lubrication hose (A) from the 2325B series pump 6 GPM pressure port to the TBM/MTBM ABIS or bentonite system. Connect the lubrication hose (B) from the 2325B series pump 10 GPM pressure port to the TBM/MTBM ABIS or bentonite system.



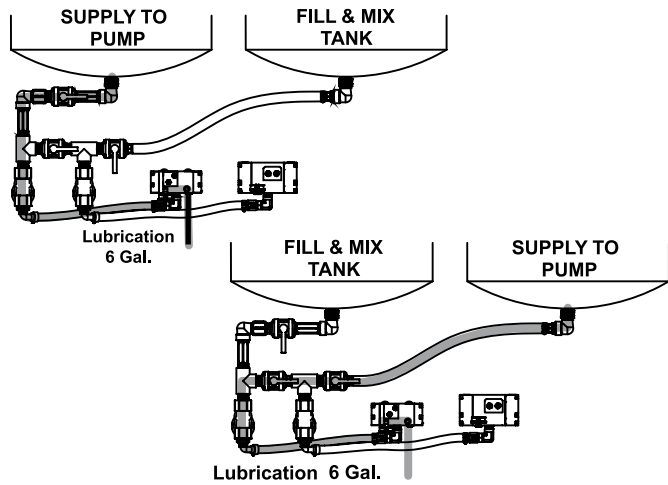
PUMP BALL VALVE CONFIGURATIONS

The tank supply ball valves and the bypass ball valve can be arranged to allow the 2325B/E Bentonite & Lubrication Pump to be used for assorted tunneling applications with various fluid pressure outputs.

I. Pilot Tubes & Tri-Hawk Lubrication - 6 Gal. Maximum

Product Pipe: 30" OD & Under

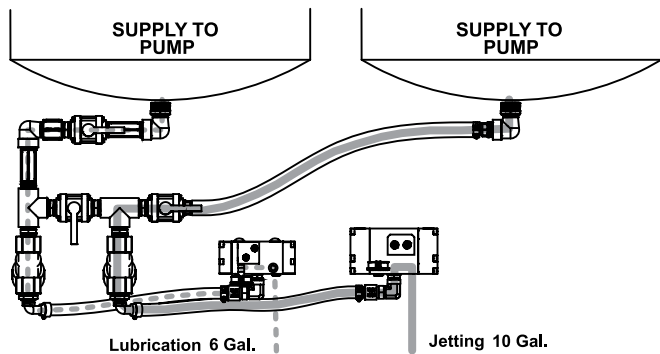
- open supply to pump tank ball valve
- close fill & mix tank ball valve



II. PCH & PRH Jetting/Lubrication - Using Both 6 Gal. Max. & 10 Gal. Max. Pumps

Product Pipe: 30" OD & Under

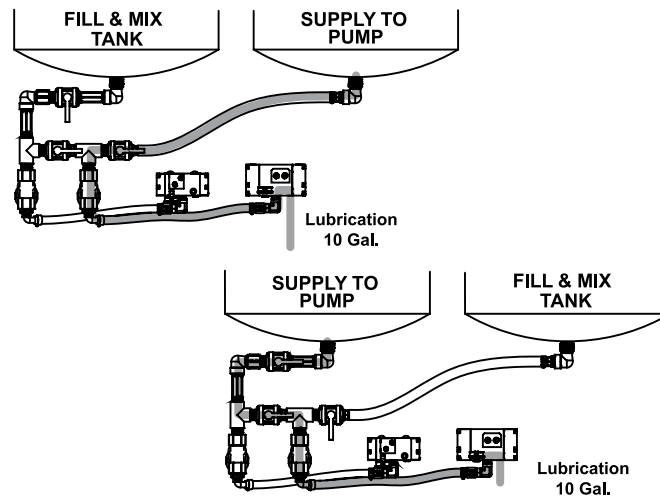
- open supply to pump tank ball valves
- close bypass ball valve



III. TBM & MTBM Pipe Lubrication - 10 Gal. Max.

Product Pipe: 30" to 60" OD

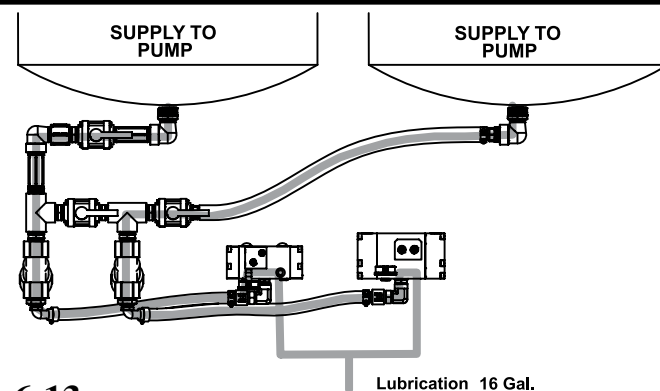
- open supply to pump tank ball valve
- close fill & mix tank ball valve



IV. TBM & MTBM Pipe Lubrication - 16 Gal. Max.

Product Pipe: 60" OD & Greater

- open supply to pump tank ball valve
- open bypass ball valve



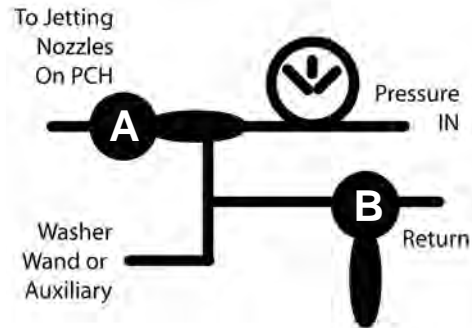
USING SHAFT CONTROL FOR LUBRICATION

1. Set up Lubrication Pump (refer to Setting Up Lubrication Pump in this section).
2. Hookup lubrication circuit to tooling (refer to Lubrication Circuit Hookup in this section).
3. Perform start up procedure (refer to Start Up Procedure in this section).
4. Use the ball valve(s) on the shaft control to control the jetting and lubrication circuits as follows:

Jetting/Lubrication Circuit

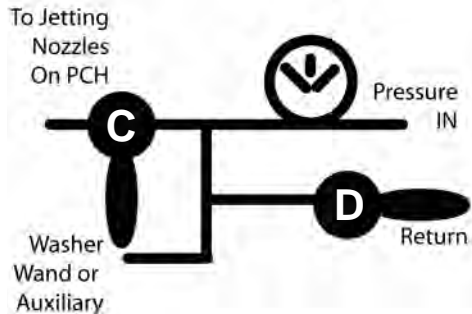
Move ball valves (A and B) as shown to lubricate:

- steering head for lubrication to outside of pilot tubes
- pilot tube adapter and reaming head for lubricating the outside of casings
- jetting nozzles on PRH
- jetting nozzles on PCH
- washer wand or auxiliary



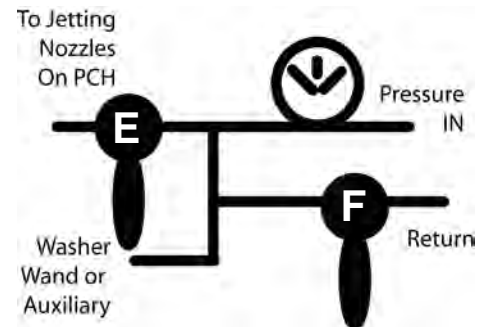
Move ball valve (C & D) as shown to:

- Return solution to tank or bypass



Move ball valve (E & F) as shown to:

- use washer wand or other auxiliary device



Lubrication Circuit

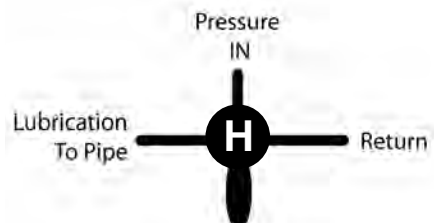
Move ball valve (G) as shown to lubricate:

- pilot tube adapter for lubrication to spoils for reaming head or open cutter head
- outside of casings with reaming head
- outside of product pipe using the PCH
- outside of product pipe using the PRH



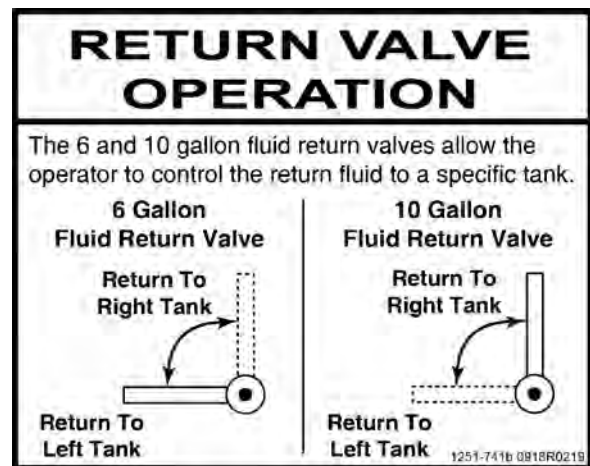
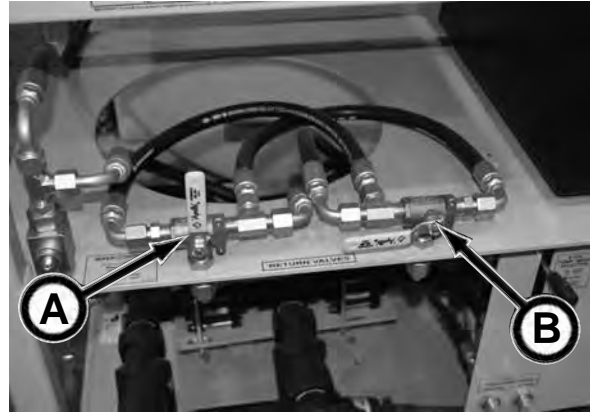
Move ball valve (H) as shown to:

- Return solution to tank or bypass



FLUID RETURN VALVE OPERATION

The 6 (A) and 10 (B) gallon fluid return valves can be arranged to control the return fluid to a specific tank.



STARTING THE ENGINE - 2325B/D

NOTICE

For proper new engine break-in, refer to your engine operation manual. And for any additional engine information including cold weather starting, refer to your engine operation manual.

1. Visually check the following items. If any leaks are found, shut down the engine and perform repairs as needed.
 - Check for engine oil, fuel and engine coolant leaks.
 - Check for damaged or missing parts and fasteners.
 - Check the electrical harnesses for cracks, abrasions, and damaged or corroded connectors.
 - Check hoses for cracks, abrasions, and damaged loose or corroded clamps.
 - Check and clean radiator fins as necessary.
 - Check the fuel filter/water separator for presence of water and contaminants. If you find water or contaminants, drain the fuel filter/water separator and then prime the fuel system.



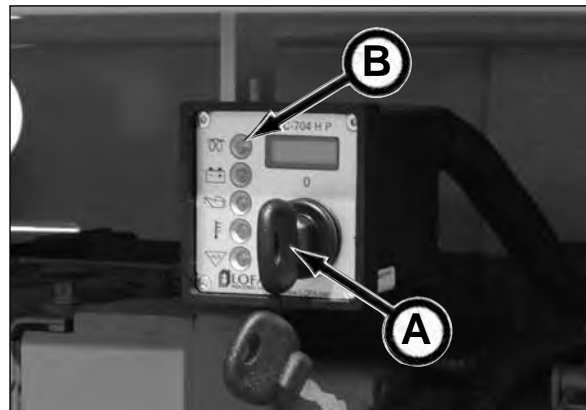
2. Turn the key switch (A) to the ON position until the Pre-Heat indicator light (B) flashes for several seconds and then goes out.

NOTICE

If conditions do not warrant preheat, the engine may be started by turning the key switch to the start position without waiting for the preheat time to expire.

3. Turn the key clockwise to the START position. Release the key as soon as the engine starts. The key switch will return to the ON position.

If the engine fails to start, refer to the engine operation manual for the proper starting procedure.



NOTICE

NEVER hold the key switch in the START position for longer than 15 seconds. Otherwise the starter will overheat.

4. While the engine is running, check the engine system control indicators. If the engine has reached operating temperature, all of the indicators should be off except the Preheat/OK green LED light (C) that will continue to illuminate while the engine running. If any other indicators are on, shut down the engine and troubleshoot the problem.



NOTICE

The engine has a break-in period of 40-50 hours. Refer to your engine operation manual for proper operation during break-in period.

(Continued on next page)

5. Use the engine throttle lever (A) to increase engine speed by moving the throttle lever to the right to the desired speed.



SHUTTING DOWN THE ENGINE - 2325B/D

1. Reduce engine speed to low idle by moving throttle lever to the left.



2. Run the engine at low idle for at least five minutes before shutting down.
3. Turn the key switch to the OFF position and remove key from switch to prevent accidental starting.
4. If the engine will not be used for an extended period of time, refer to the engine operation manual on Long Term Storage.



START UP PROCEDURE - 2325B/D

Use the following procedure to properly start up the bentonite and lubrication pump.

1. Check the engine oil. Add oil if necessary.



2. Check diesel fuel level. Add fuel if necessary.



3. Check hydraulic oil tank level. Add hydraulic oil if necessary.



4. Clean BOTH tank strainers.



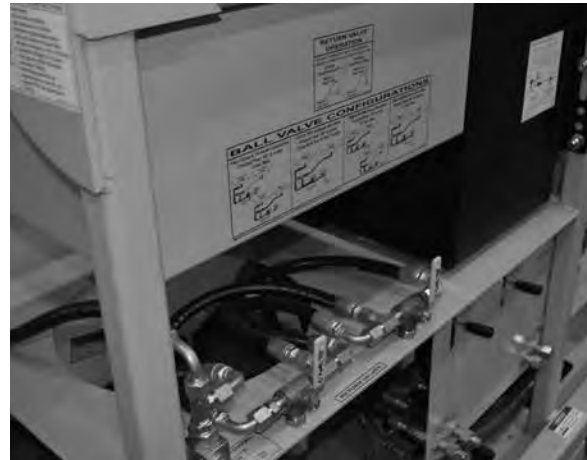
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5. Add CLEAN water in tanks before starting the engine. Replace tank lids securely to prevent foreign objects from entering tanks.

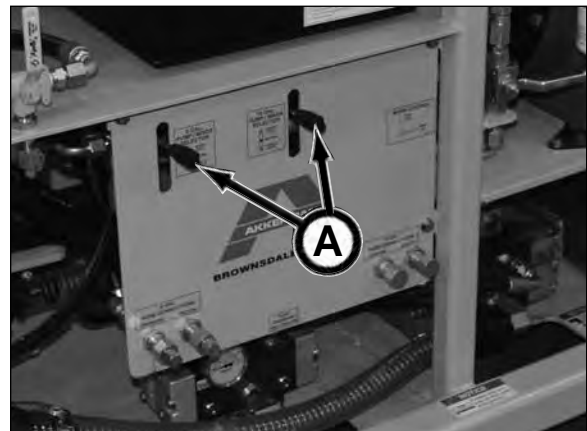
NOTICE NEVER dry run pumps. Doing so will cause damage to pump after prolonged use without water.



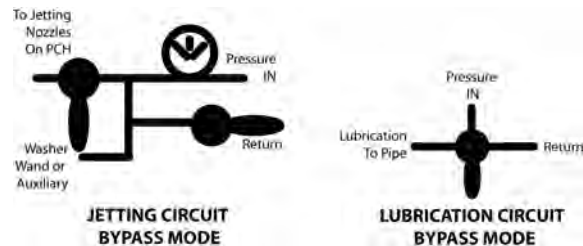
6. Arrange tank ball valves and return valves per project requirement as shown on frame decal.



7. Place both Pump/Mixer selectors (A) in center (neutral) position.



8. On shaft control, arrange circuit valves in bypass mode to prevent pressure buildup.



(Continued on next page)

9. Be sure Engine Throttle Control is at low idle position.



10. Start engine and allow engine to warm up for five minutes before applying a load.

NOTICE

The engine has a break-in period of 40-50 hours. Refer to the engine operation manual for more information.

11. Check for leaks.

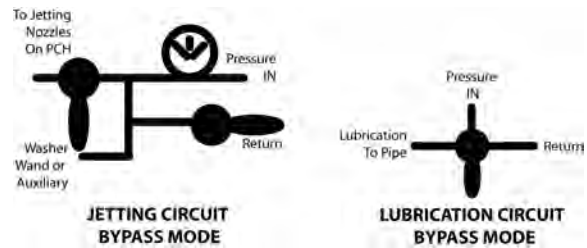


DAILY SHUTDOWN - 2325B/D

1. Reduce engine speed to low idle.



2. On shaft control, arrange jetting and lubrication circuit valves in bypass mode.



3. Place both Pump/Mixer selectors (A) in neutral (center) position.



4. Shutdown engine. Refer to Shutting Down The Engine in this section.



5. Close tank shut off valves on BOTH jetting and lubrication tanks.
6. If the potential of freezing weather exists, refer to Cold Weather Protection in this section.



SETTING UP THE ELECTRIC MOTOR - 2325B/E

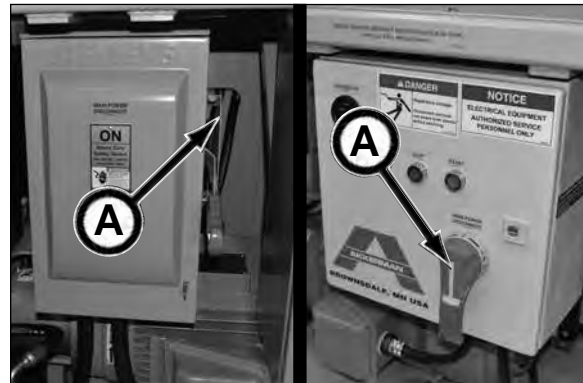
⚠ DANGER

Hazardous voltage.

Failure to lockout power before connecting power leads or performing service, WILL cause severe personal injury or death.

LOCKOUT TAGOUT main power supply BEFORE connecting power leads or performing service. Electrical connections and repairs must be performed only by a certified electrician.

1. Turn OFF power source and perform lockout/tagout procedure.
2. Test to ensure no voltage is present.
3. Be sure main power disconnect switch (A) is in the OFF position.
4. Connect the 2325B/E power cables to a 480 VAC, 60 cycle, 3 phase power source.
Recommended Power Requirements:
 - Recommended Operating Pwr: 40kW / 50 kVA @ 480VAC
 - Generator Minimum Motor Starting KVA: 115 skVA with less than 30% instantaneous voltage dip and greater than 90% sustained voltage.
5. Proceed to Start Up Procedure in this section.



2325B/E
FA48835F-01

2325B/E
FA48835F-02 & After

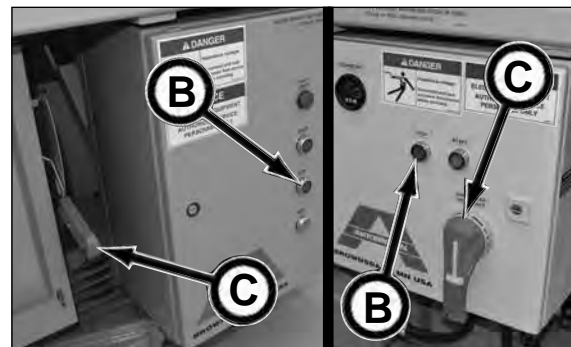
STARTING THE ELECTRIC MOTOR - 2325B/E

1. Set up the electric motor for operation. Refer to Setting Up The Electric Motor in this section.
2. Proceed to Start Up Procedure in this section. DO NOT start the electric motor without following the start up procedure. Doing so may cause pump damage. NEVER dry run pumps.



SHUTTING DOWN THE ELECTRIC MOTOR - 2325B/E

1. Depress Stop button (B).
2. Move main power disconnect switch (C) down to the OFF position.
3. Perform lockout/tagout procedure to main power source to prevent any accidental starting of the 2325B/E Bentonite & Lubrication Pump.



FA48835F-01

FA48835F-02 & After

START UP PROCEDURE - 2325B/E

⚠ DANGER

Hazardous voltage.

Failure to lockout power before connecting power leads or performing service, WILL cause severe personal injury or death.

LOCKOUT TAGOUT main power supply BEFORE connecting power leads or performing service. Electrical connections and repairs must be performed only by a certified electrician.



1. Set up the electrical motor for operation. Refer to Setting Up Electrical Motor in this section.
2. Be sure main power disconnect switch (A) is in the OFF position.



2325B/E FA48835F-01



2325B/E FA48835F-02 & After

3. Check hydraulic oil tank level. Add oil if necessary.

(Continued on next page)



4. Clean BOTH tank stainers.

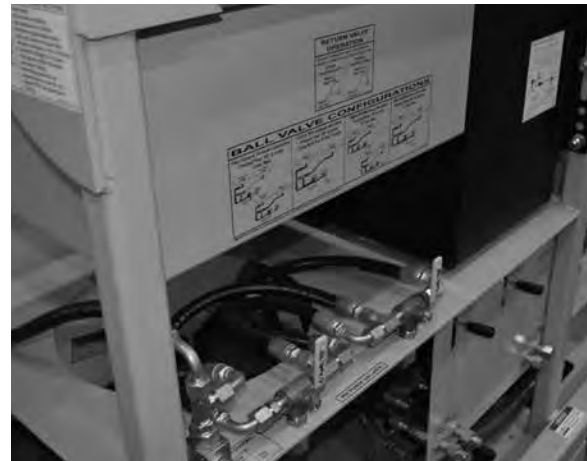


5. Add CLEAN water in tanks before starting the electric drive motor. Replace tank lid securely to prevent foreign objects from entering tank.

NOTICE NEVER dry run pumps. Doing so will result in pump damage.



6. Arrange tank ball valves and return valves per project requirement as shown on frame decals.

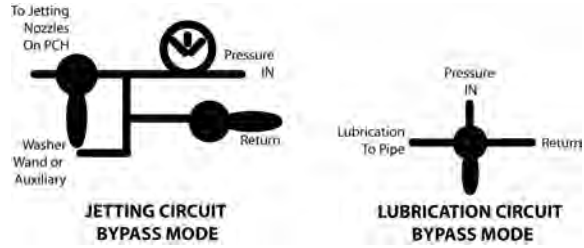


7. Place both Pump/Mixer selectors (A) in center (neutral) position.

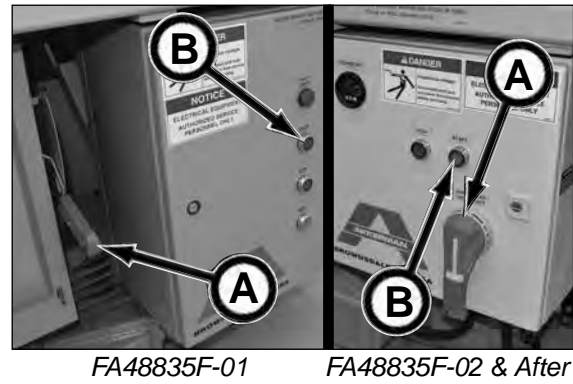


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8. On shaft control, arrange circuit valves in bypass mode to prevent pressure buildup.

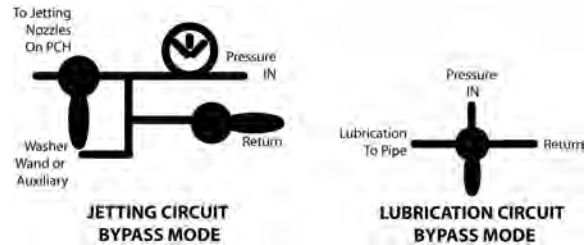


9. Move main power disconnect switch (A) to the ON position, depress Start switch (B) and check motor rotation.
10. Check for leaks.

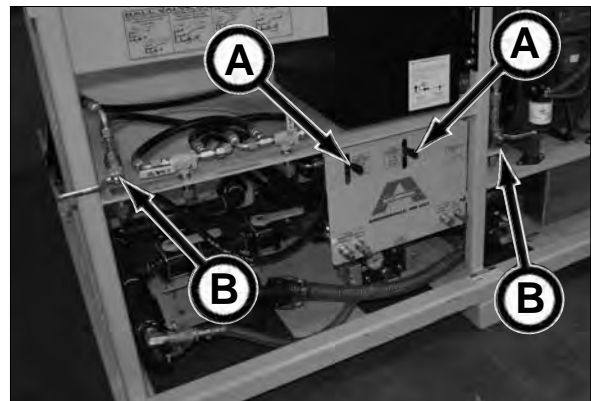


DAILY SHUTDOWN - 2325B/E

1. On shaft control, arrange jetting and lubrication circuit valves in bypass mode.



2. Place both Pump/Mixer selectors (A) in neutral (center) position.

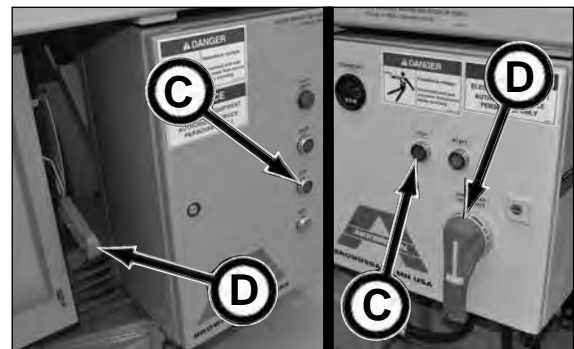


3. Place Mixer controls (B) in the OFF position.

4. Depress Stop button (C).

5. Move main power disconnect switch (D) down to the OFF position.

6. Perform Lockout Tagout procedure to main power source to prevent any accidental starting of the 2325B/E Jetting & Lubrication Pump.



FA48835F-01

FA48835F-02 & After

7. Close both tank shut off valves on lubrication tanks.

8. If the potential of freezing weather exists, refer to Cold Weather Protection in this section.



MIXING TANKS

⚠ WARNING Exposure to chemicals may cause serious injury or death. **BEFORE** mixing chemicals or other agents in the water tank, be sure the area is well ventilated and other personnel removed from the area. Use proper personal protective equipment (PPE) per the chemical manufacturer's instructions.

The 2325B series Bentonite and Lubrication Pump is capable of mixing liquid based polymers and bentonite up to **50 seconds (Marsh Funnel) viscosity**.

1. Fill water tank with clean water as needed per instructions on lubricant packaging.

NOTICE Before mixing polymers and bentonite, the water should be stabilized to the following pH and hardness levels:

pH	8.5 - 9.5
Water Hardness	do not exceed 200 ppm (depending on lubricant)

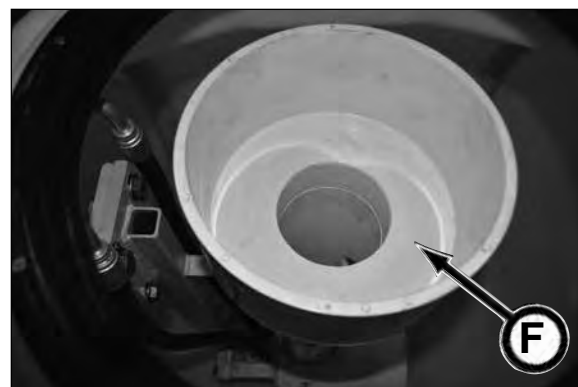
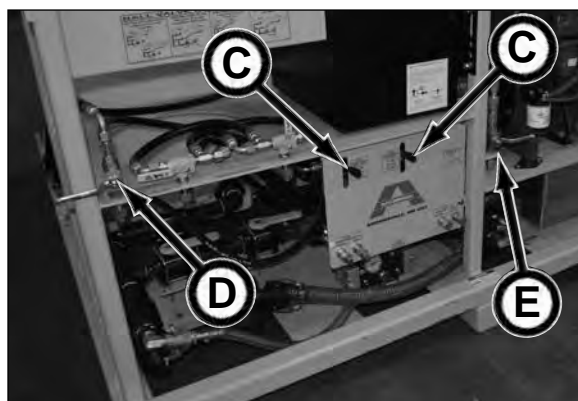
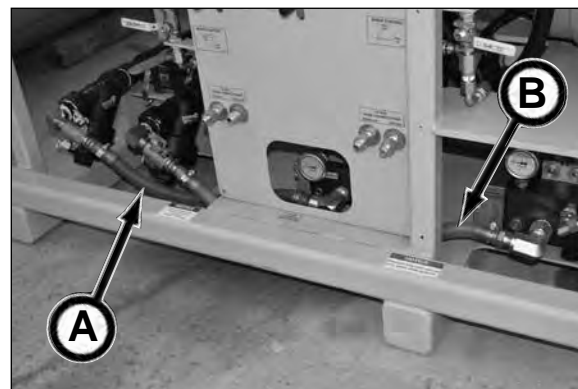
Note:

1. Pure water is neutral with a pH level of 7.
2. Soda ash helps lower water hardness as well as raise the pH simultaneously.

2. Open tank shut off valve.

NOTICE Be sure fluid is visible in clear tube (A-(6 Gal.) Left Tank, B-(10 Gal.) Right Tank) from tank outlet to fluid pump before starting motor. If not, an air lock is present and must be released by opening stainer assembly cap until fluid flows into clear tube. Otherwise, fluid from tank will not be pumped, causing pump damage when it operates without liquid for a prolonged period of time.

3. Place Pump/Mixer Selectors (C) in the Neutral position.
4. Start engine/motor.
5. Move desired Pump/Mixer Selector to the Mixer position. Be sure tank Mixer Control (D-(6 Gal.) Left Tank, E-(10 Gal.) Right Tank) is turned to the On position, otherwise the mixer will not operate.
6. Remove cover on tank to gain access to hopper (F).
7. Gradually pour lubricant into hopper in tank, following instructions on packaging (for example, depending on material, add material through the hopper at a rate not to exceed 3 - 5 minutes per 50 pounds).
8. Replace tank cover to prevent foreign objects from entering the tank.
9. Allow time for proper mixing of solution, typically 15 - 20 minutes. Follow instructions on packaging.
10. The tank solution is now available for use.
11. If needed, repeat steps 1 through 9 for other tank.



CLEANING TANKS

⚠ WARNING Exposure to chemicals may cause serious injury or death.

BEFORE mixing chemicals or other agents in the water tank, be sure the area is well ventilated and other personnel removed from the area.

Use proper personal protective equipment (PPE) per the chemical manufacturer's instructions.



⚠ WARNING Do not allow anyone to enter tank. Tank fumes or becoming accidentally trapped may cause severe injury or death.

1. Fill tank with clean water.



2. Remove strainer.



3. Open tank shut off valve to flush tank with clean water.

NOTICE To help drain tank, CAREFULLY tip pump towards outlet of drain.

(Continued on next page)



NOTICE

If needed, the hopper can be removed from mix tube assembly for ease of cleaning tank. Be sure to replace hopper on mix tube assembly after cleaning.



4. Continue using clean water to flush the tank and water system components until the water is clear and free of sediment. Failure to do so will result in clogging of the fluid in the tank, hoses and/or components.
5. Once tank is clean and water emptied, close tank shut off valve.
6. Put enough water in tank to cover outlet to prevent accidental dry running of pump.

NOTICE

NEVER operate pump without shut off valve open and tank filled with water.

IMPORTANT: If operating in freezing weather, the tank must be drained or a RV anti-freeze solution must be added to the tank to prevent component damage. Refer to Cold Weather Protection in this section.

7. Replace tank cover.



8. Replace strainer.
9. Repeat steps 1 through 8 for other tank.



COLD WEATHER OPERATION

Freezing temperatures during the tunneling process, creates the necessity to prepare the site and equipment for the cold weather. Failure to do so will cause damage to components and supporting equipment. Refer to Cold Weather Protection in this section for more information.

There are various methods of keeping equipment from freezing:

- When working with water, it needs to be constantly circulated to prevent freezing. Otherwise the equipment must be drained and/or treated with a RV anti-freeze solution to prevent freezing.
- If the 2325B series Bentonite and Lubrication Pump will be shut off for a considerable length of time and the temperature is at or below freezing, the fluid must be drained or treated with RV anti-freeze.
- Water tanks must be drained or treated with RV anti-freeze.
- Drain hoses to prevent freezing and keep low areas properly drained to prevent freezing damage.
- For all equipment, use proper lubricant based on ambient temperature to prevent damage.
- Use compressed air to purge a system of water. Be sure the discharge valve is open before doing so.
- Install heaters for hydraulic systems.



If systems were shut down for freezing weather, be sure to start systems slowly and let them run for at least five minutes to allow for warm up and in the case of a pump, to displace any surface ice that may have accumulated in the fluid before going back to full operation mode.

Remember it is also critical to keep the work site safe and employees comfortable during the freezing weather. Good training, supervision, proper clothing and limiting personal exposure to the weather is essential for keeping personnel and equipment safe on the job site.

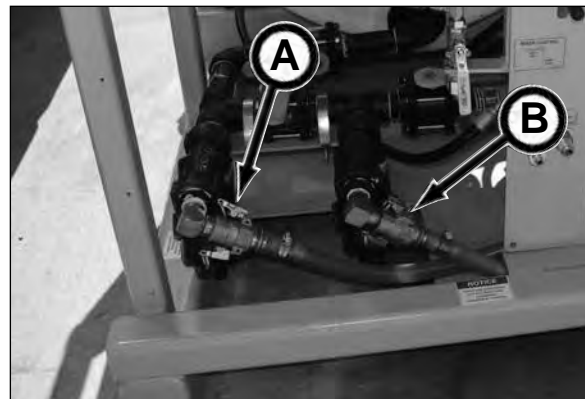
COLD WEATHER PROTECTION - DRAINING SYSTEM

NOTICE

To prevent damage to pump components in freezing weather, flush and drain pumps and ALL fluid lines from both tanks. Failure to do so will cause damage to pump components. If using a RV Anti-Freeze solution for cold weather protection, refer to Cold Weather Protection - Using RV Anti-Freeze Solution in this section.



1. Release cam lock hose assembly (A-(6 Gal.) Left Tank, B-(10 Gal.) Right Tank) from the strainer assembly.



2. Remove pressure and return hoses or hose caps from pressure and return connections.

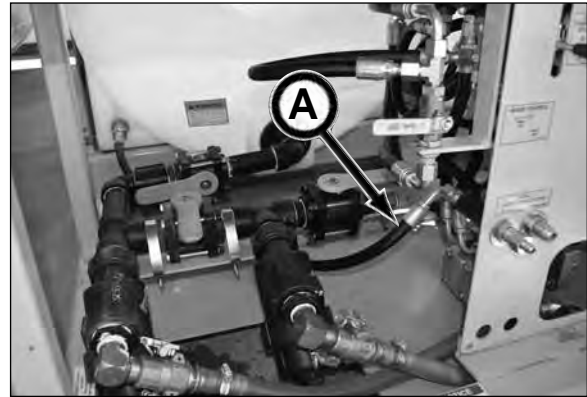


3. Remove strainer.



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4. Remove tank return hose (A).

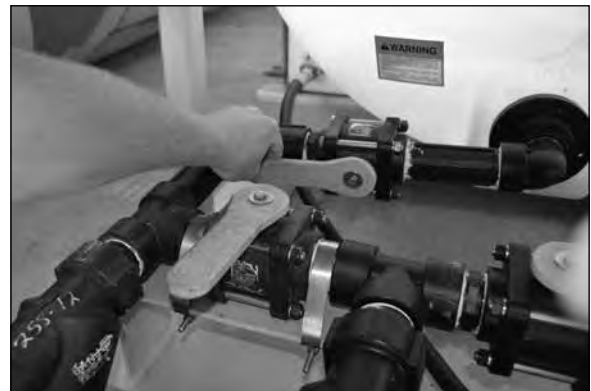


Left Tank Return Hose



Right Tank Return Hose

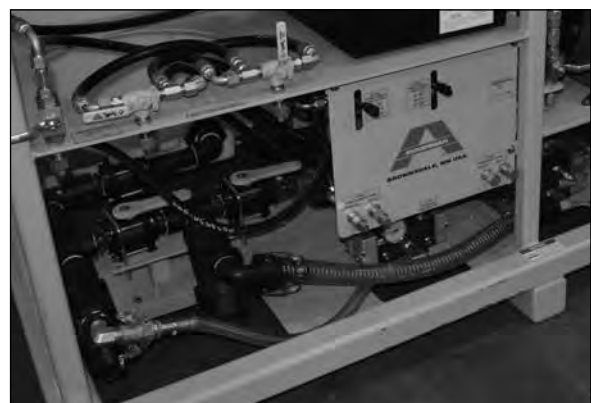
5. Open tank shut off valve.



6. Once all fluid is drained:

- reinstall pump cam lock hose assembly to pump
- reinstall pressure and return hoses or caps on connections
- reinstall strainer and cap
- replace tank return hose

NOTICE NEVER dry run pump. Doing so will damage pump.



7. Repeat steps 1 through 6 for other tank.

COLD WEATHER PROTECTION - USING RV ANTI-FREEZE SOLUTION

NOTICE

Akkerman Inc. **HIGHLY** recommends draining the system for cold weather protection. If the customer decides to use RV anti-freeze solution for cold weather protection, the customer is responsible for any damages occurred.

NOTICE

To prevent component damage in freezing weather, the pump system **MUST** be drained or treated with a RV Anti-Freeze solution.

1. If tank is empty add approximately 4 - 5 gallons (15 - 19 L) of clean water. Proceed to step 3.
2. If tank is full, drain tank by releasing cam lock hose assembly (A-(6 Gal.) Left Tank, B-(10 Gal.) Right Tank) until 4 - 5 gallons (15 - 19 L) of water/solution is left in tank. Then reinstall cam lock hose assembly to pump. Proceed to step 3.
3. Add 4 - 5 gallons (15 - 19 L) of RV anti-freeze into tank. Be sure there is a 50/50 mixture of liquid to RV anti-freeze in the tank.

NOTICE

Be sure to follow the proper solution instructions on the RV anti-freeze container.

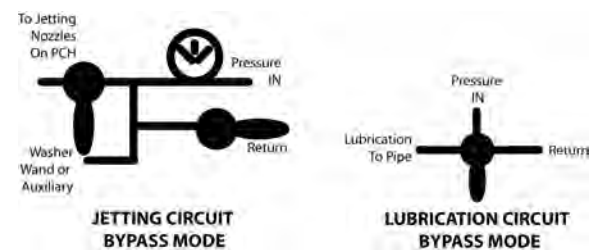
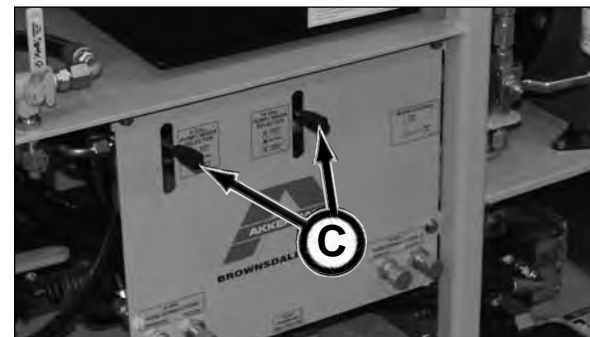
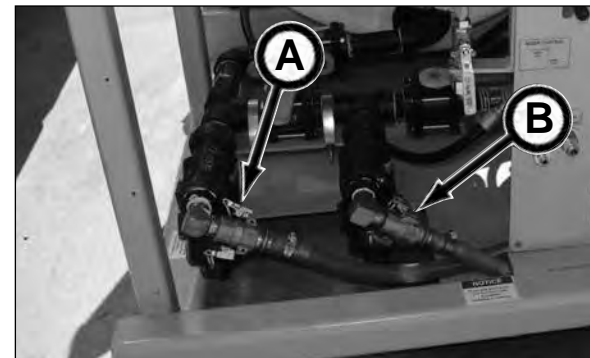
4. Place Pump/Mixer Selector (C) to the Neutral position.

5. On shaft control, arrange valves in bypass mode as shown.

NOTICE

NEVER dry run pump. Doing so will damage pump.

6. Start engine/motor and move Pump/Mixer Selector to the Pump/Mixer position. Cycle pump for at least two minutes to ensure the liquid/RV anti-freeze mixture is pumped through complete system.
7. Place Pump/Mixer Selector in Neutral position.
8. Repeat steps 1 through 7 for other tank.
- 9a. (2325B/D) Shut down engine and refer to engine operation manual for cold weather protection.
- 9b. (2325B/E) Stop electric motor, move main power disconnect switch to OFF position, and perform Lockout Tagout procedure on power source.



2325B/D

2325B/E

NOTES

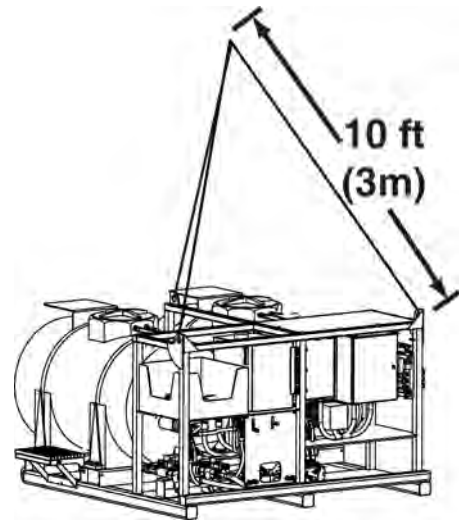
Transporting

TRANSPORTING GUIDELINES

1. Know the local, state, and federal transportation regulations.
2. Obtain required permits for transporting.
3. Remove any obstacles from the trailer floor.
4. Clean debris from equipment.
5. Load and unload on level ground.
6. Securely fasten the 2325B series Bentonite & Lubrication Pump to trailer floor.
7. BEFORE lifting equipment with a hoist or other lifting device, the equipment lifting eyes and sling must be inspected for damage before lifting.
8. Observe the lifting instructions on the equipment.

LIFTING INSTRUCTIONS

- Frame weight:
 - with full tank: 8,300 lbs (1,678 kg)
 - with empty tank: 3,150 lbs (454 kg)
- Lifting with a crane requires empty tanks and a three or four part sling with legs a minimum of 10 ft (3 m) long.
- Frame MUST lift freely. If it is stuck to the ground, it MUST be broken loose prior to lifting.
- Frame lifting eyes MUST be inspected prior to each lift. Any damage MUST be repaired prior to lifting.



NOTES

Fuels & Lubricants

NOTICE

Use of inferior fuel or lubricants will affect the efficient performance of your 2325B series Bentonite & Lubrication Pump. Always use high quality fuel and lubricants as specified in this section. Refer to the Periodic Maintenance section for proper lubrication quantity, maintenance intervals, and procedures.

FUEL SPECIFICATIONS - 2325B/D

NOTICE

For more information on maintaining your fuel and additional fuel specifications, refer to your engine manual.

Diesel fuel specification:

No. 2-D, No. 1-D, ASTM D975

The fuel must meet the following properties:

- Fuel cetane number of 45 minimum.
- The sulfur content must not exceed 0.5% by volume. Less than 0.05% is preferred.
- Bio-Diesel fuels (refer to engine manual).
- NEVER mix kerosene, used engine oil, or residual fuels with the diesel fuel.
- Water and sediment in the fuel should not exceed 0.05% by volume.
- Keep the fuel tank and fuel-handling equipment clean at all times.
- Poor quality fuel can reduce engine performance and/or cause engine damage.
- Fuel additives are not recommended. Some fuel additives may cause poor engine performance.
- Ash content not to exceed 0.01% by volume.
- Carbon residue content not to exceed 0.35% by volume. Less than 0.1% is preferred.
- Fuel lubricity: Wear mark of WS1.4 should be Max. 0.018 in at HFRR test.
- Total aromatics content should not exceed 35% by volume. Less than 30% is preferred.

Fuel tank capacity is 18 gal. (68 L).



ENGINE OIL - 2325B/D (DEUTZ ENGINE)

NOTICE

For more information on the engine oil specifications, refer to your engine manual.

Change the oil and filters after the first 40 hours of operation with SAE engine oil or other oil viscosity based on the expected air temperature range during the period between oil changes as shown in the charts.

Other oils may be used if they meet or exceed the following (refer to engine manual):

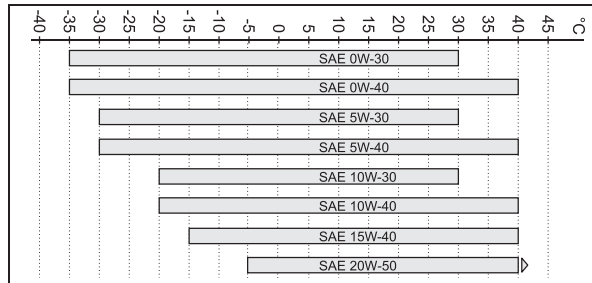
- API Service Categories CD or higher
- ACEA Service Categories E-3, E-4, and E-5
- JASO Service Category DH-1



Deutz Engine

The engine is filled with SAE 15W-40 engine oil. When changing oil and filters, use SAE 15W-40 engine oil or other oil viscosity as shown in the chart.

The engine oil capacity is (without/with filter) 6.3/6.8 qt. (6/6.5 L). Oil level should be to the full mark on the dipstick. Do not overfill!



Deutz Engine Oil Specification Chart

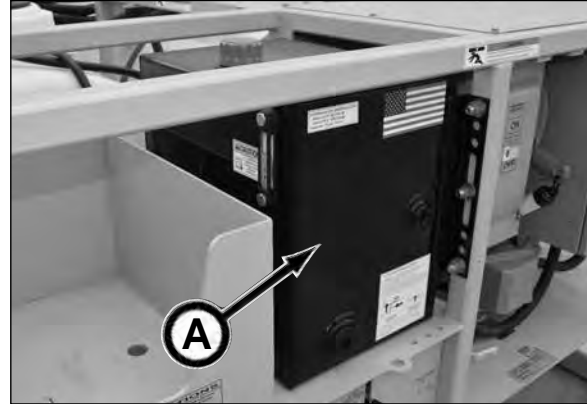
HYDRAULIC TANK OIL

The hydraulic tank (A) is factory filled with ISO-VG-68, a premium AW (All-Weather) hydraulic oil.

Use ISO-VG-68 or equivalent when adding or changing lubricant.

Recommended: hydraulic oil:

<i>Ambient Temp.</i>	<i>Hydraulic Oil</i>
below 70°F (21°C)	ISO 46
above 70°F (21°C)	ISO 68



NOTICE

Do not mix oil manufacturers or grades.

Hydraulic oil tank capacity is 25 gal. (94.6 L).

ELECTRIC MOTOR BEARING GREASE - 2325B/E

The electric motor lubrication grease fittings are lubricated with Mobil Polyrex® EM grease.

The Polyrex EM grease is a specially formulated grease for electric-motor bearings.

Use Mobil Polyrex® EM grease or equivalent (refer to Grease Type below) when lubricating the lubrication fittings.

When adding lubricant, keep dirt out of the lubrication area. Wipe the fitting completely clean and use clean greasing equipment.



GREASE TYPE (unless nameplate states otherwise:

Nameplate Ambient Temperature between -22°F (-30°C) to 150°F (65°C) inclusive:

Recommended grease for standard service conditions is Mobil Polyrex® EM. Equivalent and compatible greases include: Texaco Polystar RB, Rykon Premium #2, Pennzoil Pen 2 Lube, Chevron SRI & Mobil SHC 100.

Nameplate Ambient Temperature below

-22°F (-30°C): Special low temperature grease is recommended such as Aeroshell 7 or Beacon 325 for ball bearings and Mobil SHC 100 for roller bearings.

STORING LUBRICANTS

Your equipment can operate at maximum performance only if clean lubricants are used. Use clean containers to handle all lubricants.

Lubricants should be stored in an area protected from dust, moisture, and other contaminants.

All lubricants must be stored at least 100 ft (30.5 m) from the portal, entrance to the tunnel, launch shaft or reception shaft.



Periodic Maintenance

⚠ WARNING

Review the Safety section in this manual before performing maintenance. Failure to do so, could cause severe injury or death.

The requirements for maintenance are shown on the maintenance charts in this section. Intervals of maintenance are based on normal operating conditions. If operating under more difficult conditions, use a shorter time interval between maintenance.

LOCKOUT TAGOUT POWER BEFORE SERVICING

⚠ WARNING

Severe personal injury or death can result from unexpected machine movement.

LOCKOUT TAGOUT power before attempting to make repairs or adjustments to this equipment, unless otherwise indicated. Proper lockout will prevent accidents and save lives. Performing the lockout will also prevent the equipment from moving or operating unexpectedly.



HYDRAULIC OIL/FLUIDS UNDER PRESSURE

⚠ WARNING

Escaping oil or other fluids under pressure can penetrate your skin causing serious injury.

Release all pressure before performing maintenance or repairs. Never weld near pressurized fluid lines.

DO NOT use your hands to check for leaks. When searching for leaks, use a piece of wood or cardboard.

Contact medical help immediately if any oil or fluid is injected into your skin. A serious infection or reaction can emerge without proper medical treatment.



AVOID PINCH POINTS

⚠ WARNING

Moving parts or the mishandling of parts can cause severe personal injury.

Keep hands away from moving parts.

Watch your fingers, hands, and legs while equipment is in operation.

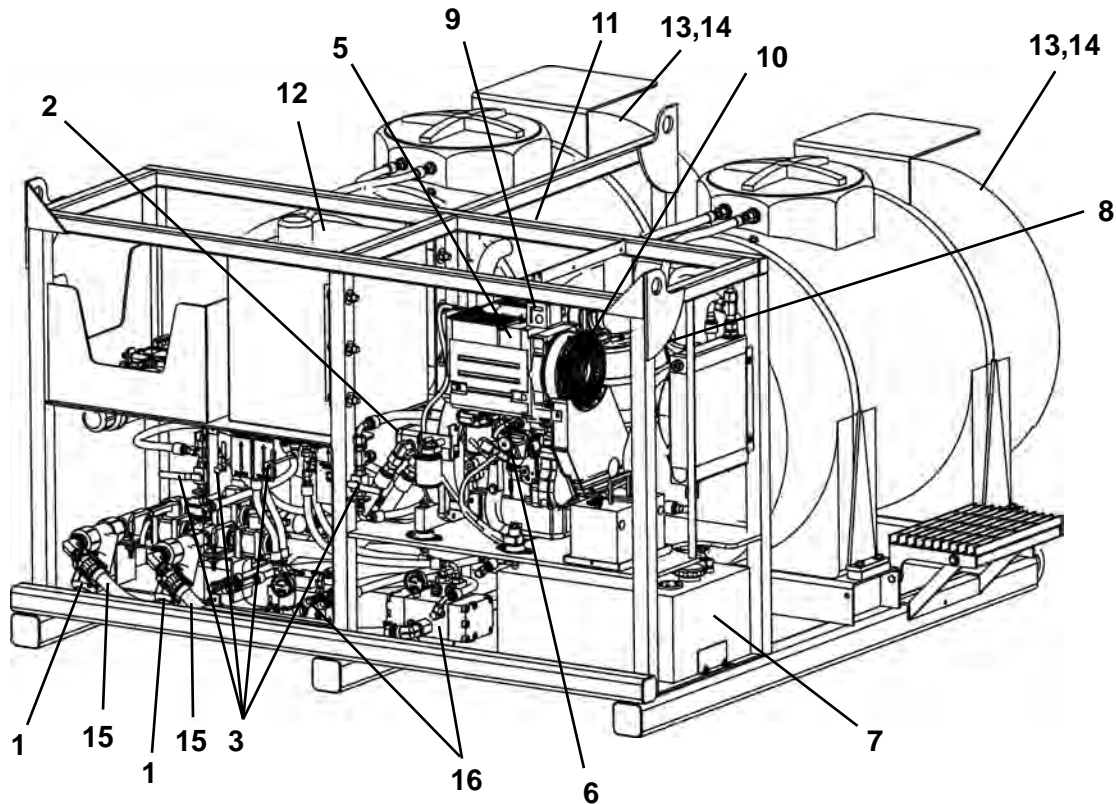
Handle parts carefully to avoid crushing and pinch point hazards.



MAINTENANCE CHARTS

NOTICE

Use the item number in the chart to refer to the detailed maintenance procedures later in this section.



*DAILY OR EVERY 10 HOURS OF OPERATION

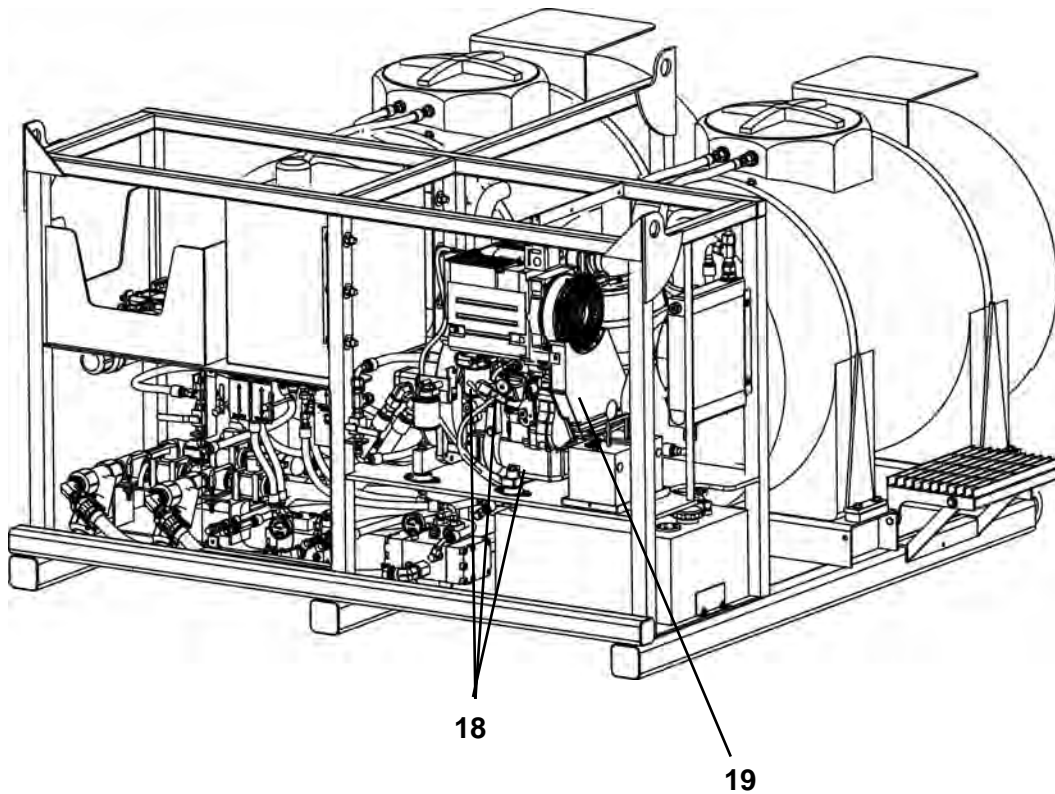
ITEM	COMPONENT	SERVICE	REQUIREMENT	MATERIAL
1.	Tank Strainers	Clean	If damaged, replace with new.	
2.	Covers & Guards	Inspect	Replace if damaged.	
3.	Valves & Levers	Inspect	Inspect for proper operation.	
^4.	Wiring & Cables	Inspect	If damaged, replace with new.	
5.	Engine	Inspect	Visually inspect for damage.	
6.	Engine Crankcase	Check Oil Level	Add oil as needed.	See Section 8
7.	Fuel Tank	Check Diesel Fuel Level	Add fuel as needed.	See Section 8
8.	Air Cleaner Dust Unloader	Clean Out		
9.	Engine System	Inspect	Inspect for proper operation.	
10.	Fan	Inspect Fan & Guard	If damaged, replace with new.	
11.	Hydraulic Return Filter	Check Indicator	Replace filter as needed per indicator.	Return Filter
12.	Hydraulic Tank	Check Fluid Level	Add hydraulic fluid as needed.	See Section 8
13.	Water/Solution Tank	Inspect	Repair or replace if damaged.	
14.	Water/Solution Tank	Flush	Flush in freezing weather or is idle for more than a day.	
15.	Hoses & Tube	Check	Replace if damaged.	
16.	Pump	Inspect For Fluid Leakage	Maximum 10 drops per minute.	>10, Replace Seals
^17.	Decals	Inspect	If damaged, replace with new.	

* Refer to your engine operation manual for additional maintenance information.

** During engine break-in period, change the oil and filter for the first time at 50 hours of operation.

^ Not Shown

NOTICE Use the item number in the chart to refer to the detailed maintenance procedures later in this section.



***FIRST 50 HOURS OF OPERATION & EVERY 250 HOURS THEREAFTER**

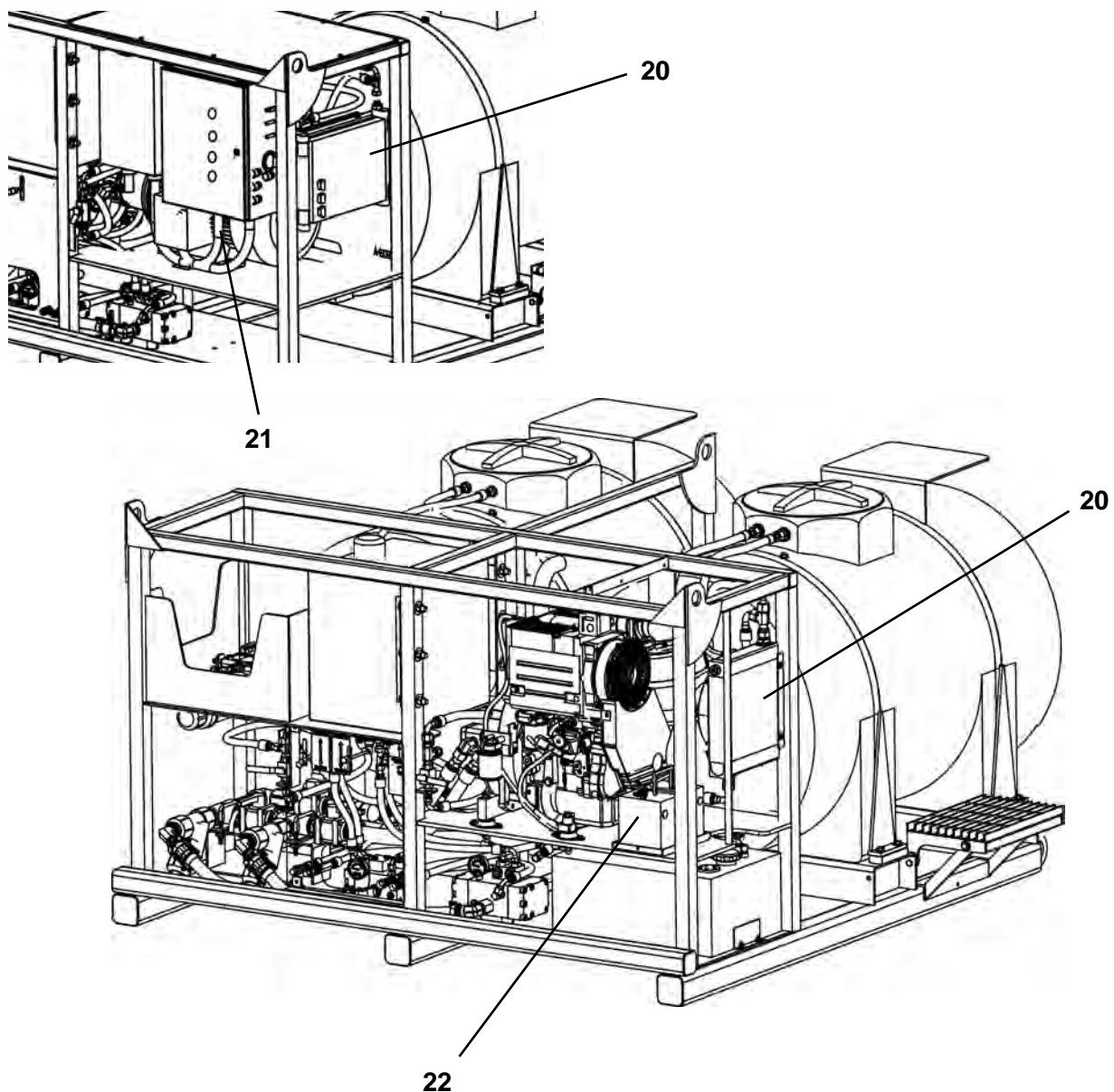
ITEM	COMPONENT	SERVICE	REQUIREMENT	MATERIAL
**18.	Engine Crankcase	Drain & Fill & Filter	Replace with new oil & filter.	See Section 8
19.	Cooling V-Belt	Check & Adjust	Refer to engine manual.	

*** Refer to your engine operation manual for additional maintenance information.**

** During engine break-in period, change the oil and filter for the first time at 50 hours of operation.

NOTICE

Use the item number in the chart to refer to the detailed maintenance procedures later in this section.



***WEEKLY OR EVERY 50 HOURS OF OPERATION**

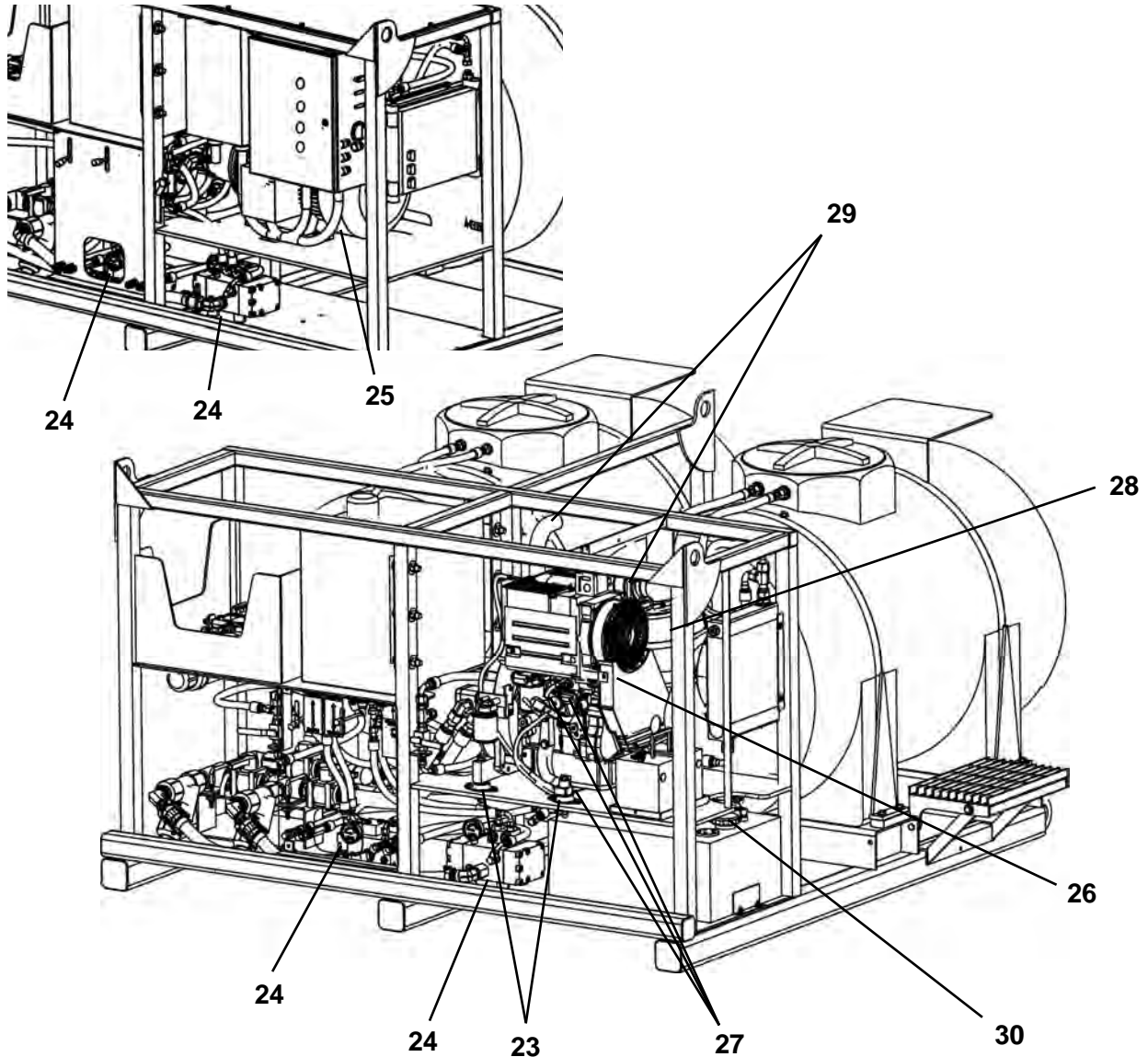
ITEM	COMPONENT	SERVICE	REQUIREMENT	MATERIAL
20.	Oil Cooler Fins Fins	Check & Clean	If damaged, repair or replace.	
21.	Motor Cooling Fins	Clean		
22.	Battery	Check	Check for damage or frayed cables.	Battery/Cable

*** Refer to your engine operation manual for additional maintenance information.**

Note: During engine break-in period, change the oil and filter for the first time at 50 hours of operation.

NOTICE

Use the item number in the chart to refer to the detailed maintenance procedures later in this section.



***MONTHLY OR EVERY 250 HOURS OF OPERATION**

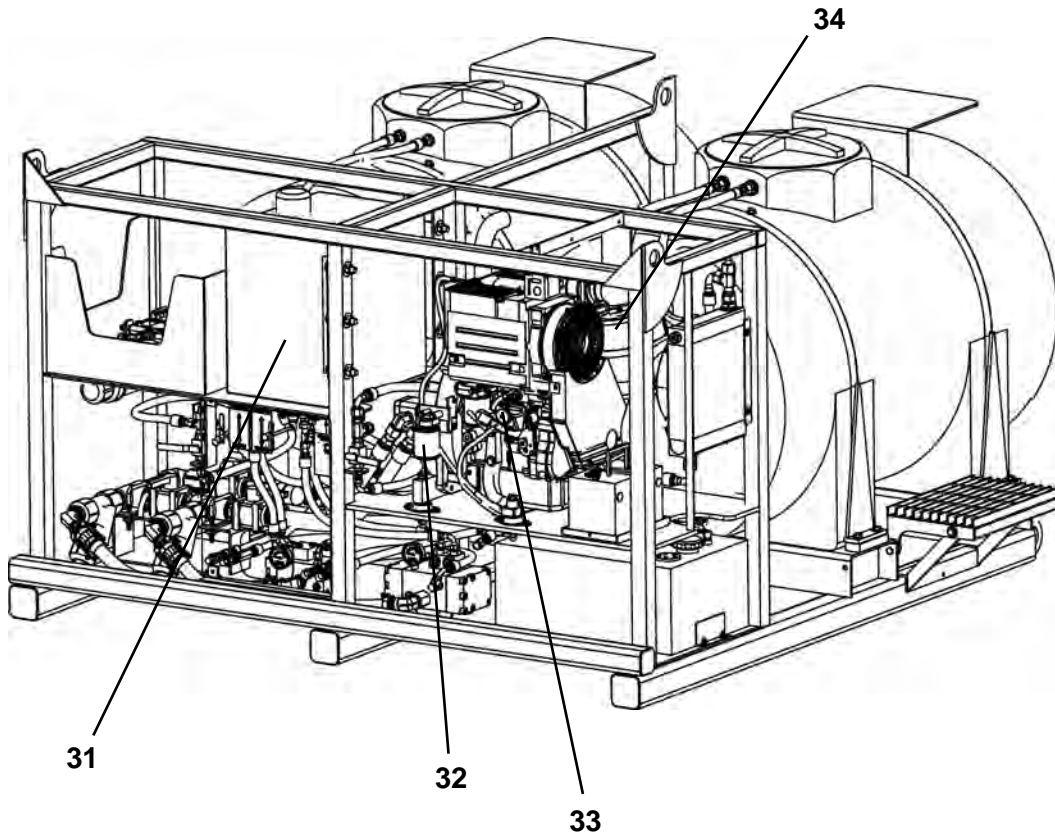
ITEM	COMPONENT	SERVICE	REQUIREMENT	MATERIAL
23.	Engine Mtg Bolts	Inspect	If damaged, replace with new.	See Section 8 Element(s)
24.	Pump Mounting Bolts	Inspect	If damaged, replace with new.	
25.	Motor Mounting Bolts	Inspect	If damaged, replace with new.	
26.	Engine V-Belt	Check & Adjust Tension	Refer to engine manual.	
**27.	Engine Crankcase	Drain & Fill & Filter	Replace with new oil & filter.	
28.	Air Cleaner	Check	If dirty, replace with new.	
29.	Air Intake & Exhaust	Inspect		
30.	Fuel Tank Cap	Inspect		

* Refer to your engine operation manual for additional maintenance information.

** During engine break-in period, change the oil and filter for the first time at 50 hours of operation.

NOTICE

Use the item number in the chart to refer to the detailed maintenance procedures later in this section.



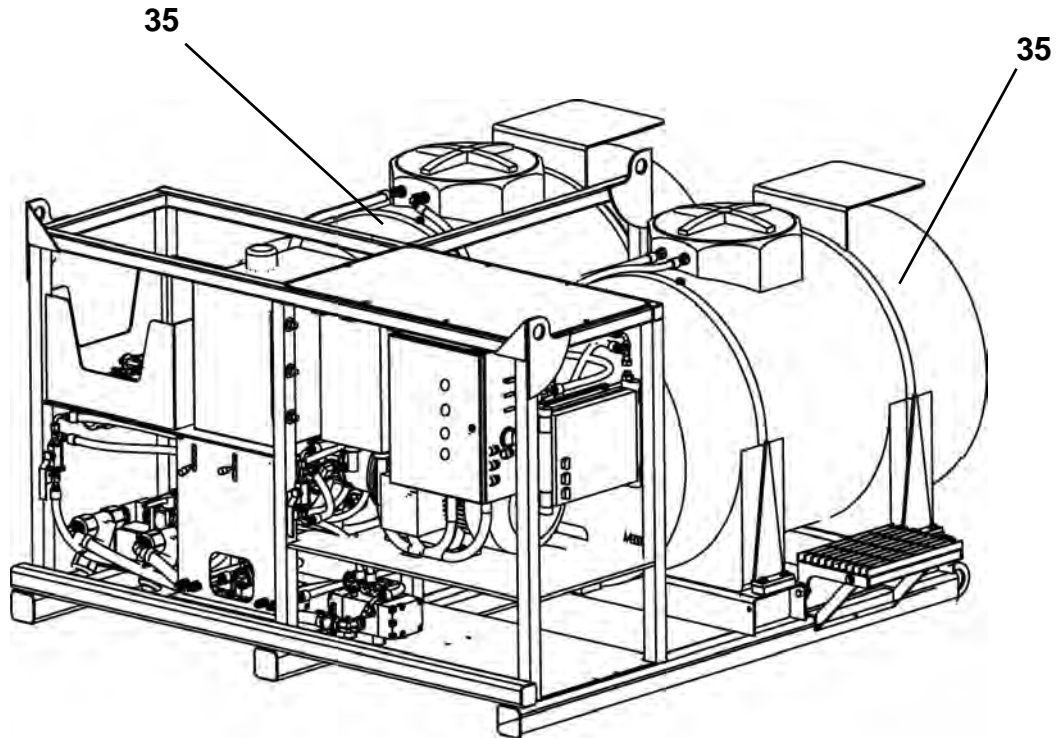
***EVERY 500 HOURS OF OPERATION**

ITEM	COMPONENT	SERVICE	REQUIREMENT	MATERIAL
31.	Hydraulic Tank	Drain & Fill	25 gal. (94.6 L)	See Section 8
32.	Fuel Filter	Replace		
33.	Fuel System	Prime		
34.	Air Cleaner	Replace Element		

*** Refer to your engine operation manual for additional maintenance information.**

NOTICE

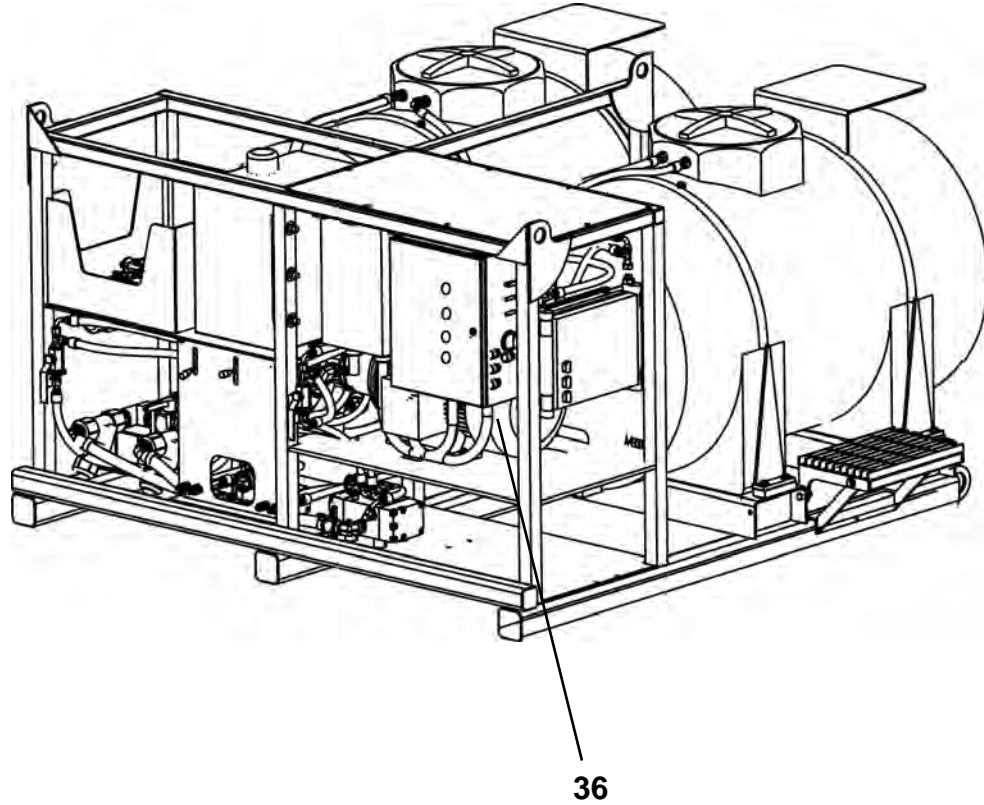
Use the item number in the chart to refer to the detailed maintenance instructions later in this section.



AFTER EACH DRIVE

ITEM	COMPONENT	SERVICE	REQUIREMENT	MATERIAL
35.	Water/Solution Tank	Flush	Flush tank and prepare for storage.	

NOTICE Use the item number in the chart to refer to the detailed maintenance instructions later in this section.



ANNUALLY

ITEM	COMPONENT	SERVICE	REQUIREMENT	MATERIAL
36.	Electric Motor Brgs.	Lubricate (2 Places)	2 Shots	Mobil Polyrex EM

DAILY OR EVERY 10 HOURS OF OPERATION

NOTICE

Refer to your engine operation manual for additional maintenance information.

1. CLEAN TANK STRAINERS

Clean tank strainers with water or other non-abrasive cleaner.

If damaged, replace with new.



2. INSPECT COVERS & GUARDS

Inspect all guards and covers to be sure they are properly mounted in place, and undamaged. Repair or replace as needed. NEVER operate without covers or guards in place.



3. INSPECT VALVES AND LEVERS

Inspect valves and levers for proper operation.

Repair or replace as needed.



4. INSPECT WIRING & CABLES

Inspect wiring and cable for cracking, fraying or other damage. Replace as needed.



5. INSPECT ENGINE (2325B/D)

Perform an overall visual inspection of the engine:

- check for engine oil leaks
- check for fuel leaks
- check for damaged or missing parts
- check the electrical harnesses for cracks, abrasions, and damaged or corroded connectors.
- check hoses for cracks, abrasions, and damaged, loose or corroded clamps.

If leaks appear or any parts are damaged, repair or replace before operating the engine.



6. CHECK ENGINE CRANKCASE OIL LEVEL (2325B/D)

Check engine oil level on dipstick. Oil level should be to the full mark on the dipstick.

If necessary, add engine oil. See Engine Oil in the Fuels & Lubricants section for the proper oil specification.

NOTICE

After the first 50 hours of operation, replace engine oil and engine oil filter.



7. CHECK FUEL TANK LEVEL (2325B/D)

⚠ WARNING Diesel fuel is extremely flammable and explosive. Handle with care. DO NOT refuel while smoking or when near open flame or sparks.

1. Shut off engine before refueling.
2. Clean area around the fuel cap.
3. Remove the fuel cap from the fuel tank.
4. Refuel tank until fuel tank is full. NEVER overfill the fuel tank. Wipe up spills.
5. Replace fuel cap.

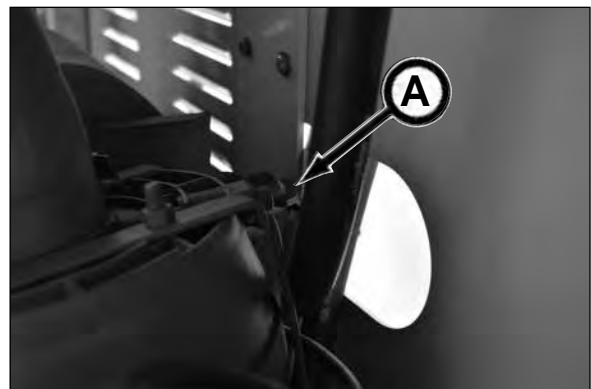
NOTICE The fuel system will require priming if any of the following items occur. Refer to Every 500 Hours Of Operation, 32. Priming The Fuel System in this section or your engine operation manual.

- Fuel tank is empty
- Fuel system maintenance such as changing the fuel filter and draining the fuel filter/water separator, or replacing a fuel system component.



8. CLEAN OUT DUST UNLOADER VALVE (2325B/D)

Squeeze air cleaner dust unloader valve (A) on air cleaner assembly to release any trapped dirt particles. If the sealing top of the valve is damaged, life of the air filter elements will be greatly reduced.



The Deutz engine is equipped with an air cleaner filter maintenance indicator (B). Check the indicator daily.

A yellow band is visible on the indicator when the air filter element will need to be replaced soon.
A red band is visible on the indicator when the air filter element must be replaced immediately.

Press reset button after performing maintenance.



9. INSPECT ENGINE SYSTEM CONTROL (2325B/D)

NOTICE

For additional engine information, refer to your engine operation manual.

Check the engine system controls to be sure they are operating properly:

Preheat/OK LED (Green) Indicator (A)

A flashing green LED illuminates during engine preheat procedure. When the LED changes to solid green LED, the preheat period is complete and the engine may now be started (cranked). The LED will continue to illuminate while the engine is running.

NOTICE

If conditions do not warrant preheat, the engine may be started by turning the key switch to the start position without waiting for the preheat time to expire.

Battery LED (Red) Indicator (B)

A solid LED light illuminates when a battery charge failure has occurred. A flashing LED may indicate a failing charge circuit. Once the engine is started, the LED will no longer illuminate unless there is a problem with the charging circuit.

Oil Pressure (Red) Indicator (C)

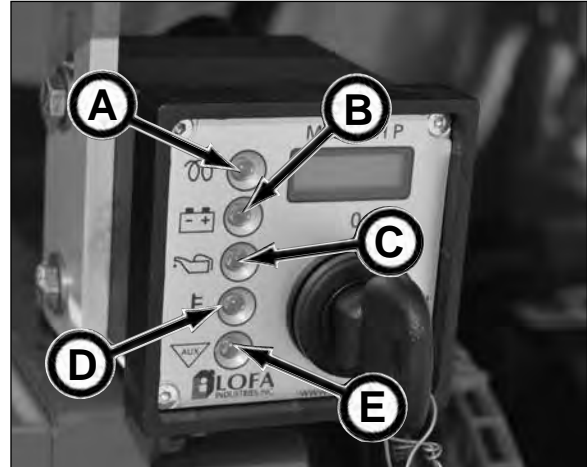
Illuminates when oil pressure is low. **The engine will shutdown.** Once the engine is started, the LED will no longer illuminate unless there is a problem with the oil pressure. **IMPORTANT:** Low oil pressure is NOT an indication of low oil level.

Temperature LED (Red) Indicator (D)

Illuminates when the engine temperature is above safety level. **The engine will shutdown.** This LED will briefly illuminate when key switch is turned to the on position.

Aux LED (Red) Indicator (E)

A solid LED light indicates an auxiliary failure. This LED will briefly illuminate when key switch is turned to the on position. Used for special applications (refer to your engine operation manual).



10. INSPECT FAN & FAN GUARD (2325B/D)

WARNING NEVER operate engine without fan guard in place. Serious personal injury could result if contact is made with rotating fan.

With engine shut off and key removed from key switch to prevent accidental starting, check fan for cracks, and bent or loose blades. Check fan to make sure it is properly mounted. Replace damaged fan and fan guard.



11. CHECK HYDRAULIC RETURN FILTER INDICATOR

To prevent over or under servicing of the hydraulic return filter, a filter indicator (A) has been installed on the return filter housing.

The green OK zone indicates that the filter is functioning properly.

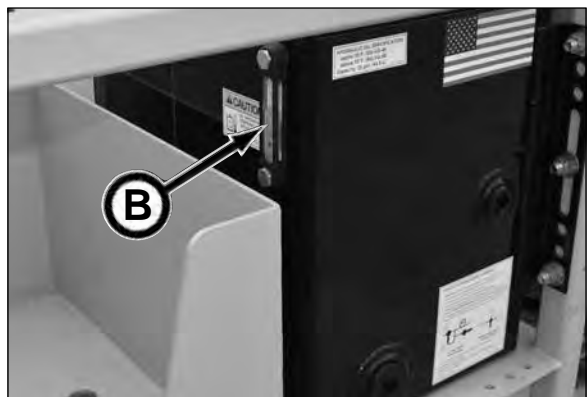
The yellow zone indicates that the filter will soon require replacement.

When the needle on the gauge is in the red CHANGE zone, replace filter as soon as possible using the following procedure:

1. Clean and dry area around return filter.
2. Remove filter. Dispose of oil and filter properly.

NOTICE Remove filter gasket if stuck in filter housing.

3. Fill new filter with clean hydraulic oil (refer to Section 8, Lubricants for oil specification).
4. Lubricate new filter gasket with a light coating of clean hydraulic oil.
5. Install new filter. Hand tighten only.
6. Start motor until the hydraulic system is warm. Then check for leaks.
7. Shut down motor.
8. Check hydraulic tank oil level on gauge (B). Add hydraulic oil, if necessary.

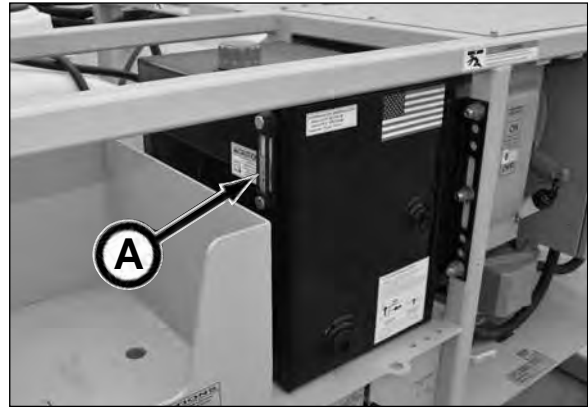


12. CHECK HYDRAULIC TANK OIL LEVEL

Check hydraulic tank oil level gauge (A). Add hydraulic oil, if necessary.

The hydraulic tank is filled with ISO-VG-46 20W Premium Hydraulic Oil. Refer to Hydraulic Tank in the Fuels & Lubricants section for more information.

Hydraulic oil tank capacity is 25 gal. (94.6 L).



13. INSPECT WATER/SOLUTION TANKS

Inspect water/solution tanks for damage. Repair or replace as needed.



14. FLUSH WATER/SOLUTION TANKS

The water/solution tanks must be flushed with clean water if:

- the solution will be sitting idle more than an overnight period. Check the directions on the polymer or bentonite bag/container for additional instructions.
- the solution will be sitting idle overnight in freezing weather. The tanks will also require draining or adding a RV anti-freeze solution. (refer to Cold Weather Protection in section 6, Operation).



FIRST 50 HOURS OF OPERATION & EVERY 250 HOURS THEREAFTER

NOTICE

Refer to your engine operation manual for additional maintenance information.

18. CHANGE ENGINE OIL & FILTER (2325B/D)

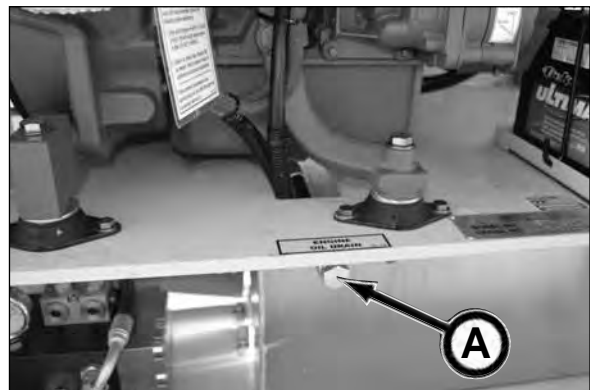
1. Start the engine and run to operating temperature.
2. Stop the engine.



3. Clean area around the fill cap. Remove cap. This will allow oil to drain more easily.



4. Clean area around engine oil drain plug (A).
5. Position a properly sized container to collect waste oil.
6. Remove drain plug and drain oil into container. Dispose of oil properly.
7. Replace drain plug.



(Continued on next page)

8. Clean area around oil filter.
9. Remove oil filter and clean filter mounting pad.
Dispose of filter properly.



10. Lubricate gasket on new filter with clean oil.
11. Install new filter and hand tighten according to values printed on the filter. Do not overtighten the filter element.



12. Fill engine with engine oil specified in the Fuels & Lubricants section. The following fluid capacity is an approximate value. Be sure to check levels after filling. DO NOT OVERFILL.

Oil Capacity (approx.):
Deutz 6.3 - 6.8 qt. (5.9 - 6.4 L)

13. Install fill cap. Clean up spills.
14. Start engine and run until warm for 5 minutes and check for leaks.
15. After the engine is warm, shut it off and let it sit for 10 minutes.
16. Recheck the engine oil level on dipstick and fill as needed. Do not overfill!

Deutz: Oil level should be to the full mark on the dipstick.



19. CHECK ENGINE COOLING V-BELT (2325B/D)

NOTICE Refer to your engine operation manual for more information.

Check engine cooling V-belt for cracking, fraying or wear. Replace belt as needed.

Check the V-belt deflection per instructions in the Deutz engine manual for proper belt re-tensioning.

Be sure to replace all guarding after replacing or re-tensioning belt.



WEEKLY OR EVERY 50 HOURS OF OPERATION

NOTICE

Refer to your engine operation manual for additional maintenance information.

20. INSPECT & CLEAN OIL COOLER FINS

⚠ WARNING

Oil cooler fins are SHARP and may cause injury if touched. Oil cooling system may be HOT and cause severe burns if contacted. Always use gloves when near the oil cooler. Perform service on oil cooler only when cool.



1. Inspect the oil cooler fins for dirt and bent or damaged fins.



⚠ CAUTION

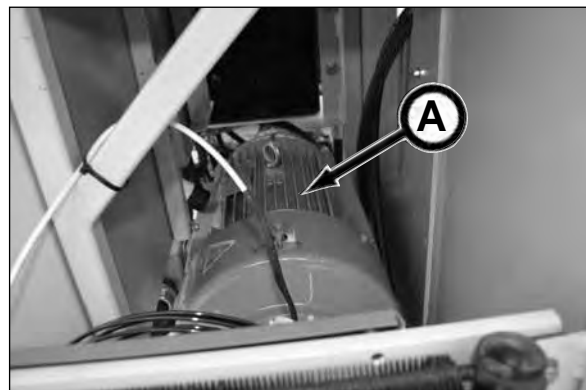
When using compressed air, always wear eye protection to prevent injury to eyes.

2. Use compressed air (maximum 28 psi) to blow off dirt, dust and debris from oil cooler fins. If there is a large amount of debris on the fins, use a mild soap to thoroughly clean fins and then rinse with water.
3. Carefully straighten any bent fins.
4. Inspect oil cooler tubes for cracks, kinks, dents and fractured seams. Repair or replace oil cooler as necessary.



21. CLEAN MOTOR COOLING FINS (2325B/E)

Remove and clean dirt and debris from motor cooling fins (A).



22. CHECK BATTERY (2325B/D)

⚠ WARNING Batteries produce explosive gases.

Wear eye protection and protective clothing during battery service.

Keep sparks, flames, and cigarettes away from batteries.

Contact with battery acid can cause severe burns. Flush immediately and thoroughly with clean water. Get medical attention immediately.

Charge a battery only in a well-ventilated area.

Never charge a frozen battery.



Visually check the battery for damage. If damaged replace with new.

Check battery cables for damage or fraying. If damaged, replace with new.

Be sure cables are secured properly to the battery posts and engine mounts.

Inspect battery mount and strap for damage. If damaged, replace with new.



MONTHLY OR EVERY 250 HOURS OF OPERATION

NOTICE

Refer to your engine operation manual for additional maintenance information.

23. INSPECT ENGINE MOUNTS (2325D)

Visually inspect engine mounts for loose hardware or damaged parts.

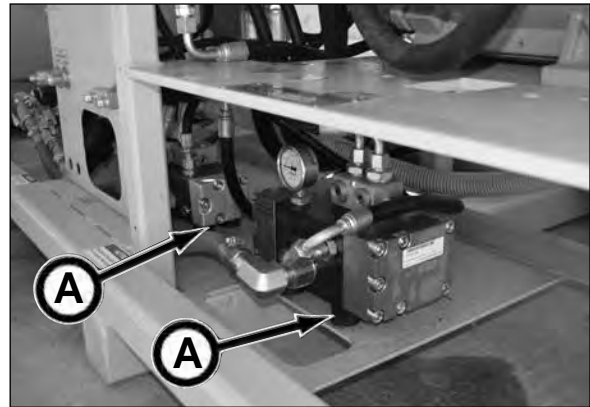
Tighten all loose hardware and replace defective parts.



24. INSPECT PUMP MOUNTING BOLTS

Visually inspect pump mounting bolts (A) for loose hardware or damaged parts.

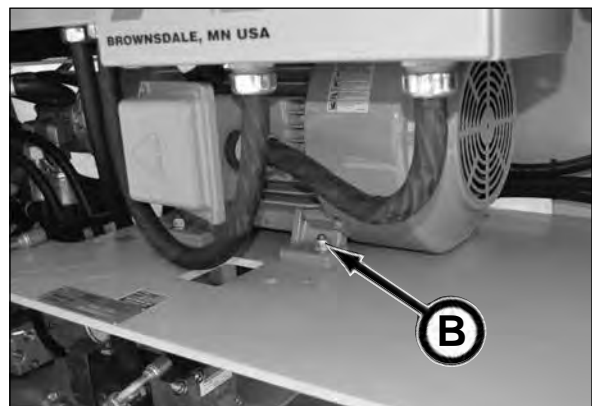
Tighten all loose hardware and replace defective parts.



25. INSPECT ELECTRIC MOTOR MOUNTING BOLTS (2325B/E)

Visually inspect electric motor mounting bolts (A) for loose hardware or damaged parts.

Tighten all loose hardware and replace defective parts.



26. CHECK ENGINE COOLING V-BELT (2325B/D)

NOTICE

Refer to your engine operation manual for more information.

Check engine cooling V-belt for cracking, fraying or wear. Replace belt as needed.

Check the V-belt deflection per instructions in the Deutz engine manual for proper belt re-tensioning.

Be sure to replace all guarding after replacing or re-tensioning belt.



27. CHANGE ENGINE OIL & FILTER (2325B/D)

1. Start the engine and run to operating temperature.

2. Stop the engine.



3. Clean area around the fill cap. Remove cap. This will allow oil to drain more easily.



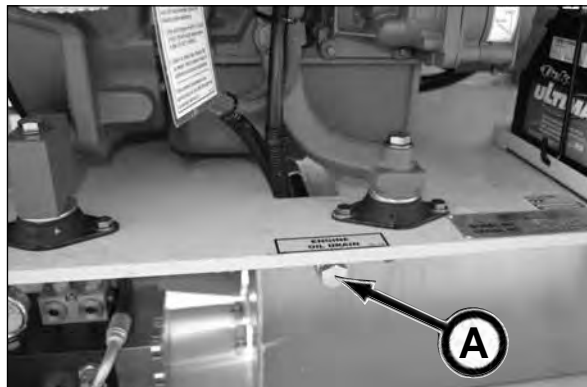
4. Clean area around engine oil drain plug (A).

5. Position a properly sized container to collect waste oil.

6. Remove drain plug and drain oil into container. Dispose of oil properly.

7. Replace drain plug.

(Continued on next page)



8. Clean area around oil filter.
9. Remove oil filter and clean filter mounting pad. Dispose of filter properly.



10. Lubricate gasket on new filter with clean oil.
11. Install new filter and hand tighten according to values printed on the filter. Do not overtighten the filter element.



12. Fill engine with engine oil specified in the Fuels & Lubricants section. The following fluid capacity is an approximate value. Be sure to check levels after filling. DO NOT OVERFILL.

Oil Capacity (approx.):

Deutz 6.3 - 6.8 qt. (5.9 - 6.4 L)

13. Install fill cap. Clean up spills.
14. Start engine and run until warm for 5 minutes and check for leaks.
15. After the engine is warm, shut it off and let it sit for 10 minutes.
16. Recheck the engine oil level on dipstick and fill as needed. Do not overfill!



Deutz: Oil level should be to the full mark on the dipstick.



28. CHECK AIR CLEANER FILTER ELEMENT (2325B/D)

NOTICE Refer to your engine operation manual for more information.

Periodically check air cleaner filter element for dirt and dust buildup. The engine performance efficiency is drastically affected with a clogged filter element.

1. Clean area around the air cleaner assembly.



NOTICE The Deutz engine is equipped with an air cleaner filter maintenance indicator (A). Check the indicator daily.

A yellow band is visible on the indicator when the air filter element will need to be replaced soon.

A red band is visible on the indicator when the air filter element must be replaced immediately.

Press reset button after performing maintenance.



2. Unlatch and remove cover.



3. Gently remove element. Bumping the element against air cleaner housing may contaminate the clean side of the filter housing with dirt and dust.

4. The element may be able to be cleaned if it is not excessively dirty or oily. Refer to your engine operation manual for more information. Properly dispose of dirty filter element.



(Continued on next page)

5. Thoroughly clean the inside of the filter housing cover with a clean, damp cloth. Dirt left in the filter housing will shorten the life of the filter element.



6. Carefully install a new or cleaned filter element into the filter housing cover by applying pressure by hand at outer rim of filter.



7. Reinstall the air cleaner/housing cover properly.



8. Secure the cover to the housing with the latches.

NOTICE Do not use latches on cover to force filter into air cleaner. Using cover to force filter into housing will damaged cleaner housing.



29. INSPECT AIR INTAKE & EXHAUST CONNECTIONS (2325B/D)

NOTICE

Refer to your engine operation manual for more information.

Inspect all air intake and exhaust connections. Tighten clamps as needed and replace defective parts.



30. INSPECT & CLEAN FUEL TANK CAP (2325B/D)

Inspect cap and gauge for damage. If cap or gauge are damaged, replace with new.

Remove cap and clean any debris or dirt from cap body.



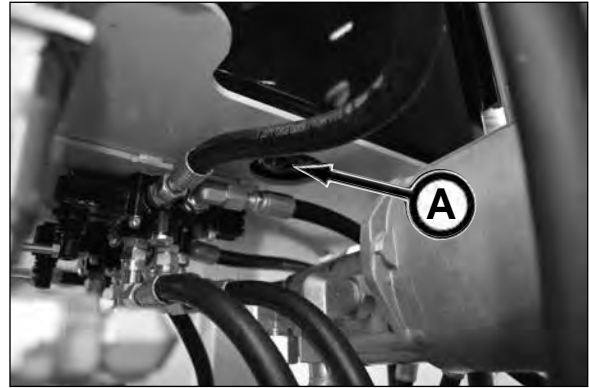
EVERY 500 HOURS OF OPERATION

NOTICE

Refer to your engine operation manual for additional maintenance information.

31. DRAIN & FILL HYDRAULIC TANK

1. Remove drain plug (A) and drain oil into a catch pan. **DO NOT** allow oil to contact the hydraulic pump or main drive belts.
2. Replace drain plug.



3. Remove fill cap.
4. Fill tank with approximately 25 gal. (94.6 L) of SO-VG-68, a premium AW (All-Weather) hydraulic oil or refer to Hydraulic Tank Oil in the Lubricants section for more information.
5. Replace fill cap.



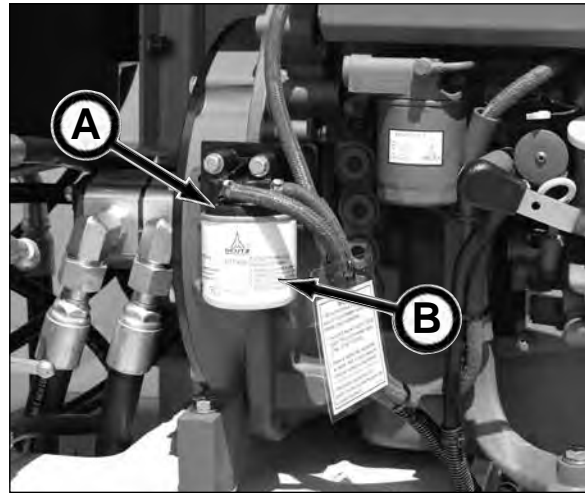
6. Check oil level with oil level gauge (B).



32. REPLACE FUEL FILTER (2325B/D)

NOTICE Refer to your engine operation manual for more information.

1. Stop the engine and allow to cool.
2. Clean area around the fuel filter assembly (A).
3. Remove the fuel filter (B) with a filter wrench.
Catch any escaping fuel.
4. Clean the fuel filter assembly mounting surface.
5. Apply a small amount of diesel fuel to the gasket of the new fuel filter.
6. Install the new fuel filter. Hand tighten until it comes in contact with the mounting surface. Use a filter wrench to tighten it one additional turn. Otherwise, follow the installation instructions on the fuel filter. Do not add fuel into the filter prior to installation to filter assembly.
7. Prime the fuel system. Refer to 32. Priming Fuel System in this section.
8. Check for fuel leaks.



33. PRIMING FUEL SYSTEM (2325B/D)

Whenever the fuel system has been opened up for service such as changing the fuel filter, replacing a fuel system component, or running out of fuel and adding fuel to an empty tank, the fuel system must be primed.

Check your engine operation manual for the proper method to prime your engine's fuel system.

1. Pump the fuel primer until a strong resistance is felt and pressure has built up.

NOTICE NEVER use the starter motor to crank the engine and prime the fuel system. Doing so will result in starter damage.

2. Start the engine and run in idle for approximately five minutes
3. Check for leaks.



34. REPLACE AIR CLEANER FILTER ELEMENT (2325B/D)

NOTICE Refer to your engine operation manual for more information.

Periodically check air cleaner filter element for dirt and dust buildup. The engine performance efficiency is drastically affected with a clogged filter element.

1. Clean area around the air cleaner assembly.



NOTICE The Deutz engine is equipped with an air cleaner filter maintenance indicator (A). Check the indicator daily.

A yellow band is visible on the indicator when the air filter element will need to be replaced soon.

A red band is visible on the indicator when the air filter element must be replaced immediately.

Press reset button after performing maintenance.



2. Unlatch and remove cover.



3. Gently remove element. Bumping the element against air cleaner housing may contaminate the clean side of the filter housing with dirt and dust.

4. The element may be able to be cleaned if it is not excessively dirty or oily. Refer to your engine operation manual for more information. Properly dispose of dirty filter element.



(Continued on next page)

5. Thoroughly clean the inside of the filter housing cover with a clean, damp cloth. Dirt left in the filter housing will shorten the life of the filter element.



6. Carefully install a new or cleaned filter element into the filter housing cover by applying pressure by hand at outer rim of filter.



7. Reinstall the air cleaner/housing cover properly.



8. Secure the cover to the housing with the latches.

NOTICE Do not use latches on cover to force filter into air cleaner. Using cover to force filter into housing will damaged cleaner housing.



AFTER EACH DRIVE

35. FLUSH & CLEAN WATER/SOLUTION TANKS

After each drive, the 2325B series Bentonite & Lubrication Pump tanks must be flushed and cleaned, and then either drained completely or add RV anti-freeze to the water system so the pump will be ready for the next drive.

1. Flush and clean water system by using clean water to flush the tank and water system components until the water is clear and free of sediment. Failure to do so will result in clogging of the fluid in the tank, hoses and/or components. Refer to Cleaning Tanks in section 6, Operation for more information.
2. Once tank and water system is clean, completely drain system or add RV anti-freeze to the water system. Refer to Cold Weather Protection in section 6, Operation for more information.
3. Repeat steps 1 and 2 for other tank water system.



ANNUALLY

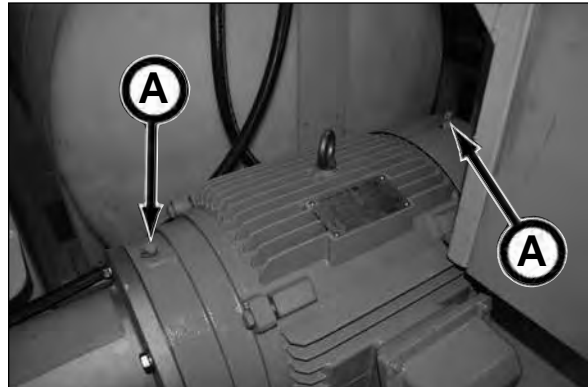
36. LUBRICATE MOTOR BEARINGS

NOTICE

For additional electric motor maintenance information, contact your Akkerman Aftermarket Support representative.

Lubricate the electric motor bearings (A) with two shots of Mobil Polyrex® EM grease or equivalent (refer to Grease Type below). There are two lubrication fittings on the electric motor.

When adding lubricant, keep dirt out of the lubrication area. Wipe the fitting completely clean and use clean greasing equipment.



GREASE TYPE (unless nameplate states otherwise:

Nameplate Ambient Temperature between -22°F (-30°C) to 150°F (65°C) inclusive:

Recommended grease for standard service conditions is Mobil Polyrex® EM. Equivalent and compatible greases include: Texaco Polystar RB, Rykon Premium #2, Pennzoil Pen 2 Lube, Chevron SRI & Mobil SHC 100.

Nameplate Ambient Temperature below

-22°F (-30°C): Special low temperature grease is recommended such as Aeroshell 7 or Beacon 325 for ball bearings and Mobil SHC 100 for roller bearings.

Storage

PREPARING FOR STORAGE

NOTICE

Refer to your engine operation manual for additional maintenance information.

1. Repair worn or damaged parts.
2. Wash all equipment and tanks thoroughly.
3. Drain tanks. Flush and drain pump and all fluid lines including to prevent clogging or freezing during storage. Be sure to also remove and clean tank strainer.
4. Lubricate all grease points.
5. (2325B/D) Drain engine oil, replace filter and refill engine with oil specified in Fuels & Lubrication section.
6. (2325B/D) Drain water and sediment from fuel system. Dispose of water and sediment properly. Then prime fuel system.
7. (2325B/D) Add proper fuel stabilizer for a full tank. Fill fuel tank completely.
8. (2325B/D) Store diesel fuel in plastic, aluminum, or steel containers specially coated for diesel fuel storage.
9. Loosen all belts.
10. (2325B/D) Clean air cleaner.
11. (2325B/D) Restart engine and operate machine long enough to warm the oil. Check for leaks after machine warms up.
12. (2325B/D) Remove battery (negative cable first) and store it in a cool, dry place. Remove corrosion from cables and battery case. Use baking soda to neutralize acid. Place battery on wood (not concrete) and connect a small trickle charger to it to maintain charge; or charge battery every 30 days it is in storage, if necessary.
13. Repaint equipment where necessary.
14. Drain hydraulic oil, flush oil reservoir, change hydraulic filter, and refill hydraulic tank. Check for leaks.
15. Wipe up lube spills. Dispose of rags and trash properly.
16. If possible, store equipment under cover and out of the weather in a ventilated area.
17. (2325B/D) If the engine to be stored for a long period of time, refer to your engine operation manual.
18. Clean and drain lubrication and high pressure jetting hoses. Store indoors to minimize UV damage.

REMOVING FROM STORAGE

NOTICE

Refer to your engine operation manual for additional maintenance information.

1. Clean equipment thoroughly.
2. Check to make sure all decals are clean and readable.
3. Check condition of wires and cables. Repair or replace as necessary.
4. (2325B/D) Charge battery and install it.
5. (2325B/D) Check coolant level. If coolant is low, check for leaks and add coolant as required.
6. Adjust engine, main drive, and hydraulic pump drive belt tension.
7. Check for leaks. Repair or replace as necessary.
8. Check oil level in hydraulic tank. Add oil if necessary (refer to section 8, Lubricants for oil specifications). Also, check condition of the oil; be sure there is no water in the oil.
9. Check hydraulic return filter indicator. Replace filter as needed per indicator.
10. Check tank strainers. Clean as needed. If damaged, replace with new.
11. Check condition of all hoses and connections. Tighten, repair or replace with new as needed.
12. Before operating, cycle hydraulic functions several times to purge air from hydraulic system.
13. (2325B/D) Refer to your engine operation manual on how to restore engine to service.
14. (2325B/D) If diesel fuel is stored for more than a month prior to use, or there is a slow turnover in fuel tank or supply tank, add a fuel conditioner or equivalent to stabilize the fuel and prevent water condensation. Refer to your engine operation manual for more information.
15. Fill tanks with clean water.
16. Review this Operator's Manual and your engine operation manual.

Troubleshooting

NOTICE

For additional engine troubleshooting information, refer to your engine/motor operation manual.

Problem	Cause	Solution
Engine does not start (2325B/D).	Fuel shutoff is in the OFF position.	Move fuel shutoff in ON position.
	Electric fuel pump is not plugged in.	Plug in fuel pump.
	No fuel in fuel tank.	Fill fuel tank.
	Jetting & lube control not in bypass.	Move control to bypass mode.
	If engine still does not start, contact your Akkerman Aftermarket Support Representative.	
Motor does not start (2325B/E).	Power source not hooked up.	Hook up power source.
	Main power disconnect switch OFF.	Flip switch ON.
	Wrong phase.	Rewire connection.
	(SN FA48835F-01 Only) Soft Start Fault light illuminated	Troubleshoot.
	If motor still does not start, contact your Akkerman Aftermarket Support Representative.	
Pump cannot reach maximum pressure.	Pump shaft control in bypass mode.	Reset to lubrication/jetting/washer mode.
	Relief valve is not set properly.	Adjust relief to 2500 psi max.
	If max. pressure still cannot be reached, contact your Akkerman Aftermarket Support Representative.	
Lubrication pump is pulsating.	Air in water supply.	Add more water/solution in tank and check pump inlet connections.
	Dirty tank strainer.	Clean tank strainer.
	Outlet cam lock is not engaged.	Be sure cam lock is fully engaged.
	Hydraulic oil level is low.	Fill hydraulic oil tank as needed.
	If pump continues to pulsate, contact your Akkerman Aftermarket Support Representative.	
No water discharge out of pump.	No water in tank.	Fill tank.
	Selector is in neutral or mixer position.	Move selector to Pump position.
	Ball valve on tank closed.	Open tank ball valve.
	Strainer plugged.	Clean strainer.
	Inlet hose damaged.	Replace hose.
	Air lock between tank and strainer.	Release air lock by loosening strainer until fluid flows.
	If no water still does not discharge out of pump, contact your Akkerman Aftermarket Support Representative.	

(Continued on next page)

Troubleshooting

Problem	Cause	Solution
Hydraulics are running hot.	Dirty oil cooler.	Clean oil cooler.
	Rubber seal around radiator is missing.	
	Low relief valve setting.	Adjust valve to 2500 psi max.
	Pump(s) worn.	Replace pump(s).
	If the hydraulics continue to run hot, contact your Akkerman Aftermarket Support Representative.	
Mixer not functioning.	Selector valve is in neutral position.	Move selector to Mixing position.
	Mixer control is in Off position.	Move control to Mixer On position.
	Hydraulic oil level is low.	Fill hydraulic oil tank as needed.
	If mixer is still not functioning contact your Akkerman Aftermarket Support Representative.	

SOFT START FAULT CODES (2325B/E SN FA48835F-01 ONLY)

A decal listing the soft start fault codes is located on the inside door of the control panel. Only a qualified technician should make changes to the soft start controller.

NOTICE A complete Cutler-Hammer Soft Starter User manual is available on-line at <http://www.eaton.com/ecm/groups/public/@pub/@eaton/@ee/documents/content/1081448138286.pdf>



Troubleshooting Fault Table

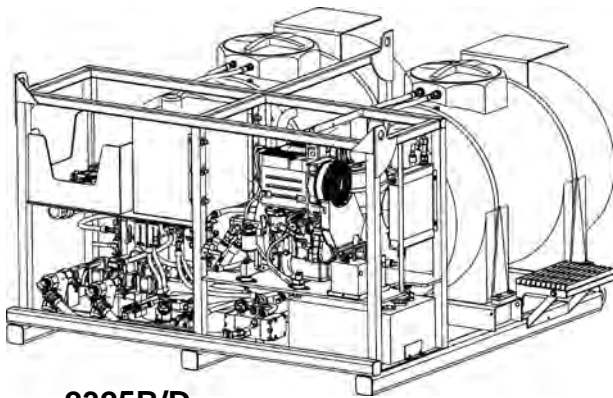
Fault Code	Possible Problem	Possible Solution
4	Low Control Voltage Fault – The external 24V power supply voltage is dropping below the minimum required to control the motor.	Use recommended 24V power supplies with enough current sourcing capability to close contactors. Verify correct wire size used to connect power supply to S811. (See power supply specification for more details.) Verify connections are secure.
6	Phase Loss Fault – Extreme phase imbalance condition. Incoming phase disconnected, blown fuse.	Repair broken connection, replace fuse.
7	Phase Imbalance Fault – The imbalance of the incoming phases exceeds the trip threshold.	Correct imbalance problem with mains. Increase the xx Imbalance Fault xx parameters or disable the fault if the other issues cannot be resolved. Make sure your system can tolerate the imbalance.
11	Jam Fault – While in bypass an obstruction has slowed or stalled the motor resulting in extreme motor current.	Disconnect power from S811 and any other equipment and remove obstruction. Jam Fault can be disabled if trips occur during normal operation. Over Current Fault will provide protection at a higher current threshold.
14	Overload Fault – Motor has been overloaded for an extended period of time.	Reduce the motor's load. Verify the Overld Trip FLA and/or Ovrlid Trip Class if the overloads are infrequent and are set to match the motor and system. Note: Exceeding nameplate ratings will shorten equipment life. If fault happens during motor start: verify the control system is not exceeding the specified maximum starts per hour. Increase the initial torque to bring the motor up to speed faster.
42	Under Voltage Fault – Incoming AC line voltage below trip threshold. Device connected to incorrect mains supply voltage.	Connect to correct supply voltage. Verify Motor Rated Volt is set to correct value. It may be necessary to reduce this setting for soft mains.
43	Over Voltage Fault – Incoming AC line voltage above trip threshold. Device connected to incorrect mains supply voltage.	Connect to correct supply voltage. Verify Motor Rated Volt is set to correct value. It may be necessary to increase this setting for high mains.
44	Motor Voltage Phase Reversal Fault – incoming line phase rotation sequence opposite of device setting.	Set Phase Sequence to match incoming sequence. If motor is turning in wrong direction swap two motor connection leads. If mains leads need to be changed, swap incoming leads and set Phase Sequence to match incoming sequence. If an upstream reverser is used, disable Phase Rev Fault.
61	Mains AC Voltage Loss Fault – fuses blown, disconnect open, or breaker tripped.	Replace fuses, close disconnect, or reset breaker.
63	Motor Stall Fault – S811 could not engage the bypass contactors at the end of the motor start time because the start current was too high. Motor did not reach full speed during the start time.	Lengthen Soft Start Time and/or increase Initial Torque. Loads that are heavily loaded during a start such as fans will often need an initial torque setting much greater than the factory default.

NOTES

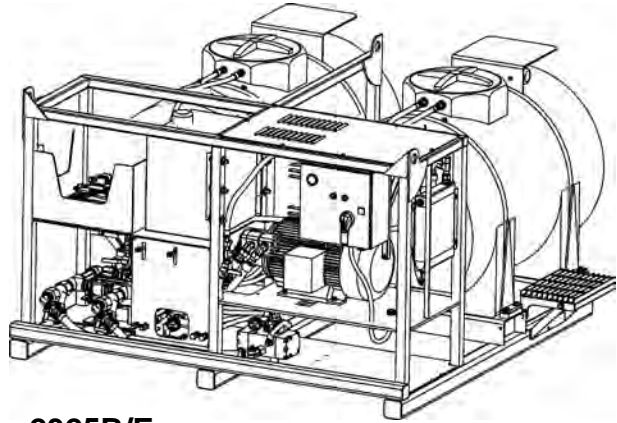
Specifications

BENTONITE & LUBRICATION PUMPS

NOTICE Refer to your engine/motor operation manual for additional maintenance information.



2325B/D



2325B/E

Dimensions:

Height 64 in. (1,625 mm)
 Width 86.75 in. (2,205 mm)
 Length 93 in. (2,360 mm)
 Weight (empty tanks) 3,150 lbs. (1,429 kg)
 (full tanks) 8,300 lbs. (3,765 kg)

Power Unit:

2325B/D
 Diesel Engine @ 2,800 rpm ... 30 HP (22.5 kW)

2325B/E
 Electric Motor @ 1,750 rpm ... 30 HP (22.5 kW)

Drive System Direct Drive

Mixer (Agitator) Hydraulic-Driven, In-tank

Fluid Pumps

Pump 1 Flow (Max.) 6 gpm (22.7 L/min)
 Pump 2 Flow (Max.) 10 gpm (37.9 L/min)
 Pressure Rating (Max.) 2,500 psi (17,237 kPa)
 Capability solution up to 50 seconds (MF)
 MF - Marsh Funnel

Fluid Capacities

Tank Two, 325 gal (1,230 L)
 Hydraulic Reservoir 25 gal. (94.6 L)
 Engine Oil (2325B/D)*
 Deutz 6.3 - 6.8 qt. (6.0 - 6.5 L)

* Do not overfill.

TORQUE CHART

Use these torque values as a guideline when tightening hardware unless otherwise specified in this manual.

Lubricated Coarse UNC Threads Grade 8 Fasteners			Lubricated Fine UNF Threads Grade 8 Fasteners		
Bolt Size	Torque ft. lbs. (N·m)		Bolt Size	Torque ft. lbs. (N·m)	
1/4 - 20	10	(14)	1/4 - 28	11	(15)
5/16 - 18	20	(27)	5/16 - 24	22	(30)
3/8 - 16	35	(47)	3/8 - 24	39	(53)
7/16 - 14	56	(76)	7/16 - 20	62	(84)
1/2 - 13	85	(115)	1/2 - 20	96	(130)
9/16 - 12	123	(167)	9/16 - 18	137	(186)
5/8 - 11	170	(231)	5/8 - 18	192	(260)
3/4 - 10	301	(408)	3/4 - 16	336	(456)
7/8 - 9	450	(610)	7/8 - 14	500	(678)
1 - 8	680	(922)	1 - 12	740	(1003)
1-1/8 - 7	960	(1302)	1-1/8 - 12	1030	(1397)
1-1/4 - 7	1360	(1844)	1-1/4 - 12	1500	(2034)
1-1/2 - 6	2360	(3200)	1-1/2 - 12	2660	(3607)

Identification Numbers

Model and serial numbers are required when ordering parts or requesting service information. Record your model and serial numbers below.

2325B/D BENTONITE & LUBRICATION PUMP

Model Number _____

Serial Number _____



2325B/E BENTONITE & LUBRICATION PUMP

Model Number _____

Serial Number _____



NOTES

Safety Data Sheets

The Federal Occupational, Safety, and Health Administration (OSHA) Standard 29 CFR 1910.1200, require that specific safety data sheets (SDS) be available to employees before operating this equipment. This may include information on substances contained in this equipment such as hydraulic fluid and gear lubricant.

Akkerman Inc. will provide, at no cost, SDS which apply to its product line. Simply contact your Akkerman Aftermarket Support representative for a copy.

To ensure a prompt response to your SDS request, include your return address (including zip or postal code) and the equipment's model numbers and serial numbers with your request.

NOTES

Warranty

Akkerman warrants that all equipment manufactured by it be free from defects due to workmanship or material when normally used and serviced for a period of 90 days from the date of shipment by Akkerman. Normal wear and tear to the equipment, including, but not limited to, wear on the cutter face tooling, hydraulic filters, augers, casings, slurry line and seals is not covered by this warranty. Akkerman does not warrant that the equipment meets the requirements of any particular safety code or rule governing equipment classification. If the Customer has questions about local safety codes, rules or ordinances, authorities local to the project should be consulted.

In order to be considered as a potential warranty claim, the component in question must be returned to Akkerman (freight prepaid) for factory inspection and analysis, and determination of warranty applicability. No warranty is provided for electronics or electrical components of any kind. The validity of all warranty claims are subject to the discretion and determination of the Akkerman Aftermarket Support Department. All such determinations are final.

Warranty

NOTES

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INTRODUCTION

This parts manual contains assembly illustrations of the Akkerman 2325B/D / 2325B/E Bentonite & Lubrication Pumps. The illustrations in this manual are intended to show typical construction of various parts. In some instances, the details of parts illustrated may not exactly represent their actual appearance, but will help to identify parts performing the same functions.

LOCATING PARTS

This parts manual is organized to help you locate parts information quickly. An Alphabetical Index, Section 17, is provided to determine the page number of the assembly a part is used. If the part number is known, the Numerical Index, Section 18, can also be utilized to find the page number of the assembly.

USE GENUINE AKKERMAN PARTS

The use of second-rate parts could affect the efficient performance of the Bentonite & Lubrication Pump. ALWAYS use genuine Akkerman parts.

PARTS ORDERING

To order fast, accurate, and reliable parts service, call (800) 533-0386, (507) 567-2261, or fax (507) 567-2720, and provide the following information.

1. Model Number
2. Serial Number
3. Part Number, Description, and Quantity
4. Shipping Preference

MEASUREMENTS

The unit of measure in this manual is in inches unless indicated otherwise.

HARDWARE SPECIFICATION

All Akkerman products are assembled with SAE Grade 8 bolts, nuts, and washers. ALWAYS use matched fastener hardware when replacing or repairing the unit.

If you find any errors with this manual or have any suggestions for improvement, please let us know.

Mail your suggestions to:

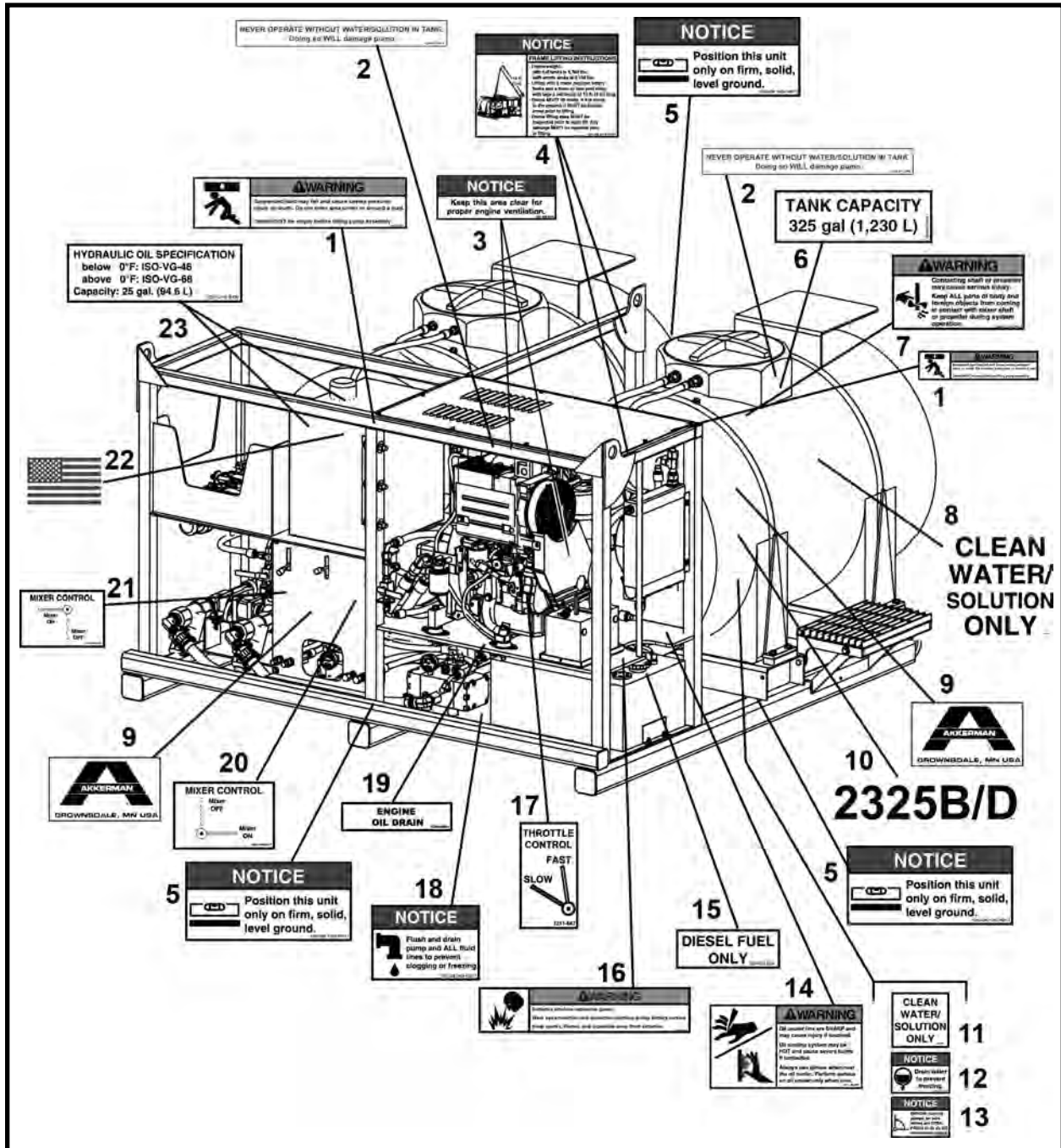
Akkerman Inc, ATTN: Technical Publications, 58256 266th Street, Brownsdale, MN 55918.

Akkerman Inc. reserves the right to improve its product without notice or obligation.

NOTES

BENTONITE & LUBRICATION PUMP DECALS - RIGHT VIEW

2325B/D



ITEM	QTY	PART NO.	DESCRIPTION
1	1	1251-018	DECAL, Warning Suspended Loads
2	2	1251-677	DECAL, Never Operate Without Water/Solution
3	2	1251-664	DECAL, Notice, Keep Area Clear
4	2	1251-746	DECAL, Notice Lifting Instructions
5	3	1250-638	DECAL, Notice Position Level Ground
6	1	1251-221	DECAL, Tank Capacity 325 gal.
7	1	1250-311	DECAL, Warning Keep Away From Propeller
8	1	1251-678	DECAL, Clean Water/Solution Only
9	1	1251-246	DECAL, Akkerman, Large

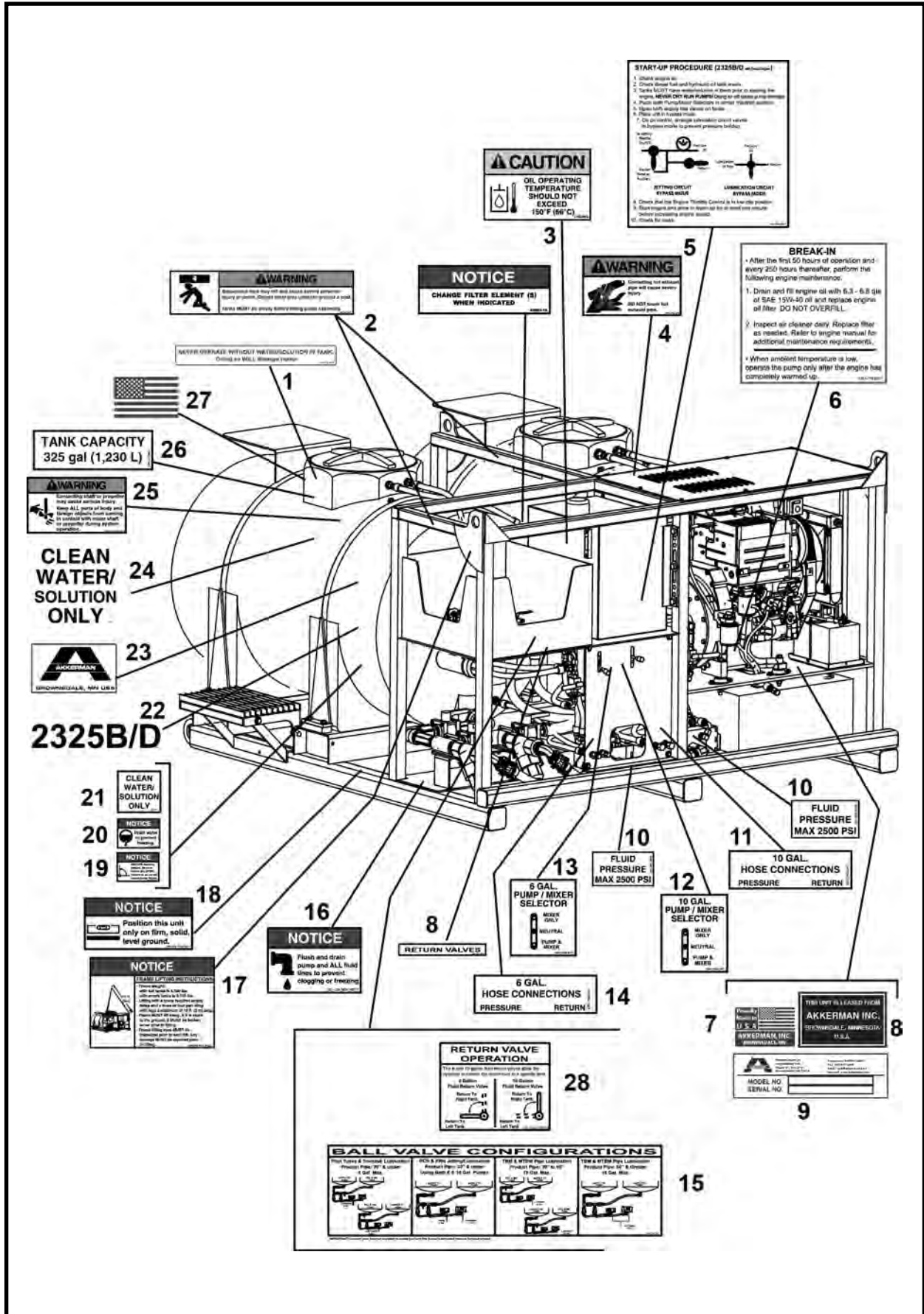
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**BENTONITE & LUBRICATION PUMP DECALS - RIGHT VIEW
2325B/D**

ITEM	QTY	PART NO.	DESCRIPTION
10	1	1251-745	DECAL, Model 2325B/D
11	1	1251-679	DECAL, Clean Solution Only
12	1	A3000-1	DECAL, Notice Drain Water
13	1	1251-023	DECAL, Notice Open Valves
14	1	1251-749	DECAL, Warning, Oil Cooler Fins Sharp
15	1	1251-021	DECAL, Diesel Fuel Only
16	1	1251-016	DECAL, Warning Battery Explosive
17	1	1251-667	DECAL, Throttle Control (Deutz)
18	1	1251-228	DECAL, Notice Flush and Drain
19	1	1250-498C	DECAL, Engine Oil Drain
20	1	1251-748A	DECAL, Mixer Control
21	1	1251-748B	DECAL, Mixer Control
22	1	1250-558	DECAL, USA Flag Small
23	2	1251-218	DECAL, Hydraulic Oil Specification

BENTONITE & LUBRICATION PUMP DECALS - LEFT VIEW

2325B/D

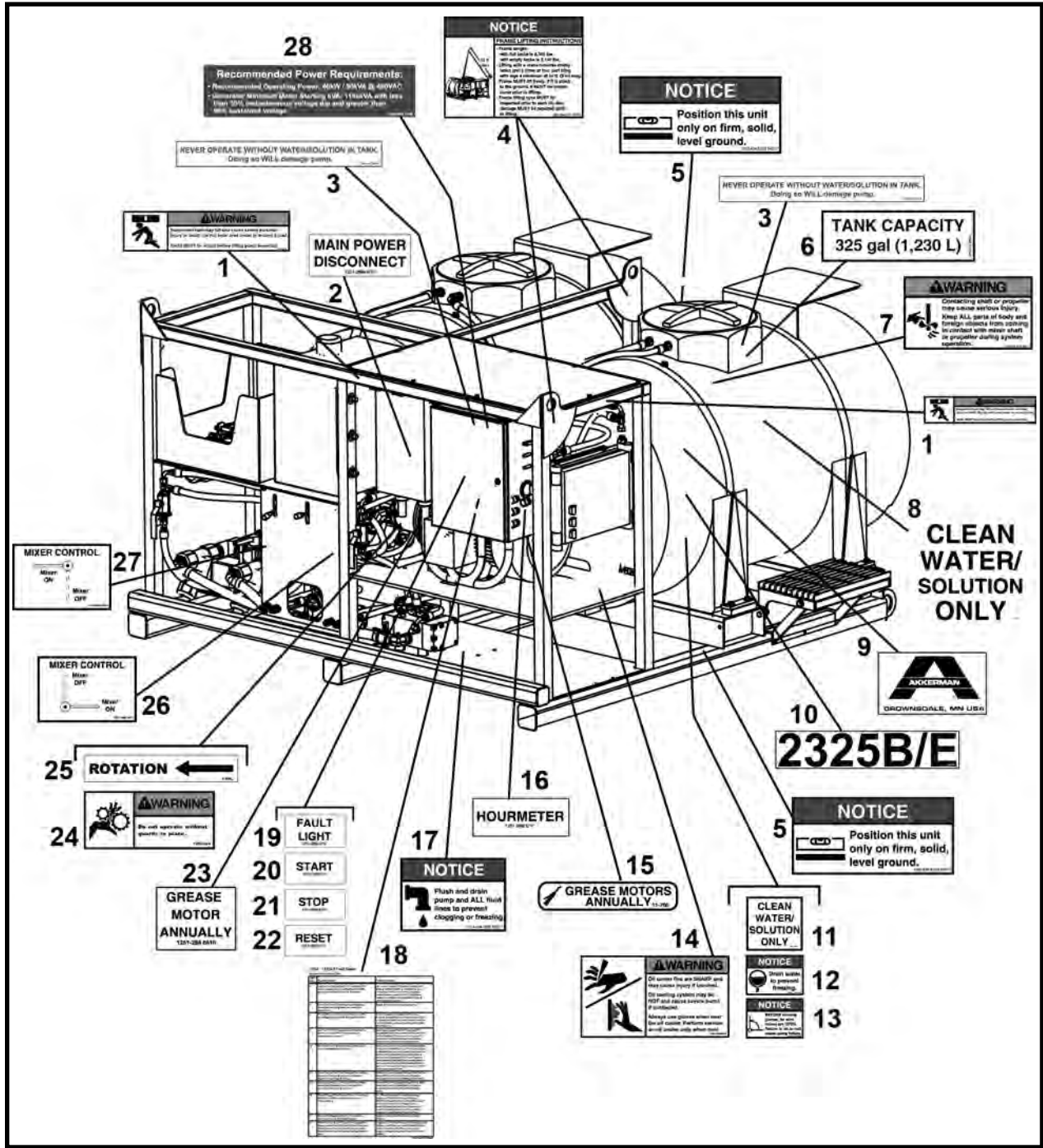


BENTONITE & LUBRICATION PUMP DECALS - LEFT VIEW
2325B/D

ITEM	QTY	PART NO.	DESCRIPTION
1	1	1251-273	DECAL, Never Operate Without Water
2	2	1251-018	DECAL, Warning Suspended Loads
3	1	1250-483	DECAL, Caution Oil Temperature
4	1	1250-777A	DECAL, Warning, Hot Exhaust
5	1	1251-769	DECAL, Start-Up Procedure
6	1	1251-770	DECAL, Break-In (Deutz)
7	1	1250-544	DECAL, Made in USA
8	1	1251-741C	DECAL, Return Valves
9	1	REF	PLATE, Serial Number
10	2	1251-681	DECAL, Fluid Pressure Max 2500 PSI
11	1	1251-742B	DECAL, Hose Connections 10 Gal.
12	1	1251-743B	DECAL, Pump/Mixer Selector 10 Gal.
13	1	1251-743A	DECAL, Pump/Mixer Selector 6 Gal.
14	1	1251-742A	DECAL, Hose Connections 6 Gal.
15	1	1251-741	DECAL, Ball Valve Configurations
16	1	1251-228	DECAL, Notice Flush and Drain
17	1	1251-746	DECAL, Notice Lifting Instructions
18	1	1250-638	DECAL, Notice Position Level Ground
19	1	1251-023	DECAL, Notice Open Valves
20	1	A3000-1	DECAL, Notice Drain Water
21	1	1251-679	DECAL, Clean Water/Solution Only - small
22	1	1251-745	DECAL, Model 2325B/D
23	2	1251-246	DECAL, Akkerman, Large
24	1	1251-678	DECAL, Clean Water/Solution Only
25	1	1250-311	DECAL, Warning Keep Away From Propeller
26	1	1251-221	DECAL, Tank Capacity 325 gal.
27	1	1250-558	DECAL, USA Flag Small
28	1	1251-741B	DECAL, Return Valve Position

BENTONITE & LUBRICATION PUMP DECALS - RIGHT VIEW

2325B/E



ITEM	QTY	PART NO.	DESCRIPTION
1	2	1251-018	DECAL, Warning Suspended Loads
2	1	1251-286E	DECAL, Main Power Disconnect
3	2	1251-677	DECAL, Never Operate Without Water/Solution
4	2	1251-746	DECAL, Notice Lifting Instructions
5	2	1250-638	DECAL, Notice Position Level Ground
6	1	1251-221	DECAL, Tank Capacity 325 gal.
7	1	1250-311	DECAL, Warning Keep Away From Propeller
8	1	1251-678	DECAL, Clean Water/Solution Only
9	1	1251-246	DECAL, Akkermann, Large

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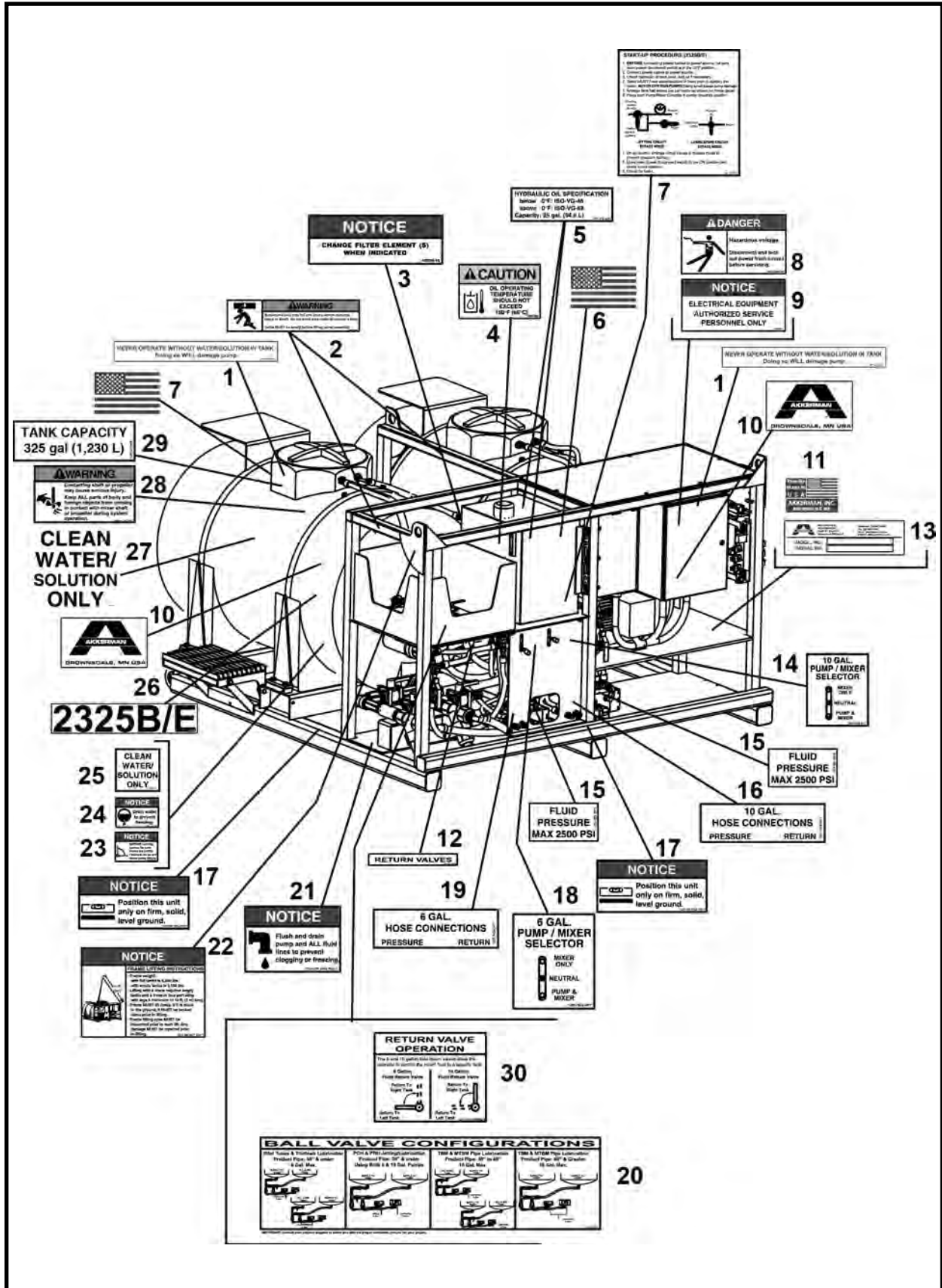
BENTONITE & LUBRICATION PUMP DECALS - RIGHT VIEW
2325B/E

ITEM	QTY	PART NO.	DESCRIPTION
10	1	1251-745	DECAL, Model 2325B/E
11	1	1251-679	DECAL, Clean Water/Solution Only - small
12	1	A3000-1	DECAL, Notice Drain Water
13	1	1251-023	DECAL, Notice Open Valves
14	1	1251-749	DECAL, Warning, Oil Cooler Fins Sharp
15	1	11-700	DECAL, Grease Motors Annually
16	1	1251-286F	DECAL, Hourmeter
17	1	1251-228	DECAL, Notice Flush and Drain
18*	1	1251-289	DECAL, Fault Codes
19*	1	1251-286A	DECAL, Control Panel, Fault Light
20	1	1251-286B	DECAL, Control Panel, Start
21	1	1251-286C	DECAL, Control Panel, Stop
22*	1	1251-286D	DECAL, Control Panel, Reset
23	1	1251-288	DECAL, Grease Motor Annually
24	1	1250-004	DECAL, Warning Keep Guards In Place
25	1	3-700L	DECAL, Rotation Left
26	1	1251-748A	DECAL, Mixer Control
27	1	1251-748B	DECAL, Mixer Control
28	1	1251-972	DECAL, Recommended Power Requirements

* 2325B/E SN FA48835F-01 Only

BENTONITE & LUBRICATION PUMP DECALS - LEFT VIEW

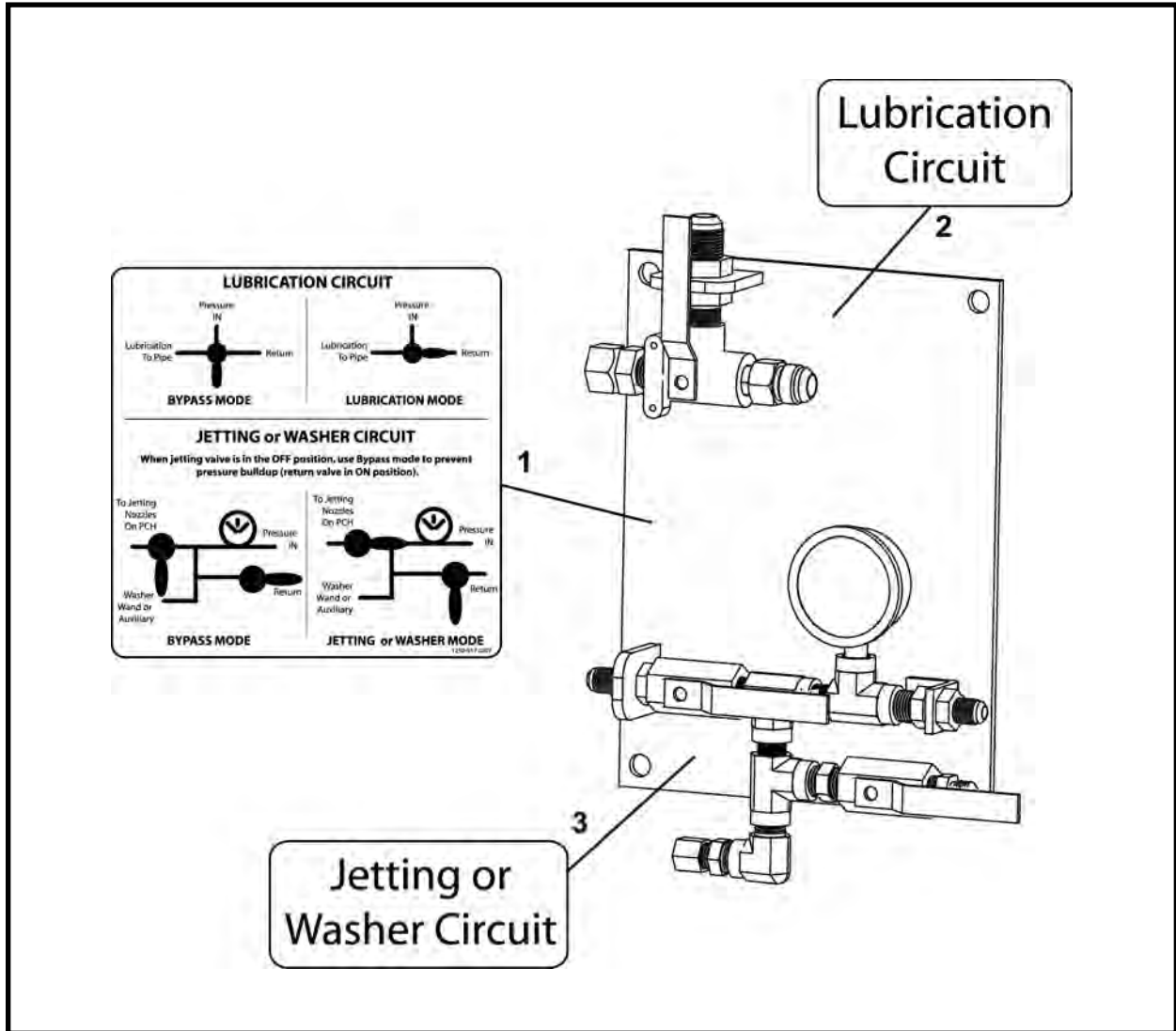
2325B/E



BENTONITE & LUBRICATION PUMP DECALS - LEFT VIEW
2325B/E

ITEM	QTY	PART NO.	DESCRIPTION
1	2	1251-677	DECAL, Never Operate Without Water/Solution
2	2	1251-018	DECAL, Warning Suspended Loads
3	1	40000-16	DECAL, Notice, Change Filter
4	1	1250-483	DECAL, Caution Oil Temp
5	2	1251-218	DECAL, Hydraulic Oil Specification
6	2	1250-558	DECAL, USA Flag Small
7	1	1251-744	DECAL, 2325E Start-Up Procedure
8	1	1250-385	DECAL, Danger, Hazardous Voltage
9	1	1250-383	DECAL, Notice, Electrical Equipment
10	1	1251-246	DECAL, Akkerman, Large
11	1	1250-544	DECAL, Made in USA
12	1	1251-741C	DECAL, Return Valves
13	1	REF	PLATE, Serial Number
14	1	1251-743B	DECAL, Pump/Mixer Selector 10 Gal.
15	2	1251-681	DECAL, Fluid Pressure Max 2500 PSI
16	1	1251-742B	DECAL, Hose Connections 10 Gal.
17	2	1250-638	DECAL, Notice Position Level Ground
18	1	1251-743A	DECAL, Pump/Mixer Selector 6 Gal.
19	1	1251-742A	DECAL, Hose Connections 6 Gal.
20	1	1251-741	DECAL, Ball Valve Configurations
21	1	1251-228	DECAL, Notice Flush and Drain
22	1	1251-746	DECAL, Notice Lifting Instructions
23	1	1251-023	DECAL, Notice Open Valves
24	1	A3000-1	DECAL, Notice Drain Water
25	1	1251-679	DECAL, Clean Water/Solution Only - small
26	1	1251-745	DECAL, Model 2325B/E
27	1	1251-678	DECAL, Clean Water/Solution Only
28	1	1250-311	DECAL, Warning Keep Away From Propeller
29	1	1250-221	DECAL, Tank Capacity 325 gal.
30	1	1251-741B	DECAL, Return Valve Position

JETTING & LUBRICATION PUMP SHAFT CONTROL DECALS

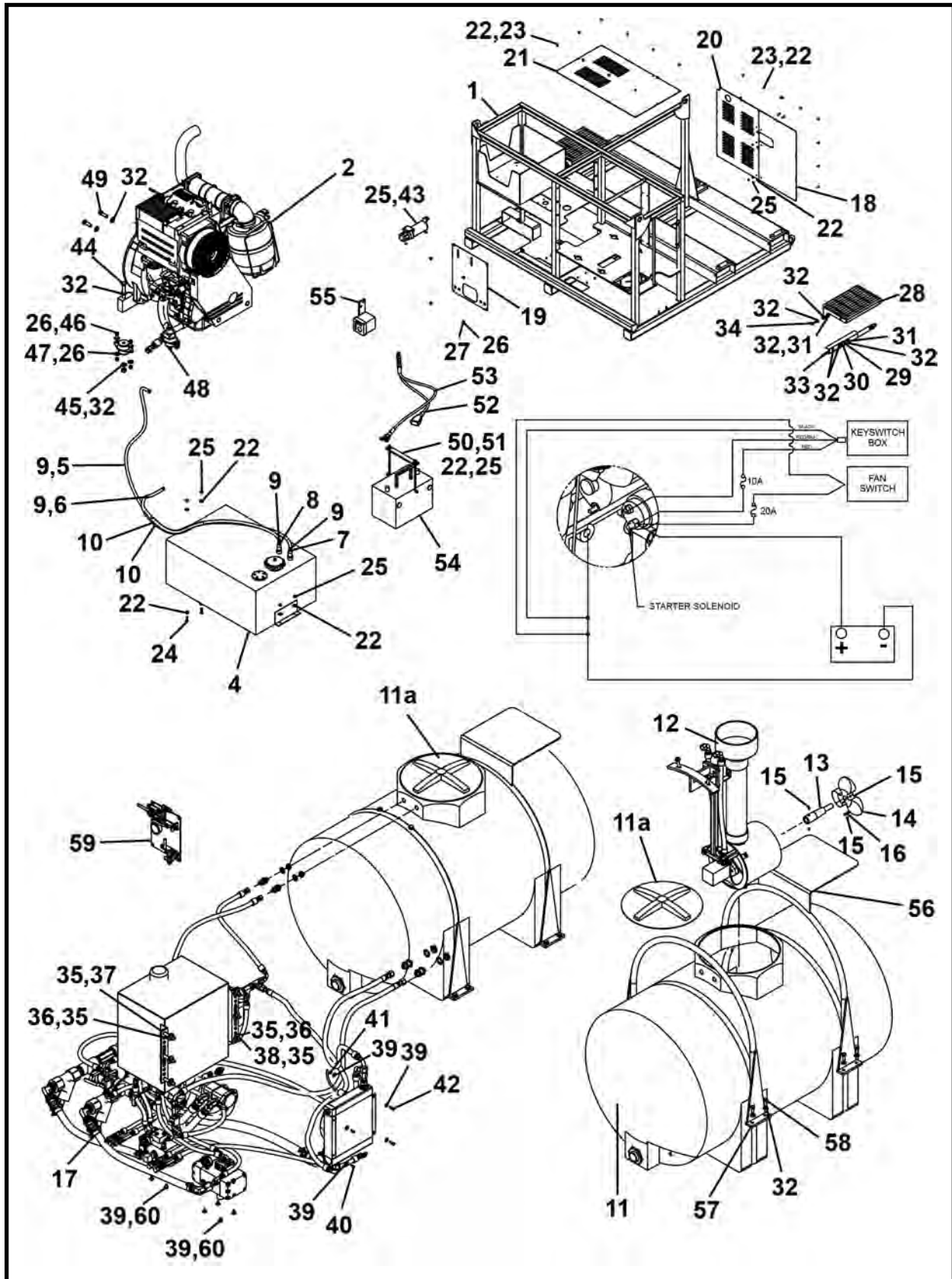


ITEM	QTY	PART NO.	DESCRIPTION
1	1	1250-917A	DECAL, Lubrication-Jetting-Washer Control
2	1	1250-917B	DECAL, Lubrication Circuit
3	1	1250-917C	DECAL, Jetting Or Washer Circuit

NOTES

BENTONITE & LUBRICATION PUMP FINAL ASSEMBLY, FA48800F

2325B/D (SN FA48800F-01 & FA48800F-02)



ITEM	QTY	PART NO.	DESCRIPTION
0	1	FA48800F	2325B/D LUBRICATION PUMP ASSEMBLY
1	1	A48801A	FRAME

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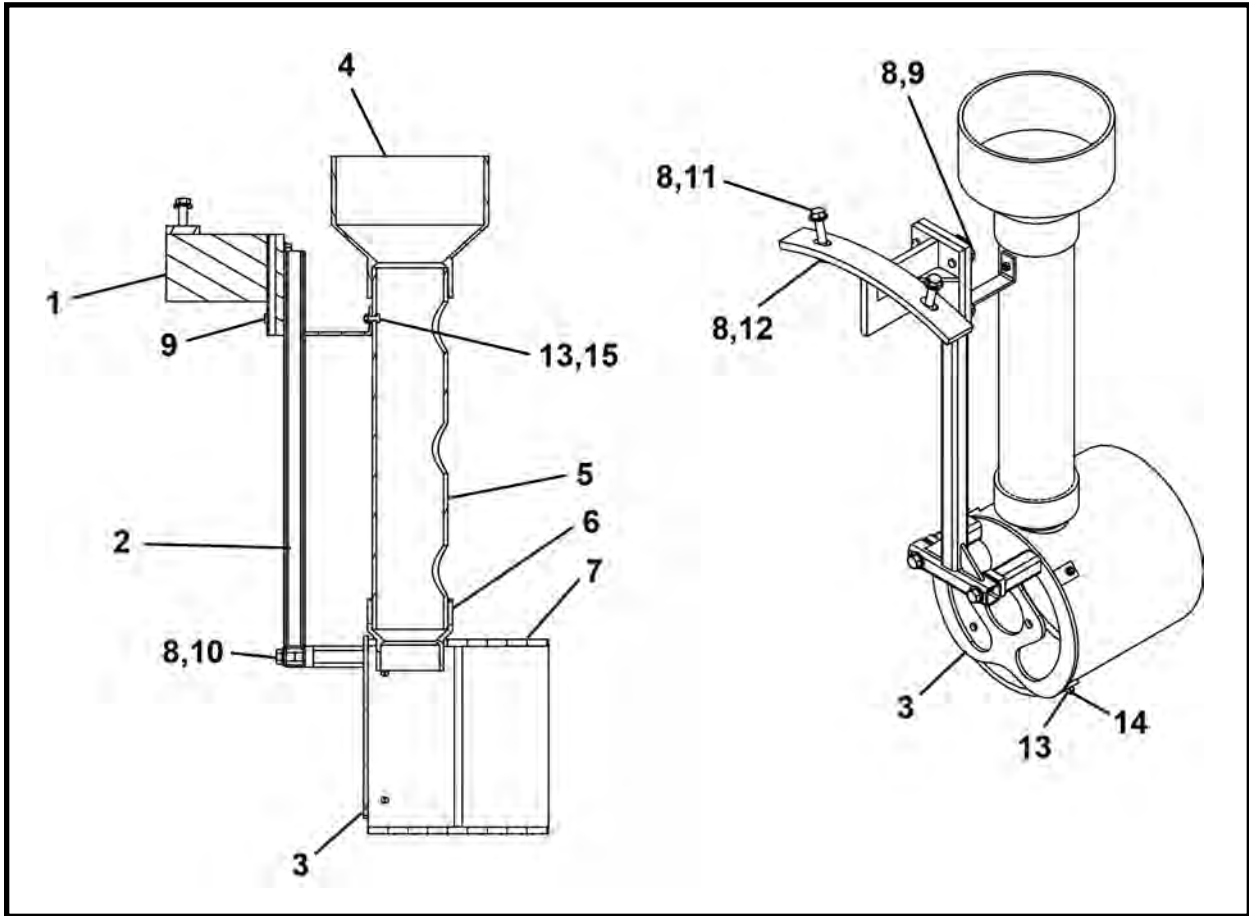
**BENTONITE & LUBRICATION PUMP FINAL ASSEMBLY, FA48800F
2325B/D (SN FA48800F-01 & FA48800F-02)**

ITEM	QTY	PART NO.	DESCRIPTION
2*	1	P0125-158	ENGINE, Deutz
3	1	A48297P	TUBE, Engine Muffler
4	1	P0125-140	FUEL TANK
5	72 LI	P0201-240-072	LINE, Fuel 1/4 x 72
6	60 LI	P0201-281-060	HOSE, Fuel 5/16 x 60
7	1	P0300-893	HOSE BARB
8	1	P0300-742	HOSE BARB
9	4	P0201-241	CLAMP
10	24 LI	P0313-102	LOOM, Nylon
11	2	A48401P	TANK (Includes item 11a)
11a	2	P0258-003A	LID, Tank
12*	2	A48826A	AGITATOR FRAME ASSEMBLY
13	2	A48479P	ROD, Agitator Shaft Ext.
14	2	A48411P	PROPELLER
15	8	P0032-002	SCREW, Socket Set 5/16 x .375
16	1.75 LI	P0047-003	KEY
17*	1	A48827A	HYDRAULICS & WATER ASSEMBLY
18	1	A48821P	PANEL, Side
19	1	A48808P	PLATE, Valve Cover
20	1	A48820P	PANEL, Exhaust Cover
21	1	A48503P	PANEL, Top Cover
22	42	P0040-004	WASHER, Hardened Flat 1/4
23	22	P0001-04-002	BOLT, Hex 1/4 UNC x .5
24	8	P0001-04-004	BOLT, Hex 1/4 UNC x 1
25	14	P0013-04-000	NUT, 1/4 Nylock
26	20	P0040-006	WASHER, Hardened Flat 3/8
27	4	P0001-06-002	BOLT, Hex 3/3 UNC x .5
28	2	A45054A	STEP
29	2	A45057A	BRACE, Step
30	4	A45170P	BUSHING
31	8	P0003-08-000	NUT, Hex 1/2 UNC
32	50	P0040-008	WASHER, Hardened Flat 1/2
33	4	P0001-08-012	BOLT, Hex 1/2 UNC x 3
34	4	P0001-08-007	BOLT, Hex 1/2 UNC x 1.75
35	12	P0040-010	WASHER, Hardened Flat 5/8
36	6	P0013-10-000	NUT, Lock 5/8 UNC
37	3	P0001-10-014	BOLT, Hex 5/8 UNC x 3.5
38	3	P0001-10-007	BOLT, Hex 5/8 UNC x 1.75
39	14	P0040-005	WASHER, Hardened Flat 5/16
40	2	P0003-05-000	NUT, Hex 5/16 UNC
41	2	PM6A-16-1.00	BOLT, Hex M6x1.00 x 16 10.9
42	2	P0003-05-000	NUT, Hex 5/16 UNC
43	1	P0095-128	MANUAL CANISTER
44	2	P0001-08-024	BOLT, Hex 1/2 UNC x 6
45	4	P0013-08-000	NUT, Lock 1/2 UNC
46	8	P0001-06-005	BOLT, Hex, 3/8 UNC x 1.25
47	8	P0013-06A-000	NUT, Nylock 3/8 UNC
48	2	P0001-08-020	BOLT, Hex 1/2 UNC x 5
49	2	P0001-08-006	SCREW, Cap 1/2 UNC 1.5
50	2	A44455P	ROD, Battery Clamp
51	1	012945P00	CROSS BAR
52	1	A40128A	CABLE, Positive
53	1	A40129A	CABLE, Negative
54	1	P0064-019	BATTERY
55	1	A48822P	BAR, Keyswitch Panel
56	2	A48824A	STRAP, Tank With Shelf
57	2	A48823A	STRAP, Tank
58	16	P0001-08-005	SCREW, Cap 1/2 UNC 1.25
59*	1	A43749A	PCH JETTING & LUBE PIT CONTROL
60	8	PM08A-1.25-016	BOLT, Hex 8x1.25x16 10.9

LI - Linear Inch

* Refer to this section for parts information.

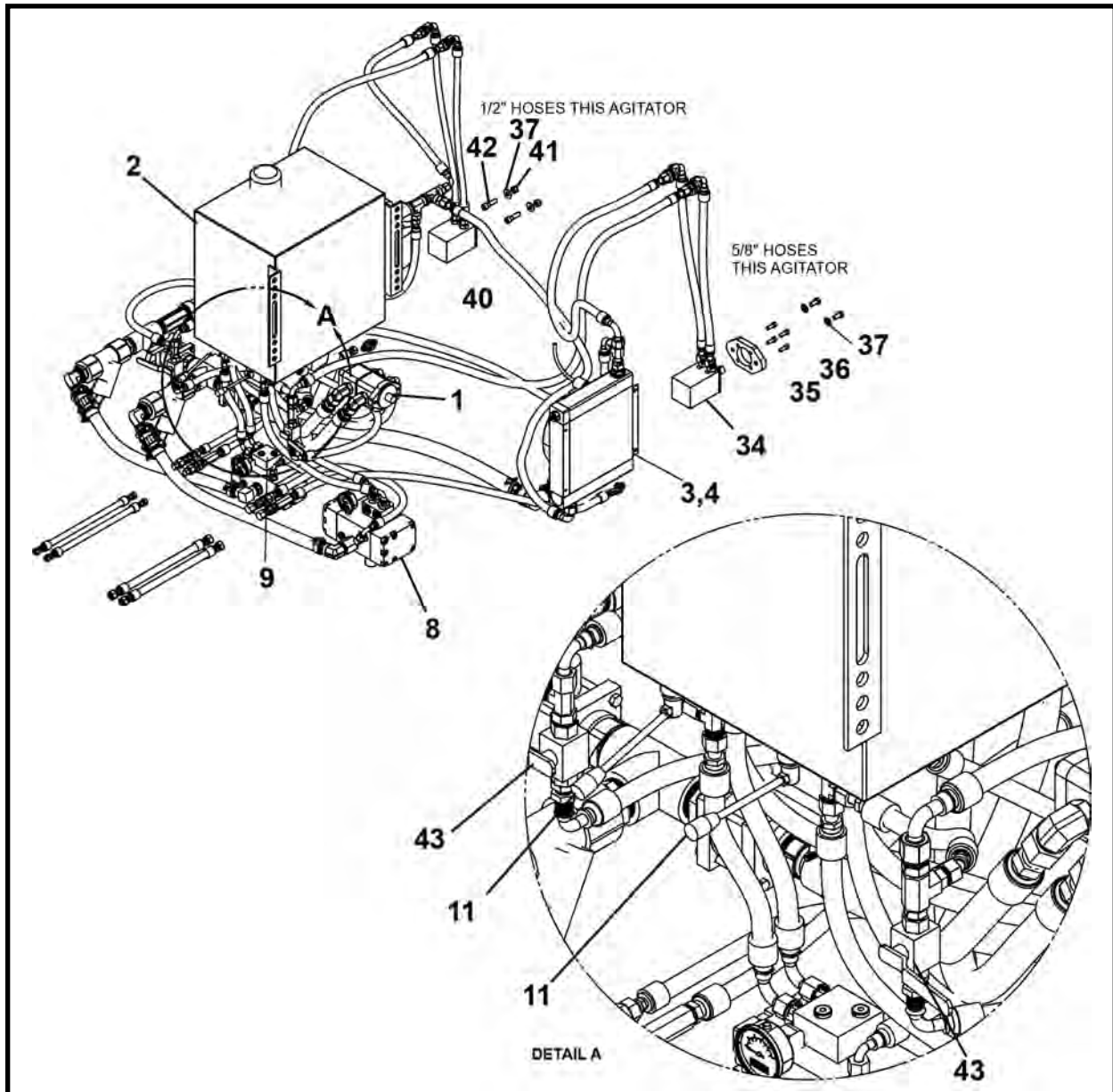
AGITATOR FRAME ASSEMBLY, A48826A
 2325B/D (SN FA48800F-01 & FA48800F-02) - 2325B/E (SN FA48835F-01)



ITEM	QTY	PART NO.	DESCRIPTION
0	1	A48826A	AGITATOR FRAME ASSEMBLY
1	1	A48424A	MOUNT, Agitator
2	1	A48473A	BRACE, Agitator Mount
3	1	A48775A	AGITATOR, Front
4	1	P0258-066	COUPLING, Reducer
5	1	A48477P	TUBE, Bentonite Mix
6	1	P0258-067	COUPLING, Reducing
7	1	A48478P	TUBE, Agitator Mix
8	12	P0040-008	WASHER, Hardened Flat 1/2
9	4	P0001-08-005	SCREW, Cap 1/2 UNC x 1.25
10	2	P0001-08-008	BOLT, Hex 1/2 UNC x 2
11	2	P0001-08-012	BOLT, Hex 1/2 UNC x 3
12	2	P0013-08A-000	NUT, Nyloc 1/2 UNC
13	5	P0013-04-000	NUT, Nyloc 1/4 UNC
14	4	P0020-14-205	SCREW, Machine Truss Head 1
15	1	P0001-04-003	BOLT, Hex 1/4 UNC x .75

NOTES

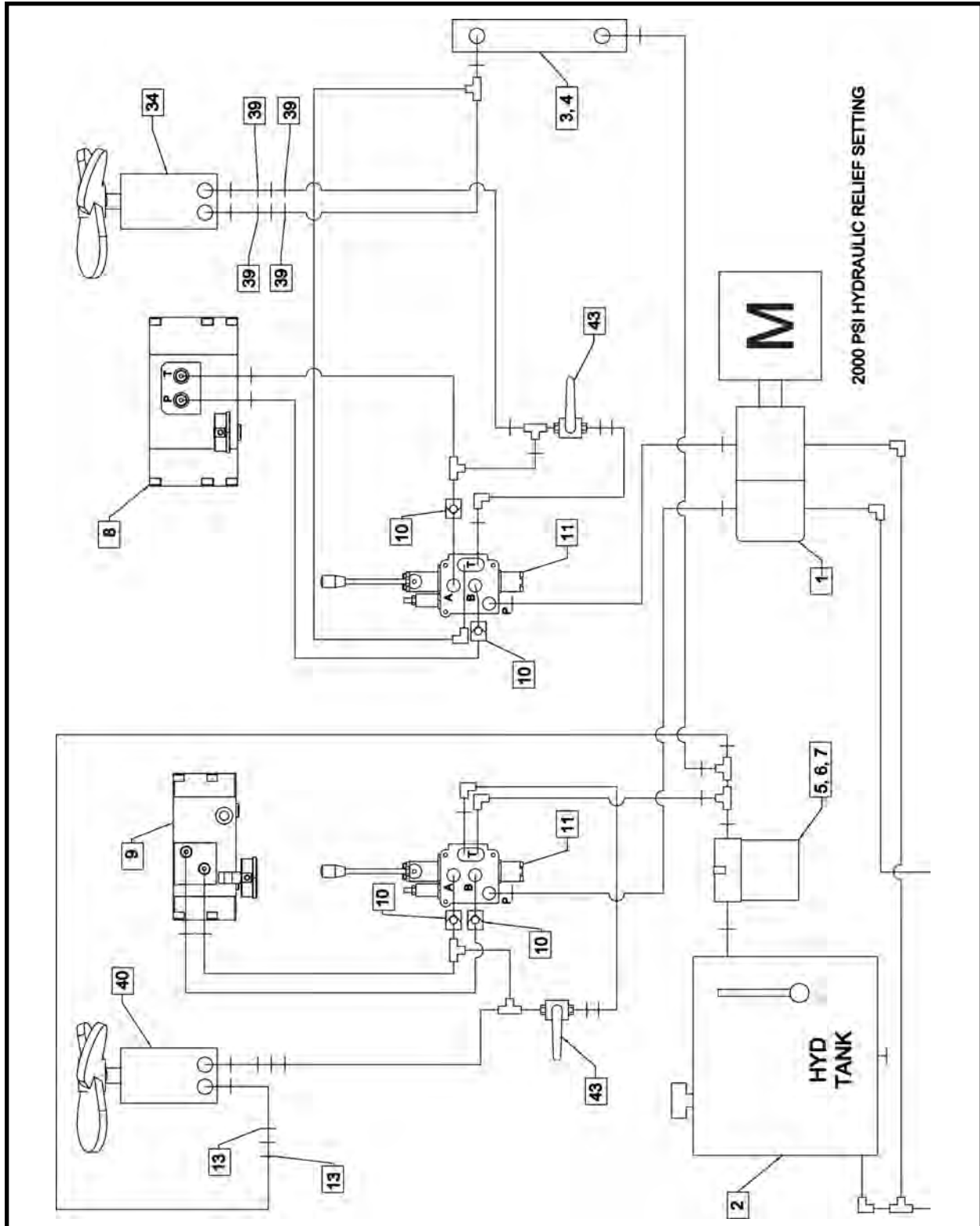
HYDRAULICS & WATER ASSEMBLY, A48827A
2325B/D (SN FA48800F-01 & FA48800F-02)



ITEM	QTY	PART NO.	DESCRIPTION
0	1	A48827A	HYDRAULICS & WATER ASSEMBLY
1	1	P0303-401	PUMP, Gear
2	1	P0125-139	TANK, 25 Gallon (Includes items 2a & 2b)
2a	1	P0125-139A	CAP, Breather
2b	1	P0125-139B	GAUGE, Sight
3	1	P0093-036	OIL COOLER
4	1	P0093-036A	SWITCH, Temp With Relay 30 AMP
5	1	P0309-144B	FILTER HEAD ASSEMBLY
6	1	P0309-145	ELEMENT, Filter
7	1	P0301-105	GAUGE, Filter Indicator
8	1	P0303-396	PUMP, Piston Fluid
9	1	P0303-399	PUMP, Piston Bentonite, 6 GPM
10	4	P0302-701	CHECK VALVE
11	2	P0302-696	VALVE, Block
12	41 LI	P0201-239-041	HOSE, Suction 1-1/2 x 41
13	8	P0040-012	WASHER, Hardened Flat 3/4

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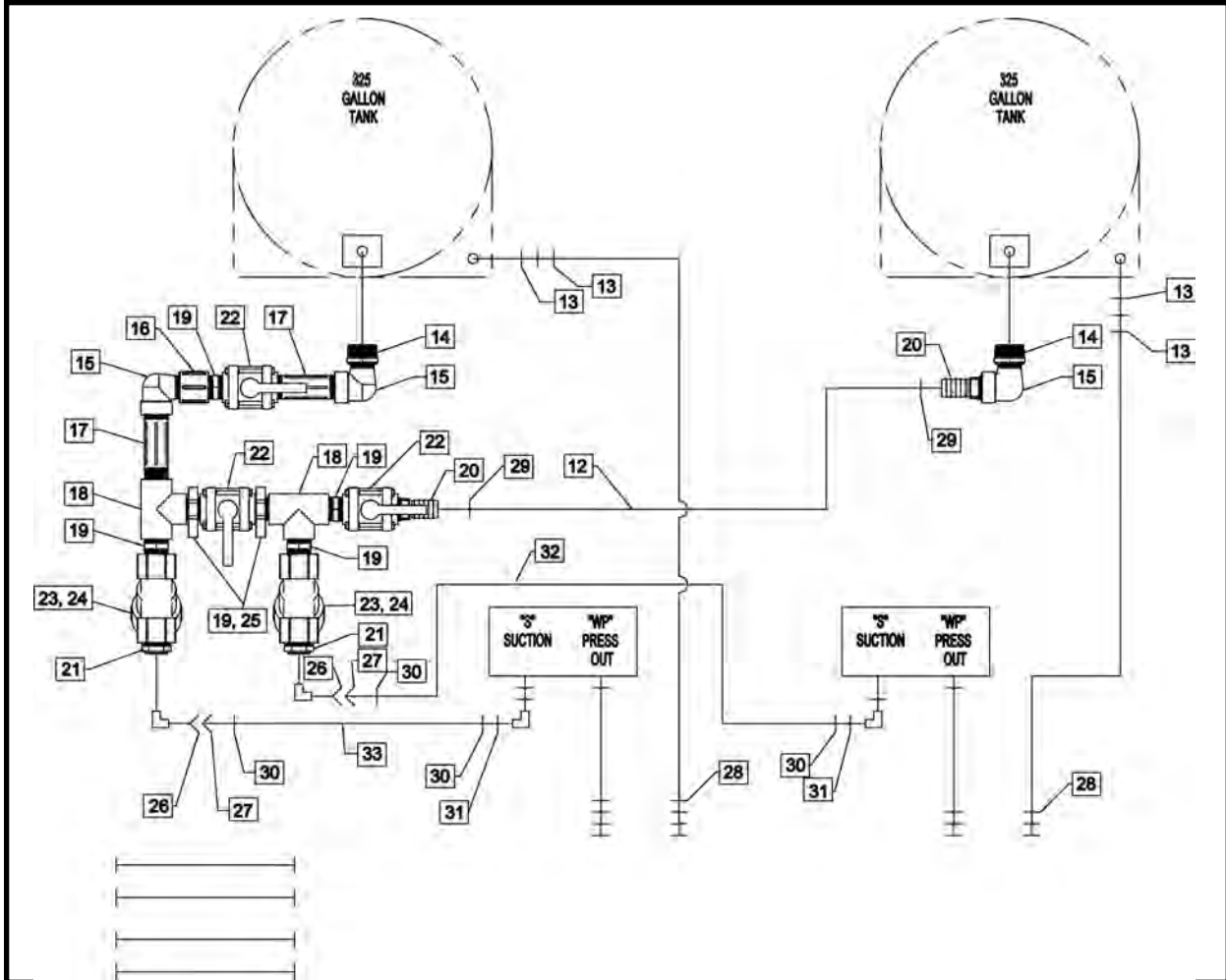
HYDRAULICS & WATER ASSEMBLY, A48827A
2325B/D (SN FA48800F-01 & FA48800F-02)



ITEM	QTY	PART NO.	DESCRIPTION
14	2	P0258-004	REDUCER
15	3	P0258-018	ELBOW, 1-1/2 NPT
16	1	P0409-008	COUPLING, 1-1/2 NPT
17	2	P0258-070	NIPPLE, Pipe
18	2	P0258-043	TEE

(Continued on next page)

HYDRAULICS & WATER ASSEMBLY, A48827A
2325B/D (SN FA48800F-01 & FA48800F-02)



ITEM	QTY	PART NO.	DESCRIPTION
19	6	P0258-005	NIPPLE
20	2	P0258-044	HOSE BARB
21	2	P0258-013	BUSHING, Reducer
22	3	P0258-006	VALVE, 1-1/2
23	2	P0258-012	STRAINER, Line 1-1/2 (Includes item 24)
24	2	P0251-800	FILTER, Mesh Screen
26	2	P0100-122	COUPLER, Cam & Groove
27	2	P0100-121	COUPLER, Cam & Groove
28	2	P0302-102	CHECK VALVE
29	2	P0201-127	T-CLAMP
32	1	P0201-238-031	HOSE, Suction 1 x 31
33	1	P0201-238-025	HOSE, Suction 1 x 25
34	1	P0304-347	MOTOR
35	1	A48899P	ADAPTOR, Motor Plate
36	4	P0031-06-004	SCREW, Socket Head Cap 3/8 UNC x 1
37	4	P0040-008	WASHER, Hardened Flat 1/2
38	2	P0001-08-004	BOLT, Hex 1/2 UNC x 1
39	4	P0040-016	WASHER, Hardened Flat 1
40	1	P0304-332	MOTOR
41	2	P0013-08A-000	NUT, Nylock 1/2 UNC
42	2	P0031-08-007	SCREW, Socket Head Cap 1/2 UNC x 1.75
43	2	P0302-801	VALVE, Ball
44*	1	A48925A	KIT, Hydraulic Fitting
45*	1	A48926A	KIT, Hydraulic Hose

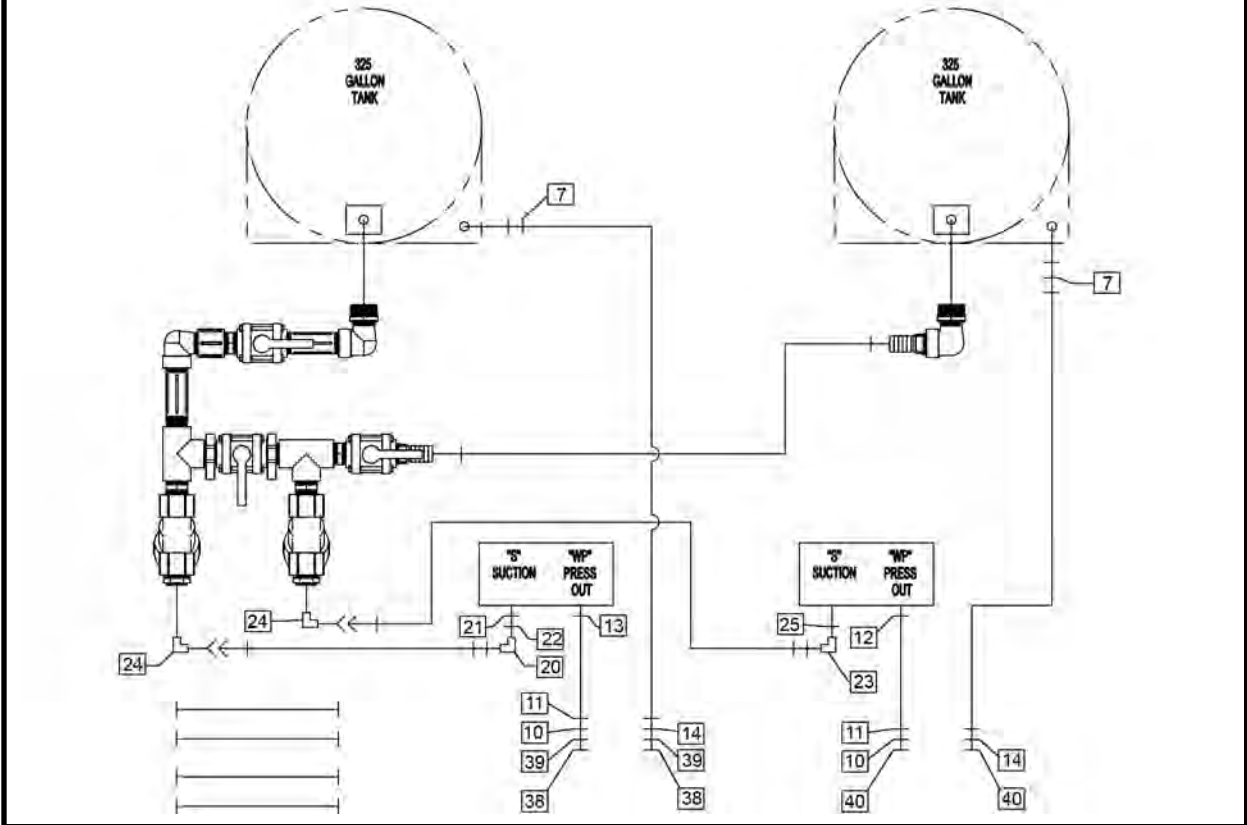
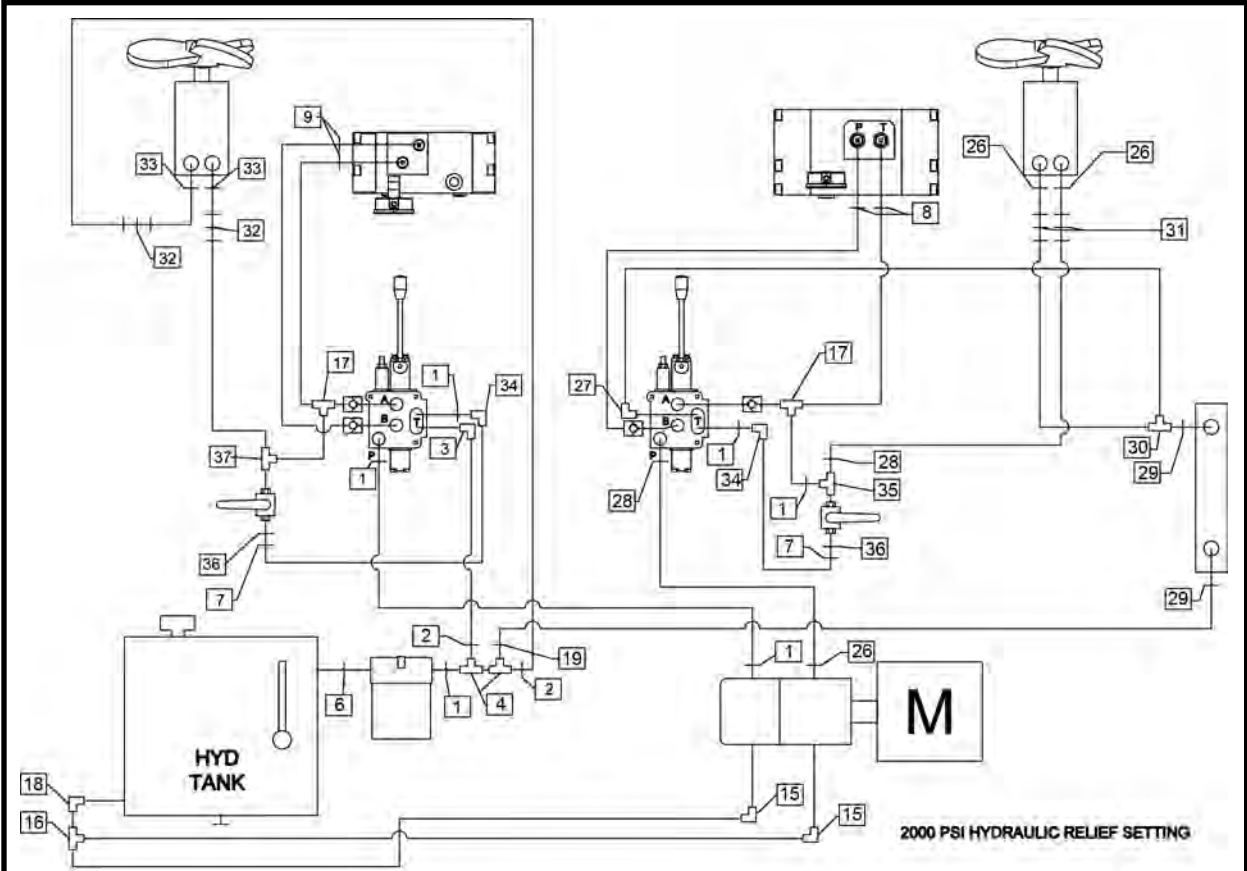
LI - Liner Inch

* Refer to this section for parts information.

2325b-D/EBentLubePumpOPM_050120-a48827a3_revB

NOTES

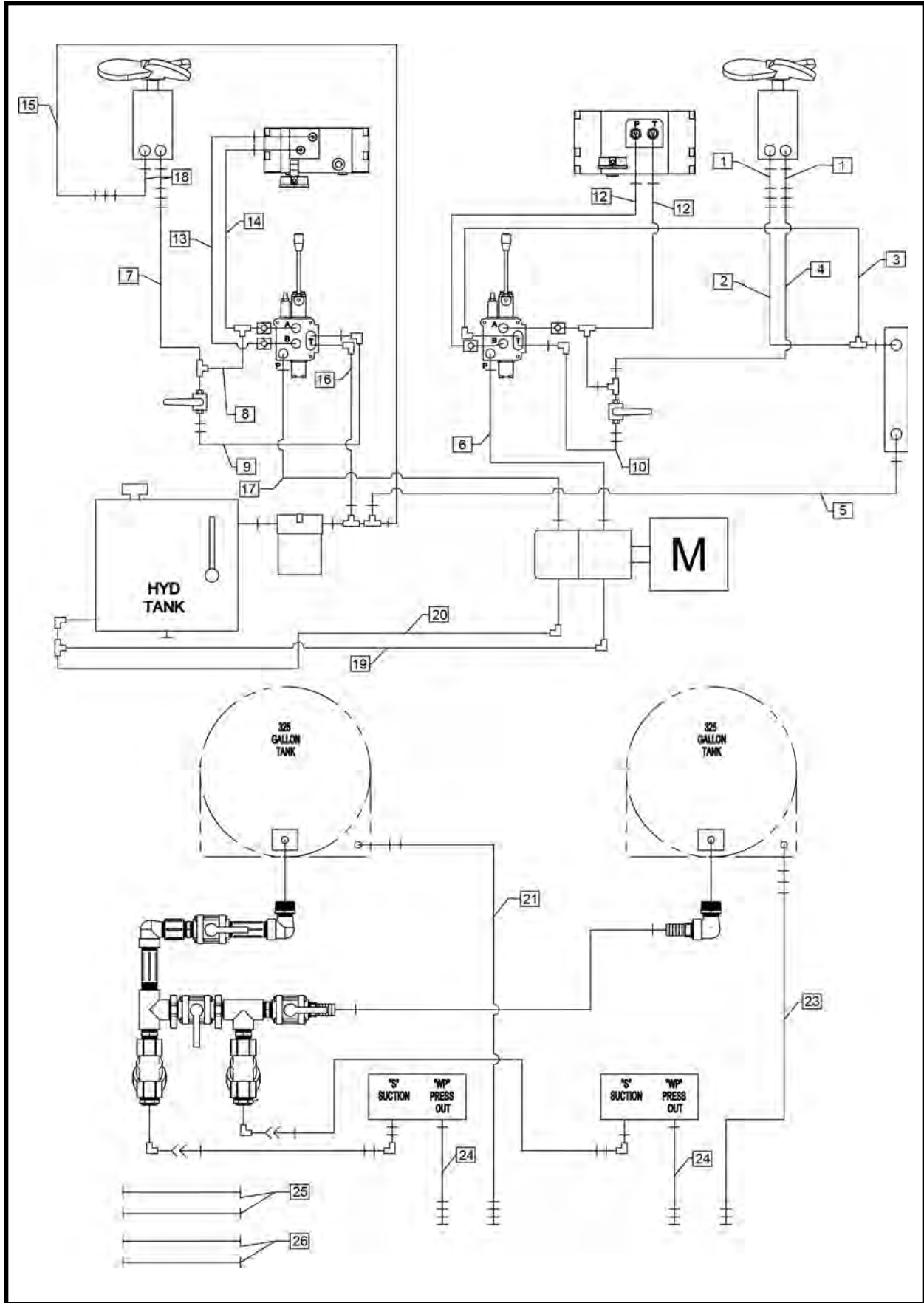
HYDRAULIC FITTING KIT, A48925A
2325B/D (SN FA48800F-01 & FA48800F-02)



HYDRAULIC FITTING KIT, A48925A
2325B/D (SN FA48800F-01 & FA48800F-02)

ITEM	QTY	PART NO.	DESCRIPTION
0	1	A48925A	KIT, Hydraulic Fitting
1	6	P0300-305	FITTING, 08MFFOR-08MB
2	2	P0300-375	FITTING, #8 MFS X 12 MORB
3	2	P0300-316	FITTING, 08MFFOR-08MB90
4	2	P0300-536	FITTING, 12MB-12FB-12FB
5	1	P0300-658	FITTING, 20MB-12FB
6	1	P0300-368	FITTING, 20MB-20MB
7	4	P0300-325	FITTING, 8MJ-8MJ BULKHEAD
8	2	P0300-881	FITTING, 08MFFOR-12MBSPP
9	2	P0300-689	FITTING, 08MFFOR-08MBSPP
10	2	P0300-868	FITTING, 10MJ-10MJBKHD
11	2	P0300-873	FITTING, 10FJ-08MJ
12	1	P0300-689	FITTING, 08FFOR-08MBSPP
13	1	P0300-724	FITTING, 06MFFOR-06MBSPP
14	2	P0300-567	FITTING, 10MJ-08MPBKHD
15	2	P0300-589	FITTING, 16MFFOR-12MB90
16	1	P0300-551	FITTING, 20MFFOR-20FFORX-20MFFOR
17	2	P0300-318	FITTING, 08MFFOR-08FFORX-08MFFOR
18	1	P0300-620	FITTING, 20MFOR-20MB90
19	1	P0300-580	FITTING, 10MFS-12MORB
20	1	P0300-011	FITTING, 12FP-12FP90
21	1	P0300-719	FITTING, 12MBSPP-BONDED SEAL
22	1	P0300-882	FITTING, 16MP-12MBSPP
23	1	P0300-057	FITTING, 16MP-16FP90
24	2	P0300-090	FITTING, 16MP-16MP90
25	1	P0300-277	FITTING, 16MBSPP-16FP
26	3	P0300-385	FITTING, 10MFS X 10MORB-STR
27	1	P0300-889	FITTING, 10MFFOR-08MB90
28	2	P0300-892	FITTING, 8MB-10MFFOR
29	2	P0300-886	FITTING, 12MFFOR-16MBSPP
30	1	P0300-588	FITTING, FS6602-12-12-12
31	2	P0300-891	FITTING, 10MFFORBLKHEAD
32	2	P0300-595	FITTING, 08MFFOR-08MFFOR-BKHD
33	2	P0300-300	FITTING, 08MFFOR-10MB
34	2	P0300-317	FITTING, 8MFS-FSS 90 DEGREE FITTING
35	1	P0300-688	FITTING, 08MB-08FB-08FB
36	2	P0300-332	FITTING, 08OR
37	1	P0300-535	FITTING, 08MFOR-08MB-08MFOR
38	2	P0300-126	TUBE, 3/8 OD x 9/16-18 Thread
39	2	P0300-147	FITTING, 10FJ-6MJ
40	2	P0300-140	TUBE, 5/8 OD x 7/8-14 Thread

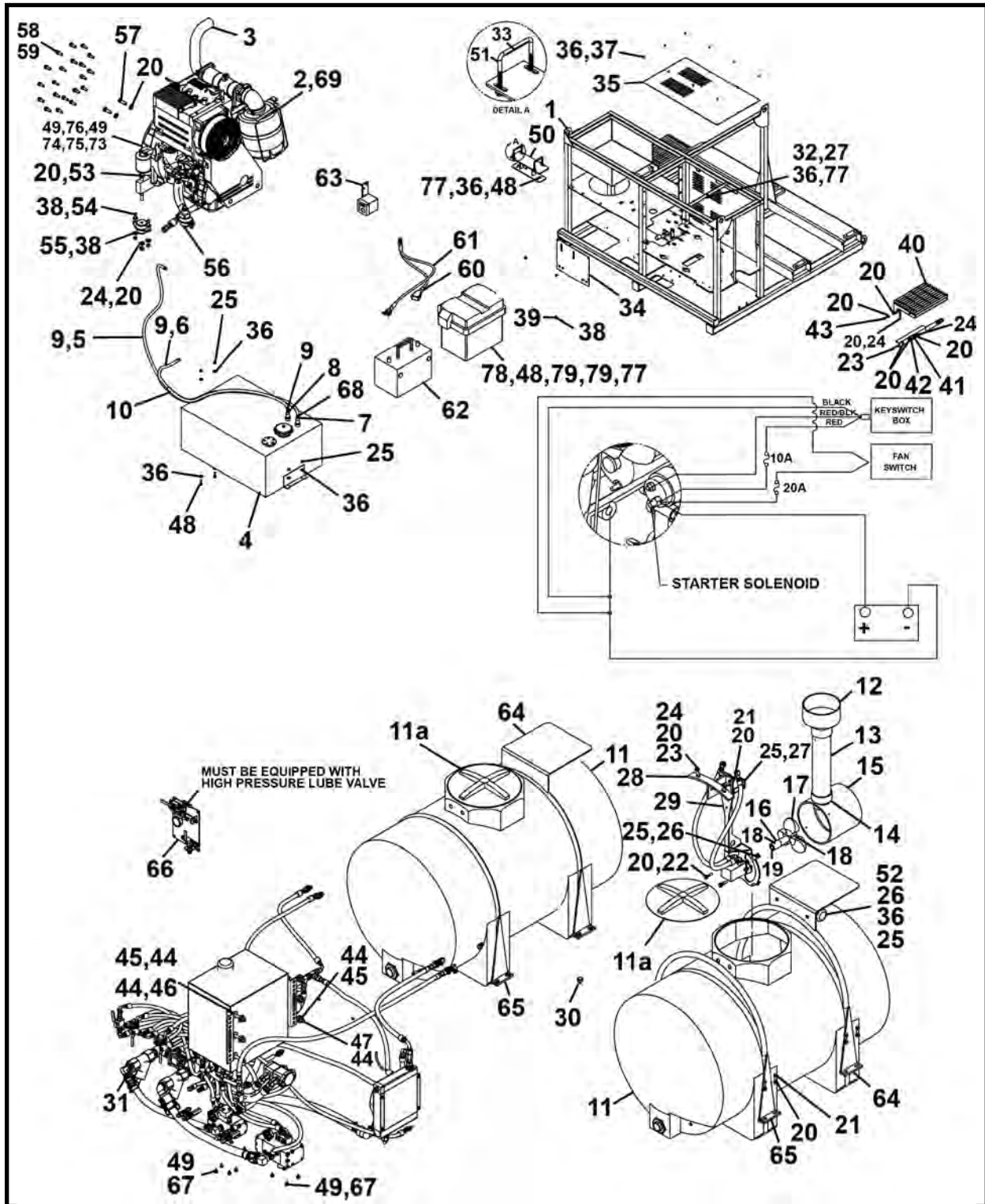
HYDRAULIC HOSE KIT, A48926A
2325B/D (SN FA48800F-01 & FA48800F-02)



HYDRAULIC HOSE KIT, A48926A
2325B/D (SN FA48800F-01 & FA48800F-02)

ITEM	QTY	PART NO.	DESCRIPTION
0	1	A48926A	KIT, Hydraulic Hose
1	2	A09877A-032	HOSE ASSEMBLY 5/8 x 32
2	1	A09876A-051	HOSE ASSEMBLY 5/8 x 51
3	1	A09876A-064	HOSE ASSEMBLY 5/8 x 64
4	1	A09877A-081	HOSE ASSEMBLY 5/8 x 81
5	1	A09876A-069	HOSE ASSEMBLY 5/8 x 69
6	1	A09877A-031	HOSE ASSEMBLY 5/8 x 31
7	1	A10324A-068	HOSE ASSEMBLY 1/2 x 68
8	1	A10324A-039	HOSE ASSEMBLY 1/2 x 39
9	1	A09853A-021	HOSE ASSEMBLY 1/2 x 21
10	1	A09853A-032	HOSE ASSEMBLY 1/2 x 32
11	1	A10362A-015	HOSE ASSEMBLY 1/2 x 15
12	2	A10324A-027	HOSE ASSEMBLY 1/2 x 27
13	1	A10324A-017	HOSE ASSEMBLY 1/2 x 17
14	1	A10324A-014	HOSE ASSEMBLY 1/2 x 14
15	1	A10324A-031	HOSE ASSEMBLY 1/2 x 31
16	1	A10372A-035	HOSE ASSEMBLY 1/2 x 35
17	1	A10324A-034	HOSE ASSEMBLY 1/2 x 34
18	2	A09912A-031	HOSE ASSEMBLY 1/2 x 31
19	1	A09875A-046	HOSE ASSEMBLY 1 x 46
20	1	A09984A--039	HOSE ASSEMBLY 1 x 39
21	1	A10345A-026	HOSE ASSEMBLY 1/2 x 26
22	1	A10324A-032	HOSE ASSEMBLY 1/2 x 32
23	1	A10345A-054	HOSE ASSEMBLY 1/2 x 54
24	1	A10390A-028	HOSE ASSEMBLY 3/8 x 28
25	2	A09908A-018	HOSE ASSEMBLY 1/2 x 18
26	2	A10311A-018	HOSE ASSEMBLY 3/8 x 18

BENTONITE & LUBRICATION PUMP FINAL ASSEMBLY, FA48800F
2325B/D (SN FA48800F-03 & AFTER)



ITEM	QTY	PART NO.	DESCRIPTION
0	1	FA48800F	2325B/D LUBRICATION PUMP ASSEMBLY
1	1	A08248A	FRAME
2	1	P0125-158	ENGINE
3	1	A48297P	TUBE, Engine Muffler
4	1	P0125-140	TANK, Fuel
5	10 LI	P0201-240-10	LINE, Fuel 1/4 x 10
6	39 LI	P0201-281-39	HOSE, Fuel 5/16 x 39

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**BENTONITE & LUBRICATION PUMP FINAL ASSEMBLY, FA48800F
2325B/D (SN FA48800F-03 & AFTER)**

ITEM	QTY	PART NO.	DESCRIPTION
7	1	P0300-893	HOSE BARB
8	1	P0300-742	HOSE BARB
9	5	P0201-241	CLAMP
10	12 LI	P0313-102	LOOM, Nylon
11	2	A48401P	TANK (Includes item 11a)
11a	2	P0258-003A	LID, Tank
12	2	P0258-066	COUPLING, Reducing
13	2	A48477P	TUBE, PVC Bentonite Mix
14	2	P0258-067	COUPLING, Reducing
15	2	A48478P	TUBE, PVC Agitator Mix
16	2	A48479P	ROD, Agitator Shaft
17	2	A48411P	PROPELLER
18	8	P0032-002	SCREW, Socket Set Screw 5/16 x .375
19	3.5 LI	P0047-003	KEY, 1/4
20	72	P0040-008	WASHER, Hardened Flat 1/2
21	24	P0001-08-005	SCREW, Head Cap 1/2 UNC x 1.25
22	4	P0001-08-008	BOLT, Hex 1/2 UNC x 2
23	8	P0001-08-012	BOLT, Hex 1/2 UNC x 3
24	16	P0013-08A-000	NUT, Nyloc 1/2
25	16	P0013-04-000	NUT, Nyloc 1/4
26	10	P0020-14-205	SCREW, Truss Head Machine 1
27	3	P0001-04-003	BOLT, Hex 1/4 UNC x .75
28	2	A48424A	MOUNT, Agitator
29	2	A08330A	FRAME, Agitator
30	2	P0258-075	PLUG, Poly Threaded 1 NPT
31*	1	A08245A	ASSEMBLY, Hydraulic & Water
32	1	P0055-130	CLAMP
33	3 LI	P0201-312	LINE, Fuel 3/8
34	1	A08244P	COVER, Valve
35	1	A48503P	PANEL, Top Cover
36	21	P0040-004	WASHER, Hardened Flat 1/4
37	10	P0001-04-002	BOLT, Hex 1/4 UNC x .5
38	19	P0040-006	WASHER, Hardened Flat 3/8
39	3	P0001-06-002	BOLT, Hex 3/8 UNC x .5
40	2	A45054A	STEP
41	2	A45057A	BRACE, Step
42	4	A45170P	BUSHING
43	4	P0001-08-007	BOLT, Hex 1/2 UNC x 1.75
44	12	P0040-010	WASHER, Hardened Flat 5/8
45	6	P0013-10-000	NUT, Lock 5/8 UNC
46	3	P0001-10-014	BOLT, Hex 5/8 UNC x 3.5
47	3	P0001-10-007	BOLT, Hex 5/8 UNC x 1.75
48	8	P0001-04-004	BOLT, Hex 1/4 UNC x 1
49	14	P0040-005	WASHER, Hardened Flat 5/16
50	1	A08205A	SUPPORT, Ball Valve
51	2	P0202-201	U-BOLT
52	1	P0095-128	CANISTER, Manual
53	2	P0001-08-024	BOLT, Hex 1/2 UNC x 6
54	8	P0001-06-005	BOLT, Hex 3/8 UNC x 1.25
55	8	P0013-06A-000	NUT, Nyloc 3/8 UNC
56	2	P0001-08-020	BOLT, Hex 1/2 UNC x 5
57	2	P0001-08-006	SCREW, Hex Cap 1/2 UNC x 1.5
58	20	PM40-010	WASHER, Flat 10 MM
59	20	PM10A-1.50-030	BOLT, Hex M10x1.50 x 30 10.9
60	1	A08204A-050	CABLE, Positive Battery

(Continued on next page)

**BENTONITE & LUBRICATION PUMP FINAL ASSEMBLY, FA48800F
2325B/D (SN FA48800F-03 & AFTER)**

ITEM	QTY	PART NO.	DESCRIPTION
61	1	A08203A-050	CABLE, Negative Battery
62	1	P0064-019	BATTERY
63	1	A48822P	BAR, Key Switch Panel
64	2	A48824A	STRAP, Tank, W/Bag Shelf
65	2	A48823A	STRAP, Tank
66*	1	A43749A	CONTROL, PCH Jetting & Lube Pit
67	8	PM08A-1.25-016	SCREW, Hex Cap 8x1.25x16 10.9
68	1	P0201-293	CLAMP, Radiator
69	6.5 QT	P0126-041	OIL, Diesel 15 W40
70	2	P0251-415	HOLDER, Fuse
71	1	P0251-413	FUSE, 10 A DC ATC
72	1	P0251-414	FUSE, 20A DC ATC
73	1	A08200A	BRACKET, Fuel Filter
74	2	P0013-03.5A-000	NUT, Nyloc 5/16
75	2	P0001-05-009	BOLT, Hex 5/16 UNC x 2.25
76	2	PM08A-1.25-025	SCREW, Hex Cap M8x1.25x25 10.9
77	7	P0003-04-000	NUT, 1/4 UNC
78	1	P0064-127	CASE, Battery
79	8	P0042-013	WASHER, Hardened Fender 1/4 x 9/32 x 1.5
80	1	1255-041	KIT, Decal

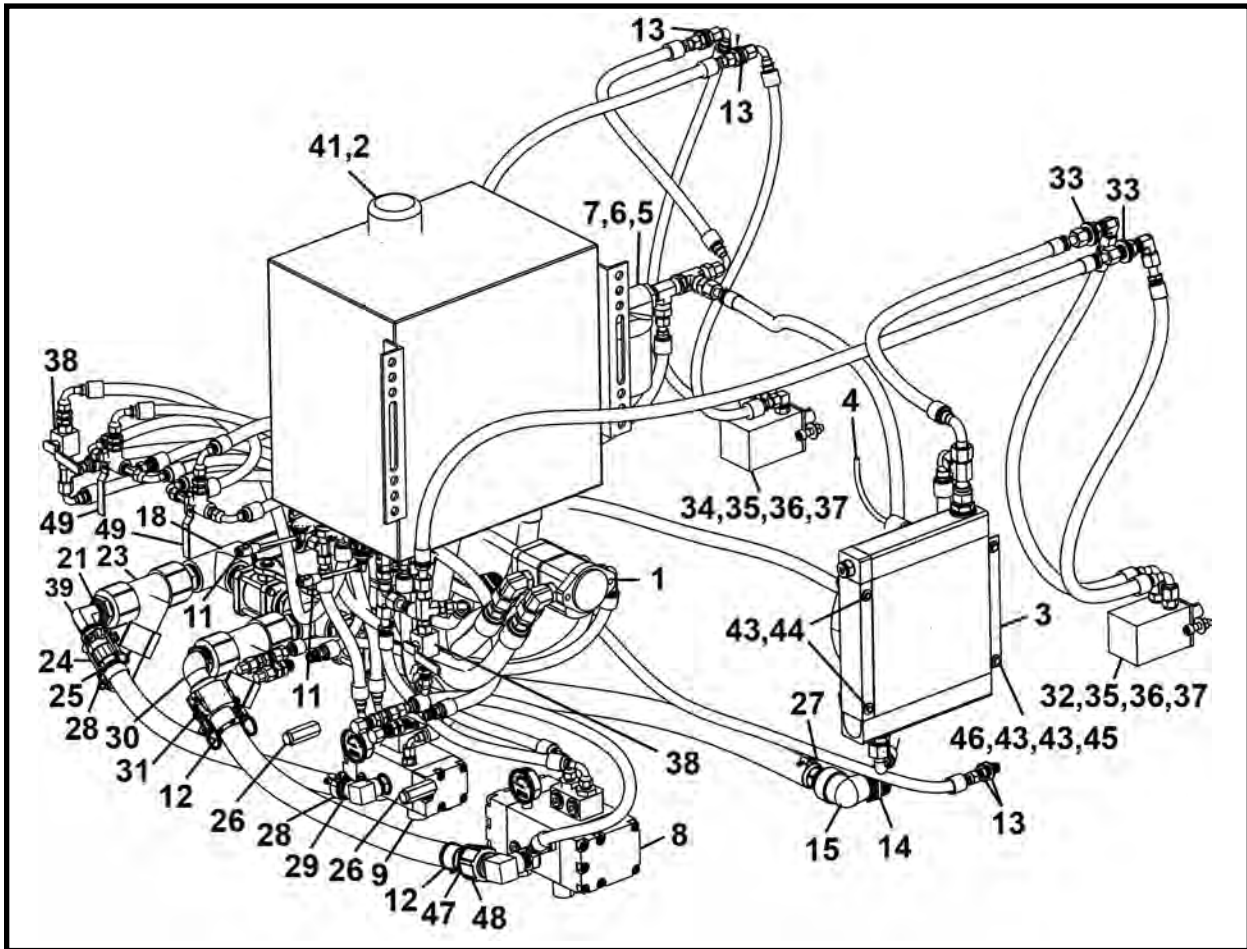
LI - Linear Inch

QT - Quart

* Refer to this section for parts information.

NOTES

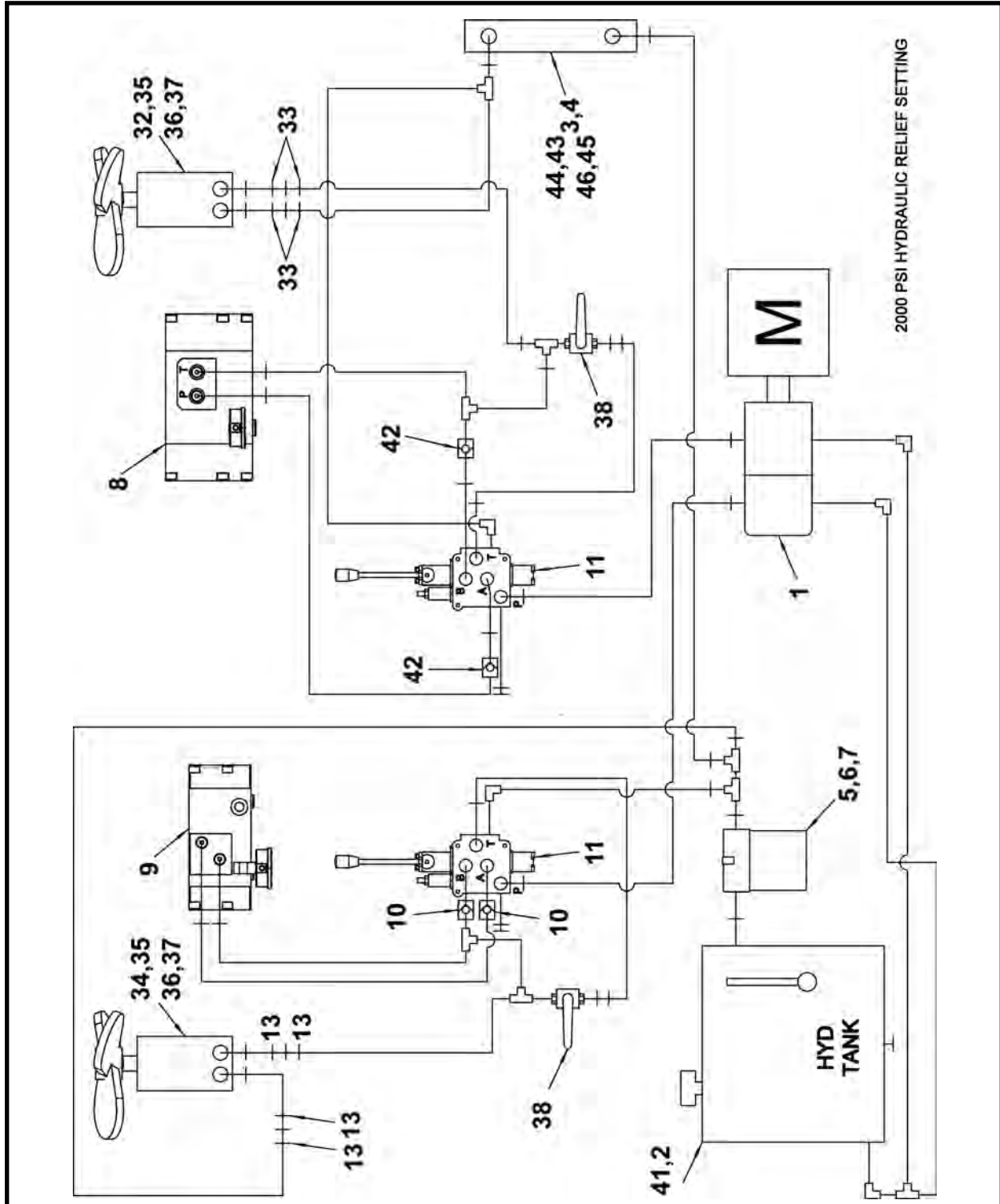
HYDRAULICS & WATER ASSEMBLY, A08245A
2325B/D (SN FA48800F-03 & AFTER)



ITEM	QTY	PART NO.	DESCRIPTION
0	1	A08245A	HYDRAULICS & WATER ASSEMBLY
1	1	P0303-401	PUMP, Gear
2	1	P0125-139	TANK, 25 Gallon (Includes items 2a & 2b)
2a	1	P0125-139A	CAP, Breather
2b	1	P0125-139B	GAUGE, Sight
3	1	P0093-036	OIL COOLER
4	1	P0093-036A	SWITCH, Temp With Relay 30 AMP
5	1	P0309-144B	FILTER HEAD ASSEMBLY
6	1	P0309-145A	ELEMENT, Filter
7	1	P0301-105	GAUGE, Filter Indicator
8	1	P0303-396	PUMP, Piston Fluid
9	1	P0303-399	PUMP, Piston Bentonite, 6 GPM
10	2	P0302-701	CHECK VALVE
11	2	P0302-803	VALVE
12	1	P0201-301	CLAMP, Radiator
13	8	P0040-012	WASHER, Hardened Flat 3/4
14	2	P0258-004	REDUCER
15	3	P0258-018	ELBOW, 1-1/2 NPT
16	1	P0409-008	COUPLING, 1-1/2 NPT
17	2	P0258-070	NIPPLE, Pipe
18	2	P0258-043	TEE
19	6	P0258-005	NIPPLE
20	2	P0258-044	BARB, Hose
21	2	P0258-013	BUSHING, Reducer
22	3	P0258-006	VALVE, 1-1/2

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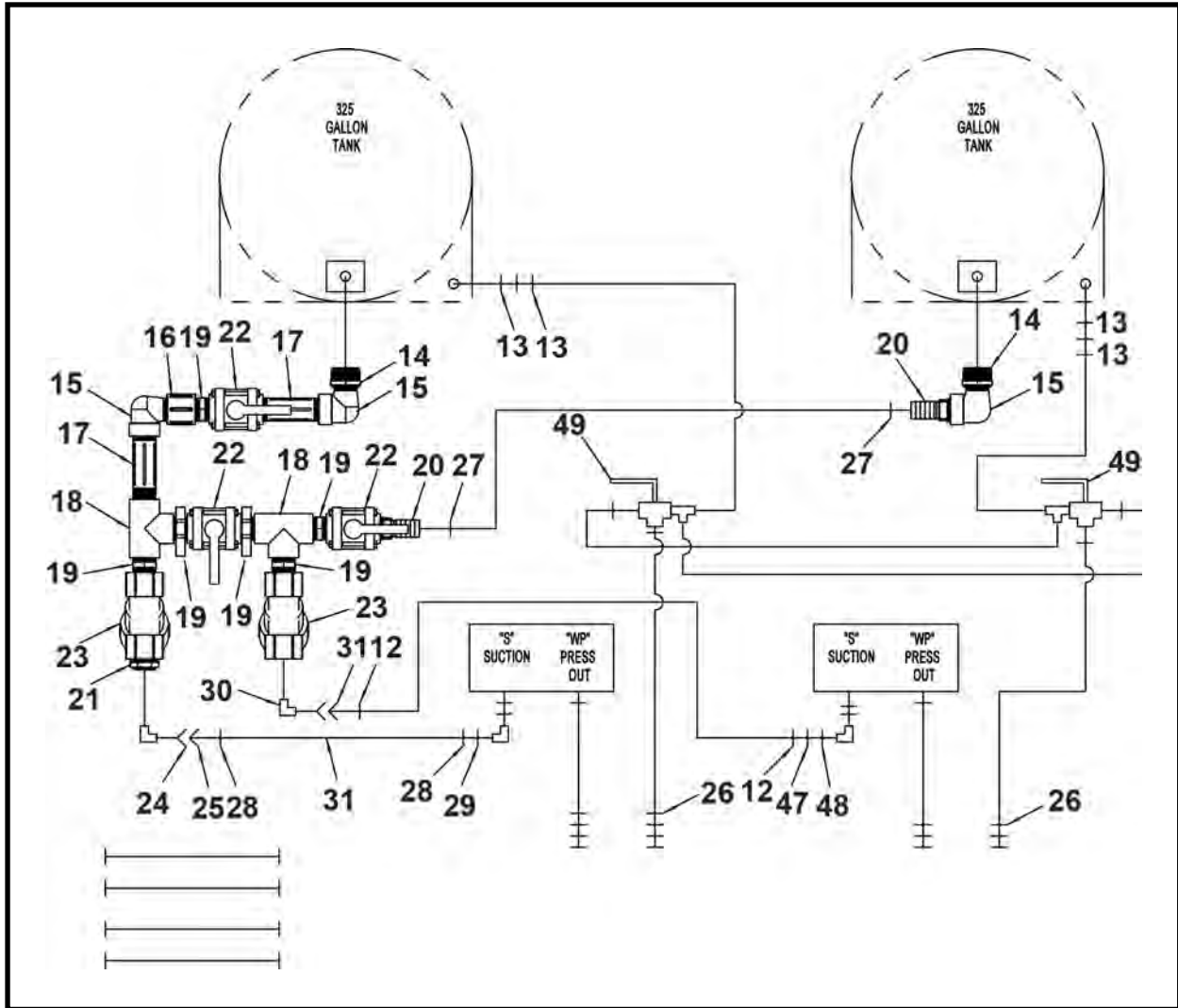
HYDRAULICS & WATER ASSEMBLY, A08245A
2325B/D (SN FA48800F-03 & AFTER)



ITEM	QTY	PART NO.	DESCRIPTION
23	2	P0258-012	STRAINER, Line 1-1/2 (Includes item 23a)
23a	1	P0251-800	FILTER, Mesh Screen
24	1	P0100-122	COUPLER, Cam & Groove
25	1	P0100-121	COUPLER, Cam & Groove
26	2	P0302-102	CHECK VALVE
27	2	P0201-127	T-CLAMP
28	2	P0201-205	T CLAMP

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HYDRAULICS & WATER ASSEMBLY, A08245A
2325B/D (SN FA48800F-03 & AFTER)



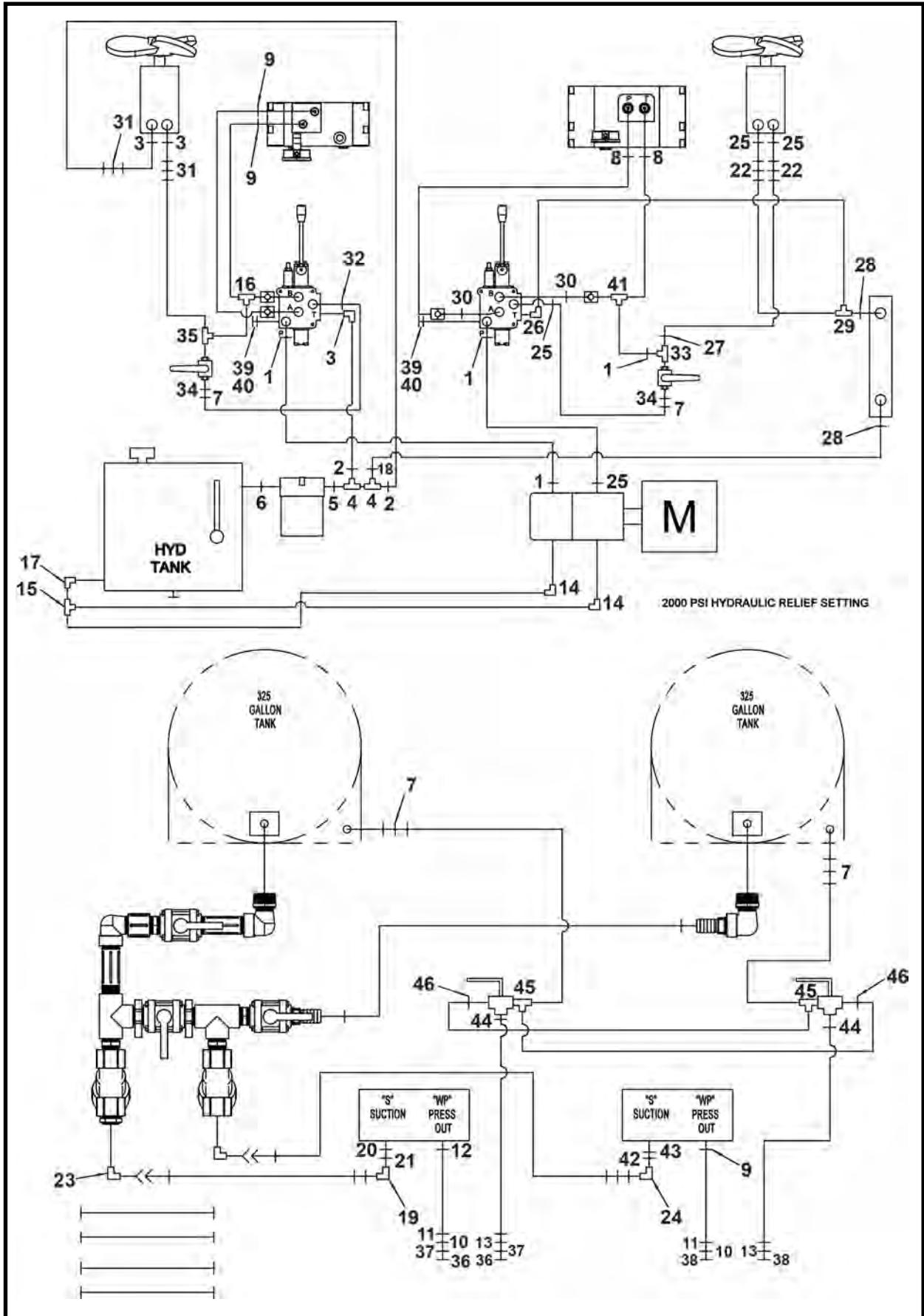
ITEM	QTY	PART NO.	DESCRIPTION
29	1	P0423-124	ADAPTER, Hose
30	1	P0258-084	CAMLOCK, Male
31	1	P0258-085	CAMLOCK, Female
32	1	P0304-347	MOTOR
33	4	P0040-016	WASHER, Hardened Flat 1
34	1	P0304-353	MOTOR
35	4	P0040-008	WASHER, Hardened Flat 1/2
36	4	P0013-08A-000	NUT, Nyloc 1/2 UNC
37	4	P0031-08-007	SCREW, Socket Head Cap 1/2 UNC x 1.75
38	2	P0302-801	VALVE, Ball
39*	1	A08246A	KIT, Hydraulic Fitting
40*	1	A08325A	KIT, Hydraulic Hose
41	100 QT	P0126-038	OIL, Hydraulic Oil Duragard AW-68
42	2	P0302-810	CHECK VALVE
43	6	P0040-005	WASHER, Hardened Flat 5/16
44	2	PM6A-16-1.00	BOLT, Hex M6x1.00 x 16 10.9
45	2	P0003-05-000	NUT, Hex 5/16 UNC
46	2	P0001-05-004	BOLT, Hex 5\16UNC x 1
47	1	P0258-087	BARB, Hose 1-1/2
48	1	P0258-086	COUPLER, Reducer
49	2	P0302-512	VALVE, Ball 3 Way

* Refer to this section for parts information.

QT - Quart

NOTES

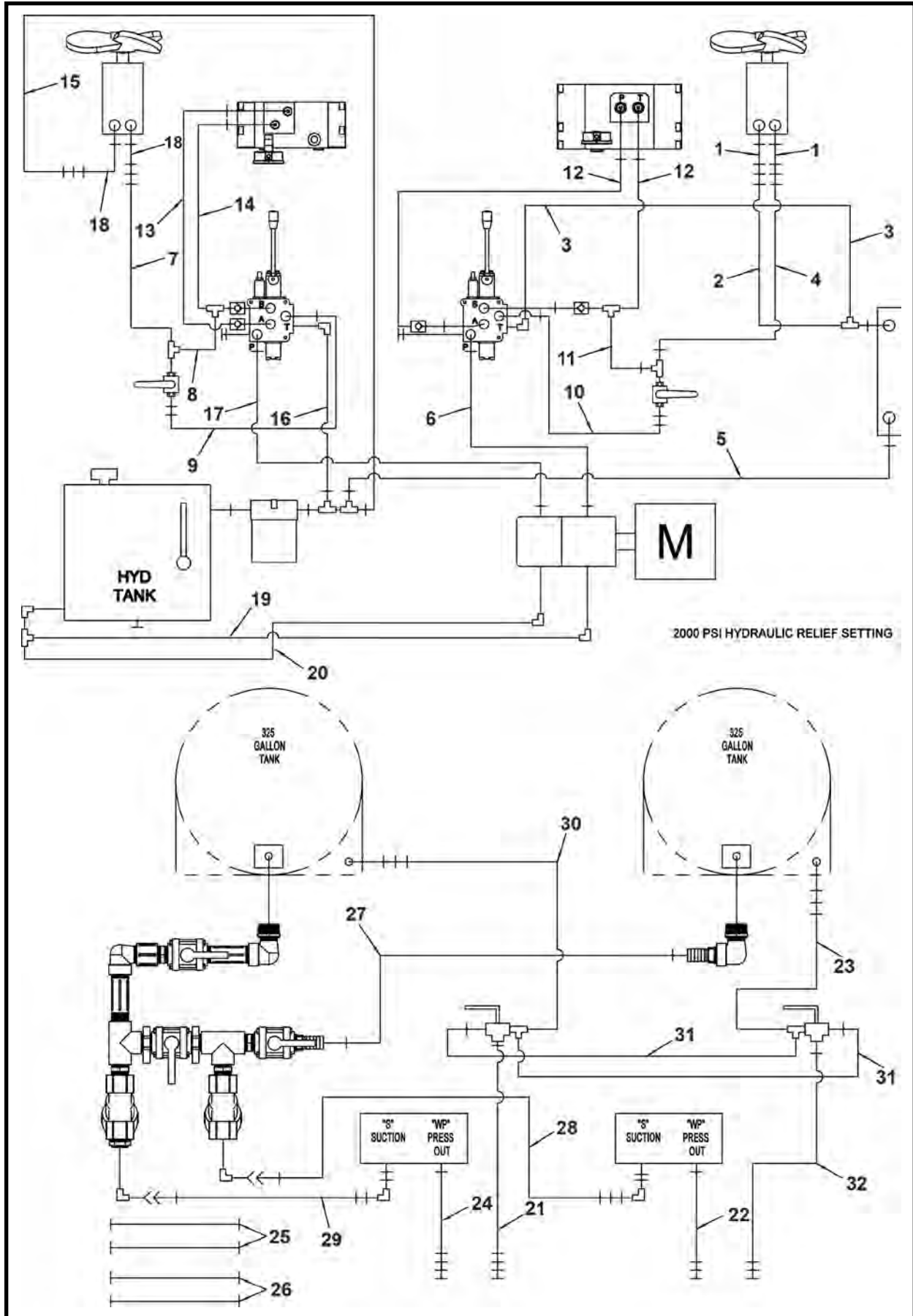
HYDRAULIC FITTING KIT, A08246A
2325B/D (SN FA48800F-03 & AFTER)



HYDRAULIC FITTING KIT, A08246A
2325B/D (SN FA48800F-03 & AFTER)

ITEM	QTY	PART NO.	DESCRIPTION
0	1	A08246A	KIT, Hydraulic Fitting
1	4	P0300-305	FITTING, 08MFFOR-08MB
2	2	P0300-375	FITTING, #8 MFS X 12 MORB
3	3	P0300-302	FITTING, 08MFFOR-10MB90
4	2	P0300-536	FITTING, 12MB-12FB-12FB
5	1	P0300-658	FITTING, 20MB-12FB
6	1	P0300-368	FITTING, 20MB-20MB
7	4	P0300-325	FITTING, 8MJ-8MJ BULKHEAD
8	2	P0300-881	FITTING, 08MFFOR-12MBSPP
9	3	P0300-689	FITTING, 08MFFOR-08MBSPP
10	2	P0300-868	FITTING, 10MJ-10MJBKHD
11	2	P0300-873	FITTING, 10FJ-08MJ
12	1	P0300-724	FITTING, 06MFFOR-06MBSPP
13	2	P0300-567	FITTING, 10MJ-08MPBKHD
14	2	P0300-589	FITTING, 16MFFOR-12MB90
15	1	P0300-551	FITTING, 20MFFOR-20FFORX-20MFFOR
16	1	P0300-318	FITTING, 08MFFOR-08FFORX-08MFFOR
17	1	P0300-620	FITTING, 20MFOR-20MB90
18	1	P0300-580	FITTING, 10MFS-12MORB
19	1	P0300-072	FITTING, 16FP-16FP90
20	1	P0300-719	FITTING, 12MBSPP-BONDED SEAL
21	1	P0300-882	FITTING, 16MP-12MBSPP
22	2	P0300-903	FITTING, 10MFFOR-10MFFOR-BKHD90
23	1	P0300-090	FITTING, 16MP-16MP90
24	2	P0300-057	FITTING, 16MP-16FP90
25	4	P0300-385	FITTING, 10MFS X 10MORB-STR
26	1	P0300-383	FITTING, 10MFS X 10MORB-90
27	1	P0300-892	FITTING, 8MB-10MFFOR
28	2	P0300-886	FITTING, 12MFFOR-16MBSPP
29	1	P0300-588	FITTING, FS6602-12-12-12
30	2	P0300-900	FITTING, 8MB-10FB
31	2	P0300-595	FITTING, 08MFFOR-08MFFOR-BKHD
32	1	P0300-300	FITTING, 08MFFOR-10MB
33	1	P0300-688	FITTING, 08MB-08FB-08FB
34	2	P0300-332	FITTING, 08OR
35	1	P0300-535	FITTING, 08MFOR-08MB-08MFOR
36	2	P0300-126	TUBE, 3/8 OD x 9/16-18 Thread
37	2	P0300-147	FITTING, 10FJ-6MJ
38	2	P0300-140	TUBE, 5/8 OD x 7/8-14 Thread
39	2	P0300-272	FITTING, 4 MJ X 08 MB
40	2	P0300-259	TUBE, 1/4 OD x 7/16-20 Thread
41	1	P0300-422	FITTING, 10MFFOR-10FFORX-10MFFOR
42	1	P0300-879	FITTING, 16MBSPP-16MP
43	1	P0300-880	FITTING, 16MBSSP
44	2	P0300-826	FITTING, 8MP-8MJBKHD
45	2	P0300-927	FITTING, 08MJ-08MP-08MJ
46	2	P0300-053	FITTING, 8MJ-8MP

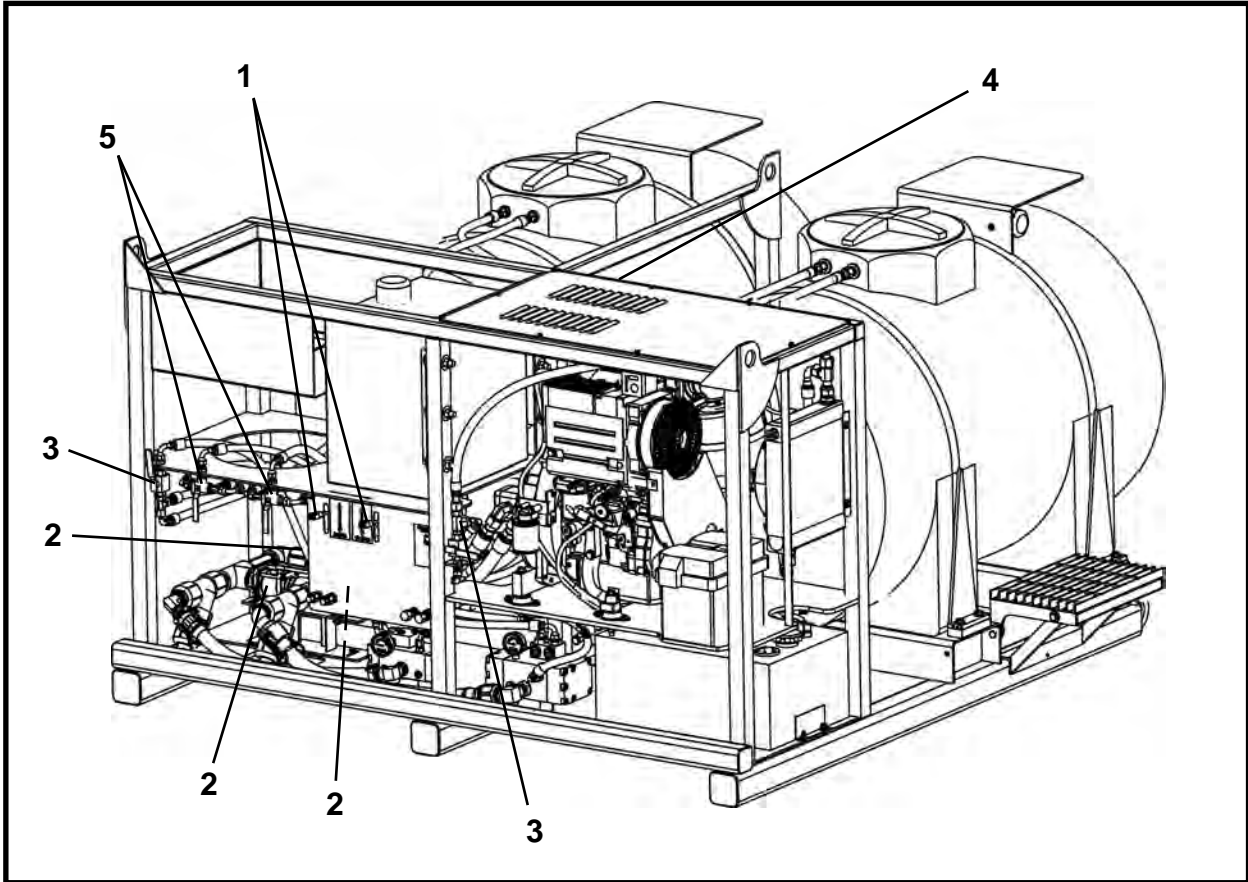
HYDRAULIC HOSE KIT, A08325A
2325B/D (SN FA48800F-03 & AFTER)



HYDRAULIC HOSE KIT, A08325A
2325B/D (SN FA48800F-03 & AFTER)

ITEM	QTY	PART NO.	DESCRIPTION
0	1	A08325A	KIT, Hydraulic Hose
1	2	A09877A-039	HOSE ASSEMBLY 5/8 x 39
2	1	A09876A-043	HOSE ASSEMBLY 5/8 x 43
3	1	A09876A-064	HOSE ASSEMBLY 5/8 x 64
4	1	A09881A-078	HOSE ASSEMBLY 5/8 x 78
5	1	A09876A-069	HOSE ASSEMBLY 5/8 x 69
6	1	A10359A-031	HOSE ASSEMBLY 1/2 x 31
7	1	A10324A-070	HOSE ASSEMBLY 1/2 x 70
8	1	A10324A-037	HOSE ASSEMBLY 1/2 x 37
9	1	A09853A-040	HOSE ASSEMBLY 1/2 x 40
10	1	A09853A-021	HOSE ASSEMBLY 1/2 x 21
11	1	A09873A-015	HOSE ASSEMBLY 1/2 x 15
12	2	A09873A-027	HOSE ASSEMBLY 1/2 x 27
13	1	A10324A-017	HOSE ASSEMBLY 1/2 x 17
14	1	A10324A-014	HOSE ASSEMBLY 1/2 x 14
15	1	A10324A-031	HOSE ASSEMBLY 1/2 x 31
16	1	A10372A-035	HOSE ASSEMBLY 1/2 x 35
17	1	A10324A-034	HOSE ASSEMBLY 1/2 x 34
18	2	A09912A-039	HOSE ASSEMBLY 1/2 x 39
19	1	A09875A-039	HOSE ASSEMBLY 1 x 39
20	1	A09984A-039	HOSE ASSEMBLY 1 x 39
21	1	A10075A-036	HOSE ASSEMBLY 1/2 x 36
22	1	A10324A-032	HOSE ASSEMBLY 1/2 x 32
23	1	A10361A-078	HOSE ASSEMBLY 1/2 x 78
24	1	A10390A-028	HOSE ASSEMBLY 3/8 x 28
25	2	A09908A-018	HOSE ASSEMBLY 1/2 x 18
26	2	A10311A-018	HOSE ASSEMBLY 3/8 x 18
27	1	P0201-239-041	HOSE, PVC Clear Water Suction 1-1/2 ID x 41
28	1	P0201-239-028	HOSE, PVC Clear Water Suction 1-1/2 ID x 28
29	1	P0201-238-024	HOSE, PVC Clear Water Suction 1 ID x 24
30	1	A10361A-040	HOSE ASSEMBLY 1/2 x 40
31	2	A10361A-027	HOSE ASSEMBLY 1/2 x 27
32	1	A10075A-048	HOSE ASSEMBLY 1/2 x 48

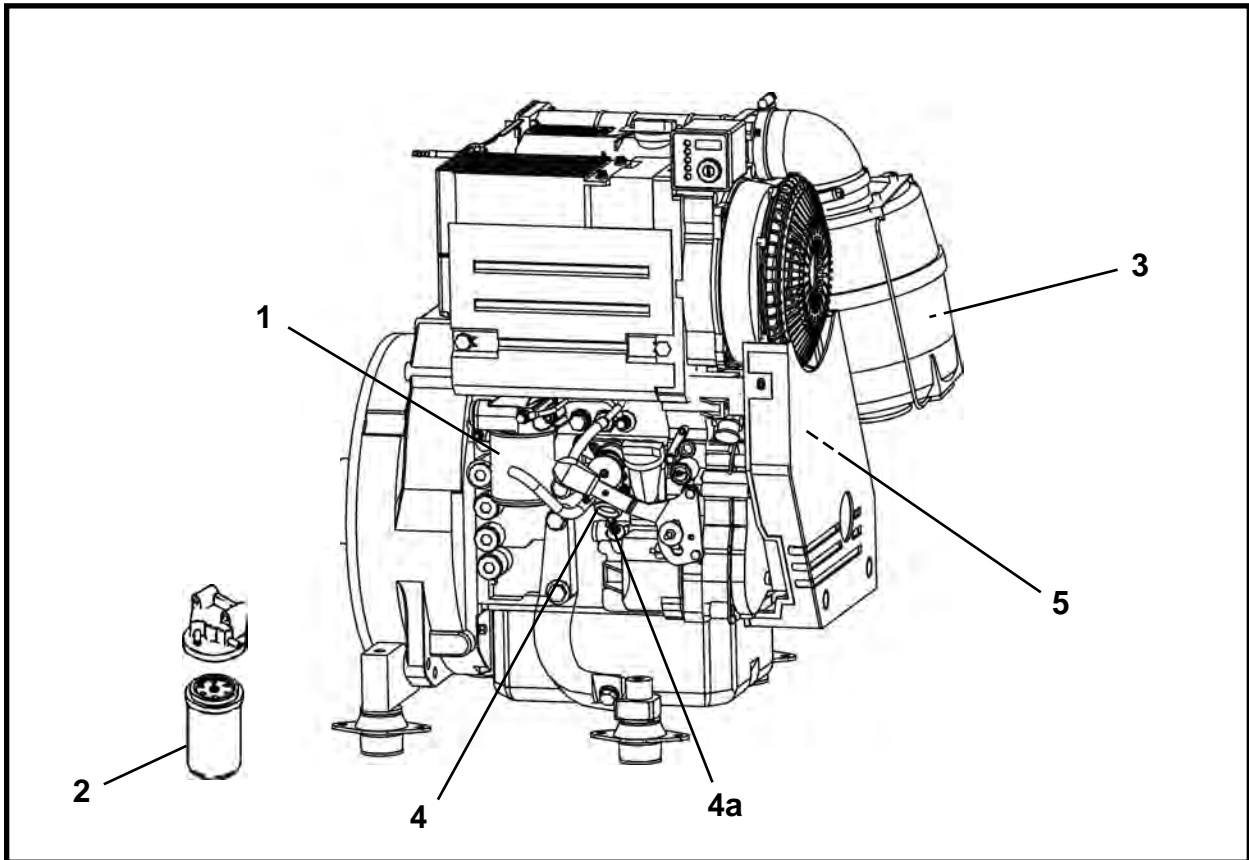
OPERATOR CONTROLS 2325B/D



ITEM	QTY	PART NO.	DESCRIPTION
1.1	2	* P0302-696	VALVE, Single Detent (FA48800F-01 & 02)
1.2	2	P0302-803	VALVE, Single Detent (FA48800F-03 & After)
2	3	P0258-006	VALVE, Port 1-1/2
3	2	P0302-801	VALVE, Mixer Control
4	1	P0301-105	GAUGE, Filter Indicator
5	2	P0302-512	VALVE, Ball Three Way (FA48800F-03 & After)

* SN FA48800F-01 & 02 can be replaced with P0302-803. Contact your Akkerman Aftermarket Support representative for details.

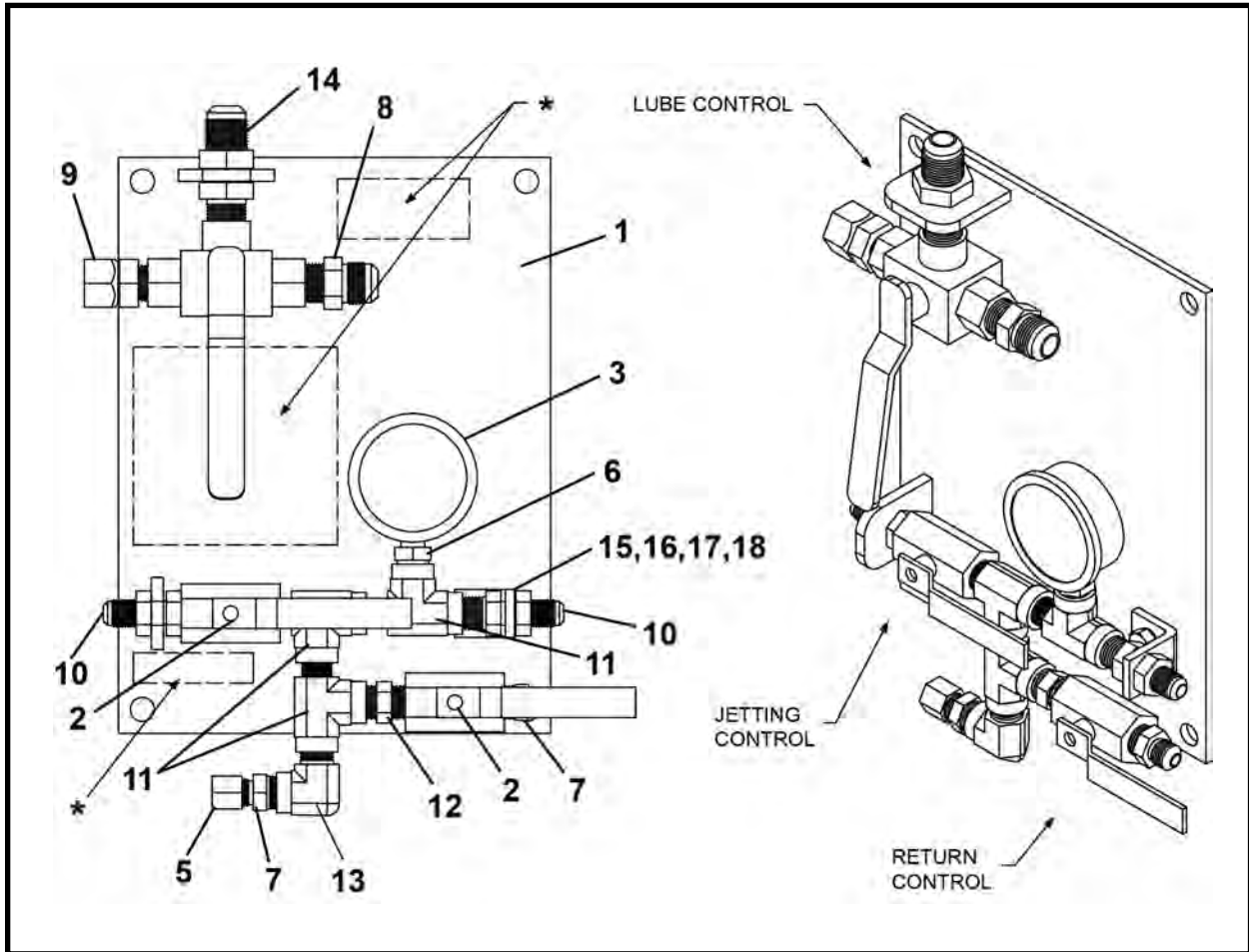
ENGINE, P0125-158
2325B/D - Deutz Engine Package



ITEM	QTY	PART NO.	DESCRIPTION
0	1	P0125-158	ENGINE (Assembly does not include item 6)
1	1	P0125-152A	FILTER, Oil
2	1	P0125-152B	FILTER, Fuel
3	1	P0125-152C	ELEMENT, Air Cleaner
4	1	P0125-152D	DIPSTICK (Includes item 4a)
4a	1	P0125-152E	ORING
5	1	P0125-152F	V-BELT, Narrow
6*	1	P0125-158K	KIT, Glow Plug

* Not Shown

JETTING & LUBRICATION SHAFT CONTROL, A43749A

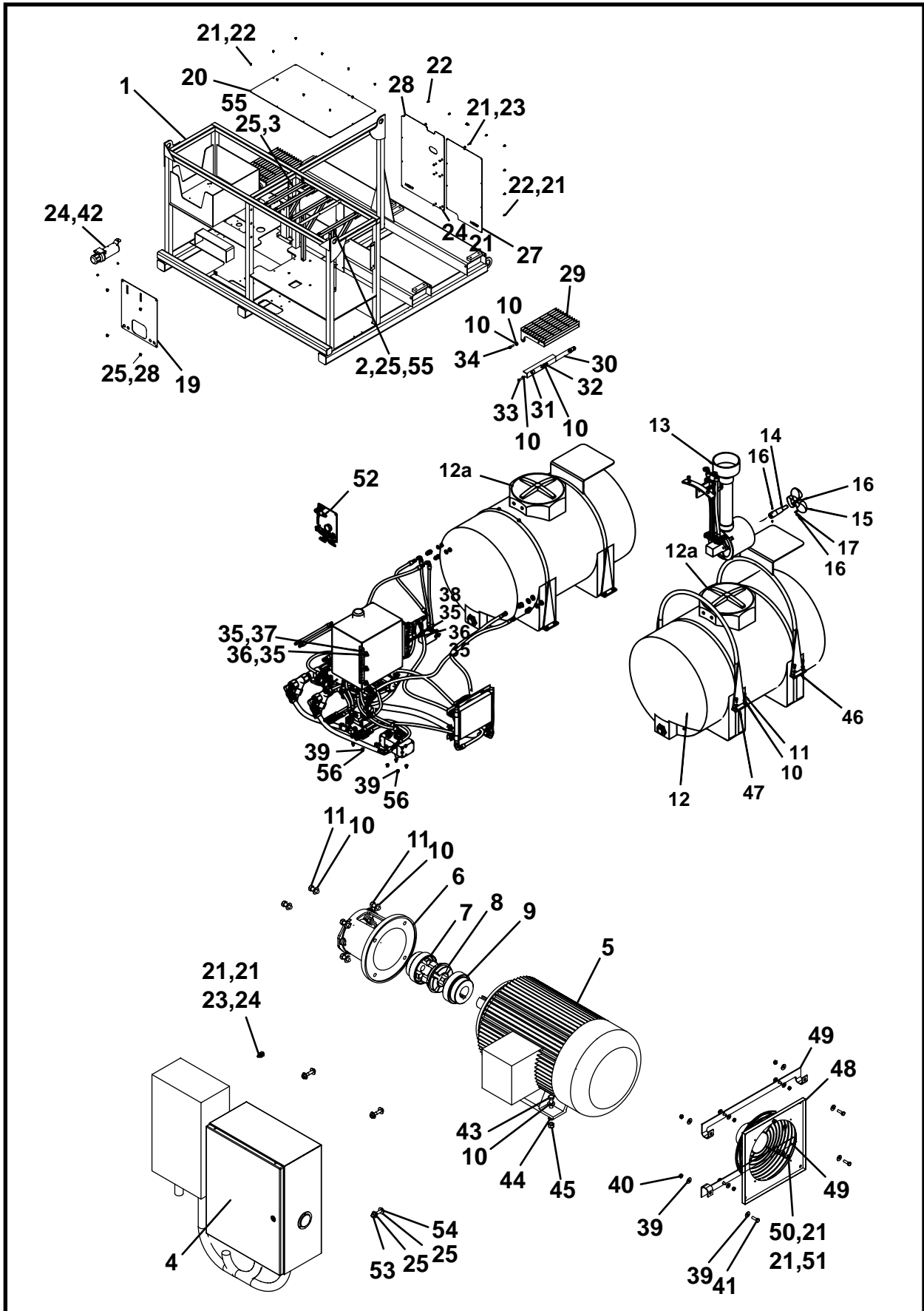


ITEM	QTY	PART NO.	DESCRIPTION
0	1	A43749A	JETTING & LUBRICATION SHAFT CONTROL
1	1	A43757A	MOUNT, Pit Control
2	2	P0302-507	VALVE, Ball 3/8" 2,000 PSI
3	1	P0301-100	GAUGE, Pressure 5000 PSI
4	1	P0302-802	VALVE, Ball 3-Way
5	1	P0300-126	FITTING, 06FJ-CAP
6	1	P0300-093	FITTING, 06MP-04FPS
7	2	P0300-130	FITTING, 06MJ-06MP
8	1	P0300-142	FITTING, 10MJ-08MP
9	1	P0300-399	FITTING, 08MP-10FJX
10	2	P0300-568	FITTING, 6MJ-6MPBKHD
11	3	P0300-569	FITTING, 6MP-6FP-6FP
12	1	P0300-570	FITTING, 6MP-6MP
13	1	P0300-571	FITTING, 6MP-6FP90
14	1	P0300-567	FITTING, 10MJ-8MPKBHD
15	1	A43754P	BRACKET, Pipe Lube Control
16	1	P0001-06-004	BOLT, Hex 3/8 UNC x 1
17	1	P0040-006	WASHER, Flat 3/8
18	1	P0003-06-000	NUT, 3/8 UNC

* Decal 1250-917

NOTES

BENTONITE & LUBRICATION PUMP FINAL ASSEMBLY, FA48835F
 2325B/E (SN FA48835F-01)



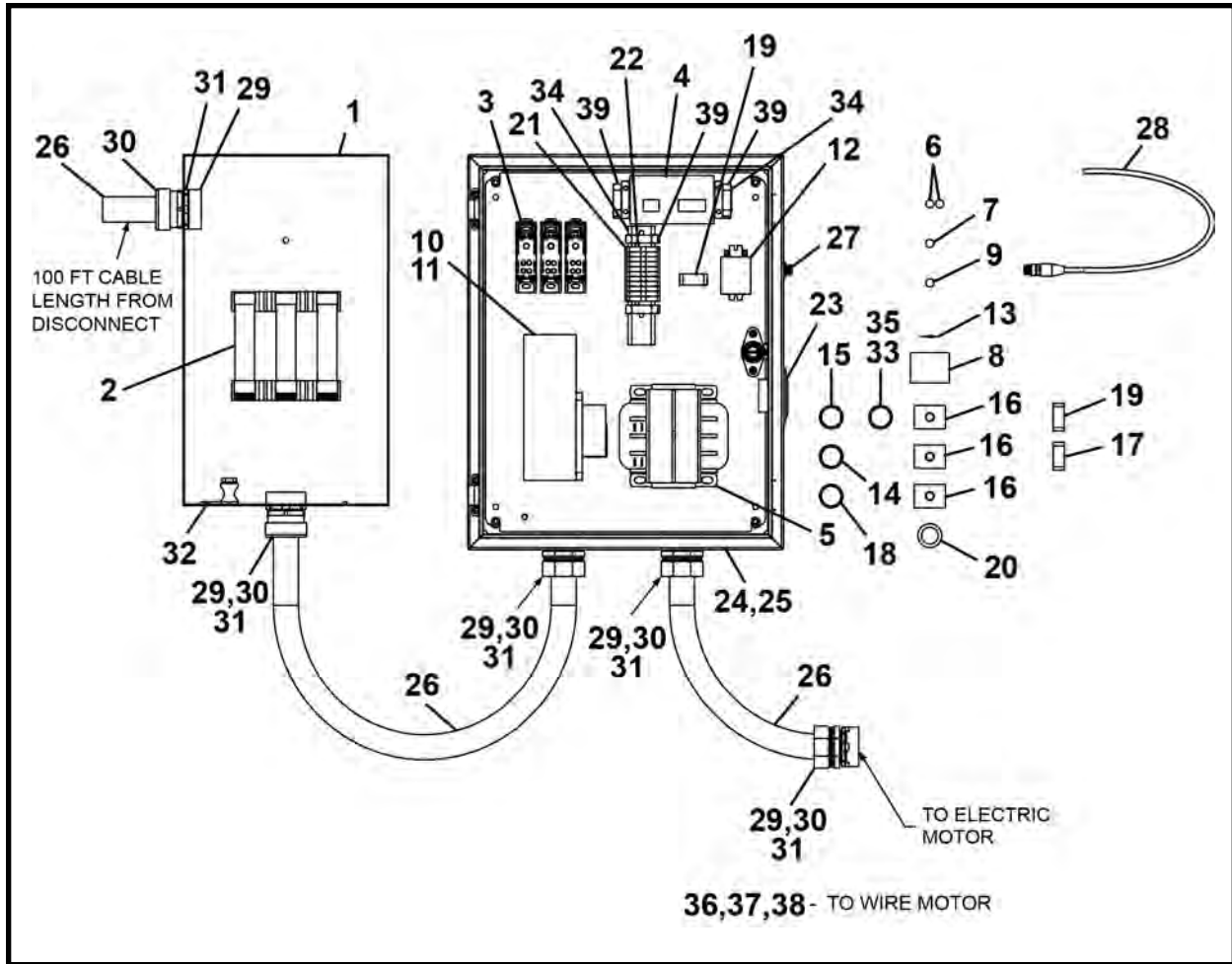
**BENTONITE & LUBRICATION PUMP FINAL ASSEMBLY, FA48835F
2325B/E (SN FA48835F-01)**

ITEM	QTY	PART NO.	DESCRIPTION
0	1	FA48835F	2325B/E LUBRICATION PUMP ASSEMBLY
1	1	A48832A	FRAME
2	2	A45962A	MOUNT, Electrical Box
3	1	A46019A	BRACKET, Disconnect
4*	1	A45916A	ELECTRICAL ASSEMBLY
5	1	P0251-447	MOTOR, Electric 30 HP
6	1	P0305-252	ADAPTOR, Pump Mount
7	1	P0305-251	COUPLING
8	1	P0305-112D	INSERTS
9	1	P0305-201	COUPLER
10	50	P0040-008	WASHER, Hardened Flat 1/2
11	22	P0001-08-005	SCREW, Cap 1/2 UNC x 1.25
12	2	A48401P	TANK (Includes item 12a)
12a	2	P0258-003A	LID, Tank
13*	2	A48826A	AGITATOR FRAME ASSEMBLY
14	2	A48479P	ROD, Agitator Shaft Ext.
15	2	A48411P	PROPELLER
16	8	P0032-002	SCREW, Socket Set 5/16 x .375
17	1.75 LI	P0047-003	KEY
18*	1	A48831A	HYDRAULICS & WATER ASSEMBLY
19	1	A48808P	PLATE, Valve Cover
20	1	A45917P	COVER, Top
21	48	P0040-004	WASHER, Hardened Flat 1/4
22	22	P0001-04-002	BOLT, Hex 1/4 UNC x .5
19	9	P0001-04-004	BOLT, Hex 1/4 UNC x 1
24	11	P0013-04-000	NUT, Nylock 1/4
25	22	P0040-006	WASHER, Hardened Flat 3/8
26	4	P0001-06-002	BOLT, Hex 3/8 UNC x .5
27	1	A45083P	COVER, Rear Right
28	1	A45084P	COVER, Rear Left
29	2	A45054A	STEP
30	2	A45057A	BRACE, Step
31	4	A45170P	BUSHING
32	8	P0003-08-000	NUT, Hex 1/2 UNC
33	4	P0001-08-012	BOLT, Hex 1/2 UNC x 3
34	4	P0001-08-007	BOLT, Hex 1/2 UNC x 1.75
35	12	P0040-010	WASHER, Hardened Flat 5/8
36	6	P0013-10-000	NUT, Lock 5/8 UNC
37	3	P0001-10-014	BOLT, Hex 5/8 UNC x 3.5
38	3	P0001-10-007	BOLT, Hex 5/8 UNC x 1.75
39	16	P0040-005	WASHER, Hardened Flat 5/16
40	4	P0003-05-000	NUT, Hex 5/16 UNC
41	4	P0001-05-004	BOLT, Hex 5/16 UNC x 1
42	1	P0095-128	MANUAL CANISTER
43	4	P0001-08-008	BOLT, Hex 1/2 UNC x 2
44	4	P0045-008	WASHER, Lock 1/2
45	4	P0013-08-000	NUT, Lock 1/2 UNC
46	2	A48824A	STRAP, Tank With Shelf
47	2	A48823A	STRAP, Tank
48	1	P0125-136	FAN
49	2	A45955P	BRACKET, Fan Mount
50	4	P0003-04-000	NUT, Hex 1/4 UNC
51	4	P0001-04-005	BOLT, Hex 1/4 UNC x 1.25
52*	1	A43749A	PCH JETTING & LUBE PIT CONTROL
53	5	P0013-06A-000	NUT, Nyloc 3/8 UNC
64	5	P0001-06-008	BOLT, Hex 3/8 UNC x 2
54	8	P0001-06-007	BOLT, Hex 3/8 UNC x 1.75
56	8	PM08A-1.25-016	BOLT, Hex 8x1.25x16 10.9

* Refer to this section for parts information.

LI - Linear Inch

ELECTRICAL ASSEMBLY, A45916A
2325B/E (SN FA48835F-01)

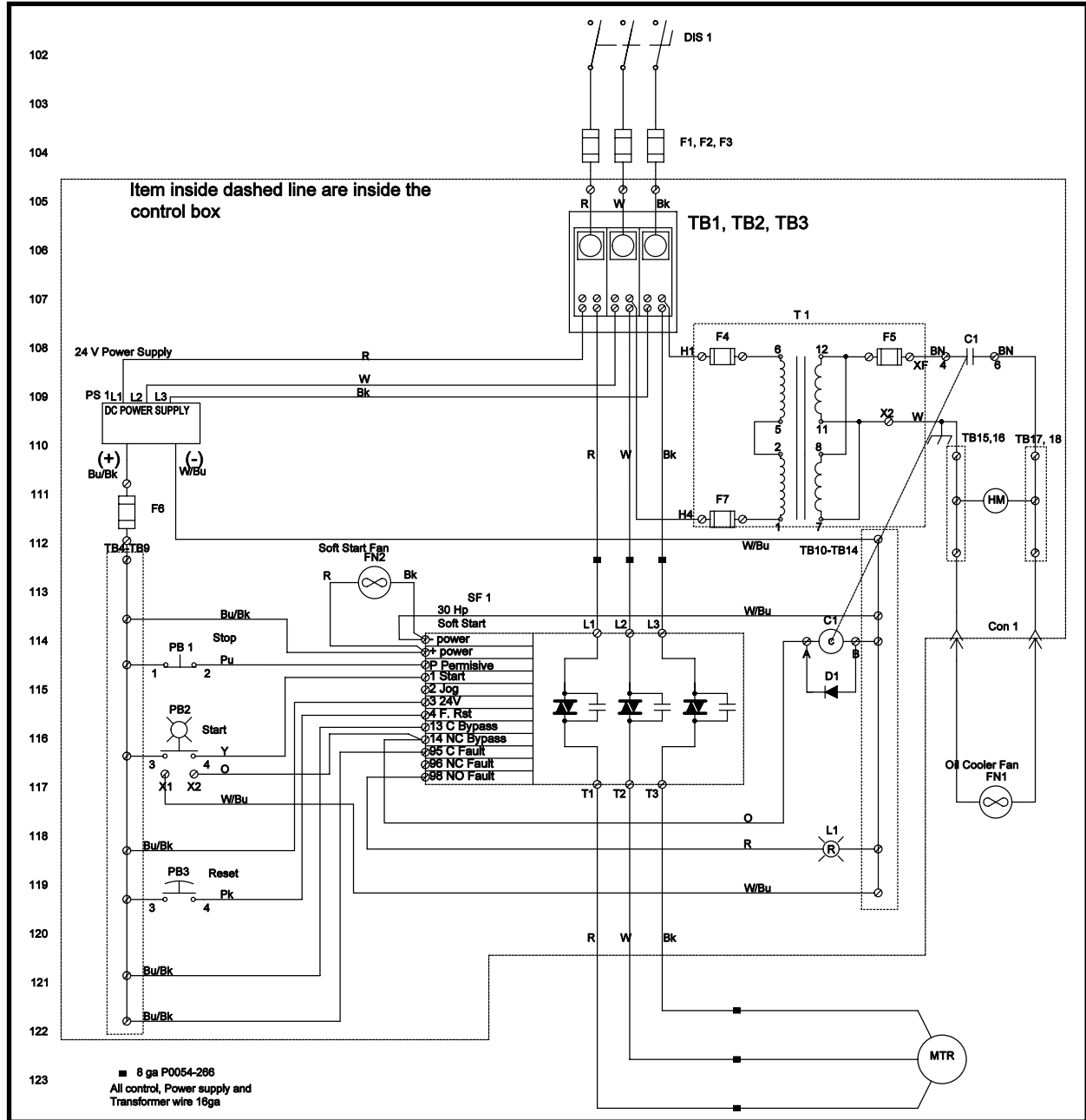


ITEM	QTY	PART NO.	DESCRIPTION
0	1	A45916A	ELECTRICAL ASSEMBLY
1	1	P0310-288	SWITCH, Disconnect
2	3	P0310-289	FUSE
3	3	P0251-399	BLOCK, Distribution
4	1	P0251-365	POWER SUPPLY
5	1	P0251-398	TRANSFORMER, Control
6	2	P0251-400	FUSE
7	1	P0251-380	FUSE, 3A
8	1	P0251-388	HOLDER, Fuse
9	1	P0310-667	FUSE, 2A
10	1	P0251-366	FAN, Cooling (for Soft Start)
11	1	P0304-327	SOFT START
12	1	P0310-410	RELAY, 30 Amp
13	1	P0310-629	DIODE
14	2	P0310-417AF	PUSH BUTTON, Non-Illuminated
15	1	P0310-412F	PUSH BUTTON, Illuminated
16	3	P0310-414F	MODULE, Push Button
17	1	P0310-416AF	BLOCK, Contact
18	1	P0056-116F	CAP, Blue
19	2	P0310-415AF	BLOCK, Contact
20	1	P0056-129F	LIGHT, Red Pilot
21	11	P0310-500	BLOCK, Terminal
22	2	P0310-573	JUMPER, Terminal Strip
23	1	P0310-260	HOURMETER
24	1	P0251-395	ENCLOSURE
25	1	P0251-396	PANEL

(Continued on next page)

ELECTRICAL ASSEMBLY, A45916A

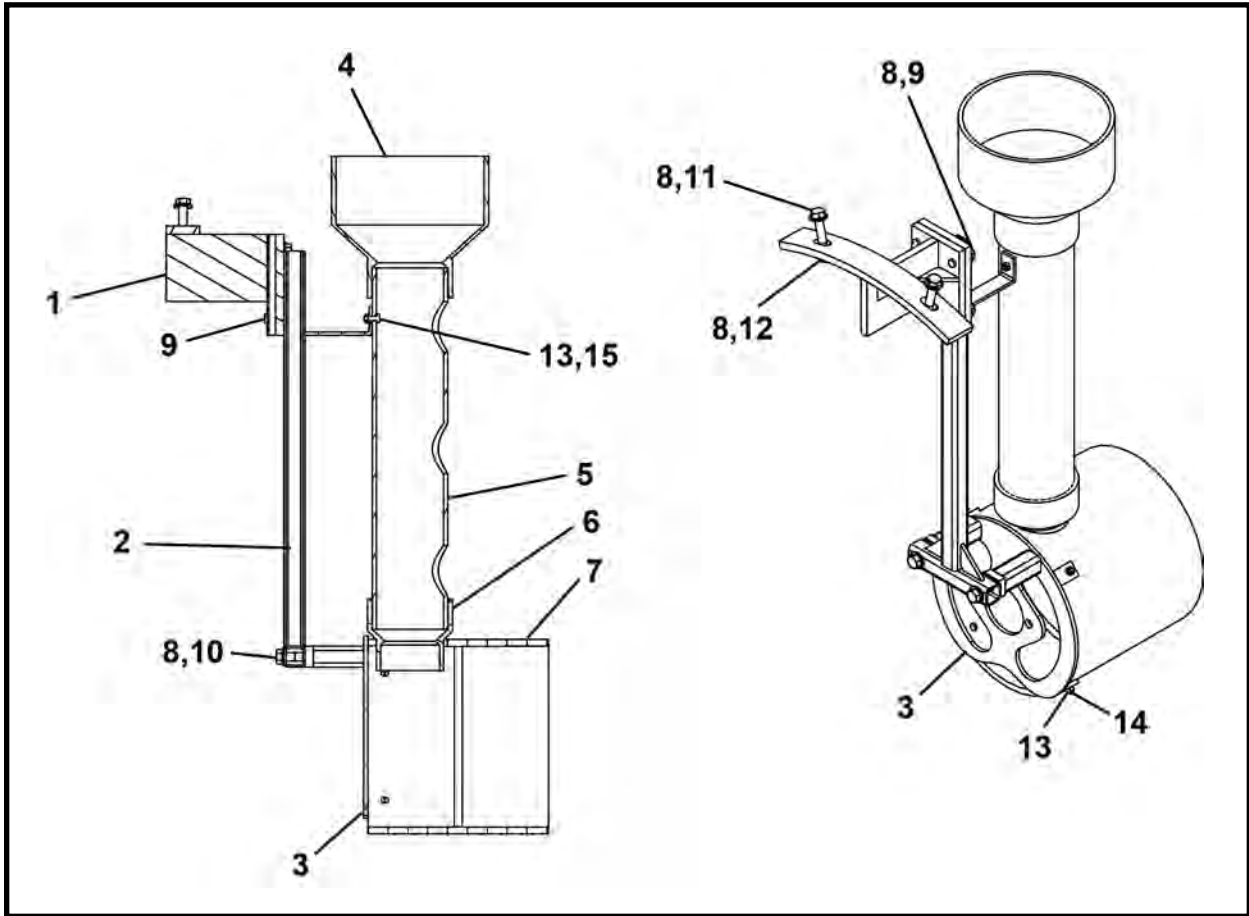
2325B/E (SN FA48835F-01)



ITEM	QTY	PART NO.	DESCRIPTION
26	1320 LI	P0054-035	CABLE, 4 GA
27	1	P0054-402	CABLE
28	1	P0054-403	CONNECTOR
29	5	P0311-035	BUSHING, Insulating 1-1/4
30	5	P0311-072	CONNECTOR, Strain Relief 1-1/4
31	5	P0311-021	NUT, Lock 1-1/4
32	1	P0311-036	CLAMP, Ground
33	1	P0310-411F	PUSH BUTTON, Illuminated Green
34	2	P0310-503-006	RAIL, DIN
35	1	P0310-419F	LATCH, Mounting
36	3	P0027-025	BOLT, Hex, Brass 5/16 UNC x .5
37	3	P0027-005	NUT, Brass 5/16 UNC
38	3	P0055-052	STUD, Copper 5/16
39	4	P0310-571	HOLDER, Fuse

LI - Linear Inch

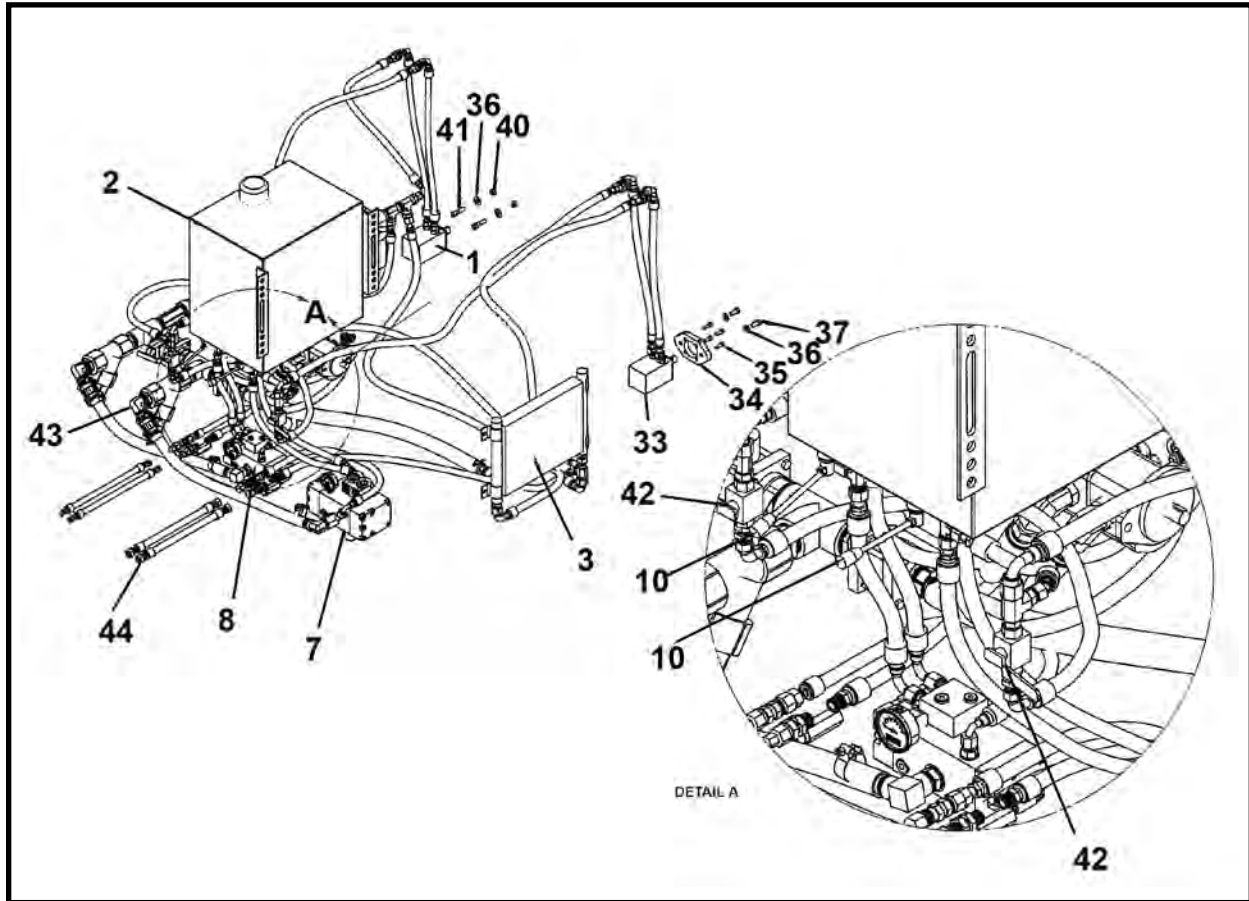
AGITATOR FRAME ASSEMBLY, A48826A
 2325B/D (SN FA48800F-01 & FA48800F-02) - 2325B/E (SN FA48835F-01)



ITEM	QTY	PART NO.	DESCRIPTION
0	1	A48826A	AGITATOR FRAME ASSEMBLY
1	1	A48424A	MOUNT, Agitator
2	1	A48473A	BRACE, Agitator Mount
3	1	A48775A	AGITATOR, Front
4	1	P0258-066	COUPLING, Reducer
5	1	A48477P	TUBE, Bentontie Mix
6	1	P0258-067	COUPLING, Reducing
7	1	A48478P	TUBE, Agitiator Mix
8	12	P0040-008	WASHER, Hardened Flat 1/2
9	4	P0001-08-005	SCREW, Cap 1/2 UNC x 1.25
10	2	P0001-08-008	BOLT, Hex 1/2 UNC x 2
11	2	P0001-08-012	BOLT, Hex 1/2 UNC x 3
12	2	P0013-08A-000	NUT, Nylock 1/2 UNC
13	5	P0013-04-000	NUT, Nylock 1/4 UNC
14	4	P0020-14-205	SCREW, Machine Truss Head 1
15	1	P0001-04-003	BOLT, Hex 1/4 UNC x .75

NOTES

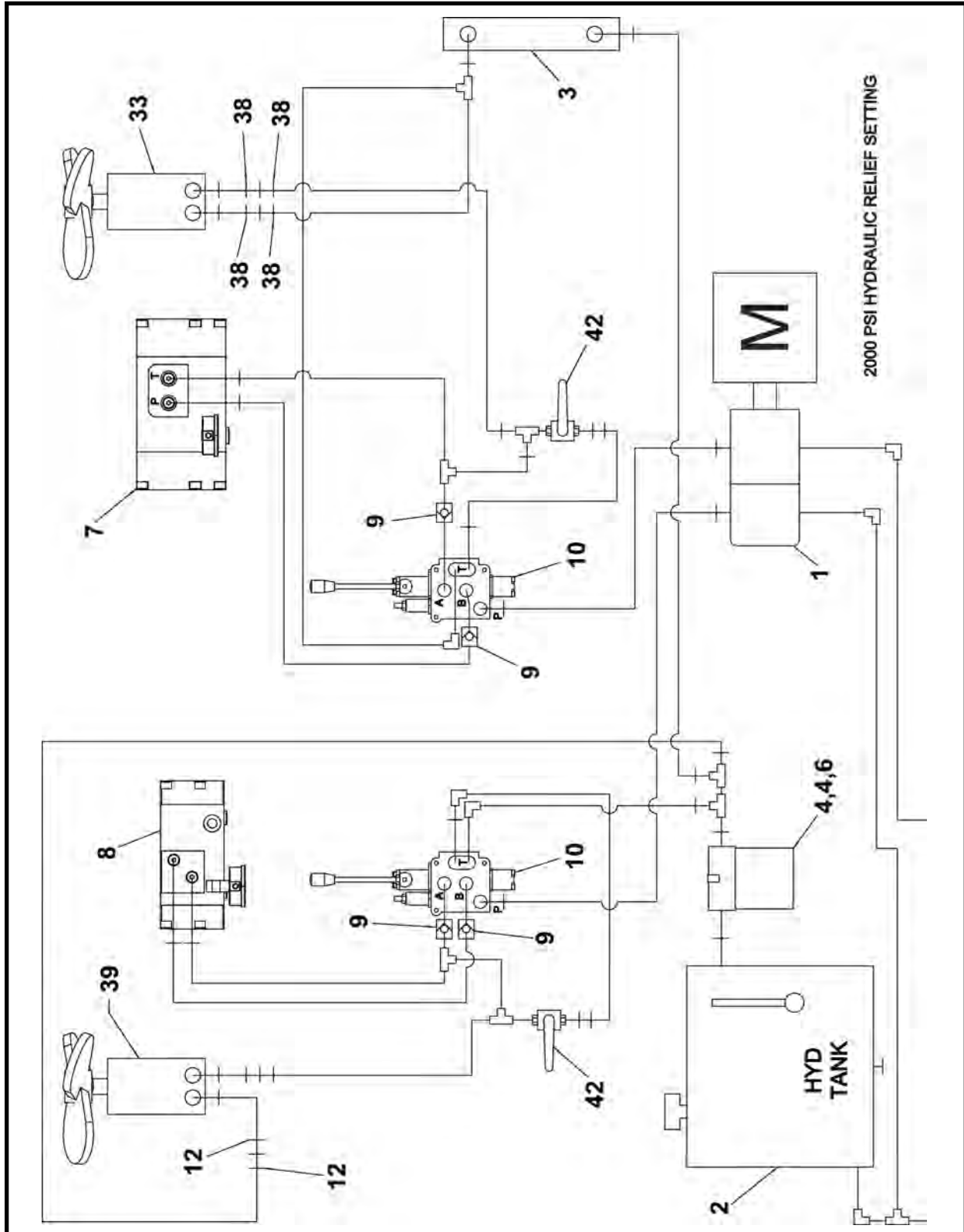
HYDRAULICS & WATER ASSEMBLY, A48831A
2325B/E (SN FA48835F-01)



ITEM	QTY	PART NO.	DESCRIPTION
0	1	A48831A	HYDRAULICS & WATER ASSEMBLY
1	1	P0303-403	PUMP, Gear
2	1	P0125-139	TANK, 25 Gallon (Includes items 2a & 2b)
2a	1	P0125-139A	CAP, Breather
2b	1	P0125-139B	GAUGE, Sight
3	1	P0125-129	OIL COOLER
4	1	P0309-144B	FILTER HEAD ASSEMBLY
5	1	P0309-145	ELEMENT, Filter
6	1	P0301-105	GAUGE, Filter Indicator
7	1	P0303-396	PUMP, Piston Fluid
8	1	P0303-399	PUMP, Piston Bentonite, 6 GPM
9	4	P0302-701	CHECK VALVE
10	2	P0302-696	VALVE, Block
11	41 LI	P0201-239	HOSE, Suction 1-1/2 x 41
12	8	P0040-012	WASHER, Hardened Flat 3/4
13	2	P0258-004	REDUCER
14	3	P0258-018	ELBOW, 1-1/2 NPT
15	1	P0409-008	COUPLING, 1-1/2 NPT
16	2	P0258-070	NIPPLE, Pipe
17	2	P0258-043	TEE
18	6	P0258-005	NIPPLE
19	2	P0258-044	HOSE BARB
20	2	P0258-013	REDUCER, Bushing
21	3	P0258-006	VALVE, 1-1/2
22	2	P0258-012	STRAINER, Line 1-1/2

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HYDRAULICS & WATER ASSEMBLY, A48831A
2325B/E (SN FA48835F-01)

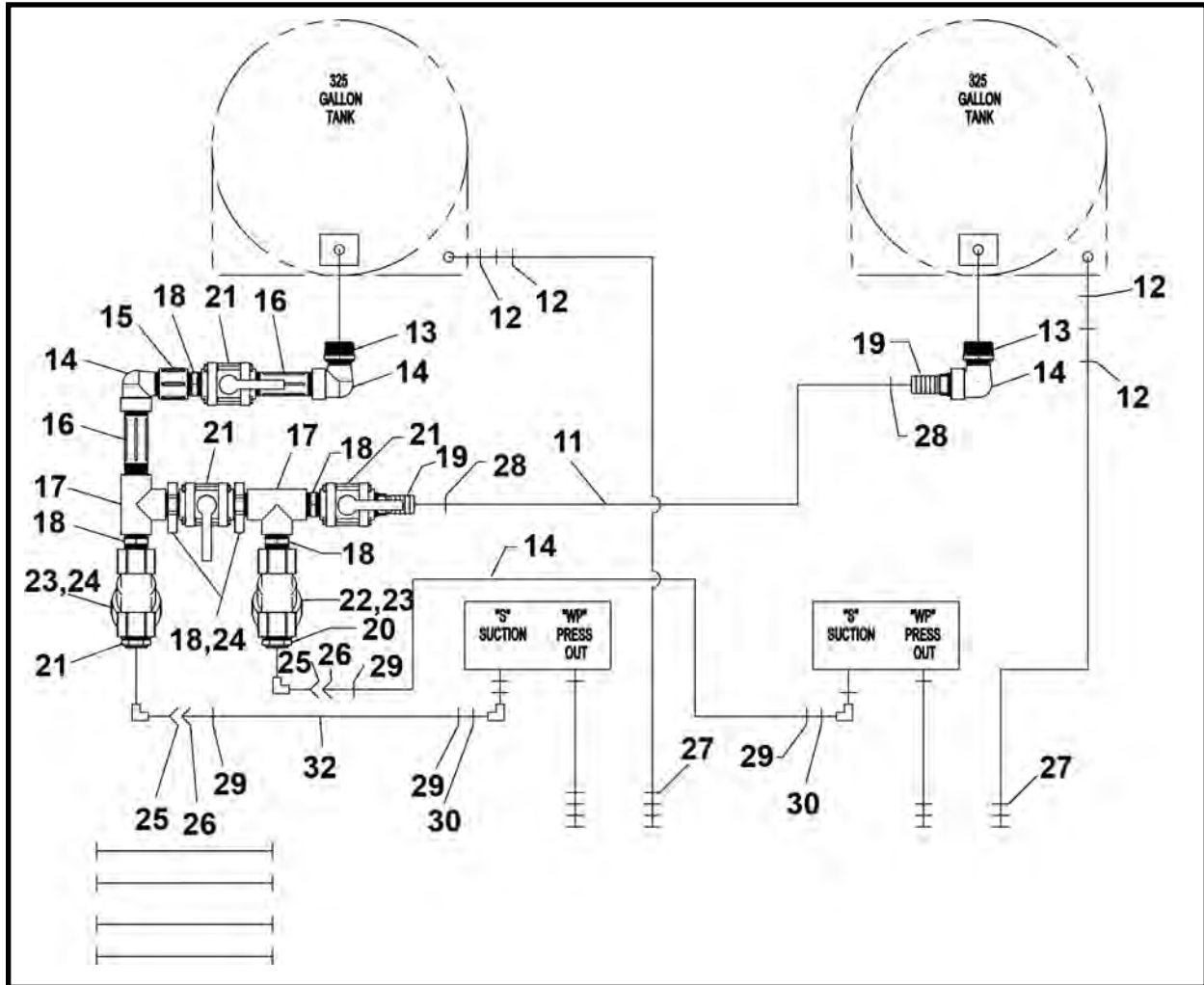


2000 PSI HYDRAULIC RELIEF SETTING

ITEM	QTY	PART NO.	DESCRIPTION
23	2	P0251-800	FILTER, Mesh Screen
24	2	P0201-165	CLAMP, T-Bolt
25	2	P0100-122	COUPLER, Cam & Groove
26	2	P0100-121	COUPLER, Cam & Groove

(Continued on next page)

HYDRAULICS & WATER ASSEMBLY, A48831A
2325B/E (SN FA48835F-01)



ITEM	QTY	PART NO.	DESCRIPTION
27	2	P0302-102	CHECK VALVE
28	2	P0201-127	T-CLAMP
29	4	P0201-205	T-CLAMP
30	2	P0423-124	ADAPTER, Hose
31	1	P0201-238-031	HOSE, Suction 1 x 31
32	1	P0201-238-025	HOSE, Suction 1 x 25
33	1	P0304-347	MOTOR
34	1	A48899P	ADAPTOR, Motor Plate
35	4	P0031-06-004	SCREW, Socket Head Cap 3/8 UNC x 1
36	4	P0040-008	WASHER, Hardened Flat 1/2
37	2	P0001-08-004	BOLT, Hex 1/2 UNC x 1
38	4	P0040-016	WASHER, Hardened Flat 1
39	1	P0304-332	MOTOR
40	2	P0013-08A-000	NUT, Nylock 1/2 UNC
41	2	P0031-08-007	SCREW, Socket Head Cap 1/2 UNC x 1.75
42	2	P0302-801	VALVE
43*	1	A48945A	KIT, Hydraulic Fitting
44*	1	A48946A	KIT, Hydraulic Hose

LI - Liner Inch

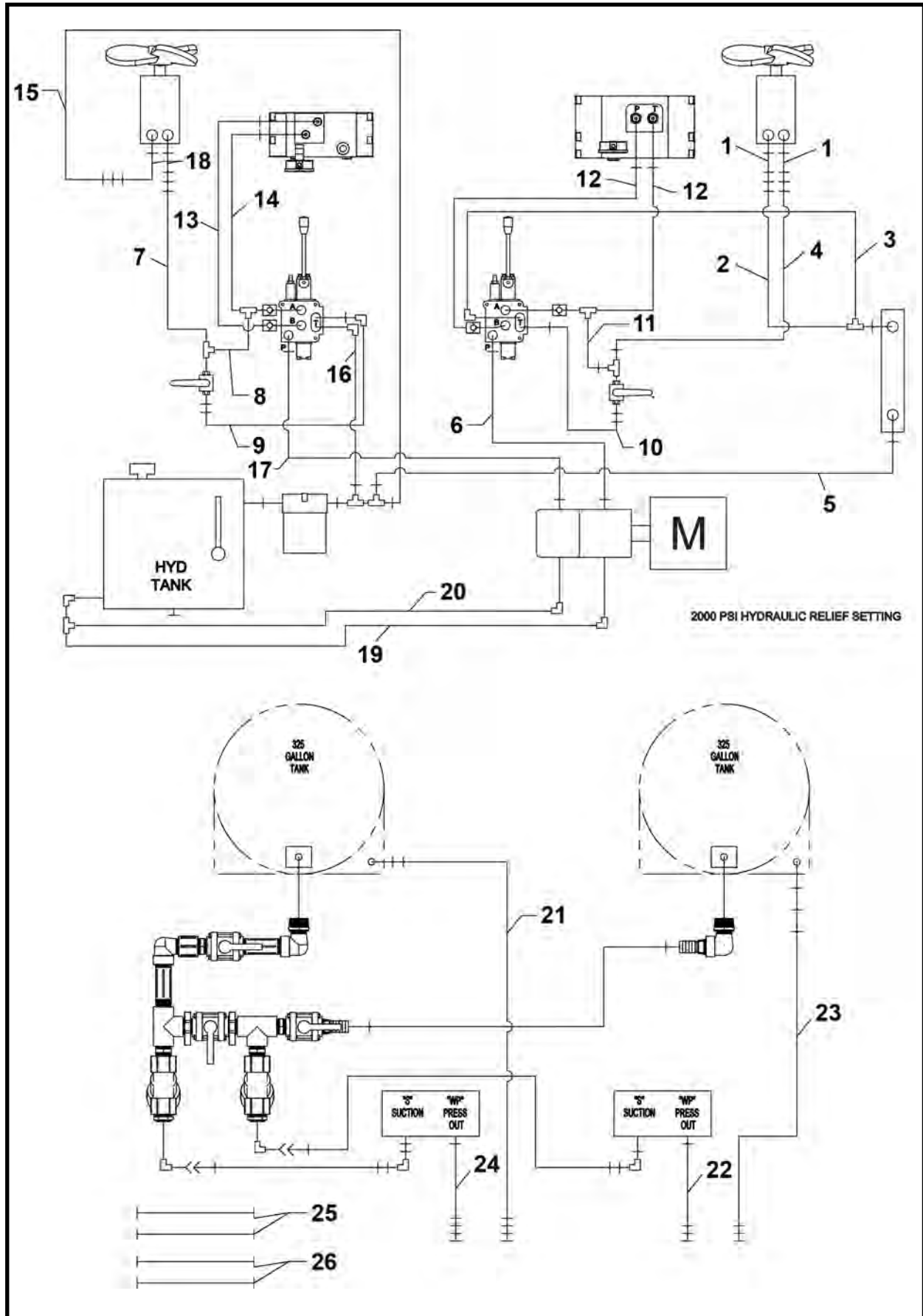
* Refer to this section for parts information.

NOTES

HYDRAULIC FITTING KIT, A48945A
2325B/E (SN FA48835F-01)

ITEM	QTY	PART NO.	DESCRIPTION
0	1	A48945A	KIT, Hydraulic Fitting
1	5	P0300-305	FITTING, 08MFFOR-08MB
2	2	P0300-375	FITTING, #8 MFS X 12 MORB
3	2	P0300-316	FITTING, 08MFFOR-08MB90
4	2	P0300-536	FITTING, 12MB-12FB-12FB
5	1	P0300-658	FITTING, 20MB-12FB
6	1	P0300-368	FITTING, 20-20 ADAPTER
7	4	P0300-325	FITTING, 8MJ-8MJ BULKHEAD
8	2	P0300-881	FITTING, 08MFFOR-12MBSPP
9	2	P0300-689	FITTING, 08FFOR-08MBSPP
10	2	P0300-868	FITTING, 10MJ-10MJBKHD
11	2	P0300-873	FITTING, 10FJ-08MJ
12	1	P0300-689	FITTING, 08FFOR-08MBSPP
13	1	P0300-724	FITTING, 06MFFOR-06MBSPP
14	2	P0300-567	FITTING, 10MJ-08MPBKHD
15	1	P0300-589	FITTING, 16MFFOR-12MB90
16	1	P0300-551	FITTING, 20MFFOR-20FFORX-20MFFOR
17	2	P0300-318	FITTING, 08MFFOR-08FFORX-08MFFOR
18	1	P0300-620	FITTING, 20MFOR-20MB90
19	2	P0300-580	FITTING, 10MFS-12MORB
20	1	P0300-011	FITTING, 12FP-12FP90
21	1	P0300-719	FITTING, 12MBSPP-BONDED SEAL
22	1	P0300-882	FITTING, 16MP-12MBSPP
23	1	P0300-057	FITTING, 16MP-16FP90
24	2	P0300-090	FITTING, 16MP-16MP90
25	1	P0300-277	COUPLER
26	1	P0300-889	FITTING, 10MFFOR-08MB90
27	2	P0300-892	FITTING, 8mb-10mffor
28	1	P0300-371	FITTING, 16MFFOR-16MB90
29	2	P0300-329	FITTING, 12MFS-12MORB
30	1	P0300-588	FITTING, FS6602-12-12-12
31	2	P0300-385	FITTING, 10MFS X 10MORB-STR
32	2	P0300-891	FITTING, 10MFFORBLKHEAD
33	2	P0300-595	FITTING, 08MFFOR-08MFFOR-BKHD
34	3	P0300-300	FITTING, 08MFFOR-10MB
35	1	P0300-317	FITTING, 8MFS-FSS 90 DEGREE FITTING
36	1	P0300-688	FITTING, 08MB-08FB-08FB
37	2	P0300-332	FITTING, 08OR
38	1	P0300-535	FITTING, 08MFOR-08MB-08MFOR
39	2	P0300-126	TUBE, 3/8 OD x 9/16-18 Thread
40	2	P0300-147	FITTING, 10FJ-6MJ
41	2	P0300-140	TUBE, 5/8 OD x 7/8-14 Thread

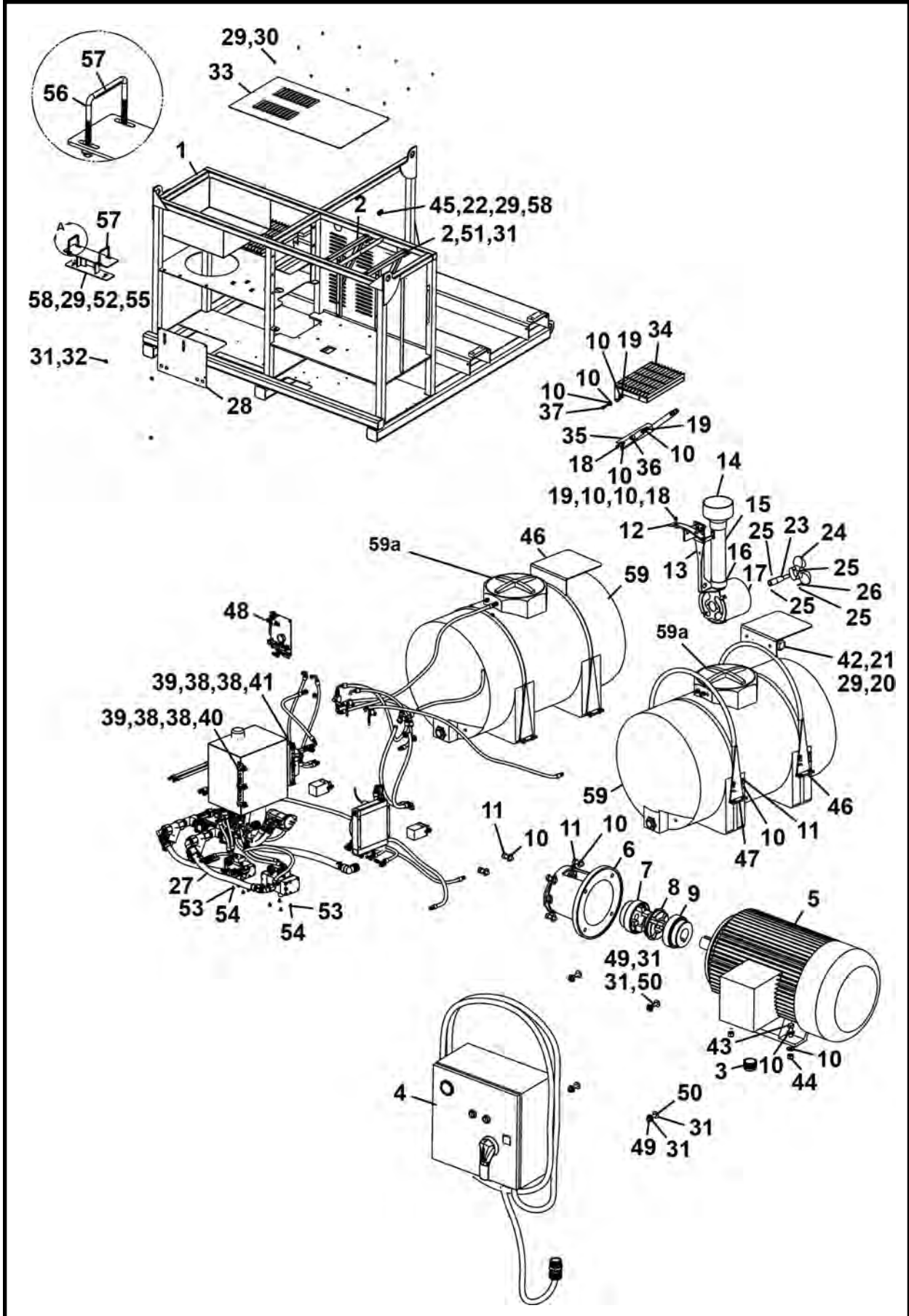
HYDRAULIC HOSE KIT, A48946A
2325B/E (SN FA48835F-01)



HYDRAULIC HOSE KIT, A48946A
2325B/E (SN FA48835F-01)

ITEM	QTY	PART NO.	DESCRIPTION
0	1	A48946A	KIT, Hydraulic Hose
1	2	A09877A-032	HOSE ASSEMBLY 5/8 x 32
2	1	A09880A-064	HOSE ASSEMBLY 5/8 x 64
3	1	A09876A-071	HOSE ASSEMBLY 5/8 x 71
4	1	A09877A-072	HOSE ASSEMBLY 5/8 x 72
5	1	A09876A-082	HOSE ASSEMBLY 5/8 x 82
6	1	A09877A-031	HOSE ASSEMBLY 5/8 x 31
7	1	A10324A-068	HOSE ASSEMBLY 1/2 x 68
8	1	A10324A-039	HOSE ASSEMBLY 1/2 x 39
9	1	A09879A-021	HOSE ASSEMBLY 1/2 x 21
10	1	A09879A-020	HOSE ASSEMBLY 1/2 x 20
11	1	A10362A-015	HOSE ASSEMBLY 1/2 x 15
12	2	A10324A-027	HOSE ASSEMBLY 1/2 x 27
13	1	A10324A-017	HOSE ASSEMBLY 1/2 x 17
14	1	A10324A-014	HOSE ASSEMBLY 1/2 x 14
15	1	A10324A-031	HOSE ASSEMBLY 1/2 x 31
16	1	A10372A-035	HOSE ASSEMBLY 1/2 x 35
17	1	A10324A-029	HOSE ASSEMBLY 1/2 x 29
18	2	A09912A-031	HOSE ASSEMBLY 1/2 x 31
19	1	A09984A--028	HOSE ASSEMBLY 1 x 28
20	1	A09875A-032	HOSE ASSEMBLY 1 x 32
21	1	A10345A-026	HOSE ASSEMBLY 1/2 x 26
22	1	A10324A-032	HOSE ASSEMBLY 1/2 x 32
23	1	A10345A-054	HOSE ASSEMBLY 1/2 x 54
24	1	A10390A-028	HOSE ASSEMBLY 3/8 x 28
25	2	A09908A-018	HOSE ASSEMBLY 1/2 x 18
26	2	A10311A-018	HOSE ASSEMBLY 3/8 x 18

BENTONITE & LUBRICATION PUMP FINAL ASSEMBLY, FA48835F
2325B/E (SN FA48835F-02 & AFTER)



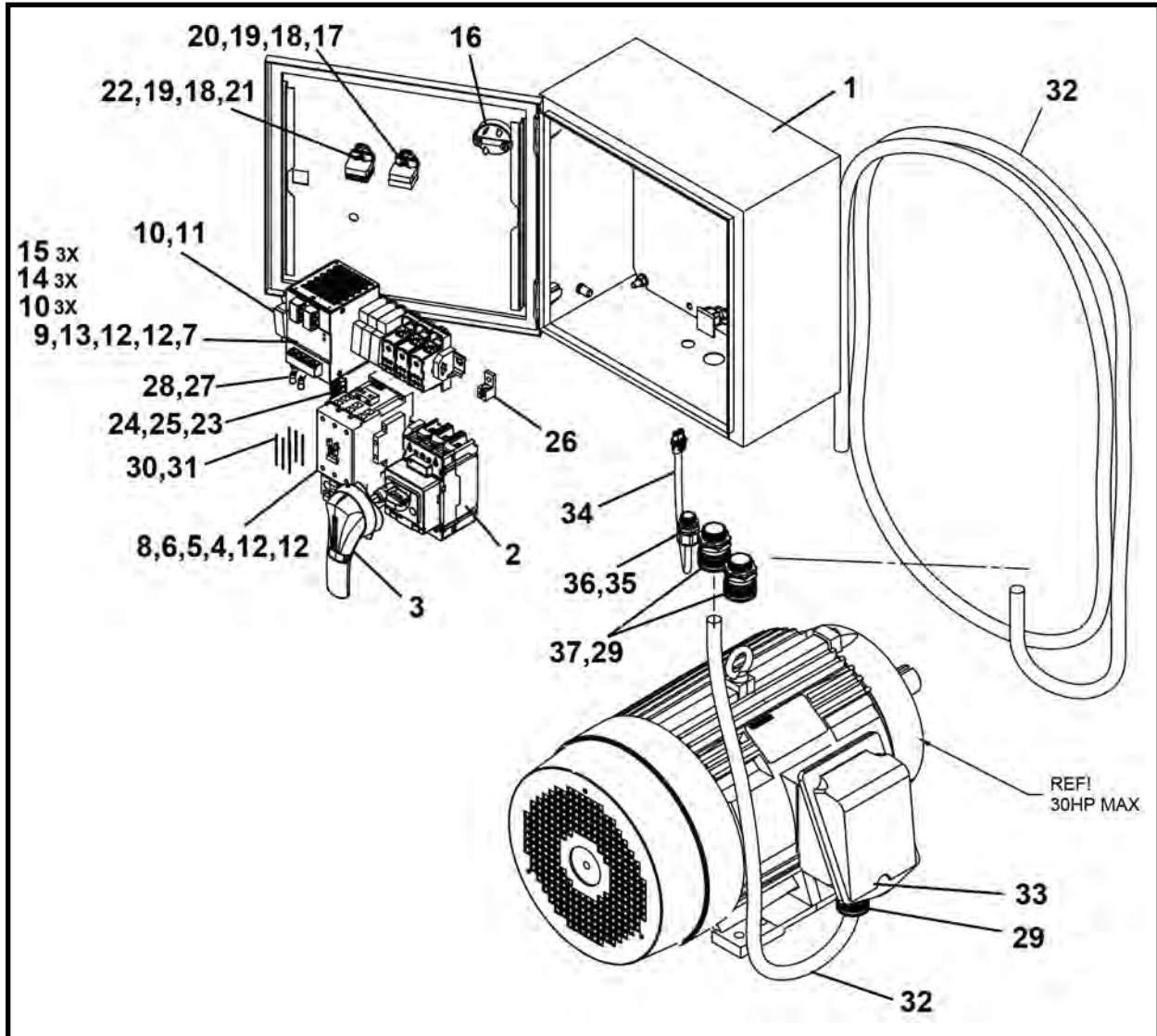
**BENTONITE & LUBRICATION PUMP FINAL ASSEMBLY, FA48835F
2325B/E (SN FA48835F-02 & AFTER)**

ITEM	QTY	PART NO.	DESCRIPTION
0	1	FA48835F	2325B/E LUBRICATION PUMP ASSEMBLY
1	1	A49085A	FRAME
2	2	A45962A	MOUNT, Electrical Box
3	1	P0413-007	BUSHING
4*	1	A49113A	ELECTRICAL ASSEMBLY
5	1	P0251-447	MOTOR, Electric 30 HP
6	1	P0305-252	ADAPTER, Pump Mount
7	1	P0305-251	COUPLING
8	1	P0305-112D	INSERTS
9	1	P0305-201	COUPLER
10	70	P0040-008	WASHER, Hardened Flat 1/2
11	30	P0001-08-005	SCREW, Cap 1/2 UNC x 1.25
12	2	A48424A	MOUNT, Agitator
13	2	A08330A	FRAME, Agitator
14	2	P0258-066	COUPLING, Reducer
15	2	A48477P	TUBE, PVC Bentonite Mix
16	2	P0258-067	COUPLING, Reducer
17	2	A48478P	TUBE, PVC Agitator Mix
18	8	P0001-08-012	BOLT, Hex 1/2 UNC x 3
19	12	P0013-08A-000	NUT, Nyloc 1/2
20	12	P0013-04-000	NUT, Nyloc 1/4
21	10	P0020-14-205	SCREW, Truss Head Machine 1
22	3	P0001-04-003	BOLT, Hex 1/4 UNC x .75
23	2	A48479P	ROD, Agitator Shaft Ext.
24	2	A48411P	PROPELLER
25	8	P0032-002	SCREW, Socket Set 5/16 x .375
26	1.75 LI	P0047-003	KEY
27*	1	A08240A	HYDRAULICS & WATER ASSEMBLY
28	1	A08244P	PLATE, Valve Cover
29	17	P0040-004	WASHER, Hardened Flat 1/4
30	10	P0001-04-002	BOLT, Hex 1/4 UNC x .5
31	15	P0040-006	WASHER, Hardened Flat 3/8
32	3	P0001-06-002	BOLT, Hex 3/8 UNC x .5
33	1	A48503P	PANEL, Top Cover
34	2	A45054A	STEP
35	2	A45057A	BRACE, Step
36	4	A45170P	BUSHING
37	4	P0001-08-007	BOLT, Hex 1/2 UNC x 1.75
38	12	P0040-010	WASHER, Hardened Flat 5/16
39	6	P0013-10-000	NUT, Lock 5/8 UNC
40	3	P0001-10-014	BOLT, Hex 5/8 UNC x 3.5
41	3	P0001-10-007	BOLT, Hex 5/8 UNC x 1.75
42	1	P0095-128	MANUAL CANISTER
43	4	P0001-08-008	BOLT, Hex 1/2 UNC x 2
44	4	P0013-08-000	NUT, Lock 1/2 UNC
45	1	P0055-130	CLAMP
46	2	A48824A	STRAP, Tank With Shelf
47	2	A48823A	STRAP, Tank
48	1	A43749A	PCH JETTING & LUBE PIT CONTROL
49	4	P0013-06A-000	NUT, Nyloc 3/8 UNC
50	4	P0001-06-008	BOLT, Hex 3/8 UNC x 2
51	4	P0001-06-007	BOLT, Hex 3/8 UNC x 1.75
52	2	P0001-04-004	BOLT, 1/4 UNC x 1
53	8	P0040-005	WASHER, Hardened Flat 5/16
54	8	PM08A-1.25-016	BOLT, Hex 8x1.25x16 10.9
55	1	A08205A	SUPPORT, Ball Valve
56	2	P0202-201	U-BOLT
57	3	P0201-312	FUEL LINE 3/8
58	5	P0003-04-000	NUT, Hex 1/4 UNC
59	2	A48401P	TANK (Includes item 59a)
59a	2	P0258-003A	LID, Tank
60	1	1255-042	KIT, Decal 2325B/E

* Refer to this section for parts information.

LI - Linear Inch

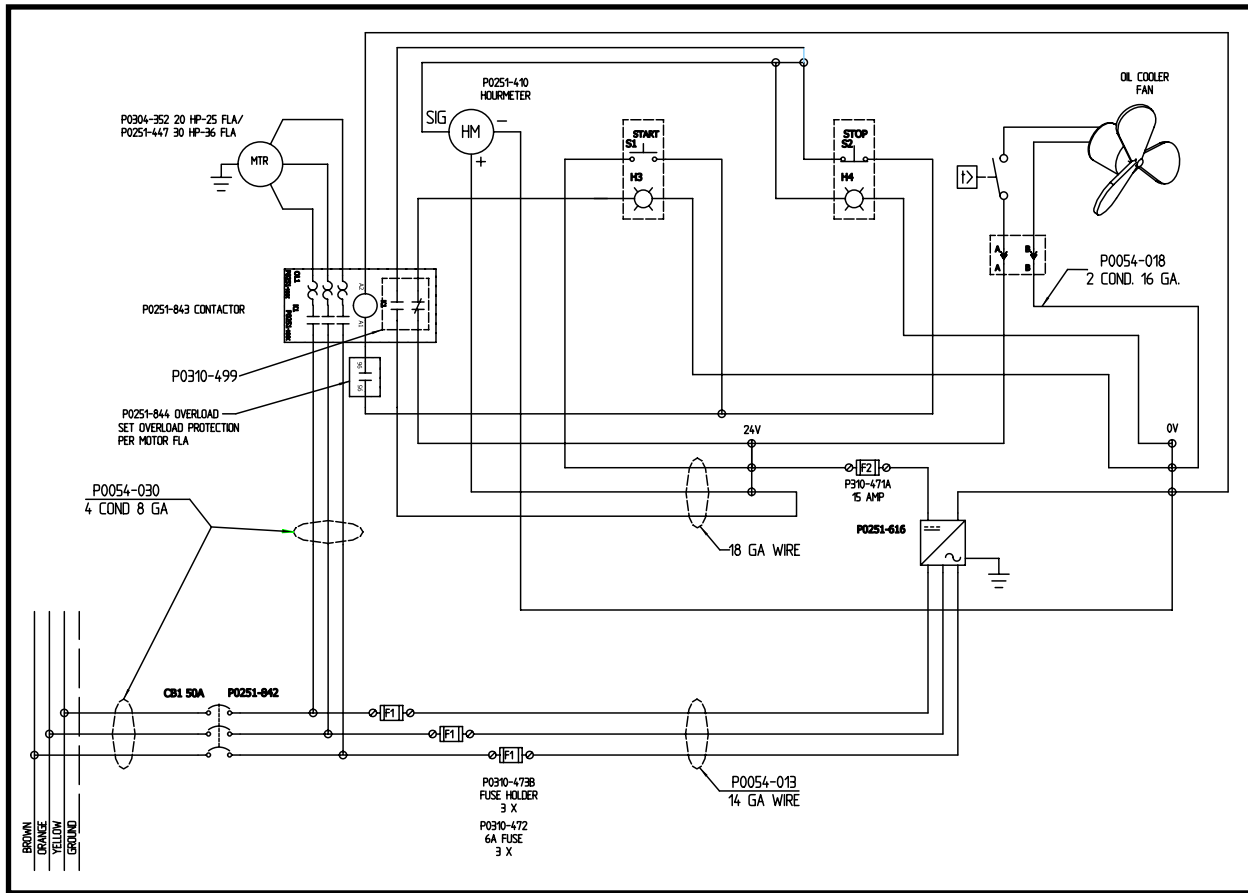
ELECTRICAL ASSEMBLY, A49113A
2325B/E (SN FA48835F-02 & AFTER)



ITEM	QTY	PART NO.	DESCRIPTION
0	1	A49113A	ELECTRICAL ASSEMBLY
1	1	P0251-845	ENCLOSURE
2	1	P0251-842	CIRCUIT BREAKER
3	1	P0251-482	BREAKER, Handle & Shaft
4	1	P0251-843	CONTACTOR
5	1	P0251-844	OVERLOAD
6	1	P0310-499	CONTACT, Auxiliary
7	1	P0251-616	POWER SUPPLY, 24V, 10 Amp
8	1	P0310-503-005	DIN RAIL - 5.0"
9	5	P0020-83-022	SCREW, Truss Head 8-32 x .375
10	4	P0310-473B	HOLDER, Fuse
11	1	P0310-471A	FUSE, 600 VAC 15A Time Delay
12	4	P0310-571	HOLDER, Fuse
13	1	P0310-503-011	RAIL, DIN
14	3	P0251-399	BLOCK, Distribution
15	3	P0310-472	FUSE, 6 Amp Time Delay
16	1	P0251-410	HOUR METER
17	1	P0310-412F	PUSH BUTTON, Illuminated

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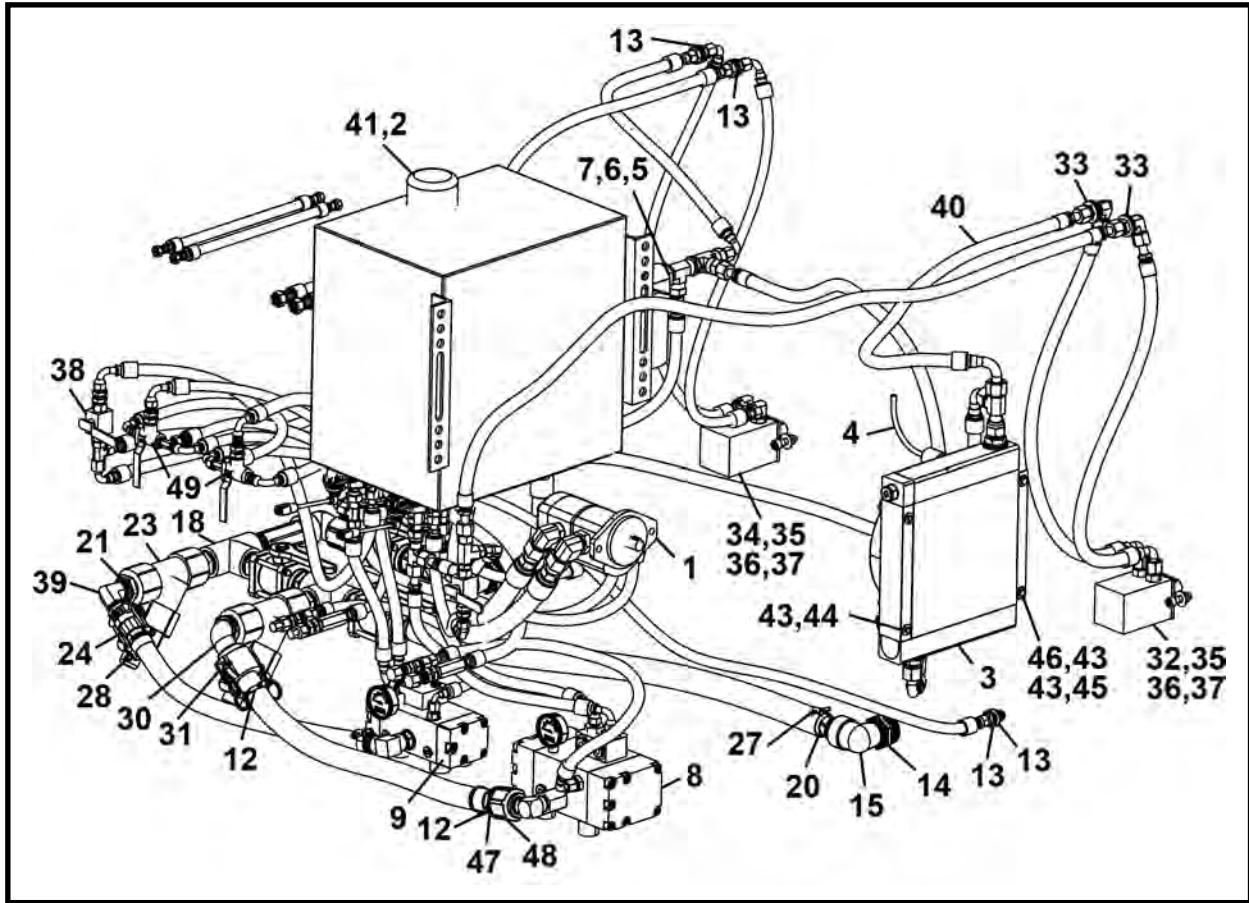
ELECTRICAL ASSEMBLY, A49113A
2325B/E (SN FA48835F-02 & AFTER)



ITEM	QTY	PART NO.	DESCRIPTION
18	2	P0310-419F	LATCH, Mounting
19	2	P0251-563	LIGHT, White LED Pilot
20	1	P0056-122F	CONTACT BLOCK
21	1	P0310-411F	PUSH BUTTON, Illuminated
22	1	P0056-121F	CONTACT
23	1	P0310-432	STRIP, Barrier
24	2	P0017-06-323	SCREW, Machine 6-32 x .5
25	1	P0310-433	STRIP, Jumper
26	1	P0055-157	LUGS
27	2	P0055-174	TERMINAL, Fork #6 Red
28	26	P0055-245	TERMINAL, Locking Fork #6 Red
29	3	P0311-075	STRAIN RELIEF
30	48 LI	P0054-013	WIRE, 14 GA
31	120 LI	P0054-596B	WIRE, 18GA Blue/White Stripe
32	1320 LI	P0054-030	POWER CORD
33	REF	P0413-005	BUSHING
34	1	P0054-018	CABLE
35	1	P0311-121	STRAIN RELIEF
36	1	P0311-018	NUT, Lock 1/2
37	2	P0311-020	NUT, Lock 1

LI - Linear Inch

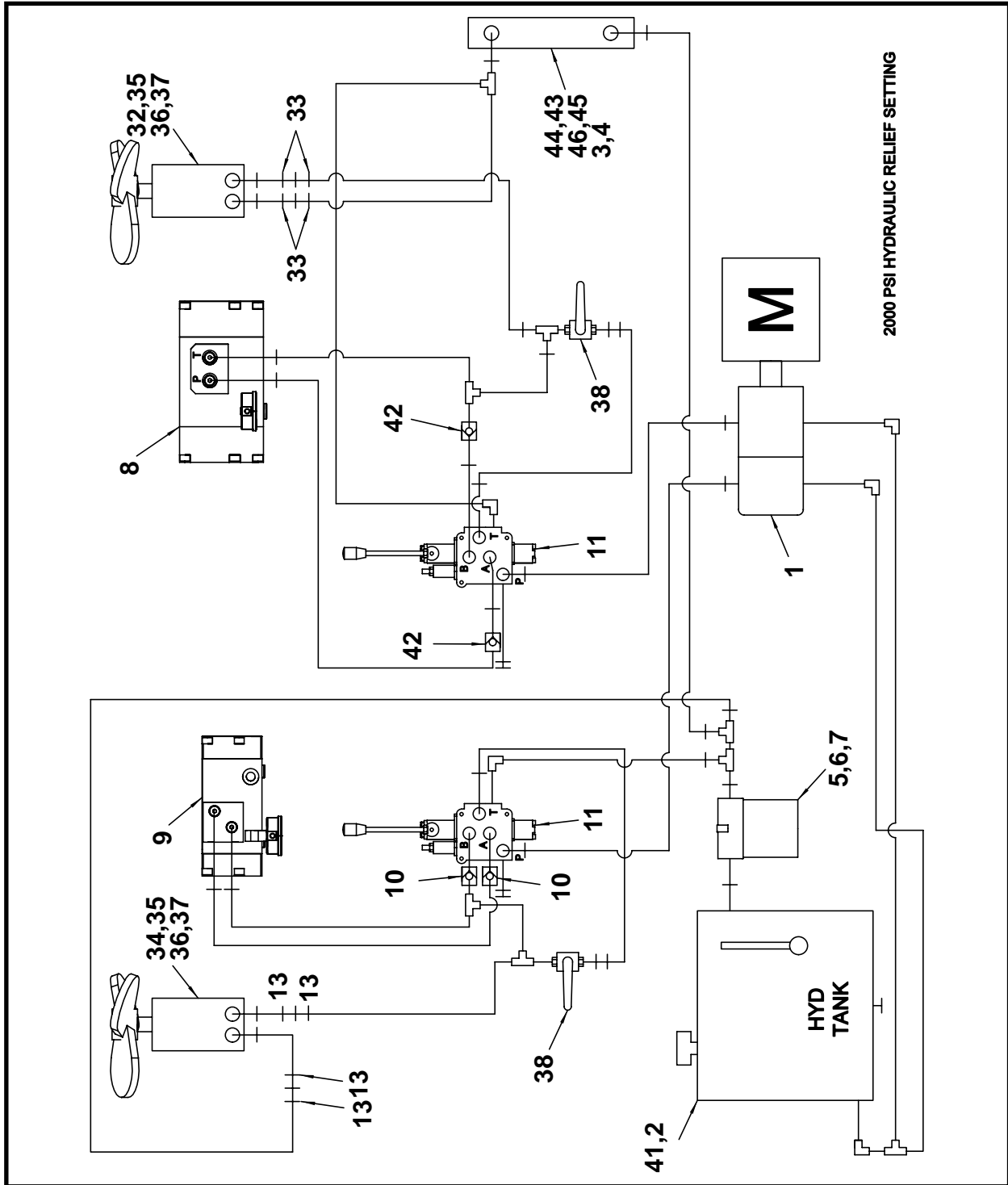
HYDRAULICS & WATER ASSEMBLY, A08240A
2325B/E (SN FA48835F-02 & AFTER)



ITEM	QTY	PART NO.	DESCRIPTION
0	1	A08240A	HYDRAULICS & WATER ASSEMBLY
1	1	P0303-403	PUMP, Gear
2	1	P0125-139	TANK, 25 Gallon (Includes items 2a & 2b)
2a	1	P0125-139A	CAP, Breather
2b	1	P0125-139B	GAUGE, Sight
3	1	P0093-039	OIL COOLER
4	1	P0093-040A	SWITCH, Temp, With Soft Start
5	1	P0309-144B	FILTER HEAD ASSEMBLY
6	1	P0309-145A	ELEMENT, Filter
7	1	P0301-105	GAUGE, Filter Indicator
8	1	P0303-396	PUMP, Piston Fluid
9	1	P0303-399	PUMP, Piston, Bentonite, 6 GPM
10	2	P0302-701	CHECK VALVE
11	2	P0302-803	VALVE
12	2	P0201-301	CLAMP, Radiator
13	8	P0040-012	WASHER, Hardened Flat 3/4
14	2	P0258-004	REDUCER
15	3	P0258-018	ELBOW
16	1	P0409-008	COUPLING
17	2	P0258-070	NIPPLE
18	2	P0258-043	TEE, Pipe To Pipe
19	6	P0258-005	NIPPLE
20	2	P0258-044	HOSE BARB
21	1	P0258-013	REDUCER BUSHING
22	3	P0258-006	VALVE, 1-1/2

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HYDRAULICS & WATER ASSEMBLY, A08240A
2325B/E (SN FA48835F-02 & AFTER)

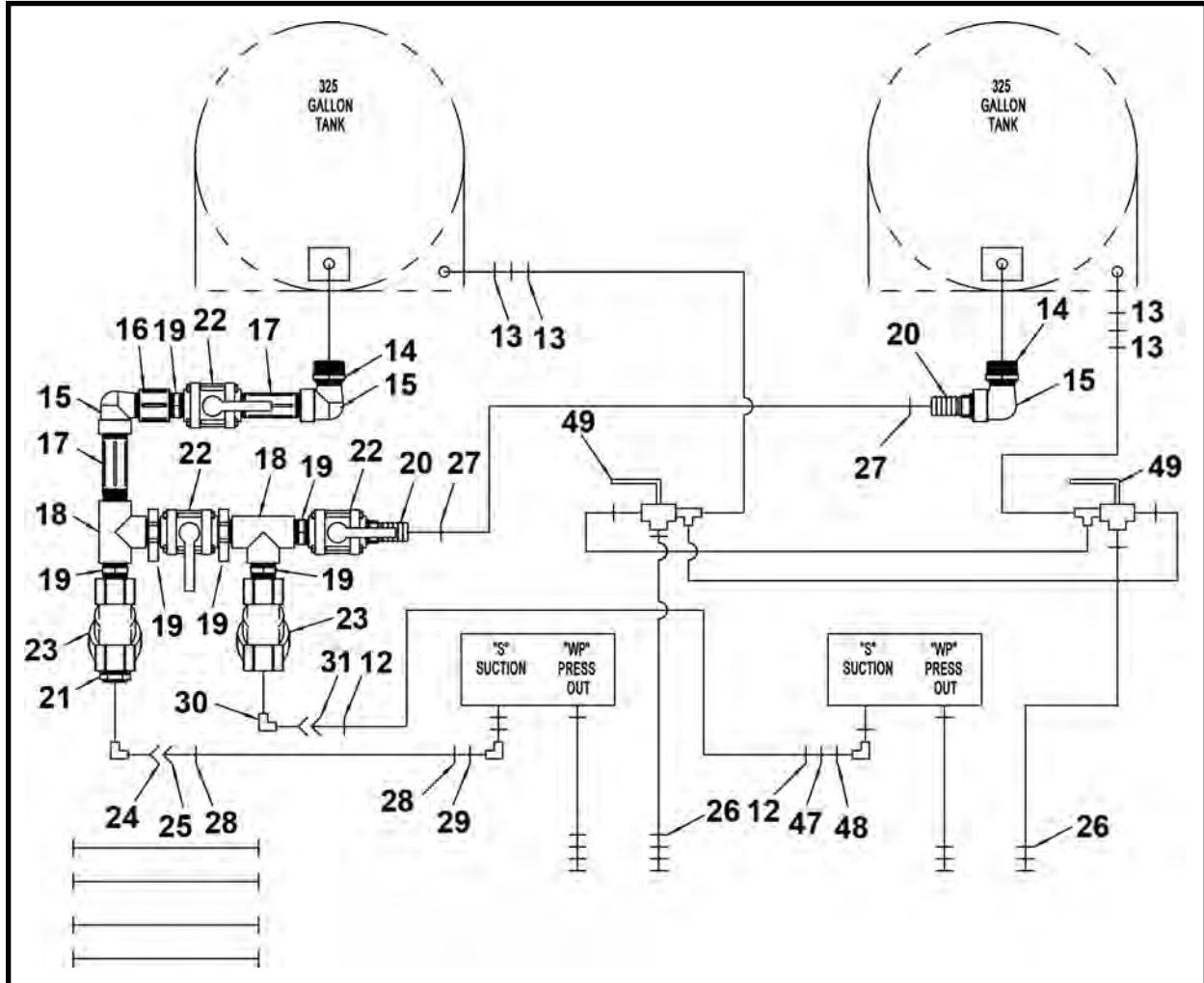


ITEM	QTY	PART NO.	DESCRIPTION
23	2	P0258-012	STRAINER, Line 1-1/2
24	1	P0100-122	COUPLER, Cam & Groove
25	1	P0100-121	COUPLER, Cam & Groove
26	2	P0302-102	CHECK VALVE
27	2	P0201-127	T-CLAMP
28	2	P0201-205	T-CLAMP
29	1	P0423-124	ADAPTER, Hose

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HYDRAULICS & WATER ASSEMBLY, A08240A

2325B/E (SN FA48835F-02 & AFTER)



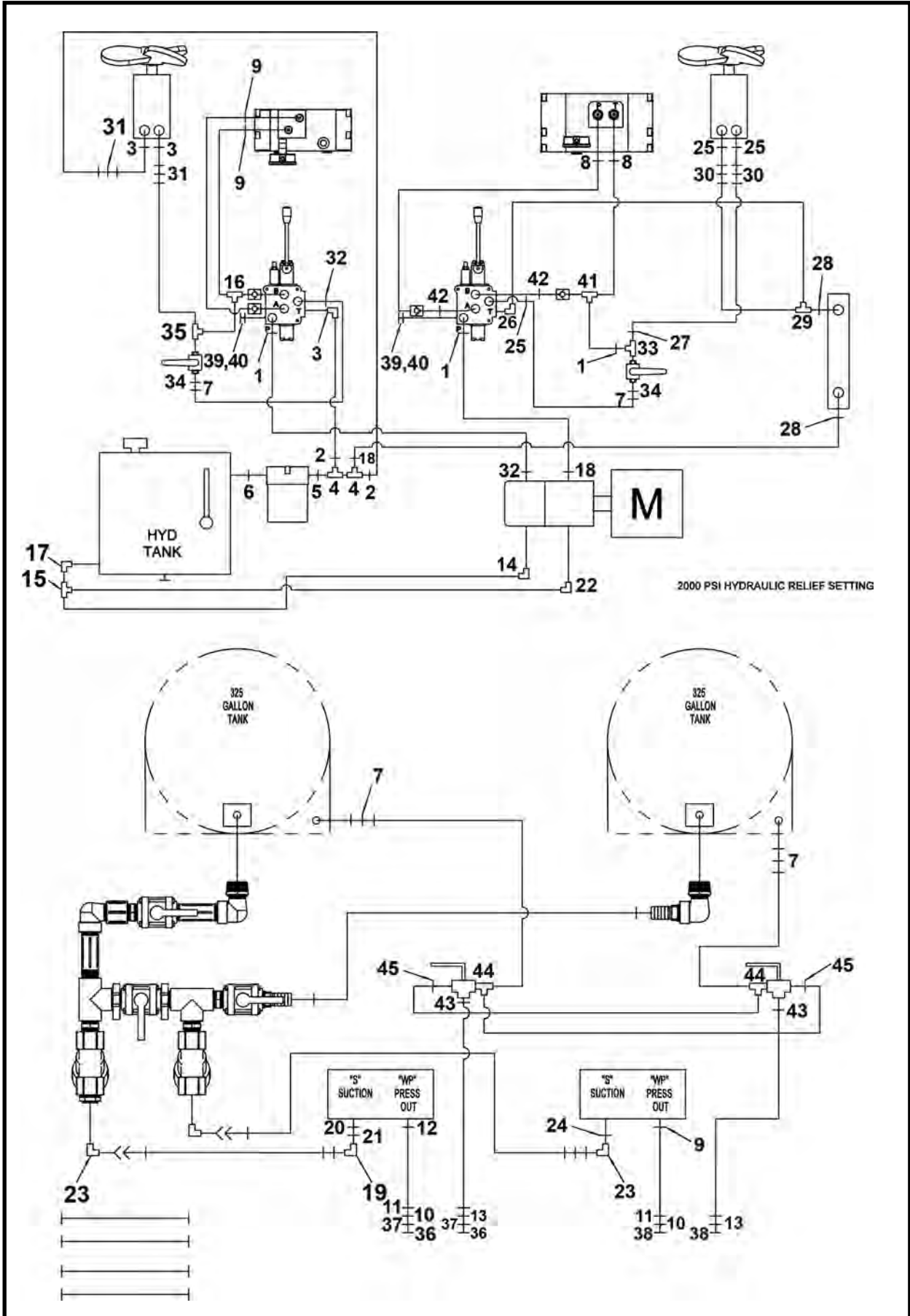
ITEM	QTY	PART NO.	DESCRIPTION
30	1	P0258-084	CAMLOCK, Male
31	1	P0258-085	CAMLOCK, Female
32	1	P0304-347	MOTOR
33	4	P0040-016	WASHER, Hardened Flat 1
34	1	P0304-332	MOTOR
35	4	P0040-008	WASHER, Hardened Flat 1/2
36	4	P0013-08A-000	NUT, Nyloc 1/2 UNC
37	4	P0031-08-007	SCREW, Socket Head Cap 1/2 UNC x 1
38	2	P0302-801	VALVE, Ball
39*	1	A08241A	KIT, Hydraulic Fitting
40*	1	A08324A	KIT, Hydraulic Hose
41	100 QT	P0126-038	OIL, Hydraulic Duragard AW-68
42	2	P0302-810	CHECK VALVE
43	6	P0040-005	WASHER, Hardened Flat 5/16
44	2	PM6A-16-1.00	BOLT, Hex M6 x1.00 x 16 10.9
45	2	P0003-05-000	NUT, Hex 5/16 UNC
46	2	P0001-05-004	BOLT, Hex 5/16 UNC x 1
47	1	P0258-087	1 1/2" HOSE BARB
48	1	P0258-086	REDUCER COUPLER 1.5" X 1"
49	2	P0302-512	3 WAY BALL VALVE

QT - Quart

* Refer to this section for parts information.

NOTES

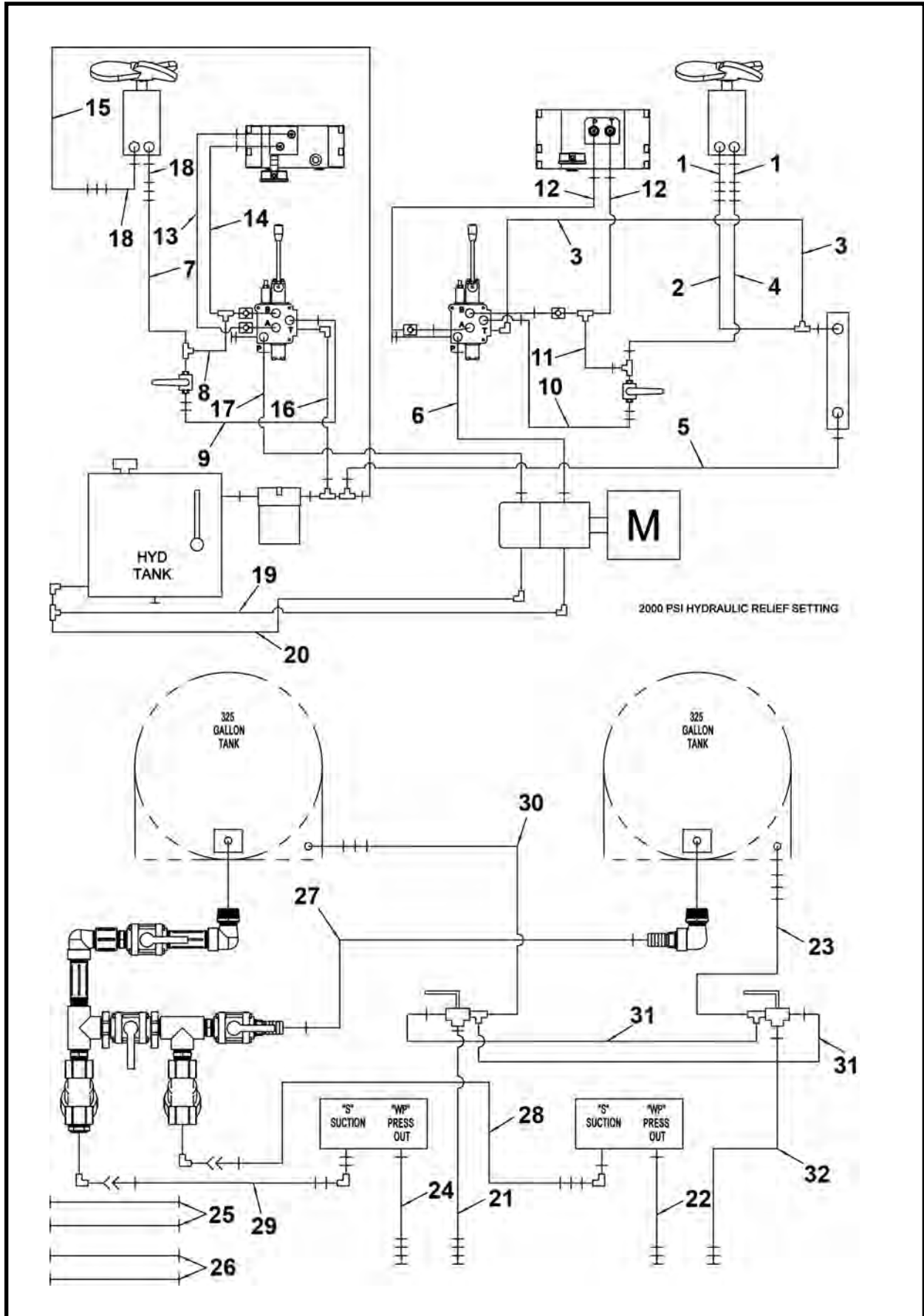
HYDRAULIC FITTING KIT, A08241A
2325B/E (SN FA48835F-02 & AFTER)



HYDRAULIC FITTING KIT, A08241A
2325B/E (SN FA48835F-02 & AFTER)

ITEM	QTY	PART NO.	DESCRIPTION
0	1	A08241A	KIT, Hydraulic Fitting
1	3	P0300-305	FITTING, 08MFFOR-08MB
2	2	P0300-375	FITTING, #8 MFS X 12 MORB
3	3	P0300-302	FITTING, 08MFFOR-10MB90
4	2	P0300-536	FITTING, 12MB-12FB-12FB
5	1	P0300-658	FITTING, 20MB-12FB
6	1	P0300-368	FITTING, 20-20 ADAPTER
7	4	P0300-325	FITTING, 8MJ-8MJ BULKHEAD
8	2	P0300-881	FITTING, 08MFFOR-12MBSPP
9	3	P0300-689	FITTING, 08FFOR-08MBSPP
10	2	P0300-868	FITTING, 10MJ-10MJBKHD
11	2	P0300-873	FITTING, 10FJ-08MJ
12	1	P0300-724	FITTING, 06MFFOR-06MBSPP
13	2	P0300-567	FITTING, 10MJ-08MPBKHD
14	1	P0300-589	FITTING, 16MFFOR-12MB90
15	1	P0300-551	FITTING, 20MFFOR-20FFORX-20MFFOR
16	1	P0300-318	FITTING, 08MFFOR-08FFORX-08MFFOR
17	1	P0300-620	FITTING, 20MFOR-20MB90
18	2	P0300-580	FITTING, 10MFS-12MORB
19	1	P0300-072	FITTING, 16FP-16FP90
20	1	P0300-719	FITTING, 12MBSPP-BONDED SEAL
21	1	P0300-882	FITTING, 16MP-12MBSPP
22	1	P0300-371	FITTING, 16MFFOR-16MB90
23	2	P0300-090	FITTING, 16MP-16MP90
24	1	P0300-277	COUPLER
25	3	P0300-385	FITTING, 10MFFOR X 10MB
26	1	P0300-383	FITTING, 10MFS X 10MORB-90
27	1	P0300-892	FITTING, 10MFFOR-8MB
28	2	P0300-886	FITTING, 12MFFOR-16MBSPP
29	1	P0300-588	FITTING, FS6602-12-12-12
30	2	P0300-903	FITTING, 10MFFOR-10MFFOR-BKHD90
31	2	P0300-595	FITTING, 08MFFOR-08MFFOR-BKHD
32	2	P0300-300	FITTING, 08MFFOR-10MB
33	1	P0300-688	FITTING, 08MB-08FB-08FB
34	2	P0300-332	FITTING, 08OR
35	1	P0300-535	FITTING, 08MFOR-08MB-08MFOR
36	2	P0300-126	TUBE, 3/8 OD x 9/16-18 Thread
37	2	P0300-147	FITTING, 10FJ-6MJ
38	2	P0300-140	TUBE, 5/8 OD x 7/8-14 Thread
39	2	P0300-272	FITTING, 4 MJ X 08 MB
40	2	P0300-259	TUBE, 1/4 OD x 7/16-20 Thread
41	1	P0300-422	FITTING, 10MFFOR-10FFORX-10MFFOR
42	2	P0300-900	FITTING, 8MB-10FB
43	2	P0300-826	FITTING, 8MP-8MJBKHD
44	2	P0300-927	FITTING, 08MJ-08MP-08MJ
45	2	P0300-053	FITTING, 8MJ-8MP

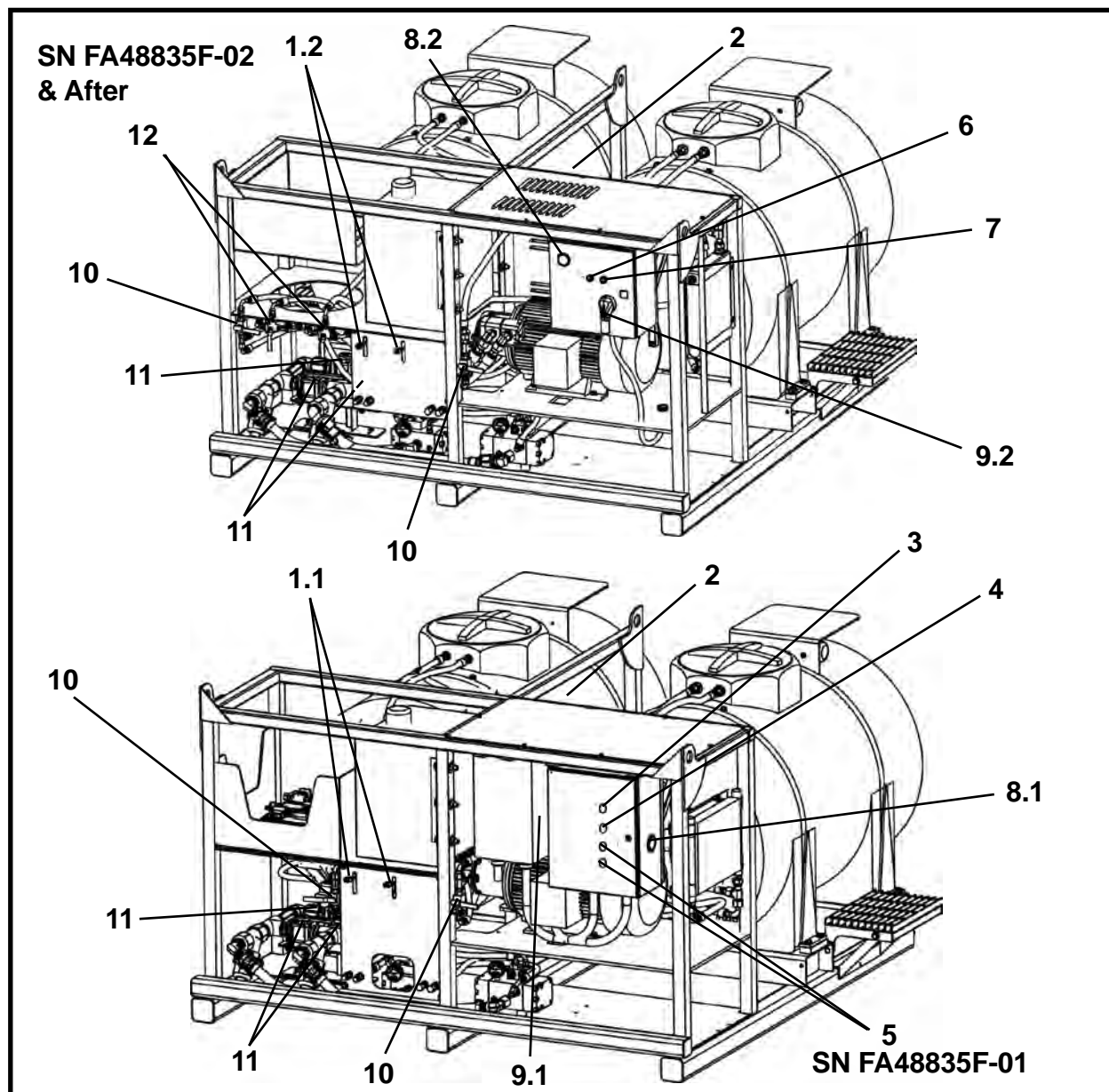
HYDRAULIC HOSE KIT, A08324A
2325B/E (SN FA48835F-02 & AFTER)



HYDRAULIC HOSE KIT, A08324A
2325B/E (SN FA48835F-02 & AFTER)

ITEM	QTY	PART NO.	DESCRIPTION
0	1	A08324A	KIT, Hydraulic Hose
1	2	A09877A-039	HOSE ASSEMBLY 5/8 x 39
2	1	A09876A-048	HOSE ASSEMBLY 5/8 x 48
3	1	A09876A-064	HOSE ASSEMBLY 5/8 x 64
4	1	A09881A-078	HOSE ASSEMBLY 5/8 x 78
5	1	A09876A-069	HOSE ASSEMBLY 5/8 x 69
6	1	A10359A-031	HOSE ASSEMBLY 1/2 x 31
7	1	A10324A-070	HOSE ASSEMBLY 1/2 x 70
8	1	A10324A-037	HOSE ASSEMBLY 1/2 x 37
9	1	A09853A-040	HOSE ASSEMBLY 1/2 x 40
10	1	A09853A-021	HOSE ASSEMBLY 1/2 x 21
11	1	A09873A-015	HOSE ASSEMBLY 1/2 x 15
12	2	A09873A-027	HOSE ASSEMBLY 1/2 x 27
13	1	A10324A-017	HOSE ASSEMBLY 1/2 x 17
14	1	A10324A-014	HOSE ASSEMBLY 1/2 x 14
15	1	A10324A-031	HOSE ASSEMBLY 1/2 x 31
16	1	A10372A-035	HOSE ASSEMBLY 1/2 x 35
17	1	A10324A-034	HOSE ASSEMBLY 1/2 x 34
18	2	A09912A-039	HOSE ASSEMBLY 1/2 x 39
19	1	A09875A-039	HOSE ASSEMBLY 1 x 39
20	1	A09984A-039	HOSE ASSEMBLY 1 x 39
21	1	A10075-036	HOSE ASSEMBLY 1/2 x 36
22	1	A10324A-032	HOSE ASSEMBLY 1/2 x 32
23	1	A10361A-078	HOSE ASSEMBLY 1/2 x 78
24	1	A10390A-028	HOSE ASSEMBLY 3/8 x 28
25	2	A09908A-018	HOSE ASSEMBLY 1/2 x 18
26	2	A10311A-018	HOSE ASSEMBLY 3/8 x 18
27	1	P0201-239-041	HOSE, PVC Clear Water Suction 1-1/2 ID x 41
28	1	P0201-239-028	HOSE, PVC Clear Water Suction 1-1/2 ID x 28
29	1	P0201-238-024	HOSE, PVC Clear Water Suction 1 ID x 24
30	1	A10361A-040	HOSE ASSEMBLY 1/2 x 40
31	1	A10361A-027	HOSE ASSEMBLY 1/2 x 27
32	1	A10075A-048	HOSE ASSEMBLY 1/2 x 48

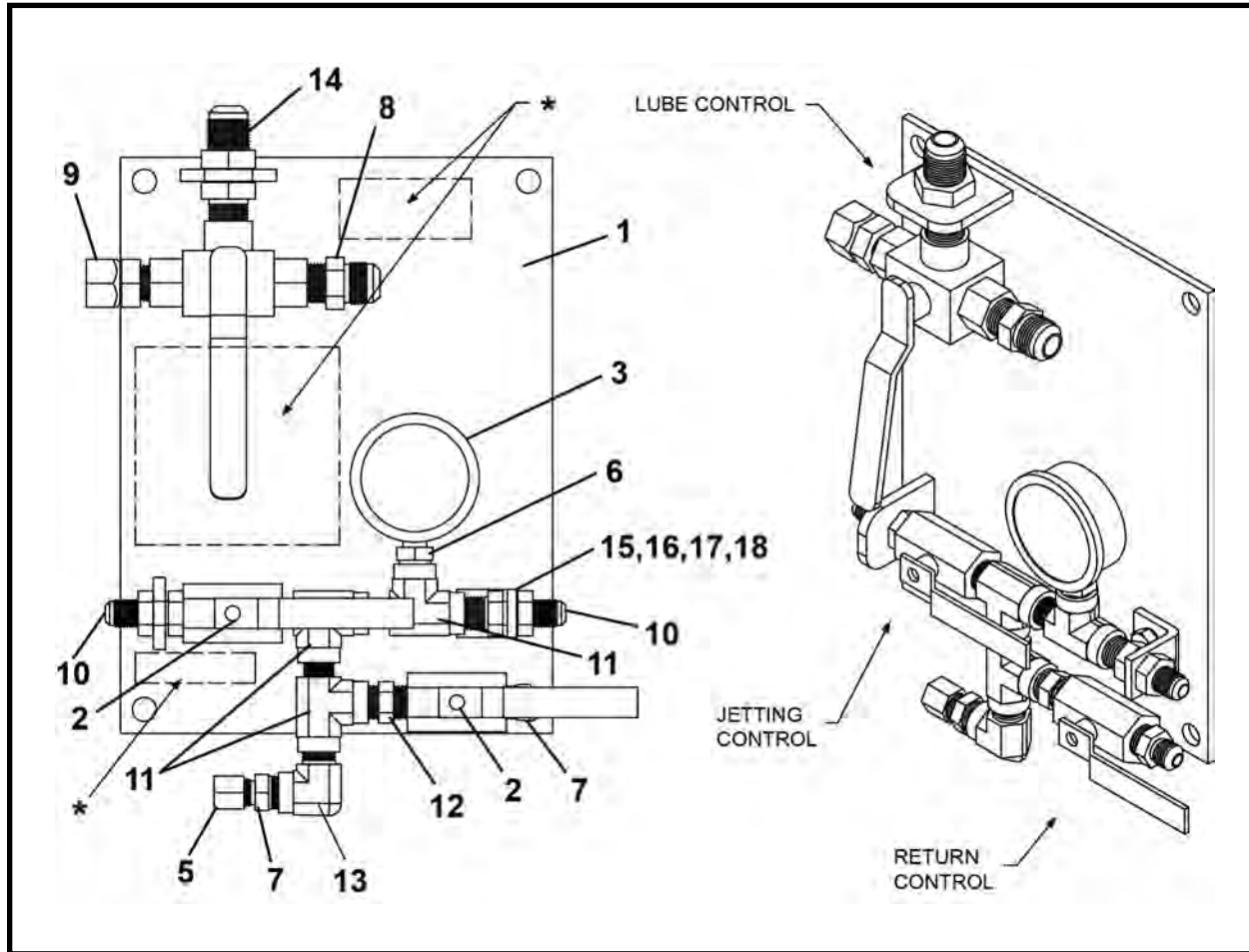
OPERATOR CONTROLS 2325B/E



ITEM	QTY	PART NO.	DESCRIPTION
1.1	2	*P0302-696	VALVE, Single Detent (SN FA48835F-01)
1.2	2	P0302-803	VALVE, Single Detent (SN FA48835F-02 & After)
2	1	P0301-105	GAUGE, Filter Indicator
3	1	P0056-129F	LIGHT, Red Pilot (Fault Light) (SN FA48835F-01)
4	1	P0310-412F	PUSH BUTTON, Illuminated (SN FA48835F-01)
5	2	P0310-417F	PUSH BUTTON, Non-Illuminated (SN FA48835F-01)
6	1	P0310-412F	PUSH BUTTON, Illuminated Start (SN FA48835F-02 & After)
7	1	P0310-411F	PUSH BUTTON, Illuminated Stop (SN FA48835F-02 & After)
8.1	1	P0310-260	HOURMETER (SN FA48835F-01)
8.2	1	P0251-410	HOURMETER (SN FA48835F-02 & After)
9.1	1	P0310-288	SWITCH, Disconnect (SN FA48835F-01)
9.2	1	P0251-482	SWITCH, Disconnect (SN FA48835F-02 & After)
10	2	P0302-801	VALVE, Mixer Control
11	3	P0258-006	VALVE, Port 1-1/2
12	2	P0302-512	VALVE, Ball Three Way (SN FA48835F-02 & After)

* SN FA48835F-01 can be replaced with P0302-803. Contact your Akkerman Aftermarket Support representative for details.

JETTING & LUBRICATION SHAFT CONTROL, A43749A



ITEM	QTY	PART NO.	DESCRIPTION
0	1	A43749A	JETTING & LUBRICATION SHAFT CONTROL
1	1	A43757A	MOUNT, Pit Control
2	2	P0302-507	VALVE, Ball 3/8" 2,000 PSI
3	1	P0301-100	GAUGE, Pressure 5000 PSI
4	1	P0302-802	VALVE, Ball 3-Way
5	1	P0300-126	FITTING, 06FJ-CAP
6	1	P0300-093	FITTING, 06MP-04FPS
7	2	P0300-130	FITTING, 06MJ-06MP
8	1	P0300-142	FITTING, 10MJ-08MP
9	1	P0300-399	FITTING, 08MP-10FJX
10	2	P0300-568	FITTING, 6MJ-6MPBKHD
11	3	P0300-569	FITTING, 6MP-6FP-6FP
12	1	P0300-570	FITTING, 6MP-6MP
13	1	P0300-571	FITTING, 6MP-6FP90
14	1	P0300-567	FITTING, 10MJ-8MPKBHD
15	1	A43754P	BRACKET, Pipe Lube Control
16	1	P0001-06-004	BOLT, Hex 3/8 UNC x 1
17	1	P0040-006	WASHER, Flat 3/8
18	1	P0003-06-000	NUT, 3/8 UNC

* Decal 1250-917

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CALIFORNIA

Proposition 65 Warning

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